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IONOSPHERIC DATA IN JAPAN

FOR NOVEMBER 1954

Vol. 6 No. 11

Issued in December 1954

PREPARED BY THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

IONOSPHERIC DATA IN JAPAN FOR NOVEMBER, 1954

CONTENTS

PREFACE

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 Resarch 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 purpose 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 prevides 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

SITES OF THE IONOSPHERIC STATIONS

Ionospheric observation is carried out at the following four stations in Japan.

	Latitude	Longitude	Site
Wakkanai	45° 23.6′ N.	141° 41.1′ E.	Wakkanai-shi, Hokkaido
Akita	39° 43.5′ N.	140° 03.2′ E.	Tegata Nishishin-machi, Akita-shi, Akita-ken
Kokubunji	35° 42.4′ N.	139° 29.3′ E.	Koganei-machi, Kitatama-gun, Tokyo-to
Yamagawa	31° 12.5′ N.	130° 37.7′ E.	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

REMARKS ON SYMBOLS

All symbols in the table are used in accordance with "Production and Reduction of Ionospheric Data Standards. Symbols and Conventions (Recommendation No. 6 of Stockholm) at VIth Plenary Assembly C. C. I. R. Geneva, 1951" 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.

SOLAR RADIO EMISSION

Data on solar radio emission observed at Hiraiso Radio Wave Observatory has appeared from Vol. 6 No. 8 (F-68).

The location of the Observatory is as follows:

	Latitude	Longitude	Site
Hiraiso	36° 22.0′ N.	140° 37.5′ E.	Hiraiso-machi, Nakaminato-shi, Ibaragi-ken

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Nov. 1954 | 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	F	F	F	F	F	3.5J	3.9F	4.6	5.8	6.8J	7.5	8.3J	8.3J	6.3	5.8	6.7	6.1	3.7	[3.4J]A	3.2	3.5F	3.2F	4.0F	4.1
2	4.4F	4.3JF	F	F	4.1F	3.5F	4.1F	5.1	5.6	6.4	7.0J	7.1	7.0	6.5	6.5	6.2	4.8	4.3	4.5	[4.2J]A	4.0	Fs	F	F
3	F	F	(4.5)Fs	(4.0J)F	(3.5)V F	F	Fs	5.3	6.2	7.2	6.4	7.0	8.3J	6.4	6.3	5.7	5.9	5.0	A	A	A	F	F	F
4	F	F	F	F	F	F	F	5.5	6.4	6.9	7.9	7.5	7.9	5.8	6.5	6.3	6.2	3.4Fs	A	As	A	(3.5)F	(3.6)F	(3.5)F
5	F	F	3.9F	(3.5)F	(3.5)F	F	Fs	5.4	6.9	7.0	6.6	8.3J	6.5	5.9	5.5	6.3	5.9V	4.4	2.8FV	3.1V	(3.3)F	F	F	F
6	Fs	Fs	F	F	F	(3.5)F	3.0F	4.7	5.7	6.1	5.9	8.4J	8.5J	6.2	5.7	6.0V	5.5	4.4	3.4	3.3	3.1	A	A	3.5
7	(3.4)Fs	(3.5)Fs	3.3F	3.2	3.7F	2.8	C	C	C	C	C	C	C	C	C	C	C	3.7	A	A	A	A	Fs	3.5
8	F	F	F	F	F	(3.5)F	3.0F	4.6	[5.3]C J	6.0	6.8	7.5	6.6	5.3	6.2	6.4	7.3	A	A	2.9	(3.0)Fs	2.8	3.0	3.2
9	3.1	3.2	3.2	3.0F	(3.3)JF	(3.2)F	3.0F	4.6	5.5	6.1	6.4	7.3	7.2J	5.9	6.4	6.0	5.3	A	A	A	A	2.9	3.0	3.2
10	3.1	3.2	3.3F	3.2F	3.1F	3.2	3.2F	5.0	(6.5)S	7.0Z	6.4	7.0	7.0J	7.2	5.8	5.3JF	4.6	3.3	2.7	2.7	2.7	3.0	[3.2J]A	3.3JF
11	(3.4)F	3.4F	3.4	3.1F	3.1F	3.0F	3.1F	5.3	6.2	6.0	6.5	7.7	7.3	6.0	6.0	5.3	5.5	3.8	3.4	2.5	2.7	2.9	3.1	A
12	A	3.3	3.4	3.1	3.1	3.0	(3.5)F	5.7	7.6	6.5	7.4	8.6	7.2	6.7	6.2	6.0	6.1	4.3	3.2	2.8	(3.1)S	3.5	3.6	3.7F
13	(4.0)Fs	4.0F	3.8JF	4.2	3.0	3.0	3.3	5.3	7.0	7.1	7.0	7.0	6.7	6.5	7.5	7.0J	6.0	4.0	3.0	3.6	3.2F	3.0F	F	F
14	F	(3.3)V F	3.3F	3.0F	3.0	2.8	F	C	C	C	C	C	C	C	C	C	C	4.1	2.5	2.7F	3.1	3.5F	(3.3)F	F
15	F	F	F	F	F	F	2.8	5.6	6.4	7.2	7.3	7.4	7.2J	7.9J	6.7	5.8	4.8	3.8	3.0	2.8	3.2	3.0	3.1	3.1
16	(3.3)F	(3.5)F	[3.5J]F	(3.5)F	(3.5)F	(3.8)F	2.7	5.2J	6.1	7.2	6.5	7.7	6.0	6.1	5.5	6.0	5.0	3.8	2.4	2.8	2.4	3.2	3.5	3.4
17	3.5F	3.5F	3.5F	3.4	3.2F	3.3	2.4	5.0	5.6	6.1	6.1	6.5	6.5	6.2	6.1	5.8	4.8	3.5F	2.9	3..	2.8	2.5	2.8	3.1
18	3.3	3.5	3.5	(3.6)F	(3.6)F	3.3	2.6F	4.8P	5.5	5.3	6.0V H	6.5	6.5	6.0	6.8	6.0	4.3	2.6	2.9	2.9	3.1	3.0F	3.4	[3.5J]F
19	(3.6)F	(3.5)F	(3.5)F	F	F	(3.1)F	(2.4)F	4.2	4.7	6.3	6.5	6.5	6.7	6.0	5.5	5.0	4.5	4.0	3.4	2.5	2.8	2.8F	3.0	3.2
20	3.1	3.2	3.4	3.2F	3.2F	(3.2)F	(3.3)JF	5.0	6.4P	5.5	7.5	6.4	7.0	6.0	6.2	5.3	5.3	3.7	2.8F	3.4	3.4F	F	F	Fs
21	Fs	(3.1)F	C	C	C	C	C	C	C	C	C	C	C	C	C	C	4.5	4.0	C	C	C	C	C	C
22	C	F	F	F	SF	SF	S	4.5J	5.5	6.5	C	C	C	C	C	(5.0)J	5.3	Fs	2.9	Fs	Fs	Fs	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	7.3J	7.0	6.0	5.5	4.6	(3.5)JF	(3.9)JF	3.8F	(3.8)JF	(4.0)JFs	5F	5F
25	SF	SF	SF	C	C	C	C	C	C	C	C	C	6.5	5.8	5.9	5.5	4.4	3.3	3.2	3.9	3.4PF	3.5	(3.5)F	F
26	F	F	F	F	F	2.3F	2.2F	4.0	5.8P	6.5	6.1	8.8J	6.0	6.1	5.3	5.5	4.3	(3.3)F	F	S	Fs	F	F	F
27	F	F	F	Fs	(3.5)F	3.2F	2.6	4.4	5.7	6.4	5.9	8.3J	6.5	6.0	5.5	4.9	4.2	3.5	2.8	2.8	F	F	F	F
28	F	F	F	F	F	F	(3.5)F	4.4	C	C	C	C	C	C	C	C	C	C	2.6	3.9	F	F	F	F
29	F	F	F	F	F	F	F	3.9	5.8	5.3	6.0	6.3	5.6	5.5S	5.3	5.0	4.3	2.8	2.4F	2.7	2.9	2.7F	F	F
30	F	F	F	F	F	F	F	A	5.7	6.5	6.2	6.5	7.1	6.1	5.5	5.2	4.2	3.1V	2.7	2.3S	2.4PS	2.5	2.9F	(2.9)F
31																								
Mean Value	3.5	3.5	3.5	3.4	3.4	3.2	3.0	4.9	6.0	6.4	6.7	7.4	7.0	6.2	6.0	5.8	5.1	3.7	3.0	3.0	3.1	3.1	3.3	3.4
Median Value	3.4	3.4	3.4	3.2	3.3	3.2	3.0	5.0	5.8	6.5	6.5	7.4	7.0	6.1	6.0	5.8	4.9	3.7	2.9	2.9	3.1	3.0	3.2	3.4
Count	11	14	14	13	15	18	18	23	23	23	22	22	24	24	24	25	26	25	22	22	20	18	15	14

foF2

Sweep 1.0 Mc to 22.0 Mc in 1 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1954 | h'F2 | 135° E Mean Time | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' 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	300	270	280	260	250	210	220	260	220	300	240	260	250	240A	270L	240	230	220	[240]A	270	250	310	290	280
2	280	280	270	240	250	210	230	220	270	260	230	270	260	260	270	230	220	210	250	[260]A	280	270	270	270F
3	300F	290F	240	250F	210	270F	250	230	240	240	240	250	240	230	250	230	230	220	A	A	A	270F	330F	310F
4	290F	270F	270F	270F	210F	210F	240F	240	230	230	250	260	230	240	260	240	230	270	[280]A	300	[300]A	310	320	300
5	300F	280F	260	270F	250F	250F	230F	220	240	240	260	240	230	240	250	240	230	220	270	280	250	270F	300F	280F
6	270S	280	270	280	260	240	260	220	240	230	230	270	250	240	230	240	220	210	250	250	250	A	A	310
7	300	290	280	270	260	220	C	C	C	C	C	C	C	C	C	C	C	200	A	A	A	A	290F	280
8	280F	270F	260	290	280	230	240	220	[230]C	240	260	260	240	230	240	250	230	A	A	260	A	A	300	300
9	280	290	280	300	260	240	220	230	240	240	240	250	250	240	240	230	230	A	A	A	A	260	300	260
10	270	300	270	310	270	[240]A	250	230	220	240	240	240	230	260	240	250	220	220	250	250	260	270	[280]A	300
11	300	300	280	300	290	240	230	220	230	230	240	250	250	250	250	230	220	220	240	250	270	280	300	A
12	A	310A	310	280	260	250	250	220	230	230	260	250	240	240	240	230	220	220	230	240	280	290	300	310
13	300	280	260	230	250A	270	270A	220	240	230	250	250	230	250	260	230	230	210	250	250	240	270	310	340
14	320	300	300	290	250	200	250	C	C	C	C	C	C	C	C	C	C	210	250	300	260	250	260	320
15	290	280	280	270	270F	250	250	220	230	240	240	240	230	260	240	240	220	220	250	260	270	280	250	270
16	300F	300F	270	260	270	240	210	220	230	220	250	240	230	250	230	230	220	220	320	260	270	250	270	270
17	290	340	270	270	280	230	270	220	220	220	240	250	240	240	240	220	220	230	260	250	250	270	290	270
18	310	290	250	270	250	210	250F	220	230	220	230H	240	250	240	240	230	220	230	240	260	260	250	270	270F
19	300F	310F	270F	260	250	210	240	220	220	240	250	240	250	260	240	220	230	300	250	260	280	270	270	260
20	300	280	270	310	290	250	220	230	220	230	250	220	240	250	250	240	240	220	300	270	260	330	290	310
21	320F	340	300	C	C	C	C	C	C	C	C	C	C	C	C	C	220	260	260	C	C	C	C	C
22	C	280F	290F	280	220	210	[220]A	240	230	250	C	C	C	C	C	230	230	260	270	250	250	270	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	250	240	240	230	220	210	240	240	230	240	250	290F	300F
25	270F	270	270	C	C	C	C	C	C	C	C	C	230	230	240	220	210	250	240	240	230	240	270	300F
26	300F	300F	270F	240F	250	250	280	220	220	240	230	240	230	240	230	230	220	210	270	240	230	250	300F	290F
27	290F	260	260	240	260	250	260	240	240	230	230	240	240	240	240	220	220	240	240	260	240	260F	290F	310F
28	280F	270F	260	250	250	220	210	210	C	C	C	C	C	C	C	C	C	C	280	260	240	300F	300F	310F
29	270F	310F	270F	240F	260F	280	260	240	230	230	240	250	240	240	230	230	220	220	300F	250	290	300	300F	300F
30	290F	290F	290F	210F	350F	250F	290F	[260]A	240	230	250	230	240	240	230	230	220	220	240	300S	260	310	310	310
31																								
Mean Value	290	290	270	270	260	240	240	230	230	240	240	250	240	240	240	230	220	230	260	260	260	280	290	290
Median Value	300	290	270	270	260	240	250	220	230	230	240	250	240	240	240	230	220	220	250	260	260	270	290	300
Count	26	28	28	26	26	26	25	24	23	23	22	23	24	24	24	25	26	26	25	25	24	25	26	26

