BALTIC GEODETIC COMMISSION
SPECIAL PUBLICATION No 1

# MEASURING OF SEVEN BASE LINES OF THE BALTIC POLYGON

EXECUTED

IN THE YEAR 1929

BY

ILMARI BONSDORFF

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VALTIONEUVOSTON KIRJAPAINO

## ERRATA.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Page | 2 | line | 12: | for | NÖRLUND, ROSÈN | read | ROSÉN. |
| » | 2 | » | 13: | » | Kopenhagen | » | Potsdam. |
| » | 10 | » | 25: | » | 10.5 m | » | 9.5 m. |
| » | 10 | » | 28: | » | 2.5 m | » | 1.5 m. |
| » | 12 | » | 21: | » | 1922 | » | 1921. |
| » | 14 | » | 35: | » | Santahamina | » | Helsinki. |
| » | 15 | » | 22: | » | Santahamina | » | Helsinki. |
| » | 24 | » | 13: | » | L resp. $L_0$ | » | $L_{15}$. |
| » | 41 | » | 5—6: | » | 48—75 | » | 47—74. |
| » | 86 | » | 20: | » | $\pm 9$ $\pm 9$ $\pm 5$ | » | $\pm 10$ $\pm 7$ $\pm 3$. |
| » | 89 | » | 14: | » | 181.6 mm | » | 181.8 mm. |
| » | 89 | » | 25: | » | —0.85 mm | » | —1.05 mm. |
| » | 94 | » | 14: | » | comparation | » | comparison. |
| » | 94 | » | 16: | » | comparations | » | comparisons. |

## Contents.

# Introduction.

The Circumference of the Baltic polygon is about 2 300 kilometres. As the neighbouring base lines should be joined together by about 15 triangles, we have to fit in 12 base lines in the polygon. Indeed there are fourteen such, already measured or projected, *viz.*, those of Tallinn, Ösel, Libau, Sveksna, Gumbinnen, Szubin, Berlin, Strahlsund, Lolland, Amager, Öland, Enköping, Åland and Hanko. The base lines are not quite equally distributed in the polygon, the greatest number of triangles, 30, being found between the base lines of Enköping and Öland; between Gumbinnen and Sveksna there are only 8 triangles, between Libau and Sveksna there are 11.

The following 9 of these base lines have been measured earlier: Tallinn, Libau, Gumbinnen, Szubin, Berlin, Amager, Öland, Åland and Hanko, wherefore there remain 5 base lines to be measured in the nearest future.

For the adjustment of the polygon it is very important that the base lines in it are so exactly comparable to each other, that they can be considered absolutely correct by the adjustment.

However, there is reason to doubt, that the base lines measured in different countries, at different times and by different observers, using different kinds of apparatus, satisfactorily fill this condition. As examples of this, mention may be made of the experience the Germans have had of the changing of constants of BESSEL's apparatus, moreover, of the measurements on the base line of Amager, which have called forth doubts about the constancy of the base line in the course of decades, further the inaccurate knowledge of the length of the invar wires, used nowadays in measuring, experienced also during the work of which an account is given here, owing to the fact, that the results of the International Standard Bureau, received with only some months' interval, differ considerably from each other, and finally, the influence of the observers on the result, an influence which is *inter alia* mentioned in »Jahresbericht des Reichsamts für Landesaufnahme, 1921—1922» p. 60.

The surest means of achieving comparable measurements of the base lines is no doubt for all the base lines in question to be measured as simultaneously and uniformly as possible, thus by the same kind of apparatus and the same observers continuously. Of course this mode of procedure will limit the number of base lines to be measured, as the work has to be done during a limited time, in the course of one summer season.

At the Congress of the Baltic Geodetic Commission in Stockholm, 1926, a proposal for uniform measurement of the base lines of the Baltic polygon at the expense of the Commission was put forward. A preparatory Committee was formed, consisting of Messrs KOHLSCHÜTTER, NÖRLUND, ROSÉN and the present writer. The Committee met on the 13th—14th November in Copenhagen, Mr. ROSÉN acting as chairman and the writer as secretary. The Committee decided to propose, that during the summer season of 1929 the same observers with the same apparatus should measure 7 base lines, situated as equidistantly as possible in the Baltic polygon. These measurements were to be made by 3 observers with at least 4 invar wires. The countries interested should be requested to prepare the base lines for the measurement and to give the expedition the necessary assistant personnel. The expenses of the work were calculated to amount to 4 000 dollars.

At the Conference in Riga, 1927, the proposals of the Committee were put forward and the following resolutions were passed:

»Folgende endgültige Beschlüsse werden gefasst:

1. Im Sommer 1929 werden folgende 7 möglichst gleichmässig über den Ostseering verteilten Grundlinien mit demselben Basisapparat und von denselben Beobachtern gemessen: Öland, Uppland, Hanko, Ösel, Schwecksznie, Schubin, Loland.
2. Die Grundlinie auf Öland wird, wenn möglich, vor und nach der Messung der übrigen Grundlinien gemessen, um die Veränderungen der Drahtkonstanten festzustellen.
3. Auch wird die Versuchsbasis bei Helsinki bei dieser Gelegenheit gemessen.
4. Die Kommission bestimmt eines ihrer Mitglieder zum Leiter der Messung und dazu 4 Beobachter.
5. Die Reisekosten und Tagegelder des Leiters und der Beobachter ebenso wie die Transportkosten der Apparate trägt die Kommission. Die Tagegelder werden auf 5 $ pro Tag berechnet.
6. Die Kommission bewilligt für diese Arbeit 5 000: — $.

7. Die Messungen werden mit mindestens 4 Drähten, die vor- und nachher in Breteuil geeicht werden, ausgeführt. Jede Grundlinie wird, wo möglich, in einem Stück mit jedem Draht hin und zurück gemessen.

8. Wenn der Apparat Prof. VÄISÄLÄS für Längenmessung mittels Interferenz zur Zeit der Messungen fertiggestellt ist, wird eine tägliche Vergleichung der Drähte mit dem Normalmeter ins Auge gefasst. Zu den Vorarbeiten gehört in diesem Falle auch das Einrichten der nötigen Pfeiler bei jeder Grundlinie.

9. Die betreffenden Staaten werden gebeten die vollständige Vorbereitung der Grundlinien für die Messung, wie auch die Stellung des Hilfspersonals, darunter eines zweiten Protokollführers, zu übernehmen.

Zum Leiter des Unternehmens wird der Generalsekretär gewählt.

Herr von GÖSSNITZ spricht folgenden Wunsch aus: Da keine Grundlinie in Deutschland gemessen wird, wäre es erwünscht, dass einige Herren aus Deutschland als Zuschauer bei den Messungen der Grundlinie in Polen und Dänemark zugelassen werden.

Herr NÖRLUND heisst die deutschen Herren in Dänemark willkommen».

At the Conference in Berlin, 1928, the leader of the work gave an account of the progress of the preparations, which showed that the preparatory work had progressed so far, that it seemed certain the work could start in due course. The Commission accepted the following proposals for the detailed organizing of the work:

»Der Leiter der Basismessungsarbeiten der Kommission, Herr BONSDORFF, berichtet über den Stand der Vorbereitungen für die Grundlinienmessungen im Jahre 1929. Er stellt fest, dass auf allen in Frage kommenden Grundlinien die Vorarbeiten so weit fortgeschritten sind, dass die rechtzeitige Ausführung sichergestellt ist. Er schlägt vor,

1. dass bei den Messungen 8 JÄDERIN-Drähte benutzt werden,
2. dass die einzelnen Staaten doppeltes Hilfspersonal stellen und
3. dass die Messung in folgender Ordnung stattfindet:

| | | |
|---|---|---|
| Eichung | Breteuil | 1929 April |
| Eichung | Helsinki | » Mai |
| Messung | Schubin | » Mai |
| Eichung | Warschau | » Mai |

| | | |
|---|---|---|
| Messung Szwiecksznie | 1929 | Juni |
| Messung Ösel | » | Juni |
| Eichung Helsinki | » | Juni |
| Messung Hanko | » | Juli |
| Messung Enköping | » | Juli |
| Messung und Eichung Öland | » | August |
| Messung Lolland | » | August |
| Eichung Breteuil | » | September |

Dieser Vorschlag wird einstimmig angenommen».

As shown by the above account, 7 base lines belonging to the polygon, were chosen for measuring together. I desire to state the following motive for this choice. Of the 14 earlier mentioned base lines, those of Berlin and Amager are already built over so that no measurement on these lines could come into question. The base line of Gumbinnen is so near to Sveksna, that the measurement of this line would hardly serve the purpose desired. The base lines of Åland, Tallinn and Libau again have recently been measured with Finnish invar wires and exactly according to the method projected for the measurements of the Commission, and these measurings are joined to the standard base of Helsinki, wherefore there is good reason to suppose that they are fully comparable to the measurements to be carried out under the auspices of the Commission. The measuring of these lines would thus have been less necessary. The reconnaissance of the base line of Strahlsund was not quite ready in 1929 and moreover it is situated at a distance of only a few triangles from the base line of Lolland. Thus there remain only the above mentioned 7 base lines. If we take for granted that through the standard base of Helsinki the base lines of Åland, Tallinn and Libau are fully comparable to the measurings of the Commission, we get 10 base lines in the polygon, which can all be considered correct by the adjustment. As yet it is impossible to calculate exactly the number of the connecting triangles, as part of the triangle net is not yet definitely reconnoitred. The following estimated figures will not in any case differ greatly from the right ones:

| | | |
|---|---|---|
| Öland—Enköping | 30 | triangles |
| Enköping—Åland | 18 | » |
| Åland—Hanko | 14 | » |
| Hanko—Tallinn | 9 | » |
| Tallinn—Ösel | 13 | » |
| Ösel—Libau | 14 | » |

| | | |
|---|---|---|
| Libau—Sveksna | 11 | triangles |
| Sveksna—Szubin | 23 | » |
| Szubin—Lolland | 29 | » |
| Lolland—Öland | 32 | » |

The farthest distances are Öland—Enköping 400 km, Szubin—Lolland 500 km and Lolland—Öland 400 km. In view of the fact that the triangulation from Szubin to Berlin is completed and the signals for observation destroyed, and that the greatest part of the triangulation in Sweden is likewise by now ready, it was impossible to fit in here base lines closer to each other.

## The Measuring Apparatus.

*The Invar Wires.*

At the Conference in Berlin it was decided to use 8 invar wires in measuring the base lines, in order to get a result as independent as possible of the changes in length of the wires. Experience has shown that by measuring with invar wires the precision is so great, that the errors due to the measuring are much smaller than the errors due to the changes in length of the wires between measuring and standardization. The greater the number of wires in use, the easier it is to eliminate the errors due to accidental changes, and the more exact the results to be expected. However, there is reason to suppose, that the wires drawn from the same piece of invar can change their lengths at the same time and to the same extent because of the unstable structure of the invar alloy. This refers especially to wires, whose temperature coefficients are very small, as is the case with the wires, prepared by CARPENTIER during the last decades. The errors resulting from such changes do not of course depend on the number of wires, drawn from the same piece, with which measurings are made at the same time. At any rate, this error will to some extent be eliminated if wires, drawn from different pieces at different times, are used; in such case it is less probable that they will change at the same time and to the same extent. With this in mind, I chose for the work 4 Finnish wires, Nos 634—637, and four Danish ones, Nos 673—683. According to certificates from Breteuil the temperature coefficients of the abovementioned Finnish and Danish wires are different (see page 23), so that I thought it evident that they were drawn from different pieces. In this a serious mistake was

made. As will later on be shown, a wrong value was given at Breteuil for the temperature coefficient of the wires 634—637. Not till the measurings were completed, did it appear, that the temperature coefficient for the wires 634—637 was exactly the same as for the wires 673—683, and that all these wires were drawn from the same piece. Of course, it is impossible to state if the simultaneous change of all the wires, of which an account is given later on, would have taken place also if wires drawn from different pieces had been used.

*The Stretching Apparatus.*

In measurements with invar wires the stretching apparatus are of especially great importance. It is very important that the stretching of the wires be absolutely exact and altogether independent of the observers. This can be fully achieved only when the wheels, around which run the strings joining the weights and the wires, are absolutely sensitive. In the same way it is necessary, that it should be possible rapidly to give the stretching apparatus such a position that the scale of the wire comes into its proper place and remains securely there without the observer needing to touch the wire. As soon as the observer is forced to touch the wire even slightly there is a danger of his changing the tension, by pulling or pushing the wire.

The following, very simple stretching apparatus, which has been used in Finland, fills these conditions fairly well as it seems to me.

The stretching apparatus consists of a two-shafted pole, the lower end of which is fitted with an iron spike. Between the shafts there is a movable metal holder, from which the supporter of the wheel hangs free. In this supporter the wheel rests on a double ball-bearing . Over the wheel runs the steel tape which joins the wire and the weight together. This tape is 4 mm in breadth and 0.2 mm thick. The assistant places the lower end of the stretching apparatus about 50 cm from the measuring mark and drives the iron spike firmly into the earth. By moving the upper end of the apparatus with his hands, he puts it into such a position, that the scale of the wire lightly touches the measuring mark. After practising for some hours the inexperienced worker learns to keep the stretching apparatus so exactly and steadily in place, that the observer need not touch the wire, at all.

The diameter of the wheel is 15 cm. Experiments in Helsinki showed, that the wheel, charged with 10 kgs of weight, is sensitive to 10 gr of overweight. This sensitiveness is fully sufficient, taking into consideration that 10 gr in weight changes the effective length

of the wire by 0.010 mm and that the errors arising from inaccuracy of tension are for the most part accidental.

The weights are of lead with a nickel surface. The bearing hook is centrical.

I mentioned before, that for joining the weights to the measuring wire a steel tape is used, instead of the customary twisted straps of different stuffs. This presents the great advantage, that twisting of the wire is hereby avoided.

*Poles and Tripods.*

On all base lines where it was possible, fixed poles driven into the earth were used instead of portable tripods. Portable tripods were used only on Öland and Lolland, where the ground is not suitable for using poles. The poles are 10 cm in diameter and 1 ½ m high and are driven down 60 cm into the ground, so that 90 cm remain above the surface. The poles are supported on three sides by somewhat thinner stakes, driven into the ground. During the measuring a nickel plated cylinder button, the upper end of which is rounded and supplied with fine cross lines is fixed at the head of each pole. To this button is attached a 2 cm long needle, which is driven into the head of the wooden pole. During the measurings these buttons are transferred from pole to pole, if there is not a sufficient supply for the whole base line. The position of the button is marked at the end of the pole by an aniline colour pencil. Through using these poles the measuring can be done along the whole base with each wire separately, a procedure which ensures the results given by different wires being as independent of one another as possible. If portable tripods were used such a way of measuring would become rather laborious, because it would be necessary to perform the levelling and alignment of the tripods for every wire separately. Where wood is easily obtainable the placing of poles will be neither expensive nor take too much time.

The Swedish portable tripods used on the base line of Öland, are rather practical. A wooden cylinder is placed on a tripod by means of a crank, which moves on ball bearings at both ends. This cylinder is 25 mm high and its diameter is 10 cm. When the tripod is put in place, a measuring button of the same type as used on the poles is placed on the correct point on the cylinder. The final adjusting can thus be made without moving the whole apparatus.

The Danish portable tripods, which were used on Lolland, are fitted with screws, moving in perpendicular directions and are very good for use on level, well prepared ground.

Of other measuring apparatus I will only mention the small universal instruments used for centring. In every country local instruments, especially of HILDEBRAND's make, were used. The plumbing apparatus used in Lolland and Öland were of a usual type, wherefore it is unnecessary to describe them.

In levelling, as well as in alignment of the lines, local instruments were used, which all answered the purpose very well.

## The Organization of Measurements.

The measurements were made in the following order. When the base line has been furnished with poles and aligned, the measuring buttons are placed on the first 20—30 poles on points marked out beforehand. The observers unreel the wire from the reel, and fasten chains to its ends. Two field aids attend to the stretching apparatus and two take charge of the weights, each pair taking up their position at their pole. The stretchers set the pointed ends of their apparatus into the ground and the weight-carriers by order of the observer at the same time fasten the weights to the steel tapes, to the other ends of which the observers have fastened the wire. In accordance with the instructions of the observer, the stretchers place the upper ends of their apparatus in such a position that the scale lightly touches the division of the button. The front observer places the wire so, that the suitable part of the scale falls on the mark, and after that both observers at the same time read the scales, repeating the readings one after the other to the recorder, who stands in the middle. The readings are thrice repeated at the different positions of the scale. The front observer may perhaps lightly support the wire, whereas the rear observer lets the wire run quite freely, so that the tension of the wire is not changed by influence of the observer. At the word of command the weight-carriers simultaneously loosen their weights from the steel tape and the observers loosen the wire. The whole measuring staff move to the following interspace, the weight-carriers carrying the weights, the stretchers the stretching apparatus and the observers the wire. Two assistants walk with the staff and change the measuring buttons from the poles left behind to the poles further on.

Six assistants are therefore needed for the measurements, besides two observers and one recorder. In Lithuania, Finland and Denmark soldiers were used as assistants, in the other places paid workmen. Each pair of observers had got their own staff of assistants.

except on Öland, where during the height of the harvest it was impossible to get more than one set of assistants.

The readings were performed in such manner that the front observer drew the wire towards him between the three readings. In my opinion it would be better to draw it in turn and push it in turn, so that the inaccuracy in the tension of the wire could be better eliminated, but I wanted to work by the same method as is employed at Breteuil for standardization of the wires.

The temperature was noted at the beginning and the end of the measuring. If rapid changes showed such to be necessary, it was noted more frequently.

The levelling on the base lines, on which poles were used, was as a rule carried out once during the time of measuring forwards and backwards. In general we tried to achieve the exactness of 1 mm in levelling. On the base line of Enköping, where considerable differences of elevation appear, precise levelling was carried out, and where there were very considerable differences, the measuring was done three times. In Lolland a Danish levelling apparatus, especially constructed for the purpose was used; with this apparatus the elevation can be read directly in 100 000 parts of distance.

## Description of the Base Lines.

As mentioned in the introduction, the following base lines were measured:

Szubin in Poland.
Sveksna in Lithuania.
Ösel in Estonia.
Hanko in Finland.
Enköping in Sweden.
Öland in Sweden.
Lolland in Denmark.
Potsdam standard base in Germany and
Helsinki standard base in Finland.

Below will be given a short account of the situation, character and preparation of the base lines.

*The base line of Szubin* (5.1 km) is situated to the South-West of Bydgoszcz (earlier Bromberg) near the town of Szubin. It belongs to the first order triangulation, carried out in East Prussia in the years 1899—1902, and was measured in 1903 by the »Reichsamt für Landesausnahme» both with BESSEL's apparatus and with invar

wires. The results of the measurement, as well as the description of the base line, are published in the work »Die Preussische Landesvermessung. Hauptdreiecke. Neue Folge. I Teil». The base line runs entirely in cultivated clay and mould ground in the direction East-West. The ground is in general level, the greatest difference in elevation between two successive poles is 100 cm.

The setting of the poles and preparation of the base line was carried out by the students of the Technical High School of Warsaw under the guidance of Professor WARCHALOWSKI. As the base line is 5 119 m in length, the poles were placed with an average interspace of 24,035 m, so that it should not be necessary to measure the remainder. On the base line, near its Western end, a clay hut was built in 1904. Prof. WARCHALOWSKI had such big openings made in the walls of the hut, that it was possible to measure through same.

*The base line of Sveksna* (6.5 km) is situated in the neighbourhood of the like-named country town, about 40 km South-East of Klaipeda (Memel). It runs along a hard highroad from East to West, the East end being close by the church of Sveksna. Only for a couple of hundred m in the middle of the base line do some poles lie at the side of the road.

The Topographical Section of the General-Staff in Lithuania has reconnoitred and prepared the base line in 1928—1929. Before that, the base line had not been measured. On the base line were placed very steady poles at a distance of 24 m from each other. At the Western end was left a remainder of 10.5 m, which was measured by 8 m invar wire and 4 m invar tape of the Lithuanian General-Staff. For this purpose an extra pole was built at the end of the base line at a distance of 2.5 m from the terminal point and 8 m from the last normal pole. Furthermore a comparator was built at the East end in order to compare the 8 m wire with the 24 m wires.

The base line runs on level ground, the greatest difference in elevation being 85 cm.

The terminal points are some ten metres at the side of the highway, where there is a curve of the road. The main centres are in big cement blocks, sunk into the ground. On them blocks of cement are erected on the ground, rising about ½ m above the surface. To these pieces are fixed auxiliary centres which were used in our measuring. At the terminal points high signals are built, of which the Eastern one belongs to the net of the I order triangulations of Lithuania and the Western one is an auxiliary point.

*The base line of Ösel* (6.3 km) is situated on the island of Ösel about 14 km to the North-West from the seaside place Arensburg.

It runs in the direction South-North along a level juniper heath, where a line about 2 m in breadth has been cleared. The ground consists of limestone, covered by a 20—30 cm thick layer of sandy soil. Owing to cavities in the limestone the middle of it is partly boggy.

The base line was reconnoitred and prepared 1928—1929 by Major DOUGLAS by arrangement of the Topohydrographical Section of the General Staff of Estonia. Before that it had not been measured. On the base line the poles are driven into the earth at a distance of 24 metres from each other.

The differences in elevation are very small, the greatest is 85 cm.

The terminal points are marked in big stones which are driven down into the limestone bed.

*The base line of Hanko* (5.9 km) is situated on a sandy tongue of land on stone ground, at about 10 km distance from the seaside place Hanko, and runs from East to West along the railroad about 12 m from the rails. The ground is mainly sandy. At the West end there are big loose stones, of which the most disturbing ones have been blown to pieces. The base line is in general level, the greatest difference in elevation is 119 cm.

The base line was reconnoitred and prepared at the instance of the Finnish Geodetic Institute in 1923 and was measured in the same year. In the summer 1929 it was prepared for measuring under the guidance of Mr. KALAJA, by repairing and renewing the poles remaining from 1923. At the East end there are 2 metres between the last pole and the terminal point, which were measured by steel tape.

The terminal points are marked by big pieces of granite, sunk into the ground.

*The base line of Enköping* (6.9 km) is situated 12 km to the East of the town of Enköping. It runs in the direction South-North along mould fields with a clay substratum. At a distance of 214 interspaces from the North end it makes an angle of 178 ½°. The ground is rather hard, excepting for 600 metres at the Southern part of the base line, which consists of thin-crusted, deep-bottomed bog. Both ends of the base line rise on comparatively high, sand-covered cliffs, the rise at the North end being about 18 metres in 200 metres and at the South end about 6 metres in 70 metres. At the angle the base line also rises on a hill, the rise being 5 m in 100 metres. The greatest difference in elevation is considerable, 328 cm.

The base line was reconnoitred in 1928 by »Rikets allmänna kartverk». The preparations and setting of the poles were carried out in the spring and summer 1929 by the Observator G. A. RUNE.

On the base line were placed very steady poles at a distance of 24 m from each other; with an exception in the case of the above mentioned 600 metres of bog ground. On this ground the usual poles were not considered sufficient, and three big logs were driven down 7 metres into the ground, and their upper ends were joined together by thick boards. As it would have been difficult to build 24 such stages, only 6 were built at a distance of 96 metres from each other. The measuring was performed at this interspace with an invar wire of 96 m length.

The terminal points as well as the angle point were fixed to the rock with brass bolts, in the rounded heads of which were bored holes of a diameter of 16.6 mm. Centring pieces, with which the centres of the holes should be determined, were even being constructed. As these pieces were not ready during the measuring time, the centrings were performed to the edges of the holes.

*The base line of Öland* (6.0 km) is situated in the middle of the island of Öland in the neighbourhood of the country town called Mörbylånga. It runs in the direction South-North on limestone bed, covered with a thin surface of earth. The differences in elevation are very small, the greatest is 100 cm.

The base line was measured in 1922, and is the standard base for the Swedish triangulation. As it was impossible to drive down poles in the limestone, the measuring was carried out with the aid of portable tripods.

On the base line there are marks at the end of every 600 metres, except at the terminal points. It can thus be measured in 10 sections. The marks are in bolts, driven into the limestone.

*The base line of Lolland* (6.8 km) is situated on the island of Lolland, between the towns Saxköbing and Nyköbing, and runs from West to East along an asphalt highroad. The greatest difference in elevation is 68 cm.

The base line was prepared and measured in 1928 by the Danish Geodetic Institute.

The measuring on this base was carried out by means of portable tripods, as it was impossible to drive down poles in the asphalt surface.

The terminal points are marked in brass bolts fixed on cement blocks, driven into the ground. The Eastern terminal point is a little off the road at a turning, the western one is on the road. There are 6 other marks, in addition to the terminal points, so that the base is divided into 7 sections. Six of these are 984 metres long, the seventh one 864 metres in length.

*The standard base of Potsdam* (240 metres) is situated on ground belonging to the Geodetic Institute and runs from East to West. The base line is paved with pieces of brick and covered with a roofing. At the terminal points there are marks both above and below ground. In measuring portable tripods were used.

*The standard base of Helsinki* (720 metres) is situated on the island of Santahamina, at a distance of 5 km from the harbour of Helsinki. The island is formed of a firm sand layer on level rock-ground. This layer of sand is in some places several metres in thickness: in places the rocky substratum appears. The base runs along the island in the direction from North to South through a low pine wood, in which a clearing a couple of metres broad has been cut. On the whole base line permanent poles are placed at a distance of 24 metres from each other.

The northern terminal point is marked in a block of granite, sunk in the sand. This block, which has the shape of a barrel, is 1 ½ m high, its diameter is one metre in the middle and ½ metre at the ends. A piece of brass, in which a hole, with a diameter of 0.2 mm, has been bored to mark out the centre, has been let into the upper end which is ½ metre below the surface. The South end is marked on a piece of brass, fastened to a projecting rock. Moreover, at the southern end, next to the last pole, there is another mark like the one in the sand layer at the northern end.

The base line was constructed in 1921 and has been used as the standard base for the Finnish triangulations.

## The Carrying Out of the Measurings.

The following changes were made in the measuring program, partly before the beginning of the work, partly during the progress of same.

In March 1929 the Director of the Geodetic Institute in Potsdam, Professor E. Kohlschütter, expressed the desire that the standard base of Potsdam should be measured together with the other base lines in as immediate as possible a connection with the standardization at Breteuil. Because of this it was decided to measure Potsdam before the spring standardization at Breteuil, and once more when all the other base lines had been measured.

As the second measuring of Potsdam proved it to be probable that the lengths of all the wires had changed simultaneously, a third measuring was carried out on the standard base of Helsinki in the beginning of September, before the second standardization at Bre-

teuil. In order to localize the change, the base line of Potsdam was measured in November for the third time and the base line of Helsinki for the fourth time after the second standardization at Breteuil. After that the base line of Hanko was measured for the second time and the base line of Helsinki for the fifth time. In addition to the original program there were thus three measurings at Potsdam, three measurings at Helsinki and one at Hanko.

Through the kind assistance of interested institutions I succeeded in getting the following gentlemen as members of the measuring expedition.

U. PESONEN, M. A. Finland, leader of the expedition in my absence.

Ö. BURRAU, M. A. Denmark,

N. JONSSON, assistant, Sweden,

T. SZYMANSKI, engineer, Poland.

I use this opportunity to thank the above-mentioned gentlemen for their energetic work, which demanded very much perseverance and great efforts.

Of the technical equipment of the expedition we have already mentioned 8 invar wires. The Finnish wires 634—637 were received in Helsinki, the Danish wires 673—75 and 683 I received at Breteuil in April. As it could be assumed that the wires during the summer would have to endure fairly difficult conditions of transport, the rather weak boxes constructed by CARPENTIER were furnished with strong exterior padded cases as protection. Thus the weight to be transported rose by 100 kg.

Of the other equipment of the expedition mention may be made of the stretching apparatus of the Finnish Geodetic Institute, and further of a case containing 2 weights of 10 kg and another containing about 80 buttons to be fixed on the poles. The weight of all the apparatus was 200 kg.

The organization of the measuring was fixed in the following way: Messrs. JONSSON-PESONEN formed the one pair of observers and Messrs. BURRAU-SZYMANSKI the other one for the whole duration of the work. On the base lines of Santahamina and Potsdam both pairs measure the base line in both directions with every wire. On the long base line each pair measures only with 4 wires and in one direction. On those long base lines, which are measured in one section, the observers change their places as the first quarter is measured. The wire is swung round in the middle of the base line, the observers remaining in their places. When three fourths are measured the observers again change their places. On Öland and Lolland, where the

base lines are divided into sections, every section can be measured without the wire needing swinging round and the observers having to change their places, but the direction of the wire and the order of the observers has to be arranged in such manner at the different sections, that the influence of the personal equation of the observers is eliminated from the value of the whole base line.

The measuring was carried out in the following order:

On the 16th of March I went to Potsdam, taking with me the Finnish wires and stretching apparatus, but not the weights. During the 20th—21rd of March the assistants of the Geodetic Institute of Potsdam, Messrs. LIVLÄNDER, LOEMNITZ, SCHÜLECKE and WEIKEN, measured the base line, using the Finnish stretching apparatus and the weights of the Geodetic Institute of Potsdam. Each combination of observers measured the base line in both directions with each wire.

After that I took the wires to Breteuil, where the Director of the »Bureau International», Mr. GUILLAUME, kindly agreed to standardize the wires in a shorter time than usual. In the middle of April, after the standardization, I went back to Helsinki, taking with me both the Finnish wires and the Danish ones, which had been standardized earlier.

The observers met in Helsinki on the 10th of May. On the 11th —14th of May the base line of Santahamina was measured. The weather being fine, the measuring progressed normally. The observers soon got accustomed to use one language: German, which none of them knew thoroughly. The assistant of the Finnish Geodetic Institute, Mr. P. KALAJA, acted as recorder. The reductions to centres at the terminal points were carried out by using a 17 cm universal instrument of HILDEBRAND's make, and the levelling was done by Mr. Y. LEINBERG with a ZEISS levelling instrument. Finnish soldiers were employed as field aids.

The experience on this first base line showed that it was quite possible to work although the observers and the assistants did not use the same language.

On the 15th—17th of May I went with the expedition from Helsinki via Tallinn and Riga to Warsaw. On the 18th—20th of May the wires were standardized there on the wonderful comparator of the Bureau of Standards under the guidance of General MIEDZWECKI. According to the original program, the base line of Szubin was to be measured before the standardization at Warsaw, but the rainy weather had delayed the preparations on the base line, so that they were not finished before the expedition arrived at Warsaw. On the 21st of May we departed for Bydgoszcz and went on by motorcar to

Szubin, together with Professor WARCHALOWSKI and General MIEDZWECKI. In Szubin the scientific personnel were Baron ROSEN's guests at the big country seat Schubinhof. I avail myself of this opportunity to express my deepest thanks for the great hospitality shown us. The work was also very much facilitated by the kind assistance of the starost of Szubin, Mr. KUTZNER, and his assistant Mr. MALTSCHEFFSKY, wherefore I beg to express my thanks to these gentlemen.

When the expedition arrived at Szubin, one part of the base line was not as yet furnished with poles, as incessant rain had delayed the work. On the 23rd of May it was nevertheless possible to start the measurings. The intention was to measure the base line in both directions each day, but in this we only succeeded on one day, because, as the weather had just grown warmer, thunder rain began almost every day at noon. During the last days of the measuring there was a good deal of water on the base line; when the wire 637 was measured, dozens of poles were so deep in water, that it was difficult to keep the weights above the surface of the water. The measurings were finished on the 31st of May.

The reductions to centre were carried out by a small theodolite of HILDEBRAND's make. The levelling of the base line was carried out by students under the guidance of Professor WARCHALOWSKI. As recorders Messrs. OLCZAK and NOVICKI were at work. Paid civilians acted as field aids.

The terminal points were uncovered in the presence of the writer by Professor WARCHALOWSKI and they appeared to be absolutely untouched. An account of these doings as well as of the Polish measurings under the guidance of Professor WARCHALOWSKI is published in »Base de Szubin», Warsaw 1929.

From Szubin we went on the 1st and 2nd of June via Tilsit to the station Kukoraiciai on the railroad Tilsit—Memel, and further by motorcar to the base line of Sveksna. We were received at the country seat of Count PLATER, where we enjoyed the kind hospitality of the Count, for which I here beg to express my deeply felt thanks. The Topographical section of the Lithuanian General-Staff had arranged the preparations for the work in an ideal way, the chief of the section, Major KRIKSCIUNAS, being present during the whole measuring.

The weather was the whole time cold, rainy and windy. During the first three days it was none the less possible to measure the base line forwards and back in one day and on the 10th of June the measurings were finished.

When measuring on the hard road it frequently happened that the spikes of the stretching apparatus which were put into the ground slipped, so that the wires were slightly twitched. The fear that these twitches might influence the length of the wires, was later seen to be unwarranted, as the standardizations made at Helsinki showed that the lengths of wires remained unchanged during this part of the work.

The reductions to centre on the marks above ground at the terminal points were carried out with a small HILDEBRAND theodolite. The levelling of the base line was performed by Engineer BUTRIMAS. Captain RANTENAS and Captain KOCEGURO acted as recorders. Lithuanian soldiers were used as field aids.

I left the expedition in Sveksna, giving the leadership to Mr. PESONEN. From Sveksna the expedition moved via Riga and Tallinn to the base line of Ösel, where they arrived on the 16th of June. The Chief of the topohydrographical department of the Estonian ministry of war, Colonel PREY, received them, and he attended the measurings the whole of the time. Major DOUGLAS arranged for board and lodging in Arensburg and helped in every respect during the time of the measurings.

On opening the wire cases on Ösel it was found that the handle of the wire drum in one of the cases had loosened during the transport and thus made a twitch on the wire 636 near the scale, through which the wire became 0.12 mm shorter. This twitch was not straightened till at Breteuil before the standardization of the wires in October.

During the fine weather it was possible to measure the base line on Ösel twice almost every day, so that the work could be carried out in five days, June 17th—21st.

The reductions to centre at the terminal points were made by the aid of a small theodolite. The levelling was carried out partly by Major DOUGLAS, partly by Messrs. JONSSON and BURRAU with a ZEISS levelling apparatus. Recorders were Messrs. TSCHAPLINSKI and OENGO. Paid civilians were employed as field aids.

From Ösel the expedition moved to the standard base of Helsinki, where the measuring was carried out on the 27th—29th of June. The measuring was performed exactly in the same way as in May. Mr. KALAJA was again at work as recorder.

From Helsinki the expedition continued to the base line of Hanko, which was measured, partly during rainy weather, between July 2nd—7th. The geodetes lived in the town of Hanko and used a bogie for moving about. Owing to the incessant showers of rain, part of the base line, about 9 poles, stood deep in water, so that stages had to be built around them, from which the measuring was done.

The remainder at the Eastern terminal point (2.1 metres) was measured by a steel tape with a tension of 10 kg.

The reductions to centre at the terminal points were performed by means of a small universal instrument made by ZEISS.

Recorders were Messrs. KALAJA and TIITOLA, and the same soldiers as in Helsinki were assisting as field aids. Doctor ÖLANDER aided the excursion and also levelled the base line.

In Hanko the wire No 683 got a twitch just before the measuring, but it was straightened at once. The wire was standardized at Helsinki again after the measurings in Hanko on the 8th of July, but within the limits of probable errors the same length was obtained for it as at the preceding standardization.

On the 9th and 10th of July the expedition travelled via Stockholm to the base line of Enköping in the village of Grillby, where they were lodged at a farm, called Högby. The observator of »Rikets Allmänna Kartverk», Mr. G. A. RUNE, took good care of the expedition.

During the warm and dry weather the base line was measured in the following order. One pair of observers started the measuring from the Northern end of the base line, going on to the angle point of the base line, which is at the pole 214. From there they continued to the pole No 239, where interspaces of 96 metres begin. From here a 96 m wire was taken into use, and 6 long interspaces were measured. After that the 96 m wire was compared with the 24 m wire between the poles 217—221 and the measuring was continued with the 24 m wires to the South end. The marking at the pole 214 was reduced to centre at every measuring. The measuring with the 96 m wire was carried out in the same way as the other measurings except that a tension of 20 kg was used.

At these interspaces, where great differences in elevation existed, the influence of the tension caused by the weight of the wire was determined so, that the front and rear observers in turn supported the wire and in both instances a set of readings was made. The difference in the sets of readings contains the double influence of the tension caused by the weight of the wire.

The reduction to centre at the terminal points and angle point 214 was carried out with a small theodolite. As the centring pieces, mentioned in the preceding chapter, were not as yet ready, the centrings were performed at the edges of the holes: the South edge at the North end and the North edge at the South end and at both edges at the angle point. The length of the base line, obtained in this way, demands a positive correction at both ends. The exact value of the corrections can not be determined till the centring pieces are placed

in their holes. Assuming the holes to be quite round and centric, half the diameter of the hole, or 8.3 mm, has to be added at both ends to the measured length of the base.

The levelling of the base line was performed by the Observator Mr. G. A. RUNE. Owing to the fact that there are very great differences in elevation on the base line, the levelling was done very carefully by means of a big ZEISS instrument.

Paid workmen were employed as field aids. The State Geodete AXEL RUNE was at work as recorder.

From Enköping the expedition moved on the 23rd—25th of July to Öland. On the 23nd of July in the forenoon the wire cases were placed in a closed goods-waggon at the station Grillby, and were about two hours on the road to Stockholm. The assistant of Rikets Allmänna Kartverk, Mr. NILSSON, received them there, and took them to the cellar of the Institute, where the cases were slightly repaired and on the following day Mr. NILSSON took them, together with the Swedish wires Nos. 801—808 to the steamer »Rhea», sailing between Stockholm and Kalmar, in the hold of which vessel they remained during the passage, which lasted 18 hours. From Kalmar the wires were transported by a small steamer to Färjestad, again together with the Swedish wires, the passage lasting only one hour, and then by motor car to the base line, where the expedition took them in charge.

The observers settled in the country-town of Mörbylånga. The measuring took place during rather favourable weather between the 29th of July and 10th of August. Each day only one section was measured, because, as no double sets of assistants could be obtained, the observers themselves had to act as recorders, so that the measuring of two sections would have been absolutely impossible. Every morning the portable tripods were put in place and the alignment as well as the levelling were carried out. At 11—12 o'clock a measuring, which would last 4—4 ½ hours, was begun with 4 wires in a North-South direction and with 4 wires in the direction South-North. At the centres at 25, 100 and 150 interspaces from the North end and at the Southern terminal point Swedish plumbing apparatus were used, as the centres were so deep down, that an optical centring was impossible. At the other centres the plumbings were made with a small universal instrument.

The alignment and levelling were carried out by the Observator G. A. RUNE.

On the 10th—13th of August the expedition moved via Kalmar —Copenhagen to the base line Lolland. They were received in the

fine castle of Hardenberg, where they enjoyed very great hospitality, for which I beg to express sincere thanks on behalf of the expedition.

The measuring was carried out in fine weather during the period 14th—20th of August. As on Öland portable tripods were used here also. As there were not tripods enough for a whole section, the measuring was always carried out simultaneously with 4 wires in one direction and 4 wires in the other. All the reductions to centre were made by Danish plumbing apparatus. During the first four days one section was measured in both directions each day. On the 19th of August the sections V, VI and VII were measured in the direction East-West and VII in the reverse direction and on the 20th of August sections VI and V were measured in the direction West-East.

Lieutenant PEDERSEN of the Danish Geodetic Institute was at work as recorder. The alignment was carried out by N. C. O. CRANER and the levelling by N. C. O. ANDERSEN. Danish soldiers were employed as field aids.

The measurings were attended by Lieutenant-colonel JENSEN and the State Geodete Mr. SCHNEIDER of the Danish Geodetic Institute and by Oberregierungsrat THILO of the Prussian Landesaufnahme.

On the 21st—22nd of August the expedition moved on via Berlin to Potsdam. On the 26th—27th of August each pair of observers measured the base line in both directions with each wire. The non-occupied observers worked in turn as recorders. The levelling was carried out by Mr. SCHÜLECKE of the Geodetic Institute of Potsdam. Paid civilians were employed as field aids. For curiosity's sake I may mention that here for the first time a woman acting as stretcher carried out an important part of the work, and without desiring to flatter the fair sex, I can asseverate that scarcely any man had during the summer performed his task better than did this one woman.

From Potsdam Messrs. JONSSON and PESONEN returned to Helsinki, taking the wires with them. As the measurements during the summer had shown that there was no considerable personal difference between the pairs of observers, I found that one pair of observers could very well perform this measuring, which was not included in the original working scheme. Messrs. BURRAU and SZYMANSKI had but a short journey from Berlin to their home towns, so that it was convenient that the other pair of observers carried out the measurements in Helsinki, to which place Mr. PESONEN had to return in any case, and whence Mr. JONSSON had but a short way to his home in Stockholm.

The observers arrived at Helsinki via Berlin and Stettin on the 30th of August. The incessant rain delayed the measuring here, so that they did not finish till the 10th of September.

In order that the base line should be measured as many times as at the preceding measurings in Helsinki, the pair of observers measured each wire twice in both directions. This time Mr. KALAJA again acted as recorder. The levelling was done by Doctor ÖLANDER. Finnish soldiers were employed as field aids.

On comparing the results of the measurings in Helsinki in June and September I found out, that either the wires had lengthened on an average 0.08 mm, or the base line of Helsinki had become 2.4 mm shorter. Thus it was inavoidably necessary at once to standardize the wires again at Breteuil, so that it might be possible to determine whether a real lengthening of the wires was in question, or whether the base line at Helsinki had shortened. In October I therefore took the wires by steamer via Antwerp from Helsinki to Paris. At Breteuil Mr. GUILLAUME was again kind enough to allow the standardization to take place in the shortest possible time. Thus I could leave Breteuil with my wires already on the 22nd of October. To localize the change of the wires the base line of Potsdam was measured again on the 23rd—24th of October. Messrs. LOEMNITZ and SCHÜLECKE performed the measuring. Field aids were the same as before. As soon as the measuring was performed I took the wires via Berlin and Stettin by steamer to Helsinki, where the fourth measuring was carried out in cold and rainy weather between the 5th and 11th of November. The measuring was performed by Messrs. HIRVONEN and KALAJA, assistants of the Geodetic Institute, measuring each wire twice in both directions. Doctor ÖLANDER superintended the measuring, and the base line was levelled by him.

Further, the Finnish Geodetic Institute had one more control measuring of the base line of Hanko performed under very difficult conditions, owing to the lateness of the season. Only Finnish wires were used. The measuring was performed during the period 14th—20th of November quite in the same way as in the summer by Messrs. KALAJA and HIRVONEN under the superintendence of Doctor ÖLANDER. The temperature during the measurings was near freezing point.

After finishing the measuring the same gentlemen measured the base line of Helsinki for the fifth time on the 21st—23rd of November, using only Finnish wires. The base line was measured twice with each wire in each direction.

The actual measurings were now finished. After that some further experiments were made at the Finnish Geodetic Institute, in order to ascertain the cause of the lengthening of the wires.

From the above account it will be seen that it was possible to carry out the work according to the program. This advantageous result was achieved thanks not only to the favourable weather, but also because of the care and exactitude with which the preparations were made on all the base lines and the skill with which the measurings were carried out.

The following table shows the proposed and the real time of the measurings, as well as the average temperature on each base line.

| | proposed | measured | |
|---|---|---|---|
| Potsdam | — | March 20—21 | + 6.0°C |
| Breteuil | April | April | — |
| Helsinki | May | May 11—14 | +10.5 |
| Warsaw | May | May 18—20 | +18.5 |
| Szubin | May | May 23—31 | +21.9 |
| Sveksna | June | June 3—10 | + 9.7 |
| Ösel | June | June 17—21 | +19.3 |
| Helsinki | June | June 27—29 | +16.8 |
| Hanko | July | July 2—7 | +19.8 |
| Enköping | July | July 13—22 | +23.0 |
| Öland | August | July 29—August 10 | +19.6 |
| Lolland | August | August 14—20 | +19.4 |
| Potsdam | — | August 26—27 | +19.5 |
| Helsinki | — | September 2—10 | +13.7 |
| Breteuil | September | October | — |
| Potsdam | — | October 23—24 | +11.4 |
| Helsinki | — | November 5—11 | + 7.0 |
| Hanko | — | November 14—20 | + 3.0 |
| Helsinki | — | November 21—23 | + 3.8 |

The temperature on all base lines except Sveksna and Helsinki thus kept within rather narrow limits, *viz.*: 19.°3—23.°0.

## The Constants of the Wires.

*The standardizations at Breteuil and Warsaw.*

As mentioned before, both the Finnish and the Danish wires were standardized at Breteuil in March—April 1929. Standardization has to take place under conditions as similar as possible to those in which the field measurings are carried out. This condition cannot, however be fully complied with, as standardization is carried out in

the laboratory and measuring in the open. The essential part of the errors, due to the different conditions will nevertheless be eliminated, if the standardization be performed by using the same stretching apparatus as in the measuring, as probably most stretching systems influence the effective length of the wires. In view of this I transported the Finnish stretching apparatus to Breteuil, to be used there for the standardization. When Messrs. MAUDET and PERARD had standardized both the Danish and the Finnish wires with the stretching apparatus of the comparator, they carried out some measurings, using the Finnish apparatus. The measurings showed that most likely the effective lengths of the wires are 0.010 mm greater when use is made of the Finnish stretching apparatus than when using the apparatus of the comparator. The results obtained by the different wires differ, however, considerably from each other, so that the difference stated is uncertain. As the experiments in Helsinki also showed that it makes no difference if the wire be pushed or pulled, which seems to prove that the sensitiveness of the stretching apparatus is sufficient, I considered it best to use the wire lengths obtained at Breteuil with the stretching apparatus of the comparator.

According to the certificate given at Breteuil on the 10th of April 1929, the lengths of the wires were as follows:

| | | | |
|---|---|---|---|
| 634: | $L_{15} = 24$ m $- 0.04$ mm | 673: | $L_{15} = 24$ m $- 0.47$ mm |
| 635 | $+ 0.81$ » | 674 | $- 0.21$ » |
| 636 | $+ 0.50$ » | 675 | $- 0.21$ » |
| 637 | $+ 0.44$ » | 683 | $+ 0.55$ » |

According to the certificate given at Breteuil on the 23rd of March, 1922, the temperature coefficient of the wires 634—637 is got by the equation:

$$L_t = L_0 \ (1 + 0.000000060 \ t - 0.00000000003 \ t^2)$$

and according to a certificate, issued at Breteuil on the 25th of November, 1923, the temperature coefficient of the wires 673—675 and 683 is got by the equation:

$$L_t = L_0 \ (1 - 0.000000061 \ t + 0.00000000065 \ t^2)$$

When the wires were standardized at Warsaw two months later, on the 18th—20th of May, the following values were obtained and will be seen to differ considerably from the former ones:

| | | | |
|---|---|---|---|
| 634: $L_{15}$ = 24 m | + 0.046 mm | 673: $L_{15}$ = 24 m | — 0.380 mm |
| 635 | + 0.873 » | 674 | — 0.145 » |
| 636 | + 0.569 » | 675 | — 0.101 » |
| 637 | + 0.530 » | 683 | + 0.611 » |

These values were computed by supposing that the temperature coefficients given in the Breteuil certificate were correct. As will be shown later, it appeared that in the certificate for the wires 634—637 an incorrect value had been given for the coefficient. In reality this is the same as the coefficient of the wires 673—683. As the standardization at Warsaw was performed at a temperature of + 16.°5, the lengths of the wires 634—637 have to be corrected by + 0.004 mm, so that we get the corrected figures:

| | | | |
|---|---|---|---|
| 634: $L$ = 24 m | + 0.050 mm | 673: $L_0$ = 24 m | — 0.380 mm |
| 635 | + 0.877 » | 674 | — 0.145 » |
| 636 | + 0.573 » | 675 | — 0.101 » |
| 637 | + 0.534 » | 683 | + 0.611 » |

The standardization at Breteuil in October gave the following values:

| | | | |
|---|---|---|---|
| 634: $L_{15}$ = 24 m | + 0.13 mm | 673: $L_{15}$ = 24 m | — 0.34 mm |
| 635 | + 0.93 » | 674 | — 0.07 » |
| 636 | + 0.64 » | 675 | — 0.08 » |
| 637 | + 0.56 » | 683 | + 0.70 » |

From these standardizations one might draw the conclusion, that the wires had lengthened all through the summer. Evidence as to whether a real lengthening of the wires was in question, or whether this was due to some incorrectness in the standardizations, will be obtained from the measurings on the standard base of Helsinki, of which an account will be given later on.

Before I go on to describe the changes in length of the wires, I shall treat the question of their temperature coefficients.

When about half of the field measurings had been carried out and provisionally computed, I noticed that the results obtained by means of the Finnish and Danish wires, calculated according to the temperature coefficients obtained from Breteuil, differed from each other proportionally to the temperature. The differences in temperature between the first measuring at Helsinki, those at Szubin, Sveksna, Ösel and the second one at Helsinki, are so considerable, that it was possible to calculate the difference between the tempera-

ture coefficients of the Finnish and Danish wires. A surprising result was obtained. The difference proved to be very small, within the limits of its probable error, and did not by any means accord with the difference got from the Breteuil certificates. In September I wrote to Mr. GUILLAUME about the matter. When I visited Breteuil in October in order to have the wires restandardized, I was told, that a wrong value had been given for the temperature coefficient in the certificate for the wires 634—637, and that in reality the temperature coefficient of these wires was the same as for the wires 673—683. The mistake was observed in the time between the dates of the certificates for the wires 634—637 and 673—683, evidently in 1922—1923, but we had received no information as to this.

For all our wires the value to be used is thus:

$$L_t = L_0 (1—0.000000061\ t + 0.00000000065\ t^2)$$

*The standardizations on the base of Helsinki.*

The following tables show the results of the measurings on the standard base of Helsinki. As an explanation of the tables only the following may be mentioned:

The date and the number of the wire is followed by a note relating to the front observer, *i. e.* J = JONSSON, P = PESONEN, B = BURRAU, S = SZYMANSKI, H = HIRVONEN, K = KALAJA.

The measurings were made only in the combinations JONSSON—PESONEN, BURRAU—SZYMANSKI, HIRVONEN—KALAJA. Where the observers changed places in the middle of the base line there are two letters: the first represents the front observer on the North half of the base line (interspaces 1—15) the second on the South half (interspaces 16—30). The following figures represent the temperatures and the sums of the differences of the readings in millimetres: $m_1$ refers to the first readings, $m_2$ to the second ones and $m_3$ to the third; m is the average value of them all. Then follows the correction to 15° temperature according to the table on page 40, the reduction to centre at the terminal points of the base line and finally the corrected sums of the differences of the readings $m_0$.

Of the two lines relating to each wire, the first refers to the measuring from North to South (1—30), the second to the measuring from South to North (30—1).

## HELSINKI 1.

| Date | Wire | Obs. | t | $m_1$ | $m_2$ | $m_3$ | m | Corr. t | Corr. c | $m_0$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 11.V | 636 | J | + 9.8 | + 21.6 | 20.6 | 21.2 | + 21.13 | + 0.17 | + 0.95 | 22.25 |
| | | P | + 8.5 | + 23.7 | 23.3 | 23.5 | + 23.50 | + 0.22 | + 0.95 | 24.67 |
| | 637 | B | + 7.4 | + 22.3 | 22.1 | 20.9 | + 21.77 | + 0.25 | + 2.40 | 24.42 |
| | | S | + 8.8 | + 23.2 | 23.3 | 23.2 | + 23.23 | + 0.21 | + 2.40 | 25.84 |
| | 637 | P | + 9.7 | + 24.4 | 23.8 | 23.1 | + 23.77 | + 0.17 | + 2.40 | 26.34 |
| | | J | + 9.9 | + 22.1 | 21.4 | 22.2 | + 21.90 | + 0.16 | + 2.40 | 24.46 |
| | 673 | S | + 9.3 | + 51.2 | 50.8 | 51.1 | + 51.03 | + 0.19 | + 2.40 | 53.62 |
| | | B | + 8.0 | + 50.7 | 50.9 | 49.7 | + 50.43 | + 0.23 | + 2.40 | 53.09 |
| | 673 | J | + 7.8 | + 48.8 | 49.9 | 49.6 | + 49.43 | + 0.24 | + 2.40 | 52.07 |
| | | P | + 7.6 | + 50.5 | 50.0 | 49.5 | + 50.00 | + 0.25 | + 2.40 | 52.65 |
| 13.V | 674 | J | + 9.8 | + 42.4 | 43.1 | 42.7 | + 42.73 | + 0.17 | + 2.05 | 44.95 |
| | | P | + 9.9 | + 43.9 | 44.2 | 43.8 | + 43.97 | + 0.16 | + 2.05 | 46.18 |
| | 675 | P | + 9.6 | + 43.6 | 42.2 | 43.3 | + 43.03 | + 0.18 | + 2.05 | 45.26 |
| | | J | + 9.9 | + 43.5 | 42.4 | 43.2 | + 43.03 | + 0.16 | + 2.05 | 45.24 |
| | 683 | J | + 12.2 | + 20.5 | 21.0 | 20.8 | + 20.77 | + 0.08 | + 2.20 | 23.05 |
| | | P | + 12.6 | + 19.9 | 21.3 | 20.9 | + 20.70 | + 0.07 | + 2.20 | 22.97 |
| | 683 | B | + 12.2 | + 20.2 | 20.2 | 19.7 | + 20.03 | + 0.08 | + 2.30 | 22.41 |
| | | S | + 10.7 | + 21.6 | 19.6 | 21.1 | + 20.77 | + 0.14 | + 2.30 | 23.21 |
| | 674 | S | + 9.2 | + 44.2 | 43.3 | 44.3 | + 43.93 | + 0.19 | + 2.30 | 46.42 |
| | | B | + 8.4 | + 42.8 | 43.0 | 43.0 | + 42.93 | + 0.22 | + 2.30 | 45.45 |
| | 675 | B | + 7.7 | + 42.2 | 41.8 | 42.4 | + 42.13 | + 0.24 | + 2.30 | 44.67 |
| | | S | + 7.3 | + 42.9 | 43.4 | 42.0 | + 42.77 | + 0.26 | + 2.30 | 45.33 |
| 14.V | 636 | S | + 11.9 | + 23.3 | 23.8 | 22.6 | + 23.23 | + 0.09 | + 1.45 | 24.77 |
| | | B | + 11.9 | + 21.5 | 21.8 | 22.3 | + 21.87 | + 0.09 | + 1.45 | 23.41 |
| | 635 | B | + 12.2 | + 13.3 | 13.5 | 13.1 | + 13.30 | + 0.08 | + 1.45 | 14.83 |
| | | S | + 12.6 | + 13.1 | 12.9 | 14.1 | + 13.37 | + 0.07 | + 1.45 | 14.89 |
| | 634 | S | + 13.7 | + 36.2 | 37.1 | 37.5 | + 36.93 | + 0.04 | + 1.45 | 38.42 |
| | | B | + 14.9 | + 35.5 | 36.8 | 37.1 | + 36.47 | + 0.00 | + 1.45 | 37.92 |
| | 634 | P | + 16.0 | + 37.1 | 36.7 | 37.5 | + 37.10 | − 0.03 | + 1.45 | 38.52 |
| | | J | + 16.1 | + 37.6 | 36.8 | 37.9 | + 37.43 | − 0.03 | + 1.45 | 38.85 |
| | 673 | B | + 14.2 | 51.0 | 50.7 | 49.3 | + 50.33 | + 0.02 | + 1.45 | 51.80 |
| | | S | + 10.7 | + 50.9 | 51.3 | 50.9 | + 51.03 | + 0.14 | + 1.45 | 52.62 |
| | 635 | J | + 9.6 | + 13.3 | 14.1 | 13.6 | + 13.67 | + 0.18 | + 1.45 | 15.30 |
| | | P | + 9.0 | + 12.9 | 13.7 | 14.2 | + 13.60 | + 0.20 | + 1.45 | 15.25 |

# HELSINKI 2.

| Date | Wire | Obs. | t | $m_1$ | $m_2$ | $m_3$ | m | Corr. t | Corr. c | $m_0$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 27.VI | 636 | JP | + 14.7 | + 30.1 | 29.3 | 28.3 | + 29.23 | + 0.01 | − 1.40 | 27.84 |
| | | JP | + 13.7 | + 27.9 | 28.5 | 27.8 | + 28.07 | + 0.04 | − 1.40 | 26.71 |
| | 637 | PJ | + 13.1 | + 25.5 | 25.9 | 25.9 | + 25.77 | + 0.05 | − 1.40 | 24.42 |
| | | PJ | + 13.1 | + 25.4 | 25.7 | 25.0 | + 25.37 | + 0.05 | − 1.40 | 24.02 |
| 28.VI | 673 | JP | + 16.4 | + 53.2 | 54.3 | 54.4 | + 53.97 | − 0.04 | − 1.40 | 52.53 |
| | | PJ | + 16.4 | + 54.3 | 53.7 | 54.2 | + 54.07 | − 0.04 | − 1.40 | 52.63 |
| | 683 | PJ | + 16.4 | + 23.5 | 23.5 | 25.3 | + 24.10 | − 0.04 | − 1.40 | 22.66 |
| | | JP | + 16.5 | + 24.2 | 23.7 | 23.6 | + 23.83 | − 0.04 | − 1.40 | 22.39 |
| | 634 | JP | + 16.2 | + 40.8 | 41.8 | 40.5 | + 41.03 | − 0.04 | − 1.40 | 39.59 |
| | | PJ | + 15.9 | + 41.3 | 41.5 | 41.6 | + 41.47 | − 0.03 | − 1.40 | 40.04 |
| | 683 | S | + 17.0 | + 24.4 | 25.4 | 26.1 | + 25.30 | − 0.06 | − 1.52 | 23.72 |
| | | B | + 17.7 | + 24.5 | 23.3 | 22.7 | + 23.50 | − 0.08 | − 1.52 | 21.90 |
| | 637 | S | + 17.8 | + 26.2 | 26.7 | 27.3 | + 26.73 | − 0.08 | − 1.64 | 25.01 |
| | | B | + 17.6 | + 25.9 | 26.0 | 27.0 | + 26.30 | − 0.08 | − 1.64 | 24.68 |
| | 674 | S | + 16.8 | + 48.0 | 48.0 | 48.5 | + 48.17 | − 0.05 | − 1.77 | 46.35 |
| | | B | + 16.6 | + 46.2 | 47.2 | 46.1 | + 46.50 | − 0.05 | − 1.77 | 44.68 |
| | 673 | S | + 16.0 | + 56.0 | 55.1 | 55.4 | + 55.50 | − 0.03 | − 1.77 | 53.70 |
| | | B | + 15.6 | + 53.4 | 53.0 | 52.9 | + 53.10 | − 0.02 | − 1.77 | 51.31 |
| | 636 | S | + 15.2 | + 30.6 | 31.1 | 29.8 | + 30.50 | − 0.01 | − 1.77 | 28.72 |
| | | B | + 15.0 | + 27.5 | 28.6 | 28.5 | + 28.20 | 0.00 | − 1.77 | 26.43 |
| 29.VI | 675 | S | + 19.1 | + 47.4 | 47.8 | 46.8 | + 47.33 | − 0.11 | − 1.35 | 45.87 |
| | | B | + 19.1 | + 46.2 | 45.9 | 45.5 | + 45.87 | − 0.11 | − 0.11 | 44.41 |
| | 635 | S | + 19.1 | + 18.5 | 18.5 | 18.1 | + 18.37 | − 0.11 | − 1.35 | 16.91 |
| | | B | + 18.4 | + 16.0 | 17.9 | 17.3 | + 17.07 | − 0.10 | − 1.35 | 15.62 |
| | 634 | S | + 17.9 | + 42.2 | 42.0 | 41.9 | + 42.03 | − 0.09 | − 1.32 | 40.62 |
| | | B | + 17.7 | + 39.5 | 39.6 | 39.4 | + 39.50 | − 0.08 | − 1.32 | 38.10 |
| | 635 | PJ | + 17.5 | + 17.4 | 17.2 | 17.1 | + 17.23 | − 0.07 | − 1.30 | 15.86 |
| | | JP | + 17.7 | + 16.8 | 17.4 | 17.2 | + 17.13 | − 0.08 | − 1.30 | 15.75 |
| | 675 | PJ | + 17.9 | + 47.1 | 46.8 | 45.6 | + 46.50 | − 0.09 | − 1.30 | 45.11 |
| | | JP | + 17.9 | + 47.4 | 47.3 | 46.8 | + 47.17 | − 0.09 | − 1.30 | 45.78 |
| | 674 | PJ | + 18.2 | + 46.2 | 46.6 | 47.6 | + 46.80 | − 0.10 | − 1.30 | 45.40 |
| | | JP | + 18.2 | + 45.6 | 46.8 | 46.9 | + 46.43 | − 0.10 | − 1.30 | 45.03 |
| 8.VII | 683 bis | BS | + 16.1 | + 22.8 | 23.5 | 24.2 | + 23.50 | − 0.03 | − 1.27 | 22.20 |
| | | SB | + 15.5 | + 24.4 | 25.5 | 25.8 | + 25.23 | − 0.01 | − 1.27 | 23.93 |
| | 683 bis | JP | + 15.1 | + 24.2 | 24.9 | 23.2 | + 24.10 | 0.00 | − 1.27 | 22.83 |
| | | PJ | + 15.0 | + 23.5 | 23.6 | 23.9 | + 23.67 | 0.00 | − 1.27 | 22.40 |

# HELSINKI 3.

| Date | Wire | Obs. | t | $m_1$ | $m_2$ | $m_3$ | m | Corr. t | Corr. c | $m_0$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.IX | 634 | J | + 12°8 | + 38.9 | 37.8 | 37.4 | + 38.03 | + 0.07 | − 0.50 | 37.60 |
| | | P | + 12. 1 | + 38.6 | 37.9 | 38.6 | + 38.37 | + 0.09 | − 0.50 | 37.96 |
| 3.IX | 636 | P | + 15. 7 | + 26.0 | 25.2 | 25.9 | + 25.70 | − 0.02 | − 0.53 | 25.15 |
| | | J | + 15. 6 | + 25.2 | 25.5 | 25.4 | + 25.37 | − 0.02 | − 0.53 | 24.82 |
| | 673 | J | + 16. 8 | + 50.3 | 51.3 | 50.7 | + 50.77 | − 0.05 | − 0.59 | 50.13 |
| | | P | + 16. 8 | + 51.1 | 51.1 | 50.6 | + 50.93 | − 0.05 | − 0.59 | 50.29 |
| | 675 | P | + 16. 7 | + 43.4 | 43.0 | 43.9 | + 43.43 | − 0.05 | − 0.64 | 42.74 |
| | | J | + 16. 7 | + 43.1 | 43.5 | 43.0 | + 43.20 | − 0.05 | − 0.64 | 42.51 |
| | 635 | J | + 16. 3 | + 12.7 | 13.6 | 13.5 | + 13.27 | − 0.04 | − 0.70 | 12.53 |
| | | P | + 15. 6 | + 14.5 | 14.5 | 14.3 | + 14.43 | − 0.02 | − 0.70 | 13.71 |
| 4.IX | 674 | P | + 14. 8 | + 45.8 | 44.0 | 45.2 | + 45.00 | + 0.01 | − 0.78 | 44.23 |
| | | J | + 14. 2 | + 44.7 | 43.6 | 44.0 | + 44.10 | + 0.02 | − 0.78 | 43.34 |
| | 637 | J | + 15. 4 | + 22.3 | 21.9 | 21.5 | + 21.90 | − 0.01 | − 0.72 | 21.17 |
| | | P | + 14. 1 | + 21.8 | 22.6 | 22.7 | + 22.37 | + 0.03 | − 0.72 | 21.68 |
| | 683 | P | + 13, 6 | + 21.2 | 20.7 | 21.4 | + 21.10 | + 0.04 | − 0.67 | 20.47 |
| | | J | + 13. 4 | + 20.8 | 21.2 | 20.2 | + 20.73 | + 0.05 | − 0.67 | 20.11 |
| 5.IX | 636 | P | + 15. 5 | + 24.6 | 25.2 | 25.2 | + 25.00 | − 0.02 | − 0.73 | 24.25 |
| | | J | + 15. 4 | + 25.5 | 25.5 | 24.9 | + 25.30 | − 0.01 | − 0.73 | 24.56 |
| | 673 | J | + 15. 1 | + 50.9 | 51.2 | 50.4 | + 50.83 | 0.00 | − 0.85 | 49.96 |
| | | P | + 15. 1 | + 51.4 | 50.4 | 51.7 | + 51.17 | 0.00 | − 0.85 | 50.32 |
| | 634 | J | + 14. 8 | + 38.2 | 38.3 | 37.6 | + 38.03 | + 0.01 | − 0.79 | 37.25 |
| | | P | + 14. 8 | + 38.0 | 37.9 | 36.9 | + 37.60 | + 0.01 | − 0.79 | 36.82 |
| | 675 | P | + 14. 6 | + 43.9 | 43.8 | 43.5 | + 43.73 | + 0.01 | − 0.73 | 43.01 |
| | | J | + 14. 5 | + 43.2 | 43.2 | 44.0 | + 43.47 | + 0.02 | − 0.73 | 42.76 |
| 9.IX | 635 | P | + 9. 0 | + 13.8 | 14.1 | 13.6 | + 13.83 | + 0.20 | 0.91 | 13.12 |
| | | J | + 9. 0 | + 13.1 | 14.4 | 13.3 | + 13.60 | + 0.20 | 0.91 | 12.89 |
| | 674 | P | + 9. 8 | + 43.9 | 42.8 | 42.9 | + 43.20 | + 0.17 | − 0.87 | 42.50 |
| | | J | + 10. 0 | + 43.1 | 44.7 | 44.5 | + 44.10 | + 0.16 | − 0.87 | 43.39 |
| | 637 | P | + 10. 2 | + 23.2 | 23.8 | 23.4 | + 23.47 | + 0.15 | − 0.83 | 22.79 |
| | | J | + 10. 2 | + 22.8 | 23.0 | 22.5 | + 22.77 | + 0.15 | − 0.83 | 22.09 |
| | 683 | J | + 10. 2 | + 20.3 | 20.1 | 20.6 | + 20.33 | + 0.15 | − 0.86 | 19.62 |
| | | P | + 10. 3 | + 22.5 | 21.0 | 21.9 | + 21.80 | + 0.15 | − 0.86 | 21.09 |

# HELSINKI 4.

| Date | Wire | Obs. | t | $m_1$ | $m_2$ | $m_3$ | m | Corr. t | Corr. c | $m_0$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.XI | 683 | KH | + 5.5 | + 21.6 | 21.3 | 21.4 | + 21.43 | + 0.32 | — 1.20 | 20.55 |
| | | HK | + 5.4 | + 22.8 | 22.0 | 21.6 | + 22.13 | + 0.32 | — 1.20 | 21.25 |
| | 675 | KH | + 5.2 | + 43.8 | 44.4 | 44.9 | + 44.37 | + 0.33 | — 1.35 | 43.35 |
| | | HK | + 4.7 | + 43.8 | 42.6 | 43.5 | + 43.30 | + 0.36 | — 1.35 | 42.31 |
| 6.XI | 674 | HK | + 6.1 | + 43.4 | 43.4 | 43.5 | + 43.43 | + 0.30 | — 1.06 | 42.67 |
| | | KH | + 5.6 | + 44.6 | 45.1 | 45.5 | + 45.07 | + 0.32 | — 1.06 | 44.33 |
| | 673 | HK | + 5.7 | + 51.6 | 51.4 | 51.0 | + 51.33 | + 0.32 | — 1.10 | 50.55 |
| | | KH | + 5.6 | + 50.6 | 51.3 | 49.7 | + 50.53 | + 0.32 | — 1.10 | 49.75 |
| | 683 | KH | + 5.6 | + 21.9 | 21.7 | 21.4 | + 21.67 | + 0.32 | — 1.15 | 20.84 |
| | | HK | + 5.7 | + 22.6 | 22.5 | 21.4 | + 22.17 | + 0.32 | — 1.15 | 21.34 |
| 7.XI | 675 | KH | + 7.5 | + 44.3 | 43.7 | 44.1 | + 44.03 | + 0.25 | — 1.52 | 42.76 |
| | | HK | + 7.8 | + 45.7 | 44.6 | 44.2 | + 44.83 | + 0.24 | — 1.52 | 43.55 |
| | 674 | KH | + 7.9 | + 4.40 | 43.8 | 44.1 | + 43.97 | + 0.23 | — 1.50 | 42.70 |
| | | HK | + 7.9 | + 44.4 | 44.2 | 44.7 | + 44.43 | + 0.23 | — 1.50 | 43.16 |
| | 673 | KH | + 7.7 | + 51.4 | 51.1 | 51.6 | + 51.37 | + 0.24 | — 1.48 | 50.13 |
| | | HK | + 7.5 | + 51.8 | 51.0 | 51.9 | + 51.57 | + 0.25 | — 1.48 | 50.34 |
| 8.XI | 637 | HK | + 7.9 | + 23.5 | 24.5 | 23.1 | + 23.70 | + 0.23 | — 0.34 | 23.59 |
| | | KH | + 7.9 | + 23.7 | 23.9 | 22.8 | + 23.47 | + 0.23 | — 0.34 | 23.36 |
| | 636 | HK | + 7.9 | + 22.9 | 21.6 | 22.1 | + 22.20 | + 0.23 | — 0.40 | 22.03 |
| | | KH | + 8.0 | + 21.9 | 20.7 | 21.2 | + 21.27 | + 0.23 | — 0.40 | 21.10 |
| | 635 | HK | + 8.0 | + 13.2 | 13.5 | 12.7 | + 13.13 | + 0.23 | — 0.46 | 12.90 |
| | | KH | + 8.1 | + 13.4 | 13.1 | 13.7 | + 13.40 | + 0.23 | — 0.46 | 13.17 |
| 9.XI | 634 | HK | + 7.8 | + 36.9 | 37.2 | 37.7 | + 37.27 | + 0.24 | — 0.66 | 36.85 |
| | | KH | + 8.0 | + 37.9 | 37.9 | 38.2 | + 38.00 | + 0.23 | — 0.66 | 37.57 |
| | 637 | KH | + 8.1 | + 25.2 | 26.0 | 25.7 | + 25.63 | + 0.23 | — 0.55 | 25.31 |
| | | HK | + 8.1 | + 26.4 | 25.9 | 25.3 | + 25.87 | + 0.23 | — 0.55 | 25.55 |
| 11.XI | 636 | KH | + 5.7 | + 21.3 | 21.6 | 20.8 | + 21.23 | + 0.31 | — 0.20 | 21.34 |
| | | HK | + 5.9 | + 21.3 | 21.2 | 21.5 | + 21.33 | + 0.30 | — 0.20 | 21.43 |
| | 635 | KH | + 6.9 | + 12.3 | 13.0 | 11.7 | + 12.33 | + 0.27 | — 0.22 | 12.38 |
| | | HK | + 7.8 | + 13.1 | 12.4 | 12.3 | + 12.60 | + 0.24 | — 0.22 | 12.62 |
| | 634 | KH | + 7.8 | + 37.0 | 37.1 | 37.7 | + 37.27 | + 0.24 | — 0.25 | 37.26 |
| | | HK | + 6.4 | + 37.5 | 38.1 | 37.9 | + 37.83 | + 0.29 | — 0.25 | 37.87 |

## HELSINKI 5.

| Date | Wire | Obs. | t | $m_1$ | $m_2$ | $m_3$ | m | Corr. t | Corr. c | $m_0$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 21.XI | 634 | K H | + 1°0 | + 52.5 | 52.7 | 52.3 | + 52.50 | + 0.51 | − 15.86 | 37.15 |
| | | H K | + 1.0 | + 52.9 | 53.1 | 53.1 | + 53.03 | + 0.51 | − 15.86 | 37.68 |
| | 635 | H K | + 1.1 | + 29.0 | 28.0 | 28.1 | + 28.37 | + 0.51 | − 15.94 | 12.94 |
| | | K H | + 1.1 | + 29.4 | 28.6 | 29.5 | + 29.17 | + 0.51 | − 15.94 | 13.74 |
| | 636 | K H | + 1.2 | + 37.4 | 36.5 | 37.3 | +37.07 | + 0.50 | − 16.02 | 21.55 |
| | | H K | + 1.2 | + 35.9 | 36.3 | 35.9 | + 36.03 | + 0.50 | − 16.02 | 20.51 |
| 22.XI | 637 | H K | + 5.0 | + 40.4 | 40.1 | 42.1 | + 40.87 | + 0.34 | − 16.86 | 24.35 |
| | | K H | + 5.1 | + 41.4 | 40.0 | 41.3 | + 40.90 | + 0.34 | − 18.86 | 24.38 |
| | 637 | H K | + 5.1 | + 42.6 | 42.6 | 41.3 | + 42.17 | + 0.34 | − 16.85 | 25.66 |
| | | K H | + 5.2 | + 42.3 | 41.8 | 41.7 | + 41.93 | + 0.33 | − 16.85 | 25.41 |
| | 636 | K H | + 5.2 | + 37.2 | 37.1 | 36.2 | + 36.83 | + 0.33 | − 16.85 | 20.31 |
| | | H K | + 5.4 | + 38.4 | 38.4 | 38.0 | + 38.27 | + 0.32 | − 16.85 | 21.74 |
| 23.XI | 635 | H K | + 6.3 | + 28.0 | 28.2 | 28.6 | + 28.27 | + 0.29 | − 16.02 | 12.54 |
| | | K H | + 5.9 | + 28.3 | 28.2 | 28.8 | + 28.43 | + 0.31 | − 16.02 | 12.72 |
| | 634 | K H | + 5.7 | + 52.1 | 52.9 | 52.5 | + 52.50 | + 0.28 | − 16.02 | 36.76 |
| | | H K | + 5.6 | + 53.0 | 52.9 | 53.7 | + 53.20 | + 0.28 | − 16.02 | 37.46 |

Between Sveksna and Ösel the wire 636 was bent close to one of the scales. All the base lines were measured with the wire in this condition till the bend was straightened at Breteuil before the standardization in October. As no standardization had been made at Breteuil before straightening the wire, there is no sure way of stating the influence of the bend on the length of the wire. By comparing the wire with other wires before and after both the change and the straightening, I found that the bend shortened the length about 0.120 mm. In the following table, which contains the results of the measurings on the base line of Helsinki, 3.60 mm have accordingly been deducted from $m_0$ of Helsinki 2 and Helsinki 3. Between the measurings Helsinki 4 on the 8th and 9th of November the wire 637 also got a bend near the scale, this bend was straightened on the comparator at Helsinki in December 1929 after all the measurings, when it was seen that the bend had shortened the wire 0.061 mm. In accordance herewith 1.83 mm has been deducted from the second value $m_0$ of Helsinki 4 and from both the values of Helsinki 5.

As has been mentioned before, permanent poles are fixed on the base line of Helsinki, so that the slope reduction has been the same during all the time of the measurings. The values of $m_0$ in the following table are thus fully comparable with each other.

| | | 634 | | 635 | | 636 | | 637 | |
|---|---|---|---|---|---|---|---|---|---|
| | | $m_0$ | t | $m_0$ | t | $m_0$ | t | $m_0$ | t |
| $H_1$ | P J | 38.68 | 16.0 | 15.28 | 9.3 | 23.46 | 9.2 | 25.40 | 9.8 |
| | B S | 38.17 | 14.3 | 14.86 | 12.4 | 24.09 | 11.9 | 25.13 | 8.1 |
| $H_2$ | P J | 39.82 | 16.0 | 15.81 | 17.6 | 23.68 | 14.2 | 24.22 | 13.1 |
| | B S | 39.36 | 17.8 | 16.26 | 18.8 | 23.97 | 15.1 | 24.84 | 17.7 |
| $H_3$ | P J | 37.78 | 12.4 | 13.12 | 16.0 | 21.38 | 15.6 | 21.42 | 14.8 |
| | P J | 37.04 | 14.8 | 13.00 | 9.0 | 20.81 | 15.5 | 22.44 | 10.2 |
| $H_4$ | H K | 37.21 | 7.9 | 13.04 | 8.0 | 21.57 | 8.0 | 23.48 | 7.9 |
| | H K | 37.57 | 7.1 | 12.50 | 7.4 | 21.38 | 5.8 | 23.60 | 8.1 |
| $H_5$ | H K | 37.42 | 1.0 | 13.34 | 1.1 | 21.03 | 1.2 | 22.53 | 5.0 |
| | H K | 37.11 | 5.6 | 12.63 | 6.1 | 21.02 | 5.3 | 23.71 | 5.2 |

| | | 673 | | 674 | | 675 | | 683 | |
|---|---|---|---|---|---|---|---|---|---|
| | | $m_0$ | t | $m_0$ | t | $m_0$ | t | $m_0$ | t |
| $H_1$ | P J | 52.36 | 7.7 | 45.56 | 9.8 | 45.25 | 9.8 | 23.01 | 12.4 |
| | B S | 52.78 | 10.3 | 45.94 | 8.8 | 45.00 | 7.5 | 22.81 | 11.4 |
| $H_2$ | P J | 52.58 | 16.4 | 45.22 | 18.2 | 45.44 | 17.9 | 22.52 | 16.5 |
| | B S | 52.50 | 15.8 | 45.51 | 16.7 | 45.14 | 19.1 | 22.81 | 17.4 |
| $H_3$ | P J | 50.21 | 16.8 | 43.78 | 14.5 | 42.62 | 16.7 | 20.29 | 13.5 |
| | P J | 50.15 | 15.1 | 42.95 | 9.9 | 42.89 | 14.6 | 20.36 | 10.2 |
| $H_4$ | H K | 50.15 | 5.6 | 43.50 | 5.8 | 42.83 | 5.0 | 20.90 | 5.4 |
| | H K | 50.24 | 7.6 | 42.93 | 7.9 | 43.16 | 7.6 | 21.09 | 5.6 |

To get a tabular summary of the whole I write down the average values of $m_0$ and of the Finnish wires 634—637 and the Danish wires 673—683 separately and arrive at the following:

| | H 1 | H 2 | H 3 | H 4 | H 5 |
|---|---|---|---|---|---|
| 634—637 | 25.63 mm | 25.99 mm | 23.38 mm | 23.79 mm | 23.60 mm |
| 673—683 | 41.59 » | 41.47 » | 39.15 » | 39.35 » | — — |
| 634—683 | 33.61 » | 33.73 » | 31.27 » | 31.56 » | — |

The figures show that between the measurings Helsinki 2 and Helsinki 3 a change has occurred, either in the lengths of the wires, so that they have lengthened on an average 0.082 mm, or in the length of the base line of Helsinki, so that it has shortened 2.46 mm. However, all the observations indicate that the base line of Helsinki has remained unchanged and that all the wires have lengthened. The best proof of this is given by the comparation between both the measurings on

the base line of Hanko, of which the former was carried out immediately after Helsinki 2 and the second one between Helsinki 4 and Helsinki 5. If we assume that this base line, which is about 6 kilometres long, has remained unchanged between the measurings, we get for the lengthening of the wires between the two measurings:

634: + 0.081 mm
635: + 0.108 »
636: + 0.113 »
637: + 0.062 »

The average value, + 0.091 mm, accords very well with the one obtained on the base line of Helsinki.

The standardizations at Breteuil also show that the wires have lengthened, even if we get lengthening still more considerable than the one deduced from the measurings at Helsinki. The grounds for this discrepancy will be mentioned later.

The lengthening of the different wires between the two measurings at Helsinki is then as follows:

| | |
|---|---|
| 634: + 0.073 mm | 673: + 0.079 mm |
| 635: + 0.099 » | 674: + 0.067 » |
| 636: + 0.091 » | 675: + 0.085 » |
| 637: + 0.087 » | 683: + 0.078 » |

The average change is thus **+ 0.082 ± 0.002 mm**

We leave for the present without explanation the cause of this curious simultaneous change of 8 wires and the localization of it. This question will be considered later on.

Taking into consideration the above mentioned actual change of the wires, the different measurings at Helsinki fit together within the limits of the probable errors, which will prove, besides the absolute unchanging state of the base line of Helsinki, also that the wires have kept their lengths very well. The average change of the wires between the measurings at Helsinki (lengthening +, shortening —) is as follows:

| | Finnish Wires | Danish Wires | Total |
|---|---|---|---|
| 1—2 ..... | — 0.012 mm | + 0.004 mm | — 0.004 mm |
| 3—4 ..... | — 0.014 » | — 0.007 » | — 0.010 » |
| 4—5 ..... | + 0.006 » | — | — |

We now compute the length of the base line of Helsinki on the basis of the standardizations at Breteuil. The slope reductions are as follows:

| | | | | | |
|---|---|---|---|---|---|
| 10.V | NS | — 22.36 mm | 4.IX | NS | — 22.35 mm |
| | SN | — 22.51 » | | SN | — 22.42 » |
| 14.V | NS | — 22.41 » | 9.IX | NS | — 22.46 » |
| | SN | — 22.35 » | | SN | — 22.53 » |
| 27.VI | SN | — 22.59 » | 6.XI | NS | — 22.42 » |
| | NS | — 22.56 » | | SN | — 22.32 » |
| | | | | NS | — 22.47 » |

Using the average value, — 22.44 ± 0.02 mm, in all the measurings we get the following two determinations of the base line of Helsinki:

*Spring.*

| Wire | $m_0$ 1 | corr. L | corr. h | B |
|---|---|---|---|---|
| 634 | + 38.43 | — 1.20 | — 22.44 | 720 m + 14.79 mm |
| 635 | + 15.07 | + 24.30 | — 22.44 | + 16.93 » |
| 636 | + 23.78 | + 15.00 | — 22.44 | + 16.34 » |
| 637 | + 25.26 | + 13.20 | — 22.44 | + 16.02 » |
| 673 | + 52.57 | — 14.10 | — 22.44 | + 16.03 » |
| 674 | + 45.75 | — 6.30 | — 22.44 | + 17.01 » |
| 675 | + 45.12 | — 6.30 | — 22.44 | + 16.38 » |
| 683 | + 22.91 | + 16.50 | — 22.44 | + 16.97 » |

Average: $B = 720\text{ m} + 16.31 \pm 0.18$ mm.

*Autumn.*

| Wire | $m_0$ 3 | $m_0$ 4 | Mean | corr. L | corr. h | B |
|---|---|---|---|---|---|---|
| 634 | + 37.41 | + 37.39 | + 37.40 | + 3.90 | — 22.44 | 720 m + 18.86 mm |
| 635 | + 13.06 | + 12.77 | + 12.92 | + 27.90 | — 22.44 | + 18.38 » |
| 636 | + 21.09 | + 21.48 | + 21.29 | + 19.20 | — 22.44 | + 18.05 » |
| 637 | + 21.93 | + 23.54 | + 22.73 | + 16.80 | — 22.44 | + 17.09 » |
| 673 | + 50.18 | + 50.19 | + 50.18 | — 10.20 | — 22.44 | + 17.54 » |
| 674 | + 43.36 | + 43.22 | + 43.29 | — 2.10 | — 22.44 | + 18.75 » |
| 675 | + 42.75 | + 42.99 | + 42.87 | — 2.40 | — 22.44 | + 18.03 » |
| 683 | + 20.32 | + 21.00 | + 20.66 | + 21.00 | — 22.44 | + 19.22 » |

Average: $B = 720\text{ m} + 18.24 \pm 0.17$ mm.

These values do not include the correction to gravity on 45° latitude, which makes + 0.21 mm. The corrected values are thus **720 m + 16.52 mm**, resp. **720 m + 18.45 mm.**

The first value is based on the spring standardization, the second on the autumn standardization at Breteuil.

The two values differ considerably from each other, the difference being 8 times as great as the probable error. Thus, either all the wires have lengthened between the spring standardization at Breteuil and the first measuring at Helsinki, or else the standardizations at Breteuil differ systematically from each other.

By comparing with the later measurings the measuring carried out at Potsdam, before the spring standardization of the wires, we can prove whether the wires changed in the spring, between Breteuil and Helsinki. By using the constants given in the table p. 38, we get as the length of the base line of Potsdam.

| | | |
|---|---|---|
| in August: | 240 m | + 19.79 mm |
| » October: | 240 m | + 19.52 » |
| average: | 240 m | + 19.65 » |

Calculating with this length of the base we get the following constants of the wires at Potsdam in March:

| | | |
|---|---|---|
| 634: | 24 m | + 0.008 mm |
| 635 | | + 0.881 » |
| 636 | | + 0.532 » |
| 637 | | + 0.521 » |

The lengths of the wires 634—637 in chronological order are:

| | 634 | 635 | 636 | 637 | Average |
|---|---|---|---|---|---|
| Potsdam March ... | + 0.008 | + 0.881 | + 0.537 | + 0.521 | 0.486 |
| Breteuil April ..... | — 0.040 | + 0.810 | + 0.500 | + 0.440 | 0.428 |
| Helsinki May ..... | + 0.075 | + 0.854 | + 0.563 | + 0.514 | 0.501 |

The above figures show not only that the wires did not change in the spring between Helsinki and Breteuil — as at Potsdam almost the same average length of the wires was got before the standardization at Breteuil as at Helsinki after it — but that one of the standardizations at Breteuil is incorrect. The figures also show that the difference cannot depend on a systematic error in the measuring at Helsinki. Thus the question is, which of the standardizations at Breteuil is correct. In order to settle this question, it is necessary to com-

pare the results obtained last summer with the results of former measurings.

The base line of Helsinki was measured in the spring of 1923 with the wires 634—637, which were standardized at Breteuil in November 1922, thus a year and a half earlier. As the wires had remained untouched during all this time, it might be supposed that the only change they had undergone had been the »normal lengthening», which was calculated to be + 0.015 mm. The results of the measurings at Helsinki, (Santahamina) are published in the work »Veröffentlichungen des Finnischen Geodätischen Instituts N:o 3». In calculating the measuring the wrong value for the temperature coefficient given in the Breteuil certificate was used, as was also the case in the calculations of all measurings performed in Finland, so that the value of the Helsinki base line given in the said work needs correcting. The corrected figures for the different wires, reduced to 45° latitude, are:

| | | |
|---|---|---|
| 634: | $B$ = 720 m | + 18.41 mm |
| 635 | | + 18.57 » |
| 636 | | + 18.09 » |
| 637 | | + 17.32 » |

Average value: 720 m + 18.10 mm.

This value is sufficiently correspondent to the value 720 m + 18.45 mm, obtained in the autumn 1929, but differs considerably from the value 720 m + 16.52 mm, calculated according to the spring standardization at Breteuil.

Another proof of the fact that the autumn standardization at Breteuil is the correct one is got by comparing with each other the measurings of the base line of Hanko in 1923 and 1929.

The measuring in 1923, published in the work »Veröffentlichungen N:o 3», also needs a correction to the right temperature coefficient. The corrected length of the base line is:

$$B = 5882 \text{ m} + 847.40 \text{ mm}.$$

From the measurings in July 1929 we get by the spring standardization from Breteuil:

$$B = 5882 \text{ m} + 824.86 \text{ mm}.$$

By the autumn standardization we get:

$$B = 5882 \text{ m} + 840.63 \text{ mm}.$$

The length got by the autumn standardization accords satisfactorily with the measurings in 1923, whereas the length got by using the spring standardization differs considerably from these.

The third proof we get from the measuring of the base line of Potsdam, even if this evidence is less reliable, owing to the shortness of the base line. In the autumn 1923 I measured this base line with the wires 634—637 (Veröffentlichungen N:o 3). Also this measuring will have to be corrected to the right temperature coefficient. The corrected length is:

$$B = 240 \text{ m} + 19.80 \text{ mm}.$$

With the autumn standardization in Breteuil we arrive at:

| | | | |
|---|---|---|---|
| 1929 in March: | 240 m | + 19.75 | mm |
| » » August: | » | + 19.79 | » |
| » » October: | » | + 19.52 | » |
| Average: | $B = 240$ m | + 19.69 | » |

This value accords well with the one obtained in 1923, whereas in using the spring standardization of Breteuil we get the differing value:

$$B = 240 \text{ m} + 19.04 \text{ mm}.$$

On the above grounds I consider it completely proved that the spring standardization of Breteuil is erroneous, the error evidently being due to the fact that a wrong value has been used as the basis of comparation. The lengths of the wires obtained at Breteuil in the spring need correcting about + 0.064 mm.

As the basis for all calculations I have used the lengths of the wires got from the standardization at Helsinki, by assuming the value for this base line to be

**720 m + 18.45 mm.**

The lengths of the wires at + 15°C calculated in this manner and the temperatures at the measurements appear from the following table:

| Wire | H 1 | | H 2 | | H 3 | | H 4 | | H 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | L | t | L | t | L | t | L | t | L | t |
| 634 | + 0.075 | + 15°2 | + 0.036 | + 16°9 | + 0.109 | + 13°6 | + 0.110 | + 7°5 | + 0.114 | + 3°3 |
| 635 | + 0.854 | + 10.8 | + 0.821 | + 18.2 | + 0.921 | + 12.5 | + 0.930 | + 7.7 | + 0.923 | + 3.6 |
| 636 | + 0.563 | + 10.5 | + 0.562 | + 14.7 | + 0.653 | + 15.6 | + 0.640 | + 6.9 | + 0.655 | + 3.2 |
| 637 | + 0.514 | + 9.0 | + 0.538 | + 15.4 | + 0.625 | + 12.5 | + 0.571 | + 8.0 | + 0.585 | + 5.1 |
| 673 | − 0.396 | + 9.3 | − 0.395 | + 16.1 | − 0.317 | + 16.0 | − 0.317 | + 6.6 | | |
| 674 | − 0.169 | + 9.3 | − 0.156 | + 17.5 | − 0.089 | + 12.2 | − 0.085 | + 6.9 | | |
| 675 | − 0.148 | + 8.6 | − 0.154 | + 18.5 | − 0.069 | + 15.6 | − 0.077 | + 6.3 | | |
| 683 | + 0.592 | + 11.0 | + 0.600 | + 16.9 | + 0.679 | + 11.9 | + 0.656 | + 5.5 | | |

In this table, the shortenings owing to the bends in the wires 636 and 637 are taken into account, so that the table shows what the lengths of the the wires would have been had they not been bent.

The measuring at Ösel, the first one in Hanko, those at Enköping, Öland, Lolland and the second one at Potsdam are thus to be calculated with a 0.120 mm shorter value of the wire 636, and the second measurement at Hanko with a 0.061 mm shorter value of the wire 637, than shown by the above table.

The average length of the wires changed only — 0.004 mm ± 0.005 mm between Helsinki 1 and Helsinki 2. The change is so small, that there is reason to doubt whether it is real at all. Thus on the base lines Potsdam, Szubin, Sveksna, Ösel we may use the mean value: ½ (H 1 + H 2).

The change of the wires between Helsinki 2 and Helsinki 3 has to be localized before it is possible to determine which lengths have to be used for the measuring at Hanko 1, Enköping, Öland, Lolland and Potsdam 2. The experiments, discussed later have given no explanation of this phenomenon. Neither does comparation with the earlier measurings give any convincing proof showing whether the lengthening of the wires has taken place all at once or gradually. So far I assume that the wires have lengthened proportionally to the time between Enköping and Helsinki 3. According to this assumption the base lines are computed with the following wire-lengths:

| | |
|---|---|
| Hanko 1: | $H_2$ |
| Enköping: | $H_2$ |
| Öland: | $H_2 + 13/39\ (H_3—H_2)$ |
| Lolland: | $H_2 + 26/39\ (H_3—H_2)$ |
| Potsdam 2: | $H_2 + 32/39\ (H_3—H_2)$ |

The average change between Helsinki 3 and Helsinki 4 is — 0.010 mm ± 0.006 mm and between Helsinki 4 and Helsinki 5 + 0.006 mm ± 0.03 mm. Thus for Potsdam 3 the figures employed are: ½ (H 3 + H 4) and for Hanko 2: ½ (H 4 + H 5).

Considering the bends of the wires 636 and 637 the following wire lengths have to be employed on the field bases:

| | 634 | 635 | 636 | 637 | 673 | 674 | 675 | 683 |
|---|---|---|---|---|---|---|---|---|
| | + | + | + | + | − | − | − | + |
| Potsdam 1 | 0.056 | 0.838 | 0.562 | 0.526 | | | | |
| Szubin | 0.056 | 0.838 | 0.562 | 0.526 | 0.395 | 0.162 | 0.151 | 0.596 |
| Sveksna | 0.056 | 0.838 | 0.562 | 0.526 | 0.395 | 0.162 | 0.151 | 0.596 |
| Ösel | 0.056 | 0.838 | 0.442 | 0.526 | 0.395 | 0.162 | 0.151 | 0.596 |
| Hanko 1 | 0.036 | 0.821 | 0.442 | 0.538 | 0.395 | 0.156 | 0.154 | 0.600 |
| Enköping | 0.036 | 0.821 | 0.442 | 0.538 | 0.395 | 0.156 | 0.154 | 0.600 |
| Öland | 0.060 | 0.854 | 0.472 | 0.567 | 0.369 | 0.134 | 0.126 | 0.626 |
| Lolland | 0.085 | 0.887 | 0.502 | 0.596 | 0.343 | 0.111 | 0.097 | 0.653 |
| Potsdam 2 | 0.097 | 0.903 | 0.518 | 0.610 | 0.330 | 0.100 | 0.083 | 0.666 |
| Potsdam 3 | 0.109 | 0.925 | 0.647 | 0.598 | 0.317 | 0.087 | 0.073 | 0.668 |
| Hanko 2 | 0.112 | 0.926 | 0.647 | 0.517 | − | − | − | − |

*The temperature coefficients.*

Supposing the base line to be constant, the measurings at Helsinki enable us to compute a correction to the used temperature coefficient of the wires with such precision, that an effective control of the laboratory value can be obtained.

From the values of $m_0$ and t (page 31) we form the deviations from the mean $m_0$—M and t—$t_0$. All the measurings in which $m_0$—M exceeds 0.8 mm will be left out. Out of a total of 72 there are 7 such, namely:

Helsinki 1 634 PJ and 634 BS, Helsinki 2 635 BS and 637 PJ, Helsinki 3 637 PJ, Helsinki 4 637 $HK_2$, Helsinki 5 637 $HK_2$.

The following table contains the values of $m_0$—M and t—$t_0$.

| | 634 | | 635 | | 636 | | 637 | |
|---|---|---|---|---|---|---|---|---|
| | $m_0$—M | t—$t_0$ | $m_0$—M | t—$t_0$ | $m_0$—M | t—$t_0$ | $m_0$—M | t—$t_0$ |
| | mm | | mm | | mm | | mm | |
| Helsinki 1 | — | — | − 0.09 | − 0°4 | − 0.26 | − 1°0 | + 0.20 | 0°0 |
| | — | — | − 0.51 | + 2.7 | + 0.37 | + 1.7 | − 0.07 | − 1.7 |
| Helsinki 2 | + 0.06 | + 5°7 | + 0.44 | + 7.9 | − 0.04 | + 4.0 | — | — |
| | − 0.40 | + 7.5 | — | — | + 0.25 | + 4.9 | − 0.36 | − 7.9 |
| Helsinki 3 | + 0.48 | + 2.1 | + 0.21 | + 6.3 | + 0.12 | + 5.4 | — | — |
| | − 0.26 | + 4.5 | + 0.09 | − 0.7 | − 0.45 | + 5.3 | − 0.30 | + 0.4 |
| Helsinki 4 | − 0.09 | − 2.4 | + 0.13 | − 1.7 | + 0.31 | − 2.2 | + 0.74 | − 1.9 |
| | + 0.27 | − 3.2 | − 0.41 | − 2.3 | + 0.12 | − 4.4 | — | — |
| Helsinki 5 | + 0.12 | − 9.3 | + 0.43 | − 8.6 | − 0.23 | − 9.0 | − 0.21 | − 4.8 |
| | − 0.19 | − 4.7 | − 0.28 | − 3.6 | − 0.24 | − 4.9 | — | — |

| | 673 | | 674 | | 675 | | 683 | |
|---|---|---|---|---|---|---|---|---|
| | $m_0 - M$ | $t - t_0$ | $m_0 - M$ | $t - t_0$ | $m_0 - M$ | $t - t_0$ | $m_0 - M$ | $t - t_0$ |
| | mm | | mm | | mm | | mm | |
| Helsinki 1 | − 0.24 | − 4°.2 | − 0.09 | − 1°.7 | − 0.02 | − 2°.5 | + 0.05 | + 0°.9 |
| | + 0.18 | − 1.6 | + 0.29 | − 2.7 | − 0.27 | − 4.8 | − 0.15 | − 0.1 |
| Helsinki 2 | − 0.02 | + 4.5 | − 0.43 | + 6.7 | + 0.17 | + 5.6 | − 0.44 | + 5.0 |
| | − 0.10 | + 3.9 | − 0.14 | + 5.2 | − 0.13 | + 6.8 | − 0.15 | + 5.9 |
| Helsinki 3 | + 0.07 | + 4.9 | + 0.59 | + 3.0 | − 0.19 | + 4.4 | − 0.21 | + 2.0 |
| | + 0.01 | + 3.2 | − 0.24 | − 1.6 | + 0.08 | + 2.3 | − 0.14 | − 1.3 |
| Helsinki 4 | + 0.01 | − 6.3 | + 0.31 | − 5.7 | + 0.02 | − 7.3 | + 0.40 | − 6.1 |
| | + 0.10 | − 4.3 | − 0.26 | − 3.6 | + 0.35 | − 4.7 | + 0.59 | − 5.9 |

Treating each wire separately by the method of least squares we obtain the following values for $\frac{\Delta m_0}{\Delta t} = \mu$:

| Wire | $\mu$ | Wire | $\mu$ |
|---|---|---|---|
| 634 | − 0.015 mm | 673 | + 0.001 mm |
| 635 | + 0.007 » | 674 | − 0.022 » |
| 636 | + 0.007 » | 675 | − 0.005 » |
| 637 | + 0.026 » | 683 | − 0.066 » |

The average is:

$$\mu = -0.008 \text{ mm} \pm 0.007 \text{ mm}$$

Treating all the wires together by the method of least squares we get from the common solution:

$$\mu = -0.008 \text{ mm} \pm 0.005 \text{ mm}$$

The probable error of $\mu$ is in both cases nearly the same. This proves the unchangeableness of the base line, since if the base had changed between the different measurings, the probable error of $\mu$, obtained from the common solution, would have been the greater of the two.

As the base line contains 30 interspaces we thus get from the common solution the following correction to the temperature coefficient used:

$$- 0.000000011 \text{ t}$$

The laboratory value, with which the $m_0$ were computed, is

$$1 - 0.000000061 \text{ t} + 0.00000000065 \text{ t}^2$$

The value obtained from the measurings at Helsinki is thus

$$1 - 0.000000050\ t + 0.00000000065\ t^2$$

In that way we have got a correction to the value given at Breteuil, which exceeds only little the probable error. This correction is however very small and practically without importance. Thus it is proved, that the laboratory value without hesitation can be used for the field measurings.

In the following calculations I have used the Breteuil value. The corrections to be added to the wire lengths in order to reduce them to 15°C appear in the following table:

| t | corr. t mm | t | corr. t mm |
|---|---|---|---|
| 0° | + 0.0184 | 15° | — 0.0000 |
| 1 | + 0.0170 | 16 | — 0.0009 |
| 2 | + 0.0156 | 17 | — 0.0019 |
| 3 | + 0.0142 | 18 | — 0.0028 |
| 4 | + 0.0128 | 19 | — 0.0038 |
| 5 | + 0.0115 | 20 | — 0.0046 |
| 6 | + 0.0102 | 21 | — 0.0054 |
| 7 | + 0.0090 | 22 | — 0.0062 |
| 8 | + 0.0077 | 23 | — 0.0070 |
| 9 | + 0.0065 | 24 | — 0.0077 |
| 10 | + 0.0054 | 25 | — 0.0084 |
| 11 | + 0.0042 | 26 | — 0.0091 |
| 12 | + 0.0031 | 27 | — 0.0097 |
| 13 | + 0.0020 | 28 | — 0.0103 |
| 14 | + 0.0010 | 29 | — 0.0109 |

## The Computation and Results of the Measurings.

The general organization and executing of the measurings has already been accounted for. In the following will be treated the detailed results of the measurings.

The number of interspaces on the different base lines is as follows:

Potsdam: 10 interspaces of 24 metres
Szubin: 213 » » » »
Sveksna: 269 » » » » and one interspace of 8 m.
Ösel: 261 » » » »
Hanko: 245 » » » »
Enköping N: 214 » » » »

Enköping S: 49 interspaces of 24 metres and 6 interspaces of 96 m.
Öland: 10 sections containing 25 interspaces of 24 metres.
Lolland: 6 sections containing 41 interspaces of 24 metres, and one section containing 36 interspaces of 24 metres.

The results of the measurings are given in the tables on pp. 48—75. After the number of the wire and the direction of the measuring follows the indication of the front observer and of the direction of the wire (+ if the reading increases in the direction of the measuring). As already mentioned, the observers changed places on the long base lines after measuring one fourth of the distance, the wire was turned round in the middle and the observers changed their places again after measuring the third quarter. The indications in the table concern the first quarter of the base line. At Potsdam in March the observers changed their places in the middle of the base line both when measuring forwards and backwards. In other measurings at Potsdam the observers changed places at the terminal points. On Öland each section was measured without the observers changing place and without the wire being turned, this was also the case on the 6 first sections of Lolland. On the 7th section of Lolland the observers changed places in the middle.

In the following Column $m_1$, $m_2$ and $m_3$ indicate the sums of the differences of the readings, while m is their average value in millimetres. The differences of the readings when measuring with 8 and 96 metre wires at Sveksna and Enköping are also shown in the figures.

The reduction to the temperature of 15° (corr. t) is computed from the table page 40.

Corr. $L$ is due to the lengths of the wires. For the 24 metre wires the values given in the table on page 38 are used.

The 8 metre wire used in Sveksna was compared by the above mentioned comparator (page 10) with the wire 634 and the following value was obtained at a temperature of + 10°:

$$L = 8\text{ m} + 0.070\text{ mm}.$$

The 96 metre wire used at Enköping was compared at the interspaces 218—221 with each 24 m wire in connection with the measuring itself.

The results of the comparation are presented in the following table:

| Wire | t | m | corr. t | corr. L | corr. h | corr. b | M | $L_{96}$ |
|---|---|---|---|---|---|---|---|---|
| 636 | + 27°0 | + 81.73 | − 0.04 | + 1.77 | − 184.55 | − 0.02 | − 101.11 | + 13.09 |
| 96 | | − 3.04 | | | − 111.16 | | − 114.20 | |
| 634 | + 27.4 | + 83.43 | − 0.04 | + 0.44 | − 184.55 | − 0.02 | − 101.04 | + 13.07 |
| 96 | | − 2.95 | | | − 111.16 | | − 114.11 | |
| 637 | + 26.0 | + 83.63 | − 0.04 | + 2.15 | − 184.55 | − 0.02 | − 98.83 | + 13.40 |
| 96 | | − 1.07 | | | − 111.16 | | − 112.23 | |
| 635 | + 26.0 | + 82.33 | − 0.04 | + 3.28 | − 184.55 | − 0.02 | − 99.00 | + 13.42 |
| 96 | | − 1.26 | | | − 111.16 | | − 112.42 | |
| 673 | + 20.0 | + 86.97 | − 0.02 | − 1.58 | − 184.55 | − 0.02 | − 99.20 | + 13.20 |
| 96 | | − 1.24 | | | − 111.16 | | − 112.40 | |
| 675 | + 20.0 | + 86.33 | − 0.02 | − 0.62 | − 184.55 | − 0.02 | − 98.88 | + 13.30 |
| 96 | | − 1.02 | | | − 111.16 | | − 112.18 | |
| 674 | + 23.0 | + 86.62 | − 0.03 | − 0.62 | − 184.55 | − 0.02 | − 99.02 | + 13.07 |
| 96 | | − 0.93 | | | − 111.16 | | − 112.09 | |
| 683 | + 24.5 | + 83.37 | − 0.03 | + 2.40 | − 184.55 | − 0.02 | − 98.83 | + 13.53 |
| 96 | | − 1.20 | | | − 111.16 | | − 112.36 | |

As the comparations were made directly in connection with the measurings by the 96 metre wire, the temperature was in both instances about the same, so that the lengths of the 96 metre wire thus obtained may be used without any temperature correction.

Each of the above values of $L_{96}$ is used in computing the measuring by the corresponding wire.

The reductions to centre (corr. c) are computed on the basis of the optical centrings carried out at the terminal points. The remainder, measured at Sveksna and Hanko, are taken into account in this connection. The correction of the invar tape used at Sveksna was not determined, but it can be supposed to be practically correct. The steel tape used at Hanko was examined at the comparator at Helsinki and proved to be correct.

The results of the reductions to centre and the measurings of the remainder appear from the following table.

| | *Szubin.* | | | *Sveksna.* | |
|---|---|---|---|---|---|
| | E | W | | E | W |
| 24. V a. m. | + 19.5 mm | + 22.5 mm | 3. VI a. m. | + 0.9 mm | + 1 633.6 mm |
| 24. V p. m. | + 19.8 » | + 22.5 » | 5. VI a. m. | + 0.9 » | + 1 633.6 » |
| 25. V a. m. | + 19.6 » | + 18.5 » | 5. VI p. m. | + 0.6 » | + 1 633.6 » |
| 27. V a. m. | + 20.0 » | + 21.0 » | 6. VI a. m. | + 0.6 » | + 1 632.63 » |
| 28. V a. m. | + 18.7 » | + 22.6 » | 6. VI p. m. | + 0.8 » | + 1 632.63 » |
| 29. V a. m. | + 19.6 » | + 22.5 » | 7. VI | + 0.8 » | + 1 633.65 » |
| 31. V a. m. | + 19.4 » | + 22.8 » | 9. VI | + 1.0 » | + 1 633.80 » |

*Ösel.*

| | N | S |
|---|---|---|
| 17. VI p. m. | + 1.55 mm | — 0.6 mm |
| 18. VI a. m. | + 1.17 » | — 0.9 » |
| 18. VI p. m. | + 1.15 » | — 0.7 » |
| 19. VI a. m. | + 0.85 » | — 0.7 » |
| 19. VI p. m. | + 0.8 » | — 0.65 » |
| 20. VI a. m. | + 1.25 » | — 0.55 » |
| 20. VI p. m. | + 1.25 » | — 0.25 » |
| 21. VI a. m. | + 1.20 » | — 0.25 » |

*Hanko 1.*

| | W | E |
|---|---|---|
| 2. VII | — 0.4 mm | + 2 107.0 mm |
| 3. VII a. m. | — 0.1 » | + 2 107.5 » |
| 3. VII p. m. | — 0.1 » | + 2 109.67 » |
| 5. VII | + 0.25 » | + 2 109.25 » |
| 6. VII a. m. | — 0.30 » | + 2 109.62 » |
| 6. VII p. m. | — 0.30 » | + 2 109.27 » |
| 7. VII a. m. | — 0.40 » | + 2 108.67 » |
| 7. VII p. m. | — 0.40 » | + 2 108.70 » |

*Enköping N.*

| | N | M |
|---|---|---|
| 13. VII | + 8.8 mm | — 6.6 mm |
| 15. VII | + 8.8 » | — 6.6 » |
| 16. VII | + 8.8 » | — 6.6 » |
| 17. VII a. m. | + 8.95 » | — 6.6 » |
| 17. VII p. m. | + 8.90 » | — |
| 18. VII | + 8.6 » | — 7.1 » |
| 19. VII | + 8.7 » | — 6.8 » |
| 20. VII | + 8.95 » | — 7.5 » |

*Enköping S.*

| | M | S |
|---|---|---|
| 15. VII | + 6.6 mm | + 5.3 mm |
| 16. VII | + 6.6 » | + 5.3 » |
| 17. VII a. m. | + 6.6 » | — |
| 18. VII | + 7.1 » | + 5.35 » |
| 19. VII | + 6.8 » | + 5.60 » |

*Öland.*

| | S | N |
|---|---|---|
| Section I | + 13.0 mm | — |
| II | — | — 0.95 mm |
| III | + 0.58 » | + 0.42 » |
| IV | — 0.52 » | — |
| V | — | — 0.76 » |
| VI | + 0.58 » | — |
| VII | — | — 0.20 » |
| VIII | + 0.30 » | — 0.60 » |
| IX | + 0.62 » | — 1.44 » |
| X | + 1.44 » | — 0.22 » |

*Hanko 2.*

| | W | E |
|---|---|---|
| 14. 11 | — 0.78 mm | + 2 138.88 mm |
| 15. 11 | — 0.80 » | + 2 136.87 » |
| 19. 11 | — 1.49 » | + 2 137.20 » |
| 20. 11 | — 0.86 » | + 2 136.58 » |

The slope reduction (corr. $h$) contains also the correction due to the catenary deformation and is computed according to the formula:

$$\triangle L = -\frac{1000}{2L} h^2 - \frac{1000}{8L^3} h^4 + \frac{a^2 L}{3}\left\{1 - \frac{7}{15} a^2 L^2\right\} h^2 - \frac{a^2}{6L}\left\{1 - \frac{13}{5} a^2 L^2\right\} h^4 + \ldots$$

Using the numeric values:

$$L = 24 \text{ m} + b \text{ mm}, \qquad a = 0.000865$$
$$L = 96 \text{ m} + b \text{ mm}, \qquad a = 0.000428$$

and taking into consideration only those terms, the influence of which $> 0.01$ *mm* we get the following numerical formulae:

The 24 metre wires.

$$\text{corr. } h = -20.8333\ \Sigma h^2 + 0.00087\ \Sigma b h^2 - 0.0090\ \Sigma h^4 + 0.0060\ \Sigma h^2$$

The 96 metre wire (Enköping).

$$\text{corr. } h = -5.2083\,\Sigma h^2 + 0.00005\,\Sigma b\,h^2 - 0.000\,14\,\Sigma h^4 + 0.0059\,\Sigma h^2$$

Excepting Szubin, where $b$ systematically changes from the east end of the base line to the west end, and Enköping, where the differences of elevation occasionally are exceptionally great, we can suppose that $b$ is an accidental quantity and write

$$\Sigma b\,h^2 = \frac{\Sigma b\,\Sigma h^2}{n}$$

Corr. $b$ signifies the correction due to the inclination of the scales in relation to the cord of the wire. If we indicate the readings of the scales by $b_1$ and $b_2$ and further $b_1 - b_2 = b$ we get from the equation of the catenary,

$$y = ax^2 + \frac{1}{3}a^3x^4,$$

the following development:

$$\triangle L = -\left\{\frac{a^2L^2}{2}\left(1 - \frac{5a^2L^2}{12}\right) - a^2h^2\right\}b + \frac{2a^3L^2}{3}|h|\,(b_1 + b_2) + \cdots$$

Using the above numerical values of $L$ and $a$ we get:

The 24 metre wires:

$$\triangle L = -0.000215\,b + 0.0000007\,h^2b + 0.0000003\,|h|\,(b_1 + b_2)$$

The 96 metre wire:

$$\triangle L = -0.000842\,b + 0.0000002\,h^2b + 0.0000005\,|h|\,(b_1 + b_2)$$

Both $L$ and $b$ are expressed in millimetres, $h$ in metres. The two last terms can be left out of consideration thus, using the parabola instead of the catenary, we get:

The 24 metre wires: $\triangle L = -0.000215\,b$

$$\text{corr. } b = -0.000215\,(m + \text{corr. } L)$$

The 96 metre wire: $\triangle L = -0.000842\,b$

$$\text{corr. } b = -0.000842\,(m + \text{corr. } L)$$

The last correction, corr. $\varphi$, which is due to the difference of gravity on the measured base line and the standard base, we get from the formula

$$\text{corr. } \varphi = +7.00 \cdot n \cdot \left\{\frac{g-g_0}{g_0}\right\} \text{ mm}$$

In the following table there has been taken into consideration only the difference of gravity, due to the latitude, thus:

$$g = (1 + 0.00264 \cos 2\varphi)\, g_0$$

The difference of gravity due to the altitude above sea level may be taken into consideration in the most convenient way on reduction of the base line to the sea level. Using the formula of BOUGUET we have

$$\frac{g-g'}{g} = -\frac{2h}{r}\left\{1 - \frac{3}{4}\frac{D}{D_0}\right\}$$

and thus the reduction of the base line from the height $h$ to the sea level:

$$\text{corr. } h = -\frac{h}{r} \cdot B \cdot \left\{1 + \frac{0.007}{12}\left\{1 - \frac{3}{4}\frac{D}{D_0}\right\}\right\} = -1.00036 \cdot B \cdot \frac{h}{r}$$

where corr. $h$, $h$, $B$, and $r$ are given in metres.

Lacking sufficient information about the altitudes of all the base lines I shall in the following present the lengths of the base lines *uncorrected to the sea level.*

In the following table are given the corr. $h$, corr. $b$ and corr. $\varphi$ of the different base lines. The 4 terms of corr. $h$ are written out separately in the order in which they appear in the above formula. $\Sigma h^2$ and $\Sigma h^4$ are given in metres. Where the levelling has been carried out in both directions two values are given for $h^2$ and the average value of these figures has been used in the computations. In Potsdam 1 the two values of $h^2$ differ from each other because one of the measurings of the first interspace is erroneous. As the plumbing apparatus was removed, before the mistake was observed it was impossible to prove which measuring was the correct one. In the computations I have assumed the second figure to be correct.

| Station | $\Sigma h^2$ | | $\Sigma h^4$ | corr. $h$ | | | | corr. $b$ | corr. $\varphi$ |
|---|---|---|---|---|---|---|---|---|---|
| Potsdam 1 .. | 0.1894 | 0.1901 | 0.00 | — 3.96 | 0.00 | 0.00 | 0.00 | 0.00 | + 0.02 |
| Potsdam 1 .. | 0.1753 | 0.1663 | 0.00 | — 3.47 | 0.00 | 0.00 | 0.00 | 0.00 | + 0.02 |
| Szubin ..... | 15.7427 | .7547 | 6.45 | — 328.09 | + 0.30 | — 0.06 | + 0.09 | — 1.61 | + 0.64 |
| Sveksna .... | 10.9002 | .9022 | 2.70 | — 227.13 | + 0.03 | — 0.02 | + 0.07 | — 0.20 | + 1.07 |
| Ösel ..... | 8.6896 | .7164 | 1.45 | — 181.31 | + 0.11 | — 0.01 | + 0.05 | — 0.85 | + 1.56 |
| Hanko 1 .... | 12.8102 | .7721 | 4.21 | — 266.48 | + 0.05 | — 0.04 | + 0.08 | — 0.21 | + 1.72 |
| Enköping N . | 63.4568 | .4730 | 367.21 | —1 322.18 | + 0.03 | — 3.30 | + 0.35 | + 0.06 | + 1.50 |
| Enköping S . | 36.4045 | .4225 | 132.32 | — 747.03 | — 0.12 | — 1.19 | + 0.22 | + 0.09 | + 0.51 |
| Öland 1 .... | 0.7232 | .7231 | 0.06 | — 15.07 | 0.00 | 0.00 | 0.00 | 0.00 | + 0.12 |
| Öland 2 .... | 0.3976 | .3964 | 0.01 | — 8.27 | 0.00 | 0.00 | 0.00 | 0.00 | + 0.13 |
| Öland 3 .... | 0.2606 | .2603 | 0.01 | — 5.43 | 0.00 | 0.00 | 0.00 | 0.00 | + 0.12 |
| Öland 4 .... | 1.6656 | .6653 | 1.05 | — 34.70 | 0.00 | — 0.01 | + 0.01 | 0.00 | + 0.13 |
| Öland 5 .... | 0.8716 | .8735 | 0.11 | — 18.18 | 0.00 | 0.00 | + 0.01 | 0.00 | + 0.12 |
| Öland 6 .... | 0.5528 | .5538 | 0.02 | — 11.53 | 0.00 | 0.00 | 0.00 | 0.00 | + 0.13 |
| Öland 7 .... | 1.1601 | .1599 | 0.34 | — 24.17 | 0.00 | 0.00 | + 0.01 | 0.00 | + 0.12 |
| Öland 8 .... | 0.5619 | .5636 | 0.03 | — 11.72 | 0.00 | 0.00 | 0.00 | 0.00 | + 0.13 |
| Öland 9 .... | 0.3618 | .3614 | 0.01 | — 7.53 | 0.00 | 0.00 | 0.00 | 0.00 | + 0.12 |
| Öland 10 ... | 1.0654 | .0668 | 0.18 | — 22.21 | 0.00 | 0.00 | + 0.01 | 0.00 | + 0.13 |
| Lolland 1 .. | 0.7601 | | 0.02 | — 15.85 | 0.00 | 0.00 | 0.00 | — 0.04 | + 0.16 |
| » » .. | 0.7399 | | 0.02 | — 15.41 | 0.00 | 0.00 | 0.00 | — 0.04 | + 0.16 |
| Lolland 2 .. | 3.4166 | | 0.89 | — 71.18 | + 0.01 | — 0.01 | + 0.01 | — 0.03 | + 0.16 |
| » » .. | 3.4442 | | 1.11 | — 71.75 | + 0.01 | — 0.01 | + 0.01 | — 0.03 | + 0.16 |
| Lolland 3 .. | 0.4384 | | 0.00 | — 9.14 | 0.00 | 0.00 | 0.00 | — 0.02 | + 0.16 |
| » » .. | 0.4155 | | 0.00 | — 8.66 | 0.00 | 0.00 | 0.00 | — 0.02 | + 0.16 |
| Lolland 4 .. | 0.2736 | | 0.00 | — 5.70 | 0.00 | 0.00 | 0.00 | — 0.01 | + 0.16 |
| » » .. | 0.2910 | | 0.00 | — 6.06 | 0.00 | 0.00 | 0.00 | — 0.01 | + 0.16 |
| Lolland 5 .. | 1.7176 | | 0.12 | — 35.76 | 000. | 0.00 | + 0.01 | — 0.01 | + 0.16 |
| » » .. | 1.7247 | | 0.12 | — 35.93 | 0.00 | 0.00 | + 0.01 | — 0.01 | + 0.16 |
| Lolland 6 .. | 1.0526 | | 0.04 | — 21.95 | 0.00 | 0.00 | + 0.01 | 0.00 | + 0.16 |
| » » .. | 1.1011 | | 0.04 | — 22.94 | 0.00 | 0.00 | + 0.01 | 0.00 | + 0.16 |
| Lolland 7 .. | 0.4542 | | 0.01 | — 9.47 | 0.00 | 0.00 | 0.00 | — 0.01 | + 0.14 |
| » » .. | 0.4588 | | 0.01 | — 9.56 | 0.00 | 0.00 | 0.00 | — 0.01 | + 0.14 |
| Potsdam 2 .. | 0.1650 | 1653 | 0.00 | — 3.44 | 0.00 | 0.00 | 0.00 | 0.00 | + 0.02 |
| Hanko 2 .... | 10.4736 | .4780 | 1.56 | — 218.21 | + 0.03 | — 0.01 | + 0.06 | — 0.19 | + 1.72 |
| Potsdam 3 .. | 0.1952 | .1958 | 0.00 | — 4.08 | 0.00 | 0.00 | 0 00 | 0.00 | + 0.02 |

The arrangement of the following tables for the base line of Potsdam is somewhat different to that for the long base lines, while this base line was measured several times by each wire. The gravity correction has been left out from the tables. All the values of M thus need a correction of + 0.02 mm.

All figures in the tables are given in millimetres.

## POTSDAM 1.

| Wire | Obs. t | $m_1$ | $m_2$ | $m_3$ | m | corr. t | corr. L | corr. h | M |
|---|---|---|---|---|---|---|---|---|---|
| 634 | W. Lo | + 23.5 | 23.3 | 23.7 | + 23.50 | + 0.10 | + 0.56 | − 3.96 | 20.20 |
| | + 6°2 | + 23.2 | 23.5 | 23.0 | + 23.23 | + 0.10 | + 0.56 | − 3.96 | 19.93 |
| | W. Li | + 23.6 | 23.2 | 23.8 | + 23.53 | + 0.08 | + 0.56 | − 3.96 | 20.21 |
| | + 7.6 | + 23.6 | 23.4 | 23.2 | + 23.40 | + 0.08 | + 0.56 | − 3.96 | 20.08 |
| | Sch. Li | + 23.7 | 23.6 | 23.5 | + 23.60 | + 0.07 | + 0.56 | − 3.96 | 20.27 |
| | + 9.1 | + 23.8 | 23.5 | 23.3 | + 23.53 | + 0.07 | + 0.56 | − 3.96 | 20.20 |
| | Lo. Sch | + 24.0 | 23.7 | 23.3 | + 23.67 | + 0.06 | + 0.56 | − 3.96 | 20.33 |
| | + 9.5 | + 23.7 | 24.0 | 23.6 | + 23.77 | + 0.06 | + 0.56 | − 3.96 | 20.43 |
| | Sch. W | + 23.3 | 22.9 | 23.2 | + 23.13 | + 0.05 | + 0.56 | − 3.96 | 19.78 |
| | + 10.0 | + 23.5 | 23.2 | 23.3 | + 23.33 | + 0.05 | + 0.56 | − 3.96 | 19.98 |
| | Li. Lo | + 23.6 | 23.5 | 23.3 | + 23.47 | + 0.04 | + 0.56 | − 3.96 | 20.11 |
| | + 11.3 | + 23.3 | 22.9 | 23.2 | + 23.13 | + 0.04 | + 0.56 | − 3.96 | 19.77 |
| | | | | | | | | | 20.11 |
| 635 | Lo. W | + 14.4 | 15.0 | 15.0 | + 14.80 | + 0.03 | + 8.38 | − 3.96 | 19.25 |
| | +12°0 | + 14.9 | 14.6 | 14.6 | + 14.70 | + 0.03 | + 8.38 | − 3.96 | 19.15 |
| | Li. W | + 15.4 | 14.6 | 14.8 | + 14.93 | + 0.02 | + 8.38 | − 3.96 | 19.37 |
| | 12.8 | + 15.1 | 15.3 | 14.8 | + 15.07 | + 0.02 | + 8.38 | − 3.96 | 19.51 |
| | Li. Sch | + 14.9 | 15.0 | 14.5 | + 14.80 | + 0.03 | + 8.38 | − 3.96 | 19.25 |
| | 12.5 | + 14.3 | 14.7 | 14.7 | + 14.57 | + 0.03 | + 8.38 | − 3.96 | 19.02 |
| | Sch. Lo | + 14.8 | 14.5 | 14.9 | + 14.73 | + 0.04 | + 8.38 | − 3.96 | 19.19 |
| | 11.2 | + 14.7 | 15.1 | 15.0 | + 14.93 | + 0.04 | + 8.38 | − 3.96 | 19.39 |
| | Sch. W | + 15.1 | 14.3 | 14.8 | + 14.73 | + 0.05 | + 8.38 | − 3.96 | 19.20 |
| | 10.4 | + 14.4 | 14.7 | 14.5 | + 14.53 | + 0.05 | + 8.38 | − 3.96 | 19.00 |
| | Lo. Li | + 14.2 | 14.9 | 14.6 | + 14.57 | + 0.05 | + 8.38 | − 3.96 | 19.04 |
| | 10.5 | + 14.3 | 14.7 | 14.5 | + 14.50 | + 0.05 | + 8.38 | − 3.96 | 18.97 |
| | | | | | | | | | 19.20 |
| 636 | W Lo. | + 17.6 | 17.8 | 17.4 | + 17.60 | + 0.18 | + 5.62 | − 3.47 | 19.93 |
| | 0°0 | + 17.5 | 18.2 | 17.9 | + 17.87 | + 0.18 | + 5.62 | − 3.47 | 20.20 |
| | W Li. | + 17.7 | 17.4 | 17.1 | + 17.40 | + 0.18 | + 5.62 | − 3.47 | 19.73 |
| | +0.4 | + 17.6 | 17.5 | 17.5 | + 17.53 | + 0.18 | + 5.62 | − 3.47 | 19.86 |
| | Sch Li. | + 17.9 | 17.3 | 17.5 | + 17.57 | + 0.17 | + 5.62 | − 3.47 | 19.89 |
| | + 0.9 | + 17.4 | 17.8 | 17.7 | + 17.63 | + 0.17 | + 5.62 | − 3.47 | 19.95 |
| | Lo Sch. | + 17.9 | 17.7 | 17.7 | + 17.77 | + 0.17 | + 5.62 | − 3.47 | 20.09 |
| | + 1.2 | + 17.3 | 17.3 | 17.2 | + 17.27 | + 0.17 | + 5.62 | − 3.47 | 19.59 |
| | Sch W. | + 17.4 | 18.0 | 17.4 | + 17.60 | + 0.17 | + 5.62 | − 3.47 | 19.92 |
| | + 1.2 | + 17.3 | 17.4 | 17.6 | + 17.43 | + 0.17 | + 5.62 | − 3.47 | 19.75 |
| | Lo. Li | + 17.8 | 17.8 | 17.6 | + 17.73 | + 0.16 | + 5.62 | − 3.47 | 20.04 |
| | + 1.3 | + 18.1 | 17.9 | 17.7 | + 17.90 | + 0.16 | + 5.62 | − 3.47 | 20.21 |
| | | | | | | | | | 19.93 |

## POTSDAM 1.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 637 | Lo W. | + 17.6 | 17.6 | 17.8 | + 17.67 | + 0.16 | + 5.26 | − 3.47 | 19.62 |
| | + 1.7 | + 17.4 | 17.8 | 17.3 | + 17.50 | + 0.16 | + 5.26 | − 3.47 | 19.45 |
| | Li W. | + 17.2 | 18.1 | 17.8 | + 17.70 | + 0.17 | + 5.26 | − 3.47 | 19.66 |
| | + 1.2 | + 17.7 | 17.5 | 17.6 | + 17.60 | + 0.17 | + 5.26 | − 3.47 | 19.56 |
| | Li Sch. | + 17.9 | 17.3 | 17.4 | + 17.53 | + 0.14 | + 5.26 | − 3.47 | 19.46 |
| | + 2.8 | + 18.0 | 17.8 | 17.7 | + 17.83 | + 0.14 | + 5.26 | − 3.47 | 19.76 |
| | Sch Lo. | + 18.4 | 17.5 | 17.9 | + 17.93 | + 0.14 | + 5.26 | − 3.47 | 19.86 |
| | + 2.9 | + 18.2 | 17.7 | 17.8 | + 17.90 | + 0.14 | + 5.26 | − 3.47 | 19.83 |
| | W Sch. | + 17.2 | 17.5 | 17.4 | + 17.37 | + 0.14 | + 5.26 | − 3.47 | 19.30 |
| | + 3.3 | + 17.7 | 18.4 | 18.2 | + 18.10 | + 0.14 | + 5.26 | − 3.47 | 20.03 |
| | Lo Li. | + 17.7 | 18.5 | 17.6 | + 17.93 | + 0.13 | + 5.26 | − 3.47 | 19.85 |
| | + 3.6 | + 17.9 | 17.8 | 18.0 | + 17.90 | + 0.13 | + 5.26 | − 3.47 | 19.82 |
| | | | | | | | | | 19.68 |

## POTSDAM 2.

| Wire | Obs. t | $m_1$ | $m_2$ | $m_3$ | m | corr. t | corr. L | corr. h | M |
|---|---|---|---|---|---|---|---|---|---|
| 634 | J P | + 21.9 | 22.3 | 22.5 | + 22.23 | − 0.04 | + 0.97 | − 3.45 | 19.71 |
| | + 19°.5 | + 21.8 | 22.0 | 22.1 | + 21.97 | − 0.04 | + 0.97 | − 3.45 | 19.45 |
| | B S | + 22.4 | 22.0 | 21.6 | + 22.00 | − 0.04 | + 0.97 | − 3.45 | 19.48 |
| | + 19.4 | + 21.8 | 21.6 | 21.6 | + 21.67 | − 0.04 | + 0.97 | − 3.45 | 19.15 |
| | | | | | | | | | 19.45 |
| 635 | P J | + 14.4 | 14.8 | 14.5 | + 14.57 | − 0.03 | + 9.03 | − 3.45 | 20.12 |
| | + 18.6 | + 14.5 | 14.5 | 14.2 | + 14.40 | − 0.03 | + 9.03 | − 3.45 | 19.95 |
| | S B | + 14.4 | 14.7 | 14.2 | + 14.43 | − 0.04 | + 9.03 | − 3.45 | 19.97 |
| | + 19.4 | + 14.6 | 14.2 | 13.8 | + 14.20 | − 0.04 | + 9.03 | − 3.45 | 19.74 |
| | | | | | | | | | 19.94 |
| 636 | P J | + 17.7 | 17.7 | 17.6 | + 17.67 | − 0.04 | + 5.18 | − 3.45 | 19.36 |
| | + 19.3 | + 18.3 | 18.4 | 18.2 | + 18.30 | − 0.04 | + 5.18 | − 3.45 | 19.99 |
| | S B | + 17.8 | 17.6 | 17.6 | + 17.67 | − 0.04 | + 5.18 | − 3.45 | 19.36 |
| | + 19.2 | + 18.4 | 18.5 | 17.9 | + 18.27 | − 0.04 | + 5.18 | − 3.45 | 19.96 |
| | | | | | | | | | 19.67 |
| 637 | J P | + 16.7 | 17.4 | 16.9 | + 17.00 | − 0.05 | + 6.10 | − 3.45 | 19.60 |
| | +21.0 | + 16.7 | 16.7 | 16.8 | + 16.73 | − 0.05 | + 6.10 | − 3.45 | 19.33 |
| | B S | + 16.6 | 17.1 | 16.8 | + 16.83 | − 0.06 | + 6.10 | − 3.45 | 19.42 |
| | + 21.2 | + 17.3 | 17.4 | 17.1 | + 17.27 | − 0.06 | + 6.10 | − 3.45 | 19.86 |
| | | | | | | | | | 19.55 |
| 673 | P J | + 26.8 | 26.3 | 25.7 | + 26.27 | − 0.04 | − 3.30 | − 3.45 | 19.48 |
| | + 18.9 | + 26.2 | 26.0 | 26.3 | + 26.17 | − 0.04 | − 3.30 | − 3.45 | 19.38 |
| | S B | + 27.0 | 27.3 | 26.9 | + 27.07 | − 0.03 | − 3.30 | − 3.45 | 20.29 |
| | + 18.7 | + 26.6 | 26.5 | 26.6 | + 26.57 | − 0.03 | − 3.30 | − 3.45 | 19.79 |
| | | | | | | | | | 19.74 |
| 674 | P J | + 24.2 | 24.5 | 24.6 | + 24.43 | − 0.05 | − 1.00 | − 3.45 | 19.93 |
| | + 20.2 | + 25.1 | 24.5 | 24.7 | + 24.77 | − 0.05 | − 1.00 | − 3.45 | 20.27 |
| | B S | + 24.6 | 24.4 | 24.6 | + 24.53 | − 0.05 | − 1.00 | − 3.45 | 20.03 |
| | + 20.9 | + 24.6 | 24.3 | 24.5 | + 24.47 | − 0.05 | − 1.00 | − 3.45 | 19.97 |
| | | | | | | | | | 20.05 |
| 675 | J P | + 24.1 | 24 0 | 23.9 | + 24.00 | 0.00 | − 0.83 | − 3.45 | 19.72 |
| | + 15.5 | + 23.9 | 23.8 | 23.3 | + 23.67 | 0.00 | − 0.83 | − 3.45 | 19.39 |
| | B S | + 24.0 | 24.0 | 23.7 | + 23.90 | − 0.02 | − 0.83 | − 3.45 | 19.60 |
| | + 17.3 | + 24.4 | 24.5 | 24.0 | + 24.30 | − 0.02 | − 0.83 | − 3.45 | 20.00 |
| | | | | | | | | | 19.68 |
| 683 | J P | + 16.4 | 16.9 | 16.2 | + 16.50 | − 0.06 | + 6.66 | − 3.45 | 19.65 |
| | + 21.3 | + 16.8 | 16.9 | 17.1 | + 16.93 | − 0.06 | + 6.66 | − 3.45 | 20.08 |
| | S B | + 17.1 | 17.1 | 17.1 | + 17.10 | − 0.06 | + 6.66 | − 3.45 | 20.25 |
| | + 21.5 | + 16.7 | 16.7 | 16.7 | + 16.70 | − 0.06 | + 6.66 | − 3.45 | 19.85 |
| | | | | | | | | | 19.96 |

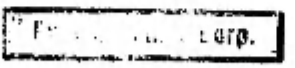
## POTSDAM 3.

| Wire | Obs. t | $m_1$ | $m_2$ | $m_3$ | m | corr. t | corr. L | corr. h | M |
|---|---|---|---|---|---|---|---|---|---|
| 634 | Lo. Sch | + 22.0 | 22.1 | 22.5 | + 22.20 | + 0.05 | + 1.09 | − 4.08 | 19.26 |
| | + 10°.4 | + 21.9 | 22.2 | 22.0 | + 22.03 | + 0.05 | + 1.09 | − 4.08 | 19.09 |
| | Sch. Lo | + 22.3 | 21.5 | 21.9 | + 21.90 | + 0.03 | + 1.09 | − 4.08 | 18.94 |
| | + 11.7 | + 22.4 | 22.1 | 22.2 | + 22.23 | + 0.03 | + 1.09 | − 4.08 | 19.27 |
| | | | | | | | | | 19.14 |
| 635 | Lo. Sch | + 14.3 | 14.8 | 14.3 | + 14.47 | + 0.03 | + 9.25 | − 4.08 | 19.67 |
| | + 12.5 | + 14.2 | 14.4 | 14.6 | + 14.40 | + 0.03 | + 9.25 | − 4.08 | 19.60 |
| | Sch .Lo | + 14.5 | 14.7 | 14.3 | + 14.50 | + 0.02 | + 9.25 | − 4.08 | 19.69 |
| | + 12.8 | + 13.9 | 14.4 | 14.0 | + 14.10 | + 0.02 | + 9.25 | − 4.08 | 19.29 |
| | | | | | | | | | 19.56 |
| 636 | Lo. Sch | + 17.0 | 17.1 | 17.0 | + 17.03 | + 0.01 | + 6.47 | − 4.08 | 19.43 |
| | + 13.7 | + 16.8 | 16.9 | 16.6 | + 16.77 | + 0.01 | + 6.47 | − 4.08 | 19.17 |
| | Sch. Lo | + 17.0 | 16.9 | 16.9 | + 16.93 | + 0.02 | + 6.47 | − 4.08 | 19.34 |
| | + 13.5 | + 17.0 | 16.4 | 16.7 | + 16.70 | + 0.02 | + 6.47 | − 4.08 | 19.11 |
| | | | | | | | | | 19.26 |
| 637 | Lo. Sch | + 17.0 | 17.9 | 17.2 | + 17.37 | + 0.02 | + 5.98 | − 4.08 | 19.29 |
| | + 13.3 | + 17.4 | 17.6 | 17.8 | + 17.60 | + 0.02 | + 5.98 | − 4.08 | 19.52 |
| | Sch. Lo | + 17.6 | 17.6 | 17.5 | + 17.57 | + 0.02 | + 5.98 | − 4.08 | 19.49 |
| | + 13.1 | + 17.5 | 17.5 | 17.1 | + 17.37 | + 0.02 | + 5.98 | − 4.08 | 19.29 |
| | | | | | | | | | 19.40 |
| 673 | Lo. Sch | + 26.4 | 27.0 | 26.5 | + 26.63 | + 0.08 | − 3.17 | − 4.08 | 19.46 |
| | + 7.6 | + 26.9 | 27.0 | 27.2 | + 27.03 | + 0.08 | − 3.17 | − 4.08 | 19.86 |
| | Sch. Lo | + 26.9 | 26.6 | 26.5 | + 26.67 | + 0.07 | − 3.17 | − 4.08 | 19.49 |
| | + 8.7 | + 27.0 | 26.8 | 26.6 | + 26.80 | + 0.07 | − 3.17 | − 4.08 | 19.62 |
| | | | | | | | | | 19.61 |
| 674 | Lo. Sch | + 24.7 | 24.9 | 24.6 | + 24.73 | + 0.04 | − 0.87 | − 4.08 | 19.82 |
| | + 11.1 | + 24.4 | 24.8 | 24.5 | + 24.57 | + 0.04 | − 0.87 | − 4.08 | 19.66 |
| | Sch. Lo | + 24.5 | 24.3 | 24.4 | + 24.40 | + 0.04 | − 0.87 | − 4.08 | 19.49 |
| | + 10.9 | + 24.3 | 24.5 | 24.5 | + 24.33 | + 0.04 | − 0.87 | − 4.08 | 19.42 |
| | | | | | | | | | 19.60 |
| 675 | Lo. Sch | + 24.1 | 24.4 | 24.3 | + 24.27 | + 0.04 | − 0.73 | − 4.08 | 19.50 |
| | + 11.1 | + 23.8 | 24.5 | 24.4 | + 24.23 | + 0.04 | − 0.73 | − 4.08 | 19.46 |
| | Sch. Lo | + 24.7 | 24.7 | 24.6 | + 24.67 | + 0.04 | − 0.73 | − 4.08 | 19.90 |
| | + 11.2 | + 25.1 | 24.9 | 24.6 | + 24.87 | + 0.04 | − 0.73 | − 4.08 | 20.10 |
| | | | | | | | | | 19.74 |
| 683 | Lo Sch. | + 17.1 | 16.7 | 17.0 | + 16.93 | + 0.05 | + 6.68 | − 4.08 | 19.58 |
| | + 10.2 | + 16.6 | 17.2 | 17.0 | + 16.93 | + 0.05 | + 6.68 | − 4.08 | 19.58 |
| | Sch Lo | + 16.8 | 16.9 | 17.7 | + 17.13 | + 0.05 | + 6.68 | − 4.08 | 19.78 |
| | + 10.7 | + 17.2 | 17.0 | 17.0 | + 17.07 | + 0.05 | + 6.68 | − 4.08 | 19.72 |
| | | | | | | | | | 19.66 |

# SZUBIN.

| Wire | 634 | 673 | 674 | 637 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | —B +S | —J +P | —B +S | +P —J |
| Temper. | + 22°0 | + 22°5 | + 21°5 | + 20°0 |
| $m_1$ | + 7461.9 | + 7553.1 | + 7516.6 | + 7356.7 |
| $m_2$ | + 7459.9 | + 7552.9 | + 7513.6 | + 7355.1 |
| $m_3$ | + 7458.1 | + 7553.3 | + 7513.6 | + 7355.8 |
| m | + 7459.97 | + 7553.10 | + 7514.60 | + 7355.87 |
| corr. t | — 1.32 | — 1.40 | — 1.24 | — 0.97 |
| corr. L | + 11.93 | — 84.14 | — 34.51 | + 112.04 |
| corr. c | + 42.00 | + 42.00 | + 38.10 | + 42.10 |
| corr. h | — 327.76 | — 327.76 | — 327.76 | — 327.76 |
| corr. b | — 1.61 | — 1.61 | — 1.61 | — 1.61 |
| corr. $\varphi$ | + 0.64 | + 0.64 | + 0.64 | + 0.64 |
| *M* | **+ 7183.85** | **+ 7180.83** | **+ 7188.22** | **+ 7180.31** |

| Wire | 635 | 636 | 675 | 683 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | —S +B | —J +P | —S +B | +J —P |
| Temper. | + 22°8 | + 24°2 | + 21°1 | + 20°7 |
| $m_1$ | + 7290.9 | + 7347.0 | + 7496.3 | + 7342.0 |
| $m_2$ | + 7292.3 | + 7344.4 | + 7495.9 | + 7339.6 |
| $m_3$ | + 7294.4 | + 7344.3 | + 7493.3 | + 7339.5 |
| m | + 7292.53 | + 7345.23 | + 7495.17 | + 7340.37 |
| corr. t | — 1.45 | — 1.67 | — 1.17 | — 1.10 |
| corr. L | + 178.49 | + 119.71 | — 32.16 | + 126.95 |
| corr. c | + 42.30 | + 41.00 | + 41.30 | + 42.20 |
| corr. h | — 327.76 | — 327.76 | — 327.76 | — 327.76 |
| corr. b | — 1.61 | — 1.61 | — 1.61 | — 1.61 |
| corr. $\varphi$ | + 0.64 | + 0.64 | + 0.64 | + 0.64 |
| *M* | **+ 7183.14** | **+ 7175.54** | **+ 7174.41** | **+ 7179.69** |



## SVEKSNA.

| Wire | 636 | 675 | 673 | 635 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | +P —J | —B +S | +P —J | +S —B |
| Temper. | + 9°.5 | + 9°.6 | + 8°.0 | + 12°.0 |
| $m_1$ | + 786.9 | + 972.8 | + 1047.7 | + 707.2 |
| $m_2$ | + 786.6 | + 972.1 | + 1038.9 | + 707.4 |
| $m_3$ | + 786.6 | + 970.8 | + 1040.1 | + 709.2 |
| m | + 786.70 | + 971.90 | + 1042.23 | + 707.93 |
| corr. t | + 1.60 | + 1.57 | + 2.08 | + 0.84 |
| corr. L | + 151.25 | — 40.55 | — 106.18 | + 225.49 |
| corr. c | + 1634.50 | + 1634.50 | + 1633.23 | + 1634.45 |
| corr. h | — 227.05 | — 227.05 | — 227.05 | — 227.05 |
| corr. b | — 0.20 | — 0.20 | — 0.20 | — 0.20 |
| corr. $\varphi$ | + 1.07 | + 1.07 | + 1.07 | + 1.07 |
| *M* | + **2347.87** | + **2341.24** | + **2345.18** | + **2342.53** |

| Wire | 674 | 637 | 634 | 683 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | +S —B | —J +P | —B +S | +P —J |
| Temper. | + 10°.2 | + 7°.5 | + 10°.0 | + 8°.0 |
| $m_1$ | + 974.9 | + 799.5 | + 926.8 | + 776.6 |
| $m_2$ | + 976.8 | + 793.9 | + 926.9 | + 772.5 |
| $m_3$ | + 977.8 | + 795.6 | + 924.7 | + 771.9 |
| m | + 976.50 | + 796.33 | + 926.13 | + 773.67 |
| corr. t | + 1.38 | + 2.25 | + 1.44 | + 2.08 |
| corr. L | — 43.51 | + 141.56 | + 15.13 | + 160.39 |
| corr. c | + 1634.50 | + 1634.20 | + 1633.43 | + 1634.80 |
| corr. h | — 227.05 | — 227.05 | — 227.05 | — 227.05 |
| corr. b | — 0.20 | — 0.20 | — 0.20 | — 0.20 |
| corr. $\varphi$ | + 1.07 | + 1.07 | + 1.07 | + 1.07 |
| *M* | + **2342.69** | + **2348.16** | + **2349.95** | + **2344.76** |

# ÖSEL.

| Wire | 634 | 636 | 637 | 674 |
|---|---|---|---|---|
| Direction | NS | NS | NS | NS |
| Observers | +B —S | +P —J | +J —P | —S +B |
| Temper. | + 17°.0 | + 18°.5 | + 18°.4 | + 20°.4 |
| $m_1$ | + 3919.1 | + 3827.2 | + 3799.8 | + 3976.3 |
| $m_2$ | + 3918.5 | + 3825.9 | + 3795.8 | + 3976.1 |
| $m_3$ | + 3918.7 | + 3825.5 | + 3796.6 | + 3972.8 |
| m | + 3918.77 | + 3826.20 | + 3797.40 | + 3975.07 |
| corr. t | — 0.51 | — 0.86 | — 0.84 | — 1.28 |
| corr. L | + 14.62 | + 115.36 | + 137.29 | — 42.28 |
| corr. c | + 0.95 | + 0.45 | + 0.15 | + 1.00 |
| corr. h | — 181.16 | — 181.16 | — 181.16 | — 181.16 |
| corr. b | — 0.85 | — 0.85 | — 0.85 | — 0.85 |
| corr. $\varphi$ | + 1.56 | + 1.56 | + 1.56 | + 1.56 |
| *M* | **+ 3753.38** | **+ 3760.70** | **+ 3753.55** | **+ 3752.06** |

| Wire | 635 | 675 | 673 | 683 |
|---|---|---|---|---|
| Direction | SN | SN | SN | SN |
| Observers | +S —B | —B +S | —J +P | —J +P |
| Temper. | + 17°.4 | + 19°.1 | + 22°.2 | + 21°.2 |
| $m_1$ | + 3720.6 | + 3970.8 | + 4038.9 | + 3778.0 |
| $m_2$ | + 3721.9 | + 3970.0 | + 4039.8 | + 3775.6 |
| $m_3$ | + 3719.4 | + 3969.6 | + 4038.6 | + 3774.7 |
| m | + 3720.63 | + 3970.13 | + 4039.10 | + 3776.10 |
| corr. t | — 0.60 | — 1.00 | — 1.66 | — 1.46 |
| corr. L | + 218.72 | — 39.41 | — 103.10 | + 155.56 |
| corr. c | + 0.27 | + 0.15 | + 0.70 | + 0.95 |
| corr. h | — 181.16 | — 181.16 | — 181.16 | — 181.16 |
| corr. b | — 0.85 | — 0.85 | — 0.85 | — 0.85 |
| corr. $\varphi$ | + 1.56 | + 1.56 | + 1.56 | + 1.56 |
| *M* | **+ 3758.57** | **+ 3749.42** | **+ 3754.59** | **+ 3750.70** |

## HANKO 1.

| Wire | 674 | 675 | 673 | 683 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | —B +S | +B —S | +P —J | +J —P |
| Temper. | + 22°.2 | + 21°.6 | + 18°.4 | + 18°.6 |
| $m_1$ | + 1036.3 | + 1027.7 | + 1099.0 | + 856.4 |
| $m_2$ | + 1036.4 | + 1029.4 | + 1097.4 | + 853.6 |
| $m_3$ | + 1035.0 | + 1029.0 | + 1097.9 | + 853.5 |
| m | + 1035.90 | + 1028.70 | + 1098.30 | + 854.50 |
| corr. t | — 1.56 | — 1.44 | — 0.78 | — 0.83 |
| corr. L | — 38.22 | — 37.73 | — 96.78 | + 147.00 |
| corr. c | + 2106.60 | + 2109.57 | + 2108.97 | + 2108.27 |
| corr. h | — 266.39 | — 266.39 | — 266.39 | — 266.39 |
| corr. b | — 0.21 | — 0.21 | — 0.21 | — 0.21 |
| corr. $\varphi$ | + 1.72 | + 1.72 | + 1.72 | + 1.72 |
| *M* | **+ 2837.84** | **+ 2834.22** | **+ 2844.81** | **+ 2844.06** |

| Wire | 636 | 637 | 635 | 634 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | +P —J | —P +J | +B —S | —S +B |
| Temper. | + 19°.2 | + 17°.7 | + 19°.8 | + 20°.5 |
| $m_1$ | + 897.0 | + 867.5 | + 798.3 | + 987.9 |
| $m_2$ | + 895.6 | + 864.5 | + 798.6 | + 988.2 |
| $m_3$ | + 894.3 | + 868.1 | + 796.5 | + 986.9 |
| m | + 895.63 | + 866.70 | + 797.80 | + 987.67 |
| corr. t | — 0.90 | — 0.63 | — 1.08 | — 1.24 |
| corr. L | + 108.29 | + 131.81 | + 201.15 | + 8.82 |
| corr. c | + 2107.40 | + 2109.50 | + 2109.32 | + 2108.30 |
| corr. h | — 266.39 | — 266.39 | — 266.39 | — 266.39 |
| corr. b | — 0.21 | — 0.21 | — 0.21 | — 0.21 |
| corr. $\varphi$ | + 1.72 | + 1.72 | + 1.72 | + 1.72 |
| *M* | **+ 2845.54** | **+ 2842.50** | **+ 2842.31** | **+ 2838.67** |

