F — 98

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

IONOSPHERIC DATA IN JAPAN

FOR FEBRUARY 1957

Vol. 9 No. 2

Issued in April 1957

Prepared by

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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

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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

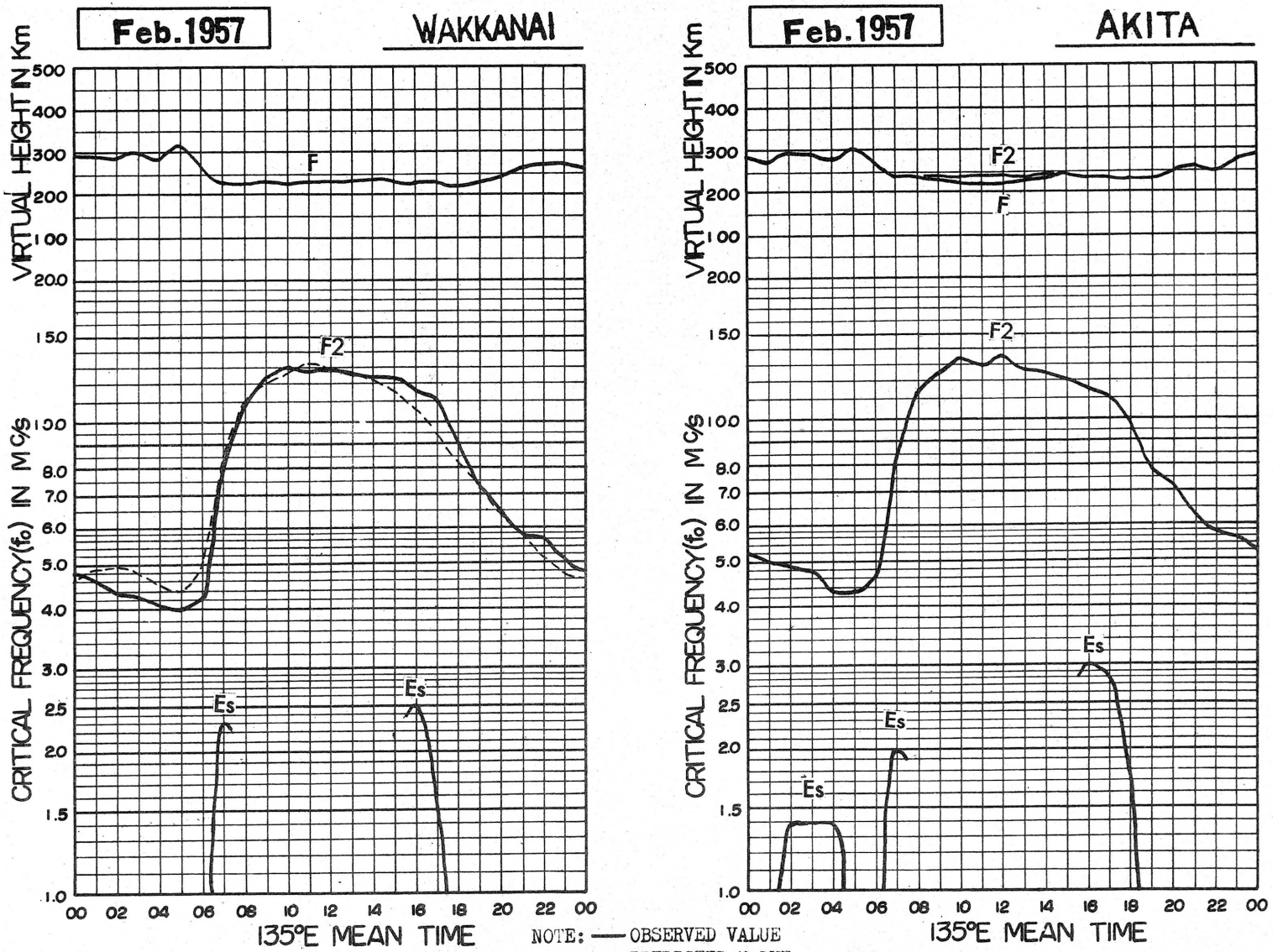
Ionospheric observation is carried out at the following four observatories in Japan.

	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.

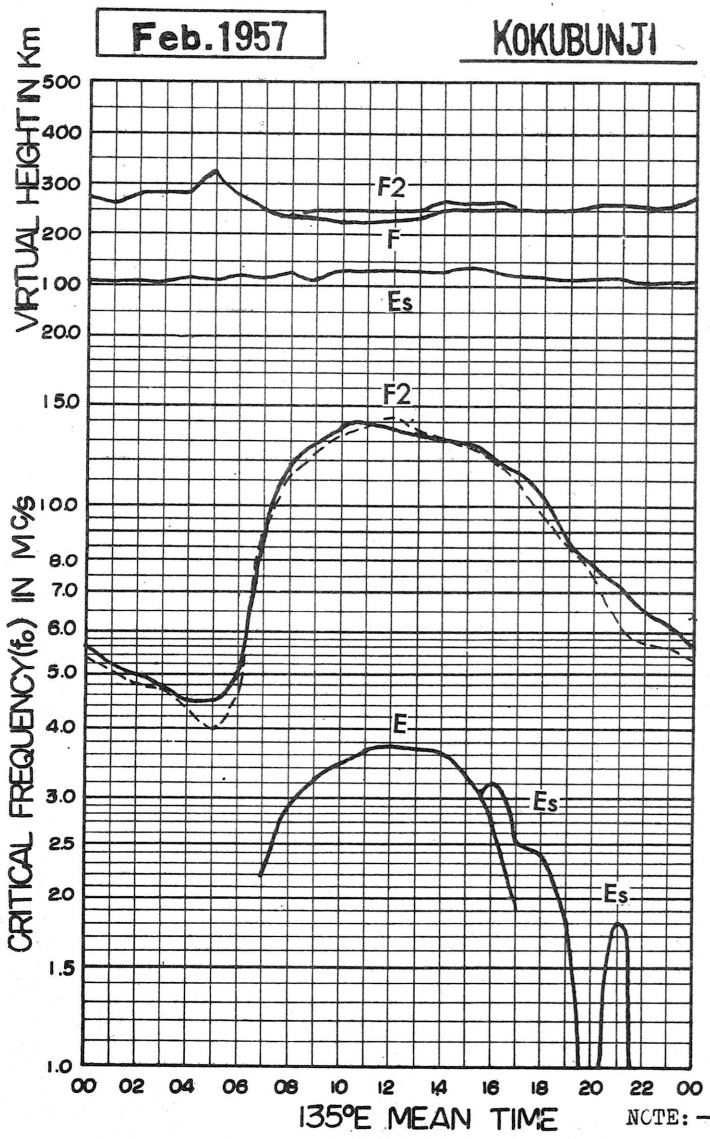
	Latitude	Longitude	Site
Hiraiso	36°22.0′N.	140°37.5′E.	Hiraiso-machi, Nakaminato-shi, Ibaragi-ken

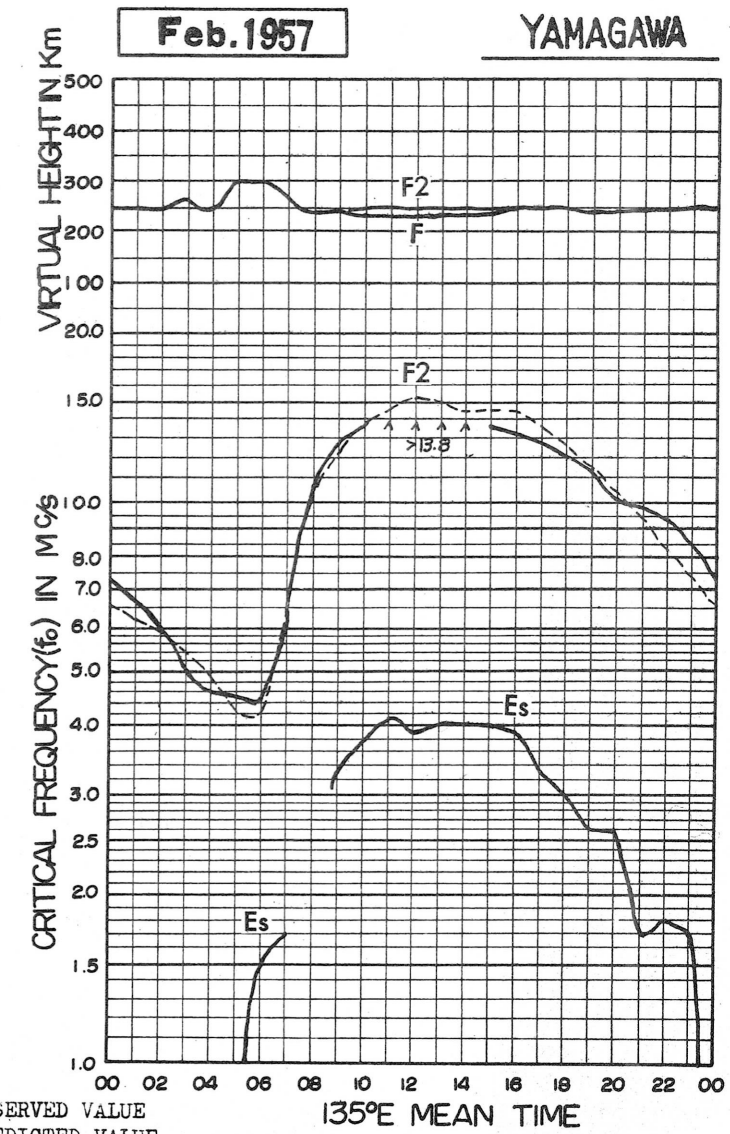
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Feb. 1957 | foF2 | 135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.5	4.4	4.3	4.5	4.4	4.3	4.5	7.5	11.6	13.0	13.2	12.8	11.9	11.0	10.7	10.3	9.3	8.5^{J}	7.5	6.8	5.7	5.0	4.5	5.0
2	4.8	4.6	4.4	4.3	4.1	4.2	4.3	6.6	10.0	11.4	11.7	11.7	10.5	10.7	10.3	9.0	8.8	9.2	7.5	6.4	6.0	5.3	$^{I}5.0^{S}$	$^{U}4.6^{S}$
3	4.8	4.5	4.2	4.1	3.9	3.9	4.2	8.0	10.6	11.6	12.5	12.5	12.3	11.8	11.0	10.5	10.0	9.1	7.6	7.2	6.7	5.6	5.0	4.5
4	4.5	4.5	4.3	4.0	4.3	4.3	4.0	6.8	10.6	12.3	12.3	12.3	12.0	12.3	11.3	10.9	10.2	9.3	8.9	$^{U}7.8^{S}$	6.5	$^{U}5.5^{S}$	4.5	4.5
5	4.3	4.0	4.0	4.1	4.1	$^{U}3.3^{S}$	3.8	7.0	10.5	13.0	13.3	14.0^{J}	13.8^{J}	12.5	12.3	13.0	12.4	11.6	8.0	7.6	$^{U}6.0^{S}$	5.7	4.1	5.0
6	3.5	5.0^{J}	5.0^{J}	4.1	4.1	3.8^{J}	5.0^{J}	9.2	12.7	14.6^{J}	14.8^{J}	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	13.0	12.8	12.5	12.3	11.8	9.5	$^{U}8.0^{S}$	6.8	6.5	6.3	5.6
9	S	S	4.8	$^{I}4.6^{S}$	4.5	S	S	S	10.6	12.6	13.3^{J}	13.8^{J}	14.0^{J}	13.8^{J}	12.8	12.8	12.3	11.8	9.5^{J}	6.7	5.5	$^{I}5.4^{S}$	$^{U}5.3^{S}$	5.0^{J}
10	5.0	5.0	4.8	4.3	4.0	3.7	4.1	$^{U}8.0^{S}$	11.1	13.5	13.8^{J}	13.2	13.0	12.8	12.7	12.5	11.5	11.5	9.6	$^{I}8.0^{S}$	6.5	5.3	5.3	4.8
11	$^{I}4.4^{S}$	4.0	3.8^{J}	3.9	4.0	3.9	4.0	8.0	10.7	12.3	13.0	12.8	13.0	12.1	12.1	11.5	10.5	10.0	8.0	6.6	5.5	5.0^{J}	S	S
12	4.5	4.3	3.5	3.7	3.5	3.5	4.1	7.8	10.2	12.3	13.0	13.3^{J}	12.5	12.0	12.0	12.0	11.0	12.0	9.5	7.2	5.7	5.5	S	S
13	S	4.3	$^{I}4.2^{FS}$	4.0^{F}	$^{U}3.8^{FS}$	$^{U}3.9^{FS}$	4.0^{F}	7.9	11.5	12.8	12.8	12.7	12.3	12.1	12.0	11.5	11.0	11.5	10.0	7.1	4.7	$^{I}4.4^{S}$	4.0	3.5
14	4.3	4.3	4.0	3.4	3.3	2.5	3.0	4.6	6.7	6.3	6.3^{H}	6.7	7.5^{H}	7.8	7.9^{H}	7.8	7.8	7.3	6.5	5.3	5.0	S	S	4.5
15	S	S	$^{U}3.9^{SF}$	3.8	3.5	3.6	3.9	7.3	10.0	11.5	12.3	13.0	12.8	12.2	12.1	11.3	10.3	10.0	$^{U}8.0^{S}$	$^{U}7.0^{S}$	5.0	S	S	4.2
16	4.0	4.0	4.0	4.0	4.0	4.0	4.5	8.5	11.7	12.7	13.5	12.7	12.2	11.6	11.7	11.5	10.5	10.5	$^{U}8.0^{S}$	6.6	6.0	5.3	$^{I}4.6^{S}$	4.0
17	4.0	4.0	4.0	3.8	3.5	3.4	4.6	9.0	11.8	12.5	12.8	12.8	12.7	12.2	12.1	12.0	10.2	9.8	8.0	6.6	5.0	5.0^{J}	5.0	4.8
18	4.3	4.3	4.0	3.8	3.7	3.7	4.1	8.3	10.8	12.6	C	C	C	12.7	12.0	11.7	10.5	10.3	$^{I}8.6^{S}$	6.8	6.3	6.2	6.1	6.0
19	5.5	5.5	5.5	5.5	5.3	4.0	4.2	7.7	10.5	13.3^{J}	13.5	13.0	12.8	12.8^{H}	12.7	12.3	11.5	10.5	9.7	7.5	$^{I}7.4^{S}$	$^{U}7.2^{S}$	6.8	5.8
20	$^{U}5.3^{S}$	5.3	$^{I}4.9^{S}$	4.5	4.0	4.0	4.3	8.0	11.7	11.5	12.8	12.5	12.7	12.6	12.8	12.7	12.0	11.1	8.7	$^{U}7.5^{S}$	6.7	$^{U}5.7^{S}$	S	S
21	5.3	$^{U}5.2^{S}$	4.9	4.5	4.0	$^{U}4.0^{S}$	4.7	8.0	11.5	12.6	$^{I}13.4^{C}$	14.3^{J}	12.8	12.5	12.6	12.7	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	12.5	12.5^{H}	12.6	12.7	12.7	12.4	12.0	11.0	9.0	7.0	7.2	6.5	6.3	5.7
23	5.1	5.3	5.1	5.0	5.0	4.5	3.5	8.2	10.4	12.6	13.7^{J}	13.0	12.8	12.7	12.8	12.7	12.6	12.2	10.3	$^{U}8.7^{S}$	7.3	6.6	6.0	5.9
24	5.5	5.1	$^{U}4.9^{S}$	5.0	$^{U}4.8^{S}$	3.7	4.2	8.5	11.2	C	C	C	C	C	C	C	12.5	12.5	11.8	10.7	$^{U}7.7^{S}$	$^{U}7.0^{S}$	$^{U}7.0^{S}$	7.0
25	$^{U}7.5^{S}$	6.0	6.5	6.0	5.8	5.7	6.4	10.8	12.3	13.3	14.3^{J}	14.5^{J}	14.1^{HJ}	13.0	12.8	12.5^{H}	12.3	12.1	10.0	$^{I}8.8^{S}$	$^{U}7.5^{S}$	6.8	6.6	5.5
26	5.0	5.0	5.0	4.8	4.7	4.5	5.5	10.0	12.8	12.5	13.0	13.0	13.4^{J}	13.3^{J}	12.9	13.0^{J}	12.4	12.0	11.2	$^{U}8.3^{JS}$	7.3	6.8	6.5	6.0
27	5.8	5.7	5.3	5.1	4.8	$^{I}5.3^{S}$	5.8	9.7	11.6	12.6	13.0^{J}	13.0^{J}	12.8	12.5	12.5^{H}	12.7	12.1	11.6	10.3	8.7	6.5	6.3	6.4	6.2
28	6.4	5.9	5.1	4.8	4.7	4.5	5.3	8.9	12.1	12.6	13.0^{J}	12.8^{H}	12.8^{H}	12.7^{H}	12.5	12.6	11.8	11.3	10.3	$^{U}8.0^{SJ}$	6.7	6.5	6.4	5.9
29																								
30																								
31																								
Mean Value	4.9	4.8	4.6	4.4	4.2	4.0	4.4	8.1	11.0	12.3	12.8	12.7	12.5	12.2	12.0	11.8	11.1	10.7	9.0	7.5	6.3	5.9	5.6	5.2
Median Value	4.8	4.6	4.4	4.3	4.1	4.0	4.2	8.0	11.1	12.6	13.0	12.8	12.8	12.5	12.3	12.3	11.5	11.1	9.0	7.2	6.5	5.7	5.6	5.0
Count	22	23	25	25	25	24	24	24	25	24	24	23	23	25	25	25	25	25	25	25	25	23	20	22

