

551.510.535.05 (52) (047.3)

IONOSPHERIC DATA IN JAPAN

FOR MAY 1949

Vol. I No. 5

Issued in June 1949

Prepared by THE ELECTRICAL COMMUNICATION LABORATORY

(Denki-Tushin Kenkyujo)

MINISTRY OF TELECOMMUNICATIONS

TOKYO, JAPAN

THE ELECTRICAL COMMUNICATION LABORATORY

(Denki-Tushin Kenkyujo)

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FOREWORD

Although we have had long period of experience on the ionospheric observations in Japan since 1931, it was unable to publish the results of the observations as restricted by the military officials of the past.

Japan is not allowed to become a member of the International Telecommunication Conference. However, in accordance with the Recommendation of C.C.I.R., we send our results of the ionospheric observations and on radio propagation to the main organizations concerned with radio propagation hereafter.

Symbols and presentation in this report were used in accordance with the Recommendation No. 6 of C.C.I.R. Stockholm 1948: Standardization of Symbols and presentation of Results of Ionospheric Soundings Annex 1-5.

We will be very much appreciated to receive the similar publications from the organizations concerned with radio propagation in the world.

June, 1949

Goro Yoshida, Dr. Eng.

Director of

The Electrical Communication Laboratory,

Ministry of Telecommunications,

Tokyo, Japan

SITE OF THE IONOSPHERIC STATIONS

Ionospheric observation is carried out at five stations in Japan.

The stations are situated as follows:

	longitude	latitude	site
Wakkanai	141° 41.1' E	45° 28.6' N	Wakkanai-machi, Soya-gun, Hokkaido
Fukaura	139° 54.1' E	40° 36.6' N	Fukaura-machi, Nishitugaru-gun, Aomori-ken
Shibata	139° 15.8' E	37° 75.0' N	Seiro-mura, Kitakanbara-gun, Niigata-ken
Kokubunji	139° 29.3' E	35° 42.4' N	Koganei-machi, Kitatama-gun, Tokyo-to
Yamagawa	130° 37.7' E	31° 12.5' N	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

REMARKS ON SYMBOLS

Except both $f_{\min} E$ and $f_{\min} F$, other symbols are used in accordance with recommendation of C.C.I.R. $f_{\min} E$ and $f_{\min} F$ in the table are defined as follows:

- Z_d . Half breadth of the layer, calculated by the method of Booker.
- $f_{\min} E$ Minimum frequency, on which echo reflected from E-layer begins to appear by use of the observation equipment on routine work.
- $f_{\min} F$ Minimum frequency, on which echo reflected from F-layer begins to appear by use of the observation equipment on routine work.

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949		135°E Mean Time													Wakkanai					Lat. 45°23.6'N Long. 141°41'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	25
1	B (7.6) ^B	7.0	7.0	6.4	6.9	7.4	9.7	C	C	10.3	(10.0) ^C	9.6	(10.0) ^B	10.4 ^F	10.2	9.4	9.1	8.7	7.8	B	B	B	B	B	(7.3) ^B
2	(7.6) ^B	7.8	7.1	7.0	7.0	8.5	10.3	10.8	10.8	B	B	10.0 ^C	10.7	10.9	10.7	10.4	10.5	9.6	9.0	9.2 ^P	8.1	7.9	(7.2) ^B	7.8	7.8
3	7.1	7.0	7.0 ^T	6.9	7.0 ^T	7.0 ^T	B	8.8	8.2	(8.3) ^C	8.4	8.2 ^C	9.4	9.3	9.3	9.2	9.5	8.5	7.8	7.8	7.7	7.6	7.7	7.3 ^P	7.3 ^P
4	7.1 ^T	7.0	6.5	6.5	6.4	8.1	8.1	(8.5) ^B	8.9	(8.8) ^C	8.6	(8.8) ^C	9.0 ^T	C	C	C	C	C	8.3	8.0	7.0 ^S	5.8	6.1	6.4	6.4
5	6.5 ^S	6.4	6.2	6.1	6.4	8.4	8.4 ^P	8.4	C	C	10.2	10.1	9.9	9.9	9.7	9.4	9.1	9.1	B	B	B	7.6	7.6	(7.6) ^B	(7.6) ^B
6	7.6	7.0	6.6	6.3	5.7	7.4	9.3 ^F	8.3	6.9	7.1 ^N	(7.3) ^E	7.4 ^N	C ^N	B ^N	C ^N	3.2 ^B	8.6 ^N	8.4 ^N	8.2	S	S	S	S	8.0	7.5
7	(7.2) ^B	6.9	6.4	6.2	6.9	7.4	8.9	9.6	9.5	9.1	8.3	9.7	10.1	9.8	9.8 ^T	10.0	10.0	9.2	8.7	C	C	B	B	7.6	7.6
8	7.6	7.7	7.5	6.7	6.7	7.9	8.9	10.4	9.8	9.2	10.0 ^F	10.6	11.4	11.3	10.4	10.1	10.6	9.8	10.4	9.8	(8.8) ^B	7.8	7.8	7.8	8.7
9	6.8	7.4	7.3	7.4	7.4	8.3	9.2	10.2	10.1 ^T	9.5	9.1	9.7	10.0	10.0	10.3	10.3	9.9	8.9	C	C	7.4 ^S	(7.3) ^S	7.1	(6.9) ^B	(6.9) ^B
10	6.7	7.2	7.0	7.0 ^T	6.2	8.2	9.6	9.6	10.8 ^F	10.9	10.7	10.0	10.3	10.5	10.5	10.6 ^B	10.7	10.1	10.1	9.0	(8.6) ^S	8.1	(8.0) ^S	7.9 ^T	7.9 ^T
11	(7.8) ^B	7.5 ^F	7.6	7.4	8.3	8.0	10.0	10.6	9.8	9.7	10.0	9.7	C	C	C	C	C	C	B	B	B	B	B	B	7.6
12	8.0	(7.8) ^B	7.5	7.4	7.5	7.6	10.0 ^T	10.2	9.8	11.2	(10.5) ^C	9.8	9.8	9.3	9.3	9.3	9.5 ^S	(8.0) ^S	7.5	(7.6) ^S	7.6	7.8	5.9 ^S	(4.3) ^B	(4.3) ^B
13	2.6 ^N	2.7 ^N	1.6 ^N	2.0 ^N	2.5 ^N	3.5 ^N	4.4 ^N	4.1 ^N	4.8	C ^N	C ^N	C ^N	C ^N	C ^N	C ^N	C ^N	C ^N	C ^N	C ^N	5.0 ^N	C ^N	B ^N	C ^N	C ^N	C ^N
14	5.2 ^N	4.9 ^N	5.4	5.5	5.7	6.5	7.6	8.1	7.6	8.1	8.5	8.3	8.8	8.5	9.2	9.0	8.7	B	B	B	B	7.1 ^T	A	A	A
15	7.8 ^F	7.0 ^F	6.3 ^F	6.2 ^F	6.3 ^F	7.6	7.9	C	C	C	C	C	C	C	8.3	8.3	8.2	8.2	8.2	8.1	C	B	A	6.8	6.8
16	6.4	B	B	6.1	6.9 ^F	8.0 ^F	9.5 ^T	9.2 ^T	C	C	10.0	10.2 ^T	10.2	9.7	9.3	9.1	8.5	8.5	S	S	8.6	6.7	6.5	S	S
17	B	B	6.1	5.8	5.9 ^F	6.2 ^N	6.1 ^N	(6.0) ^N	(6.4) ^N	6.7 ^N	6.6 ^N	(7.0) ^N	7.4 ^N	C	C	C	C	C	B	B	B	B	B	B	B
18	7.4	7.6	6.9	6.5	6.6	7.1	7.6	8.6	7.2 ^N	6.8 ^N	7.5 ^N	7.6 ^N	8.0 ^N	C	C	C	C	C	B	B	B	B	B	B	B
19	7.3	7.5	7.5	7.0	7.7	8.3	10.0	10.7	9.8	10.1 ^T	(10.4) ^F	10.6	10.5	10.5	10.5	10.5	10.3	8.7	B	B	B	B	B	B	B
20	7.9	7.5	7.3	7.5	(8.5) ^B	9.4 ^F	10.3	10.1	9.6	B	B	(9.2) ^F	10.5	10.5	10.5	10.5	10.3	8.7	B	B	B	B	B	B	B
21	7.3 ^T	7.4	7.3 ^T	7.2	7.7	8.2 ^F	9.2 ^T	10.1	9.6	9.0	8.5	8.4 ^F	8.6	9.0	9.2	(9.3) ^C	9.3	9.0	S	S	7.5	7.4	(7.3) ^B	7.1	7.1
22	6.9	(7.3) ^S	7.6	6.8 ^T	(7.5) ^S	8.1	9.0	8.6	8.2	8.2	8.5	8.6	8.7	8.9	9.1	9.6	9.9	9.6	8.5 ^P	8.5 ^P	8.6	(8.3) ^B	7.9	8.0	8.0
23	8.2	8.1	7.4	6.1	(6.8) ^C	7.4	7.6	6.3 ^N	6.8 ^N	(6.6) ^B	6.3 ^N	6.0	6.1 ^X	5.9 ^N	6.3 ^N	(4.9) ^N	6.5 ^N	7.8 ^N	B	B	B	7.0 ^T	B	B	B
24	6.9 ^T	6.4 ^T	6.3	6.3	6.4	7.9	8.4 ^F	9.6	9.8	8.8	C	C	C	C	C	C	C	C	C	C	C	S	S	7.6	7.6
25	7.6	7.7	6.9	6.9	6.9	7.7	7.6	8.2	7.8	C	C	C	C	C	C	C	C	C	7.8	C	C	S	S	S	S
26	6.6	6.8 ^F	6.7 ^F	6.1	6.1 ^F	8.3	8.9	8.2	7.7	(8.1) ^C	8.4	C	C	B	7.7	7.5 ^T	7.3	7.4	7.6	7.7	7.9	8.1	7.7	7.7	8.3
27	8.1	8.0	6.6	6.4	6.5	8.4	(8.5) ^S	8.6	8.3	8.2	C	C	C	C	C	8.3	7.8	8.1	B	C	C	C	C	6.7	6.7
28	(6.9) ^N	7.0 ^B	6.7	6.7 ^T	7.1 ^T	8.3 ^B	(9.0) ^B	9.7	B	C	C	C	C	C	C	7.7	7.9	8.0	A	A	7.6	7.6 ^F	8.2	(7.5) ^S	7.4 ^T
29	7.6	6.8	6.2	6.3	B	8.9	9.5 ^F	8.6	8.6	7.1 ^T	7.2	8.0	8.1	8.1	7.8	7.6	7.9	8.0	A	8.1	8.1	(8.2) ^S	8.2	8.0	8.2
30	8.0	7.8	7.6	6.7	8.2	8.2	8.4	9.3	9.6	9.3	C	C	C	C	C	C	C	C	C	8.1 ^P	B	B	B	B	B
31	7.8 ^F	7.2	7.6 ^T	6.7	6.4	7.0 ^T	7.7	8.6	8.4	C	C	C	C	C	C	8.1	7.7	8.1	7.7 ^P	6.9 ^T	(7.3) ^S	7.6	7.6	7.6	7.6
Median Value	7.3	7.3	7.0	6.7	6.9	8.0	8.9	9.2	8.8	8.8	8.5	9.2	9.8	9.7	9.3	9.2	9.0	8.6	8.2	8.0	7.8	7.6	7.7	7.7	7.6
Count	29	28	30	31	30	29	30	29	26	22	20	20	19	17	19	24	23	22	18	15	14	17	17	17	22

Sweep ——— Mc to ——— Mc in ——— min Manual

W I

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawaku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

hp F₂

Wakkanai

Lat. 45°23.6'N
Long. 141°41.1'E

Day	135°E Mean Time											20	21	22	23												
	00	01	02	03	04	05	06	07	08	09	10					11	12	13	14	15	16	17	18	19			
1	B	B	370	380	410	360	350	C	370	(390) ^C	410	(400) ^B	360	340	340	340	320	320	B	B	B	B	B	B	B	B	(350) ^B
2	(370) ^B	(380) ^S	360	370	420	440	340	330	B	B	370 ^K	(380) ^I	360	340	350	340	350	330	350	330	330	350	330	340	(300) ^B	260	(300) ^B
3	420	390	440 ^J	440	420 ^J	B	B	350	(360) ^C	370	380 ^J	420	370	370	350	320	300	320	320	310	390	380	350	380	350	350	350
4	390 ^J	410	400	430	410	390	300	(340) ^B	380	(390) ^C	400	(410) ^C	420 ^J	C	C	C	C	C	310	340	380 ^J	400	420	410	410	410	
5	400 ^S	390	420	450	410	340	310 ^P	360	C	C	C	370	330	310	310	290	320	320	B	C	B	B	B	B	350	(410) ^B	
6	460	440	420	420	400	420	300 ^P	360 ^K	300	280	B	B	C	C	C	350 ^K	340 ^K	310 ^K	C	S	S	S	S	S	390	B	390
7	B	400	400	410	410	360	330	360	310	320	410	410	390	360	370	420	370	340	320	C	B	B	B	B	B	B	410
8	420	430	410	440	440	350	360	360	310	360	380 ^P	390	380	370	360	340	400	380	320	(350) ^B	370	420	420	420	420	420	420
9	350	430 ^J	380 ^J	410	440	360	370	320	350 ^J	310	380	390	400	390	400	350	340	370	C	C	S	S	S	400	(400) ^B	400	400
10	400	400	430	430 ^J	370	350	320	400	360 ^P	380	400	350	400	390	400	370	330	370	310	(350) ^S	380	(390) ^S	400	400	400	400	400
11	(380) ^S	430 ^P	440	390	390	300	310	340	340	400	410	410	C	C	C	C	C	C	C	C	B	B	B	B	B	B	390
12	400	(410) ^B	420	430	420	340	340 ^J	330	350	400	(400) ^C	390	380	390	380	360	(340) ^A	320	350	(510) ^S	650	500	430 ^K	(470) ^B	470	(470) ^B	
13	510 ^K	540 ^K	A	A	500 ^K	270 ^K	320 ^K	(320) ^A	320	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	450 ^K	460 ^K	440	380	330	310	330	350 ^B	380	350	370	370	410	390	380 ^J	350	370	B	B	B	B	B	B	B	B	B	A
15	B	320 ^F	310 ^F	420 ^F	440 ^F	380	300	C	C	C	C	C	C	C	C	430	380	360	340	370	380	C	B	A	A	420	
16	410	B	B	400	410 ^F	360	360 ^J	370 ^J	C	C	C	420 ^J	410	390	350	370	370	370	350	(370) ^B	350	B	B	B	B	B	B
17	B	B	410	410	430 ^K	370 ^K	420 ^K	(430) ^B	(430) ^A	420 ^K	430	(420) ^B	410	380	390	360	350 ^K	380	(370) ^B	350	B	B	B	B	B	B	B
18	480	420	390	370	360	350	320	390	320	(360) ^K	390	420	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	490	420	410	390	370	310	330	350	320	B	C	410	(420) ^J	420	430	380	420	390	B	B	B	B	B	B	B	B	B
20	380	370 ^S	380	410	(380) ^S	340	360	360	330	B	B	(310) ^J	C	B	390	370	400	400	C	C	C	C	C	C	C	C	C
21	410 ^J	410	390 ^J	400	410	400 ^P	400 ^P	380	390	350	380	400 ^P	410	350	320	(360) ^C	400	340	S	S	390	410	(420) ^B	420	420	420	
22	400	(370) ^S	940	390 ^J	(370) ^S	350	340	320	330	390	310	400 ^B	400	400	350	340	390	390	340	380 ^P	460	(430) ^B	390	390	390	390	
23	410	410	350	370	(400) ^C	420	440	500 ^K	440	(450) ^B	460	(480) ^B	490	490 ^J	(440) ^S	390	370 ^K	B	B	B	B	B	B	B	B	B	B
24	400 ^J	400 ^J	380	400	410	400	360 ^J	370	340	370	C	C	C	C	C	C	C	C	380	B	S	S	S	S	S	S	450
25	400	390	360	390	400	360 ^J	380	450	440	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	S
26	450	530 ^P	520 ^P	530	420 ^P	370	340	400	390	(390) ^C	390	C	B	380	380 ^J	330	370	390	330	(340) ^B	350	380	400	400	400	400	400
27	380	410	410	460	490	480	(420) ^J	360	340	A	C	C	C	C	C	C	A	360	390	B	C	C	C	C	C	C	B
28	(340) ^B	350	330	400 ^J	410 ^J	340 ^B	(360) ^B	370	(400) ^B	C	C	C	C	C	C	430	A	B	A	B	A	390 ^P	390	(390) ^F	390	390	390
29	380	440	350	400	B	B	350	390 ^F	340	390 ^J	330	380	380	400	370	(350) ^S	330	360	370	330	(360) ^B	380	390	460	460	460	
30	390	410	390	350	400	370 ^B	360	360	330	360	C	C	C	C	C	C	C	C	C	C	C	300 ^P	B	B	B	B	B
31	400 ^F	420	400 ^J	410	410	410 ^J	490	400	400	C	C	C	C	C	C	C	370	360	340	340 ^P	320 ^J	(370) ^S	410	410	410	410	B
Mean Value	400	410	400	410	410	360	350	360	350	370	390	400	400	390	380	390	360	350	350	340	340	360	390	390	390	390	400
Count	27	28	29	30	30	29	30	29	27	20	18	19	19	17	19	23	23	22	18	14	13	16	17	21	21	21	21

Sheep: 1.0 Mg to 17.0 Mg in 15 min

Mean

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Denki Tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Lat 45° 23.6' N
 Long 141° 41' E

Wakkanai

h_pF₂

May 1949

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	290	270	300	300	290	300	C	C	330	360 ^F	320	370	330	320	320	260	260	270	270	270	240	290	300	
2	290	300	270	280	300	250	260	270	280	290	300	310	260	310	310	290	310	220	240 ^A	240	270	270	270	170 ^A	
3	300	300	320	300	330	300	280	300	320	280	350	320	400	290	320	310	290	250	280	260	280	290	300	280	
4	290	290	300	300	300	280	260	250	300	300	300	380 ^F	380	C	C	C	C	C	C	260	250	270	320	310	
5	300	320 ^A	320 ^A	340 ^A	320	240	240	310	280	280	300	290	270	270	300	300	250	260	260	270	250	260	260	270	
6	300	330	320	300	330	270	230	230 ^K	270 ^K	240 ^K	350 ^K	420 ^K	420 ^K	410 ^K	390 ^K	340 ^K	270 ^K	260 ^K	280 ^K	260	250 ^A	260 ^A	300 ^A	280	
7	300 ^A	300	310	300	300	270	300	300	300	300	400	400	350	320	320	350	300	280	280	280	260	260	310 ^A	300	320
8	320	310	300	310	360	280	280	300	290	290	350	310	310	300	310	300	290	280	270	270	300 ^A	320 ^A	320	250	
9	270	320 ^A	270	290	310	300	270	290	300	270	320	340	350	320	320	310	270	290	C	C	280	290 ^S	300	300 ^A	
10	300 ^A	300 ^A	300 ^A	300	300	270	260	230	320	310 ^A	300	300	370	330	350	290 ^B	290	280	280	280	260	260	260	260	
11	280	300	310	290	300	280	270	270	300	300	330	330	C	C	C	C	C	C	C	C	300	300 ^A	A	A	
12	A	300	310	300	310	300	260	270	260	350	300	370	370	350	360	340	A	A	300	300	420	400	350 ^A	370 ^K	
13	470 ^K	A ^K	A ^K	A ^K	A ^K	500 ^K	210 ^K	300 ^K	230 ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	350 ^K	340 ^K	330 ^K	330 ^K	350 ^K	
14	360 ^K	360 ^K	340	280	270	230	260	300	380	330	360	370	390	380	370	310 ^A	300	310 ^A	300	310	280	260	260	A	A
15	A	280 ^A	290 ^F	350 ^A	260	330	290	C	C	C	C	C	C	C	C	C	C	C	C	C	300	300 ^A	A	A	
16	380	300	300	300	250 ^A	250	280	260	360 ^F	340	350 ^A	390	400	390	390	340	330 ^A	320	300	280	280	290	300	310	
17	310	310	300	300	370 ^K	320 ^K	410 ^K	430 ^K	430 ^K	420 ^K	430 ^K	420 ^K	410 ^K	360 ^K	380 ^K	330 ^K	350 ^K	330	390	270	290 ^F	300	300	A	
18	A	310 ^A	310 ^A	290	280	290	270	390	290 ^K	340 ^K	390 ^K	390 ^K	C	C	C	C	C	C	C	300	300	290	300	300	
19	300	310	300	300	300	260	280	300	270	360	350 ^F	330	390	360	390	340	350	350	290	270	300 ^A	310 ^A	310 ^A	310 ^A	
20	310 ^A	280	300	300	310	290	280	270	280	A	A	340 ^F	A	C	C	340	290	280	300 ^A	C	C	C	C	C	
21	A	310	300	290	300	280	310	300	310	300	350	380	380	400	380	350 ^F	310	300	290	270	270	310	320 ^A	330	
22	290	300	270	230	310	290	290	300	320	370	400	400	400	370	330	320	360	350	280	300	310	300	300	310	
23	320	360 ^T	310	290	A	A	390	500 ^K	440 ^K	450 ^K	450 ^K	480 ^K	G ^K	490 ^K	490 ^K	400 ^K	380 ^K	330 ^K	300	280	290 ^A	300	300 ^A	300	
24	300	310	300	310	280	270	270	240	310	300	C	C	C	C	C	C	C	C	C	A	300	250	230	300	
25	310	300	290	290	280	300	350	360	380 ^S	C	C	C	C	C	C	C	C	C	C	C	A	300 ^A	350	370	
26	320	410	350	360	350	320	300	390	370	350 ^F	320	C	C	C	300	330	320	330	300	310 ^A	350	300 ^A	280	300	
27	300	310	290	310	290	380	350	330	A	A	C	C	C	C	C	A	300 ^A	310	A	C	C	C	300	310	
28	290	280	260	300	290	280	300	300	330	C	C	C	C	C	C	380	A	A	A	A	280	280	280	290	
29	290	1290 ^T	290	310	390	380	280	290	330	300	300	360	350	350	360	350	280	310	270	290	300	300 ^A	300 ^A	290	
30	290	300	270	260	270	270	250	310	260	280	C	C	C	C	C	C	C	C	C	C	260	270	280	260	
31	300	300	300	300	290	390	420	380	370	C	C	C	C	C	C	340	360	290	300	280	290	320	310	310	
Mean Value	300	300	300	300	300	290	280	300	300	300	350	370	380	350	340	340	300	300	290	280	260	270	280	300	300
Count	27	30	30	30	30	30	31	29	28	24	22	22	19	19	15	23	22	22	22	25	26	27	28	27	26

Sweep 1.0 Mc to 1.0 Mc in 15 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Lat. 45°23.6'N
 Long. 141°41.1'E

