

# IONOSPHERIC DATA IN JAPAN

FOR DECEMBER 1952

Vol. 4 No. 12

Issued in January 1953

PREPARED BY THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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CONTENTS

|  | Page |
|--|------|
| Preface . . . . .  | 2    |
| Site of the Ionospheric Stations . . . . .                     | 3    |
| Remarks on Symbols . . . . .                                   | 3    |
| Ionospheric Data for Every Day and Hour at Wakkanai . . . . .  | 4    |
| Ionospheric Data for Every Day and Hour at Akita . . . . .     | 15   |
| Ionospheric Data for Every Day and Hour at Kokubunji . . . . . | 26   |
| Ionospheric Data for Every Day and Hour at Yamagawa . . . . .  | 38   |

## P R E F A C E

The origin of ionospheric sounding in Japan dates back to 1931 and the results of the work have been published in the form of the monthly "Ionospheric Data in Japan" since 1949. As a result of the reform of administrative structure of the Japanese Government effective on August 1, 1952, the observation, data coordination and publication were handed over to the charge of the Radio Research Laboratories newly set up within the Ministry of Postal Services.

The Radio Research Laboratories consists of three Divisions, i.e., First, Second and Administrative Divisions, located in Tokyo and five local radio wave observatories established at Wakkanai, Akita, Hiraiso, Inubo and Yamagawa, respectively.

The First Division has the following three sections:

Ionospheric Propagation Section which shall carry on researches on ionosphere and wave propagation;

Tropospheric Propagation Section which shall carry on researches on troposphere and wave propagation; and

Data Coordination Section which shall conduct the collection and arrangement of observational results, supply of operational data relating to radio propagation, preparation of radio propagation forecasts and radio disturbance warnings broadcast of URSIGRAM and physical basic studies of wave propagation in general.

The Second Division has the following two sections:

Frequency Standard Section which shall carry on researches on the frequency standard and broadcast the standard frequencies and time signals (J. J. Y.); and

Apparatus Section which shall carry on researches on radio apparatus used for radio regulatory purposes and conduct the approval service of types of radio equipments.

The Administrative Division shall conduct the general affairs of the Laboratories.

The ionospheric sounding is, as heretofore, being carried out by the four observatories at Wakkanai, Akita, Kokubunji (Tokyo) and Yamagawa.

This report provides the results of ionospheric sounding with symbols determined and in the form established on an international basis in the same way as followed by the former Radio Regulatory Commission and it is hoped that it will make any contribution toward the progress in world-wide short wave communications.

This report is intended for distribution on request to the largest possible number of organizations concerned all over the world, and any and every information that the organizations concerned might forward to us in exchange therefor would be highly appreciated.

Shogo Amari  
Chief, Radio Research Laboratories,  
Ministry of Postal Services

Aug. 1952

### SITE OF THE IONOSPHERIC STATIONS

Ionospheric observation is carried out at four stations in Japan.  
The stations are situated as follows:

|           | longitude    | latitude    | site   |
|-----------|--------------|-------------|--|
| Wakkanai  | 141° 41.1' E | 45° 23.6' N | Wakkanai-shi, Hokkaido                       |
| Akita     | 140° 08.2' E | 39° 43.5' N | Tegata Nishishin-machi, Akita-shi, Akita-ken |
| Kokubunji | 139° 29.3' E | 35° 42.4' N | Koganei-machi, Kitatama-gun, Tokyo-to        |
| Yamagawa  | 130° 37.7' E | 31° 12.5' N | Yamagawa-machi, Ibusuki-gun, Kagoshima-ken   |

### REMARKS ON SYMBOLS

All symbols in the table are used in accordance with "Production and Reduction of Ionospheric Information" of "RESOLUTION OF THE IX GENERAL ASSEMBLY OF URSI SEPTEMBER 1950" (CRWO-F25) except  $f_{\min}$  E and  $f_{\min}$  F for E and F regions respectively instead of  $f_{\min}$ , taken as  $f_{\min}$  s in the above Resolution, in order to avoid the interruption of preceding form of data.

# IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

## Wakkanai

Dec. 1952

foF2

135° E Mean Time

| Day          | 00                 | 01                 | 02                 | 03                 | 04                 | 05                 | 06                 | 07                 | 08                 | 09               | 10                 | 11                 | 12                 | 13                 | 14                 | 15                 | 16                 | 17                 | 18                 | 19                 | 20                  | 21                 | 22                  | 23                 |     |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|---------------------|--------------------|-----|
| 1            | 2.5                | S                  | S                  | S                  | 2.6                | 2.6                | 2.4                | A                  | A                  | 8.2 <sup>J</sup> | (7.9) <sup>P</sup> | 7.7                | 6.7                | 5.6                | (5.9) <sup>P</sup> | 5.5 <sup>J</sup>   | 3.9                | S                  | C                  | C                  | SA                  | 3.0                | 2.6 <sup>F</sup>    | 3.0                |     |
| 2            | 2.7                | 3.1 <sup>P</sup>   | (3.4) <sup>P</sup> | 3.0                | 3.0 <sup>P</sup>   | 3.2 <sup>P</sup>   | B                  | B                  | B                  | B                | 8.3 <sup>J</sup>   | 8.0                | 6.5                | (6.5) <sup>P</sup> | 5.6 <sup>P</sup>   | B                  | 4.5                | 3.4 <sup>F</sup>   | S                  | 2.9                | 3.6                 | 2.8                | 3.6                 | 4.0                |     |
| 3            | 3.6                | 3.4                | (3.0) <sup>F</sup> | 2.5                | 3.9 <sup>F</sup>   | 3.9                | (4.2) <sup>S</sup> | 4.6                | 5.9                | 6.5              | 8.4 <sup>J</sup>   | 9.2                | 8.6                | 8.0 <sup>P</sup>   | 6.5                | 6.7 <sup>J</sup>   | 5.9 <sup>P</sup>   | S                  | A                  | A                  | 3.3                 | 3.2                | 3.6                 | 3.7                |     |
| 4            | 3.7                | 3.5                | 2.8                | (2.8) <sup>C</sup> | 2.9                | (3.0) <sup>C</sup> | 3.1                | (3.7) <sup>C</sup> | 4.3                | 6.7              | 7.8                | (7.2) <sup>C</sup> | (6.5) <sup>P</sup> | B                  | B                  | B                  | S                  | S                  | S                  | S                  | S                   | S                  | S                   | S                  |     |
| 5            | S                  | 2.3 <sup>F</sup>   | 2.5 <sup>F</sup>   | 2.9 <sup>F</sup>   | A                  | A                  | A                  | A                  | 5.6                | 6.2              | (6.4) <sup>J</sup> | 9.2                | 7.2                | 6.1                | 6.6                | 7.0 <sup>F</sup>   | C                  | C                  | C                  | 5.4                | 2.9                 | S                  | SA                  | 2.9                |     |
| 6            | (2.7) <sup>A</sup> | 2.5                | 2.1                | (2.0) <sup>C</sup> | 1.8                | 2.6                | C                  | C                  | C                  | S                | 6.9                | 7.1                | 6.6                | 7.1                | 6.0                | C                  | C                  | 3.8 <sup>P</sup>   | (3.3) <sup>C</sup> | 2.8                | 2.6                 | 2.3                | 2.1                 | 2.7                |     |
| 7            | 2.7                | 2.7                | 2.8                | C                  | C                  | C                  | C                  | C                  | C                  | C                | 6.6                | 5.8                | 5.5 <sup>H</sup>   | C                  | C                  | C                  | C                  | C                  | A                  | A                  | A                   | 3.3 <sup>J</sup>   | 2.9                 | (3.2) <sup>F</sup> |     |
| 8            | 3.5 <sup>F</sup>   | (3.2) <sup>P</sup> | 3.4 <sup>P</sup>   | 3.2 <sup>F</sup>   | 3.2 <sup>F</sup>   | 3.2 <sup>F</sup>   | (3.5) <sup>F</sup> | 3.8                | 5.4                | 6.7              | 7.2                | 6.9                | 6.7                | 6.6                | 6.0                | 5.4                | 3.6                | 3.2                | 2.1                | 2.6                | 2.8                 | 3.0                | (2.8) <sup>SA</sup> | 2.6                |     |
| 9            | 2.6                | 2.5                | 2.7                | S                  | S                  | 2.7                | 2.7                | 4.0                | 5.0                | 6.0              | 7.5                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                   | C                  | C                   | C                  |     |
| 10           | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 6.8              | 6.8                | 7.2                | 7.2                | 5.7                | 5.7                | (5.0) <sup>C</sup> | 4.2 <sup>P</sup>   | (4.2) <sup>S</sup> | 4.2 <sup>P</sup>   | (3.5) <sup>S</sup> | 2.8                 | 2.9                | 2.4                 | (2.5) <sup>S</sup> |     |
| 11           | 2.6                | 3.1                | 3.2 <sup>F</sup>   | 3.4                | (3.0) <sup>P</sup> | (2.9) <sup>S</sup> | 2.8                | 3.8                | 6.2                | 5.5              | 9.0                | 9.3 <sup>J</sup>   | 6.0                | 6.8                | 6.7                | 6.0                | 4.6                | 4.4                | 3.2                | 3.3                | 3.5                 | 3.3                | (3.4) <sup>S</sup>  | 3.6                |     |
| 12           | 3.7 <sup>J</sup>   | 3.6                | (3.8) <sup>P</sup> | 4.0                | 3.5                | 3.8                | 4.0                | 4.4                | (6.4) <sup>P</sup> | 7.9              | 5.9                | 6.7                | 7.9 <sup>J</sup>   | (7.7) <sup>F</sup> | 7.3                | C                  | C                  | C                  | C                  | C                  | C                   | C                  | C                   | C                  |     |
| 13           | C                  | C                  | 3.9                | 3.9                | 3.9                | 3.9                | 3.3                | 4.8                | 6.6 <sup>H</sup>   | C                | C                  | C                  | C                  | C                  | 7.0                | (5.4) <sup>C</sup> | 3.9                | 4.0 <sup>F</sup>   | S                  | S                  | S                   | 3.5 <sup>P</sup>   | S                   | S                  |     |
| 14           | 3.3 <sup>P</sup>   | 3.5 <sup>P</sup>   | 2.2                | (2.3) <sup>S</sup> | 2.4 <sup>J</sup>   | S                  | A                  | 4.0                | (7.3) <sup>J</sup> | 8.6              | 9.3                | 8.0 <sup>J</sup>   | 6.6                | 6.7                | 7.1 <sup>H</sup>   | 5.7                | 5.3 <sup>J</sup>   | 3.7                | 3.4 <sup>J</sup>   | 3.1                | 3.0 <sup>F</sup>    | 3.3 <sup>J</sup>   | 2.8 <sup>F</sup>    | 3.3 <sup>F</sup>   |     |
| 15           | 3.2 <sup>F</sup>   | 2.9 <sup>F</sup>   | 2.6                | 2.8 <sup>F</sup>   | 2.9                | 3.2                | 2.6 <sup>F</sup>   | 3.9                | 5.3 <sup>P</sup>   | 7.1              | 7.1                | 8.9                | 6.8                | 6.9                | 5.8                | 7.1                | 5.0                | 3.8                | 2.7                | 2.6                | 2.6                 | 2.8                | 2.8                 | 2.9                |     |
| 16           | C                  | C                  | 3.0                | 3.1                | 3.1 <sup>P</sup>   | 3.1                | C                  | C                  | C                  | C                | 7.8                | (8.2) <sup>P</sup> | (7.9) <sup>C</sup> | 7.6 <sup>J</sup>   | 6.2                | 5.7                | C                  | C                  | C                  | 2.4                | (2.4) <sup>A</sup>  | 2.5                | 3.3 <sup>F</sup>    | 3.5 <sup>F</sup>   |     |
| 17           | 3.3 <sup>F</sup>   | (3.0) <sup>J</sup> | 2.7                | F.S                | S.F                | S.F                | 2.4                | 3.6 <sup>J</sup>   | 4.7                | B                | 8.8 <sup>J</sup>   | B                  | B                  | B                  | 5.8                | 5.8                | S                  | S                  | A                  | A                  | A                   | A                  | A                   | S                  |     |
| 18           | 3.0                | 3.1                | 3.1                | C                  | C                  | C                  | C                  | S                  | 4.6                | 5.7              | (6.4) <sup>F</sup> | 8.0                | 6.0                | (6.4) <sup>P</sup> | 5.8                | 5.6                | 4.4 <sup>P</sup>   | (3.6) <sup>P</sup> | 2.7                | 2.5                | 2.6                 | 2.7                | (2.8) <sup>SA</sup> | 2.9                |     |
| 19           | 3.0                | 2.8                | 2.7 <sup>P</sup>   | 2.9                | 2.8                | 2.5                | 2.1                | (3.8) <sup>S</sup> | (5.4) <sup>P</sup> | 5.8              | 7.0                | 7.6                | C                  | C                  | C                  | C                  | 3.6                | 2.8                | 2.6                | 2.3                | 3.0                 | 3.0                | 2.9 <sup>F</sup>    | (3.0) <sup>S</sup> |     |
| 20           | 3.2 <sup>P</sup>   | 3.3                | 3.3                | 3.1                | 2.7                | 2.6                | 3.2 <sup>J</sup>   | S                  | B                  | B                | B                  | S                  | B                  | B                  | B                  | 4.6 <sup>J</sup>   | B                  | A                  | A                  | 2.6                | 2.2                 | 2.6 <sup>F</sup>   | 2.6 <sup>F</sup>    | 3.5 <sup>F</sup>   |     |
| 21           | 2.9 <sup>F</sup>   | 3.0 <sup>F</sup>   | 4.3 <sup>F</sup>   | 5.0 <sup>F</sup>   | 5.0 <sup>F</sup>   | 4.5 <sup>F</sup>   | 2.4 <sup>F</sup>   | 3.2 <sup>P</sup>   | (4.4) <sup>B</sup> | 5.6              | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 2.6                | 2.7                | (2.8) <sup>SA</sup> | 2.8                | 2.8                 | 2.7                |     |
| 22           | SA                 | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                | 7.8                | (7.1) <sup>B</sup> | 6.4                | 6.2 <sup>P</sup>   | 6.2                | 4.8                | (3.7) <sup>B</sup> | 2.6 <sup>V</sup>   | 2.6                | 2.6                | (2.6) <sup>C</sup>  | 2.6                | (2.8) <sup>S</sup>  | 3.0 <sup>F</sup>   |     |
| 23           | 3.0                | 3.0 <sup>P</sup>   | (3.1) <sup>P</sup> | 2.9                | 3.0                | 3.1                | S                  | S                  | A                  | B                | B                  | B                  | B                  | B                  | 6.4                | B                  | C                  | 3.2 <sup>P</sup>   | 2.7 <sup>P</sup>   | 2.0                | 2.3                 | A                  | S                   | 3.0                |     |
| 24           | S                  | S                  | S.F                | S.F                | S.F                | 2.7                | 2.5                | (3.5) <sup>P</sup> | C                  | C                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 3.6                | A                  | S                   | 3.3 <sup>P</sup>   | S                   | S.F                |     |
| 25           | S.F                | S.F                | 3.7 <sup>F</sup>   | 3.8 <sup>F</sup>   | A.F                | A                  | 2.1                | 3.3                | (6.2) <sup>C</sup> | 9.0              | S                  | C                  | C                  | C                  | C                  | 5.4 <sup>P</sup>   | 3.5 <sup>P</sup>   | S                  | C                  | C                  | 2.6                 | C                  | C                   | 2.9 <sup>F</sup>   |     |
| 26           | 2.7 <sup>F</sup>   | 2.5                | 2.7                | 2.8                | 3.0 <sup>F</sup>   | 3.0 <sup>F</sup>   | 2.5                | C                  | C                  | C                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 2.9 <sup>P</sup>    | S                  | S                   | S                  |     |
| 27           | 3.2                | (2.9) <sup>S</sup> | 2.6                | 2.7                | 2.6 <sup>F</sup>   | 2.8 <sup>F</sup>   | 2.8                | (4.2) <sup>S</sup> | 5.7                | 5.7              | B                  | (7.0) <sup>P</sup> | (6.6) <sup>P</sup> | 6.2                | 5.4                | 5.1                | (5.0) <sup>P</sup> | C                  | C                  | 3.3 <sup>P</sup>   | 3.3 <sup>F</sup>    | 3.3                | 2.8                 | 2.7                |     |
| 28           | 3.2                | (3.0) <sup>A</sup> | 2.9 <sup>P</sup>   | 3.0 <sup>P</sup>   | C                  | C                  | C                  | C                  | C                  | C                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                   | C                  | C                   | C                  |     |
| 29           | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 5.0 <sup>H</sup> | 7.2                | 8.5 <sup>J</sup>   | 8.0 <sup>J</sup>   | 5.7                | 6.0 <sup>F</sup>   | 5.3                | S                  | S                  | 3.2                | S                  | S                   | C                  | C                   | C                  |     |
| 30           | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 2.9                | 5.3 <sup>J</sup>   | 5.8              | C                  | C                  | C                  | C                  | C                  | 6.2                | 3.9                | S                  | S                  | S                  | S                   | (2.7) <sup>F</sup> | A                   | S                  |     |
| 31           | S.F                | (2.6) <sup>F</sup> | S.F                | AS                 | S                  | S                  | S                  | S                  | B                  | B                | 9.4                | 9.0                | 5.1                | 7.7                | (6.5) <sup>S</sup> | 5.3 <sup>J</sup>   | S                  | A                  | S                  | S                  | S                   | S                  | S                   | S                  |     |
| Mean Value   | 3.1                | 3.0                | 3.0                | 3.1                | 3.1                | 2.9                | 2.9                | 3.8                | 5.6                | 6.6              | 7.7                | 7.8                | 6.8                | 6.7                | 6.2                | 5.8                | 4.4                | 3.5                | 3.0                | 2.9                | 2.9                 | 2.9                | 2.9                 | 2.9                | 3.0 |
| Median Value | 3.0                | 3.0                | 3.0                | 3.0                | 3.0                | 3.0                | 2.7                | 3.8                | 5.6                | 6.5              | 7.6                | 7.8                | 6.7                | 6.6                | 6.1                | 5.6                | 4.4                | 3.6                | 2.7                | 2.6                | 2.6                 | 2.8                | 2.9                 | 2.8                | 3.0 |
| Count        | 21                 | 22                 | 24                 | 20                 | 19                 | 20                 | 17                 | 16                 | 17                 | 19               | 20                 | 19                 | 19                 | 16                 | 18                 | 19                 | 15                 | 13                 | 13                 | 16                 | 20                  | 19                 | 17                  | 20                 | 20  |

Sweep 1.0 Mc to 15.5 Mc in    min

Manual

Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 45° 2.3.6' N  
Long. 141° 41.1' E

# Wakkanai

## IONOSPHERIC DATA

135° E Mean Time

Dec. 1952

h<sub>p</sub>F<sub>2</sub>

| Day          | 00                 | 01                 | 02                  | 03                 | 04                 | 05                 | 06                 | 07                 | 08                 | 09                 | 10                 | 11                 | 12                 | 13                 | 14                 | 15                 | 16                 | 17                 | 18                 | 19                 | 20                 | 21                 | 22                 | 23                 |
|--------------|--------------------|--------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1            | 420                | S                  | S                   | S                  | 360                | 320                | 320                | 320                | A                  | (270) <sup>V</sup> | (290) <sup>V</sup> | 310                | 290                | (300) <sup>B</sup> | (310) <sup>V</sup> | 300                | S                  | C                  | C                  | C                  | SA                 | A                  | 330 <sup>F</sup>   | 330                |
| 2            | 310                | (330) <sup>S</sup> | (330) <sup>P</sup>  | 340                | 390 <sup>P</sup>   | 350 <sup>P</sup>   | B                  | B                  | B                  | B                  | 300 <sup>P</sup>   | 290                | 260                | (270) <sup>F</sup> | (270) <sup>S</sup> | B                  | 280                | 400 <sup>F2</sup>  | S                  | 360                | 400                | 350                | 360                | 340                |
| 3            | 340                | 470                | (460) <sup>HF</sup> | 430                | 380 <sup>F</sup>   | 310                | (310) <sup>S</sup> | 310                | 300                | 340                | (330) <sup>T</sup> | 300                | 300                | 320 <sup>F</sup>   | 300                | (310) <sup>S</sup> | 320 <sup>P</sup>   | S                  | A                  | A                  | 370                | 400                | 400                | 400                |
| 4            | 430                | 360                | A                   | C                  | 330                | (320) <sup>F</sup> | 320                | (330) <sup>F</sup> | 340                | 310                | 310                | (310) <sup>P</sup> | (310) <sup>P</sup> | B                  | B                  | B                  | S                  | S                  | S                  | S                  | S                  | S                  | S                  | S                  |
| 5            | S                  | 360 <sup>F</sup>   | 360 <sup>T</sup>    | 430 <sup>F</sup>   | A                  | A                  | A                  | A                  | 280                | 260                | (280) <sup>F</sup> | 290                | 280                | 300                | 300                | 320 <sup>P</sup>   | C                  | C                  | C                  | 290                | 330                | S                  | AS                 | 380                |
| 6            | (340) <sup>A</sup> | 310                | A                   | C                  | 320                | 390                | C                  | C                  | C                  | S                  | 270                | 260                | 270                | 300                | C                  | C                  | C                  | C                  | (310) <sup>C</sup> | 310                | 300                | 350                | 350                | (380) <sup>T</sup> |
| 7            | 400                | 400                | 320                 | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 330                | 280                | 320 <sup>H</sup>   | C                  | C                  | C                  | C                  | C                  | A                  | A                  | A                  | A                  | 340                | (370) <sup>A</sup> |
| 8            | (400) <sup>F</sup> | (410) <sup>P</sup> | 430 <sup>P</sup>    | (430) <sup>F</sup> | (410) <sup>T</sup> | (400) <sup>S</sup> | (370) <sup>S</sup> | (340) <sup>S</sup> | 270                | 280                | 320                | 280                | 250                | 280                | 300                | 310                | 400                | 310                | 390                | 350                | 350                | 330                | (340) <sup>F</sup> | 350                |
| 9            | 370                | 400                | 420                 | S                  | S                  | 350                | 300                | 270                | 250                | 280                | 290                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  |
| 10           | C                  | C                  | C                   | S                  | C                  | C                  | C                  | C                  | C                  | C                  | 300                | 320                | 280                | 300                | 300                | (300) <sup>S</sup> | 310 <sup>P</sup>   | (320) <sup>C</sup> | 320 <sup>P</sup>   | (340) <sup>S</sup> | 360                | 340                | 390                | (380) <sup>S</sup> |
| 11           | 380                | 400                | (390) <sup>F</sup>  | 420                | (400) <sup>F</sup> | (440) <sup>F</sup> | 290                | 310                | 290                | 300                | 320                | (300) <sup>T</sup> | 300                | 300                | 310                | 280                | 290                | 310                | 320                | 340                | 320                | 310                | (400) <sup>F</sup> | 420                |
| 12           | (400) <sup>T</sup> | 390                | (390)               | 360                | 360                | 370                | 370                | 300                | 290 <sup>P</sup>   | 310                | SB                 | 320                | (310) <sup>T</sup> | (290) <sup>F</sup> | 290                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  |
| 13           | C                  | C                  | 370                 | 370                | 370                | (330) <sup>B</sup> | 340                | 310                | 320 <sup>H</sup>   | C                  | C                  | C                  | C                  | C                  | C                  | 290                | (320) <sup>C</sup> | 360                | 400 <sup>F</sup>   | S                  | C                  | 310 <sup>P</sup>   | S                  | S                  |
| 14           | 410 <sup>P</sup>   | 330 <sup>P</sup>   | 350                 | (380) <sup>F</sup> | (420) <sup>F</sup> | S                  | A                  | 340                | (280) <sup>F</sup> | 310                | 320                | (300) <sup>H</sup> | 300                | (300) <sup>H</sup> | 300                | (280) <sup>T</sup> | 310                | (300) <sup>T</sup> | 310                | (300) <sup>T</sup> | 400 <sup>F</sup>   | (420) <sup>T</sup> | 400 <sup>F</sup>   | (350) <sup>T</sup> |
| 15           | 350 <sup>F</sup>   | 380 <sup>F</sup>   | 400                 | 370 <sup>F</sup>   | 400                | 330                | 340 <sup>T</sup>   | 320                | 300 <sup>P</sup>   | 300                | 310                | 270                | 280                | 280                | 270                | 280                | 280                | 350                | 350                | 370                | 420                | 330                | 420                | 380                |
| 16           | C                  | C                  | 410                 | 410                | 430 <sup>P</sup>   | 400                | C                  | C                  | C                  | C                  | 310                | (290) <sup>P</sup> | (300) <sup>P</sup> | (300) <sup>T</sup> | 310                | 270                | C                  | C                  | C                  | 320                | (380) <sup>A</sup> | 430                | (450) <sup>F</sup> | (450) <sup>F</sup> |
| 17           | (450) <sup>T</sup> | (420) <sup>F</sup> | 400 <sup>F</sup>    | FS                 | FS                 | FS                 | 320                | (310) <sup>A</sup> | 300                | B                  | (290) <sup>T</sup> | B                  | B                  | B                  | B                  | 300                | S                  | S                  | A                  | A                  | A                  | A                  | A                  | S                  |
| 18           | 380                | 390                | 400                 | C                  | C                  | C                  | C                  | S                  | 280                | 300                | (350) <sup>P</sup> | 300                | 280                | (330) <sup>F</sup> | 290                | 270                | 270 <sup>P</sup>   | (340) <sup>P</sup> | 310                | 350                | 370                | 380                | (380) <sup>F</sup> | 370                |
| 19           | 390                | 420                | 370 <sup>P</sup>    | 420                | 400                | 320                | 290                | (340) <sup>S</sup> | (280) <sup>P</sup> | 310                | 310                | 320                | C                  | C                  | C                  | C                  | C                  | 260                | 360                | 370                | 390 <sup>F</sup>   | 340                | 410 <sup>F</sup>   | (410) <sup>S</sup> |
| 20           | 410 <sup>P</sup>   | 440                | 430                 | 410                | 370                | 380                | (350) <sup>T</sup> | 310                | B                  | B                  | B                  | B                  | B                  | B                  | B                  | (290) <sup>T</sup> | B                  | A                  | A                  | 310                | 340                | 420 <sup>F</sup>   | 470 <sup>F</sup>   | 360                |
| 21           | 400 <sup>F</sup>   | 420 <sup>F</sup>   | 380 <sup>F</sup>    | 370 <sup>F</sup>   | (440) <sup>F</sup> | (320) <sup>F</sup> | 320 <sup>V</sup>   | 310 <sup>T</sup>   | (300) <sup>P</sup> | 280                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 320                | (380) <sup>A</sup> | 410                | 320                | A                  |
| 22           | SA                 | C                  | C                   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | (300) <sup>S</sup> | (340) <sup>B</sup> | 310                | 310 <sup>P</sup>   | 310                | 240                | (280) <sup>B</sup> | 320 <sup>V</sup>   | 310                | 300                | (350) <sup>C</sup> | 400                | (380) <sup>S</sup> | 350 <sup>P</sup>   |
| 23           | 330                | 360 <sup>P</sup>   | (380) <sup>P</sup>  | 360                | 420                | 340                | S                  | S                  | A                  | B                  | B                  | B                  | B                  | B                  | B                  | C                  | C                  | C                  | 340 <sup>P</sup>   | 330                | 370                | A                  | S                  | 290                |
| 24           | S                  | S                  | SF                  | SF                 | SF                 | 320                | 310                | (290) <sup>P</sup> | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | S                  | 330                | A                  | S                  | 380 <sup>F</sup>   | S                  | SF                 | SF                 |
| 25           | SF                 | SF                 | 380 <sup>F</sup>    | 410 <sup>F</sup>   | AF                 | A                  | 370                | 340                | (340) <sup>C</sup> | 330                | S                  | C                  | C                  | C                  | C                  | (270) <sup>S</sup> | 290 <sup>P</sup>   | S                  | C                  | C                  | 400                | C                  | C                  | 400 <sup>F</sup>   |
| 26           | 380 <sup>F</sup>   | 400                | 400                 | 380                | 390 <sup>F</sup>   | 350 <sup>H</sup>   | 420                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 380 <sup>P</sup>   | S                  | S                  | S                  |
| 27           | 380                | (370) <sup>S</sup> | 360                 | 400                | (360) <sup>F</sup> | (360) <sup>F</sup> | 350                | (320) <sup>S</sup> | 290                | 300                | B                  | (270) <sup>P</sup> | (260) <sup>P</sup> | 290                | 280                | 320                | (330) <sup>P</sup> | C                  | C                  | C                  | 330                | 320 <sup>F</sup>   | 330                | 390                |
| 28           | 360                | (370) <sup>A</sup> | 380 <sup>F</sup>    | 380 <sup>F</sup>   | (380) <sup>H</sup> | 350 <sup>F</sup>   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  |
| 29           | C                  | C                  | C                   | C                  | C                  | C                  | C                  | C                  | C                  | 310 <sup>H</sup>   | 290                | (300) <sup>T</sup> | (290) <sup>T</sup> | 310                | 330 <sup>T</sup>   | 290                | S                  | S                  | S                  | 290                | S                  | S                  | C                  | C                  |
| 30           | C                  | C                  | C                   | C                  | C                  | C                  | C                  | C                  | (260) <sup>T</sup> | 330                | C                  | C                  | C                  | C                  | C                  | 270                | 300                | S                  | S                  | S                  | S                  | S                  | (390) <sup>P</sup> | A                  |
| 31           | SF                 | (420) <sup>F</sup> | SF                  | SA                 | S                  | S                  | S                  | S                  | B                  | B                  | 280                | 260                | 270                | 290                | (280) <sup>S</sup> | (270) <sup>S</sup> | S                  | A                  | S                  | S                  | S                  | S                  | S                  | S                  |
| Mean Value   | 380                | 390                | 380                 | 390                | 380                | 350                | 340                | 320                | 290                | 300                | 300                | 300                | 290                | 300                | 300                | 290                | 290                | 340                | 340                | 330                | 340                | 360                | 380                | 370                |
| Median Value | 380                | 400                | 390                 | 390                | 390                | 340                | 340                | 320                | 290                | 300                | 300                | 300                | 290                | 300                | 300                | 290                | 290                | 330                | 320                | 340                | 370                | 390                | 390                | 380                |
| Count        | 21                 | 22                 | 22                  | 18                 | 19                 | 20                 | 17                 | 16                 | 17                 | 19                 | 20                 | 20                 | 19                 | 16                 | 16                 | 19                 | 15                 | 13                 | 13                 | 16                 | 20                 | 17                 | 17                 | 19                 |

h<sub>p</sub>F<sub>2</sub>

Group L.D. Me to 15.5 Me in 2 min

Manual  Automatic

W2

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

K'F2

Dec. 1952

135° E Mean Time

| Day    | 00               | 01                 | 02               | 03               | 04               | 05                 | 06                 | 07                 | 08                 | 09               | 10  | 11                 | 12                 | 13                 | 14                 | 15                 | 16                 | 17                 | 18                 | 19               | 20                 | 21               | 22                 | 23                 |
|--------|------------------|--------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|------------------|-----|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|--------------------|------------------|--------------------|--------------------|
| 1      | A                | A                  | A                | A                | 320              | 300                | A                  | A                  | 270                | 260              | 270 | 260                | [280] <sup>B</sup> | 300                | 270                | 260                | 290                | C                  | C                  | A                | A                  | A                | 300 <sup>F</sup>   | 300                |
| 2      | 280              | 300                | 300              | 300              | 320              | 280                | 230                | B                  | 280                | 270              | 270 | 270                | 240                | 260                | 280                | 270                | 230                | 280                | 290                | 300              | 320                | 300              | 290                | 300                |
| 3      | 310              | 340                | 340              | 380              | 340              | 260                | [270] <sup>A</sup> | 280                | 270                | 300              | 280 | 280                | 270                | 270                | 280                | 290                | 270                | 270                | A                  | A                | 290                | 340              | 340                | 340                |
| 4      | 400              | 330                | A                | C                | 260              | [260] <sup>C</sup> | 270                | [280] <sup>C</sup> | 280                | 280              | 270 | [280] <sup>C</sup> | 280                | [280] <sup>B</sup> | 280                | 260                | 260                | 310                | 300                | 300              | A                  | 300              | 300                | 280                |
| 5      | 250              | 300 <sup>F</sup>   | 300 <sup>F</sup> | 330 <sup>F</sup> | A                | A                  | A                  | A                  | 270                | 260              | 270 | 270                | 260                | 300                | 260                | 270                | C                  | C                  | C                  | 280              | 320 <sup>A</sup>   | 290              | SA                 | 330 <sup>A</sup>   |
| 6      | A                | A                  | A                | C                | 310              | 320                | C                  | C                  | S                  | 270              | 250 | 260                | 290                | C                  | C                  | C                  | C                  | 270                | [260] <sup>C</sup> | 260              | 270                | A                | S                  | 320                |
| 7      | 320              | 340                | 250              | C                | C                | C                  | C                  | C                  | C                  | C                | 300 | 260                | 270 <sup>H</sup>   | C                  | C                  | C                  | C                  | C                  | C                  | A                | A                  | A                | 300                | [320] <sup>A</sup> |
| 8      | 340 <sup>F</sup> | 340                | 360              | 360 <sup>F</sup> | 330 <sup>F</sup> | 300 <sup>F</sup>   | [280] <sup>S</sup> | 270                | 250                | 260              | 280 | 260                | 250                | 260                | 260                | 280                | 300                | 280                | 340                | 300              | 300                | 300              | 300                | 310                |
| 9      | 310              | 320                | 350              | 300              | 280              | 250                | 230                | 230                | 220                | 270              | 260 | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                | C                  | C                | C                  | C                  |
| 10     | C                | C                  | C                | C                | C                | C                  | C                  | C                  | C                  | 260              | 280 | 280                | 270                | 280                | 270                | [260] <sup>C</sup> | 240                | [250] <sup>C</sup> | 260                | 300              | 300                | 280              | 340                | 340                |
| 11     | 320              | 330                | 340              | 370              | 320              | 300                | 250                | 290                | 270                | 280              | 300 | 290                | 270                | 290                | 270                | 270                | 240                | 280                | 270                | 270              | 290                | 300              | 370                | 350                |
| 12     | 330              | 310                | 320              | 300              | 280              | 280                | 300                | 270                | 270                | 300              | 270 | 270                | C                  | C                  | C                  | 260                | [280] <sup>C</sup> | 300                | 310                | C                | C                  | C                | C                  | C                  |
| 13     | C                | C                  | 300              | 300              | 290              | 270                | 280                | 250                | 280 <sup>H</sup>   | C                | C   | C                  | C                  | C                  | C                  | 260                | 280                | 300                | 310                | 340              | 400                | 360              | 350                | 340                |
| 14     | 320              | 270                | 270              | 370              | 360              | 350                | A                  | A                  | 260                | 300              | 290 | 300                | 280                | 300                | 280 <sup>H</sup>   | 240                | 270                | 250                | 260                | 300              | 310 <sup>F</sup>   | 350 <sup>F</sup> | 350 <sup>F</sup>   | 310 <sup>F</sup>   |
| 15     | 290 <sup>F</sup> | 320                | 340 <sup>F</sup> | 300 <sup>F</sup> | 310              | 280                | 280                | 280                | 250                | 270              | 280 | 250                | 260                | 260                | 260                | 240                | 240                | 260                | 300                | 300              | 330                | 290              | 340                | 330                |
| 16     | C                | C                  | 340              | 330              | 330              | 300                | C                  | C                  | C                  | C                | 290 | 270                | 280                | 280                | 280                | 240                | C                  | C                  | C                  | A                | A                  | A                | 390                | 360 <sup>F</sup>   |
| 17     | 370              | 300                | 330              | 300              | 290              | 280                | 270                | [270] <sup>H</sup> | 270                | 280              | 280 | [280] <sup>C</sup> | 280                | 320                | 320 <sup>B</sup>   | 280                | A                  | A                  | A                  | A                | A                  | A                | A                  | F                  |
| 18     | 350 <sup>A</sup> | 340                | 370              | C                | C                | C                  | C                  | S                  | 260                | 290              | 320 | 280                | 270                | 300                | 270                | 250                | 260 <sup>A</sup>   | 310                | 280                | 300              | 310                | 320              | [310] <sup>A</sup> | 300                |
| 19     | 330 <sup>A</sup> | [390] <sup>A</sup> | 330              | 340              | 310              | 280                | 330                | 260                | 270                | 270              | 290 | 280                | C                  | C                  | C                  | C                  | 270                | 270                | 290                | 340 <sup>F</sup> | 280                | 280              | 370 <sup>F</sup>   | [340] <sup>S</sup> |
| 20     | 310              | 300                | 330              | 310              | 300              | 300                | 290                | 260                | B                  | B                | B   | B                  | B                  | C                  | C                  | C                  | 270                | A                  | A                  | A                | 300                | 400 <sup>F</sup> | 390 <sup>F</sup>   | 300 <sup>F</sup>   |
| 21     | 320              | 310 <sup>F</sup>   | 300              | 300              | 280              | 260                | 260                | 270                | [280] <sup>B</sup> | 280              | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 310 <sup>B</sup> | A                  | SA               | 380 <sup>A</sup>   | 330                |
| 22     | SA               | C                  | C                | C                | C                | C                  | C                  | C                  | C                  | C                | 300 | 300                | 310                | 300                | 280                | 240                | 220                | 280                | 260                | 270              | [280] <sup>C</sup> | 300              | [300] <sup>C</sup> | 300                |
| 23     | 270              | 300                | 300              | 300              | 320              | 290                | 240                | SA                 | A                  | B                | B   | B                  | B                  | B                  | 270                | 210                | [240] <sup>C</sup> | 260                | 270                | 290              | 300                | SA               | SA                 | 250                |
| 24     | 310              | 300                | 280 <sup>F</sup> | 280              | 280              | 270                | 300                | 230                | C                  | C                | C   | C                  | C                  | C                  | C                  | C                  | 220                | 230                | A                  | A                | 350                | 330              | 300                | 300                |
| 25     | 260              | 280                | 300              | 310 <sup>F</sup> | 320              | [330] <sup>A</sup> | 340                | 280                | [270] <sup>S</sup> | 260              | 230 | C                  | C                  | C                  | C                  | 240                | 230                | SA                 | C                  | C                | 370 <sup>A</sup>   | C                | C                  | 330                |
| 26     | 320 <sup>F</sup> | [320] <sup>A</sup> | 310              | 320              | 330 <sup>F</sup> | 300 <sup>F</sup>   | 320                | 280                | C                  | C                | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                | 350                | S                | S                  | S                  |
| 27     | 320              | 300                | 300 <sup>A</sup> | 350              | 310 <sup>F</sup> | 300 <sup>F</sup>   | 300                | 270                | 280                | 270              | 280 | 260                | 260                | 260                | 260                | 260                | 290                | C                  | C                  | 270 <sup>F</sup> | 270                | 320              | 350                |                    |
| 28     | 270              | [300] <sup>H</sup> | 320              | 320 <sup>F</sup> | 300              | 280                | C                  | C                  | C                  | C                | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                | C                  | C                | C                  | C                  |
| 29     | C                | C                  | C                | C                | C                | C                  | C                  | C                  | C                  | 250 <sup>H</sup> | 270 | 300                | 280                | 290                | 300                | 270                | 260                | 260                | 270                | S                | S                  | C                | C                  | S                  |
| 30     | C                | C                  | C                | C                | C                | C                  | 230                | [240] <sup>B</sup> | 240                | 300              | C   | C                  | C                  | C                  | C                  | C                  | 250                | 290 <sup>A</sup>   | A                  | SA               | SA                 | 320              | A                  | SA                 |
| 31     | 290              | 340 <sup>F</sup>   | 320 <sup>F</sup> | 380              | 340              | S                  | SA                 | SA                 | B                  | 270              | 280 | 260                | 260                | 270                | [260] <sup>S</sup> | 260                | A                  | A                  | SA                 | SA               | S                  | S                | SA                 | SA                 |
| Mean   | 310              | 320                | 320              | 330              | 310              | 290                | 280                | 270                | 260                | 270              | 280 | 270                | 270                | 280                | 280                | 260                | 250                | 270                | 290                | 290              | 310                | 320              | 330                | 320                |
| Median | 320              | 320                | 320              | 320              | 310              | 280                | 280                | 270                | 270                | 270              | 280 | 270                | 270                | 280                | 280                | 260                | 250                | 270                | 280                | 300              | 300                | 300              | 330                | 320                |
| Count  | 23               | 23                 | 24               | 22               | 24               | 23                 | 19                 | 17                 | 18                 | 22               | 23  | 22                 | 20                 | 18                 | 20                 | 22                 | 20                 | 17                 | 16                 | 16               | 19                 | 19               | 19                 | 22                 |

Energy 1.0 Mc to 15.5 Mc in \_\_\_\_\_ min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N  
Long. 141° 41.1' E

foF1

Dec. 1952

135° E Mean Time

| Day          | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09  | 10  | 11  | 12  | 13   | 14  | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|------|-----|----|----|----|----|----|----|----|----|----|
| 1            |    |    |    |    |    |    |    |    | A   | B   | Q   | B   | B   | B    | B   | Q  |    |    |    |    |    |    |    |    |
| 2            |    |    |    |    |    |    |    |    | B   | B   | 3.9 | 3.7 | S   | 3.4  | B   | Q  |    |    |    |    |    |    |    |    |
| 3            |    |    |    |    |    |    |    |    | Q   | 3.3 | A   | Q   | Q   | Q    | S   | Q  |    |    |    |    |    |    |    |    |
| 4            |    |    |    |    |    |    |    |    | Q   | C   | Q   | C   | B   | B    | B   | Q  |    |    |    |    |    |    |    |    |
| 5            |    |    |    |    |    |    |    |    | Q   | B   | B   | B   | B   | B    | B   | B  |    |    |    |    |    |    |    |    |
| 6            |    |    |    |    |    |    |    |    | S   | Q   | 3.7 | 3.3 | L   | C    | C   | C  |    |    |    |    |    |    |    |    |
| 7            |    |    |    |    |    |    |    |    | C   | C   | B   | B   | Q   | C    | C   | C  |    |    |    |    |    |    |    |    |
| 8            |    |    |    |    |    |    |    |    | Q   | 3.1 | 3.2 | 3.2 | S   | Q    | Q   | Q  |    |    |    |    |    |    |    |    |
| 9            |    |    |    |    |    |    |    |    | Q   | Q   | B   | 3.6 | C   | C    | C   | C  |    |    |    |    |    |    |    |    |
| 10           |    |    |    |    |    |    |    |    | C   | B   | Q   | Q   | Q   | Q    | Q   | C  |    |    |    |    |    |    |    |    |
| 11           |    |    |    |    |    |    |    |    | Q   | Q   | 3.6 | 3.6 | 3.6 | Q    | Q   | Q  |    |    |    |    |    |    |    |    |
| 12           |    |    |    |    |    |    |    |    | Q   | L   | Q   | 3.6 | L   | B    | Q   | C  |    |    |    |    |    |    |    |    |
| 13           |    |    |    |    |    |    |    |    | Q   | C   | C   | C   | C   | C    | C   | Q  |    |    |    |    |    |    |    |    |
| 14           |    |    |    |    |    |    |    |    | Q   | Q   | 3.8 | A   | 3.8 | Q    | Q   | Q  |    |    |    |    |    |    |    |    |
| 15           |    |    |    |    |    |    |    |    | Q   | Q   | L   | 3.6 | Q   | Q    | Q   | Q  |    |    |    |    |    |    |    |    |
| 16           |    |    |    |    |    |    |    |    | C   | C   | A   | A   | C   | 3.4P | 3.1 | Q  |    |    |    |    |    |    |    |    |
| 17           |    |    |    |    |    |    |    |    | Q   | B   | B   | B   | B   | B    | B   | Q  |    |    |    |    |    |    |    |    |
| 18           |    |    |    |    |    |    |    |    | Q   | B   | B   | B   | Q   | Q    | Q   | Q  |    |    |    |    |    |    |    |    |
| 19           |    |    |    |    |    |    |    |    | Q   | Q   | Q   | Q   | C   | C    | C   | C  |    |    |    |    |    |    |    |    |
| 20           |    |    |    |    |    |    |    |    | B   | B   | B   | B   | B   | B    | B   | Q  |    |    |    |    |    |    |    |    |
| 21           |    |    |    |    |    |    |    |    | B   | B   | C   | C   | C   | C    | C   | C  |    |    |    |    |    |    |    |    |
| 22           |    |    |    |    |    |    |    |    | C   | C   | B   | B   | B   | B    | B   | Q  |    |    |    |    |    |    |    |    |
| 23           |    |    |    |    |    |    |    |    | A   | B   | B   | B   | B   | B    | Q   | Q  |    |    |    |    |    |    |    |    |
| 24           |    |    |    |    |    |    |    |    | C   | C   | C   | C   | C   | C    | C   | C  |    |    |    |    |    |    |    |    |
| 25           |    |    |    |    |    |    |    |    | C   | 3.0 | S   | C   | C   | C    | C   | Q  |    |    |    |    |    |    |    |    |
| 26           |    |    |    |    |    |    |    |    | C   | C   | C   | C   | C   | C    | C   | C  |    |    |    |    |    |    |    |    |
| 27           |    |    |    |    |    |    |    |    | Q   | Q   | C   | 3.4 | Q   | 3.1  | 2.7 | Q  |    |    |    |    |    |    |    |    |
| 28           |    |    |    |    |    |    |    |    | C   | Q   | C   | C   | C   | C    | C   | C  |    |    |    |    |    |    |    |    |
| 29           |    |    |    |    |    |    |    |    | C   | Q   | Q   | C   | S   | Q    | B   | Q  |    |    |    |    |    |    |    |    |
| 30           |    |    |    |    |    |    |    |    | Q   | Q   | C   | C   | C   | C    | C   | Q  |    |    |    |    |    |    |    |    |
| 31           |    |    |    |    |    |    |    |    | B   | B   | Q   | B   | B   | B    | C   | Q  |    |    |    |    |    |    |    |    |
| Mean Value   |    |    |    |    |    |    |    |    | 3.1 | 3.5 | 3.5 | 3.5 | 3.7 | 3.3  | 2.9 |    |    |    |    |    |    |    |    |    |
| Median Value |    |    |    |    |    |    |    |    | 3.1 | 3.6 | 3.6 | 3.6 | 3.7 | 3.4  | 2.9 |    |    |    |    |    |    |    |    |    |
| Count        |    |    |    |    |    |    |    |    | 3   | 5   | 8   | 2   | 2   | 3    | 2   |    |    |    |    |    |    |    |    |    |

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Sweep 1.0 Me to 15.5 Me in 2 min  
 Manual  Automatic



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Long. 141° 41.1' E

Wakanai

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Dec. 1952

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135° E Mean Time

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |  |
|--------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|--|
| 1      |    |    |    |    |    |    |    |    | A   | B   | Q   | B   | B   | B   | B   | Q   |    |    |    |    |    |    |    |    |  |
| 2      |    |    |    |    |    |    |    |    | B   | B   | 240 | B   | S   | 230 | B   | Q   |    |    |    |    |    |    |    |    |  |
| 3      |    |    |    |    |    |    |    |    | Q   | 280 | A   | Q   | Q   | Q   | S   | Q   |    |    |    |    |    |    |    |    |  |
| 4      |    |    |    |    |    |    |    |    | Q   | C   | Q   | C   | B   | B   | B   | S   |    |    |    |    |    |    |    |    |  |
| 5      |    |    |    |    |    |    |    |    | Q   | C   | B   | B   | B   | B   | B   | S   |    |    |    |    |    |    |    |    |  |
| 6      |    |    |    |    |    |    |    |    | S   | Q   | 240 | A   | 220 | C   | C   | C   |    |    |    |    |    |    |    |    |  |
| 7      |    |    |    |    |    |    |    |    | C   | C   | B   | B   | Q   | C   | C   | C   |    |    |    |    |    |    |    |    |  |
| 8      |    |    |    |    |    |    |    |    | Q   | 260 | 230 | 220 | S   | Q   | Q   | Q   |    |    |    |    |    |    |    |    |  |
| 9      |    |    |    |    |    |    |    |    | Q   | Q   | B   | 250 | B   | C   | C   | C   |    |    |    |    |    |    |    |    |  |
| 10     |    |    |    |    |    |    |    |    | C   | Q   | Q   | Q   | Q   | Q   | Q   | C   |    |    |    |    |    |    |    |    |  |
| 11     |    |    |    |    |    |    |    |    | Q   | Q   | 300 | 280 | 270 | Q   | Q   | Q   |    |    |    |    |    |    |    |    |  |
| 12     |    |    |    |    |    |    |    |    | Q   | 240 | Q   | 250 | S   | B   | Q   | Q   |    |    |    |    |    |    |    |    |  |
| 13     |    |    |    |    |    |    |    |    | Q   | C   | C   | C   | C   | C   | C   | C   |    |    |    |    |    |    |    |    |  |
| 14     |    |    |    |    |    |    |    |    | Q   | Q   | 280 | A   | 260 | Q   | Q   | Q   |    |    |    |    |    |    |    |    |  |
| 15     |    |    |    |    |    |    |    |    | Q   | Q   | 270 | Q   | Q   | Q   | Q   | Q   |    |    |    |    |    |    |    |    |  |
| 16     |    |    |    |    |    |    |    |    | C   | C   | A   | A   | C   | 280 | 250 | Q   |    |    |    |    |    |    |    |    |  |
| 17     |    |    |    |    |    |    |    |    | Q   | Q   | B   | B   | B   | B   | B   | Q   |    |    |    |    |    |    |    |    |  |
| 18     |    |    |    |    |    |    |    |    | Q   | B   | B   | B   | Q   | Q   | Q   | Q   |    |    |    |    |    |    |    |    |  |
| 19     |    |    |    |    |    |    |    |    | Q   | Q   | Q   | Q   | Q   | C   | C   | C   |    |    |    |    |    |    |    |    |  |
| 20     |    |    |    |    |    |    |    |    | 240 | B   | B   | B   | B   | B   | B   | Q   |    |    |    |    |    |    |    |    |  |
| 21     |    |    |    |    |    |    |    |    | 260 | B   | C   | C   | C   | C   | C   | Q   |    |    |    |    |    |    |    |    |  |
| 22     |    |    |    |    |    |    |    |    | C   | C   | B   | B   | B   | B   | B   | Q   |    |    |    |    |    |    |    |    |  |
| 23     |    |    |    |    |    |    |    |    | A   | B   | B   | B   | B   | B   | Q   | Q   |    |    |    |    |    |    |    |    |  |
| 24     |    |    |    |    |    |    |    |    | C   | C   | C   | C   | C   | C   | C   | Q   |    |    |    |    |    |    |    |    |  |
| 25     |    |    |    |    |    |    |    |    | C   | 230 | S   | C   | C   | C   | C   | Q   |    |    |    |    |    |    |    |    |  |
| 26     |    |    |    |    |    |    |    |    | C   | C   | C   | C   | C   | C   | C   | C   |    |    |    |    |    |    |    |    |  |
| 27     |    |    |    |    |    |    |    |    | Q   | Q   | 2   | 260 | Q   | 250 | 240 | Q   |    |    |    |    |    |    |    |    |  |
| 28     |    |    |    |    |    |    |    |    | C   | C   | C   | C   | C   | C   | C   | C   |    |    |    |    |    |    |    |    |  |
| 29     |    |    |    |    |    |    |    |    | C   | Q   | Q   | C   | S   | Q   | B   | Q   |    |    |    |    |    |    |    |    |  |
| 30     |    |    |    |    |    |    |    |    | Q   | Q   | C   | C   | C   | C   | C   | Q   |    |    |    |    |    |    |    |    |  |
| 31     |    |    |    |    |    |    |    |    | B   | 240 | Q   | B   | B   | B   | C   | Q   |    |    |    |    |    |    |    |    |  |
| Mean   |    |    |    |    |    |    |    |    | 250 | 250 | 260 | 260 | 250 | 250 | 250 | 250 |    |    |    |    |    |    |    |    |  |
| Median |    |    |    |    |    |    |    |    | 250 | 240 | 260 | 260 | 260 | 250 | 250 | 240 |    |    |    |    |    |    |    |    |  |
| Count  |    |    |    |    |    |    |    |    | 2   | 5   | 6   | 6   | 3   | 3   | 3   | 2   |    |    |    |    |    |    |    |    |  |

Group 1.0 Mc to 15.5 Mc in 2 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

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Long. 141° 41.1' E

Wakkanai

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135° E Mean Time

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Dec. 1952

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08   | 09     | 10     | 11  | 12   | 13  | 14     | 15  | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|------|--------|--------|-----|------|-----|--------|-----|----|----|----|----|----|----|----|----|
| 1      |    |    |    |    |    |    |    |    | A    | B      | A      | B   | B    | B   | B      | A   |    |    |    |    |    |    |    |    |
| 2      |    |    |    |    |    |    |    |    | B    | 2.6    | 2.7    | 2.8 | B    | B   | B      | 1.6 |    |    |    |    |    |    |    |    |
| 3      |    |    |    |    |    |    |    |    | 2.2  | A      | A      | A   | 2.9F | A   | S      | S   |    |    |    |    |    |    |    |    |
| 4      |    |    |    |    |    |    |    |    | A    | C      | B      | C   | B    | B   | B      | B   |    |    |    |    |    |    |    |    |
| 5      |    |    |    |    |    |    |    |    | B    | B      | B      | B   | B    | B   | B      | B   |    |    |    |    |    |    |    |    |
| 6      |    |    |    |    |    |    |    |    | S    | A      | 2.6    | A   | 2.6  | C   | C      | C   |    |    |    |    |    |    |    |    |
| 7      |    |    |    |    |    |    |    |    | C    | C      | B      | B   | B    | C   | C      | C   |    |    |    |    |    |    |    |    |
| 8      |    |    |    |    |    |    |    |    | 2.1  | (2.2)A | 2.4    | 2.6 | 2.6  | 2.5 | 2.4    | 2.0 |    |    |    |    |    |    |    |    |
| 9      |    |    |    |    |    |    |    |    | 1.6  | B      | B      | 2.1 | C    | C   | C      | C   |    |    |    |    |    |    |    |    |
| 10     |    |    |    |    |    |    |    |    | C    | B      | 2.5    | 2.6 | 2.7  | 2.6 | B      | C   |    |    |    |    |    |    |    |    |
| 11     |    |    |    |    |    |    |    |    | B    | 2.4H   | 2.6A   | 2.6 | 2.6  | 2.6 | 2.2    | B   |    |    |    |    |    |    |    |    |
| 12     |    |    |    |    |    |    |    |    | B    | 2.3    | 2.5    | 2.6 | 2.6  | 2.6 | 2.3    | C   |    |    |    |    |    |    |    |    |
| 13     |    |    |    |    |    |    |    |    | 1.6F | C      | C      | C   | C    | C   | C      | B   |    |    |    |    |    |    |    |    |
| 14     |    |    |    |    |    |    |    |    | B    | B      | 2.5    | A   | 2.7  | 2.4 | 2.3    | 1.8 |    |    |    |    |    |    |    |    |
| 15     |    |    |    |    |    |    |    |    | 1.6  | 2.3    | 2.7    | 2.8 | 2.7  | 2.6 | (2.4)S | 2.2 |    |    |    |    |    |    |    |    |
| 16     |    |    |    |    |    |    |    |    | C    | C      | A      | A   | C    | A   | B      | B   |    |    |    |    |    |    |    |    |
| 17     |    |    |    |    |    |    |    |    | B    | B      | B      | B   | B    | B   | B      | B   |    |    |    |    |    |    |    |    |
| 18     |    |    |    |    |    |    |    |    | B    | B      | B      | B   | S    | 2.6 | 2.2    | A   |    |    |    |    |    |    |    |    |
| 19     |    |    |    |    |    |    |    |    | B    | 2.2    | 2.6    | 2.7 | C    | C   | C      | C   |    |    |    |    |    |    |    |    |
| 20     |    |    |    |    |    |    |    |    | B    | B      | B      | B   | B    | 2.6 | A      | 2.2 |    |    |    |    |    |    |    |    |
| 21     |    |    |    |    |    |    |    |    | 1.7  | B      | C      | C   | C    | C   | C      | C   |    |    |    |    |    |    |    |    |
| 22     |    |    |    |    |    |    |    |    | C    | C      | B      | B   | B    | B   | B      | B   |    |    |    |    |    |    |    |    |
| 23     |    |    |    |    |    |    |    |    | A    | B      | 2.5    | B   | 2.4  | 2.4 | B      | 1.7 |    |    |    |    |    |    |    |    |
| 24     |    |    |    |    |    |    |    |    | C    | C      | C      | C   | C    | C   | C      | C   |    |    |    |    |    |    |    |    |
| 25     |    |    |    |    |    |    |    |    | C    | B      | S      | C   | C    | C   | C      | C   |    |    |    |    |    |    |    |    |
| 26     |    |    |    |    |    |    |    |    | A    | C      | C      | C   | C    | C   | C      | C   |    |    |    |    |    |    |    |    |
| 27     |    |    |    |    |    |    |    |    | A    | 2.3F   | (2.4)A | 2.6 | 2.6F | 2.5 | 2.2    | 1.6 |    |    |    |    |    |    |    |    |
| 28     |    |    |    |    |    |    |    |    | C    | C      | C      | C   | C    | C   | C      | C   |    |    |    |    |    |    |    |    |
| 29     |    |    |    |    |    |    |    |    | C    | A      | A      | A   | B    | A   | 2.1    | B   |    |    |    |    |    |    |    |    |
| 30     |    |    |    |    |    |    |    |    | A    | B      | C      | C   | C    | C   | C      | C   |    |    |    |    |    |    |    |    |
| 31     |    |    |    |    |    |    |    |    | B    | 2.1    | 2.3    | 2.4 | 2.5  | 2.4 | C      | A   |    |    |    |    |    |    |    |    |
| Mean   |    |    |    |    |    |    |    |    | 1.8  | 2.3    | 2.5    | 2.6 | 2.6  | 2.5 | 2.3    | 1.9 |    |    |    |    |    |    |    |    |
| Median |    |    |    |    |    |    |    |    | 1.6  | 2.3    | 2.5    | 2.6 | 2.6  | 2.6 | 2.2    | 1.8 |    |    |    |    |    |    |    |    |
| Value  |    |    |    |    |    |    |    |    | 6    | 8      | 12     | 10  | 11   | 11  | 8      | 7   |    |    |    |    |    |    |    |    |
| Count  |    |    |    |    |    |    |    |    |      |        |        |     |      |     |        |     |    |    |    |    |    |    |    |    |