# ENKÖPING N.

| Wire | 636 | 634 | 637 | 635 |
|---|---|---|---|---|
| Direction | NS | NS | NS | NS |
| Observers | —P +J | +S —B | +J —P | +B —S |
| Temper. | + 21°4 | + 22°0 | + 23°8 | + 20°5 |
| $m_1$ | − 358.6 | − 258.9 | − 371.7 | − 429.1 |
| $m_2$ | − 360.7 | − 259.1 | − 368.0 | − 431.5 |
| $m_3$ | − 361.8 | − 260.5 | − 368.4 | − 429.0 |
| m | − 360.37 | − 259.50 | − 369.37 | − 429.87 |
| corr. t | − 1.23 | − 1.34 | − 1.62 | − 1.07 |
| corr. L | + 94.59 | + 7.70 | + 115.13 | + 175.68 |
| corr. c | + 2.20 | + 2.20 | + 2.20 | + 2.35 |
| corr. h | − 1325.07 | − 1325.07 | − 1325.07 | − 1325.07 |
| corr. b | + 0.05 | + 0.05 | + 0.05 | + 0.05 |
| corr. $\varphi$ | + 1.50 | + 1.50 | + 1.50 | + 1.50 |
| *M* | **− 1588.33** | **− 1574.46** | **− 1577.18** | **− 1576.43** |

| Wire | 673 | 675 | 674 | 683 |
|---|---|---|---|---|
| Direction | SN | SN | SN | SN |
| Observers | —J +P | —S +B | +B —S | —P +J |
| Temper. | + 22°5 | + 23°8 | + 22°8 | + 25°6 |
| $m_1$ | − 163.1 | − 222.6 | − 214.7 | − 374.7 |
| $m_2$ | − 167.0 | − 223.7 | − 216.9 | − 373.1 |
| $m_3$ | − 167.2 | − 226.2 | − 217.3 | − 372.7 |
| m | − 165.77 | − 224.17 | − 216.30 | − 373.50 |
| corr. t | − 1.42 | − 1.62 | − 1.46 | − 1.90 |
| corr. L | − 84.53 | − 32.96 | − 33.38 | + 128.40 |
| corr. c | + 2.30 | + 1.50 | + 1.45 | + 1.90 |
| corr. h | − 1325.07 | − 1325.05 | − 1325.07 | − 1325.07 |
| corr. b | + 0.05 | + 0.05 | + 0.05 | + 0.05 |
| corr. $\varphi$ | + 1.50 | + 1.50 | + 1.50 | + 1.50 |
| *M* | **− 1572.94** | **− 1580.77** | **− 1573.21** | **− 1568.62** |

## ENKÖPING S.

| Wire | 636 | 634 | 637 | 635 |
|---|---|---|---|---|
| Direction | NS | NS | NS | NS |
| Observers | +P —J | —B +S | —J +P | —B +S |
| Temper. | + 23°.1 | + 22°.8 | + 23°.6 | + 23°.5 |
| $m_1$ | — 508.4 | — 487.4 | — 509.4 | — 524.5 |
| $m_2$ | — 510.0 | — 488.3 | — 508.8 | — 524.5 |
| $m_3$ | — 508.2 | — 488.3 | — 509.4 | — 523.9 |
| m | — 508.87 | — 488.00 | — 509.20 | — 524.30 |
| corr. t | — 0.35 | — 0.34 | — 0.36 | — 0.36 |
| corr. L | + 100.20 | + 80.18 | + 106.76 | + 120.75 |
| corr. c | + 11.90 | + 11.90 | + 11.90 | + 11.90 |
| corr. h | — 748.12 | — 748.12 | — 748.12 | — 748.12 |
| corr. b | + 0.09 | + 0.09 | + 0.09 | + 0.09 |
| corr. $\varphi$ | + 0.51 | + 0.51 | + 0.51 | + 0.51 |
| *M* | **— 1144.64** | **— 1143.78** | **— 1138.42** | **— 1139.53** |

| Wire | 673 | 675 | 674 | 683 |
|---|---|---|---|---|
| Direction | SN | SN | SN | SN |
| Observers | +J —P | +S —B | +B —S | +P —J |
| Temper. | + 21°.5 | + 22°.5 | + 23°.5 | + 24°.2 |
| $m_1$ | — 468.0 | — 475.2 | — 475.7 | — 507.5 |
| $m_2$ | — 468.9 | — 475.7 | — 476.5 | — 508.5 |
| $m_3$ | — 468.0 | — 475.5 | — 474.8 | — 509.5 |
| m | — 468.30 | — 475.47 | — 475.67 | — 508.50 |
| corr. t | — 0.29 | — 0.32 | — 0.36 | — 0.38 |
| corr. L | + 59.84 | + 72.25 | + 70.78 | + 110.58 |
| corr. c | + 12.45 | + 12.45 | + 12.40 | + 12.40 |
| corr. h | — 748.12 | — 748.12 | — 748.12 | — 748.12 |
| corr. b | + 0.09 | + 0.09 | + 0.09 | + 0.09 |
| corr. $\varphi$ | + 0.51 | + 0.51 | + 0.51 | + 0.51 |
| *M* | **— 1143.82** | **— 1138.61** | **— 1140.37** | **— 1133.42** |

# ÖLAND.

*Section I.*

| Wire | 634 | 635 | 675 | 674 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | +S −B | +B −S | −B +S | −S +B |
| Temper. | + 17°.0 | + 17°.0 | + 18°.0 | + 19°.0 |
| $m_1$ | + 2.9 | − 16.7 | + 7.8 | + 8.5 |
| $m_2$ | + 3.5 | − 17.2 | + 8.2 | + 8.8 |
| $m_3$ | + 2.7 | − 16.6 | + 7.6 | + 9.0 |
| m | + 3.03 | − 16.83 | + 7.87 | + 8.77 |
| corr. t | − 0.05 | − 0.05 | − 0.07 | − 0.09 |
| corr. L | + 1.50 | + 21.35 | − 3.15 | − 3.35 |
| corr. c | + 13.00 | + 13.00 | + 13.00 | + 13.00 |
| corr. h | − 15.07 | − 15.07 | − 15.07 | − 15.07 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| *M* | + **2.53** | + **2.52** | + **2.70** | + **3.38** |

| Wire | 636 | 637 | 673 | 683 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | −J +P | −P +J | +P −J | +J −P |
| Temper. | + 20°.0 | + 20°.0 | + 19°.1 | + 19°.1 |
| $m_1$ | − 7.3 | − 9.3 | + 14.6 | − 11.1 |
| $m_2$ | − 7.5 | − 9.5 | + 14.5 | − 12.3 |
| $m_3$ | − 8.5 | − 9.6 | + 14.6 | − 11.7 |
| m | − 7.77 | − 9.47 | + 14.57 | − 11.70 |
| corr. t | − 0.11 | − 0.11 | − 0.10 | − 0.10 |
| corr. L | + 11.80 | + 14.18 | − 9.23 | + 15.65 |
| corr. c | + 13.00 | + 13.00 | + 13.00 | + 13.00 |
| corr. b | − 15.07 | − 15.07 | − 15.07 | − 15.07 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| *M* | + **1.97** | + **2.65** | + **3.29** | + **1.90** |

# ÖLAND.

*Section II.*

| Wire | 637 | 636 | 683 | 673 |
|---|---|---|---|---|
| Direction | SN | NS | SN | NS |
| Observers | −J+P | −P+J | +P−J | +J−P |
| Temper. | +20°.9 | +20°.8 | +20°.8 | +20°.5 |
| $m_1$ | − 2.8 | − 3.2 | − 4.0 | + 19.1 |
| $m_2$ | − 3.1 | − 2.6 | − 3.7 | + 19.4 |
| $m_3$ | − 2.5 | − 2.2 | − 3.9 | + 19.3 |
| m | − 2.80 | − 2.67 | − 3.87 | + 19.27 |
| corr. t | − 0.13 | − 0.13 | − 0.13 | − 0.12 |
| corr. L | + 14.17 | + 11.80 | + 15.65 | − 9.22 |
| corr. c | − 0.95 | − 0.95 | − 0.95 | − 0.95 |
| corr. h | − 8.27 | − 8.27 | − 8.27 | − 8.27 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | + **2.15** | − **0.09** | + **2.56** | + **0.84** |

| Wire | 635 | 634 | 674 | 675 |
|---|---|---|---|---|
| Direction | SN | NS | SN | NS |
| Observers | +S−B | +B−S | −B+S | −S+B |
| Temper. | +21°.0 | +21°.0 | +20°.0 | +19°.0 |
| $m_1$ | − 11.1 | + 10.2 | + 15.1 | + 13.6 |
| $m_2$ | − 10.9 | + 10.1 | + 15.4 | + 13.7 |
| $m_3$ | − 10.8 | + 10.4 | + 14.9 | + 13.7 |
| m | − 10.93 | + 10.23 | + 15.13 | + 13.67 |
| corr. t | − 0.14 | − 0.14 | − 0.11 | − 0.09 |
| corr. L | + 21.35 | + 1.50 | − 3.35 | − 3.15 |
| corr. c | − 0.95 | − 0.95 | − 0.95 | − 0.95 |
| corr. h | − 8.27 | − 8.27 | − 8.27 | − 8.27 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | + **1.19** | + **2.50** | + **2.58** | + **1.34** |

# ÖLAND.

*Section III.*

| Wire | 635 | 634 | 674 | 675 |
|---|---|---|---|---|
| Direction | SN | NS | SN | NS |
| Observers | +B −S | +S −B | −S +B | −B +S |
| Temper. | + 19°.0 | + 19°.0 | + 19°.0 | + 20°.5 |
| $m_1$ | − 8.7 | + 13.1 | + 17.6 | + 16.2 |
| $m_2$ | − 7.4 | + 12.5 | + 17.5 | + 16.0 |
| $m_3$ | − 7.6 | + 12.2 | + 17.2 | + 15.9 |
| m | − 7.90 | + 12.60 | + 17.43 | + 16.03 |
| corr. t | − 0.09 | − 0.09 | − 0.09 | − 0.13 |
| corr. L | + 21.35 | + 1.50 | − 3.35 | − 3.15 |
| corr. c | + 1.00 | + 1.00 | + 1.00 | + 1.00 |
| corr. h | − 5.43 | − 5.43 | − 5.43 | − 5.43 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| *M* | + **9.05** | + **9.70** | + **9.68** | + **8.44** |

| Wire | 637 | 636 | 683 | 673 |
|---|---|---|---|---|
| Direction | SN | NS | SN | NS |
| Observers | −P +J | −J +P | +J −P | +P −J |
| Temper. | + 20°.2 | + 19°.4 | + 19°.4 | + 19°.5 |
| $m_1$ | − 0.9 | + 0.9 | − 3.0 | + 22.2 |
| $m_2$ | − 0.1 | + 0.4 | − 2.1 | + 22.7 |
| $m_3$ | − 0.4 | + 0.8 | − 2.1 | + 22.1 |
| m | − 0.47 | + 0.70 | − 2.40 | + 22.33 |
| corr. t | − 0.12 | − 0.10 | − 0.10 | − 0.10 |
| corr. L | + 14.18 | + 11.80 | + 15.65 | − 9.23 |
| corr. c | + 1.00 | + 1.00 | + 1.00 | + 1.00 |
| corr. h | − 5.43 | − 5.43 | − 5.43 | − 5.43 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| *M* | + **9.28** | + **8.09** | + **8.84** | + **8.69** |

# ÖLAND.

*Section IV.*

| Wire | 637 | 636 | 683 | 673 |
|---|---|---|---|---|
| Direction | SN | NS | SN | NS |
| Observers | −J +P | −P +J | +P −J | +J −P |
| Temper. | + 19°3 | + 19°2 | + 19°2 | + 19°7 |
| $m_1$ | + 17.3 | + 15.9 | + 14.3 | + 38.9 |
| $m_2$ | + 16.9 | + 16.1 | + 15.0 | + 37.7 |
| $m_3$ | + 16.3 | + 15.0 | + 14.4 | + 37.2 |
| m | + 16.83 | + 15.67 | + 14.57 | + 37.93 |
| corr. t | − 0.10 | − 0.10 | − 0.10 | − 0.11 |
| corr. L | + 14.17 | + 11.80 | + 15.65 | − 9.22 |
| corr. c | − 0.52 | − 0.52 | − 0.52 | − 0.52 |
| corr. h | − 34.70 | − 34.70 | − 34.70 | − 34.70 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | **− 4.19** | **− 7.72** | **− 4.97** | **− 6.49** |

| Wire | 635 | 634 | 674 | 675 |
|---|---|---|---|---|
| Direction | SN | NS | SN | NS |
| Observers | +S −B | +B −S | −B +S | −S +B |
| Temper. | + 16°8 | + 16°2 | + 16°0 | + 18°0 |
| $m_1$ | + 9.1 | + 28.4 | + 33.7 | + 33.1 |
| $m_2$ | + 8.4 | + 29.2 | + 34.7 | + 32.8 |
| $m_3$ | + 8.6 | + 29.0 | + 34.1 | + 32.4 |
| m | + 8.70 | + 28.87 | + 34.17 | + 32.77 |
| corr. t | − 0.04 | − 0.03 | − 0.03 | − 0.07 |
| corr. L | + 21.35 | + 1.50 | − 3.35 | − 3.15 |
| corr. c | − 0.52 | − 0.52 | − 0.52 | − 0.52 |
| corr. h | − 34.70 | − 34.70 | − 34.70 | − 34.70 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | **− 5.08** | **− 4.75** | **− 4.30** | **− 5.54** |

# ÖLAND.

*Section V.*

| Wire | 634 | 635 | 675 | 674 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | +S −B | +B −S | −B +S | −S +B |
| Temper. | + 17°.8 | + 17°.8 | + 17°.8 | + 18°.5 |
| $m_1$ | + 2.5 | − 17.5 | + 7.9 | + 9.3 |
| $m_2$ | + 2.5 | − 17.8 | + 7.3 | + 8.6 |
| $m_3$ | + 2.8 | − 17.7 | + 7.0 | + 8.0 |
| m | + 2.60 | − 17.67 | + 7.40 | + 8.63 |
| corr. t | − 0.07 | − 0.07 | − 0.07 | − 0.08 |
| corr. L | + 1.50 | + 21.35 | − 3.15 | − 3.35 |
| corr. c | − 0.76 | − 0.76 | − 0.76 | − 0.76 |
| corr. h | − 18.18 | − 18.18 | − 18.18 | − 18.18 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| *M* | **− 14.79** | **− 15.21** | **− 14.64** | **− 13.62** |

| Wire | 636 | 637 | 673 | 683 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | −J +P | −P +J | +P −J | +J −P |
| Temper. | + 19°.0 | + 19°.5 | + 20°.2 | + 19°.0 |
| $m_1$ | − 8.2 | − 9.8 | + 12.9 | − 12.6 |
| $m_2$ | − 8.0 | − 8.9 | + 14.2 | − 12.3 |
| $m_3$ | − 8.1 | − 9.3 | + 13.7 | − 12.6 |
| m | − 8.10 | − 9.33 | + 13.60 | − 12.50 |
| corr. t | − 0.09 | − 0.10 | − 0.12 | − 0.09 |
| corr. L | + 11.80 | + 14.18 | − 9.23 | + 15.65 |
| corr. c | − 0.76 | − 0.76 | − 0.76 | − 0.76 |
| corr. h | − 18.18 | − 18.18 | − 18.18 | − 18.18 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| *M* | **− 15.21** | **− 14.07** | **− 14.57** | **− 15.76** |

# ÖLAND.

*Section VI.*

| Wire | 636 | 637 | 673 | 683 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | +J −P | +P −J | −P +J | −J +P |
| Temper. | + 19°3 | + 20°0 | + 20°0 | + 18°9 |
| $m_1$ | − 1.1 | − 0.1 | + 21.6 | − 1.3 |
| $m_2$ | − 0.2 | 0.0 | + 22.0 | − 2.2 |
| $m_3$ | − 1.2 | + 0.3 | + 22.4 | − 1.8 |
| m | − 0.83 | + 0.07 | + 22.00 | − 1.77 |
| corr. t | − 0.10 | − 0.11 | − 0.11 | − 0.09 |
| corr. L | + 11.80 | + 14.17 | − 9.22 | + 15.65 |
| corr. c | + 0.58 | + 0.58 | + 0.58 | + 0.58 |
| corr. h | − 11.53 | − 11.53 | − 11.53 | − 11.53 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | + **0.05** | + **3.31** | + **1.85** | + **2.97** |

| Wire | 634 | 635 | 675 | 674 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | −S +B | −B +S | +B −S | +S −B |
| Temper. | + 19°1 | + 20°0 | + 20°2 | + 19°6 |
| $m_1$ | + 10.5 | − 9.1 | + 15.4 | + 16.3 |
| $m_2$ | + 11.1 | − 9.6 | + 15.4 | + 16.4 |
| $m_3$ | + 11.5 | − 9.5 | + 15.1 | + 16.5 |
| m | + 11.03 | − 9.40 | + 15.30 | + 16.40 |
| corr. t | − 0.10 | − 0.11 | − 0.12 | − 0.11 |
| corr. L | + 1.50 | + 21.35 | − 3.15 | − 3.35 |
| corr. c | + 0.58 | + 0.58 | + 0.58 | + 0.58 |
| corr. h | − 11.53 | − 11.53 | − 11.53 | − 11.53 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | + **1.61** | + **1.02** | + **1.21** | + **2.12** |

# ÖLAND.

*Section VII.*

| Wire | 634 | 635 | 675 | 674 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | −B +S | −S +B | +S −B | +B −S |
| Temper. | + 18°.5 | + 18°.5 | + 18°.5 | + 18°.7 |
| $m_1$ | + 29.0 | + 9.4 | + 33.9 | + 34.4 |
| $m_2$ | + 29.5 | + 9.4 | + 34.8 | + 33.8 |
| $m_3$ | + 29.2 | + 8.6 | + 33.9 | + 34.0 |
| m | + 29.23 | + 9.13 | + 34.20 | + 34.07 |
| corr. t | − 0.08 | − 0.08 | − 0.08 | − 0.09 |
| corr. L | + 1.50 | + 21.35 | − 3.15 | − 3.35 |
| corr. c | − 0.20 | − 0.20 | − 0.20 | − 0.20 |
| corr. h | − 24.17 | − 24.17 | − 24.17 | − 24.17 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| *M* | + **6.40** | + **6.15** | + **6.72** | + **6.38** |

| Wire | 636 | 637 | 673 | 683 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | −J +P | −P +J | −P +J | −J +P |
| Temper. | + 18°.0 | + 18°.8 | + 18°.8 | + 17°.6 |
| $m_1$ | + 18.3 | + 15.1 | + 38.9 | + 16.4 |
| $m_2$ | + 17.6 | + 15.0 | + 40.1 | + 15.6 |
| $m_3$ | + 17.3 | + 15.6 | + 39.5 | + 17.2 |
| m | + 17.73 | + 15.23 | + 39.50 | + 16.40 |
| corr. t | − 0.07 | − 0.09 | − 0.09 | − 0.06 |
| corr. L | + 11.80 | + 14.18 | − 9.23 | + 15.65 |
| corr. c | − 0.20 | − 0.20 | − 0.20 | − 0.20 |
| corr. h | − 24.17 | − 24.17 | − 24.17 | − 24.17 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| *M* | + **5.21** | + **5.07** | + **5.93** | + **7.74** |

# ÖLAND.

*Section VIII.*

| Wire | 636 | 637 | 673 | 683 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | +J −P | +P −J | −J +P | −P +J |
| Temper. | + 19°7 | + 20°0 | + 20°0 | + 20°6 |
| $m_1$ | − 9.0 | − 7.8 | + 14.1 | − 12.8 |
| $m_2$ | − 9.5 | − 8.3 | + 14.0 | − 12.5 |
| $m_3$ | − 9.5 | − 9.0 | + 13.1 | − 11.0 |
| m | − 9.33 | − 8.37 | + 13.73 | − 12.10 |
| corr. t | − 0.10 | − 0.11 | − 0.11 | − 0.13 |
| corr. L | + 11.80 | + 14.17 | − 9.22 | + 15.65 |
| corr. c | − 0.30 | − 0.30 | − 0.30 | − 0.30 |
| corr. h | − 11.72 | − 11.72 | − 11.72 | − 11.72 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | − **9.52** | − **6.20** | − **7.49** | − **8.47** |

| Wire | 634 | 635 | 675 | 674 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | −S +B | −B +S | +B −S | +S B |
| Temper. | + 19°1 | + 19°1 | + 19°2 | + 21°0 |
| $m_1$ | + 2.5 | − 17.2 | + 7.4 | + 8.4 |
| $m_2$ | + 2.7 | − 17.4 | + 7.5 | + 8.3 |
| $m_3$ | + 2.5 | − 16.7 | + 7.2 | + 8.6 |
| m | + 2.57 | − 17.10 | + 7.37 | + 8.43 |
| corr. t | − 0.09 | − 0.09 | − 0.09 | − 0.14 |
| corr. L | + 1.50 | + 21.35 | − 3.15 | − 3.35 |
| corr. c | − 0.30 | − 0.30 | − 0.30 | − 0.30 |
| corr. h | − 11.72 | − 11.72 | − 11.72 | − 11.72 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | − **7.91** | − **7.73** | − **7.76** | − **6.95** |

# ÖLAND.

*Section IX.*

| Wire | 634 | 635 | 675 | 674 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | −B +S | −S +B | +S −B | +B −S |
| Temper. | + 17°.1 | + 17°.2 | + 19°.0 | + 21°.0 |
| $m_1$ | + 13.3 | − 6.0 | + 18.3 | + 18.6 |
| $m_2$ | + 12.9 | − 6.3 | + 18.1 | + 18.8 |
| $m_3$ | + 13.2 | − 6.7 | + 17.9 | + 18.9 |
| m | + 13.13 | − 6.33 | + 18.10 | + 18.77 |
| corr. t | − 0.05 | − 0.05 | − 0.09 | − 0.14 |
| corr. L | + 1.50 | + 21.35 | − 3.15 | − 3.35 |
| corr. c | − 0.82 | − 0.82 | − 0.82 | − 0.82 |
| corr. h | − 7.53 | − 7.53 | − 7.53 | − 7.53 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| $M$ | + **6.35** | + **6.74** | + **6.63** | + **7.05** |

| Wire | 636 | 637 | 673 | 683 |
|---|---|---|---|---|
| Direction | NS | SN | NS | SN |
| Observers | +P −J | +J −P | −J +P | −P +J |
| Temper. | + 21°.9 | + 22°.0 | + 22°.0 | + 21°.9 |
| $m_1$ | + 1.9 | + 0.2 | + 23.5 | − 1.4 |
| $m_2$ | + 1.7 | − 0.7 | + 24.1 | − 1.5 |
| $m_3$ | + 1.7 | − 0.9 | + 23.7 | − 1.2 |
| m | + 1.77 | − 0.47 | + 23.77 | − 1.37 |
| corr. t | − 0.16 | − 0.16 | − 0.16 | − 0.16 |
| corr. L | + 11.80 | + 14.18 | − 9.23 | + 15.65 |
| corr. c | − 0.82 | − 0.82 | − 0.82 | − 0.82 |
| corr. h | − 7.53 | − 7.53 | − 7.53 | − 7.53 |
| corr. $\varphi$ | + 0.12 | + 0.12 | + 0.12 | + 0.12 |
| $M$ | + **5.18** | + **5.32** | + **6.15** | + **5.89** |

# ÖLAND.

*Section X.*

| Wire | 637 | 636 | 683 | 673 |
|---|---|---|---|---|
| Direction | SN | NS | SN | NS |
| Observers | +P −J | +J −P | −J +P | −P +J |
| Temper. | + 19°.4 | + 22°.3 | + 22°.3 | + 22°.2 |
| $m_1$ | + 10.8 | + 11.1 | + 8.6 | + 32.3 |
| $m_2$ | + 10.8 | + 10.0 | + 9.0 | + 32.3 |
| $m_3$ | + 10.3 | + 10.4 | + 9.5 | + 32.5 |
| m | + 10.63 | + 10. | + 9.03 | + 32.37 |
| corr. t | − 0.10 | − 0.16 | − 0.16 | − 0.16 |
| corr. L | + 14.17 | + 11.80 | + 15.65 | − 9.22 |
| corr. c | + 1.22 | + 1.22 | + 1.22 | + 1.22 |
| corr. h | − 22.21 | − 22.21 | − 22.21 | − 22.21 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | + **3.84** | + **1.28** | + **3.66** | + **2.13** |

| Wire | 635 | 634 | 674 | 675 |
|---|---|---|---|---|
| Direction | SN | NS | SN | NS |
| Observers | −B +S | −S +B | +S −B | +B −S |
| Temper. | + 22°.2 | + 21°.2 | + 21°.2 | + 18°.1 |
| $m_1$ | + 2.7 | + 23.6 | + 28.0 | + 26.5 |
| $m_2$ | + 3.0 | + 22.7 | + 27.7 | + 27.6 |
| $m_3$ | + 2.7 | + 22.1 | + 27.9 | + 27.7 |
| m | + 2.80 | + 22.80 | + 27.87 | + 27.27 |
| corr. t | − 0.16 | − 0.14 | − 0.14 | − 0.07 |
| corr. L | + 21.35 | + 1.50 | − 3.35 | − 3.15 |
| corr. c | + 1.22 | + 1.22 | + 1.22 | + 1.22 |
| corr. h | − 22.21 | − 22.21 | − 22.21 | − 22.21 |
| corr. $\varphi$ | + 0.13 | + 0.13 | + 0.13 | + 0.13 |
| *M* | + **3.13** | + **3.30** | + **3.52** | + **3.19** |

# LOLLAND.

*Section I.*

| Wire | 634 | 636 | 673 | 675 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | +S —B | —J +P | +J —P | —S +B |
| Temper. | + 22°.5 | + 22°.5 | + 22°.5 | + 22°.5 |
| $m_1$ | + 195.3 | + 177.7 | + 213.4 | + 203.3 |
| $m_2$ | + 195.1 | + 178.6 | + 212.3 | + 202.9 |
| $m_3$ | + 195.6 | + 178.5 | + 213.0 | + 202.8 |
| m | + 195.33 | + 178.27 | + 212.90 | + 203.00 |
| corr. t | — 0.27 | — 0.27 | — 0.27 | — 0.27 |
| corr. L | + 3.48 | + 20.58 | — 14.06 | — 3.98 |
| corr. h | — 15.85 | — 15.85 | — 15.85 | — 15.85 |
| corr. b | — 0.04 | — 0.04 | — 0.04 | — 0.04 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **182.81** | + **182.85** | + **182.84** | + **183.02** |

| Wire | 635 | 637 | 674 | 683 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | —B +S | +P —J | +B —S | —P +J |
| Temper. | + 24°.2 | + 24°.2 | + 24°.2 | + 24°.2 |
| $m_1$ | + 164.0 | + 177.1 | + 205.7 | + 172.8 |
| $m_2$ | + 164.1 | + 176.9 | + 205.8 | + 173.7 |
| $m_3$ | + 164.2 | + 175.9 | + 205.9 | + 173.6 |
| m | + 164.10 | + 176.63 | + 205.80 | + 173.37 |
| corr. t | — 0.32 | — 0.32 | — 0.32 | — 0.32 |
| corr. L | + 36.37 | + 24.44 | — 4.55 | + 26.77 |
| corr. h | — 15.41 | — 15.41 | — 15.41 | — 15.41 |
| corr. b | — 0.04 | — 0.04 | — 0.04 | — 0.04 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **184.86** | + **185.46** | + **185.64** | + **184.53** |

# LOLLAND.

*Section II.*

| Wire | 634 | 636 | 673 | 675 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | +B —S | —P +J | +P —J | —B +S |
| Temper. | + 17°0 | + 17°0 | + 17°0 | + 17°0 |
| $m_1$ | + 134.9 | + 115.1 | + 154.4 | + 143.1 |
| $m_2$ | + 133.7 | + 116.6 | + 153.9 | + 142.4 |
| $m_3$ | + 134.4 | + 115.6 | + 152.8 | + 143.4 |
| m | + 134.33 | + 115.77 | + 153.70 | + 142.97 |
| corr. t | — 0.08 | — 0.08 | — 0.08 | — 0.08 |
| corr. L | + 3.48 | + 20.58 | — 14.06 | — 3.98 |
| corr. h | — 71.17 | — 71.17 | — 71.17 | — 71.17 |
| corr. b | — 0.03 | — 0.03 | — 0.03 | — 0.03 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **66.69** | + **65.23** | + **68.52** | + **67.87** |

| Wire | 635 | 637 | 674 | 683 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | —S +B | +J —P | +S —B | —J +P |
| Temper. | + 22°6 | + 22°6 | + 22°6 | + 22°6 |
| $m_1$ | + 101.6 | + 113.3 | + 145.8 | + 113.0 |
| $m_2$ | + 101.5 | + 114.4 | + 145.4 | + 113.4 |
| $m_3$ | + 101.7 | + 114.8 | + 146.4 | + 113.8 |
| m | + 101.60 | + 114.17 | + 145.87 | + 113.40 |
| corr. t | — 0.27 | — 0.27 | — 0.27 | — 0.27 |
| corr. L | + 36.37 | + 24.44 | — 4.55 | + 26.77 |
| corr. h | — 71.74 | — 71.74 | — 71.74 | — 71.74 |
| corr. b | — 0.03 | — 0.03 | — 0.03 | — 0.03 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **66.09** | + **66.73** | + **69.44** | + **68.29** |

# LOLLAND.

*Section III.*

| Wire | 634 | 636 | 673 | 675 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | +S —B | —J +P | +J —P | —S +B |
| Temper. | + 18°.5 | + 18°.5 | + 18°.5 | + 18°.5 |
| $m_1$ | + 74.5 | + 57.3 | + 93.9 | + 83.2 |
| $m_2$ | + 74.8 | + 57.9 | + 94.1 | + 82.2 |
| $m_3$ | + 74.6 | + 56.7 | + 91.8 | + 82.0 |
| m | + 74.63 | + 57.30 | + 93.27 | + 82.47 |
| corr. t | — 0.14 | — 0.14 | — 0.14 | — 0.14 |
| corr. L | + 3.48 | + 20.58 | — 14.06 | — 3.98 |
| corr. h | — 9.14 | — 9.14 | — 9.14 | — 9.14 |
| corr. b | — 0.02 | — 0.02 | — 0.02 | — 0.02 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **68.97** | + **68.74** | + **70.07** | + **69.35** |

| Wire | 635 | 637 | 674 | 683 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | —B +S | +P —J | +B —S | —P +J |
| Temper. | + 22°.5 | + 22°.5 | + 22°.5 | + 22°.5 |
| $m_1$ | + 41.7 | + 55.0 | + 83.6 | + 51.6 |
| $m_2$ | + 41.3 | + 54.9 | + 85.1 | + 51.7 |
| $m_3$ | + 40.7 | + 54.1 | + 84.6 | + 50.8 |
| m | + 41.23 | + 54.67 | + 84.43 | + 51.37 |
| corr. t | — 0.27 | — 0.27 | — 0.27 | — 0.27 |
| corr. L | + 36.37 | + 24.44 | — 4.55 | + 26.77 |
| corr. h | — 8.66 | — 8.66 | — 8.66 | — 8.66 |
| corr. b | — 0.02 | — 0.02 | — 0.02 | — 0.02 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **68.81** | + **70.32** | + **71.09** | + **69.35** |

# LOLLAND.

*Section IV.*

| Wire | 634 | 636 | 673 | 675 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | —S +B | +J —P | —J +P | +S —B |
| Temper. | + 18°.9 | + 18°.9 | + 18°.9 | + 18°.9 |
| $m_1$ | + 44.5 | + 26.3 | + 63.9 | + 54.3 |
| $m_2$ | + 44.5 | + 27.1 | + 64.4 | + 53.7 |
| $m_3$ | + 44.7 | + 27.4 | + 64.3 | + 54.1 |
| m | + 44.57 | + 26.93 | + 64.20 | + 54.03 |
| corr. t | — 0.11 | — 0.11 | — 0.11 | — 0.11 |
| corr. L | + 3.48 | + 20.58 | — 14.06 | — 3.98 |
| corr. h | — 5.70 | — 5.70 | — 5.70 | — 5.70 |
| corr. b | — 0.01 | — 0.01 | — 0.01 | — 0.01 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **42.35** | + **41.81** | + **44.44** | + **44.35** |

| Wire | 635 | 637 | 674 | 683 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | +B —S | —P +J | —B +S | +P —J |
| Temper. | + 20°.5 | + 20°.5 | + 20°.5 | + 20°.5 |
| $m_1$ | + 12.8 | + 24.1 | + 56.5 | + 24.9 |
| $m_2$ | + 12.8 | + 23.9 | + 56.3 | + 24.2 |
| $m_3$ | + 13.3 | + 24.8 | + 55.2 | + 25.2 |
| m | + 12.97 | + 24.27 | + 56.00 | + 24.77 |
| corr. t | — 0.21 | — 0.21 | — 0.21 | — 0.21 |
| corr. L | + 36.37 | + 24.44 | — 4.55 | + 26.77 |
| corr. h | — 6.06 | — 6.06 | — 6.06 | — 6.06 |
| corr. b | — 0.01 | — 0.01 | — 0.01 | — 0.01 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **43.22** | + **42.59** | + **45.33** | + **45.42** |

# LOLLAND.

*Section V.*

| Wire | 634 | 636 | 673 | 675 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | —B +S | +P —J | —P +J | +B —S |
| Temper. | + 17°.0 | + 17°.0 | + 17°.0 | + 17°.0 |
| $m_1$ | + 28.7 | + 11.5 | + 43.9 | + 35.6 |
| $m_2$ | + 27.7 | + 11.1 | + 44.3 | + 36.1 |
| $m_3$ | + 26.9 | + 11.6 | + 44.6 | + 35.6 |
| m | + 27.77 | + 11.40 | + 44.27 | + 35.77 |
| corr. t | — 0.08 | — 0.08 | — 0.08 | — 0.08 |
| corr. L | + 3.48 | + 20.58 | — 14.06 | — 3.98 |
| corr. h | — 35.75 | — 35.75 | — 35.75 | — 35.75 |
| corr. b | — 0.01 | — 0.01 | — 0.01 | — 0.01 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | — **4.43** | — **3.70** | — **5.47** | — **3.89** |

| Wire | 635 | 637 | 674 | 683 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | +S —B | —J +P | —S +B | +J —P |
| Temper. | + 18°.8 | + 18°.8 | + 18°.8 | + 18°.8 |
| $m_1$ | — 3.4 | + 8.4 | + 38.6 | + 4.3 |
| $m_2$ | — 4.5 | + 7.9 | + 38.1 | + 5.8 |
| $m_3$ | — 3.4 | + 8.4 | + 38.1 | + 5.3 |
| m | — 3.77 | + 8.23 | + 38.27 | + 5.13 |
| corr. t | — 0.15 | — 0.15 | — 0.15 | — 0.15 |
| corr. L | + 36.37 | + 24.44 | — 4.55 | + 26.77 |
| corr. h | — 35.92 | — 35.92 | — 35.92 | — 35.92 |
| corr. b | — 0.01 | — 0.01 | — 0.01 | — 0.01 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | — **3.32** | — **3.25** | — **2.20** | — **4.02** |

# LOLLAND.

*Section VI.*

| Wire | 634 | 636 | 673 | 675 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | —S +B | +J —P | —J +P | +S —B |
| Temper. | + 17°.5 | + 17°.5 | + 17°.5 | + 17°.5 |
| $m_1$ | + 19.1 | + 2.6 | + 36.7 | + 27.6 |
| $m_2$ | + 18.1 | + 0.6 | + 36.9 | + 27.6 |
| $m_3$ | + 18.5 | + 1.6 | + 36.6 | + 27.5 |
| $m_0$ | + 18.57 | + 1.60 | + 36.73 | + 27.57 |
| corr. t | — 0.10 | — 0.10 | — 0.10 | — 0.10 |
| corr. L | + 3.48 | + 20.58 | — 14.06 | — 3.98 |
| corr. h | — 21.94 | — 21.94 | — 21.94 | — 21.94 |
| corr. b | 0.00 | 0.00 | 0.00 | 0.00 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **0.17** | + **0.30** | + **0.79** | + **1.71** |

| Wire | 635 | 637 | 674 | 683 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | +B —S | —P +J | —B +S | +P —J |
| Temper. | + 16°.0 | + 16°.0 | + 16°.0 | + 16°.0 |
| $m_1$ | — 10.8 | — 1.1 | + 30.6 | — 1.4 |
| $m_2$ | — 10.8 | — 0.1 | + 29.5 | — 0.6 |
| $m_3$ | — 10.6 | + 0.1 | + 29.2 | — 1.5 |
| $m_0$ | — 10.73 | — 0.37 | + 29.77 | — 1.17 |
| corr. t | — 0.04 | — 0.04 | — 0.04 | — 0.04 |
| corr. L | + 36.37 | + 24.44 | — 4.55 | + 26.77 |
| corr. h | — 22.93 | — 22.93 | — 22.93 | — 22.93 |
| corr. b | 0.00 | 0.00 | 0.00 | 0.00 |
| corr. $\varphi$ | + 0.16 | + 0.16 | + 0.16 | + 0.16 |
| *M* | + **2.83** | + **1.26** | + **2.41** | + **2.79** |

# LOLLAND.

*Section VII.*

| Wire | 634 | 636 | 673 | 675 |
|---|---|---|---|---|
| Direction | WE | WE | WE | WE |
| Observers | ∓B ±S | ±P ∓J | ∓P ±J | ±B ∓S |
| Temper. | + 18°.5 | + 18°.5 | + 18°.5 | + 18°.5 |
| $m_1$ | + 60.8 | + 46.2 | + 79.1 | + 69.0 |
| $m_2$ | + 62.1 | + 46.9 | + 78.2 | + 68.0 |
| $m_3$ | + 61.2 | + 47.3 | + 78.7 | + 67.7 |
| m | + 61.37 | + 46.80 | + 78.67 | + 68.23 |
| corr. t | − 0.14 | − 0.14 | − 0.14 | − 0.14 |
| corr. L | + 3.06 | + 18.07 | − 12.35 | − 3.49 |
| corr. h | − 9.47 | − 9.47 | − 9.47 | − 9.47 |
| corr. b | − 0.01 | − 0.01 | − 0.01 | − 0.01 |
| corr. $\varphi$ | + 0.14 | + 0.14 | + 0.14 | + 0.14 |
| *M* | + **54.95** | + **55.39** | + **56.84** | + **55.26** |

| Wire | 635 | 637 | 674 | 683 |
|---|---|---|---|---|
| Direction | EW | EW | EW | EW |
| Observers | ±S ∓B | ∓P ±J | ∓S ±B | ±J ∓P |
| Temper. | + 18°.0 | + 18°.0 | + 18°.0 | + 18°.0 |
| $m_1$ | + 33.0 | + 45.8 | + 70.0 | + 43.1 |
| $m_2$ | + 33.4 | + 44.1 | + 69.9 | + 41.5 |
| $m_3$ | + 33.4 | + 44.4 | + 69.9 | + 42.4 |
| m | + 33.27 | + 44.77 | + 69.93 | + 42.33 |
| corr. t | − 0.10 | − 0.10 | − 0.10 | − 0.10 |
| corr. L | + 31.93 | + 21.46 | − 4.00 | + 23.51 |
| corr. h | − 9.56 | − 9.56 | − 9.56 | − 9.56 |
| corr. b | − 0.01 | − 0.01 | − 0.01 | − 0.01 |
| corr. $\varphi$ | + 0.14 | + 0.14 | + 0.14 | + 0.14 |
| *M* | + **55.67** | + **56.70** | + **56.40** | + **56.31** |

## HANKO 2.

| Wire | 637 | 636 | 635 | 634 |
|---|---|---|---|---|
| Direction | WE | EW | WE | EW |
| Observers | —H +K | +H —K | +K —H | —K +H |
| Temper. | + 3°.4 | + 5°.2 | + 2°.1 | + 1°.4 |
| $m_1$ | + 784.3 | + 755.1 | + 690.4 | + 884.8 |
| $m_2$ | + 785.4 | + 760.0 | + 694.3 | + 887.3 |
| $m_3$ | + 787.3 | + 758.8 | + 690.6 | + 889.0 |
| $m_0$ | + 785.67 | + 757.97 | + 691.77 | + 887.03 |
| corr. t | + 3.35 | + 2.77 | + 3.81 | + 4.00 |
| corr. L | + 126.67 | + 158.51 | + 226.87 | + 27.44 |
| corr. c | + 2138.10 | + 2136.07 | + 2135.71 | + 2135.72 |
| corr. h | — 218.13 | — 218.13 | — 218.13 | — 218.13 |
| corr. b | — 0.19 | — 0.19 | — 0.19 | — 0.19 |
| corr. $\varphi$ | + 1.72 | + 1.72 | + 1.72 | + 1.72 |
| $M$ | + **2837.19** | + **2838.72** | + **2841.56** | + **2837.59** |

Through the change of observers and the turning of the wire the personal equation of the observers is eliminated from the final result obtained on each base line with each wire. The sections on Öland and Lolland were also measured in such a manner that on every section the personal equation of the observers is eliminated from the mean value of the wires, whereas the result of each single wire contains it on all sections, except on the last one on Lolland, where the observers changed places. Before we get a survey of the results, the correction due to the personal equation has to be added to the results obtained by the different wires on the different sections of the base lines of Öland and Lolland. As the order of the observers has changed between each section, it is possible to determine the personal equations of the observers, if we assume that the lengths of the wires have not undergone any change between the sections.

We indicate the result obtained on each section by the initials of the observer measuring at the + end of the wire (the readings grow outwards). The order is as follows:

*Öland.*

| | I | II | III | IV | V | VI | VII | VIII | IX | X |
|---|---|---|---|---|---|---|---|---|---|---|
| 634 | S | B | S | B | S | B | S | B | S | B |
| 635 | B | S | B | S | B | S | B | S | B | S |
| 636 | P | J | P | J | P | J | P | J | P | J |
| 637 | J | P | J | P | J | P | J | P | J | P |
| 673 | P | J | P | J | P | J | J | P | P | J |
| 674 | B | S | B | S | B | S | B | S | B | S |
| 675 | S | B | S | B | S | B | S | B | S | B |
| 683 | J | P | J | P | J | P | P | J | J | P |

*Lolland.*

| | I | II | III | IV | V | VI |
|---|---|---|---|---|---|---|
| 634 | S | B | S | B | S | B |
| 635 | S | B | S | B | S | B |
| 636 | P | J | P | J | P | J |
| 637 | P | J | P | J | P | J |
| 673 | J | P | J | P | J | P |
| 674 | B | S | B | S | B | S |
| 675 | B | S | B | S | B | S |
| 683 | J | P | J | P | J | P |

We get the following corrections:

| | | | |
|---|---|---|---|
| On Öland: | P: | — 0.59 mm | ± 0.08 mm |
| | J: | + 0.59 » | ± 0.08 » |
| | B: | + 0.05 » | ± 0.04 » |
| | S: | — 0.05 » | ± 0.04 » |
| On Lolland: | P: | — 0.65 mm | ± 0.06 mm |
| | J: | + 0.65 » | ± 0.06 » |
| | B: | + 0.18 » | ± 0.06 » |
| | S: | — 0.18 » | ± 0.06 » |

The following table contains the lengths of the base lines, obtained with the different wires. The above mentioned corrections due to the personal equations on the Öland and Lolland sections are taken into consideration.

## The base lines.

| | *Potsdam 1* 240 m + mm | *Potsdam 2* 240 m + mm | *Potsdam 3* 240 m + mm | *Szubin* 5119 m + mm | *Sveksna* 6466 m + mm | *Ösel* 6267 m + mm |
|---|---|---|---|---|---|---|
| 634 | 20.13 | 19.47 | 19.16 | 183.85 | 349.95 | 753.38 |
| 635 | 19.22 | 19.96 | 19.58 | 183.14 | 342.53 | 758.57 |
| 636 | 19.95 | 19.69 | 19.28 | 175.54 | 347.87 | 760.70 |
| 637 | 19.70 | 19.57 | 19.42 | 180.31 | 348.16 | 753.55 |
| 673 | | 19.76 | 19.63 | 180.83 | 345.18 | 754.59 |
| 674 | | 20.07 | 19.62 | 188.22 | 342.69 | 752.06 |
| 675 | | 19.70 | 19.76 | 174.41 | 341.24 | 749.42 |
| 683 | | 19.98 | 19.68 | 179.69 | 344.76 | 750.70 |

| | *Hanko 1* 5882 m + mm | *Hanko 2* 5882 m + mm | *Enköping N* 5134 m + mm | *Enköping S* 1750 m + mm | 6000 m mm | *Lolland* 6768 m + mm |
|---|---|---|---|---|---|---|
| 634 | 838.67 | 837.59 | 425.54 | 856.22 | + 4.94 | 411.51 |
| 635 | 842.31 | 841.56 | 423.57 | 860.47 | + 1.78 | 418.16 |
| 636 | 845.54 | 838.72 | 411.67 | 855.36 | — 10.76 | 410.62 |
| 637 | 842.50 | 837.19 | 422.82 | 861.58 | + 7.16 | 419.81 |
| 673 | 844.81 | | 427.06 | 856.18 | + 0.33 | 418.03 |
| 674 | 837.84 | | 426.79 | 859.63 | + 9.84 | 428.11 |
| 675 | 834.22 | | 419.23 | 861.39 | + 2.29 | 417.67 |
| 683 | 844.06 | | 431.38 | 866.58 | + 4.36 | 422.67 |

## The Sections of Öland.

| | I 600 m + mm | II 600 m + mm | III 600 m + mm | IV 600 m — mm | V 600 m — mm |
|---|---|---|---|---|---|
| 634 | 2.48 | 2.55 | 9.65 | 4.70 | 14.84 |
| 635 | 2.57 | 1.14 | 9.10 | 5.13 | 15.16 |
| 636 | 1.38 | 0.50 | 7.50 | 7.13 | 15.80 |
| 637 | 3.24 | 1.56 | 9.87 | 4.78 | 13.48 |
| 673 | 2.70 | 1.43 | 8.10 | 5.90 | 15.16 |
| 674 | 3.43 | 2.53 | 9.73 | 4.35 | 13.57 |
| 675 | 2.65 | 1.39 | 8.39 | 5.49 | 14.69 |
| 683 | 2.49 | 1.97 | 9.43 | 5.56 | 15.17 |

| | VI 600 m + mm | VII 600 m + mm | VIII 600 m — mm | IX 600 m + mm | X 600 m + mm |
|---|---|---|---|---|---|
| 634 | 1.66 | 6.35 | 7.86 | 6.30 | 3.35 |
| 635 | 0.97 | 6.20 | 7.78 | 6.79 | 3.08 |
| 636 | 0.64 | 4.62 | 8.93 | 4.59 | 1.87 |
| 637 | 2.72 | 5.66 | 6.79 | 5.91 | 3.25 |
| 673 | 2.44 | 6.52 | 8.08 | 5.56 | 2.72 |
| 674 | 2.07 | 6.43 | 7.00 | 7.10 | 3.47 |
| 675 | 1.26 | 6.67 | 7.71 | 6.58 | 3.24 |
| 683 | 2.38 | 7.15 | 7.88 | 6.48 | 3.07 |

## The Sections of Lolland.

| | I 984 m + mm | II 984 m + mm | III 984 m + mm | IV 984 m + mm | V 984 m — mm | VI 984 m + mm | VII 864 m + mm |
|---|---|---|---|---|---|---|---|
| 634 | 182.63 | 66.87 | 68.79 | 42.53 | 4.61 | 0.35 | 54.95 |
| 635 | 184.68 | 66.27 | 68.63 | 43.40 | 3.50 | 3.01 | 55.67 |
| 636 | 182.20 | 65.88 | 68.09 | 42.46 | 4.35 | 0.95 | 55.39 |
| 637 | 184.81 | 67.38 | 69.67 | 43.24 | 3.90 | 1.91 | 56.70 |
| 673 | 183.49 | 67.87 | 70.72 | 43.79 | 4.82 | 0.14 | 56.84 |
| 674 | 185.82 | 69.26 | 71.27 | 45.15 | 2.02 | 2.23 | 56.40 |
| 675 | 183.20 | 67.69 | 69.53 | 44.17 | 3.71 | 1.53 | 55.26 |
| 683 | 185.18 | 67.64 | 70.00 | 44.77 | 3.37 | 2.14 | 56.31 |

The results obtained by the wire 636 on the base lines between Ösel and Potsdam 2 differ systematically from the results obtained by the other wires, demanding the following corrections for the length of this wire:

| | | | |
|---|---|---|---|
| Ösel ..... | — 0.029 mm | Öland ..... | + 0.061 mm. |
| Hanko 1 ..... | — 0.020 » | Lolland ..... | + 0.031 » |
| Enköping .... | + 0.064 » | Potsdam 2 ..... | + 0.010 » |

It has been mentioned before that the wire 636 got bent between Sveksna and Ösel, thereby being shortened about 0.120 mm; this bend was straightened at Breteuil in the autumn before the standardization. It seems very probable, that the changes of the wire accounted for above are due to this bend. Owing to some push the wire got partly straightened before Enköping, but then again returned to the former state. Therefore I have left out of the computations the measurings carried out with this wire between the appearance of the bend and its straightening: Ösel, Hanko 1, Enköping, Öland, Lolland and Potsdam 2.

We arrive at the following definitive lengths uncorrected to the sea level:

## The Base lines.

| | | |
|---|---|---|
| Potsdam 1 | 240 m | + 19.75 mm |
| Potsdam 2 | 240 » | + 19.79 » |
| Potsdam 3 | 240 » | + 19.52 » |
| Szubin | 5 119 » | + 180.75 » |
| Sveksna | 6 466 » | + 345.30 » |
| Ösel | 6 267 » | + 753.18 » |
| Hanko 1 | 5 882 » | + 840.63 » |
| Hanko 2 | 5 882 » | + 838.76 » |
| Enköping N | 5 134 » | + 425.20 » |
| Enköping S | 1 750 » | + 860.29 » |
| Öland | 6 000 » | + 4.39 » |
| Lolland | 6 768 » | + 419.42 » |

## The Sections of Öland.

| | | |
|---|---|---|
| I | 600 m | + 2.79 mm |
| II | 600 » | + 1.80 » |
| III | 600 » | + 9.17 » |
| IV | 600 » | — 5.13 » |
| V | 600 » | —14.58 » |
| VI | 600 » | + 1.93 » |
| VII | 600 » | + 6.43 » |
| VIII | 600 » | — 7.58 » |
| IX | 600 » | + 6.39 » |
| X | 600 » | + 3.17 » |

## The Sections of Lolland.

| | | |
|---|---|---|
| I | 984 m | — 184.26 mm |
| II | 984 » | + 67.57 » |
| III | 984 » | + 69.80 » |
| IV | 984 » | + 43.86 » |
| V | 984 » | — 3.70 » |
| VI | 984 » | + 1.62 » |
| VII | 864 » | + 56.02 » |

# The Speed of the Measurings.

In the following table $\Sigma\ t$ indicates the total time used for measurements on the base, $\Sigma\ n$ the number of interspaces measured, and $K$ the distance per hour measured with one wire.

| | $\Sigma t$ | $\Sigma n$ | $K$ |
|---|---|---|---|
| Helsinki 1 | $20^h\ 53^m$ | 1 020 | 1.17 km |
| Helsinki 2 | 19 14 | 1 080 | 1.35 » |
| Helsinki 3 | 14 48 | 960 | 1.56 » |
| Helsinki 4 | 21 10 | 960 | 1.09 » |
| Helsinki 5 | 7 58 | 480 | 1.45 » |

| | $\Sigma t$ | $\Sigma n$ | $K$ |
|---|---|---|---|
| Potsdam 1 | $9^h\ 28^m$ | 528 | 1.34 km |
| Potsdam 2 | 6 45 | 384 | 1.38 » |
| Potsdam 3 | 8 17 | 384 | 1.12 » |
| Szubin | 37 21 | 1 704 | 1.09 » |
| Sveksna | 44 25 | 2 152 | 1.16 » |
| Saaremaa | 38 35 | 2 088 | 1.30 » |
| Hanko | 32 31 | 1 715 | 1.27 » |
| Enköping N | 36 0 | 1 712 | 1.14 » |
| Öland | 34 5 | 2 000 | 1.41 » |
| Lolland | 22 45 | 1 476 | 1.56 » |

On an average we thus obtain:

| | |
|---|---|
| Helsinki: | 1.32 km per hour |
| Potsdam: | 1.28 » » » |
| The long bases: | 1.28 » » » |

As $t$ is the time which has elapsed between the beginning and end of each measuring, $\Sigma t$ thus includes the pauses which have occurred during the measurings. The actual speed of measuring without pause is thus rather higher than indicated by the above figures.

## The Probable Errors of the Measurings.

From the deviations of the results obtained with different wires from their mean we get the following probable errors of the measurings:

| | $B$ | $\varepsilon$ | $\varepsilon/B$ |
|---|---|---|---|
| Potsdam 1 | 0.24 km | $\pm$ 0.13 mm | $\pm$ 5.4 $\times 10^{-7}$ |
| Potsdam 2 | 0.24 » | $\pm$ 0.06 » | $\pm$ 2.5 » |
| Potsdam 3 | 0.24 » | $\pm$ 0.05 » | $\pm$ 2.1 » |
| Szubin | 5.12 » | $\pm$ 1.06 » | $\pm$ 2.1 » |
| Sveksna | 6.47 » | $\pm$ 0.74 » | $\pm$ 1.1 » |
| Ösel | 6.27 » | $\pm$ 0.75 » | $\pm$ 1.2 » |
| Hanko 1 | 5.88 » | $\pm$ 0.98 » | $\pm$ 1.7 » |
| Hanko 2 | 5.88 » | $\pm$ 0.67 » | $\pm$ 1.1 » |
| Enköping N | 5.13 » | $\pm$ 0.98 » | $\pm$ 1.9 » |
| Enköping S | 1.75 » | $\pm$ 0.91 » | $\pm$ 5.2 » |
| Öland | 6.00 » | $\pm$ 0.84 » | $\pm$ 1.4 » |
| Lolland | 6.77 » | $\pm$ 1.30 » | $\pm$ 1.9 » |

As an average we thus obtain:

$$\varepsilon/B = \pm\ 1.7 \times 10^{-7}$$

## Systematic Differences between the Results obtained by the Pairs of Observers.

Through the change of observers and the turning of the wire the personal equations of the observers are eliminated, these errors being chiefly due to the parallax between the scale and the measuring mark. Nevertheless, in many former measurings it has been proved, that notwithstanding the eliminating of the personal equations, the results obtained by the different pairs of observers differ considerably from each other. This systematic difference cannot depend on anything else than on the different way in which the observers handle the wire during the measuring. The changes in tension brought about by the observers when supporting the wire during the readings are the chief source of these errors. If the stretching apparatus were so constructed, that at least one end of the wire were free during the reading, such a systematic error should not arise.

The best material for studying the systematical differences between the pairs of observers is provided by measurings on the bases of Potsdam and Helsinki.

At Potsdam, in March, Messrs. Livländer, Loemnitz, Schülecke and Weiken measured the base in all combinations. From the table on page 47—48 we get the following deviations of the length of the base line obtained by each combination from the mean:

| | Li. Lo. mm | Li. Sch. mm | Li. W. mm | Lo. Sch. mm | Lo. W. mm | Sch. W. mm |
|---|---|---|---|---|---|---|
| 634 .... | — 0.17 | + 0.13 | + 0.03 | + 0.27 | — 0.04 | — 0.23 |
| 635 .... | — 0.19 | — 0.06 | + 0.24 | + 0.09 | — 0.00 | — 0.10 |
| 636 .... | + 0.19 | — 0.01 | — 0.13 | — 0.09 | + 0.13 | — 0.09 |
| 637 .... | + 0.16 | — 0.07 | — 0.07 | + 0.16 | — 0.14 | — 0.02 |
| Mean .. | + 0.00 | — 0.00 | + 0.02 | + 0.11 | — 0.01 | — 0.11 |
| | ± 6 | ± 3 | ± 5 | ± 5 | ± 4 | ± 3 |

In August the pairs Jonsson—Pesonen and Burrau—Szymanski executed measurings at Potsdam. The differences in length of the base line JP—BS are:

| | |
|---|---|
| 634: + 0.26 mm | 673: — 0.61 mm |
| 635: + 0.18 » | 674: + 0.10 » |
| 636: + 0.01 » | 675: — 0.24 » |
| 637: — 0.17 » | 683: — 0.18 » |

Average: JP — BS = — 0.08 mm ± 0.06 mm.

Also in the first and second measuring at Helsinki the pairs JONSSON—PESONEN and BURRAU—SZYMANSKI were at work as observers. The differences in the length of the base line JP—BS are:

| | H 1 mm | H 2 mm | | H 1 mm | H 2 mm |
|---|---|---|---|---|---|
| 634: | + 0.51 | + 0.46 | 673: | — 0.42 | + 0.08 |
| 635: | + 0.42 | — 0.45 | 674: | — 0.38 | — 0.29 |
| 636: | — 0.63 | — 0.29 | 675: | + 0.25 | + 0.30 |
| 637: | + 0.27 | — 0.62 | 683: | + 0.20 | — 0.29 |

Average: JP—BS = — 0.05 mm ± 0.07 mm.

We can not prove a real systematical difference between the pairs of observers in a single one of these measurings. This favourable result is evidently due to the fact, that the rear observer could do his readings without touching the wire.

## The Changes of the Wires.

If we suppose, that the lengths of the base lines obtained by our measurings are absolutely correct, we get the following values for the wirelengths $L$ at 15°C in units of 0.001 mm.

For reasons given before the wire 636 is left altogether out of consideration. The measurings Potsdam 1, Hanko 2 and Helsinki 5, where only 4 wires have been used, are in the same manner also left out.

| | 634 | 635 | 637 | 673 | 674 | 675 | 683 |
|---|---|---|---|---|---|---|---|
| Breteuil 1 | — 40 | + 810 | + 440 | — 470 | — 210 | — 210 | + 550 |
| Helsinki 1 | + 75 | + 854 | + 514 | — 396 | — 169 | — 148 | + 592 |
| Warsaw | + 50 | + 877 | + 534 | — 380 | — 145 | — 101 | + 611 |
| Szubin | + 41 | + 827 | + 528 | — 395 | — 197 | — 121 | + 601 |
| Sveksna | + 39 | + 848 | + 515 | — 395 | — 152 | — 136 | + 598 |
| Ösel | + 55 | + 818 | + 525 | — 400 | — 157 | — 136 | + 606 |
| Helsinki 2 | + 36 | + 821 | + 538 | — 395 | — 156 | — 154 | + 600 |
| Hanko 1 | + 44 | + 815 | + 531 | — 410 | — 144 | — 127 | + 586 |
| Enköping | + 49 | + 826 | + 542 | — 387 | — 159 | — 137 | + 557 |
| Öland | + 58 | + 864 | + 556 | — 358 | — 156 | — 118 | + 626 |
| Lolland | + 113 | + 891 | + 595 | — 338 | — 142 | — 91 | + 641 |
| Potsdam 2 | + 127 | + 884 | + 630 | — 329 | — 130 | — 76 | + 645 |
| Helsinki 3 | + 109 | + 920 | + 625 | — 317 | — 89 | — 69 | + 679 |
| Breteuil 2 | + 130 | + 930 | + 560 | — 340 | — 70 | — 80 | + 700 |
| Potsdam 3 | + 145 | + 919 | + 608 | — 328 | — 97 | — 97 | + 652 |
| Helsinki 4 | + 110 | + 930 | + 571 | — 317 | — 85 | — 77 | + 656 |

The following table shows the deviations from the average wirelength: $D = L - \frac{\Sigma L}{n}$.

| | 634 | 635 | 637 | 673 | 674 | 675 | 683 |
|---|---|---|---|---|---|---|---|
| Breteuil 1 ..... | − 164 | + 686 | + 316 | − 594 | − 334 | − 334 | + 426 |
| Helsinki 1 ..... | − 114 | + 665 | + 325 | − 585 | − 358 | − 337 | + 403 |
| Warsaw ..... | − 157 | + 670 | + 327 | − 587 | − 352 | − 308 | + 404 |
| Szubin ..... | − 142 | + 644 | + 345 | − 578 | − 380 | − 304 | + 418 |
| Sveksna ..... | − 150 | + 660 | + 327 | − 583 | − 340 | − 324 | + 410 |
| Ösel ..... | − 132 | + 631 | + 338 | − 587 | − 344 | − 323 | + 419 |
| Helsinki 2 ..... | − 148 | + 637 | + 354 | − 579 | − 340 | − 338 | + 416 |
| Hanko 1 ..... | − 141 | + 630 | + 346 | − 595 | − 329 | − 312 | + 401 |
| Enköping ..... | − 135 | + 642 | + 358 | − 571 | − 343 | − 321 | + 573 |
| Öland ..... | − 152 | + 653 | + 345 | − 568 | − 367 | − 329 | + 416 |
| Lolland ..... | − 125 | + 653 | + 357 | − 576 | − 380 | − 329 | + 403 |
| Potsdam 2 ..... | − 125 | + 632 | + 377 | − 581 | − 382 | − 327 | + 393 |
| Helsinki 3 ..... | − 157 | + 655 | + 359 | − 583 | − 355 | − 335 | + 413 |
| Breteuil 2 ..... | − 131 | + 669 | + 299 | − 601 | − 331 | − 341 | + 439 |
| Potsdam 3 ..... | − 112 | + 662 | + 351 | − 585 | − 354 | − 354 | + 395 |
| Helsinki 4 ..... | − 145 | + 675 | + 316 | − 572 | − 340 | − 332 | + 401 |
| Mean ..... | − 139 | + 655 | + 340 | − 583 | − 352 | − 328 | + 408 |

The deviations from the mean : $d = D - D_0$, are:

| | 634 | 635 | 637 | 673 | 674 | 675 | 683 |
|---|---|---|---|---|---|---|---|
| Breteuil 1 ..... | − 25 | + 31 | − 24 | − 11 | + 18 | − 6 | + 18 |
| Helsinki 1 ..... | + 25 | + 10 | − 15 | − 2 | − 6 | − 9 | − 5 |
| Warsaw ..... | − 18 | + 15 | − 13 | − 4 | 0 | + 20 | − 4 |
| Szubin ..... | − 3 | − 11 | + 5 | + 5 | − 28 | + 24 | + 10 |
| Sveksna ..... | − 11 | + 5 | − 13 | 0 | + 12 | + 4 | + 2 |
| Ösel ..... | + 7 | − 24 | − 2 | − 4 | + 8 | + 5 | + 11 |
| Helsinki 2 ..... | − 9 | − 18 | + 14 | + 4 | + 12 | − 10 | + 8 |
| Hanko 1 ..... | − 2 | − 25 | + 6 | − 12 | + 23 | + 16 | − 7 |
| Enköping ..... | + 4 | − 13 | + 18 | + 12 | + 9 | + 7 | − 35 |
| Öland ..... | − 13 | − 2 | + 5 | + 15 | − 15 | − 1 | + 8 |
| Lolland ..... | + 14 | − 2 | + 17 | + 7 | − 28 | − 1 | − 5 |
| Potsdam 2 ..... | + 14 | − 23 | + 37 | + 2 | − 30 | + 1 | − 15 |
| Helsinki 3 ..... | − 18 | 0 | + 19 | 0 | − 3 | − 7 | + 5 |
| Breteuil 2 ..... | + 8 | + 14 | − 41 | − 18 | + 21 | − 13 | + 31 |
| Potsdam 3 ..... | + 27 | + 7 | + 11 | − 2 | − 2 | − 26 | − 13 |
| Helsinki 4 ..... | − 6 | + 20 | − 24 | + 11 | + 12 | − 4 | − 7 |

If $d$ is considered as an accidental quantity, the probable error, $\varepsilon$, of one $L$ is:

$$\varepsilon = \pm 0.6745 \sqrt{\frac{7 \cdot 16 \cdot \Sigma d^2}{6 \cdot 15 \cdot n}}$$

The values of $\Sigma d^2$ and $\varepsilon$ for the different wires ($n = 16$) are:

| | $\Sigma d^2$ | $\varepsilon$ |
|---|---|---|
| 634 | 3 568 | $\pm$ 11 |
| 635 | 4 305 | $\pm$ 12 |
| 637 | 6 146 | $\pm$ 15 |
| 673 | 1 214 | $\pm$ 7 |
| 674 | 4 613 | $\pm$ 13 |
| 675 | 2 453 | $\pm$ 9 |
| 683 | 3 446 | $\pm$ 11 |

These values of $\varepsilon$ do not differ from each other so much as to warrant the giving of different weights to the wires.

On the different base lines ($n = 7$) we get:

| | $\Sigma d^2$ | $\varepsilon$ | | $\Sigma d^2$ | $\varepsilon$ |
|---|---|---|---|---|---|
| Breteuil 1 | 2 967 | $\pm$ 15 | Enköping | 2 008 | $\pm$ 13 |
| Helsinki 1 | 1 096 | $\pm$ 9 | Öland | 713 | $\pm$ 8 |
| Warsaw | 1 150 | $\pm$ 10 | Lolland | 1 348 | $\pm$ 11 |
| Szubin | 1 640 | $\pm$ 11 | Potsdam 2 | 3 224 | $\pm$ 16 |
| Sveksna | 479 | $\pm$ 6 | Helsinki 3 | 768 | $\pm$ 8 |
| Ösel | 855 | $\pm$ 8 | Breteuil 2 | 3 836 | $\pm$ 17 |
| Helsinki 2 | 922 | $\pm$ 9 | Potsdam 3 | 1 752 | $\pm$ 12 |
| Hanko 1 | 1 643 | $\pm$ 11 | Helsinki 4 | 1 342 | $\pm$ 10 |

On the long base lines, on the base of Helsinki, and on the comparator of Warsaw we thus got figures for $\varepsilon$ differing little from one another, or:

On the long base lines ..... $\varepsilon = \pm 10$
At Helsinki ..... $\varepsilon = \pm 9$
At Warsaw ..... $\varepsilon = \pm 10$

At Potsdam we obtained

$$\varepsilon = \pm 14$$

and at Breteuil

$$\varepsilon = \pm 16$$

There is no reason to suppose, that the real lengths of the wires at Potsdam and Breteuil differ more from their mean length than is the case on the other base lines, so it must be assumed that the greater values of $\varepsilon$ on these base lines are due to the fact, that the influence of accidental errors of measuring is greater there than elsewhere. A priori it might be expected, that the measuring errors on the short base line of Potsdam have a comparatively great influence.

The method of standardization used at Breteuil evidently does not give the same degree of exactitude as can be obtained on the long field bases and by the Warsaw comparator, which is furnished with microscopes.

## The Accidental Measuring Errors.

The probable error $\mu$ of a base line containing $n$ interspaces measured with one wire can be represented by the formula

$$\mu^2 = nv^2 + n^2w^2$$

where $v$ is the accidental error of one interspace, and $w$ is the error of one interspace constant on the whole base line.

$v$ can be determined from measurings in Öland and Lolland, and at Potsdam and Helsinki.

The probable error $\mu_1$ of one section in Öland, containing 25 interspaces, measured with one wire is:

$$\mu_1 = \pm 0.356 \text{ mm}$$

and the probable error $\mu_2$ of the whole base line:

$$\mu_2 = \pm 2.16 \text{ mm}$$

Thus we get the equations:

$$25\,v^2 + 25^2\,w^2 = 0.356^2$$
$$250\,v^2 + 250^2\,w^2 = 2.16^2$$

or:

$$v = \pm 0.060 \text{ mm}$$
$$w = \pm 0.0078 \text{ mm}$$

On Lolland we get accordingly:

$$40.3\,v^2 + 40.3^2\,w^2 = 0.640^2$$
$$282\,v^2 + 282^2\,w^2 = 3.54^2$$

or:

$$v = \pm 0.067 \text{ mm}$$
$$w = \pm 0.0119 \text{ mm}$$

At Potsdam and Helsinki we can directly determine the values of $v$ by comparing with one another the measurings carried out with each wire. We get:

| | | |
|---|---|---|
| Helsinki | 1: | $v = \pm 0.050$ mm |
| » | 2: | $\pm 0.047$ » |
| » | 3: | $\pm 0.072$ » |
| » | 4: | $\pm 0.049$ » |
| Potsdam | 1: | $\pm 0.049$ » |
| » | 2: | $\pm 0.059$ » |
| » | 3: | $\pm 0.049$ » |
| Mean: | | $v = \pm 0.054$ » |

As espected $v$ is somewhat smaller on the base line of Helsinki and Potsdam than on the long bases. The average value, $v = \pm 0.06$ mm can, however, be used for all measurements.

We have already earlier deduced the probable error $\varepsilon$ of a wire-length. Expressing $\varepsilon$ by the formula:

$$n^2 \varepsilon^2 = n v^2 + n^2 u^2$$

where $u$ is due to the real errors of the employed wire-lengths we obtain with the value $v = \pm 0.06$ mm:

| | | | |
|---|---|---|---|
| Helsinki 1: | $u = \pm 0.007$ mm | Sveksna: | $u = \pm 0.005$ mm |
| Helsinki 2: | $\pm 0.007$ » | Ösel: | $\pm 0.007$ » |
| Helsinki 3: | $\pm 0.006$ » | Hanko: | $\pm 0.010$ » |
| Helsinki 4: | $\pm 0.008$ » | Enköping: | $\pm 0.012$ » |
| Potsdam 2: | $\pm 0.013$ » | Öland: | $\pm 0.007$ » |
| Potsdam 3: | $\pm 0.007$ » | Lolland: | $\pm 0.009$ » |
| Szubin: | $\pm 0.010$ » | | |

Average: $u = \pm 0.0083$ mm.

The measurings of the field base lines ought to be made with such accuracy that the influence of the accidental errors of measuring $n v^2$, does not exceed half the amount of the influence exercised by the changes in the wire-lengths, $n^2 u^2$. This condition is filled if at least $\frac{2 v^2}{u^2}$ interspaces are measured with every wire on each base line.

With the values $v = \pm 0.06$ mm and $u = \pm 0.008$ mm we get

$$\frac{2 v^2}{u^2} = 112$$

Thus about 2 700 metres should be measured by each wire.

As the length of the base lines dealt with in this work is in general 5—7 km, it would thus have sufficed to measure only half of each

base line by each wire. However, as there are no interjacent centres on most bases, it would have been difficult to control the wire-lengths in this way, so that, although the above mentioned figures would have been known to me, I should nevertheless have considered it advisable to measure the whole base by each wire.

## Systematic and Accidental Errors of Readings.

In the preceding tables (pp. 51—75) the sums of the differences of readings $m_1$, $m_2$ and $m_3$ are given separately. We will now study the systematic errors and the exactitude of the readings.

The average values of $\frac{m_1 - m}{n}$, $\frac{m_2 - m}{n}$ and $\frac{m_3 - m}{n}$ are:

| | Jonsson—Pesonen | | | Burrau—Szymanski | | |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | mm |
| Szubin ..... | + 0.0049 | − 0.0030 | − 0.0019 | + 0.0040 | − 0.0007 | − 0.0033 |
| Sveksna ..... | + 0.0110 | − 0.0065 | − 0.0045 | − 0.0007 | + 0.0007 | − 0.0000 |
| Ösel ..... | + 0.0049 | − 0.0016 | − 0.0033 | + 0.0021 | + 0.0017 | − 0.0038 |
| Hanko ..... | + 0.0051 | − 0.0039 | − 0.0012 | + 0.0000 | + 0.0003 | − 0.0003 |
| Enköping ..... | + 0.0018 | − 0.0010 | − 0.0008 | + 0.0038 | − 0.0019 | − 0.0019 |
| Öland ..... | + 0.0003 | + 0.0011 | − 0.0014 | − 0.0002 | + 0.0026 | − 0.0024 |
| Lolland ..... | − 0.0002 | + 0.0013 | − 0.0011 | + 0.0042 | − 0.0028 | − 0.0014 |
| Mean ..... | + 0.0039 | − 0.0019 | − 0.0020 | + 0.0019 | 0.0000 | − 0.0019 |
| | ± 9 | ± 9 | ± 5 | ± 6 | ± 5 | ± 4 |

In both the series $m_1$ has a greater positive value than $m_2$ and $m_3$. Especially for the pair JONSSON—PESONEN is the difference considerable. This difference is evidently to be explained only by the fact, that the wire at the first reading was stretched less than at the two following readings, the tension for the pair JONSSON—PESONEN being 6 gramme and for the pair BURRAU—SZYMANSKI 3 grammes less. Indeed, during the first reading a somewhat different tension than during the later one is to be expected. Before each reading the front observer pulls the wire. If the back wheel is not absolutely sensitive, a slight overtension results. Before the first reading the wire swings and it takes some time before it has become so still, that the scale can be read, and the over-tension then in general disappears. The later readings are done immediately after the pulling of the wire, so that there is over-tension in the wire when the reading is performed. Above (page 6) has been stated that the wheels we were using were sensitive to an overweight of 10 grammes, so that a difference in ten-

sion of 3—6 grammes between the first and the following readings is not at all improbable. A consequence of the observers' way of handling the wire is that the difference in tension is not the same for both pairs.

Thus it seems probable, that the tension during the first readings is the most exact. Also the fact, that greater wire-lengths were obtained at Breteuil by the Finnish stretching apparatus than by the stretching apparatus of the comparator stands for the assumption, that in pulling the wire too great a tension would be obtained by using the Finnish stretching apparatus. Nevertheless, special experiments carried out in September on the base line of Helsinki do not support this hypothesis. The base line was measured both by pulling and pushing the wire, but no real difference in the length of the base line was obtained. Thus I have left out of consideration the systematic difference between the readings. I have been able to do it with so much more reason as there is the question about a negligeable quantity.

We now go on to study the exactitude of the readings. Let us indicate the probable error of $m_i$ by $r_i$. As each pair of observers on each base line measured with 4 wires we obtain

$$r_i = 0.6745 \sqrt{\frac{\Sigma\{(m_i - m) - (m_i - m)_0\}^2}{4-2}}$$

We get the following values of $r_i$,

| | Jonsson—Pesonen | | | Burrau—Szymanski | | |
|---|---|---|---|---|---|---|
| | $r_1$ mm | $r_2$ mm | $r_3$ mm | $r_1$ mm | $r_2$ mm | $r_3$ mm |
| Szubin ..... | ± 0.67 | ± 0.24 | ± 0.46 | ± 1.41 | ± 0.57 | ± 1.49 |
| Sveksna ..... | ± 1.79 | ± 1.15 | ± 0.78 | ± 0.98 | ± 0.44 | ± 1.21 |
| Ösel ..... | ± 0.96 | ± 0.78 | ± 0.32 | ± 0.42 | ± 0.65 | ± 0.79 |
| Hanko ..... | ± 0.37 | ± 0.75 | ± 1.00 | ± 0.58 | ± 0.13 | ± 0.57 |
| Enköping ..... | ± 1.78 | ± 1.38 | ± 0.68 | ± 0.46 | ± 0.88 | ± 1.19 |
| Öland ..... | ± 1.11 | ± 1.09 | ± 1.69 | ± 0.17 | ± 0.58 | ± 0.50 |
| Lolland ..... | ± 1.05 | ± 0.45 | ± 0.88 | ± 0.48 | ± 0.62 | ± 0.87 |

If we indicate the probable error of the difference between both readings by $\varrho$, we get as average value for all the base lines

$$\varrho_i^2 = \frac{\Sigma r_i^2}{n}$$

As $n = 1784$, we obtain:

| Jonsson—Pesonen: | Burrau—Szymanski: |
|---|---|
| $\varrho_1 = \pm 0.078$ mm | $\varrho_1 = \pm 0.047$ mm |
| $\varrho_2 = \pm 0.057$ » | $\varrho_2 = \pm 0.036$ » |
| $\varrho_3 = \pm 0.058$ » | $\varrho_3 = \pm 0.063$ » |

The figures do not differ greatly from each other, so we can use their mean:

$$\varrho = \pm 0.056 \text{ mm}$$

The probable error of one reading thus is

$$\varrho/\sqrt{2} = \pm 0.040 \text{ mm},$$

and the probable error of one interspace, due to the errors of the readings,

$$\varrho/\sqrt{3} = \pm 0.032 \text{ mm}.$$

Earlier we have obtained the total accidental error of one interspace:

$$v = \pm 0.06 \text{ mm}$$

## Comparison with other Measurings.

Five of the seven bases dealt with in this work have been measured by other expeditions, *viz.*, the bases of Szubin, Hanko, Enköping, Öland and Lolland.

*Szubin* was measured in 1903 by the »Reichsamt für Landesaufnahme», with Bessel's apparatus, and with invar wires. The results of the measurings are reproduced in »Die Preussische Landesvermessung. Neue Folge. I. Teil». In connection with our measuring, the base was measured in the spring 1929 by Professor Warchalowski, with the aid of 3 invar wires, belonging to the Technical High School at Warsaw. The results of this measuring are given in »Base de Szubin», Warsovie 1929.

*Hanko* was measured in 1923 with 5 invar wires by the Geodetic Institute of Finland. The results are to be found in »Veröffentlichungen des Finnischen Geodätischen Instituts» No. 3.

*Enköping* was measured in 1929 — after our measurings — with 6 invar wires by the Swedish »Rikets Allmänna Kartverk», under the supervision of Professor Karl D. P. Rosén, of the General-Staff. The results of the measuring have not yet been published, but Professor Rosén has nevertheless kindly placed them at my disposal.

*Öland* was measured in its entirety in 1921 by »Rikets Allmänna Kartverk». The sixth section was later on measured in June 1922, November 1922, June 1923, October 1925, August 1929 and September 1929. The results of the measuring in 1921 have kindly been placed at my disposal by Professor Rosén.

*Lolland* was measured with 8 invar wires in 1928 and 1929 — shortly before our measuring — by the Danish Geodetic Institute, under the supervision of the Director of the Institute, Professor N. E. Nörlund, who has kindly placed the results of both these measurings at my disposal.

*Szubin.*

In 1903, using Bessel's apparatus the »Preussische Landesaufnahme» obtained as the length of the base line uncorrected to the sea level

$$B = 5119 \text{ m} + 181.6 \text{ mm}$$

Professor Warchalowski has published

$$B = 5119 + 177.7 \text{ mm}$$

as the result of his measuring. This value has to be corrected for the inclination of the scales and for the three last terms of the slope correction, which corrections are left out of Professor Warchalowski's computations. The corrected figure is

$$B = 5119 + 176.4 \text{ mm}$$

From our measuring (BGC) was obtained:

$$B = 5119 + 180.75 \text{ mm}$$

We thus get

$$\text{BGC} - \text{Bessel: } - 0.85 \text{ mm}$$

$$\text{BGC} - \text{Warchalowski: } + 4.35 \text{ mm}$$

*Hanko.*

By the measuring carried out in 1923 by the Finnish Geodetic Institute

$$B = 5882 \text{ m} + 847.40 \text{ mm}$$

was obtained.

We received in July

$$B = 5882 \text{ m} + 840.63 \text{ mm}$$

and in November

$$B = 5882 \text{ m} + 838.76 \text{ mm}$$

The differences thus are:

BGC in Aug. — 1923: — 6.77 mm
BGC in Nov. — 1923: — 8.64 mm

*Enköping.*

The measuring by Rikets Allmänna Kartverk in 1929 gives:

Enköping N: $B = 5134 \text{ m} + 425.62 \text{ mm}$
Enköping S: $B = 1750 \text{ m} + 862.95 \text{ mm}$

We obtained

Enköping N: $B = 5134 \text{ m} + 425.20 \text{ mm}$
Enköping S: $B = 1750 \text{ m} + 860.29 \text{ mm}$

The difference BGC — Kartverket is thus:

Enköping N: — 0.42 mm
Enköping S: — 2.66 mm

*Öland.*

The measuring by Rikets Allmänna Kartverket 1921 gave the length of the base line as:

$$B = 6000 \text{ m} + 5.04 \text{ mm}$$

The measuring by BGC gives:

$$B = 6000 \text{ m} + 4.39 \text{ mm}$$

The difference is thus:

BGC — K 1921: — 0.65 mm

On the different sections we obtain:

| Section | | BGC | K 1921 | Difference |
|---|---|---|---|---|
| 1 | 600 m | + 2.79 mm | + 2.48 mm | + 0.31 mm |
| 2 | | + 1.80 | + 0.50 | + 1.30 |
| 3 | | + 9.17 | + 9.40 | — 0.23 |
| 4 | | — 5.13 | — 4.69 | — 0.44 |
| 5 | | — 14.58 | — 13.36 | — 1.22 |
| 6 | | + 1.93 | + 1.76 | + 0.17 |
| 7 | | + 6.43 | + 6.28 | + 0.15 |
| 8 | | — 7.58 | — 6.85 | — 0.73 |
| 9 | | + 6.39 | + 6.52 | — 0.13 |
| 10 | | + 3.17 | + 3.00 | + 0.17 |

*Lolland.*

The measuring by the Danish Geodetic Institute in 1928 (D 1928) gave

$$B = 6768 \text{ m} + 398.31 \text{ mm}$$

and from the Danish measuring 1929 (D 1929) we get

$$B = 6768 \text{ m} + 420.00 \text{ mm}$$

The result of the BGC measurement is:

$$B = 6768 \text{ m} + 419.42 \text{ mm}$$

The differences are thus:

$$\text{BGC} - \text{D } 1928: + 21.11 \text{ mm}$$

$$\text{BGC} - \text{D } 1929: - 0.58 \text{ mm}$$

On the different sections we obtain the following results:

| Section | m | BGC mm | D 1929 mm | D 1928 mm | BGC-D 1929 mm | BGC-D 1928 mm |
|---|---|---|---|---|---|---|
| 1 | 986 | + 184-26 | + 183.19 | + 180.04 | + 1.07 | + 4.22 |
| 2 | » | + 67.57 | + 72.23 | + 65.40 | — 4.66 | + 2.17 |
| 3 | » | + 69.80 | + 68.82 | + 67.37 | + 0.98 | + 2.43 |
| 4 | » | + 43.86 | + 47.85 | + 41.22 | — 3.99 | + 2.64 |
| 5 | » | — 3.70 | — 3.90 | — 5.46 | + 0.20 | + 1.76 |
| 6 | » | + 1.62 | + 1.24 | + 0.97 | + 0.38 | + 0.65 |
| 7 | 864 | + 56.02 | + 50.58 | + 48.77 | + 5.44 | + 7.25 |

## The Simultaneous Lengthening of the Wires.

It has been shown earlier that all the 8 wires lengthened 0.082 mm between the second and third measurings at Helsinki. The question is now, to what can the lengthening be due and in what manner has it occurred?

In the autumn and winter, after the measurings were finished, I tried a lot of experiments in order to find an explanation of this strange phenomenon. Evidently the following points ought to be discussed as possible causes of the change:

1. The heating of the wires above a fixed limit of temperature.
2. The strong magnetizing of the wires.
3. A heavy concussion.
4. Some peculiarity of the invar metal.

I have tried to study the influence of the three first mentioned points and below beg to present the results of these researches.

On visiting Breteuil in October 1929 Mr. GUILLAUME drew my attention to the fact, that the invar wires can change their length in certain conditions, if they are exposed to a temperature above 42°C. Because of this I tried the following experiments on the 24 m comparator of the Geodetic Institute of Helsinki, which is supplied with microscopes.

Two wires belonging to the Geodetic Institute, Nos 423 and 442, which had not been used for a long time, were compared with the wires Nos 634—637 and 673—683 and were thereupon reeled round their drum and placed for 18 hours in a temperature of +45°C. When the wires were taken out of the heat it was found that the windings of the wires on the drum were in the same position as before the heating, so that the dilation of the aluminium drum had stretched the wires. As the wires were reeled around the drum at a temperature of + 5°C, they had lengthened 21 mm, corresponding to a tension of 30 kg, through the influence of the dilation of the drum. When the wires had cooled they were again compared with the wires Nos 634—637 and 673—683, which in the meantime remained untouched.

From the experiment on 20th—21st December the following changes of the wire lengths were obtained:

423: — 0.008 mm
442: + 0.010 mm

On the 20th—21st January 1930 the experiment was repeated by heating the wires 634—637 and using as comparing wires Nos 673—683. As in the preceding experiment, the wires were warmed to a temperature of + 45°C and were kept there for 18 hours. The changes were:

634: + 0.004 mm
635: + 0.004 mm
636: + 0.006 mm
637: — 0.013 mm

Seeing that the heating to + 45°C apparently caused no real change in the wire lengths, a third experiment was made. The wires 634—637 were compared with the wires 673—683 as in the former experiments, and were thereafter wound on the drum and placed in a temperature of + 60°C for 12 hours. The influence of the dilation of the drum corresponded to a tension of 41 kg. When the wires had cooled again they were once more compared with the wires 673—683. The changes were:

634: + 0.003 mm
635: + 0.002 mm
636: — 0.002 mm
637: + 0.018 mm

Thus the experiments showed that a high temperature alone could not be sufficient to cause the lengthening of the wires. It is, however, hardly conceivable that the wires during the transportations were subjected to a temperature of more than + 30°C.

In the autumn, after finishing the measurings, it was observed that all the wires used in the summer were slightly magnetical, whereas the wires 423 and 442, which had not been used for a long time, were free from magnetism. Because of this I tried to find out in January 1930 to what extent the magnetizing of the wires 423 and 442 might influence their lengths. The wires were compared with the wires 634—637 and 673—683, after which they were drawn through a field of a strong electro-magnet and thereafter again compared. The changes were:

423: — 0.036 mm
442: + 0.014 mm

Further, on the 15th May 1930, the following experiment was tried with the wires 635 and 636. When the wires had been compared with the wires 634 and 637, we let the case they were kept in fall several times in succession from a height of 30 cm on to the ground. After this the case was subjected to violent shaking. The changes were:

635: — 0.042 mm
636: — 0.029 mm

The shortening of the wires was evidently due to bends resulting from the shocks sustained. After a few days the wires had recovered their former lengths.

All the above experiments have given negative results. I cannot conceive any other ways of studying the phenomenon. The only possible assumption is that the lengthening of the wires is due to some unknown peculiarity of the invar metal. Perhaps the wires were overstrained through too many stretchings during a short time?

On the 5th—6th June 1930 the wires 634—637 were compared on the standard base line of Helsinki. The following wire lengths were obtained:

634: + 0.100 mm
635: + 0.923 mm
636: + 0.669 mm
637: + 0.598 mm

Thus the wires have remained practically unchanged during the whole of the time between September 1929 and May 1930. The changed wire lengths seem to be quite stable.

The very important questions are now: 1) Did the change occur gradually or all at once? 2) What wire lengths will be employed on the base lines between Helsinki 2 and Helsinki 3?

When computing the measurings Hanko 1, Enköping, Öland, Lolland and Potsdam 2, I assumed that the change had occurred proportionally to the time between Enköping and Helsinki 3. This assumption is founded solely on the comparation of our measurings with other measurements on the same base lines. We now present the wire lengths obtained from these comparations.

We assume the following lengths of the base lines of Hanko, Enköping N [1]), Öland, Lolland and Potsdam to be exact.

*Hanko.* The value of our measuring in November 1929:

$$B = 5882 \text{ m} + 838.76 \text{ mm}$$

*Enköping N.* The value of the measuring by »Kartverket» 1929

$$B = 5134 \text{ m} + 425.62 \text{ mm}$$

*Öland.* The value obtained by »Kartverket» 1921:

$$B = 6000 \text{ m} + 5.04 \text{ mm}$$

*Lolland.* The value obtained by the Danish measurement 1929:

$$B = 6768 \text{ m} + 420.00 \text{ mm}$$

*Potsdam.* The average value got from our measurings in March and October 1929:

$$B = 240 \text{ m} + 19.63 \text{ mm}$$

Using these figures we get the following lengths of our wires in the unit of 0.001 mm.

---

[1]) Enköping S is left out of this investigation, as the measurement was performed in somewhat exceptional conditions, a great part of the base line being measured with 96 metre wires.

| | 634 | 635 | 636 | 637 | 673 | 674 | 675 | 683 |
|---|---|---|---|---|---|---|---|---|
| | + | + | + | + | − | − | − | + |
| Helsinki 1 1929.V ..... | 75 | 854 | 563 | 514 | 396 | 169 | 148 | 592 |
| Helsinki 2 1929.VI ..... | 36 | 821 | 562 | 538 | 395 | 156 | 154 | 600 |
| Hanko I 1929.VII ..... | 36 | 806 | — | 522 | 420 | 150 | 136 | 578 |
| Enköping N 1929.VII .... | 36 | 831 | — | 551 | 402 | 161 | 124 | 573 |
| Öland 1929.VIII ..... | 60 | 867 | — | 558 | 350 | 153 | 115 | 629 |
| Lolland 1929.VIII ..... | 115 | 894 | — | 597 | 336 | 140 | 89 | 643 |
| Potsdam 1929.VIII ..... | 113 | 870 | — | 616 | 343 | 144 | 90 | 631 |
| Helsinki 3 1929.IX ..... | 109 | 921 | — | 625 | 317 | 89 | 69 | 679 |
| Helsinki 4 1929.XI ..... | 110 | 930 | 640 | 571 | 317 | 85 | 77 | 656 |
| Helsinki 5 1929.XI ..... | 114 | 923 | 655 | 585 | — | — | — | — |
| Helsinki 6 1930.V ..... | 100 | 923 | 669 | 598 | — | — | — | |

We cannot lay much weight on the wire lengths obtained at Potsdam, because, by reason of the shortness of the base line, accidental errors of observation can influence the result considerably. I have therefore thought it right to leave out Potsdam altogether from the investigation.

We get the following changes of the wire lengths between the measurings (+ lengthening, — shortening).

| | 634 | 635 | 636 | 637 | 673 | 674 | 675 | 683 | Mean |
|---|---|---|---|---|---|---|---|---|---|
| $He_1$—$He_2$ ..... | − 39 | − 33 | − 1 | + 24 | + 1 | + 13 | − 6 | + 8 | − 5 |
| $He_2$—$Ha_1$ ..... | 0 | − 15 | − | − 16 | − 25 | + 6 | + 18 | − 22 | − 8 |
| $Ha_1$—Enk. N ..... | 0 | + 25 | − | + 29 | + 18 | − 11 | + 12 | − 5 | + 10 |
| Enk. N—Öl. ..... | + 24 | + 36 | − | + 7 | + 52 | + 8 | + 9 | + 56 | + 27 |
| Öl.—Lo. ..... | + 55 | + 27 | − | + 39 | + 14 | + 13 | + 26 | + 14 | + 27 |
| Lo.—$He_3$ ..... | − 6 | + 27 | − | + 28 | + 19 | + 51 | + 20 | + 36 | + 25 |
| $He_3$—$H_4$ ..... | + 1 | + 9 | - | − 54 | 0 | + 4 | − 8 | − 23 | − 10 |
| $H_4$—$H_5$ ..... | + 4 | − 7 | + 15 | + 14 | − | − | − | − | + 6 |
| $H_5$—$H_6$ [1]) ..... | − 14 | 0 | + 14 | + 13 | − | − | − | − | + 3 |

It seems thus as if the wires did not change before Enköping. Between Enköping and Helsinki 3 they seem to have lengthened gradually. After Helsinki 3 no real change can be noticed, though during the winter various experiments have been carried out with the wires.

[1]) $H_6$ refers to the comparation at Helsinki in the spring 1930.

Having ascertained, in the autumn of 1929, the simultaneous lengthening of the wires. I considered *a priori* as most probable that the change had occurred suddenly, owing to the influence of some external cause. I expected to be able to find the cause of the change by means of special experiments and to ascertain, by means of comparison with other measurings, when the change had taken place. As previously mentioned, the experiments made by me have not, however, given any explanation of the phenomenon. Neither has the comparison with other measurements given support to the supposition that the lengthening of the wires has happened suddenly. I have therefore been compelled to calculate my measurements on the assumption that the lengthening of the wires has taken place gradually in proportion to the time elapsed. I should, however, like especially to mention that I do not consider the results obtained from the comparison with the other measurements *sufficiently tenable* to prove that the lengthening has taken place gradually and not suddenly. Should it be possible to show a tenable cause which could have produced a sudden lengthening of the wires, the question must be re-examined and it should be established by new measurements, when the change actually occured. For the present I consider my hypothesis as in practice the best.

If the change has occurred suddenly, contrary to my supposition, it can be regarded as probable that it happened between Enköping and Lolland. In such a case the values obtained by me for the base lines of Öland and Lolland are somewhat erroneous. The error of the length of Lolland would be 1.1 mm pro 1 kilometre and that of Öland 1.1 or 2.2 mm pro 1 kilometre, depending upon the place where the change occurred.

## Conclusions.

The extensive measurings described in this work gave some experiences worthy of mention in this connection, although most of them are not new.

First of all I should like to call attention to the actual exactness of measurement and to the steps necessary to attain the exactitude desired.

It was mentioned in the preface that the base lines should be measured with such accuracy that their lengths in adjustment can be considered as absolute. The degree of measuring exactitude needed in order to fulfil this essential condition depends, of course, upon

the accuracy of triangulations. In the best first class triangulations of the present day the probable error of adjusted angle is about $\pm 0''25$. The probable error of a principal side, due to the errors of the measurings of the enlarging net, will be in the most favourable case $\pm 2 \times 10^{-6}$. Owing to improved instruments the measuring accuracy may increase, but the climatical conditions, above all the lateral refraction, will nevertheless cause the errors to decrease but little. In these circumstances one can still for a long time to come consider the base lines as exact, if their probable errors do not exceed $\pm 1 \times 10^{-6}$.

Let us now see to which causes of errors we should devote most attention, and how the measurings should be organized in order that the probable errors should be below the limit mentioned above.

In the foregoing we have deduced the probable error of one pair of readings to be $\pm 0.056$ mm. If we for each interspace thus had only one pair of readings, the probable error for a base line of 6 km length, when measuring only by one wire, would be 0.9 mm or $\pm 0.15 \times 10^{-6}$. Consequently there is no need to increase the number of readings in order to arrive at greater accuracy. However, as faults in reading and recording might occur if only one pair of readings were taken for each interspace, it is recommended for the sake of control to have several readings, say 3, as has been the case in these measurings. As each pair of readings takes about 7 seconds, it will take 30 minutes longer to measure the base line of 6 km length, if 3 readings are carried out instead of one.

There are also other accidental causes of errors, such as for instance the changes of wire tension, the slight movements of measuring marks during the measuring operation, etc., which all affect the result of the measurings. Owing to the effect of all the accidental errors, the probable error for the length of the interspace measured by one wire is $\pm 0.06$ mm, or for a base line of 6 km length $\pm 0.95$ mm. Also this error is unimportant, and we could be satisfied with measurings by one single wire, if solely the accidental measuring errors were to be considered.

The personal equations of the observers would cause a considerable error in the results, unless they were eliminated. As the observers, however, change places during the measuring, this error is practically entirely done away with. The personal equation of experienced observers is to such a degree a constant quantity, that it is unnecessary for the observers to change place frequently, which would only delay the measuring.

It has just been explained that if the personal equation is eliminated, the influence of observers upon the result is very slight, if only the stretching apparatus used enables the scale to be read without the observers needing to touch the wire during the reading. Therefore it is not necessary that the same observers measure the field base line and standard base line. Stretching apparatus which do not fulfil the condition mentioned above should not in any case be used, as although the same observers who are measuring in the field would standardize the wires, there is no guarantee whatever that they would on the both occasions operate the stretching apparatus and the wire in the same way.

The probable changes of the wires between the base lines have been described above, and the probable error of the wire length on one base line was found to be $\pm$ 0.008 mm. If the wire is standardized both before the measuring and after it, the probable error owing to accidental changes in its length on a 6 km long base line will be $\pm$ 2.5 mm, thus $0.4 \times 10^{-6}$. By using 4 wires the error caused by the accidental changes in length is accordingly $0.2 \times 10^{-6}$ which, therefore, is practically of no importance.

All the causes of errors mentioned above have proved to be so small that they do not lead to errors the effect of which would exceed the limit mentioned.

Our measuring this summer has resulted in the discovery of a new, hitherto unknown and rather serious cause of error: *viz. the simultaneous lengthening of all wires used.* Whatever the cause of this lengthening may be, the fact remains that 8 wires have simultaneously lengthened considerably, and no mistake in the operation of the wires could be verified. Had we not been able to compare our measurings with other measurings on the same base lines, it would have been impossible to ascertain how and when the lengthening had taken place, and for the base lines Hanko, Enköping, Öland and Lolland lengths differing from the right ones by more than $1 \times 10^{-6}$ would probably have been deduced. If furthermore no measurings on the Helsinki base line had been carried out, the difference between the standardizations at Breteuil would have escaped attention, and we should probably have supposed that the wires had lengthened during all the measuring proportionately to the time. and should have arrived at more or less erroneous lengths for all the base lines.

One cannot therefore rely upon the lengths of wires, even if the measuring is performed by the aid of several wires and their relative lengths change but slightly. *The lengths of the wires must be controlled sufficiently often, and special attention and care devoted to the determining of them.*

Nowadays, before starting or after finishing the field work, most of the European countries send their wires to the International Surveying Office at Breteuil in order to have them standardized. In normal circumstances the standardization will take about 10 weeks and considering the time needed for transportation of the wires, the whole procedure will occupy 3 months. In these circumstances it is impossible even to think of the standardization of wires at Breteuil in direct connection with each base line measuring. If thus several base lines have been measured in the course of the summer season, and the wires used have simultaneously changed their lengths between the standardizations, all the measurings may perhaps have been fruitless, as it is impossible to verify when the change has taken place.

The control of wire lengths ought to be made more effectual by establishing for each country a standard base line for this purpose. By the aid of such a standard the comparison of wires could be effected in direct connection with each base line measuring.

In Finland we have obtained very good results from the use of a standard base line. As mentioned above, the 720 m long base line of Helsinki can be considered to be absolutely constant. The same observation has been made in Sweden with regard to the 600 m long sections of the base line in Öland. It has been mentioned earlier that a sufficiently accurate result is obtained if about 112 interspaces are measured by each wire. According to the statistics above this kind of measuring will take about 2 hours. In 2 or 3 days it is possible to standardize 8 wires without any trouble. The whole procedure, including also the time for transportation, at least in Finland where access to the standard base line is easy, can be carried out in one week. Even supposing several base lines to be measured during one summer, there is no difficulty in standardizing the wires at the standard base line between each measuring.

The length of the standard base line must, of course, now and then be controlled by measuring the line by wires the lengths of which are known exactly, or by some other kind of measuring apparatus. I should consider the following method to be the simplest and surest. An interference comparator is placed on the standard base line or close to it. By aid of this the 24 m wires are compared to a standard metre. The Finnish Geodetic Institute is provided with a Väisälä-type interference comparator of this kind. This comparator is used to compare wires to a standard metre to the exactness of about 1/8,000,000, in direct connection with the measuring of the standard base line of Helsinki. The metre used can, of course, be best compared

to the normal standard metre in the special laboratories for this purpose.

This method implies that the standard base line really stays unchanged. I am sure that there would be no difficulty in finding in every country a level place about one km in length for the base line and there fixing the terminal points so that their distance will remain unchanged within the limits of some fractions of a millimetre. This ought to be very easy, as the position of the standard base line can be chosen without restriction, the only points to take into consideration being the evenness of the ground and the constancy of the terminal points.

The standard base lines of different countries could be compared to each other, both by measuring them in direct connection by the same wires and by comparing with each other the standard metres of the comparators.

# The Differences of Readings.

## Contents of the tables.

Wire.
Date.
Temperature at beginning and end of measurement.
Reduction to centre.
Direction.
Front and rear observer.
Differences of readings in unit of 0.1 mm.

# HELSINKI 1.

***636.*** *11.V. $10^h24^m$—$11^h34^m$. $t_1=+10°.5$, $t_2=+7°.8$. N: +0.45 mm, S: +1.4 mm.*

| N:o | NS | −P | +J | | SN | +P | −J | | N:o | NS | −P | +J | | SN | +P | −J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 60 | 58 | 59 | + | 61 | 59 | 60 | 16 | + | 34 | 34 | 33 | + | 32 | 34 | 33 |
| 2 | + | 39 | 39 | 38 | + | 41 | 39 | 39 | 17 | − | 87 | 86 | 87 | − | 86 | 85 | 86 |
| 3 | + | 8 | 6 | 7 | + | 7 | 7 | 9 | 18 | + | 10 | 10 | 9 | + | 11 | 11 | 13 |
| 4 | + | 32 | 32 | 30 | + | 31 | 31 | 32 | 19 | + | 24 | 22 | 21 | + | 22 | 24 | 23 |
| 5 | + | 16 | 16 | 16 | + | 15 | 16 | 16 | 20 | + | 69 | 67 | 70 | + | 73 | 72 | 72 |
| 6 | − | 7 | 7 | 6 | − | 8 | 7 | 6 | 21 | − | 237 | 236 | 237 | − | 235 | 236 | 237 |
| 7 | + | 13 | 14 | 11 | + | 13 | 13 | 14 | 22 | + | 100 | 100 | 101 | + | 100 | 102 | 101 |
| 8 | − | 4 | 5 | 1 | − | 1 | 1 | 1 | 23 | + | 28 | 29 | 30 | + | 29 | 27 | 29 |
| 9 | + | 43 | 44 | 44 | + | 42 | 42 | 42 | 24 | + | 75 | 78 | 76 | + | 76 | 75 | 76 |
| 10 | + | 12 | 13 | 12 | + | 13 | 13 | 11 | 25 | + | 79 | 77 | 78 | + | 80 | 78 | 80 |
| 11 | − | 27 | 27 | 28 | − | 26 | 27 | 28 | 26 | + | 25 | 28 | 28 | + | 30 | 30 | 30 |
| 12 | − | 178 | 179 | 176 | − | 178 | 176 | 178 | 27 | + | 50 | 50 | 50 | + | 50 | 51 | 50 |
| 13 | − | 166 | 168 | 166 | − | 165 | 167 | 167 | 28 | + | 55 | 53 | 55 | + | 55 | 54 | 53 |
| 14 | − | 28 | 29 | 31 | − | 29 | 29 | 29 | 29 | + | 58 | 58 | 59 | + | 61 | 60 | 59 |
| 15 | − | 54 | 58 | 56 | − | 56 | 55 | 53 | 30 | + | 174 | 173 | 173 | + | 179 | 178 | 178 |

***637.*** *11.V. $12^h42^m$—$14^h10^m$. $t_1=+6°.6$, $t_2=+9°.6$. N: +1.00 mm, S: +1.40 mm.*

| N:o | NS | −S | +B | | SN | +S | −B | | N:o | NS | −S | +B | | SN | +S | −B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 50 | 50 | 50 | + | 51 | 53 | 51 | 16 | + | 35 | 35 | 32 | + | 35 | 34 | 36 |
| 2 | + | 40 | 39 | 38 | + | 40 | 40 | 39 | 17 | − | 88 | 88 | 89 | − | 86 | 85 | 86 |
| 3 | + | 8 | 9 | 9 | + | 7 | 8 | 8 | 18 | + | 12 | 12 | 11 | + | 12 | 11 | 12 |
| 4 | + | 32 | 33 | 33 | + | 34 | 33 | 32 | 19 | + | 25 | 25 | 25 | + | 25 | 26 | 24 |
| 5 | + | 16 | 14 | 15 | + | 15 | 14 | 16 | 20 | + | 70 | 70 | 70 | + | 70 | 70 | 71 |
| 6 | − | 7 | 7 | 6 | − | 6 | 7 | 6 | 21 | − | 237 | 238 | 236 | − | 234 | 235 | 236 |
| 7 | + | 15 | 13 | 13 | + | 11 | 14 | 12 | 22 | + | 99 | 102 | 102 | + | 102 | 102 | 102 |
| 8 | − | 1 | 2 | 2 | − | 1 | 1 | 1 | 23 | + | 28 | 26 | 25 | + | 26 | 28 | 27 |
| 9 | + | 43 | 41 | 41 | + | 43 | 43 | 42 | 24 | + | 78 | 80 | 79 | + | 79 | 78 | 80 |
| 10 | + | 12 | 12 | 12 | + | 12 | 12 | 12 | 25 | + | 78 | 77 | 76 | + | 77 | 79 | 78 |
| 11 | − | 28 | 28 | 28 | − | 25 | 27 | 27 | 26 | + | 30 | 30 | 30 | + | 30 | 29 | 30 |
| 12 | − | 177 | 177 | 178 | − | 176 | 176 | 176 | 27 | + | 51 | 49 | 50 | + | 49 | 49 | 49 |
| 13 | − | 165 | 165 | 166 | − | 165 | 167 | 165 | 28 | + | 53 | 55 | 54 | + | 53 | 54 | 54 |
| 14 | − | 30 | 30 | — | − | 29 | 28 | 29 | 29 | + | 59 | 60 | 57 | + | 60 | 60 | 60 |
| 15 | − | 54 | 52 | 55 | − | 54 | 55 | 54 | 30 | + | 176 | 176 | 177 | + | 177 | 177 | 177 |

***637.*** *11.V. $14^h12^m$—$15^h18^m$. $t_1=+9°.6$, $t_2=+10°.0$.*

| N:o | NS | −J | +P | | SN | +J | −P | | N:o | NS | −J | +P | | SN | +J | −P | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 51 | 52 | 51 | + | 52 | 51 | 51 | 16 | + | 35 | 34 | 35 | + | 34 | 34 | 33 |
| 2 | + | 40 | 40 | 40 | + | 39 | 40 | 39 | 17 | − | 87 | 87 | 87 | − | 89 | 87 | 88 |
| 3 | + | 9 | 6 | 7 | + | 7 | 8 | 7 | 18 | + | 12 | 12 | 11 | + | 11 | 12 | 10 |
| 4 | + | 31 | 32 | 33 | + | 34 | 32 | 33 | 19 | + | 26 | 26 | 25 | + | 22 | 24 | 25 |
| 5 | + | 15 | 17 | 19 | + | 14 | 16 | 16 | 20 | + | 71 | 70 | 70 | + | 68 | 70 | 69 |
| 6 | − | 6 | 6 | 5 | − | 5 | 7 | 6 | 21 | − | 233 | 236 | 236 | | 235 | 236 | 236 |
| 7 | + | 14 | 15 | 13 | + | 14 | 13 | 14 | 22 | + | 103 | 101 | 102 | + | 102 | 102 | 101 |
| 8 | + | 0 | 2 | 0 | − | 2 | 1 | 1 | 23 | + | 27 | 28 | 28 | + | 26 | 26 | 27 |
| 9 | + | 45 | 43 | 42 | + | 44 | 42 | 43 | 24 | + | 79 | 80 | 79 | + | 79 | 79 | 79 |
| 10 | + | 13 | 14 | 12 | + | 13 | 13 | 12 | 25 | + | 79 | 79 | 81 | + | 79 | 77 | 78 |
| 11 | − | 28 | 27 | 27 | − | 26 | 27 | 26 | 26 | + | 29 | 29 | 29 | + | 29 | 28 | 30 |
| 12 | − | 178 | 178 | 178 | − | 178 | 180 | 178 | 27 | + | 50 | 49 | 49 | + | 49 | 48 | 49 |
| 13 | − | 164 | 165 | 166 | − | 165 | 166 | 166 | 28 | + | 56 | 54 | 53 | + | 54 | 55 | 55 |
| 14 | − | 29 | 29 | 30 | − | 30 | 33 | 30 | 29 | + | 61 | 61 | 60 | + | 59 | 60 | 59 |
| 15 | − | 55 | 54 | 56 | − | 50 | 55 | 55 | 30 | + | 178 | 176 | 177 | + | 172 | 176 | 178 |

## HELSINKI 1.

***673.*** *11.V. 15h35m—17h25m. $t_1$=+9°9, $t_2$=+7°9.*

| N:o | NS | −B | +S | | SN | +B | −S | | N:o | NS | −B | +S | | SN | +B | −S | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 61 | 60 | 62 | + | 62 | 64 | 61 | 16 | + | 43 | 42 | 45 | + | 44 | 44 | 43 |
| 2 | + | 48 | 48 | 50 | + | 48 | 48 | 48 | 17 | − | 77 | 77 | 79 | − | 78 | 77 | 77 |
| 3 | + | 18 | 17 | 17 | + | 18 | 19 | 18 | 18 | + | 21 | 19 | 20 | + | 20 | 23 | 20 |
| 4 | + | 43 | 43 | 43 | + | 44 | 42 | 41 | 19 | + | 36 | 32 | 34 | + | 32 | 34 | 33 |
| 5 | + | 26 | 25 | 26 | + | 24 | 25 | 24 | 20 | + | 79 | 78 | 77 | + | 80 | 78 | 78 |
| 6 | + | 3 | 3 | 4 | + | 3 | 3 | 3 | 21 | − | 227 | 226 | 224 | − | 226 | 227 | 226 |
| 7 | + | 22 | 24 | 23 | + | 22 | 22 | 23 | 22 | + | 112 | 111 | 110 | + | 110 | 109 | 112 |
| 8 | + | 7 | 7 | 9 | + | 6 | 5 | 7 | 23 | + | 37 | 37 | 35 | + | 35 | 36 | 37 |
| 9 | + | 53 | 53 | 52 | + | 53 | 53 | 52 | 24 | + | 89 | 89 | 89 | + | 89 | 89 | 87 |
| 10 | + | 21 | 21 | 21 | + | 22 | 22 | 21 | 25 | + | 88 | 88 | 87 | + | 87 | 87 | 86 |
| 11 | − | 18 | 16 | 17 | − | 20 | 18 | 17 | 26 | + | 39 | 41 | 38 | + | 39 | 40 | 38 |
| 12 | − | 168 | 169 | 169 | − | 169 | 168 | 169 | 27 | + | 58 | 59 | 58 | + | 59 | 58 | 60 |
| 13 | − | 156 | 155 | 155 | − | 155 | 156 | 156 | 28 | + | 63 | 64 | 64 | + | 63 | 64 | 61 |
| 14 | − | 20 | 20 | 20 | − | 21 | 20 | 20 | 29 | + | 70 | 69 | 70 | + | 70 | 70 | 69 |
| 15 | − | 45 | 44 | 45 | − | 40 | 46 | 45 | 30 | + | 186 | 185 | 186 | + | 186 | 186 | 185 |

***673.*** *11.V. 17h 26m—18h23m. $t_1$=+7°9, $t_2$=+7°5.*

| N:o | NS | −P | +J | | SN | +P | −J | | N:o | NS | −P | +J | | SN | +P | −J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 62 | 61 | 60 | + | 60 | 61 | 61 | 16 | + | 45 | 44 | 43 | + | 45 | 45 | 43 |
| 2 | + | 48 | 46 | 47 | + | 49 | 48 | 47 | 17 | − | 77 | 78 | 79 | − | 78 | 80 | 79 |
| 3 | + | 15 | 17 | 18 | + | 22 | 18 | 16 | 18 | + | 20 | 21 | 20 | + | 19 | 20 | 19 |
| 4 | + | 38 | 40 | 43 | + | 41 | 42 | 42 | 19 | + | 32 | 33 | 35 | + | 33 | 33 | 33 |
| 5 | + | 26 | 25 | 25 | + | 25 | 24 | 25 | 20 | + | 78 | 79 | 77 | + | 78 | 78 | 79 |
| 6 | + | 3 | 3 | 4 | + | 3 | 3 | 2 | 21 | − | 227 | 226 | 226 | − | 227 | 224 | 225 |
| 7 | + | 24 | 22 | 22 | + | 25 | 21 | 22 | 22 | + | 110 | 110 | 111 | + | 110 | 109 | 109 |
| 8 | + | 5 | 6 | 6 | + | 4 | 5 | 8 | 23 | + | 34 | 34 | 36 | + | 35 | 36 | 34 |
| 9 | + | 51 | 54 | 54 | + | 51 | 51 | 52 | 24 | + | 88 | 89 | 88 | + | 88 | 89 | 89 |
| 10 | + | 21 | 21 | 22 | + | 20 | 20 | 21 | 25 | + | 87 | 88 | 86 | + | 89 | 88 | 86 |
| 11 | − | 18 | 17 | 18 | − | 19 | 19 | 19 | 26 | + | 38 | 38 | 38 | + | 39 | 39 | 39 |
| 12 | | 169 | 169 | 169 | − | 167 | 168 | 169 | 27 | + | 59 | 59 | 59 | + | 58 | 60 | 59 |
| 13 | − | 156 | 155 | 156 | − | 154 | 156 | 157 | 28 | + | 62 | 64 | 62 | + | 62 | 63 | 65 |
| 14 | − | 20 | 21 | 19 | − | 20 | 20 | 20 | 29 | + | 67 | 69 | 69 | + | 70 | 70 | 69 |
| 15 | − | 44 | 45 | 47 | − | 42 | 44 | 43 | 30 | + | 186 | 187 | 185 | + | 186 | 188 | 187 |

***674.*** *13.V. 8h54m—10h1m. $t_1$=+9°7, $t_2$=+10°0.*

| N:o | NS | −P | +J | | SN | +P | −J | | N:o | NS | −P | +J | | SN | +P | −J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 68 | 68 | 69 | + | 67 | 69 | 69 | 16 | + | 52 | 52 | 52 | + | 52 | 53 | 53 |
| 2 | + | 37 | 36 | 37 | + | 36 | 38 | 37 | 17 | − | 90 | 90 | 90 | − | 89 | 90 | 89 |
| 3 | + | 13 | 13 | 13 | + | 13 | 13 | 13 | 18 | + | 20 | 21 | 20 | + | 20 | 20 | 19 |
| 4 | + | 39 | 39 | 38 | + | 40 | 40 | 40 | 19 | + | 30 | 29 | 30 | + | 29 | 30 | 30 |
| 5 | + | 29 | 27 | 28 | + | 23 | 28 | 25 | 20 | + | 71 | 70 | 71 | + | 71 | 70 | 70 |
| 6 | − | 2 | 2 | 1 | − | 1 | −1 | +2 | 21 | − | 225 | 221 | 222 | − | 222 | 222 | 222 |
| 7 | + | 21 | 22 | 22 | + | 22 | 21 | 23 | 22 | + | 104 | 104 | 103 | + | 105 | 105 | 104 |
| 8 | + | 3 | 4 | 4 | + | 7 | 5 | 5 | 23 | + | 36 | 34 | 34 | + | 36 | 36 | 35 |
| 9 | + | 46 | 47 | 46 | + | 47 | 46 | 46 | 24 | + | 82 | 82 | 81 | + | 83 | 82 | 81 |
| 10 | + | 20 | 22 | 21 | + | 22 | 22 | 21 | 25 | + | 92 | 93 | 92 | + | 94 | 93 | 92 |
| 11 | − | 18 | 19 | 17 | − | 18 | 16 | 16 | 26 | + | 28 | 29 | 28 | + | 30 | 28 | 28 |
| 12 | − | 176 | 175 | 177 | − | 174 | 176 | 174 | 27 | + | 59 | 61 | 59 | + | 59 | 59 | 60 |
| 13 | − | 158 | 158 | 158 | − | 159 | 158 | 158 | 28 | + | 57 | 58 | 59 | + | 58 | 59 | 58 |
| 14 | − | 22 | 22 | 22 | − | 21 | 21 | 22 | 29 | + | 69 | 68 | 68 | + | 68 | 68 | 69 |
| 15 | − | 46 | 46 | 47 | − | 45 | 45 | 45 | 30 | + | 185 | 185 | 186 | + | 186 | 186 | 184 |

# HELSINKI 1.

***675.*** *13.V. $10^h28^m$—$11^h39^m$. $t_1=+9°.4$, $t_2=+10°.1$. N: +0.8 mm, S: +1.25 mm.*

| N:o | NS | −J | +P | | SN | +J | −P | | N:o | NS | −J | +P | | SN | +J | −P | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 67 | 68 | 68 | + | 65 | 65 | 66 | 16 | + | 54 | 53 | 53 | + | 53 | 54 | 52 |
| 2 | + | 37 | 38 | 38 | + | 39 | 37 | 39 | 17 | − | 89 | 89 | 89 | − | 90 | 90 | 90 |
| 3 | + | 14 | 13 | 12 | + | 11 | 13 | 12 | 18 | + | 20 | 20 | 20 | + | 20 | 19 | 21 |
| 4 | + | 39 | 40 | 40 | + | 40 | 39 | 38 | 19 | + | 30 | 30 | 31 | + | 30 | 29 | 31 |
| 5 | + | 25 | 26 | 26 | + | 25 | 25 | 27 | 20 | + | 69 | 69 | 70 | + | 69 | 69 | 70 |
| 6 | + | 1 | 1 | 1 | + | 3 | 2 | 2 | 21 | − | 222 | 222 | 222 | − | 221 | 222 | 221 |
| 7 | + | 22 | 21 | 21 | + | 22 | 20 | 21 | 22 | + | 105 | 105 | 105 | + | 104 | 104 | 105 |
| 8 | + | 5 | 3 | 6 | + | 8 | 10 | 9 | 23 | + | 36 | 35 | 35 | + | 36 | 37 | 35 |
| 9 | + | 48 | 45 | 47 | + | 41 | 41 | 42 | 24 | + | 82 | 81 | 81 | + | 81 | 82 | 80 |
| 10 | + | 22 | 20 | 22 | + | 22 | 22 | 22 | 25 | + | 93 | 94 | 92 | + | 93 | 90 | 91 |
| 11 | − | 18 | 18 | 19 | − | 18 | 18 | 18 | 26 | + | 27 | 28 | 29 | + | 29 | 27 | 28 |
| 12 | − | 175 | 175 | 176 | − | 175 | 173 | 175 | 27 | + | 60 | 57 | 58 | + | 59 | 59 | 58 |
| 13 | − | 157 | 158 | 157 | − | 158 | 158 | 160 | 28 | + | 56 | 57 | 57 | + | 59 | 58 | 59 |
| 14 | − | 22 | 24 | 22 | − | 22 | 23 | 21 | 29 | + | 69 | 68 | 69 | + | 68 | 69 | 69 |
| 15 | − | 46 | 47 | 47 | − | 43 | 47 | 46 | 30 | + | 184 | 183 | 184 | + | 185 | 184 | 186 |

***683.*** *13.V. $12^h45^m$—$13^h42^m$. $t_1=+12°.1$, $t_2=+12°.7$. N: +0.85 mm.*

| N:o | NS | −P | +J | | SN | +P | −J | | N:o | NS | −P | +J | | SN | +P | −J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 59 | 59 | 59 | + | 59 | 59 | 59 | 16 | + | 45 | 46 | 45 | + | 45 | 45 | 45 |
| 2 | + | 30 | 30 | 31 | + | 32 | 31 | 32 | 17 | − | 97 | 98 | 97 | − | 98 | 98 | 98 |
| 3 | + | 5 | 4 | 5 | + | 4 | 5 | 5 | 18 | + | 11 | 11 | 13 | + | 14 | 12 | 14 |
| 4 | + | 31 | 33 | 30 | + | 31 | 31 | 31 | 19 | + | 22 | 23 | 25 | + | 23 | 23 | 25 |
| 5 | + | 19 | 18 | 19 | + | 18 | 17 | 18 | 20 | + | 61 | 62 | 61 | + | 60 | 61 | 61 |
| 6 | − | 5 | 5 | 5 | − | 6 | 5 | 5 | 21 | − | 230 | 230 | 232 | − | 229 | 230 | 229 |
| 7 | + | 15 | 15 | 15 | + | 16 | 17 | 15 | 22 | + | 98 | 97 | 96 | + | 98 | 99 | 98 |
| 8 | + | 1 | 2 | 1 | − | 1 | 0 | 0 | 23 | + | 28 | 27 | 28 | + | 28 | 28 | 26 |
| 9 | + | 36 | 35 | 36 | + | 34 | 34 | 34 | 24 | + | 74 | 75 | 73 | + | 74 | 76 | 76 |
| 10 | + | 14 | 15 | 16 | + | 14 | 14 | 14 | 25 | + | 85 | 85 | 85 | + | 84 | 85 | 86 |
| 11 | − | 26 | 27 | 26 | − | 26 | 25 | 27 | 26 | + | 22 | 22 | 22 | + | 22 | 22 | 22 |
| 12 | − | 182 | 183 | 182 | − | 184 | 184 | 184 | 27 | + | 51 | 51 | 51 | + | 50 | 52 | 51 |
| 13 | − | 165 | 165 | 166 | − | 166 | 164 | 166 | 28 | + | 48 | 50 | 49 | + | 49 | 51 | 50 |
| 14 | − | 29 | 28 | 29 | − | 29 | 29 | 30 | 29 | + | 60 | 61 | 60 | + | 60 | 61 | 61 |
| 15 | − | 54 | 53 | 52 | − | 53 | 51 | 52 | 30 | + | 178 | 178 | 177 | + | 176 | 176 | 177 |

***683.*** *13.V. $14^h6^m$—$16^h4^m$. $t_1=+13°.0$, $t_2=+9°.7$. N: +0.85 mm, S: +1.45 mm.*

| N:o | NS | −S | +B | | SN | +S | −B | | N:o | NS | −S | +B | | SN | +S | −B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 59 | 60 | 60 | + | 60 | 58 | 58 | 16 | + | 46 | 46 | 46 | + | 45 | 46 | 46 |
| 2 | + | 33 | 31 | 31 | + | 31 | 30 | 30 | 17 | − | 98 | 98 | 98 | − | 98 | 100 | 97 |
| 3 | + | 6 | 5 | 5 | + | 5 | 4 | 4 | 18 | + | 12 | 13 | 12 | + | 13 | 12 | 13 |
| 4 | + | 32 | 32 | 33 | + | 33 | 31 | 31 | 19 | + | 24 | 24 | 23 | + | 23 | 23 | 24 |
| 5 | + | 17 | 18 | 18 | + | 19 | 18 | 19 | 20 | + | 60 | 61 | 61 | + | 61 | 62 | 62 |
| 6 | − | 7 | 5 | 7 | − | 6 | 6 | 6 | 21 | − | 232 | 232 | 232 | − | 232 | 234 | 232 |
| 7 | + | 14 | 14 | 13 | + | 14 | 14 | 10 | 22 | + | 100 | 99 | 99 | + | 99 | 98 | 100 |
| 8 | − | 0 | 3 | 3 | − | 1 | 1 | 1 | 23 | + | 25 | 28 | 26 | + | 27 | 28 | 29 |
| 9 | + | 35 | 36 | 34 | + | 36 | 36 | 36 | 24 | + | 75 | 76 | 75 | + | 76 | 74 | 75 |
| 10 | + | 14 | 13 | 13 | + | 15 | 11 | 14 | 25 | + | 85 | 84 | 84 | + | 84 | 83 | 85 |
| 11 | − | 27 | 27 | 24 | − | 26 | 27 | 25 | 26 | + | 21 | 21 | 20 | + | 23 | 23 | 24 |
| 12 | − | 183 | 183 | 182 | − | 183 | 184 | 181 | 27 | + | 52 | 50 | 50 | + | 50 | 50 | 51 |
| 13 | − | 166 | 165 | 166 | − | 164 | 165 | 165 | 28 | + | 50 | 52 | 52 | + | 52 | 52 | 50 |
| 14 | − | 29 | 29 | 29 | − | 28 | 28 | 28 | 29 | + | 61 | 59 | 61 | + | 61 | 61 | 61 |
| 15 | − | 54 | 54 | 54 | − | 52 | 53 | 54 | 30 | + | 177 | 176 | 176 | + | 179 | 180 | 178 |

## HELSINKI 1.

***674.*** *13.V. 16h11m—17h12m. $t_1$=+9°.6, $t_2$=+8°.0.*

| N:o | NS | −B | +S | | SN | +B | −S | | N:o | NS | −B | +S | | SN | +B | −S | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 67 | 67 | 67 | + | 68 | 68 | 68 | 16 | + | 57 | 53 | 55 | + | 52 | 54 | 54 |
| 2 | + | 39 | 39 | 39 | + | 39 | 38 | 37 | 17 | − | 90 | 90 | 89 | − | 90 | 91 | 91 |
| 3 | + | 11 | 12 | 12 | + | 14 | 13 | 12 | 18 | + | 20 | 20 | 19 | + | 19 | 21 | 20 |
| 4 | + | 39 | 37 | 39 | + | 37 | 39 | 41 | 19 | + | 32 | 31 | 30 | + | 31 | 30 | 30 |
| 5 | + | 27 | 25 | 26 | + | 26 | 26 | 26 | 20 | + | 69 | 68 | 68 | + | 68 | 69 | 68 |
| 6 | + | 1 | 1 | 2 | + | 1 | 3 | 1 | 21 | − | 224 | 223 | 224 | − | 224 | 225 | 224 |
| 7 | + | 21 | 21 | 23 | + | 23 | 22 | 21 | 22 | + | 105 | 106 | 106 | + | 108 | 107 | 106 |
| 8 | + | 6 | 7 | 6 | + | 7 | 5 | 5 | 23 | + | 37 | 36 | 36 | + | 33 | 34 | 34 |
| 9 | + | 44 | 44 | 42 | + | 42 | 43 | 44 | 24 | + | 83 | 83 | 83 | + | 81 | 83 | 83 |
| 10 | + | 23 | 21 | 23 | + | 20 | 21 | 22 | 25 | + | 91 | 91 | 90 | + | 92 | 93 | 92 |
| 11 | − | 19 | 19 | 19 | − | 19 | 19 | 20 | 26 | + | 31 | 29 | 30 | + | 30 | 27 | 29 |
| 12 | − | 174 | 174 | 175 | − | 175 | 175 | 174 | 27 | + | 58 | 59 | 60 | + | 58 | 58 | 59 |
| 13 | − | 157 | 158 | 158 | − | 158 | 158 | 157 | 28 | + | 58 | 60 | 59 | + | 58 | 58 | 58 |
| 14 | − | 22 | 21 | 20 | − | 21 | 22 | 21 | 29 | + | 68 | 69 | 70 | + | 69 | 69 | 68 |
| 15 | − | 45 | 46 | 44 | − | 47 | 46 | 47 | 30 | + | 186 | 185 | 187 | + | 186 | 185 | 186 |

***675.*** *13.V. 17h18m—18h22m. $t_1$=+7°.9, $t_2$=+7°.1.*

| N:o | NS | −S | +B | | SN | +S | −B | | N:o | NS | −S | +B | | SN | +S | −B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 67 | 68 | 68 | + | 67 | 67 | 67 | 16 | + | 53 | 54 | 53 | + | 53 | 53 | 54 |
| 2 | + | 37 | 37 | 36 | + | 38 | 38 | 37 | 17 | − | 93 | 92 | 93 | − | 92 | 91 | 94 |
| 3 | + | 13 | 13 | 14 | + | 13 | 14 | 12 | 18 | + | 18 | 21 | 20 | + | 20 | 22 | 21 |
| 4 | + | 39 | 40 | 41 | + | 39 | 41 | 39 | 19 | + | 30 | 30 | 31 | + | 31 | 31 | 32 |
| 5 | + | 28 | 26 | 24 | + | 24 | 25 | 23 | 20 | + | 68 | 67 | 68 | + | 69 | 67 | 68 |
| 6 | + | 1 | 2 | 2 | + | 1 | 2 | 2 | 21 | − | 222 | 223 | 225 | − | 225 | 223 | 224 |
| 7 | + | 22 | 22 | 22 | + | 21 | 22 | 20 | 22 | + | 104 | 105 | 105 | + | 105 | 106 | 104 |
| 8 | + | 6 | 6 | 6 | + | 6 | 6 | 7 | 23 | + | 36 | 35 | 36 | + | 35 | 35 | 36 |
| 9 | + | 44 | 43 | 44 | + | 46 | 44 | 44 | 24 | + | 82 | 80 | 81 | + | 82 | 82 | 82 |
| 10 | + | 21 | 22 | 22 | + | 21 | 21 | 21 | 25 | + | 90 | 90 | 91 | + | 89 | 90 | 90 |
| 11 | − | 19 | 20 | 20 | − | 19 | 19 | 19 | 26 | + | 29 | 29 | 30 | + | 29 | 29 | 29 |
| 12 | − | 174 | 175 | 175 | − | 173 | 173 | 173 | 27 | + | 58 | 57 | 59 | + | 60 | 59 | 59 |
| 13 | − | 158 | 159 | 158 | − | 158 | 157 | 159 | 28 | + | 58 | 57 | 58 | + | 59 | 60 | 58 |
| 14 | − | 23 | 23 | 22 | − | 21 | 23 | 22 | 29 | + | 67 | 68 | 68 | + | 68 | 67 | 67 |
| 15 | − | 45 | 46 | 46 | − | 45 | 46 | 45 | 30 | + | 185 | 184 | 184 | + | 186 | 185 | 184 |

***636.*** *14.V. 10h14m—11h17m. $t_1$=+11°.9, $t_2$=+11°.9.*

| N:o | NS | −B | +S | | SN | +B | −S | | N:o | NS | −B | +S | | SN | +B | −S | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 57 | 58 | 57 | + | 56 | 56 | 58 | 16 | + | 51 | 49 | 48 | + | 48 | 49 | 49 |
| 2 | + | 34 | 36 | 35 | + | 35 | 33 | 35 | 17 | − | 104 | 103 | 101 | − | 103 | 102 | 103 |
| 3 | + | 9 | 9 | 8 | + | 7 | 8 | 8 | 18 | + | 14 | 16 | 16 | + | 17 | 16 | 18 |
| 4 | + | 31 | 31 | 30 | + | 29 | 29 | 27 | 19 | + | 23 | 22 | 24 | + | 23 | 22 | 24 |
| 5 | + | 23 | 23 | 23 | + | 22 | 23 | 23 | 20 | + | 64 | 62 | 62 | + | 63 | 64 | 63 |
| 6 | − | 8 | 9 | 9 | − | 9 | 9 | 10 | 21 | − | 229 | 229 | 230 | − | 230 | 229 | 229 |
| 7 | + | 18 | 20 | 18 | + | 18 | 18 | 17 | 22 | + | 99 | 98 | 96 | + | 97 | 97 | 98 |
| 8 | − | 2 | 2 | 2 | − | 2 | 2 | 2 | 23 | + | 31 | 31 | 31 | + | 30 | 30 | 30 |
| 9 | + | 36 | 36 | 36 | + | 35 | 36 | 36 | 24 | + | 70 | 71 | 69 | + | 70 | 70 | 70 |
| 10 | + | 15 | 15 | 13 | + | 14 | 13 | 14 | 25 | + | 86 | 85 | 85 | + | 84 | 83 | 83 |
| 11 | − | 24 | 24 | 25 | − | 26 | 24 | 26 | 26 | + | 23 | 24 | 24 | + | 23 | 24 | 25 |
| 12 | − | 180 | 180 | 182 | − | 181 | 182 | 182 | 27 | + | 50 | 53 | 51 | + | 52 | 52 | 52 |
| 13 | − | 165 | 164 | 164 | − | 165 | 165 | 163 | 28 | + | 51 | 52 | 52 | + | 51 | 51 | 51 |
| 14 | − | 28 | 26 | 27 | − | 28 | 29 | 27 | 29 | + | 61 | 62 | 62 | + | 63 | 61 | 61 |
| 15 | − | 52 | 55 | 54 | − | 55 | 54 | 55 | 30 | + | 179 | 177 | 180 | + | 177 | 179 | 178 |

# HELSINKI 1.

***635.*** *14.V. $11^h26^m$—$12^h36^m$. $t_1=+11°.9$, $t_2=+12°.9$.*

| N:o | NS | −S | +B | | SN | +S | −B | | N:o | NS | −S | +B | | SN | +S | −B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 54 | 53 | 54 | + | 53 | 55 | 54 | 16 | + | 46 | 45 | 46 | + | 46 | 46 | 47 |
| 2 | + | 32 | 30 | 30 | + | 31 | 31 | 31 | 17 | − | 106 | 105 | 107 | − | 107 | 107 | 108 |
| 3 | + | 6 | 4 | 4 | + | 4 | 5 | 4 | 18 | + | 14 | 13 | 13 | + | 13 | 13 | 14 |
| 4 | + | 27 | 27 | 27 | + | 27 | 25 | 27 | 19 | + | 20 | 20 | 20 | + | 21 | 22 | 22 |
| 5 | + | 20 | 20 | 20 | + | 20 | 20 | 21 | 20 | + | 61 | 61 | 60 | + | 57 | 58 | 59 |
| 6 | − | 12 | 12 | 12 | − | 12 | 12 | 11 | 21 | − | 233 | 231 | 232 | − | 232 | 231 | 232 |
| 7 | + | 15 | 16 | 15 | + | 16 | 15 | 16 | 22 | + | 95 | 95 | 94 | + | 94 | 93 | 96 |
| 8 | − | 6 | 5 | 5 | − | 6 | 6 | 6 | 23 | + | 26 | 27 | 27 | + | 27 | 27 | 27 |
| 9 | + | 33 | 33 | 33 | + | 34 | 33 | 33 | 24 | + | 67 | 68 | 68 | + | 68 | 68 | 68 |
| 10 | + | 11 | 10 | 10 | + | 11 | 11 | 11 | 25 | + | 82 | 83 | 81 | + | 81 | 81 | 81 |
| 11 | − | 29 | 28 | 28 | − | 28 | 28 | 27 | 26 | + | 20 | 20 | 21 | + | 21 | 20 | 21 |
| 12 | − | 185 | 184 | 184 | − | 184 | 184 | 184 | 27 | + | 48 | 49 | 49 | + | 48 | 48 | 48 |
| 13 | − | 167 | 167 | 168 | − | 169 | 168 | 168 | 28 | + | 48 | 47 | 48 | + | 48 | 48 | 48 |
| 14 | − | 32 | 32 | 32 | − | 31 | 34 | 32 | 29 | + | 59 | 58 | 59 | + | 59 | 58 | 60 |
| 15 | − | 56 | 56 | 56 | − | 55 | 54 | 55 | 30 | + | 175 | 176 | 176 | + | 176 | 176 | 176 |

***634.*** *14.V. $12^h52^m$—$14^h10^m$. $t_1=+13°.0$, $t_2=+15°.6$.*

| N:o | NS | −B | +S | | SN | +B | −S | | N:o | NS | −B | +S | | SN | +B | −S | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 62 | 62 | 62 | + | 60 | 60 | 61 | 16 | + | 55 | 55 | 55 | + | 52 | 54 | 55 |
| 2 | + | 40 | 42 | 40 | + | 41 | 39 | 41 | 17 | − | 101 | 101 | 100 | − | 100 | 100 | 99 |
| 3 | + | 10 | 11 | 13 | + | 13 | 13 | 13 | 18 | + | 21 | 23 | 22 | + | 20 | 20 | 22 |
| 4 | + | 34 | 36 | 33 | + | 34 | 36 | 34 | 19 | + | 30 | 30 | 30 | + | 29 | 30 | 30 |
| 5 | + | 29 | 29 | 28 | + | 27 | 29 | 29 | 20 | + | 67 | 65 | 67 | + | 66 | 66 | 66 |
| 6 | − | 5 | 4 | 4 | − | 4 | 4 | 6 | 21 | − | 223 | 224 | 224 | − | 225 | 224 | 225 |
| 7 | + | 25 | 24 | 25 | + | 24 | 25 | 26 | 22 | + | 102 | 103 | 103 | + | 102 | 102 | 103 |
| 8 | + | 1 | 0 | 1 | + | 0 | 1 | 0 | 23 | + | 34 | 34 | 34 | + | 34 | 34 | 36 |
| 9 | + | 40 | 40 | 42 | + | 41 | 40 | 41 | 24 | + | 75 | 75 | 75 | + | 75 | 77 | 76 |
| 10 | + | 19 | 18 | 18 | + | 18 | 19 | 19 | 25 | + | 87 | — | 90 | + | 89 | 90 | 90 |
| 11 | − | 21 | 20 | 21 | − | 19 | 20 | 20 | 26 | + | 28 | 29 | 29 | + | 29 | 31 | 29 |
| 12 | − | 178 | 176 | 175 | − | 178 | 179 | 179 | 27 | + | 56 | 55 | 57 | + | 56 | 55 | 55 |
| 13 | − | 159 | 159 | 159 | − | 158 | 159 | 160 | 28 | + | 56 | 56 | 55 | + | 56 | 55 | 56 |
| 14 | − | 24 | 23 | 22 | − | 26 | 24 | 24 | 29 | + | 66 | 69 | 67 | + | 66 | 66 | 66 |
| 15 | − | 47 | 49 | 49 | − | 50 | 49 | 48 | 30 | + | 183 | 183 | 183 | + | 183 | 185 | 184 |

***634.*** *14.V. $14^h25^m$—$15^h21^m$. $t_1=+16°.0$, $t_2=+16°.1$. N: +0.8 mm, S: +0.65 mm.*

| N:o | NS | −J | +P | | SN | +J | −P | | N:o | NS | −J | +P | | SN | +J | −P | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 61 | 61 | 60 | + | 60 | 60 | 60 | 16 | + | 54 | 55 | 55 | + | 55 | 54 | 55 |
| 2 | + | 41 | 41 | 41 | + | 41 | 41 | 41 | 17 | − | 102 | 100 | 99 | − | 101 | 101 | 101 |
| 3 | + | 11 | 11 | 13 | + | 13 | 12 | 12 | 18 | + | 22 | 21 | 21 | + | 22 | 21 | 22 |
| 4 | + | 35 | 34 | 33 | + | 34 | 34 | 36 | 19 | + | 29 | 30 | 29 | + | 30 | 28 | 29 |
| 5 | + | 28 | 28 | 27 | + | 28 | 28 | 29 | 20 | + | 67 | 65 | 66 | + | 66 | 67 | 67 |
| 6 | − | 2 | 3 | 3 | − | 4 | 5 | 4 | 21 | − | 224 | 225 | 223 | − | 225 | 224 | 223 |
| 7 | + | 23 | 24 | 24 | + | 24 | 26 | 27 | 22 | + | 101 | 102 | 102 | + | 102 | 103 | 103 |
| 8 | + | 0 | 1 | 2 | − | 0 | 1 | 0 | 23 | + | 32 | 34 | 33 | + | 35 | 33 | 34 |
| 9 | + | 40 | 41 | 40 | + | 41 | 41 | 41 | 24 | + | 76 | 78 | 78 | + | 76 | 75 | 76 |
| 10 | + | 19 | 18 | 19 | + | 18 | 18 | 19 | 25 | + | 89 | 89 | 90 | + | 93 | 93 | 92 |
| 11 | − | 19 | 22 | 19 | − | 19 | 20 | 19 | 26 | + | 29 | 28 | 29 | + | 29 | 30 | 30 |
| 12 | − | 177 | 177 | 178 | − | 176 | 176 | 179 | 27 | + | 58 | 55 | 56 | + | 58 | 55 | 57 |
| 13 | − | 158 | 159 | 159 | − | 160 | 161 | 160 | 28 | + | 56 | 57 | 56 | + | 55 | 55 | 57 |
| 14 | − | 22 | 24 | 23 | − | 22 | 23 | 23 | 29 | + | 68 | 66 | 66 | + | 68 | 68 | 68 |
| 15 | − | 48 | 47 | 47 | − | 49 | 48 | 49 | 30 | + | 184 | 185 | 186 | + | 184 | 185 | 182 |

## HELSINKI 1.

***673.*** *14.V. $15^h28^m$—$16^h27^m$. $t_1=+15°.7$, $t_2=+9°.0$.*

| N:o | NS | −S | +B | | SN | +S | −B | | N:o | NS | −S | +B | | SN | +S | −B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 65 | 67 | 65 | + | 65 | 66 | 65 | 16 | + | 59 | 59 | 59 | + | 60 | 60 | 60 |
| 2 | + | 46 | 46 | 45 | + | 45 | 46 | 46 | 17 | — | 95 | 95 | 97 | — | 97 | 96 | 98 |
| 3 | + | 16 | 17 | 15 | + | 17 | 15 | 17 | 18 | + | 26 | 26 | 26 | + | 27 | 27 | 27 |
| 4 | + | 40 | 39 | 40 | + | 40 | 40 | 39 | 19 | + | 32 | 33 | 33 | + | 33 | 34 | 34 |
| 5 | + | 33 | 32 | 33 | + | 32 | 33 | 34 | 20 | + | 73 | 70 | 71 | + | 70 | — | 71 |
| 6 | + | 1 | −1 | 0 | + | 1 | 1 | 0 | 21 | − | 218 | 219 | 220 | − | 219 | 219 | 220 |
| 7 | + | 29 | 28 | 28 | + | 29 | 30 | 29 | 22 | + | 107 | 106 | 106 | + | 108 | 107 | 109 |
| 8 | + | 4 | 5 | 6 | + | 6 | 6 | 5 | 23 | + | 38 | 39 | 37 | + | 40 | 40 | 39 |
| 9 | + | 46 | 46 | 46 | + | 45 | 45 | 45 | 24 | + | 79 | 80 | 80 | + | 80 | 79 | 79 |
| 10 | + | 23 | 24 | 23 | + | 23 | 23 | 22 | 25 | + | 97 | 97 | 96 | + | 96 | 98 | 97 |
| 11 | − | 16 | 15 | 15 | − | 16 | 14 | 14 | 26 | + | 31 | 31 | 31 | + | 30 | 30 | 28 |
| 12 | − | 172 | 172 | 173 | − | 171 | 173 | 173 | 27 | + | 61 | 60 | 59 | + | 60 | 62 | 61 |
| 13 | − | 155 | 155 | 155 | − | 155 | 154 | 154 | 28 | + | 60 | 61 | 59 | + | 60 | 61 | 61 |
| 14 | − | 18 | 19 | 19 | − | 18 | 19 | 18 | 29 | + | 72 | 71 | 70 | + | 72 | 70 | 72 |
| 15 | − | 43 | 43 | 44 | − | 43 | 43 | 43 | 30 | + | 189 | 189 | 188 | + | 189 | 188 | 189 |

***635.*** *14.V. $16^h33^m$—$18^h1^m$. $t_1=+9°.8$, $t_2=+8°.8$. N: +0.8 mm, S: +1.1 mm.*

| N:o | NS | −P | +J | | SN | +P | −J | | N:o | NS | −P | +J | | SN | +P | −J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 53 | 53 | 52 | + | 53 | 51 | 52 | 16 | + | 49 | 47 | 47 | + | 47 | 48 | 47 |
| 2 | + | 33 | 31 | 32 | + | 33 | 33 | 31 | 17 | − | 109 | 108 | 109 | − | 109 | 109 | 108 |
| 3 | + | 4 | 5 | 4 | + | 5 | 6 | 7 | 18 | + | 12 | 12 | 15 | + | 14 | 14 | 14 |
| 4 | + | 27 | 27 | 26 | + | 27 | 27 | 26 | 19 | + | 21 | 23 | 22 | + | 21 | 22 | 22 |
| 5 | + | 21 | 20 | 21 | + | 19 | 20 | 19 | 20 | + | 59 | 59 | 59 | + | 58 | 60 | 59 |
| 6 | − | 12 | 11 | 11 | — | 14 | 14 | 11 | 21 | − | 233 | 231 | 232 | − | 233 | 232 | 232 |
| 7 | + | 16 | 15 | 16 | + | 16 | 18 | 17 | 22 | + | 95 | 94 | 95 | + | 93 | 94 | 96 |
| 8 | − | 9 | 7 | 7 | — | 7 | 8 | 7 | 23 | + | 26 | 27 | 25 | + | 28 | 27 | 28 |
| 9 | + | 32 | 32 | 34 | + | 33 | 33 | 32 | 24 | + | 67 | 68 | 67 | + | 69 | 68 | 68 |
| 10 | + | 11 | 11 | 10 | + | 11 | 11 | 10 | 25 | + | 84 | 86 | 84 | + | 82 | 82 | 85 |
| 11 | − | 25 | 27 | 27 | − | 28 | 26 | 26 | 26 | + | 17 | 18 | 18 | + | 17 | 17 | 18 |
| 12 | − | 186 | 185 | 185 | − | 185 | 184 | 185 | 27 | + | 50 | 50 | 50 | + | 49 | 50 | 50 |
| 13 | − | 166 | 167 | 167 | − | 167 | 167 | 167 | 28 | + | 49 | 49 | 49 | + | 49 | 48 | 49 |
| 14 | − | 31 | 31 | 31 | − | 31 | 31 | 31 | 29 | + | 59 | 59 | 58 | + | 59 | 58 | 59 |
| 15 | − | 56 | 54 | 56 | − | 55 | 56 | 56 | 30 | + | 175 | 176 | 177 | + | 175 | 177 | 176 |

## HELSINKI 2.

**636.** *27.VI. 16h26m—17h59m. $t_1$=+15°2, $t_2$=+13°2.*

| N:o | NS +J | | −P | SN +J | | −P | N:o | NS +P | | −J | SN +P | | −J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 69 | 69 | 69 | + 69 | 69 | 69 | 16 | + 1 | 0 | −1 | − 1 | 1 | 1 |
| 2 | + 46 | 47 | 47 | + 47 | 47 | 45 | 17 | − 40 | 41 | 39 | − 41 | 40 | 40 |
| 3 | + 10 | 9 | 5 | + 9 | 9 | 9 | 18 | − 649 | 648 | 649 | − 649 | 648 | 649 |
| 4 | + 31 | 31 | 31 | + 30 | 30 | 30 | 19 | + 680 | 681 | 681 | + 680 | 682 | 681 |
| 5 | + 31 | 31 | 30 | + 30 | 31 | 30 | 20 | + 87 | 83 | 83 | + 86 | 83 | 83 |
| 6 | − 9 | 8 | 10 | − 9 | 9 | 9 | 21 | − 264 | 264 | 264 | − 270 | 270 | 269 |
| 7 | + 20 | 19 | 19 | + 19 | 19 | 20 | 22 | + 122 | 120 | 121 | + 121 | 122 | 121 |
| 8 | − 12 | 10 | 11 | − 12 | 11 | 12 | 23 | + 20 | 21 | 21 | + 21 | 19 | 20 |
| 9 | + 64 | 64 | 62 | + 62 | 62 | 62 | 24 | + 78 | 78 | 76 | + 79 | 78 | 78 |
| 10 | − 6 | 7 | 7 | − 6 | 7 | 4 | 25 | + 79 | 76 | 76 | + 78 | 78 | 79 |
| 11 | − 50 | 50 | 50 | − 51 | 51 | 50 | 26 | + 24 | 27 | 24 | + 27 | 26 | 24 |
| 12 | − 160 | 160 | 160 | − 160 | 160 | 160 | 27 | + 62 | 63 | 64 | + 61 | 63 | 61 |
| 13 | − 151 | 151 | 150 | − 151 | 153 | 151 | 28 | + 48 | 45 | 46 | + 45 | 46 | 45 |
| 14 | − 46 | 46 | 47 | − 48 | 46 | 48 | 29 | + 64 | 63 | 64 | + 62 | 65 | 62 |
| 15 | − 39 | 39 | 39 | − 39 | 39 | 39 | 30 | + 191 | 190 | 191 | + 190 | 191 | 191 |

**637.** *27.VI. 18h7m—19h43m. $t_1$=+13°2, $t_2$=+13°0. N: —1.45 mm, S: +0.05 mm*

| N:o | NS +P | | −J | SN +P | | −J | N:o | NS +J | | −P | SN +J | | −P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 69 | 68 | 70 | + 67 | 67 | 68 | 16 | − 2 | 1 | 1 | − 2 | 2 | 1 |
| 2 | + 44 | 45 | 44 | + 44 | 46 | 45 | 17 | − 40 | 41 | 41 | − 42 | 42 | 41 |
| 3 | + 7 | 8 | 9 | + 8 | 6 | 7 | 18 | − 650 | 649 | 650 | − 651 | 649 | 650 |
| 4 | + 29 | 30 | 29 | + 30 | 29 | 30 | 19 | + 680 | 681 | 681 | + 680 | 680 | 680 |
| 5 | + 30 | 30 | 30 | + 29 | 29 | 30 | 20 | + 83 | 82 | 81 | + 83 | 82 | 82 |
| 6 | − 10 | 10 | 9 | − 9 | 10 | 11 | 21 | − 270 | 270 | 271 | − 271 | 271 | 273 |
| 7 | + 18 | 18 | 17 | + 19 | 19 | 16 | 22 | + 118 | 119 | 120 | + 121 | 120 | 120 |
| 8 | − 10 | 11 | 12 | − 11 | 13 | 13 | 23 | + 23 | 26 | 24 | + 24 | 23 | 23 |
| 9 | + 61 | 63 | 63 | + 62 | 61 | 63 | 24 | + 73 | 71 | 72 | + 74 | 73 | 74 |
| 10 | − 7 | 7 | 7 | − 6 | 4 | 6 | 25 | + 77 | 75 | 76 | + 75 | 78 | 76 |
| 11 | − 51 | 51 | 51 | − 51 | 51 | 52 | 26 | + 26 | 26 | 26 | + 22 | 23 | 24 |
| 12 | − 161 | 161 | 160 | − 162 | 160 | 160 | 27 | + 61 | 61 | 61 | + 60 | 61 | 60 |
| 13 | − 151 | 151 | 151 | − 153 | 151 | 153 | 28 | + 44 | 46 | 47 | + 47 | 47 | 45 |
| 14 | − 48 | 49 | 48 | − 46 | 46 | 47 | 29 | + 61 | 62 | 61 | + 64 | 63 | 63 |
| 15 | − 39 | 40 | 40 | − 40 | 40 | 38 | 30 | + 190 | 189 | 189 | + 189 | 189 | 189 |