Wakkanai

May 1949

f_oF₁

Day	135°E Mean Time											Wakkanai												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						Q	L	C	C	S	L	B	L	B	L	L	Q	Q	Q	Q	Q			
2						Q	L	L	L	B	L	L	Q	L	L	L	L	L	L	L	L			
3						Q	L	L	L	L	L	L	4.9	L	L	L	L	L	L	L	L			
4						L	B	Q	L	L	Q	C	5.6	C	C	C	C	C	C	C	C			
5						Q	Q	5.0	L	L	L	L	L	L	L	L	L	L	L	L	L			
6						Q	Q	Q	Q	5.5	L	5.2	L	L	L	L	L	L	L	L	L			
7						Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L			
8						Q	L	L	L	B	L	L	L	L	L	L	L	L	L	L	L			
9						Q	Q	Q	L	L	L	Q	4.8	L	L	L	L	L	L	L	L			
10						L	Q	Q	L	L	L	L	B	B	B	B	L	L	L	L	L			
11						Q	L	Q	L	L	5.6	5.0	C	C	C	C	C	C	C	C	C			
12						Q	Q	Q	Q	5.7	L	A	L	5.8	A	A	A	A	A	A	A			
13						Q	Q	Q	Q	C	C	C	C	C	C	C	C	C	C	C	C			
14						Q	L	L	L	L	4.9	Q	L	Q	Q	A	L	A	A	A	A			
15						L	L	C	C	C	C	C	C	C	L	L	L	L	L	L	L			
16						Q	L	Q	C	A	A	A	A	A	A	A	A	Q	L	L	L			
17						L	4.1	4.5	[4.9] ^A	5.2	5.4	5.0	5.0 ^S	5.3	[5.3]	5.2	5.1	L	L	L	L			
18						Q	Q	A	Q	A	5.5	L	C	C	C	C	C	C	C	C	C			
19						Q	L	L	Q	A	C	L	5.7	5.6	L	L	L	L	L	L	L			
20						Q	Q	Q	L	A	A	5.4	A	A	5.0	A	Q	Q	Q	Q	C			
21						Q	L	L	L	L	5.9	5.5	5.5	5.3	5.4	[5.0] ^C	4.6	L	L	L	L			
22						L	L	L	L	5.5	5.6	5.4	[5.5] ^L	5.5	L	L	L	L	L	L	L			
23						A	4.4	5.0	4.9	A	A	B	5.3	A	A	Q	L	L	L	L	L			
24						Q	Q	Q	Q	Q	C	C	C	C	C	C	C	C	C	C	C			
25						L	4.2	4.6	A	C	C	C	C	C	C	C	C	C	C	C	C			
26						L	L	Q	L	C	Q	5.5	5.1	A	L	A	A	A	A	A	A			
27						L	Q	4.8	A	A	C	C	C	C	C	C	A	L	L	L	L			
28						L	L	L	L	C	C	C	C	C	C	L	A	A	A	A	A			
29						4.9	Q	Q	L	L	Q	4.7	5.2	5.4	[5.1] ^L	4.8	4.0	L	L	L	L			
30						Q	Q	L	L	L	C	C	C	C	C	C	C	C	C	C	C			
31						L	4.9	L	Q	C	C	C	C	C	C	C	4.9	L	L	L	L			
Mean Value						-	-	4.8	-	5.6	5.4	5.3	5.4	5.3	-	-	-	-	-	-				
Count						1	4	5	3	8	7	12	5	5	4	3								

Sweep 1.0 Mc to 1.0 Mc in 1.5 min

Manual

May 1949

f₁

Wakkanai

Lat. 45° 23.0' N
Long. 141° 41.1' E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1					Q	Q	Q	C	C	Q	C	230	[220]A 210	[240]B 260	Q	Q	Q	Q	Q						
2					Q	Q	250	230	250	220	A	A	Q	220	210	230	Q	Q	A	Q					
3					Q	260	[250]B	230	250	220	210	210	210	210	210	210	210A	210	Q	Q					
4					250	220	Q	Q	210	B	Q	C	210	C	C	C	C	C	Q	Q					
5					Q	Q	270	Q	250	230	210	210	210	220	220	Q	220	230	250	Q					
6					Q	Q	Q	Q	Q	Q	250	B	A	A	C	B	Q	220	250	Q					
7					Q	250	280	250	240	210	220	220	A	210	[260]B	300	Q	Q	Q	240					
8					Q	Q	Q	Q	240	210	[220]A	220	A	A	A	220	A	Q	Q	A					
9					Q	Q	Q	Q	Q	230	220	Q	220	220	220	230	220	250	C	C					
10					260	Q	Q	Q	230	[240]A	220	210	B	B	B	B	270	260	260	Q					
11					Q	250	Q	Q	230	250	270	210	C	C	C	C	C	Q	Q	Q					
12					Q	Q	Q	Q	Q	280	200	A	A	A	A	250	A	A	Q	Q					
13					Q	Q	Q	Q	Q	C	C	C	C	C	Q	C	C	C	C	Q					
14					Q	210	220	Q	Q	200	200	Q	A	Q	Q	A	A	A	Q	Q					
15					270	270	C	C	C	C	C	C	C	C	C	A	250	240	260	Q					
16					Q	220	Q	C	C	Q	A	A	A	A	A	A	Q	300	260	Q					
17					290	270	250	A	A	A	250	230	[230]B	230	290	230	260	A	Q	Q					
18					Q	Q	A	A	A	A	A	A	C	C	C	C	C	C	240	A					
19					Q	250	A	Q	Q	A	C	280	270	240	B	A	A	300	300	Q					
20					Q	Q	Q	Q	240	A	A	230	A	A	A	220	A	Q	Q	C					
21					Q	290	280	280	280	230	B	A	200	230	220	[230]C	230	240	Q	Q					
22					230	230	230	270	280	220	200	200	200	290	200	200	Q	Q	250	Q					
23					A	300	B	A	A	A	A	200	A	A	A	Q	230	220	250	Q					
24					Q	Q	Q	Q	Q	Q	C	C	C	C	C	C	C	C	A	A					
25					270	260	A	C	C	C	C	C	C	C	C	C	C	C	Q	Q					
26					290	280	Q	B	C	Q	220	A	A	A	A	230	A	A	A	A					
27					250	Q	A	A	A	C	C	C	C	C	C	A	A	240	A	A					
28					240	210	220	220	C	C	C	C	C	C	C	A	A	A	A	A					
29					290	Q	A	A	A	220	Q	200	200	220	210	200	230	240	Q	Q					
30					Q	Q	270	210	210	C	C	C	C	C	C	C	C	C	C	Q					
31					280	280	290	Q	Q	C	C	C	C	C	C	C	270	250	220	260	Q				
Mean Value					270	260	250	240	220	220	220	210	210	220	220	230	230	240	250						
Count					11	19	12	14	13	13	14	11	11	11	12	12	11	13	18						

Sweep 1.6 Mc to 17.0 Mc in 15 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Denki Tsushin Kenkyujo) Gotanda, Shinagawa-ku Tokyo, Japan

IONOSPHERIC DATA

May 1949

ft

Wakkanai

Lat. 45°23.6'N
 Long. 141°41.1'E

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						1.6	2.4	C	C	B	C	A	A	B	B	B	B	A	2.2	A				
2						1.6 ^A	2.5	3.2	3.6	B	B	B	B	3.7	(3.5) ^A	3.2	3.2	3.0	A	A				
3						2.2	2.7	3.5	3.6	3.7	(3.7) ^A	3.7	(3.7) ^B	3.7	A	A	A	2.7	2.3	A				
4						2.0	A	A	3.5	B	B	C	3.8	C	C	C	C	C	2.1	1.7				
5						1.9	2.4	3.5	3.6	3.6	(3.7) ^B	3.7	(3.7) ^B	3.6	(3.7) ^B	3.7	2.0	2.8	2.3	B				
6						2.2	2.8	3.1	3.3	3.5	3.6	B	B	3.6	(3.6) ^C	3.5	3.3	2.7	2.3	B				
7						2.2	2.5	3.1	3.3	B	B	B	3.6	B	B	3.4	3.2	2.5	2.4	A				
8						1.8	2.7	3.2	3.0	3.3	P	B	3.6	B	A	3.0	2.8	2.8	A	A				
9						2.3	A	A	3.5	3.7	3.7	3.7	3.8	A	A	B	B	2.7	C	C				
10						1.9	2.6	(2.9) ^B	3.2	3.5	(3.6) ^B	3.6	B	B	B	B	B	2.0	2.5	A				
11						1.8	2.5 ^A	3.2	3.5 ^A	3.5	3.5	C	C	C	C	C	C	C	2.2	A				
12						B	2.6	A	B	A	A	A	A	A	A	A	A	A	A	2.3	1.5			
13						2.1	A	A	2.8	C	C	C	C	C	C	C	C	C	C	C	1.7			
14						2.1	(2.5) ^A	2.8	3.3	3.4	B	A	A	A	A	A	A	A	A	A				
15						2.2	2.7	3.0	C	C	C	C	C	C	3.7	(3.7) ^A	3.1	(3.9) ^A	2.6	A				
16						A	2.7 ^A	3.2	C	A	A	3.3	A	A	A	A	A	2.6	2.3	2.1				
17						2.2	2.6 ^A	3.0 ^B	3.2	A	B	A	B	B	3.4	3.3 ^B	3.4	3.1	A	A				
18						2.1	2.8	3.0	3.0	3.7	3.6	3.6	C	C	C	C	C	C	A	A				
19						2.4	2.8	3.0	3.4	3.7	C	A	3.6	A	A	A	3.0	(2.6) ^B	2.2	A				
20						2.2	2.8	3.3	3.7	3.6	(3.7) ^A	3.7	(3.7) ^A	3.7	A	A	A	3.3	2.8	2.1 ^A	C			
21						(2.4) ^A	2.7	3.2	3.4	A	A	A	A	A	B	(3.5) ^C	3.3	2.8	1.8	B				
22						2.1	2.8	3.0	3.3	3.6	3.6	3.6	(3.6) ^B	3.6	A	A	A	A	A	A				
23						A	2.4	3.1	3.5	3.6	3.5	(3.5) ^B	3.5	3.5	3.6	3.7	3.3	A	A	B				
24						1.8	2.9	3.3	3.6	3.6	C	C	C	C	C	C	C	C	A	A				
25						2.2	3.0	3.3	3.6	3.6	C	C	C	C	C	C	C	C	C	A				
26						2.1	2.8	3.2	A	C	B	B	B	B	A	B	3.5	3.1	2.6	A	A			
27						2.1	2.9	3.2	3.5	3.6	C	C	C	C	C	A	A	A	2.4	A				
28						1.8	2.9	3.3	A	C	C	C	C	C	C	A	3.3	2.7	2.4	(1.6) ^B				
29						A	3.1	3.6	A	S	A	A	A	B	B	B	2.9	2.5	A	A				
30						2.4	3.2	3.3	3.6	3.7	C	C	C	C	C	C	C	C	C	A				
31						2.5	2.9	3.4	3.6	C	C	C	C	C	C	C	3.5	3.3	2.4	A				
Mean Value						2.1	2.7	3.2	3.5	3.6	3.6	3.7	3.6	3.6	3.6	3.5	3.2	2.7	2.3	1.7				
Count						27	28	26	24	17	10	11	10	7	7	11	15	18	18	5				

Sweep 1.0 Mc to 12.0 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki Tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

May 1949

h_E

Wakkanai

Lat. 45 22.6 N.
Long. 141 41 E

IONOSPHERIC DATA

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	25
1						100	100	C	C	100	C	A	A	100	100	110	100	[100] ^A	100	A					
2						B	100	100	100	100	100	90	110	100	[100] ^A	100	110	100	100	A					
3						[130] ^B	110	100	100	100	[100] ^A	100	100	100	A	A	A	A	100	100	A				
4						130	A	A	100	100	100	[100] ^C	100	100	C	C	C	C	C	100	120				
5						100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
6						110	110	100	100	100	100	100	100	100	[110] ^C	100	100	110	100	100	100				
7						100	110	100	100	110	110	110	110	100	100	100	100	100	100	100	100				
8						100	110	100	100	110	100	100	100	100	[100] ^A	100	110	140	B	A					
9						100	A	A	100	100	100	100	100	A	A	100	110	100	C	C					
10						B	110	100	100	100	100	110	110	B	B	100	100	100	100	A					
11						B	100	[110] ^A	120	A	A	A	A	C	C	C	C	C	C	110	A				
12						100	A	A	120	C	C	C	C	C	C	C	C	C	C	110	B				
13						110	[110] ^A	100	100	100	100	A	A	A	A	A	A	A	A	110	A				
14						110	[110] ^A	100	100	100	100	A	A	A	A	A	A	A	A	100	A				
15						B	120	120	C	C	C	C	C	C	C	C	C	C	C	100	A				
16						A	110	120	C	A	A	100	A	A	A	A	100	[100] ^A	100	[110] ^A	120	A			
17						110	100 ^A	110	100	[100] ^A	100	[100] ^A	100	120	110	110	100	130 ^B	A	A					
18						B	120	120	150	130	110	110	C	C	C	C	C	C	C	A					
19						100	100	100	100	100	C	B	100	A	A	A	A	130 ^B	130	120	A				
20						110	110	100	100	110	110	110	[120] ^A	120	A	A	120	120	120	120	A				
21						A	100	100	100	A	A	A	A	A	100	100	[100] ^C	100	100	110	B				
22						100	100	100	110	100	100	100	110	100	A	A	A	A	A	A					
23						A	130	110	110	110	110	110	100	100	100	100	100	100	A	B					
24						110	110	100	100	110	C	C	C	C	C	C	C	C	C	110	A				
25						110	110	110	100	100	C	C	C	C	C	C	C	C	C	100	A				
26						110	110	100	A	C	100	100	110	[110] ^A	110	100	110	110	110	110	A				
27						110	100	100	100	100	C	C	C	C	C	A	A	A	A	A					
28						110	110	100	A	C	C	C	C	C	C	A	110	110	110	B					
29						A	120	110	[110] ^A	100	A	A	110	[110] ^B	100	100	100	100	A	A					
30						120	110	110	100	100	C	C	C	C	C	C	C	C	C	C	A				
31						100	100	100	100	C	C	C	C	C	C	100	110	110	110	110	A				
Median Value						110	110	100	100	100	100	100	100	100	100	100	100	100	110	110	110				
Count						21	28	27	26	23	17	17	15	14	12	15	18	19	18	19	18				

Sweep 1.0 Mc to 17.0 Mc in 1.5 min Manual

IONOSPHERIC DATA

May 1949

fes

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	G	G	G	G	G	G	G	C	C	B	C	5.1 ^B	B ^{2Y}	B	B	B	B	2.7	G	2.4	2.6	G	G	G	
2	G	G	G	G	G	G	G	3.5	G	5.1 ^Y	5.0 ^Y	5.0 ^B	B	G	4.6	4.5	4.4	G	6.2	3.6	2.6	3.4	4.1	G	
3	3.2	2.2	G	G	G	G	3.0	B	4.8	4.6	4.3	4.7 ^Y	4.8	4.8	4.8	4.7	4.2	4.2	2.6	3.4	2.4	2.0	1.8	1.6	
4	G	G	2.7	2.5	G	G	2.7	3.4 ^B	B	B	B	C	C	C	C	C	C	C	2.4	G	2.2	2.7	3.0	2.8	
5	2.5	3.6	2.8	4.0	3.6	2.5	2.9	G	4.0	G	B	G	B	C	C	G	G	3.6	G	B	G	G	G	G	
6	G	G	G	G	G	G	G	G	3.3	3.7	3.7	4.3	B	5.0	5.0	C	B	4.5	4.4	2.7	B	2.3	3.6	2.7	G
7	4.0	G	G	G	G	G	G	4.2	4.9	4.5 ^Y	B	4.3	G	4.7 ^Y	B	B	4.5	4.0	4.5	3.0	3.7	3.7	G	G	
8	G	G	G	G	G	2.6	3.0	3.8	4.1	5.8 ^Y	5.0 ^Y	B	5.7	5.4 ^Y	5.6 ^Y	4.2	4.8 ^F	G	3.5	6.3	3.4	6.6 ^F	2.4	G	
9	3.3	4.1	2.5	G	G	2.5	2.5	3.6 ^F	G	B	G	3.9	4.2	B	B	B	B	G	C	C	C	1.7	G	G	3.3
10	6.4	2.4	G	G	G	2.2	5.2	5.1 ^Y	3.6	7.6	B	G	B	B	B	B	B	4.1 ^Y	3.8	4.5	3.7	2.5	G	1.8	
11	G	G	G	G	2.4 ^Y	2.2	3.3	3.5	3.7	G	4.8	G	C	C	C	C	C	C	5.0	3.4	4.6	4.4	4.0	7.6	
12	6.2	G	2.3	2.4 ^Y	2.6	3.7	4.3	7.5	5.6	5.0	4.5	5.5	5.6	5.0	5.2	5.8	11.5 ^Y	7.5	G	B	G	G	G	G	
13	2.6	2.7	B	2.0	G	2.3	2.7	3.6	4.5	C	C	C	C	C	C	C	C	C	C	3.6	C	3.6	3.2	C	
14	2.4	2.2	G	G	G	2.3	2.7	5.9 ^Y	B	4.8 ^Y	5.0	5.8	11.6 ^F	9.6 ^F	11.2	11.9 ^F	6.9 ^F	5.6	4.7	2.4	2.7	9.2 ^F	11.3 ^F	11.2 ^F	
15	8.6 ^F	5.6 ^F	5.4 ^F	4.7 ^F	3.0	G	2.9	C	C	C	C	C	C	C	5.6	5.3	G	3.2	4.2	3.3	C	6.2	8.0	4.7	
16	3.6	2.8	B	G	3.6	3.4 ^F	4.2	B	C	5.3	6.7	9.9 ^F	7.0	7.0	7.6	8.0	5.0	5.3	3.4 ^F	3.7	3.2	3.4	3.3	G	
17	G	2.0	G	G	G	G	2.9	4.0	7.2	6.0	B	4.0	B	B	B	B	G	4.5	3.6	3.3	4.8	3.3	2.2	3.6	
18	7.4	(6.5) ^B	3.7 ^F	3.8 ^F	3.6	3.0	6.8	6.6	6.2	6.8	5.2	6.0	C	C	C	C	C	C	3.5 ^F	4.0	G	G	G	2.3	
19	2.1	G	2.3	G	G	G	4.4	6.4	6.0	6.5	C	5.2	5.2	4.3	B	5.2	3.4	5.0	4.0	5.7	4.7	5.2	4.2	3.3	
20	3.6	2.8	3.7	3.5	2.2	3.5 ^Y	3.2	4.3	5.0	6.9	6.0 ^Y	5.5	8.9	5.6	4.8	5.1	5.8	5.5	6.0	C	C	C	C	C	
21	4.6	3.3	3.6	3.6	3.6	3.9	3.2	4.9	5.0 ^Y	5.1	5.0 ^B	5.7	4.8	B	B	C	3.6	G	(2.2) ^B	G	G	3.7	4.3	3.2	
22	G	G	B	3.6	1.7	B	4.0	G	4.8	4.8	5.0	4.6 ^B	B	B	5.8	4.8	6.0	5.0	(3.7) ^B	3.2	2.4	3.3	2.6	3.7	
23	3.7	2.2	2.2	3.5	3.7	3.6	3.3	4.6	4.9	5.0	5.2	B	5.6	5.3	6.3	4.5	G	3.1	3.8	2.5	5.6	4.4	4.1	3.4	
24	2.6	G	G	G	G	3.9 ^Y	3.9	4.6	6.2	5.7	C	C	C	C	C	C	C	C	7.5	4.3	2.0	G	2.6	2.8	
25	3.0	2.9	G	G	G	2.5	3.5	4.4	4.9	5.6	C	C	C	C	C	C	C	C	8.0	5.2	5.6	3.4	3.6	2.8	
26	2.2	G	G	G	1.8	2.5	G	4.9	4.2	C	5.9	B	5.6	5.5	B	5.9	5.3	6.2	3.8	6.7 ^B	6.0	7.4	3.8	6.2 ^F	
27	8.0	6.3	2.9	G	G	3.5	5.3	5.8	6.5	10.4	C	C	C	C	C	8.7	9.2	3.3	7.0	C	C	C	4.0	4.8 ^Y	
28	B	B	2.0	2.2	G	B	G	4.6	5.3 ^Y	C	C	C	C	C	6.2	7.8	7.5	7.5	7.9	4.0	2.4	2.4	G	G	
29	2.7	G	G	G	B	3.0	4.4	4.4	5.0	5.3	6.3 ^Y	5.5	4.0	B	B	B	3.6	B	3.6	4.4	5.0	5.6	4.4	2.2	
30	2.4	G	G	2.7 ^Y	G	3.8	4.2 ^F	4.7	6.3	6.0	C	C	C	C	C	C	C	C	C	C	2.9	2.5	2.4	3.4	
31	G	G	G	G	G	G	B	B	4.8	C	C	C	C	C	C	G	3.8	G	3.0	3.0	3.2	2.4	2.4	3.4	
Median Value	2.6	G	G	G	G	2.5	3.1	4.4	4.9	5.2	5.0	5.1	5.4	5.2	5.4	5.2	4.5	4.1	3.7	3.4	2.9	3.4	2.9	2.8	
Count	30	30	28	31	30	29	30	26	26	22	16	18	16	12	12	16	21	23	28	25	27	29	30	29	

Sweep 1.0 Mc to 11.0 Mc in 15 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Lat. 45° 24.6' N
Long. 141° 11.1' E