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Sweep 1.0 Mc to 15.5 Mc in 2 min  Manual  Automatic

The Radio Research Laboratories  
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Long. 141° 41.1' E

Wakkanai

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135° E Mean Time

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Dec. 1952

| Day           | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08    | 09     | 10     | 11   | 12  | 13     | 14     | 15  | 16  | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---------------|----|----|----|----|----|----|----|----|-------|--------|--------|------|-----|--------|--------|-----|-----|----|----|----|----|----|----|----|
| 1             |    |    |    |    |    |    |    |    | A 110 | (120)A | 120    | B    | B   | 120    | A      |     |     |    |    |    |    |    |    |    |
| 2             |    |    |    |    |    |    |    |    | 120   | 120    | 120    | 110  | 100 | B      | 130    |     |     |    |    |    |    |    |    |    |
| 3             |    |    |    |    |    |    |    |    | 130   | A      | A      | A    | A   | S      | 110    |     |     |    |    |    |    |    |    |    |
| 4             |    |    |    |    |    |    |    |    | A     | C      | B      | C    | B   | B      | B      | B   |     |    |    |    |    |    |    |    |
| 5             |    |    |    |    |    |    |    |    | B     | B      | B      | B    | B   | B      | B      | B   |     |    |    |    |    |    |    |    |
| 6             |    |    |    |    |    |    |    |    | S     | A      | 110    | A    | 110 | C      | C      | C   |     |    |    |    |    |    |    |    |
| 7             |    |    |    |    |    |    |    |    | C     | C      | 120    | B    | B   | C      | C      | C   |     |    |    |    |    |    |    |    |
| 8             |    |    |    |    |    |    |    |    | 100   | (120)A | 140    | 130  | 120 | 120    | 120    | 120 |     |    |    |    |    |    |    |    |
| 9             |    |    |    |    |    |    |    |    | 130   | B      | B      | 150A | C   | C      | C      | C   |     |    |    |    |    |    |    |    |
| 10            |    |    |    |    |    |    |    |    | C     | 130    | 140    | 130  | 110 | 150A   | 120    | C   |     |    |    |    |    |    |    |    |
| 11            |    |    |    |    |    |    |    |    | 130   | 150A   | A      | 120  | 140 | 140A   | 140    | B   |     |    |    |    |    |    |    |    |
| 12            |    |    |    |    |    |    |    |    | 120   | 130    | 130    | 110  | 110 | 130    | C      |     |     |    |    |    |    |    |    |    |
| 13            |    |    |    |    |    |    |    |    | 120F  | C      | C      | C    | C   | C      | C      | 110 |     |    |    |    |    |    |    |    |
| 14            |    |    |    |    |    |    |    |    | 140   | 120    | 130    | A    | 120 | 120    | 120    | 120 |     |    |    |    |    |    |    |    |
| 15            |    |    |    |    |    |    |    |    | B     | 120    | 110    | 110  | 130 | 130    | (140)S | 160 |     |    |    |    |    |    |    |    |
| 16            |    |    |    |    |    |    |    |    | C     | C      | A      | A    | C   | A      | 120    | 140 |     |    |    |    |    |    |    |    |
| 17            |    |    |    |    |    |    |    |    | 140   | B      | B      | B    | B   | B      | B      | B   |     |    |    |    |    |    |    |    |
| 18            |    |    |    |    |    |    |    |    | B     | B      | B      | B    | 110 | 120    | 110    | A   |     |    |    |    |    |    |    |    |
| 19            |    |    |    |    |    |    |    |    | B     | 120    | 120    | 130  | C   | C      | C      | C   |     |    |    |    |    |    |    |    |
| 20            |    |    |    |    |    |    |    |    | B     | B      | B      | B    | B   | B      | 120    | A   | 110 |    |    |    |    |    |    |    |
| 21            |    |    |    |    |    |    |    |    | 120   | B      | C      | C    | C   | C      | C      | C   |     |    |    |    |    |    |    |    |
| 22            |    |    |    |    |    |    |    |    | C     | C      | B      | B    | B   | B      | B      | B   |     |    |    |    |    |    |    |    |
| 23            |    |    |    |    |    |    |    |    | A     | 120    | 110    | 110  | 100 | 110    | 120    | 110 |     |    |    |    |    |    |    |    |
| 24            |    |    |    |    |    |    |    |    | C     | C      | C      | C    | C   | C      | C      | C   |     |    |    |    |    |    |    |    |
| 25            |    |    |    |    |    |    |    |    | C     | C      | B      | S    | C   | C      | C      | B   |     |    |    |    |    |    |    |    |
| 26            |    |    |    |    |    |    |    |    | A     | C      | C      | C    | C   | C      | C      | C   |     |    |    |    |    |    |    |    |
| 27            |    |    |    |    |    |    |    |    | A     | 120    | (120)A | 120  | 110 | 130    | 120    | 110 |     |    |    |    |    |    |    |    |
| 28            |    |    |    |    |    |    |    |    | C     | C      | C      | C    | C   | C      | C      | C   |     |    |    |    |    |    |    |    |
| 29            |    |    |    |    |    |    |    |    | C     | A      | A      | A    | 120 | (120)A | 130    | 140 |     |    |    |    |    |    |    |    |
| 30            |    |    |    |    |    |    |    |    | A     | B      | C      | C    | C   | C      | C      | B   |     |    |    |    |    |    |    |    |
| 31            |    |    |    |    |    |    |    |    | B     | 100    | 110    | 110  | 120 | 120    | C      | A   |     |    |    |    |    |    |    |    |
| Mean Value    |    |    |    |    |    |    |    |    | 130   | 120    | 120    | 120  | 120 | 120    | 120    | 120 |     |    |    |    |    |    |    |    |
| Minimum Value |    |    |    |    |    |    |    |    | 120   | 120    | 120    | 120  | 110 | 120    | 120    | 120 |     |    |    |    |    |    |    |    |
| Count         |    |    |    |    |    |    |    |    | 10    | 12     | 13     | 12   | 14  | 13     | 12     | 11  |     |    |    |    |    |    |    |    |

Group 1. 0. Mc to 1.5.5. Mc in 2 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

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## IONOSPHERIC DATA

135° E Mean Time

Dec. 1952

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| Day          | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1            | 25  | 22  | 26  | 22  | 16  | 37  | 31  | 60  | 60  | 60  | 34  | 40  | 38  | B   | 4   | 32  | 24  | 30  | C   | C   | 30  | 29  | E   | E   |
| 2            | E   | E   | E   | E   | E   | E   | E   | B   | 4   | 4   | 4   | 4   | 4   | 4   | B   | 4   | E   | 24  | E   | E   | 32  | 22  | 34  | 26  |
| 3            | 40F | E   | E   | E   | 28  | 22  | 26  | 28  | 4   | 60  | 56F | 40F | 39  | 38F | S   | S   | 22  | 30  | 60  | 89F | 38  | 28  | 87  | 40  |
| 4            | 43  | 38  | 34  | C   | 24  | C   | 23  | C   | 40  | C   | B   | C   | B   | B   | B   | B   | E   | S   | 23  | S   | S   | E   | 27  | E   |
| 5            | E   | E   | E   | E   | 26  | 30  | 65  | 45  | B   | B   | B   | B   | B   | B   | B   | B   | C   | C   | C   | 16  | 30  | 16  | 30  | 30  |
| 6            | 30  | 20  | 16  | C   | E   | E   | C   | C   | S   | 39  | 40  | 38  | 4   | C   | C   | C   | C   | 26  | C   | 24  | 16  | 16  | E   | 16  |
| 7            | 26Y | 30  | 23  | C   | C   | C   | C   | C   | C   | C   | 4   | 4   | B   | C   | C   | C   | C   | C   | 86  | 60  | 60  | 28  | 26  | 39  |
| 8            | 29  | 26  | 16  | E   | E   | E   | S   | 22  | 30  | 30  | 4   | 4   | 4   | 4   | 4   | 4   | 30  | 40  | 38  | 32  | 30  | 24  | 39  | 45  |
| 9            | 24  | 16  | E   | E   | E   | E   | E   | E   | 4   | B   | B   | 21  | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   |
| 10           | C   | C   | C   | C   | C   | C   | C   | C   | C   | 4   | 28  | 4   | 4   | 21  | 4   | 4   | 28  | C   | E   | E   | E   | 24  | 22  | E   |
| 11           | 24  | 20  | 16  | E   | E   | E   | E   | 24  | 4   | 29  | 46  | 38  | 4   | 33  | 4   | 4   | E   | 30  | 16  | E   | E   | E   | E   | 30  |
| 12           | 24  | 22  | 24  | E   | E   | E   | E   | 30  | 4   | 4   | 4   | 4   | 4   | 4   | 4   | 4   | C   | C   | C   | C   | C   | C   | C   | C   |
| 13           | C   | C   | E   | 16Y | 16  | E   | 22  | 30  | 4   | C   | C   | C   | C   | C   | C   | 4   | C   | E   | E   | E   | E   | E   | 28Y | E   |
| 14           | E   | E   | E   | E   | 16  | 16  | 30  | 40  | 4   | 4   | 4   | 50  | 39  | 4   | 4   | 4   | E   | 38  | E   | E   | E   | E   | E   | 32  |
| 15           | 26F | 28F | 26  | 16  | E   | E   | E   | 29  | 26  | 4   | 29  | 4   | 4   | 4   | S   | 4   | 22  | 16  | E   | E   | E   | 16  | E   | E   |
| 16           | C   | C   | 16  | E   | E   | E   | C   | C   | C   | C   | 60  | 60  | C   | 28  | 4   | 4   | C   | C   | C   | 38  | 60  | 39  | 16  | E   |
| 17           | E   | E   | 22  | 23  | 22  | 22  | 28  | 42  | 4   | B   | B   | B   | B   | B   | B   | B   | 28  | 28  | 37  | 37  | 40  | 40  | 33  | S   |
| 18           | 28  | 34  | 30  | C   | C   | C   | C   | S   | B   | B   | B   | B   | 4   | 37  | 4   | 22  | 48  | 38  | 32  | 37  | 31  | 29  | 48  | 16  |
| 19           | 16  | 22  | 16  | 16  | 26  | E   | E   | 16  | B   | 4   | 4   | 4   | 4   | C   | C   | C   | E   | E   | E   | E   | E   | E   | E   | C   |
| 20           | E   | E   | E   | E   | E   | E   | E   | E   | B   | B   | B   | B   | B   | 4   | 32  | 4   | 26  | 59Y | 46  | 24  | E   | E   | E   | E   |
| 21           | E   | E   | E   | E   | E   | E   | E   | E   | 4   | B   | C   | C   | C   | C   | C   | C   | C   | C   | E   | 29  | 38  | 22  | 22  | 28  |
| 22           | 30  | C   | C   | C   | C   | C   | C   | C   | C   | C   | B   | B   | B   | B   | B   | B   | E   | E   | E   | E   | C   | 22  | C   | 16  |
| 23           | 23  | E   | E   | E   | E   | E   | E   | 26  | 48  | 4   | 4   | 4   | 4   | 4   | 4   | 4   | C   | E   | 16  | E   | E   | 26  | S   | E   |
| 24           | E   | E   | E   | E   | E   | 22  | 24  | 26  | C   | C   | C   | C   | C   | C   | C   | C   | 16  | 38  | 47  | 26  | 31  | 26  | E   | E   |
| 25           | E   | E   | E   | E   | 38  | 38  | 26  | 29  | C   | S   | C   | C   | C   | C   | C   | B   | E   | 28  | C   | C   | 27  | C   | C   | 22  |
| 26           | E   | 36  | E   | E   | E   | E   | E   | 23  | 26  | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | E   | S   | S   | S   |
| 27           | E   | E   | 27  | E   | E   | E   | 28  | 29  | 26  | 4   | 27  | 4   | 27  | 4   | 25  | 4   | E   | C   | C   | 26F | 27  | 26  | 27  | 26  |
| 28           | 22  | 38  | 27  | 22  | 24  | 21  | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | E   | C   | C   | C   | C   | C   | C   | C   |
| 29           | C   | C   | C   | C   | C   | C   | C   | C   | C   | 30  | 40  | 55  | 4   | 29  | 4   | 4   | 26  | 28  | E   | S   | S   | C   | C   | S   |
| 30           | C   | C   | C   | C   | C   | C   | E   | 38  | 38  | B   | C   | C   | C   | C   | C   | B   | 32  | 26  | 28  | 26  | 27  | E   | 60  | 26  |
| 31           | E   | E   | E   | 25  | E   | 26  | 23  | 26  | B   | 26  | 4   | 4   | 28  | 24  | C   | 26  | 30  | 90  | 30  | 26  | 23  | 26  | 26  | 26  |
| Mean Value   | 2.7 | 2.7 | 2.3 | 2.0 | 2.4 | 2.6 | 3.0 | 3.2 | 3.7 | 3.6 | 4.0 | 4.3 | 3.3 | 3.0 | 2.9 | 2.7 | 2.8 | 3.6 | 3.8 | 3.5 | 3.4 | 2.6 | 3.5 | 2.8 |
| Median Value | 2.2 | 1.6 | 1.6 | E   | E   | E   | E   | 2.8 | 4   | 4   | 2.7 | 4   | 4   | 4   | 4   | 4   | 2.2 | 2.8 | 1.6 | 2.4 | 2.7 | 2.2 | 2.6 | 1.9 |
| Count        | 26  | 25  | 27  | 23  | 25  | 24  | 22  | 21  | 17  | 15  | 17  | 17  | 14  | 15  | 12  | 13  | 20  | 20  | 21  | 23  | 25  | 25  | 23  | 24  |

fEs

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual

Automatic

The Radio Research Laboratories  
Koganei-machi, Kitakama-gun, Tokyo, Japan

Lat. 45° 23.8' N  
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

(M3000)F2

Dec. 1952

| Day          | 00                 | 01                  | 02                 | 03                 | 04                  | 05                  | 06                  | 07                 | 08                 | 09                 | 10                 | 11                 | 12                 | 13                 | 14                 | 15                 | 16                 | 17                 | 18                 | 19                 | 20                 | 21               | 22                  | 23                 |   |
|--------------|--------------------|---------------------|--------------------|--------------------|---------------------|---------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|---------------------|--------------------|---|
| 1            | 2.7                | S                   | S                  | S                  | 3.0                 | 3.0                 | 3.1                 | A                  | (3.2) <sup>P</sup> | (3.2) <sup>P</sup> | 3.1                | 3.3                | 3.2                | 3.2                | (3.0) <sup>F</sup> | (3.0) <sup>F</sup> | 3.0                | S                  | C                  | C                  | SA                 | 2.8              | 2.9 <sup>F</sup>    | 3.0                |   |
| 2            | 3.0                | (2.9) <sup>F</sup>  | (3.0) <sup>P</sup> | 2.9                | 2.8 <sup>P</sup>    | 2.8 <sup>P</sup>    | B                   | B                  | B                  | B                  | 3.1 <sup>P</sup>   | 3.2                | (3.3) <sup>P</sup> | (3.3) <sup>P</sup> | (3.3) <sup>P</sup> | B                  | 3.2                | 2.7 <sup>F</sup>   | S                  | 2.8                | 2.7                | 2.8              | 2.8                 | 2.9                |   |
| 3            | 2.9                | 2.4                 | (2.7) <sup>H</sup> | 2.6                | 2.8 <sup>F</sup>    | 3.0                 | (3.0) <sup>S</sup>  | 3.1                | 3.2                | 2.9                | (3.0) <sup>T</sup> | 3.1                | 3.0 <sup>P</sup>   | 3.0 <sup>P</sup>   | B                  | (3.1) <sup>T</sup> | 3.0 <sup>P</sup>   | S                  | A                  | A                  | 2.8                | 2.6              | 2.6                 | 2.6                |   |
| 4            | 2.6                | 2.8                 | 2.6                | (2.8) <sup>F</sup> | 2.9                 | (3.0) <sup>F</sup>  | 3.0                 | (2.9) <sup>F</sup> | 2.8                | 3.0                | 3.1                | (3.1) <sup>F</sup> | B                  | B                  | B                  | B                  | S                  | S                  | S                  | S                  | S                  | S                | S                   | S                  |   |
| 5            | S                  | 2.8 <sup>F</sup>    | 2.8 <sup>PF</sup>  | 2.6 <sup>F</sup>   | A                   | A                   | A                   | A                  | 3.3                | 3.4                | (3.3) <sup>T</sup> | 3.2                | 3.3                | 3.1                | 3.1                | 3.0 <sup>P</sup>   | C                  | C                  | C                  | 3.2                | 2.9                | S                | AS                  | 2.7                |   |
| 6            | (2.9) <sup>A</sup> | 3.1                 | 2.8                | (3.0) <sup>C</sup> | 3.1                 | 2.8                 | C                   | C                  | S                  | 3.3                | 3.4                | 3.4                | 3.2                | C                  | C                  | C                  | C                  | 3.0 <sup>P</sup>   | (3.0) <sup>F</sup> | 3.0                | 3.1                | 2.8              | 2.8                 | (2.8) <sup>A</sup> |   |
| 7            | 2.7                | 2.7                 | 2.8                | C                  | C                   | C                   | C                   | C                  | C                  | C                  | 3.0                | 3.3                | 2.9 <sup>H</sup>   | C                  | C                  | C                  | C                  | C                  | A                  | A                  | A                  | 2.9              | (2.9) <sup>A</sup>  | 2.8                |   |
| 8            | 2.6 <sup>F</sup>   | (2.6) <sup>PF</sup> | 2.5 <sup>P</sup>   | (2.5) <sup>F</sup> | (2.6) <sup>PF</sup> | (2.6) <sup>PF</sup> | (2.7) <sup>PF</sup> | 2.8                | 3.3                | 3.2                | 3.0                | 3.2                | 3.5                | 3.2                | 3.2                | 3.1                | 2.5                | 3.0                | 2.7                | 2.8                | 2.8                | 3.0              | (2.9) <sup>A</sup>  | 2.8                |   |
| 9            | 2.8                | 2.6                 | 2.5                | S                  | S                   | 2.8                 | 3.0                 | 3.3                | 3.4                | 3.2                | 3.3                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                | C                   | C                  |   |
| 10           | C                  | C                   | C                  | C                  | C                   | C                   | C                   | C                  | C                  | C                  | C                  | 3.4                | 3.1                | 3.1                | 3.1                | (3.0) <sup>F</sup> | 3.0                | (3.0) <sup>F</sup> | 2.9 <sup>P</sup>   | (2.8) <sup>S</sup> | 2.8                | 2.8              | 2.7                 | (2.7) <sup>S</sup> |   |
| 11           | 2.7                | 2.7                 | (2.7) <sup>F</sup> | 2.6                | (2.7) <sup>F</sup>  | (3.0) <sup>S</sup>  | 3.2                 | 3.2                | 3.2                | 3.0                | 3.1                | (3.1) <sup>T</sup> | 3.1                | 3.2                | 3.0                | 3.3                | 3.2                | 3.0                | 2.9                | 2.9                | 3.0                | 2.7              | (2.6) <sup>S</sup>  | 2.5                |   |
| 12           | (2.6) <sup>T</sup> | 2.6                 | (2.7) <sup>P</sup> | 2.7                | 2.8                 | 2.7                 | 2.7                 | 3.1                | (3.2) <sup>P</sup> | 3.1                | SB                 | 2.9                | (3.1) <sup>T</sup> | (3.2) <sup>P</sup> | 3.3                | C                  | C                  | C                  | C                  | C                  | C                  | C                | C                   | C                  | C |
| 13           | C                  | 2.8                 | 2.8                | 2.7                | 3.0                 | 2.9                 | 3.1                 | 3.0 <sup>H</sup>   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 3.2                | (3.0) <sup>F</sup> | 2.8                | 2.7 <sup>F</sup>   | S                  | S                  | 2.8 <sup>F</sup> | S                   | S                  |   |
| 14           | 2.6 <sup>P</sup>   | 3.0 <sup>P</sup>    | 2.8                | (2.8) <sup>S</sup> | (2.7) <sup>F</sup>  | S                   | A                   | 2.9                | (3.3) <sup>T</sup> | 3.1                | (3.2) <sup>T</sup> | 3.1                | 2.9                | (3.1) <sup>H</sup> | 3.0                | (3.2) <sup>T</sup> | 3.0                | (3.2) <sup>T</sup> | 3.1                | (3.1) <sup>T</sup> | 2.9                | 2.6 <sup>F</sup> | (2.5) <sup>F</sup>  | (2.6) <sup>F</sup> |   |
| 15           | 2.8 <sup>PF</sup>  | 2.7 <sup>F</sup>    | 2.6                | 2.8 <sup>F</sup>   | 2.6                 | 3.0                 | 2.8 <sup>F</sup>    | 3.0                | 3.1 <sup>P</sup>   | 3.1                | 3.0                | 3.4                | 3.3                | 3.1                | 3.3                | 3.2                | 3.2                | 2.8                | 2.9                | 2.7                | 2.6                | 3.0              | 2.6                 | 2.7                |   |
| 16           | C                  | C                   | 2.6                | 2.6                | 2.5 <sup>P</sup>    | C                   | C                   | C                  | C                  | C                  | 3.1                | (3.1) <sup>P</sup> | (3.1) <sup>T</sup> | (3.1) <sup>T</sup> | 3.0                | 3.3                | C                  | C                  | C                  | 3.0                | (2.8) <sup>A</sup> | 2.6              | (2.5) <sup>F</sup>  | (2.5) <sup>F</sup> |   |
| 17           | (2.5) <sup>F</sup> | (2.6) <sup>F</sup>  | 2.6                | FS                 | FS                  | ES                  | 3.0                 | (3.0) <sup>T</sup> | 3.1                | B                  | (2.2) <sup>T</sup> | B                  | B                  | B                  | 3.0                | 3.2                | S                  | S                  | A                  | A                  | A                  | A                | A                   | S                  |   |
| 18           | 2.7                | 2.7                 | 2.6                | C                  | C                   | C                   | C                   | C                  | 3.2                | 3.2                | (2.9) <sup>P</sup> | 3.2                | 3.2                | (3.0) <sup>P</sup> | 3.2 <sup>F</sup>   | 3.2                | 3.3 <sup>F</sup>   | (2.8) <sup>T</sup> | 3.0                | 2.8                | 2.7                | 2.7              | (2.7) <sup>A</sup>  | 2.7                |   |
| 19           | 2.7                | 2.6                 | 2.8 <sup>P</sup>   | 2.5                | 2.6                 | 3.0                 | 2.7                 | (3.2) <sup>S</sup> | (3.3) <sup>P</sup> | 3.0                | 3.1                | 2.9                | C                  | C                  | C                  | C                  | 3.4                | 2.7                | 2.6                | 2.7                | 2.9                | 2.8              | 2.7 <sup>F</sup>    | (2.6) <sup>S</sup> |   |
| 20           | 2.6 <sup>P</sup>   | 2.5                 | 2.5                | 2.6                | 2.7                 | 2.7                 | (2.9) <sup>T</sup>  | S                  | B                  | B                  | B                  | B                  | B                  | C                  | C                  | C                  | C                  | B                  | A                  | A                  | 3.2                | 2.9              | 2.6 <sup>F</sup>    | 2.4 <sup>PF</sup>  |   |
| 21           | 2.7 <sup>F</sup>   | 2.6 <sup>PF</sup>   | 2.7 <sup>F</sup>   | 2.8 <sup>F</sup>   | (2.5) <sup>F</sup>  | (2.4) <sup>PF</sup> | 3.0 <sup>F</sup>    | 3.0 <sup>F</sup>   | (3.1) <sup>P</sup> | 3.2                | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 3.0                | (2.7) <sup>A</sup> | 2.6              | (2.5) <sup>F</sup>  | (2.5) <sup>F</sup> |   |
| 22           | SA                 | C                   | C                  | C                  | C                   | C                   | C                   | C                  | C                  | C                  | 2.8                | (3.0) <sup>P</sup> | 3.1                | 3.0 <sup>P</sup>   | 3.1                | 3.5                | (3.2) <sup>B</sup> | 3.0 <sup>V</sup>   | 3.0                | 2.8                | (2.7) <sup>A</sup> | 2.6              | 2.8                 | 2.4                |   |
| 23           | 3.0                | 2.8 <sup>P</sup>    | (2.8) <sup>P</sup> | 2.8                | 2.6                 | 3.0                 | S                   | S                  | A                  | B                  | B                  | B                  | B                  | B                  | 3.4                | B                  | (3.2) <sup>B</sup> | 2.9 <sup>F</sup>   | 3.3 <sup>P</sup>   | 2.9                | 2.7                | A                | S                   | 3.2                |   |
| 24           | S                  | S                   | SF                 | SF                 | SF                  | 2.9                 | 3.0                 | (3.1) <sup>P</sup> | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | S                  | 2.9                | A                  | S                  | 2.8 <sup>PF</sup>  | S                | SF                  | SF                 |   |
| 25           | SF                 | SF                  | 2.7 <sup>F</sup>   | 2.5 <sup>F</sup>   | AF                  | A                   | 2.8                 | 2.9                | (3.1) <sup>F</sup> | 3.3                | S                  | C                  | C                  | C                  | C                  | 3.3 <sup>P</sup>   | 3.2 <sup>T</sup>   | SA                 | C                  | C                  | 2.6                | C                | C                   | 2.7 <sup>F</sup>   |   |
| 26           | 2.7 <sup>F</sup>   | 2.6                 | 2.7                | 2.7                | 2.8 <sup>F</sup>    | 2.9 <sup>PF</sup>   | 2.6                 | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 2.8 <sup>P</sup>   | S                | S                   | S                  |   |
| 27           | 2.7                | (2.8) <sup>S</sup>  | 2.8                | 2.7                | (2.8) <sup>F</sup>  | (2.8) <sup>F</sup>  | 2.8                 | (3.0) <sup>S</sup> | 3.2                | 3.1                | B                  | (3.3) <sup>P</sup> | (3.4) <sup>P</sup> | 3.2                | 3.3                | 3.3                | (3.0) <sup>S</sup> | C                  | C                  | 2.9 <sup>PF</sup>  | 3.0 <sup>F</sup>   | 2.9              | 2.7                 | 2.7                |   |
| 28           | 2.8                | (2.8) <sup>A</sup>  | 2.7 <sup>P</sup>   | 2.7 <sup>PF</sup>  | (2.8) <sup>F</sup>  | (2.8) <sup>F</sup>  | 2.9 <sup>P</sup>    | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                | C                   | C                  |   |
| 29           | C                  | C                   | C                  | C                  | C                   | C                   | C                   | C                  | C                  | 3.1 <sup>H</sup>   | 3.1                | (3.1) <sup>T</sup> | 3.1                | 3.0 <sup>P</sup>   | 3.1                | S                  | S                  | S                  | S                  | S                  | S                  | S                | C                   | C                  |   |
| 30           | C                  | C                   | C                  | C                  | C                   | C                   | C                   | 3.4                | (3.3) <sup>T</sup> | 3.0                | C                  | C                  | C                  | C                  | C                  | 3.3                | 3.1                | S                  | S                  | S                  | S                  | S                | (2.7) <sup>PF</sup> | A                  |   |
| 31           | SF                 | (2.6) <sup>F</sup>  | SF                 | SA                 | S                   | S                   | S                   | S                  | B                  | B                  | 3.3                | 3.4                | 3.3                | 3.2                | (3.2) <sup>F</sup> | (3.3) <sup>T</sup> | S                  | A                  | S                  | S                  | S                  | S                | S                   | S                  |   |
| Mean Value   | 2.7                | 2.7                 | 2.7                | 2.7                | 2.8                 | 2.9                 | 2.9                 | 3.1                | 3.2                | 3.1                | 3.1                | 3.2                | 3.2                | 3.1                | 3.1                | 3.2                | 3.2                | 2.9                | 2.9                | 2.9                | 2.8                | 2.7              | 2.7                 | 2.7                |   |
| Median Value | 2.7                | 2.7                 | 2.7                | 2.7                | 2.8                 | 2.9                 | 2.9                 | 3.0                | 3.2                | 3.1                | 3.1                | 3.2                | 3.2                | 3.1                | 3.1                | 3.2                | 3.2                | 2.9                | 3.0                | 2.9                | 2.8                | 2.8              | 2.7                 | 2.7                |   |
| Count        | 21                 | 22                  | 24                 | 20                 | 19                  | 20                  | 17                  | 16                 | 17                 | 19                 | 20                 | 20                 | 19                 | 16                 | 18                 | 19                 | 15                 | 13                 | 13                 | 16                 | 20                 | 18               | 17                  | 20                 |   |

Sweep 1.0... Mc to 15.5... Mc in 2... min  Manual  Automatic

The Radio Research Laboratories  
Joganeimachi, Kitatama-gun, Tokyo, Japan

Lat. 4° 28. 6' N  
Long. 141° 41.1' E

# Wakkanai

## IONOSPHERIC DATA

135° E Mean Time

fminF

Dec. 1952

| Day          | 00    | 01    | 02  | 03    | 04  | 05    | 06    | 07    | 08    | 09  | 10  | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19  | 20    | 21  | 22     | 23    |
|--------------|-------|-------|-----|-------|-----|-------|-------|-------|-------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|-----|--------|-------|
| 1            | 21A   | A     | A   | A     | 15  | 19    | 20A   | A     | 37A   | 36  | 32  | 45    | 45    | 50    | 45    | 30A   | 22A   | 24A   | C     | C   | A     | 26A | 18F    | 20    |
| 2            | 14    | 20    | 14  | 20    | E   | E     | 14    | B     | B     | 34  | 27  | 35    | 45    | 25    | 38    | 20    | 14    | 14    | 14    | 15  | 14    | 18A | 14     | 20A   |
| 3            | 22A   | E     | E   | E     | 18  | 12    | [14]A | 15    | 23    | 26  | 40A | 35    | 36    | 30    | 35    | 50    | 24    | 14    | A     | A   | 14    | 18A | 20A    | 20A   |
| 4            | 26A   | 24A   | 24A | [18]C | 11  | [12]C | 14    | [14]C | 14    | 40  | 30  | [34]C | 38    | [39]B | 40    | 20    | 20    | 27    | 20A   | 18  | A     | 22  | 20     | 15    |
| 5            | 14    | E     | E   | E     | A   | A     | A     | A     | 24    | 50  | 50  | 50    | 45    | 50    | 36    | 36    | C     | C     | C     | 13  | 22A   | 20  | A      | 18A   |
| 6            | [19]A | 20A   | 19  | [16]C | 14  | E     | C     | C     | S     | 30  | 26  | 29    | 26    | C     | C     | C     | C     | 14    | [14]C | 14  | 15    | 14  | 14     | 13    |
| 7            | 11    | 13    | E   | E     | C   | C     | C     | C     | C     | C   | 36  | 36    | 34    | C     | C     | C     | C     | C     | 14    | A   | A     | 36A | 14     | [14]A |
| 8            | 15    | 16    | E   | E     | E   | E     | S     | 14    | 21    | 25  | 26  | 27    | 36    | 25    | 30    | 21    | 20A   | 19    | 12    | 15  | 12    | 20A | [17]SA | 14    |
| 9            | 14    | E     | E   | E     | E   | E     | 14    | 14    | 22    | 27  | 40  | 30    | C     | C     | C     | C     | C     | C     | C     | C   | C     | C   | C      | C     |
| 10           | C     | C     | C   | C     | C   | C     | C     | C     | C     | 33  | 30  | 28    | 28    | 28    | 21    | [18]C | 14    | [14]C | 15    | 15  | 13    | 15  | 14     | 14    |
| 11           | 14    | E     | E   | E     | E   | E     | 14    | 17    | 24    | 26  | 27  | 27    | 28    | 26    | 26    | 18    | 14    | 22A   | 14    | 15  | 15    | 14  | 14     | 15    |
| 12           | 14    | 14    | 20A | 20    | E   | E     | 14    | 18    | 21    | 24  | 28  | 28    | 34    | 37    | 28    | C     | C     | C     | C     | C   | C     | C   | C      | C     |
| 13           | C     | E     | E   | E     | E   | E     | 14    | 14    | 23    | C   | C   | C     | C     | C     | C     | 22    | [18]C | 14    | 14    | 14  | 14    | 12  | 14     | 14    |
| 14           | E     | E     | E   | E     | E   | E     | A     | 33A   | 24    | 28  | 30  | 50A   | 28    | 30    | 32    | 20    | 14    | 15    | 14    | 14  | 14F   | 14F | 15F    | 15F   |
| 15           | E     | E     | E   | E     | E   | E     | 15    | 14    | 23    | 27  | 28  | 28    | 33    | 30    | 27    | 23    | 20A   | 14    | 14    | 13  | E     | 14  | 13     | 14    |
| 16           | C     | E     | E   | E     | E   | E     | C     | C     | C     | C   | 50A | 47A   | [36]C | 26    | 24    | 24    | C     | C     | C     | 20A | [18]A | 15  | 15F    | 15F   |
| 17           | E     | E     | E   | E     | E   | E     | 15    | 38A   | 20    | 38  | 50  | [50]B | 50    | 50    | 49    | 20    | A     | A     | A     | A   | A     | A   | A      | S     |
| 18           | 21A   | E     | 20A | C     | C   | C     | C     | S     | 21    | 34  | 48  | 46    | 33    | 31    | 27    | 21    | 32A   | 15    | 14    | 14  | 14    | 15  | [16]SA | 17    |
| 19           | 14    | 20A   | 13  | 14    | E   | E     | 14    | 14    | 26    | 30  | 30  | 34    | C     | C     | C     | C     | 14    | 14    | 14    | 14F | 14    | 14  | 14     | C     |
| 20           | E     | E     | E   | E     | E   | E     | 14    | 14    | 26    | B   | B   | B     | B     | B     | 50    | 34    | 18    | A     | A     | 20A | 14    | 14  | 12F    | 14F   |
| 21           | 14    | E     | E   | E     | E   | E     | 14    | 18    | 27    | 46  | C   | C     | C     | C     | C     | C     | C     | C     | C     | 20  | 22A   | 19  | 19     | 24A   |
| 22           | SA    | C     | C   | C     | C   | C     | C     | C     | C     | C   | 50  | 50    | 50    | 47    | 38    | 20    | 15    | 15    | 15    | 15  | [14]C | 14  | [4]C   | 14    |
| 23           | 14    | 12    | E   | E     | E   | E     | 14    | SA    | A     | B   | B   | B     | B     | B     | 24    | 18    | [16]C | 14    | 16    | 12  | 14    | A   | S      | 14    |
| 24           | 14    | 12    | 12  | 14    | E   | 18    | 19A   | 16    | C     | C   | C   | C     | C     | C     | C     | C     | 14    | 14    | A     | A   | 20A   | 18  | 14     | 14    |
| 25           | E     | E     | E   | E     | 14  | [14]A | 14    | 14    | [18]C | 22  | 40  | C     | C     | C     | C     | C     | 14    | SA    | C     | C   | 18    | C   | C      | 14    |
| 26           | 13    | 21A   | 12  | E     | 11F | 12F   | 14    | 14    | A     | C   | C   | C     | C     | C     | C     | C     | C     | C     | C     | C   | E     | S   | S      | S     |
| 27           | 14    | 14    | 19  | 12    | E   | E     | 16    | 24A   | 19    | 23  | 30  | 26    | 26    | 25    | 22    | 20    | 15    | C     | C     | 14F | 14    | 14  | 14     | 14    |
| 28           | 14    | [14]A | 13  | 12F   | E   | E     | C     | C     | C     | C   | C   | C     | C     | C     | C     | C     | C     | C     | C     | C   | C     | C   | C      | C     |
| 29           | C     | C     | C   | C     | C   | C     | C     | C     | C     | 13  | 30  | [40]C | 50    | 28    | 40    | 20    | [17]A | 14    | 15    | S   | S     | C   | C      | S     |
| 30           | C     | C     | C   | C     | C   | C     | 14    | 26A   | 24    | 22  | C   | C     | C     | C     | C     | C     | 19    | 30A   | A     | A   | SA    | 15  | A      | SA    |
| 31           | 14    | 11F   | 11F | 15    | 13  | 15    | SA    | SA    | B     | 21  | 27  | 25    | 37    | 45    | [34]S | 24    | A     | A     | SA    | SA  | S     | S   | SA     | SA    |
| Mean Value   | 1.6   | 1.6   | 1.6 | 1.6   | 1.4 | 1.5   | 1.5   | 1.8   | 2.3   | 3.0 | 3.5 | 3.6   | 3.7   | 3.5   | 3.3   | 2.4   | 1.8   | 1.6   | 1.5   | 1.5 | 1.5   | 1.8 | 1.5    | 1.6   |
| Median Value | 1.4   | 1.2   | E   | E     | E   | E     | 1.4   | 1.4   | 2.3   | 2.8 | 3.0 | 3.4   | 3.6   | 3.0   | 3.3   | 2.0   | 1.6   | 1.4   | 1.4   | 1.4 | 1.4   | 1.5 | 1.4    | 1.4   |
| Count        | 25    | 24    | 24  | 24    | 24  | 24    | 19    | 18    | 19    | 22  | 23  | 22    | 20    | 18    | 20    | 22    | 20    | 17    | 16    | 18  | 21    | 22  | 20     | 22    |

W 10

Automatic

Manual

Sheep 1.0 Mc to 15.5 Mc in 2 min

fminF

The Radio Research Laboratories  
Koganei-machi, Kitakama-gun, Tokyo, Japan

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

fminE

Dec. 1952

135° E Mean Time

| Day          | 00  | 01  | 02 | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |
|--------------|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1            | 1.5 | 1.5 | E  | 1.3 | E   | E   | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | B   | B   | 2.0 | 1.4 | 1.4 | 1.4 | C   | C   | 1.4 | 1.4 | E   | E   | E   |
| 2            | E   | E   | E  | E   | E   | E   | E   | B   | 1.4 | 1.5 | 1.5 | 1.4 | 1.4 | B   | 1.2 | E   | E   | 1.2 | E   | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 |
| 3            | E   | E   | E  | E   | E   | E   | 1.4 | 1.4 | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 |
| 4            | E   | E   | E  | C   | E   | C   | 1.4 | 1.4 | 1.4 | C   | B   | C   | B   | B   | B   | B   | E   | S   | 1.5 | S   | S   | E   | 1.5 | E   |
| 5            | E   | E   | E  | E   | E   | E   | 1.4 | 1.4 | B   | B   | B   | B   | B   | B   | B   | C   | C   | C   | C   | 1.4 | 1.4 | 1.3 | 1.4 | 1.3 |
| 6            | E   | E   | E  | C   | E   | C   | C   | C   | S   | 1.4 | 1.3 | 1.3 | 1.2 | C   | C   | C   | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | E   | 1.1 |
| 7            | E   | E   | E  | C   | C   | C   | C   | C   | C   | E   | B   | B   | B   | C   | C   | C   | C   | C   | 1.4 | 1.4 | E   | 1.4 | 1.4 | 1.4 |
| 8            | E   | E   | E  | E   | E   | E   | S   | 1.6 | 1.4 | 1.4 | 1.5 | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 |
| 9            | E   | E   | E  | E   | E   | E   | E   | E   | 1.3 | B   | B   | 1.4 | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   |
| 10           | C   | C   | C  | C   | C   | C   | C   | C   | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 11           | E   | E   | E  | E   | E   | E   | E   | E   | 1.4 | E   | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 12           | E   | 1.4 | E  | E   | E   | E   | E   | 1.4 | 1.2 | C   | C   | 1.3 | C   | 1.3 | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   |
| 13           | C   | C   | E  | E   | 1.4 | E   | 1.4 | 1.4 | 1.4 | 1.5 | 1.3 | 1.4 | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 14           | E   | E   | E  | E   | E   | E   | E   | 1.4 | 1.4 | 1.4 | 1.3 | 1.4 | 2.2 | 2.0 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 15           | E   | E   | E  | E   | E   | E   | E   | 1.4 | 1.6 | 1.4 | 1.3 | 1.4 | 2.2 | 2.0 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 16           | C   | C   | E  | E   | E   | E   | C   | C   | C   | C   | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | 1.5 | C   | C   | C   | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 |
| 17           | E   | E   | E  | E   | E   | E   | 1.4 | 1.4 | 1.4 | B   | B   | B   | B   | B   | B   | B   | 1.4 | E   | 1.4 | 1.2 | 1.4 | 1.2 | 1.2 | 1.2 |
| 18           | 1.2 | E   | E  | C   | C   | C   | C   | S   | B   | B   | B   | 1.3 | 1.3 | 1.4 | 1.3 | 1.2 | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.1 | 1.4 | 1.4 |
| 19           | E   | E   | E  | E   | E   | E   | E   | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | C   | C   | C   | C   | E   | E   | E   | E   | E   | E   | E   | C   |
| 20           | E   | E   | E  | E   | E   | E   | E   | E   | 1.4 | B   | B   | B   | B   | 1.4 | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 21           | E   | E   | E  | E   | E   | E   | E   | E   | 1.1 | B   | C   | C   | C   | C   | C   | C   | C   | C   | E   | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 |
| 22           | E   | C   | C  | C   | C   | C   | C   | C   | C   | C   | B   | B   | B   | B   | B   | B   | E   | E   | E   | E   | E   | 1.9 | 1.6 | 1.4 |
| 23           | 1.8 | E   | E  | E   | E   | E   | E   | 1.2 | 1.3 | 1.4 | 1.4 | 1.3 | 1.4 | 1.6 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 | 1.4 |
| 24           | E   | E   | E  | E   | E   | E   | 1.8 | 1.8 | C   | C   | C   | C   | C   | C   | C   | C   | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 | 1.4 |
| 25           | E   | E   | E  | E   | E   | E   | 1.4 | 1.3 | C   | B   | S   | C   | C   | C   | C   | B   | E   | 1.4 | C   | C   | 1.6 | C   | C   | 1.4 |
| 26           | E   | E   | E  | E   | E   | E   | E   | 1.9 | 1.3 | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | E   | S   | S   | S   |
| 27           | E   | E   | E  | E   | E   | E   | 1.4 | 1.4 | 1.4 | 1.2 | 1.3 | 1.2 | 1.2 | 1.4 | 1.4 | 1.4 | E   | C   | C   | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 |
| 28           | 1.8 | 1.4 | E  | E   | E   | E   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   | C   |
| 29           | C   | C   | C  | C   | C   | C   | C   | C   | E   | 1.4 | 1.4 | 1.2 | 1.2 | E   | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 30           | C   | C   | C  | C   | C   | C   | C   | E   | 1.4 | 1.3 | B   | C   | C   | C   | C   | B   | 1.4 | 1.4 | 1.3 | 1.3 | 1.4 | E   | 1.4 | 1.5 |
| 31           | E   | E   | E  | E   | E   | 1.3 | 1.4 | 1.3 | B   | 1.3 | 1.4 | E   | 1.4 | E   | C   | E   | 1.4 | 1.4 | 1.4 | 1.4 | 1.8 | 2.0 | 1.5 | 1.4 |
| Mean Value   | 1.6 | 1.4 | —  | 1.3 | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| Median Value | E   | E   | E  | E   | E   | E   | E   | E   | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| Count        | 26  | 25  | 27 | 23  | 25  | 24  | 22  | 22  | 17  | 15  | 17  | 15  | 15  | 14  | 15  | 14  | 15  | 20  | 22  | 23  | 25  | 25  | 24  | 25  |

Sweep 1.0... Mc to 15.5... Mc in 2... min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 43.5' N  
Long. 140° 08.5' E

**A k i t a**

**IONOSPHERIC DATA**

Dec. 1952

foF2

135° E Mean Time

| Day          | 00                 | 01                 | 02                 | 03               | 04                 | 05               | 06                 | 07               | 08                 | 09                 | 10               | 11               | 12                 | 13                 | 14                 | 15                 | 16                 | 17               | 18               | 19               | 20               | 21                 | 22               | 23                 |                  |
|--------------|--------------------|--------------------|--------------------|------------------|--------------------|------------------|--------------------|------------------|--------------------|--------------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|------------------|------------------|------------------|--------------------|------------------|--------------------|------------------|
| 1            | 3.1 <sup>F</sup>   | 3.2 <sup>F</sup>   | 3.1 <sup>F</sup>   | 3.2 <sup>F</sup> | 3.0 <sup>F</sup>   | 2.9 <sup>F</sup> | 2.8                | 3.5              | 6.5                | 5.9                | 7.0              | 6.8              | 6.6                | 6.7                | 5.6                | 4.9                | 5.2                | 3.7              | 3.6              | 2.8              | 2.5              | 2.7                | 3.0 <sup>F</sup> | 2.9 <sup>F</sup>   |                  |
| 2            | 3.3                | 2.5                | 3.0                | 3.5              | 2.9 <sup>F</sup>   | 2.9 <sup>F</sup> | 2.7 <sup>F</sup>   | 4.6              | 6.5                | 6.9                | 8.8              | 8.1              | 7.0                | 6.5                | 5.9                | 5.5                | 5.5                | 2.9              | 3.2              | 3.9              | 3.7              | 3.6                | 4.2 <sup>F</sup> | 3.9                |                  |
| 3            | 3.5                | 2.5 <sup>F</sup>   | 2.9 <sup>F</sup>   | 2.6 <sup>F</sup> | 2.8                | 3.2 <sup>F</sup> | 4.0 <sup>A</sup>   | 4.7              | 6.1                | 7.2                | 10.6             | 8.6              | 8.6                | 7.4                | 6.8                | 6.2                | (5.4) <sup>F</sup> | 4.7              | A                | A                | 3.3              | 3.3                | A                | T                  |                  |
| 4            | T                  | T                  | T                  | 2.7 <sup>F</sup> | 2.8                | T                | T                  | T                | 6.1                | 6.3                | 7.0              | 8.4              | 6.7                | 7.6 <sup>H</sup>   | 6.8                | 6.1                | 4.8                | 3.9              | 3.8              | 4.3              | 3.8              | A                  | A                | 3.3 <sup>F</sup>   |                  |
| 5            | 3.6                | (3.0) <sup>A</sup> | 2.4                | 2.7              | 2.5                | 2.7              | (4.0) <sup>F</sup> | 5.2              | 5.6                | 6.3                | 7.3              | 9.2              | 7.8                | 6.8                | 6.5                | 6.3                | 6.5                | 4.4              | 2.6              | 2.6              | 3.4              | 2.8 <sup>F</sup>   | A                | A                  |                  |
| 6            | A                  | 3.0                | 2.4                | 2.3              | 2.4                | 2.5              | 2.6                | 5.6              | 7.0                | 6.8                | 6.6              | 7.5              | 6.5                | 6.5                | 6.7                | 6.0                | 5.8                | 3.4              | 3.4              | 2.7              | 2.4              | 2.3                | 2.2              | 2.5                |                  |
| 7            | 2.7                | 2.8                | 2.6                | 2.7              | 2.7                | 2.6              | 2.4                | 4.0              | 6.5                | 6.2                | 7.2              | 7.8              | (8.5) <sup>H</sup> | 6.0                | 5.3                | 8.1                | 4.6                | 3.1 <sup>H</sup> | 2.8              | 3.4              | 3.9              | 3.2                | 2.8 <sup>F</sup> | 3.1 <sup>F</sup>   |                  |
| 8            | 3.1 <sup>F</sup>   | 3.2 <sup>F</sup>   | 3.3 <sup>F</sup>   | 3.1 <sup>F</sup> | 2.9 <sup>F</sup>   | 2.7              | 2.9 <sup>V</sup>   | 4.4              | 5.4                | 7.0 <sup>V</sup>   | 7.5              | 7.3              | 7.6                | 5.8                | 5.8                | 5.7                | 5.4                | 3.7              | 2.8              | 2.6              | 3.0              | 3.0                | 2.5              | 2.6                |                  |
| 9            | 2.7                | 2.7                | 2.8                | 2.8              | 2.9                | 2.7              | 2.7                | 4.9              | C                  | C                  | C                | 7.2              | 7.1                | (5.9) <sup>P</sup> | C                  | C                  | C                  | 3.4              | 3.3              | 3.5 <sup>J</sup> | 3.3 <sup>J</sup> | 3.7                | 2.7              | 2.7                |                  |
| 10           | 2.8                | 2.8                | 2.9                | 2.7              | 2.8                | 2.7              | 2.7                | 4.7              | 5.9                | (6.6) <sup>F</sup> | 7.3              | 7.4              | 6.8                | 6.2                | 5.4                | 6.4                | 5.0                | 3.6              | 2.7              | 3.4              | 2.7              | 2.9                | 2.8              | 3.2 <sup>P</sup>   |                  |
| 11           | 2.9                | 2.9                | 3.2                | 3.2              | 3.0                | 2.8              | 3.0                | 4.1              | 5.3                | 6.6                | 8.2              | 9.0 <sup>P</sup> | 6.7                | 6.2                | 6.1 <sup>J</sup>   | (8.0) <sup>P</sup> | 5.2                | 3.2              | 3.8              | 3.1              | 3.5              | 3.2                | 3.3              | 3.6                |                  |
| 12           | 3.7                | 3.7                | 3.7                | 4.2              | 3.0                | 3.5              | 4.0                | 6.0              | (6.4) <sup>F</sup> | 6.7                | 8.8 <sup>Z</sup> | 7.4              | 8.2                | 8.4 <sup>P</sup>   | 6.9                | 6.5                | 4.7                | 3.7              | 3.8              | 2.8              | 3.2              | 3.2                | 2.9              | 3.3                |                  |
| 13           | 3.4                | 3.4 <sup>F</sup>   | 3.3 <sup>F</sup>   | 3.3 <sup>F</sup> | 3.4 <sup>F</sup>   | 3.3              | 3.1                | 4.9              | 7.0                | 7.7                | 9.9              | 10.0             | 7.5                | 6.4                | 6.3                | 5.6                | 5.6                | 3.9              | 4.3              | 3.7              | 3.9              | 4.1                | 4.6              | 7.2 <sup>H</sup>   |                  |
| 14           | (6.0) <sup>P</sup> | 7.0 <sup>F</sup>   | (4.8) <sup>F</sup> | 2.6              | 2.5 <sup>F</sup>   | 2.8 <sup>F</sup> | 2.9                | 5.0              | 7.9                | 7.5                | 8.6              | 8.7              | 6.7                | 7.1                | 6.8                | 6.0                | 6.0                | 3.3 <sup>H</sup> | 3.2              | 3.2              | 3.2              | 3.5                | 3.0 <sup>F</sup> | 3.1 <sup>F</sup>   | 3.0 <sup>F</sup> |
| 15           | 3.2 <sup>F</sup>   | 2.8 <sup>F</sup>   | 2.8 <sup>F</sup>   | 3.1 <sup>F</sup> | 2.8 <sup>F</sup>   | 2.5 <sup>F</sup> | 2.4                | 4.4              | 5.8                | C                  | C                | 9.2              | 7.1                | 6.4                | 6.2                | 6.1                | 6.2                | 4.4              | 2.8              | 2.5              | 2.6              | 3.2                | 2.2              | 2.6                |                  |
| 16           | 2.9                | 3.0                | 3.1                | 3.1 <sup>F</sup> | 3.1 <sup>F</sup>   | 3.0              | 3.7                | 4.4              | 5.8                | 6.3                | 8.7              | 10.3             | 7.2                | 6.8                | 6.2                | C                  | C                  | C                | C                | C                | 2.4              | (2.6) <sup>F</sup> | 2.7 <sup>F</sup> | 3.0 <sup>F</sup>   |                  |
| 17           | 3.3 <sup>F</sup>   | 3.3 <sup>F</sup>   | 3.2 <sup>F</sup>   | 2.7              | 2.8                | 2.6              | 2.4                | 4.3              | 6.0                | C                  | C                | C                | C                  | C                  | 7.0                | 6.9                | 5.0                | 3.8              | 3.0              | 2.9              | 2.7 <sup>F</sup> | 2.3                | 2.8              | 3.7 <sup>F</sup>   |                  |
| 18           | 3.4 <sup>F</sup>   | 3.5 <sup>F</sup>   | 3.4 <sup>F</sup>   | 3.3 <sup>F</sup> | 3.2                | 3.1              | 3.5                | 3.8              | 5.6                | 5.3                | 6.4              | 6.7              | 6.8                | 6.0                | 6.6                | 6.5                | 5.2                | 3.8              | 3.5              | 2.6              | 2.8              | 2.8 <sup>V</sup>   | 3.0 <sup>F</sup> | 3.0                |                  |
| 19           | 2.6 <sup>F</sup>   | 2.7                | 3.2 <sup>F</sup>   | 2.8 <sup>F</sup> | 3.3 <sup>V</sup>   | 2.6              | 2.6                | 4.4              | 5.7                | 5.7                | 6.4              | 8.6              | 6.4 <sup>H</sup>   | 5.1                | 6.7                | 5.4                | 5.0                | 3.1              | 3.4              | 3.1              | 3.2              | 3.2 <sup>V</sup>   | 2.8              | 3.0 <sup>V</sup>   |                  |
| 20           | 3.2 <sup>V</sup>   | 3.2                | 3.2                | 3.1 <sup>F</sup> | 2.9 <sup>F</sup>   | 2.7 <sup>F</sup> | 2.8 <sup>F</sup>   | 4.7              | 5.1                | 5.3                | 5.9              | 6.6              | 6.4                | 7.0                | 6.2                | 5.3                | 4.2                | 3.3              | 2.9              | 2.6 <sup>V</sup> | 2.6              | 2.1                | F                | F                  |                  |
| 21           | (3.2) <sup>F</sup> | F                  | F                  | 3.7              | 5.4 <sup>F</sup>   | 4.0 <sup>F</sup> | 3.3                | 4.1              | 4.9                | 5.4                | 6.0              | 6.5              | 6.7                | 6.0                | (5.9) <sup>F</sup> | 5.4                | 4.4                | 3.5              | 3.5 <sup>P</sup> | 2.9              | 3.0              | 2.3                | 2.5              | 2.8 <sup>F</sup>   |                  |
| 22           | 2.8 <sup>F</sup>   | 3.2                | 3.0                | 2.8              | 2.8 <sup>F</sup>   | 3.0              | 3.6                | C                | C                  | C                  | 6.0              | 7.3              | 6.8                | 6.6                | 5.7                | 5.7                | 4.2                | 2.7              | 3.1              | 3.1              | 2.3              | 2.5 <sup>F</sup>   | 2.8 <sup>F</sup> | 3.1 <sup>F</sup>   |                  |
| 23           | 3.1                | 3.3                | 3.0                | 2.8              | 2.8 <sup>F</sup>   | 3.0              | 3.6                | C                | C                  | 5.9                | 6.8              | 6.0              | 5.6                | 5.6 <sup>H</sup>   | 6.0                | 5.6                | 5.3                | 4.1              | 2.7              | 2.8              | 3.5 <sup>F</sup> | (3.6) <sup>F</sup> | 3.9 <sup>F</sup> | 3.2 <sup>F</sup>   |                  |
| 24           | 3.0 <sup>F</sup>   | 3.3 <sup>F</sup>   | 3.5 <sup>F</sup>   | 3.4 <sup>F</sup> | 3.1 <sup>F</sup>   | 3.3 <sup>F</sup> | C                  | C                | C                  | 8.1                | 9.7              | 7.3              | 7.0                | 7.1                | 6.3                | 6.0                | 5.1                | 3.8              | A                | A                | 2.7              | 2.6                | 3.2 <sup>F</sup> | 3.2 <sup>F</sup>   |                  |
| 25           | 3.1 <sup>F</sup>   | 3.1 <sup>F</sup>   | F                  | F                | F                  | 3.9              | 2.5 <sup>F</sup>   | 4.3              | 7.3                | 8.1                | 7.7              | 7.3              | 7.0                | 7.1                | 6.3                | 6.0                | 5.1                | 3.8              | A                | A                | 2.7              | 2.6                | 3.2 <sup>F</sup> | 3.2 <sup>F</sup>   |                  |
| 26           | (3.1) <sup>A</sup> | 3.2 <sup>F</sup>   | 3.0 <sup>F</sup>   | 2.8 <sup>F</sup> | 3.0                | 2.8 <sup>F</sup> | 2.8 <sup>F</sup>   | 4.7              | 5.5                | 8.1                | 8.7              | 7.0              | 5.4                | 5.6                | 5.4                | 5.6                | 5.3                | 3.9              | #1               | 4.1              | 4.0 <sup>F</sup> | 2.2 <sup>F</sup>   | 2.8 <sup>F</sup> | 2.8 <sup>F</sup>   |                  |
| 27           | (3.1) <sup>A</sup> | 3.4 <sup>F</sup>   | 3.5 <sup>F</sup>   | 2.6              | 3.1 <sup>F</sup>   | 3.1 <sup>F</sup> | 3.3 <sup>F</sup>   | 3.8              | 5.6                | 8.0                | 6.9              | 7.6              | 6.2                | 6.0                | 5.8 <sup>P</sup>   | 5.4                | 4.9                | 3.7              | 3.4              | 3.5 <sup>F</sup> | 3.7 <sup>F</sup> | (3.2) <sup>A</sup> | 2.6 <sup>F</sup> | 2.9 <sup>F</sup>   |                  |
| 28           | A                  | F                  | 2.9 <sup>F</sup>   | 2.8 <sup>F</sup> | 2.7                | 2.7 <sup>F</sup> | 2.5 <sup>F</sup>   | 3.7              | 5.8                | 6.6                | 8.2              | 6.6              | 5.8                | 5.3                | 5.3                | 5.9                | 5.6                | 4.3              | 3.6              | 3.4 <sup>F</sup> | 3.6              | 3.4 <sup>F</sup>   | 3.3              | 3.1 <sup>F</sup>   |                  |
| 29           | 3.1 <sup>F</sup>   | 3.2 <sup>F</sup>   | 3.3 <sup>F</sup>   | 3.3 <sup>F</sup> | 3.0 <sup>F</sup>   | 3.2 <sup>F</sup> | 3.6 <sup>F</sup>   | 4.9              | 6.7                | 6.7                | 9.8              | 8.6              | 7.0                | 6.4                | 5.8                | 5.6                | 4.8                | 4.7              | 3.2              | 3.1 <sup>V</sup> | 2.8 <sup>F</sup> | 3.2 <sup>F</sup>   | 3.4 <sup>F</sup> | (3.2) <sup>F</sup> |                  |
| 30           | 2.6 <sup>F</sup>   | (3.0) <sup>F</sup> | 3.1 <sup>F</sup>   | 3.2 <sup>F</sup> | (3.4) <sup>F</sup> | 3.0 <sup>F</sup> | 3.7                | 3.1              | (4.4) <sup>A</sup> | 5.7                | 8.0              | 8.6              | 7.1                | 6.5                | (6.6) <sup>A</sup> | 6.7                | 4.6                | 4.6              | 5.5              | 3.8              | A                | A                  | 3.5              | (3.5) <sup>A</sup> |                  |
| 31           | 3.5 <sup>F</sup>   | 2.5 <sup>F</sup>   | 4.1 <sup>V</sup>   | F                | F                  | 4.6 <sup>F</sup> | (4.0) <sup>F</sup> | 3.5 <sup>F</sup> | 5.3                | 7.2                | 8.8              | 10.7             | 6.3                | 5.4                | 7.0                | 6.0                | 4.7                | 3.4              | 3.1              | 3.5 <sup>F</sup> | 2.7 <sup>F</sup> | (2.8) <sup>A</sup> | 2.8 <sup>F</sup> | 2.8 <sup>F</sup>   |                  |
| Mean Value   | 3.2                | 3.2                | 3.2                | 3.0              | 3.0                | 3.0              | 4.5                | 5.9              | 6.5                | 7.8                | 7.9              | 6.9              | 6.4                | 6.2                | 6.0                | 5.1                | 3.7                | 3.4              |                  |                  | 3.1              | 3.0                | 3.0              | 3.2                |                  |
| Median Value | 3.1                | 3.2                | 3.2                | 3.0              | 2.9                | 2.8              | 2.8                | 4.4              | 5.8                | 6.6                | 7.4              | 7.1              | 6.8                | 6.4                | 6.2                | 6.0                | 5.1                | 3.7              | 3.2              | 3.1              | 3.2              | 3.0                | 2.8              | 3.0                |                  |
| Count        | 28                 | 28                 | 28                 | 29               | 29                 | 30               | 29                 | 28               | 28                 | 28                 | 28               | 30               | 30                 | 30                 | 30                 | 29                 | 29                 | 29               | 30               | 28               | 28               | 30                 | 29               | 27                 | 28               |

foF2

Sweep 0.85 Mc to 2.20 Mc in 6 min

Manual

Automatic

A 1



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 43.5' N  
Long. 140° 08.2' E