**673.** *28.VI. 10h20m—11h26m. $t_1$=+16°5, $t_2$=+16°3. N: —0.80 mm, S: —0.60 mm.*

| N:o | NS +J | | −P | SN −J | | +P | N:o | NS +P | | −J | SN −P | | +J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 67 | 64 | 65 | + 64 | 66 | 64 | 16 | + 10 | 11 | 11 | + 10 | 10 | 9 |
| 2 | + 58 | 60 | 59 | + 60 | 59 | 59 | 17 | − 35 | 35 | 35 | − 34 | 35 | 36 |
| 3 | + 17 | 18 | 18 | + 19 | 18 | 19 | 18 | − 642 | 642 | 640 | − 640 | 640 | 640 |
| 4 | + 41 | 42 | 42 | + 44 | 42 | 42 | 19 | + 689 | 690 | 690 | + 689 | 690 | 690 |
| 5 | + 40 | 42 | 40 | + 39 | 39 | 40 | 20 | + 93 | 95 | 95 | + 96 | 95 | 95 |
| 6 | − 5 | 4 | 3 | − 4 | 3 | 3 | 21 | − 258 | 256 | 256 | − 256 | 255 | 257 |
| 7 | + 30 | 30 | 30 | + 29 | 29 | 30 | 22 | + 122 | 125 | 124 | + 122 | 124 | 125 |
| 8 | − 5 | 5 | 6 | − 3 | 5 | 4 | 23 | + − | 34 | 35 | + 37 | 34 | 36 |
| 9 | + 76 | 73 | 74 | + 76 | 74 | 73 | 24 | + 81 | 80 | 81 | + 78 | 80 | 78 |
| 10 | − 2 | 2 | 2 | − 2 | 3 | 1 | 25 | + 90 | 90 | 91 | + 90 | 90 | 90 |
| 11 | − 42 | 44 | 43 | − 45 | 44 | 42 | 26 | + 33 | 32 | 31 | + 31 | 31 | 34 |
| 12 | − 149 | 148 | 149 | − 148 | 148 | 147 | 27 | + 66 | 66 | 68 | + 67 | 66 | 66 |
| 13 | − 147 | 148 | 148 | − 147 | 148 | 148 | 28 | + 58 | 59 | 59 | + 59 | 58 | 57 |
| 14 | − 35 | 34 | 36 | − 37 | 36 | 35 | 29 | + 71 | 73 | 73 | + 72 | 73 | 72 |
| 15 | − 33 | 32 | 31 | − 32 | 31 | 32 | 30 | + 209 | 209 | 207 | + 209 | 207 | 208 |

## HELSINKI 2.

**683.** *28.VI. 11h31m—12h34m. $t_1$=+16°.4, $t_2$=+16°.5.*

| N:o | NS +P −J | | | SN −P +J | | | N:o | NS +J −P | | | SN −J +P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 57 | 56 | 56 | + 57 | 55 | 58 | 16 | − 1 | 0 | 0 | − 0 | 1 | 0 |
| 2 | + 49 | 49 | 50 | + 47 | 49 | 49 | 17 | − 46 | 43 | 43 | − 43 | 43 | 44 |
| 3 | + 8 | 9 | 10 | + 10 | 7 | 9 | 18 | − 369 | 370 | 369 | − 369 | 370 | 369 |
| 4 | + 32 | 33 | 33 | + 33 | 33 | 32 | 19 | + 396 | 396 | 398 | + 398 | 400 | 399 |
| 5 | + 29 | 29 | 29 | + 29 | 29 | 29 | 20 | + 85 | 85 | 86 | + 85 | 87 | 84 |
| 6 | − 15 | 13 | 13 | − 13 | 13 | 12 | 21 | − 267 | 268 | 265 | − 267 | 268 | 265 |
| 7 | + 20 | 19 | 20 | + 20 | 19 | 19 | 22 | + 114 | 113 | 113 | + 112 | 111 | 113 |
| 8 | − 17 | 15 | 15 | − 16 | 14 | 15 | 23 | + 24 | 26 | 25 | + 25 | 23 | 25 |
| 9 | + 66 | 64 | 65 | + 65 | 66 | 64 | 24 | + 68 | 70 | 68 | + 69 | 69 | 69 |
| 10 | − 11 | 13 | 13 | − 14 | 12 | 13 | 25 | + 80 | 79 | 80 | + 80 | 80 | 80 |
| 11 | − 51 | 54 | 51 | − 53 | 54 | 53 | 26 | + 25 | 24 | 24 | + 25 | 23 | 22 |
| 12 | − 159 | 157 | 159 | − 159 | 158 | 159 | 27 | + 55 | 56 | 57 | + 56 | 56 | 55 |
| 13 | − 157 | 156 | 156 | − 158 | 158 | 158 | 28 | + 47 | 46 | 48 | + 49 | 48 | 47 |
| 14 | − 45 | 47 | 44 | − 45 | 45 | 46 | 29 | + 61 | 62 | 62 | + 62 | 62 | 63 |
| 15 | − 41 | 42 | 41 | − 41 | 42 | 42 | 30 | + 198 | 197 | 198 | + 198 | 198 | 195 |

**634.** *28.VI. 12h47m—13h55m. $t_1$=+16°.4, $t_2$=+15°.8. N: —0.8 mm, S: —0.6 mm.*

| N:o | NS +J −P | | | SN −J +P | | | N:o | NS +P −J | | | SN −P +J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 61 | 61 | 63 | + 62 | 61 | 62 | 16 | + 5 | 6 | 7 | + 5 | 5 | 7 |
| 2 | + 54 | 54 | 55 | + 55 | 56 | 54 | 17 | − 39 | 38 | 40 | − 39 | 39 | 40 |
| 3 | + 15 | 15 | 12 | + 15 | 16 | 14 | 18 | − 362 | 362 | 365 | − 364 | 362 | 363 |
| 4 | + 38 | 38 | 38 | + 36 | 39 | 37 | 19 | + 404 | 405 | 405 | + 406 | 404 | 405 |
| 5 | + 35 | 34 | 33 | + 35 | 34 | 35 | 20 | + 90 | 90 | 90 | + 91 | 92 | 90 |
| 6 | − 9 | 7 | 8 | − 7 | 8 | 8 | 21 | − 260 | 261 | 260 | − 260 | 262 | 261 |
| 7 | + 24 | 25 | 24 | + 26 | 25 | 26 | 22 | + 119 | 120 | 119 | + 120 | 119 | 120 |
| 8 | − 10 | 9 | 9 | − 10 | 9 | 8 | 23 | + 30 | 30 | 30 | + 30 | 29 | 29 |
| 9 | + 70 | 70 | 70 | + 70 | 70 | 70 | 24 | + 74 | 75 | 75 | + 74 | 77 | 74 |
| 10 | − 5 | 8 | 5 | − 8 | 8 | 6 | 25 | + 84 | 84 | 84 | + 87 | 84 | 84 |
| 11 | − 46 | 48 | 46 | − 48 | 48 | 47 | 26 | + 29 | 30 | 30 | + 30 | 28 | 30 |
| 12 | − 153 | 152 | 153 | − 152 | 151 | 153 | 27 | + 62 | 64 | 62 | + 61 | 63 | 63 |
| 13 | − 153 | 151 | 154 | − 146 | 146 | 145 | 28 | + 56 | 55 | 54 | + 52 | 52 | 54 |
| 14 | − 38 | 39 | 37 | − 43 | 43 | 42 | 29 | + 68 | 68 | 66 | + 69 | 70 | 68 |
| 15 | − 37 | 35 | 37 | − 36 | 36 | 35 | 30 | + 202 | 204 | 202 | + 202 | 203 | 202 |

**683.** *28.VI. 14h25m—15h22m. $t_1$=+16°.5, $t_2$=+18°.1.*

| N:o | NS +S −B | | | SN −S +B | | | N:o | NS +S −B | | | SN −S +B | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 57 | 57 | 57 | + 58 | 56 | 56 | 16 | + 0 | 1 | 0 | 0 | 0 | 0 |
| 2 | + 50 | 49 | 51 | + 49 | 49 | 49 | 17 | − 45 | 45 | 44 | − 45 | 44 | 45 |
| 3 | + 7 | 10 | 10 | + 8 | 8 | 7 | 18 | − 369 | 370 | 369 | − 368 | 371 | 370 |
| 4 | + 33 | 33 | 33 | + 33 | 32 | 32 | 19 | + 399 | 400 | 400 | + 398 | 398 | 398 |
| 5 | + 30 | 29 | 30 | + 28 | 30 | 29 | 20 | + 84 | 86 | 86 | + 86 | 84 | 85 |
| 6 | − 13 | 14 | 13 | − 13 | 14 | 15 | 21 | − 267 | 267 | 268 | − 267 | 266 | 267 |
| 7 | + 20 | 20 | 21 | + 20 | 19 | 19 | 22 | + 114 | 115 | 114 | + 115 | 115 | 114 |
| 8 | − 15 | 14 | 15 | − 15 | 16 | 16 | 23 | + 24 | 24 | 25 | + 24 | 24 | 24 |
| 9 | + 64 | 65 | 65 | + 66 | 64 | 65 | 24 | + 70 | 71 | 71 | + 71 | 69 | 69 |
| 10 | − 12 | 12 | 12 | − 13 | 12 | 12 | 25 | + 79 | 81 | 78 | + 79 | 78 | 78 |
| 11 | − 52 | 53 | 52 | − 53 | 54 | 54 | 26 | + 25 | 25 | 24 | + 24 | 24 | 24 |
| 12 | − 158 | 158 | 158 | − 160 | 160 | 160 | 27 | + 56 | 57 | 57 | + 56 | 56 | 55 |
| 13 | − 153 | 152 | 151 | − 153 | 152 | 153 | 28 | + 47 | 48 | 50 | + 47 | 47 | 47 |
| 14 | − 49 | 49 | 49 | − 48 | 49 | 50 | 29 | + 64 | 63 | 63 | + 62 | 62 | 62 |
| 15 | − 43 | 43 | 42 | − 42 | 42 | 41 | 30 | + 197 | 197 | 199 | + 198 | 198 | 197 |

# HELSINKI 2.

**637.** *28.VI. 15h25m—16h24m, $t_1$=+18°.0, $t_2$=+17°.4. N: —0.8 mm.*

| N:o | NS | −B | +S | | SN | +B | −S | | N:o | NS | −B | +S | | SN | +B | −S | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 58 | 56 | 57 | + | 56 | 58 | 56 | 16 | | 0 | 0 | 0 | | 0 | −1 | +1 |
| 2 | + | 48 | 50 | 48 | + | 50 | 51 | 49 | 17 | − | 43 | 44 | 44 | − | 45 | 45 | 44 |
| 3 | + | 8 | 8 | 8 | + | 9 | 9 | 10 | 18 | − | 368 | 368 | 367 | − | 369 | 368 | 368 |
| 4 | + | 33 | 33 | 33 | + | 32 | 32 | 32 | 19 | + | 400 | 398 | 401 | + | 400 | 399 | 400 |
| 5 | + | 29 | 30 | 29 | + | 30 | 31 | 30 | 20 | + | 87 | 84 | 86 | + | 86 | 86 | 88 |
| 6 | − | 13 | 12 | 11 | − | 13 | 12 | 13 | 21 | − | 266 | 267 | 266 | − | 267 | 267 | 268 |
| 7 | + | 19 | 20 | 20 | + | 21 | 18 | 20 | 22 | + | 117 | 116 | 115 | + | 115 | 117 | 116 |
| 8 | − | 14 | 13 | 12 | − | 12 | 14 | 12 | 23 | + | 26 | 24 | 25 | + | 24 | 26 | 25 |
| 9 | + | 65 | 65 | 67 | + | 64 | 63 | 66 | 24 | + | 71 | 71 | 72 | + | 70 | 72 | 71 |
| 10 | − | 11 | 12 | 10 | − | 12 | 13 | 11 | 25 | + | 79 | 81 | 80 | + | 82 | 79 | 79 |
| 11 | − | 54 | 51 | 53 | − | 54 | 54 | 54 | 26 | + | 24 | 26 | 25 | + | 25 | 26 | 27 |
| 12 | − | 159 | 157 | 158 | − | 158 | 158 | 159 | 27 | + | 56 | 56 | 56 | + | 58 | 56 | 57 |
| 13 | − | 150 | 150 | 150 | − | 152 | 151 | 151 | 28 | + | 49 | 50 | 49 | + | 48 | 48 | 49 |
| 14 | − | 48 | 49 | 47 | − | 49 | 48 | 48 | 29 | + | 63 | 64 | 63 | + | 63 | 63 | 64 |
| 15 | − | 43 | 41 | 42 | − | 42 | 42 | 41 | 30 | + | 199 | 199 | 199 | + | 199 | 199 | 199 |

**674.** *28.VI. 16h37m—17h43m. $t_1$=+17°.0, $t_2$=+16°.4. S: —0.97 mm.*

| N:o | NS | −B | +S | | SN | +B | −S | | N:o | NS | −B | +S | | SN | +B | −S | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 64 | 64 | 64 | + | 64 | 65 | 64 | 16 | + | 7 | 11 | 9 | + | 7 | 8 | 7 |
| 2 | + | 56 | 58 | 58 | + | 58 | 57 | 56 | 17 | − | 38 | 38 | 37 | − | 37 | 37 | 38 |
| 3 | + | 18 | 16 | 17 | + | 15 | 15 | 17 | 18 | − | 361 | 362 | 361 | − | 363 | 362 | 363 |
| 4 | + | 40 | 40 | 40 | + | 41 | 40 | 40 | 19 | + | 407 | 407 | 407 | + | 407 | 408 | 407 |
| 5 | + | 37 | 38 | 38 | + | 36 | 35 | 36 | 20 | + | 92 | 93 | 93 | + | 91 | 92 | 92 |
| 6 | − | 5 | 6 | 6 | − | 7 | 5 | 8 | 21 | − | 261 | 260 | 259 | − | 259 | 259 | 259 |
| 7 | + | 26 | 27 | 26 | + | 27 | 27 | 26 | 22 | + | 125 | 123 | 123 | + | 121 | 123 | 122 |
| 8 | − | 7 | 7 | 7 | − | 8 | 7 | 7 | 23 | + | 32 | 32 | 31 | + | 30 | 32 | 30 |
| 9 | + | 74 | 75 | 73 | + | 72 | 71 | 72 | 24 | + | 77 | 77 | 78 | + | 77 | 77 | 76 |
| 10 | − | 5 | 5 | 5 | − | 5 | 6 | 5 | 25 | + | 86 | 87 | 86 | + | 86 | 86 | 87 |
| 11 | − | 45 | 47 | 46 | − | 47 | 47 | 47 | 26 | + | 33 | 32 | 33 | + | 33 | 32 | 33 |
| 12 | − | 149 | 150 | 150 | − | 152 | 150 | 151 | 27 | + | 63 | 64 | 64 | + | 62 | 65 | 63 |
| 13 | − | 144 | 145 | 144 | − | 143 | 144 | 145 | 28 | + | 56 | 56 | 57 | + | 56 | 55 | 56 |
| 14 | − | 42 | 42 | 41 | − | 42 | 42 | 42 | 29 | + | 72 | 70 | 70 | + | 70 | 72 | 70 |
| 15 | − | 34 | 33 | 33 | − | 33 | 33 | 35 | 30 | + | 206 | 205 | 207 | + | 205 | 204 | 207 |

**673.** *28.VI. 17h54m—18h50m. $t_1$=+16°.3, $t_2$=+15°.3.*

| N:o | NS | +S | −B | | SN | −S | +B | | N:o | NS | +S | −B | | SN | −S | +B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 67 | 67 | 66 | + | 67 | 67 | 66 | 16 | + | 9 | 9 | 11 | + | 9 | 8 | 8 |
| 2 | + | 61 | 62 | 60 | + | 60 | 58 | 58 | 17 | − | 34 | 35 | 36 | − | 35 | 37 | 36 |
| 3 | + | 19 | 18 | 18 | + | 17 | 18 | 18 | 18 | − | 360 | 360 | 360 | − | 360 | 359 | 358 |
| 4 | + | 44 | 43 | 43 | + | 43 | 43 | 43 | 19 | + | 411 | 410 | 409 | + | 410 | 409 | 409 |
| 5 | + | 39 | 38 | 39 | + | 39 | 38 | 39 | 20 | + | 95 | 95 | 95 | + | 94 | 93 | 95 |
| 6 | − | 3 | 3 | 2 | − | 4 | 3 | 4 | 21 | − | 257 | 256 | 256 | − | 257 | 258 | 259 |
| 7 | + | 30 | 29 | 29 | + | 29 | 28 | 28 | 22 | + | 125 | 125 | 125 | + | 125 | 124 | 125 |
| 8 | − | 4 | 4 | 4 | − | 5 | 6 | 4 | 23 | + | 33 | 33 | 35 | + | 33 | 34 | 35 |
| 9 | + | 75 | 74 | 75 | + | 74 | 74 | 75 | 24 | + | 81 | 80 | 80 | + | 79 | 80 | 80 |
| 10 | − | 3 | 2 | 2 | − | 3 | 2 | 3 | 25 | + | 90 | 89 | 89 | + | 89 | 89 | 87 |
| 11 | − | 43 | 43 | 44 | − | 44 | 43 | 44 | 26 | + | 36 | 35 | 35 | + | 33 | 34 | 34 |
| 12 | − | 147 | 148 | 148 | − | 149 | 148 | 149 | 27 | + | 67 | 65 | 67 | + | 65 | 66 | 65 |
| 13 | − | 141 | 142 | 143 | − | 140 | 143 | 143 | 28 | + | 59 | 59 | 59 | + | 58 | 58 | 58 |
| 14 | − | 40 | 40 | 40 | − | 41 | 40 | 40 | 29 | + | 74 | 74 | 74 | + | 73 | 72 | 72 |
| 15 | − | 31 | 29 | 29 | − | 32 | 33 | 33 | 30 | + | 208 | 208 | 209 | + | 207 | 209 | 207 |

## HELSINKI 2.

**636.** *28.VI. 19h18m—20h10m. $t_1$=+15°4, $t_2$=+14°8.*

| N:o | NS −B +S | | | SN +B −S | | | N:o | NS −B +S | | | SN +B −S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 59 | 58 | 58 | + | 57 | 58 | 57 | 16 | + | 1 | 2 | 0 | + | 0 | 0 | 1 |
| 2 | + | 51 | 51 | 50 | + | 50 | 51 | 50 | 17 | − | 42 | 43 | 42 | − | 43 | 44 | 43 |
| 3 | + | 10 | 11 | 10 | + | 9 | 11 | 10 | 18 | − | 367 | 368 | 368 | − | 368 | 368 | 368 |
| 4 | + | 34 | 35 | 35 | + | 36 | 34 | 34 | 19 | + | 402 | 402 | 402 | + | 400 | 401 | 400 |
| 5 | + | 32 | 30 | 31 | + | 30 | 31 | 30 | 20 | + | 85 | 87 | 86 | + | 87 | 86 | 84 |
| 6 | − | 8 | 10 | 11 | − | 13 | 12 | 12 | 21 | − | 263 | 265 | 266 | − | 266 | 265 | 267 |
| 7 | + | 21 | 21 | 20 | + | 20 | 20 | 20 | 22 | + | 118 | 118 | 117 | + | 116 | 117 | 117 |
| 8 | − | 12 | 12 | 12 | − | 15 | 12 | 13 | 23 | + | − | 27 | 25 | + | 25 | 26 | 26 |
| 9 | + | 68 | 67 | 67 | + | 64 | 65 | 66 | 24 | + | 70 | 71 | 72 | + | 71 | 72 | 71 |
| 10 | − | 10 | 9 | 9 | − | 9 | 10 | 9 | 25 | + | 81 | 82 | 81 | + | 81 | 81 | 81 |
| 11 | − | 53 | 52 | 52 | − | 54 | 54 | 53 | 26 | + | 25 | 26 | 26 | + | 26 | 25 | 26 |
| 12 | − | 157 | 154 | 156 | − | 161 | 162 | 161 | 27 | + | 57 | 57 | 56 | + | 56 | 57 | 58 |
| 13 | − | 151 | 150 | 151 | − | 146 | 147 | 145 | 28 | + | 50 | 51 | 50 | + | 50 | 50 | 51 |
| 14 | − | 47 | 48 | 47 | − | 49 | 49 | 49 | 29 | + | 65 | 65 | 65 | + | 63 | 63 | 64 |
| 15 | − | 39 | 39 | 40 | − | 41 | 39 | 40 | 30 | + | 200 | 200 | 201 | + | 199 | 200 | 199 |

**675.** *29.VI. 10h18m—11h15m. $t_1$=+19°0, $t_2$=+19°2.*

| N:o | NS +S −B | | | SN −S +B | | | N:o | NS +S −B | | | SN −S +B | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 74 | 74 | 74 | + | 74 | 74 | 74 | 16 | + | 0 | 1 | 1 | − | 1 | 1 | 0 |
| 2 | + | 51 | 51 | 50 | + | 49 | 48 | 48 | 17 | − | 47 | 46 | 47 | − | 47 | 48 | 48 |
| 3 | + | 15 | 14 | 14 | + | 16 | 15 | 14 | 18 | − | 349 | 347 | 350 | − | 349 | 349 | 349 |
| 4 | + | 36 | 37 | 38 | + | 37 | 36 | 37 | 19 | + | 406 | 406 | 406 | + | 405 | 406 | 406 |
| 5 | + | 36 | 36 | 36 | + | 35 | 36 | 36 | 20 | + | 95 | 93 | 94 | + | 94 | 93 | 93 |
| 6 | − | 5 | 4 | 4 | − | 5 | 4 | 5 | 21 | − | 263 | 264 | 264 | − | 263 | 263 | 264 |
| 7 | + | 29 | 28 | 27 | + | 28 | 27 | 28 | 22 | + | 119 | 119 | 119 | + | 120 | 119 | 118 |
| 8 | − | 6 | 5 | 7 | − | 7 | 5 | 5 | 23 | + | 33 | 34 | 33 | + | 33 | 34 | 34 |
| 9 | + | 72 | 72 | 73 | + | 71 | 70 | 70 | 24 | + | 82 | 83 | 82 | + | 82 | 81 | 82 |
| 10 | − | 2 | 0 | 1 | − | 4 | 2 | 3 | 25 | + | 86 | 84 | 84 | + | 84 | 84 | 83 |
| 11 | − | 50 | 51 | 50 | − | 49 | 49 | 49 | 26 | + | 36 | 36 | 36 | + | 37 | 36 | 36 |
| 12 | − | 151 | 151 | 151 | − | 152 | 152 | 152 | 27 | + | 62 | 62 | 63 | + | 62 | 61 | 61 |
| 13 | − | 142 | 142 | 143 | − | 144 | 143 | 143 | 28 | + | 56 | 55 | 54 | + | 54 | 54 | 54 |
| 14 | − | 46 | 45 | 45 | − | 45 | 47 | 45 | 29 | + | 73 | 72 | 72 | + | 72 | 73 | 71 |
| 15 | − | 25 | 25 | 26 | − | 25 | 24 | 26 | 30 | + | 199 | 201 | 200 | + | 200 | 199 | 199 |

**635.** *29.VI. 11h20m—12h20m. $t_1$=+19°5, $t_2$=+18°0. N: —0.85 mm.*

| N:o | NS −B +S | | | SN +B −S | | | N:o | NS −B +S | | | SN +B −S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 65 | 64 | 63 | + | 64 | 64 | 66 | 16 | − | 10 | 9 | 10 | − | 11 | 10 | 11 |
| 2 | + | 39 | 40 | 40 | + | 37 | 39 | 39 | 17 | − | 57 | 56 | 57 | − | 57 | 57 | 58 |
| 3 | + | 7 | 6 | 4 | + | 5 | 5 | 5 | 18 | − | 359 | 358 | 358 | − | 359 | 358 | 358 |
| 4 | + | 27 | 27 | 28 | + | 27 | 28 | 27 | 19 | + | 397 | 398 | 395 | + | 395 | 397 | 397 |
| 5 | + | 27 | 26 | 25 | + | 26 | 26 | 26 | 20 | + | 85 | 84 | 84 | + | 83 | 84 | 83 |
| 6 | − | 14 | 15 | 15 | − | 16 | 13 | 15 | 21 | − | 273 | 273 | 273 | − | 272 | 273 | 273 |
| 7 | + | 19 | 19 | 20 | + | 19 | 21 | 19 | 22 | + | 110 | 110 | 111 | + | 108 | 109 | 110 |
| 8 | − | 16 | 15 | 15 | − | 16 | 16 | 17 | 23 | + | 25 | 25 | 26 | + | 24 | 25 | 24 |
| 9 | + | 60 | 62 | 60 | + | 60 | 62 | 61 | 24 | + | 73 | 73 | 73 | + | 71 | 73 | 73 |
| 10 | − | 10 | 10 | 11 | − | 10 | 11 | 10 | 25 | + | 74 | 73 | 74 | + | 73 | 72 | 73 |
| 11 | − | 60 | 59 | 60 | − | 61 | 60 | 60 | 26 | + | 28 | 25 | 28 | + | 27 | 26 | 28 |
| 12 | − | 161 | 160 | 160 | − | 161 | 160 | 162 | 27 | + | 52 | 52 | 53 | + | 52 | 53 | 52 |
| 13 | − | 153 | 154 | 154 | − | 153 | 153 | 153 | 28 | + | 46 | 44 | 45 | + | 43 | 43 | 44 |
| 14 | − | 55 | 54 | 54 | − | 56 | 54 | 55 | 29 | + | 63 | 63 | 64 | + | 63 | 63 | 63 |
| 15 | − | 34 | 33 | 35 | − | 35 | 35 | 35 | 30 | + | 190 | 190 | 190 | + | 190 | 189 | 190 |

# HELSINKI 2.

**634.** *29.VI. 12h35m—13h45m. $t_1$=+18°0, $t_2$=+17°6. S: —0.25 mm.*

| N:o | NS | +S | −B | | SN | −S | +B | | N:o | NS | +S | −B | | SN | −S | +B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 72 | 73 | 73 | + | 70 | 72 | 72 | 16 | − | 2 | 2 | 2 | − | 3 | 2 | 2 |
| 2 | + | 47 | 47 | 48 | + | 46 | 46 | 46 | 17 | − | 48 | 49 | 50 | − | 50 | 49 | 50 |
| 3 | + | 13 | 13 | 14 | + | 11 | 12 | 12 | 18 | − | 349 | 351 | 349 | − | 352 | 350 | 351 |
| 4 | + | 36 | 36 | 34 | + | 34 | 33 | 34 | 19 | + | 405 | 406 | 404 | + | 404 | 405 | 405 |
| 5 | + | 35 | 34 | 35 | + | 32 | 33 | 33 | 20 | + | 94 | 93 | 92 | + | 92 | 92 | 92 |
| 6 | − | 7 | 5 | 7 | − | 7 | 7 | 7 | 21 | − | 265 | 264 | 265 | − | 266 | 267 | 266 |
| 7 | + | 29 | 28 | 29 | + | 26 | 27 | 26 | 22 | + | 116 | 118 | 117 | + | 119 | 119 | 117 |
| 8 | − | 8 | 8 | 9 | − | 10 | 9 | 9 | 23 | + | 33 | 32 | 31 | + | 32 | 31 | 31 |
| 9 | + | 69 | 69 | 70 | + | 69 | 69 | 69 | 24 | + | 81 | 80 | 80 | + | 80 | 81 | 79 |
| 10 | − | 5 | 4 | 4 | − | 4 | 4 | 5 | 25 | + | 81 | 82 | 81 | + | 82 | 81 | 81 |
| 11 | − | 51 | 51 | 51 | − | 53 | 54 | 52 | 26 | + | 35 | 35 | 35 | + | 35 | 35 | 35 |
| 12 | − | 154 | 154 | 153 | − | 154 | 153 | 155 | 27 | + | 63 | 60 | 62 | + | 59 | 58 | 59 |
| 13 | − | 146 | 145 | 143 | − | 145 | 145 | 145 | 28 | + | 53 | 52 | 51 | + | 52 | 51 | 51 |
| 14 | − | 48 | 48 | 48 | − | 47 | 48 | 47 | 29 | + | 70 | 71 | 71 | + | 72 | 70 | 71 |
| 15 | − | 27 | 26 | 26 | − | 27 | 28 | 27 | 30 | + | 200 | 198 | 199 | + | 198 | 197 | 197 |

**635.** *29.VI. 14h22m—15h28m. $t_1$=+17°4, $t_2$=+17°8. N: —0.8 mm, S: —0.5 mm.*

| N:o | NS | −J | +P | | SN | +J | −P | | N:o | NS | −P | +J | | SN | +P | −J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 65 | 63 | 65 | + | 64 | 64 | 65 | 16 | + | 18 | 18 | 17 | + | 16 | 17 | 17 |
| 2 | + | 40 | 39 | 40 | + | 40 | 39 | 40 | 17 | − | 83 | 84 | 83 | − | 85 | 86 | 84 |
| 3 | + | 5 | 7 | 5 | + | 4 | 6 | 7 | 18 | − | 359 | 358 | 359 | − | 358 | 358 | 359 |
| 4 | + | 26 | 26 | 27 | + | 26 | 27 | 27 | 19 | + | 397 | 396 | 395 | + | 398 | 397 | 399 |
| 5 | + | 26 | 26 | 25 | + | 27 | 26 | 27 | 20 | + | 85 | 82 | 84 | + | 82 | 85 | 83 |
| 6 | − | 15 | 14 | 14 | − | 15 | 14 | 16 | 21 | − | 274 | 274 | 275 | − | 273 | 273 | 273 |
| 7 | + | 20 | 20 | 21 | + | 18 | 20 | 20 | 22 | + | 109 | 110 | 109 | + | 110 | 110 | 109 |
| 8 | − | 16 | 16 | 17 | − | 16 | 18 | 17 | 23 | + | 25 | 22 | 24 | + | 24 | 23 | 25 |
| 9 | + | 62 | 62 | 60 | + | 62 | 62 | 63 | 24 | + | 72 | 72 | 72 | + | 72 | 73 | 72 |
| 10 | − | 12 | 13 | 12 | − | 14 | 14 | 14 | 25 | + | 73 | 74 | 73 | + | 73 | 74 | 73 |
| 11 | − | 62 | 61 | 60 | − | 61 | 61 | 62 | 26 | + | 29 | 27 | 28 | + | 28 | 27 | 26 |
| 12 | − | 161 | 160 | 160 | − | 161 | 161 | 160 | 27 | + | 50 | 50 | 50 | + | 52 | 50 | 51 |
| 13 | − | 152 | 152 | 153 | − | 153 | 154 | 153 | 28 | + | 45 | 45 | 45 | + | 43 | 46 | 43 |
| 14 | − | 56 | 55 | 56 | − | 55 | 56 | 56 | 29 | + | 62 | 63 | 64 | + | 62 | 66 | 64 |
| 15 | − | 35 | 35 | 35 | − | 33 | 34 | 35 | 30 | + | 190 | 192 | 191 | + | 191 | 191 | 190 |

**675.** *29.VI. 15h29m—16h33m. $t_1$=+17°8, $t_2$=+18°0. N: —0.85 mm, S: —0.55 mm.*

| N:o | NS | +P | −J | | SN | −P | +J | | N:o | NS | +J | −P | | SN | −J | +P | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 75 | 75 | 74 | + | 75 | 74 | 75 | 16 | + | 28 | 27 | 26 | + | 27 | 28 | 28 |
| 2 | + | 49 | 50 | 49 | + | 50 | 49 | 49 | 17 | − | 76 | 75 | 75 | − | 75 | 75 | 74 |
| 3 | + | 17 | 16 | 17 | + | 15 | 15 | 17 | 18 | − | 348 | 349 | 348 | − | 349 | 349 | 349 |
| 4 | + | 36 | 35 | 35 | + | 37 | 37 | 34 | 19 | + | 407 | 405 | 407 | + | 406 | 408 | 408 |
| 5 | + | 36 | 35 | 35 | + | 37 | 37 | 36 | 20 | + | 92 | 94 | 92 | + | 95 | 93 | 94 |
| 6 | − | 3 | 3 | 5 | − | 3 | 4 | 5 | 21 | − | 265 | 262 | 263 | − | 263 | 263 | 262 |
| 7 | + | 30 | 29 | 30 | + | 28 | 30 | 28 | 22 | + | 120 | 119 | 119 | + | 120 | 120 | 119 |
| 8 | − | 8 | 6 | 8 | − | 6 | 8 | 6 | 23 | + | 34 | 32 | 33 | + | 33 | 34 | 35 |
| 9 | + | 71 | 71 | 72 | + | 71 | 71 | 72 | 24 | + | 83 | 80 | 80 | + | 81 | 81 | 81 |
| 10 | − | 2 | 2 | 3 | − | 2 | 2 | 3 | 25 | + | 85 | 86 | 84 | + | 84 | 83 | 83 |
| 11 | − | 50 | 50 | 51 | − | 52 | 51 | 52 | 26 | + | 37 | 35 | 35 | + | 36 | 38 | 36 |
| 12 | − | 151 | 150 | 151 | − | 150 | 151 | 151 | 27 | + | 60 | 61 | 61 | + | 61 | 61 | 61 |
| 13 | − | 145 | 143 | 144 | − | 143 | 143 | 144 | 28 | + | 54 | 55 | 54 | + | 55 | 53 | 54 |
| 14 | − | 44 | 44 | 46 | − | 42 | 43 | 44 | 29 | + | 71 | 72 | 71 | + | 73 | 73 | 73 |
| 15 | − | 23 | 25 | 25 | − | 25 | 23 | 25 | 30 | + | 201 | 200 | 201 | + | 200 | 200 | 200 |

## HELSINKI 2.

***674.*** *29.VI. 16h52m—17h48m. $t_1$=+18°.2, $t_2$=+18°.2.*

| N:o | NS | −J | +P | | SN | +J | −P | | N:o | NS | −P | +J | | SN | +P | −J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 73 | 73 | 76 | + | 73 | 74 | 73 | 16 | + | 26 | 26 | 26 | + | 29 | 27 | 27 |
| 2 | + | 47 | 47 | 48 | + | 50 | 49 | 50 | 17 | − | 73 | 75 | 75 | − | 78 | 75 | 75 |
| 3 | + | 15 | 16 | 15 | + | 13 | 15 | 16 | 18 | − | 349 | 349 | 348 | − | 349 | 348 | 349 |
| 4 | + | 35 | 37 | 38 | + | 36 | 35 | 36 | 19 | + | 406 | 407 | 406 | + | 407 | 408 | 408 |
| 5 | + | 35 | 35 | 36 | + | 35 | 34 | 35 | 20 | + | 92 | 94 | 93 | + | 95 | 94 | 94 |
| 6 | − | 5 | 4 | 5 | − | 5 | 5 | 6 | 21 | − | 262 | 263 | 264 | − | 262 | 263 | 262 |
| 7 | + | 30 | 30 | 30 | + | 28 | 28 | 28 | 22 | + | 120 | 121 | 120 | + | 120 | 121 | 119 |
| 8 | − | 8 | 7 | 7 | − | 6 | 7 | 6 | 23 | + | 35 | 35 | 34 | + | 33 | 34 | 33 |
| 9 | + | 72 | 71 | 74 | − | 90 | 90 | 92 | 24 | + | 83 | 81 | 81 | + | 82 | 83 | 84 |
| 10 | − | 3 | 4 | 2 | + | 158 | 158 | 159 | 25 | + | 83 | 84 | 84 | + | 82 | 84 | 85 |
| 11 | − | 51 | 51 | 51 | − | 52 | 51 | 52 | 26 | + | 37 | 36 | 37 | + | 34 | 34 | 35 |
| 12 | − | 150 | 149 | 149 | − | 151 | 151 | 151 | 27 | + | 60 | 60 | 60 | + | 61 | 63 | 64 |
| 13 | − | 142 | 143 | 142 | − | 142 | 145 | 144 | 28 | + | 55 | 55 | 55 | + | 54 | 54 | 54 |
| 14 | − | 47 | 46 | 44 | − | 45 | 46 | 43 | 29 | + | 74 | 74 | 74 | + | 73 | 75 | 73 |
| 15 | − | 25 | 25 | 25 | − | 26 | 22 | 23 | 30 | + | 199 | 200 | 201 | + | 199 | 201 | 199 |

***683.*** *8.VII. 16h13m—17h11m. $t_1$=+16°.4, $t_2$=+15°.2. N: −0.82 mm, S: −0.45 mm.*

| N:o | NS | +B | −S | | SN | −B | +S | | N:o | NS | +B | −S | | SN | −B | +S | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 57 | 58 | 58 | + | 59 | 59 | 59 | 16 | − | 8 | 6 | 6 | − | 5 | 7 | 4 |
| 2 | + | 50 | 50 | 50 | + | 51 | 50 | 50 | 17 | − | 48 | 49 | 49 | − | 49 | 49 | 48 |
| 3 | + | 9 | 9 | 9 | + | 9 | 10 | 9 | 18 | − | 358 | 358 | 359 | − | 359 | 358 | 358 |
| 4 | + | 30 | 29 | 30 | + | 30 | 30 | 29 | 19 | + | 388 | 390 | 389 | + | 390 | 390 | 389 |
| 5 | + | 30 | 29 | 30 | + | 30 | 30 | 31 | 20 | + | 87 | 86 | 87 | + | 87 | 87 | 86 |
| 6 | − | 16 | 16 | 16 | − | 16 | 16 | 16 | 21 | − | 251 | 250 | 251 | − | 252 | 249 | 249 |
| 7 | + | 21 | 21 | 21 | + | 21 | 21 | 20 | 22 | + | 96 | 97 | 96 | + | 97 | 98 | 97 |
| 8 | − | 14 | 14 | 14 | − | 13 | 14 | 14 | 23 | + | 34 | 34 | 35 | + | 33 | 34 | 33 |
| 9 | + | 66 | 67 | 66 | + | 65 | 66 | 66 | 24 | + | 63 | 63 | 66 | + | 65 | 65 | 66 |
| 10 | − | 16 | 15 | 15 | − | 15 | 14 | 14 | 25 | + | 82 | 82 | 82 | + | 81 | 83 | 83 |
| 11 | − | 39 | 37 | 38 | − | 39 | 37 | 39 | 26 | + | 15 | 16 | 17 | + | 16 | 17 | 17 |
| 12 | − | 170 | 168 | 168 | − | 169 | 167 | 168 | 27 | + | 65 | 65 | 65 | + | 67 | 66 | 65 |
| 13 | − | 163 | 164 | 163 | − | 161 | 163 | 162 | 28 | + | 46 | 45 | 45 | + | 45 | 47 | 46 |
| 14 | − | 29 | 30 | 28 | − | 29 | 29 | 29 | 29 | + | 58 | 57 | 59 | + | 59 | 59 | 59 |
| 15 | − | 56 | 55 | 56 | − | 53 | 54 | 55 | 30 | + | 199 | 199 | 200 | + | 199 | 200 | 199 |

***683.*** *8.VII. 17h14m—18h1m. $t_1$=+15°.2, $t_2$=+14°.9.*

| N:o | NS | −P | +J | | SN | +P | −J | | N:o | NS | −J | +P | | SN | +J | −P | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 58 | 59 | 58 | + | 58 | 59 | 59 | 16 | − | 8 | 6 | 7 | − | 5 | 6 | 7 |
| 2 | + | 49 | 51 | 50 | + | 50 | 50 | 50 | 17 | − | 49 | 47 | 50 | − | 49 | 49 | 48 |
| 3 | + | 8 | 8 | 8 | + | 9 | 8 | 8 | 18 | − | 359 | 357 | 359 | − | 361 | 362 | 362 |
| 4 | + | 28 | 28 | 29 | + | 29 | 29 | 29 | 19 | + | 389 | 391 | 391 | + | 391 | 391 | 392 |
| 5 | + | 31 | 31 | 30 | + | 31 | 31 | 30 | 20 | + | 86 | 86 | 85 | + | 87 | 86 | 87 |
| 6 | − | 16 | 17 | 15 | − | 15 | 16 | 15 | 21 | − | 250 | 251 | 251 | − | 251 | 251 | 251 |
| 7 | + | 22 | 21 | 20 | + | 20 | 20 | 21 | 22 | + | 97 | 97 | 96 | + | 94 | 96 | 97 |
| 8 | − | 13 | 13 | 14 | − | 13 | 14 | 15 | 23 | + | 35 | 33 | 32 | + | 33 | 32 | 34 |
| 9 | + | 66 | 66 | 66 | + | 68 | 67 | 66 | 24 | + | 65 | 67 | 65 | + | 64 | 64 | 63 |
| 10 | − | 15 | 15 | 15 | − | 13 | 14 | 13 | 25 | + | 83 | 83 | 83 | + | 82 | 82 | 83 |
| 11 | − | 39 | 38 | 39 | − | 37 | 37 | 38 | 26 | + | 18 | 16 | 17 | + | 14 | 16 | 17 |
| 12 | − | 168 | 168 | 168 | − | 168 | 167 | 166 | 27 | + | 66 | 66 | 65 | + | 64 | 66 | 65 |
| 13 | − | 163 | 163 | 163 | − | 163 | 164 | 163 | 28 | + | 44 | 46 | 45 | + | 45 | 47 | 44 |
| 14 | − | 28 | 28 | 30 | − | 29 | 29 | 28 | 29 | + | 58 | 58 | 59 | + | 57 | 58 | 57 |
| 15 | − | 53 | 54 | 55 | − | 57 | 56 | 56 | 30 | + | 200 | 199 | 199 | + | 200 | 199 | 199 |

# HELSINKI 3.

**634.** *2.IX. 11h16m—12h24m. $t_1$=+13°.1, $t_2$=+11°.8. N: +0.1 mm, S: —0.6 mm.*

| N:o | NS | +J | —P | | SN | —J | +P | | N:o | NS | +J | —P | | SN | —J | +P | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 49 | 49 | 48 | + | 49 | 48 | 48 | 16 | + | 4 | 6 | 4 | + | 7 | 7 | 5 |
| 2 | — | 120 | 120 | 120 | — | 120 | 120 | 120 | 17 | — | 124 | 123 | 125 | — | 126 | 124 | 125 |
| 3 | + | 196 | 194 | 194 | + | 195 | 193 | 196 | 18 | — | 263 | 264 | 265 | — | 265 | 264 | 266 |
| 4 | + | 23 | 23 | 22 | + | 24 | 22 | 25 | 19 | + | 387 | 387 | 385 | + | 388 | 385 | 387 |
| 5 | + | 28 | 27 | 27 | + | 27 | 25 | 25 | 20 | + | 91 | 91 | 93 | + | 91 | 92 | 92 |
| 6 | + | 39 | 39 | 39 | + | 39 | 38 | 40 | 21 | — | 323 | 323 | 324 | — | 323 | 323 | 322 |
| 7 | + | 19 | 18 | 18 | + | 19 | 18 | 18 | 22 | + | 189 | 189 | 189 | + | 189 | 189 | 190 |
| 8 | — | 31 | 31 | 31 | — | 31 | 31 | 31 | 23 | + | 48 | 47 | 45 | + | 45 | 47 | 47 |
| 9 | + | 49 | 50 | 49 | + | 49 | 49 | 48 | 24 | + | 48 | 45 | 47 | + | 48 | 48 | 49 |
| 10 | — | 4 | 3 | 3 | — | 2 | 3 | 3 | 25 | + | 90 | 89 | 90 | + | 90 | 88 | 90 |
| 11 | — | 21 | 22 | 21 | — | 23 | 21 | 21 | 26 | + | 29 | 28 | 27 | + | 29 | 29 | 29 |
| 12 | — | 174 | 172 | 174 | — | 174 | 174 | 172 | 27 | + | 55 | 53 | 53 | + | 57 | 54 | 54 |
| 13 | — | 149 | 149 | 148 | — | 149 | 147 | 148 | 28 | + | 60 | 59 | 59 | + | 60 | 61 | 60 |
| 14 | — | 40 | 40 | 40 | — | 39 | 41 | 40 | 29 | + | 58 | 58 | 58 | + | 58 | 58 | 56 |
| 15 | — | 32 | 33 | 31 | — | 34 | 33 | 34 | 30 | + | 208 | 206 | 209 | + | 208 | 209 | 209 |

**636.** *3.IX. 10h17m—11h28m. $t_1$=+15°.8, $t_2$=+15°.6. N: +0.1 mm, S: —0.63 mm.*

| N:o | NS | +P | —J | | SN | —P | +J | | N:o | NS | +P | —J | | SN | —P | +J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 47 | 46 | 46 | + | 45 | 44 | 46 | 16 | + | 1 | 1 | 1 | + | 1 | 2 | 0 |
| 2 | — | 126 | 127 | 126 | — | 128 | 127 | 127 | 17 | — | 131 | 130 | 131 | — | 131 | 131 | 132 |
| 3 | + | 184 | 183 | 184 | + | 184 | 183 | 184 | 18 | — | 270 | 270 | 269 | — | 270 | 270 | 270 |
| 4 | + | 24 | 24 | 22 | + | 25 | 26 | 25 | 19 | + | 385 | 384 | 385 | + | 386 | 385 | 386 |
| 5 | + | 30 | 29 | 29 | + | 30 | 30 | 30 | 20 | + | 96 | 94 | 95 | + | 93 | 93 | 94 |
| 6 | + | 31 | 32 | 32 | + | 31 | 31 | 33 | 21 | — | 330 | 330 | 331 | — | 330 | 330 | 331 |
| 7 | + | 15 | 16 | 16 | + | 16 | 18 | 17 | 22 | + | 183 | 182 | 184 | + | 183 | 183 | 182 |
| 8 | — | 40 | 40 | 41 | — | 42 | 41 | 42 | 23 | + | 40 | 40 | 38 | + | 38 | 38 | 39 |
| 9 | + | 79 | 79 | 79 | + | 74 | 74 | 75 | 24 | + | 48 | 47 | 47 | + | 46 | 46 | 46 |
| 10 | — | 39 | 40 | 40 | — | 32 | 34 | 34 | 25 | + | 82 | 84 | 84 | + | 84 | 83 | 84 |
| 11 | — | 31 | 31 | 30 | — | 33 | 33 | 32 | 26 | + | 27 | 24 | 25 | + | 27 | 25 | 24 |
| 12 | — | 173 | 172 | 172 | — | 174 | 172 | 175 | 27 | + | 52 | 51 | 51 | + | 53 | 53 | 54 |
| 13 | — | 154 | 155 | 155 | — | 154 | 156 | 156 | 28 | + | 56 | 58 | 58 | + | 57 | 58 | 58 |
| 14 | — | 39 | 39 | 38 | — | 37 | 37 | 39 | 29 | + | 52 | 52 | 54 | + | 52 | 53 | 54 |
| 15 | — | 36 | 38 | 36 | — | 39 | 37 | 37 | 30 | + | 197 | 198 | 198 | + | 197 | 198 | 198 |

**673.** *3.IX. 12h42m—13h44m. $t_1$=+16°.3, $t_2$=+16°.7.*

| N:o | NS | —P | +J | | SN | +P | —J | | N:o | NS | —P | +J | | SN | +P | —J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 58 | 57 | 57 | + | 57 | 55 | 55 | 16 | + | 9 | 10 | 9 | + | 9 | 10 | 10 |
| 2 | — | 119 | 118 | 118 | — | 119 | 119 | 120 | 17 | — | 123 | 123 | 123 | — | 122 | 123 | 122 |
| 3 | + | 192 | 193 | 191 | + | 195 | 195 | 194 | 18 | — | 263 | 262 | 263 | — | 264 | 264 | 263 |
| 4 | + | 32 | 32 | 33 | + | 31 | 31 | 30 | 19 | + | 391 | 393 | 392 | + | 394 | 394 | 395 |
| 5 | + | 39 | 37 | 38 | + | 39 | 38 | 38 | 20 | + | 106 | 105 | 105 | + | 104 | 106 | 104 |
| 6 | + | 40 | 40 | 41 | + | 39 | 39 | 39 | 21 | — | 324 | 322 | 323 | — | 323 | 324 | 323 |
| 7 | + | 27 | 25 | 26 | + | 27 | 25 | 26 | 22 | + | 190 | 192 | 191 | + | 192 | 192 | 192 |
| 8 | — | 35 | 32 | 33 | — | 33 | 32 | 34 | 23 | + | 48 | 47 | 47 | + | 47 | 48 | 48 |
| 9 | + | 82 | 81 | 81 | + | 87 | 85 | 86 | 24 | + | 53 | 56 | 55 | + | 53 | 55 | 55 |
| 10 | — | 26 | 25 | 26 | — | 30 | 30 | 31 | 25 | + | 93 | 92 | 93 | + | 92 | 94 | 92 |
| 11 | — | 24 | 24 | 24 | — | 21 | 23 | 22 | 26 | + | 34 | 35 | 34 | + | 33 | 34 | 33 |
| 12 | — | 167 | 166 | 166 | — | 167 | 165 | 167 | 27 | + | 60 | 61 | 61 | + | 61 | 61 | 61 |
| 13 | — | 147 | 147 | 147 | — | 148 | 147 | 146 | 28 | + | 67 | 66 | 67 | + | 68 | 66 | 67 |
| 14 | — | 31 | 31 | 31 | — | 30 | 29 | 30 | 29 | + | 64 | 64 | 63 | + | 62 | 61 | 61 |
| 15 | — | 30 | 28 | 29 | — | 28 | 27 | 28 | 30 | + | 207 | 205 | 205 | + | 206 | 205 | 206 |

## HELSINKI 3.

**675.** *3.IX. 13h49m—14h47m. $t_1$=+16°7, $t_2$=+16°7.*

| N:o | NS −J +P | | | SN +J −P | | | N:o | NS −J +P | | | SN +J −P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 55 | 57 | 55 | + | 52 | 55 | 52 | 16 | + | 6 | 7 | 6 | + | 5 | 6 | 4 |
| 2 | − | 121 | 123 | 122 | − | 121 | 121 | 123 | 17 | − | 125 | 124 | 126 | − | 123 | 123 | 123 |
| 3 | + | 192 | 193 | 193 | + | 193 | 191 | 192 | 18 | − | 266 | 265 | 263 | − | 264 | 265 | 264 |
| 4 | + | 29 | 27 | 28 | + | 27 | 28 | 29 | 19 | + | 391 | 390 | 390 | + | 390 | 390 | 390 |
| 5 | + | 38 | 37 | 35 | + | 37 | 37 | 36 | 20 | + | 103 | 101 | 102 | + | 102 | 102 | 101 |
| 6 | + | 38 | 36 | 37 | + | 37 | 38 | 38 | 21 | — | 327 | 327 | 327 | − | 327 | 327 | 325 |
| 7 | + | 23 | 23 | 25 | + | 23 | 24 | 22 | 22 | + | 190 | 189 | 189 | + | 187 | 185 | 186 |
| 8 | − | 37 | 37 | 36 | − | 36 | 35 | 36 | 23 | + | 44 | 45 | 47 | + | 47 | 46 | 44 |
| 9 | + | 83 | 82 | 84 | + | 83 | 87 | 87 | 24 | + | 51 | 51 | 53 | + | 50 | 51 | 52 |
| 10 | − | 33 | 34 | 32 | − | 34 | 34 | 34 | 25 | + | 90 | 91 | 91 | + | 91 | 90 | 91 |
| 11 | − | 24 | 26 | 25 | − | 24 | 23 | 25 | 26 | + | 30 | 32 | 32 | + | 31 | 31 | 31 |
| 12 | − | 169 | 167 | 167 | − | 167 | 166 | 169 | 27 | + | 58 | 59 | 59 | + | 58 | 57 | 57 |
| 13 | − | 149 | 150 | 149 | − | 149 | 150 | 149 | 28 | + | 63 | 63 | 62 | + | 65 | 65 | 65 |
| 14 | − | 32 | 33 | 33 | − | 32 | 34 | 31 | 29 | + | 59 | 60 | 59 | + | 60 | 60 | 60 |
| 15 | − | 29 | 31 | 30 | − | 32 | 31 | 30 | 30 | + | 203 | 204 | 202 | + | 202 | 201 | 202 |

**635.** *3.IX. 14h54m—15h47m. $t_1$=+16°7, $t_2$=+15°2. N: —0.04 mm, S: —0.66 mm.*

| N:o | NS −P +J | | | SN +P −J | | | N:o | NS −P +J | | | SN +P −J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 43 | 44 | 44 | + | 43 | 42 | 44 | 16 | − | 2 | 3 | 4 | − | 4 | 2 | 3 |
| 2 | − | 131 | 131 | 130 | − | 132 | 132 | 131 | 17 | − | 133 | 134 | 133 | − | 134 | 132 | 134 |
| 3 | + | 182 | 183 | 183 | + | 183 | 182 | 182 | 18 | − | 278 | 275 | 274 | − | 275 | 276 | 276 |
| 4 | + | 19 | 18 | 17 | + | 19 | 20 | 19 | 19 | + | 380 | 380 | 379 | + | 380 | 380 | 380 |
| 5 | + | 25 | 27 | 27 | + | 27 | 26 | 26 | 20 | + | 91 | 92 | 91 | + | 91 | 93 | 92 |
| 6 | + | 26 | 28 | 27 | + | 28 | 28 | 27 | 21 | − | 334 | 333 | 336 | − | 333 | 335 | 335 |
| 7 | + | 13 | 14 | 13 | + | 13 | 13 | 13 | 22 | + | 177 | 178 | 179 | + | 178 | 177 | 178 |
| 8 | − | 46 | 47 | 45 | − | 48 | 46 | 47 | 23 | + | 36 | 37 | 35 | + | 38 | 38 | 37 |
| 9 | + | 74 | 75 | 76 | + | 76 | 76 | 77 | 24 | + | 40 | 40 | 39 | + | 42 | 42 | 41 |
| 10 | − | 44 | 44 | 45 | − | 42 | 45 | 44 | 25 | + | 80 | 80 | 80 | + | 80 | 81 | 81 |
| 11 | − | 36 | 34 | 36 | − | 32 | 34 | 35 | 26 | + | 21 | 20 | 21 | + | 22 | 21 | 21 |
| 12 | − | 179 | 179 | 178 | − | 178 | 177 | 177 | 27 | + | 48 | 48 | 49 | + | 50 | 49 | 49 |
| 13 | − | 160 | 160 | 160 | − | 159 | 159 | 159 | 28 | + | 54 | 53 | 55 | + | 52 | 53 | 54 |
| 14 | − | 41 | 43 | 43 | − | 43 | 42 | 42 | 29 | + | 50 | 50 | 51 | + | 50 | 50 | 51 |
| 15 | − | 42 | 41 | 41 | − | 40 | 40 | 40 | 30 | + | 194 | 193 | 194 | + | 193 | 194 | 194 |

**674.** *4.IX. 14h17m—15h10m. $t_1$=+15°2, $t_2$=+13°8. N: —0.10 mm, S: —0.6 mm.*

| N:o | NS +P −J | | | SN −P +J | | | N:o | NS +P −J | | | SN −P +J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 53 | 54 | 55 | + | 55 | 54 | 54 | 16 | + | 8 | 6 | 6 | + | 7 | 6 | 5 |
| 2 | − | 120 | 120 | 120 | − | 120 | 120 | 120 | 17 | − | 122 | 124 | 122 | − | 125 | 126 | 123 |
| 3 | + | 196 | 197 | 198 | + | 198 | 197 | 198 | 18 | − | 262 | 265 | 263 | − | 263 | 262 | 264 |
| 4 | + | 25 | 23 | 25 | + | 23 | 24 | 24 | 19 | + | 388 | 387 | 388 | + | 388 | 387 | 387 |
| 5 | + | 48 | 48 | 47 | + | 48 | 46 | 47 | 20 | + | 98 | 97 | 97 | + | 98 | 97 | 96 |
| 6 | + | 27 | 26 | 25 | + | 27 | 25 | 26 | 21 | − | 319 | 320 | 320 | − | 320 | 320 | 319 |
| 7 | + | 23 | 23 | 24 | + | 22 | 23 | 22 | 22 | + | 188 | 187 | 186 | + | 187 | 186 | 187 |
| 8 | − | 32 | 33 | 32 | − | 32 | 34 | 33 | 23 | + | 49 | 49 | 49 | + | 49 | 49 | 48 |
| 9 | + | 85 | 84 | 86 | + | 84 | 86 | 85 | 24 | + | 55 | 55 | 55 | + | 56 | 55 | 55 |
| 10 | − | 36 | 35 | 36 | − | 37 | 35 | 36 | 25 | + | 92 | 91 | 92 | + | 90 | 91 | 91 |
| 11 | − | 28 | 27 | 28 | − | 29 | 29 | 29 | 26 | + | 29 | 27 | 28 | + | 27 | 27 | 29 |
| 12 | − | 163 | 165 | 165 | − | 163 | 163 | 164 | 27 | + | 58 | 57 | 58 | + | 57 | 58 | 57 |
| 13 | − | 146 | 146 | 145 | − | 145 | 147 | 147 | 28 | + | 60 | 60 | 60 | + | 59 | 59 | 60 |
| 14 | − | 32 | 34 | 33 | − | 32 | 33 | 32 | 29 | + | 56 | 57 | 58 | + | 56 | 56 | 57 |
| 15 | − | 32 | 33 | 33 | − | 32 | 33 | 34 | 30 | + | 212 | 214 | 212 | + | 214 | 212 | 213 |

## HELSINKI 3.

**637.** *4.IX. 15h15m—16h1m. $t_1$=+13°.8, $t_2$=+13°.7.*

| N:o | NS +J −P | | | SN −J +P | | | N:o | NS +J −P | | | SN −J +P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 47 | 47 | 45 | + | 48 | 46 | 46 | 16 | − | 1 | 0 | 1 | − | 1 | 2 | 1 |
| 2 | − | 128 | 127 | 129 | − | 128 | 128 | 128 | 17 | − | 129 | 131 | 129 | − | 131 | 131 | 129 |
| 3 | + | 190 | 190 | 190 | + | 190 | 191 | 191 | 18 | − | 271 | 272 | 271 | − | 271 | 270 | 271 |
| 4 | + | 14 | 17 | 15 | + | 16 | 18 | 18 | 19 | + | 382 | 382 | 381 | + | 381 | 381 | 380 |
| 5 | + | 39 | 39 | 39 | + | 40 | 41 | 39 | 20 | + | 90 | 89 | 89 | + | 89 | 90 | 90 |
| 6 | + | 19 | 19 | 19 | + | 19 | 19 | 18 | 21 | − | 329 | 328 | 327 | − | 327 | 328 | 328 |
| 7 | + | 17 | 16 | 17 | + | 15 | 15 | 15 | 22 | + | 179 | 177 | 179 | + | 178 | 180 | 180 |
| 8 | − | 40 | 40 | 39 | − | 40 | 39 | 40 | 23 | + | 41 | 41 | 40 | + | 41 | 41 | 41 |
| 9 | + | 77 | 77 | 77 | + | 79 | 78 | 76 | 24 | + | 49 | 48 | 47 | + | 48 | 49 | 49 |
| 10 | − | 45 | 44 | 46 | − | 45 | 45 | 43 | 25 | + | 85 | 82 | 84 | + | 83 | 82 | 82 |
| 11 | − | 37 | 35 | 34 | − | 36 | 36 | 36 | 26 | + | 21 | 22 | 21 | + | 22 | 22 | 21 |
| 12 | − | 171 | 171 | 172 | − | 171 | 172 | 171 | 27 | + | 50 | 49 | 50 | + | 50 | 50 | 51 |
| 13 | − | 154 | 154 | 155 | − | 156 | 155 | 153 | 28 | + | 53 | 53 | 52 | + | 52 | 52 | 52 |
| 14 | − | 39 | 41 | 40 | − | 41 | 40 | 41 | 29 | + | 50 | 49 | 49 | + | 50 | 50 | 51 |
| 15 | − | 41 | 40 | 41 | − | 41 | 40 | 40 | 30 | + | 205 | 205 | 205 | + | 205 | 207 | 208 |

**683.** *4.IX. 16h2m—16h50m. $t_1$=+13°.7, $t_2$=+13°.3. N: +0.04 mm, S: −0.71 mm.*

| N:o | NS −J +P | | | SN +J −P | | | N:o | NS −J +P | | | SN +J −P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 45 | 45 | 46 | + | 47 | 47 | 44 | 16 | − | 2 | 1 | 1 | − | 0 | 2 | 3 |
| 2 | − | 128 | 128 | 128 | − | 127 | 128 | 129 | 17 | − | 131 | 131 | 130 | − | 131 | 132 | 131 |
| 3 | + | 190 | 190 | 190 | + | 190 | 190 | 189 | 18 | − | 271 | 272 | 272 | − | 271 | 271 | 272 |
| 4 | + | 17 | 14 | 14 | + | 14 | 17 | 15 | 19 | + | 381 | 381 | 380 | + | 380 | 380 | 380 |
| 5 | + | 40 | 39 | 39 | + | 40 | 39 | 40 | 20 | + | 88 | 88 | 89 | + | 89 | 89 | 89 |
| 6 | + | 18 | 17 | 18 | + | 18 | 17 | 19 | 21 | − | 328 | 327 | 327 | − | 328 | 328 | 328 |
| 7 | + | 17 | 16 | 17 | + | 17 | 18 | 17 | 22 | + | 179 | 179 | 179 | + | 179 | 178 | 179 |
| 8 | − | 41 | 40 | 41 | − | 40 | 42 | 41 | 23 | + | 39 | 40 | 40 | + | 40 | 40 | 41 |
| 9 | + | 76 | 76 | 76 | + | 76 | 77 | 75 | 24 | + | 49 | 49 | 49 | + | 49 | 48 | 48 |
| 10 | − | 43 | 44 | 42 | − | 44 | 44 | 43 | 25 | + | 83 | 84 | 84 | + | 82 | 82 | 82 |
| 11 | − | 37 | 36 | 37 | − | 38 | 35 | 36 | 26 | + | 21 | 21 | 20 | + | 20 | 20 | 21 |
| 12 | − | 172 | 172 | 173 | − | 171 | 171 | 171 | 27 | + | 50 | 51 | 51 | + | 50 | 50 | 50 |
| 13 | − | 153 | 155 | 153 | − | 153 | 153 | 154 | 28 | + | 52 | 52 | 53 | + | 52 | 52 | 51 |
| 14 | − | 41 | 42 | 41 | − | 41 | 40 | 41 | 29 | + | 51 | 50 | 50 | + | 49 | 50 | 50 |
| 15 | − | 41 | 43 | 41 | − | 44 | 42 | 43 | 30 | + | 204 | 206 | 205 | + | 204 | 206 | 204 |

**636.** *5.IX. 14h27m—15h18m. $t_1$=+15°.6, $t_2$=+15°.3. N: +0.15 mm, S: −0.88 mm.*

| N:o | NS +P −J | | | SN −P +J | | | N:o | NS +P −J | | | SN −P +J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 44 | 44 | 45 | + | 45 | 46 | 44 | 16 | + | 2 | 1 | 0 | + | 1 | 0 | 0 |
| 2 | − | 122 | 123 | 122 | − | 124 | 122 | 122 | 17 | − | 129 | 129 | 128 | − | 127 | 127 | 129 |
| 3 | + | 185 | 185 | 186 | + | 187 | 185 | 185 | 18 | − | 271 | 271 | 272 | − | 272 | 272 | 271 |
| 4 | + | 26 | 28 | 28 | + | 28 | 26 | 28 | 19 | + | 382 | 383 | 383 | + | 384 | 382 | 382 |
| 5 | + | 20 | 19 | 18 | + | 20 | 19 | 18 | 20 | + | 93 | 95 | 95 | + | 93 | 94 | 95 |
| 6 | + | 33 | 33 | 34 | + | 34 | 34 | 35 | 21 | − | 329 | 328 | 328 | − | 328 | 327 | 328 |
| 7 | + | 16 | 17 | 15 | + | 17 | 16 | 15 | 22 | + | 176 | 174 | 175 | + | 175 | 175 | 173 |
| 8 | − | 40 | 40 | 40 | − | 39 | 39 | 40 | 23 | + | 47 | 48 | 47 | + | 46 | 46 | 47 |
| 9 | + | 81 | 82 | 81 | + | 82 | 83 | 82 | 24 | + | 50 | 50 | 50 | + | 50 | 50 | 50 |
| 10 | − | 42 | 44 | 42 | − | 42 | 42 | 43 | 25 | + | 80 | 80 | 80 | + | 80 | 80 | 79 |
| 11 | − | 36 | 36 | 37 | − | 37 | 37 | 37 | 26 | + | 25 | 26 | 26 | + | 26 | 25 | 26 |
| 12 | − | 169 | 167 | 169 | − | 168 | 169 | 169 | 27 | + | 49 | 48 | 48 | + | 49 | 50 | 50 |
| 13 | − | 154 | 155 | 154 | − | 156 | 154 | 156 | 28 | + | 60 | 59 | 60 | + | 58 | 59 | 59 |
| 14 | − | 44 | 44 | 42 | − | 42 | 42 | 41 | 29 | + | 47 | 47 | 47 | + | 47 | 46 | 47 |
| 15 | − | 39 | 37 | 38 | − | 37 | 37 | 37 | 30 | + | 205 | 207 | 206 | + | 205 | 207 | 207 |

## HELSINKI 3.

**673.** *5.IX. 15h24m—16h22m. $t_1$=+15°3, $t_2$=+14°9. N: +0.09 mm, S: —0.94 mm.*

| N:o | NS | —P | +J | | SN | +P | —J | | N:o | NS | —P | +J | | SN | +P | —J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 54 | 52 | 53 | + | 55 | 53 | 54 | 16 | + | 9 | 9 | 8 | + | 10 | 9 | 10 |
| 2 | — | 114 | 115 | 114 | — | 114 | 115 | 113 | 17 | — | 119 | 120 | 120 | — | 119 | 119 | 120 |
| 3 | + | 193 | 193 | 194 | + | 196 | 196 | 196 | 18 | — | 263 | 263 | 265 | — | 263 | 263 | 264 |
| 4 | + | 37 | 37 | 36 | + | 36 | 36 | 36 | 19 | + | 392 | 392 | 392 | + | 392 | 391 | 392 |
| 5 | + | 28 | 26 | 26 | + | 25 | 26 | 26 | 20 | + | 103 | 105 | 102 | + | 104 | 103 | 105 |
| 6 | + | 42 | 42 | 42 | + | 41 | 41 | 43 | 21 | — | 320 | 320 | 320 | — | 320 | 319 | 320 |
| 7 | + | 23 | 25 | 23 | + | 24 | 22 | 24 | 22 | + | 181 | 183 | 183 | + | 182 | 183 | 183 |
| 8 | — | 32 | 30 | 31 | — | 31 | 31 | 31 | 23 | + | 57 | 57 | 57 | + | 56 | 54 | 54 |
| 9 | + | 90 | 91 | 91 | + | 91 | 91 | 91 | 24 | + | 58 | 58 | 57 | + | 59 | 59 | 58 |
| 10 | — | 33 | 34 | 33 | — | 34 | 34 | 34 | 25 | + | 88 | 87 | 88 | + | 88 | 87 | 88 |
| 11 | — | 27 | 28 | 28 | — | 29 | 28 | 28 | 26 | + | 36 | 36 | 35 | + | 34 | 34 | 36 |
| 12 | — | 161 | 161 | 160 | — | 160 | 160 | 159 | 27 | + | 57 | 59 | 57 | + | 58 | 57 | 58 |
| 13 | — | 146 | 145 | 147 | — | 146 | 145 | 146 | 28 | + | 66 | 68 | 67 | + | 69 | 68 | 69 |
| 14 | — | 34 | 34 | 34 | — | 34 | 35 | 35 | 29 | + | 56 | 56 | 58 | + | 56 | 56 | 58 |
| 15 | — | 28 | 30 | 29 | — | 29 | 29 | 29 | 30 | + | 216 | 216 | 216 | + | 217 | 216 | 215 |

**634.** *5.IX. 16h22m—17h10m. $t_1$=+14°9, $t_2$=+14°7.*

| N:o | NS | +J | —P | | SN | —J | +P | | N:o | NS | +J | —P | | SN | —J | +P | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 50 | 49 | 50 | + | 50 | 50 | 50 | 16 | + | 5 | 5 | 7 | + | 6 | 4 | 5 |
| 2 | — | 118 | 117 | 119 | — | 118 | 118 | 118 | 17 | — | 123 | 125 | 126 | — | 125 | 124 | 126 |
| 3 | + | 188 | 190 | 189 | + | 190 | 191 | 190 | 18 | — | 269 | 267 | 269 | — | 268 | 267 | 267 |
| 4 | + | 33 | 33 | 31 | + | 32 | 31 | 31 | 19 | + | 386 | 388 | 387 | + | 385 | 385 | 387 |
| 5 | + | 24 | 22 | 22 | + | 22 | 25 | 22 | 20 | + | 100 | 98 | 99 | + | 99 | 98 | 99 |
| 6 | + | 38 | 39 | 38 | + | 39 | 37 | 37 | 21 | — | 323 | 325 | 325 | — | 325 | 323 | 326 |
| 7 | + | 19 | 19 | 19 | + | 18 | 20 | 19 | 22 | + | 180 | 177 | 179 | + | 179 | 178 | 179 |
| 8 | — | 37 | 34 | 35 | — | 35 | 36 | 37 | 23 | + | 51 | 51 | 51 | + | 53 | 52 | 51 |
| 9 | + | 88 | 85 | 87 | + | 88 | 86 | 87 | 24 | + | 52 | 54 | 53 | + | 55 | 52 | 54 |
| 10 | — | 37 | 39 | 37 | — | 37 | 39 | 39 | 25 | + | 86 | 85 | 85 | + | 82 | 84 | 82 |
| 11 | — | 32 | 33 | 31 | — | 32 | 30 | 32 | 26 | + | 29 | 30 | 30 | + | 29 | 30 | 31 |
| 12 | — | 164 | 163 | 165 | — | 166 | 166 | 166 | 27 | + | 53 | 54 | 52 | + | 54 | 53 | 51 |
| 13 | — | 150 | 150 | 150 | — | 150 | 150 | 151 | 28 | + | 63 | 63 | 63 | + | 64 | 64 | 64 |
| 14 | — | 38 | 37 | 37 | — | 38 | 38 | 37 | 29 | + | 51 | 53 | 50 | + | 52 | 52 | 52 |
| 15 | — | 34 | 34 | 33 | — | 33 | 34 | 35 | 30 | + | 211 | 212 | 211 | + | 210 | 212 | 212 |

**675.** *5.IX. 17h12m—17h58m. $t_1$=+14°7, $t_2$=+14°4. N: + 0.15 mm, S: —0.88 mm.*

| N:o | NS | —J | +P | | SN | +J | —P | | N:o | NS | —J | +P | | SN | +J | —P | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 53 | 52 | 52 | + | 54 | 52 | 51 | 16 | + | 6 | 5 | 7 | + | 7 | 5 | 8 |
| 2 | — | 117 | 116 | 117 | — | 116 | 118 | 116 | 17 | — | 121 | 121 | 122 | — | 122 | 121 | 123 |
| 3 | + | 191 | 193 | 192 | + | 192 | 191 | 192 | 18 | — | 266 | 267 | 265 | — | 267 | 266 | 266 |
| 4 | + | 34 | 36 | 33 | + | 33 | 35 | 34 | 19 | + | 388 | 389 | 389 | + | 389 | 389 | 390 |
| 5 | + | 23 | 24 | 23 | + | 23 | 23 | 25 | 20 | + | 100 | 100 | 101 | + | 101 | 100 | 101 |
| 6 | + | 40 | 39 | 40 | + | 40 | 40 | 40 | 21 | — | 321 | 322 | 321 | — | 322 | 321 | 322 |
| 7 | + | 21 | 21 | 21 | + | 23 | 22 | 22 | 22 | + | 181 | 181 | 180 | + | 180 | 181 | 180 |
| 8 | — | 33 | 34 | 32 | — | 35 | 34 | 34 | 23 | + | 54 | 53 | 53 | + | 51 | 52 | 52 |
| 9 | + | 89 | 88 | 88 | + | 88 | 87 | 89 | 24 | + | 55 | 57 | 55 | + | 55 | 56 | 57 |
| 10 | — | 37 | 36 | 37 | — | 37 | 35 | 35 | 25 | + | 86 | 85 | 86 | + | 84 | 85 | 86 |
| 11 | — | 30 | 29 | 31 | — | 31 | 29 | 30 | 26 | + | 32 | 31 | 32 | + | 32 | 32 | 32 |
| 12 | — | 163 | 162 | 163 | — | 162 | 162 | 162 | 27 | + | 56 | 54 | 54 | + | 55 | 56 | 57 |
| 13 | — | 146 | 148 | 147 | — | 149 | 149 | 148 | 28 | + | 67 | 66 | 65 | + | 64 | 65 | 66 |
| 14 | — | 37 | 35 | 36 | — | 35 | 36 | 38 | 29 | + | 54 | 55 | 55 | + | 56 | 53 | 53 |
| 15 | — | 32 | 33 | 33 | — | 31 | 33 | 33 | 30 | + | 212 | 212 | 213 | + | 212 | 212 | 212 |

## HELSINKI 3.

**635.** *9.IX. 10h28m—11h28m. $t_1$=+9°0, $t_2$=+9°1. N: +0.15 mm, S: —1.06 mm.*

| N:o | NS —J +P | | | SN +J —P | | | N:o | NS —J +P | | | SN +J —P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 46 | 43 | 43 | + | 45 | 46 | 45 | 16 | — | 2 | 1 | 1 | — | 2 | 1 | 1 |
| 2 | — | 126 | 127 | 125 | — | 128 | 127 | 128 | 17 | — | 134 | 133 | 135 | — | 135 | 134 | 135 |
| 3 | + | 182 | 181 | 183 | + | 182 | 184 | 184 | 18 | — | 275 | 275 | 275 | — | 273 | 272 | 274 |
| 4 | + | 24 | 25 | 25 | + | 24 | 24 | 25 | 19 | + | 376 | 376 | 374 | + | 375 | 377 | 376 |
| 5 | + | 14 | 14 | 13 | + | 12 | 13 | 12 | 20 | + | 91 | 93 | 93 | + | 90 | 91 | 91 |
| 6 | + | 23 | 24 | 25 | + | 25 | 25 | 25 | 21 | — | 333 | 335 | 333 | — | 335 | 335 | 335 |
| 7 | + | 14 | 15 | 13 | + | 14 | 13 | 14 | 22 | + | 177 | 177 | 177 | + | 174 | 174 | 175 |
| 8 | — | 46 | 46 | 45 | — | 43 | 43 | 44 | 23 | + | 38 | 38 | 36 | + | 37 | 37 | 38 |
| 9 | + | 79 | 80 | 80 | + | 79 | 78 | 78 | 24 | + | 47 | 45 | 46 | + | 44 | 44 | 46 |
| 10 | — | 47 | 46 | 45 | — | 45 | 45 | 46 | 25 | + | 82 | 83 | 83 | + | 81 | 82 | 82 |
| 11 | — | 47 | 48 | 48 | — | 46 | 47 | 46 | 26 | + | 22 | 21 | 21 | + | 22 | 20 | 20 |
| 12 | — | 163 | 165 | 163 | — | 163 | 165 | 166 | 27 | + | 41 | 43 | 41 | + | 43 | 42 | 42 |
| 13 | — | 157 | 158 | 159 | — | 159 | 156 | 158 | 28 | + | 53 | 55 | 53 | + | 53 | 56 | 54 |
| 14 | — | 44 | 44 | 42 | — | 42 | 44 | 43 | 29 | + | 51 | 53 | 51 | + | 51 | 52 | 51 |
| 15 | — | 47 | 46 | 47 | — | 47 | 44 | 47 | 30 | + | 199 | 199 | 197 | + | 198 | 199 | 198 |

**674.** *9.IX. 12h47m—13h47m. $t_1$=+9°6, $t_2$=+10°2.*

| N:o | NS +P —J | | | SN —P +J | | | N:o | NS +P —J | | | SN —P +J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 55 | 53 | 53 | + | 53 | 53 | 53 | 16 | + | 7 | 8 | 8 | + | 8 | 9 | 7 |
| 2 | — | 118 | 118 | 117 | — | 115 | 117 | 115 | 17 | — | 123 | 123 | 125 | — | 123 | 123 | 124 |
| 3 | + | 193 | 192 | 193 | + | 191 | 193 | 191 | 18 | — | 263 | 264 | 264 | — | 264 | 264 | 262 |
| 4 | + | 35 | 34 | 35 | + | 34 | 34 | 36 | 19 | + | 385 | 386 | 384 | + | 385 | 386 | 385 |
| 5 | + | 23 | 23 | 24 | + | 22 | 24 | 24 | 20 | + | 101 | 101 | 100 | + | 99 | 99 | 100 |
| 6 | + | 34 | 33 | 35 | + | 36 | 36 | 36 | 21 | — | 321 | 322 | 321 | — | 322 | 322 | 321 |
| 7 | + | 23 | 23 | 22 | + | 23 | 22 | 23 | 22 | + | 184 | 186 | 185 | + | 185 | 186 | 187 |
| 8 | — | 35 | 37 | 36 | — | 35 | 34 | 35 | 23 | + | 49 | 48 | 49 | + | 49 | 48 | 49 |
| 9 | + | 90 | 90 | 90 | + | 88 | 88 | 88 | 24 | + | 51 | 52 | 52 | + | 54 | 52 | 53 |
| 10 | — | 35 | 35 | 36 | — | 34 | 35 | 36 | 25 | + | 92 | 91 | 92 | + | 92 | 92 | 94 |
| 11 | — | 34 | 36 | 36 | — | 34 | 35 | 35 | 26 | + | 31 | 31 | 31 | + | 31 | 32 | 32 |
| 12 | — | 157 | 158 | 157 | — | 158 | 157 | 157 | 27 | + | 53 | 52 | 52 | + | 52 | 54 | 54 |
| 13 | — | 148 | 147 | 149 | — | 149 | 148 | 148 | 28 | + | 65 | 64 | 65 | + | 64 | 66 | 65 |
| 14 | — | 33 | 31 | 33 | — | 32 | 31 | 33 | 29 | + | 62 | 60 | 61 | + | 60 | 63 | 61 |
| 15 | — | 36 | 37 | 36 | — | 36 | 33 | 34 | 30 | + | 209 | 209 | 208 | + | 207 | 209 | 207 |

**637.** *9.IX. 13h50m—14h47m. $t_1$=+10°2, $t_2$=+10°2. N: +0.20 mm.*

| N:o | NS +J —P | | | SN —J +P | | | N:o | NS +J —P | | | SN —J +P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 48 | 47 | 47 | + | 46 | 47 | 47 | 16 | + | 0 | 0 | 2 | + | 1 | 1 | 0 |
| 2 | — | 125 | 122 | 122 | — | 125 | 124 | 123 | 17 | — | 132 | 131 | 131 | — | 130 | 130 | 129 |
| 3 | + | 188 | 187 | 186 | + | 185 | 186 | 183 | 18 | — | 271 | 271 | 271 | — | 270 | 271 | 270 |
| 4 | + | 28 | 29 | 30 | + | 29 | 27 | 29 | 19 | + | 378 | 378 | 377 | + | 379 | 378 | 380 |
| 5 | + | 14 | 17 | 15 | + | 15 | 15 | 14 | 20 | + | 91 | 94 | 93 | + | 92 | 93 | 93 |
| 6 | + | 28 | 28 | 28 | + | 27 | 29 | 28 | 21 | — | 329 | 328 | 328 | — | 328 | 329 | 328 |
| 7 | + | 17 | 16 | 16 | + | 14 | 14 | 14 | 22 | + | 179 | 178 | 178 | + | 178 | 179 | 178 |
| 8 | — | 42 | 41 | 42 | — | 42 | 42 | 43 | 23 | + | 42 | 43 | 42 | + | 42 | 43 | 42 |
| 9 | + | 83 | 82 | 83 | + | 83 | 82 | 83 | 24 | + | 47 | 47 | 45 | + | 47 | 46 | 46 |
| 10 | — | 42 | 43 | 44 | — | 43 | 43 | 41 | 25 | + | 85 | 85 | 84 | + | 84 | 83 | 85 |
| 11 | — | 43 | 41 | 42 | — | 40 | 40 | 41 | 26 | + | 25 | 25 | 25 | + | 25 | 26 | 23 |
| 12 | — | 164 | 166 | 163 | — | 166 | 164 | 167 | 27 | + | 48 | 48 | 48 | + | 47 | 45 | 44 |
| 13 | — | 154 | 155 | 153 | — | 153 | 154 | 155 | 28 | + | 58 | 57 | 59 | + | 59 | 59 | 59 |
| 14 | — | 38 | 37 | 39 | — | 39 | 39 | 39 | 29 | + | 56 | 52 | 54 | + | 54 | 57 | 55 |
| 15 | — | 43 | 41 | 44 | — | 43 | 44 | 42 | 30 | + | 200 | 201 | 201 | + | 200 | 200 | 200 |

## HELSINKI 3.

**683.** *9.IX. 14h50m—15h39m. $t_1$=+10°2, $t_2$=+10°3. N: +0.13 mm, S: —0.99 mm.*

| N:o | NS | —P | +J | | SN | +P | —J | | N:o | NS | —P | +J | | SN | +P | —J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 45 | 46 | 46 | + | 45 | 45 | 45 | 16 | — | 1 | 0 | 1 | — | 1+ | 1+ | 1 |
| 2 | — | 125 | 123 | 124 | — | 122 | 125 | 125 | 17 | — | 129 | 130 | 130 | — | 127 | 128 | 128 |
| 3 | + | 183 | 185 | 185 | + | 184 | 186 | 184 | 18 | — | 270 | 271 | 271 | — | 273 | 271 | 270 |
| 4 | + | 26 | 27 | 29 | + | 29 | 28 | 28 | 19 | + | 378 | 377 | 378 | + | 378 | 376 | 378 |
| 5 | + | 15 | 15 | 17 | + | 17 | 15 | 17 | 20 | + | 92 | 92 | 92 | + | 92 | 91 | 93 |
| 6 | + | 28 | 27 | 27 | + | 30 | 29 | 30 | 21 | — | 330 | 331 | 330 | — | 330 | 329 | 330 |
| 7 | + | 14 | 15 | 15 | + | 16 | 15 | 14 | 22 | + | 177 | 176 | 176 | + | 178 | 177 | 178 |
| 8 | — | 44 | 44 | 44 | — | 44 | 44 | 42 | 23 | + | 41 | 41 | 41 | + | 42 | 42 | 43 |
| 9 | + | 80 | 81 | 80 | + | 83 | 82 | 81 | 24 | + | 47 | 46 | 45 | + | 48 | 45 | 46 |
| 10 | — | 43 | 42 | 42 | — | 42 | 42 | 43 | 25 | + | 86 | 84 | 85 | + | 86 | 85 | 84 |
| 11 | — | 41 | 41 | 42 | — | 41 | 41 | 40 | 26 | + | 23 | 23 | 23 | + | 24 | 22 | 23 |
| 12 | — | 166 | 167 | 168 | — | 168 | 168 | 166 | 27 | + | 44 | 46 | 45 | + | 45 | 45 | 44 |
| 13 | — | 155 | 156 | 154 | — | 153 | 155 | 154 | 28 | + | 59 | 57 | 58 | + | 57 | 57 | 58 |
| 14 | — | 41 | 41 | 40 | — | 38 | 39 | 40 | 29 | + | 52 | 54 | 54 | + | 53 | 54 | 54 |
| 15 | — | 42 | 44 | 42 | — | 43 | 43 | 44 | 30 | + | 200 | 199 | 198 | + | 200 | 200 | 200 |

# HELSINKI 4.

**683.** *5.XI. 12h51m—14h26m. $t_1$=+5°5, $t_2$=+5°4. N: —0.65 mm, S: —0.55 mm.*

| N:o | NS | —H | +K | | SN | +H | —K | | N:o | NS | —K | +H | | SN | +K | —H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 59 | 58 | 58 | + | 60 | 59 | 58 | 16 | — | 29 | 29 | 27 | — | 26 | 26 | 24 |
| 2 | — | 141 | 142 | 141 | — | 140 | 140 | 139 | 17 | — | 183 | 181 | 182 | — | 179 | 181 | 180 |
| 3 | + | 193 | 193 | 194 | + | 193 | 192 | 194 | 18 | — | 248 | 251 | 248 | — | 251 | 250 | 250 |
| 4 | + | 149 | 149 | 149 | + | 150 | 149 | 148 | 19 | + | 388 | 387 | 386 | + | 388 | 387 | 386 |
| 5 | — | 118 | 117 | 119 | — | 119 | 120 | 119 | 20 | + | 53 | 56 | 55 | + | 56 | 54 | 55 |
| 6 | + | 52 | 52 | 52 | + | 51 | 53 | 53 | 21 | — | 321 | 321 | 321 | — | 321 | 320 | 321 |
| 7 | + | 9 | 10 | 10 | + | 9 | 10 | 8 | 22 | + | 202 | 201 | 200 | + | 199 | 202 | 200 |
| 8 | — | 41 | 42 | 42 | — | 44 | 42 | 44 | 23 | + | 44 | 43 | 43 | + | 43 | 44 | 42 |
| 9 | + | 75 | 74 | 74 | + | 74 | 75 | 74 | 24 | — | 82 | 84 | 83 | — | 82 | 84 | 83 |
| 10 | — | 85 | 84 | 85 | — | 85 | 85 | 84 | 25 | + | 221 | 220 | 220 | + | 223 | 221 | 223 |
| 11 | + | 9 | 9 | 8 | + | 10 | 8 | 7 | 26 | + | 17 | 18 | 15 | + | 18 | 19 | 17 |
| 12 | — | 131 | 129 | 128 | — | 127 | 129 | 129 | 27 | + | 54 | 52 | 53 | + | 51 | 51 | 52 |
| 13 | — | 211 | 211 | 211 | — | 212 | 211 | 212 | 28 | — | 8 | 9 | 9 | — | 8 | 7 | 9 |
| 14 | — | 28 | 27 | 26 | — | 27 | 28 | 28 | 29 | — | 62 | 61 | 62 | — | 58 | 61 | 60 |
| 15 | + | 6 | 6 | 6 | + | 7 | 5 | 6 | 30 | + | 373 | 373 | 375 | + | 375 | 375 | 375 |

**675.** *5.XI. 14h31m—15h50m. $t_1$=+5°4, $t_2$=+4°5. N: —0.60 mm, S: —0.75 mm.*

| N:o | NS | +K | —H | | SN | —K | +H | | N:o | NS | +H | —K | | SN | —H | +K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 66 | 65 | 67 | + | 66 | 65 | 64 | 16 | — | 19 | 18 | 19 | — | 19 | 20 | 19 |
| 2 | — | 133 | 132 | 132 | — | 133 | 135 | 133 | 17 | — | 173 | 173 | 174 | — | 174 | 174 | 173 |
| 3 | + | 200 | 203 | 203 | + | 200 | 201 | 203 | 18 | — | 242 | 242 | 241 | — | 240 | 241 | 241 |
| 4 | + | 156 | 158 | 158 | + | 158 | 155 | 155 | 19 | + | 394 | 394 | 395 | + | 393 | 395 | 395 |
| 5 | — | 113 | 112 | 111 | — | 112 | 112 | 113 | 20 | + | 62 | 62 | 64 | + | 62 | 62 | 63 |
| 6 | + | 59 | 60 | 60 | + | — | 54 | 56 | 21 | — | 313 | 315 | 314 | — | 314 | 314 | 312 |
| 7 | + | 16 | 17 | 17 | + | 17 | 17 | 16 | 22 | + | 209 | 209 | 208 | + | 207 | 208 | 208 |
| 8 | — | 38 | 35 | 36 | — | 36 | 36 | 36 | 23 | + | 51 | 50 | 51 | + | 49 | 50 | 49 |
| 9 | + | 81 | 82 | 82 | + | 81 | 81 | 81 | 24 | — | 77 | 76 | 76 | — | 74 | 75 | 75 |
| 10 | — | 77 | 79 | 78 | — | 81 | 77 | 77 | 25 | + | 230 | 229 | 229 | + | 230 | 228 | 229 |
| 11 | + | 15 | 16 | 15 | + | 16 | 15 | 13 | 26 | + | 25 | 24 | 24 | + | 25 | 23 | 22 |
| 12 | — | 121 | 121 | 121 | — | 121 | 122 | 122 | 27 | + | 61 | 62 | 59 | + | 60 | 60 | 60 |
| 13 | — | 203 | 204 | 204 | — | 204 | 204 | 202 | 28 | — | 1 | 1 | 1 | — | 0 | 2 | 1 |
| 14 | — | 21 | 21 | 19 | — | 18 | 20 | 19 | 29 | — | 52 | 52 | 52 | — | 52 | 53 | 52 |
| 15 | + | 13 | 13 | 13 | + | 13 | 14 | 14 | 30 | + | 383 | 381 | 382 | + | 383 | 383 | 382 |

**674.** *6.XI. 10h12m—11h51m. $t_1$=+6°4, $t_2$=+5°3. N: —0.44 mm, S: —0.62 mm.*

| N:o | NS | —K | +H | | SN | +K | —H | | N:o | NS | —H | +K | | SN | +H | —K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 66 | 64 | 66 | + | 66 | 64 | 66 | 16 | — | 20 | 20 | 20 | — | 21 | 21 | 21 |
| 2 | — | 127 | 126 | 125 | — | 126 | 124 | 126 | 17 | — | 170 | 171 | 171 | — | 172 | 172 | 171 |
| 3 | + | 193 | 193 | 192 | + | 194 | 193 | 193 | 18 | — | 238 | 238 | 238 | — | 240 | 239 | 238 |
| 4 | + | 153 | 154 | 155 | + | 155 | 155 | 157 | 19 | + | 395 | 396 | 394 | + | 393 | 394 | 394 |
| 5 | — | 115 | 114 | 114 | — | 112 | 111 | 112 | 20 | + | 63 | 62 | 62 | + | 62 | 62 | 63 |
| 6 | + | 61 | 61 | 62 | + | 64 | 64 | 62 | 21 | — | 312 | 311 | 311 | — | 313 | 311 | 311 |
| 7 | + | 14 | 13 | 14 | + | 15 | 16 | 16 | 22 | + | 210 | 209 | 210 | + | 210 | 210 | 210 |
| 8 | — | 36 | 37 | 36 | — | 37 | 35 | 36 | 23 | + | 49 | 49 | 48 | + | 50 | 49 | 51 |
| 9 | + | 81 | 81 | 81 | + | 82 | 81 | 83 | 24 | — | 78 | 77 | 78 | — | 75 | 78 | 77 |
| 10 | — | 76 | 76 | 76 | — | 76 | 75 | 75 | 25 | + | 228 | 228 | 228 | + | 228 | 227 | 227 |
| 11 | + | 16 | 15 | 13 | + | 17 | 16 | 18 | 26 | + | 20 | 19 | 19 | + | 20 | 20 | 19 |
| 12 | — | 124 | 124 | 123 | — | 122 | 122 | 123 | 27 | + | 64 | 64 | 65 | + | 64 | 63 | 64 |
| 13 | — | 203 | 203 | 203 | — | 201 | 201 | 203 | 28 | + | 3 | 4 | 4 | + | 3 | 4 | 3 |
| 14 | — | 25 | 24 | 24 | — | 24 | 24 | 23 | 29 | — | 55 | 55 | 54 | — | 55 | 53 | 53 |
| 15 | + | 17 | 18 | 15 | + | 17 | 19 | 17 | 30 | + | 380 | 380 | 380 | + | 380 | 380 | 381 |

## HELSINKI 4.

**673.** *6.XI. 12h59m—14h7m. $t_1$=+5°7, $t_2$=+5°6.*

| N:o | NS | +H | −K | | SN | −H | +K | | N:o | NS | +K | −H | | SN | −K | +H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 67 | 68 | 68 | + | 69 | 68 | 69 | 16 | − | 19 | 18 | 19 | − | 17 | 19 | 20 |
| 2 | − | 125 | 126 | 126 | − | 127 | 126 | 126 | 17 | − | 168 | 168 | 169 | − | 169 | 169 | 169 |
| 3 | + | 197 | 197 | 196 | + | 196 | 196 | 195 | 18 | − | 235 | 234 | 237 | − | 239 | 237 | 238 |
| 4 | + | 156 | 157 | 157 | + | 157 | 157 | 158 | 19 | + | 397 | 397 | 397 | + | 394 | 397 | 395 |
| 5 | − | 110 | 110 | 110 | − | 109 | 108 | 109 | 20 | + | 66 | 65 | 65 | + | 63 | 64 | 63 |
| 6 | + | 64 | 62 | 62 | + | 63 | 63 | 63 | 21 | − | 307 | 308 | 309 | − | 309 | 310 | 311 |
| 7 | + | 17 | 17 | 16 | + | 19 | 17 | 18 | 22 | + | 211 | 213 | 213 | + | 213 | 211 | 212 |
| 8 | − | 34 | 35 | 34 | − | 34 | 33 | 36 | 23 | + | 53 | 53 | 53 | + | 51 | 52 | 51 |
| 9 | + | 83 | 83 | 85 | + | 86 | 84 | 84 | 24 | − | 75 | 75 | 74 | − | 76 | 74 | 75 |
| 10 | − | 74 | 74 | 74 | − | 73 | 72 | 74 | 25 | + | 230 | 228 | 231 | + | 230 | 231 | 230 |
| 11 | + | 17 | 18 | 18 | + | 17 | 17 | 18 | 26 | + | 22 | 22 | 22 | + | 23 | 22 | 21 |
| 12 | − | 121 | 120 | 121 | − | 120 | 121 | 119 | 27 | + | 66 | 65 | 66 | + | 65 | 66 | 65 |
| 13 | − | 200 | 199 | 201 | − | 200 | 201 | 201 | 28 | + | 7 | 6 | 6 | + | 5 | 7 | 5 |
| 14 | − | 21 | 21 | 21 | − | 20 | 21 | 21 | 29 | − | 50 | 52 | 53 | − | 53 | 52 | 54 |
| 15 | + | 18 | 18 | 19 | + | 19 | 20 | 19 | 30 | + | 384 | 385 | 384 | + | 382 | 384 | 384 |

**683.** *6.XI. 14h13m—15h25m. $t_1$=+5°6, $t_2$=+5°7. N: —0.40 mm, S: —0.75 mm.*

| N:o | NS | +K | −H | | SN | −K | +H | | N:o | NS | +H | −K | | SN | −H | +K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 59 | 59 | 58 | + | 58 | 58 | 59 | 16 | − | 29 | 28 | 28 | − | 27 | 29 | 28 |
| 2 | − | 135 | 135 | 136 | − | 134 | 135 | 134 | 17 | − | 178 | 181 | 178 | − | 176 | 177 | 178 |
| 3 | + | 187 | 187 | 185 | + | 184 | 186 | 185 | 18 | − | 247 | 247 | 247 | − | 246 | 245 | 247 |
| 4 | + | 148 | 148 | 148 | + | 147 | 146 | 147 | 19 | + | 386 | 386 | 385 | + | 387 | 387 | 387 |
| 5 | − | 115 | 118 | 118 | − | 118 | 119 | 119 | 20 | + | 55 | 53 | 53 | + | 56 | 55 | 56 |
| 6 | + | 54 | 53 | 53 | + | 52 | 54 | 55 | 21 | − | 319 | 318 | 318 | − | 319 | 320 | 319 |
| 7 | + | 7 | 9 | 8 | + | 7 | 9 | 7 | 22 | + | 201 | 204 | 203 | + | 204 | 202 | 202 |
| 8 | − | 42 | 44 | 43 | − | 42 | 45 | 44 | 23 | + | 43 | 44 | 44 | + | 42 | 43 | 43 |
| 9 | + | 75 | 75 | 73 | + | 73 | 73 | 73 | 24 | − | 84 | 86 | 86 | − | 84 | 85 | 85 |
| 10 | − | 84 | 85 | 83 | − | 86 | 86 | 88 | 25 | + | 219 | 219 | 221 | + | 221 | 222 | 219 |
| 11 | + | 9 | 7 | 8 | + | 9 | 9 | 8 | 26 | + | 11 | 11 | 12 | + | 11 | 12 | 12 |
| 12 | − | 130 | 129 | 130 | − | 129 | 130 | 130 | 27 | + | 54 | 57 | 56 | + | 58 | 58 | 56 |
| 13 | − | 209 | 210 | 209 | − | 210 | 209 | 209 | 28 | − | 5 | 4 | 5 | − | 3 | 3 | 3 |
| 14 | − | 32 | 30 | 31 | − | 31 | 30 | 31 | 29 | − | 65 | 63 | 63 | − | 62 | 62 | 63 |
| 15 | + | 12 | 9 | 9 | + | 9 | 10 | 8 | 30 | + | 373 | 374 | 373 | + | 375 | 376 | 375 |

**675.** *7.XI. 10h20m—11h52m. $t_1$=+7°3, $t_2$=+ 8°0. N: —0.62 mm. S: —0.90 mm.*

| N:o | NS | −H | +K | | SN | +H | −K | | N:o | NS | −K | +H | | SN | +K | −H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 61 | 63 | 61 | + | 62 | 61 | 63 | 16 | − | 23 | 24 | 23 | − | 22 | 23 | 24 |
| 2 | − | 113 | 115 | 113 | − | 113 | 115 | 114 | 17 | − | 169 | 170 | 169 | − | 169 | 169 | 170 |
| 3 | + | 187 | 187 | 188 | + | 187 | 187 | 187 | 18 | − | 239 | 238 | 238 | − | 240 | 238 | 238 |
| 4 | + | 152 | 150 | 151 | + | 152 | 152 | 152 | 19 | + | 390 | 391 | 389 | + | 390 | 390 | 390 |
| 5 | − | 114 | 114 | 115 | − | 115 | 116 | 116 | 20 | + | 64 | 64 | 64 | + | 65 | 65 | 66 |
| 6 | + | 67 | 67 | 68 | + | 67 | 65 | 67 | 21 | − | 313 | 314 | 313 | − | 312 | 313 | 312 |
| 7 | + | 18 | 18 | 19 | + | 18 | 20 | 19 | 22 | + | 210 | 211 | 209 | + | 212 | 211 | 210 |
| 8 | − | 37 | 38 | 38 | − | 39 | 38 | 39 | 23 | + | 49 | 49 | 50 | + | 51 | 50 | 50 |
| 9 | + | 82 | 81 | 83 | + | 81 | 81 | 80 | 24 | − | 78 | 79 | 77 | − | 76 | 78 | 78 |
| 10 | − | 75 | 76 | 74 | − | 75 | 76 | 77 | 25 | + | 223 | 223 | 223 | + | 224 | 224 | 224 |
| 11 | + | 13 | 14 | 14 | + | 15 | 15 | 16 | 26 | + | 22 | 21 | 22 | + | 22 | 24 | 22 |
| 12 | − | 121 | 121 | 121 | − | 121 | 120 | 121 | 27 | + | 63 | 63 | 63 | + | 64 | 64 | 63 |
| 13 | − | 201 | 201 | 204 | − | 201 | 202 | 202 | 28 | + | 2 | 1 | 2 | + | 3 | 2 | 1 |
| 14 | − | 24 | 24 | 25 | − | 24 | 24 | 26 | 29 | − | 56 | 55 | 56 | − | 54 | 56 | 55 |
| 15 | + | 17 | 18 | 17 | + | 18 | 17 | 17 | 30 | + | 386 | 385 | 384 | + | 387 | 386 | 387 |

## HELSINKI 4.

***674.*** *7.XI. 12h56m—14h4m. $t_1$=+7°9, $t_2$=+7°9.*

| N:o | NS +K −H | | | SN −K +H | | | N:o | NS +K −H | | | SN −H +K | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 62 | 63 | 62 | + | 61 | 62 | 61 | 16 | − | 24 | 24 | 24 | − | 23 | 23 | 23 |
| 2 | − | 113 | 114 | 114 | − | 115 | 114 | 113 | 17 | − | 168 | 169 | 170 | − | 169 | 169 | 169 |
| 3 | + | 188 | 187 | 188 | + | 186 | 187 | 187 | 18 | − | 239 | 238 | 238 | − | 238 | 238 | 238 |
| 4 | + | 152 | 152 | 152 | + | 154 | 153 | 154 | 19 | + | 390 | 390 | 389 | + | 390 | 391 | 390 |
| 5 | − | 116 | 115 | 115 | − | 117 | 117 | 117 | 20 | + | 64 | 64 | 64 | + | 65 | 65 | 65 |
| 6 | + | 67 | 67 | 65 | + | 66 | 66 | 65 | 21 | − | 312 | 313 | 313 | − | 312 | 313 | 312 |
| 7 | + | 19 | 18 | 18 | + | 17 | 16 | 17 | 22 | + | 210 | 210 | 210 | + | 211 | 210 | 211 |
| 8 | − | 38 | 38 | 39 | − | 39 | 39 | 38 | 23 | + | 48 | 51 | 49 | + | 50 | 49 | 49 |
| 9 | + | 81 | 81 | 83 | + | 81 | 80 | 81 | 24 | − | 78 | 79 | 77 | − | 77 | 78 | 78 |
| 10 | − | 76 | 77 | 76 | − | 75 | 76 | 75 | 25 | + | 224 | 224 | 224 | + | 223 | 225 | 225 |
| 11 | + | 15 | 15 | 14 | + | 16 | 15 | 14 | 26 | + | 21 | 23 | 23 | + | 23 | 22 | 22 |
| 12 | − | 122 | 121 | 122 | − | 122 | 121 | 121 | 27 | + | 63 | 62 | 63 | + | 65 | 66 | 65 |
| 13 | − | 201 | 201 | 201 | − | 202 | 202 | 200 | 28 | + | 1 | 1 | 1 | + | 3 | 1 | 2 |
| 14 | − | 24 | 25 | 25 | − | 25 | 24 | 24 | 29 | − | 56 | 56 | 55 | − | 55 | 56 | 56 |
| 15 | + | 17 | 18 | 18 | + | 17 | 18 | 17 | 30 | + | 385 | 384 | 387 | + | 385 | 386 | 386 |

***673.*** *7.XI. 14h11m—15h35m. $t_1$=+7°8, $t_2$=+7°4. N: −0.65 mm, S: −0.83 mm.*

| N:o | NS −H +K | | | SN +H −K | | | N:o | NS −K +H | | | SN +K −H | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 63 | 63 | 64 | + | 66 | 64 | 65 | 16 | − | 21 | 21 | 22 | − | 21 | 21 | 21 |
| 2 | − | 112 | 112 | 110 | − | 111 | 112 | 112 | 17 | − | 165 | 165 | 165 | − | 167 | 167 | 166 |
| 3 | + | 190 | 191 | 190 | + | 190 | 190 | 189 | 18 | − | 237 | 237 | 236 | − | 236 | 236 | 236 |
| 4 | + | 157 | 158 | 156 | + | 155 | 155 | 156 | 19 | + | 392 | 392 | 392 | + | 393 | 393 | 394 |
| 5 | − | 114 | 114 | 114 | − | 115 | 115 | 114 | 20 | + | 67 | 67 | 67 | + | 67 | 66 | 67 |
| 6 | + | 68 | 69 | 70 | + | 69 | 68 | 69 | 21 | − | 310 | 309 | 311 | − | 310 | 310 | 311 |
| 7 | + | 21 | 20 | 20 | + | 20 | 20 | 21 | 22 | + | 213 | 213 | 213 | + | 215 | 215 | 214 |
| 8 | − | 36 | 36 | 37 | − | 37 | 37 | 37 | 23 | + | 53 | 52 | 52 | + | 51 | 52 | 53 |
| 9 | + | 83 | 84 | 85 | + | 82 | 81 | 83 | 24 | − | 75 | 75 | 74 | − | 74 | 74 | 76 |
| 10 | − | 73 | 74 | 74 | − | 72 | 74 | 74 | 25 | + | 225 | 224 | 224 | + | 227 | 226 | 227 |
| 11 | + | 18 | 17 | 18 | + | 17 | 18 | 18 | 26 | + | 25 | 25 | 26 | + | 25 | 26 | 26 |
| 12 | − | 120 | 120 | 119 | − | 119 | 119 | 118 | 27 | + | 66 | 64 | 65 | + | 66 | 64 | 64 |
| 13 | − | 199 | 199 | 198 | − | 198 | 199 | 198 | 28 | + | 4 | 4 | 3 | + | 4 | 4 | 5 |
| 14 | − | 21 | 22 | 23 | − | 27 | 25 | 26 | 29 | − | 55 | 54 | 54 | − | 52 | 53 | 53 |
| 15 | + | 20 | 20 | 20 | + | 21 | 21 | 21 | 30 | + | 387 | 386 | 388 | + | 389 | 389 | 389 |

***637.*** *8.XI. 10h31m—11h55m. $t_1$=+7°9, $t_2$=+7°9. N: +0.18 mm, S: −0.52 mm.*

| N:o | NS −K +H | | | SN +K −H | | | N:o | NS −H +K | | | SN +H −K | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 46 | 46 | 45 | + | 45 | 45 | 44 | 16 | − | 30 | 29 | 30 | − | 30 | 30 | 29 |
| 2 | − | 120 | 122 | 122 | − | 122 | 122 | 123 | 17 | − | 174 | 174 | 174 | − | 175 | 174 | 175 |
| 3 | + | 180 | 180 | 180 | + | 180 | 179 | 180 | 18 | − | 246 | 246 | 247 | − | 245 | 246 | 244 |
| 4 | + | 145 | 146 | 146 | + | 145 | 144 | 144 | 19 | + | 385 | 385 | 385 | + | 383 | 385 | 385 |
| 5 | − | 117 | 117 | 118 | − | 117 | 116 | 119 | 20 | + | 58 | 58 | 58 | + | 57 | 55 | 57 |
| 6 | + | 60 | 60 | 59 | + | 59 | 58 | 59 | 21 | − | 319 | 320 | 320 | − | 319 | 319 | 319 |
| 7 | + | 10 | 10 | 11 | + | 10 | 10 | 10 | 22 | + | 201 | 201 | 202 | + | 201 | 201 | 201 |
| 8 | − | 46 | 45 | 46 | − | 43 | 45 | 46 | 23 | + | 43 | 46 | 45 | + | 44 | 45 | 45 |
| 9 | + | 78 | 77 | 76 | + | 78 | 79 | 78 | 24 | − | 82 | 83 | 82 | − | 82 | 81 | 81 |
| 10 | − | 87 | 86 | 87 | − | 86 | 85 | 87 | 25 | + | 220 | 221 | 220 | + | 221 | 221 | 221 |
| 11 | + | 8 | 10 | 8 | + | 8 | 9 | 9 | 26 | + | 17 | 18 | 17 | + | 18 | 17 | 18 |
| 12 | − | 124 | 125 | 126 | − | 127 | 125 | 126 | 27 | + | 52 | 52 | 53 | + | 53 | 53 | 53 |
| 13 | − | 210 | 209 | 210 | − | 209 | 209 | 210 | 28 | − | 2 | 1 | 0 | − | 0 | 1 | 2 |
| 14 | − | 30 | 28 | 30 | − | 31 | 31 | 32 | 29 | − | 66 | 63 | 66 | − | 65 | 63 | 65 |
| 15 | + | 10 | 9 | 8 | + | 9 | 9 | 9 | 30 | + | 375 | 374 | 376 | + | 377 | 376 | 373 |

## HELSINKI 4.

**636.** *8.XI. 13h8m—14h22m. $t_1$=+7°.7, $t_2$=+8°.2.*

| N:o | NS +H −K | | | SN −H +K | | | N:o | NS +K −H | | | SN −K +H | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 45 | 43 | 44 | + | 45 | 46 | 43 | 16 | − | 32 | 32 | 32 | − | 31 | 33 | 32 |
| 2 | − | 121 | 122 | 121 | − | 121 | 121 | 123 | 17 | − | 173 | 173 | 173 | − | 172 | 173 | 174 |
| 3 | + | − | 180 | 179 | + | 179 | 178 | 179 | 18 | − | 246 | 246 | 248 | − | 247 | 247 | 245 |
| 4 | + | 145 | 145 | 145 | + | 145 | 144 | 145 | 19 | + | 385 | 384 | 385 | + | 384 | 382 | 383 |
| 5 | − | 120 | 119 | 118 | − | 118 | 119 | 119 | 20 | + | 57 | 56 | 56 | + | 56 | 57 | 57 |
| 6 | + | 58 | 58 | 57 | + | 58 | 58 | 60 | 21 | − | 320 | 320 | 319 | − | 319 | 322 | 321 |
| 7 | + | 10 | 9 | 10 | + | 11 | 10 | 11 | 22 | + | 200 | 198 | 200 | + | 200 | 199 | 200 |
| 8 | − | 46 | 46 | 45 | − | 45 | 45 | 46 | 23 | + | 45 | 45 | 44 | + | 44 | 43 | 44 |
| 9 | + | 78 | 76 | 78 | + | 77 | 77 | 77 | 24 | − | 82 | 82 | 80 | − | 83 | 84 | 82 |
| 10 | − | 87 | 87 | 88 | − | 87 | 87 | 87 | 25 | + | 221 | 221 | 220 | + | 220 | 220 | 218 |
| 11 | + | 9 | 7 | 8 | + | 6 | 7 | 8 | 26 | + | 17 | 17 | 17 | + | 17 | 15 | 16 |
| 12 | − | 126 | 124 | 126 | − | 127 | 125 | 126 | 27 | + | 53 | 52 | 51 | + | 52 | 51 | 51 |
| 13 | − | 209 | 209 | 209 | − | 210 | 210 | 210 | 28 | − | 1 | 3 | 2 | − | 1 | 1 | 2 |
| 14 | − | 30 | 31 | 31 | − | 31 | 30 | 31 | 29 | − | 66 | 67 | 67 | − | 67 | 67 | 67 |
| 15 | + | 10 | 10 | 10 | + | 9 | 10 | 9 | 30 | + | 375 | 376 | 376 | + | 375 | 374 | 376 |

**635.** *8.XI. 14h31m—15h47m. $t_1$=+7°.9, $t_2$=+8°.2. N: +0.22 mm, S: −0.68 mm.*

| N:o | NS −K +H | | | SN +K −H | | | N:o | NS −H +K | | | SN +H −K | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 43 | 42 | 42 | + | 42 | 41 | 41 | 16 | − | 9 | 8 | 9 | − | 8 | 9 | 10 |
| 2 | − | 124 | 124 | 124 | − | 125 | 125 | 126 | 17 | − | 202 | 203 | 203 | − | 203 | 203 | 204 |
| 3 | + | 177 | 177 | 176 | + | 175 | 177 | 177 | 18 | − | 249 | 249 | 249 | − | 248 | 250 | 249 |
| 4 | + | 143 | 142 | 142 | + | 142 | 141 | 142 | 19 | + | 382 | 381 | 382 | + | 381 | 381 | 381 |
| 5 | − | 122 | 120 | 122 | − | 122 | 122 | 122 | 20 | + | 53 | 53 | 55 | + | 54 | 54 | 54 |
| 6 | + | 56 | 56 | 57 | + | 56 | 54 | 56 | 21 | − | 321 | 321 | 323 | − | 323 | 323 | 323 |
| 7 | + | 6 | 6 | 5 | + | 5 | 5 | 7 | 22 | + | 197 | 196 | 197 | + | 198 | 198 | 200 |
| 8 | − | 49 | 49 | 49 | − | 49 | 49 | 49 | 23 | + | 41 | 41 | 42 | + | 41 | 43 | 42 |
| 9 | + | 75 | 75 | 74 | + | 74 | 76 | 76 | 24 | − | 87 | 84 | 88 | − | 84 | 85 | 84 |
| 10 | − | 90 | 89 | 90 | − | 90 | 90 | 90 | 25 | + | 217 | 216 | 217 | + | 218 | 218 | 217 |
| 11 | + | 4 | 7 | 4 | + | 6 | 5 | 6 | 26 | + | 14 | 14 | 14 | + | 14 | 15 | 14 |
| 12 | − | 130 | 129 | 130 | − | 130 | 130 | 130 | 27 | + | 48 | 50 | 48 | + | 50 | 50 | 50 |
| 13 | − | 212 | 212 | 212 | − | 212 | 213 | 213 | 28 | − | 6 | 6 | 5 | − | 4 | 6 | 5 |
| 14 | − | 34 | 34 | 33 | − | 24 | 23 | 23 | 29 | − | 68 | 70 | 69 | − | 69 | 69 | 69 |
| 15 | + | 7 | 6 | 6 | − | 3 | 4 | 3 | 30 | + | 372 | 371 | 372 | + | 372 | 374 | 374 |

**634.** *9.XI. 10h21m—11h35m. $t_1$=+7°.7, $t_2$=+8°.1. N: +0.12 mm, S: −0.78 mm.*

| N:o | NS +H −K | | | SN −H +K | | | N:o | NS +K −H | | | SN −K +H | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 51 | 50 | 52 | + | 51 | 50 | 51 | 16 | − | 12 | 11 | 12 | − | 11 | 11 | 12 |
| 2 | − | 118 | 117 | 118 | − | 120 | 119 | 119 | 17 | − | 172 | 172 | 172 | − | 170 | 173 | 172 |
| 3 | + | 188 | 189 | 189 | + | 187 | 187 | 188 | 18 | − | 195 | 196 | 196 | − | 193 | 194 | 195 |
| 4 | + | 103 | 102 | 102 | + | 103 | 101 | 101 | 19 | + | 388 | 388 | 388 | + | 389 | 389 | 390 |
| 5 | + | 1 | 2 | 2 | + | 2 | 2 | 3 | 20 | + | 126 | 126 | 126 | + | 124 | 125 | 125 |
| 6 | − | 6 | 7 | 5 | − | 7 | 5 | 6 | 21 | − | 379 | 379 | 378 | − | 379 | 377 | 378 |
| 7 | + | 14 | 15 | 15 | + | 15 | 14 | 14 | 22 | + | 208 | 208 | 208 | + | 208 | 209 | 208 |
| 8 | − | 38 | 38 | 35 | − | 38 | 37 | 38 | 23 | + | 185 | 185 | 185 | + | 187 | 186 | 187 |
| 9 | + | 107 | 108 | 108 | + | 108 | 108 | 108 | 24 | − | 218 | 216 | 217 | − | 216 | 217 | 217 |
| 10 | − | 109 | 110 | 109 | − | 109 | 108 | 109 | 25 | + | 145 | 146 | 143 | + | 146 | 145 | 145 |
| 11 | + | 14 | 15 | 15 | + | 12 | 15 | 14 | 26 | + | 100 | 101 | 101 | + | 101 | 101 | 102 |
| 12 | − | 122 | 123 | 121 | − | 121 | 121 | 121 | 27 | + | 83 | 84 | 84 | + | 84 | 84 | 84 |
| 13 | − | 193 | 194 | 193 | − | 192 | 192 | 192 | 28 | − | 75 | 76 | 75 | − | 76 | 76 | 74 |
| 14 | − | 35 | 34 | 35 | − | 34 | 36 | 35 | 29 | − | 79 | 79 | 79 | − | 77 | 78 | 77 |
| 15 | − | 46 | 47 | 47 | − | 46 | 46 | 47 | 30 | + | 453 | 452 | 451 | + | 452 | 453 | 454 |

## HELSINKI 4.

***637.*** *9.XI. $12^h47^m$—$13^h58^m$. $t_1=+8°0$, $t_2=+8°2$. N: +0.20 mm, S: —0.75 mm.*

| N:o | NS | +K | —H | | SN | —K | +H | | N:o | NS | +H | —K | | SN | —H | +K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 47 | 46 | 46 | + | 47 | 46 | 46 | 16 | — | 17 | 15 | 15 | — | 15 | 16 | 17 |
| 2 | — | 122 | 122 | 122 | — | 122 | 122 | 122 | 17 | — | 176 | 176 | 175 | — | 176 | 177 | 177 |
| 3 | + | 185 | 184 | 183 | + | 183 | 183 | 184 | 18 | — | 199 | 199 | 199 | — | 198 | 199 | 199 |
| 4 | + | 98 | 99 | 99 | + | 100 | 99 | 98 | 19 | + | 384 | 386 | 385 | + | 386 | 386 | 386 |
| 5 | — | 3 | 3 | 3 | — | 1 | 2 | 3 | 20 | + | 121 | 122 | 122 | + | 122 | 123 | 122 |
| 6 | — | 10 | 10 | 10 | — | 10 | 10 | 10 | 21 | — | 382 | 381 | 382 | — | 382 | 382 | 381 |
| 7 | + | 11 | 11 | 12 | + | 12 | 12 | 10 | 22 | + | 205 | 207 | 205 | + | 205 | 205 | 205 |
| 8 | — | 42 | 41 | 42 | — | 41 | 42 | 42 | 23 | + | 182 | 182 | 182 | + | 182 | 182 | 182 |
| 9 | + | 105 | 103 | 104 | + | 103 | 102 | 102 | 24 | — | 223 | 223 | 223 | — | 222 | 223 | 223 |
| 10 | — | 113 | 114 | 114 | — | 112 | 113 | 113 | 25 | + | 142 | 141 | 142 | + | 140 | 141 | 142 |
| 11 | + | 9 | 10 | 10 | + | 11 | 11 | 10 | 26 | + | 98 | 97 | 96 | + | 97 | 97 | 97 |
| 12 | — | 127 | 125 | 126 | — | 127 | 125 | 125 | 27 | + | 80 | 80 | 80 | + | 80 | 80 | 79 |
| 13 | — | 197 | 196 | 197 | — | 197 | 197 | 195 | 28 | — | 79 | 79 | 80 | — | 79 | 79 | 79 |
| 14 | — | 40 | 40 | 39 | — | 38 | 39 | 40 | 29 | — | 82 | 82 | 81 | — | 82 | 81 | 83 |
| 15 | — | 51 | 50 | 51 | — | 50 | 50 | 50 | 30 | + | 448 | 448 | 450 | + | 448 | 449 | 449 |

***636.*** *11.XI. $10^h23^m$—$11^h45^m$. $t_1=+5°6$, $t_2=+6°0$. N: +0.45 mm, S: —0.65 mm.*

| N:o | NS | —H | +K | | SN | +H | —K | | N:o | NS | —K | +H | | SN | +K | —H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 42 | 42 | 41 | + | 43 | 41 | 43 | 16 | — | 20 | 20 | 20 | — | 21 | 22 | 21 |
| 2 | — | 124 | 123 | 122 | — | 124 | 122 | 123 | 17 | — | 176 | 174 | 177 | — | 176 | 175 | 176 |
| 3 | + | 181 | 181 | 180 | + | 183 | 181 | 183 | 18 | — | 195 | 195 | 195 | — | 196 | 197 | 196 |
| 4 | + | 98 | 97 | 96 | + | 98 | 98 | 97 | 19 | + | 387 | 385 | 384 | + | 385 | 386 | 385 |
| 5 | — | 2 | 2 | 1 | — | 1 | 1 | 2 | 20 | + | 117 | 117 | 117 | + | 118 | 118 | 117 |
| 6 | — | 12 | 11 | 12 | — | 11 | 10 | 10 | 21 | — | 381 | 381 | 382 | — | 381 | 381 | 382 |
| 7 | + | 9 | 9 | 9 | + | 11 | 11 | 11 | 22 | + | 199 | 200 | 200 | + | 198 | 198 | 199 |
| 8 | — | 46 | 46 | 47 | — | 45 | 47 | 47 | 23 | + | 185 | 186 | 186 | + | 184 | 186 | 185 |
| 9 | + | 78 | 78 | 78 | + | 78 | 76 | 79 | 24 | — | 226 | 225 | 226 | — | 224 | 226 | 227 |
| 10 | — | 87 | 88 | 88 | — | 87 | 86 | 86 | 25 | + | 136 | 137 | 138 | + | 137 | 137 | 138 |
| 11 | + | 9 | 9 | 7 | + | 8 | 9 | 8 | 26 | + | 97 | 97 | 95 | + | 94 | 96 | 96 |
| 12 | — | 126 | 128 | 127 | — | 126 | 126 | 126 | 27 | + | 58 | 59 | 59 | + | 58 | 56 | 58 |
| 13 | — | 214 | 213 | 214 | — | 212 | 212 | 215 | 28 | — | 58 | 60 | 58 | — | 58 | 60 | 60 |
| 14 | — | 25 | 26 | 25 | — | 26 | 25 | 24 | 29 | — | 80 | 80 | 80 | — | 80 | 80 | 78 |
| 15 | — | 53 | 52 | 52 | — | 54 | 53 | 52 | 30 | + | 442 | 443 | 445 | + | 442 | 442 | 441 |

***635.*** *11.XI. $12^h56^m$—$14^h6^m$. $t_1=+6°4$, $t_2=+8°3$.*

| N:o | NS | +K | —H | | SN | —K | +H | | N:o | NS | +H | —K | | SN | —H | + | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 38 | 41 | 41 | + | 39 | 39 | 38 | 16 | — | 23 | 23 | 24 | — | 24 | 25 | 24 |
| 2 | — | 125 | 125 | 125 | — | 127 | 125 | 126 | 17 | — | 180 | 179 | 180 | — | 180 | 180 | 179 |
| 3 | + | 179 | 181 | 179 | + | 179 | 179 | 178 | 18 | — | 199 | 199 | 199 | — | 199 | 198 | 199 |
| 4 | + | 94 | 94 | 93 | + | 96 | 95 | 94 | 19 | + | 382 | 381 | 381 | + | 381 | 381 | 383 |
| 5 | — | 6 | 6 | 5 | — | 5 | 5 | 5 | 20 | + | 115 | 117 | 114 | + | 115 | 115 | 116 |
| 6 | — | 15 | 14 | 16 | — | 15 | 13 | 14 | 21 | — | 386 | 385 | 384 | — | 384 | 385 | 385 |
| 7 | + | 8 | 7 | 6 | + | 8 | 8 | 7 | 22 | + | 197 | 196 | 196 | + | 195 | 195 | 195 |
| 8 | — | 49 | 49 | 51 | — | 50 | 49 | 50 | 23 | + | 184 | 184 | 184 | + | 185 | 183 | 185 |
| 9 | + | 75 | 76 | 75 | + | 76 | 75 | 76 | 24 | — | 229 | 230 | 230 | — | 229 | 230 | — |
| 10 | — | 91 | 92 | 92 | — | 90 | 92 | 92 | 25 | + | 134 | 134 | 134 | + | 134 | 135 | 134 |
| 11 | + | 4 | 5 | 6 | + | 5 | 4 | 4 | 26 | + | 93 | 94 | 94 | + | 94 | 93 | 93 |
| 12 | — | 130 | 129 | 130 | — | 129 | 129 | 129 | 27 | + | 56 | 55 | 55 | + | 56 | 55 | 55 |
| 13 | — | 216 | 216 | 215 | — | 215 | 215 | 216 | 28 | — | 60 | 61 | 62 | — | 61 | 60 | 61 |
| 14 | — | 28 | 28 | 28 | — | 26 | 26 | 26 | 29 | — | 83 | 83 | 83 | — | 84 | 84 | 85 |
| 15 | — | 56 | 55 | 56 | — | 55 | 56 | 54 | 30 | + | 440 | 439 | 439 | + | 441 | 439 | 440 |

## HELSINKI 4.

***634.*** *11.XI. $14^h14^m$—$15^h26^m$. $t_1=+8°.4$, $t_2=+5°.8$. N: +0.40 mm, S: —0.65 mm.*

| N:o | NS | —H | +K | | SN | +H | —K | | N:o | NS | —K | +H | | SN | +K | —H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 45 | 45 | 47 | + | 47 | 48 | 48 | 16 | — | 16 | 15 | 14 | — | 16 | 16 | 17 |
| 2 | — | 117 | 117 | 118 | — | 118 | 116 | 117 | 17 | — | 170 | 170 | 170 | — | 170 | 170 | 171 |
| 3 | + | 186 | 187 | 188 | + | 188 | 187 | 188 | 18 | — | 190 | 190 | 190 | — | 191 | 189 | 190 |
| 4 | + | 103 | 103 | 102 | + | 102 | 103 | 102 | 19 | + | 388 | 389 | 390 | + | 389 | 389 | 388 |
| 5 | + | 3 | 2 | 2 | + | 4 | 4 | 4 | 20 | + | 124 | 125 | 124 | + | 123 | 121 | 123 |
| 6 | — | 7 | 7 | 7 | — | 5 | 4 | 5 | 21 | — | 375 | 377 | 375 | — | 377 | 377 | 377 |
| 7 | + | 16 | 15 | 15 | + | 15 | 15 | 17 | 22 | + | 204 | 203 | 204 | + | 203 | 204 | 203 |
| 8 | — | 41 | 40 | 40 | — | 40 | 40 | 40 | 23 | + | 193 | 193 | 194 | + | 192 | 193 | 192 |
| 9 | + | 85 | 84 | 84 | + | 86 | 83 | 84 | 24 | — | 221 | 221 | 221 | — | 222 | 222 | 222 |
| 10 | — | 83 | 83 | 82 | — | 83 | 82 | 83 | 25 | + | 143 | 143 | 141 | + | 142 | 144 | 143 |
| 11 | + | 14 | 14 | 12 | + | 14 | 14 | 14 | 26 | + | 102 | 101 | 101 | + | 101 | 101 | 101 |
| 12 | — | 121 | 123 | 121 | — | 120 | 120 | 119 | 27 | + | 63 | 63 | 64 | + | 62 | 63 | 64 |
| 13 | — | 209 | 210 | 207 | — | 206 | 206 | 208 | 28 | — | 53 | 52 | 54 | — | 52 | 54 | 51 |
| 14 | — | 22 | 18 | 18 | — | 18 | 18 | 19 | 29 | — | 75 | 75 | 73 | — | 75 | 76 | 75 |
| 15 | — | 48 | 48 | 47 | — | 47 | 46 | 47 | 30 | + | 449 | 450 | 446 | + | 447 | 448 | 449 |

# HELSINKI 5.

***634.*** *21.XI. 11h 56m—12h 52m. $t_1$=+1°0, $t_2$=+1°0. N: —15.38 mm, S: —0.48 mm.*

| N:o | NS | −H | +K | | SN | +H | −K | | N:o | NS | −K | +H | | SN | +K | −H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 207 | 207 | 204 | + | 206 | 206 | 209 | 16 | − | 16 | 18 | 16 | − | 16 | 17 | 16 |
| 2 | − | 116 | 115 | 117 | − | 116 | 116 | 116 | 17 | − | 162 | 163 | 164 | − | 163 | 164 | 164 |
| 3 | + | 184 | 186 | 184 | + | 185 | 187 | 186 | 18 | − | 193 | 194 | 193 | − | 193 | 195 | 195 |
| 4 | + | 106 | 103 | 106 | + | 106 | 106 | 106 | 19 | + | 388 | 389 | 388 | + | 387 | 386 | 389 |
| 5 | − | 65 | 65 | 66 | − | 64 | 62 | 64 | 20 | + | 60 | 60 | 60 | + | 60 | 59 | 60 |
| 6 | + | 57 | 57 | 58 | + | 59 | 58 | 58 | 21 | − | 317 | 317 | 318 | − | 318 | 317 | 318 |
| 7 | + | 16 | 17 | 16 | + | 18 | 17 | 17 | 22 | + | 208 | 208 | 208 | + | 208 | 208 | 208 |
| 8 | − | 26 | 26 | 26 | − | 27 | 26 | 26 | 23 | + | 185 | 185 | 184 | + | 185 | 185 | 186 |
| 9 | + | 91 | 91 | 92 | + | 91 | 92 | 93 | 24 | − | 212 | 210 | 210 | − | 212 | 211 | 210 |
| 10 | − | 106 | 106 | 105 | − | 105 | 106 | 106 | 25 | + | 136 | 138 | 138 | + | 137 | 138 | 138 |
| 11 | + | 13 | 14 | 13 | + | 13 | 14 | 13 | 26 | + | 101 | 101 | 103 | + | 100 | 102 | 100 |
| 12 | − | 152 | 152 | 152 | − | 150 | 149 | 151 | 27 | + | 62 | 62 | 63 | + | 61 | 61 | 62 |
| 13 | − | 174 | 173 | 175 | − | 173 | 174 | 174 | 28 | − | 50 | 49 | 49 | − | 49 | 49 | 50 |
| 14 | − | 21 | 22 | 21 | − | 21 | 21 | 21 | 29 | − | 74 | 75 | 76 | − | 75 | 74 | 76 |
| 15 | − | 50 | 49 | 50 | − | 50 | 50 | 50 | 30 | + | 445 | 443 | 444 | + | 445 | 443 | 443 |

***635.*** *21.XI. 12h 58m—13h 51m. $t_1$=+1°1, $t_2$=+1°1.*

| N:o | NS | −K | +H | | SN | +K | −H | | N:o | NS | −H | +K | | SN | +H | −K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 198 | 199 | 198 | + | 198 | 197 | 198 | 16 | − | 25 | 24 | 23 | − | 24 | 23 | 23 |
| 2 | − | 124 | 126 | 125 | − | 123 | 125 | 124 | 17 | − | 172 | 171 | 174 | − | 171 | 172 | 171 |
| 3 | + | 178 | 177 | 178 | + | 178 | 178 | 178 | 18 | − | 203 | 202 | 202 | − | 203 | 202 | 201 |
| 4 | + | 97 | 96 | 97 | + | 96 | 96 | 95 | 19 | + | 380 | 379 | 381 | + | 381 | 379 | 381 |
| 5 | − | 73 | 73 | 72 | − | 74 | 73 | 73 | 20 | + | 53 | 53 | 53 | + | 53 | 52 | 52 |
| 6 | + | 50 | 51 | 51 | + | 49 | 50 | 50 | 21 | − | 325 | 326 | 325 | − | 325 | 324 | 326 |
| 7 | + | 8 | 8 | 8 | + | 9 | 9 | 9 | 22 | + | 201 | 200 | 199 | + | 201 | 202 | 202 |
| 8 | − | 33 | 35 | 35 | − | 35 | 34 | 33 | 23 | + | 176 | 176 | 177 | + | 176 | 175 | 178 |
| 9 | + | 85 | 84 | 84 | + | 84 | 84 | 85 | 24 | − | 220 | 219 | 220 | − | 217 | 219 | 219 |
| 10 | − | 113 | 112 | 115 | − | 114 | 115 | 115 | 25 | + | 131 | 130 | 129 | + | 130 | 130 | 132 |
| 11 | + | 6 | 5 | 5 | + | 7 | 5 | 5 | 26 | + | 92 | 92 | 94 | + | 95 | 93 | 94 |
| 12 | − | 158 | 160 | 160 | − | 160 | 160 | 160 | 27 | + | 54 | 53 | 53 | + | 54 | 52 | 54 |
| 13 | − | 182 | 182 | 182 | − | 182 | 182 | 181 | 28 | − | 59 | 57 | 59 | − | 56 | 55 | 57 |
| 14 | − | 29 | 29 | 30 | − | 29 | 30 | 30 | 29 | − | 82 | 85 | 82 | − | 82 | 81 | 82 |
| 15 | − | 56 | 56 | 57 | − | 58 | 57 | 59 | 30 | + | 435 | 434 | 435 | + | 436 | 436 | 436 |

***636.*** *21.XI. 13h 59m—15h 8m. $t_1$=+1°1, $t_2$=+1°3. N: —15.50 mm, S: —0.52 mm.*

| N:o | NS | +K | −H | | SN | −K | +H | | N:o | NS | +H | −K | | SN | −H | +K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 201 | 201 | 202 | + | 201 | 202 | 202 | 16 | − | 21 | 22 | 21 | − | 22 | 23 | 22 |
| 2 | − | 122 | 121 | 121 | − | 122 | 122 | 121 | 17 | − | 169 | 167 | 167 | − | 170 | 170 | 171 |
| 3 | + | 182 | 180 | 180 | + | 180 | 181 | 180 | 18 | − | 199 | 199 | 199 | − | 199 | 198 | 201 |
| 4 | + | 100 | 99 | 100 | + | 99 | 97 | 101 | 19 | + | 383 | 383 | 386 | + | 384 | 383 | 382 |
| 5 | − | 69 | 70 | 70 | − | 70 | 69 | 70 | 20 | + | 55 | 56 | 56 | + | 53 | 53 | 54 |
| 6 | + | 51 | 52 | 51 | + | 52 | 52 | 52 | 21 | − | 322 | 324 | 325 | − | 323 | 324 | 324 |
| 7 | + | 11 | 11 | 11 | + | 12 | 11 | 12 | 22 | + | 204 | 202 | 204 | + | 201 | 205 | 202 |
| 8 | − | 30 | 31 | 32 | − | 47 | 47 | 46 | 23 | + | 178 | 179 | 180 | + | 179 | 178 | 180 |
| 9 | + | 88 | 87 | 86 | + | 100 | 101 | 101 | 24 | − | 215 | 215 | 215 | − | 216 | 215 | 217 |
| 10 | − | 112 | 111 | 110 | − | 111 | 112 | 111 | 25 | + | 133 | 132 | 132 | + | 131 | 132 | 133 |
| 11 | + | 8 | 9 | 10 | + | 10 | 7 | 8 | 26 | + | 97 | 95 | 96 | + | 95 | 95 | 97 |
| 12 | − | 156 | 158 | 159 | − | 156 | 156 | 158 | 27 | + | 56 | 56 | 57 | + | 54 | 57 | 56 |
| 13 | − | 179 | 179 | 179 | − | 178 | 179 | 179 | 28 | − | 53 | 53 | 55 | − | 55 | 55 | 56 |
| 14 | − | 28 | 28 | 28 | − | 26 | 26 | 26 | 29 | − | 80 | 80 | 79 | − | 80 | 79 | 80 |
| 15 | − | 55 | 57 | 56 | − | 56 | 54 | 56 | 30 | + | 437 | 438 | 439 | + | 439 | 438 | 437 |

## HELSINKI 5.

***637.*** *22.XI. $10^h\,19^m$—$11^h\,24^m$. $t_1=+5°0$, $t_2=+5°1$. N: —15.58 mm, S: —1.28 mm.*

| N:o | NS +H | | —K | SN —H | | +K | N:o | NS +K | | —H | SN —K | | +H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 203 | 204 | 203 | + 202 | 202 | 202 | 16 | — 27 | 27 | 27 | — 28 | 27 | 26 |
| 2 | — 148 | 148 | 146 | — 146 | 149 | 148 | 17 | — 164 | 163 | 162 | — 163 | 164 | 164 |
| 3 | + 210 | 211 | 212 | + 211 | 210 | 211 | 18 | — 197 | 199 | 198 | — 197 | 198 | 198 |
| 4 | + 93 | 92 | 93 | + 92 | 92 | 92 | 19 | + 382 | 381 | 383 | + 383 | 384 | 383 |
| 5 | — 67 | 66 | 64 | — 65 | 65 | 67 | 20 | + 53 | 52 | 54 | + 52 | 53 | 53 |
| 6 | + 50 | 51 | 51 | + 51 | 50 | 50 | 21 | — 314 | 314 | 313 | — 313 | 311 | 312 |
| 7 | + 25 | 22 | 26 | + 26 | 25 | 25 | 22 | + 203 | 201 | 201 | + 201 | 202 | 202 |
| 8 | — 49 | 49 | 48 | — 48 | 48 | 49 | 23 | + 187 | 189 | 188 | + 190 | 187 | 189 |
| 9 | + 70 | 70 | 70 | + 67 | 69 | 70 | 24 | — 225 | 226 | 225 | — 224 | 224 | 224 |
| 10 | — 80 | 79 | 78 | — 81 | 82 | 80 | 25 | + 132 | 133 | 132 | + 132 | 132 | 134 |
| 11 | + 10 | 10 | 10 | + 10 | 11 | 12 | 26 | + 93 | 95 | 97 | + 96 | 95 | 96 |
| 12 | — 126 | 127 | 126 | — 125 | 127 | 127 | 27 | + 63 | 61 | 63 | + 63 | 62 | 62 |
| 13 | — 212 | 211 | 210 | — 212 | 213 | 213 | 28 | — 53 | 52 | 55 | — 53 | 54 | 53 |
| 14 | — 23 | 25 | 25 | — 23 | 25 | 23 | 29 | — 80 | 81 | 81 | — 79 | 80 | 78 |
| 15 | — 53 | 53 | 51 | — 53 | 55 | 54 | 30 | + 448 | 449 | 448 | + 448 | 448 | 448 |

***637.*** *22.XI. $11^h\,27^m$—$12^h\,29^m$. $t_1=+5°1$, $t_2=+5°2$.*

| N:o | NS —K | | +H | SN +K | | —H | N:o | NS —H | | +K | SN +H | | —K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 205 | 205 | 206 | + 202 | 200 | 202 | 16 | — 24 | 26 | 25 | — 25 | 24 | 26 |
| 2 | — 144 | 147 | 148 | — 149 | 149 | 149 | 17 | — 163 | 163 | 164 | — 163 | 163 | 164 |
| 3 | + 211 | 213 | 213 | + 212 | 211 | 212 | 18 | — 198 | 199 | 197 | — 197 | 198 | 197 |
| 4 | + 94 | 93 | 93 | + 91 | 92 | 93 | 19 | + 384 | 385 | 384 | + 385 | 384 | 384 |
| 5 | — 67 | 65 | 66 | — 66 | 65 | 67 | 20 | + 53 | 53 | 54 | + 56 | 54 | 54 |
| 6 | + 51 | 51 | 51 | + 50 | 50 | 51 | 21 | — 312 | 311 | 312 | — 314 | 314 | 312 |
| 7 | + 26 | 25 | 25 | + 24 | 25 | 24 | 22 | + 201 | 202 | 202 | + 203 | 204 | 202 |
| 8 | — 48 | 49 | 49 | — 50 | 49 | 50 | 23 | + 189 | 189 | 189 | + 192 | 190 | 190 |
| 9 | + 71 | 71 | 70 | + 70 | 70 | 69 | 24 | — 226 | 226 | 225 | — 223 | 221 | 222 |
| 10 | — 79 | 80 | 81 | — 82 | 81 | 81 | 25 | + 132 | 133 | 130 | + 134 | 132 | 133 |
| 11 | + 10 | 12 | 10 | + 11 | 12 | 10 | 26 | + 96 | 95 | 94 | + 97 | 96 | 97 |
| 12 | — 125 | 124 | 126 | — 126 | 126 | 125 | 27 | + 61 | 61 | 61 | + 65 | 63 | 62 |
| 13 | — 210 | 212 | 212 | — 214 | 212 | 213 | 28 | — 55 | 53 | 56 | — 53 | 54 | 53 |
| 14 | — 24 | 23 | 23 | — 24 | 23 | 23 | 29 | — 78 | 79 | 80 | — 80 | 80 | 79 |
| 15 | — 53 | 52 | 53 | — 53 | 54 | 54 | 30 | + 448 | 447 | 448 | + 450 | 448 | 449 |

***636.*** *22.XI. $12^h\,36^m$—$13^h\,39^m$. $t_1=+5°2$, $t_2=+5°4$. N: —15.50 mm, S: —1.35 mm.*

| N:o | NS —H | | +K | SN +H | | —K | N:o | NS —K | | +H | SN +K | | —H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 201 | 201 | 200 | + 203 | 203 | 204 | 16 | — 26 | 25 | 27 | — 28 | 28 | 27 |
| 2 | — 150 | 151 | 150 | — 148 | 150 | 148 | 17 | — 166 | 164 | 164 | — 164 | 165 | 166 |
| 3 | + 210 | 211 | 210 | + 212 | 211 | 212 | 18 | — 199 | 199 | 201 | — 200 | 200 | 200 |
| 4 | + 90 | 93 | 91 | + 93 | 92 | 91 | 19 | + 382 | 383 | 382 | + 382 | 382 | 382 |
| 5 | — 66 | 67 | 68 | — 68 | 65 | 65 | 20 | + 54 | 52 | 52 | + 52 | 52 | 51 |
| 6 | + 50 | 51 | 48 | + 50 | 51 | 51 | 21 | — 315 | 313 | 313 | — 313 | 314 | 314 |
| 7 | + 23 | 23 | 21 | + 24 | 27 | 24 | 22 | + 200 | 200 | 201 | + 199 | 200 | 201 |
| 8 | — 50 | 50 | 51 | — 50 | 50 | 51 | 23 | + 188 | 187 | 188 | + 186 | 186 | 186 |
| 9 | + 68 | 67 | 68 | + 70 | 71 | 70 | 24 | — 226 | 225 | 223 | — 224 | 226 | 226 |
| 10 | — 81 | 82 | 82 | — 81 | 80 | 82 | 25 | + 131 | 130 | 131 | + 132 | 130 | 131 |
| 11 | + 10 | 8 | 8 | + 10 | 11 | 10 | 26 | + 94 | 94 | 95 | + 94 | 95 | 94 |
| 12 | — 129 | 127 | 128 | — 126 | 127 | 127 | 27 | + 60 | 60 | 61 | + 61 | 61 | 60 |
| 13 | — 211 | 215 | 215 | — 211 | 214 | 213 | 28 | — 55 | 57 | 57 | — 56 | 57 | 57 |
| 14 | — 26 | 26 | 26 | — 25 | 23 | 23 | 29 | — 81 | 81 | 81 | — 82 | 80 | 80 |
| 15 | — 55 | 55 | 54 | — 53 | 55 | 55 | 30 | + 447 | 448 | 446 | + 445 | 446 | 447 |

# HELSINKI 5.

**635.** *23.XI. 11h 25m—12h 18m. $t_1$=+6°5, $t_2$=+5°7. N: —15.50 mm, S: —0.52 mm.*

| N:o | NS | +H | —K | | SN | —H | +K | | N:o | NS | +K | —H | | SN | —K | +H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 208 | 209 | 208 | + | 206 | 208 | 207 | 16 | — | 39 | 38 | 38 | — | 38 | 37 | 37 |
| 2 | — | 137 | 136 | 136 | — | 162 | 163 | 162 | 17 | — | 161 | 162 | 161 | — | 160 | 161 | 160 |
| 3 | + | 183 | 183 | 181 | + | 205 | 208 | 208 | 18 | — | 200 | 200 | 201 | — | 199 | 201 | 200 |
| 4 | + | 94 | 94 | 94 | + | 94 | 93 | 93 | 19 | + | 376 | 375 | 374 | + | 377 | 376 | 376 |
| 5 | — | 69 | 69 | 70 | — | 71 | 70 | 69 | 20 | + | 45 | 45 | 44 | + | 45 | 45 | 45 |
| 6 | + | 44 | 46 | 47 | + | 46 | 45 | 44 | 21 | — | 312 | 311 | 312 | — | 312 | 311 | 311 |
| 7 | + | 12 | 14 | 13 | + | 13 | 12 | 13 | 22 | + | 197 | 198 | 198 | + | 197 | 200 | 199 |
| 8 | — | 45 | 44 | 43 | — | 44 | 44 | 43 | 23 | + | 185 | 185 | 185 | + | 187 | 187 | 187 |
| 9 | + | 70 | 71 | 72 | + | 70 | 69 | 68 | 24 | — | 235 | 235 | 234 | — | 233 | 234 | 233 |
| 10 | — | 88 | 88 | 89 | — | 89 | 86 | 89 | 25 | + | 133 | 134 | 134 | + | 135 | 135 | 135 |
| 11 | + | 1 | 2 | 2 | + | 2 | 2 | 1 | 26 | + | 88 | 85 | 84 | + | 85 | 85 | 86 |
| 12 | — | 127 | 129 | 127 | — | 129 | 131 | 130 | 27 | + | 63 | 61 | 62 | + | 63 | 63 | 64 |
| 13 | — | 213 | 213 | 211 | — | 213 | 214 | 213 | 28 | — | 61 | 60 | 60 | — | 59 | 60 | 59 |
| 14 | — | 28 | 29 | 29 | — | 32 | 31 | 30 | 29 | — | 83 | 84 | 83 | — | 82 | 82 | 81 |
| 15 | — | 57 | 57 | 56 | — | 59 | 58 | 58 | 30 | + | 436 | 435 | 437 | + | 438 | 437 | 437 |

**634.** *23.XI. 12h 25m—13h 22m. $t_1$=+5°7, $t_2$=+5°6. N: —15.52 mm, S: —0.50 mm.*

| N:o | NS | +K | —H | | SN | —K | +H | | N:o | NS | +H | —K | | SN | —H | +K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 214 | 215 | 213 | + | 216 | 216 | 216 | 16 | — | 29 | 29 | 29 | — | 31 | 31 | 31 |
| 2 | — | 155 | 155 | 155 | — | 153 | 155 | 154 | 17 | — | 153 | 151 | 152 | — | 154 | 154 | 152 |
| 3 | + | 214 | 215 | 214 | + | 215 | 216 | 214 | 18 | — | 192 | 192 | 192 | — | 193 | 192 | 192 |
| 4 | + | 100 | 101 | 100 | + | 102 | 103 | 103 | 19 | + | 383 | 385 | 384 | + | 384 | 384 | 383 |
| 5 | — | 64 | 64 | 63 | — | 61 | 61 | 60 | 20 | + | 55 | 54 | 53 | + | 52 | 53 | 55 |
| 6 | + | 53 | 52 | 53 | + | 53 | 52 | 53 | 21 | — | 303 | 303 | 303 | — | 303 | 303 | 303 |
| 7 | + | 20 | 21 | 21 | + | 21 | 23 | 22 | 22 | + | 206 | 207 | 207 | + | 205 | 205 | 206 |
| 8 | — | 35 | 36 | 35 | — | 36 | 36 | 35 | 23 | + | 195 | 196 | 194 | + | 196 | 194 | 194 |
| 9 | + | 78 | 78 | 78 | + | 79 | 79 | 79 | 24 | — | 226 | 225 | 225 | — | 225 | 226 | 226 |
| 10 | — | 80 | 80 | 79 | — | 80 | 79 | 78 | 25 | + | 144 | 144 | 144 | + | 142 | 143 | 143 |
| 11 | + | 10 | 11 | 10 | + | 10 | 10 | 11 | 26 | + | 94 | 93 | 93 | + | 93 | 92 | 93 |
| 12 | — | 120 | 122 | 122 | — | 120 | 119 | 119 | 27 | + | 72 | 72 | 73 | + | 73 | 72 | 71 |
| 13 | — | 205 | 206 | 206 | — | 205 | 204 | 206 | 28 | — | 52 | 51 | 50 | — | 53 | 52 | 51 |
| 14 | — | 24 | 24 | 22 | — | 21 | 22 | 22 | 29 | — | 75 | 73 | 75 | — | 73 | 74 | 74 |
| 15 | — | 50 | 50 | 50 | — | 49 | 49 | 49 | 30 | + | 446 | 446 | 446 | + | 446 | 444 | 446 |