Wakkanai

F--M3000

May 1949

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	B	2.7	2.7	2.7	2.6	2.8	2.8	2.8	2.7	2.7	(2.6) ^C	2.5	(2.6) ^B	2.7 ^P	2.7	2.9	2.9	3.1	3.0	2.8	B	B	B	B	(2.9) ^B
2	(2.8) ^B	(2.8) ^S	2.8	2.7	2.6	2.8	2.8	2.8	2.7	B	2.8 ^Z	2.8	(2.7) ^T	2.7	2.8	2.8	2.8	2.8	3.0	2.8 ^P	B	B	B	B	B
3	2.6	2.7	J	2.5	J	B	B	2.8	2.7	(2.7) ^C	B	J	2.5	2.8	2.8	2.8	3.0	3.1	2.9	3.0	2.7	2.7	2.7	2.9	
4	J	2.6	2.7	2.5	2.6	2.6	3.2	(2.9) ^B	2.7	(2.7) ^C	2.8	C	J	C	C	C	C	C	3.0	2.8	J	2.7	2.7	2.6	2.6
5	2.7	2.7	2.6	2.4	2.6	2.8	3.1 ^P	2.9	C	C	C	C	2.7	2.9	3.1	3.0	3.1	2.9	B	C	B	B	B	2.9	(2.7) ^B
6	2.6	2.6	2.6	2.6	2.8	2.6	2.1	2.7	3.1	3.2	(3.0) ^B	2.8	C	B	2.9	2.8 ^P	2.9	3.2	3.1	S	S	S	S	2.7	3.0
7	(2.8) ^B	2.7	2.7	2.6	2.6	2.7	2.8	2.8	2.9	2.8	2.8	2.6	2.7	J	J	2.5	2.7	2.9	3.0	C	B	B	B	2.7	2.7
8	2.6	2.6	2.6	2.5	2.5	2.8	2.7	2.8	2.9	2.7	2.7	2.7	2.6	2.7	2.8	2.8	2.8	2.6	2.7	3.0	(2.9) ^B	2.8	2.8	2.5	2.5
9	2.6	J	J	2.6	2.4	2.8	2.7	3.0	J	3.0	2.7	2.6	2.7	2.7	2.7	2.8	2.9	2.8	C	C	J	S	S	2.7	(2.7) ^B
10	2.7	2.6	2.5	J	2.7	2.8	3.0	2.6	2.7 ^P	2.8	2.7	2.7	2.7	2.7	2.6	(2.7) ^B	2.9	2.9	2.7	3.0	(2.8) ^S	2.7	S	S	J
11	(2.7) ^S	2.5 ^P	2.5	2.7	2.6	3.1	2.8	2.8	2.8	2.6	2.7	2.5	C	C	C	C	C	C	3.1	2.7	(2.3) ^S	B	B	2.8	2.8
12	2.6	(2.5) ^B	2.5	2.4	2.5	2.9	J	2.8	2.8	(2.6) ^C	2.7	2.7	2.7	2.8	2.7	2.8 ^S	(2.9) ^A	3.1	2.7	(2.3) ^S	2.0	2.5	2.5 ^Z	(2.4) ^B	
13	2.3 ^K	2.1 ^K	2.5 ^K	2.6 ^K	2.5 ^K	3.3 ^K	3.1 ^K	(3.4) ^A	3.7 ^K	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	2.4 ^K	2.4 ^K	2.5	2.6	2.9	3.0	2.9	2.8	2.8	2.9	2.8	2.7	2.6	2.8	J	2.8	2.7	B	B	B	B	J	A	A	2.6
15	2.4 ^F	J ^F	2.9 ^F	2.5	2.6	2.7	3.1	C	C	C	C	C	2.6	2.8	J	2.8	2.7	2.8	2.5	2.9	2.8	C	B	A	2.6
16	2.7	B	B	2.7	J ^F	2.7	J	J	C	C	C	J	2.5	2.6	2.8	2.9	2.8	2.7	2.8	2.8	2.9	2.9	2.7	2.7	S
17	B	B	2.7	2.7	J ^K	2.7	2.6	(2.6) ^B	2.6 ^K	2.6 ^K	(2.7) ^B	2.8 ^K	2.7 ^K	2.7 ^K	2.7 ^K	2.9 ^K	2.8	2.8	2.8	2.8	2.8	B	B	B	B
18	2.4	2.5	2.5	2.7	2.7	2.8	3.0	2.8	2.9	2.9	2.7	2.5 ^K	C	C	C	C	C	C	C	C	S	S	S	2.7	
19	2.7	2.5	2.5	2.7	2.7	3.0	2.9	2.8	2.8	J	C	2.5	(2.5) ^T	2.5	2.4	2.6	2.5	2.6	2.6	B	B	B	2.8 ^P	(2.7) ^S	
20	2.7	2.8	2.8	2.6	(2.7) ^S	2.8 ^P	2.8	2.7	3.0	B	B	2.5	(2.9) ^T	C	B	2.7	2.8	2.7	2.6 ^P	C	C	C	C	C	
21	J	2.7	J	2.7	2.5	2.6	J	2.7	2.6	2.8	2.6	2.6	2.6	2.6	2.4	2.5	2.6	3.0	S	S	2.7	2.6	(2.6) ^B	2.7	
22	2.7	(2.8) ^S	2.9	J	(2.8) ^S	2.8	2.9	3.0	2.9	2.8	2.6	2.6	2.6	2.4	2.5	(2.5) ^C	2.6	3.0	S	S	2.7	2.6	(2.6) ^S	2.7	
23	2.6	(2.7) ^T	2.8	2.7	(2.6) ^C	2.5	2.5	2.3 ^K	2.5 ^K	(2.4) ^B	2.4 ^K	2.6 ^K	2.7 ^K	2.7	2.7	2.8	2.6	2.7	2.8	2.7 ^P	2.5	(2.6) ^S	2.7	2.7	
24	J	J	2.7	2.7	2.6	2.7	2.8	2.9	2.8	C	C	C	C	C	C	C	C	C	2.9 ^K	B	B	J	B	B	
25	2.7	2.6	2.8	2.6	2.7	J	2.8	2.5	2.5	C	C	C	C	C	C	C	C	C	C	C	S	S	S	2.5	
26	2.5	2.3 ^P	2.3 ^P	2.2	2.6 ^P	2.8 ^P	2.9	2.6	2.7	(2.7) ^C	2.7	C	C	C	C	C	3.0	2.7	2.7	3.0	B	2.8	(2.7) ^B	2.6	
27	2.7	2.6	2.6	2.5	2.4	2.3	(2.5) ^S	2.7	2.8	2.6	C	C	C	C	C	2.8	2.8	2.6	B	C	C	C	C	3.0	
28	(2.9) ^B	2.9	3.0	J	J	2.9 ^B	B	B	B	C	C	C	C	C	C	2.5	A	3	A	3.0	2.7	2.8	S	J	
29	2.7	(2.7) ^T	2.8	2.6	B	B	2.8	2.7 ^F	2.9	J	2.8	3.0	2.8	2.6	2.8	2.9	2.9	2.8	2.8	3.0	(2.8) ^P	2.7	2.8	2.4	
30	2.7	2.7	2.6	2.8	2.6	2.8	2.7	2.8	2.9	2.7	C	C	C	C	C	C	C	C	C	3.2 ^P	B	B	B	B	
31	2.6	2.5	J	2.8	2.5	J	2.4	2.8	2.6	C	C	C	C	C	C	2.7	2.8	2.9	2.9 ^P	J	S	2.6	2.7	B	
Mean Value	2.7	2.6	2.6	2.6	2.6	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.7	2.7	2.7	2.8	2.8	2.9	2.8	2.8	2.8	2.7	2.7	2.7	2.7
Count	2.6	2.5	2.6	2.8	2.6	2.7	2.5	2.0	1.9	1.7	1.8	1.7	1.6	2.2	2.3	1.8	1.4	1.0	1.4	1.4	1.0	1.4	1.4	1.9	

Sweep - 1.0 Mc to 17.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

ft-min

Wakkanai

Lat. 45°23.6'N
Long. 141°41.1'E

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	25
1	1.4	1.4	1.3	1.3	1.4	2.2	2.4	C	C	4.2	(4.3) ^A	4.3 ^A	(4.2) ^A	4.1	5.1	4.2	4.0	3.2	2.4	A	A	1.5	1.5	1.5	1.5
2	1.5	1.5	1.4	1.5	1.5	2.3	2.9	3.6	4.1	(4.2) ^A	4.3	(4.4) ^A	4.5	4.1	A	A	A	3.1	A	A	A	A	A	A	1.6
3	1.6	1.5	1.5	1.5	1.6	2.2	2.9	4.2	4.1 ^A	4.1 ^A	3.9	4.3 ^A	4.0	4.1	A	A	A	3.0	2.4	A	A	1.6	1.4	1.4	1.4
4	1.4	1.5	1.5	1.4	1.4	2.3	2.8	4.2	3.9	4.0	3.9	(4.0) ^A	4.1	C	C	C	C	C	2.5	1.8	1.8	1.7	1.7	(1.5)	1.6
5	1.3	A	A	A	A	2.2	2.9	4.0	4.1	4.1	4.1	4.1	3.9	4.1	4.1	4.2	3.2	3.0	2.8	2.9	1.5	1.5	1.5	1.5	1.6
6	1.5	1.5	1.4	1.4	1.5	2.2	3.0	3.3	3.5	4.0	4.2	4.2	A	A	C	4.2	3.5	3.3	2.2	2.2	A	A	A	A	1.5
7	A	1.4	1.4	1.4	1.4	2.2	2.7	3.3	4.2 ^A	5.0	4.5	4.0 ^A	3.6	4.1	4.1	4.2	A	A	A	A	1.8	(1.8) ^A	1.7	1.4	1.4
8	1.4	1.4	1.4	1.4	1.4	2.7	3.0	3.7	4.1	4.5	(4.3) ^A	4.3	A	A	A	4.1	(3.6) ^A	3.1	2.3	A	A	A	A	1.9	1.5
9	A	A	1.5	1.5	1.9	2.5	3.3	3.4	4.0	4.0	3.9	3.9	4.0	4.0	3.9	3.8	3.2	3.0	C	C	1.4	1.4	1.4	1.5	1.4
10	A	A	1.4	1.4	1.6	2.2	2.8	A	A	A	4.1	4.1	5.2	5.8	5.2	4.3	4.0	3.1	2.5	A	A	A	1.6	1.4	1.4
11	1.4	1.3	1.4	1.4	1.3	2.3	3.3	4.2	4.2	4.1	4.1	C	C	C	C	C	C	C	A	A	A	A	A	A	A
12	A	1.4	1.6	1.5	1.8	2.2	(2.6) ^A	3.3	(3.2) ^A	4.5	4.7	A	A	A	A	A	A	A	2.3	1.5	2.0	1.5	1.5	1.5	1.5
13	1.5	A	A	A	A	2.2	2.3	3.1	A	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	C
14	1.4	1.4	1.4	1.4	1.4	2.2	2.9	3.3	4.4	4.1	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
15	A	A	A	A	1.5	2.3	2.9	C	C	C	C	C	C	C	C	3.8	3.4	2.9	A	A	C	A	A	A	A
16	A	1.6	1.6	1.6	(2.0) ^A	2.3	3.2	3.4	C	A	A	A	7.9	A	A	A	A	A	2.6	2.6	A	A	A	A	1.5
17	1.3	1.3	1.3	1.3	2.0	2.3	2.9	3.6	A	A	4.2	(4.2) ^A	4.2	4.0	4.1	4.0	3.8	A	A	A	A	A	2.0	A	A
18	A	A	A	A	A	A	3.3	A	A	A	A	A	C	C	C	C	C	C	2.1	(2.0) ^A	1.8	2.0	1.5	1.3	1.3
19	1.3	1.3	1.3	1.3	1.4	2.4	3.5	A	A	A	C	A	4.4	A	5.3	(4.8) ^A	4.3	(3.4) ^A	2.4	2.3	A	A	A	1.7	1.7
20	1.4	1.4	1.4	1.3	(1.2) ^A	2.5	3.2	3.4	4.0	A	A	4.1	A	A	3.3	(3.4) ^A	3.4	3.2	A	C	C	C	C	C	C
21	A	A	1.5	A	A	2.4	3.2	3.8	4.2	3.9	5.0 ^B	4.8	3.9	3.9	4.0	(3.7) ^A	3.3	3.0	2.4	1.7	1.4	A	A	A	A
22	1.4	1.4	1.5	(2.4) ^A	3.3	2.4	2.8	2.9	A	A	4.0	4.2	3.9	3.8	A	A	A	A	A	A	A	A	A	A	1.5
23	A	A	1.7	A	A	A	3.2	3.8	(4.7) ^A	5.6	(5.0) ^A	4.3	(4.3) ^A	4.3	A	A	3.6	A	2.1	A	A	A	A	A	A
24	A	2.0	1.6	1.6	1.6	2.3	3.6	A	A	A	C	C	C	C	C	C	C	C	A	A	A	1.5	1.5	1.6	1.6
25	1.5	1.5	1.3	1.3	1.8	2.5	3.0	A	A	C	C	C	C	C	C	C	C	C	2.5	A	A	A	A	A	A
26	1.3	1.4	1.3	1.3	1.8	2.5	3.2	3.5	4.5	C	A	4.4	A	A	A	A	A	A	A	A	A	A	A	A	A
27	A	A	1.5	1.5	1.6	2.4	A	A	A	C	C	C	C	C	C	A	A	A	A	C	C	C	A	A	A
28	1.4	1.5	1.5	1.5	1.7	2.6	3.2	3.7	A	C	C	C	C	C	C	A	A	A	A	A	1.5	A	A	A	1.5
29	1.5	1.5	1.3	1.3	2.4	(2.8) ^A	3.2	4.0	A	A	4.1	4.1	4.1	4.1	4.0	3.5	3.3	A	A	A	A	A	A	1.5	1.5
30	1.6	1.4	1.4	1.5	1.8	2.7	3.2	3.7	4.1	4.3	C	C	C	C	C	C	C	C	C	C	A	A	1.5	1.5	1.5
31	1.3	1.4	1.4	1.4	1.9	2.8	3.1	3.6	A	C	C	C	C	C	C	3.6	3.3	3.2	2.8	A	A	2.0	1.8	A	A
Median Value	1.4	1.4	1.4	1.4	1.6	2.3	3.0	3.6	4.1	4.1	4.3	4.2	4.1	4.1	4.1	4.1	3.5	3.1	2.4	(2.1)	(1.8)	1.5	1.5	1.5	1.5
Count	20	22	27	25	27	29	30	23	16	15	16	18	15	12	11	14	14	14	14	9	7	11	14	20	20

Sweep 11.0 Mc to 17.0 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

fE min

Wakkanai

Lat. 45°23.6'N
Long. 141°41.1'E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	1.3	1.6	C	2.2	(2.2) ^c	2.2	1.9	2.2	2.0	2.0	1.5	1.5	1.5	1.5	G	G	G	G
2	G	G	G	G	G	G	1.6	1.6	1.9	2.2	3.0	2.3	2.2	2.4	2.2	2.2	1.5	1.6	1.5	1.6	1.5	1.5	2.0	G
3	1.5	1.5	G	G	G	G	1.5	1.6	2.0	1.9	2.2	2.2	2.1	1.6	2.1	1.5	1.5	1.4	1.4	1.4	1.4	1.5	1.4	1.4
4	G	G	1.5	2.1	G	G	1.5	1.6	1.5	1.4	2.2	2.3	(2.3) ^f	C	C	C	C	1.6	1.5	1.4	1.5	1.5	1.4	1.4
5	1.3	1.3	1.3	1.3	1.7	1.6	1.9	1.8	2.0	1.4	1.8	1.8	2.2	2.0	2.0	2.0	1.8	2.0	1.6	1.4	G	G	G	G
6	G	G	G	G	G	G	1.6	1.5	1.6	1.5	1.5	1.7	2.0	2.0	(2.0) ^c	2.0	1.7	1.4	1.4	(1.4) ^B	1.4	1.6	1.5	G
7	1.5	G	G	G	G	G	1.4	1.4	1.5	1.6	2.4	2.9	2.2	2.2	2.7	2.2	1.6	1.5	1.6	1.5	1.8	1.5	G	G
8	G	G	G	G	G	G	1.5	2.0	1.6	2.0	2.2	2.3	2.1	2.1	2.3	2.1	1.8	1.6	2.1	1.5	1.5	1.5	1.6	G
9	1.5	1.5	1.5	G	G	G	1.6	1.5	1.6	2.1	2.2	2.2	2.2	2.2	2.2	1.7	1.7	1.6	1.5	C	1.4	G	G	1.4
10	1.4	1.4	G	G	G	G	1.6	1.5	1.6	2.0	2.1	2.1	2.2	2.4	(3.0) ^B	3.5	2.2	2.2	1.5	1.4	1.5	1.6	G	1.5
11	G	G	G	G	G	G	1.5	1.5	2.2	2.3	2.1	2.0	2.1	C	C	C	C	1.5	1.4	1.5	1.5	1.6	G	1.5
12	1.4	G	1.4	1.4	1.4	2.2	1.5	2.0	2.1	2.0	2.2	2.1	2.1	2.0	2.0	2.0	1.6	1.5	1.5	B	G	G	G	G
13	1.5	1.5	1.3	1.6	1.5	1.5	1.4	1.6	2.3	C	C	C	C	C	C	C	C	C	C	C	(1.4) ^C	1.4	1.4	(1.5) ^C
14	1.6	1.6	G	G	G	G	1.6	1.5	1.5	2.1	1.6	2.0	2.9	2.2	2.4	2.2	2.2	2.2	1.7	1.7	1.5	1.5	1.6	1.5
15	1.5	1.6	1.5	1.5	1.3	2.1	2.0	2.0	C	C	C	C	C	C	2.3	2.1	1.8	1.8	1.6	1.6	1.6	1.6	1.5	1.5
16	1.4	2.2	B	G	G	1.8	1.7	1.8	2.2	(2.2) ^C	2.2	2.3	2.3	2.4	2.2	2.3	2.3	2.2	1.5	1.5	1.5	1.5	1.5	1.5
17	G	1.3	G	G	G	G	1.5	1.4	1.6	2.1	2.0	2.0	2.0	2.0	2.2	2.2	2.0	2.1	1.9	1.9	1.7	2.0	2.0	1.6
18	1.5	1.3	1.3	1.4	1.3	1.8	1.7	1.8	2.2	2.3	2.1	2.1	C	C	C	C	2.0	1.9	1.5	1.5	1.5	1.5	1.6	1.3
19	1.9	G	1.4	G	G	1.4	1.4	1.5	1.6	2.3	(2.1) ^C	1.9	3.3	2.5	3.0	2.5	2.0	1.9	1.5	B	S	S	S	2.0
20	1.4	1.3	1.3	1.3	1.4	1.8	1.7	1.7	2.1	2.2	2.5	2.3	2.3	2.3	2.4	2.4	2.2	2.2	1.5	C	C	C	C	C
21	1.3	1.3	1.5	1.5	1.5	1.6	1.5	2.2	1.3	2.2	2.3	2.1	2.1	2.1	2.3	2.3	1.6	1.7	1.4	G	1.3	1.4	1.4	1.4
22	G	G	B	1.4	1.6	1.5	1.6	1.5	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.0	2.0	1.5	1.3	1.4	1.4	1.5	1.4	1.3
23	1.3	1.4	1.3	1.3	1.3	1.7	1.8	2.0	1.9	1.9	1.9	1.9	1.8	1.9	2.0	2.0	1.9	1.5	1.5	1.6	1.5	1.5	1.5	1.5
24	1.5	G	G	G	G	G	1.5	1.5	2.0	2.0	C	C	C	C	C	C	C	C	1.4	1.5	G	G	1.5	1.5
25	1.4	1.4	G	G	G	1.3	1.4	1.6	1.8	2.0	2.0	C	C	C	C	C	C	C	1.4	1.4	1.4	1.5	1.3	1.4
26	1.3	G	G	G	G	1.5	1.5	2.1	2.2	2.2	(2.1) ^f	1.9	3.0	2.1	2.1	2.1	2.1	1.6	1.6	1.5	1.5	2.0	1.5	1.4
27	1.3	1.4	1.5	G	G	1.5	1.5	1.6	2.2	2.2	C	C	C	C	C	2.2	2.2	2.2	2.0	2.0	(1.8) ^C	1.5	1.5	1.4
28	B	B	1.5	1.5	G	1.6	2.2	1.5	C	C	C	C	C	C	C	2.2	2.2	2.2	1.5	1.5	1.4	1.5	1.6	G
29	1.5	G	G	G	1.4	1.6	1.8	1.9	2.0	1.9	2.9	2.0	2.9	2.1	3.2	2.2	2.1	1.5	1.6	1.5	1.7	1.5	1.5	1.5
30	1.4	G	G	1.6	G	1.5	1.6	1.5	2.1	2.0	C	C	C	C	C	C	C	C	1.5	1.4	1.5	1.5	1.5	1.5
31	G	G	G	G	1.4	1.4	1.5	1.6	C	C	C	C	C	C	C	2.2	2.3	1.5	1.5	1.4	1.3	2.0	1.6	1.4
Median Value	1.4	G	G	G	1.3	1.5	1.6	1.7	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.0	1.6	1.5	1.5	1.5	1.5	1.5	1.4
Count	30	30	29	31	31	31	31	30	29	27	23	23	21	20	21	24	24	24	24	27	27	29	29	30