**Akita**

**IONOSPHERIC DATA**

135° E Mean Time

1.4PF2

Dec. 1952

| Day          | 00                 | 01                 | 02                 | 03                 | 04                 | 05                 | 06                 | 07               | 08                 | 09                 | 10               | 11               | 12                 | 13                 | 14                 | 15                 | 16                 | 17               | 18                 | 19                 | 20                 | 21                 | 22                 | 23                             |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|--------------------|--------------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------------------|
| 1            | 320 <sup>F</sup>   | 250 <sup>F</sup>   | 340 <sup>F</sup>   | 320 <sup>F</sup>   | 320 <sup>F</sup>   | 330 <sup>F</sup>   | 290                | 230              | 260                | 250                | 260              | 240              | 290                | 250                | 240                | 230                | 250                | 250              | 270                | 250                | 290                | 300                | 350 <sup>F</sup>   | 330 <sup>F</sup>               |
| 2            | 280                | 310                | 330                | 290 <sup>F</sup>   | 350 <sup>F</sup>   | (350) <sup>F</sup> | 250 <sup>F</sup>   | 250 <sup>F</sup> | 260                | 270                | 250              | 240              | 260                | 250                | 250                | 250                | 250                | 230              | 300                | 270                | 280                | 300                | 310 <sup>F</sup>   | 300                            |
| 3            | 240                | 350 <sup>F</sup>   | 350 <sup>F</sup>   | 300 <sup>F</sup>   | 300                | 250 <sup>F</sup>   | [290] <sup>A</sup> | 280              | 250                | 280                | 260              | 270              | 260                | 250                | 270                | 260                | [260] <sup>T</sup> | 250              | A                  | A                  | A                  | 330                | 360                | T                              |
| 4            | T                  | T                  | T                  | 300 <sup>F</sup>   | 250                | T                  | T                  | T                | 230                | 240                | 270              | 260              | 270                | 270 <sup>H</sup>   | 250                | 240                | 250                | 280              | 300                | 300                | 250                | A                  | A                  | 310 <sup>F</sup>               |
| 5            | 280                | [300] <sup>A</sup> | 310                | 330                | 370                | 320                | [280] <sup>A</sup> | 230              | 230                | 230                | 310              | 280              | 270                | 270                | 270                | 240                | 250                | 230              | 250                | 280                | 280                | 300 <sup>F</sup>   | A                  | A                              |
| 6            | A                  | 250                | 350                | 340                | 360                | 280                | 300                | 260              | 250                | 230                | 250              | 260              | 260                | 260                | 300                | 250                | 240                | 270              | 250                | 250                | 300                | 350                | 370                |                                |
| 7            | 350                | 340                | 350 <sup>V</sup>   | 350                | 300                | 270                | 300                | 240              | 230                | 300                | 250              | 250              | (260) <sup>H</sup> | 260                | 240                | 250                | 250                | 300 <sup>H</sup> | 350                | 320                | 270                | 230                | 300 <sup>F</sup>   | (346) <sup>F</sup>             |
| 8            | 300 <sup>F</sup>   | (350)              | (350)              | 350 <sup>F</sup>   | 350 <sup>F</sup>   | 330                | 290 <sup>F</sup>   | 250              | 250                | 270 <sup>V</sup>   | 250              | 250              | 270                | 240                | 250                | 250                | 250                | 290              | 250                | 300                | 320                | 250                | 300                | 370                            |
| 9            | 350                | 360                | 350                | 350                | 330                | 300                | 300                | 260              | C                  | C                  | C                | 250              | 250                | (250) <sup>P</sup> | C                  | C                  | C                  | 310              | 270                | (270) <sup>T</sup> | (330) <sup>T</sup> | 260                | 320                | 340                            |
| 10           | 340                | 330                | 320                | 290                | 280                | 300                | 280                | 270              | 250                | [260] <sup>T</sup> | 260              | 250              | 250                | 240                | 250                | 250                | 230                | 210              | 300                | 260                | 270                | 300                | 370                | 360 <sup>T</sup>               |
| 11           | 330                | 340                | 350                | 350                | 330                | 340                | 270                | 230              | 260                | 280                | 280              | 250 <sup>F</sup> | 280                | 300                | (300) <sup>T</sup> | (260) <sup>P</sup> | 230                | 260              | 280                | 260                | 280                | 340                | 400                | 360                            |
| 12           | 340                | 320                | 330                | 250                | 330                | 320                | 330                | 250              | [240] <sup>C</sup> | 240                | 270 <sup>Z</sup> | 250              | 270                | (270) <sup>P</sup> | 250                | 240                | 240                | 330              | 260                | 260                | 280                | 250                | 370                | 360                            |
| 13           | 360                | (370) <sup>F</sup> | 340 <sup>F</sup>   | 320 <sup>F</sup>   | 320                | 300                | 320                | 280              | 240                | 280                | 270              | 250              | 260                | 240                | 250                | 250                | 270                | 320              | 330                | 380                | 360                | 380                | 310                | (380) <sup>J<sup>H</sup></sup> |
| 14           | (320) <sup>F</sup> | (320)              | [360] <sup>T</sup> | 400                | 390 <sup>F</sup>   | 400 <sup>F</sup>   | 360                | 280              | 280                | 240                | 270              | 250              | 260                | 250                | 260                | 270                | 250                | 320 <sup>H</sup> | 280                | 300                | 260                | 370 <sup>F</sup>   | 390 <sup>F</sup>   | 340 <sup>F</sup>               |
| 15           | (350) <sup>F</sup> | 350 <sup>F</sup>   | 330 <sup>F</sup>   | 340 <sup>F</sup>   | 300 <sup>F</sup>   | 270 <sup>F</sup>   | 300                | 250              | 270                | C                  | C                | 260              | 250                | 240                | 240                | 250                | 230                | 270              | 260                | 300                | 350                | 220                | 320                | 350                            |
| 16           | 330                | 320                | 310                | 350                | 360 <sup>F</sup>   | 350                | 260                | 250              | 240                | 270                | 290              | 250              | 250                | 250                | 240                | C                  | C                  | C                | C                  | C                  | 360                | [420] <sup>C</sup> | 480 <sup>F</sup>   | 410 <sup>F</sup>               |
| 17           | 380 <sup>F</sup>   | 350 <sup>F</sup>   | 330 <sup>F</sup>   | 360                | 330                | 310                | 290                | 270              | 270                | C                  | C                | C                | C                  | C                  | 270                | 270                | 230                | 260              | [320] <sup>A</sup> | 380                | 300 <sup>F</sup>   | 250                | 360                | 270 <sup>F</sup>               |
| 18           | 340 <sup>F</sup>   | 350 <sup>F</sup>   | 370 <sup>F</sup>   | 350 <sup>F</sup>   | 330                | 350                | 250                | 250              | 250                | 260                | 270              | 250              | 250                | 250                | 260                | 260                | 260                | 280              | 270                | 250                | 250                | 270 <sup>V</sup>   | 360 <sup>F</sup>   | 300                            |
| 19           | 300 <sup>F</sup>   | 360                | 380 <sup>F</sup>   | 350 <sup>F</sup>   | 290 <sup>V</sup>   | 350                | 310                | 260              | 240                | 250                | 270              | 270              | 270 <sup>H</sup>   | 240                | 250                | 250                | 220                | 310              | 280                | 290                | 310                | 310                | 300                | 400 <sup>V</sup>               |
| 20           | 380 <sup>V</sup>   | 350                | 360                | 340 <sup>F</sup>   | 340 <sup>F</sup>   | 330 <sup>F</sup>   | 280 <sup>F</sup>   | 250              | 250                | 270                | 260              | 260              | 240                | 270                | 270                | 250                | 230                | 330              | 260                | 300 <sup>V</sup>   | 260                | 300                | F                  | F                              |
| 21           | (300) <sup>F</sup> | F                  | F                  | 300                | (300)              | 250 <sup>F</sup>   | 280                | 250              | 260                | 250                | 260              | 250              | 270                | 260                | (250) <sup>F</sup> | 250                | 240                | 270              | 270 <sup>P</sup>   | 250                | 270                | 250                | 340                | 350 <sup>F</sup>               |
| 22           | 320 <sup>F</sup>   | 350                | 310                | 320                | 310                | [270] <sup>C</sup> | 270                | 250              | 270 <sup>H</sup>   | C                  | 310              | 280              | 270                | 270                | 270                | 250                | 250                | 350 <sup>H</sup> | 320                | 270                | 280                | 360                | 370                | [360] <sup>A</sup>             |
| 23           | 350                | 370                | 400                | 370                | 380 <sup>F</sup>   | 330                | 250                | 250              | C                  | 250                | 320              | 260              | 260                | 260                | 260                | 250                | 250                | 310              | 310                | 260                | 340                | 360 <sup>F</sup>   | 360 <sup>F</sup>   | 320 <sup>F</sup>               |
| 24           | 280 <sup>F</sup>   | (350) <sup>F</sup> | (350) <sup>F</sup> | (370) <sup>F</sup> | (320) <sup>F</sup> | 330 <sup>F</sup>   | C                  | C                | C                  | 250                | 250              | 250              | 260                | 280 <sup>H</sup>   | 280                | 250                | 280                | 250              | 280                | 310                | 260                | 340                | 360 <sup>F</sup>   | 340 <sup>F</sup>               |
| 25           | 320 <sup>F</sup>   | (370) <sup>F</sup> | F                  | F                  | F                  | 320                | (380) <sup>F</sup> | 300              | 280                | 240                | 270              | 260              | 280                | 270                | 240                | 250                | 260                | 250              | A                  | A                  | 350                | 360                | 360 <sup>F</sup>   | 300 <sup>F</sup>               |
| 26           | [320] <sup>A</sup> | 350 <sup>F</sup>   | 380 <sup>F</sup>   | 350 <sup>F</sup>   | 350                | 330 <sup>F</sup>   | 300 <sup>F</sup>   | 280              | 260                | 250                | 250              | 250              | 240                | 250                | 250                | 250                | 260                | 310              | 300                | 280                | 240 <sup>F</sup>   | 250 <sup>F</sup>   | (370) <sup>T</sup> | 300 <sup>F</sup>               |
| 27           | [340] <sup>A</sup> | (350)              | 300 <sup>F</sup>   | 360                | 400 <sup>F</sup>   | 360 <sup>F</sup>   | 300 <sup>F</sup>   | 250              | 280                | 260                | 260              | 260              | 230                | 240                | 250 <sup>F</sup>   | 250                | 250                | 270              | 270                | 310 <sup>F</sup>   | 260 <sup>F</sup>   | [300] <sup>A</sup> | 340 <sup>F</sup>   | 350 <sup>F</sup>               |
| 28           | A                  | F                  | 390 <sup>F</sup>   | 320 <sup>F</sup>   | 330                | 310 <sup>F</sup>   | 310 <sup>F</sup>   | 270              | 280                | 260                | 270              | 240              | 230                | [260] <sup>A</sup> | 240                | 250                | 250                | 300              | 270                | 270                | 320 <sup>F</sup>   | 310 <sup>F</sup>   | 300                | 350 <sup>F</sup>               |
| 29           | 400 <sup>F</sup>   | 370 <sup>F</sup>   | 340 <sup>F</sup>   | 300 <sup>F</sup>   | 320 <sup>F</sup>   | 320 <sup>F</sup>   | 240 <sup>F</sup>   | 300 <sup>F</sup> | 250                | 330                | 270              | 250              | 260                | 230                | 240                | 260                | 260                | 240              | 260                | 270 <sup>V</sup>   | 330 <sup>F</sup>   | 360 <sup>F</sup>   | 300 <sup>F</sup>   | [330] <sup>F</sup>             |
| 30           | (410) <sup>F</sup> | [360] <sup>F</sup> | 360 <sup>F</sup>   | 400 <sup>F</sup>   | (370)              | (440) <sup>F</sup> | 230                | 230              | [240] <sup>A</sup> | 250                | 270              | 250              | A                  | A                  | A                  | 260                | 240                | 280              | 250                | A                  | A                  | A                  | A                  | A                              |
| 31           | (310)              | 340 <sup>F</sup>   | 320 <sup>V</sup>   | F                  | F                  | 340 <sup>F</sup>   | [320] <sup>F</sup> | 290 <sup>F</sup> | 280                | 280                | 270              | 240              | 240                | 250                | 270                | 240                | 240                | 280              | 320                | 270 <sup>F</sup>   | 270 <sup>F</sup>   | [320] <sup>A</sup> | 370 <sup>F</sup>   | 310 <sup>F</sup>               |
| Mean Value   | 330                | 340                | 340                | 330                | 330                | 320                | 290                | 260              | 260                | 260                | 270              | 250              | 260                | 260                | 260                | 250                | 250                | 280              | 270                | 290                | 300                | 310                | 350                | 340                            |
| Median Value | 330                | 350                | 350                | 340                | 330                | 320                | 290                | 250              | 250                | 250                | 270              | 250              | 260                | 250                | 250                | 250                | 250                | 280              | 280                | 280                | 280                | 300                | 350                | 350                            |
| Count        | 28                 | 28                 | 28                 | 29                 | 29                 | 30                 | 27                 | 28               | 28                 | 28                 | 28               | 30               | 29                 | 27                 | 27                 | 27                 | 27                 | 29               | 30                 | 28                 | 28                 | 29                 | 26                 | 27                             |

Group 0.85 Mc to 2.0 Mc in 6 min

Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kifukama-gun, Tokyo, Japan

# IONOSPHERIC DATA

Lat. 38° 48.5' N  
Long. 140° 08.5' E

## A k i t a

Dec. 1952

K'F2

135° E Mean Time

| Day          | 00                 | 01                 | 02                 | 03               | 04               | 05                 | 06                 | 07               | 08                 | 09               | 10               | 11               | 12               | 13                 | 14                 | 15               | 16                 | 17               | 18                 | 19                 | 20                 | 21                 | 22               | 23                 |
|--------------|--------------------|--------------------|--------------------|------------------|------------------|--------------------|--------------------|------------------|--------------------|------------------|------------------|------------------|------------------|--------------------|--------------------|------------------|--------------------|------------------|--------------------|--------------------|--------------------|--------------------|------------------|--------------------|
| 1            | 300 <sup>F</sup>   | 240                | 280                | 250              | 270              | 260                | 220                | 220              | 240                | 230              | 230              | 230              | 250              | 240                | 230                | 220              | 210                | 220              | 280                | 250                | 250 <sup>A</sup>   | 300 <sup>A</sup>   | 300              | 300 <sup>F</sup>   |
| 2            | 250                | 300                | 300                | 240              | 280              | 240                | 230                | 230              | 240                | 240              | 240              | 240              | 250              | 240                | 240                | 240              | 220                | 200              | 260                | 250                | 230                | 260                | 270              | 250                |
| 3            | 210                | 340                | 340                | 280              | 290              | 240                | [250] <sup>A</sup> | 260              | 240                | 230              | 240              | 250              | 240              | 240                | 240                | 240              | [240] <sup>T</sup> | 230              | A                  | A                  | (300) <sup>A</sup> | 300                | A                | T                  |
| 4            | T                  | T                  | T                  | 270              | T                | T                  | T                  | T                | 220                | 220              | 240              | 250              | 250              | 250 <sup>H</sup>   | 240                | 220              | 220                | 240              | 250                | 250                | 220                | 220                | A                | T                  |
| 5            | 250                | [280] <sup>A</sup> | 300                | 280              | 310              | 270                | [240] <sup>A</sup> | 220              | 220                | 230              | 300              | 260              | 250              | 250                | 240                | 240              | 220                | 210              | 230                | 250                | 250                | 280                | A                | A                  |
| 6            | A                  | 240                | 300                | 280              | 300              | 230                | 280                | 250              | 240                | 220              | 240              | 240              | 240              | 240                | 230                | 230              | 220                | 220              | 220                | 230                | 230                | 260                | 280              | 340                |
| 7            | 310                | 300                | 300                | 280              | 250              | 240                | 250                | 220              | 220                | 230              | 240              | 250              | 280 <sup>H</sup> | 240                | 230                | 240              | 210                | 220 <sup>H</sup> | 300                | 270                | 240                | 200                | 250 <sup>F</sup> | 310 <sup>F</sup>   |
| 8            | 250                | 300 <sup>F</sup>   | 300 <sup>F</sup>   | 290              | 290              | 250                | 250                | 230              | 230                | 230              | 240              | 250              | 250              | 230                | 230                | 230              | 230                | 230              | 230                | 270                | 250                | 220                | 250              | 320                |
| 9            | 300                | 300                | 290                | 270              | 270              | 230                | 270                | 230              | C                  | C                | C                | 230              | 230              | C                  | C                  | C                | C                  | 210              | 250                | 220                | 250                | 240                | 250              | 300                |
| 10           | 280                | 290                | 280                | 240              | 250              | 220                | 250                | 220              | [230] <sup>T</sup> | 230              | 250              | 240              | 240              | 230                | 230                | 240              | 210                | 200              | 260                | 230                | 230                | 250                | 310              | 300                |
| 11           | 310                | 300                | 280                | 280              | 270              | 280                | 250                | 220              | 220                | 240              | 260              | 240              | 240              | 240                | 290                | 250              | 210                | 200              | 280                | 210                | 250                | 250                | 310              | 310                |
| 12           | 300                | 260                | 280                | 220              | 250              | 250                | 250                | 230              | [220] <sup>C</sup> | 220              | 250              | 250              | 260              | 250                | 240                | 230              | 220                | 250              | 230                | 240                | 260                | 250 <sup>A</sup>   | 300              | 300                |
| 13           | 300                | 300 <sup>F</sup>   | 290                | 260              | 270              | 230                | 260                | 250              | 220                | 250              | 260              | 240              | 250              | 230                | 230                | 230              | 230                | 240              | 270                | 300                | 290                | 300                | 260              | 300                |
| 14           | 250 <sup>F</sup>   | 260                | 230                | 280              | 340              | 350 <sup>A</sup>   | 310                | 250              | 240                | 230              | 260              | 240              | 250              | 240                | 240                | 220              | 220                | 210              | 230                | 250                | 230                | 310 <sup>F</sup>   | 310 <sup>F</sup> | 320 <sup>F</sup>   |
| 15           | 300 <sup>F</sup>   | 280 <sup>F</sup>   | 280                | 280              | 270 <sup>F</sup> | 200                | 270                | 230              | 230                | C                | C                | 250              | 230              | 230                | 220                | 240              | 210                | 240              | 240                | 270                | 310                | 210                | 280              | 300                |
| 16           | 300                | 280                | 270                | 290              | 300              | 280                | 240                | 220              | 220                | 280              | 270              | 230              | 240              | 240                | 230                | C                | C                  | C                | C                  | C                  | 310                | [360] <sup>C</sup> | 400 <sup>F</sup> | 300 <sup>F</sup>   |
| 17           | 330                | 290                | 280                | 280              | 270              | 250                | 270                | A                | 250                | C                | C                | C                | 250              | 250                | 240                | 250              | 230                | 230              | [300] <sup>A</sup> | 380                | 260                | A                  | 310              | 290                |
| 18           | 290                | 320 <sup>F</sup>   | 320                | 290              | 260              | 280                | 240                | 220 <sup>A</sup> | 240                | 230              | 260              | 250              | 250              | 240                | 250                | 240              | 240                | 250              | 250                | 240                | 300                | 270                | 300              | 250                |
| 19           | 250                | 320                | 310                | 310 <sup>F</sup> | 260              | 300                | 270                | 250              | 230                | 230              | 250              | 260              | 240 <sup>H</sup> | 230                | 240                | 230              | 210                | 220              | 250                | 250                | 260                | 260                | 270              | 340                |
| 20           | 320                | 290                | 290                | 270 <sup>F</sup> | 260              | 270                | 260                | 220              | 230                | 240              | 250              | 260              | 230              | 230                | 260                | 250              | 230                | 220              | 270                | 250                | 240                | 250                | 280              | 350 <sup>F</sup>   |
| 21           | 260 <sup>F</sup>   | 300 <sup>F</sup>   | 300 <sup>F</sup>   | 250              | 220              | 220                | 220                | 230              | 250                | 240              | 280              | 250              | 260              | 260                | 240                | 230              | 230                | 260 <sup>A</sup> | 240                | 230                | 250                | 240                | 310              | 310                |
| 22           | 310                | 320                | 270                | 270              | 270              | [260] <sup>C</sup> | 250                | 230              | 210 <sup>H</sup>   | 220              | 220              | 260              | 260              | 260                | 250                | 240              | 220                | 250 <sup>H</sup> | 300                | 240                | 260                | 260 <sup>A</sup>   | 330              | [320] <sup>A</sup> |
| 23           | 310 <sup>A</sup>   | 310                | 330                | 350              | 340 <sup>F</sup> | 220                | 230                | C                | C                  | 240              | 310              | 250              | 250              | 240                | 240                | 240              | 230                | 240              | 260                | 240                | 300                | 300                | 310              | 300 <sup>F</sup>   |
| 24           | 220 <sup>F</sup>   | 250 <sup>F</sup>   | 300 <sup>F</sup>   | 270              | 300 <sup>F</sup> | 280 <sup>F</sup>   | C                  | C                | C                  | 230              | 230              | 240              | 250              | 220 <sup>H</sup>   | 240                | 240              | 230                | 240 <sup>A</sup> | 250                | 300 <sup>A</sup>   | 300                | 320 <sup>F</sup>   | 290              | 290 <sup>F</sup>   |
| 25           | 290 <sup>F</sup>   | 250 <sup>F</sup>   | 320 <sup>F</sup>   | 310 <sup>F</sup> | 250              | 350 <sup>F</sup>   | 260                | 260              | 260                | 230 <sup>A</sup> | 230              | 240              | 250              | 250                | 230                | 230              | 230                | 220              | A                  | A                  | 250                | [290] <sup>A</sup> | 330 <sup>A</sup> | 260                |
| 26           | [280] <sup>A</sup> | 300 <sup>F</sup>   | 330 <sup>F</sup>   | 320 <sup>H</sup> | 300              | 310 <sup>F</sup>   | 280                | 250              | 230                | 250              | 240              | 240              | 220              | 240                | 240                | 240              | 230                | 250 <sup>A</sup> | 250 <sup>A</sup>   | 230 <sup>A</sup>   | 230 <sup>A</sup>   | 220                | 330 <sup>F</sup> | 280                |
| 27           | [300] <sup>A</sup> | 320                | 280                | 330 <sup>A</sup> | 330              | 300                | 250                | 220              | 240                | 250              | 240              | 240              | 230              | 230                | 230                | 240              | 230                | 230              | 240 <sup>A</sup>   | 270 <sup>F</sup>   | 230 <sup>F</sup>   | [260] <sup>A</sup> | 300 <sup>F</sup> | 320 <sup>F</sup>   |
| 28           | [220] <sup>A</sup> | 350 <sup>F</sup>   | [370] <sup>F</sup> | 300 <sup>F</sup> | 290              | 270                | 270                | 230 <sup>A</sup> | 250                | 230              | 250              | 230              | 220              | [290] <sup>A</sup> | [240] <sup>A</sup> | 260              | 230                | 230              | 230 <sup>A</sup>   | [240] <sup>A</sup> | 260                | 250 <sup>F</sup>   | 260 <sup>F</sup> | 310                |
| 29           | 340 <sup>F</sup>   | 320                | 270                | 250              | 260              | 270                | 230                | 260              | 230                | 300              | 250              | 250 <sup>A</sup> | 250              | 230                | 230                | 250 <sup>A</sup> | 240                | 220              | 230                | 250 <sup>A</sup>   | [280] <sup>A</sup> | 320 <sup>A</sup>   | 240              | 230 <sup>F</sup>   |
| 30           | 300 <sup>F</sup>   | 250 <sup>F</sup>   | 280                | 360              | 310              | 300 <sup>F</sup>   | 220                | 220              | [230] <sup>A</sup> | 240 <sup>A</sup> | 270 <sup>A</sup> | 240              | 280 <sup>A</sup> | A                  | A                  | 250              | 220                | 240              | 230                | 230                | A                  | A                  | A                | A                  |
| 31           | 280                | 320 <sup>A</sup>   | 260 <sup>F</sup>   | 340 <sup>F</sup> | 300 <sup>F</sup> | 280                | 220                | 250 <sup>A</sup> | 260 <sup>A</sup>   | 260              | 230              | 230              | 230              | 230                | 240                | 250              | 230                | 220              | 260                | 220 <sup>A</sup>   | 250                | [290] <sup>A</sup> | 330              | 270 <sup>F</sup>   |
| Mean Value   | 280                | 290                | 290                | 280              | 280              | 260                | 230                | 230              | 230                | 240              | 250              | 250              | 250              | 240                | 240                | 240              | 220                | 230              | 250                | 250                | 260                | 270                | 300              | 300                |
| Median Value | 300                | 300                | 270                | 280              | 270              | 250                | 230                | 230              | 230                | 240              | 240              | 250              | 250              | 240                | 240                | 240              | 220                | 230              | 250                | 250                | 260                | 270                | 300              | 300                |
| Count        | 29                 | 30                 | 30                 | 31               | 30               | 29                 | 27                 | 28               | 28                 | 28               | 28               | 30               | 30               | 29                 | 29                 | 29               | 29                 | 30               | 28                 | 28                 | 30                 | 28                 | 27               | 28                 |

Sweep 0.85 sec Mc to 22.0 Mc in 6 min

Manual  Automatic

K'F2

A 3

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 43.5' N  
Long. 140° 06.3' E

Akita

IONOSPHERIC DATA

135° E Mean Time

foF1

Dec. 1952

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09                 | 10                 | 11                 | 12                 | 13                 | 14               | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|-----|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|----|----|----|----|----|----|----|----|----|
| 1      |    |    |    |    |    |    |    | Q  | L   | Q                  | L                  | 3.5                | L                  | L                  | Q                | Q  | Q  |    |    |    |    |    |    |    |
| 2      |    |    |    |    |    |    |    | Q  | Q   | Q                  | 3.6                | L                  | 3.7                | 3.8                | 3.1              | Q  | Q  |    |    |    |    |    |    |    |
| 3      |    |    |    |    |    |    |    | A  | Q   | Q                  | L                  | L                  | 4.1 <sup>L</sup>   | L                  | L                | Q  | T  |    |    |    |    |    |    |    |
| 4      |    |    |    |    |    |    |    | T  | Q   | Q                  | L                  | L                  | L                  | L                  | 3.2              | Q  | Q  |    |    |    |    |    |    |    |
| 5      |    |    |    |    |    |    |    | Q  | L   | 2.9                | A                  | L                  | 3.9 <sup>L</sup>   | 3.5 <sup>L</sup>   | 3.4 <sup>L</sup> | Q  | Q  |    |    |    |    |    |    |    |
| 6      |    |    |    |    |    |    |    | Q  | Q   | L                  | 3.4 <sup>L</sup>   | [3.6] <sup>L</sup> | 3.7 <sup>L</sup>   | T                  | L                | Q  | Q  |    |    |    |    |    |    |    |
| 7      |    |    |    |    |    |    |    | Q  | Q   | 3.0                | 3.9 <sup>L</sup>   | 3.5 <sup>H</sup>   | 4.5                | 3.7 <sup>L</sup>   | Q                | Q  | Q  |    |    |    |    |    |    |    |
| 8      |    |    |    |    |    |    |    | Q  | 2.7 | 3.2                | L                  | L                  | 3.7 <sup>L</sup>   | [3.6] <sup>L</sup> | 3.4              | Q  | Q  |    |    |    |    |    |    |    |
| 9      |    |    |    |    |    |    |    | Q  | C   | C                  | C                  | 3.8                | 3.9                | L                  | C                | C  | C  |    |    |    |    |    |    |    |
| 10     |    |    |    |    |    |    |    | Q  | Q   | T                  | Q                  | 3.8                | [3.8] <sup>L</sup> | 3.7                | Q                | Q  | Q  |    |    |    |    |    |    |    |
| 11     |    |    |    |    |    |    |    | Q  | Q   | Q                  | L                  | 4.0                | 3.7                | 3.7                | 3.2              | Q  | Q  |    |    |    |    |    |    |    |
| 12     |    |    |    |    |    |    |    | Q  | C   | Q                  | 3.6                | 3.5                | [3.8] <sup>L</sup> | 4.0 <sup>L</sup>   | L                | Q  | Q  |    |    |    |    |    |    |    |
| 13     |    |    |    |    |    |    |    | Q  | Q   | Q                  | LH                 | 4.1 <sup>L</sup>   | 4.0                | 3.8 <sup>H</sup>   | Q                | Q  | Q  |    |    |    |    |    |    |    |
| 14     |    |    |    |    |    |    |    | Q  | A   | Q                  | L                  | 4.5                | [4.2] <sup>L</sup> | 3.8                | 3.2              | Q  | Q  |    |    |    |    |    |    |    |
| 15     |    |    |    |    |    |    |    | Q  | Q   | C                  | C                  | 4.0                | 3.9                | 3.7                | 3.2              | Q  | Q  |    |    |    |    |    |    |    |
| 16     |    |    |    |    |    |    |    | Q  | Q   | L                  | 4.2                | 4.0 <sup>L</sup>   | L                  | 3.9                | 3.4              | C  | C  |    |    |    |    |    |    |    |
| 17     |    |    |    |    |    |    |    | A  | Q   | C                  | C                  | C                  | C                  | 3.5                | Q                | Q  |    |    |    |    |    |    |    |    |
| 18     |    |    |    |    |    |    |    | Q  | Q   | Q                  | L                  | 4.0                | 3.8                | 3.8 <sup>L</sup>   | Q                | L  | Q  |    |    |    |    |    |    |    |
| 19     |    |    |    |    |    |    |    | Q  | Q   | Q                  | 3.4                | 4.1 <sup>L</sup>   | 3.8                | 3.7                | 3.6 <sup>L</sup> | Q  | Q  |    |    |    |    |    |    |    |
| 20     |    |    |    |    |    |    |    | Q  | 2.7 | 3.1                | Q                  | 4.0                | [4.0] <sup>L</sup> | 4.0                | L                | Q  | Q  |    |    |    |    |    |    |    |
| 21     |    |    |    |    |    |    |    | Q  | Q   | Q                  | Q                  | 4.0 <sup>L</sup>   | 4.0 <sup>L</sup>   | 3.7                | L                | Q  | Q  |    |    |    |    |    |    |    |
| 22     |    |    |    |    |    |    |    | Q  | Q   | Q                  | Q                  | 4.0 <sup>L</sup>   | 4.0 <sup>L</sup>   | A                  | A                | Q  | Q  |    |    |    |    |    |    |    |
| 23     |    |    |    |    |    |    |    | C  | C   | (3.3) <sup>L</sup> | [3.6] <sup>L</sup> | 4.2 <sup>L</sup>   | 4.0                | 4.0 <sup>L</sup>   | L                | Q  | Q  |    |    |    |    |    |    |    |
| 24     |    |    |    |    |    |    |    | C  | C   | Q                  | L                  | 3.8 <sup>L</sup>   | 3.5                | Q                  | Q                | Q  | Q  |    |    |    |    |    |    |    |
| 25     |    |    |    |    |    |    |    | Q  | A   | A                  | 4.0 <sup>L</sup>   | 3.9 <sup>L</sup>   | 3.5                | 3.5 <sup>L</sup>   | L                | Q  | Q  |    |    |    |    |    |    |    |
| 26     |    |    |    |    |    |    |    | Q  | Q   | L                  | 3.9 <sup>L</sup>   | 4.0 <sup>L</sup>   | Q                  | Q                  | Q                | Q  | Q  |    |    |    |    |    |    |    |
| 27     |    |    |    |    |    |    |    | Q  | Q   | L                  | 3.5 <sup>L</sup>   | 3.6                | 3.7 <sup>L</sup>   | 3.7 <sup>L</sup>   | Q                | Q  | Q  |    |    |    |    |    |    |    |
| 28     |    |    |    |    |    |    |    | Q  | Q   | Q                  | 3.7                | 3.7                | Q                  | A                  | A                | Q  | Q  |    |    |    |    |    |    |    |
| 29     |    |    |    |    |    |    |    | A  | Q   | L                  | 3.9 <sup>L</sup>   | [3.8]A             | 3.8                | Q                  | A                | Q  | Q  |    |    |    |    |    |    |    |
| 30     |    |    |    |    |    |    |    | Q  | A   | A                  | A                  | 3.7                | A                  | A                  | A                | Q  | Q  |    |    |    |    |    |    |    |
| 31     |    |    |    |    |    |    |    | A  | A   | Q                  | 3.8 <sup>L</sup>   | 4.0 <sup>L</sup>   | 3.8 <sup>L</sup>   | 3.5                | Q                | Q  | Q  |    |    |    |    |    |    |    |
| Mean   |    |    |    |    |    |    |    |    | 2.7 | 3.1                | 3.7                | 3.9                | 3.9                | 3.7                | 3.3              |    |    |    |    |    |    |    |    |    |
| Median |    |    |    |    |    |    |    |    | 2.7 | 3.1                | 3.8                | 3.9                | 3.8                | 3.7                | 3.3              |    |    |    |    |    |    |    |    |    |
| Value  |    |    |    |    |    |    |    |    | 2   | 5                  | 13                 | 25                 | 24                 | 19                 | 11               |    |    |    |    |    |    |    |    |    |
| Count  |    |    |    |    |    |    |    |    |     |                    |                    |                    |                    |                    |                  |    |    |    |    |    |    |    |    |    |

Sweep 0.85 Mc to 22.0 Mc in 6 min

Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 43.5' N  
Long. 140° 08.2' E

A k i t a

IONOSPHERIC DATA

Dec. 1952

R'F1

135° E Mean Time

| Day           | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09  | 10                 | 11                 | 12  | 13                 | 14               | 15  | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---------------|----|----|----|----|----|----|----|----|-----|-----|--------------------|--------------------|-----|--------------------|------------------|-----|----|----|----|----|----|----|----|----|
| 1             |    |    |    |    |    |    |    | Q  | Q   | Q   | 210                | 210                | 220 | 230                | Q                | Q   | Q  |    |    |    |    |    |    |    |
| 2             |    |    |    |    |    |    |    | Q  | Q   | Q   | 230                | 230                | 200 | 230                | 200              | Q   | Q  |    |    |    |    |    |    |    |
| 3             |    |    |    |    |    |    |    | A  | Q   | Q   | 240                | 230                | 240 | 230                | 220              | Q   | T  |    |    |    |    |    |    |    |
| 4             |    |    |    |    |    |    |    | T  | Q   | Q   | 250                | 240                | 230 | 240                | 240              | Q   | Q  |    |    |    |    |    |    |    |
| 5             |    |    |    |    |    |    |    | Q  | 220 | 200 | [220] <sup>A</sup> | 250                | 230 | 220                | 230              | Q   | Q  |    |    |    |    |    |    |    |
| 6             |    |    |    |    |    |    |    | Q  | Q   | 220 | 220                | 210                | 230 | [220] <sup>T</sup> | 220              | Q   | Q  |    |    |    |    |    |    |    |
| 7             |    |    |    |    |    |    |    | Q  | Q   | 200 | 230                | 200 <sup>H</sup>   | 230 | 220                | Q                | Q   | Q  |    |    |    |    |    |    |    |
| 8             |    |    |    |    |    |    |    | Q  | 220 | 210 | 200                | 230                | 230 | 230                | 230              | Q   | Q  |    |    |    |    |    |    |    |
| 9             |    |    |    |    |    |    |    | Q  | C   | C   | 210                | 240                | 210 | C                  | C                | C   | C  |    |    |    |    |    |    |    |
| 10            |    |    |    |    |    |    |    | Q  | Q   | T   | Q                  | 220                | 230 | 220                | Q                | Q   | Q  |    |    |    |    |    |    |    |
| 11            |    |    |    |    |    |    |    | Q  | Q   | Q   | 250                | 240                | 210 | 280                | 270              | Q   | Q  |    |    |    |    |    |    |    |
| 12            |    |    |    |    |    |    |    | Q  | C   | Q   | 210                | 190                | 260 | 240                | 240              | Q   | Q  |    |    |    |    |    |    |    |
| 13            |    |    |    |    |    |    |    | Q  | Q   | Q   | 210 <sup>H</sup>   | 230                | 230 | 210                | 220 <sup>H</sup> | Q   | Q  |    |    |    |    |    |    |    |
| 14            |    |    |    |    |    |    |    | Q  | A   | Q   | 220                | 250                | 240 | 240                | 220              | Q   | Q  |    |    |    |    |    |    |    |
| 15            |    |    |    |    |    |    |    | Q  | Q   | C   | C                  | 230                | 210 | 220                | 210              | Q   | Q  |    |    |    |    |    |    |    |
| 16            |    |    |    |    |    |    |    | Q  | Q   | 230 | 240                | 240                | 230 | 220                | 220              | C   | C  |    |    |    |    |    |    |    |
| 17            |    |    |    |    |    |    |    | A  | Q   | C   | C                  | C                  | C   | C                  | 240              | Q   | Q  |    |    |    |    |    |    |    |
| 18            |    |    |    |    |    |    |    | Q  | Q   | Q   | 260                | 240                | 230 | 230                | Q                | 260 | Q  |    |    |    |    |    |    |    |
| 19            |    |    |    |    |    |    |    | Q  | Q   | Q   | 220                | 250                | 210 | 200                | 230              | Q   | Q  |    |    |    |    |    |    |    |
| 20            |    |    |    |    |    |    |    | Q  | 230 | 190 | Q                  | 210                | 220 | 230                | 230              | Q   | Q  |    |    |    |    |    |    |    |
| 21            |    |    |    |    |    |    |    | Q  | Q   | Q   | Q                  | Q                  | 250 | 250                | 240              | Q   | Q  |    |    |    |    |    |    |    |
| 22            |    |    |    |    |    |    |    | Q  | Q   | Q   | Q                  | A                  | A   | A                  | A                | Q   | Q  |    |    |    |    |    |    |    |
| 23            |    |    |    |    |    |    |    | C  | C   | A   | 240 <sup>A</sup>   | 240                | 230 | 250                | 230              | Q   | Q  |    |    |    |    |    |    |    |
| 24            |    |    |    |    |    |    |    | C  | C   | Q   | 230                | 220                | 200 | Q                  | Q                | Q   | Q  |    |    |    |    |    |    |    |
| 25            |    |    |    |    |    |    |    | Q  | A   | A   | A                  | 220                | 210 | 230                | 240              | Q   | Q  |    |    |    |    |    |    |    |
| 26            |    |    |    |    |    |    |    | Q  | Q   | 240 | 240                | 240                | Q   | Q                  | Q                | Q   | Q  |    |    |    |    |    |    |    |
| 27            |    |    |    |    |    |    |    | Q  | Q   | 250 | 230                | 210                | 230 | 230                | Q                | Q   | Q  |    |    |    |    |    |    |    |
| 28            |    |    |    |    |    |    |    | Q  | Q   | Q   | 240                | A                  | Q   | A                  | A                | Q   | Q  |    |    |    |    |    |    |    |
| 29            |    |    |    |    |    |    |    | A  | Q   | 260 | 250                | [240] <sup>A</sup> | 230 | Q                  | A                | Q   | Q  |    |    |    |    |    |    |    |
| 30            |    |    |    |    |    |    |    | Q  | A   | A   | A                  | 240                | A   | A                  | A                | Q   | Q  |    |    |    |    |    |    |    |
| 31            |    |    |    |    |    |    |    | A  | A   | Q   | 220 <sup>A</sup>   | 240                | 220 | 200                | Q                | Q   | Q  |    |    |    |    |    |    |    |
| Mean Value    |    |    |    |    |    |    |    |    | 220 | 220 | 230                | 230                | 230 | 230                | 230              | 260 |    |    |    |    |    |    |    |    |
| Minimum Value |    |    |    |    |    |    |    |    | 220 | 220 | 230                | 230                | 230 | 230                | 230              | 230 |    |    |    |    |    |    |    |    |
| Count         |    |    |    |    |    |    |    |    | 3   | 9   | 21                 | 24                 | 27  | 24                 | 18               | 1   |    |    |    |    |    |    |    |    |

R'F1

Sweep 0.85 Mc to 22.0 Mc in 6 min  
 Manual  Automatic

A 5

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 43.5' N  
Long. 140° 08.2' E

A k i t a

IONOSPHERIC DATA

foE

Dec. 1952

135° E Mean Time

| Day          | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07  | 08                | 09                | 10                | 11 | 12 | 13                | 14                | 15               | 16  | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------------|----|----|----|----|----|----|----|-----|-------------------|-------------------|-------------------|----|----|-------------------|-------------------|------------------|-----|----|----|----|----|----|----|----|
| 1            |    |    |    |    |    |    |    | A   | A                 | 25                | 27                | 28 | 28 | 27                | 25                | A                | 1.7 |    |    |    |    |    |    |    |
| 2            |    |    |    |    |    |    |    | A   | 23                | 25                | 27                | 28 | 28 | 26                | 25                | A                | A   |    |    |    |    |    |    |    |
| 3            |    |    |    |    |    |    |    | A   | A                 | A                 | [27] <sup>A</sup> | 28 | 28 | T                 | A                 | A                | T   |    |    |    |    |    |    |    |
| 4            |    |    |    |    |    |    |    | T   | A                 | 27                | 28                | 28 | 28 | 27                | 24                | 22               | 1.7 |    |    |    |    |    |    |    |
| 5            |    |    |    |    |    |    |    | A   | A                 | 25                | A                 | A  | 26 | [26] <sup>A</sup> | 26                | 21               | A   |    |    |    |    |    |    |    |
| 6            |    |    |    |    |    |    |    | A   | 20                | 25                | 27                | 29 | 28 | [26] <sup>T</sup> | 25                | 21               | A   |    |    |    |    |    |    |    |
| 7            |    |    |    |    |    |    |    | B   | 20                | 25                | 27                | 28 | 28 | [26] <sup>T</sup> | 25                | 21               | 1.7 |    |    |    |    |    |    |    |
| 8            |    |    |    |    |    |    |    | B   | A                 | 26                | 27                | 28 | 28 | 26                | 25                | 23               | .B  |    |    |    |    |    |    |    |
| 9            |    |    |    |    |    |    |    | A   | C                 | C                 | C                 | 29 | 28 | 28                | C                 | C                | C   |    |    |    |    |    |    |    |
| 10           |    |    |    |    |    |    |    | B   | 23                | [25] <sup>T</sup> | 27                | 28 | 28 | 28                | 25                | 23               | 1.7 |    |    |    |    |    |    |    |
| 11           |    |    |    |    |    |    |    | B   | A                 | 25                | 27                | 27 | 28 | 28                | [25] <sup>A</sup> | 22               | B   |    |    |    |    |    |    |    |
| 12           |    |    |    |    |    |    |    | A   | C                 | A                 | 28                | 28 | 30 | 27                | 25                | 22               | A   |    |    |    |    |    |    |    |
| 13           |    |    |    |    |    |    |    | B   | A                 | 25                | 28                | 29 | 28 | 27                | 25                | A                | A   |    |    |    |    |    |    |    |
| 14           |    |    |    |    |    |    |    | A   | A                 | A                 | 27                | 27 | 27 | 27                | 26                | A                | A   |    |    |    |    |    |    |    |
| 15           |    |    |    |    |    |    |    | A   | 20 <sup>J</sup>   | C                 | C                 | 29 | 30 | 28                | 26                | 21               | A   |    |    |    |    |    |    |    |
| 16           |    |    |    |    |    |    |    | A   | A                 | 26                | 28                | 30 | 29 | 28                | 27                | C                | C   |    |    |    |    |    |    |    |
| 17           |    |    |    |    |    |    |    | A   | 20                | C                 | C                 | C  | C  | C                 | 24                | 23               | A   |    |    |    |    |    |    |    |
| 18           |    |    |    |    |    |    |    | A   | 22                | 26                | 28 <sup>H</sup>   | 30 | 30 | 28                | 26 <sup>H</sup>   | A                | A   |    |    |    |    |    |    |    |
| 19           |    |    |    |    |    |    |    | B   | M                 | 25                | 28                | 28 | 28 | 28                | 25                | 22               | 1.8 |    |    |    |    |    |    |    |
| 20           |    |    |    |    |    |    |    | B   | 23                | 23                | A                 | A  | 28 | 27                | 25                | 22               | A   |    |    |    |    |    |    |    |
| 21           |    |    |    |    |    |    |    | 1.8 | 1.8               | 24                | 26                | 28 | 29 | 27                | 25                | 23               | B   |    |    |    |    |    |    |    |
| 22           |    |    |    |    |    |    |    | 1.9 | [20] <sup>A</sup> | 21                | 25                | A  | 27 | 27 <sup>B</sup>   | 25                | B                | A   |    |    |    |    |    |    |    |
| 23           |    |    |    |    |    |    |    | C   | C                 | A                 | A                 | 28 | 28 | 27                | 25                | 22               | A   |    |    |    |    |    |    |    |
| 24           |    |    |    |    |    |    |    | C   | C                 | 25                | 28                | 29 | 28 | 28                | 25                | 23               | A   |    |    |    |    |    |    |    |
| 25           |    |    |    |    |    |    |    | A   | A                 | A                 | A                 | 28 | 28 | A                 | A                 | A                | A   |    |    |    |    |    |    |    |
| 26           |    |    |    |    |    |    |    | B   | 22                | A                 | A                 | A  | A  | A                 | A                 | A                | A   |    |    |    |    |    |    |    |
| 27           |    |    |    |    |    |    |    | A   | A                 | A                 | 27                | 29 | A  | A                 | A                 | A                | A   |    |    |    |    |    |    |    |
| 28           |    |    |    |    |    |    |    | A   | A                 | A                 | A                 | A  | A  | A                 | A                 | 2.2              | 1.8 |    |    |    |    |    |    |    |
| 29           |    |    |    |    |    |    |    | A   | A                 | A                 | A                 | A  | 27 | A                 | A                 | A                | A   |    |    |    |    |    |    |    |
| 30           |    |    |    |    |    |    |    | A   | A                 | A                 | A                 | A  | A  | A                 | A                 | A                | A   |    |    |    |    |    |    |    |
| 31           |    |    |    |    |    |    |    | A   | A                 | A                 | A                 | 27 | 28 | A                 | A                 | 4.0 <sup>J</sup> | A   |    |    |    |    |    |    |    |
| Mean Value   |    |    |    |    |    |    |    | 1.9 | 21                | 25                | 27                | 28 | 28 | 27                | 25                | 22               | 1.7 |    |    |    |    |    |    |    |
| Median Value |    |    |    |    |    |    |    | 1.8 | 20                | 25                | 27                | 28 | 28 | 27                | 25                | 22               | 1.7 |    |    |    |    |    |    |    |
| Count        |    |    |    |    |    |    |    | 2   | 11                | 17                | 18                | 23 | 26 | 22                | 22                | 17               | 6   |    |    |    |    |    |    |    |

Sweep 5.85 Mc to 22.0 Mc in 2 min

Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 45.5' N  
Long. 140° 08.9' E

