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IONOSPHERIC DATA IN JAPAN

FOR MARCH 1957

Vol. 9 No. 3

Issued in May 1957

Prepared by

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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CONTENTS

SYMBOLS AND TERMINOLOGY

In accordance with the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, September 2, 1956, there has been some revision of the procedures for production, reduction and presentation of ionograms and ionosphere characteristics.

A number of modification in the standard scaling symbols and terminology are being made as given in the following list.

Terminology

f_0F2 f_0F1 f_0E	The ordinary-wave critical frequency for the $F2$, $F1$ and E layers respectively.
f_0E_s	The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.
f_bE_s	The lowest frequency at which E_s is effectively transparent, this is usually judged from vertical incidence reflections obtained from a layer at greater height than that do which f_0E_s applies.
f-min	That frequency below which no echoes are observed.
(M 3000) $F2$	The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.
(M 3000) $F1$	The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.
$h'F2$	The minimum virtual height, $h'F2$, refers to the highest stable stratification observed in the F region and can only be scaled when such stratification is present.
$h'F$	The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e.g., at night, and with the current $h'F1$ when $F1$ stratification is present.
$h'E_s$	The lowest virtual height of the trace used to give the f_0E_s and the f_bE_s data.
$hpF2$	The virtual height of the $F2$ layer measured on the ordinary-wave branch at a frequency equal to 0.834 f_0F2.
$ypF2$	The semi-thickness of the $F2$ layer deduced from a parabolic fit to the " nose " of the electron density distribution with height and based on the observed $h'f$ trace. (The difference between $hpF2$ and the virtual height at 0.969 f_0F2)

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

A	Measurement in fluenced by, or impossible because of, the presence of a lower thin layer, for example, E_s.
B	Measurement influenced by, or impossible because of, absorption in the vicinity of f-min.
C	Measurement influenced by, or impossible because of, any non-ionospheric reason.
D	Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. Used in a qualifying sense, see below.
E	Measurement influenced by, or impossible because of, the lower

limit of the normal frequency range. Used in a qualifying sense, see blow.

F Measurement influenced by, or impossible because of, the presence of spread echoes.

G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.

H Measurement influenced by, or impossible because of, the presence of a stratification.

L Measurement influenced by or impossible because the trace has no sufficiently definite cusp between layers.

N Conditions are such that the measurement cannot readily be interpreted, for example, in the presence of oblique echoes.

O Measurement refers to the ordinary component.

R Measurement influenced by, or impossible because of, absorption in the vicinity of a critical frequency.

S Measurement influenced by, or impossible because of, interference or atmospherics.

V Forked trace which may influence the measurement.

W Measurement influenced or impossible because the echo lies outside the height range recorded.

X Measurement refers to the extraodinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Symbols

Used as a preceeding symbol on monthly tabulation sheets.

D *greater than.....*

E *less than.....*

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

U Uncertain or doubtful numerical value.

SITES OF THE RADIO WAVE OBSERVATORIES

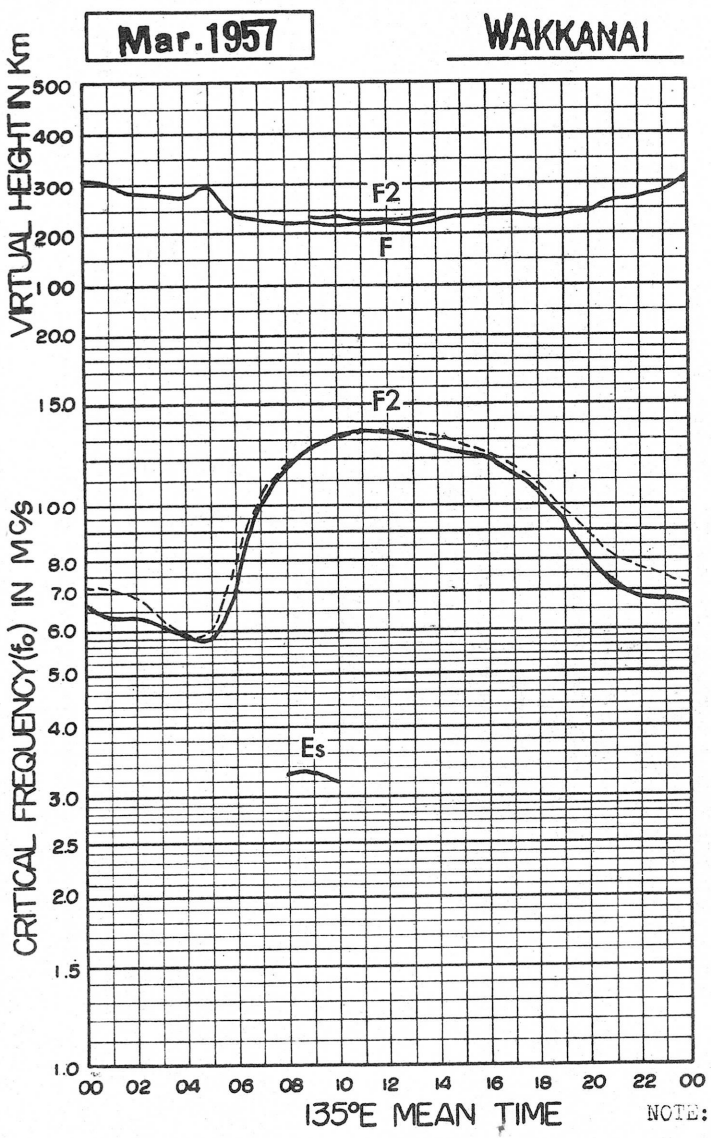
Ionospheric observation is carried out at the following four observatories in Japan.

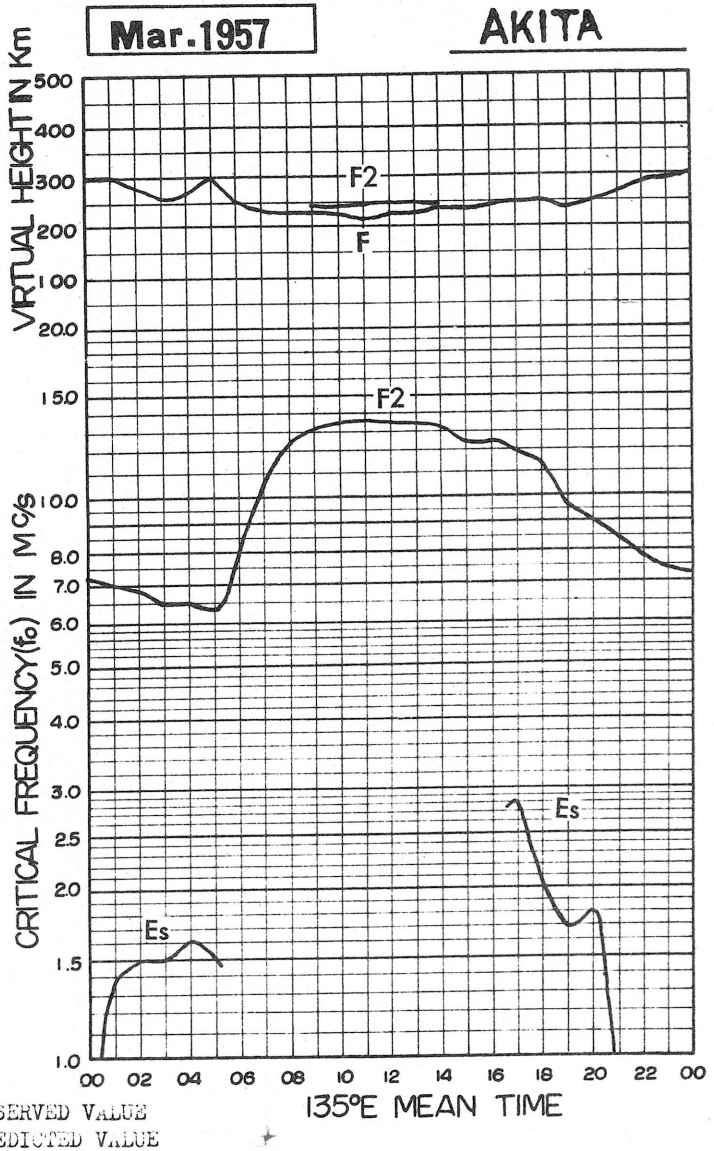
	Latitude	Longitude	Site
Wakkanai	45°23.6′N.	141°41.1′E.	Wakkanai-shi, Hokkaido
Akita	39°43.5′N.	140°03.2′E.	Tegata Nishishin-machi, Akita-shi, Akita-ken
Kokubunji	35°42.4′N.	139°29.3′E.	Koganei-machi, Kitatama-gun, Tokyo-to
Yamagawa	31°12.5′N.	130°37.7′E.	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

Solar radio emission is observed at Hiraiso Radio Wave Observatory.

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

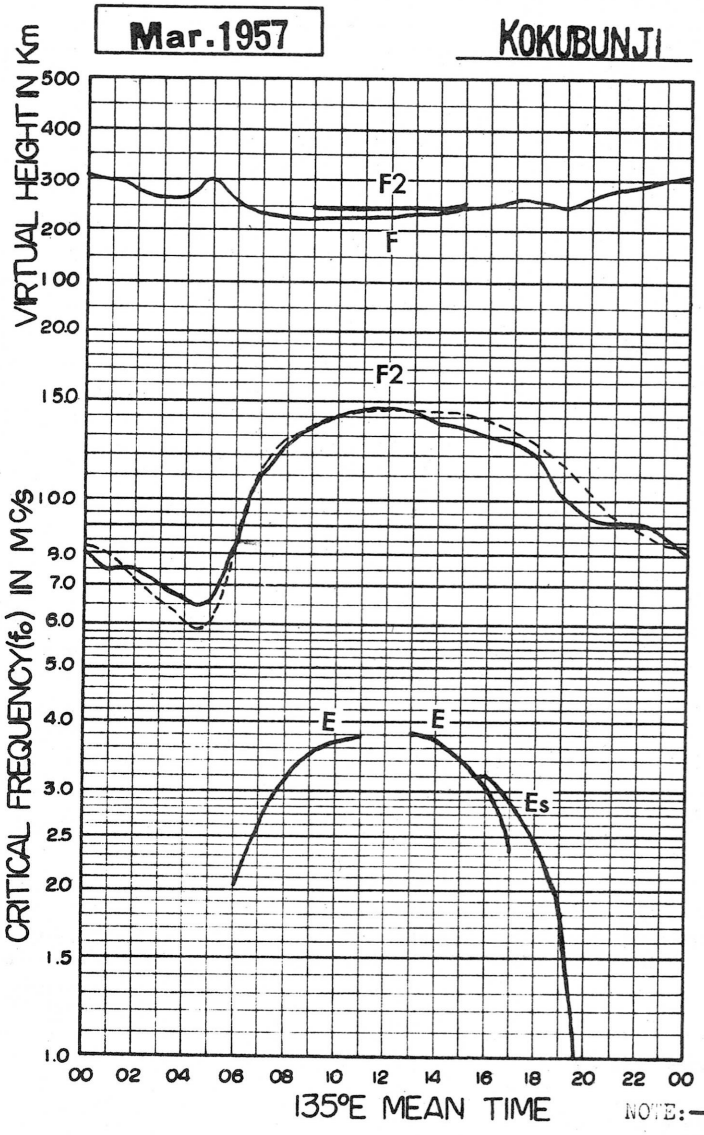
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

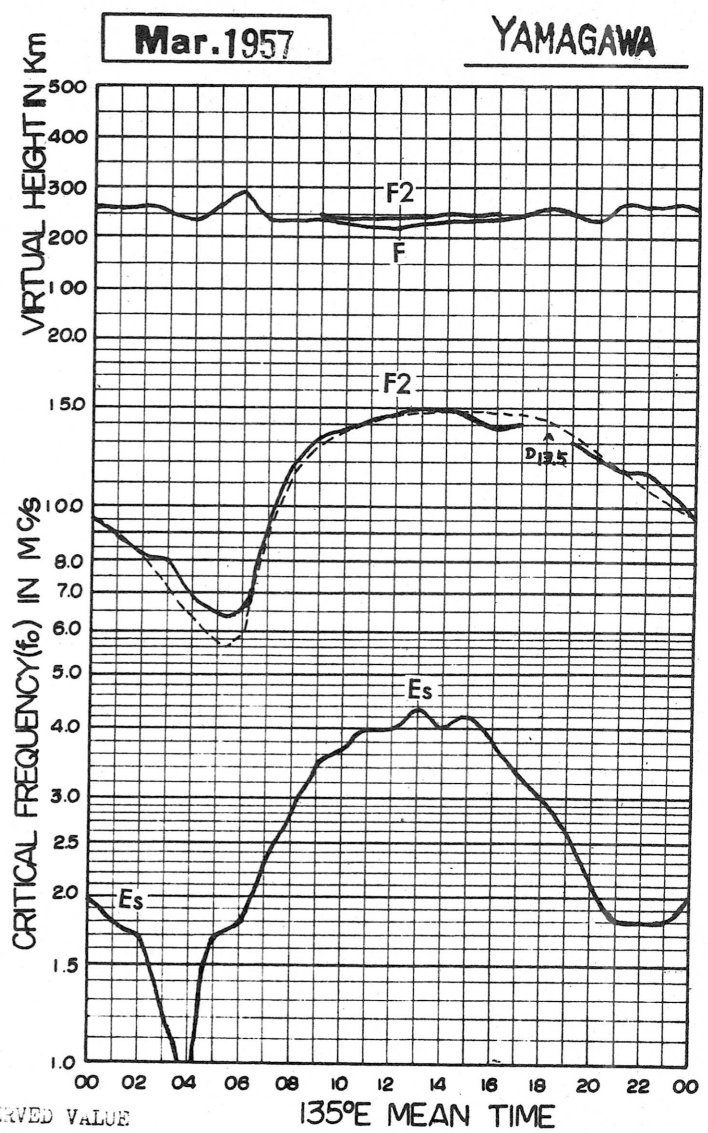




NOTE: —— OBSERVED VALUE
---- PREDICTED VALUE

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





NOTE: —— OBSERVED VALUE
---- PREDICTED VALUE

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Mar. 1957

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	5.7	5.3	5.3	5.0	$u_{4.9}^{S}$	5.0	6.5	10.3	11.0	11.3^{H}	12.7	12.8	12.8	12.7^{H}	12.5	12.1	12.0	12.0	10.0	$u_{8.3}^{S}$	$u_{7.3}^{S}$	6.5	6.2	6.2
2	5.8	5.8	5.7	4.7	5.1	$u_{5.1}^{S}$	6.2	10.0^{H}	12.0	12.7	12.8^{H}	13.0	13.5	13.8	12.8	12.7	12.2	10.2	11.6	10.8	$u_{7.4}^{S}$	6.5	6.5	7.0
3	7.0	6.9	6.8	9.0	8.9	7.4	9.0	11.1^{J}	11.7	12.5	12.1	12.7	13.0^{J}	12.8	12.3	12.7	12.2	11.6	10.5	9.1	$u_{7.9}^{S}$	6.7	6.0	5.3
4	5.1	4.7	FS	F	3.5^{F}	3.8^{J}	$u_{5.0}^{S}$	8.2	10.9	11.9	12.8	14.3^{H}	14.7	13.1^{J}	12.8	12.5	12.2	11.3	10.0	8.2^{J}	6.8	6.5	6.4	6.2
5	6.0	6.0^{VH}	6.1	5.5	5.3^{JF}	5.3^{J}	6.9	9.7	11.3	12.5	13.0^{H}	13.5^{J}	13.0	12.1	12.0^{H}	11.7	12.1	11.0	10.2	8.8	6.9	6.7	6.5	6.5
6	6.6	6.0	6.3	5.4	5.3	$u_{5.3}^{S}$	6.5	9.5	11.4	12.0	13.0^{J}	13.3^{J}	14.1^{J}	12.8	12.7	12.2	11.5	10.7	10.1	9.3	$I_{7.9}^{S}$	6.5	5.8	6.0
7	5.5	5.4	5.2^{J}	5.4	5.3	5.1	7.0	10.0	11.0	12.3^{H}	13.8^{H}	13.3	13.5	12.5	12.2	12.1	11.6	11.4	9.7	$I_{8.6}^{S}$	7.4	$u_{7.0}^{S}$	6.8	7.0
8	6.3	6.1^{VF}	5.8^{VF}	6.2^{F}	6.0^{F}	5.5	6.6	9.3	11.0	13.0	13.9^{H}	13.8	13.3	13.3	12.8	12.5	11.8	11.5	$u_{10.3}^{S}$	S	S	6.8	6.3	5.8
9	6.0	6.3	6.6	5.5	4.8	4.8	6.5	10.2	12.6	14.0	13.8	13.5	13.0	13.4^{H}	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	11.5^{H}	11.4^{H}	11.3	11.6^{H}	10.7	10.7	11.0	10.0	8.7	$u_{6.9}^{S}$	7.0	7.0	6.5
11	C	C	C	C	C	C	C	C	C	C	C	C	13.0^{H}	12.6^{H}	12.5^{H}	12.3	12.2	11.5	10.4	$u_{9.5}^{S}$	$u_{8.5}^{JS}$	$u_{7.2}^{S}$	7.0	6.9
12	6.2	6.3	6.1	5.9	5.7	5.3	6.9	9.8	11.6	12.5	13.5	13.3	13.3	13.0	12.5	12.4^{H}	12.5	11.9	10.8	10.0	10.0	$I_{8.6}^{S}$	7.2	6.4
13	6.8	6.9	$u_{7.0}^{S}$	6.5^{F}	6.4^{F}	6.2^{F}	$u_{8.0}^{S}$	11.3	12.8	13.3	13.5	13.8	13.3	13.3	12.3^{H}	12.2	11.7	11.0	10.3	9.0	$u_{7.5}^{S}$	$u_{7.5}^{S}$	7.2	7.0
14	6.0	6.1	5.8	5.5	5.3	5.8	$u_{7.3}^{S}$	11.0	12.0	12.6	12.8	13.5^{H}	13.8	13.3	12.3^{H}	12.1^{H}	11.8	11.8	10.5	9.5	S	S	SF	SF
15	6.7	6.4	6.3	6.2	6.0	6.0	8.3	11.0	13.0	13.3	13.5	13.7	13.2^{H}	13.0^{H}	12.5^{H}	12.1^{H}	11.8	11.8	10.5	9.5	9.0	S	S	$u_{7.3}^{S}$
16	S	7.7	7.0	*7.1	6.8	6.6	7.8	10.4	12.4	13.4	13.5	13.7^{H}	14.0^{H}	13.5	13.0^{H}	12.8^{H}	12.3	11.0	10.8	9.6	$u_{8.5}^{S}$	S	S	S
17	6.7	6.8	6.9	6.5	6.2^{F}	5.7	6.7	9.6	12.0	12.8	13.0^{H}	13.5^{H}	13.3^{H}	13.0	13.0	12.7	12.2	11.7	10.6	$u_{9.3}^{S}$	$u_{8.5}^{S}$	S	S	S
18	7.0	7.2	7.0^{F}	6.2^{F}	6.6	6.5	8.8	11.4	13.2	14.2	13.5	13.5^{H}	13.3	13.3^{H}	13.0	12.5^{H}	12.1^{H}	12.3	11.3	$u_{9.7}^{S}$	$u_{7.8}^{S}$	7.8^{J}	7.0	6.8
19	7.2	8.0	6.7	6.0	5.8	5.7	8.0	10.8	12.8	13.5	13.5	13.5	13.2^{H}	13.0^{H}	12.7^{H}	12.2^{H}	12.2	12.0	10.5	9.5	S	S	$u_{7.0}^{S}$	7.2
20	7.3	7.3	7.0	6.1	6.0	6.0	7.2	8.3^{H}	9.7	12.1	13.2	13.3	13.0^{H}	13.3^{H}	13.0	12.0	12.0	11.9	11.5	$u_{10.2}^{S}$	9.7	$I_{8.5}^{S}$	$u_{7.3}^{S}$	7.2
21	$u_{7.3}^{S}$	7.3	6.5	6.1	6.3	6.5	8.7	10.8	12.3	13.1	13.8	13.5	13.3^{H}	13.2	13.0	12.5^{H}	12.3	12.2	11.2	9.3	9.0	7.3	S	S
22	6.7	7.0	6.0	5.5	5.5	5.7	7.3	10.7	11.8	12.5	13.5^{H}	13.0	13.1^{H}	13.3^{H}	13.0^{H}	12.6^{H}	12.1	12.0	11.2	9.3	8.3	7.5	6.8	6.8
23	6.6	6.5	6.7	6.2	6.0	6.1	8.1	9.4	11.3	12.5	13.3	13.5	13.4	13.0^{H}	12.8	12.7	12.3	12.0	11.5	9.3	$u_{8.6}^{S}$	S	S	7.2
24	$u_{7.3}^{JS}$	$u_{7.3}^{JS}$	6.8	6.5^{F}	6.5^{F}	6.8	9.3	11.7	C	C	C	C	C	C	C	C	11.8	11.5	10.7	$I_{9.6}^{S}$	$u_{8.4}^{S}$	S	S	S
25	S	$u_{7.3}^{S}$	$u_{7.3}^{JS}$	6.8^{V}	6.5	6.5	9.0	10.6	12.1	13.5	13.5	13.0^{H}	13.2^{H}	12.8	12.7^{H}	12.7^{H}	12.4	12.2	11.6	8.0	8.0^{J}	$I_{8.0}^{S}$	8.1	8.2^{J}
26	7.3	7.3	7.8	6.8	6.6	7.3^{J}	10.3	11.5	11.8^{H}	12.0^{H}	12.7	13.0	13.0	13.0	12.6	12.1	11.5	11.5	11.0	9.3	8.0	$u_{7.5}^{S}$	6.4	6.0
27	5.8	5.8	5.8	5.5	5.4	5.5	7.8	9.5	10.1	11.5	12.3	12.7	13.0^{H}	12.8^{H}	12.3	11.7	11.6	11.5	C	C	C	C	C	C
28	C	6.3	6.4	6.5	5.9	5.8	6.7	7.2	8.2^{H}	8.1^{H}	8.9^{H}	8.5^{H}	9.6^{H}	10.0^{H}	10.3^{H}	8.8	8.5^{H}	9.5	10.0	9.0	7.0	6.0	5.8	5.4
29	5.8	5.1	4.8	$u_{4.8}^{S}$	$u_{4.8}^{S}$	6.0	7.9	10.1	12.5	13.0	13.2	13.3^{H}	13.0	13.0^{H}	13.0	12.0	11.1	11.8	11.3	10.1	9.4	9.1	7.8	7.8
30	6.6	5.9	$u_{5.5}^{JS}$	5.3	5.3^{J}	5.5	7.3^{J}	9.1	10.0	11.0^{H}	12.6	11.7^{H}	12.7	11.7^{H}	12.0	11.0	10.3	10.1	10.3	9.3	9.2	8.8	S	S
31	8.0	$u_{7.5}^{S}$	7.5	6.7	7.0	7.3	9.5	11.6	13.2	13.3	13.5	13.5	13.5^{H}	13.0^{H}	13.0^{H}	12.3	12.0^{H}	11.8	11.3	10.2	$u_{9.0}^{S}$	9.0	8.0	7.5
Mean Value	6.4	6.5	6.4	6.1	5.9	5.9	7.6	10.1	11.6	12.5	13.0	13.1	13.1	12.8	12.5	12.1	11.8	11.4	10.7	9.3	8.2	7.4	6.8	6.7
Median Value	6.6	6.4	6.4	6.1	5.9	5.8	7.3	10.2	11.8	12.6	13.2	13.3	13.2	13.0	12.7	12.2	12.0	11.5	10.6	9.3	8.0	7.2	6.8	6.8
Count	26	29	28	28	29	29	29	29	28	28	28	29	29	29	28	28	29	29	28	27	25	22	21	23