Sweep 1.0 Mc to 17.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Day	May 1949		135°E Mean Time																			Fukaura		LAT. 40°36.6'N Long 139°54.1'E	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	8.1	8.5	7.9	7.7	7.4	8.1	9.5	10.3	11.3	11.2	11.3	10.4	11.3	11.3	11.1	10.2	9.5	9.5	9.2	9.3	9.3	9.0	8.8	8.8	
2	9.3	9.3	8.6	7.8	7.7	9.0	11.0	11.1	11.1	10.5	C	C	C	C	C	C	C	C	C	9.8	8.1	9.1	9.1	8.8	
3	8.1	8.1	7.9	7.5	7.1	9.1	10.6	10.7	11.3	11.7	11.5	11.0	11.3	11.7	11.5	10.7	9.6	9.6	9.2	9.2	8.8	8.1	8.0	8.0	
4	7.9	7.8	7.5	7.3	6.8	7.9	8.3	10.1	9.9	10.6	11.3	10.8	12.2	10.3	9.0	9.9	9.7	9.3	10.1	9.5	9.3	6.7	7.0	7.4	
5	7.3	7.3	6.7	6.5	7.0	8.0	8.4	9.3	10.6	10.6	10.7	10.8	11.5	11.5	11.3	11.2	10.4	10.0	10.3	10.8	10.7	8.6	8.1	7.8	
6	7.8	8.0	6.7	7.0	7.2	8.4	11.0	10.4	9.8	7.8	C	C	C	10.8	10.9	10.7	10.4	9.9	9.5	9.0	9.0	8.6	8.2	8.8	
7	8.1	7.8	7.7	7.5	7.6	8.9	9.6	10.5	10.2	10.4	C	C	C	11.0	11.2	10.7	11.0	11.0	9.5	A	A	8.7	8.4	8.5	
8	8.7	8.4	8.3	7.0	6.6	7.6	9.3	11.2	10.5	10.6	11.3	11.9	B	12.0	11.2	12.0	12.0	12.0	11.3	10.5	8.6	8.5	8.1	8.1	
9	8.4	8.2	8.1	8.0	7.6	8.7	9.7	11.0	10.3	11.4	11.4	10.8	10.7	10.7	11.8	11.7	11.0	10.3	10.2	9.9	8.8	8.2	7.8	7.8	
10	7.5	7.8	7.8	7.6	7.4	8.9	10.0	10.6	11.1	11.5	11.4	11.5	11.4	11.6	12.0	12.3	12.3	10.9	10.1	9.5	8.6	8.7	8.4	8.6	
11	8.3	8.2	8.0	8.2	8.2	9.0	10.3	10.8	S	C	C	C	C	G	C	12.5	11.6	10.7	9.7	9.5	8.6	8.7	8.4	8.6	
12	8.7	8.1	8.0	8.0	7.8	9.0	10.1	10.0	10.0	11.2	11.3	11.5	11.2	10.5	11.1	10.8	10.8	10.2	9.3	9.3	8.4	7.5	7.2	7.3	
13	5.1	K	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	5.8	5.8	5.7	5.7	
14	5.4	K	6.0	6.2	5.7	6.4	7.2	7.4	7.8	7.8	8.4	9.2	9.0	9.3	10.0	10.6	9.8	9.8	10.1	10.0	8.3	8.2	7.7	8.3	
15	7.8	8.1	8.0	7.8	7.2	7.8	8.7	8.4	8.0	7.8	9.0	9.2	9.1	9.3	9.8	10.2	9.7	9.4	9.4	9.1	8.6	7.8	8.0	7.8	
16	7.8	7.7	7.9	8.0	7.6	8.5	9.8	10.0	10.5	10.3	10.5	10.6	11.0	11.4	11.1	11.0	10.3	9.8	9.8	9.1	8.6	7.8	7.9	7.9	
17	7.8	7.6	7.5	7.3	6.8	6.8	7.2	7.4	7.3	C	C	8.8	9.0	9.7	9.0	8.4	8.5	9.0	9.1	8.7	S	S	S	8.0	
18	7.7	7.5	7.5	7.3	7.4	9.0	9.5	8.9	9.0	8.5	9.5	8.5	9.2	9.3	9.3	9.3	9.0	9.3	9.2	9.5	8.7	7.8	8.3	8.2	
19	8.0	7.8	8.0	7.6	8.0	9.2	9.8	10.5	10.2	9.8	11.1	11.5	11.8	11.6	11.8	11.9	11.6	10.8	10.5	10.1	9.5	9.1	9.2	10.0	
20	10.0	9.0	8.3	8.0	7.6	9.9	10.1	C	C	C	C	C	C	C	C	C	C	C	C	C	8.7	8.4	8.3	8.2	
21	8.2	7.8	7.8	7.6	7.6	8.6	10.6	10.7	10.7	10.5	10.5	10.5	10.2	10.7	11.4	11.4	11.5	11.0	10.0	8.9	7.9	7.8	7.4	8.5	
22	8.8	8.5	8.4	8.7	8.3	8.6	8.9	9.2	8.6	8.7	9.2	9.4	9.3	10.4	10.0	10.6	11.0	10.7	10.5	9.0	8.2	8.7	9.0	9.0	
23	9.0	8.6	8.5	6.1	7.0	7.9	8.4	7.8	7.4	7.0	7.0	A	A	A	A	A	A	A	A	A	8.3	7.6	7.3	8.2	
24	7.3	7.0	6.9	6.6	6.8	8.2	9.0	9.4	9.8	9.2	9.6	10.1	10.6	10.5	9.7	9.7	9.6	9.3	9.5	9.2	8.5	7.7	8.4	8.1	
25	8.4	8.6	7.6	7.5	7.8	8.2	8.6	7.7	8.4	8.2	8.6	8.4	C	8.4	8.3	8.9	8.6	8.9	7.8	7.6	A	A	8.1	8.1	
26	7.4	7.6	6.9	6.8	7.0	7.9	9.9	10.4	9.4	9.2	9.6	9.2	8.3	9.4	9.2	9.2	8.8	8.4	8.2	8.1	8.6	8.0	8.3	8.3	
27	7.9	8.0	7.0	7.0	7.0	7.9	9.3	C	C	C	C	C	C	C	C	C	C	C	C	7.9	7.9	8.6	8.4	8.4	
28	8.5	8.2	7.9	7.5	7.2	8.5	10.0	10.2	10.0	9.8	10.0	9.6	9.2	9.3	8.5	9.1	9.4	8.4	7.7	A	A	8.5	8.3	8.4	
29	8.3	7.8	7.1	7.0	7.2	9.2	9.9	10.3	9.6	8.8	8.5	8.6	8.6	8.6	8.6	8.6	8.4	8.7	9.0	9.3	9.0	9.0	9.0	9.0	
30	9.0	8.8	8.3	7.9	8.4	10.2	8.4	10.2	10.1	9.5	9.0	8.5	8.6	9.7	9.5	9.7	9.6	9.6	9.5	9.4	8.7	8.8	8.9	8.8	
31	8.5	8.4	8.4	8.0	7.0	8.0	9.0	10.2	9.5	9.1	7.3	8.1	8.1	8.0	7.8	8.5	9.0	9.0	9.0	8.4	7.8	7.8	8.2	8.4	
Median Value	8.1	8.1	7.9	7.5	7.3	8.5	9.6	10.2	10.0	9.8	9.8	10.3	10.2	10.5	10.0	10.7	10.3	9.8	9.5	9.3	8.6	8.2	8.3	8.3	
Count	31	30	30	30	30	30	30	28	26	26	24	22	21	24	25	26	26	26	27	29	27	29	29	31	

Sweep 1.0 Mc to 11.0 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

hr. F₂

Fukaura

Lat. 40°36.6'N
Long. 139°54.1'E

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	350	370	370	380	380	340	340	340	330	330	380	400	400	400	400	340	390	350	340	360	360	380	390	390
2	400	390	360	400	430	390	330	310	350	360	C	C	C	C	C	C	C	C	C	350	330	380	370	400
3	410	380	390	420	390	360	320	350	420	420	390	390	400	380	380	390	350	380	350	380	340	380	380	370
4	350	380	370	370	390	360	320	350	370	450	420	410	370	370	360	380	380	390	310	330	380	440	430	440
5	430	410	410	430	410	290	320	320	240	270	340	350	360	360	360	360	320	320	350	340	350	350	370	370
6	410	420	350	420	440	400	300	330	360	390	C	C	C	400	390	360	340	340	350	350	430	400	370	370
7	400	430	430	410	400	370	300	330	330	330	C	C	C	400	360	360	330	A	A	A	A	380	370	410
8	380	370	320	370	390	290	320	330	320	400	400	380	B	F	370	360	360	330	320	310	S	C	370	430
9	420	390	400	400	340	330	320	310	310	370	320	380	370	400	380	350	350	360	340	350	370	370	390	380
10	390	410	330	410	350	320	300	320	350	370	360	350	370	370	350	370	330	300	300	290	360	370	360	400
11	360	340	390	360	310	310	300	320	S	C	C	C	C	C	C	350	320	320	310	370	370	370	330	350
12	370	350	400	380	360	330	350	310	410	400	380	370	370	370	350	340	340	340	340	330	410	430	390	450
13	430	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	430
14	450	420	380	400	310	410	300	290	350	350	360	370	400	380	380	350	340	360	340	340	340	410	400	450
15	390	370	400	400	430	350	330	310	370	380	380	380	380	380	370	360	350	320	320	340	340	410	400	450
16	380	350	330	420	430	320	320	300	330	320	330	330	380	380	370	360	370	350	320	320	340	340	380	400
17	420	420	400	400	400	340	340	340	330	320	330	330	380	400	370	360	340	330	310	320	310	350	370	320
18	380	360	380	370	370	400	310	320	320	350	400	380	380	380	360	350	350	350	310	320	340	350	380	370
19	360	370	370	390	370	290	320	320	340	350	410	380	400	370	370	370	340	340	350	320	340	350	380	360
20	360	350	330	380	380	310	320	C	C	C	C	C	C	C	C	C	C	C	C	C	310	350	350	350
21	400	400	360	360	350	340	330	310	370	370	400	380	400	400	380	360	370	330	320	340	380	410	370	420
22	420	380	370	360	350	330	350	320	320	320	400	380	470	380	370	360	340	350	330	340	380	410	410	400
23	410	370	340	370	400	320	360	350	410	A	A	A	A	A	A	A	A	A	A	A	330	350	410	430
24	390	400	390	360	380	340	310	370	340	390	420	400	380	380	400	360	370	330	340	310	330	400	410	390
25	400	360	370	400	310	350	390	340	410	360	400	C	C	380	370	380	350	310	300	360	A	A	A	360
26	380	460	430	410	420	380	330	360	350	380	390	400	400	400	400	370	350	340	340	300	310	400	F	370
27	330	350	410	460	450	440	390	C	C	C	C	C	C	C	C	C	C	C	C	330	370	370	410	360
28	370	380	370	390	410	380	320	310	340	390	390	360	400	440	400	390	350	A	A	A	A	360	350	360
29	360	360	360	390	420	380	320	320	340	370	380	400	400	370	380	360	340	340	370	340	350	410	380	390
30	390	350	360	370	300	300	310	320	340	310	380	430	410	350	370	340	340	340	340	330	360	370	360	370
31	390	390	380	340	400	440	370	400	400	370	410	400	400	400	400	410	370	350	340	330	400	410	430	400
Median Value	390	390	380	390	390	340	320	320	340	370	380	380	400	390	380	360	350	340	340	330	360	360	380	390
Count	31	30	30	30	30	30	28	26	25	23	22	21	24	25	26	26	26	24	25	29	26	28	29	31

Sweep 1.0 - Mc to 12.0 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

h_pF₂

Fukaura

Lat. 40°36.6'N
Long. 138°54.1'E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	320	300	290	300	360	270	280	270	360	280	300	300	350	350	300	300	250	240	250	280	290	280	280	300
2	300	290	280	260	310	250	250	250	250	230	C	C	C	C	C	C	C	C	C	260	290	290	270	300
3	300	300	300	260	300	280	240	240	300	310	300	350	350	350	310	310	250	280	240	230	250	310	300	300
4	300	290	280	280	280	250	250	250	310	380	350	310	300	330	340	300	300	310	270	250	240	310	320	340
5	350	310	310	A	310	300	270	260	260	280	260	240	210	300	250	300	240	280	250	270	250	240	280	300
6	310	320	320	320	350	300	250	310	290	260	C	C	C	300	340	(310)	280	280	(280)	280	290	310	240	200
7	310	310	330	330	320	260	250	260	250	260	C	C	C	250	350	360	330	A	A	A	A	A	350	320
8	310	290	260	H	300	220	230	240	220	280	350	310	330	290	350	320	280	300	280	230	240	210	300	350
9	320	300	300	290	280	260	250	250	240	240	250	250	350	260	340	300	270	250	210	260	300	280	290	300
10	310	310	300	310	280	250	230	240	230	230	300	350	300	350	300	300	270	250	240	240	300	300	300	300
11	300	310	310	300	260	250	270	270	270	C	C	C	C	C	C	320	290	290	260	270	290	300	300	310
12	300	300	310	310	290	270	270	250	250	A	A	A	C	C	C	(310)	(300)	280	280	300	(360)	420	320	360
13	300	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A
14	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
15	290	280	270	310	340	270	250	240	240	290	330	360	320	370	350	310	270	300	260	260	250	260	260	1900
16	320	310	300	300	320	270	250	250	310	310	(320)	320	350	340	330	320	320	280	270	280	290	300	270	310
17	320	310	310	320	340	280	340	340	340	340	360	400	350	300	300	310	300	300	290	240	(300)	300	300	240
18	320	310	300	290	280	250	250	260	300	280	340	350	340	350	310	300	300	320	300	280	280	280	300	310
19	300	300	350	300	300	250	250	250	280	280	380	330	330	350	(340)	330	310	280	300	280	270	280	300	300
20	270	250	270	(340)	290	260	250	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	310	350	300	280	280	260	280	270	280	350	350	380	350	330	360	320	320	290	270	260	(300)	330	350	300
22	320	300	290	300	270	(260)	240	240	250	290	350	350	430	340	320	340	320	290	270	290	310	340	300	310
23	310	280	240	250	300	270	330	340	400	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
24	300	310	310	310	310	280	280	280	290	270	350	370	350	350	330	250	300	330	240	260	290	290	370	300
25	300	300	270	300	300	270	350	330	400	290	400	C	C	380	370	370	320	310	240	250	290	340	340	300
26	310	310	300	320	310	280	260	240	300	350	370	(380)	380	380	400	370	320	290	300	290	280	340	(320)	300
27	290	240	240	270	340	270	260	C	C	C	C	C	C	C	C	C	C	C	C	C	260	350	330	300
28	280	290	240	280	310	250	260	240	270	340	330	360	350	410	370	390	320	A	A	A	A	A	270	280
29	280	280	280	300	320	280	300	290	290	350	(380)	400	(350)	380	(350)	320	340	300	270	280	260	280	320	300
30	300	300	250	250	290	270	300	280	280	300	300	250	420	330	340	300	250	320	240	250	250	260	290	280
31	310	280	290	270	300	400	350	300	300	290	(400)	400	400	400	400	400	350	340	260	270	280	360	350	260
Median Values	310	300	300	300	300	270	260	270	290	290	350	350	320	350	350	320	300	290	270	270	290	300	300	300
Cont'd	30	29	30	30	30	30	30	28	27	24	22	21	24	24	24	26	26	24	25	28	27	29	29	31

Sweep 1.0 Mc to 17.0 Mc in 1.5 min

Manned

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

f_oF_2

Fukaura

Lat. 40°36.6'N
Long. 139°54.1'E

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						Q	L	L	Q	Q	Q	Q	B	Q	Q	5.0 ^J	4.5 ^J	L	Q	Q				
2						Q	Q	Q	L	Q	C	C	C	C	C	C	C	C	C	C	Q			
3						Q	Q	Q	L	5.8	L	A	5.8	L	A	A	L	L	L	L	Q			
4						3.3	Q	Q	5.1	Q	L	L	L	L	L	L	L	L	L	L	Q			
5						Q	Q	Q	A	A	B	B	B	B	Q	L	L	Q	L	Q	Q			
6						Q	Q	Q	L	L	C	C	C	A	L	C	A	Q	C	A				
7						Q	Q	L	L	L	C	C	C	C	B	A	A	A	A	A				
8						Q	Q	Q	Q	A	A	A	A	A	A	B	A	Q	Q	Q				
9						Q	Q	Q	Q	Q	Q	Q	6.2	5.9	B	L	L	L	L	L				
10						Q	Q	Q	Q	Q	Q	L	5.5	B	A	B	L	L	L	L				
11						Q	L	A	A	C	C	C	C	C	C	5.0	L	L	L	L				
12						Q	L	A	A	A	A	A	A	A	A	A	A	L	L	L				
13						C	C	C	C	C	C	C	(3.5)	(5.5)	(5.3)	5.1 ^J	Q	C	L	L				
14						Q	L	L	A	L	A	A	5.6	5.5	(5.3)	A	L	L	L	L				
15						Q	L	L	L	L	L	A	A	A	A	A	L	L	L	L				
16						Q	L	L	L	L	L	C	A	L	L	L	L	L	L	L				
17						Q	4.2	4.6	C	C	B	L	5.7	B	B	L	L	L	L	L				
18						Q	Q	4.4 ^J	A	L	L	L	L	L	L	B	L	L	L	L				
19						Q	Q	Q	L	L	L	L	L	L	L	C	L	L	L	L				
20						Q	Q	C	C	C	C	C	C	C	C	C	C	C	C	C				
21						Q	L	Q	A	L	L	L	5.0	(5.4)	5.8	L	L	L	L	L				
22						C	Q	Q	Q	B	R	B	5.0	A	A	5.5	L	L	L	L				
23						3.9	(4.4)	4.9	5.3	A	A	A	A	A	A	A	A	A	A	A				
24						L	L	A	A	A	A	A	A	A	A	A	A	A	A	A				
25						Q	L	A	A	A	A	C	5.5	5.0	B	A	L	L	Q	Q				
26						Q	Q	Q	A	L	A	A	5.7	5.6	4.6	5.2 ^J	L	L	L	L				
27						Q	Q	C	C	C	C	C	C	C	C	C	C	C	C	C				
28						Q	Q	A	A	A	6.0 ^B	B	A	A	A	A	A	A	A	A				
29						L	Q	A	L	A	C	A	C	4.8	C	L	L	L	L	L				
30						L	L	Q	A	A	A	Q	A	A	A	5.0	5.0	(4.8)	4.6	Q	Q			
31						L	L	L	A	A	A	A	B	B	A	A	A	A	L	L				
Mean Value						-	-	-	-	-	-	-	5.6	5.5	5.0	5.1	-	-	-	-				
Count						2	2	3	2	1	1	2	2	2	5	6	2	1	1	1				

Sweep 1.0 Mc To 17.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

$h_f F_2$

Fukaura

Lat 40°36'N
Long 139°34'E

Day	135° E Mean Time														Fukaura									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	25
1						Q 250	Q 240	Q	Q	Q	Q	B	Q	Q	Q	240	230	250	Q	Q				
2						Q	Q	Q 230	Q	C	C	C	C	C	C	C	C	Q	Q	Q				
3						Q	Q	Q 250	Q 240	Q 260	A	A	A	A	A	A	Q	250	Q	Q				
4						Q 230	Q	Q 250	Q 240	220	230	230	230	230	230	250	250	230	Q	Q				
5						Q	Q	A	A	B	B	B	Q	Q	Q	220	Q	250	Q	Q				
6						Q	Q	Q 250	Q 230	C	C	C	A	A	B	C	A	Q	C	A				
7						Q	Q	Q 230	Q 240	C	C	C	B	A	A	A	A	A	A	A				
8						Q	Q	Q	A	A	A	A	A	A	B	A	Q	Q	Q	Q				
9						Q	Q	Q	Q	Q	Q	Q	290	260	(260)	250	230	210	250	230				
10						Q	Q	Q	Q	Q	Q	230	270	B	A	B	A	Q	Q	Q				
11						Q	250	A	A	C	C	C	C	C	C	240	230	250	A	A				
12						Q	240	A	A	A	A	A	A	A	A	A	A	240	Q	A				
13						C	C	C	C	C	C	C	C	C	C	C	C	C	C	A				
14						Q	210	220	210	A	B	B	A	A	A	A	Q	A	220	Q				
15						Q	250	250	(230)	210	200	A	A	A	A	230	(250)	210	A	A				
16						Q	Q	240	(240)	230	C	A	230	210	230	A	A	240	A	A				
17						Q	230	250	C	C	B	B	300	B	B	B	270	250	Q	A				
18						Q	Q	A	A	220	220	200	210	B	B	B	220	A	A	A				
19						Q	Q	Q	240	(250)	250	A	A	A	C	A	A	250	Q	Q				
20						Q	Q	C	C	C	C	C	C	C	C	C	C	C	C	A				
21						Q	250	Q	A	A	A	A	220	210	(230)	240	230	260	250	A				
22						C	Q	Q	Q	B	B	B	A	A	A	A	A	A	A	A				
23						270	(250)	220	A	A	A	A	A	A	A	A	A	A	A	A				
24						250	200	250	(270)	220	A	A	A	A	A	A	A	A	A	A				
25						Q	A	A	A	A	A	C	A	A	B	B	A	240	Q	Q				
26						Q	Q	Q	A	220	A	A	A	A	220	A	A	A	A	A				
27						Q	Q	C	C	C	C	C	C	C	C	C	C	C	C	A				
28						Q	Q	A	A	A	A	B	B	A	A	A	A	A	A	A				
29						250	Q	A	A	A	C	A	C	200	(230)	250	(250)	250	A	A				
30						250	240	Q	A	A	A	Q	A	A	A	220	220	(220)	220	Q	Q			
31						240	250	250	A	A	A	A	A	B	B	A	A	250	Q	Q				
Mean Value						260	250	250	240	230	240	-	270	220	230	240	230	250	-	-				
Count						6	11	9	10	9	5	3	7	6	8	9	10	15	3	1				

Sweep - 1.0 Mc To J1.0 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

Lat 40°36.6'N
Long 139°41'E

Fukaura

ft

May 1949

IONOSPHERIC DATA

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							27	33	34	35	A	A	A	A	A	A	A	A	A	A				
2						B	26	32	33	A	C	C	C	C	C	C	C	C	C	C				
3						1.8 J	24	(3.0) A	35	A	A	A	A	A	A	A	A	2.8	A	A				
4						1.5 J	26	31	35	37	(3.7) A	37	36	35	(3.5) A	35	32	30	A	A				
5						A	26	29	A	A	B	B	B	A	A	A	A	2.9	2.1	B				
6						B	28	32	32	A	C	C	C	A	A	A	A	2.9	(2.6) 2.3	B				
7						2.1	25	30	31	A	C	C	C	A	A	A	A	A	A	A				
8						2.1	29	30	34	(3.4) J	34	A	A	A	A	A	3.2	A	A	B				
9						B	24	34	A	A	A	A	A	A	B	34	33	(2.8) A	2.2	A				
10						2.1	26	35	A	B	A	A	A	A	B	B	33	(2.8) A	2.2	A				
11						(2.0) B	30	A	A	C	C	C	C	C	C	34	30	3.0	A	A				
12						(2.0) B	26	32	35	A	B	3.5	A	A	A	A	A	A	A	A				
13						C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
14						B	A	A	A	A	A	3.6	B	A	A	A	A	A	A	A				
15						1.8	25	30	32	A	A	A	A	A	A	A	A	A	A	A				
16						(2.4)	A	A	A	3.6	3.8	4.0	A	A	A	A	A	A	A	A				
17						2.0	A	A	A	3.6	C	B	B	B	B	3.6	3.2	2.8	A	A				
18						A	A	3.0	3.5	3.5	3.8	A	A	A	A	B	3.6	2.9	A	A				
19						1.2	27	31	A	A	A	A	A	A	A	C	3.6	3.0	2.2	A				
20						2.1	30	C	C	C	C	C	C	C	C	C	C	C	C	C				
21						B	28	32	34	A	A	B	A	A	A	A	3.4	2.9	A	A				
22						C	29	A	A	3.8	B	A	A	A	A	A	A	A	A	A				
23						A	A	A	A	3.5	A	A	A	A	A	3.4	3.1	A	A	A				
24						2.1	26	32	35	3.4	3.5	A	A	A	A	A	A	A	A	A				
25						B	26	31	34	A	A	C	C	C	A	B	3.2	2.9	A	B				
26						2.1	29	A	A	A	A	A	3.5	A	A	3.5	3.1	J	A	A				
27						2.2	26	C	C	C	C	C	C	C	C	C	C	C	C	C				
28						2.2	30	A	B	B	B	B	A	A	4.0	A	A	A	A	A				
29						A	28	32	3.4	A	C	A	C	A	C	3.5	3.0	3.0	2.5	A				
30						2.2	30	3.4	A	A	A	A	A	A	A	A	A	A	A	A				
31						A	A	3.0	A	A	4.0	A	B	A	A	B	A	A	A	2.5				
Median Value						2.1	27	32	34	3.5	3.8	-	-	-	-	3.5	3.2	2.9	2.2	-				
Count						17	24	20	17	7	6	3	2	1	3	7	13	13	7	4				

Sweep 1.0 Mg to 12.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Deunkitsushun Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

