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551. 510. 535. 05(52) (047.3)

IONOSPHERIC DATA IN JAPAN

FOR JUNE 1957

Vol. 9 No. 6

Issued in August 1957

Prepared by

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

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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

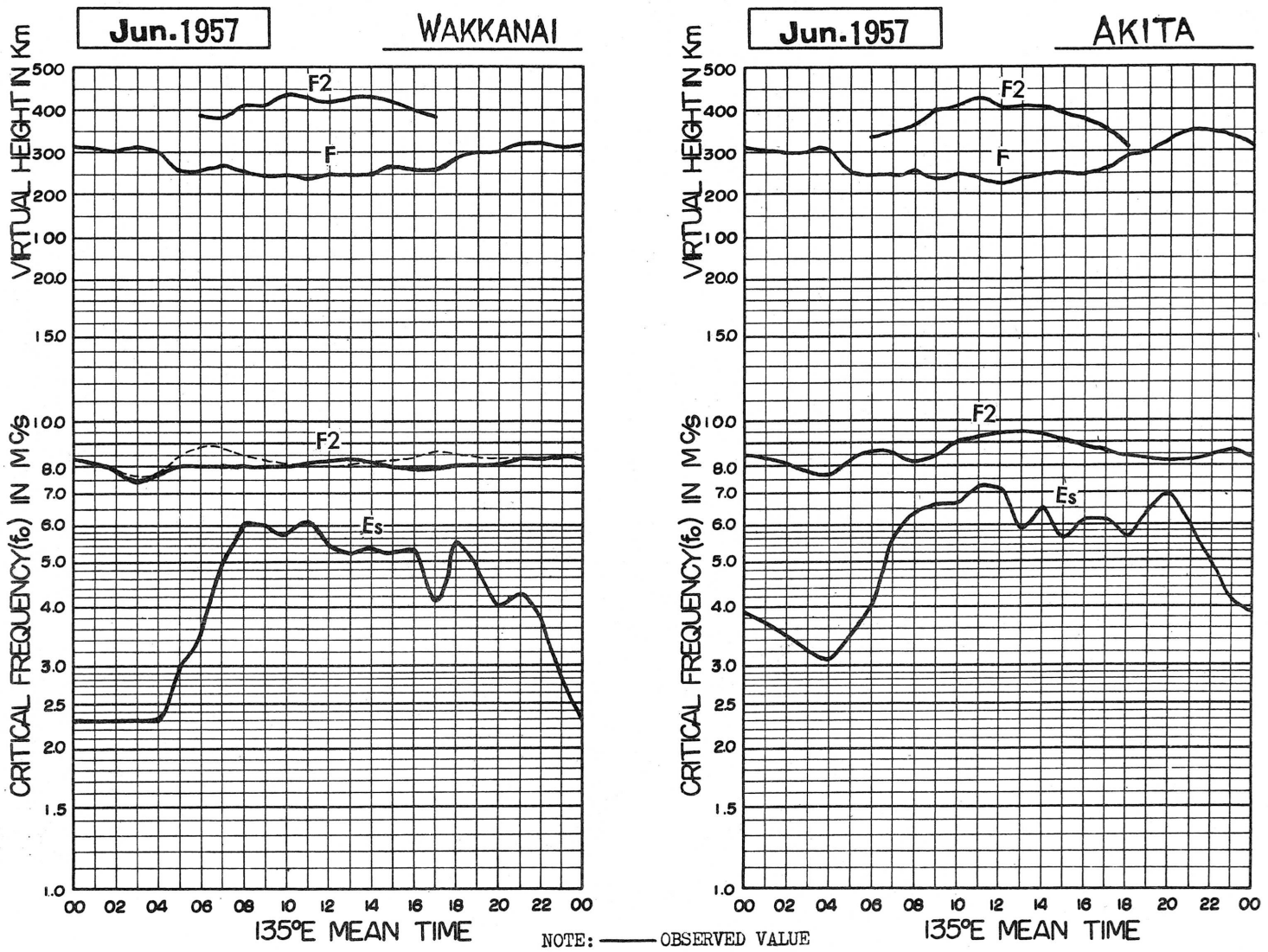
Ionospheric observation is carried out at the following four observatories in Japan.

	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.

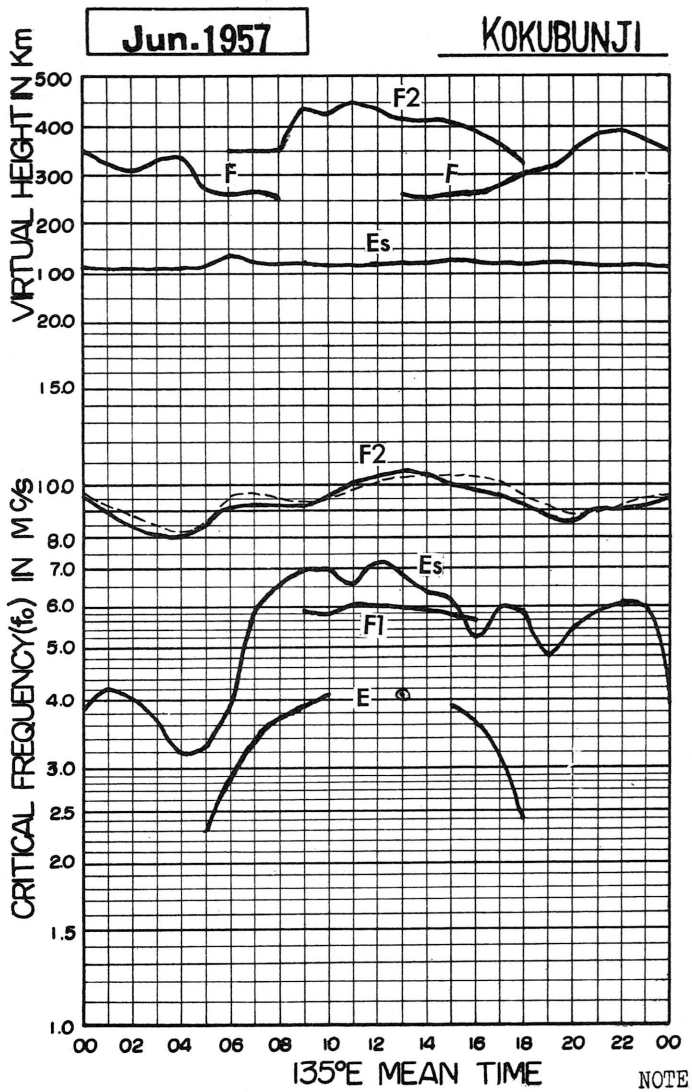
	Latitude	Longitude	Site
Hiraiso	36°22.0′N.	140°37.5′E.	Hiraiso-machi, Nakaminato-shi, Ibaragi-ken

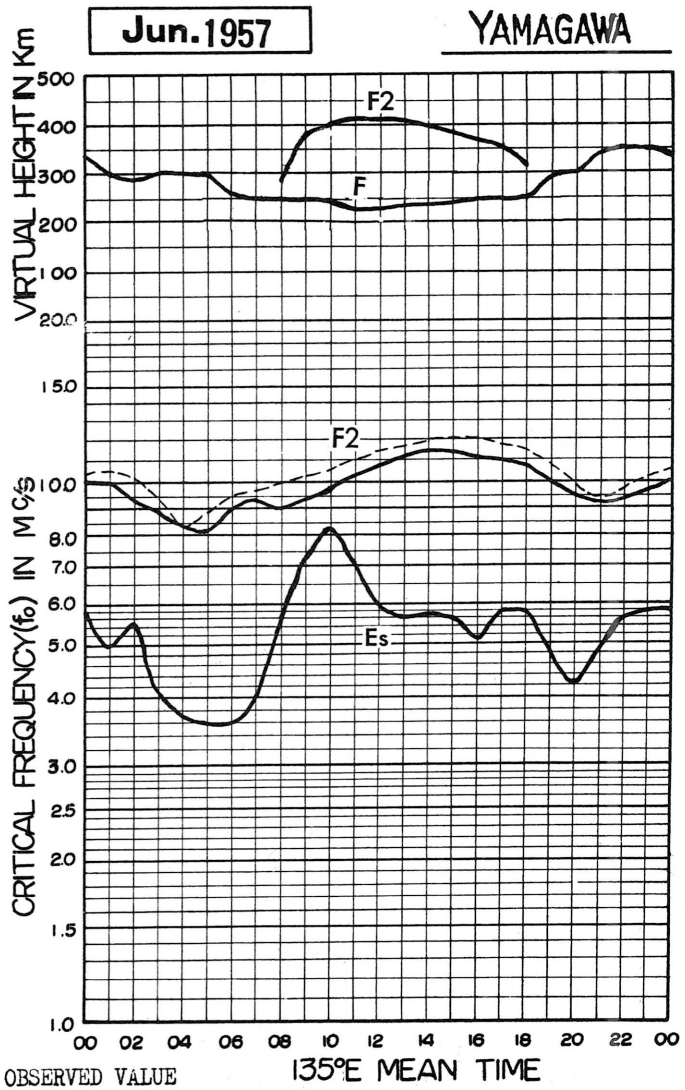
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

Jun. 1957 | foF2 | 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	Fs	Fs	Fs	U 7.9 F	U 7.6 F	7.8	7.9	7.4	7.3	6.8	6.9	7.3	7.0	7.1	7.0	7.1	I 7.1 A	7.1	A	A	7.6	7.9	U 8.1 S	8.2
2	8.0	7.8	7.9	7.6	7.6	I 8.4 C	9.3	10.0	9.7	9.4	9.2	9.5	I 9.2 A	8.7	8.3	8.2	8.3	8.3	8.2	8.2	8.5	8.3	8.9	9.2
3	9.0	8.6 F	8.3 F	8.2	8.5	9.3	9.8	10.0	9.2	8.6	I 8.4 A	8.3	8.3	8.3	8.1	7.8	7.8	7.8	7.8	8.1	I 8.6 S	9.0	J 8.9 C	8.8
4	8.7	7.8	7.6 F	7.3 F	U 7.2 H	7.0	7.1	6.2	G	A	B	B	6.3	7.0	6.8	6.6	6.3	6.5	6.3	7.1	U 7.0 S	8.0	I 8.0 S	8.0
5	7.6	7.7	7.0	6.5	6.7	8.0	8.1	8.0	7.0	7.0	I 6.7 B	6.4	B	B	6.6	6.3	6.4	6.6	6.7	7.3	7.7	7.7	I 7.6 S	7.6
6	7.7	7.5	7.0	6.8	7.0	7.9	8.0	8.0 F	7.5 F	7.7	7.8	8.3	8.7	I 8.4 A	8.0	8.5	8.0	8.1	8.1	I 8.4 A	8.7	8.6	8.5	U 8.0 S
7	8.3	8.1	7.8	7.0 F	7.0 F	7.0	7.5	A	A	7.5	7.2	J 7.1 A	8.0	8.1	7.9	7.7	7.5	A	A	8.5	8.5	8.8	9.5	9.5
8	9.2 F	9.0 F	8.3 F	8.3	7.9	8.0	8.3	8.8	8.3	8.0	8.1	7.8	8.1	8.0	8.2	8.0	8.0	8.3	8.0	8.3	8.3	8.3	8.3	8.2
9	8.5	8.1	8.1	7.4	7.5 F	8.5	8.6	8.5	9.0	8.7	8.5	8.9	8.1	8.3	8.3	8.0	8.2	8.2	8.0	8.0	8.1	8.5	8.5	8.5
10	8.5	8.5	8.0	7.7	8.1	9.1 V	10.2	10.0	10.3	9.8	9.3	9.0	9.3	9.3	9.2	8.6	8.5	C	C	C	C	8.7	9.2	9.3
11	9.3	9.1	8.5	8.3	8.5	9.3 V	9.5	9.5	9.3	8.9	8.5	9.3	9.3	8.7	8.3	8.3	8.2	8.3	8.3	8.3	8.2	8.5	8.5	8.9
12	9.1	9.1	9.1	8.3	8.0	8.7	9.0	9.7	9.5	9.5	9.4	9.3	9.1	9.0	9.0	9.0	9.0	8.7	I 8.9 A	9.1	8.6	8.7	9.4	9.5
13	9.0	9.0	8.3	8.5	9.1	9.6	9.3	9.0	8.9	8.8	8.8	9.1	8.7	9.2	9.1	8.8	I 8.6 A	8.3	8.5	8.6	9.5	9.7	9.9	9.3
14	9.4	8.8	7.7	7.7	7.8	8.0	7.7	8.0	7.7	7.7	7.6	7.7	7.8	8.3	8.2	8.2	8.4	8.1	8.3	I 8.2 A	8.0	8.0	8.3	8.3
15	8.3	8.3	7.9	7.7	8.3	9.7	9.9	8.8	8.6	8.5	8.1	8.0	8.2	7.8	8.3	8.0	8.1	7.9	7.9	7.8	I 8.0 S	8.1	8.3	8.3
16	8.3	7.9	7.7	7.3	7.5	7.8	7.6	7.7	8.2	8.0	8.0	8.1	9.7	8.7	I 8.4 S	8.0	7.7	8.0	8.0	8.0	8.3	8.7	9.0	9.4
17	9.1	9.3	8.7	9.0	J 9.1 F	8.5	8.0	7.7	8.1	8.0	8.0	8.1	8.7	8.3	8.2	8.0	8.0	8.3	8.2	7.9	7.5	7.6	S	7.9
18	U 8.3 S	J 7.6	7.9	7.8	J 8.0 F	8.0	J 8.3	I 7.8 B	J 7.6	J 8.3	R	8.8	R	8.8	J 8.5	A	A	A	C	7.3	7.3	U 7.8 S	7.8	S
19	8.0	8.0	U 7.8 F	7.7 F	C	C	C	C	C	C	R	R	R	R	7.9	J 8.0	I 7.8 A	J 7.6	7.6	7.5	J 8.0 S	8.3	9.0	8.5
20	8.0	J 8.0	8.0	7.5	7.3 H	7.5	J 8.0	8.0	7.3	A	R	B	R	R	A	R	A	7.9	7.7	7.7	7.5	7.8	7.6	F5
21	Fs	U 7.8 S	Fs	Fs	Fs	7.0 HF	7.8	R	A	A	A	R	B	B	6.5	6.3	6.1	I 6.4 C	6.7	7.3	7.5	8.0	J 8.0 S	8.0
22	7.6	7.3	7.0	6.5 F	6.1 F	6.1	6.3	6.7	6.4	R	C	6.5	R	R	7.2	7.0	7.1	J 7.3	7.3	7.4	8.0	8.1	8.3	8.7
23	8.3	8.3	7.8	7.0	7.0	7.5	7.5	7.4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	R	R	R	7.5	I 7.8 R	8.2	A	A	8.7	I 8.4 S	8.2	J 8.7	8.6	8.7
25	8.3	8.2	7.8	7.3	7.7	7.5	8.0	8.8	8.3	I 8.5 A	8.7	9.2	A	A	9.2	9.0	8.9	8.9	8.7	8.3	8.3	8.9	8.5	8.7
26	8.0	8.3	8.3	7.5	8.0	8.3	9.3	8.5	8.0	I 7.8 R	R	A	A	8.8	R	8.3	8.7	8.0	8.8	9.0	8.0	8.3	8.3	8.5
27	8.3	S	J 7.1	6.5 VF	A	A	A	A	A	A	5.3	A	R	R	A	A	5.5	5.7	5.7	6.1	6.2	7.1	S	S
28	7.5	J 6.8 S	6.5	6.5	6.7	7.7	8.7	J 6.4	7.0	S	B	B	B	B	B	R	6.0	6.0	6.3	6.5	7.3	8.0	7.7	7.5
29	7.2	7.0	7.0 F	6.8 F	7.0	7.7	J 7.8	7.9	7.5	7.0	6.5	6.4	6.5	6.6	6.8	6.6	6.8	7.3	7.3	7.3	7.4	7.6	8.0	8.0
30	8.0	8.0	7.1	7.3	6.5	6.0	6.1	6.2	6.7	6.7	6.5	7.1	7.3	6.9	7.1	7.1	7.3	6.9	7.8	6.7	7.3	J 7.7	7.3	6.6
31																								
Mean Value	8.4	8.1	7.8	7.5	7.6	8.0	8.3	8.2	8.1	8.2	7.9	8.1	8.2	8.2	8.0	7.8	7.6	7.6	7.8	7.8	7.9	8.3	8.4	8.5
Median Value	8.3	8.1	7.8	7.5	7.6	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.2	8.3	8.2	8.0	7.9	7.9	8.0	8.0	8.0	8.3	8.3	8.5
Count	27	27	27	28	26	27	27	25	24	21	20	21	18	21	25	25	26	25	25	27	28	29	27	26

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

Jun. 1957 | **foEs** | 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	3.4 M	2.3	2.3	2.2 Y	1.7	G	3.4	G	6.3 M	7.0 M	3	B	3	6.5 M	5.1 MY	5.3 MY	9.7 M	10.2 M	12.6 M	8.0 M	3.1 M	2.3 M	11.0 MF	2.4 M
2	2.3 M	3.2 M	2.3 MY	2.3 MF	2.1 M	C	3.5	5.1 M	6.2 M	B	8.3 M	7.1 M	9.5 M	5.1 M	B	G	3.5	3.5	3.5	3.4 M	2.3 M	2.3 M	E	E
3	E	E	E	E	1.7	G	3.5	G	6.8	G	10.0 M	8.0 M	12.0 M	9.2 M	7.2 M	B	G	3.5	6.3 M	7.2 M	11.0 M	5.6 M	5.5 MY	2.3
4	E	E	3.5 MY	E	3.5 M	2.9	3.5	5.3 M	5.2 MY	6.8 M	6.6 M	B	B	B	B	B	G	3.2	3.3	4.2 M	6.0 M	7.2 M	E	E
5	2.3	E	E	E	1.8	G	3.7	5.6 MY	B	7.0 M	B	B	G	B	B	G	G	4.1 M	5.3 M	3.8 M	3.5 M	6.5 M	6.0 M	2.2
6	E	E	2.1 Y	E	G	2.3	3.2	G	B	9.6 M	7.0 M	7.0 M	8.4 M	12.7 M	11.1 M	G	6.7 M	3.9	5.7 M	8.5 M	9.5 M	2.3	3.8 M	10.1 M
7	E	E	E	1.3	3.5 MY	G	6.7 M	11.3 M	9.0 M	5.8	7.2 M	8.1 M	6.5 M	7.5 M	5.9 M	5.3 M	8.7 M	12.7 M	12.7 M	9.9 M	11.5 M	8.3 M	3.0 M	9.0 M
8	5.5 M	6.5 M	3.5 F	3.5 F	2.8	6.5 M	7.6 M	7.6 M	8.5 M	7.5 M	8.0 M	7.7 M	7.0 M	7.3 M	7.0 M	6.3 M	G	3.2	3.5	5.3 MY	7.7 M	7.5 M	5.0 M	6.7 M
9	2.5	6.7 MY	6.5 M	6.7 M	5.2 M	G	6.2 M	5.8 M	6.8 M	7.0 M	5.5 M	B	6.8 M	5.2 M	5.0 M	G	4.4 M	3.5	3.5	2.3	2.2	2.2	2.7	3.2
10	5.6 M	3.1	E	4.2 M	1.8	G	3.5	4.3	5.0 M	5.0 M	5.5 MY	G	G	G	G	G	G	C	C	C	C	u 0.6 MS	2.9	E
11	E	E	E	E	2.3	G	3.1	G	G	G	G	5.0 M	5.0 M	4.8	6.3 M	7.8 M	7.3 M	8.6 M	5.7 M	5.3 M	E	2.3	E	3.5
12	3.5 M	6.5 M	6.5 F	3.5 M	2.3	G	3.5	5.3 M	6.1 M	5.3 M	5.3 M	6.5 M	G	G	G	G	5.6 M	5.3 M	7.6 M	3.5	5.3 M	5.3 M	5.0 M	4.0 M
13	2.3	2.3	2.3	2.6	2.3	5.0 M	5.3 M	5.7 M	7.2 M	5.2 M	B	6.6 M	5.3 M	B	G	5.4 M	9.0 M	7.3 M	7.5 M	9.7 M	7.5 M	3.5 M	5.0 M	3.5
14	2.3	2.6	E	2.2 M	2.4	3.0	G	5.3 M	5.3 M	5.5 M	5.7 M	5.3 M	6.2 MY	4.8	B	G	B	G	6.3 M	8.6 M	12.0 M	7.3 M	E	E
15	4.3 M	2.9	3.2	3.5	2.4	G	G	G	6.2 M	5.3 M	G	6.0 M	G	6.0 M	5.3 M	4.1	G	4.0	3.4	4.2 M	7.1 M	2.7	E	2.8
16	2.5	2.2	E	4.5 M	3.5	G	3.5	4.0	4.0	G	G	G	G	5.0 MY	G	G	G	6.0 M	5.2 M	3.5 M	3.6 M	4.9 M	E	2.7
17	E	2.6	4.7 M	E	G	3.0 M	4.0	4.9	6.7 M	7.0 M	6.5 M	4.5	5.8 M	4.5	5.5 M	7.5 M	6.0 M	3.5	4.0	3.5	3.5	4.8 M	4.2	4.0
18	3.5	6.0 M	6.1 M	6.8 M	6.0 M	3.5	4.0	6.3 M	4.5	5.8 M	5.1 M	4.6	4.5	5.6	8.2 M	9.0 M	10.5 M	10.0 M	C	6.9 M	5.8 M	3.6 M	4.1 M	6.0 M
19	3.2 M	10.5 FM	9.0 FM	10.2 M	C	C	C	C	C	C	5.1 M	7.1 M	6.1 M	5.5 M	5.5 M	4.5	8.7 M	7.0 M	11.8 MY	8.7 M	4.6 M	4.0 M	E	E
20	E	E	E	E	2.3	2.8	3.5	5.3 M	4.5	8.1 M	4.6	B	6.8 M	6.5 M	9.2 M	6.7 M	10.1 M	5.2 M	5.5 M	3.5 M	3.0 M	3.0 M	4.5 FM	6.8 FM
21	6.0 M	6.0 M	3.5 FM	5.1 M	3.2 FM	3.1	5.5 M	7.0 M	10.1 M	7.9 M	7.8 M	5.3 M	B	B	4.5	4.4	5.9 M	C	6.5 M	3.5 M	3.0 M	3.2 M	2.1	E
22	3.0 M	2.5	E	2.2 Y	G	2.7	3.9	4.6	5.1	G	C	4.6	G	G	4.0	6.7 M	G	3.5	3.6	3.5 MY	3.5 M	3.2	4.0	2.3
23	E	E	E	E	2.3	3.5	3.5	4.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	6.3 M	G	5.4 M	4.7	5.3 M	6.0 M	8.3 M	12.8 M	12.7 M	7.8 M	3.7 M	4.2 M	3.2 M	3.5 M
25	2.2	E	2.5	2.4	2.3	3.0	4.5	5.8	6.2 M	10.5 M	5.8 M	6.3 M	7.8 M	9.2 M	6.4 M	5.2 M	8.0 MF	6.0 M	5.0 M	7.0 M	5.7 M	5.7 M	4.5 M	3.5 M
26	3.5	2.2	E	E	G	4.4 M	3.8	4.0	5.8 M	6.5 M	4.6	7.8 M	8.7 M	6.3 M	G	6.3 M	5.0 FM	3.5	3.0 F	2.4	E	2.2	E	E
27	E	2.7 M	3.5 FM	5.3 M	6.8 M	9.9 M	8.9 M	6.5 M	8.2 M	6.2 MF	6.8 M	6.2 M	G	5.0	6.0 M	6.3 M	4.5	5.5 M	6.1 M	E	4.3 M	6.2 M	5.8 M	5.8 M
28	2.3	2.2 F	4.2 MY	E	3.0 FM	5.7 M	4.1	4.5	6.0 M	6.1 M	5.5 M	B	B	B	B	G	G	4.0	5.0 M	6.3 M	5.8 M	6.5 M	3.0 M	2.5
29	2.3	E	2.5 M	3.0 M	2.0	3.0	3.5 F	4.3	5.3	4.0	G	4.1	G	G	G	G	G	3.6	6.7 M	5.3	2.8 M	2.5	2.6	2.9 M
30	3.5 M	3.5	4.2 M	3.5 M	4.3 M	3.3	3.5	4.5	4.8	4.9	6.1 M	6.5 M	5.0	4.1	G	5.5 M	6.5 M	6.1 M	3.9	3.9 M	3.5 M	4.2 M	5.0 M	2.4 M
31																								
Mean Value	3.3	4.0	4.0	3.9	3.0	4.0	4.3	5.5	6.2	6.5	6.3	6.2	6.9	6.9	6.3	6.0	6.6	5.8	6.1	5.5	5.4	4.5	4.7	4.2
Median Value	2.3	2.3	2.3	2.3	2.3	3.0	3.5	5.0	6.1	6.0	5.7	6.2	5.4	5.2	5.3	5.2	5.3	4.1	5.5	4.8	4.0	4.2	3.8	2.8
Count	29	29	29	29	28	27	28	28	25	26	25	23	25	24	24	27	28	27	27	28	28	29	29	29