foF2

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

W. 1

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

IONOSPHERIC DATA

Mar. 1957 | foEs | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

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	E	E	E	E	E	E	E	2.3	G	G	G	G	G	G	G	3.3	G	2.3	2.5^{J}	E	E	S	S	S
2	2.2	E	E	1.9^{Y}	E	E	E	2.8^{J}	4.1^{YJ}	3.0	3.2	3.2	3.3	3.3	G	G	G	G	E	E	E	E	E	E
3	E	E	E	E	2.8^{J}	1.6^{J}	E	2.3	3.3	4.2	5.1^{J}	6.3^{J}	G	G	G	2.8^{J}	G	2.3^{J}	1.8^{J}	E	2.0^{J}	1.6^{J}	1.8^{J}	E
4	E	E	E	E	E	E	E	3.0	4.0^{YJ}	5.3^{YJ}	G	G	G	G	3.5	3.5	5.3^{J}	u2.8^{SJ}	E	E	E	E	S	E
5	1.8^{J}	1.5	E	1.6^{J}	1.8^{JF}	2.1	2.3	2.5^{J}	5.0^{J}	G	3.2	3.2	3.5^{J}	3.4	3.3	2.8^{J}	2.7^{J}	G	2.2^{J}	2.2	2.5	E	E	E
6	E	E	E	E	E	E	E	G	3.4	3.3	G	5.8^{J}	3.1	3.4^{J}	G	G	2.9	2.8^{J}	3.3^{J}	4.0^{J}	E	S	2.3^{J}	E
7	2.2	E	E	2.1	2.3^{J}	2.4^{J}	E	G	3.1	G	G	3.4	3.4	G	G	G	G	2.1	2.2	2.2	2.2	E	u3.5^{JS}	2.5
8	E	E	E	E	1.7^{J}	2.1	E	2.2	3.3^{J}	5.5^{J}	G	G	3.2	G	2.3	G	G	2.3	E	E	E	E	E	1.8^{J}
9	E	E	E	u1.7^{SJ}	E	E	E	G	3.1	3.3	3.1	G	G	3.3	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	3.3	2.9	2.5	S	E	E	E	E	E
12	1.8^{J}	1.7^{J}	E	E	E	1.7^{J}	E	G	G	3.4	G	2.3	G	G	G	G	G	G	E	E	E	E	E	E
13	E	2.3	1.5^{J}	2.3^{J}	E	E	E	G	3.2	3.4	3.3	3.5	G	G	G	2.4	2.3	G	E	E	2.0	2.1	E	E
14	E	E	E	2.0	E	E	S	G	3.0	3.3	G	G	G	G	3.3	G	G	G	E	E	E	E	E	E
15	E	E	E	E	E	E	u2.3^{S}	G	3.1	3.4	G	G	G	G	2.2	G	2.2	G	E	E	E	E	E	E
16	E	E	E	E	E	E	2.4	G	3.1	G	3.3	G	G	G	G	G	G	G	E	E	E	E	E	E
17	2.4	2.3	2.0^{J}	1.7^{J}	1.7^{J}	1.8^{J}	G	2.3	G	G	G	G	G	G	G	G	2.9	2.3	E	E	E	E	E	E
18	E	E	E	E	E	E	G	G	G	3.3	4.0	G	3.5^{J}	2.5	2.4	G	G	G	E	E	E	E	E	E
19	E	E	E	E	E	E	G	G	2.3	2.3	2.3	G	G	G	G	G	G	G	E	E	2.3	2.3^{J}	E	E
20	E	1.8^{J}	1.7^{JF}	2.3^{JF}	1.7^{JF}	E	G	2.7	3.5	G	G	G	3.0	B	2.3	2.3	G	G	E	E	E	E	E	E
21	E	E	E	E	2.1^{Y}	E	G	G	3.3^{F}	3.4	3.9	4.3	G	4.1	5.3^{J}	2.9	2.6^{J}	G	E	E	E	E	E	S
22	S	S	E	E	1.1	E	2.4	3.3	3.3	G	4.1	G	G	G	G	3.3	2.3	G	2.3^{J}	u3.5^{SJ}	E	E	E	E
23	E	E	1.8^{J}	1.5^{J}	1.4	E	G	3.2	3.3	3.5	3.6	3.8	G	G	G	G	G	2.5	1.8	E	E	E	E	E
24	E	E	E	E	E	E	G	G	C	C	C	C	C	C	C	C	G	G	E	E	E	E	E	E
25	E	E	E	E	E	E	2.9	2.3	2.3	2.8	G	G	G	G	3.5	G	2.7	G	E	E	E	E	E	E
26	E	E	E	E	E	E	G	G	3.3	4.0	5.3^{J}	5.3^{J}	4.1	4.6^{J}	G	2.6	1.9	2.5	E	2.3^{J}	E	2.5^{J}	2.1^{J}	E
27	S	S	E	2.1	S	S	G	G	3.3	4.0	5.0^{J}	8.3^{YJ}	5.3^{YJ}	G	G	G	2.5	G	C	C	C	C	C	C
28	C	E	E	E	E	2.2	G	2.9	3.3	G	5.3^{J}	G	G	5.3^{J}	3.3	G	2.8	2.4	E	E	2.3	E	2.0	1.8^{J}
29	2.8^{J}	2.3	E	2.1	1.1	E	2.2	2.6	3.3	G	3.6	3.4	G	G	2.3	G	2.3	E	E	E	E	E	E	E
30	E	E	E	E	E	G	G	3.1	3.5	3.7	G	G	G	G	G	2.1	G	1.9	1.7^{J}	2.3	S	S	S	E
31	E	E	2.5^{J}	2.3^{F}	2.3^{F}	G	2.4	G	3.5	3.8	4.0^{Y}	4.0^{Y}	3.9	3.5	G	2.3	G	2.4	E	E	E	E	E	E
Mean Value	1.8	2.0	1.9	2.1	1.7	2.1	2.8	2.7	3.3	3.6	3.9	4.4	3.6	3.7	3.1	3.1	2.9	2.4	2.5	2.8	2.7	2.8	2.9	2.0
Median Value	E	E	E	E	E	E	G	G	3.3	3.3	3.2	G	G	G	G	G	G	G	E	E	E	E	E	E
Count	26	27	29	29	28	28	28	29	28	28	28	29	29	28	28	28	29	29	27	28	27	25	25	26

foEs

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

W 2

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

IONOSPHERIC DATA

Mar. 1957 | (M3000)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	2.75	2.60	2.70	2.60	U2.70S	2.75	3.10	3.45	3.45	3.05H	3.15	3.10	3.00	2.90H	2.90	2.80	2.85	3.05	3.00	U2.95S	U3.10S	2.75	2.70	2.65
2	2.50	2.45	2.60	2.40	2.35	U2.35S	2.70	2.80H	3.00	3.05	3.00H	3.05	3.05	3.00	2.75	2.75	2.60	2.60	2.60	2.75	U2.75S	2.45	2.40	2.50
3	2.60	2.70	2.50	2.75	2.75	2.40	2.65	3.05J	3.15	3.25	3.05	3.00	3.05J	3.00	3.10	3.05	2.95	3.00	3.00	3.00	U2.90S	3.05	2.65	2.45
4	2.35	2.35	FS	F	2.70F	2.60J	U2.90S	3.20	2.90	2.90	3.10	3.10H	3.10	2.95J	3.00	2.95	2.95	2.95	2.95	2.90J	2.75	2.60	2.60	2.70
5	2.50	2.55FH	2.80	2.80	2.60JF	2.70J	3.05	3.25	3.25	3.05	3.20H	3.05J	3.00	2.85	2.80H	2.80	2.95	2.90	2.85	2.85	2.90	2.85	2.60	2.60
6	2.70	2.55	3.00	2.50	2.55	U2.80S	2.85	3.25	3.05	2.80	3.05J	3.05J	3.00J	3.00	2.95	2.90	2.95	2.90	2.85	2.85	I2.80S	2.80	2.55	2.50
7	2.50	2.50	2.35J	2.40	2.65	2.55	2.90	3.25	3.15	3.10H	3.00H	3.00	2.95	2.85	2.85	2.85	2.85	3.15	2.95	I2.90S	2.80	U2.70S	2.70	2.60
8	2.40	2.40VF	2.40VF	2.40F	2.65F	2.55	3.05	3.15	3.05	3.00	2.90H	2.95	2.85	2.85	2.95	2.90	2.85	2.85	U2.95S	S	S	2.90	2.85	2.50
9	2.35	2.55	2.90	2.90	2.70	2.65	3.00	3.10	3.00	3.05	3.10	3.00	3.00	3.00H	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	2.85H	2.85H	2.80	2.75H	2.80	2.80	3.00	2.90	2.70	U3.00S	2.85	2.80	2.50
12	2.50	2.50	2.55	2.60	2.55	2.60	3.00	3.05	3.00	3.00	2.85	2.90	2.80H	2.75H	2.75H	2.75	2.80	2.85	2.75	U2.90S	U2.80JS	U2.90S	2.85	2.60
13	2.60	2.60	U2.60S	2.55F	2.50F	2.65F	U3.00S	3.05	3.00	3.05	2.90	2.85	2.75	2.85	2.70	2.65H	2.75	2.85	2.85	2.80	2.90	I2.80S	2.75	2.45
14	2.45	2.40	2.45	2.35	2.40	2.45	U3.00S	3.10	2.95	3.00	2.95	2.85H	2.80	2.75	2.70H	2.75	2.75	2.75	2.80	2.75	U2.85S	U2.75S	2.75	2.70
15	2.65	2.60	2.55	2.60	2.60	2.50	3.05	3.05	3.05	3.05	2.90	2.80	2.70H	2.65H	2.70H	2.50H	2.70	2.80	2.80	2.70	S	S	SF	FS
16	S	2.55	2.60	2.60	2.45	2.40	2.65	3.05	2.90	2.90	2.95	2.80H	2.75H	2.90	3.00H	2.75H	2.70	2.80	2.75	2.70	2.70	S	S	U2.50S
17	2.40	2.40	2.40	2.45	2.35F	2.50	2.90	3.10	3.00	3.05	2.75H	2.80H	2.75H	2.75	2.75	2.70	2.75	2.80	2.75	U2.80S	U2.70S	S	S	S
18	2.45	2.50	2.60F	2.35F	2.45	2.40	3.00	3.00	3.00	2.95	2.95	2.95H	2.85	2.85H	2.90	2.75H	2.70H	2.80	2.90	2.65	U2.70S	2.60J	2.60	2.35
19	2.45	2.70	3.05	2.50	2.30	2.45	3.05	3.00	3.05	3.00	3.00	2.90	2.85H	2.90H	2.80H	2.75H	2.70	2.85	2.90	2.80	S	S	U2.85S	2.70
20	2.60	2.70	2.75	2.45	2.40	2.45	3.10	3.00H	2.90	2.95	2.95	2.90	2.80H	2.80H	2.75	2.80	2.75	2.85	2.80	U2.80S	2.55	I2.65S	U2.75S	2.60
21	U2.70S	2.70	2.55	2.45	2.50	2.80	3.05	3.10	3.00	2.95	2.80	2.80	2.90H	2.80	2.75	2.70H	2.75	2.80	2.85	2.75	2.70	2.85	S	S
22	2.45	2.40	2.35	2.25	2.25	2.20	2.80	2.95	3.10	2.75	2.85H	2.90	2.80H	2.75H	2.90H	2.70H	2.70	2.80	2.60	2.75	2.70	2.60	2.50	2.50
23	2.85	2.40	2.45	2.55	2.40	2.45	2.95	3.05	3.00	2.90	2.90	2.85	2.80	2.95H	2.85	2.90	2.80	2.80	2.95	2.65	U2.75S	S	S	2.60
24	U2.60JS	U2.80JS	2.75	2.45F	2.45F	2.65	2.90	3.05	C	C	C	C	C	C	C	C	2.75	2.85	2.85	I2.80S	U2.80S	S	S	S
25	S	U2.70S	U2.65JS	2.75V	2.60	2.75	3.05	3.05	2.95	2.95	3.00	2.80H	2.80H	2.65	2.60	2.60H	2.65	2.80	2.80	2.55	2.55J	I2.50S	2.40	2.65J
26	2.65	2.65	2.75	2.60	2.60	2.65J	2.95	3.00	2.60H	2.75H	2.85	2.90	2.90	3.00	2.75	2.80	2.80	2.95	3.00	2.95	2.85	U2.65S	2.50	2.45
27	2.40	2.35	2.40	2.50	2.40	2.50	2.95	3.15	2.95	2.85	3.10	3.05	3.00H	2.80H	2.80	2.80	2.75	2.90	C	C	C	C	C	C
28	C	2.45	2.30	2.60	2.50	2.40	2.85	2.95	2.90H	2.80H	2.95H	2.55H	2.55H	2.70H	2.75H	2.70	2.55H	2.60	2.65	2.70	2.80	2.35	2.55	2.35
29	2.20	2.30	2.35	U2.60S	U2.45S	2.70	3.10	2.90	2.90	2.95	3.10	2.80H	2.65	2.75H	2.75	2.65	2.65	2.70	2.80	2.75	2.75	2.65	2.55	2.50
30	2.30	2.05	U2.10S	2.15	2.30J	2.35	3.15J	2.85	3.10	2.65H	2.80	2.60H	2.70	2.55H	2.70	2.65	2.70	2.75	2.75	2.70	2.65	2.65	S	S
31	2.60	U2.65S	2.50	2.50	2.50	2.70	2.90	2.90	2.90	2.95	2.90	2.80	2.70H	2.70H	2.70H	2.65	2.65H	2.75	2.80	2.80	U2.75S	2.60	2.75	2.55
Mean Value	2.50	2.50	2.55	2.50	2.50	2.50	2.95	3.05	3.00	2.95	2.95	2.85	2.85	2.80	2.80	2.75	2.75	2.80	2.80	2.75	2.75	2.70	2.65	2.50
Median Value	2.50	2.55	2.55	2.50	2.50	2.55	3.00	3.05	3.00	2.95	2.95	2.90	2.85	2.85	2.75	2.75	2.75	2.85	2.85	2.80	2.75	2.70	2.65	2.50
Count	26	29	28	28	29	29	29	29	28	28	28	29	29	29	28	28	29	29	28	27	25	22	21	23

(M3000)F2 | Sweep 1.0 Mc to 32.0 Mc in 1 min | ☐ Manual ☒ Automatic

W 3

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

IONOSPHERIC DATA

Mar 1957 | R'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															245									
2																								
3													240	235	235									
4										210	U 230 L	235 LH		225										
5												235												
6											225	235												
7												270				235								
8											230 H		230	235										
9														U 230 LH	C	C	C	C						
10								C	C	C	C	C	C	C	C	C	C	C						
11								C	C	C	C	240 H	230 H	235										
12											230			230 H										
13											235	230 H	230	240 L										
14																								
15											230	230	U 235 LH											
16												230 H												
17																								
18											235			235 H										
19												230 H	235 H											
20											235 H	230		230 H										
21											230	230	230 H											
22																								
23										230	235	235	230	235 H	240									
24									C	C	C	C	C	C	C	C								
25										235	230		230 H											
26															240									
27								240		240	235	235	230 H	230 H	230	245	240							
28								255	250 H	240 H	245 H	260	245 H	235 H	240 H									
29											240	225 H	230 H	235 H	240	235								
30										225 H	240	230 H	240	235 H	240									
31											235	230	215 H	230 H	235 H									
Mean Value								245	250	230	235	235	230	235	240	235	240							
Median Value								250	250	230	235	230	230	235	240	235	240							
Count								2	1	6	16	17	14	15	9	3	1							

R'F2 | Sweep 1.0 Mc to 22.0 Mc in 1 min | ☐ Manual ☒ Automatic | W 4

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

IONOSPHERIC DATA

Mar. 1957 | h'F | 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	260	280	265	275	270	275	235	220	220	205H	230	225	235	230	230	235	240	240	220	V235S	V245S	V245S	270	295
2	V300S	310	280	325	350	340	275	225	E220A	225	220H	225H	235	230	230	240	250	245	230	215	210	310	350	350
3	330	320	260	280	V250A	295	270	265	220	235	230	215H	220	220	225	230	225	225	225	220	230	230	265	330
4	360	350	300	290F	275	325F	230	235	220	215	200	200	230	220	225	225	235	220	220	235	245	280	V280S	280
5	290	280	250	250	260	280	235	230	225	215	235H	210	230	230	225H	235	240	225	235	230	290	260	280	295
6	280	275	275	305	335	320	235	230	225	220	220	220	235	220	230	235	240	230	245	270	230	210	270	320
7	335	340	325	320	275	255	250	220	215	210H	215H	210	235	230	235	220	235	230	220	235	250	270	V310S	275
8	300	310	325	305	245	235	240	220	225	225	220	235	215	220	230	230	240	240	220	235	230	235	260	325
9	340	315	250	220	260	225	245	230	220	225	225	225	240	220	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	B	225	I230B	235H	235H	240	250	230	245	250	265	260	270
12	300	300	290	270	255	260	240	230	225	225	215	230	220H	210	230H	230H	240	235	230	250	250	240	255	280
13	290	290	270	275	255	260	240	230	230	225	215	210	205	210	230	230H	250	240	230	250	245	235	245	265
14	340	325	320	340	345	325	245	230	220	230	225	225H	235	230	230H	240	235	240	235	245	240	265	265	265
15	275	280	275	260	260	270	240	225	230	225	220	I220B	220	215H	235H	225H	235	250	230	250	250	265	260	275
16	280	285	270	275	295	330	260	230	220	220	220	215	230H	235	225H	230H	235	245	245	240	260	250	260	280
17	350	330	330	300	285	305	240	225	235	230	225H	235H	225H	220H	240	235	245	235	230	250	245	280	270	270
18	315	300	260	310	295	270	235	225	225	225	220	230H	225	215	230	230H	235H	245	235	230	235	270	V290S	360
19	335	290	215	260	275	300	240	230	230	220	235	235	215	220	235H	230H	250	245	230	250	250	270	280	275
20	270	280	260	275	310	300	255	240H	240	220	220	220	220H	220	230	240	240	250	240	225	240	260	240	280
21	290	270	260	275	280	250	230	230	230	225	220	I220A	220	245	240	235H	245	240	235	240	245	250	280	270
22	330	335	345	380	375	380	230	245	230	225	225H	240	240H	225H	230H	240H	250	240	235	225	250	260	300	320
23	340	340	320	280	310	320	250	230	220	215	230	230	230	220	225	235	240	250	240	225	250	250	280	300
24	280	270	260	305	300	280	230	225	C	C	C	C	C	C	C	C	240	240	240	240	250	260	265	270
25	265	280	280	260	260	265	230	220	220	220	220	225H	220	245	240H	245H	250	240	230	240	300	340	325	275
26	265	250	260	250	275	300	240	225	230	225H	240	230	225	235	220	235	240	240	240	235	225	260	275	360
27	350	350	315	310	300	295	230	220	235	210	A	A	A	A	A	230	235	245	C	C	C	C	C	C
28	C	310	280	300	255	330	260	250	240	235	225	225	225	I225A	225	245	255H	275	275	240	230	270	300	335
29	320	335	340	290	270	270	240	235	230	225	220	215	I220B	220	230	230	240	260	230	250	265	265	265	315
30	375	430	400	370	360	345	240	225	230	215	B	B	B	B	B	230H	230	240	260	345	265	260	270	280
31	310	295	280	275	280	280	230	240	230	230	B	B	B	220	220	235H	240H	250	250	240	230	270	260	300
Mean Value	310	305	290	290	290	295	240	230	225	220	220	220	225	225	230	235	240	240	235	240	245	260	275	295
Median Value	305	300	280	280	275	295	240	230	225	225	220	225	225	220	230	235	240	240	230	240	245	260	270	280
Count	28	29	29	29	29	29	29	29	28	28	25	25	26	27	26	28	29	29	28	28	28	28	28	28