h'F2

Sweep 1.0 Mc to 22.0 Mc in 1 min ☐ Manual ☒ Automatic

W 2

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

IONOSPHERIC DATA

Nov. 1954 | **fEs** | 135° E Mean Time | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' 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	E	3.5Y	2.4	E	2.4	E	2.2	4.4	5.5Y	5.6	4.1	4.8Y	4.4	6.1	4.1	6.0	6.0	9.0	6.9	2.7	2.4	3.5	2.6	2.2
2	2.4	E	E	E	4.5Y	4.0Y	E	G	4.4	4.1	6.5	5.3	5.0	G	G	G	G	E	3.2	5.0	4.2	3.9	4.4	2.5
3	E	2.6	4.2F	3.0YF	4.0Y	E	E	3.5	4.5F	5.3	4.2	G	3.5Y	3.5Y	G	3.5	2.7FY	3.0Y	4.2	8.5	7.0	3.5F	4.5	4.1
4	2.5	2.2	2.5F	2.6	2.6	E	E	3.5Y	3.5	4.1	4.0	9.5	6.5	5.3	5.3	3.5	3.0	5.4	7.3	7.0	7.0	6.0	5.7Y	4.0
5	3.5	4.2Y	4.6	3.5	2.3Y	4.3	4.0F	4.7	4.6	G	G	G	3.2	3.5Y	6.0	4.1Y	4.4	3.2F	2.5	7.0Y	E	E	2.3	3.1
6	4.5	3.6F	3.0F	2.5	2.3	4.4	2.6	3.9Y	4.0Y	5.0	3.5	G	4.0Y	7.5	4.0Y	G	G	2.5	2.2	2.6Y	4.0Y	6.6	7.5	4.5
7	3.4	E	2.3	2.4	E	2.1	C	C	C	C	C	C	C	C	C	C	C	2.4	6.0F	6.6F	6.0F	5.3F	4.1	6.4
8	5.7Y	4.0Y	E	2.5	2.3	E	E	4.0	G	G	G	G	G	G	G	G	G	9.5	7.0	6.5	7.0	5.0Y	3.2	3.5
9	2.4	2.4	2.4Y	2.5Y	2.2	E	E	G	G	4.1	4.2	4.5	4.0	G	G	G	3.2	10.5Y	11.5	6.0	4.0	3.5	3.5	2.5
10	2.4	2.4Y	2.3Y	7.2Y	4.4	6.5	2.5	3.5	4.0F	3.5	4.2	G	4.1F	5.1YF	G	4.0	3.5Y	2.7Y	E	2.6	4.5	6.0	7.0	2.5
11	3.0F	3.2Y	2.6F	2.3F	2.2	2.4	2.3	2.3	3.5	G	3.5	4.0F	4.0	5.3	3.5F	G	2.5Y	2.6Y	3.0Y	3.1	2.3	2.2	2.5	6.5
12	4.4	4.5	3.5	2.5F	2.4	2.4F	E	G	3.4Y	3.6Y	3.5F	6.0Y	3.5F	3.5F	3.5F	3.5F	3.5	3.5	3.5	2.5	E	E	E	2.5F
13	3.0	2.5	2.2	2.3	3.4	3.5Y	4.0	3.4	4.5	3.9	4.0	G	4.0	5.8Y	3.5F	G	G	E	3.5	4.3	3.5	3.9F	E	2.6
14	3.0	2.6	2.5	2.4	2.3	2.3F	E	C	C	C	C	C	C	C	C	C	C	E	E	E	E	E	2.6	3.2
15	2.5	2.6	E	2.3	2.5	2.3	E	G	G	G	G	G	G	3.5	G	G	G	E	E	E	3.0	3.5	E	E
16	E	E	E	2.4	E	2.3	2.3Y	G	G	G	G	3.5	G	G	G	3.0Y	3.0F	2.5	3.5	3.4	2.6	2.2	2.4F	2.3F
17	2.5F	4.0	E	2.3	2.3	2.4	E	G	3.5	4.3	5.3	3.5YF	G	G	3.5F	3.5Y	2.5	3.5	2.6Y	2.3	E	E	1.9	2.7
18	2.5F	2.4	2.3	2.3	2.5	E	3.5Y	G	6.5	G	G	5.3	4.9	G	G	G	G	2.4	E	2.4	E	E	E	2.4
19	3.2Y	2.5	2.3	E	E	E	E	G	3.5Y	G	4.2	5.8	5.0	5.8	4.2	3.0	3.8	4.9	3.9	2.3	2.2	E	E	E
20	2.4	2.4	2.4	2.6	2.6	E	E	G	G	3.6	98Y	3.5	3.9	4.5	3.5	4.5	4.5	3.5F	3.5	3.5Y	2.3	1.9	3.0	3.9
21	3.5Y	3.2F	2.5F	C	C	C	C	C	C	C	C	C	C	C	C	C	3.5F	4.1	2.7Y	C	C	C	C	C
22	C	2.5	2.3	2.2	2.3Y	2.3	2.3	2.5	G	G	C	C	C	C	C	3.5	3.4Y	4.5	3.4Y	4.9	4.0	3.5	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	G	4.2	5.3	3.5F	G	G	2.5	E	E	E	E	E	E
25	E	2.1F	E	C	C	C	C	C	C	C	C	C	G	3.5F	G	2.6	2.6	2.5	E	E	E	E	E	E
26	E	1.7	2.1	E	E	E	E	G	G	G	G	3.5	3.5F	G	G	G	3.5	E	E	E	E	E	2.5	E
27	E	2.1F	2.3F	E	E	E	E	G	4.0	4.0	3.7	3.5F	3.5F	3.5	4.0	G	G	E	E	E	E	E	E	E
28	E	2.1	E	E	E	E	E	G	C	C	C	C	C	C	C	C	C	C	2.4	3.5Y	E	E	E	3.7
29	2.6F	3.2	2.3	1.8	1.9	E	2.1	G	G	5.9	4.9	5.3	3.9	4.4	3.5	3.5	2.7Y	E	E	2.2	8.0	4.0	3.8	3.4
30	2.4	2.4	2.6	2.5	3.1	2.3	E	4.5	4.5	4.2	3.5	3.5	G	3.6	3.5	G	2.5Y	E	E	3.5	2.5	E	3.5	E
31																								
Mean Value	3.1	2.8	2.6	2.8	2.7	3.1	2.8	3.1	4.3	5.1	4.6	4.8	4.2	4.7	4.0	3.7	3.4	4.2	4.4	4.2	4.3	4.0	3.7	3.4
Median Value	2.5	2.5	2.3	2.4	2.3	2.2	E	G	3.5	3.5	3.8	3.5	3.9	3.5	3.5	2.6	2.7	2.6	2.7	2.9	2.4	2.2	2.5	2.5
Count	27	28	28	26	26	26	25	24	23	23	22	23	24	24	24	25	26	28	29	28	28	28	27	27

fEs

Sweep 1.0 Mc to 22.0 Mc in 1 min ☐ Manual ☒ Automatic

W 3

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Nov. 1954 | 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	3.5	3.5	3.5	3.5	3.1	3.0	3.1	5.4	7.6	6.3	6.5H	7.6	9.1	8.2	6.9	7.2	6.5	4.5	2.6	3.3	3.6	3.6	3.9PF	4.0F
2	4.0F	4.0F	4.1F	4.0JF	3.6ZF	3.5F	3.5	5.0	4.8	7.8	7.5	6.5	8.2	7.7	6.7	6.9	5.3	[4.4]A	3.6	[3.6]A	3.5	3.9F	3.9F	4.2F
3	4.1F	4.0F	4.2F	2.9F	2.5F	2.3F	3.5	6.5	7.3P	7.0	7.0	6.6	7.3	7.5	7.0	6.1	6.3	5.1	[4.3]A	3.5	[3.2]A	3.0	[3.2]AF	3.4JF
4	3.9JF	3.6JF	4.2ZF	3.8JF	4.1JF	2.5F	3.0F	5.1	8.0	6.0	7.7	9.9	7.7	6.5	6.0	6.5	6.9	4.4	[4.2]A	3.9	4.2	3.3	3.8JF	3.8JF
5	3.9JF	3.6F	4.0JF	3.7F	3.4F	3.4JF	4.0F	5.7	6.5	7.1	7.0	8.0	7.5	6.3	6.0	5.9	5.9	4.9	3.2	2.7	3.0	3.2F	3.1F	3.4F
6	3.5F	3.3F	3.4F	3.1	3.0	3.0	3.1	5.6	6.0	6.3	6.7	6.5	8.7	6.8	6.4	6.3	6.0	4.0	3.3	3.4	3.2	3.0	3.0F	3.3F
7	[3.3]A	3.3	3.3	3.1	3.1	2.9	3.0	5.4	6.1	6.8	7.6	6.9	7.0	7.8	6.6	5.5	6.0P	4.1	[3.4]A	2.7	(3.4)P	3.1	3.5F	3.4JF
8	3.6F	3.4F	3.5F	3.5JF	3.4JF	3.4JF	3.4F	4.6	6.0	6.1	7.8P	6.9	7.6	7.6	6.0	5.9	5.9	4.9	A	A	A	2.5	[2.8]A	3.0
9	3.0	3.0F	3.0F	2.9F	3.1F	3.1	2.8V	4.8	5.7	6.5	6.6	7.0	7.9	6.6	6.6	5.9	5.1	(3.9)P	3.8	3.1	3.3	2.8	3.1	3.2
10	3.3	3.2	3.1	3.2	3.2	3.1	3.0H	5.5	6.7	6.5	7.2	7.4P	6.4	6.5	6.8	5.7	4.6	3.8P	3.2	3.2	2.5	2.9	3.1	3.3
11	3.3F	3.4F	3.5F	3.4	3.0F	3.1	3.2	5.5	6.4	C	C	C	C	C	C	C	5.3	4.4	3.5	3.3	2.7	3.0	3.0	3.2
12	3.0	3.3	3.2	3.2	C	C	3.4	6.1	6.2	6.5	7.5	7.7	7.9	6.9	6.9	6.0	6.0	3.8	3.5	3.0	2.6F	3.1F	3.3F	3.5F
13	3.2	3.3	3.2	3.2	2.5	2.3F	3.0F	6.0	6.7	6.5	6.9	8.3	6.8	7.5P	6.6	8.0	6.7	4.2	3.1	3.2F	3.4	[3.0]A	2.7F	2.8F
14	2.8	2.9	2.9F	3.0	2.8F	2.5P	2.6	4.8	5.8	6.5	6.9	6.6	7.4	6.1	6.6	6.1	5.6	3.8	(3.2)P	2.6F	2.9F	3.2F	3.0F	3.2F
15	3.3F	3.4F	3.2F	3.1F	3.2F	3.2	3.5	5.2	5.9	7.6	7.6	7.5	7.5	7.1	7.3	6.5	5.5	3.5	3.3	3.3	3.0	3.1	3.1F	3.0F
16	3.1	3.2	3.2	3.3F	[3.4]C	3.5VF	3.0	4.8P	5.9	7.1	7.2	7.1	6.5	6.0H	6.0	6.5	5.6	3.9P	2.8	2.5	2.8	2.9	3.2	3.3VF
17	3.3	3.2	3.3	3.3	3.4	2.9	2.7	5.0	5.9	6.0	6.0	7.1	7.2	6.8	6.1	5.9	4.7	3.5	3.0	3.2	3.0	3.0	2.7	3.0V
18	3.2	3.0	3.4	3.5	3.6	3.0	2.6	5.2	6.0	5.9	5.8	5.9	6.4	(7.4)P	6.6	6.0	4.7	3.1	2.7	2.8	3.2	3.2	2.9F	3.0F
19	3.2F	3.0F	3.1F	3.1F	3.2F	C	C	C	C	6.3	7.6	6.5	6.6	5.6H	5.8	5.4	5.1	3.5	3.8P	2.8	[2.9]C	3.0V	2.7	2.8
20	3.0F	3.0	3.3	3.0	2.9	2.9	F	5.6	5.2	6.6	7.1	7.8	[7.0]A	6.3	5.6	6.0P	5.5	3.6	2.7	3.0	3.6	3.2F	3.2JF	3.3JF
21	3.5F	3.4F	3.3F	3.5F	3.2	[2.8]C	2.3	5.7	[6.9]C	8.1PJ	(7.1)P	7.8P	6.5	6.5	6.2	[5.6]C	5.0	4.0P	[3.7]C	3.4	[3.1]C	2.8F	C	F
22	C	C	3.0F	[3.2]C	3.3F	2.4VF	2.7VF	4.3	5.8	6.7	7.6	7.0	6.1	5.6	5.5	5.6	4.5	3.6	3.2	3.5	2.7F	3.0F	3.5JF	3.4JF
23	3.5F	3.7JF	3.7JF	3.4JF	3.3F	3.1VF	3.0F	5.1	5.8	5.6	6.7	7.5	6.7	7.9	6.3	5.5	4.7	2.8	3.0	3.4	2.4	2.4	2.5	2.7
24	2.9F	2.8	2.8F	2.6	2.8	2.4	2.6	4.0	5.0	6.0	7.3	8.3	7.7	6.6	6.3	6.1P	4.4	3.1	4.3	3.6	3.6F	3.6F	3.8F	F
25	F	3.4JF	3.3JF	3.4JF	3.9JF	2.9HF	4.0F	5.6	6.2	5.5	7.0	7.8	6.8	6.6	6.0	5.7	5.1P	3.1F	3.0F	3.5F	3.0F	2.7F	2.6F	2.7F
26	3.0F	2.8F	2.7F	2.9F	2.7F	2.3F	2.3F	4.7P	5.3	5.2H	6.7	7.7	8.8	5.4	5.9	5.2	4.7	3.0	3.2VF	3.8VF	3.8P	2.6VF	2.9F	2.8F
27	3.2F	3.4F	C	C	C	C	C	C	C	C	6.0	6.7	7.9	6.4P	5.7	5.2	4.5	3.0	3.5P	3.6	3.0	2.9JF	3.4JF	2.9JF
28	3.0F	3.0F	2.9F	2.9F	2.9F	3.2VF	2.5F	4.6	5.6	6.7H	7.1	7.6	5.9	7.0	4.8	5.7	4.6P	3.5	3.0	[3.2]A	3.5F	3.2F	2.9F	2.9JF
29	3.0F	3.0F	3.3F	3.5F	2.7F	2.5F	2.5F	4.5	5.4	5.5	5.1	7.0	6.0	5.6	5.4	4.8	4.9P	2.9	2.3	2.8	3.1	2.7	2.8F	2.9F
30	2.9F	2.8F	2.7F	2.9F	2.5F	2.5F	2.3F	4.1	5.5	A	6.6	7.5	6.5	6.2	6.0	5.0	5.0	3.3	2.6	2.3	2.7	2.2	2.3	2.7
31																								
Mean Value	3.3	3.3	3.3	3.2	3.1	2.9	3.0	5.2	6.1	6.5	6.9	7.3	7.2	6.7	6.2	6.0	5.4	3.8	3.3	3.2	3.1	3.0	3.1	3.2
Median Value	3.2	3.3	3.3	3.2	3.2	2.9	3.0	5.2	6.0	6.5	7.0	7.4	7.2	6.6	6.2	5.9	5.2	3.8	3.2	3.2	3.1	3.0	3.1	3.2
Count	28	29	29	29	28	27	27	28	28	27	29	29	29	29	29	29	30	30	29	29	29	30	29	28

foF2

Sweep 0.85 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

A 1

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

IONOSPHERIC DATA

Nov. 1954 | **h'F2** | 135° E Mean Time | **Akita** | Lat. 39° 43.5' N | Long. 140° 08.2' 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	290	290	270	250	200	210	220	220	240	220	220^{H}	240	260	260	230	240	210	190	230	250	250	250	290^{A}	300^{AF}
2	300^{AF}	280	300^{F}	240	220	220	250	210	240	240	240	250	260	250	240	220	210	[240]^{A}	260	[250]^{A}	240	270	290^{A}	270
3	310^{A}	300	220^{A}	220^{A}	230	240	250	220	230	240	240	250	240	250	240	220	220	250^{A}	[250]^{A}	(250)^{A}	A	A	AF	300^{F}
4	340^{F}	270^{F}	250^{F}	250^{F}	200	240	240	220	240	230	250	240	240	240	240	230	210	A	A	280	A	A	230^{F}	260^{F}
5	240^{F}	290^{F}	260^{F}	240	220	240	240	250^{A}	240	240	240	260	230	250	240	220	200	200	230	240	250	250^{F}	290^{F}	270^{F}
6	250	250	260	250	250	230	220	210	220	240	240	250	250	240	230	240	200	A	A	230	240	230	[240]^{A}	260
7	[270]^{A}	280	260	280^{F}	240	220	250	230	230	250	240	240	240	240	230	210	210	230^{A}	[240]^{A}	240^{A}	290	280^{A}	A	AF
8	260^{F}	250	290^{AF}	280^{F}	290^{F}	300	[250]^{A}	200	230	240	240	230	230	240	220	220	210	200^{A}	A	A	A	250	[280]^{A}	300^{A}
9	A	A	260	250	250	250	240	210	210	240	240	260	240	240	240	220	200	200	230	220	250	240	290	270
10	280	270	260	260	220	220	200^{H}	210	230	220	240	220	280	250	230	210	200	210	250^{A}	220	230	260	240	250
11	270	280	250	260	300	250	220	210	240	C	C	C	C	C	C	C	200	210	250	250	280	250	260	270
12	260	260	260	260	C	C	240	220	210	220	240	250	240	250	240	220	210	190	220	200	240	280	290	310
13	300	280	240	210	200	250	250	220	210	220	240	240	220	250	230	240	200	230^{A}	210^{A}	250	230	[240]^{A}	250	350
14	320	330	290	250	230	230	220	210	210	240	240	240	240	250	240	220	200	200	[230]^{A}	260	270	250^{F}	220	240
15	280	260	250^{F}	260	260	250	220	200	210	240	230	240	240	240	240	220	210	220	230	240	250	250	[250]^{AF}	250
16	300	260	260	260	[240]^{C}	220	210	200	210	240	230	240	230	240^{H}	250	230	210	200	210	240	240	270	250	250
17	240	250	270	290	250	200	240	200	210	240	200	240	250	250	240	220	200	200	230	240	230	240	300	290
18	300	260	250	250	210	190	240	210	210	220	240	240	230	250	230	220	200^{A}	[240]^{A}	270	260	250	230	250^{F}	270
19	290^{F}	300	280^{F}	260	220	C	C	C	C	240	250	250	240	240^{H}	230	220	220	210	230	220	[230]^{C}	240	250	250
20	250	260	260	260	280	210	250	220	210	240	260	230	[240]^{A}	240	230	230	220^{A}	200^{A}	250^{A}	290	250	270^{F}	300^{F}	290^{F}
21	280	270	290	250	210	[240]^{C}	280	230	[240]^{C}	250	240	240	240	230	A	C	220	220	[220]^{C}	210	[230]^{C}	250	C	AF
22	C	C	260	[240]^{C}	210	A	270^{F}	200	220	250	240	220	210	240	240	230	200	[220]^{A}	250	250^{A}	200	230^{F}	300^{F}	260^{F}
23	240	260	300	250^{F}	240	200	240	200	220	240	250	240	250	240	240	210	210	220	240	200	240	200	270	270
24	290	250	300	300	210	290	220	200	230	220	250	240	240	240	230	210	190	210	230	200	230	210	260	280^{F}
25	270^{F}	270^{F}	260^{F}	250^{F}	200	190^{HF}	220^{F}	200	230	220	250	250	230	240	240	220	210	220	240	240	230	230	260^{F}	300^{F}
26	290	280	280	230	210	260^{F}	240	210	220	210^{H}	250	240	220	230	240	220	200	200	220	240	210	220	270	300
27	280	260	C	C	C	C	C	C	C	C	250	250	250	220	220	210	200	240	250	210	220	250^{F}	300^{F}	300^{F}
28	290	250	290	240	250	200	250^{F}	230	200	250^{H}	240	250	250	250	220	240	200	200	210	[230]^{A}	250	230^{F}	300^{F}	300^{F}
29	270	250^{F}	250	210^{F}	240^{F}	250	250	220	230	240	250	250	230	230	240	210	200	200	200	240	230	240	250	290
30	250	270	250	250	260	250	250	240	210	270	240	240	240	230	230	220	220	200	210	290	230	330	300	300
31																								
Mean Value	280	270	260	250	230	230	240	210	220	240	240	240	240	240	230	220	210	210	230	240	240	250	270	280
Median Value	280	270	260	250	230	240	240	210	220	240	240	240	240	240	240	220	200	210	230	240	240	250	270	280
Count	28	28	29	29	28	26	28	28	28	28	29	29	29	29	28	28	30	28	27	29	27	28	27	28