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

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Jun. 1957

(M3000)F2

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	Fs	Fs	Fs	u 2.65 F	u 2.60 F	2.60	2.70	2.65	2.65	2.45	2.45	2.60	2.45	2.55	2.50	2.65	I 2.65 A	2.65	A	A	2.60	2.55	u 2.60 S	2.65
2	2.55	2.55	2.60	2.65	2.55	I 2.65 C	2.75	2.70	2.65	2.70	2.70	2.65	I 2.65 A	2.65	2.60	2.60	2.80	2.75	2.80	2.70	2.65	2.65	2.55	2.55
3	2.65	2.70 F	2.60 F	2.70	2.70	2.65	2.65	2.75	2.65	2.60	I 2.60 A	2.65	2.55	2.65	2.60	2.55	2.50	2.60	2.70	2.75	I 2.70 S	2.60	I 2.60 C	2.60
4	2.65	2.50	2.40 F	2.45 F	2.50 H	2.55	2.45	2.40	G	A	B	B	2.30	2.45	2.50	2.55	2.40	2.60	2.50	2.65	U 2.55 S	2.50	I 2.50 S	2.50
5	2.55	2.60	2.45	2.45	2.40	2.45	2.80	2.70	2.45	2.75	I 2.65 B	2.55	B	B	2.50	2.45	2.50	2.60	2.55	2.55	2.60	2.60	I 2.55 S	2.50
6	2.50	2.60	2.55	2.45	2.45	2.70	2.90	2.80 F	2.60 F	2.50	2.50	2.65	2.70	I 2.70 A	2.65	2.75	2.65	2.60	2.60	I 2.55 A	2.50	2.55	2.50	u 2.50 S
7	2.50	2.55	2.55	2.45 F	2.45 F	2.45	2.50	A	A	2.50	2.40	J 2.55 A	2.70	2.65	2.70	2.70	2.65	A	A	2.70	2.55	2.50	2.40	2.55
8	2.50 F	2.60 F	2.70 F	2.65	2.70	2.45	2.55	2.70	2.75	2.60	2.75	2.50	2.65	2.50	2.60	2.70	2.60	2.75	2.75	2.70	2.65	2.60	2.55	2.45
9	2.50	2.60	2.60	2.45	2.35 F	2.60	2.60	2.65	2.65	2.65	2.60	2.65	2.75	2.65	2.65	2.70	2.70	2.80	2.90	2.60	2.60	2.45	2.55	2.60
10	2.60	2.60	2.70	2.60	2.55	2.65	2.60	2.70	2.70	2.65	2.50	2.50	2.60	2.65	2.60	2.60	2.70	C	C	C	C	2.55	2.50	2.60
11	2.60	2.65	2.70	2.65	2.60	2.60 V	2.65	2.65	2.65	2.50	2.60	2.50	2.60	2.65	2.60	2.60	2.60	2.70	2.75	2.70	2.65	2.50	2.55	2.45
12	2.55	2.55	2.65	2.75	2.70	2.60	2.80	2.65	2.60	2.50	2.55	2.50	2.60	2.50	2.55	2.70	2.60	2.75	I 2.75 A	2.75	2.70	2.50	2.45	2.50
13	2.55	2.55	2.55	2.70	2.80	2.55	2.60	2.65	2.45	2.65	2.60	2.55	2.45	2.55	2.65	2.60	I 2.65 A	2.70	2.70	2.60	2.55	2.60	2.70	2.50
14	2.60	2.60	2.50	2.60	2.55	2.55	2.55	2.70	2.55	2.55	2.50	2.50	2.50	2.60	2.55	2.60	2.75	2.55	2.70	I 2.60 A	2.55	2.50	2.50	2.45
15	2.45	2.55	2.55	2.60	2.65	2.75	2.60	2.65	2.45	2.55	2.55	2.45	2.35	2.40	2.55	2.55	2.55	2.55	2.55	2.60	I 2.55 S	2.50	2.55	2.60
16	2.50	2.40	2.45	2.35	2.45	2.50	2.50	2.50	2.50	2.70	2.50	2.50	2.50	2.60	I 2.60 S	2.65	2.60	2.65	2.80	2.70	2.55	2.45	2.45	2.45
17	2.50	2.50	2.55	2.50	J 2.50 F	2.70	2.60	2.45	2.60	2.70	2.45	2.45	2.55	2.50	2.55	2.55	2.40	2.65	2.70	2.70	2.60	2.55	S	2.40
18	u 2.60 S	J 2.55	2.45	2.55	I 2.60 S	2.55	J 2.65	I 2.65 B	J 2.55	J 2.65	R	2.50	R	2.55	J 2.45	A	A	A	C	2.65	2.50	u 2.50 S	2.45	S
19	2.50	2.40	u 2.60 F	2.50 F	C	C	C	C	C	C	R	R	R	R	2.60	J 2.60	I 2.60 A	J 2.65	2.65	2.50	J 2.60 S	2.50	2.45	2.60
20	2.50	J 2.45	2.40	2.50	2.45 H	2.55	J 2.70	2.40	2.50	A	R	B	R	R	A	R	A	2.60	2.65	2.60	2.60	2.50	2.50	Fs
21	Fs	u 2.55 S	Fs	Fs	Fs	2.35 HF	2.45	R	A	A	A	R	B	B	2.35	2.45	2.35	I 2.40 C	2.45	2.50	2.50	2.45	J 2.50 S	2.35
22	2.50	2.45	2.40	2.30 F	2.35 F	2.40	2.30	2.45	2.30	R	C	2.45	R	R	2.50	2.60	2.50	J 2.65	2.65	2.55	2.60	2.45	2.45	2.45
23	2.50	2.55	2.50	2.55	2.45	2.70	2.50	2.55	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	R	R	R	2.40	I 2.40 R	2.45	A	A	2.45	I 2.45 S	2.45	J 2.45	2.50	2.40
25	2.45	2.45	2.55	2.45	2.50	2.55	2.80	2.75	2.65	I 2.70 A	2.80	2.70	A	A	2.65	2.75	2.70	2.80	2.70	2.85	2.75	2.50	2.50	2.45
26	2.50	2.40	2.70	2.55	2.50	2.40	2.70	2.50	2.40	I 2.45 R	R	A	A	2.55	R	2.45	2.40	2.40	2.50	2.70	2.50	2.40	2.40	2.60
27	2.55	S	J 2.40	2.30 VF	A	A	A	A	A	A	2.60	A	R	R	A	A	2.45	2.55	2.50	2.60	2.45	2.45	S	S
28	2.50	J 2.50 S	2.50	2.45	2.40	2.50	2.50	J 2.70	2.60	S	B	B	B	B	B	R	2.45	2.50	2.60	2.60	2.65	2.55	2.50	2.55
29	2.50	2.50	2.45 F	2.40 F	2.40	2.55	J 2.65	2.55	2.55	2.53	2.55	2.40	2.50	2.55	2.50	2.60	2.65	2.70	2.70	2.70	2.60	2.50	2.50	2.50
30	2.50	2.70	2.60	2.75	2.70	2.35	2.35	2.45	2.55	2.55	2.40	2.55	2.60	2.45	2.45	2.40	2.50	2.40	2.70	2.55	2.50	J 2.35	2.30	2.25
31																								
Mean Value	2.55	2.55	2.55	2.55	2.55	2.55	2.60	2.60	2.55	2.60	2.55	2.55	2.55	2.55	2.55	2.60	2.55	2.60	2.65	2.65	2.60	2.50	2.50	2.50
Median Value	2.55	2.55	2.55	2.50	2.50	2.55	2.60	2.65	2.60	2.60	2.55	2.50	2.60	2.55	2.55	2.60	2.60	2.65	2.70	2.65	2.60	2.50	2.50	2.50
Count	27	27	27	28	26	27	27	25	24	21	20	21	18	21	25	25	26	25	25	27	28	29	27	26

(M3000)F2

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

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Jun. 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							340	360	360	I 430 A	500	425	480	455	460	420	I 380 A	340 A						
2							L	305	340 L	355	360 A	360	I 370 A	380	405	400	360	L						
3						L	315	295	360	395	I 390 A	380	420	400	405	415	420	L						
4						L	L	500	G	A	B	B	580	480	475	440	510	410	L					
5					L	L	315	340	470	400	B	B	B	B	500	500	450	410	370					
6							L	350	400	U 410 A	455	410	U 400 A	I 400 A	400	350	305 L	380						
7						L	400	A	A	470	515	A	400	420	390	380	410	A						
8						400 A	A	350	A	A	400	A	415	450	405	390	405	380	U 320 B					
9						L	A	380	370	400	415	380	410	390 L	415	400	380	370						
10									345	340	390	440	405	375	370	395	360							
11							L	L	350	445	410	L	390	410	415	L	A	A						
12							L	340	340	385	390	410	400	430	410	390	380	L						
13							L	L	425	365	410	400	450	420	390	390	A	A						
14							L	L	420	440	470 L	465	475	430	430	410	390	L						
15								L	430	420	410	470	510	495	430	425	385	L	L					
16						L	420	405	J 480 S	410	I 440 S	470	420	415	I 410 S	400	400	360						
17						L	L	L	410	430	460	480	430	440	450	430	450	L	320					
18						L	L	B	L	410	R	410	R	435	A	A	A	A						
19						C	C	C	C	C	U 450 R	A	R	R	450	420	I 400 A	380						
20							395	455	450	A	B	B	A	A	A	A	A	L						
21							425	A	A	A	A	A	B	B	535	510	550							
22						L	525	450	570	R	C	535	R	R	450	460	460	L	L					
23					L	L	L	465	C	C	C	C	C	C	C	C	C	C						
24						C	C	C	C	C	A	R	S	480	I 460 S	445	A	A						
25						L	L	L	400	I 420 A	440	A	A	A	400	400	375	L						
26						L	355	390	470	A	R	A	A	A	460	440	400	445	L					
27								A	A	A	640	A	R	R	A	A	570	L	L					
28					L	A	I 340 L	315	410	A	B	B	B	B	B	R	500	440	380					
29					L	L	375	400	430	440	480	560	500	480	460	430	415	350	A					
30						L	510	490	450	450	I 510 A	450	L	500	470	500	440	470	L					
31																								
Mean Value						400	390	385	410	410	445	440	440	435	435	420	420	395	345					
Median Value						400	385	380	410	410	440	430	420	430	430	420	400	380	345					
Count							12	17	22	19	20	16	17	20	25	24	24	12	4					

h'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

Jun. 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	315	290	280	275	280	260	270	B	A	A	260	290	235	A	A	A	A	A	A	A	305	305	305	300
2	310*	325A	300	260	240	I 245C	250	A	A	B	A	A	A	270	270	270	260	265	280	270	280	290	300	300
3	280	265	270	280	265	250	I 265B	280	I 265B	250	A	A	A	A	A	U 300B	U 300B	280	U 340A	U 350A	400	335	350A	310
4	255	280	350	330	360H	270	325	310	310	A	B	B	B	B	B	U 330B	290	240	270	320	340	400A	305	310
5	285	280	280	340F	300	260	280	A	B	A	B	B	B	B	B	B	B	B	A	305	280	315	300	320
6	310	290	300	320	290	340	240	U 300B	250	A	B	280	A	A	A	210	230	U 220B	280	I 310A	340	300	320	310
7	340	280	300	310	305H	240	A	A	A	A	A	A	A	A	A	270A	A	A	A	A	A	A	A	A
8	A	U 325A	300	280	295	A	A	A	A	A	A	A	A	A	A	A	305	B	B	300A	A	A	A	A
9	320	320	320	A	A	290	A	A	A	A	280	A	300A	I 290B	275	290	B	B	U 310B	270	290	300	320	320
10	320	300	260	300	300	260	250	260	275	I 260A	250	235	250	260	260	240	260	C	C	C	C	A	330	305
11	300	275	270	280	275	270	260	270	250	235	235	A	260	250	280	305	4	A	300A	300A	280	305	320	320
12	315	315	300	270	260	260	270	260	I 260A	270	250	255	235	250	250	270	310	A	A	290	300A	I 330A	350A	310
13	305	300	300	310	270	260	260	270	I 260A	250	250	I 240A	225	230	250	270	A	A	A	A	350A	305	I 305A	305
14	290	290	295	310	300	260	B	B	300A	A	320A	255	I 250A	240	245	260	280	280	330A	A	A	A	315	325
15	360A	300	340	310	280	260	270	275	I 270A	270	255	225	210	270	250	230H	250	260	265	300	310	320	315	305
16	300	295	330	335	320H	260	250	245	250	230	220	230	220H	240	250	270	250	A	A	290	305	360A	325	310
17	305	310	310	295	305	260	260	270	A	A	A	225A	270	270	230	A	260	260	280	290	300	A	A	390
18	340	360A	350A	320	330A	255	260	320A	250	A	235	235	250	255	A	A	A	A	C	A	A	340A	350	A
19	320	330F	A	A	C	C	C	C	C	C	250	A	A	230	250	250	A	A	A	A	A	320	325	290
20	310	315	315	315	320H	275	250	250	240	I 230A	225H	B	A	A	A	A	A	A	A	280	300	310	315	335
21	335A	320A	275	I 270A	260	275H	250	A	A	A	A	A	B	B	270	265	260	C	A	305	310	325	310	335
22	340	320	315	310	290	260	275	290A	300A	C	C	250	I 245B	240	245	295A	245	255	260	305	295	345	345	330
23	310	290	300	325	310	270	255	255	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	A	250	235	260	260	A	A	A	350A	I 330A	305	320	330	335
25	320	320	305	315	335H	270	A	A	A	A	250	A	A	A	255	250	A	A	305	A	A	A	A	A
26	330A	330	280	290	300	250	265	260	A	A	240	A	A	A	285	A	275	270	275	280	290	325	335	300
27	280	310	285	A	A	A	A	A	A	A	A	A	300	A	A	A	260	270	240A	305	A	A	4	A
28	310	310	330	335	300	A	265	A	A	A	A	B	B	B	B	290	270	300	A	A	A	300	305	300
29	290	290	310	340	320	275	270	250	225	230	215	210H	225	225	225H	245H	260	245	A	A	285	300	310	310
30	325	305	300A	290	290	255	250	A	A	A	A	A	A	230	240	270A	A	A	290	310	345	410A	410A	400
31																								
Mean Value	310	305	300	305	295	265	265	270	275	245	250	245	250	250	255	270	270	260	290	300	310	325	325	320
Median Value	310	305	300	310	300	260	260	270	260	250	250	240	250	250	250	270	260	260	280	300	300	320	320	310
Count	28	29	28	26	26	25	22	16	15	9	15	13	15	16	18	20	17	12	15	19	20	22	24	24

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

Jun. 1957 | Types of Es | 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	f2	f	f	f	f		h		c	l				l	l	l	c	c	l	f	f	f	f.f	f
2	f	f2	f	f	f		h	c	l		l	l	l	l			c	h	c	f.f	f	f		
3					h		h		l		l	l	l	l	h			c	c	f2	f3	f2	f2	f2
4			f f2		h	c	c	c	c	h	l							h	c2	h	f2	f3		
5	f				h		c	h		h								h	c	f2	f	f2	f2	f
6			f			h	h			l	l	l	l	l	l		h	h	c	h	f	f	f2	f2
7				f	f		c	c2	c	l	l	l	l	l	l	l	h	c2	l2	f2	f3	f5	f2	f
8	f	f2	f	f	h	h	c3	c2	c2	c2	c	l	l	l	l	c		l	l	f.f	f	f	f	f
9	f	f.f	f	f3	f2		h	h	c	h	l		l	l	h		c	h	h	f	f	f	f	f2
10	f2	f		f	h		h	h	h	h	l											f2	f	
11					c		h					l	l	h	h	h	h	h	c2	c		f		f f2
12	f2	f2	f2	f2	f l		h	h	c	l	c	l					h	h	c	f	f2	f2	f3	f2
13	f	f	f	f	l	f2	h	c	c2	h		l	l			h	h2 l	h	c	f2	f2	f l	f3	f
14	f	f		f	r	h		h	h	h	c	l	l	l					l	f	f5	f2		
15	f	f2	f4	f2	l				h	l		c		l	h	h		h l	h	h	f4 f2	f		f
16	f	f		f	l		l h	h l	c					l				h l	c l	f	f	f		f
17		f	f2			h	h l	h	h	h	h2	h	c	c	c	c2	l	c	l	f3	f	f3	f2	f3
18	f7	f7	f7	f2	f5	l h	h	h	h	h	h	h	h	c	c	c	c	l2		f3	l 3	f3	f f	f4
19	f2	a2	f3	f4							h	c	h	c	c	h	c	c	c2	c2	f2	f2		
20					l	h	h	h	h	c	h		c	c	h	h	c	h	c	f2	f2	f2	f2	f2
21	f2	f3	f	f5	f2	h	h	h	f2	c	c	l			h	h	h		c2	f	f2	f	f	
22	f	f		f		h	h	h	h			h			c	c		h	h l	f	f	f	f	f
23					c	l h	h	c l																
24											c		c	c	l	h	h	c5	c	f3	f	f2	f	f2
25	f		f	f	l h	h	h	h	h	c2	h	c	c	l	l	l	f2	f2	c2	f5	f6	f5	f4	f2
26	f2	f				l h	c	h	h	h	h	c	c2	h		h	a	h	r	f		f		
27		f	f2	f3	f4	c3	c2	c2	c	l	c	c		h	h	h	h	l h	c		f	f2	f5	f3
28	f	f	f.f		l h	h	h	h	c	c	l							h	h	f3	f5	f2	f2	f
29	f		f2	f	h	h	h	h	h	c		h						h	c	f4	f	f	f	f
30	f5	f4	f4	f.f	f2	c	h	h	h	h	c	c	c	c		l	h	h	h	f	f2	f5	f3	f
31																								
Mean Value																								
Median Value																								
Count																								

Types of Es | Sweep 1.6 Mc to 22.0 Mc in 1 min | ☐ Manual ☒ Automatic | **W 6**

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

IONOSPHERIC DATA

Jun. 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	8.2	8.3	8.1	7.6	7.6	8.2	8.3	8.0	7.4	7.2	7.4	I7.6A	7.9	I7.8A	7.6	7.7	7.7	7.5	7.6	8.0	7.8	A	A	A
2	8.1F	8.0	7.6	7.5	7.5	8.0	9.4	9.7	10.3	9.5	10.0	10.7	9.6	9.6	9.6	9.4	9.0	8.4	8.4	I8.3A	8.2	8.6	9.0	9.1
3	9.3	9.0	8.6	8.2	8.1	9.0	10.4	10.7	9.7	9.5	I9.8A	10.0	10.4	10.0	9.6	9.2	9.0	8.9	8.6	9.2	8.3	9.0	9.6	8.8
4	9.5	8.0	7.6	J8.0F	8.0F	8.2	8.0	6.9	6.1	6.1	A	A	7.0	7.3	7.6	7.5	7.0	7.1	6.6	7.0	7.1	7.2	7.5	8.1
5	8.1	7.6	7.0	6.5	6.4	7.1	8.0	8.2	8.1	7.5	A	A	7.1	7.0	7.5	7.6	A	A	7.5	7.5	I7.6A	7.7	8.1	8.1
6	8.1	8.0	7.5	7.2	7.0	7.6	8.2	7.3	J7.0	8.0	8.2	8.9	9.4	9.4	8.8	9.1	8.7	8.7	8.2	8.4	8.4	8.4	8.4	I8.2A
7	8.1	J9.0	U8.5R	7.7	7.4	7.5	8.0	8.1	7.5	8.2	8.6	9.3	10.0	9.7	9.5	8.5	8.3	8.1	8.8	8.8	8.2	8.4	8.7	8.9
8	9.5	9.6	9.4	8.4	8.1	8.7	9.9	10.4	9.4	I9.2A	9.1	9.5	9.5	I9.5A	9.5	9.5	9.3	9.0	9.2	8.7	8.3	A	A	9.1
9	9.1	8.1F	8.0	7.5	7.9F	8.8	9.4	9.5	10.1	I10.3A	J10.5	10.6	10.7	10.0	9.5	9.3	8.8	9.0	8.7	8.0	8.2	8.4	9.0	9.0
10	8.9	8.2	8.2	7.8	7.7	8.4	10.0	10.4H	10.3	9.7H	9.5	9.6	10.1	10.4	10.5	10.2	9.4	9.1	9.0	8.6	8.5	8.6	8.1	8.4
11	9.5	9.5	8.9	8.4	8.1	8.8	9.8	10.3	9.5	9.4	9.6	9.6	10.2	9.9	9.4	9.1	8.0	9.2	8.4	8.5	8.5	8.5	8.8	9.0
12	9.5	9.5	9.1	8.5	8.1	8.3	9.5	9.6	9.4H	9.6	10.0	10.0	10.4	10.1	10.4	10.2	9.9	9.6	9.6	9.0	8.0	9.0	I9.2R	9.5
13	9.7	9.8	9.5	9.0	9.6	10.5	10.2	9.8	8.6	10.2	10.0	10.6	10.6	10.5	10.7	10.2	I9.8A	9.4	9.5	9.5	A	K	10.2	I10.2R
14	10.3F	9.5	8.6	8.1F	8.2	8.9	8.7	9.0	8.1	8.1	8.6	9.0	9.0	9.5	10.1	10.0	9.5	9.5	9.6	A	A	7.6	8.6	9.0
15	9.0	9.0	8.6	8.1	8.5	8.1	9.4	9.6	9.6H	9.5	9.5H	9.4	9.5	I9.6R	9.8	9.6	9.1	8.8	8.6	8.2	8.5	7.5	9.2	9.0
16	8.0	8.0	8.0	8.0	8.1	8.0	8.1	8.5	9.0H	8.5	9.0	9.0	9.6	9.5	A	A	8.6	8.5	8.5	8.8	8.6	8.7	9.6F	9.8
17	10.7	10.3	10.0	9.6	9.5F	8.1	8.7H	8.8	8.5	8.6	8.6	9.0	9.5	A	9.1	9.1	8.8	9.3	J9.0	8.6	A	A	8.0	8.2
18	8.3	8.4	8.1	8.2	8.1F	8.3	9.2	8.9	8.2	8.5	8.8	9.2	9.3	9.5	9.1	9.0	9.5	8.9	C	A	8.0	8.2	I8.2R	8.2
19	I8.0R	7.8	7.6F	7.2	7.2	I8.0A	8.7	8.4	8.1	8.5	J8.6	I8.8A	J9.1	9.4	9.5	9.8	A	A	A	7.9	I8.1A	8.3	8.4	8.5
20	8.6	8.5	8.4	8.2	7.5	8.0	9.0	8.9	8.2H	8.2	A	A	8.7	8.4	8.4	8.2	8.0	8.3	8.2	8.7	8.2	8.2	8.4	8.4
21	8.5	8.4	7.5	6.8	6.6	7.4	8.1	8.1	A	A	A	A	6.8	6.8	6.8	6.6	6.5	I6.8A	7.0	I7.5A	8.0	8.3	8.1	8.2
22	8.3	8.1	7.5	6.8	6.3	6.3	6.9	6.9	7.2	6.8	7.3	7.6	8.1	8.1	8.2	7.8	8.1	8.0	8.1	7.7	8.2	7.8	8.7	8.7
23	8.3	8.5	7.8	7.6	7.5	7.6	7.5	7.6	7.5	7.5	A	8.2	9.0	9.2	8.7	8.2	8.3	8.0	8.0	8.1	7.5	I7.8R	8.0	A
24	8.2	8.1	8.1	8.0	7.7	8.0	8.0	8.2	8.1	C	9.0	8.8	A	9.5	9.5	9.5	9.8	9.6	9.0	8.5	A	9.0	8.6	9.1
25	9.0	8.7	9.0	R	8.1	8.1	8.5	8.3	8.6	8.7	9.7	10.6	10.4	10.5	10.6	10.4	10.0	9.6	9.4	9.3	8.5	9.1	9.6	9.7
26	C	C	C	C	C	C	C	C	8.5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	6.1	6.2	6.4	6.5	7.2	J7.0	7.5
28	7.6	7.3	7.0	7.3	7.4F	8.1V	9.5	8.6	7.5	7.0	6.9	B	B	6.7	6.9	7.0	7.1	6.7	6.6	6.7	7.0	7.5	7.4	7.6
29	7.2	7.1	7.1	7.1	7.0	8.2	8.3	8.6	8.0	8.1	8.2	8.3	8.3	8.5	8.2	8.1	8.0	8.1	8.2	8.0	7.4	7.7	8.1	8.3
30	8.2F	8.2	8.1	7.0	6.8	6.5	6.0	6.6	7.3	7.3	7.0	I7.6A	8.2	8.4	8.3	7.8	8.1	7.8	8.2	7.0	7.0	7.2	7.8	6.8
31																								
Mean Value	8.7	8.5	8.2	7.9	7.7	8.1	8.7	8.7	8.4	8.4	8.9	9.2	9.2	9.1	9.0	8.9	9.1	8.5	8.3	8.2	8.0	8.2	8.5	8.7
Median Value	8.4	8.4	8.1	7.8	7.7	8.1	8.7	8.6	8.2	8.5	9.0	9.2	9.4	9.5	9.4	9.1	8.8	8.7	8.4	8.3	8.2	8.3	8.4	8.7
Count	28	28	28	27	28	28	28	28	28	26	23	23	26	27	27	27	26	27	27	27	25	25	27	27