Note: Observation was carried out every 30 minutes during 18th, 1230 - 28th, 0830

foF2

Sweep 1.0 Mc to ≥ 21.0 Mc in 1 min ☐ Manual ☒ Automatic

W 1

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

IONOSPHERIC DATA

Feb. 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	2.4	E	E	E	1.7^{J}	E	2.5^{J}	2.4^{J}	4.2^{JY}	3.2	G	B	G	G	3.3	G	G	E	E	E	E	2.5^{FJ}	E	E
2	E	E	E	E	E	E	E	B	G	2.3	G	G	G	G	G	G	G	E	E	E	E	E	E	E
3	E	E	1.7^{FJ}	1.7^{FJ}	E	E	E	B	G	G	G	G	G	G	G	G	2.0	E	E	E	1.8^{J}	E	E	E
4	E	E	1.4	2.3	E	E	E	B	G	3.3	G	G	G	3.3	2.0	G	2.4	E	E	E	E	E	E	E
5	E	E	E	E	E	E	E	B	2.3	2.8^{J}	2.3	2.2	2.3	2.2	G	2.1	2.3	E	2.2^{J}	2.5^{J}	2.5^{J}	E	E	E
6	E	E	1.8^{J}	1.6^{J}	2.2^{JY}	D 1.1^{S}	2.7^{J}	2.6^{YJ}	S	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	G	2.1	2.2	2.8^{J}	6.5^{J}	E	E	2.6^{J}	2.5^{J}	2.5^{J}	2.3^{F}
9	E	E	E	E	2.5^{YJ}	E	3.8^{J}	2.7^{J}	2.3	G	G	G	G	G	G	2.6^{J}	2.5^{J}	2.4^{J}	E	2.5^{J}	2.7^{J}	2.5^{J}	V 2.2^{S}	2.2
10	E	E	E	E	E	2.6^{J}	2.7^{J}	2.7^{J}	3.3	3.2	G	G	G	G	G	G	2.8^{J}	2.6^{J}	6.7^{J}	2.5^{J}	E	E	E	2.3^{J}
11	E	E	E	1.5^{J}	1.5^{J}	2.0^{J}	E	B	G	G	3.3^{Y}	G	G	G	G	G	2.7^{FJ}	2.4^{FJ}	2.5^{J}	1.7^{J}	E	E	E	E
12	E	E	E	E	E	E	E	2.0^{J}	G	3.0	G	G	G	G	G	3.4	2.8^{J}	2.3	E	V 1.7^{SJ}	2.7^{FJ}	E	E	E
13	E	E	E	E	1.2^{J}	1.3^{J}	1.7^{J}	2.0^{J}	G	G	G	G	G	G	G	5.3^{J}	3.6^{J}	2.8^{J}	1.8^{J}	2.6^{J}	2.6^{J}	1.7^{J}	E	E
14	E	E	1.3^{J}	2.3^{J}	1.3^{J}	E	E	1.8^{J}	G	G	G	G	G	G	G	3.2	G	2.5^{J}	6.8^{YJ}	4.8^{YJ}	4.3^{J}	2.6^{J}	S	2.3^{J}
15	1.8^{J}	E	E	E	E	1.6^{J}	1.6^{J}	2.5^{J}	2.6^{J}	G	G	G	G	G	G	2.8^{J}	2.4	1.5^{JF}	E	E	2.3^{J}	E	1.8	E
16	1.7^{J}	E	1.7^{JF}	E	E	1.7^{J}	1.7^{J}	2.7	G	G	G	G	9.7^{YJ}	G	G	3.3	2.4	2.5^{J}	2.3	E	2.3^{J}	S	S	E
17	E	E	E	E	1.7^{J}	E	E	B	G	G	3.3	G	G	G	G	3.3^{F}	2.5	1.6^{J}	2.5^{J}	1.8^{J}	1.8^{J}	V 1.6^{SJ}	E	E
18	E	E	E	E	E	E	E	2.3	G	3.0	C	C	C	G	G	G	Z.6	S	E	E	E	E	2.5^{FJ}	E
19	1.7^{J}	E	E	E	E	E	2.7^{J}	2.3^{J}	6.8^{J}	G	G	G	G	G	G	G	2.8	S	E	E	E	E	1.8^{J}	E
20	E	E	E	E	E	1.6^{J}	5.0^{J}	2.3	2.6^{FJ}	G	G	G	G	G	G	G	C	E	E	E	E	E	E	E
21	E	C	E	E	E	E	E	2.3	6.3^{J}	3.3	C	G	G	G	G	G	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	G	G	G	G	G	G	G	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E	2.3	G	G	G	5.3^{J}	5.8^{J}	3.7	3.5	2.2	3.2	2.8^{J}	2.5^{J}	2.7^{J}	2.5^{J}	E	2.5^{J}	E
24	2.5^{J}	1.7^{J}	2.2	1.7^{JY}	E	E	E	G	G	C	C	C	C	C	C	C	2.8^{J}	E	E	E	V 2.5^{SJ}	S	S	2.0^{J}
25	2.5^{J}	E	1.8^{J}	E	E	E	E	G	G	G	G	4.6^{J}	G	G	3.5	G	G	G	1.8^{J}	V 6.3^{SJ}	S	S	2.3^{J}	E
26	1.7^{J}	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	3.2	G	E	E	E	E	E	E
27	E	1.5	E	E	E	E	E	G	2.3	2.3	G	G	G	5.3^{YJ}	G	G	2.9	2.3	E	E	E	E	E	E
28	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E	E
29																								
30																								
31																								
Mean Value	1.7	1.6	1.7	1.9	1.7	1.8	2.7	2.4	3.6	2.9	3.0	4.0	6.6	3.7	3.6	3.0	2.7	2.7	3.2	2.9	2.6	2.2	2.2	2.2
Median Value	E	E	E	E	E	E	E	2.3	G	G	G	G	G	G	G	G	2.5	1.5	E	E	E	E	E	E
Count	25	24	25	25	25	25	25	19	24	23	22	23	23	25	25	25	24	23	25	25	24	22	22	25

Note: Observation was carried out every 30 minutes during 18th, 1230 - 28th, 0830

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

Feb. 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	2.50	2.50	2.50	2.50	2.50	2.60	2.85	3.05	3.20	3.20	3.15	3.10	3.05	3.00	2.95	2.90	3.00	2.90 J	2.95	3.05	2.90	2.90	2.65	2.75
2	2.90	2.80	2.70	2.70	2.60	2.75	2.75	3.00	3.10	3.20	3.15	3.05	3.05	3.60	2.75	3.00	2.90	2.90	2.95	2.95	3.00	2.75	I 2.70 S	U 2.60 S
3	2.65	2.75	2.65	2.65	2.35	2.45	2.70	3.30	3.30	3.25	3.10	3.10	3.05	2.95	2.90	2.90	2.95	3.00	3.00	2.95	3.10	3.10	2.95	2.85
4	2.75	2.70	2.75	2.50	2.50	2.70	2.70	3.10	3.10	3.15	3.15	2.95	2.95	2.90	2.90	2.95	2.90	3.00	2.90	U 3.10 S	3.00	U 3.05 S	2.70	2.45
5	2.40	2.40	2.35	2.55	2.45	U 2.70 S	2.55	2.85	3.20	3.20	3.20	3.10 J	3.10 J	2.95	2.95	3.00	2.95	2.95	3.15	3.10	U 3.05 S	2.60	2.85	2.70
6	2.70	2.50 J	2.65 J	3.05	2.55	2.65 J	2.70 J	3.10	3.20	3.15 J	3.20 J	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	3.05	3.05	2.95	3.10	2.95	3.10	U 2.90 S	2.95	2.75	2.90	2.95
9	S	S	2.95	I 2.90 S	3.00	S	S	S	3.00	3.30	3.05 J	3.10 J	3.05 J	2.95 J	3.00	3.05	3.00	3.05	3.25 J	3.10	2.70	I 2.75 S	U 2.80 S	2.70 J
10	2.70 J	2.60	2.70	2.65	2.65	2.50	2.75	U 3.25 S	3.20	3.15	3.10 J	3.15	3.10	3.05	3.05	2.95	2.95	3.00	2.95	I 3.00 S	3.00	2.85	2.80	2.95
11	I 2.90 S	2.85	2.65 J	2.60	2.65	2.70	3.20	3.30	3.35	3.20	3.20	3.05	3.05	2.95	2.95	2.95	2.95	3.00	3.05	2.90	2.80	2.90 J	S	S
12	2.80	2.40	2.50	2.40	2.45	2.65	2.90	3.25	3.20	3.20	3.10	3.10 J	3.00	2.90	2.80	2.95	3.00	3.15	3.05	3.05	2.80	2.40	S	S
13	S	2.60	I 2.70 FS	2.80 F	U 2.65 FS	U 2.95 FS	2.80 F	2.95	3.20	3.10	3.05	3.00	2.95	2.80	2.85	2.90	2.85	2.90	3.00	3.05	2.50	I 2.40 S	2.30	2.55
14	2.55	2.80	2.60	2.70	2.40	2.20	2.40	2.75	2.95	2.85	2.65 H	2.85	2.85 H	2.85	3.00 H	2.95	3.00	3.00	2.90	2.80	2.60	S	S	2.90
15	S	S	U 2.55 SF	2.55	2.85	2.80	3.00	3.20	3.20	3.10	3.05	3.05	3.00	2.90	2.95	3.00	3.05	3.10	U 3.10 S	U 3.30 S	2.85	S	S	2.65
16	2.55	2.55	2.45	2.55	2.60	2.55	2.80	3.20	3.25	3.10	3.15	3.00	2.95	2.90	2.90	3.00	3.00	3.05	U 3.35 S	2.95	2.90	3.00	I 2.85 S	2.70
17	2.65	2.50	2.60	2.40	2.50	2.55	2.90	3.30	3.20	3.15	3.20	3.00	3.05	2.90	2.85	2.95	3.00	3.00	3.05	3.05	2.75	2.60 J	2.70	2.50
18	2.45	2.30	2.30	2.40	2.45	2.55	2.80	3.30	3.20	3.15	C	C	C	2.90	2.80	2.85	2.90	2.90	I 2.85 S	2.80	2.75	2.70	2.80	2.65
19	2.55	2.50	2.50	2.50	2.80	2.70	2.65	3.20	3.00	3.20 J	3.15	3.05	3.00	3.00 H	3.10	3.00	2.95	2.95	2.85	2.95	I 3.05 S	U 3.15 S	3.05	2.70
20	U 2.60 S	2.65	I 2.60 S	2.50	2.40	2.25	2.75	3.05	3.25	3.10	3.10	3.05	3.05	2.95	3.00	3.00	2.90	3.05	2.95	U 3.10 S	2.90	U 2.90 S	S	S
21	2.50	U 2.65 S	2.55	2.65	2.55	U 2.60 S	2.80	3.15	3.30	3.15	I 3.10 C	3.00 J	3.00	2.85	2.90	2.95	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	3.15	3.10 H	2.95 H	3.05	2.95	2.95	2.90	3.05	3.00	2.80	2.75	2.65	2.70	2.65
23	2.40	2.45	2.35	2.35	2.70	2.75	3.40	3.00	3.00	3.10	3.05 J	3.05	3.00	3.05	3.00	3.00	2.95	2.95	3.00	U 2.95 S	2.90	2.85	2.85	2.85
24	2.80	2.55	U 2.50 S	2.40	U 2.50 S	2.40	2.65	3.25	3.20	C	C	C	C	C	C	C	2.90	2.85	2.85	3.00	U 2.85 S	U 2.60 S	U 2.70 S	2.85
25	U 2.85 S	2.55	2.55	2.70	2.50	2.45	2.70	3.10	3.10	3.15	3.05 J	3.05 J	3.00 H J	3.00	2.95	2.90 H	3.00	3.05	3.05	I 3.00 S	U 2.90 S	2.90	3.05	2.80
26	2.60	2.55	2.45	2.50	2.55	2.60	2.80	3.20	3.35	3.15	3.15	3.15	3.05 J	2.90 J	3.00	3.05 J	3.00	3.00	3.10	V 3.05 S J	2.90	3.05	2.90	2.80
27	2.80	2.70	2.75	2.70	2.70	I 3.00 S	3.20	3.35	2.90	3.15	3.15 J	3.10 J	3.00	2.90	2.85 H	2.95	3.00	3.00	2.95	3.05	2.80	2.55	2.65	2.85
28	2.80	2.95	2.85	2.75	2.60	2.60	2.80	3.10	3.15	3.15	3.15	3.00 H	3.00 H	2.95 H	2.85	3.00	3.05	3.00	3.00	U 3.10 S J	2.80	2.85	2.80	2.90
29																								
30																								
31																								
Mean Value	2.65	2.60	2.55	2.55	2.55	2.60	2.80	3.10	3.15	3.15	3.10	3.05	3.00	2.90	2.90	2.95	2.95	3.00	3.00	3.00	2.85	2.75	2.75	2.70
Median Value	2.65	2.55	2.60	2.55	2.55	2.60	2.80	3.20	3.20	3.15	3.15	3.05	3.00	2.95	2.95	2.95	2.95	3.00	3.00	3.00	2.90	2.85	2.80	2.70
Count	22	23	25	25	25	24	24	24	25	24	24	23	23	25	25	25	25	25	25	25	25	23	20	22

Note: Observation was carried out every 30 minutes during 18th, 1230 - 28th, 0830

(M3000)F2

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

W 3

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

IONOSPHERIC DATA

Feb. 1957 | h'F2 | 135° E Mean Time | Wakkanai | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14									300	ᵁ320ᴸ		300												
15																								
16																								
17																								
18																								
19																								
20													ᵁ245ᴸ											
21																								
22																								
23																								
24																								
25																								
26																								
27											230		ᵁ230ᴸ	ᵁ240ᴸ										
28																								
29																								
30																								
31																								
Mean Value									300	320	230	300	240	240										
Median Value									300	320	230	300	240	240										
Count									1	1	1	1	2	1										

Note: Observation was carried out every 30 minutes during 18th, 1230 - 28th, 0830

h'F2

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

W 4

9

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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Feb. 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	315	315	310	300	310	300	270	250	225	230	230	230	225	225^{H}	235	235	225	230	225	230	245	270	300	290
2	270	260	275	280	290	285	265	240	225	230	230	235	225	230	235	225	230	240	220	250	260	270	275	315
3	280	250	270	290	350	345	290	235	225	230	235	225	230	235	230	225	225	225	220	250	245	265	260	265
4	260	280	260	305	315	275	280	225	240	230	230	230	225	235	235	240	240	225	235	230	230	250	310	350
5	360	345	365	300	320	320	335	275	235	245	225	235	230	230	230	245	225	230	220	250	250	290	250	295
6	260	335	290	240	325	320	305	240	235	225	220	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	240	235	225	235	230	220	230	235	265	265	240
9	260	270	275	280	250	310	$^{u}270^{A}$	220	215	230	235	230	235	235	230	240	230	225	210	210	265	270	275	270
10	295	275	260	270	285	370	270	235	225	230	225	230	230	225	225	235	225	230	240	225	235	250	270	250
11	245	245	285	300	280	300	220	215	220	225	225	230	235	235	235	235	225	230	220	225	240	265	260	290
12	310	310	330	355	345	345	240	225	220	230	225	230	225	225	235	235	235	235	215	230	250	270	290	300
13	300	300	300^{F}	275^{F}	275	250	245	220	225	225	230	235	235	230	235	240	245	250	220	210	260	330	380	360
14	315	305	270	245	280	460	360	300.	275	260	250^{H}	245	230^{H}	240	240^{H}	245	245	240	240	225	305	290	270	260
15	290	300	320	310	290	270	240	225	225	230	230	230	230	225	230	230	230	230	225	220	250	270	270	290
16	310	335	335	310	270	335	275	235	230	225	225	225	220	230	235	240	230	240	225	225	240	250	260	275
17	310	310	280	320	350	360	250	230	220	220	225	230	230	225	235	235	230	225	230	230	240	280	290	310
18	340	360	370	340	340	320	280	230	225	230	C	C	C	235	235	240	230	235	220	230	260	290	270	275
19	290	300	315	290	270	315	$^{u}335^{A}$	220	235	230	225	225	230	220^{H}	245	235	230	225	220	235	250	240	240	245
20	305	285	300	300	330	370	$^{u}295^{A}$	235	220	225	235	230	225	230	235	240	$^{E}240^{C}$	225	215	230	225	265	290	310
21	300	$^{E}290^{C}$	270	265	280	300	235	215	235	220	$^{]}225^{C}$	230^{H}	235	230	240	240	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	225	220^{H}	225^{H}	230	245	230	235	230	220	245	270	240	245	270
23	310	330	340	320	255	220	200	230	220	225	225	$^{u}220^{A}$	$^{u}235^{A}$	235	235	235	235	230	220	220	230	245	260	260
24	250	290	300	320	300	395	315	225	220	C	C	C	C	C	C	C	235	230	240	230	225	300	260	240
25	250	220	$^{u}280^{S}$	260	240	255	260	235	220	220	225	235	220^{H}	225	230	225^{H}	235	225	215	$^{u}250^{S}$	255	245	250	245
26	260	290	300	300	275	290	270	230	220	215	225	225	220	230	235	235	225	235	220	215	240	250	250	260
27	260	260	240	260	270	265	240	225	230	220	215	230	210	220	230^{H}	240	230	225	220	220	220	270	270	260
28	255	240	240	250	260	290	245	220	220	215	230	230^{H}	225^{H}	225^{H}	240	240	240	225	220	210	235	255	260	260
29																								
30																								
31																								
Mean Value	290	290	295	290	280	315	270	235	225	225	225	230	225	230	235	235	230	230	225	230	245	265	270	280
Median Value	290	290	290	300	285	310	270	230	225	230	225	230	230	230	235	235	230	230	220	230	245	265	270	270
Count	25	25	25	25	25	25	25	25	25	24	24	23	23	25	25	25	24	25	25	25	25	25	25	25

Note: Observation was carried out every 30 minutes during 18th, 1230 - 28th, 0830

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

Feb. 1957 | type 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	f				f		f	f	f	f					h							f		
2										l														
3			f	f													l				f			
4			f	f						C				h	l		l							
5									l	f	l	l	l	l		l	l		f	f	f			
6			f	f	f	f	f	f																
7																								
8															l	l	f	f			f	f	f	f
9					f		f	f	l							f	f	f		f	f	f	f	f
10						f2	f	f	C	Cl							f	f	f	f				f
11				f	f	f					l						f	f	f	f				
12								f		h						h	f	f		f	f			
13					f	f	f	f								l h	f	f	f	f	f	f		
14			f	f	f			f								C		f	f	f	f	f		f
15	f					f	f	f	l							C	f	f			f		f	
16	f		f			f	f	f					C			h	C	f	f		f			
17					f						h					l	l	f	f	f	f	f		
18								h		h							h						f	
19	f						f	f	f								h						f	
20						f	f	f	f															
21								f	f	l														
22																								
23								f				f	f	h	C	l	C	f	f	f	f		f	
24	f	f	f	f													f				f			f
25	f		f									f			h				f	f			f	
26	f																h							
27		f							l	l				l			h	f						
28																								
29																								
30																								
31																								
Mean Value																								
Median Value																								
Count																								