h'F2 | Sweep 0.85 Mc to 22.0 Mc in 2 min | ☐ Manual ☒ Automatic | **A 2**

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Nov. 1954 | **fEs** | 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	2.9	E	2.0Y	2.0Y	1.8Y	2.4	3.1	3.5	4.0	4.6	4.5	4.0	4.0	G	3.5	2.8	3.0Y	2.6	2.3	E	5.2	4.3F	4.2F
2	4.6F	3.0F	3.5F	2.8F	2.9Y	1.8	E	G	4.0	G	G	4.0	4.0	3.8	4.0	3.5	4.0	11.2	4.2	7.0	3.0	4.7	6.0Y	3.1
3	3.5	4.3	4.0	3.5	2.0	2.4	2.5Y	3.0	3.5	5.7	6.4	4.0	4.0	3.5	G	6.5	6.5	5.8	12.0	5.1	4.0	3.5	4.1	3.0
4	3.6	2.3	2.3Y	3.0Y	2.9	2.5	2.5	3.0	3.5	4.2	3.4	4.2	3.5	3.5	3.5	3.1	3.0	4.3	7.4	4.8	4.7	4.3	3.5	2.9
5	2.8	3.9	3.5	3.8	2.0	3.0	4.1	7.5	7.0	7.0	4.1	4.0	3.4	4.0	4.0	3.4	4.0	3.5	3.0	3.0	E	E	E	E
6	2.1Y	2.5	2.6	2.1Y	2.2Y	2.3	3.0	G	4.0	4.5	5.3	6.5	7.5	6.0	5.6Y	5.3	4.7	4.4	4.0	3.0	E	2.4	4.2	4.0
7	4.7	2.9	3.1	2.9Y	2.1	2.0	2.0Y	G	4.0Y	3.5	3.5	6.3	5.0Y	5.5Y	4.2	3.5F	2.8	4.2	6.9	6.5	6.6Y	6.5	6.5	4.0
8	4.2	4.2	4.0	3.0	4.0	4.2	4.4	3.5	5.0	6.5	4.3	G	4.1	G	3.0	3.5	3.1	4.2	7.8	8.5	7.0	5.6Y	6.3	4.3
9	4.1	4.0	2.9	2.9	3.0	2.9	G	G	G	6.5	3.5	4.7Y	6.1Y	4.0Y	3.2	3.1	3.1	2.2	E	2.2	3.0	3.0	4.1	3.6
10	3.0	2.9Y	2.5Y	3.0Y	2.8	2.8Y	2.5Y	2.5	3.5	3.6	4.0	4.0	4.1	4.2	4.2	4.1	4.0Y	2.9Y	3.5	2.4Y	3.0	E	2.2Y	3.0
11	4.1Y	4.0	3.0	3.0Y	2.4	3.0F	3.0F	3.0F	3.5	C	C	C	C	C	C	C	2.7	E	3.5	3.3	2.6	2.3	2.3Y	2.3
12	3.0	3.5	3.0	2.0	C	C	1.8	G	3.3	4.1	4.3	4.0	4.0	4.0	4.0	4.1	3.0	4.0	3.0	2.2	2.0	2.0	1.9	2.0Y
13	2.2Y	1.7	E	1.8Y	3.0Y	2.0Y	2.0	2.5	4.0	4.6	7.0	4.1	3.5	G	4.1	2.9	4.5	4.1	2.8	9.0	7.0	4.2	3.9	2.3
14	2.8	3.4	2.8F	2.5	2.2	2.3	2.2Y	G	3.2	4.2	4.1	3.6	4.2	4.1	4.1	3.5	4.1	3.3	6.5	6.5	3.5	3.0	E	2.3
15	2.5	2.9	2.1	2.9Y	2.1	E	E	G	G	3.4	4.3	3.5	4.0	4.3	4.0	4.3	2.5	2.9	4.2	5.5	2.5	3.0	4.5	2.5
16	3.0	2.4	2.2Y	E	C	2.3	2.3	G	3.0	4.0	4.0	3.5	4.0	G	G	G	3.1	3.5	3.0	E	2.4	3.0	3.0	4.1
17	2.0	E	2.9Y	3.0	2.3	3.0	2.4	G	G	5.0	5.9	7.5	5.6	6.0	4.2	3.0	M	2.4	E	2.1	2.0	E	1.9Y	1.8
18	2.3	E	2.0Y	E	2.0Y	1.6	2.1	2.6Y	2.9	3.5	4.1	G	G	G	4.5	3.6	4.2	3.6	2.8	3.1	E	E	E	2.8
19	E	2.9	2.6F	2.5	2.0	C	C	C	C	G	4.5	G	4.1	4.1	3.5	3.2	2.2	E	2.2	E	C	3.0	2.3	1.9Y
20	2.2Y	2.0	2.0	2.2	2.3	1.8	2.1	1.8	G	G	3.7	4.0	8.2	3.5	3.5	4.1	4.2	3.1	4.0	3.5	3.1	3.1F	2.2	E
21	2.5	2.5F	2.5F	2.2	E	C	2.1	G	C	4.3	6.4	6.5	6.0	6.4	7.5	C	4.5	7.5	C	4.5	C	3.1	C	3.5
22	C	C	2.3	C	2.3	3.5	3.0	4.3	3.6	3.1	G	4.3	4.0	3.6	3.4	4.0	4.1	3.5	4.1	3.4	2.5	1.9	E	E
23	4.3	4.0	3.2	2.5F	2.3	1.9Y	E	2.6	4.0	4.1	4.2	5.5	4.5	7.5	3.5	3.5Y	3.5	2.3	2.8Y	E	2.4	2.0	E	E
24	2.4	3.0	3.0	2.0	2.3	2.4	2.0	3.5	5.5	4.3	3.2	4.4	G	G	G	G	2.2Y	2.3	E	2.1	2.1	2.2	E	2.8
25	1.8	E	1.8Y	2.1Y	E	1.8Y	E	G	G	3.1	3.0	G	4.0	3.5	3.5	3.5	3.0	2.9	3.1	2.4	E	2.3	2.7F	2.2
26	1.8	1.7	E	E	2.1Y	2.2	2.3	G	G	3.9	4.5	4.1	4.3	4.2	3.5	3.6	4.1	2.3F	E	E	2.3	E	E	4.2
27	2.9	2.4F	C	C	C	C	C	C	C	C	4.5	7.8	3.4	2.8	4.1Y	3.5	3.5	3.1	2.5	2.5	E	E	E	E
28	E	E	E	E	2.1	2.5Y	2.1	2.4Y	3.3	G	4.1	3.0Y	G	3.3	3.1	3.5	3.0	3.0	3.0Y	7.0	3.5	6.4	E	E
29	E	3.0	2.5	2.5	3.0	2.2Y	2.9	3.5Y	3.0	G	G	G	G	3.5	3.3	3.0	G	E	2.1	E	2.2	2.5	2.3	2.4
30	2.5	3.5	2.0Y	2.6	2.3	2.0Y	2.0Y	G	3.0	11.0	4.3	4.3	4.1	3.6	3.3	2.9	3.1	1.9	E	2.2Y	3.4	2.9	1.6	2.0
31																								
Mean Value	3.0	3.0	2.7	2.6	2.4	2.4	2.5	3.3	3.8	4.7	4.4	4.7	4.5	4.1	4.0	3.7	3.6	3.8	4.2	4.2	3.4	3.4	3.5	3.0
Median Value	2.8	2.9	2.5	2.5	2.3	2.3	2.2	2.1	3.5	4.0	4.1	4.0	4.0	3.8	3.5	3.5	3.1	3.1	3.0	3.0	2.5	3.0	2.3	2.4
Count	29	29	29	28	27	26	28	28	27	28	29	29	29	29	29	28	29	30	29	30	28	30	29	30

fEs

Sweep 0.85 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

A 3

6

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

IONOSPHERIC DATA

Nov. 1954 | foF2 | 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	3.3	3.4	3.3	3.3	3.5	2.8	3.4	5.9	7.3	8.3^{P}	6.6	6.5	6.7	9.7	8.4^{J}	7.0	7.0	4.8	3.2	3.2	3.4	3.7	3.4	3.9
2	3.6	3.5	3.2^{F}	3.5	2.7	2.7^{JF}	3.6	6.0	6.4	9.1	7.1	6.5	7.8^{H}	9.9	8.2^{J}	6.8	5.9	[4.6]^{A}	3.3	3.6	3.4	3.4	3.3	3.3
3	3.2	3.3	3.5	2.5	2.1	2.0	3.3	6.1	7.0	7.2	8.5	7.6	6.6	(6.6)^{A}	7.7	6.4	5.6	5.4	[4.4]^{A}	3.4	A	A	2.8^{F}	2.9^{JF}
4	2.9^{F}	[3.2]^{F}	3.4^{JF}	3.5^{JF}	3.1^{F}	2.3^{F}	3.1	5.3	6.5	7.1	8.5	8.3	8.5	7.5	6.4	6.9	6.5	4.8	3.0	3.6	3.3	2.5^{F}	3.1^{F}	3.3^{F}
5	3.0^{F}	3.6^{JF}	3.4^{F}	3.5^{F}	2.9^{F}	2.7^{F}	4.0	6.0	6.0	7.2	8.8	7.0	8.0^{J}	6.5	7.2	6.4	6.1	4.5	4.0	2.8	3.0	3.3	3.2^{F}	3.3
6	3.5	3.5	3.3	3.4	3.2	2.7	3.5	5.2	6.5	6.1^{H}	7.4	7.6^{P}	7.4^{J}	7.2	7.0	6.0	6.0	4.6	3.5	3.4	3.0	3.1	2.7	3.0
7	3.2	3.2	3.2	3.3^{F}	3.4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	6.5	7.6	8.0^{P}	7.2	7.2	6.4	5.8	5.7	5.1	3.4	2.7	2.5	2.6	2.6	2.9
9	3.1	3.0	3.3^{F}	3.0	3.0	2.6	3.4	5.5	5.5	7.4	7.5	7.5	8.0	8.6	7.1	6.4^{P}	5.5^{J}	3.6	3.5	3.7^{P}	3.0	3.1	3.2	3.1
10	3.2	3.2	3.2	3.4^{J}	3.7	2.6	3.3	6.1	7.2	6.1	6.4	7.0	6.7	7.5	7.1	5.9	5.0	3.9	3.7^{P}	3.6^{P}	2.8	2.8	3.2	3.2
11	3.4	3.3^{F}	3.5^{FP}	3.3	3.0	3.0	3.6	5.0	6.0	6.0	7.2	7.0^{H}	6.9	6.9	6.9^{H}	6.6	5.5	3.8	3.5	3.6	2.8	2.9	3.0	3.2
12	3.0	3.1	3.1	3.1	3.1	3.0	3.6^{P}	6.5	6.8	6.5	8.5	8.0	7.9	7.8	7.5^{B}	6.6	5.9	4.6	3.4	3.1	2.4	2.7	2.9	2.9
13	3.0	3.2	3.7^{P}	3.1	2.3	2.3	3.0	6.8	8.0^{P}	7.0	7.0	7.5	7.8	6.6	7.7	7.2	6.7	4.6	3.1	2.6^{F}	3.0^{F}	2.9	2.6	2.7
14	2.6	2.9	2.9	3.0	3.1	2.7	2.6	4.8	5.4	6.2	7.3	6.5	6.7	7.0	7.1	6.6	5.2	4.0	3.4	A	A	3.1	3.1^{F}	3.1^{F}
15	3.2	3.4	3.2	3.2	3.1	3.2	3.8	5.3^{P}	6.0	6.8	8.4	C	C	C	C	6.9	6.6	3.6	3.1	3.5	3.1	3.2	3.1	3.0
16	3.0	3.1	3.1	3.2	3.4	2.8	3.4	5.6	5.6	7.0	7.0	6.7	7.3	6.0	6.0	6.6	6.4	4.0	3.7	2.5	2.6	2.6	3.0	3.1
17	3.3	3.2	3.1	3.3	3.4	2.9	3.2	5.0	6.1	5.8	6.7	6.5	7.3	6.5	6.4	6.0	5.2	4.0	2.8	3.1^{F}	3.3	2.7	2.4	2.7
18	2.9	3.0	3.1	3.4	3.5	2.5	2.7	5.4	6.2	5.7	6.2	5.4^{H}	7.5	7.2	6.4	6.0	5.5	3.5	2.4	2.8	3.2	3.0	2.9	2.8
19	3.0^{F}	3.0^{F}	3.1^{F}	3.1^{JF}	3.2	2.7	2.5	4.8^{P}	5.5	5.6	6.9	8.4	6.9	6.0	6.9^{H}	6.0	5.3	4.2	3.3	3.6	2.6	3.0	2.7^{F}	3.0
20	3.1	3.0	3.1	3.2	2.9	2.9	3.0	5.5	6.6	7.1	6.4	8.0^{J}	6.0	6.5	6.1	6.0	5.8	3.6	2.6	3.0	3.5	3.5	3.2^{F}	3.6^{F}
21	3.1^{F}	3.2	3.0^{F}	3.4	2.8	2.4^{J}	2.5	5.5	6.4	7.1	7.3	7.9	7.4	6.4	6.5	6.1	6.4^{P}	4.2	3.1	2.7	C	C	C	C
22	C	C	3.0	2.9	3.2	2.0	2.5	5.4	6.0	5.9	7.2	7.5	5.8	5.8	5.8	5.5	4.9	3.6	[3.4]^{A}	3.3	2.9	2.6	2.5^{JF}	2.9^{JF}
23	2.9	2.9	(3.0)^{JFP}	3.2^{JF}	3.5^{P}	2.5^{F}	2.7	4.9	6.4	5.9	7.1	8.3^{J}	7.0	7.3	7.3	5.8	4.5	3.8	2.7	3.3	2.3	2.3	2.4	2.5
24	2.8	2.9	2.6	2.5	2.8	2.3	2.4	5.0	5.3^{P}	6.5	6.4	8.2^{J}	7.1	7.1	6.3	6.0	4.6	3.3	3.2	4.0	3.1	2.5	2.5^{F}	3.0^{F}
25	3.1^{F}	3.2^{JF}	3.0^{F}	3.0^{F}	4.0^{E}	2.3^{F}	2.7	5.4^{J}	5.4	6.4	6.0	7.9	8.1	6.5	5.9	6.0	5.2	3.4	2.7	2.9	2.8	2.7	2.4	2.4
26	2.5	2.7	2.7	3.0	3.0	2.1	2.5^{F}	4.9	5.6	5.5	6.5	7.9^{P}	7.6	6.5	5.6	5.5	5.8	[4.2]^{A}	2.7	2.6	3.3	2.6^{F}	2.5^{F}	2.8^{F}
27	2.7^{F}	2.9	3.0^{F}	3.1^{F}	3.1	3.0^{F}	2.7^{F}	4.5	5.9	5.7$^{B}_{H}$	6.5	6.6	7.2	7.2	5.6	5.4	4.8^{P}	3.4	3.5	4.1	2.6	2.7^{F}	2.5	2.8^{JF}
28	3.0^{F}	3.0^{F}	2.8^{F}	2.6	2.5^{F}	3.1	2.4	4.3	5.0	4.7	(7.3)^{P}	6.3	6.5	6.2	6.8	5.3	4.6	3.1	2.7	3.3^{P}	[3.0]	2.8^{F}	2.8^{F}	2.6^{JF}
29	2.7^{JF}	2.8^{JF}	3.1^{JF}	3.3^{JF}	3.4^{F}	2.7^{JF}	2.7$^{F}_{J}$	4.7	5.2	5.6	5.8	6.2	6.6	5.7	5.3	5.3^{P}	5.2	3.5	2.8	2.5	2.8	2.6	2.7	2.7^{F}
30	2.7	2.8^{F}	2.8^{F}	2.6^{F}	2.5	2.3	2.3	4.6	6.0	5.9	6.6	6.7	7.2	6.7	6.0	5.2	5.0	4.0	2.9	2.8	2.5^{F}	2.1	2.5^{F}	2.7^{F}
31																								
Mean Value	3.0	3.1	3.1	3.1	3.1	2.6	3.0	5.4	6.1	6.5	7.1	7.3	7.2	7.0	6.7	6.1	5.6	4.1	3.2	3.2	2.9	2.9	2.8	3.0
Median Value	3.0	3.2	3.1	3.2	3.1	2.7	3.0	5.4	6.0	6.4	7.1	7.5	7.2	6.8	6.6	6.0	5.5	4.0	3.3	3.2	3.0	2.8	2.8	3.0
Count	28	28	29	29	29	28	28	28	28	29	29	28	28	28	28	29	29	29	29	28	26	27	28	28