foF2

Sweep 2.85 Mc to 22.0 Mc in 2 min ☐ Manual ☒ Automatic

A 1

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

IONOSPHERIC DATA

Jun. 1957 | foEs | 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	3.0M	6.7M	6.0M	3.8M	3.1FM	3.5M	3.5	4.7	5.0	6.5M	7.0M	7.9M	7.8M	9.0M	7.8M	5.7M	7.0M	6.3M	6.5M	7.9M	7.0M	13.5M	9.5M	7.9M
2	6.7M	3.2FM	3.5M	3.1M	3.0M	3.5M	3.5	5.9M	6.7M	8.0M	6.0M	5.0	4.7	5.5M	8.5M	5.6M	7.0M	6.5M	4.9M	12.5M	5.0M	6.0M	6.7M	3.9M
3	2.2M	2.7YM	4.5YM	1.1	1.2	3.2	4.2	6.5M	6.4M	6.5M	13.5M	8.8M	6.4M	4.5	4.7	4.1	6.4M	4.2	4.2M	10.5M	6.9M	10.0M	5.5M	4.5M
4	4.1M	4.1M	3.2M	2.5FM	3.2M	2.7	4.2	5.5M	7.1M	4.7	6.8M	7.2M	7.1M	7.0M	4.3M	7.8M	6.5M	3.4	4.4M	3.9M	7.0M	3.8M	7.0M	2.5M
5	E	2.3YM	2.0FM	3.5M	3.5FM	3.5M	3.8	6.1M	6.0M	7.0M	8.0M	8.5M	7.2M	4.2	4.1	5.6	13.1M	8.0M	6.9M	6.5M	10.5M	3.0M	6.9M	8.0M
6	4.5M	2.5M	3.7M	3.5M	3.4M	G	5.6M	5.6M	7.0M	4.1	G	G	G	G	4.5	4.7	5.9M	6.0M	3.6M	6.2M	2.4YM	6.3M	4.5M	8.0M
7	7.0M	8.0M	7.3FM	6.5FM	5.5FM	2.6	5.3M	7.2M	6.6M	6.6M	5.8M	6.5M	7.2M	G	12.0M	7.0M	7.0M	3.7	5.8M	5.6M	5.5M	4.8M	4.5M	5.8M
8	4.8M	6.6M	8.0FM	4.5FM	1.2F	3.5M	4.1	6.6M	6.8M	9.0M	6.5M	7.5M	8.0M	11.9M	7.8M	7.0M	8.0M	5.4M	5.6M	8.8M	7.5M	8.6M	7.9M	7.5M
9	3.5M	4.3M	2.4M	2.3M	5.4FM	6.0M	4.7M	6.9M	6.5M	12.0M	15.5M	8.0M	6.4M	4.5	7.0M	6.9M	7.0M	6.7M	3.1	7.1M	5.0M	3.0M	2.2M	2.6M
10	3.5M	4.6FM	3.6M	1.3	3.5M	3.5M	G	4.2	5.9M	4.4	6.2M	6.1M	6.1YM	4.6	5.2M	5.2M	4.3M	3.5	2.7	G	4.5M	3.5M	4.5M	3.0M
11	2.1YM	2.5YM	2.5M	2.5M	3.0M	3.5M	3.5	G	G	4.5	6.0M	4.6	5.0	G	4.9	6.8M	4.5	4.2	5.5M	5.5M	6.5M	3.0M	E	3.5M
12	E	4.2M	9.5M	6.2M	2.8M	3.5M	3.6	4.4	6.0M	6.8M	6.1M	4.5	4.5	5.6	6.0M	G	4.5	7.5M	7.5M	6.5M	9.5M	6.5M	5.0M	3.5M
13	3.2M	4.7M	6.5M	2.7FM	2.2FM	3.5M	6.2M	7.2M	8.0M	6.9M	6.5M	6.5M	4.7M	5.9M	9.0M	4.7	11.5M	9.0M	5.7M	6.5M	8.5M	7.0M	6.0M	7.0M
14	4.2M	4.2M	3.5M	2.5FM	3.0M	3.5FM	3.9	6.7	7.5M	8.5M	8.0M	8.0M	7.8M	6.9M	6.2M	6.6M	8.0M	8.0M	6.7M	10.8M	9.0M	9.5M	7.5M	4.6M
15	2.3M	3.5M	4.1M	4.7M	7.4M	3.7M	3.8	5.7M	7.0M	10.6M	6.1M	7.7M	6.1M	5.0M	6.5M	7.0M	6.2M	4.8M	5.6M	4.5M	5.6M	6.0M	3.2M	3.1M
16	2.1M	3.0M	3.1FM	2.3FM	1.3F	3.4M	3.5	6.3M	7.7M	4.5M	4.5	6.0M	6.4M	4.9M	11.0M	14.1	6.2M	8.0M	8.0M	5.5M	4.5	4.0M	5.5M	6.7M
17	4.5M	3.0M	2.2M	3.5M	4.5M	3.2	5.7M	4.5	4.8	6.3M	6.0M	6.1M	9.4M	11.0M	6.7M	4.2	5.5M	6.2M	6.7M	6.5M	10.5M	9.0M	6.5M	7.5M
18	6.5M	3.1M	3.0M	4.0M	4.2M	3.5M	4.9M	8.0M	4.5	7.0M	6.9M	6.5M	8.0M	6.6M	8.0M	4.5	7.5M	8.0M	C	9.7M	6.5	5.9M	7.4M	4.5M
19	4.6M	6.8M	8.0M	7.8M	8.0M	9.9M	4.5M	4.8	7.0M	8.0M	7.6M	10.1M	8.0M	10.5M	8.0M	7.5M	13.2M	12.5M	9.7M	7.5M	7.5M	7.0M	6.0M	4.6M
20	2.5M	3.2YM	E	2.1YM	1.4	3.5M	5.0M	4.1	5.7M	4.7M	11.2M	10.1M	7.5M	5.5	4.8	G	5.9M	7.5M	8.0M	7.5M	6.9M	7.0M	3.1M	3.3M
21	3.5M	2.4YM	7.5M	3.4MF	4.2MF	3.5M	6.0M	6.5M	12.0M	11.5M	8.0M	9.2M	6.8M	5.9M	G	4.7	5.1M	8.1M	7.0M	9.5M	6.6M	4.5M	2.5M	4.0M
22	4.4M	3.9M	4.0M	3.3M	3.1M	3.1M	3.5	6.7M	6.2M	4.9	6.8M	5.9M	5.8M	6.2M	8.0M	4.2	G	G	3.1	7.0M	8.0M	3.2M	4.5M	3.5M
23	4.2M	3.2MF	3.2MF	3.2M	3.2MF	4.4M	5.0	5.7M	7.4M	6.0M	9.0M	6.0M	8.0M	7.0M	G	4.5	4.1	3.8	3.1	9.5M	6.3M	6.5M	7.0MF	7.8M
24	7.0MF	4.0MF	3.0M	3.2MF	4.0M	3.4M	3.5	4.0	5.0	C	8.0M	11.0M	11.3M	11.7M	4.6	6.5M	4.2	4.2	4.7M	7.1M	8.5M	8.0M	3.2M	4.0M
25	6.2M	4.0M	7.0M	8.0MF	3.1MF	2.6	3.7	6.8M	6.1M	7.1M	6.7M	11.6M	6.6M	6.0M	7.5M	5.5M	5.0M	4.5M	3.5	4.7M	5.3M	8.0M	6.5M	4.0M
26	C	C	C	C	C	C	C	C	5.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	7.8M	7.0M	5.6M	3.5M	6.7M	4.1M	4.6M
28	4.4M	4.0M	2.0YM	2.5M	2.3YM	4.4M	6.7M	5.1M	5.3M	6.7M	B	B	B	B	B	G	G	G	3.6	4.1M	3.7M	4.4M	4.5M	2.7M
29	3.7M	2.2M	2.1M	2.5M	2.1M	3.5M	3.6	5.0M	4.6	6.2M	6.4M	6.9M	7.5M	4.8M	4.0	7.0M	7.5M	10.6M	4.7M	5.1M	8.0M	5.0M	3.0M	3.0M
30	3.0YM	2.2M	3.0M	2.2M	2.5M	3.0YM	G	4.1	6.5M	5.7M	6.0M	10.5M	8.6M	6.6M	6.7M	4.8M	4.5M	G	3.1	6.6M	7.0M	4.2M	3.8M	4.1M
31																								
Mean Value	4.1	3.9	4.4	3.5	3.4	3.8	4.4	5.7	6.4	6.8	7.5	7.6	7.0	6.5	6.7	6.1	6.8	6.5	5.4	6.9	6.7	6.1	5.3	4.8
Median Value	3.9	3.7	3.5	3.2	3.1	3.5	4.0	5.7	6.4	6.6	6.7	7.2	7.1	5.9	6.5	5.6	6.2	6.2	5.6	6.5	6.9	6.0	5.0	4.1
Count	28	28	28	28	28	28	28	28	29	27	27	27	27	27	27	28	28	29	28	29	29	29	29	29

foEs

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

A 2

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jun. 1957

(M3000)F2

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.45	2.65	2.70	2.60	2.60	2.70	2.75	2.60	2.55	2.55	2.55	I 2.60 A	2.65	I 2.65 A	2.65	2.75	2.75	2.75	2.65	2.60	2.65	A	A	A
2	2.60 F	2.50	2.65	2.55	2.65	2.75	2.65	2.70	2.65	2.55	2.50	2.55	2.60	2.60	2.55	2.60	2.70	2.75	2.75	I 2.70 A	2.65	2.55	2.55	2.60
3	2.65	2.70	2.75	2.55	2.60	2.55	2.45	2.80	2.60	2.50	I 2.50 A	2.45	2.40	2.50	2.55	2.55	2.55	2.70	2.60	2.65	2.60	2.40	2.50	2.45
4	2.65	2.50	2.35	J 2.35 F	2.35 F	2.55	2.50	2.90	2.40	2.10	A	A	2.35	2.40	2.55	2.70	2.60	2.65	2.70	2.60	2.55	2.40	2.40	2.50
5	2.70	2.65	2.60	2.45	2.40	2.70	2.90	2.70	2.80	2.95	A	A	2.55	2.30	2.45	2.65	A	A	2.65	2.65	L 2.55 A	• 2.45	2.45	2.50
6	2.45	2.50	2.55	2.50	2.55	2.65	2.80	2.75	J 2.65	2.75	2.65	2.55	2.60	2.55	2.50	2.50	2.65	2.60	2.65	2.50	2.55	2.75	2.40	I 2.40 A
7	2.45	J 2.60	U 2.70 R	3.75	2.45	2.65	2.75	2.85	2.25	2.65	2.65	2.45	2.60	2.65	2.75	2.75	2.65	2.70	2.70	2.80	2.55	2.50	2.45	2.60
8	2.55	2.65	2.70	2.75	2.60	2.60	2.70	2.80	2.75	I 2.70 A	2.65	2.65	2.55	I 2.50 A	2.50	2.60	2.65	2.70	2.70	2.70	2.70	A	A	2.50
9	2.50	2.60 F	2.60	2.35	2.45 F	2.65	2.60	2.55	2.65	I 2.60 A	J 2.55	2.60	2.60	2.60	2.65	2.60	2.65	2.75	2.80	2.50	3.10	2.55	2.50	2.55
10	2.55	2.70	2.70	2.50	2.45	2.75	2.90	2.70 H	2.70	2.60 H	2.50	2.55	2.50	2.55	2.55	2.65	2.60	2.70	2.70	2.80	2.50	2.45	2.60	2.80
11	2.65	2.60	2.75	2.75	2.70	2.75	2.75	2.70	2.70	2.55	2.55	2.50	2.55	2.55	2.60	2.65	2.70	2.65	2.90	2.70	2.50	2.50	2.45	2.55
12	2.55	2.65	2.75	2.70	2.60	3.00	2.75	2.90	2.55 H	2.55	2.50	2.50	2.45	2.50	2.50	2.65	2.75	2.60	2.70	2.75	2.50	2.45	I 2.45 R	2.45
13	2.60	2.75	2.65	2.65	2.60	2.65	3.00	2.65	2.70	2.65	2.50	2.55	2.45	2.60	2.65	2.70	I 2.65 A	2.60	2.60	2.60	A	R	2.45	I 2.55 R
14	2.65 F	2.65	2.55	2.60 F	2.45	2.70	2.65	2.85	2.60	2.45	2.70	2.60	2.55	2.65	2.60	2.70	2.65	2.65	2.65	A	A	2.65	2.55	2.45
15	2.55	2.65	2.80	2.65	2.70	3.00	2.65	2.60	2.60 H	2.50	2.60 H	2.55	2.60	I 2.60 R	2.55	2.60	2.65	2.65	2.80	2.70	2.45	2.50	2.45	2.55
16	2.60	2.40	2.40	2.40	2.45	2.60	2.45	2.65	2.45 H	2.50 H	2.55	2.65	2.60	2.65	A	A	2.65	2.70	2.70	2.65	2.55	2.50	2.25 F	2.50
17	2.45	2.55	2.70	2.70	2.65 F	2.95	2.40 H	2.65	2.60	2.60	2.65	2.55	2.60	A	2.50	2.55	2.60	2.70	J 2.65	2.80	A	A	2.35	2.35
18	2.40	2.70	2.45	2.55	2.45 F	2.65	2.60	I 2.60 A	2.55	2.65	2.60	2.60	2.60	2.55	2.50	2.65	2.55	2.70	C	A	2.50	2.40	I 2.40 R	2.45
19	I 2.50 R	2.55	2.50 F	2.50	2.45	I 2.55 A	2.70	2.60	2.50	2.60	J 2.55	I 2.50 A	J 2.50	2.50	2.45	2.60	A	A	A	2.55	I 2.55 A	2.55	2.50	2.45
20	2.40	2.45	2.50	2.50	2.30	2.35	2.55	2.35	2.45 H	2.50	A	A	2.60	2.50	2.60	2.55	2.50	2.65	2.60	2.75	2.45	2.45	2.50	2.50
21	2.60	2.75	2.70	2.50	2.40	2.40	2.45	2.55	A	A	A	A	2.30	2.40	2.35	2.35	2.40	I 2.40 A	2.45	I 2.40 A	2.35	2.40	2.50	2.45
22	2.45	2.60	2.45	2.50	2.40	2.35	2.45	2.60	2.50	2.35	2.40	2.40	2.50	2.60	2.70	2.60	2.55	2.55	2.60	2.60	2.50	2.45	2.40	2.50
23	2.55	2.65	2.70	2.50	2.45	2.65	2.75	2.65	2.60	2.40	A	2.55	2.65	2.65	2.75	2.80	2.60	2.75	2.70	2.70	2.55	I 2.40 R	2.45	A
24	2.60	2.50	2.60	2.50	2.60	2.75	2.40	2.50	2.45	C	2.65	2.55	A	2.45	2.55	2.50	2.55	2.60	2.80	2.50	A	2.45	2.55	2.55
25	2.45	2.45	2.70	R	2.50	2.45	2.85	2.80	2.80	2.70	2.50	2.60	2.50	2.45	2.45	2.60	2.60	2.70	2.60	2.70	2.60	2.45	2.50	2.50
26	C	C	C	C	C	C	C	C	2.60	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.50	2.50	2.65	2.50	2.40	J 2.45	2.55
28	2.55	2.55	2.60	2.45	2.55 F	2.70 V	2.40	2.80	2.55	2.50	2.60	B	B	2.55	2.50	2.60	2.70	2.70	2.60	2.55	2.55	2.50	2.45	2.50
29	2.55	2.60	2.55	2.45	2.70	2.60	2.70	2.80	2.65	2.45	2.70	2.55	2.60	2.60	2.75	2.70	2.55	2.85	2.80	2.90	2.65	2.55	2.50	2.55
30	2.55 F	2.70	2.85	2.60	2.60	2.65	2.40	2.40	2.60	2.70	2.45	I 2.50 A	2.55	2.60	2.55	2.50	2.50	2.45	2.70	2.65	2.45	2.30	2.30	2.10
31																								
Mean Value	2.55	2.60	2.65	2.60	2.50	2.65	2.65	2.65	2.60	2.55	2.55	2.55	2.55	2.55	2.55	2.60	2.60	2.65	2.65	2.65	2.60	2.45	2.45	2.50
Median Value	2.55	2.60	2.65	2.50	2.50	2.65	2.65	2.70	2.60	2.55	2.55	2.55	2.55	2.55	2.55	2.60	2.60	2.70	2.65	2.65	2.55	2.45	2.45	2.50
Count	28	28	28	27	28	28	28	28	28	26	23	23	26	27	27	27	26	27	27	27	25	25	27	27

(M3000)F2

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

A 3

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jun. 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							330	335	L	445	A	A	410	I405A	400	400	A	A						
2								290A	320	I355A	390	390	390	400	I400A	395	300A	330A						
3								300A	L	395	I410A	420	390	390	400	390	360	340						
4							390	320	600	670	A	A	530	A	450	430	400	400						
5						290	325	360	350A	A	A	A	480	530	455	400	A	A						
6						L		A	A	400	430	430	400	410	430	420	380	370	300					
7						330	370	A	A	425	390	440	380	375	360	370	350	345	310					
8							L	305	A	A	395	400	400	I400A	395	390	380	L						
9						L	300	L	340	A	A	395	375	395	395	375	360A	345	295					
10							L	260H	300	LH	430	410	405	395	385	370	350	330	310					
11							L	L	280	L	405	430	395	400	405	400	370	L						
12							270	280	AH	380	L	430	405	400	405	390	360	330						
13							265	350A	I365A	380	405	400	400	400	I380A	355	A	A						
14							L	325	A	A	410	440	440	410	395	390	370	355						
15							250	A	AH	390	350H	420	400	430	410	380	380	380						
16						300	L	400	LH	290H	435	405	405	400	A	A	400	A						
17							270H	375	430	380	440	440	A	A	440	410	415	385						
18							L	300	425	420	I430A	435	I430A	430	I430A	430	A	A						
19							L	400	A	A	A	A	A	440	440	390	A	A	A					
20							380	400	LH	440	A	A	415	460	420	420	L	A						
21							440	410	A	A	A	A	570	520	540	530	500	I450A	400					
22						L	450	A	455	540	500	495	450	410	400	420	400	370	L					
23							320	400	A	470	A	450	A	390	390	370	380	340	L					
24								L	420	C	A	450	I445A	440	410	410	390	350	340					
25						340L	300	A	370	390	400	A	400	410	390	390	350	L	300L					
26						C	C	C	370	C	C	C	C	C	C	C	C	C	C					
27						C	C	C	C	C	C	C	C	C	C	C	C	L	L					
28							A	350	440	470	475	B	B	495	500	450	410	390	L					
29						L	350L	350	L	440	410	420	425	410	390	395	A	A						
30							475	475	410	400	L	A	A	410	410	445	425	400						
31																								
Mean Value						315	340	350	390	425	420	425	425	420	415	405	380	365	320					
Median Value						315	330	350	370	400	410	430	405	410	405	395	380	355	310					
Count						4	16	20	15	19	17	19	23	26	27	27	21	17	7					

h'F2

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

A 4

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jun. 1957

h'F

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	305	330	300	290	320	275	280	290A	310	A	A	A	A	A	A	290A	A	A	300A	A	A	A	A	A
2	300F	310	280	275	300	260	250	290A	A	A	250A	210	200H	245H	I250A	260H	A	A	290	I310A	330	340A	350A	320
3	295	280	275	275	290	250	255	A	260	220	A	A	270	240	250	240	245	I270A	280A	A	A	350A	330	350
4	290	290	355	330	340	270	A	A	255	245	A	A	A	A	245	300A	250	250	320A	330	I355A	380	350	340
5	290	275	280	350	350	280	260	290	A	A	A	A	A	230	245	280H	A	A	A	A	A	310	370	350A
6	345	300	310	345	330	255	250	A	A	210	210H	205H	200H	250H	250	240H	A	A	280	300	300	315	350	A
7	A	350A	300	350	345	255	280	A	A	A	250	A	A	250	I250A	250	250	250	I270A	290	340A	350	375	350
8	330	340	300	290	290	250	250	A	A	A	A	A	A	A	A	250	250	250	300	300	A	A	A	360
9	300	300	295F	295	340	300	250	A	A	A	A	A	225	200H	A	A	A	A	260	355	350	345	330	310
10	305	300	280	285	300	255	250	245	250	245	A	A	225	225	250	250	240H	250	275	290	340	340	340	325
11	300	295	250	290	300	250	245	250	225	230	230	245	260	260	290	I270A	250	280	295	A	A	320	330	340
12	320	310A	270	280	280	260	245	255	A	A	230H	240H	225H	250	230H	240	250	280A	A	A	300A	310	335	340
13	310	300	300	290	270	250	A	A	A	A	295	240	230H	240	I245A	250	A	A	300A	330A	A	A	380A	I340A
14	300A	300	300	290F	310	255	250	A	A	A	270	A	A	270A	A	A	A	A	A	A	A	A	A	330
15	320	310	280	300	295	240	245	A	A	250	A	A	A	B	A	A	A	300	335A	280	A	350A	350	310
16	300	340	340	340	310	280	255	250	270	240	220	I220A	220	220	A	A	A	A	295A	295	325	350	400	375
17	350	300	290F	300	300	250	I250A	250	250	A	A	A	A	A	A	230	250	A	320A	295	A	A	400	400
18	350	300	325	300	305	255	250	I250A	250	A	A	A	A	A	A	245	A	A	C	A	A	390	390A	385
19	I380A	375	300	370	A	A	260	260	A	A	A	A	A	A	A	A	A	A	A	A	A	340	390A	315
20	340	330	310	295F	335	290	310A	250H	A	A	A	A	A	A	240	250	A	A	A	A	A	350	340	340
21	305	290	270	270	290	250	A	A	A	A	A	A	A	225	250	290	250	A	A	A	A	360	315	360
22	360	310A	310A	305A	340	290	260	A	A	245	I250A	255	A	A	A	230H	240	250	270	340A	A	370	360	340
23	330	310	300A	320	330	310	245	A	A	A	A	A	A	A	220	250	250H	260	260	A	330A	I335A	360	A
24	310A	310	295	290	300	255	250	245	275	C	A	A	A	230	250	300	250	270	A	I300A	A	A	350	310
25	355F	370	300	310A	305	280	250	A	A	A	A	A	240	240	A	I265A	250	250	260	295	320	I360A	360	350
26	C	C	C	C	C	C	C	C	I265A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	290	260	I290A	325	360	340A	325
28	340	340	300	320	330	250	300A	285	A	A	B	B	B	B	B	250	250	260	295	345	325	305	320	310
29	300	300	300	340	325	275	250	290A	A	230	A	A	A	225	220	A	A	A	290	290	290	A	320	320
30	315	290	260	250	295	260	245	250	A	A	A	A	A	260	250	245	250	250	275	305	340A	410	395	450A
31																								
Mean Value	320	310	295	305	310	265	255	260	260	235	245	230	230	240	245	255	250	265	285	305	325	345	355	345
Median Value	310	305	300	300	305	255	250	250	260	240	250	240	225	240	250	250	250	260	290	300	330	350	350	340
Count	27	28	28	28	27	27	25	15	10	9	9	7	10	17	16	22	15	15	21	18	14	22	26	26