# POTSDAM 1.

**634.** *20.III. 10h 0m—13h 24m. $t_1 = +5°0$, $t_2 = +10°8$.*

| N:o | EW +W—Lo | | | | WE —Lo+W | | | | EW +W—Li | | | | WE —Li+W | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 80 | 80 | 77 | + | 79 | 79 | 80 | + | 80 | 80 | 80 | + | 80 | 80 | 80 |
| 1 | + | 80 | 80 | 77 | + | 78 | 80 | 79 | + | 77 | 75 | 77 | + | 80 | 76 | 77 |
| 2 | — | 65 | 66 | 65 | — | 66 | 65 | 66 | — | 67 | 65 | 66 | — | 66 | 66 | 67 |
| 3 | + | 45 | 45 | 45 | + | 43 | 44 | 45 | + | 43 | 42 | 44 | + | 43 | 44 | 44 |
| 4 | — | 20 | 20 | 19 | — | 20 | 21 | 22 | — | 21 | 19 | 20 | — | 21 | 22 | 19 |
| 5 | + | 63 | 63 | 63 | + | 64 | 67 | 65 | + | 65 | 67 | 66 | + | 66 | 65 | 64 |
| 6 | + | 51 | 52 | 54 | + | 50 | 51 | 51 | + | 51 | 49 | 52 | + | 51 | 53 | 50 |
| 7 | — | 28 | 32 | 30 | — | 30 | 29 | 31 | — | 29 | 30 | 30 | — | 29 | 29 | 29 |
| 8 | + | 31 | 34 | 34 | + | 34 | 33 | 34 | + | 37 | 33 | 33 | + | 34 | 34 | 32 |
| 9 | + | 26 | 26 | 28 | + | 28 | 26 | 25 | + | 27 | 27 | 28 | + | 27 | 26 | 26 |
| 10 | + | 66 | 64 | 64 | + | 52 | 49 | 50 | + | 51 | 51 | 53 | + | 51 | 51 | 52 |
| 10 | + | 38 | 37 | 37 | + | 50 | 50 | 50 | + | 51 | 51 | 52 | + | 51 | 51 | 53 |

| N:o | EW +Sch—Li | | | | WE —Li+Sch | | | | EW +Lo—Sch | | | | WE —Sch+Lo | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 80 | 76 | 77 | + | 77 | 76 | 76 | + | 79 | 80 | 80 | + | 78 | 77 | 77 |
| 1 | + | 80 | 80 | 80 | + | 79 | 80 | 80 | + | 77 | 76 | 76 | + | 77 | 79 | 78 |
| 2 | — | 65 | 66 | 66 | — | 65 | 66 | 65 | — | 63 | 63 | 65 | — | 65 | 64 | 65 |
| 3 | + | 43 | 44 | 43 | + | 44 | 44 | 43 | + | 44 | 44 | 44 | + | 44 | 45 | 45 |
| 4 | — | 20 | 20 | 21 | — | 19 | 21 | 18 | — | 19 | 19 | 18 | — | 20 | 19 | 19 |
| 5 | + | 63 | 64 | 63 | + | 63 | 64 | 63 | + | 63 | 64 | 65 | + | 66 | 65 | 64 |
| 6 | + | 52 | 52 | 52 | + | 52 | 51 | 51 | + | 52 | 51 | 50 | + | 50 | 51 | 51 |
| 7 | — | 29 | 30 | 28 | — | 30 | 28 | 29 | — | 27 | 30 | 31 | — | 29 | 27 | 28 |
| 8 | + | 33 | 33 | 34 | + | 34 | 33 | 31 | + | 33 | 33 | 33 | + | 34 | 32 | 32 |
| 9 | + | 28 | 29 | 27 | + | 29 | 28 | 27 | + | 27 | 27 | 26 | + | 27 | 27 | 27 |
| 10 | + | 53 | 52 | 52 | + | 52 | 51 | 52 | + | 50 | 50 | 50 | + | 53 | 53 | 53 |
| 10 | + | 52 | 51 | 52 | + | 53 | 52 | 52 | + | 53 | 53 | 53 | + | 50 | 50 | 50 |

| N:o | EW +Sch—W | | | | WE —W+Sch | | | | EW +Li—Lo | | | | WE —Lo+Li | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 77 | 79 | 78 | + | 79 | 77 | 78 | + | 77 | 78 | 78 | + | 78 | 77 | 78 |
| 1 | + | 78 | 77 | 77 | + | 77 | 78 | 78 | + | 79 | 77 | 78 | + | 78 | 77 | 77 |
| 2 | — | 65 | 66 | 67 | — | 65 | 65 | 65 | — | 64 | 65 | 67 | — | 65 | 65 | 66 |
| 3 | + | 44 | 43 | 43 | + | 43 | 44 | 43 | + | 44 | 43 | 43 | + | 43 | 42 | 43 |
| 4 | — | 20 | 21 | 20 | — | 20 | 20 | 20 | — | 21 | 19 | 19 | — | 19 | 21 | 20 |
| 5 | + | 63 | 63 | 63 | + | 64 | 63 | 62 | + | 64 | 63 | 63 | + | 64 | 64 | 64 |
| 6 | + | 51 | 51 | 52 | + | 50 | 50 | 53 | + | 52 | 53 | 52 | + | 50 | 50 | 50 |
| 7 | — | 29 | 30 | 30 | — | 29 | 28 | 29 | — | 29 | 29 | 29 | — | 29 | 26 | 27 |
| 8 | + | 32 | 31 | 34 | + | 34 | 32 | 32 | + | 33 | 33 | 34 | + | 30 | 29 | 31 |
| 9 | + | 28 | 28 | 29 | + | 29 | 27 | 28 | + | 27 | 27 | 27 | + | 29 | 28 | 28 |
| 10 | + | 51 | 52 | 53 | + | 51 | 50 | 49 | + | 51 | 49 | 49 | + | 53 | 53 | 53 |
| 10 | + | 51 | 50 | 49 | + | 51 | 52 | 53 | + | 53 | 53 | 53 | + | 51 | 49 | 49 |

# POTSDAM 1.

***635.*** *20.III. $14^h\,20^m$—$17^h\,35^m$. $t_1 = +11°3$, $t_2 = +8°5$.*

| N:o | EW +Lo—W | | | | EW —W+Lo | | | | EW +Li—W | | | | WE —W+Li | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 69 | 70 | 69 | + | 69 | 69 | 69 | + | 67 | 68 | 67 | + | 69 | 69 | 68 |
| 1 | + | 68 | 70 | 70 | + | 67 | 68 | 67 | + | 69 | 69 | 69 | + | 68 | 70 | 69 |
| 2 | − | 73 | 71 | 72 | − | 74 | 72 | 73 | − | 72 | 73 | 74 | − | 73 | 72 | 73 |
| 3 | + | 34 | 35 | 34 | + | 35 | 36 | 34 | + | 34 | 34 | 35 | + | 36 | 36 | 36 |
| 4 | − | 29 | 30 | 27 | − | 29 | 30 | 29 | − | 28 | 29 | 27 | − | 28 | 29 | 29 |
| 5 | + | 55 | 56 | 54 | + | 58 | 56 | 54 | + | 57 | 55 | 56 | + | 56 | 58 | 56 |
| 6 | + | 43 | 42 | 42 | + | 42 | 41 | 42 | + | 43 | 42 | 43 | + | 41 | 43 | 43 |
| 7 | − | 37 | 38 | 37 | − | 36 | 37 | 37 | − | 36 | 36 | 37 | − | 36 | 38 | 37 |
| 8 | + | 22 | 23 | 24 | + | 23 | 22 | 22 | + | 24 | 23 | 22 | + | 23 | 22 | 21 |
| 9 | + | 20 | 21 | 20 | + | 21 | 20 | 23 | + | 22 | 20 | 21 | + | 22 | 21 | 22 |
| 10 | + | 42 | 44 | 44 | + | 40 | 39 | 40 | + | 41 | 41 | 40 | + | 43 | 43 | 42 |
| 10 | + | 40 | 39 | 40 | + | 42 | 44 | 44 | + | 43 | 43 | 42 | + | 41 | 41 | 40 |

| N:o | EW +Li—Sch | | | | WE —Sch+Li | | | | EW +Sch—Lo | | | | WE —Lo+Sch | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 68 | 70 | 69 | + | 68 | 67 | 67 | + | 71 | 69 | 70 | + | 67 | 68 | 68 |
| 1 | + | 69 | 69 | 68 | + | 71 | 69 | 70 | + | 68 | 67 | 67 | + | 69 | 68 | 68 |
| 2 | − | 72 | 72 | 73 | − | 72 | 72 | 72 | − | 74 | 74 | 74 | − | 73 | 73 | 70 |
| 3 | + | 37 | 36 | 36 | + | 36 | 37 | 36 | + | 35 | 35 | 35 | + | 36 | 37 | 34 |
| 4 | − | 28 | 28 | 28 | − | 30 | 31 | 29 | − | 30 | 30 | 30 | − | 30 | 31 | 31 |
| 5 | + | 55 | 56 | 55 | + | 56 | 56 | 56 | + | 57 | 57 | 58 | + | 56 | 57 | 58 |
| 6 | + | 42 | 42 | 42 | + | 42 | 41 | 43 | + | 44 | 42 | 44 | + | 42 | 42 | 42 |
| 7 | − | 37 | 38 | 37 | − | 38 | 37 | 38 | − | 38 | 38 | 38 | − | 36 | 36 | 38 |
| 8 | + | 21 | 21 | 21 | + | 20 | 22 | 22 | + | 23 | 23 | 23 | + | 21 | 24 | 24 |
| 9 | + | 21 | 22 | 19 | + | 18 | 21 | 19 | + | 20 | 20 | 20 | + | 22 | 21 | 21 |
| 10 | + | 42 | 43 | 42 | + | 41 | 40 | 41 | + | 39 | 41 | 41 | + | 44 | 43 | 44 |
| 10 | + | 41 | 40 | 41 | + | 42 | 43 | 42 | + | 44 | 43 | 44 | + | 39 | 41 | 41 |

| N:o | EW +Sch—W | | | | WE —W+Sch | | | | EW +Lo—Li | | | | WE —Li+Lo | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 69 | 68 | 68 | + | 68 | 69 | 68 | + | 67 | 67 | 68 | + | 68 | 68 | 68 |
| 1 | + | 67 | 68 | 68 | + | 67 | 67 | 68 | + | 68 | 69 | 68 | + | 68 | 69 | 67 |
| 2 | − | 74 | 73 | — | − | 74 | 73 | 73 | − | 72 | 72 | 73 | − | 73 | 73 | 73 |
| 3 | + | 34 | 33 | 35 | + | 34 | 34 | 35 | + | 35 | 36 | 36 | + | 35 | 36 | 34 |
| 4 | − | 33 | 33 | 31 | − | 30 | 29 | 31 | − | 31 | 28 | 30 | − | 30 | 29 | 30 |
| 5 | + | 59 | 57 | 57 | + | 57 | 58 | 57 | + | 56 | 57 | 56 | + | 56 | 57 | 57 |
| 6 | + | 44 | 42 | 43 | + | 42 | 43 | 43 | + | 41 | 42 | 41 | + | 42 | 42 | 42 |
| 7 | − | 33 | 37 | 35 | − | 37 | 37 | 38 | − | 37 | 37 | 37 | − | 37 | 38 | 37 |
| 8 | + | 24 | 23 | 23 | + | 21 | 22 | 24 | + | 23 | 23 | 23 | + | 22 | 23 | 23 |
| 9 | + | 20 | 21 | 21 | + | 21 | 20 | 20 | + | 19 | 19 | 20 | + | 20 | 20 | 19 |
| 10 | + | 44 | 43 | 42 | + | 40 | 40 | 39 | + | 38 | 38 | 40 | + | 42 | 44 | 44 |
| 10 | + | 40 | 40 | 39 | + | 44 | 43 | 42 | + | 42 | 44 | 44 | + | 38 | 38 | 40 |

# POTSDAM 1.

**636.** *21.III. 9h 40m—12h 44m. $t_1 = +0°0$, $t_2 = +2°0$.*

| N:o | EW —W+Lo | | | WE +Lo—W | | | EW —W+Li | | | WE +Li—W | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 32 | 33 | 33 | + 31 | 32 | 32 | + 33 | 33 | 32 | + 34 | 34 | 32 |
| 1 | + 32 | 32 | 30 | + 33 | 33 | 32 | + 31 | 32 | 32 | + 33 | 34 | 34 |
| 2 | — 8 | 9 | 9 | — 10 | 9 | 9 | — 10 | 9 | 9 | — 9 | 8 | 9 |
| 3 | + 79 | 77 | 78 | + 65 | 67 | 69 | + 67 | 66 | 67 | + 65 | 66 | 67 |
| 4 | — 82 | 81 | 80 | — 70 | 68 | 70 | — 66 | 69 | 69 | — 68 | 69 | 69 |
| 5 | + 49 | 49 | 49 | + 49 | 51 | 50 | + 48 | 50 | 49 | + 50 | 49 | 49 |
| 6 | + 43 | 45 | 42 | + 45 | 45 | 43 | + 43 | 43 | 43 | + 44 | 43 | 44 |
| 7 | — 23 | 22 | 22 | — 22 | 21 | 21 | — 20 | 22 | 23 | — 22 | 23 | 22 |
| 8 | — 10 | 11 | 11 | — 12 | 11 | 10 | — 10 | 12 | 13 | — 11 | 12 | 11 |
| 9 | + 61 | 63 | 62 | + 62 | 61 | 61 | + 60 | 61 | 61 | + 61 | 60 | 61 |
| 10 | + 36 | 34 | 34 | + 36 | 35 | 33 | + 32 | 34 | 34 | + 34 | 34 | 32 |
| 10 | + 36 | 35 | 33 | + 36 | 34 | 34 | + 34 | 34 | 32 | + 32 | 34 | 34 |

| N:o | EW —Sch+Li | | | WE +Li—Sch | | | EW —Lo+Sch | | | WE +Sch—Lo | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 33 | 34 | 34 | + 33 | 34 | 34 | + 34 | 34 | 33 | + 32 | 32 | 33 |
| 1 | + 34 | 34 | 32 | + 34 | 34 | 33 | + 33 | 34 | 34 | + 33 | 34 | 33 |
| 2 | — 9 | 8 | 9 | — 9 | 8 | 8 | — 7 | 8 | 9 | — 10 | 9 | 10 |
| 3 | + 67 | 65 | 67 | + 65 | 67 | 67 | + 66 | 66 | 66 | + 67 | 65 | 66 |
| 4 | — 69 | 69 | 68 | — 69 | 68 | 69 | — 68 | 69 | 68 | — 69 | 69 | 69 |
| 5 | + 50 | 49 | 48 | + 49 | 50 | 49 | + 48 | 50 | 48 | + 49 | 50 | 50 |
| 6 | + 45 | 43 | 43 | + 43 | 43 | 43 | + 45 | 44 | 44 | + 43 | 43 | 41 |
| 7 | — 22 | 22 | 21 | — 23 | 22 | 23 | — 23 | 22 | 22 | — 23 | 22 | 23 |
| 8 | — 12 | 12 | 11 | — 10 | 12 | 11 | — 10 | 11 | 11 | — 11 | 11 | 11 |
| 9 | + 62 | 60 | 60 | + 61 | 61 | 62 | + 61 | 61 | 61 | + 61 | 61 | 61 |
| 10 | + 33 | 32 | 33 | + 33 | 34 | 34 | + 35 | 33 | 34 | + 32 | 32 | 33 |
| 10 | + 33 | 34 | 34 | + 33 | 32 | 33 | + 32 | 32 | 33 | + 35 | 33 | 34 |

| N:o | EW —Sch+W | | | EW +W—Sch | | | EW —Li+Lo | | | WE +Lo—Li | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + 33 | 34 | 33 | + 34 | 33 | 33 | + 33 | 34 | 34 | + 34 | 33 | 33 |
| 1 | + 32 | 32 | 33 | + 33 | 34 | 34 | + 34 | 33 | 33 | + 33 | 33 | 33 |
| 2 | — 9 | 9 | 9 | — 7 | 9 | 7 | — 9 | 8 | 8 | — 9 | 8 | 9 |
| 3 | + 68 | 67 | 65 | + 67 | 67 | 66 | + 66 | 67 | 65 | + 67 | 65 | 65 |
| 4 | — 68 | 68 | 67 | — 69 | 69 | 68 | — 68 | 68 | 68 | — 67 | 68 | 68 |
| 5 | + 49 | 49 | 49 | + 49 | 49 | 48 | + 49 | 49 | 49 | + 49 | 48 | 49 |
| 6 | + 43 | 46 | 46 | + 43 | 44 | 43 | + 45 | 43 | 43 | + 44 | 45 | 44 |
| 7 | — 23 | 21 | 24 | — 23 | 23 | 23 | — 23 | 22 | 22 | — 23 | 22 | 22 |
| 8 | — 11 | 11 | 12 | — 12 | 11 | 12 | — 12 | 12 | 12 | — 11 | 11 | 11 |
| 9 | + 62 | 62 | 61 | + 60 | 61 | 63 | + 61 | 61 | 61 | + 62 | 62 | 62 |
| 10 | + 31 | 32 | 32 | + 31 | 32 | 33 | + 33 | 33 | 33 | + 37 | 37 | 35 |
| 10 | + 31 | 32 | 33 | + 31 | 32 | 32 | + 37 | 37 | 35 | + 33 | 33 | 33 |

# POTSDAM 1.

**637.** *21.III. 13h 30m—16h 15m. $t_1$=+2°.1, $t_2$=+4°.3.*

| N:o | EW —Lo+W | | | | WE +W—Lo | | | | EW —Li+W | | | | WE +W—Li | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 35 | 36 | 35 | + | 33 | 34 | 33 | + | 33 | 34 | 32 | + | 32 | 34 | 33 |
| 1 | + | 33 | 33 | 33 | + | 33 | 34 | 32 | + | 33 | 34 | 33 | + | 33 | 31 | 35 |
| 2 | — | 8 | 8 | 8 | — | 7 | 7 | 9 | — | 10 | 8 | 9 | — | 8 | 9 | 9 |
| 3 | + | 66 | 66 | 66 | + | 65 | 66 | 66 | + | 65 | 66 | 66 | + | 66 | 65 | 67 |
| 4 | — | 68 | 68 | 70 | — | 70 | 70 | 69 | — | 69 | 68 | 69 | — | 68 | 69 | 71 |
| 5 | + | 49 | 50 | 51 | + | 48 | 48 | 49 | + | 49 | 49 | 49 | + | 48 | 48 | 49 |
| 6 | + | 43 | 43 | 45 | + | 44 | 46 | 44 | + | 43 | 45 | 46 | + | 43 | 44 | 42 |
| 7 | — | 22 | 25 | 22 | — | 21 | 22 | 23 | — | 21 | 22 | 22 | — | 22 | 21 | 23 |
| 8 | — | 11 | 11 | 11 | — | 12 | 12 | 11 | — | 13 | 11 | 12 | — | 11 | 11 | 10 |
| 9 | + | 61 | 62 | 61 | + | 61 | 63 | 61 | + | 62 | 62 | 61 | + | 62 | 62 | 61 |
| 10 | + | 36 | 35 | 35 | + | 29 | 30 | 30 | + | 30 | 30 | 32 | + | 39 | 37 | 39 |
| 10 | + | 29 | 30 | 30 | + | 36 | 35 | 35 | + | 39 | 37 | 39 | + | 30 | 30 | 32 |

| N:o | EW —Li+Sch | | | | WE +Sch—Li | | | | EW —Sch+Lo | | | | WE +Lo—Sch | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 33 | 31 | 35 | + | 35 | 35 | 35 | + | 33 | 33 | 33 | + | 32 | 32 | 30 |
| 1 | + | 32 | 34 | 33 | + | 33 | 33 | 33 | + | 35 | 35 | 35 | + | 34 | 33 | 34 |
| 2 | — | 8 | 9 | 9 | — | 9 | 8 | 8 | — | 7 | 8 | 7 | — | 8 | 7 | 9 |
| 3 | + | 67 | 66 | 65 | + | 67 | 67 | 67 | + | 66 | 66 | 66 | + | 66 | 66 | 67 |
| 4 | — | 69 | 68 | 70 | — | 68 | 69 | 69 | — | 67 | 69 | 69 | — | 67 | 69 | 69 |
| 5 | + | 49 | 48 | 49 | + | 49 | 49 | 49 | + | 50 | 47 | 50 | + | 49 | 49 | 49 |
| 6 | + | 44 | 43 | 44 | + | 44 | 44 | 45 | + | 44 | 43 | 45 | + | 44 | 43 | 45 |
| 7 | — | 22 | 22 | 22 | — | 22 | 22 | 23 | — | 20 | 21 | 21 | — | 21 | 23 | 21 |
| 8 | — | 10 | 12 | 12 | — | 11 | 11 | 12 | — | 11 | 12 | 12 | — | 10 | 11 | 11 |
| 9 | + | 62 | 61 | 61 | + | 63 | 60 | 61 | + | 61 | 60 | 59 | + | 61 | 62 | 61 |
| 10 | + | 39 | 39 | 39 | + | 28 | 28 | 28 | + | 28 | 28 | 28 | + | 41 | 41 | 41 |
| 10 | + | 28 | 28 | 28 | + | 39 | 39 | 39 | + | 41 | 41 | 41 | + | 28 | 28 | 28 |

| N:o | EW —W+Sch | | | | WE +Sch—W | | | | EW —Lo+Li | | | | WE +Li—Lo | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 34 | 33 | 34 | + | 36 | 35 | 35 | + | 30 | 33 | 33 | + | 32 | 33 | 31 |
| 1 | + | 32 | 32 | 30 | + | 30 | 33 | 33 | + | 36 | 35 | 35 | + | 34 | 34 | 35 |
| 2 | — | 10 | 9 | 8 | — | 7 | 5 | 8 | — | 9 | 8 | 9 | — | 7 | 7 | 8 |
| 3 | + | 64 | 66 | 66 | + | 66 | 67 | 67 | + | 65 | 67 | 66 | + | 64 | 64 | 64 |
| 4 | — | 68 | 68 | 70 | — | 68 | 69 | 68 | — | 68 | 68 | 67 | — | 68 | 68 | 69 |
| 5 | + | 48 | 49 | 49 | + | 47 | 49 | 49 | + | 49 | 50 | 48 | + | 50 | 49 | 50 |
| 6 | + | 44 | 45 | 44 | + | 44 | 44 | 44 | + | 44 | 44 | 41 | + | 43 | 43 | 44 |
| 7 | — | 22 | 22 | 23 | — | 21 | 21 | 21 | — | 22 | 19 | 22 | — | 21 | 22 | 21 |
| 8 | — | 11 | 12 | 11 | — | 11 | 10 | 10 | — | 12 | 11 | 11 | — | 11 | 11 | 10 |
| 9 | + | 60 | 60 | 61 | + | 60 | 61 | 61 | + | 61 | 62 | 61 | + | 62 | 62 | 62 |
| 10 | + | 34 | 35 | 35 | + | 33 | 33 | 34 | + | 35 | 34 | 34 | + | 35 | 34 | 35 |
| 10 | + | 33 | 33 | 34 | + | 34 | 35 | 35 | + | 35 | 34 | 35 | + | 35 | 34 | 34 |

## POTSDAM 2.

***634.*** *26.VIII. 14h 45m—15h 40m. $t_1$=+19°5, $t_2$=+19°4.*

| N:o | EW —J+P | | | | WE +J—P | | | | EW —B+S | | | | WE +B—S | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 41 | 42 | 43 | + | 41 | 41 | 41 | + | 42 | 41 | 40 | + | 41 | 40 | 41 |
| 1 | + | 41 | 39 | 40 | + | 40 | 39 | 38 | + | 39 | 39 | 38 | + | 40 | 39 | 39 |
| 2 | — | 19 | 18 | 17 | — | 18 | 18 | 18 | — | 17 | 18 | 19 | — | 18 | 19 | 18 |
| 3 | + | 19 | 20 | 20 | + | 21 | 22 | 20 | + | 19 | 21 | 20 | + | 19 | 21 | 20 |
| 4 | + | 8 | 5 | 8 | + | 4 | 6 | 7 | + | 5 | 5 | 4 | + | 4 | 4 | 5 |
| 5 | + | 71 | 71 | 70 | + | 70 | 69 | 71 | + | 72 | 71 | 71 | + | 71 | 69 | 71 |
| 6 | + | 22 | 25 | 22 | + | 21 | 23 | 21 | + | 23 | 22 | 22 | + | 21 | 22 | 21 |
| 7 | — | 9 | 10 | 10 | — | 9 | 11 | 9 | — | 8 | 9 | 9 | — | 9 | 9 | 10 |
| 8 | — | 9 | 9 | 7 | — | 9 | 10 | 9 | — | 8 | 9 | 9 | — | 9 | 9 | 10 |
| 9 | + | 42 | 44 | 43 | + | 44 | 43 | 44 | + | 44 | 43 | 44 | + | 44 | 43 | 44 |
| 10 | + | 52 | 53 | 52 | + | 52 | 53 | 52 | + | 52 | 52 | 51 | + | 53 | 52 | 52 |
| 10 | + | 54 | 56 | 57 | + | 56 | 58 | 57 | + | 55 | 56 | 55 | + | 57 | 56 | 55 |

***636.*** *26.VIII. 15h 45m—16h 40m. $t_1$=+19°4, $t_2$=+19°1.*

| N:o | EW —P+J | | | | WE +P—J | | | | EW —S+B | | | | WE +S—B | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 38 | 37 | 37 | + | 39 | 39 | 38 | + | 38 | 38 | 37 | + | 38 | 38 | 38 |
| 1 | + | 34 | 36 | 35 | + | 37 | 36 | 35 | + | 35 | 36 | 35 | + | 36 | 36 | 36 |
| 2 | — | 22 | 23 | 22 | — | 22 | 22 | 22 | — | 22 | 21 | 21 | — | 22 | 21 | 23 |
| 3 | + | 17 | 17 | 16 | + | 17 | 18 | 18 | + | 16 | 15 | 14 | + | 18 | 18 | 16 |
| 4 | + | 1 | 2 | 2 | + | 0 | 1 | 1 | + | 1 | 2 | 2 | + | 0 | 0 | 1 |
| 5 | + | 64 | 64 | 65 | + | 68 | 66 | 66 | + | 65 | 64 | 64 | + | 67 | 65 | 65 |
| 6 | + | 19 | 18 | 19 | + | 19 | 19 | 19 | + | 20 | 20 | 19 | + | 20 | 20 | 20 |
| 7 | — | 12 | 14 | 13 | — | 14 | 13 | 14 | — | 12 | 14 | 13 | — | 11 | 11 | 13 |
| 8 | — | 13 | 14 | 14 | — | 13 | 12 | 12 | — | 14 | 14 | 13 | — | 14 | 12 | 14 |
| 9 | + | 39 | 39 | 39 | + | 40 | 39 | 40 | + | 36 | 36 | 37 | + | 38 | 37 | 38 |
| 10 | + | 47 | 48 | 47 | + | 48 | 48 | 47 | + | 49 | 49 | 49 | + | 50 | 50 | 50 |
| 10 | + | 50 | 49 | 50 | + | 52 | 53 | 52 | + | 53 | 54 | 52 | + | 53 | 54 | 54 |

***673.*** *26.VIII. 16h 45m—17h 30m. $t_1$=+19°1, $t_2$=+18°5.*

| N:o | EW +P—J | | | | WE —P+J | | | | EW +S—B | | | | WE —S+B | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 44 | 44 | 45 | + | 46 | 44 | 45 | + | 44 | 45 | 45 | + | 46 | 43 | 44 |
| 1 | + | 48 | 47 | 46 | + | 48 | 47 | 46 | + | 47 | 47 | 46 | + | 47 | 47 | 47 |
| 2 | — | 11 | 12 | 14 | — | 12 | 13 | 13 | — | 12 | 12 | 12 | — | 14 | 14 | 13 |
| 3 | + | 23 | 24 | 24 | + | 24 | 23 | 25 | + | 25 | 27 | 25 | + | 26 | 25 | 25 |
| 4 | + | 10 | 10 | 9 | + | 9 | 9 | 9 | + | 10 | 9 | 10 | + | 9 | 9 | 9 |
| 5 | + | 75 | 75 | 74 | + | 72 | 74 | 73 | + | 74 | 75 | 74 | + | 74 | 74 | 74 |
| 6 | + | 29 | 26 | 26 | + | 27 | 28 | 28 | + | 29 | 30 | 29 | + | 28 | 28 | 28 |
| 7 | — | 5 | 5 | 6 | — | 3 | 6 | 4 | — | 4 | 3 | 4 | — | 5 | 5 | 4 |
| 8 | — | 3 | 5 | 6 | — | 4 | 4 | 5 | — | 6 | 6 | 4 | — | 3 | 4 | 4 |
| 9 | + | 44 | 45 | 45 | + | 43 | 44 | 46 | + | 48 | 48 | 47 | + | 46 | 46 | 46 |
| 10 | + | 58 | 57 | 57 | + | 57 | 58 | 56 | + | 58 | 56 | 57 | + | 56 | 58 | 58 |
| 10 | + | 62 | 62 | 61 | + | 61 | 61 | 61 | + | 62 | 62 | 61 | + | 62 | 63 | 62 |

# POTSDAM 2.

***675.*** *27.VIII. $8^h\,20^m$—$9^h\,20^m$. $t_1$=+14°6, $t_2$=+18°2.*

| N:o | EW −J+P | | | | WE +J−P | | | | EW −B+S | | | | WE +B−S | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 43 | 45 | 42 | + | 43 | 42 | 44 | + | 43 | 43 | 42 | + | 44 | 44 | 44 |
| 1 | + | 43 | 42 | 43 | + | 42 | 41 | 41 | + | 40 | 42 | 41 | + | 41 | 43 | 42 |
| 2 | − | 16 | 15 | 14 | − | 15 | 17 | 17 | − | 16 | 16 | 16 | − | 15 | 15 | 15 |
| 3 | + | 22 | 21 | 23 | + | 22 | 22 | 22 | + | 22 | 22 | 21 | + | 23 | 22 | 22 |
| 4 | + | 7 | 7 | 6 | + | 6 | 6 | 6 | + | 7 | 7 | 7 | + | 7 | 7 | 6 |
| 5 | + | 72 | 72 | 72 | + | 70 | 71 | 72 | + | 70 | 73 | 72 | + | 72 | 72 | 71 |
| 6 | + | 26 | 24 | 24 | + | 25 | 26 | 25 | + | 26 | 25 | 25 | + | 26 | 27 | 25 |
| 7 | − | 7 | 6 | 7 | − | 6 | 6 | 9 | − | 6 | 8 | 8 | − | 6 | 7 | 6 |
| 8 | − | 7 | 8 | 7 | − | 8 | 8 | 6 | − | 7 | 7 | 7 | − | 6 | 6 | 8 |
| 9 | + | 44 | 43 | 42 | + | 44 | 45 | 42 | + | 44 | 45 | 44 | + | 44 | 44 | 44 |
| 10 | + | 57 | 58 | 58 | + | 59 | 58 | 56 | + | 58 | 57 | 58 | + | 56 | 58 | 59 |
| 10 | + | 58 | 58 | 57 | + | 58 | 56 | 56 | + | 58 | 57 | 57 | + | 58 | 57 | 57 |

***635.*** *27.VIII. $9^h\,25^m$—$10^h\,5^m$. $t_1$=+18°2, $t_2$=+19°8.*

| N:o | EW +P−J | | | | WE −P+J | | | | EW +S−B | | | | WE −S+B | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 36 | 35 | 34 | + | 33 | 33 | 32 | + | 35 | 36 | 34 | + | 35 | 34 | 33 |
| 1 | + | 33 | 32 | 32 | + | 32 | 32 | 32 | + | 32 | 33 | 32 | + | 32 | 33 | 33 |
| 2 | — | 26 | 25 | 26 | − | 27 | 25 | 26 | − | 24 | 24 | 24 | − | 24 | 24 | 25 |
| 3 | + | 13 | 13 | 13 | + | 12 | 12 | 12 | + | 12 | 13 | 12 | + | 13 | 13 | 12 |
| 4 | — | 3 | 3 | 4 | − | 2 | 3 | 4 | − | 3 | 3 | 2 | − | 2 | 4 | 3 |
| 5 | + | 63 | 63 | 62 | + | 62 | 62 | 62 | + | 63 | 63 | 62 | + | 62 | 61 | 61 |
| 6 | + | 16 | 16 | 17 | + | 17 | 17 | 16 | + | 15 | 15 | 15 | + | 15 | 14 | 15 |
| 7 | − | 16 | 16 | 15 | − | 16 | 15 | 17 | − | 17 | 17 | 18 | − | 16 | 17 | 17 |
| 8 | − | 18 | 16 | 17 | − | 17 | 18 | 16 | − | 17 | 17 | 18 | − | 16 | 17 | 18 |
| 9 | + | 34 | 35 | 35 | + | 36 | 35 | 35 | + | 35 | 35 | 35 | + | 34 | 34 | 33 |
| 10 | + | 45 | 47 | 46 | + | 47 | 47 | 48 | + | 46 | 46 | 46 | + | 46 | 47 | 47 |
| 10 | + | 49 | 48 | 47 | + | 48 | 48 | 47 | + | 48 | 48 | 47 | + | 48 | 49 | 48 |

***674.*** *27.VIII. $10^h\,10^m$—$11^h\,0^m$. $t_1$=+19°8, $t_2$=+21°3.*

| N:o | EW −P+J | | | | WE +P−J | | | | EW −B+S | | | | WE +B−S | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 45 | 44 | 44 | + | 45 | 45 | 46 | + | 43 | 45 | 44 | + | 45 | 45 | 47 |
| 1 | + | 43 | 42 | 43 | + | 43 | 44 | 43 | + | 41 | 42 | 43 | + | 44 | 42 | 43 |
| 2 | − | 16 | 16 | 16 | − | 13 | 14 | 14 | − | 13 | 15 | 15 | − | 16 | 16 | 15 |
| 3 | + | 22 | 23 | 23 | + | 22 | 22 | 22 | + | 22 | 22 | 22 | + | 22 | 22 | 22 |
| 4 | + | 6 | 7 | 7 | + | 6 | 8 | 6 | + | 7 | 6 | 8 | + | 7 | 7 | 7 |
| 5 | + | 73 | 72 | 73 | + | 73 | 71 | 72 | + | 72 | 73 | 71 | + | 72 | 71 | 72 |
| 6 | + | 27 | 26 | 27 | + | 27 | 26 | 26 | + | 26 | 25 | 25 | + | 27 | 25 | 26 |
| 7 | − | 7 | 6 | 6 | − | 5 | 6 | 6 | − | 6 | 6 | 6 | − | 6 | 5 | 6 |
| 8 | − | 7 | 4 | 6 | − | 6 | 7 | 5 | − | 5 | 6 | 5 | − | 6 | 6 | 7 |
| 9 | + | 43 | 44 | 44 | + | 46 | 43 | 45 | + | 44 | 44 | 45 | + | 44 | 44 | 44 |
| 10 | + | 58 | 57 | 57 | + | 55 | 57 | 55 | + | 58 | 57 | 57 | + | 57 | 57 | 57 |
| 10 | + | 55 | 56 | 56 | + | 59 | 58 | 58 | + | 57 | 58 | 57 | + | 58 | 57 | 58 |

## POTSDAM 2.

***637.*** *27.VIII. 11h 3m—11h 55m. $t_1$=+21°3, $t_2$=+21°7.*

| N:o | EW −J+P | | | | WE +J−P | | | | EW −B+S | | | | WE +B−S | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 38 | 37 | 37 | + | 38 | 36 | 37 | + | 37 | 38 | 37 | + | 38 | 38 | 36 |
| 1 | + | 34 | 35 | 36 | + | 36 | 34 | 36 | + | 34 | 35 | 34 | + | 36 | 36 | 34 |
| 2 | − | 21 | 22 | 22 | − | 24 | 24 | 24 | − | 23 | 23 | 23 | − | 23 | 23 | 23 |
| 3 | + | 16 | 18 | 14 | + | 14 | 17 | 14 | + | 15 | 16 | 16 | + | 16 | 16 | 15 |
| 4 | − | 2 | 0 | 1 | | 0 | 0 | 0 | − | 1 | 0 | 0 | − | 0 | 1 | 0 |
| 5 | + | 63 | 64 | 63 | + | 64 | 63 | 63 | + | 64 | 64 | 65 | + | 65 | 65 | 65 |
| 6 | + | 19 | 19 | 19 | + | 18 | 18 | 19 | + | 17 | 18 | 18 | + | 19 | 20 | 19 |
| 7 | − | 15 | 14 | 15 | − | 14 | 15 | 15 | − | 14 | 14 | 14 | − | 13 | 14 | 14 |
| 8 | − | 13 | 15 | 14 | − | 14 | 12 | 15 | − | 14 | 14 | 14 | − | 14 | 14 | 14 |
| 9 | + | 36 | 38 | 38 | + | 35 | 34 | 36 | + | 36 | 37 | 35 | + | 36 | 37 | 36 |
| 10 | + | 49 | 51 | 50 | + | 50 | 51 | 51 | + | 51 | 49 | 49 | + | 51 | 52 | 52 |
| 10 | + | 51 | 50 | 51 | + | 51 | 51 | 52 | + | 51 | 51 | 50 | + | 50 | 50 | 51 |

***683.*** *27.VIII. 12h 0m—12h 44m. $t_1$=+21°7, $t_2$=+21°6.*

| N:o | EW +J−P | | | | WE −J+P | | | | EW +S−B | | | | WE −S+B | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 38 | 37 | 38 | + | 36 | 38 | 37 | + | 36 | 38 | 38 | + | 36 | 37 | 36 |
| 1 | + | 33 | 34 | 33 | + | 34 | 35 | 34 | + | 34 | 35 | 35 | + | 35 | 33 | 35 |
| 2 | − | 24 | 22 | 24 | − | 24 | 22 | 23 | − | 22 | 23 | 23 | − | 24 | 23 | 24 |
| 3 | + | 16 | 15 | 15 | + | 17 | 14 | 16 | + | 14 | 15 | 15 | + | 15 | 16 | 15 |
| 4 | − | 2 | 1 | 2 | + | 0 | 0 | 1 | | 0 | 0 | 0 | − | 0 | 1 | 0 |
| 5 | + | 64 | 64 | 63 | + | 64 | 65 | 63 | + | 64 | 64 | 64 | + | 64 | 63 | 64 |
| 6 | + | 17 | 18 | 17 | + | 18 | 18 | 19 | + | 18 | 17 | 18 | + | 18 | 17 | 18 |
| 7 | − | 14 | 14 | 14 | − | 15 | 13 | 12 | − | 12 | 12 | 12 | − | 13 | 13 | 13 |
| 8 | − | 15 | 13 | 14 | − | 13 | 15 | 13 | − | 13 | 13 | 14 | − | 15 | 13 | 14 |
| 9 | + | 36 | 37 | 35 | + | 36 | 35 | 35 | + | 37 | 37 | 36 | + | 36 | 36 | 36 |
| 10 | + | 50 | 50 | 50 | + | 50 | 49 | 48 | + | 50 | 49 | 50 | + | 50 | 49 | 49 |
| 10 | + | 50 | 50 | 50 | + | 51 | 52 | 51 | + | 50 | 50 | 51 | + | 51 | 50 | 51 |

# POTSDAM 3.

**683.** *23.X. 11h 43m—12h 50m.* $t_1 = +10°0$, $t_2 = +10°9$.

| N:o | EW | −Lo | +Sch | | WE | +Lo | −Sch | | EW | −Sch | +Lo | | WE | +Sch | −Lo | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 38 | 37 | 38 | + | 38 | 37 | 37 | + | 37 | 38 | 39 | + | 38 | 37 | 37 |
| 1 | + | 37 | 35 | 34 | + | 36 | 36 | 35 | + | 37 | 36 | 36 | + | 35 | 36 | 37 |
| 2 | − | 36 | 37 | 36 | − | 37 | 35 | 36 | − | 36 | 36 | 36 | − | 38 | 36 | 37 |
| 3 | + | 30 | 30 | 31 | + | 29 | 31 | 31 | + | 29 | 30 | 32 | + | 30 | 30 | 29 |
| 4 | + | 7 | 6 | 6 | + | 6 | 6 | 5 | + | 7 | 6 | 7 | + | 6 | 6 | 6 |
| 5 | + | 43 | 43 | 44 | + | 42 | 44 | 44 | + | 42 | 43 | 44 | + | 43 | 42 | 42 |
| 6 | + | 42 | 41 | 42 | + | 41 | 42 | 41 | + | 41 | 40 | 41 | + | 40 | 41 | 43 |
| 7 | − | 59 | 60 | 60 | − | 60 | 60 | 60 | − | 59 | 58 | 58 | − | 59 | 59 | 59 |
| 8 | + | 13 | 13 | 13 | + | 14 | 15 | 14 | + | 15 | 13 | 15 | + | 14 | 14 | 14 |
| 9 | + | 46 | 47 | 48 | + | 46 | 45 | 48 | + | 45 | 47 | 47 | + | 47 | 47 | 47 |
| 10 | + | 47 | 48 | 48 | + | 48 | 48 | 46 | + | 47 | 46 | 46 | + | 48 | 48 | 47 |
| 10 | + | 47 | 48 | 47 | + | 47 | 48 | 48 | + | 47 | 48 | 47 | + | 48 | 48 | 49 |

**675.** *23.X. 13h 25m—14h 39m.* $t_1 = +11°1$, $t_2 = +11°2$.

| N:o | EW | +Lo | −Sch | | WE | −Lo | +Sch | | EW | +Sch | −Lo | | WE | −Sch | +Lo | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 44 | 43 | 44 | + | 42 | 43 | 43 | + | 44 | 45 | 44 | + | 44 | 44 | 43 |
| 1 | + | 43 | 43 | 43 | + | 42 | 43 | 44 | + | 44 | 43 | 44 | + | 42 | 45 | 44 |
| 2 | − | 29 | 28 | 29 | − | 28 | 27 | 29 | − | 28 | 27 | 29 | − | 27 | 28 | 28 |
| 3 | + | 38 | 39 | 38 | + | 38 | 38 | 38 | + | 37 | 37 | 38 | + | 38 | 37 | 37 |
| 4 | + | 13 | 12 | 13 | + | 14 | 14 | 13 | + | 14 | 13 | 13 | + | 13 | 14 | 14 |
| 5 | + | 51 | 50 | 48 | + | 49 | 49 | 49 | + | 49 | 51 | 50 | + | 51 | 51 | 51 |
| 6 | + | 49 | 49 | 50 | + | 49 | 51 | 51 | + | 50 | 49 | 49 | + | 51 | 51 | 49 |
| 7 | − | 54 | 52 | 51 | − | 53 | 51 | 52 | − | 51 | 52 | 52 | − | 51 | 51 | 51 |
| 8 | + | 21 | 21 | 20 | + | 20 | 21 | 21 | + | 21 | 21 | 21 | + | 22 | 21 | 20 |
| 9 | + | 54 | 54 | 54 | + | 53 | 52 | 54 | + | 56 | 55 | 55 | + | 55 | 54 | 54 |
| 10 | + | 53 | 55 | 56 | + | 53 | 55 | 54 | + | 55 | 57 | 57 | + | 55 | 56 | 55 |
| 10 | + | 56 | 57 | 56 | + | 56 | 55 | 56 | + | 55 | 56 | 57 | + | 56 | 56 | 57 |

**674.** *23.X. 14h 44m—15h 37m.* $t_1 = +11°2$, $t_2 = +10°8$.

| N:o | EW | +Lo | −Sch | | WE | −Lo | +Sch | | EW | +Sch | −Lo | | WE | −Sch | +Lo | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 43 | 45 | 43 | + | 43 | 45 | 43 | + | 44 | 44 | 46 | + | 44 | 45 | 42 |
| 1 | + | 43 | 45 | 45 | + | 43 | 44 | 43 | + | 43 | 44 | 43 | + | 44 | 43 | 43 |
| 2 | − | 28 | 28 | 28 | − | 28 | 28 | 29 | − | 29 | 29 | 29 | − | 28 | 27 | 28 |
| 3 | + | 37 | 38 | 37 | + | 37 | 39 | 38 | + | 37 | 35 | 37 | + | 37 | 37 | 37 |
| 4 | + | 15 | 14 | 15 | + | 14 | 13 | 14 | + | 13 | 13 | 14 | + | 14 | 14 | 14 |
| 5 | + | 51 | 50 | 50 | + | 51 | 50 | 50 | + | 50 | 50 | 50 | + | 50 | 50 | 50 |
| 6 | + | 51 | 52 | 51 | + | 50 | 51 | 50 | + | 50 | 51 | 49 | + | 50 | 51 | 50 |
| 7 | − | 53 | 52 | 54 | − | 52 | 51 | 52 | − | 52 | 51 | 52 | − | 53 | 52 | 53 |
| 8 | + | 20 | 20 | 21 | + | 20 | 20 | 20 | + | 21 | 20 | 20 | + | 20 | 19 | 20 |
| 9 | + | 55 | 55 | 55 | + | 54 | 54 | 55 | + | 55 | 54 | 55 | + | 55 | 55 | 54 |
| 10 | + | 54 | 55 | 54 | + | 54 | 56 | 55 | + | 55 | 56 | 54 | + | 52 | 54 | 55 |
| 10 | + | 57 | 56 | 56 | + | 56 | 56 | 56 | + | 57 | 57 | 57 | + | 56 | 55 | 56 |

## POTSDAM 3.

**673.** *24.X. 9h 29m—10h 31m.* $t_1 = +7°1$, $t = +9°2$.

| N:o | EW | +Lo | —Sch | | WE | —Lo | +Sch | | EW | +Sch | —Lo | | WE | —Sch | +Lo | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 46 | 47 | 46 | + | 48 | 48 | 46 | + | 48 | 46 | 48 | + | 47 | 45 | 47 |
| 1 | + | 45 | 45 | 45 | + | 45 | 44 | 45 | + | 45 | 44 | 44 | + | 45 | 45 | 46 |
| 2 | − | 26 | 26 | 27 | − | 27 | 25 | 25 | − | 26 | 26 | 26 | − | 25 | 26 | 26 |
| 3 | + | 39 | 41 | 40 | + | 39 | 40 | 40 | + | 41 | 40 | 40 | + | 40 | 40 | 40 |
| 4 | + | 16 | 17 | 17 | + | 18 | 17 | 17 | + | 17 | 17 | 17 | + | 17 | 18 | 17 |
| 5 | + | 52 | 52 | 52 | + | 52 | 52 | 55 | + | 52 | 51 | 51 | + | 54 | 52 | 53 |
| 6 | + | 51 | 52 | 51 | + | 52 | 52 | 51 | + | 51 | 52 | 50 | + | 51 | 51 | 51 |
| 7 | − | 49 | 50 | 50 | − | 48 | 49 | 49 | − | 50 | 49 | 49 | − | 49 | 49 | 50 |
| 8 | + | 26 | 26 | 25 | + | 26 | 26 | 26 | + | 26 | 24 | 25 | + | 26 | 25 | 26 |
| 9 | + | 52 | 54 | 53 | + | 53 | 53 | 53 | + | 54 | 55 | 54 | + | 54 | 54 | 52 |
| 10 | + | 57 | 57 | 58 | + | 57 | 56 | 57 | + | 57 | 57 | 57 | + | 56 | 57 | 56 |
| 10 | + | 58 | 59 | 58 | + | 58 | 59 | 59 | + | 58 | 58 | 58 | + | 57 | 58 | 57 |

**634.** *24.X. 10h 42m—11h 45m.* $t_1 = +9°8$. $t_2 = +12°3$.

| N:o | EW | +Lo | —Sch | | WE | —Lo | +Sch | | EW | +Sch | —Lo | | WE | —Sch | +Lo | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 41 | 42 | 41 | + | 41 | 40 | 40 | + | 41 | 40 | 41 | + | 41 | 41 | 41 |
| 1 | + | 41 | 40 | 41 | + | 40 | 42 | 41 | + | 42 | 40 | 40 | + | 41 | 42 | 43 |
| 2 | − | 30 | 30 | 30 | − | 30 | 31 | 29 | − | 30 | 31 | 30 | − | 29 | 29 | 30 |
| 3 | + | 34 | 35 | 35 | + | 35 | 35 | 35 | + | 35 | 35 | 35 | + | 34 | 34 | 34 |
| 4 | + | 12 | 11 | 14 | + | 13 | 14 | 13 | + | 13 | 13 | 12 | + | 13 | 13 | 13 |
| 5 | + | 49 | 49 | 48 | + | 47 | 48 | 47 | + | 48 | 47 | 46 | + | 47 | 49 | 48 |
| 6 | + | 45 | 47 | 47 | + | 46 | 46 | 46 | + | 47 | 47 | 45 | + | 47 | 47 | 47 |
| 7 | − | 55 | 55 | 53 | − | 54 | 54 | 53 | − | 54 | 55 | 53 | − | 54 | 57 | 54 |
| 8 | + | 21 | 22 | 22 | + | 21 | 22 | 21 | + | 21 | 20 | 21 | + | 23 | 22 | 21 |
| 9 | + | 49 | 50 | 49 | + | 48 | 49 | 48 | + | 49 | 48 | 49 | + | 49 | 48 | 49 |
| 10 | + | 54 | 52 | 52 | + | 52 | 52 | 51 | + | 52 | 51 | 54 | + | 53 | 52 | 52 |
| 10 | + | 53 | 50 | 52 | + | 53 | 52 | 52 | + | 53 | 51 | 53 | + | 51 | 52 | 53 |

**635.** *24.X. 11h 50m—12h 45m.* $t_1 = +12°3$. $t_2 = +13°0$.

| N:o | EW | +Lo | —Sch | | WE | —Lo | +Sch | | EW | +Sch | —Lo | | WE | —Sch | +Lo | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 34 | 35 | 33 | + | 32 | 33 | 33 | + | 33 | 34 | 32 | + | 32 | 32 | 32 |
| 1 | + | 33 | 32 | 34 | + | 33 | 33 | 34 | + | 34 | 35 | 33 | + | 34 | 33 | 34 |
| 2 | − | 39 | 37 | 38 | − | 38 | 38 | 38 | − | 39 | 38 | 38 | − | 39 | 39 | 39 |
| 3 | + | 28 | 27 | 28 | + | 27 | 27 | 27 | + | 28 | 26 | 27 | + | 27 | 27 | 28 |
| 4 | + | 5 | 5 | 4 | + | 6 | 5 | 6 | + | 5 | 7 | 5 | + | 5 | 5 | 5 |
| 5 | + | 41 | 41 | 41 | + | 40 | 40 | 40 | + | 40 | 41 | 41 | + | 40 | 40 | 39 |
| 6 | + | 38 | 40 | 39 | + | 38 | 39 | 39 | + | 39 | 40 | 39 | + | 37 | 39 | 38 |
| 7 | − | 61 | 64 | 63 | − | 63 | 62 | 61 | − | 61 | 62 | 62 | − | 62 | 61 | 63 |
| 8 | + | 12 | 14 | 13 | + | 14 | 14 | 13 | + | 14 | 13 | 13 | + | 13 | 14 | 13 |
| 9 | + | 41 | 43 | 41 | + | 40 | 41 | 41 | + | 41 | 41 | 41 | + | 41 | 41 | 41 |
| 10 | + | 45 | 46 | 46 | + | 46 | 46 | 46 | + | 45 | 46 | 46 | + | 46 | 46 | 46 |
| 10 | + | 44 | 44 | 44 | + | 45 | 44 | 44 | + | 44 | 44 | 43 | + | 43 | 45 | 44 |

## POTSDAM 3.

**636.** *24.X. 13h 20m—14h 27m.* $t_1 = +13°.9$, $t_2 = +13°.4$.

| N:o | EW | +Lo | —Sch | | WE | —Lo | +Sch | | EW | +Sch | —Lo | | WE | —Sch | +Lo | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 35 | 36 | 35 | + | 36 | 35 | 35 | + | 36 | 35 | 37 | + | 35 | 35 | 33 |
| 1 | + | 37 | 36 | 37 | + | 37 | 36 | 37 | + | 36 | 35 | 36 | + | 37 | 37 | 36 |
| 2 | − | 37 | 35 | 36 | − | 35 | 36 | 35 | − | 35 | 37 | 35 | − | 35 | 36 | 36 |
| 3 | + | 29 | 30 | 29 | + | 30 | 29 | 30 | + | 30 | 30 | 29 | + | 31 | 29 | 30 |
| 4 | + | 7 | 8 | 7 | + | 4 | 6 | 6 | + | 7 | 8 | 7 | + | 6 | 7 | 7 |
| 5 | + | 44 | 45 | 44 | + | 44 | 43 | 43 | + | 44 | 44 | 43 | + | 45 | 42 | 45 |
| 6 | + | 42 | 41 | 41 | + | 41 | 42 | 41 | + | 41 | 41 | 41 | + | 41 | 40 | 41 |
| 7 | − | 59 | 62 | 60 | − | 59 | 60 | 60 | − | 60 | 59 | 61 | − | 60 | 61 | 59 |
| 8 | + | 16 | 16 | 18 | + | 16 | 16 | 16 | + | 16 | 16 | 17 | + | 16 | 16 | 15 |
| 9 | + | 43 | 44 | 44 | + | 43 | 43 | 42 | + | 44 | 43 | 44 | + | 43 | 43 | 43 |
| 10 | + | 48 | 49 | 48 | + | 48 | 49 | 48 | + | 46 | 49 | 48 | + | 47 | 47 | 47 |
| 10 | + | 46 | 46 | 47 | + | 45 | 47 | 47 | + | 48 | 47 | 47 | + | 47 | 48 | 47 |

**637.** *24.X. 14h 30m—15h 26m.* $t_1 = +13°.4$, $t_2 = +13°.0$.

| N:o | EW | +Lo | —Sch | | WE | —Lo | +Sch | | EW | +Sch | —Lo | | WE | —Sch | +Lo | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 37 | 38 | 36 | + | 38 | 37 | 37 | + | 37 | 37 | 38 | + | 39 | 37 | 38 |
| 1 | + | 36 | 37 | 36 | + | 34 | 35 | 35 | + | 36 | 35 | 35 | + | 36 | 35 | 36 |
| 2 | − | 35 | 35 | 36 | − | 36 | 35 | 35 | − | 34 | 34 | 35 | − | 35 | 35 | 36 |
| 3 | + | 30 | 32 | 30 | + | 30 | 30 | 31 | + | 31 | 31 | 31 | + | 31 | 31 | 31 |
| 4 | + | 7 | 7 | 7 | + | 8 | 8 | 9 | + | 8 | 7 | 8 | + | 7 | 6 | 7 |
| 5 | + | 44 | 44 | 44 | + | 42 | 43 | 43 | + | 44 | 45 | 43 | + | 44 | 43 | 44 |
| 6 | + | 42 | 43 | 42 | + | 42 | 42 | 42 | + | 40 | 42 | 41 | + | 41 | 41 | 39 |
| 7 | − | 62 | 58 | 59 | − | 57 | 58 | 58 | − | 58 | 58 | 59 | − | 58 | 56 | 58 |
| 8 | + | 16 | 17 | 15 | + | 17 | 18 | 16 | + | 17 | 16 | 17 | + | 16 | 16 | 14 |
| 9 | + | 43 | 45 | 45 | + | 45 | 44 | 45 | + | 45 | 44 | 45 | + | 44 | 45 | 45 |
| 10 | + | 47 | 48 | 48 | + | 47 | 48 | 50 | + | 47 | 48 | 48 | + | 47 | 47 | 46 |
| 10 | + | 47 | 48 | 48 | + | 47 | 49 | 48 | + | 47 | 47 | 48 | + | 48 | 48 | 49 |

# SZUBIN.

| N:o | **634.** EW. 23.V. 9h15m – 15h45m. $t_1$:+19°9, $t_2$:+24°1. 1— 53: –B+S 54—106: –S+B 107—159: +S—B 160—213: +B—S | | | **673.** EW. 24.V. 8h24m – 13h40m. $t_1$:+20°0, $t_2$:+25°0. 1— 53: –J+P 54—106: –P+J 107—159: +P—J 160—213: +J—P | | | **674.** EW. 25.V. 8h30m – 12h30m. $t_1$:+21°5, $t_2$:+21°5. 1— 53: –B+S 54—106: –S+B 107—159: +S–B 160—213: +B–S | | | **637.** EW. 29.V. 9h15m – 14h0m. $t_1$:+21°0, $t_2$:+19°1. 1— 53: +P–J 59—106: +J–P 107—159: –J+P 160—213: –P+J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 325 | 328 327 | + | 328 | 329 329 | + | 327 | 326 325 | + | 321 | 319 321 |
| 2 | + | 430 | 430 431 | + | 433 | 432 433 | + | 432 | 432 431 | + | 424 | 424 424 |
| 3 | + | 303 | 304 304 | + | 314 | 315 316 | + | 312 | 311 312 | + | 308 | 307 307 |
| 4 | + | 536 | 536 535 | + | 547 | 546 547 | + | 554 | 553 554 | + | 551 | 551 551 |
| 5 | + | 370 | 370 369 | + | 367 | 370 370 | + | 352 | 352 352 | + | 343 | 343 343 |
| 6 | + | 590 | 590 589 | + | 589 | 591 589 | + | 593 | 593 592 | + | 599 | 599 600 |
| 7 | + | 280 | 280 280 | + | 282 | 281 281 | + | 281 | 281 281 | + | 261 | 260 261 |
| 8 | + | 425 | 428 426 | + | 442 | 442 442 | + | 439 | 439 438 | + | 428 | 427 427 |
| 9 | + | 477 | 479 477 | + | 480 | 479 480 | + | 474 | 473 473 | + | 472 | 472 473 |
| 10 | + | 364 | 362 364 | + | 368 | 368 368 | + | 362 | 362 362 | + | 354 | 354 355 |
| 11 | + | 490 | 488 490 | + | 495 | 495 496 | + | 497 | 496 494 | + | 488 | 487 490 |
| 12 | + | 390 | 390 387 | + | 392 | 391 391 | + | 391 | 391 389 | + | 378 | 379 379 |
| 13 | + | 404 | 403 401 | + | 410 | 408 409 | + | 405 | 405 403 | + | 402 | 404 403 |
| 14 | + | 367 | 368 369 | + | 355 | 356 356 | + | 367 | 367 365 | + | 359 | 359 359 |
| 15 | + | 462 | 460 461 | + | 485 | 485 485 | + | 469 | 470 471 | + | 458 | 457 459 |
| 16 | + | 388 | 388 387 | + | 390 | 390 389 | + | 381 | 383 382 | + | 373 | 375 374 |
| 17 | + | 581 | 580 582 | + | 589 | 591 590 | + | 596 | 593 595 | + | 587 | 588 588 |
| 18 | + | 383 | 385 384 | + | 390 | 389 390 | + | 382 | 385 384 | + | 382 | 383 384 |
| 19 | + | 163 | 162 164 | + | 156 | 153 153 | + | 157 | 158 157 | + | 143 | 145 145 |
| 20 | + | 658 | 660 660 | + | 619 | 618 618 | + | 618 | 617 618 | + | 608 | 609 609 |
| 21 | + | 433 | 433 435 | + | 497 | 497 496 | + | 488 | 489 488 | + | 485 | 486 487 |
| 22 | + | 449 | 451 451 | + | 451 | 452 452 | + | 449 | 448 448 | + | 454 | 453 454 |
| 23 | + | 277 | 276 274 | + | 279 | 279 280 | + | 276 | 276 275 | + | 272 | 271 272 |
| 24 | + | 597 | 597 597 | + | 603 | 603 602 | + | 604 | 602 603 | + | 586 | 585 585 |
| 25 | + | 506 | 503 504 | + | 506 | 507 505 | + | 506 | 506 506 | + | 495 | 494 496 |
| 26 | + | 496 | 495 496 | + | 498 | 498 497 | + | 518 | 518 519 | + | 487 | 486 486 |
| 27 | + | 343 | 343 343 | + | 357 | 356 358 | + | 328 | 326 327 | + | 348 | 346 348 |
| 28 | + | 313 | 313 312 | + | 315 | 314 313 | + | 319 | 317 317 | + | 304 | 304 302 |
| 29 | + | 440 | 439 441 | + | 443 | 444 443 | + | 433 | 434 433 | + | 440 | 440 440 |
| 30 | + | 617 | 616 616 | + | 624 | 623 625 | + | 624 | 624 625 | + | 613 | 612 613 |
| 31 | + | 177 | 178 177 | + | 182 | 184 183 | + | 181 | 181 180 | + | 174 | 172 174 |
| 32 | + | 462 | 463 463 | + | 451 | 449 449 | + | 445 | 446 445 | + | 440 | 440 439 |
| 33 | + | 272 | 272 271 | + | 278 | 278 277 | + | 292 | 292 292 | + | 276 | 276 274 |
| 34 | + | 507 | 505 507 | + | 524 | 522 522 | + | 538 | 538 538 | + | 504 | 504 504 |
| 35 | + | 262 | 262 261 | + | 254 | 255 256 | + | 228 | 228 227 | + | 255 | 255 254 |
| 36 | + | 448 | 449 448 | + | 465 | 465 467 | + | 463 | 464 463 | + | 455 | 453 453 |
| 37 | + | 194 | 193 190 | + | 196 | 196 196 | + | 199 | 199 199 | + | 181 | 181 180 |
| 38 | + | 127 | 127 127 | + | 131 | 131 130 | + | 122 | 121 123 | + | 122 | 125 124 |
| 39 | + | 710 | 710 709 | + | 714 | 714 714 | + | 714 | 715 715 | + | 708 | 707 707 |
| 40 | + | 615 | 615 614 | + | 625 | 622 622 | + | 618 | 615 617 | + | 612 | 611 613 |
| 41 | + | 331 | 330 330 | + | 329 | 329 329 | + | 332 | 333 332 | + | 314 | 315 317 |
| 42 | + | 178 | 178 177 | + | 175 | 175 176 | + | 181 | 180 183 | + | 216 | 216 217 |
| 43 | + | 371 | 372 373 | + | 381 | 380 380 | + | 372 | 373 372 | + | 329 | 329 327 |
| 44 | + | 636 | 637 636 | + | 768 | 768 769 | + | 765 | 763 764 | + | 758 | 756 758 |
| 45 | + | 468 | 466 466 | + | 339 | 339 340 | + | 337 | 336 337 | + | 330 | 330 329 |
| 46 | + | 439 | 441 441 | + | 489 | 488 488 | + | 486 | 485 485 | + | 466 | 466 467 |
| 47 | + | 599 | 597 598 | + | 688 | 689 689 | + | 691 | 691 691 | + | 704 | 704 704 |
| 48 | + | 495 | 496 496 | + | 375 | 375 375 | + | 365 | 364 365 | + | 353 | 353 353 |
| 49 | + | 477 | 475 473 | + | 492 | 493 493 | + | 491 | 490 492 | + | 486 | 487 486 |
| 50 | + | 417 | 416 415 | + | 409 | 409 409 | + | 410 | 410 409 | + | 404 | 404 404 |

# SZUBIN.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | + | 419 | 419 | 417 | + | 419 | 419 | 418 | + | 416 | 415 | 415 | + | 405 | 405 | 406 |
| 52 | + | 415 | 416 | 416 | + | 433 | 433 | 432 | + | 428 | 429 | 430 | + | 421 | 421 | 422 |
| 53 | + | 366 | 364 | 364 | + | 360 | 359 | 360 | + | 361 | 361 | 361 | + | 354 | 355 | 354 |
| 54 | + | 352 | 352 | 351 | + | 364 | 363 | 363 | + | 366 | 366 | 367 | + | 253 | 251 | 254 |
| 55 | + | 490 | 491 | 491 | + | 492 | 492 | 493 | + | 486 | 485 | 485 | + | 655 | 654 | 654 |
| 56 | + | 367 | 369 | 368 | + | 369 | 370 | 369 | + | 367 | 365 | 365 | + | 298 | 299 | 298 |
| 57 | + | 464 | 463 | 464 | + | 471 | 471 | 471 | + | 470 | 470 | 470 | + | 541 | 540 | 540 |
| 58 | + | 463 | 464 | 463 | + | 463 | 465 | 463 | + | 463 | 462 | 464 | + | 369 | 369 | 370 |
| 59 | + | 505 | 505 | 505 | + | 514 | 514 | 514 | + | 504 | 503 | 505 | + | 506 | 505 | 506 |
| 60 | + | 430 | 432 | 430 | + | 432 | 433 | 432 | + | 438 | 438 | 438 | + | 424 | 425 | 425 |
| 61 | + | 471 | 471 | 470 | + | 479 | 480 | 480 | + | 473 | 474 | 471 | + | 467 | 470 | 469 |
| 62 | + | 322 | 322 | 322 | + | 323 | 322 | 323 | + | 318 | 318 | 317 | + | 314 | 315 | 313 |
| 63 | + | 486 | 484 | 485 | + | 492 | 494 | 492 | + | 496 | 496 | 494 | + | 481 | 482 | 481 |
| 64 | + | 522 | 522 | 520 | + | 517 | 517 | 518 | + | 516 | 516 | 516 | + | 507 | 508 | 508 |
| 65 | + | 430 | 431 | 433 | + | 447 | 445 | 447 | + | 436 | 437 | 435 | + | 435 | 436 | 435 |
| 66 | + | 445 | 446 | 445 | + | 447 | 448 | 448 | + | 444 | 445 | 445 | + | 439 | 440 | 439 |
| 67 | + | 418 | 418 | 419 | + | 410 | 412 | 411 | + | 415 | 414 | 414 | + | 369 | 368 | 369 |
| 68 | + | 427 | 428 | 428 | + | 440 | 440 | 439 | + | 438 | 439 | 440 | + | 453 | 452 | 451 |
| 69 | + | 470 | 470 | 471 | + | 476 | 476 | 476 | + | 474 | 473 | 474 | + | 482 | 483 | 483 |
| 70 | + | 460 | 459 | 460 | + | 464 | 464 | 465 | + | 459 | 459 | 458 | + | 451 | 450 | 451 |
| 71 | + | 470 | 471 | 471 | + | 474 | 474 | 472 | + | 470 | 467 | 469 | + | 468 | 466 | 467 |
| 72 | + | 423 | 424 | 423 | + | 429 | 429 | 429 | + | 428 | 427 | 428 | + | 416 | 415 | 416 |
| 73 | + | 500 | 499 | 499 | + | 530 | 531 | 531 | + | 528 | 527 | 529 | + | 474 | 474 | 474 |
| 74 | + | 420 | 420 | 420 | + | 404 | 404 | 403 | + | 396 | 396 | 397 | + | 439 | 439 | 439 |
| 75 | + | 694 | 696 | 694 | + | 688 | 688 | 688 | + | 689 | 690 | 689 | + | 687 | 685 | 685 |
| 76 | + | 313 | 315 | 315 | + | 323 | 324 | 325 | + | 314 | 314 | 314 | + | 308 | 308 | 307 |
| 77 | + | 519 | 519 | 519 | + | 533 | 533 | 532 | + | 536 | 534 | 535 | + | 528 | 528 | 528 |
| 78 | + | 556 | 556 | 556 | + | 551 | 551 | 550 | + | 555 | 555 | 553 | + | 542 | 542 | 542 |
| 79 | + | 567 | 566 | 565 | + | 577 | 577 | 576 | + | 572 | 572 | 570 | + | 564 | 567 | 566 |
| 80 | + | 496 | 496 | 495 | + | 493 | 493 | 494 | + | 498 | 498 | 497 | + | 482 | 481 | 481 |
| 81 | + | 437 | 438 | 438 | + | 442 | 442 | 442 | + | 401 | 399 | 399 | + | 439 | 439 | 438 |
| 82 | + | 400 | 405 | 404 | + | 399 | 399 | 398 | + | 434 | 434 | 432 | + | 377 | 377 | 376 |
| 83 | + | 457 | 458 | 459 | + | 470 | 471 | 470 | + | 467 | 467 | 468 | + | 471 | 471 | 471 |
| 84 | + | 331 | 330 | 330 | + | 340 | 340 | 339 | + | 339 | 338 | 337 | + | 322 | 323 | 322 |
| 85 | + | 396 | 395 | 397 | + | 404 | 407 | 405 | + | 400 | 400 | 398 | + | 395 | 394 | 396 |
| 86 | + | 365 | 365 | 367 | + | 363 | 362 | 364 | + | 352 | 351 | 351 | + | 361 | 363 | 361 |
| 87 | + | 655 | 655 | 655 | + | 670 | 671 | 671 | + | 677 | 678 | 677 | + | 657 | 656 | 656 |
| 88 | + | 10 | 10 | 11 | + | 8 | 8 | 7 | + | 9 | 8 | 8 | + | 8 | 8 | 8 |
| 89 | + | 365 | 365 | 365 | + | 369 | 371 | 370 | + | 364 | 364 | 364 | + | 348 | 348 | 348 |
| 90 | + | 680 | 681 | 681 | + | 668 | 665 | 666 | + | 668 | 667 | 668 | + | 676 | 676 | 676 |
| 91 | + | 170 | 170 | 171 | + | 202 | 204 | 204 | + | 193 | 193 | 193 | + | 169 | 170 | 170 |
| 92 | + | 770 | 769 | 769 | + | 637 | 637 | 638 | + | 640 | 640 | 640 | + | 635 | 635 | 636 |
| 93 | + | 521 | 519 | 521 | + | 651 | 650 | 650 | + | 645 | 645 | 645 | + | 644 | 643 | 644 |
| 94 | + | 330 | 331 | 329 | + | 333 | 332 | 332 | + | 334 | 335 | 336 | + | 320 | 321 | 320 |
| 95 | + | 699 | 698 | 697 | + | 701 | 701 | 701 | + | 701 | 699 | 700 | + | 694 | 693 | 694 |
| 96 | + | 667 | 665 | 665 | + | 677 | 674 | 675 | + | 677 | 678 | 678 | + | 670 | 670 | 669 |
| 97 | + | 512 | 512 | 511 | + | 512 | 510 | 511 | + | 508 | 508 | 508 | + | 497 | 495 | 497 |
| 98 | + | 410 | 409 | 409 | + | 421 | 422 | 421 | + | 412 | 414 | 415 | + | 419 | 419 | 417 |
| 99 | + | 474 | 472 | 474 | + | 467 | 467 | 468 | + | 466 | 466 | 465 | + | 455 | 454 | 455 |
| 100 | + | 248 | 247 | 247 | + | 259 | 259 | 260 | + | 261 | 260 | 260 | + | 253 | 252 | 253 |
| 101 | + | 582 | 582 | 582 | + | 588 | 590 | 588 | + | 579 | 578 | 577 | + | 571 | 571 | 571 |
| 102 | + | 345 | 343 | 345 | + | 339 | 340 | 338 | + | 352 | 351 | 350 | + | 331 | 331 | 331 |
| 103 | + | 390 | 389 | 390 | + | 400 | 400 | 400 | + | 397 | 400 | 396 | + | 401 | 401 | 401 |
| 104 | + | 614 | 618 | 615 | + | 614 | 614 | 612 | + | 617 | 617 | 617 | + | 613 | 613 | 613 |
| 105 | + | 605 | 604 | 604 | + | 675 | 676 | 676 | + | 654 | 656 | 655 | + | 647 | 648 | 647 |
| 106 | + | 145 | 143 | 144 | + | 70 | 68 | 69 | + | 72 | 74 | 72 | + | 66 | 68 | 68 |
| 107 | + | 535 | 535 | 536 | + | 546 | 545 | 544 | + | 543 | 543 | 543 | + | 540 | 539 | 539 |
| 108 | + | 460 | 458 | 457 | + | 472 | 472 | 471 | + | 469 | 468 | 468 | + | 457 | 458 | 458 |
| 109 | + | 357 | 355 | 355 | + | 462 | 463 | 465 | + | 361 | 360 | 359 | + | 355 | 354 | 355 |
| 110 | + | 403 | 402 | 402 | + | 299 | 298 | 300 | + | 401 | 402 | 402 | + | 391 | 390 | 390 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | + | 469 | 471 | 469 | + | 472 | 473 | 474 | + | 478 | 477 | 477 | + | 463 | 465 | 463 |
| 112 | + | 487 | 488 | 488 | + | 489 | 490 | 490 | + | 483 | 482 | 482 | + | 480 | 478 | 478 |
| 113 | − | 62 | 62 | 64 | + | 177 | 176 | 176 | + | 189 | 188 | 188 | − | 66 | 65 | 65 |
| 114 | + | 752 | 752 | 751 | + | 526 | 527 | 529 | + | 517 | 515 | 516 | + | 757 | 757 | 757 |
| 115 | + | 523 | 524 | 525 | + | 526 | 525 | 527 | + | 531 | 531 | 530 | + | 526 | 526 | 525 |
| 116 | + | 768 | 768 | 769 | + | 710 | 709 | 710 | + | 691 | 691 | 691 | + | 677 | 678 | 678 |
| 117 | + | 724 | 722 | 721 | + | 733 | 734 | 732 | + | 740 | 739 | 740 | + | 710 | 710 | 709 |
| 118 | + | 303 | 303 | 301 | + | 358 | 358 | 356 | + | 356 | 357 | 356 | + | 379 | 380 | 379 |
| 119 | + | 345 | 344 | 344 | + | 702 | 704 | 701 | + | 692 | 693 | 692 | + | 413 | 414 | 415 |
| 120 | + | 785 | 785 | 782 | + | 692 | 691 | 693 | + | 701 | 702 | 702 | + | 675 | 675 | 676 |
| 121 | + | 496 | 496 | 494 | + | 249 | 247 | 248 | + | 237 | 237 | 236 | + | 523 | 523 | 521 |
| 122 | + | 691 | 691 | 689 | + | 793 | 792 | 793 | + | 795 | 794 | 794 | + | 597 | 596 | 597 |
| 123 | + | 461 | 461 | 462 | + | 371 | 372 | 371 | + | 367 | 367 | 368 | + | 533 | 533 | 533 |
| 124 | + | 654 | 654 | 654 | + | 650 | 650 | 650 | + | 644 | 644 | 645 | + | 659 | 660 | 662 |
| 125 | + | 674 | 674 | 672 | + | 672 | 671 | 671 | + | 635 | 635 | 634 | + | 644 | 644 | 645 |
| 126 | + | 590 | 591 | 590 | + | 605 | 604 | 603 | + | 640 | 643 | 643 | + | 604 | 604 | 603 |
| 127 | + | 259 | 259 | 259 | + | 261 | 260 | 261 | + | 255 | 256 | 256 | + | 243 | 244 | 245 |
| 128 | + | 687 | 687 | 688 | + | 691 | 690 | 691 | + | 694 | 693 | 691 | + | 693 | 695 | 693 |
| 129 | + | 659 | 660 | 658 | + | 672 | 673 | 672 | + | 660 | 659 | 659 | + | 650 | 652 | 650 |
| 130 | + | 159 | 159 | 158 | + | 157 | 156 | 156 | + | 173 | 172 | 173 | + | 184 | 184 | 183 |
| 131 | + | 717 | 717 | 717 | + | 712 | 714 | 712 | + | 703 | 702 | 702 | + | 671 | 671 | 673 |
| 132 | + | 513 | 513 | 513 | + | 523 | 522 | 523 | + | 476 | 475 | 476 | + | 510 | 510 | 510 |
| 133 | + | 475 | 477 | 474 | + | 483 | 485 | 487 | + | 519 | 515 | 516 | + | 476 | 475 | 474 |
| 134 | + | 600 | 599 | 597 | + | 598 | 598 | 599 | + | 598 | 596 | 596 | + | 585 | 586 | 583 |
| 135 | + | 428 | 428 | 429 | + | 438 | 436 | 437 | + | 437 | 438 | 438 | + | 430 | 432 | 431 |
| 136 | + | 531 | 533 | 533 | + | 540 | 540 | 540 | + | 541 | 542 | 540 | + | 534 | 534 | 533 |
| 137 | + | 670 | 669 | 669 | + | 666 | 667 | 666 | + | 662 | 661 | 660 | + | 614 | 613 | 612 |
| 138 | + | 191 | 191 | 190 | + | 192 | 195 | 195 | + | 210 | 211 | 211 | + | 243 | 243 | 242 |
| 139 | + | 242 | 243 | 242 | + | 247 | 245 | 247 | + | 226 | 226 | 226 | + | 215 | 214 | 214 |
| 140 | + | 464 | 464 | 464 | + | 485 | 484 | 485 | + | 477 | 479 | 479 | + | 480 | 480 | 480 |
| 141 | + | 695 | 695 | 694 | + | 687 | 687 | 687 | + | 695 | 694 | 695 | + | 675 | 675 | 674 |
| 142 | + | 239 | 236 | 236 | + | 248 | 246 | 246 | + | 239 | 240 | 239 | + | 237 | 238 | 239 |
| 143 | + | 646 | 643 | 644 | + | 649 | 649 | 650 | + | 640 | 640 | 640 | + | 642 | 642 | 642 |
| 144 | + | 556 | 556 | 557 | + | 555 | 556 | 555 | + | 556 | 557 | 558 | + | 542 | 541 | 542 |
| 145 | + | 328 | 327 | 327 | + | 329 | 328 | 329 | + | 333 | 332 | 332 | + | 324 | 323 | 324 |
| 146 | + | 648 | 647 | 648 | + | 662 | 661 | 661 | + | 653 | 654 | 655 | + | 652 | 652 | 651 |
| 147 | + | 174 | 172 | 174 | + | 162 | 161 | 162 | + | 166 | 168 | 166 | + | 150 | 149 | 150 |
| 148 | + | 311 | 308 | 308 | + | 332 | 332 | 334 | + | 328 | 329 | 328 | + | 325 | 327 | 325 |
| 149 | + | 523 | 522 | 523 | + | 524 | 525 | 525 | + | 522 | 522 | 522 | + | 523 | 523 | 522 |
| 150 | + | 625 | 624 | 625 | + | 629 | 629 | 629 | + | 630 | 629 | 629 | + | 619 | 619 | 618 |
| 151 | + | 101 | 99 | 101 | + | 113 | 113 | 112 | + | 89 | 90 | 91 | + | 91 | 90 | 91 |
| 152 | + | 715 | 714 | 714 | + | 710 | 710 | 710 | + | 726 | 725 | 725 | + | 711 | 711 | 711 |
| 153 | + | 476 | 476 | 477 | + | 487 | 487 | 488 | + | 483 | 483 | 482 | + | 475 | 473 | 473 |
| 154 | + | 701 | 701 | 702 | + | 697 | 695 | 697 | + | 694 | 694 | 693 | + | 690 | 689 | 690 |
| 155 | + | 319 | 317 | 318 | + | 314 | 317 | 316 | + | 312 | 311 | 311 | + | 309 | 310 | 309 |
| 156 | + | 365 | 364 | 365 | + | 387 | 388 | 388 | + | 384 | 383 | 383 | + | 368 | 369 | 369 |
| 157 | + | 423 | 423 | 422 | + | 426 | 424 | 425 | + | 437 | 435 | 435 | + | 421 | 422 | 422 |
| 158 | + | 755 | 754 | 754 | + | 717 | 718 | 717 | + | 710 | 708 | 709 | + | 707 | 705 | 707 |
| 159 | + | 67 | 65 | 66 | + | 100 | 100 | 101 | + | 80 | 80 | 80 | + | 102 | 102 | 102 |
| 160 | + | 648 | 649 | 647 | + | 664 | 664 | 665 | + | 682 | 682 | 683 | + | 643 | 646 | 643 |
| 161 | + | 622 | 621 | 622 | + | 628 | 629 | 628 | + | 626 | 625 | 625 | + | 625 | 623 | 622 |
| 162 | + | 639 | 638 | 637 | + | 641 | 642 | 643 | + | 643 | 642 | 643 | + | 632 | 633 | 633 |
| 163 | − | 48 | 48 | 48 | − | 41 | 41 | 41 | − | 48 | 47 | 47 | − | 52 | 52 | 51 |
| 164 | + | 649 | 649 | 650 | + | 638 | 638 | 638 | + | 645 | 645 | 644 | + | 630 | 628 | 628 |
| 165 | + | 454 | 455 | 454 | + | 469 | 470 | 470 | + | 464 | 466 | 465 | + | 462 | 461 | 461 |
| 166 | + | 648 | 648 | 647 | + | 649 | 650 | 649 | + | 650 | 648 | 648 | + | 647 | 645 | 645 |
| 167 | + | 408 | 409 | 408 | + | 424 | 423 | 422 | + | 417 | 417 | 419 | + | 405 | 403 | 404 |
| 168 | + | 674 | 674 | 674 | + | 674 | 674 | 671 | + | 672 | 670 | 669 | + | 668 | 666 | 666 |
| 169 | + | 372 | 369 | 369 | + | 375 | 376 | 376 | + | 380 | 382 | 381 | + | 369 | 369 | 370 |
| 170 | + | 85 | 86 | 86 | + | 80 | 80 | 80 | + | 73 | 72 | 73 | + | 57 | 57 | 56 |

## SZUBIN.

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | — | 107 | 108 | 110 | — | 74 | 74 | 74 | — | 82 | 81 | 79 | — | 85 | 85 | 84 |
| 172 | — | 31 | 29 | 31 | — | 50 | 50 | 51 | — | 49 | 49 | 47 | — | 49 | 48 | 47 |
| 173 | — | 269 | 269 | 268 | — | 266 | 265 | 266 | — | 260 | 260 | 262 | — | 278 | 279 | 277 |
| 174 | — | 153 | 153 | 154 | — | 151 | 151 | 152 | — | 154 | 153 | 154 | — | 159 | 159 | 160 |
| 175 | — | 102 | 103 | 102 | — | 101 | 102 | 101 | — | 102 | 102 | 102 | — | 114 | 115 | 115 |
| 176 | — | 108 | 108 | 108 | — | 113 | 113 | 112 | — | 105 | 106 | 106 | — | 113 | 111 | 111 |
| 177 | — | 229 | 229 | 229 | — | 229 | 229 | 229 | — | 223 | 223 | 222 | — | 239 | 241 | 239 |
| 178 | — | 424 | 426 | 426 | — | 406 | 406 | 405 | — | 414 | 414 | 413 | — | 427 | 429 | 429 |
| 179 | — | 234 | 233 | 233 | — | 248 | 249 | 250 | — | 250 | 248 | 250 | — | 253 | 252 | 252 |
| 180 | — | 236 | 234 | 236 | — | 202 | 200 | 202 | — | 186 | 186 | 183 | — | 188 | 189 | 188 |
| 181 | — | 144 | 147 | 144 | — | 147 | 147 | 146 | — | 170 | 169 | 169 | — | 176 | 176 | 178 |
| 182 | — | 169 | 168 | 169 | — | 169 | 169 | 168 | — | 168 | 169 | 170 | — | 188 | 188 | 188 |
| 183 | — | 122 | 120 | 120 | — | 120 | 119 | 119 | — | 115 | 115 | 114 | — | 112 | 110 | 111 |
| 184 | — | 33 | 31 | 33 | — | 19 | 19 | 19 | — | 30 | 30 | 30 | — | 29 | 29 | 28 |
| 185 | — | 386 | 387 | 383 | — | 377 | 375 | 375 | — | 373 | 373 | 374 | — | 386 | 384 | 384 |
| 186 | — | 92 | 91 | 91 | — | 94 | 94 | — | — | 86 | 84 | 84 | — | 113 | 115 | 115 |
| 187 | + | 181 | 180 | 178 | + | 185 | 184 | 185 | + | 180 | 182 | 181 | + | 178 | 179 | 177 |
| 188 | — | 284 | 282 | 282 | — | 288 | 288 | 287 | — | 293 | 292 | 293 | — | 302 | 301 | 303 |
| 189 | — | 15 | 16 | 15 | + | 2 | 2 | 2 | + | 48 | 46 | 46 | + | 1 | 1 | 2 |
| 190 | — | 132 | 135 | 133 | — | 140 | 141 | 140 | — | 194 | 192 | 191 | — | 152 | 153 | 152 |
| 191 | + | 250 | 252 | 251 | + | 241 | 242 | 242 | + | 260 | 258 | 257 | + | 224 | 225 | 223 |
| 192 | — | 347 | 345 | 347 | — | 324 | 323 | 323 | — | 329 | 327 | 329 | — | 315 | 317 | 317 |
| 193 | — | 157 | 159 | 158 | — | 159 | 159 | 159 | — | 192 | 191 | 193 | — | 166 | 166 | 166 |
| 194 | — | 239 | 240 | 239 | — | 257 | 258 | 256 | — | 222 | 221 | 222 | — | 277 | 279 | 279 |
| 195 | — | 65 | 64 | 65 | — | 50 | 48 | 50 | — | 89 | 89 | 89 | — | 51 | 50 | 49 |
| 196 | + | 182 | 182 | 184 | + | 201 | 202 | 201 | + | 223 | 224 | 224 | + | 194 | 194 | 193 |
| 197 | — | 72 | 73 | 70 | — | 68 | 68 | 69 | — | 70 | 71 | 71 | — | 78 | 78 | 78 |
| 198 | + | 536 | 535 | 535 | + | 545 | 543 | 544 | + | 577 | 577 | 578 | + | 540 | 542 | 539 |
| 199 | — | 159 | 161 | 162 | — | 157 | 157 | 157 | — | 195 | 196 | 195 | — | 185 | 186 | 186 |
| 200 | + | 178 | 178 | 180 | + | 182 | 180 | 181 | + | 172 | 172 | 174 | + | 177 | 175 | 177 |
| 201 | + | 153 | 153 | 155 | + | 156 | 155 | 156 | + | 131 | 132 | 132 | + | 121 | 120 | 121 |
| 202 | + | 357 | 357 | 356 | + | 356 | 357 | 357 | + | 390 | 390 | 391 | + | 376 | 376 | 378 |
| 203 | — | 47 | 48 | 46 | — | 48 | 49 | 49 | — | 52 | 53 | 51 | — | 57 | 55 | 57 |
| 204 | + | 7 | 6 | 8 | + | 13 | 14 | 16 | + | 12 | 10 | 12 | + | 3 | 4 | 5 |
| 205 | — | 113 | 111 | 111 | — | 104 | 105 | 107 | — | 112 | 113 | 111 | — | 126 | 124 | 124 |
| 206 | + | 113 | 114 | 113 | + | 111 | 112 | 113 | + | 120 | 121 | 121 | + | 110 | 109 | 110 |
| 207 | + | 181 | 185 | 183 | + | 188 | 187 | 186 | + | 175 | 177 | 177 | + | 147 | 144 | 145 |
| 208 | — | 407 | 408 | 407 | — | 369 | 368 | 369 | — | 367 | 368 | 367 | — | 379 | 381 | 380 |
| 209 | + | 355 | 356 | 357 | + | 323 | 322 | 322 | + | 303 | 302 | 304 | + | 345 | 343 | 345 |
| 210 | + | 306 | 306 | 305 | + | 302 | 301 | 302 | + | 295 | 292 | 294 | + | 297 | 298 | 298 |
| 211 | — | 172 | 170 | 172 | — | 179 | 180 | 180 | — | 157 | 156 | 155 | — | 189 | 191 | 192 |
| 212 | — | 407 | 407 | 409 | — | 374 | 374 | 375 | — | 376 | 377 | 377 | — | 386 | 384 | 385 |
| 213 | + | 147 | 146 | 147 | + | 148 | 147 | 146 | + | 176 | 176 | 177 | + | 151 | 150 | 150 |

# SZUBIN.

| N:o | **635.** WE. 24.V. 14h0m – 18h30m. $t_1$:+25°0, $t_2$:+20°5. 1— 53: –S+B 54—106: –B+S 107—159: +B–S 160—213: +S–B | | | **636.** WE. 27.V. 8h45m –13h15m. $t_1$:+21°8, $t_2$:+26°5. 1— 53: –J+P 54—106: –P+J 107—159: +P–J 160—213: +J–P | | | **675.** WE. 28.V. 9h5m – 12h55m. $t_1$:+19°4, $t_2$:+22°8. 1— 53: –S+B 54—106: –B+S 107—159: +B–S 160—213: +S–B | | | **683.** WE. 31.V. 9h0m – 13h0m. $t_1$:+23°2, $t_2$:+18°1. 1— 53: +J–P 54—106: +P–J 107—159: –P+J 160—213: –J+P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 319 | 320 319 | + | 320 | 319 319 | + | 326 | 326 325 | + | 322 | 321 322 |
| 2 | + | 421 | 419 421 | + | 421 | 421 421 | + | 428 | 430 430 | + | 421 | 422 422 |
| 3 | + | 299 | 299 300 | + | 307 | 307 307 | + | 313 | 314 311 | + | 305 | 306 304 |
| 4 | + | 538 | 537 538 | + | 560 | 559 558 | + | 555 | 555 555 | + | 549 | 548 549 |
| 5 | + | 351 | 350 350 | + | 332 | 333 334 | + | 352 | 351 351 | + | 337 | 338 336 |
| 6 | + | 592 | 590 592 | + | 587 | 587 588 | + | 589 | 590 592 | + | 595 | 592 594 |
| 7 | + | 369 | 369 370 | + | 279 | 279 278 | + | 283 | 283 281 | + | 275 | 275 277 |
| 8 | + | 431 | 432 431 | + | 428 | 428 429 | + | 422 | 424 421 | + | 421 | 422 422 |
| 9 | + | 471 | 467 466 | + | 469 | 468 468 | + | 495 | 494 493 | + | 466 | 468 466 |
| 10 | + | 351 | 349 353 | + | 356 | 356 355 | + | 362 | 362 362 | + | 355 | 353 354 |
| 11 | + | 483 | 484 484 | + | 485 | 485 485 | + | 491 | 493 492 | + | 493 | 492 494 |
| 12 | + | 387 | 388 387 | + | 384 | 382 382 | + | 386 | 385 385 | + | 382 | 381 382 |
| 13 | + | 390 | 389 387 | + | 398 | 398 397 | + | 408 | 407 407 | + | 400 | 399 400 |
| 14 | + | 349 | 349 348 | + | 365 | 365 364 | + | 369 | 368 368 | + | 361 | 359 359 |
| 15 | + | 466 | 464 466 | + | 460 | 460 461 | + | 468 | 467 466 | + | 456 | 454 454 |
| 16 | + | 379 | 380 379 | + | 361 | 361 360 | + | 378 | 378 378 | + | 381 | 381 381 |
| 17 | + | 578 | 579 577 | + | 597 | 596 597 | + | 591 | 590 590 | + | 580 | 581 581 |
| 18 | + | 378 | 378 378 | + | 380 | 379 380 | + | 370 | 372 371 | + | 377 | 378 376 |
| 19 | + | 150 | 152 152 | + | 148 | 147 147 | + | 170 | 171 167 | + | 150 | 150 151 |
| 20 | + | 601 | 598 600 | + | 609 | 608 609 | + | 614 | 614 612 | + | 607 | 606 607 |
| 21 | + | 479 | 479 479 | + | 485 | 484 484 | + | 496 | 496 495 | + | 483 | 483 483 |
| 22 | + | 439 | 439 438 | + | 445 | 447 447 | + | 458 | 456 457 | + | 440 | 438 438 |
| 23 | + | 269 | 270 270 | + | 277 | 277 277 | + | 280 | 282 281 | + | 284 | 284 285 |
| 24 | + | 587 | 589 588 | + | 590 | 590 590 | + | 592 | 592 591 | + | 574 | 576 574 |
| 25 | + | 491 | 492 491 | + | 489 | 489 488 | + | 500 | 500 500 | + | 505 | 503 504 |
| 26 | + | 489 | 488 487 | + | 487 | 485 487 | + | 492 | 490 489 | + | 487 | 488 488 |
| 27 | + | 339 | 339 339 | + | 348 | 348 348 | + | 360 | 359 358 | + | 344 | 344 344 |
| 28 | + | 308 | 306 307 | + | 306 | 307 306 | + | 308 | 307 307 | + | 304 | 304 303 |
| 29 | + | 416 | 416 416 | + | 431 | 430 430 | + | 442 | 440 442 | + | 412 | 414 414 |
| 30 | + | 630 | 630 628 | + | 622 | 621 622 | + | 620 | 621 619 | + | 632 | 631 631 |
| 31 | + | 162 | 161 161 | + | 175 | 174 174 | + | 181 | 182 181 | + | 170 | 170 170 |
| 32 | + | 428 | 428 427 | + | 427 | 425 428 | + | 435 | 435 435 | + | 430 | 431 432 |
| 33 | + | 278 | 278 277 | + | 287 | 287 284 | + | 290 | 289 290 | + | 291 | 290 291 |
| 34 | + | 511 | 512 512 | + | 503 | 504 503 | + | 514 | 514 515 | + | 499 | 499 499 |
| 35 | + | 236 | 233 235 | + | 259 | 259 259 | + | 258 | 258 258 | + | 258 | 258 256 |
| 36 | + | 464 | 464 464 | + | 445 | 447 447 | + | 456 | 455 455 | + | 451 | 450 451 |
| 37 | + | 183 | 181 182 | + | 188 | 189 189 | + | 204 | 203 201 | + | 185 | 185 184 |
| 38 | + | 114 | 114 115 | + | 113 | 114 113 | + | 116 | 116 116 | + | 98 | 97 96 |
| 39 | + | 688 | 687 687 | + | 708 | 709 709 | + | 706 | 706 704 | + | 724 | 724 724 |
| 40 | + | 618 | 619 616 | + | 611 | 611 611 | + | 628 | 627 628 | + | 614 | 612 614 |
| 41 | + | 318 | 319 317 | + | 315 | 315 315 | + | 321 | 321 319 | + | 314 | 314 314 |
| 42 | + | 168 | 168 170 | + | 216 | 216 215 | + | 224 | 224 224 | + | 214 | 215 214 |
| 43 | + | 368 | 368 368 | + | 328 | 327 327 | + | 337 | 334 335 | + | 327 | 329 327 |
| 44 | + | 756 | 756 754 | + | 761 | 761 760 | + | 774 | 773 773 | + | 752 | 751 750 |
| 45 | + | 329 | 327 326 | + | 330 | 330 331 | + | 332 | 331 332 | + | 332 | 331 332 |
| 46 | + | 481 | 481 480 | + | 451 | 451 451 | + | 479 | 478 479 | + | 439 | 440 441 |
| 47 | + | 683 | 683 684 | + | 704 | 704 704 | + | 701 | 700 700 | + | 717 | 718 718 |
| 48 | + | 352 | 352 352 | + | 365 | 362 363 | + | 362 | 361 360 | + | 362 | 361 362 |
| 49 | + | 477 | 477 476 | + | 479 | 478 477 | + | 494 | 493 494 | + | 476 | 478 475 |
| 50 | + | 400 | 401 400 | + | 402 | 402 402 | + | 411 | 411 411 | + | 406 | 404 405 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | + | 402 | 402 | 403 | + | 416 | 418 | 417 | + | 409 | 411 | 410 | + | 421 | 421 | 421 |
| 52 | + | 421 | 422 | 422 | + | 411 | 411 | 412 | + | 428 | 428 | 427 | + | 405 | 406 | 406 |
| 53 | + | 353 | 350 | 351 | + | 368 | 368 | 365 | + | 361 | 361 | 360 | + | 327 | 327 | 327 |
| 54 | + | 347 | 349 | 347 | + | 236 | 236 | 236 | + | 259 | 260 | 258 | + | 283 | 284 | 284 |
| 55 | + | 476 | 477 | 477 | + | 660 | 659 | 658 | + | 660 | 659 | 659 | + | 633 | 632 | 633 |
| 56 | + | 360 | 360 | 361 | + | 287 | 286 | 287 | + | 305 | 306 | 306 | + | 282 | 283 | 281 |
| 57 | + | 458 | 458 | 459 | + | 551 | 553 | 552 | + | 549 | 547 | 547 | + | 571 | 571 | 573 |
| 58 | + | 453 | 452 | 453 | + | 368 | 368 | 368 | + | 372 | 373 | 373 | + | 372 | 372 | 371 |
| 59 | + | 501 | 498 | 499 | + | 513 | 514 | 513 | + | 514 | 513 | 513 | + | 498 | 498 | 498 |
| 60 | + | 421 | 421 | 420 | + | 413 | 414 | 414 | + | 431 | 431 | 429 | + | 426 | 428 | 427 |
| 61 | + | 469 | 469 | 469 | + | 470 | 470 | 470 | + | 471 | 471 | 472 | + | 463 | 462 | 461 |
| 62 | + | 307 | 308 | 307 | + | 311 | 312 | 311 | + | 324 | 324 | 324 | + | 321 | 322 | 321 |
| 63 | + | 480 | 481 | 481 | + | 480 | 479 | 480 | + | 487 | 488 | 486 | + | 485 | 484 | 484 |
| 64 | + | 511 | 513 | 512 | + | 512 | 512 | 512 | + | 512 | 514 | 512 | + | 510 | 510 | 510 |
| 65 | + | 414 | 414 | 413 | + | 422 | 422 | 422 | + | 433 | 433 | 434 | + | 419 | 418 | 417 |
| 66 | + | 436 | 439 | 439 | + | 447 | 447 | 447 | + | 453 | 454 | 454 | + | 452 | 454 | 452 |
| 67 | + | 406 | 409 | 408 | + | 372 | 372 | 371 | + | 376 | 376 | 378 | + | 402 | 403 | 403 |
| 68 | + | 434 | 434 | 433 | + | 456 | 455 | 455 | + | 453 | 456 | 455 | + | 428 | 428 | 427 |
| 69 | + | 464 | 463 | 463 | + | 473 | 475 | 475 | + | 494 | 493 | 493 | + | 470 | 468 | 470 |
| 70 | + | 452 | 452 | 452 | + | 456 | 455 | 455 | + | 455 | 455 | 457 | + | 450 | 451 | 450 |
| 71 | + | 467 | 467 | 467 | + | 467 | 465 | 466 | + | 472 | 472 | 473 | + | 472 | 470 | 472 |
| 72 | + | 408 | 409 | 410 | + | 411 | 410 | 410 | + | 422 | 423 | 423 | + | 412 | 413 | 413 |
| 73 | + | 509 | 507 | 509 | + | 486 | 484 | 487 | + | 481 | 482 | 480 | + | 488 | 488 | 488 |
| 74 | + | 403 | 402 | 401 | + | 425 | 424 | 425 | + | 445 | 445 | 446 | + | 425 | 424 | 425 |
| 75 | + | 676 | 677 | 677 | + | 682 | 681 | 681 | + | 694 | 692 | 693 | + | 672 | 675 | 672 |
| 76 | + | 301 | 301 | 303 | + | 309 | 309 | 308 | + | 313 | 314 | 314 | + | 318 | 319 | 319 |
| 77 | + | 529 | 528 | 529 | + | 524 | 525 | 525 | + | 536 | 536 | 536 | + | 521 | 521 | 522 |
| 78 | + | 540 | 542 | 541 | + | 544 | 544 | 542 | + | 551 | 551 | 547 | + | 530 | 530 | 530 |
| 79 | + | 563 | 564 | 565 | + | 560 | 560 | 561 | + | 573 | 574 | 573 | + | 582 | 581 | 582 |
| 80 | + | 486 | 486 | 485 | + | 486 | 483 | 484 | + | 488 | 487 | 488 | + | 480 | 480 | 480 |
| 81 | + | 457 | 458 | 459 | + | 437 | 434 | 437 | + | 444 | 444 | 445 | + | 424 | 426 | 425 |
| 82 | + | 389 | 388 | 388 | + | 374 | 374 | 373 | + | 379 | 381 | 380 | + | 400 | 400 | 400 |
| 83 | + | 427 | 426 | 426 | + | 475 | 476 | 475 | + | 473 | 474 | 474 | + | 452 | 453 | 452 |
| 84 | + | 330 | 332 | 329 | + | 322 | 323 | 321 | + | 338 | 338 | 338 | + | 325 | 325 | 323 |
| 85 | + | 380 | 383 | 381 | + | 397 | 394 | 392 | + | 397 | 398 | 398 | + | 399 | 399 | 399 |
| 86 | + | 357 | 357 | 356 | + | 354 | 356 | 355 | + | 357 | 357 | 356 | + | 354 | 353 | 353 |
| 87 | + | 663 | 661 | 662 | + | 663 | 662 | 665 | + | 675 | 675 | 675 | + | 660 | 659 | 660 |
| 88 | − | 3 | 1 | 1 | + | 3 | 3 | 4 | + | 13 | 15 | 14 | + | 3 | 3 | 4 |
| 89 | + | 352 | 352 | 353 | + | 343 | 346 | 344 | + | 356 | 356 | 356 | + | 349 | 350 | 349 |
| 90 | + | 654 | 654 | 655 | + | 673 | 671 | 672 | + | 681 | 683 | 682 | + | 677 | 676 | 677 |
| 91 | + | 185 | 186 | 186 | + | 180 | 181 | 180 | + | 178 | 178 | 178 | + | 173 | 173 | 175 |
| 92 | + | 633 | 634 | 634 | + | 634 | 633 | 632 | + | 640 | 639 | 640 | + | 633 | 632 | 633 |
| 93 | + | 635 | 636 | 635 | + | 640 | 639 | 640 | + | 652 | 651 | 652 | + | 640 | 639 | 639 |
| 94 | + | 319 | 319 | 321 | + | 323 | 322 | 322 | + | 328 | 330 | 329 | + | 313 | 315 | 314 |
| 95 | + | 689 | 691 | 691 | + | 691 | 692 | 692 | + | 699 | 700 | 699 | + | 704 | 704 | 704 |
| 96 | + | 666 | 669 | 668 | + | 663 | 666 | 664 | + | 676 | 675 | 677 | + | 664 | 664 | 663 |
| 97 | + | 492 | 492 | 493 | + | 503 | 503 | 505 | + | 510 | 510 | 511 | + | 500 | 500 | 500 |
| 98 | + | 408 | 410 | 410 | + | 406 | 408 | 407 | + | 413 | 412 | 411 | + | 411 | 413 | 414 |
| 99 | + | 456 | 456 | 457 | + | 461 | 462 | 462 | + | 464 | 463 | 464 | + | 465 | 466 | 464 |
| 100 | + | 244 | 245 | 247 | + | 250 | 250 | 250 | + | 254 | 253 | 250 | + | 247 | 246 | 244 |
| 101 | + | 574 | 574 | 574 | + | 577 | 577 | 575 | + | 586 | 587 | 586 | + | 565 | 565 | 566 |
| 102 | + | 340 | 338 | 339 | + | 329 | 329 | 329 | + | 333 | 332 | 333 | + | 343 | 342 | 341 |
| 103 | + | 381 | 382 | 380 | + | 394 | 395 | 394 | + | 404 | 403 | 403 | + | 401 | 402 | 402 |
| 104 | + | 608 | 608 | 609 | + | 608 | 608 | 608 | + | 613 | 612 | 614 | + | 606 | 607 | 606 |
| 105 | + | 650 | 650 | 649 | + | 656 | 655 | 654 | + | 661 | 661 | 662 | + | 671 | 670 | 670 |
| 106 | + | 64 | 66 | 66 | + | 68 | 70 | 70 | + | 81 | 80 | 80 | + | 49 | 49 | 50 |
| 107 | + | 531 | 531 | 531 | + | 532 | 534 | 533 | + | 555 | 554 | 554 | + | 526 | 525 | 525 |
| 108 | + | 460 | 460 | 462 | + | 461 | 461 | 461 | + | 454 | 453 | 455 | + | 460 | 461 | 461 |
| 109 | + | 348 | 347 | 346 | + | 350 | 351 | 351 | + | 357 | 357 | 357 | + | 349 | 349 | 349 |
| 110 | + | 392 | 393 | 392 | + | 393 | 394 | 392 | + | 404 | 404 | 406 | + | 395 | 393 | 394 |

## SZUBIN.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | + | 460 | 460 | 460 | + | 470 | 470 | 470 | + | 471 | 470 | 470 | + | 428 | 429 | 428 |
| 112 | + | 478 | 479 | 479 | + | 473 | 472 | 473 | + | 489 | 490 | 491 | + | 516 | 516 | 513 |
| 113 | + | 174 | 175 | 173 | + | 13 | 13 | 15 | − | 51 | 52 | 50 | + | 166 | 167 | 165 |
| 114 | + | 515 | 515 | 515 | + | 677 | 674 | 676 | + | 754 | 755 | 755 | + | 598 | 597 | 597 |
| 115 | + | 501 | 499 | 501 | + | 650 | 649 | 649 | + | 794 | 794 | 796 | + | 435 | 436 | 437 |
| 116 | + | 698 | 699 | 701 | + | 734 | 734 | 735 | + | 765 | 765 | 764 | + | 694 | 695 | 694 |
| 117 | + | 720 | 719 | 721 | + | 695 | 695 | 695 | + | 533 | 534 | 533 | + | 746 | 747 | 746 |
| 118 | + | 350 | 349 | 350 | + | 214 | 217 | 215 | + | 228 | 226 | 227 | + | 352 | 351 | 351 |
| 119 | + | 686 | 683 | 686 | + | 679 | 677 | 677 | + | 703 | 705 | 705 | + | 666 | 664 | 664 |
| 120 | + | 685 | 686 | 684 | + | 698 | 697 | 698 | + | 687 | 686 | 686 | + | 699 | 697 | 698 |
| 121 | + | 233 | 234 | 233 | + | 371 | 372 | 373 | + | 379 | 380 | 380 | + | 325 | 323 | 325 |
| 122 | + | 781 | 783 | 781 | + | 705 | 702 | 706 | + | 708 | 709 | 709 | + | 743 | 743 | 743 |
| 123 | + | 354 | 354 | 354 | + | 298 | 296 | 298 | + | 298 | 299 | 298 | + | 291 | 290 | 291 |
| 124 | + | 640 | 639 | 639 | + | 647 | 648 | 648 | + | 656 | 657 | 656 | + | 656 | 658 | 658 |
| 125 | + | 663 | 662 | 663 | + | 614 | 615 | 613 | + | 618 | 617 | 618 | + | 621 | 621 | 620 |
| 126 | + | 591 | 590 | 590 | + | 642 | 640 | 640 | + | 660 | 660 | 659 | + | 622 | 621 | 621 |
| 127 | + | 246 | 248 | 247 | + | 351 | 350 | 351 | + | 317 | 318 | 318 | + | 293 | 294 | 293 |
| 128 | + | 789 | 790 | 792 | + | 704 | 707 | 705 | + | 738 | 737 | − | + | 754 | 752 | 753 |
| 129 | + | 541 | 543 | 540 | + | 522 | 522 | 522 | + | 542 | 541 | 545 | + | 539 | 538 | 539 |
| 130 | + | 149 | 150 | 150 | + | 183 | 184 | 184 | + | 187 | 187 | 187 | + | 165 | 165 | 165 |
| 131 | + | 700 | 702 | 701 | + | 684 | 684 | 684 | + | 685 | 686 | 685 | + | 717 | 714 | 716 |
| 132 | + | 503 | 504 | 504 | + | 474 | 474 | 474 | + | 514 | 513 | 513 | + | 488 | 486 | 489 |
| 133 | + | 470 | 469 | 470 | + | 510 | 510 | 510 | + | 482 | 482 | 479 | + | 496 | 495 | 496 |
| 134 | + | 586 | 585 | 586 | + | 573 | 575 | 576 | + | 589 | 590 | 590 | + | 566 | 565 | 566 |
| 135 | + | 425 | 426 | 425 | + | 439 | 437 | 439 | + | 442 | 442 | 441 | + | 430 | 430 | 430 |
| 136 | + | 526 | 526 | 529 | + | 540 | 539 | 539 | + | 546 | 546 | 548 | + | 533 | 533 | 532 |
| 137 | + | 652 | 653 | 652 | + | 609 | 610 | 610 | + | 616 | 616 | 617 | + | 603 | 602 | 603 |
| 138 | + | 182 | 181 | 183 | + | 242 | 244 | 243 | + | 252 | 254 | 251 | + | 235 | 234 | 233 |
| 139 | + | 234 | 234 | 235 | + | 217 | 217 | 217 | + | 224 | 222 | 224 | + | 241 | 240 | 241 |
| 140 | + | 474 | 474 | 474 | + | 476 | 475 | 477 | + | 493 | 492 | 495 | + | 482 | 482 | 481 |
| 141 | + | 674 | 674 | 674 | + | 674 | 673 | 674 | + | 672 | 672 | 673 | + | 667 | 667 | 667 |
| 142 | + | 233 | 233 | 233 | + | 237 | 236 | 237 | + | 241 | 240 | 240 | + | 237 | 236 | 236 |
| 143 | + | 635 | 634 | 634 | + | 639 | 638 | 638 | + | 657 | 657 | 659 | + | 640 | 640 | 642 |
| 144 | + | 543 | 543 | 544 | + | 549 | 549 | 549 | + | 549 | 550 | 551 | + | 544 | 543 | 542 |
| 145 | + | 324 | 325 | 324 | + | 315 | 318 | 314 | + | 327 | 325 | 326 | + | 320 | 321 | 320 |
| 146 | + | 645 | 645 | 646 | + | 656 | 655 | 654 | + | 658 | 660 | 660 | + | 668 | 669 | 668 |
| 147 | + | 146 | 145 | 146 | + | 150 | 149 | 151 | + | 153 | 154 | 155 | + | 134 | 136 | 134 |
| 148 | + | 324 | 324 | 324 | + | 322 | 323 | 323 | + | 341 | 341 | 340 | + | 326 | 326 | 326 |
| 149 | + | 514 | 513 | 514 | + | 521 | 521 | 523 | + | 522 | 521 | 523 | + | 520 | 518 | 517 |
| 150 | + | 615 | 614 | 615 | + | 614 | 614 | 616 | + | 622 | 621 | 621 | + | 619 | 620 | 619 |
| 151 | + | 83 | 83 | 83 | + | 89 | 88 | 87 | + | 96 | 94 | 93 | + | 77 | 77 | 80 |
| 152 | + | 710 | 710 | 711 | + | 713 | 716 | 714 | + | 718 | 719 | 719 | + | 678 | 678 | 678 |
| 153 | + | 477 | 477 | 478 | + | 476 | 473 | 476 | + | 485 | 485 | 485 | + | 498 | 498 | 497 |
| 154 | + | 684 | 685 | 685 | + | 685 | 687 | 684 | + | 688 | 687 | 686 | + | 706 | 705 | 705 |
| 155 | + | 302 | 299 | 301 | + | 309 | 309 | 308 | + | 319 | 318 | 320 | + | 306 | 305 | 306 |
| 156 | + | 376 | 375 | 374 | + | 371 | 370 | 371 | + | 383 | 383 | 383 | + | 370 | 371 | 370 |
| 157 | + | 413 | 414 | 413 | + | 424 | 424 | 422 | + | 424 | 424 | 424 | + | 430 | 430 | 429 |
| 158 | + | 703 | 703 | 704 | + | 708 | 707 | 707 | + | 714 | 715 | 715 | + | 680 | 679 | 679 |
| 159 | + | 70 | 69 | 70 | + | 65 | 65 | 64 | + | 65 | 65 | 65 | + | 83 | 83 | 83 |
| 160 | + | 671 | 671 | 672 | + | 682 | 681 | 681 | + | 695 | 696 | 695 | + | 681 | 682 | 681 |
| 161 | + | 616 | 616 | 616 | + | 615 | 616 | 617 | + | 629 | 628 | 630 | + | 613 | 613 | 613 |
| 162 | + | 631 | 632 | 631 | + | 641 | 641 | 642 | + | 642 | 642 | 641 | + | 639 | 638 | 640 |
| 163 | − | 53 | 54 | 53 | − | 57 | 57 | 58 | − | 53 | 54 | 54 | − | 52 | 53 | 53 |
| 164 | + | 625 | 625 | 626 | + | 629 | 629 | 629 | + | 644 | 645 | 645 | + | 610 | 610 | 610 |
| 165 | + | 459 | 458 | 458 | + | 460 | 460 | 459 | + | 468 | 466 | 468 | + | 489 | 489 | 487 |
| 166 | + | 639 | 639 | 640 | + | 645 | 644 | 644 | + | 649 | 650 | 649 | + | 634 | 632 | 633 |
| 167 | + | 408 | 409 | 408 | + | 396 | 397 | 398 | + | 414 | 413 | 413 | + | 408 | 408 | 408 |
| 168 | + | 660 | 659 | 662 | + | 665 | 666 | 664 | + | 668 | 666 | 666 | + | 667 | 667 | 667 |
| 169 | + | 364 | 366 | 364 | + | 405 | 406 | 407 | + | 414 | 414 | 414 | + | 370 | 371 | 371 |
| 170 | + | 68 | 68 | 68 | + | 26 | 26 | 24 | + | 32 | 32 | 31 | + | 56 | 56 | 55 |

## SZUBIN.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | − | 91 | 89 | 90 | − | 85 | 85 | 85 | − | 83 | 82 | 82 | − | 90 | 90 | 90 |
| 172 | − | 61 | 61 | 61 | − | 50 | 51 | 50 | − | 41 | 43 | 42 | − | 29 | 29 | 28 |
| 173 | − | 278 | 278 | 279 | − | 287 | 285 | 287 | − | 280 | 280 | 279 | − | 312 | 314 | 312 |
| 174 | − | 163 | 161 | 163 | − | 155 | 157 | 156 | − | 145 | 144 | 145 | − | 156 | 154 | 155 |
| 175 | − | 113 | 112 | 112 | − | 108 | 108 | 110 | − | 110 | 109 | 110 | − | 104 | 105 | 102 |
| 176 | − | 124 | 124 | 124 | − | 121 | 122 | 122 | − | 108 | 109 | 108 | − | 99 | 98 | 98 |
| 177 | − | 241 | 241 | 240 | − | 241 | 242 | 241 | − | 235 | 234 | 233 | − | 249 | 249 | 249 |
| 178 | − | 418 | 418 | 418 | − | 421 | 422 | 423 | − | 418 | 418 | 418 | − | 423 | 422 | 421 |
| 179 | − | 259 | 260 | 261 | − | 258 | 258 | 257 | − | 245 | 245 | 245 | − | 264 | 263 | 264 |
| 180 | − | 198 | 198 | 199 | − | 197 | 198 | 197 | − | 193 | 191 | 192 | − | 185 | 183 | 183 |
| 181 | − | 173 | 175 | 173 | − | 179 | 180 | 179 | − | 171 | 168 | 170 | − | 180 | 181 | 182 |
| 182 | − | 181 | 182 | 181 | − | 175 | 177 | 175 | − | 175 | 175 | 176 | − | 179 | 180 | 179 |
| 183 | − | 132 | 129 | 130 | − | 116 | 115 | 116 | − | 100 | 102 | 101 | − | 127 | 127 | 127 |
| 184 | − | 31 | 30 | 30 | − | 33 | 34 | 32 | − | 28 | 26 | 28 | − | 19 | 19 | 19 |
| 185 | − | 389 | 389 | 389 | − | 390 | 390 | 390 | − | 353 | 353 | 352 | − | 380 | 381 | 382 |
| 186 | − | 106 | 107 | 107 | − | 104 | 104 | 104 | − | 121 | 122 | 122 | − | 108 | 109 | 108 |
| 187 | + | 173 | 173 | 175 | + | 167 | 167 | 167 | + | 173 | 173 | 173 | + | 166 | 164 | 165 |
| 188 | − | 299 | 299 | 301 | − | 289 | 288 | 287 | − | 285 | 286 | 287 | − | 295 | 296 | 296 |
| 189 | − | 11 | 8 | 9 | − | 19 | 18 | 18 | + | 3 | 2 | 1 | − | 3 | 2 | 2 |
| 190 | − | 152 | 152 | 152 | − | 146 | 143 | 145 | − | 146 | 144 | 145 | − | 171 | 172 | 172 |
| 191 | + | 229 | 229 | 229 | + | 230 | 229 | 230 | + | 232 | 231 | 230 | + | 246 | 247 | 247 |
| 192 | − | 336 | 336 | 334 | − | 328 | 327 | 325 | − | 316 | 316 | 316 | − | 323 | 323 | 323 |
| 193 | − | 171 | 171 | 172 | − | 172 | 173 | 173 | − | 164 | 163 | 163 | − | 180 | 180 | 179 |
| 194 | − | 270 | 270 | 268 | − | 267 | 266 | 264 | − | 259 | 258 | 259 | − | 276 | 275 | 277 |
| 195 | − | 59 | 59 | 58 | − | 53 | 54 | 54 | − | 45 | 45 | 45 | − | 67 | 66 | 67 |
| 196 | + | 188 | 187 | 189 | + | 193 | 194 | 192 | + | 202 | 202 | 201 | + | 206 | 204 | 205 |
| 197 | − | 81 | 81 | 81 | − | 80 | 79 | 79 | − | 72 | 72 | 71 | − | 58 | 59 | 59 |
| 198 | + | 531 | 532 | 532 | + | 528 | 528 | 528 | + | 547 | 546 | 547 | + | 522 | 522 | 523 |
| 199 | − | 170 | 169 | 169 | − | 170 | 170 | 172 | − | 181 | 180 | 180 | − | 157 | 157 | 158 |
| 200 | + | 170 | 169 | 169 | + | 177 | 176 | 176 | + | 187 | 185 | 185 | + | 149 | 149 | 149 |
| 201 | + | 144 | 144 | 143 | + | 111 | 111 | 110 | + | 128 | 128 | 128 | + | 138 | 138 | 138 |
| 202 | + | 345 | 344 | 345 | + | 379 | 378 | 378 | + | 381 | 380 | 380 | + | 385 | 387 | 387 |
| 203 | − | 61 | 60 | 59 | − | 53 | 53 | 56 | − | 48 | 49 | 50 | − | 73 | 73 | 72 |
| 204 | + | 2 | 1 | 3 | + | 7 | 5 | 6 | + | 12 | 15 | 12 | − | 7 | 6 | 7 |
| 205 | − | 120 | 119 | 120 | − | 115 | 116 | 116 | − | 114 | 115 | 115 | − | 103 | 104 | 104 |
| 206 | + | 102 | 103 | 101 | + | 101 | 100 | 102 | + | 113 | 113 | 112 | + | 102 | 103 | 103 |
| 207 | + | 176 | 176 | 176 | + | 148 | 149 | 150 | + | 183 | 183 | 182 | + | 142 | 143 | 143 |
| 208 | − | 381 | 380 | 379 | − | 377 | 376 | 379 | − | 402 | 402 | 401 | − | 344 | 344 | 345 |
| 209 | + | 314 | 312 | 313 | + | 340 | 339 | 338 | + | 347 | 348 | 346 | + | 307 | 306 | 306 |
| 210 | + | 290 | 290 | 292 | + | 298 | 296 | 297 | + | 307 | 308 | 308 | + | 302 | 303 | 303 |
| 211 | − | 192 | 192 | 191 | − | 186 | 188 | 187 | − | 182 | 184 | 182 | − | 199 | 201 | 200 |
| 212 | − | 385 | 385 | 386 | − | 389 | 389 | 389 | − | 380 | 380 | 380 | − | 410 | 410 | 409 |
| 213 | + | 134 | 132 | 132 | + | 158 | 156 | 157 | + | 156 | 158 | 157 | + | 174 | 172 | 172 |

## SVEKSNA.

| N:o | **636.** EW. 3.VI. $8^h30^m$—$14^h0^m$. $t_1$: +7°5, $t_1$: +11°5. 1— 67: +P−J 68—135: +J−P 136—203: −J+P 204—260: −P+J | | | **675.** EW. 5.VI. $7^h15^m$—$13^h10^m$. $t_1$: +8°8, $t_2$: +10°4. 1— 67: −B+S 68—135: −S+B 136—203: +S−B 204—269: +B−S | | | **673.** EW. 6.VI. $7^h10^m$—$12^h45^m$. $t_1$: +6°0, $t_2$: +10°0. 1— 68: +P−J 69—135: +J−P 136—203: −J+P 204—269: −P+J | | | **635.** EW. 7.VI. $9^h25^m$—$15^h20^m$. $t_1$:+11°5, $t_2$:+12°5. 1— 67: +S−B 68—135: +B−S 136—203: −B+S 204—269: −S+B | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | − | 46 | 43 | 44 | − | 41 | 41 | 40 | − | 38 | 39 | 39 | − | 51 | 51 | 53 |
| 2 | − | 55 | 56 | 52 | − | 34 | 34 | 36 | − | 31 | 30 | 31 | − | 45 | 44 | 45 |
| 3 | − | 26 | 25 | 25 | − | 21 | 20 | 21 | − | 39 | 40 | 41 | − | 46 | 45 | 45 |
| 4 | + | 116 | 117 | 116 | + | 134 | 134 | 134 | + | 137 | 137 | 136 | + | 119 | 120 | 120 |
| 5 | − | 106 | 107 | 107 | − | 100 | 100 | 100 | − | 84 | 85 | 84 | − | 95 | 95 | 94 |
| 6 | + | 71 | 71 | 71 | + | 54 | 53 | 54 | + | 72 | 72 | 73 | + | 46 | 47 | 48 |
| 7 | + | 78 | 76 | 77 | + | 106 | 105 | 105 | + | 108 | 106 | 106 | + | 96 | 98 | 98 |
| 8 | + | 103 | 102 | 103 | + | 98 | 98 | 98 | + | 89 | 87 | 89 | + | 82 | 82 | 82 |
| 9 | + | 120 | 121 | 120 | + | 127 | 127 | 128 | + | 140 | 139 | 139 | + | 119 | 120 | 119 |
| 10 | + | 162 | 161 | 162 | + | 184 | 186 | 186 | + | 171 | 170 | 171 | + | 182 | 181 | 181 |
| 11 | + | 287 | 287 | 286 | + | 319 | 315 | 321 | + | 313 | 312 | 313 | + | 278 | 278 | 279 |
| 12 | − | 63 | 62 | 63 | − | 99 | 98 | 97 | − | 63 | 64 | 64 | − | 76 | 78 | 77 |
| 13 | + | 99 | 97 | 96 | + | 118 | 118 | 118 | + | 137 | 128 | 130 | + | 114 | 115 | 115 |
| 14 | + | 208 | 209 | 209 | + | 219 | 219 | 217 | + | 209 | 207 | 209 | + | 194 | 192 | 194 |
| 15 | + | 241 | 242 | 242 | + | 226 | 223 | 223 | + | 266 | 266 | 264 | + | 251 | 252 | 252 |
| 16 | + | 155 | 153 | 153 | + | 138 | 139 | 138 | + | 120 | 120 | 120 | + | 108 | 109 | 109 |
| 17 | − | 50 | 48 | 49 | − | 21 | 19 | 19 | − | 39 | 41 | 41 | − | 41 | 39 | 40 |
| 18 | − | 116 | 117 | 115 | − | 120 | 118 | 119 | − | 102 | 100 | 101 | − | 130 | 130 | 129 |
| 19 | − | 188 | 187 | 187 | − | 164 | 164 | 164 | − | 142 | 143 | 142 | − | 155 | 155 | 155 |
| 20 | + | 184 | 183 | 182 | + | 155 | 155 | 153 | + | 149 | 149 | 149 | + | 131 | 132 | 131 |
| 21 | + | 135 | 135 | 134 | + | 152 | 151 | 153 | + | 166 | 165 | 165 | + | 160 | 160 | 160 |
| 22 | − | 2 | 1 | 2 | + | 7 | 6 | 8 | − | 7 | 6 | 6 | − | 11 | 13 | 13 |
| 23 | + | 202 | 202 | 201 | + | 212 | 210 | 213 | + | 222 | 224 | 222 | + | 191 | 191 | 191 |
| 24 | − | 83 | 81 | 84 | − | 68 | 69 | 69 | − | 71 | 73 | 71 | − | 78 | 78 | 77 |
| 25 | + | 173 | 172 | 172 | + | 161 | 165 | 167 | + | 180 | 178 | 180 | + | 157 | 156 | 157 |
| 26 | − | 30 | 29 | 30 | − | 37 | 36 | 35 | − | 34 | 35 | 36 | − | 31 | 29 | 29 |
| 27 | + | 37 | 36 | 38 | + | 58 | 58 | 59 | + | 68 | 69 | 67 | + | 41 | 41 | 40 |
| 28 | + | 202 | 202 | 200 | + | 212 | 213 | 212 | + | 190 | 189 | 190 | + | 198 | 198 | 197 |
| 29 | − | 157 | 158 | 157 | − | 143 | 144 | 145 | − | 128 | 130 | 130 | − | 162 | 161 | 162 |
| 30 | + | 259 | 260 | 259 | + | 266 | 266 | 267 | + | 263 | 263 | 265 | + | 260 | 261 | 260 |
| 31 | + | 242 | 241 | 241 | + | 240 | 239 | 238 | + | 261 | 262 | 262 | + | 247 | 246 | 247 |
| 32 | + | 125 | 125 | 126 | + | 135 | 135 | 135 | + | 128 | 126 | 127 | + | 111 | 110 | 110 |
| 33 | − | 9 | 8 | 10 | + | 5 | 5 | 5 | + | 2 | −1 | +1 | − | 10 | 10 | 9 |
| 34 | − | 128 | 130 | 128 | − | 146 | 146 | 146 | − | 121 | 121 | 120 | − | 155 | 159 | 154 |
| 35 | − | 203 | 204 | 203 | − | 146 | 144 | 147 | − | 187 | 185 | 186 | − | 181 | 182 | 182 |
| 36 | − | 154 | 154 | − | − | 160 | 160 | 160 | − | 156 | 156 | 157 | − | 159 | 159 | 160 |
| 37 | + | 157 | 158 | 159 | + | 150 | 151 | 149 | + | 187 | 189 | 186 | + | 153 | 154 | 153 |
| 38 | + | 263 | 263 | 262 | + | 268 | 267 | 266 | + | 252 | 252 | 252 | + | 255 | 257 | 256 |
| 39 | + | — | 193 | 194 | + | 194 | 194 | 195 | + | 221 | 221 | 221 | + | 200 | 201 | 201 |
| 40 | + | 226 | 223 | 225 | + | 208 | 210 | 208 | + | 220 | 219 | 221 | + | 215 | 214 | 216 |
| 41 | − | 71 | 72 | 72 | − | 43 | 42 | 41 | − | 75 | 75 | 75 | − | 70 | 68 | 70 |
| 42 | + | 265 | 264 | 265 | + | 244 | 245 | 247 | + | 279 | 278 | 278 | + | 240 | 241 | 239 |
| 43 | + | 34 | 36 | 33 | + | 68 | 68 | 67 | + | 54 | 55 | 54 | + | 42 | 42 | 43 |
| 44 | − | 164 | 166 | 167 | − | 168 | 172 | 170 | − | 152 | 152 | 154 | − | 164 | 164 | 164 |
| 45 | + | 174 | 173 | 173 | + | 187 | 188 | 187 | + | 200 | 207 | 205 | + | 158 | 159 | 156 |
| 46 | − | 67 | 66 | 68 | − | 54 | 56 | 56 | − | 98 | 99 | 99 | − | 64 | 64 | 64 |
| 47 | − | 152 | 151 | 150 | − | 156 | 156 | 154 | − | 127 | 130 | 130 | − | 154 | 152 | 154 |
| 48 | − | 155 | 156 | 156 | − | 145 | 146 | 146 | − | 141 | 143 | 142 | − | 166 | 165 | 166 |
| 49 | − | 191 | 190 | 192 | − | 177 | 176 | 177 | − | 187 | 183 | 184 | − | 191 | 191 | 193 |
| 50 | + | 76 | 78 | 77 | + | 92 | 87 | 82 | + | 80 | 77 | 77 | + | 78 | 79 | 80 |

# SVEKSNA.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | — | 57 | 58 | 58 | — | 54 | 53 | 54 | — | 40 | 39 | 39 | — | 63 | 63 | 64 |
| 52 | — | 116 | 117 | 115 | — | 115 | 115 | 116 | — | 110 | 109 | 111 | — | 113 | 114 | 112 |
| 53 | — | 51 | 51 | 51 | — | 25 | 24 | 24 | — | 23 | 21 | 21 | — | 36 | 37 | 38 |
| 54 | — | 43 | 44 | 41 | — | 40 | 39 | 39 | — | 40 | 41 | 42 | — | 58 | 58 | 57 |
| 55 | — | 216 | 214 | 215 | — | 214 | 213 | 213 | — | 202 | 201 | 202 | — | 217 | 217 | 217 |
| 56 | + | — | 176 | 176 | + | 178 | 178 | 178 | + | 200 | 200 | 200 | + | 182 | 182 | 182 |
| 57 | — | 41 | 42 | 42 | — | 47 | 47 | 47 | — | 56 | 57 | 59 | — | 59 | 60 | 61 |
| 58 | — | 108 | 107 | 109 | — | 97 | 96 | 96 | — | 89 | 89 | 90 | — | 104 | 104 | 105 |
| 59 | + | 122 | 120 | 122 | + | 124 | 124 | 123 | + | 122 | 123 | 122 | + | 117 | 116 | 118 |
| 60 | + | 146 | 146 | 144 | + | 178 | — | 178 | + | 179 | 178 | 178 | + | 149 | 149 | 148 |
| 61 | + | 82 | 80 | 80 | + | 77 | 76 | 77 | + | 82 | 84 | 82 | + | 70 | 71 | 71 |
| 62 | — | 39 | 40 | 40 | — | 60 | 60 | 61 | — | 58 | 57 | 59 | — | 46 | 46 | 43 |
| 63 | + | 242 | 242 | 242 | + | 260 | 259 | 260 | + | 260 | 260 | 260 | + | 236 | 235 | 236 |
| 64 | + | — | 123 | 122 | + | 140 | 140 | 140 | + | 153 | 153 | 153 | + | 135 | 134 | 135 |
| 65 | — | 183 | 183 | 184 | — | 179 | 178 | 178 | — | 166 | 165 | 164 | — | 179 | 178 | 178 |
| 66 | — | 46 | 45 | 46 | — | 44 | 44 | 43 | — | 20 | 21 | 21 | — | 61 | 61 | 61 |
| 67 | + | 176 | 176 | 177 | + | 202 | 205 | 203 | + | 165 | 163 | 165 | + | 175 | 176 | 175 |
| 68 | + | 45 | 42 | 45 | + | 29 | 29 | 30 | + | 67 | 65 | 68 | + | 42 | 42 | 43 |
| 69 | + | 236 | 236 | 238 | + | 212 | 210 | 209 | + | 242 | 242 | 241 | + | 226 | 225 | 226 |
| 70 | + | 119 | 117 | 115 | + | 166 | 164 | 164 | + | 151 | 151 | 150 | + | 105 | 105 | 107 |
| 71 | — | 157 | 158 | 158 | — | 168 | — | 170 | — | 195 | 194 | 194 | — | 162 | 162 | 162 |
| 72 | + | 50 | 51 | 51 | + | 72 | 71 | 73 | + | 83 | 85 | 85 | + | 70 | 70 | 70 |
| 73 | + | 157 | 158 | 159 | + | 150 | 150 | 151 | + | 170 | 169 | 170 | + | 139 | 139 | 139 |
| 74 | + | 216 | 217 | 215 | + | 226 | 226 | 227 | + | 219 | 219 | 221 | + | 222 | 222 | 221 |
| 75 | — | 23 | 23 | 24 | + | 5 | 6 | 4 | — | 22 | 21 | 19 | — | 30 | 30 | 30 |
| 76 | — | 140 | 139 | 140 | — | 153 | 153 | 153 | — | 125 | 126 | 125 | — | 144 | 144 | 145 |
| 77 | — | 130 | 129 | 130 | — | 127 | 127 | 127 | — | 130 | 130 | 130 | — | 131 | 131 | 130 |
| 78 | + | 7 | 8 | 7 | + | 23 | 22 | 23 | + | 18 | 18 | 19 | + | 10 | 10 | 10 |
| 79 | — | 100 | 101 | 99 | — | 77 | 77 | 76 | — | 77 | 75 | 77 | — | 111 | 110 | 111 |
| 80 | + | 81 | 81 | 82 | + | 75 | 77 | 77 | + | 84 | 83 | 82 | + | 91 | 91 | 90 |
| 81 | + | 222 | 223 | 222 | + | 207 | 206 | 207 | + | 242 | 240 | 241 | + | 208 | 207 | 207 |
| 82 | + | 198 | 198 | 198 | + | 219 | 219 | 220 | + | 202 | 204 | 203 | + | 191 | 191 | 192 |
| 83 | + | 180 | 179 | 178 | + | 254 | 253 | 254 | + | 232 | 232 | 232 | + | 228 | 228 | 228 |
| 84 | + | 112 | 110 | 112 | + | 70 | 68 | 69 | + | 94 | 93 | 92 | + | 76 | 77 | 75 |
| 85 | + | 170 | 170 | 170 | + | 154 | 152 | 152 | + | 158 | 159 | 159 | + | 161 | 161 | 161 |
| 86 | — | 88 | 90 | 88 | — | 76 | 79 | 79 | — | 70 | 70 | 70 | — | 100 | 99 | 98 |
| 87 | + | 139 | 140 | 138 | + | 142 | 142 | 142 | + | 148 | 147 | 148 | + | 134 | 136 | 135 |
| 88 | + | 60 | 59 | 60 | + | 76 | 77 | 76 | + | 61 | 60 | 62 | + | 60 | 59 | 61 |
| 89 | + | 72 | 73 | 71 | + | 99 | 101 | 101 | + | 76 | 75 | 73 | + | 60 | 60 | 60 |
| 90 | + | 218 | 218 | 218 | + | 219 | 219 | 219 | + | 259 | 257 | 256 | + | 238 | 238 | 237 |
| 91 | + | 88 | 87 | 90 | + | 89 | 90 | 90 | + | 71 | 70 | 71 | + | 80 | 79 | 81 |
| 92 | — | 140 | 141 | 140 | — | 161 | 160 | 159 | — | 143 | 145 | 143 | — | 153 | 156 | 153 |
| 93 | — | 210 | 209 | 211 | — | 194 | 194 | 192 | — | 199 | 200 | 199 | — | 211 | 210 | 211 |
| 94 | — | 32 | 31 | 31 | — | 12 | 12 | 12 | + | 2 | 6 | 3 | — | 39 | 40 | 39 |
| 95 | + | 17 | 16 | 17 | — | 448 | 448 | 448 | — | 260 | 261 | 260 | — | 250 | 251 | 250 |
| 96 | — | 146 | 143 | 146 | + | 328 | 328 | 326 | + | 148 | 147 | 148 | + | 112 | 114 | 114 |
| 97 | — | 99 | 98 | 97 | — | 102 | 103 | 103 | — | 93 | 95 | 94 | — | 94 | 93 | 94 |
| 98 | — | 268 | 268 | 269 | — | 257 | 258 | 259 | — | 282 | 281 | 280 | — | 273 | 273 | 272 |
| 99 | — | 273 | 273 | 272 | — | 246 | 247 | 247 | — | 230 | 231 | 231 | — | 253 | 252 | 250 |
| 100 | — | 230 | 228 | 230 | — | 218 | 217 | 218 | — | 233 | 235 | 235 | — | 238 | 237 | 238 |
| 101 | — | 211 | 210 | 211 | — | 212 | 211 | 212 | — | 185 | 187 | 184 | — | 212 | 212 | 213 |
| 102 | — | 73 | 76 | 75 | — | 61 | 61 | 61 | — | 79 | 80 | 81 | — | 82 | 83 | 82 |
| 103 | — | 49 | 51 | 50 | — | 58 | 56 | 57 | — | 24 | 26 | 25 | — | 67 | 65 | 66 |
| 104 | — | 252 | 253 | 250 | — | 234 | 235 | 235 | — | 231 | 232 | 234 | — | 239 | 239 | 240 |
| 105 | + | 143 | 143 | 146 | + | 138 | 139 | 138 | + | 150 | 151 | 150 | + | 145 | 145 | 145 |
| 106 | + | 242 | 241 | 242 | + | 243 | 243 | 241 | + | 233 | 232 | 232 | + | 226 | 227 | 229 |
| 107 | — | 177 | 177 | 177 | — | 151 | 152 | 152 | — | 152 | 152 | 151 | — | 154 | 154 | 156 |
| 108 | — | 211 | 212 | 211 | — | 194 | 194 | 193 | — | 208 | 208 | 207 | — | 226 | 225 | 225 |
| 109 | + | 18 | 19 | 18 | + | 9 | 9 | 9 | + | 11 | 13 | 12 | + | 11 | 10 | 10 |
| 110 | + | 11 | 13 | 13 | + | 20 | 18 | 19 | + | 38 | 35 | 37 | + | 22 | 21 | 23 |

## SVEKSNA.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | + | 199 | 197 | 198 | + | 190 | 191 | 190 | + | 206 | 205 | 206 | + | 172 | 170 | 172 |
| 112 | − | 423 | 421 | 424 | − | 378 | 378 | 378 | − | 421 | 420 | 421 | − | 404 | 403 | 402 |
| 113 | + | 136 | 135 | 136 | + | 105 | 106 | 107 | + | 133 | 132 | 132 | + | 109 | 109 | 110 |
| 114 | + | 171 | 171 | 172 | + | 209 | 208 | 209 | + | 209 | 207 | 209 | + | 186 | 187 | 187 |
| 115 | + | 169 | 170 | 169 | + | 161 | 160 | 159 | + | 152 | 151 | 151 | + | 158 | 159 | 157 |
| 116 | − | 13 | 12 | 14 | + | 8 | 8 | 7 | + | 4 | 3 | 3 | − | 7 | 8 | 8 |
| 117 | + | 197 | 199 | 199 | + | 181 | 180 | 180 | + | 191 | 193 | 192 | + | 193 | 194 | 192 |
| 118 | + | 199 | 199 | 197 | + | 216 | 216 | 216 | + | 228 | 227 | 228 | + | 193 | 192 | 192 |
| 119 | + | 202 | 202 | 203 | + | 199 | 199 | 197 | + | 201 | 200 | 202 | + | 209 | 209 | 210 |
| 120 | + | 100 | 101 | 99 | + | 112 | 115 | 110 | + | 117 | 118 | 118 | + | 80 | 82 | 80 |
| 121 | + | 138 | 139 | 138 | + | 153 | 152 | 150 | + | 135 | 138 | 137 | + | 146 | 145 | 145 |
| 122 | − | 99 | 99 | 98 | − | 93 | 95 | 93 | − | 73 | 75 | 73 | − | 106 | 107 | 108 |
| 123 | + | 3 | — | 3 | + | 9 | 9 | 9 | + | — | 15 | 14 | + | 10 | 10 | 11 |
| 124 | + | 113 | 113 | 115 | + | 130 | 129 | 129 | + | 111 | 108 | 111 | + | 102 | 101 | 100 |
| 125 | + | 153 | 154 | 153 | + | 155 | 155 | 155 | + | 185 | 183 | 182 | + | 155 | 157 | 156 |
| 126 | + | 208 | 209 | 208 | + | 210 | 209 | 210 | + | 210 | 209 | 210 | + | 206 | 206 | 205 |
| 127 | − | 33 | 33 | 33 | − | 20 | 21 | 19 | − | 20 | 21 | 22 | − | 38 | 35 | 34 |
| 128 | + | 227 | 229 | 227 | + | — | 240 | 241 | + | 228 | 227 | 227 | + | 226 | 226 | 226 |
| 129 | − | 93 | 93 | 92 | − | 79 | 79 | 78 | − | 88 | 89 | 90 | − | 85 | 84 | 85 |
| 130 | + | 232 | 232 | 232 | + | 218 | 217 | 218 | + | 243 | 243 | 243 | + | 221 | 219 | 221 |
| 131 | + | 144 | 146 | 144 | + | 160 | 160 | 160 | + | 169 | 169 | 170 | + | 152 | 152 | 151 |
| 132 | + | 212 | 211 | 213 | + | 219 | 218 | 217 | + | 194 | 191 | 192 | − | 120 | 119 | 121 |
| 133 | + | 198 | 198 | 198 | + | 178 | 177 | 179 | + | 222 | 221 | 221 | + | 499 | 500 | 501 |
| 134 | + | 261 | 262 | 261 | + | 300 | 299 | 300 | + | 285 | 286 | 287 | − | 17 | 18 | 17 |
| 135 | + | 160 | 161 | 161 | + | 156 | 154 | 156 | + | 130 | 128 | 128 | + | 431 | 432 | 431 |
| 136 | + | 113 | 113 | 113 | + | 125 | 124 | 125 | + | 155 | 157 | 154 | + | 102 | 103 | 105 |
| 137 | − | 24 | 23 | 23 | − | 10 | 8 | 9 | − | 27 | 28 | 27 | − | 11 | 10 | 8 |
| 138 | + | 26 | 25 | 27 | + | 29 | 28 | 29 | + | 46 | 45 | 46 | + | 32 | 32 | 32 |
| 139 | + | 173 | 172 | 172 | + | 177 | 178 | 177 | + | 190 | 192 | 193 | + | 175 | 175 | 176 |
| 140 | − | 173 | 171 | 171 | − | 160 | 160 | 160 | − | 174 | 175 | 172 | − | 165 | 165 | 167 |
| 141 | + | 109 | 109 | 109 | + | 109 | 105 | 107 | + | 114 | 117 | 115 | + | 84 | 83 | 83 |
| 142 | − | 215 | 216 | 216 | − | 212 | 211 | 211 | − | 209 | 209 | 210 | − | 211 | 211 | 212 |
| 143 | + | 178 | 178 | 176 | + | 180 | 178 | 179 | + | 181 | 180 | 182 | + | 170 | 167 | 169 |
| 144 | + | 164 | 164 | 165 | + | 195 | 196 | 196 | + | 187 | 186 | 186 | + | 183 | 182 | 183 |
| 145 | + | 154 | 154 | 154 | + | 151 | 150 | 151 | + | 152 | 153 | 153 | + | 131 | 132 | 133 |
| 146 | − | 88 | 87 | 89 | − | 116 | 111 | 115 | − | 95 | 95 | 96 | − | 93 | 92 | 93 |
| 147 | + | 215 | 214 | 215 | + | 257 | 257 | 257 | + | 249 | 247 | 249 | + | 219 | 220 | 219 |
| 148 | + | 120 | 120 | 120 | + | 123 | 123 | 124 | + | 127 | 126 | 126 | + | 123 | 122 | 125 |
| 149 | − | 195 | 194 | 193 | − | 180 | 180 | 182 | − | 181 | 181 | 180 | − | 196 | 195 | 195 |
| 150 | − | 72 | 72 | 74 | − | 73 | 73 | 72 | − | 52 | 52 | 53 | − | 110 | 110 | 109 |
| 151 | − | 116 | 117 | 116 | − | 116 | 116 | 116 | − | 118 | 118 | 118 | − | 98 | 100 | 99 |
| 152 | + | 205 | 207 | 206 | + | 215 | 216 | 216 | + | 212 | 211 | 210 | + | 208 | 209 | 208 |
| 153 | + | 187 | 186 | 186 | + | 195 | 194 | 195 | + | 192 | 193 | 193 | + | 184 | 182 | 183 |
| 154 | + | 1 | 1 | 1 | + | 6 | 6 | 5 | + | 16 | 19 | 17 | + | 4 | 4 | 4 |
| 155 | + | 277 | 277 | 276 | + | 285 | 285 | 287 | + | 284 | 282 | 281 | + | 268 | 267 | 268 |
| 156 | − | 141 | 143 | 142 | − | 126 | 127 | 126 | − | 139 | 138 | 138 | − | 150 | 149 | 149 |
| 157 | + | 212 | 210 | 211 | + | 198 | 199 | 197 | + | 208 | 209 | 208 | + | 215 | 217 | 216 |
| 158 | − | 57 | 59 | 57 | − | 40 | 41 | 41 | − | 25 | 27 | 24 | − | 60 | 60 | 59 |
| 159 | − | 111 | 112 | 112 | − | 105 | 106 | 107 | − | 113 | 116 | 115 | − | 123 | 123 | 124 |
| 160 | + | 158 | 155 | 157 | + | 168 | 166 | 168 | + | 192 | 191 | 193 | + | 158 | 158 | 157 |
| 161 | + | 22 | 23 | — | + | 30 | 30 | 28 | + | 5 | 6 | 5 | + | 9 | 7 | 9 |
| 162 | + | 51 | 49 | 50 | + | 55 | 56 | 56 | + | 51 | 52 | 50 | + | 47 | 48 | 48 |
| 163 | − | 107 | 107 | 105 | − | 101 | 101 | 102 | − | 93 | 93 | 92 | − | 104 | 106 | 106 |
| 164 | + | 158 | 158 | 158 | + | 164 | 164 | 164 | + | 172 | 171 | 170 | + | 160 | 160 | 162 |
| 165 | + | 94 | 94 | 94 | + | 105 | 104 | 104 | + | 92 | 93 | 93 | + | 83 | 81 | 82 |
| 166 | − | 93 | 91 | 92 | − | 91 | 88 | 90 | − | 65 | 64 | 66 | − | 78 | 78 | 79 |
| 167 | + | 192 | 192 | 193 | + | 205 | 205 | 204 | + | 198 | 198 | 198 | + | 185 | 183 | 182 |
| 168 | + | 203 | 203 | 205 | + | 222 | 220 | 221 | + | 199 | 198 | 198 | + | 198 | 199 | 198 |
| 169 | + | 100 | 100 | 100 | + | 105 | 106 | 104 | + | 156 | 155 | 154 | + | 106 | 105 | 105 |
| 170 | − | 67 | 67 | 67 | − | 79 | 79 | 79 | − | 89 | 90 | 90 | − | 85 | 86 | 86 |