h'F

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

W 5

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Mar. 1957

type of Es

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								l								h		f.l	f					
2	f			f				f	f	l	l	l	l	c										
3					f	f		c	c	c	f	f				f		f	f		f	f	f	
4								c	c	c					l	h.l	f	f						
5	f	f		f	f	f		f	f		l	l	f	c	c	f	l		f	f	f			
6									c.l	c		l	l	f			h	f	f	f			f	
7	f			f	f	f			h			c	c					c	f	f	f		f	f	
8					f	f		l	f	f			l		l			f						f
9				f					h	l	l			l										
10																								
11																h	c	f						
12	f	f				f				l		l												
13		f	f	f					c	c	c	c				l	l				l	f		
14				f					c	c					h.l									
15							l		h	c					l		l							
16							l		h		c													
17	f	f	f	f	f	f		l									h	c						
18										h	h		c	l	l									
19									l	l	l										f	f		
20		f	f	f	f			h.l	c				l		l	l								
21					f				c.l	l	c	c.l		c.l	f	l	f							
22					f		l	h	h		c					c	l		f	f				
23				f	f			c	c.l	c	c	c						h	h					
24																								
25							l	l	l	c.l					c		c							
26									h	c	c2	c	c	f		l	l	h		f		f	f	
27				f					h	c	c	f	f				l							
28						f		h	h		c			f	h		h	h			f		f	f	
29	f	f		f	f		h	c	h		c	c			l			h						
30								l.h	l.c	l.c						l		l	f	f				
31			f	f	f		h		l.h	c	f	f	c	c		l		c						
Mean Value																								
Median Value																								
Count																								

type of Es

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

W 6

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

IONOSPHERIC DATA

Mar. 1957 | foF2 | 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	6.1	5.6	5.6	5.1	5.0	5.3	6.6	10.0	10.4^{H}	11.5	12.0	13.0^{H}	12.7^{H}	12.6^{H}	12.5^{H}	12.6^{H}	12.1	12.0	11.1	9.1	7.8	7.0	6.5	6.5
2	6.5	6.0	6.1	5.5	5.3	5.5	6.6	10.8	13.5	12.7^{H}	14.0^{JH}	I 14.2^{RH}	14.3^{H}	13.5^{H}	13.5^{H}	13.5^{H}	13.4^{H}	12.0	12.5	11.6	10.1	6.6	6.8	7.2
3	7.3	7.1	6.6	7.5^{H}	7.6	6.2	8.1	11.6	13.5	12.0^{H}	13.5	13.5^{H}	13.5^{H}	13.5^{H}	13.0^{H}	12.8	12.6	12.5	11.5	9.8	8.5	7.2	6.5	6.4
4	6.1	5.9	5.7	5.2	4.0^{H}	4.1^{F}	5.0	8.6	12.6	13.5	13.5	13.7	14.5	14.0	13.6^{H}	13.5	12.6	12.1	10.7	8.8	7.7	7.2	7.3	6.9
5	6.6	6.5	6.5	6.1	5.1	5.1	6.6	10.2	11.7	12.4	13.5	14.0	13.5^{H}	12.6	11.7^{ZH}	12.1^{H}	12.1	12.0	10.9	9.1	7.6	7.5	6.9	7.0
6	7.5	6.6	6.7	6.0	5.6	6.0	7.0	9.5	11.7	12.4	13.4	13.7^{H}	U 14.3^{RH}	13.7	12.9	12.6	11.8	11.5	10.7^{J}	9.2	8.4^{J}	7.0	6.2	6.2
7	6.2	6.2	5.9	6.0	6.0	5.7	6.9	10.8	11.6	12.6	13.4	13.6^{H}	14.2^{H}	13.5	12.7^{H}	12.4	12.2^{H}	11.9	10.7	9.0	U 7.3^{R}	7.2	U 7.3^{R}	U 7.2^{R}
8	6.7	6.5	6.6	6.5	6.6	5.9	6.5	9.7	11.9^{H}	12.8	14.0^{H}	13.8	13.5^{H}	13.5^{H}	13.4^{H}	13.2^{H}	12.4	11.8	11.6	8.9	8.7	7.4	6.8	6.4
9	6.3	6.5	7.0	6.5	4.7	4.5	6.0	9.7	12.4	13.7	13.6^{H}	13.8^{H}	14.0^{H}	13.6^{H}	13.5^{H}	12.7^{H}	12.6^{H}	12.4	11.5	10.0	9.0	9.1	U 7.3^{R}	U 7.0^{R}
10	7.1	7.1	7.2	6.7	6.6	6.5	8.1	11.6	13.6^{H}	14.4	14.4	14.5^{H}	14.2^{H}	14.1^{H}	13.5^{H}	11.9^{VH}	12.3^{VH}	12.3^{B}	11.5	9.6	9.3	7.7^{J}	6.9	6.6
11	6.4	5.2	5.9	5.8	5.2	5.5	I 7.2^{C}	9.0	11.4	12.6	12.6^{H}	12.7^{H}	13.0	12.6^{H}	12.7^{H}	11.6^{H}	I 12.0^{C}	12.4	11.1	C	C	C	7.2	7.2
12	6.9	6.9	6.8	6.7	6.1	5.7	7.1	10.0	12.5	12.6^{H}	13.6	13.5^{H}	I 13.2^{C}	13.0^{H}	12.6^{H}	12.6	12.4^{H}	12.2	11.1	9.6	9.1	8.9	7.6	7.2
13	7.1	7.1	7.1	7.1	6.5	6.5	8.2	10.6	12.2	13.4	13.6	13.6^{H}	13.5^{H}	13.5^{H}	13.2^{H}	12.8^{H}	12.7^{H}	12.6	12.1	10.2	10.2	9.1	7.4	7.1
14	6.7	6.6	6.2	5.9	5.7	6.1	8.1	10.6	12.0	13.0^{H}	13.5^{H}	13.5^{H}	14.0^{H}	13.5^{H}	12.6^{H}	12.6^{H}	12.4^{H}	11.1	9.7	9.0	8.2	8.1	7.9	7.6
15	7.2	6.7	6.7	6.4	6.4	6.2	8.0	11.1	12.1	13.1	13.5^{H}	13.6^{H}	13.5^{H}	12.5^{H}	12.5^{H}	12.1^{H}	11.4^{H}	I 11.0^{R}	10.6	9.3	9.6	9.2	9.1	9.0
16	8.6	I 8.0^{C}	7.3	7.1	7.1	7.1	7.3	11.2	12.7	13.5^{H}	14.2^{H}	14.5^{H}	13.7^{H}	14.2^{H}	14.0^{H}	13.4^{H}	12.5	12.0	11.5	10.5	9.1	9.0	8.4	8.1
17	7.3	C	C	C	C	C	7.0	10.6	12.3	13.3^{H}	13.7^{H}	14.5^{H}	14.5^{H}	13.6^{H}	13.5^{H}	13.5^{H}	12.5^{H}	12.1	10.7	9.5	9.2	8.6	8.6	8.5
18	7.2	7.5	7.9^{J}	6.6	6.8	7.0^{F}	7.0	11.5^{J}	12.7	13.5^{H}	13.6	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	13.5^{H}	13.9	14.5^{H}	13.6^{H}	13.6^{H}	13.4	12.7	12.3	12.0	11.6	10.4	9.3	8.7	8.6	8.0^{J}
20	8.1	8.3	8.2	6.6	6.6	7.0	8.6	11.6	12.6	13.4	U 13.8^{R}	13.7	13.5^{H}	13.6^{H}	13.4	12.6^{H}	12.4	12.5	11.8	10.7	9.1	8.6	8.8	8.1
21	8.0	7.9	7.1	6.9	6.9	7.1	9.1	10.8	11.9	13.2	13.5^{H}	14.5^{H}	14.1	13.5^{H}	12.9^{H}	13.0^{H}	12.7	12.5	11.6	9.5	9.2	8.6	8.6	9.1
22	7.5	7.5	7.1	6.5	6.5	6.6	8.5	11.1	12.8	12.7^{H}	13.4^{H}	13.7^{H}	13.7^{H}	13.6^{H}	13.5^{H}	13.4^{H}	13.0	12.7	11.8	9.8	8.7	8.0	7.8	7.6
23	7.5	7.6	7.7	7.2	6.6	6.6	8.6	11.0	12.5	12.9^{H}	14.0^{H}	14.5^{H}	14.0^{H}	13.8^{H}	13.5^{H}	13.5^{H}	12.7	12.6	11.6	9.6	9.0	9.2	8.6	8.4
24	8.5	8.5	7.8	6.9	6.9	7.2	9.4	11.5	12.5	13.5^{H}	13.6	13.7^{H}	13.5^{H}	13.5^{H}	13.0^{H}	12.5^{H}	11.7	11.6	10.8	9.5	8.2	8.5	8.5	8.6
25	8.3	7.7	7.7	7.5	7.1	7.1	9.0	10.6	12.1	13.5^{H}	13.7	13.5	13.5^{H}	13.6^{H}	13.2	12.6^{H}	12.5	12.6	11.7	8.2	8.2	8.5	8.6	8.6
26	8.0	8.1	8.2	7.5	7.2	7.7	10.6	12.2	13.0	13.3	13.7^{H}	13.6^{H}	13.7^{H}	13.7^{H}	13.2^{H}	13.2	12.7	12.3	11.7	10.5	9.0	8.4	8.1	7.2
27	7.2	7.0	6.9	6.5	6.3	6.3	8.4	10.6	11.5	11.9^{H}	13.4^{H}	13.6	13.5^{H}	13.5^{H}	13.2^{H}	12.0^{H}	12.0	11.9	11.6	9.5	8.2	8.0	7.9	7.9
28	8.0	7.7	6.9	7.5	7.1	6.4	7.9	9.1	10.8	11.8	11.7	I 11.6^{C}	11.5^{H}	12.5^{H}	11.3^{H}	9.9^{H}	8.4	10.5	11.7	9.7	7.5	6.4	6.6	6.0
29	6.0^{F}	5.7^{F}	5.5^{F}	5.6^{F}	5.1	5.5	8.2	10.4	12.5	13.5	13.7^{H}	13.6^{H}	13.5^{H}	13.4^{H}	13.4^{H}	12.5^{H}	11.2^{H}	11.4	12.0	10.5	9.2	9.5	9.1	8.4
30	7.4	6.8	6.5	6.4	6.4	6.6	8.8	11.0	11.0	10.2^{H}	13.7^{H}	12.8^{H}	13.4^{H}	12.4^{H}	12.5^{H}	11.7^{H}	10.8^{H}	10.5	10.6	10.3	9.0	9.0	8.8	8.8
31	8.7	8.5	7.7	7.3	7.5	7.6	9.6	11.6	13.5	13.8	13.7	13.6^{H}	13.5	13.6^{H}	13.4^{H}	12.6^{H}	12.6^{H}	12.0^{H}	11.8	10.3	9.3	9.0	9.0	8.3
Mean Value	7.2	7.0	6.9	6.5	6.2	6.2	7.8	10.6	12.2	12.9	13.5	13.7	13.6	13.4	13.3	12.6	12.2	12.0	11.3	9.7	8.8	8.2	7.8	7.6
Median Value	7.2	7.0	6.9	6.5	6.5	6.3	8.0	10.7	12.4	13.1	13.6	13.6	13.5	13.5	13.2	12.6	12.4	12.0	11.5	9.6	9.0	8.5	7.8	7.4
Count	30	29	29	29	29	29	30	30	30	31	31	30	30	30	30	30	30	30	30	29	29	29	30	30

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

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Mar. 1957

foEs

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	E	E	E	2.0^{JF}	2.5^{JYF}	E	E	G	G	G	G	G	G	G	G	G	G	2.8^{J}	4.0^{J}	3.4^{JF}	4.2^{JF}	2.3^{JF}	1.8^{JF}	2.6^{JF}
2	1.8^{JF}	2.0^{JF}	2.6^{JF}	1.4^{JF}	E	2.1^{JY}	E	G	2.7	3.6^{J}	5.9^{J}	2.8^{J}	G	G	G	G	G	G	2.0^{J}	E	1.7^{JY}	E	E	E
3	1.5^{J}	E	1.5^{JF}	2.3^{JFY}	E	1.8^{JY}	E	G	G	G	G	G	5.8^{J}	6.0^{J}	4.0^{J}	3.8^{J}	3.1^{J}	3.8^{J}	2.0^{J}	3.5^{J}	3.2^{J}	2.8^{J}	3.8^{J}	1.4^{J}
4	1.8^{J}	1.4^{J}	1.1^{JYF}	E	1.9^{JY}	E	G	G	G	G	6.8^{J}	G	G	G	G	3.6^{J}	5.7^{J}	3.5^{J}	2.5^{JF}	2.0^{JF}	1.8^{J}	E	E	E
5	E	2.5^{JF}	2.8^{JYF}	2.3^{JF}	2.8^{JF}	1.8^{JF}	E	G	3.5	3.2^{J}	G	G	G	5.5^{J}	G	G	G	2.9	1.8^{J}	2.0^{J}	2.8^{J}	4.0^{J}	2.8^{J}	E
6	1.9^{JF}	2.8^{JF}	1.8^{JYF}	1.8^{JY}	E	1.3^{J}	E	G	3.5	G	G	G	3.6^{J}	G	G	G	G	2.8^{J}	2.0^{JY}	E	1.8^{JY}	2.3^{JY}	2.4^{J}	1.8^{J}
7	2.0^{JY}	2.3^{JY}	1.8^{J}	1.5^{JY}	1.5^{JY}	1.7^{JY}	G	G	G	G	G	3.4^{J}	3.6^{J}	G	G	C	3.5	3.2^{J}	1.8^{J}	1.6^{J}	1.9^{J}	1.8^{J}	1.8^{J}	E
8	1.4^{J}	1.4^{J}	2.0^{J}	1.8^{J}	1.5^{J}	2.8^{J}	G	G	G	G	3.6	G	G	G	G	3.6^{J}	3.4	2.3^{J}	2.0^{J}	1.5^{J}	E	E	E	E
9	E	E	2.6^{J}	2.3^{JY}	1.6^{JY}	E	G	G	G	G	G	G	G	G	G	3.8^{J}	G	3.7^{JY}	2.8^{J}	1.7^{J}	E	E	1.9^{J}	E
10	E	E	2.8^{J}	2.8^{J}	1.8^{JF}	2.3^{JY}	G	G	G	G	3.7	4.3^{J}	G	G	G	G	G	G	2.8^{JY}	1.7^{J}	2.8^{J}	E	E	1.7^{JY}
11	1.4^{JY}	E	E	E	1.7^{J}	1.5^{J}	C	2.7^{J}	3.6^{J}	3.6^{J}	3.9^{J}	3.7^{J}	3.7^{J}	4.3	G	G	C	C	E	C	C	C	C	E
12	E	E	1.1	1.1	2.4^{JY}	E	G	2.5^{J}	3.6^{J}	G	G	G	C	G	G	G	G	2.7^{J}	1.7^{JF}	E	E	E	E	E
13	E	E	1.1	1.1	1.6^{JYF}	E	G	G	G	G	G	G	G	G	3.7^{J}	G	G	2.9	2.8^{J}	E	E	E	E	E
14	E	E	E	2.3^{JF}	1.3^{JF}	E	G	G	G	G	G	G	G	G	G	G	G	2.7^{JF}	2.8^{JF}	2.5^{J}	2.5^{JF}	E	E	E
15	E	C	2.0^{JF}	E	1.5^{JYF}	2.0^{JY}	G	2.8^{J}	G	G	G	G	G	G	G	4.0	3.5	3.5^{J}	2.8^{J}	2.5^{J}	2.5^{J}	2.5^{J}	2.0^{J}	E
16	2.1^{JF}	C	1.0	2.3^{JF}	E	1.3^{JY}	G	2.8^{J}	G	G	G	G	G	G	G	G	3.1^{J}	2.8^{J}	E	E	E	E	E	E
17	2.8^{J}	C	C	C	C	C	G	G	3.6^{J}	3.7^{J}	4.0	G	G	G	G	G	G	2.7	E	E	E	E	E	E
18	E	E	E	1.8^{JY}	1.6^{J}	1.4^{JY}	1.6^{JY}	2.8^{J}	G	4.3^{J}	G	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	3.5^{J}	G	3.8	4.3^{J}	B	G	G	G	G	E	E	E	E	E	E
20	E	2.3^{J}	1.8^{J}	E	1.8^{JY}	E	G	G	G	B	B	G	G	3.7^{J}	4.1	G	G	G	2.3^{J}	2.4^{J}	E	E	E	E
21	E	1.7^{J}	E	2.0^{JY}	1.5^{JYF}	2.3^{JY}	G	G	G	G	4.0	G	G	G	G	G	G	2.5^{J}	E	E	E	E	E	E
22	E	E	2.3^{JF}	2.4^{JF}	2.3^{JF}	1.5^{JY}	G	G	G	3.9	3.9	G	G	G	G	G	3.7^{J}	3.0^{J}	1.6^{JY}	1.9^{J}	3.0^{J}	3.8^{J}	E	E
23	E	1.5^{JY}	2.0^{J}	1.5^{JF}	2.3^{JY}	1.3^{JY}	G	G	G	3.8	3.8	4.5	G	4.3	G	3.9	3.9	5.2	4.0^{J}	3.5^{J}	2.4^{J}	E	E	E
24	E	E	1.5^{JY}	E	E	E	3.0^{JY}	G	3.7	G	3.6^{J}	G	G	G	G	G	3.0	3.1	3.2^{J}	2.0^{J}	E	E	E	E
25	E	E	1.1	E	1.5^{JY}	E	2.3^{JY}	2.8^{J}	G	3.7	4.1	3.7^{J}	3.8	4.1	G	G	3.1	G	2.5^{J}	2.0^{J}	2.3^{JY}	2.4^{J}	E	E
26	1.2^{J}	1.5^{JF}	E	1.5^{JYF}	2.0^{JYF}	1.8^{JF}	G	G	3.6	G	G	4.0	4.3^{J}	4.5^{J}	5.9^{J}	4.1^{J}	3.6^{J}	G	1.9^{J}	1.5^{J}	E	E	2.3^{J}	1.7^{J}
27	2.6^{J}	1.5^{J}	1.4^{J}	1.5^{J}	1.5^{J}	1.5^{J}	2.6^{J}	3.8^{JY}	3.6	4.2	4.3^{J}	3.7^{J}	5.3^{J}	4.3^{J}	5.4^{J}	5.8^{J}	4.8^{J}	5.8^{J}	3.5^{J}	2.3^{J}	2.4^{JY}	E	1.4^{JY}	E
28	1.5^{JY}	3.7^{J}	3.5^{J}	4.8^{J}	4.0^{J}	1.8^{JY}	2.8^{J}	G	3.8^{J}	C	C	C	3.9^{J}	3.8^{J}	3.5^{J}	G	G	3.2	1.1^{J}	1.7^{J}	2.3^{J}	2.5^{J}	1.8^{J}	3.5^{JY}
29	2.0^{J}	1.5^{J}	2.3^{J}	1.8^{J}	1.8^{J}	1.4^{JY}	2.2	G	G	G	G	3.5^{J}	G	G	G	G	G	2.8^{J}	E	E	E	E	E	E
30	E	E	E	1.5^{JY}	1.3^{JY}	1.6^{JY}	2.5^{J}	3.3^{J}	4.0	4.5	3.8^{J}	3.8^{J}	G	G	G	G	G	2.4^{J}	2.3^{J}	4.7^{J}	5.7^{J}	3.3^{J}	E	E
31	1.5^{J}	1.5^{J}	1.5^{J}	1.3^{Y}	1.5^{J}	1.8^{JY}	G	G	3.7	4.2	4.5	3.5^{J}	G	G	G	G	G	G	E	1.7^{J}	1.8^{J}	5.3^{J}	E	2.4^{J}
Mean Value	1.8	2.0	1.9	2.0	1.9	1.2	2.4	2.9	3.6	3.8	4.3	3.7	4.3	4.5	4.4	4.1	3.7	3.2	2.4	2.3	2.7	3.0	2.2	2.2
Median Value	E	1.4	1.5	1.5	1.6	1.5	G	G	G	G	G	G	G	G	G	G	G	2.8	2.0	1.7	1.8	E	E	E
Count	30'	27	29	29	29	29	29	30	30	29	29	29	29	29	30	29	29	29	30	29	29	29	29	30