h'F

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

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

IONOSPHERIC DATA

Jun. 1957 | Types of Es | 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	f2	f2	f5	f4	f4	lh	hl	C	C	c	C	C	C	C	C	C	C	C	C2	f2	f3	f2	f6	f3
2	f2	f	f	f2	f	l	l	C	C	C	C	C	C	C	C	C	C	C	C	f2	f4	f3	f2	f2
3	f	f	f	f	f	hl	hl	C	C	c	c	C	h	h	h	h	h	h	C	f	f	f	f2	f2
4	f6	f2	f7	f	f4	h	h	h	hl	h	C	C	C	C	l	C	C	C	C	f2	f2	f2	f2	f
5		f	f	f3	f	l	h	h	h	C	C	C	C	C	C	C	C2	C2	C3	f3	f2	f2	f	f
6	f3	f	f2	f5	f6		h	h	C	C					h	h	C	C3	C	f	f	f	f	f3
7	f3	f3	f2	f3	f2	h	f2	C	C	C	C	C	C		C	C	C	h	C	C	f3	f	f	f
8	f	f2	f2	f	f	l	cl	C	C	C	C	C	C	C	C	C	C	C	f	f	f3	f2	f2	f
9	f	f	f	f	f2	f	cl	C2	C	C	C2	C	C	C	C	C2	C	C	C	C	f	f	f	f
10	f	f2	f2	f	f	l		C	C	h	C	C	C	C	C	C	C	C	C		f2	f	f	f
11	f	f	f	f	f	lh	l			h	h	h	h		h	h	h	C	C3	C3	f6	f2		f
12		f4	f2	f3	f	l	hl	h	C	C	C	C	C	C	C		h	C2	f2	C3	f2	f	f	f
13	f	f2	f3	f	f	lh	C	C2	C	C	C	C	C	C	C	h	C	C2	C	f2	f3	f2	f6	f
14	f2	f7	f2	f	f	l	hl	C	C	C	C	C	C	C	C	C	C	C	C	f2	f3	f2	f2	f
15	f	f5	f2	f6	f5	f	h	C	C	C	C	C	C	C	C	C	C	l	C	f2	f2	f	f	f
16	f	f3	f	f	l	l	hl	C	C	C	C	C	C	C	C	C	C	C	C	f2	f2	f	f	f2
17	f2	f	f	f2	f2	h	C	C	C	C	C	C	C	C	C	C	C	C	C2	f	f2	f2	f	f
18	f	f2	f	f2	f2	f	C	C	h	C	C	C	C	C	C	h	C3	C		f2	f	f	f	f3
19	f3	f2	f2	f3	f3	f2	f	C	C	C	C	C	C	C	C	C	C	C	C	f3	f2	f	f	f
20	f	f		f	f	l	C2	C	C	C	C	C	C	C	C	C	C	C2	f2	f2	f2	f2	f2	f
21	f	f	f2	f	f	lh	C	C	C2	C	C	C	C	C		h	h	C	C	f	f	f	f	f
22	f4	f2	f4	f5	f6	l	l	C	C	h	C	C	C	C	C	h			h	f2	f	f3	f	f
23	f	f	f	f2	f	f	l	C	C	C	C	C	C	C		h	h	h	C	C2l	f3	f2	f3	f3
24	f2	f2	f4	f2	f2	f	l	h	h		C	C	C	C	h	h	h	C	C	f	f	f3	f5	f
25	f3	f4	f2	f2	l	h	h	C	C	C	C	C	C	C	C	C	C	C	h	f	f2	f	f	f4
26									C															
27																		C	C	C	f	f	f	f
28	f2	f	f2	f	l	cl	C2	h	C	C									C	f	f2	f	f	f
29	f2	f	f	f	l	lc	cl	C	C	C	C	C	C	C	C	C2	C2	C2	f	f2	f	f2	f	f
30	f	f	f	f	f	l		C	C	C	C	C	C	C	C	f	C		C	f2	f	f2	f	f
31																								
Mean Value																								
Median Value																								
Count																								

Types of Es

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

A 6

17

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

IONOSPHERIC DATA

Jun. 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	8.9	8.6	8.6^{S}	8.0	^{I}8.3^{S}	8.6	9.1	8.1	A	A	A	8.6	9.4	9.7	9.5	9.1	9.0	8.2	8.6	8.6^{S}	8.3	8.5^{S}	8.3	8.7
2	8.9^{S}	^{U}8.4^{FS}	^{U}7.8^{S}	7.5	7.5	7.7	9.2	9.6	10.0	9.7	10.0	10.2	10.3	10.6	10.8	10.4	^{I}9.6^{A}	8.9	8.8	8.8	8.9	9.0	9.3	9.7
3	9.8	9.8	9.1	8.3	8.3	9.0	10.2	11.0	6.9	A	10.5^{H}	11.0^{H}	11.1	11.2	10.9	10.4	9.9	9.9	9.8	10.0	8.8	9.3	9.3	10.0
4	10.3	8.9	8.0	8.4	8.5^{F}	10.1	8.5	8.2	A	A	A	8.0	A	A	8.8	8.8	8.4	8.2	7.8	7.8	7.8	8.5	8.2	8.2
5	8.5	8.1	7.3	6.8	6.8	7.6	9.4	9.3	10.0	9.1	8.5	8.8	9.3	A	A	9.1	8.3	7.9^{H}	7.9	8.3	8.3	8.2	9.0	9.2
6	8.7	8.7	8.1	7.7	7.3	7.9	8.3	7.8	8.1	8.9	9.7	9.5	10.0	10.1	9.6	9.8	10.0	9.6	9.3	9.1	9.4	9.0	8.5	8.8
7	8.5	8.9	9.0	8.5^{F}	8.1	8.4	8.6	8.5	8.3^{H}	9.2	10.2	10.4	11.1	11.4	11.1	9.8	9.1	9.2	9.4	8.7	8.7	9.1	9.4	10.2
8	10.6	10.6	10.0	8.5	8.5	9.3	10.8	10.5	9.6	9.7	9.2^{H}	^{I}10.0^{A}	10.3	10.7	10.7	10.7	10.1	10.0	10.2	9.1	8.6	9.0	9.1	9.2
9	9.7	9.2^{F}	8.6^{F}	8.0^{F}	7.9^{F}	8.6	10.0	10.0	10.7	10.7	11.1	11.5	11.3	11.0	10.4	10.1	9.9	10.1^{S}	9.5	8.2^{S}	8.6	^{I}9.2^{S}	9.7^{S}	C
10	C	C	C	8.1	7.8	9.0	10.1^{R}	10.5	10.0	9.5^{H}	9.9^{SH}	10.6	10.5^{H}	11.2	11.5^{H}	11.1	10.6	10.2	9.6	8.7	8.9	9.5^{S}	^{I}9.8^{S}	^{U}10.0^{S}
11	^{I}10.0^{S}	^{U}10.1^{S}	^{U}9.4^{S}	8.9	8.5	9.1	10.0	10.3	9.8^{R}	9.5	^{J}9.9	10.3	10.9	11.1	10.3^{R}	10.0	^{I}10.0^{C}	9.9	9.6	8.9	8.6	9.2	9.2	9.4^{S}
12	9.9	9.8^{S}	9.3	8.1	8.1	8.9	9.6	9.7	9.4	10.0^{H}	10.5	10.7	10.9	11.0^{H}	11.2	^{I}11.1^{R}	11.0^{H}	10.7	10.4	9.2	9.2	9.6^{S}	10.2	^{J}10.3
13	10.8	10.5	10.1	9.4	9.5	10.2	10.6	10.1	10.3	10.3	10.7	11.3	11.9	11.9	12.0	11.0	10.5	10.2	^{I}10.3^{A}	10.4	^{I}10.0^{A}	9.6	^{I}10.4^{FS}	^{J}11.2^{F}
14	^{D}11.7^{F}	^{U}10.6^{F}	9.5^{F}	9.1^{F}	^{U}8.6^{F}	9.8	9.8	9.6	A	A	A	A	A	10.7	11.1	11.1	11.2	11.2	11.5	10.8	9.1	9.4	10.0	10.5^{S}
15	^{I}10.2^{S}	10.0^{S}	9.9^{S}	9.0	^{I}8.8^{C}	8.6^{V}	9.2	10.0	10.1	^{I}10.4^{A}	10.7	10.5	10.7	10.5	10.6	^{I}10.4^{A}	10.1	A	A	A	S	S	9.2^{S}	9.5^{S}
16	9.5	8.4	8.3	8.2	8.7	8.6	8.5	9.3	10.1	9.9	10.1	10.4	10.2	10.5	10.2	10.0	9.6	9.6	9.8	9.4	9.0	^{I}9.4^{S}	9.7^{S}	^{U}10.7^{S}
17	^{U}10.7^{S}	10.7	10.0^{S}	9.7^{F}	9.2^{F}	9.1^{S}	8.5	9.1	9.5	9.0	9.1	10.0	10.3	10.5	10.2	^{U}10.0^{R}	9.8	10.0	9.9	^{I}8.9^{S}	7.9^{S}	^{I}8.1^{R}	8.3	8.1
18	^{I}8.6^{A}	9.1	8.4^{FS}	8.6^{F}	8.2	8.9	9.6	10.0	9.0^{H}	9.0	9.5	9.9	9.8	10.1^{H}	9.9	9.9	10.1	9.1	^{I}9.0^{A}	8.9	8.5	^{I}8.8^{R}	9.0	9.2
19	9.9	9.0	7.9	7.4	^{U}7.5^{R}	8.3	8.8	9.2	8.7^{H}	^{U}9.0^{R}	9.3	C	A	10.6	^{I}10.7^{A}	10.8	9.7	9.8	9.1	8.8	9.0	R	8.4	9.4
20	8.7	8.8	^{U}8.9^{R}	8.8	7.8	8.5	9.6	9.5	A	9.4	9.4	9.8	9.6	9.6	9.2	9.2	8.8	8.8	^{I}9.0^{R}	9.1	^{I}9.0^{S}	9.0	8.8	9.1
21	9.3	9.5	^{U}8.2^{R}	6.9	6.5	7.1	R	R	7.5	^{I}7.0^{R}	^{U}7.1^{R}	^{U}7.5^{R}	^{U}7.4^{R}	7.4	7.0	7.0	7.2	7.2	7.4	A	^{U}8.0^{S}	8.3^{S}	8.8	^{I}8.6^{R}
22	8.5	^{U}8.6^{R}	7.7	7.5^{R}	6.7	6.6	7.4	7.4	R	R	7.4^{R}	R	9.0	8.9	6.8	^{J}8.1	8.6	8.6	8.6	8.1^{RS}	8.4	8.4^{S}	8.9	9.1
23	8.9	8.9	8.2^{S}	8.1	7.6^{R}	7.6	^{J}8.2	7.8	R	8.2^{R}	8.8	9.6	10.7	10.6	10.4	9.5	9.4^{S}	8.2	8.8	^{I}8.2^{R}	7.3	R	RS	AS
24	AS	8.5	7.8	8.0^{R}	7.5^{R}	7.3	^{U}8.0^{R}	8.1	^{I}8.3^{R}	9.1	9.5^{R}	R	R	R	10.7	10.4	10.8^{R}	^{I}9.7^{S}	9.5	S	S	AS	S	9.7
25	S	S	R	9.2	8.6	8.5^{F}	9.2	^{I}9.4^{A}	9.3	9.4	^{I}10.4^{A}	11.4	11.0	11.0	11.4	^{I}11.4^{A}	10.8	10.3	9.6	9.6	9.0	8.5	9.7	9.9^{R}
26	10.9	10.0	10.5	8.9	8.0	8.6	9.7	9.8^{V}	9.3	9.5	10.4	10.4	10.5	11.4^{R}	^{J}11.6	11.5	11.7	11.0	10.1	9.1	9.0	C	C	R
27	^{J}10.6	9.0	^{I}8.2^{A}	7.9	7.9	9.0	9.0	8.2	^{I}7.4^{A}	7.1	6.8	A	B	6.0	6.2	6.2	6.4	6.8	6.9	6.7	7.0	^{I}7.4^{R}	7.9	8.1
28	8.2	7.8	7.4	7.6	^{U}8.0^{S}	8.5	9.3	8.6	7.5	7.5	B	B	B	B	R	8.2	7.7	7.6	7.1	7.3	7.6	^{U}7.5^{S}	7.5	7.5
29	7.7	7.4	7.3	7.2	^{U}7.4^{S}	8.8	9.0	9.1	^{I}8.5^{A}	8.9	9.4	9.7	9.7	^{I}9.6^{A}	9.4	9.1	9.3	9.5	9.0	8.4	7.4^{S}	^{U}7.8^{S}	8.4	8.5
30	^{U}8.3^{S}	8.4	7.7	6.8	6.6	6.8	6.7^{H}	7.1	8.0	^{I}7.6^{A}	7.7	8.2	9.5	10.0	9.3	9.0	8.8	8.6	8.9	7.4	7.7	7.7^{S}	8.0	7.0
31																								
Mean Value	9.4	9.2	8.6	8.2	8.0	8.5	9.1	9.2	9.0	9.1	9.5	9.9	10.2	10.3	10.1	9.8	9.5	9.3	9.2	8.8	8.5	8.7	9.0	9.3
Median Value	9.5	9.0	8.4	8.1	8.0	8.6	9.2	9.3	9.2	9.2	9.6	10.1	10.3	10.6	10.4	10.0	9.8	9.6	9.3	8.8	8.6	9.0	9.0	9.2
Count	27	28	28	30	30	30	29	29	24	25	26	24	24	26	28	30	30	29	29	27	28	25	27	27

foF2

Sweep 1.0 Mc to 20.0 Mc in 2.3 min ☐ Manual ☒ Automatic

K 1

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

IONOSPHERIC DATA

Jun. 1957 | foF1 | 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								A	A	A	A	A	A	6.2	5.9L	L	L	A						
2								A	L	A	A	A	5.7	6.1	A	A	A		L					
3								A	A	A	5.3L		A	6.0	5.7L	5.8L	5.4	L	A					
4						A	A	A	A	A	A	5.7	A	A	A	5.6	5.7L	L						
5									A	A	A	6.0	A	A	A	A	A	A	A					
6							L	L	A	6.4L	5.8L	6.1H	5.8	5.7	6.0	5.8	A	A	A					
7							A	A	A	A	A	A	A	A	L	L	L	L	L					
8							L	A	A	6.2	A	A	A	6.3	6.3L	5.9	A	A	A					
9									5.8	A	A	6.0	A	A	A	5.5L	L	A	A					
10								L	A	A		6.1		6.1	5.4	I 5.6L	5.7L	L						
11									L	5.8L	B	6.3	A	6.0	A	A	C	A	A					
12								L	6.3		5.7L	A	A	5.5	A	A		A	A					
13								A	A	A	A	A	6.3	A	A	A	A	A	A					
14								A	A	A	A	A	A	A	6.1	I 6.0A	5.9L	L	L					
15							A	A	A	A	A	A	6.0	I 6.1B	6.2L	A	A	A	A					
16									A		6.3	6.2	A	L	A	A	5.8L	A	A					
17							A	L	A	A		A	L	A	A	A	A	A	A					
18										L	L	A	A	5.8	5.9	A	A	A	A					
19								B		A	A	C	A	5.9	I 5.8A	5.7	5.9	L	L					
20						L	L	A	A	A	B	5.8	I 6.0L	6.1	6.2	I 5.8A	5.5	A	A					
21							L	A	A	5.6	5.5	A	U 5.9B	5.7	5.5	5.8	5.3	5.0	A					
22						L	4.8L	L	A	R	6.3L	R	A	A	B	6.0L	5.8L	L	A					
23							L	L	A	5.9	6.3	5.7	A	A	5.8L	5.9L	A	L	A					
24							L		6.0	A	A	A	6.1	5.9	6.0	5.8	5.5	L	A					
25							A	A	A	A	A	6.2L	A	A	A	A	A	A	A					
26							5.1L		A	A	A	6.1	6.6	6.0	5.9	5.8	5.6	L	L					
27							4.2	A	A	S	A	A	B	B	5.2	5.3H	5.1	A	L					
28							L	L	L	B	B	B	B	B	B	B	B	5.6L	A					
29							A	A	A	A	5.9	6.3	A	A	A	A	5.5	A						
30								5.1R	5.1	A	A	6.0	A	A	5.8L	5.8	5.1	L	L					
31																								
Mean Value							4.7	5.1	5.8	6.0	5.9	6.0	6.1	6.0	5.9	5.8	5.6	5.3						
Median Value							4.8	5.1	5.9	5.9	5.8	6.1	6.0	6.0	5.9	5.8	5.6	5.3						
Count							3	1	4	5	8	13	8	15	16	16	14	2						

foF1

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

K 2

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

IONOSPHERIC DATA

Jun. 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						A	2.50^{A}	3.40	3.75	B	A	B	B	B	B	R	3.70	2.75^{A}	A					
2						2.30	3.05	3.45	3.80	B	R	B	B	R	R	3.90^{R}	A	A	A					
3						1.95	2.90	3.35^{R}	3.50^{R}	3.80^{R}	B	^{U}4.20^{B}	B	B	R	R	3.60	3.15	2.25^{A}					
4						2.10	A	A	A	R	B	B	B	B	B	3.75^{R}	R	R	2.40					
5						2.25^{R}	2.85	A	R	3.70	^{U}4.00^{B}	^{U}4.10^{B}	4.00	3.90	A	A	3.65	3.15^{R}	2.40					
6						B	B	3.50	3.75	3.90	A	B	^{U}4.10^{B}	^{I}4.05^{R}	4.00	3.90	3.50	2.85	^{U}2.10^{A}					
7						A	3.20^{R}	3.35^{R}	3.75	B	B	B	B	B	A	R	R	3.25^{R}	^{U}2.25^{A}					
8						2.40	2.90	3.40	3.85^{R}	^{U}4.00^{R}	4.15	B	B	4.00^{R}	R	A	A	A	A					
9						A F	3.00	R	R	A	B	A	A	A	B	3.90	^{U}3.25^{A}	A	A					
10						A	2.95^{B}	3.50	3.85	R	B	B	A	A	R	A	A	A	2.40					
11						A	3.00	3.50^{S}	3.65	B	B	B	B	^{U}4.40^{B}	B	B	C	3.60	2.40					
12						B	R	3.50^{R}	B	B	B	B	B	B	R	B	B	3.20	B					
13						2.50	3.00	^{I}3.40^{R}	3.85	4.00^{R}	R	B	B	B	B	R	^{U}3.70^{R}	^{U}3.25^{A}	A					
14						B	2.90	R	B	^{U}4.05^{R}	A	B	B	B	A	A	3.90	3.35	A					
15						A	3.20	^{I}3.50^{A}	^{U}3.80^{R}	^{I}4.00^{A}	^{U}4.10^{R}	B	B	B	A	A	A	A	A					
16						2.40	2.90	3.40	^{I}3.60^{B}	3.85^{R}	B	B	B	B	C	B	3.75	3.15	A					
17						^{U}2.30^{B}	3.00	B	B	B	B	B	B	B	B	B	B	^{U}2.90^{B}	B					
18						A	A	A	3.75	R	R	B	B	B	B	B	^{U}3.70^{B}	3.10	2.20					
19						B	B	B	B	B	B	C	B	B	B	B	B	3.15	B					
20						B	2.90	B	B	B	B	B	B	B	B	B	^{U}3.75^{B}	3.15	B					
21						2.40	3.00	^{U}3.50^{B}	^{U}3.60^{R}	B	B	B	B	B	B	^{U}3.85^{R}	3.65	3.25^{R}	2.45					
22						A	B	R	B	B	B	B	B	B	B	B	B	3.00	2.40					
23						2.20	2.95^{B}	3.50	B	B	B	B	B	B	B	R	R	3.05	B					
24						A	A	3.15	3.75	B	4.50	B	B	B	B	4.00^{R}	3.60	B	B					
25						2.10	2.80	^{I}3.25^{A}	3.70	3.85	^{I}4.00^{A}	4.05	B	A	A	R	A	A	A					
26						A	2.70	3.25^{R}	^{U}3.55^{A}	^{U}3.70^{A}	B	R	B	4.30	4.10	R	R	3.25^{R}	2.40					
27						A	2.65	3.30	3.50	^{U}4.30^{A}	B	B	B	B	B	B	B	3.05	2.35					
28						2.05	2.85	3.25^{R}	3.65^{R}	B	B	B	B	B	B	B	B	B	2.75					
29						2.30	2.85	3.45	B	B	B	4.05	A	A	B	A	A	A	2.55^{A}					
30						A	2.70	^{I}3.20^{R}	3.70	B	B	B	B	B	R	R	^{U}3.50^{R}	3.35	2.45					
31																								
Mean Value						2.25	2.90	3.40	3.70	3.90	4.10	4.10	4.05	4.15	4.05	3.90	3.65	3.15	2.40					
Median Value						2.30	2.90	3.40	3.75	3.90	4.10	4.10	4.05	4.05	4.05	3.90	3.65	3.15	2.40					
Count						13	23	21	19	11	5	4	2	5	2	6	13	20	15					