foF2

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 1

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

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Nov. 1954

f_0F2

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	360	330	320	300	230	310	280	260	270	250^{P}	230	290	290	280	(250)^{J}	250	230	240	230	330	300	300	320	320
2	330	320	390^{F}	300	240	(340)$^{J}_{F}$	260	250	250	280	250	240	340^{H}	270	(250)^{J}	250	230	(260)^{A}	300	300	290	320	310	320
3	350	330	290	230	240	290	290	260	260	270	260	260	260	A	270	250	250	250	(260)^{A}	260	A	A	420^{F}	(370)$^{J}_{F}$
4	360^{F}	(340)$^{J}_{F}$	(330)$^{J}_{F}$	(320)$^{J}_{F}$	270^{F}	330^{F}	270	260	270	250	270	270	260	260	250	250	250	230	270	300	260	310^{F}	330^{F}	330^{F}
5	350^{F}	(310)$^{J}_{F}$	290^{F}	320^{F}	260^{F}	310^{F}	260	240	230	280	260	260	(260)^{J}	270	240	230	240	240	250	330	320	320	310^{F}	310
6	310	290	310	290	270	270	270	230	230	260^{H}	260	230^{P}	(280)^{J}	250	250	250	240	240	280	270	300	270	320	350
7	330	310	310	340^{F}	280	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	260	260	260^{P}	260	260	250	230	230	250	230	300	280	290	350	310
9	310	340	300^{F}	290	280	330	280	220	230	260	260	260	290	260	250	220^{P}	(230)^{J}	260	260	250^{P}	320	300	300	320
10	310	330	330	(350)^{J}	250	290	280	240	240	260	240	260	250	260	240	240	220	260	280^{P}	280^{P}	290	340	310	300
11	320	340^{F}	330$^{F}_{P}$	310	300	310	250	220	240	240	240	270^{H}	260	260	280^{H}	250	220	230	310	260	280	310	310	320
12	300	330	330	320	290	300	280^{P}	240	240	260	270	260	270	290	B	240	240	240	220	260	300	330	360	380
13	380	350	290^{P}	220	310	320	290	240	220^{P}	250	260	270	270	270	260	240	230	240	A	270^{F}	310^{F}	260	290	320
14	370	340	330	330	260	260	230	220	230	270	250	290	290	270	250	230	220	250	250	A	A	310	370^{F}	330^{F}
15	320	320	320	320	310	300	220	230^{P}	240	280	250	C	C	C	C	230	230	230	300	270	280	310	290	300
16	340	320	330	350	290	320	260	230	230	280	250	240	240	240	270	260	230	250	260	240	320	320	320	300
17	310	320	330	330	270	270	290	230	230	250	230	300	250	260	250	230	230	250	300	300^{F}	270	260	330	350
18	340	320	320	280	260	240	330	230	230	240	240	270	240	240	250	250	230	230	A	320	270	280	280	320
19	340^{F}	320^{F}	390^{F}	(320)$^{J}_{F}$	250	290	310	250^{P}	250	260	270	240	270	250	290^{H}	230	250	250	300	240	310	280	270^{F}	340
20	310	320	340	320	320	300	320	260	240	240	340	(240)^{J}	A	A	260	250	220	240	260	340	310	290	370^{F}	370^{F}
21	350^{F}	340	340^{F}	300	300	(280)^{J}	320	250	240	260	260	260	A	280	250	240	230^{P}	270	270	300	C	C	C	C
22	C	C	330	310	270	250	280	250	250	260	240	240	250	250	250	230	240	240	(260)^{A}	270	270	270	(380)$^{J}_{F}$	(320)$^{J}_{F}$
23	310	320	(330)$^{J}_{F}$	(300)$^{J}_{F}$	260^{P}	270^{F}	250	260	240	260	260	(240)^{J}	250	260	240	240	230	230	310	250	230	290	330	320
24	330	310	350	380	300	270	270	230	250^{P}	310	270	(260)^{J}	240	250	240	240	230	280	290	270	230	270	320^{F}	360^{F}
25	330^{F}	(320)$^{J}_{F}$	340^{F}	310^{F}	310^{Z}	310^{F}	270	(230)^{J}	240	240	290	260	240	240	240	230	240	230	280	280	260	280	300	360
26	310	330	330	300	230	260	290^{F}	240	240	240	280	280^{P}	240	240	260	240	230	(240)^{A}	260	260	310	290^{F}	310^{F}	320^{F}
27	330^{F}	330	290^{F}	310^{F}	260	320^{F}	280^{F}	260	240	270$^{Z}_{H}$	250	270	230	240	230	220	220^{P}	270	270	230	230	350^{F}	310	(350)$^{J}_{F}$
28	350^{F}	330^{F}	350^{F}	300	300^{F}	230	220	230	240	240	(260)^{P}	270	280	270	250	230	210	270	290	250^{P}	(260)^{A}	260^{F}	350^{F}	(320)$^{J}_{F}$
29	(330)$^{J}_{F}$	(290)$^{J}_{F}$	(290)$^{J}_{F}$	(290)$^{J}_{F}$	250^{F}	(320)$^{J}_{F}$	(320)$^{J}_{F}$	230	250	230	250	260	240	250	250	250^{P}	250	230	290	250	270	300	330	330^{F}
30	310	300^{F}	350^{F}	320^{F}	270	310	280	250	260	230	260	250	270	250	250	230	250	230	270	240	330^{F}	340	350^{F}	350^{F}
31																								
Mean Value	330	320	330	310	270	290	280	240	240	260	260	260	260	260	250	240	230	250	270	280	280	300	330	330
Median Value	330	320	330	310	270	300	280	240	240	260	260	260	260	260	250	240	230	240	270	270	280	300	320	320
Count	28	28	29	29	29	28	28	28	28	29	29	28	26	26	27	29	29	29	29	28	26	27	28	28

f_0F2

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 2

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

IONOSPHERIC DATA

Nov. 1954 | h'F2 | 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	300	280	260	240	210	250	230	230	250	240	230	240	260	270	250	230	220	200	210	310^{A}	270	250	280	280
2	280	280	330	240	200	330^{F}	230	230	230	270	240	240	300$^{L}_{H}$	260	250	230	220	[230]^{A}	240	270	230	260	260	270
3	300	280	250	220	200	240	240	230	240	270^{A}	240	250	240	A	260	250^{A}	220^{A}	230^{A}	[240]^{A}	240	A	A	350^{F}	330^{F}
4	320	290^{F}	260^{F}	260^{F}	200	240	240	220	230	240	250	230	250	250	240	240	220	200	240	260	220	250	270	290
5	310^{F}	260^{F}	240^{F}	270^{F}	200	260	230	230	230	270	250	250	250	250	240	230	230	200	220	250	270	270	250^{F}	280
6	260	240	250	250	240	240	230	220	230	240^{H}	250	230	270	240	250	220	220	230	260	250	250	240	270	310
7	290	270	270	280	230	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	240	260	250	250	250	240	230	210	220	200	260	230	260	300	260
9	280	300	270	240	240	280	230	210	220	250	260	240	270	240	240	210	220	200	230	220	260	250	250	290
10	260	280	280	260	210	230	230	230	230	240	240	240	250	260	240	230	210	240	230	230	230	260	260	260
11	260	290	260^{F}	250	240	280	220	200	230	240	240	250^{H}	260	250	240^{H}	240	220	210	260	220^{A}	250	260	260	270
12	240	280	280	260	250	250	220	230	230	240	260	250	260	270	240	230	220	200	210	230	240	280	300	330
13	310	290	240	200	230	260	250	240	220	240	250	250	260	240	250	240	220	210^{A}	A	220	260	230	260	290
14	320	300	290	270	220	200	200	200	220	240	240	250	250	250	240	220	210	220	250^{A}	A	A	280	300^{F}	280
15	270	270	260	250	250	250	200	210	230	230	230	C	C	C	C	230	220	200	250	230	280	280	250	250
16	300	280	280	280	240	270	230	210	230	270	240	240	240	240	250	250	220	200	220	230	250	270	270	270
17	250	270	270	270	230	240	210	210	220	240	230	240	250	250	240	230	210	210	260^{A}	270	240	210	270	300
18	290	270	270	240	210	200	240	210	230	230	240	230^{H}	240	240	230	230	220	220^{A}	A	270	240	240	240	280
19	290	270	300	260^{F}	210	270	270	220	230	250^{L}	250	240	270	240	230^{H}	230	220	210	250	220	250	240	230	270
20	250	270	270	240	250	240	240	230	230	240	340	240	330	260^{A}	240	240	220	200	250^{A}	310^{A}	260	260^{A}	280	320^{A}
21	310	320	310	260	260	240	290	230	240	250	250	250	250	250	240	240	230	240^{A}	210	210	C	C	C	C
22	C	C	300	250	240	200	240	240	250	240	240	240	230	250	250	220	220	210	[220]^{A}	230	240	210	330^{F}	280^{F}
23	260	280	290^{F}	250^{F}	210	230	220	210	220	250	250	240	250	250	240	240	210	210	250	220	220	270	280	300
24	290	250	280	320	250	240	230	210	230	250^{L}	260	250	240	250	240	230	210	210	240	230	210	240	270^{F}	300^{F}
25	280^{F}	280^{F}	280^{F}	250^{F}	210	280	250	220	230	240	290	250	240	240	240	220	220	220	250	260	230	250	250	320
26	290	290	270	240	230	230	270	220	220	240	280	270	240	240	240	240	220	[230]^{A}	240	240	250	250	260	270
27	260	280	240	250	230	230	240	230	220	220^{H}	250	250	230	240	230	220	220	230	240	220	200	270	280	300^{F}
28	290^{F}	270^{F}	270	240	250	210	200	210	220	220^{A}	260	250	260	260	240	220	200	220^{A}	270	200	[210]^{A}	220	280^{F}	290^{F}
29	300^{F}	230^{F}	230^{F}	240^{F}	210	260^{F}	250^{F}	220	230	230	240	260	240	250	230	240	220	200	250	230	230	240	250	270^{F}
30	270	250^{F}	290	250^{F}	240	270	250	230	250	230	[240]^{A}	240	260	250	250	230	230	200	230	210	270	330	300^{F}	290^{F}
31																								
Mean Value	280	280	280	260	230	250	230	220	230	240	250	250	250	250	240	230	220	210	240	240	240	250	270	290
Median Value	290	280	270	250	230	240	230	220	230	240	250	240	250	250	240	230	220	210	240	230	240	250	270	280
Count	28	28	29	29	29	28	28	28	28	29	29	28	28	27	28	29	29	29	27	28	26	27	28	28

h'F2

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1954 | f_oF1 | 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								Q	(3.9)L	4.1	4.2	4.0	4.0	4.2	4.0	3.6	A	Q						
2								Q	3.2	3.8	4.0	4.1	LH	A	4.0	3.2L	L							
3								Q	L	A	A	4.2	4.0	A	A	A	A							
4								Q	A	4.0L	4.4	4.2	4.3HL	4.2	4.0L	3.3	L							
5								L	3.5L	4.5L	A	A	4.2	4.0	4.0	3.3	Q							
6								2.7L	3.4	3.5	4.1	4.1	4.0	[4.0]A	4.0	Q	A							
7								C	C	C	C	C	C	C	C	C	C							
8								C	C	4.0L	4.2L	4.3	4.2L	[4.0]L	3.8	L	L							
9							L	Q	3.2	4.0	4.2	4.0L	4.4	4.1	4.0	3.5	Q							
10								Q	L	3.9L	4.2	4.2L	4.0L	4.0	4.0L	3.3L	L							
11								2.3	L	4.0L	4.2	4.2	4.1	4.0	4.0L	3.2	Q							
12								Q	3.4L	[3.8]A	4.2L	4.3L	4.4L	4.3L	4.0	3.3	2.0							
13								Q	L	3.6L	3.8L	4.2L	4.3L	4.0L	4.0	3.5	A							
14								Q	3.3	3.5L	4.1	4.0	3.9L	4.0L	3.6	3.5	Q							
15								2.3	3.2	[3.6]A	4.0	C	C	C	C	3.2	2.3							
16								Q	3.0	4.2	4.2	4.2	4.1	4.0	3.9L	3.3L	Q							
17								Q	L	L	4.2	4.6L	A	A	A	3.2	Q							
18								Q	3.5L	3.5L	4.0	L	4.2	4.0	L	L	Q							
19								Q	3.3	L	4.2	4.1	4.2	LH	L	3.0L	L							
20								Q	L	L	4.5	4.2	A	A	L	L	Q							
21								Q	L	L	A	A	A	A	4.0L	L	C							
22								Q	L	3.9	4.0	4.1	4.0L	3.9L	L	A	A							
23								2.3	Q	L	4.0	4.1	4.3L	4.0	3.8L	3.2	Q							
24								Q	Q	4.0L	3.9L	4.0L	4.0L	3.8	3.7L	3.2L	A							
25								Q	L	3.6	4.5	4.2	4.0	4.0	3.6	L	Q							
26								L	Q	3.5	4.0	4.1	[4.0]A	4.0	A	A	A							
27								Q	3.2L	3.5L	4.2	A	A	4.0	3.6	3.0L	Q							
28								Q	L	A	4.0	4.1	4.0	4.0	3.7	L	L							
29								1.8	3.3	3.6	3.7	4.0	4.0	L	L	L	Q							
30								Q	2.8	3.6L	[3.8]A	3.9	4.0	[3.6]A	3.3	2.5	2.2							
31																								
Mean Value								2.3	3.3	3.8	4.1	4.1	4.1	4.0	3.9	3.2	2.2							
Median Value								2.3	3.3	3.8	4.2	4.1	4.0	4.0	4.0	3.2	2.2							
Count								5	14	22	26	24	23	21	20	18	3							