foEs

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

A 2

13

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

IONOSPHERIC DATA

Mar.1957 | (M3000)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	2.80	2.70	2.70	2.80	2.65	2.70	3.20	3.30	3.15^{H}	3.10	3.00	3.05^{H}	3.00^{H}	2.95^{H}	2.80^{H}	2.95^{H}	2.95	2.90	3.05	2.95	3.10	2.90	2.75	2.75
2	2.65	2.30	2.65	2.55	2.35	2.40	2.80	3.25	3.15	3.00^{H}	3.15TH	I 3.10^{RH}	3.05^{H}	3.20^{H}	3.00^{H}	2.95^{H}	2.95^{H}	2.60	2.65	2.90	2.85	2.40	2.30	2.35
3	2.50	2.40	2.45	2.45^{H}	2.80	2.45	2.60	2.95	3.20	3.10^{H}	3.00	2.90^{H}	3.05^{H}	2.90^{H}	2.95^{H}	2.90	3.20	3.05	2.95	3.00	2.95	2.90	2.75	2.55
4	2.40	2.55	2.55	2.70	2.50^{H}	2.40^{F}	2.85	3.00	3.25	3.20	3.20	3.00	3.05	3.00	2.85^{H}	2.85	3.00	2.95	2.85	2.85	3.10	2.65	2.65	2.60
5	2.70	2.65	2.80	2.95	2.60	2.70	3.05	3.25	3.25	3.05	3.15	3.05	2.90^{H}	2.95	2.85^{ZH}	2.75^{H}	2.80	3.00	2.90	2.95	3.05	2.85	2.70	2.60
6	2.65	2.65	2.70	2.70	2.45	2.50	2.95	3.15	3.20	3.30	3.05	3.05^{H}	U 3.00^{RH}	2.90	2.85	2.95	2.90	2.95	2.90^{J}	2.70	2.95^{J}	2.85	2.70	2.55
7	2.50	2.55	2.45	2.50	2.65	2.65	2.95	3.05	3.20	3.15	2.90	2.70^{H}	2.90^{H}	2.90	2.90^{H}	2.85	2.85^{H}	2.95	2.90	2.70	U 2.90^{R}	2.70	U 2.85^{R}	U 2.90^{R}
8	2.70	2.45	2.40	2.45	2.70	3.00	2.90	3.10	3.25^{H}	2.95	3.05^{H}	2.90	2.80^{H}	2.80^{H}	2.80^{H}	2.80^{H}	2.80	3.00	2.90	2.90	2.85	2.95	2.80	2.45
9	2.45	2.60	2.85	3.05	2.90	2.85	3.00	3.10	3.05	3.05	3.15^{H}	2.90^{H}	2.85^{H}	2.80^{H}	2.75^{H}	2.75^{H}	2.80^{H}	2.80	2.85	2.80	2.65	2.45	U 2.75^{R}	U 2.70^{R}
10	2.60	2.60	2.65	2.70	2.55	2.55	2.70	3.00	3.10^{H}	3.05	3.00	2.90^{H}	2.70^{H}	2.70^{H}	2.70^{H}	2.70^{VH}	2.85^{VH}	2.85^{Z}	2.80	2.60	2.60	2.45^{J}	2.15	2.15
11	2.30	2.00	2.20	2.35	2.30	2.40	I 2.60^{C}	2.75	3.05	3.00	2.85^{H}	2.80^{H}	2.85	2.75^{H}	2.80^{H}	2.85^{H}	I 2.80^{C}	2.80	2.95	C	C	C	2.85	2.65
12	2.60	2.70	2.65	2.75	2.50	2.65	2.95	3.15	3.05	3.10^{H}	2.95	2.90^{H}	I 2.80^{C}	2.75^{H}	2.75^{H}	2.70	2.65^{H}	2.90	2.80	2.65	2.70	2.75	2.75	2.65
13	2.60	2.65	2.60	2.75	2.65	2.65	2.95	3.10	2.90	2.90	2.85	2.85^{H}	2.75^{H}	2.65^{H}	2.65^{H}	2.65^{H}	2.75^{H}	2.95	2.80	2.85	2.75	2.75	2.70	2.70
14	2.45	2.35	2.45	2.30	2.35	2.45	3.10	3.00	3.10	2.90^{H}	2.90^{H}	2.80^{H}	2.70^{H}	2.75^{H}	2.70^{H}	2.60^{H}	2.70^{H}	2.90	3.05	2.70	2.70	2.70	2.80	2.75
15	2.80	2.65	2.65	2.55	2.65	2.60	3.00	3.00	3.15	2.90	2.80^{H}	2.80^{H}	2.75^{H}	2.65^{H}	2.65^{H}	2.55^{H}	2.70^{H}	I 2.80^{R}	2.85	2.65	2.60	2.65	2.75	2.65
16	2.70	I 2.70^{C}	2.65	2.65	2.55	2.40	2.80	3.05	3.05	2.95^{H}	2.75^{H}	2.70^{H}	2.75^{H}	2.65^{H}	2.70^{H}	2.60^{H}	2.60	2.60	2.65	2.65	2.75	2.60	2.55	2.60
17	2.40	C	C	C	C	C	2.85	3.05	2.85	2.85^{H}	2.80^{H}	2.75^{H}	2.70^{H}	2.60^{H}	2.60^{H}	2.65^{H}	2.75^{H}	2.70	2.85	2.65	2.75	2.55	2.75	2.80
18	2.65	2.55	2.65^{J}	2.60	2.45	2.55^{F}	2.85	3.00^{J}	2.95	2.95^{H}	2.80	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	2.95^{H}	2.85	3.00^{H}	2.80^{H}	2.75^{H}	2.70	2.75	2.75	2.95	3.10	2.60	2.65	2.75	2.65	2.75^{J}
20	2.60	2.65	2.90	2.70	2.50	2.45	2.85	3.20	3.05	2.90	U 3.05^{R}	2.90	2.80^{H}	2.85^{H}	2.80	2.80^{H}	2.65	2.90	3.05	2.90	2.65	2.75	2.85	2.70
21	2.60	2.65	2.70	2.55	2.55	2.75	3.10	3.10	3.20	2.90	2.75^{H}	3.05^{H}	2.70	2.75^{H}	2.65^{H}	2.60^{H}	2.65	2.90	2.95	2.75	2.60	2.80	2.75	2.70
22	2.45	2.40	2.30	2.25	2.15	2.30	2.70	2.95	3.05	2.90^{H}	2.70^{H}	2.85^{H}	2.75^{H}	2.80^{H}	2.70^{H}	2.60^{H}	2.75	2.85	2.95	2.75	2.65	2.75	2.55	2.50
23	2.40	2.40	2.45	2.65	2.40	2.35	2.85	3.00	2.95	2.90^{H}	2.90^{H}	2.90^{H}	2.85^{H}	2.70^{H}	2.80^{H}	2.75^{H}	2.85	2.80	2.95	2.85	2.65	2.70	2.65	2.55
24	2.70	2.80	2.95	2.50	2.45	2.50	2.90	3.15	3.00	2.90^{H}	2.95	2.90^{H}	2.85^{H}	2.65^{H}	2.70^{H}	2.70^{H}	2.80	2.90	2.95	2.85	2.75	2.60	2.70	2.85
25	2.85	2.70	2.60	2.70	2.55	2.60	2.95	3.05	3.05	2.85^{H}	2.90	2.75	2.60^{H}	2.70^{H}	2.60	2.45^{H}	2.55	2.85	2.90	2.75	2.55	2.35	2.55	2.55
26	2.50	2.70	2.75	2.70	2.60	2.60	3.10	3.10	3.00	2.90	2.90^{H}	2.85^{H}	2.85^{H}	2.85^{H}	2.85^{H}	2.80	2.85	2.90	3.00	2.95	2.70	2.75	2.60	2.40
27	2.45	2.35	2.50	2.40	2.40	2.50	2.95	3.10	2.95	2.95^{H}	2.85^{H}	2.85	2.80^{H}	2.80^{H}	2.70^{H}	2.80^{H}	2.80	2.95	2.95	2.75	2.55	2.60	2.55	2.45
28	2.50	2.60	2.40	2.40	2.65	2.45	2.90	2.75	2.80	3.10	C	C	2.60^{H}	2.80^{H}	2.75^{H}	2.70^{H}	2.55	2.65	2.90	2.90	2.60	2.35	2.55	2.45
29	2.55^{F}	2.45^{F}	2.40^{F}	2.50^{F}	2.45	2.45	2.95	3.05	2.95	2.90	2.90^{H}	2.80^{H}	2.75^{H}	2.70^{H}	2.75^{H}	2.65^{H}	2.65^{H}	2.65	2.90	2.75	2.75	2.55	2.65	2.55
30	2.30	2.30	2.10	2.15	2.10	2.25	2.75	3.00	2.95	2.65^{H}	2.85^{H}	2.70^{H}	2.60^{H}	2.55^{H}	2.60^{H}	2.75^{H}	2.80^{H}	2.75	2.80	2.75	2.70	2.70	2.65	2.65
31	2.65	2.70	2.70	2.40	2.55	2.55	2.90	3.00	2.95	3.05	2.95	2.85^{H}	2.75	2.70^{H}	2.60^{H}	2.60^{H}	2.65^{H}	2.80^{H}	2.90	2.80	2.65	2.55	2.70	2.60
Mean Value	2.55	2.55	2.60	2.55	2.50	2.55	2.90	3.05	3.05	2.95	2.95	2.90	2.80	2.80	2.75	2.75	2.75	2.85	2.90	2.80	2.75	2.65	2.65	2.60
Median Value	2.60	2.60	2.65	2.55	2.55	2.50	2.90	3.05	3.05	2.95	2.90	2.90	2.80	2.75	2.75	2.75	2.80	2.90	2.90	2.75	2.70	2.70	2.70	2.60
Count	30	29	29	29	29	29	30	30	30	31	30	29	30	30	30	30	30	30	30	29	29	29	30	30

(M3000)F2 | Sweep 0.85 Mc to 22.0 Mc in 2 min | ☐ Manual ☒ Automatic | A S

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Mar. 1957

h'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										230	245^{L}	245^{H}	L^{H}	245^{H}										
2												250^{H}		250^{H}		250^{H}								
3										230^{H}	250			250^{H}	250^{H}	245								
4										225	230	240	250	245	230^{H}									
5										230	240	245	240^{H}	250	245^{H}									
6										245	240	245^{H}	250^{H}	245	245	L								
7										240	240	240^{H}	245^{H}	250	L^{H}	C								
8										240	240^{H}	245	240^{LH}	L^{H}	L^{H}									
9										240	L^{H}	L^{H}	L^{H}	250^{H}										
10											240	240^{H}	L^{H}	L^{H}	L^{H}	L^{H}								
11										245	250^{H}		250	230^{H}	250^{H}	245^{H}								
12												235	C			250	C							
13													245^{H}											
14											230^{H}	245^{H}	240^{H}	250^{H}										
15										230	240^{H}	245^{H}	250^{H}											
16										240^{H}		245^{H}	245^{H}	L^{H}	L^{H}	245^{H}								
17										L^{H}	240^{H}	245^{LH}	245^{H}		245^{H}									
18										245^{LH}	245^{L}	C	C	C	C	C	C							
19									C	230^{H}	245	245^{H}	240^{H}	L^{H}	L	L								
20												240		245^{LH}	245^{L}	250^{LH}								
21											235^{H}	240^{H}	245	255^{H}										
22										240^{H}														
23										225^{H}	245^{H}			250^{H}										
24									240		245				250^{H}	245^{H}								
25									230		250	245	245^{H}	250^{H}	260	260^{H}								
26										235	245^{H}	240^{H}	245^{LH}		250^{H}	L								
27									L	L^{H}	240^{H}	L												
28									245	245^{L}	C	C	245^{H}	245^{LH}	245^{LH}									
29										245^{L}	L^{H}	240^{H}	L^{H}	L^{H}	250^{LH}	L^{H}								
30												245^{LH}	L^{H}	L^{H}	250^{LH}	245^{LH}								
31										L	L			L^{H}										
Mean Value									240	235	240	245	245	245	245	250								
Median Value									240	240	240	245	245	250	250	245								
Count									3	18	20	20	16	15	13	9								

h'F2

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

A 4

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

IONOSPHERIC DATA

Mar. 1957 | h'F | 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	260	255	255	250	250	270	250	215	210^{H}	210	230	220	225	230	245^{H}	240^{H}	240	245	245	245	255	245	260	295
2	300	300	285	290	350	340	300	240	225	220^{H}	250^{H}	220	230^{H}	230	240^{H}	235	250^{H}	255	250	210	205	290	370	380
3	350	290	295	255^{H}	270	300	305	250	225	210	235	245^{H}	250^{AH}	210	240	240	245	240	245	240	245	245	270	300
4	350	330	300	250	240^{H}	340	270	220	225	200	190	215	215	220	210	240	240	230	230	245	245	275	290	270
5	270	270	250	250	250	290	250	240	225	215	205	200	220	230	240	240^{H}	250	245	240	230	250	275	290	300
6	285	260	270	270	300	315	245	220	220	240	235	200	240	230	230	240	245	250	240	245	240	245	295	330
7	315	305	310	300	270	255	260	280	275	225	225	205	240	240	240	I 240^{C}	240^{H}	230	225	230	250	280	280	250
8	295	305	310	300	250	230	230	230	230^{H}	230	220	225	225	205	230	245^{H}	240	245	245	230	230	235	255	310
9	335	300	245	225	210	250	260	245	240	205	210	200	240	205	240^{H}	245^{H}	245^{H}	250	250^{A}	230	250	255	255	300
10	305	300	270	290	290	260	260	240	235^{H}	240	220	210	240	240	240	240	250^{H}	250	270	255	260	320	400	420
11	350	490	400	335	300	340	I 290^{C}	245	250	240	240	240^{H}	235	220	240	225	C	C	240	C	C	C	C	265
12	295	290	275	255	240	255	250	225	220	220^{H}	225	210^{H}	I 215^{C}	220^{H}	240^{H}	240	245^{H}	250	230	250	255	250	250	265
13	300	280	270	260	245	250	250	230	230	230	230	220^{H}	215	215^{H}	245^{H}	245^{H}	250^{H}	255	245	235	250	230	245	265
14	320	320	300	320	345	345	250	225	220	230^{H}	205	205	200	225	240^{H}	245^{H}	245^{H}	250	250	245	260	270	270	260
15	270	I 280^{C}	290	250	260	270	250	225	225	210	200	215	240	235^{H}	210^{H}	250^{H}	245^{H}	255	255	255	280	275	285	280
16	280	270	270	280	290	320	270	225	220	225	230^{H}	200	230	240	240	235	245	250	250	245	255	255	260	285
17	330	C	C	C	C	C	250	230	240	225	220	240	200	245^{H}	230	250^{H}	245^{H}	245	240	245	250	265	285	280
18	300	300	255	255	300	285	250	240	235	240	230	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	230	225	245	230	225	225	240	245	250	245	245	225	265	295	285
20	295	285	255	250	300	300	245	245	240	230	245^{B}	220	240^{H}	210	230	240	250	250	250	240	245	250	265	270
21	290	255	250	265	265	250	240	235	240	230	210	205	235	245	230^{H}	230^{H}	245	250	250	240	250	260	290	280
22	300	330	345	385	390	370	240	240	240	235	230^{H}	240^{H}	240^{H}	230^{H}	245^{H}	230^{H}	250	250	240	230	300	270	290	320
23	350	330	320	255	300	300	240	230	225	225	225	245^{H}	240^{H}	240	240^{H}	250^{H}	250	255	255	225^{A}	290	265	280	300
24	290	250	250	280	300	295	240	230	240	225^{H}	240	220^{H}	230^{H}	220^{H}	220	240	240	250	250	250	255	280	270	270
25	255	270	280	255	250	260	235	230	220	225^{H}	220	220	230	225	250	250	260	250	245	225	330	360	340	310
26	250	260	260	250	280	305	250	240	230	225	220	205	205	240^{H}	240	240	245	245	250	235	240	250	275	345
27	360	350	300	295	270	300	250	240	225	230	205	210	250^{H}	240^{H}	250^{H}	I 250^{AH}	250	255	250	240	250	290	295	345
28	300	315	340^{A}	A	250	305	250	245	240	240	C	C	220	225	235	245^{H}	250	280	280	235	250	330^{A}	310	325
29	310	310^{F}	345	300	260^{F}	290	250	245	240	245	230^{H}	210	230	230	240	245	250^{H}	255	250	245	260	280	295	305
30	360	445	400	360	395	360	250	240	240	245^{H}	245^{H}	240	240	240	230	240	240^{H}	250	260	295^{A}	300^{A}	300	280	295
31	300	295	250	250	290	295	245	240	240	240	240	240^{H}	240	240	240^{H}	245^{H}	250^{H}	250^{H}	255	235	250	330	290	295
Mean Value	305	295	290	280	285	295	255	235	230	225	225	220	230	230	235	240	245	250	245	240	255	275	285	300
Median Value	300	300	280	260	270	295	250	240	230	230	225	220	230	230	240	240	245	250	250	240	250	270	285	295
Count	30	29	29	28	29	29	30	30	30	31	30	29	30	30	30	30	29	29	30	29	29	29	29	30

h'F

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

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Mar. 1957

type of Es

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
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Mean Value																								
Median Value																								
Count																								

type of Es

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

A 6

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

IONOSPHERIC DATA

Mar. 1957 | 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	6.7	6.3	5.9	5.4	5.0	5.1	6.2	8.5	11.1	12.0	12.3	13.2	13.2H	13.7	13.9	13.5	13.0	12.5	12.0	10.4	9.1	7.8R	7.2	7.2
2	7.0	6.4	6.5	5.8	5.7	5.8	7.0	11.3	13.0	13.3	14.3H	14.5H	14.7	14.4H	13.4	13.6	13.3	12.2	12.7	12.5	10.3	7.2	7.2	7.3
3	7.5	7.2	7.2	7.4	8.0	7.0	8.6	13.0	13.5	11.5	13.7	13.8	13.5	14.0	13.5	13.2	13.5	13.0	11.7	10.2	9.1	7.8	7.2	7.3
4	6.5	6.7	6.6	6.9	4.5	4.2	5.3	9.3	13.1	13.9	14.7H	15.5H	15.7H	16.0	14.8	15.0	14.2	13.2	11.5	10.3	9.5	8.6	8.5	8.5
5	8.0R	7.3	7.1	6.5	4.9	4.9	6.5	10.1	12.3	13.2	14.1	14.6H	13.5	13.5H	13.0	12.7H	12.6	13.0	11.4	10.0	9.1	8.0	7.2	7.2R
6	U7.6R	7.0	7.0	6.5	C	C	7.2	C	C	13.0	14.6	14.5H	14.7	14.5	13.5H	13.0	12.5	12.3	11.4	9.2	9.0	7.2	6.7	6.7
7	6.8	6.8	6.5	6.3	6.4	6.1	7.2	10.2	12.8	13.5	13.9	14.0	14.6	14.4	13.4H	13.4H	12.7	12.5	11.5	9.3	8.3	8.1J	8.4	8.4
8	7.3	6.9	6.9	6.7	6.7	6.0	6.6	9.7	12.0	13.2	14.3	14.4	14.1	13.6H	13.6	13.6	12.9	12.6	11.7	10.0	9.5	8.1	7.1	6.8
9	6.6	6.9	7.5	6.7	4.4	4.1	6.0	10.2	I12.0C	13.9	14.4	14.4	14.5H	14.3H	13.9	13.3	12.9	12.5	12.0	10.7	9.7	9.3	8.7	8.1
10	8.0	7.9	7.9R	7.2	6.9	6.7	8.7	12.0	13.9	14.6	14.9	15.3H	15.1H	14.7H	14.5H	13.5	13.4	12.8	11.6	9.7	10.3	9.0	7.9	7.2
11	7.3	5.9H	6.7	6.9	5.8	6.5	8.2	10.3	12.7	14.2	13.8	13.9	14.6H	13.7H	13.9H	13.5	13.0H	13.1	12.9	10.9	10.0	8.9	8.8	8.7
12	8.5	8.4	8.2	7.9	6.4	5.7	7.4	10.6	12.2	13.2	13.9	14.1	14.2	13.6	13.2H	13.2	12.5	12.5	11.4	9.4	9.3	9.4	9.0	8.1
13	7.8	7.5	7.4	7.4	6.6	6.2	8.0	10.9	12.4	13.3	13.7H	14.5H	14.3H	13.9H	14.2H	13.8	13.6	13.9	13.5	11.7	11.0	10.1	9.1	9.0
14	7.7	7.4	7.0	6.4	6.3	6.4	8.4	10.4	12.5	13.4H	14.1H	14.8	14.2H	14.3H	13.6H	13.4H	12.9H	12.7	11.0	9.3	9.1	9.3	9.5	9.2
15	7.9	7.3	6.9	6.6	6.4	6.3	8.5	10.9	12.0	12.8H	13.5	14.0	14.0H	13.5	12.6H	12.6H	12.0	11.5	10.9	9.3	10.2	10.1	9.9	9.7
16	9.7	8.9	8.3	7.9	7.2	7.1	8.3	11.8	13.2	13.5H	14.0H	14.8H	14.7H	14.6H	14.5H	13.5H	12.8H	12.3	12.3	10.8	9.4	9.2	9.1	8.9
17	7.9R	8.0	7.9	7.3	6.7	6.7	7.8	11.4	12.5	13.3H	14.0H	15.5H	14.9H	14.5H	13.8H	13.9H	13.0	12.6	11.6	10.1	10.0	9.2	9.3	9.2
18	8.0	8.0	8.4	6.8	6.9	6.9	8.5	11.6	13.5	13.5	14.4	14.4H	14.4H	14.2H	13.9H	13.4H	13.0H	12.5	11.8	9.8	8.9	8.6	8.7	8.0
19	8.1	8.9	8.6	5.9	5.8	5.8	7.9	11.0	12.7	14.0	14.7	14.9H	14.4H	14.4H	14.2H	13.6	13.0	13.2	12.6	9.7	9.7	9.8	9.5	9.2
20	R	9.0	9.2	7.2	7.0	7.2	9.0	12.6	13.5	13.8	14.9	14.7H	15.0H	14.9H	14.4H	13.5H	13.4	13.3	12.7	10.9	9.2	9.7	9.7	8.7
21	8.4	8.0	7.7	7.0	6.8	6.9	9.1	10.6	11.7	12.6	13.4	14.1H	14.7H	14.4H	13.6H	13.3H	13.3	13.1	12.2	9.8	9.3	9.5	9.3	9.4
22	8.0	7.5	7.4	7.0	7.0	7.1	9.0	11.5	13.5	13.5	C	C	C	C	C	C	C	C	C	9.8R	9.2	9.2	8.5	8.2
23	7.9R	8.0	8.0	8.0	7.2	7.0	8.6	11.5	13.0	13.7	14.7	15.5	15.4	15.0H	14.9H	15.0H	14.1	13.5	12.6	11.5	10.4	10.5	10.0	9.8
24	10.2R	10.2	8.9	7.5	7.3	7.4	9.8	12.0	12.9	13.5	13.9H	14.0H	14.0H	13.9H	13.8H	13.0	12.5	12.2	11.8	10.3	8.7	9.1	9.2	9.2
25	8.8	8.3	7.8	7.3	6.6	6.5	8.6	10.9	12.5	12.9	13.5	13.6	14.6H	14.5H	14.4H	13.5	13.4	13.5	12.2	9.1	9.2	9.1	9.1	9.1
26	8.4	8.5	8.5	8.0	7.6	7.6	10.5	12.6	13.0	13.5	14.2	14.6H	14.8H	14.9H	15.0H	14.5H	14.3H	14.0	13.6	11.9	11.0	10.5	10.0	8.7
27	8.5	8.4	8.3	7.4	7.1	7.2	9.0	11.5	12.0	12.7	13.9H	15.0	14.8H	14.9H	14.3	13.5H	13.3	13.4	12.5	10.2	9.1	9.2	9.1	8.5
28	8.7	9.0	8.0	8.0	8.3	6.9	8.8	10.3	12.5	14.4	13.0	12.0H	13.0H	13.5H	12.0	11.0H	9.4H	C	C	10.5	7.2	6.9	I7.0C	7.0
29	7.0	6.9F	6.8F	I6.5C	6.2F	5.9F	8.3	10.9	13.0	14.4H	14.1	C	C	13.7H	13.7H	13.2H	11.9H	12.0	13.0	11.5	9.5	10.0R	10.2	9.2
30	8.0	7.0	6.8	7.0	7.0	7.4	9.5	12.0	11.0	10.7	14.0H	14.7	13.7H	13.5H	13.5H	12.9	11.5H	11.1	11.6	10.7	9.3	9.1	9.1	9.1
31	9.2	9.0	8.0	7.1	7.4	7.5	10.0	12.0	13.8	14.8	14.7	14.5	14.7H	14.6H	14.1H	13.6H	13.7	13.4	12.8	10.9	9.9	9.4	9.8	9.1
Mean Value	7.9	7.7	7.5	7.0	6.5	6.4	8.1	11.1	12.7	13.3	14.1	14.4	14.4	14.3	13.8	13.4	12.9	12.8	12.1	10.3	9.5	9.0	8.7	8.4
Median Value	8.0	7.5	7.5	7.0	6.7	6.6	8.4	11.0	12.7	13.5	14.0	14.5	14.6	14.4	13.8	13.5	13.0	12.7	12.0	10.2	9.3	9.2	9.1	8.7
Count	30	31	31	31	30	30	31	30	30	31	30	29	29	30	30	30	30	29	29	31	31	31	31	31