foE

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☐ Automatic

K 3

Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Jun. 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	2.9	3.7 M	4.0 M	6.0	5.5 MS	3.0	6.4 M	11.2	D 8.8 C	12.3	D 10.5 C	8.5	8.7	B	4.6	5.1	J 5.5	6.0 M	J 6.5	4.2	9.5	8.7	11.4	14.3
2	6.4 M	9.0	3.9 M	3.1 M	J 3.2	2.7	3.5	6.4 M	5.9 M	8.5	J 8.4	12.0 M	5.6 M	8.5	J 5.4	J 7.8	15.1	7.2	9.1	7.8 MS	J 7.1	J 11.4	J 12.5 Y	3.8
3	E	6.8	J 5.9	3.0	J 2.6	3.0	J 6.1	J 9.8	J 7.4	J 9.5	B	J 9.7	J 8.8	B	G	G	3.8	J 4.9	J 5.4	J 4.6	J 8.5	8.4	J 7.9	J 7.9
4	J 2.6	4.2	3.3 M	3.2	J 1.4 Y	J 4.2	J 5.1	J 6.1	9.1	J 8.2	7.2 M	5.9	12.3 M	11.0 M	J 6.1	J 6.1	G	3.7	G	J 3.8	2.7 M	9.1	4.2 M	5.7
5	6.8	2.3 M	E	E	E	G	3.6	J 5.0	J 6.6	6.0 M	7.1	6.7	8.7 M	11.5 M	14.5	J 6.4	8.6	13.2 M	14.3 M	6.0 M	10.5 MY	12.7 M	15.9 M	4.8 M
6	7.1 M	6.0 M	4.6 M	3.7 M	2.9 M	B	3.5	6.0 M	6.6 M	6.0 M	4.7	4.2	4.4	G	J 5.3	4.7	6.6 M	9.5 M	6.7	6.5 M	4.4 M	3.2	11.5 M	6.9 M
7	7.0	6.8 M	11.0 M	6.4	J 7.5	J 5.1	3.9	9.0	J 6.2	J 7.3	6.4 M	6.0	5.9	J 14.5	4.8	J 4.3	G	G	2.5	3.2 M	3.2 M	J 6.6	3.2	J 6.0 Y
8	J 5.4	2.5	J 2.5	2.2	J 1.6	J 2.7	3.4	J 4.9	J 6.2	6.7 M	6.5 M	11.1	6.5 M	6.7	13.0 M	9.0 M	10.8 M	13.4 M	7.0 M	13.5 M	5.0 M	3.0 M	4.9 M	13.1 M
9	2.5	3.0	3.3 M	4.0 M	3.2	3.0 M	3.2	G	6.8	9.0 M	8.4	8.9 M	7.4	8.9 M	7.9 M	5.0	5.9 M	5.8 M	6.8	5.9 M	3.0 M	3.8 M	4.0	C
10	C	C	C	6.1	3.4 M	6.0	3.8	4.8	6.3 M	5.0	6.9	5.0 M	5.0	5.6 M	G	3.9 M	3.9 M	4.0 M	3.3	7.4 M	E	4.0 M	3.9 S	5.9 M
11	3.6 M	3.9 M	4.0 M	4.0 M	6.0 M	3.7 M	3.5	G	4.1	B	B	6.5 M	7.2 M	5.2	5.9 M	7.9 M	C	8.5 M	5.9 M	5.1 M	6.7 M	6.0	3.4 M	E
12	2.9 M	E	3.0 M	3.4 M	E	B	G	4.3	6.3 M	5.8 M	5.3 M	6.2 M	6.5 M	5.0	6.7 M	7.0 MY	4.9	6.0 M	4.8 M	4.4 M	8.7 MS	5.8 M	9.3 M	4.0 M
13	E	4.3 M	3.3 M	3.4 M	4.8 M	G	5.0 M	9.0 M	7.2	8.5 M	7.2	9.1 M	7.2 M	8.5 M	8.6 M	6.7 M	6.8 M	8.4 M	11.6 M	8.4 M	13.4 M	8.9 M	9.0 M	8.9
14	3.9 M	3.7 M	3.9	3.7 M	4.4 M	B	3.9	6.6	9.5	9.5 M	12.6 M	15.0 M	14.5 MY	13.8 M	12.7 M	10.7	4.4	8.9 M	4.0 M	8.0 M	9.3 M	5.8 S	5.7 M	7.1 M
15	6.7 S	6.8 M	6.5 M	9.8 M	c	6.4 M	4.9	9.8 M	8.9 M	12.0 M	9.2 M	8.5 M	8.8 M	B	5.8 M	12.6 M	10.7 M	16.6 M	13.4 M	12.8 M	5.9 M	3.9	9.0 M	E
16	3.3 M	3.5 M	3.3 MS	3.4 M	3.1 M	G	4.3	5.9	6.7 M	6.0 M	B	B	10.0 M	B	8.8 M	7.0 M	4.4	6.5 M	7.5	4.7	3.8 M	E	9.0 M	7.4 M
17	9.3 MS	13.4 M	11.0 M	6.0 M	4.4 M	4.3	6.6 M	5.8 M	8.0 M	7.1	6.2 M	6.4 M	5.9 M	5.8 M	6.8 M	7.0	5.6 M	8.7 M	7.1 M	12.5 M	3.9 M	4.2 M	9.7 M	8.7 M
18	9.3 M	7.1 M	5.9 M	3.8 M	5.8 M	5.7 M	6.0 M	6.3 M	5.6 M	5.6 M	5.6	6.7	9.4 M	B	5.8	9.3 M	6.7 M	8.2 M	9.0 M	8.0 M	6.6 M	3.9 MY	4.1 M	5.0 MY
19	3.8	4.8	6.7 M	9.7 M	5.8 M	4.8 M	3.9	B	5.3	5.8 M	7.1	C	11.2 M	4.9	12.9 M	4.5	B	4.7 M	3.2	3.3 M	6.5 M	7.4 M	8.6 M	4.8 M
20	9.2 M	10.7 M	7.6 M	5.4 M	5.7 MY	3.3	5.2 M	7.8	14.9 M	8.6 M	4.9	B	B	5.0	B	6.9	4.4	5.7 MY	5.6 M	6.1 M	6.6 M	6.6 M	8.8 MY	7.4 MY
21	7.4 M	5.4 M	4.5 M	2.7 M	3.0 M	G	3.4	5.5 M	6.5	B	4.9	6.7 M	4.8	4.4	B	G	4.2	5.1 M	5.9 MS	9.1 M	11.7 M	7.4 MS	4.5 M	E
22	2.8 M	4.1 M	5.7 M	4.2	3.3 M	3.1 M	B	4.3	5.9	5.3	5.3	5.4	5.9 M	6.0	B	4.3	4.0	G	5.9 M	3.8 M	4.9 M	5.9 M	3.3 M	3.9 M
23	3.2 M	2.8 M	E	4.0 M	3.1 M	G	3.3	4.2	6.2 M	5.6 M	6.0 M	5.8	6.4	6.8	B	G	6.6 M	5.0 M	5.7 M	E	3.1 M	E	5.2 M	9.3
24	7.3 S	8.8 MY	5.6 M	3.1 M	3.1 M	3.9 M	4.2 M	G	4.4	4.8	7.4 M	8.5 M	5.2	B	5.9 M	4.8	4.5	4.3	4.9 M	4.0 S	4.0 M	8.9 S	6.1 M	4.0 M
25	3.9 M	5.9 M	6.0 M	6.1 MY	2.9 M	2.5	7.9 M	9.2 M	7.2 M	6.8	10.7 M	6.6 M	10.5 MY	8.5 M	10.2	12.5 M	9.0 M	6.0 M	4.8 M	4.3	3.9	9.0 M	7.2 M	6.7 M
26	3.8	3.1	3.0 F	3.2 MY	3.2 M	3.8 M	3.9	7.0 M	8.5 M	11.5 M	9.0	4.9	B	4.7	4.7	G	G	G	G	E	E	C	C	7.3 M
27	8.9 M	10.1 MY	11.7 MY	3.3 M	4.1	4.1 M	3.5	6.9 M	14.5 M	4.8	5.1	11.7 MY	5.1	B	B	B	B	13.2 M	6.2 M	3.2 M	2.2 M	4.8 S	2.9 M	6.3 M
28	5.8 MS	4.0 M	5.3 M	6.8 M	2.9 M	4.6 M	5.3	4.4	5.2 M	B	B	B	B	B	B	B	B	B	5.4 M	3.9	6.9 M	3.6 M	5.9 M	3.9
29	E	2.8 M	2.6 M	3.5 M	E	3.0	5.4 M	7.5 M	13.2 M	7.0 M	6.0 M	5.0	7.2 M	12.5 M	7.7	7.4 M	5.8 M	8.4 MY	6.0 M	4.9 M	6.0 M	6.8 M	9.3	9.9 M
30	2.8 S	2.8 M	2.2	E	3.1 M	4.1 M	3.2	4.4	4.3	8.3	7.0 M	6.0 M	6.9 M	9.1 M	6.5 YM	5.4 M	3.7	3.7	3.1	3.7 M	2.8 M	5.5 M	5.5 M	4.5 M
31																								
Mean Value	5.3	5.4	5.2	4.5	3.8	4.0	4.5	6.6	7.4	7.5	7.0	7.6	7.6	7.9	7.8	6.9	6.3	7.5	6.5	6.2	6.1	6.5	7.1	6.8
Median Value	3.9	4.2	4.0	3.7	3.2	3.3	3.9	6.0	6.6	7.0	7.0	6.6	7.2	6.8	6.3	6.2	5.2	6.0	5.9	4.8	5.4	5.9	6.1	6.0
Count	29	29	29	30	29	27	29	29	30	27	26	26	27	22	24	28	26	29	30	30	30	29	29	29

foEs

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

K 4

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

IONOSPHERIC DATA

Jun. 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		2.9	3.2	5.4	5.0	2.6	4.7	5.3	A	A	A	6.2	6.5		4.6	U 5.5 B	5.3	5.0	5.4		6.2	5.1	5.1	5.1
2	4.9	5.0			3.0	2.6		5.7	5.1	6.9	7.4	7.2	5.2	5.2	U 6.4 B	6.4	A	4.9	3.5	6.2	5.1	4.1	6.3	3.5
3		3.5	3.4	2.6	2.6	3.0	4.4	7.2	5.3	A		5.2	8.5				U 4.1 B	4.1	5.0	4.6	2.6	6.5	4.1	6.2
4	2.0	2.3	2.6	1.8	1.4	3.6	4.4	5.0	A	A	A	5.2	A	A	5.6	4.1		3.5			2.1	5.3	2.6	2.6
5	2.3	2.1					3.5	4.5	6.2	5.8	7.1	5.7	8.5	A	A	5.6	5.3	6.0	7.0	4.0	2.7	2.5	2.2	2.0
6	4.4	3.7	2.6	2.7		B	3.2	4.8	6.0	5.3	4.5	U 4.3 B	U 4.5 B		5.3	4.6	6.0	8.6	5.1	6.1	2.9	2.6	2.6	3.7
7	5.5	2.6	5.1	2.8	4.1	4.1	U 4.1 B	7.7	5.2	7.3	6.1	U 6.5 B	5.8	6.3	4.7	4.3				2.5	2.5	5.5	2.1	2.4
8	4.1	1.9	1.4					4.9	5.8	5.8	5.5	A	6.5	5.3	6.1	5.5	6.3	5.4	5.6	8.0	3.5	2.5	4.1	7.5
9			2.2	2.0	1.9				5.5	6.5	7.4	5.5	6.3	7.7	7.9	4.8	5.4	5.4	4.2	5.2 S		2.8	3.3	C
10	C	C	C	3.8	2.3	2.5	3.7	4.7	5.5	U 5.1 B	5.0	U 5.1 B	U 5.1 B	5.0				U 4.1 B	3.3	U 6.7 A		2.6	2.6	4.6
11	3.5	2.4	2.3	2.5	2.2	3.1	3.4					6.0	7.1	5.2	5.7	7.2	C	8.2	5.4	4.4	5.3	3.5		
12				2.6				4.3	5.0	5.3	5.3	U 6.8 B	U 6.9 B	5.0	6.1		4.5	5.1	4.8	4.1	6.0	3.8	5.0	2.6
13		3.4	2.6	2.1	2.1		4.0	8.2	6.6	8.0	U 8.1 B	8.4	5.6	8.2	7.8	6.0	6.5	7.5	A	8.0	A	5.0	5.8	5.1
14	2.5	2.2		2.7	2.4		3.6	6.2	A	A	A	A	A	6.8	5.7	8.0	4.3	5.1	3.1	7.0	6.6	2.2	2.3	5.1
15	6.3			4.7	C	4.1	4.8	8.4	8.5	A	8.8	U 8.7 B	5.2		5.0	A	6.5	A	A	A	4.7	3.6 S	4.8	
16		2.7	2.8	2.5			4.1	5.1	6.4	5.2			9.1		8.0 T	6.2	4.4	5.7	5.3	4.1	2.5		4.7	4.7
17	5.2	8.3	7.3	4.1		3.5	6.1	5.1	6.6	7.1	5.6	6.3	5.8	U 6.2 B	6.3	6.5	5.5	8.2	6.1	A	3.1	4.1	5.5	6.4
18	A	5.0	3.2	2.4	3.6	3.5	4.6	4.9	5.4	5.3	5.6	6.1	8.8		5.5	8.3	6.1	7.2	A	6.8	5.2		3.8	4.2
19		3.7	2.8	3.5	4.8	4.2	3.9		5.1		7.1	C	A	U 5.3 B	A	U 4.6 B		4.1	4.2	2.6	5.7	3.8	4.1	2.7
20	5.6	3.7	5.0		3.3	U 3.5 B	4.8	7.0	A	7.0				5.0		6.6	4.4	5.4	4.8	5.2	5.5	3.4	5.5	2.7
21			2.3	1.9	2.2		3.4	5.3	5.6		U 5.0 B	6.2					4.0	4.2	5.0	A	6.3	4.8	4.3	
22	2.2	3.0	4.1	2.7				4.4	5.8		5.3		U 6.6 B			4.3	U 4.2 B		4.8	3.3	4.5	4.7	2.6	2.6
23				2.2	2.1		3.3	U 4.3 B	5.0	5.0	5.1	5.0	6.1	6.2			5.6	4.5	5.0		2.4		3.7	2.3
24	4.6	4.0	3.0	2.3	2.6	2.4	3.3		U 4.8 B		U 7.9 B	8.1	5.2		5.3 T	4.8	4.5	4.3	4.4	3.8	U 5.0 S	AS	A	3.5
25	3.7	3.5	4.5	3.6	2.3	U 2.6 B	7.5	A	6.2	6.0	A	5.5	8.0	8.2	9.5	A	8.4	5.3	4.6	3.5	3.5	2.9	6.5	5.5
26	2.9	2.1	1.8	1.7	1.9	2.6	3.8	4.2	6.5	7.0	8.4	U 5.1 B		U 5.0 B	U 5.1 B							C	C	6.5
27	3.7	3.2	A	2.4	3.1	3.6	U 3.5 B	5.1	A	S	U 5.3 B	A	B	B	B	B	B	6.0	2.8		2.2	3.2	2.0	3.5
28	4.0	2.5	3.5	3.0	2.1	3.1	4.1	4.3	4.5	B	B	B	B	B	B	B	B	B	4.8	2.9	5.9	3.4	2.8	2.2
29			1.9	2.3		3.0	5.0	7.2	A	6.9	5.0	U 5.1 B	6.2	A	7.5	6.5	5.2	5.6	4.2	4.1	3.8	4.9	4.5	2.1
30	2.1		2.2		2.4	3.4	3.2	4.3	4.3	A	6.4	5.4	6.3	8.1	4.5	4.9	3.7	3.7	3.1	3.0	1.7	4.0	2.3	2.9
31																								
Mean Value	3.9	3.4	3.2	2.8	2.7	3.2	4.2	5.5	5.7	6.2	6.3	6.1	6.5	6.2	6.1	5.7	5.2	5.5	4.6	4.8	4.1	3.9	3.9	3.9
Median Value	4.0	3.1	2.8	2.6	2.4	3.1	4.0	5.1	5.8	6.9	6.4	6.1	6.5	6.2	5.9	5.8	5.3	5.4	4.8	4.6	4.5	3.8	4.1	3.5
Count	19	22	23	25	21	19	25	26	29	23	25	25	25	19	22	22	22	26	27	25	27	26	28	26

foEs

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Jun. 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	1.80	1.80	1.90	1.80	1.90	1.85	2.20	2.25	2.40	4.60	3.50	4.20	4.40	5.45	4.30	3.55	2.35	2.00	1.80	1.65	1.80	1.80	1.80	1.60
2	1.70	1.70	1.90	1.50	2.00	1.90	2.30	2.00	2.20	4.55	3.40	4.30	4.40	2.60	2.60	2.70	2.50	2.10	1.80	1.60	2.35	1.85	1.80	1.70
3	1.70	1.70	E	E	E	1.80	2.10	2.10	2.10	2.40	4.60	4.20	4.60	4.60	2.70	2.40	2.20	1.70	1.65	1.65	1.65	1.60	1.70	1.70
4	1.60	1.35	E	E	E	1.70	1.70	1.70	2.10	2.30	5.30	4.20	4.20	4.30	4.10	2.15	2.15	1.85	2.00	2.10	1.65	1.70	1.60	1.70
5	1.65	1.35	1.90	1.90	1.40	1.70	1.65	1.85	2.10	2.10	4.00	4.10	2.70	2.80	2.50	2.40	2.40	1.85	2.00	E 1.60 E	1.90	E 1.60 E	E 1.60 E	E 1.60 E
6	E 1.60 E	E 1.60 E	E 1.60 E	E 1.60 E	E 1.60 E	2.90	2.90	3.00	2.80	3.10	2.60	4.10	4.10	2.60	2.50	2.10	2.10	1.80	1.70	1.65	1.60	1.60	1.60	1.60
7	1.50	1.35	E	E	E	1.35	1.85	2.10	2.10	4.35	4.20	4.20	4.10	4.10	3.50	2.80	2.70	2.20	2.10	1.70	1.60	1.70	1.60	1.60
8	1.35	1.35	E	1.35	1.40	1.70	1.80	2.10	2.20	2.60	2.50	4.30	4.15	2.50	2.40	2.10	2.10	1.80	1.70	1.60	1.60	1.65	1.70	1.70
9	1.70	1.35	E	E	E	1.35	1.80	2.10	2.10	2.40	4.30	3.50	2.55	3.60	4.10	2.40	2.20	2.30	1.75	2.10	2.10	2.20	1.80	C
10	C	C	C	1.60	1.80	2.10	2.95	2.10	2.10	2.10	4.50	4.30	4.00	4.20	3.75	2.60	2.00	2.20	2.00	1.80	1.80	2.00	1.70	1.70
11	1.75	1.75	1.50	1.60	1.50	1.70	2.20	2.25	2.75	4.50	6.25	4.65	4.60	4.45	4.25	4.50	T 3.40 C	2.25	2.20	2.20	2.20	2.05	1.90	2.25
12	2.20	2.30	2.20	1.80	2.00	2.50	2.35	2.70	4.05	4.10	4.30	4.20	4.30	4.40	3.10	3.90	3.75	2.20	2.30	1.80	1.80	1.90	1.70	1.85
13	1.90	E	E	E	E	1.90	1.90	2.65	2.20	2.65	2.80	4.15	4.10	4.25	4.25	2.75	2.70	2.10	2.00	2.15	1.70	1.80	1.80	1.90
14	2.10	1.80	2.10	1.70	1.90	2.50	2.35	2.25	4.10	3.25	3.85	4.60	4.20	4.40	2.80	2.40	2.20	2.10	2.00	2.00	2.00	2.00	1.80	1.70
15	2.00	1.70	2.00	1.60	I 1.50 C	1.40	1.80	2.10	2.10	2.60	3.80	4.60	4.60	6.60	3.90	3.20	2.50	2.20	1.60	1.80	1.80	1.70	1.70	2.10
16	2.20	1.80	2.00	2.00	2.20	2.10	2.30	2.25	3.80	2.60	4.40	5.10	4.30	4.40	3.40	4.10	2.10	2.00	1.85	1.90	2.00	2.30	2.15	1.95
17	1.70	1.90	2.05	2.00	2.00	2.30	2.25	3.50	4.00	4.10	4.40	4.50	4.60	4.35	4.40	3.85	3.70	2.90	2.20	2.20	1.90	2.00	1.90	2.00
18	2.10	2.10	2.00	2.00	1.90	2.25	2.30	2.80	2.90	3.70	3.80	4.50	4.50	5.10	4.50	4.50	3.70	2.30	1.80	1.80	2.10	2.25	2.20	1.70
19	1.70	1.65	1.40	1.80	2.60	2.40	3.55	6.40	4.70	4.60	4.60	I 4.50 C	4.40	4.55	4.80	4.20	4.30	2.50	2.45	2.10	2.20	2.30	2.10	2.20
20	2.20	2.20	2.20	2.10	2.25	2.30	2.30	3.80	4.30	4.50	4.20	4.50	5.30	4.50	4.90	4.10	3.75	2.30	3.50	1.75	1.80	1.80	1.60	1.60
21	1.80	1.60	1.35	1.35	1.60	2.00	2.15	3.50	2.60	4.80	4.40	4.20	4.30	4.20	4.50	3.50	2.70	2.10	1.80	1.60	1.60	1.30	1.25	2.20
22	1.80	1.80	1.90	1.80	1.80	2.10	3.55	2.70	4.40	4.60	4.60	4.80	4.80	4.25	6.10	4.00	3.85	2.20	1.80	1.80	2.00	1.80	1.50	1.40
23	1.40	1.60	1.80	1.60	1.50	2.10	2.25	2.75	3.80	4.60	4.80	4.50	5.00	5.20	5.30	2.80	2.10	2.10	2.50	2.20	2.20	1.60	1.70	1.80
24	1.60	1.90	2.00	1.60	2.20	1.90	2.10	2.30	2.75	4.30	4.30	4.50	4.60	5.10	4.50	3.15	2.30	3.20	2.70	2.20	2.00	2.00	2.60	1.80
25	1.70	2.00	1.90	2.10	1.90	1.90	1.90	2.10	2.60	2.60	2.90	3.80	4.10	3.70	3.50	3.10	2.60	2.00	1.80	1.60	1.60	1.70	1.80	1.80
26	1.70	1.35	E	E	E	1.70	1.70	2.00	2.10	2.60	4.10	2.80	5.40	2.20	2.70	2.10	2.20	1.95	2.10	1.80	2.10	C	C	1.80
27	1.50	1.60	1.40	1.60	2.00	2.10	2.10	2.30	2.70	4.10	4.30	4.20	4.40	5.40	4.60	4.20	3.60	2.00	2.10	1.80	2.00	1.70	1.60	1.50
28	1.70	1.70	1.90	1.20	1.60	2.00	2.15	2.75	2.80	5.50	B	B	B	B	6.60	6.50	4.10	4.50	2.60	1.90	1.80	1.80	1.80	1.65
29	1.60	1.80	1.30	1.40	1.90	2.00	2.30	2.80	3.60	4.10	4.20	3.85	4.10	3.70	4.10	3.60	3.20	2.50	1.90	1.70	1.70	1.75	1.50	1.60
30	1.70	1.90	1.80	2.00	1.60	2.20	2.10	2.55	2.30	4.10	4.10	4.10 S	4.20	4.00	3.60	3.40	2.50	2.50	2.10	1.70	1.60	1.60	1.70	1.60
31																								
Mean Value	1.75	1.70	1.85	1.70	1.85	2.00	2.25	2.60	2.90	3.60	4.10	4.25	4.30	4.20	3.95	3.30	2.80	2.25	2.05	1.85	1.85	1.85	1.75	1.80
Median Value	1.70	1.70	1.80	1.60	1.70	2.00	2.20	2.30	2.65	4.10	4.20	4.20	4.30	4.30	4.10	3.20	2.50	2.15	2.00	1.80	1.80	1.80	1.70	1.70
Count	29	29	29	30	30	30	30	30	30	30	29	29	29	29	30	30	30	30	30	30	30	29	29	29