May 1949

h₁E

IONOSPHERIC DATA

Fukaura

Lat. 40° 56' N
Long. 139° 41' E

Day	135° E Mean Time															19	20	21	22	23	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14						15
1																					
2																		A	A	120	
3																		C	C	C	B
4																		A	110	A	A
5																		120	100	A	A
6																		A	120	130	B
7																		A	120 (120)	120	
8																		A	A	A	A
9																		A	120	A	A
10																		A	110 (120)	120	A
11																		110	110 (120)	120	A
12																		C	C	C	A
13																		A	A	A	A
14																		C	C	C	A
15																		A	A	A	120
16																		A	A	A	A
17																		A	A	A	A
18																		110	110	120	A
19																		110	110	110	A
20																		C	C	C	A
21																		A	100	110	A
22																		A	A	A	A
23																		A	A	A	A
24																		110	110	110	A
25																		A	A	A	A
26																		110	110	110	B
27																		A	100	A	A
28																		C	C	C	A
29																		A	A	A	A
30																		110	120	120	A
31																		A	A	A	B
Median Value																					
Count																					

Sweep 1.0 Mc to 1.70 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Lat. 40°36'N
Long. 139°54'E

Fukaura

fes

May 1949

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	G	G	G	G	G	B	3.4	G	5.0	5.2	4.6	4.8	4.8	4.8	5.2	4.7	3.4	3.2	3.6	3.1	6.2	3.4	G	G	
2	G	G	G	G	G	B	3.1	3.5	G	4.1	C	C	C	C	C	C	C	C	C	B	3.6	3.5	4.8	4.8	
3	3.0	3.0	3.0	3.4	4.0	3.0	G	3.8	4.0	4.6	4.8	7.0	6.6	6.8	7.8	6.7	4.2	5.0	4.6	7.0	4.4	4.8	4.0	3.4	
4	3.2	G	3.4	2.6	G	2.4	3.2	B	4.1	4.9	5.1	4.8	G	4.0	4.5	4.0	3.4	G	3.2	2.9	2.8	3.7	3.0	2.6	
5	3.0	3.2	3.2	4.8	3.0	3.0	3.0	4.3	4.8	5.0	B	B	B	3.8	3.8	4.0	3.9	3.5	3.8	2.8	3.5	2.6	G	G	
6	G	G	G	G	G	B	3.4	3.8	4.3	4.2	C	C	C	C	5.4	3.8	5.9	6.5	C	6.2	3.4	3.6	4.0	2.3	
7	3.2	2.5	6.2	4.8	3.3	3.3	5.4	4.6	4.2	4.2	C	C	C	C	5.4	7.2	7.5	11.0	9.4	11.7	9.7	4.2	6.2	3.6	
8	G	G	G	G	G	2.4	3.0	4.1	4.4	6.2	9.4	7.4	5.2	6.6	4.4	7.2	5.2	4.0	3.9	7.0	5.0	G	4.0	5.0	
9	3.2	3.0	G	2.7	3.0	B	2.8	5.0	4.0	5.0	4.7	4.6	4.6	B	B	G	G	3.3	3.2	3.3	4.8	3.4	G	G	
10	G	2.5	5.0	3.6	2.5	3.0	3.1	4.3	4.5	P	4.3	5.3	5.2	P	5.0	5.0	6.2	3.6	5.4	3.2	2.8	2.8	2.8	2.2	
11	2.2	2.8	2.6	3.2	G	B	B	5.8	5.6	5.0	7.0	8.2	7.0	12.3	(10.0)	11.0	10.8	5.8	5.2	4.5	5.0	3.1	2.4	3.5	
12	3.2	5.0	3.0	2.7	2.8	2.8	3.0	4.8	5.0	C	C	C	C	C	C	C	C	C	C	5.0	4.0	3.0	G	G	
13	3.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	4.2	7.0	4.5	3.8	
14	4.0	3.0	2.8	2.6	2.6	P	4.4	3.0	2.4	7.0	3.8	7.0	6.0	5.0	6.7	5.6	9.0	7.9	3.2	3.3	G	6.2	6.4	7.8	
15	4.2	G	G	G	G	G	2.6	3.1	3.5	9.3	4.6	6.2	9.5	6.0	6.8	5.8	4.0	6.8	7.4	7.4	5.6	7.4	7.1	5.9	
16	6.6	5.3	4.0	4.8	3.0	2.2	2.3	3.9	4.4	5.4	4.3	6.4	6.1	4.7	4.5	5.5	4.7	4.4	3.2	3.8	5.8	3.0	4.0	3.2	
17	2.7	3.0	2.8	3.0	2.2	2.3	3.0	4.0	4.2	C	B	B	3.8	P	G	G	G	4.8	3.8	3.2	3.4	G	G	G	
18	3.6	3.4	4.5	3.5	G	3.0	3.6	5.0	7.0	5.0	7.6	6.7	5.2	5.3	B	B	5.8	6.8	6.0	4.4	4.0	3.0	2.8	G	
19	3.5	2.2	2.3	2.7	2.6	1.7	3.2	5.0	4.8	5.4	5.2	7.0	9.0	5.0	C	3.4	4.8	4.2	G	5.3	9.3	7.2	1.2	7.8	
20	2.2	6.6	2.6	C	2.6	2.3	4.4	C	C	C	C	C	C	C	C	C	C	C	C	C	5.2	5.0	4.8	5.0	4.6
21	4.8	4.6	3.1	G	G	B	4.0	4.4	6.2	5.2	5.2	5.9	4.5	5.6	6.9	5.7	4.4	3.8	3.5	5.0	7.5	5.6	4.0	4.8	
22	4.2	4.0	4.0	3.6	3.4	C	3.2	3.4	4.2	3.8	B	4.4	6.0	6.0	5.8	5.2	5.4	5.7	6.2	5.4	5.6	4.0	4.2	3.0	
23	3.4	4.2	2.5	3.0	3.3	3.2	7.4	5.0	6.0	6.0	6.8	7.6	9.8	8.5	(10.0)	9.8	11.5	(11.4)	12.0	6.0	4.2	3.2	7.3	4.4	
24	3.8	3.2	4.8	5.0	3.0	2.4	3.0	5.4	6.6	5.2	6.0	6.0	(7.0)	7.2	7.8	7.8	2.2	7.2	5.2	4.8	8.0	4.3	3.0	3.8	
25	3.0	5.0	2.9	2.6	2.2	3.0	3.0	5.2	7.0	6.4	5.0	C	C	C	B	5.0	5.0	4.8	3.6	3.4	11.4	11.4	11.3	6.8	
26	4.2	3.3	2.5	2.2	G	G	3.8	4.5	6.6	4.3	5.8	3.6	11.0	4.0	4.2	5.1	5.3	5.0	5.2	4.0	9.0	8.2	10.2	11.0	
27	7.4	2.7	4.6	4.0	3.4	G	4.2	C	C	C	C	C	C	C	C	C	C	C	5.3	C	6.7	7.1	4.4	3.6	
28	2.8	3.2	G	3.0	G	3.0	B	4.7	4.6	6.0	5.7	5.4	4.2	(6.7)	(8.0)	(7.4)	5.4	8.4	8.0	12.6	12.5	4.5	3.0	4.6	
29	2.3	2.9	2.6	2.6	G	3.2	4.2	5.8	4.3	9.1	C	4.7	C	4.0	C	4.2	8.1	4.2	4.6	5.0	5.8	3.4	4.2	4.5	
30	2.8	3.0	2.8	G	G	G	G	4.6	5.4	5.2	6.0	5.8	4.8	5.2	4.7	4.0	4.5	4.2	3.2	3.2	2.3	2.3	2.4	3.5	
31	2.3	4.2	3.8	4.1	2.6	2.8	4.2	5.1	5.4	6.7	6.4	4.8	(5.6)	4.0	6.3	5.9	6.3	3.6	3.5	3.4	3.8	4.8	5.0	3.6	
Median Value	3.0	3.0	2.8	2.7	2.5	2.8	3.3	4.5	4.8	5.2	5.5	6.0	5.6	5.5	5.8	5.5	5.2	4.8	3.9	4.5	5.0	3.7	4.0	3.6	
Count	31	30	30	29	30	22	28	27	28	25	20	21	22	21	23	23	21	27	27	29	31	31	31	31	

Sweep 10 Mc to 11.0 Mc in 1.2 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Denki Tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Lat. 40°36'N
 Long. 139°34'11"E

Fukaura

F₂-M3000

May 1949

Day	135°E Mean Time																														
	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	26	27	28	26	25	23	29	30	23	26	28	28 ^P	27	26	27	27	27	27	27	28	28	28	26	27	27						
2	25	27	27	25	25	26	29	30	27	28	27	27	27	26	27	27	28	27	27	28	28	28	26	26							
3	27 ^B	27	26	26	28	27	29	28 ^P	29	25	26	27	27	26	27	27	28	27	27	28	28	28	27	27							
4	27	27	27	27	25	30	31	27	27	24	26	26	27	28	27	26	26	26	31	28	27	27	25	24							
5	25	26	26	25	26	32	29	28	28	30	28 ^F	30	28	29	27	28	29	30	28	30	(29) ^S	28	26	27							
6	25	26	26	25	25	27	31	(31) ^S	31	29 ^H	30	30	27	28	(28) ^C	29	29	29	(28) ^C	27	24	26	28	26							
7	27	25	25	25	26	27	29	29	29	29	29	29	29	27	28	28	30	A	J	A	A	26	27	25							
8	26	28	30 ^H	27	27	31	29	30	28	27	27	27	B	27	(28) ^S	29	29	(30) ^C	31	J	C	28	26	26							
9	26	28	(27) ^S	26	29	(29) ^S	30 ^H	32	29	27	29	27	28	27	28	28	28	29	28	J	J	28	26	27							
10	26	26	26	25	28	29	30	30	28	29	28	27	27	28	28	28	30	31	31	31	28	28	28	J							
11	28	27	26	27	30	30	31	30	S	C	C	C	C	C	C	29	30	29	30	27	27	27	27	27							
12	27	29 ^S	28	27	28	28	29	31	26	26	27	27	27	30	28	29	29	30	28	29	S	J	28	25							
13	25 ^K	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	27	24	26	25							
14	25	26	27	27	30	25	32	32	29	28	29	28	26	28	27	28	28	27	28	29	29	25	26	24							
15	27	26	25	27	27	25	28	28	29	31	29	26	28	28	27	28	27	30	31	28	28	27	26	28							
16	27	27	(25) ^S	23 ^S	26	29	28	32	30	30	(28) ^C	27	27	27	27	27	27	27	28	29	30	28	27	29							
17	26	25	26	25	26	29	27	28	29	29	30	27	27	29	30	31	29	29	29	30	S	S	25	25							
18	27	28	28	27	28	27	30	29	31	29	27	28	28	26	27	27	28	30	30	29	30	28	26	28							
19	26	28	27	27	27	30	29	29	29	29	28	27	26	27	(27) ^C	27	28	29	28	29	29	28	27	27							
20	28	28	28	(27) ^C	27	F	30	31	C	C	C	C	C	C	C	C	C	C	C	29	27	27	28	28							
21	26	25	28	28	28	29	29	31	27	27	26	26	26	26	27	27	28	29	29	28	28	27	28	25							
22	25	27	27	27	29	(30) ^S	31	27	29	28	27	27	24	27	27	28	28	28	30	29	30	26	25	25							
23	25	28	27	27	26	29	28	28	26	26	26	26	A	A	A	A	A	A	A	28	27	25	24	26							
24	26	27	27	28	26	28	31	30	28	27	26	26	26	27	26	33	27	29	28	29	(28) ^S	28	26	26							
25	27	27	27	26	27	28	27	28	26	31	28	C	C	C	28	27	J	28	30	27	A	A	A	26							
26	27	F	25	26	25	26	29	28	29	27	27	26	26	26	27	28	27	29	28	30	26	F	A	28							
27	29	28	25	24	24	F	24	26	C	C	C	C	C	C	C	C	C	C	(28) ^f	28	27	25	28	28							
28	27	28	26	27	25	27	30	29	29	27	28	27	27	26	26	27	28	29	A	A	A	27	28	28							
29	28	28	27	27	25	29	28	30	29	27	(27) ^C	27	(27) ^C	27	(28) ^C	29	29	29	27	28	28	26	27	26							
30	27	27	29	29	27	30	30	30	30	29	28	28	28	26	29	28	29	29	28	28	27	28	27	26							
31	26	26	26	28	25	24	24	26	27	27	27	(27) ^B	27	28	28	27	28	28	28	28	28	26	25	26							
Mean Value	26	27	27	27	26	28	29	29	29	27	27	27	27	27	27	28	28	29	28	28	28	27	27	26							
Count	31	30	30	30	30	30	30	28	26	27	23	22	21	24	25	25	26	25	25	28	24	27	29	29							

Sweep 1.0-Mc to 1.2-Mc in 1.5-min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

ft. min.

Lat 41°36'N
 Long 139°54'E

Fukaura

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.0	2.0	2.0	1.9	1.9	2.0	2.7	3.8	A	A	5.2	5.0	5.0	(4.7) ^A	4.4	2.8 ^A	3.1	2.3	2.2	(2.2) ^A	2.1	1.4	1.4	1.8
2	1.2	1.8	1.7	1.6	1.7	2.4	2.9	3.3	3.9	4.0 ^A	C	C	C	C	C	C	C	C	2.0	A	A	A	2.2	2.0
3	2.0	2.0	2.0	2.0	2.0	2.2	2.5	4.0	4.0	4.4	4.6	A	A	A	A	A	3.0	2.7	2.7	A	A	A	A	2.9
4	2.8 ^A	1.2	1.1	1.4	1.4	2.1	2.6	3.6	3.8	4.3	4.4	4.3	4.2	4.4	4.0	3.8 ^A	3.8	3.8	2.6	2.3	1.8	(1.8) ^A	1.8	1.9
5	1.8	1.6	(1.4) ^A	1.1	1.4	2.0	2.2	2.6	A	A	5.8	6.0	5.8	6.0	4.6	(4.0) ^A	3.4	3.0	2.1	2.4	(2.2) ^A	2.0	2.0	2.0
6	2.0	2.0	2.0	2.0	2.2	1.8	2.8	3.3	(4.1) ^A	4.4	C	C	C	A	5.2	C	A	2.3	C	A	2.8	2.2	2.0	1.9
7	2.0	1.3	1.3	(1.6) ^A	1.8	2.1	2.5	A	A	A	C	C	C	5.3	A	A	A	A	A	A	A	A	A	A
8	2.0	2.0 ^A	2.0	2.0	2.0	2.2	3.0	3.1	3.8	A	A	A	A	5.8	A	A	3.0 ^A	2.2	2.2	2.0	2.0	2.0	2.0	(2.1) ^A
9	2.2	2.4	2.1	2.0	2.0	2.9	3.2	4.0	A	A	A	A	5.5	4.8	5.0	4.4	3.6	3.0	2.6	2.0	A	A	1.6	1.5
10	1.4	1.7	2.0	1.7	1.8	2.2	3.1	3.6	4.2	4.2	A	A	A	5.0	(5.0) ^A	5.8	A	2.6	2.2	A	A	A	A	A
11	A	1.4	1.9	2.4	1.5	2.0	3.5	A	A	C	C	C	C	C	C	4.0	A	3.8	A	A	A	A	A	1.8
12	1.5	1.4	1.1	1.3	2.0	2.0	A	A	A	A	A	A	A	A	A	A	A	2.5	2.5	A	2.0	2.3	2.0	1.8
13	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.0	(2.0) ^A	2.0	2.0
14	(2.1) ^A	2.2	2.2	2.2	2.2	2.0	2.8	(3.5) ^A	4.2	A	5.2	A	A	A	A	A	3.6	4.1	2.1	2.0	1.9	1.9	1.8	(2.0) ^A
15	2.1	1.2	1.2	1.1	2.3	2.2	2.5	A	4.1	A	A	A	A	A	A	A	2.8	A	A	A	A	A	1.9	(2.2) ^A
16	2.4	2.5	2.2	2.3	(2.3) ^A	2.2	2.0	3.4	4.6	A	C	A	A	5.6	A	A	A	A	A	A	A	2.0	A	A
17	2.0	1.8	1.8	1.8	1.8	2.5	2.8	3.8	C	C	5.4	5.0	5.4	5.2	5.1	4.5	3.0	A	A	A	1.8	2.0	2.0	2.0
18	1.8	2.0	2.0	2.0	1.8	2.2	3.0	A	A	4.3	4.6	4.2	A	5.3	5.0	4.3	4.2	3.4	2.2	2.4	2.0	A	2.0	2.0
19	1.8	2.0	2.0	2.0	2.0	1.3	(2.8) ^A	4.2	4.3	(4.6) ^A	4.8	(5.0) ^A	5.2	5.1	(5.1) ^A	5.0	4.2	3.4	2.2	2.4	2.0	A	1.9	1.9
20	1.3	1.3	E	C	1.2	2.1	3.5	C	C	C	C	C	C	C	C	C	C	C	C	C	2.4	A	A	2.0
21	2.0	A	A	1.2	1.2	2.6	2.8	A	(4.7) ^A	5.4	A	A	A	4.2	(4.0) ^A	3.8	3.6	3.0	A	A	A	A	A	A
22	A	A	2.0	2.0	2.0	C	A	4.0	5.4	5.0	A	A	A	A	A	A	A	A	A	A	A	A	A	2.0
23	2.2	1.7	2.3	2.4	1.9	2.8	(3.3) ^A	3.8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	2.2
24	(2.0) ^A	1.8	1.6	1.2	1.8	2.2	(2.8) ^A	3.4	A	A	A	A	A	A	A	A	A	A	A	A	A	A	4.0	2.0
25	2.0	(2.0) ^A	2.0	2.0	2.0	2.0	A	A	A	A	A	C	C	C	4.1	5.2	(4.2) ^A	3.2	2.6	1.8	A	A	A	A
26	2.0	1.4	1.6	1.4	1.3	2.2	2.9	A	A	A	A	A	A	5.1	4.0	A	A	A	A	A	A	A	A	1.4
27	1.6	1.8	2.0	(2.0) ^A	2.0	2.2	3.0	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	2.2	1.3
28	1.4	1.4	1.4	1.2	1.4	2.2	4.0	A	A	A	5.0	5.4	5.4	A	C	A	A	A	A	A	A	2.0	1.8	2.0
29	1.8	1.4	1.4	1.4	1.4	2.6	3.1	A	A	A	C	A	C	A	C	A	3.6	A	A	A	A	2.0	(2.0) ^A	2.0
30	2.0	2.0	1.8	1.8	2.0	2.4	3.1	4.2	A	A	A	A	A	A	A	A	3.1	2.0	2.6	1.7	1.8	1.8	2.0	2.0
31	2.0	1.6	1.5	1.8	1.8	2.3	3.1	3.6	A	A	A	A	B	5.4	A	A	A	3.2	2.5	2.8	2.6	(2.3) ^A	2.0	2.0
Median Value	2.0	1.8	2.0	1.8	1.9	2.2	2.9	3.6	4.2	(4.3)	(5.2)	(5.0)	(5.4)	5.1	5.0	4.4	3.6	3.1	2.5	2.2	2.0	2.0	2.0	2.0
Count	28	28	29	29	30	29	27	17	10	9	9	8	7	12	13	11	11	17	13	13	11	14	20	25

Sweep 1.0 - Mc to 11.0 Mc in 1.5 min

Manual

F 10

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

18 min

Fukaura

Lat 40°36.6'N
Long 139°34.1'E

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	B	2.0	1.8	1.8	2.0	2.0	2.0	2.0	2.0	2.2	2.0	1.8	1.8	1.3	1.4	1.4	1.4	1.4	1.4
2	G	G	G	G	G	B	2.1	2.0	1.9	1.9	C	C	C	C	C	C	C	C	C	B	1.7	1.7	1.7	1.8
3	2.0	1.8	1.8	2.0	2.0	2.0	1.8	2.2	2.0	2.0	2.2	2.2	2.2	2.2	2.0	2.0	2.1	1.9	1.8	1.8	2.0	1.8	2.0	2.0
4	1.8	G	1.3	E	G	1.4	1.4	1.8	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	1.8	1.9	1.8	1.5	1.5	1.5	1.5	1.4
5	1.4	1.4	1.4	1.1	1.1	1.5	2.1	2.0	2.1	2.2	2.0	2.0	2.0	2.0	2.2	2.2	2.0	2.0	1.9	2.2	2.0	2.0	2.0	G
6	G	G	G	G	G	B	2.0	2.0	1.8	2.0	G	C	C	2.0	2.1	(2.1)	2.0	1.8	(1.8)	1.8	1.9	1.7	2.0	1.8
7	2.5	1.3	1.2	E	1.2	1.7	1.7	1.8	1.9	2.0	C	C	1.9	2.0	2.0	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0
8	G	G	G	G	G	2.0	2.0	2.0	1.8	2.0	2.2	2.5	2.5	2.1	2.5	2.5	2.2	2.0	2.2	2.0	1.6	G	2.2	2.0
9	2.0	2.0	G	2.0	2.0	B	2.0	2.1	2.0	2.0	2.2	2.5	2.1	2.2	2.1	2.2	2.1	1.9	1.8	1.4	1.4	1.4	G	G
10	G	1.7	2.0	1.6	1.8	2.0	1.8	2.0	2.2	2.1	2.2	2.2	2.0	(2.4)	2.8	2.4	2.0	1.8	1.8	1.8	2.0	1.8	1.8	1.8
11	2.0	1.4	1.4	1.5	1.5	B	2.2	2.2	2.0	G	C	C	C	C	C	1.8	2.0	1.8	1.8	1.4	1.4	1.8	2.1	1.4
12	1.4	1.3	1.1	1.3	1.2	2.0	1.4	2.0	3.0	2.2	2.2	2.3	2.0	2.0	1.9	2.0	2.2	2.0	2.0	2.0	2.0	2.6	G	G
13	2.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.0	1.8	1.8	2.0
14	2.0	1.8	2.0	2.0	2.2	(2.0)	1.8	1.8	2.0	2.2	2.2	2.3	2.0	2.0	2.0	2.0	2.0	1.8	1.5	1.8	G	1.7	1.8	1.8
15	1.8	G	G	G	G	1.5	1.8	1.8	1.8	1.8	2.0	2.2	2.4	2.4	3.0	2.0	2.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9
16	1.9	2.0	2.0	2.3	2.0	2.2	2.0	2.0	1.8	1.8	1.8	1.9	2.1	2.1	1.6	2.0	2.0	2.0	1.8	1.9	2.0	1.7	1.3	1.8
17	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	(1.9)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.8	1.9	1.3	1.4	G	G	G
18	1.8	2.0	2.0	1.8	G	1.8	2.0	2.0	1.9	1.8	1.8	2.0	2.0	2.2	2.0	2.0	2.0	1.8	2.0	2.0	2.0	2.0	2.0	G
19	1.8	2.0	2.0	2.2	2.0	E	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	(2.0)	2.0	2.0	1.8	1.7	1.8	1.5	1.4	1.5	1.2
20	1.2	E	E	E	E	2.0	2.0	2.0	C	C	C	C	C	C	C	C	C	C	C	C	2.0	2.0	2.0	2.0
21	1.2	1.2	1.2	G	G	B	2.0	2.1	2.2	2.0	2.0	2.0	2.2	2.1	2.1	1.9	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.2
22	2.2	2.0	2.0	2.0	2.0	(2.0)	2.0	2.0	2.2	2.2	2.2	2.2	2.0	2.2	2.2	2.2	2.0	1.8	2.0	1.8	1.8	1.8	2.0	1.8
23	1.8	1.1	1.4	1.4	1.3	1.8	1.7	1.8	1.8	2.0	2.0	2.3	1.2	2.1	2.1	2.1	2.1	2.1	2.0	1.8	1.8	1.5	1.9	2.0
24	2.0	1.2	1.2	1.2	1.8	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.0	2.0	2.0	1.4	1.8	2.0	2.0
25	1.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.8	1.5	1.5	1.5
26	1.5	1.5	1.5	1.4	G	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	1.9	2.1	1.9	2.0	2.0	1.9	1.4	1.8	1.8	1.4
27	1.6	1.7	1.7	1.8	1.8	2.2	2.0	C	C	C	C	C	C	C	C	C	C	C	1.9	(1.7)	1.4	1.5	1.3	1.4
28	1.3	1.2	G	1.2	G	2.0	2.0	2.0	2.0	2.2	2.4	2.3	2.2	2.2	2.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.2	1.4
29	2.0	2.0	1.9	2.1	G	1.9	2.0	2.0	2.0	(2.0)	2.0	(2.0)	2.0	(2.1)	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
30	2.0	1.6	1.8	G	G	2.0	2.2	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.8	1.8	1.8	1.6	1.7	1.8	2.0
31	2.0	1.1	1.1	E	1.5	1.8	1.8	2.1	1.9	2.0	1.9	2.0	3.9	2.2	2.1	4.0	2.0	1.8	1.9	2.0	2.0	2.0	2.0	2.0
Median Value	1.8	1.4	1.4	1.4	1.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8
Count	31	30	30	29	30	24	30	28	27	24	23	24	26	26	26	27	27	27	28	30	31	31	31	31