Note: Observation was carried out every 30 minutes during 18th, 1230 - 28th, 0830

type of Es

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

W 6

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

IONOSPHERIC DATA

Feb. 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	4.8	4.8	4.8	4.8	4.3	4.5	4.6	7.6	11.7	12.7	13.5	13.0H	12.5H	11.2H	10.8H	10.3	9.8	9.3	8.2	7.0	6.5	5.8	5.4	5.4
2	6.2	5.4	4.5	4.0	3.6	3.9	4.0	7.1	9.7	11.1H	12.5	12.0	11.4H	10.8H	10.7H	9.7	9.6	9.5	8.2	6.7	6.5	6.3	5.3	4.9
3	4.9	4.7	4.1	4.0	3.9	3.9	4.1	7.6	11.5	11.3	12.5	13.5	12.0H	11.7	11.2H	10.5	10.0	10.4	8.4	7.5	7.7	7.0	5.7	5.0
4	4.8	4.3	4.0	3.5	3.8	4.0	4.1	7.6	10.0	11.9	13.0	11.7	11.4H	11.7	11.5	10.6	10.3	9.8	8.9	8.3	7.2	6.2	5.2	4.9
5	4.8	4.6	4.2	4.4	4.2	4.1	4.2	7.0	12.5	12.6	13.6	13.5H	13.4H	12.7H	12.5H	13.5	12.6	11.0	9.5	7.8	7.2	6.0	5.2	5.8
6	5.2	4.8	5.1	4.8	4.3	4.5	5.0	9.4	12.6	13.6	R	R	13.7	13.5	12.9	11.9	11.8	11.5	10.0	8.0	6.9	5.8	5.8	5.7
7	5.7	4.9	4.8	5.0	4.5	3.7	3.5	7.1	10.3	12.4	13.6	14.3H	12.9H	12.7H	12.3	11.9	11.5	11.4	10.4	6.9	6.0	5.6	4.3	3.8
8	3.9	3.9	4.0	4.1	3.8	3.8	4.0	7.7	11.7	12.7	12.7	13.5	12.7	12.9H	13.3	12.6	12.2	11.7	10.0	7.6	7.1	6.6	6.6	6.0
9	5.9	4.9	4.8	4.7	4.4	4.4	4.8	8.3	11.5	12.3	13.5H	13.5	13.5	13.5H	13.4	12.5	12.4	12.2	10.4	7.0	6.5	6.5	5.6	5.0
10	5.1	5.5	5.4	4.5	4.3	4.2	4.6	8.3	11.5	13.4	13.5	13.7	13.3	12.5	12.4H	11.8	11.7	11.6	10.3	8.2	6.7	6.1	5.8	5.8
11	5.6	4.1	3.9	4.0F	4.1	4.1	4.3F	7.9	11.5	13.3	13.3H	13.5H	12.7	12.5H	11.5H	11.5H	10.5	9.7	8.7	6.1	5.6	5.5	5.5	5.1
12	5.1	4.8	4.5	4.2	4.2	4.2	4.5	8.8	10.9	12.6	13.5H	13.6H	13.5	12.5H	11.7H	11.7	11.5	10.6	9.6	7.5	6.7	6.0	5.5	5.2
13	5.1	5.2	5.0	4.8	4.3	4.2	4.3	7.9	10.7	12.6	12.5	13.1H	12.6H	12.1H	12.3H	12.5H	10.8	11.2	10.6	7.2	5.5	5.4	4.8	5.3
14	5.8	5.0	5.0	4.6	4.3	3.5	3.3F	5.2	7.0	7.6	7.8	I 8.6C	9.4	9.5	9.8	9.4	8.4	8.0	7.5	6.5	5.8	5.6	5.6	5.4
15	4.4	4.4	4.2	4.1	4.1	4.1	4.0	8.0	10.5	12.6	12.5	13.0H	13.5H	12.7H	12.0H	12.0	10.6	9.5	9.4	8.5	5.6	5.8	5.4	5.0
16	4.0	4.3	4.2	4.2	4.3	4.2	4.7	9.8	11.7	12.4	12.9	12.9H	11.8H	11.6	11.5	11.5	11.1	10.0	9.0	7.6	6.4	5.8	5.4	4.6
17	4.5	4.2	4.3	4.1	4.0	4.1	4.8	9.5	12.3	13.7	13.5	13.4	13.7	12.7	12.0H	11.8	10.1	10.1	8.6	7.0	5.7	5.7	5.5	4.8
18	4.7	4.5	4.6	4.5	4.5	4.5	5.9	8.9	11.9	12.9	13.5	12.8	12.4H	13.3H	12.3	11.1	10.3	9.7	8.8	7.2	7.1	6.7	6.6	6.2
19	5.8	5.2	5.1	5.3	5.3	4.6	4.8	8.8	11.6	13.7	13.7	12.7	13.5H	12.8	12.6H	12.3	11.8	10.6	10.2	9.0	9.0	8.7	7.5	6.7
20	6.0	6.4	6.4	6.1	4.8	4.6	4.8	8.5	12.0	12.3	12.9H	13.8	13.6	13.5	13.4	13.4	12.2	11.5	9.5	8.7	7.5P	6.0	6.0	5.7
21	5.8	5.7	5.5	5.4	4.5	4.7	5.3	8.5	11.5	13.5	13.5	12.6H	13.0H	12.7H	12.4H	12.4	11.5	10.3	9.3	7.7	7.5	7.3	7.3	6.1
22	5.3	5.4	5.3	5.1	5.5	5.0	4.6	8.1	11.1	12.6	13.4	12.9H	13.4	12.8H	12.7H	12.6	11.9	11.2	10.5	9.4	7.9	6.6	6.5	6.2
23	6.3	6.0	5.8	5.7	5.4	5.2	5.4	9.0	11.4	12.4	12.6	12.8H	13.5H	13.5H	13.5H	13.5H	13.0	12.5	11.2	9.6	8.0	7.3	7.0	6.7
24	6.2	5.6	5.1	5.3	5.1	4.6	4.8	10.2	12.1	12.7	13.5	13.7	13.7	13.8H	13.6	13.4H	13.4	13.0	12.0	11.4	9.3	8.6	8.6	9.2
25	7.3	6.9	6.9	6.5	6.0	6.0	6.8	10.4	13.4	13.5H	14.1H	13.6H	13.5H	13.7H	13.5H	12.8	12.6	12.6	11.5	9.0	7.7	7.8	7.2	5.6
26	5.1	5.1	5.3	5.1	5.0	4.8	6.3	10.6	13.6	12.7	12.3	12.8H	13.5	12.8H	13.4H	13.4	13.4	11.9	10.9	9.4	8.5	8.0	7.1	6.2
27	6.4	6.3	5.8	5.3	5.0	5.1	6.5	9.8	12.0	12.0	12.0H	13.0	13.5	12.7H	12.6H	13.1	12.5	11.7	10.3	9.0	7.1	6.8	7.1	7.2
28	6.9	6.2	5.5	5.0	4.7	4.5	5.4	9.8	C	C	C	C	C	C	C	C	C	11.0	10.5	8.7	7.5	7.3	6.7	6.5
29																								
30																								
31																								
Mean Value	5.4	5.1	4.8	4.8	4.5	4.4	4.7	8.5	11.4	12.5	12.9	13.0	12.9	12.5	12.3	12.0	11.4	10.8	9.7	8.0	7.0	6.5	6.1	5.7
Median Value	5.2	5.0	4.9	4.8	4.3	4.3	4.6	8.4	11.5	12.6	13.4	13.0	13.4	12.7	12.4	12.0	11.5	11.0	9.8	7.8	7.1	6.2	5.8	5.6
Count	28	28	28	28	28	28	28	28	27	27	26	26	27	27	27	27	27	28	28	28	28	28	28	28

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0730

foF2

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

A 1

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

IONOSPHERIC DATA

Feb. 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	E	1.9J	2.3J	2.3J	1.8J	E	E	3.5J	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	C
2	E	E	E	E	E	E	E	G	G	3.5	G	G	G	G	4.5	3.5	3.7J	2.8J	2.3J	E	E	E	E	E
3	E	E	1.5J	E	E	E	E	G	G	G	G	3.9	3.9	3.8	G	3.5	2.5	G	E	E	E	E	E	2.5J
4	2.8J	E	2.5J	E	2.5J	E	E	2.4	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E	E
5	E	E	E	E	1.1	E	E	G	2.8JF	G	4.0	4.3	G	G	G	G	G	3.5J	1.8J	E	2.8J	2.3J	2.8JF	E
6	E	E	E	1.4J	1.8J	E	E	G	3.0	6.0J	4.5	4.9J	G	G	G	G	4.1J	3.4J	3.8J	5.8J	3.8J	4.2J	3.8J	3.8J
7	3.8J	1.7J	E	1.7J	1.5J	1.8J	2.2JF	G	G	G	G	G	G	G	G	G	G	3.2J	5.8J	3.7J	3.7J	3.3J	2.8J	E
8	E	2.6J	2.8J	1.5J	2.7JF	1.8J	2.2J	2.8J	G	G	G	G	G	G	G	3.5	G	G	E	E	2.8J	E	E	E
9	2.1J	2.7J	2.5J	2.3JF	2.2J	E	E	2.7J	G	G	G	3.5J	G	G	G	G	3.8J	3.9J	E	3.8J	E	2.0JF	E	2.0J
10	E	1.7J	1.8JY	1.5JY	E	1.5J	3.1J	2.8J	G	G	G	G	G	G	G	3.5	3.5J	G	E	2.3J	2.3J	2.3J	E	E
11	E	E	1.6J	1.5JY	E	1.5JY	2.6JF	G	2.8J	G	G	G	G	G	G	G	3.2	2.8J	B	2.8J	2.3JF	E	E	1.7J
12	E	E	E	E	E	1.5J	E	2.2	G	G	G	G	G	G	G	G	3.2	2.7J	1.5J	2.0J	2.5JF	2.0JF	2.3J	E
13	1.7J	E	E	1.1	1.1	E	E	2.0J	G	3.5	2.4	3.5	4.3	4.4	4.5	4.7	4.1J	3.1J	2.4J	1.8J	E	1.8J	2.0J	1.5J
14	1.8J	1.3J	1.5J	1.5JY	1.2	1.1JY	1.5J	2.0JF	G	G	G	C	G	G	G	3.9	3.4	3.8J	4.4J	5.8J	4.3JF	4.4JF	3.6JF	E
15	E	2.7J	1.1	E	1.2	E	1.9J	G	2.6J	G	G	G	G	G	4.2	4.9J	3.8J	3.8J	2.8JF	3.8JF	E	E	E	E
16	E	E	E	1.5JF	1.5JF	1.4JY	E	2.5J	3.3	G	G	4.2	G	G	G	C	C	C	3.5J	3.5J	C	C	E	E
17	E	E	1.3JF	1.5J	1.5J	1.5J	C	3.8J	C	C	C	C	C	C	C	C	C	C	3.0J	1.5J	E	1.4J	E	E
18	1.5J	1.5J	1.5J	1.5J	C	E	E	C	C	C	G	G	G	G	G	G	3.0	2.1	1.8J	E	1.7J	2.7J	2.5J	2.3J
19	2.2J	2.3JF	E	2.3JF	2.3JF	1.3JF	E	2.3J	3.5	3.8J	3.5	3.5	G	G	3.8	3.9	3.5	3.3J	2.3JF	E	E	2.5JY	E	E
20	E	1.8JY	2.5JF	1.8JF	1.5JY	E	E	3.6J	G	G	G	G	G	G	G	G	2.7	G	E	E	E	E	E	E
21	E	E	1.4JY	1.4JF	1.2J	1.4JY	E	G	G	G	G	4.0J	G	G	G	G	G	G	E	E	E	E	E	E
22	1.4J	E	E	E	1.4Y	E	E	2.1	2.8J	3.5	3.6J	G	G	G	G	G	G	2.2	1.7JY	E	E	E	E	E
23	1.1JY	2.7J	1.4J	2.3JF	2.3JF	1.8J	E	G	G	G	G	G	G	3.5	G	G	G	2.8J	2.8J	1.8JF	E	E	E	E
24	E	E	2.8JF	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	E	2.3J	E	E	2.4J
25	E	1.7JYF	2.4JF	1.3J	1.4J	E	E	G	G	G	G	G	G	G	G	G	G	2.6JF	1.7J	1.8J	1.7JF	4.4JF	E	E
26	E	E	E	E	1.5JF	E	E	2.8JY	3.5	G	G	G	G	G	G	G	3.8J	2.8J	1.8J	E	E	E	E	E
27	E	1.8JYF	2.7JF	2.7JF	2.7JF	1.8JYF	1.8JYF	2.8J	3.5	G	G	G	G	G	G	G	3.5	2.8J	2.5J	2.0J	E	E	E	E
28	E	E	1.4JF	1.2JF	E	E	E	G	2.5	C	C	C	C	C	C	C	C	3.3J	E	E	E	E	E	E
29																								
30																								
31																								
Mean Value	2.0	2.0	1.9	1.7	1.7	1.5	2.2	2.7	3.0	4.1	3.6	4.0	4.1	3.9	4.2	3.9	3.5	3.1	2.7	3.0	2.7	2.8	2.8	2.3
Median Value	E	E	1.4	1.4	1.4	E	E	2.0	G	G	G	G	G	G	G	G	3.0	2.8	1.8	E	E	E	E	E
Count	28	28	28	28	27	28	27	27	26	25	26	25	26	26	26	25	25	26	27	28	27	27	28	27

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0730

foEs

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

A 2

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Feb. 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	2.55	2.60	2.60	2.50	2.40	2.45	2.75	3.10	3.05	3.00	3.05	2.85^{H}	2.85^{H}	2.65^{H}	2.75^{H}	2.80	2.85	2.90	2.90	2.85	2.80	2.85	2.70	2.60
2	2.60	3.00	2.85	2.60	2.55	2.50	2.45	3.10	3.25	3.00^{H}	2.95	3.00	2.90^{H}	2.70^{H}	2.80^{H}	2.95	2.80	2.85	2.95	3.00	2.70	2.85	2.85	2.65
3	2.75	2.80	2.50	2.55	2.30	2.40	2.55	3.10	3.15	3.10	2.95	3.05	2.95^{H}	2.85	2.80^{H}	2.85	2.80	2.90	2.95	2.80	3.00	2.95	2.85	2.70
4	2.80	3.00	2.75	2.40	2.25	2.55	2.55	3.15	3.15	2.95	3.05	3.30	2.80^{H}	2.90	2.90	2.85	2.90	3.00	2.80	2.90	3.05	3.10	2.80	2.50
5	2.50	2.50	2.40	2.40	2.40	2.45	2.45	2.70	3.35	3.25	3.15	2.90^{H}	2.85^{H}	2.85^{H}	2.80^{H}	2.85	3.10	3.05	2.95	2.90	2.90	2.60	3.05	2.65
6	2.75	2.40	2.65	2.95	2.40	2.45	2.60	3.10	3.40	3.25	R	R	2.95	2.95	2.95	2.95	2.95	2.95	3.00	3.00	3.15	3.10	2.60	2.70
7	2.80	2.65	2.50	2.65	3.00	2.85	2.85	3.10	3.00	3.15	3.15	3.15^{H}	3.00^{H}	3.00^{H}	3.00	2.95	2.90	3.25	3.15	3.05	3.00	3.10	3.05	2.65
8	2.55	2.60	2.60	2.75	2.60	2.60	2.70	2.95	3.30	3.15	3.15	3.25	3.10	2.90^{H}	2.90	3.00	2.85	3.10	2.90	3.05	2.95	2.85	2.85	2.85
9	2.65	2.75	2.75	2.80	2.65	2.50	2.95	3.35	3.25	3.10	3.15^{H}	3.15	2.75	2.90^{H}	2.90	2.95	2.85	3.05	3.00	3.00	2.75	2.75	2.85	2.70
10	2.75	2.85	2.95	2.70	2.55	2.45	2.55	3.15	3.15	3.20	3.20	3.15	2.90	2.85	2.85^{H}	2.85	2.90	2.95	3.00	3.05	3.00	2.95	2.90	2.95
11	2.95	2.70	2.60	2.60^{F}	2.60	3.15	3.15^{F}	3.20	3.30	3.15	3.10^{H}	2.95^{H}	2.95	2.95^{H}	2.85^{H}	2.90^{H}	2.90	3.00	3.00	3.00	2.85	2.75	2.70	2.75
12	2.50	2.60	2.45	2.40	2.40	2.40	2.85	3.20	3.20	3.15	3.05^{H}	3.10^{H}	2.90	3.05^{H}	2.80^{H}	2.90	2.95	2.85	2.95	2.80	2.90	2.85	2.75	2.70
13	2.65	2.70	2.70	2.80	2.65	2.70	3.05	3.15	3.10	3.25	3.05	2.95^{H}	3.00^{H}	2.70^{H}	2.70^{H}	2.95^{H}	2.85	2.85	2.95	3.00	2.65	2.45	2.55	2.30
14	2.45	2.65	2.45	2.45	2.55	2.15	2.50^{F}	2.60	2.95	3.00	2.95	I 3.00^{C}	3.00	2.95	2.95	3.20	3.10	3.00	3.10	2.90	2.95	2.95	2.85	2.95
15	2.70	2.50	2.40	2.55	2.60	2.80	2.75	3.05	3.15	3.35	3.10	2.95^{H}	2.95^{H}	3.00^{H}	2.90^{H}	2.90	3.00	3.00	3.00	3.00	2.75	2.80	2.95	2.80
16	2.60	2.45	2.45	2.45	2.55	2.45	2.80	3.20	3.30	3.25	3.15	3.10^{H}	2.95^{H}	2.95	3.00	2.85	2.95	3.00	3.10	3.15	3.00	2.85	2.85	2.65
17	2.65	2.60	2.60	2.45	2.40	2.40	2.75	3.30	3.10	3.20	3.10	3.00	2.80	2.90	2.90^{H}	2.95	3.20	2.95	3.00	3.25	2.65	2.70	2.70	2.70
18	2.40	2.45	2.35	2.40	2.40	2.45	2.20	3.10	3.25	3.05	3.15	2.80	2.80^{H}	2.50^{H}	2.85	2.85	2.95	3.00	2.85	2.80	2.55	2.75	2.90	2.90
19	2.50	2.50	2.55	2.60	2.60	2.45	2.85	3.25	3.20	3.15	3.15	2.95	3.00^{H}	2.95	2.95^{H}	2.85	2.80	2.95	2.95	2.90	2.85	2.90	3.20	2.70
20	2.60	2.65	2.60	2.50	2.30	2.30	2.80	3.05	3.10	3.25	3.00^{H}	3.15	3.00	2.95	2.90	2.90	3.10	2.95	2.90	2.90	3.15^{JF}	2.85	2.65	2.65
21	2.70	2.75	2.75	2.90	2.45	2.55	2.85	3.25	3.20	3.20	3.10	2.95^{H}	3.00^{H}	3.00^{H}	2.85^{H}	2.90	2.90	2.90	2.90	2.90	2.65	2.95	2.85	2.80
22	2.55	2.40	2.35	2.45	2.55	3.00	2.85	3.10	3.05	3.15	3.15	3.20^{H}	2.85	2.95^{H}	2.90^{H}	2.95	2.95	3.00	2.85	2.80	2.90	2.70	2.75	2.75
23	2.70	2.70	2.65	2.65	2.60	2.75	2.90	3.30	3.25	3.05	3.10	3.05^{H}	2.90^{H}	2.80^{H}	2.90^{H}	2.85^{H}	2.95	3.00	3.05	2.95	2.95	2.85	2.85	2.90
24	2.90	2.70	2.70	2.50	2.55	2.25	2.60	3.30	3.20	3.15	2.95	3.10	3.05	3.05^{H}	2.85	2.80^{H}	2.85	2.95	3.00	2.95	2.80	2.50	2.70	2.95
25	2.70	2.90	2.65	2.75	2.60	2.65	2.90	3.15	3.30	3.20^{H}	3.15^{H}	3.10^{H}	3.10^{H}	2.90^{H}	2.90^{H}	2.95	3.05	3.10	3.05	2.90	3.00	3.00	3.25	2.85
26	2.65	2.60	2.55	2.60	2.50	2.75	2.95	3.30	3.25	3.30	3.10	3.10^{H}	3.15	3.05^{H}	2.90^{H}	3.00	3.05	3.10	2.95	2.95	2.80	3.00	2.90	2.90
27	2.80	2.90	2.95	2.70	2.65	2.75	3.05	3.35	3.30	3.25	3.15^{H}	3.00	2.90	3.00^{H}	2.95^{H}	2.90	3.10	3.05	2.95	3.10	2.70	2.65	2.75	2.85
28	3.05	3.10	2.90	2.75	2.70	2.65	2.80	3.15	C	C	C	C	C	C	C	C	C	2.95	2.95	2.85	2.95	2.70	3.00	2.90
29																								
30																								
31																								
Mean Value	2.65	2.70	2.60	2.60	2.50	2.55	2.75	3.15	3.20	3.15	3.10	3.05	2.95	2.90	2.85	2.90	2.95	3.00	2.95	2.95	2.85	2.85	2.85	2.75
Median Value	2.65	2.65	2.60	2.60	2.55	2.50	2.80	3.15	3.20	3.15	3.10	3.05	2.95	2.95	2.90	2.90	2.95	3.00	2.95	2.95	2.90	2.85	2.85	2.70
Count	28	28	28	28	28	28	28	28	27	27	26	26	27	27	27	27	27	28	28	28	28	28	28	28