f-min

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

K 6

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

IONOSPHERIC DATA

Jun. 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	2.45	2.55	2.55^{S}	2.35	I2.50^{S}	2.65	2.55	2.70	A	A	A	2.55	2.55	2.40	2.60	2.60	2.65	2.60	2.65	2.60^{S}	2.40	2.45^{S}	2.35	2.25
2	2.45^{S}	FS	U2.45^{S}	2.65	2.55	2.75	2.60	2.60	2.35	2.35	2.35	2.25	2.35	2.40	2.45	2.50	I2.55^{A}	2.60	2.60	2.50	2.45	2.45	2.50	2.40
3	2.50	2.65	2.75	2.55	2.45	2.65	2.55	2.90	3.05	A	2.40^{H}	2.50^{H}	2.50	2.50	2.55	2.55	2.55	2.50	2.65	2.70	2.50	2.45	2.45	2.40
4	2.70	2.65	2.40	2.45	2.55^{F}	2.55	2.60	3.15	A	A	A	2.50	A	A	2.50	2.55	2.55	2.65	2.60	2.55	2.55	2.30	2.40	2.45
5	2.65	2.65	2.65	2.40	2.40	2.65	2.75	2.90	2.70	2.55	2.45	2.45	2.60	A	A	2.75	2.65	2.65^{H}	2.80	2.65	2.65	2.30	2.45	2.55
6	2.55	2.60	2.65	2.50	2.50	2.85	3.00	2.85	2.60	2.55	2.60	2.50	2.50	2.60	2.45	2.45	2.50	2.60	2.55	2.55	2.55	2.45	2.35	2.50
7	2.45	2.45	2.45	2.45^{F}	2.60	2.50	2.80	2.65	2.50^{H}	2.40	2.45	2.45	2.50	2.55	2.70	2.65	2.55	2.60	2.65	2.55	2.35	2.45	2.60	2.55
8	2.60	2.75	2.80	2.55	2.55	2.65	2.80	2.95	2.70	2.60	2.70^{H}	I2.65^{A}	2.60	2.55	2.50	2.70	2.65	2.70	2.85	2.75	2.50	2.40	2.40	2.40
9	2.70	2.70^{F}	2.55^{F}	2.55^{F}	2.50^{F}	2.70	2.70	2.70	2.50	2.35	2.35	2.45	2.50	2.50	2.50	2.55	2.45	2.55^{S}	2.55	2.45^{S}	2.35	I2.35^{S}	I2.35^{S}	C
10	C	C	C	2.50	2.45	2.55	2.75^{R}	2.85	2.65	2.60^{H}	2.25^{SH}	2.40	2.30^{H}	2.40	2.45^{H}	2.50	2.55	2.55	2.50	2.65	2.30	2.25^{S}	I2.30^{S}	U2.35^{S}
11	I2.40^{S}	U2.50^{S}	U2.60^{S}	2.60	2.55	2.55	2.60	2.50	2.65^{R}	2.35	J2.30	2.30	2.30	2.50	2.40^{R}	2.35	I2.40^{C}	2.40	2.45	2.55	2.35	2.25	2.35	2.35^{S}
12	2.55	2.50^{S}	2.70	2.65	2.55	2.60	2.70	2.75	2.40	2.35^{H}	2.30	2.35	2.35	2.35^{H}	2.40	I2.45^{R}	2.50^{H}	2.55	2.70	2.70	2.35	2.25^{S}	2.30	J2.35
13	2.40	2.65	2.65	2.55	2.65	2.75	2.75	2.70	2.35	2.30	2.35	2.40	2.45	2.45	2.50	2.60	2.55	2.55	I2.50^{A}	2.50	I2.40^{A}	2.35	I2.40^{FS}	J2.45^{F}
14	F	U2.65^{F}	2.60^{F}	2.30^{F}	U2.35^{F}	2.55	2.75	2.60	A	A	A	A	A	2.50	2.45	2.45	2.40	2.50	2.55	2.70	2.45	2.35	2.30	2.30^{S}
15	I2.40^{C}	2.50^{S}	2.65^{S}	2.45	I2.50^{C}	2.65^{V}	2.70	2.45	2.65	I2.55^{A}	2.45	2.40	2.35	2.45	2.40	I2.40^{A}	2.40	A	A	A	S	S	2.30^{S}	2.35^{S}
16	2.45	2.40	2.25	2.35	2.45	2.55	2.45	2.35	2.50	2.40	2.35	2.60	2.45	2.45	2.45	2.50	2.50	2.55	2.55	2.55	2.35	I2.30^{S}	2.30^{S}	U2.40^{S}
17	U2.50^{S}	2.60	2.35^{S}	2.35^{F}	2.60^{F}	2.55^{S}	2.70	2.65	2.55	2.50	2.45	2.40	2.35	2.40	2.35	U2.45^{R}	2.45	2.50	2.60	I2.45^{A}	2.30^{S}	I2.30^{R}	2.30	2.20
18	I2.40^{A}	2.55	2.40^{FS}	2.40^{F}	2.40	2.35	2.50	2.55	2.45^{H}	2.40	2.40	2.40	2.35	2.35^{H}	2.30	2.35	2.50	2.45	I2.45^{A}	2.45	2.35	I2.35^{R}	2.35	2.40
19	2.40	2.55	2.50	2.20	2.35	2.60	2.50	2.55	2.45^{H}	2.40	2.40	C	A	2.40	I2.45^{A}	2.50	2.45	2.50	2.55	2.50	2.35	R	2.35	2.40
20	2.30	2.40	2.30	2.45	2.25	2.35	2.45	2.35	A	2.45	2.45	2.45	2.45	2.55	2.50	2.50	2.50	2.50	I2.55^{R}	2.60	I2.40^{S}	2.20	2.35	2.25
21	2.40	2.60	2.85	2.40	2.30	2.30	R	R	2.40	R	U2.25^{R}	U2.35^{R}	U2.45^{R}	2.50	2.40	2.45	2.45	2.45	2.40	A	U2.25^{S}	2.25^{S}	2.35	I2.30^{R}
22	2.40	U2.45^{R}	2.35	2.30^{R}	2.30	2.25	2.55	2.55	R	R	2.70^{R}	R	2.55	2.60	2.95	2.60	2.60	2.65	2.55	2.60^{RS}	2.35	2.25^{S}	2.30	2.40
23	2.40	2.45	2.55^{S}	2.50	2.60^{R}	2.60	2.60	2.55	R	2.45^{R}	2.35	2.50	2.50	2.50	2.60	2.65	2.60^{S}	2.60	2.85	I2.70^{R}	2.55	R	RS	AS
24	AS	2.55	2.55	2.60^{R}	2.55^{R}	2.90	U2.60^{R}	2.80	I2.65^{R}	2.55	2.40	R	R	R	2.45	2.50	2.60	I2.60^{S}	2.65	S	S	AS	S	2.45
25	S	S	R	2.55	2.50	2.55	2.70	I2.60^{A}	2.65	2.55	I2.50^{A}	2.45	2.50	2.45	2.60	I2.60^{A}	2.70	2.65	2.60	2.70	2.45	2.45	2.35	2.45^{R}
26	2.50	2.45	2.80	2.80	2.65	2.55	2.55	2.80	2.65	2.35	2.50	2.50	2.30	2.35	2.50	2.50	2.55	2.65	2.50	2.40	2.35	C	C	R
27	J2.75	2.50	I2.45^{A}	2.25	2.45	2.35	2.35	2.35	I2.25^{A}	2.30	2.25	A	B	2.20	2.45	2.20	2.40	2.30	2.50	2.50	2.35	I2.40^{R}	2.40	2.40
28	2.45	2.55	2.35	2.35	2.50	2.95	2.65	2.45	2.25	2.25	B	B	B	B	R	2.65	2.60	2.60	2.60	2.55	2.35	2.40	2.20	2.45
29	2.45	2.50	2.40	2.35	2.40	2.70	2.60	2.50	I2.40^{A}	2.40	2.40	2.45	2.45	I2.50^{A}	2.50	2.60	2.60	2.75	2.80	2.75	2.55^{S}	U2.45^{S}	2.40	2.45
30	U2.40^{S}	2.65	2.85	2.50	2.45	2.80	2.40^{H}	2.55	2.70	I2.50^{A}	2.35	2.35	2.40	2.50	2.30	2.40	2.40	2.45	2.65	2.55	2.00	2.20^{S}	2.20	2.00
31																								
Mean Value	2.50	2.55	2.55	2.45	2.50	2.60	2.65	2.65	2.55	2.45	2.40	2.45	2.45	2.45	2.50	2.50	2.55	2.55	2.60	2.60	2.40	2.35	2.35	2.40
Median Value	2.45	2.55	2.55	2.45	2.50	2.60	2.60	2.60	2.50	2.40	2.40	2.45	2.45	2.50	2.45	2.50	2.55	2.55	2.60	2.55	2.35	2.35	2.35	2.40
Count	26	27	28	30	30	30	29	29	24	24	26	24	24	26	28	30	30	29	29	27	28	25	27	27

(M3000)F2 Sweep 1.0 Mc to 20.0 Mc in 0.5 min ☐ Manual ☒ Automatic

K 7

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

IONOSPHERIC DATA

Jun. 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								A	A	A	A	A	A	3.00	3.30	L	L	A						
2								A	L	A	A	A	A	2.95	A	A	A		L					
3								A	A	A	3.95		A	3.35	3.50	3.30	3.35	L	A					
4						A	A	A	A	A	A	3.35	A	A	A	3.20	3.00	L						
5									A	A	A	2.90	A	A	A	A	A	A	A					
6							L	L	A	3.20^{L}	3.50	3.35^{H}	3.40	3.30	3.15	3.15	A	A	A					
7							A	A	A	A	A	A	A	A	L	L	L	L	L					
8							L	A	A	3.40	A	A	A	3.00	A	A	A	A	A					
9									A	A	A	3.25	A	A	A	3.20	L	A	A					
10								L	A	A		3.25		3.20	3.55	I 3.30^{L}	3.10^{L}	L						
11									L	3.35	B	A	A	3.15	A	A	C	A	A					
12								L	3.25		3.35^{L}	A	A	3.65	A	A		A	A					
13								A	A	A	A	A	3.15	A	A	A	A	A	A					
14								A	A	A	A	A	A	A	2.80	I 2.90^{A}	3.05^{L}	L	L					
15							A	A	A	A	A	A	3.55	I 3.30^{B}	3.00^{L}	A	A	A	A					
16									A		3.50	3.70	A	L	A	A	3.10	A	A					
17							A	L	A	A		A	L	A	A	A	A	A	A					
18										L	L	A	A	3.45	A	A	A	A	A					
19								B		A	A	C	A	B	A	3.35	3.10	L	L					
20						L	L	A	A	A	B	3.60	I 3.45^{L}	3.30	3.15	I 3.30^{A}	3.40	A	A					
21							L	A	A	3.35	3.60	A	B	B	3.50	3.25	3.25	3.05	A					
22						L	3.15^{L}	L	A	R	3.15	R	A	A	B	3.10	3.10	L	A					
23							L	L	A	3.40	3.15	S	A	A	3.25	3.20	A	L	A					
24							L		3.35	A	A	A	3.05	3.20	3.15	3.10	3.10	L	A					
25							A	A	A	A	A	3.10^{L}	A	A	A	A	A	A	A					
26							3.25^{L}		A	A	A	3.30	2.90	3.15	3.40	3.15	3.15	L	L					
27							2.80	A	A	S	A	A	B	B	3.65	3.40^{H}	3.35	A	L					
28							L	L	L	B	B	B	B	B	B	B	B	3.05^{L}	A					
29							A	A	A	A	3.30	3.15	A	A	A	A	3.10	A						
30								3.25^{R}	3.50	A	A	3.10	A	A	3.15	3.10	3.25	L	L					
31																								
Mean Value							3.05	3.25	3.35	3.35	3.45	3.30	3.25	3.25	3.25	3.20	3.15	3.05						
Median Value							3.15	3.25	3.35	3.35	3.45	3.25	3.30	3.20	3.25	3.20	3.10	3.05						
Count							3	1	3	5	8	11	6	13	13	15	14	2						

(M3000)F1 | Sweep 1.0 Mc to 20.0 Mc in 0.3 min | ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Jun. 1957 | h'F2 | 135° E Mean Time | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								355	A	A	A	405	425	410	395	385	380	320						
2								300A	310	405A	405A	450A	440	440	405	400A	A		320					
3								310A	280	A	320H		A	385	380	395	360	350	335A					
4						305	300	280	A	A	A	490	A	A	440	405	390	355						
5									345	295	A	450	A	A	A	370	350A	360AH	A					
6							275	L	390	400	385	425	425	395	430	420	400	I 380A	355A					
7							300	I 290A	280H	440A	400A	420	400	400	355	360	395	350	310					
8							275	260	295	380	300H	I 350A	400	400	400	380	330A	330A	310A					
9									380	360	410A	400	390	400A	400A	380	395	350	300A					
10								300	300			420		440	380H	380	360	350						
11									300	330	410B	450	445	405	405	410	C	A	325A					
12								295	420		350	450	440	BH	420	A		350	325A					
13								A	325A	A	A	450A	410	405	380	385	375	390A	A					
14								325	A	A	A	A	A	440	415	415A	400	375	325					
15							275	A	A	A	450A	455A	440	410	430	I 420A	410A	A	A					
16									370A		450	375	I 375A	375	400	410	395	370A	355					
17							350A	350	380	410		450	440	440	450	450	425	440A	300A					
18										470	400	450	I 450A	450H	480	A	400	405A	A					
19								355		455	445	C	A	450	I 430A	405	405	390	325					
20						400	375	420A	A	450A	450B	450	450	420	430	420	440	395	300					
21							350	390	400A	I 655R	580	540	510	500	525	520	470	450	420					
22						L	400	400	350	R	465	R	450	450B	B	400	385	360						
23							350L	L	350	455	500	425	460	405	380	360	380	350	330					
24							L			410	450	R	U 500B	465	405	405	380	350	325					
25							A	I 335A	320A	360A	I 400A	390	400	430A	450	I 410A	380A	330	300					
26							350		350	450	415A	420	450	450	400	400	395	345	345					
27							425	450	I 520A	525	555	A	B	650	535	665	500	550A	340L					
28							345L	360	545L	545	B	B	B	B	455	410	410	400	380					
29							330	410	I 430A	450	450	420	425	I 420A	420	395	380	350						
30								450	395	A	490A	520	450	425	410	450	440	400	335					
31																								
Mean Value						355	335	350	365	435	430	435	435	435	420	415	395	375	330					
Median Value						350	350	350	350	440	430	450	440	420	410	405	395	360	325					
Count						2	14	19	22	19	22	23	22	26	28	28	27	27	21					

h'F2

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Jun. 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	350	320	305	400A	400A	280	325	A	A	A	A	A	A	320	280	A	330A	A	350A	330A	I350A	390A	400A	440A
2	350A	380A	300	290	305	260	290	A	285A	A	A	A	300	A	A	A	A	320	300	360A	355A	370A	420A	420A
3	350	330A	300A	305A	350A	265	260A	A	A	A	205	AH	A	240	240	240	260	280A	A	300A	300A	A	370A	A
4	300	270	370A	350	300	A	A	A	A	A	A	275	A	A	A	245	250	270	300	320	310	A	360A	360A
5	310	300	290	350	375	275	280	260	A	A	A	A	A	A	A	A	A	A	A	320A	330	400	360	315
6	350	340	320	330	340	260	250	270	I 275A	280A	220	200H	220	235	I 250A	270	A	A	A	355A	310A	320	350	370A
7	400A	340	375A	340A	360A	300A	A	A	A	A	A	A	A	A	260	250	260	275	280	280	360A	400A	350A	330A
8	340A	290	270	250	320	270	255	A	A	A	A	A	A	280A	A	A	A	A	A	A	330A	350	370A	A
9	305	300	300F	330	340	260	255	275	A	A	A	A	A	A	A	295S	A	A	A	350AS	345	385	365	C
10	C	C	C	350A	350	280	260	255	I 255A	255H	260H	260	255H	250	245	250	250	250	295	360A	340	380	360	380A
11	350	305	295	300	305	260	260	255	245	250	B	A	A	300	A	A	C	A	A	320A	400A	395	355	355
12	350	310	295	280	310	255	260	250	255	295H	E 300A	A	A	255	A	A	290H	A	A	280A	A	385A	400A	355
13	345	325A	300A	300	290	260	250	A	A	A	A	A	A	A	A	A	A	A	A	A	A	400A	410A	380A
14	305	300	315	280	365	280	275	A	A	A	A	A	A	A	A	A	290	I 295A	300	325A	385A	345	355	400A
15	400A	325	280	330A	I 290C	250A	A	A	A	A	A	A	250	I 250B	250A	A	A	A	A	A	370A	355	I 350A	350
16	325	355	390A	370	355	285	295	300AH	A	300AH	225	270	I 255A	240	A	A	270	A	A	310A	335	355	405A	370A
17	350A	400A	410A	360AF	300	250	A	A	A	A	310A	A	A	A	A	A	A	A	A	A	350	I 400A	450A	A
18	A	355A	355A	350	360A	300	300A	270	290AH	A	A	A	A	280	A	A	A	A	A	400A	405A	I 400R	400A	400A
19	I 360A	325A	300	400A	450A	305	260	I 280B	300H	A	A	C	A	B	A	270	270	300	300A	320	405A	350A	420A	355
20	450A	415A	380A	330	360A	A	A	A	A	A	B	220	E 300B	260	270	I 270A	270	A	A	330	400A	400A	430A	400A
21	350	320	270	275	350	280	265	A	A	280	265	A	B	B	240	240	255	300	A	A	A	450A	400A	350
22	370	350	355	350	350	310	275	300	A	R	300	R	A	A	B	270	255	275	350A	320A	380A	455A	380	380
23	350	350	300	325	325	300	260	290	A	280	300	250	A	A	B	E 300B	A	E 300A	A	300	305	360	395A	390A
24	375A	350A	350	330	305	265	255	250	280	A	A	A	305	300	300	300A	290A	305	A	345	380S	AS	A	370A
25	370	400A	400A	345	330	285	A	A	A	A	A	A	A	A	A	A	A	A	A	285A	280A	350A	430A	400A
26	350A	350	300	250	295	275	255A	255	I 250A	A	A	255	E 300B	300	260	255	255	265	300	280	345	C	C	395A
27	300A	300	I 355A	390	345	355	A	A	A	S	A	A	B	B	250	250H	250	I 270A	295	325	350	400A	350	395
28	395A	350	370	385A	305	275	275	E 295A	255	B	B	B	B	B	B	B	B	305	A	350A	E 450A	360A	395	350
29	325	325	350	360	355	300	A	A	A	A	275	285	A	A	A	A	A	A	310	305	350	400A	395A	350
30	350	320	275	300	350	275	255H	280	250	A	A	345A	A	A	260	300	270	280	300	300	415	460A	405	510A
31																								
Mean Value	350	335	325	330	340	280	270	270	265	275	260	260	265	270	260	265	270	285	305	325	355	385	385	380
Median Value	350	325	305	330	340	275	260	270	255	280	265	260	255	260	255	260	265	280	300	320	350	390	395	375
Count	28	29	29	30	30	28	22	14	11	7	9	9	6	13	12	14	16	14	12	25	26	26	28	26

h'F

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

K 10

27

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

IONOSPHERIC DATA

Jun. 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	120	110	110	110	110	155	130	130	125	120	115	110	110	B	150	140	130	120	120	110	105	110	125	110
2	110	110	105	105	105	165	150	120	125	120	120	120	125	140	145	150	125	125	120	110	120	130	130	120
3		110	105	110	105	150	140	130	130	125	B	130	140	B			150	130	125	115	120	110	110	110
4	105	105	105	110	110	135	140	135	120	120	120	130	120	120	130	120		140		105	125	120	120	125
5	125	120					140	130	125	125	120	120	120	130	110	140	135	125	115	115	115	115	115	110
6	105	100	100	105	110	B	150	120	120	120	130	130	130		145	145	130	120	120	120	110	110	130	110
7	110	125	110	105	105	105	130	120	125	120	120	120	120	120	110	130			125	120	110	110	110	120
8	105	110	110	110	105	105	145	135	125	125	125	120	120	120	125	110	110	110	105	110	120	115	115	115
9	115	110	105	105	105	105	120		110	110	110	110	110	125	115	130	115	115	135	130	125	120	110	C
10	C	C	C	110	115	125	140	130	130	130	125	125	125	125		125	115	120	125	120		125	120	120
11	115	115	110	110	115	115	125		125	B	B	140	140	160	145	130	C	125	120	120	120	120	115	
12	115		110	105		B		135	130	130	125	125	125	125	125	125	135	130	125	120	120	115	125	125
13		115	115	105	120		130	125	125	125	125	120	120	120	125	125	120	120	120	120	115	120	120	120
14	120	110	105	105	110	B	140	130	125	120	110	110	110	125	130	125	150	160	120	120	120	125	120	125
15	110	125	125	115	C	105	130	125	125	120	120	120	130	B	125	110	140	125	120	120	105	105	125	
16	105	105	110	110	110		150	140	120	120	B	B	120	B	130	140	140	125	120	110	105		120	120
17	120	140	110	110	110	155	150	140	135	125	130	125	130	120	120	125	130	115	115	115	110	110	125	115
18	140	125	130	130	120	125	120	120	125	140	140	130	130	B	140	130	130	120	115	110	120	105	120	110
19	110	110	110	120	110	115	150	B	140	135	130	C	120	145	130	145	B	130	120	125	120	120	125	120
20	125	125	135	120	120	120	140	125	110	115	120	B	B	145	B	130	130	130	125	120	120	130	130	120
21	120	120	110	110	110		155	145	130	B	130	120	120	130	B		140	130	120	115	120	120	120	
22	115	110	110	110	110	115	B	140	135	130	130	125	125	125	B	130	130		125	120	110	115	110	110
23	110	110		105	110		140	130	120	130	130	140	135	135	B		130	125	125		120		120	125
24	120	120	120	110	110	120	120		140	130	130	135	145	B	125	130	130	130	125	125	110	115	115	110
25	115	120	115	115	105	150	125	120	120	115	115	110	115	110	105	105	105	105	105	105	105	125	130	110
26	105	105	105	100	120	120	125	130	115	115	115	135	B	180	150							C	C	125
27	125	125	120	110	110	110	130	125	115	125	125	120	130	B	B	B	B	135	130	130	130	115	110	110
28	125	110	115	120	120	150	150	130	125	B	B	B	B	B	B	B	B	B	130	125	120	115	115	110
29		120	110	110		145	130	125	120	115	120	115	110	110	115	110	110	135	130	130	115	130	130	125
30	115	115	110		115	115	155	130	135	125	120	120	110	115	110	120	155	140	140	125	120	130	120	110
31																								
Mean Value	115	115	110	110	110	130	140	130	125	125	125	125	125	130	130	130	130	125	120	120	115	120	120	115
Median Value	115	110	110	110	110	120	140	130	125	125	120	120	120	125	125	130	130	125	120	120	120	115	120	120
Count	26	28	27	28	26	22	28	26	30	27	26	26	27	21	22	24	23	26	28	28	28	27	29	26

h'Es

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

K 11

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

IONOSPHERIC DATA

Jun. 1957

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

Types of Es

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

K 12

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

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Jun. 1957

hpF2

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	450	405	405^{S}	480	I435^{S}	390	400	400	A	A	A	425	440	450	410	400	400	400	395	405^{S}	450	480^{S}	475	510
2	460^{S}	F S	U450^{S}	440	410	400	400	400	460	455	455	500	470	460	450	430	I420^{A}	405	400	420	450	460	450	480
3	450	370	370	420	450	400	420	350	300	A	475^{H}	450^{H}	450	430	410	440	410	430	400	375	430	450	460	475
4	400	390	490	480	420^{F}	410	400	300	A	A	A	490	A	A	450	425	465	400	405	420	440	530	480	465
5	410	400	405	490	490	380	360	350	370	405	470	460	A	A	A	400	395	400^{H}	I395^{A}	390	395	500	455	410
6	410	400	405	415	420	335	300	350	400	420	400	450	450	410	450	450	440	A	425	400	410	450	490	455
7	455	440	450	450^{F}	420	440	355	I400^{A}	440^{H}	450	440	450	440	430	400	400	410	400	390	400	500	455	430	440
8	415	395	365	420	425	395	350	325	375	400	355^{H}	I390^{A}	420	425	430	400	390	395	355	I400^{A}	450	475	450	I425^{A}
9	400	400^{F}	400^{F}	440^{F}	445^{F}	390	380	375	410	455	490	430	430	440	430	420	425	400^{S}	400	430^{S}	480	I470^{S}	455^{S}	C
10	C	C	C	440	460	405	380^{R}	350	395	400^{H}	490^{SH}	455	500^{H}	495	445^{H}	440	420	410	405	400	495	505^{S}	I480^{S}	U455^{S}
11	I440^{S}	U420^{S}	U380^{S}	400	420	400	395	415	375^{R}	465^{J}	495	490	480	445	450^{R}	450	I450^{C}	450	420	400	470	490	480	470^{S}
12	405	415^{S}	395	390	410	385	380	355	450	460^{H}	485	475	480	475^{H}	455	I440^{R}	430^{H}	420	400	355	475	500^{S}	490	J475
13	470	400	395	405	370	365	380	370	450	490	475	470	450	450	430	425	420	425	I425^{A}	425	I450^{A}	475	I460^{FS}	J450^{F}
14	F	U410^{F}	410^{F}	455^{F}	U470^{F}	400	360	385	A	A	A	A	A	470	450	465	450	445	400	395	425	475	500	445^{S}
15	I445^{S}	445^{S}	405^{S}	440	I415^{C}	390^{V}	350	A	A	A	450	A	460	450	460	I460^{A}	460	A	A	A	S	S	530^{S}	460^{S}
16	440	490	520	490	455	400	440	480	430	455	470	405	A	455	455	450	430	425	410	410	470	I485^{S}	500^{S}	U450^{S}
17	U440^{S}	405	470^{S}	470^{F}	410^{F}	405^{S}	390	400	415	420	440	460	540	460	470	U460^{R}	450	445	405	I450^{A}	490^{S}	I500^{R}	510	550
18	I485^{A}	420	485^{FS}	460^{F}	490	480	410	405	450^{H}	500	450	460	I470^{A}	480^{H}	500	I470^{A}	435	450	I445^{A}	440	490	I465^{R}	440	460
19	460	410	415	510	495	400	405	410	450^{H}	460	455	C	A	460	I455^{A}	450	450	440	405	450	470	R	520	465
20	470	495	U455^{R}	460	500	490	450	460	A	455	460	460	460	440	450	430	450	440	I425^{R}	405	I470^{S}	540	490	530
21	460	410	355	455	495	500	R	R	450	R	G	540	G	G	G	G	470	460	455	A	U510^{S}	530	500	I485^{R}
22	500	U450^{R}	460	485^{R}	500	500	430	425	R	R	G	R	455	B	B	410	430	400	410	400^{RS}	490	540^{S}	I520^{S}	500
23	460	450	425	440	425^{R}	400	405	450	R	460^{R}	500	450	445	450	400	400	410^{S}	380	375	I400^{R}	425	R	R S	A S
24	A S	445	425	405^{R}	450^{R}	350	U405^{R}	355	I390^{R}	430	450	R	R	R	C	450	430	I420^{S}	400	S	S	A S	S	450
25	S	S	R	410	445	415	380	I380^{A}	390	425	I450^{A}	445	445	450	A	A	400	400	400	380	430	450	485	450^{R}
26	450	450	375	350	430	400	425	320	380	480	420	450	490	495	450	450	445	400	440	460	505	C	C	R
27	J395	445	I500^{A}	545	450	490	490	500	I550^{A}	530	G	A	B	B	G	G	G	A	425	410	460	I425^{R}	475	470
28	460	450	470	440	440	345	420	450	550	545	B	B	B	B	R	410	420	420	405	445	460	450	500	460
29	450	430	450	480	450	400	400	430	I450^{A}	475	460	450	450	I440^{A}	435	410	405	385	365	375	405^{S}	U470^{S}	480	460
30	U455^{S}	405	350	425	455	355	470^{H}	450	405	I430^{A}	490	515	455	435	440	465	470	450	400	400	615	555^{S}	550	650
31																								
Mean Value	445	425	425	445	445	405	400	395	425	455	460	460	460	450	440	435	430	420	405	410	465	485	485	475
Median Value	450	415	410	440	445	400	400	400	415	455	460	455	455	450	450	440	430	420	405	400	465	475	480	460
Count	26	27	28	30	30	30	29	28	23	23	23	23	21	23	23	27	29	27	29	27	28	25	27	27