IONOSPHERIC DATA

A k i t a

Dec. 1952

f'F<sub>2</sub>

135° E Mean Time

| Day          | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07  | 08                 | 09                 | 10              | 11     | 12                 | 13                 | 14               | 15               | 16  | 17 | 18 | 19 | 20 | 21 | 22 | 23 |  |
|--------------|----|----|----|----|----|----|----|-----|--------------------|--------------------|-----------------|--------|--------------------|--------------------|------------------|------------------|-----|----|----|----|----|----|----|----|--|
| 1            |    |    |    |    |    |    |    | A   | 110                | 110                | 110             | 160    | 110                | 110                | [120]A           | 140 <sup>A</sup> |     |    |    |    |    |    |    |    |  |
| 2            |    |    |    |    |    |    |    | A   | 110                | 110                | 110             | 110    | 100                | 100                | 100              | A                | A   |    |    |    |    |    |    |    |  |
| 3            |    |    |    |    |    |    |    | A   | A                  | A                  | A               | 160    | T                  | T                  | T                | A                | T   |    |    |    |    |    |    |    |  |
| 4            |    |    |    |    |    |    |    | T   | A                  | 130                | 160             | 130    | 130                | 130                | 120              | 120              | 160 |    |    |    |    |    |    |    |  |
| 5            |    |    |    |    |    |    |    | A   | A                  | A                  | A               | 160    | [110] <sup>A</sup> | 120                | 120              | A                |     |    |    |    |    |    |    |    |  |
| 6            |    |    |    |    |    |    |    | A   | 110                | 110                | 110             | 110    | [110] <sup>T</sup> | 110                | 110              | A                |     |    |    |    |    |    |    |    |  |
| 7            |    |    |    |    |    |    |    | B   | 110                | 110                | 100             | 160    | [160] <sup>T</sup> | 110                | 130              | 140              |     |    |    |    |    |    |    |    |  |
| 8            |    |    |    |    |    |    |    | B   | A                  | 110                | 110             | 120    | 120                | 120                | 120              | 120              | B   |    |    |    |    |    |    |    |  |
| 9            |    |    |    |    |    |    |    | A   | C                  | C                  | 100             | 110    | 110                | C                  | C                | C                |     |    |    |    |    |    |    |    |  |
| 10           |    |    |    |    |    |    |    | B   | 120                | [110] <sup>T</sup> | 100             | 100    | 100                | 110                | 100              | 120              | 150 |    |    |    |    |    |    |    |  |
| 11           |    |    |    |    |    |    |    | B   | A                  | 110                | 110             | 110    | 100                | [160] <sup>A</sup> | 110              | B                |     |    |    |    |    |    |    |    |  |
| 12           |    |    |    |    |    |    |    | A   | C                  | A                  | 110             | 110    | 110                | 110                | 120              | A                |     |    |    |    |    |    |    |    |  |
| 13           |    |    |    |    |    |    |    | B   | A                  | 110                | 110             | 110    | 160                | 100                | A                | A                |     |    |    |    |    |    |    |    |  |
| 14           |    |    |    |    |    |    |    | A   | A                  | A                  | 110             | 110    | 120                | 120                | 120 <sup>A</sup> | A                |     |    |    |    |    |    |    |    |  |
| 15           |    |    |    |    |    |    |    | A   | 120                | C                  | C               | 110    | 110                | 110                | 110              | A                |     |    |    |    |    |    |    |    |  |
| 16           |    |    |    |    |    |    |    | A   | A                  | 110                | 110             | 120    | 120                | 120                | 120              | C                | C   |    |    |    |    |    |    |    |  |
| 17           |    |    |    |    |    |    |    | A   | 120                | C                  | C               | C      | C                  | C                  | 130              | 140              | A   |    |    |    |    |    |    |    |  |
| 18           |    |    |    |    |    |    |    | A   | 110                | 110                | 10 <sup>H</sup> | 120    | 120                | 120                | 110 <sup>H</sup> | A                | A   |    |    |    |    |    |    |    |  |
| 19           |    |    |    |    |    |    |    | B   | M                  | 110                | 110             | 110    | 120                | 130                | 120              | 120              | A   |    |    |    |    |    |    |    |  |
| 20           |    |    |    |    |    |    |    | B   | 130 <sup>H</sup>   | 120                | A               | A      | 120                | 120                | 130              | A                | A   |    |    |    |    |    |    |    |  |
| 21           |    |    |    |    |    |    |    | 110 | 130 <sup>A</sup>   | 120                | 110             | 120    | 120                | 120                | 120              | 120              | B   |    |    |    |    |    |    |    |  |
| 22           |    |    |    |    |    |    |    | 150 | [140] <sup>A</sup> | 130                | 120             | [120]A | 120                | [120]B             | 130 <sup>A</sup> | B                | A   |    |    |    |    |    |    |    |  |
| 23           |    |    |    |    |    |    |    | C   | C                  | A                  | A               | 110    | 110                | 130                | 130              | 130              | A   |    |    |    |    |    |    |    |  |
| 24           |    |    |    |    |    |    |    | C   | C                  | 140                | 110             | 120    | 110                | 110                | 110              | 110              | A   |    |    |    |    |    |    |    |  |
| 25           |    |    |    |    |    |    |    | A   | A                  | A                  | A               | 110    | 130 <sup>B</sup>   | A                  | A                | A                | A   |    |    |    |    |    |    |    |  |
| 26           |    |    |    |    |    |    |    | B   | 140                | A                  | A               | A      | A                  | A                  | A                | A                | A   |    |    |    |    |    |    |    |  |
| 27           |    |    |    |    |    |    |    | A   | A                  | A                  | 110             | 110    | A                  | A                  | A                | A                | A   |    |    |    |    |    |    |    |  |
| 28           |    |    |    |    |    |    |    | A   | A                  | A                  | A               | A      | A                  | A                  | A                | 120              | 130 |    |    |    |    |    |    |    |  |
| 29           |    |    |    |    |    |    |    | A   | A                  | A                  | A               | A      | 130                | A                  | A                | A                | A   |    |    |    |    |    |    |    |  |
| 30           |    |    |    |    |    |    |    | A   | A                  | A                  | A               | A      | A                  | A                  | A                | A                | A   |    |    |    |    |    |    |    |  |
| 31           |    |    |    |    |    |    |    | A   | A                  | A                  | A               | 110    | 120                | A                  | A                | 120              | A   |    |    |    |    |    |    |    |  |
| Mean Value   |    |    |    |    |    |    |    | 130 | 120                | 110                | 110             | 110    | 110                | 110                | 120              | 120              | 140 |    |    |    |    |    |    |    |  |
| Median Value |    |    |    |    |    |    |    | 130 | 120                | 110                | 110             | 110    | 110                | 110                | 120              | 120              | 140 |    |    |    |    |    |    |    |  |
| Count        |    |    |    |    |    |    |    | 2   | 11                 | 16                 | 18              | 23     | 26                 | 22                 | 22               | 17               | 5   |    |    |    |    |    |    |    |  |

f'F<sub>2</sub>

Sweep 0.15 sec. Mc to 22.0. Mc in \_\_\_\_\_ min

Manual  Automatic

A 7

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 38° 48.5' N  
Long. 140° 08.2' E

IONOSPHERIC DATA

Akita

fEs

Dec. 1952

135° E Mean Time

| Day         | 00   | 01   | 02   | 03   | 04   | 05   | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1           | 3.5  | 2.3  | E    | 2.4  | 2.2  | 2.1F | 2.3  | 4.7  | 5.3  | 4.9  | 3.5  | 3.5  | Q    | G    | 3.2Y | 2.5  | 3.3Y | 2.3  | 4.0  | 3.0  | 3.3  | 3.4  | 4.5Y | 2.3F |
| 2           | 2.3F | 2.5  | E    | E    | E    | 2.3  | E    | 2.6  | G    | Q    | Q    | 3.5  | Q    | Q    | 3.5Y | 3.4  | 3.5F | 2.3F | 5.2  | 5.8  | 6.6  | 3.5  | 3.0  | 2.5F |
| 3           | 2.4  | 2.3  | 2.5  | 2.3Y | 2.4  | 2.3  | 3.6  | 4.6  | 4.6  | 3.5  | 4.5  | Q    | Q    | T    | T    | 2.2  | T    | T    | 7.5  | 7.5  | 4.4  | 2.6  | 4.9  | T    |
| 4           | T    | T    | T    | 3.2  | T    | T    | T    | T    | 3.7  | Q    | Q    | Q    | 3.4  | 2.2  | 2.1  | Q    | Q    | 2.5  | 3.2  | 2.9  | 7.0  | 1.1  | 4.6  | 3.3F |
| 5           | 3.3F | 3.5  | 3.4  | 2.5  | 2.3  | E    | 7.3  | 4.7  | 3.5  | 5.5  | 8.0  | 5.4  | 3.4Y | 3.5F | 3.4  | 2.2  | 3.5Y | 2.2  | 2.1Y | E    | 2.1  | 3.5  | 6.5  | 4.8  |
| 6           | 4.0  | 2.3Y | 2.5Y | 2.4Y | E    | E    | 2.1  | 3.2Y | 2.9  | 4.7  | 3.4  | Q    | 3.4  | T    | Q    | 3.0  | 3.1Y | 2.8Y | 2.4  | 2.4  | 2.3  | 2.2  | 2.0  | 2.3  |
| 7           | 2.2  | 2.5  | 3.5Y | 2.1  | 2.2F | 2.3  | 2.3  | 2.5  | 2.3  | Q    | Q    | Q    | Q    | T    | Q    | 2.3  | 1.8  | 3.2  | 3.4  | 2.4  | 2.4  | E    | E    | E    |
| 8           | 2.3  | 2.3  | 2.3  | E    | E    | 1.7  | E    | 2.5  | 3.1  | Q    | Q    | Q    | Q    | Q    | Q    | Q    | Q    | 2.3  | 3.2  | 4.2  | 3.1  | 3.1  | 2.7  | 2.5  |
| 9           | 2.5  | 2.6F | 2.8  | 2.8F | 2.7  | 2.4Y | 2.2  | 2.3  | C    | C    | C    | 3.5  | Q    | Q    | C    | C    | C    | E    | 2.3  | 3.4  | 2.5  | 3.2  | 2.3  | 2.3  |
| 10          | 2.3  | 2.3  | 2.3  | 2.2  | 2.2  | 2.3  | E    | 2.3  | G    | T    | G    | Q    | Q    | Q    | Q    | Q    | Q    | E    | E    | E    | E    | E    | 2.2  | 3.8  |
| 11          | 3.0  | 2.7  | 3.1  | 2.3  | E    | E    | E    | B    | 2.2  | 3.3  | Q    | Q    | Q    | Q    | 2.4  | Q    | 2.3  | E    | 3.3  | 2.6  | 3.1  | 2.3  | E    | 2.4  |
| 12          | 2.5  | 2.5  | 2.4  | 2.1  | 2.1  | E    | E    | 2.5  | C    | 4.0  | 3.4  | 4.4  | 3.3  | 3.4  | 3.4Y | Q    | 2.2  | 2.4  | 2.3  | 3.4  | 2.8  | 3.4  | 3.3F | 2.5F |
| 13          | 2.4  | 2.2Y | 2.4  | 2.4Y | 2.3Y | 2.3Y | 2.5  | 2.1  | 3.4  | 3.0  | 3.4  | 3.4  | 3.4  | 3.4  | 3.4  | 3.2  | 3.0  | E    | 2.2  | 2.2  | 2.2  | 2.2  | 2.4  | 2.5F |
| 14          | 3.4  | 2.3  | 2.5F | 9.3  | 2.6  | 3.4  | 3.1  | 7.0  | 7.0  | 5.4  | Q    | 3.4  | 3.5  | Q    | 3.5  | 3.2  | 3.0  | 2.4  | 2.8  | 4.3  | 3.4  | E    | 2.5  | 2.3  |
| 15          | 2.2  | 2.9F | 2.4Y | 2.5  | 2.4  | 2.3F | 2.3  | 2.3  | 3.2  | C    | 3.4  | Q    | 3.4  | Q    | Q    | 3.2Y | 3.5  | 3.1  | 7.2  | 4.5  | 3.2  | 2.5F | 2.1  | 2.4F |
| 16          | 2.2F | 2.8  | 2.3F | 2.3F | 2.4  | 2.3  | E    | 2.5F | 3.0F | Q    | 3.8  | Q    | Q    | Q    | Q    | C    | C    | C    | C    | C    | 5.2  | C    | 3.1F | 5.2  |
| 17          | 3.4  | 2.4  | E    | E    | 2.3  | 2.2  | 2.4  | 7.1  | Q    | C    | C    | C    | C    | C    | Q    | 3.5  | 3.5  | 4.5  | 7.0  | 4.6  | E    | 7.3  | 2.0F | 2.5F |
| 18          | 3.5F | 3.5Y | 2.3F | E    | 2.3F | 2.3F | 2.5  | 4.3  | 3.4  | 3.4F | 3.5  | 3.5  | 3.5  | 3.5  | Q    | 3.5  | 3.5  | 3.5  | 3.2  | 4.8  | 3.1  | 2.5  | 2.1  | 2.4  |
| 19          | 2.2F | 3.1  | 2.5  | 2.3  | E    | 2.2  | E    | 2.5  | M    | Q    | 3.5  | 3.5  | 5.3  | 3.5  | 3.4Y | 3.1  | 3.1  | 3.2F | 2.9F | 2.8  | 2.5  | 2.3Y | 1.8  | 2.2  |
| 20          | 2.0  | 2.0  | E    | 2.2Y | E    | 2.8  | 2.4  | B    | 3.1  | 3.2  | 3.4  | 3.5  | 3.5  | 3.5  | 3.5  | 3.5  | 3.5  | 3.8F | 4.4  | 2.5  | 4.9  | 2.8  | 2.4  | 2.4  |
| 21          | 2.5  | 2.2F | 2.4  | E    | E    | E    | E    | 2.3F | 3.1  | Q    | 3.5  | Q    | 3.5  | 3.5  | Q    | Q    | 3.2  | 3.5  | 3.5  | 2.6  | 2.6  | 2.3  | 2.5  | 2.6  |
| 22          | 3.5  | 3.0  | 2.4  | 2.5  | 2.3  | C    | 2.8  | Q    | 3.1Y | 2.7  | 3.5  | 3.7  | 3.5  | 4.5  | 4.2  | B    | 3.0  | 3.0  | 2.8  | 2.6  | 4.3  | 4.7  | 3.5  | 5.3  |
| 23          | 4.3  | 3.4  | 2.8F | 3.2F | 3.3  | 2.3  | 2.2  | C    | C    | 8.2  | 5.4F | 3.5  | 3.5  | 3.5  | 3.5Y | 3.5Y | 2.5  | E    | E    | 1.8  | 2.4Y | E    | 2.6F | E    |
| 24          | 2.7F | 2.2Y | 2.5F | E    | E    | 2.3  | C    | C    | C    | 3.5  | 4.5  | 3.5  | 3.5  | 4.0  | 3.5  | 3.5  | 3.5  | 12.0 | 7.2  | 7.5  | 6.5  | 4.5  | 3.5  | 2.6F |
| 25          | 2.3  | 2.3  | 2.4  | E    | E    | 2.5  | 2.4  | 2.7  | 5.3  | 5.5  | 5.3  | 3.5  | Q    | 3.5  | 3.5  | 3.5Y | 3.5  | 3.0  | 7.1F | 6.6F | 4.5F | 4.5F | 4.3F | 4.5F |
| 26          | 3.8F | 2.8F | 4.1F | 3.5F | 2.5  | 2.5  | 2.6F | 2.3  | Q    | 3.5F | 4.0  | 4.1  | 3.5  | 3.5  | 4.1  | 4.1  | 3.3  | 4.0  | 7.5F | 7.5F | 7.5F | 2.5F | 2.5F | 7.5  |
| 27          | 7.5  | 5.0F | 4.5F | 5.0  | 3.6F | 2.5F | 2.5  | 3.0  | 4.2  | 3.5  | 3.5  | 4.9F | 4.9F | 5.5  | 3.7  | 3.9  | 3.1  | 2.3  | 3.6  | 5.8F | 4.5  | 4.6F | 4.2F | 2.9F |
| 28          | 6.0F | 3.7F | 3.7F | 3.1F | 2.5F | 2.5F | E    | 3.1  | 4.3F | 4.2F | 5.4  | 4.3  | 5.4  | 5.4  | 7.4  | 3.4  | 2.6  | 2.3  | 3.3  | 5.8  | 3.7  | 3.5F | 3.7F | 3.6F |
| 29          | 3.2F | 3.5F | 2.5  | 2.6  | 2.3F | 2.3  | 2.6  | 3.3  | 3.5F | 3.8  | 4.5  | 8.0  | 5.4  | 4.0  | 5.2  | 4.5  | 4.0  | 3.0F | 2.5  | 3.5  | 4.2  | 4.5  | 3.2  | 3.2F |
| 30          | 2.0F | 1.8  | 2.3Y | 2.5Y | 2.3Y | 2.1  | E    | 3.0  | 8.1  | 4.5  | 6.5  | 4.2  | 12.0 | 6.0  | 9.6  | 3.4  | 3.1Y | E    | 3.1  | 3.0  | 6.5  | 6.5  | 4.7  | 4.8  |
| 31          | 3.3Y | 3.5  | 2.2  | 5.0  | 2.5  | 3.1  | 4.9  | 3.1  | 1.8Y | 5.4F | 4.6F | 3.5F | Q    | 3.5  | 3.5  | 3.2  | 3.5  | 4.7  | 2.9  | 2.5  | 3.0  | 5.4F | 4.3F | 2.5F |
| Mean Value  | 3.1  | 2.7  | 2.7  | 3.0  | 2.5  | 2.4  | 2.9  | 3.3  | 4.3  | 4.3  | 4.3  | 4.0  | 4.2  | 3.9  | 4.0  | 3.3  | 3.1  | 3.4  | 4.0  | 4.0  | 3.9  | 3.9  | 3.2  | 3.2  |
| Upper Value | 2.6  | 2.5  | 2.4  | 2.4  | 2.3  | 2.3  | 2.3  | 2.6  | 3.3  | 3.5  | 3.5  | 3.4  | 3.4  | 3.4  | 3.2  | 3.2  | 3.1  | 2.5  | 3.2  | 3.2  | 3.2  | 3.2  | 3.2  | 2.7  |
| Count       | 30   | 30   | 30   | 31   | 30   | 29   | 29   | 26   | 26   | 27   | 28   | 27   | 27   | 27   | 29   | 28   | 28   | 28   | 29   | 30   | 31   | 30   | 31   | 30   |

Group 0.85 Mc to 22.0 Mc in 6 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 43.5' N  
Long. 140° 08.2' E

# IONOSPHERIC DATA

## Akita

Dec. 1952

(M3000)F2

135° E Mean Time

| Day          | 00                 | 01                 | 02                 | 03                 | 04                 | 05                 | 06                 | 07               | 08                 | 09                 | 10               | 11               | 12                 | 13                 | 14                 | 15                 | 16                 | 17               | 18               | 19                 | 20                 | 21                 | 22                 | 23                 |    |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|--------------------|--------------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----|
| 1            | 3.0 <sup>F</sup>   | 3.4 <sup>F</sup>   | 2.9 <sup>F</sup>   | 3.0 <sup>F</sup>   | 3.1 <sup>F</sup>   | 3.1 <sup>F</sup>   | 3.3                | 3.7              | 3.3                | 3.6                | 3.4              | 3.7              | 3.2                | 3.5                | 3.6                | 3.7                | 3.4                | 3.8              | 3.5              | 3.5                | 3.2                | 3.3                | 3.0 <sup>F</sup>   | 3.1 <sup>F</sup>   |    |
| 2            | 3.3                | 2.6                | 3.0                | 3.4                | 2.9 <sup>F</sup>   | 3.5 <sup>F</sup>   | 3.5 <sup>F</sup>   | 3.6              | 3.4                | 3.3                | 3.5              | 3.7              | 3.4                | 3.5                | 3.6                | 3.5                | 3.6                | 3.6              | 3.1              | 3.4                | 3.3                | 3.2                | 3.1 <sup>F</sup>   | 3.2                |    |
| 3            | 3.8                | 2.9 <sup>F</sup>   | 2.7 <sup>F</sup>   | 2.9 <sup>F</sup>   | 2.7 <sup>F</sup>   | 3.5 <sup>F</sup>   | 3.4 <sup>A</sup>   | 3.3              | 3.4                | 3.2                | 3.4              | 3.3              | 3.5                | 3.5                | 3.4                | 3.4                | [3.4] <sup>T</sup> | 3.4              | A                | A                  | 3.0                | 3.0                | A                  | T                  |    |
| 4            | T                  | T                  | T                  | 3.0 <sup>F</sup>   | 3.3                | T                  | T                  | T                | 3.6                | 3.6                | 3.4              | 3.4              | 3.3                | 3.3 <sup>H</sup>   | 3.5                | 3.4                | 3.4                | 3.3              | 3.1              | 3.1                | 3.6                | A                  | A                  | 3.0 <sup>F</sup>   |    |
| 5            | 3.5                | [3.3] <sup>A</sup> | 3.0                | 2.9                | 2.7                | 3.0                | [3.4] <sup>T</sup> | 3.1              | 3.9                | 3.6                | 3.1              | 3.3              | 3.2                | 3.3                | 3.4                | 3.4                | 3.4                | 3.5              | 3.4              | 3.0                | 3.2                | 3.2 <sup>F</sup>   | A                  | A                  |    |
| 6            | A                  | 3.3                | 2.7                | 2.6                | 2.5                | 3.2                | 3.0                | 3.4              | 3.6                | 3.8                | 3.4              | 3.3              | 3.4                | 3.3                | 3.2                | 3.5                | 3.7                | 3.3              | 3.5              | 3.4                | 3.5                | 3.0                | 2.8                | 2.7                |    |
| 7            | 2.9                | 2.7                | 2.8 <sup>V</sup>   | 2.8                | 3.0                | 3.3                | 3.1                | 3.7              | 3.8                | 3.0                | 3.7              | 3.5              | (3.4) <sup>H</sup> | 3.3                | 3.7                | 3.5                | 3.5                | 3.1 <sup>H</sup> | 2.9              | 3.2                | 3.5                | 3.9                | 2.8 <sup>F</sup>   | (2.8) <sup>F</sup> |    |
| 8            | 3.1 <sup>F</sup>   | (2.8) <sup>F</sup> | (3.0) <sup>F</sup> | 2.9 <sup>F</sup>   | 2.9 <sup>F</sup>   | 3.2                | 3.4 <sup>V</sup>   | 3.4              | 3.5                | 3.4 <sup>V</sup>   | 3.6              | 3.5              | 3.4                | 3.7                | 3.5                | 3.5                | 3.5                | 3.3              | 3.5              | 3.2                | 3.1                | 3.5                | 3.2                | 2.6                |    |
| 9            | 2.8                | 2.7                | 2.7                | 2.8                | 3.1                | 3.2                | 3.1                | 3.6              | C                  | C                  | C                | 3.4              | 3.5                | (3.6) <sup>P</sup> | C                  | C                  | C                  | 2.9              | 3.1              | (3.2) <sup>T</sup> | (2.8) <sup>T</sup> | 3.6                | 3.0                | 2.9                |    |
| 10           | 2.9                | 2.9                | 3.1                | 3.1                | 3.2                | 3.0                | 3.3                | 3.4              | 3.5                | [3.4] <sup>T</sup> | 3.4              | 3.6              | 3.5                | 3.6                | 3.5                | 3.6                | 3.8                | 3.9              | 3.0              | 3.5                | 3.4                | 3.1                | 2.7                | 2.8 <sup>P</sup>   |    |
| 11           | 3.2                | 3.1                | 2.8                | 2.9                | 3.0                | 3.0                | 3.4                | 3.5              | 3.4                | 3.3                | 3.2              | 3.6 <sup>P</sup> | 3.3                | 3.2                | (3.1) <sup>T</sup> | (3.3) <sup>P</sup> | 3.6                | 3.2              | 3.4              | 3.0                | 3.5                | 2.9                | 2.7                | 2.9                |    |
| 12           | 3.1                | 3.1                | 3.1                | 3.5                | 3.1                | 3.0                | 3.1                | 3.5              | [3.4] <sup>T</sup> | 3.4                | 3.2 <sup>E</sup> | 3.6              | 3.4                | (3.5) <sup>P</sup> | 3.6                | 3.4                | 3.6                | 3.0              | 3.6              | 3.4                | 3.2                | 3.5                | 2.7                | 2.9                |    |
| 13           | 3.0                | (2.7) <sup>F</sup> | 3.2 <sup>F</sup>   | 3.2 <sup>F</sup>   | 3.2 <sup>F</sup>   | 3.3                | 3.1                | 3.3              | 3.5                | 3.3                | 3.4              | 3.6              | 3.6                | 3.5                | 3.6                | 3.5                | 3.3                | 3.0              | 3.0              | 2.9                | 2.8                | 2.8                | 2.5                | (2.6) <sup>H</sup> |    |
| 14           | (3.0) <sup>F</sup> | (2.9) <sup>F</sup> | [2.7] <sup>F</sup> | 2.5                | 2.7 <sup>F</sup>   | 2.5 <sup>F</sup>   | 2.8                | 3.4              | 3.4                | 3.7                | 3.4              | 3.6              | 3.5                | 3.7                | 3.4                | 3.3                | 3.4                | 3.0 <sup>H</sup> | 3.3              | 3.2                | 3.7                | 2.8 <sup>F</sup>   | 2.8 <sup>F</sup>   | 2.8 <sup>F</sup>   |    |
| 15           | (2.9) <sup>F</sup> | 2.7 <sup>F</sup>   | 2.9 <sup>F</sup>   | 2.9 <sup>F</sup>   | 3.3 <sup>F</sup>   | 3.4 <sup>F</sup>   | 3.1                | 3.5              | 3.5                | C                  | C                | 3.6              | 3.5                | 3.4                | 3.7                | 3.6                | 3.6                | 3.4              | 3.4              | 3.1                | 2.7                | 3.8                | 2.9                | 2.7                |    |
| 16           | 3.0                | 3.1                | 3.1                | 2.8                | 2.9 <sup>F</sup>   | 3.0                | 3.6                | 3.4              | 3.6                | 3.3                | 3.3              | 3.5              | 3.4                | 3.6                | 3.4                | C                  | C                  | C                | C                | C                  | 2.7                | [2.6] <sup>F</sup> | 2.5 <sup>F</sup>   | 2.6 <sup>F</sup>   |    |
| 17           | 2.7 <sup>F</sup>   | 2.7 <sup>F</sup>   | 3.0 <sup>F</sup>   | 2.8                | 3.0                | 3.0                | 3.2                | 3.3              | 3.3                | C                  | C                | C                | C                  | C                  | 3.4                | 3.4                | 3.6                | 3.4              | 3.5              | 2.8                | 2.7 <sup>F</sup>   | 3.4                | 2.7                | 2.8 <sup>F</sup>   |    |
| 18           | 3.0 <sup>F</sup>   | 2.8 <sup>F</sup>   | 3.0 <sup>F</sup>   | 3.0 <sup>F</sup>   | 3.1                | 2.9                | 3.4                | 3.6              | 3.7                | 3.5                | 3.4              | 3.4              | 3.5                | 3.5                | 3.4                | 3.4                | 3.5                | 3.4              | 3.5              | 3.1                | 3.2 <sup>V</sup>   | 3.2 <sup>V</sup>   | 3.0 <sup>F</sup>   | 3.3                |    |
| 19           | 3.0 <sup>F</sup>   | 2.8                | 2.7 <sup>F</sup>   | 2.8 <sup>F</sup>   | 3.2 <sup>V</sup>   | 2.8                | 3.0                | 3.4              | 3.6                | 3.7                | 3.2              | 3.5              | 3.1 <sup>H</sup>   | 3.5                | 3.5                | 3.5                | 3.8                | 3.1              | 3.3              | 3.2                | 3.1                | 3.1 <sup>V</sup>   | 3.2                | 2.6 <sup>V</sup>   |    |
| 20           | 2.8 <sup>V</sup>   | 2.9                | 2.8                | 3.0 <sup>F</sup>   | 3.1 <sup>F</sup>   | 3.0 <sup>F</sup>   | 3.5 <sup>F</sup>   | 3.6              | 3.5                | 3.2                | 3.3              | 3.4              | 3.6                | 3.2                | 3.3                | 3.7                | 3.7                | 3.0              | 3.4              | 3.1 <sup>V</sup>   | 3.6                | 3.0                | F                  | F                  |    |
| 21           | (2.9) <sup>F</sup> | F                  | F                  | 2.9                | (3.1) <sup>F</sup> | 3.6 <sup>F</sup>   | 3.5                | 3.6              | 3.5                | 3.6                | 3.4              | 3.3              | 3.4                | 3.4                | (3.4) <sup>P</sup> | 3.6                | 3.5                | 3.6              | 3.3 <sup>P</sup> | 3.5                | 3.3                | 3.4                | 2.8                | 2.8 <sup>F</sup>   |    |
| 22           | 3.2 <sup>F</sup>   | 2.8                | 3.2                | 3.1                | 3.1                | [3.2] <sup>F</sup> | 3.3                | 3.6              | 3.2 <sup>H</sup>   | 3.8                | 3.1              | 3.3              | 3.4                | 3.5                | 3.3                | 3.6                | 3.5                | 2.8 <sup>H</sup> | 3.1              | 3.5                | 3.3                | 2.6                | 2.8                | [2.8] <sup>H</sup> |    |
| 23           | 2.9                | 2.8                | 2.7                | 2.7                | 2.7 <sup>F</sup>   | 3.0                | 3.7                | C                | C                  | 3.6                | 2.8              | 3.5              | 3.5                | 3.4                | 3.5                | 3.5                | 3.5                | 2.9              | 3.2              | 3.5                | 2.9                | 2.6 <sup>F</sup>   | 2.9 <sup>F</sup>   | 2.8 <sup>F</sup>   |    |
| 24           | 3.3 <sup>F</sup>   | (3.1) <sup>F</sup> | (2.8) <sup>F</sup> | (3.2) <sup>F</sup> | (3.1) <sup>F</sup> | 2.7 <sup>F</sup>   | C                  | C                | C                  | 3.5                | 3.3              | 3.5              | 3.5                | 3.2 <sup>H</sup>   | 3.2                | 3.7                | 3.3                | 3.5              | 3.4              | 3.2                | 2.9 <sup>F</sup>   | [3.0] <sup>F</sup> | (2.7) <sup>F</sup> | 3.0 <sup>F</sup>   |    |
| 25           | 3.1 <sup>V</sup>   | (3.1) <sup>F</sup> | F                  | F                  | F                  | 3.1                | (2.8) <sup>F</sup> | 3.2              | 3.4                | 3.8                | 3.5              | 3.4              | 3.1                | 3.4                | 3.5                | 3.5                | 3.4                | 3.6              | A                | A                  | 2.7                | 2.8                | 2.9 <sup>F</sup>   | 3.2 <sup>F</sup>   |    |
| 26           | (3.1) <sup>A</sup> | 3.0 <sup>F</sup>   | 2.9 <sup>F</sup>   | 3.1 <sup>F</sup>   | 2.8                | 2.9 <sup>F</sup>   | 3.2 <sup>F</sup>   | 3.3              | 3.4                | 3.8                | 3.6              | 3.7              | 3.5                | 3.5                | 3.5                | 3.5                | 3.4                | 3.1              | 3.1              | 3.4                | 3.7 <sup>F</sup>   | 3.5 <sup>F</sup>   | (2.8) <sup>F</sup> | 3.2 <sup>F</sup>   |    |
| 27           | (3.0) <sup>A</sup> | (2.9) <sup>F</sup> | 3.1 <sup>F</sup>   | 2.6                | 2.6 <sup>F</sup>   | (2.7) <sup>F</sup> | 3.1 <sup>F</sup>   | 3.6              | 3.3                | 3.6                | 3.4              | 3.6              | 3.7                | 3.7                | 3.5 <sup>P</sup>   | 3.5                | 3.6                | 3.4              | 3.5              | 3.2 <sup>F</sup>   | 3.5 <sup>F</sup>   | [3.2] <sup>A</sup> | 2.9 <sup>F</sup>   | 2.7 <sup>F</sup>   |    |
| 28           | A                  | F                  | 2.7 <sup>F</sup>   | 2.9 <sup>F</sup>   | 2.9                | 3.1 <sup>F</sup>   | 3.1 <sup>F</sup>   | 3.4              | 3.2                | 3.5                | 3.6              | 3.6              | 3.7                | 3.6                | 3.2                | 3.4                | 3.6                | 3.0              | 3.3              | 3.3                | 3.1 <sup>F</sup>   | 3.1 <sup>F</sup>   | 3.3                | 2.9 <sup>F</sup>   |    |
| 29           | 2.7 <sup>F</sup>   | 2.7 <sup>F</sup>   | 2.9 <sup>F</sup>   | 3.2 <sup>F</sup>   | 3.2 <sup>F</sup>   | 3.1 <sup>F</sup>   | 3.8 <sup>F</sup>   | 3.1 <sup>F</sup> | 3.4                | 3.0                | 3.5              | 3.6              | 3.3                | 3.6                | 3.7                | 3.5                | 3.4                | 3.6              | 3.4              | 3.6 <sup>V</sup>   | 3.0 <sup>F</sup>   | 2.7 <sup>F</sup>   | 3.2 <sup>F</sup>   | [3.0] <sup>F</sup> |    |
| 30           | 2.6 <sup>F</sup>   | [2.9] <sup>F</sup> | 3.0 <sup>F</sup>   | 2.6 <sup>F</sup>   | (2.7) <sup>F</sup> | (2.5) <sup>F</sup> | 3.8                | 3.5              | (3.6) <sup>A</sup> | 3.6                | 3.3              | 3.6              | 3.5                | 3.4                | [3.4] <sup>A</sup> | 3.4                | 3.7                | 3.3              | 3.2              | 3.6                | A                  | A                  | 3.1                | [3.1] <sup>A</sup> |    |
| :31          | (3.1) <sup>F</sup> | 2.7 <sup>F</sup>   | 3.1 <sup>V</sup>   | F                  | F                  | 3.0 <sup>F</sup>   | [3.0] <sup>F</sup> | 3.1 <sup>F</sup> | 3.2                | 3.3                | 3.4              | 3.7              | 3.6                | 3.5                | 3.3                | 3.6                | 3.7                | 3.2              | 3.0              | 3.4 <sup>F</sup>   | [3.0] <sup>A</sup> | 2.7 <sup>F</sup>   | 3.0 <sup>F</sup>   | 3.0 <sup>F</sup>   |    |
| Mean Value   | 3.0                | 2.9                | 2.9                | 2.9                | 2.9                | 3.0                | 3.3                | 3.4              | 3.5                | 3.5                | 3.3              | 3.5              | 3.4                | 3.5                | 3.4                | 3.5                | 3.5                | 3.3              | 3.3              | 3.3                | 3.2                | 3.1                | 2.9                | 2.9                |    |
| Median Value | 3.0                | 2.9                | 2.9                | 2.9                | 3.0                | 3.0                | 3.3                | 3.4              | 3.4                | 3.5                | 3.4              | 3.5              | 3.4                | 3.5                | 3.4                | 3.5                | 3.5                | 3.3              | 3.3              | 3.4                | 3.2                | 3.1                | 2.9                | 2.8                |    |
| Count        | 28                 | 28                 | 28                 | 29                 | 29                 | 29                 | 28                 | 28               | 28                 | 28                 | 28               | 30               | 30                 | 30                 | 30                 | 29                 | 29                 | 30               | 28               | 28                 | 30                 | 29                 | 27                 | 27                 | 28 |

Sheep 0.85... Mc to 2.2.0... Mc in 6... min

Manual  Automatic

(M3000)F2

A 9



The Radio Research Laboratories  
Koganei-machi, Khatama-gun, Tokyo, Japan

Lat. 39° 43.5' N  
Long. 140° 08.2' E

**Akita**

**IONOSPHERIC DATA**

**fminF**

135° E Mean Time

**Dec. 1952**

| Day          | 00    | 01    | 02   | 03   | 04   | 05    | 06     | 07     | 08    | 09    | 10    | 11   | 12   | 13    | 14    | 15  | 16    | 17    | 18     | 19   | 20    | 21     | 22   | 23    |     |
|--------------|-------|-------|------|------|------|-------|--------|--------|-------|-------|-------|------|------|-------|-------|-----|-------|-------|--------|------|-------|--------|------|-------|-----|
| 1            | 1.8F  | E     | 1.1  | E    | E    | E     | 1.4    | 1.6    | 2.4   | 2.7   | 2.8   | 3.0  | 3.3  | 3.0   | 2.7   | 2.3 | 1.7   | 1.5   | 2.1A   | 1.9  | 1.7   | 2.0A   | 1.5  | 1.5F  |     |
| 2            | 1.5   | 1.5   | 1.5  | E    | E    | E     | 1.5    | 1.9    | 2.4   | 2.7   | 2.8   | 2.9  | 2.9  | 2.7   | 2.5   | 2.4 | 2.2   | 1.5   | 1.5    | 1.9  | 1.6   | 2.2A   | 1.7  | 1.4   |     |
| 3            | 1.4   | 1.4   | 1.4  | E    | 1.3  | 1.4   | (2.4)A | 3.5A   | 2.5   | 2.8   | 3.1   | 3.0  | 3.1  | 2.8   | 2.7   | 2.5 | (2.4) | 2.2   | A      | A    | 2.2A  | 1.8    | A    | T     |     |
| 4            | T     | T     | T    | 1.7  | 2.3A | T     | T      | T      | 2.7   | 3.1   | 2.8   | 3.1  | 3.5  | 2.7   | 2.7   | 2.3 | 1.4   | 1.5   | 1.6    | 1.5  | A     | A      | A    | 1.7   |     |
| 5            | 1.7   | (1.6) | 1.6  | 1.4  | 1.4  | 1.4   | A      | 2.2A   | 2.3   | 2.5   | 5.2A  | 3.2  | 2.7  | 2.7   | 2.6   | 2.3 | 1.7   | 1.4   | 1.5    | 1.4  | 1.5   | A      | A    | A     |     |
| 6            | A     | 1.4   | 1.4  | E    | E    | 1.1   | 1.5    | 1.7    | 2.2   | 2.5   | 2.7   | 2.9  | 2.9  | (2.8) | 2.6   | 2.3 | 1.7   | 1.4   | 1.4    | 1.4  | 1.4   | 1.4    | 1.4  | 1.4   |     |
| 7            | 1.5   | 1.5   | E    | E    | E    | 1.4   | 1.4    | 1.6    | 2.4   | 2.5   | 2.7   | 2.8  | 3.0  | 2.9   | 2.9   | 2.4 | 1.7   | 1.5   | 1.5    | 1.5  | 1.5   | 1.4    | 1.5F | 1.5F  |     |
| 8            | 1.5   | 1.4F  | 1.1  | E    | E    | E     | 1.5    | 1.6    | 2.6   | 2.6   | 2.7   | 3.0  | 2.9  | 2.8   | 2.7   | 2.3 | 1.9   | 1.4   | 1.4    | 1.4  | 1.4   | 1.5    | 1.4  | 1.4   |     |
| 9            | 1.4   | 1.4   | 1.4  | E    | E    | E     | 1.5    | 1.5    | C     | C     | C     | 2.9  | 3.1  | 2.8   | C     | C   | C     | 1.4   | 1.5    | 1.5  | 1.5   | 1.4    | 1.4  | 1.4   |     |
| 10           | 1.4   | 1.4   | 1.4  | E    | E    | E     | 1.4    | 1.7    | 2.3   | (2.8) | 3.2   | 3.0  | 3.0  | 2.8   | 2.8   | 2.3 | 1.8   | 1.4   | 1.4    | 1.4  | 1.4   | 1.4    | 1.4  | 1.4   |     |
| 11           | 1.6   | 1.4   | 1.4  | 1.2  | E    | E     | 1.4    | 1.8    | 2.5   | 2.9   | 2.9   | 3.0  | 2.8  | 2.8   | 2.7   | 2.3 | 1.8   | 1.5   | 1.5    | 1.5  | 2.0A  | 1.5    | 1.5  | 1.5   |     |
| 12           | 1.5   | 1.5   | 1.5  | 1.4  | 1.3  | E     | 1.5    | 1.7    | (2.3) | 2.9   | 2.8   | 3.2  | 3.0  | 2.7   | 2.8   | 1.9 | 1.5   | 1.5   | 1.4    | 1.4  | 2.0A  | 1.5    | 1.5  | 1.5   |     |
| 13           | 1.4   | 1.3F  | 1.4  | 1.1  | E    | E     | 1.6    | 1.6    | 2.3   | 2.6   | 2.9   | 3.0  | 2.9  | 2.8   | 2.5   | 1.8 | 1.8   | 1.4   | 1.4    | 1.4  | 1.4   | 1.5    | 1.5  | 1.5   |     |
| 14           | 1.5F  | 1.4F  | 1.4  | 1.2  | E    | 1.4   | 1.5    | 1.7    | 3.9   | 2.9   | 3.4   | 3.7  | 3.2  | 2.8   | 2.7   | 2.6 | 1.8   | 1.4   | 1.5    | 1.4  | 1.5   | 1.5F   | 1.5F | 1.4F  |     |
| 15           | 1.4   | 1.4   | 1.1  | E    | 1.4  | E     | 1.4    | 1.7    | 2.7   | C     | C     | 2.9  | 3.0  | 2.8   | 2.6   | 2.6 | 2.2   | 2.0A  | 1.9    | 1.5  | 1.4   | 1.4    | 1.4  | 1.5   |     |
| 16           | 1.5   | 1.4   | 1.4  | 1.4  | 1.4  | 1.4   | 1.4    | 2.2A   | 2.6   | 3.0   | 3.2   | 3.4  | 3.2  | 2.8   | 2.7   | C   | C     | C     | C      | C    | 1.6   | (1.6)  | 1.5  | 1.5   |     |
| 17           | 1.4   | 1.4   | E    | E    | E    | 1.4   | 1.4    | 3.8A   | 2.7   | C     | C     | C    | C    | C     | 2.9   | 2.6 | 1.9   | 2.0A  | 2.7A   | 2.0A | 1.4   | 2.0A   | 1.4  | 1.5   |     |
| 18           | 1.7   | 1.5   | 1.4  | E    | E    | E     | 1.5    | (2.0)A | 2.5   | 2.8   | 3.5   | 3.1  | 3.0  | 3.0   | 3.0   | 2.4 | 2.5   | 1.7   | 1.5    | 1.4  | 1.6   | 1.5    | 1.4  | 1.4   |     |
| 19           | 1.4   | 1.4   | 1.4  | 1.2  | E    | 1.3   | 1.4    | 1.5    | 2.5   | 2.9   | 2.9   | 2.9  | 3.2  | 2.8   | 2.6   | 2.3 | 1.9   | 1.6   | 1.7    | 1.6  | 1.5   | 1.4    | 1.4  | 1.4   |     |
| 20           | 1.4   | 1.4   | 1.4  | E    | E    | E     | 1.4    | 1.4    | 2.3   | 2.5   | 3.0   | 2.9  | 3.1  | 2.9   | 2.5   | 2.3 | 2.2   | 2.2A  | 2.0A   | 1.5  | 1.5   | 1.5    | 1.5  | 1.5   |     |
| 21           | 1.4   | E     | 1.4  | 1.4  | E    | 1.5   | 1.5    | 1.8    | 2.6   | 2.9   | 3.5   | 3.0  | 3.4  | 3.4   | 2.7   | 2.4 | 2.4   | (2.0) | 1.5    | 1.6  | 1.6   | 1.4    | 1.5  | 1.5   |     |
| 22           | 1.6   | 1.4   | 1.5  | 1.6  | 1.4  | (1.4) | 1.4    | 1.5    | 2.5   | 3.0   | 3.0   | 3.8A | 3.1  | 4.0A  | 3.6A  | 2.9 | 2.2   | 1.5   | 1.6    | 1.4  | 1.6   | 1.5    | 1.5  | (1.7) |     |
| 23           | 1.9   | 1.5   | 1.5  | 1.7  | 1.4  | E     | 1.4    | C      | C     | 3.0   | 3.3   | 2.9  | 2.9  | 3.0   | 2.6   | 2.2 | 1.8   | 1.5   | 1.4    | 1.5  | 1.5   | 1.5F   | 1.5  | 1.5F  |     |
| 24           | 1.5F  | E     | E    | E    | E    | E     | E      | C      | C     | 2.7   | 2.8   | 2.9  | 2.8  | 2.8   | 2.7   | 2.3 | 2.2   | (1.8) | 1.5    | 2.2A | 1.5   | (1.5)A | 1.5F | 1.4F  |     |
| 25           | 1.4   | 1.1   | 1.1F | E    | E    | E     | 1.5    | 1.9    | 3.6A  | (3.6) | 3.7A  | 2.8  | 2.9  | 2.9   | 2.7   | 2.5 | 2.0   | 1.4   | A      | A    | 1.4   | A      | A    | 1.5   |     |
| 26           | (1.5) | 1.5F  | 1.6  | 1.9  | 1.5  | 1.7F  | 1.5    | 1.5    | 2.2   | 2.6   | 2.9   | 3.0  | 2.9  | 3.1   | 3.0   | 2.5 | 2.0   | A     | A      | A    | A     | A      | 1.5  | 1.5   |     |
| 27           | A     | A     | 2.5A | A    | 1.4  | 1.5   | 1.5    | 2.1    | 2.4   | 2.9   | 2.8   | 2.9  | 3.0  | 3.0   | 2.8   | 2.5 | 2.1   | 1.5   | (1.7)A | 1.9F | 1.5   | (1.5)  | 1.5  | 1.5F  |     |
| 28           | (1.4) | 2.5A  | 2.2A | 1.5F | E    | E     | 1.5    | (2.0)A | 2.5   | 2.7   | 2.8   | 3.5A | 2.8  | (3.6) | 4.5A  | 2.3 | 1.8   | 1.5   | (2.2)A | 2.8A | 1.7   | 1.5    | 1.7F | 1.7F  |     |
| 29           | 1.5F  | 1.5   | 1.4  | 1.5F | 1.4  | 1.4   | 1.7    | 2.5A   | 2.3   | 2.8   | 3.0   | 7.0A | 2.9  | 2.9   | 3.8   | 3.0 | 2.3   | 2.2A  | 1.4    | 2.3A | 2.2A  | (2.1)A | 2.0A | 1.6F  |     |
| 30           | 1.4F  | E     | E    | E    | E    | E     | 1.4    | 1.9    | A     | A     | 3.5A  | 3.0  | 6.0A | 5.5A  | (4.0) | 2.5 | 1.8   | 1.5   | 1.5    | 1.4  | A     | A      | 3.1A | (2.2) |     |
| 31           | 1.4   | 1.8F  | E    | 1.4F | 1.4F | 1.4F  | 2.2A   | 2.3A   | 3.7A  | 3.0   | (3.0) | 3.0  | 2.8  | 2.7   | 2.8   | 2.5 | 2.5   | 1.9   | (1.6)  | 1.5  | (1.5) | 1.5    | 1.5  | 1.4F  |     |
| Mean Value   | 1.5   | 1.5   | 1.5  | 1.4  | 1.5  | 1.4   | 1.5    | 2.0    | 2.6   | 2.8   | 3.2   | 3.2  | 3.1  | 3.0   | 2.9   | 2.5 | 2.0   | 1.6   | 1.6    | 1.7  | 1.6   | 1.6    | 1.6  | 1.5   | 1.5 |
| Median Value | 1.5   | 1.4   | 1.4  | E    | E    | E     | 1.5    | 1.8    | 2.5   | 2.8   | 3.0   | 3.0  | 3.0  | 2.8   | 2.7   | 2.4 | 1.9   | 1.5   | 1.5    | 1.5  | 1.5   | 1.5    | 1.5  | 1.5   |     |
| Count        | 28    | 29    | 30   | 30   | 31   | 30    | 28     | 27     | 27    | 27    | 28    | 30   | 30   | 30    | 30    | 29  | 29    | 29    | 27     | 27   | 29    | 28     | 27   | 29    |     |

Sweep 0.85 Me to 22.0 Me in 6 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 38° 43.6' N  
Long. 140° 08.2' E

Akita

Dec. 1952

fminE

135° E Mean Time

| Day    | 00               | 01               | 02  | 03  | 04  | 05                 | 06  | 07                 | 08                 | 09                 | 10  | 11  | 12  | 13                 | 14  | 15                 | 16  | 17               | 18               | 19               | 20               | 21                 | 22  | 23               |    |
|--------|------------------|------------------|-----|-----|-----|--------------------|-----|--------------------|--------------------|--------------------|-----|-----|-----|--------------------|-----|--------------------|-----|------------------|------------------|------------------|------------------|--------------------|-----|------------------|----|
| 1      | 1.4              | E                | E   | 1.5 | 1.4 | 1.4                | 1.6 | 1.4                | 1.4                | 1.4                | 1.4 | 1.4 | 1.4 | 1.4                | 1.4 | 1.4                | 1.5 | 1.5              | 1.4              | 1.4              | 1.5              | 1.4                | 1.5 | 1.5 <sup>F</sup> |    |
| 2      | 1.5 <sup>F</sup> | 1.1              | E   | E   | E   | 1.5                | E   | 1.5                | 1.5                | 1.4                | 1.4 | 1.4 | 1.4 | 1.4                | 1.5 | 1.4                | 1.4 | 1.5 <sup>F</sup> | 1.4              | 1.4              | 1.4              | 1.4                | 1.4 | 1.4              |    |
| 3      | 1.4              | 1.4              | 1.1 | E   | E   | 1.6                | 1.4 | 1.4                | 1.4                | 1.3                | 1.6 | 1.7 | 1.4 | T                  | T   | 1.4                | T   | T                | 1.4              | 1.4              | 1.4              | 1.4                | 1.4 | T                |    |
| 4      | T                | T                | T   | E   | T   | T                  | T   | T                  | 1.6                | 2.0                | 2.0 | 1.5 | 1.5 | 1.5                | 1.5 | 1.6                | 1.4 | 1.4              | 1.4              | 1.5              | 1.4              | 1.5                | 1.4 | 1.4              |    |
| 5      | 1.4              | E                | E   | E   | E   | E                  | 1.4 | 1.4                | 1.4                | 1.5                | 1.5 | 1.5 | 1.4 | 1.4                | 1.5 | 1.5                | 1.5 | 1.5              | 1.5              | E                | 1.5              | 1.5                | 1.4 | 1.3              |    |
| 6      | 1.4              | E                | E   | E   | E   | E                  | 1.4 | 1.5                | 1.3                | 1.4                | 1.4 | 1.4 | 1.5 | (1.4) <sup>F</sup> | 1.4 | 1.4                | 1.4 | 1.4              | 1.4              | 1.5              | 1.5              | 1.6                | 1.5 | 1.6              |    |
| 7      | 1.5              | 1.5              | 1.8 | 1.5 | 1.5 | 1.8                | 1.5 | 1.4                | 1.4                | 1.5                | 1.5 | 1.5 | 1.5 | (1.5) <sup>F</sup> | 1.5 | 1.4                | 1.4 | 1.5              | 1.4              | 1.5              | 1.5              | 1.5                | 1.6 | 1.5              |    |
| 8      | 1.5              | 1.8              | 1.6 | E   | E   | 1.5                | E   | 1.5                | 1.5                | 1.4                | 1.4 | 1.5 | 1.5 | 1.8                | 1.5 | 1.5                | 1.4 | 1.5              | 1.4              | 1.5              | 1.4              | 1.5                | 1.4 | 1.6              |    |
| 9      | 1.5              | 1.4              | 1.4 | E   | E   | E                  | 1.5 | 1.5                | C                  | C                  | C   | 1.5 | 1.5 | 1.5                | C   | C                  | C   | E                | 1.5              | 1.5              | 1.6              | 1.4                | 1.6 | 1.5              |    |
| 10     | 1.4              | 1.4              | 1.5 | 1.4 | 1.4 | 1.4                | E   | 1.8                | 1.4                | (1.4) <sup>F</sup> | 1.4 | 1.4 | 1.4 | 1.4                | 1.4 | 1.4                | 1.4 | 1.4              | E                | E                | E                | 1.6                | 1.4 | 1.4              |    |
| 11     | 1.4              | E                | E   | E   | E   | E                  | E   | E                  | 1.6                | 1.4                | 1.4 | 1.4 | 1.4 | 1.4                | 1.5 | 1.4                | 1.4 | E                | 1.4              | 1.5              | 1.5              | 1.5                | E   | 1.5              |    |
| 12     | 1.5              | E                | E   | 1.5 | E   | E                  | E   | 1.5                | (1.4) <sup>F</sup> | 1.4                | 1.4 | 1.4 | 1.4 | 1.4                | 1.5 | 1.4                | 1.4 | 1.4              | 1.4              | 1.4              | 1.4              | 1.4                | 1.5 | 1.5              |    |
| 13     | 1.5              | 1.3 <sup>S</sup> | 1.4 | 1.1 | 1.2 | E                  | 1.6 | 1.6                | 2.3                | 1.4                | 1.4 | 1.5 | 1.4 | 1.4                | 1.5 | 1.5                | 1.5 | E                | 1.5              | 1.5              | 1.6              | 1.5                | 1.5 | 1.5              |    |
| 14     | 1.5              | E                | E   | E   | E   | E                  | 1.5 | 1.5                | 1.5                | 1.4                | 1.4 | 1.4 | 1.4 | 1.5                | 1.4 | 1.4                | 1.4 | 1.5              | 1.6              | 1.4              | 1.5              | E                  | 1.4 | 1.4              |    |
| 15     | 1.6              | 1.4              | 1.1 | E   | 1.3 | E                  | 1.7 | 1.8                | 1.4                | C                  | C   | 1.4 | 1.4 | 1.5                | 1.4 | 1.4                | 1.5 | 1.4              | 1.4              | 1.4              | 1.4              | 1.4                | 1.5 | 1.5              |    |
| 16     | 1.5              | 1.4              | 1.4 | 1.6 | E   | 1.6                | E   | 1.5                | 1.4                | 1.4                | 1.5 | 1.7 | 1.7 | 1.7                | 1.7 | C                  | C   | C                | C                | C                | 1.4              | (1.4) <sup>F</sup> | 1.4 | 1.5              |    |
| 17     | 1.4              | 1.4              | E   | E   | 1.4 | 1.8                | 1.8 | 1.4                | 1.4                | C                  | C   | C   | C   | C                  | 1.4 | 1.4                | 1.5 | 1.5              | 1.4              | 1.4              | E                | 1.5                | 1.5 | 1.5 <sup>F</sup> |    |
| 18     | 1.5 <sup>F</sup> | 1.4 <sup>F</sup> | E   | E   | E   | 1.8                | 1.5 | 1.5                | 1.5                | 1.5                | 1.4 | 1.5 | 1.6 | 1.4                | 1.5 | 1.4                | 1.4 | 1.4              | 1.4              | 1.4              | 1.4              | 1.4                | 1.4 | 1.5              |    |
| 19     | 1.6              | E                | 1.1 | E   | E   | E                  | E   | 1.5                | 1.4                | 1.4                | 1.4 | 1.4 | 1.4 | 1.4                | 1.4 | 1.4                | 1.4 | 1.4              | 1.4              | 1.4              | 1.4              | 1.4                | 1.4 | 1.5              |    |
| 20     | 1.6              | 1.4              | E   | E   | E   | 1.8                | 1.4 | (1.4) <sup>F</sup> | 1.4                | 1.4                | 1.4 | 1.5 | 1.4 | 1.4                | 1.4 | 1.4                | 1.5 | 1.5              | 1.5              | 1.5              | 1.5              | 1.4                | 1.4 | 1.5              |    |
| 21     | 1.4              | 1.4              | 1.4 | E   | E   | E                  | E   | 1.5                | 1.5                | 1.5                | 1.5 | 1.7 | 1.9 | 1.9                | 1.9 | 1.9                | 1.9 | 1.9              | 1.4              | 1.4              | 1.4              | 1.4                | 1.5 | 1.5              |    |
| 22     | 1.5              | 1.4              | 1.3 | 1.4 | 1.3 | (1.4) <sup>C</sup> | 1.5 | 1.5                | 1.5                | 1.7                | 2.0 | 2.4 | 2.5 | 2.7                | 2.2 | (1.8) <sup>B</sup> | 1.4 | 1.5              | 1.5              | 1.4              | 1.4              | 1.4                | 1.4 | 1.4              |    |
| 23     | 1.5              | E                | E   | E   | E   | 1.4                | 1.7 | C                  | C                  | 1.4                | 1.5 | 1.4 | 1.5 | 1.4                | 1.4 | 1.4                | 1.7 | E                | E                | 1.7              | 1.5              | E                  | 1.5 | E                |    |
| 24     | 1.5 <sup>F</sup> | E                | E   | E   | E   | 1.4                | C   | C                  | C                  | 1.4                | 1.4 | 1.5 | 1.4 | 1.4                | 1.4 | 1.4                | 1.4 | 1.4              | 1.4              | 1.5              | 1.4              | 1.4                | 1.5 | 1.4 <sup>F</sup> |    |
| 25     | 1.6              | 1.1              | E   | E   | E   | E                  | 1.4 | 1.4                | 1.5                | 1.5                | 1.9 | 2.2 | 2.5 | 2.2                | 2.0 | 1.9                | 1.4 | 1.4              | 1.4              | 1.4              | 1.4              | 1.4                | 1.4 | 1.4              |    |
| 26     | 1.4              | E                | E   | E   | E   | E                  | 1.5 | 1.7                | 1.4                | 1.4                | 1.5 | 1.5 | 1.6 | 1.5                | 1.5 | 1.5                | 1.5 | 1.5              | 1.5 <sup>F</sup> | 1.5 <sup>F</sup> | 1.5 <sup>F</sup> | 1.5 <sup>F</sup>   | 1.5 | 1.5              |    |
| 27     | 1.5              | 1.1              | E   | E   | C   | E                  | 1.5 | 1.5                | 1.5                | 1.5                | 1.4 | 1.4 | 1.5 | 1.5                | 1.4 | 1.4                | 1.4 | 1.5              | 1.4              | 1.5              | 1.4              | 1.4                | 1.4 | 1.5 <sup>F</sup> |    |
| 28     | 1.4 <sup>F</sup> | 1.2 <sup>F</sup> | E   | E   | E   | E                  | E   | 1.4                | 1.4                | 1.4                | 1.4 | 1.4 | 1.4 | 1.4                | 1.4 | 1.4                | 1.4 | 1.4              | 1.4              | 1.4              | 1.4              | 1.4                | 1.4 | 1.4              |    |
| 29     | 1.4              | E                | E   | E   | E   | 1.4                | 1.4 | 1.4                | 1.4                | 1.5                | 1.5 | 1.5 | 1.5 | 1.4                | 1.5 | 1.5                | 1.5 | 1.5 <sup>F</sup> | 1.4              | 1.4              | 1.4              | 1.4                | 1.4 | 1.4 <sup>F</sup> |    |
| 30     | 1.6              | 1.4              | E   | E   | 1.7 | 1.8                | E   | 1.4                | 1.4                | 1.4                | 1.4 | 1.4 | 1.5 | 1.4                | 1.4 | 1.4                | 1.5 | E                | 1.4              | 1.5              | 1.5              | 1.5                | 1.4 | 1.5              |    |
| 31     | 1.4              | 1.2              | E   | E   | E   | E                  | 1.4 | 1.4                | 1.4                | 1.4                | 1.4 | 1.4 | 1.4 | 1.4                | 1.4 | 1.4                | 1.4 | 1.4              | 1.4              | 1.5              | 1.4              | 1.4                | 1.4 | 1.5 <sup>F</sup> |    |
| Mean   | 1.5              | 1.4              | 1.4 | 1.4 | 1.4 | 1.6                | 1.5 | 1.5                | 1.5                | 1.5                | 1.5 | 1.5 | 1.5 | 1.5                | 1.5 | 1.5                | 1.5 | 1.5              | 1.4              | 1.4              | 1.5              | 1.5                | 1.5 | 1.5              |    |
| Median | 1.5              | 1.2              | E   | E   | E   | E                  | 1.4 | 1.5                | 1.4                | 1.4                | 1.4 | 1.4 | 1.4 | 1.4                | 1.5 | 1.4                | 1.4 | 1.4              | 1.4              | 1.4              | 1.4              | 1.4                | 1.4 | 1.5              |    |
| Count  | 30               | 30               | 30  | 30  | 30  | 30                 | 29  | 27                 | 28                 | 28                 | 28  | 30  | 30  | 29                 | 29  | 29                 | 28  | 29               | 30               | 30               | 30               | 31                 | 31  | 31               | 30 |