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0730

(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

Feb. 1957 | h'F2 | 135° E Mean Time | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1													240H		240H		250							
2											250	255												
3													240H	240	240H									
4											250	240												
5											240	240H			240H									
6															245									
7												245H	240H											
8														240H	250									
9												250		240H	245									
10												245	245	250	240H									
11												250H				230H								
12													250											
13										245														
14									310	300	L	C	L	L	245	245								
15										245														
16										240	240	230H	240H											
17										240	240L	L	250	245										
18											250	245												
19										240	240	240		240										
20													245L	245L	245	245								
21															250H									
22																								
23											235													
24												245L	245L		240									
25														240H	245H	235								
26										240L	235	240H	L											
27												245L	250	240H	240H	250								
28																								
29																								
30																								
31																								
Mean Value									310	250	240	245	245	240	245	240	250							
Median Value									310	240	240	245	245	240	245	245	250							
Count									1	7	9	13	10	9	13	5	1							

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0730

h'F2

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

A 4

15

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

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

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0730

h'F

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

A 5

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

IONOSPHERIC DATA

Feb. 1957 | type 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		f	f	f	f			f																
2										l					c	c	c	f	f					
3			f									h	h	c		c								
4	f		f					c																f
5					f				l		h	c												
6				f	f				c	f	f	f						f	f		f	f	f	
7	f	f		f	f	f	f										l	f	f	f	f	f	f	f
8		f	f	f	f	f	f	f										f	f	f	f	f	f	
9	f	f	f	f	f			f				f				c					f			
10		f	f	f		f	f	f								h	f	f		f		f		f
11			f	f		f	f		f								f			f	f			
12						f		l									l	f		f	f			f
13	f			f	f			f		l	l	l	h	h	h	h	c	f	f	f	f	f	f	
14	f	f	f	f	f	f	f	l								h	c	f	f	f		f	f	f
15		f	f		f		f		l						h	c	c	f	f	f	f			
16				f	f	f		f	l			h							f	f				
17			f	f	f	f		f											f	f		f		
18	f	f	f	f													c	f	f		f	f	f	f
19	f	f		f	f	f		f	h	f	c	c			h	h	c	f	f			f		
20		f	f	f	f			f									h							
21			f	f	f	f						f												
22	f				f			l	f	f	f							f	f					
23	f	f	f	f	f	f								l				f	f	f				
24			f																		f			f
25	f	f	f	f	f													l	f	f	f	f		
26					f			l	c								h	f	f					
27		f	f	f	f	f	f	l	l								c	f	f	f				
28			f	f					f									f						
29																								
30																								
31																								
Mean Value																								
Median Value																								
Count																								

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0730

type 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

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

Feb. 1957 | foF2 | 135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.9	5.1	4.9	4.7	4.1H	4.5	4.8	8.5	12.0	14.3	14.5	14.0	13.4	12.6	12.3	10.9	10.5	10.2	8.6	7.3	7.2	7.1	6.6	6.2
2	6.9	6.7	4.8	3.8	3.6	3.6	3.8	8.1	11.5	11.0	12.9	12.0	11.7	11.5	11.4	10.5	C	C	8.6	7.3	7.0	6.9	6.5	5.4
3	5.0	4.9	3.8	3.7	3.5	3.5	3.8	8.0	11.0	13.1	14.0H	14.4H	13.6	12.8H	12.1	11.3H	10.5	10.7	9.7	7.7	8.1	7.9	6.0	5.8
4	5.5	4.7	3.8	3.3	3.4	3.5	3.8	8.0	10.2	12.7	13.8	13.0	12.0H	12.8H	I 12.4CH	11.3	11.0	10.5	9.0	7.8R	7.8R	6.6	5.8	5.3
5	5.2	5.0	4.5	4.7	4.5	4.5	4.8	7.3	13.0	13.7	14.6	13.6	12.6H	12.8H	13.4H	13.9	12.5	10.5	10.3	8.7	7.4R	6.3R	6.3R	6.1
6	5.6	4.8	5.0	4.9	4.5	4.7	5.1	9.9	12.1	13.9	15.8	16.1	14.6	14.0H	13.6	12.9H	12.2	11.6	11.0	9.6	7.8	6.9	6.1	6.5
7	6.2	C	C	C	C	C	C	8.2	11.6	12.9	14.7	15.1	13.7	12.9	13.5	12.8	12.0	12.4	11.5	8.0	6.2	5.8	4.4	4.2
8	3.9	3.9	3.9	3.9	3.6	3.5	3.9	8.1	11.5	12.7	14.0	14.1	13.6	13.0H	13.6H	13.5	12.4	12.0	10.5	8.5	7.8R	6.8	6.4J	6.8
9	6.2	5.5	5.5	4.6	4.4	4.0	4.6	8.5	11.9	12.9	14.0	14.8	14.1	13.6	14.0	12.5	12.5	12.3	9.9	8.4	7.4	7.2	6.0	5.7
10	5.5	5.5	5.0	4.3	4.1	4.1	4.8	9.0	12.5	13.6	13.9	14.0	13.4	12.5	12.0H	12.0	12.0	11.7	10.6	8.5	7.9	7.0	6.4	6.7
11	5.8	4.0	3.8	3.9	4.0	4.2	3.9F	8.5	11.9	12.9	13.5	14.4	13.6	13.2	12.0H	11.5	10.5	10.5	9.2	6.9	6.4	6.2	6.0	5.8
12	5.1	5.1	4.7	4.5	4.5	4.7	5.0	9.0	11.5	12.9	13.9	14.0	13.7	13.0	11.9	11.5	11.5	10.2	10.2	8.5	8.0	7.3	6.4	6.2
13	6.0	5.7	5.3	5.2	4.4	4.3	4.8	8.5	11.8	12.4	12.8	13.5	13.6	13.1	12.5H	13.4	12.5	11.9	11.3	8.7	7.2	7.1	7.1	6.8
14	7.1	6.8	6.4	5.8	5.2	4.2	3.9	6.5	8.8	10.7	11.0	12.2	11.5	11.5	11.5	10.1	8.7	8.9	8.4	7.9	6.9	6.4	6.5	6.3
15	4.4	4.5	4.3	4.3	4.3	4.0	4.2	8.3	11.9	13.1	13.5	13.9	14.5	14.0	12.7	12.1	11.2	10.0	10.1	9.5	6.4	6.4	6.5	6.0
16	4.5	4.5	4.5	4.3	4.4	4.3	5.1	10.9	11.0	12.7	12.7	12.9	11.9	12.0H	11.6	11.5	11.4	10.4	9.7R	8.3	6.8	6.8	6.0	5.1
17	5.0	4.8	4.4	4.3	4.1	4.2	5.0	10.2	13.0	14.0	14.2	14.7	14.5	14.1H	13.0	12.8H	11.5	10.5	9.3	7.4	6.8	6.5	6.1	5.5
18	5.2	5.1	4.9	4.8	4.8	5.0	5.7	9.7	12.3	13.3	13.2	13.5	13.1H	13.5H	13.0	11.5	10.7	9.8	9.2	8.0	7.2	7.2	7.2	6.7
19	5.5	4.9	4.9	4.9	4.8	4.7	5.3	9.7	12.4	14.1	13.9	13.4	13.1	13.2	12.5	12.2	11.8	11.1	10.4	9.6	9.1	9.1	7.9R	6.7
20	6.4	6.7	6.6	6.6	5.6	5.5	5.7	9.1	12.4	13.3	13.2	15.0	14.6	14.3H	13.8	13.6	12.8	11.5	10.9	9.3	8.9	7.0	6.7	6.4
21	6.5	6.3	6.0	5.6	4.4	4.5	5.2	8.8	11.5	12.9	14.0	13.4	13.5	13.3	12.6H	12.9	11.5	10.0	10.0	8.5	7.8R	7.9	7.3	6.2
22	5.4	5.4	5.4	5.2	5.4	5.0	4.9	8.0	11.4	13.6	13.9	13.9H	13.6	13.7H	13.3	13.0	12.2	11.9	11.0	9.9	8.7	7.2	7.3	7.0
23	7.0	6.6	6.4	5.9	5.7	5.4	5.9	9.4	11.7	12.5	13.1	13.4	13.6H	14.0H	13.9H	14.0	13.7	13.0	12.5	10.7	9.2	8.3	8.1	7.9R
24	6.6	5.9	5.4	5.4	5.0	4.8	5.1	12.0	13.4	12.0	13.2	14.8	15.5	14.9	14.0	13.8	13.8	13.5	12.7	12.0	10.2	9.0	9.9	9.7
25	7.5	7.0	6.7	6.6	5.9	5.9	6.9	10.6	13.0	14.0	13.9	14.7	14.5	14.5	14.0H	13.5	13.3	13.5	12.1	9.5	9.4	9.0	8.0	5.9
26	5.4	5.2	5.4	5.1	4.9	5.2	6.5	11.2	12.3	13.0	13.3	13.2H	13.8H	13.7H	13.7H	13.6	13.7	12.2	10.8	10.5	9.7	8.7	7.9R	7.0
27	6.9	6.7	6.2	5.7	5.0	5.0	6.4	10.0	11.5	12.1	12.5	13.2	13.9	13.5	13.5H	13.3	13.2	12.0	10.7	9.5	8.0	7.2	7.6	7.6
28	7.2	6.6	5.8	4.8	4.5	4.3	5.4	10.3	13.2	12.4	12.1	12.8H	13.5H	13.7	13.4	13.3	12.7	11.5	10.7	9.3	8.5	7.8	7.3	6.8
29																								
30																								
31																								
Mean Value	5.8	5.5	5.1	4.8	4.5	4.5	5.0	9.1	11.8	13.0	13.6	13.9	13.5	13.3	12.9	12.5	11.9	11.3	10.3	8.8	7.9	7.3	6.8	6.4
Median Value	5.6	5.2	5.0	4.8	4.5	4.5	5.0	8.9	11.9	12.9	13.8	13.9	13.6	13.2	13.0	12.8	12.0	11.5	10.4	8.5	7.8	7.1	6.5	6.2
Count	28	27	27	27	27	27	27	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

foF2

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

K 1

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

IONOSPHERIC DATA

Feb. 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												L	L	L	6.1 L									
2											L	L		L										
3												L												
4																								
5										L		L	L	L										
6																								
7											L		L											
8												L		L										
9											L	L	L											
10										L	L			L	L									
11													L	4.9 L	A									
12											L	L		L										
13													L	L		A	A							
14										L	L				L									
15										L	L	L	L	L		A	A							
16												L												
17											L	L	L	L										
18												L		L	L									
19										A	L	L	L											
20												L	L	L										
21											L	L	L	L										
22												L	L		L									
23												L				L								
24													L											
25												L	L											
26												L		L		L								
27												L	L				A	A						
28										L		L	L	L	L	L								
29																								
30																								
31																								
Mean Value														4.9	6.1									
Median Value														4.9	6.1									
Count														1	1									

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930

foF1

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

K 2

19

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

IONOSPHERIC DATA

Feb. 1957 | foE | 135° E Mean Time | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								2.10	2.85	3.25	R	R	3.70^{R}	3.70	^{I}3.50^{R}	^{U}3.25	2.60	2.10						
2								2.15	2.70	3.25^{H}	3.50	3.80	3.90	R	R	3.25	2.55	C						
3								2.10	2.70	3.25	3.45	R	3.70^{R}	3.65	^{I}3.40^{R}	^{U}3.20^{A}	2.70	2.05						
4								2.00^{H}	2.75	3.25	3.50	R	R	3.70	3.65	R	2.55	1.70						
5								2.00^{H}	2.40	3.25	3.50^{R}	3.75	3.75	3.70	^{I}3.40^{R}	3.15	2.65^{H}	R						
6								B	2.30^{R}	2.90	3.35^{R}	3.40^{R}	^{I}3.50^{R}	3.55	^{I}3.35^{R}	3.15	2.75	A						
7								B	2.85	3.30^{R}	R	R	R	A	A	3.25^{R}	A	A						
8								2.10	2.90	3.05	R	B	B	B	R	3.40^{R}	2.80	A						
9								2.20	2.80	R	RH	3.80	R	R	3.60	3.25	2.45^{A}	A						
10								AF	2.65	3.20	^{I}3.40^{R}	3.65^{R}	3.75^{R}	3.65^{R}	3.60^{R}	3.40	2.70	2.15^{H}						
11								1.90^{A}	2.90^{A}	^{I}3.30^{R}	3.65^{R}	3.70	3.65	^{U}3.65^{R}	3.60	3.35	2.70	A						
12								AF	3.00^{H}	R	R	3.80	3.85	3.85	3.75^{R}	3.40	2.85	A						
13								2.25^{H}	2.80	3.40	^{I}3.55^{R}	3.70^{R}	3.80	3.80	3.70^{R}	3.35^{R}	2.75	A						
14								A	2.90	^{I}3.30^{R}	3.70	3.65	A	3.90	^{I}3.65^{R}	3.40	2.70	2.20^{H}						
15								A	3.00	3.40	3.45^{R}	3.65	3.85^{R}	3.70^{R}	3.65	3.30	A	A						
16								2.20^{H}	2.80	3.10	3.30^{R}	3.75^{R}	3.80^{R}	^{U}3.80^{A}	3.70	^{U}3.30^{A}	2.75	A						
17								A	2.90	^{U}3.30^{R}	^{U}3.40^{R}	3.80^{H}	R	R	3.60	3.35	2.70	A						
18								2.30	A	A	R	3.70	^{I}3.70^{R}	3.75	3.75	3.40	2.80	1.80						
19								2.05	A	A	A	R	3.70	3.65^{R}	3.65^{R}	3.40	2.85	^{U}1.85^{A}						
20								A	2.90	R	R	R	3.75	3.75	3.65	3.30^{R}	2.70	1.70						
21								2.20	3.00	3.05	^{I}3.40^{R}	3.80^{R}	3.80	^{I}3.70^{R}	3.60	3.40	2.80	A						
22								2.30	3.00	3.00	3.10	^{I}3.45^{R}	3.80	3.70	3.70^{R}	3.40	2.85	^{U}1.90^{A}						
23								2.25	3.00	3.30	3.50^{A}	3.65	3.70^{R}	3.75^{R}	3.70	R	A	A						
24								2.15	2.95	3.05	3.30^{R}	R	R	3.80	3.75	3.30^{R}	2.85	R						
25								2.25	2.95	3.30	R	R	R	3.75	3.75^{R}	^{I}3.30^{R}	2.85	A						
26								2.35	3.00	3.30^{R}	R	A	^{U}3.80^{A}	3.80	3.75	3.45^{R}	2.85	1.85^{R}						
27								2.45	3.20	3.30^{R}	3.75	^{I}3.80^{R}	3.80^{R}	3.85^{R}	^{I}3.60^{R}	3.35^{R}	2.90	1.95						
28								2.10	3.05	R	B	B	R	A	A	R	2.90	A						
29																								
30																								
31																								
Mean Value								2.15	2.85	3.20	3.45	3.70	3.75	3.75	3.65	3.30	2.75	1.95						
Median Value								2.20	2.90	3.25	3.45	3.70	3.75	3.70	3.65	3.35	2.75	1.90						
Count								20	26	22	17	17	19	22	24	25	25	11						

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

foE

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

K3

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

IONOSPHERIC DATA

Feb. 1957 | foEs | 135° E Mean Time | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	3.3	2.3^{J}	2.3	1.1	E	E	G	G	G	G	G	G	G	G	G	3.2	1.4^{J}	E	1.9^{J}	E	E	E	E
2	E	E	E	E	E	E	E	G	2.6^{J}	G	4.0	4.3	5.3^{J}	G	G	4.3	3.9	C	E	E	E	E	E	E
3	E	E	E	E	E	E	E	G	3.1	G	G	4.3	4.5	4.2	3.9	3.4	3.3	2.2	E	E	E	E	E	E
4	E	E	1.5^{J}	1.5^{J}	E	E	2.0	G	3.3	G	G	G	G	G	G	G	2.7	2.0	2.7^{J}	E	E	E	E	E
5	E	E	E	1.4^{J}	E	E	E	G	3.1	G	3.8	G	4.3	4.2^{J}	G	3.2	3.0	G	E	E	4.3^{J}	2.7^{J}	2.4	2.8
6	E	E	E	E	E	1.7^{J}	1.8^{J}	B	3.0	3.8^{J}	4.2	4.3	G	G	G	G	3.2	5.9	3.6	2.7^{J}	2.4^{J}	4.7	3.2	2.5
7	E	C	C	C	C	C	C	B	2.2	3.0	G	G	3.9	4.3	4.3	G	2.9	2.4	4.1^{J}	2.4	E	E	E	E
8	2.4^{J}	2.8^{J}	E	2.5	2.4	2.2^{J}	E	G	G	3.3	G	B	B	B	G	G	G	2.3	1.8^{J}	E	E	1.8	1.8^{J}	E
9	E	E	E	E	E	E	E	2.4	G	G	G	G	G	G	G	G	3.0	2.6^{J}	2.7$^{J}_{F}$	2.6^{J}	E	1.7^{J}	2.4^{J}	2.5
10	E	E	E	E	1.4^{J}	E	2.3^{J}	2.6$^{J}_{F}$	2.8	2.1	G	G	G	G	3.8	3.7	3.2	G	2.5$^{J}_{F}$	1.8^{J}	1.9^{J}	2.4$^{J}_{F}$	1.6^{J}	E
11	E	E	E	E	E	1.8^{J}	2.0	2.3^{J}	3.2	4.4	G	G	G	G	4.6	3.0	3.2	2.6^{J}	2.6^{J}	2.6^{J}	3.0	2.5	E	E
12	E	E	E	E	E	E	E	2.5^{F}	G	2.5	G	G	G	4.2	G	3.6	3.6	3.2	6.1^{J}	3.6^{J}	2.5	1.8	E	2.5
13	1.7^{J}	1.4^{J}	1.5^{J}	E	E	E	E	1.9	2.9	G	G	4.3	4.7	4.8	5.4^{J}	5.7^{J}	6.4^{J}	3.8^{J}	2.6^{J}	4.4^{J}	2.6^{J}	1.8^{J}	2.2^{J}	E
14	E	1.9^{J}	2.3^{J}	E	E	1.9^{J}	1.9^{J}	2.2^{J}	3.0	G	G	G	3.6	G	G	3.8	3.8^{J}	2.2^{J}	3.2	4.8^{J}	2.7^{J}	3.7^{F}	3.2	3.0
15	2.6^{J}	E	E	E	E	E	1.9^{J}	2.6^{J}	2.7^{J}	3.0	G	G	G	G	4.3	4.7^{J}	6.3^{J}	5.2^{J}	3.9^{J}	3.7^{J}	2.6$^{J}_{F}$	2.7^{J}	2.5	E
16	E	E	E	E	E	1.5^{J}	1.7^{J}	2.3	G	G	G	G	G	3.9	4.3	3.5	3.3	3.3	3.6^{J}	2.6$^{J}_{F}$	3.6^{F}	2.5	E	E
17	E	1.8^{J}	1.8^{J}	E	E	E	E	2.4^{J}	2.7	G	G	G	G	G	3.8	3.8	3.2	2.1	E	2.5	2.1	1.9^{J}	E	E
18	E	2.5	1.7^{J}	E	3.4^{J}	1.6^{J}	1.6^{J}	G	4.4	3.3	3.3	2.8	G	G	G	G	3.2	2.4	1.7^{J}	1.6^{J}	E	E	E	1.8^{J}
19	E	E	E	E	E	E	E	2.6$^{J}_{Y}$	3.8	5.3^{J}	3.3	3.0	3.2	4.2	G	G	3.9	3.0	2.6^{J}	E	E	E	1.5^{J}	E
20	E	E	E	1.2	1.7^{J}	E	E	2.2	3.4	5.1^{J}	G	G	G	G	G	G	3.2	2.3	E	E	E	E	E	E
21	E	E	E	E	E	E	E	G	G	G	G	G	G	3.2	3.9	3.7	4.3^{J}	4.9	1.9^{J}	1.4^{J}	2.4^{J}	1.6^{J}	E	E
22	E	E	E	E	E	E	E	2.1	3.0	3.2	5.9	4.8	G	4.3	3.2	G	3.2	2.5	2.3^{J}	2.9^{J}	2.7^{J}	1.9	E	E
23	E	E	1.9^{J}	E	1.9^{J}	E	E	G	3.3	G	4.3	4.2	4.2	4.2	3.9	G	2.7^{J}	2.4^{J}	2.4	E	E	E	E	E
24	E	E	E	E	E	E	E	G	G	3.2	G	G	G	G	G	G	3.3	G	E	E	E	E	E	E
25	3.3	E	1.9^{J}	1.6^{J}	1.5^{J}	1.5^{J}	E	G	G	G	G	3.8	G	G	4.2	2.5	3.2	2.5	2.4	2.1^{J}	1.7^{J}	2.6^{J}	2.5	2.5
26	E	2.5^{J}	2.5^{J}	1.9^{J}	E	2.4	E	2.5	G	G	G	4.2^{J}	4.5	G	G	3.8^{J}	3.9^{J}	3.6^{J}	1.6^{J}	E	E	1.7^{J}	1.7^{J}	2.6^{J}
27	E	E	E	1.6^{J}	E	E	E	2.5	G	G	G	G	4.2	G	G	3.8	4.9^{J}	6.6^{J}	6.9^{J}	E	E	E	E	1.9^{J}
28	1.9^{J}	1.8^{J}	1.7^{J}	1.7^{J}	1.5^{J}	1.5^{J}	E	G	G	G	B	B	G	5.7	5.2^{J}	3.2	3.6	5.7^{J}	3.7^{J}	6.1^{J}	5.2^{J}	2.3^{J}	E	E
29																								
30																								
31																								
Mean Value	2.4	2.3	1.9	1.7	1.9	1.8	1.9	2.4	3.1	3.5	4.1	4.0	4.2	4.3	4.2	3.7	3.6	3.2	3.1	2.9	2.8	2.4	2.3	2.5
Median Value	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	3.2	2.5	2.4	1.8	E	1.8	E	E
Count	28	27	27	27	27	27	27	26	28	28	27	26	27	27	28	28	28	27	28	28	28	28	28	28