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

Lat 37°57.0'N
 Long 139°15.8'E

Shibata

f_oF₂

May 1949

IONOSPHERIC DATA

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	8.6	9.4	8.4	8.1	7.4	8.3	9.3	10.9	11.4	11.3	11.4	12.4	12.6	12.4	12.4	12.8	12.2	12.2	12.2	12.4	12.4	12.4	12.4	12.4	12.4
2	9.4	9.6	9.3	8.1	7.7	8.7	10.6	11.8	11.1	10.6	11.2	11.7	12.4	12.9	13.3	13.2	12.1	11.8	10.7	10.1	9.6	9.3	9.5	9.3	9.3
3	8.6	8.4	8.1	7.9	7.7	9.4	10.9	10.2	10.2	10.7	11.2	11.7	12.1	12.6	12.3	11.9	10.4	10.1	9.4	9.7	7.5	7.3	7.3	7.4	7.4
4	8.6	8.2	7.8	7.5	7.0	8.1	9.2	10.0	10.1	10.7	12.2	11.7	13.2	13.2	13.3	13.2	12.4	10.3	10.7	9.7	7.5	7.3	7.3	7.4	7.4
5	7.4	7.7	7.1	7.0	7.1	8.3	9.1	10.0	10.9	11.5	11.2	12.0	12.5	12.7	12.1	11.8	11.2	10.6	10.6	11.4	10.1	9.0	8.6	8.4	8.4
6	8.0	7.8	7.6	7.4	7.4	9.1	11.3	10.0	10.2	10.1	11.3	11.1	11.5	11.8	12.2	12.2	11.7	11.0	10.3	9.5	8.7	9.3	9.1	8.8	8.8
7	8.3	7.9	7.7	7.8	7.6	9.2	10.2	10.8	10.2	10.1	11.3	11.1	11.5	11.8	12.2	12.2	11.7	11.0	10.3	9.5	8.7	9.3	9.1	8.8	8.8
8	9.1	9.0	8.8	8.3	7.1	8.4	9.6	11.4	10.1	10.7	11.6	12.7	12.5	13.3	12.9	13.3	13.6	13.2	12.9	11.4	9.2	8.6	9.2	8.9	8.9
9	8.9	9.0	8.6	8.3	8.3	8.9	9.5	10.4	10.5	10.2	10.9	11.1	11.2	11.2	12.5	12.8	11.8	11.0	10.6	9.4	9.2	8.5	8.4	8.3	8.3
10	8.1	8.0	8.1	7.7	8.0	8.6	10.0	10.7	11.3	11.7	11.2	11.5	11.8	12.3	13.0	13.0	12.8	11.3	10.6	9.4	9.2	8.0	8.4	8.4	8.3
11	9.1	8.4	8.5	8.6	8.5	9.2	10.1	10.8	10.3	10.1	11.2	11.5	11.8	12.3	13.3	13.3	11.6	11.4	10.1	8.7	9.2	9.0	8.4	8.1	8.1
12	9.0	8.6	7.9	8.0	7.8	9.1	10.0	9.2	9.6	10.6	11.4	12.0	11.6	11.8	12.2	11.7	11.5	11.5	11.1	10.1	8.5	8.0	8.4	8.3	8.3
13	8.8	8.7	8.7	8.2	8.1	8.8	9.8	10.8	10.2	10.2	11.1	11.6	12.1	12.1	12.1	12.1	11.4	11.4	10.0	9.4	9.4	8.5	8.0	8.1	8.1
14	8.6	8.6	8.6	8.2	8.1	8.8	9.8	10.8	10.2	10.2	11.1	11.6	12.1	12.1	12.1	12.1	11.4	11.4	10.0	9.4	9.4	8.5	8.0	8.1	8.1
15	8.9	8.5	8.7	8.2	8.0	8.8	9.8	10.8	10.2	10.2	11.1	11.6	12.1	12.1	12.1	12.1	11.4	11.4	10.0	9.4	9.4	8.5	8.0	8.1	8.1
16	8.2	8.0	7.6	7.1	7.4	8.6	9.4	10.6	10.5	10.2	10.1	10.8	11.4	11.9	11.9	11.9	10.9	10.5	10.4	9.2	9.4	8.5	7.8	8.1	8.1
17	7.6	7.6	7.6	7.5	7.0	7.8	8.1	7.5	7.1	8.2	8.8	9.6	9.8	10.3	10.1	10.1	8.1	8.1	8.1	8.1	9.4	8.5	7.7	8.0	8.1
18	8.1	8.1	7.9	7.6	7.7	8.5	9.6	10.7	9.8	8.8	9.2	9.7	10.0	10.1	10.0	10.0	8.1	8.1	8.1	8.1	9.4	8.5	7.7	8.0	8.1
19	8.6	8.3	8.2	8.1	8.3	9.2	10.2	10.0	10.1	9.9	11.0	11.8	11.9	11.6	12.1	12.1	11.9	11.3	10.9	10.4	9.4	8.5	7.7	8.0	8.1
20	8.2	8.1	8.5	8.1	8.1	8.8	10.3	10.5	10.4	10.4	10.8	10.8	11.1	11.3	12.2	12.2	11.8	11.8	11.0	10.5	9.7	9.1	8.5	8.2	8.2
21	8.2	8.1	8.5	8.1	8.1	8.8	10.3	10.5	10.4	10.4	10.8	10.8	11.1	11.3	12.2	12.2	11.8	11.8	11.0	10.5	9.7	9.1	8.5	8.2	8.2
22	9.0	8.3	8.6	8.0	7.4	8.5	9.4	10.1	8.7	9.1	9.5	9.9	9.7	10.4	10.9	10.9	11.7	11.3	10.7	9.1	8.5	9.1	9.3	9.3	9.3
23	9.1	9.4	9.0	7.0	7.3	8.0	8.8	8.6	8.1	7.4	7.4	8.6	8.6	8.5	9.2	9.2	9.0	8.4	8.2	8.5	7.5	7.7	8.2	8.2	8.2
24	8.0	7.5	7.0	6.8	6.8	7.7	9.6	9.5	9.1	9.1	10.1	10.3	10.9	10.5	10.3	10.4	10.3	10.2	10.0	9.2	8.1	8.3	7.8	8.7	8.7
25	9.0	9.2	7.9	7.8	7.8	8.7	9.6	8.8	9.0	9.4	10.2	10.2	10.2	10.2	10.1	10.1	9.6	9.5	8.4	8.1	7.3	8.2	8.3	8.3	8.3
26	7.3	7.0	6.9	7.1	7.1	7.9	9.7	10.7	9.7	9.3	10.2	9.9	9.4	10.2	10.1	10.0	9.4	9.1	8.8	8.6	8.4	7.6	8.3	8.6	8.6
27	8.6	8.4	8.4	8.4	8.4	8.4	9.5	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	9.4	9.4	8.6	8.2	8.4	7.6	8.3	8.6	8.6
28	8.6	8.4	8.4	8.4	8.4	8.4	9.5	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	9.4	9.4	8.6	8.2	8.4	7.6	8.3	8.6	8.6
29	8.2	8.0	7.5	7.4	7.2	8.4	10.3	10.7	9.2	9.5	8.7	8.7	9.2	9.2	9.5	9.5	9.1	9.2	9.3	9.7	9.3	9.2	10.1	9.9	9.9
30	10.1	10.3	9.1	8.5	8.3	9.1	10.4	10.4	9.4	9.3	9.2	9.1	9.2	10.2	10.9	10.5	10.3	10.1	9.4	9.5	9.0	8.4	9.1	8.9	8.9
31	8.7	8.4	8.7	8.3	8.1	7.8	9.0	10.6	10.1	9.6	8.7	8.4	9.4	9.0	8.6	9.1	9.8	9.2	8.5	7.8	7.4	7.9	8.0	8.9	8.9
Mean Value	8.6	8.2	7.9	7.6	7.4	8.5	9.6	10.3	10.1	9.4	10.1	10.1	11.0	11.2	10.9	11.4	10.9	10.3	9.1	9.5	9.0	8.6	8.8	8.9	8.9
Count	24	24	24	24	24	24	30	28	27	27	26	26	26	27	27	27	28	31	30	29	24	30	22	30	30

Sweep 1.0 - Micro 1.0 Mc. m.l.f. min Manual

S 1

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Lat 37°57.0'N
Long 139°15.8'E

Shibata

hp F.

May 1949

155°E Meas. Time

Day	155°E Meas. Time												37°57.0'N 139°15.8'E											
	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	430	340	320	400	400	350	320	340	380	400	420	400	380	390	380	370	370	360	360	330	360	380	370	370
2	400	370	350	370	380	350	320	310	360	400	410	400	400	340	340	340	360	350	320	380	370	370	370	370
3	430	410	410	390	410	390	320	310	340	340	370	360	360	340	340	360	340	350	350	340	330	400	410	360
4	370	390	350	340	400	330	310	370	330	400	390	380	380	400	360	360	340	340	350	320	400	400	410	410
5	420	390	440	410	380	300	310	330	330	360	370	380	360	370	370	320	340	320	350	310	320	350	410	370
6	370	380	340	370	440	320	290	310	310	310	310	310	310	310	310	360	330	330	370	A	A	A	A	300A
7	290	300	400	400	400	340	310	330	320	330	380	350	370	350	400	A	370	350	320	A	A	390F	390	350
8	320	380	330	360	410	370	310	310	350	440	380	370	370	400	390	370	370	320	320	300	320	420	370	400
9	410	400	460	380	390	330	340	300	350	380	380	370	380	380	340	340	340	340	320	340	310	410	390	390
10	410	390	390	440	340	300	300	320	320	320	320	320	320	320	320	360	320	310	310	320	380	380	380	320
11	400	390	340	380	380	300	300	320	320	460	380	350	350	450	370	370	360	310	320	330	350	410	400	410
12	370	340	340	360	380	330	290	300	330	400	380	350	340	380	350	350	340	330	300	340	S	S	B	380
13	510F	500F	590F	800F	530F	S	B	C	C	C	C	C	C	C	C	C	B	BF	A	A	380	400	4400	400*
14	460	410	410	360	310	310	300	320	300	340	400	380	360	360	370	380	330	320	320	310	360	340	350	380
15	420F	340	410	410	480	380	300	320	310	340	350	370	380	380	340	340	310	310	310	320	360	380	400	370
16	370	350	330	370	380	330	300	320	310	300	380	380	370	380	350	340	360	360	310	350	310	380	380	410
17	400	400	430	420	400	340	350	330	320	320	380	360	360	320	330	330	320	320	350	300	370	410	400	400
18	380	360	340	350	380	320	310	320	320	320	380	380	390	360	340	A	A	350	330	330	370	370	400	390
19	390	370	370	370	340	290	300	320	320	410	400	360	360	380	340	360	320	310	330	330	380	410	B	B
20	BF	C	C	C	C	C	C	C	C	C	C	C	C	C	C	380	340	320	330	300	360	370	350	330
21	360	390	370	370	340	320	320	340	370	380	360	380	380	400	380	380	370	350	320	330	330	410	380	410
22	380	380	350	340	350	320	370	290	290	360	340	360	370	390	380	390	320	320	300	310	410	400	370	390
23	380	370	320	340	410	300	340	370	450	450	450	400	400	400	360	340	350	360	300	330	360	410	390	390
24	380	390	380	390	390	300	350	300	380	360	410	400	380	360	380	370	340	340	300	300	370	420	400	400
25	400	390	380	400	350	330	340	440	400	400	390	380	380	380	380	360	310	310	300	360	320	410	370	320
26	320F	450F	390F	380F	400F	390F	320F	310	350	310	380	390	400	380	380	350	340	330	340	330	380	370F	360F	390F
27	A	SF	SF	F	F	F	F	C	C	C	C	C	C	C	C	C	370	340	320	330	380	330	340	390
28	390	370	S	SF	380	380	330	300	310	430	390	360	400	400	390	360	320	310	320	360	370	370F	390	370
29	350	370	390	380	400	340	320	410	310	340	400	380	380	390	380	390	380	380	330	320	330	340	400	380
30	390F	360F	360F	320F	320F	310	300	320	320	320	390	390	400	400	380	380	370	350	320	330	380	380	380	390
31	400F	310	350	320	340	480	510	380	330	390	340	430	380	360	400	380	340	310	320	360	390	420	490	420
Mean Value	390	380	340	370	380	330	320	310	320	360	390	380	380	380	380	360	340	310	320	330	360	390	390	390
Count	29	29	28	28	29	29	30	28	27	26	26	26	25	27	27	27	28	31	30	29	28	29	28	30

Sweep 110 Mc to 11.0 Mc in 1.5 min

Manual

S 2

IONOSPHERIC DATA

May 1949

h_pF₂

Shibata

Lat 37°57'0"N
Long 139°15'8"E

155°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	310	290	260	250	280	260	240	260	250	270	300	370	350	330	350	300	350	230	240	240	270	(300)	(300)	290
2	290	280	270	250	260	240	210	210	200	280	260	350	340	360	350	280	270	(280)	280	250	290	(250)	(300)	290
3	290	(300)	280	(300)	310	280	330	320	320	310	300	300	320	320	280	300	250	240	250	(270)	280	(300)	(300)	290
4	(300)	290	280	270	280	260	250	250	270	300	370	290	310	300	330	330	270	240	270	260	230	300	300	320
5	300	290	300	300	300	250	230	220	230	260	300	330	300	300	300	270	240	240	230	230	220	220	240	260
6	280	310	270	280	320	280	220	C	C	C	C	C	C	C	C	240	240	240	230	260	A	A	A	300
7	290	300	400	(300)	290	280	240	250	270	260	330	360	330	310	330	360	(340)	310	340	A	A	370	370	290
8	280	270	250	250	310	230	230	220	220	270	(240)	340	300	300	340	320	310	270	270	250	270	260	240	290
9	300	(300)	290	(300)	240	240	240	280	270	290	270	270	280	360	340	290	290	240	230	220	280	280	280	300
10	290	300	290	(300)	270	220	220	210	250	260	C	C	C	C	320	320	270	240	260	250	(340)	(300)	(300)	290
11	(300)	290	(300)	290	250	250	240	240	240	220	340	320	310	310	340	300	250	250	220	230	290	280	300	310
12	300	280	280	290	270	290	270	210	300	300	310	320	310	(320)	320	A	A	300	250	240	A	A	A	230
13	340	410	500	540	480	380	(350)	C	C	C	C	C	C	C	C	C	440	(330)	220	A	A	350	370	310
14	A	A	A	A	220	240	230	220	(300)	290	400	370	350	340	350	330	310	280	260	260	250	260	260	270
15	320	280	250	300	300	260	240	300	250	300	380	300	320	(330)	340	(300)	(290)	290	270	250	250	300	290	290
16	(300)	290	290	290	300	260	230	250	280	250	290	310	330	320	310	300	(300)	(290)	290	270	250	300	290	290
17	310	(300)	280	310	310	300	300	310	360	300	400	330	360	310	300	300	320	280	280	230	230	290	310	300
18	280	260	250	250	270	250	260	290	280	300	350	370	370	370	300	320	A	A	290	270	330	350	300	370
19	(300)	(300)	(300)	290	290	240	240	240	280	280	330	360	360	330	360	320	300	300	270	290	260	280	300	320
20	(300)	C	C	C	C	C	230	C	C	C	C	C	C	C	C	310	310	280	270	260	270	270	290	(310)
21	270	(310)	(300)	270	(260)	240	240	230	250	260	330	310	(340)	370	340	310	(290)	260	250	240	230	300	270	290
22	280	(300)	(300)	250	270	230	220	220	(220)	350	280	350	330	370	(360)	340	290	290	260	250	280	280	280	(300)
23	(300)	(300)	260	200	270	240	230	230	340	430	(420)	410	380	370	340	320	290	300	300	270	250	270	370	(300)
24	280	(300)	290	300	(300)	260	280	270	250	280	380	390	350	310	330	350	320	340	270	250	250	380	(310)	(300)
25	(300)	280	250	290	270	250	280	(380)	400	340	380	(370)	350	(330)	360	330	300	280	240	270	250	330	330	A
26	A	300	320	(300)	310	270	270	280	300	300	340	350	380	370	(350)	330	290	290	340	(310)	280	330	330	330
27	(300)	270	300	310	330	280	240	280	C	C	C	C	C	C	C	340	340	300	290	300	340	(360)	370	310
28	(300)	(300)	280	340	290	250	250	270	280	320	360	340	350	400	390	340	290	280	280	310	(330)	340	300	270
29	260	260	270	290	300	240	280	280	250	200	290	380	350	310	360	350	350	(290)	290	260	(300)	340	280	270
30	(300)	270	250	250	230	220	220	230	220	320	350	380	370	370	330	340	310	240	240	270	280	280	290	(300)
31	(300)	(300)	280	260	280	270	360	330	300	350	330	400	370	360	380	370	300	290	280	300	280	220	(300)	380
Median Value	300	280	290	260	240	250	270	290	330	380	340	330	340	330	340	320	300	290	270	260	270	300	300	300
Count	29	29	29	30	31	28	27	27	26	26	26	27	27	27	27	27	27	27	31	31	29	29	30	30

Sweep 100 Mc to 150 Mc in 1.5 min

Manual

S 3

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Day	May 1949		h _p F ₁		135° E Mean Time																	Shibata		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						Q	Q	230	230	220	220	210	210	210	220	200	A	A	Q	Q				
2						Q	Q	Q	Q	Q	200	200	(210)	220	220	230	(230)	220	Q	Q				
3						Q	Q	230	Q	220	210	220	210	210	220	220	220	A	A	Q	Q			
4						Q	Q	Q	Q	240	210	200	210	200	210	240	240	Q	Q	Q	Q			
5						Q	Q	Q	Q	220	A	Q	Q	Q	210	210	230	Q	Q	A	A			
6						Q	Q	C	C	C	C	C	C	C	C	Q	Q	Q	Q	A	A			
7						260	Q	A	(230)	A	210	210	210	A	A	A	A	A	A	A	A			
8						Q	Q	Q	Q	240	(230)	210	240	220	220	210	230	240	Q	Q	A			
9						Q	Q	240	Q	220	200	210	220	220	220	220	220	220	Q	Q				
10						Q	Q	Q	Q	210	220	C	C	210	A	A	A	A	A	A	A			
11						Q	Q	220	Q	A	210	190	220	A	A	A	230	Q	Q	Q	Q			
12						270	230	Q	A	A	220	A	A	C	C	C	A	A	A	A	A			
13						A	210	C	C	C	C	C	C	C	C	C	C	A	A	A	A			
14						Q	Q	Q	A	A	A	230	250	200	220	220	A	A	A	A	A			
15						Q	220	(220)	210	(220)	200	190	210	A	A	A	A	A	A	A	A			
16						Q	Q	230	250	(230)	210	A	A	A	A	230	220	A	A	A	A			
17						270	250	240	220	220	210	210	200	210	220	220	220	230	230	Q	Q			
18						Q	230	200 ^A	Q	A	200	A	A	A	A	A	A	A	A	A	A			
19						Q	Q	Q	Q	220	(220)	220	220	200	A	A	A	220	220	A	A			
20						C	Q	C	C	C	C	C	C	C	C	C	240	250	240	250	A			
21						Q	Q	210 ^F	220	A	Q	A	A	(250)	230	A	A	A	A	A	A			
22						Q	Q	Q	A	200	210	210	210	220	220	220	A	A	A	A	A			
23						Q	Q	A	230	220	A	A	A	240	250	250	230	260	A	A	A			
24						Q	220	230	210	220	290	280	(280)	270	(250)	220	A	A	A	A	A			
25						Q	230	A	A	210	A	A	A	220 ^A	230	240	(230)	220	A	A	A			
26						Q	230	A	A	A	210	200	230	210	(240)	260	(260)	250	A	A	A			
27						Q	Q	A	C	C	C	C	C	C	C	C	A	A	A	A	A			
28						Q	230 ^F	230	A	A	A	A	A	A	A	A	A	240	A	A	A			
29						Q	250	A	A	A	200	200	200	200	230	(270)	300	(280)	250	A	A			
30						Q	Q	Q	Q	A	210	260	260	260	210	A	A	A	A	A	A			
31						Q	270	280	A	A	220	210	220	230	(260)	280	240	A	A	A	A			
Mean Value						-	230	230	230	220	220	210	220	210	220	230	230	230	230	230	230			
Count						3	10	11	15	12	16	19	18	21	19	18	14	11	14	11	4			