Swamp D.E.S. Mc to 72.0 Mc in 6 min

Manual  Automatic

fminE

The Radio Research Laboratories  
Koganei-machi, Kitakama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 59.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time

foF2

Dec. 1952

| Day           | 00     | 01   | 02     | 03     | 04     | 05     | 06   | 07     | 08     | 09     | 10     | 11     | 12     | 13   | 14     | 15   | 16     | 17     | 18     | 19     | 20     | 21     | 22     | 23     |
|---------------|--------|------|--------|--------|--------|--------|------|--------|--------|--------|--------|--------|--------|------|--------|------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1             | 2.8    | 2.9F | 2.9F   | (3.5)F | 3.0    | (3.3)C | 3.6  | 5.9    | 6.4    | (6.4)M | 6.5    | 7.0    | 6.7    | 6.7  | 6.3    | 5.8M | 5.0    | 3.2    | 4.0    | 3.0F   | (2.8)F | 2.6    | 3.0F   | 2.5F   |
| 2             | 3.0F   | 2.4F | 2.6    | 3.6F   | 2.8    | 2.5F   | 2.8  | 4.5F   | 6.8    | 7.5F   | 8.0    | 7.7    | 7.7    | 7.2  | 5.4    | 5.6H | 6.3    | (4.6)C | 3.0    | (3.2)A | 3.5F   | 3.3    | 3.7F   | 3.6    |
| 3             | 3.0F   | 2.5S | 2.5F   | 2.7    | 2.8    | 3.3F   | 2.7  | (4.9)M | 7.1    | 8.3    | 9.8    | 8.4    | 8.3    | 7.4F | 7.0    | 6.2  | 6.4    | 4.7    | 3.7    | 3.6F   | 3.2F   | (3.0)M | 2.7F   | F      |
| 4             | F      | F    | F      | AF     | 2.6F   | 2.5F   | 3.0  | 6.5F   | 7.5    | 6.6    | 7.2    | 8.1    | 8.0    | 7.3  | 7.0    | 5.8  | 5.0    | 4.2    | (4.5)S | 4.1    | S      | 2.4    | (2.4)A | 2.4F   |
| 5             | 3.4V   | 2.7F | 2.4F   | 2.5F   | 2.4F   | 2.6F   | 2.8V | 6.0    | (6.2)F | 6.0    | 6.7    | (7.3)P | (8.5)P | 7.9  | 6.4    | 6.2  | 6.0    | 4.7    | 3.6F   | 2.3    | 2.5    | 2.7    | 2.9F   | 2.8F   |
| 6             | 3.0    | 2.8  | 2.6    | 2.4    | 2.5F   | 2.5V   | 2.6  | 6.1F   | 7.9F   | 6.6    | (6.9)C | 7.2    | 7.5    | 7.0  | 7.5    | 7.0  | 5.9    | 3.5    | 3.6    | 3.2    | 2.5    | 2.2    | 2.0    | 2.3    |
| 7             | 2.5    | 2.6  | 2.6    | 2.7    | (2.6)B | 2.4    | 2.5  | 5.4J   | 5.4    | 5.7H   | B      | 7.2    | 6.7    | B    | 6.1    | 6.5F | 5.7    | 3.5    | 2.6    | 3.4S   | 4.0F   | 3.1    | 2.5    | 2.7    |
| 8             | (2.8)F | 2.8F | 2.7F   | 2.7F   | 2.9F   | C      | C    | B      | 6.0    | 6.5F   | 7.4F   | 7.0    | 6.5    | 7.1  | 7.3    | 5.6  | 5.3    | 4.0    | 3.2    | 2.5S   | 3.5    | C      | C      | C      |
| 9             | C      | C    | C      | C      | C      | C      | C    | B      | 6.5J   | 7.4    | 7.5F   | 6.6    | B      | 6.6  | 6.0    | 6.7H | 5.7    | 3.7    | 2.9    | 3.3F   | F      | FB     | 3.0    | 3.0F   |
| 10            | 3.1F   | 3.2  | 3.1    | 3.1    | 3.3    | 2.6    | 2.5  | (5.1)P | (6.5)J | 6.8J   | 6.1    | 7.5    | 7.5    | 6.0  | 5.7    | 7.2  | 5.6    | 3.6    | 2.5    | 3.3    | 3.4J   | 2.9    | 2.8    | 3.0    |
| 11            | 3.1    | 3.3  | 3.6F   | (3.4)H | 3.1    | 3.0    | B    | B      | 5.5    | 6.7    | 8.1    | 8.0    | 8.1    | 7.1  | 6.3    | 6.2  | 7.0    | 3.3    | 3.3    | 3.3    | 2.8    | 2.8    | 2.8    | F      |
| 12            | FS     | 3.7F | 3.7    | SB     | 2.9    | 3.0    | 3.3F | C      | C      | 7.0    | 8.0F   | 6.6    | 8.0F   | B    | B      | 6.2  | 5.3    | 3.3    | C      | A      | 3.1    | 3.8    | AF     | AF     |
| 13            | AF     | 3.1F | 3.0F   | 3.3    | 3.0    | 3.3    | 3.1  | 5.6    | B      | B      | B      | B      | (8.4)P | 7.0  | 6.7    | 5.6  | 5.8    | 4.5    | 4.5    | SB     | SB     | SB     | SB     | SB     |
| 14            | SB     | SB   | SB     | AF     | AF     | AF     | AF   | 6.1F   | B      | B      | 8.5J   | B      | 8.8    | 8.2  | 5.9    | 7.3F | 6.5    | 4.1H   | 3.7    | 3.4F   | 3.2    | F      | F      | 2.3F   |
| 15            | F      | F    | (3.0)F | 3.0F   | B      | 2.1    | 2.4  | M      | M      | 6.4J   | B      | B      | 8.1J   | 7.8  | 6.2    | 5.5  | 5.8    | 4.6    | 3.2    | 2.8    | 3.2    | (2.9)J | 2.6F   | 2.5    |
| 16            | 2.3J   | 3.1  | 3.2    | 3.0    | 3.0    | 3.0    | 3.6F | 5.0J   | 5.7    | 6.3    | 8.1    | B      | B      | 7.3  | 7.6    | 7.3  | 5.8    | 3.7    | 3.0    | 2.7    | 2.7    | 2.7F   | 2.8F   | (3.0)F |
| 17            | 3.3F   | 3.4  | 3.3    | 2.6F   | 3.0F   | 2.5F   | 2.8  | 5.0F   | 7.0F   | 7.6F   | B      | B      | 6.8    | 7.5  | 7.5    | 7.4  | 5.7    | 5.0F   | 4.4    | 2.6Z   | 2.5    | 2.6Z   | (2.8)C | 3.0F   |
| 18            | (3.2)F | 3.3F | 3.3V   | 3.2F   | 3.2    | C      | C    | C      | C      | 5.8    | 7.0    | 7.7    | 7.2    | 7.2H | 6.0F   | 6.9F | (5.5)S | 4.1Z   | 4.0    | 2.9    | 2.6F   | 2.8M   | (2.6)F | 3.1    |
| 19            | 2.7    | 2.8  | 2.8    | 3.0F   | 3.2    | 2.4F   | 2.9  | 5.2J   | 6.2    | 5.8    | 6.4    | B      | B      | 6.3H | 6.5    | 6.9  | 5.0    | 3.4P   | 3.3    | 2.8    | 2.6    | 2.8    | 2.8    | 2.7    |
| 20            | 3.0    | T    | 3.2    | 3.0F   | (2.9)B | 2.8F   | 2.9J | M      | M      | T      | 6.2    | 7.1    | 6.5H   | 7.5  | 6.8    | 6.4  | 5.6J   | 3.5F   | (3.2)J | 3.0F   | 2.9    | 2.5F   | 2.3F   | 2.5F   |
| 21            | 2.9F   | 2.7F | 3.2F   | 3.6F   | (3.6)F | 3.5    | 3.7F | 5.5    | 5.6    | T      | 5.7    | 6.3    | 6.7    | 6.3  | 6.4    | T    | C      | T      | C      | C      | C      | C      | 2.5F   | 2.6F   |
| 22            | 2.7F   | 3.0  | 3.2    | 3.0F   | 3.0    | 2.4    | 2.5  | 4.4    | (4.8)B | 5.5    | (6.6)C | 7.6    | 7.5    | 7.0  | 6.3    | 5.3  | 5.3    | 3.9    | 2.5    | 3.3    | 3.1    | 2.6    | 2.7    | 2.8    |
| 23            | 2.8F   | 3.0  | 2.8    | 2.9F   | 3.0    | 3.3    | M    | M      | M      | M      | 6.0    | 6.3    | T      | T    | 6.3    | 6.3  | 5.7    | 3.2    | 2.7    | 3.4F   | 2.7    | 2.5F   | 3.0F   | 3.3F   |
| 24            | 3.1V   | 2.6F | F      | F      | F      | F      | F    | 2.8F   | 5.5    | (5.8)B | 6.4    | 7.0    | 6.0    | 5.4  | 6.2    | 6.2  | 5.0    | 4.5    | 2.7    | 2.6    | 3.0    | AF     | AF     | 2.6    |
| 25            | (2.6)F | 2.5  | F      | 2.4F   | 2.5F   | 2.6    | 2.5F | (5.1)B | 7.7F   | 8.8    | (9.2)P | 8.1    | 6.5    | 7.5  | 6.7    | 5.9F | 5.6    | 4.5    | 3.0    | (3.0)A | 3.0    | 2.6F   | 2.7    | 3.3    |
| 26            | 2.5F   | 2.6F | (2.6)F | 2.6Z   | 2.8F   | (2.8)A | 2.9  | 4.5    | 7.0    | (7.0)A | 7.0J   | 6.6    | 5.8    | C    | A      | 5.6  | 5.4    | 5.6    | 3.4    | 3.8    | F      | FB     | 2.4F   | AF     |
| 27            | AF     | F    | 3.3J   | C      | C      | C      | C    | C      | C      | C      | C      | C      | C      | C    | C      | C    | C      | C      | C      | C      | C      | C      | C      | C      |
| 28            | C      | C    | C      | C      | C      | C      | C    | C      | C      | C      | C      | C      | C      | C    | C      | C    | C      | C      | C      | C      | C      | C      | C      | C      |
| 29            | C      | C    | C      | C      | C      | C      | C    | C      | C      | C      | C      | C      | 6.5    | 6.7  | 5.5    | 5.4  | (5.4)J | 5.4J   | 4.1    | 3.0F   | 2.4    | 2.5F   | (2.6)M | 2.7F   |
| 30            | F      | F    | F      | 2.8F   | 3.4JF  | 3.5F   | 4.3F | 3.5    | 5.0J   | A      | B      | (8.3)P | (7.8)B | 7.3  | 6.5    | 6.5  | 5.8    | 4.6    | (5.4)J | B      | F      | F      | F      | F      |
| 31            | F      | 2.6  | F      | F      | F      | 3.1P   | 3.9  | 3.5F   | 5.0F   | 6.6F   | B      | B      | B      | 5.5  | (6.7)P | 6.7  | 5.6    | A      | A      | A      | 3.3F   | 2.7F   | AF     | AF     |
| Mean          | 2.9    | 2.9  | 3.0    | 3.0    | 2.9    | 2.8    | 3.0  | 5.2    | 6.2    | 6.7    | 7.2    | 7.4    | 7.3    | 7.0  | 6.5    | 6.3  | 5.6    | 4.1    | 3.5    | 3.1    | 3.0    | 2.8    | 2.7    | 2.8    |
| Maximum Value | 3.0    | 2.8  | 3.0    | 3.0    | 2.8    | 2.8    | 2.8  | 5.2    | 6.2    | 6.6    | 7.0    | 7.2    | 7.4    | 7.1  | 6.4    | 6.2  | 5.6    | 4.1    | 3.3    | 3.1    | 3.0    | 2.7    | 2.7    | 2.7    |
| Count         | 20     | 22   | 22     | 22     | 23     | 24     | 23   | 20     | 21     | 23     | 22     | 20     | 24     | 26   | 27     | 28   | 28     | 27     | 26     | 24     | 23     | 21     | 22     | 21     |

Manual  Automatic

Sweep 1.0 Mc to 17.2 Mc in 2 min

K 1

# IONOSPHERIC DATA

**Kokubunji Tokyo**  
Lat. 35° 42.4' N  
Long. 139° 29.3' E

1.5 MF2

Dec. 1952

135° E Mean Time

| Day    | 00                 | 01  | 02                  | 03                  | 04                  | 05                 | 06  | 07                 | 08                 | 09                 | 10                 | 11                 | 12                 | 13                 | 14                  | 15                 | 16                 | 17                 | 18                 | 19                  | 20                 | 21                 | 22                 | 23                 |
|--------|--------------------|-----|---------------------|---------------------|---------------------|--------------------|-----|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|--------------------|--------------------|--------------------|
| 1      | 370                | 230 | 340                 | (350) <sup>F</sup>  | 300                 | (300) <sup>C</sup> | 290 | 240                | 240                | (260) <sup>M</sup> | 250                | 280                | 290                | 260                | 250                 | 270                | 250                | 270                | 280                | 270                 | F                  | 270                | 320                | 300                |
| 2      | 320                | 330 | 320                 | 310                 | 400                 | 340                | 310 | 250                | 250                | 270                | 270                | 250                | 240                | 250                | 250                 | 340                | 270                | (270) <sup>C</sup> | 310                | (300) <sup>A</sup>  | (290) <sup>T</sup> | 320                | 370                | 320                |
| 3      | 270                | 410 | 350                 | 370                 | 350                 | 260                | 370 | (320) <sup>A</sup> | 270                | 290                | 280                | 250                | 250                | (260) <sup>F</sup> | 260                 | 250                | 250                | 270                | 290                | 300                 | 330                | (360) <sup>M</sup> | 400                | F                  |
| 4      | F                  | F   | F                   | AF                  | 320                 | 350                | 300 | 290                | 250                | 260                | 290                | 280                | 260                | 280                | 250                 | 270                | 270                | 290                | (300) <sup>S</sup> | 290                 | S                  | (320) <sup>A</sup> | 300                | F                  |
| 5      | 300                | 270 | 310                 | 340                 | 330                 | 340                | 290 | 250                | (250) <sup>C</sup> | 270                | 260                | 260                | (270) <sup>P</sup> | 260                | 250                 | 260                | 250                | 250                | 250                | 280                 | 310                | 270                | 270                | 310                |
| 6      | 350                | 310 | 290                 | 310                 | 370                 | 310                | 300 | 260                | (240) <sup>J</sup> | 220                | (250) <sup>C</sup> | 280                | 280                | 280                | 270                 | 260                | 240                | 240                | 250                | 310                 | 300                | 260                | B                  | 290                |
| 7      | 340                | 350 | 350                 | 350                 | (320) <sup>B</sup>  | 280                | 290 | (230) <sup>J</sup> | 250                | 250                | B                  | 230                | 270                | B                  | 250                 | 300                | 240                | 240                | 350                | 340                 | 280                | 240                | 270                | 320                |
| 8      | (340) <sup>F</sup> | 360 | 320                 | 350                 | 340                 | 330                | 300 | B                  | 230                | (270) <sup>J</sup> | 240                | 250                | 240                | 250                | 250                 | 250                | 250                | 220                | 260                | 310                 | 310                | C                  | C                  | C                  |
| 9      | C                  | C   | C                   | C                   | C                   | C                  | C   | B                  | (230) <sup>J</sup> | 250                | 250                | B                  | 250                | 260                | 280                 | 280                | 250                | 220                | 340                | 280                 | F                  | FB                 | 270                | 400                |
| 10     | (350) <sup>F</sup> | 360 | 330                 | 320                 | 290                 | 300                | 320 | (250) <sup>P</sup> | (270) <sup>P</sup> | (240) <sup>J</sup> | 260                | 250                | 260                | 260                | 270                 | 260                | 240                | 260                | 320                | 340                 | (270) <sup>J</sup> | 320                | 340                | 400                |
| 11     | 360                | 370 | 340                 | (340) <sup>B</sup>  | 350                 | 290                | B   | B                  | 250                | 290                | 250                | 310                | 260                | 270                | 270                 | 260                | 240                | 230                | 320                | 260                 | 270                | 320                | 350                | F                  |
| 12     | ES                 | 350 | 310                 | SB                  | 310                 | 340                | 300 | C                  | 280                | 350                | 260                | 260                | 300                | B                  | B                   | 250                | 250                | 260                | C                  | A                   | 340                | 250                | AF                 | AF                 |
| 13     | AF                 | 350 | 390                 | 350                 | 320                 | 300                | 320 | 270                | B                  | B                  | B                  | B                  | (260) <sup>P</sup> | 240                | 260                 | 250                | 260                | 270                | 300                | SB                  | SB                 | SB                 | SB                 | SB                 |
| 14     | SB                 | SB  | SB                  | AF                  | AF                  | AF                 | AF  | 260                | B                  | (250) <sup>J</sup> | B                  | B                  | 240                | 250                | 270                 | 260                | 260                | 250                | 270                | 250                 | 270                | F                  | F                  | 350                |
| 15     | F                  | F   | F                   | (310) <sup>PF</sup> | 280                 | B                  | B   | 300                | M                  | (270) <sup>J</sup> | B                  | B                  | (250) <sup>J</sup> | 250                | 250                 | 250                | 250                | 250                | 260                | 300                 | 350                | T                  | A                  | 390                |
| 16     | (250) <sup>J</sup> | 310 | 300                 | 350                 | 240                 | 340                | 280 | (240) <sup>J</sup> | 240                | 260                | 310                | B                  | B                  | 250                | 280                 | 260                | 250                | 250                | 320                | 320                 | 350                | 370                | 400                | (380) <sup>F</sup> |
| 17     | 350                | 370 | 300                 | 350                 | 300                 | 370                | 320 | 270                | 300                | 260                | B                  | B                  | 250                | 280                | 260                 | 250                | 250                | 270                | 310                | 360                 | 330                | 330                | (340) <sup>C</sup> | 360                |
| 18     | (360) <sup>F</sup> | 370 | 370                 | 370                 | 320                 | C                  | C   | C                  | C                  | 260                | 260                | 260                | 280                | 300                | 270                 | 250                | (260) <sup>S</sup> | 270                | 270                | 280                 | 290                | 300                | 300                | (240) <sup>F</sup> |
| 19     | 330                | 370 | 380                 | 380                 | 280                 | 400                | 310 | 260                | 250                | 250                | 290                | B                  | B                  | 300                | 280                 | 260                | 280                | 260                | 300                | 290                 | 300                | 300                | 350                | 370                |
| 20     | 370                | T   | 360                 | 320                 | (330) <sup>B</sup>  | 340                | F   | (300) <sup>J</sup> | M                  | M                  | T                  | 300                | 260                | 300                | 270                 | 250                | (250) <sup>J</sup> | 270                | (280) <sup>I</sup> | 280                 | 310                | 390                | 400                | 370                |
| 21     | 330                | 390 | 340                 | 300                 | 320                 | 300                | 270 | 260                | 250                | T                  | 270                | 290                | 280                | 250                | 280                 | T                  | C                  | T                  | C                  | C                   | C                  | C                  | 330                | 320                |
| 22     | 360                | 340 | 310                 | 290                 | 260                 | 350                | 300 | 270                | (260) <sup>B</sup> | 250                | (260) <sup>C</sup> | 280                | 280                | 240                | 260                 | 250                | 240                | 250                | 330                | 300                 | 250                | 280                | 370                | 360                |
| 23     | 320                | 350 | 380                 | 400                 | 330                 | 350                | M   | M                  | M                  | 270                | 250                | T                  | T                  | 250                | 260                 | 260                | 240                | 260                | 330                | 280                 | 260                | 330                | 340                | 280                |
| 24     | (260) <sup>J</sup> | 310 | F                   | F                   | F                   | F                  | 310 | (250) <sup>P</sup> | 240                | (240) <sup>B</sup> | 250                | 260                | 250                | 250                | 280                 | 250                | 240                | 290                | 340                | 300                 | 310                | AF                 | AF                 | 380                |
| 25     | (320) <sup>F</sup> | 290 | F                   | 400                 | 380                 | 360                | 340 | (300) <sup>B</sup> | 270                | 230                | (260) <sup>P</sup> | 260                | 240                | 270                | 260                 | 250                | 240                | 250                | 250                | 250                 | 280                | 300                | 360                | 270                |
| 26     | 290                | 440 | (400) <sup>PF</sup> | 370                 | 380                 | (360) <sup>A</sup> | 330 | 280                | 230                | [240] <sup>A</sup> | (240) <sup>J</sup> | 240                | 240                | C                  | A                   | 260                | 270                | 240                | 260                | 300                 | F                  | FB                 | 260                | AF                 |
| 27     | AF                 | F   | F                   | (310) <sup>J</sup>  | C                   | C                  | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                   | C                  | C                  | C                  | C                  | C                   | C                  | C                  | C                  | C                  |
| 28     | C                  | C   | C                   | C                   | C                   | C                  | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                   | C                  | C                  | C                  | C                  | C                   | C                  | C                  | C                  | C                  |
| 29     | C                  | C   | C                   | C                   | C                   | C                  | C   | C                  | C                  | C                  | C                  | C                  | 250                | 250                | 250                 | (260) <sup>J</sup> | 240                | (250) <sup>J</sup> | 240                | 250                 | 380                | 400                | (350) <sup>F</sup> | 300                |
| 30     | F                  | F   | F                   | 340                 | (370) <sup>PF</sup> | 310                | 250 | 230                | (250) <sup>J</sup> | A                  | B                  | (270) <sup>P</sup> | 250                | 270                | 250                 | 270                | 260                | 250                | 280                | (270) <sup>PF</sup> | B                  | F                  | F                  | F                  |
| 31     | F                  | 270 | F                   | F                   | F                   | 330                | 250 | 250                | 250                | 280                | B                  | B                  | B                  | 250                | (300) <sup>PF</sup> | 240                | 250                | A                  | A                  | A                   | 300                | 310                | AF                 | AF                 |
| Mean   | 330                | 340 | 340                 | 340                 | 330                 | 330                | 300 | 260                | 250                | 260                | 270                | 260                | 260                | 260                | 260                 | 260                | 250                | 260                | 290                | 290                 | 310                | 320                | 340                | 340                |
| Median | 340                | 350 | 340                 | 350                 | 330                 | 340                | 300 | 260                | 250                | 260                | 260                | 260                | 260                | 260                | 260                 | 260                | 250                | 260                | 300                | 290                 | 300                | 320                | 340                | 350                |
| Count  | 20                 | 22  | 22                  | 22                  | 23                  | 23                 | 23  | 20                 | 21                 | 23                 | 22                 | 20                 | 24                 | 26                 | 27                  | 28                 | 28                 | 27                 | 26                 | 24                  | 22                 | 20                 | 20                 | 21                 |

1.5 MF2

Sweep 1.0 Me in 2 min

Manual  Automatic

K 2

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 28.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time

R'F2

Dec. 1952

| Day          | 00               | 01               | 02               | 03                 | 04               | 05                 | 06               | 07               | 08  | 09                 | 10                 | 11  | 12               | 13               | 14  | 15               | 16  | 17               | 18               | 19                 | 20               | 21                 | 22                 | 23               |
|--------------|------------------|------------------|------------------|--------------------|------------------|--------------------|------------------|------------------|-----|--------------------|--------------------|-----|------------------|------------------|-----|------------------|-----|------------------|------------------|--------------------|------------------|--------------------|--------------------|------------------|
| 1            | 310              | 220              | 280F             | 300F               | 260F             | 250                | 220              | 220              | 230 | [240]              | 240                | 240 | 250              | 240              | 240 | 230 <sup>H</sup> | 220 | 210              | 250              | 220 <sup>A</sup>   | 280              | 260                | 250                | 270              |
| 2            | 250              | 280              | 290              | 230                | 280              | 270                | 240              | 210              | 240 | 260                | 260                | 240 | 240              | 240              | 240 | 230 <sup>H</sup> | 240 | [260]            | 280              | [260] <sup>A</sup> | 250              | 270                | 300                | 270              |
| 3            | 210              | 330              | 320              | 260                | 260              | 220                | 300              | [280]            | 260 | 260                | 260                | 240 | 250              | 250              | 250 | 240              | 220 | 220              | 240              | 250                | 260 <sup>F</sup> | [300] <sup>F</sup> | 350 <sup>F</sup>   | 320 <sup>A</sup> |
| 4            | 260F             | 300F             | 260F             | 260 <sup>A</sup>   | 250              | 260                | 270              | 250              | 240 | 250 <sup>A</sup>   | 270                | 270 | 250              | 270              | 270 | 240              | 220 | 240              | 230              | 240                | 220 <sup>A</sup> | 250 <sup>B</sup>   | [280] <sup>A</sup> | 300              |
| 5            | 270              | 240              | 350              | 280                | 250              | 300                | 260              | 230              | 240 | 230                | 240                | 250 | 260              | 260              | 240 | 240              | 230 | 210              | 220              | 240                | 280              | 260                | 230                | 260 <sup>F</sup> |
| 6            | 300              | 250              | 240              | 250                | 300              | 250                | 230              | 250              | 240 | 220                | [340] <sup>C</sup> | 260 | 270              | 250              | 250 | 250              | 220 | 210              | 250              | 230                | 250              | 250                | [300] <sup>F</sup> | 350              |
| 7            | 330              | 290              | 250              | 270                | 280              | 200                | 260              | 220              | 220 | 220 <sup>H</sup>   | 260                | 220 | 250              | 240              | 240 | 270              | 220 | 220              | 300              | 270                | 240              | 200                | 250                | 290              |
| 8            | 300              | 300              | 300              | 300                | 270              | 270                | 220              | 230              | 220 | 260                | 230                | 240 | 230              | 230              | 250 | 230              | 230 | 210              | 230              | 230                | 250              | 250                | C                  | C                |
| 9            | C                | C                | C                | C                  | C                | C                  | C                | C                | C   | 230                | 230                | 240 | 240              | 250              | 250 | 250 <sup>H</sup> | 210 | 200              | 250              | 250                | 260              | 250 <sup>F</sup>   | 240                | 300 <sup>F</sup> |
| 10           | 290              | 300              | 270              | 250                | 240              | 220                | 270              | 230              | 240 | 240                | 240                | 250 | 250              | 240              | 240 | 250              | 220 | 200              | 250              | 270                | 250              | 280                | 300                | 340              |
| 11           | 300              | 350              | 260              | 250                | 260              | 300                | 220              | 210              | 230 | 250                | 240                | 240 | 250              | 260              | 240 | 240              | 230 | 200              | 270              | 240                | 230              | 280                | 310                | 340              |
| 12           | 310              | 290              | 270              | 210 <sup>A</sup>   | 260              | 270                | 270              | C                | C   | 260                | 280                | 230 | 280              | 250              | 250 | 230              | 210 | 220              | C                | A                  | 290              | 240                | AF                 | AF               |
| 13           | AF               | 320              | 340              | 270                | 250              | 280                | 250              | 280              | 250 | 250                | 260                | 260 | 250              | 240              | 240 | 230              | 240 | 220              | 270              | 290                | 280              | 280                | 250                | 300              |
| 14           | 250              | 300              | 230              | AF                 | AF               | AF                 | 380 <sup>A</sup> | 250              | 230 | 250 <sup>A</sup>   | 250                | 270 | 240              | 250              | 240 | 250              | 240 | 210 <sup>H</sup> | 250              | 240                | 230              | 280                | 310                | 310              |
| 15           | 340              | 300              | 260              | 260                | 230              | B                  | 280 <sup>B</sup> | M                | M   | 250                | 250                | 250 | 250              | 250              | 240 | 230              | 220 | 230              | 230              | 280                | 300              | [300] <sup>H</sup> | 300 <sup>A</sup>   | 370              |
| 16           | 240              | 290              | 260              | 280                | 280              | 290                | 240              | 210              | 220 | 250                | 280                | 270 | 250              | 250              | 250 | 240              | 220 | 220 <sup>A</sup> | 290              | 250 <sup>A</sup>   | 320              | 350                | 350 <sup>A</sup>   | 370              |
| 17           | 300              | 310              | 250              | 300                | 250              | 300                | 280              | 230              | 250 | 250                | 250                | 250 | 240              | 270              | 260 | 240              | 220 | 250              | 230              | 280                | 360              | 300                | [300] <sup>F</sup> | 310              |
| 18           | 310              | 290              | 310              | 300                | 280              | C                  | C                | C                | C   | 250                | 260                | 260 | 250              | 260 <sup>H</sup> | 240 | 240              | 230 | 250              | 230              | 250                | 260              | 260                | 300                | 280              |
| 19           | 260              | 300              | 300              | 240                | 300              | 240                | 300              | 270              | 250 | 230                | 220                | 290 | 240              | 280 <sup>H</sup> | 240 | 230              | 230 | 220              | 240              | 250                | 250              | 260                | 300                | 300              |
| 20           | 310              | 300              | 260              | 240                | 260              | 260                | 270              | M                | M   | T                  | T                  | 240 | 260 <sup>H</sup> | 270              | 250 | 250              | 220 | 220              | 250              | 240                | 280              | 250                | 350                | 340              |
| 21           | 270              | 300              | 270              | 260                | 230              | 220                | 250              | 230              | 230 | [240] <sup>T</sup> | 260                | 270 | 270              | 250              | 280 | T                | C   | T                | C                | C                  | C                | C                  | 310                | 300              |
| 22           | 330              | 300              | 250              | [350] <sup>T</sup> | 250              | 270                | 260              | 230              | 230 | 240                | [330] <sup>C</sup> | 220 | 260              | 240              | 250 | 240              | 220 | 220              | A                | A                  | 250              | 260                | 350                | 320              |
| 23           | 310 <sup>A</sup> | 320              | 370              | 360                | 310              | 270                | M                | M                | M   | 250                | 250                | 280 | 250              | 240              | 240 | 250              | 230 | 230              | 300              | 250                | 250              | 300                | 300                | 250              |
| 24           | 230 <sup>F</sup> | 290              | 300 <sup>F</sup> | 270 <sup>F</sup>   | 290              | 300 <sup>F</sup>   | 270              | 230              | 230 | 220                | 240                | 250 | 250              | 240              | 270 | 240              | 220 | 270 <sup>A</sup> | 330              | 290                | 330              | AF                 | AF                 | 340              |
| 25           | 280              | 260              | 340 <sup>F</sup> | 340                | 280              | 270                | 300              | 260              | 230 | 220                | 250                | 250 | 240              | 260              | 240 | 230              | 240 | 230              | 230              | [240] <sup>F</sup> | 260              | 300                | 350 <sup>A</sup>   | 250              |
| 26           | 260              | A                | AF               | 300                | 300              | [300] <sup>A</sup> | 310              | 260              | 230 | [240] <sup>A</sup> | 240                | 240 | 230              | C                | A   | 250              | 240 | 230              | 240 <sup>F</sup> | 240                | 240              | 220                | 250                | AF               |
| 27           | AF               | 310              | 280              | C                  | C                | C                  | C                | C                | C   | C                  | C                  | C   | C                | C                | C   | C                | C   | C                | C                | C                  | C                | C                  | C                  | C                |
| 28           | C                | C                | C                | C                  | C                | C                  | C                | C                | C   | C                  | C                  | C   | C                | C                | C   | C                | C   | C                | C                | C                  | C                | C                  | C                  | C                |
| 29           | C                | C                | C                | C                  | C                | C                  | C                | C                | C   | C                  | C                  | C   | C                | C                | 240 | 240              | 240 | 230              | 220              | 240                | 360              | 310                | 330                | 300 <sup>F</sup> |
| 30           | 300 <sup>F</sup> | 300 <sup>F</sup> | 280              | 270                | 330 <sup>F</sup> | 310                | 220              | 210              | 250 | [260] <sup>A</sup> | 260                | 250 | 250              | 250              | 250 | 250              | 220 | 240              | 230              | 220                | 240              | 250 <sup>F</sup>   | 270 <sup>F</sup>   | 260 <sup>F</sup> |
| 31           | 250              | 250              | 300 <sup>F</sup> | 300 <sup>F</sup>   | 320              | 280                | 230              | 230 <sup>A</sup> | 250 | 270                | 270                | 250 | 240              | 240              | 250 | 240              | 220 | A                | A                | A                  | 250              | 250                | AF                 | AF               |
| Mean Value   | 280              | 290              | 280              | 270                | 270              | 270                | 260              | 240              | 240 | 250                | 250                | 250 | 250              | 250              | 240 | 240              | 230 | 220              | 250              | 250                | 270              | 270                | 300                | 310              |
| Median Value | 300              | 300              | 280              | 270                | 270              | 270                | 270              | 230              | 230 | 250                | 250                | 250 | 250              | 250              | 240 | 240              | 220 | 220              | 250              | 250                | 260              | 260                | 300                | 300              |
| Count        | 26               | 27               | 27               | 26                 | 26               | 24                 | 25               | 23               | 23  | 27                 | 27                 | 28  | 29               | 28               | 28  | 28               | 28  | 27               | 25               | 25                 | 28               | 26                 | 25                 | 25               |

Sweep 1.0 Mc to 17.2 Mc in 2 min  Manual  Automatic



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 29.3' E

**Kokubunji Tokyo**

**IONOSPHERIC DATA**

**R'F1**

**Dec. 1952**

135° E Mean Time

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08               | 09                 | 10                 | 11                 | 12  | 13                 | 14  | 15  | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|------------------|--------------------|--------------------|--------------------|-----|--------------------|-----|-----|----|----|----|----|----|----|----|----|
| 1      |    |    |    |    |    |    |    | Q  | 220              | [220] <sup>M</sup> | 210                | 200                | 200 | 200                | 250 | Q   | Q  |    |    |    |    |    |    |    |
| 2      |    |    |    |    |    |    |    | Q  | 250              | 220                | 210                | 230                | 230 | [220] <sup>A</sup> | 220 | 220 | Q  |    |    |    |    |    |    |    |
| 3      |    |    |    |    |    |    |    | Q  | A                | 260                | 230                | 240                | 250 | 220                | 240 | Q   | Q  |    |    |    |    |    |    |    |
| 4      |    |    |    |    |    |    |    | Q  | 240 <sup>A</sup> | A                  | 210                | 230                | 220 | 240                | 230 | A   | A  |    |    |    |    |    |    |    |
| 5      |    |    |    |    |    |    |    | Q  | A                | A                  | A                  | 230                | 240 | 220                | 240 | 240 | Q  |    |    |    |    |    |    |    |
| 6      |    |    |    |    |    |    |    | Q  | 230              | A                  | 200                | 230                | 230 | 210                | 250 | 240 | Q  |    |    |    |    |    |    |    |
| 7      |    |    |    |    |    |    |    | Q  | 220              | 200                | [220] <sup>P</sup> | 230                | 230 | 250 <sup>A</sup>   | Q   | 230 | Q  |    |    |    |    |    |    |    |
| 8      |    |    |    |    |    |    |    | Q  | Q                | 220                | 250                | 230                | 210 | 230                | 240 | Q   | Q  |    |    |    |    |    |    |    |
| 9      |    |    |    |    |    |    |    | Q  | 230              | 220                | 210                | 240                | 240 | 200                | 210 | Q   | Q  |    |    |    |    |    |    |    |
| 10     |    |    |    |    |    |    |    | Q  | 210              | 220                | 200                | 250                | 240 | 220                | 210 | Q   | Q  |    |    |    |    |    |    |    |
| 11     |    |    |    |    |    |    |    | Q  | Q                | Q                  | 240                | 220                | 250 | 220                | 230 | 240 | Q  |    |    |    |    |    |    |    |
| 12     |    |    |    |    |    |    |    | C  | C                | 240 <sup>A</sup>   | 230                | 200                | T   | A                  | 240 | A   | Q  |    |    |    |    |    |    |    |
| 13     |    |    |    |    |    |    |    | Q  | Q                | 230                | 230                | 250                | 230 | 220                | 220 | 210 | Q  |    |    |    |    |    |    |    |
| 14     |    |    |    |    |    |    |    | Q  | 230              | [240] <sup>H</sup> | 240                | [250] <sup>A</sup> | 260 | 250                | 210 | 250 | Q  |    |    |    |    |    |    |    |
| 15     |    |    |    |    |    |    |    | M  | M                | Q                  | 230                | 210                | 230 | 240                | A   | A   | Q  |    |    |    |    |    |    |    |
| 16     |    |    |    |    |    |    |    | Q  | 200              | Q                  | 250                | 240                | 230 | 240                | 220 | Q   | Q  |    |    |    |    |    |    |    |
| 17     |    |    |    |    |    |    |    | Q  | Q                | 230                | 210                | [220] <sup>A</sup> | 240 | 210                | 250 | Q   | Q  |    |    |    |    |    |    |    |
| 18     |    |    |    |    |    |    |    | C  | C                | 240                | 230                | 220                | 220 | 270                | 210 | A   | Q  |    |    |    |    |    |    |    |
| 19     |    |    |    |    |    |    |    | Q  | Q                | Q                  | 200                | 200 <sup>H</sup>   | 230 | 210                | 240 | 240 | Q  |    |    |    |    |    |    |    |
| 20     |    |    |    |    |    |    |    | M  | M                | T                  | T                  | 250                | 230 | [230] <sup>H</sup> | 230 | 240 | Q  |    |    |    |    |    |    |    |
| 21     |    |    |    |    |    |    |    | Q  | T                | 200                | 240                | 250                | 250 | 240                | 210 | T   | C  |    |    |    |    |    |    |    |
| 22     |    |    |    |    |    |    |    | Q  | Q                | Q                  | C                  | B                  | 240 | 250                | 240 | 230 | Q  |    |    |    |    |    |    |    |
| 23     |    |    |    |    |    |    |    | M  | M                | A                  | A                  | 210                | 210 | 230                | 240 | T   | Q  |    |    |    |    |    |    |    |
| 24     |    |    |    |    |    |    |    | Q  | 220              | Q                  | 220                | 210                | 210 | 220                | 240 | Q   | Q  |    |    |    |    |    |    |    |
| 25     |    |    |    |    |    |    |    | Q  | Q                | A                  | 240 <sup>A</sup>   | 230                | 220 | 230                | Q   | 230 | Q  |    |    |    |    |    |    |    |
| 26     |    |    |    |    |    |    |    | Q  | 230              | [230] <sup>A</sup> | 230                | A                  | A   | C                  | A   | 240 | Q  |    |    |    |    |    |    |    |
| 27     |    |    |    |    |    |    |    | C  | C                | C                  | C                  | C                  | C   | C                  | C   | C   | C  |    |    |    |    |    |    |    |
| 28     |    |    |    |    |    |    |    | C  | C                | C                  | C                  | C                  | C   | C                  | C   | C   | C  |    |    |    |    |    |    |    |
| 29     |    |    |    |    |    |    |    | C  | C                | C                  | C                  | C                  | C   | 240                | 230 | Q   | Q  |    |    |    |    |    |    |    |
| 30     |    |    |    |    |    |    |    | Q  | A                | A                  | A                  | A                  | 230 | 210                | A   | Q   | Q  |    |    |    |    |    |    |    |
| 31     |    |    |    |    |    |    |    | Q  | A                | A                  | A                  | 220                | 220 | 230 <sup>A</sup>   | 220 | Q   | Q  |    |    |    |    |    |    |    |
| Mean   |    |    |    |    |    |    |    | -  | 220              | 230                | 230                | 230                | 230 | 230                | 230 | 230 | -  |    |    |    |    |    |    |    |
| Median |    |    |    |    |    |    |    | -  | 220              | 230                | 230                | 230                | 230 | 230                | 230 | 240 | -  |    |    |    |    |    |    |    |
| Value  |    |    |    |    |    |    |    | -  | 9                | 14                 | 22                 | 25                 | 27  | 27                 | 23  | 13  | -  |    |    |    |    |    |    |    |
| Count  |    |    |    |    |    |    |    | -  |                  |                    |                    |                    |     |                    |     |     |    |    |    |    |    |    |    |    |

Sweep 1.5 Mc to 17.2 Mc in 2 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitakama-gun, Tokyo, Japan

Lat.  $35^{\circ}42.4'N$   
Long.  $139^{\circ}29.3'E$

Kokubunji Tokyo

IONOSPHERIC DATA

$f_oE$

Dec. 1952

135° E Mean Time

| Day          | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07  | 08               | 09                 | 10  | 11                 | 12                 | 13                 | 14                 | 15                 | 16  | 17  | 18  | 19 | 20 | 21 | 22 | 23 |
|--------------|----|----|----|----|----|----|----|-----|------------------|--------------------|-----|--------------------|--------------------|--------------------|--------------------|--------------------|-----|-----|-----|----|----|----|----|----|
| 1            |    |    |    |    |    |    |    | 2.0 | 2.3 <sup>F</sup> | (2.6) <sup>M</sup> | 2.9 | 2.9                | 2.9                | 2.8                | 2.6                | 2.1                | A   |     |     |    |    |    |    |    |
| 2            |    |    |    |    |    |    |    | B   | 2.3 <sup>F</sup> | 2.7                | 3.0 | 3.1                | A                  | A                  | A                  | 2.3                | B   |     |     |    |    |    |    |    |
| 3            |    |    |    |    |    |    |    |     | A                | A                  | A   | 3.0                | 2.7 <sup>AF</sup>  | [2.6] <sup>A</sup> | 2.5                | 2.2                | F   |     |     |    |    |    |    |    |
| 4            |    |    |    |    |    |    |    |     | A                | A                  | A   | A                  | A                  | AF                 | A                  | AF                 | AF  |     |     |    |    |    |    |    |
| 5            |    |    |    |    |    |    |    |     | A                | A                  | A   | 2.9                | 2.9                | 2.8                | 2.7                | 2.3                | B   |     |     |    |    |    |    |    |
| 6            |    |    |    |    |    |    |    |     | B                | 2.3                | A   | 2.9                | 3.0                | F                  | (2.5) <sup>A</sup> | 2.3                | 1.8 |     |     |    |    |    |    |    |
| 7            |    |    |    |    |    |    |    |     | AF               | 2.2                | 2.6 | 3.0                | 3.0                | 2.9                | 2.6                | 2.3                | A   |     |     |    |    |    |    |    |
| 8            |    |    |    |    |    |    |    |     | A                | 2.2                | 2.6 | 2.9                | 3.0                | 2.9                | 2.7                | 2.4                | 1.7 |     |     |    |    |    |    |    |
| 9            |    |    |    |    |    |    |    |     | B                | 2.3                | 2.5 | 2.9                | [3.0] <sup>A</sup> | 3.0                | 2.9                | (2.6) <sup>A</sup> | 2.3 | B   |     |    |    |    |    |    |
| 10           |    |    |    |    |    |    |    |     | B                | 2.3                | 2.7 | 2.8                | 3.0                | 2.8                | 2.7                | 2.3                | B   |     |     |    |    |    |    |    |
| 11           |    |    |    |    |    |    |    |     | B                | 2.2                | F   | A                  | A                  | A                  | A                  | 2.3                | A   |     |     |    |    |    |    |    |
| 12           |    |    |    |    |    |    |    |     | C                | C                  | 2.5 | 3.0                | A                  | A                  | 2.4                | A                  | A   |     |     |    |    |    |    |    |
| 13           |    |    |    |    |    |    |    |     | B                | 2.1                | 2.3 | 2.8                | 3.0                | F                  | 3.0                | 2.8                | 2.3 | A   |     |    |    |    |    |    |
| 14           |    |    |    |    |    |    |    |     | A                | 2.1                | A   | A                  | A                  | A                  | 2.7                | 2.7                | 2.4 | B   |     |    |    |    |    |    |
| 15           |    |    |    |    |    |    |    |     | M                | M                  | 2.6 | F                  | 3.0                | AF                 | 3.2                | A                  | A   | A   |     |    |    |    |    |    |
| 16           |    |    |    |    |    |    |    |     | S                | 2.0                | F   | 2.7                | 2.8                | 3.0                | 3.1                | 3.0                | 2.7 | 2.4 | A   |    |    |    |    |    |
| 17           |    |    |    |    |    |    |    |     | B                | A                  | 2.5 | A                  | A                  | 3.2                | 3.0                | A                  | 2.8 | 2.3 | B   |    |    |    |    |    |
| 18           |    |    |    |    |    |    |    |     | C                | C                  | AF  | AF                 | AF                 | 3.2                | 2.9                | 2.6                | F   | A   | A   |    |    |    |    |    |
| 19           |    |    |    |    |    |    |    |     | B                | 2.2                | 2.6 | 2.8                | 3.0                | 3.0 <sup>AF</sup>  | 2.9                | A                  | 2.7 | F   | 2.3 | A  |    |    |    |    |
| 20           |    |    |    |    |    |    |    |     | M                | M                  | 2.4 | T                  | T                  | 2.9                | F                  | (2.8) <sup>T</sup> | 2.8 | 2.5 | B   |    |    |    |    |    |
| 21           |    |    |    |    |    |    |    |     | T                | T                  | 2.6 | 2.8                | F                  | T                  | T                  | 2.9                | 2.3 | C   |     |    |    |    |    |    |
| 22           |    |    |    |    |    |    |    |     | B                | 2.0                | 2.6 | (2.8) <sup>C</sup> | 3.0                | 3.0                | 2.8                | (2.6) <sup>A</sup> | 2.4 | B   |     |    |    |    |    |    |
| 23           |    |    |    |    |    |    |    |     | M                | M                  | A   | A                  | 2.9                | F                  | 2.9                | 2.8                | 2.6 | 2.5 | 1.7 |    |    |    |    |    |
| 24           |    |    |    |    |    |    |    |     | B                | 2.0                | 2.6 | 2.8                | 3.0                | (2.8) <sup>A</sup> | 2.7                | A                  | 2.3 | A   |     |    |    |    |    |    |
| 25           |    |    |    |    |    |    |    |     | B                | A                  | A   | A                  | 2.9                | 2.9                | 2.8                | 2.6                | A   | A   |     |    |    |    |    |    |
| 26           |    |    |    |    |    |    |    |     | A                | 2.0                | 2.4 | 2.4                | A                  | A                  | C                  | A                  | A   | 2.4 |     |    |    |    |    |    |
| 27           |    |    |    |    |    |    |    |     | C                | C                  | C   | C                  | C                  | C                  | C                  | C                  | C   | C   |     |    |    |    |    |    |
| 28           |    |    |    |    |    |    |    |     | C                | C                  | C   | C                  | C                  | C                  | C                  | C                  | C   | C   |     |    |    |    |    |    |
| 29           |    |    |    |    |    |    |    |     | C                | C                  | C   | C                  | C                  | A                  | A                  | 2.5                | 2.3 | B   |     |    |    |    |    |    |
| 30           |    |    |    |    |    |    |    |     | A                | A                  | A   | A                  | AF                 | 2.7                | AF                 | 2.3                | AF  |     |     |    |    |    |    |    |
| 31           |    |    |    |    |    |    |    |     | A                | C                  | A   | A                  | A                  | A                  | A                  | A                  | A   |     |     |    |    |    |    |    |
| Mean Value   |    |    |    |    |    |    |    | 2.2 | 2.2              | 2.6                | 2.8 | 3.0                | 3.0                | 2.8                | 2.7                | 2.3                | 1.9 |     |     |    |    |    |    |    |
| Median Value |    |    |    |    |    |    |    | 2.2 | 2.2              | 2.6                | 2.8 | 3.0                | 3.0                | 2.8                | 2.6                | 2.3                | 1.8 |     |     |    |    |    |    |    |
| Count        |    |    |    |    |    |    |    | 1   | 16               | 17                 | 15  | 18                 | 19                 | 20                 | 22                 | 22                 | 4   |     |     |    |    |    |    |    |

$f_oE$

Sweep 1.0 Mc to 17.2 Mc in 2 min

Manual

Automatic

K 6



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 29.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

ƒ'F<sub>2</sub>

Dec. 1952

135° E Mean Time

| Day          | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07               | 08               | 09                 | 10                 | 11                 | 12                 | 13                 | 14                 | 15               | 16               | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------------|----|----|----|----|----|----|----|------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|------------------|----|----|----|----|----|----|----|
| 1            |    |    |    |    |    |    |    | 140              | 140 <sup>A</sup> | [130] <sup>M</sup> | 120                | 110                | 120                | 110                | 110                | 120              | A                |    |    |    |    |    |    |    |
| 2            |    |    |    |    |    |    |    | B                | 110              | 110                | 110                | 110                | A                  | A                  | A                  | 140 <sup>A</sup> | B                |    |    |    |    |    |    |    |
| 3            |    |    |    |    |    |    |    | A                | A                | A                  | 110 <sup>A</sup>   | A                  | A                  | A                  | 130 <sup>A</sup>   | 120              | B                |    |    |    |    |    |    |    |
| 4            |    |    |    |    |    |    |    | B                | A                | A                  | A                  | A                  | A                  | A                  | A                  | AF               | AF               |    |    |    |    |    |    |    |
| 5            |    |    |    |    |    |    |    | A                | 130 <sup>A</sup> | A                  | A                  | 130 <sup>A</sup>   | 120 <sup>A</sup>   | 120 <sup>A</sup>   | 120 <sup>A</sup>   | 130              | B                |    |    |    |    |    |    |    |
| 6            |    |    |    |    |    |    |    | 120 <sup>B</sup> | 120              | A                  | A                  | 110                | 110 <sup>F</sup>   | 110 <sup>F</sup>   | [110] <sup>M</sup> | 110              | 130              |    |    |    |    |    |    |    |
| 7            |    |    |    |    |    |    |    | A                | 130 <sup>A</sup> | 100                | 110                | 100                | 100                | 120 <sup>A</sup>   | 100                | 120 <sup>M</sup> | A                |    |    |    |    |    |    |    |
| 8            |    |    |    |    |    |    |    | A                | 120              | 110                | 110                | 110                | 120                | 120                | 110                | 120              | 130              |    |    |    |    |    |    |    |
| 9            |    |    |    |    |    |    |    | B                | 130              | 110                | 100                | [100] <sup>A</sup> | 100                | 110                | [120] <sup>M</sup> | 120              | B                |    |    |    |    |    |    |    |
| 10           |    |    |    |    |    |    |    | B                | 120              | 120                | 110                | 110                | 110                | 110                | 120                | 120              | B                |    |    |    |    |    |    |    |
| 11           |    |    |    |    |    |    |    | B                | 120 <sup>F</sup> | 110                | A                  | A                  | A                  | A                  | A                  | A                | A                |    |    |    |    |    |    |    |
| 12           |    |    |    |    |    |    |    | C                | C                | 120                | 120                | A                  | A                  | A                  | 110                | A                | A                |    |    |    |    |    |    |    |
| 13           |    |    |    |    |    |    |    | B                | 120              | 110                | 120                | 110                | 110                | 110                | 110 <sup>F</sup>   | 110 <sup>F</sup> | A                |    |    |    |    |    |    |    |
| 14           |    |    |    |    |    |    |    | A                | 130              | A                  | A                  | A                  | A                  | 110                | 110                | 120              | B                |    |    |    |    |    |    |    |
| 15           |    |    |    |    |    |    |    | M                | M                | 110                | 110                | 130 <sup>A</sup>   | 130 <sup>A</sup>   | A                  | A                  | A                | A                |    |    |    |    |    |    |    |
| 16           |    |    |    |    |    |    |    | S                | 120              | 110                | 120                | 110                | 110                | 110                | 100                | 110              | A                |    |    |    |    |    |    |    |
| 17           |    |    |    |    |    |    |    | B                | A                | 120 <sup>A</sup>   | A                  | A                  | 130 <sup>A</sup>   | [120] <sup>A</sup> | 120 <sup>A</sup>   | 120              | B                |    |    |    |    |    |    |    |
| 18           |    |    |    |    |    |    |    | C                | C                | AF                 | AF                 | AF                 | A                  | 110                | A                  | A                | A                |    |    |    |    |    |    |    |
| 19           |    |    |    |    |    |    |    | B                | 130              | 120                | [120] <sup>A</sup> | 110                | 110                | 110                | 110                | 110              | A                |    |    |    |    |    |    |    |
| 20           |    |    |    |    |    |    |    | M                | M                | 120                | 110                | [120] <sup>T</sup> | 120                | 110                | 130 <sup>A</sup>   | 120              | B                |    |    |    |    |    |    |    |
| 21           |    |    |    |    |    |    |    | T                | 120              | [120] <sup>T</sup> | 110                | 120                | [120] <sup>T</sup> | 120                | [120] <sup>T</sup> | 110              | C                |    |    |    |    |    |    |    |
| 22           |    |    |    |    |    |    |    | B                | 130              | 130                | [120] <sup>C</sup> | 120                | 130                | 110                | [110] <sup>A</sup> | 110              | B                |    |    |    |    |    |    |    |
| 23           |    |    |    |    |    |    |    | M                | M                | A                  | A                  | 100 <sup>F</sup>   | 110                | 110                | 120 <sup>A</sup>   | 120 <sup>A</sup> | B                |    |    |    |    |    |    |    |
| 24           |    |    |    |    |    |    |    | B                | 130              | 120                | 120                | 120                | 130 <sup>A</sup>   | [140] <sup>A</sup> | 140 <sup>A</sup>   | 140 <sup>A</sup> | A                |    |    |    |    |    |    |    |
| 25           |    |    |    |    |    |    |    | B                | A                | A                  | A                  | A                  | A                  | A                  | 110                | A                | A                |    |    |    |    |    |    |    |
| 26           |    |    |    |    |    |    |    | A                | 130              | 120                | 110                | A                  | A                  | C                  | A                  | A                | 130 <sup>A</sup> |    |    |    |    |    |    |    |
| 27           |    |    |    |    |    |    |    | C                | C                | C                  | C                  | C                  | C                  | C                  | C                  | C                | C                |    |    |    |    |    |    |    |
| 28           |    |    |    |    |    |    |    | C                | C                | C                  | C                  | C                  | C                  | C                  | C                  | C                | C                |    |    |    |    |    |    |    |
| 29           |    |    |    |    |    |    |    | C                | C                | C                  | C                  | C                  | A                  | A                  | 100                | 130 <sup>A</sup> | B                |    |    |    |    |    |    |    |
| 30           |    |    |    |    |    |    |    | A                | A                | A                  | A                  | A                  | AF                 | 110                | [110] <sup>F</sup> | 120              | AF               |    |    |    |    |    |    |    |
| 31           |    |    |    |    |    |    |    | A                | C                | A                  | A                  | A                  | A                  | A                  | A                  | A                | A                |    |    |    |    |    |    |    |
| Mean Value   |    |    |    |    |    |    |    | 130              | 130              | 120                | 110                | 110                | 120                | 110                | 120                | 120              | 130              |    |    |    |    |    |    |    |
| Median Value |    |    |    |    |    |    |    | 130              | 130              | 120                | 110                | 110                | 120                | 110                | 110                | 120              | 130              |    |    |    |    |    |    |    |
| Count        |    |    |    |    |    |    |    | 2                | 17               | 18                 | 16                 | 18                 | 17                 | 19                 | 22                 | 21               | 3                |    |    |    |    |    |    |    |