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

foEs

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

K 4

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

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Feb. 1957

foEs

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		2.3	1.4	1.3													3.2			1.8				
2													5.2			4.2	3.9							
3									3.0				4.5	4.2										
4																	2.7		2.6					
5									3.1				4.1	4.1			2.9				2.9	2.7		2.0
6									2.9		4.1	4.2						3.7	3.2	2.4	2.0	4.1	2.8	
7		C	C	C	C	C	C							4.3	4.1									
8	1.9	2.4																						
9																							2.0	
10								2.3											2.1					
11																		2.6		2.6	1.9			
12														4.2			3.6	2.6	5.1					
13													4.6	4.8	4.6	5.6	6.2	2.6	E 2.6 A	2.6	2.0			
14		1.7	1.5																2.7	4.7	2.6	2.3	1.9	2.6
15																4.6	6.2	2.3	3.8	3.4	1.9	1.9		
16															4.1			2.8	3.4	2.1	2.1			
17																								
18		1.8			2.0				4.1									2.4						
19									3.6	5.1							3.9	2.9	2.3					
20										4.2								2.2						
21																	4.1	4.0						
22											4.1	4.1		4.2			3.1	2.4		2.9	2.4			
23											4.2		4.2	4.2										
24																								
25	3.3			1.3											4.2				1.9			1.9		
26			1.2									4.1	4.5					3.4						2.1
27													4.2				4.7	4.1	6.9					
28														4.9	5.1			5.4		4.1	4.1			
29																								
30																								
31																								
Mean Value	2.6	2.1	1.4	1.3	2.0			2.3	3.3	4.7	4.1	4.1	4.5	4.4	4.4	4.8	4.0	3.1	3.4	3.0	2.4	2.6	2.2	2.2
Median Value	2.6	2.0	1.4	1.3	2.0			2.3	3.1	4.6	4.1	4.1	4.5	4.2	4.2	4.6	3.9	2.7	2.7	2.6	2.1	2.3	2.0	2.1
Count	2	4	3	2	1			1	5	2	3	3	7	8	5	3	11	14	11	9	9	5	3	3

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

foEs

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

K 5

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

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Feb. 1957 | **f-min** | 135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.70	1.40	E	E	E	1.40	1.65	1.85	2.70	2.70	2.65	3.00	2.60	2.70	2.40	2.30	2.00	1.60	1.70	1.60	1.60	1.60	1.80	1.70
2	1.60	1.40	E	E	E	1.40	1.60	1.70	1.85	1.90	2.30	2.50	2.45	2.70	2.35	2.00	1.45	I 1.50 C	1.60	1.60	1.60	1.60	1.65	1.65
3	1.65	1.40	E	E	E	1.35	1.60	1.85	1.85	1.85	1.80	2.50	2.40	2.50	2.30	1.90	1.70	1.65	1.65	1.65	1.60	1.60	1.60	1.65
4	1.40	1.40	E	E	E	1.40	1.60	1.65	1.85	2.10	2.40	2.30	2.40	2.10	2.15	1.95	1.65	1.65	1.60	1.60	1.65	1.65	1.60	1.70
5	1.65	1.40	E	1.30	E	1.70	1.70	1.65	1.85	1.90	1.85	1.90	2.00	2.35	2.10	1.80	2.00	1.65	1.60	1.65	1.60	1.65	1.60	1.60
6	1.40	1.35	E	1.25	1.00	1.40	1.65	2.20	1.65	2.80	2.70	2.85	2.80	2.80	2.70	2.35	2.20	1.85	1.60	1.60	1.60	1.70	1.60	1.70
7	1.70	C	C	C	C	C	C	2.60	2.00	2.60	2.80	3.05	2.85	2.90	2.35	2.00	1.85	1.65	1.60	1.65	1.65	1.70	1.70	1.70
8	1.65	1.40	1.25	1.35	1.35	1.35	1.60	1.65	2.10	2.70	2.90	4.10	5.00	4.20	2.70	2.40	1.85	1.80	1.60	1.60	1.65	1.70	1.60	1.65
9	1.85	1.35	1.35	1.35	1.35	1.35	1.70	1.65	1.70	1.85	2.60	2.35	2.45	2.50	2.10	1.85	1.50	1.65	1.65	1.70	1.70	1.60	1.70	1.70
10	1.65	1.40	1.40	1.40	1.30	1.40	1.70	1.60	1.65	1.45	2.10	2.50	2.50	2.35	2.00	2.00	1.40	1.65	1.70	1.65	1.60	1.70	1.70	1.70
11	1.35	1.35	E	E	1.40	1.35	1.70	1.60	1.50	1.70	2.00	2.10	2.65	1.85	1.80	1.80	1.45	1.60	1.65	1.60	1.60	1.65	1.70	1.70
12	1.70	1.70	1.40	1.20	1.40	1.35	1.60	1.85	1.70	1.55	1.95	2.30	2.00	2.25	2.10	1.70	1.70	1.60	1.60	1.65	1.60	1.60	1.65	1.65
13	1.70	1.65	1.45	1.40	1.40	1.40	1.65	1.60	1.60	1.60	2.15	1.85	2.20	2.00	2.00	2.00	1.70	1.70	1.60	1.65	1.60	1.65	1.60	1.70
14	1.40	1.40	E	1.40	1.25	1.40	1.60	1.55	1.70	1.70	2.00	2.00	2.20	2.10	2.00	1.75	1.70	1.65	1.60	1.70	1.65	1.60	1.65	1.60
15	1.40	1.40	1.40	1.30	1.35	1.40	1.70	1.60	1.60	1.45	1.45	1.70	1.60	2.30	2.10	1.70	1.60	1.60	1.80	1.60	1.50	1.60	1.70	1.65
16	1.35	1.35	1.25	1.40	1.40	1.40	1.60	1.80	1.70	1.65	1.70	2.10	2.00	2.20	2.10	1.80	1.60	1.60	1.65	1.65	1.60	1.70	1.60	1.75
17	1.35	1.35	1.40	1.40	1.40	1.35	1.60	1.60	1.60	1.90	2.00	2.30	2.10	1.90	1.75	1.55	1.60	1.60	1.60	1.65	1.60	1.60	1.60	1.60
18	1.60	1.35	1.35	1.35	1.35	1.35	1.60	1.65	1.65	1.80	1.80	2.00	2.00	2.10	2.00	1.70	2.00	1.65	1.60	1.60	1.60	1.65	1.70	1.60
19	1.40	1.35	1.35	E	1.35	1.35	1.65	1.60	1.65	1.60	1.90	2.00	1.70	1.55	2.10	1.70	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.65
20	1.65	1.35	1.35	E	1.00	1.35	1.70	1.60	1.65	1.50	1.70	2.00	1.85	1.90	1.90	1.70	1.65	1.65	1.65	1.70	1.65	1.65	1.60	1.65
21	1.40	1.65	1.30	1.35	E	1.40	1.60	1.65	1.60	1.70	1.80	1.85	2.10	2.00	1.70	2.00	1.70	1.60	1.75	1.70	1.60	1.60	1.60	1.70
22	1.70	1.40	E	E	E	1.35	1.65	1.65	1.85	2.00	2.10	2.50	2.30	2.15	2.20	1.80	1.70	1.65	1.65	1.65	1.60	1.70	1.60	1.70
23	1.35	1.70	1.35	1.40	E	1.40	1.65	1.85	1.55	1.80	1.85	2.00	2.10	2.30	2.35	1.65	1.75	1.60	1.80	1.60	1.65	1.70	1.60	1.60
24	1.85	1.35	1.25	1.40	E	1.40	1.70	1.70	1.50	1.70	2.00	2.10	2.10	2.10	2.10	1.70	1.65	1.70	1.65	1.60	1.65	1.60	1.55	1.70
25	1.60	1.40	E	E	1.40	1.40	1.70	1.70	1.65	1.85	2.10	2.00	2.50	2.40	1.90	1.40	1.85	1.40	1.40	1.65	1.60	1.60	1.70	1.65
26	1.70	1.35	E	E	E	1.45	1.70	1.70	1.65	1.80	1.70	2.10	2.10	2.35	2.00	1.70	1.75	1.70	1.60	1.70	1.70	1.70	1.65	1.60
27	1.60	1.40	1.30	1.25	1.30	1.40	1.80	1.70	1.85	1.50	1.70	2.10	1.90	2.20	2.35	1.45	1.85	1.65	1.70	1.70	1.65	1.60	1.65	1.60
28	1.70	1.70	1.40	1.25	1.30	1.40	1.60	1.70	1.80	1.80	4.60	4.10	2.30	2.00	1.65	1.70	1.70	1.70	1.70	1.60	1.75	1.60	1.65	1.70
29																								
30																								
31																								
Mean Value	1.55	1.45	1.35	1.35	1.30	1.40	1.65	1.75	1.75	1.85	2.15	2.35	2.35	2.30	2.10	1.85	1.70	1.65	1.65	1.65	1.60	1.65	1.65	1.65
Median Value	1.60	1.40	1.25	1.25	1.30	1.40	1.65	1.65	1.70	1.80	2.00	2.10	2.20	2.20	2.10	1.80	1.70	1.65	1.60	1.65	1.60	1.60	1.60	1.65
Count	28	27	27	27	27	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

f-min

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

K 6

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

IONOSPHERIC DATA

Feb. 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	2.65	2.75	2.65	2.70	2.30^{H}	2.45	2.75	3.05	3.15	3.10	2.85	2.90	2.70	2.70	2.70	2.75	2.75	2.85	2.90	2.85	2.80	2.75	2.70	2.65
2	2.85	3.10	3.05	2.65	2.50	2.60	2.60	3.00	3.30	3.20	3.00	2.90	2.80	2.80	2.70	2.80	C	C	2.95	3.00	2.85	2.85	2.85	2.65
3	2.75	2.90	2.65	2.55	2.40	2.35	2.65	3.05	3.25	3.10	2.90^{H}	2.85^{H}	2.85	2.75^{H}	2.75	2.75^{H}	2.85	3.00	3.00	2.85	2.95	3.15	3.00	2.90
4	2.90	2.95	2.75	2.40	2.30	2.65	2.75	3.25	3.15	3.00	2.90	2.85	2.70^{H}	2.70^{H}	I 2.70^{CH}	2.75	2.80	2.85	2.95	2.80^{R}	2.95^{R}	3.10	2.85	2.45
5	2.50	2.60	2.30	2.35	2.35	2.50	2.50	2.80	3.05	3.05	2.95	2.95	2.70^{H}	2.65^{H}	2.75^{H}	2.80	2.85	2.95	2.90	2.85	2.90^{R}	2.60^{R}	2.60^{R}	2.65
6	2.90	2.30	2.65	2.70	2.45	2.50	2.55	3.15	3.05	2.95	3.00	2.95	2.90	2.80^{H}	2.80	2.85^{H}	2.95	3.00	3.10	3.00	3.10	2.75	2.60	2.70
7	2.85	C	C	C	C	C	C	3.15	3.20	3.10	3.05	3.05	2.95	2.75	2.80	2.90	2.90	3.00	3.20	3.15	2.85	3.00	2.95	2.85
8	2.80	2.70	2.60	2.90	2.75	2.50	2.75	3.35	3.20	3.10	3.05	2.95	2.95	2.75^{H}	2.80^{H}	2.80	2.90	3.00	2.90	2.80	2.80^{R}	2.80	U 2.90^{J}	2.85
9	2.90	2.85	2.70	3.05	2.80	2.65	2.80	3.20	3.05	3.05	2.95	2.90	2.85	2.75	2.85	2.75	2.80	2.95	2.95	2.85	2.75	2.80	2.80	2.70
10	2.75	2.90	2.95	2.75	2.50	2.45	2.90	3.10	3.15	3.10	2.95	2.90	2.85	2.75	2.70^{H}	2.70	2.85	2.95	2.95	2.95	2.90	2.90	2.80	3.05
11	3.10	2.95	2.70	2.75	2.65	2.85	3.20^{F}	3.20	3.10	3.00	2.95	2.85	2.85	2.80	2.75^{H}	2.85	2.85	2.95	2.95	2.90	2.75	2.75	2.70	2.90
12	2.75	2.75	2.60	2.40	2.45	2.50	2.80	3.00	3.05	2.95	2.90	2.85	2.85	2.80	2.75	2.80	2.85	2.85	2.95	2.80	2.75	2.80	2.80	2.65
13	2.80	2.95	2.70	3.10	2.70	2.75	3.00	3.20	3.10	2.95	2.85	2.80	2.80	2.75	2.70^{H}	2.75	2.80	2.75	2.90	2.85	2.80	2.40	2.60	2.40
14	2.60	2.75	2.45	2.40	2.55	2.25	2.40	2.75	2.75	3.00	2.85	2.85	2.80	2.85	3.00	3.05	3.00	3.00	2.90	2.80	2.90	2.95	2.95	3.05
15	2.90	2.65	2.45	2.55	2.70	2.80	2.80	3.15	3.10	3.05	2.95	2.90	2.80	2.85	2.80	2.80	2.95	2.90	2.90	3.15	2.80	2.70	2.95	2.95
16	2.60	2.60	2.45	2.45	2.55	2.55	2.80	3.30	3.25	3.05	2.90	2.85	2.80	2.75^{H}	2.75	2.80	2.90	2.90	2.85^{R}	2.95	2.80	2.85	2.85	2.60
17	2.70	2.65	2.65	2.45	2.40	2.35	2.75	3.25	3.15	3.05	2.90	2.85	2.75	2.75^{H}	2.75	2.65^{H}	2.95	2.95	3.00	2.85	2.85	2.90	2.80	2.65
18	2.60	2.45	2.45	2.50	2.50	2.45	2.80	3.10	3.10	3.00	2.90	2.90	2.70^{H}	2.70^{H}	2.75	2.80	2.80	2.85	2.85	2.75	2.70	2.65	2.90	3.00
19	2.90	2.55	2.55	2.70	2.60	2.45	2.70	3.10	3.15	3.10	3.00	2.85	2.75	2.80	2.75	2.80	2.90	2.90	2.85	2.90	2.85	3.00	3.05^{R}	2.85
20	2.65	2.70	2.70	2.90	2.40	2.35	2.90	3.15	3.00	3.00	2.85	2.90	2.85	2.80^{H}	2.75	2.80	2.80	2.90	2.90	2.90	3.00	2.85	2.75	2.65
21	2.80	2.85	2.90	3.05	2.50	2.60	2.85	3.15	3.05	2.95	3.05	2.90	2.80	2.80	2.80^{H}	2.85	2.90	2.80	2.75	2.80	2.65^{R}	2.90	2.95	2.85
22	2.60	2.40	2.40	2.55	2.60	2.85	2.85	3.10	3.15	3.00	2.95	2.80^{H}	2.75	2.75^{H}	2.75	2.70	2.80	2.85	2.90	2.80	2.90	2.80	2.75	2.75
23	2.75	2.85	2.75	2.70	2.80	2.85	2.95	3.25	3.05	3.05	2.95	2.85	2.75^{H}	2.80^{H}	2.75^{H}	2.80	2.85	2.85	2.95	2.90	2.95	2.75	2.75	2.95^{R}
24	2.90	2.85	2.60	2.60	2.60	2.35	2.60	3.25	3.20	3.00	2.70	2.85	2.85	2.70	2.65	2.65	2.70	2.75	2.80	2.85	2.85	2.40	2.70	2.90
25	2.85	2.70	2.70	2.75	2.55	2.75	2.90	3.10	3.05	3.00	2.90	2.95	2.85	2.80	2.80^{H}	2.85	2.80	2.95	3.00	2.85	2.95	3.00	3.25	2.90
26	2.85	2.90	2.75	2.75	2.65	2.70	2.95	3.30	3.25	3.15	3.00	2.75^{H}	2.90^{H}	2.85^{H}	2.85^{H}	2.85	2.90	3.00	2.85	2.95	3.00	3.10	2.90^{R}	2.80
27	2.85	2.85	2.95	2.85	2.80	2.80	3.00	3.20	3.25	3.15	2.90	2.80	2.80	2.80	2.80^{H}	2.80	2.90	2.95	2.90	2.95	2.75	2.70	2.85	2.90
28	3.00	3.00	3.05	2.90	2.90	2.55	2.75	3.20	3.20	3.15	2.90	2.80^{H}	2.75^{H}	2.85	2.75	2.80	2.85	3.05	2.90	2.90	2.85	2.75	2.90	2.75
29																								
30																								
31																								
Mean Value	2.80	2.75	2.65	2.70	2.55	2.55	2.80	3.15	3.15	3.05	2.95	2.90	2.80	2.75	2.75	2.80	2.85	2.90	2.95	2.90	2.85	2.80	2.85	2.80
Median Value	2.80	2.75	2.65	2.70	2.55	2.55	2.80	3.15	3.15	3.05	2.90	2.85	2.80	2.80	2.75	2.80	2.85	2.95	2.90	2.85	2.85	2.80	2.85	2.80
Count	28	27	27	27	27	27	27	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