f_oF1

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1954 | h'F1 | 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								Q	230	230	220	200	190	260	230	230	A	Q						
2								Q	230	210	230	230A	200H	[220]A	230	230A	230							
3								Q	230	A	A	220	210	A	A	A	A							
4								Q	A	240	240	220	190H	230	230	220	220							
5								220A	230	210A	A	A	210A	220	250	230	Q							
6								220	200	200	240	230	200A	[220]A	240	Q	A							
7								C	C	C	C	C	C	C	C	C	C							
8								C	C	210	220	210	230	240A	210	230	230							
9							230	Q	210	230	210	190	230	210	230	230	Q							
10								Q	240	200	230	240A	210	240	240	220	240							
11								210	210	230	240	210	210	220	240	230	Q							
12								Q	220	[220]A	220	220	210	210	240	230	200							
13								Q	230	210	200	220	200	200	220	220	A							
14								Q	180	200	240	220	220	240	230	230	Q							
15								200	210	[220]A	230	C	C	C	C	230	220							
16								Q	190	230	230	230	220	230	200	200	Q							
17								Q	230	220	230	250A	A	A	A	220	Q							
18								Q	230	200	230	210A	220	230	240	230	Q							
19								Q	210	240	230	250	210	230H	240	240	240							
20								Q	230	220	280	A	A	A	A	240	Q							
21								Q	240	240A	A	A	A	A	240	240	C							
22								Q	200	220	200	240	220	240	240	A	A							
23								200	Q	240A	240A	A	240	210	[220]A	240	Q							
24								Q	Q	230	240	250A	240	200	240	230	A							
25								Q	210	210	230	240	220	210	220	230	Q							
26								220	Q	210	230	220	[220]A	230	A	A	A							
27								Q	220	210	240A	A	A	250A	230	220	Q							
28								Q	210	[220]A	230	210	200	190	240	220	210							
29								210	200	200	210	220	220	250A	230	220	Q							
30								Q	200	230	[220]A	200	250	[220]A	200	220	220							
31																								
Mean Value							230	210	220	220	230	220	220	230	230	230	220							
Median Value							230	210	220	220	230	220	220	220	230	230	220							
Count							1	7	24	28	26	23	24	24	24	25	9							

h'F1

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1954 | **foE** | 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								2.0	2.7	2.9	3.0	[3.0]A	3.0	2.9	2.7	2.4	1.8	B						
2								2.0	2.5	2.8	2.8	2.9	2.9	2.9	2.9	A	A							
3								2.0	2.5F	A	A	A	A	A	A	A	A							
4								A	2.3F	2.8	A	A	A	A	AF	AF	AF							
5								A	A	A	A	A	A	A	A	2.4	A							
6								A	2.5	2.8	3.0	3.0	A	A	2.9	A	A							
7								C	C	C	C	C	C	C	C	C	C							
8								C	C	A	A	A	A	A	AF	2.4	2.0							
9							B	1.8	2.5	2.7	3.0	3.0	3.0	3.0	2.7	A	A							
10								1.8	2.4	2.8	3.0	A	A	A	AF	2.4F	A							
11								A	2.6	2.9	3.0	3.0	3.0A	3.0A	2.8	2.4	1.9							
12								1.9	2.5	2.6	2.6	A	A	A	AF	2.3F	A							
13								1.9	AF	A	A	A	3.0	3.0	2.7	2.4	A							
14								1.8	2.3	2.9	3.0	A	AF	A	A	A	A							
15								1.8	A	A	A	C	C	C	C	A	1.7A							
16								1.7	A	A	A	A	A	A	A	A	A							
17								1.6	2.4	2.6	A	A	A	A	A	A	A							
18								1.7	2.3	[2.6]A	2.8A	[2.8]A	2.9	2.9	2.6	2.3	A							
19								1.8	[2.2]A	2.6	[2.8]A	3.0	2.9	2.8	2.6	2.2	A							
20								1.9H	2.1A	2.5	A	A	A	A	A	2.4F	A							
21								A	2.4A	2.6	2.9	2.9	2.9	2.8	C	C	C							
22								C	C	C	3.0	3.0	3.0	A	A	A	AF							
23								1.6	2.5	A	A	A	A	A	A	2.5F	A							
24								2.1	2.4F	2.6F	2.8	A	A	A	2.6	2.4F	1.7							
25								1.6	2.2	2.5	2.8	2.8	2.9	A	A	A	1.8							
26								1.9	2.3	2.6	2.8	2.7	A	A	A	A	A							
27								1.9	2.4	2.5	A	A	A	A	2.8	2.3	A							
28								1.9	AF	2.6	2.9	2.7	3.0	2.7	2.6	2.2	1.4							
29								1.6	2.3	2.6	2.9	2.9	2.9	(2.7)A	2.6A	2.2A	1.6							
30								1.5	[1.9]A	2.3	A	A	A	A	A	A	A							
31																								
Mean Value								1.9	2.4	2.7	2.9	2.9	3.0	2.9	2.7	2.3	1.7							
Median Value								1.8	2.4	2.6	2.9	2.9	3.0	2.9	2.7	2.4	1.8							
Count								22	22	21	17	13	12	10	12	15	8							

foE

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1954 | h'E | 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								130	120	110	110	(110)^{A}	110	110	110	110	120	B						
2								120	110	110	110	110	110	110	110	A	A							
3								120	110	A	A	A	A	A	A	A	A	A						
4								A	A	120	A	A	A	A	AF	AF	AF							
5								A	A	A	A	A	A	A	A	120	A							
6								A	120	110	100	120^{A}	A	A	130^{A}	A	A							
7								C	C	C	C	C	C	C	C	C	C							
8								C	C	A	A	A	A	A	A	120	120							
9							B	130	120	110	110	110	110	110	110	A	A							
10								130	110	110	110	A	A	A	A	120	A							
11								A	120	110	110	110	A	A	110	140	140							
12								140	110	110	110	A	A	A	AF	110	A							
13								130	AF	A	A	A	100	100	110	120	A							
14								120	120	130^{A}	120	A	AF	A	A	A	A							
15								120	A	A	A	C	C	C	C	A	A							
16								120	A	A	A	A	A	A	A	A	A							
17								120	120	120	A	A	A	A	A	A	A							
18								170	120	A	A	A	120	120	110	120	A							
19								120	(120)^{A}	110	(110)^{A}	110	110	110	120	120	A							
20								120^{H}	(120)^{A}	110	A	A	A	A	A	110	A							
21								A	A	120	110	C	C	C	C	C	C							
22								C	C	C	110	110	110	A	A	A	A							
23								130	140^{A}	A	A	A	A	A	A	110	A							
24								140	120	110	120	A	A	A	120	110	130							
25								130	120	110	110	110	110	A	A	A	140							
26								140	130	110	110	110	A	A	A	A	A							
27								140	120	110	A	A	A	A	120^{A}	120	A							
28								170	AF	110	110	110	110	110	110	110	120							
29								120	110	110	110	110	110	110	A	A	130							
30								120	(120)^{A}	110	A	A	A	A	A	A	A							
31																								
Mean Value								130	120	110	110	110	110	110	110	120	130							
Median Value								130	120	110	110	110	110	110	110	120	130							
Count								22	20	20	16	11	10	8	11	14	7							

h'E

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1954 | **fEs** | 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	E	2.5	2.7Y	3.2	2.5	2.4Y	2.5	3.2	3.5	4.4	4.6	5.6	3.5	3.2	3.2	2.8	4.2	B	4.5	3.8	3.0	3.2	3.2	3.0
2	3.2	3.0	3.5	2.7	2.5	2.5F	2.5	2.6	3.2	3.2	4.2	4.6	3.8	6.5	4.4	3.5	3.2	5.0	5.0	4.5	3.0	3.2	3.0	4.8
3	3.1	3.2	3.7	3.0	2.9	2.5Y	3.0Y	2.8	4.2	6.8	6.0	9.0	9.0Y	11.0	10.5	9.0	10.0	5.5	5.5	4.2	4.5	5.0	3.7	3.0
4	5.4	2.9	2.7	3.2	3.0	3.0	2.4	3.5	4.5	3.6	4.7	5.5	4.3	4.9	4.4	3.8	3.5	4.3Y	3.5	4.2	2.4	2.5	3.0	4.0
5	3.0	2.9	2.5	3.2	3.0	2.5	2.9	5.8	4.5	4.4	7.0	10.0	6.5	4.3	3.7	2.8	4.6	3.5	3.0	2.5	2.9	E	E	2.5
6	E	2.4Y	2.5	2.5	3.5Y	2.5	2.6	2.7	3.0	3.2	3.2	3.8	4.7	4.9	3.9	4.6	4.7	3.9	3.6	2.9	2.9	E	E	4.8
7	4.0	3.2	4.2	2.9	2.4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	4.4	5.7	3.5	4.5	5.7	4.5	3.2	2.6	3.0	3.0	2.6	E	4.9	5.7	3.0
9	3.1	3.0	3.2	2.9	3.0	2.9	3.0Y	2.5	3.2	G	G	G	3.2	G	3.2	3.2	3.1	2.8	2.6	3.2	2.6	2.1	2.5	3.0
10	2.6	2.3	2.5	2.4	2.5	E	1.7	2.8	3.2	2.6	3.2	3.4	4.7	4.5	3.5	4.5	3.0	3.1	2.7	2.4	3.2	3.2	E	E
11	2.2	2.5	2.5	2.0Y	2.3	3.2F	3.0	3.0	2.9	3.3	3.6	3.7	3.7	3.6	3.2	3.2	3.2	2.0	2.2	3.2	E	2.5	3.2	2.0
12	2.3	1.9	2.5	2.5	2.3	E	E	3.5	G	4.7	4.4	4.4	3.9	3.9	3.2	3.2	2.8	1.8	2.4	2.4	2.9	2.0Y	E	E
13	1.8	1.8	2.3	2.0Y	2.1	E	E	2.5	3.2	3.5	4.9	3.6	G	G	3.5	3.4	3.8	3.2	3.7	4.2	3.0	2.5	E	3.2
14	2.5	3.2	2.4	2.4	2.1	2.4	2.3	G	G	3.7	3.9	3.2	3.7	3.5	3.2	3.2	2.5	2.9	3.7	3.7	4.4	4.3	3.2	3.8
15	3.0	2.5	2.9	2.1	2.3Y	2.5Y	E	2.5	3.3	4.2	5.0	C	C	C	C	4.5	2.6	2.4	2.9Y	3.2	5.5	5.0	2.4	2.4
16	2.5Y	3.0	2.5	2.9	2.4Y	2.5	2.4	2.5	3.3	4.4	4.2	4.3	4.4	4.8	3.5	3.2	3.2	2.4Y	2.5Y	2.5Y	2.5	E	2.4	3.0
17	2.4	3.2	2.4Y	2.6Y	2.5	2.4	2.5	2.4	3.2	3.7	4.3	5.0	5.2Y	5.6	6.5Y	3.2	2.9	4.8	3.2	3.2	2.6	2.2	2.5	2.5
18	2.3	2.5	2.5	2.4	2.0Y	2.5	E	2.5	3.0	3.5	3.5	4.5	3.2	5.5	3.0	2.5	2.9	4.0	3.2	2.5	2.5	E	2.6	2.5
19	2.5	2.5	2.5	2.3	3.0	2.1	E	2.5	3.0	3.2	4.2	3.1	3.5	3.2	3.5	2.5	2.5	E	E	E	E	E	E	E
20	E	1.8Y	2.5	2.5	2.3	2.4Y	2.5	2.4	2.9	3.2	10.5	4.4	4.9	8.3	3.8	4.5	2.5	2.5	3.2	3.2	3.0	3.2	2.6	2.5
21	E	E	2.8Y	E	E	C	2.0	2.8	3.2	3.9	5.5	5.5	9.0	5.6	4.0	C	4.2	>2.1C	5.9	>2.1C	6.0	C	C	C
22	C	C	C	C	C	E	C	3.2	3.2	G	G	3.2	3.0	3.9	5.0	5.0	3.2F	3.2	4.5	3.0	1.9	E	E	E
23	E	E	5.0	2.5Y	2.5	2.5	E	G	3.5	3.5	4.4	4.6	4.2	4.3	5.2	G	2.7	E	E	E	E	E	E	E
24	E	E	2.0	2.5	2.1	1.8	1.9	2.8	3.2	G	4.1	4.1	3.5	3.4	3.0	3.0	2.6	2.8	E	1.7	E	E	E	E
25	1.8	2.5	2.5	2.5Y	2.1	4.8Y	E	G	G	3.2	3.2	3.2	4.1	4.0	4.5	3.2	2.3	2.4	2.3	2.5	2.5	2.3	3.1	2.1
26	2.3	2.0	2.0	E	1.8	2.3	E	2.5	2.6	2.7	4.0	4.4	6.6	6.2	10.0Y	6.0	5.1	5.7	3.0	3.0	1.9	2.5	E	E
27	2.3	2.8	2.5F	E	2.0	2.7	E	2.7	3.0	3.0	4.5	5.5	6.7	5.7	3.5	3.0	5.6	3.0	2.7	2.5	3.0	E	2.4	1.9
28	E	E	1.9	1.9	2.7	3.2	2.2	2.4	3.3	3.2	5.0	4.1	3.2	G	3.2	3.3	2.5	3.2	2.4Y	2.9	6.0	5.5Y	3.0	2.8Y
29	2.4	2.4	2.5	2.4	2.2	2.7	2.2	2.5	3.2	3.5	3.2	4.5	4.0	4.0	3.3	2.9	2.5	2.1	2.5	2.3Y	2.6	2.8	3.0	E
30	E	3.0	3.0	2.5	2.5	2.3Y	E	2.5	3.0	3.5	9.0	5.0	4.5	5.0	3.5	3.0	3.2	2.5	3.2	2.3	2.4	2.5	2.2	2.4
31																								
Mean Value	2.7	2.6	2.7	2.6	2.5	2.6	2.4	2.8	3.3	3.7	4.8	4.7	4.7	5.0	4.4	3.7	3.5	3.3	3.3	3.0	3.2	3.2	3.0	3.0
Median Value	2.3	2.5	2.5	2.5	2.4	2.5	2.2	2.5	3.2	3.5	4.3	4.4	4.2	4.4	3.5	3.2	3.1	3.0	3.0	2.9	2.6	2.5	2.4	2.5
Count	28	28	28	28	28	27	27	28	28	29	29	28	28	28	28	28	29	27	29	28	29	28	28	28