Sweep 1.0 Mc to 17.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

LOT 47-570 N
 Long 139°15.8'E

Shibata

May 1949

fE

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	25	
1	1.6 (2.6) ^F	3.1	(3.3) ^B	3.3	3.8 ^F	(3.7) ^F	3.4	A	A	A	(2.2) ^F	3.5														
2	1.7	2.3	3.0	3.4	(3.5) ^B	(3.5) ^B	3.5	4.1	3.3	3.7	3.0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
3	1.7	2.4 ^F	3.2	(3.5) ^F	3.8	3.8	A	A	3.7	3.7	3.0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
4	2.0 (2.6) ^F	3.1 ^F	2.7 ^F	3.6	3.8	3.9	3.9	(4.0) ^F	4.0	3.5	3.4	3.0	A	A	A	A	A	A	A	A	A	A	A	A	A	
5	A	2.5	3.1	3.5	3.6	3.7	3.7	A	A	3.4	(3.4) ^F	3.3	2.9	A	A	A	A	A	A	A	A	A	A	A	A	
6	(1.9) ^A	2.6 ^F	C	C	C	C	C	C	C	C	C	C	C	C	C	C	3.4	3.3	2.8	2.0	A	A	A	A	A	
7	A	A	A	3.3	3.7	(3.8) ^F	(3.7) ^F	3.5	A	A	A	A	A	A	A	A	3.3	2.9	2.1	A	A	A	A	A	A	
8	1.8	2.9 ^H	(3.1) ^A	3.3	3.6	3.7	3.9	(3.9) ^B	3.7	(3.6) ^B	3.5	(3.7) ^F	(2.1) ^A	A	A	A	3.3	2.9	2.2	A	A	A	A	A	A	
9	A	2.7	3.2	3.5	3.7	3.8	3.9	3.8	3.7	3.8	3.6	3.4	2.9	2.2	A	A	3.4	3.4	2.8	A	A	A	A	A	A	
10	2.0	2.6 ^F	3.0	3.4 ^F	3.7	C	C	C	C	C	C	C	C	C	C	C	3.4	3.4	2.8	A	A	A	A	A	A	
11	(1.9) ^A	2.7 ^F	3.2	3.5	3.4	3.5	A	A	3.8	3.7	3.5	3.1	2.9	2.2	A	A	3.1	2.9	2.2	A	A	A	A	A	A	
12	A	2.9	3.0	3.4	3.5	3.7 ^B	3.8	3.6	3.4	A	A	A	A	2.3	A	A	A	A	2.3	A	A	A	A	A	A	
13	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	2.2	A	A	A	A	A	A	
14	1.9	2.5	2.9 ^H	A	A	A	3.6	3.7 ^B	3.8	3.4	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
15	1.7 ^F	A	A	A	3.2	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
16	1.9 ^F	2.7 ^F	3.0	3.3	3.8	4.0	(3.9) ^F	3.8	3.8	3.5	3.5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
17	A	2.5	3.1	3.4	3.3	(3.6) ^F	3.8	(3.9) ^F	3.9	3.9	3.6	3.4	2.9	2.0	A	A	3.4	3.4	2.9	2.0	A	A	A	A	A	
18	B	A	A	3.4	(2.8) ^F	3.8 ^H	3.6	A	A	A	A	A	A	A	A	A	3.8	3.4	A	A	A	A	A	A	A	
19	2.1	2.7	3.1	3.4	3.6	3.8 ^H	(3.6) ^F	3.4	3.3	3.3	3.4	3.5	(3.6) ^F	A	A	A	3.2	3.2	A	A	A	A	A	A	A	
20	C	(2.8) ^A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	3.9 ^F	3.2	A	A	A	A	A	A	A	
21	2.1	2.6	3.1	3.4	3.6	3.8 ^H	3.9	3.7	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
22	(1.9) ^F	2.7	3.0	(3.3) ^F	3.5	3.7	3.7	B	A	C	C	C	C	C	C	C	3.4	A	A	A	A	A	A	A	A	
23	2.1 ^F	(2.6) ^A	3.3 ^F	3.5 ^F	3.7	3.8	(3.6) ^B	3.8	3.9	3.8	3.6	3.2	2.8	A	A	A	3.2	2.8	A	A	A	A	A	A	A	
24	1.9 ^F	2.7	3.2	3.6	A	A	A	A	3.8	(3.9) ^F	4.0	3.6	3.4	(2.7) ^A	2.3	A	3.4	3.4	(2.7) ^A	2.3	A	A	A	A	A	
25	1.7 ^F	2.3	3.1	3.3	3.5	3.6	4.0	4.1	3.9	3.6	3.6	3.2	2.9	2.0	A	A	3.2	3.2	2.9	2.0	A	A	A	A	A	
26	A	A	3.2 ^F	3.3	3.5	3.7	(3.6) ^F	3.4	3.3	3.6	3.4	3.1	A	A	A	A	3.2	3.2	A	A	A	A	A	A	A	
27	2.0	2.8	3.1	C	C	C	C	C	C	C	C	C	C	C	C	C	3.2	A	A	A	A	A	A	A	A	
28	1.9 ^F	(2.6) ^A	3.3 ^F	(3.3) ^F	3.5	3.7 ^F	4.0	4.0	(4.0) ^F	3.9	3.7	3.4	3.0	A	A	A	3.4	3.0	A	A	A	A	A	A	A	
29	2.0	2.7	3.2	3.5	3.7	3.8	3.4	3.6	3.3	3.7 ^H	3.5	3.4	3.0	A	A	A	3.4	3.0	A	A	A	A	A	A	A	
30	1.9	2.9	3.1	3.7 ^F	3.7	3.8	3.7	3.6	3.2	3.4	3.3	3.0	A	A	A	A	3.2	3.0	A	A	A	A	A	A	A	
31	1.9	2.9 ^H	3.1	3.6 ^F	3.6	3.8 ^F	3.7	3.7	3.7	3.5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Mean Value	1.9	2.7	3.1	3.4	3.6	3.8	3.7	3.8	3.8	3.7	3.6	3.3	2.9	2.2	-	-	3.3	2.9	2.2	-	-	-	-	-	-	
Count	22	26	25	26	25	24	23	20	19	19	22	22	17	11	-	-	22	17	11	-	-	-	-	-	-	

Sweep - 1.0 Mc to 1.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

h'E

Lat. 37°37.0'N
Long. 139°15.8'E

Shibata

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						B 120 ^F	110	100	100	100	100	100	100	100	A	A	A	A	A	B				
2						B 100	100 ^F	100	100	100	100	100	100	100	110	110	100	110	A	A				
3						A 120	100 ^F	100	100	100	100	100	100	100	100	100	100	100	A	A	A			
4						B A 120	100	100	100	100	100	100	100	100	100	100	100	100	100	A	A			
5						A 110	100	100	100	100	100	100	A	A	100	100	100	100	100	A	A			
6						A A	A	C	C	C	C	C	C	C	C	C	100	110	130	A				
7						A A	A	100	100	100	100	100	A	A	A	A	100	100	110	110	A			
8						B 110 ^H	110 ^F	100	110	110	100	100	100	100	100	100	100	100	A	B	A			
9						A 120	100	100	100	100	120	100	100	100	100	100	100	100	100	A	100			
10						A 100	100	100	100	100	C	C	C	C	B	100	100	100	100	A				
11						A 100	100	100	100	100	100	100	100	100	100	100	100	100	100	A				
12						A 100	100	100	100	100	100	100	100	100	100	100	100	100	100	A				
13						A A	A	C	C	C	C	C	C	C	C	C	C	A	A	110	A			
14						110	110	110 ^H	A	A	100	100	100	100	A	A	A	A	A	A	A			
15						110	A	A	100	100	A	A	A	A	A	A	A	A	A	A	A			
16						150 ^F	120	100	110	100	100	100	100	100	100	100	100	100	100	A				
17						A 110	110	100	100	100	100	100	100	100	100	100	100	100	100	A				
18						B A	A	100	100	100	100	100	A	A	A	100	100	100	100	A				
19						140	120	110	110	100	100 ^H	A	100	100	100	100	100	100	100	A				
20						C	A	A	C	C	C	C	C	C	C	C	110	100	A	A				
21						140	100	100	100	100	100	100	100	100	A	A	A	A	A	A				
22						A A	100	100	100	100	100	100	100	100	A	A	A	A	A	A				
23						100	110 ^F	100	100	100	100	100	100	100	100	100	100	100	100	A				
24						100	100 ^F	100	100	100	100	100	100	100	100	100	100	100	100	A				
25						110 ^F	100	100	100	100	100	100	100	100	100	100	100	100	100	A				
26						A A	100	100	100	100	100	100	100	100	100	100	100	100	100	A				
27						140	120	110	C	C	C	C	C	C	C	C	110	110	110	A				
28						120	110 ^F	100	100 ^F	100	100	120	100	100	100	100	100	100	100	A				
29						120	110	100	100	100	100	100	100	100	100	100	100	100	100	A				
30						100	110	100	100	100	100	100	100	100	100	100	100	100	100	A				
31						110	110 ^H	110	110	100	100	100	100	100	100	100	100	100	100	A				
Mean value Count						13	22	25	26	26	35	24	23	20	14	23	23	16	110					

Sweep 1.0 Mc to 17.0 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

fEs

Shibata

Lat 37°57'0"N
Long 139°15'8"E

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	G	G	G	2.7Y	G	B (3.7)	G	5.4	5.8	5.6	4.7	4.7	4.7	4.8	4.7	4.8	4.8	5.9	3.1	1.7	G	5.4	3.8	2.6	
2	G	G	G	G	G	2.9F	2.4F	4.8	6.7	5.6F	4.8	4.1	6.1	G	G	4.1	5.3	4.9	3.5	3.0	4.4	3.1	6.4	2.8	
3	2.9	3.1	3.0F	3.0F	2.7	(3.5)B	3.8Y	4.1	4.2	4.9	8.6F	6.2	8.4F	7.5	5.4	4.8	5.0	5.0	5.2	8.6F	9.1	9.2	5.3	(5.0)B	
4	3.8	2.8F	1.2	2.8F	1.8	3.1	3.8	4.2	3.3	4.6	5.1F	5.4	7.1	4.1	4.4F	3.9	B	3.7	3.5F	3.4B	3.0	2.7	5.5	1.7	
5	G	2.7	3.0F	2.9F	1.8	2.7	B	3.7F	3.9	4.2	5.6	4.8	5.7	5.4	4.7	4.8	4.0	4.5	4.3	2.9	2.9	2.9	2.4	2.4	
6	2.2	2.7	2.9	2.8B	2.3F	3.0F	C	C	C	C	C	C	C	C	4.8	4.8	4.5	5.2	5.8	6.2	9.0	5.7F	5.1	4.1	
7	3.7	G	2.3	2.9	3.8F	2.5F	4.6F	6.2	6.4	6.3	5.4	6.5	5.3	8.1	8.4	15.5	15.3	10.2	7.6	11.3	15.2	10.6F	9.1	7.4	
8	5.2	3.4	2.4	2.7	2.6	3.3F	B	4.5	5.2	5.8	6.7	6.1Y	7.3F	5.6F	5.0	G	4.9	3.9	2.9	3.8	9.1	G	G	4.2F	
9	7.7	4.6F	4.0	4.4F	3.2	3.0	3.1	4.7	4.8	4.9	4.9	4.4B	4.8	4.2	4.6	4.3	4.3	3.1	3.4	3.1	3.4	5.7	3.4	2.8	
10	1.3	3.0	3.0	1.6	3.0Y	2.8	3.0	7.6	4.7	5.4	C	C	C	B	4.8	4.2	10.7	6.2	6.2	5.7	7.8	4.2	4.3	3.0	
11	2.2	2.7	3.4	2.3	2.6F	2.8F	4.3	5.7F	5.2	7.1Y	4.2	4.1	B	5.8	12.8	5.8	5.8	5.1	5.8	3.7	(3.4)B	5.4	3.4	3.0	
12	5.2	3.8	2.9	2.7	3.3	2.9F	4.2F	6.0F	5.8	5.7	5.7	7.6B	6.1	12.8B	15.1F	12.0F	10.3F	4.8F	4.5	8.1	8.0	4.0	G	G	
13	2.5	2.5	2.1	2.4F	2.7F	3.0	B	C	C	C	C	C	C	C	C	C	6.4F	7.3F	6.5	8.0F	4.6F	(5.4)F	5.7F	4.2F	
14	4.4	5.3	3.8	3.6F	3.4F	G	3.5	6.9F	6.9	7.0	6.4	4.9	6.5F	7.3	5.5	4.3	7.5	8.0F	5.8	6.2	5.8	4.0	2.8	2.9	
15	5.6F	3.1	2.6	G	1.2F	2.7F	3.4F	4.8	6.9	7.1	4.9	4.8	5.3	11.7	10.4F	11.5F	8.1F	12.8	9.8	6.8F	5.5F	5.2F	7.5F	5.2	
16	7.6F	8.0	7.1	5.5F	4.7	2.2F	B	4.3	7.2	6.2	5.3	7.7	6.2	7.2	8.3	6.1	(7.9)F	11.5	8.7	3.5	9.0	5.8F	4.7	4.2	
17	3.2	4.4	2.3F	2.8F	1.4	3.0	B	5.8	5.5	5.6	3.9	4.8F	(5.8)B	5.0B	4.6F	3.9F	5.2	4.8	3.9	3.4	4.3Y	2.3	1.8	2.9	
18	2.8	3.3B	2.4Y	3.0Y	G	3.3	4.6	5.2	6.7F	8.1	5.0	9.2	8.1	(6.0)	6.0	9.8	10.3	9.5	5.8	9.5	9.2	7.7F	4.9	1.9	
19	2.6	3.8	3.1	1.3	1.4	2.4	3.9	5.2	5.8	6.3	6.8	6.4	7.2	6.5	7.3	5.9	6.2	4.1	4.0	4.6	4.5F	4.9	8.0	6.8Y	
20	6.2F	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	5.8	4.5	4.9	6.5F	7.3Y	4.3F	3.9	3.9	
21	3.1	7.0	4.5	3.5	2.3	B	4.0	5.8	6.1	6.6	6.2	6.7	6.9	6.6	6.3F	7.8F	10.8	6.2	6.1	5.8	3.4	3.4	2.5	10.8	
22	5.6	4.3	4.5	3.2	3.2	4.1	3.2	5.7	5.1	4.0	5.9	5.6	5.7	7.3	C	11.4	11.7	(9.2)F	8.7F	7.1F	(7.2)B	4.0	4.1	4.0	
23	6.3	4.4	3.8	1.7	2.5	(7.8)B	3.7F	6.1	5.4	4.4	8.5	7.1	5.9	4.9	4.8	4.6B	4.1	4.7	(4.6)	2.8	(3.7)F	5.5	4.2	5.6	
24	3.5	3.1F	3.8F	4.2F	4.9	2.7	4.0	4.5	6.4	5.6	5.8	6.4F	6.7	5.4	4.7	4.3	6.8	11.0	4.2	4.4	2.9	6.5	3.6F	4.3	
25	5.8F	4.3F	4.5F	3.1	4.5Y	3.4	4.8	3.1	6.9	4.5	4.5F	13.8F	7.2	5.5	G	5.8	7.1	4.7	4.7	4.7	3.0	11.4F	10.8F	8.4F	
26	6.1F	4.2F	3.1F	3.1F	3.1F	4.9F	6.8	9.5	7.8	4.4	5.0	C	B	5.4	9.2	5.4	(5.4)B	6.6	14.4F	12.8	11.5	4.0	10.6	7.2	
27	(3.4)	(10.0)Y	(6.6)F	4.3F	4.7F	3.2	4.7F	(5.7)B	C	C	C	C	C	C	C	C	7.1	5.4	7.0	5.5	6.1F	5.7F	6.9	3.7F	
28	(5.2)B	3.0P	2.9	2.8	1.4F	3.0F	4.1	5.2F	5.4	6.8	7.1	6.6	7.2	4.6	6.6	3.3	4.8	4.9	(6.5)	8.2	9.0F	5.6F	9.0	3.0	
29	2.7	2.6	1.2	1.8Y	B	3.1	4.1	5.6	5.2	5.8	6.3	6.1F	4.7	5.1	4.0	7.2	5.8	6.3	3.8	2.4	11.6F	6.6F	4.6	4.0	
30	5.4F	3.9F	2.5	2.5	2.8F	3.4	3.6	4.5F	6.2	7.9	5.3	5.7F	6.1	4.1	4.1	5.4	5.8F	(7.5)B	6.0	5.5	3.3	2.8	2.7	2.7	
31	6.4	1.9	1.4	3.6	2.8	3.0F	B	5.4F	6.5	6.9	5.8	5.9	6.9	5.6	5.6	3.9	3.6	5.6	4.8	4.3	3.3	4.5	5.5	9.1	
Mean Value	3.8	3.2	3.0	2.9	2.7	3.0	3.9	5.2	5.8	5.8	6.0	6.1	5.6	5.2	4.8	4.8	5.8	5.2	5.2	5.5	5.5	5.4	4.3	4.0	
Count	31	3.0	3.0	3.0	2.9	2.8	2.5	2.8	2.7	2.7	2.6	2.6	2.4	2.6	2.6	2.9	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1

Sweep 15.2 Mc to 17.0 Mc in 15 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsunshin Kenkyujo) Gotanda, Shiogawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

F₂-M3000

135° E Mean Time

Shibata

Lat. 37°57.0'N
Long. 139°15.8'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	2.5	2.7	2.8	2.5	2.6	2.7	2.9	2.8	2.8	2.7	2.5	2.6	2.6	2.6 ^M	2.7	2.7	2.7	2.8	2.9	2.9	2.8	2.7	2.6	(2.7)F
2	2.6	2.8	2.7	2.7	2.7	2.7	3.0	3.3	3.3	2.8	2.6	2.6	2.6	2.5	2.7	2.7 ^F	2.7	2.7	2.9	2.7	2.8	2.7	2.7	2.7
3	(2.7)	2.5	2.6	2.7	2.6	2.6	2.9	2.8	2.9	2.8	2.7	2.7	2.7	2.7	2.9	2.7	2.8	2.8	2.8	2.8	2.7	2.6	2.6	2.7
4	2.6	2.7	2.9	2.8	2.6	2.8	2.9	2.8	2.7	2.4 ^M	2.6	2.6	2.8	2.8	2.6	2.8	2.8	2.7	2.8	2.9	2.5 ^H	2.5	2.5	2.9
5	2.5	2.6	2.5	2.5	2.6	3.0	2.9	2.9	2.8	3.1	2.8	2.8	2.8	2.8	2.8	2.9	2.8	2.9	2.8	3.0	3.0	2.8	2.6	2.7
6	2.5	2.7	2.6	2.7	2.4	2.6	3.2	C	C	C	C	C	C	C	C	2.9	2.9	3.0	2.7	2.6	2.6	2.7	2.7	2.7
7	2.7	2.6	2.3	2.6	2.6	2.8	3.0	2.9	2.9	2.6	2.8	2.7	2.8	2.7	2.7	A	A	3.0	3.0	A	A	2.6 ^F	2.7	2.8
8	2.9	2.7	2.9	2.7	2.6	2.7	3.0	3.2	2.9	2.5	2.5 ^M	2.7	2.7	3.0	2.7	2.7	2.7	2.9	2.9	3.0	2.9	2.5	2.7	2.6
9	2.5	2.7	2.6	2.8	2.6	2.6	2.9	3.1	3.0	2.9	2.7	2.7	2.8	2.7	2.7	2.9	2.8	2.9	2.8	3.0	2.5	2.6	2.6	2.6
10	2.6	2.6	2.6	(2.5)	2.8	3.0	3.1	3.1	2.9	2.8	C	C	C	2.8	2.8	2.8	2.9	3.0	3.0	2.7	(2.7)	2.7	2.7	2.7
11	2.7	2.7	2.5	2.8	2.9	3.0	3.1	2.9	3.0	2.6	2.6	2.7	2.8	2.8	J	2.7	2.7	3.1	3.0	3.0	2.8	2.6	2.5	2.6
12	2.6	2.8	2.6	2.8	2.7	2.9	3.2	3.2	2.8	2.6	2.7	2.8	2.9	2.8	2.7	2.8	2.9	3.0 ^S	3.1	2.8	S	S	B	2.7
13	J ^F	J ^F	J ^F	J ^F	J ^F	S ^K	E ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	C ^K	B ^K	2.8 [*]	B ^K	A ^K	2.8 [*]	2.8 [*]	J ^K	2.7
14	2.5 ^K	2.5 ^K	2.6 ^K	2.7 ^K	3.0 ^K	3.2 ^K	2.9 ^K	C	3.1 ^K	J ^K	2.6 ^K	2.7 ^K	2.7 ^K	2.7 ^K	2.8 ^K	2.8	2.9	2.9	3.1	2.9	2.8	2.8	2.7	2.7
15	2.5 ^F	2.9	3.0	2.6	2.6	2.8	3.0 ^F	3.1	3.0	2.8	2.7	2.8	2.8	(2.7)	2.7	2.9	3.0	J	2.9	2.9	2.7	2.7	2.7	2.7
16	2.6	(2.7)	3.0 ^F	2.7	2.6	2.9 ^F	2.9	3.2	3.0	3.1	2.4	2.7	2.7	2.7	2.8	2.8	2.8	2.9	2.7	3.0	2.7	2.7	2.7	2.5 ^S
17	2.6	2.6	2.5	2.5	2.6	2.8	2.8	2.9 ^K	2.6 ^K	2.6 ^K	2.7 ^K	2.9 ^K	2.8 ^K	3.0 ^K	2.9 ^K	3.0 ^K	3.0 ^K	3.0 ^K	3.1	2.8	2.7	2.6 ^B	2.7	2.7
18	2.8	2.8	2.8	2.8	2.7	3.0	3.1	3.0	2.9	3.0	2.7	2.7	2.7	2.8	2.8	A	A	2.8	2.9	3.0	2.7	2.7	2.6	2.8
19	2.6	2.7	2.7	2.7	2.7	3.1	3.1	3.1	2.9	2.6	2.6	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.9	2.9	2.7	2.6	B	B
20	B ^F	C	C	C	C	C	2.9	C	C	C	C	C	C	C	C	C	2.8	2.9	2.9 ^B					2.8
21	2.8	2.6	2.7 ^F	2.7	2.9	2.9	3.0	3.0	2.8	2.7	2.7	2.8	(2.7)	2.6	2.8	(2.8)	3.0	2.8	3.1	2.9	2.8	2.6	2.7	2.5
22	2.7	2.7	2.8 ^F	2.8	2.8	3.0	3.2	3.1 ^F	3.2	2.8	2.8	2.7	2.7	2.7	(2.7)	2.7	2.9	2.9	3.0	3.0	2.6	2.6	2.7	2.7
23	2.7 ^F	2.7	3.0	2.9	2.6 ^F	3.0	2.8	2.9 ^K	2.8 ^K	2.7 ^K	2.6 ^K	2.5 ^K	2.7 ^K	2.7 ^K	2.8 ^K	2.9 ^K	2.8 ^K	2.8 ^K	3.1	2.9	2.9	2.6	2.6	2.6
24	2.7 ^F	2.6 ^F	2.8 ^F	2.8 ^F	2.6	3.1	2.8	3.0	2.7	2.7	2.6	2.6	2.7	2.8	2.8	2.8	2.8	2.8	3.1	3.0	2.7	2.5	2.6	2.6
25	2.6 ^F	2.9	2.8	2.6	2.8	2.9	2.8	2.5	2.4	2.6	2.6	(2.5)	2.7	2.7	2.7	2.8	3.0	3.0	2.8	2.8	3.0	2.7	2.5	2.6
26	J ^F	J ^F	2.6 ^F	2.8 ^F	2.5 ^F	2.9 ^F	2.5	2.9 ^F	2.8	2.9	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.8	2.9	2.9	2.8	3.0	2.7	2.7
27	A	S ^F	S ^F	F	F	2.7 ^F	2.8	C	C	C	C	C	C	C	C	C	2.7	2.8	2.9	(2.8)	2.7 ^F	2.8 ^F	2.8 ^F	2.9 ^F
28	2.7	2.7 ^F	2.8 ^F	(2.7)	2.6 ^F	2.8	3.0	3.0	3.0	2.7	2.7	2.8	2.5	2.6	2.7	2.8	2.9	2.9	3.0	2.8	2.7	2.6 ^F	2.6	2.8
29	3.0	2.7	2.6	2.7	2.6	2.9	2.9	2.9	3.3	3.3	2.7	2.7	2.7	2.7	2.7	2.8	2.7	2.9	2.9	2.9	2.6	2.7	2.6	2.7
30	J ^F	J ^F	3.0	2.8	2.9 ^F	3.0	3.0	2.9	2.9	2.9	2.7	2.7	2.6	2.6	2.7	2.7	2.8	2.7	2.9	2.8	2.7	2.7	2.7	2.7
31	2.5 ^F	2.7	2.8	3.1	2.8	2.3	2.2	2.6	2.9 ^F	2.7 ^K	2.8 ^K	2.5 ^K	2.6 ^K	2.4 ^K	2.7 ^K	2.7 ^K	2.9	2.9	2.9	2.8	2.8	2.5	2.3	2.7
Mean Value	2.6	2.7	2.7	2.7	2.6	2.9	2.9	2.9	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.9	2.9	2.9	2.7	2.6	2.7	2.7
Count	26	26	27	27	28	29	30	28	27	26	26	26	27	27	28	27	28	30	29	29	29	29	27	28