(M3000)F2

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

K 7

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

IONOSPHERIC DATA

Feb. 1957 | (M3000)F1 | 135° E Mean Time

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												L	L	L	3.40									
2											L	L		L										
3												L												
4																								
5										L		L	L	L										
6																								
7											L		L											
8												L		L										
9											L	L	L											
10										L	L			L	L									
11													L	4.00	A									
12											L	L		L										
13													L	L		A	A							
14										L	L				L									
15										L	L	L	L	L		A	A							
16												L												
17											L	L	L	L										
18												L		L	L									
19										A	L	L	L											
20												L	L	L										
21											L	L	L	L										
22												L	L		L									
23												L				L								
24													L											
25												L	L											
26												L		L		L								
27												L	L				A	A						
28										L		L	L	L	L	L								
29																								
30																								
31																								
Mean Value														4.00	3.40									
Median Value														4.00	3.40									
Count														1	1									

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

(M3000)F1

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

K 8

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

IONOSPHERIC DATA

Feb. 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												250	250	250	325									
2											265	250		275										
3												245H												
4																								
5										250		250	245H	250H										
6																								
7											275		245											
8												250		240H										
9											255	250	245											
10										250	250			255	250H									
11													260	250	255H									
12											255	275		250										
13													270	270		305A	275A							
14										275	255				260									
15										250	250	250	255	270		255	265							
16												245												
17											250	250	250	250H										
18												255		250H	275									
19										260	250	250	250											
20												250	250	250H										
21											250	250	255	280										
22												235H	250		265									
23												250				255								
24													255											
25												250	250											
26												250H		250H		265								
27												250	260				250	250						
28										240		250H	245H	275	275	275								
29																								
30																								
31																								
Mean Value										255	255	250	250	260	270	270	265	250						
Median Value										250	250	250	250	250	265	265	265	250						
Count										6	10	20	16	15	7	5	3	1						

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

h'F2

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

K 9

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

IONOSPHERIC DATA

Feb. 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	310	310	285	290	230^{H}	350	305	255	250	250	245	230	220	240	230	250	255	250	235	250	265	250	275	260
2	275	255	240	260	285	340	325	280	245	235	235	245	250	250	250	250	250	250	250	245	280	260	255	255
3	280	250	255	280	375	395	305	250	250	250	235^{H}	230	250	235^{H}	240	240^{H}	250	255	235	250	260	250	240	260
4	250	240	235	305	375	325	300	255	250	240	240	240	230^{H}	235^{H}	250^{H}	250	250	245	245^{A}	250	260	235	255	345
5	330	255	330	355	330	340	345	280	250	245	230	230	230	230	240^{H}	260	240	250	250	250	270^{A}	310^{A}	275	295
6	250	300	280	280	300	345	340	265	245	250	240	240	230	235^{H}	250	240^{H}	250	250	250	240	255	290^{A}	316^{A}	290
7	260	C	C	C	C	C	C	255	245	235	220	250	225	250	250	250	235	250	225	215	250	250	250	275
8	280	320^{A}	340	280	300	350	290	240	235	235	235	230	250	230	250^{H}	250	250	250	230	240	250	250	255	255
9	250	260	280	250	300	300	270	250	235	240	240	215	225	225	240	240	250	250	225	230	250	255	250	290
10	280	275	250	245	295	355	285	250	250	245	230	240	240	230	240	250	255	250	250	230	255	255	270	250
11	230	250	270	300	305	275	245	240	250	245	235	240	235	215	A	250	245	250	250	250	270	255	280	260
12	300	295	295	355	345	325	275	240	250	250	245	245	240	240	245	250	255	250	260^{A}	275^{A}	255	270	260	290
13	280	275	275	255	250	235	255	245	235	250	250	250	250	255	255^{H}	A	A	255	230^{A}	245	250	315	295	355
14	325	255	290	295	260	395	375	280	260	255	250	245	230	240	250	250	230	250	250	300^{A}	260	270	255	270
15	250	300	340	315	280	250	250	250	245	240	230	230	240	250	250	A	A	240	265^{A}	250	245	280	250	250
16	270	320	305	340	300	335	305	250	235	240	235	225	240	240^{H}	250	250	250	240	255^{A}	250	250	255	250	280
17	290	265	300	325	380	380	300	250	245	230	230	235	225	235	250	245^{H}	250	245	230	230	250	260	260	240
18	305	345	350	340	355	345	260	245	245	250	245	230	250^{H}	230	250	250	250	250	250	250	260	290	255	260
19	250	290	300	270	280	320	300	250	245	I240^{A}	235	225	230	250	250	250	250	250	250	250	255	250	230	255
20	290	275	285	250	295	355	250	240	230	230	230	240	230	230	245	250	245	240	235	250	240	230	275	305
21	275	250	265	250	240	325	260	230	235	245	240	230	230	230	250^{H}	255	250	250^{A}	270	250	295	255	250	250
22	300	335	345	300	280	235	235	250	250	245	245	220	245	245^{H}	245	250	250	250	240	255	250	250	280	275
23	290	265	280	290	265	250	250	230	230	230	230	230	235^{H}	240^{H}	250^{H}	250	255	250	240	230	225	250	260	250
24	250	255	275	300	270	390	335	250	230	230	240	250	240	230	240	250	250	250	255	260	240	325	275	240
25	270^{A}	275	265	255	250	280	280	245	240	240	230	240	235	240	240^{H}	250	250	250	230	230	255	255	240	245
26	270	235	290	285	265	300	285	240	240	240	230	235	230^{H}	235	240^{H}	250	250	235	230	250	245	250	250	260
27	260	255	250	250	270	270	255	240	240	230	235	230	250	250	240^{H}	250	A	A	E295^{A}	245	225	275	280	265
28	255	250	245	250	255	295	300	250	250	235	235	230	225	255^{A}	255^{A}	260	250	250^{A}	260^{A}	255^{A}	270^{A}	255	255	265
29																								
30																								
31																								
Mean Value	275	275	285	290	295	320	290	250	245	240	235	235	235	240	245	250	250	250	245	245	255	265	260	270
Median Value	275	265	280	285	285	325	285	250	245	240	235	230	235	240	250	250	250	250	250	250	255	255	255	260
Count	28	27	27	27	27	27	27	28	28	28	28	28	28	28	27	26	25	27	27	28	28	28	28	28

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

h'F

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

K 10

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

IONOSPHERIC DATA

Feb. 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		105	105	105	110												135	125		105				
2									125		150	145	140			125	125	C						
3									175			145	140	140	130	130	130	105						
4			105	105			105		140								G	150	125					
5				115					130		155		140	115		G	150				110	105	105	105
6						U 130 B	130	B	130	125	130	130					135	130	120	105	105	105	105	105
7		C	C	C	C	C	C	B	125	120			120	120	120		125	125	125	105				
8	105	105		105	110	105				140		B	B	B				160	110			105	100	
9								120									125	125	115	115		U 130 B	105	105
10					U 125 B		115	110	160	100					155	140	130		115	110	105	105	U 105 B	
11						105	125	120	125	140					135	105	110	120	110	105	105	105		
12								150		105				160		150	145	130	115	105	105	105		105
13	100	U 105 B	100					110	145			155	150	145	135	130	125	120	120	120	110	110	110	
14		105	105			105	120	120	120				125			145	125	120	110	110	105	105	105	105
15	105						120	110	105	105					130	130	115	120	110	110	110	105	110	
16						U 110 B	110	105						130	130	140	130	115	110	110	110	115		
17		105	105					110	115						G	150	135	130		130	110	110		
18		110	110		110	U 115 B	U 135 B		110	110	110	105					150	130	U 125 B	U 120 B				105
19								105	110	110	110	110	105	140			135	130	125				U 110 B	
20				110	115			120	115	110							125	125						
21														105	130	145	135	125	U 125 B	U 125 B	120	U 115 B		
22								125	125	125	120	130		125	110		130	130	130	120	120	125		
23			115		105				145		130	130	130	130	140		105	105	105					
24										140							125							
25	110		120	110	U 110 B	U 110 B						130			130	105	105	135	105	115	110	115	120	115
26		120	110	105		115		G				105	130			150	140	125	U 130 B			115	110	110
27				110				G					G			150	140	135	115					110
28	U 105 B	105	105	105	U 105 B	U 105 B								105	105	105	130	125	120	120	110	110		
29																								
30																								
31																								
Mean Value	105	110	110	110	110	110	120	115	130	120	130	130	130	130	130	135	130	125	115	115	110	110	110	105
Median Value	105	105	105	105	110	110	120	120	125	115	130	130	135	130	130	140	130	125	115	110	110	110	105	105
Count	5	8	10	9	8	9	8	14	17	12	7	10	10	11	13	16	27	24	21	17	14	17	11	9

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

h'Es

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

K 11

The Radio Research Laboratories

Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Feb. 1957 | type of Es | 135° E Mean Time | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		f2	f	f	f												h	l		f				
2									l		h	h	h			C	C							
3									h			h	h	h	C	C	C	l						
4			f	f			f		h								h	h	f2					
5				f					C		h		h	l		h	h				f2	f2	f	f2
6						f	f		C	C	C	C					h	f	f2	f2	f	f2	f2	f2
7									l	l			C	f	f		f	f	f2	f				
8	f	f		f	f	f				C								f	f			f	l	
9								l									C	f	f	f		f	f	f
10					f		f	f	h l	l					h	h	C		f2	f	f	f	f	
11						f	f	l	l	h					h	l	l C	f2	f2	f	f	f		
12								C		l				h		h	h l	f	f2	f2	f	f		f
13	l	f	l					l	C l			h	h	h	C	C	C	f	f2	f2	f2	f	f2	
14		f	f			f	f	l	l				f			h	C	l	f2	f2	f2	f2	f	f2
15	f						f	f2	l	l					h	C	f	f2	f2	f2	f2	f2	f	
16						f	f	l						h	h	h	C	f2	f2	f	f	f		
17		f	f					f	l						h	h	h	f		f	f	f		
18		f	f		f2	f	f		f2	f	l	l					h	C	f	f				f
19								l	f2	f	f	l	l	h l			h	C	f				f	
20				f	f			f	l	f							C	C						
21														l	h l	h	C	f2	f	f	f	f		
22								l	l	C	C	h		h	l		C	C	f2	f2	f	f		
23			f		f				h		h	h	h	h	h		l	f	f					
24										h							C							
25	f2		f	f	f	f						h			h	l	l	C l	f	f	f	f2	f	f
26		f	f	f		f		h				f	h l			h	C	C	f			f	f	f2
27				f				h					h			h	C	C 2	f					f2
28	f	f	f	f	f	f								f	f	l	C l	f2	f2	f2	f2	f		
29																								
30																								
31																								
Mean Value																								
Median Value																								
Count																								

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

type of Es

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

K 12

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

IONOSPHERIC DATA

Feb. 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	400	385	380	385	510H	450	375	305	300	300	350	350	375	370	370	380	370	350	325	340	370	355	380	405
2	355	305	305	400	450	440	410	325	280	295	325	345	355	350	375	360	C	C	335	310	370	355	350	385
3	370	330	395	430	400	500	400	305	290	310	350H	365H	345	375H	365	355H	355	335	325	350	330	305	325	350
4	345	325	360	450	505	410	375	300	295	320	345	350	370H	380H	375SH	370	350	350	330	355R	340R	300	350	455
5	450	400	500	475	475	440	430	360	315	305	330	325	380H	400H	380H	360	345	325	340	350	340R	400R	400R	395
6	350	485	385	380	440	440	430	300	305	325	335	345	350	370H	365	350H	330	330	315	320	320	360	405	380
7	350	C	C	C	C	C	C	305	290	305	315	320	330	370	355	340	345	325	295	310	350	310	325	340
8	355	380	420	330	385	440	365	280	300	305	315	330	335	375H	310H	350	340	330	330	340	350R	350	U335J	350
9	330	350	380	310	365	400	370	300	305	315	330	340	355	375	360	365	365	315	325	340	355	350	350	395
10	375	355	320	355	425	465	350	300	300	300	330	340	350	365	375H	365	355	335	325	325	345	340	355	300
11	300	330	395	375	400	355	300F	280	300	315	335	350	350	360	370H	350	360	325	365	350	365	360	390	350
12	390	370	400	490	455	440	360	310	310	330	345	355	355	355	355	360	340	350	330	350	365	360	350	395
13	365	350	370	330	385	380	310	290	305	330	350	360	365	365	385H	375	350	355	340	350	375	460	405	480
14	425	360	440	460	415	540	460	355	360	325	330	345	350	350	320	300	310	325	335	355	345	345	330	320
15	340	400	450	420	390	355	355	305	300	305	325	355	370	355	355	355	330	340	340	300	355	375	335	325
16	405	415	430	440	405	440	375	280	290	310	335	345	320	375H	355	360	345	330	350R	330	350	350	350	400
17	375	390	400	440	475	480	375	285	305	305	330	350	360	365H	365	360H	330	330	315	345	350	350	355	390
18	410	450	455	450	450	445	350	300	300	325	350	345	380H	380H	370	360	350	345	350	355	390	390	345	330
19	350	420	420	380	405	430	385	305	300	305	320	350	360	370	365	360	350	350	350	345	355	315	300R	350
20	400	380	395	330	455	485	350	300	310	320	350	345	355	360H	370	350	355	355	350	350	320	350	375	400
21	355	375	350	310	440	415	350	300	315	330	315	350	355	355	375H	355	345	350	360	350	400R	345	330	345
22	400	475	460	420	400	325	350	305	310	320	325	365H	380	380H	365	375	370	350	340	355	340	355	380	380
23	390	350	375	390	360	350	340	275	300	305	330	360	370H	375H	375H	370	350	345	330	345	330	355	355	330R
24	345	355	400	400	415	495	415	300	280	325	390	355	360	380	395	400	390	370	360	360	350	460	370	345
25	350	395	375	370	420	380	350	305	310	315	345	335	360	365	365H	350	350	325	310	340	325	330	300	340
26	385	340	380	365	400	390	340	275	280	300	330	345H	350H	345H	355H	350	330	310	355	340	330	310	350R	355
27	355	350	335	350	360	355	310	285	290	300	340	350	355	360	360H	360	340	330	335	330	365	395	360	345
28	320	330	310	340	350	405	375	300	295	300	330	355H	360H	360	365	360	350	320	350	340	350	360	330	370
29																								
30																								
31																								
Mean Value	370	375	390	390	420	425	370	300	300	310	335	345	355	365	365	360	350	335	335	340	350	355	355	370
Median Value	360	370	395	385	415	440	365	300	300	310	330	350	355	370	365	360	350	335	335	345	350	350	350	350
Count	28	27	27	27	27	27	27	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

foF2

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

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

IONOSPHERIC DATA

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

Feb. 1957 | ypF2 | 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	105	105	140	115	120H	110	75	105	95	75	100	90	95	160	130	95	105	80	105	110	105	195	120	110
2	100	85	95	130	110	90	125	80	65	60	75	85	95	110	90	95	C	C	70	85	80	100	120	115
3	100	110	195	120	185	100	125	100	60	50	75H	60H	80	105H	95	95H	90	65	65	75	65	65	100	100
4	105	105	135	115	115	70	105	75	60	70	75	75	110H	95H	I 90CH	85	90	90	115	90R	65R	80	100	95
5	100	125	150	125	105	90	135	100	65	70	80	85	80H	95H	80H	90	110	80	85	95	70R	105R	110R	115
6	100	140	115	95	105	110	95	90	95	75	65	60	80	85H	85	95H	80	85	75	75	70	105	135	100
7	110	C	C	C	C	C	C	55	110	75	65	80	85	90	95	85	75	75	65	90	100	110	110	90
8	130	130	90	80	90	90	95	70	50	60	80	75	70	95H	130H	110	110	75	75	120	100R	100	U 75J	105
9	120	90	85	80	85	95	100	70	95	70	95	80	90	80	100	110	100	90	90	110	125	130	130	85
10	105	100	85	160	135	115	100	115	70	60	85	110	100	115	125H	130	100	90	90	95	110	100	110	100
11	100	120	95	80	90	120	65F	110	75	85	70	100	90	100	95H	80	100	90	60	100	115	100	110	100
12	85	110	105	110	95	110	90	110	90	90	75	95	95	100	125	100	105	80	90	125	100	90	100	115
13	125	80	80	90	115	90	90	135	70	80	90	90	85	105	100H	100	120	145	105	80	95	115	100	120
14	80	115	60	140	110	105	140	135	140	85	120	110	105	110	90	80	110	125	130	105	105	80	100	80
15	110	115	120	110	120	95	95	95	100	70	85	85	90	95	100	95	95	115	90	70	100	80	85	115
16	135	105	130	135	135	90	75	70	60	65	75	85	105	80H	90	80	70	75	85R	75	130	100	100	100
17	95	115	100	120	125	120	90	65	55	85	80	75	90	85H	100	90H	80	80	85	75	90	80	125	110
18	100	100	100	95	95	105	95	65	70	65	70	75	85H	75H	85	90	100	95	95	95	115	110	75	80
19	100	130	100	80	115	110	90	55	60	55	75	75	95	80	90	80	70	80	100	70	110	85	95R	130
20	95	120	100	95	115	100	125	70	90	70	95	70	80	85H	75	80	90	75	90	70	95	80	95	100
21	95	75	90	85	110	90	100	95	60	95	80	65	95	90	80H	90	70	105	100	115	95R	80	70	105
22	100	115	135	110	115	125	100	95	90	80	75	85H	75	80H	90	120	90	95	100	95	70	95	80	85
23	110	100	95	110	115	100	100	70	65	115	85	85	85H	80H	75H	105	100	110	95	90	110	105	85	70R
24	95	130	95	80	100	120	90	55	80	95	110	85	90	100	105	90	90	90	100	90	90	135	120	95
25	100	105	110	130	120	90	100	75	95	95	90	65	95	90	90H	80	90	85	100	85	85	90	60	135
26	95	100	100	105	105	100	85	55	70	65	70	65H	70H	95H	95H	80	90	95	85	65	70	85	90R	100
27	105	100	85	90	100	95	90	70	60	70	90	105	90	100	100H	90	100	75	95	95	100	95	85	65
28	85	95	85	75	105	145	85	50	55	90	95	95H	90H	90	90	90	100	90	80	90	105	140	75	90
29																								
30																								
31																								
Mean Value	105	110	105	105	110	105	100	85	75	75	85	85	90	95	95	95	95	90	90	90	95	100	100	100
Median Value	100	105	100	110	110	100	95	75	70	70	80	85	90	95	90	90	95	90	90	90	100	100	100	100
Count	28	27	27	27	27	27	27	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28