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

Mar. 1957

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												L	L		L	L	A							
2											L	L			L									
3											L	L	L	L										
4											L	L	L	L	L									
5												4.7	L											
6											L		4.7	L	L									
7										L	LH	L						A						
8											L		L		L									
9																L								
10											L													
11											L	L	B	L										
12												L	L	L	L	L	A							
13										L	L	L	L											
14											L	L					A							
15											L	L		L										
16										4.7	L													
17										L	L		L	4.8H										
18											4.6	L												
19										L	4.6L	4.6L		L		L								
20												5.1L												
21											L	L	L											
22										L	C	C	C	C	C	C	C	C						
23										4.6L		L		L	4.5									
24									L	L		L	4.8											
25										L	L	L						A						
26											L	L	L	A										
27											L													
28										L	L							C						
29										L		C	C	4.5		L								
30														L	L									
31												L		L										
Mean Value										4.7	4.6	4.8	4.8	4.7	4.5									
Median Value										4.6	4.6	4.7	4.8	4.6	4.5									
Count										2	2	3	2	2	1									

foF1

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

Mar. 1957 | 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								2.35	3.00	R	R	R	B	3.90	3.75^{R}	3.45	2.90	A						
2								2.35	3.00	A	R	A	A	3.75	3.75^{R}	^{I}3.30^{R}	2.90	2.30						
3								2.15	2.85	3.25^{H}	3.30	^{I}3.50^{R}	3.75	3.80	3.65	3.35^{R}	3.00	2.05						
4								2.40	2.90	3.25	R	R	R	R	3.75	A	A	2.15						
5								2.35	A	R	R	R	R	R	R	3.45	2.95	2.10						
6								C	C	3.25	R	R	R	R	3.70	3.50	3.00	2.35						
7								2.30	^{U}2.75^{A}	3.00	3.20	3.30^{R}	R	3.85	R	R	3.00	^{U}2.20^{A}						
8								2.50	3.15	3.25	3.70	R	R	R	3.75	R	3.00	2.20						
9								2.40^{F}	A	R	3.75	R	R	3.80	R	R	3.05	A						
10								2.50	3.25	3.40	3.75	3.75	3.80	^{I}3.80^{R}	3.80	^{I}3.40^{R}	2.95	2.20						
11								2.55	A	R	R	R	R	R	R	R	3.00	2.20						
12							B	2.55	3.10	R	R	R	R	3.85	3.80^{R}	R	3.15	2.40						
13							1.75	2.60	3.10	3.45	R	R	R	A	A	A	A	A						
14							1.80	2.55	3.20^{H}	R	R	R	R	3.85	R	R	2.90	2.40						
15							1.90	2.65	3.30	3.30	R	R	R	3.75	3.75	3.50	3.20	A						
16							1.90	2.70	3.20	R	3.60	R	R	R	3.60	R	3.15	A						
17							1.90	2.35	3.20^{H}	R	3.60	R	R	R	3.70^{R}	3.60	3.10	2.30						
18							1.95	2.80^{H}	A	R	R	R	R	3.80	R	R	3.10	A						
19							2.05	2.45	3.05	R	R	R	^{D}4.00^{R}	3.90	R	A	3.15	2.40						
20							2.05	2.80	3.20^{H}	3.45	R	R	R	3.85	R	A	3.10	^{U}2.50^{AF}						
21							2.15	2.60	3.25	3.60	3.65	3.80	R	R	R	R	3.20	2.35						
22							2.20	2.65	3.15	3.55	C	C	C	C	C	C	C	C						
23							1.90	2.75^{H}	3.25^{H}	R	R	R	A	R	R	3.65^{R}	3.10^{A}	2.45						
24							2.15	2.75	3.30^{R}	3.60	R	R	R	R	R	R	3.20	2.50						
25							2.10^{H}	2.70^{R}	3.25^{R}	3.60	3.75	3.75^{R}	R	A	A	3.65	3.25	2.40						
26							2.00	2.65	3.15	3.60^{R}	3.80	A	A	A	A	A	A	A						
27							2.30^{H}	2.80	3.25	3.55^{R}	R	R	A	A	A	A	A	2.50						
28							2.05	2.75^{H}	3.25	3.70	R	R	3.80	A	A	R	3.20	C						
29							2.10^{H}	A	R	3.60	R	C	C	R	3.85	3.65	3.20	2.50						
30							2.15^{H}	2.95^{H}	3.25	^{U}3.75^{R}	3.85	3.75^{R}	R	R	3.80^{R}	3.25^{R}	A	A						
31							2.30	2.85	3.25	3.60	3.85^{R}	R	R	R	R	3.80	R	2.70^{R}						
Mean Value							2.05	2.60	3.15	3.45	3.65	3.65	3.80	3.85	3.75	3.50	3.05	2.35						
Median Value							2.05	2.60	3.20	3.55	3.70	3.75	3.80	3.80	3.75	3.50	3.10	2.35						
Count							19	29	25	19	12	6	4	12	13	13	24	21						

foE

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

K 3

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

IONOSPHERIC DATA

Mar. 1957 | foEs | 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	E	E	E	E	E	E	G	2.8	G	G	G	B	G	4.3	4.2	5.3J	4.2J	3.9J	1.8J	3.2	2.4J	1.8J	1.6J
2	E	1.4J	E	E	E	E	E	G	2.6	3.3	3.3	3.8	6.1J	G	G	G	G	2.1	E	E	E	E	1.7J	E
3	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	3.5	G	3.2	2.6J	5.4J	3.6J	2.6J	2.6J	2.8J
4	4.0J	3.6J	2.6J	2.7J	2.6J	1.6J	E	3.0	3.3	G	G	G	G	G	G	3.1J	2.6J	2.3	2.5	1.8J	1.9J	1.7J	E	1.8J
5	1.8J	E	E	E	E	E	E	2.1	2.9	G	G	G	G	G	G	G	3.2	2.6	1.8	E	E	2.4J	2.4J	3.6J
6	2.4J	1.9J	E	E	C	C	1.9J	C	C	G	G	G	G	G	G	G	2.1	2.7	E	E	E	E	3.7J	E
7	1.9J	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	4.2J	5.6J	2.4J	2.7J	2.4J	2.4J	4.4J	1.9J
8	2.4J	E	E	1.0	E	E	E	G	2.5	3.1	G	G	3.2	G	G	G	G	2.7	2.4J	E	E	E	E	E
9	E	E	E	E	E	E	2.3J	G	3.0	G	G	G	G	G	G	G	3.2	2.5	E	E	1.9J	E	E	2.7J
10	1.7J	1.6J	E	E	E	E	1.8J	G	G	G	G	G	G	G	G	G	G	2.5	E	E	E	E	E	E
11	E	E	E	E	E	E	E	G	3.3	G	G	G	G	G	G	G	3.7	3.2	2.5J	E	E	E	E	E
12	E	E	1.5J	2.2Y	1.5J	E	G	G	G	G	G	G	G	G	G	G	3.2	2.8	2.5J	1.5J	E	E	1.5J	E
13	E	E	E	1.6J	1.5J	E	G	G	3.2	3.7	3.9	G	G	4.4J	4.2J	3.8J	5.1J	3.3	3.9J	3.2	E	E	E	E
14	E	E	E	E	E	E	2.8J	G	G	G	G	G	2.9	G	G	G	3.6	2.8	3.8J	2.4J	1.9J	1.6J	1.9J	1.9J
15	E	E	E	E	E	E	G	G	2.7	2.8	G	G	G	G	G	4.3	7.0J	2.4J	2.4J	2.2J	2.6J	1.7J	E	E
16	E	E	E	E	E	E	1.9J	G	3.2	3.2	G	G	G	G	G	G	G	3.0	E	E	E	E	E	E
17	E	E	2.6JF	E	E	E	G	3.0	G	G	3.9	G	G	G	G	G	3.2	2.9	1.9J	E	E	E	E	E
18	E	E	E	E	E	E	G	G	3.2	G	G	G	G	G	G	G	G	2.4	E	E	E	1.9J	2.6J	2.0J
19	2.6J	1.9J	1.4J	E	E	E	G	3.0	3.2	G	G	G	4.6	4.4	4.4	4.0J	2.2	2.5	1.8J	2.1	E	1.9J	2.9J	2.8J
20	3.6J	1.9J	E	E	E	E	G	G	3.2	G	G	G	G	G	G	3.7J	3.6	G	3.0J	2.6J	E	E	E	E
21	E	E	E	E	1.5J	E	G	G	G	G	G	G	G	G	G	G	2.2	3.0	1.8J	E	E	E	E	E
22	E	E	E	E	E	E	G	G	3.2	3.9	C	C	C	C	C	C	C	C	C	2.6J	4.1J	2.2J	E	E
23	E	E	E	E	2.4JY	E	G	2.9	3.6	G	G	3.9	5.2J	G	3.9J	G	4.2	4.7J	5.1J	5.3J	3.6J	2.6J	E	E
24	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	3.2	3.7	3.8J	4.1J	6.1J	3.7J	1.8J	2.1J	1.6J
25	E	E	E	E	E	E	G	G	3.8	G	G	4.4	4.9	4.9J	4.0	3.2	4.4J	7.4J	7.2J	6.0J	E	E	1.8J	E
26	E	E	2.0	E	E	E	G	G	G	G	G	3.8	4.2J	6.2J	3.9J	6.0JY	3.7J	3.2	3.0	1.8J	E	E	E	E
27	E	2.6J	2.7J	2.5J	1.8J	E	G	3.0	G	G	3.8	G	3.9	4.2J	4.1J	4.1J	4.1J	2.6	2.6J	2.6J	1.8J	1.8J	1.7J	E
28	E	E	E	E	E	1.5J	G	G	G	3.9	4.5	4.3	5.1J	4.9J	5.4J	G	G	C	C	1.9J	E	E	C	4.9J
29	3.2J	2.4J	1.3J	C	E	E	G	2.6J	G	3.8	4.7	C	C	G	3.9	2.4	G	3.0	2.1	E	E	E	E	E
30	E	E	E	E	E	1.4J	G	3.2	3.8	G	4.5	4.7	5.9J	G	4.2	3.7	3.6	3.0J	3.6J	4.3J	2.1J	E	4.2J	2.4J
31	E	1.6J	E	E	E	E	G	G	3.7	G	4.5	6.0J	4.1J	G	G	4.3	G	3.2	E	E	3.6J	2.5J	E	3.9J
Mean Value	2.6	2.1	2.0	2.0	1.9	1.5	2.1	2.9	3.2	3.5	4.1	4.4	4.6	4.8	4.2	3.8	3.7	3.2	3.0	3.1	2.8	2.1	2.5	2.6
Median Value	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	3.2	2.9	2.4	1.8	E	E	E	E
Count	31	31	31	30	30	30	31	30	30	31	30	29	28	30	30	30	30	29	29	31	31	31	30	31

foEs

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

K 4

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

IONOSPHERIC DATA

Mar. 1957 | foEs | 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															4.1	4.2	5.3	4.1			2.7			
2																								
3																		2.7	2.6	5.4	3.6	2.2	2.6	2.7
4	4.0	3.4	2.1	2.7	2.4																			
5																						1.9		
6		1.7			C	C		C	C									2.7					2.4	
7																	4.1	5.4	2.0		2.0	1.9	4.1	
8	1.9																	2.7	2.0					
9							2.0											2.5						
10																		2.5						
11																		3.0	2.3					
12																		2.8						
13															4.2		5.1	3.2	3.8	2.7				
14																		2.7	3.4		1.8			
15																4.2	7.0			1.9	2.6			
16																								
17			1.7																1.9					
18																							2.5	1.9
19		1.8													4.4	4.0				1.9		1.9	2.6	1.9
20	2.8																3.5		2.2	2.0				
21																		2.7						
22											C	C	C	C	C	C	C	C	C	2.5	4.0			
23													5.0				4.0	4.1	4.0	3.6	3.6	2.0		
24																		3.8	4.0	5.5			2.0	
25													4.8	4.8			4.1	7.2	7.2					
26														5.1		4.1	3.4		3.0	1.9				
27			E2.7A	1.7										4.2	4.1	4.1	4.1			2.6				
28											4.2	4.3	5.1	4.1	4.6			C	C				C	3.7
29	2.9	1.8		C								C	C											
30											4.5		5.1		4.2					4.2	1.9		4.1	2.4
31											4.5	E5.5A				4.1					2.7	1.9		2.1
Mean Value	2.9	2.2	1.9	2.2	2.4		2.0				4.4	4.3	5.0	4.6	4.3	4.1	4.5	3.5	3.2	3.1	2.8	2.0	2.9	2.5
Median Value	2.8	1.8	1.9	2.2	2.4		2.0				4.5	4.3	5.0	4.5	4.2	4.1	4.1	2.8	2.8	2.6	2.7	1.9	2.6	2.2
Count	4	4	2	2	1		1				3	1	4	4	6	6	9	15	12	11	9	6	7	6

foEs

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

K 5

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

IONOSPHERIC DATA

Mar.1957 | f-min | 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	1.55	1.40	1.25	1.25	1.30	1.40	1.60	1.70	1.80	1.55	2.40	2.20	4.10	2.30	2.10	1.85	1.60	1.60	1.70	1.70	1.65	1.65	1.60	1.60
2	1.60	1.40	1.25	1.40	1.30	1.50	1.70	1.50	1.55	1.80	2.10	2.05	2.10	1.90	1.80	1.50	1.70	1.85	1.65	1.65	1.65	1.70	1.70	1.70
3	1.70	1.35	1.40	1.00	1.40	1.35	1.70	1.85	1.65	1.70	2.10	1.90	2.20	1.85	1.80	1.55	1.65	1.65	1.60	1.60	1.60	1.60	1.60	1.60
4	1.60	1.35	1.20	1.25	1.25	1.35	1.85	1.55	1.65	1.65	1.90	2.00	2.15	2.40	1.80	1.65	1.65	1.70	1.70	1.70	1.60	1.70	1.70	1.70
5	1.70	1.40	1.25	1.40	1.25	1.50	1.70	1.80	1.70	1.90	2.00	2.00	2.10	2.10	2.10	1.60	1.85	1.80	1.60	1.65	1.65	1.60	1.60	1.65
6	1.60	1.40	1.25	1.25	C	C	1.60	C	C	1.90	2.30	2.10	2.40	2.10	1.90	1.65	1.55	1.65	1.65	1.60	1.70	1.60	1.65	1.60
7	1.60	1.45	1.35	1.35	1.35	1.45	1.65	1.65	1.60	1.85	1.90	2.20	2.20	2.10	1.90	1.85	1.85	1.60	1.60	1.60	1.60	1.60	1.70	1.70
8	1.35	1.65	E	E	E	1.35	1.75	1.65	1.80	1.85	2.00	2.00	2.35	2.40	2.50	2.00	2.15	1.65	1.60	1.60	1.70	1.70	1.70	1.70
9	1.70	1.40	1.35	E	E	1.35	1.70	1.60	1.60	1.85	2.00	2.10	2.00	2.10	2.50	2.10	1.70	1.70	1.60	1.70	1.70	1.60	1.60	1.60
10	1.60	1.70	1.25	E	1.25	1.35	1.70	1.95	1.90	2.10	2.35	2.70	2.80	2.50	2.35	2.75	1.85	1.85	1.65	1.70	1.65	1.70	1.70	1.70
11	1.70	1.60	1.25	1.25	1.40	1.40	1.85	1.65	1.80	1.90	2.10	2.40	2.50	2.20	2.30	1.70	1.85	1.40	1.60	1.70	1.60	1.70	1.60	1.70
12	1.40	1.35	1.35	E	E	1.70	1.85	1.70	1.70	1.90	2.00	2.10	2.30	2.10	2.60	1.70	1.85	1.65	1.60	1.65	1.60	1.70	1.60	1.70
13	1.70	1.35	1.30	1.25	1.35	1.35	1.60	1.70	2.10	2.10	2.10	2.60	2.50	2.10	2.35	2.10	1.70	1.60	1.60	1.60	1.80	1.60	1.70	1.70
14	1.40	1.40	E	1.30	1.35	1.50	1.70	1.60	1.40	1.70	2.00	2.10	2.05	2.00	1.70	2.10	1.40	1.70	1.70	1.60	1.60	1.70	1.70	1.70
15	1.70	1.40	1.30	1.35	1.20	1.35	1.70	1.70	1.60	1.65	2.00	2.20	2.40	2.50	2.10	2.10	1.80	1.65	1.70	1.65	1.70	1.70	1.85	1.70
16	1.60	1.40	1.25	1.25	1.40	1.40	1.70	1.70	1.70	2.00	2.00	2.35	2.25	1.95	2.20	2.00	1.70	1.65	1.60	1.60	1.65	1.65	1.65	1.65
17	1.70	1.40	E	1.00	E	1.35	1.70	1.50	1.65	2.00	2.00	2.20	2.30	2.10	2.30	2.00	1.85	1.65	1.60	1.60	1.70	1.70	1.70	1.70
18	1.40	1.35	1.30	1.35	1.25	1.35	1.65	1.65	1.65	1.85	2.00	2.00	2.40	2.10	2.10	1.75	1.85	1.70	1.65	1.60	1.65	1.60	1.60	1.70
19	1.35	1.35	1.30	E	1.50	1.40	1.70	1.70	1.60	1.70	2.10	2.10	2.30	2.20	2.50	2.10	1.40	1.80	1.60	1.70	1.65	1.65	1.70	1.60
20	1.70	1.35	E	1.00	1.30	1.40	1.85	1.90	1.65	2.20	2.50	2.15	2.15	2.60	2.10	1.60	1.40	1.65	1.60	1.65	1.60	1.70	1.60	1.65
21	1.70	1.40	E	E	E	1.30	1.65	1.65	1.70	1.90	2.10	2.40	2.30	2.30	2.10	2.00	1.60	1.60	1.70	1.60	1.70	1.70	1.70	1.90
22	1.70	1.40	1.25	1.35	1.30	1.35	1.65	1.85	1.85	1.90	C	C	C	C	C	C	C	C	C	1.65	1.60	1.70	1.60	1.70
23	1.65	1.40	1.35	1.20	1.20	1.35	1.70	1.60	1.70	1.90	2.40	2.10	2.50	2.35	2.35	2.10	1.60	1.60	1.65	1.60	1.70	1.65	1.70	1.65
24	1.70	1.60	1.40	1.40	1.35	1.35	1.70	1.65	1.70	2.10	2.35	2.30	2.10	2.30	2.10	1.85	1.40	1.40	1.65	1.80	1.65	1.70	1.60	1.60
25	1.70	1.35	1.25	1.35	1.35	1.35	1.65	1.85	1.85	2.10	2.15	2.30	2.70	2.40	2.10	2.00	1.45	1.70	1.60	1.65	1.65	1.65	1.60	1.70
26	1.70	1.35	1.35	1.40	1.35	1.35	1.85	1.85	1.80	2.35	2.40	2.30	2.30	2.60	2.35	2.00	1.85	1.70	1.60	1.70	1.70	1.60	1.70	1.70
27	1.70	1.40	1.00	E	1.40	1.40	1.70	1.70	1.70	1.70	2.05	2.10	2.80	2.40	2.65	2.25	1.70	1.85	1.60	1.60	1.70	1.80	1.70	1.70
28	1.40	1.45	1.35	1.30	1.25	1.35	1.85	1.85	1.90	2.10	2.80	2.40	2.40	2.30	2.10	2.00	1.85	C	C	1.60	1.70	1.70	I 1.70 C	1.65
29	1.35	1.35	E	C	1.35	1.35	1.85	1.85	2.10	2.10	2.15	C	C	2.35	2.10	1.80	1.85	1.55	1.65	1.65	1.70	1.50	1.70	1.70
30	1.40	1.70	E	1.25	1.25	1.70	1.70	1.65	1.70	2.10	2.30	2.40	2.20	2.70	2.50	2.10	1.90	1.40	1.60	1.70	1.70	1.70	1.65	1.60
31	1.65	1.65	1.30	1.25	1.40	1.35	1.90	1.85	2.10	2.10	2.10	2.30	2.10	2.50	2.90	2.40	2.80	1.40	1.85	1.80	1.60	1.60	1.85	1.65
Mean Value	1.60	1.45	1.30	1.25	1.30	1.40	1.70	1.70	1.75	1.90	2.15	2.20	2.40	2.25	2.20	1.95	1.75	1.65	1.65	1.65	1.65	1.65	1.75	1.65
Median Value	1.65	1.40	1.25	1.25	1.30	1.35	1.70	1.70	1.70	1.90	2.10	2.20	2.30	2.30	2.10	2.00	1.70	1.65	1.60	1.65	1.65	1.70	1.70	1.70
Count	31	31	31	30	30	30	31	30	30	31	30	29	29	30	30	30	30	29	29	31	31	31	31	31