fEs

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 8

17

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

IONOSPHERIC DATA

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

Nov. 1954 | (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	2.9	3.0	3.0	3.1	3.6	3.0	3.1	3.4	3.4	3.6^{P}	3.6	3.0	3.2	3.3	(3.5)^{J}	3.6	3.7	3.5	3.5	2.9	3.0	3.1	3.0	2.9
2	3.0	3.0	2.8^{F}	3.0	3.5	(3.0)$^{J}_{F}$	3.3	3.4	3.4	3.3	3.6	3.3	3.0^{H}	3.3	(3.6)^{J}	3.6	3.6	[3.3]^{A}	3.0	3.0	3.1	3.1	3.1	3.0
3	2.9	3.0	3.1	3.4	3.5	3.1	3.1	3.4	3.5	3.3	3.5	3.4	3.3	A	3.3	3.4	3.3	3.5	[3.4]^{A}	3.2	A	A	2.7^{F}	(2.8)$^{F}_{J}$
4	2.9^{F}	[3.0]^{F}	(3.0)$^{J}_{F}$	(3.0)$^{J}_{F}$	3.2^{F}	2.9^{F}	3.3	3.4	3.2	3.5	3.3	3.4	3.5	3.5	3.4	3.5	3.5	3.7	3.3	3.0	3.3	2.9^{F}	2.9^{F}	3.0^{F}
5	3.0^{F}	(3.1)$^{J}_{F}$	3.3^{F}	3.0^{F}	3.2^{F}	3.0^{F}	3.3	3.6	3.6	3.3	3.5	3.4	(3.4)^{J}	3.3	3.7	3.6	3.5	3.5	3.4	2.8	3.0	3.0	3.0^{F}	3.1
6	3.0	3.1	3.4	3.2	3.6	3.2	3.3	3.6	3.6	3.3^{H}	3.5	3.8^{P}	(3.3)^{J}	3.6	3.4	3.6	3.4	3.5	3.3	3.2	3.1	3.2	2.9	2.9
7	3.0	3.1	3.1	2.9^{F}	3.2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	3.3	3.5	3.5^{P}	3.5	3.6	3.3	3.5	3.6	3.5	3.6	3.1	3.1	3.2	2.8	3.2
9	3.1	3.0	3.2^{F}	3.3	3.3	3.3	3.2	3.8	3.7	3.6	3.5	3.3	3.2	3.4	3.5	3.9^{P}	(3.7)^{J}	3.3	3.4	3.5^{P}	3.0	3.1	3.1	3.1
10	3.1	3.0	3.1	(3.1)^{J}	3.4	3.1	3.2	3.5	3.7	3.3	3.4	3.4	3.5	3.4	3.5	3.5	3.6	3.3	3.2^{P}	3.2^{P}	3.2	2.8	3.1	3.1
11	3.0	2.9^{F}	3.0$^{F}_{P}$	3.1	3.1	3.1	3.5	3.7	3.5	3.6	3.7	3.1^{H}	3.4	3.4	3.0^{H}	3.4	3.6	3.4	3.1	3.4	3.2	3.0	3.1	3.0
12	3.1	3.0	2.9	3.0	3.2	3.1	3.3^{P}	3.4	3.5	3.3	3.4	3.5	3.3	3.3	B	3.6	3.5	3.4	3.3	3.3	3.0	2.9	2.8	2.7
13	2.8	2.8	3.2^{P}	3.7	3.0	3.0	3.2	3.5	3.8^{P}	3.4	3.4	3.4	3.5	3.1	3.4	3.7	3.7	3.5	A	3.0^{F}	3.0^{F}	3.4	3.1	3.0
14	2.6	2.8	2.9	3.0	3.4	3.4	3.3	3.7	3.5	3.4	3.5	3.1	3.1	3.2	3.6	3.7	3.6	3.3	3.5	A	A	3.0	2.7^{F}	2.9^{F}
15	2.9	3.0	2.8	2.9	3.0	3.1	3.6	3.5^{P}	3.5	3.1	3.6	C	C	C	C	3.6	3.7	3.5	3.2	3.3	3.3	2.9	3.2	3.0
16	3.0	3.0	3.0	2.9	3.1	3.0	3.2	3.6	3.6	3.2	3.4	3.4	3.6	3.4	3.3	3.3	3.5	3.4	3.3	3.3	3.0	3.0	3.0	3.1
17	3.1	3.0	3.0	3.1	3.3	3.2	3.1	3.6	3.6	3.5	3.6	3.2	3.5	3.3	3.4	3.5	3.6	3.4	3.0	3.1^{F}	3.2	3.4	2.9	2.9
18	2.9	3.0	3.1	3.2	3.5	3.4	2.9	3.7	3.5	3.6	3.5	3.1^{H}	3.7	3.6	3.4	3.5	3.6	3.6	3.2	3.0	3.2	3.1	3.1	3.0
19	2.8^{F}	3.0^{F}	2.7^{F}	(2.9)$^{J}_{F}$	3.4	3.1	3.0	3.3^{P}	3.5	3.3	3.3	3.6	3.3	3.4	3.1^{H}	3.5	3.5	3.4	3.1	3.6	3.0	3.2	3.3^{F}	2.9
20	3.1	3.0	2.9	3.0	3.0	3.1	3.0	3.4	3.4	3.6	3.0	(3.7)^{J}	3.0	3.3	3.4	3.5	3.7	3.5	3.2	2.9	3.0	3.1	2.7^{F}	2.7^{F}
21	2.9^{F}	3.0	2.9^{F}	3.2	3.1	(3.2)^{J}	3.0	3.5	3.4	3.5	3.6	3.5	3.5	3.2	3.3	3.6	3.9^{P}	3.3	3.2	3.1	C	C	C	C
22	C	C	2.9	3.0	3.4	3.4	3.2	3.4	3.5	3.3	3.6	3.6	3.4	3.5	3.5	3.7	3.4	3.6	[3.4]^{A}	3.2	3.4	3.4	(2.8)$^{J}_{F}$	(3.4)$^{J}_{F}$
23	3.1	3.0	(3.0)$^{J}_{F}$	(3.1)$^{J}_{F}$	3.5^{P}	3.3^{F}	3.4	3.3	3.5	3.2	3.5	(3.6)^{J}	3.6	3.5	3.7	3.6	3.6	3.6	3.0	3.3	3.6	3.2	3.0	3.0
24	3.0	3.1	2.9	2.8	3.0	3.3	3.2	3.7	3.5^{P}	3.1	3.3	(3.4)^{J}	3.7	3.6	3.6	3.6	3.6	3.2	3.1	3.2	3.8	3.2	3.0^{F}	2.8^{F}
25	2.9^{F}	(3.0)$^{J}_{F}$	2.9^{F}	3.0^{F}	3.2^{2}	3.0^{F}	3.3	(3.6)^{J}	3.5	3.5	3.1	3.6	3.7	3.5	3.6	3.5	3.6	3.7	3.1	3.1	3.4	3.2	3.1	2.8
26	3.1	3.0	3.0	3.1	3.6	3.5	3.2^{F}	3.6	3.6	3.7	3.3	3.4^{P}	3.6	3.5	3.4	3.7	3.6	[3.5]^{A}	3.4	3.3	3.1	3.1^{F}	3.1^{F}	3.2^{F}
27	3.0^{F}	3.0	3.3^{F}	3.2^{F}	3.3	3.0^{F}	3.3^{F}	3.4	3.4	3.2$^{2}_{H}$	3.4	3.3	3.7	3.6	3.6	3.6	3.6^{P}	3.3	3.4	3.6	3.5	2.8^{F}	3.0	(2.8)$^{F}_{J}$
28	3.0^{F}	3.0^{F}	2.8^{F}	3.0	3.1^{F}	3.5	3.6	3.7	3.5	3.6	(3.5)^{P}	3.3	3.1	3.3	3.5	3.5	3.9	3.2	3.0	3.3^{P}	[3.3]^{A}	3.3^{F}	2.8^{F}	(3.0)$^{J}_{F}$
29	(3.0)$^{J}_{F}$	(3.2)$^{J}_{F}$	(3.3)$^{J}_{F}$	(3.3)$^{J}_{F}$	3.4^{F}	(3.1)$^{J}_{F}$	(3.3)$^{J}_{F}$	3.6	3.5	3.5	3.5	3.3	3.5	3.6	3.5	3.5^{P}	3.5	3.7	3.2	3.3	3.2	3.1	2.9	2.9^{F}
30	3.0	3.1^{F}	3.0^{F}	3.0^{F}	3.2	3.0	3.2	3.4	3.5	3.6	3.4	3.4	3.4	3.5	3.5	3.6	3.4	3.5	3.2	3.5	3.0^{F}	2.8	2.8^{F}	2.9^{F}
31																								
Mean Value	3.0	3.0	3.0	3.1	3.3	3.1	3.2	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.6	3.6	3.5	3.3	3.2	3.2	3.1	3.0	3.0
Median Value	3.0	3.0	3.0	3.0	3.3	3.1	3.2	3.5	3.5	3.4	3.5	3.4	3.4	3.4	3.5	3.6	3.6	3.5	3.2	3.2	3.2	3.1	3.0	3.0
Count	28	28	29	29	29	28	28	28	28	29	29	28	28	27	27	29	29	29	28	28	26	27	28	28

(M3000)F2 Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1954 | **fminF** | 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	1.4	1.3	E	1.0	E	1.4	1.4	2.4	2.7	3.2	3.3	3.3	3.0	3.3	3.0	2.8	3.5[A]	1.5	1.4	(1.7)[A]	2.0	1.3	1.6	1.5
2	1.3	1.4	1.7	1.4	E	1.4	1.5	2.5	2.8	2.8	3.0	3.8[A]	3.5	5.0[A]	2.9	(2.4)[A]	2.0	(1.9)[A]	1.8	1.5	1.3	1.5	1.4	1.5
3	1.6	1.4	1.2	1.8	E	1.4	1.4	2.2	2.7	5.7[A]	4.8[A]	2.9	3.0	5.0[A]	4.5[A]	5.0[A]	(4.0)[A]	(3.0)[A]	(2.5)[A]	2.0	A	A	1.5	1.5
4	1.4	1.4	E	E	E	1.4	1.5	2.0	3.5[A]	3.3	3.2	3.2	3.3	3.3	3.0	2.5	2.1	2.1	1.5	1.5	1.4	1.4	1.4	2.0
5	1.5	1.5	1.3	1.4	1.3	1.3	1.6	(2.3)[A]	3.0	(4.0)[A]	5.0[A]	4.0[A]	(3.5)[A]	3.0	3.0	2.5	2.8	1.5	1.6	1.4	1.5	1.5	1.4	1.5
6	1.3	1.3	1.3	1.3	1.4	1.5	1.3	2.0	2.6	2.9	3.2	3.4	(3.7)[A]	4.0[A]	2.9	2.7	3.5[A]	3.2[A]	2.5[A]	2.0	1.5	1.5	1.4	1.5
7	1.5	1.5	1.4	1.0	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	3.0	3.4	3.3	3.4	3.8[A]	2.8	2.7	2.1	2.1	1.5	1.7	1.2	1.5	1.6	1.4
9	1.4	1.5	1.2	1.0	1.2	1.2	1.3	2.2	2.6	3.0	3.0	3.0	3.2	3.0	2.8	2.6	2.1	1.9	1.5	1.9	1.6	1.4	1.7	2.0
10	1.3	1.3	E	1.3	E	1.3	1.4	2.2	2.9	3.0	3.5	3.9[A]	3.5	3.5	3.0	2.4	2.0	2.1	1.5	1.5	1.5	1.4	1.3	1.3
11	1.4	1.4	1.0	E	E	2.0	1.6	1.9	2.7	3.0	3.5	3.5	3.4	3.3	2.9	2.7	2.4	1.6	1.6	(1.6)[A]	1.5	1.5	1.3	1.4
12	1.4	1.3	1.2	1.2	1.3	1.3	1.4	2.7	2.8	4.0[A]	2.8	3.1	3.3	3.0	2.8	2.4	1.7	1.4	1.4	1.5	1.5	1.3	1.5	1.5
13	1.3	1.3	E	E	E	E	1.5	2.1	2.5	3.0	3.0	3.4	3.0	3.0	2.8	2.7	3.0[A]	2.5[A]	2.5[A]	1.6	1.3	1.4	1.5	1.6
14	1.6	1.8	1.5	1.3	1.0	1.3	1.4	2.1	2.5	2.9	3.3	3.4	3.4	3.3	2.9	2.6	2.0	1.7	2.7[A]	A	A	1.7	1.6	1.9
15	1.4	1.3	1.1	1.0	1.0	1.4	1.3	1.9	2.8	3.3[A]	3.1	C	C	C	C	2.4	1.9	1.5	1.5	1.6	1.6	2.0	1.5	1.5
16	1.4	1.4	1.2	1.0	E	1.4	1.5	2.1	2.6	3.3	3.4	3.5	3.3	3.3	2.6	2.2	2.1	1.5	1.3	1.4	1.4	1.4	1.3	1.9
17	1.3	1.3	E	E	E	1.3	1.4	2.2	2.6	3.2	3.2	4.2[A]	4.2[A]	4.4[A]	4.0[A]	2.6	2.1	(2.1)[A]	2.1[A]	1.7	1.7	1.4	1.4	1.5
18	1.4	1.3	1.2	E	E	1.4	1.4	2.1	3.0	2.9	3.3	(3.3)[A]	3.3	3.3	3.3	2.7	1.9	2.6[A]	2.1[A]	1.7	1.5	1.4	1.4	1.5
19	1.3	1.3	1.2	1.0	1.0	1.4	1.5	2.2	2.8	3.3	3.3	3.0	3.2	3.3	3.0	2.5	1.9	1.4	1.6	1.4	1.4	1.4	1.4	1.3
20	1.4	1.3	E	1.0	E	1.2	1.3	2.1	2.5	2.8	3.2[A]	4.0[A]	5.0[A]	5.5[A]	3.1[A]	2.7	2.0	1.5	2.1[A]	1.9	<2.0[C]	2.5[A]	1.7	2.3[A]
21	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.9	<2.7[C]	3.4	4.0[A]	4.1[A]	7.0[A]	4.0[A]	3.5	3.5	<4.0[C]	A	1.5	1.5	C	C	C	C
22	C	C	(2.0[C]	(1.5[C]	1.5	1.4	1.5	<2.8[C]	2.7	3.0	3.0	3.4	3.5	3.4	3.4	4.0[A]	2.0	1.5	(1.4)[A]	1.3	1.5	1.4	1.4	1.5
23	1.3	1.4	1.2	E	E	1.4	1.4	2.1	3.0	3.2[A]	3.5[A]	4.0[A]	3.4[A]	3.2	3.4[A]	3.0	2.1	1.4	1.5	1.4	1.4	1.5	1.4	1.5
24	1.4	1.3	1.4	E	1.0	1.3	1.5	2.1	2.5	2.8	3.0	3.5[A]	3.0	2.8	3.0	2.4	2.0	1.5	1.4	1.4	1.3	1.5	1.5	1.5
25	1.3	1.4	1.2	1.0	1.4	1.4	1.5	2.0	2.3	3.0	3.4	3.4	3.4	3.4	3.0	2.5	2.1	2.1	1.5	1.5	1.4	1.4	1.5	1.4
26	1.4	1.4	1.2	E	1.0	1.4	1.5	1.9	2.6	2.8	3.4	3.4	4.0[A]	3.5	3.5[A]	4.0[A]	3.5[A]	(2.6)[A]	1.7	1.6	1.5	1.5	1.2	1.3
27	1.4	1.2	E	E	E	1.4	1.4	2.0	2.4	2.5	3.7[A]	3.7[A]	4.8[A]	3.3[A]	2.9	2.4	2.3	1.6	1.5	1.5	1.3	1.4	1.5	1.5
28	1.5	1.4	1.3	E	E	1.2	1.3	1.9	2.5	3.4[A]	3.3	3.0	3.0	2.8	3.0	2.5	1.9	(1.7)[A]	1.5	1.3	(1.4)[A]	1.5	1.5	1.5
29	1.3	1.3	E	1.2	E	1.2	1.4	1.6	2.6	3.0	3.0	3.3	3.3	3.4[A]	2.8	2.3	1.9	1.4	1.7	1.5	1.5	1.4	1.3	1.4
30	1.3	1.4	1.2	1.0	1.3	1.3	1.5	1.7	2.3	2.8	5.5[A]	3.0	3.3	4.0[A]	2.7	2.2	2.0	1.5	1.5	1.5	1.4	1.5	1.4	1.3
31																								
Mean Value	1.4	1.4	1.2	1.1	1.2	1.4	1.4	2.1	2.7	3.2	3.5	3.5	3.6	3.6	3.1	2.8	2.3	1.9	1.7	1.6	1.5	1.5	1.5	1.6
Median Value	1.4	1.4	1.2	E	E	1.4	1.4	2.1	2.6	3.0	3.3	3.4	3.4	3.3	3.0	2.6	2.1	1.6	1.5	1.5	1.5	1.4	1.4	1.5
Count	28	28	28	28	29	28	28	27	27	29	29	28	28	28	28	29	28	28	29	28	25	27	28	28