## SVEKSNA.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | + | 31 | 33 | 31 | + | 36 | 34 | 35 | + | 41 | 41 | 40 | + | 40 | 40 | 40 |
| 172 | − | 131 | 133 | 133 | − | 96 | 97 | 97 | − | 110 | 110 | 111 | − | 133 | 133 | 134 |
| 173 | − | 119 | 117 | 116 | − | 114 | 116 | 116 | − | 109 | 109 | 109 | − | 119 | 119 | 118 |
| 174 | + | 59 | 59 | 59 | + | 36 | 34 | 35 | + | 41 | 41 | 43 | + | 62 | 63 | 62 |
| 175 | + | 170 | 169 | 171 | + | 231 | 230 | 231 | + | 195 | 196 | 193 | + | 150 | 150 | 149 |
| 176 | + | 220 | 219 | 219 | + | 181 | 182 | 181 | + | 228 | 228 | 229 | + | 219 | 219 | 219 |
| 177 | − | 2 | − | 3 | + | 26 | 25 | 25 | + | 12 | 13 | 12 | + | 3 | 3 | 2 |
| 178 | − | 63 | 66 | 65 | − | 71 | 72 | 72 | − | 62 | 61 | 61 | − | 75 | 75 | 74 |
| 179 | + | 272 | 271 | 270 | + | 267 | 269 | 271 | + | 267 | 264 | 265 | + | 257 | 257 | 256 |
| 180 | + | 233 | 230 | 230 | + | 260 | 260 | 261 | + | 267 | 264 | 267 | + | 251 | 250 | 250 |
| 181 | + | 20 | 20 | 20 | + | 13 | 13 | 13 | + | 25 | 23 | 23 | + | 9 | 9 | 9 |
| 182 | + | 63 | 63 | 64 | + | 71 | 71 | 71 | + | 76 | 78 | 77 | + | 64 | 64 | 64 |
| 183 | + | 48 | 47 | 47 | + | 73 | 74 | 75 | + | 49 | 47 | 49 | + | 38 | 40 | 38 |
| 184 | − | 104 | 102 | 103 | − | 131 | 130 | 132 | − | 90 | 92 | 92 | − | 109 | 108 | 108 |
| 185 | − | 91 | 90 | 91 | − | 70 | 69 | 69 | − | 72 | 71 | 74 | − | 79 | 80 | 82 |
| 186 | − | 160 | 160 | 159 | − | 131 | 133 | 134 | − | 155 | 155 | 153 | − | 162 | 162 | 162 |
| 187 | − | 194 | 194 | 194 | − | 202 | 202 | 203 | − | 181 | 180 | 180 | − | 200 | 203 | 199 |
| 188 | − | 45 | 47 | 46 | − | 40 | 40 | 39 | − | 46 | 48 | 48 | − | 55 | 54 | 54 |
| 189 | − | 285 | 286 | 287 | − | 270 | 271 | 272 | − | 266 | 267 | 266 | − | 299 | 299 | 299 |
| 190 | + | 251 | 249 | 249 | + | 254 | 255 | 255 | + | 258 | 258 | 259 | + | 261 | 260 | 260 |
| 191 | + | 224 | 222 | 225 | + | 225 | 219 | 219 | + | 213 | 215 | 212 | + | 213 | 212 | 213 |
| 192 | + | 27 | 24 | 26 | + | 45 | 45 | 47 | + | 43 | 43 | 42 | + | 13 | 12 | 14 |
| 193 | + | 55 | 58 | 58 | + | 61 | 61 | 61 | + | 64 | 64 | 64 | + | 71 | 72 | 72 |
| 194 | + | 38 | 34 | 37 | + | 45 | 46 | 46 | + | 52 | 51 | 52 | + | 29 | 29 | 26 |
| 195 | + | 99 | 101 | 100 | + | 84 | 85 | 87 | + | 100 | 99 | 99 | + | 90 | 88 | 91 |
| 196 | − | 244 | 243 | 245 | − | 220 | 219 | 222 | − | 241 | 239 | 240 | − | 230 | 230 | 232 |
| 197 | + | 33 | 33 | 32 | + | 32 | 33 | 32 | + | 50 | 50 | 49 | − | 5 | 5 | 5 |
| 198 | + | 18 | 17 | 17 | + | 25 | 24 | 24 | + | 43 | 40 | 42 | + | 30 | 29 | 31 |
| 199 | + | 8 | 9 | 7 | + | 9 | 9 | 10 | − | 13 | 16 | 15 | + | 6 | 6 | 5 |
| 200 | + | 81 | 80 | 82 | + | 95 | 94 | 95 | + | 122 | 123 | 123 | + | 69 | 69 | 69 |
| 201 | + | 144 | 144 | 145 | + | 153 | 152 | 151 | + | 145 | 145 | 143 | + | 154 | 154 | 153 |
| 202 | − | 153 | 153 | 153 | − | 131 | 133 | 133 | − | 145 | 144 | 143 | − | 156 | 157 | 154 |
| 203 | + | 10 | 9 | 10 | − | 13 | 14 | 14 | + | 10 | 12 | 11 | + | 5 | 3 | 6 |
| 204 | + | 30 | 32 | 30 | + | 49 | 49 | 49 | + | 51 | 48 | 48 | + | 19 | 19 | 21 |
| 205 | + | 187 | 186 | 187 | + | 200 | 200 | 199 | + | 205 | 208 | 208 | + | 197 | 196 | 197 |
| 206 | − | 104 | 104 | − | − | 100 | 100 | 100 | − | 101 | 101 | 101 | − | 105 | 107 | 107 |
| 207 | + | 11 | 11 | 9 | + | 22 | 24 | 25 | + | 16 | 15 | 18 | + | 3 | 4 | 2 |
| 208 | + | 49 | 49 | 50 | + | 44 | 45 | 45 | + | 39 | 37 | 36 | + | 24 | 22 | 25 |
| 209 | − | 121 | 121 | 122 | − | 117 | 117 | 115 | − | 72 | 74 | 74 | − | 110 | 111 | 111 |
| 210 | − | 118 | 118 | 118 | − | 107 | 107 | 109 | − | 110 | 110 | 109 | − | 109 | 108 | 108 |
| 211 | − | 113 | 113 | 114 | − | 110 | 110 | 109 | − | 127 | 127 | 128 | − | 132 | 132 | 131 |
| 212 | − | 59 | 59 | 61 | − | 45 | 45 | 45 | − | 38 | 39 | 39 | − | 59 | 59 | 57 |
| 213 | + | 73 | 74 | 75 | + | 89 | 89 | 88 | + | 74 | 76 | 74 | + | 72 | 71 | 72 |
| 214 | − | 169 | 168 | 168 | − | 155 | 156 | 156 | − | 176 | 173 | 174 | − | 174 | 173 | 174 |
| 215 | + | 4 | 3 | 2 | − | 4 | 6 | 4 | + | 21 | 20 | 21 | − | 7 | 7 | 6 |
| 216 | + | 43 | 46 | 43 | + | 44 | 42 | 43 | + | 61 | 60 | 60 | + | 44 | 44 | 44 |
| 217 | − | 37 | 36 | 36 | − | 22 | 22 | 22 | − | 21 | 21 | 20 | − | 42 | 41 | 43 |
| 218 | − | 40 | 40 | 40 | − | 47 | 46 | 45 | − | 30 | 32 | 33 | − | 36 | 35 | 37 |
| 219 | + | 191 | 189 | 192 | + | 192 | 192 | 193 | + | 189 | 191 | 189 | + | 175 | 173 | 174 |
| 220 | − | 88 | 86 | 89 | − | 66 | 66 | 66 | − | 70 | 69 | 69 | − | 103 | 103 | 102 |
| 221 | − | 49 | 47 | 49 | − | 28 | 25 | 28 | − | 40 | 40 | 41 | − | 17 | 18 | 17 |
| 222 | + | 159 | 158 | 160 | + | 150 | 149 | 150 | + | 177 | 177 | 176 | + | 139 | 141 | 139 |
| 223 | + | 114 | 116 | 117 | + | 129 | 130 | 129 | + | 121 | 122 | 121 | + | 121 | 121 | 121 |
| 224 | − | 130 | 131 | 130 | − | 116 | 116 | 118 | − | 122 | 125 | 124 | − | 138 | 138 | 138 |
| 225 | + | 47 | 49 | 47 | + | 51 | 52 | 52 | + | 57 | 55 | 55 | + | 42 | 41 | 41 |
| 226 | + | 182 | 181 | 183 | + | 157 | 158 | 156 | + | 182 | 181 | 181 | + | 168 | 169 | 168 |
| 227 | − | 101 | 101 | 102 | − | 58 | 59 | 59 | − | 60 | 60 | 61 | − | 65 | 64 | 65 |
| 228 | − | 190 | 190 | 190 | − | 197 | 196 | 195 | − | 195 | 197 | 197 | − | 220 | 220 | 218 |
| 229 | + | 91 | 92 | 91 | + | 104 | 103 | 103 | + | 87 | 86 | 89 | + | 88 | 89 | 88 |
| 230 | − | 82 | 80 | 80 | − | 77 | 78 | 78 | − | 56 | 53 | 55 | − | 97 | 97 | 96 |

## SVEKSNA.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 231 | — | 194 | 196 | 195 | — | 188 | 187 | 188 | — | 185 | 185 | 184 | — | 178 | 178 | 178 |
| 232 | + | 162 | 161 | 162 | + | 168 | 169 | 168 | + | 160 | 161 | 161 | + | 148 | 148 | 147 |
| 233 | + | 199 | 201 | 201 | + | 210 | 212 | 211 | + | 199 | 196 | 198 | + | 178 | 177 | 176 |
| 234 | — | 127 | 126 | 127 | — | 114 | 115 | 115 | — | 89 | 91 | 91 | — | 97 | 98 | 97 |
| 235 | + | 72 | 72 | 73 | + | — | 82 | 81 | + | 51 | 51 | 52 | + | 63 | 63 | 63 |
| 236 | — | 57 | 58 | 58 | — | 52 | 54 | 52 | — | 29 | 31 | 31 | — | 61 | 61 | 62 |
| 237 | + | 227 | 228 | 229 | + | 224 | 225 | 224 | + | 230 | 231 | 231 | + | 230 | 230 | 230 |
| 238 | — | — | 251 | 252 | — | 220 | 220 | 219 | — | 218 | 218 | 218 | — | 242 | 243 | 244 |
| 239 | — | 152 | 151 | 151 | — | 189 | 189 | 190 | — | 180 | 182 | 181 | — | 185 | 185 | 185 |
| 240 | — | 140 | 142 | 142 | — | 95 | 96 | 95 | — | 110 | 108 | 109 | — | 131 | 131 | 133 |
| 241 | — | 244 | 245 | 244 | — | 239 | 239 | 240 | — | 238 | 238 | 238 | — | 243 | 242 | 242 |
| 242 | — | 121 | 122 | 122 | — | 120 | 118 | 118 | — | 122 | 124 | 123 | — | 149 | 148 | 147 |
| 243 | + | 42 | 43 | 42 | + | 35 | 36 | 34 | + | 72 | 71 | 72 | + | 56 | 56 | 54 |
| 244 | — | 213 | 214 | 215 | — | 201 | 200 | 200 | — | 189 | 190 | 190 | — | 204 | 206 | 205 |
| 245 | — | 193 | 192 | 194 | — | 186 | 186 | 187 | — | 192 | 191 | 191 | — | 206 | 206 | 207 |
| 246 | — | 246 | 246 | 245 | — | 222 | 220 | 220 | — | 241 | 242 | 243 | — | 237 | 237 | 236 |
| 247 | — | 28 | 28 | 27 | — | 62 | 61 | 62 | — | 26 | 26 | 25 | — | 50 | 50 | 48 |
| 248 | + | 173 | 174 | 173 | + | 170 | 171 | 170 | + | 157 | 155 | 154 | + | 159 | 159 | 159 |
| 249 | — | 182 | 183 | 184 | — | 136 | 133 | 134 | — | 138 | 137 | 138 | — | 160 | 159 | 160 |
| 250 | — | 99 | 101 | 97 | — | 172 | 170 | 170 | — | 227 | 229 | 228 | — | 196 | 195 | 196 |
| 251 | — | 66 | 64 | 67 | — | 7 | 6 | 7 | + | 67 | 68 | 67 | + | 18 | 19 | 19 |
| 252 | + | 245 | 247 | 247 | + | 263 | 265 | 265 | + | 270 | 268 | 269 | + | 239 | 239 | 238 |
| 253 | — | 182 | 181 | 181 | — | 162 | 161 | 162 | — | 228 | 225 | 226 | — | 160 | 160 | 160 |
| 254 | + | 248 | 246 | 249 | + | 253 | 254 | 255 | + | 320 | 320 | 319 | + | 241 | 240 | 241 |
| 255 | + | 138 | 139 | 140 | + | 140 | 140 | 141 | + | 132 | 132 | 132 | + | 129 | 130 | 129 |
| 256 | + | 243 | 243 | 243 | + | 245 | 247 | 246 | + | 238 | 235 | 237 | + | 228 | 228 | 228 |
| 257 | + | 355 | 357 | 357 | + | 364 | 365 | 366 | + | 393 | 391 | 393 | + | 359 | 361 | 361 |
| 258 | + | 304 | — | 303 | + | 326 | 324 | 325 | + | 303 | 301 | 301 | + | 303 | 302 | 305 |
| 259 | + | 157 | 158 | 158 | + | 157 | 157 | 157 | + | 171 | 171 | 171 | + | 162 | 162 | 161 |
| 260 | + | 37 | 35 | 36 | + | 38 | 39 | 37 | + | 47 | 45 | 46 | + | 36 | 37 | 37 |
| 261 | + | 140 | 140 | 140 | + | 169 | 169 | 168 | + | 153 | 155 | 156 | + | 143 | 142 | 143 |
| 262 | + | 60 | 61 | 60 | + | 57 | 58 | 56 | + | 56 | 57 | 56 | + | 31 | 31 | 33 |
| 263 | + | 131 | 131 | 129 | + | 124 | 123 | 123 | + | 130 | 127 | 127 | + | 127 | 127 | 127 |
| 264 | + | 163 | 163 | 166 | + | 175 | 176 | 174 | + | 203 | 202 | 204 | + | 191 | 192 | 191 |
| 265 | + | 179 | 179 | 180 | + | 182 | 183 | 183 | + | 181 | 180 | 180 | + | 152 | 154 | 153 |
| 266 | + | — | 215 | 214 | + | 217 | 218 | 219 | + | 235 | 237 | 235 | + | 220 | 219 | 218 |
| 267 | + | 248 | 248 | 249 | + | 257 | 256 | 257 | + | 241 | 241 | 240 | + | 241 | 241 | 240 |
| 268 | — | 237 | 238 | 237 | — | — | 244 | 244 | — | 227 | 225 | 227 | — | 258 | 256 | 256 |
| 269 | — | 159 | 156 | 158 | — | 106 | 106 | 105 | — | 157 | 158 | 157 | — | 145 | 147 | 147 |
| 270 | — | 13 | 12 | 13 | — | 10 | 9 | 10 | — | 12 | 10 | 10 | — | 8 | 9 | 8 |

# SVEKSNA.

| N:o | **674.** WE. 3.VI. $15^h15^m - 20^h20^m$. $t_1$: +11°.5, $t_2$: +9°.0. 1— 67: +S−B 68—135: +B−S 136—203: −B+S 204—269: −S+B | | | **637.** WE. 5.VI. $13^h45^m - 19^h30^m$. $t_1$: +10°.0, $t_2$: +5°.0. 1— 67: −J+P 68—135: −P+J 136—203: +P−J 204—269: +J−P | | | **634.** WE. 6.VI. $14^h10^m - 20^h20^m$. $t_1$: +11°.5, $t_2$: +8°.5. 1— 67: −B+S 68—135: −S+B 136—202: +S−B 203—269: +B−S | | | **683.** WE. 9.VI. $8^h0^m - 12^h30^m$. $t_1$: +6°.0, $t_2$: +10°.0. 1— 68: +P−J 69—135: +J−P 136—203: −J+P 204—269: −P+J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | − | 37 | 39 | 38 | − | 45 | 49 | 48 | − | 44 | 42 | 44 | − | 49 | 48 | 48 |
| 2 | − | 50 | 50 | 49 | − | 42 | 39 | 40 | − | 36 | 36 | 35 | − | 42 | 43 | 43 |
| 3 | − | 21 | 22 | 22 | − | 46 | 44 | 46 | − | 31 | 30 | 30 | − | 40 | 39 | 39 |
| 4 | + | 132 | 132 | 133 | + | 124 | 122 | 122 | + | 132 | 133 | 130 | + | 120 | 121 | 120 |
| 5 | − | 105 | 105 | 100 | − | 111 | 112 | 111 | − | 111 | 109 | 109 | − | 83 | 82 | 83 |
| 6 | + | 49 | 49 | 47 | + | 72 | 70 | 71 | + | 44 | 45 | 43 | + | 56 | 53 | 54 |
| 7 | + | 136 | 137 | 137 | + | 98 | 98 | 96 | + | 126 | 128 | 127 | + | 99 | 99 | 99 |
| 8 | + | 86 | 87 | 86 | + | 82 | 83 | 82 | + | 71 | 70 | 70 | + | 82 | 83 | 81 |
| 9 | + | 147 | 147 | 146 | + | 113 | 116 | 114 | + | 149 | 150 | 149 | + | 144 | 145 | 146 |
| 10 | + | 180 | 181 | 182 | + | 168 | 168 | 168 | + | 184 | 185 | 183 | + | 172 | 173 | 171 |
| 11 | + | 280 | 279 | 280 | + | 311 | 312 | 310 | + | 322 | 323 | 323 | + | 287 | 285 | 288 |
| 12 | − | 53 | 55 | 53 | − | 89 | 89 | 88 | − | 101 | 101 | 100 | − | 69 | 70 | 70 |
| 13 | + | 113 | 113 | 113 | + | 121 | 121 | 121 | + | 118 | 119 | 120 | + | 101 | 100 | 101 |
| 14 | + | 220 | 220 | 219 | + | 210 | 211 | 211 | + | 219 | 220 | 219 | + | 214 | 214 | 215 |
| 15 | + | 244 | 244 | 245 | + | 225 | 223 | 224 | + | 241 | 242 | 243 | + | 237 | 237 | 235 |
| 16 | + | 131 | 131 | 132 | + | 136 | 133 | 135 | + | 130 | 132 | 132 | + | 109 | 109 | 108 |
| 17 | − | 40 | 39 | 41 | − | 82 | 83 | 84 | − | 47 | 49 | 49 | − | 38 | 37 | 35 |
| 18 | − | 110 | 110 | 110 | − | 81 | 81 | 81 | − | 103 | 103 | 103 | − | 115 | 115 | 115 |
| 19 | − | 145 | 146 | 146 | − | 167 | 166 | 167 | − | 158 | 159 | 157 | − | 160 | 160 | 160 |
| 20 | + | 155 | 155 | 154 | + | 157 | 157 | 156 | + | 151 | 150 | 151 | + | 149 | 149 | 149 |
| 21 | + | 144 | 143 | 144 | + | 135 | 133 | 133 | + | 165 | 162 | 162 | + | 146 | 147 | 148 |
| 22 | + | 4 | 3 | 4 | + | 8 | 8 | 8 | − | 20 | 20 | 20 | − | 6 | 5 | 4 |
| 23 | + | 211 | 210 | 211 | + | 207 | 207 | 208 | + | 212 | 210 | 211 | + | 194 | 197 | 195 |
| 24 | − | 75 | 76 | 74 | − | 79 | 80 | 78 | − | 73 | 70 | 71 | − | 88 | 87 | 88 |
| 25 | + | 174 | 175 | 175 | + | 164 | 163 | 164 | + | 147 | 149 | 148 | + | 171 | 172 | 174 |
| 26 | − | 24 | 23 | 24 | − | 45 | 47 | 46 | − | 13 | 16 | 15 | − | 36 | 37 | 37 |
| 27 | + | 47 | 49 | 49 | + | 59 | 59 | 58 | + | 57 | 58 | 53 | + | 52 | − | 52 |
| 28 | + | 201 | 200 | 199 | + | 206 | 207 | 204 | + | 186 | 186 | 186 | + | 194 | 194 | 197 |
| 29 | − | 146 | 144 | 146 | − | 155 | 156 | 155 | − | 128 | 128 | 126 | − | 155 | 160 | 160 |
| 30 | + | 265 | 265 | 264 | + | 260 | 258 | 259 | + | 274 | 274 | 273 | + | 251 | 251 | 252 |
| 31 | + | 248 | 248 | 246 | + | 232 | 231 | 231 | + | 249 | 247 | 248 | + | 248 | 248 | 249 |
| 32 | + | − | 130 | 131 | + | 129 | 129 | 130 | + | 100 | 99 | 99 | + | − | 125 | 127 |
| 33 | − | 3 | 3 | 4 | − | 0 | 1 | 1 | + | 5 | 5 | 4 | − | 20 | 19 | 20 |
| 34 | − | 118 | 122 | 120 | − | 151 | 150 | 150 | − | 116 | 115 | 115 | − | 125 | 122 | 126 |
| 35 | − | 201 | 198 | 200 | − | 193 | 192 | 188 | − | 191 | 193 | 190 | − | 211 | 210 | 210 |
| 36 | − | 146 | 147 | 147 | − | 140 | 142 | 140 | − | 155 | 154 | 153 | − | 150 | 148 | 150 |
| 37 | + | 166 | 166 | 165 | + | 154 | 153 | 153 | + | 174 | 174 | 173 | + | 156 | 158 | 157 |
| 38 | + | 263 | 264 | 262 | + | 260 | 262 | 262 | + | 250 | 250 | 249 | + | 260 | 264 | 262 |
| 39 | + | − | 201 | 201 | + | 188 | 187 | 185 | + | − | 204 | 203 | + | 194 | 194 | 194 |
| 40 | + | 204 | 206 | 205 | + | 207 | 205 | 204 | + | 234 | 235 | 234 | + | 216 | 215 | 216 |
| 41 | − | 36 | 36 | 37 | − | 50 | 50 | 50 | − | 43 | 43 | 42 | − | 50 | 52 | 50 |
| 42 | + | 266 | 266 | 265 | + | 255 | 252 | 251 | + | 231 | 231 | 234 | + | 247 | 247 | 247 |
| 43 | + | 44 | 43 | 42 | + | 42 | 44 | 43 | + | 57 | 58 | 60 | + | 33 | 34 | 30 |
| 44 | − | 159 | 160 | 158 | − | 171 | 171 | 171 | − | 178 | 179 | 178 | − | 151 | 150 | 150 |
| 45 | + | 174 | 175 | 173 | + | 181 | 181 | 180 | + | 177 | 177 | 178 | + | 173 | 173 | 172 |
| 46 | — | 54 | 55 | 55 | − | 62 | 64 | 63 | − | 49 | 48 | 50 | − | 66 | 66 | 67 |
| 47 | − | 143 | 143 | 142 | − | 169 | 170 | 170 | − | 146 | 145 | 145 | − | 145 | 144 | 145 |
| 48 | − | 176 | 176 | 177 | − | 144 | 146 | 146 | − | 166 | 162 | 164 | − | 172 | 172 | 172 |
| 49 | − | 195 | 196 | 195 | − | 181 | 183 | 183 | − | 176 | 174 | 177 | − | 201 | 201 | 202 |
| 50 | + | 122 | 123 | 125 | + | 74 | 72 | 74 | + | 88 | 87 | 87 | + | 62 | 63 | 64 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | − | 49 | 50 | 50 | − | 49 | 50 | 49 | − | 59 | 58 | 57 | − | 39 | 39 | 40 |
| 52 | − | 105 | 106 | 105 | − | 127 | 128 | 127 | − | 106 | 104 | 103 | − | 119 | 117 | 117 |
| 53 | − | 44 | 45 | 46 | − | 34 | 31 | 37 | − | 39 | 37 | 37 | − | 26 | 26 | 28 |
| 54 | − | 37 | 35 | 34 | − | 41 | 42 | 43 | − | 35 | 35 | 36 | − | 58 | 58 | 58 |
| 55 | − | 206 | 206 | 207 | − | 217 | 219 | 219 | − | 215 | 217 | 217 | − | 202 | 202 | 202 |
| 56 | + | 180 | 180 | 179 | + | 178 | 176 | 175 | + | 181 | 181 | 180 | + | 175 | 172 | 174 |
| 57 | − | 37 | 37 | 38 | − | 63 | 63 | 63 | − | 39 | 37 | 38 | − | 51 | 53 | 52 |
| 58 | − | 97 | 98 | 97 | − | 99 | 99 | 99 | − | 90 | 90 | 90 | − | 98 | 97 | 99 |
| 59 | + | 130 | 131 | 131 | + | 118 | 116 | 116 | + | 129 | 129 | 129 | + | 117 | 117 | 117 |
| 60 | + | 152 | 152 | 152 | + | 174 | 176 | 175 | + | 174 | 173 | 172 | + | 156 | 158 | 157 |
| 61 | + | 88 | 87 | 87 | + | 81 | 78 | 79 | + | 57 | 57 | 58 | + | 73 | 73 | 71 |
| 62 | − | 33 | 31 | 33 | − | 72 | 74 | 71 | − | 52 | 52 | 51 | − | 55 | 53 | 54 |
| 63 | + | 244 | 244 | 245 | + | 249 | 249 | 249 | + | 254 | 254 | 253 | + | 243 | 244 | 245 |
| 64 | + | 134 | 132 | 132 | + | 134 | 136 | 135 | + | 138 | 139 | 139 | + | 127 | 127 | 125 |
| 65 | − | 181 | 182 | 181 | − | 185 | 186 | 185 | − | 175 | 174 | 174 | − | 163 | 165 | 164 |
| 66 | − | 36 | 39 | 36 | − | 48 | 47 | 46 | − | 46 | 46 | 47 | − | 71 | 72 | 73 |
| 67 | + | 179 | 177 | 179 | + | 200 | 201 | 200 | + | — | 198 | 198 | + | 170 | 170 | 171 |
| 68 | + | 52 | 52 | 53 | + | 22 | 21 | 22 | + | 32 | 31 | 32 | + | 30 | 31 | 30 |
| 69 | + | 248 | 250 | 249 | + | 201 | 200 | 201 | + | 248 | 247 | 246 | + | 240 | 240 | 239 |
| 70 | + | 113 | 115 | 115 | + | 176 | 175 | 177 | + | 133 | 133 | 133 | + | 137 | 138 | 135 |
| 71 | − | 142 | 141 | 141 | − | 186 | 189 | 190 | − | 166 | 166 | 166 | − | 172 | 172 | 172 |
| 72 | + | 47 | 50 | 48 | + | 52 | 54 | 54 | + | 71 | 72 | 70 | + | 77 | 75 | 77 |
| 73 | + | 172 | 170 | 170 | + | 148 | 147 | 147 | + | 158 | 156 | 157 | + | 132 | 130 | 131 |
| 74 | + | — | 226 | 226 | + | 220 | 220 | 219 | + | 214 | 215 | 214 | + | 242 | 242 | 241 |
| 75 | − | 15 | 15 | 16 | + | 1 | 1 | 1 | − | 3 | 2 | 4 | − | 27 | 26 | 24 |
| 76 | − | 134 | 134 | 133 | − | 163 | 164 | 166 | − | 144 | 145 | 145 | − | 157 | 155 | 156 |
| 77 | − | 119 | 117 | 118 | − | 128 | 126 | 127 | − | 124 | 125 | 124 | − | 130 | 129 | 130 |
| 78 | + | 12 | 12 | 12 | + | 18 | 19 | 20 | − | 6 | 6 | 5 | + | 17 | 17 | 17 |
| 79 | − | 92 | 93 | 91 | − | 90 | 89 | 90 | − | 82 | 80 | 81 | − | 97 | 98 | 97 |
| 80 | + | 83 | 82 | 82 | + | 70 | 69 | 69 | + | 80 | 77 | 80 | + | 82 | 82 | 82 |
| 81 | + | 228 | 226 | 228 | + | 195 | 195 | 196 | + | 259 | 259 | 259 | + | 210 | 211 | 210 |
| 82 | + | 201 | 197 | 202 | + | 218 | 216 | 217 | + | 180 | 181 | 180 | + | 203 | 202 | 201 |
| 83 | + | 189 | 189 | 190 | + | 248 | 247 | 248 | + | 238 | 239 | 238 | + | 222 | 223 | 222 |
| 84 | + | 123 | 124 | 125 | + | 59 | 60 | 61 | + | 71 | 71 | 70 | + | 73 | 72 | 72 |
| 85 | + | 171 | 171 | 171 | + | 149 | — | 148 | + | 176 | 175 | 177 | + | 182 | 184 | 185 |
| 86 | − | 83 | 83 | 82 | − | − | 85 | 85 | − | 92 | 92 | 92 | − | 101 | 102 | 101 |
| 87 | + | 152 | 152 | 151 | + | 137 | 135 | 136 | + | 120 | 119 | 120 | + | 139 | 138 | 138 |
| 88 | + | 66 | 65 | 67 | + | 74 | 73 | 73 | + | 87 | 86 | 87 | − | 144 | 143 | 147 |
| 89 | + | 86 | 85 | 87 | + | 92 | 90 | 91 | + | 67 | 66 | 67 | + | 278 | 279 | 277 |
| 90 | + | 216 | 216 | 217 | + | 209 | 208 | 208 | + | 247 | 249 | 249 | + | 212 | 213 | 213 |
| 91 | + | 105 | 105 | 105 | + | 77 | 73 | 76 | + | 91 | 89 | 90 | + | 84 | 83 | 86 |
| 92 | − | 142 | 142 | 141 | − | 151 | 152 | 152 | − | 154 | 152 | 154 | − | 154 | 157 | 156 |
| 93 | − | 204 | 203 | 204 | − | 210 | 210 | 209 | − | 201 | 199 | 200 | − | 181 | 182 | 183 |
| 94 | − | 20 | 21 | 19 | − | 11 | 10 | 12 | − | 14 | 13 | 13 | − | 38 | 35 | 38 |
| 95 | − | 22 | 20 | 22 | | 437 | 437 | 436 | − | 252 | 253 | 252 | − | 271 | 273 | 272 |
| 96 | − | 98 | 100 | 98 | + | 303 | 304 | 301 | + | 127 | 127 | 126 | + | 137 | 138 | 138 |
| 97 | − | 79 | 86 | 84 | − | 112 | 114 | 111 | − | 114 | 114 | 115 | − | 172 | 172 | 173 |
| 98 | − | 260 | 260 | 259 | − | 265 | 266 | 267 | − | 259 | 260 | 261 | − | 210 | 211 | 210 |
| 99 | − | 263 | 263 | 263 | − | 250 | 250 | 249 | − | 219 | 219 | 219 | − | 239 | 240 | 238 |
| 100 | − | 228 | 227 | 229 | − | 221 | 223 | 221 | − | 244 | 244 | 244 | − | 257 | 256 | 256 |
| 101 | − | 192 | 192 | 192 | − | 218 | 220 | 220 | − | 210 | 209 | 210 | − | 203 | 203 | 201 |
| 102 | − | 70 | 68 | 68 | − | 68 | 68 | 67 | − | 71 | 72 | 72 | − | 70 | 72 | 70 |
| 103 | − | 46 | 45 | 45 | − | 60 | 60 | 59 | − | 50 | 49 | 49 | − | 60 | 60 | 60 |
| 104 | − | 249 | 249 | 250 | − | 241 | 242 | 240 | − | 233 | 234 | 231 | − | 235 | 236 | 232 |
| 105 | + | 150 | 153 | 153 | + | 126 | 126 | 127 | + | 139 | 137 | 137 | + | 142 | 142 | 141 |
| 106 | + | 252 | 252 | 252 | + | 240 | 240 | 239 | + | 245 | 244 | 245 | + | 214 | 215 | 217 |
| 107 | − | 153 | 157 | 157 | − | 171 | 172 | 172 | − | 138 | 139 | 139 | − | 154 | 153 | 154 |
| 108 | − | 218 | 218 | 218 | − | 228 | 229 | 228 | − | 236 | 234 | 235 | − | 229 | 230 | 230 |
| 109 | + | 28 | 26 | 26 | + | 42 | 43 | 42 | + | 6 | 8 | 8 | + | 32 | 32 | 32 |
| 110 | + | 14 | 14 | 14 | + | 11 | 10 | 12 | + | 33 | 33 | 32 | + | 28 | 25 | 27 |

## SVEKSNA.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | + | 215 | 215 | 215 | + | 182 | 181 | 182 | + | 199 | 200 | 202 | + | 166 | 167 | 168 |
| 112 | — | 425 | 423 | 425 | — | 372 | 374 | 373 | — | 388 | 388 | 387 | — | 416 | 415 | 416 |
| 113 | + | 140 | 141 | 140 | + | 88 | 89 | 88 | + | 96 | 97 | 96 | + | 118 | 119 | 118 |
| 114 | + | 181 | 182 | 181 | + | 199 | 199 | 200 | + | 208 | 208 | 208 | + | 191 | 192 | 192 |
| 115 | + | 174 | 173 | 173 | + | 159 | 158 | 159 | + | 154 | 154 | 154 | + | 168 | 169 | 167 |
| 116 | — | 2 | 1 | 1 | — | 1 | 0 | 1 | + | 6 | 6 | 6 | — | 15 | 15 | 16 |
| 117 | + | 205 | 206 | 206 | + | 183 | 183 | 185 | + | 199 | 199 | 199 | + | 182 | 181 | 181 |
| 118 | + | 201 | 203 | 202 | + | 200 | 201 | 202 | + | 184 | 185 | 185 | + | 188 | 188 | 189 |
| 119 | + | 211 | 210 | 211 | + | 197 | 193 | 195 | + | 231 | 230 | 232 | + | 211 | 210 | 211 |
| 120 | + | 107 | 106 | 106 | + | 101 | 101 | 99 | + | 110 | 111 | 111 | + | 98 | 97 | 95 |
| 121 | + | 146 | 146 | 145 | + | 158 | 155 | 157 | + | 132 | 132 | 132 | + | 131 | 129 | 130 |
| 122 | — | 83 | 88 | 89 | — | 104 | 103 | 107 | — | 95 | 94 | 95 | — | 86 | 86 | 83 |
| 123 | + | 6 | 9 | 9 | — | 4 | 4 | 5 | + | 14 | 15 | 15 | + | 10 | 8 | 9 |
| 124 | + | 123 | 122 | 123 | + | 129 | 128 | 130 | + | 109 | 111 | 110 | + | 102 | 101 | 100 |
| 125 | + | 160 | 161 | 159 | + | 149 | 150 | 151 | + | 171 | 171 | 172 | + | 162 | 162 | 165 |
| 126 | + | 211 | 214 | 214 | + | 202 | 202 | 202 | + | 207 | 208 | 207 | + | 215 | 215 | 217 |
| 127 | — | 49 | 48 | 50 | — | 23 | 25 | 25 | — | 19 | 20 | 19 | — | 22 | 22 | 22 |
| 128 | + | 259 | 258 | 258 | + | 224 | 227 | 226 | + | 221 | 220 | 219 | + | 201 | 199 | 201 |
| 129 | — | 86 | 85 | 85 | — | 78 | 78 | 78 | — | 89 | 89 | 89 | — | 92 | 92 | 92 |
| 130 | + | 247 | 246 | 247 | + | 207 | 208 | 207 | + | 140 | 141 | 141 | + | 237 | 235 | 236 |
| 131 | + | 148 | 149 | 148 | + | 158 | 156 | 157 | — | 50 | 52 | 52 | + | 152 | 153 | 153 |
| 132 | — | 105 | 106 | 105 | + | 210 | 210 | 210 | + | 203 | 203 | 203 | — | 109 | 109 | 109 |
| 133 | + | 525 | 524 | 521 | + | 175 | 176 | 176 | + | 301 | 300 | 300 | + | 268 | 268 | 267 |
| 134 | + | 280 | 280 | 280 | + | 28 | 28 | 29 | + | 209 | 210 | 209 | + | 181 | 182 | 181 |
| 135 | + | 159 | — | 165 | + | 422 | 421 | 422 | + | 428 | 428 | 428 | + | 467 | 466 | 469 |
| 136 | + | 120 | 122 | 123 | + | 111 | 114 | 111 | + | 129 | 128 | 130 | + | 120 | 120 | 121 |
| 137 | — | 12 | 13 | 13 | — | 12 | 11 | 12 | — | 28 | 28 | 26 | — | 26 | 25 | 27 |
| 138 | + | 16 | 16 | 16 | + | 13 | 14 | 12 | + | 42 | 43 | 43 | + | 29 | 29 | 30 |
| 139 | + | 193 | 193 | 195 | + | 170 | 171 | 170 | + | 173 | 173 | 173 | + | 168 | 167 | 168 |
| 140 | — | 164 | 164 | 164 | — | 162 | 161 | 163 | — | 161 | 162 | 160 | — | 160 | 163 | 161 |
| 141 | + | 109 | 109 | 111 | + | 99 | 99 | 99 | + | 96 | 98 | 97 | + | 98 | 94 | 96 |
| 142 | — | 205 | 204 | 204 | — | 218 | 218 | 218 | — | 179 | 179 | 179 | — | 195 | 196 | 195 |
| 143 | + | 185 | 185 | 184 | + | 175 | 174 | 173 | + | 153 | 153 | 154 | + | 156 | 154 | 154 |
| 144 | + | 175 | 176 | 176 | + | 175 | 177 | 176 | + | 189 | 190 | 190 | + | 205 | 205 | 206 |
| 145 | + | 163 | 162 | 164 | + | — | 157 | 157 | + | 136 | 135 | 134 | + | 139 | 139 | 138 |
| 146 | — | 85 | 84 | 83 | — | 91 | 90 | 89 | — | 66 | 67 | 67 | — | 109 | 111 | 110 |
| 147 | + | 220 | 221 | 220 | + | 237 | — | 235 | + | 223 | 223 | 223 | + | 235 | 234 | 233 |
| 148 | + | 128 | 127 | 127 | + | — | 125 | 123 | + | 123 | 123 | 123 | + | 119 | 120 | 119 |
| 149 | — | 204 | 204 | 203 | — | 180 | 182 | 181 | — | 193 | 193 | 192 | — | 189 | 190 | 190 |
| 150 | — | 47 | 49 | 48 | — | 103 | 102 | 104 | — | 47 | 47 | 48 | — | 91 | 91 | 92 |
| 151 | — | 112 | 112 | 111 | — | 122 | 120 | 123 | — | 131 | 134 | 133 | — | 110 | 113 | 112 |
| 152 | + | 212 | 214 | 214 | + | 204 | 209 | 205 | + | 224 | 224 | 225 | + | 215 | 214 | 215 |
| 153 | + | 175 | 175 | 176 | + | 190 | 189 | 190 | + | 169 | 170 | 170 | + | 169 | 170 | 170 |
| 154 | + | 27 | 27 | 26 | + | 28 | 29 | 29 | + | 26 | 27 | 28 | + | 9 | 9 | 9 |
| 155 | + | 261 | 262 | 262 | + | 282 | 283 | 282 | + | 279 | 277 | 278 | + | 270 | 269 | 270 |
| 156 | — | 109 | 108 | 109 | — | 143 | 142 | 145 | — | 131 | 132 | 132 | — | 133 | 132 | 133 |
| 157 | + | 212 | 212 | 213 | + | 202 | 204 | 202 | + | 206 | 206 | 206 | + | 203 | 205 | 202 |
| 158 | — | 54 | 50 | 52 | — | 46 | 44 | 43 | — | 52 | 52 | 54 | — | 50 | 47 | 48 |
| 159 | — | 102 | 101 | 103 | — | 118 | 117 | 118 | — | 109 | 108 | 109 | — | 103 | 104 | 102 |
| 160 | + | 173 | 172 | 176 | + | 168 | 169 | 168 | + | 173 | 174 | 172 | + | 143 | 143 | 142 |
| 161 | — | 4 | 1 | 4 | + | 13 | 15 | 14 | + | 12 | 12 | 12 | + | 32 | 31 | 32 |
| 162 | + | 84 | 84 | 84 | + | 20 | 20 | 20 | + | 51 | 51 | 50 | + | 32 | 32 | 31 |
| 163 | — | 102 | 104 | 102 | — | 82 | 83 | 83 | — | 89 | 89 | 88 | — | 101 | 101 | 101 |
| 164 | + | 171 | 171 | 171 | + | 140 | 139 | 139 | + | 176 | 175 | 176 | + | 167 | 168 | 168 |
| 165 | + | 94 | 94 | 93 | + | 124 | 123 | 123 | + | 80 | 80 | 80 | + | 60 | 60 | 59 |
| 166 | — | 93 | 85 | 90 | — | 89 | 90 | 89 | — | 70 | 69 | 69 | — | 64 | 65 | 64 |
| 167 | + | 201 | 204 | 202 | + | 193 | 192 | 194 | + | 195 | 196 | 194 | + | 191 | 192 | 192 |
| 168 | + | 222 | 227 | 223 | + | 219 | 218 | 219 | + | 214 | 213 | 214 | + | 179 | 178 | 179 |
| 169 | + | 93 | 89 | 94 | + | 68 | 67 | 69 | + | 106 | 105 | 105 | + | 133 | 132 | 133 |
| 170 | — | 66 | — | 66 | — | 87 | 86 | 88 | — | 80 | 79 | 81 | — | 96 | 97 | 94 |

## SVEKSNA.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | + | 42 | 42 | 43 | + | 32 | 33 | 32 | + | 33 | 34 | 34 | + | 44 | 43 | 36 |
| 172 | − | 124 | 125 | 123 | − | 109 | 108 | 106 | − | 109 | 110 | 110 | − | 123 | 124 | 121 |
| 173 | − | 108 | 108 | 108 | − | 123 | 125 | 122 | − | 106 | 105 | 104 | − | 111 | 111 | 112 |
| 174 | + | 68 | 69 | 66 | + | 36 | 35 | 36 | + | 33 | 33 | 34 | + | 29 | 28 | 28 |
| 175 | + | 171 | 173 | 173 | + | 183 | 183 | 181 | + | 169 | 170 | 168 | + | 169 | 166 | 168 |
| 176 | + | 218 | 219 | − | + | 213 | 212 | 213 | + | 226 | 226 | 227 | + | 242 | 240 | 239 |
| 177 | + | 4 | 3 | 3 | + | 20 | 19 | 20 | + | 32 | 32 | 33 | + | 1 | 2 | 1 |
| 178 | − | 59 | 60 | 59 | − | 79 | 78 | 79 | − | 73 | 75 | 74 | − | 62 | 62 | 64 |
| 179 | + | 290 | 290 | 289 | + | 267 | 267 | 268 | + | 271 | 272 | 271 | + | 234 | 234 | 234 |
| 180 | + | 210 | 209 | 208 | + | 256 | 256 | 253 | + | 238 | 237 | 239 | + | 258 | 258 | 258 |
| 181 | + | 45 | 44 | 44 | + | 6 | 6 | 8 | + | 3 | 2 | 1 | + | 31 | 31 | 30 |
| 182 | + | 71 | 70 | 70 | + | 65 | 64 | 65 | + | 103 | 105 | 107 | + | 31 | 30 | 30 |
| 183 | + | 53 | 54 | 53 | + | 68 | 68 | 68 | + | 61 | 62 | 63 | + | 46 | 47 | 47 |
| 184 | − | 99 | 96 | 98 | − | 143 | 146 | 142 | − | 134 | 135 | 135 | − | 96 | 93 | 95 |
| 185 | − | 79 | 78 | 78 | − | 70 | 70 | 71 | − | 46 | 46 | 46 | − | 61 | 59 | 61 |
| 186 | − | 112 | 110 | 112 | − | 148 | 149 | 148 | − | 168 | 168 | 168 | − | 178 | 176 | 178 |
| 187 | − | 221 | 221 | 222 | − | 199 | 199 | 200 | − | 193 | 192 | 192 | − | 211 | 210 | 209 |
| 188 | − | 33 | 35 | 34 | − | 50 | 51 | 51 | − | 55 | 54 | 54 | − | 52 | 52 | 52 |
| 189 | − | 287 | 286 | 286 | − | 272 | 273 | 272 | − | 260 | 260 | 260 | − | 269 | 270 | 270 |
| 190 | + | 267 | 265 | 262 | + | 249 | 249 | 247 | + | 253 | 255 | 253 | + | 231 | 230 | 231 |
| 191 | + | 217 | 218 | 218 | + | 210 | 210 | 210 | + | 192 | 193 | 192 | + | 227 | 226 | 228 |
| 192 | + | 40 | 40 | 39 | + | 33 | − | 33 | + | 52 | 52 | 50 | + | 20 | 21 | 19 |
| 193 | + | 65 | − | 65 | + | 64 | 64 | 63 | + | 73 | 72 | 72 | + | 71 | 72 | 70 |
| 194 | + | 23 | 26 | 25 | + | 34 | 36 | 36 | + | 38 | 38 | 35 | + | 50 | 49 | 49 |
| 195 | + | 126 | 128 | 128 | + | 76 | 77 | 77 | + | 94 | 93 | 93 | + | 62 | 61 | 62 |
| 196 | − | 243 | 241 | 243 | − | 214 | 216 | 215 | − | 224 | 223 | 224 | − | 234 | 231 | 232 |
| 197 | + | 51 | 49 | 50 | + | 20 | 20 | 20 | + | 5 | 5 | 3 | + | 30 | 30 | 31 |
| 198 | + | 27 | 28 | 27 | + | 12 | 12 | 14 | + | 48 | 47 | 46 | + | 27 | 27 | 29 |
| 199 | + | 14 | 13 | 15 | + | 4 | 6 | 7 | + | 9 | 11 | 10 | + | 17 | 15 | 14 |
| 200 | + | 79 | 80 | 80 | + | 88 | 88 | 90 | + | 83 | 80 | 82 | + | 67 | 65 | 65 |
| 201 | + | 159 | 159 | 156 | + | 146 | 147 | 146 | + | 161 | 161 | 161 | + | 159 | 156 | 157 |
| 202 | − | 141 | 142 | 141 | − | 136 | 142 | 136 | − | 138 | 138 | 139 | − | 170 | 170 | 169 |
| 203 | + | 20 | 22 | 19 | + | 23 | 25 | 24 | + | 7 | 7 | 6 | + | 18 | 18 | 18 |
| 204 | + | 35 | 35 | 35 | − | 6 | 4 | 6 | + | 17 | 17 | 16 | + | 36 | 36 | 35 |
| 205 | + | 202 | 200 | 203 | + | 198 | 199 | 200 | + | 218 | 220 | 219 | + | 192 | 193 | 194 |
| 206 | − | 111 | 111 | 111 | − | 112 | 113 | 112 | − | 107 | 107 | 107 | − | 110 | 112 | 112 |
| 207 | + | 17 | 17 | 17 | + | 17 | 15 | 14 | + | 4 | 4 | 3 | + | 16 | 13 | 13 |
| 208 | + | 55 | 55 | 54 | + | 32 | 33 | 31 | + | 45 | 45 | 46 | + | 11 | 12 | 14 |
| 209 | − | 112 | 111 | 112 | − | 118 | 118 | 118 | − | 95 | 96 | 96 | − | 110 | 110 | 110 |
| 210 | − | 136 | − | 136 | − | 106 | 105 | 106 | − | 99 | 98 | 97 | − | 85 | 84 | 86 |
| 211 | − | 84 | 87 | 83 | − | 124 | 125 | 125 | − | 139 | 138 | 139 | − | 136 | 135 | 136 |
| 212 | − | 45 | 44 | 44 | − | 52 | 52 | 52 | − | 48 | 47 | 49 | − | 53 | 54 | 52 |
| 213 | + | 86 | 85 | 84 | + | 85 | 83 | 84 | + | 100 | 100 | 100 | + | 82 | 82 | 82 |
| 214 | − | 163 | 162 | 163 | − | 165 | 166 | 167 | − | 184 | 184 | 186 | − | 182 | 183 | 182 |
| 215 | + | 6 | 7 | 7 | − | 8 | 8 | 7 | + | 2 | 1 | 1 | − | 8 | 9 | 10 |
| 216 | + | 57 | 57 | 57 | + | 38 | 39 | 40 | + | 62 | 60 | 59 | + | 43 | 44 | 46 |
| 217 | − | 29 | 34 | 31 | − | 36 | 36 | 34 | − | 43 | 42 | 43 | − | 25 | 27 | 27 |
| 218 | − | 32 | 33 | 33 | − | 51 | 50 | 51 | − | 45 | 43 | 42 | − | 39 | 37 | 40 |
| 219 | + | 229 | 229 | 229 | + | 175 | 175 | 176 | + | 189 | 190 | 190 | + | 175 | 176 | 174 |
| 220 | − | 108 | 108 | 107 | − | 58 | 58 | 58 | − | 66 | 67 | 68 | − | 92 | 93 | 91 |
| 221 | − | 43 | 43 | 43 | − | 40 | 41 | 41 | − | 46 | 46 | 46 | − | 24 | 23 | 25 |
| 222 | + | 165 | 167 | 166 | + | 141 | 141 | 141 | + | 175 | 175 | 175 | + | 148 | 149 | 148 |
| 223 | + | 120 | 120 | 120 | + | 129 | 130 | 130 | + | 108 | 108 | 106 | + | 117 | 115 | 116 |
| 224 | − | 118 | 118 | 115 | − | 127 | 128 | 129 | − | 116 | 116 | 116 | − | 134 | 134 | 136 |
| 225 | + | 49 | 51 | 50 | + | 44 | 43 | 46 | + | 54 | 54 | 53 | + | 42 | 42 | 42 |
| 226 | + | 183 | 183 | 183 | + | 149 | 149 | 150 | + | 163 | 162 | 162 | + | 159 | 159 | 159 |
| 227 | − | 88 | 88 | 87 | − | 31 | 29 | 29 | − | 47 | 48 | 48 | − | 92 | 93 | 94 |
| 228 | − | 186 | 187 | 186 | − | 233 | 232 | 233 | − | 222 | 222 | 222 | − | 182 | 182 | 184 |
| 229 | + | 103 | 102 | 102 | + | 91 | 91 | 93 | + | 102 | 102 | 101 | + | 102 | 102 | 102 |
| 230 | − | 77 | 77 | 78 | − | 61 | 60 | 60 | − | 78 | 76 | 78 | − | 44 | 43 | 45 |

# SVEKSNA.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 231 | — | 192 | 192 | 191 | — | 213 | 215 | 212 | — | 179 | 180 | 181 | — | 255 | 257 | 257 |
| 232 | + | 172 | 173 | 172 | + | 154 | 153 | 153 | + | 149 | 147 | 150 | + | 169 | 167 | 168 |
| 233 | + | 211 | 212 | 213 | + | 201 | 203 | 202 | + | 195 | 195 | 196 | + | 182 | 182 | 181 |
| 234 | — | 124 | 125 | 125 | — | 116 | 115 | 116 | — | 97 | 98 | 99 | — | 89 | 91 | 89 |
| 235 | + | 78 | 76 | 77 | + | 79 | 78 | 77 | + | 72 | 72 | 72 | + | 42 | 41 | 40 |
| 236 | — | 47 | 46 | 45 | — | 62 | 63 | 64 | — | 47 | 49 | 47 | — | 44 | 44 | 46 |
| 237 | + | 233 | 232 | 233 | + | 211 | 212 | 211 | + | 229 | 227 | 227 | + | 228 | 227 | 227 |
| 238 | — | 236 | 238 | 238 | — | 224 | 223 | 224 | — | 217 | 217 | 217 | — | 238 | 238 | 239 |
| 239 | — | 150 | 150 | 149 | — | 193 | 193 | 193 | — | 194 | 195 | 195 | — | 174 | 174 | 174 |
| 240 | — | 137 | 138 | 138 | — | 106 | 108 | 108 | — | 113 | 114 | 113 | — | 131 | 132 | 132 |
| 241 | — | 232 | 232 | 232 | — | 244 | 246 | 246 | — | 250 | 249 | 249 | — | 241 | 240 | 241 |
| 242 | — | 119 | 118 | 118 | — | 121 | 122 | 121 | — | 128 | 128 | 128 | — | 142 | 142 | 144 |
| 243 | + | 53 | 52 | 52 | + | 28 | 28 | 29 | + | 54 | 54 | 56 | + | 35 | 33 | 34 |
| 244 | — | 206 | 205 | 208 | — | 212 | 212 | 212 | — | 221 | 220 | 220 | — | 190 | 189 | 191 |
| 245 | — | 173 | 171 | 170 | — | 189 | 191 | 189 | — | 173 | 171 | 172 | — | 200 | 198 | 198 |
| 246 | — | 250 | 251 | 251 | — | 223 | 222 | 225 | — | 227 | 227 | 228 | — | 229 | 230 | 230 |
| 247 | — | 28 | 27 | 28 | — | 69 | 71 | 69 | — | 49 | 48 | 48 | — | 42 | 43 | 45 |
| 248 | + | 182 | 181 | 181 | + | 167 | 166 | 166 | + | 164 | 161 | 163 | + | — | 154 | 156 |
| 249 | — | 150 | 151 | 150 | — | 153 | 153 | 153 | — | 140 | 139 | 139 | — | 151 | 153 | 153 |
| 250 | — | 120 | 119 | 120 | — | 176 | 175 | 176 | — | 185 | 186 | 189 | — | 180 | 181 | 182 |
| 251 | — | 14 | 14 | 15 | — | 12 | 12 | 11 | + | 53 | 55 | 55 | — | 12 | 12 | 12 |
| 252 | + | 217 | 216 | 218 | + | 250 | 251 | 251 | + | 241 | 242 | 242 | + | 258 | 259 | 258 |
| 253 | — | 168 | 168 | 167 | — | 183 | 184 | 183 | — | 174 | 177 | 175 | — | 212 | 214 | 213 |
| 254 | + | 243 | 243 | 242 | + | 263 | 266 | 265 | + | 240 | 240 | 240 | + | 294 | 298 | 297 |
| 255 | + | 155 | 155 | 157 | + | 134 | 135 | 135 | + | 140 | 141 | 141 | + | 130 | 128 | 130 |
| 256 | + | 246 | 248 | 246 | + | 242 | 243 | 243 | + | 258 | 257 | 256 | + | 239 | 237 | 237 |
| 257 | + | 367 | 368 | 368 | + | 352 | 352 | 353 | + | 369 | 371 | 371 | + | 369 | 369 | 369 |
| 258 | + | — | 308 | 309 | + | 318 | — | 316 | + | 296 | 297 | 295 | + | 295 | 293 | 293 |
| 259 | + | 157 | 156 | 155 | + | 155 | 155 | 157 | + | 172 | 171 | 170 | + | 164 | 162 | 162 |
| 260 | + | 39 | 38 | 38 | + | 29 | 28 | 29 | + | 29 | 29 | 30 | + | 33 | 34 | 34 |
| 261 | + | 155 | 153 | 153 | + | 165 | 165 | 165 | + | 155 | 156 | 156 | + | 155 | 152 | 152 |
| 262 | + | 64 | 66 | 65 | + | 47 | 47 | 47 | + | 47 | 48 | 46 | + | 33 | 34 | 32 |
| 263 | + | 137 | 137 | 137 | + | 114 | 116 | 115 | + | 127 | 127 | 128 | + | 134 | 132 | 132 |
| 264 | + | 169 | 169 | 169 | + | 167 | 167 | 166 | + | 196 | 194 | 196 | + | 195 | 194 | 196 |
| 265 | + | 193 | 193 | 192 | + | 178 | 178 | 179 | + | 180 | 180 | 180 | + | 150 | 150 | 151 |
| 266 | + | 216 | 217 | 219 | + | 212 | 212 | 211 | + | 211 | 211 | 213 | + | 223 | 226 | 225 |
| 267 | + | 256 | 258 | 259 | + | 250 | 249 | 249 | + | 262 | 263 | 264 | + | 247 | 247 | 246 |
| 268 | — | 239 | 237 | 238 | — | 254 | 256 | 255 | — | 242 | 243 | 244 | — | 268 | 268 | 266 |
| 269 | — | 145 | 145 | 145 | — | 108 | 109 | 109 | — | 146 | 145 | 145 | — | 124 | 125 | 125 |
| 270 | — | 11 | 11 | 11 | — | 11 | 10 | 10 | — | 10 | 10 | 9 | — | 11 | 11 | 10 |

# ÖSEL.

| N:o | **634.** NS. 17.VI. 15h25m–21h10m. $t_1$: +21°2, $t_2$: +12°9. 1—65: +B−S 66—130: +S−B 131—195: −S+B 196—261: −B+S | | | **636.** NS. 18.VI. 14h5m–18h54m. $t_1$: +20°5, $t_2$: +16°5. 1—65: +P−J 66—130: +J−P 131—195: −J+P 196—261: −P+J | | | **637.** NS. 19.VI. 14h1m–18h16m. $t_1$: +18°8, $t_2$: +18°0. 1—65: +J−P 66—131: +P−J 132—196: −P+J 197—261: −J+P | | | **674.** NS. 20.VI. 13h55m–18h55m. $t_1$: +21°0, $t_2$: +19°7. 1—65: −S+B 66—130: −B+S 131—195: +B−S 196—261: +S−B | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 223 | 224 | 225 | + | 223 | 223 | 221 | + | 184 | 186 | 186 | + | 194 | 194 | 191 |
| 2 | + | 84 | 85 | 84 | + | 81 | 82 | 80 | + | 116 | 116 | 116 | + | 123 | 122 | 123 |
| 3 | + | 101 | 101 | 101 | + | 105 | 102 | 103 | + | 113 | 113 | 112 | + | 124 | 123 | 123 |
| 4 | + | 110 | 112 | 111 | + | 93 | 92 | 93 | + | 87 | 87 | 89 | + | 90 | 90 | 88 |
| 5 | + | 115 | 114 | 116 | + | 129 | 131 | 131 | + | 132 | 132 | 133 | + | 146 | 145 | 145 |
| 6 | + | 80 | 79 | 79 | + | 66 | 68 | 65 | + | 57 | 59 | 59 | + | 45 | 44 | 44 |
| 7 | + | 86 | 85 | 86 | + | 88 | 87 | 88 | + | 99 | 98 | 98 | + | 118 | 120 | 119 |
| 8 | + | 64 | 63 | 62 | + | 57 | 58 | 59 | + | 44 | 46 | 44 | + | 64 | 63 | 63 |
| 9 | + | 80 | 80 | 81 | + | 75 | 78 | 76 | + | 64 | 66 | 66 | + | 71 | 72 | 70 |
| 10 | + | 14 | 16 | 17 | + | 20 | 21 | 19 | + | 10 | 10 | 10 | + | 18 | 19 | 19 |
| 11 | + | 63 | 61 | 64 | + | 48 | 49 | 47 | + | 60 | 60 | 60 | + | 68 | 67 | 68 |
| 12 | − | 32 | 31 | 30 | − | 31 | 32 | 31 | − | 39 | 39 | 38 | − | 41 | 41 | 41 |
| 13 | + | 22 | 22 | 22 | + | 10 | 11 | 11 | + | 14 | 12 | 12 | + | 32 | 33 | 33 |
| 14 | − | 35 | 35 | 35 | − | 39 | 38 | 38 | − | 23 | 22 | 22 | − | 24 | 25 | 24 |
| 15 | + | 28 | 29 | 27 | + | 23 | 24 | 24 | + | 27 | 25 | 24 | + | 10 | 10 | 10 |
| 16 | − | 74 | 74 | 74 | − | 81 | 79 | 80 | − | 98 | 98 | 98 | − | 90 | 90 | 93 |
| 17 | − | 167 | 167 | 166 | − | 168 | 168 | 169 | − | 161 | 161 | 161 | − | 141 | 139 | 141 |
| 18 | − | 36 | 35 | 36 | − | 40 | 40 | 42 | − | 36 | 36 | 37 | − | 20 | 21 | 21 |
| 19 | + | 26 | 26 | 24 | + | 23 | 25 | 23 | + | 40 | 40 | 41 | + | 4 | 6 | 6 |
| 20 | + | 80 | 81 | 79 | + | 70 | 71 | 70 | + | 78 | 78 | 79 | + | 102 | 101 | 101 |
| 21 | + | 89 | 89 | 89 | + | 82 | 82 | 81 | + | 63 | 62 | 61 | + | 54 | 54 | 55 |
| 22 | + | 151 | 152 | 151 | + | 152 | 152 | 154 | + | 122 | 123 | 120 | + | 152 | 150 | 151 |
| 23 | + | 210 | 211 | 210 | + | 209 | 208 | 207 | + | 237 | 236 | 235 | + | 265 | 266 | 265 |
| 24 | − | 72 | 72 | 73 | − | 81 | 81 | 80 | − | 84 | 85 | 86 | − | 73 | 73 | 74 |
| 25 | + | 271 | 273 | 272 | + | 272 | 273 | 274 | + | 273 | 273 | 272 | + | 267 | 270 | 269 |
| 26 | + | 279 | 278 | 279 | + | 278 | 276 | 277 | + | 253 | 252 | 255 | + | 254 | 256 | 255 |
| 27 | + | 274 | 273 | 274 | + | 261 | 262 | 263 | + | 267 | 267 | 266 | + | 231 | 231 | 231 |
| 28 | + | 315 | 319 | 316 | + | 326 | 324 | 325 | + | 325 | 326 | 326 | + | 371 | 371 | 371 |
| 29 | + | 281 | 282 | 279 | + | 271 | 272 | 272 | + | 280 | 280 | 282 | + | 301 | 302 | 302 |
| 30 | + | 258 | 257 | 258 | + | 249 | 250 | 250 | + | 256 | 256 | 256 | + | 237 | 237 | 238 |
| 31 | + | 327 | 326 | 327 | + | 323 | 323 | 321 | + | 262 | 263 | 262 | + | 313 | 313 | 312 |
| 32 | + | 404 | 406 | 407 | + | 401 | 400 | 401 | + | 455 | 453 | 454 | + | 420 | 423 | 422 |
| 33 | + | 289 | 289 | 289 | + | 287 | 288 | 287 | + | 281 | 282 | 281 | + | 291 | 289 | 289 |
| 34 | + | 303 | 303 | 302 | + | 302 | 303 | 302 | + | 291 | 289 | 290 | + | 309 | 310 | 309 |
| 35 | + | 280 | 280 | 279 | + | 269 | 268 | 269 | + | 289 | 289 | 290 | + | 273 | 270 | 271 |
| 36 | + | 253 | 253 | 253 | + | 255 | 256 | 254 | + | 231 | 232 | 232 | + | 236 | 234 | 235 |
| 37 | + | 162 | 163 | 164 | + | 154 | 152 | 151 | + | 170 | 170 | 170 | + | 189 | 191 | 189 |
| 38 | + | 230 | 230 | 230 | + | 225 | 227 | 224 | + | 205 | 203 | 205 | + | 225 | 224 | 225 |
| 39 | + | 382 | 381 | 381 | + | 386 | 388 | 386 | + | 401 | 401 | 400 | + | 395 | 394 | 394 |
| 40 | + | 157 | 157 | 158 | + | 150 | 151 | 151 | + | 161 | 160 | 160 | + | 145 | 145 | 145 |
| 41 | + | 10 | 9 | 8 | − | 2 | 3 | 2 | − | 6 | 7 | 4 | + | 15 | 14 | 14 |
| 42 | + | 444 | 442 | 443 | + | 441 | 443 | 442 | + | 419 | 418 | 419 | + | 447 | 447 | 447 |
| 43 | + | 268 | 269 | 270 | + | 264 | 266 | 267 | + | 280 | 282 | 282 | + | 277 | 277 | 277 |
| 44 | + | 275 | 276 | 275 | + | 274 | 274 | 275 | + | 254 | 255 | 255 | + | 279 | 278 | 277 |
| 45 | + | 323 | 324 | 324 | + | 315 | 318 | 316 | + | 321 | 322 | 322 | + | 327 | 327 | 326 |
| 46 | + | 278 | 279 | 278 | + | 280 | 279 | 280 | + | 266 | 266 | 268 | + | 272 | 273 | 273 |
| 47 | + | 376 | 374 | 375 | + | 368 | 369 | 368 | + | 364 | 364 | 363 | + | 346 | 347 | 346 |
| 48 | + | 257 | 257 | 257 | + | 260 | 261 | 262 | + | 262 | 261 | 263 | + | 304 | 304 | 304 |
| 49 | + | 202 | 202 | 202 | + | 187 | 186 | 189 | + | 201 | 203 | 201 | + | 199 | 199 | 199 |
| 50 | + | 329 | 330 | 329 | + | 334 | 336 | 338 | + | 328 | 329 | 327 | + | 330 | 330 | 329 |

# ÖSEL.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | + | 226 | 229 | 228 | + | 221 | 221 | 221 | + | 221 | 221 | 222 | + | 225 | 225 | 225 |
| 52 | + | 284 | 283 | 284 | + | 278 | 276 | 274 | + | 289 | 290 | 289 | + | 287 | 287 | 286 |
| 53 | + | 295 | 295 | 294 | + | 297 | 298 | 299 | + | 287 | 283 | 285 | + | 301 | 301 | 300 |
| 54 | + | 282 | 283 | 282 | + | 272 | 271 | 272 | + | 266 | 267 | 267 | + | 285 | 286 | 284 |
| 55 | + | 265 | 264 | 264 | + | 261 | 260 | 262 | + | 260 | 259 | 260 | + | 259 | 260 | 260 |
| 56 | + | 204 | 203 | 204 | + | 206 | 206 | 208 | + | 147 | 147 | 147 | + | 203 | 204 | 203 |
| 57 | + | 144 | 142 | 144 | + | 132 | 135 | 134 | + | 188 | 189 | 188 | + | 145 | 145 | 144 |
| 58 | + | 203 | 204 | 202 | + | 121 | 121 | 121 | + | 198 | 199 | 198 | + | 222 | 223 | 223 |
| 59 | + | 253 | 253 | 255 | + | 327 | 327 | 325 | + | 256 | 254 | 253 | + | 245 | 244 | 245 |
| 60 | + | 219 | 219 | 219 | + | 212 | 212 | 213 | + | 206 | 206 | 204 | + | 216 | 215 | 216 |
| 61 | + | 264 | 265 | 266 | + | 237 | 239 | 239 | + | 244 | 244 | 246 | + | 250 | 250 | 250 |
| 62 | + | 233 | 233 | 234 | + | 260 | 260 | 260 | + | 248 | 248 | 250 | + | 257 | 256 | 256 |
| 63 | + | 230 | 230 | 232 | + | 239 | 238 | 235 | + | 242 | 243 | 243 | + | 247 | 247 | 247 |
| 64 | + | 327 | 327 | 325 | + | 317 | 314 | 315 | + | 316 | 318 | 316 | + | 337 | 336 | 336 |
| 65 | + | 211 | 210 | 211 | + | 199 | 200 | 200 | + | 202 | 201 | 204 | + | 209 | 208 | 208 |
| 66 | + | 184 | 185 | 185 | + | 182 | 182 | 182 | + | 172 | 172 | 172 | + | 175 | 174 | 175 |
| 67 | + | 180 | 179 | 180 | + | 183 | 184 | 183 | + | 190 | 191 | 189 | + | 181 | 182 | 181 |
| 68 | + | 212 | 210 | 212 | + | 208 | 211 | 209 | + | 228 | 227 | 228 | + | 193 | 192 | 192 |
| 69 | + | 217 | 216 | 216 | + | 206 | 207 | 207 | + | 183 | 184 | 184 | + | 241 | 241 | 240 |
| 70 | + | 198 | 199 | 198 | + | 194 | 196 | 196 | + | 220 | 220 | 220 | + | 200 | 201 | 200 |
| 71 | + | 305 | 307 | 305 | + | 301 | 302 | 304 | + | 275 | 272 | 273 | + | 309 | 308 | 308 |
| 72 | + | 244 | 244 | 243 | + | 237 | 235 | 235 | + | 237 | 234 | 238 | + | 241 | 242 | 241 |
| 73 | + | 311 | 312 | 313 | + | 310 | 311 | 310 | + | 308 | 309 | 310 | + | 321 | 319 | 319 |
| 74 | + | 249 | 249 | 251 | + | 250 | 248 | 249 | + | 250 | 251 | 250 | + | 249 | 249 | 250 |
| 75 | + | 425 | 425 | 424 | + | 420 | 419 | 419 | + | 399 | 398 | 399 | + | 407 | 408 | 406 |
| 76 | + | 253 | 254 | 253 | + | 244 | 242 | 242 | + | 263 | 265 | 264 | + | 279 | 279 | 278 |
| 77 | + | 370 | 369 | 369 | + | 376 | 374 | 374 | + | 392 | 393 | 395 | + | 369 | 370 | 370 |
| 78 | + | 213 | 213 | 215 | + | 203 | 204 | 201 | + | 179 | 179 | 179 | + | 206 | 207 | 206 |
| 79 | + | 211 | 212 | 210 | + | 190 | 190 | 189 | + | 185 | 186 | 186 | + | 207 | 207 | 208 |
| 80 | + | 75 | 75 | 76 | + | 96 | 97 | 97 | + | 117 | 117 | 115 | + | — | 95 | 95 |
| 81 | + | 314 | 315 | 314 | + | 295 | 293 | 295 | + | 309 | 309 | 309 | + | 312 | 312 | 313 |
| 82 | + | 446 | 445 | 447 | + | 445 | 445 | 442 | + | 421 | 422 | 421 | + | 454 | 452 | 452 |
| 83 | + | 49 | 49 | 48 | + | 51 | — | 51 | + | 48 | 47 | 48 | + | 47 | 47 | 48 |
| 84 | + | 283 | 283 | 282 | + | 274 | 275 | 273 | + | 263 | 261 | 263 | + | 277 | 278 | 277 |
| 85 | + | 253 | 254 | 253 | + | 247 | 249 | 247 | + | 246 | 244 | 248 | + | 244 | 245 | 243 |
| 86 | + | 363 | 360 | 361 | + | 362 | 360 | 363 | + | 418 | 417 | 417 | + | 372 | 371 | 373 |
| 87 | + | 221 | 220 | 219 | + | 214 | 213 | 214 | + | 197 | 194 | 195 | + | 228 | 228 | 228 |
| 88 | + | 159 | 158 | 158 | + | 151 | 150 | 151 | + | 140 | 142 | 142 | + | 148 | 147 | 147 |
| 89 | + | 166 | 167 | 166 | + | 166 | 165 | 168 | + | 143 | 144 | 144 | + | 172 | 171 | 172 |
| 90 | + | 266 | 268 | 267 | + | 256 | 257 | 255 | + | 268 | 268 | 268 | + | 272 | 271 | 271 |
| 91 | + | 265 | 265 | 263 | + | 261 | 262 | 262 | + | 246 | 246 | 244 | + | 249 | 250 | 251 |
| 92 | + | 211 | 212 | 210 | + | 213 | 212 | 211 | + | 209 | 210 | 209 | + | 226 | 225 | 224 |
| 93 | + | 172 | 172 | 174 | + | 183 | 185 | 182 | + | 193 | 193 | 192 | + | 175 | 175 | 175 |
| 94 | + | 294 | 294 | 296 | + | 278 | 279 | 279 | + | 269 | 269 | 270 | + | 301 | 301 | 301 |
| 95 | — | 30 | 30 | 30 | — | 38 | 35 | 34 | — | 42 | 43 | 43 | — | 21 | 21 | 20 |
| 96 | + | 81 | 80 | 81 | + | 80 | 82 | 81 | + | 90 | 89 | 89 | + | 84 | 85 | 84 |
| 97 | + | 10 | 9 | 9 | + | 14 | 14 | 13 | + | 5 | 6 | 6 | + | 26 | 25 | 25 |
| 98 | + | 44 | 46 | 44 | + | 31 | 33 | 32 | + | 33 | 34 | — | + | 29 | 30 | 29 |
| 99 | + | 264 | 266 | 264 | + | 259 | 258 | 257 | + | 258 | 257 | 259 | + | 269 | 269 | 269 |
| 100 | + | 268 | 269 | 268 | + | 271 | 270 | 270 | + | 265 | 268 | 267 | + | 155 | 155 | 156 |
| 101 | — | 214 | 214 | 214 | — | 221 | 222 | 222 | — | 220 | 219 | 220 | — | 95 | 95 | 95 |
| 102 | + | 120 | 118 | 119 | + | 116 | 117 | 116 | + | 140 | 140 | 139 | + | 123 | 123 | 122 |
| 103 | + | 117 | 117 | 115 | + | 109 | 110 | 109 | + | 97 | 96 | 97 | + | 127 | 126 | 127 |
| 104 | + | 220 | 221 | 220 | + | 212 | 215 | 214 | + | 198 | 197 | 198 | + | 192 | 194 | 195 |
| 105 | + | 121 | 123 | 124 | + | 100 | 99 | 98 | + | 101 | 104 | 101 | + | 115 | 115 | 115 |
| 106 | + | 275 | 275 | 276 | + | 297 | 299 | 298 | + | 294 | 294 | 294 | + | 277 | 277 | 275 |
| 107 | + | 265 | 267 | 264 | + | 257 | 259 | 257 | + | 255 | 254 | 256 | + | 296 | 295 | 296 |
| 108 | + | 231 | 230 | 230 | + | 229 | 229 | 230 | + | 225 | 227 | 226 | + | 231 | 231 | 230 |
| 109 | + | 224 | 223 | 224 | + | 229 | 227 | 227 | + | 235 | 234 | 233 | + | 224 | 225 | 225 |
| 110 | + | 280 | 279 | 279 | + | 270 | 270 | 270 | + | 271 | 271 | 271 | + | 290 | 289 | 289 |

## ÖSEL.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | + | 287 | 287 | 287 | + | 287 | 287 | 289 | + | 282 | 284 | 284 | + | 296 | 297 | 296 |
| 112 | + | 190 | 190 | 191 | + | 177 | 174 | 178 | + | 183 | 182 | 182 | + | 193 | 193 | 191 |
| 113 | + | 275 | 275 | 274 | + | 278 | 274 | 276 | + | 277 | 278 | 278 | + | 280 | 280 | 280 |
| 114 | + | 297 | 296 | 296 | + | 292 | 292 | 292 | + | 282 | 281 | 282 | + | 294 | 294 | 293 |
| 115 | + | 251 | 251 | 252 | + | 250 | 250 | 249 | + | 249 | 248 | 249 | + | 248 | 248 | 248 |
| 116 | + | 53 | 52 | 52 | + | 57 | 56 | 54 | + | 47 | 48 | 47 | + | 52 | 53 | 52 |
| 117 | + | 151 | 151 | 151 | + | 146 | 144 | 145 | + | 153 | 154 | 156 | + | 151 | 151 | 150 |
| 118 | + | 56 | 56 | 56 | + | 46 | 46 | 49 | + | 76 | 75 | 76 | + | 71 | 70 | 70 |
| 119 | + | 28 | 28 | 29 | + | 27 | 25 | 27 | − | 9 | 10 | 11 | + | 24 | 23 | 24 |
| 120 | − | 18 | 19 | 18 | − | 28 | 27 | 28 | − | 21 | 23 | 23 | − | 7 | 7 | 8 |
| 121 | + | 160 | 160 | 161 | + | 165 | 163 | 167 | + | 160 | 160 | 160 | + | 154 | 154 | 154 |
| 122 | + | 76 | 76 | 77 | + | 62 | 62 | 61 | + | 60 | 60 | 60 | + | 74 | 73 | 74 |
| 123 | + | 206 | 206 | 205 | + | 207 | 208 | 207 | + | 219 | 218 | 218 | + | 197 | 198 | 198 |
| 124 | + | 101 | 100 | 99 | + | 94 | 96 | 95 | + | 88 | 85 | 85 | + | 123 | 123 | 122 |
| 125 | + | 18 | 19 | 18 | + | 18 | 20 | 19 | + | 26 | 28 | 28 | + | 9 | 9 | 8 |
| 126 | + | 149 | 147 | 148 | + | 144 | 146 | 147 | + | 130 | 130 | 130 | + | 146 | 146 | 146 |
| 127 | + | 213 | 214 | 213 | + | 207 | 203 | 206 | + | 238 | 236 | 236 | + | 237 | 237 | 237 |
| 128 | + | 193 | 192 | 192 | + | 189 | 188 | 188 | + | 157 | 156 | 156 | + | 184 | 182 | 183 |
| 129 | + | 120 | 120 | 119 | + | 116 | 117 | 114 | + | 130 | 130 | 131 | + | 123 | 121 | 123 |
| 130 | + | 232 | 232 | 232 | + | 227 | 227 | 227 | + | 229 | 228 | 228 | + | 243 | 242 | 241 |
| 131 | + | 105 | 105 | 104 | + | 103 | 104 | 103 | + | 108 | 108 | 109 | + | 109 | 110 | 111 |
| 132 | + | 94 | 94 | 92 | + | 94 | 93 | 93 | + | 85 | 84 | 84 | + | 119 | 122 | 121 |
| 133 | − | 19 | 20 | 18 | − | 24 | 22 | 22 | − | 24 | 25 | 26 | − | 26 | 25 | − |
| 134 | + | 121 | 121 | 121 | + | 118 | 117 | 119 | + | 118 | 119 | 119 | + | 129 | 129 | 129 |
| 135 | + | 109 | 111 | 109 | + | 97 | 95 | 95 | + | 67 | 65 | 67 | + | 109 | 108 | 109 |
| 136 | + | 199 | 199 | 198 | + | 205 | 206 | 206 | + | 210 | 210 | 209 | + | 166 | 166 | 165 |
| 137 | + | 174 | 173 | 173 | + | 167 | 167 | 165 | + | 168 | 166 | 168 | + | 178 | 178 | 178 |
| 138 | + | 197 | 200 | 198 | + | 195 | 195 | 195 | + | 213 | 213 | 212 | + | 194 | 194 | 196 |
| 139 | + | 141 | 143 | 141 | + | 140 | 141 | 140 | + | 130 | 130 | 130 | + | 143 | 143 | 145 |
| 140 | + | 202 | 203 | 201 | + | 198 | 200 | 197 | + | 201 | 201 | 201 | + | 202 | 203 | 203 |
| 141 | + | 123 | 122 | 124 | + | 124 | 126 | 126 | + | 116 | 114 | 115 | + | 135 | 135 | 134 |
| 142 | + | 113 | 111 | 111 | + | 102 | 104 | 103 | + | 88 | 86 | 87 | + | 123 | 124 | 122 |
| 143 | + | 175 | 172 | 173 | + | 169 | 170 | 169 | + | 186 | 184 | 183 | + | 170 | 170 | 170 |
| 144 | + | 17 | 16 | 16 | + | 12 | 12 | 10 | + | 3 | 3 | 4 | + | 23 | 23 | 23 |
| 145 | + | 62 | 60 | 61 | + | 57 | 58 | 58 | + | 60 | 59 | 59 | + | 56 | 55 | 55 |
| 146 | + | 132 | 130 | 131 | + | 126 | 126 | 127 | + | 127 | 125 | 125 | + | 143 | 143 | 143 |
| 147 | + | 110 | 110 | 110 | + | 109 | 109 | 108 | + | 111 | 111 | 111 | + | 95 | 95 | 95 |
| 148 | + | 202 | 202 | 201 | + | 200 | 200 | 199 | + | 193 | 193 | 194 | + | 220 | 218 | 219 |
| 149 | + | 100 | 99 | 100 | + | 98 | 97 | 98 | + | 94 | 93 | 95 | + | 94 | 97 | 97 |
| 150 | + | 27 | 27 | 28 | + | 23 | 22 | 23 | + | 30 | 30 | 29 | + | 31 | 32 | 33 |
| 151 | + | 74 | 71 | 72 | + | 70 | 68 | 68 | + | 66 | 68 | 64 | + | 79 | 81 | 78 |
| 152 | + | 65 | 67 | 66 | + | 68 | 67 | 69 | + | 79 | 78 | 78 | + | 50 | 50 | 50 |
| 153 | + | 16 | 14 | 15 | + | 8 | 8 | 9 | + | 20 | 20 | 20 | + | 28 | 27 | 27 |
| 154 | + | 36 | 37 | 35 | + | 28 | 29 | 29 | — | 0 | 1 | 1 | + | 44 | 45 | 44 |
| 155 | — | 8 | 4 | 7 | — | 7 | 5 | 5 | | 0 | 0 | 0 | — | 31 | 32 | 30 |
| 156 | + | 212 | 213 | 213 | + | 209 | 206 | 207 | + | 200 | 199 | 199 | + | 236 | 236 | 236 |
| 157 | + | 140 | 140 | 139 | + | 131 | 130 | 131 | + | 131 | 130 | 131 | + | 148 | 146 | 147 |
| 158 | + | 142 | 143 | 142 | + | 147 | 145 | 145 | + | 144 | 143 | 146 | + | 155 | 155 | 155 |
| 159 | + | 163 | 164 | 163 | + | 166 | 167 | 166 | + | 181 | 181 | 179 | + | 168 | 168 | 168 |
| 160 | + | 95 | 96 | 96 | + | 90 | 90 | 90 | + | 69 | 70 | 69 | + | 100 | 99 | 101 |
| 161 | + | 175 | 175 | 174 | + | 173 | 172 | 172 | + | 157 | 156 | 157 | + | 177 | 177 | 176 |
| 162 | + | 121 | 121 | 122 | + | 116 | 114 | 115 | + | 131 | 132 | 131 | + | 97 | 97 | 96 |
| 163 | + | 197 | 197 | 197 | + | 191 | 191 | 193 | + | 201 | 202 | 201 | + | 204 | — | 205 |
| 164 | + | 130 | 130 | 129 | + | 126 | 125 | 126 | + | 113 | 112 | 110 | + | 122 | 124 | 124 |
| 165 | + | 139 | 139 | 140 | + | 149 | 149 | 148 | + | 159 | 159 | 158 | + | 163 | 164 | 165 |
| 166 | + | 219 | 219 | 218 | + | 205 | 204 | 205 | + | 187 | 186 | 187 | + | 200 | 201 | 201 |
| 167 | + | 170 | 170 | 170 | + | 169 | 168 | 167 | + | 171 | 172 | 172 | + | 166 | 166 | 166 |
| 168 | — | 60 | 60 | 60 | — | 66 | 68 | 67 | — | 61 | 65 | 62 | — | 46 | 45 | 47 |
| 169 | − | 330 | 330 | 330 | − | 330 | 330 | 330 | − | 341 | 342 | 342 | − | 325 | 325 | 324 |
| 170 | + | 204 | 204 | 204 | + | 201 | 202 | 202 | + | 197 | 197 | 196 | + | 203 | 203 | 204 |

# ÖSEL.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | + | 158 | 158 | 158 | + | 150 | 151 | 150 | + | 159 | 159 | 159 | + | 153 | 152 | 152 |
| 172 | + | 163 | 163 | 163 | + | 158 | 158 | 157 | + | 172 | 172 | 172 | + | 172 | 172 | 172 |
| 173 | + | 232 | 232 | 233 | + | 229 | 229 | 230 | + | 214 | 214 | 212 | + | 236 | 237 | 237 |
| 174 | + | 167 | 166 | 167 | + | 169 | 168 | 169 | + | 170 | 170 | 170 | + | 171 | 172 | 172 |
| 175 | + | 229 | 229 | 229 | + | 223 | 222 | 223 | + | 215 | 216 | 216 | + | 218 | 216 | 216 |
| 176 | + | 209 | 210 | 209 | + | — | 210 | 209 | + | 213 | 213 | 212 | + | 222 | 221 | 222 |
| 177 | + | 15 | 15 | 15 | + | 13 | 12 | 13 | + | 18 | 16 | 17 | + | 19 | 19 | 20 |
| 178 | + | 227 | 227 | 226 | + | 220 | 220 | 221 | + | 215 | 217 | 215 | + | 214 | 214 | 214 |
| 179 | + | 234 | 234 | 233 | + | 224 | 223 | 223 | + | 241 | 242 | 242 | + | 307 | 306 | 308 |
| 180 | + | 119 | 121 | 121 | + | 125 | 126 | 125 | + | 105 | 105 | 102 | + | 58 | 57 | 57 |
| 181 | + | 56 | 57 | 55 | + | 48 | 47 | 48 | + | 53 | 55 | 55 | + | 56 | 56 | 55 |
| 182 | + | 30 | 28 | 29 | + | 30 | 29 | 30 | — | 12 | 13 | 13 | + | 35 | 35 | 34 |
| 183 | + | 81 | 80 | 79 | + | 78 | 75 | 75 | + | 89 | 88 | 89 | + | 106 | 106 | 107 |
| 184 | — | 56 | 56 | 54 | — | 54 | 54 | 57 | — | 3 | 4 | 5 | — | 35 | 37 | 36 |
| 185 | — | 24 | 26 | 22 | — | 25 | 27 | 25 | — | 62 | 62 | 63 | — | 58 | 57 | 55 |
| 186 | + | 76 | 74 | 76 | + | 69 | 69 | 70 | + | 66 | 67 | 63 | + | 82 | 81 | 81 |
| 187 | + | 29 | 27 | 28 | + | 30 | 29 | 30 | + | 27 | 28 | 28 | + | 32 | 31 | 31 |
| 188 | + | 95 | 94 | 93 | + | 81 | 83 | 84 | + | 81 | 83 | 83 | + | 77 | 77 | 78 |
| 189 | + | 114 | 116 | 115 | + | 116 | 114 | 115 | + | 119 | 115 | 116 | + | 118 | 119 | 119 |
| 190 | + | 135 | 133 | 133 | + | 131 | 132 | 130 | + | 133 | 134 | 134 | + | 153 | 152 | 152 |
| 191 | + | 45 | 44 | 45 | + | 44 | 43 | 42 | + | 38 | 37 | 37 | + | 41 | 41 | 41 |
| 192 | + | 43 | 44 | 44 | + | 39 | 38 | 40 | + | 41 | 43 | 44 | + | 54 | 55 | 54 |
| 193 | + | 164 | 163 | 164 | + | 171 | 171 | 170 | + | 176 | 180 | 177 | + | 160 | 162 | 160 |
| 194 | + | 164 | 164 | 164 | + | 150 | 147 | 148 | + | 130 | 131 | 130 | + | 182 | 183 | 181 |
| 195 | + | 151 | 150 | 151 | + | 151 | 150 | 151 | + | 153 | 154 | 155 | + | 133 | 132 | 133 |
| 196 | + | 126 | 125 | 126 | + | 92 | 91 | 92 | + | 93 | 94 | 92 | + | 134 | 134 | 133 |
| 197 | — | 28 | 29 | 30 | — | 4 | 5 | 3 | — | 10 | 10 | 10 | — | 32 | 34 | 35 |
| 198 | + | 121 | 122 | 122 | + | 118 | 117 | 118 | + | 141 | 141 | 141 | + | 123 | 124 | 124 |
| 199 | + | 98 | 96 | 98 | + | 101 | 101 | 102 | + | 74 | 74 | 77 | + | 118 | 117 | 117 |
| 200 | + | 66 | 64 | 66 | + | 59 | 59 | 60 | + | 64 | 63 | 64 | + | 49 | 49 | 47 |
| 201 | + | 83 | 83 | 82 | + | 85 | 83 | 86 | + | 92 | 94 | 92 | + | 107 | 105 | 105 |
| 202 | + | 104 | 105 | 106 | + | 100 | 99 | 100 | + | 89 | 89 | 90 | + | 91 | 89 | 90 |
| 203 | — | 126 | 125 | 126 | — | 135 | 137 | 134 | — | 156 | 157 | 156 | — | 130 | 131 | 130 |
| 204 | + | 103 | 103 | 103 | + | 108 | 108 | 106 | + | 121 | 121 | 120 | + | 125 | 124 | 125 |
| 205 | + | 125 | 125 | 124 | + | 117 | 118 | 118 | + | 97 | 96 | 97 | + | 106 | 107 | 106 |
| 206 | + | 128 | 126 | 129 | + | 121 | 121 | 122 | + | 128 | 128 | 128 | + | 138 | 138 | 137 |
| 207 | + | 159 | 159 | 161 | + | 155 | 152 | 154 | + | 165 | 166 | 166 | + | 196 | 196 | 195 |
| 208 | + | 98 | 96 | 96 | + | 99 | 98 | 97 | + | 79 | 79 | 79 | + | 59 | 60 | 59 |
| 209 | + | 62 | 62 | 62 | + | 57 | 57 | 58 | + | 70 | 71 | 71 | + | 84 | 83 | 83 |
| 210 | + | 129 | 129 | 129 | + | 131 | 132 | 131 | + | 123 | 121 | 121 | + | 122 | 122 | 121 |
| 211 | + | 180 | 179 | 179 | + | 186 | 188 | 184 | + | 186 | 186 | 188 | + | 189 | 188 | 188 |
| 212 | + | 213 | 212 | 214 | + | 214 | 215 | 212 | + | 219 | 219 | 219 | + | 215 | 214 | 214 |
| 213 | + | 211 | 212 | 211 | + | 188 | 189 | 189 | + | 190 | 190 | 190 | + | 203 | 203 | 203 |
| 214 | + | 236 | 236 | 237 | + | 238 | 238 | 237 | + | 238 | 235 | 236 | + | 238 | 240 | 237 |
| 215 | + | 340 | 339 | 340 | + | 349 | 350 | 349 | + | 348 | 345 | 345 | + | 333 | 333 | 333 |
| 216 | + | 252 | 252 | 252 | + | 231 | 229 | 230 | + | 213 | 213 | 214 | + | 258 | 258 | 258 |
| 217 | + | 317 | 317 | 317 | + | 329 | 331 | 330 | + | 327 | 328 | 329 | + | 332 | 333 | 331 |
| 218 | + | 290 | 292 | 291 | + | 282 | 283 | 283 | + | 290 | 290 | 290 | + | 297 | 297 | 299 |
| 219 | + | 321 | 321 | 323 | + | 316 | 319 | 318 | + | 342 | 341 | 341 | + | 326 | 327 | 327 |
| 220 | — | 9 | 10 | 10 | — | 2 | 2 | 2 | — | 13 | 16 | 16 | + | 6 | 8 | 6 |
| 221 | + | 156 | 155 | 155 | + | 136 | 134 | 134 | + | 140 | 139 | 140 | + | 159 | 160 | 159 |
| 222 | + | 50 | 49 | 50 | + | 63 | 63 | 67 | + | 37 | 36 | 37 | + | 52 | 52 | 51 |
| 223 | + | 153 | 153 | 153 | + | 134 | 132 | 135 | + | 150 | 151 | 150 | + | 146 | 145 | 146 |
| 224 | + | 200 | 200 | 200 | + | 220 | 220 | 220 | + | 193 | 191 | 191 | + | 189 | 188 | 189 |
| 225 | + | 163 | 163 | 163 | + | 138 | 136 | 138 | + | 166 | 164 | 163 | + | 193 | 192 | 192 |
| 226 | + | 143 | 142 | 143 | + | 147 | 148 | 147 | + | 139 | 140 | 140 | + | 135 | 134 | 134 |
| 227 | + | 172 | 172 | 172 | + | 152 | 152 | 151 | + | 154 | 157 | 155 | + | 149 | 151 | 150 |
| 228 | + | 89 | 89 | 90 | + | 138 | 140 | 136 | + | 65 | 62 | 64 | + | 79 | 81 | 80 |
| 229 | + | 146 | 147 | 148 | + | 100 | 100 | 101 | + | 170 | 170 | 170 | + | 174 | 174 | 174 |
| 230 | + | 282 | 283 | 283 | + | 297 | 296 | 297 | + | 275 | 273 | 275 | + | 271 | 271 | 272 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 231 | + | 56 | 56 | 55 | + | 27 | 28 | 27 | + | 48 | 46 | 49 | + | 85 | 85 | 84 |
| 232 | + | 183 | 183 | 184 | + | 187 | 189 | 187 | + | 185 | 183 | 182 | + | 163 | 163 | 164 |
| 233 | + | 188 | 188 | 187 | + | 207 | 208 | 207 | + | 203 | 201 | 203 | + | 223 | 223 | 224 |
| 234 | + | 8 | 8 | 9 | − | 1 | 0 | 1 | − | 13 | 13 | 16 | − | 17 | 16 | 16 |
| 235 | + | 137 | 138 | 138 | + | 113 | 112 | 111 | + | 126 | 128 | 127 | + | 159 | 158 | 159 |
| 236 | + | 190 | 192 | 192 | + | 219 | 220 | 220 | + | 211 | 210 | 210 | + | 199 | 199 | 199 |
| 237 | + | 218 | 218 | 219 | + | 189 | 189 | 188 | + | 198 | 197 | 199 | + | 195 | 194 | 195 |
| 238 | + | 193 | 192 | 191 | + | 158 | 158 | 160 | + | 182 | 183 | 181 | + | 195 | 196 | 197 |
| 239 | + | 51 | 52 | 50 | + | 107 | 106 | 104 | + | 79 | 79 | 78 | + | 27 | 28 | 27 |
| 240 | + | 242 | 242 | 242 | + | 204 | 203 | 204 | + | 204 | 204 | 205 | + | 248 | 249 | 249 |
| 241 | + | 64 | 63 | 65 | + | 62 | 60 | 62 | + | 66 | 66 | 63 | + | 86 | 85 | 87 |
| 242 | + | 159 | 160 | 159 | + | 163 | 162 | 162 | + | 151 | 150 | 150 | + | 165 | 165 | 164 |
| 243 | − | 77 | 79 | 77 | − | 91 | 92 | 92 | − | 85 | 84 | 83 | − | 85 | 86 | 85 |
| 244 | − | 98 | 101 | 99 | − | 100 | 100 | 100 | − | 104 | 105 | 104 | − | 90 | 91 | 91 |
| 245 | − | 23 | 23 | 22 | + | 1 | 0 | 0 | − | 26 | 26 | 27 | − | 33 | 32 | 32 |
| 246 | − | 234 | 234 | 235 | − | 260 | 260 | 260 | − | 223 | 224 | 226 | − | 211 | 211 | 211 |
| 247 | − | 132 | 132 | 133 | − | 119 | 119 | 119 | − | 151 | 150 | 150 | − | 144 | 143 | 143 |
| 248 | + | 254 | 252 | 252 | + | 228 | 225 | 226 | + | 250 | 249 | 248 | + | 246 | 246 | 244 |
| 249 | + | 56 | 55 | 55 | + | 52 | 52 | 52 | + | 49 | 49 | 49 | + | 49 | 50 | 49 |
| 250 | − | 85 | 85 | 85 | − | 64 | 66 | 64 | − | 89 | 89 | 88 | − | 75 | 76 | 77 |
| 251 | + | 162 | 162 | 163 | + | 136 | 138 | 138 | + | 167 | 169 | 168 | + | 171 | 169 | 171 |
| 252 | − | 44 | 42 | 41 | − | 42 | 42 | 43 | − | 73 | 71 | 72 | − | 47 | 46 | 46 |
| 253 | + | 131 | 132 | 131 | + | 117 | 118 | 117 | + | 139 | 137 | 139 | + | 137 | 138 | 138 |
| 254 | + | 236 | 236 | 236 | + | 236 | 234 | 235 | + | 232 | 230 | 229 | + | 243 | 242 | 242 |
| 255 | + | 146 | 147 | 146 | + | 146 | 147 | 146 | + | 146 | 148 | 148 | + | 136 | 137 | 134 |
| 256 | + | 178 | 177 | 179 | + | 175 | 174 | 176 | + | 176 | 177 | 175 | + | 192 | 192 | 193 |
| 257 | + | 123 | 123 | 123 | + | 122 | 122 | 123 | + | 118 | 117 | 119 | + | 124 | 125 | 125 |
| 258 | + | 40 | 40 | 39 | + | 40 | 37 | 37 | + | 40 | 40 | 40 | + | 50 | 49 | 48 |
| 259 | − | 45 | 43 | 44 | − | 47 | 47 | 47 | − | 50 | 51 | 51 | − | 35 | 35 | 34 |
| 260 | + | 101 | 101 | 101 | + | 96 | 94 | 95 | + | 93 | 96 | 95 | + | 100 | 99 | 100 |
| 261 | + | 20 | 21 | 20 | + | 19 | 17 | 18 | + | 17 | 15 | 15 | + | 20 | 19 | 20 |

# ÖSEL.

| N:o | **635.** SN. 18.VI. $8^h25^m-13^h25^m$. $t_1$:+16°1, $t_2$:+18°6. 1— 65: +S−B 66—130: +B−S 131—195: −B+S 196—261: −S+B | | | **675.** SN. 19.VI. $8^h27^m-13^h21^m$. $t_1$:+18°2, $t_2$:+20°0. 1— 65: −B+S 66—130: −S+B 131—195: +S−B 196—261: +B−S | | | **673.** SN. 20.VI. $8^h46^m-12^h59^m$. $t_1$:+21°0, $t_2$:+23°3. 1— 64: −J+P 65—130: −P+J 131—195: +P−J 196—261: +J−P | | | **683.** SN. 21.VI. $8^h45^m-13^h24^m$. $t_1$:+19°0, $t_2$:+23°5. 1— 65: −J+P 66—130: −P+J 131—195: +P−J 196—261: +J−P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 220 | 220 | 220 | + | 195 | 194 | 193 | + | 195 | 196 | 196 | + | 186 | 186 | 188 |
| 2 | + | 75 | 77 | 77 | + | 121 | 120 | 121 | + | 126 | 124 | 125 | + | 116 | 114 | 113 |
| 3 | + | 91 | 90 | 91 | + | 122 | 121 | 121 | + | 109 | 108 | 109 | + | 122 | 123 | 122 |
| 4 | + | 97 | 97 | 98 | + | 96 | 95 | 96 | + | 114 | 113 | 111 | + | 79 | 79 | 80 |
| 5 | + | 123 | 122 | 120 | + | 139 | 138 | 138 | + | 145 | 146 | 145 | + | 128 | 129 | 129 |
| 6 | + | 65 | 64 | 63 | + | 62 | 60 | 62 | + | 63 | 62 | 61 | + | 54 | 53 | 52 |
| 7 | + | 78 | 80 | 79 | + | 90 | 91 | 89 | + | 90 | 90 | 91 | + | 100 | 102 | 100 |
| 8 | + | 53 | 52 | 53 | + | 68 | 68 | 67 | + | 78 | 79 | 80 | + | 54 | 50 | 52 |
| 9 | + | 71 | 70 | 72 | + | 69 | 69 | 71 | + | 71 | 70 | 71 | + | 68 | 66 | 66 |
| 10 | + | 14 | 14 | 13 | + | 27 | 27 | 26 | + | 27 | 26 | 25 | + | 6 | 7 | 8 |
| 11 | + | 48 | 47 | 48 | + | 72 | 73 | 73 | + | 57 | 55 | 57 | + | 50 | 49 | 49 |
| 12 | − | 36 | 35 | 35 | − | 39 | 40 | 41 | − | 29 | 29 | 29 | − | 31 | 31 | 33 |
| 13 | + | 12 | 13 | 13 | + | 25 | 25 | 25 | + | 31 | 30 | 31 | + | 9 | 7 | 9 |
| 14 | − | 43 | 43 | 44 | − | 22 | 20 | 21 | − | 29 | 26 | 27 | − | 16 | 18 | 17 |
| 15 | + | 19 | 19 | 19 | + | 26 | 26 | 25 | + | 52 | 53 | 51 | + | 20 | 21 | 19 |
| 16 | − | 86 | 85 | 87 | − | 84 | 86 | 83 | − | 95 | 98 | 98 | − | 97 | 98 | 99 |
| 17 | − | 173 | 174 | 173 | − | 153 | 154 | 154 | − | 167 | 168 | 169 | − | 173 | 176 | 174 |
| 18 | − | 39 | 39 | 41 | − | 31 | 32 | 34 | − | 29 | 30 | 29 | − | 43 | 45 | 43 |
| 19 | + | 16 | 13 | 14 | + | 24 | 20 | 21 | + | 41 | 39 | 40 | + | 15 | 14 | 13 |
| 20 | + | 73 | 74 | 72 | + | 87 | 88 | 88 | + | 83 | 83 | 84 | + | 80 | 79 | 80 |
| 21 | + | 82 | 82 | 80 | + | 76 | 78 | 77 | + | 89 | 89 | 88 | + | 90 | 90 | 90 |
| 22 | + | 147 | 145 | 146 | + | 154 | 155 | 156 | + | 121 | 123 | 121 | + | 119 | 118 | 120 |
| 23 | + | 203 | 203 | 203 | + | 230 | 229 | 231 | + | 264 | 262 | 262 | + | 251 | 253 | 252 |
| 24 | − | 82 | 81 | 81 | − | 72 | 72 | 72 | − | 71 | 72 | 72 | − | 91 | 90 | 90 |
| 25 | + | 261 | 263 | 263 | + | 248 | 248 | 249 | + | 267 | 267 | 268 | + | 262 | 262 | 262 |
| 26 | + | 270 | 269 | 271 | + | 288 | 288 | 289 | + | 281 | 279 | 280 | + | 266 | 266 | 267 |
| 27 | + | 265 | 267 | 264 | + | 264 | 267 | 267 | + | 251 | 252 | 251 | + | 253 | 252 | 253 |
| 28 | + | 316 | 317 | 318 | + | 341 | 342 | 342 | + | 350 | 350 | 350 | + | 330 | 330 | 330 |
| 29 | + | 268 | 269 | 269 | + | 270 | 269 | 269 | + | 301 | 302 | 301 | + | 293 | 293 | 292 |
| 30 | + | 245 | 245 | 245 | + | 259 | 258 | 259 | + | 246 | 247 | 243 | + | 236 | 233 | 233 |
| 31 | + | 324 | 323 | 323 | + | 316 | − | 315 | + | 315 | 317 | 315 | + | 303 | 303 | 303 |
| 32 | + | 398 | 398 | 399 | + | 420 | 417 | 420 | + | 424 | 423 | 423 | + | 418 | 417 | 416 |
| 33 | + | 281 | 281 | 281 | + | 296 | 293 | 295 | + | 292 | 292 | 291 | + | 280 | 280 | 279 |
| 34 | + | 299 | 298 | 298 | + | 310 | 310 | 310 | + | 314 | 314 | 312 | + | 296 | 296 | 297 |
| 35 | + | 264 | 264 | 264 | + | 278 | 278 | 279 | + | 267 | 268 | 269 | + | 278 | 277 | 277 |
| 36 | + | 245 | 245 | 245 | + | 267 | 268 | 268 | + | 233 | 235 | 233 | + | 244 | 244 | 243 |
| 37 | + | 152 | 154 | 154 | + | 162 | 161 | 161 | + | 196 | 194 | 197 | + | 160 | 158 | 158 |
| 38 | + | 220 | 223 | 222 | + | 217 | 216 | 217 | + | 234 | 233 | 233 | + | 218 | 219 | 217 |
| 39 | + | 377 | 378 | 376 | + | 385 | 386 | 384 | + | 395 | 394 | 397 | + | 384 | 383 | 383 |
| 40 | + | 154 | 154 | 155 | + | 165 | 162 | 162 | + | 161 | 161 | 160 | + | 150 | 150 | 150 |
| 41 | − | 9 | 9 | 8 | − | 6 | 4 | 5 | + | 4 | 4 | 1 | − | 8 | 6 | 7 |
| 42 | + | 448 | 448 | 447 | + | 449 | 450 | 451 | + | 460 | 461 | 460 | + | 451 | 452 | 451 |
| 43 | + | 250 | 251 | 251 | + | 290 | 291 | 291 | + | 264 | 267 | 264 | + | 256 | 254 | 256 |
| 44 | + | 268 | 268 | 269 | + | 260 | 260 | 260 | + | 280 | 283 | 281 | + | 272 | 271 | 273 |
| 45 | + | 315 | 314 | 313 | + | 330 | 329 | 330 | + | 334 | 333 | 335 | + | 321 | 320 | 320 |
| 46 | + | 276 | 275 | 275 | + | 277 | 277 | 275 | + | 278 | 279 | 279 | + | 266 | 267 | 268 |
| 47 | + | 370 | 369 | 369 | + | 355 | 356 | 355 | + | 350 | 350 | 350 | + | 337 | 336 | 337 |
| 48 | + | 250 | 250 | 249 | + | 284 | 284 | 285 | + | 295 | 299 | 295 | + | 292 | 290 | 291 |
| 49 | + | 194 | 192 | 193 | + | 205 | 206 | 204 | + | 203 | 201 | 201 | + | 200 | 201 | 201 |
| 50 | + | 320 | 319 | 320 | + | 331 | 330 | 330 | + | 335 | 334 | 333 | + | 318 | 318 | 318 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | + | 222 | 220 | 223 | + | 238 | 238 | 236 | + | 236 | 235 | 234 | + | 222 | 223 | 223 |
| 52 | + | 275 | 276 | 276 | + | 291 | 291 | 291 | + | 286 | 284 | 286 | + | 271 | 272 | 274 |
| 53 | + | 292 | 293 | 292 | + | 298 | 299 | 298 | + | 311 | 311 | 311 | + | 298 | 299 | 299 |
| 54 | + | 268 | 268 | 267 | + | 270 | 271 | 272 | + | 281 | 281 | 280 | + | 273 | 271 | 271 |
| 55 | + | 258 | 258 | 259 | + | 269 | 269 | 269 | + | 259 | 259 | 260 | + | 252 | 252 | 251 |
| 56 | + | 199 | 199 | 199 | + | 207 | 204 | 206 | + | 197 | 198 | 196 | + | 191 | 192 | 192 |
| 57 | + | 131 | 130 | 130 | + | 152 | 152 | 151 | + | 165 | 165 | 166 | + | 142 | 143 | 141 |
| 58 | + | 196 | 196 | 196 | + | 198 | 199 | 199 | + | 209 | 210 | 209 | + | 164 | 166 | 163 |
| 59 | + | 248 | 247 | 245 | + | 257 | 258 | 259 | + | 263 | 263 | 262 | + | 288 | 290 | 289 |
| 60 | + | 210 | 211 | 211 | + | 213 | 214 | 213 | + | 218 | 219 | 216 | + | 209 | 207 | 207 |
| 61 | + | 256 | 256 | 253 | + | 244 | 242 | 244 | + | 253 | 253 | 253 | + | 249 | 246 | 247 |
| 62 | + | 231 | 230 | 230 | + | 261 | 261 | 262 | + | 260 | 260 | 260 | + | 244 | 244 | 245 |
| 63 | + | 235 | 234 | 235 | + | 242 | 243 | 243 | + | 252 | 253 | 252 | + | 243 | 243 | 242 |
| 64 | + | 310 | 310 | 309 | + | 325 | 328 | 327 | + | 316 | 317 | 315 | + | 306 | 307 | 306 |
| 65 | + | 197 | 198 | 197 | + | 207 | 206 | 206 | + | 201 | 201 | 202 | + | 209 | 209 | 210 |
| 66 | + | 182 | 182 | 184 | + | 186 | 186 | 186 | + | 202 | 200 | 200 | + | 177 | 175 | 176 |
| 67 | + | 167 | 168 | 167 | + | 187 | 185 | 186 | + | 190 | 190 | 189 | + | 176 | 177 | 173 |
| 68 | + | 212 | 213 | 211 | + | 206 | 204 | 205 | + | 195 | 192 | 194 | + | 194 | 197 | 194 |
| 69 | + | 198 | 201 | 199 | + | 222 | 222 | 222 | + | 244 | 243 | 243 | + | 220 | 219 | 221 |
| 70 | + | 197 | 195 | 197 | + | 204 | 203 | 202 | + | 201 | 201 | 202 | + | 195 | 195 | 193 |
| 71 | + | 299 | 299 | 298 | + | 304 | 304 | 305 | + | 308 | 307 | 308 | + | 297 | 297 | 298 |
| 72 | + | 229 | 230 | 228 | + | 241 | 240 | 239 | + | 246 | 247 | 245 | + | 237 | 235 | 235 |
| 73 | + | 309 | 310 | 309 | + | 319 | 319 | 318 | + | 321 | 320 | 321 | + | 309 | 309 | 310 |
| 74 | + | 247 | 245 | 245 | + | 255 | 256 | 255 | + | 258 | 260 | 260 | + | 241 | 240 | 238 |
| 75 | + | 413 | 414 | 413 | + | 407 | 406 | 407 | + | 407 | 406 | 404 | + | 407 | 406 | 405 |
| 76 | + | 242 | 241 | 243 | + | 272 | 272 | 272 | + | 267 | 268 | 266 | + | 269 | 270 | 269 |
| 77 | + | 363 | 362 | 362 | + | 363 | 363 | 363 | + | 381 | 382 | 382 | + | 365 | 364 | 364 |
| 78 | + | 203 | 206 | 204 | + | 207 | 209 | 208 | + | 209 | 210 | 208 | + | 199 | 199 | 197 |
| 79 | + | 202 | 203 | 203 | + | 214 | 214 | 213 | + | 209 | 204 | 207 | + | 196 | 197 | 196 |
| 80 | + | 84 | 84 | 83 | + | 90 | 90 | 90 | + | 100 | 100 | 100 | + | 92 | 92 | 94 |
| 81 | + | 294 | 294 | 294 | + | 313 | 314 | 313 | + | 319 | 319 | 319 | + | 306 | 305 | 305 |
| 82 | + | 443 | 444 | 444 | + | 451 | 451 | 449 | + | 452 | 451 | 454 | + | 446 | 443 | 444 |
| 83 | + | 38 | 39 | 40 | + | 44 | 46 | 45 | + | 42 | 43 | 42 | + | 40 | 40 | 40 |
| 84 | + | 268 | 268 | 268 | + | 277 | 277 | 277 | + | 283 | 285 | 285 | + | 268 | 268 | 269 |
| 85 | + | 241 | 240 | 242 | + | 249 | 248 | 248 | + | 258 | 259 | 258 | + | 246 | 244 | 246 |
| 86 | + | 363 | 363 | 363 | + | 387 | 387 | 388 | + | 381 | 381 | 381 | + | 395 | 396 | 396 |
| 87 | + | 211 | 212 | 211 | + | 217 | 218 | 217 | + | 219 | 219 | 218 | + | 183 | 181 | 181 |
| 88 | + | 146 | 146 | 145 | + | 159 | 159 | 159 | + | 161 | 164 | 162 | + | 152 | 154 | 152 |
| 89 | + | 162 | 162 | 162 | + | 157 | 156 | 158 | + | 170 | 170 | 171 | + | 151 | 154 | 152 |
| 90 | + | 255 | 255 | 255 | + | 262 | 261 | 262 | + | 265 | 264 | 265 | + | 265 | 263 | 262 |
| 91 | + | 255 | 256 | 256 | + | 265 | 266 | 267 | + | 268 | 266 | 267 | + | 260 | 261 | 261 |
| 92 | + | 205 | 206 | 204 | + | 215 | 216 | 216 | + | 211 | 211 | 211 | + | 204 | 207 | 205 |
| 93 | + | 174 | 175 | 174 | + | 190 | 191 | 190 | + | 157 | 154 | 155 | + | 180 | 179 | 179 |
| 94 | + | 280 | 280 | 281 | + | 286 | 287 | 287 | + | 336 | 334 | 335 | + | 281 | 283 | 283 |
| 95 | − | 38 | 40 | 38 | − | 31 | 31 | 31 | − | 34 | 36 | 38 | − | 46 | 44 | 47 |
| 96 | + | 77 | 77 | 77 | + | 90 | 91 | 90 | + | 97 | 96 | 98 | + | 82 | 85 | 85 |
| 97 | + | 10 | 9 | 9 | + | 20 | 17 | 18 | + | 21 | 21 | 21 | + | 15 | 16 | 15 |
| 98 | + | 30 | 32 | 31 | + | 36 | 35 | 34 | + | 45 | 44 | 44 | + | 37 | 36 | 37 |
| 99 | + | 254 | 253 | 254 | + | 261 | 262 | 260 | + | 260 | 261 | 261 | + | 245 | 243 | 245 |
| 100 | + | 259 | 260 | 259 | + | 285 | 285 | 283 | + | 277 | 274 | 276 | + | 273 | 273 | 274 |
| 101 | − | 222 | 222 | 221 | − | 209 | 209 | 207 | − | 207 | 206 | 205 | − | 228 | 227 | 229 |
| 102 | + | 114 | 115 | 114 | + | 116 | 115 | 114 | + | 128 | 129 | 127 | + | 114 | 116 | 116 |
| 103 | + | 103 | 102 | 102 | + | 115 | 115 | 114 | + | 121 | 121 | 122 | + | 144 | 144 | 143 |
| 104 | + | 207 | 209 | 209 | + | 217 | 217 | 216 | + | 213 | 216 | 215 | + | 162 | 165 | 163 |
| 105 | + | 131 | 132 | 131 | + | 105 | 106 | 107 | + | 114 | 118 | 115 | + | 105 | 104 | 105 |
| 106 | + | 252 | 254 | 252 | + | 291 | 289 | 290 | + | 292 | 292 | 293 | + | 306 | 306 | 304 |
| 107 | + | 262 | 262 | 261 | + | 261 | 261 | 261 | + | 273 | 275 | 274 | + | 261 | 261 | 261 |
| 108 | + | 225 | 227 | 225 | + | 241 | 240 | 240 | + | 232 | 231 | 232 | + | 215 | 215 | 214 |
| 109 | + | 222 | 221 | 223 | + | 239 | 240 | 239 | + | 240 | 239 | 238 | + | 239 | 237 | 236 |
| 110 | + | 272 | 270 | 272 | + | 278 | 279 | 277 | + | 282 | 281 | 282 | + | 272 | 271 | 271 |

# ÖSEL.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | + | 284 | 284 | 284 | + | 300 | 299 | 300 | + | 308 | 307 | 305 | + | 296 | 296 | 296 |
| 112 | + | 177 | 179 | 178 | + | 183 | 182 | 184 | + | 182 | 184 | 182 | + | 160 | 160 | 159 |
| 113 | + | 258 | 258 | 258 | + | 284 | 283 | 282 | + | 281 | 281 | 281 | + | 282 | 283 | 283 |
| 114 | + | 297 | 297 | 297 | + | 289 | 289 | 290 | + | 290 | 290 | 290 | + | 276 | 277 | 273 |
| 115 | + | 244 | 243 | 244 | + | 255 | 257 | 256 | + | 263 | 264 | 265 | + | 258 | 256 | 257 |
| 116 | + | 42 | 43 | 42 | + | 54 | 54 | 53 | + | 60 | 60 | 59 | + | 49 | 47 | 48 |
| 117 | + | 149 | 148 | 148 | + | 165 | 165 | 164 | + | 154 | 155 | 156 | + | 156 | 155 | 157 |
| 118 | + | 50 | 49 | 50 | + | 59 | 59 | 59 | + | 67 | 68 | 69 | + | 50 | 51 | 51 |
| 119 | + | 20 | 20 | 21 | + | 17 | 17 | 17 | + | 20 | 20 | 21 | + | 12 | 13 | 12 |
| 120 | − | 32 | 32 | 33 | − | 15 | 16 | 17 | − | 8 | 9 | 9 | − | 31 | 32 | 31 |
| 121 | + | 156 | 158 | 156 | + | 162 | 163 | 162 | + | 162 | 161 | 162 | + | 161 | 163 | 162 |
| 122 | + | 63 | 65 | 64 | + | 86 | 86 | 85 | + | 74 | 74 | 73 | + | 61 | 61 | 61 |
| 123 | + | 197 | 196 | 197 | + | 209 | 210 | 210 | + | 231 | 231 | 231 | + | 209 | 205 | 208 |
| 124 | + | 94 | 94 | 96 | + | 94 | 93 | 93 | + | 99 | 98 | 99 | + | 103 | 106 | 104 |
| 125 | + | 12 | 13 | 11 | + | 20 | 19 | 21 | + | 19 | 19 | 19 | + | 7 | 6 | 9 |
| 126 | + | 139 | 138 | 139 | + | 146 | 146 | 146 | + | 150 | 150 | 151 | + | 142 | 143 | 141 |
| 127 | + | 204 | 205 | 206 | + | 222 | 221 | 221 | + | 225 | 223 | 224 | + | 206 | 205 | 206 |
| 128 | + | 183 | 184 | 182 | + | 186 | 187 | 186 | + | 189 | 189 | 189 | + | 188 | 188 | 187 |
| 129 | + | 113 | 114 | 115 | + | 120 | 119 | 119 | + | 121 | 120 | 121 | + | 111 | 111 | 112 |
| 130 | + | 225 | 224 | 224 | + | 244 | 244 | 246 | + | 259 | 258 | 259 | + | 227 | 227 | 228 |
| 131 | + | 97 | 97 | 98 | + | 112 | 113 | 112 | + | 94 | 94 | 91 | + | 100 | 99 | 100 |
| 132 | + | 87 | 87 | 88 | + | 94 | 95 | 95 | + | 108 | 107 | 107 | + | 92 | 93 | 91 |
| 133 | − | 28 | 27 | 26 | − | 14 | 14 | 13 | − | 25 | 25 | 25 | − | 27 | 26 | 25 |
| 134 | + | 117 | 117 | 117 | + | 130 | 129 | 129 | + | 132 | 132 | 132 | + | 122 | 122 | − |
| 135 | + | 98 | 95 | 97 | + | 101 | 101 | 100 | + | 143 | 145 | 146 | + | 132 | 131 | 133 |
| 136 | + | 194 | 194 | 193 | + | 188 | 189 | 188 | + | 166 | 168 | 168 | + | 157 | 155 | 157 |
| 137 | + | 162 | 164 | 163 | + | 169 | 171 | 171 | + | 179 | 179 | 179 | + | 170 | 170 | 169 |
| 138 | + | 191 | 192 | 190 | + | 230 | 231 | 231 | + | 200 | 200 | 199 | + | 196 | 195 | 199 |
| 139 | + | 137 | 138 | 137 | + | 130 | 131 | 132 | + | 149 | 150 | 150 | + | 132 | 133 | 132 |
| 140 | + | 193 | 192 | 191 | + | 208 | 209 | 209 | + | 204 | 206 | 206 | + | 192 | 192 | 194 |
| 141 | + | 119 | 118 | 117 | + | 121 | 120 | 121 | + | 135 | 137 | 135 | + | 109 | 110 | 110 |
| 142 | + | 105 | 105 | 104 | + | 112 | 112 | 111 | + | 117 | 115 | 117 | + | 126 | 124 | 126 |
| 143 | + | 162 | 162 | 162 | + | 168 | 169 | 168 | + | 173 | 175 | 173 | + | 162 | 163 | 161 |
| 144 | + | 11 | 12 | 11 | + | 21 | 21 | 22 | + | 18 | 16 | 18 | + | 6 | 4 | 8 |
| 145 | + | 55 | 55 | 54 | + | 61 | 60 | 60 | + | 68 | 68 | 68 | + | 56 | 56 | 58 |
| 146 | + | 121 | 121 | 121 | + | 129 | 130 | 129 | + | 140 | 140 | 140 | + | 125 | 125 | 125 |
| 147 | + | 105 | 104 | 103 | + | 122 | 123 | 122 | + | 113 | 111 | 112 | + | 90 | 91 | 89 |
| 148 | + | 193 | 193 | 194 | + | 198 | 200 | 200 | + | 209 | 209 | 209 | + | 213 | 216 | 214 |
| 149 | + | 91 | 91 | 91 | + | 102 | 100 | 100 | + | 104 | 103 | 105 | + | 82 | 82 | 82 |
| 150 | + | 22 | 20 | 22 | + | 34 | 32 | 32 | + | 33 | 33 | 35 | + | 42 | 41 | 41 |
| 151 | + | 67 | 67 | 65 | + | 78 | 77 | 76 | + | 83 | − | 85 | + | 69 | 67 | 66 |
| 152 | + | 58 | 60 | 59 | + | 81 | 82 | 81 | + | 62 | 66 | 64 | + | 57 | 58 | 56 |
| 153 | + | 6 | 6 | 6 | − | 4 | 5 | 4 | + | 21 | 22 | 21 | − | 4 | 1 | 6 |
| 154 | + | 27 | 28 | 28 | + | 40 | 38 | 39 | + | 40 | 41 | 41 | + | 47 | 46 | 46 |
| 155 | − | 15 | 15 | 14 | + | 5 | 5 | 5 | − | 10 | 9 | 9 | − | 28 | 27 | 27 |
| 156 | + | 205 | 205 | 204 | + | 205 | 205 | 205 | + | 223 | 222 | 221 | + | 205 | 205 | 207 |
| 157 | + | 127 | 127 | 125 | + | 139 | 137 | 137 | + | 148 | 147 | 148 | + | 138 | 138 | 137 |
| 158 | + | 149 | 150 | 148 | + | 153 | 153 | 155 | + | 145 | 146 | 145 | + | 151 | 152 | 152 |
| 159 | + | 149 | 148 | 149 | + | 187 | 187 | 187 | + | 192 | 193 | 194 | + | 151 | 150 | 152 |
| 160 | + | 89 | 89 | 89 | + | 74 | 75 | 75 | + | 80 | 81 | 80 | + | 99 | 99 | 99 |
| 161 | + | 151 | 152 | 153 | + | 166 | 166 | 164 | + | 159 | 160 | 160 | + | 146 | 146 | 146 |
| 162 | + | 128 | 129 | 128 | + | 140 | 140 | 139 | + | 141 | 143 | 143 | + | 123 | 126 | 124 |
| 163 | + | 188 | 189 | 189 | + | 205 | 203 | 205 | + | 213 | 213 | 214 | + | 190 | 191 | 190 |
| 164 | + | 121 | 120 | 120 | + | 124 | 125 | 125 | + | 124 | 128 | 126 | + | 116 | 114 | 116 |
| 165 | + | 145 | 146 | 145 | + | 160 | 161 | 161 | + | 148 | 149 | 148 | + | 157 | 156 | 155 |
| 166 | + | 197 | 197 | 196 | + | 189 | 189 | 189 | + | 210 | 211 | 210 | + | 186 | 188 | 186 |
| 167 | + | 166 | 167 | 167 | + | 184 | 185 | 184 | + | 183 | 183 | 182 | + | 183 | 184 | 184 |
| 168 | − | 71 | 70 | 70 | − | 62 | 63 | 63 | − | 59 | 58 | 59 | − | 71 | 72 | 72 |
| 169 | — | 335 | 335 | 334 | — | 326 | 327 | 325 | − | 329 | 328 | 329 | − | 332 | 330 | 330 |
| 170 | + | 193 | 195 | 194 | + | 214 | 214 | 214 | + | 221 | 224 | 222 | + | 193 | 192 | 191 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | + | 151 | 151 | 151 | + | 150 | 149 | 149 | + | 150 | 152 | 152 | + | 149 | 149 | 150 |
| 172 | + | 154 | 153 | 155 | + | 175 | 177 | 174 | + | 181 | 182 | 184 | + | 162 | 162 | 162 |
| 173 | + | 221 | 221 | 221 | + | 226 | 227 | 227 | + | 234 | 233 | 234 | + | 231 | 232 | 231 |
| 174 | + | 166 | 166 | 166 | + | 171 | 172 | 171 | + | 161 | 162 | 161 | + | 164 | 166 | 164 |
| 175 | + | 221 | 221 | 221 | + | 225 | 226 | 226 | + | 237 | 235 | 237 | + | 225 | 227 | 226 |
| 176 | + | 208 | 207 | 208 | + | 217 | 218 | 217 | + | 225 | 226 | 226 | + | 195 | 197 | 195 |
| 177 | + | 3 | 3 | 3 | + | 23 | 22 | 22 | + | 20 | 20 | 20 | + | 24 | 26 | 25 |
| 178 | + | 220 | 220 | 219 | + | 234 | 235 | 235 | + | 214 | 215 | 215 | + | 209 | 208 | 209 |
| 179 | + | 223 | 223 | 222 | + | 225 | 225 | 225 | + | 255 | 254 | 253 | + | 243 | 245 | 245 |
| 180 | + | 116 | 115 | 113 | + | 121 | 121 | 121 | + | 119 | 117 | 120 | + | 103 | 103 | 101 |
| 181 | + | 50 | 50 | 50 | + | 60 | 59 | 58 | + | 62 | 64 | 64 | + | 51 | 52 | 52 |
| 182 | + | 22 | 22 | 23 | + | 30 | 30 | 29 | + | 28 | 28 | 28 | + | 49 | 47 | 49 |
| 183 | + | 70 | 69 | 71 | + | 87 | 83 | 84 | + | 117 | 117 | 118 | + | 35 | 34 | 33 |
| 184 | − | 60 | 60 | 60 | − | 60 | 61 | 60 | − | 78 | 77 | 76 | − | 40 | 41 | 40 |
| 185 | − | 36 | 36 | 35 | − | 26 | 26 | 25 | − | 21 | 23 | 23 | − | 33 | 32 | 30 |
| 186 | + | 70 | 70 | 69 | + | 71 | 73 | 73 | + | 76 | 76 | 75 | + | 63 | 63 | 62 |
| 187 | + | 26 | 27 | 28 | + | 36 | 37 | 36 | + | 42 | 43 | 44 | + | 22 | 22 | 23 |
| 188 | + | 86 | 84 | 85 | + | 103 | 103 | 105 | + | 87 | 86 | 85 | + | 90 | 91 | 91 |
| 189 | + | 108 | 109 | 107 | + | 123 | 121 | 120 | + | 126 | 126 | 128 | + | 122 | 121 | 121 |
| 190 | + | 125 | 124 | 126 | + | 131 | 130 | 130 | + | 141 | 140 | 141 | + | 120 | 121 | 121 |
| 191 | + | 40 | 40 | 39 | + | 44 | 45 | 45 | + | 51 | 52 | 53 | + | 37 | 37 | 36 |
| 192 | + | 39 | 39 | 39 | + | 51 | 51 | 52 | + | 53 | 54 | 56 | + | 43 | 42 | 43 |
| 193 | + | 157 | 157 | 157 | + | 174 | 174 | 173 | + | 172 | 173 | 172 | + | 178 | 179 | 178 |
| 194 | + | 154 | 156 | 155 | + | 146 | 146 | 145 | + | 152 | 153 | 154 | + | 136 | 139 | 139 |
| 195 | + | 145 | 144 | 144 | + | 159 | 161 | 159 | + | 165 | 164 | 164 | + | 151 | 153 | 152 |
| 196 | + | 123 | 123 | 122 | + | 95 | 94 | 94 | + | 98 | 99 | 98 | + | 90 | 87 | 88 |
| 197 | − | 44 | 42 | 43 | | 0 | 0 | 0 | + | 1 | 0 | 2 | − | 13 | 15 | 14 |
| 198 | + | 115 | 114 | 115 | + | 126 | 126 | 126 | + | 134 | 133 | 133 | + | 116 | 114 | 115 |
| 199 | + | 100 | 100 | 101 | + | 108 | 108 | 109 | + | 99 | 97 | 99 | + | 113 | 112 | 113 |
| 200 | + | 52 | 52 | 51 | + | 67 | 68 | 67 | + | 75 | 70 | 70 | + | 56 | 56 | 55 |
| 201 | + | 79 | 79 | 79 | + | 96 | 97 | 97 | + | 104 | 105 | 104 | + | 77 | 74 | 74 |
| 202 | + | 93 | 93 | 93 | + | 94 | 94 | 94 | + | 101 | 100 | 99 | + | 106 | 108 | 107 |
| 203 | − | 134 | 136 | 135 | − | 123 | 122 | 121 | − | 133 | 134 | 136 | − | 145 | 146 | 144 |
| 204 | + | 99 | 99 | 100 | + | 102 | 101 | 102 | + | 112 | 113 | 113 | + | 99 | 100 | 99 |
| 205 | + | 110 | 111 | 111 | + | 131 | 131 | 131 | + | 129 | 128 | 129 | + | 119 | 119 | 120 |
| 206 | + | 123 | 122 | 122 | + | 119 | 120 | 117 | + | 129 | 130 | 127 | + | 125 | 124 | 123 |
| 207 | + | 157 | 157 | 157 | + | 170 | 170 | 171 | + | 171 | 171 | 171 | + | 176 | 173 | 174 |
| 208 | + | 85 | 85 | 85 | + | 91 | 91 | 92 | + | 90 | 89 | 89 | + | 67 | 66 | 69 |
| 209 | + | 54 | 53 | 54 | + | 63 | 62 | 63 | + | 70 | 69 | 70 | + | 57 | 58 | 60 |
| 210 | + | 120 | 119 | 119 | + | 133 | 132 | 133 | + | 128 | 130 | 130 | + | 120 | 121 | 121 |
| 211 | + | 177 | 178 | 178 | + | 197 | 198 | 198 | + | 199 | 200 | 199 | + | 190 | 190 | 191 |
| 212 | + | 199 | 200 | 200 | + | 219 | 219 | 219 | + | 229 | 229 | 230 | + | 214 | 211 | 212 |
| 213 | + | 204 | 205 | 204 | + | 198 | 198 | 198 | + | 193 | 193 | 192 | + | 188 | 188 | 188 |
| 214 | + | 233 | 232 | 232 | + | 246 | 246 | 245 | + | 238 | 239 | 238 | + | 237 | 236 | 236 |
| 215 | + | 326 | 327 | 327 | + | 349 | 349 | 349 | + | 343 | 346 | 345 | + | 323 | 323 | 324 |
| 216 | + | 245 | 245 | 244 | + | 240 | 239 | 239 | + | 255 | 253 | 257 | + | 250 | 249 | 250 |
| 217 | + | 312 | 312 | 313 | + | 328 | 329 | 330 | + | 332 | 333 | 332 | + | 329 | 328 | 329 |
| 218 | + | 292 | 293 | 293 | + | 291 | 292 | 291 | + | 291 | 290 | 291 | + | 272 | 271 | 271 |
| 219 | + | 307 | 306 | 307 | + | 323 | 323 | 322 | + | 326 | 328 | 328 | + | 324 | 323 | 323 |
| 220 | − | 19 | 20 | 20 | − | 0 | 2 | 1 | + | 5 | 5 | 6 | − | 3 | 2 | 3 |
| 221 | + | 149 | 148 | 148 | + | 143 | 143 | 143 | + | 149 | 148 | 146 | + | 133 | 132 | 133 |
| 222 | + | 45 | 46 | 45 | + | 53 | 54 | 54 | + | 54 | 53 | 53 | + | 54 | 51 | 52 |
| 223 | + | 144 | 143 | 144 | + | 156 | 155 | 155 | + | 157 | 156 | 155 | + | 142 | 142 | 142 |
| 224 | + | 195 | 194 | 195 | + | 198 | 198 | 198 | + | 200 | 200 | 200 | + | 185 | 185 | 186 |
| 225 | + | 154 | 155 | 155 | + | 173 | 173 | 171 | + | 170 | 171 | 172 | + | 166 | 164 | 163 |
| 226 | + | 129 | 129 | 130 | + | 139 | 139 | 139 | + | 156 | 156 | 155 | + | 130 | 128 | 130 |
| 227 | + | 157 | 159 | 159 | + | 161 | 161 | 160 | + | 156 | 157 | 156 | + | 159 | 160 | 158 |
| 228 | + | 97 | 98 | 97 | + | 136 | 135 | 136 | + | 167 | 167 | 168 | + | 162 | 162 | 161 |
| 229 | + | 138 | 135 | 137 | + | 118 | 117 | 117 | + | 93 | 92 | 94 | + | 76 | 74 | 73 |
| 230 | + | 271 | 271 | 271 | + | 288 | 290 | 289 | + | 278 | 278 | 277 | + | 296 | 296 | 296 |

# ÖSEL.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 231 | + | 46 | 45 | 45 | + | 54 | 54 | 53 | + | 58 | 60 | 59 | + | 27 | 26 | 26 |
| 232 | + | 180 | 182 | 181 | + | 192 | 192 | 193 | + | 193 | 194 | 195 | + | 154 | 154 | 154 |
| 233 | + | 180 | 180 | 181 | + | 210 | 211 | 211 | + | 211 | 212 | 211 | + | 209 | 209 | 210 |
| 234 | − | 0 | 1 | 2 | + | 2 | 3 | 2 | + | 4 | 3 | 4 | + | 20 | 21 | 21 |
| 235 | + | 129 | 129 | 129 | + | 119 | 120 | 120 | + | 124 | 124 | 123 | + | 112 | 114 | 112 |
| 236 | + | 180 | 179 | 179 | + | 197 | 198 | 198 | + | 190 | 190 | 190 | + | 188 | 189 | 188 |
| 237 | + | 216 | 217 | 216 | + | 218 | 218 | 218 | + | 239 | 239 | 240 | + | 221 | 219 | 220 |
| 238 | + | 184 | 184 | 184 | + | 194 | 195 | 194 | + | 183 | 183 | 182 | + | 176 | 179 | 177 |
| 239 | + | 42 | 42 | 41 | + | 53 | 51 | 52 | + | 58 | 58 | 59 | + | 45 | 45 | 45 |
| 240 | + | 237 | 238 | 238 | + | 244 | 244 | 244 | + | 248 | 247 | 247 | + | 239 | 240 | 237 |
| 241 | + | 57 | 57 | 58 | + | 68 | 69 | 69 | + | 68 | 67 | 70 | + | 59 | 58 | 60 |
| 242 | + | 154 | 154 | 155 | + | 162 | 162 | 162 | + | 166 | 165 | 165 | + | 155 | 156 | 157 |
| 243 | − | 90 | 91 | 91 | − | 79 | 78 | 79 | − | 83 | 85 | 84 | − | 76 | 76 | 77 |
| 244 | − | 102 | 103 | 104 | − | 98 | 98 | 96 | − | 88 | 89 | 87 | − | 111 | 112 | 112 |
| 245 | − | 32 | 31 | 32 | − | 21 | 21 | 22 | − | 20 | 18 | 17 | − | 33 | 33 | 32 |
| 246 | − | 243 | 243 | 243 | − | 232 | 233 | 232 | − | 218 | 217 | 218 | − | 228 | 226 | 227 |
| 247 | − | 138 | 138 | 139 | − | 132 | 131 | 132 | − | 137 | 137 | 134 | − | 156 | 155 | 157 |
| 248 | + | 246 | 245 | 245 | + | 254 | 254 | 255 | + | 257 | 256 | 254 | + | 255 | 253 | 254 |
| 249 | + | 44 | 44 | 43 | + | 55 | 56 | 56 | + | 53 | 54 | 55 | + | 47 | 47 | 45 |
| 250 | − | 90 | 90 | 91 | − | 79 | 79 | 78 | − | 81 | 82 | 82 | − | 85 | 86 | 87 |
| 251 | + | 154 | 154 | 154 | + | 164 | 164 | 166 | + | 170 | 170 | 171 | + | 154 | 154 | 154 |
| 252 | − | 46 | 45 | 44 | − | 45 | 45 | 44 | − | 43 | 42 | 43 | − | 67 | 66 | 66 |
| 253 | + | 112 | 111 | 111 | + | 136 | 136 | 137 | + | 135 | 136 | 135 | + | 138 | 137 | 137 |
| 254 | + | 235 | 235 | 234 | + | 233 | 233 | 233 | + | 239 | 237 | 238 | + | 230 | 230 | 231 |
| 255 | + | 141 | 142 | 141 | + | 154 | 153 | 153 | + | 156 | 156 | 156 | + | 145 | 145 | 147 |
| 256 | + | 170 | 170 | 170 | + | 184 | 183 | 183 | + | 181 | 184 | 182 | + | 171 | 172 | 171 |
| 257 | + | 118 | 118 | 118 | + | 127 | 127 | 128 | + | 130 | 131 | 130 | + | 120 | 120 | 120 |
| 258 | + | 34 | 33 | 34 | + | 45 | 46 | 46 | + | 46 | 45 | 47 | + | 42 | 41 | 41 |
| 259 | − | 51 | 52 | 51 | − | 44 | 45 | 44 | − | 40 | 38 | 38 | − | 48 | 49 | 50 |
| 260 | + | 92 | 92 | 91 | + | 101 | 101 | 101 | + | 102 | 102 | 101 | + | 91 | 91 | 92 |
| 261 | + | 12 | 11 | 11 | + | 21 | 22 | 21 | + | 24 | 24 | 24 | + | 11 | 12 | 12 |

# HANKO 1.

| N°o | **674.** WE. 2.VII. $11^h45^m - 17^h20^m$. $t_1$:+21°5, $t_2$:+22°8. 1— 60: −B+S 61—123: −S+B 124—183: +S−B 184—245: +B−S | | | **675.** WE. 3—4.VII. $16^h25^m - 11^h35^m$. $t_1$:+20°2, $t_2$:+23°0. 1— 62: +B−S 63—122: +S−B 123—183: −S+B 184—245: −B+S | | | **673.** WE. 6.VII. $14^h6^m - 18^h44^m$. $t_1$:+18°8, $t_2$:+18°1. 1— 61: +P−J 62—123: +J−P 124—184: −J+P 185—245: −P+J | | | **683.** WE. 7.VII. $8^h19^m - 12^h47^m$. $t_1$:+15°4, $t_2$:+21°7. 1— 61: +J−P 62—123: +P−J 124—184: −P+J 185—245: −J+P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 148 | 146 | 146 | + | 136 | 137 | 137 | + | 154 | 154 | 153 | + | 139 | 139 | 139 |
| 2 | − | 365 | 367 | 366 | − | 370 | 368 | 370 | − | 375 | 377 | 376 | − | 382 | 381 | 383 |
| 3 | + | 223 | 223 | 222 | + | 222 | 222 | 222 | + | 226 | 227 | 228 | + | 218 | 218 | 217 |
| 4 | − | 0 | 0 | 1 | + | 14 | 13 | 13 | + | 13 | 14 | 12 | | 0 | 0 | 0 |
| 5 | − | 103 | 104 | 103 | − | 96 | 96 | 96 | − | 100 | 99 | 99 | − | 99 | 97 | 97 |
| 6 | + | 232 | 231 | 229 | + | 220 | 221 | 223 | + | 228 | 226 | 227 | + | 211 | 212 | 210 |
| 7 | + | 746 | 746 | 745 | + | 744 | 744 | 745 | + | 755 | 752 | 753 | + | 738 | 739 | 739 |
| 8 | − | 299 | 299 | 300 | − | 292 | 291 | 293 | − | 294 | 292 | 293 | − | 305 | 305 | 305 |
| 9 | − | 286 | 287 | 286 | − | 293 | 292 | 292 | − | 292 | 293 | 292 | − | 305 | 306 | 304 |
| 10 | + | 342 | 342 | 342 | + | 338 | 338 | 337 | + | 343 | 345 | 344 | + | 337 | 337 | 338 |
| 11 | + | 103 | 103 | 104 | + | 92 | 91 | 93 | + | 94 | 95 | 94 | + | 94 | 92 | 92 |
| 12 | − | 359 | 358 | 359 | − | 351 | 351 | 350 | − | 348 | 346 | 349 | − | 370 | 371 | 369 |
| 13 | + | 62 | 62 | 62 | + | 58 | 58 | 59 | + | 68 | 69 | 68 | + | 56 | 58 | 56 |
| 14 | + | 216 | 216 | 215 | + | 224 | 224 | 225 | + | 226 | 227 | 228 | + | 210 | 208 | 210 |
| 15 | + | 296 | 295 | 295 | + | 301 | 301 | 303 | + | 292 | 292 | 290 | + | 290 | 290 | 290 |
| 16 | − | 104 | 103 | 104 | − | 445 | 444 | 443 | − | 119 | 120 | 120 | − | 226 | 226 | 228 |
| 17 | − | 243 | 243 | 242 | + | 73 | 74 | 75 | − | 226 | 227 | 223 | − | 143 | 143 | 146 |
| 18 | + | 142 | 143 | 143 | + | 123 | 123 | 123 | + | 118 | 117 | 117 | + | 122 | 121 | 122 |
| 19 | + | 377 | 378 | 376 | + | 408 | 408 | 409 | + | 406 | 407 | 408 | + | 386 | 384 | 387 |
| 20 | − | 207 | 206 | 207 | − | 236 | 235 | 236 | − | 191 | 194 | 196 | − | 203 | 201 | 202 |
| 21 | + | 99 | 98 | 98 | + | 158 | 157 | 157 | + | 93 | 92 | 93 | + | 87 | 88 | 86 |
| 22 | − | 121 | 122 | 121 | − | 140 | 139 | 138 | − | 103 | 105 | 107 | − | 115 | 115 | 116 |
| 23 | + | 130 | 129 | 129 | + | 77 | 76 | 75 | + | 121 | 123 | 124 | + | 91 | 91 | 92 |
| 24 | − | 398 | 399 | 401 | − | 421 | 421 | 421 | − | 417 | 417 | 418 | − | 427 | 428 | 428 |
| 25 | − | 15 | 16 | 15 | + | 66 | 65 | 65 | − | 9 | 9 | 8 | − | 5 | 5 | 8 |
| 26 | + | 307 | 307 | 306 | + | 250 | 251 | 250 | + | 332 | 331 | 332 | + | 300 | 300 | 300 |
| 27 | − | 122 | 122 | 120 | − | 33 | 32 | 32 | − | 137 | 138 | 138 | − | 126 | 126 | 128 |
| 28 | + | 260 | 259 | 259 | + | 231 | 232 | 231 | + | 278 | 275 | 277 | + | 265 | 266 | 265 |
| 29 | − | 294 | 295 | 295 | − | 299 | 300 | 299 | − | 310 | 310 | 310 | − | 299 | 300 | 300 |
| 30 | + | 276 | 277 | 276 | + | 249 | 249 | 249 | + | 301 | 300 | 300 | + | 260 | 260 | 260 |
| 31 | − | 49 | 48 | 50 | − | 216 | 217 | 216 | − | 50 | 51 | 52 | − | 60 | 61 | 63 |
| 32 | − | 18 | 18 | 18 | + | 46 | 48 | 47 | − | 89 | 89 | 89 | − | 100 | 100 | 100 |
| 33 | − | 215 | 215 | 215 | − | 111 | 111 | 112 | − | 133 | 136 | 135 | − | 146 | 145 | 148 |
| 34 | − | 22 | 21 | 21 | + | 1 | −1 | 0 | − | 22 | 23 | 21 | − | 31 | 32 | 31 |
| 35 | + | 27 | 27 | 27 | − | 161 | 159 | 159 | − | 5 | 3 | 3 | − | 21 | 22 | 23 |
| 36 | − | 66 | 66 | 66 | + | 161 | 162 | 162 | − | 26 | 25 | 26 | − | 28 | 28 | 28 |
| 37 | + | 306 | 307 | 306 | + | 263 | 262 | 263 | + | 334 | 331 | 332 | + | 318 | 319 | 317 |
| 38 | − | 3 | 4 | 3 | − | 9 | 10 | 9 | − | 1 | 2 | 1 | − | 8 | 10 | 9 |
| 39 | + | 408 | 408 | 407 | + | 356 | 357 | 357 | + | 389 | 386 | 390 | + | 376 | 377 | 375 |
| 40 | − | 452 | 451 | 451 | − | 481 | 481 | 481 | − | 453 | 452 | 455 | − | 470 | 469 | 470 |
| 41 | + | 382 | 382 | 383 | + | 456 | 456 | 457 | + | 388 | 386 | 385 | + | 374 | 376 | 376 |
| 42 | + | 192 | 193 | 192 | + | 191 | 192 | 193 | + | 211 | 212 | 212 | + | 205 | 203 | 205 |
| 43 | − | 338 | 337 | 339 | − | 396 | 395 | 396 | − | 331 | 330 | 331 | − | 339 | 339 | 339 |
| 44 | + | 95 | 95 | 95 | + | 105 | 105 | 106 | + | 84 | 85 | 86 | + | 72 | 74 | 72 |
| 45 | − | 169 | 168 | 169 | − | 157 | 158 | 156 | − | 158 | 154 | 156 | − | 165 | 164 | 167 |
| 46 | − | 199 | 198 | 199 | − | 154 | 154 | 155 | − | 218 | 216 | 216 | − | 222 | 220 | 221 |
| 47 | + | 186 | 187 | 186 | + | 145 | 145 | 145 | + | 198 | 196 | 198 | + | 179 | 177 | 179 |
| 48 | − | 0 | 1 | 1 | − | 13 | 13 | 14 | + | 6 | 2 | 4 | + | 4 | 2 | 5 |
| 49 | − | 237 | 237 | 237 | − | 165 | 163 | 165 | − | 228 | 229 | 228 | − | 269 | 266 | 266 |
| 50 | − | 121 | 119 | 120 | − | 19 | 19 | 20 | − | 142 | 142 | 143 | − | 154 | 154 | 154 |

# HANKO 1.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | − | 141 | 142 | 141 | − | 327 | 329 | 328 | − | 145 | 146 | 146 | − | 113 | 113 | 111 |
| 52 | + | 317 | 318 | 317 | + | 396 | 397 | 398 | + | 347 | 345 | 346 | + | 310 | 309 | 308 |
| 53 | − | 162 | 162 | 161 | − | 262 | 261 | 264 | − | 196 | 198 | 198 | − | 168 | 167 | 169 |
| 54 | − | 116 | 115 | 115 | − | 41 | 40 | 40 | − | 83 | 81 | 82 | − | 134 | 133 | 133 |
| 55 | + | 169 | 168 | 168 | + | 170 | 169 | 169 | + | 204 | 202 | 204 | + | 178 | 176 | 176 |
| 56 | − | 397 | 397 | 397 | − | 356 | 354 | 355 | − | 427 | 426 | 423 | − | 399 | 399 | 399 |
| 57 | + | 362 | 364 | 363 | + | 347 | 346 | 347 | + | 412 | 411 | 412 | + | 352 | 351 | 351 |
| 58 | − | 175 | 176 | 175 | − | 177 | 177 | 178 | − | 196 | 196 | 198 | − | 190 | 190 | 190 |
| 59 | + | 273 | 273 | 272 | + | 201 | 202 | 202 | + | 273 | 271 | 272 | + | 263 | 263 | 264 |
| 60 | + | 524 | 524 | 525 | + | 596 | 595 | 595 | + | 510 | 510 | 510 | + | 222 | 221 | 221 |
| 61 | − | 158 | 158 | 159 | − | 183 | 183 | 182 | − | 129 | 131 | 130 | + | 139 | 139 | 139 |
| 62 | − | 371 | 372 | 372 | − | 394 | 394 | 394 | − | 377 | 378 | 378 | − | 396 | 395 | 307 |
| 63 | + | 82 | 82 | 81 | + | 98 | 97 | 99 | + | 69 | 69 | 69 | + | 69 | 69 | 68 |
| 64 | − | 136 | 137 | 136 | − | 140 | 141 | 141 | − | 111 | 114 | 112 | − | 132 | 131 | 132 |
| 65 | + | 73 | 73 | 74 | + | 120 | 120 | 120 | + | 93 | 95 | 94 | + | 96 | 92 | 94 |
| 66 | − | 79 | 80 | 80 | − | 129 | 128 | 128 | − | 109 | 108 | 107 | − | 118 | 119 | 120 |
| 67 | − | 145 | 145 | 145 | − | 139 | 139 | 139 | − | 147 | 148 | 146 | − | 145 | 148 | 147 |
| 68 | + | 139 | 139 | 139 | + | 130 | 129 | 130 | + | 140 | 142 | 143 | + | 129 | 130 | 128 |
| 69 | − | 25 | 26 | 26 | − | 15 | 16 | 15 | − | 1 | 0 | 0 | − | 7 | 7 | 8 |
| 70 | + | 189 | 188 | 188 | + | 181 | 181 | 181 | + | 171 | 171 | 172 | + | 162 | 163 | 165 |
| 71 | + | 45 | 46 | 45 | + | 49 | 49 | 49 | + | 51 | 50 | 50 | + | 41 | 43 | 43 |
| 72 | − | 27 | 28 | 28 | − | 28 | 25 | 26 | − | 8 | 8 | 8 | − | 20 | 20 | 21 |
| 73 | + | 82 | 82 | 82 | + | 74 | 75 | 76 | + | 66 | 67 | 67 | + | 72 | 71 | 73 |
| 74 | + | 45 | 48 | 46 | + | 69 | 68 | 69 | + | 62 | 64 | 62 | + | 39 | 35 | 38 |
| 75 | − | 299 | 298 | 298 | − | 316 | 316 | 316 | − | 307 | 306 | 308 | − | 311 | 311 | 312 |
| 76 | + | 225 | 225 | 225 | + | 226 | 226 | 227 | + | 228 | 229 | 228 | + | 224 | 223 | 223 |
| 77 | + | 202 | 203 | 202 | + | 202 | 201 | 203 | + | 214 | 215 | 213 | + | 201 | 203 | 202 |
| 78 | + | 96 | 96 | 97 | + | 98 | 97 | 98 | + | 96 | 93 | 96 | + | 90 | 91 | 90 |
| 79 | + | 95 | 96 | 94 | + | 108 | 107 | 106 | + | 104 | 105 | 103 | + | 100 | 99 | 99 |
| 80 | + | 11 | 11 | 12 | + | 14 | 15 | 14 | + | 4 | 3 | 4 | − | 10 | 10 | 12 |
| 81 | − | 141 | 139 | 139 | − | 152 | 152 | 153 | − | 148 | 146 | 147 | − | 163 | 164 | 162 |
| 82 | + | 90 | 89 | 89 | + | 88 | 90 | 89 | + | 105 | 105 | 106 | + | 88 | 86 | 87 |
| 83 | + | 298 | 299 | 299 | + | 302 | 302 | 302 | + | 302 | 302 | 303 | + | 291 | 290 | 290 |
| 84 | + | 25 | 25 | 24 | + | 22 | 23 | 23 | + | 26 | 27 | 25 | + | 35 | 32 | 35 |
| 85 | − | 32 | 31 | 32 | − | 29 | 29 | 28 | − | 44 | 42 | 43 | − | 45 | 43 | 43 |
| 86 | + | 248 | 246 | 247 | + | 154 | 155 | 156 | + | 250 | 250 | 251 | + | 246 | 247 | 247 |
| 87 | − | 171 | 173 | 172 | − | 33 | 32 | 31 | − | 142 | 143 | 142 | − | 162 | 161 | 163 |
| 88 | + | 311 | 309 | 309 | + | 258 | 258 | 258 | + | 282 | 282 | 281 | + | 251 | 252 | 252 |
| 89 | − | 284 | 285 | 285 | − | 279 | 279 | 279 | − | 279 | 279 | 278 | − | 280 | 281 | 280 |
| 90 | − | 71 | 73 | 73 | − | 68 | 69 | 69 | − | 50 | 50 | 51 | − | 59 | 57 | 59 |
| 91 | + | 171 | 170 | 171 | + | 164 | 164 | 163 | + | 163 | 164 | 164 | + | 150 | 148 | 150 |
| 92 | + | 472 | 471 | 470 | + | 497 | 500 | 498 | + | 490 | 489 | 490 | + | 479 | 478 | 479 |
| 93 | + | 91 | 91 | 90 | + | 66 | 66 | 66 | + | 65 | 63 | 63 | + | 74 | 74 | 74 |
| 94 | − | 519 | 519 | 519 | − | 518 | 519 | 519 | − | 513 | 512 | 513 | − | 532 | 534 | 531 |
| 95 | + | 748 | 748 | 747 | + | 800 | 799 | 800 | + | 804 | 805 | 803 | + | 805 | 803 | 807 |
| 96 | + | 14 | 15 | 14 | − | 42 | 41 | 43 | − | 32 | 33 | 32 | − | 59 | 60 | 58 |
| 97 | + | 38 | 38 | 37 | + | 39 | 39 | 39 | + | 36 | 39 | 36 | + | 31 | 31 | 30 |
| 98 | − | 6 | 5 | 6 | − | 4 | 5 | 5 | + | 4 | 6 | 3 | − | 4 | 3 | 5 |
| 99 | + | 322 | 321 | 321 | + | 324 | 324 | 324 | + | 285 | 287 | 287 | + | 290 | 290 | 290 |
| 100 | − | 242 | 240 | 241 | − | 242 | 243 | 244 | − | 191 | 190 | 192 | − | 221 | 223 | 223 |
| 101 | + | 467 | 467 | 468 | + | 470 | 470 | 470 | + | 449 | 449 | 448 | + | 456 | 455 | 453 |
| 102 | − | 80 | 80 | 81 | − | 79 | 77 | 79 | − | 68 | 66 | 65 | − | 80 | 80 | 80 |
| 103 | + | 62 | 61 | 61 | + | 61 | 62 | 62 | + | 54 | 54 | 56 | + | 39 | 40 | 39 |
| 104 | + | 97 | 98 | 96 | + | 88 | 89 | 88 | + | 98 | 99 | 97 | + | 94 | 94 | 97 |
| 105 | + | 375 | 377 | 375 | + | 380 | 381 | 380 | + | 380 | 381 | 380 | + | 372 | 371 | 371 |
| 106 | + | 53 | 54 | 53 | + | 42 | 42 | 42 | + | 52 | 52 | 54 | + | 39 | 36 | 38 |
| 107 | + | 180 | 180 | 179 | + | 182 | 182 | 181 | + | 178 | 178 | 176 | + | 179 | 179 | 176 |
| 108 | + | 325 | 325 | 326 | + | 337 | 335 | 337 | + | 342 | 341 | 342 | + | 329 | 329 | 327 |
| 109 | − | 521 | 522 | 520 | − | 519 | 519 | 518 | − | 525 | 523 | 526 | − | 540 | 539 | 539 |
| 110 | + | 350 | 350 | 350 | + | 331 | 331 | 332 | + | 343 | 344 | 345 | + | 341 | 342 | 342 |