Sweep 1.0 Mc to 2.2 Mc in 2 min

Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Khatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 28.3' E

Kokubunji Tokyo

fEs

Dec. 1952

136° E Mean Time

| Day          | 00   | 01   | 02   | 03   | 04   | 05    | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   |    |
|--------------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|
| 1            | 2.4  | 2.5Y | 2.4Y | E    | 2.7Y | C     | 2.5F | 2.5F | 2.7F | M    | 3.2  | G    | 2.9  | 3.0  | 2.7  | 2.4  | 2.7F | 3.0  | 2.1  | 3.7  | 2.9F | 2.5F | 2.3F | 2.4F |    |
| 2            | 2.3F | 2.5Y | 2.5F | E    | E    | E     | 2.2  | 2.6F | 2.4  | G    | G    | G    | 4.0  | 4.4  | 3.4  | 3.2F | 2.7F | C    | 2.7F | 3.2F | 3.4F | 5.5F | 3.6F | 6.5F |    |
| 3            | 2.5F | 2.5Y | 3.0F | 2.7F | 3.2F | 2.4F  | 2.7F | 5.4  | 6.6  | 7.0F | 7.0  | 4.2F | 4.3  | 4.0  | 4.0  | 2.9  | 2.6  | 3.5  | 3.9F | 3.2F | 3.2F | 3.8F | 3.0F | 2.5  |    |
| 4            | 2.6F | 2.5Y | 2.5Y | 2.9  | 2.4Y | 2.5Y  | 2.5  | 2.5F | 4.5  | 5.5  | 4.7F | 5.0  | 4.0  | 3.2F | 4.0  | 4.0F | 3.0F | 2.5  | 2.4Y | 2.4F | 2.5  | 2.3F | 5.0  | 4.2  |    |
| 5            | 2.3F | 3.8  | 3.2  | 2.5Y | 2.5F | 2.5FY | 2.5  | 3.2  | 3.2  | 4.0  | 6.0Y | 3.7  | 2.3  | 2.5  | 2.6  | 2.65 | G    | E    | 2.4  | 2.4F | 2.4F | 2.4F | 2.6F | 2.5F |    |
| 6            | 2.5F | 2.5  | 2.4  | E    | E    | 2.4   | 2.5  | 2.4  | 3.2  | 3.2  | 4.4  | 4.5  | G    | G    | 3.2  | 3.2  | 2.5  | 2.5  | 2.3  | 2.3  | 2.5  | E    | 2.5  | 2.5  |    |
| 7            | E    | 2.5  | 2.5  | 2.5  | E    | E     | E    | 2.62 | 2.6  | G    | 4.1  | 3.7  | G    | 4.0  | G    | 3.0  | 3.2  | 3.5  | 3.4  | 2.5  | E    | E    | E    | 2.4  |    |
| 8            | E    | E    | 2.5  | 2.5  | E    | E     | 2.5  | 3.0  | G    | 4.0  | G    | G    | G    | 7.5Y | G    | 2.5  | G    | 2.5  | 2.4  | 2.55 | 2.8  | C    | C    | C    |    |
| 9            | C    | C    | C    | C    | C    | C     | C    | 2.5  | 3.0  | G    | 3.5  | 4.4  | G    | 3.7  | 3.2  | 3.0  | 2.6  | 4.0  | 3.0  | 3.0  | 2.5  | 2.5  | 2.5  | 2.6  |    |
| 10           | 2.8  | 2.5  | 2.5  | E    | E    | E     | E    | 2.5  | 3.0  | G    | G    | G    | G    | G    | G    | G    | 2.5  | E    | 2.2  | E    | E    | E    | E    | 2.5  |    |
| 11           | 2.5F | 2.5  | E    | E    | E    | E     | E    | 2.5  | 3.0  | 4.0  | 4.5  | 3.7  | 3.7  | 3.7Y | 3.6  | 3.1  | 3.7  | 2.5  | E    | E    | E    | E    | E    | E    |    |
| 12           | 2.6F | 2.9  | 2.5Y | 2.4Y | E    | E     | E    | C    | C    | 3.5  | 3.8  | 4.5  | 4.0  | 5.5  | 3.6  | 4.0  | 4.2  | 2.7  | C    | 5.5  | 3.0F | 2.9  | 3.9  | 5.5  |    |
| 13           | 3.7  | 3.0  | 2.5Y | 2.5Y | 2.5  | 2.5   | 2.5  | 2.5  | 2.7  | 3.7Y | G    | G    | G    | G    | 3.0  | 3.0  | 3.0  | 2.8  | 2.3  | 2.5  | E    | 2.6F | 2.6F | 2.6  |    |
| 14           | 2.6  | 2.6  | 2.6  | 4.0  | 4.7  | 3.5F  | 4.0  | 2.6  | 2.4  | 4.7  | 3.5  | 6.0  | 3.0Y | G    | G    | G    | 2.7  | 2.6  | 2.4  | E    | 2.6  | 5.8  | 2.7  | 2.4  |    |
| 15           | 2.4Y | E    | 1.5Y | 2.5  | 2.5Y | 2.6   | 2.5  | M    | M    | 3.2Y | G    | 3.2  | 3.2  | 4.3  | 4.2  | 4.6  | 3.7  | 4.0  | 2.6  | 2.6  | 2.5  | T    | 2.8  | 2.5  |    |
| 16           | 2.5  | 2.5Y | 2.6Y | 2.6  | 2.6Y | 2.5   | E    | 2.5  | 2.5  | 4.0  | G    | G    | G    | G    | 3.5  | 3.0  | 3.7  | 3.5  | 3.3  | 3.2  | 3.2  | 3.2F | 3.0  | 3.0  |    |
| 17           | 3.3  | 2.6  | 2.5Y | 2.5Y | 2.5Y | 2.5Y  | 2.5  | 2.5  | 3.3  | 3.1Y | 3.7F | 5.5  | 4.0  | 3.6F | 3.0  | G    | 2.7  | 2.7  | 4.1F | 3.3  | 2.5  | 3.0F | C    | 3.3  |    |
| 18           | 3.0F | 2.5  | 2.6Y | 2.6Y | 2.6Y | C     | C    | C    | C    | 5.7  | 4.7F | 5.0F | 3.8  | 3.8  | 3.9  | 4.5  | 4.0  | 3.5  | 2.6  | 2.5  | 2.4  | 2.3F | 2.5F | 2.5  |    |
| 19           | 2.6  | 2.5  | 2.9Y | 2.5Y | 2.5F | 2.0Y  | 2.3  | 2.5  | 2.6  | 3.2  | 3.7  | 3.8  | G    | 3.4  | 3.2  | 3.0  | 3.6  | 3.0  | 2.7  | 2.6F | 2.5  | 2.5F | 2.6  | 2.5F |    |
| 20           | 3.1  | T    | 2.7Y | E    | E    | E     | 2.8  | M    | M    | T    | T    | T    | 3.6  | T    | 3.5  | 3.3Y | 2.5  | 2.5  | 2.6  | 2.6  | 2.5F | 2.6  | 2.5  | 2.5F |    |
| 21           | 2.5F | 2.5Y | 2.4Y | E    | E    | 2.1Y  | 2.5  | 2.5  | T    | T    | 3.4  | G    | 4.6  | T    | G    | 2.6  | C    | T    | C    | C    | C    | C    | T    | 2.5F |    |
| 22           | 2.5  | 2.5  | 2.5Y | 2.5  | T    | 2.5Y  | 2.5F | 2.5  | 2.4  | G    | C    | G    | G    | G    | 3.3  | G    | 3.0F | 2.5  | 3.3  | 3.3  | 4.3  | 3.2  | 3.2  | 4.0  |    |
| 23           | 3.2F | 3.0Y | 3.3F | 3.0Y | 2.6  | E     | M    | M    | M    | 6.8  | 7.0  | G    | T    | G    | 3.2  | T    | G    | 2.5  | E    | 2.5  | 3.3  | 2.5  | 2.5  | 2.6  |    |
| 24           | 2.5Y | 2.6Y | 2.4  | 2.4  | E    | 1.5   | 2.6  | 2.5  | 2.6  | G    | 3.4  | 3.7  | 6.0  | 5.7F | 3.7  | 4.7F | 3.6F | 3.5  | 5.6Y | 5.5Y | 3.1F | 3.2  | 3.2  |      |    |
| 25           | 2.1  | 2.1Y | E    | E    | E    | 2.6   | 2.5  | 2.5  | 3.8Y | 6.5  | 6.5  | 4.4  | 3.7Y | 3.0  | G    | 2.9  | 3.2  | 3.7Y | 3.2  | 4.0  | 3.2  | 4.0  | 4.0  | 2.6  |    |
| 26           | 2.5F | 4.8F | 3.8Y | 3.1F | 2.5Y | 3.2Y  | 2.6F | 2.5F | 2.7  | 5.5  | 5.5  | 6.5  | 6.5  | C    | 6.5  | 3.7  | 3.5  | 3.3  | 3.2  | 2.8F | 3.0F | 2.7  | 2.5  | 2.5  |    |
| 27           | 2.6  | 2.2  | 2.6Y | C    | C    | C     | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    |    |
| 28           | C    | C    | C    | C    | C    | C     | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    |    |
| 29           | C    | C    | C    | C    | C    | C     | C    | C    | C    | C    | C    | C    | 4.3  | 4.5  | 3.0  | 3.3  | 3.2  | 2.5  | 2.8  | 3.5  | 4.7  | 3.5  | 2.6  | 3.2  |    |
| 30           | 2.5  | 2.7  | 2.7F | 2.6  | 2.5  | 2.5   | E    | 2.8  | 5.0  | 7.5  | 6.6  | 4.4  | 4.3  | G    | 5.0F | 3.4  | 3.8F | 4.8F | 2.5F | 2.4  | 2.5  | E    | E    | E    |    |
| 31           | 2.5  | 2.5  | 3.0  | 2.5  | 2.5  | 3.2   | 2.5  | 3.0  | 6.5Y | 4.3  | 7.0  | 4.0  | 4.0  | 4.0  | 3.5  | 3.2  | 2.9  | 4.0  | 4.5  | 3.5  | 2.5  | 3.0  | 4.0  | 3.5  |    |
| Mean Value   | 2.7  | 2.7  | 2.7  | 2.7  | 2.6  | 2.6   | 2.6  | 2.7  | 3.4  | 4.8  | 4.8  | 4.5  | 4.0  | 4.1  | 3.6  | 3.3  | 3.1  | 3.1  | 3.0  | 3.1  | 3.0  | 3.1  | 3.0  | 3.0  |    |
| Median Value | 2.5  | 2.5  | 2.5  | 2.5  | 2.5  | 2.5   | 2.5  | 2.5  | 2.8  | 4.0  | 3.8  | 3.7  | 3.6  | 3.5  | 3.2  | 3.0  | 3.0  | 2.8  | 2.6  | 2.6  | 2.6  | 2.5  | 2.6  | 2.5  |    |
| Count        | 28   | 27   | 28   | 27   | 26   | 25    | 25   | 23   | 22   | 25   | 26   | 27   | 28   | 26   | 29   | 28   | 28   | 27   | 27   | 28   | 28   | 26   | 26   | 26   | 28 |

fEs

Sheep 1.0 Mc to 1.7.2 Mc in ... min

Manual

Automatic

K 8

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 29.8' E

**Kokubunji Tokyo**

**IONOSPHERIC DATA**

135° E Mean Time

(M3000)F2

Dec. 1952

| Day          | 00     | 01  | 02     | 03     | 04     | 05     | 06     | 07     | 08     | 09     | 10     | 11     | 12     | 13     | 14     | 15  | 16     | 17     | 18     | 19     | 20     | 21     | 22     | 23     |     |
|--------------|--------|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|--------|--------|--------|--------|--------|--------|--------|--------|-----|
| 1            | 2.8    | 3.2 | 2.9    | (2.8)F | 3.1    | [3.0]C | 3.0    | 3.6    | 3.5    | [3.5]M | 3.5    | 3.1    | 3.2    | 3.3    | 3.4    | 3.4 | 3.4    | 3.2    | 3.1    | 3.3    | F      | 3.2    | 2.9    | 3.1    | 3.1 |
| 2            | 2.9    | 3.0 | 2.8    | 3.3    | 2.6    | 3.0    | 2.9    | 3.4    | 3.3    | 3.4    | 3.2    | 3.4    | 3.5    | 3.4    | 3.5    | 3.3 | 3.3    | [3.2]C | 3.1    | [3.2]A | (3.3)F | 3.1    | 2.8    | 3.0    | 3.0 |
| 3            | 3.2    | 2.6 | 2.9    | 2.8    | 2.0    | 3.3    | 2.8    | [3.0]A | 3.3    | 3.2    | 3.4    | 3.5    | 3.3    | (3.3)P | 3.3    | 3.0 | 3.4    | 3.3    | 3.1    | 3.0    | 2.9    | [2.8]A | 2.6    | F      | F   |
| 4            | F      | F   | F      | AF     | 3.0    | 2.9    | 3.1    | 3.2    | 3.5    | 3.4    | 3.2    | 3.3    | 3.5    | (3.3)P | 3.4    | 3.6 | 3.4    | 3.1    | (3.1)S | 3.3    | S      | 2.6    | [3.0]A | 3.3    | F   |
| 5            | 3.2    | 3.5 | 2.7    | 2.9    | 3.0    | 2.9    | 3.2    | 3.4    | (3.6)P | 3.2    | 3.4    | 3.5    | (3.4)P | 3.4    | 3.4    | 3.4 | 3.5    | 3.5    | 3.4    | 3.2    | 3.0    | 3.2    | 3.3    | 3.1    | 3.1 |
| 6            | 2.9    | 3.1 | 3.3    | 3.1    | 2.8    | 3.1    | 3.2    | 3.4    | (3.6)P | 3.7    | [3.4]C | 3.2    | 3.5    | 3.3    | 3.4    | 3.4 | 3.5    | 3.5    | 3.0    | 3.4    | 3.0    | 3.4    | 2.5    | 2.6    | 2.6 |
| 7            | 2.8    | 2.8 | 2.8    | [3.0]P | 3.1    | 3.2    | (3.6)P | 3.1    | 3.5    | 3.2    | B      | 3.6    | 3.5    | B      | 3.5    | 3.2 | 3.6    | 3.5    | 2.8    | 2.9    | 3.1    | 3.5    | 3.3    | 2.9    | 2.9 |
| 8            | [2.8]F | 2.8 | 2.7    | 2.9    | 3.0    | 2.9    | 3.1    | B      | 3.8    | (3.4)  | 3.6    | 3.4    | 3.4    | 3.7    | 3.6    | 3.5 | 3.5    | 3.6    | 3.4    | 3.0    | 3.0    | C      | C      | C      | C   |
| 9            | C      | C   | C      | C      | C      | C      | C      | B      | (3.6)P | 3.3    | 3.3    | 3.5    | B      | 3.5    | 3.3    | 3.4 | 3.5    | 3.6    | 3.2    | 2.9    | 3.1    | F      | 3.6    | 3.3    | F   |
| 10           | (2.9)F | 2.8 | 3.0    | 3.0    | 3.2    | 3.0    | 3.0    | (3.5)P | (3.3)P | (3.6)P | 3.3    | 3.3    | 3.3    | 3.2    | 3.3    | 3.3 | 3.3    | 3.0    | 2.8    | 2.9    | (3.2)P | 2.9    | 2.8    | 2.6    | 2.6 |
| 11           | 2.8    | 2.7 | 2.8    | [2.8]P | 2.9    | 2.6    | B      | 3.4    | 3.4    | 3.3    | 3.6    | 3.0    | 3.5    | 3.4    | 3.3    | 3.5 | 3.8    | 3.6    | 3.1    | 3.4    | 3.3    | 3.0    | 2.9    | 2.9    | F   |
| 12           | FS     | 2.9 | 3.0    | SB     | 3.0    | 3.0    | 3.2    | P      | C      | 3.2    | 2.8    | 3.3    | 3.1    | B      | B      | 3.4 | 3.5    | 3.2    | C      | A      | 2.9    | 3.4    | AF     | AF     | AF  |
| 13           | AF     | 2.9 | 2.7    | 2.7    | 3.0    | 3.0    | 3.0    | 3.2    | B      | B      | B      | B      | (3.5)P | 3.5    | 3.4    | 3.4 | 3.4    | 3.3    | 3.1    | SB     | SB     | SB     | SB     | SB     | SB  |
| 14           | SB     | SB  | SB     | AF     | AF     | AF     | AF     | 3.4    | B      | B      | (3.5)P | B      | 3.6    | 3.5    | 3.2    | 3.3 | 3.5    | 3.4    | 3.3    | 3.4    | 3.2    | F      | F      | 2.8    | F   |
| 15           | F      | F   | (3.1)P | 3.2    | B      | 2.7    | 3.0    | M      | M      | (3.5)P | B      | B      | (3.8)P | 3.5    | 3.5    | 3.6 | 3.4    | 3.5    | 3.4    | 3.2    | 2.9    | [3.0]T | 3.0    | F      | 2.7 |
| 16           | (3.4)P | 3.1 | 3.1    | 2.9    | 2.9    | 2.9    | 3.1    | (3.4)P | 3.6    | 3.4    | 3.0    | B      | B      | B      | 3.4    | 3.2 | 3.4    | 3.5    | 3.0    | 2.9    | 2.8    | 2.7    | 2.6    | 2.7    | 2.7 |
| 17           | 2.8    | 2.7 | 3.1    | 2.8    | 3.0    | 2.8    | 2.9    | 3.4    | 3.1    | 3.4    | B      | B      | 3.2    | 3.2    | 3.4    | 3.4 | 3.4    | 3.2    | 3.1    | 3.0    | 2.9    | 2.8    | 2.7    | 2.8    | 2.8 |
| 18           | (2.8)F | 2.7 | 2.7    | 2.7    | 2.9    | C      | C      | C      | 3.4    | 3.4    | 3.4    | 3.3    | 3.2    | 3.2    | 3.3    | 3.6 | [3.3]S | 3.0    | 3.0    | 3.2    | 3.0    | 3.2    | 2.9    | 2.8    | 2.9 |
| 19           | 2.8    | 2.8 | 2.7    | 2.8    | 3.2    | 2.7    | 3.1    | (3.5)P | 3.5    | 3.6    | 3.2    | B      | B      | 2.8    | 3.1    | 3.3 | 3.2    | 3.3    | 3.0    | 3.2    | 3.0    | 3.1    | 2.8    | 2.7    | 2.7 |
| 20           | 2.7    | T   | 2.8    | 3.0    | [2.9]P | 2.8    | (3.1)P | M      | M      | T      | 3.2    | 3.4    | 2.9    | 3.3    | 3.5    | 3.4 | (3.5)P | 3.3    | 3.3    | [3.2]T | 3.1    | 3.0    | 2.7    | 2.8    | 2.8 |
| 21           | 3.0    | 2.6 | 2.9    | 3.1    | [3.1]F | 3.1    | (3.1)P | 3.4    | 3.6    | T      | 3.5    | 3.4    | 3.3    | 3.6    | 3.4    | T   | C      | T      | C      | C      | C      | C      | 2.9    | 3.0    | 3.0 |
| 22           | 2.9    | 2.9 | 3.1    | 3.1    | 3.3    | 2.8    | 3.1    | 3.3    | [3.3]P | 3.5    | [3.4]C | 3.4    | 3.4    | 3.4    | 3.5    | 3.4 | 3.6    | 3.5    | 2.9    | 3.0    | 3.4    | 3.1    | 2.8    | 2.8    | 2.8 |
| 23           | 3.1    | 2.9 | 2.7    | 2.7    | 3.1    | 2.8    | M      | M      | M      | 3.4    | 3.6    | T      | T      | 3.5    | 3.5    | 3.5 | 3.6    | 3.3    | 3.0    | 3.4    | 3.3    | 2.9    | 2.9    | 3.3    | 3.3 |
| 24           | (2.4)P | 2.9 | F      | F      | F      | F      | 3.1    | F      | 3.6    | [3.6]B | 3.5    | 3.5    | 3.5    | 3.5    | 3.4    | 3.6 | 3.6    | 3.3    | 3.0    | 3.1    | 2.8    | AF     | AF     | 2.6    | 2.6 |
| 25           | [2.8]F | 3.1 | F      | 3.2    | 2.8    | 2.9    | 3.0    | [3.2]P | 3.4    | 3.5    | (3.3)P | 3.6    | 3.5    | 3.3    | 3.4    | 3.5 | 3.6    | 3.6    | 3.5    | 3.6    | [3.4]A | 3.1    | 2.8    | 2.8    | 3.3 |
| 26           | 3.1    | 2.5 | [2.7]A | 2.9    | 2.7    | [2.9]A | 3.1    | 3.2    | 3.4    | [3.5]A | (3.6)P | 3.6    | 3.5    | C      | A      | 3.5 | 3.4    | 3.6    | 3.3    | 3.1    | F      | FB     | 3.1    | AF     | AF  |
| 27           | AF     | F   | (3.1)P | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C   | C      | C      | C      | C      | C      | C      | C      | C      | C   |
| 28           | C      | C   | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C   | C      | C      | C      | C      | C      | C      | C      | C      | C   |
| 29           | C      | C   | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | 3.5    | 3.5    | 3.6    | 3.2 | (3.4)P | (3.5)P | 3.5    | 3.4    | 3.4    | 2.8    | 2.6    | [2.8]A | 3.0 |
| 30           | F      | F   | F      | 2.9    | (2.8)P | 3.1    | 3.4    | 3.0    | (3.5)P | A      | B      | (3.2)P | [3.3]B | 3.4    | 3.3    | 3.4 | 3.4    | 3.3    | (3.3)P | B      | F      | F      | F      | F      | F   |
| 31           | F      | 3.2 | F      | F      | F      | 2.9    | 3.6    | 3.5    | 3.6    | 3.2    | B      | B      | B      | 3.6    | (3.1)P | 3.5 | 3.5    | A      | A      | A      | A      | 3.0    | 2.9    | AF     | AF  |
| Mean Value   | 3.0    | 2.9 | 2.9    | 2.9    | 3.0    | 2.9    | 3.1    | 3.4    | 3.5    | 3.4    | 3.4    | 3.4    | 3.4    | 3.4    | 3.4    | 3.4 | 3.5    | 3.4    | 3.1    | 3.2    | 3.0    | 3.0    | 2.9    | 2.9    | 2.9 |
| Median Value | 2.9    | 2.9 | 2.8    | 2.9    | 3.0    | 2.9    | 3.1    | 3.4    | 3.5    | 3.4    | 3.4    | 3.4    | 3.4    | 3.4    | 3.4    | 3.4 | 3.5    | 3.3    | 3.1    | 3.2    | 3.0    | 3.0    | 2.8    | 2.8    | 2.9 |
| Count        | 3.0    | 2.2 | 2.2    | 2.2    | 2.3    | 2.4    | 2.3    | 2.0    | 2.1    | 2.3    | 2.2    | 2.0    | 2.4    | 2.6    | 2.7    | 2.8 | 2.8    | 2.7    | 2.6    | 2.4    | 2.2    | 2.1    | 2.2    | 2.2    | 2.1 |

Sweep 1.0 Mc to 17.2 Mc in 2 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 28.3' E

**Kokubunji Tokyo**

**IONOSPHERIC DATA**

Dec. 1952

f min F

135° E Mean Time

| Day          | 00                 | 01  | 02                 | 03  | 04  | 05                 | 06               | 07                 | 08               | 09                 | 10               | 11                 | 12                 | 13                 | 14               | 15                 | 16  | 17                 | 18                 | 19                 | 20               | 21                  | 22                 | 23               |    |
|--------------|--------------------|-----|--------------------|-----|-----|--------------------|------------------|--------------------|------------------|--------------------|------------------|--------------------|--------------------|--------------------|------------------|--------------------|-----|--------------------|--------------------|--------------------|------------------|---------------------|--------------------|------------------|----|
| 1            | 1.3                | E   | E                  | E   | E   | C                  | 1.7              | 2.2                | 2.4              | (2.6) <sup>M</sup> | 2.9              | 2.9                | 2.9                | 2.8                | 2.8              | 2.3                | 1.8 | 1.6                | 1.5                | (1.6) <sup>A</sup> | 1.7              | 1.6                 | 1.6                | 1.6              |    |
| 2            | 1.5                | E   | E                  | E   | E   | E                  | 1.5              | 2.0                | 2.8              | 2.8                | 3.0              | 3.1                | 2.9                | 3.5 <sup>A</sup>   | 2.7              | 2.3                | 1.8 | (1.7) <sup>C</sup> | 1.6                | (1.6) <sup>A</sup> | 1.7              | 2.0                 | 1.9                | 2.0              |    |
| 3            | 1.3                | E   | E                  | E   | E   | E                  | 1.8              | (3.4) <sup>A</sup> | 5.0 <sup>A</sup> | 3.0                | 3.3              | 3.3                | 3.4                | 3.2                | 2.4              | 2.4                | 1.7 | 1.9                | 1.7                | 1.7                | 1.7              | (1.7) <sup>AF</sup> | 1.7                | 1.6              |    |
| 4            | 1.6                | 1.2 | 1.2                | 1.7 | F   | E                  | 1.0              | 1.7                | 2.8 <sup>A</sup> | 4.2 <sup>A</sup>   | 3.1              | 3.5                | 3.0                | 3.0                | 2.8              | 2.2                | 1.8 | 1.6                | 1.6                | 1.6                | 1.6              | 1.5                 | (1.8) <sup>A</sup> | 2.0 <sup>A</sup> |    |
| 5            | 2.1                | 1.7 | 1.8                | 1.3 | E   | E                  | 1.6              | 1.9                | 3.2 <sup>A</sup> | 3.4 <sup>A</sup>   | 3.3              | 3.2                | 3.0                | 2.9                | 2.7              | 2.4                | 1.8 | 1.6                | 1.7                | 1.6                | 1.7              | 1.7                 | 1.7                | 1.7              |    |
| 6            | 1.7                | E   | E                  | E   | E   | E                  | 1.6              | 1.7                | 2.3              | 4.2 <sup>A</sup>   | 2.9              | 3.2                | 3.0                | 2.9                | 2.5              | 2.4                | 1.8 | 1.6                | 1.8                | 1.6                | 1.6              | 1.5                 | 1.7                | 1.8              |    |
| 7            | 1.8                | 1.2 | E                  | E   | E   | E                  | 1.5              | 1.7                | 2.2              | 2.6                | 3.5              | 3.3                | 3.3                | 3.0                | 2.7              | 2.7                | 2.2 | 1.7                | 1.7                | 1.7                | 1.6              | 1.7                 | 1.6                | 1.7              |    |
| 8            | 1.1                | E   | E                  | E   | E   | E                  | 1.0              | 1.6                | 1.9              | 2.5                | 2.8              | 3.3                | 3.1                | 3.3                | 3.0              | 2.4                | 2.0 | 1.6                | 1.6                | 1.6                | 1.6              | 1.6                 | 1.6                | 1.7              |    |
| 9            | C                  | C   | C                  | C   | C   | C                  | C                | C                  | 2.5              | 3.0                | 3.3              | 3.4                | 3.3                | 3.0                | 2.7              | 2.6                | 2.0 | 1.7                | 1.5                | 1.8                | 1.6              | 1.7                 | 1.7                | 1.6              |    |
| 10           | 1.6                | 1.2 | 1.3                | E   | E   | E                  | 1.7              | 1.8                | 2.3              | 3.0 <sup>F</sup>   | 2.9              | 3.4                | 3.3                | 3.1                | 2.8              | 2.5                | 1.8 | 1.6                | 1.7                | 1.6                | 1.7              | 1.8                 | 1.7                | 1.7              |    |
| 11           | 1.6                | 1.1 | E                  | E   | E   | E                  | 1.7              | 1.6                | 2.8              | 3.2                | 3.0              | 3.2                | 3.3                | 3.2                | 2.8              | 2.5                | 2.2 | 1.6                | 1.6                | 1.7                | 1.6              | 1.7                 | 1.8                | E                |    |
| 12           | 1.6                | E   | 1.6                | A   | E   | E                  | 1.8              | C                  | C                | 3.2                | 3.3              | 3.4                | (3.5) <sup>T</sup> | 3.6                | 2.7              | 2.3                | 2.8 | 1.8                | C                  | A                  | 1.7              | 1.8                 | AF                 | AF               |    |
| 13           | AF                 | 1.9 | 1.7                | 1.0 | E   | E                  | 1.0              | 1.7                | 2.5              | 3.0                | 2.9              | 3.3                | 3.0                | 3.0                | 2.8              | 2.4                | 2.1 | 1.7                | 1.6                | 1.7                | 1.7              | 1.7                 | 1.8                | 1.8              |    |
| 14           | 1.9                | 1.9 | 1.8                | AF  | AF  | AF                 | 2.0 <sup>A</sup> | 1.9                | 2.2              | 4.0                | 3.3              | 4.5 <sup>A</sup>   | 3.5                | 3.2                | 2.8              | 2.6                | 2.2 | 1.7                | 1.5                | 1.7                | 1.7              | 1.9                 | 1.8                | 1.8              |    |
| 15           | 1.6                | E   | 1.1                | E   | E   | E                  | 1.3              | 1.8                | 1.8              | M                  | 3.0              | 3.2                | 3.3                | 3.3                | 3.3              | 4.2 <sup>A</sup>   | 2.7 | 2.7                | 1.9                | 1.7                | 1.7              | (2.0) <sup>T</sup>  | 2.4                | 1.8              |    |
| 16           | 1.9                | 1.8 | 1.7                | 1.2 | 1.3 | 1.3                | 1.1              | 1.6                | 2.8              | 2.0                | 3.3              | 3.3                | 3.2                | 3.0                | 2.7              | 2.5                | 2.0 | (2.0) <sup>A</sup> | 2.0                | 2.2                | 2.0              | 1.9                 | 2.0                | 2.0              |    |
| 17           | 1.7                | 1.7 | 1.0                | 1.0 | 1.0 | 1.0                | 1.2              | 1.9                | 2.7              | 2.8                | 2.9              | 3.8 <sup>A</sup>   | 3.5                | 3.0                | 2.9              | 2.8                | 1.9 | 1.9                | 1.9                | 1.9                | 1.6              | 1.6                 | (1.6) <sup>C</sup> | 1.7              |    |
| 18           | 1.7                | 1.0 | 1.1                | 1.1 | 1.3 | C                  | C                | C                  | C                | 3.2                | 3.2              | 3.2                | 3.2                | 3.5                | 2.8              | 3.2                | 2.2 | 2.0                | 1.6                | 1.6                | 1.6              | 1.6                 | 1.6                | 1.6              |    |
| 19           | 1.4                | 1.2 | E                  | E   | E   | E                  | 1.0              | 1.7                | 2.7              | 2.7                | 2.8              | 3.0                | 3.2                | 3.0                | 2.8              | 2.7                | 2.5 | 1.9                | 1.8                | 1.6                | 1.5              | 1.7                 | 1.6                | 1.6              |    |
| 20           | 1.6                | T   | E                  | E   | E   | E                  | 1.1              | 1.6                | M                | T                  | T                | T                  | 3.5                | 3.3                | 3.0              | 2.7                | 2.1 | 1.8                | 1.8                | 1.8                | 1.7              | 1.6                 | 1.7                | 1.7              |    |
| 21           | 1.3                | E   | 1.1                | 1.1 | E   | E                  | 1.1              | 1.7                | 1.8              | T                  | 2.8              | 3.7                | 3.5                | 3.7                | 3.0              | 2.5                | C   | T                  | C                  | C                  | C                | C                   | 1.8                | 1.7              |    |
| 22           | 1.9                | 1.9 | 1.0                | T   | 1.0 | 1.1                | 1.1              | 1.6                | 1.7              | 2.3                | 2.9              | (3.2) <sup>C</sup> | 3.6                | 3.4                | 3.1              | 2.5                | 2.2 | 1.7                | (2.2) <sup>A</sup> | 2.8 <sup>A</sup>   | 2.0 <sup>A</sup> | 2.3 <sup>A</sup>    | 1.8                | 1.8              |    |
| 23           | (1.9) <sup>A</sup> | 2.0 | 2.2                | 2.0 | 1.0 | E                  | M                | M                  | M                | 3.5 <sup>A</sup>   | 4.2 <sup>A</sup> | 2.9                | 3.0                | 3.2                | 2.8              | (2.4) <sup>T</sup> | 2.0 | 1.7                | 1.6                | 1.6                | 1.6              | 1.7                 | 1.7                | 1.5              |    |
| 24           | 1.3                | 1.7 | E                  | E   | E   | E                  | 1.6              | 1.8                | 2.4              | 2.3                | 2.9              | 3.0                | 3.0                | 3.0                | 3.0              | 2.5                | 2.1 | 1.9 <sup>AF</sup>  | 3.0 <sup>A</sup>   | 1.9                | 1.8              | A                   | A                  | 1.8              |    |
| 25           | 1.6                | 1.6 | E                  | E   | E   | E                  | 1.6              | 1.6                | 2.4              | 3.0 <sup>A</sup>   | 3.3              | 3.0                | 2.9                | 2.8                | 2.8              | 2.5                | 2.1 | 1.9                | 1.9                | (1.8) <sup>A</sup> | 1.8              | 1.8                 | 2.2 <sup>A</sup>   | 1.7              |    |
| 26           | 1.7                | 2.0 | (1.8) <sup>A</sup> | 1.5 | 1.1 | (1.5) <sup>A</sup> | 1.9              | 2.2                | 2.4              | (2.3) <sup>T</sup> | 2.2              | 5.3 <sup>A</sup>   | 4.5 <sup>A</sup>   | C                  | A                | 3.2                | 2.5 | 2.2                | 2.2                | 1.8                | 1.7              | 1.8                 | 1.7                | AF               |    |
| 27           | AF                 | 1.6 | 1.2                | C   | C   | C                  | C                | C                  | C                | C                  | C                | C                  | C                  | C                  | C                | C                  | C   | C                  | C                  | C                  | C                | C                   | C                  | C                |    |
| 28           | C                  | C   | C                  | C   | C   | C                  | C                | C                  | C                | C                  | C                | C                  | C                  | C                  | C                | C                  | C   | C                  | C                  | C                  | C                | C                   | C                  | C                |    |
| 29           | C                  | C   | C                  | C   | C   | C                  | C                | C                  | C                | C                  | C                | C                  | 3.1                | 3.1                | 2.9              | 2.7                | 2.4 | 1.7                | 1.7                | 1.9                | 2.0              | 1.9                 | 1.8                | 1.8              |    |
| 30           | 1.5                | 1.7 | 1.7                | 1.7 | 1.6 | 1.4                | 1.6              | 1.8                | 2.5              | A                  | 5.0 <sup>A</sup> | 3.5 <sup>A</sup>   | 3.3                | 2.8                | 3.3 <sup>A</sup> | 2.4                | 2.0 | 1.8                | 1.7                | 1.6                | 1.6              | 1.6                 | 1.5                | 1.6              |    |
| 31           | 1.5                | 1.4 | 2.0                | 1.4 | 1.4 | 1.4                | 1.8              | A                  | C                | 4.1 <sup>A</sup>   | 5.0 <sup>A</sup> | 3.3                | 3.3                | (3.0) <sup>A</sup> | 2.7              | 2.7                | 2.2 | A                  | A                  | A                  | 1.6              | 1.6                 | AF                 | AF               |    |
| Mean Value   | 1.6                | 1.6 | 1.5                | 1.3 | 1.2 | 1.2                | 1.7              | 1.9                | 2.6              | 3.1                | 3.3              | 3.4                | 3.3                | 3.1                | 2.9              | 2.6                | 2.1 | 1.8                | 1.7                | 1.8                | 1.7              | 1.7                 | 1.7                | 1.8              |    |
| Median Value | 1.6                | 1.2 | 1.1                | E   | E   | 1.0                | 1.7              | 1.8                | 2.5              | 3.0                | 3.2              | 3.3                | 3.3                | 3.0                | 2.8              | 2.5                | 2.1 | 1.7                | 1.7                | 1.7                | 1.7              | 1.7                 | 1.7                | 1.7              |    |
| Count        | 26                 | 27  | 28                 | 24  | 26  | 24                 | 25               | 23                 | 21               | 26                 | 27               | 27                 | 29                 | 28                 | 28               | 29                 | 28  | 27                 | 26                 | 26                 | 26               | 28                  | 26                 | 25               | 25 |

f min F

Sweep 1.0 Mc to 17.2 Mc in 2 min  
 Manual  Automatic

K 10

The Radio Research Laboratories  
Koganei-machi, Kifukama-gun, Tokyo, Japan

IONOSPHERIC DATA

Dec. 1952

fminE

135° E Mean Time

Kokubunji Tokyo

Lat. 35° 42.4' N  
Long. 139° 29.3' E

| Day          | 00  | 01               | 02  | 03  | 04               | 05               | 06  | 07               | 08               | 09     | 10               | 11     | 12     | 13     | 14     | 15  | 16               | 17     | 18     | 19  | 20               | 21               | 22               | 23               |
|--------------|-----|------------------|-----|-----|------------------|------------------|-----|------------------|------------------|--------|------------------|--------|--------|--------|--------|-----|------------------|--------|--------|-----|------------------|------------------|------------------|------------------|
| 1            | 1.6 | E                | E   | E   | E                | C                | 1.6 | 1.5              | 1.6              | [1.6]M | 1.7              | 1.7    | 1.7    | 1.8    | 1.7    | 1.6 | 1.6              | 1.8    | 1.6    | 1.6 | 1.6              | 1.6              | 1.7              | 1.6              |
| 2            | 1.8 | 1.0              | 1.7 | E   | E                | E                | 1.7 | 1.6              | 1.5              | 1.6    | 1.6              | 1.6    | 1.6    | 1.5    | 1.6    | 1.6 | 1.8              | [1.7]C | 1.6    | 1.6 | 1.6              | 1.5              | 1.6              | 1.6              |
| 3            | 1.8 | E                | E   | E   | E                | E                | 1.5 | 1.6              | 2.2              | 1.6    | 1.4              | 1.4    | 1.4    | 1.6    | 1.6    | 1.7 | 1.6              | 1.6    | 1.6    | 1.6 | 1.6              | 1.6              | 1.6              | 1.7              |
| 4            | 1.2 | E                | 1.0 | E   | E                | 2.0 <sup>F</sup> | 1.7 | 1.9              | 1.6              | 1.6    | 1.7              | 1.7    | 1.7    | 1.7    | 1.7    | 1.7 | 1.7 <sup>F</sup> | 1.9    | 1.7    | 1.7 | 1.6              | 1.9 <sup>F</sup> | 1.6              | 1.6              |
| 5            | 1.6 | 1.2              | E   | E   | 2.0 <sup>F</sup> | E                | 1.9 | 1.6              | 1.6              | 1.6    | 1.7 <sup>F</sup> | 1.6    | 1.7    | 1.9    | 1.7    | 1.7 | 1.7              | E      | 2.0    | 1.9 | 2.0              | 1.9 <sup>F</sup> | 2.0 <sup>F</sup> | 1.8              |
| 6            | 1.7 | 2.0              | E   | E   | E                | 2.0              | 1.9 | 2.0              | 1.7              | 1.6    | 1.6              | 1.6    | 1.6    | 1.7    | 1.6    | 1.7 | 1.6              | 1.8    | 1.8    | 1.9 | 1.7              | E                | 2.0              | 2.0              |
| 7            | E   | 2.5              | 2.0 | 2.2 | E                | E                | E   | 1.8 <sup>F</sup> | 1.7              | 1.6    | 1.7              | 1.7    | 1.6    | 1.7    | 1.7    | 1.6 | 1.7              | 1.6    | 1.5    | 1.8 | E                | E                | E                | 2.0              |
| 8            | E   | E                | 2.0 | 2.0 | E                | 2.0              | 2.0 | 1.6              | 1.7              | 1.6    | 1.7              | 1.7    | 1.7    | 1.7    | 1.8    | 1.7 | 1.6              | 2.0    | 2.0    | 1.8 | 1.7              | C                | C                | C                |
| 9            | C   | C                | C   | C   | C                | C                | C   | 1.9              | 1.7              | 1.7    | 1.7              | 1.8    | 1.6    | 1.7    | 1.7    | 1.6 | 1.9              | 1.6    | 1.9    | 1.8 | 2.0              | 2.0              | 1.7              | 2.0              |
| 10           | 1.7 | E                | 1.9 | E   | E                | 1.9              | E   | 2.0              | 1.8              | 1.7    | 1.7              | 1.7    | 1.7    | 1.6    | 1.7    | 1.7 | 2.0              | E      | 1.8    | E   | E                | E                | E                | 2.0              |
| 11           | 2.0 | 2.0              | E   | E   | E                | E                | E   | 1.8              | 1.5 <sup>F</sup> | 1.6    | 1.7              | 1.7    | 1.6    | 1.8    | 1.6    | 1.7 | 1.7              | 1.8    | E      | E   | E                | E                | E                | 1.7              |
| 12           | 1.6 | 1.8 <sup>F</sup> | E   | E   | E                | E                | E   | C                | C                | 1.6    | 1.7              | 1.7    | 1.5    | 1.7    | 1.7    | 1.6 | 1.6              | 1.6    | [1.6]C | 1.7 | 1.8 <sup>F</sup> | 1.7              | 1.7              | 1.6              |
| 13           | 1.6 | E                | 1.0 | E   | E                | 2.0              | 2.0 | 2.0              | 1.7              | 1.7    | 1.7              | 1.7    | 1.7    | 1.6    | 1.6    | 1.6 | 1.6              | 1.6    | 1.6    | 1.7 | E                | E                | 1.9              | 1.8              |
| 14           | 1.7 | E                | E   | E   | E                | E                | E   | 1.7              | 1.8              | 1.7    | 1.7              | 1.7    | 1.6    | 1.6    | 1.7    | 1.8 | 1.8              | 2.0    | 2.0    | 1.9 | E                | 1.7              | 1.6              | 1.7              |
| 15           | 1.8 | E                | E   | E   | E                | 1.3              | 2.0 | M                | M                | 1.7    | 1.7              | 1.7    | 1.7    | 1.6    | 1.6    | 1.6 | 1.6              | 1.6    | 1.7    | 1.6 | 1.9              | [1.9]T           | 1.9              | 2.0              |
| 16           | 2.0 | E                | E   | E   | E                | E                | 2.0 | E                | 1.2              | 1.6    | 1.7              | 1.7    | 1.7    | 1.7    | 1.6    | 1.6 | 1.6              | 1.2    | 1.6    | 1.6 | 1.7              | 1.8              | 1.6              | 1.7              |
| 17           | 1.6 | 1.7              | E   | E   | 2.0              | E                | E   | 1.7              | 1.6              | 1.7    | 1.7              | 1.6    | 1.6    | 1.6    | 1.6    | 1.7 | 1.9              | 1.9    | 1.6    | 1.7 | 2.0              | 1.8              | [1.9]C           | 1.6              |
| 18           | 1.7 | 1.6              | E   | E   | E                | 1.0              | C   | C                | C                | 1.6    | 1.6              | 1.7    | 1.6    | 1.6    | 1.7    | 1.7 | 1.6              | 1.6    | 1.6    | 1.8 | 1.9              | 2.0              | 2.0              | 2.0              |
| 19           | 2.0 | 2.0              | 1.0 | E   | E                | 2.0              | E   | 1.7              | 1.6              | 1.6    | 1.7              | 1.7    | 1.7    | 1.7    | 1.6    | 1.4 | 1.6              | 1.6    | 1.6    | 1.8 | 1.7              | 1.7              | 1.8              | 1.9              |
| 20           | 1.9 | T                | 1.1 | E   | E                | E                | E   | 1.7              | M                | 1.7    | 1.6              | [1.6]T | 1.7    | 1.7    | 1.6    | 1.4 | 1.6              | [1.6]T | 1.6    | 1.7 | 1.9 <sup>F</sup> | 1.6              | 1.9              | 1.9              |
| 21           | 1.8 | E                | E   | E   | E                | E                | 2.0 | [1.7]T           | 1.4              | [1.6]T | 1.8              | 1.7    | [1.8]T | 2.0    | [1.8]T | 1.6 | [1.6]C           | 1.6    | C      | C   | C                | C                | 1.8              | 1.9 <sup>F</sup> |
| 22           | T   | T                | F   | T   | E                | E                | 1.9 | 2.0              | 1.8              | 1.6    | [1.8]C           | 2.2    | 2.2    | 2.0    | 1.4    | 1.7 | 1.8              | 2.0    | 1.6    | 1.7 | 1.6              | 1.6              | 1.7              | 1.6              |
| 23           | 1.3 | E                | E   | 1.0 | 1.9              | E                | M   | M                | M                | 1.6    | 1.2              | 1.5    | 1.6    | 1.7    | 1.4    | 1.6 | 1.7              | 1.9    | E      | 2.0 | 1.6              | 1.9              | 2.0              | 2.0              |
| 24           | 2.0 | E                | 2.0 | E   | E                | 1.8              | 2.0 | 1.9              | 1.7              | 1.8    | 1.7              | 1.8    | 1.7    | 1.7    | 1.7    | 1.6 | 1.6              | 1.6    | 1.7    | 1.5 | 1.6              | 1.7              | 1.6              | 1.6              |
| 25           | 1.8 | 1.0              | E   | E   | E                | 1.4              | 1.7 | 2.0              | 1.9              | 1.6    | 1.6              | 1.7    | 1.8    | 1.8    | 1.8    | 1.8 | 1.6              | 1.6    | 1.6    | 1.6 | 1.6              | 1.6              | 1.6              | 1.6              |
| 26           | 1.3 | E                | E   | E   | E                | E                | E   | 1.6              | 1.7              | 1.7    | 1.7              | 1.6    | 1.6    | [1.6]C | 1.6    | 1.7 | 1.6              | 1.6    | 1.2    | 1.8 | 1.0 <sup>S</sup> | 1.6              | 1.5              | 1.6              |
| 27           | 1.6 | 1.7              | 1.0 | C   | C                | C                | C   | C                | C                | C      | C                | C      | C      | C      | C      | C   | C                | C      | C      | C   | C                | C                | C                | C                |
| 28           | C   | C                | C   | C   | C                | C                | C   | C                | C                | C      | C                | C      | C      | C      | C      | C   | C                | C      | C      | C   | C                | C                | C                | C                |
| 29           | C   | C                | C   | C   | C                | C                | C   | C                | C                | C      | C                | C      | C      | C      | C      | 1.6 | 1.6              | 1.7    | 1.9    | 1.7 | 1.6              | 1.6              | 1.7              | 1.7              |
| 30           | 1.5 | 1.4              | 1.7 | 1.7 | 1.5              | 2.0              | E   | 1.7              | 1.6              | 1.6    | 1.7              | 1.7    | 1.6    | 1.6    | 1.6    | 1.6 | 1.6              | 1.6    | 1.6    | 1.6 | 1.6              | 1.6              | 1.6              | E                |
| 31           | 1.7 | 1.6              | 1.4 | 1.4 | 1.4              | 1.6              | 1.6 | 1.6              | 1.6              | 1.6    | 1.6              | 1.7    | 1.7    | 1.8    | 1.6    | 1.6 | 1.6              | 1.6    | 1.6    | 1.6 | 1.7              | 1.6              | 1.7              | 1.6              |
| Mean Value   | 1.7 | 1.7              | 1.5 | 1.7 | 1.6              | 1.9              | 1.8 | 1.8              | 1.6              | 1.6    | 1.7              | 1.7    | 1.7    | 1.7    | 1.6    | 1.6 | 1.7              | 1.7    | 1.7    | 1.7 | 1.7              | 1.7              | 1.7              | 1.7              |
| Median Value | 1.7 | E                | E   | E   | E                | E                | 1.7 | 1.8              | 1.6              | 1.6    | 1.7              | 1.7    | 1.7    | 1.7    | 1.6    | 1.6 | 1.6              | 1.6    | 1.6    | 1.6 | 1.6              | 1.6              | 1.6              | 1.7              |
| Count        | 27  | 26               | 28  | 26  | 27               | 25               | 24  | 23               | 23               | 28     | 28               | 28     | 29     | 29     | 29     | 29  | 29               | 29     | 29     | 28  | 28               | 28               | 27               | 28               |

enwp 1.0 Mc to 1.7.2 Mc in 2 min  Manual  Automatic

K 11

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 29.3' E

Dec. 1952

YP F2

135° E Mean Time

| Day          | 00     | 01   | 02    | 03    | 04     | 05    | 06     | 07    | 08    | 09    | 10     | 11     | 12    | 13    | 14    | 15  | 16    | 17    | 18    | 19    | 20    | 21    | 22     | 23    |    |
|--------------|--------|------|-------|-------|--------|-------|--------|-------|-------|-------|--------|--------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|--------|-------|----|
| 1            | 80     | 70F  | 70F   | 70F   | 60     | [80]C | 90     | 60    | 60    | [60]M | 80     | 110    | 60    | 70    | 100   | 50H | 80    | 90    | 100   | 110F  | F     | 90    | 90F    | 70F   |    |
| 2            | 90F    | 70F  | 90    | 80P   | 100F   | 110F  | 90     | 100P  | 90    | 50P   | 90     | 100    | 60    | 90    | 70    | 50H | 90    | [80]C | 60    | [60]A | (60)F | 60    | 80F    | 80    |    |
| 3            | 130P   | 190S | 80F   | 100   | 90     | 90P   | 70     | [80]A | 90    | 70    | 50     | 70     | 80    | (40)F | 90    | 110 | 90    | 90    | 120   | 80P   | 90F   | [90]F | 110F   | F     |    |
| 4            | F      | F    | F     | AF    | 100F   | 80V   | 80     | 110P  | 50    | 60    | 60     | 70     | 60    | 40    | 70    | 50  | 80    | 80    | (60)S | 40    | S     | 150   | [100]A | 40F   |    |
| 5            | 30V    | 100V | 60E   | 80F   | 70F    | 60F   | 70V    | 60    | (50)P | 80    | 60     | (40)P  | (40)P | 50    | 50    | 40  | 50    | 50    | 50P   | 120   | 80    | 80    | 80F    | 90F   |    |
| 6            | 60     | 50   | 60    | 90    | 50F    | 50V   | 60     | 50P   | (40)T | 40    | [40]C  | 50     | 30    | 40    | 50    | 50  | 60    | 60    | 90    | 110   | 100   | 60    | B      | 110   |    |
| 7            | 110    | 80   | 80    | 110   | [120]B | 120   | 70     | (40)T | 50    | 50H   | B      | 60     | 50    | B     | 60    | 50P | 40    | 80    | 100   | 80S   | 70P   | 60    | 50     | 80    |    |
| 8            | [80]F  | 80F  | 90F   | 90F   | 70F    | 70    | 50     | B     | 30    | (50)T | 30P    | 80     | 100   | 40    | 40    | 50  | 90    | 90    | 50    | 90S   | 70    | C     | C      | C     |    |
| 9            | C      | C    | C     | C     | C      | C     | C      | B     | (60)T | 90    | 80P    | 70     | B     | 70    | 90    | 40H | 100   | 80    | 80    | 60P   | F     | FB    | 50     | 90F   |    |
| 10           | (90)F  | 90   | 70    | 80    | 70     | 100   | 80     | (60)P | (80)T | 80    | 70     | 60     | 60    | 150   | 80    | 60  | 80    | 80    | 190   | 100   | (80)T | 80    | 60     | 70    |    |
| 11           | 90     | 80   | 90P   | [80]B | 60     | 100   | B      | B     | 80    | 50    | 40     | 40     | 40    | 80    | 80    | 40  | 30    | 40    | 50    | 40    | 80    | 30    | 60     | F     |    |
| 12           | FS     | 60F  | 90    | 5B    | 50     | 70    | 50P    | C     | C     | 80    | 90P    | 80     | 70P   | B     | B     | 70  | 70    | 90    | C     | A     | 80    | 50    | AF     | AF    |    |
| 13           | AF     | 60P  | 80F   | 90    | 80     | 90    | 80     | 80    | B     | B     | B      | (40)F  | 60    | 50    | 50    | 50  | 50    | 50    | 70    | 5B    | 5B    | 5B    | 5B     | 5B    |    |
| 14           | SB     | SB   | SB    | AF    | AF     | AF    | AF     | 40P   | B     | B     | (50)T  | B      | 50    | 50    | 80    | 60P | 50    | 60H   | 40    | 50P   | 90    | F     | F      | 90F   |    |
| 15           | F      | F    | (50)F | 90P   | B      | B     | 110    | M     | (40)T | B     | (50)T  | B      | (50)T | 50    | 60    | 50  | 50    | 50    | 60    | 70    | 50    | T     | AF     | 90    |    |
| 16           | (60)T  | 60   | 70    | 80    | 110    | 90    | 70P    | (80)T | 70    | 50    | 80     | B      | B     | 60    | 70    | 60  | 100   | 60    | 90    | 110   | 80F   | 80F   | [80]F  | [80]F |    |
| 17           | 70F    | 80   | 100   | 90F   | 100F   | 90F   | 90     | 80P   | 100P  | 70P   | B      | 60     | 60    | 80    | 60    | 70  | 90    | 110P  | 90    | 110Z  | 130   | 80F   | [80]C  | 90F   |    |
| 18           | (90)F  | 90F  | 80V   | 100F  | 90     | C     | C      | C     | C     | 60    | 70     | 70     | 50H   | 100V  | 100V  | 50P | [60]S | 80Z   | 80    | 80    | 110F  | 60V   | (60)F  | 100   |    |
| 19           | 120    | 80   | 70    | 70F   | 70     | 100F  | 90     | (50)T | 60    | 60    | 80     | B      | B     | 100H  | 70    | 90  | 100   | 70P   | 100   | 80    | 100   | 100   | 100    | 130   |    |
| 20           | 100    | T    | 90    | 80P   | [80]B  | 90F   | (100)T | M     | M     | T     | 70     | 110    | 120H  | 50    | 70    | 70  | (70)T | 80P   | [80]T | 90F   | 90    | 110F  | 100F   | 50F   |    |
| 21           | 90E    | 110F | 110F  | 70P   | [70]F  | 70    | (90)F  | 70    | 50    | T     | 40     | 30     | 30    | 30    | 70    | T   | C     | T     | C     | C     | C     | C     | 120F   | 100F  |    |
| 22           | 90P    | 60   | 50    | 110F  | 90     | 100   | 70     | 90    | [80]B | 80    | [60]C  | 50     | 50    | 70    | 70    | 90  | 60    | 50    | 120   | 100   | 60    | 120   | 110    | 60    |    |
| 23           | 60F    | 100  | 90    | 60F   | 70     | 100   | M      | M     | M     | 60    | 50     | T      | T     | 60    | 60    | 40  | 70    | 70    | 70F   | 90    | 120F  | 70F   | 60F    | 60F   |    |
| 24           | (40)T  | 140F | F     | F     | F      | F     | F      | 90F   | (50)T | 40    | [60]B  | 70     | 50    | 80    | 90    | 70  | 60    | 50    | 50    | 80    | AF    | AF    | AF     | 120   |    |
| 25           | [100]F | 80   | F     | 100F  | 130F   | 70    | 70V    | [70]B | 70P   | 80    | (100)P | 30     | 70    | 60    | 60    | 70P | 50    | 50    | 40    | [60]A | 90    | 90F   | 70     | 70    |    |
| 26           | 80F    | 80P  | [70]F | 60Z   | 70Z    | [80]A | 90     | 90    | 100   | [70]A | (40)T  | 50     | 70    | C     | A     | 60  | 80    | 50    | 70    | F     | FB    | 100F  | AF     | AF    |    |
| 27           | AF     | F    | (70)T | C     | C      | C     | C      | C     | C     | C     | C      | C      | C     | C     | C     | C   | C     | C     | C     | C     | C     | C     | C      | C     |    |
| 28           | C      | C    | C     | C     | C      | C     | C      | C     | C     | C     | C      | C      | C     | C     | C     | C   | C     | C     | C     | C     | C     | C     | C      | C     |    |
| 29           | C      | C    | C     | C     | C      | C     | C      | C     | C     | C     | C      | C      | 50    | 50    | 50    | 80  | (50)T | (60)T | 60    | 70F   | 70    | 70F   | [80]A  | 80Z   |    |
| 30           | F      | F    | F     | 60F   | (70)F  | 70F   | 60P    | 60    | (50)T | A     | B      | (100)F | [90]B | 80    | 100   | 70  | 100   | 70    | (80)T | B     | F     | F     | F      | F     |    |
| 31           | F      | 130  | F     | F     | F      | 70P   | 50     | 50P   | 90P   | B     | B      | B      | B     | 70    | (90)F | 50  | 70    | A     | A     | A     | 100F  | 120P  | AF     | AF    |    |
| Mean Value   | 80     | 80   | 80    | 80    | 80     | 80    | 80     | 70    | 60    | 70    | 60     | 70     | 70    | 70    | 70    | 60  | 70    | 70    | 80    | 80    | 90    | 90    | 90     | 90    | 80 |
| Median Value | 90     | 80   | 80    | 80    | 70     | 90    | 80     | 60    | 60    | 60    | 60     | 70     | 60    | 60    | 70    | 60  | 70    | 70    | 80    | 80    | 80    | 80    | 80     | 80    | 80 |
| Count        | 20     | 22   | 22    | 22    | 23     | 23    | 20     | 21    | 23    | 22    | 22     | 20     | 24    | 26    | 27    | 28  | 28    | 27    | 26    | 24    | 22    | 22    | 20     | 20    | 21 |