Note: Observation was carried out every 15 minutes during 4th, 0000 - 7th, 0830 and every 30 minutes during 18th, 0900 - 28th, 0930.

ypF2

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

K 14

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

IONOSPHERIC DATA

Feb. 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	6.0 H	6.2 H	5.7	4.7	4.2 H	4.5 H	5.1 H	6.2	10.7	U 14.2 S	13.8 H	C	C	C	13.7 H	13.5 H	13.5 H	13.6	12.8	11.9	12.4	12.5	11.5 H	10.0
2	9.5	9.0	6.8	4.2	3.5 H	3.3	3.5	5.2	11.9	U 14.1 C	I 13.9 C	13.7	U 14.2 G H	U 14.3 G H	13.6 H	13.5 H	12.9 H	11.5 H	11.6	10.5	10.0	9.9	9.0	7.4 H
3	6.3 H	6.4 H	5.3	4.0	3.6	3.5	4.0	6.1	9.9	12.6	D 13.8 G H	D 13.8 C	U 14.5 G H	U 14.4 G H	U 14.3 G H	13.8 H	13.0 H	12.4	12.4	10.5	9.5	10.4	9.8	8.5
4	7.4	5.9	4.8	3.8	3.5	3.8	4.1	5.5	9.3 S	12.9	13.7	13.5 H	13.3 H	13.6 H	13.7 H	13.5 H	13.0 H	13.0	11.5	9.5 S	9.2	8.7	8.1	6.6
5	6.2	6.6	4.0 H	4.6	4.5	4.8	4.6	5.1 S H	10.5	U 14.2 C	I 14.3 C	U 14.4 C	U 14.3 G H	U 14.3 G H	D 13.8 G H	D 13.8 G H	12.5	11.3 H	11.9	10.2	8.6	7.2	7.2	7.0 H
6	7.5 H	4.5 H	4.9 H	4.7 H	4.2 H	4.4	4.4	6.2 H	10.9	U 14.3 G H	D 13.8 C	D 13.8 C	D 13.8 C	D 13.8 G H	D 13.8 G H	D 13.8 G H	13.2 H	12.4	12.9	11.6	8.8	8.0 S H	6.7 H	6.2 H
7	6.5	6.6 H	U 5.5 S	4.4 H	4.1 H	4.0	3.4 H	5.4	C	C	C	C	C	C	C	C	C	13.0	13.6	11.7	9.6 S	8.3	7.3 H	6.8 H
8	6.3 H	5.0 H	4.8	4.4	3.1	3.3	3.3	5.7	9.5	12.9 H	U 14.5 C	D 13.8 C	D 13.8 G H	D 13.8 C	D 13.8 G H	D 13.8 G H	D 13.8 G H	13.1	12.5	11.7	11.6	11.7 H S	11.6	12.1 S
9	11.1	9.1	7.3	6.2	4.2	3.2	3.5	6.3	11.2	13.0	C	C	D 13.8 G H	D 13.8 G H	C	13.0 H	13.1 H	12.5	11.6	10.7	9.1 H	8.4	7.2 H	7.2 H
10	6.5	5.6	4.7 H	4.0	3.6	3.7	4.0	6.2 H	9.8	12.3 H	U 14.0 G H	13.9 H	13.2 H	13.0 H	12.5 H	12.5 H	12.2	12.2	11.2 H	10.1 S	10.2 J	9.2	8.1 S	7.4
11	7.1	5.7	3.9	4.0	4.0	4.1	4.1	6.3	10.4	12.7	13.7 H	D 13.8 G H	C	C	C	12.3 H	12.0 H	11.2 H	10.6	10.0	9.5 S	9.7 S	9.4 S	8.9
12	7.7	7.1	5.9	4.4 H	4.6	4.7	4.6	6.5	U 9.5 S	12.3 H	13.8 H	I 14.2 G H	U 14.5 G H	13.8 H	12.9 H	11.7 H	11.5 H	11.1 H	10.7 Z	9.8 S	9.8	8.7	8.6	8.2 S
13	7.3	6.4	5.6	5.0 H	3.9	4.0	4.2 H	6.0	9.7	11.4 H	12.7 H	13.6 H	U 14.5 G H	U 14.0 G H	13.6 H	13.7 H	13.4 H	12.8 H	13.0	13.3	13.6 H	I 13.6 C	13.5	F
14	F	10.5	U 8.5 S	F S H	F S	F S	F S	6.9	10.8	13.5 H	U 14.4 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	U 14.1 G H	12.0	10.8	10.5 H	10.3	10.0	9.8 S	9.9	9.3 H	8.5
15	6.2	5.1	4.9	4.8	4.7	4.1	3.9	6.1	11.0	13.2	13.6	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	C	C	13.4 H	12.0	11.9	10.7	9.8	10.1 S	9.8
16	7.3 H	6.9 H	6.9 H	6.0 H	5.3 H	5.0	4.7 H	8.1 S	11.7	12.0	12.5	13.3 H	13.3 H	13.5 H	13.2 H	12.5 H	12.4 H	12.7 H	11.5	10.5	10.3	10.1	9.5	8.8
17	8.2	7.5 H	6.1	5.2 H	4.8 H	4.7	4.8	8.3	12.4	12.9	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	13.8 H	13.0 H	12.4	11.6 H	10.7	10.7 J H	9.8	8.5	8.1
18	7.2	6.6 H	6.2	6.0 H	5.7 H	5.8 H	5.9 H	8.9	12.0	13.8	D 13.8 C	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	13.8 H	12.5 H	11.9 H	10.6	10.0	8.8 H	9.0	8.7
19	6.9	5.3	5.0 H	4.6	4.0 H	4.2	4.0	7.1	11.6	12.4	13.0	13.1 H	13.2 H	13.7 H	13.0 H	12.7 H	12.5 H	12.0	11.8	11.0	9.3 H	U 9.7 S	9.2	6.9
20	6.7	6.5	6.5	6.5 H	5.3 H	U 5.3 J H	I 7.0 E M	8.7	11.6	12.5	13.1 H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	U 14.4 G H	13.8	13.1 H	13.4	12.4	11.7	11.1	9.0	8.0
21	7.6	7.6	6.1 H	6.0	5.1	4.8	5.0 H	7.0	10.0	12.4 H	D 13.8 G H	D 13.8 C	U 14.1 G H	U 14.2 G H	13.8 H	13.8 H	13.1 H	11.5	11.1 H	11.6	9.8 S	U 9.5 S H	8.0	7.0
22	6.3	5.7 H	5.7 H	6.0 V	5.4	4.7	4.2	6.2	10.5	13.0	I 14.1 G H	13.8	U 14.2 G H	I 14.2 G H	U 14.2 G H	14.0 H	13.7 H	13.0	13.0	11.8	11.6 H	11.2	9.8	9.7
23	8.8	8.5 H	7.2	6.8	5.8	5.6 H	4.5	6.9	10.2	11.6 H	13.2 H	14.0 C	U 14.2 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	U 14.3 C	I 14.2 C	U 14.2 C	13.8	13.1	11.7	10.5 J
24	9.2	7.1	6.0 H	5.7 H	5.2 H	4.8 H	4.4 J H	9.0	11.6	10.0	11.3 H	D 13.8 G H	D 13.8 G H	U 14.5 G H	13.8 H	U 14.2 G H	I 14.5 C H	U 14.3 G H	13.6	13.0	12.2	9.2	11.1 H	9.7 S
25	7.9	6.5 H	6.8	7.1	5.3	5.4 H	5.5 J	7.1 H	10.6	13.0	13.8 H	U 14.3 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	U 14.2 G	13.9	13.7	12.9	11.6	10.5 J	7.9 S H
26	6.5 H	6.1 H	6.0 H	5.7 H	5.3	5.6 H	5.0	7.3	10.6	11.8	13.4 H	14.0 G H	D 13.8 G H	D 13.8 G H	D 13.8 G H	U 14.5 G H	I 14.2 G H	13.7 H	13.0 H	13.2	13.6	13.7	11.6	10.0
27	9.9	8.5 H	7.2	6.4	5.6	4.8 H	4.5	6.8	9.1	11.9 H	12.9 H	13.5 H	U 14.0 G H	D 13.8 G H	U 14.0 G H	13.9	U 14.2 C	13.2	11.5	10.7	10.9 H	9.7 H	9.5	9.4 H
28	8.7	8.5 S	6.5	5.6	5.1	3.9	4.0	7.1	10.5	12.5	I 12.9 C	13.3 H	D 13.8 G H	D 13.8 G H	D 13.8 G H	U 14.5 G H	13.5 H	12.9 H	12.9	12.5	11.9	11.6 S	10.0	9.1
29																								
30																								
31																								
Mean Value	7.5	6.8	5.9	5.2	4.6	4.4	4.5	6.7	10.6	12.7	13.5	13.8	14.0	14.0	13.6	13.4	13.0	12.6	12.2	11.4	10.8	10.2	9.5	8.5
Median Value	7.3	6.6	6.0	5.0	4.6	4.5	4.4	6.4	10.6	12.7	13.8	D 13.8	D 13.8	D 13.8	D 13.8	13.8	13.2	12.8	12.0	11.3	10.2	9.8	9.4	8.5
Count	27	28	28	27	27	27	27	28	27	27	26	25	25	25	25	26	26	28	28	28	28	28	28	27

Note: Observation was carried out every 30 minutes during 18th, 0900 – 28th, 0830

foF2

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

Y 1

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

IONOSPHERIC DATA

Feb. 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	E	E	E	E	3.0 J	1.7 J	E	1.5 JS	G	G	G	C	C	C	G	G	3.4	G	E	E	1.7 J	E	E	1.7 J
2	E	E	E	E	E	E	E	E	G	3.5	C	4.1	G	G	G	5.1 J	5.2 J	3.4 J	1.7 J	2.0 J	1.7 J	S	1.7 J	1.7 J
3	S	S	E	E	E	1.6 JS	1.7	1.7 J	G	3.3	5.3 J	4.1	4.3	4.4	4.9 J	4.0	3.4 J	2.7 JB	S	1.7 JS	1.7 JS	S	S	S
4	E	E	E	E	E	E	S	1.6 JS	G	G	G	3.8	3.1	G	G	G	3.2 J	G	E	E	E	E	E	S
5	S	S	E	E	E	1.7 JS	S	E	G	3.6	3.9	5.3 J	5.9 J	4.0	4.1	4.0	3.6	2.8	S	E	1.9 J	1.7 J	6.6 J	1.9 J
6	1.7 J	2.5 J	1.7 J	1.9 J	E	1.1	E	1.7 J	2.7 J	3.4	3.9	G	4.8	4.2	G	3.8	3.7	5.5 J	6.7 J	5.3 J	4.3 J	2.9 J	2.9 J	1.9 J
7	1.8 J	1.6 JS	1.6 JS	1.7 J	1.8 J	1.7 J	2.2 J	3.2 J	C	C	C	C	C	C	C	C	C	2.6	1.3 JS	2.6 J	3.7 J	2.7 J	2.7 J	2.7 JF
8	1.7 J	2.5 J	1.9 J	1.9 J	3.6 JF	1.7 JF	1.7 JF	1.7 J	G	G	G	G	B	G	4.0	3.4 J	3.4	2.9 J	1.9 J	1.7 J	1.7 J	1.7 JF	S	1.6 JS
9	E	E	1.5 JS	E	E	1.7 J	1.5 JS	S	G	G	C	C	G	G	C	G	G	2.6	2.7 J	2.7 J	2.5 J	1.7 JS	E	E
10	E	E	E	E	1.5 JS	E	E	1.7 JS	G	3.9	4.0	8.3 J	G	G	G	3.9	3.3 J	3.2 J	5.3 JS	3.6 J	3.1 J	1.7 JS	S	E
11	E	E	E	E	E	E	E	1.6 JS	2.7 J	3.9	3.8	8.3 JS	C	C	C	4.0	3.9	2.6	2.7 J	2.7 J	5.2 J	1.7 J	1.7 J	S
12	S	S	E	E	E	1.6 JS	S	1.9 J	2.6	3.5	3.9	G	4.6	4.6	5.2	4.8	4.0	2.6 JB	2.6 J	2.6 J	S	S	S	S
13	S	E	E	E	E	E	E	S	G	G	3.7	5.7 J	G	4.8	5.2	5.3 J	5.8 J	4.2 J	2.7 J	2.4 J	2.5 J	C	S	S
14	S	1.6 JS	E	1.6 JS	1.6 JS	E	S	E	G	3.5	3.8	5.3 J	4.1	4.6	4.0	3.9	3.9	3.1 J	S	1.7 J	1.7 J	1.6 JS	2.5 J	S
15	S	S	1.7 J	1.7 J	1.6 JS	1.7 J	1.5 JS	1.7 J	G	3.6	G	3.9	G	G	4.1	C	C	4.1 J	6.6 J	2.6 J	1.9 J	2.6 J	S	1.7 J
16	S	E	E	E	E	E	S	1.9 J	2.7 J	3.3	3.8	G	G	5.3 J	4.5	3.9	4.0	3.3 J	6.0 J	5.3 J	2.6 J	2.6 J	2.9 J	1.7 J
17	1.5 J	1.7 JS	1.7 J	S	S	S	S	S	G	G	4.0	3.8	G	G	G	4.4	5.0 J	5.3 J	3.0 J	2.6 J	3.6 J	2.6 J	1.7 J	S
18	S	S	E	E	E	E	1.5 JS	1.9 JS	2.8 JS	3.3 J	G	G	4.4 J	G	G	3.9	3.3 J	G	G	2.6 J	S	S	1.7 J	2.6 J
19	1.7 J	1.7 J	1.7 J	1.7 J	1.9 J	S	S	1.7 JS	C	3.4	3.8	4.1	4.6	4.8	4.9	4.5	4.0	3.5	3.6 J	5.1 J	6.1 JS	1.7 J	S	1.7 JS
20	1.6 JS	E	1.5 JS	E	E	E	S	1.7 JS	2.6 J	6.4 J	3.6 J	6.6 J	G	4.0	3.9	4.0	3.5	2.8 J	4.9 J	4.2 J	3.1	S	S	S
21	S	E	1.5 J	1.7 JS	1.7 J	E	S	S	G	3.4	3.9	3.9	3.9	G	4.4	4.1	5.2	4.1 J	3.7 J	5.3 J	8.3 J	3.4 J	1.8 JS	S
22	S	S	E	S	E	1.9 J	S	S	2.8	G	5.9 J	5.9 J	4.3	4.3	4.4	4.1	4.4 J	3.5 J	2.7 J	2.1 J	2.6 J	2.6 J	3.5 J	3.5 J
23	6.3 J	2.6 J	1.9 J	1.7 J	2.6 J	2.6 JF	1.7 J	S	2.7 JB	G	3.9	4.4	4.5	4.5	5.3	3.9	3.4 J	3.4	1.5 JS	1.7 J	S	1.5 J	S	S
24	S	S	E	E	E	1.7 J	S	S	G	3.3	3.9	3.9	3.9	4.0	5.2	3.9	4.0	3.4	3.3 J	2.6 J	S	S	S	S
25	S	1.7 J	1.5 JS	E	3.3 J	E	S	S	G	G	3.9	4.1	4.3	G	3.9	G	G	3.3	3.2 J	3.5 J	5.0 J	2.6 J	2.5 J	1.7 JS
26	E	E	1.7 J	1.7 J	1.6 JS	1.7 J	1.7 JS	E	2.8	3.4	G	5.8 J	6.4 J	6.7 J	G	4.8	5.3 J	5.2 J	4.9 J	2.7 J	2.7 J	1.7 J	1.6 J	S
27	S	E	E	E	E	E	S	1.5 JS	G	G	3.7	G	G	G	5.6 J	10.6 J	12.1 J	7.9 J	6.1 J	5.3 J	3.4 J	1.7 J	1.7 J	S
28	S	1.6 JS	E	E	E	E	S	G	G	3.4	C	G	G	G	G	5.8 J	5.8 J	3.6 J	3.0 J	2.9 J	1.9 J	1.7 J	2.6 J	S
29																								
30																								
31																								
Mean Value	2.3	1.9	1.7	1.7	2.2	1.7	1.7	1.8	2.7	3.7	4.0	5.1	4.6	4.6	4.6	4.6	4.5	3.7	3.6	3.1	3.2	2.1	2.5	2.0
Median Value	E	E	E	E	E	E	1.5	1.7	G	3.3	3.8	4.1	3.9	4.0	4.0	4.0	3.9	3.3	3.0	2.6	2.6	1.7	1.8	1.7
Count	14	21	28	26	27	26	14	20	26	27	24	25	24	25	25	26	26	28	25	28	24	21	18	14