hpF2

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

The Radio Research Laboratories

Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Jun. 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	140	125	95^{S}	85	I 95^{S}	105	150	100	A	A	A	175	120	150	100	160	170	200	155	195^{S}	210	90^{S}	130	150
2	140^{S}	FS	U 170^{S}	140	160	150	150	140	220	170	195	150	140	95	140	140	I 140^{A}	145	190	190	180	140	80	100
3	90	120	80	90	110	130	105	100	110	A	135^{H}	115^{H}	110	130	140	130	170	145	120	125	120	100	95	85
4	70	160	120	120	100^{F}	170	160	110	A	A	A	110	A	A	130	125	95	150	145	130	120	170	110	135
5	120	100	105	110	120	160	140	125	140	135	130	140	A	A	A	110	135	120^{H}	I 120^{A}	115	115	95	130	140
6	130	110	100	95	95	140	150	110	115	95	120	120	115	120	120	140	120	A	125	140	140	140	130	95
7	115	110	120	130^{F}	130	160	125	I 140^{A}	160^{H}	200	110	125	130	125	110	100	150	110	150	150	90	120	80	90
8	95	185	110	140	125	130	150	225	130	110	170^{H}	I 130^{A}	85	100	130	95	120	100	95	I 85^{A}	75	135	100	I 95^{A}
9	90	95^{F}	100^{F}	85^{F}	115^{F}	65	170	175	140	150	120	125	120	115	120	85	85	125^{S}	120	150^{S}	95	I 100^{S}	110^{S}	C
10	C	C	C	125	115	155	100^{R}	105	120	110^{H}	160^{SH}	145	130^{H}	105	110^{H}	115	130	115	125	125	135	145^{S}	I 145^{S}	U 145^{S}
11	I 135^{S}	U 125^{S}	U 110^{S}	110	110	170	110	140	125^{R}	160	J 105	115	150	125	130^{R}	130	I 120^{C}	115	130	150	130	155	105	120^{S}
12	115	95^{S}	95	110	100	140	100	140	140	170^{H}	125	105	125	125^{H}	125	I 140^{R}	150^{H}	110	105	140	150	100^{S}	120	J 130
13	85	90	85	120	110	110	100	115	155	110	135	100	125	110	140	75	100	100	I 100^{A}	105	I 100^{A}	100	I 85^{FS}	J 70^{F}
14	F	U 70^{F}	135^{F}	110^{F}	U 110^{F}	125	135	110	A	A	A	A	A	110	130	115	175	145	190	105	120	110	100	150^{S}
15	I 115^{S}	80^{S}	95^{S}	120	I 110^{C}	105^{V}	150	A	A	A	140	A	150	150	155	I 160^{A}	160	A	A	A	S	S	120^{S}	90^{S}
16	160	160	160	120	155	175	200	150	160	200	180	155	A	145	135	120	125	125	165	150	160	I 140^{S}	120^{S}	U 110^{S}
17	U 100^{S}	105	170^{S}	130^{F}	130^{F}	125^{S}	140	150	165	180	150	150	110	170	135	U 100^{R}	120	145	145	I 150^{A}	150^{S}	I 120^{R}	95	110
18	I 125^{A}	140	105^{FS}	120^{F}	80	180	150	155	170^{H}	120	150	160	I 145^{A}	130^{H}	150	I 130^{A}	115	140	I 145^{A}	150	110	I 135^{R}	160	110
19	90	120	145	140	105	100	155	140	100^{H}	130	145	C	A	150	I 125^{A}	100	140	130	145	150	170	R	120	135
20	170	95	U 195^{R}	140	150	140	160	150	A	115	140	140	100	110	100	135	115	130	I 120^{R}	110	I 120^{S}	130	110	130
21	100	100	95	135	105	130	R	R	170	R	G	70	G	G	G	G	130	130	150	A	U 190^{S}	130	100	I 125^{R}
22	100	U 130^{R}	140	135^{R}	150	150	120	125	R	R	G	R	75	B	B	70	80	110	95	110^{RS}	115	120^{S}	I 100^{S}	75
23	115	130	85^{S}	110	105^{R}	130	95	95	R	95^{R}	150	105	110	115	125	120	135^{S}	165	90	I 90^{R}	95	R	RS	AS
24	AS	105	80	95^{R}	205^{R}	100	U 95^{R}	110	I 100^{R}	95	150	R	R	R	C	100	80	I 85^{S}	110	S	S	AS	S	100
25	S	S	R	135	95	115	125	I 120^{A}	120	100	I 110^{A}	110	105	100	A	A	80	100	80	90	155	105	95	100^{R}
26	70	110	75	150	125	150	115	165	170	140	135	105	125	105	100	105	105	95	120	155	120	C	C	R
27	J 105	105	I 110^{A}	110	110	135	130	150	I 100^{A}	90	G	A	B	B	G	G	G	A	130	140	140	I 150^{R}	110	125
28	120	100	110	165	90	100	170	200	100	100	B	B	B	B	R	110	85	115	115	130	130	100	130	120
29	130	120	140	125	150	190	175	110	I 100^{A}	140	140	140	105	I 110^{A}	115	160	115	115	130	125	120^{S}	U 80^{S}	110	130
30	U 135^{S}	75	100	145	105	195	170^{H}	70	95	I 100^{A}	110	85	135	105	110	145	180	140	130	145	95	145^{S}	125	170
31																								
Mean Value	115	115	115	120	120	140	140	135	135	130	140	125	120	120	125	120	125	125	130	135	130	120	110	115
Median Value	115	110	110	120	110	140	140	130	130	120	140	125	120	115	125	120	120	125	125	140	120	120	110	120
Count	26	27	28	30	30	30	29	28	23	23	23	23	21	23	23	27	29	27	29	27	28	25	27	27

ypF2

Sweep 1.0 Mc to 20.0 Mc in 0.3 min ☐ Manual ☒ Automatic

K 14

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

IONOSPHERIC DATA

Jun. 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	8.8	9.3	J 8.3	7.6 H	7.6	8.0 V	9.2	9.5	9.1	I 9.4 A	9.8	10.2	10.7	11.4	11.7	11.5	10.8	10.9	A	A	A	8.5	8.8 V	8.8
2	F	A	F	F	7.6 VH	7.7	8.4	9.0	9.0	9.3	I 9.2 A	9.1	10.1	10.8	11.2	10.8	10.8	10.8	10.4	9.0	8.7	9.1	U 9.4 S	10.0
3	10.5	10.0	9.0	8.8	8.3	8.6 F	9.3	9.9	9.2	9.2	9.9	10.8	11.6	11.7	11.8	11.5	10.9	11.0	11.2 H	10.5	9.5	9.2	9.2 H	9.9 Z
4	9.9	9.7	8.7	J 8.7 R	8.4	J 8.2	9.1 V	9.7	J 8.6	I 9.4 A	10.1	10.5	10.3	10.6	11.9	11.2	11.4	11.6	10.7	10.3	9.9	9.0	9.1	9.0
5	9.5	8.4	8.1 V	7.2	7.0	7.5	9.2	9.2	9.1	9.0	8.7	9.0	10.0	10.0	10.5	10.9	10.6	9.9	10.2 H	10.0	9.1	8.7	9.2	10.0
6	9.5	9.5	9.3	8.5	8.2	7.7	8.2	8.0	8.3	9.5	9.7	I 9.8 A	10.0	10.9	10.8	10.7	11.0	11.0	10.8	11.1	10.5 H	I 10.2 S	J 10.0 H	9.9
7	10.0	9.6	U 9.3 S	8.9	9.0 V	9.0	9.4	9.9	8.5	9.4	11.5	11.5	10.9	11.5	12.2	12.7	12.4	12.7	12.0	11.5	11.2 H	12.0	13.3	13.6
8	U 13.2 R	11.8	10.1	9.2	9.0	9.0	10.2	10.1	9.2	9.7	9.7 H	10.3	10.7	11.4	I 11.8 A	12.2	12.3	12.2	11.0	I 10.2 A	9.4	8.7	10.2 H	J 10.5 S
9	10.5	10.2	9.9	9.5	9.2 V	9.5 VS	9.6	10.4	10.1	10.4	11.1	11.4	11.2	11.5	12.0	12.5	12.2	11.5	10.8	C	C	9.6	I 9.7 C	9.8
10	10.1	10.5	9.1	9.0	8.5	8.6	10.1	10.4	9.2	9.3	9.6	9.9	10.9	11.0	11.5	11.5	11.2	10.8	10.6	9.1	9.1	9.2	J 9.9	J 10.0
11	10.2	10.2	10.6	9.7	8.5	8.5	9.5	10.4	9.2	9.3	9.8	10.2	11.2	11.4	I 11.2 C	10.9	10.7	C	C	C	C	C	C	9.7
12	10.3	10.7	U 9.6 S	8.4	7.8 H	7.6	8.5	9.3	8.9	9.5	10.1	I 10.6 C	11.0	11.5	12.0	12.4	12.0	I 11.6 A	11.3	11.0	10.5 H	J 10.3	I 10.5 A	10.7
13	10.4	10.3	10.0	9.5 S	8.7 F	8.6	9.3	9.3	9.2	9.5	10.4	11.3	12.3	12.6	13.4	14.0	14.0	U 14.0 S	13.6	13.7	13.0	U 12.1 S	U 11.6 S	9.7 H
14	I 11.2 FS	12.7	J 9.9 S	J 9.4 F	8.7	J 8.4 F	9.6 H	J 9.7	9.0	9.6	10.4	11.5	12.4	13.0	13.3	R	J 14.4	15.5	I 15.2 S	J 14.9 S	13.0	13.6	S	13.8
15	13.2	13.2	13.5	10.5	9.2	8.5	8.5	9.0 H	10.1	9.3	9.8	10.4	10.8	11.2	I 11.4 A	11.5	11.0	10.8	10.8	I 10.0 A	U 9.2 S	J 8.4	9.1 C	9.4
16	9.4	9.3 H	U 9.3 SZ	9.2	8.7	8.1	8.6	U 9.2 C	9.8	10.0	10.6	10.8	11.0	11.5	11.5	11.6	12.0	12.1	11.9	11.4	10.6 H	J 10.5	10.6	10.2
17	10.7	11.0	9.8	9.7 H	8.8	U 9.1 C	9.0	9.2	10.3	9.9	9.9	10.1	10.5	10.7	10.9	11.4	11.6	11.5	11.0	A	A	A	9.0	8.9
18	9.2	J 9.9	9.5	9.5	J 8.6	8.5	8.9	9.9	8.6	9.0	9.9	9.5	9.8	A	10.5	10.9	11.0	10.5	10.4	J 10.0	J 9.8	J 9.2	U 9.5 S	J 9.2
19	10.3 V	10.5	9.0	8.5	I 8.6 R	8.8 H	9.3	9.6	10.1	9.8	9.8	10.1	A	11.1	11.4	11.3	11.4	10.8	10.2	10.3	I 9.6 R	9.3 H	9.2	10.1
20	10.2	10.0	9.2 H	9.0	8.2 H	8.6	C	C	C	10.1	10.0	10.3	10.8	10.9	11.1	10.4	J 9.8	10.0	10.3	9.8	9.5 S	9.1	9.4	9.1
21	8.9	9.2	J 8.7	9.2	6.7	6.5	9.0	9.6	8.5	9.0	9.4	10.3	10.9	10.3	9.2	9.4	9.2	9.2	8.9	9.1	8.5	8.4	9.1	9.0
22	8.7	8.7	8.1	7.8	7.3	6.9	7.4	7.6	8.9	8.7	8.6	9.7	10.0	10.3	10.5	10.2	9.7	9.7	9.2	8.9	8.8	8.7	9.2	9.2
23	J 9.8	9.5	J 9.3	8.9	7.7	7.3	J 7.9	8.4 H	8.2	8.9	9.6	11.0	11.2	11.7	11.7	11.5	11.7	11.5	11.1	9.9	8.9	8.5	9.1	J 8.7
24	9.0	9.1 Z	9.6	9.0	F	7.0	7.2	8.0	9.0	9.5	9.3	10.0	10.4	11.1	11.4	11.1	11.4	11.1	10.0	9.2	U 9.2 S	9.6	10.0	8.9
25	9.9	J 9.4	9.0	8.3	8.0	8.0	8.7	8.9	8.9	9.8	A	11.5	12.0	12.1	12.6	12.8	12.7	12.2	12.1	11.5	10.5	J 9.8 H	9.4	J 9.4
26	11.1	11.2	11.0	9.1 S	J 7.8	J 7.9	8.4	9.9 H	9.2	9.6	10.3	10.4	10.8	11.6	12.3	12.4	13.0	12.7	11.1 H	10.8	11.1	11.7	12.3	J 13.1
27	14.0 R	11.8	I 9.9 S	8.7	9.6	9.3	J 10.3	10.4	I 9.6 A	8.8	8.5	7.5	7.0	6.8	6.8	7.1	J 7.9	J 8.1	J 7.8	J 7.3 H	J 7.5	J 7.9	8.6 VH	9.2
28	9.5 H	8.9	8.3	J 7.7	7.5	7.4	J 7.8	8.7	9.0	9.2 H	9.3	9.2	B	9.7	9.4 S	9.6	I 9.2 C	8.3	C	8.1	J 7.9	J 7.2	7.5	J 7.1
29	7.7	7.4	7.1	6.7 H	6.6	7.3 R	8.9	J 8.4 R	9.0	A	J 10.1	10.7	11.2	10.9	10.5	11.0	11.0	11.1	10.0	9.6 S	8.5	8.6 H	9.0	S
30	9.7 S	C	C	C	C	C	C	C	C	8.5	8.8	9.9	10.9	11.5	11.4	11.1	10.6	11.0	J 10.2	8.6	A	7.7	F	6.7
31																								
Mean Value	10.2	10.1	9.4	8.7	8.2	8.1	8.9	9.3	9.1	9.4	9.8	10.3	10.7	11.1	11.3	11.3	11.3	11.2	10.8	10.2	9.7	9.5	9.7	9.8
Median Value	10.0	10.0	9.3	8.9	8.4	8.2	9.0	9.4	9.0	9.4	9.8	10.3	10.8	11.2	11.4	11.3	11.1	11.0	10.8	10.0	9.5	9.2	9.4	9.7
Count	29	28	28	28	28	29	28	28	28	29	29	30	28	29	30	29	30	29	27	26	25	28	27	29

foF2

Sweep 1.0 Mc to 20.0 Mc in 1 min ☐ Manual ☒ Automatic

Y 1

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

IONOSPHERIC DATA

Jun. 1957 | foEs | 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	5.9M	6.2M	3.6M	3.6M	2.9M	2.3M	3.6M	5.9M	5.5	13.5M	13.7M	13.5M	13.6M	6.1	4.2	5.4M	G	6.8M	13.8M	13.8M	8.7M	3.7M	7.0M	8.9M
2	10.6M	12.0M	6.5M	6.3M	5.8M	3.6M	3.6M	7.0	9.3M	10.6M	15.0M	5.1	5.7	5.3	J 7.0	4.7	G	G	3.6M	2.3	1.7M	3.8M	4.7M	6.7M
3	5.8MF	5.2M	5.8M	3.5M	3.4M	3.2M	3.6M	5.3M	6.4M	11.1M	8.9M	11.8M	7.5	6.5M	5.3	G	4.1	6.4	5.7M	4.3M	3.1	8.9M	8.9M	9.2M
4	8.9M	8.8M	6.8M	5.8M	J 4.8	S	5.7M	7.7M	8.6M	15.2M	6.4M	8.6M	9.3M	5.5	12.7	14.6M	3.6	8.3M	5.8M	9.2M	2.6M	5.9M	3.2M	6.8M
5	6.3M	5.9M	6.3M	4.2M	3.0M	3.5FM	3.4M	3.5	4.5	5.5	13.5M	12.7M	G	5.9M	5.3M	4.1	4.8	5.8M	4.5	2.7	3.2M	7.9M	8.7M	9.3M
6	5.4M	9.5M	5.9M	4.0	4.5M	3.8M	3.7M	5.9M	7.2M	10.7M	8.7M	13.4M	12.2M	9.6M	9.4M	8.9M	12.7M	10.9M	11.4M	6.7M	5.3M	5.9M	8.9M	5.7M
7	2.8M	7.3M	5.9M	3.9	4.3M	4.4F	3.6M	5.9M	8.8M	13.4M	8.3M	6.4M	7.7M	5.2	5.7M	8.6M	G	G	4.1M	3.6M	3.5M	3.0M	3.0M	S
8	3.5M	4.5M	4.3M	4.5M	4.5M	3.6M	3.5M	3.6	7.1M	J 6.1	7.0M	13.8M	5.1	7.0M	13.1M	13.8M	8.3M	8.4M	7.5M	12.5M	5.2M	4.5M	3.1M	5.7M
9	7.1M	4.9M	5.3M	4.1M	3.6M	3.6FM	3.5M	3.6M	5.0	6.4M	6.6M	5.2	5.2M	5.0	4.9	5.9M	4.3	5.5M	5.4	C	C	2.9M	5.9M	8.9M
10	3.6M	3.7M	3.2M	3.1M	3.1M	G	3.6M	4.0	5.3	6.6M	J 6.1	J 6.9	7.3M	10.7M	8.9M	5.9M	5.5M	4.2M	5.5M	3.1M	3.2M	2.8M	2.9M	3.6M
11	3.6M	3.5M	3.6M	3.6M	3.0M	S	3.6M	3.5	4.1	5.4M	G	5.2	5.3M	5.4	5.1	5.3	5.1	C	C	C	C	C	C	5.7M
12	2.7M	2.5M	3.1M	3.4M	3.0M	3.6M	3.6	4.1	4.5	11.3M	9.7M	C	9.3M	7.5M	7.6M	8.9M	11.9M	12.2M	6.8M	5.9M	6.5	10.9M	12.0M	10.6M
13	10.8M	5.8M	5.7MF	3.2F	3.6M	S	3.6M	3.7	8.0	12.0M	10.6M	J 11.4	14.4M	4.7	5.7M	5.0	4.4	9.7M	13.5M	3.6M	S	3.3M	S	6.5M
14	9.5M	9.6F	6.1	7.8M	5.9M	2.6M	3.6M	3.7	6.4M	8.5M	6.5M	10.6M	G	5.2	9.5M	8.6M	6.5M	5.9M	4.1	5.9M	5.7M	5.8M	5.3M	3.7M
15	5.7M	8.0	8.8M	5.9M	4.9M	3.0M	3.6M	3.7	J 5.1	6.2	8.4M	8.9M	5.6	6.2M	15.1M	10.8M	11.6M	13.0M	12.1M	15.2M	4.2M	5.3M	3.7M	5.9M
16	7.0M	4.3M	5.2M	4.3M	4.0MF	3.6M	3.1	4.6	7.2M	13.0M	11.0M	5.9M	4.6	5.2	5.7M	6.6M	J 6.8	6.9M	7.8M	5.7M	5.6M	5.9M	5.8M	5.3
17	5.2	4.4	3.6M	3.2M	8.8M	8.6M	3.0	3.6	4.9	6.9	6.5	8.6M	6.2	5.6	7.6	6.2	5.6	7.0	13.8M	13.6M	12.5M	11.0	8.0	5.9
18	3.3M	3.5M	3.1M	3.2M	5.8M	3.7M	4.8M	4.8M	4.5	6.8	8.7M	5.3	5.9	10.7M	6.0	4.5	4.9	5.6M	5.8M	4.5	5.3	4.4M	3.2M	3.7M
19	6.8M	4.2M	J 5.9	6.6	3.6M	3.6M	3.1M	3.6	J 6.0	7.1	8.2M	7.2M	12.5M	12.3M	6.0	9.5	10.8	7.1	7.2	5.8M	6.9M	7.7M	6.5M	9.4M
20	6.4M	3.1	3.0M	4.4M	3.6M	4.2	C	C	C	5.7	6.4	5.9M	5.4	4.9	5.4	5.8	8.4M	5.2	6.0	4.8M	5.9M	9.0M	9.9M	4.6M
21	3.2M	2.8M	3.2M	3.2M	3.1M	3.5M	3.6M	5.6M	4.6	4.9	6.7M	7.2M	9.4M	12.2M	5.0	4.4	5.5M	4.2	3.7	6.4M	7.5M	9.5M	10.8M	4.2M
22	5.8M	4.3M	5.5M	2.7M	5.2M	4.3M	3.6M	3.6	5.1	7.8	14.7	11.9	11.7M	7.0M	9.6M	6.8	7.9M	7.2M	3.7	3.8	5.8M	8.5M	4.5M	9.5M
23	3.7M	3.7M	3.7M	3.1M	3.1M	2.8M	5.4M	3.6	4.8	8.0	8.8M	7.0	5.8M	4.3	4.5	5.0	5.7	4.7	J 4.8	4.4	3.2M	3.1M	2.4M	S
24	9.5M	7.5M	7.4M	6.3M	5.7M	4.2M	4.4M	4.5	J 5.3	4.7	6.3	5.3M	7.0	J 8.1	6.2	6.7	5.1	5.4	7.7M	J 5.5	3.1M	4.1M	7.2M	3.2M
25	5.8M	6.2M	5.6M	3.4M	2.4M	3.1M	3.1M	3.6	6.5	13.1	15.2M	13.0M	12.2M	5.0	5.0	G	G	5.8M	G	2.2	3.1M	2.5	7.2M	6.5M
26	9.2	10.7M	6.3M	5.6M	4.6	4.8	4.5	3.4	4.6	4.6	S	S	5.4	G	4.3	4.7	G	G	3.4	2.1	2.7	3.4	3.7M	3.2
27	5.8M	7.5M	6.2M	7.0M	4.7M	3.6M	3.8M	5.6	11.0M	10.0	4.4	4.5	4.8	G	5.2	4.2	G	G	3.1	3.4	2.3	S	5.3M	3.7
28	3.9	5.8M	5.3M	5.6M	3.7M	3.4M	4.3M	4.3	5.8M	J 6.1	6.4	J 5.6	B	B	G	G	C	G	C	4.8M	3.2	11.7M	4.3M	3.5M
29	5.8M	3.2M	4.3	3.6M	2.6M	S	3.6M	J 5.5	6.8	13.8M	12.2M	J 5.6	5.4	5.4M	G	G	4.4	5.2	6.2	J 4.2	3.7	2.6M	11.5M	5.2M
30	13.5M	3.6	C	C	C	C	C	C	C	6.5	5.5	4.9	5.6	J 10.1	7.6	4.3	4.6	5.1	5.2	J 6.1	14.1	3.6M	2.2	9.2M
31																								
Mean Value	6.2	5.7	5.1	4.5	4.2	3.8	3.8	4.6	6.2	8.7	8.9	8.3	7.8	6.9	7.1	6.9	6.6	6.9	6.7	5.9	5.1	5.8	6.1	6.2
Median Value	5.8	5.0	5.5	4.0	3.7	3.6	3.6	4.0	5.6	7.4	8.3	7.1	5.9	5.6	5.7	5.6	5.1	5.8	5.8	4.8	4.2	4.9	5.6	5.8
Count	30	30	29	29	29	25	28	28	28	30	29	28	29	29	30	30	29	29	28	28	27	28	28	28