YP F2

Sweep 1.0 Mc to 17.2 Mc in 2 min

Manual  Automatic

Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

foF2

Dec. 1952

| Day          | 00   | 01     | 02  | 03     | 04     | 05     | 06     | 07     | 08     | 09     | 10     | 11     | 12     | 13      | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     | 22   | 23     |
|--------------|------|--------|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|------|--------|
| 1            | 2.5  | 2.8    | 2.7 | 2.8    | 3.1    | 2.3    | 2.5    | 4.2    | (6.8)T | 6.8J   | 6.6J   | 6.4P   | 8.6    | 8.6     | 7.4    | 6.7J   | 6.3    | 4.5J   | 3.7    | 2.9    | 2.8    | 2.7    | 2.8  | 2.8    |
| 2            | 2.2  | 2.4    | 2.5 | 2.7    | 3.0    | 2.5    | 2.4    | 4.0    | 6.1J   | [6.7]T | 7.3    | 7.9    | 6.5    | 8.2     | T      | T      | 7.3P   | [5.2]T | 3.0    | 3.1    | 3.5    | 2.8    | 2.7  | 2.8    |
| 3            | 3.0  | 2.3    | 2.4 | 3.1    | 2.2    | 2.0    | 2.1    | 3.6    | (7.7)P | 7.9P   | 8.6P   | 8.2    | 8.4P   | 7.5     | [7.2]C | 6.9J   | 6.3    | T      | C      | 3.3    | 3.6    | 3.2    | C    | C      |
| 4            | C    | C      | C   | C      | C      | C      | C      | C      | C      | C      | C      | 8.5J   | 7.8    | C       | C      | C      | 5.7    | [5.2]C | 4.8    | 5.2J   | [3.8]C | 2.5    | 2.4  | 2.8    |
| 5            | 3.0  | [2.4]A | 1.9 | [2.0]A | 2.1    | 2.3    | 2.5    | C      | C      | C      | 7.1    | 7.4H   | 8.8    | 9.0     | 7.0    | 6.2    | 6.5P   | C      | C      | 2.7    | 2.3    | 2.6    | 3.0  | 3.4    |
| 6            | 2.4  | 2.6    | 2.8 | 2.5    | C      | C      | C      | C      | C      | S      | 6.9J   | 6.2P   | 6.7    | 7.9     | 7.9    | 6.6J   | C      | T      | 2.9    | 3.1    | [3.0]C | 3.0    | 2.7  | 2.4    |
| 7            | 2.5  | 2.5    | 2.7 | 2.8    | 2.8    | 2.4    | 2.7    | 4.1    | [5.2]C | (6.3)P | 7.4    | 6.9P   | 7.8    | 9.4     | 7.0P   | 5.9P   | 6.8    | [4.8]C | 2.8    | 2.9    | 3.5    | 4.1    | 2.8  | C      |
| 8            | C    | 2.4    | 2.7 | 2.8    | 2.9    | 3.0    | 3.0    | 3.5    | [4.6]T | (5.7)J | [6.4]T | 7.0    | 6.4J   | 7.0     | 6.2    | 6.4    | 5.5    | [4.4]S | 3.2    | 2.9    | 3.1    | 3.0    | 2.7  | 2.5    |
| 9            | 2.5  | 2.6    | 2.5 | 2.8    | 3.0    | 3.1    | 2.8    | 3.5    | [5.0]T | 6.4P   | [6.8]T | 7.1    | (6.9)P | 7.4     | 7.0    | 6.2    | 6.5    | (6.3)J | 3.2    | 2.9    | 3.0    | 3.0    | 3.6  | 2.9    |
| 10           | 2.6  | 2.5    | 2.9 | 2.6    | 4.0    | 2.8    | C      | C      | C      | C      | 7.0    | 6.6    | 7.9    | C       | T      | 7.9J   | T      | T      | 2.9    | 3.0    | 3.4    | 3.2    | C    | C      |
| 11           | C    | 2.9    | 3.3 | 3.3    | 3.2    | 3.4    | [3.1]C | 2.8    | 4.8    | 6.7    | 7.1    | 6.4P   | 9.1J   | 8.5     | 7.9J   | 7.6    | [6.4]T | 5.1    | 2.9    | 3.5    | 3.5    | 2.8    | 2.9  | 3.1    |
| 12           | 3.0P | 3.4    | 3.7 | 4.5    | 2.4    | 2.4    | 2.5    | T      | T      | T      | C      | T      | 9.4    | 9.7     | 8.0    | 8.3P   | [6.6]T | 4.9P   | 3.4    | 3.8    | 2.5    | 3.4    | 2.8  | [2.7]A |
| 13           | 2.6  | 2.8    | 2.8 | 2.9    | 2.9    | 2.5    | 2.4    | 3.4    | T      | T      | 8.9    | 11.8   | 8.4    | 8.8J    | 7.0    | 6.1    | 5.8    | 6.6    | 4.7    | T      | A      | C      | C    | C      |
| 14           | C    | C      | C   | C      | C      | C      | C      | C      | C      | C      | C      | 9.0    | 7.6    | 8.0     | 8.3P   | 6.9    | 7.0    | [5.8]T | 4.6    | 3.7    | 3.9    | 2.9    | 2.5H | 2.8    |
| 15           | 2.4  | 2.5F   | 2.4 | 2.8    | 3.3    | [2.6]A | 1.9    | 3.5    | 5.3    | 6.5    | 7.0    | 8.0    | 8.7P   | 8.8     | 8.0P   | [7.5]T | 7.0    | (4.9)P | 5.0    | A      | A      | A      | 3.1  | 2.5    |
| 16           | 2.5  | 2.8    | 3.3 | 2.8    | 3.0    | 2.8    | 2.7    | 3.5    | T      | T      | 6.9    | 8.7J   | 11.0P  | [11.0]T | 10.9J  | 8.9P   | 7.9P   | [5.7]T | 3.5    | 3.2    | 3.4    | [3.1]A | 2.8  | 2.5    |
| 17           | 2.8  | 3.0    | 3.2 | 2.9    | 3.6    | F.S    | 2.4    | 3.2    | T      | T      | 9.2J   | T      | (6.8)J | 7.4J    | (7.4)T | [6.9]T | T      | T      | 4.1    | 3.3    | 2.5    | 2.5    | C    | C      |
| 18           | C    | C      | C   | C      | C      | C      | C      | C      | C      | 5.4    | T      | T      | (6.8)J | 7.4J    | (7.4)T | [6.9]T | 6.4    | [5.2]T | 3.9    | 3.4    | 3.5    | 3.2    | 2.9  | 2.4    |
| 19           | 2.6  | 2.5    | 2.6 | 2.7    | 3.4    | 2.3    | 2.5    | 3.5    | 6.3J   | [6.2]T | 6.0H   | 8.7P   | 7.0.2  | 8.4     | [8.2]T | 7.9J   | T      | T      | 3.7    | 3.5J   | 2.8    | 2.9    | 2.9  | 2.4    |
| 20           | 2.5  | 2.6    | 2.8 | 2.8    | 3.1    | 2.7    | 2.4    | 3.3    | T      | C      | 6.0    | 5.4    | [6.0]T | 6.7P    | [7.0]T | 7.4    | [6.4]T | 5.3P   | 3.2    | (2.4)P | 2.6    | 2.8    | 2.3  | C      |
| 21           | C    | C      | C   | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C       | C      | C      | C      | C      | C      | C      | C      | C      | C    | C      |
| 22           | C    | C      | C   | C      | C      | C      | C      | C      | C      | C      | 6.3P   | 6.0    | 6.4P   | 7.9     | 7.6    | 7.3P   | [6.6]T | 6.0J   | [4.5]A | 3.0    | 3.4    | 4.0    | 3.5  | 2.9    |
| 23           | 2.7  | 2.8    | 2.9 | 2.6    | 2.8    | 3.4    | 3.8P   | (4.7)P | T      | T      | 7.6    | [8.9]T | 10.2   | T       | T      | T      | T      | 5.0    | 2.5    | 3.0    | 3.4    | 3.3    | 2.5  | 3.0    |
| 24           | 2.7  | 2.5    | 2.8 | 2.7    | [2.8]S | 2.8    | 3.2    | 3.6    | T      | T      | 6.3P   | (6.0)P | 6.4J   | 5.5     | T      | T      | 6.8    | [5.2]T | 3.4    | 2.8    | 3.0    | 3.5    | 3.2  | [3.1]A |
| 25           | 3.0  | 2.5    | 2.4 | 2.5    | 2.4    | 2.6    | [2.8]S | 2.9    | T      | T      | (7.1)P | 7.4P   | 7.5J   | 6.9     | 6.9    | 6.1    | 6.8    | [5.2]T | 3.5    | 3.4    | 3.8    | 4.0P   | 3.4  | 3.5    |
| 26           | 2.3  | 2.3    | 2.7 | 2.3    | 2.4    | 2.3    | 2.3    | 3.5    | T      | T      | T      | T      | 6.0    | 6.9     | 6.5P   | 6.0    | (5.8)P | 5.5P   | 3.8    | 3.8    | 3.4    | 3.4    | 2.5  | 2.5    |
| 27           | 2.8  | 2.9    | 2.8 | 2.9    | 2.6    | 2.8    | 3.1    | 3.7    | [4.6]T | (5.5)P | 6.0    | C      | 7.3    | 6.9J    | 6.8J   | 6.8J   | 5.8    | 4.9J   | 3.5    | 3.2    | 3.2    | 3.5    | 2.0  | 2.4    |
| 28           | 2.4  | 2.5    | 2.5 | 2.5    | 2.6    | 2.4    | 2.2    | 2.5    | [3.9]T | 5.3    | [6.7]T | 8.1J   | [6.6]T | 5.1     | 5.0    | [4.8]T | (4.7)P | [4.2]C | 3.8    | 3.6H   | 3.4H   | 3.2    | 2.5  | 2.6    |
| 29           | 2.7  | [2.6]A | 2.6 | 2.8    | 2.8    | [2.4]S | 2.0    | 2.6    | 4.7    | [6.3]S | 7.9    | 9.9    | 9.3P   | 6.4     | 6.0    | 5.5    | 6.0    | (4.1)J | [3.2]A | 2.4    | 2.4    | 2.2    | 2.0  | 2.7    |
| 30           | A    | F      | 2.8 | 2.7    | F      | F      | 3.2    | 2.7    | 4.2    | T      | T      | 9.4J   | T      | T       | 5.9    | T      | T      | 4.9    | 5.0    | 3.8    | 2.8    | 3.0    | 2.9  | 4.0    |
| 31           | 2.4  | 2.3    | 2.3 | 2.2F   | 2.3    | 2.5    | 2.8    | 2.7    | [3.8]A | 4.8    | [5.8]A | 6.8    | 7.3J   | T       | T      | T      | 5.2    | A      | T      | 3.9    | 3.8    | 2.5    | A    | A      |
| Mean Value   | 2.6  | 2.6    | 2.7 | 2.8    | 2.9    | 2.6    | 2.5    | 3.4    | 5.2    | 6.2    | 7.0    | 7.7    | 7.8    | 7.9     | 7.3    | 6.8    | 6.3    | 5.2    | 3.7    | 3.3    | 3.2    | 3.1    | 2.8  | 2.8    |
| Median Value | 2.6  | 2.5    | 2.7 | 2.8    | 2.8    | 2.5    | 2.5    | 3.5    | 4.9    | 6.3    | 7.0    | 7.4    | 7.6    | 7.9     | 7.1    | 6.8    | 6.4    | 5.2    | 3.5    | 3.2    | 3.4    | 3.0    | 2.8  | 2.8    |
| Count        | 2.3  | 2.5    | 2.6 | 2.6    | 2.4    | 2.3    | 2.4    | 2.2    | 1.4    | 1.4    | 2.4    | 2.5    | 2.7    | 2.5     | 2.4    | 2.3    | 2.3    | 2.3    | 2.7    | 2.8    | 2.8    | 2.8    | 2.5  | 2.3    |

Manual  Automatic

Sweep 1.5... Mc to 22.5... Mc in 2... min

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12.6' N  
Long. 130° 31.7' E

Yamagawa

IONOSPHERIC DATA

Dec. 1952

f<sub>p</sub>F<sub>2</sub>

135° E Mean Time

| Day          | 00   | 01     | 02  | 03   | 04     | 05     | 06   | 07     | 08     | 09     | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     | 22               | 23     |
|--------------|------|--------|-----|------|--------|--------|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------|--------|
| 1            | 390  | 320    | 300 | 300  | 260    | 270    | 280  | 250    | (240)J | (250)J | (240)J | 300P   | 260    | 270    | (250)J | 230    | (230)J | 230    | 290    | 300    | 300    | 320    | 250              | 230    |
| 2            | 330  | 320    | 310 | 310  | 290    | 350    | 280  | 270    | (280)J | (280)J | 270    | 250    | 250    | 260    | T      | 250P   | (260)J | 280    | 320    | 300    | 260    | 270    | 270              | 330    |
| 3            | 300  | 340    | 380 | 250  | 220    | 260    | 300  | 300    | (280)P | 260P   | 270P   | 250    | 260P   | 270    | (260)J | (250)P | 250    | T      | 300    | 300    | 260    | 300    | C                | C      |
| 4            | C    | C      | C   | C    | C      | C      | C    | C      | C      | C      | (280)J | 270    | C      | C      | C      | C      | 240    | (240)C | 250    | (250)J | (280)C | 350    | 390              | 330    |
| 5            | A    | A      | A   | A    | 300    | 360    | 300  | C      | C      | C      | 260    | 300H   | 280    | 250    | 250    | 250    | 250P   | C      | C      | 230    | 360    | 340    | 300              | 250    |
| 6            | 350  | 300    | 300 | 320  | C      | C      | C    | C      | C      | S      | (240)J | 260P   | 290    | 280    | 250    | (250)J | C      | T      | 230    | 250    | (250)C | 250    | 300              | 320    |
| 7            | 330  | 340    | 330 | 320  | 300    | 260    | 290  | 250    | (240)P | 260    | 250P   | 250P   | 250    | 250    | 250P   | 300P   | 250    | (230)C | 210    | 300    | 300    | 250    | 220              | C      |
| 8            | C    | 350    | 350 | 310  | 340    | 300    | 270  | 260    | (260)J | (250)P | (250)J | 250    | (270)J | 250    | 280    | 250    | 250    | (240)S | 220    | 270    | 290    | 250    | 250 <sup>2</sup> | 270    |
| 9            | 350  | 350    | 340 | 310  | 290    | 280    | 280  | 260    | (260)J | 250P   | (250)J | 250    | (300)P | 260    | 250    | 250    | 250    | (230)P | 250    | 260    | 250    | 300    | 270              | 270    |
| 10           | 300  | 350    | 360 | 300  | 250    | 250    | C    | C      | C      | C      | 250    | 250    | 300    | C      | T      | (280)J | T      | T      | 230    | 300    | 280    | C      | C                | C      |
| 11           | C    | 350    | 320 | 310  | 330    | 250    | C    | C      | 240    | 250    | 270P   | (280)J | 260    | (250)J | 250    | (240)T | 220    | 240    | 280    | 230    | 330    | 330    | 350              | 360    |
| 12           | 330P | 350    | 320 | 240  | 280    | 340    | 330  | T      | T      | T      | C      | T      | 300    | 260    | 250P   | (250)J | 250P   | 250P   | 270    | 270    | 250    | A      | C                | C      |
| 13           | 390  | 350    | 350 | 320  | 270    | 320    | 300  | 280    | T      | T      | 300    | 260    | 250    | (260)J | 250    | 260    | 270    | 250    | 300    | T      | A      | C      | C                | C      |
| 14           | C    | C      | C   | C    | C      | C      | C    | C      | C      | C      | C      | 270    | 250    | 270    | 270P   | 270    | 240    | (240)T | 270    | 260    | 270    | 260    | 350H             | 300    |
| 15           | 350  | (380)F | 400 | 340  | 270    | (290)A | 370  | 270    | 240    | 250    | 260    | 270    | 260P   | 260    | 250P   | (250)J | 250    | (240)P | 250    | A      | A      | A      | 270              | 300    |
| 16           | 380  | 310    | 300 | 290  | 300    | 280    | 300  | 280    | T      | T      | (280)J | 290P   | (280)J | 280    | 250P   | (250)J | 250P   | (240)T | 240    | 310    | 300    | (320)A | 350              | 350    |
| 17           | 350  | 320    | 310 | 400  | 300    | FS     | 320  | 250    | T      | T      | (250)J | T      | T      | (270)J | 260    | 260    | 250P   | (240)T | 250    | 270    | 300    | 330    | C                | C      |
| 18           | C    | C      | C   | C    | C      | C      | C    | C      | C      | 270    | T      | T      | (260)P | (240)P | (260)J | 260    | 260    | (270)T | 290    | 300    | 280    | 320    | 250              | 370    |
| 19           | 340  | 350    | 350 | 350  | 230    | 340    | 300  | 250    | (250)P | (280)J | 320H   | 300P   | 260    | 250    | (260)J | (270)J | T      | T      | 250    | 280P   | 280    | 320    | 260              | 350    |
| 20           | 340  | 350    | 350 | 310  | 290    | 230    | 270  | 290    | T      | C      | 270    | 250    | T      | 270P   | T      | 260    | (240)T | 230P   | 250    | (350)J | 270    | 300    | 320              | C      |
| 21           | C    | C      | C   | C    | C      | C      | C    | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C      | C                | C      |
| 22           | C    | C      | C   | C    | C      | C      | C    | C      | C      | C      | 250P   | 250    | 300P   | 280    | 260    | 270P   | (260)J | (250)J | (270)A | 330    | 260    | 320    | 280              | 290    |
| 23           | 350  | 350    | 350 | 370  | 390    | 330    | 300P | (250)P | T      | T      | 260    | (240)J | 260    | 260    | T      | T      | T      | T      | 250    | 330    | 270    | 370    | 300              | 370    |
| 24           | 280  | 310    | 300 | 290  | (300)S | 300F   | 350  | 260    | T      | T      | 280P   | (270)J | 260    | 260    | T      | T      | T      | A      | 280    | A      | 380    | 270    | 340              | (320)A |
| 25           | 300  | 290    | 350 | 350  | 350    | (340)S | 340  | 340    | T      | T      | (250)P | 260P   | (250)P | 260    | 250    | 270    | 280    | (260)J | 240    | 300    | 300    | 300P   | 320              | 260    |
| 26           | 300  | 350    | 300 | 290  | 350    | 370    | 370  | 260    | T      | T      | T      | T      | 270    | 260    | 260P   | 250    | (270)P | 240P   | 280    | 250    | 240    | 250    | 270              | 350    |
| 27           | 350  | 340    | 300 | 330  | 350    | 370    | 370  | 250    | (240)J | (240)P | 260    | C      | C      | 250    | (240)J | (260)J | 250    | (230)J | 250    | 260    | 270    | 250    | 260              | 430    |
| 28           | 320  | 340    | 340 | 320  | 300    | 290    | 320  | 300    | (280)T | 250    | T      | (230)J | 240    | 250    | (240)T | (240)P | (240)S | 270    | 290H   | 270H   | 280    | 290    | 290              | 270    |
| 29           | 340  | (340)A | 340 | 290  | 210    | (260)S | 310  | 270    | 260    | (260)S | 270    | 260    | 250P   | 250    | 280    | 300    | 250    | 210    | (230)P | (240)A | 250    | 330    | 350              | 270    |
| 30           | A    | F      | 340 | 330  | F      | A      | 250  | 250    | T      | T      | 270    | T      | T      | T      | T      | T      | T      | 250    | 220    | 280    | 350    | 280    | 350F             | 260    |
| 31           | 260  | 270    | 350 | 300P | 350    | 300    | 270  | 260    | (270)A | 280    | (260)A | 250    | (250)J | T      | T      | T      | A      | A      | T      | 280    | 250    | A      | A                | A      |
| Mean Value   | 330  | 320    | 330 | 310  | 300    | 300    | 270  | 260    | 260    | 260    | 260    | 260    | 270    | 260    | 260    | 260    | 250    | 240    | 250    | 280    | 280    | 290    | 300              | 310    |
| Median Value | 340  | 340    | 340 | 310  | 300    | 300    | 260  | 260    | 260    | 260    | 260    | 260    | 260    | 260    | 260    | 250    | 250    | 240    | 250    | 280    | 280    | 300    | 290              | 320    |
| Count        | 22   | 24     | 25  | 25   | 24     | 23     | 21   | 14     | 14     | 23     | 25     | 26     | 26     | 25     | 23     | 23     | 22     | 22     | 27     | 27     | 28     | 27     | 25               | 23     |

f<sub>p</sub>F<sub>2</sub>

Sweep 1.0... Mc to 2.2.0 Mc in 2... min

Manual

Automatic

Y 2



Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

f'F2

Dec. 1952

| Day          | 00               | 01               | 02               | 03               | 04  | 05               | 06               | 07  | 08               | 09               | 10               | 11               | 12  | 13               | 14               | 15  | 16               | 17               | 18               | 19               | 20                | 21               | 22               | 23               |     |
|--------------|------------------|------------------|------------------|------------------|-----|------------------|------------------|-----|------------------|------------------|------------------|------------------|-----|------------------|------------------|-----|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|-----|
| 1            | 340              | 290              | 260              | 270              | 250 | 220              | 250              | 220 | 230              | 250              | 260              | 250              | 260 | 260              | 250              | 250 | 220              | 210              | 210              | 250              | 250               | 270              | 240              | 220              |     |
| 2            | 300              | 280              | 270              | 260              | 250 | 230              | 250              | 230 | 250              | 240              | 250              | 240              | 260 | 260              | 240              | 250 | 250              | 200 <sup>A</sup> | 240 <sup>A</sup> | 280              | 260               | 250              | 240              | 280              |     |
| 3            | 240              | 300 <sup>A</sup> | 360              | 240              | 220 | 250              | 290              | 260 | 250              | 250              | 240              | 260              | 250 | 250              | 250 <sup>C</sup> | 250 | 230              | 220              | 240 <sup>C</sup> | 250              | 230               | 290              | C                | C                |     |
| 4            | C                | C                | C                | C                | C   | C                | C                | C   | C                | C                | C                | 270              | C   | C                | C                | C   | 230              | 220 <sup>C</sup> | 220              | 210              | 2240 <sup>C</sup> | 280              | 350              | 280              |     |
| 5            | 310 <sup>A</sup> | 280 <sup>A</sup> | 250 <sup>A</sup> | 270 <sup>A</sup> | 290 | 340              | 270              | C   | C                | C                | 250              | 250 <sup>H</sup> | 260 | 250              | 250              | 240 | 240              | C                | C                | 200              | 330               | 300              | 260              | 230              |     |
| 6            | 300              | 270              | 250              | 270              | C   | C                | C                | C   | C                | 210              | 230              | 240              | 280 | 270              | 250              | 250 | C                | A                | 210 <sup>A</sup> | 240              | 220 <sup>C</sup>  | 210              | 250              | 290              |     |
| 7            | 300              | 300              | 270              | 270              | 260 | 230              | 250              | 220 | C                | 230              | 250              | 240              | 250 | 250              | 250              | 250 | 240              | 220 <sup>C</sup> | 200              | 280              | 260               | 220              | 200              | C                |     |
| 8            | C                | 330              | 320              | 280              | 280 | 250              | 230              | 240 | 210              | 250              | 250              | 250              | 250 | 250              | 250              | 230 | 240              | 230              | 200 <sup>A</sup> | 250              | 240               | 210              | 200              | 250              |     |
| 9            | 310              | 320              | 300              | 270              | 250 | 250              | 250              | 230 | 220              | 220              | 220              | 250              | 300 | 250              | 240              | 240 | 240              | 210              | 210              | 250 <sup>A</sup> | 210 <sup>A</sup>  | 270 <sup>F</sup> | 240              | 240              |     |
| 10           | 270              | 320              | 330              | 300              | 220 | 210              | C                | C   | C                | C                | 250              | 250              | 260 | 270 <sup>C</sup> | 280              | 270 | 220              | 200              | 200              | 270              | 250               | 240              | C                | C                |     |
| 11           | C                | 300              | 280              | 250              | 290 | 230              | C                | C   | C                | 230              | 250              | 250              | 270 | 250              | 250              | 250 | 230              | 210              | 200              | 200              | 210               | 280              | 300              | 310              |     |
| 12           | 290              | 300              | 250              | 220              | 230 | 300              | 300              | 250 | 230              | 250              | 240 <sup>C</sup> | 240              | 270 | 250              | 250              | 250 | 220              | 210              | 220              | 240              | 240               | 250 <sup>A</sup> | 210 <sup>A</sup> | A                |     |
| 13           | 360              | 300              | 310              | 300              | 240 | 290              | 290              | 250 | 230              | 250              | 270              | 250              | 250 | 250              | 250              | 230 | 240              | 230              | 230 <sup>A</sup> | 240              | 260 <sup>A</sup>  | A                | C                | C                |     |
| 14           | C                | C                | C                | C                | C   | C                | C                | C   | C                | C                | C                | 250              | 250 | 250              | 250              | 230 | 230              | 230 <sup>A</sup> | 240              | 260 <sup>A</sup> | A                 | 240              | 300 <sup>H</sup> | 250              |     |
| 15           | 300              | 270 <sup>F</sup> | 320              | 300              | 250 | 280 <sup>A</sup> | 310              | 240 | 220              | 230              | 250              | 250              | 240 | 250              | 250              | 220 | 230              | 200 <sup>A</sup> | 230              | A                | A                 | A                | 250 <sup>A</sup> | 290              |     |
| 16           | 350              | 290              | 250              | 250              | 260 | 250              | 280              | 200 | 230              | 240              | 250              | 260              | 270 | 250              | 250              | 230 | 200 <sup>A</sup> | 200 <sup>A</sup> | 240 <sup>A</sup> | 320              | 270 <sup>A</sup>  | 280 <sup>A</sup> | 300              | 350 <sup>A</sup> |     |
| 17           | 310              | 290              | 270              | 310 <sup>F</sup> | 250 | 400              | 310              | 240 | 240              | 250              | 250              | 220              | 250 | 260              | 250              | 250 | 240              | 220              | 220              | 250 <sup>A</sup> | 250               | 330              | C                | C                |     |
| 18           | C                | C                | C                | C                | C   | C                | C                | C   | C                | 240              | 250              | 250              | 250 | 260              | 250              | 240 | 250              | 220              | 220              | 250 <sup>A</sup> | 250               | 240              | 220              | 320              |     |
| 19           | 300              | 310              | 300              | 300              | 200 | 300              | 290              | 230 | 240              | 240              | 240 <sup>H</sup> | 270              | 250 | 250              | 250              | 240 | 220              | 230              | 220              | 240              | 270 <sup>A</sup>  | 280              | 250              | 310              |     |
| 20           | 300              | 320              | 300              | 280              | 250 | 220              | 250              | 240 | 220              | 240 <sup>C</sup> | 250              | 240              | 280 | 260              | 280              | 250 | 220              | 210 <sup>A</sup> | 200              | 300              | 250               | 260              | 300              | C                |     |
| 21           | C                | C                | C                | C                | C   | C                | C                | C   | C                | C                | C                | C                | C   | C                | C                | C   | C                | C                | C                | C                | C                 | C                | C                | C                |     |
| 22           | C                | C                | C                | C                | C   | C                | C                | C   | C                | C                | 250              | 250              | 290 | 270              | 250              | 250 | 230              | 210              | 230 <sup>A</sup> | 250 <sup>A</sup> | 250               | 260              | 240              | 250              |     |
| 23           | 320              | 310              | 310              | 350              | 340 | 300              | 250              | 220 | 230              | 250              | 250              | 260              | 250 | 250              | 250              | 240 | 240              | 220              | 230              | 290              | 240               | 240              | 270              | 290              |     |
| 24           | 250              | 290              | 260              | 260              | 250 | 290 <sup>F</sup> | 300              | 250 | 210              | 210              | 250              | 250              | 270 | 260              | 250              | 250 | 230 <sup>A</sup> | 250 <sup>A</sup> | 250 <sup>A</sup> | 210 <sup>A</sup> | 310               | 260              | 280              | 260 <sup>A</sup> |     |
| 25           | 350              | 250              | 330              | 370              | 300 | 300              | 320              | 290 | 230              | 230              | 250              | 250              | 250 | 250              | 240              | 250 | 250              | 210              | 200              | 250              | 250               | 240              | 260              | 230              |     |
| 26           | 290 <sup>A</sup> | 300              | 270              | 260              | 320 | 360              | 300              | 240 | 220              | 260              | 220              | 240              | 250 | 260              | 260              | 250 | 240              | 210 <sup>A</sup> | 210              | 220 <sup>A</sup> | 230               | 220              | 250              | 340              |     |
| 27           | 310              | 290              | 270              | 290              | 310 | 260              | 270              | 220 | 220              | 240              | 250              | 250              | 250 | 250              | 250              | 230 | 230              | 200 <sup>A</sup> | 220              | 230              | 250               | 220              | 250              | 400 <sup>A</sup> |     |
| 28           | 300              | 300              | 300              | 300              | 270 | 260              | 300              | 270 | 210              | 230              | 260              | 220              | 220 | 230              | 240              | 220 | 220              | 220 <sup>H</sup> | 220              | 230 <sup>H</sup> | 220 <sup>H</sup>  | 240              | 280              | 250              |     |
| 29           | 320              | 310 <sup>A</sup> | 300 <sup>A</sup> | 270              | 200 | 250 <sup>F</sup> | 300              | 240 | 250              | 250              | 260              | 250              | 240 | 230              | 260              | 250 | 230              | 200              | 210              | 230 <sup>A</sup> | 250               | 250              | 350 <sup>A</sup> | 250              |     |
| 30           | 280 <sup>A</sup> | 320              | 300              | 300              | 350 | 290              | 220              | 220 | 240              | 250              | 270              | 250              | 250 | 250              | 250              | 230 | 230              | 230              | 200              | 210              | 250               | 240              | 300 <sup>F</sup> | 230              |     |
| 31           | 240              | 270              | 300              | 300 <sup>F</sup> | 320 | 290              | 230 <sup>A</sup> | 240 | 240 <sup>A</sup> | 250              | 240 <sup>A</sup> | 230              | 250 | A                | A                | A   | A                | 210 <sup>A</sup> | A                | 250              | 220               | 250 <sup>A</sup> | A                | A                |     |
| Mean Value   | 300              | 300              | 290              | 280              | 270 | 280              | 270              | 240 | 230              | 240              | 250              | 250              | 260 | 250              | 250              | 250 | 230              | 220              | 220              | 250              | 250               | 250              | 250              | 260              | 280 |
| Median Value | 300              | 300              | 300              | 280              | 250 | 280              | 280              | 240 | 230              | 240              | 250              | 250              | 250 | 250              | 250              | 250 | 230              | 210              | 220              | 260              | 250               | 250              | 250              | 250              | 270 |
| Count        | 24               | 26               | 26               | 26               | 25  | 25               | 23               | 22  | 23               | 25               | 28               | 30               | 30  | 28               | 28               | 28  | 29               | 27               | 28               | 29               | 28                | 28               | 28               | 25               | 22  |

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Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12' N  
Long. 130° 37.7' E

Yamagawa

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Dec. 1952

foF1

135° E Mean Time

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09     | 10     | 11     | 12     | 13     | 14     | 15     | 16  | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|-----|--------|--------|--------|--------|--------|--------|--------|-----|----|----|----|----|----|----|----|
| 1      |    |    |    |    |    |    |    | Q  | Q   | 3.8    | 4.0    | 4.0    | 4.0    | 4.0    | 4.0    | L      | Q   | Q  |    |    |    |    |    |    |
| 2      |    |    |    |    |    |    |    | Q  | L   | 4.0    | 4.2    | 4.1    | 3.9    | 4.2    | 3.7    | 3.5    | Q   | Q  |    |    |    |    |    |    |
| 3      |    |    |    |    |    |    |    | Q  | L   | L      | 4.2    | 4.1    | 4.1    | 4.2    | {3.9}C | 3.6    | Q   | Q  |    |    |    |    |    |    |
| 4      |    |    |    |    |    |    |    | C  | C   | C      | C      | 4.3    | 4.2    | C      | C      | C      | Q   | Q  |    |    |    |    |    |    |
| 5      |    |    |    |    |    |    |    | C  | C   | C      | 3.5    | 3.7    | 4.3    | 4.4    | 4.0    | 3.5    | Q   | Q  |    |    |    |    |    |    |
| 6      |    |    |    |    |    |    |    | C  | C   | 3.4    | 4.0    | 4.0    | 4.5H   | 4.5    | 4.0    | A      | C   | A  |    |    |    |    |    |    |
| 7      |    |    |    |    |    |    |    | Q  | C   | 3.5    | 4.1    | 4.0    | 4.2    | 4.0H   | 4.0    | 4.0    | Q   | C  |    |    |    |    |    |    |
| 8      |    |    |    |    |    |    |    | Q  | Q   | 4.0H   | 4.0    | 4.2    | 4.0    | 4.3    | 4.0    | 3.5    | Q   | Q  |    |    |    |    |    |    |
| 9      |    |    |    |    |    |    |    | Q  | Q   | L      | 4.0    | 4.0    | 4.0    | 4.0    | 4.0    | 4.0    | Q   | Q  |    |    |    |    |    |    |
| 10     |    |    |    |    |    |    |    | C  | C   | C      | 4.0    | 4.0    | 4.5    | {4.2}C | 4.0    | 4.0    | Q   | Q  |    |    |    |    |    |    |
| 11     |    |    |    |    |    |    |    | C  | Q   | 3.5    | 4.0    | 4.0    | 4.3    | 4.4    | 4.1    | 4.0    | Q   | Q  |    |    |    |    |    |    |
| 12     |    |    |    |    |    |    |    | Q  | Q   | {3.9}C | 4.3    | 4.5H   | 4.4    | 4.4    | 4.0    | 4.0    | Q   | Q  |    |    |    |    |    |    |
| 13     |    |    |    |    |    |    |    | Q  | Q   | 3.8    | 4.3    | 4.4H   | 4.2    | 4.2    | 4.0    | {3.4}L | 2.7 | Q  |    |    |    |    |    |    |
| 14     |    |    |    |    |    |    |    | C  | C   | C      | C      | Q      | 4.2    | 4.3    | 4.2H   | 3.0    | Q   | Q  |    |    |    |    |    |    |
| 15     |    |    |    |    |    |    |    | Q  | Q   | 3.5    | 4.2    | 4.2    | 4.3    | 4.3    | {3.9}A | 3.5    | Q   | A  |    |    |    |    |    |    |
| 16     |    |    |    |    |    |    |    | Q  | Q   | 3.5    | 3.8    | 4.5L   | 4.5    | 4.5    | 4.5    | 3.7    | A   | A  |    |    |    |    |    |    |
| 17     |    |    |    |    |    |    |    | Q  | Q   | 3.5    | 4.0H   | 4.0    | 4.2    | 4.2    | 4.0    | L      | Q   | Q  |    |    |    |    |    |    |
| 18     |    |    |    |    |    |    |    | C  | C   | 3.7    | 3.7    | 4.1    | 4.4    | 4.4    | 4.0    | A      | Q   | Q  |    |    |    |    |    |    |
| 19     |    |    |    |    |    |    |    | Q  | 2.7 | 2.9    | 3.9    | 4.3    | 4.4    | 4.5    | 4.0    | 4.0    | Q   | Q  |    |    |    |    |    |    |
| 20     |    |    |    |    |    |    |    | Q  | Q   | C      | 4.0    | 4.0    | 4.4    | 4.2    | 4.2    | 4.0    | Q   | A  |    |    |    |    |    |    |
| 21     |    |    |    |    |    |    |    | C  | C   | C      | C      | C      | C      | C      | C      | C      | C   | C  |    |    |    |    |    |    |
| 22     |    |    |    |    |    |    |    | C  | C   | C      | 4.0    | 4.1    | 4.3    | 4.3    | 4.0    | {3.6}A | 3.2 | Q  |    |    |    |    |    |    |
| 23     |    |    |    |    |    |    |    | Q  | Q   | 3.7    | 4.0    | 4.0    | 4.2    | {4.1}A | 4.0    | 4.0    | Q   | Q  |    |    |    |    |    |    |
| 24     |    |    |    |    |    |    |    | Q  | Q   | Q      | 4.0    | 4.2    | 4.4H   | 4.4    | 4.0    | 3.5    | A   | A  |    |    |    |    |    |    |
| 25     |    |    |    |    |    |    |    | Q  | Q   | 3.5    | 4.0    | 4.4    | 4.3    | 4.0    | 4.0    | 3.5    | Q   | Q  |    |    |    |    |    |    |
| 26     |    |    |    |    |    |    |    | Q  | Q   | Q      | 3.8    | 4.0H   | {4.1}A | 4.2H   | 4.1    | 3.5    | Q   | Q  |    |    |    |    |    |    |
| 27     |    |    |    |    |    |    |    | Q  | Q   | 3.2    | 4.0H   | {4.0}A | 4.1    | 4.2    | 4.0H   | 3.5    | Q   | Q  |    |    |    |    |    |    |
| 28     |    |    |    |    |    |    |    | Q  | Q   | 3.5    | 4.0H   | 4.0    | 3.8    | 3.9    | 3.5    | Q      | C   |    |    |    |    |    |    |    |
| 29     |    |    |    |    |    |    |    | Q  | Q   | 3.5    | 4.3    | 4.2    | 4.0    | Q      | 4.0    | 3.5    | 3.0 | Q  |    |    |    |    |    |    |
| 30     |    |    |    |    |    |    |    | Q  | Q   | 3.5    | {4.0}A | 4.4    | {4.2}B | 4.0J   | 3.6H   | 3.5    | Q   | Q  |    |    |    |    |    |    |
| 31     |    |    |    |    |    |    |    | Q  | A   | 3.5    | {3.8}A | 4.0    | 4.2    | A      | A      | A      | A   | A  |    |    |    |    |    |    |
| Mean   |    |    |    |    |    |    |    | -  | 2.7 | 3.6    | 4.0    | 4.1    | 4.2    | 4.2    | 4.0    | 3.7    | 3.0 | -  |    |    |    |    |    |    |
| Median |    |    |    |    |    |    |    | -  | 2.7 | 3.5    | 4.0    | 4.1    | 4.2    | 4.2    | 4.0    | 3.5    | 3.0 | -  |    |    |    |    |    |    |
| Value  |    |    |    |    |    |    |    | -  | 1   | 2.0    | 2.8    | 2.9    | 3.0    | 2.7    | 2.8    | 2.3    | 3   | -  |    |    |    |    |    |    |
| Count  |    |    |    |    |    |    |    | -  | 1   | 2.0    | 2.8    | 2.9    | 3.0    | 2.7    | 2.8    | 2.3    | 3   | -  |    |    |    |    |    |    |

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Sweep 1.0 Mc to 22.0 Mc in 2 min

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Y 4

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Koganei-machi, Kitatama-gun, Tokyo, Japan

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Lat. 31° 12.5' N  
Long. 130° 37.7' E

Dec. 1952

R'F1

135° E Mean Time

| Day          | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09   | 10   | 11   | 12   | 13   | 14   | 15   | 16  | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------------|----|----|----|----|----|----|----|----|-----|------|------|------|------|------|------|------|-----|----|----|----|----|----|----|----|
| 1            |    |    |    |    |    |    |    | Q  | Q   | 210  | 200  | 200A | 200  | 250  | 250  | 240  | Q   | Q  |    |    |    |    |    |    |
| 2            |    |    |    |    |    |    |    | Q  | 240 | 220  | 200  | 200  | 190  | 240  | 220  | 210  | Q   | Q  |    |    |    |    |    |    |
| 3            |    |    |    |    |    |    |    | Q  | 240 | 250  | 230  | 210A | 200  | 240  | 240C | 240  | Q   | Q  |    |    |    |    |    |    |
| 4            |    |    |    |    |    |    |    | C  | C   | C    | C    | 200  | 230  | C    | C    | C    | Q   | Q  |    |    |    |    |    |    |
| 5            |    |    |    |    |    |    |    | C  | C   | C    | 240  | 250  | 240  | 230  | C    | C    | Q   | C  |    |    |    |    |    |    |
| 6            |    |    |    |    |    |    |    | C  | C   | 210  | 230  | 200  | 200H | 230  | 210A | 210A | C   | A  |    |    |    |    |    |    |
| 7            |    |    |    |    |    |    |    | Q  | C   | 200  | 220  | 210  | 210  | 200H | 220  | 220  | C   | C  |    |    |    |    |    |    |
| 8            |    |    |    |    |    |    |    | Q  | Q   | 210H | 210  | 250  | 200  | 200  | 220  | 220  | Q   | Q  |    |    |    |    |    |    |
| 9            |    |    |    |    |    |    |    | Q  | Q   | 220  | 220  | 200  | 200  | 220  | 220  | 220  | Q   | Q  |    |    |    |    |    |    |
| 10           |    |    |    |    |    |    |    | C  | C   | C    | 210  | 240  | 230  | 220C | 200  | 240  | Q   | Q  |    |    |    |    |    |    |
| 11           |    |    |    |    |    |    |    | C  | Q   | 240  | 230  | 200  | 220  | 220  | 240  | 250  | Q   | Q  |    |    |    |    |    |    |
| 12           |    |    |    |    |    |    |    | Q  | Q   | 210  | 210C | 210  | 210H | 230  | 240  | 250  | Q   | Q  |    |    |    |    |    |    |
| 13           |    |    |    |    |    |    |    | Q  | Q   | 220  | 210  | 210H | 220  | 220  | 220  | 200B | 210 | Q  |    |    |    |    |    |    |
| 14           |    |    |    |    |    |    |    | C  | C   | C    | C    | Q    | 240  | 200  | 200H | 230  | Q   | Q  |    |    |    |    |    |    |
| 15           |    |    |    |    |    |    |    | Q  | Q   | 220  | 240  | 230  | 210  | 230  | 220A | 200  | Q   | A  |    |    |    |    |    |    |
| 16           |    |    |    |    |    |    |    | Q  | Q   | 230  | 210  | 210  | 200  | 200  | 200  | 200A | A   | A  |    |    |    |    |    |    |
| 17           |    |    |    |    |    |    |    | Q  | Q   | 220  | 200H | 220  | 200  | 200  | 220  | 250  | Q   | Q  |    |    |    |    |    |    |
| 18           |    |    |    |    |    |    |    | C  | C   | 200  | 190  | 190  | 210  | 240A | 240  | A    | Q   | Q  |    |    |    |    |    |    |
| 19           |    |    |    |    |    |    |    | Q  | Q   | 200  | 200  | 200  | 220  | 210  | 200  | 240  | Q   | Q  |    |    |    |    |    |    |
| 20           |    |    |    |    |    |    |    | Q  | Q   | C    | 240  | 210  | 240  | 250  | 220  | 240  | Q   | A  |    |    |    |    |    |    |
| 21           |    |    |    |    |    |    |    | C  | C   | C    | C    | C    | C    | C    | C    | C    | C   | C  |    |    |    |    |    |    |
| 22           |    |    |    |    |    |    |    | C  | C   | C    | 220  | 220  | 200  | 210  | 230  | 230A | 230 | Q  |    |    |    |    |    |    |
| 23           |    |    |    |    |    |    |    | Q  | Q   | 210  | 200  | 200  | A    | A    | 220  | 240  | Q   | Q  |    |    |    |    |    |    |
| 24           |    |    |    |    |    |    |    | Q  | Q   | Q    | 200  | 210  | 200H | 220  | 210  | 240  | A   | A  |    |    |    |    |    |    |
| 25           |    |    |    |    |    |    |    | Q  | Q   | 230  | 230  | 220  | 210  | 220  | 220  | 220  | Q   | Q  |    |    |    |    |    |    |
| 26           |    |    |    |    |    |    |    | Q  | Q   | Q    | 200  | 200H | 220H | 230H | 240  | 230  | Q   | Q  |    |    |    |    |    |    |
| 27           |    |    |    |    |    |    |    | Q  | Q   | 230  | 210A | 200A | 200  | 200A | 190H | 200A | Q   | Q  |    |    |    |    |    |    |
| 28           |    |    |    |    |    |    |    | Q  | Q   | 210  | 200H | 200A | 220  | 220  | 200  | Q    | Q   | C  |    |    |    |    |    |    |
| 29           |    |    |    |    |    |    |    | Q  | Q   | 240  | 250  | 250  | 210  | Q    | 220  | 220  | 230 | Q  |    |    |    |    |    |    |
| 30           |    |    |    |    |    |    |    | Q  | Q   | 230  | 240A | 240  | 210  | 200A | 200H | 250A | Q   | Q  |    |    |    |    |    |    |
| 31           |    |    |    |    |    |    |    | Q  | A   | 210  | 200A | 200  | 200  | A    | A    | A    | A   | A  |    |    |    |    |    |    |
| Mean Value   |    |    |    |    |    |    |    | -  | 230 | 220  | 220  | 210  | 210  | 220  | 220  | 230  | 220 | -  |    |    |    |    |    |    |
| Median Value |    |    |    |    |    |    |    | -  | 240 | 220  | 210  | 210  | 210  | 220  | 220  | 230  | 230 | -  |    |    |    |    |    |    |
| Count        |    |    |    |    |    |    |    | -  | 3   | 22   | 28   | 29   | 29   | 26   | 28   | 26   | 3   | -  |    |    |    |    |    |    |

Sweep 1.0 Mc to 2.20 Mc in 2 min

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The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12.5' N  
Long. 130° 37.7' E

Yamagawa

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Dec. 1952

135° E Mean Time

| Day          | 00 | 01 | 02 | 03 | 04 | 05 | 06               | 07               | 08                 | 09                 | 10                 | 11                 | 12                 | 13                 | 14  | 15               | 16  | 17  | 18 | 19 | 20 | 21 | 22 | 23 |  |
|--------------|----|----|----|----|----|----|------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-----|------------------|-----|-----|----|----|----|----|----|----|--|
| 1            |    |    |    |    |    |    |                  |                  | 2.2                | 2.5                | 2.8                | [2.9] <sup>A</sup> | 3.0                | 3.0                | 2.8 | 2.5              | 2.0 | A   |    |    |    |    |    |    |  |
| 2            |    |    |    |    |    |    | 1.7              | 2.1              | 2.5                | 2.8                | 3.0                | 3.0                | 2.9                | 2.9                | 2.7 | 2.5              | 2.0 | A   |    |    |    |    |    |    |  |
| 3            |    |    |    |    |    |    | 1.6 <sup>J</sup> | 2.0              | 2.5 <sup>A</sup>   | A                  | A                  | 3.0                | 2.9                | [2.7] <sup>C</sup> | 2.5 | 2.1              | 1.8 |     |    |    |    |    |    |    |  |
| 4            |    |    |    |    |    |    | C                | C                | C                  | C                  | 2.9 <sup>F</sup>   | A                  | C                  | C                  | C   | A                | C   |     |    |    |    |    |    |    |  |
| 5            |    |    |    |    |    |    | C                | C                | C                  | C                  | 2.8                | 3.0                | 3.0                | 3.0                | 3.0 | 2.5              | 2.1 | C   |    |    |    |    |    |    |  |
| 6            |    |    |    |    |    |    | C                | C                | 2.5                | [2.7] <sup>C</sup> | 2.9                | 3.0                | 3.0                | 3.0                | A   | A                | C   | A   |    |    |    |    |    |    |  |
| 7            |    |    |    |    |    |    | B                | C                | 2.5                | 2.8                | [2.9] <sup>A</sup> | 3.0                | 3.0                | 3.0                | 2.9 | 2.5              | 2.0 | C   |    |    |    |    |    |    |  |
| 8            |    |    |    |    |    |    | B                | 2.0              | 2.6                | 2.9                | 3.0                | 3.0                | 3.0                | 3.0                | 2.9 | 2.5              | 2.2 | 1.9 |    |    |    |    |    |    |  |
| 9            |    |    |    |    |    |    | B                | 2.1              | 2.6                | 2.9                | 3.0                | [2.9] <sup>A</sup> | 2.8                | 2.7 <sup>J</sup>   | 2.8 | 2.7 <sup>J</sup> | AF  | A   |    |    |    |    |    |    |  |
| 10           |    |    |    |    |    |    | C                | C                | C                  | 2.7                | 3.0                | 3.0                | [3.0] <sup>C</sup> | 2.9                | 2.5 | 2.1              | B   |     |    |    |    |    |    |    |  |
| 11           |    |    |    |    |    |    | C                | A                | A                  | 2.8 <sup>A</sup>   | 3.0                | [3.0] <sup>A</sup> | 3.0                | 2.8                | A   | A                | A   |     |    |    |    |    |    |    |  |
| 12           |    |    |    |    |    |    | B                | 2.0              | 2.5                | [2.7] <sup>C</sup> | 2.9                | 3.0                | 3.0                | 2.8                | A   | A                | A   |     |    |    |    |    |    |    |  |
| 13           |    |    |    |    |    |    | B                | 1.8              | 2.6                | 2.8 <sup>J</sup>   | 3.0                | 3.0 <sup>F</sup>   | 3.0                | 2.9 <sup>F</sup>   | 2.7 | 2.3              | A   |     |    |    |    |    |    |    |  |
| 14           |    |    |    |    |    |    | C                | C                | C                  | C                  | 3.0                | A                  | A                  | 2.8                | 2.5 | 2.0              | A   |     |    |    |    |    |    |    |  |
| 15           |    |    |    |    |    |    | B                | 2.0              | 2.5                | 2.9                | 3.0                | 3.0                | A                  | A                  | A   | A                | A   |     |    |    |    |    |    |    |  |
| 16           |    |    |    |    |    |    | B                | 2.0              | 2.5                | 2.8 <sup>F</sup>   | 3.0                | 3.0                | 3.0                | 3.0                | A   | A                | A   | A   |    |    |    |    |    |    |  |
| 17           |    |    |    |    |    |    | B                | 1.9 <sup>F</sup> | 2.5                | 2.9                | 3.0 <sup>F</sup>   | 3.0                | 3.0                | 3.0                | 3.0 | 2.8              | 2.2 | 1.9 |    |    |    |    |    |    |  |
| 18           |    |    |    |    |    |    | C                | C                | 2.5                | 2.8                | 3.0                | 3.0                | [3.0] <sup>A</sup> | 3.0                | A   | A                | A   |     |    |    |    |    |    |    |  |
| 19           |    |    |    |    |    |    | B                | 1.9              | 2.5                | [2.8] <sup>M</sup> | 3.0                | 3.0                | 3.0                | 2.9                | 2.6 | 2.3              | A   |     |    |    |    |    |    |    |  |
| 20           |    |    |    |    |    |    | B                | 2.0              | [2.4] <sup>S</sup> | 2.7                | 2.8                | 2.9                | 3.0                | 2.9                | 2.8 | 2.6              | A   |     |    |    |    |    |    |    |  |
| 21           |    |    |    |    |    |    | C                | C                | C                  | C                  | C                  | C                  | C                  | C                  | C   | C                | C   | C   |    |    |    |    |    |    |  |
| 22           |    |    |    |    |    |    | C                | C                | C                  | 2.9                | 2.9                | 3.1                | 3.0                | A                  | A   | A                | A   |     |    |    |    |    |    |    |  |
| 23           |    |    |    |    |    |    | B                | 1.9              | 2.3                | 2.8                | 2.9                | A                  | A                  | 2.9                | 2.7 | 2.2              | B   |     |    |    |    |    |    |    |  |
| 24           |    |    |    |    |    |    | B                | 2.0              | 2.4                | 2.5                | 2.5                | 3.0 <sup>H</sup>   | 3.0                | 2.9                | 2.7 | 2.1              | A   |     |    |    |    |    |    |    |  |
| 25           |    |    |    |    |    |    | B                | 1.9              | A                  | A                  | 3.0                | 3.0                | 3.0                | 2.9                | 2.6 | 2.2              | B   |     |    |    |    |    |    |    |  |
| 26           |    |    |    |    |    |    | B                | 1.9              | [2.2] <sup>A</sup> | 2.6                | A                  | A                  | A                  | A                  | A   | A                | A   | A   |    |    |    |    |    |    |  |
| 27           |    |    |    |    |    |    | B                | 2.0              | 2.4                | 2.6                | A                  | A                  | 2.9                | 2.9                | A   | AF               | A   |     |    |    |    |    |    |    |  |
| 28           |    |    |    |    |    |    | B                | 1.9              | 2.5                | 2.7                | [2.8] <sup>A</sup> | 3.0                | 3.0                | 2.9                | 2.3 | 1.7              | C   |     |    |    |    |    |    |    |  |
| 29           |    |    |    |    |    |    | B                | 1.8              | 2.3                | 2.8                | 2.8                | [2.8] <sup>A</sup> | 2.8                | 2.7                | 2.4 | 1.7              |     |     |    |    |    |    |    |    |  |
| 30           |    |    |    |    |    |    | B                | 1.6              | 2.3                | A                  | A                  | A                  | A                  | 2.6                | A   | A                | AF  |     |    |    |    |    |    |    |  |
| 31           |    |    |    |    |    |    | A                | A                | A                  | 2.3                | A                  | A                  | A                  | A                  | A   | A                | A   | A   |    |    |    |    |    |    |  |
| Mean Value   |    |    |    |    |    |    | 1.7              | 2.0              | 2.5                | 2.8                | 2.9                | 3.0                | 3.0                | 2.9                | 2.6 | 2.1              | 1.8 |     |    |    |    |    |    |    |  |
| Median Value |    |    |    |    |    |    | 1.6              | 2.0              | 2.5                | 2.8                | 3.0                | 3.0                | 3.0                | 2.9                | 2.5 | 2.1              | 1.8 |     |    |    |    |    |    |    |  |
| Count        |    |    |    |    |    |    | 2                | 20               | 22                 | 25                 | 25                 | 23                 | 23                 | 23                 | 18  | 17               | 4   |     |    |    |    |    |    |    |  |

foE

Sweep 1.0 - Mc to 2.2.0 Mc in 2 min

Manual

Automatic

Y 6

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12.6' N  
Long. 130° 37.1' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