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0830

foEs

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

Y 2

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

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Feb. 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	2.60^{H}	2.75^{H}	2.65	2.70	2.25^{H}	2.35^{H}	2.85^{H}	2.95	3.15	^{U}3.10^{S}	2.95^{H}	C	C	C	2.70^{H}	2.45^{H}	2.60^{H}	2.80	2.80	2.80	2.80	2.80	2.70^{H}	2.90
2	2.70	3.10	3.20	2.90	2.55^{H}	2.50	2.50	2.65	3.20	^{U}3.25^{C}	^{I}3.05^{C}	2.85	^{U}2.75$^{C}_{H}$	^{U}2.75$^{C}_{H}$	2.65^{H}	2.65^{H}	2.80^{H}	2.75^{H}	2.85	2.90	2.90	2.85	2.95	2.85^{H}
3	2.70^{H}	2.80^{H}	2.75	2.70	2.35	2.30	2.70	2.95	3.05	2.95	C^{H}	C	^{U}2.80$^{C}_{H}$	^{U}2.85$^{C}_{H}$	^{U}2.70$^{C}_{H}$	2.75^{H}	2.75^{H}	2.75	2.90	2.85	2.85	2.95	2.90	2.95
4	3.10	2.75	2.80	2.60	2.35	2.45	2.90	2.95	3.10^{S}	3.10	3.10	2.50^{H}	2.70^{H}	2.70^{H}	2.70^{H}	2.75^{H}	2.70^{H}	2.85	2.95	2.80^{S}	2.95	2.95	2.90	2.50
5	2.60	3.05	2.25^{H}	2.20	2.30	2.50	2.60	2.40$^{S}_{H}$	2.95	^{U}3.00^{C}	^{I}3.00^{C}	^{U}3.05^{C}	^{U}2.75$^{C}_{H}$	^{U}2.65$^{C}_{H}$	C^{H}	C^{H}	2.75	2.75^{H}	2.85	3.10	2.90	2.50	2.65	2.70^{H}
6	2.85^{H}	2.75^{H}	2.50^{H}	2.60^{H}	2.45^{H}	2.50	2.70	2.85^{H}	3.00	^{U}3.00$^{C}_{H}$	C	C	C	C^{H}	C^{H}	C^{H}	2.85^{H}	2.80	2.90	3.00	2.95	2.75$^{S}_{H}$	2.75^{H}	2.60^{H}
7	2.95	2.80^{H}	^{U}2.85^{S}	2.70^{H}	2.75^{H}	2.85	2.80^{H}	2.70	C	C	C	C	C	C	C	C	C	2.85	3.10	3.05	2.90^{S}	2.75	2.85^{H}	2.50^{H}
8	2.40^{H}	2.70^{H}	2.85	3.10	2.65	2.50	2.55	2.95	3.25	3.10^{H}	^{U}3.05^{C}	C	C^{H}	C	C^{H}	C^{H}	C^{H}	2.80	2.85	2.90	2.95	2.80$^{J}_{S}$	2.70	2.80^{S}
9	2.95	2.85	2.85	3.00	3.10	2.60	2.40	2.85	3.10	3.10	C	C	C	C^{H}	C	2.65^{H}	2.80^{H}	2.80	2.95	3.00	2.80^{H}	2.75	2.70^{H}	2.80^{H}
10	2.95	3.05	3.00^{H}	2.85	2.50	2.40	2.35	3.00^{H}	3.20	3.15^{H}	^{U}3.00$^{C}_{H}$	3.00^{H}	2.90^{H}	2.70^{H}	2.65^{H}	2.70^{H}	2.75	2.90	2.90^{H}	2.85^{S}	2.95^{J}	2.95	2.70^{S}	2.85
11	3.15	3.15	2.85	2.80	2.80	2.75	2.75	3.05	3.20	3.00	2.90^{H}	C^{H}	C	C	C	2.70^{H}	2.75^{H}	2.85^{H}	2.85	2.70	2.80^{S}	2.75^{S}	2.55^{S}	2.85
12	2.70	2.95	2.80	2.35^{H}	2.50	2.55	2.75	2.90	^{U}2.95^{S}	2.90^{H}	2.90^{H}	^{I}2.90$^{C}_{H}$	^{U}2.85$^{C}_{H}$	2.80^{H}	2.70^{H}	2.75^{H}	2.75^{H}	2.80^{H}	2.95^{X}	2.80^{S}	2.85	2.80	2.65	2.55^{S}
13	2.60	3.00	3.05	2.85^{H}	2.70	2.40	2.70^{H}	3.00	3.20	3.00^{H}	2.90^{H}	2.85^{H}	^{U}2.75$^{C}_{H}$	^{U}2.80^{H}	2.70^{H}	2.70^{H}	2.70^{H}	2.75^{H}	2.75	2.80	2.80^{H}	^{I}2.80^{C}	2.75	F
14	F	2.95	^{U}2.45^{S}	F^{SH}	F^{S}	F^{S}	F^{S}	2.70	2.85	2.95^{H}	^{U}2.95$^{C}_{H}$	C^{H}	C^{H}	C^{H}	^{U}2.90^{H}	2.85	2.80	2.90^{H}	2.90	2.90	2.85^{S}	2.75	2.90^{H}	3.15
15	3.00	2.45	2.55	2.65	2.90	2.50	2.65	2.80	3.10	3.20	2.90	C^{H}	C^{H}	C^{H}	C^{H}	C	C	2.85^{H}	2.80	3.00	2.90	2.95	2.80	2.75
16	2.60^{H}	2.30^{H}	2.45^{H}	2.35^{H}	2.55^{H}	2.60	2.60^{H}	3.00^{S}	3.35	3.15	2.90	2.85^{H}	2.80^{H}	2.65^{H}	2.75^{H}	2.75^{H}	2.75^{H}	2.90^{H}	3.05	2.95	2.90	2.85	2.95	2.75
17	2.65	2.80^{H}	2.80	2.60^{H}	2.55^{H}	2.30	2.50	3.10	3.20	3.10	C^{H}	C^{H}	C^{H}	C^{H}	C^{H}	2.80^{H}	2.80^{H}	2.85	2.95^{H}	2.90	2.80$^{J}_{H}$	2.95	2.80	2.65
18	2.60	2.45^{H}	2.45	2.50^{H}	2.55^{H}	2.40^{H}	2.60^{H}	3.00	3.10	3.10	C	C^{H}	C^{H}	C^{H}	C^{H}	C^{H}	2.65^{H}	2.65^{H}	2.75^{H}	2.90	2.75	2.85^{H}	2.90	2.75
19	2.90	2.65	2.60^{H}	2.80	2.55^{H}	2.50	2.40	2.95	3.25	3.15	3.00	2.90^{H}	2.80^{H}	2.75^{H}	2.75^{H}	2.70^{H}	2.75^{H}	2.80	2.90	2.90	2.90^{H}	^{U}2.90^{S}	3.15	2.80
20	2.80	2.75	2.75	2.95^{H}	2.45^{H}	^{U}2.90$^{H}_{J}$	^{I}3.00$^{FS}_{H}$	3.10	3.20	3.10	2.95^{H}	C^{H}	C^{H}	C^{H}	C^{H}	^{U}2.75$^{C}_{H}$	2.80	2.75^{H}	2.85	2.95	2.85	2.95	2.75	2.80
21	2.80	2.90	3.00^{H}	2.90	2.85	2.70	2.65^{H}	3.15	3.10	3.00^{H}	C^{H}	C	^{U}2.85$^{C}_{H}$	^{U}2.85$^{C}_{H}$	2.75^{H}	2.80^{H}	2.80^{H}	2.80	2.80^{H}	2.85	2.80^{S}	^{U}2.95$^{S}_{H}$	3.00	2.85
22	2.85	2.45^{H}	2.50^{H}	2.60^{V}	2.80	2.80	2.75	2.90	3.10	3.05	^{I}2.90$^{C}_{H}$	2.85	^{U}2.75$^{C}_{H}$	^{I}2.80$^{C}_{H}$	^{U}2.80$^{C}_{H}$	2.70^{H}	2.70^{H}	2.75	2.85	2.85	2.80^{H}	2.95	2.90	2.70
23	2.85	2.95^{H}	2.85	2.95	2.80	2.75^{H}	2.90	2.95	3.35	3.10^{H}	2.95^{H}	2.90^{C}	^{U}2.75$^{C}_{H}$	C^{H}	C^{H}	C^{H}	C^{H}	^{U}2.85^{C}	^{I}2.90^{C}	^{U}2.95^{C}	2.85	2.90	2.75	3.05^{J}
24	3.05	2.85	2.75^{H}	2.70^{H}	2.55^{H}	2.45^{H}	2.20$^{H}_{E}$	3.05	3.50	3.05	2.65^{H}	C^{H}	C^{H}	^{U}2.75$^{C}_{H}$	2.60^{H}	^{U}2.70$^{C}_{H}$	^{I}2.70$^{C}_{H}$	^{U}2.70$^{C}_{H}$	2.80	2.80	2.80	2.55	2.75^{H}	3.30^{S}
25	2.95	2.65^{H}	2.70	2.95	2.70	2.70^{H}	2.70^{J}	2.90^{H}	3.10	3.10	2.90^{H}	^{U}2.80$^{C}_{H}$	C^{H}	C^{H}	C^{H}	C^{H}	C^{H}	^{U}2.85$^{C}_{H}$	2.90	3.00	2.95	3.00	2.95^{J}	2.80$^{S}_{H}$
26	2.75^{H}	2.80^{H}	2.85^{H}	2.90^{H}	2.85	2.90^{H}	3.10	3.05	3.35	3.15	3.00^{H}	2.95$^{C}_{H}$	C^{H}	C^{H}	C^{H}	^{U}2.80$^{C}_{H}$	^{I}2.80$^{C}_{H}$	2.85^{H}	2.90^{H}	2.85	2.85	2.95	2.95	2.95
27	2.75	2.75^{H}	2.95	3.05	3.20	2.90^{H}	3.20	3.25	3.25	3.15^{H}	3.00^{H}	2.90^{H}	^{U}2.80$^{C}_{H}$	C^{H}	^{U}2.75$^{C}_{H}$	2.75	^{U}2.80^{C}	2.95	2.90	2.80	2.80^{H}	2.70^{H}	2.80	2.90^{H}
28	2.95	3.00^{S}	2.95	3.05	3.00	2.85	2.55	2.90	3.15	3.20	^{I}3.05^{C}	2.90^{H}	C^{H}	C^{H}	C^{H}	^{U}2.75$^{C}_{H}$	2.80^{H}	2.80^{H}	2.90	2.95	2.85	2.80^{S}	2.80	2.90
29																								
30																								
31																								
Mean Value	2.80	2.80	2.75	2.75	2.65	2.60	2.65	2.90	3.15	3.10	2.95	2.85	2.80	2.75	2.70	2.70	2.75	2.80	2.90	2.90	2.85	2.85	2.80	2.80
Median Value	2.80	2.80	2.80	2.80	2.55	2.50	2.70	2.95	3.15	3.10	2.95	2.90	2.80	2.75	2.70	2.75	2.75	2.80	2.90	2.90	2.85	2.85	2.80	2.80
Count	27	28	28	27	27	27	27	28	27	27	21	14	13	12	14	20	23	28	28	28	28	28	28	27

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0830

(M3000)F2

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

Y 3

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

IONOSPHERIC DATA

Feb. 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															245 H									
2													250 H	240 H		255 A H	260 A H							
3										245	250 H	250	245 H		250 H	250 H								
4										250	245		245 H	250 H										
5													240 H		250 H	255 H								
6											250	250		230 H										
7																								
8											250	245	245 H	250	245 H	250 H								
9														250 H		235 H								
10											250 H	245 H	250 H	245 H										
11												250 H				245 H								
12											250 H	250 H	250 H	245 H	245 H	250 H								
13										245 H		250 H	250 H	250 H	250 H	E 270 A H	E 280 A H							
14											245 H	250 H		250 H	250 H									
15												245 H		250 H										
16												240 H												
17												245 H	255 H		250 H	240 H	250 H							
18										245	245		250 H	245 H		250 H	250 H							
19											245	250 H	250 H	250 H	250 H	250 H								
20											250 H	250 H	245 H	250 H	250 H	245 H								
21											245 H		245 H	250 H	250 H									
22									250			245	250 H	250 H	250 H									
23													245 H	245 H	250 H	250 H								
24											250 H		250 H	245 H	250 H									
25												240 H			250 H									
26												250 H	E 270 A H	285 H		250 H	255 H							
27										245 H	245 H		250 H	250 H	250 H									
28													250 H	250 H	250 H	E 270 A H	E 260 A H	250 H						
29																								
30																								
31																								
Mean Value									250	245	245	245	250	250	250	250	255	250						
Median Value									250	245	250	250	250	250	250	250	250	250						
Count									1	5	13	16	18	20	17	13	4	1						

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0830

h'F2

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

Y 4

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

IONOSPHERIC DATA

Feb.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	270H	280H	250	280	250H	355H	290H	300	250	250	235H	C	C	C	S	240H	240H	255	240	235	240	230	240H	240
2	245	240	235	230	250H	350	340	310	250	245	I240C	240	240	230	240H	A	A	240H	250	230	245	250	250	220H
3	260H	250H	230	240	330	400	300	275	245	240	245	235	210	235H	240	225	245AH	250	245	220	245	245	220	240
4	225	220	240	280H	350	345	270	270	250	240	235	240H	235	240	250H	250H	245H	250	235	225	245	240	220	295
5	310	240	220H	380	340	330	300	315H	250	250	240	245	220	245H	240	235	240	240H	250	230	220	275	300A	215H
6	245H	250H	285H	260H	300H	335	300	300H	245	245H	225	220	245	215	245H	245H	245H	250A	275A	250	250A	250H	260H	300H
7	260	235H	230	275H	275H	270	270AH	295	C	C	C	C	C	C	C	C	C	240	240	205A	200A	245	245H	250H
8	270H	255H	260	245	E290A	350	335	260	230	250H	E245B	230	230	215	I230B	240	250H	240	245	240	235	210	245	245
9	240	230	240	250	200	270	340	290	245	245	C	C	250	240	I235C	230	250H	250	240	240	215H	250	240H	250H
10	250	240	235H	245	260	335	350	240H	245	245H	240	230	I235B	240	245H	245H	250	250	245H	245	245	245	245	250
11	240	220	225	290	275	285	295	255	250	245	240H	S	C	C	C	230	250H	245H	250	255	250	250	245	250
12	250	245	250	335H	305	295	270	250	240	245H	215	B	A	A	A	A	250H	250H	250	245	250	245	250	250
13	250	250	245	220H	225	310	295H	275	245	240	245H	240	B	A	A	A	A	255H	250	240	240H	I250C	260	260
14	285	245	205	290H	250	300	385	295	245	240H	240	245	240H	240	245	245	240	245H	240	250	240	245	250H	235
15	225	310	300	300	245	225	280	275	250	245	235	240	245H	240	245H	C	C	245H	E250A	245	210A	240	240	250
16	240H	300H	275H	300H	290H	270	300H	270	240	235	230	220	250H	250H	250H	250H	250H	250H	250A	250	245	245	245	245
17	255	245H	245	270H	320H	355	330	270	245	245	240H	210	215	245H	245	A	A	250A	230AH	250	250H	240	240	255
18	260	305H	300	305H	300H	295H	310H	250	240	240	225	245H	225	225	240H	240	240	250H	245H	245	245	245H	250	250
19	220	255	270H	250	230H	300	385	250	I245C	245	240	245	240	E245A	A	A	250H	245	250	260A	260H	240	225	245
20	265	270	260	245H	250H	350H	365H	245	225	235	240	I230A	220	E240B	240	240	250	250H	255	250	245	230	250	260
21	260	235	230H	255	245	280	295H	255	225	240H	230	245	B	245	I245A	245H	250H	240	255H	280	E300A	260H	220	250
22	245	300H	320H	295	240	210	270	260	245	245	240H	I240S	235	240	I240A	245H	250H	250	250	240	260H	245	250	280
23	300	250H	250	265	240	230H	240	250	230	220H	240H	245	I240A	A	A	240	250H	250	250	240	220	230	225	240
24	235	230	250H	295H	255H	345H	430H	260	210	220	240	250H	245	230	240	240H	245H	250H	255	255	240	260	295H	230
25	210	250H	280	250	245A	255H	265	270H	245	240	240H	235	250H	240H	235	250H	245H	250H	250	250	260	240	235	215H
26	245H	250H	270H	265H	250	260H	245	250	240	230	240H	A	A	A	250H	A	A	250H	250H	245	245	230	230	240
27	240	240H	250	245	230	250H	245	230	220	215	240	245H	225	B	A	A	A	E270A	E250A	255	250H	240H	265	250H
28	235	240	235	245	225	235	340	265	245	245	I240C	240H	240	I240B	245	A	A	240	245	245	240	245	245	250
29																								
30																								
31																								
Mean Value	250	250	255	270	265	300	310	270	240	240	235	235	235	235	240	240	245	245	245	245	240	245	245	250
Median Value	250	250	250	265	250	300	300	270	245	245	240	240	240	240	240	240	250	250	250	245	245	245	245	250
Count	28	28	28	28	27	28	28	28	27	27	25	22	21	19	20	18	20	27	28	28	27	28	28	28

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0830

h'F

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

Y 5

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

IONOSPHERIC DATA

Feb. 1957

type of Es

135° E Mean Time

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					f	f		f									c				f			f
2										c		c				c	c	c	f	f	f		f	f
3						f	f	f		l	l	c	c	c	c	c	l	l		f	f	f		
4								f				c	c				l							
5						f				c	c	c	c	c	c	c	c	h			f	f	f	f
6	f	f	f	f		f		f	l	c	c		c	c		h	h	l	f	f	f	f	f	f
7	f	f	f	f	f	f	f	f										h	f	f	f	f	f	f
8	f	f	f	f	f	f	f	f							c	l	c	c	f	f	f	f		f
9			f			f	f											c	f	f	f	f		
10					f			f		c	c	c				c	c	c	f	f	f	f		
11								f	c	c	c	l				c	c	h	f	f	f	f	f	
12						f		f	h	c	c		h	h	c	c	c	c	f	f				
13											c	l h		c	c	c	c	c	f	f	f			
14		f		f	f					c	c	c	c	c	c	c	c	c		f	f	f		
15			f	f	f	f	f	f		l		c			h			c	f	f	f	f		f
16								f	g	c	c			c	h	c	h	c	f	f	f	f	f	f
17	f	f	f								h	c			h	h	c	c	f	f	f	f	f	f
18							f	f	l	l			l			c	c			f			f	f
19	f	f	f	f	f			f		c	h	h	c	c	c	c	c	c	f	f	f	f		f
20	f		f					f	c	l	l	l		c	c	c	c	c	f	f	f			
21			f	f	f	f				c	c	c	lc		c	c	c	c	f	f	f	f	f	
22						f			c		c	lc	c	c	c	c	c	c	f	f	f	f	f	f
23	f	f	f	f	f	f	f		l		c	c	c	c	c	c	l	c	f	f		f		
24						f				c	c	c	c	c	l	c	l	c	f	f				
25		f	f		f						c	c	c		c			h	f	f	f	f	f	f
26			f	f	f	f	f		h	c		c	c	c		h	c	c	f	f	f	f	f	
27								f			c				c	c	c	c	f	f	f	f	f	
28		f								c						c	c	c l	f	f	f	f	f	f
29																								
30																								
31																								
Mean Value																								
Median Value																								
Count																								

Note: Observation was carried out every 30 minutes during 18th, 0900 - 28th, 0830

type of Es

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

Y 6

SOLAR RADIO EMISSION

February 1957

Observing Station: HIRAISO Frequency: 200 Mc/s.

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

Daily Data

Date	Steady Flux		
	00-03	03-06	Daily Averages
1	14	15	15
2	13	12	13
3	14	12	13
4	11	12	12
5	11	9	10
6	17	15	16
7	16	14	15
8	14	20	17
9	11	12	11
10	18	13	16
11	17	15	16
12	10	10	10
13	16	18	17
14	17	20	18
15	16	20	18
16	15	10	13
17	20	16	18
18	15	17	16
19	-	23	(23)
20	12	10	11
21	10	12	11
22	(15)	(18)	(16)
23	(16)	(17)	(17)
24	(18)	(21)	(20)
25	(18)	(12)	(15)
26	15	13	14
27	81	32	60
28	27	20	22

Outstanding Occurrences

Date	Starting Time	Duration	Type	Peak Flux	Time	Remarks
6	0243-30s	30s	SD	120	-	
7	0532	2m	SD	380	0532-30s	some bursts followed
8	0134 ⁎	30s ⁎	SD	710	-	
9	0133-30s	1m	SD	420	-	
	0629-30s	3m30s	CD	1000	0630	1st peak
				60	0632	2nd peak
10	0318 ⁎	2m	CD	1100	0319	
	2241	16m	SD	95	2246	peak of 1st part
		7m		12	2301	post increase
		8m		11	2306	dit
14	0425	2m	SD	1200	0426-30s	
	0429-30s	1m	SD	710	-	
	2358	1m	SD	530	(2358)	
15	0625	4m	SD	380	0626-30s	
17	0337-30s	2m	SD	130	0338	
	0421	2m	SD	270	0421	
20	0731-30s	5m	CD	500	0732	1st part
				160	0733-30s	plus part
27	noise storm observed from sunrise to 03h					
28	0011#	36m#	CD	310	0032	1st peak
				130	0045	2nd peak
			with some residual flux for about 60 minutes			

⁎: inaccurate with the order of ± 1 minute.
#: obscure start and end.

IONOSPHERIC DATA IN JAPAN FOR FEBRUARY 1957
電 波 観 測 報 告　才9巻 才2号

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