## HANKO 1.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | − | 551 | 552 | 552 | − | 536 | 534 | 536 | − | 529 | 527 | 528 | − | 555 | 553 | 555 |
| 112 | − | 320 | 320 | 321 | − | 336 | 336 | 334 | − | 342 | 345 | 344 | − | 356 | 357 | 355 |
| 113 | + | 28 | 28 | 29 | + | 27 | 24 | 24 | + | 38 | 37 | 37 | + | 50 | 49 | 49 |
| 114 | + | 77 | 77 | 76 | + | 93 | 94 | 92 | + | 88 | 89 | 88 | + | 71 | 71 | 72 |
| 115 | + | 114 | 114 | 114 | + | 115 | 114 | 113 | + | 112 | 110 | 110 | + | 108 | 107 | 107 |
| 116 | − | 6 | 6 | 6 | − | 5 | 4 | 4 | + | 5 | 4 | 3 | − | 8 | 7 | 6 |
| 117 | − | 9 | 8 | 9 | − | 15 | 14 | 14 | − | 9 | 5 | 9 | − | 17 | 18 | 19 |
| 118 | + | 25 | 26 | 25 | + | 27 | 26 | 26 | + | 11 | 13 | 14 | + | 10 | 10 | 9 |
| 119 | + | 251 | 249 | 248 | + | 255 | 255 | 254 | + | 266 | 265 | 263 | + | 249 | 248 | 248 |
| 120 | − | 224 | 224 | 224 | − | 233 | 233 | 234 | − | 204 | 204 | 205 | − | 224 | 225 | 225 |
| 121 | + | 508 | 507 | 507 | + | 512 | 512 | 510 | + | 488 | 489 | 489 | + | 491 | 492 | 492 |
| 122 | − | 262 | 262 | 262 | − | 258 | 259 | 258 | − | 253 | 252 | 251 | − | 267 | 267 | 267 |
| 123 | − | 518 | 519 | 519 | − | 529 | 530 | 530 | − | 534 | 535 | 534 | − | 541 | 543 | 542 |
| 124 | + | 3 | 4 | 3 | + | 5 | 6 | 6 | + | 1 | 2 | 2 | + | 16 | 16 | 15 |
| 125 | + | 24 | 23 | 24 | + | 34 | 34 | 33 | + | 53 | 52 | 52 | + | 24 | 21 | 24 |
| 126 | + | 28 | 29 | 29 | + | 34 | 32 | 32 | + | 27 | 25 | 26 | + | 13 | 14 | 13 |
| 127 | + | 294 | 292 | 294 | + | 282 | 282 | 282 | + | 283 | 283 | 286 | + | 276 | 276 | 274 |
| 128 | − | 9 | 8 | 8 | − | 14 | 15 | 14 | − | 3 | 4 | 5 | − | 33 | 33 | 33 |
| 129 | − | 38 | 38 | 37 | − | 75 | 74 | 73 | − | 32 | 32 | 30 | − | 80 | 80 | 80 |
| 130 | − | 297 | 297 | 298 | − | 255 | 256 | 255 | − | 298 | 295 | 297 | − | 248 | 249 | 248 |
| 131 | + | 65 | 67 | 66 | + | 68 | 68 | 68 | + | 62 | 63 | 62 | + | 48 | 47 | 49 |
| 132 | − | 11 | 10 | 9 | − | 16 | 18 | 17 | + | 100 | 99 | 101 | + | 101 | 101 | 103 |
| 133 | + | 77 | 78 | 79 | + | 144 | 144 | 144 | + | 19 | 17 | 17 | + | 3 | 5 | 4 |
| 134 | + | 480 | 480 | 481 | + | 416 | 417 | 417 | + | 441 | 443 | 442 | + | 462 | 465 | 463 |
| 135 | + | 108 | 108 | 109 | + | 96 | 96 | 95 | + | 70 | 69 | 68 | + | 28 | 28 | 29 |
| 136 | + | 98 | 99 | 98 | + | 114 | 113 | 114 | + | 179 | 179 | 180 | + | 139 | 138 | 139 |
| 137 | + | 106 | 104 | 105 | + | 97 | 98 | 98 | + | 80 | 81 | 81 | + | 101 | 101 | 102 |
| 138 | + | 150 | 150 | 151 | + | 161 | 161 | 160 | + | 154 | 152 | 154 | + | 144 | 143 | 142 |
| 139 | + | 264 | 264 | 264 | + | 241 | 242 | 242 | + | 250 | 248 | 249 | + | 235 | 235 | 235 |
| 140 | + | 152 | 153 | 133 | + | 168 | 169 | 168 | + | 157 | 158 | 158 | + | 149 | 148 | 149 |
| 141 | + | 3 | 2 | 1 | − | 19 | 19 | 19 | + | 5 | 5 | 3 | − | 6 | 4 | 4 |
| 142 | + | 74 | 74 | 74 | + | 75 | 74 | 75 | + | 49 | 48 | 49 | + | 48 | 46 | 46 |
| 143 | − | 365 | 365 | 363 | − | 329 | 329 | 330 | − | 284 | 283 | 286 | − | 329 | 329 | 329 |
| 144 | + | 1 | 1 | 1 | − | 19 | 19 | 20 | − | 31 | 33 | 31 | − | 15 | 18 | 16 |
| 145 | − | 47 | 47 | 46 | − | 43 | 43 | 43 | − | 46 | 45 | 46 | − | 64 | 64 | 67 |
| 146 | + | 97 | 97 | 97 | + | 86 | 87 | 87 | + | 100 | 102 | 101 | + | 97 | 96 | 97 |
| 147 | − | 330 | 329 | 330 | − | 326 | 326 | 326 | − | 336 | 335 | 335 | − | 343 | 345 | 344 |
| 148 | + | 354 | 354 | 354 | + | 360 | 361 | 361 | + | 364 | 364 | 365 | + | 363 | 364 | 362 |
| 149 | − | 148 | 148 | 147 | − | 159 | 158 | 159 | − | 150 | 150 | 150 | − | 167 | 164 | 168 |
| 150 | + | 377 | 377 | 378 | + | 371 | 371 | 372 | + | 365 | 364 | 366 | + | 357 | 354 | 358 |
| 151 | + | 190 | 189 | 190 | + | 223 | 223 | 224 | + | 207 | 209 | 209 | + | 192 | 194 | 192 |
| 152 | + | 401 | 402 | 402 | + | 375 | 376 | 375 | + | 408 | 409 | 408 | + | 403 | 408 | 407 |
| 153 | + | 221 | 221 | 221 | + | 223 | 222 | 222 | + | 227 | 228 | 228 | + | 242 | 242 | 241 |
| 154 | + | 285 | 285 | 285 | + | 236 | 237 | 236 | + | 273 | 274 | 272 | + | 236 | 238 | 237 |
| 155 | − | 270 | 270 | 270 | − | 228 | 230 | 229 | − | 266 | 263 | 266 | − | 275 | 277 | 277 |
| 156 | − | 121 | 121 | 120 | − | 118 | 120 | 118 | − | 100 | 100 | 99 | − | 113 | 115 | 113 |
| 157 | − | 65 | 65 | 64 | − | 66 | 64 | 64 | − | 68 | 69 | 68 | − | 70 | 71 | 71 |
| 158 | + | 49 | 47 | 47 | + | 39 | 39 | 39 | + | 54 | 54 | 54 | + | 37 | 35 | 36 |
| 159 | + | 47 | 46 | 47 | + | 53 | 54 | 55 | + | 58 | 59 | 58 | + | 48 | 50 | 47 |
| 160 | + | 181 | 179 | 180 | + | 184 | 185 | 185 | + | 180 | 179 | 180 | + | 177 | 176 | 177 |
| 161 | + | 372 | 374 | 373 | + | 387 | 388 | 387 | + | 377 | 378 | 379 | + | 347 | 347 | 347 |
| 162 | + | 268 | 269 | 269 | + | 251 | 250 | 250 | + | 261 | 261 | 260 | + | 256 | 258 | 258 |
| 163 | + | 562 | 562 | 562 | + | 516 | 520 | 521 | + | 529 | 530 | 529 | + | 465 | 465 | 463 |
| 164 | − | 518 | 517 | 518 | − | 499 | 500 | 502 | − | 489 | 489 | 488 | − | 430 | 430 | 430 |
| 165 | + | 41 | 43 | 42 | + | 64 | 64 | 66 | + | 52 | 50 | 53 | + | 37 | 37 | 36 |
| 166 | − | 225 | 225 | 223 | − | 252 | 252 | 253 | − | 222 | 221 | 221 | − | 238 | 237 | 239 |
| 167 | + | 89 | 90 | 90 | + | 111 | 111 | 111 | + | 95 | 97 | 98 | + | 101 | 101 | 100 |
| 168 | + | 425 | 424 | 424 | + | 427 | 427 | 425 | + | 454 | 453 | 452 | + | 444 | 444 | 443 |
| 169 | − | 202 | 202 | 203 | − | 252 | 253 | 252 | − | 221 | 221 | 221 | − | 293 | 292 | 292 |
| 170 | + | 231 | 233 | 234 | + | 280 | 281 | 280 | + | 233 | 233 | 234 | + | 153 | 154 | 155 |

# HANKO 1.

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | + | 67 | 66 | 66 | + | 67 | 64 | 65 | + | 61 | 61 | 60 | + | 176 | 174 | 176 |
| 172 | + | 196 | 197 | 199 | + | 190 | 190 | 189 | + | 196 | 193 | 195 | + | 190 | 189 | 190 |
| 173 | + | 65 | 65 | 64 | + | 60 | 57 | 59 | + | 135 | 132 | 133 | + | 130 | 129 | 129 |
| 174 | + | 56 | 56 | 54 | + | 84 | 83 | 82 | + | 13 | 15 | 12 | + | 5 | 4 | 7 |
| 175 | − | 55 | 55 | 54 | − | 48 | 50 | 48 | − | 49 | 50 | 49 | − | 81 | 83 | 82 |
| 176 | + | 132 | 130 | 131 | + | 146 | 146 | 145 | + | 156 | 153 | 153 | + | 136 | 137 | 138 |
| 177 | + | 381 | 379 | 380 | + | 340 | 339 | 340 | + | 334 | 333 | 335 | + | 347 | 346 | 345 |
| 178 | − | 300 | 299 | 300 | − | 292 | 292 | 292 | − | 279 | 280 | 279 | − | 290 | 293 | 292 |
| 179 | + | 292 | 292 | 293 | + | 292 | 292 | 290 | + | 298 | 296 | 296 | + | 285 | 286 | 284 |
| 180 | − | 62 | 62 | 61 | − | 71 | 70 | 70 | − | 64 | 67 | 65 | − | 72 | 75 | 72 |
| 181 | + | 75 | 75 | 75 | + | 86 | 85 | 85 | + | 71 | 71 | 73 | + | 67 | 66 | 65 |
| 182 | − | 111 | 110 | 112 | − | 123 | 121 | 122 | − | 106 | 105 | 106 | − | 113 | 116 | 115 |
| 183 | + | 308 | 308 | 308 | + | 309 | 310 | 310 | + | 286 | 288 | 287 | + | 278 | 277 | 277 |
| 184 | + | 72 | 72 | 70 | + | 68 | 69 | 67 | + | 97 | 98 | 98 | + | 91 | 90 | 91 |
| 185 | − | 89 | 88 | 89 | − | 83 | 84 | 86 | − | 87 | 86 | 86 | − | 99 | 100 | 100 |
| 186 | − | 35 | 36 | 36 | − | 39 | 39 | 40 | − | 21 | 23 | 22 | − | 34 | 32 | 34 |
| 187 | + | 303 | 304 | 304 | + | 304 | 303 | 303 | + | 291 | 292 | 292 | + | 285 | 287 | 287 |
| 188 | + | 263 | 263 | 261 | + | 263 | 263 | 265 | + | 266 | 267 | 267 | + | 255 | 255 | 255 |
| 189 | + | 536 | 536 | 536 | + | 536 | 536 | 535 | + | 540 | 540 | 540 | + | 531 | 528 | 530 |
| 190 | − | 558 | 558 | 559 | − | 555 | 554 | 554 | − | 549 | 549 | 549 | − | 564 | 562 | 565 |
| 191 | − | 377 | 377 | 378 | − | 380 | 380 | 379 | − | 366 | 364 | 364 | − | 376 | 376 | 375 |
| 192 | + | 23 | 22 | 22 | + | 20 | 19 | 19 | + | 0 | 1 | 1 | − | 4 | 3 | 2 |
| 193 | + | 64 | 64 | 65 | + | 71 | 69 | 71 | + | 69 | 69 | 68 | + | 62 | 62 | 62 |
| 194 | + | 696 | 698 | 698 | + | 774 | 774 | 773 | + | 769 | 766 | 768 | + | 562 | 562 | 561 |
| 195 | − | 455 | 456 | 455 | − | 540 | 539 | 539 | − | 515 | 518 | 516 | − | 326 | 323 | 325 |
| 196 | + | 108 | 108 | 108 | + | 111 | 110 | 111 | + | 109 | 107 | 109 | + | 90 | 92 | 91 |
| 197 | + | 56 | 55 | 55 | + | 53 | 54 | 55 | + | 44 | 47 | 44 | + | 38 | 38 | 40 |
| 198 | + | 32 | 32 | 32 | + | 42 | 42 | 42 | + | 32 | 36 | 33 | + | 20 | 20 | 21 |
| 199 | − | 47 | 47 | 46 | − | 64 | 65 | 64 | − | 47 | 49 | 48 | − | 48 | 46 | 47 |
| 200 | + | 446 | 444 | 446 | + | 457 | 457 | 457 | + | 466 | 465 | 464 | + | 449 | 449 | 447 |
| 201 | − | 144 | 145 | 145 | − | 137 | 138 | 137 | − | 138 | 136 | 137 | − | 148 | 149 | 149 |
| 202 | + | 13 | 13 | 12 | + | 3 | 3 | 3 | + | 7 | 8 | 5 | − | 7 | 3 | 4 |
| 203 | − | 316 | 313 | 313 | − | 319 | 318 | 318 | − | 331 | 332 | 332 | − | 367 | 363 | 363 |
| 204 | + | 323 | 323 | 322 | + | 330 | 330 | 329 | + | 351 | 352 | 352 | + | 382 | 380 | 382 |
| 205 | + | 257 | 257 | 256 | + | 251 | 253 | 250 | + | 257 | 258 | 258 | + | 237 | 234 | 236 |
| 206 | + | 124 | 125 | 126 | + | 129 | 130 | 129 | + | 124 | 122 | 125 | + | 110 | 109 | 109 |
| 207 | − | 177 | 178 | 177 | − | 180 | 179 | 179 | − | 175 | 176 | 175 | − | 182 | 182 | 181 |
| 208 | + | 56 | 58 | 57 | + | 47 | 48 | 48 | + | 53 | 54 | 52 | + | 42 | 41 | 41 |
| 209 | + | 48 | 48 | 48 | + | 62 | 60 | 61 | + | 51 | 53 | 53 | + | 41 | 40 | 40 |
| 210 | + | 12 | 12 | 13 | + | 6 | 7 | 7 | + | 13 | 11 | 12 | + | 6 | 5 | 7 |
| 211 | + | 88 | 87 | 87 | + | 92 | 92 | 91 | + | 96 | 93 | 94 | + | 85 | 87 | 83 |
| 212 | − | 164 | 163 | 164 | − | 148 | 147 | 148 | − | 72 | 74 | 74 | − | 137 | 137 | 134 |
| 213 | + | 126 | 125 | 126 | + | 111 | 108 | 111 | + | 40 | 41 | 42 | + | 93 | 92 | 91 |
| 214 | + | 459 | 460 | 459 | + | 456 | 454 | 456 | + | 461 | 461 | 461 | + | 441 | 444 | 443 |
| 215 | − | 254 | 253 | 254 | − | 251 | 252 | 252 | − | 259 | 261 | 260 | − | 273 | 275 | 273 |
| 216 | + | 58 | 58 | 60 | + | 68 | 68 | 68 | + | 83 | 83 | 84 | + | 81 | 81 | 81 |
| 217 | + | 31 | 30 | 29 | + | 16 | 14 | 14 | + | 12 | 12 | 12 | + | 1 | 1 | 2 |
| 218 | − | 5 | 4 | 4 | + | 4 | 4 | 4 | + | 7 | 7 | 9 | − | 18 | 18 | 16 |
| 219 | + | 10 | 10 | 10 | + | 15 | 15 | 14 | + | 14 | 14 | 14 | + | 21 | 22 | 22 |
| 220 | + | 29 | 29 | 29 | + | 16 | 16 | 16 | + | 23 | 23 | 21 | − | 1 | 1 | 1 |
| 221 | + | 59 | 59 | 60 | + | 64 | 63 | 65 | + | 79 | 79 | 80 | + | 67 | 68 | 68 |
| 222 | + | 229 | 229 | 229 | + | 226 | 227 | 227 | + | 209 | 209 | 209 | + | 210 | 209 | 209 |
| 223 | − | 2 | 1 | 2 | − | 13 | 13 | 15 | − | 3 | 4 | 6 | − | 17 | 18 | 19 |
| 224 | − | 155 | 155 | 156 | − | 131 | 131 | 133 | − | 123 | 124 | 123 | − | 132 | 131 | 132 |
| 225 | − | 134 | 134 | 133 | − | 145 | 146 | 146 | − | 140 | 141 | 140 | − | 149 | 148 | 148 |
| 226 | − | 256 | 257 | 256 | − | 261 | 262 | 262 | − | 265 | 266 | 266 | − | 275 | 277 | 273 |
| 227 | + | 216 | 217 | 217 | + | 232 | 233 | 233 | + | 232 | 234 | 233 | + | 227 | 226 | 228 |
| 228 | + | 106 | 106 | 106 | + | 108 | 109 | 108 | + | 113 | 111 | 111 | + | 109 | 108 | 109 |
| 229 | + | 332 | 332 | 332 | + | 322 | 322 | 321 | + | 318 | 318 | 317 | + | 302 | 303 | 302 |
| 230 | − | 474 | 475 | 475 | − | 479 | 479 | 479 | − | 469 | 468 | 469 | − | 465 | 468 | 468 |

## HANKO 1.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 231 | + | 397 | 396 | 398 | + | 411 | 412 | 411 | + | 401 | 403 | 403 | + | 377 | 378 | 378 |
| 232 | − | 489 | 489 | 488 | − | 454 | 454 | 452 | − | 433 | 431 | 433 | − | 445 | 443 | 445 |
| 233 | − | 236 | 236 | 236 | − | 287 | 287 | 287 | − | 300 | 301 | 300 | − | 309 | 308 | 308 |
| 234 | + | 434 | 434 | 435 | + | 446 | 447 | 447 | + | 424 | 423 | 426 | + | 388 | 388 | 389 |
| 235 | − | 201 | 202 | 202 | − | 198 | 198 | 199 | − | 168 | 167 | 168 | − | 153 | 153 | 153 |
| 236 | + | 372 | 371 | 372 | + | 353 | 353 | 354 | + | 358 | 359 | 357 | + | 358 | 357 | 358 |
| 237 | − | 160 | 159 | 159 | − | 55 | 56 | 55 | − | 58 | 60 | 59 | − | 71 | 70 | 72 |
| 238 | − | 45 | 45 | 44 | − | 141 | 142 | 142 | − | 141 | 141 | 141 | − | 145 | 144 | 144 |
| 239 | + | 531 | 531 | 530 | + | 529 | 530 | 529 | + | 550 | 550 | 549 | + | 525 | 524 | 523 |
| 240 | + | 321 | 320 | 321 | + | 315 | 314 | 315 | + | 300 | 297 | 298 | + | 291 | 291 | 294 |
| 241 | − | 22 | 22 | 24 | − | 19 | 18 | 16 | − | 4 | 6 | 5 | − | 19 | 18 | 19 |
| 242 | + | 47 | 47 | 48 | + | 43 | 44 | 44 | + | 52 | 54 | 52 | + | 49 | 48 | 47 |
| 243 | | 0 | 0 | 0 | + | 0 | 0 | 1 | − | 2 | 4 | 3 | − | 19 | 18 | 18 |
| 244 | + | 64 | 64 | 65 | + | 70 | 72 | 72 | + | 72 | 72 | 72 | + | 61 | 62 | 63 |
| 245 | + | 71 | 71 | 72 | + | 62 | 61 | 61 | + | 60 | 59 | 60 | + | 51 | 50 | 52 |

# HANKO 1.

| N:o | **636.** EW. 3.VII. $10^h23^m-15^h39^m$. $t_1$:+20°4, $t_2$:+18°0. 1— 61: +P−J 62—123: +J−P 124—184: −J+P 185—245: −P+J | | | **637.** EW. 5.VII. $8^h40^m-13^h9^m$. $t_1$,+18°5, $t_2$:+16°9. 1— 61: −P+J 62—123: −J+P 124—184: +J−P 185—235: +P−J | | | **635.** EW. 6.VII. $8^h40^m-12^h45^m$. $t_1$:+19°5, $t_2$:+20°0. 1— 62: +B−S 63—123: +S−B 124—183: −S+B 184—245: −B+S | | | **634.** EW. 7.VII. $12^h50^m-16^h50^m$. $t_1$:+21°7, $t_2$:+19°3. 1— 61: −S+B 62—123: −B+S 124—184: +B−S 185—245: +S−B | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 130 | 131 | 132 | + | 140 | 138 | 138 | + | 140 | 141 | 142 | + | 145 | 145 | 144 |
| 2 | − | 377 | 375 | 378 | − | 385 | 384 | 386 | − | 390 | 389 | 389 | − | 381 | 382 | 382 |
| 3 | + | 218 | 217 | 216 | + | 219 | 217 | 218 | + | 213 | 215 | 214 | + | 226 | 225 | 225 |
| 4 | + | 8 | 8 | 8 | + | 2 | 4 | 4 | + | 2 | 1 | 1 | + | 9 | 9 | 9 |
| 5 | − | 100 | 100 | 102 | − | 105 | 108 | 109 | − | 113 | 112 | 114 | − | 98 | 99 | 98 |
| 6 | + | 217 | 216 | 216 | + | 226 | 223 | 225 | + | 214 | 213 | 214 | + | 221 | 223 | 221 |
| 7 | + | 739 | 737 | 737 | + | 736 | 734 | 736 | + | 739 | 740 | 740 | + | 741 | 740 | 739 |
| 8 | − | 297 | 299 | 298 | − | 307 | 307 | 308 | − | 306 | 303 | 304 | − | 296 | 297 | 296 |
| 9 | − | 297 | 297 | 299 | − | 289 | 290 | 290 | − | 305 | 304 | 305 | − | 297 | 298 | 298 |
| 10 | + | 334 | 333 | 333 | + | 322 | 322 | 321 | + | 330 | 332 | 331 | + | 337 | 337 | 336 |
| 11 | + | 85 | 87 | 86 | + | 105 | 103 | 105 | + | 82 | 80 | 81 | + | 93 | 94 | 95 |
| 12 | − | 356 | 354 | 358 | − | 378 | 378 | 375 | − | 359 | 362 | 361 | − | 359 | 359 | 359 |
| 13 | + | 52 | 52 | 54 | + | 56 | 58 | 58 | + | 54 | 54 | 56 | + | 61 | 59 | 60 |
| 14 | + | 218 | 218 | 218 | + | 214 | 215 | 216 | + | 215 | 215 | 214 | + | 218 | 219 | 218 |
| 15 | + | 298 | 297 | 298 | + | 287 | 286 | 286 | + | 277 | 280 | 278 | + | 291 | 291 | 291 |
| 16 | − | 449 | 449 | 449 | − | 85 | 88 | 85 | − | 132 | 132 | 132 | − | 234 | 234 | 233 |
| 17 | + | 66 | 68 | 68 | − | 278 | 280 | 278 | − | 239 | 238 | 238 | − | 123 | 123 | 124 |
| 18 | + | 118 | 116 | 117 | + | 114 | 114 | 112 | + | 103 | 103 | 105 | + | 115 | 116 | 116 |
| 19 | + | 404 | 402 | 402 | + | 396 | 396 | 394 | + | 396 | 396 | 395 | + | 402 | 403 | 400 |
| 20 | − | 240 | 240 | 239 | − | 202 | 204 | 203 | − | 206 | 208 | 207 | − | 196 | 195 | 195 |
| 21 | + | 151 | 152 | 153 | + | 80 | 80 | 81 | + | 78 | 78 | 78 | + | 91 | 88 | 88 |
| 22 | − | 144 | 142 | 142 | − | 111 | 112 | 112 | − | 119 | 118 | 118 | − | 117 | 118 | 118 |
| 23 | + | 70 | 70 | 71 | + | 113 | 114 | 115 | + | 109 | 109 | 109 | + | 116 | 116 | 117 |
| 24 | − | 425 | 425 | 424 | − | 427 | 426 | 426 | − | 430 | 430 | 431 | − | 424 | 425 | 424 |
| 25 | + | 59 | 60 | 60 | − | 17 | 16 | 16 | − | 22 | 22 | 23 | − | 10 | 10 | 11 |
| 26 | + | 244 | 246 | 244 | + | 311 | 314 | 314 | + | 320 | 319 | 319 | + | 324 | 325 | 324 |
| 27 | − | 39 | 39 | 38 | − | 136 | 137 | 138 | − | 150 | 149 | 149 | − | 145 | 145 | 144 |
| 28 | + | 224 | 225 | 225 | + | 262 | 263 | 263 | + | 262 | 262 | 263 | + | 301 | 301 | 302 |
| 29 | − | 304 | 304 | 305 | − | 311 | 310 | 312 | − | 323 | 322 | 324 | − | 341 | 342 | 342 |
| 30 | + | 242 | 245 | 242 | + | 284 | 282 | 285 | + | 286 | 287 | 287 | + | 271 | 271 | 271 |
| 31 | − | 221 | 222 | 222 | − | 62 | 63 | 62 | − | 66 | 64 | 67 | − | 42 | 42 | 42 |
| 32 | + | 50 | 50 | 50 | − | 99 | 100 | 101 | − | 101 | 102 | 103 | + | 12 | 14 | 14 |
| 33 | − | 124 | 127 | 124 | − | 148 | 148 | 147 | − | 147 | 147 | 148 | − | 249 | 249 | 249 |
| 34 | − | 8 | 5 | 6 | − | 32 | 32 | 32 | − | 35 | 35 | 35 | − | 23 | 25 | 25 |
| 35 | − | 163 | 165 | 165 | − | 1 | 3 | 1 | − | 17 | 17 | 16 | − | 14 | 13 | 13 |
| 36 | + | 157 | 158 | 157 | − | 22 | 21 | 23 | − | 38 | 39 | 39 | − | 32 | 34 | 32 |
| 37 | + | 258 | 258 | 257 | + | 303 | 302 | 304 | + | 319 | 319 | 319 | + | 336 | 334 | 335 |
| 38 | − | 14 | 15 | 17 | − | 43 | 41 | 43 | − | 11 | 14 | 13 | − | 12 | 10 | 12 |
| 39 | + | 351 | 352 | 350 | + | 404 | 403 | 402 | + | 374 | 376 | 375 | + | 364 | 365 | 365 |
| 40 | − | 486 | 486 | 484 | − | 454 | 452 | 453 | − | 468 | 468 | 468 | − | 490 | 490 | 490 |
| 41 | + | 450 | 451 | 451 | + | 371 | 371 | 372 | + | 375 | 373 | 374 | + | 432 | 431 | 431 |
| 42 | + | 183 | 186 | 185 | + | 203 | 202 | 202 | + | 199 | 198 | 198 | + | 207 | 206 | 205 |
| 43 | − | 403 | 403 | 406 | − | 340 | 339 | 339 | − | 342 | 344 | 344 | − | 352 | 352 | 351 |
| 44 | + | 104 | 103 | 103 | + | 80 | 78 | 78 | + | 72 | 71 | 72 | + | 93 | 93 | 93 |
| 45 | − | 160 | 160 | 160 | − | 168 | 169 | 169 | − | 165 | 166 | 166 | − | 159 | 158 | 158 |
| 46 | − | 159 | 160 | 160 | − | 221 | 222 | 221 | − | 230 | 230 | 230 | − | 216 | 216 | 216 |
| 47 | + | 140 | 140 | 140 | + | 183 | 185 | 183 | + | 183 | 186 | 184 | + | 185 | 183 | 184 |
| 48 | − | 19 | 19 | 17 | − | 10 | 10 | 10 | − | 10 | 8 | 9 | + | 2 | 2 | 3 |
| 49 | − | 169 | 168 | 168 | − | 239 | 238 | 238 | − | 242 | 241 | 242 | − | 255 | 257 | 256 |
| 50 | − | 24 | 27 | 24 | − | 150 | 149 | 149 | − | 155 | 155 | 154 | − | 210 | 210 | 210 |

## HANKO 1.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | − | 339 | 339 | 339 | − | 151 | 150 | 149 | − | 158 | 159 | 158 | − | 67 | 65 | 66 |
| 52 | + | 398 | 398 | 398 | + | 332 | 334 | 332 | + | 333 | 334 | 333 | + | 340 | 338 | 338 |
| 53 | − | 267 | 267 | 268 | − | 199 | 200 | 199 | − | 211 | 209 | 210 | − | 194 | 192 | 193 |
| 54 | − | 43 | 44 | 46 | − | 98 | 98 | 99 | − | 95 | 95 | 95 | − | 97 | 97 | 98 |
| 55 | + | 167 | 165 | 164 | + | 172 | 173 | 173 | + | 201 | 202 | 203 | + | 191 | 190 | 190 |
| 56 | − | 362 | 361 | 361 | − | 417 | 417 | 416 | − | 439 | 440 | 439 | − | 453 | 452 | 452 |
| 57 | + | 342 | 341 | 341 | + | 389 | 390 | 389 | + | 398 | 397 | 399 | + | 410 | 410 | 410 |
| 58 | − | 182 | 182 | 186 | − | 203 | 203 | 202 | − | 209 | 210 | 209 | − | 178 | 178 | 178 |
| 59 | + | 193 | 195 | 197 | + | 260 | 260 | 260 | + | 259 | 259 | 260 | + | 229 | 229 | 230 |
| 60 | + | 591 | 594 | 592 | + | 521 | 521 | 521 | + | 497 | 496 | 497 | + | 563 | 562 | 563 |
| 61 | − | 168 | 167 | 168 | − | 157 | 155 | 156 | − | 142 | 142 | 143 | − | 149 | 149 | 151 |
| 62 | − | 492 | 492 | 490 | − | 401 | 400 | 401 | − | 391 | 392 | 391 | − | 392 | 390 | 392 |
| 63 | + | 74 | 73 | 72 | + | 91 | 90 | 91 | + | 60 | 59 | 59 | + | 74 | 74 | 75 |
| 64 | − | 100 | 100 | 101 | − | 158 | 159 | 158 | − | 136 | 137 | 136 | − | 126 | 126 | 127 |
| 65 | + | 33 | 34 | 33 | + | 36 | 38 | 36 | + | 81 | 82 | 81 | + | 71 | 71 | 70 |
| 66 | − | 18 | 15 | 17 | − | 49 | 50 | 49 | − | 118 | 117 | 116 | − | 86 | 87 | 87 |
| 67 | − | 198 | 198 | 200 | − | 151 | 152 | 150 | − | 140 | 140 | 141 | − | 126 | 126 | 126 |
| 68 | + | 201 | 200 | 202 | + | 122 | 122 | 123 | + | 121 | 122 | 121 | + | 113 | 113 | 113 |
| 69 | − | 173 | 175 | 175 | − | 20 | 19 | 19 | − | 12 | 11 | 12 | − | 25 | 26 | 23 |
| 70 | + | 313 | 312 | 315 | + | 177 | 178 | 177 | + | 153 | 153 | 152 | + | 185 | 185 | 187 |
| 71 | + | 24 | 25 | 26 | + | 42 | 42 | 44 | + | 39 | 39 | 39 | + | 53 | 53 | 52 |
| 72 | + | 28 | 27 | 30 | − | 28 | 29 | 29 | − | 28 | 29 | 29 | − | 23 | 22 | 22 |
| 73 | + | 235 | 235 | 233 | + | 58 | 58 | 57 | + | 63 | 61 | 62 | + | 68 | 68 | 68 |
| 74 | − | 154 | 152 | 152 | + | 61 | 61 | 61 | + | 59 | 58 | 58 | + | 54 | 53 | 54 |
| 75 | − | 350 | 350 | 349 | − | 313 | 315 | 314 | − | 322 | 322 | 323 | − | 280 | 282 | 280 |
| 76 | + | 260 | 260 | 260 | + | 221 | 222 | 222 | + | 219 | 219 | 218 | + | 197 | 198 | 197 |
| 77 | + | 66 | 68 | 65 | + | 188 | 187 | 187 | + | 193 | 192 | 194 | + | 222 | 222 | 221 |
| 78 | + | 273 | 270 | 271 | + | 87 | 88 | 89 | + | 85 | 86 | 87 | + | 80 | 80 | 80 |
| 79 | − | 8 | 8 | 7 | + | 106 | 104 | 107 | + | 88 | 89 | 87 | + | 97 | 97 | 97 |
| 80 | + | 39 | 39 | 40 | | 0 | 0 | 0 | + | 1 | 2 | 0 | + | 6 | 5 | 6 |
| 81 | − | 91 | 91 | 91 | − | 155 | 157 | 155 | − | 158 | 157 | 157 | − | 146 | 145 | 147 |
| 82 | − | 43 | 46 | 43 | + | 89 | 89 | 87 | + | 86 | 87 | 87 | + | 84 | 85 | 85 |
| 83 | + | 247 | 243 | 246 | + | 297 | 293 | 294 | + | 290 | 290 | 292 | + | 289 | 287 | 288 |
| 84 | + | 95 | 97 | 95 | + | 23 | 23 | 27 | + | 26 | 27 | 26 | + | 52 | 50 | 49 |
| 85 | − | 32 | 33 | 32 | − | 56 | 56 | 56 | − | 59 | 59 | 59 | − | 54 | 53 | 54 |
| 86 | + | 205 | 205 | 205 | + | 242 | 242 | 241 | + | 239 | 239 | 239 | + | 246 | 246 | 245 |
| 87 | − | 31 | 32 | 33 | − | 141 | 140 | 140 | − | 147 | 147 | 148 | − | 136 | 136 | 136 |
| 88 | + | 106 | 107 | 107 | + | 263 | 261 | 263 | + | 248 | 248 | 248 | + | 260 | 260 | 260 |
| 89 | − | 153 | 155 | 154 | − | 286 | 285 | 287 | − | 279 | 278 | 279 | − | 274 | 275 | 274 |
| 90 | − | 68 | 69 | 67 | − | 69 | 69 | 69 | − | 66 | 64 | 67 | − | 58 | 58 | 59 |
| 91 | + | 188 | 189 | 189 | + | 150 | 151 | 151 | + | 152 | 154 | 151 | + | 159 | 158 | 158 |
| 92 | + | 410 | 408 | 409 | + | 485 | 486 | 483 | + | 478 | 478 | 477 | + | 491 | 491 | 490 |
| 93 | + | 21 | 21 | 21 | + | 63 | 64 | 62 | + | 58 | 57 | 58 | + | 85 | 86 | 85 |
| 94 | − | 232 | 232 | 233 | − | 279 | 280 | 280 | − | 526 | 527 | 528 | − | 457 | 458 | 457 |
| 95 | + | 588 | 588 | 589 | + | 549 | 548 | 549 | + | 787 | 788 | 787 | + | 727 | 727 | 729 |
| 96 | − | 30 | 33 | 32 | − | 51 | 50 | 50 | − | 50 | 50 | 49 | − | 53 | 54 | 53 |
| 97 | + | 19 | 19 | 19 | + | 36 | 38 | 37 | + | 33 | 30 | 31 | + | 34 | 34 | 35 |
| 98 | + | 83 | 82 | 83 | − | 10 | 9 | 9 | − | 23 | 24 | 24 | − | 4 | 3 | 4 |
| 99 | + | 111 | 111 | 112 | + | 298 | 297 | 297 | + | 312 | 314 | 313 | + | 142 | 141 | 142 |
| 100 | − | 134 | 133 | 136 | − | 229 | 229 | 229 | − | 226 | 228 | 228 | − | 52 | 53 | 53 |
| 101 | + | 455 | 457 | 455 | + | 453 | 453 | 454 | + | 442 | 442 | 441 | + | 452 | 453 | 452 |
| 102 | − | 175 | 176 | 177 | − | 78 | 76 | 77 | − | 80 | 80 | 79 | − | 73 | 72 | 71 |
| 103 | + | 150 | 151 | 150 | + | 41 | 41 | 40 | + | 40 | 40 | 41 | + | 46 | 47 | 47 |
| 104 | − | 35 | 38 | 35 | + | 94 | 95 | 96 | + | 92 | 91 | 92 | + | 104 | 104 | 103 |
| 105 | + | 522 | 521 | 522 | + | 373 | 375 | 374 | + | 369 | 371 | 370 | + | 373 | 374 | 373 |
| 106 | + | 19 | 19 | 18 | + | 37 | 38 | 37 | + | 34 | 36 | 36 | + | 37 | 38 | 37 |
| 107 | + | 198 | 196 | 194 | + | 175 | 174 | 174 | + | 165 | 166 | 166 | + | 187 | 188 | 187 |
| 108 | + | 338 | 336 | 338 | + | 334 | 331 | 332 | + | 329 | 330 | 331 | + | 331 | 331 | 332 |
| 109 | − | 532 | 532 | 532 | − | 538 | 539 | 538 | − | 544 | 543 | 545 | − | 531 | 531 | 530 |
| 110 | + | 232 | 233 | 232 | + | 332 | 333 | 333 | + | 340 | 340 | 339 | + | 343 | 344 | 343 |

# HANKO 1.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | − | 439 | 438 | 438 | − | 550 | 549 | 550 | − | 555 | 556 | 556 | − | 535 | 534 | 534 |
| 112 | − | 223 | 223 | 225 | − | 327 | 329 | 328 | − | 334 | 335 | 335 | − | 358 | 355 | 356 |
| 113 | − | 118 | 117 | 117 | + | 22 | 24 | 22 | + | 26 | 25 | 24 | + | 52 | 53 | 53 |
| 114 | + | 76 | 74 | 76 | + | 83 | 81 | 83 | + | 75 | 77 | 76 | + | 75 | 74 | 75 |
| 115 | + | 101 | 101 | 101 | + | 99 | 98 | 99 | + | 97 | 98 | 97 | + | 116 | 116 | 115 |
| 116 | + | 48 | 48 | 47 | − | 17 | 17 | 18 | − | 15 | 16 | 16 | − | 10 | 9 | 9 |
| 117 | − | 115 | 116 | 118 | − | 10 | 10 | 10 | − | 9 | 12 | 9 | − | 5 | 5 | 5 |
| 118 | + | 60 | 59 | 60 | + | 8 | 8 | 10 | + | 20 | 21 | 19 | + | 15 | 15 | 14 |
| 119 | + | 251 | 253 | 251 | + | 255 | 254 | 254 | + | 234 | 233 | 234 | + | 255 | 254 | 255 |
| 120 | − | 240 | 239 | 240 | − | 242 | 243 | 244 | − | 228 | 228 | 229 | − | 219 | 216 | 217 |
| 121 | + | 505 | 505 | 506 | + | 509 | 508 | 509 | + | 492 | 493 | 493 | + | 518 | 517 | 516 |
| 122 | − | 260 | 259 | 261 | − | 264 | 262 | 262 | − | 269 | 270 | 269 | − | 282 | 282 | 281 |
| 123 | − | 536 | 537 | 538 | − | 542 | 541 | 541 | − | 548 | 548 | 547 | − | 539 | 537 | 537 |
| 124 | + | 10 | 9 | 9 | + | 3 | 5 | 4 | + | 3 | 3 | 4 | + | 22 | 21 | 21 |
| 125 | + | 61 | 63 | 64 | + | 29 | 27 | 29 | + | 1 | 1 | 1 | − | 27 | 26 | 26 |
| 126 | − | 22 | 24 | 24 | + | 20 | 19 | 18 | + | 37 | 37 | 37 | + | 73 | 73 | 74 |
| 127 | + | 285 | 284 | 285 | + | 271 | 272 | 275 | + | 275 | 275 | 275 | + | 281 | 280 | 280 |
| 128 | + | 321 | 320 | 321 | − | 17 | 18 | 20 | − | 25 | 26 | 24 | − | 19 | 20 | 19 |
| 129 | − | 314 | 316 | 317 | + | 84 | 83 | 86 | − | 39 | 39 | 39 | − | 61 | 60 | 60 |
| 130 | − | 329 | 328 | 327 | − | 431 | 433 | 433 | − | 307 | 307 | 307 | − | 275 | 273 | 276 |
| 131 | + | 10 | 10 | 11 | + | 50 | 51 | 50 | + | 56 | 55 | 54 | + | 62 | 61 | 62 |
| 132 | − | 1 | 2 | 0 | − | 18 | 19 | 19 | + | 88 | 87 | 87 | + | 102 | 104 | 103 |
| 133 | + | 100 | 99 | 101 | + | 133 | 132 | 134 | + | 2 | 2 | 2 | − | 19 | 18 | 18 |
| 134 | + | 469 | 469 | 470 | + | 430 | 430 | 430 | + | 432 | 432 | 431 | + | 465 | 467 | 467 |
| 135 | + | 92 | 96 | 93 | + | 85 | 86 | 87 | + | 61 | 60 | 61 | + | 13 | 14 | 13 |
| 136 | + | 60 | 61 | 60 | + | 111 | 110 | 111 | + | 160 | 160 | 159 | + | 214 | 211 | 214 |
| 137 | + | 122 | 124 | 124 | + | 88 | 86 | 86 | + | 41 | 41 | 41 | + | 90 | 90 | 89 |
| 138 | + | 132 | 132 | 132 | + | 153 | 156 | 154 | + | 170 | 170 | 171 | + | 151 | 150 | 151 |
| 139 | + | 256 | 255 | 255 | + | 240 | 239 | 237 | + | 233 | 233 | 234 | + | 240 | 240 | 240 |
| 140 | + | 142 | 141 | 142 | + | 155 | 156 | 158 | + | 159 | 159 | 159 | + | 154 | 153 | 156 |
| 141 | − | 11 | 10 | 11 | − | 21 | 21 | 22 | − | 22 | 22 | 21 | − | 3 | 1 | 2 |
| 142 | + | 63 | 65 | 65 | + | 48 | 46 | 46 | + | 43 | 44 | 43 | + | 47 | 46 | 47 |
| 143 | − | 348 | 348 | 346 | − | 318 | 317 | 317 | − | 313 | 312 | 313 | − | 336 | 335 | 334 |
| 144 | − | 7 | 7 | 8 | − | 21 | 21 | 21 | − | 36 | 35 | 35 | + | 9 | 9 | 8 |
| 145 | − | 77 | 76 | 78 | − | 67 | 67 | 65 | − | 68 | 68 | 68 | − | 31 | 31 | 31 |
| 146 | + | 110 | 109 | 110 | + | 93 | 95 | 95 | + | 93 | 93 | 92 | + | 71 | 71 | 71 |
| 147 | − | 332 | 332 | 332 | − | 336 | 338 | 337 | − | 339 | 338 | 338 | − | 335 | 335 | 334 |
| 148 | + | 361 | 361 | 362 | + | 362 | 364 | 363 | + | 358 | 357 | 357 | + | 359 | 362 | 359 |
| 149 | − | 160 | 161 | 160 | − | 166 | 165 | 165 | − | 160 | 159 | 160 | − | 153 | 154 | 154 |
| 150 | + | 358 | 359 | 359 | + | 358 | 358 | 359 | + | 344 | 345 | 343 | + | 361 | 360 | 361 |
| 151 | + | 203 | 200 | 203 | + | 206 | 207 | 210 | + | 194 | 193 | 193 | + | 213 | 213 | 213 |
| 152 | + | 389 | 387 | 389 | + | 387 | 389 | 387 | + | 397 | 397 | 395 | + | 391 | 391 | 391 |
| 153 | + | 244 | 243 | 243 | + | 212 | 211 | 213 | + | 219 | 218 | 218 | + | 219 | 220 | 221 |
| 154 | + | 256 | 254 | 255 | + | 266 | 266 | 263 | + | 258 | 258 | 259 | + | 271 | 271 | 271 |
| 155 | − | 282 | 281 | 281 | − | 273 | 275 | 274 | − | 277 | 277 | 276 | − | 267 | 267 | 268 |
| 156 | − | 95 | 96 | 97 | − | 109 | 109 | 110 | − | 123 | 122 | 122 | − | 109 | 110 | 110 |
| 157 | − | 70 | 71 | 71 | − | 74 | 74 | 73 | − | 70 | 69 | 69 | − | 69 | 69 | 69 |
| 158 | + | 27 | 27 | 25 | + | 45 | 43 | 47 | + | 38 | 39 | 39 | + | 46 | 46 | 46 |
| 159 | + | 33 | 33 | 34 | + | 53 | 53 | 51 | + | 51 | 50 | 50 | + | 48 | 46 | 47 |
| 160 | + | 179 | 180 | 178 | + | 160 | 159 | 159 | + | 165 | 165 | 166 | + | 189 | 187 | 188 |
| 161 | + | 380 | 379 | 380 | + | 380 | 380 | 380 | + | 366 | 364 | 366 | + | 373 | 372 | 371 |
| 162 | + | 341 | 343 | 344 | + | 249 | 250 | 248 | + | 252 | 252 | 251 | + | 257 | 255 | 255 |
| 163 | + | 439 | 439 | 439 | + | 541 | 541 | 543 | + | 512 | 511 | 511 | + | 532 | 532 | 532 |
| 164 | − | 487 | 487 | 487 | − | 517 | 519 | 519 | − | 493 | 493 | 495 | − | 501 | 501 | 501 |
| 165 | + | 61 | 61 | 61 | + | 42 | 42 | 41 | + | 35 | 37 | 37 | + | 42 | 43 | 42 |
| 166 | − | 243 | 243 | 243 | − | 212 | 211 | 211 | − | 243 | 244 | 244 | − | 201 | 199 | 199 |
| 167 | + | 33 | 32 | 32 | + | 67 | 66 | 67 | + | 89 | 87 | 88 | + | 68 | 67 | 67 |
| 168 | + | 449 | 449 | 449 | + | 407 | 408 | 407 | + | 431 | 432 | 432 | + | 473 | 473 | 472 |
| 169 | − | 225 | 225 | 223 | − | 275 | − | 274 | − | 294 | 294 | 293 | − | 324 | 322 | 322 |
| 170 | + | 232 | 234 | 232 | + | 289 | 289 | 288 | + | 289 | 289 | 290 | + | 175 | 176 | 175 |

## HANKO 1.

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | + | 65 | 66 | 65 | + | 54 | 54 | 55 | + | 47 | 46 | 46 | + | 181 | 181 | 181 |
| 172 | + | 302 | 302 | 304 | + | 187 | 188 | 188 | + | 185 | 186 | 185 | + | 165 | 166 | 165 |
| 173 | − | 25 | 27 | 28 | + | 56 | 55 | 55 | + | 52 | 52 | 51 | + | 252 | 251 | 252 |
| 174 | + | 51 | 50 | 50 | + | 73 | 76 | 74 | + | 71 | 72 | 72 | − | 78 | 76 | 76 |
| 175 | − | 177 | 178 | 179 | − | 45 | 44 | 46 | − | 70 | 69 | 70 | − | 63 | 64 | 63 |
| 176 | + | 150 | 149 | 150 | + | 126 | 124 | 126 | + | 142 | 142 | 142 | + | 128 | 128 | 127 |
| 177 | + | 436 | 438 | 436 | + | 330 | 329 | 330 | + | 328 | 327 | 327 | + | 351 | 350 | 351 |
| 178 | − | 300 | 300 | 300 | − | 291 | 292 | 292 | − | 288 | 288 | 288 | − | 286 | 283 | 285 |
| 179 | + | 290 | 290 | 290 | + | 289 | 287 | 288 | + | 280 | 280 | 281 | + | 291 | 292 | 293 |
| 180 | − | 74 | 73 | 76 | − | 75 | 77 | 75 | − | 78 | 78 | 77 | − | 71 | 71 | 71 |
| 181 | + | 70 | 70 | 71 | + | 67 | 67 | 68 | + | 63 | 62 | 61 | + | 71 | 72 | 70 |
| 182 | − | 113 | 116 | 114 | − | 118 | 118 | 116 | − | 114 | 114 | 114 | − | 110 | 111 | 110 |
| 183 | + | 280 | 280 | 280 | + | 274 | 277 | 275 | + | 270 | 272 | 271 | + | 283 | 283 | 284 |
| 184 | + | 90 | 90 | 90 | + | 89 | 89 | 89 | + | 88 | 88 | 87 | + | 119 | 119 | 120 |
| 185 | − | 100 | 100 | 99 | − | 90 | 90 | 90 | − | 100 | 101 | 101 | − | 117 | 118 | 117 |
| 186 | − | 41 | 40 | 42 | − | 40 | 41 | 40 | − | 34 | 35 | 34 | − | 27 | 26 | 27 |
| 187 | + | 300 | 299 | 299 | + | 290 | 292 | 290 | + | 285 | 285 | 285 | + | 293 | 292 | 291 |
| 188 | + | 252 | 254 | 253 | + | 256 | 254 | 254 | + | 254 | 254 | 254 | + | 261 | 260 | 261 |
| 189 | + | 534 | 537 | 533 | + | 536 | 533 | 533 | + | 528 | 530 | 530 | + | 535 | 535 | 536 |
| 190 | − | 568 | 569 | 568 | − | 561 | 560 | 560 | − | 567 | 568 | 567 | − | 557 | 557 | 557 |
| 191 | − | 381 | 380 | 379 | − | 381 | 381 | 382 | − | 345 | 345 | 345 | − | 371 | 371 | 372 |
| 192 | + | 13 | 12 | 11 | − | 6 | 5 | 4 | − | 40 | 39 | 40 | + | 3 | 3 | 3 |
| 193 | + | 63 | 64 | 62 | + | 64 | 65 | 65 | + | 57 | 58 | 57 | + | 67 | 68 | 67 |
| 194 | + | 765 | 765 | 766 | + | 771 | 772 | 772 | + | 754 | 755 | 757 | + | 568 | 567 | 567 |
| 195 | − | 539 | 538 | 536 | − | 543 | 543 | 544 | − | 530 | 530 | 530 | − | 319 | 320 | 319 |
| 196 | + | 110 | 110 | 109 | + | 103 | 103 | 104 | + | 104 | 104 | 104 | + | 96 | 96 | 96 |
| 197 | + | 46 | 46 | 47 | + | 46 | 44 | 45 | + | 32 | 31 | 32 | + | 45 | 44 | 44 |
| 198 | + | 21 | 23 | 23 | + | 19 | 17 | 18 | + | 17 | 17 | 16 | + | 25 | 27 | 27 |
| 199 | − | 181 | 181 | 180 | − | 52 | 54 | 54 | − | 57 | 57 | 57 | − | 42 | 41 | 42 |
| 200 | + | 570 | 570 | 571 | + | 449 | 449 | 449 | + | 454 | 453 | 454 | + | 453 | 453 | 453 |
| 201 | − | 138 | 135 | 135 | − | 139 | 142 | 139 | − | 150 | 151 | 149 | − | 145 | 145 | 142 |
| 202 | − | 3 | 5 | 5 | − | 5 | 7 | 4 | − | 11 | 12 | 12 | + | 1 | 1 | 1 |
| 203 | − | 318 | 318 | 318 | − | 316 | 316 | 315 | − | 341 | 340 | 341 | − | 359 | 360 | 360 |
| 204 | + | 313 | 313 | 312 | + | 311 | 312 | 312 | + | 342 | 341 | 342 | + | 386 | 385 | 385 |
| 205 | + | 245 | 244 | 245 | + | 244 | 247 | 244 | + | 245 | 244 | 245 | + | 241 | 242 | 242 |
| 206 | + | 127 | 128 | 126 | + | 129 | 128 | 129 | + | 114 | 113 | 111 | + | 115 | 117 | 115 |
| 207 | − | 200 | 201 | 201 | − | 189 | 187 | 188 | − | 185 | 186 | 185 | − | 175 | 175 | 175 |
| 208 | + | 62 | 61 | 61 | + | 43 | 44 | 45 | + | 40 | 39 | 40 | + | 47 | 48 | 48 |
| 209 | + | 47 | 49 | 47 | + | 43 | 43 | 43 | + | 41 | 42 | 41 | − | 45 | 46 | 46 |
| 210 | + | 6 | 7 | 6 | + | 5 | 6 | 5 | − | 0 | 0 | 1 | + | 14 | 12 | 13 |
| 211 | + | 82 | 83 | 83 | + | 89 | 89 | 90 | + | 85 | 84 | 85 | + | 92 | 91 | 91 |
| 212 | − | 199 | 199 | 198 | − | 153 | 153 | 154 | − | 127 | 126 | 128 | − | 130 | 129 | 129 |
| 213 | + | 150 | 151 | 150 | + | 101 | 101 | 101 | + | 71 | 70 | 70 | + | 98 | 99 | 99 |
| 214 | + | 450 | 451 | 450 | + | 449 | 449 | 450 | + | 450 | 451 | 450 | + | 449 | 448 | 448 |
| 215 | − | 259 | 259 | 260 | − | 265 | 263 | 265 | − | 277 | 276 | 277 | − | 268 | 268 | 269 |
| 216 | + | 62 | 63 | 63 | + | 74 | 77 | 75 | + | 82 | 83 | 83 | + | 84 | 85 | 85 |
| 217 | + | 10 | 10 | 10 | − | 1 | 0 | 1 | − | 9 | 9 | 9 | + | 9 | 9 | 9 |
| 218 | − | 27 | 27 | 29 | − | 3 | 5 | 5 | − | 7 | 8 | 7 | − | 10 | 11 | 11 |
| 219 | + | 18 | 18 | 17 | − | 1 | 0 | 0 | − | 3 | 2 | 2 | + | 28 | 28 | 29 |
| 220 | + | 46 | 45 | 45 | + | 18 | 16 | 15 | + | 13 | 14 | 12 | + | 4 | 4 | 4 |
| 221 | − | 40 | 40 | 41 | + | 70 | 69 | 70 | + | 72 | 73 | 72 | + | 74 | 74 | 72 |
| 222 | + | 310 | 310 | 309 | + | 210 | 209 | 209 | + | 203 | 204 | 203 | + | 215 | 214 | 216 |
| 223 | − | 10 | 10 | 11 | − | 19 | 19 | 19 | − | 25 | 26 | 27 | − | 11 | 11 | 12 |
| 224 | − | 255 | 257 | 256 | − | 130 | 130 | 130 | − | 136 | 137 | 136 | − | 128 | 127 | 128 |
| 225 | − | 40 | 39 | 40 | − | 156 | 156 | 156 | − | 148 | 147 | 147 | − | 144 | 144 | 144 |
| 226 | − | 265 | 265 | 263 | − | 268 | 267 | 268 | − | 280 | 280 | 279 | − | 271 | 271 | 270 |
| 227 | + | 218 | 216 | 218 | + | 225 | 224 | 223 | + | 219 | 218 | 218 | + | 231 | 231 | 231 |
| 228 | + | 103 | 102 | 101 | + | 101 | 101 | 102 | + | 103 | 103 | 104 | + | 114 | 114 | 112 |
| 229 | + | 320 | 320 | 322 | + | 312 | 312 | 313 | + | 308 | 308 | 307 | + | 309 | 310 | 309 |
| 230 | − | 485 | 488 | 487 | − | 487 | 487 | 485 | − | 484 | 485 | 485 | − | 460 | 460 | 460 |

## HANKO 1.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 231 | + | 399 | 399 | 398 | + | 410 | 409 | 409 | + | 398 | 398 | 398 | + | 383 | 383 | 384 |
| 232 | − | 506 | 507 | 506 | − | 455 | 454 | 456 | − | 491 | 491 | 491 | − | 439 | 438 | 440 |
| 233 | − | 219 | 220 | 220 | − | 304 | 306 | 307 | − | 273 | 273 | 273 | − | 304 | 304 | 304 |
| 234 | + | 411 | 411 | 413 | + | 406 | 404 | 407 | + | 418 | 417 | 419 | + | 396 | 396 | 395 |
| 235 | − | 193 | 191 | 191 | − | 167 | 165 | 165 | − | 196 | 196 | 197 | − | 151 | 150 | 150 |
| 236 | + | 349 | 349 | 349 | + | 348 | 347 | 348 | + | 369 | 368 | 369 | + | 368 | 366 | 367 |
| 237 | − | 60 | 61 | 60 | − | 74 | 75 | 76 | − | 78 | 77 | 78 | − | 65 | 64 | 65 |
| 238 | − | 149 | 148 | 149 | − | 143 | 143 | 142 | − | 164 | 163 | 163 | − | 137 | 138 | 138 |
| 239 | + | 527 | 526 | 526 | + | 534 | 535 | 535 | + | 546 | 546 | 546 | + | 530 | 530 | 530 |
| 240 | + | 308 | 308 | 308 | + | 301 | 299 | 300 | + | 282 | 282 | 280 | + | 297 | 297 | 296 |
| 241 | − | 22 | 22 | 23 | − | 22 | 23 | 21 | − | 19 | 20 | 18 | − | 14 | 14 | 14 |
| 242 | + | 31 | 31 | 31 | + | 42 | 43 | 41 | + | 46 | 46 | 45 | + | 54 | 53 | 52 |
| 243 | + | 8 | 8 | 7 | − | 9 | 9 | 8 | − | 18 | 19 | 20 | − | 11 | 10 | 12 |
| 244 | + | 48 | 47 | 48 | + | 57 | 58 | 59 | + | 61 | 60 | 59 | + | 70 | 69 | 70 |
| 245 | + | 68 | 69 | 69 | + | 56 | 55 | 55 | + | − | 47 | 48 | + | 58 | 56 | 55 |

# ENKÖPING N.

| N:o | **636.** NS. 13.VII. $9^h30^m - 16^h0^m$. $t_1$: +20°8, $t_2$: +22°0. 1— 65: −P+J 66—130: −J+P 131—195: +J−P 196—214: +P−J | | | | **634.** NS. 15.VII. $8^h45^m - 13^h0^m$. $t_1$: +21°5, $t_2$: +22°6. 1— 65: +S−B 66—131: +B−S 132—197: −S+B 198—214: −B+S | | | | **637.** NS. 16.VII. $8^h30^m - 12^h30^m$. $t_1$: +22°5, $t_2$: +25°0. 1— 65: +J−P 66—130: +P−J 131—195: −P+J 196—214: −J+P | | | | **635.** NS. 17.VII. $8^h15^m - 12^h30^m$. $t_1$: +18°0, $t_2$: +23°0. 1— 66: +B−S 67—133: +S−B 134—197: −S+B 198—214: −B+S | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 153 | 152 | 154 | + | 157 | 156 | 157 | + | 150 | 151 | 151 | + | 152 | 153 | 152 |
| 2 | + | 320 | 321 | 321 | + | 323 | 322 | 324 | + | 316 | 315 | 314 | + | 304 | 304 | 304 |
| 3 | − | 176 | 177 | 175 | − | 171 | 170 | 172 | − | 172 | 175 | 174 | − | 179 | 178 | 180 |
| 4 | − | 120 | 120 | 120 | − | 102 | 102 | 103 | − | 113 | 113 | 113 | − | 111 | 112 | 112 |
| 5 | + | 101 | 101 | 100 | + | 107 | 106 | 106 | + | 93 | 94 | 93 | + | 93 | 94 | 94 |
| 6 | − | 254 | 254 | 254 | − | 251 | 250 | 251 | − | 249 | 249 | 250 | − | 259 | 259 | 258 |
| 7 | + | 13 | 12 | 13 | + | 17 | 18 | 17 | + | 19 | 20 | 19 | + | 17 | 18 | 18 |
| 8 | − | 389 | 388 | 389 | − | 392 | 392 | 392 | − | 401 | 403 | 401 | − | 403 | 403 | 404 |
| 9 | + | 272 | 272 | 272 | + | 266 | 266 | 267 | + | 260 | 260 | 261 | + | 259 | 261 | 260 |
| 10 | − | 204 | 203 | 204 | − | 197 | 198 | 198 | − | 202 | 204 | 203 | − | 205 | 206 | 206 |
| 11 | − | 337 | 336 | 338 | − | 316 | 316 | 317 | − | 325 | 326 | 327 | − | 327 | 328 | 328 |
| 12 | − | 303 | 303 | 302 | − | 304 | 302 | 303 | − | 307 | 307 | 308 | − | 320 | 320 | 320 |
| 13 | − | 206 | 204 | 206 | − | 205 | 205 | 205 | − | 209 | 209 | 208 | − | 213 | 214 | 214 |
| 14 | + | 136 | 134 | — | + | 135 | 134 | 135 | + | 126 | 128 | 129 | + | 134 | 134 | 135 |
| 15 | + | 189 | 190 | 189 | + | 198 | 198 | 198 | + | 192 | 192 | 191 | + | 181 | 180 | 182 |
| 16 | − | 314 | 315 | 315 | − | 317 | 317 | 316 | − | 321 | 321 | 322 | − | 313 | 312 | 311 |
| 17 | + | 80 | 81 | 79 | + | 90 | 90 | 90 | + | 89 | 89 | 88 | + | 90 | 91 | 90 |
| 18 | + | 106 | 104 | 106 | + | 108 | 107 | 107 | + | 99 | 99 | 99 | + | 90 | 90 | 91 |
| 19 | + | 307 | 306 | 305 | + | 314 | 315 | 314 | + | 307 | 307 | 305 | + | 306 | 306 | 306 |
| 20 | − | 310 | 311 | 311 | − | 313 | 314 | 313 | − | 321 | 321 | 323 | − | 322 | 322 | 323 |
| 21 | + | 170 | 169 | 169 | + | 177 | 178 | 176 | + | 163 | 164 | 162 | + | 169 | 170 | 168 |
| 22 | − | 68 | 69 | 66 | − | 67 | 67 | 66 | − | 60 | 60 | 60 | − | 69 | 70 | 68 |
| 23 | + | 212 | 213 | 212 | + | 220 | 219 | 219 | + | 211 | 211 | 212 | + | 212 | 211 | 212 |
| 24 | − | 444 | 445 | 445 | − | 437 | 437 | 437 | − | 445 | 447 | 445 | − | 441 | 441 | 441 |
| 25 | − | 547 | 548 | 548 | − | 545 | 547 | 546 | − | 552 | 552 | 552 | − | 553 | 554 | 555 |
| 26 | + | 42 | 41 | 41 | + | 44 | 43 | 44 | + | 36 | 34 | 34 | + | 32 | 32 | 32 |
| 27 | − | 280 | 279 | 280 | − | 276 | 277 | 276 | − | 277 | 274 | 276 | − | 272 | 273 | 271 |
| 28 | − | 204 | 203 | 203 | − | 198 | 197 | 197 | − | 209 | 210 | 208 | − | 216 | 215 | 216 |
| 29 | + | 65 | 66 | 67 | + | 74 | 75 | 76 | + | 70 | 71 | 73 | + | 61 | 61 | 62 |
| 30 | + | 18 | 18 | 19 | + | 26 | 26 | 26 | + | 12 | 13 | 11 | + | 20 | 20 | 20 |
| 31 | + | 107 | 109 | 109 | + | 98 | 97 | 96 | + | 91 | 92 | 91 | + | 98 | 99 | 98 |
| 32 | − | 81 | 84 | 83 | − | 72 | 72 | 73 | − | 77 | 75 | 76 | − | 74 | 75 | 73 |
| 33 | − | 80 | 80 | 80 | − | 73 | 73 | 73 | − | 71 | 71 | 72 | − | 84 | 83 | 83 |
| 34 | + | 71 | 70 | 71 | + | 78 | 78 | 79 | + | 68 | 69 | 69 | + | 61 | 63 | 62 |
| 35 | + | 165 | 165 | 165 | + | 166 | 167 | 167 | + | 159 | 159 | 159 | + | 163 | 164 | 164 |
| 36 | − | 60 | 60 | 60 | − | 48 | 47 | 49 | − | 51 | 52 | 52 | − | 65 | 65 | 64 |
| 37 | − | 253 | 255 | 255 | − | 247 | 248 | 246 | − | 251 | 253 | 252 | − | 252 | 251 | 250 |
| 38 | + | 398 | 396 | 397 | + | 395 | 395 | 395 | + | 388 | 386 | 387 | + | 381 | 382 | 382 |
| 39 | + | 72 | 71 | 70 | + | 74 | 74 | 75 | + | 70 | 70 | 70 | + | 70 | 70 | 69 |
| 40 | − | 1 | 2 | 1 | + | 10 | 11 | 10 | + | 5 | 6 | 7 | + | 3 | 2 | 2 |
| 41 | − | 249 | 249 | 249 | − | 255 | 254 | 253 | − | 271 | 270 | 272 | − | 270 | 269 | 270 |
| 42 | − | 260 | 260 | 260 | − | 250 | 250 | 251 | − | 243 | 244 | 243 | − | 248 | 248 | 249 |
| 43 | + | 55 | 52 | 54 | + | 55 | 56 | 53 | + | 44 | 46 | 46 | + | 44 | 43 | 43 |
| 44 | + | 4 | 2 | 3 | + | 2 | −1 | −1 | + | 1 | 1 | 0 | − | 8 | 10 | 9 |
| 45 | + | 179 | 179 | 179 | + | 194 | 196 | 197 | + | 187 | 185 | 187 | + | 193 | 194 | 194 |
| 46 | + | 98 | 97 | 97 | + | 102 | 100 | 100 | + | 95 | 98 | 96 | + | 99 | 99 | 99 |
| 47 | − | 32 | 33 | 34 | − | 30 | 29 | 29 | − | 32 | 34 | 32 | − | 43 | 42 | 44 |
| 48 | − | 530 | 530 | 530 | − | 533 | 531 | 532 | − | 539 | 538 | 539 | − | 528 | 527 | 529 |
| 49 | − | 196 | 198 | 195 | − | 183 | 182 | 184 | − | 191 | 189 | 189 | − | 208 | 208 | 208 |
| 50 | + | 63 | 65 | 67 | + | 64 | 63 | 63 | + | 62 | 61 | 63 | + | 67 | 67 | 67 |

# ENKÖPING N.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | + | 20 | 20 | 19 | + | 27 | 26 | 27 | + | 19 | 18 | 17 | + | 10 | 10 | 11 |
| 52 | + | 99 | 98 | 99 | + | 98 | 98 | 96 | + | 96 | 97 | 95 | + | 104 | 105 | 106 |
| 53 | — | 305 | 307 | 307 | — | 264 | 263 | 263 | — | 271 | 270 | 270 | — | 283 | 282 | 283 |
| 54 | + | 70 | 70 | 68 | + | 40 | 40 | 39 | + | 38 | 34 | 37 | + | 27 | 29 | 29 |
| 55 | — | 190 | 189 | 189 | — | 195 | 196 | 197 | — | 200 | 200 | 200 | — | 193 | 192 | 192 |
| 56 | — | 374 | 373 | 373 | — | 358 | 358 | 359 | — | 366 | 366 | 364 | — | 371 | 371 | 369 |
| 57 | + | 220 | 219 | 220 | + | 224 | 224 | 224 | + | 216 | 218 | 216 | + | 216 | 215 | 214 |
| 58 | + | 61 | 61 | 60 | + | 63 | 62 | 62 | + | 58 | 59 | 58 | + | 46 | 46 | 45 |
| 59 | + | 113 | 111 | 111 | + | 122 | 122 | 122 | + | 122 | 121 | 123 | + | 127 | 127 | 127 |
| 60 | — | 259 | 260 | 259 | — | 252 | 250 | 251 | — | 254 | 255 | 252 | — | 253 | 252 | 254 |
| 61 | + | 61 | 61 | 60 | + | 64 | 63 | 63 | + | 54 | 52 | 54 | + | 45 | 44 | 46 |
| 62 | — | 300 | 299 | 298 | — | 286 | 288 | 288 | — | 298 | 299 | 299 | — | 291 | 291 | 291 |
| 63 | + | 82 | 81 | 82 | + | 83 | 82 | 84 | + | 77 | 75 | 76 | + | 74 | 75 | 75 |
| 64 | — | 131 | 130 | 130 | — | 134 | 132 | 132 | — | 132 | 133 | 135 | — | 146 | 146 | 146 |
| 65 | + | 81 | 81 | 81 | + | 93 | 93 | 93 | + | 80 | 81 | 82 | + | 92 | 91 | 92 |
| 66 | — | 139 | 139 | 138 | — | 133 | 134 | 133 | — | 139 | 138 | 138 | — | 154 | 152 | 152 |
| 67 | — | 134 | 134 | 134 | — | 135 | 133 | 134 | — | 138 | 137 | 137 | — | 138 | 139 | 137 |
| 68 | — | 297 | 296 | 296 | — | 288 | 287 | 288 | — | 305 | 304 | 308 | — | 308 | 308 | 308 |
| 69 | + | 159 | 160 | 160 | + | 164 | 164 | 163 | + | 169 | 168 | 168 | + | 164 | 165 | 166 |
| 70 | + | 151 | 150 | 151 | + | 162 | 161 | 161 | + | 157 | 159 | 158 | + | 160 | 158 | 159 |
| 71 | + | 238 | 237 | 238 | + | 233 | 236 | 235 | + | 227 | 228 | 229 | + | 225 | 225 | 226 |
| 72 | — | 82 | 83 | 84 | — | 86 | 86 | 86 | — | 78 | 78 | 75 | — | 92 | 92 | 91 |
| 73 | + | 7 | 4 | 5 | + | 25 | 24 | 24 | + | 10 | 12 | 10 | + | 19 | 20 | 19 |
| 74 | — | 50 | 50 | 50 | — | 41 | 41 | 43 | — | 23 | 25 | 24 | — | 57 | 59 | 56 |
| 75 | — | 135 | 138 | 136 | — | 138 | 138 | 138 | — | 175 | 176 | 174 | — | 152 | 152 | 153 |
| 76 | — | 29 | 28 | 30 | — | 25 | 25 | 24 | — | 6 | 8 | 8 | — | 27 | 29 | 27 |
| 77 | + | 121 | 120 | 120 | + | 80 | 79 | 79 | + | 76 | 76 | 77 | + | 178 | 177 | 177 |
| 78 | — | 11 | 12 | 13 | — | 5 | 5 | 5 | + | 12 | 14 | 14 | — | 81 | 83 | 83 |
| 79 | + | 50 | 50 | 49 | + | 92 | 91 | 90 | + | 51 | 52 | 52 | + | 35 | 35 | 35 |
| 80 | + | 52 | 52 | 52 | + | 61 | 58 | 60 | + | 43 | 42 | 41 | + | 58 | 57 | 58 |
| 81 | + | 151 | 152 | 152 | + | 153 | 155 | 153 | + | 145 | 146 | 143 | + | 162 | 163 | 162 |
| 82 | — | 177 | 176 | 177 | — | 169 | 170 | 169 | — | 155 | 156 | 158 | — | 187 | 188 | 187 |
| 83 | — | 119 | 118 | 118 | — | 115 | 114 | 112 | — | 128 | 125 | 127 | — | 122 | 122 | 121 |
| 84 | + | 180 | 179 | 179 | + | 171 | 169 | 169 | + | 170 | 170 | 171 | + | 165 | 165 | 164 |
| 85 | — | 365 | 363 | 367 | — | 348 | 350 | 349 | — | 349 | 349 | 350 | — | 364 | 364 | 364 |
| 86 | + | 11 | 10 | 11 | + | 22 | 22 | 21 | | 0 | 0 | 0 | + | 21 | 21 | 20 |
| 87 | + | 4 | 6 | 5 | + | 3 | 2 | 3 | + | 16 | 17 | 17 | — | 6 | 6 | 7 |
| 88 | + | 43 | 44 | 42 | + | 49 | 51 | 49 | + | 43 | 45 | 41 | + | 44 | 45 | 45 |
| 89 | + | 138 | 136 | 139 | + | 141 | 141 | 141 | + | 131 | 132 | 131 | + | 123 | 124 | 123 |
| 90 | — | 110 | 110 | 110 | — | 106 | 105 | 106 | — | 107 | 104 | 104 | — | 104 | 105 | 105 |
| 91 | + | 170 | 169 | 169 | + | 171 | 169 | 169 | + | 168 | 167 | 168 | + | 164 | 162 | 162 |
| 92 | + | 165 | 164 | 164 | + | 162 | 161 | 164 | + | 159 | 158 | 159 | + | 156 | 154 | 155 |
| 93 | — | 18 | 20 | 21 | — | 1 | +1 | −2 | — | 7 | 3 | 4 | — | 7 | 8 | 7 |
| 94 | + | 68 | 68 | 69 | + | 70 | 70 | 70 | + | 68 | 68 | 67 | + | 61 | 60 | 60 |
| 95 | + | 42 | 43 | 43 | + | 46 | 48 | 47 | + | 40 | 40 | 41 | + | 42 | 42 | 43 |
| 96 | — | 221 | 221 | 220 | — | 226 | 226 | 227 | — | 230 | 230 | 230 | — | 222 | 222 | 222 |
| 97 | + | 121 | 122 | 122 | + | 129 | 129 | 129 | + | 125 | 126 | 124 | + | 105 | 105 | 105 |
| 98 | + | 33 | 35 | 36 | + | 40 | 40 | 39 | + | 32 | 33 | 33 | + | 32 | 32 | 32 |
| 99 | — | 99 | 98 | 98 | — | 100 | 99 | 100 | — | 101 | 102 | 101 | — | 120 | 122 | 121 |
| 100 | — | 125 | 126 | 125 | — | 118 | 116 | 115 | — | 128 | 127 | 128 | — | 114 | 114 | 114 |
| 101 | — | 328 | 326 | 326 | — | 323 | 323 | 325 | — | 323 | 321 | 322 | — | 333 | 333 | 333 |
| 102 | + | 218 | 216 | 219 | + | 218 | 218 | 219 | + | 210 | 210 | 211 | + | 208 | 206 | 208 |
| 103 | + | 35 | 34 | 33 | + | 48 | 49 | 49 | + | 43 | 44 | 43 | + | 44 | 43 | 46 |
| 104 | — | 184 | 185 | 185 | — | 186 | 186 | 186 | — | 194 | 192 | 192 | — | 188 | 186 | 186 |
| 105 | — | 14 | 18 | 13 | — | 9 | 9 | 8 | — | 14 | 14 | 12 | — | 19 | 19 | 19 |
| 106 | — | 357 | 355 | — | — | 358 | 359 | 358 | — | 359 | 360 | 360 | — | 366 | 366 | 366 |
| 107 | — | 189 | 188 | 188 | — | 182 | 184 | 184 | — | 190 | 188 | 188 | — | 186 | 184 | 187 |
| 108 | + | 50 | 50 | 49 | + | 4 | 4 | 3 | + | 32 | 32 | 32 | + | 74 | 74 | 75 |
| 109 | — | 147 | 146 | 147 | — | 93 | 91 | 93 | — | 113 | 114 | 113 | — | 181 | 181 | 181 |
| 110 | + | 183 | 185 | 182 | + | 193 | 190 | 192 | + | 179 | 179 | 179 | + | 196 | 197 | 197 |

## ENKÖPING N.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | + | 96 | 96 | 97 | + | 118 | 118 | 117 | + | 87 | 88 | 87 | + | 100 | 100 | 101 |
| 112 | − | 410 | 408 | 410 | − | 445 | 445 | 445 | − | 414 | 415 | 415 | − | 443 | 443 | 441 |
| 113 | + | 160 | 160 | 161 | + | 185 | 185 | 183 | + | 159 | 158 | 159 | + | 160 | 160 | 160 |
| 114 | − | 12 | 12 | 11 | − | 9 | 8 | 7 | − | 4 | 8 | 6 | − | 5 | 5 | 5 |
| 115 | + | 40 | 39 | 40 | + | 50 | 51 | 53 | + | 50 | 47 | 49 | + | 39 | 39 | 39 |
| 116 | − | 125 | 127 | 128 | − | 134 | 132 | 132 | − | 140 | 141 | 140 | − | 136 | 137 | 136 |
| 117 | + | 56 | 59 | 58 | + | 65 | 66 | 66 | + | 60 | 60 | 60 | + | 60 | 60 | 60 |
| 118 | + | 110 | 111 | 110 | + | 108 | 110 | 110 | + | 119 | 118 | 118 | + | 100 | 101 | 101 |
| 119 | − | 104 | 104 | 105 | − | 93 | 93 | 93 | − | 100 | 100 | 100 | − | 110 | 111 | 111 |
| 120 | + | 170 | 171 | 171 | + | 173 | 173 | 174 | + | 161 | 161 | 162 | + | 169 | 169 | 170 |
| 121 | + | 63 | 62 | 61 | + | 70 | 70 | 70 | + | 62 | 62 | 62 | + | 59 | 60 | 60 |
| 122 | − | 291 | 292 | 292 | − | 287 | 285 | 286 | − | 291 | 292 | 292 | − | 298 | 298 | 297 |
| 123 | + | 163 | 163 | 163 | + | 169 | 169 | 170 | + | 170 | 170 | 169 | + | 168 | 169 | 167 |
| 124 | − | 59 | 59 | 59 | − | 93 | 93 | 95 | − | 49 | 50 | 49 | − | 65 | 64 | 65 |
| 125 | + | 35 | 34 | 36 | + | 74 | 75 | 74 | + | 17 | 19 | 17 | + | 28 | 28 | 27 |
| 126 | − | 285 | 282 | 284 | − | 267 | 267 | 266 | − | 283 | 286 | 286 | − | 288 | 287 | 286 |
| 127 | + | 88 | 89 | 87 | + | 83 | 84 | 83 | + | 83 | 82 | 80 | + | 80 | 80 | 80 |
| 128 | + | 136 | 135 | 137 | + | 137 | 138 | 136 | + | 137 | 136 | 138 | + | 139 | 140 | 139 |
| 129 | − | 59 | 60 | 59 | − | 43 | 43 | 45 | − | 49 | 49 | 50 | − | 60 | 61 | 61 |
| 130 | − | 206 | 205 | 205 | − | 199 | 199 | 199 | − | 196 | 198 | 197 | − | 200 | 200 | 201 |
| 131 | − | 223 | 225 | 225 | − | 230 | 230 | 228 | − | 236 | 235 | 236 | − | 244 | 245 | 244 |
| 132 | − | 77 | 77 | 77 | − | 76 | 79 | 77 | − | 83 | 85 | 84 | − | 85 | 85 | 85 |
| 133 | + | 310 | 311 | 310 | + | 321 | 320 | 321 | + | 314 | 317 | 315 | + | 316 | 316 | 316 |
| 134 | + | 441 | 443 | 443 | + | 312 | 312 | 313 | + | 361 | 362 | 361 | + | 309 | 307 | 308 |
| 135 | + | 248 | 249 | 249 | + | 385 | 386 | 383 | + | 329 | 327 | 327 | + | 375 | 374 | 374 |
| 136 | + | 310 | 310 | 310 | + | 319 | 318 | 319 | + | 309 | 308 | 307 | + | 318 | 317 | 317 |
| 137 | − | 249 | 246 | 247 | − | 257 | 257 | 257 | − | 263 | 261 | 263 | − | 267 | 268 | 268 |
| 138 | − | 165 | 167 | 167 | − | 149 | 150 | 150 | − | 157 | 154 | 153 | − | 167 | 167 | 167 |
| 139 | − | 46 | 45 | 47 | − | 46 | 46 | 46 | − | 36 | 34 | 34 | − | 49 | 49 | 49 |
| 140 | − | 171 | 171 | 170 | − | 173 | 172 | 174 | − | 189 | 187 | 189 | − | 175 | 175 | 175 |
| 141 | − | 73 | 72 | 73 | − | 61 | 63 | 62 | − | 58 | 58 | 57 | − | 74 | 75 | 75 |
| 142 | + | 77 | 79 | 78 | + | 87 | 86 | 86 | + | 57 | 56 | 57 | + | 68 | 67 | 69 |
| 143 | + | 169 | 170 | 169 | + | 180 | 179 | 181 | + | 164 | 165 | 164 | + | 179 | 180 | 180 |
| 144 | − | 105 | 107 | 106 | − | 96 | 96 | 97 | − | 81 | 80 | 81 | − | 107 | 107 | 107 |
| 145 | + | 28 | 26 | 27 | + | 25 | 25 | 24 | + | 18 | 18 | 17 | + | 17 | 18 | 18 |
| 146 | + | 60 | 59 | 60 | + | 63 | 62 | 63 | + | 54 | 57 | 56 | + | 54 | 55 | 55 |
| 147 | + | 72 | 70 | 70 | + | 84 | 85 | 83 | + | 87 | 88 | 89 | + | 80 | 80 | 80 |
| 148 | + | 59 | 60 | 59 | + | 54 | 54 | 54 | + | 45 | 42 | 45 | + | 43 | 43 | 44 |
| 149 | + | 287 | 287 | 284 | + | 292 | 292 | 292 | + | 287 | 285 | 286 | + | 280 | 281 | 280 |
| 150 | − | 101 | 100 | 100 | − | 98 | 97 | 97 | − | 100 | 100 | 99 | − | 107 | 106 | 105 |
| 151 | + | 49 | 49 | 49 | + | 56 | 56 | 56 | + | 51 | 50 | 48 | + | 56 | 56 | 55 |
| 152 | − | 16 | 14 | 14 | − | 11 | 10 | 10 | − | 15 | 15 | 13 | + | 13 | 12 | 11 |
| 153 | + | 54 | 56 | 53 | + | 58 | 58 | 58 | + | 53 | 51 | 51 | + | 10 | 12 | 12 |
| 154 | − | 33 | 33 | 35 | − | 24 | 24 | 26 | − | 26 | 27 | 28 | − | 17 | 17 | 17 |
| 155 | − | 135 | 136 | 138 | − | 137 | 134 | 134 | − | 135 | 136 | 135 | − | 136 | 137 | 136 |
| 156 | + | 148 | 148 | 148 | + | 159 | 158 | 158 | + | 150 | 151 | 150 | + | 133 | 133 | 133 |
| 157 | − | 269 | 267 | 269 | − | 277 | 279 | 277 | − | 314 | 313 | 313 | − | 300 | 300 | 300 |
| 158 | + | 254 | 255 | 256 | + | 262 | 261 | 262 | + | 272 | 275 | 275 | + | 272 | 272 | 273 |
| 159 | − | 215 | 216 | 217 | − | 202 | 201 | 201 | − | 197 | 197 | 196 | − | 226 | 227 | 227 |
| 160 | − | 93 | 94 | 93 | − | 84 | 85 | 85 | − | 92 | 92 | 93 | − | 80 | 81 | 81 |
| 161 | + | 139 | 138 | 137 | + | 136 | 136 | 135 | + | 130 | 130 | 129 | + | 129 | 128 | 129 |
| 162 | − | 148 | 148 | 148 | − | 153 | 152 | 152 | − | 158 | 157 | 156 | − | 156 | 157 | 156 |
| 163 | + | 186 | 185 | 188 | + | 203 | 203 | 203 | + | 191 | 192 | 192 | + | 190 | 189 | 190 |
| 164 | + | 199 | 197 | 199 | + | 204 | 203 | 203 | + | 198 | 200 | 199 | + | 190 | 190 | 190 |
| 165 | + | 184 | 184 | 183 | + | 191 | 191 | 189 | + | 190 | 190 | 190 | + | 184 | 184 | 184 |
| 166 | − | 101 | 104 | 101 | − | 102 | 104 | 101 | − | 112 | 111 | 112 | − | 110 | 109 | 108 |
| 167 | − | 156 | 157 | 158 | − | 157 | 156 | 157 | − | 167 | 163 | 163 | − | 173 | 172 | 173 |
| 168 | − | 61 | 60 | 61 | − | 48 | 48 | 48 | − | 42 | 43 | 43 | − | 41 | 43 | 43 |
| 169 | + | 103 | 102 | 102 | + | 151 | 151 | 152 | + | 66 | 68 | 67 | + | 13 | 12 | 12 |
| 170 | − | 81 | 82 | 82 | − | 125 | 125 | 126 | − | 59 | 59 | 58 | − | 16 | 17 | 17 |

# ENKÖPING N.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | — | 331 | 331 | 331 | — | 319 | 318 | 319 | — | 320 | 319 | 319 | — | 333 | 334 | 333 |
| 172 | — | 342 | 341 | 343 | — | 343 | 342 | 344 | — | 352 | 353 | 354 | — | 345 | 346 | 344 |
| 173 | + | 105 | 102 | 102 | + | 118 | 120 | 118 | + | 111 | 112 | 111 | + | 79 | 78 | 79 |
| 174 | — | 159 | 158 | 158 | — | 158 | 158 | 158 | — | 166 | 165 | 164 | — | 133 | 132 | 133 |
| 175 | + | 257 | 256 | 256 | + | 260 | 261 | 262 | + | 257 | 253 | 258 | + | 241 | 241 | 241 |
| 176 | + | 125 | 128 | 128 | + | 132 | 131 | 131 | + | 120 | 123 | 122 | + | 126 | 127 | 126 |
| 177 | — | 329 | 329 | 328 | — | 318 | 319 | 319 | — | 321 | 320 | 320 | — | 318 | 318 | 316 |
| 178 | + | 21 | 22 | 22 | + | 49 | 48 | 49 | + | 49 | 49 | 50 | + | 15 | 14 | 14 |
| 179 | + | 146 | 148 | 146 | + | 118 | 118 | 119 | + | 104 | 103 | 104 | + | 136 | 136 | 136 |
| 180 | + | 189 | 189 | 189 | + | 198 | 199 | 198 | + | 199 | 197 | 199 | + | 189 | 188 | 189 |
| 181 | + | 190 | 190 | 189 | + | 192 | 193 | 193 | + | 180 | 181 | 182 | + | 179 | 179 | 179 |
| 182 | — | 137 | 138 | 138 | — | 134 | 136 | 134 | — | 134 | 137 | 138 | — | 131 | 131 | 132 |
| 183 | + | 25 | 26 | 23 | + | 35 | 34 | 35 | + | 30 | 31 | 30 | + | 14 | 14 | 14 |
| 184 | + | 23 | 23 | 26 | + | 26 | 26 | 25 | + | 25 | 27 | 27 | + | 21 | 21 | 22 |
| 185 | + | 162 | 163 | 163 | + | 169 | 168 | 169 | + | 159 | 157 | 157 | + | 164 | 165 | 164 |
| 186 | — | 10 | 9 | 9 | — | 13 | 10 | 10 | — | 10 | 12 | 12 | — | 10 | 10 | 10 |
| 187 | + | 18 | 19 | 19 | + | 28 | 28 | 28 | + | 11 | 12 | 12 | + | 17 | 16 | 17 |
| 188 | — | 40 | 39 | 38 | — | 35 | 33 | 34 | — | 29 | 29 | 30 | — | 54 | 54 | 54 |
| 189 | + | 179 | 177 | 177 | + | 187 | 187 | 187 | + | 168 | 167 | 166 | + | 171 | 170 | 170 |
| 190 | — | 31 | 31 | 32 | — | 29 | 29 | 29 | — | 24 | 23 | 24 | — | 26 | 26 | 26 |
| 191 | — | 138 | 138 | 138 | — | 129 | 130 | 132 | — | 139 | 140 | 139 | — | 141 | 142 | 140 |
| 192 | + | 177 | 175 | 174 | + | 174 | 173 | 175 | + | 175 | 177 | 178 | + | 158 | 156 | 155 |
| 193 | — | 187 | 186 | 186 | — | 170 | 169 | 169 | — | 219 | 219 | 220 | — | 166 | 166 | 166 |
| 194 | + | 259 | 258 | 258 | + | 251 | 252 | 252 | + | 297 | 298 | 297 | + | 248 | 249 | 249 |
| 195 | + | 99 | 97 | 99 | + | 102 | 101 | 100 | + | 82 | 85 | 85 | + | 77 | 79 | 78 |
| 196 | + | 205 | 207 | 205 | + | 213 | 213 | 213 | + | 209 | 208 | 205 | + | 205 | 207 | 206 |
| 197 | — | 177 | 176 | 178 | — | 191 | 191 | 192 | — | 189 | 188 | 188 | — | 182 | 181 | 182 |
| 198 | — | 62 | 63 | 62 | — | 36 | 38 | 37 | — | 51 | 53 | 53 | — | 59 | 58 | 60 |
| 199 | — | 290 | 290 | 290 | — | 324 | 324 | 323 | — | 310 | 310 | 311 | — | 301 | 301 | 301 |
| 200 | + | 217 | 216 | 217 | + | 260 | 259 | 259 | + | 236 | 239 | 237 | + | 229 | 228 | 228 |
| 201 | + | 207 | 205 | 205 | + | 202 | 202 | 202 | + | 202 | 204 | 203 | + | 193 | 193 | 193 |
| 202 | — | 106 | 108 | 107 | — | 100 | 101 | 101 | — | 115 | 113 | 114 | — | 113 | 112 | 113 |
| 203 | + | 239 | 238 | 239 | + | 258 | 257 | 259 | + | 242 | 243 | 244 | + | 236 | 235 | 235 |
| 204 | — | 58 | 58 | 58 | — | 47 | 47 | 48 | — | 52 | 52 | 52 | — | 59 | 60 | 60 |
| 205 | + | 149 | 150 | 149 | + | 138 | 139 | 139 | + | 149 | 149 | 149 | + | 151 | 151 | 152 |
| 206 | — | 302 | 301 | 303 | — | 299 | 299 | 299 | — | 298 | 296 | 297 | — | 304 | 305 | 305 |
| 207 | + | 11 | 10 | 10 | + | 8 | 7 | 8 | — | 3 | 4 | 3 | | 0 | — 1 | + 1 |
| 208 | — | 143 | 143 | 147 | — | 142 | 142 | 143 | — | 143 | 142 | 142 | — | 150 | 151 | 152 |
| 209 | — | 141 | 143 | 141 | — | 133 | 133 | 134 | — | 137 | 136 | 137 | — | 139 | 140 | 140 |
| 210 | + | 131 | 133 | 131 | + | 123 | 120 | 122 | + | 113 | 114 | 115 | + | 113 | 112 | 113 |
| 211 | + | 261 | 261 | 262 | + | 275 | 276 | 277 | + | 272 | 272 | 270 | + | 270 | 268 | 269 |
| 212 | — | 82 | 80 | 82 | — | 68 | 68 | 67 | — | 72 | 74 | 72 | — | 76 | 74 | 76 |
| 213 | + | 120 | 122 | 122 | + | 117 | 118 | 117 | + | 113 | 114 | 113 | + | 118 | 115 | 117 |
| 214 | — | 267 | 267 | 266 | — | 221 | 222 | 220 | — | 228 | 228 | 228 | — | 230 | 231 | 232 |

# ENKÖPING S.

| N:o | **636.** NS. 15.VII. 16h30m – 18h0m. $t_1$:+23°6, $t_2$:+22°6. 215—238: +P–J 239—244: –J+P 245—269: +P–J | | | **634.** NS. 15.VII. 14h0m – 15h45m. $t_1$:+22°6, $t_2$:+23°0. 215—238: –B+S 239—244: –S+B 245—269: –B+S | | | **637.** NS. 16.VII. 16h30m – 18h0m. $t_1$:+25°0, $t_2$:+22°1. 215—238: –J+P 239—244: –J+P 245—269: –J+P | | | **635.** NS. 16.VII. 14h30m – 16h0m. $t_1$:+24°0, $t_2$:+23°0. 215—238: –B+S 239—244: –S+B 245—269: –B+S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 215 | – | 247 | 247 | 246 | – | 243 | 242 | 243 | – | 249 | 249 | 249 | + | 254 | 253 | 253 |
| 216 | + | 354 | 353 | 353 | + | 357 | 358 | 357 | + | 352 | 353 | 354 | – | 252 | 252 | 252 |
| 217 | – | 504 | 505 | 503 | – | 501 | 501 | 500 | – | 515 | 518 | 517 | + | 350 | 349 | 350 |
| 218 | + | 19 | 17 | 19 | + | 22 | 23 | 23 | + | 24 | 27 | 25 | – | 521 | 520 | 520 |
| 219 | + | 238 | 238 | 238 | + | 241 | 243 | 243 | + | 256 | 256 | 258 | + | 22 | 23 | 22 |
| 220 | – | 25 | 26 | 26 | – | 22 | 21 | 22 | – | 35 | 34 | 35 | – | 36 | 39 | 38 |
| 221 | + | 586 | 588 | 586 | + | 592 | 591 | 590 | + | 589 | 589 | 589 | + | 586 | 585 | 585 |
| 222 | – | 681 | 682 | 681 | – | 678 | 679 | 678 | – | 680 | 681 | 681 | – | 683 | 683 | 683 |
| 223 | – | 168 | 169 | 167 | – | 164 | 165 | 165 | – | 175 | 173 | 176 | – | 179 | 179 | 180 |
| 224 | – | 717 | 716 | 717 | – | 711 | 712 | 712 | – | 709 | 710 | 710 | – | 715 | 716 | 714 |
| 225 | – | 121 | 123 | 122 | – | 119 | 117 | 119 | – | 126 | 127 | 126 | – | 127 | 127 | 127 |
| 226 | + | 122 | 123 | 123 | + | 129 | 130 | 129 | + | 121 | 121 | 121 | + | 118 | 119 | 120 |
| 227 | | 0 | –1 | +1 | + | 4 | 3 | 3 | + | 2 | 4 | 3 | – | 2 | 1 | — |
| 228 | – | 147 | 146 | 145 | – | 143 | 144 | 144 | – | 152 | 151 | 152 | – | 149 | 149 | 151 |
| 229 | + | 4 | 0 | 0 | + | 7 | 8 | 7 | + | 7 | 6 | 5 | – | 0 | 2 | 2 |
| 230 | – | 181 | 182 | 182 | – | 178 | 178 | 177 | – | 176 | 176 | 177 | – | 179 | 180 | 180 |
| 231 | – | 198 | 199 | 198 | – | 195 | 193 | 194 | – | 205 | 204 | 206 | – | 209 | 209 | 208 |
| 232 | – | 2 | 3 | 2 | + | 3 | 2 | 2 | + | 3 | 3 | 5 | + | 1 | 1 | 2 |
| 233 | + | 102 | 100 | 101 | + | 107 | 107 | 108 | + | 96 | 96 | 94 | + | 92 | 92 | 92 |
| 234 | – | 168 | 166 | 166 | – | 163 | 163 | 164 | – | 165 | 164 | 167 | – | 169 | 168 | 169 |
| 235 | – | 39 | 39 | 39 | – | 33 | 34 | 32 | – | 38 | 38 | 37 | – | 41 | 43 | 41 |
| 236 | – | 81 | 82 | 82 | – | 79 | 80 | 79 | – | 86 | 83 | 85 | – | 87 | 87 | 87 |
| 237 | – | 263 | 266 | 264 | – | 258 | 260 | 259 | – | 262 | 263 | 262 | – | 265 | 264 | 266 |
| 238 | – | 362 | 362 | 362 | – | 357 | 358 | 357 | – | 363 | 363 | 364 | – | 368 | 366 | 367 |
| 239 | – | 154 | 155 | 152 | – | 151 | 154 | 153 | – | 156 | 155 | 156 | – | 157 | 153 | 156 |
| 240 | – | 214 | 218 | 215 | – | 218 | 219 | 216 | – | 211 | 213 | 213 | – | 213 | 214 | 215 |
| 241 | + | 29 | 27 | 26 | + | 29 | 28 | 26 | + | 25 | 26 | 29 | + | 24 | 24 | 27 |
| 242 | – | 553 | 557 | 555 | – | 553 | 553 | 554 | – | 550 | 547 | 547 | – | — | 549 | 549 |
| 243 | – | 236 | 237 | 239 | – | 238 | 238 | 238 | – | 243 | 240 | 242 | – | 242 | 241 | 243 |
| 244 | – | 156 | 155 | 156 | – | 154 | 155 | 155 | – | 152 | 152 | 153 | – | 152 | 153 | 151 |
| 245 | – | 99 | 97 | 98 | – | 93 | 93 | 92 | – | 96 | 97 | 96 | – | 99 | 99 | 99 |
| 246 | – | 221 | 221 | 222 | – | 218 | 217 | 217 | – | 261 | 261 | 260 | – | 262 | 263 | 263 |
| 247 | + | 22 | 22 | 24 | + | 28 | 27 | 26 | + | 60 | 59 | 60 | + | 57 | 59 | 58 |
| 248 | + | 23 | 24 | 23 | + | 28 | 29 | 29 | + | 21 | 21 | 21 | + | 17 | 18 | 17 |
| 249 | – | 40 | 39 | 40 | – | 36 | 36 | 36 | – | 39 | 38 | 39 | – | 41 | 42 | 41 |
| 250 | + | 89 | 91 | 91 | + | 94 | 94 | 94 | + | 85 | 84 | 87 | + | 81 | 81 | 81 |
| 251 | – | 279 | 279 | 280 | – | 276 | 277 | 278 | – | 276 | 276 | 277 | – | 279 | 279 | 278 |
| 252 | – | 245 | 242 | 244 | – | 240 | 241 | 241 | – | 239 | 240 | 240 | – | 243 | 243 | 243 |
| 253 | – | 54 | 53 | 54 | – | 48 | 48 | 49 | – | 64 | 64 | 62 | – | 66 | 65 | 65 |
| 254 | + | 130 | 130 | 131 | + | 136 | 136 | 137 | + | 118 | 119 | 119 | + | 116 | 116 | — |
| 255 | + | 56 | 56 | 55 | + | 59 | 60 | 59 | + | 75 | 75 | 74 | + | 71 | 72 | 72 |
| 256 | + | 325 | 322 | 325 | + | 328 | 328 | 329 | + | 321 | 321 | 319 | + | 317 | 317 | 317 |
| 257 | + | 202 | 202 | 203 | + | 207 | 206 | 207 | + | 199 | 198 | 200 | + | 195 | 195 | 197 |
| 258 | + | 251 | 252 | 251 | + | 255 | 253 | 255 | + | 259 | 257 | 258 | + | 256 | 255 | 255 |
| 259 | + | 304 | 304 | 307 | + | 310 | 309 | 310 | + | 297 | 298 | 298 | + | 295 | 297 | 296 |
| 260 | – | 320 | 320 | 320 | – | 317 | 317 | 318 | – | 310 | 311 | 310 | – | 314 | 314 | 312 |
| 261 | – | 306 | 303 | 306 | – | 300 | 300 | 300 | – | 310 | 310 | 311 | – | 313 | 313 | 314 |
| 262 | – | 191 | 194 | 194 | – | 187 | 186 | 188 | – | 191 | 193 | 193 | – | 194 | 196 | 194 |
| 263 | – | 127 | 127 | 127 | – | 124 | 123 | 124 | – | 128 | 128 | 127 | – | 132 | 133 | 133 |
| 264 | – | 349 | 347 | 348 | – | 344 | 345 | 345 | – | 352 | 355 | 354 | – | 350 | 351 | 351 |
| 265 | – | 144 | 143 | 144 | – | 139 | 139 | 138 | – | 133 | 131 | 134 | – | 135 | 137 | 137 |
| 266 | – | 125 | 124 | 123 | – | 119 | 119 | 120 | – | 128 | 126 | 126 | – | 138 | 138 | 137 |
| 267 | – | 26 | 28 | 25 | – | 22 | 22 | 22 | – | 33 | 33 | 34 | – | 32 | 33 | 32 |
| 268 | – | 39 | 38 | 38 | – | 34 | 35 | 34 | – | 18 | 20 | 18 | – | 38 | 37 | 37 |
| 269 | – | 158 | 158 | 157 | – | 155 | 154 | 154 | – | 178 | 177 | 177 | – | 163 | 163 | 163 |

# ENKÖPING N.

| N:o | **673.** SN. 17.VII. 13h30m – 17h0m. $t_1$:+23°0, $t_2$:+22°0. 1— 67: –J+P 68—135: –P+J 136—199: +P–J 200—214: +J–P | | | **675.** SN. 18.VII. 14h0m – 18h15m. $t_1$:+23°6, $t_2$:+24°0. 1— 66: –S+B 67—132: –B+S 133—198: +B–S 199—214: +S–B | | | **683.** SN. 19.VII. 14h0m – 17h15m. $t_1$:+24°8, $t_2$:+26°5. 1— 67: –P+J 68—134: –J+P 135—201: +J–P 202—214: +P–J | | | **674.** SN. 20.VII. 8h30m – 14h30m. $t_1$:+20°0, $t_2$:+25°5. 1— 66: +B–S 67—132: +S–B 133—198: –S+B 199—214: –B+S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 160 | 160 | 160 | + | 154 | 153 | 155 | + | 154 | 153 | 152 | + | 155 | 157 | 156 |
| 2 | + | 309 | 309 | 309 | + | 325 | 323 | 323 | + | 310 | 310 | 309 | + | 322 | 322 | 321 |
| 3 | – | 172 | 177 | 175 | – | 181 | 182 | 182 | – | 161 | 162 | 162 | – | 159 | 160 | 159 |
| 4 | – | 80 | 80 | 80 | – | 90 | 91 | 90 | – | 117 | 116 | 116 | – | 111 | 110 | 111 |
| 5 | + | 111 | 110 | 112 | + | 133 | 132 | 132 | + | 125 | 123 | 125 | + | 103 | 101 | 102 |
| 6 | – | 270 | 270 | 269 | – | 281 | 280 | 280 | – | 288 | 288 | 289 | – | 246 | 246 | 245 |
| 7 | + | 68 | 66 | 68 | + | 41 | 41 | 43 | + | 55 | 54 | 54 | + | 52 | 51 | 53 |
| 8 | – | 406 | 408 | 409 | – | 398 | 399 | 399 | – | 427 | 427 | 428 | – | 412 | 411 | – |
| 9 | + | 267 | 263 | 267 | + | 261 | 261 | 259 | + | 273 | 271 | 273 | + | 266 | 266 | 266 |
| 10 | – | 200 | 199 | 200 | – | 173 | 176 | 175 | – | 218 | 217 | 218 | – | 197 | 197 | 198 |
| 11 | – | 299 | 298 | 297 | – | 337 | 339 | 339 | – | 313 | 314 | 313 | – | 311 | 311 | 311 |
| 12 | – | 311 | 311 | 312 | – | 310 | 310 | 310 | – | 329 | 332 | 332 | – | 318 | 318 | 318 |
| 13 | – | 190 | 190 | 190 | – | 201 | 201 | 203 | – | 204 | 207 | 206 | – | 165 | 165 | 164 |
| 14 | + | 112 | — | 112 | + | 139 | 139 | 139 | + | 128 | 128 | 128 | + | 98 | 98 | 99 |
| 15 | + | 223 | 222 | 221 | + | 199 | 199 | 200 | + | 200 | 200 | 200 | + | 207 | 205 | 206 |
| 16 | – | 291 | 291 | 290 | – | 316 | 317 | 318 | – | 332 | 333 | 332 | – | 314 | 312 | 313 |
| 17 | + | 75 | 72 | 74 | + | 98 | 99 | 98 | + | 91 | 92 | 91 | + | 101 | 103 | 103 |
| 18 | + | 113 | 112 | 112 | + | 110 | 109 | 109 | + | 93 | 97 | 96 | + | 101 | 103 | 102 |
| 19 | + | 317 | 319 | 318 | + | 321 | 320 | 320 | + | 318 | 316 | 317 | + | 319 | 320 | 320 |
| 20 | – | 299 | 296 | 297 | – | 328 | 328 | 329 | – | 339 | 339 | 339 | – | 330 | 328 | 329 |
| 21 | + | 188 | 184 | 185 | + | 182 | 183 | 182 | + | 188 | 188 | 188 | + | 192 | 190 | 192 |
| 22 | – | 63 | 66 | 63 | – | 61 | 61 | 63 | – | 73 | 75 | 74 | – | 61 | 62 | 61 |
| 23 | + | 226 | 229 | 227 | + | 217 | 217 | 217 | + | 203 | 206 | 205 | + | 211 | 211 | 211 |
| 24 | – | 430 | 429 | 430 | – | 433 | 430 | 430 | – | 421 | 422 | 421 | – | 433 | 433 | 434 |
| 25 | – | 525 | 523 | 527 | – | 534 | 533 | 534 | – | 552 | 552 | 552 | – | 533 | 533 | 534 |
| 26 | + | 12 | 15 | 11 | + | 35 | 35 | 34 | + | 22 | 23 | 24 | + | 36 | 36 | 36 |
| 27 | – | 239 | 238 | 236 | – | 260 | 260 | 260 | – | 236 | 236 | 235 | – | 262 | 263 | 264 |
| 28 | – | 246 | 247 | 248 | – | 197 | 199 | 198 | – | 238 | 237 | 238 | – | 194 | 196 | 196 |
| 29 | + | 80 | 80 | 79 | + | 58 | 57 | 57 | + | 73 | 75 | 72 | + | 65 | 66 | 65 |
| 30 | + | 50 | 52 | 50 | + | 41 | 40 | 40 | + | 10 | 9 | 10 | + | 27 | 27 | 27 |
| 31 | + | 127 | 122 | 125 | + | 102 | 101 | 102 | + | 99 | 100 | 100 | + | 106 | 106 | 107 |
| 32 | – | 83 | 83 | 83 | – | 79 | 78 | 78 | – | 85 | 84 | 85 | – | 73 | 73 | 72 |
| 33 | – | 49 | 49 | 48 | – | 64 | 66 | 65 | – | 75 | 77 | 74 | – | 60 | 59 | 60 |
| 34 | + | 58 | 57 | 56 | + | 71 | 70 | 70 | + | 66 | 67 | 66 | + | 69 | 69 | 68 |
| 35 | + | 179 | 180 | 180 | + | 167 | 166 | 165 | + | 169 | 169 | 171 | + | 160 | 161 | 161 |
| 36 | – | 0 | 1 | 1 | – | 26 | 25 | 26 | – | 40 | 40 | 40 | – | 47 | 44 | 46 |
| 37 | – | 292 | 293 | 291 | – | 261 | 262 | 262 | – | 270 | 269 | 270 | – | 228 | 227 | 227 |
| 38 | + | 396 | 395 | 398 | + | 411 | 411 | 411 | + | 382 | 383 | 382 | + | 399 | 398 | 398 |
| 39 | + | 71 | 73 | 73 | + | 55 | 54 | 54 | + | 77 | 77 | 78 | + | 60 | 59 | 60 |
| 40 | + | 21 | 21 | 21 | + | 32 | 32 | 32 | + | 21 | 20 | 20 | + | 12 | 13 | 13 |
| 41 | – | 259 | 259 | 259 | – | 281 | 282 | 282 | – | 281 | 282 | 282 | – | 264 | 262 | 263 |
| 42 | – | 232 | 233 | 234 | – | 233 | 233 | 233 | – | 227 | 227 | 224 | – | 233 | 231 | 233 |
| 43 | + | 61 | 60 | 61 | + | 53 | 55 | 54 | + | 36 | 36 | 36 | + | 50 | 49 | 48 |
| 44 | – | 2 | 0 | 1 | + | 1 | 1 | 1 | – | 25 | 22 | 24 | – | 2 | 2 | 3 |
| 45 | + | 217 | 216 | 215 | + | 200 | 199 | 201 | + | 196 | 197 | 197 | + | 211 | 210 | 210 |
| 46 | + | 92 | 92 | 90 | + | 127 | 127 | 127 | + | 125 | 124 | 126 | + | 120 | 121 | 119 |
| 47 | – | 9 | 7 | 8 | – | 25 | 27 | 25 | – | 43 | 43 | 42 | – | 45 | 45 | 44 |
| 48 | – | 537 | 537 | 536 | – | 542 | 542 | 544 | – | 550 | 550 | 550 | – | 518 | 520 | 519 |
| 49 | – | 176 | 178 | 177 | – | 185 | 184 | 185 | – | 183 | 183 | 184 | – | 176 | 175 | 175 |
| 50 | + | 69 | 66 | 68 | + | 66 | 63 | 64 | + | 52 | 51 | 52 | + | 60 | 59 | 59 |

# ENKÖPING N.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | + | 20 | 20 | 18 | + | 20 | 19 | 19 | + | 26 | 29 | 28 | + | 15 | 15 | 15 |
| 52 | + | 144 | 147 | 145 | + | 114 | 113 | 113 | + | 124 | 125 | 124 | + | 117 | 117 | 116 |
| 53 | − | 285 | 285 | 282 | − | 237 | 238 | 238 | − | 296 | 292 | 295 | − | 269 | 269 | 269 |
| 54 | + | 52 | 54 | 52 | + | 30 | 29 | 29 | + | 15 | 14 | 15 | + | 56 | 56 | 57 |
| 55 | − | 194 | 193 | 195 | − | 205 | 203 | 204 | − | 184 | 184 | 184 | − | 199 | 199 | 199 |
| 56 | − | 352 | 355 | 355 | − | 349 | 348 | 349 | − | 359 | 358 | 359 | − | 367 | 368 | 368 |
| 57 | + | 244 | 244 | 243 | + | 217 | 217 | 216 | + | 205 | 206 | 206 | + | 231 | 231 | 231 |
| 58 | + | 32 | 33 | 32 | + | 76 | 76 | 75 | + | 67 | 67 | 66 | + | 75 | 77 | 75 |
| 59 | + | 149 | 147 | 149 | + | 115 | 114 | 115 | + | 113 | 112 | 112 | + | 122 | 122 | 123 |
| 60 | − | 245 | 247 | 244 | − | 234 | 235 | 236 | − | 240 | 244 | 243 | − | 247 | 248 | 247 |
| 61 | + | 92 | 90 | 91 | + | 77 | 78 | 78 | + | 45 | 46 | 45 | + | 57 | 59 | 60 |
| 62 | − | 319 | 320 | 319 | − | 308 | 307 | 308 | − | 287 | 286 | 287 | − | 277 | 278 | 279 |
| 63 | + | 72 | 72 | 73 | + | 70 | 68 | 71 | + | 66 | 64 | 65 | + | 68 | 68 | 67 |
| 64 | − | 122 | 121 | 125 | − | 120 | 119 | 120 | − | 144 | 142 | 144 | − | 122 | 123 | 122 |
| 65 | + | 93 | 92 | 92 | + | 77 | 76 | 75 | + | 98 | 98 | 97 | + | 78 | 79 | 79 |
| 66 | − | 153 | 155 | 153 | − | 114 | 114 | 115 | − | 130 | 131 | 130 | − | 133 | 134 | 134 |
| 67 | − | 56 | 55 | 57 | − | 124 | 125 | 127 | − | 142 | 140 | 141 | − | 103 | 106 | 106 |
| 68 | − | 302 | 302 | 300 | − | 294 | 291 | 292 | − | 306 | 308 | 308 | − | 284 | 285 | 285 |
| 69 | + | 149 | 149 | 149 | + | 168 | 169 | 169 | + | 171 | 173 | 174 | + | 154 | 154 | 153 |
| 70 | + | 134 | 134 | 133 | + | 149 | 148 | 149 | + | 142 | 141 | 142 | + | 157 | 159 | 158 |
| 71 | + | 285 | 283 | 284 | + | 239 | 239 | 241 | + | 229 | 228 | 229 | + | 241 | 241 | 241 |
| 72 | − | 102 | 101 | 102 | − | 78 | 79 | 78 | − | 85 | 85 | 85 | − | 106 | 106 | 106 |
| 73 | + | 39 | 40 | 40 | + | 27 | 28 | 29 | + | 40 | 41 | 40 | + | 63 | 63 | 62 |
| 74 | − | 51 | 51 | 51 | − | 55 | 55 | 55 | − | 64 | 62 | 62 | − | 55 | 55 | 57 |
| 75 | − | 123 | 125 | 124 | − | 130 | 135 | 136 | − | 156 | 153 | 152 | − | 155 | 154 | 153 |
| 76 | − | 21 | 20 | 21 | − | 23 | 22 | 22 | − | 34 | 36 | 35 | − | 14 | 13 | 14 |
| 77 | + | 159 | 159 | 160 | + | 189 | 189 | 189 | + | 181 | 181 | 182 | + | 242 | 241 | 242 |
| 78 | − | 105 | 106 | 104 | − | 74 | 74 | 73 | − | 79 | 79 | 78 | − | 120 | 119 | 118 |
| 79 | + | 139 | 140 | 140 | + | 43 | 42 | 42 | + | 57 | 54 | 55 | − | 30 | 30 | 29 |
| 80 | + | 30 | 30 | 31 | + | 60 | 60 | 60 | + | 33 | 34 | 33 | + | 131 | 132 | 131 |
| 81 | + | 215 | 218 | 216 | + | 187 | 187 | 186 | + | 185 | 185 | 185 | + | 178 | 178 | 179 |
| 82 | − | 219 | 219 | 219 | − | 189 | 189 | 188 | − | 193 | 191 | 193 | − | 171 | 173 | 172 |
| 83 | − | 95 | 97 | 96 | − | 115 | 114 | 115 | − | 123 | 123 | 123 | − | 116 | 116 | 115 |
| 84 | + | 182 | 183 | 182 | + | 167 | 167 | 168 | + | 158 | 157 | 178 | + | 190 | 192 | 191 |
| 85 | − | 372 | 372 | 370 | − | 340 | 340 | 341 | − | 325 | 324 | 322 | − | 364 | 364 | 364 |
| 86 | + | 56 | 56 | 56 | + | 25 | 24 | 25 | + | 21 | 21 | 22 | + | 28 | 30 | 29 |
| 87 | − | 10 | 10 | 10 | + | 10 | 9 | 9 | − | 28 | 26 | 27 | + | 2 | 3 | 3 |
| 88 | + | 41 | 42 | 41 | + | 46 | 46 | 47 | + | 45 | 43 | 42 | + | 44 | 44 | 46 |
| 89 | + | 166 | 165 | 165 | + | 127 | 127 | 128 | + | 129 | 130 | 129 | + | 136 | 136 | 136 |
| 90 | − | 106 | 104 | 106 | − | 80 | 80 | 81 | − | 100 | 100 | 101 | − | 85 | 86 | 85 |
| 91 | + | 165 | 164 | 163 | + | 170 | 167 | 168 | + | 169 | 170 | 170 | + | 174 | 171 | 173 |
| 92 | + | 160 | 159 | 160 | + | 169 | 168 | 168 | + | 145 | 145 | 146 | + | 143 | 141 | 143 |
| 93 | + | 9 | 8 | 10 | − | 13 | 14 | 14 | − | 2 | 1 | 2 | + | 12 | 12 | 11 |
| 94 | + | 76 | 78 | 77 | + | 75 | 76 | 76 | + | 70 | 70 | 70 | + | 72 | 73 | 72 |
| 95 | + | 49 | 49 | 50 | + | 56 | 55 | 56 | + | 36 | 39 | 37 | + | 58 | 58 | 56 |
| 96 | − | 202 | 202 | 203 | | 238 | 236 | 236 | − | 198 | 199 | 197 | − | 233 | 233 | 230 |
| 97 | + | 120 | 120 | 121 | + | 141 | 143 | 141 | + | 103 | 102 | 105 | + | 142 | 142 | 142 |
| 98 | + | 49 | 47 | 46 | + | 32 | 31 | 32 | + | 38 | 37 | 38 | + | 30 | 30 | 31 |
| 99 | − | 86 | 84 | 85 | − | 92 | 92 | 92 | − | 111 | 112 | 111 | − | 87 | 89 | 88 |
| 100 | − | 128 | 129 | 128 | − | 118 | 116 | 117 | − | 130 | 129 | 130 | − | 125 | 124 | 125 |
| 101 | − | 350 | 350 | 351 | − | 316 | 317 | 317 | − | 319 | 318 | 319 | − | 307 | 309 | 308 |
| 102 | + | 246 | 245 | 246 | + | 214 | 213 | 215 | + | 213 | 213 | 211 | + | 215 | 217 | 215 |
| 103 | + | 73 | 75 | 73 | + | 47 | 47 | 47 | + | 67 | 69 | 67 | + | 50 | 50 | 49 |
| 104 | − | 189 | 188 | 191 | − | 181 | 182 | 180 | − | 203 | 202 | 201 | − | 186 | 186 | 185 |
| 105 | − | 32 | 31 | 32 | + | 6 | 6 | 6 | − | 30 | 29 | 29 | − | 6 | 5 | 6 |
| 106 | − | 345 | 343 | 344 | − | 370 | 369 | 370 | − | 361 | 361 | 362 | − | 359 | 358 | 358 |
| 107 | − | 171 | 172 | 173 | − | 182 | 180 | 180 | − | 188 | 187 | 188 | − | 177 | 178 | 178 |
| 108 | + | 76 | 78 | 76 | + | 102 | 102 | 102 | + | 94 | 94 | 92 | + | 96 | 95 | 96 |
| 109 | − | 169 | 168 | 169 | − | 193 | 193 | 194 | − | 203 | 203 | 201 | − | 188 | 187 | 188 |
| 110 | + | 200 | 200 | 199 | + | 201 | 201 | 200 | + | 195 | 193 | 193 | + | 207 | 205 | 205 |

# ENKÖPING N.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | + | 119 | 119 | 118 | + | 103 | 103 | 104 | + | 145 | 146 | 145 | + | 108 | 108 | 107 |
| 112 | − | 405 | 407 | 405 | − | 402 | 401 | 402 | − | 432 | 434 | 434 | − | 395 | 393 | 394 |
| 113 | + | 155 | 156 | 158 | + | 152 | 152 | 152 | + | 160 | 161 | 162 | + | 143 | 143 | 142 |
| 114 | + | 9 | 9 | 8 | + | 7 | 9 | 8 | − | 19 | 16 | 18 | + | 4 | 4 | 3 |
| 115 | + | 49 | 46 | 49 | + | 48 | 47 | 48 | + | 40 | 40 | 40 | + | 53 | 54 | 54 |
| 116 | − | 115 | 118 | 118 | − | 113 | 115 | 116 | − | 156 | 155 | 156 | − | 132 | 133 | 133 |
| 117 | + | 78 | 80 | 80 | + | 78 | 78 | 77 | + | 97 | 96 | 98 | + | 94 | 91 | 94 |
| 118 | + | 123 | 122 | 123 | + | 117 | 116 | 115 | + | 100 | 101 | 99 | + | 97 | 97 | 98 |
| 119 | − | 120 | 122 | 121 | − | 115 | 116 | 116 | − | 119 | 119 | 121 | − | 99 | 99 | 99 |
| 120 | + | 175 | 173 | 175 | + | 184 | 183 | 184 | + | 160 | 160 | 158 | + | 184 | 185 | 184 |
| 121 | + | 110 | 110 | 111 | + | 56 | 56 | 58 | + | 78 | 76 | 76 | + | 57 | 57 | 57 |
| 122 | − | 311 | 313 | 312 | − | 282 | 284 | 284 | − | 303 | 305 | 303 | − | 277 | 278 | 278 |
| 123 | + | 180 | 178 | 179 | + | 181 | 181 | 181 | + | 193 | 193 | 193 | + | 192 | 191 | 192 |
| 124 | − | 99 | 97 | 99 | − | 47 | 47 | 47 | − | 69 | 66 | 67 | − | 116 | 117 | 115 |
| 125 | + | 89 | 88 | 89 | + | 41 | 41 | 42 | − | 34 | 33 | 35 | + | 84 | 84 | 84 |
| 126 | − | 262 | 265 | 263 | − | 279 | 279 | 278 | − | 289 | 287 | 287 | − | 268 | 267 | 268 |
| 127 | + | 94 | 93 | 94 | + | 91 | 92 | 91 | + | 89 | 87 | 90 | + | 77 | 76 | 78 |
| 128 | + | 138 | 137 | 136 | + | 129 | 129 | 128 | + | 153 | 155 | 155 | + | 152 | 151 | 151 |
| 129 | − | 50 | 49 | 49 | − | 24 | 25 | 25 | − | 89 | 89 | 87 | − | 47 | 48 | 48 |
| 130 | − | 193 | 192 | 197 | − | 217 | 218 | 216 | − | 199 | 200 | 199 | − | 191 | 191 | 189 |
| 131 | − | 221 | 221 | 222 | − | 234 | 234 | 234 | − | 242 | 241 | 241 | − | 238 | 239 | 238 |
| 132 | − | 106 | 104 | 104 | − | 73 | 73 | 72 | − | 83 | 82 | 86 | − | 78 | 77 | 76 |
| 133 | + | 375 | 375 | 373 | + | 351 | 351 | 350 | + | 320 | 321 | 322 | + | 336 | 337 | 336 |
| 134 | + | 298 | 298 | 296 | + | 396 | 397 | 395 | + | 379 | 379 | 379 | + | 361 | 359 | 361 |
| 135 | + | 385 | 385 | 386 | + | 301 | 302 | 301 | + | 330 | 330 | 331 | + | 334 | 334 | 333 |
| 136 | + | 329 | 329 | 329 | + | 289 | 290 | 290 | + | 279 | 280 | 280 | + | 314 | 312 | 313 |
| 137 | − | 225 | 226 | 226 | − | 214 | 216 | 215 | − | 226 | 223 | 226 | − | 227 | 227 | 227 |
| 138 | − | 209 | 210 | 210 | − | 171 | 170 | 169 | − | 189 | 189 | 188 | − | 182 | 182 | 182 |
| 139 | − | 6 | 8 | 8 | − | 51 | 52 | 51 | − | 56 | 57 | 55 | − | 39 | 41 | 40 |
| 140 | − | 164 | 167 | 165 | − | 158 | 157 | 157 | − | 171 | 172 | 170 | − | 164 | 165 | 166 |
| 141 | − | 88 | 87 | 88 | − | 70 | 69 | 70 | − | 54 | 55 | 53 | − | 51 | 53 | 54 |
| 142 | + | 114 | 113 | 113 | + | 75 | 74 | 76 | + | 66 | 64 | 66 | + | 79 | 79 | 79 |
| 143 | + | 189 | 186 | 188 | + | 186 | 186 | 187 | + | 159 | 160 | 159 | + | 184 | 183 | 182 |
| 144 | − | 93 | 92 | 92 | − | 120 | 119 | 120 | − | 88 | 88 | 88 | − | 96 | 96 | 96 |
| 145 | − | 15 | 16 | 16 | + | 77 | 75 | 75 | + | 40 | 39 | 39 | + | 26 | 25 | 27 |
| 146 | + | 111 | 112 | 110 | + | 31 | 32 | 31 | + | 28 | 28 | 29 | + | 58 | 58 | 58 |
| 147 | + | 94 | 94 | 92 | + | 97 | 97 | 97 | + | 92 | 93 | 93 | + | 81 | 81 | 80 |
| 148 | + | 16 | 17 | 17 | + | 49 | 49 | 50 | + | 39 | 39 | 40 | + | 66 | 63 | 64 |
| 149 | + | 349 | 349 | 349 | + | 295 | 296 | 295 | + | 284 | 283 | 283 | + | 293 | 294 | 293 |
| 150 | − | 86 | 85 | 87 | − | 71 | 72 | 72 | − | 95 | 97 | 98 | − | 89 | 89 | 89 |
| 151 | + | 63 | 64 | 62 | + | 58 | 58 | 56 | + | 56 | 56 | 55 | + | 59 | 59 | 58 |
| 152 | + | 4 | 4 | 5 | − | 28 | 29 | 28 | − | 21 | 21 | 23 | − | 10 | 10 | 9 |
| 153 | + | 38 | 36 | 36 | + | 54 | 56 | 55 | + | 44 | 44 | 43 | + | 49 | 49 | 48 |
| 154 | − | 12 | 10 | 10 | + | 10 | 10 | 10 | − | 14 | 14 | 12 | − | 7 | 8 | 8 |
| 155 | − | 136 | 136 | 136 | − | 132 | 131 | 133 | − | 115 | 115 | 115 | − | 115 | 116 | 116 |
| 156 | + | 158 | 156 | 156 | + | 124 | 125 | 124 | + | 115 | 113 | 113 | + | 132 | 131 | 130 |
| 157 | − | 287 | 286 | 287 | − | 288 | 289 | 289 | − | 304 | 304 | 303 | − | 301 | 301 | 300 |
| 158 | + | 279 | 277 | 278 | + | 307 | 306 | 305 | + | 278 | 277 | 278 | + | 290 | 290 | 289 |
| 159 | − | 206 | 206 | 206 | − | 222 | 223 | 222 | − | 165 | 165 | 165 | − | 197 | 198 | 198 |
| 160 | − | 70 | 70 | 70 | − | 60 | 61 | 61 | − | 123 | 122 | 125 | − | 71 | 70 | 71 |
| 161 | + | 144 | 141 | 143 | + | 144 | 142 | 143 | + | 131 | 131 | 131 | + | 155 | 155 | 157 |
| 162 | − | 148 | 147 | 148 | − | 192 | 194 | 193 | − | 163 | 164 | 164 | − | 167 | 168 | 168 |
| 163 | + | 203 | 203 | 203 | + | 216 | 216 | 216 | + | 196 | 197 | 196 | + | 196 | 197 | 196 |
| 164 | + | 210 | 207 | 209 | + | 206 | 207 | 206 | + | 193 | 195 | 196 | + | 198 | 200 | 199 |
| 165 | + | 194 | 196 | 194 | + | 212 | 213 | 213 | + | 195 | 194 | 197 | + | 222 | 224 | 223 |
| 166 | − | 99 | 98 | 98 | − | 102 | 102 | 103 | − | 105 | 106 | 103 | − | 124 | 125 | 125 |
| 167 | − | 149 | 149 | 150 | − | 156 | 156 | 156 | − | 177 | 178 | 176 | − | 141 | 141 | 142 |
| 168 | − | 22 | 23 | 24 | − | 55 | 54 | 56 | − | 43 | 44 | 46 | − | 41 | 41 | 42 |
| 169 | + | 11 | 10 | 10 | + | 125 | 123 | 124 | + | 121 | 121 | 121 | + | 113 | 112 | 112 |
| 170 | − | 5 | 4 | 5 | − | 90 | 90 | 89 | − | 115 | 112 | 112 | − | 111 | 109 | 110 |

## ENKÖPING N.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | − | 280 | 278 | 280 | − | 317 | 316 | 318 | − | 328 | 329 | 330 | − | 298 | 297 | 298 |
| 172 | − | 353 | 354 | 356 | − | 350 | 350 | 350 | − | 356 | 355 | 353 | − | 366 | 367 | 367 |
| 173 | + | 111 | 113 | 112 | + | 125 | 128 | 127 | + | 130 | 131 | 131 | + | 133 | 132 | 132 |
| 174 | − | 148 | 147 | 147 | − | 166 | 165 | 166 | − | 175 | 177 | 175 | − | 158 | 161 | 159 |
| 175 | + | 249 | 249 | 250 | + | 258 | 255 | 256 | + | 255 | 258 | 257 | + | 255 | 256 | 256 |
| 176 | + | 141 | 140 | 141 | + | 125 | 125 | 125 | + | 115 | 115 | 116 | + | 128 | 126 | 125 |
| 177 | − | 315 | 315 | 315 | − | 306 | 306 | 303 | − | 305 | 307 | 306 | − | 302 | 302 | 301 |
| 178 | + | 73 | 72 | 74 | + | 57 | 56 | 54 | + | 5 | 6 | 4 | + | 24 | 24 | 25 |
| 179 | + | 110 | 109 | 110 | + | 109 | 110 | 110 | + | 150 | 152 | 152 | + | 154 | 155 | 154 |
| 180 | + | 200 | 200 | 200 | + | 225 | 228 | 228 | + | 185 | 182 | 183 | + | 194 | 193 | 193 |
| 181 | + | 193 | 197 | 196 | + | 181 | 182 | 182 | + | 205 | 203 | 205 | + | 153 | 152 | 153 |
| 182 | − | 118 | 119 | 118 | − | 132 | 134 | 134 | − | 149 | 149 | 149 | − | 83 | 83 | 84 |
| 183 | + | 27 | 27 | 27 | + | 32 | 34 | 35 | + | 28 | 28 | 25 | + | 27 | 28 | 29 |
| 184 | + | 33 | 35 | 34 | + | 15 | 15 | 15 | + | 14 | 12 | 12 | + | 29 | 28 | 29 |
| 185 | + | 179 | 177 | 176 | + | 170 | 172 | 172 | + | 163 | 163 | 163 | + | 175 | 175 | 173 |
| 186 | + | 3 | 2 | 1 | + | 12 | 13 | 13 | + | 8 | 8 | 7 | − | 3 | 3 | 3 |
| 187 | + | 32 | 31 | 31 | + | 3 | 4 | 3 | − | 13 | 14 | 16 | + | 18 | 19 | 18 |
| 188 | − | 42 | 43 | 42 | -- | 3 | 3 | 3 | − | 23 | 25 | 24 | − | 27 | 26 | 27 |
| 189 | + | 183 | 183 | 183 | + | 162 | 165 | 166 | + | 181 | 181 | 181 | + | 187 | 187 | 187 |
| 190 | -- | 12 | 15 | 12 | − | 30 | 32 | 30 | − | 38 | 37 | 38 | − | 28 | 27 | 26 |
| 191 | − | 129 | 128 | 128 | − | 132 | 130 | 130 | − | 139 | 139 | 139 | − | 133 | 132 | 132 |
| 192 | + | 167 | 168 | 168 | + | 218 | 218 | 217 | + | 189 | 190 | 189 | + | 201 | 201 | 202 |
| 193 | − | 153 | 152 | 152 | − | 192 | 193 | 193 | − | 176 | 175 | 174 | − | 198 | 198 | 197 |
| 194 | + | 261 | 261 | 260 | + | 243 | 245 | 245 | + | 231 | 230 | 231 | + | 262 | 263 | 263 |
| 195 | + | 91 | 91 | 90 | + | 96 | 98 | 96 | + | 82 | 85 | 83 | + | 85 | 84 | 84 |
| 196 | + | 219 | 220 | 220 | + | 228 | 229 | 228 | + | 206 | 204 | 206 | + | 222 | 222 | 221 |
| 197 | − | 170 | 170 | 170 | − | 179 | 180 | 180 | − | 161 | 162 | 162 | − | 159 | 158 | 160 |
| 198 | − | 46 | 46 | 45 | − | 41 | 41 | 42 | − | 38 | 35 | 37 | − | 51 | 52 | 51 |
| 199 | − | 287 | 287 | 286 | − | 291 | 292 | 292 | − | 290 | 290 | 290 | − | 295 | 296 | 296 |
| 200 | + | 240 | 240 | 240 | + | 228 | 227 | 227 | + | 194 | 197 | 194 | + | 232 | 231 | 232 |
| 201 | + | 205 | 205 | 203 | + | 206 | 208 | 206 | + | 185 | 183 | 184 | + | 216 | 217 | 217 |
| 202 | − | 100 | 102 | 101 | − | 79 | 78 | 79 | − | 111 | 112 | 112 | − | 119 | 120 | 119 |
| 203 | + | 247 | 247 | 248 | + | 228 | 229 | 229 | + | 273 | 272 | — | + | 252 | 252 | 251 |
| 204 | − | 48 | 48 | 46 | − | 72 | 72 | 72 | − | 95 | 93 | 95 | − | 54 | 56 | 57 |
| 205 | + | 165 | 162 | 165 | + | 160 | 161 | 159 | + | 157 | 157 | 158 | + | 166 | 166 | 165 |
| 206 | − | 290 | 292 | 293 | − | 268 | 269 | 266 | − | 278 | 276 | 276 | − | 285 | 285 | 285 |
| 207 | + | 13 | 12 | 13 | + | 13 | 13 | 13 | − | 7 | 6 | 6 | + | 6 | 5 | 6 |
| 208 | − | 140 | 139 | 139 | − | 168 | 167 | 167 | − | 160 | 161 | 160 | − | 141 | 142 | 142 |
| 209 | − | 126 | 125 | 127 | − | 98 | 98 | 98 | − | 134 | 136 | 137 | − | 132 | 132 | 133 |
| 210 | + | 124 | 125 | 127 | + | 106 | 108 | 107 | + | 128 | 126 | 127 | + | 121 | 120 | 120 |
| 211 | + | 281 | 281 | 280 | + | 264 | 265 | 266 | + | 262 | 262 | 263 | + | 278 | 277 | 277 |
| 212 | − | 63 | 61 | 61 | − | 46 | 47 | 48 | − | 53 | 56 | 55 | − | 43 | 44 | 44 |
| 213 | + | 127 | 128 | 128 | + | 118 | 119 | 118 | + | 101 | 102 | 104 | + | 110 | 109 | 109 |
| 214 | − | 220 | 219 | 219 | − | 237 | 236 | 236 | − | 232 | 231 | 232 | − | 226 | 225 | 225 |

# ENKÖPING S.

| N:o | **673.** SN. 18.VII. 9h0m–10h0m $t_1$:+20°.0, $t_2$:+23°.0. 215—238: +J−P 239—244: +J−P 245—269: +J−P | | | **675.** SN. 18.VII. 11h0m–12h30m. $t_1$:+22°.0, $t_2$:+23°.0. 215—238: +S−B 239—244: +S−B 245—269: +S−B | | | **683.** SN. 19.VII. 11h0m–12h30m. $t_1$:+24°.0, $t_2$:+24°.5. 215—238: +P−J 239—244: +P−J 245—269: +P−J | | | **674.** SN. 19.VII. 9h0m–11h0m. $t_1$:+23°.0, $t_2$:+24°.0. 215—238: +B−S 239—244: +B−S 245—269: +B−S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 215 | − | 245 | 248 | 247 | − | 247 | 247 | 247 | − | 251 | 250 | 252 | − | 246 | 246 | 245 |
| 216 | + | 364 | 364 | 367 | + | 362 | 363 | 364 | + | 355 | 355 | 355 | + | 361 | 362 | 361 |
| 217 | − | 512 | 511 | 512 | − | 514 | 513 | 515 | − | 517 | 518 | 516 | − | 511 | 511 | 512 |
| 218 | + | 42 | 42 | 43 | + | 40 | 40 | 40 | + | 32 | 33 | 33 | + | 40 | 41 | 40 |
| 219 | + | 259 | 257 | 259 | + | 252 | 251 | 251 | + | 248 | 247 | 248 | + | 252 | 253 | 255 |
| 220 | − | 26 | 27 | 25 | − | 23 | 23 | 22 | − | 34 | 32 | 36 | − | 27 | 26 | 27 |
| 221 | + | 593 | 596 | 596 | + | 594 | 595 | 595 | + | 587 | 587 | 588 | + | 594 | 596 | 595 |
| 222 | − | 671 | 671 | 672 | − | 674 | 673 | 672 | − | 686 | 684 | 686 | − | 676 | 675 | 676 |
| 223 | − | 185 | 187 | 183 | − | 188 | 187 | 187 | − | 161 | 162 | 163 | − | 169 | 169 | 169 |
| 224 | − | 691 | 690 | 692 | − | 693 | 694 | 694 | − | 730 | 730 | 730 | − | 709 | 709 | 708 |
| 225 | − | 130 | 130 | 129 | − | 130 | 131 | 131 | − | 126 | 126 | 125 | − | 115 | 116 | 116 |
| 226 | + | 153 | 151 | 154 | + | 151 | 152 | 152 | + | 146 | 144 | 145 | + | 136 | 135 | 136 |
| 227 | + | 9 | 9 | 9 | + | 4 | 5 | 5 | − | 10 | 12 | 11 | + | 6 | 5 | 6 |
| 228 | − | 143 | 145 | 145 | − | 142 | 144 | 143 | − | 153 | 153 | 151 | − | 139 | 138 | 138 |
| 229 | + | 11 | 14 | 13 | + | 12 | 14 | 12 | + | 24 | 23 | 24 | + | 7 | 7 | 7 |
| 230 | − | 171 | 172 | 170 | − | 206 | 206 | 206 | − | 186 | 185 | 187 | − | 163 | 164 | 163 |
| 231 | − | 178 | 177 | 178 | − | 144 | 146 | 145 | − | 181 | 182 | 183 | − | 199 | 200 | 199 |
| 232 | + | 79 | 79 | 79 | − | 3 | 1 | 2 | − | 34 | 36 | 36 | − | 3 | 3 | 3 |
| 233 | + | 42 | 44 | 43 | + | 97 | 97 | 97 | + | 99 | 99 | 98 | + | 128 | 128 | 129 |
| 234 | − | 196 | 195 | 194 | − | 174 | 174 | 174 | − | 170 | 170 | 170 | − | 177 | 178 | 178 |
| 235 | − | 8 | 8 | 6 | − | 5 | 5 | 3 | − | 40 | 41 | 41 | − | 10 | 11 | 9 |
| 236 | − | 94 | 95 | 97 | − | 90 | 90 | 90 | − | 78 | 78 | 78 | − | 96 | 96 | 96 |
| 237 | − | 241 | 243 | 243 | − | 258 | 258 | 257 | − | 265 | 265 | 265 | − | 264 | 265 | 264 |
| 238 | − | 351 | 351 | 352 | − | 352 | 353 | 352 | − | 356 | 356 | 356 | − | 351 | 349 | 351 |
| 239 | − | 152 | 152 | 152 | − | 150 | 150 | 150 | − | 160 | 158 | 160 | − | 161 | 161 | 162 |
| 240 | − | 209 | 209 | 208 | − | 205 | 208 | 206 | − | 195 | 196 | 196 | − | 198 | 199 | 201 |
| 241 | + | 16 | 13 | 13 | + | 16 | 15 | 16 | + | 20 | 20 | 18 | + | 21 | 18 | 20 |
| 242 | − | 549 | 550 | 550 | − | 546 | 549 | 549 | − | 547 | 546 | 545 | − | 544 | 545 | 545 |
| 243 | − | 247 | 246 | 246 | − | 243 | 245 | 246 | − | 243 | 243 | 245 | − | 248 | 247 | 247 |
| 244 | − | 150 | 149 | 152 | − | 151 | 152 | 149 | − | 147 | 148 | 150 | − | 148 | 150 | 149 |
| 245 | − | 75 | 72 | 74 | − | 74 | 74 | 76 | − | 95 | 97 | 94 | − | 89 | 90 | 90 |
| 246 | − | 310 | 310 | 309 | − | 312 | 312 | 312 | − | 265 | 263 | 265 | − | 256 | 256 | 256 |
| 247 | + | 132 | 132 | 130 | + | 130 | 130 | 131 | + | 59 | 58 | 59 | + | 65 | 65 | 66 |
| 248 | + | 24 | 25 | 25 | + | 21 | 21 | 21 | + | 24 | 27 | 25 | + | 33 | 32 | 33 |
| 249 | − | 39 | 38 | 37 | − | 38 | 39 | 39 | − | 42 | 42 | 42 | − | 35 | 35 | 34 |
| 250 | + | 103 | 104 | 106 | + | 103 | 103 | 102 | + | 101 | 102 | 101 | + | 108 | 109 | 108 |
| 251 | − | 309 | 310 | 307 | − | 310 | 309 | 309 | − | 290 | 291 | 292 | − | 286 | 286 | 284 |
| 252 | − | 181 | 181 | 185 | − | 183 | 183 | 187 | − | 214 | 217 | 216 | − | 209 | 209 | 207 |
| 253 | − | 76 | 76 | 76 | − | 77 | 75 | 78 | − | 88 | 86 | 87 | − | 79 | 80 | 79 |
| 254 | + | 168 | 165 | 165 | + | 162 | 163 | 161 | + | 130 | 130 | 130 | + | 137 | 136 | 135 |
| 255 | + | 22 | 24 | 24 | + | 22 | 22 | 22 | + | 62 | 62 | 61 | + | 68 | 68 | 70 |
| 256 | + | 348 | 346 | 349 | + | 346 | 346 | 346 | + | 316 | 318 | 315 | + | 322 | 323 | 325 |
| 257 | + | 198 | 194 | 196 | + | 196 | 196 | 196 | + | 214 | 214 | 212 | + | 219 | 221 | 220 |
| 258 | + | 257 | 257 | 256 | + | 252 | 253 | 253 | + | 256 | 255 | 257 | + | 261 | 262 | 261 |
| 259 | + | 330 | 330 | 330 | + | 328 | 328 | 328 | + | 292 | 291 | 292 | + | 298 | 299 | 298 |
| 260 | − | 93 | 92 | 94 | − | 93 | 93 | 92 | − | 319 | 318 | 317 | − | 309 | 311 | 310 |
| 261 | − | 467 | 466 | 465 | − | 470 | 469 | 469 | − | 300 | 300 | 302 | − | 293 | 294 | 294 |
| 262 | − | 240 | 239 | 239 | − | 243 | 244 | 243 | − | 190 | 190 | 190 | − | 182 | 183 | 182 |
| 263 | − | 71 | 73 | 74 | − | 72 | 72 | 73 | − | 124 | 127 | 126 | − | 119 | 120 | 119 |
| 264 | − | 397 | 393 | 398 | − | 397 | 397 | 397 | − | 355 | 355 | 354 | − | 348 | 349 | 348 |
| 265 | − | 122 | 124 | 121 | − | 125 | 125 | 124 | − | 108 | 110 | 109 | − | 103 | 103 | 101 |
| 266 | − | 130 | 129 | 130 | − | 131 | 131 | 130 | − | 156 | 157 | 157 | − | 150 | 150 | 151 |
| 267 | + | 7 | 4 | 3 | + | 2 | 2 | 2 | − | 27 | 25 | 26 | − | 21 | 21 | 20 |
| 268 | − | 52 | 51 | 52 | − | 53 | 53 | 52 | − | 60 | 60 | 59 | − | 50 | 51 | 51 |
| 269 | − | 126 | 129 | 126 | − | 128 | 128 | 128 | − | 137 | 137 | 138 | − | 130 | 129 | 129 |

# ÖLAND.

*1. Section. 29.VII. $11^h15^m$—$17^h0^m$.*

| N:o | **635.** SN. +B —S t: +17°.0. | | | **674.** SN. —S +B t: +19°.0. | | | **637.** SN. —P +J t: +20°.0. | | | **683.** SN. +J —P t: +19°.1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | 275 | 276 275 | — | 266 | 265 266 | — | 272 | 273 274 | — | 275 | 277 276 |
| 2 | + | 45 | 44 45 | + | 55 | 56 57 | + | 49 | 49 49 | + | 50 | 51 51 |
| 3 | — | 151 | 151 150 | — | 141 | 142 140 | — | 149 | 147 147 | — | 149 | 148 150 |
| 4 | — | 85 | 85 87 | — | 76 | 76 76 | — | 85 | 83 84 | — | 82 | 85 82 |
| 5 | + | 187 | 188 187 | + | 198 | 198 198 | + | 190 | 192 191 | + | 189 | 190 190 |
| 6 | + | 178 | 178 178 | + | 188 | 187 189 | + | 180 | 182 181 | + | 179 | 179 178 |
| 7 | — | 385 | 386 385 | — | 376 | 374 374 | — | 382 | 382 384 | — | 383 | 386 384 |
| 8 | — | 47 | 47 47 | — | 39 | 37 38 | — | 44 | 45 43 | — | 43 | 43 46 |
| 9 | + | 85 | 85 85 | + | 95 | 96 95 | + | 88 | 85 86 | + | 87 | 84 86 |
| 10 | — | 180 | 180 180 | — | 168 | 169 169 | — | 178 | 177 176 | — | 179 | 179 178 |
| 11 | + | 336 | 337 337 | + | 344 | 345 346 | + | 339 | 339 339 | + | 339 | 339 338 |
| 12 | + | 29 | 30 29 | + | 41 | 40 41 | + | 36 | 35 35 | + | 33 | 33 33 |
| 13 | — | 41 | 42 41 | — | 31 | 32 33 | — | 39 | 39 38 | — | 41 | 41 40 |
| 14 | — | 45 | 45 45 | — | 35 | 34 35 | — | 42 | 42 43 | — | 46 | 44 45 |
| 15 | — | 156 | 157 155 | — | 145 | 145 145 | — | 152 | 152 154 | — | 152 | 153 151 |
| 16 | + | 269 | 269 269 | + | 278 | 279 278 | + | 273 | 271 271 | + | 272 | 270 271 |
| 17 | — | 77 | 77 77 | — | 66 | 66 67 | — | 71 | 73 73 | — | 73 | 72 73 |
| 18 | — | 437 | 438 439 | — | 427 | 428 428 | — | 433 | 436 435 | — | 434 | 437 435 |
| 19 | + | 3 | 3 3 | + | 13 | 11 13 | + | 5 | 5 6 | + | 5 | 4 3 |
| 20 | + | 146 | 147 146 | + | 158 | 158 158 | + | 150 | 151 151 | + | 150 | 151 151 |
| 21 | — | 180 | 182 181 | — | 172 | 171 171 | — | 180 | 179 180 | — | 181 | 180 181 |
| 22 | + | 276 | 275 276 | + | 286 | 286 285 | + | 280 | 279 279 | + | 279 | 278 280 |
| 23 | + | 193 | 193 193 | + | 203 | 202 202 | + | 193 | 195 196 | + | 193 | 192 191 |
| 24 | + | 96 | 96 98 | + | 106 | 107 108 | + | 100 | 99 99 | + | 99 | 99 100 |
| 25 | + | 65 | 64 64 | + | 45 | 46 45 | + | 48 | 47 48 | + | 48 | 48 48 |
| 25 | + | 33 | 34 35 | + | 76 | 75 75 | + | 61 | 62 62 | + | 58 | 59 57 |

| N:o | **634.** NS. +S —B t: +17°.0. | | | **675.** NS. —B +S t: +18°.0. | | | **636.** NS. —J +P t: +20°.0. | | | **673.** NS. +P —J t: +19°.1. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | 268 | 266 267 | — | 266 | 266 266 | — | 272 | 272 273 | — | 264 | 267 267 |
| 2 | + | 53 | 54 54 | + | 55 | 55 55 | + | 50 | 50 49 | + | 61 | 62 62 |
| 3 | — | 143 | 143 143 | — | 142 | 142 141 | — | 148 | 146 147 | — | 139 | 139 139 |
| 4 | — | 78 | 78 78 | — | 77 | 77 77 | — | 84 | 82 85 | — | 77 | 76 76 |
| 5 | + | 196 | 196 196 | + | 197 | 197 197 | + | 190 | 190 190 | + | 198 | 200 200 |
| 6 | + | 185 | 187 186 | + | 187 | 187 185 | + | 182 | 181 182 | + | 191 | 190 191 |
| 7 | — | 378 | 377 378 | — | 375 | 375 376 | — | 379 | 382 382 | — | 374 | 371 376 |
| 8 | — | 39 | 40 41 | — | 38 | 37 37 | — | 43 | 42 44 | — | 33 | 36 33 |
| 9 | + | 94 | 93 93 | + | 95 | 94 95 | + | 88 | 88 89 | + | 96 | 98 96 |
| 10 | — | 171 | 171 172 | — | 169 | 170 169 | — | 176 | 176 174 | — | 167 | 167 166 |
| 11 | + | 345 | 343 345 | + | 346 | 346 347 | + | 340 | 339 338 | + | 350 | 350 349 |
| 12 | + | 39 | 39 38 | + | 39 | 40 40 | + | 35 | 36 35 | + | 46 | 42 44 |
| 13 | — | 34 | 34 34 | — | 31 | 30 31 | — | 38 | 38 36 | — | 29 | 30 30 |
| 14 | — | 35 | 35 36 | — | 35 | 33 35 | — | 41 | 41 43 | — | 34 | 33 33 |
| 15 | — | 148 | 148 148 | — | 146 | 145 146 | — | 151 | 153 154 | — | 142 | 144 141 |
| 16 | + | 277 | 278 277 | + | 278 | 278 278 | + | 272 | 272 271 | + | 280 | 282 282 |
| 17 | — | 69 | 70 71 | — | 66 | 66 67 | — | 72 | 73 73 | — | 61 | 61 61 |
| 18 | — | 440 | 439 438 | — | 428 | 428 427 | — | 434 | 434 433 | — | 424 | 426 425 |
| 19 | + | 12 | 13 13 | + | 12 | 13 12 | + | 6 | 7 5 | + | 13 | 15 14 |
| 20 | + | 154 | 155 154 | + | 158 | 157 157 | + | 151 | 152 152 | + | 161 | 161 161 |
| 21 | — | 172 | 173 172 | — | 172 | 172 172 | — | 178 | 178 179 | — | 171 | 171 170 |
| 22 | + | 283 | 283 283 | + | 286 | 285 285 | + | 280 | 280 280 | + | 290 | 289 290 |
| 23 | + | 201 | 202 201 | + | 203 | 202 201 | + | 196 | 195 195 | + | 203 | 205 204 |
| 24 | + | 106 | 106 105 | + | 107 | 107 107 | + | 100 | 100 100 | + | 110 | 110 109 |
| 25 | + | 42 | 42 42 | + | 44 | 43 44 | + | 45 | 44 45 | + | 67 | 67 67 |
| 25 | + | 72 | 71 73 | + | 76 | 76 76 | + | 61 | 61 60 | + | 70 | 70 71 |