f-min

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

K 6

23

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

IONOSPHERIC DATA

Mar.1957 | (M3000)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	2.90	2.80	2.85	2.95	2.80	2.90	3.10	3.20	3.20	3.10	2.85	2.85	2.90H	2.80	2.70	2.85	2.85	2.85	2.95	2.90	2.90	2.80R	2.80	2.70
2	2.70	2.55	2.65	2.70	2.40	2.45	2.55	2.90	3.00	2.95	2.85H	2.85H	2.80	2.70H	2.60	2.60	2.55	2.50	2.55	2.70	2.70	2.30	2.25	2.35
3	2.55	2.45	2.35	2.50	2.65	2.45	2.65	3.10	3.10	2.80	2.85	2.85	2.75	2.80	2.80	2.80	2.80	2.90	3.00	2.90	2.95	2.70	2.70	2.75
4	2.40	2.55	2.65	2.90	2.90	2.50	2.90	3.05	3.05	3.05	3.00H	2.90H	2.85H	2.80	2.75	2.75	2.80	2.90	2.85	2.90	2.85	2.75	2.70	2.65
5	2.70R	2.75	2.90	3.05	2.80	2.65	2.95	3.20	3.00	3.00	2.95	2.85H	2.80	2.75H	2.70	2.75H	2.70	2.90	2.90	2.90	2.90	2.70	2.80	2.65R
6	U2.65R	2.85	2.85	2.90	C	C	2.90	C	C	3.00	2.90	2.75H	2.75	2.80	2.75H	2.70	2.75	2.85	2.90	2.85	2.90	2.85	2.55	2.45
7	2.50	2.50	2.55	2.55	2.60	2.75	2.90	3.05	3.00	2.95	2.90	2.70	2.80	2.80	2.65H	2.70H	2.75	2.80	2.95	2.90	2.65	U2.60J	2.65	2.85
8	2.80	2.45	2.45	2.55	2.75	3.05	2.90	3.00	2.90	2.95	2.85	2.80	2.75	2.65H	2.70	2.70	2.80	2.85	2.90	2.80	2.85	2.85	2.70	2.50
9	2.40	2.60	2.95	3.10	3.00	2.55	2.85	3.15	I3.05C	2.95	2.85	2.80	2.70H	2.60H	2.60	2.65	2.65	2.70	2.75	2.80	2.70	2.70	2.70	2.60
10	2.55	2.65	2.70R	2.65	2.45	2.50	2.75	3.00	2.95	2.90	2.80	2.75H	2.70H	2.60H	2.60H	2.60	2.65	2.65	2.65	2.45	2.65	2.40	2.15	2.10
11	2.35	1.95H	2.10	2.40	2.60	2.30	2.85	2.90	2.85	2.90	2.75	2.65	2.65H	2.65H	2.65H	2.75	2.70H	2.75	2.90	2.75	2.80	2.70	2.60	2.65
12	2.70	2.60	2.65	2.85	2.65	2.70	2.85	3.00	3.00	2.90	2.75	2.75	2.70	2.70	2.60H	2.65	2.65	2.70	2.85	2.65	2.65	2.75	2.75	2.70
13	2.60	2.65	2.70	2.75	2.70	2.75	2.95	3.05	3.00	2.80	2.75H	2.70H	2.60H	2.55H	2.55H	2.60	2.65	2.75	2.80	2.80	2.65	2.70	2.65	2.60
14	2.55	2.50	2.50	2.35	2.30	2.40	2.85	2.90	2.90	2.80H	2.70H	2.75	2.55H	2.60H	2.55H	2.55	2.65H	2.75	2.80	2.70	2.60	2.75	2.80	2.70
15	2.75	2.65	2.60	2.75	2.65	2.70	2.95	3.00	3.00	2.80H	2.75	2.55	2.55H	2.55	2.50H	2.60H	2.60	2.70	2.65	2.70	2.65	2.65	2.75	2.80
16	2.80	2.70	2.60	2.65	2.55	2.45	2.55	2.90	2.90	2.75H	2.70H	2.65H	2.55H	2.55H	2.55H	2.60H	2.60H	2.65	2.70	2.70	2.60	2.60	2.70	2.65
17	2.40R	2.50	2.50	2.65	2.35	2.45	2.80	3.00	2.90	2.70H	2.65H	2.65R	2.60H	2.55H	2.55H	2.60H	2.60	2.70	2.75	2.70	2.65	2.60	2.70	2.85
18	2.60	2.60	2.80	2.70	2.40	2.50	2.85	3.00	3.05	2.85	2.80	2.70H	2.65H	2.60H	2.60H	2.65H	2.70H	2.70	2.85	2.70	2.55	2.55	2.45	2.35
19	2.55	2.70	3.10	2.85	2.45	2.50	2.90	2.90	2.90	2.90	2.75	2.80H	2.65H	2.60H	2.60H	2.65	2.65	2.75	2.90	2.80	2.60	2.65	2.65	2.60
20	R	2.65	2.85	2.80	2.50	2.45	2.85	3.00	2.95	2.85	2.80	2.80H	2.65H	2.60H	2.65H	2.60H	2.65	2.75	2.85	2.75	2.60	2.60	2.80	2.80
21	2.60	2.75	2.70	2.55	2.55	2.75	3.05	3.15	3.00	2.80	2.70	2.70H	2.65H	2.65H	2.55H	2.55H	2.65	2.70	2.80	2.75	2.60	2.75	2.70	2.75
22	2.60	2.40	2.40	2.25	2.20	2.25	2.55	2.80	2.80	2.75	C	C	C	C	C	C	C	C	C	2.75R	2.50	2.60	2.70	2.45
23	2.40R	2.40	2.55	2.75	2.50	2.35	2.70	2.90	2.85	2.85	2.75	2.70	2.65	2.60H	2.60H	2.60H	2.70	2.70	2.80	2.70	2.60	2.65	2.70	2.65
24	2.75R	2.75	2.80	2.65	2.45	2.55	2.85	3.00	2.85	2.85	2.75H	2.65H	2.65H	2.60H	2.65H	2.65	2.65	2.75	2.90	2.70	2.50	2.65	2.70	2.75
25	2.85	2.65	2.75	2.80	2.65	2.60	2.90	2.95	2.95	2.85	2.65	2.65	2.65H	2.55H	2.60H	2.55	2.55	2.75	2.80	2.65	2.35	2.30	2.45	2.35
26	2.50	2.60	2.60	2.75	2.65	2.65	2.95	3.00	2.90	2.80	2.75	2.75H	2.70H	2.75H	2.65H	2.65H	2.70H	2.85	2.90	2.85	2.55	2.70	2.65	2.55
27	2.45	2.40	2.50	2.40	2.45	2.45	2.85	3.00	3.00	2.70	2.75H	2.70	2.65H	2.65H	2.65	2.60H	2.65	2.75	2.85	2.75	2.55	2.60	2.65	2.45
28	2.55	2.60	2.50	2.45	2.75	2.45	2.85	2.80	2.85	2.85	2.70	2.55H	2.60H	2.65H	2.60	2.70H	2.45H	C	C	2.85	2.50	2.45	I2.50C	2.55
29	2.55	2.45F	2.45F	I2.50C	2.50F	2.60F	2.90	2.80	2.75	2.90H	2.80	C	C	2.55H	2.65H	2.65H	2.55H	2.60	2.80	2.70	2.65	2.60R	2.65	2.55
30	2.35	2.10	2.10	2.20	2.10	2.20	2.65	3.00	2.95	2.70	2.55H	2.70	2.55H	2.55H	2.50H	2.60	2.60H	2.70	2.75	2.75	2.65	2.55	2.60	2.70
31	2.60	2.65	2.75	2.50	2.55	2.60	2.80	2.95	2.90	2.85	2.70	2.70	2.60H	2.55H	2.55H	2.55H	2.55	2.65	2.80	2.70	2.75	2.55	2.70	2.65
Mean Value	2.60	2.55	2.65	2.65	2.55	2.55	2.85	3.00	2.95	2.85	2.80	2.75	2.70	2.65	2.60	2.65	2.65	2.75	2.80	2.75	2.65	2.65	2.65	2.60
Median Value	2.60	2.60	2.65	2.65	2.55	2.50	2.85	3.00	2.95	2.85	2.75	2.70	2.65	2.60	2.60	2.65	2.65	2.75	2.85	2.75	2.65	2.65	2.70	2.65
Count	30	31	31	31	30	30	31	30	30	31	30	29	29	30	30	30	30	29	29	31	31	31	31	31

(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

Mar. 1957 | (M3000)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												L	L		L	L	A							
2											L	L			L									
3											L	L	L	L										
4											L	L	L	L	L									
5												4.00	L											
6											L		4.20	L	L									
7										L	LH	L						A						
8											L		L		L									
9																L								
10											L													
11											L	L	B	L										
12												L	L	L	L	L								
13										L	L	L	L				A							
14											L	L												
15											L	L		L			A							
16										4.05	L													
17										L	L		L	4.05H										
18											4.15	L												
19										L	4.10L	4.10L		L		L								
20												3.85L												
21											L	L	L											
22										L	C	C	C	C	C	C	C	C						
23										4.15L		L		L	4.05									
24									L	L		L	4.00											
25										L	L	L						A						
26											L	L	L	A										
27											L													
28										L	L							C						
29										L		C	C	4.20		L								
30														L	L									
31												L		L										
Mean Value										4.10	4.15	4.00	4.10	4.15	4.05									
Median Value										4.10	4.10	4.00	4.10	4.10	4.05									
Count										2	2	3	2	2	1									

(M3000)F1 Sweep 1.0 Mc to 17.2 Mc in 2 min ☐ Manual ☒ Automatic

K 8

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

IONOSPHERIC DATA

Mar.1957 | F'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												270	250H		275	280	260A							
2											250H	250H			250									
3											280	250	250	270										
4											250H	240H	250H	250	250									
5												250H	250											
6											250		275	270	250H									
7										245	250	250						270A						
8											250		250		250									
9																250								
10											250													
11											250	260	250H	250H										
12												245	250	250	250H	270								
13										245	240H	250H	250H				280A							
14											250H	260												
15											250	250		260			335A							
16										235H	235H													
17										235H	250H		250H	255H										
18											250	250H												
19										250	250	250H		250H		255								
20												250H												
21											240	250H	250H											
22										250	C	C	C	C	C	C	C	C						
23										250		280		270H	250H									
24									245	250		260H	265H											
25										255	250	280						300A						
26											250	240H	250H	250H										
27											240H													
28										250	250							C						
29										250H		C	C	255H		250H								
30														250H	250H									
31												260		250H										
Mean Value									245	245	250	255	255	255	255	260	290	285						
Median Value									245	250	250	250	250	250	250	255	280	285						
Count									1	11	20	20	13	13	8	5	3	2						

F'F2

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

K 9

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

IONOSPHERIC DATA

Mar. 1957 | h'F | 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	260	280	275	250	270	280	250	225	235	250	245	225	225	250	240	255	A	255[A]	[E]305[B]	245	255	250	280	290
2	305	300	275	280	370	355	305	240	230	230	230	230	245	245[H]	240	250	260	275	255	230	205	320	400	375
3	350	275	305	280	280	330	315	250	240	230	235	250	230	225	235	245	250	250	245	255[A]	250	250	280[A]	310[A]
4	A	350[A]	295	275[A]	250	325	280	240	230	240	225	200	230	235	225	245	250	250	235	250	250	250	280	275
5	275	265	250	245	235	300	280	235	235	235	240	220	230	230[H]	240	245[H]	250	265	240	240	250	275	275	325
6	300	280	275	255	C	C	255	C	C	250	240	240[H]	200	245	235	250	250	250	245	245	250	240	300	345
7	325	320	305	300	275	255	260	230	230	230	225[H]	230	250	250	240[H]	250[H]	255	[I]250[A]	245	250	265	300	320[A]	255
8	280	325	325	300	250	225	250	235	240	245	230	250	230	230[H]	230	250	250	260	250	250	245	230	255	330
9	350	300	250	230	210	290	280	250	250	250	250	250	250[H]	250[H]	235[H]	240	250	250	260	240	270	260	280	305
10	305	305	270	255	270	280	290	250	245	245	225	240[H]	220[H]	250[H]	235[H]	250	255	250	280	250	275	300	395	420
11	355	360[H]	420	330	250	350	260	240	250	250	235	250	[I]240[B]	230	225[H]	250	250[H]	260	250	245	255	250	265	280
12	280	280	270	250	220	255	255	230	235	230	235	210	225	235	235	255	250	255	250	255	285	260	260	270
13	300	280	280	270	250	250	260	240	235	230	230	220	230	250[H]	245[H]	250	[I]260[A]	275[A]	260[A]	250	250	245	260	280
14	305	325	300	325	350	350	255	230	230	220[H]	230	220	250[H]	240[H]	250[H]	250[H]	250[H]	260	250[A]	255	290	280	290	260
15	270	280	280	270	270	280	255	240	240	230[H]	220	240	230[H]	240	250[H]	260[H]	[I]260[A]	260	255	265	305	280	280	290
16	290	270	275	280	275	310	260	240	230	210	205	250[H]	235[H]	250[H]	250[H]	245[H]	250[H]	265	270	240	255	275	290	275
17	305	325	325	265	225	310	265	230	230	225	210	250[H]	230	215[H]	250[H]	250[H]	250	250	250	255	275	260	300	280
18	290	305	265	250	325	280	250	240	245	235	210	220	235[H]	235[H]	240[H]	250[H]	250[H]	255	255	240	265	300	350[A]	380
19	340	290	240	205	300	330	255	235	230	230	200	205	250[H]	225	250[H]	245	255	260	250	250	300	285	305	280
20	305[A]	295	270	240	300	320	250	250	240	235	250	220	230[H]	230[H]	230[H]	250[H]	250	265	255	250	230	285	280	275
21	290	270	255	260	250	255	250	230	235	230	220	230	230	245[H]	250[H]	250[H]	255	265	250	250	275	280	300	295
22	300	350	330	375	395	375	250	230	235	230	C	C	C	C	C	C	C	C	C	250	330[A]	300	280	325
23	350	350	310	250	290	305	235	250	230	220	250	230	260[A]	240	220	250[H]	255	255	250[A]	255	290[A]	280	290	305
24	285	250	240	275	310	295	250	240	230	235	225[H]	240	205	250[H]	240[H]	250	250	265[A]	265[A]	290[A]	300[A]	300	300	280
25	260	275	280	260	250	275	250	240	240	230	225	240	250[H]	250[H]	250[H]	250	255[A]	A	[E]300[A]	230	350	355	330	315
26	250	300	280	255	290	300	260	250	235	230	220	220	230	[I]240[A]	245[H]	250[H]	250[H]	250	255	240	250	260	260	320
27	350	350	305[A]	290	265	300	250	240	240	230	205	245	250[H]	240[H]	240	250[H]	250	270	255	250	270	250	300	345
28	310	300	300	300	255	270	255	250	250	240	235	230[H]	250[H]	230[H]	250	250[H]	250[H]	C	C	235	250	330	[I]340[C]	350[A]
29	335[A]	310	325	[I]300[C]	270	275	255	250	245	240	250	C	C	215	245[H]	240	250[H]	260	275	245	255	305	300	300
30	360	450	405	390	400	400	255	240	240	230	250[H]	255[A]	250[H]	230	230	250	250[H]	260	290[A]	280[A]	270	285	330[A]	305
31	310	300	250	280	295	295	250	245	240	240	250	225[A]	230[H]	230	235[H]	250[H]	250[H]	260	265	250	260[A]	300	300	300
Mean Value	305	305	290	275	280	300	260	240	235	235	230	230	235	240	240	250	250	260	255	250	270	280	300	310
Median Value	305	300	280	270	270	300	255	240	235	230	230	230	230	240	240	250	250	260	255	250	265	280	290	300
Count	30	31	31	31	30	30	31	30	30	31	30	29	29	30	30	30	29	28	27	31	31	31	31	31

h'F

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

Mar.1957 | h'Es | 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									115				B		150	140	125	120	110	120	110	110	105	U 105 B
2		U 105 B							125	110	110	105	110					125					U 120 B	
3																130		130	120	110	110	115	110	110
4	110	110	110	110	110	U 125 B		125	125							105	105	150	105	105	105	100		110
5	U 110 B							120	120								G	150	125			110	110	110
6	115	105					115	C	C								105	130					110	
7	110																130	125	125	110	110	110	105	110
8	105			110					115	110			105					130	125					
9							105		125								160	135			120			110
10	U 110 B	U 120 B					115											150						
11									120								140	125	125					
12			110	105	100												G	155	130	U 120 B			U 110 B	
13				115	110				145	125	120			110	115	110	105	105	125	120				
14							125						105				160	150	125	120	110	U 110 B	110	110
15									110	110						145	125	125	125	110	110	105		
16							U 125 B		110	115								140						
17			105					125			130						125	130	125					
18									120									140				115	110	110
19	110	110	U 110 B					125	120				180	120	120	110	105	150	105	105		115	110	110
20	110	110							120							110	130		105	105				
21					105												105	140	105					
22									125	130	C	C	C	C	C	C	C	C	C	120	110	115		
23					110			160	130			120	125		125		150	140	130	125	120	120		
24																115	150	135	120	110	120	120	120	U 120 B
25									125			120	115	110	110	110	130	125	125	130			120	
26			110									120	120	120	110	110	105	125	125	105				
27		105	105	105	110			G			125		120	115	110	105	105	G	105	105	105	110	U 120 B	
28						U 115 B				G	130	125	120	120	110			C	C	130			C	120
29	110	115	U 110 B	C				125		G	130	C	C		105	105		140	130					
30						U 120 B		125	125		130	125	120		130	140	110	105	125	120	120		115	105
31		U 110 B							125		125	115	125			140		130			120	120		110
Mean Value	110	110	110	110	110	120	120	130	120	115	125	120	120	115	120	120	125	135	120	115	115	115	115	110
Median Value	110	110	110	110	110	120	115	125	120	120	130	120	120	120	110	110	125	130	125	115	110	110	110	110
Count	9	9	—	5	6	3	5	8	18	8	8	7	11	6	10	14	21	28	22	18	13	14	14	13

h'Es

Sweep 1.0 Mc to 17.0 Mc in 2 min ☐ Manual ☒ Automatic

K 11

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

IONOSPHERIC DATA

Mar. 1957 | type of **Es** | 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									l						h	h	c	f2	f	f	f2	f2	f	f
2		f							l	f	f	f	f					l					f	
3																h		c	f2	f	f2	f2	f2	f
4	f2	f2	f2	f2	f2	f		l	l							f	f	hl	f	f	f	l		f
5	f							l	f								h	h	f			f2	f2	f2
6	f	f					f										l	c					f	
7	f																c	c	f	f2	f2	f2	f	f
8	f			f					l	l			f					c	f					
9							f		f								h	f			f			f2
10	f	f					f											h						
11									f								c	cl	f					
12			f	f	l												hl	h	f	f			f	
13				f	f				h	c	c			f	f	f	f2	f2	f2	f2				
14							f						l				h	h	f2	f2	f	f	f	f
15									l	l						h	c	f	f	f	f	f		
16							l		l	l								c						
17			f					l h			h						c	c	f					
18									f									c				f2	f2	f
19	f	f	f					l	l				hl	c	c	f	l	h	f	f		f	f2	f2
20	f2	f							l							f	cl		f2	f				
21					f												l	cl	f					
22									l	C										f2	f	f		
23					f			h	h			c	f		c		hl	c	f2	f2	f2	f2		
24																l	h	cl	f2	f2	f2	f	f2	f
25									c			c	c	f	f	l	cl	f2	f2	f			f	
26			f									f	f	f	f	l2	f2	cl	fl	f				
27		f	f2	f2	f			h			c		f	f	f	f	f2	h	f2	f2	f	f	f	
28										h	c	c	c	f	f					f				f2
29	f2	f2	f					f		h	h				l	l		h	f					
30								l	c		h	c	c		h	hl	f2	f	fl	f2	f		f2	f2
31		f							c		c	c	c			h		c			f2	f2		f2
Mean Value																								
Median Value																								
Count																								

type of **Es**

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

K 12

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

IONOSPHERIC DATA

Mar.1957 | 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	340	355	355	335	370	355	305	290	300	310	350	350	360H	355	380	355	350	345	340	345	350	355R	370	390
2	400	420	400	400	490	460	410	315	305	330	355H	360H	365	395H	400	400	405	420	405	390	395	475	525	500
3	450	445	525	460	400	460	400	305	295	350	355	350	370	365	360	355	350	345	325	325	330	375	395	380
4	450	430	395	330	325	455	345	300	310	305	340H	345H	365H	365	375	380	355	350	355	350	355	365	385	390
5	380R	380	350	310	350	395	330	280	315	325	325	355H	355	375H	375	370H	380	340	350	345	345	380	375	400R
6	U390R	360	360	345	C	C	330	C	C	325	350	370H	375	360	380H	380	360	350	345	350	345	355	410	450
7	430	430	425	410	405	375	350	305	320	325	350	375	370	370	400H	390H	360	350	325	350	395	U405J	390	350
8	360	445	450	420	375	300	330	315	335	330	350	365	395	395H	390	380	360	350	340	355	350	350	380	440
9	450	405	330	300	300	425	350	305	I315C	325	355	350	390H	405H	400	400	395	370	365	360	400	395	375	410
10	410	410	375R	400	435	430	360	325	330	345	370	390H	400H	410H	410H	405	400	390	400	440	400	455	550	580
11	490	645H	550	460	400	480	335	330	350	340	375	400	400H	405H	400H	380	375H	360	340	360	350	360	405	390
12	395	400	395	340	390	375	330	300	315	350	400	370	390	390	420H	400	390	370	350	400	400	365	375	375
13	415	400	400	370	385	355	330	305	320	350	375H	380H	400H	430H	420H	410	400	370	345	340	390	355	395	400
14	420	450	430	470	495	470	330	320	335	355H	375H	375	425H	400H	415H	410H	395H	370	350	380	405	390	370	370
15	375	400	410	380	405	375	325	310	320	365H	380	410	420H	420	440H	410H	400	385	390	400	405	395	390	380
16	365	385	400	400	420	450	420	320	345	360H	390H	400H	410H	410H	415H	405H	400H	400	370	395	400	395	395	395
17	450R	450	440	395	475	450	350	320	325	375H	400H	400H	405H	405H	440H	405H	395	380	360	375	400	400	395	355
18	400	420	360	375	460	425	345	320	305	355	360	380H	400H	395H	410H	405H	395H	370	350	375	415	425	450	500
19	450	390	310	345	450	450	340	325	340	350	370	365H	400H	405H	400H	400	395	375	340	370	415	400	400	390
20	R	400	355	350	445	450	335	325	325	355	360	365H	400H	400H	400H	400H	395	375	350	350	400	400	380	365
21	395	380	380	400	405	380	305	280	320	360	380	390H	390H	405H	410H	415H	390	375	355	355	405	380	390	380
22	405	465	460	530	535	510	400	355	350	370	C	C	C	C	C	C	C	C	C	375R	425	390	390	450
23	455R	475	430	375	430	470	380	345	330	355	375	390	400	415H	420H	400H	420	380	355	385	405	400	385	405
24	385R	360	350	400	450	420	350	325	360	340	370H	400H	400H	400H	400H	395	390	370	350	360	420	400	395	370
25	350	380	385	360	395	400	330	320	325	350	390	425	400H	430H	400H	410	410	370	350	400	480	490	450	460
26	410	405	400	375	405	405	340	310	330	360	375	370H	395H	400H	400H	400H	380H	355	340	345	405	375	390	440
27	465	465	425	450	450	440	345	310	310	370	380H	395	400H	400H	400	400H	400	365	345	365	420	405	405	460
28	425	405	435	455	375	450	340	350	345	345	375	420H	395H	400H	400	395H	435H	C	C	350	450	460	I445C	430
29	420	440F	455FI	430C	410F	410F	350	340	350	355H	360	C	C	415H	400H	400H	410H	405	360	365	390	425R	400	410
30	500	600	590	550	570	520	375	325	320	380	415H	380	420H	420H	425H	400	400H	380	375	370	395	405	400	400
31	400	385	360	430	435	400	350	330	350	345	370	390	405H	415H	410H	420H	405	380	350	375	375	410	385	395
Mean Value	415	425	410	400	420	425	350	315	325	345	370	380	395	400	405	395	390	370	355	370	395	400	405	415
Median Value	410	405	400	400	410	430	345	320	325	350	370	380	400	400	400	400	395	370	350	365	400	395	395	400
Count	30	31	31	31	30	30	31	30	30	31	30	29	29	30	30	30	30	29	29	31	31	31	31	31