fminF

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 10

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

IONOSPHERIC DATA

Nov. 1954 | **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	E	1.4	1.0	E	E	1.5	1.6	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.4	1.5	1.3	[1.4]^B	1.4	1.3	1.4	1.5	1.3	1.4
2	1.4	1.3	1.0	E	E	1.5	1.3	1.5	1.4	1.4	1.4	1.5	1.4	1.5	1.5	1.5	1.4	1.5	1.4	1.4	1.5	1.5	1.5	1.5
3	1.3	1.0	1.0	E	E	1.5	1.5	1.4	1.3	1.3	1.4	1.5	1.5	1.5	1.4	1.5	1.4	1.3	1.3	1.3	1.4	1.5	1.4	1.5
4	1.3	1.4	E	E	E	1.4	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.5	1.4	1.5	1.5	1.5	1.5
5	1.4	1.3	E	E	E	1.4	1.4	1.4	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.5	E	E	1.5
6	E	1.5	E	E	E	1.3	1.5	1.5	1.5	1.4	1.5	1.7	1.6	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.6	E	E	1.3
7	1.2	1.4	E	E	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	1.4	1.4	1.5	1.6	1.5	1.4	1.4	1.4	1.3	1.4	1.3	E	1.5	1.3	1.0
9	1.2	1.0	1.0	E	E	1.3	1.5	1.3	1.4	1.4	1.5	1.4	1.5	1.4	1.5	1.4	1.4	1.4	1.3	1.4	1.2	1.6	1.5	1.2
10	1.0	1.4	1.0	E	1.0	E	1.5	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.5	1.5	E	E
11	1.4	1.0	E	1.2	1.2	1.0	1.3	1.3	1.6	1.4	1.5	1.5	1.5	1.4	1.5	1.5	1.4	1.5	1.6	1.4	E	1.2	1.3	1.4
12	1.4	1.4	1.4	1.4	1.4	E	E	1.5	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.6	1.5	1.5	1.5	1.5	E	E
13	1.4	1.4	1.5	1.4	1.4	E	E	1.4	1.4	1.5	1.4	1.4	1.5	1.5	1.4	1.5	1.4	1.3	1.4	1.3	1.5	1.4	E	1.5
14	1.3	1.4	1.2	1.4	E	1.4	1.5	1.3	1.5	1.3	1.4	1.4	1.5	1.4	1.3	1.5	1.4	1.3	1.3	1.4	1.3	1.3	1.5	1.4
15	1.4	1.5	1.0	1.4	1.5	1.5	E	1.4	1.5	1.4	1.4	C	C	C	C	1.5	1.4	1.5	1.7	1.4	1.4	1.3	1.7	1.5
16	1.5	1.3	E	E	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.5	1.5	1.4	1.4	1.5	1.7	1.6	1.5	E	1.6	1.4
17	1.0	1.4	1.7	1.3	1.4	1.4	1.5	1.2	1.4	1.4	1.5	2.5	2.3	2.1	2.1	1.4	1.4	1.4	1.5	1.4	1.3	1.5	1.5	1.5
18	1.5	1.5	1.5	1.4	1.4	1.5	E	1.3	1.4	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.5	1.6	E	1.6	1.5
19	1.4	1.4	1.2	1.0	1.1	1.5	E	1.4	1.5	1.5	1.4	1.5	1.4	1.5	1.4	1.5	1.5	E	E	E	E	E	E	E
20	E	1.4	1.3	1.3	1.3	1.5	2.1	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.5	1.6	1.5	<1.8^C	<2.0^C	<2.0^C	<2.2^C	<2.2^C
21	E	E	<2.2^C	E	E	C	1.6	1.8	<2.3^C	<2.3^C	<2.4^C	<2.8^C	<2.7^C	<2.2^C	<3.4^C	C	<4.0^C	1.5	1.4	1.3	<4.0^C	C	C	C
22	C	C	C	C	C	E	C	<2.8^C	<2.5^C	<2.7^C	1.5	1.5	1.5	1.4	1.4	1.4	1.2	1.3	1.5	1.3	1.5	E	E	E
23	E	E	E	1.4	E	1.0	E	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.3	1.3	1.3	E	E	E	E	E	E	E
24	E	E	1.4	1.4	E	1.4	1.5	1.4	1.4	1.3	1.4	1.3	1.3	1.3	1.4	1.4	1.4	1.5	E	1.5	E	E	E	E
25	1.5	1.4	1.2	1.0	1.4	1.5	E	1.4	1.5	1.4	1.4	1.5	1.5	1.5	1.4	1.3	1.4	1.4	1.5	1.5	1.5	1.6	1.5	1.5
26	1.4	1.5	E	E	1.3	1.4	E	1.4	1.5	1.4	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.3	1.4	1.5	1.4	1.5	E	E
27	1.4	1.3	E	E	1.4	1.4	E	1.5	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.5	1.3	1.4	E	1.6	1.5
28	E	E	1.4	1.3	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.3	1.1	1.5	1.5	1.3	1.4	1.5	1.5
29	1.5	1.4	1.4	1.3	E	1.4	1.4	1.3	1.4	1.3	1.4	1.5	1.4	1.4	1.5	1.5	1.4	1.7	1.4	1.6	1.9	1.5	1.7	E
30	E	1.4	E	1.2	1.5	1.4	E	1.3	1.4	1.3	1.3	1.4	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.5	1.5	1.3	1.5	1.5
31																								
Mean Value	1.4	1.4	1.2	1.3	1.3	1.4	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.4
Median Value	1.4	1.4	1.0	1.0	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.4	1.4
Count	28	28	27	28	28	27	27	27	26	27	28	27	27	27	27	28	28	29	29	28	27	27	27	27

fminE

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Nov. 1954 | **ypF2** | 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	50	60	70	50	60	90	90	80	50	50^{P}	50	120	40	30	(60)^{J}	40	60	50	70	80	60	70	80	80
2	60	70	60^{F}	50	60	(60)^{J}	70	50	50	40	50	70	60^{H}	60	(40)^{J}	50	40	[70]^{A}	100	50	60	80	60	80
3	60	70	60	110	80	70	60	40	40	60	40	50	70	A	60	60	50	60	[60]^{A}	60	A	A	50^{F}	(80)^{JF}
4	60^{F}	[80]^{F}	(90)^{JF}	(80)^{JF}	60^{F}	70^{F}	80	40	90	70	50	60	40	40	50	50	30	40	70	60	60	90^{F}	70^{F}	80^{F}
5	50^{F}	(60)^{JF}	60^{F}	60^{F}	70^{F}	80^{F}	70	40	50	50	50	50	(60)^{J}	50	50	40	40	70	50	100	70	80	90^{F}	80
6	40	60	50	50	50	70	50	50	40	80^{H}	50	50^{P}	(70)^{J}	60	60	30	70	40	60	60	70	80	80	50
7	50	70	70	50^{F}	60	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	80	50	70^{P}	40	30	70	80	50	40	60	80	90	60	80	50
9	70	60	30^{F}	50	60	50	50	40	40	60	70	120	60	50	50	50^{P}	(40)^{J}	80	40	60^{P}	80	80	100	60
10	70	70	40	(40)^{J}	70	90	90	60	40	60	70	90	50	70	70	60	70	100	80^{P}	60^{P}	70	80	70	60
11	60	60^{F}	50^{FP}	70	70	60	40	50	50	40	40	90^{H}	60	60	120^{H}	50	60	100	50	60	70	90	60	80
12	80	70	70	70	70	80	60^{P}	80	60	60	50	60	70	60	B	50	70	60	90	90	100	70	70	70
13	70	80	50^{P}	60	70	60	80	70	60^{P}	50	40	50	40	90	50	40	40	40	A	100^{F}	90^{F}	60	70	80
14	80	90	80	70	40	40	100	50	60	50	50	80	70	70	40	40	50	50	50	A	A	90	80^{F}	90^{F}
15	80	80	90	100	90	70	60	70^{P}	50	90	50	C	C	C	C	60	40	60	60	40	60	100	100	90
16	60	60	70	80	60	70	80	40	40	60	60	60	50	70	60	50	40	60	70	80	80	80	80	80
17	60	90	60	70	60	70	110	50	60	50	40	50	60	70	50	50	60	50	70	70^{F}	50	60	90	60
18	60	80	80	60	40	80	70	50	60	60	60	130^{H}	50	50	50	50	40	60	A	80	90	70	80	80
19	80^{F}	80^{F}	60^{F}	(80)^{JF}	80	50	90	70^{P}	50	50	60	50	50	50	70^{H}	60	50	90	50	50	90	70	70^{F}	70
20	80	80	70	100	70	50	80	50	50	40	60	(40)^{J}	A	A	50	50	50	60	90	70	40	60	70^{F}	50^{F}
21	60^{F}	50	60^{F}	40	70	(70)^{J}	80	50	60	40	40	50	A	70	90	30	40^{P}	70	90	100	C	C	C	C
22	C	C	50	70	40	80	60	70	40	70	60	70	70	50	60	40	70	50	[60]^{A}	70	50	60	(60)^{JF}	(40)^{JF}
23	50	50	(60)^{JFP}	(80)^{JF}	50^{P}	60^{F}	60	60	40	80	30	(50)^{J}	30	30	40	60	50	60	90	50	60	60	90	60
24	70	60	50	90	50	80	80	50	50^{P}	90	40	(40)^{J}	30	30	40	30	40	90	80	70	30	90	20^{F}	60^{F}
25	70^{F}	(60)^{JF}	80^{F}	50^{F}	30^{2}	80^{F}	60	(40)^{J}	80	40	80	40	40	40	30	50	30	50	90	80	50	80	70	60
26	50	60	60	70	30	50	60^{F}	40	50	40	50	50^{P}	70	40	50	30	40	[50]^{A}	60	70	60	50^{F}	40^{F}	50^{F}
27	50^{F}	50	60^{F}	40^{F}	70	80^{F}	60^{F}	50	70	90^{ZH}	60	50	60	50	40	60	50^{P}	50	50	50	70	80^{F}	90	(80)^{JF}
28	50^{F}	70^{F}	50^{F}	90	60^{F}	60	80	30	70	60	(50)^{P}	90	80	80	50	70	40	110	110	70^{P}	[60]^{A}	60^{F}	80^{F}	(60)^{JF}
29	(70)^{JF}	(60)^{JF}	(60)^{JF}	(60)^{JF}	70^{F}	(60)^{F}	(50)^{JF}	70	50	50	60	60	50	40	70	50^{P}	50	40	70	100	90	100	80	70^{F}
30	90	70^{F}	50^{F}	70^{F}	80	90	70	50	40	60	40	50	40	40	50	50	40	60	80	80	70^{F}	90	80^{F}	60^{F}
31																								
Mean Value	60	70	60	70	60	70	70	50	50	60	50	60	50	50	60	50	50	60	70	70	70	80	70	70
Median Value	60	70	60	70	60	70	70	50	50	60	50	60	60	50	50	50	50	60	70	70	70	80	80	70
Count	28	28	29	29	29	28	28	28	28	29	29	28	26	26	27	29	29	29	27	28	26	27	28	28

ypF2

Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 12

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

IONOSPHERIC DATA

Nov. 1954 | foF2 | 135° E Mean Time | **Yamagawa** | Lat. 31° 12.5' N | Long. 130° 37.7' 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	3.2^{V}	3.2	3.3	3.7	3.0	2.5	2.5	4.7	7.1	8.7	7.4	6.1	7.1	9.0	11.6	10.4	6.4	5.3	4.3^{H}	3.1	3.3	3.4	3.4^{V}	3.6
2	3.5	3.4	3.3	3.5	3.0	2.1	M	M	6.5	7.8	7.0	8.9^{H}	8.5	10.6	11.0	8.5^{H}	6.0	5.8	4.2^{J}	3.8	4.2^{J}	3.5	[3.4]^{C}	3.2
3	3.2	3.2	[3.4]$^{E}_{S}$	3.7	2.3^{F}	1.8	2.3	5.6	6.2	6.7	7.8	10.6	7.4	7.2	8.8	8.9	6.9^{P}	5.9	5.9	3.2	[3.2]^{A}	3.1	2.7^{V}	2.8
4	2.9	3.3	3.3^{F}	3.4^{F}	3.2$^{J}_{F}$	2.1^{F}	1.9	4.5	6.1	6.5	7.8	8.7	6.2	8.5	8.5	8.2	7.0	6.5	4.6	3.0	3.0	3.0	2.9	2.8
5	2.9	2.8	3.0	2.9^{H}	2.9	2.3^{F}	2.5	5.1	6.0	6.1	7.5^{J}	8.6	8.2	7.7	8.4	8.0	6.5	5.3	4.1	2.8^{J}	2.9	3.2	3.5	2.9
6	3.0	3.2$^{E}_{S}$	3.0^{F}	3.2	3.0	2.4^{F}	2.4	5.1	7.2	7.1	7.2	10.0	8.0	7.9$^{X}_{H}$	7.8	8.2	6.7	5.2	4.0	2.9	3.2	3.4	3.4	2.8
7	3.0	3.2	3.1	3.0	2.6	2.6$^{J}_{H}$	2.8	5.1	7.5$^{J}_{S}$	6.7	6.6	8.3	7.0	7.7	8.5	7.8	5.9	4.9	4.6	3.6	3.0	3.1	3.1	3.2
8	3.2	3.4	3.2^{X}	3.3	3.1	3.1	2.8	4.9	6.3^{J}	5.7	7.2	9.0	7.3	8.7	10.9^{P}	8.1^{J}	6.0	5.4	4.9	3.4	3.3	3.3	3.2	2.9
9	3.0	3.0	3.1^{V}	3.7	3.1	2.7	2.9	4.7	5.9	6.5	7.1	9.2^{P}	7.0	8.6	8.5^{V}	7.9 -	6.4^{J}	4.5	4.1	3.5	3.4^{S}	3.3	3.4	3.1
10	3.2	3.3	3.2	3.2	3.9$^{J}_{S}$	2.3	2.5	4.9	7.5	C	C	C	C	C	C	C	C	4.3^{J}	3.7	B	3.2	3.1	3.1	3.0
11	3.2	3.1	C	C	C	C	C	4.5	5.8	6.6	7.1	7.6	6.4	7.2	7.2	7.0	6.9	4.9	3.2	3.4	4.3	3.5	3.2	3.2
12	3.1	2.9	2.9	3.0	3.2	3.0	2.7	5.2	6.5	6.9	8.5	8.3	7.9	8.2	9.2^{P}	8.5	5.9	5.4	3.7	3.2	3.0	2.6^{H}	2.6	2.6
13	2.7	3.0	4.0$^{J}_{S}$	2.5	2.0	2.0	2.3	5.2	7.2	6.5	7.0	7.9	7.4	8.6	9.3^{P}	8.6	7.4	6.5	3.8	3.1^{V}	2.9	3.2	2.7^{P}	2.6^{P}
14	2.7	2.7	2.8	2.9	3.0	3.4	2.2	4.0	5.8	5.7	7.2	8.1	7.0	7.3	8.5	7.3	6.2	5.2	3.8	3.4	3.0	3.1	3.0	2.7
15	2.8	3.0	3.0	3.1	3.2	2.9	3.0	5.0	6.1	5.9	6.7	8.5	7.0^{P}	9.6	10.9	9.0^{P}	7.8^{S}	5.6	3.5	3.5	3.8^{H}	3.0	2.6^{J}	3.0
16	2.8	2.8	2.9	2.9	3.0^{F}	2.8	2.7	5.0^{S}	6.3^{S}	6.3^{J}	6.8	7.5	6.9	6.5	6.7	7.2	6.9	5.9	4.1	3.2	2.8^{J}	[2.8]^{A}	2.7	2.9
17	3.1	2.9	2.9^{J}	3.0	3.2	3.5	3.0	4.3^{J}	5.6	6.1	6.2	7.2	7.1	7.2	7.2	7.7	6.7	5.1	3.4	2.8	3.3	3.2	2.9	2.6
18	2.8	2.9	3.1	3.5	2.7	2.3	2.3	4.0	5.0	6.2	6.7	7.6	6.8	7.3	6.5	6.2	5.8	5.9	3.2	2.6	3.1	3.0	2.9$^{E}_{S}$	3.1$^{E}_{S}$
19	3.2$^{E}_{S}$	3.1	3.0	3.0^{S}	3.9	3.1$^{J}_{P}$	1.9	4.1	6.0	6.1	6.8	[6.6]^{C}	6.4	6.7	6.8	6.5	5.2^{V}	5.2	3.7	3.2	3.3	3.2	3.3	3.0
20	3.3	3.0	2.8^{H}	3.0	3.0	2.9	2.5	4.3^{J}	6.4	6.7	5.7^{H}	7.0	7.2	7.7	[7.2]^{C}	6.8	6.4	4.8	3.4	3.4	C	C	2.8^{P}	2.7^{J}
21	3.0	3.0	3.1	3.4	2.7^{S}	2.5^{S}	2.5^{S}	4.3$^{J}_{S}$	7.0	6.6	7.0	8.5	7.1	6.5	7.0	6.4	7.0$^{P}_{S}$	5.7	3.1	3.1	[3.0]^{C}	3.0^{F}	2.4	2.6
22	2.8	2.8	3.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	3.1	2.9	3.2	2.8	2.4	2.4
23	2.7	2.8^{F}	3.0	3.0	S	2.8	2.4	[4.0]^{S}	5.6	7.0	[7.6]^{M}	8.3	7.9	9.0	8.5	7.8	5.9	4.5	3.6	3.0	2.9^{H}	2.5	2.4	2.5
24	2.8	2.9	2.8	2.5^{P}	3.1	2.6	2.1	4.2	5.6	6.3	6.2^{P}	7.9	7.6^{P}	7.4	7.2	6.3	5.9	4.6	3.3	3.9$^{J}_{S}$	2.6	2.5	2.3	2.4
25	2.6	2.8	2.9^{S}	3.0	3.1	3.1	2.1	[4.0]^{S}	5.9	5.9	6.1	7.1	8.5	8.0	6.6	6.4	6.0	4.9	3.1	3.1	3.5	2.5	2.3	2.3
26	2.4	2.6	2.9^{S}	2.9	2.9	2.3^{H}	1.9	3.7	4.8	5.4	5.9	6.2	6.5	8.4	7.9^{J}	6.3	5.3	5.1	S	S	2.5	2.6^{P}	FS	FS
27	FS	FS	FS	S	FS	S	2.1$^{E}_{S}$	3.5	5.1	6.7	5.9	7.4	6.9	8.2	7.7	6.5	5.5	4.9	3.8^{S}	3.0	2.3	2.3	(2.8)^{P}	2.4
28	[2.8]^{S}	3.1	3.4	C	S	3.3	2.4	3.4	5.0	6.0	6.4	7.5	7.0	8.7	7.2	6.5	5.7^{X}	4.4	4.0$^{J}_{H}$	2.7	2.0	2.1	2.3	2.5$^{J}_{H}$
29	2.7	3.0^{S}	2.6	2.8^{F}	3.5^{X}	2.3^{F}	2.4	3.9	5.1	5.2	5.7	6.1	6.2	6.4	6.4	6.1	5.1	5.3	3.4	2.8	2.8	3.0	2.3^{F}	[2.6]$^{E}_{S}$
30	2.8^{S}	2.9	2.8	2.8$^{E}_{S}$	3.3	2.3^{F}	2.3^{F}	4.2^{S}	6.4	5.7	6.3	7.2	7.5^{J}	7.5	7.5	6.7	6.4	6.0	3.2	2.8^{J}	2.1	2.3^{F}	2.6$^{J}_{F}$	2.9$^{J}_{E}$
31																								
Mean Value	2.9	3.0	3.1	3.1	3.0	2.6	2.4	4.5	6.1	6.4	6.8	7.9	7.2	7.9	8.2	7.5	6.3	5.3	3.8	3.2	3.1	3.0	2.8	2.8
Median Value	2.9	3.0	3.0	3.0	3.0	2.6	2.4	4.4	6.1	6.4	6.9	7.9	7.1	7.8	7.8	7.5	6.3	5.2	3.7	3.1	3.0	3.0	2.8	2.8
Count	29	29	28	26	25	27	27	28	29	28	28	28	28	28	28	28	28	29	29	28	29	29	29	29