# ÖLAND.

*2. Section. 30.VII. $11^h50^m$—$17^h15^m$.*

| N:o | **637.** SN. —J +P t: +20°.9. | | | **683.** SN. +P —J t: +20°.8. | | | **635.** SN. +S —B t: +21°.0. | | | **674.** SN. —B +S t: +20°.0 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | — | 98 | 97 | 98 | — | 96 | 96 | 96 | — | 101 | 99 | 101 | — | 91 | 91 | 92 |
| 26 | — | 119 | 117 | 119 | — | 115 | 115 | 116 | — | 121 | 121 | 121 | — | 109 | 110 | 108 |
| 27 | — | 241 | 241 | 240 | — | 243 | 242 | 241 | — | 244 | 246 | 244 | — | 234 | 234 | 234 |
| 28 | + | 6 | 5 | 8 | + | 5 | 5 | 6 | + | 3 | 2 | 3 | + | 14 | 15 | 13 |
| 29 | + | 229 | 229 | 229 | + | 229 | 229 | 228 | + | 226 | 226 | 227 | + | 238 | 236 | 237 |
| 30 | — | 262 | 262 | 263 | — | 263 | 263 | 262 | — | 266 | 266 | 264 | — | 256 | 256 | 255 |
| 31 | — | 101 | 101 | 99 | — | 103 | 102 | 103 | — | 105 | 105 | 105 | — | 94 | 94 | 94 |
| 32 | + | 302 | 303 | 302 | + | 303 | 302 | 303 | + | 300 | 300 | 299 | + | 309 | 309 | 309 |
| 33 | — | 78 | 78 | 76 | — | 78 | 77 | 76 | — | 75 | 77 | 74 | — | 64 | 64 | 64 |
| 34 | + | 107 | 105 | 106 | + | 103 | 105 | 104 | + | 96 | 97 | 96 | + | 105 | 108 | 107 |
| 35 | — | 3 | 2 | 2 | | 0 | 0 | 0 | — | 6 | 5 | 5 | + | 4 | 3 | 4 |
| 36 | — | 175 | 174 | 177 | — | 178 | 178 | 178 | — | 178 | 178 | 179 | — | 169 | 168 | 169 |
| 37 | + | 219 | 220 | 220 | + | 220 | 220 | 219 | + | 217 | 217 | 217 | + | 226 | 227 | 226 |
| 38 | — | 200 | 199 | 199 | — | 201 | 201 | 201 | — | 203 | 203 | 203 | — | 192 | 191 | 193 |
| 39 | + | 78 | 75 | 74 | + | 73 | 75 | 73 | + | 72 | 71 | 72 | + | 82 | 81 | 81 |
| 40 | — | 41 | 42 | 40 | — | 42 | 42 | 43 | — | 45 | 45 | 45 | — | 35 | 34 | 35 |
| 41 | + | 102 | 101 | 101 | + | 102 | 102 | 102 | + | 100 | 100 | 100 | + | 109 | 111 | 111 |
| 42 | + | 70 | 70 | 70 | + | 69 | 70 | 69 | + | 66 | 67 | 67 | + | 77 | 77 | 77 |
| 43 | + | 82 | 81 | 83 | + | 81 | 81 | 81 | + | 77 | 78 | 78 | + | 89 | 88 | 88 |
| 44 | + | 290 | 290 | 289 | + | 290 | 290 | 289 | + | 286 | 287 | 286 | + | 298 | 298 | 298 |
| 45 | — | 174 | 172 | 172 | — | 173 | 172 | 173 | — | 174 | 172 | 175 | — | 163 | 164 | 164 |
| 46 | + | 64 | 64 | 65 | + | 65 | 62 | 64 | + | 60 | 60 | 60 | + | 71 | 69 | 70 |
| 47 | — | 17 | 18 | 18 | — | 16 | 18 | 17 | — | 20 | 21 | 21 | — | 11 | 11 | 10 |
| 48 | + | 38 | 38 | 37 | + | 35 | 36 | 36 | + | 34 | 33 | 33 | + | 45 | 45 | 44 |
| 49 | + | 19 | 20 | 19 | + | 20 | 19 | 18 | + | 15 | 16 | 15 | + | 24 | 25 | 24 |
| 50 | — | 234 | 236 | 234 | — | 232 | 232 | 231 | — | 235 | 235 | 235 | — | 222 | 222 | 222 |

| N:o | **636.** NS. —P +J t: +20°.8. | | | **673.** NS. +J —P t: +20°.5. | | | **634.** NS. +B —S t: +21°.0. | | | **675.** NS. —S +B t: +19°.0. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | — | 95 | 95 | 94 | — | 88 | 88 | 90 | — | 94 | 93 | 92 | — | 88 | 92 | 94 |
| 26 | — | 116 | 116 | 115 | — | 108 | 108 | 108 | — | 112 | 112 | 113 | — | 111 | 111 | 112 |
| 27 | — | 241 | 240 | 239 | — | 233 | 232 | 232 | — | 236 | 237 | 237 | — | 241 | 239 | 239 |
| 28 | + | 6 | 6 | 6 | + | 15 | 13 | 13 | + | 11 | 11 | 10 | + | 11 | 13 | 12 |
| 29 | + | 228 | 228 | 228 | + | 237 | 239 | 238 | + | 235 | 236 | 234 | + | 237 | 238 | 239 |
| 30 | — | 263 | 265 | 263 | — | 252 | 253 | 255 | — | 257 | 258 | 258 | — | 255 | 255 | 256 |
| 31 | — | 101 | 102 | 104 | — | 95 | 93 | 91 | — | 96 | 97 | 97 | — | 95 | 94 | 95 |
| 32 | + | 303 | 302 | 304 | + | 311 | 312 | 310 | + | 307 | 306 | 307 | + | 309 | 308 | 309 |
| 33 | — | 77 | 76 | 78 | — | 64 | 63 | 62 | — | 66 | 65 | 65 | — | 65 | 66 | 65 |
| 34 | + | 104 | 106 | 106 | + | 113 | 115 | 112 | + | 104 | 103 | 104 | + | 106 | 107 | 105 |
| 35 | — | 1 | 0 | 1 | + | 5 | 6 | 6 | + | 5 | 3 | 2 | + | 4 | 3 | 6 |
| 36 | — | 176 | 177 | 176 | — | 167 | 167 | 165 | — | 170 | 171 | 170 | — | 168 | 167 | 167 |
| 37 | + | 220 | 221 | 220 | + | 228 | 228 | 228 | + | 223 | 224 | 224 | + | 227 | 226 | 227 |
| 38 | — | 200 | 200 | 200 | — | 191 | 192 | 190 | — | 193 | 193 | 192 | — | 192 | 192 | 193 |
| 39 | + | 76 | 77 | 77 | + | 82 | 84 | 83 | + | 80 | 80 | 79 | + | 81 | 81 | 81 |
| 40 | — | 41 | 41 | 40 | — | 32 | 34 | 31 | — | 38 | 38 | 36 | — | 37 | 37 | 37 |
| 41 | + | 101 | 101 | 101 | + | 110 | 111 | 112 | + | 109 | 109 | 110 | + | 111 | 111 | 113 |
| 42 | + | 70 | 70 | 70 | + | 80 | 79 | 78 | + | 75 | 75 | 75 | + | 77 | 76 | 77 |
| 43 | + | 82 | 82 | 83 | + | 90 | 90 | 90 | + | 85 | 86 | 86 | + | 87 | 86 | 87 |
| 44 | + | 289 | 289 | 289 | + | 298 | 299 | 299 | + | 295 | 297 | 295 | + | 297 | 297 | 297 |
| 45 | — | 172 | 172 | 172 | — | 162 | 164 | 163 | — | 167 | 166 | 165 | — | 163 | 163 | 164 |
| 46 | + | 65 | 65 | 65 | + | 73 | 71 | 72 | + | 68 | 69 | 68 | + | 70 | 70 | 70 |
| 47 | — | 19 | 17 | 18 | — | 9 | 10 | 10 | — | 11 | 12 | 12 | — | 10 | 11 | 11 |
| 48 | + | 38 | 37 | 38 | + | 45 | 45 | 45 | + | 43 | 43 | 43 | + | 43 | 43 | 43 |
| 49 | + | 19 | 19 | 19 | + | 29 | 29 | 28 | + | 25 | 24 | 24 | + | 25 | 24 | 24 |
| 50 | — | 236 | 233 | 233 | — | 222 | 221 | 223 | — | 226 | 226 | 223 | — | 223 | 220 | 223 |

# ÖLAND.

*3. Section. 31.VII. $12^h45^m$—$17^h15^m$.*

| N:o | **683.** SN. +J —P t: +19°0. | | | | **637.** SN. —P +J t: +19°0. | | | | **674.** SN. —S +B t: +20°2. | | | | **635.** SN. +B —S t: +19°4. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | + | 51 | 52 | 53 | + | 63 | 65 | 64 | + | 58 | 57 | 59 | + | 54 | 56 | 54 |
| 52 | + | 5 | 6 | 6 | + | 15 | 13 | 14 | + | 5 | 7 | 7 | + | 6 | 5 | 7 |
| 53 | — | 202 | 202 | 202 | — | 191 | 192 | 191 | — | 199 | 198 | 199 | — | 199 | 200 | 199 |
| 54 | + | 54 | 55 | 55 | + | 66 | 66 | 65 | + | 56 | 58 | 58 | + | 56 | 57 | 58 |
| 55 | — | 184 | 182 | 182 | — | 173 | 172 | 172 | — | 180 | 179 | 179 | — | 181 | 181 | 181 |
| 56 | + | 347 | 347 | 347 | + | 356 | 357 | 356 | + | 351 | 352 | 351 | + | 351 | 350 | 351 |
| 57 | — | 317 | 316 | 317 | — | 306 | 305 | 305 | — | 316 | 316 | 316 | — | 313 | 317 | 315 |
| 58 | + | 170 | 171 | 172 | + | 181 | 180 | 179 | + | 172 | 172 | 173 | + | 172 | 171 | 172 |
| 59 | + | 92 | 92 | 92 | + | 104 | 104 | 103 | + | 97 | 96 | 97 | + | 97 | 97 | 97 |
| 60 | — | 83 | 83 | 82 | — | 75 | 73 | 73 | — | 81 | 81 | 81 | — | 83 | 83 | 81 |
| 61 | + | 32 | 33 | 32 | + | 42 | 42 | 42 | + | 38 | 36 | 37 | + | 35 | 35 | 36 |
| 62 | — | 202 | 200 | 200 | — | 191 | 192 | 192 | — | 199 | 198 | 199 | — | 200 | 199 | 198 |
| 63 | + | 143 | 144 | 144 | + | 155 | 154 | 155 | + | 146 | 148 | 145 | + | 147 | 147 | 145 |
| 64 | — | 187 | 185 | 188 | — | 176 | 178 | 177 | — | 184 | 184 | 187 | — | 186 | 184 | 185 |
| 65 | — | 66 | 66 | 66 | — | 57 | 56 | 55 | — | 64 | 64 | 62 | — | 64 | 64 | 63 |
| 66 | + | 37 | 37 | 38 | + | 46 | 47 | 47 | + | 39 | 40 | 40 | + | 39 | 40 | 39 |
| 67 | + | 88 | 87 | 89 | + | 99 | 98 | 99 | + | 92 | 93 | 92 | + | 90 | 91 | 90 |
| 68 | + | 8 | 8 | 8 | + | 19 | 20 | 19 | + | 11 | 11 | 11 | + | 11 | 11 | 11 |
| 69 | — | 158 | 158 | 159 | — | 148 | 148 | 147 | — | 157 | 155 | 153 | — | 156 | 154 | 156 |
| 70 | + | 10 | 10 | 10 | + | 19 | 19 | 19 | + | 11 | 12 | 12 | + | 10 | 11 | 11 |
| 71 | + | 111 | 112 | 111 | + | 121 | 123 | 122 | + | 117 | 115 | 116 | + | 113 | 115 | 113 |
| 72 | — | 26 | 27 | 28 | — | 18 | 18 | 20 | — | 24 | 25 | 25 | — | 26 | 24 | 27 |
| 73 | + | 274 | 273 | 274 | + | 284 | 283 | 282 | + | 277 | 277 | 276 | + | 273 | 275 | 276 |
| 74 | — | 108 | 108 | 108 | — | 96 | 98 | 97 | — | 104 | 103 | 106 | — | 104 | 105 | 104 |
| 75 | + | 24 | 26 | 25 | + | 37 | 36 | 35 | + | 29 | 28 | 29 | + | 28 | 29 | 28 |

| N:o | **634.** NS. +S —B t: +19°.0 | | | | **675.** NS. —B +S t: +20°5. | | | | **636.** NS. —J +P t: +19°4. | | | | **673.** NS. +P —J t: +19°5. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | + | 62 | 62 | 61 | + | 63 | 63 | 64 | + | 55 | 58 | 57 | + | 65 | 66 | 65 |
| 52 | + | 12 | 12 | 12 | + | 14 | 13 | 13 | + | 8 | 7 | 5 | + | 14 | 13 | 14 |
| 53 | — | 193 | 193 | 194 | — | 193 | 193 | 192 | — | 197 | 199 | 198 | — | 189 | 189 | 189 |
| 54 | + | 64 | 63 | 62 | + | 62 | 65 | 65 | + | 59 | 58 | 58 | + | 68 | 68 | 66 |
| 55 | — | 174 | 175 | 174 | — | 173 | 175 | 174 | — | 180 | 180 | 179 | — | 173 | 171 | 172 |
| 56 | + | 355 | 356 | 357 | + | 358 | 358 | 356 | + | 352 | 351 | 352 | + | 362 | 362 | 362 |
| 57 | — | 307 | 309 | 308 | — | 307 | 307 | 307 | — | 314 | 315 | 312 | — | 306 | 306 | 306 |
| 58 | + | 180 | 178 | 179 | + | 180 | 180 | 178 | + | 174 | 172 | 173 | + | 182 | 181 | 181 |
| 59 | + | 103 | 102 | 103 | + | 104 | 103 | 103 | + | 99 | 99 | 100 | + | 107 | 106 | 108 |
| 60 | — | 75 | 74 | 76 | — | 76 | 74 | 75 | — | 82 | 82 | 81 | — | 74 | 74 | 73 |
| 61 | + | 41 | 40 | 40 | + | 44 | 42 | 43 | + | 39 | 35 | 37 | + | 46 | 47 | 47 |
| 62 | — | 194 | 193 | 193 | — | 192 | 192 | 192 | — | 197 | 198 | 198 | — | 188 | 188 | 188 |
| 63 | + | 152 | 151 | 151 | + | 154 | 154 | 155 | + | 149 | 148 | 149 | + | 157 | 157 | 156 |
| 64 | — | 179 | 179 | 179 | — | 177 | 177 | 177 | — | 186 | 184 | 185 | — | 176 | 178 | 175 |
| 65 | — | 59 | 58 | 59 | — | 57 | 57 | 56 | — | 61 | 62 | 62 | — | 56 | 53 | 55 |
| 66 | + | 45 | 44 | 45 | + | 46 | 49 | 47 | + | 40 | 41 | 40 | + | 49 | 49 | 48 |
| 67 | + | 97 | 98 | 96 | + | 99 | 97 | 97 | + | 93 | 92 | 91 | + | 102 | 100 | 102 |
| 68 | + | 15 | 16 | 16 | + | 18 | 17 | 17 | + | 11 | 13 | 12 | + | 21 | 21 | 21 |
| 69 | — | 149 | 149 | 150 | — | 146 | 148 | 147 | — | 155 | 153 | 153 | — | 142 | 146 | 144 |
| 70 | + | 19 | 19 | 19 | + | 19 | 19 | 18 | + | 10 | 11 | 12 | + | 20 | 21 | 20 |
| 71 | + | 119 | 118 | 118 | + | 121 | 123 | 122 | + | 114 | 115 | 117 | + | 122 | 126 | 122 |
| 72 | — | 20 | 20 | 19 | — | 18 | 18 | 18 | — | 26 | 27 | 27 | — | 17 | 16 | 17 |
| 73 | + | 282 | 281 | 281 | + | 283 | 282 | 283 | + | 278 | 278 | 275 | + | 284 | 286 | 285 |
| 74 | — | 99 | 98 | 100 | — | 99 | 98 | 98 | — | 105 | 104 | 105 | — | 96 | 95 | 95 |
| 75 | + | 34 | 33 | 34 | + | 35 | 34 | 34 | + | 31 | 30 | 30 | + | 40 | 40 | 38 |

# ÖLAND.

*4. Section. 2.VIII. $11^h40^m$—$16^h30^m$.*

| N:o | **637.** SN. —J +P t: +19°3. | | | **683.** SN. +P —J t: +19°2. | | | **635.** SN. +S —B t: +16°8. | | | **674.** SN. —B +S t: +16°0. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 76 | + | 96 | 95 94 | + | 94 | 94 96 | + | 92 | 92 91 | + | 100 | 101 101 |
| 77 | + | 82 | 84 82 | + | 83 | 82 82 | + | 81 | 80 80 | + | 91 | 91 91 |
| 78 | — | 215 | 215 213 | — | 212 | 216 215 | — | 212 | 214 214 | — | 203 | 202 204 |
| 79 | — | 100 | 99 100 | — | 110 | 109 109 | — | 114 | 115 114 | — | 104 | 104 106 |
| 80 | — | 52 | 53 54 | — | 48 | 49 48 | — | 48 | 50 49 | — | 39 | 38 38 |
| 81 | + | 117 | 116 117 | + | 115 | 117 114 | + | 112 | 112 114 | + | 122 | 123 122 |
| 82 | + | 152 | 152 151 | + | 152 | 151 151 | + | 149 | 148 149 | + | 158 | 158 158 |
| 83 | + | 55 | 53 53 | + | 55 | 54 56 | + | 52 | 51 52 | + | 61 | 61 62 |
| 84 | — | 236 | 237 233 | — | 236 | 236 236 | — | 239 | 238 239 | — | 228 | 227 228 |
| 85 | + | 183 | 184 184 | + | 183 | 184 183 | + | 182 | 182 181 | + | 191 | 190 191 |
| 86 | — | 127 | 129 128 | — | 129 | 127 129 | — | 132 | 131 131 | — | 122 | 121 121 |
| 87 | + | 49 | 49 46 | + | 48 | 47 48 | + | 45 | 44 45 | + | 55 | 53 53 |
| 88 | — | 195 | 197 196 | — | 199 | 198 199 | — | 202 | 203 202 | — | 192 | 191 191 |
| 89 | + | 87 | 88 85 | + | 86 | 89 86 | + | 84 | 84 84 | + | 94 | 93 96 |
| 90 | + | 133 | 133 131 | + | 130 | 130 130 | + | 127 | 127 127 | + | 136 | 136 135 |
| 91 | — | 152 | 153 151 | — | 151 | 151 152 | — | 154 | 153 154 | — | 141 | 140 142 |
| 92 | — | 169 | 168 169 | — | 170 | 170 169 | — | 172 | 173 172 | — | 163 | 161 162 |
| 93 | + | 100 | 99 100 | + | 101 | 100 99 | + | 98 | 99 97 | + | 107 | 108 106 |
| 94 | + | 238 | 237 238 | + | 233 | 235 234 | + | 234 | 233 233 | + | 244 | 244 244 |
| 95 | — | 455 | 454 455 | — | 454 | 453 452 | — | 456 | 457 457 | — | 445 | 445 446 |
| 96 | + | 319 | 318 318 | + | 317 | 318 318 | + | 315 | 317 316 | + | 326 | 325 327 |
| 97 | — | 83 | 84 85 | — | 86 | 85 84 | — | 88 | 89 88 | — | 80 | 79 80 |
| 98 | + | 255 | 257 255 | + | 253 | 255 254 | + | 252 | 251 252 | + | 262 | 262 263 |
| 99 | + | 186 | 188 187 | + | 187 | 187 185 | + | 183 | 185 183 | + | 193 | 196 194 |
| 100 | — | 104 | 103 103 | — | 100 | 102 100 | — | 103 | 102 102 | — | 91 | 93 90 |
| 100 | — | 86 | 87 86 | — | 98 | 96 98 | — | 93 | 94 94 | — | 81 | 79 78 |

| N:o | **636.** NS. —P +J t: +19°2. | | | **673.** NS. +J —P t: +19°7. | | | **634.** NS. +B —S t: +16°2. | | | **675.** NS. —S +B t: +18°0. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 76 | + | 97 | 95 94 | + | 104 | 102 105 | + | 98 | 98 97 | + | 100 | 101 99 |
| 77 | + | 84 | 82 82 | + | 93 | 91 92 | + | 89 | 88 90 | + | 90 | 90 90 |
| 78 | — | 212 | 213 212 | — | 204 | 201 203 | — | 205 | 206 206 | — | 202 | 202 202 |
| 79 | — | 108 | 108 109 | — | 102 | 102 104 | — | 107 | 107 107 | — | 105 | 105 106 |
| 80 | — | 47 | 47 46 | — | 37 | 35 38 | — | 41 | 41 40 | — | 37 | 38 38 |
| 81 | + | 117 | 114 115 | + | 124 | — 122 | + | 120 | 122 120 | + | 122 | 121 123 |
| 82 | + | 151 | 151 150 | + | 160 | 161 162 | + | 157 | 157 157 | + | 158 | 158 157 |
| 83 | + | 56 | 54 54 | + | 63 | 65 62 | + | 59 | 59 59 | + | 61 | 61 60 |
| 84 | — | 234 | 238 236 | — | 224 | 225 226 | — | 229 | 229 229 | — | 228 | 228 228 |
| 85 | + | 182 | 184 183 | + | 192 | 191 192 | + | 190 | 190 189 | + | 190 | 190 190 |
| 86 | — | 129 | 127 129 | — | 117 | 119 118 | — | 123 | 122 122 | — | 121 | 120 121 |
| 87 | + | 49 | 48 47 | + | 57 | 55 58 | + | 51 | 53 54 | + | 53 | 55 54 |
| 88 | — | 198 | 198 197 | — | 189 | 189 190 | — | 194 | 193 194 | — | 192 | 192 193 |
| 89 | + | 85 | 87 87 | + | 97 | 95 96 | + | 92 | 92 92 | + | 96 | 95 94 |
| 90 | + | 132 | 132 131 | + | 138 | 139 138 | + | 133 | 136 135 | + | 136 | 134 137 |
| 91 | — | 151 | 151 152 | — | 140 | 143 141 | — | 144 | 143 144 | — | 144 | 143 143 |
| 92 | — | 170 | 168 169 | — | 160 | 161 161 | — | 164 | 165 163 | — | 162 | 163 162 |
| 93 | + | 97 | 99 99 | + | 109 | 108 108 | + | 106 | 107 104 | + | 106 | 105 107 |
| 94 | + | 237 | 238 237 | + | 244 | 242 246 | + | 241 | 242 241 | + | 242 | 243 244 |
| 95 | — | 454 | 455 456 | — | 444 | 447 445 | — | 447 | 448 448 | — | 446 | 446 447 |
| 96 | + | 318 | 319 319 | + | 328 | 329 326 | + | 323 | 324 326 | + | 326 | 325 324 |
| 97 | — | 84 | 85 86 | — | 75 | 74 78 | — | 81 | 80 80 | — | 79 | 80 79 |
| 98 | + | 254 | 257 256 | + | 266 | 265 264 | + | 261 | 260 261 | + | 262 | 262 262 |
| 99 | + | 185 | 184 186 | + | 196 | 195 193 | + | 192 | 191 191 | + | 193 | 193 190 |
| 100 | — | 104 | 104 106 | — | 95 | 93 93 | — | 98 | 97 97 | — | 95 | 95 94 |
| 100 | — | 92 | 91 91 | — | 84 | 83 83 | — | 88 | 89 89 | — | 80 | 81 82 |

# ÖLAND.

*5. Section. 5.VIII. $11^h0^m$—$15^h15^m$.*

| N:o | **635.** SN. +B —S t: +17°8. | | | **674.** SN. —S +B t: +18°5. | | | **637.** SN. —P +J t: +19°5. | | | **683.** SN. +J —P t: +19°0. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | — | 379 | 379 | 379 | — | 362 | 362 | 362 | — | 367 | 365 | 366 | — | 370 | 369 | 370 |
| 101 | — | 376 | 375 | 374 | — | 362 | 361 | 362 | — | 371 | 372 | 373 | — | 379 | 378 | 378 |
| 102 | — | 171 | 171 | 170 | — | 161 | 162 | 160 | — | 170 | 170 | 169 | — | 172 | 170 | 170 |
| 103 | + | 110 | 110 | 111 | + | 119 | 118 | 118 | + | 110 | 112 | 110 | + | 109 | 109 | 108 |
| 104 | + | 716 | 716 | 716 | + | 729 | 729 | 729 | + | 725 | 726 | 724 | + | 725 | 725 | 725 |
| 105 | — | 438 | 439 | 438 | — | 428 | 428 | 429 | — | 436 | 434 | 435 | — | 436 | 438 | 436 |
| 106 | + | 71 | 71 | 70 | + | 80 | 80 | 80 | + | 72 | 72 | 71 | + | 69 | 70 | 69 |
| 107 | — | 66 | 67 | 66 | — | 56 | 56 | 57 | — | 62 | 62 | 62 | — | 63 | 63 | 63 |
| 108 | — | 49 | 49 | 49 | — | 37 | 39 | 39 | — | 44 | 44 | 45 | — | 47 | 47 | 48 |
| 109 | + | 64 | 63 | 64 | + | 76 | 74 | 75 | + | 69 | 68 | 68 | + | 66 | 69 | 69 |
| 110 | + | 250 | 250 | 249 | + | 259 | 259 | 260 | + | 252 | 253 | 254 | + | 251 | 252 | 250 |
| 111 | — | 158 | 157 | 156 | — | 148 | 147 | 149 | — | 155 | 156 | 154 | — | 157 | 156 | 158 |
| 112 | + | 35 | 36 | 35 | + | 45 | 46 | 45 | + | 35 | 36 | 37 | + | 33 | 33 | 34 |
| 113 | — | 80 | 81 | 82 | — | 70 | 69 | 70 | — | 73 | 76 | 74 | — | 77 | 75 | 74 |
| 114 | — | 99 | 97 | 98 | — | 88 | 90 | 90 | — | 98 | 98 | 97 | — | 97 | 96 | 97 |
| 115 | — | 48 | 48 | 48 | — | 37 | 38 | 38 | — | 45 | 44 | 45 | — | 46 | 45 | 47 |
| 116 | + | 175 | 172 | 174 | + | 164 | 164 | 164 | + | 155 | 155 | 157 | + | 155 | 154 | 155 |
| 117 | + | 162 | 161 | 161 | + | 193 | 193 | 194 | + | 185 | 184 | 184 | + | 185 | 183 | 186 |
| 118 | — | 464 | 464 | 466 | — | 454 | 454 | 453 | — | 461 | 460 | 460 | — | 461 | 460 | 460 |
| 119 | + | 161 | 162 | 161 | + | 171 | 171 | 170 | + | 163 | 162 | 163 | + | 162 | 161 | 162 |
| 120 | + | 40 | 42 | 42 | + | 52 | 51 | 51 | + | 42 | 45 | 45 | + | 43 | 42 | 43 |
| 121 | + | 22 | 20 | 21 | + | 33 | 32 | 31 | + | 23 | 25 | 24 | + | 22 | 23 | 22 |
| 122 | + | 175 | 175 | 174 | + | 185 | 187 | 185 | + | 178 | 179 | 178 | + | 178 | 176 | 178 |
| 123 | — | 201 | 203 | 204 | — | 193 | 194 | 193 | — | 199 | 200 | 201 | — | 199 | 200 | 200 |
| 124 | — | 45 | 45 | 45 | — | 35 | 34 | 36 | — | 41 | 42 | 42 | — | 44 | 43 | 46 |
| 125 | + | 42 | 43 | 43 | + | 56 | 55 | 54 | + | 46 | 48 | 46 | + | 49 | 47 | 46 |

| N:o | **634.** NS. +S —B t: +17°8. | | | **675.** NS. —B +S t: +17°8. | | | **636.** NS. —J +P t: +19°0. | | | **673.** NS. +P —J t: +20°2. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | — | 373 | 372 | 370 | — | 363 | 364 | 363 | — | 369 | 368 | 370 | — | 358 | 359 | 361 |
| 101 | — | 364 | 363 | 363 | — | 365 | 365 | 364 | — | 369 | 370 | 369 | — | 367 | 367 | 367 |
| 102 | — | 164 | 164 | 163 | — | 161 | 161 | 161 | — | 168 | 170 | 167 | — | 160 | 161 | 161 |
| 103 | + | 119 | 118 | 119 | + | 118 | 118 | 118 | + | 111 | 112 | 111 | + | 119 | 120 | 119 |
| 104 | + | 723 | 723 | 724 | + | 729 | 728 | 727 | + | 726 | 723 | 725 | + | 735 | 736 | 734 |
| 105 | — | 431 | 431 | 431 | — | 429 | 429 | 428 | — | 434 | 435 | 437 | — | 427 | 427 | 427 |
| 106 | + | 78 | 79 | 79 | + | 81 | 79 | 79 | + | 72 | 73 | 73 | + | 80 | 80 | 80 |
| 107 | — | 57 | 58 | 59 | — | 55 | 55 | 56 | — | 61 | 61 | 63 | — | 51 | 52 | 53 |
| 108 | — | 42 | 41 | 41 | — | 37 | 39 | 39 | — | 45 | 45 | 45 | — | 37 | 35 | 37 |
| 109 | + | 73 | 73 | 72 | + | 75 | 75 | 75 | + | 69 | 70 | 69 | + | 77 | 78 | 78 |
| 110 | + | 258 | 258 | 259 | + | 259 | 260 | 259 | + | 256 | 253 | 252 | + | 261 | 262 | 263 |
| 111 | — | 150 | 149 | 148 | — | 149 | 149 | 149 | — | 155 | 156 | 155 | — | 144 | 144 | — |
| 112 | + | 42 | 42 | 42 | + | 44 | 45 | 45 | + | 35 | 35 | 38 | + | 43 | 45 | 45 |
| 113 | — | 73 | 74 | 74 | — | 71 | 70 | 72 | — | 78 | 76 | 76 | — | 66 | 64 | 65 |
| 114 | — | 90 | 92 | 90 | — | 88 | 89 | 89 | — | 96 | 94 | 93 | — | 88 | 89 | 87 |
| 115 | — | 39 | 40 | 40 | — | 37 | 38 | 38 | — | 43 | 42 | 45 | — | 36 | 34 | 34 |
| 116 | + | 182 | 183 | 182 | + | 164 | 163 | 164 | + | 155 | 156 | 157 | + | 169 | 170 | 168 |
| 117 | + | 170 | 168 | 169 | + | 191 | 192 | 191 | + | 186 | 188 | 186 | + | 196 | 196 | 194 |
| 118 | — | 455 | 455 | 455 | — | 454 | 454 | 454 | — | 460 | 461 | 462 | — | 450 | 451 | 451 |
| 119 | + | 169 | 169 | 168 | + | 170 | 170 | 170 | + | 163 | 164 | 163 | + | 171 | 172 | 172 |
| 120 | + | 49 | 51 | 49 | + | 51 | 50 | 51 | + | 46 | 45 | 45 | + | 52 | 53 | 53 |
| 121 | + | 29 | 30 | 30 | + | 31 | 31 | 31 | + | 25 | 25 | 28 | + | 30 | 30 | 32 |
| 122 | + | 183 | 184 | 182 | + | 184 | 186 | 186 | + | 179 | 180 | 178 | + | 188 | 189 | 188 |
| 123 | — | 195 | 194 | 194 | — | 192 | 194 | 194 | — | 199 | 200 | 200 | — | 190 | 191 | 190 |
| 124 | — | 37 | 38 | 37 | — | 34 | 34 | 35 | — | 42 | 41 | 41 | — | 35 | 35 | 34 |
| 125 | + | 51 | 51 | 51 | + | 53 | 52 | 53 | + | 45 | 46 | 48 | + | 54 | 57 | 58 |

# ÖLAND.

*6. Section. 6.VIII. $11^h25^m$—$15^h25^m$.*

| N:o | **637.** SN. +P—J t: +20°0. | | | **683.** SN. —J+P t: +18°9. | | | **635.** SN. —B+S t: +20°0. | | | **674.** SN. +S—B t: +19°6. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 126 | — | 166 | 168 | 168 | — | 166 | 168 | 167 | — | 170 | 170 | 170 | — | 160 | 160 | 160 |
| 127 | + | 244 | 247 | 247 | + | 246 | 247 | 245 | + | 243 | 242 | 242 | + | 252 | 252 | 254 |
| 128 | + | 96 | 94 | 95 | + | 93 | 95 | 93 | + | 92 | 90 | 91 | + | 101 | 100 | 101 |
| 129 | — | 604 | 604 | 604 | — | 604 | 603 | 602 | — | 606 | 607 | 606 | — | 597 | 596 | 597 |
| 130 | + | 319 | 319 | 318 | + | 320 | 318 | 319 | + | 316 | 318 | 316 | + | 326 | 328 | 328 |
| 131 | — | 93 | 94 | 92 | — | 95 | 95 | 92 | — | 95 | 96 | 96 | — | 86 | 87 | 87 |
| 132 | + | 114 | 112 | 114 | + | 112 | 112 | 112 | + | 109 | 109 | 109 | + | 119 | 119 | 120 |
| 133 | — | 197 | 198 | 199 | — | 200 | 200 | 199 | — | 202 | 202 | 202 | — | 192 | 192 | 191 |
| 134 | + | 11 | 12 | 13 | + | 12 | 12 | 12 | + | 10 | 10 | 9 | + | 17 | 18 | 18 |
| 135 | + | 247 | 247 | 246 | + | 244 | 243 | 242 | + | 241 | 240 | 240 | + | 251 | 251 | 250 |
| 136 | + | 51 | 51 | 51 | + | 51 | 50 | 52 | + | 48 | 48 | 49 | + | 58 | 59 | 58 |
| 137 | + | 9 | 6 | 8 | + | 9 | 8 | 6 | + | 5 | 6 | 5 | + | 13 | 14 | 15 |
| 138 | — | 77 | 75 | 76 | — | 75 | 76 | 76 | — | 80 | 78 | 79 | — | 70 | 70 | 69 |
| 139 | + | 115 | 116 | 116 | + | 114 | 115 | 112 | + | 110 | 110 | 110 | + | 120 | 121 | 121 |
| 140 | — | 15 | 14 | 13 | — | 12 | 13 | 12 | — | 16 | 17 | 16 | — | 5 | 6 | 6 |
| 141 | — | 47 | 44 | 45 | — | 45 | 47 | 46 | — | 46 | 44 | 45 | — | 34 | 35 | 34 |
| 142 | + | 183 | 182 | 183 | + | 189 | 190 | 189 | + | 183 | 182 | 183 | + | 202 | 201 | 200 |
| 143 | — | 126 | 125 | 126 | — | 133 | 132 | 135 | — | 141 | 142 | 141 | — | 134 | 135 | 135 |
| 144 | — | 70 | 71 | 69 | — | 72 | 73 | 71 | — | 74 | 74 | 75 | — | 66 | 64 | 66 |
| 145 | + | 174 | 176 | 175 | + | 174 | 173 | 174 | + | 172 | 171 | 172 | + | 184 | 184 | 182 |
| 146 | — | 82 | 83 | 84 | — | 85 | 85 | 86 | — | 84 | 86 | 86 | — | 76 | 74 | 75 |
| 147 | + | 62 | 64 | 63 | + | 62 | 62 | 64 | + | 60 | 60 | 59 | + | 70 | 68 | 68 |
| 148 | — | 120 | 120 | 121 | — | 120 | 122 | 120 | — | 124 | 125 | 125 | — | 114 | 115 | 114 |
| 149 | + | 182 | 182 | 183 | + | 180 | 179 | 180 | + | 177 | 177 | 178 | + | 183 | 183 | 183 |
| 150 | — | 218 | 218 | 219 | — | 220 | 218 | 219 | — | 227 | 227 | 226 | — | 206 | 206 | 205 |
| 150 | — | 204 | 206 | 206 | — | 203 | 206 | 205 | — | 211 | 210 | 208 | — | 192 | 193 | 193 |

| N:o | **636.** NS. +J—P t: +19°3. | | | **673.** NS. —P+J t: +20°0. | | | **634.** NS. —S+B t: +19°8. | | | **675.** NS. +B—S t: +20°2. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 126 | — | 168 | 167 | 168 | — | 157 | 157 | 155 | — | 162 | 162 | 163 | — | 159 | 160 | 160 |
| 127 | + | 245 | 244 | 245 | + | 255 | 254 | 256 | + | 249 | 250 | 251 | + | 253 | 251 | 252 |
| 128 | + | 93 | 94 | 92 | + | 102 | 102 | 103 | + | 98 | 99 | 98 | + | 100 | 101 | 100 |
| 129 | — | 603 | 602 | 603 | — | 595 | 595 | 596 | — | 599 | 598 | 598 | — | 596 | 597 | 596 |
| 130 | + | 319 | 319 | 320 | + | 327 | 329 | 328 | + | 323 | 323 | 325 | + | 326 | 326 | 327 |
| 131 | — | 93 | 92 | 94 | — | 86 | 84 | 84 | — | 89 | 87 | 88 | — | 86 | 87 | 88 |
| 132 | + | 114 | 113 | 114 | + | 121 | 122 | 121 | + | 117 | 116 | 118 | + | 120 | 119 | 119 |
| 133 | — | 200 | 200 | 199 | — | 190 | 190 | 190 | — | 195 | 195 | 195 | — | 193 | 192 | 193 |
| 134 | + | 13 | 12 | 11 | + | 20 | 21 | 21 | + | 16 | 17 | 18 | + | 19 | 18 | 19 |
| 135 | + | 242 | 243 | 243 | + | 253 | 253 | 254 | + | 248 | 250 | 249 | + | 250 | 250 | 250 |
| 136 | + | 52 | 51 | 50 | + | 61 | 60 | 60 | + | 56 | 57 | 57 | + | 57 | 58 | 59 |
| 137 | + | 8 | 8 | 6 | + | 14 | 17 | 17 | + | 14 | 13 | 12 | + | 14 | 14 | 16 |
| 138 | — | 74 | 74 | 75 | — | 68 | 66 | 67 | — | 71 | 72 | 71 | — | 69 | 70 | 69 |
| 139 | + | 113 | 116 | 113 | + | 124 | 124 | 122 | + | 119 | 118 | 120 | + | 120 | 120 | 120 |
| 140 | — | 12 | 13 | 13 | — | 4 | 6 | 3 | — | 8 | 8 | 9 | — | 4 | 6 | 7 |
| 141 | — | 45 | 48 | 46 | — | 37 | 38 | 38 | — | 37 | 36 | 37 | — | 37 | 34 | 35 |
| 142 | + | 181 | 184 | 182 | + | 199 | 199 | 199 | + | 195 | 195 | 195 | + | 199 | 200 | 200 |
| 143 | — | 127 | 124 | 126 | — | 116 | 117 | 117 | — | 130 | 130 | 130 | — | 132 | 132 | 133 |
| 144 | — | 69 | 69 | 69 | — | 63 | 62 | 62 | — | 67 | 67 | 66 | — | 65 | 65 | 66 |
| 145 | + | 175 | 174 | 176 | + | 184 | 183 | 184 | + | 179 | 178 | 179 | + | 183 | 183 | 182 |
| 146 | — | 85 | 83 | 85 | — | 76 | 76 | 74 | — | 78 | 78 | 79 | — | 76 | 76 | 77 |
| 147 | + | 63 | 64 | 67 | + | 73 | 73 | 72 | + | 67 | 68 | 67 | + | 69 | 69 | 69 |
| 148 | — | 121 | 120 | 121 | — | 112 | 112 | 112 | — | 116 | 116 | 116 | — | 114 | 113 | 115 |
| 149 | + | 180 | 180 | 180 | + | 191 | 190 | 189 | + | 184 | 185 | 186 | + | 182 | 183 | 183 |
| 150 | — | 220 | 220 | 220 | — | 210 | 211 | 211 | — | 217 | 218 | 216 | — | 214 | 213 | 214 |
| 150 | — | 205 | 203 | 205 | — | 199 | 198 | 198 | — | 199 | 200 | 200 | — | 200 | 199 | 199 |

# ÖLAND.

*7. Section. 7.VIII. $11^h45^m$—$15^h45^m$.*

| N:o | **635.** SN. —S +B t: +18°.5. | | | **674.** SN. +B —S t: +18°.7. | | | **637.** SN. —P +J t: +18°.8. | | | **683.** SN. —J +P t: +17°.6. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | — | 52 | 52 53 | — | 43 | 44 43 | — | 52 | 49 50 | — | 51 | 51 50 |
| 151 | — | 69 | 68 69 | — | 58 | 58 58 | — | 68 | 67 68 | — | 67 | 65 67 |
| 152 | + | 166 | 167 166 | + | 176 | 176 178 | + | 170 | 171 171 | + | 170 | 170 171 |
| 153 | — | 120 | 121 122 | — | 111 | 111 111 | — | 114 | 116 116 | — | 118 | 117 114 |
| 154 | — | 94 | 95 95 | — | 84 | 85 85 | — | 92 | 92 93 | — | 94 | 94 96 |
| 155 | + | 163 | 165 162 | + | 173 | 174 173 | + | 164 | 166 166 | + | 164 | 163 164 |
| 156 | — | 288 | 286 287 | — | 276 | 276 276 | — | 282 | 283 282 | — | 282 | 284 284 |
| 157 | + | 223 | 224 223 | + | 232 | 232 233 | + | 225 | 226 225 | + | 225 | 224 228 |
| 158 | + | 55 | 54 53 | + | 63 | 63 65 | + | 60 | 59 60 | + | 59 | 59 60 |
| 159 | — | 155 | 156 154 | — | 146 | 146 145 | — | 134 | 132 132 | — | 133 | 134 131 |
| 160 | — | 67 | 68 68 | — | 56 | 56 58 | — | 85 | 85 86 | — | 85 | 85 85 |
| 161 | + | 146 | 146 146 | + | 156 | 156 156 | + | 149 | 150 150 | + | 150 | 149 149 |
| 162 | + | 14 | 13 12 | + | 24 | 22 23 | + | 15 | 15 16 | + | 14 | 16 14 |
| 163 | + | 29 | 27 28 | + | 38 | 38 38 | + | 32 | 33 33 | + | 32 | 31 34 |
| 164 | — | 195 | 195 195 | — | 183 | 185 185 | — | 192 | 192 191 | — | 191 | 193 192 |
| 165 | — | 350 | 350 348 | — | 338 | 337 339 | — | 345 | 346 347 | — | 342 | 344 343 |
| 166 | + | 698 | 698 697 | + | 708 | 707 708 | + | 700 | 700 700 | + | 699 | 699 697 |
| 167 | — | 228 | 229 229 | — | 218 | 218 219 | — | 225 | 227 224 | — | 224 | 226 225 |
| 168 | + | 51 | 53 52 | + | 63 | 62 62 | + | 57 | 55 55 | + | 53 | 57 55 |
| 169 | + | 31 | 30 30 | + | 41 | 41 40 | + | 34 | 32 34 | + | 34 | 31 33 |
| 170 | + | 137 | 136 136 | + | 145 | 146 145 | + | 139 | 138 138 | + | 156 | 153 155 |
| 171 | — | 264 | 263 263 | — | 255 | 255 255 | — | 278 | 278 277 | — | 276 | 275 276 |
| 172 | + | 349 | 349 348 | + | 357 | 359 358 | + | 352 | 353 352 | + | 351 | 352 353 |
| 173 | — | 18 | 17 17 | — | 7 | 9 6 | — | 15 | 15 14 | — | 17 | 15 15 |
| 174 | + | 175 | 176 175 | + | 186 | 184 184 | + | 178 | 177 178 | + | 179 | 178 178 |
| 175 | — | 304 | 304 303 | — | 294 | 293 294 | — | 302 | 301 301 | — | 301 | 301 302 |

| N:o | **634.** NS. —B +S t: +18°.5. | | | **675.** NS. +S —B t: +18°.5. | | | **636.** NS. —J +P t: +18°.0. | | | **673.** NS. —P +J t: +18°.8. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | — | 45 | 44 45 | — | 43 | 43 42 | — | 48 | 50 47 | — | 41 | 41 41 |
| 151 | — | 59 | 60 59 | — | 58 | 59 58 | — | 63 | 61 61 | — | 59 | 57 59 |
| 152 | + | 176 | 174 175 | + | 177 | 176 175 | + | 169 | 171 170 | + | 180 | 180 180 |
| 153 | — | 114 | 114 115 | — | 111 | 110 111 | — | 116 | 115 113 | — | 105 | 107 106 |
| 154 | — | 88 | 88 87 | — | 85 | 84 86 | — | 94 | 92 95 | — | 86 | 84 84 |
| 155 | + | 172 | 173 173 | + | 172 | 173 172 | + | 166 | 165 165 | + | 173 | 173 175 |
| 156 | — | 279 | 279 279 | — | 275 | 276 276 | — | 283 | 284 284 | — | 273 | 272 274 |
| 157 | + | 231 | 232 232 | + | 233 | 235 233 | + | 227 | 226 225 | + | 234 | 234 235 |
| 158 | + | 60 | 60 60 | + | 65 | 65 66 | + | 57 | 58 59 | + | 67 | 68 67 |
| 159 | — | 144 | 145 146 | — | 145 | 146 144 | — | 161 | 160 161 | — | 123 | 124 124 |
| 160 | — | 63 | 61 62 | — | 58 | 56 58 | — | 55 | 55 56 | — | 78 | 77 77 |
| 161 | + | 155 | 155 154 | + | 156 | 156 158 | + | 150 | 150 149 | + | 158 | 159 159 |
| 162 | + | 22 | 22 22 | + | 23 | 22 22 | + | 16 | 15 17 | + | 25 | 26 25 |
| 163 | + | 36 | 36 37 | + | 38 | 39 38 | + | 34 | 32 34 | + | 42 | 43 43 |
| 164 | — | 188 | 187 186 | — | 184 | 184 185 | — | 191 | 192 190 | — | 182 | 184 183 |
| 165 | — | 342 | 342 342 | — | 339 | 338 339 | — | 344 | 345 347 | — | 334 | 333 334 |
| 166 | + | 707 | 708 707 | + | 707 | 708 707 | + | 700 | 700 701 | + | 709 | 710 710 |
| 167 | — | 219 | 220 222 | — | 218 | 218 218 | — | 224 | 226 226 | — | 219 | 218 217 |
| 168 | + | 60 | 61 60 | + | 61 | 62 62 | + | 58 | 56 54 | + | 65 | 66 65 |
| 169 | + | 37 | 36 35 | + | 39 | 41 39 | + | 35 | 33 34 | + | 42 | 42 38 |
| 170 | + | 146 | 146 146 | + | 146 | 146 146 | + | 140 | 139 139 | + | 162 | 163 163 |
| 171 | — | 256 | 255 256 | — | 254 | 254 255 | — | 261 | 260 260 | — | 267 | 267 268 |
| 172 | + | 356 | 356 357 | + | 359 | 358 359 | + | 352 | 354 351 | + | 361 | 362 362 |
| 173 | — | 10 | 9 9 | — | 9 | 8 8 | — | 14 | 15 16 | — | 7 | 6 5 |
| 174 | + | 183 | 183 184 | + | 184 | 184 185 | + | 178 | 177 178 | + | 187 | 188 187 |
| 175 | — | 296 | 295 294 | — | 293 | 292 293 | — | 300 | 300 301 | — | 292 | 292 292 |

# ÖLAND.

*8. Section. 8.VIII. $10^h55^m$—$14^h30^m$.*

| N:o | **637.** SN. +P —J t: +20°0. | | | **683.** SN. —P +J t: +20°6. | | | **635.** SN. —B +S t: +19°1. | | | **674.** SN. +S —B t: +21°0. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 176 | + | 35 | 36 | 33 | + | 32 | 33 | 34 | + | 31 | 31 | 31 | + | 42 | 42 | 43 |
| 177 | — | 244 | 248 | 248 | — | 251 | 250 | 249 | — | 251 | 251 | 250 | — | 240 | 240 | 241 |
| 178 | + | 289 | 290 | 290 | + | 286 | 288 | 287 | + | 284 | 285 | 284 | + | 293 | 294 | 295 |
| 179 | — | 176 | 175 | 177 | — | 179 | 179 | 177 | — | 179 | 180 | 179 | — | 171 | 169 | 169 |
| 180 | + | 70 | 69 | 70 | + | 84 | 85 | 85 | + | 82 | 83 | 83 | + | 94 | 93 | 94 |
| 181 | + | 44 | 44 | 44 | + | 25 | 23 | 25 | + | 25 | 24 | 24 | + | 34 | 34 | 33 |
| 182 | + | 93 | 92 | 92 | + | 90 | 90 | 90 | + | 90 | 89 | 90 | + | 85 | 84 | 87 |
| 183 | — | 240 | 242 | 242 | — | 243 | 245 | 243 | — | 246 | 248 | 247 | — | 223 | 223 | 222 |
| 184 | — | 91 | 91 | 92 | — | 93 | 93 | 92 | — | 94 | 94 | 94 | — | 83 | 83 | 83 |
| 185 | + | 68 | 69 | 68 | + | 69 | 68 | 68 | + | 64 | 64 | 65 | + | 73 | 73 | 73 |
| 186 | + | 25 | 24 | 26 | + | 23 | 24 | 25 | + | 24 | 24 | 24 | + | 36 | 34 | 34 |
| 187 | + | 47 | 47 | 47 | + | 45 | 45 | 48 | + | 42 | 44 | 43 | + | 53 | 53 | 51 |
| 188 | — | 46 | 45 | 46 | — | 47 | 45 | 45 | — | 47 | 48 | 47 | — | 37 | 36 | 37 |
| 189 | + | 86 | 87 | 86 | + | 87 | 86 | 87 | + | 83 | 84 | 84 | + | 95 | 95 | 95 |
| 190 | + | 155 | 154 | 155 | + | 153 | 154 | 154 | + | 151 | 150 | 150 | + | 161 | 160 | 160 |
| 191 | + | 22 | 23 | 23 | + | 20 | 19 | 21 | + | 17 | 16 | 18 | + | 27 | 28 | 27 |
| 192 | — | 75 | 76 | 76 | — | 81 | 79 | 78 | — | 82 | 82 | 81 | — | 72 | 72 | 72 |
| 193 | — | 71 | 71 | 70 | — | 72 | 69 | 70 | — | 75 | 74 | 73 | — | 63 | 63 | 63 |
| 194 | + | 122 | 121 | 121 | + | 120 | 120 | 120 | + | 118 | 117 | 117 | + | 130 | 130 | 128 |
| 195 | + | 127 | 129 | 127 | + | 138 | 137 | 136 | + | 134 | 136 | 135 | + | 144 | 143 | 145 |
| 196 | — | 79 | 79 | 80 | — | 93 | 92 | 92 | — | 93 | 94 | 94 | — | 85 | 84 | 85 |
| 197 | — | 112 | 111 | 111 | — | 111 | 111 | 111 | — | 111 | 111 | 111 | — | 101 | 101 | 101 |
| 198 | — | 25 | 27 | 26 | — | 24 | 28 | 28 | — | 29 | 29 | 29 | — | 19 | 19 | 18 |
| 199 | + | 145 | 145 | 144 | + | 170 | 170 | 169 | + | 166 | 168 | 167 | + | 177 | 177 | 178 |
| 200 | — | 247 | 248 | 248 | — | 276 | 276 | 274 | — | 276 | 278 | 277 | — | 266 | 267 | 266 |

| N:o | **636.** NS. +J —P t: +19°7. | | | **673.** NS. —J +P t: +20°0. | | | **634.** NS. —S +B t: +19°1. | | | **675.** NS. +B —S t: +19°2. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 176 | + | 33 | 35 | 34 | + | 42 | 44 | 43 | + | 39 | 39 | 39 | + | 40 | 41 | 40 |
| 177 | — | 250 | 249 | 248 | — | 238 | 240 | 240 | — | 244 | 245 | 245 | — | 240 | 240 | 242 |
| 178 | + | 288 | 289 | 289 | + | 299 | 298 | 298 | + | 295 | 292 | 293 | + | 295 | 295 | 294 |
| 179 | — | 178 | 176 | 177 | — | 168 | 168 | 169 | — | 172 | 173 | 172 | — | 170 | 170 | 170 |
| 180 | + | 69 | 69 | 70 | + | 96 | 95 | 96 | + | 90 | 90 | 90 | + | 93 | 93 | 94 |
| 181 | + | 44 | 44 | 42 | + | 35 | 37 | 35 | + | 31 | 32 | 32 | + | 34 | 34 | 34 |
| 182 | + | 92 | 92 | 92 | + | 102 | 102 | 102 | + | 98 | 97 | 97 | + | 86 | 84 | 87 |
| 183 | — | 243 | 243 | 244 | — | 234 | 234 | 235 | — | 239 | 239 | 238 | — | 237 | 234 | 236 |
| 184 | — | 91 | 91 | 91 | — | 81 | 81 | 82 | — | 87 | 86 | 86 | — | 82 | 84 | 83 |
| 185 | + | 72 | 71 | 70 | + | 78 | 79 | 77 | + | 72 | 72 | 74 | + | 75 | 74 | 74 |
| 186 | + | 25 | 25 | 25 | + | 34 | 36 | 37 | + | 32 | 32 | 32 | + | 35 | 35 | 35 |
| 187 | + | 47 | 48 | 47 | + | 58 | 56 | 57 | + | 50 | 51 | 51 | + | 52 | 52 | 55 |
| 188 | — | 45 | 49 | 47 | — | 34 | 36 | 35 | — | 41 | 40 | 40 | — | 38 | 36 | 37 |
| 189 | + | 88 | 84 | 86 | + | 96 | 97 | 94 | + | 92 | 92 | 93 | + | 94 | 96 | 94 |
| 190 | + | 156 | 157 | 155 | + | 163 | 164 | 163 | + | 158 | 159 | 159 | + | 161 | 161 | 160 |
| 191 | + | 21 | 20 | 20 | + | 31 | 31 | 30 | + | 27 | 27 | 27 | + | 27 | 28 | 27 |
| 192 | — | 75 | 77 | 77 | — | 68 | 67 | 67 | — | 73 | 74 | 74 | — | 72 | 72 | 72 |
| 193 | — | 71 | 71 | 71 | — | 61 | 62 | 63 | — | 66 | 66 | 67 | — | 65 | 64 | 63 |
| 194 | + | 121 | 121 | 120 | + | 129 | 130 | 130 | + | 126 | 125 | 125 | + | 130 | 129 | 128 |
| 195 | + | 126 | 126 | 128 | + | 147 | 145 | 147 | + | 142 | 143 | 141 | + | 145 | 145 | 145 |
| 196 | — | 81 | 80 | 80 | — | 82 | 83 | 81 | — | 86 | 84 | 87 | — | 83 | 83 | 83 |
| 197 | — | 112 | 111 | 110 | — | 101 | 100 | 100 | — | 104 | 103 | 104 | — | 100 | 102 | 101 |
| 198 | — | 25 | 25 | 25 | — | 17 | 18 | 18 | — | 21 | 22 | 21 | — | 19 | 19 | 19 |
| 199 | + | 148 | 146 | 146 | + | 181 | 180 | 180 | + | 176 | 176 | 176 | + | 179 | 179 | 178 |
| 200 | — | 249 | 250 | 249 | — | 266 | 265 | 268 | — | 270 | 268 | 270 | — | 266 | 267 | 267 |

# ÖLAND.

*9. Section. 9.VIII. $11^h50^m$—$15^h35^m$.*

| N:o | **635.** SN. —S +B t: +17°2. | | | **674.** SN. +B —S t: +21°0. | | | **637.** SN. +J —P t: +22°0. | | | **683.** SN. —P +J t: +21°9. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201 | + | 96 | 95 95 | + | 106 | 106 105 | + | 98 | 96 96 | + | 95 | 94 97 |
| 202 | − | 156 | 158 156 | − | 147 | 147 146 | − | 154 | 154 155 | − | 155 | 155 153 |
| 203 | + | 299 | 300 300 | + | 311 | 310 312 | + | 303 | 302 306 | + | 303 | 304 303 |
| 204 | − | 330 | 330 331 | − | 320 | 320 321 | − | 329 | 328 329 | − | 330 | 330 329 |
| 205 | + | 30 | 29 29 | + | 40 | 41 40 | + | 33 | 33 31 | + | 32 | 31 33 |
| 206 | + | 49 | 48 49 | + | 58 | 58 59 | + | 54 | 52 53 | + | 52 | 53 53 |
| 207 | + | 347 | 348 349 | + | 358 | 359 360 | + | 351 | 351 350 | + | 349 | 348 349 |
| 208 | − | 348 | 347 348 | − | 337 | 337 336 | − | 344 | 344 346 | − | 346 | 346 345 |
| 209 | + | 18 | 19 20 | + | 29 | 30 31 | + | 22 | 22 21 | + | 23 | 22 22 |
| 210 | − | 94 | 95 95 | − | 87 | 87 87 | − | 95 | 97 96 | − | 93 | 94 92 |
| 211 | + | 106 | 106 106 | + | 115 | 118 117 | + | 109 | 108 109 | + | 109 | 109 109 |
| 212 | − | 116 | 115 116 | − | 107 | 108 107 | − | 113 | 116 113 | − | 114 | 115 114 |
| 213 | − | 76 | 77 78 | − | 68 | 68 69 | − | 77 | 76 75 | − | 77 | 78 77 |
| 214 | + | 131 | 132 130 | + | 143 | 143 142 | + | 135 | 136 137 | + | 138 | 135 135 |
| 215 | − | 94 | 95 96 | − | 85 | 87 87 | − | 95 | 92 96 | − | 95 | 95 94 |
| 216 | + | 59 | 58 59 | + | 69 | 71 69 | + | 64 | 62 64 | + | 64 | 63 62 |
| 217 | + | 212 | 213 213 | + | 224 | 223 222 | + | 216 | 215 213 | + | 214 | 215 215 |
| 218 | − | 112 | 113 113 | − | 103 | 104 103 | − | 111 | 110 111 | − | 111 | 111 112 |
| 219 | + | 117 | 116 116 | + | 126 | 128 127 | + | 120 | 119 119 | + | 117 | 119 118 |
| 220 | + | 55 | 55 55 | + | 66 | 66 64 | + | 57 | 56 57 | + | 58 | 58 56 |
| 221 | − | 246 | 245 246 | − | 236 | 236 236 | − | 242 | 244 243 | − | 247 | 244 244 |
| 222 | + | 238 | 237 238 | + | 248 | 248 247 | + | 240 | 241 240 | + | 241 | 241 240 |
| 223 | − | 204 | 204 205 | − | 194 | 197 194 | − | 202 | 204 204 | − | 202 | 202 205 |
| 224 | + | 23 | 24 22 | + | 32 | 32 34 | + | 24 | 26 24 | + | 24 | 25 24 |
| 225 | − | 64 | 64 64 | − | 55 | 54 54 | − | 62 | 61 61 | − | 63 | 62 63 |

| N:o | **634.** NS. —B +S t: +17°1. | | | **675.** NS. +S —B t: +19°0. | | | **636.** NS. +P —J t: +21°9. | | | **673.** NS. —J +P t: +22°0. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201 | + | 103 | 103 103 | + | 104 | 106 105 | + | 97 | 98 97 | + | 106 | 105 107 |
| 202 | − | 149 | 149 149 | − | 148 | 148 148 | − | 156 | 155 155 | − | 145 | 144 146 |
| 203 | + | 308 | 307 309 | + | 310 | 310 312 | + | 306 | 305 305 | + | 312 | 311 312 |
| 204 | − | 323 | 324 323 | − | 321 | 321 322 | − | 328 | 328 328 | − | 319 | 320 320 |
| 205 | + | 37 | 37 37 | + | 39 | 38 37 | + | 31 | 31 32 | + | 42 | 42 41 |
| 206 | + | 57 | 57 57 | + | 59 | 60 60 | + | 56 | 54 54 | + | 62 | 64 63 |
| 207 | + | 356 | 357 356 | + | 357 | 358 357 | + | 350 | 349 350 | + | 360 | 359 359 |
| 208 | − | 340 | 339 339 | − | 336 | 336 336 | − | 341 | 344 344 | − | 335 | 334 335 |
| 209 | + | 27 | 27 28 | + | 30 | 30 30 | + | 21 | 22 23 | + | 30 | 32 31 |
| 210 | − | 88 | 86 86 | − | 84 | 85 84 | − | 91 | 93 92 | − | 83 | 84 86 |
| 211 | + | 114 | 113 113 | + | 116 | 116 116 | + | 110 | 110 110 | + | 119 | 120 120 |
| 212 | − | 110 | 111 110 | − | 106 | 107 108 | − | 115 | 113 113 | − | 104 | 106 106 |
| 213 | − | 67 | 68 68 | − | 67 | 68 66 | − | 73 | 75 72 | − | 66 | 67 66 |
| 214 | + | 137 | 138 140 | + | 143 | 143 142 | + | 135 | 137 136 | + | 145 | 145 147 |
| 215 | − | 87 | 86 87 | − | 86 | 86 86 | − | 94 | 93 93 | − | 85 | 84 83 |
| 216 | + | 68 | 67 67 | + | 70 | 68 68 | + | 63 | 64 62 | + | 74 | 74 72 |
| 217 | + | 221 | 221 219 | + | 222 | 224 222 | + | 219 | 218 217 | + | 225 | 227 226 |
| 218 | − | 103 | 104 105 | − | 103 | 104 104 | − | 110 | 110 111 | − | 100 | 101 101 |
| 219 | + | 124 | 124 124 | + | 127 | 126 127 | + | 120 | 120 120 | + | 128 | 129 130 |
| 220 | + | 64 | 62 64 | + | 65 | 64 64 | + | 58 | 59 58 | + | 65 | 69 66 |
| 221 | − | 239 | 238 238 | − | 237 | 236 236 | − | 244 | 243 243 | − | 234 | 234 233 |
| 222 | + | 247 | 245 245 | + | 248 | 248 248 | + | 243 | 241 242 | + | 250 | 251 250 |
| 223 | − | 197 | 197 198 | − | 196 | 197 197 | − | 203 | 202 204 | − | 193 | 195 193 |
| 224 | + | 30 | 30 29 | + | 32 | 32 32 | + | 27 | 27 28 | + | 34 | 35 33 |
| 225 | − | 57 | 57 56 | − | 55 | 54 54 | − | 62 | 62 62 | − | 53 | 53 51 |

# ÖLAND.

*10. Section. 10.VIII. $10^h40^m$—$14^h40^m$.*

| N:o | **637.** SN. +P —J t: +19°1. | | | | **683.** SN. —J +P t: +22°3. | | | | **635.** SN. —B +S t: +22°2. | | | | **674.** SN. +S —B t: +21°2. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 226 | — | 113 | 113 | 114 | — | 113 | 114 | 112 | — | 114 | 115 | 114 | — | 106 | 105 | 104 |
| 227 | + | 110 | 110 | 109 | + | 107 | 106 | 108 | + | 104 | 103 | 106 | + | 116 | 116 | 117 |
| 228 | + | 121 | 120 | 120 | + | 118 | 118 | 118 | + | 115 | 115 | 113 | + | 126 | 126 | 126 |
| 229 | — | 436 | 436 | 437 | — | 439 | 439 | 438 | — | 441 | 441 | 442 | — | 430 | 429 | 429 |
| 230 | + | 232 | 232 | 232 | + | 229 | 230 | 228 | + | 218 | 218 | 218 | + | 230 | 229 | 229 |
| 231 | — | 29 | 30 | 29 | — | 30 | 30 | 29 | — | 23 | 22 | 23 | — | 14 | 14 | 14 |
| 232 | + | 10 | 9 | 9 | + | 9 | 9 | 10 | + | 4 | 4 | 6 | + | 16 | 14 | 14 |
| 233 | + | 52 | 52 | 51 | + | 51 | 50 | 50 | + | 47 | 48 | 46 | + | 58 | 58 | 56 |
| 234 | — | 60 | 60 | 61 | — | 61 | 60 | 59 | — | 57 | 56 | 56 | — | 46 | 46 | 47 |
| 235 | + | 9 | 10 | 9 | + | 8 | 7 | 8 | + | 0 | 1 | 0 | + | 10 | 8 | 11 |
| 236 | + | 213 | 215 | 214 | + | 215 | 215 | 215 | + | 282 | 282 | 282 | + | 291 | 290 | 290 |
| 237 | — | 123 | 124 | 122 | — | 123 | 124 | 122 | — | 196 | 193 | 196 | — | 185 | 183 | 183 |
| 238 | + | 107 | 109 | 108 | + | 109 | 109 | 110 | + | 107 | 106 | 106 | + | 118 | 119 | 120 |
| 239 | — | 233 | 232 | 234 | — | 233 | 232 | 232 | — | 234 | 235 | 235 | — | 228 | 227 | 227 |
| 240 | + | 208 | 208 | 209 | + | 207 | 207 | 208 | + | 203 | 204 | 203 | + | 213 | 213 | 213 |
| 241 | — | 167 | 167 | 168 | — | 167 | 167 | 167 | — | 168 | 169 | 167 | — | 159 | 158 | 159 |
| 242 | + | 148 | 147 | 148 | + | 147 | 146 | 147 | + | 144 | 143 | 144 | + | 153 | 153 | 152 |
| 243 | + | 5 | 3 | 3 | + | 3 | 4 | 3 | | 0 | +1 | —1 | + | 10 | 11 | 10 |
| 244 | + | 173 | 173 | 175 | + | 173 | 174 | 174 | + | 172 | 171 | 171 | + | 182 | 182 | 182 |
| 245 | — | 154 | 152 | 153 | — | 154 | 152 | 153 | — | 156 | 154 | 155 | — | 144 | 145 | 145 |
| 246 | + | 110 | 109 | 109 | + | 109 | 110 | 110 | + | 110 | 107 | 109 | + | 122 | 121 | 121 |
| 247 | — | 13 | 16 | 16 | — | 17 | 18 | 18 | — | 19 | 20 | 20 | — | 14 | 15 | 15 |
| 248 | + | 95 | 95 | 95 | + | 93 | 97 | 95 | + | 93 | 93 | 92 | + | 102 | 101 | 103 |
| 249 | — | 285 | 283 | 283 | — | 284 | 285 | 287 | — | 287 | 286 | 285 | — | 276 | 276 | 276 |
| 250 | + | 128 | 129 | 129 | + | 129 | 129 | 128 | + | 123 | 125 | 125 | + | 135 | 134 | 134 |

| N:o | **636.** NS. +J —P t: +22°3. | | | | **673.** NS. —P +J t: +22°2. | | | | **634.** NS. —S +B t: +21°2. | | | | **675.** NS. +B —S t: +18°1. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 226 | — | 111 | 113 | 112 | — | 105 | 104 | 103 | — | 108 | 108 | 108 | — | 105 | 105 | 105 |
| 227 | + | 109 | 107 | 106 | + | 118 | 117 | 117 | + | 114 | 115 | 113 | + | 115 | 115 | 115 |
| 228 | + | 118 | 119 | 118 | + | 128 | 128 | 127 | + | 124 | 124 | 123 | + | 125 | 124 | 125 |
| 229 | — | 438 | 438 | 438 | — | 429 | 429 | 430 | — | 433 | 434 | 433 | — | 431 | 430 | 429 |
| 230 | + | 231 | 232 | 230 | + | 231 | 231 | 232 | + | 229 | 226 | 226 | + | 228 | 229 | 228 |
| 231 | — | 29 | 30 | 29 | — | 12 | 11 | 13 | — | 15 | 15 | 15 | — | 18 | 14 | 15 |
| 232 | + | 10 | 10 | 10 | + | 16 | 17 | 17 | + | 10 | 12 | 12 | + | 14 | 15 | 14 |
| 233 | + | 52 | 51 | 51 | + | 59 | 60 | 59 | + | 56 | 57 | 56 | + | 57 | 58 | 58 |
| 234 | — | 59 | 60 | 61 | — | 43 | 46 | 45 | — | 47 | 49 | 48 | — | 45 | 45 | 47 |
| 235 | + | 10 | 9 | 9 | + | 11 | 11 | 12 | + | 9 | 7 | 7 | + | 9 | 9 | 9 |
| 236 | + | 215 | 215 | 215 | + | 293 | 293 | 293 | + | 290 | 289 | 288 | + | 291 | 291 | 291 |
| 237 | — | 122 | 124 | 123 | — | 184 | 183 | 182 | — | 185 | 186 | 186 | — | 184 | 183 | 185 |
| 238 | + | 110 | 109 | 109 | + | 119 | 118 | 119 | + | 117 | 116 | 116 | + | 119 | 119 | 120 |
| 239 | — | 234 | 232 | 233 | — | 222 | 224 | 224 | — | 229 | 229 | 228 | — | 227 | 228 | 227 |
| 240 | + | 208 | 208 | 209 | + | 215 | 215 | 215 | + | 211 | 210 | 211 | + | 212 | 213 | 213 |
| 241 | — | 167 | 167 | 169 | — | 159 | 158 | 158 | — | 160 | 160 | 160 | — | 159 | 158 | 159 |
| 242 | + | 147 | 147 | 147 | + | 157 | 157 | 157 | + | 152 | 151 | 150 | + | 153 | 152 | 154 |
| 243 | + | 5 | 4 | 4 | + | 11 | 12 | 12 | + | 9 | 9 | 8 | + | 9 | 11 | 11 |
| 244 | + | 174 | 173 | 175 | + | 182 | 182 | 183 | + | 179 | 180 | 180 | + | 181 | 183 | 183 |
| 245 | — | 153 | 152 | 151 | — | 142 | 143 | 142 | — | 146 | 146 | 147 | — | 146 | 146 | 144 |
| 246 | + | 111 | 110 | 111 | + | 119 | 119 | 119 | + | 118 | 118 | 120 | + | 121 | 120 | 120 |
| 247 | — | 14 | 17 | 15 | — | 7 | 8 | 7 | — | 14 | 16 | 17 | — | 15 | 13 | 13 |
| 248 | + | 96 | 96 | 96 | + | 104 | 105 | 104 | + | 100 | 101 | 100 | + | 103 | 102 | 103 |
| 249 | — | 286 | 286 | 285 | — | 275 | 274 | 275 | — | 278 | 278 | 279 | — | 277 | 277 | 278 |
| 250 | + | 128 | 129 | 130 | + | 138 | 138 | 138 | + | 133 | 133 | 132 | + | 135 | 134 | 135 |

# LOLLAND.

*1. Section. WE. 14.VIII. $9^h0^m$—$12^h0^m$. $t_1=+21°0$, $t_2=+24°0$.*

| N:o | 636. —J +P | | | 673. +J —P | | | 634. +S —B | | | 675. —S +B | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 247 | 244 247 | + | 257 | 256 258 | + | 251 | 251 252 | + | 252 | 252 252 |
| 1 | + | 249 | 248 246 | + | 253 | 252 253 | + | 249 | 250 250 | + | 254 | 254 256 |
| 2 | — | 627 | 626 628 | — | 618 | 618 618 | — | 622 | 622 621 | — | 621 | 621 620 |
| 3 | + | 305 | 306 303 | + | 313 | 312 312 | + | 307 | 308 310 | + | 311 | 311 311 |
| 4 | + | 18 | 19 19 | + | 27 | 29 28 | + | 25 | 23 23 | + | 24 | 23 26 |
| 5 | + | 274 | 276 276 | + | 283 | 283 282 | + | 279 | 279 280 | + | 282 | 281 281 |
| 6 | + | 22 | 22 22 | + | 31 | 30 31 | + | 26 | 27 25 | + | 28 | 28 29 |
| 7 | + | 132 | 132 134 | + | 140 | 140 141 | + | 136 | 137 137 | + | 140 | 139 139 |
| 8 | — | 364 | 362 363 | — | 354 | 356 353 | — | 359 | 359 359 | — | 358 | 358 356 |
| 9 | + | 99 | 98 99 | + | 108 | 106 107 | + | 103 | 104 103 | + | 104 | 104 106 |
| 10 | + | 242 | 241 242 | + | 251 | 250 252 | + | 247 | 246 245 | + | 248 | 248 248 |
| 11 | — | 138 | 138 140 | — | 128 | 129 129 | — | 133 | 135 134 | — | 132 | 133 132 |
| 12 | — | 131 | 132 130 | — | 124 | 122 126 | — | 127 | 127 129 | — | 125 | 126 126 |
| 13 | + | 157 | 158 159 | + | 168 | 165 167 | + | 164 | 164 163 | + | 165 | 166 166 |
| 14 | + | 127 | 129 128 | + | 136 | 135 135 | + | 131 | 130 131 | + | 134 | 134 133 |
| 15 | — | 104 | 105 105 | — | 97 | 96 98 | — | 101 | 101 100 | — | 99 | 99 99 |
| 16 | + | 53 | 54 55 | + | 62 | 62 63 | + | 58 | 58 57 | + | 60 | 60 60 |
| 17 | + | 38 | 37 37 | + | 46 | 44 46 | + | 43 | 42 41 | + | 43 | 43 42 |
| 18 | + | 151 | 152 151 | + | 160 | 160 160 | + | 156 | 155 156 | + | 157 | 157 156 |
| 19 | + | 156 | 156 156 | + | 163 | 162 164 | + | 158 | 159 159 | + | 161 | 160 161 |
| 20 | + | 389 | 389 389 | + | 397 | 398 397 | + | 393 | 393 393 | + | 394 | 394 394 |
| 21 | + | 231 | 233 233 | + | 240 | 241 241 | + | 235 | 235 235 | + | 239 | 239 239 |
| 22 | — | 208 | 205 205 | — | 196 | 197 198 | — | 201 | 200 201 | — | 200 | 200 200 |
| 23 | + | 60 | 58 59 | + | 67 | 66 67 | + | 64 | 63 64 | + | 64 | 66 63 |
| 24 | + | 225 | 223 224 | + | 233 | 232 233 | + | 228 | 228 230 | + | 230 | 231 229 |
| 25 | — | 198 | 198 199 | — | 191 | 191 191 | — | 195 | 195 194 | — | 193 | 192 194 |
| 26 | + | 231 | 231 231 | + | 241 | 240 240 | + | 236 | 236 235 | + | 239 | 238 238 |
| 27 | — | 60 | 59 59 | — | 50 | 50 50 | — | 54 | ,54 55 | — | 52 | 55 55 |
| 28 | + | 162 | 162 162 | + | 172 | 171 171 | + | 166 | 166 166 | + | 169 | 168 169 |
| 29 | — | 87 | 84 87 | — | 77 | 76 74 | — | 81 | 82 80 | — | 79 | 78 78 |
| 30 | + | 11 | 11 11 | + | 18 | 19 18 | + | 14 | 14 15 | + | 17 | 17 15 |
| 31 | + | 65 | 63 65 | + | 75 | 75 73 | + | 69 | 70 70 | + | 72 | 70 70 |
| 32 | — | 250 | 250 251 | — | 242 | 242 242 | — | 247 | 247 247 | — | 244 | 244 243 |
| 33 | + | 37 | 36 37 | + | 47 | 44 43 | + | 40 | 40 39 | + | 42 | 42 42 |
| 34 | + | 224 | 227 226 | + | 234 | 235 233 | + | 229 | 229 231 | + | 231 | 233 231 |
| 35 | — | 166 | 168 167 | — | 160 | 160 160 | — | 164 | 163 165 | — | 162 | 162 163 |
| 36 | + | 509 | 508 506 | + | 514 | 516 514 | + | 510 | 511 512 | + | 513 | 512 513 |
| 37 | — | 617 | 616 613 | — | 607 | 606 605 | — | 611 | 611 610 | — | 609 | 608 608 |
| 38 | + | 288 | 288 287 | + | 297 | 295 297 | + | 291 | 292 292 | + | 293 | 293 292 |
| 39 | — | 6 | 8 6 | + | 0 | 1 0 | — | 2 | 2 2 | | 0 | 0 0 |
| 40 | + | 114 | 115 114 | + | 124 | 125 128 | + | 121 | 119 120 | + | 120 | 121 122 |
| 41 | + | 163 | 165 165 | + | 175 | 177 177 | + | 171 | 171 168 | + | 174 | 175 175 |
| 41 | + | 167 | 170 169 | + | 177 | 175 173 | + | 171 | 171 172 | + | 173 | 172 171 |

# LOLLAND.

*1. Section. EW. 14.VIII. $13^h15^m$—$16^h0^m$. $t_1=+24°0$, $t_2=+24°5$.*

| N:o | 635. —B +S | | | 674. +B —S | | | 637. +P —J | | | 683. —P +J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | 214 | 213 214 | — | 201 | 201 200 | — | 211 | 210 210 | — | 210 | 210 210 |
| 1 | — | 211 | 211 212 | — | 202 | 203 203 | — | 212 | 211 209 | — | 212 | 213 212 |
| 2 | + | 24 | 24 24 | + | 33 | 33 33 | + | 24 | 28 27 | + | 27 | 27 27 |
| 3 | + | 150 | 150 150 | + | 159 | 160 159 | + | 154 | 153 153 | + | 151 | 152 152 |
| 4 | + | 26 | 26 26 | + | 37 | 36 35 | + | 28 | 27 28 | + | 29 | 28 28 |
| 5 | + | 578 | 578 579 | + | 589 | 589 588 | + | 584 | 581 582 | + | 580 | 581 581 |
| 6 | — | 403 | 403 403 | — | 394 | 393 393 | — | 400 | 400 400 | — | 400 | 401 402 |
| 7 | — | 24 | 23 23 | — | 13 | 13 13 | — | 19 | 21 21 | — | 20 | 22 22 |
| 8 | — | 103 | 105 104 | — | 94 | 94 94 | — | 102 | 102 103 | — | 103 | 102 103 |
| 9 | + | 213 | 211 213 | + | 221 | 222 222 | + | 213 | 214 213 | + | 212 | 214 214 |
| 10 | + | 250 | 250 250 | + | 259 | 259 259 | + | 252 | 252 253 | + | 253 | 253 253 |
| 11 | — | 263 | 263 264 | — | 253 | 253 253 | — | 259 | 259 260 | — | 261 | 261 261 |
| 12 | — | 66 | 68 68 | — | 58 | 57 57 | — | 62 | 62 — | — | 66 | 66 67 |
| 13 | — | 233 | 233 232 | — | 223 | 223 223 | — | 230 | 230 230 | — | 230 | 231 231 |
| 14 | + | 127 | 128 128 | + | 138 | 139 138 | + | 133 | 133 133 | + | 129 | 130 130 |
| 15 | + | 368 | 369 369 | + | 378 | 377 378 | + | 372 | 371 371 | + | 369 | 369 370 |
| 16 | — | 109 | 108 108 | — | 99 | 98 99 | — | 105 | 104 106 | — | 105 | 104 105 |
| 17 | — | 5 | 4 5 | + | 5 | 4 4 | — | 1 | 3 3 | — | 3 | 3 4 |
| 18 | — | 2 | 3 4 | + | 6 | 9 8 | + | 0 | 1 1 | — | 1 | 0 0 |
| 19 | + | 170 | 172 171 | + | 180 | 180 181 | + | 175 | 173 174 | + | 174 | 173 174 |
| 20 | + | 409 | 410 409 | + | 420 | 419 419 | + | 411 | 411 412 | + | 411 | 410 411 |
| 21 | + | 129 | 128 127 | + | 139 | 139 138 | + | 131 | 131 132 | + | 130 | 130 131 |
| 22 | + | 148 | 147 147 | + | 159 | 158 158 | + | 150 | 150 150 | + | 151 | 151 150 |
| 23 | — | 117 | 118 116 | — | 108 | 108 105 | — | 113 | 114 115 | — | 117 | 116 115 |
| 24 | + | 221 | 221 221 | + | 231 | 232 231 | + | 225 | 225 224 | + | 223 | 224 224 |
| 25 | — | 203 | 202 202 | — | 191 | 190 191 | — | 199 | 198 198 | — | 200 | 200 200 |
| 26 | + | 229 | 228 227 | + | 239 | 238 238 | + | 231 | 231 231 | + | 230 | 230 230 |
| 27 | — | 63 | 63 61 | — | 52 | 53 52 | — | 60 | 60 60 | — | 60 | 60 60 |
| 28 | + | 159 | 159 158 | + | 169 | 169 169 | + | 161 | 161 161 | + | 161 | 161 160 |
| 29 | — | 86 | 86 88 | — | 77 | 79 77 | — | 90 | 86 89 | — | 86 | 85 84 |
| 30 | + | 8 | 9 8 | + | 18 | 18 17 | + | 11 | 11 10 | + | 8 | 9 9 |
| 31 | + | 61 | 61 62 | + | 71 | 70 71 | + | 64 | 64 63 | + | 64 | 65 64 |
| 32 | — | 253 | 253 253 | — | 241 | 242 243 | — | 249 | 249 249 | — | 250 | 251 251 |
| 33 | + | 32 | 33 32 | + | 42 | 42 43 | + | 36 | 37 35 | + | 36 | 34 35 |
| 34 | + | 223 | 222 223 | + | 234 | 234 233 | + | 228 | 228 227 | + | 227 | 226 227 |
| 35 | — | 172 | 172 172 | — | 159 | 163 162 | — | 170 | 169 170 | — | 171 | 170 170 |
| 36 | + | 503 | 504 505 | + | 513 | 514 514 | + | 507 | 508 507 | + | 505 | 506 506 |
| 37 | — | 617 | 618 617 | — | 607 | 606 607 | — | 613 | 613 614 | — | 615 | 614 615 |
| 38 | + | 279 | — 283 | + | 291 | 296 295 | + | 289 | 288 287 | + | 285 | 286 287 |
| 39 | — | 11 | 12 10 | | 0 | —1 +1 | — | 6 | 7 7 | — | 7 | 8 8 |
| 40 | + | 110 | 111 111 | + | 122 | 122 122 | + | 113 | 112 114 | + | 113 | 117 116 |
| 41 | + | 169 | 164 164 | + | 173 | 174 175 | + | 169 | 166 168 | + | 166 | 167 166 |
| 41 | + | 162 | 162 163 | + | 174 | 173 176 | + | 169 | 167 167 | + | 166 | 167 167 |

# LOLLAND.

*2. Section. WE. 15.VIII. $8^h15^m$—$11^h0^m$. $t_1$=+16°.0, $t_2$=+18°.0.*

| N:o | 636. —P +J | | | 673. +P —J | | | 634. +B —S | | | 675. —B +S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | — | 85 | 85 | 85 | — | 116 | 117 | 117 | — | 81 | 82 | 82 | — | 115 | 115 | 116 |
| 42 | — | 127 | 127 | 127 | — | 78 | 78 | 78 | — | 118 | 120 | 119 | — | 78 | 78 | 78 |
| 43 | — | 3 | 3 | 2 | + | 8 | 7 | 5 | + | 2 | 1 | 2 | + | 2 | 2 | 3 |
| 44 | + | 144 | 143 | 144 | + | 152 | 152 | 152 | + | 147 | 148 | 148 | + | 150 | 149 | 149 |
| 45 | — | 2 | 3 | 2 | + | 7 | 6 | 4 | + | 0 | 0 | 1 | + | 4 | 3 | 3 |
| 46 | — | 82 | 83 | 83 | — | 73 | 74 | 74 | — | 79 | 79 | 80 | — | 76 | 78 | 78 |
| 47 | — | 155 | 155 | 157 | — | 147 | 148 | 147 | — | 152 | 152 | 151 | — | 151 | 150 | 150 |
| 48 | + | 266 | 266 | 266 | + | 276 | 276 | 275 | + | 272 | 270 | 272 | + | 273 | 275 | 274 |
| 49 | — | 45 | 44 | 45 | — | 36 | 35 | 35 | — | 41 | 40 | 41 | — | 36 | 39 | 39 |
| 50 | + | 236 | 234 | 234 | + | 242 | 243 | 242 | + | 239 | 239 | 239 | + | 240 | 240 | 241 |
| 51 | — | 14 | 13 | 14 | — | 4 | 6 | 7 | — | 9 | 10 | 8 | — | 8 | 8 | 8 |
| 52 | — | 124 | 122 | 122 | — | 113 | 112 | 112 | — | 118 | 119 | 118 | — | 117 | 115 | 116 |
| 53 | — | 105 | 103 | 105 | — | 97 | 97 | 97 | — | 100 | 101 | 101 | — | 98 | 99 | 98 |
| 54 | + | 132 | 133 | 133 | + | 164 | 165 | 165 | + | 161 | 162 | 162 | + | 162 | 163 | 162 |
| 55 | + | 155 | 155 | 157 | + | 143 | 142 | 142 | + | 138 | 137 | 136 | + | 138 | 138 | 138 |
| 56 | — | 27 | 26 | 26 | — | 17 | 16 | 15 | — | 20 | 22 | 21 | — | 18 | 19 | 19 |
| 57 | — | 3 | 3 | 4 | + | 6 | 6 | 5 | + | 2 | 1 | 1 | + | 4 | 4 | 3 |
| 58 | + | 177 | 177 | 177 | + | 188 | 188 | 186 | + | 183 | 182 | 183 | + | 184 | 185 | 185 |
| 59 | + | 303 | 305 | 304 | + | 314 | 314 | 313 | + | 309 | 309 | 309 | + | 311 | 311 | 311 |
| 60 | — | 225 | 223 | 225 | — | 213 | 214 | 214 | — | 219 | 219 | 218 | — | 217 | 216 | 216 |
| 61 | + | 349 | 349 | 348 | + | 359 | 359 | 355 | + | 352 | 353 | 352 | + | 353 | 353 | 354 |
| 62 | — | 269 | 268 | 266 | — | 256 | 256 | 256 | — | 263 | 262 | 262 | — | 260 | 260 | 260 |
| 63 | — | 33 | 31 | 31 | — | 24 | 23 | 23 | — | 27 | 27 | 27 | — | 25 | 24 | 24 |
| 64 | — | 100 | 98 | 99 | — | 89 | 89 | 89 | — | 95 | 94 | 94 | — | 91 | 94 | 91 |
| 65 | + | 246 | 247 | 246 | + | 256 | 257 | 257 | + | 252 | 253 | 254 | + | 255 | 254 | 256 |
| 66 | + | 276 | 278 | 278 | + | 286 | 288 | 287 | + | 282 | 283 | 282 | + | 285 | 285 | 286 |
| 67 | — | 348 | 348 | 347 | — | 338 | 338 | 337 | — | 343 | 344 | 344 | — | 341 | 343 | 341 |
| 68 | + | 107 | 109 | 108 | + | 119 | 118 | 118 | + | 115 | 113 | 113 | + | 116 | 114 | 114 |
| 69 | — | 29 | 29 | 29 | — | 20 | 20 | 19 | — | 25 | 25 | 25 | — | 21 | 21 | 21 |
| 70 | + | 142 | 144 | 142 | + | 152 | 153 | 152 | + | 148 | 148 | 148 | + | 152 | 149 | 151 |
| 71 | + | 27 | 27 | 26 | + | 34 | 34 | 35 | + | 30 | 29 | 31 | + | 32 | 32 | 33 |
| 72 | — | 230 | 230 | 230 | — | 218 | 219 | 218 | — | 223 | 224 | 224 | — | 222 | 222 | 222 |
| 73 | + | 336 | 335 | 335 | + | 343 | 343 | 343 | + | 341 | 338 | 338 | + | 341 | 341 | 341 |
| 74 | — | 96 | 95 | 95 | — | 85 | 85 | 87 | — | 90 | 93 | 92 | — | 91 | 90 | 90 |
| 75 | — | 195 | 197 | 196 | — | 189 | 188 | 188 | — | 193 | 192 | 193 | — | 191 | 191 | 191 |
| 76 | + | 278 | 276 | 277 | + | 287 | 284 | 285 | + | 282 | 282 | 281 | + | 283 | 284 | 283 |
| 77 | — | 31 | 33 | 32 | — | 21 | 23 | 24 | — | 29 | 27 | 29 | — | 25 | 26 | 25 |
| 78 | — | 22 | 21 | 22 | — | 13 | 12 | 11 | — | 17 | 18 | 17 | — | 15 | 14 | 14 |
| 79 | — | 170 | 171 | 172 | — | 162 | 163 | 163 | — | 168 | 166 | 166 | — | 164 | 166 | 164 |
| 80 | + | 184 | 186 | 187 | + | 199 | 196 | 197 | + | 190 | 190 | 189 | + | 192 | 193 | 192 |
| 81 | — | 243 | 243 | 244 | — | 236 | 234 | 234 | — | 238 | 239 | 239 | — | 238 | 236 | 237 |
| 82 | + | 450 | 450 | 450 | + | 456 | 458 | 458 | + | 453 | 452 | 451 | + | 457 | 458 | 458 |
| 82 | + | 449 | 449 | 447 | + | 458 | 458 | 457 | + | 454 | 453 | 455 | + | 453 | 455 | 455 |

# LOLLAND.

*2. Section. EW. 15.VIII. $12^h10^m$—$14^h45^m$. $t_1=+22°.5$, $t_2=+22°.8$.*

| N:o | 635. —S +B | | | 674. +S —B | | | 637. +J —P | | | 683. —J +P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | — | 74 | 73 75 | — | 52 | 51 51 | — | 72 | 71 71 | — | 61 | 62 61 |
| 42 | — | 61 | 60 61 | — | 63 | 63 64 | — | 59 | 59 60 | — | 73 | 73 75 |
| 43 | + | 74 | 72 74 | + | 85 | 86 85 | + | 77 | 79 78 | + | 78 | 80 80 |
| 44 | + | 228 | 227 227 | + | 238 | 238 238 | + | 230 | 227 230 | + | 230 | 230 229 |
| 45 | — | 27 | 27 26 | — | 17 | 16 15 | — | 26 | 25 23 | — | 23 | 26 25 |
| 46 | — | 271 | 272 271 | — | 260 | 260 259 | — | 268 | 268 269 | — | 268 | 267 268 |
| 47 | + | 89 | 89 88 | + | 99 | 99 99 | + | 92 | 92 92 | + | 90 | 92 91 |
| 48 | — | 94 | 94 95 | — | 84 | 83 83 | — | 91 | 92 91 | — | 92 | 92 92 |
| 49 | + | 99 | 100 100 | + | 111 | 111 110 | + | 101 | 100 100 | + | 102 | 104 103 |
| 50 | + | 109 | 109 110 | + | 120 | 120 120 | + | 113 | 111 112 | + | 113 | 112 113 |
| 51 | + | 42 | 42 42 | + | 53 | 52 52 | + | 44 | 46 45 | + | 43 | 44 43 |
| 52 | — | 176 | 177 177 | — | 166 | 166 165 | — | 176 | 172 173 | — | 175 | 175 175 |
| 53 | — | 216 | 216 215 | — | 202 | 204 203 | — | 216 | 212 213 | — | 214 | 213 212 |
| 54 | + | 400 | 400 401 | + | 411 | 410 411 | + | 403 | 402 402 | + | 402 | 404 404 |
| 55 | + | 95 | 94 95 | + | 105 | 106 106 | + | 96 | 97 99 | + | 97 | 97 100 |
| 56 | — | 110 | 109 110 | — | 99 | 98 98 | — | 108 | 104 108 | — | 107 | 107 106 |
| 57 | + | 55 | 54 54 | + | 65 | 65 64 | + | 58 | 57 56 | + | 57 | 56 57 |
| 58 | — | 8 | 9 7 | + | 2 | 3 3 | — | 4 | 7 6 | — | 6 | 5 7 |
| 59 | + | 541 | 541 541 | + | 552 | 553 552 | + | 546 | 546 545 | + | 543 | 546 545 |
| 60 | — | 246 | 243 246 | — | 235 | 235 233 | — | 242 | 243 242 | — | 243 | 241 244 |
| 61 | + | 333 | 335 335 | + | 345 | 345 346 | + | 337 | 337 338 | + | 336 | 337 336 |
| 62 | — | 328 | 327 329 | — | 318 | 319 319 | — | 326 | 323 325 | — | 325 | 325 324 |
| 63 | + | 408 | 408 409 | + | 418 | 419 418 | + | 410 | 410 413 | + | 411 | 410 411 |
| 64 | — | 531 | 531 532 | — | 522 | 520 520 | — | 529 | 527 527 | — | 527 | 529 527 |
| 65 | + | 244 | 244 245 | + | 255 | 255 253 | + | 246 | 248 247 | + | 247 | 248 248 |
| 66 | + | 291 | 291 292 | + | 303 | 302 301 | + | 295 | 295 292 | + | 296 | 293 295 |
| 67 | — | 366 | 366 366 | — | 355 | 356 356 | — | 362 | 366 362 | — | 362 | 363 366 |
| 68 | + | 104 | 104 104 | + | 117 | 114 116 | + | 108 | 108 109 | + | 109 | 107 108 |
| 69 | — | 33 | 33 33 | — | 22 | 22 21 | — | 29 | 30 29 | — | 29 | 29 30 |
| 70 | + | 140 | 140 139 | + | 151 | 150 151 | + | 141 | 142 143 | + | 142 | 142 144 |
| 71 | + | 21 | 22 21 | + | 33 | 32 32 | + | 27 | 26 27 | + | 23 | 26 25 |
| 72 | — | 233 | 232 233 | — | 222 | 223 221 | — | 230 | 229 230 | — | 227 | 229 229 |
| 73 | + | 331 | 331 331 | + | 342 | 343 341 | + | 335 | 336 332 | + | 333 | 336 335 |
| 74 | — | 99 | 100 100 | — | 89 | 86 88 | — | 97 | 95 95 | — | 96 | 97 98 |
| 75 | — | 201 | 204 201 | — | 191 | 190 189 | — | 196 | 199 197 | — | 199 | 199 199 |
| 76 | + | 274 | 274 273 | + | 283 | 283 284 | + | 276 | 278 279 | + | 276 | 274 277 |
| 77 | — | 36 | 37 37 | — | 25 | 27 25 | — | 33 | 31 32 | — | 32 | 32 33 |
| 78 | — | 25 | 25 24 | — | 13 | 14 13 | — | 21 | 23 21 | — | 21 | 23 21 |
| 79 | — | 174 | 175 175 | — | 165 | 165 165 | — | 173 | 172 171 | — | 174 | 172 172 |
| 80 | + | 182 | 182 183 | + | 193 | 194 192 | + | 186 | 185 184 | + | 184 | 184 184 |
| 81 | — | 247 | 245 245 | — | 237 | 237 235 | — | 244 | 243 243 | — | 243 | 245 242 |
| 82 | + | 446 | 447 445 | + | 453 | 452 452 | + | 450 | 451 451 | + | 447 | 447 446 |
| 82 | + | 443 | 442 441 | + | 458 | 457 458 | + | 448 | 445 446 | + | 450 | 451 450 |

# LOLLAND.

*3. Section. WE. 16.VIII. $7^h45^m$—$10^h15^m$. $t_1=+15°0$, $t_2=+22°0$.*

| N:o | 636. —J +P | | | 673. +J —P | | | 634. +S —B | | | 675. —S +B | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 83 | — | 33 | 33 | 32 | — | 19 | 17 | 18 | — | 27 | 29 | 28 | — | 20 | 21 | 20 |
| 83 | — | 25 | 27 | 25 | — | 23 | 27 | 24 | — | 21 | 22 | 22 | — | 26 | 25 | 26 |
| 84 | + | 42 | 40 | 42 | + | 50 | 51 | 50 | + | 45 | 46 | 45 | + | 47 | 47 | 47 |
| 85 | — | 20 | 18 | 19 | — | 11 | 9 | 10 | — | 14 | 14 | 14 | — | 13 | 13 | 14 |
| 86 | — | 128 | 128 | 130 | — | 121 | 120 | 121 | — | 125 | 124 | 125 | — | 123 | 123 | 124 |
| 87 | + | 400 | 398 | 399 | + | 409 | 407 | 407 | + | 403 | 403 | 403 | + | 405 | 403 | 405 |
| 88 | — | 395 | 394 | 394 | — | 386 | 385 | 385 | — | 389 | 390 | 390 | — | 388 | 388 | 388 |
| 89 | + | 30 | 29 | 29 | + | 41 | 39 | 39 | + | 34 | 34 | 33 | + | 37 | 36 | 36 |
| 90 | + | 81 | 80 | 80 | + | 90 | 89 | 89 | + | 84 | 86 | 86 | + | 87 | 86 | 86 |
| 91 | + | 195 | 193 | 193 | + | 202 | 200 | 201 | + | 195 | 197 | 195 | + | 198 | 198 | 198 |
| 92 | — | 177 | 176 | 176 | — | 170 | 169 | 167 | — | 174 | 172 | 174 | — | 170 | 171 | 173 |
| 93 | — | 60 | 61 | 61 | — | 52 | 52 | 51 | — | 55 | 55 | 55 | — | 54 | 54 | 55 |
| 94 | + | 48 | 48 | 49 | + | 57 | 54 | 54 | + | 50 | 50 | 51 | + | 52 | 53 | 53 |
| 95 | + | 203 | 204 | 206 | + | 213 | 211 | 213 | + | 209 | 208 | 209 | + | 210 | 211 | 209 |
| 96 | — | 287 | 285 | 286 | — | 275 | 276 | 279 | — | 283 | 281 | 281 | — | 278 | 281 | 279 |
| 97 | + | 199 | 199 | 198 | + | 206 | 209 | 207 | + | 203 | 204 | 202 | + | 206 | 205 | 205 |
| 98 | + | 83 | 82 | 85 | + | 94 | 95 | 93 | + | 89 | 87 | 88 | + | 89 | 91 | 90 |
| 99 | — | 9 | 7 | 9 | + | 2 | 3 | 1 | — | 4 | 2 | 3 | — | 2 | 2 | 0 |
| 100 | + | 75 | 74 | 77 | + | 85 | 83 | 86 | + | 79 | 78 | 80 | + | 81 | 81 | 80 |
| 101 | + | 21 | 21 | 20 | + | 30 | 31 | 29 | + | 27 | 24 | 26 | + | 27 | 27 | 27 |
| 102 | — | 270 | 271 | 274 | — | 261 | 264 | 265 | — | 268 | 268 | 268 | — | 267 | 266 | 267 |
| 103 | + | 124 | 128 | 124 | + | 135 | 136 | 132 | + | 130 | 130 | 129 | + | 132 | 133 | 132 |
| 104 | + | 22 | 24 | 20 | + | 30 | 32 | 30 | + | 25 | 26 | 26 | + | 28 | 28 | 28 |
| 105 | + | 111 | 115 | 112 | + | 122 | 121 | 123 | + | 118 | 117 | 118 | + | 119 | 119 | 120 |
| 106 | — | 208 | 206 | 209 | — | 198 | 198 | 198 | — | 202 | 203 | 202 | — | 200 | 201 | 202 |
| 107 | + | 121 | 124 | 124 | + | 132 | 132 | 131 | + | 128 | 127 | 128 | + | 130 | 130 | 130 |
| 108 | — | 319 | 318 | 319 | — | 310 | 309 | 311 | — | 315 | 314 | 313 | — | 313 | 313 | 313 |
| 109 | + | 524 | 524 | 525 | + | 534 | 534 | 533 | + | 529 | 529 | 529 | + | 529 | 531 | 530 |
| 110 | — | 14 | 13 | 12 | — | 5 | 3 | 5 | — | 9 | 9 | 10 | — | 8 | 8 | 8 |
| 111 | — | 40 | 40 | 41 | — | 32 | 32 | 33 | — | 36 | 36 | 37 | — | 34 | 35 | 35 |
| 112 | — | 34 | 38 | 38 | — | 28 | 26 | 26 | — | 32 | 32 | 31 | — | 30 | 29 | 30 |
| 113 | + | 49 | 46 | 47 | + | 56 | 58 | 55 | + | 51 | 52 | 51 | + | 54 | 54 | 55 |
| 114 | — | 139 | 138 | 139 | — | 127 | 130 | 130 | — | 136 | 134 | 136 | — | 132 | 132 | 132 |
| 115 | + | 199 | 198 | 199 | + | 209 | 207 | 207 | + | 203 | 203 | 203 | + | 204 | 204 | 205 |
| 116 | + | 360 | 360 | 360 | + | 369 | 369 | 368 | + | 365 | 365 | 363 | + | 367 | 366 | 367 |
| 117 | + | 3 | 5 | 6 | + | 12 | 12 | 14 | + | 9 | 8 | 10 | + | 10 | 10 | 10 |
| 118 | — | 291 | 291 | 292 | — | 282 | 282 | 283 | — | 286 | 287 | 287 | — | 284 | 286 | 285 |
| 119 | + | 205 | 205 | 208 | + | 213 | 215 | 213 | + | 210 | 211 | 210 | + | 213 | 213 | 212 |
| 120 | + | 156 | 152 | 152 | + | 162 | 164 | 162 | + | 158 | 158 | 159 | + | 160 | 160 | 159 |
| 121 | — | 141 | 140 | 142 | — | 131 | 132 | 135 | — | 138 | 137 | 137 | — | 135 | 136 | 134 |
| 122 | + | 23 | 24 | 23 | + | 30 | 30 | 31 | + | 26 | 25 | 25 | + | 33 | 29 | 28 |
| 123 | — | 132 | 132 | 135 | — | 139 | 138 | 139 | — | 127 | 129 | 128 | — | 141 | 141 | 141 |
| 123 | — | 147 | 148 | 149 | — | 123 | 126 | 125 | — | 143 | 145 | 143 | — | 122 | 122 | 120 |

# LOLLAND.

*3. Section. EW. 16.VIII. $11^h45^m$—$14^h0^m$. $t_1=+23°0$, $t_2=+22°0$.*

| N:o | 635. —B +S | | | 674. +B —S | | | 637. +P —J | | | 683. —P +J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 83 | — | 3 | 3 | 3 | + | 20 | 20 | 20 | | 0 | 0 | 0 | + | 11 | 11 | 11 |
| 83 | + | 9 | 9 | 9 | + | 7 | 6 | 6 | + | 13 | 12 | 14 | — | 1 | 0 | 1 |
| 84 | + | 49 | 48 | 48 | + | 57 | 58 | 56 | + | 51 | 51 | 51 | + | 50 | 50 | 50 |
| 85 | — | 107 | 106 | 105 | — | 96 | 96 | 97 | — | 101 | 102 | 102 | — | 102 | 103 | 103 |
| 86 | + | 27 | 26 | 26 | + | 37 | 37 | 37 | + | 29 | 28 | 29 | + | 29 | 28 | 28 |
| 87 | + | 70 | 70 | 69 | + | 79 | 79 | 79 | + | 73 | 72 | 73 | + | 73 | 71 | 72 |
| 88 | — | 118 | 118 | 117 | — | 108 | 107 | 107 | — | 115 | 115 | 116 | — | 114 | 115 | 116 |
| 89 | + | 44 | 44 | 43 | + | 54 | 54 | 54 | + | 48 | 46 | 48 | + | 46 | 47 | 45 |
| 90 | — | 283 | 281 | 281 | — | 273 | 272 | 270 | — | 278 | 278 | 278 | — | 278 | 279 | 279 |
| 91 | + | 177 | 177 | 176 | + | 187 | 186 | 186 | + | 180 | 181 | 180 | + | 179 | 179 | 178 |
| 92 | + | 135 | 136 | 135 | + | 144 | 144 | 144 | + | 137 | 137 | 138 | + | 136 | 136 | 136 |
| 93 | — | 19 | 19 | 20 | — | 10 | 10 | 10 | — | 17 | 14 | 15 | — | 19 | 17 | 17 |
| 94 | — | 95 | 95 | 97 | — | 85 | 85 | 84 | — | 93 | 93 | 92 | — | 94 | 92 | 92 |
| 95 | + | 299 | 298 | 298 | + | 309 | 309 | 310 | + | 302 | 301 | 303 | + | 301 | 302 | 301 |
| 96 | — | 134 | 134 | 133 | — | 124 | 123 | 124 | — | 130 | 130 | 131 | — | 132 | 131 | 132 |
| 97 | + | 129 | 130 | 129 | + | 138 | 139 | 140 | + | 134 | 133 | 132 | + | 133 | 131 | 132 |
| 98 | — | 269 | 269 | 269 | — | 259 | 258 | 259 | — | 268 | 267 | 266 | — | 267 | 268 | 267 |
| 99 | + | 45 | 44 | 44 | + | 56 | 57 | 57 | + | 49 | 48 | 50 | + | 49 | 49 | 49 |
| 100 | + | 231 | 229 | 230 | + | 241 | 240 | 240 | + | 233 | 234 | 232 | + | 232 | 234 | 232 |
| 101 | + | 19 | 18 | 18 | + | 27 | 28 | 29 | + | 20 | 21 | 20 | + | 20 | 19 | 19 |
| 102 | — | 202 | 202 | 202 | — | 191 | 192 | 193 | — | 199 | 199 | 199 | — | 200 | 199 | 200 |
| 103 | + | 22 | 22 | 23 | + | 32 | 33 | 35 | + | 24 | 24 | 25 | + | 26 | 25 | 26 |
| 104 | — | 116 | 115 | 117 | — | 106 | 106 | 106 | — | 114 | 113 | 113 | — | 115 | 113 | 115 |
| 105 | + | 268 | 268 | 268 | + | 277 | 277 | 277 | + | 271 | 270 | 269 | + | 269 | 269 | 269 |
| 106 | — | 211 | 212 | 210 | — | 200 | 200 | 199 | — | 205 | 206 | 206 | — | 208 | 207 | 208 |
| 107 | + | 119 | 121 | 119 | + | 129 | 131 | 129 | + | 122 | 122 | 121 | + | 120 | 121 | 121 |
| 108 | — | 322 | 323 | 322 | — | 312 | 311 | 311 | — | 320 | 320 | 319 | — | 320 | 320 | 319 |
| 109 | + | 519 | 520 | 520 | + | 531 | 531 | 531 | + | 523 | 523 | 524 | + | 522 | 522 | 521 |
| 110 | — | 17 | 18 | 17 | — | 7 | 8 | 7 | — | 15 | 13 | 15 | — | 13 | 16 | 16 |
| 111 | — | 45 | 44 | 45 | — | 34 | 34 | 34 | — | 41 | 40 | 40 | — | 41 | 42 | 41 |
| 112 | — | 41 | 40 | 40 | — | 30 | 28 | 29 | — | 38 | 36 | 38 | — | 39 | 40 | 39 |
| 113 | + | 45 | 44 | 45 | + | 54 | 55 | 54 | + | 49 | 48 | 47 | + | 44 | 47 | 47 |
| 114 | — | 143 | 142 | 143 | — | 132 | 132 | 133 | — | 139 | 139 | 139 | — | 140 | 140 | 140 |
| 115 | + | 195 | 196 | 195 | + | 206 | 206 | 205 | + | 200 | 198 | 198 | + | 199 | 198 | 198 |
| 116 | + | 357 | 357 | 355 | + | 366 | 366 | 366 | + | 359 | 359 | 357 | + | 358 | 359 | 358 |
| 117 | + | 1 | 1 | 0 | + | 11 | 11 | 11 | + | 3 | 4 | 3 | + | 3 | 4 | 4 |
| 118 | — | 295 | 295 | 296 | — | 286 | 283 | 285 | — | 293 | 293 | 293 | — | 291 | 291 | 293 |
| 119 | + | 202 | 202 | 202 | + | 213 | 214 | 213 | + | 205 | 205 | 205 | + | 205 | 205 | 205 |
| 120 | + | 151 | 150 | 149 | + | 160 | 160 | 158 | + | 155 | 154 | 153 | + | 151 | 151 | 152 |
| 121 | — | 145 | 145 | 146 | — | 137 | 135 | 134 | — | 141 | 142 | 142 | — | 140 | 142 | 142 |
| 122 | + | 17 | 20 | 17 | + | 30 | 29 | 30 | + | 24 | 24 | 22 | + | 19 | 19 | 19 |
| 123 | — | 143 | 142 | 141 | — | 120 | 121 | 120 | — | 153 | 152 | 154 | — | 126 | 127 | 126 |
| 123 | — | 148 | 148 | 149 | — | 132 | 132 | 132 | — | 128 | 128 | 129 | — | 153 | 153 | 153 |

# LOLLAND.

*4. Section. WE. 17.VIII. $8^h0^m$—$10^h30^m$. $t_1=+18°.0$, $t_2=+19°.8$.*

| N:o | 636. +J −P | | | 673. −J +P | | | 634. −S +B | | | 675. +S −B | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 124 | + | 102 | 105 | 103 | + | 109 | 109 | 108 | + | 110 | 108 | 109 | + | 104 | 105 | 106 |
| 124 | + | 97 | 95 | 98 | + | 111 | 114 | 113 | + | 103 | 104 | 103 | + | 109 | 111 | 110 |
| 125 | + | 257 | 258 | 257 | + | 266 | 268 | 268 | + | 262 | 261 | 261 | + | 264 | 265 | 264 |
| 126 | − | 402 | 402 | 403 | − | 393 | 393 | 394 | − | 397 | 397 | 397 | − | 395 | 395 | 395 |
| 127 | + | 272 | 274 | 273 | + | 282 | 283 | 283 | + | 278 | 277 | 277 | + | 279 | 278 | 280 |
| 128 | − | 79 | 77 | 79 | − | 70 | 71 | 70 | − | 74 | 74 | 76 | − | 73 | 72 | 72 |
| 129 | − | 73 | 72 | 72 | − | 63 | 65 | 62 | − | 69 | 68 | 69 | − | 66 | 67 | 67 |
| 130 | − | 110 | 110 | 111 | − | 104 | 101 | 102 | − | 109 | 107 | 107 | − | 103 | 104 | 104 |
| 131 | + | 100 | 101 | 101 | + | 110 | 110 | 111 | + | 105 | 104 | 105 | + | 106 | 107 | 107 |
| 132 | + | 155 | 157 | 156 | + | 166 | 166 | 166 | + | 163 | 162 | 163 | + | 164 | 163 | 164 |
| 133 | − | 42 | 42 | 45 | − | 35 | 34 | 37 | − | 40 | 40 | 40 | − | 38 | 39 | 38 |
| 134 | + | 44 | 47 | 46 | + | 52 | 55 | 53 | + | 49 | 49 | 49 | + | 53 | 52 | 52 |
| 135 | + | 299 | 298 | 301 | + | 311 | 310 | 311 | + | 306 | 306 | 304 | + | 307 | 306 | 309 |
| 136 | − | 153 | 152 | 154 | − | 145 | 144 | 147 | − | 150 | 149 | 150 | − | 148 | 147 | 148 |
| 137 | + | 32 | 35 | 36 | + | 43 | 42 | 42 | + | 37 | 37 | 38 | + | 40 | 39 | 39 |
| 138 | + | 69 | 70 | 70 | + | 79 | 80 | 79 | + | 75 | 74 | 74 | + | 78 | 78 | 78 |
| 139 | − | 105 | 105 | 102 | − | 93 | 96 | 96 | − | 97 | 98 | 99 | − | 96 | 97 | 96 |
| 140 | + | 50 | 50 | 50 | + | 59 | 58 | 59 | + | 54 | 54 | 56 | + | 56 | 56 | 55 |
| 141 | − | 75 | 77 | 77 | − | 69 | 68 | 66 | − | 74 | 73 | 72 | − | 70 | 70 | 71 |
| 142 | + | 60 | 59 | 60 | + | 68 | 68 | 69 | + | 64 | 64 | 64 | + | 67 | 66 | 66 |
| 143 | + | 273 | 274 | 277 | + | 285 | 287 | 286 | + | 280 | 278 | 279 | + | 283 | 282 | 282 |
| 144 | − | 365 | 365 | 365 | − | 358 | 356 | 357 | − | 362 | 360 | 361 | − | 359 | 360 | 360 |
| 145 | + | 127 | 127 | 128 | + | 138 | 137 | 137 | + | 131 | 133 | 131 | + | 136 | 134 | 134 |
| 146 | − | 24 | 22 | 26 | − | 17 | 18 | 14 | − | 21 | 19 | 20 | − | 17 | 18 | 19 |
| 147 | + | 194 | 192 | 193 | + | 201 | 201 | 201 | + | 196 | 196 | 196 | + | 197 | 198 | 199 |
| 148 | − | 136 | 136 | 137 | − | 129 | 129 | 128 | − | 133 | 133 | 133 | − | 131 | 131 | 130 |
| 149 | + | 68 | 67 | 68 | + | 76 | 78 | 78 | + | 72 | 72 | 72 | + | 75 | 75 | 74 |
| 150 | − | 26 | 23 | 25 | − | 14 | 15 | 14 | − | 20 | 20 | 19 | − | 17 | 17 | 17 |
| 151 | + | 61 | 63 | 62 | + | 70 | 71 | 72 | + | 66 | 67 | 67 | + | 69 | 69 | 69 |
| 152 | + | 94 | 93 | 93 | + | 102 | 102 | 103 | + | 99 | 97 | 98 | + | 101 | 102 | 101 |
| 153 | + | 228 | 223 | 227 | + | 238 | 236 | 236 | + | 232 | 233 | 232 | + | 235 | 234 | 232 |
| 154 | − | 149 | 146 | 149 | − | 138 | 137 | 139 | − | 143 | 144 | 143 | − | 140 | 141 | 141 |
| 155 | + | 87 | 83 | 83 | + | 93 | 92 | 93 | + | 88 | 88 | 89 | + | 90 | 91 | 92 |
| 156 | + | 212 | 211 | 211 | + | 220 | 220 | 220 | + | 215 | 217 | 216 | + | 217 | 218 | 217 |
| 157 | + | 14 | 13 | 15 | + | 23 | 24 | 23 | + | 19 | 19 | 19 | + | 21 | 21 | 22 |
| 158 | − | 90 | 89 | 91 | − | 81 | 82 | 80 | − | 87 | 86 | 86 | − | 83 | 82 | 82 |
| 159 | − | 108 | 107 | 107 | − | 97 | 98 | 98 | − | 102 | 104 | 101 | − | 100 | 100 | 99 |
| 160 | + | 242 | 242 | 244 | + | 253 | 253 | 252 | + | 248 | 247 | 247 | + | 249 | 249 | 250 |
| 161 | − | 6 | 8 | 6 | + | 2 | 0 | 1 | − | 4 | 5 | 4 | − | 3 | 2 | 2 |
| 162 | − | 503 | 505 | 502 | − | 495 | 493 | 497 | − | 499 | 500 | 501 | − | 497 | 497 | 498 |
| 163 | − | 3 | 4 | 2 | + | 7 | 4 | 5 | + | 1 | 1 | 2 | + | 4 | 3 | 5 |
| 164 | − | 324 | 323 | 324 | − | 317 | 314 | 316 | − | 317 | 318 | 319 | − | 320 | 319 | 320 |
| 164 | − | 328 | 325 | 325 | − | 312 | 313 | 313 | − | 322 | 322 | 322 | − | 316 | 317 | 317 |

# LOLLAND.

*4. Section. EW. 17.VIII. $11^h40^m$—$14^h5^m$. $t_1$=+19°.0. $t_2$=+22°.0.*

| N:o | 635. +B | | −S | | 674. −B | | +S | | 637. −P | | +J | | 683. +P | | −J | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 124 | − | 2 | 2 | 4 | + | 1 | 1 | 2 | − | 3 | 2 | 2 | − | 6 | 5 | 4 |
| 124 | − | 9 | 9 | 10 | + | 8 | 6 | 7 | − | 5 | 7 | 7 | − | 2 | 1 | 2 |
| 125 | + | 156 | 157 | 156 | + | 167 | 167 | 168 | + | 158 | 160 | 160 | + | 159 | 159 | 159 |
| 126 | − | 257 | 255 | 254 | − | 247 | 246 | 246 | − | 252 | 254 | 253 | − | 253 | 255 | 253 |
| 127 | + | 260 | 261 | 259 | + | 271 | 271 | 270 | + | 262 | 262 | 262 | + | 262 | 264 | 263 |
| 128 | + | 137 | 135 | 135 | + | 145 | 146 | 145 | + | 139 | 138 | 138 | + | 138 | 138 | 137 |
| 129 | − | 378 | 377 | 378 | − | 365 | 366 | 366 | − | 375 | 373 | 375 | − | 375 | 375 | 373 |
| 130 | + | 5 | 3 | 4 | + | 15 | 15 | 14 | + | 7 | 6 | 7 | + | 7 | 7 | 7 |
| 131 | − | 85 | 85 | 85 | − | 74 | 75 | 75 | − | 82 | 83 | 82 | − | 82 | 81 | 82 |
| 132 | + | 254 | 254 | 254 | + | 265 | 265 | 265 | + | 256 | 255 | 254 | + | 257 | 258 | 256 |
| 133 | − | 37 | 37 | 35 | − | 25 | 24 | 25 | − | 34 | 32 | 34 | − | 31 | 33 | 32 |
| 134 | + | 20 | 20 | 20 | + | 30 | 31 | 31 | + | 22 | 24 | 22 | + | 22 | 22 | 24 |
| 135 | + | 481 | 483 | 482 | + | 491 | 492 | 491 | + | 482 | 482 | 485 | + | 483 | 483 | 484 |
| 136 | − | 554 | 553 | 554 | − | 543 | 542 | 544 | − | 550 | 550 | 550 | − | 550 | 552 | 549 |
| 137 | + | 93 | 92 | 93 | + | 103 | 104 | 103 | + | 94 | 96 | 97 | + | 95 | 94 | 94 |
| 138 | + | 177 | 177 | 179 | + | 189 | 188 | 187 | + | 179 | 180 | 180 | + | 180 | 180 | 180 |
| 139 | − | 55 | 56 | 55 | − | 44 | 45 | 45 | − | 51 | 52 | 52 | − | 52 | 52 | 53 |
| 140 | − | 35 | 35 | 36 | − | 24 | 24 | 26 | − | 33 | 32 | 33 | − | 31 | 32 | 33 |
| 141 | + | 395 | 393 | 396 | + | 406 | 407 | 405 | + | 397 | 397 | 399 | + | 400 | 398 | 397 |
| 142 | − | 405 | 405 | 403 | − | 394 | 395 | 395 | − | 401 | 402 | 402 | − | 402 | 402 | 402 |
| 143 | + | 88 | 89 | 89 | + | 99 | 99 | 99 | + | 93 | 92 | 92 | + | 91 | 91 | 92 |
| 144 | + | 329 | 329 | 330 | + | 340 | 340 | 341 | + | 332 | 332 | 333 | + | 331 | 332 | 331 |
| 145 | − | 113 | 113 | 113 | − | 104 | 103 | 102 | − | 110 | 111 | 110 | − | 109 | 111 | 110 |
| 146 | − | 130 | 131 | 132 | − | 120 | 121 | 121 | − | 126 | 128 | 127 | − | 129 | 128 | 127 |
| 147 | + | 188 | 189 | 189 | + | 199 | 199 | 198 | + | 191 | 189 | 191 | + | 192 | 191 | 192 |
| 148 | − | 140 | 141 | 142 | − | 130 | 131 | 131 | − | 139 | 139 | 138 | − | 138 | 138 | 138 |
| 149 | + | 66 | 65 | 64 | + | 76 | 74 | 75 | + | 67 | 67 | 68 | + | 67 | 68 | 67 |
| 150 | − | 28 | 28 | 27 | − | 16 | 17 | 17 | − | 25 | 26 | 24 | − | 26 | 24 | 24 |
| 151 | + | 57 | 59 | 59 | + | 69 | 69 | 69 | + | 60 | 61 | 61 | + | 63 | 62 | 62 |
| 152 | + | 90 | 88 | 89 | + | 101 | 101 | 101 | + | 92 | 93 | 92 | + | 94 | 94 | 96 |
| 153 | + | 224 | 223 | 225 | + | 234 | 233 | 234 | + | 228 | 227 | 227 | + | 224 | 226 | 226 |
| 154 | − | 152 | 152 | 151 | − | 141 | 141 | 140 | − | 150 | 149 | 148 | − | 147 | 148 | 148 |
| 155 | + | 80 | 80 | 80 | + | 91 | 91 | 91 | + | 85 | 84 | 85 | + | 83 | 83 | 83 |
| 156 | + | 208 | 208 | 208 | + | 218 | 218 | 217 | + | 210 | 210 | 210 | + | 211 | 211 | 211 |
| 157 | + | 10 | 11 | 12 | + | 22 | 20 | 21 | + | 15 | 14 | 13 | + | 16 | 14 | 15 |
| 158 | − | 95 | 93 | 93 | − | 83 | 83 | 83 | − | 90 | 90 | 91 | − | 90 | 91 | 92 |
| 159 | − | 110 | 110 | 112 | − | 99 | 99 | 99 | − | 108 | 108 | 107 | − | 106 | 107 | 105 |
| 160 | + | 240 | 240 | 239 | + | 250 | 250 | 249 | + | 241 | 241 | 241 | + | 243 | 243 | 242 |
| 161 | − | 11 | 10 | 11 | + | 1 | 0 | 0 | − | 9 | 8 | 8 | − | 7 | 9 | 8 |
| 162 | − | 506 | 507 | 507 | − | 496 | 497 | 497 | − | 503 | 503 | 504 | − | 504 | 505 | 504 |
| 163 | − | 7 | 6 | 7 | + | 2 | 3 | 3 | − | 3 | 3 | 3 | − | 7 | 5 | 6 |
| 164 | − | 334 | 335 | 335 | − | 310 | 309 | 309 | − | 332 | 332 | 332 | − | 318 | 317 | 317 |
| 164 | − | 320 | 321 | 319 | − | 325 | 324 | 325 | − | 316 | 317 | 317 | − | 333 | 331 | 332 |

# LOLLAND.

*5. Section. WE. 19.VIII. $7^h45^m$—$9^h45^m$. $t_1$=+16°.5, $t_2$=+17°.5.*

| N:o | **636.** +P −J | | | **673.** −P +J | | | **634.** −B +S | | | **675.** +B −S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 165 | + | 161 | 161 162 | + | 172 | 170 170 | + | 166 | 164 165 | + | 169 | 170 170 |
| 165 | + | 165 | 164 164 | + | 168 | 168 167 | + | 166 | 168 168 | + | 167 | 167 166 |
| 166 | − | 196 | 194 194 | − | 184 | 187 186 | − | 190 | 190 190 | − | 188 | 188 189 |
| 167 | + | 287 | 286 287 | + | 292 | 294 295 | + | 289 | 290 289 | + | 292 | 291 291 |
| 168 | − | 178 | 178 178 | − | 169 | 170 170 | − | 173 | 174 174 | − | 173 | 172 173 |
| 169 | + | 53 | 52 54 | + | 60 | 60 60 | + | 56 | 56 56 | + | 59 | 59 58 |
| 170 | + | 49 | 50 50 | + | 57 | 57 56 | + | 52 | 52 52 | + | 55 | 55 54 |
| 171 | + | 193 | 193 195 | + | 204 | 203 204 | + | 199 | 198 197 | + | 200 | 200 202 |
| 172 | − | 39 | 38 38 | − | 30 | 30 30 | − | 33 | 33 33 | − | 32 | 32 32 |
| 173 | − | 162 | 161 162 | − | 155 | 155 154 | − | 158 | 158 159 | − | 156 | 158 157 |
| 174 | + | 44 | 44 45 | + | 52 | 53 52 | + | 50 | 49 48 | + | 50 | 49 50 |
| 175 | − | 109 | 109 110 | − | 102 | 101 102 | − | 106 | 105 105 | − | 103 | 103 103 |
| 176 | + | 120 | 121 121 | + | 128 | 127 128 | + | 125 | 124 124 | + | 125 | 125 126 |
| 177 | − | 336 | 336 332 | − | 327 | 326 326 | − | 330 | 329 330 | − | 328 | 327 328 |
| 178 | + | 479 | 479 479 | + | 484 | 486 486 | + | 482 | 481 481 | + | 484 | 484 483 |
| 179 | + | 206 | 203 205 | + | 212 | 213 213 | + | 210 | 210 210 | + | 211 | 212 211 |
| 180 | − | 367 | 367 366 | − | 360 | 360 359 | − | 362 | 365 364 | − | 361 | 361 360 |
| 181 | + | 181 | 181 180 | + | 190 | 190 191 | + | 185 | 186 186 | + | 188 | 188 188 |
| 182 | + | 139 | 140 139 | + | 148 | 148 149 | + | 144 | 143 143 | + | 144 | 146 144 |
| 183 | − | 451 | 452 452 | − | 445 | 443 443 | − | 448 | 448 449 | − | 447 | 447 447 |
| 184 | + | 150 | 150 149 | + | 155 | 157 157 | + | 154 | 153 152 | + | 155 | 155 155 |
| 185 | + | 390 | 389 390 | + | 398 | 398 398 | + | 394 | 393 393 | + | 394 | 395 396 |
| 186 | + | 230 | 232 231 | + | 239 | 239 239 | + | 235 | 235 235 | + | 238 | 238 237 |
| 187 | − | 629 | 629 629 | − | 620 | 621 620 | − | 624 | 625 625 | − | 622 | 621 622 |
| 188 | + | 226 | 227 226 | + | 237 | 237 235 | + | 230 | 231 231 | + | 233 | 233 233 |
| 189 | − | 340 | 339 339 | − | 330 | 330 330 | − | 334 | 334 335 | − | 332 | 332 332 |
| 190 | + | 176 | 176 176 | + | 185 | 184 184 | + | 181 | 180 181 | + | 182 | 183 183 |
| 191 | − | 52 | 53 54 | − | 45 | 45 45 | − | 49 | 50 49 | − | 48 | 47 47 |
| 192 | − | 31 | 31 32 | − | 22 | 22 23 | − | 26 | 27 28 | − | 26 | 25 26 |
| 193 | − | 80 | 82 82 | − | 73 | 74 74 | − | 78 | 77 78 | − | 73 | 74 75 |
| 194 | + | 151 | 151 151 | + | 160 | 160 160 | + | 158 | 158 156 | + | 158 | 159 159 |
| 195 | − | 255 | 255 256 | − | 247 | 247 248 | − | 252 | 252 252 | − | 249 | 250 249 |
| 196 | − | 60 | 60 58 | − | 50 | 51 51 | − | 55 | 54 56 | − | 53 | 54 54 |
| 197 | + | 489 | 490 489 | + | 497 | 498 497 | + | 493 | 493 493 | + | 495 | 494 495 |
| 198 | − | 170 | 172 171 | − | 164 | 164 163 | − | 167 | 167 168 | − | 166 | 166 166 |
| 199 | − | 129 | 129 129 | − | 120 | 121 121 | − | 124 | 124 123 | − | 123 | 122 122 |
| 200 | − | 283 | 285 283 | − | 277 | 277 276 | − | 280 | 280 280 | − | 277 | 278 279 |
| 201 | + | 208 | 207 205 | + | 214 | 215 215 | + | 210 | 211 211 | + | 212 | 212 213 |
| 202 | − | 420 | 422 420 | − | 413 | 413 412 | − | 416 | 416 416 | − | 414 | 414 415 |
| 203 | + | 550 | 550 548 | + | 555 | 557 558 | + | 554 | 552 553 | + | 554 | 555 556 |
| 204 | − | 96 | 95 97 | − | 88 | 87 88 | − | 92 | 93 92 | − | 89 | 89 90 |
| 205 | + | 12 | 13 14 | + | 25 | 23 23 | + | 15 | 15 16 | + | 20 | 22 21 |
| 205 | + | 17 | 17 16 | + | 21 | 20 20 | + | 20 | 19 20 | + | 18 | 19 18 |

# LOLLAND.

*5. Section. EW. 20.VIII. $9^h30^m$—$11^h30^m$. $t_1$=+18°.0, $t_2$=+19°.5.*

| N:o | 635. +S −B | | | 674. −S +B | | | 637. −J +P | | | 683. +J −P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 165 | + | 120 | 119 120 | + | 120 | 120 120 | + | 123 | 125 125 | + | 112 | 114 112 |
| 165 | + | 109 | 109 110 | + | 131 | 130 130 | + | 112 | 113 111 | + | 122 | 122 123 |
| 166 | − | 92 | 92 91 | − | 83 | 82 83 | − | 89 | 90 90 | − | 89 | 90 89 |
| 167 | + | 288 | 288 289 | + | 298 | 299 299 | + | 292 | 292 291 | + | 290 | 291 291 |
| 168 | − | 68 | 67 67 | − | 57 | 57 57 | − | 64 | 65 62 | − | 65 | 66 64 |
| 169 | − | 146 | 148 148 | − | 139 | 137 137 | − | 143 | 143 146 | − | 144 | 143 143 |
| 170 | + | 296 | 295 296 | + | 307 | 307 307 | + | 299 | 300 298 | + | 298 | 299 297 |
| 171 | + | 87 | 88 87 | + | 101 | 99 99 | + | 91 | 91 91 | + | 91 | 90 91 |
| 172 | − | 183 | 183 184 | − | 173 | 173 173 | − | 181 | 180 181 | − | 182 | 181 182 |
| 173 | − | 74 | 74 74 | − | 62 | 62 63 | − | 71 | 69 72 | − | 72 | 71 71 |
| 174 | − | 260 | 260 259 | − | 250 | 250 250 | − | 257 | 259 255 | − | 257 | 259 258 |
| 175 | + | 164 | 164 165 | + | 174 | 174 173 | + | 169 | 166 168 | + | 165 | 165 166 |
| 176 | + | 65 | 63 66 | + | 77 | 77 77 | + | 70 | 70 68 | + | 70 | 70 69 |
| 177 | + | 14 | 17 17 | + | 26 | 26 27 | + | 18 | 20 19 | + | 18 | 16 18 |
| 178 | − | 153 | 152 152 | − | 142 | 142 144 | − | 152 | 151 150 | − | 150 | 151 150 |
| 179 | + | 553 | 553 553 | + | 564 | 563 563 | + | 558 | 555 556 | + | 555 | 557 556 |
| 180 | − | 582 | 583 582 | − | 571 | 570 572 | − | 579 | 578 580 | − | 580 | 580 581 |
| 181 | + | 274 | 275 278 | + | 285 | 286 286 | + | 278 | 279 276 | + | 278 | 278 277 |
| 182 | − | 115 | 115 114 | − | 104 | 104 105 | − | 110 | 112 112 | − | 112 | 114 111 |
| 183 | + | 119 | 119 120 | + | 130 | 129 129 | + | 122 | 122 123 | + | 121 | 121 121 |
| 184 | + | 53 | 53 52 | + | 64 | 64 63 | + | 55 | 54 58 | + | 56 | 54 56 |
| 185 | + | 258 | 257 258 | + | 269 | 269 270 | + | 262 | 261 262 | + | 261 | 260 260 |
| 186 | + | 287 | 287 286 | + | 297 | 297 296 | + | 290 | 290 290 | + | 289 | 289 289 |
| 187 | − | 723 | 724 723 | − | 712 | 713 712 | − | 720 | 720 720 | − | 722 | 720 721 |
| 188 | + | 725 | 724 724 | + | 734 | 734 735 | + | 728 | 726 729 | + | 725 | 727 726 |
| 189 | − | 602 | 603 602 | − | 593 | 594 593 | − | 600 | 601 601 | − | 600 | 600 600 |
| 190 | − | 35 | 37 36 | − | 25 | 26 25 | − | 32 | 34 34 | − | 33 | 32 33 |
| 191 | − | 78 | 76 79 | − | 67 | 67 67 | − | 74 | 75 75 | − | 77 | 75 76 |
| 192 | + | 94 | 94 93 | + | 105 | 104 104 | + | 98 | 98 97 | + | 99 | 97 97 |
| 193 | − | 262 | 262 264 | − | 253 | 252 253 | − | 262 | 260 260 | − | 262 | 262 261 |
| 194 | + | 192 | 192 191 | + | 202 | 201 201 | + | 194 | 193 194 | + | 193 | 194 193 |
| 195 | − | 210 | 210 211 | − | 200 | 200 200 | − | 209 | 209 207 | − | 207 | 209 209 |
| 196 | − | 32 | 33 33 | − | 23 | 24 23 | − | 30 | 30 31 | − | 31 | 31 32 |
| 197 | + | 60 | 60 60 | + | 69 | 69 69 | + | 63 | 62 64 | + | 63 | 62 62 |
| 198 | + | 244 | 243 244 | + | 252 | 252 252 | + | 245 | 245 245 | + | 246 | 246 243 |
| 199 | + | 108 | 107 106 | + | 117 | 117 118 | + | 112 | 110 112 | + | 111 | 111 110 |
| 200 | − | 397 | 398 397 | − | 389 | 389 387 | − | 397 | 393 394 | − | 393 | 393 396 |
| 201 | + | 137 | 136 137 | + | 146 | 147 147 | + | 139 | 139 139 | + | 139 | 138 139 |
| 202 | − | 422 | 423 424 | − | 412 | 413 413 | − | 420 | 420 420 | − | 420 | 420 421 |
| 203 | + | 624 | 623 624 | + | 634 | 634 634 | + | 628 | 629 628 | + | 624 | 625 625 |
| 204 | − | 307 | 308 306 | − | 296 | 297 296 | − | 305 | 303 304 | − | 306 | 303 305 |
| 205 | − | 51 | 51 50 | − | 39 | 39 39 | − | 50 | 52 51 | − | 46 | 46 45 |
| 205 | − | 48 | 48 47 | − | 42 | 42 42 | − | 48 | 48 45 | − | 53 | 53 51 |

# LOLLAND.

*6. Section. WE. 19.VIII. $9^h45^m$—$11^h45^m$. $t_1=+17°.5$, $t_2=+17°.5$.*

| N:o | 636. +J −P | | | | 673. −J +P | | | | 634. −S +B | | | | 675. +S −B | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 206 | − | 197 | 198 | 195 | − | 188 | 187 | 188 | − | 193 | 192 | 192 | − | 190 | 191 | 190 |
| 206 | − | 198 | 196 | 195 | − | 188 | 188 | 190 | − | 193 | 192 | 193 | − | 188 | 189 | 188 |
| 207 | + | 15 | 13 | 13 | + | 22 | 23 | 21 | + | 18 | 18 | 18 | + | 19 | 20 | 19 |
| 208 | + | 35 | 34 | 32 | + | 41 | 42 | 42 | + | 36 | 37 | 37 | + | 39 | 38 | 39 |
| 209 | − | 180 | 179 | 180 | − | 170 | 171 | 170 | − | 175 | 173 | 175 | − | 173 | 173 | 172 |
| 210 | + | 131 | 130 | 130 | + | 140 | 139 | 139 | + | 134 | 134 | 135 | + | 137 | 138 | 136 |
| 211 | − | 390 | 390 | 390 | − | 380 | 380 | 381 | − | 386 | 387 | 385 | − | 384 | 384 | 385 |
| 212 | + | 262 | 261 | 264 | + | 271 | 271 | 271 | + | 266 | 266 | 267 | + | 268 | 269 | 268 |
| 213 | + | 80 | 81 | 81 | + | 90 | 91 | 90 | + | 87 | 87 | 87 | + | 89 | 89 | 89 |
| 214 | − | 171 | 173 | 171 | − | 163 | 164 | 162 | − | 169 | 168 | 167 | − | 164 | 165 | 165 |
| 215 | + | 34 | 34 | 32 | + | 42 | 43 | 44 | + | 39 | 39 | 38 | + | 40 | 40 | 40 |
| 216 | + | 120 | 120 | 122 | + | 131 | 131 | 130 | + | 127 | 126 | 124 | + | 128 | 127 | 128 |
| 217 | + | 19 | 20 | 19 | + | 26 | 27 | 27 | + | 23 | 22 | 24 | + | 27 | 27 | 25 |
| 218 | + | 42 | 42 | 43 | + | 50 | 50 | 50 | + | 44 | 45 | 45 | + | 47 | 46 | 48 |
| 219 | + | 56 | 53 | 55 | + | 64 | 63 | 64 | + | 58 | 58 | 58 | + | 60 | 60 | 60 |
| 220 | − | 77 | 80 | 78 | − | 70 | 68 | 69 | − | 74 | 74 | 76 | − | 72 | 72 | 73 |
| 221 | + | 215 | 213 | 215 | + | 223 | 224 | 222 | + | 217 | 218 | 219 | + | 221 | 222 | 221 |
| 222 | − | 310 | 310 | 311 | − | 300 | 300 | 299 | − | 304 | 306 | 305 | − | 303 | 304 | 302 |
| 223 | − | 146 | 148 | 148 | − | 137 | 139 | 138 | − | 142 | 143 | 143 | − | 141 | 141 | 141 |
| 224 | − | 221 | 222 | 223 | − | 214 | 213 | 215 | − | 219 | 219 | 219 | − | 216 | 215 | 215 |
| 225 | − | 221 | 221 | 221 | − | 212 | 213 | 211 | − | 214 | 217 | 217 | − | 216 | 216 | 214 |
| 226 | + | 215 | 214 | 212 | + | 221 | 221 | 223 | + | 218 | 217 | 217 | + | 221 | 220 | 220 |
| 227 | + | 345 | 345 | 343 | + | 353 | 356 | 353 | + | 350 | 348 | 349 | + | 351 | 354 | 351 |
| 228 | − | 357 | 359 | 357 | − | 348 | 349 | 349 | − | 354 | 353 | 354 | − | 350 | 351 | 352 |
| 229 | + | 406 | 406 | 404 | + | 413 | 414 | 414 | + | 409 | 409 | 409 | + | 411 | 412 | 411 |
| 230 | − | 483 | 485 | 482 | − | 475 | 475 | 476 | − | 479 | 479 | 480 | − | 477 | 476 | 477 |
| 231 | − | 98 | 97 | 96 | − | 87 | 89 | 88 | − | 92 | 92 | 91 | − | 90 | 90 | 90 |
| 232 | + | 107 | 108 | 109 | + | 118 | 116 | 118 | + | 112 | 112 | 113 | + | 115 | 115 | 114 |
| 233 | + | 138 | 138 | 138 | + | 147 | 147 | 149 | + | 143 | 143 | 142 | + | 146 | 145 | 146 |
| 234 | + | 342 | 342 | 344 | + | 351 | 353 | 354 | + | 347 | 348 | 348 | + | 348 | 349 | 349 |
| 235 | − | 354 | 356 | 354 | − | 345 | 346 | 347 | − | 351 | 350 | 351 | − | 349 | 349 | 349 |
| 236 | + | 209 | 208 | 208 | + | 219 | 216 | 218 | + | 212 | 212 | 212 | + | 214 | 214 | 215 |
| 237 | − | 95 | 94 | 96 | − | 86 | 87 | 87 | − | 90 | 90 | 91 | − | 89 | 89 | 89 |
| 238 | − | 27 | 25 | 28 | − | 16 | 15 | 17 | − | 21 | 22 | 22 | − | 19 | 20 | 19 |
| 239 | − | 69 | 69 | 70 | − | 59 | 59 | 60 | − | 63 | 67 | 65 | − | 64 | 63 | 63 |
| 240 | + | 498 | 496 | 498 | + | 505 | 505 | 504 | + | 502 | 501 | 501 | + | 504 | 503 | 505 |
| 241 | − | 323 | 322 | 323 | − | 314 | 312 | 314 | − | 318 | 319 | 318 | − | 316 | 316 | 315 |
| 242 | − | 149 | 148 | 149 | − | 139 | 139 | 140 | − | 143 | 144 | 146 | − | 143 | 144 | 142 |
| 243 | + | 297 | 296 | 297 | + | 303 | 305 | 303 | + | 299 | 299 | 299 | + | 302 | 301 | 302 |
| 244 | − | 228 | 228 | 228 | − | 220 | 220 | 218 | − | 223 | 224 | 223 | − | 222 | 221 | 222 |
| 245 | + | 156 | 155 | 155 | + | 162 | 161 | 161 | + | 156 | 156 | 158 | + | 159 | 160 | 158 |
| 246 | + | 402 | 403 | 405 | + | 407 | 407 | 408 | + | 405 | 405 | 404 | + | 407 | 407 | 406 |
| 246 | + | 400 | 398 | 399 | + | 409 | 408 | 408 | + | 404 | 404 | 405 | + | 407 | 406 | 404 |

# LOLLAND.

*6. Section. EW. 20.VIII. $7^h30^m$—$9^h30^m$. $t_1$=+14°.0, $t_2$=+18°.0.*

| N:o | 635. +B −S | | | 674. −B +S | | | 637. −P +J | | | 683. +P −J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 206 | − | 110 | 108 | 108 | − | 102 | 102 | 101 | − | 107 | 105 | 105 | − | 110 | 109 | 110 |
| 206 | − | 113 | 111 | 112 | − | 99 | 99 | 100 | − | 110 | 109 | 108 | − | 104 | 107 | 106 |
| 207 | + | 358 | 359 | 359 | + | 369 | 369 | 369 | + | 360 | 362 | 361 | + | 360 | 361 | 361 |
| 208 | − | 387 | 385 | 386 | − | 377 | 376 | 377 | − | 387 | 384 | 387 | − | 384 | 383 | 384 |
| 209 | − | 279 | 278 | 279 | − | 268 | 269 | 268 | − | 274 | 276 | 275 | − | 274 | 275 | 276 |
| 210 | + | 205 | 209 | 207 | + | 216 | 217 | 217 | + | 210 | 212 | 210 | + | 209 | 209 | 209 |
| 211 | − | 113 | 114 | 114 | − | 104 | 105 | 105 | − | 112 | 112 | 111 | − | 113 | 112 | 111 |
| 212 | + | 17 | 17 | 18 | + | 29 | 27 | 27 | + | 21 | 20 | 20 | + | 19 | 21 | 20 |
| 213 | + | 70 | 69 | 69 | + | 78 | 80 | 79 | + | 73 | 71 | 72 | + | 73 | 73 | 72 |
| 214 | − | 43 | 43 | 43 | − | 32 | 33 | 33 | − | 38 | 39 | 39 | − | 41 | 40 | 40 |
| 215 | − | 66 | 67 | 66 | − | 56 | 56 | 55 | − | 62 | 62 | 65 | − | 62 | 64 | 64 |
| 216 | + | 85 | 85 | 86 | + | 95 | 95 | 95 | + | 85 | 86 | 88 | + | 87 | 87 | 86 |
| 217 | + | 284 | 284 | 283 | + | 293 | 292 | 291 | + | 287 | 285 | 286 | + | 286 | 283 | 285 |
| 218 | − | 190 | 190 | 190 | − | 181 | 179 | 179 | − | 187 | 188 | 188 | − | 188 | 187 | 187 |
| 219 | + | 20 | 19 | 19 | + | 28 | 28 | 29 | + | 21 | 23 | 23 | + | 22 | 22 | 21 |
| 220 | − | 222 | 222 | 223 | − | 212 | 214 | 213 | − | 221 | 220 | 220 | − | 220 | 220 | 220 |
| 221 | − | 228 | 229 | 228 | − | 218 | 218 | 217 | − | 223 | 224 | 223 | − | 229 | 227 | 225 |
| 222 | + | 612 | 612 | 614 | + | 624 | 623 | 622 | + | 618 | 616 | 616 | + | 616 | 616 | 617 |
| 223 | − | 130 | 129 | 129 | − | 120 | 119 | 121 | − | 128 | 127 | 128 | − | 125 | 127 | 127 |
| 224 | − | 219 | 219 | 219 | − | 211 | 212 | 211 | − | 219 | 219 | 218 | − | 219 | 219 | 219 |
| 225 | − | 303 | 302 | 303 | − | 293 | 293 | 292 | − | 301 | 302 | 301 | − | 300 | 299 | 301 |
| 226 | − | 25 | 25 | 24 | − | 15 | 16 | 14 | − | 21 | 22 | 23 | − | 22 | 22 | 24 |
| 227 | + | 133 | 132 | 131 | + | 142 | 143 | 141 | + | 137 | 135 | 136 | + | 136 | 135 | 134 |
| 228 | − | 132 | 132 | 132 | − | 121 | 120 | 122 | − | 129 | 129 | 127 | − | 131 | 130 | 130 |
| 229 | − | 68 | 69 | 68 | − | 58 | 59 | 60 | − | 68 | 68 | 66 | − | 67 | 66 | 66 |
| 230 | − | 150 | 150 | 151 | − | 140 | 141 | 141 | − | 148 | 147 | 149 | − | 148 | 149 | 148 |
| 231 | − | 103 | 102 | 103 | − | 90 | 92 | 91 | − | 96 | 98 | 97 | − | 100 | 100 | 100 |
| 232 | + | 340 | 340 | 340 | + | 350 | 350 | 350 | + | 344 | 341 | 342 | + | 341 | 342 | 342 |
| 233 | − | 553 | 553 | 553 | − | 544 | 543 | 544 | − | 550 | 551 | 550 | − | 550 | 550 | 551 |
| 234 | + | 633 | 632 | 634 | + | 643 | 643 | 643 | + | 638 | 636 | 636 | + | 635 | 636 | 635 |
| 235 | − | 571 | 572 | 572 | − | 561 | 563 | 562 | − | 569 | 570 | 569 | − | 569 | 569 | 570 |
| 236 | + | 663 | 662 | 665 | + | 673 | 674 | 673 | + | 667 | 667 | 664 | + | 664 | 665 | 665 |
| 237 | + | 31 | 29 | 30 | + | 41 | 40 | 40 | + | 33 | 32 | 32 | + | 31 | 32 | 32 |
| 238 | + | 12 | 11 | 12 | + | 22 | 22 | 22 | + | 14 | 16 | 14 | + | 13 | 15 | 13 |
| 239 | − | 201 | 199 | 200 | − | 190 | 192 | 191 | − | 200 | 198 | 199 | − | 197 | 197 | 197 |
| 240 | − | 34 | 34 | 34 | − | 24 | 23 | 23 | − | 34 | 33 | 32 | − | 34 | 32 | 33 |
| 241 | + | 298 | 298 | 298 | + | 306 | 307 | 307 | + | 300 | 300 | 301 | + | 301 | 300 | 300 |
| 242 | − | 189 | 191 | 191 | − | 178 | 179 | 180 | − | 188 | 189 | 188 | − | 187 | 186 | 186 |
| 243 | + | 72 | 72 | 72 | + | 83 | 83 | 81 | + | 76 | 76 | 75 | + | 75 | 75 | 76 |
| 244 | − | 231 | 230 | 232 | − | 220 | 220 | 220 | − | 226 | 226 | 228 | − | 227 | 228 | 227 |
| 245 | + | 213 | 213 | 212 | + | 223 | 220 | 221 | + | 214 | 215 | 216 | + | 214 | 215 | 213 |
| 246 | + | 390 | 390 | 390 | + | 408 | 407 | 407 | + | 394 | 394 | 395 | + | 402 | 401 | 402 |
| 246 | + | 399 | 397 | 399 | + | 401 | 401 | 400 | + | 400 | 400 | 401 | + | 393 | 393 | 394 |