11'E

Dec. 1952

| Day          | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07  | 08   | 09     | 10     | 11     | 12     | 13     | 14     | 15  | 16   | 17  | 18 | 19 | 20 | 21 | 22 | 23 |
|--------------|----|----|----|----|----|----|----|-----|------|--------|--------|--------|--------|--------|--------|-----|------|-----|----|----|----|----|----|----|
| 1            |    |    |    |    |    |    |    | B   | 120  | 110    | 100    | (100)A | 100    | 100    | 100    | 100 | 120  | A   |    |    |    |    |    |    |
| 2            |    |    |    |    |    |    |    | 150 | 130  | 100    | 100    | 100    | 100    | 100    | 100    | 100 | 100  | A   |    |    |    |    |    |    |
| 3            |    |    |    |    |    |    |    | B   | 120  | A      | A      | A      | C      | C      | (100)C | C   | A    | A   |    |    |    |    |    |    |
| 4            |    |    |    |    |    |    |    | C   | C    | C      | C      | 100F   | A      | C      | C      | C   | A    | C   |    |    |    |    |    |    |
| 5            |    |    |    |    |    |    |    | C   | C    | C      | 100    | 100    | 100    | 100    | 100    | 100 | 100  | C   |    |    |    |    |    |    |
| 6            |    |    |    |    |    |    |    | C   | C    | 120    | (100)C | 100    | 100    | 100    | A      | A   | C    | A   |    |    |    |    |    |    |
| 7            |    |    |    |    |    |    |    | B   | 120  | 100    | (100)A | 100    | 100    | 100    | 100    | 100 | 120  | C   |    |    |    |    |    |    |
| 8            |    |    |    |    |    |    |    | B   | 130  | 110    | 110    | 100    | 100    | 100    | 110    | 110 | 120  | 150 |    |    |    |    |    |    |
| 9            |    |    |    |    |    |    |    | B   | 120  | 100    | 100    | 110    | 100    | (100)A | 100    | 110 | AF   | A   |    |    |    |    |    |    |
| 10           |    |    |    |    |    |    |    | C   | C    | 100    | 100    | 100    | 100    | 100    | 100    | 100 | 110  | B   |    |    |    |    |    |    |
| 11           |    |    |    |    |    |    |    | C   | A    | A      | 120    | (100)A | 100    | 100    | 110    | A   | A    | A   |    |    |    |    |    |    |
| 12           |    |    |    |    |    |    |    | B   | 110  | 100    | (100)C | 100    | 100    | 100    | 100    | A   | A    | A   |    |    |    |    |    |    |
| 13           |    |    |    |    |    |    |    | B   | 130  | 100A   | 100    | 100    | 100F   | 100    | 100F   | 100 | 100  | A   |    |    |    |    |    |    |
| 14           |    |    |    |    |    |    |    | C   | C    | C      | 140A   | A      | A      | A      | 130A   | 120 | 120  | A   |    |    |    |    |    |    |
| 15           |    |    |    |    |    |    |    | B   | 130  | 110    | 100    | 100    | 100    | A      | A      | A   | A    | A   |    |    |    |    |    |    |
| 16           |    |    |    |    |    |    |    | B   | 130  | 100    | 100F   | 100    | 100    | 100    | A      | A   | A    | A   |    |    |    |    |    |    |
| 17           |    |    |    |    |    |    |    | B   | 100A | 100    | 100    | 100F   | 100    | 100    | 100    | 100 | 120  | 150 |    |    |    |    |    |    |
| 18           |    |    |    |    |    |    |    | C   | C    | 110    | 100    | 100    | 100    | (100)A | 100    | A   | A    | A   |    |    |    |    |    |    |
| 19           |    |    |    |    |    |    |    | B   | 130  | 100    | (100)A | 100    | 100    | 100    | 100    | 100 | 100  | A   |    |    |    |    |    |    |
| 20           |    |    |    |    |    |    |    | B   | 130  | (120)A | 110    | 100    | 100    | 100    | 110    | 100 | 100  | A   |    |    |    |    |    |    |
| 21           |    |    |    |    |    |    |    | C   | C    | C      | C      | C      | C      | C      | C      | C   | C    | C   |    |    |    |    |    |    |
| 22           |    |    |    |    |    |    |    | C   | C    | C      | 110    | 110    | 100    | 110    | A      | A   | A    | A   |    |    |    |    |    |    |
| 23           |    |    |    |    |    |    |    | B   | 110  | 100    | 100    | 100A   | A      | A      | 130A   | 100 | 100A | B   |    |    |    |    |    |    |
| 24           |    |    |    |    |    |    |    | B   | 120  | 100    | 100    | 100    | 100H   | 100    | 100    | 120 | 120  | A   |    |    |    |    |    |    |
| 25           |    |    |    |    |    |    |    | B   | 110  | A      | A      | 100    | 100    | 100    | 100    | 100 | 110  | B   |    |    |    |    |    |    |
| 26           |    |    |    |    |    |    |    | B   | 120  | A      | A      | A      | A      | A      | A      | A   | A    | A   |    |    |    |    |    |    |
| 27           |    |    |    |    |    |    |    | B   | 150  | 100    | 110    | A      | A      | 100    | 100    | A   | AF   | A   |    |    |    |    |    |    |
| 28           |    |    |    |    |    |    |    | B   | 140  | 100    | 100    | (100)A | 100    | 100    | 100    | 120 | 150  | C   |    |    |    |    |    |    |
| 29           |    |    |    |    |    |    |    | B   | 140  | 110    | 100    | 100    | (100)A | 100    | 110    | 100 | 110  | 120 |    |    |    |    |    |    |
| 30           |    |    |    |    |    |    |    | B   | 110  | 100    | A      | A      | A      | A      | 100    | A   | A    | AF  |    |    |    |    |    |    |
| 31           |    |    |    |    |    |    |    | A   | A    | A      | 110    | A      | A      | A      | A      | A   | A    | A   |    |    |    |    |    |    |
| Mean Value   |    |    |    |    |    |    |    | 150 | 120  | 100    | 100    | 100    | 100    | 100    | 100    | 100 | 110  | 140 |    |    |    |    |    |    |
| Median Value |    |    |    |    |    |    |    | 150 | 120  | 100    | 100    | 100    | 100    | 100    | 100    | 100 | 110  | 150 |    |    |    |    |    |    |
| Count        |    |    |    |    |    |    |    | 1   | 21   | 20     | 24     | 25     | 23     | 23     | 23     | 18  | 17   | 3   |    |    |    |    |    |    |

Sweep 1.0 Mc to 22.0 Mc in 2 min

Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitakuna-gun, Tokyo, Japan

**IONOSPHERIC DATA**

Lat. 31° 12.6' N  
Long. 130° 37.7' E

**Yamagawa**

**fEs**

**Dec. 1952**

135° E Mean Time

| Day        | 00   | 01   | 02   | 03   | 04   | 05   | 06   | 07  | 08   | 09  | 10   | 11   | 12  | 13  | 14  | 15  | 16   | 17   | 18  | 19   | 20  | 21   | 22   | 23   |
|------------|------|------|------|------|------|------|------|-----|------|-----|------|------|-----|-----|-----|-----|------|------|-----|------|-----|------|------|------|
| 1          | 2.0  | 2.0  | 2.1  | 2.5  | 2.5  | 2.5  | 2.5  | 2.5 | 2.5  | 3.4 | 4.0  | 5.0  | 4.0 | 4.0 | 4.0 | 4.7 | 3.8  | 3.5  | 2.1 | 2.0  | 2.4 | 2.0  | 2.0  | E    |
| 2          | E    | E    | 1.9  | E    | E    | 2.2  | 2.1  | 2.5 | 3.5  | 3.7 | 4.0  | 4.0  | 4.0 | 3.8 | 3.8 | 3.9 | 3.1  | 2.9  | 2.3 | 3.0  | 2.9 | 2.8  | E    | 2.5  |
| 3          | 2.5F | 3.3  | 2.9Y | 2.8Y | 3.0  | 2.5  | E    | C   | C    | 3.6 | 3.7  | 4.0  | 3.8 | 3.8 | C   | C   | 4.1  | 2.9  | C   | 3.0  | 2.9 | 2.8  | C    | 2.5  |
| 4          | C    | C    | C    | C    | C    | C    | C    | C   | C    | C   | C    | 3.8F | 3.8 | C   | C   | C   | 4.1  | C    | 2.3 | E    | E   | E    | 2.5  | 2.5F |
| 5          | 3.9  | 3.8  | 3.7  | 3.5F | 2.5  | E    | 2.1  | C   | C    | C   | C    | 3.8F | 3.8 | 3.5 | 4.3 | 5.3 | 2.8  | C    | 2.3 | 2.3  | E   | 2.1  | 2.0  | 2.3  |
| 6          | 2.0  | 2.3F | 2.4  | 2.3Y | C    | C    | C    | C   | C    | 3.3 | 3.5  | 4.2  | 3.5 | 3.8 | 4.3 | 5.3 | 2.8  | 4.8  | 3.0 | 2.9  | C   | 2.4  | E    | 2.0F |
| 7          | E    | 2.3  | E    | E    | 2.2  | 2.0  | 2.5  | 2.0 | C    | 3.5 | 3.5  | 4.2  | 3.8 | 3.5 | 3.4 | 4.2 | 3.0  | C    | 2.1 | E    | E   | 2.5  | E    | C    |
| 8          | C    | 2.3  | 2.4  | 2.3  | 2.0  | E    | 2.2  | 2.1 | 2.5  | 4.0 | 4.0  | 4.2  | 3.3 | 3.3 | 3.4 | 3.5 | 3.0  | 3.0  | E   | 2.0  | 2.1 | 2.0  | 2.0  | 2.1  |
| 9          | 2.5  | 2.4  | 2.5  | 2.1  | 2.0  | E    | 2.0  | 2.3 | 2.7  | 3.4 | 3.5  | 4.0  | 3.6 | 3.8 | 3.5 | 3.5 | 2.9F | 3.0  | 3.2 | 4.7  | 3.0 | 2.2  | 2.1  | E    |
| 10         | 2.0  | E    | 2.4F | 2.4F | 2.5  | 2.4  | C    | C   | C    | C   | 3.7  | 4.0  | 4.0 | 3.6 | 3.5 | 3.3 | 3.0  | 3.7  | 2.5 | 2.4  | 2.2 | 2.2  | C    | C    |
| 11         | C    | E    | E    | E    | 2.2  | E    | C    | C   | 3.0  | 4.0 | 4.0  | 3.6  | 3.8 | 4.2 | 4.0 | 4.0 | 3.7  | 3.1  | 3.0 | 1.6  | E   | E    | 2.4  | E    |
| 12         | 2.5  | 1.8  | E    | 2.1  | 2.2  | 2.0F | E    | 2.5 | 4.0  | 3.2 | C    | 3.6  | 4.0 | 4.6 | 4.6 | 4.6 | 3.8  | 2.7  | 2.1 | 2.5  | 3.8 | 4.7  | 3.0  | 4.8  |
| 13         | 3.5  | 2.5  | 2.9  | 2.5F | 2.9Y | 2.4F | 2.5F | 2.3 | 2.4  | 3.5 | 3.7  | 3.6  | 4.0 | 4.0 | 4.0 | 4.0 | 3.0  | 3.0  | 3.4 | 2.9  | 3.5 | C    | C    | C    |
| 14         | C    | C    | C    | C    | C    | C    | C    | C   | C    | C   | C    | 3.5  | 4.0 | 3.6 | 3.5 | 3.3 | 3.0  | 4.2  | 2.0 | 4.0  | 2.2 | 3.5  | 2.3  | 2.3  |
| 15         | 2.3  | 2.4  | 3.5  | 2.9  | 3.5  | 3.0  | 2.3  | 2.0 | 4.0  | 4.0 | 4.0  | 4.0  | 4.0 | 4.3 | 5.0 | 5.0 | 3.8  | 3.8  | 4.0 | 4.6  | 4.1 | 4.0  | 3.0  | 2.8  |
| 16         | 2.3  | 2.0  | E    | 2.4  | E    | 2.4Y | 2.5  | 2.5 | 2.5  | 4.0 | 4.0  | 3.6  | 4.0 | 4.0 | 3.8 | 3.8 | 5.0  | 3.8  | 3.8 | 3.5  | 3.5 | 3.5  | 3.0  | 3.5  |
| 17         | 2.6  | 2.9  | 2.8  | 2.3F | 2.2  | 3.0  | 3.5  | 3.0 | 3.0F | 4.0 | 4.0  | 4.0  | 4.0 | 4.0 | 3.6 | 3.5 | 5.0  | 3.8  | 2.4 | 2.5  | 2.0 | 2.2  | C    | C    |
| 18         | C    | C    | C    | C    | C    | C    | C    | C   | C    | 3.5 | 3.5  | 4.0  | 4.0 | 3.8 | 3.8 | 3.5 | 5.0  | 4.0  | 3.5 | 3.4  | 3.0 | E    | 2.3  | 2.1  |
| 19         | 2.0  | 2.1  | E    | E    | 2.7  | 2.9  | 2.9  | 2.1 | 2.8  | 3.5 | 3.6  | 4.0  | 4.0 | 4.0 | 3.5 | 3.5 | 3.0  | 3.0  | 3.0 | 2.8  | 3.0 | 3.0  | 2.5  | 2.4  |
| 20         | 2.0  | 2.0  | 2.5  | 2.2  | E    | 2.0  | 2.0  | 2.2 | 3.0  | C   | 4.0  | 3.5  | 4.0 | 4.5 | 3.8 | 3.8 | 3.6  | 3.8  | 2.2 | 3.0  | 2.5 | 2.5  | 3.0  | C    |
| 21         | C    | C    | C    | C    | C    | C    | C    | C   | C    | C   | C    | C    | C   | C   | C   | C   | C    | C    | C   | C    | C   | C    | C    | C    |
| 22         | C    | C    | C    | C    | C    | C    | C    | C   | C    | C   | 4.1Y | 4.0  | 4.0 | 4.0 | 6.0 | 4.7 | 3.8  | 3.5  | 4.7 | 3.5Y | 2.5 | 2.5F | 2.3  | 2.4  |
| 23         | 2.4  | 2.5  | 2.3  | 2.0  | 2.0  | 2.5Y | 2.2  | 2.5 | 3.5  | 4.7 | 4.7  | 3.8  | 4.5 | 6.0 | 3.6 | 3.5 | 3.5F | 2.5  | 3.0 | 2.5  | 2.7 | 2.4  | 2.3  | 2.5  |
| 24         | 2.0  | E    | 2.4  | 2.0  | 2.1  | 2.3  | 2.3  | 2.0 | 2.9  | 3.2 | 3.6  | 3.8  | 3.5 | 4.0 | 3.8 | 3.8 | 4.2  | 4.8  | 3.5 | 3.5  | 3.2 | 3.5  | 3.7  | 4.7  |
| 25         | 3.0  | 3.0  | 2.5Y | 2.5Y | 2.2  | 2.2  | 2.5  | 2.0 | 2.6  | 3.7 | 4.3  | 3.5  | 4.0 | 4.0 | 4.6 | 3.5 | 4.0  | B    | 2.1 | 2.3  | 2.3 | 2.7  | 2.5  | 2.0  |
| 26         | 3.0  | 2.0  | 2.5  | 2.7  | 2.5F | 3.3  | 2.5  | 2.5 | 4.0  | 3.0 | 3.6  | 3.6  | 4.9 | 4.5 | 3.7 | 4.5 | 3.7  | 4.5  | 2.9 | 2.8  | 3.5 | 2.9  | 2.0  | E    |
| 27         | E    | E    | E    | E    | 2.2  | 2.3  | 2.5F | 2.4 | 4.0  | 3.5 | 4.0  | 6.0  | 4.5 | 5.0 | 6.0 | 5.0 | 4.4F | 3.5  | 3.5 | 2.3  | 2.3 | 2.1F | 2.0F | 6.0  |
| 28         | 3.6  | 2.5  | 2.8  | 2.8Y | 2.5  | 2.8F | 2.5F | 2.1 | 2.5  | 4.0 | 3.7  | 3.7  | 3.8 | 4.0 | 4.0 | 3.0 | 4.0  | C    | 2.0 | E    | 1.9 | 2.1  | 3.2  | 2.8  |
| 29         | 3.8  | 5.2  | 3.7F | 3.1F | 2.4  | 2.2Y | 2.2  | 2.3 | 3.3  | 3.7 | 4.0  | 5.0  | 4.9 | 4.4 | 4.0 | 3.5 | 4.6  | 4.0  | 2.0 | 4.5  | 4.0 | 2.1  | 3.5  | 2.7  |
| 30         | 4.0  | 2.3  | 2.5  | 2.8Y | 2.5  | 2.3  | 2.3  | 2.4 | 4.0  | 4.0 | 5.0  | 5.0  | 4.7 | 4.0 | 3.5 | 4.6 | 3.9  | 3.0F | 2.4 | 2.4  | 2.0 | 2.3  | 2.0  | 2.0  |
| 31         | E    | E    | 2.4  | 2.2  | 2.3  | 2.2Y | 2.5  | 3.0 | 4.2  | 3.5 | 6.0  | 4.7  | 6.0 | 7.2 | 6.0 | 6.0 | 5.0  | 6.0  | 3.8 | 3.0  | 2.5 | 2.9  | 3.8  | 3.0  |
| Mean Value | 2.7  | 2.6  | 2.7  | 2.5  | 2.4  | 2.4  | 2.4  | 2.3 | 3.0  | 3.5 | 4.0  | 4.1  | 4.2 | 4.4 | 4.2 | 4.1 | 3.7  | 3.6  | 2.9 | 3.0  | 2.8 | 2.7  | 2.6  | 2.9  |
| Value      | 2.4  | 2.3  | 2.4  | 2.3  | 2.2  | 2.3  | 2.3  | 2.3 | 2.6  | 3.4 | 3.5  | 3.6  | 3.4 | 3.5 | 3.6 | 3.5 | 3.5  | 3.4  | 2.9 | 2.8  | 2.5 | 2.4  | 2.3  | 2.4  |
| Count      | 24   | 26   | 26   | 26   | 25   | 25   | 23   | 22  | 22   | 24  | 27   | 30   | 30  | 28  | 28  | 29  | 29   | 25   | 28  | 30   | 28  | 29   | 26   | 24   |

**fEs**

Sweep 1.0 Mc to 2.2.0 Mc in 2 min

Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitakama-gun, Tokyo, Japan

Lat. 31° 12.6' N  
Long. 130° 37.7' E

### Yamagawa

## IONOSPHERIC DATA

(M3000)F2

Dec. 1952

135° E Mean Time

| Day           | 00               | 01                 | 02  | 03                 | 04                 | 05                 | 06                 | 07                 | 08                 | 09                 | 10                 | 11                 | 12                 | 13                 | 14                 | 15                 | 16                 | 17                 | 18                 | 19                 | 20                 | 21               | 22               | 23                 |  |
|---------------|------------------|--------------------|-----|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|------------------|--------------------|--|
| 1             | 2.7              | 3.0                | 3.1 | 3.1                | 3.3                | 3.3                | 3.4                | 3.5                | (3.6) <sup>P</sup> | (3.6) <sup>T</sup> | (3.5) <sup>T</sup> | (3.7) <sup>T</sup> | 3.1 <sup>P</sup>   | 3.6                | 3.3                | (3.6) <sup>T</sup> | 3.8                | (3.6) <sup>T</sup> | 3.6                | 3.2                | 3.0                | 3.0              | 3.5              | 3.6                |  |
| 2             | 3.1              | 3.2                | 3.2 | 3.0                | 3.3                | 2.9                | 3.3                | 3.3                | (3.4) <sup>T</sup> | (3.4) <sup>T</sup> | 3.5                | 3.6                | 3.6                | 3.5                | T                  | 3.5 <sup>P</sup>   | 3.4                | (3.4) <sup>T</sup> | 3.2                | 3.0                | 3.1                | 3.2              | 3.3              | 3.0                |  |
| 3             | 3.2              | 2.9                | 2.9 | 3.7                | 3.6                | 3.3                | 3.1                | 3.2                | (3.4) <sup>P</sup> | 3.4 <sup>P</sup>   | 3.3 <sup>P</sup>   | 3.4                | 3.4 <sup>P</sup>   | 3.4                | (3.4) <sup>C</sup> | (3.5) <sup>T</sup> | 3.4                | T                  | C                  | 3.1                | 3.5                | 2.9              | C                | C                  |  |
| 4             | C                | C                  | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | (3.4) <sup>T</sup> | 3.4                | C                  | C                  | C                  | 3.6                | (3.6) <sup>C</sup> | 3.5                | (3.5) <sup>T</sup> | (3.4) <sup>C</sup> | 3.2              | 2.7              | 3.0                |  |
| 5             | 3.1              | (3.3) <sup>A</sup> | 3.5 | (3.4) <sup>A</sup> | 3.2                | 2.8                | 3.1                | C                  | C                  | C                  | 3.3                | 3.2 <sup>H</sup>   | 3.3                | 3.4                | 3.4                | 3.5                | 3.4 <sup>P</sup>   | C                  | C                  | 3.7                | 2.8                | 3.0              | 3.3              | 3.7                |  |
| 6             | 2.9              | 3.1                | 3.3 | 3.2                | C                  | C                  | C                  | C                  | C                  | S                  | (3.7) <sup>T</sup> | 3.5 <sup>P</sup>   | 3.2                | 3.3                | 3.5                | (3.6) <sup>T</sup> | C                  | T                  | 3.6                | 3.5                | (3.6) <sup>C</sup> | 3.6              | 3.3              | 3.1                |  |
| 7             | 3.0              | 3.0                | 3.1 | 3.1                | 3.2                | 3.5                | 3.4                | 3.5                | (3.6) <sup>C</sup> | (3.6) <sup>P</sup> | 3.4                | 3.5 <sup>P</sup>   | 3.4                | 3.7                | 3.5 <sup>P</sup>   | 3.1 <sup>P</sup>   | 3.5                | (3.6) <sup>C</sup> | 3.8                | 3.1                | 3.2                | 3.5              | 3.6              | C                  |  |
| 8             | C                | 2.8                | 2.8 | 3.0                | 2.9                | 3.4                | 3.4                | 3.4                | (3.4) <sup>T</sup> | (3.5) <sup>P</sup> | (3.6) <sup>T</sup> | 3.6                | (3.4) <sup>T</sup> | 3.4                | 3.5                | 3.6                | 3.6                | (3.6) <sup>T</sup> | 3.7                | 3.4                | 3.2                | 3.6              | 3.5 <sup>T</sup> | 3.2                |  |
| 9             | 2.8              | 3.0                | 3.2 | 3.0                | 3.0                | 3.4                | 3.3                | 3.4                | (3.6) <sup>T</sup> | 3.7 <sup>P</sup>   | (3.6) <sup>T</sup> | 3.5                | (2.9) <sup>P</sup> | 3.4                | 3.5                | 3.6                | 3.6                | (3.6) <sup>T</sup> | 3.5                | 3.5                | 3.5                | 3.2              | 3.4              | 3.3                |  |
| 10            | 3.2              | 2.9                | 2.9 | 3.1                | 3.6                | 3.6                | C                  | C                  | C                  | C                  | 3.4                | 3.4                | 3.2                | C                  | T                  | (3.3) <sup>T</sup> | T                  | T                  | 3.7                | 3.1                | 3.2                | 3.4              | C                | C                  |  |
| 11            | C                | 2.9                | 3.1 | 3.1                | 2.9                | 3.3                | (3.3) <sup>C</sup> | 3.3                | 3.8                | 3.6                | 3.6                | 3.3 <sup>P</sup>   | (3.4) <sup>T</sup> | 3.4                | (3.6) <sup>T</sup> | 3.5                | (3.6) <sup>T</sup> | 3.8                | 3.5                | 3.3                | 3.7                | 3.0              | 2.9              | 2.9                |  |
| 12            | 3.1 <sup>P</sup> | 2.9                | 3.1 | 3.6                | 3.2                | 3.0                | 3.1                | T                  | T                  | T                  | C                  | T                  | 3.1                | 3.6                | 3.5                | 3.5 <sup>P</sup>   | (3.4) <sup>T</sup> | 3.4 <sup>P</sup>   | 3.3                | 3.3                | 3.5                | 3.4              | 3.4              | (3.0) <sup>A</sup> |  |
| 13            | 2.7              | 3.0                | 3.0 | 3.1                | 3.4                | 3.2                | 3.3                | 3.3                | T                  | T                  | 3.2                | 3.6                | 3.5                | (3.5) <sup>T</sup> | 3.7                | 3.5                | 3.3                | 3.6                | 3.1                | T                  | A                  | C                | C                | C                  |  |
| 14            | C                | C                  | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 3.4                | 3.7                | 3.5                | 3.4 <sup>P</sup>   | 3.3                | 3.3                | (3.4) <sup>T</sup> | 3.3                | 3.3                | 3.4                | 3.4              | 2.9 <sup>H</sup> | 3.2                |  |
| 15            | 2.9              | 3.2 <sup>F</sup>   | 2.7 | 3.0                | 3.3                | (3.2) <sup>A</sup> | 3.1                | 3.4                | 3.5                | 3.6                | 3.5                | 3.3                | 3.4 <sup>P</sup>   | 3.4                | 3.5 <sup>P</sup>   | (3.5) <sup>T</sup> | 3.5                | (3.5) <sup>T</sup> | 3.4                | A                  | A                  | A                | 3.5              | 3.2                |  |
| 16            | 2.8              | 3.2                | 3.2 | 3.0                | 3.1                | 3.3                | 3.1                | 3.2                | T                  | T                  | 3.3                | (3.3) <sup>T</sup> | 3.4 <sup>P</sup>   | (3.4) <sup>T</sup> | (3.3) <sup>T</sup> | 3.6 <sup>P</sup>   | 3.4 <sup>P</sup>   | (3.5) <sup>T</sup> | 3.6                | 3.1                | (3.0) <sup>A</sup> | 2.8              | 3.0              | C                  |  |
| 17            | 3.0              | 3.1                | 3.1 | 2.7                | 3.2                | F5                 | 3.1                | 3.5                | T                  | T                  | (3.7) <sup>T</sup> | T                  | (3.4) <sup>T</sup> | (3.4) <sup>T</sup> | (3.4) <sup>T</sup> | T                  | T                  | T                  | 3.6                | 3.3                | 3.2                | 3.1              | C                | C                  |  |
| 18            | C                | C                  | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 3.1                | T                  | (3.5) <sup>T</sup> | (3.3) <sup>T</sup> | (3.4) <sup>T</sup> | (3.4) <sup>T</sup> | 3.5                | (3.2) <sup>T</sup> | 3.0                | 3.1                | 3.3                | 3.0              | 3.5              | 2.7                |  |
| 19            | 3.0              | 3.0                | 3.0 | 2.7                | 3.7                | 2.9                | 3.2                | 3.5                | (3.4) <sup>T</sup> | (3.2) <sup>T</sup> | 3.0 <sup>H</sup>   | 3.2 <sup>P</sup>   | 3.3                | 3.5                | (3.5) <sup>T</sup> | (3.5) <sup>T</sup> | T                  | T                  | 3.6                | 3.2 <sup>Z</sup>   | 3.3                | 3.1              | 3.5              | 3.0                |  |
| 20            | 2.9              | 2.9                | 3.0 | 3.1                | 3.3                | 3.6                | 3.3                | 3.2                | T                  | C                  | 3.5                | 3.5                | (3.4) <sup>T</sup> | 3.4 <sup>P</sup>   | (3.4) <sup>T</sup> | 3.5                | (3.5) <sup>T</sup> | 3.5 <sup>P</sup>   | 3.4                | (2.9) <sup>P</sup> | 3.1                | 3.0              | 3.0              | C                  |  |
| 21            | C                | C                  | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                  | C                | C                | C                  |  |
| 22            | C                | C                  | C   | C                  | C                  | C                  | C                  | C                  | C                  | C                  | 3.6 <sup>P</sup>   | 3.5                | 3.2 <sup>P</sup>   | 3.4                | 3.5                | 3.4 <sup>P</sup>   | (3.5) <sup>T</sup> | (3.6) <sup>T</sup> | (3.3) <sup>A</sup> | 3.0                | C                  | C                | C                | C                  |  |
| 23            | 3.3              | 3.0                | 2.9 | 2.8                | 2.7                | 3.0                | 3.1 <sup>P</sup>   | (3.5) <sup>P</sup> | T                  | T                  | 3.4                | (3.5) <sup>T</sup> | 3.6                | T                  | T                  | T                  | T                  | 3.6                | 3.4                | 3.1                | 3.4                | 3.2              | 2.7              | C                  |  |
| 24            | 3.2              | 3.0                | 3.2 | 3.3                | (3.2) <sup>S</sup> | 3.0                | 3.0                | 3.4                | T                  | T                  | 3.3 <sup>P</sup>   | (3.4) <sup>P</sup> | (3.4) <sup>T</sup> | 3.4                | T                  | T                  | T                  | T                  | 3.7                | 3.4                | 3.7                | 3.2              | 3.0              | (3.7) <sup>A</sup> |  |
| 25            | 3.2              | 3.4                | 2.9 | 2.9                | 2.9                | (3.0) <sup>T</sup> | (3.0) <sup>S</sup> | 2.9                | T                  | T                  | (3.5) <sup>P</sup> | 3.5 <sup>P</sup>   | (3.6) <sup>T</sup> | 3.4                | 3.5                | 3.3                | 3.5                | (3.5) <sup>T</sup> | 3.5                | 3.1                | 3.3                | 3.2 <sup>P</sup> | 2.9              | 3.5                |  |
| 26            | 3.1              | 2.9                | 3.2 | 3.2                | 3.0                | 2.9                | 3.0                | 3.4                | T                  | T                  | T                  | T                  | 3.3                | 3.4                | 3.5 <sup>P</sup>   | 3.5                | (3.4) <sup>P</sup> | 3.6 <sup>P</sup>   | 3.2                | 3.5                | 3.5                | 3.5              | 3.6              | 3.5                |  |
| 27            | 2.9              | 3.0                | 3.2 | 3.0                | 2.8                | 3.0                | 3.2                | 3.5                | (3.6) <sup>T</sup> | (3.6) <sup>P</sup> | 3.5                | C                  | C                  | 3.7                | (3.5) <sup>T</sup> | (3.5) <sup>T</sup> | 3.3                | (3.7) <sup>T</sup> | 3.6                | 3.4                | 3.2                | 3.3              | 3.3              | 2.7                |  |
| 28            | 3.2              | 3.2                | 3.3 | 3.1                | 3.0                | 3.3                | 3.0                | 3.3                | (3.4) <sup>T</sup> | (3.4) <sup>T</sup> | 3.5                | (3.8) <sup>T</sup> | (3.7) <sup>T</sup> | 3.6                | 3.6                | (3.6) <sup>T</sup> | (3.6) <sup>T</sup> | (3.6) <sup>T</sup> | 3.4                | 3.3 <sup>H</sup>   | 3.4                | 3.4              | 3.4              | 3.2                |  |
| 29            | 3.1              | (3.0) <sup>A</sup> | 3.0 | 3.3                | 3.9                | (3.6) <sup>S</sup> | 3.2                | 3.2                | (3.4) <sup>T</sup> | (3.4) <sup>T</sup> | 3.3                | 3.5                | 3.5 <sup>P</sup>   | 3.5                | 3.3                | 3.2                | 3.6                | 3.9                | (3.6) <sup>T</sup> | (3.5) <sup>A</sup> | 3.4                | 3.0              | 2.7              | 3.4                |  |
| 30            | A                | F                  | 3.0 | 3.0                | F                  | F                  | 3.5                | 3.5                | 3.4                | T                  | (3.7) <sup>T</sup> | T                  | T                  | T                  | 3.3                | 3.3                | 3.6                | 3.7                | 3.3                | 2.7                | 3.3                | 2.9              | 3.5              |                    |  |
| 31            | 3.5              | 3.2                | 2.8 | 3.3 <sup>F</sup>   | 3.1                | 3.2                | 3.4                | 3.4                | (3.4) <sup>A</sup> | (3.4) <sup>A</sup> | 3.3                | (3.4) <sup>T</sup> | 3.6                | (3.7) <sup>T</sup> | T                  | T                  | 3.6                | A                  | T                  | 3.3                | 3.6                | 3.6              | A                | A                  |  |
| Mean Value    |                  |                    |     |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                  |                  |                    |  |
| Minimum Value | 3.1              | 3.1                | 3.1 | 3.1                | 3.2                | 3.2                | 3.2                | 3.4                | 3.5                | 3.4                | 3.5                | 3.4                | 3.4                | 3.5                | 3.5                | 3.5                | 3.5                | 3.6                | 3.5                | 3.3                | 3.3                | 3.2              | 3.2              | 3.2                |  |
| Maximum Value | 3.1              | 3.0                | 3.1 | 3.1                | 3.2                | 3.2                | 3.2                | 3.4                | 3.4                | 3.5                | 3.5                | 3.4                | 3.4                | 3.5                | 3.5                | 3.5                | 3.5                | 3.6                | 3.5                | 3.3                | 3.3                | 3.2              | 3.3              | 3.2                |  |
| Count         | 23               | 25                 | 26  | 26                 | 24                 | 23                 | 24                 | 22                 | 14                 | 14                 | 24                 | 25                 | 27                 | 25                 | 24                 | 23                 | 23                 | 23                 | 27                 | 28                 | 28                 | 28               | 25               | 23                 |  |

Every 1.0 Mc to 2.2.0 Mc in 2 min

Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 12.6' N  
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

Dec. 1952

fminF

| Day          | 00     | 01  | 02  | 03     | 04  | 05     | 06     | 07  | 08     | 09     | 10     | 11     | 12  | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     | 22  | 23     |
|--------------|--------|-----|-----|--------|-----|--------|--------|-----|--------|--------|--------|--------|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|--------|
| 1            | 1.6    | 1.4 | 1.4 | 1.4    | 1.5 | 1.0    | 1.5    | 1.6 | 2.3    | 2.8    | 2.9    | [3.0]A | 3.1 | 3.5    | 3.0    | 3.0    | 2.5    | 2.7    | 1.6    | 1.6    | 1.7    | 1.5    | 1.6 | 1.5    |
| 2            | 1.6    | 1.6 | E   | E      | E   | E      | 1.6    | 1.7 | 2.7    | 2.8    | 3.0    | 3.0    | 3.0 | 3.2    | 2.8    | 2.5    | 2.4    | [2.0]A | 1.6    | 1.6    | 1.6    | 1.6    | 1.6 | 1.5    |
| 3            | 1.6    | 1.6 | 1.6 | 1.6    | 1.6 | 1.0    | 1.6    | 1.6 | 2.4    | 3.0    | 3.1    | [3.1]A | 3.0 | 3.5    | [3.1]C | 2.7    | 2.3    | 1.8    | [1.7]C | 1.6    | 1.6    | 1.6    | C   | C      |
| 4            | C      | C   | C   | C      | C   | C      | C      | C   | C      | C      | 3.0    | 3.0    | 3.0 | C      | C      | C      | 3.2    | [2.4]C | 1.5    | 1.5    | [1.5]C | 1.5    | 1.6 | 1.6    |
| 5            | A      | A   | 1.6 | [1.6]A | 1.6 | 1.0    | 1.6    | C   | C      | C      | 3.2    | 3.5    | 3.3 | 3.2    | 3.0    | 2.8    | 2.5    | C      | C      | 1.6    | 1.6    | 1.6    | 1.6 | 1.5    |
| 6            | 1.6    | 1.4 | E   | 1.0    | C   | C      | C      | C   | C      | 2.7    | 3.0    | 3.2    | 3.1 | 3.2    | A      | A      | C      | A      | A      | 1.6    | [1.6]C | 1.6    | 1.6 | 1.6    |
| 7            | 1.5    | 1.4 | 1.0 | 1.0    | 1.4 | 1.5    | 1.6    | 1.5 | [2.1]C | 2.7    | 3.3    | 3.3    | 3.1 | 3.0    | 3.2    | 2.8    | 2.4    | [2.0]C | 1.0    | 1.6    | 1.6    | 1.5    | 1.6 | C      |
| 8            | C      | 1.6 | 1.4 | 1.4    | 1.4 | 1.1    | 1.6    | 1.6 | 2.1    | 2.7    | 3.0    | 3.5    | 3.3 | 3.0    | 2.9    | 2.7    | 2.5    | 2.0    | 2.5    | 1.6    | 1.6    | 1.6    | 1.5 | 1.6    |
| 9            | 1.6    | 1.4 | 1.6 | 1.6    | 1.6 | 1.6    | 1.6    | 1.6 | 2.3    | 2.7    | 3.0    | 3.0    | 3.0 | 2.7    | 3.0    | 2.7    | 2.6    | 1.7    | 1.6    | 2.0    | [1.8]A | 1.6    | 1.6 | 1.6    |
| 10           | 1.6    | 1.6 | 1.4 | 1.5    | 1.6 | 1.4    | C      | C   | C      | C      | 3.0    | 3.5    | 3.4 | [3.2]C | 3.0    | 3.0    | 2.5    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | C   | C      |
| 11           | C      | 1.6 | 1.5 | E      | 1.6 | 1.6    | C      | C   | 2.4    | 2.9    | 3.0    | 3.2    | 3.3 | 3.3    | 3.5    | 3.3    | 2.6    | 1.8    | 1.5    | 1.6    | 1.6    | 1.5    | 1.6 | 1.6    |
| 12           | 1.6    | 1.6 | 1.0 | 1.6    | 1.0 | 1.4    | 1.6    | 1.6 | 2.2    | 2.7    | [2.8]C | 3.0    | 3.5 | 3.3    | 3.2    | 3.0    | 2.8    | 2.0    | 1.6    | 1.6    | 1.6    | 2.0    | A   | A      |
| 13           | 1.9    | 1.6 | 1.6 | 1.6    | 1.6 | 1.4    | 1.6    | 1.6 | 2.2    | 2.7    | 3.0    | 3.1    | 3.1 | 3.0    | 2.9    | 2.7    | 2.7    | 2.0    | 1.6    | 1.6    | A      | C      | C   | C      |
| 14           | C      | C   | C   | C      | C   | C      | C      | C   | C      | C      | C      | 3.5    | 3.3 | 3.0    | 2.9    | 2.8    | 2.5    | [2.0]A | 1.6    | 3.0    | 1.6    | 1.6    | 1.6 | 1.6    |
| 15           | 1.7    | 1.6 | 1.6 | 1.7    | 1.8 | [1.7]A | 1.6    | 1.6 | 2.4    | 2.7    | 3.2    | 3.3    | 3.1 | 3.2    | 3.4    | 2.7    | 2.5    | [2.1]A | 1.7    | A      | 1.6    | A      | 2.4 | 1.6    |
| 16           | 1.6    | 1.5 | 1.6 | 1.6    | 1.6 | 1.6    | 1.6    | 1.6 | 2.3    | 2.7    | 2.8    | 3.0    | 3.1 | 3.1    | 3.2    | A      | A      | A      | 2.7    | 2.5    | 2.5    | [2.2]A | 1.9 | 2.0    |
| 17           | 1.6    | 1.6 | 1.6 | 1.6    | 1.5 | 1.7    | 1.6    | 1.6 | 2.2    | 2.5    | 3.0    | 3.2    | 3.1 | 3.1    | 3.0    | 3.0    | 2.7    | 2.0    | 1.5    | 1.6    | 1.5    | 1.6    | C   | C      |
| 18           | C      | C   | C   | C      | C   | C      | C      | C   | C      | 2.7    | 2.9    | 3.0    | 3.0 | 3.6    | 3.3    | 4.5    | 2.7    | 2.8    | 2.2    | 2.0    | 2.0    | 2.2    | 1.6 | 1.5    |
| 19           | 1.6    | 1.6 | 1.5 | 1.6    | 1.5 | 1.6    | 1.6    | 1.5 | 2.1    | 2.6    | 2.9    | 3.0    | 3.0 | 3.0    | 2.9    | 3.0    | 2.5    | 2.0    | 2.2    | 1.6    | 2.0    | 1.7    | 1.9 | 1.6    |
| 20           | 1.7    | 1.6 | 1.6 | 1.6    | 1.6 | 1.4    | 1.6    | 1.6 | 2.0    | [2.6]C | 3.1    | 3.2    | 3.6 | 3.2    | 3.3    | 3.2    | 2.8    | [2.2]A | 1.5    | 1.6    | 1.6    | 1.6    | 1.6 | C      |
| 21           | C      | C   | C   | C      | C   | C      | C      | C   | C      | C      | C      | C      | C   | C      | C      | C      | C      | C      | C      | C      | C      | C      | C   | C      |
| 22           | C      | C   | C   | C      | C   | C      | C      | C   | C      | C      | 3.0    | 3.2    | 3.1 | 3.1    | 3.0    | 3.7    | 2.5    | 1.7    | [1.0]A | 1.6    | 1.6    | 1.5    | 1.6 | 1.6    |
| 23           | 1.6    | 1.5 | 1.4 | 1.8    | 1.4 | 1.6    | 1.5    | 1.5 | 2.0    | 2.6    | 2.9    | 3.0    | 4.1 | [3.6]A | 3.0    | 3.2    | 2.5    | 1.9    | 1.6    | 1.6    | 1.6    | 1.5    | 1.6 | 1.6    |
| 24           | 1.6    | 1.6 | 1.5 | E      | 1.6 | 1.4    | 1.6    | 1.6 | 2.1    | 2.5    | 3.0    | 3.2    | 3.1 | 3.1    | 3.0    | 2.7    | [3.6]A | 4.4    | 2.4    | [2.0]A | 1.5    | 1.6    | 1.6 | [1.6]A |
| 25           | 1.5    | 1.5 | 1.5 | 1.5    | E   | 1.0    | 1.6    | 1.6 | 2.0    | 2.7    | 3.0    | 3.1    | 3.0 | 3.2    | 2.9    | 2.7    | 2.5    | 1.7    | 1.5    | 1.6    | 1.5    | 1.6    | 1.5 | 1.5    |
| 26           | 1.7    | 1.3 | 1.5 | 1.6    | 1.6 | 1.7    | 1.6    | 1.5 | 2.2    | 2.7    | 3.0    | 3.2    | 4.0 | 3.4    | 3.0    | 2.8    | 2.6    | [2.0]A | 1.5    | [1.6]A | 1.6    | 1.6    | 1.6 | 1.6    |
| 27           | 1.6    | 1.6 | 1.4 | 1.6    | 1.3 | E      | 1.6    | 1.6 | 2.1    | 2.5    | 3.2    | [3.1]A | 3.0 | [3.0]A | 2.9    | [2.8]A | 2.7    | [2.3]A | 1.9    | 1.6    | 1.6    | 1.5    | 1.6 | 1.6    |
| 28           | 1.5    | 1.4 | 1.5 | 1.6    | 1.4 | 1.4    | 1.6    | 1.6 | 1.9    | 3.0    | 2.9    | 3.0    | 3.0 | 3.0    | 3.0    | 2.5    | 1.7    | [1.6]C | 1.6    | 1.6    | 1.6    | 1.4    | 1.6 | 1.6    |
| 29           | 1.6    | A   | A   | 1.6    | 1.3 | [1.4]S | 1.6    | 1.6 | 2.7    | 3.0    | 3.0    | 3.2    | 3.1 | 2.8    | 2.7    | 2.5    | 2.5    | 1.9    | 1.9    | [1.7]A | 1.9    | 1.5    | 1.6 | 1.6    |
| 30           | [1.5]A | 1.4 | 1.5 | 1.6    | 1.4 | 1.4    | 1.5    | 1.6 | 2.1    | 2.7    | 4.5    | 3.3    | 3.0 | [2.9]A | 3.8    | 3.2    | 2.5    | 1.9    | 1.6    | 1.5    | 1.6    | 1.6    | 1.5 | 1.5    |
| 31           | 1.6    | 1.6 | 1.6 | 1.6    | 1.4 | 1.6    | [1.6]A | 1.6 | [2.0]A | 2.5    | [2.8]A | 3.0    | 3.0 | A      | A      | A      | A      | A      | A      | 1.6    | 1.6    | 2.2    | A   | A      |
| Mean Value   | 1.6    | 1.5 | 1.5 | 1.5    | 1.5 | 1.4    | 1.6    | 1.6 | 2.2    | 2.7    | 3.1    | 3.2    | 3.2 | 3.2    | 3.1    | 3.0    | 2.6    | 2.1    | 1.7    | 1.7    | 1.6    | 1.6    | 1.6 | 1.6    |
| Median Value | 1.6    | 1.6 | 1.5 | 1.6    | 1.5 | 1.4    | 1.6    | 1.6 | 2.2    | 2.7    | 3.0    | 3.2    | 3.1 | 3.2    | 3.0    | 2.8    | 2.5    | 2.0    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6 | 1.6    |
| Count        | 23     | 24  | 25  | 26     | 25  | 25     | 25     | 22  | 23     | 25     | 28     | 30     | 30  | 28     | 27     | 26     | 27     | 26     | 27     | 29     | 28     | 28     | 24  | 22     |

fminF

Sweep 1.0 Mc to 2.2.0 Mc in 2 min

Manual

Automatic



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12.6' N  
Long. 130° 37.7' E

**Yamagawa**

**IONOSPHERIC DATA**

135° E Mean Time

**fminE**

**Dec. 1952**

| Day          | 00   | 01   | 02   | 03   | 04   | 05   | 06   | 07  | 08    | 09    | 10    | 11  | 12  | 13  | 14    | 15  | 16    | 17    | 18    | 19  | 20    | 21   | 22  | 23   |
|--------------|------|------|------|------|------|------|------|-----|-------|-------|-------|-----|-----|-----|-------|-----|-------|-------|-------|-----|-------|------|-----|------|
| 1            | 1.6  | 1.6  | 1.7  | 1.7  | 1.6  | 1.7  | 1.6  | 1.6 | 1.5   | 1.6   | 1.5   | 1.5 | 1.6 | 1.6 | 1.5   | 1.6 | 1.5   | 1.6   | 1.6   | 1.6 | 1.6   | 1.8  | 1.6 | E    |
| 2            | E    | E    | E    | E    | E    | 1.6  | 1.6  | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5 | 1.6 | 1.5   | 1.5 | 1.5   | 1.5   | 1.6   | 1.5 | 1.6   | E    | E   | 1.6  |
| 3            | 1.6F | 1.5  | E    | E    | C    | C    | C    | C   | C     | C     | C     | 1.6 | 1.5 | 1.6 | 1.67C | 1.5 | 1.6   | 1.6   | 1.67C | 1.5 | 1.6   | 1.6  | C   | C    |
| 4            | C    | C    | C    | C    | C    | E    | 1.6  | C   | C     | C     | C     | 1.5 | 1.5 | 1.4 | C     | C   | 1.5   | 1.67C | 1.6   | E   | C     | E    | 1.6 | 1.6F |
| 5            | 1.5  | 1.0  | 1.4  | 1.4F | 1.3  | E    | 1.6  | C   | C     | C     | 1.5   | 1.5 | 1.4 | 1.6 | 1.5   | 1.6 | 1.5   | C     | C     | 1.6 | E     | 1.6  | 1.6 | 1.6  |
| 6            | 1.6  | 1.6F | 1.7  | 1.0  | C    | C    | C    | C   | C     | C     | 1.5   | 1.6 | 1.6 | 1.5 | 1.5   | 1.5 | 1.57C | 1.5   | 1.5   | 1.6 | 1.67C | 1.6  | E   | 1.6F |
| 7            | E    | 1.6  | E    | E    | 1.6  | 1.6  | 1.6  | 1.6 | 1.67C | 1.5   | 1.5   | 1.6 | 1.6 | 1.6 | 1.5   | 1.5 | 1.5   | 1.67C | 1.8   | E   | 1.6   | E    | E   | C    |
| 8            | C    | 1.6  | 1.6  | 1.7  | 1.6  | E    | 1.6  | 1.6 | 1.6   | 1.5   | 1.6   | 1.5 | 1.6 | 1.5 | 1.6   | 1.5 | 1.6   | 1.5   | E     | 1.7 | 1.6   | 1.6  | 1.6 | 1.6  |
| 9            | 1.6  | 1.6  | 1.6  | 1.6  | 1.6  | E    | 1.6  | 1.6 | 1.5   | 1.5   | 1.6   | 1.5 | 1.6 | 1.6 | 1.5   | 1.5 | 1.5   | 1.5   | 1.6   | 1.5 | 1.6   | 1.6  | 1.6 | E    |
| 10           | 1.7  | E    | 1.6F | 1.6F | 1.6  | 1.6  | C    | C   | C     | C     | 1.5   | 1.5 | 1.5 | 1.6 | 1.5   | 1.5 | 1.6   | 1.6   | 1.6   | 1.6 | 1.6   | 1.6  | C   | C    |
| 11           | C    | F    | E    | E    | E    | E    | E    | C   | 1.5   | 1.5   | 1.6   | 1.6 | 1.6 | 1.6 | 1.5   | 1.5 | 1.5   | 1.5   | 1.6   | E   | E     | 1.6  | E   |      |
| 12           | 1.7  | 1.6  | E    | 1.6  | 1.6  | 1.6F | E    | 1.6 | 1.5   | 1.5   | 1.57C | 1.5 | 1.5 | 1.5 | 1.6   | 1.5 | 1.6   | 1.6   | 1.6   | 1.5 | 1.6   | 1.6  | 1.5 | 1.5  |
| 13           | 1.4  | 1.4  | 1.4  | 1.6F | E    | E    | 1.6F | 1.6 | 1.5   | 1.5   | 1.5   | 1.5 | 1.6 | 1.5 | 1.5   | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5   | C    | C   | C    |
| 14           | C    | C    | C    | C    | C    | C    | C    | C   | C     | C     | C     | 1.5 | 1.5 | 1.5 | 1.5   | 1.6 | 1.6   | 1.6   | 1.6   | 1.5 | 1.7   | 1.6  | 1.6 | 1.5  |
| 15           | 1.6  | 1.6  | 1.6  | 1.5  | 1.6  | 1.5  | 1.6  | 1.6 | 1.6   | 1.6   | 1.5   | 1.5 | 1.6 | 1.6 | 1.5   | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5   | 1.5  | 1.5 | 1.6  |
| 16           | 1.6  | 1.6  | E    | 1.6  | E    | F    | 1.6  | 1.6 | 1.6   | 1.5   | 1.5   | 1.5 | 1.5 | 1.6 | 1.5   | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5   | 1.6  | 1.6 | 1.6  |
| 17           | 1.6  | 1.6  | 1.6  | 1.6F | 1.7  | 1.6  | 1.5  | 1.6 | 1.6F  | 1.5   | 1.6   | 1.5 | 1.5 | 1.5 | 1.5   | 1.6 | 1.6   | 1.6   | 1.7   | 1.6 | 1.5   | 1.6  | 1.6 | C    |
| 18           | C    | C    | E    | E    | C    | C    | C    | C   | C     | 1.5   | 1.6   | 1.6 | 1.6 | 1.6 | 1.6   | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5   | E    | 1.6 | 1.7  |
| 19           | 1.7  | 1.7  | E    | E    | E    | 1.6  | 1.5  | 1.6 | 1.6   | 1.6   | 1.6   | 1.6 | 1.6 | 1.6 | 1.5   | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5   | 1.6  | 1.6 | 1.6  |
| 20           | 1.6  | 1.7  | 1.6  | 1.9  | E    | 1.6  | 1.6  | 1.7 | 1.5   | 1.57C | 1.5   | 1.5 | 1.6 | 1.4 | 1.6   | 1.5 | 1.5   | 1.5   | 1.6   | 1.5 | 1.6   | 1.6  | 1.6 | C    |
| 21           | C    | C    | C    | C    | C    | C    | C    | C   | C     | C     | C     | C   | C   | C   | C     | C   | C     | C     | C     | C   | C     | C    | C   | C    |
| 22           | C    | C    | C    | C    | C    | C    | C    | C   | C     | C     | 1.6   | 1.6 | 1.6 | 1.6 | 1.6   | 1.6 | 1.4   | 1.5   | 1.6   | 1.6 | 1.6   | 1.6F | 1.6 | 1.6  |
| 23           | 1.6  | 1.6  | 1.6  | 1.6  | 1.6  | E    | 1.6  | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5 | 1.6 | 1.5   | 1.5 | 1.5F  | 1.6   | 1.6   | 1.6 | 1.6   | 1.6  | 1.6 | 1.6  |
| 24           | 1.7  | E    | 1.6  | 1.6  | 1.6  | 1.6  | 1.6  | 1.7 | 1.5   | 1.6   | 1.5   | 1.6 | 1.6 | 1.5 | 1.6   | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5   | 1.5  | 1.6 | 1.5  |
| 25           | 1.6  | 1.6  | 1.6  | E    | 1.6  | 1.6  | 1.6  | 1.6 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5 | 1.5 | 1.5   | 1.5 | 1.5   | 1.5   | 1.5   | 1.6 | 1.6   | 1.5  | 1.5 | 1.7  |
| 26           | 1.5  | 1.6  | 1.6  | 1.6  | 1.6F | 1.4  | 1.6  | 1.6 | 1.5   | 1.5   | 1.5   | 1.5 | 1.6 | 1.6 | 1.5   | 1.6 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5   | 1.6  | 1.6 | E    |
| 27           | E    | E    | E    | E    | 1.5  | 1.7  | 1.6F | 1.7 | 1.6   | 1.5   | 1.5   | 1.5 | 1.5 | 1.5 | 1.5   | 1.6 | 1.5   | 1.5   | 1.5   | 1.5 | 1.6   | 1.6  | 1.8 | E    |
| 28           | 1.5  | 1.4  | 1.4  | 1.0  | 1.5  | 1.5F | 1.6F | 1.7 | 1.6   | 1.5   | 1.5   | 1.5 | 1.5 | 1.6 | 1.5   | 1.6 | 1.6   | 1.67C | 1.6   | E   | 1.6   | 1.6  | 1.6 | 1.5  |
| 29           | 1.5  | 1.4  | E    | E    | 1.6  | E    | 1.6  | 1.6 | 1.5   | 1.5   | 1.6   | 1.6 | 1.5 | 1.5 | 1.5   | 1.5 | 1.5   | 1.5   | 1.6   | 1.5 | 1.5   | 1.6  | 1.5 | 1.6  |
| 30           | 1.5  | 1.6  | 1.5  | E    | 1.6  | 1.5  | 1.6  | 1.6 | 1.5   | 1.5   | 1.4   | 1.5 | 1.5 | 1.5 | 1.5   | 1.5 | 1.5   | 1.5F  | 1.6   | 1.6 | 1.6   | 1.6  | 1.7 | 1.7  |
| 31           | E    | E    | 1.6  | 1.5  | 1.6  | E    | 1.5  | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5 | 1.5 | 1.5   | 1.5 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5   | 1.6  | 1.5 | 1.5  |
| Mean Value   | 1.6  | 1.5  | 1.5  | 1.5  | 1.6  | 1.6  | 1.6  | 1.6 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5 | 1.5 | 1.5   | 1.5 | 1.5   | 1.5   | 1.6   | 1.5 | 1.5   | 1.6  | 1.6 | 1.6  |
| Median Value | 1.6  | 1.6  | 1.6  | 1.6  | 1.6  | 1.5  | 1.6  | 1.6 | 1.5   | 1.5   | 1.5   | 1.5 | 1.5 | 1.6 | 1.5   | 1.5 | 1.5   | 1.5   | 1.6   | 1.5 | 1.5   | 1.6  | 1.6 | 1.6  |
| Count        | 24   | 26   | 26   | 26   | 25   | 25   | 23   | 22  | 23    | 25    | 28    | 30  | 30  | 29  | 29    | 29  | 30    | 29    | 29    | 30  | 29    | 29   | 26  | 24   |

Manual  Automatic

Group 1-1-0 Mc to 22.0 Mc in 2 min

IONOSPHERIC DATA IN JAPAN FOR DECEMBER 1952

電波觀測報告 第4卷 第12号

1953年 1月25日 印刷

1953年 1月30日 發行

(不許複製非売品)

編集兼  
發行 人

好 川 得 太 郎  
東京都北多摩郡小金井町小金井新田一之久保573

發行所

郵 政 省 電 波 研 究 所  
東京都北多摩郡小金井町小金井新田一之久保573  
電 話 国分寺 138, 139, 151

印刷所

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東京都新宿区筑土八幡町8番地