foF2

Sweep 1.0 Mc to 22.0 Mc in 1 min ☐ Manual ☒ Automatic

Y 1

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

IONOSPHERIC DATA

Nov. 1954 | h'F2 | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' 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	320	310	270	250	210	290	250	250	260	240	240	250	270	330	270	250	230	220	220^{H}	230	300	290	300	290
2	290	290	300	290	300	350	M	M	240	260	270	280^{H}	280	260	250	240^{H}	240^{A}	230	220^{A}	250^{A}	260	250	290	270
3	300	350	300	230	260	360	300	240	230	250	270	240	220^{A}	260	280	240	230	230	230^{A}	210	[260]^{A}	320^{A}	300	340
4	320	300	290	250	240^{F}	270^{F}	360	250	240	260	260	250	250	270	280	250	240	220^{A}	210^{A}	210^{A}	280	260	300	280
5	290	270	280	250^{H}	240	210	260	240	240	250	290	240	270	270	270	240	240	(250)^{A}	250^{A}	240	350	300	260	280
6	300	270^{F}	240	240	230	220	300	250	240	260	300	260	280	260^{H}	290	250	240	230	210	240	300	290	260	260
7	330^{A}	300	260	240	240	300^{H}	290	240	230	250	260	260	250	260	260	250	230	220	210	240	250	270	290	300
8	290	260	310^{A}	250	240	230	270	240	230	240	260	250	260	300	260	230	230	210	220	210	260	250	250	270
9	290	280	260	240	220	270	270	220	230	290	280	260	260	290	250	240	220	210	210	250	250	250	260	300
10	290	260	260	260	230	200	300	250	240	C	C	C	C	C	C	C	C	230	220^{A}	250	240	260	270	300
11	270	260	C	C	C	C	C	230	230	250	270	250	250	280	250	240	240	230	220	270	270	250^{A}	260	290
12	250	310^{A}	290	260	250	230	260	230	240	260	260	270	260	290	260	250	230	220	210^{A}	250	230	260^{H}	290	340
13	350	300	230	200	250	280	300	230	250	250	270	260	300	290	260	260	250	220	210	250	290	250	260	300
14	300	300	280	270	270	210	200	230	220	240	290	270	260	280	260	240	230	220	230	250	270^{A}	300^{A}	250	280
15	280	310	270	290	260	260	280	230	230	250	290	270	260	290	260	230^{A}	240	210	210	260	250^{H}	240	290	310^{A}
16	320^{A}	310	350^{A}	300	300	250^{F}	290	210	230	250	270	240	260	260	270	280	240	220^{A}	(250)^{A}	240	240	[250]^{A}	260	290
17	280	260	310	310	260	250	230	200	240	240	260	260	260	290	260	250	240	220	220^{A}	280	290	250	250	310
18	340	290	270	250	210	200	260	210	230	270	260	250	270	250	250	250	250	220	230	240	250	260	250	300
19	300	290	290	260	220	200	350	240	240	260	270	240	270	260	250	250	240	230	230	240	260	330	270	310
20	270	260	250^{H}	250	250	240	290	250	240	240	240^{H}	290	280	280	[260]^{C}	240	220	220	220	270	C	C	250	310
21	300	290	290	260	230	220	300	260	250	240	260	250	240	270	250	260	240	210	220	260	[240]^{C}	230	330	330
22	300	320	290	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	250^{A}	300	220	240	250	290
23	340	320	260	250	230	200	340	240	240	280	[270]^{M}	260	260	270	250	250	240	210	210	240	250^{H}	280	260	310
24	280	270	290	350	280	200	300	250	240	250	260	260	270	260	240	250^{A}	230	210	260	250	250	250	300	350
25	350	300	290	260	250	210	300	240	240	250	260	280	260	250	250	250	240	210	240	260	240	290	260	380
26	(360)^{A}	310	270	250	220	200^{H}	300	210	220	250	260	280	320	260	250	240	240^{A}	250^{A}	(240)^{A}	[270]^{A}	300	270	320^{F}	340^{F}
27	340^{F}	300	250^{F}	210	240	200	300	230	230	260	250	260	260	260	270	250	240	240	240^{A}	220^{A}	250	350	300	340
28	310	290	260	[260]^{C}	260	210	200	220	240	260	290	280	290	250	260	240	240	220	240^{H}	220	220	300	260	300^{H}
29	300^{F}	250	220	250	230	240	270	240	240	250	260	270	270	280	270	240	230	220	220	250	250	240	260^{F}	300^{F}
30	290	300	300	310	240	A	A	260	240	240	240	290	270	260	260	270^{A}	250	230	210	230	(220)^{A}	330^{F}	300^{F}	340^{F}
31																								
Mean Value	310	290	280	260	250	240	280	240	240	250	270	260	270	270	260	250	240	220	230	250	260	270	280	310
Median Value	300	300	280	250	240	230	290	240	240	250	260	260	260	270	260	250	240	220	220	250	250	260	260	300
Count	30	30	29	28	28	27	26	28	29	28	28	28	28	28	28	28	28	29	30	30	29	29	30	30

h'F2

Sweep 1.0 Mc to 22.0 Mc in 1 min ☐ Manual ☒ Automatic

Y 2

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

IONOSPHERIC DATA

Nov. 1954 | fEs | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' 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	2.3	2.3	E	2.3	2.3	2.3	2.3	2.3	3.5	3.6	3.5	G	G	G	G	G	3.3	2.8Y	2.4Fs	2.4	2.3	3.1	3.1	2.8
2	2.4	2.3	2.3	2.3	2.4	2.3	M	M	3.5	4.5	4.2	4.8	5.0	4.8Y	5.8Y	6.0	7.0	3.0	3.2Y	2.4	2.4	2.3	C	3.6
3	3.0	3.4	3.2	3.0	2.3	2.4F	2.3F	G	G	3.1	G	5.8	6.7	4.2	5.2	G	3.8	3.0	3.0	3.1F	6.5	3.8	3.2	3.2
4	2.3	3.3	2.1	2.3	2.3F	2.3F	2.3	2.3	G	3.5	4.7Y	4.8Y	6.4	6.2	5.7	4.2	5.9	4.6	2.9	3.0	2.9	2.3	2.4	2.4
5	2.3	2.3	2.4	2.4F	2.3	2.3	2.3	2.3	3.4	3.5	6.0	8.8	3.8	4.8	4.2	5.3	5.1	6.1	5.9	3.1	3.1	3.1	3.0	2.3
6	2.4	2.3	2.2	2.4	2.4	2.3F	3.0	2.4F	G	3.4	G	G	G	G	G	3.7	3.2	2.3	2.3	2.1	E	2.1	2.3	E
7	3.0	3.5	3.4	2.9	2.4	2.3	2.3	2.3	3.0	G	8.6Y	G	7.8	5.0	3.7	3.6	3.3	2.3	2.2	2.4	2.3	2.3	2.7	3.0
8	2.4	3.0Y	4.8F	3.4	3.0F	2.3F	2.4	2.3	3.2	3.6	4.2Y	G	G	4.7	G	G	G	B	E	E	E	E	E	2.3
9	2.3	5.1	2.4	2.2	2.3	2.3	E	2.3	G	3.4	G	6.1Y	G	G	G	G	G	B	E	2.2	E	E	3.3	2.1F
10	2.0	2.2	2.3F	2.3	2.4	2.1F	2.1	2.3	G	C	C	C	C	C	C	C	C	G	2.7	2.9	E	E	E	2.4
11	E	C	C	C	C	C	C	2.2	G	G	G	G	G	4.7Y	5.4	5.0	4.6	3.6	2.3	2.3	3.1	5.0Y	2.3	2.3
12	2.4	2.9Y	2.3F	2.3	E	2.3	E	2.4	G	4.1	4.7	4.8	5.2	3.7	4.1	3.5	3.2	3.1	3.0	3.1	2.3	2.2	2.2S	2.3
13	2.1	E	2.1	2.2	2.3	2.2	E	2.3	G	G	3.6	G	8.8	5.6	G	3.6	G	B	E	E	E	2.3	2.3	2.3F
14	E	E	E	2.3	2.3	2.3Y	2.3F	2.2	G	G	G	G	G	G	G	3.5	3.0	2.8	3.1	2.4	3.0	3.1	2.9F	2.2F
15	E	2.1	2.3F	2.1	E	E	E	G	G	G	G	G	G	G	G	5.8	3.1Y	2.4	2.3	2.3	3.0Y	2.4	2.4F	3.5
16	5.9	2.3F	4.8Y	3.0Y	2.3	2.7Y	2.9	2.4	G	G	3.8	G	5.6	5.8	4.9Y	5.0Y	5.1	3.5	6.0	2.3	2.2	3.8F	2.9	2.4
17	2.7	2.9	2.4	2.3	2.2	2.3	E	2.1	G	3.6	3.7	5.1	5.0	5.8	5.9	5.8	4.2	3.1F	3.5	3.5	2.3	2.3	E	E
18	E	E	2.3	2.3	2.3	2.1	E	3.2	G	G	G	5.7Y	3.8	3.7	3.8	G	3.2	3.0F	2.3	2.3	2.3	2.3	2.2	2.0Fs
19	2.1	2.3	2.3	2.2	2.1	2.3	2.3Fs	2.3	G	G	3.5	3.6	3.7	3.8	5.7Y	5.0Y	5.9Y	3.0Y	E	2.1	3.6	3.0	2.4F	2.9
20	2.3F	2.3	2.3	2.1	2.1	2.3	E	B	3.1	G	3.7	3.7	4.2	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	3.7	G	5.8	3.8	G	G	G	C	C	C	C	C	C	2.3
22	3.2	2.4	2.4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	3.0	2.3	E	E	E	E
23	2.3	E	2.3	2.2	2.3	2.2	2.3	B	G	G	M	G	G	G	G	G	G	B	E	2.3	E	E	E	1.8
24	E	E	E	E	E	2.3	2.2	2.2	G	G	3.6	3.6	G	5.0	4.9Y	5.8	3.6	G	2.3	E	2.0	2.1	E	2.0
25	2.7	2.2	E	E	E	2.1	2.2	B	G	G	G	3.6	G	3.8	G	G	3.1	2.3	2.3	2.3	2.3	2.3	E	1.9
26	2.8	3.2	2.4	2.2	E	E	2.3	G	G	G	3.6	G	G	G	3.6	3.7	4.3	5.8	3.6	3.1	2.3	2.3	2.2	2.3
27	2.3	2.3	2.2	2.2	E	E	E	2.3	2.3	3.8	4.0	G	5.3	3.8	G	G	5.8S	3.8F	3.1F	3.0	2.3	3.0Y	2.3	2.4
28	E	E	E	C	E	E	2.1	2.3	G	3.3	G	5.8Y	G	3.8	3.5Y	G	G	2.3	2.3	2.1	E	2.4	E	E
29	E	E	E	E	E	2.3	2.7	B	2.9	3.2	G	G	3.5	G	G	G	2.9	B	E	2.4	E	2.1	E	E
30	E	2.3	E	E	2.3	2.9	2.3	2.4	2.9	3.3	3.6	5.7	10.5	6.5	5.7	8.5	G	B	2.4	2.4	2.8Y	E	E	E
31																								
Mean Value	2.6	2.7	2.6	2.4	2.3	2.3	2.4	2.3	3.1	3.6	4.3	5.1	5.7	4.7	4.8	4.9	4.2	3.3	3.0	2.6	2.8	2.7	2.6	2.5
Median Value	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	G	3.1	3.6	G	3.8	3.8	3.6	3.6	3.2	3.0	2.4	2.4	2.3	2.3	2.3	2.3
Count	29	28	28	26	27	27	26	23	28	27	27	28	28	27	27	27	27	21	28	28	28	28	27	29

fEs

Sweep 1.0 Mc to 22.0 Mc in 1 min ☐ Manual ☒ Automatic

Y 3

SOLAR RADIO EMISSION

NOV. 1954

Observing Station: HIRAISO — Frequency: 200 Mc/s

Flux in 10^{-22} w.m.$^{-2}$(c/s)$^{-1}$, 2 Polarizations — Time in U.T.

Daily Data

Date	Steady Flux		Daily Averages
	00-03	03-06	
1	4	4	4
2	3	5	4
3	5	4	5
4	-	6	6
5	6	5	6
6	4	4	4
7	6	-	6
8	4	4	4
9	-	-	-
10	6	5	5
11	6	5	5
12	4	6	5
13	6	6	7
14	6	6	6
15	5	5	5
16	4	4	4
17	6	6	6
18	6	5	5
19	5	-	5
20	4	4	4
21	4	5	4
22	4	3	4
23	4	5	4
24	4	4	4
25	4	4	4
26	5	-	(5)
27	4	5	4
28	4	-	(4)
29	4	(3)	4
30	-	-	

IONOSPHERIC DATA IN JAPAN FOR NOVEMBER 1954

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