## LOLLAND.

*7. Section. WE. 19.VIII. $13^h0^m$—$15^h30^m$. $t_1=+18°.5$, $t_2=+18°.5$.*

| N:o | 636. 247—264: +P −J 265—282: −P +J | | | 673. 247—264: −P +J 265—282: +P −J | | | 634. 247—264: −B +S 265—282: +B −S | | | 675. 247—264: +B −S 265—282: −B +S | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 247 | + | 115 | 114 116 | + | 126 | 123 125 | + | 119 | 117 120 | + | 125 | 123 123 |
| 247 | + | 117 | 119 117 | + | 124 | 126 123 | + | 121 | 122 121 | + | 123 | 120 121 |
| 248 | − | 61 | 62 62 | − | 56 | 52 53 | − | 58 | 57 59 | − | 57 | 57 57 |
| 249 | − | 233 | 234 232 | − | 225 | 225 226 | | 230 | 230 231 | − | 229 | 229 228 |
| 250 | + | 196 | 197 197 | + | 207 | 204 205 | + | 200 | 201 201 | + | 203 | 202 202 |
| 251 | + | 80 | 80 81 | + | 88 | 88 88 | + | 83 | 84 83 | + | 85 | 85 84 |
| 252 | + | 72 | 72 72 | + | 80 | 80 81 | + | 76 | 76 76 | + | 78 | 78 78 |
| 253 | − | 138 | 136 136 | − | 130 | 129 129 | − | 135 | 134 132 | − | 133 | 131 132 |
| 254 | − | 104 | 103 105 | − | 96 | 97 95 | − | 101 | 101 102 | − | 99 | 99 100 |
| 255 | − | 344 | 346 343 | − | 335 | 337 337 | − | 340 | 341 340 | − | 338 | 339 340 |
| 256 | + | 140 | 138 139 | + | 149 | 148 149 | + | 143 | 143 142 | + | 143 | 144 144 |
| 257 | + | 507 | 508 508 | + | 518 | 518 518 | + | 513 | 513 511 | + | 516 | 514 515 |
| 258 | − | 367 | 366 366 | − | 357 | 358 358 | − | 362 | 361 362 | − | 362 | 361 361 |
| 259 | + | 179 | 180 178 | + | 186 | 188 186 | + | 182 | 181 182 | + | 185 | 184 185 |
| 260 | + | 7 | 7 7 | + | 16 | 16 15 | + | 11 | 12 10 | + | 13 | 13 13 |
| 261 | + | 355 | 354 357 | + | 364 | 363 363 | + | 359 | 360 359 | + | 361 | 362 362 |
| 262 | − | 541 | 542 543 | − | 532 | 534 533 | − | 538 | 538 539 | − | 538 | 538 537 |
| 263 | + | 230 | 229 230 | + | 237 | 237 237 | + | 233 | 233 233 | + | 236 | 234 234 |
| 264 | + | 383 | 385 385 | + | 392 | 392 394 | + | 389 | 390 389 | + | 390 | 390 390 |
| 265 | + | 54 | 54 52 | + | 63 | 62 62 | + | 56 | 57 56 | + | 59 | 59 60 |
| 266 | − | 142 | 142 143 | − | 131 | 132 133 | − | 136 | 138 137 | − | 135 | 136 135 |
| 267 | − | 246 | 249 247 | − | 240 | 239 238 | − | 244 | 245 243 | − | 242 | 242 243 |
| 268 | + | 350 | 352 351 | + | 360 | 360 360 | + | 355 | 356 356 | + | 357 | 356 357 |
| 269 | + | 227 | 227 226 | + | 238 | 236 234 | + | 231 | 230 230 | + | 234 | 233 233 |
| 270 | − | 84 | 84 84 | − | 77 | 76 77 | − | 80 | 80 80 | − | 79 | 79 79 |
| 271 | + | 311 | 312 312 | + | 320 | 322 322 | + | 315 | 318 317 | + | 319 | 318 318 |
| 272 | − | 229 | 228 229 | − | 219 | 219 220 | − | 224 | 223 223 | − | 222 | 223 221 |
| 273 | − | 11 | 12 13 | − | 3 | 3 3 | − | 7 | 6 5 | − | 4 | 5 5 |
| 274 | + | 5 | 5 5 | + | 15 | 13 16 | + | 8 | 11 9 | + | 12 | 13 12 |
| 275 | + | 172 | 172 175 | + | 182 | 182 — | + | 177 | 177 178 | + | 180 | 179 179 |
| 276 | + | 61 | 63 61 | + | 71 | 71 72 | + | 65 | 67 66 | + | 70 | 70 68 |
| 277 | + | 301 | 302 303 | + | 312 | 313 312 | + | 307 | 305 306 | + | 309 | 310 308 |
| 278 | − | 335 | 336 334 | − | 325 | 327 326 | − | 331 | 332 332 | − | 330 | 330 330 |
| 279 | − | 279 | 278 279 | − | 267 | 268 267 | − | 273 | 274 273 | − | 270 | 271 270 |
| 280 | − | 326 | 325 325 | − | 316 | 315 315 | − | 322 | 322 320 | − | 319 | 317 319 |
| 281 | + | 374 | 377 376 | + | 386 | 385 386 | + | 380 | 381 380 | + | 383 | 381 382 |
| 282 | − | 219 | 218 217 | − | 208 | 208 209 | − | 214 | 212 214 | − | 209 | 210 211 |
| 282 | − | 218 | 218 217 | − | 210 | 210 209 | − | 214 | 213 213 | − | 211 | 211 212 |

# LOLLAND.

*7. Section. EW. 19.VIII. $15^h30^m$—$17^h30^m$. $t_1=+18°.5$, $t_2=+17°.5$.*

| N:o | **635.** 247—264: +S −B 265—282: −S +B | | | **674.** 247—264: −S +B 265—282: +S −B | | | **637.** 247—264: −J +P 265—282: +J −P | | | **683.** 247—264: +J −P 265—282: −J +P | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 247 | − | 228 | 228 228 | − | 219 | 218 218 | − | 224 | 227 225 | − | 227 | 227 228 |
| 247 | − | 228 | 228 230 | − | 218 | 218 218 | − | 224 | 225 227 | − | 227 | 225 225 |
| 248 | + | 59 | 59 58 | + | 68 | 69 68 | + | 62 | 62 63 | + | 60 | 61 60 |
| 249 | − | 206 | 204 203 | − | 194 | 195 195 | − | 203 | 204 204 | − | 202 | 202 202 |
| 250 | + | 331 | 330 331 | + | 341 | 342 342 | + | 338 | 335 338 | + | 334 | 332 333 |
| 251 | − | 347 | 348 348 | − | 338 | 336 338 | − | 342 | 343 343 | − | 344 | 347 343 |
| 252 | + | 564 | 564 564 | + | 574 | 573 573 | + | 568 | 567 567 | + | 565 | 566 565 |
| 253 | − | 300 | 300 299 | − | 291 | 291 289 | − | 297 | 297 296 | − | 298 | 298 298 |
| 254 | − | 24 | 24 24 | − | 14 | 14 14 | − | 20 | 20 20 | − | 22 | 23 24 |
| 255 | + | 121 | 122 122 | + | 132 | 132 132 | + | 127 | 126 124 | + | 124 | 122 125 |
| 256 | − | 106 | 105 107 | − | 96 | 95 96 | − | 103 | 101 103 | − | 103 | 102 102 |
| 257 | + | 291 | 291 292 | + | 302 | 301 301 | + | 297 | 294 297 | + | 292 | 293 295 |
| 258 | − | 512 | 512 512 | − | 501 | 502 502 | − | 507 | 508 509 | − | 510 | 512 510 |
| 259 | + | 320 | 321 321 | + | 330 | 331 330 | + | 323 | 323 322 | + | 323 | 324 322 |
| 260 | − | 29 | 29 27 | − | 19 | 20 20 | − | 27 | 25 25 | − | 24 | 28 25 |
| 261 | + | 455 | 454 455 | + | 464 | 464 464 | + | 459 | 456 459 | + | 456 | 455 455 |
| 262 | − | 382 | 379 380 | − | 371 | 371 370 | − | 378 | 376 379 | − | 377 | 379 379 |
| 263 | + | 194 | 195 194 | + | 204 | 204 202 | + | 199 | 198 197 | + | 196 | 197 199 |
| 264 | + | 201 | 200 202 | + | 211 | 210 211 | + | 202 | 204 202 | + | 202 | 203 201 |
| 265 | + | 50 | 49 51 | + | 60 | 59 61 | + | 53 | 52 53 | + | 52 | 53 53 |
| 266 | − | 146 | 145 146 | − | 136 | 135 134 | − | 143 | 142 142 | − | 142 | 143 142 |
| 267 | − | 252 | 250 252 | − | 242 | 241 242 | − | 250 | 249 249 | − | 248 | 247 249 |
| 268 | + | 347 | 346 345 | + | 357 | 358 358 | + | 350 | 350 350 | + | 350 | 350 349 |
| 269 | + | 223 | 223 223 | + | 233 | 233 233 | + | 227 | 226 225 | + | 228 | 225 228 |
| 270 | − | 89 | 88 88 | − | 77 | 77 77 | − | 85 | 87 83 | − | 86 | 85 86 |
| 271 | + | 309 | 308 310 | + | 319 | 320 319 | + | 311 | 311 312 | + | 312 | 311 311 |
| 272 | − | 232 | 232 232 | − | 223 | 222 223 | − | 228 | 230 228 | − | 230 | 229 229 |
| 273 | − | 14 | 15 15 | − | 2 | 4 4 | − | 11 | 13 14 | − | 10 | 12 12 |
| 274 | + | 2 | 2 2 | + | 11 | 13 12 | + | 5 | 4 5 | + | 5 | 3 4 |
| 275 | + | 169 | 169 169 | + | 182 | 180 181 | + | 172 | 173 173 | + | 172 | 174 172 |
| 276 | + | 59 | 59 58 | + | 69 | 69 70 | + | 61 | 60 60 | + | 62 | 64 62 |
| 277 | + | 299 | 298 298 | + | 309 | 309 309 | + | 302 | 301 302 | + | 301 | 300 301 |
| 278 | − | 340 | 340 340 | − | 329 | 331 330 | − | 336 | 334 338 | − | 335 | 334 335 |
| 279 | − | 281 | 281 281 | − | 271 | 270 269 | − | 278 | 279 278 | − | 278 | 279 278 |
| 280 | − | 327 | 327 329 | − | 317 | 318 318 | − | 324 | 323 323 | − | 325 | 327 325 |
| 281 | + | 372 | 372 371 | + | 383 | 382 384 | + | 376 | 376 373 | + | 375 | 374 374 |
| 282 | − | 224 | 226 224 | − | 207 | 207 208 | − | 217 | 218 217 | − | 220 | 221 221 |
| 282 | − | 218 | 217 216 | − | 213 | 214 213 | − | 220 | 221 220 | − | 214 | 217 217 |

# HANKO 2.

| N:o | **637.** WE. 14.XI. 10h34m—16h39m. $t_1$: +2°2, $t_2$: +4°6. 1— 62: —H+K 63—123: —K+H 124—184: +K—H 185—245: +H—K | | | **636.** EW. 15.XI. 10h13m—15h40m. $t_1$: +5°9, $t_2$: +4°6. 1— 62: +H—K 63—123: +K—H 124—184: —K+H 185—245: —H+K | | | **635.** WE. 19.XI. 10h2m—15h10m. $t_1$: +2°0, $t_2$: +2°2. 1— 62: +K—H 63—123: +H—K 124—184: —H+K 185—245: —K+H | | | **634.** EW. 20.XI. 10h5m—14h1m. $t_1$: +1°0, $t_2$: +1°7. 1— 62: —K+H 63—123: —H+K 124—184: +H—K 185—245: +K—H | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | + | 24 | 24 | 24 | + | 49 | 48 | 48 | + | 154 | 152 | 153 | + | 112 | 109 | 112 |
| 2 | − | 183 | 183 | 184 | − | 255 | 255 | 256 | − | 353 | 352 | 352 | − | 299 | 299 | 301 |
| 3 | + | 97 | 98 | 95 | + | 155 | 156 | 156 | + | 282 | 281 | 281 | + | 143 | 142 | 141 |
| 4 | + | 107 | 108 | 108 | + | 91 | 91 | 90 | + | 106 | 108 | 107 | + | 113 | 111 | 112 |
| 5 | − | 88 | 89 | 89 | − | 79 | 77 | 78 | − | 164 | 163 | 163 | − | 88 | 86 | 86 |
| 6 | + | 308 | 307 | 306 | + | 262 | 261 | 261 | + | 109 | 109 | 109 | + | 313 | 313 | 312 |
| 7 | + | 382 | 384 | 384 | + | 434 | 436 | 437 | + | 494 | 494 | 494 | + | 384 | 383 | 385 |
| 8 | − | 191 | 190 | 191 | − | 187 | 187 | 187 | − | 205 | 204 | 205 | − | 172 | 172 | 171 |
| 9 | − | 84 | 84 | 85 | − | 99 | 99 | 98 | − | 118 | 117 | 118 | − | 91 | 89 | 91 |
| 10 | − | 118 | 117 | 117 | − | 137 | 134 | 134 | − | 87 | 87 | 86 | − | 122 | 123 | 122 |
| 11 | + | 133 | 132 | 130 | + | 130 | 130 | 129 | + | 235 | 235 | 235 | + | 137 | 138 | 138 |
| 12 | − | 107 | 108 | 109 | − | 105 | 101 | 104 | − | 97 | 96 | 97 | − | 95 | 94 | 94 |
| 13 | − | 135 | 134 | 134 | − | 139 | 137 | 139 | − | 108 | 107 | 107 | − | 126 | 126 | 127 |
| 14 | + | 151 | 152 | 153 | + | 166 | 168 | 168 | + | 274 | 274 | 273 | + | 147 | 148 | 150 |
| 15 | + | 103 | 102 | 100 | + | 142 | 139 | 140 | − | 103 | 102 | 101 | + | 120 | 120 | 119 |
| 16 | + | 260 | 261 | 262 | + | 204 | 206 | 204 | + | 283 | 283 | 284 | + | 252 | 254 | 255 |
| 17 | − | 72 | 73 | 73 | − | 74 | 75 | 75 | − | 212 | 213 | 213 | − | 74 | 73 | 73 |
| 18 | − | 148 | 148 | 148 | − | 131 | 132 | 130 | − | 35 | 35 | 34 | − | 121 | 122 | 121 |
| 19 | + | 381 | 379 | 380 | + | 389 | 388 | 386 | + | 395 | 394 | 395 | + | 367 | 367 | 366 |
| 20 | − | 89 | 90 | 89 | − | 123 | 122 | 125 | − | 184 | 183 | 185 | − | 89 | 88 | 88 |
| 21 | + | 59 | 59 | 58 | + | 67 | 66 | 65 | + | 104 | 105 | 104 | + | 65 | 65 | 65 |
| 22 | − | 16 | 14 | 15 | − | 9 | 10 | 8 | − | 44 | 45 | 44 | − | 11 | 10 | 10 |
| 23 | − | 0 | 1 | 0 | + | 1 | 1 | 2 | + | 17 | 18 | 17 | + | 3 | 4 | 5 |
| 24 | − | 243 | 244 | 243 | − | 248 | 247 | 249 | − | 309 | 310 | 310 | − | 232 | 230 | 232 |
| 25 | − | 120 | 121 | 120 | − | 136 | 136 | 137 | − | 103 | 104 | 105 | − | 125 | 123 | 126 |
| 26 | + | 219 | 220 | 220 | + | 234 | 234 | 234 | + | 199 | 198 | 198 | + | 231 | 230 | 232 |
| 27 | − | 130 | 132 | 129 | − | 57 | 56 | 55 | − | 51 | 52 | 50 | − | 138 | 135 | 136 |
| 28 | + | 209 | 209 | 209 | + | 166 | 164 | 167 | + | 242 | 241 | 240 | + | 213 | 212 | 212 |
| 29 | + | 180 | 180 | 180 | + | 161 | 162 | 161 | + | 70 | 70 | 71 | + | 196 | 196 | 194 |
| 30 | − | 73 | 73 | 73 | − | 92 | 94 | 93 | − | 25 | 24 | 24 | − | 75 | 76 | 75 |
| 31 | + | 161 | 160 | 161 | + | 161 | 161 | 162 | + | 107 | 107 | 106 | + | 160 | 159 | 161 |
| 32 | − | 262 | 261 | 262 | − | 264 | 261 | 261 | − | 315 | 313 | 314 | − | 250 | 250 | 248 |
| 33 | − | 111 | 112 | 112 | − | 115 | 111 | 113 | − | 54 | 54 | 55 | − | 111 | 112 | 111 |
| 34 | − | 64 | 65 | 64 | − | 172 | 172 | 173 | − | 195 | 194 | 195 | − | 9 | 6 | 7 |
| 35 | − | 183 | 183 | 184 | − | 76 | 78 | 76 | − | 157 | 158 | 158 | − | 232 | 230 | 231 |
| 36 | − | 47 | 46 | 48 | − | 56 | 56 | 55 | + | 66 | 67 | 67 | − | 37 | 39 | 39 |
| 37 | + | 272 | 274 | 273 | + | 287 | 287 | 286 | + | 383 | 382 | 383 | + | 270 | 270 | 271 |
| 38 | − | 166 | 167 | 166 | − | 58 | 57 | 55 | − | 272 | 272 | 272 | − | 134 | 135 | 133 |
| 39 | + | 185 | 186 | 186 | + | 104 | 103 | 102 | + | 142 | 144 | 143 | + | 179 | 182 | 183 |
| 40 | + | 58 | 57 | 60 | + | 51 | 49 | 50 | + | 78 | 79 | 79 | + | 52 | 50 | 50 |
| 41 | + | 199 | 202 | 199 | + | 209 | 210 | 211 | + | 219 | 219 | 220 | + | 200 | 200 | 200 |
| 42 | + | 148 | 149 | 148 | + | 144 | 146 | 145 | + | 144 | 145 | 142 | + | 153 | 154 | 155 |
| 43 | − | 129 | 129 | 128 | − | 159 | 157 | 156 | − | 314 | 313 | 315 | − | 122 | 123 | 123 |
| 44 | − | 71 | 71 | 72 | − | 46 | 47 | 47 | + | 99 | 99 | 99 | − | 69 | 69 | 69 |
| 45 | − | 114 | 113 | 114 | − | 143 | 143 | 144 | − | 162 | 162 | 163 | − | 103 | 101 | 103 |
| 46 | − | 118 | 117 | 117 | − | 90 | 89 | 89 | − | 165 | 165 | 164 | − | 75 | 76 | 76 |
| 47 | + | 383 | 384 | 383 | + | 340 | 342 | 341 | + | 437 | 437 | 437 | + | 334 | 333 | 335 |
| 48 | − | 298 | 298 | 298 | − | 290 | 292 | 292 | − | 220 | 219 | 219 | − | 288 | 286 | 287 |
| 49 | − | 196 | 195 | 196 | − | 166 | 166 | 165 | − | 336 | 334 | 335 | − | 165 | 165 | 166 |
| 50 | − | 88 | 87 | 88 | − | 79 | 80 | 79 | + | 38 | 39 | 38 | − | 80 | 81 | 80 |

## HANKO 2.

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | − | 135 | 136 | 135 | − | 149 | 147 | 146 | − | 203 | 204 | 204 | − | 157 | 157 | 159 |
| 52 | + | 24 | 23 | 23 | + | 9 | 10 | 10 | + | 83 | 84 | 81 | + | 43 | 45 | 44 |
| 53 | − | 139 | 138 | 137 | − | 363 | 364 | 364 | − | 511 | 511 | 512 | − | 150 | 149 | 150 |
| 54 | + | 157 | 156 | 157 | + | 388 | 387 | 389 | + | 483 | 484 | 486 | + | 183 | 183 | 185 |
| 55 | − | 97 | 97 | 98 | − | 110 | 108 | 111 | − | 81 | 81 | 80 | − | 99 | 100 | 101 |
| 56 | − | 132 | 133 | 132 | − | 188 | 187 | 189 | − | 240 | 241 | 240 | − | 126 | 124 | 125 |
| 57 | + | 278 | 278 | 278 | + | 350 | 351 | 351 | + | 346 | 346 | 347 | + | 275 | 273 | 274 |
| 58 | − | 87 | 87 | 88 | − | 107 | 107 | 108 | − | 145 | 145 | 144 | − | 68 | 68 | 67 |
| 59 | + | 80 | 81 | 79 | + | 89 | 91 | 90 | + | 50 | 50 | 49 | + | 87 | 87 | 89 |
| 60 | + | 294 | 294 | 294 | + | 340 | 340 | 343 | + | 414 | 412 | 413 | + | 283 | 283 | 283 |
| 61 | + | 135 | 132 | 133 | + | 82 | 84 | 81 | + | 176 | 175 | 176 | + | 150 | 149 | 149 |
| 62 | − | 120 | 119 | 119 | − | 173 | 173 | 175 | − | 323 | 324 | 324 | − | 129 | 129 | 129 |
| 63 | − | 107 | 107 | 106 | − | 44 | 44 | 44 | − | 72 | 72 | 72 | − | 101 | 101 | 101 |
| 64 | − | 265 | 267 | 265 | − | 349 | 347 | 349 | − | 257 | 257 | 257 | − | 265 | 266 | 266 |
| 65 | + | 65 | 67 | 67 | + | 153 | 154 | 153 | + | 166 | 166 | 168 | + | 71 | 70 | 72 |
| 66 | − | 159 | 159 | 159 | − | 137 | 136 | 137 | − | 185 | 185 | 186 | − | 144 | 143 | 145 |
| 67 | − | 80 | 80 | 79 | − | 224 | 227 | 225 | + | 81 | 82 | 81 | − | 92 | 92 | 93 |
| 68 | + | 28 | 28 | 29 | + | 111 | 110 | 111 | − | 172 | 172 | 173 | + | 40 | 42 | 42 |
| 69 | + | 161 | 161 | 161 | + | 76 | 77 | 76 | + | 192 | 192 | 192 | − | 88 | 88 | 86 |
| 70 | + | 51 | 51 | 52 | + | 60 | 58 | 58 | − | 72 | 72 | 71 | + | 220 | 220 | 221 |
| 71 | + | 9 | 8 | 9 | + | 47 | 47 | 47 | − | 27 | 25 | 26 | + | 17 | 18 | 16 |
| 72 | − | 97 | 97 | 95 | − | 167 | 166 | 165 | − | 89 | 88 | 90 | − | 111 | 111 | 113 |
| 73 | + | 257 | 257 | 256 | + | 257 | 255 | 258 | + | 286 | 286 | 287 | + | 249 | 250 | 250 |
| 74 | + | 25 | 27 | 24 | + | 20 | 21 | 21 | + | 129 | 131 | 129 | + | 20 | 23 | 23 |
| 75 | − | 149 | 150 | 151 | − | 168 | 168 | 168 | − | 348 | 348 | 348 | − | 146 | 145 | 146 |
| 76 | + | 9 | 9 | 10 | + | 46 | 47 | 48 | + | 41 | 42 | 42 | + | 43 | 45 | 44 |
| 77 | + | 133 | 134 | 135 | + | 150 | 151 | 152 | + | 110 | 110 | 111 | + | 139 | 138 | 139 |
| 78 | + | 118 | 118 | 118 | + | 90 | 91 | 91 | + | 130 | 129 | 129 | + | 114 | 114 | 117 |
| 79 | + | 300 | 301 | 300 | + | 287 | 287 | 286 | + | 274 | 277 | 276 | + | 281 | 282 | 282 |
| 80 | − | 110 | 111 | 110 | − | 117 | 115 | 116 | − | 121 | 121 | 120 | − | 104 | 106 | 105 |
| 81 | − | 106 | 106 | 104 | − | 40 | 41 | 41 | − | 36 | 34 | 34 | − | 32 | 32 | 33 |
| 82 | − | 53 | 53 | 53 | − | 81 | 80 | 81 | − | 120 | 120 | 119 | − | 120 | 119 | 119 |
| 83 | + | 342 | 341 | 342 | + | 317 | 317 | 317 | + | 355 | 354 | 354 | + | 367 | 366 | 368 |
| 84 | + | 104 | 104 | 104 | + | 114 | 115 | 117 | + | 79 | 80 | 81 | + | 91 | 91 | 90 |
| 85 | − | 100 | 100 | 100 | − | 130 | 129 | 129 | − | 97 | 97 | 97 | − | 92 | 93 | 92 |
| 86 | + | 44 | 45 | 45 | + | 34 | 34 | 34 | + | 32 | 32 | 32 | + | 49 | 49 | 52 |
| 87 | − | 186 | 186 | 188 | − | 144 | 145 | 143 | − | 168 | 167 | 168 | − | 192 | 191 | 190 |
| 88 | + | 229 | 227 | 227 | + | 209 | 210 | 210 | + | 203 | 203 | 204 | + | 237 | 237 | 237 |
| 89 | − | 61 | 61 | 61 | − | 81 | 82 | 82 | − | 59 | 58 | 59 | − | 62 | 63 | 61 |
| 90 | − | 104 | 105 | 103 | − | 108 | 107 | 108 | − | 103 | 104 | 103 | − | 103 | 102 | 102 |
| 91 | + | 176 | 174 | 175 | + | 178 | 177 | 177 | + | 176 | 176 | 175 | + | 193 | 195 | 193 |
| 92 | + | 201 | 198 | 200 | + | 210 | 210 | 211 | + | 221 | 221 | 222 | + | 206 | 208 | 206 |
| 93 | + | 396 | 395 | 395 | + | 378 | 378 | 378 | + | 290 | 290 | 290 | + | 383 | 382 | 382 |
| 94 | − | 542 | 543 | 543 | − | 529 | 527 | 529 | − | 482 | 483 | 483 | − | 519 | 519 | 520 |
| 95 | + | 635 | 635 | 636 | + | 610 | 612 | 612 | + | 628 | 628 | 629 | + | 615 | 615 | 615 |
| 96 | + | 98 | 96 | 98 | + | 109 | 108 | 109 | + | 98 | 99 | 98 | + | 105 | 106 | 107 |
| 97 | − | 61 | 61 | 60 | − | 88 | 88 | 89 | − | 63 | 63 | 64 | − | 64 | 63 | 63 |
| 98 | + | 258 | 258 | 257 | + | 271 | 270 | 271 | + | 254 | 254 | 257 | + | 264 | 263 | 263 |
| 99 | − | 171 | 171 | 170 | − | 149 | 149 | 149 | − | 162 | 161 | 161 | − | 170 | 170 | 169 |
| 100 | − | 56 | 57 | 56 | − | 71 | 71 | 71 | − | 53 | 52 | 52 | − | 52 | 53 | 54 |
| 101 | − | 19 | 18 | 19 | − | 44 | 45 | 45 | − | 52 | 52 | 53 | − | 20 | 21 | 22 |
| 102 | + | 119 | 117 | 118 | + | 130 | 131 | 132 | + | 127 | 126 | 126 | + | 131 | 130 | 132 |
| 103 | + | 43 | 45 | 45 | + | 45 | 46 | 46 | + | 38 | 39 | 36 | + | 49 | 48 | 50 |
| 104 | + | 414 | 415 | 417 | + | 396 | 396 | 397 | + | 397 | 396 | 398 | + | 414 | 415 | 414 |
| 105 | + | 32 | 31 | 31 | + | 82 | 82 | 82 | + | 51 | 52 | 51 | + | 50 | 49 | 50 |
| 106 | + | 49 | 48 | 47 | + | 61 | 60 | 62 | + | 30 | 31 | 31 | + | 41 | 41 | 43 |
| 107 | + | 235 | 236 | 234 | + | 283 | 282 | 283 | + | 222 | 222 | 222 | + | 243 | 244 | 243 |
| 108 | + | 340 | 339 | 340 | + | 285 | 285 | 287 | + | 347 | 348 | 347 | + | 336 | 337 | 338 |
| 109 | − | 123 | 123 | 124 | − | 168 | 167 | 168 | − | 118 | 118 | 119 | − | 110 | 111 | 110 |
| 110 | + | 89 | 88 | 88 | + | 126 | 127 | 128 | + | 90 | 90 | 89 | + | 92 | 91 | 94 |

## HANKO 2.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | − | 129 | 130 | 130 | − | 127 | 127 | 127 | − | 155 | 153 | 154 | − | 139 | 139 | 138 |
| 112 | − | 140 | 140 | 140 | − | 217 | 217 | 216 | − | 120 | 118 | 119 | − | 120 | 120 | 121 |
| 113 | − | 116 | 118 | 117 | − | 106 | 105 | 107 | − | 124 | 123 | 124 | − | 99 | 101 | 100 |
| 114 | − | 80 | 81 | 80 | − | 61 | 63 | 61 | − | 98 | 95 | 95 | − | 96 | 96 | 95 |
| 115 | − | 148 | 149 | 149 | − | 136 | 137 | 137 | − | 140 | 140 | 139 | − | 150 | 148 | 150 |
| 116 | − | 105 | 107 | 105 | − | 90 | 90 | 91 | − | 123 | 123 | 121 | − | 96 | 94 | 96 |
| 117 | − | 82 | 83 | 82 | − | 92 | 92 | 94 | − | 77 | 76 | 76 | − | 82 | 82 | 84 |
| 118 | − | 95 | 95 | 95 | − | 53 | 53 | 53 | − | 100 | 101 | 101 | − | 92 | 90 | 90 |
| 119 | + | 387 | 385 | 385 | + | 338 | 339 | 339 | + | 351 | 353 | 352 | + | 382 | 380 | 380 |
| 120 | − | 67 | 65 | 66 | − | 85 | 86 | 85 | − | 52 | 49 | 51 | − | 49 | 48 | 49 |
| 121 | − | 134 | 135 | 135 | − | 133 | 134 | 133 | − | 138 | 137 | 136 | − | 141 | 142 | 140 |
| 122 | + | 283 | 281 | 282 | + | 275 | 275 | 277 | + | 283 | 281 | 281 | + | 288 | 288 | 286 |
| 123 | − | 127 | 124 | 124 | − | 150 | 150 | 149 | − | 145 | 146 | 145 | − | 136 | 138 | 137 |
| 124 | − | 121 | 120 | 120 | − | 114 | 112 | 114 | − | 126 | 127 | 125 | − | 116 | 115 | 115 |
| 125 | − | 207 | 207 | 205 | − | 212 | 213 | 212 | − | 214 | 215 | 213 | − | 196 | 194 | 194 |
| 126 | − | 78 | 78 | 78 | − | 69 | 69 | 69 | − | 72 | 71 | 72 | − | 79 | 78 | 78 |
| 127 | + | 240 | 241 | 242 | + | 264 | 265 | 264 | + | 252 | 250 | 253 | + | 261 | 262 | 260 |
| 128 | + | 105 | 108 | 107 | + | 111 | 111 | 112 | + | 118 | 118 | 117 | + | 88 | 90 | 89 |
| 129 | − | 145 | 146 | 144 | − | 176 | 175 | 174 | − | 169 | 168 | 168 | − | 125 | 125 | 125 |
| 130 | − | 110 | 110 | 111 | − | 94 | 94 | 93 | − | 95 | 96 | 96 | − | 112 | 112 | 112 |
| 131 | + | 160 | 162 | 161 | + | 145 | 143 | 145 | + | 138 | 139 | 140 | + | 170 | 171 | 171 |
| 132 | − | 101 | 100 | 99 | − | 97 | 98 | 98 | − | 109 | 108 | 109 | − | 88 | 89 | 90 |
| 133 | − | 3 | 4 | 4 | + | 47 | 45 | 48 | − | 15 | 15 | 16 | − | 15 | 14 | 16 |
| 134 | − | 8 | 7 | 9 | − | 3 | 4 | 4 | − | 23 | 23 | 24 | + | 11 | 10 | 13 |
| 135 | + | 38 | 39 | 38 | − | 1 | +1 | −1 | + | 46 | 47 | 45 | + | 34 | 34 | 34 |
| 136 | + | 389 | 388 | 388 | + | 439 | 440 | 441 | + | 413 | 413 | 413 | + | 419 | 420 | 419 |
| 137 | + | 104 | 105 | 105 | + | 47 | 47 | 46 | + | 79 | 79 | 78 | + | 93 | 95 | 94 |
| 138 | + | 187 | 188 | 187 | + | 180 | 181 | 180 | + | 182 | 181 | 183 | + | 188 | 187 | 187 |
| 139 | + | 307 | 307 | 306 | + | 436 | 438 | 438 | + | 309 | 310 | 310 | + | 316 | 316 | 316 |
| 140 | + | 108 | 108 | 108 | − | 22 | 23 | 22 | + | 106 | 105 | 106 | + | 113 | 111 | 114 |
| 141 | − | 174 | 171 | 172 | − | 183 | 183 | 182 | − | 181 | 180 | 182 | − | 170 | 171 | 170 |
| 142 | + | 24 | 25 | 23 | + | 17 | 16 | 16 | + | 14 | 15 | 13 | + | 20 | 20 | 21 |
| 143 | − | 117 | 116 | 118 | − | 191 | 191 | 191 | − | 136 | 134 | 136 | − | 120 | 120 | 119 |
| 144 | − | 130 | 129 | 130 | − | 50 | 50 | 49 | − | 184 | 185 | 184 | − | 112 | 110 | 112 |
| 145 | + | 238 | 239 | 239 | + | 189 | 190 | 191 | + | 285 | 284 | 283 | + | 227 | 227 | 226 |
| 146 | + | 176 | 176 | 177 | + | 203 | 205 | 205 | + | 178 | 177 | 176 | + | 184 | 182 | 182 |
| 147 | − | 437 | 438 | 438 | − | 430 | 429 | 430 | − | 428 | 430 | 429 | − | 427 | 427 | 426 |
| 148 | + | 234 | 234 | 234 | + | 245 | 245 | 244 | + | 227 | 226 | 225 | + | 246 | 246 | 247 |
| 149 | − | 158 | 157 | 158 | − | 219 | 219 | 219 | − | 160 | 159 | 158 | − | 154 | 154 | 156 |
| 150 | + | 194 | 195 | 193 | + | 311 | 312 | 312 | + | 188 | 187 | 185 | + | 205 | 205 | 204 |
| 151 | + | 405 | 404 | 403 | + | 344 | 343 | 342 | + | 412 | 413 | 412 | + | 408 | 407 | 407 |
| 152 | + | 81 | 81 | 81 | + | 106 | 103 | 103 | + | 61 | 62 | 62 | + | 74 | 77 | 77 |
| 153 | + | 381 | 380 | 380 | + | 527 | 526 | 526 | + | 406 | 405 | 405 | + | 391 | 391 | 390 |
| 154 | + | 218 | 219 | 220 | + | 72 | 75 | 71 | + | 203 | 202 | 202 | + | 223 | 222 | 224 |
| 155 | − | 93 | 91 | 91 | − | 120 | 121 | 120 | − | 98 | 99 | 99 | − | 78 | 78 | 79 |
| 156 | − | 60 | 58 | 59 | − | 101 | 99 | 99 | − | 70 | 69 | 70 | − | 67 | 66 | 68 |
| 157 | − | 96 | 96 | 96 | − | 23 | 22 | 24 | − | 71 | 71 | 71 | − | 87 | 89 | 89 |
| 158 | − | 82 | 83 | 82 | − | 117 | 118 | 117 | − | 110 | 111 | 111 | − | 71 | 73 | 71 |
| 159 | + | 108 | 108 | 108 | + | 123 | 122 | 123 | + | 97 | 98 | 98 | + | 104 | 104 | 104 |
| 160 | − | 96 | 94 | 96 | − | 115 | 113 | 114 | − | 95 | 94 | 96 | − | 88 | 87 | 87 |
| 161 | + | 337 | 335 | 338 | + | 334 | 333 | 334 | + | 330 | 329 | 329 | + | 342 | 342 | 342 |
| 162 | + | 501 | 502 | 502 | + | 496 | 497 | 496 | + | 489 | 487 | 489 | + | 501 | 502 | 502 |
| 163 | + | 345 | 344 | 345 | + | 353 | 353 | 353 | + | 352 | 353 | 352 | + | 357 | 358 | 357 |
| 164 | − | 163 | 162 | 162 | − | 170 | 169 | 170 | − | 169 | 165 | 168 | − | 161 | 163 | 161 |
| 165 | + | 82 | 83 | 84 | + | 102 | 101 | 100 | + | 75 | 77 | 78 | + | 85 | 84 | 86 |
| 166 | − | 180 | 180 | 181 | − | 202 | 203 | 203 | − | 184 | 183 | 184 | − | 176 | 176 | 176 |
| 167 | − | 69 | 68 | 67 | − | 61 | 61 | 60 | − | 68 | 66 | 67 | − | 51 | 52 | 51 |
| 168 | + | 225 | 226 | 226 | + | 213 | 215 | 213 | + | 219 | 217 | 217 | + | 216 | 214 | 215 |
| 169 | − | 136 | 136 | 135 | − | 213 | 212 | 212 | − | 129 | 129 | 129 | − | 135 | 134 | 134 |
| 170 | + | 112 | 113 | 112 | + | 168 | 169 | 168 | + | 99 | 99 | 100 | + | 127 | 127 | 125 |

# HANKO 2.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | + | 216 | 217 | 216 | + | 165 | 166 | 166 | + | 209 | 209 | 210 | + | 215 | 215 | 215 |
| 172 | + | 78 | 77 | 77 | + | 170 | 171 | 171 | + | 79 | 79 | 77 | + | 90 | 91 | 91 |
| 173 | − | 92 | 91 | 92 | − | 116 | 116 | 115 | − | 105 | 106 | 107 | − | 91 | 92 | 93 |
| 174 | + | 182 | 183 | 183 | + | 188 | 188 | 189 | + | 195 | 193 | 193 | + | 210 | 208 | 210 |
| 175 | + | 124 | 125 | 127 | + | 123 | 125 | 123 | + | 125 | 125 | 125 | + | 113 | 113 | 112 |
| 176 | + | 6 | 6 | 6 | + | 3 | 3 | 4 | + | 2 | −1 | 0 | + | 19 | 18 | 20 |
| 177 | + | 298 | 299 | 299 | + | 304 | 304 | 304 | + | 289 | 290 | 289 | + | 282 | 281 | 282 |
| 178 | − | 310 | 310 | 311 | − | 314 | 313 | 315 | − | 316 | 316 | 315 | − | 298 | 299 | 298 |
| 179 | + | 297 | 299 | 297 | + | 299 | 296 | 298 | + | 307 | 308 | 305 | + | 304 | 303 | 303 |
| 180 | − | 98 | 97 | 97 | − | 101 | 101 | 102 | − | 117 | 116 | 116 | − | 97 | 99 | 99 |
| 181 | + | 108 | 108 | 109 | + | 122 | 123 | 122 | + | 109 | 110 | 110 | + | 126 | 127 | 126 |
| 182 | − | 91 | 90 | 90 | − | 107 | 107 | 107 | − | 96 | 97 | 96 | − | 93 | 92 | 93 |
| 183 | + | 101 | 102 | 102 | + | 121 | 120 | 120 | + | 96 | 97 | 97 | + | 102 | 103 | 103 |
| 184 | + | 104 | 104 | 104 | + | 89 | 89 | 89 | + | 105 | 104 | 104 | + | 109 | 109 | 109 |
| 185 | + | 96 | 97 | 97 | + | 102 | 103 | 101 | + | 114 | 114 | 116 | + | 107 | 109 | 108 |
| 186 | − | 58 | 57 | 58 | − | 69 | 67 | 68 | − | 103 | 100 | 102 | − | 65 | 64 | 64 |
| 187 | + | 393 | 393 | 392 | + | 512 | 511 | 510 | + | 384 | 383 | 384 | + | 404 | 404 | 404 |
| 188 | + | 274 | 274 | 274 | + | 153 | 152 | 152 | + | 276 | 275 | 275 | + | 271 | 272 | 272 |
| 189 | + | 425 | 425 | 426 | + | 427 | 427 | 426 | + | 433 | 431 | 431 | + | 430 | 430 | 431 |
| 190 | − | 293 | 293 | 292 | − | 308 | 310 | 310 | − | 280 | 281 | 281 | − | 293 | 292 | 293 |
| 191 | − | 529 | 528 | 529 | − | 512 | 515 | 513 | − | 542 | 541 | 541 | − | 520 | 517 | 518 |
| 192 | − | 126 | 126 | 125 | − | 139 | 138 | 138 | − | 136 | 137 | 136 | − | 138 | 135 | 136 |
| 193 | − | 156 | 156 | 156 | − | 157 | 157 | 157 | − | 170 | 168 | 169 | − | 141 | 140 | 140 |
| 194 | − | 26 | 25 | 24 | − | 36 | 35 | 35 | − | 28 | 27 | 28 | − | 19 | 18 | 20 |
| 195 | + | 94 | 95 | 95 | + | 110 | 110 | 110 | + | 79 | 79 | 77 | + | 112 | 113 | 113 |
| 196 | + | 180 | 179 | 179 | + | 160 | 159 | 160 | + | 185 | 185 | 185 | + | 166 | 166 | 167 |
| 197 | + | 136 | 134 | 134 | + | 197 | 195 | 197 | + | 166 | 165 | 166 | + | 133 | 133 | 132 |
| 198 | + | 209 | 209 | 209 | + | 144 | 145 | 142 | + | 160 | 159 | 161 | + | 213 | 214 | 214 |
| 199 | − | 139 | 139 | 138 | − | 147 | 147 | 147 | − | 135 | 135 | 135 | − | 126 | 125 | 125 |
| 200 | + | 410 | 411 | 412 | + | 415 | 416 | 415 | + | 387 | 389 | 386 | + | 371 | 372 | 371 |
| 201 | − | 107 | 108 | 108 | + | 92 | 91 | 92 | − | 85 | 86 | 85 | − | 77 | 78 | 77 |
| 202 | − | 107 | 107 | 106 | − | 110 | 107 | 109 | − | 134 | 134 | 134 | − | 91 | 92 | 93 |
| 203 | − | 220 | 219 | 219 | − | 258 | 257 | 258 | − | 192 | 193 | 193 | − | 240 | 240 | 241 |
| 204 | − | 28 | 27 | 27 | + | 6 | 4 | 5 | − | 37 | 35 | 36 | − | 5 | 5 | 5 |
| 205 | + | 398 | 394 | 398 | + | 418 | 417 | 419 | + | 388 | 387 | 387 | + | 380 | 379 | 380 |
| 206 | + | 259 | 258 | 260 | + | 238 | 237 | 238 | + | 240 | 241 | 241 | + | 281 | 282 | 282 |
| 207 | − | 201 | 201 | 200 | − | 195 | 196 | 196 | − | 135 | 135 | 135 | − | 191 | 193 | 193 |
| 208 | + | 18 | 20 | 20 | + | 13 | 11 | 12 | − | 29 | 28 | 29 | + | 30 | 30 | 30 |
| 209 | + | 90 | 90 | 90 | + | 85 | 85 | 86 | + | 65 | 65 | 64 | + | 87 | 87 | 87 |
| 210 | + | 100 | 100 | 99 | + | 130 | 130 | 130 | + | 140 | 140 | 140 | + | 101 | 99 | 100 |
| 211 | + | 95 | 95 | 96 | + | 72 | 73 | 74 | + | 47 | 47 | 47 | + | 113 | 116 | 115 |
| 212 | − | 201 | 203 | 201 | − | 210 | 210 | 209 | − | 187 | 188 | 189 | − | 214 | 214 | 216 |
| 213 | + | 168 | 169 | 169 | + | 162 | 161 | 161 | + | 149 | 150 | 149 | + | 161 | 160 | 161 |
| 214 | + | 251 | 251 | 252 | + | 257 | 259 | 258 | + | 266 | 264 | 265 | + | 269 | 269 | 269 |
| 215 | − | 225 | 225 | 225 | − | 234 | 234 | 235 | − | 242 | 242 | 243 | − | 231 | 231 | 230 |
| 216 | − | 45 | 47 | 47 | − | 35 | 35 | 36 | − | 35 | 36 | 37 | − | 32 | 31 | 32 |
| 217 | + | 12 | 11 | 12 | + | 7 | 7 | 5 | | 0 | 0 | 0 | + | 14 | 14 | 13 |
| 218 | + | 339 | 342 | 340 | + | 331 | 332 | 331 | + | 332 | 332 | 331 | + | 353 | 353 | 353 |
| 219 | − | 170 | 169 | 170 | − | 114 | 113 | 114 | − | 199 | 199 | 199 | − | 206 | 204 | 205 |
| 220 | + | 33 | 33 | 34 | − | 28 | 25 | 28 | + | 58 | 57 | 56 | + | 97 | 96 | 97 |
| 221 | + | 58 | 62 | 60 | + | 67 | 68 | 69 | + | 60 | 59 | 59 | + | 39 | 38 | 39 |
| 222 | + | 227 | 226 | 227 | + | 221 | 221 | 222 | + | 217 | 218 | 218 | + | 226 | 225 | 227 |
| 223 | + | 29 | 30 | 30 | + | 35 | 35 | 34 | + | 41 | 42 | 41 | + | 74 | 75 | 74 |
| 224 | − | 535 | 535 | 536 | − | 539 | 539 | 539 | − | 552 | 552 | 552 | − | 570 | 569 | 569 |
| 225 | + | 69 | 70 | 70 | + | 69 | 70 | 69 | + | 69 | 70 | 70 | + | 78 | 79 | 77 |
| 226 | − | 122 | 121 | 122 | − | 127 | 128 | 128 | − | 145 | 145 | 145 | − | 132 | 131 | 131 |
| 227 | − | 59 | 60 | 57 | − | 60 | 60 | 62 | − | 41 | 41 | 40 | − | 48 | 48 | 47 |
| 228 | + | 65 | 65 | 65 | + | 53 | 54 | 53 | + | 36 | 37 | 37 | + | 61 | 61 | 61 |
| 229 | + | 339 | 337 | 337 | + | 354 | 354 | 353 | + | 351 | 352 | 351 | + | 346 | 346 | 347 |
| 230 | − | 313 | 315 | 313 | − | 321 | 320 | 320 | − | 328 | 328 | 329 | − | 313 | 314 | 313 |

## HANKO 2.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 231 | + | 275 | 275 | 275 | + | 279 | 278 | 279 | + | 291 | 291 | 293 | + | 284 | 283 | 284 |
| 232 | − | 214 | 214 | 216 | − | 218 | 215 | 213 | − | 223 | 222 | 223 | − | 208 | 208 | 209 |
| 233 | − | 222 | 221 | 222 | − | 226 | 227 | 224 | − | 228 | 228 | 229 | − | 221 | 221 | 222 |
| 234 | + | 154 | 153 | 153 | + | 150 | 152 | 151 | + | 147 | 148 | 148 | + | 175 | 175 | 175 |
| 235 | − | 28 | 31 | 30 | − | 34 | 32 | 32 | − | 40 | 40 | 40 | − | 41 | 41 | 41 |
| 236 | + | 185 | 184 | 184 | + | 191 | 189 | 190 | + | 213 | 213 | 213 | + | 195 | 194 | 195 |
| 237 | + | 2 | 3 | 2 | − | 5 | 7 | 6 | − | 33 | 35 | 34 | + | 10 | 8 | 9 |
| 238 | + | 215 | 215 | 218 | + | 205 | 204 | 204 | + | 205 | 206 | 208 | + | 211 | 212 | 211 |
| 239 | + | 358 | 356 | 357 | + | 366 | 366 | 365 | + | 340 | 341 | 341 | + | 357 | 355 | 357 |
| 240 | + | 279 | 278 | 278 | + | 280 | 278 | 280 | + | 287 | 288 | 287 | + | 291 | 292 | 293 |
| 241 | − | 226 | 225 | 224 | − | 230 | 229 | 229 | − | 221 | 221 | 221 | − | 234 | 234 | 234 |
| 242 | + | 40 | 41 | 40 | + | 40 | 41 | 40 | + | 33 | 33 | 32 | + | 50 | 50 | 50 |
| 243 | + | 46 | 47 | 45 | + | 43 | 42 | 42 | + | 36 | 37 | 36 | + | 42 | 42 | 44 |
| 244 | − | 104 | 106 | 105 | − | 116 | 114 | 116 | − | 100 | 100 | 98 | − | 98 | 101 | 100 |
| 245 | + | 127 | 126 | 128 | + | 157 | 158 | 157 | + | 144 | 142 | 141 | + | 158 | 158 | 157 |

# The Levellings.

Differences of altitudes in metres.

## POTSDAM. $\triangle h$

| N:o | 20.III. | | 21.III. | | 26.VIII. | | 23.X. | |
|---|---|---|---|---|---|---|---|---|
| 1 | − | 0.329 0.330 | − | 0.327 0.310 | − | 0.300 0.301 | − | 0.321 0.323 |
| 2 | + | 0.002 0.002 | − | 0.008 0.007 | − | 0.054 0.053 | − | 0.018 0.018 |
| 3 | + | 0.047 0.046 | + | 0.013 0.016 | − | 0.000 0.001 | + | 0.025 0.025 |
| 4 | + | 0.014 0.014 | + | 0.014 0.015 | + | 0.058 0.059 | + | 0.006 0.006 |
| 5 | − | 0.022 0.022 | − | 0.030 0.030 | − | 0.035 0.034 | − | 0.048 0.047 |
| 6 | − | 0.023 0.023 | + | 0.018 0.018 | + | 0.038 0.039 | + | 0.055 0.056 |
| 7 | + | 0.008 0.006 | − | 0.025 0.024 | + | 0.047 0.047 | − | 0.009 0.010 |
| 8 | − | 0.012 0.012 | − | 0.021 0.020 | − | 0.023 0.023 | − | 0.019 0.019 |
| 9 | − | 0.065 0.065 | − | 0.014 0.014 | − | 0.076 0.076 | − | 0.064 0.063 |
| 10 | + | 0.270 0.272 | + | 0.258 0.259 | + | 0.240 0.240 | + | 0.285 0.285 |

## HELSINKI. $\triangle h$

| N:o | 10.V. | | 14.V. | | 27.VI. | |
|---|---|---|---|---|---|---|
| 1 | − | 0.167 0.167 | − | 0.164 0.167 | − | 0.163 0.165 |
| 2 | − | 0.587 0.588 | − | 0.591 0.587 | − | 0.588 0.587 |
| 3 | + | 0.030 0.032 | + | 0.030 0.034 | + | 0.032 0.034 |
| 4 | − | 0.195 0.193 | − | 0.193 0.192 | − | 0.194 0.194 |
| 5 | − | 0.037 0.035 | − | 0.035 0.039 | − | 0.037 0.036 |
| 6 | + | 0.136 0.137 | + | 0.136 0.136 | + | 0.137 0.135 |
| 7 | − | 0.209 0.210 | − | 0.211 0.211 | − | 0.214 0.208 |
| 8 | − | 0.146 0.148 | − | 0.147 0.145 | − | 0.145 0.145 |
| 9 | + | 0.093 0.091 | + | 0.093 0.094 | + | 0.101 0.090 |
| 10 | + | 0.069 0.071 | + | 0.072 0.069 | + | 0.071 0.074 |
| 11 | + | 0.260 0.262 | + | 0.259 0.260 | + | 0.262 0.257 |
| 12 | + | 0.129 0.128 | + | 0.126 0.126 | + | 0.129 0.127 |
| 13 | − | 0.021 0.021 | − | 0.022 0.016 | − | 0.026 0.022 |
| 14 | + | 0.390 0.390 | + | 0.392 0.393 | + | 0.403 0.397 |
| 15 | − | 0.222 0.225 | − | 0.222 0.223 | − | 0.224 0.224 |
| 16 | − | 0.059 0.058 | − | 0.064 0.065 | − | 0.071 0.067 |
| 17 | − | 0.050 0.050 | − | 0.054 0.047 | − | 0.053 0.057 |
| 18 | + | 0.163 0.163 | + | 0.167 0.163 | + | 0.163 0.174 |
| 19 | + | 0.050 0.047 | + | 0.050 0.048 | + | 0.049 0.047 |
| 20 | + | 0.000 0.005 | + | 0.001 0.001 | + | 0.001 0.002 |
| 21 | + | 0.101 0.104 | + | 0.100 0.099 | + | 0.097 0.098 |
| 22 | + | 0.091 0.095 | + | 0.086 0.091 | + | 0.094 0.098 |
| 23 | + | 0.209 0.209 | + | 0.203 0.210 | − | 0.210 0.212 |
| 24 | − | 0.046 0.046 | − | 0.043 0.045 | − | 0.043 0.049 |
| 25 | − | 0.200 0.206 | − | 0.203 0.196 | − | 0.195 0.197 |
| 26 | + | 0.242 0.245 | + | 0.240 0.242 | + | 0.239 0.242 |
| 27 | − | 0.032 0.034 | − | 0.036 0.033 | − | 0.032 0.034 |
| 28 | + | 0.113 0.114 | + | 0.112 0.114 | + | 0.108 0.113 |
| 29 | − | 0.150 0.147 | − | 0.148 0.147 | − | 0.148 0.150 |
| 30 | + | 0.208 0.207 | + | 0.207 0.207 | + | 0.208 0.205 |

## HELSINKI. $\triangle h$

| N:o | 4.IX. | | 9.IX. | | 6.XI. | 11.XI. | 21.XI. |
|---|---|---|---|---|---|---|---|
| 1 | − 0.166 | 0.166 | − 0.166 | 0.165 | − 0.164 | 0.164 | − 0.167 |
| 2 | − 0.584 | 0.584 | − 0.584 | 0.587 | − 0.587 | − 0.585 | − 0.587 |
| 3 | + 0.032 | 0.031 | + 0.034 | 0.032 | + 0.032 | + 0.033 | + 0.031 |
| 4 | − 0.192 | 0.194 | − 0.194 | 0.194 | − 0.193 | − 0.194 | − 0.193 |
| 5 | − 0.037 | 0.036 | − 0.038 | 0.036 | − 0.035 | − 0.036 | − 0.035 |
| 6 | + 0.134 | 0.136 | + 0.136 | 0.137 | + 0.136 | + 0.134 | + 0.134 |
| 7 | − 0.209 | 0.210 | − 0.209 | 0.211 | − 0.211 | − 0.210 | − 0.211 |
| 8 | − 0.147 | 0.146 | − 0.144 | 0.145 | − 0.144 | − 0.145 | − 0.146 |
| 9 | + 0.093 | 0.093 | + 0.091 | 0.091 | + 0.090 | + 0.091 | + 0.090 |
| 10 | + 0.073 | 0.071 | + 0.070 | 0.074 | + 0.074 | + 0.074 | + 0.074 |
| 11 | + 0.258 | 0.261 | + 0.260 | 0.261 | + 0.258 | + 0.256 | + 0.260 |
| 12 | + 0.128 | 0.128 | + 0.131 | 0.130 | + 0.129 | + 0.128 | + 0.128 |
| 13 | − 0.023 | 0.023 | − 0.022 | 0.024 | − 0.022 | − 0.023 | − 0.026 |
| 14 | + 0.395 | 0.393 | + 0.392 | 0.394 | + 0.395 | + 0.395 | + 0.394 |
| 15 | − 0.225 | 0.224 | − 0.225 | 0.224 | − 0.224 | − 0.222 | − 0.223 |
| 16 | − 0.067 | 0.066 | − 0.068 | 0.067 | − 0.067 | − 0.069 | − 0.067 |
| 17 | − 0.052 | 0.053 | − 0.050 | 0.053 | − 0.052 | − 0.052 | − 0.052 |
| 18 | + 0.173 | 0.174 | + 0.174 | 0.173 | + 0.171 | + 0.171 | + 0.176 |
| 19 | + 0.047 | 0.045 | + 0.047 | 0.046 | + 0.046 | + 0.046 | + 0.042 |
| 20 | + 0.002 | 0.003 | + 0.001 | 0.004 | + 0.004 | + 0.004 | + 0.002 |
| 21 | + 0.100 | 0.101 | + 0.101 | 0.104 | + 0.103 | + 0.101 | + 0.101 |
| 22 | + 0.093 | 0.092 | + 0.093 | 0.088 | + 0.092 | + 0.092 | + 0.091 |
| 23 | + 0.209 | 0.210 | + 0.211 | 0.209 | + 0.209 | + 0.208 | + 0.208 |
| 24 | − 0.048 | 0.047 | − 0.049 | 0.046 | − 0.046 | − 0.045 | − 0.043 |
| 25 | − 0.197 | 0.200 | − 0.200 | 0.198 | − 0.201 | − 0.199 | − 0.198 |
| 26 | + 0.241 | 0.241 | + 0.241 | 0.242 | + 0.241 | + 0.242 | + 0.242 |
| 27 | − 0.032 | 0.032 | − 0.031 | 0.034 | − 0.030 | − 0.031 | − 0.034 |
| 28 | + 0.112 | 0.111 | + 0.114 | 0.111 | + 0.112 | + 0.112 | + 0.112 |
| 29 | − 0.147 | 0.147 | − 0.149 | 0.148 | − 0.148 | − 0.148 | − 0.146 |
| 30 | + 0.207 | 0.206 | + 0.206 | 0.209 | + 0.205 | + 0.206 | + 0.209 |

# SZUBIN.

| N:o | $\triangle h$ | | N:o | $\triangle h$ | | N:o | $\triangle h$ | |
|---|---|---|---|---|---|---|---|---|
| 1 | − | 0.135 0.136 | 51 | + | 0.054 0.054 | 101 | + | 0.194 0.197 |
| 2 | − | 0.104 0.103 | 52 | + | 0.447 0.446 | 102 | + | 0.099 0.101 |
| 3 | − | 0.173 0.177 | 53 | − | 0.204 0.203 | 103 | + | 0.222 0.220 |
| 4 | + | 0.399 0.400 | 54 | − | 0.188 0.187 | 104 | − | 0.308 0.307 |
| 5 | + | 0.054 0.063 | 55 | − | 0.007 0.007 | 105 | + | 0.137 0.135 |
| 6 | + | 0.279 0.279 | 56 | − | 0.062 0.061 | 106 | + | 0.018 0.019 |
| 7 | + | 0.025 0.024 | 57 | − | 0.031 0.023 | 107 | + | 0.109 0.108 |
| 8 | − | 0.127 0.128 | 58 | + | 0.413 0.413 | 108 | − | 0.017 0.015 |
| 9 | − | 0.087 0.086 | 59 | + | 0.440 0.438 | 109 | − | 0.025 0.023 |
| 10 | − | 0.054 0.053 | 60 | + | 0.259 0.261 | 110 | − | 0.030 0.032 |
| 11 | + | 0.210 0.208 | 61 | + | 0.109 0.110 | 111 | − | 0.119 0.119 |
| 12 | − | 0.261 0.261 | 62 | + | 0.011 0.009 | 112 | + | 0.016 0.013 |
| 13 | − | 0.237 0.236 | 63 | − | 0.004 0.006 | 113 | − | 0.103 0.101 |
| 14 | − | 0.217 0.218 | 64 | + | 0.209 0.210 | 114 | + | 0.006 0.005 |
| 15 | − | 0.150 0.148 | 65 | − | 0.015 0.015 | 115 | − | 0.008 0.006 |
| 16 | − | 0.196 0.198 | 66 | − | 0.013 0.012 | 116 | + | 0.138 0.135 |
| 17 | − | 0.109 0.108 | 67 | + | 0.091 0.090 | 117 | − | 0.146 0.143 |
| 18 | − | 0.110 0.109 | 68 | + | 0.031 0.032 | 118 | − | 0.100 0.101 |
| 19 | − | 0.360 0.367 | 69 | − | 0.085 0.085 | 119 | − | 0.066 0.066 |
| 20 | + | 0.077 0.084 | 70 | − | 0.288 0.286 | 120 | − | 0.074 0.074 |
| 21 | − | 0.239 0.236 | 71 | − | 0.021 0.021 | 121 | + | 0.017 0.019 |
| 22 | − | 0.144 0.146 | 72 | − | 0.275 0.273 | 122 | − | 0.238 0.238 |
| 23 | − | 0.260 0.261 | 73 | − | 0.067 0.067 | 123 | − | 0.025 0.026 |
| 24 | − | 0.071 0.070 | 74 | − | 0.065 0.064 | 124 | + | 0.032 0.031 |
| 25 | + | 0.148 0.149 | 75 | − | 0.249 0.249 | 125 | − | 0.087 0.089 |
| 26 | + | 0.088 0.087 | 76 | − | 0.267 0.267 | 126 | + | 0.080 0.082 |
| 27 | − | 0.033 0.033 | 77 | − | 0.065 0.065 | 127 | + | 0.001 0.003 |
| 28 | + | 0.105 0.104 | 78 | + | 0.005 0.004 | 128 | + | 0.064 0.065 |
| 29 | + | 0.146 0.148 | 79 | + | 0.040 0.040 | 129 | − | 0.176 0.176 |
| 30 | − | 0.103 0.107 | 80 | − | 0.011 0.012 | 130 | + | 0.040 0.039 |
| 31 | − | 0.039 0.039 | 81 | − | 0.063 0.060 | 131 | + | 0.166 0.166 |
| 32 | − | 0.279 0.277 | 82 | + | 0.077 0.078 | 132 | − | 0.141 0.142 |
| 33 | − | 0.127 0.131 | 83 | − | 0.002 0.000 | 133 | + | 0.039 0.041 |
| 34 | + | 0.074 0.076 | 84 | + | 0.084 0.085 | 134 | + | 0.127 0.128 |
| 35 | + | 0.289 0.286 | 85 | + | 0.004 0.004 | 135 | + | 0.188 0.188 |
| 36 | + | 0.368 0.368 | 86 | − | 0.087 0.089 | 136 | + | 0.094 0.095 |
| 37 | + | 0.078 0.077 | 87 | + | 0.188 0.190 | 137 | + | 0.058 0.058 |
| 38 | − | 0.216 0.215 | 88 | − | 0.206 0.199 | 138 | + | 0.193 0.193 |
| 39 | − | 0.519 0.519 | 89 | − | 0.005 0.007 | 139 | + | 0.354 0.353 |
| 40 | − | 0.417 0.417 | 90 | − | 0.293 0.293 | 140 | + | 0.228 0.229 |
| 41 | − | 0.487 0.489 | 91 | + | 0.296 0.296 | 141 | + | 0.309 0.310 |
| 42 | − | 0.364 0.358 | 92 | − | 0.025 0.024 | 142 | + | 0.004 0.006 |
| 43 | − | 0.665 0.667 | 93 | + | 0.075 0.075 | 143 | − | 0.079 0.079 |
| 44 | − | 0.062 0.062 | 94 | − | 0.059 0.059 | 144 | − | 0.123 0.123 |
| 45 | + | 0.054 0.054 | 95 | − | 0.038 0.038 | 145 | − | 0.056 0.057 |
| 46 | − | 0.279 0.277 | 96 | + | 0.104 0.105 | 146 | − | 0.112 0.111 |
| 47 | + | 0.361 0.361 | 97 | − | 0.053 0.053 | 147 | + | 0.120 0.119 |
| 48 | + | 0.403 0.406 | 98 | − | 0.051 0.054 | 148 | + | 0.023 0.023 |
| 49 | − | 0.067 0.068 | 99 | + | 0.176 0.172 | 149 | + | 0.052 0.053 |
| 50 | − | 0.440 0.439 | 100 | + | 0.149 0.148 | 150 | + | 0.018 0.018 |

## SZUBIN.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | + | 0.034 | 0.032 | 172 | + | 0.018 | 0.018 | 193 | + | 0.516 | 0.516 |
| 152 | − | 0.023 | 0.022 | 173 | + | 0.104 | 0.103 | 194 | + | 0.301 | 0.299 |
| 153 | + | 0.124 | 0.124 | 174 | + | 0.168 | 0.169 | 195 | + | 0.332 | 0.332 |
| 154 | − | 0.034 | 0.034 | 175 | + | 0.033 | 0.034 | 196 | + | 0.374 | 0.373 |
| 155 | + | 0.163 | 0.163 | 176 | + | 0.153 | 0.153 | 197 | + | 0.563 | 0.561 |
| 156 | + | 0.009 | 0.010 | 177 | + | 0.095 | 0.095 | 198 | + | 1.057 | 1.057 |
| 157 | − | 0.005 | 0.005 | 178 | + | 0.207 | 0.207 | 199 | + | 0.561 | 0.559 |
| 158 | + | 0.100 | 0.101 | 179 | − | 0.159 | 0.161 | 200 | + | 0.756 | 0.756 |
| 159 | + | 0.307 | 0.307 | 180 | + | 0.135 | 0.135 | 201 | + | 0.751 | 0.752 |
| 160 | + | 0.087 | 0.086 | 181 | + | 0.223 | 0.223 | 202 | + | 0.768 | 0.769 |
| 161 | − | 0.022 | 0.022 | 182 | + | 0.239 | 0.240 | 203 | + | 0.572 | 0.574 |
| 162 | − | 0.017 | 0.015 | 183 | + | 0.354 | 0.355 | 204 | + | 0.509 | 0.511 |
| 163 | + | 0.381 | 0.380 | 184 | + | 0.234 | 0.235 | 205 | + | 0.489 | 0.488 |
| 164 | − | 0.112 | 0.115 | 185 | + | 0.248 | 0.247 | 206 | + | 0.338 | 0.337 |
| 165 | − | 0.023 | 0.025 | 186 | + | 0.421 | 0.422 | 207 | + | 0.318 | 0.318 |
| 166 | + | 0.308 | 0.310 | 187 | + | 0.720 | 0.721 | 208 | + | 0.532 | 0.532 |
| 167 | − | 0.208 | 0.207 | 188 | + | 0.694 | 0.697 | 209 | + | 0.643 | 0.646 |
| 168 | − | 0.055 | 0.056 | 189 | + | 0.965 | 0.964 | 210 | + | 0.361 | 0.362 |
| 169 | + | 0.143 | 0.143 | 190 | + | 0.470 | 0.471 | 211 | + | 0.254 | 0.254 |
| 170 | − | 0.097 | 0.103 | 191 | + | 0.669 | 0.666 | 212 | + | 0.085 | 0.085 |
| 171 | + | 0.024 | 0.024 | 192 | + | 0.624 | 0.628 | 213 | + | 0.148 | 0.150 |

## SVEKSNA.

| N:o | $\triangle h$ | | N:o | $\triangle h$ | | N:o | $\triangle h$ | |
|---|---|---|---|---|---|---|---|---|
| 1 | + 0.004 | 0.004 | 51 | + 0.018 | 0.019 | 101 | + 0.009 | 0.008 |
| 2 | − 0.141 | 0.144 | 52 | + 0.072 | 0.070 | 102 | + 0,164 | 0.167 |
| 3 | − 0.253 | 0.250 | 53 | − 0.094 | 0.093 | 103 | − 0.166 | 0.167 |
| 4 | + 0.072 | 0.073 | 54 | − 0.090 | 0.091 | 104 | + 0.108 | 0.108 |
| 5 | + 0.171 | 0.171 | 55 | − 0.035 | 0.034 | 105 | + 0.336 | 0.336 |
| 6 | + 0.091 | 0.091 | 56 | + 0.300 | 0.301 | 106 | − 0.428 | 0.429 |
| 7 | + 0.086 | 0.089 | 57 | + 0.130 | 0.128 | 107 | + 0.005 | 0.006 |
| 8 | + 0.001 | 0.000 | 58 | + 0.135 | 0.136 | 108 | + 0.399 | 0.398 |
| 9 | + 0.045 | 0.044 | 59 | − 0.227 | 0.227 | 109 | + 0.297 | 0.297 |
| 10 | − 0.258 | 0.255 | 60 | + 0.060 | 0.060 | 110 | + 0.171 | 0.171 |
| 11 | − 0.009 | 0.009 | 61 | − 0.051 | 0.051 | 111 | + 0.401 | 0.402 |
| 12 | + 0.150 | 0.148 | 62 | − 0.182 | 0.182 | 112 | + 0.462 | 0.464 |
| 13 | + 0.184 | 0.184 | 63 | − 0.085 | 0.085 | 113 | + 0.027 | 0.025 |
| 14 | − 0.095 | 0.094 | 64 | − 0.089 | 0.088 | 114 | + 0.187 | 0.188 |
| 15 | − 0.336 | 0.339 | 65 | + 0.200 | 0.200 | 115 | + 0.550 | 0.550 |
| 16 | − 0.078 | 0.080 | 66 | − 0.042 | 0.044 | 116 | + 0.680 | 0.681 |
| 17 | − 0.157 | 0.155 | 67 | − 0.072 | 0.073 | 117 | + 0.414 | 0.416 |
| 18 | − 0.058 | 0.057 | 68 | − 0.120 | 0.122 | 118 | + 0.105 | 0.103 |
| 19 | + 0.058 | 0.057 | 69 | − 0.230 | 0.229 | 119 | − 0.018 | 0.017 |
| 20 | + 0.051 | 0.051 | 70 | − 0.166 | 0.168 | 120 | − 0.061 | 0.061 |
| 21 | + 0.108 | 0.108 | 71 | − 0.236 | 0.236 | 121 | − 0.772 | 0.771 |
| 22 | − 0.112 | 0.114 | 72 | − 0.226 | 0.225 | 122 | − 0.829 | 0.827 |
| 23 | − 0.093 | 0.092 | 73 | − 0.109 | 0.108 | 123 | − 0.512 | 0.513 |
| 24 | + 0.016 | 0.016 | 74 | + 0.129 | 0.130 | 124 | − 0.518 | 0.517 |
| 25 | + 0.074 | 0.074 | 75 | − 0.138 | 0.140 | 125 | − 0.167 | 0.167 |
| 26 | + 0.157 | 0.158 | 76 | − 0.205 | 0.204 | 126 | − 0.032 | 0.033 |
| 27 | − 0.052 | 0.056 | 77 | + 0.064 | 0.064 | 127 | + 0.229 | 0.230 |
| 28 | − 0.004 | 0.002 | 78 | + 0.072 | 0.072 | 128 | − 0.016 | 0.015 |
| 29 | − 0.066 | 0.067 | 79 | − 0.276 | 0.277 | 129 | − 0.091 | 0.091 |
| 30 | + 0.158 | 0.156 | 80 | + 0.145 | 0.145 | 130 | − 0.040 | 0.039 |
| 31 | − 0.062 | 0.062 | 81 | + 0.252 | 0.251 | 131 | − 0.135 | 0.134 |
| 32 | − 0.018 | 0.016 | 82 | + 0.054 | 0.056 | 132 | + 0.002 | 0.000 |
| 33 | − 0.143 | 0.146 | 83 | + 0.299 | 0.297 | 133 | − 0.152 | 0.151 |
| 34 | + 0.001 | 0.001 | 84 | − 0.036 | 0.036 | 134 | − 0.237 | 0.240 |
| 35 | + 0.230 | 0.230 | 85 | − 0.290 | 0.291 | 135 | − 0.032 | 0.032 |
| 36 | − 0.243 | 0.244 | 86 | − 0.269 | 0.269 | 136 | + 0.090 | 0.089 |
| 37 | − 0.051 | 0.049 | 87 | − 0.020 | 0.020 | 137 | + 0.154 | 0.155 |
| 38 | + 0.056 | 0.055 | 88 | + 0.027 | 0.026 | 138 | + 0.146 | 0.147 |
| 39 | + 0.134 | 0.133 | 89 | + 0.050 | 0.052 | 139 | − 0.042 | 0.044 |
| 40 | − 0.055 | 0.056 | 90 | + 0.003 | 0.001 | 140 | − 0.053 | 0.053 |
| 41 | + 0.136 | 0.138 | 91 | − 0.078 | 0.080 | 141 | − 0.025 | 0.027 |
| 42 | − 0.078 | 0.078 | 92 | − 0.007 | 0.008 | 142 | − 0.029 | 0.029 |
| 43 | − 0.035 | 0.034 | 93 | − 0.360 | 0.361 | 143 | − 0.035 | 0.032 |
| 44 | − 0.046 | 0.047 | 94 | + 0.007 | 0.007 | 144 | − 0.159 | 0.157 |
| 45 | + 0.090 | 0.090 | 95 | + 0.010 | 0.010 | 145 | + 0.088 | 0.090 |
| 46 | + 0.021 | 0.021 | 96 | − 0.150 | 0.150 | 146 | + 0.349 | 0.348 |
| 47 | + 0.107 | 0.106 | 97 | − 0.196 | 0.198 | 147 | + 0.272 | 0.272 |
| 48 | + 0.083 | 0.083 | 98 | − 0.138 | 0.138 | 148 | + 0.081 | 0.080 |
| 49 | − 0.193 | 0.192 | 99 | + 0.002 | 0.004 | 149 | − 0.015 | 0.015 |
| 50 | − 0.104 | 0.104 | 100 | + 0.059 | 0.057 | 150 | + 0.116 | 0.115 |

## SVEKSNA.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | + | 0.094 | 0.095 | 192 | + | 0.016 | 0.018 | 233 | + | 0.319 | 0.322 |
| 152 | + | 0.300 | 0.300 | 193 | − | 0.023 | 0.026 | 234 | + | 0.119 | 0.121 |
| 153 | − | 0.025 | 0.022 | 194 | − | 0.116 | 0.113 | 235 | + | 0.063 | 0.066 |
| 154 | − | 0.085 | 0.087 | 195 | − | 0.085 | 0.086 | 236 | + | 0.070 | 0.072 |
| 155 | + | 0.032 | 0.032 | 196 | + | 0.021 | 0.022 | 237 | + | 0.013 | 0.013 |
| 156 | + | 0.012 | 0.012 | 197 | − | 0.164 | 0.163 | 238 | + | 0.171 | 0.171 |
| 157 | − | 0.761 | 0.758 | 198 | − | 0.001 | 0.004 | 239 | + | 0.014 | 0.012 |
| 158 | − | 0.850 | 0.851 | 199 | + | 0.039 | 0.038 | 240 | − | 0.150 | 0.150 |
| 159 | − | 0.575 | 0.576 | 200 | + | 0.042 | 0.044 | 241 | + | 0.060 | 0.062 |
| 160 | − | 0.276 | 0.276 | 201 | + | 0.173 | 0.171 | 242 | + | 0.139 | 0.139 |
| 161 | − | 0.131 | 0.128 | 202 | + | 0.045 | 0.046 | 243 | + | 0.126 | 0.124 |
| 162 | − | 0.141 | 0.142 | 203 | + | 0.089 | 0.091 | 244 | − | 0.009 | 0.009 |
| 163 | − | 0.001 | 0.002 | 204 | + | 0.410 | 0.408 | 245 | + | 0.052 | 0.051 |
| 164 | − | 0.140 | 0.137 | 205 | + | 0.104 | 0.105 | 246 | + | 0.047 | 0.047 |
| 165 | − | 0.017 | 0.016 | 206 | − | 0.010 | 0.008 | 247 | + | 0.005 | 0.004 |
| 166 | − | 0.089 | 0.090 | 207 | + | 0.171 | 0.168 | 248 | + | 0.040 | 0.042 |
| 167 | + | 0.084 | 0.084 | 208 | + | 0.019 | 0.019 | 249 | − | 0.084 | 0.084 |
| 168 | − | 0.020 | 0.019 | 209 | − | 0.250 | 0.250 | 250 | − | 0.087 | 0.087 |
| 169 | − | 0.030 | 0.030 | 210 | + | 0.051 | 0.053 | 251 | − | 0.324 | 0.325 |
| 170 | − | 0.161 | 0.161 | 211 | − | 0.024 | 0.026 | 252 | − | 0.240 | 0.240 |
| 171 | + | 0.061 | 0.061 | 212 | − | 0.048 | 0.046 | 253 | − | 0.236 | 0.237 |
| 172 | − | 0.228 | 0.230 | 213 | − | 0.039 | 0.040 | 254 | − | 0.025 | 0.024 |
| 173 | − | 0.156 | 0.156 | 214 | + | 0.137 | 0.136 | 255 | − | 0.186 | 0.185 |
| 174 | − | 0.088 | 0.088 | 215 | − | 0.125 | 0.125 | 256 | − | 0.172 | 0.173 |
| 175 | − | 0.095 | 0.092 | 216 | + | 0.055 | 0.055 | 257 | − | 0.218 | 0.218 |
| 176 | − | 0.400 | 0.402 | 217 | + | 0.200 | 0.200 | 258 | − | 0.078 | 0.080 |
| 177 | − | 0.493 | 0.494 | 218 | − | 0.264 | 0.262 | 259 | − | 0.129 | 0.127 |
| 178 | − | 0.321 | 0.320 | 219 | − | 0.209 | 0.208 | 260 | − | 0.270 | 0.268 |
| 179 | − | 0.195 | 0.193 | 220 | − | 0.125 | 0.127 | 261 | + | 0.182 | 0.184 |
| 180 | | 0.243 | 0.243 | 221 | + | 0.013 | 0.015 | 262 | + | 0.024 | 0.024 |
| 181 | + | 0.152 | 0.153 | 222 | + | 0.096 | 0.096 | 263 | + | 0.032 | 0.032 |
| 182 | − | 0.121 | 0.120 | 223 | + | 0.094 | 0.093 | 264 | − | 0.131 | 0.132 |
| 183 | − | 0.110 | 0.110 | 224 | − | 0.182 | 0.180 | 265 | − | 0.021 | 0.019 |
| 184 | + | 0.213 | 0.211 | 225 | − | 0.190 | 0.188 | 266 | − | 0.233 | 0.234 |
| 185 | + | 0.374 | 0.375 | 226 | − | 0.004 | 0.006 | 267 | − | 0.043 | 0.045 |
| 186 | − | 0.095 | 0.097 | 227 | − | 0.135 | 0.134 | 268 | − | 0.110 | 0.109 |
| 187 | − | 0.276 | 0.274 | 228 | + | 0.108 | 0.108 | 269 | − | 0.140 | 0.139 |
| 188 | + | 0.087 | 0.086 | 229 | + | 0.031 | 0.030 | | | | |
| 189 | − | 0.058 | 0.061 | 230 | − | 0.002 | 0.000 | 270 | − | 0.008 | 0.011 |
| 190 | + | 0.164 | 0.164 | 231 | + | 0.035 | 0.033 | 271 | + | 0.004 | 0.005 |
| 191 | + | 0.198 | 0.198 | 232 | + | 0.243 | 0.243 | | | | |

# ÖSEL.

| N:o | $\triangle h$ | | N:o | $\triangle h$ | | N:o | $\triangle h$ | |
|---|---|---|---|---|---|---|---|---|
| 1 | + 0.052 | 0.051 | 51 | + 0.020 | 0.022 | 101 | + 0.126 | 0.124 |
| 2 | + 0.048 | 0.051 | 52 | — 0.070 | 0.076 | 102 | + 0.060 | 0.062 |
| 3 | — 0.060 | 0.060 | 53 | — 0.090 | 0.089 | 103 | — 0.090 | 0.093 |
| 4 | + 0.178 | 0.181 | 54 | — 0.166 | 0.166 | 104 | — 0.194 | 0.190 |
| 5 | — 0.204 | 0.206 | 55 | — 0.198 | 0.194 | 105 | + 0.010 | 0.013 |
| 6 | — 0.014 | 0.013 | 56 | — 0.140 | 0.143 | 106 | + 0.134 | 0.135 |
| 7 | — 0.006 | 0.005 | 57 | — 0.084 | 0.087 | 107 | + 0.196 | 0.191 |
| 8 | — 0.086 | 0.081 | 58 | + 0.052 | 0.044 | 108 | — 0.268 | 0.271 |
| 9 | — 0.224 | 0.227 | 59 | — 0.040 | 0.041 | 109 | + 0.006 | 0.007 |
| 10 | + 0.310 | 0.310 | 60 | — 0.102 | 0.101 | 110 | + 0.122 | 0.126 |
| 11 | — 0.306 | 0.302 | 61 | + 0.096 | 0.091 | 111 | + 0.224 | 0.219 |
| 12 | — 0.206 | 0.210 | 62 | + 0.070 | 0.071 | 112 | + 0.100 | 0.101 |
| 13 | + 0.038 | 0.038 | 63 | + 0.012 | 0.009 | 113 | + 0.128 | 0.126 |
| 14 | — 0.180 | 0.182 | 64 | — 0.092 | 0.091 | 114 | — 0.160 | 0.161 |
| 15 | — 0.028 | 0.025 | 65 | — 0.066 | 0.067 | 115 | + 0.182 | 0.184 |
| 16 | — 0.294 | 0.294 | 66 | — 0.132 | 0.135 | 116 | — 0.102 | 0.100 |
| 17 | — 0.132 | 0.130 | 67 | + 0.114 | 0.117 | 117 | + 0.080 | 0.079 |
| 18 | — 0.142 | 0.145 | 68 | — 0.142 | 0.148 | 118 | + 0.100 | 0.100 |
| 19 | — 0.026 | 0.028 | 69 | + 0.114 | 0.115 | 119 | — 0.104 | 0.108 |
| 20 | + 0.136 | 0.134 | 70 | — 0.102 | 0.100 | 120 | — 0.170 | 0.172 |
| 21 | + 0.202 | 0.202 | 71 | — 0.064 | 0.064 | 121 | + 0.848 | 0.847 |
| 22 | + 0.104 | 0.105 | 72 | — 0.068 | 0.071 | 122 | — 0.130 | 0.128 |
| 23 | — 0.306 | 0.307 | 73 | + 0.346 | 0.350 | 123 | + 0.248 | 0.246 |
| 24 | — 0.320 | 0.319 | 74 | + 0.206 | 0.207 | 124 | — 0.090 | 0.088 |
| 25 | — 0.118 | 0.119 | 75 | — 0.056 | 0.058 | 125 | + 0.134 | 0.135 |
| 26 | + 0.304 | 0.304 | 76 | + 0.116 | 0.116 | 126 | — 0.456 | 0.456 |
| 27 | — 0.262 | 0.263 | 77 | + 0.406 | 0.405 | 127 | — 0.146 | 0.149 |
| 28 | + 0.032 | 0.034 | 78 | — 0.140 | 0.141 | 128 | — 0.020 | 0.021 |
| 29 | + 0.248 | 0.249 | 79 | — 0.166 | 0.163 | 129 | + 0.142 | 0.145 |
| 30 | — 0.264 | 0.268 | 80 | — 0.020 | 0.020 | 130 | + 0.026 | 0.027 |
| 31 | — 0.086 | 0.081 | 81 | + 0.058 | 0.057 | 131 | + 0.114 | 0.113 |
| 32 | — 0.076 | 0.078 | 82 | — 0.280 | 0.279 | 132 | + 0.062 | 0.060 |
| 33 | — 0.314 | 0.316 | 83 | — 0.352 | 0.353 | 133 | + 0.008 | 0.004 |
| 34 | — 0.014 | 0.019 | 84 | — 0.022 | 0.023 | 134 | + 0.002 | 0.008 |
| 35 | — 0.006 | 0.000 | 85 | — 0.068 | 0.069 | 135 | — 0.246 | 0.245 |
| 36 | + 0.020 | 0.023 | 86 | + 0.154 | 0.157 | 136 | + 0.146 | 0.145 |
| 37 | + 0.106 | 0.101 | 87 | + 0.088 | 0.087 | 137 | + 0.132 | 0.145 |
| 38 | — 0.252 | 0.247 | 88 | + 0.056 | 0.054 | 138 | — 0.102 | 0.098 |
| 39 | + 0.174 | 0.177 | 89 | + 0.188 | 0.189 | 139 | + 0.000 | 0.005 |
| 40 | + 0.100 | 0.095 | 90 | + 0.020 | 0.023 | 140 | + 0.530 | 0.531 |
| 41 | — 0.120 | 0.114 | 91 | — 0.066 | 0.066 | 141 | + 0.074 | 0.072 |
| 42 | + 0.104 | 0.104 | 92 | — 0.186 | 0.187 | 142 | — 0.096 | 0.099 |
| 43 | — 0.094 | 0.093 | 93 | — 0.238 | 0.237 | 143 | — 0.598 | 0.597 |
| 44 | + 0.036 | 0.032 | 94 | — 0.062 | 0.063 | 144 | — 0.120 | 0.122 |
| 45 | + 0.206 | 0.202 | 95 | — 0.152 | 0.148 | 145 | + 0.022 | 0.028 |
| 46 | + 0.048 | 0.050 | 96 | — 0.362 | 0.362 | 146 | — 0.008 | 0.012 |
| 47 | — 0.058 | 0.058 | 97 | — 0.262 | 0.260 | 147 | — 0.146 | 0.152 |
| 48 | — 0.186 | 0.182 | 98 | + 0.066 | 0.065 | 148 | — 0.072 | 0.067 |
| 49 | — 0.016 | 0.015 | 99 | + 0.080 | 0.083 | 149 | — 0.068 | 0.066 |
| 50 | + 0.196 | 0.192 | 100 | + 0.074 | 0.076 | 150 | — 0.046 | 0.044 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | − | 0.088 | 0.091 | 188 | − | 0.274 | 0.277 | 225 | − | 0.120 | 0.118 |
| 152 | − | 0.024 | 0.021 | 189 | + | 0.094 | 0.098 | 226 | + | 0.007 | 0.008 |
| 153 | + | 0.070 | 0.067 | 190 | + | 0.056 | 0.053 | 227 | − | 0.115 | 0.118 |
| 154 | − | 0.218 | 0.224 | 191 | − | 0.072 | 0.071 | 228 | − | 0.002 | 0.001 |
| 155 | − | 0.412 | 0.406 | 192 | − | 0.040 | 0.040 | 229 | − | 0.134 | 0.130 |
| 156 | − | 0.074 | 0.073 | 193 | + | 0.136 | 0.138 | 230 | − | 0.038 | 0.038 |
| 157 | − | 0.426 | 0.428 | 194 | + | 0.010 | 0.002 | 231 | + | 0.018 | 0.019 |
| 158 | − | 0.030 | 0.029 | 195 | + | 0.142 | 0.151 | 232 | + | 0.128 | 0.129 |
| 159 | − | 0.486 | 0.486 | 196 | − | 0.156 | 0.161 | 233 | − | 0.142 | 0.140 |
| 160 | − | 0.150 | 0.146 | 197 | + | 0.020 | 0.024 | 234 | − | 0.130 | 0.130 |
| 161 | − | 0.082 | 0.087 | 198 | − | 0.214 | 0.214 | 235 | − | 0.040 | 0.041 |
| 162 | − | 0.140 | 0.139 | 199 | + | 0.066 | 0.066 | 236 | + | 0.224 | 0.224 |
| 163 | − | 0.046 | 0.050 | 200 | − | 0.046 | 0.048 | 237 | + | 0.040 | 0.040 |
| 164 | − | 0.038 | 0.034 | 201 | − | 0.084 | 0.095 | 238 | − | 0.044 | 0.039 |
| 165 | − | 0.196 | 0.197 | 202 | − | 0.222 | 0.215 | 239 | + | 0.226 | 0.226 |
| 166 | − | 0.216 | 0.216 | 203 | − | 0.058 | 0.060 | 240 | − | 0.330 | 0.333 |
| 167 | − | 0.274 | 0.274 | 204 | + | 0.016 | 0.019 | 241 | + | 0.169 | 0.171 |
| 168 | − | 0.092 | 0.090 | 205 | − | 0.140 | 0.143 | 242 | − | 0.449 | 0.450 |
| 169 | − | 0.142 | 0.143 | 206 | − | 0.152 | 0.150 | 243 | − | 0.148 | 0.147 |
| 170 | − | 0.378 | 0.379 | 207 | − | 0.596 | 0.594 | 244 | − | 0.096 | 0.100 |
| 171 | − | 0.268 | 0.270 | 208 | − | 0.110 | 0.117 | 245 | − | 0.048 | 0.049 |
| 172 | − | 0.102 | 0.099 | 209 | − | 0.158 | 0.160 | 246 | − | 0.066 | 0.067 |
| 173 | − | 0.540 | 0.545 | 210 | − | 0.094 | 0.097 | 247 | + | 0.248 | 0.249 |
| 174 | + | 0.404 | 0.412 | 211 | + | 0.028 | 0.031 | 248 | − | 0.288 | 0.289 |
| 175 | + | 0.170 | 0.167 | 212 | | 0.000 | 0.000 | 249 | + | 0.050 | 0.055 |
| 176 | − | 0.124 | 0.122 | 213 | − | 0.128 | 0.127 | 250 | − | 0.182 | 0.179 |
| 177 | + | 0.132 | 0.132 | 214 | − | 0.008 | 0.007 | 251 | + | 0.242 | 0.239 |
| 178 | − | 0.242 | 0.240 | 215 | − | 0.196 | 0.198 | 252 | − | 0.164 | 0.164 |
| 179 | − | 0.026 | 0.026 | 216 | − | 0.022 | 0.024 | 253 | − | 0.168 | 0.169 |
| 180 | − | 0.142 | 0.151 | 217 | − | 0.266 | 0.267 | 254 | − | 0.048 | 0.048 |
| 181 | − | 0.230 | 0.234 | 218 | − | 0.032 | 0.031 | 255 | − | 0.026 | 0.022 |
| 182 | − | 0.082 | 0.082 | 219 | − | 0.132 | 0.131 | 256 | − | 0.112 | 0.116 |
| 183 | + | 0.072 | 0.073 | 220 | − | 0.046 | 0.047 | 257 | − | 0.126 | 0.126 |
| 184 | + | 0.032 | 0.035 | 221 | − | 0.040 | 0.041 | 258 | + | 0.032 | 0.032 |
| 185 | − | 0.114 | 0.114 | 222 | − | 0.058 | 0.058 | 259 | − | 0.017 | 0.020 |
| 186 | − | 0.010 | 0.012 | 223 | + | 0.232 | 0.233 | 260 | + | 0.083 | 0.086 |
| 187 | + | 0.024 | 0.026 | 224 | − | 0.102 | 0.104 | 261 | + | 0.032 | 0.029 |

## HANKO 1.

| N:o | $\triangle h$ | | N:o | $\triangle h$ | | N:o | $\triangle h$ | |
|---|---|---|---|---|---|---|---|---|
| 1 | − 0.148 | 0.141 | 51 | + 0.305 | 0.305 | 101 | + 0.063 | 0.062 |
| 2 | + 0.309 | 0.308 | 52 | + 0.115 | 0.115 | 102 | + 0.078 | 0.077 |
| 3 | − 0.486 | 0.488 | 53 | − 0.038 | 0.038 | 103 | − 0.069 | 0.068 |
| 4 | − 0.270 | 0.270 | 54 | − 0.110 | 0.104 | 104 | + 0.119 | 0.119 |
| 5 | − 0.242 | 0.233 | 55 | + 0.129 | 0.130 | 105 | − 0.080 | 0.078 |
| 6 | − 0.236 | 0.237 | 56 | − 0.110 | 0.111 | 106 | + 0.095 | 0.096 |
| 7 | − 0.287 | 0.288 | 57 | + 0.128 | 0.126 | 107 | − 0.122 | 0.121 |
| 8 | − 0.220 | 0.218 | 58 | + 0.001 | 0.001 | 108 | − 0.031 | 0.032 |
| 9 | + 0.100 | 0.101 | 59 | + 0.477 | 0.482 | 109 | − 0.117 | 0.117 |
| 10 | − 0.298 | 0.293 | 60 | + 0.299 | 0.302 | 110 | + 0.168 | 0.171 |
| 11 | − 0.295 | 0.292 | 61 | − 0.078 | 0.077 | 111 | − 0.069 | 0.069 |
| 12 | − 0.052 | 0.056 | 62 | + 0.014 | 0.012 | 112 | + 0.106 | 0.105 |
| 13 | − 0.244 | 0.243 | 63 | + 0.030 | 0.028 | 113 | − 0.073 | 0.069 |
| 14 | − 0.107 | 0.109 | 64 | + 0.061 | 0.063 | 114 | − 0.194 | 0.186 |
| 15 | + 0.013 | 0.016 | 65 | + 0.434 | 0.435 | 115 | − 0.089 | 0.089 |
| 16 | − 0.026 | 0.027 | 66 | − 0.127 | 0.125 | 116 | + 0.149 | 0.150 |
| 17 | + 0.531 | 0.534 | 67 | + 0.149 | 0.151 | 117 | + 0.160 | 0.161 |
| 18 | − 0.092 | 0.088 | 68 | − 0.003 | 0.004 | 118 | − 0.142 | 0.144 |
| 19 | − 0.045 | 0.040 | 69 | + 0.060 | 0.054 | 119 | + 0.161 | 0.164 |
| 20 | − 0.272 | 0.272 | 70 | + 0.056 | 0.056 | 120 | − 0.104 | 0.101 |
| 21 | − 0.024 | 0.025 | 71 | + 0.070 | 0.071 | 121 | − 0.130 | 0.128 |
| 22 | + 0.170 | 0.168 | 72 | + 0.026 | 0.026 | 122 | − 0.029 | 0.039 |
| 23 | + 0.145 | 0.146 | 73 | + 0.017 | 0.019 | 123 | − 0.023 | 0.028 |
| 24 | − 0.233 | 0.229 | 74 | − 0.288 | 0.287 | 124 | − 0.190 | 0.191 |
| 25 | − 0.115 | 0.108 | 75 | + 0.602 | 0.603 | 125 | + 0.181 | 0.174 |
| 26 | − 0.046 | 0.047 | 76 | − 0.289 | 0.289 | 126 | − 0.020 | 0.016 |
| 27 | − 0.048 | 0.056 | 77 | + 0.073 | 0.076 | 127 | − 0.103 | 0.100 |
| 28 | − 0.122 | 0.125 | 78 | − 0.043 | 0.044 | 128 | + 0.001 | 0.003 |
| 29 | + 0.151 | 0.159 | 79 | − 0.005 | 0.005 | 129 | − 0.201 | 0.203 |
| 30 | + 0.123 | 0.125 | 80 | + 0.077 | 0.084 | 130 | − 0.503 | 0.500 |
| 31 | − 0.344 | 0.339 | 81 | − 0.063 | 0.057 | 131 | + 0.302 | 0.306 |
| 32 | + 0.069 | 0.071 | 82 | − 0.226 | 0.230 | 132 | + 0.608 | 0.610 |
| 33 | − 0.054 | 0.055 | 83 | − 0.465 | 0.464 | 133 | − 0.666 | 0.666 |
| 34 | + 0.149 | 0.139 | 84 | + 0.079 | 0.081 | 134 | + 0.608 | 0.611 |
| 35 | + 0.067 | 0.069 | 85 | − 0.081 | 0.082 | 135 | − 0.372 | 0.371 |
| 36 | − 0.064 | 0.062 | 86 | − 0.171 | 0.171 | 136 | − 0.094 | 0.097 |
| 37 | + 0.193 | 0.192 | 87 | + 1.188 | 1.189 | 137 | + 0.112 | 0.109 |
| 38 | + 0.122 | 0.121 | 88 | − 0.027 | 0.026 | 138 | − 0.292 | 0.297 |
| 39 | + 0.009 | 0.014 | 89 | − 0.014 | 0.014 | 139 | − 0.181 | 0.185 |
| 40 | + 0.140 | 0.148 | 90 | + 0.097 | 0.103 | 140 | + 0.090 | 0.090 |
| 41 | − 0.092 | 0.100 | 91 | + 0.173 | 0.169 | 141 | − 0.018 | 0.020 |
| 42 | − 0.092 | 0.094 | 92 | − 0.032 | 0.039 | 142 | − 0.167 | 0.165 |
| 43 | + 0.120 | 0.118 | 93 | + 0.364 | 0.367 | 143 | + 0.157 | 0.152 |
| 44 | − 0.183 | 0.180 | 94 | + 0.139 | 0.135 | 144 | − 0.008 | 0.009 |
| 45 | + 0.120 | 0.124 | 95 | − 0.640 | 0.638 | 145 | + 0.060 | 0.052 |
| 46 | + 0.145 | 0.146 | 96 | + 0.258 | 0.257 | 146 | − 0.003 | 0.008 |
| 47 | − 0.139 | 0.139 | 97 | − 0.014 | 0.014 | 147 | − 0.069 | 0.066 |
| 48 | + 0.163 | 0.158 | 98 | + 0.012 | 0.006 | 148 | − 0.142 | 0.141 |
| 49 | + 0.047 | 0.049 | 99 | + 0.988 | 0.091 | 149 | + 0.211 | 0.217 |
| 50 | + 0.184 | 0.186 | 100 | − 0.145 | 0.138 | 150 | − 0.135 | 0.126 |

## HANKO 1.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | + | 0.104 | 0.106 | 183 | + | 0.069 | 0.069 | 215 | − | 0.008 | 0.004 |
| 152 | − | 0.012 | 0.015 | 184 | + | 0.233 | 0.230 | 216 | − | 0.124 | 0.119 |
| 153 | + | 0.211 | 0.210 | 185 | − | 0.172 | 0.174 | 217 | + | 0.172 | 0.176 |
| 154 | − | 0.046 | 0.041 | 186 | − | 0.002 | 0.004 | 218 | + | 0.299 | 0.306 |
| 155 | − | 0.042 | 0.040 | 187 | + | 0.044 | 0.042 | 219 | + | 0.001 | − 0.004 |
| 156 | − | 0.443 | 0.439 | 188 | + | 0.021 | 0.022 | 220 | + | 0.126 | 0.120 |
| 157 | − | 0.318 | 0.320 | 189 | − | 0.040 | 0.044 | 221 | − | 0.338 | 0.340 |
| 158 | − | 0.265 | 0.271 | 190 | + | 0.125 | 0.106 | 222 | − | 0.009 | 0.007 |
| 159 | + | 0.061 | 0.056 | 191 | − | 0.429 | 0.433 | 223 | − | 0.092 | 0.094 |
| 160 | + | 0.077 | 0.077 | 192 | + | 0.510 | 0.511 | 224 | + | 0.251 | 0.252 |
| 161 | − | 0.129 | 0.124 | 193 | − | 0.192 | 0.195 | 225 | − | 0.092 | 0.089 |
| 162 | − | 0.128 | 0.128 | 194 | + | 0.162 | 0.161 | 226 | + | 0.249 | 0.253 |
| 163 | − | 0.172 | 0.165 | 195 | + | 0.140 | 0.136 | 227 | + | 0.483 | 0.486 |
| 164 | + | 0.157 | 0.152 | 196 | + | 0.123 | 0.127 | 228 | + | 0.206 | 0.205 |
| 165 | + | 0.250 | 0.243 | 197 | + | 0.116 | 0.113 | 229 | + | 0.249 | 0.251 |
| 166 | − | 0.199 | 0.201 | 198 | + | 0.124 | 0.125 | 230 | + | 0.078 | 0.077 |
| 167 | + | 0.284 | 0.280 | 199 | + | 0.330 | 0.326 | 231 | − | 0.008 | 0.011 |
| 168 | + | 0.101 | 0.105 | 200 | + | 0.453 | 0.430 | 232 | − | 0.057 | 0.055 |
| 169 | − | 0.129 | 0.126 | 201 | + | 0.037 | 0.040 | 233 | − | 0.087 | 0.084 |
| 170 | + | 0.173 | 0.176 | 202 | − | 0.182 | 0.181 | 234 | − | 0.067 | 0.061 |
| 171 | + | 0.341 | 0.343 | 203 | − | 0.018 | 0.014 | 235 | + | 0.172 | 0.172 |
| 172 | − | 0.314 | 0.317 | 204 | − | 0.361 | 0.360 | 236 | + | 0.046 | 0.046 |
| 173 | − | 0.345 | 0.343 | 205 | + | 0.251 | 0.253 | 237 | − | 0.057 | 0.056 |
| 174 | + | 0.005 | 0.005 | 206 | + | 0.008 | 0.006 | 238 | − | 0.153 | 0.153 |
| 175 | − | 0.006 | 0.004 | 207 | + | 0.025 | 0.021 | 239 | − | 0.305 | 0.301 |
| 176 | − | 0.009 | 0.008 | 208 | + | 0.001 | 0.002 | 240 | − | 0.299 | 0.294 |
| 177 | − | 0.022 | 0.021 | 209 | − | 0.210 | 0.208 | 241 | − | 0.407 | 0.402 |
| 178 | + | 0.068 | 0.065 | 210 | + | 0.043 | 0.042 | 242 | + | 0.260 | 0.255 |
| 179 | + | 0.146 | 0.146 | 211 | + | 0.109 | 0.111 | 243 | − | 0.264 | 0.267 |
| 180 | + | 0.171 | 0.167 | 212 | − | 0.291 | 0.293 | 244 | + | 0.620 | 0.621 |
| 181 | − | 0.063 | 0.062 | 213 | + | 0.623 | 0.622 | 245 | + | 0.483 | 0.485 |
| 182 | + | 0.121 | 0.121 | 214 | − | 0.103 | 0.099 | | | | |

# ENKÖPING.

| N:o | $\triangle h$ | | N:o | $\triangle h$ | | N:o | $\triangle h$ | |
|---|---|---|---|---|---|---|---|---|
| 1 | — 3.2768 | 3.2781 | 51 | — 0.028 | 0.028 | 101 | + 0.015 | 0.018 |
| 2 | — 2.7440 | 2.7435 | 52 | + 0.758 | 0.758 | 102 | — 0.004 | 0.004 |
| 3 | — 2.4455 | 2.4459 | 53 | + 0.354 | 0.352 | 103 | — 0.042 | 0.042 |
| 4 | — 2.3562 | 2.3560 | 54 | + 0.463 | 0.463 | 104 | + 0.050 | 0.050 |
| 5 | — 1.6868 | 1.6871 | 55 | + 0.430 | 0.431 | 105 | — 0.217 | 0.217 |
| 6 | — 2.8470 | 2.8471 | 56 | + 0.219 | 0.220 | 106 | — 0.000 | 0.001 |
| 7 | — 1.5005 | 1.5005 | 57 | + 0.220 | 0.220 | 107 | — 0.132 | 0.132 |
| 8 | — 1.1800 | 1.1792 | 58 | + 0.020 | 0.020 | 108 | + 0.037 | 0.038 |
| 9 | — 0.540 | 0.540 | 59 | — 0.079 | 0.080 | 109 | — 0.002 | 0.003 |
| 10 | — 0.266 | 0.267 | 60 | + 0.560 | 0.563 | 110 | — 0.027 | 0.026 |
| 11 | — 0.323 | 0.325 | 61 | + 0.345 | 0.346 | 111 | + 0.060 | 0.059 |
| 12 | — 0.067 | 0.068 | 62 | + 0.722 | 0.722 | 112 | — 0.179 | 0.179 |
| 13 | — 0.159 | 0.159 | 63 | — 0.254 | 0.256 | 113 | — 0.036 | 0.038 |
| 14 | — 0.129 | 0.130 | 64 | — 0.276 | 0.276 | 114 | — 0.124 | 0.125 |
| 15 | — 0.060 | 0.060 | 65 | — 0.036 | 0.036 | 115 | — 0.014 | 0.016 |
| 16 | — 0.031 | 0.032 | 66 | — 0.083 | 0.083 | 116 | — 0.120 | 0.118 |
| 17 | — 0.034 | 0.035 | 67 | + 0.006 | 0.007 | 117 | + 0.043 | 0.043 |
| 18 | — 0.014 | 0.016 | 68 | — 0.055 | 0.056 | 118 | — 0.108 | 0.109 |
| 19 | — 0.133 | 0.133 | 69 | + 0.045 | 0.048 | 119 | — 0.200 | 0.200 |
| 20 | + 0.027 | 0.028 | 70 | + 0.217 | 0.217 | 120 | + 0.460 | 0.461 |
| 21 | — 0.259 | 0.258 | 71 | + 0.089 | 0.089 | 121 | + 0.083 | 0.082 |
| 22 | — 0.060 | 0.060 | 72 | + 0.112 | 0.112 | 122 | + 0.245 | 0.242 |
| 23 | — 0.476 | 0.476 | 73 | + 0.012 | 0.012 | 123 | — 0.130 | 0.130 |
| 24 | + 0.333 | 0.333 | 74 | + 0.158 | 0.158 | 124 | + 0.002 | 0.002 |
| 25 | + 0.117 | 0.117 | 75 | — 0.094 | 0.095 | 125 | + 0.054 | 0.054 |
| 26 | — 0.051 | 0.049 | 76 | — 0.279 | 0.281 | 126 | + 0.083 | 0.083 |
| 27 | — 0.046 | 0.046 | 77 | — 0.290 | 0.287 | 127 | — 0.009 | 0.010 |
| 28 | + 0.108 | 0.107 | 78 | — 0.160 | 0.160 | 128 | + 0.170 | 0.170 |
| 29 | — 0.158 | 0.156 | 79 | + 0.038 | 0.037 | 129 | + 0.328 | 0.329 |
| 30 | + 0.353 | 0.351 | 80 | — 0.163 | 0.163 | 130 | + 0.624 | 0.623 |
| 31 | + 0.054 | 0.053 | 81 | — 0.152 | 0.153 | 131 | + 0.930 | 0.930 |
| 32 | + 0.139 | 0.140 | 82 | — 0.154 | 0.155 | 132 | — 0.270 | 0.270 |
| 33 | + 0.180 | 0.180 | 83 | — 0.157 | 0.157 | 133 | — 0.811 | 0.809 |
| 34 | + 0.072 | 0.073 | 84 | — 0.242 | 0.244 | 134 | — 0.512 | 0.512 |
| 35 | — 0.022 | 0.020 | 85 | — 0.215 | 0.215 | 135 | — 0.277 | 0.277 |
| 36 | + 0.127 | 0.126 | 86 | — 0.117 | 0.117 | 136 | — 0.227 | 0.229 |
| 37 | + 0.096 | 0.095 | 87 | + 0.170 | 0.171 | 137 | — 0.156 | 0.156 |
| 38 | + 0.146 | 0.148 | 88 | — 0.051 | 0.053 | 138 | — 0.016 | 0.016 |
| 39 | + 0.256 | 0.257 | 89 | — 0.061 | 0.061 | 139 | + 0.227 | 0.228 |
| 40 | + 0.191 | 0.192 | 90 | — 0.036 | 0.036 | 140 | — 0.076 | 0.078 |
| 41 | + 0.273 | 0.273 | 91 | — 0.025 | 0.025 | 141 | — 0.011 | 0.013 |
| 42 | + 0.160 | 0.160 | 92 | + 0.084 | 0.084 | 142 | — 0.134 | 0.136 |
| 43 | + 0.122 | 0.121 | 93 | — 0.162 | 0.161 | 143 | — 0.282 | 0.282 |
| 44 | + 0.239 | 0.239 | 94 | + 0.037 | 0.037 | 144 | — 0.316 | 0.316 |
| 45 | + 0.210 | 0.212 | 95 | — 0.060 | 0.060 | 145 | — 0.314 | 0.314 |
| 46 | + 0.171 | 0.173 | 96 | — 0.330 | 0.330 | 146 | — 0.014 | 0.014 |
| 47 | + 0.238 | 0.238 | 97 | + 0.348 | 0.347 | 147 | — 0.275 | 0.275 |
| 48 | + 0.523 | 0.525 | 98 | — 0.056 | 0.056 | 148 | — 0.235 | 0.236 |
| 49 | + 0.286 | 0.285 | 99 | — 0.838 | 0.837 | 149 | — 0.322 | 0.323 |
| 50 | + 0.334 | 0.334 | 100 | — 0.282 | 0.284 | 150 | — 0.087 | 0.089 |

## ENKÖPING.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | + | 0.002 | 0.007 | 191 | + | 0.029 | 0.034 | 230 | − | 0.248 | 0.246 |
| 152 | − | 0.087 | 0.086 | 192 | − | 0.104 | 0.104 | 231 | − | 0.150 | 0.150 |
| 153 | − | 0.001 | 0.000 | 193 | − | 0.109 | 0.109 | 232 | + | 0.094 | 0.093 |
| 154 | + | 0.210 | 0.208 | 194 | + | 0.069 | 0.070 | 233 | − | 0.066 | 0.065 |
| 155 | − | 0.109 | 0.110 | 195 | + | 0.044 | 0.044 | 234 | + | 0.351 | 0.350 |
| 156 | + | 0.007 | 0.006 | 196 | + | 0.003 | 0.000 | 235 | + | 0.170 | 0.170 |
| 157 | − | 0.109 | 0.109 | 197 | + | 0.118 | 0.118 | 236 | − | 0.032 | 0.033 |
| 158 | − | 0.115 | 0.115 | 198 | + | 0.039 | 0.038 | 237 | − | 0.562 | 0.563 |
| 159 | − | 0.135 | 0.135 | 199 | + | 0.117 | 0.117 | 238 | − | 0.098 | 0.099 |
| 160 | − | 0.154 | 0.152 | 200 | + | 0.393 | 0.395 | 239 | − | 0.043 | 0.046 |
| 161 | − | 0.086 | 0.086 | 201 | + | 0.353 | 0.353 | 240 | + | 0.005 | 0.012 |
| 162 | − | 0.178 | 0.180 | 202 | + | 0.276 | 0.275 | 241 | − | 0.418 | 0.412 |
| 163 | − | 0.030 | 0.030 | 203 | + | 0.075 | 0.072 | 242 | − | 0.645 | 0.650 |
| 164 | + | 0.016 | 0.016 | 204 | − | 0.035 | 0.036 | 243 | + | 0.295 | 0.288 |
| 165 | − | 0.078 | 0.078 | 205 | + | 0.163 | 0.163 | 244 | + | 0.253 | 0.252 |
| 166 | + | 0.060 | 0.062 | 206 | + | 0.095 | 0.098 | 245 | + | 0.134 | 0.134 |
| 167 | − | 0.052 | 0.054 | 207 | + | 0.314 | 0.314 | 246 | + | 0.179 | 0.177 |
| 168 | + | 0.049 | 0.049 | 208 | + | 0.607 | 0.606 | 247 | + | 0.331 | 0.333 |
| 169 | + | 0.124 | 0.123 | 209 | + | 1.5030 | 1.5028 | 248 | + | 0.303 | 0.303 |
| 170 | − | 0.264 | 0.265 | 210 | + | 2.0121 | 2.0122 | 249 | + | 0.208 | 0.209 |
| 171 | − | 0.068 | 0.068 | 211 | + | 0.9358 | 0.9351 | 250 | + | 0.528 | 0.527 |
| 172 | + | 0.138 | 0.142 | 212 | − | 0.045 | 0.044 | 251 | + | 0.497 | 0.497 |
| 173 | − | 0.092 | 0.089 | 213 | + | 0.884 | 0.883 | 252 | + | 0.660 | 0.662 |
| 174 | + | 0.120 | 0.120 | 214 | + | 0.296 | 0.297 | 253 | − | 0.073 | 0.072 |
| 175 | − | 0.095 | 0.092 | | | | | 254 | + | 0.360 | 0.361 |
| 176 | − | 0.023 | 0.024 | 215 | − | 1.5239 | 1.5230 | 255 | + | 0.614 | 0.613 |
| 177 | + | 0.077 | 0.078 | 216 | − | 0.498 | 0.498 | 256 | + | 0.691 | 0.692 |
| 178 | + | 0.071 | 0.071 | 217 | + | 0.325 | 0.324 | 257 | + | 1.1100 | 1.1110 |
| 179 | − | 0.026 | 0.026 | 218 | − | 2.3402 | 2.3412 | 258 | + | 1.0250 | 1.0248 |
| 180 | − | 0.084 | 0.083 | 219 | − | 1.7818 | 1.7828 | 259 | + | 1.4790 | 1.4781 |
| 181 | − | 0.079 | 0.079 | 220 | − | 0.431 | 0.432 | 260 | + | 0.144 | 0.145 |
| 182 | − | 0.041 | 0.043 | 221 | − | 0.066 | 0.066 | 261 | + | 0.625 | 0.624 |
| 183 | + | 0.028 | 0.030 | 222 | − | 0.180 | 0.180 | 262 | + | 1.0135 | 1.0138 |
| 184 | + | 0.016 | 0.016 | 223 | − | 0.206 | 0.204 | 263 | − | 0.452 | 0.452 |
| 185 | − | 0.094 | 0.092 | 224 | − | 0.187 | 0.187 | 264 | + | 1.1288 | 1.1292 |
| 186 | + | 0.210 | 0.210 | 225 | − | 0.182 | 0.181 | 265 | + | 0.255 | 0.256 |
| 187 | − | 0.011 | 0.012 | 226 | − | 0.036 | 0.037 | 266 | + | 0.394 | 0.394 |
| 188 | + | 0.115 | 0.115 | 227 | − | 0.226 | 0.228 | 267 | + | 1.3282 | 1.3281 |
| 189 | + | 0.180 | 0.177 | 228 | − | 0.145 | 0.147 | 268 | + | 2.1285 | 2.1296 |
| 190 | + | 0.034 | 0.031 | 229 | − | 0.300 | 0.300 | 269 | + | 2.6675 | 2.6681 |

# ÖLAND.

| N:o | $\triangle h$ | | N:o | $\triangle h$ | | N:o | $\triangle h$ | |
|---|---|---|---|---|---|---|---|---|
| 1 | − 0.172 | 0.172 | 51 | − 0.086 | 0.084 | 101 | − 0.182 | 0.182 |
| 2 | + 0.248 | 0.248 | 52 | − 0.158 | 0.156 | 102 | + 0.102 | 0.102 |
| 3 | − 0.074 | 0.074 | 53 | + 0.191 | 0.192 | 103 | + 0.289 | 0.289 |
| 4 | − 0.086 | 0.088 | 54 | + 0.103 | 0.103 | 104 | − 0.134 | 0.135 |
| 5 | − 0.024 | 0.024 | 55 | − 0.118 | 0.118 | 105 | − 0.096 | 0.096 |
| 6 | − 0.068 | 0.067 | 56 | + 0.027 | 0.028 | 106 | − 0.196 | 0.196 |
| 7 | − 0.370 | 0.370 | 57 | − 0.051 | 0.051 | 107 | − 0.002 | 0.002 |
| 8 | + 0.244 | 0.245 | 58 | − 0.042 | 0.042 | 108 | − 0.007 | 0.008 |
| 9 | − 0.122 | 0.121 | 59 | − 0.003 | 0.004 | 109 | − 0.113 | 0.113 |
| 10 | + 0.102 | 0.102 | 60 | − 0.242 | 0.242 | 110 | − 0.100 | 0.099 |
| 11 | − 0.054 | 0.053 | 61 | + 0.135 | 0.137 | 111 | + 0.137 | 0.137 |
| 12 | − 0.282 | 0.282 | 62 | + 0.193 | 0.194 | 112 | − 0.138 | 0.138 |
| 13 | + 0.123 | 0.124 | 63 | − 0.062 | 0.062 | 113 | − 0.076 | 0.076 |
| 14 | − 0.064 | 0.063 | 64 | − 0.115 | 0.115 | 114 | − 0.012 | 0.012 |
| 15 | − 0.130 | 0.130 | 65 | 0.000 | 0.000 | 115 | − 0.084 | 0.084 |
| 16 | − 0.137 | 0.136 | 66 | − 0.126 | 0.124 | 116 | − 0.406 | 0.406 |
| 17 | − 0.398 | 0.397 | 67 | + 0.048 | 0.048 | 117 | − 0.032 | 0.032 |
| 18 | + 0.098 | 0.098 | 68 | − 0.002 | 0.001 | 118 | − 0.264 | 0.264 |
| 19 | − 0.044 | 0.044 | 69 | + 0.037 | 0.037 | 119 | + 0.036 | 0.036 |
| 20 | − 0.120 | 0.122 | 70 | − 0.012 | 0.012 | 120 | − 0.051 | 0.051 |
| 21 | + 0.018 | 0.019 | 71 | + 0.060 | 0.060 | 121 | − 0.409 | 0.408 |
| 22 | − 0.218 | 0.217 | 72 | − 0.064 | 0.063 | 122 | + 0.044 | 0.044 |
| 23 | − 0.022 | 0.022 | 73 | + 0.030 | 0.030 | 123 | − 0.042 | 0.044 |
| 24 | + 0.040 | 0.040 | 74 | − 0.052 | 0.051 | 124 | − 0.162 | 0.162 |
| 25 | − 0.144 | 0.145 | 75 | − 0.006 | 0.005 | 125 | − 0.413 | 0.412 |
| 26 | − 0.295 | 0.294 | 76 | − 0.222 | 0.222 | 126 | + 0.082 | 0.082 |
| 27 | + 0.046 | 0.045 | 77 | − 0.068 | 0.068 | 127 | − 0.074 | 0.074 |
| 28 | − 0.184 | 0.184 | 78 | + 0.026 | 0.026 | 128 | − 0.201 | 0.200 |
| 29 | − 0.214 | 0.214 | 79 | + 0.030 | 0.030 | 129 | − 0.210 | 0.210 |
| 30 | − 0.054 | 0.054 | 80 | − 0.067 | 0.068 | 130 | + 0.010 | 0.010 |
| 31 | − 0.108 | 0.108 | 81 | − 0.160 | 0.160 | 131 | − 0.078 | 0.080 |
| 32 | + 0.008 | 0.007 | 82 | − 0.168 | 0.168 | 132 | − 0.136 | 0.136 |
| 33 | − 0.185 | 0.185 | 83 | + 0.064 | 0.064 | 133 | + 0.083 | 0.084 |
| 34 | − 0.085 | 0.084 | 84 | − 0.012 | 0.012 | 134 | − 0.206 | 0.206 |
| 35 | − 0.085 | 0.086 | 85 | + 0.079 | 0.079 | 135 | − 0.003 | 0.002 |
| 36 | − 0.008 | 0.008 | 86 | − 0.033 | 0.032 | 136 | + 0.090 | 0.090 |
| 37 | − 0.086 | 0.085 | 87 | − 0.024 | 0.022 | 137 | − 0.210 | 0.210 |
| 38 | − 0.046 | 0.046 | 88 | + 0.142 | 0.142 | 138 | − 0.276 | 0.274 |
| 39 | − 0.102 | 0.102 | 89 | − 0.022 | 0.020 | 139 | − 0.227 | 0.228 |
| 40 | − 0.050 | 0.050 | 90 | − 0.209 | 0.208 | 140 | + 0.135 | 0.134 |
| 41 | − 0.056 | 0.056 | 91 | − 0.086 | 0.086 | 141 | + 0.010 | 0.012 |
| 42 | − 0.096 | 0.095 | 92 | + 0.019 | 0.018 | 142 | − 0.129 | 0.129 |
| 43 | − 0.046 | 0.046 | 93 | − 0.476 | 0.476 | 143 | − 0.104 | 0.104 |
| 44 | − 0.306 | 0.306 | 94 | + 0.132 | 0.133 | 144 | + 0.065 | 0.066 |
| 45 | + 0.023 | 0.022 | 95 | − 0.080 | 0.082 | 145 | − 0.080 | 0.078 |
| 46 | + 0.102 | 0.104 | 96 | − 0.173 | 0.172 | 146 | − 0.006 | 0.006 |
| 47 | − 0.021 | 0.020 | 97 | − 0.145 | 0.144 | 147 | + 0.050 | 0.050 |
| 48 | − 0.056 | 0.056 | 98 | − 0.146 | 0.147 | 148 | − 0.258 | 0.258 |
| 49 | − 0.135 | 0.134 | 99 | + 0.996 | 0.996 | 149 | − 0.278 | 0.277 |
| 50 | + 0.045 | 0.044 | 100 | − 0.391 | 0.391 | 150 | − 0.019 | 0.019 |

# ÖLAND.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | − | 0.696 | 0.696 | 185 | − | 0.184 | 0.183 | 219 | − | 0.048 | 0.048 |
| 152 | + | 0.019 | 0.020 | 186 | − | 0.030 | 0.030 | 220 | − | 0.051 | 0.050 |
| 153 | + | 0.114 | 0.114 | 187 | − | 0.104 | 0.104 | 221 | − | 0.023 | 0.024 |
| 154 | + | 0.096 | 0.096 | 188 | − | 0.173 | 0.173 | 222 | − | 0.102 | 0.102 |
| 155 | − | 0.003 | 0.004 | 189 | − | 0.138 | 0.138 | 223 | + | 0.159 | 0.159 |
| 156 | − | 0.016 | 0.014 | 190 | − | 0.074 | 0.074 | 224 | + | 0.076 | 0.076 |
| 157 | − | 0.008 | 0.007 | 191 | − | 0.144 | 0.144 | 225 | − | 0.118 | 0.118 |
| 158 | − | 0.022 | 0.022 | 192 | − | 0.102 | 0.101 | | | | |
| 159 | − | 0.036 | 0.037 | 193 | + | 0.310 | 0.310 | 226 | − | 0.008 | 0.008 |
| 160 | − | 0.060 | 0.060 | 194 | − | 0.184 | 0.185 | 227 | + | 0.018 | 0.018 |
| 161 | − | 0.068 | 0.067 | 195 | − | 0.196 | 0.196 | 228 | − | 0.300 | 0.300 |
| 162 | − | 0.149 | 0.148 | 196 | − | 0.318 | 0.317 | 229 | + | 0.050 | 0.053 |
| 163 | − | 0.112 | 0.112 | 197 | + | 0.086 | 0.088 | 230 | + | 0.040 | 0.039 |
| 164 | + | 0.227 | 0.227 | 198 | − | 0.074 | 0.075 | 231 | + | 0.024 | 0.025 |
| 165 | − | 0.102 | 0.104 | 199 | − | 0.070 | 0.070 | 232 | − | 0.179 | 0.178 |
| 166 | + | 0.057 | 0.060 | 200 | − | 0.024 | 0.024 | 233 | + | 0.016 | 0.016 |
| 167 | + | 0.028 | 0.028 | | | | | 234 | − | 0.162 | 0.163 |
| 168 | − | 0.025 | 0.250 | 201 | − | 0.118 | 0.118 | 235 | − | 0.050 | 0.050 |
| 169 | − | 0.280 | 0.280 | 202 | + | 0.096 | 0.096 | 236 | − | 0.400 | 0.400 |
| 170 | + | 0.171 | 0.171 | 203 | + | 0.052 | 0.052 | 237 | − | 0.202 | 0.202 |
| 171 | − | 0.008 | 0.008 | 204 | + | 0.034 | 0.034 | 238 | − | 0.417 | 0.417 |
| 172 | − | 0.019 | 0.018 | 205 | − | 0.256 | 0.256 | 239 | − | 0.288 | 0.288 |
| 173 | − | 0.526 | 0.526 | 206 | − | 0.250 | 0.250 | 240 | + | 0.083 | 0.086 |
| 174 | + | 0.382 | 0.382 | 207 | − | 0.265 | 0.266 | 241 | + | 0.114 | 0.114 |
| 175 | − | 0.103 | 0.102 | 208 | − | 0.085 | 0.084 | 242 | − | 0.583 | 0.584 |
| | | | | 209 | − | 0.034 | 0.033 | 243 | − | 0.006 | 0.007 |
| 176 | + | 0.016 | 0.015 | 210 | − | 0.077 | 0.078 | 244 | − | 0.017 | 0.016 |
| 177 | − | 0.298 | 0.297 | 211 | − | 0.064 | 0.064 | 245 | − | 0.079 | 0.079 |
| 178 | − | 0.108 | 0.108 | 212 | + | 0.182 | 0.182 | 246 | − | 0.166 | 0.164 |
| 179 | − | 0.009 | 0.010 | 213 | + | 0.046 | 0.047 | 247 | − | 0.105 | 0.106 |
| 180 | − | 0.101 | 0.100 | 214 | − | 0.038 | 0.038 | 248 | − | 0.152 | 0.152 |
| 181 | − | 0.097 | 0.096 | 215 | − | 0.095 | 0.094 | 249 | − | 0.150 | 0.150 |
| 182 | − | 0.060 | 0.059 | 216 | − | 0.012 | 0.014 | 250 | + | 0.034 | 0.034 |
| 183 | + | 0.010 | 0.011 | 217 | − | 0.016 | 0.018 | | | | |
| 184 | + | 0.143 | 0.142 | 218 | − | 0.104 | 0.104 | | | | |

# LOLLAND.

*Unit 2.4 mm.*

| N:o | $\triangle h$ | | N:o | $\triangle h$ | | N:o | $\triangle h$ | |
|---|---|---|---|---|---|---|---|---|
| 1 | + 5.25 | 6.00 | 51 | + 7.05 | 7.20 | 101 | + 2.15 | 2.20 |
| 2 | − 8.35 | 8.00 | 52 | + 3.45 | 2.50 | 102 | + 2.45 | 2.05 |
| 3 | − 1.35 | 1.90 | 53 | + 4.50 | 3.65 | 103 | − 1.90 | 0.00 |
| 4 | + 5.80 | 3.80 | 54 | + 4.05 | 4.55 | 104 | + 4.55 | 3.50 |
| 5 | + 2.90 | 5.00 | 55 | + 5.05 | 5.25 | 105 | + 5.00 | 3.90 |
| 6 | + 4.05 | 3.50 | 56 | − 0.90 | 1.55 | 106 | + 4.65 | 4.70 |
| 7 | + 3.65 | 2.90 | 57 | − 2.75 | 1.60 | 107 | + 9.55 | 9.50 |
| 8 | + 5.40 | 5.40 | 58 | − 2.50 | 3.25 | 108 | + 9.30 | 9.20 |
| 9 | − 0.25 | +0.70 | 59 | − 6.40 | 5.90 | 109 | + 9.00 | 8.90 |
| 10 | + 2.35 | 2.90 | 60 | 19.45 | 19.70 | 110 | + 5.90 | 5.70 |
| 11 | − 4.65 | 5.60 | 61 | − 21.25 | 21.10 | 111 | + 5.65 | 5.50 |
| 12 | − 4.25 | 4.65 | 62 | − 22.45 | 22.25 | 112 | + 2.25 | 2.25 |
| 13 | − 1.75 | 0.65 | 63 | − 28.35 | 30.30 | 113 | + 5.50 | 5.70 |
| 14 | + 4.85 | 3.90 | 64 | − 18.05 | 16.85 | 114 | + 2.45 | 2.40 |
| 15 | + 1.90 | 0.70 | 65 | − 14.45 | 14.55 | 115 | + 1.05 | 0.80 |
| 16 | + 1.10 | 2.30 | 66 | − 3.60 | 3.70 | 116 | + 2.60 | 2.40 |
| 17 | + 1.00 | −0.75 | 67 | − 2.30 | 2.35 | 117 | − 0.70 | 0.80 |
| 18 | − 5.70 | 5.40 | 68 | + 0.10 | −0.05 | 118 | + 1.10 | 1.10 |
| 19 | − 5.00 | 6.80 | 69 | − 1.80 | 1.85 | 119 | − 1.50 | 1.60 |
| 20 | − 13.80 | 12.80 | 70 | + 8.20 | 8.00 | 120 | + 2.00 | 2.00 |
| 21 | − 10.45 | 10.10 | 71 | + 12.05 | 12.00 | 121 | + 0.20 | 0.20 |
| 22 | − 8.80 | 8.10 | 72 | + 15.35 | 15.30 | 122 | + 5.30 | 5.25 |
| 23 | − 7.60 | 7.40 | 73 | + 18.10 | 17.95 | 123 | + 8.15 | 8.10 |
| 24 | − 6.10 | 6.15 | 74 | + 22.70 | 22.85 | | | |
| 25 | − 10.80 | 10.80 | 75 | + 25.25 | 25.25 | 124 | − 0.50 | 1.80 |
| 26 | − 11.95 | 11.90 | 76 | + 26.25 | 26.15 | 125 | + 3.80 | 5.95 |
| 27 | − 11.10 | 11.10 | 77 | + 13.05 | 12.90 | 126 | + 0.50 | − 0.30 |
| 28 | − 3.00 | 3.10 | 78 | − 3.65 | 3.75 | 127 | + 2.80 | 2.80 |
| 29 | − 4.85 | 4.85 | 79 | − 4.30 | 4.35 | 128 | + 5.80 | 5.25 |
| 30 | − 3.90 | 4.00 | 80 | + 1.65 | 1.45 | 129 | + 1.20 | 1.40 |
| 31 | − 1.50 | 1.50 | 81 | + 1.20 | 1.00 | 130 | + 4.90 | 4.70 |
| 32 | + 1.05 | 1.05 | 82 | + 9.90 | 10.00 | 131 | − 0.90 | 0.70 |
| 33 | − 0.30 | 0.35 | | | | 132 | − 2.35 | 3.05 |
| 34 | + 0.70 | 0.70 | 83 | − 3.10 | 3.35 | 133 | + 0.65 | 1.20 |
| 35 | + 3.80 | 3.75 | 84 | + 2.00 | 0.60 | 134 | + 2.10 | 2.75 |
| 36 | − 0.10 | 0.20 | 85 | + 2.15 | 3.55 | 135 | + 0.10 | − 0.25 |
| 37 | + 1.30 | 1.10 | 86 | − 1.60 | 1.30 | 136 | − 2.90 | 2.20 |
| 38 | + 3.50 | 3.40 | 87 | − 3.95 | 4.20 | 137 | − 2.05 | 4.00 |
| 39 | + 2.40 | 2.25 | 88 | − 0.45 | 0.55 | 138 | − 6.30 | 6.00 |
| 40 | + 4.10 | 4.00 | 89 | − 0.50 | 0.25 | 139 | − 6.35 | 6.25 |
| 41 | + 5.30 | 5.10 | 90 | − 0.35 | 0.55 | 140 | − 2.65 | 1.75 |
| | | | 91 | + 4.85 | 3.15 | 141 | − 2.90 | 2.35 |
| 42 | − 0.20 | 0.45 | 92 | + 2.05 | 2.60 | 142 | − 1.60 | 4.30 |
| 43 | + 6.45 | 6.00 | 93 | + 1.10 | 1.30 | 143 | + 0.00 | 1.40 |
| 44 | + 1.65 | 2.00 | 94 | + 5.55 | 6.00 | 144 | − 0.10 | 0.35 |
| 45 | + 6.65 | 6.10 | 95 | + 4.95 | 4.10 | 145 | − 2.30 | 2.10 |
| 46 | + 3.15 | 3.80 | 96 | + 1.65 | 2.95 | 146 | − 3.10 | 3.10 |
| 47 | + 1.40 | 1.00 | 97 | + 6.00 | 4.85 | 147 | − 2.00 | 2.00 |
| 48 | + 1.55 | 1.05 | 98 | + 2.65 | 1.75 | 148 | − 1.20 | 1.20 |
| 49 | + 5.15 | 5.75 | 99 | + 2.65 | 3.50 | 149 | − 0.10 | 0.15 |
| 50 | + 3.05 | 3.10 | 100 | + 5.35 | 5.65 | 150 | + 1.55 | 1.50 |

# LOLLAND.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | + | 3.10 | 3.00 | 195 | − | 5.40 | 7.35 | 239 | − | 1.25 | 0.30 |
| 152 | + | 10.50 | 10.20 | 196 | − | 9.20 | 8.75 | 240 | − | 0.00 | 0.05 |
| 153 | + | 6.20 | 6.15 | 197 | − | 14.95 | 15.10 | 241 | + | 9.50 | 9.95 |
| 154 | + | 6.65 | 6.60 | 198 | − | 17.30 | 17.15 | 242 | + | 11.50 | 12.60 |
| 155 | + | 2.70 | 2.70 | 199 | − | 16.40 | 16.05 | 243 | + | 11.70 | 10.50 |
| 156 | − | 1.20 | 1.20 | 200 | − | 8.60 | 9.90 | 244 | + | 8.80 | 9.00 |
| 157 | − | 1.40 | 1.55 | 201 | − | 9.35 | 10.05 | 245 | + | 4.35 | 2.25 |
| 158 | + | 0.70 | 0.65 | 202 | − | 1.50 | 0.55 | 246 | + | 9.65 | 10.65 |
| 159 | + | 0.30 | 0.15 | 203 | + | 4.85 | 4.95 | | | | |
| 160 | + | 3.40 | 3.40 | 204 | + | 8.10 | 6.50 | 247 | − | 3.20 | 1.60 |
| 161 | + | 1.10 | 1.20 | 205 | + | 15.15 | 16.60 | 248 | − | 7.35 | 6.70 |
| 162 | + | 1.70 | 1.60 | | | | | 249 | − | 3.85 | 7.00 |
| 163 | − | 4.30 | 4.40 | 206 | + | 9.70 | 8.50 | 250 | − | 6.60 | 4.80 |
| 164 | + | 1.00 | 0.80 | 207 | + | 13.60 | 14.55 | 251 | − | 2.40 | 2.15 |
| | | | | 208 | + | 9.60 | 8.35 | 252 | − | 4.20 | 5.75 |
| 165 | − | 3.95 | 2.35 | 209 | + | 8.20 | 8.00 | 253 | - | 6.40 | 7.45 |
| 166 | − | 4.65 | 4.40 | 210 | + | 7.00 | 9.75 | 254 | − | 1.85 | 1.50 |
| 167 | + | 1.70 | − 1.15 | 211 | + | 3.70 | 0.95 | 255 | − | 4.80 | 2.30 |
| 168 | − | 1.00 | 0.30 | 212 | − | 2.40 | 1.80 | 256 | + | 2.40 | − 1.10 |
| 169 | − | 4.05 | 4.95 | 213 | − | 5.40 | 5.35 | 257 | + | 1.50 | 3.40 |
| 170 | − | 9.60 | 8.60 | 214 | − | 4.30 | 4.60 | 258 | + | 2.15 | 2.10 |
| 171 | − | 8.95 | 9.25 | 215 | − | 3.25 | 3.15 | 259 | + | 7.00 | 5.65 |
| 172 | − | 7.35 | 7.50 | 216 | − | 4.85 | 6.55 | 260 | + | 7.40 | 8.55 |
| 173 | − | 4.90 | 4.85 | 217 | − | 1.90 | +0.30 | 261 | + | 8.30 | 7.65 |
| 174 | − | 3.90 | 4.10 | 218 | − | 7.85 | 7.50 | 262 | + | 4.40 | 6.60 |
| 175 | − | 7.50 | 7.15 | 219 | − | 9.75 | 11.00 | 263 | + | 8.95 | 6.65 |
| 176 | − | 7.70 | 7.80 | 220 | − | 10.85 | 11.95 | 264 | + | 9.90 | 10.60 |
| 177 | − | 6.35 | 5.85 | 221 | − | 10.85 | 9.90 | 265 | + | 3.20 | 3.20 |
| 178 | − | 4.00 | 4.55 | 222 | − | 10.10 | 10.30 | 266 | + | 1.60 | 1.60 |
| 179 | − | 2.10 | 3.25 | 223 | − | 8.00 | 8.05 | 267 | − | 0.65 | 0.65 |
| 180 | + | 6.15 | 7.15 | 224 | − | 2.95 | 2.10 | 268 | + | 0.90 | 0.90 |
| 181 | + | 5.30 | 4.75 | 225 | − | 1.30 | 1.05 | 269 | + | 2.20 | 2.00 |
| 182 | + | 1.55 | 1.40 | 226 | − | 2.10 | 2.75 | 270 | + | 2.50 | 2.40 |
| 183 | + | 0.15 | 2.05 | 227 | − | 2.70 | 1.60 | 271 | + | 0.20 | 0.10 |
| 184 | + | 1.40 | 0.00 | 228 | − | 1.70 | 1.85 | 272 | − | 1.10 | 1.10 |
| 185 | − | 0.25 | 1.20 | 229 | − | 4.30 | 4.40 | 273 | + | 1.70 | 1.60 |
| 186 | − | 11.55 | 11.05 | 230 | + | 1.20 | 0.15 | 274 | − | 0.45 | 0.50 |
| 187 | − | 9.85 | 10.95 | 231 | + | 5.15 | 5.25 | 275 | + | 3.70 | 3.70 |
| 188 | − | 18.05 | 17.65 | 232 | + | 5.20 | 3.85 | 276 | − | 0.90 | 0.85 |
| 189 | − | 13.40 | 12.15 | 233 | + | 2.30 | 4.25 | 277 | + | 2.10 | 2.00 |
| 190 | − | 10.65 | 10.25 | 234 | + | 0.40 | − 1.70 | 278 | − | 1.20 | 1.25 |
| 191 | − | 7.70 | 9.35 | 235 | − | 2.90 | 2.05 | 279 | − | 3.05 | 3.20 |
| 192 | − | 5.25 | 5.15 | 236 | − | 0.50 | 0.95 | 280 | − | 3.20 | 3.30 |
| 193 | − | 7.35 | 5.85 | 237 | − | 2.10 | 1.75 | 281 | − | 6.90 | 7.00 |
| 194 | − | 5.85 | 4.75 | 238 | − | 3.10 | 4.65 | 282 | − | 8.70 | 8.80 |

## HANKO 2.

| N:o | $\triangle h$ | | N:o | $\triangle h$ | | N:o | $\triangle h$ | |
|---|---|---|---|---|---|---|---|---|
| 1 | − | 0.188 0.184 | 51 | + | 0.191 0.190 | 101 | + | 0.061 0.060 |
| 2 | + | 0.307 0.307 | 52 | + | 0.119 0.118 | 102 | + | 0.070 0.070 |
| 3 | − | 0.482 0.483 | 53 | + | 0.083 0.084 | 103 | − | 0.078 0.077 |
| 4 | − | 0.270 0.270 | 54 | − | 0.224 0.225 | 104 | − | 0.016 0.018 |
| 5 | − | 0.211 0.211 | 55 | + | 0.130 0.129 | 105 | + | 0.067 0.067 |
| 6 | − | 0.266 0.265 | 56 | − | 0.130 0.133 | 106 | + | 0.098 0.098 |
| 7 | − | 0.283 0.285 | 57 | + | 0.123 0.122 | 107 | − | 0.119 0.118 |
| 8 | − | 0.220 0.220 | 58 | + | 0.012 0.011 | 108 | − | 0.052 0.054 |
| 9 | + | 0.098 0.098 | 59 | + | 0.489 0.490 | 109 | − | 0.122 0.122 |
| 10 | − | 0.290 0.291 | 60 | + | 0.287 0.287 | 110 | + | 0.173 0.173 |
| 11 | − | 0.296 0.294 | 61 | − | 0.058 0.058 | 111 | − | 0.085 0.084 |
| 12 | − | 0.051 0.051 | 62 | − | 0.014 0.014 | 112 | + | 0.100 0.099 |
| 13 | − | 0.248 0.250 | 63 | + | 0.060 0.059 | 113 | − | 0.049 0.050 |
| 14 | − | 0.106 0.107 | 64 | + | 0.198 0.199 | 114 | − | 0.170 0.169 |
| 15 | + | 0.018 0.018 | 65 | + | 0.372 0.372 | 115 | − | 0.092 0.092 |
| 16 | + | 0.103 0.104 | 66 | − | 0.214 0.214 | 116 | + | 0.123 0.122 |
| 17 | + | 0.398 0.397 | 67 | + | 0.160 0.159 | 117 | + | 0.184 0.185 |
| 18 | − | 0.114 0.114 | 68 | + | 0.004 0.002 | 118 | − | 0.144 0.145 |
| 19 | − | 0.082 0.082 | 69 | + | 0.044 0.045 | 119 | + | 0.164 0.165 |
| 20 | − | 0.233 0.234 | 70 | + | 0.039 0.039 | 120 | − | 0.277 0.275 |
| 21 | − | 0.028 0.030 | 71 | + | 0.083 0.081 | 121 | + | 0.113 0.111 |
| 22 | + | 0.050 0.050 | 72 | + | 0.020 0.022 | 122 | − | 0.104 0.102 |
| 23 | + | 0.273 0.275 | 73 | + | 0.026 0.026 | 123 | − | 0.026 0.027 |
| 24 | − | 0.219 0.219 | 74 | − | 0.265 0.264 | 124 | − | 0.194 0.193 |
| 25 | − | 0.115 0.117 | 75 | + | 0.576 0.575 | 125 | + | 0.119 0.117 |
| 26 | − | 0.066 0.064 | 76 | − | 0.290 0.290 | 126 | + | 0.040 0.039 |
| 27 | − | 0.041 0.044 | 77 | + | 0.084 0.085 | 127 | − | 0.234 0.231 |
| 28 | − | 0.115 0.115 | 78 | − | 0.052 0.050 | 128 | + | 0.012 0.011 |
| 29 | + | 0.283 0.285 | 79 | + | 0.074 0.072 | 129 | − | 0.142 0.142 |
| 30 | + | 0.011 0.008 | 80 | + | 0.004 0.004 | 130 | − | 0.459 0.460 |
| 31 | − | 0.353 0.353 | 81 | − | 0.053 0.051 | 131 | + | 0.475 0.476 |
| 32 | + | 0.061 0.060 | 82 | − | 0.232 0.232 | 132 | + | 0.396 0.395 |
| 33 | − | 0.039 0.040 | 83 | − | 0.474 0.472 | 133 | − | 0.627 0.629 |
| 34 | + | 0.136 0.135 | 84 | + | 0.091 0.089 | 134 | + | 0.507 0.504 |
| 35 | + | 0.040 0.041 | 85 | + | 0.137 0.135 | 135 | − | 0.262 0.260 |
| 36 | − | 0.040 0.040 | 86 | + | 0.396 0.396 | 136 | − | 0.088 0.088 |
| 37 | + | 0.217 0.218 | 87 | + | 0.405 0.404 | 137 | + | 0.078 0.079 |
| 38 | + | 0.100 0.098 | 88 | − | 0.018 0.019 | 138 | − | 0.288 0.290 |
| 39 | + | 0.011 0.013 | 89 | − | 0.021 0.021 | 139 | − | 0.057 0.057 |
| 40 | + | 0.058 0.057 | 90 | + | 0.093 0.095 | 140 | − | 0.101 0.104 |
| 41 | + | 0.027 0.030 | 91 | + | 0.178 0.175 | 141 | + | 0.095 0.095 |
| 42 | − | 0.113 0.115 | 92 | − | 0.038 0.037 | 142 | + | 0.022 0.021 |
| 43 | + | 0.090 0.093 | 93 | + | 0.457 0.457 | 143 | − | 0.037 0.037 |
| 44 | − | 0.171 0.171 | 94 | + | 0.057 0.058 | 144 | − | 0.011 0.011 |
| 45 | + | 0.112 0.111 | 95 | − | 0.638 0.637 | 145 | + | 0.022 0.022 |
| 46 | + | 0.147 0.148 | 96 | + | 0.273 0.272 | 146 | + | 0.024 0.024 |
| 47 | − | 0.108 0.109 | 97 | − | 0.032 0.031 | 147 | − | 0.066 0.065 |
| 48 | + | 0.134 0.135 | 98 | − | 0.004 0.005 | 148 | − | 0.140 0.139 |
| 49 | + | 0.055 0.053 | 99 | + | 0.116 0.119 | 149 | + | 0.217 0.215 |
| 50 | + | 0.312 0.316 | 100 | − | 0.140 0.141 | 150 | − | 0.131 0.132 |

## HANKO 2.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | + | 0.098 | 0.101 | 183 | + | 0.069 | 0.069 | 215 | − | 0.020 | 0.019 |
| 152 | − | 0.003 | 0.004 | 184 | + | 0.226 | 0.229 | 216 | − | 0.103 | 0.105 |
| 153 | + | 0.177 | 0.177 | 185 | − | 0.152 | 0.154 | 217 | + | 0.169 | 0.169 |
| 154 | − | 0.012 | 0.013 | 186 | − | 0.014 | 0.012 | 218 | + | 0.067 | 0.069 |
| 155 | − | 0.040 | 0.040 | 187 | + | 0.061 | 0.060 | 219 | + | 0.220 | 0.218 |
| 156 | − | 0.459 | 0.458 | 188 | + | 0.022 | 0.022 | 220 | + | 0.128 | 0.132 |
| 157 | − | 0.298 | 0.299 | 189 | − | 0.043 | 0.044 | 221 | − | 0.374 | 0.379 |
| 158 | − | 0.187 | 0.186 | 190 | + | 0.122 | 0.120 | 222 | + | 0.041 | 0.044 |
| 159 | − | 0.051 | 0.051 | 191 | − | 0.251 | 0.253 | 223 | − | 0.094 | 0.094 |
| 160 | + | 0.116 | 0.117 | 192 | + | 0.332 | 0.332 | 224 | + | 0.273 | 0.274 |
| 161 | − | 0.099 | 0.100 | 193 | − | 0.041 | 0.040 | 225 | − | 0.117 | 0.118 |
| 162 | − | 0.090 | 0.089 | 194 | + | 0.053 | 0.053 | 226 | + | 0.259 | 0.258 |
| 163 | − | 0.043 | 0.046 | 195 | + | 0.067 | 0.068 | 227 | + | 0.452 | 0.452 |
| 164 | + | 0.028 | 0.029 | 196 | + | 0.138 | 0.136 | 228 | + | 0.218 | 0.219 |
| 165 | + | 0.170 | 0.171 | 197 | + | 0.129 | 0.128 | 229 | + | 0.269 | 0.267 |
| 166 | − | 0.079 | 0.080 | 198 | + | 0.115 | 0.115 | 230 | + | 0.061 | 0.062 |
| 167 | + | 0.141 | 0.141 | 199 | + | 0.319 | 0.320 | 231 | + | 0.004 | 0.004 |
| 168 | + | 0.112 | 0.111 | 200 | + | 0.442 | 0.441 | 232 | − | 0.068 | 0.070 |
| 169 | − | 0.123 | 0.124 | 201 | + | 0.048 | 0.049 | 233 | − | 0.068 | 0.067 |
| 170 | + | 0.184 | 0.184 | 202 | − | 0.200 | 0.201 | 234 | − | 0.030 | 0.031 |
| 171 | + | 0.326 | 0.326 | 203 | − | 0.024 | 0.024 | 235 | + | 0.123 | 0.124 |
| 172 | − | 0.320 | 0.321 | 204 | − | 0.353 | 0.350 | 236 | + | 0.057 | 0.058 |
| 173 | − | 0.304 | 0.302 | 205 | + | 0.243 | 0.240 | 237 | − | 0.072 | 0.075 |
| 174 | − | 0.039 | 0.040 | 206 | + | 0.030 | 0.032 | 238 | − | 0.180 | 0.177 |
| 175 | − | 0.002 | 0.005 | 207 | + | 0.016 | 0.015 | 239 | − | 0.255 | 0.258 |
| 176 | + | 0.002 | 0.003 | 208 | + | 0.016 | 0.018 | 240 | − | 0.295 | 0.296 |
| 177 | − | 0.023 | 0.023 | 209 | − | 0.229 | 0.231 | 241 | − | 0.399 | 0.400 |
| 178 | + | 0.071 | 0.071 | 210 | + | 0.064 | 0.066 | 242 | + | 0.256 | 0.257 |
| 179 | + | 0.137 | 0.137 | 211 | + | 0.085 | 0.081 | 243 | − | 0.222 | 0.222 |
| 180 | + | 0.190 | 0.190 | 212 | − | 0.204 | 0.202 | 244 | + | 0.551 | 0.549 |
| 181 | − | 0.090 | 0.090 | 213 | + | 0.549 | 0.547 | 245 | + | 0.514 | 0.518 |
| 182 | + | 0.120 | 0.122 | 214 | − | 0.083 | 0.082 | | | | |

Standard base of Potsdam.

Base line of Sveksna.

Base line of Ösel.

Base line of Lolland.

Ordinary pole. Alignment.

96 m pole in Enköping.

Swedish tripod.

Danish tripod.

Setting of pole.

Levelling of poles.

Stretching apparatus.

Measuring.

Measuring: front observer.

Measuring: rear observer.