foF2

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

Mar. 1957 | 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	100	100	95	95	90	85	95	85	55	75	90	90	50H	95	115	85	110	110	110	100	105	95R	85	90
2	90	80	100	90	100	90	95	85	95	80	75H	85H	80	100H	100	100	100	140	105	90	85	175	100	100
3	75	155	80	90	60	100	70	95	65	100	95	80	85	90	85	95	100	100	75	115	120	125	95	70
4	120	80	100	80	130	105	65	95	80	75	65H	80H	65H	85	75	75	95	80	75	90	95	95	80	125
5	90R	95	75	90	110	110	75	75	75	75	75	75H	95	80H	95	85H	95	70	75	95	80	75	75	95R
6	U 65R	70	90	85	C	C	100	C	C	85	70	85H	85	90	75H	85	105	100	60	95	105	95	140	125
7	120	110	125	130	95	125	75	85	80	75	80	95	80	75	95H	70H	115	100	85	90	110	U 95J	70	110
8	90	85	105	105	100	120	120	80	90	80	80	90	75	85H	80	80	95	95	70	95	100	100	110	110
9	115	120	80	90	145	115	100	60	I 80C	105	95	115	100H	95H	100	105	115	100	95	105	95	120	80	90
10	90	90	125R	110	115	120	110	85	75	75	85	70H	80H	105H	110H	120	105	110	120	100	90	110	100	120
11	110	155H	150	145	140	150	135	130	100	85	85	95	75H	95H	90H	80	125H	100	105	140	100	170	145	110
12	105	110	100	120	160	105	120	120	95	80	75	90	90	85	110H	100	115	110	125	100	100	95	125	100
13	105	110	100	135	120	135	110	95	85	105	80H	120H	95H	95H	105H	95	100	80	105	100	95	100	115	145
14	100	100	95	135	135	110	95	130	115	95H	90H	75	110H	105H	95H	115H	105H	110	105	120	115	80	85	135
15	80	100	115	100	120	125	125	130	130	105H	95	120	100H	130	110H	120H	110	85	150	100	100	110	100	80
16	85	105	110	100	105	105	140	110	105	95H	90H	95H	100H	95H	95H	95H	100H	90	95	100	100	105	100	115
17	110R	50	110	105	135	110	140	95	85	100H	100H	100H	95H	120H	80H	95H	110	120	90	95	100	110	85	90
18	100	90	90	115	130	150	80	80	95	95	95	100H	100H	115H	90H	95H	115H	115	100	115	130	105	100	120
19	70	100	85	130	100	110	110	105	85	90	85	80H	95H	95H	100H	90	105	85	110	90	85	90	100	115
20	R	110	90	140	105	130	130	85	75	90	70	80H	95H	100H	90H	95H	100	80	105	90	90	90	75	90
21	105	70	100	105	135	120	95	95	80	100	85	85H	80H	90H	85H	85H	90	120	105	95	100	90	100	95
22	95	95	100	105	120	100	160	105	80	85	C	C	C	C	C	C	C	C	C	75R	120	110	95	100
23	95R	85	80	85	100	130	100	75	130	95	90	120	100	110H	90H	110H	80	120	125	105	115	105	95	85
24	75R	90	110	125	125	130	140	100	90	110	105H	100H	105H	100H	85H	105	120	100	90	120	145	105	85	110
25	100	100	75	90	110	130	100	130	100	105	110	75	100H	105H	95H	115	100	100	100	155	120	120	100	180
26	140	95	100	105	95	95	65	95	120	95	105	100H	75H	65H	95H	100H	110H	115	85	105	120	125	115	80
27	105	145	165	150	125	135	135	110	95	120	80H	95	100H	95H	100	135H	100	135	95	95	130	110	115	110
28	115	125	115	145	125	130	155	150	120	100	125	130H	130H	80H	120	100H	140H	C	C	125	125	100	I 95C	90
29	100	100F	105F	I 110C	120F	140F	90	110	125	90H	100	C	C	90H	90H	110H	140H	120	90	115	80	75R	90	140
30	90	100	110	120	160	140	125	135	110	140	110H	80	100H	90H	125H	105	100H	90	75	90	105	115	105	75
31	100	115	100	100	95	100	100	80	80	80	100	90	95H	100H	100H	90H	110	120	110	100	95	110	95	110
Mean Value	100	100	105	110	115	120	110	100	95	95	90	95	90	95	95	100	105	105	100	105	105	105	100	105
Median Value	100	100	100	105	120	120	100	95	90	95	90	90	95	95	95	95	105	100	100	100	100	105	100	110
Count	30	31	31	31	30	30	31	30	30	31	30	29	29	30	30	30	30	29	29	31	31	31	31	31

ypF2

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

Mar. 1957 | 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	I 8.6 S	8.2	6.9	7.0 H	6.1	I 5.3 S	4.5	7.1	10.4	11.7	12.7	13.0 H	13.5 H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 C	U 14.0 C	13.5	12.4	11.7	I 10.6 S	9.5 S	8.7
2	8.3 S	7.5	6.9 H	6.3 H	5.8 H	6.0 H	6.2	8.8	12.2	10.8 H	13.4 H	13.7	13.5 H	U 14.2 G H	U 14.3 G H	13.5 H	13.1 H	13.5	13.1	11.6	9.5 S	9.5 S	9.2	9.1 H
3	J 8.3	8.0	8.1 S	8.1	6.0	5.1 H	5.3 H	J 7.8 S	12.0	13.6	U 14.3 G H	D 13.8 C	D 13.8 G H	D 13.8 G H	D 13.8 G H	U 14.3 G H	13.6 H	12.6 H	12.8	13.2	S	C	C	8.1
4	8.0	8.1	7.5 H	7.7	8.2	7.8	8.0	12.6	11.2	13.2	D 13.8 C	D 12.2 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 C	D 13.8 C	D 13.8 C	D 13.8 C	13.7	13.1
5	12.7	10.5 S	9.2 S	8.3	6.7 H	4.9	4.8	8.0	11.8	13.4	U 14.5 C	U 14.0 G H	D 13.8 G H	U 14.1 C	D 13.8 G H	U 14.1 G H	13.6 H	U 14.0 G H	13.8	13.5	13.0	11.1	J 10.2 S	9.5
6	9.5	9.0	8.6	8.1	5.1	5.7 H	5.9 H	7.9	10.5	12.3 H	D 13.8 C	U 14.3 C	U 14.2 G H	D 13.8 G H	D 13.8 C	U 14.0 H	I 14.2 G H	U 14.5 G H	13.5	11.7	9.9 S	J 10.0	8.8	8.3 H
7	8.3 H	8.0 H	7.7 H	7.3	6.8 H	6.1	5.4 H	7.9 H	12.1	U 14.0 C	13.3	U 14.0 G H	U 14.5 C	D 13.8 G H	U 14.3 G H	U 14.5 G H	U 14.1 G H	13.5 H	13.0	11.7	10.0 S	J 10.4	11.2	11.1
8	J 10.4	8.3 S H	7.3 H	7.2	7.2 H	6.5 H	4.4	7.8	10.5	13.2	U 14.0 C	13.9	U 14.0 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	U 14.3 G H	13.8	13.0	12.3	J 11.4	9.2 H	U 8.6 S H
9	8.0 S H	8.0	8.2 S	7.4	4.6 H	3.8 H	4.1 H	7.6	11.3	13.7	13.7	13.5	D 13.8 G H	D 13.8 G H	U 14.2 G H	13.6 H	13.2 H	13.0 H	12.8 H	12.4	I 11.2 S H	10.1 H	10.0	9.9 H
10	9.6 H	9.7	9.0	7.7	6.6 H	6.5 H	6.7	9.6	13.0	U 14.0 C	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	U 14.0 G H	13.5	13.5	D 13.8 C	FS	FS	FS
11	9.0 H	7.3	7.8	8.1	7.0 H	7.5 H	9.3 H	J 12.7 F	13.5	D 13.8 C	13.9	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	C	D 13.5 G H	U 14.3 G H	D 13.5 C	U 14.0 C	12.6	11.7 H	11.8	13.4
12	FS	S	11.0	10.4	7.7	6.0 H	5.8	9.0	11.0	12.4	13.4 H	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	U 13.8 G H	13.6 H	13.0	11.6 H	11.2	11.6	11.4	J 10.4 H
13	10.0 H	I 8.8 S	7.7 H	S	6.8	5.9 H	5.6 H	I 8.4 S	11.3	12.9	13.6	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	C	D 13.5 G H	D 13.5 G H	D 13.5 C	D 13.5 C	D 13.5 C	SH	D 13.5 C	S
14	12.0 S	S	SH	7.5 H	7.0 H	6.9 H	7.5 H	S	12.5	U 14.0 G H	U 14.2 C	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	U 14.0 C	12.9	13.0 S	D 13.5 C	D 13.5 C	12.6
15	9.6 S	I 8.6 S	7.7 H	7.3 H	6.6	5.9 H	5.8 H	9.0	11.2	13.0	13.3	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	13.2 H	12.5 H	12.3	12.0 H	13.0	13.2 H	S	FS
16	FS	10.9 H	J 9.6 H	I 8.7 S H	7.8 H	6.7 H	7.0 H	I 9.6 S	12.1	12.7 H	13.7	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	U 14.2 G H	U 14.0 C	U 13.8 C	13.0 S	11.7 H	11.5	11.1
17	J 10.4 S	U 9.1 S	8.6 H	8.2 H	7.2 H	6.7 H	6.0	U 9.0 S	11.8	12.2 H	U 13.8 C	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	U 13.9 G H	13.5 H	13.1	12.3	11.8	11.9	11.5	11.6
18	10.9	U 9.1 S	S	J 8.1 H	6.7 H	7.0 H	6.7	I 9.4 S	12.0	13.2	13.9	D 13.5 G H	D 13.5 G H	D 13.5 G H	D 13.5 G H	14.5 H	13.9 H	13.0 H	12.5	11.7	10.9 H	J 10.5 H	10.4 H	10.1
19	J 9.8	U 9.0 S	SH	7.4	5.3	5.1	5.7	U 9.2 S	12.0	13.6	13.6	14.4 H	14.6	14.9 H	14.8 H	14.4 H	14.1 H	13.9 H	13.6	12.0	11.2	12.0	11.7	11.0
20	9.7 S	U 9.4 S	S	8.3	6.6	6.7	7.5	10.5	12.5	13.8	14.6 H	15.0 H	15.7 H	15.8 H	15.5 H	15.6 H	15.3 H	15.0	14.5	13.9	12.7 H	11.5 H	11.4	10.5
21	U 9.0 S	U 8.9 S	8.6	7.8	6.7	5.9	6.0 H	8.7	10.6	12.3	13.0	13.9 H	15.0 H	15.5 H	15.7 H	15.4 H	14.8 H	14.5 H	13.6	I 13.2 C	12.7	13.0	11.9	11.1
22	J 10.9	8.1	8.0	7.2	7.0	7.0	7.3	J 9.9 H	I 11.8 C	13.6 H	13.6	14.8 H	15.3 H	15.3 H	15.5 H	15.2 H	15.5 H	15.0 H	15.0	14.6	14.4	13.5	13.0	12.0 H
23	J 9.6	U 9.4 S	U 9.2 S	9.0	7.2	7.0	7.5	9.9	13.0	13.9	14.5	15.5	15.7 H	J 15.1 H	15.4 H	J 15.4 H	J 15.1 H	15.5 H	15.0	14.6	14.6	U 14.1 S H	U 14.2 S	13.6
24	13.0	11.7	J 10.1	8.4	7.1	7.4	7.6	9.8	12.3	12.9 H	13.2	13.8 G H	14.6 H	15.2 H	14.8 H	14.5 H	13.7 H	13.7 H	13.1	11.7 H	10.9	10.5	10.9	11.0
25	10.8	U 8.9 C	J 8.2 H	7.9	6.3 H	5.9 H	6.5	9.6	12.9	12.2	12.1 H	13.2 H	15.4 H	15.6 H	15.5 H	15.4 H	J 14.3 H	14.1 H	13.3	11.5	9.9 H	10.0 H	10.1	I 9.6 S
26	U 9.0 S H	J 8.0	8.4 H	8.6	7.6	7.3	7.6	10.0	12.0 H	13.0	U 13.8 G H	14.9 H	15.6 H	15.7 H	15.7 H	15.5 H	J 14.9 H	D 15.0 G H	D 13.8 C	D 13.5 C	D 13.5 C	D 13.5 C	D 13.5 C	D 13.5 C
27	12.0	12.1	11.4	10.9	10.1 H	U 9.1 S H	U 9.0 S H	11.0	12.5	13.4 H	14.4 H	I 15.1 C	15.8 H	D 15.0 S H	J 15.8 H	15.4 H	15.2 H	14.7	J 14.0	13.1 H	12.5 H	12.0 H	11.8	J 10.6
28	10.9	J 10.8	9.8 H	8.8	8.7	7.0	7.3	J 9.7	12.8	15.0	13.3	12.3	13.9 H	14.5 H	13.3 H	12.5 H	11.5 H	12.6 H	U 14.0 C	10.9	7.5 H	7.7	7.4 H	7.5 H
29	7.5 H	7.0	6.9 H	6.6 V	5.8 H	5.3 V	5.9	8.8	11.7	13.5	14.4	14.5	15.1 H	15.0 H	14.9 H	14.4 H	13.7 H	13.5 H	J 14.0	13.3	11.0 H	10.5 H	11.2	10.5
30	U 9.0 S H	7.8	7.7	7.7 H	7.5	7.8	8.6	10.8	10.5	10.9 H	14.3 H	15.6	U 14.5 S	14.7 H	14.6 H	J 14.2 H	13.6 H	13.0	U 13.3 C	I 12.2 C	11.0	I 10.8 C	10.7	10.4
31	9.7	S	S	8.4	8.2 H	8.2	8.1	10.6	13.2	14.4	14.0	14.5 H	14.8 H	15.0 H	15.0 H	14.9 H	15.2 H	15.2 H	U 14.1 C	U 14.0 C	13.3	12.5	12.3	12.0
Mean Value	9.8	8.9	8.5	8.0	6.9	6.5	6.6	9.4	11.9	13.1	13.7	14.2	14.8	15.0	14.9	14.5	14.1	13.9	13.6	12.7	11.7	11.3	11.0	10.6
Median Value	9.6	8.8	8.2	8.0	6.8	6.5	6.5	9.3	12.0	13.2	13.8	14.2	14.7	15.0	14.9	14.5	13.9	14.0	D 13.5	13.0	12.4	11.6	11.4	10.6
Count	29	28	26	30	31	31	31	30	31	31	31	20	18	14	17	21	23	28	31	31	30	28	28	28

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

Mar. 1957 | foEs | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

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	S	S	E	J1.6	E	S	S	S	2.8	3.4	3.9	G	G	4.6	4.1	4.5	J4.6	J5.6	J5.3	J3.7	J3.5	J1.7	S	J1.9
2	J1.7	S	E	E	E	E	S	S	G	3.5	4.0	4.1	4.3	G	3.9	4.0	3.9	3.3	J2.9	J2.6	J2.9	J5.9	J1.6	S
3	J2.0	J2.1F	J2.5	C	J2.6	J2.6	S	J1.8	C	3.4	G	G	G	G	G	J8.3	J5.3	J3.4	E	J1.7	S	C	C	C
4	S	J2.2	J2.7	E	E	J1.9	S	S	J2.7	G	G	C	G	S	4.0	3.9	G	G	G	S	J2.6	J2.7	S	J1.7
5	S	S	S	S	J1.7	J2.1	S	J1.7	G	3.6	3.9	3.9	4.0	G	4.0	G	G	3.3	J4.5	J2.6	J1.6	S	S	J1.7
6	S	S	S	J1.7	S	J1.7	J1.7	2.3	G	G	G	3.9	G	G	J8.3	G	G	G	J1.7	S	S	S	S	J2.6
7	J2.0	J1.7	J1.6	J1.7	J1.7F	J1.7	S	G	3.1	3.3	G	G	G	4.7	5.4	J6.1	J5.3	J4.3	J2.5	J2.4	J1.7	J1.6	E	E
8	J2.9	J1.5	J1.7	E	J1.7	J1.7	E	G	G	3.5	G	4.0	G	5.5	4.5	3.9	3.5	G	2.9	J2.5	S	S	S	S
9	S	S	J1.6	S	J1.7	S	S	J3.4	J2.9	G	G	G	J5.3	G	G	J5.9	3.6	J5.2	J2.6	J2.5	J1.7	S	S	J1.6
10	S	S	J2.0	S	S	J1.7	S	J2.9	3.2	3.5	G	G	G	G	4.0	G	G	3.4	2.4	S	S	J1.7F	S	J1.7
11	S	S	S	S	S	S	S	J1.7	G	G	4.0	G	G	G	G	C	G	J3.0	J2.9	J2.6	J2.5	J2.6	J2.8	J1.7
12	J1.7	E	E	J1.8	J1.7	J1.7	S	2.3	J5.1	3.5	G	4.1	G	4.4	4.2	4.5	5.2	J4.5	J3.2	J3.6	J2.1	S	S	S
13	S	J2.5	J3.1	J3.7	J2.8	J2.7	J1.8	G	G	3.4	G	4.7	4.0	4.8	J5.7	C	3.8	G	2.5	J4.2	J2.2	S	S	S
14	S	S	E	E	E	E	S	2.3	G	4.0	G	G	G	5.0	4.3	G	3.8	3.8	J3.2	J2.5	S	S	S	J2.6
15	J2.1	S	J1.8	J2.3	E	E	S	J2.5	3.1	3.8	4.0	4.3	G	G	4.0	G	G	3.8	J4.7	J3.2	J1.5	J1.8	S	J1.6
16	S	J1.9	E	E	E	E	J2.6	J2.9	G	G	3.9	4.5	J4.4	G	G	G	3.8	G	J3.1	J2.5	S	S	J1.8	S
17	S	S	S	S	S	S	S	J2.7	J5.0	G	J3.7	4.7	4.6	4.9	4.7	J5.0	G	G	G	J2.0	S	J2.6	J1.5	S
18	J1.9	S	J1.2	J1.2	S	S	S	G	G	3.8	3.9	3.8	4.2	G	G	G	G	3.2	J3.0	J2.4	J1.7	J2.2	J3.0	S
19	J1.6	S	J2.2	S	S	S	S	J3.2	J4.7	G	G	G	G	G	G	J5.3	G	J3.2	G	S	J2.6	S	S	S
20	S	S	S	S	J1.7	J2.6	S	J2.9	J3.2	G	4.0	G	J6.8	J4.3	J4.2	J4.9	G	G	J3.2F	J2.7	J1.9	S	S	S
21	S	S	J1.7	S	S	S	S	G	G	3.7	G	4.2	4.2	G	G	J5.4	3.8	3.3	2.6	C	S	S	S	S
22	S	E	S	E	S	S	S	J3.2	C	3.8	4.2	4.6	4.3	J5.3	J5.7	J5.4	J5.7	J4.7	J2.0	J1.6	S	J1.5	J1.6	S
23	S	S	E	E	E	S	S	G	J3.1	3.7	G	4.0	4.2	5.1	4.0	4.2	3.8	3.5	J3.7	J3.2	J4.7	J3.9	J3.4	J1.9
24	J1.5	J2.4	J3.6	J1.7	J1.9	E	S	J2.5	G	3.8	4.3	4.5	G	G	G	4.4	4.2	3.9	J4.1	J3.7	J2.6	J1.7	S	S
25	J3.3	J2.5	J2.3	1.1	S	S	S	J3.2	J5.0	J3.6	G	J4.0	4.1	4.3	4.1	4.2	3.8	J3.2	J3.9	J5.4	J3.3	J3.0	S	J6.6
26	J2.6	E	E	E	E	J1.5	S	G	J3.2	4.0	4.0	4.4	G	4.4	G	G	G	J3.2	J3.4	J2.9	J1.9	S	S	S
27	S	J1.7	J2.1	S	J2.4	J2.3	J1.6	J3.2	3.3	3.9	J4.5	C	G	G	3.8	G	3.8	J3.2	G	J2.3	S	S	S	S
28	S	S	S	S	S	S	J1.7	2.7	J3.2	G	G	G	4.3	4.3	3.8	G	J5.8	J4.5	J5.3	J3.0	S	S	J1.8	J2.1
29	J2.1	J2.4	J1.9	J1.8	E	E	J1.9	G	G	J3.7	4.5	J5.0	J6.0	6.0	J4.7	4.5	G	J3.2	J3.0	J3.2	J1.8	J1.8	S	S
30	S	S	E	E	E	E	S	G	G	4.0	4.5	J6.5	J5.4	J6.2	J5.6	J5.7	J5.0	C	C.	C	S	C	S	C
31	S	J1.8	J2.6	J2.2	S	J1.9	J1.9	J2.9	J3.2	J5.3	J5.1	J5.9	J6.6	J6.9	4.9	4.7	J5.3	4.5	J3.1	J1.7	J1.2	J1.1	J2.2	J1.9
Mean Value	2.1	2.1	2.2	1.9	2.0	2.0	1.9	2.6	3.6	3.7	4.2	4.5	4.8	5.0	4.6	5.0	4.4	3.8	3.3	2.8	2.3	2.4	2.2	2.3
Median Value	2.0	1.8	1.7	1.2	E	1.7	1.8	2.3	2.8	3.5	3.7	4.0	4.0	4.3	4.0	4.2	3.8	3.3	3.0	2.6	2.1	1.8	1.8	1.8
Count	12	14	24	20	20	20	8	28	29	31	31	29	31	30	31	29	31	30	30	25	19	15	10	14