foEs

Sweep 1.0 Mc to 20.0 Mc in 1 min ☐ Manual ☒ Automatic

Y 2

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

IONOSPHERIC DATA

Jun. 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	2.50	2.65	J2.75	2.50H	2.55	2.45V	3.00	3.20	2.75	I2.70A	2.65	2.50	2.60	2.60	2.60	2.65	2.65	2.70	A	A	A	2.60	2.50V	2.45
2	F	A	F	F	2.70VF	2.60	2.85	3.00	2.90	2.80	I2.70A	2.65	2.45	2.50	2.55	2.50	2.50	2.65	2.65	2.70	2.45	2.45	U2.50S	2.55
3	2.70	2.85	2.80	2.65	2.65	2.70F	3.05	2.95	2.85	2.50	2.35	2.35	2.55	2.55	2.50	2.50	2.55	2.55	2.70H	2.70	2.65	2.55	2.50H	2.452
4	2.50	2.80	2.50	J2.35F	2.55	J2.55	2.65V	2.70	J3.20	I2.80A	2.45	2.60	2.40	2.30	I2.40A	2.50	2.50	2.60	2.55	2.60	2.55	2.50	2.50	2.60
5	2.55	2.55	2.55V	2.45	2.40	2.60	3.10	3.10	2.75	2.80	2.55	2.35	2.50	2.50	2.50	2.60	2.75	2.60	2.65H	2.70	2.60	2.30	2.35	2.55
6	2.60	2.65	2.70	2.50	2.40	2.60	2.90	2.85	2.65	2.70	2.80	I2.70A	2.60	2.50	2.55	2.45	2.55	2.50	2.55	2.70	2.50H	I2.50S	J2.45H	2.50
7	2.55	2.60	U2.85S	2.50	2.50V	2.70	2.90	2.95	2.90	2.50	2.60	2.75	2.55	2.55	2.60	2.60	2.60	2.65	2.70	2.60	2.55H	2.50	2.50	2.55
8	U2.60R	2.80	2.85	2.55	2.60	2.70	3.10	2.90	2.75	2.75	2.55H	2.55	2.50	2.55	I2.55A	2.55	2.65	2.75	2.80	I2.60A	2.45	2.35	2.45H	J2.50S
9	2.60	2.60	2.60	2.55	2.50V	2.50VS	2.60	2.60	2.60	2.40	2.55	2.70	2.60	2.55	2.60	2.55	2.65	2.70	2.70	C	C	2.55	J2.50C	2.40
10	2.50	2.80	2.75	2.60	2.60	2.70	3.05	3.05	2.85	2.50	2.55	2.40	2.45	2.50	2.55	2.60	2.65	2.65	2.80	2.60	2.25	2.45	J2.40	J2.50
11	2.65	2.65	2.90	2.85	2.65	2.70	2.75	2.80	2.85	2.50	2.40	2.40	2.50	2.50	I2.50C	2.55	2.60	C	C	C	C	C	C	2.45
12	2.55	2.80	U2.90S	2.65	2.70H	2.75	2.75	3.05	2.70	2.35	2.40	I2.40C	2.40	2.50	2.50	2.60	2.60	I2.65A	2.70	2.60	2.60H	J2.45	I2.45A	2.45
13	2.55	2.70	2.60	2.55S	2.45F	2.70	2.90	3.05	2.55	2.45	2.30	2.50	I2.50A	2.50	2.55	2.50	2.50	2.55	2.65	2.60	2.60	U2.35S	U2.30S	2.50H
14	I2.65FS	2.80	J3.05S	J2.65F	2.65	J2.60F	2.85H	J2.90	2.75	2.40	2.35	2.45	2.45	2.50	2.50	R	J2.65	2.60	I2.65S	J2.70S	2.65	2.45	S	2.60
15	2.55	2.75	3.05	3.05	2.60	2.70	2.70	2.65H	2.65	2.65	2.40	2.45	2.55	2.60	I2.60A	2.60	2.50	2.55	2.60	I2.55A	U2.50S	J2.35	2.30C	2.45
16	2.75	2.45H	U2.45SZ	2.55	2.55	2.45	2.60	U2.85C	2.60	2.55	2.45	2.50	2.55	2.50	2.50	2.55	2.50	2.55	2.70	2.65	2.65H	J2.30	2.55	2.50
17	2.60	2.80	2.65	2.60H	2.45	U2.70C	2.90	2.80	2.70	2.70	2.45	2.50	2.50	2.50	2.50	2.50	2.55	2.60	3.00	A	A	A	2.45	2.40
18	2.40	J2.60	2.55	2.55	J2.70	2.55	2.85	2.85	2.90	2.60	2.70	2.50	2.50	A	2.40	2.45	2.60	2.50	2.45	J2.50	J2.50	J2.45	U2.35S	J2.40
19	2.60V	2.65	2.45	2.45	I2.40R	2.45H	2.80	2.70	2.75	2.55	2.45	2.30	A	2.45	2.45	2.45	2.50	2.60	2.50	2.45	I2.50R	2.35H	2.35	2.50
20	2.65	2.55	2.55H	2.60	2.45H	2.40	C	C	C	2.50	2.40	2.45	2.60	2.60	2.65	2.60	J2.50	2.60	2.65	2.65	2.60S	2.35	2.45	2.55
21	2.55	2.70	J2.85	2.60	2.45	2.40	2.90	3.15	2.95	2.35	2.40	2.45	2.55	2.50	2.40	2.35	2.55	2.55	2.60	2.70	2.45	2.35	2.45	2.60
22	2.50	2.55	2.50	2.50	2.45	2.50	2.60	2.55	2.60	2.80	2.45	2.55	2.60	2.55	2.60	2.65	2.60	2.65	2.70	2.65	2.45	2.45	2.40	2.50
23	J2.45	2.55	J2.80	2.80	2.65	2.60	J2.90	2.85H	2.55	2.45	2.50	2.65	2.60	2.60	2.65	2.60	2.65	2.65	2.80	2.75	2.50	2.40	2.40	J2.50
24	2.60	2.60E	2.80	3.00	F	2.70	3.05	2.80	2.60	2.70	2.60	2.30	2.35	2.45	2.50	2.45	2.55	2.65	2.60	2.60	U2.45S	2.45	2.45	2.40
25	2.50	J2.60	2.55	2.55	2.50	2.55	2.75	2.65	2.80	2.45	A	2.45	I2.55A	2.45	2.55	2.55	2.65	2.65	2.65	2.70	2.60	J2.35H	2.50	J2.35
26	2.55	2.65	2.75	3.00S	J2.50	J2.45	2.50	2.90H	2.65	2.60	2.45	2.35	2.40	2.40	2.45	2.50	2.55	2.65	2.45H	2.45	2.50	2.40	2.45	J2.55
27	2.85R	2.80	I2.60S	2.40	2.55	2.40	I2.40	2.50	I2.20A	2.40	2.40	2.40	2.45	2.40	2.50	2.55	J2.55	J2.70	J2.80	J2.70H	J2.55	J2.45	2.45VH	2.55
28	2.50H	2.65	2.55	J2.55	2.70	2.75	J2.95	2.80	2.65	2.30H	2.50	2.50	B	2.65	2.60S	2.75	I2.70C	2.65	C	2.65	J2.60	J2.40	2.40	J2.40
29	2.55	2.70	2.65	2.45H	2.50	2.75R	2.95	J3.15R	2.60	A	J2.40	2.55	2.60	2.60	2.55	2.65	2.70	2.80	2.80	2.80S	2.70	2.50H	2.40	S
30	2.45S	C	C	C	C	C	C	C	C	2.40	2.20	2.45	2.60	2.60	2.65	2.45	2.40	2.55	J2.70	2.85	A	2.25	F	2.10
31																								
Mean Value	2.55	2.65	2.70	2.65	2.55	2.60	2.85	2.85	2.70	2.55	2.50	2.50	2.50	2.50	2.55	2.55	2.60	2.60	2.65	2.65	2.55	2.40	2.45	2.45
Median Value	2.55	2.65	2.70	2.55	2.55	2.60	2.90	2.85	2.70	2.50	2.45	2.50	2.50	2.50	2.55	2.55	2.60	2.65	2.65	2.65	2.55	2.45	2.45	2.50
Count	29	28	28	28	28	29	28	28	28	29	29	30	28	29	30	29	30	29	27	26	25	28	27	29

(M3000)F2

Sweep 1.0 Mc to 20.0 Mc in 1 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Jun. 1957 | h'F2 | 135° E Mean Time | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	A	A	405	A	380	380	370	365	325	A					
2								255	270^{A}	A	A	500	445	410	395	375	400	L	L					
3									L	L	395	450	400	400	395	390	370	330						
4								A	A	A	410	380^{A}	A	B	A	A	370	355						
5										320	A	A	410	405	410	360	360	330						
6									A	375	310	A	400	405	400	415	410^{A}	380	270					
7							295		290^{A}	390	350	350	355	390	375	360^{A}	350	325	295					
8									^{U}290^{A}	280^{A}	290$^{A}_{H}$	L	415	400	A	A	350	325	A					
9									280	425	370	355	330	390	390	375	350	L						
10										L	L	A	420	^{I}410^{A}	400^{A}	380	370	355	310					
11										L	L	380	410	400	390^{B}	390	380	C	C					
12										L	A	C	420	405	400	380	A	A						
13									A	A	A	A	A	400	390	380	375	A	A					
14									310	L	L	400	400	400	400	390	370	350	320					
15									L	L	A	410^{A}	405	^{U}400^{B}	A	A	A	A	A					
16										L	^{I}410^{A}	L	400	410	400	400	380	360	330^{A}					
17								L	L	A	440	A	415	410	430	410	395	360	A					
18									270	400	355	L	440	^{I}445^{A}	450	410	365	380	L					
19										380^{A}	A	460	A	435	430	A	A	380^{A}	A					
20							C	C	C	L	L	425	400	405	390	395	A	390	A					
21								260	L	470	450	440	400^{A}	400	460	450	410	395	365					
22									L	A	A	395	420	405	395^{A}	395	400^{A}	355^{A}	335					
23								L^{H}	L	L	445	390	365	390	365	380	355	350	315					
24									L	370	370	470	450	^{I}430^{A}	405	400	390	350	370^{A}					
25										A	A	A	A	400	395	365	350	340	L					
26									L		L	440	450	440	410	400	380	340						
27							L	345	A	^{I}420^{A}	440	490	500	530	505	480	420	380	330	L				
28								L	L		A	B	B	B	410	360	^{I}360^{C}	L	C					
29									L	A	^{U}400^{A}	390	375	380	390	375	340	330	A					
30							C	C	C	L	L	440	390	A	375	405	415	360	320					
31																								
Mean Value							295	285	285	385	390	420	410	410	405	390	375	355	325					
Median Value							295	260	285	385	400	410	410	405	400	390	370	355	320					
Count							1	3	6	10	14	19	24	27	27	26	26	23	11					

h'F2

Sweep 1.0 Mc to 20.0 Mc in 1 min ☐ Manual ☒ Automatic

Y 4

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

IONOSPHERIC DATA

Jun.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	370	300A	280	265H	325	325	260	250	280	A	A	225	A	A	240H	230	250	250	A	A	A	310A	320A	370
2	410A	I380A	350F	280	260	290	255	250A	275	A	E285A	210H	I230A	250	E265H	250	250	250	245	270	300	345	310	320A
3	315	285	285	290	290	295	255	250	I245A	240H	250A	A	A	235H	250	245H	240	A	320H	285	290	365	350H	400
4	345	305A	370	370	305A	315	270A	A	A	A	A	A	A	A	A	A	250H	E285A	285	300A	285	320A	345	330A
5	315A	300A	E350A	330	350	315	250	240	245	E260A	A	A	220	240	220H	240H	250H	245	280H	280	255	400	385	350
6	305A	350	295	300A	335	300	240	240	A	A	A	A	A	A	A	A	A	250	240A	320	310H	350	375H	375
7	310A	355	290	300	300A	285	290	250	A	A	A	A	225A	I230AH	235H	I250A	260	240	250	275	295AH	300	300	300
8	300	285	275	300A	320	285	250	245	A	A	A	220AH	210AH	A	A	A	A	A	A	A	E350A	355	345H	335
9	345	325	335	290A	300A	315	250	240	230A	270	I260A	250	220	205H	I225AH	245H	225H	I235A	245	C	C	340	I350A	355
10	330	300	260	290	290	305	255	250	250	280	A	A	A	A	A	265	245	245	250	275	330	350	340	345
11	300A	300	280	250	255	290	255	245	245	240	230	200	250	245	250	280	E280A	C	C	C	C	C	C	385
12	330	290	250	250	265H	270	260	250	250	260	A	C	A	280	265	A	A	A	330	290	320H	E400A	A	345
13	350	310	300A	300A	260	275	250	250	A	A	A	A	A	240	235	255	245H	A	A	295	280	300	305	340H
14	I320A	300	265	A	E340A	305	250H	240	245H	240AH	220H	205H	235	205	235A	A	E295A	300A	255	290	285	305A	330	330
15	340	300A	275	250	290	275	250	240H	250	A	A	A	E260A	A	A	A	A	A	A	A	320	350	390	350
16	350	E345AH	350	345	300	300	255	270	290	A	A	225H	225	245	250	A	A	260	A	300	300H	330	330	340
17	330	295	280	290H	285	300	250	245	270	A	A	A	A	A	A	A	A	A	A	A	A	A	380	375
18	350	290A	300A	300	E330A	305	260	265	245	I250A	250	235	A	A	A	225H	I250A	265H	A	320	350	350	350	350
19	325A	280	285	340	345	320H	255	250	A	A	A	A	A	250	A	A	A	A	A	320A	A	E370HA	420	400
20	350	315	280H	300	305H	355	C	C	C	A	255	A	245	245H	E290A	A	A	E290A	A	295	320	I350A	365	350
21	310	300	275	295	340	345	265	250	E240A	E250AH	A	260	A	A	245	220	250	250	270	315	305	350	I350A	310A
22	370	325A	340	300	E335A	355	270	255	A	A	A	A	235H	250A	A	A	A	A	E290A	305	A	400	350	370
23	340	320	270	270	280	300	250	245	250	255	A	E270A	245	230	230	250	I260A	270	A	280	275	325	335	340
24	I340A	345	280	280	285	300	250	250	A	230H	A	230	A	A	A	A	E290A	A	A	330A	310	350	365	345
25	350	345	325	300	300	300	275	250	290	A	A	A	A	230H	280	245	245	250H	250	275	265	295H	350	400
26	370	340	305	250	320A	350	265	240H	245	250	225H	230H	250	230	225	235H	245	245	250H	270	320	325	345A	325A
27	295	260	305A	330	295	355	260A	E290A	A	255	250	230H	225	220	260	240H	215H	230H	250H	E295AH	310	330	325AH	325A
28	340H	320A	310	300	280	280	255	250	230	280H	A	A	B	E280B	260	E255B	I255C	270	I290C	310	300	380	350	350
29	325	300	300	315H	345	295	255	255	300A	A	285H	220A	230	215H	220H	230H	245H	U305A	A	280	295	325H	340	300
30	370	300	C	C	C	C	C	C	C	A	260	235H	A	A	270	240H	270	A	A	320	A	400A	400	470
31																								
Mean Value	335	310	295	295	300	305	255	250	255	255	245	225	230	235	245	245	245	255	265	295	300	340	350	350
Median Value	340	300	290	300	300	300	255	250	250	250	250	230	230	240	240	245	250	250	250	290	300	350	350	350
Count	30	29	28	28	26	29	28	26	19	13	10	14	14	18	18	17	18	17	15	24	22	26	28	30

h'F

Sweep 1.0 Mc to 20.0 Mc in 1 min ☐ Manual ☒ Automatic

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

IONOSPHERIC DATA

Jun. 1957 | Types of Es | **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	f6	f7	f3	f6	f6	f	lc	c	c	c3	c2	c	c2	c	c	l		k	c5	f7	f5	f4	f4	f4
2	f5	f5	f4	f4	f6	f	lk	c2	c4	c	c2	c	c2	c2	c2	c			c3	k3	f	f3	f2	f3
3	f3	f3	f2	f2	f2	f2	lc	lk	c3	c2	c2	c3	c2	kl	c2l		k	c3l	c4	f3	f2	f4	f5	f3
4	f5	f4	f5	f3	f5		c5	c5	c4	c2	c	c2	c2	c	c3	c2	c2	c3	l5	f5	f2	f4	f	f5
5	f4	f4	f6	f3	f2	f3	l	c	c	c2	c2	c2		c	l	k	c	c	c3	c	f6	f7	f5	f4
6	f7	f7	f2	f4	f4	f3	lk	c3	c4	c2	c2	c2	c2	c2	c2	c3	c4	c2	c3	c6	f5	f7	f7	f7
7	f4	f5	f3	f2	f3	f	l	c3l	c4	c4	c3	c2	c2	c2	l	c3			l3	f4	f4	f4	f	f2
8	f2	f2	f5	f5	f4	f	lk	cl	c3	c3	c3	c2	c	c2	c2	c3	l2c3	c3	c5	l4	f6	f3	f	f4
9	f4	f5	f3	f3	f4	f2	lc	lc	c2	c3	c4	c2	c	c	k	l	c	l3	l4			f	f4	f4
10	f	f2	f	f	f		lk	c	c	c3	c2	c3	c2	c	c	c	l2	l3	lk	f3	f	f	f	f3
11	f3	f	f	f	f		lk	k	l	lc		c	c	c	k	c	c							f4
12	f2	f3	f2	f2	f2	f	c4l	k2l	c	c4	c3		c2	k	k	k4	c4	c4	c6	f7	f6	f6	f4	f3
13	f4	f	f3	f3	f2		lk	c	c5	c2	c3	c2	c4	c	lc	c	c	c4	c4	lk		f4		f4
14	f5	f3	f4	f6	f3	f	l	c	c	c2	c	c		c	c2	c2	c3	c3	l	f6	f3	f4	f5	f4
15	f4	f4	f4	f4	f3	f	lk	c	c	c2	c2	c2	c2	c	c4	c2	c4	c4	c6	f4	f7	f4	f3	f6
16	f5	f5	f3	f7	f3	f	kl	c	c6	c4	c3	c	c	kc	c2	c2l	c3	l4	c4l6	f4	f	f2	f2	f5
17	f4	f4	f4	f2	f3	f4	f3	c	c	c3	c3	c2	c2	c2	c	c2	c3	c3	c4	f5	f7	f5	f5	f7
18	f4	f3	f3	f2	f8	f7	f4	c4	c	c3	c	c	c	c2	c2	k	c	c	c4	c6	f5	f5	f2	f3
19	f3	f4	f2	f2	f3	f	l	k	c4	c2	c	c2	c2	c	c2	c2	c3	c4	c4	f7	f5	f	f3	f6
20	f7	f	f3	f2	f2	f6				c2	c2	c	c	k	k	c2	c2	c2	c5	f7	f4	f5	f3	f7
21	f2	f	f4	f3	f3	f	lk	lc	c	c	c2	c2	c2	c3	c	c	l	kl	c2l4	f4	f2	f2	f3	f4
22	f5	f4	f2	f4	f3	f3	lk	k2	c	c3	c	c2	k	c	c2	c2	c2	c3	c3	c6	f6	f5	f3	f3
23	f2	f3	f2	f	f	f	cl	c	c	c3	c3	c2	c	c	k	k	c2	c2	c3	f2	f	f2	f	
24	f4	f3	f2	f5	f6	f5	f6	k	c2	c	c2	l	c2	c	c2	c3	c	c2	c	f3	f7	f6	f5	f2
25	f5	f4	f2	f	f	f	l	c2	c2	c4	c3	c2	c3	c	k			l		f2	f2	f2	f3	f6
26	f4	f6	f4	f4	f3	f5	f3	c	k	c			k		l	c			c	f	f	f2	f5	f4
27	f3	f4	f7	f8	f3	f7	lk	c3	c3	c2	c	k	k		k	k			k	c4	f		f3	f3
28	f5	f5	f2	f2	f6	f6	f6	c3	lk	c3	c	c								c4l	f7	f3	f3	f2
29	f	f	f2	f	f		l4	c2	c3	c3	c2	c	c	lc			k	c2	c6	c3	f4	f	f	f2
30	f3	f2								c2	c	c	c2	c3	c2	c	kl	cl	c2	c5l3	f5	f5	f	f3
31																								
Mean Value																								
Median Value																								
Count																								

Types of Es

Sweep 1.0 Mc to 20.0 Mc in 1 min ☐ Manual ☒ Automatic

Y 6

SOLAR RADIO EMISSION

JUNE 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	11	18	15
2	12	11	11
3	34	44	39
4	26	31	25
5	73	37	55
6	12	9	11
7	14	13	14
8	12	14	13
9	8	9	9
10	11	9	10
11	12	12	12
12	13	9	11
13	10	9	10
14	9	11	10
15	11	10	11
16	32	18	25
17	29	22	26
18	110	71	91
19	52	69	61
20	145	80	112
21	129	108	118
22	82	68	75
23	126	188	157
24	85	123	104
25	90	109	100
26	76	27	52
27	101	66	84
28	41	44	42
29	21	22	22
30	27	39	33

No observation: 28th, 06 to 08.

Outstanding Occurrences

Date	Starting Time	Duration	Type	Max. Flux Inst.	Max. Flux Smd.	Max. Time	Remarks
1	0247-30s	1m	SD/4	430		-	
	0338	ca 8m	SD+M/4+3	310		0340	
2	0720	1m30s	SD/8	710		-	
	0746-30s	1m30s	SD/4	250		-	
4	0917	-	S+C/8	200			0917~28: 1st part(S)
				200			0928~sunset: 2nd part(C)
6	0608 ✱	1m30s ✱	M/2	260		-	
	0742	1m30s	SD/3	290		-	
	2155-30s	7m	M/2	330		-	
	2212	8m	M/2	330		-	
13	0811-30s	2m	SD/4	160		-	
15	0139	11m30s	C+M/1+3		17		base level
	0612-30s	2m30s	S+M/4+3	280		-	
	0653	1m	S/4	340		-	
19	2204	7m	SA/8	150	80	2207	
21	0003	2m	SA/8	680	150	0003-30s	
	0528	3m	CA/4	280	100	-	
	0533	2m	SA/8	710	280	-	
	2210	cal10m	SA/1	-	270	2330	
23	0330	cal60m	SA/1	-	380	0445	
24	0845-30s	1m	SA/8	1200	500	-	
30	0444	2m	SA/8	390	140	-	

Noise storms were observed on : 3, 5, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27.

✱ inaccurate.

IONOSPHERIC DATA IN JAPAN FOR JUNE 1957
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