foEs

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

Mar.1957 | (M3000)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	I 2.85 S	2.80	2.70	2.90 H	3.00	I 2.90 S	2.80	3.20	3.15	3.15	3.05	2.85 H	2.75 H	CH	CH	CH	C	U 2.85 C	2.90	2.90	2.80	I 2.80 S	2.80 S	2.90
2	2.75 S	2.55	2.85 H	2.85 H	2.40 H	2.35 H	2.50	2.80	3.05	2.85 H	2.85 H	2.85	2.75 H	U 2.75 C H	U 2.80 C H	2.75 H	2.65 H	2.90	2.95	3.00	2.80 S	2.85 S	2.80	2.75 H
3	J 2.85	2.55	2.75 S	3.10	2.80	2.45 H	2.55 H	I 2.80 C	3.00	3.00	U 2.80 C H	C	CH	CH	U 2.60 C H	U 2.55 C H	2.55 H	2.45 H	2.55	2.70	S	C	C	2.35
4	2.40	2.70	2.30 H	2.35	2.50	2.35	2.40	3.35	3.15	3.05	C	CH	CH	CH	CH	CH	CH	CH	C	C	C	C	3.00	2.80
5	2.75	2.75 S	2.75 S	3.00	3.00 H	2.75	2.80	3.10	3.15	3.15	U 3.05 C	U 2.80 C H	CH	U 2.70 C	CH	U 2.70 C H	2.70 H	U 2.85 C H	2.90	2.85	2.80	2.70	J 2.75 S	2.75
6	2.75	2.80	2.90	3.00	2.75	2.45 H	2.55 H	3.05	3.10	2.95 H	C	U 2.80 C	U 2.75 C H	CH	C	U 2.65 H	I 2.70 C H	U 2.75 C H	2.90	2.80	2.75 S	J 2.85	2.55	2.60 H
7	2.65 H	2.60 H	2.65 H	2.70	2.55 H	3.05	2.35 H	2.80 H	3.05	U 3.05 C	2.85	U 2.75 C H	U 2.85 C	CH	U 2.70 C H	U 2.65 C H	U 2.70 C H	2.75 H	2.85	2.80	2.60 S	J 2.60	2.75	3.00
8	J 2.90	2.55 S H	2.50 H	2.65	2.80 H	3.25 H	2.75	2.75	3.00	2.95	U 3.05 C	2.80	U 2.80 C H	CH	CH	CH	CH	U 2.70 C H	2.80	2.85	2.75	J 2.85	2.60 H	U 2.45 S H
9	2.35 S H	2.55	2.35 S	3.25	3.15 H	2.25 H	2.40 H	3.10	3.15	3.00	3.00	2.75	CH	CH	U 2.65 C H	2.70 H	2.60 H	2.70 H	2.70 H	2.75	I 2.70 S H	2.65 H	2.70	2.70 H
10	2.70 H	2.55	2.90	2.85	2.60 H	2.50 H	2.60	2.90	3.05	U 3.00 C	CH	CH	CH	CH	CH	CH	CH	U 2.65 C H	2.60	2.60	C	FS	FS	FS
11	2.25 H	2.10	2.15	2.50	2.60 H	2.25 H	2.60 H	J 3.10 F	2.85	C	2.75	CH	CH	CH	CH	C	C H	U 2.75 C H	C	U 2.85 C	2.80	2.75 H	2.75	2.70
12	FS	S	3.05	3.05	3.10	2.75 H	2.50	3.05	3.10	2.95	2.85 H	CH	CH	CH	CH	C H	U 2.70 C H	2.60 H	2.75	2.70 H	2.60	2.70	2.85	J 2.80 H
13	2.55 H	I 2.70 S	2.85 H	S	2.85	2.75 H	2.65 H	I 2.90 S	3.10	2.85	2.85	CH	CH	CH	CH	C	CH	CH	C	C	C	SH	C	S
14	2.70 S	S	SH	2.45 H	2.35 H	2.35 H	2.55 H	S	2.95	U 2.85 C H	U 2.80 C	CH	CH	CH	CH	C H	CH	CH	U 2.70 C	2.70	2.50 S	C	C	2.95
15	2.85 S	I 2.75 S	2.65 H	2.75 H	2.90	2.90 H	2.65 H	3.00	3.05	2.90	2.75	CH	CH	CH	CH	U 2.60 C H	2.60 H	2.65 H	2.70	2.65 H	2.55	2.60 H	S	FS
16	FS	2.90 H	J 2.85 H	I 2.85 S H	2.85 H	2.55 H	2.35 H	I 2.70 S	3.00	2.85 H	2.70	CH	CH	CH	CH	CH	CH	U 2.65 C H	U 2.70 C	U 2.80 C	2.55 S	2.50 H	2.60	2.80
17	J 2.80 S	U 2.65 S	2.70 H	2.70 H	2.70 H	2.55 H	2.35	U 3.00 S	3.05	2.85 H	U 2.65 C	CH	CH	CH	CH	CH	U 2.60 C H	2.65 H	2.75	2.70	2.55	2.55	2.60	2.80
18	2.85	U 2.75 S	S	J 3.05 H	2.40 H	2.70 H	2.70	I 2.85 S	3.00	2.90	2.80	CH	CH	CH	CH	2.60 H	2.70 H	2.70 H	2.70	2.75	2.45 H	J 2.45 H	2.45 H	2.50
19	J 2.65	U 3.00 S	SH	3.10	2.55	2.45	2.50	U 2.95 S	3.00	2.95	2.85	2.75 H	2.75	2.60 H	2.65 H	2.70 H	2.65 H	2.75 H	2.85	2.75	2.55	2.65	2.75	2.70
20	2.70 S	U 2.75 S	S	3.05	2.55	2.45	2.70	3.05	3.00	2.90	2.85 H	2.75 H	2.75 H	2.80 H	2.75 H	2.60 H	2.65 H	2.65	2.75	2.80	2.65 H	2.60 H	2.70	2.95
21	U 2.80 S	U 2.85 S	2.85	2.80	2.90	2.95	2.75 H	3.10	3.05	2.90	2.75	2.70 H	2.70 H	2.70 H	2.65 H	2.55 H	2.65 H	2.75 H	2.75	I 2.65 C	2.55	2.60	2.65	2.80
22	J 2.90	2.45	2.45	2.30	2.30	2.30	2.25	J 2.75 H	I 2.80 C	2.85 H	2.75	2.65 H	2.70 H	2.60 H	2.65 H	2.75 H	2.65 H	2.65 H	2.65	2.70	2.70	2.60	2.60	2.75 H
23	J 2.60	U 2.60 S	U 2.30 S	2.85	2.85	2.35	2.45	2.75	2.90	2.90	2.75	2.75	2.75 H	J 2.85 H	2.80 H	J 2.80 H	J 2.80 H	2.70 H	2.75	2.75	2.75	U 2.75 S H	U 2.75 S	2.75
24	2.85	3.00	J 2.95	2.85	2.45	2.55	2.70	3.05	3.05	3.00 H	2.80	2.75 S H	2.75 H	2.70 H	2.65 H	2.55 H	2.65 H	2.65 H	2.80	2.75 H	2.60	2.60	2.70	2.90
25	3.05	U 3.00 C	J 3.0 H	2.95	2.70 H	2.60 H	2.65	2.95	3.10	3.00	2.75 H	2.60 H	2.65 H	2.60 H	2.70 H	2.55 H	J 2.55 H	2.70 H	2.80	2.65	2.50 H	2.50 H	2.60	I 2.75 S
26	U 2.90 S H	J 2.75	2.70 H	2.90	2.80	2.85	2.75	3.05	2.90 H	2.85	U 2.70 C H	2.75 H	2.75 H	2.80 H	2.75 H	2.75 H	J 2.90 H	CH	C	C	C	C	C	C
27	2.50	2.50	2.65	2.65	2.50 H	U 2.75 S H	U 2.75 S H	2.90	2.95	2.70 H	2.70 H	I 2.70 C	2.65 H	SH	J 2.65 H	2.65 H	2.70 H	2.70	J 2.85	2.70 H	2.60 H	2.60 H	2.65	J 2.60
28	2.65	J 2.70	2.70 H	2.50	2.80	2.50	2.50	J 3.00	2.90	2.95	2.80	2.65	2.60 H	2.65 H	2.65 H	2.55 H	2.40 H	2.50 H	U 2.75 C	2.70	2.45 H	2.20	2.45 H	2.55 H
29	2.60 H	2.70	2.55 H	2.65 V	2.65 H	2.55 V	2.70	2.95	2.95	2.90	2.75	2.75	2.75 H	2.65 H	2.60 H	2.55 H	2.55 H	2.55 H	J 2.70	2.80	2.65 H	2.40 H	2.65	2.75
30	U 2.50 S H	2.20	2.15	2.20 H	2.15	2.20	2.40	3.05	3.05	2.60 H	2.60 H	2.75	U 2.65 S	2.60 H	2.60 H	J 2.65 H	2.60 H	2.65	U 2.75 C	I 2.65 C	2.55	I 2.60 C	2.70	2.85
31	2.80	S	S	2.75	2.50 H	2.45	2.70	2.95	2.90	3.00	2.80	2.70 H	2.65 H	2.60 H	2.50 H	2.50 H	2.55 H	2.65 H	U 2.80 C	U 2.75 C	2.65	2.50	2.70	2.80
Mean Value	2.70	2.65	2.65	2.80	2.65	2.60	2.55	2.95	3.00	2.90	2.80	2.75	2.70	2.70	2.65	2.65	2.65	2.70	2.75	2.75	2.65	2.60	2.70	2.75
Median Value	2.75	2.70	2.70	2.85	2.70	2.55	2.60	3.00	3.05	2.90	2.80	2.75	2.75	2.70	2.65	2.65	2.65	2.70	2.75	2.75	2.60	2.60	2.70	2.75
Count	29	28	26	30	31	31	31	30	31	30	28	20	18	14	17	21	23	27	27	28	26	25	25	27

(M3000)F2

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

Y 3

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

IONOSPHERIC DATA

Mar. 1957 | R'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													250^{H}	250^{H}	250^{H}		270							
2														245^{H}	250^{H}		250^{H}							
3																260^{H}	270^{H}	280^{H}						
4											245	C	240^{H}		250^{H}		250^{H}							
5										245		230^{H}	225^{H}		240^{H}		250^{H}							
6										245^{H}		240	245^{H}	255^{H}		250^{H}	250^{H}							
7									245	245			290		250^{H}	250$^{A}_{H}$	250^{H}							
8												240		245^{H}	250^{H}									
9											240	240		250^{H}	230^{H}		250^{H}							
10															240^{H}	250^{H}								
11											240		245^{H}	240^{H}		C	250^{H}							
12														245^{H}			265^{H}	255^{H}						
13												235^{H}	240^{H}	240^{H}	260$^{A}_{E}$	C								
14												230^{H}	250^{H}	245^{H}										
15												220^{H}	245^{H}	245^{H}										
16										235^{H}	240													
17											235	260^{H}	255^{H}	250										
18												250^{H}	235^{H}				250^{H}							
19											245	240^{H}	250	245										
20												230^{H}	245^{H}			240^{H}	270^{H}							
21												240^{H}	220^{H}			240^{H}								
22									C					240^{H}	275$^{A}_{E}$									
23											240		250^{H}	240^{H}	250^{H}	250^{H}								
24											250	250^{H}		250^{H}										
25											240^{H}	230^{H}	220^{H}											
26												230^{H}	240^{H}	240^{H}		240^{H}								
27											240^{H}	C		250^{H}			250^{H}							
28										240	245	245	250^{H}	240^{H}	250^{H}									
29												245	225^{H}			250^{H}								
30												245		250^{H}				C						
31										250		240^{H}	240^{H}											
Mean Value									245	245	240	240	245	245	245	245	255	270						
Median Value									245	245	240	240	245	245	250	250	250	270						
Count									1	6	11	19	20	19	10	9	13	2						

R'F2

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

Y 4

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

IONOSPHERIC DATA

Mar. 1957 | h'F | 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	250	245	255	250 H	230	240	225	240	240	240	245	230 H	220	I230 A	240	240 H	255	250 A	250 A	250	255	240	250	260
2	280	300	250 H	250 H	350 H	360 H	335	250	245	225 H	235 H	245 H	240 H	225	230	240 H	220	250	250 A	215 A	250	I250 A	250	270 H
3	290	300	270	I240 C	205	300 H	310 H	245	240	240	240 H	245	235 H	250 H	240 H	A	A	255	250	240	210	C	C	350
4	350	255	E335 A H	300	295	345	350	235	235	230	240	I220 C	200	245 H	235	240 H	210	245 H	245	230	205 A	245	220	250
5	240	245	240	220	220 H	220	290	240	240	210	245	220	215	245	230	245 H	210	255 H	245	245	220	235	250	260
6	250	250	250	240	245	300 H	260 H	235	240	235	250	235	215	200	250	230	240	245 H	245	230	230	240	245	300 H
7	295 H	300 H	280 H	260	240 H	225	260 H	245 H	240	220	240	235 H	E220 B	240 H	A	A	A	250 H	250	235	240	295	270	245
8	250	260 H	300 H	290	245 H	210 H	210	250	245	240	245	230	240 H	I230 A	225	240 H	245 H	250 H	250	240	230	245	210 H	300 H
9	325 H	290	240	215	200 H	260 H	E 330 S H	250	240	245	200	220	220 H	210	220	235 H	235	250 H	250 H	250	225 H	270 H	270	265 H
10	270 H	270	250	245	240 H	255 H	285	250	245	240	230 H	240 H	235 H	240 H	220	240	250 H	250 H	260	255	295	U250 S	U300 S	U300 S
11	300 H	U300 S	400	300	250 H	340 H	295 H	240	245	240	230	240 H	I230 B	220	230 H	I240 C	245	255 H	260	250	245	245 H	260	255
12	250 F	240 F	235	240	200	200 H	250	240	230	235	225 H	225 H	215 H	205	250 H	240 H	A	A	250	250 H	260	270	245	240 H
13	260 H	250	265 H	300 A	250	260 A H	245 H	250	240	240	230	205	210	A	A	C	245 H	250 H	270	250	210	250 H	270	260
14	260	290	280 H	295 H	320 H	345 H	300 H	240	235	240 H	240	225	220	I230 A	240 H	240 H	240 H	260 H	250	240	250	295	255	245
15	245	255	260 H	260 H	245	250 H	250 H	245	240	240	230	205	200	I220 B	240 H	245 H	250 H	245 H	265	270 H	295	280 H	250	270 F
16	250	245 H	250 H	260 H	235 H	260 H	350 H	245	230	205	205	245 H	235 H	240 H	245 H	240 H	225 H	245 H	265	250	230	280 H	290	265
17	250	295	275 H	250 H	240 H	245 H	370	225	225	235 H	220	205	200 H	240	240 H	240 H	240 H	240 H	260	250	255	280	270	270
18	260	280	250	230 H	285 H	270 H	250	240	240	235	230	220	205	230 H	245 H	245 H	240	250 H	250	250	250 H	290 H	300 A H	320
19	300	250	205 A H	210	210	290	330	245	245	240	225	220	220	225	220 H	235 H	235 H	250 H	255	240	265	295	260	250
20	250	260	250	230	235	295	290	240	220	220	230 H	210	205 A	240 H	235 H	220	245	250	255	240	220 H	250 H	260	250
21	250	255	250	250	240	210	250 H	235	240	235	220	205	200	250 H	240 H	230	245 H	240 H	250	I255 C	260	255	250	275
22	250	300	310	340	360	355	360	240 H	I240 C	240 H	235	225 H	230 H	205	I225 A	245 H	250 H	245 H	250	245	245	255	255	250 H
23	300	320	300	250	225	260	315	240	245	245	E235 B	235	220	230	230	230	250 H	250 H	260	240	255	250 H	235	270
24	260	240	240	245	280	280	260	250	245	240 H	235	220	205 H	230	245 H	245 H	250 H	255 H	260	260 H	255	290	270	260
25	250	245	270 H	250	210 H	270 H	295	245	245	240	225	200	205	245 H	245 H	250 H	250 H	250 H	260	E300 A	330 A H	330 A H	300	E355 A
26	260 H	245	280 H	260	245	260	275	240	240 H	240	220 H	210	200	205	240 H	230	250 H	245 H	265	250	240	270	250	270
27	305	305	290	255	230 H	250 H	250 H	240	240	225 H	230	I240 C	245 H	245	250 H	240 H	240	250	255	245 H	250 H	290 H	280	295
28	295	280	290 H	255	235	E 295 C	310	250	250	240	230	230	230	210	210	245 H	250 H	E270 H	280	220	225 H	300	310 H	305 H
29	300 H	260	295 H	285	200 H	255	280	245	240	240	225	230	A	245 H	240 H	240	245 H	250 H	270	250	245 H	300 H	300	285
30	300 H	410	400	395 H	405	400	320	240	240	235 H	235 H	240	240	I235 A	230 H	240 H	E250 A H	E280 C	E270 C	C	245	I270 C	295	270
31	260	290	265	250	205 H	250	275	245	245	240	225	225	225	235 H	245 H	240 H	250 H	265 H	255	260	240	255	290	270
Mean Value	270	275	275	260	250	275	290	240	240	235	230	225	220	230	235	240	240	250	255	245	245	270	265	270
Median Value	260	260	265	250	240	260	290	240	240	240	230	225	220	230	240	240	245	250	255	250	245	270	260	270
Count	31	31	30	31	31	30	30	31	31	31	30	31	30	30	29	28	27	28	30	29	31	30	30	30

h'F

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

Y 5

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

IONOSPHERIC DATA

Mar. 1957

type of Es

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				f					c	c	c			h	c	c	c	c	f	f	f	f		f
2	f									c	l	h	h		c	c	c	c	f	f	f	f	f	
3	f	f	f		f	f		f		l						l	l	c		f				f
4		f	f			f			l						h	l					f	f		f
5					f	f		f		l	l	c	c		c			h	f	f	f			f
6				f		f	f	l				c			l				f					f
7	f	f	f	f	f	f			c	c				h	c	c	c	c	f	f	f	f		
8	f	f	f		f	f				l		l		l	c	c	c		f	f				
9			f		f			l	lc				lc			l	c	l	f	f	f			f
10			f			f		l	c	l					l			c	c			f		f
11								f			c							c	f	f	f	f	f	f
12	f			f	f	f		l	l	h		c		c	c	h	c	c	f	f	f			
13		f	f	f	f	f	f			c		c	c	c	c		l		c	f	f			
14								h		c				h	h		l	c	lc	f				f
15	f		f	f				l	c	lc	c	c			c			c	c	f	f	f		f
16		f					f	l			l	h	l				l		f	f			f	
17								l	lc		l	c	c	c	c	lc				f		f	f	
18	f		f	f						lc	c	l	c					h	f	f	f	f	f	
19	f		f					l	l							l		c			f			
20					f	f		l	l		c		l	l	l	l			f	f	f			
21			f							h		c	c			l	c	hl	c					
22								l		h	c	c	c	l	l	l	l	l	l	f		f	f	
23									l	c		c	c	c	c	c	h	c	c	f	f	f	f	f
24	f	f	f	f	f			l		lc	c	c				h	hl	hl	c	f	f	f		
25	f	f	f	f				l	l	l		c	c	l	l	l	l	l	f	f	f	f		f
26	f					f			l	lh	h	c		c				c	c	f	f			
27		f	f		f	f	f	l	c	c	l				c		c	c		f				
28							f	l	l				c	c	l		l	c l	f	f			f	f
29	f	f	f	f			f			l	c	c	c	l	l	c		l	l h	f	f	f		
30										lh	c	lc	c	c	c	c	c							
31		f	f	f		f	f	l	l	lc	lc	c	lc	c	c	c	c	c	f	f	f	f	f	f
Mean Value																								
Median Value																								
Count																								

type of Es

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

Y 6

SOLAR RADIO EMISSION

MAR. 1957

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		
	00-03	03-06	Daily Averages
1	14	14	14
2	15	14	15
3	14	14	14
4	14	14	14
5	11	19	15
6	13	13	13
7	14	15	15
8	18	19	18
9	-	-	-
10	18	15	16
11	17	18	18
12	17	29	23
13	48	43	45
14	39	22	31
15	(19)	(21)	(20)
16	18	25	21
17	19	21	20
18	20	19	20
19	26	27	27
20	35	35	35
21	16	14	15
22	24	20	22
23	25	30	27
24	57	34	46
25	99	117	108
26	30	38	34
27	13	14	14
28	17	19	18
29	14	14	14
30	13	15	14
31	15	12	13

Outstanding Occurrences

Date	Starting Time	Duration	Type	Peak Flux	Time	Remarks
7	0312	2m	SD	900	0312-30s	
13	0043	1m	S	760	-	
	0111*	1m*	CA	640	-	
18	2147	6m	M	300	-	mean flux
21	0203	6m	M	1000	0203~0204	

Noise storm: 13th, 24th, 25th

IONOSPHERIC DATA IN JAPAN FOR MARCH 1957
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