Sweep 1.0 Mc to 11.0 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

14 min

Shibata

Lat. 37°57.0'N
Long. 139°15.8'E

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	1.6	2.5	3.4	3.8	4.1	4.4	4.4	4.2	A	A	A	A	A	2.3	1.5	1.4	A	A	1.4
2	E	E	E	E	E	1.8	2.6	3.2	3.6	3.8	4.0	4.1	[4.3]	4.4	4.1	4.1	A	A	A	1.6	A	A	A	A
3	A	A	1.3	A	A	1.7	2.9	[3.4]	3.8	A	A	A	A	A	3.8	3.7	A	A	A	A	A	A	A	A
4	A	E	E	E	E	2.0	2.8	[2.8]	2.7	4.0	4.4	4.5	4.3	4.4	4.0	3.7	3.5	A	A	A	A	A	A	1.4
5	1.1	A	A	A	E	2.1	2.7	3.3	3.7	3.9	A	4.3	4.2	4.2	3.7	3.9	3.7	3.0 ^F	A	A	1.5	1.5	1.5	E
6	1.2	E	E	E	E	1.2	2.6	C	C	C	C	C	C	C	C	4.1	4.0	(2.1)	2.1	A	A	A	A	A
7	A	1.2	A	A	E	1.9 ^F	2.6	[3.1]	3.5	[4.0]	4.4	4.0	3.8	A	A	A	A	A	A	A	A	A	A	A
8	A	1.4	1.4	1.4	F	1.8	2.9	[2.4]	3.5	4.5	[4.5]	4.4	4.5	4.2	4.2	3.7	3.7	[3.1]	2.5	A	1.4	1.8	1.1	
9	A	A	A	A	1.3	1.9	2.8	3.8	4.1	4.3	4.4	4.2	4.2	4.0	3.6 ^F	3.4	3.4	3.0	2.4	1.6	1.5	A	A	A
10	E	A	E	E	1.5	2.0	2.6	3.3	3.7	4.3	C	C	C	4.5	4.8	A	A	2.9	A	2.1	A	A	A	A
11	A	E	A	S	1.2	2.0	2.5	2.4	3.5	3.7	[3.9]	4.1	4.1	4.2	A	A	3.6	3.0	2.1	1.5	A	A	A	A
12	A	A	A	A	A	1.9	2.9	3.0	A	A	4.4	4.4	A	A	A	A	A	A	A	A	A	A	A	1.2
13	A	A	1.3	[1.6]	1.8	A	A	A	C	C	C	C	C	C	C	C	A	A	A	A	A	A	A	A
14	A	A	A	A	1.3	2.0	2.5	3.0	A	A	4.3	4.5	4.3	[4.0]	3.7	A	A	A	A	A	A	A	A	1.4
15	1.4	1.2	E	E	E	1.9	2.7	[3.1]	3.4	A	3.8	3.7	A	A	A	A	A	A	A	A	A	A	A	A
16	A	A	A	1.1	[1.4]	2.0	2.6	3.4	3.7	[4.0]	4.3	A	A	A	4.3	A	A	A	A	A	A	A	A	A
17	A	A	1.4	1.2	1.1	1.5	2.4	3.5	3.8	3.9	3.9	4.1	4.1	[4.2]	4.3	3.9	3.4	3.0	2.1	[1.8]	1.5	1.5	1.4	1.2
18	1.2	E	E	E	E	1.6	2.7	A	A	4.3	A	A	A	A	A	A	A	A	A	A	A	A	A	E
19	A	A	A	1.1	E	2.1	2.9	3.6	3.7	4.4	[4.4]	4.4	4.3	4.2	A	A	3.7	3.0	A	A	A	A	A	A
20	A	C	C	C	C	C	2.8	C	C	C	C	C	C	C	C	4.2	3.7	A	A	A	A	A	A	A
21	A	A	A	A	1.4	2.2	2.8	3.2	3.6	[3.9]	4.1	A	A	A	A	A	A	A	A	A	A	A	A	1.4
22	1.2	A	A	A	E	2.1	2.8	3.1	[3.6]	4.0	4.3	A	A	3.8	[3.8]	3.8	A	A	A	A	A	A	A	E
23	A	A	A	1.1	1.4	2.4	3.0	[3.0]	3.0	3.8	A	A	A	A	A	4.2	3.8	A	A	A	1.8	A	A	A
24	A	A	A	A	A	2.0	3.1	3.8	4.0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
25	A	A	A	A	A	1.8	2.8	A	A	4.2	A	A	A	A	4.3	3.7	[3.3]	2.9	A	A	A	A	A	A
26	A	A	A	A	A	A	2.8	A	A	A	4.4	4.3	4.4	A	A	A	A	A	A	A	A	A	A	A
27	A	E	A	A	A	2.2	2.8	A	C	C	C	C	C	C	C	C	A	A	A	A	A	A	A	A
28	A	A	A	A	E	2.3	2.7	3.4	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
29	A	1.3	1.1	F	F	2.0	2.9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	1.3	1.4
30	A	E	1.4	1.4	E	2.1	3.3	3.7	A	A	A	A	4.3	A	A	A	A	A	A	A	A	A	A	A
31	A	A	E	1.1	E	1.9	3.0	A	A	A	A	A	4.2	(3.7) ^P	3.5	A	A	A	A	A	A	A	A	A
Mean Value	1.2	E	E	E	E	2.0	2.8	3.3	3.7	4.0	4.4	4.3	4.2	4.2	4.0	3.8	3.7	3.0	2.2	1.6	1.5	-	1.4	1.2
Count	8	12	14	16	24	28	30	22	18	16	14	14	13	13	13	14	10	9	6	6	5	3	7	10

Sweep 1.0 Mc to 11.0 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denkikatsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Day	May 1949			135°E Mean Time																	37°57.0'N 139°15.8'E			
	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	G	G	G	E	G	1.4	1.5	1.5	1.7	1.8	2.0*	1.9	1.9	2.0	1.9	1.9	2.4	1.7	1.4	1.5	G	1.4	1.4	E
2	G	G	G	G	G	1.5	1.5	1.5	1.6	2.0	2.0	2.1	2.1	3.5	2.1	1.9	1.3	1.5	1.5	1.5	1.4	1.3	1.5	1.5
3	E	E	E	E	E	1.5	1.6	1.5	1.7	1.9	2.0	2.0	2.0	2.0	1.9	1.8	1.7	1.7	1.3	1.4	E	E	E	E
4	E	E	E	E	E	2.0	1.5 F	1.5	1.6	1.7	1.7	1.4	2.0	2.1	2.0	2.0	1.8	1.6	1.4	1.5	1.4	1.6	1.4	1.5
5	G	E	E	E	E	1.5	1.6	1.5	1.6	2.0	2.0	2.1	2.1	2.0	1.9	1.8	1.6	1.6	1.4	1.4	1.4	1.4	1.4	E
6	E	E	E	E	E	1.4	1.4	C	C	C	C	C	C	C	C	1.8	1.8	1.5	1.5	1.5	1.4	1.4	1.5	1.3
7	E	G	E	E	E	1.4 F	1.5	1.5	1.6	2.3	2.2	2.1	2.1	2.0	2.0	1.8	1.8	1.5	1.5	1.3	1.5	1.5 F	1.2	1.5
8	E	E	E	E	E	1.5 F	1.6	1.5	1.7	2.0	2.2	2.1	3.9	2.3	3.8	2.1	2.1	1.6	1.5	1.4	1.4 F	G	E	E
9	E	E	E	E	E	1.5	1.5	1.5	1.7	1.9	1.9	2.3	2.3	2.2	2.1	2.3	1.7	1.5	1.4	1.4	1.5	1.4	1.4	E
10	E	E	E	E	E	1.5	1.4	1.4	1.6	1.7	C	C	C	B	(3.0)	2.3	1.6	1.6	1.6	1.5	1.5	1.5	1.4	1.5
11	E	E	E	E	E	1.5	1.8	1.4	1.9	2.0	1.9	2.4	2.0	2.0	1.8	1.6	1.6	1.8	1.5	1.4	1.4	1.5	1.5	1.1
12	E	E	E	E	E	1.3	1.5	1.5	1.8	1.7	1.9	2.0	2.0	1.9	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.4	1.4	G
13	E	E	E	E	E	1.4	1.5	C	C	C	C	C	C	C	C	C	1.8	1.5	1.4	1.4	1.5	1.4	1.5	1.1
14	E	E	E	E	E	1.5	1.5	1.5	1.8	1.7	2.0	2.1	2.2	2.1	2.0	1.8	1.6	1.5	1.5 F	1.5 F	1.4	1.4	1.4	E
15	E	E	E	E	E	1.5	1.4	1.4	1.8	1.9	2.0	2.2	2.0	2.0	1.9	1.9	1.8	1.7	1.5	1.5	1.4 F	1.4 F	1.4 F	E
16	E	E	E	E	E	1.4	1.5	1.4	1.8	1.9	1.9	2.4	2.0	2.1	2.1	2.0	1.8	1.7	1.4	1.4	1.4 F	1.4 F	1.4 F	1.4
17	E	E	E	E	E	1.3	1.4	1.5	1.7	2.1	2.5	2.1	2.2	2.1	1.8	1.9	1.9	1.5	1.5	1.5	1.5	1.9	1.6	E
18	E	E	E	E	E	1.5	1.5	1.5	1.5	2.0	2.1	2.4	2.0	2.0	1.9	2.0	1.7	1.5	1.5	1.5	1.4 F	E	1.3 F	E
19	E	E	E	E	E	1.5	1.5	1.5	1.8	1.9	2.0	2.0	2.0	2.0	2.1	1.9	1.8	1.6	1.4	1.5	1.4 F	1.4	1.4 F	E
20	E	C	C	C	C	1.5 F	C*	C	C	C	C	C	C	C	C	2.1	1.6	1.8	1.4	1.4	1.4 F	1.4 F	1.3	1.1
21	E	E	E	E	E	1.5	1.5	1.5	1.5	1.7	1.8	1.9	2.1	1.9	2.1	1.8	1.8	1.6	1.5	1.4	1.5	1.4	1.5	E
22	E	E	E	E	E	1.2	1.5	1.4	1.8	1.9	2.2	2.2	2.1	(2.1)	2.1	2.1	1.7	1.4 F	1.1	1.1	1.4	1.5	1.3	E
23	E	E	E	E	E	1.2	1.4	1.4	1.8	1.9	2.0	2.2	2.1	2.1	2.1	2.0	1.5	1.6	1.5	1.4	1.4	1.4	1.4	E
24	E	E	E	E	E	1.3	1.5	1.5	1.9	2.0	2.5	2.4	2.2	2.2	2.2	2.1	1.7	1.5	1.5	1.5	1.4	1.2	1.5	1.1
25	E	E	E	E	E	1.3	1.5	1.7	1.8	2.0	2.0	2.1	2.2	2.0	2.0	2.0	1.8	1.6	1.6	1.5	1.3	1.4 F	1.3 F	1.2 F
26	E	E	E	E	E	1.4	1.5	1.5	1.7	1.8	1.8	1.8	2.0	2.2	1.8	1.9	1.9	1.4	1.2	1.2	1.3	1.4	1.3	E
27	E	E	E	E	E	1.6	1.5	1.5	C	C	C	C	C	C	C	C	2.3	1.6	1.5	1.5	1.5 F	1.5	1.4	E
28	E	E	E	E	E	1.5	1.5	1.6	1.9	2.0	2.2	2.2	2.1	2.4	1.8	1.9	1.8	1.4	1.6	1.4	1.1	1.4 F	1.2	E
29	E	E	E	E	E	1.3	1.5	1.5	1.7	2.1	2.0	1.9	2.1	1.9	2.0	1.9	1.9	1.8	1.5	1.5	1.6	1.6 F	1.4	E
30	E	E	E	E	E	1.4	1.4	1.4	1.6	1.9	2.0	2.1	2.3	2.2	2.1	2.0	1.7	1.7	1.2	1.3	1.3	E	E	E
31	E	E	E	E	E	1.3	1.4	1.4	1.8	1.9	2.1	2.0	2.1	2.1	2.2	2.1	1.9	1.9	1.5	1.4	1.4	1.4	1.5	E
Mean Value	E	E	E	E	E	1.4	1.5	1.5	1.7	1.9	2.0	2.1	2.1	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.4	1.4	1.4	E
Count	31	30	30	30	30	31	28	27	27	26	26	26	26	26	27	29	31	31	31	31	31	31	31	31

Sweep 1.0 Mc To 11.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denbu-tsushin Kenkyujo) Gotanda, Shimagawa-ku, Tokyo, Japan

May 1949

fr₂

Kokubunji, Tokyo

Lat. 35 42.4' N
Long. 139 29 31 E

IONOSPHERIC DATA

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	9.3	10.5	9.4	8.1	8.2	8.3	9.8	10.6	11.3	11.5	12.0	12.7	12.8	13.1	13.0	12.4	11.6	11.0	(10.9) ^P	10.2	(9.5) ^P	9.4	(9.9) ^S	(9.8) ^S
2	(10.0) ^S	10.2	9.4	8.0	7.9	8.6	8.8	10.3	(10.9) ^S	10.6	11.1	12.0	12.8	13.2	13.7	13.4	12.8	12.1	11.5	10.2	10.3	(9.1) ^S	10.8	10.5
3	9.9	9.0	8.7	8.0	8.3	9.1	9.9	9.7	(10.3) ^S	11.3	11.8	(12.0) ^S	12.6	13.0	12.7	12.1	11.4	(10.6) ^B	(9.7) ^P	(9.8) ^P	B	N	8.9	(8.2) ^P
4	8.7	8.4	8.3	7.6	7.1	8.0	9.3	9.4	(9.8) ^S	S	B	12.2	13.6	11.4	10.6	10.4	11.1	10.8	11.4	9.4	7.6	7.5	7.9	7.8
5	7.7	7.9	7.0	7.0	7.2	8.1	9.0	9.9	10.4	10.9	10.6	12.2	12.9	12.8	12.6	12.0	11.5	11.2	11.2	11.5	10.4	9.0	8.8	8.4
6	8.2	(8.2) ^P	7.2	7.3	7.6	9.0	11.5	10.8	9.4	9.3	11.0	11.7	11.7	11.8	12.4	12.5	12.1	11.3	10.2	9.2	9.1	9.1	9.2	9.3
7	8.6	8.3	8.0	7.7	7.9	8.8	10.2	10.5	9.3	10.6	11.7	11.5	11.9	12.2	12.8	12.8	12.2	11.4	10.8	10.1	9.0	9.5	10.3	9.4
8	9.8	10.3	8.7	7.4	7.5	7.9	10.2	11.0	9.5	C	C	12.8	13.2	13.3	13.2	13.7	14.1	13.7	13.3	11.7	9.6	9.6	9.7	9.6
9	9.4	9.5	8.9	8.8	8.5	9.2	10.1	11.0	10.4	10.3	11.5	11.7	11.7	11.6	12.8	13.4	12.5	11.6	10.5	9.8	8.9	8.3	8.4	8.2
10	8.5	8.2	7.2	7.8	7.8	8.4	9.2	10.3	11.2	11.5	11.3	11.9	11.7	12.8	13.1	13.4	12.9	(12.0) ^S	11.0	9.8	7.6	8.3	9.1	9.6
11	(9.4) ^S	9.1	9.0	8.9	8.7	9.1	10.3	10.4	9.9	10.0	11.0	9.8	12.2	12.0	12.5	13.4	12.8	11.2	10.0	8.8	9.3	9.0	8.7	9.0
12	9.2	8.1	7.9	8.1	(8.6) ^S	9.1	9.5	8.9	9.2	10.4	11.5	12.0	12.1	12.2	12.6	12.1	11.8	12.2	11.8	9.5	(8.4) ^P	(9.4) ^B	10.3	(8.9) ^F
13	7.5	6.7	4.7	4.2	4.0	4.8	4.2	4.9	A	A	A	A	A	A	A	A	6.4	6.8	A	A	6.1	6.1	6.4	6.2
14	5.7	5.7	5.8	6.0	5.4	5.8	6.4	7.0	7.7	8.2	8.2	8.8	9.7	10.0	10.6	11.0	11.1	10.8	10.6	10.4	8.8	8.5	8.0	7.9
15	8.2	8.1	7.8	7.5	7.2	8.0	9.3	9.5	8.8	8.7	9.3	10.6	11.0	11.0	11.2	12.0	10.9	10.0	10.0	9.2	8.6	(8.7) ^S	8.8	8.4
16	8.2	8.6	7.7	7.6	7.7	8.8	9.7	9.6	10.4	9.9	10.0	11.0	11.9	12.4	12.7	(12.0) ^P	(11.5) ^B	(11.2) ^P	(10.5) ^S	(9.8) ^B	9.1	(8.6) ^C	8.0	7.6
17	7.8	7.8	7.5	7.5	7.4	7.7	7.9	7.4	7.8	9.0	10.0	10.5	10.6	11.1	11.0	10.0	9.5	9.3	(10.0) ^B	9.8	7.5	7.7	8.2	8.0
18	8.2	8.1	7.8	7.9	7.7	8.9	9.7	9.6	10.1	9.0	9.4	10.3	10.3	10.7	10.3	9.4	10.2	C	A	9.7	8.1	8.1	8.6	8.4
19	8.1	8.5	8.0	8.4	8.5	9.2	9.5	9.3	9.8	9.4	10.9	11.9	12.1	12.2	12.6	12.5	12.4	11.9	11.8	10.7	9.4	10.6	11.3	10.6
20	10.6	10.3	9.4	8.9	8.8	10.2	10.4	10.4	9.8	9.5	10.5	11.4	12.0	12.3	12.4	12.4	(12.5) ^A	12.5	12.2	10.4	9.9	10.3	10.1	10.1
21	9.6	8.8	9.1	9.2	8.8	9.2	10.6	10.4	10.2	10.2	11.1	11.4	11.3	11.7	12.7	12.9	12.1	11.9	(11.2) ^A	10.4	10.0	9.9	9.9	9.9
22	10.3	9.1	9.1	8.5	(8.2) ^B	7.8	9.0	9.0	8.9	9.3	10.0	10.7	10.4	10.6	11.6	12.1	12.3	11.1	10.5	9.5	8.8	9.2	(9.5) ^S	9.7
23	9.6	9.4	9.1	7.8	7.4	7.7	8.8	8.4	7.8	7.9	8.1	8.3	8.4	9.3	9.8	9.9	9.5	A	A	9.0	7.8	8.1	8.5	8.6
24	8.3	7.8	6.9	6.8	7.1	8.1	9.3	8.8	7.5	A	S	10.2	(11.0) ^B	10.5	10.4	(10.4) ^B	10.4	10.8	10.4	9.0	7.8	7.2	8.5	7.9
25	9.1	9.5	8.4	7.9	8.0	8.5	9.4	9.0	(9.8) ^B	10.5	11.0	11.0	10.2	11.0	10.7	10.9	10.5	9.4	9.0	8.2	7.8	C	C	C
26	B	6.8	7.7	7.4	7.2	8.0	10.8	(10.4) ^B	10.0	9.9	10.2	10.4	10.3	10.8	10.5	10.2	10.0	9.4	9.2	(8.9) ^A	8.6	7.8	8.8	A
27	A	7.4	7.4	7.0	6.8	7.0	9.1	11.0	10.2	9.9	10.1	11.2	11.2	11.1	10.8	10.7	10.0	9.8	9.0	7.8	8.0	8.0	9.2	8.9
28	(8.8) ^S	(8.6) ^F	8.0	F	7.6	8.8	10.4	10.2	9.9	9.8	10.3	10.7	9.8	9.8	10.2	10.3	10.2	9.4	8.8	8.7	8.5	8.2	8.3	8.4
29	8.0	7.9	7.7	7.6	7.0	8.2	10.0	10.5	9.0	9.3	8.8	9.2	9.4	9.5	9.9	10.1	9.5	9.6	9.8	9.8	9.2	10.0	10.6	10.4
30	10.2	10.6	9.3	8.6	8.3	9.2	10.0	10.7	9.7	9.4	8.8	9.3	8.7	10.4	11.2	10.7	10.7	10.6	9.3	9.4	8.6	9.2	9.2	9.1
31	8.9	9.2	8.7	8.4	7.5	7.9	10.6	10.2	10.2	9.9	8.7	8.7	9.6	9.6	9.0	9.5	10.2	9.3	8.7	8.1	7.7	7.1	(8.2) ^F	(9.4) ^F
Mexian Value	8.8	8.5	8.0	7.8	7.7	8.4	9.8	10.3	9.8	9.9	10.5	11.1	11.5	11.5	12.0	12.0	11.4	11.0	10.5	9.7	8.7	9.0	8.9	8.9
Count	29	31	31	31	31	31	30	27	30	30	27	30	30	30	30	30	31	29	28	30	30	29	30	29

Sweep I.O. Mc to 17.0 Mc in 15 min

Manual

IONOSPHERIC DATA

May 1949

hp F₂

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

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	380	350	310	320	340	290	300	330	320	340	380	350	340	360	330	330	310	(320) ^P	310	(320) ^P	370 ^P	PS	PS	PS	
2	S	310	280	330	350	330 ^B	290 ^P	290	(310) ^F	320	340	360	360	360	350	330	330	330	310	320 ^J	330 ^J	(320) ^S	340	340 ^S	
3	340 ^S	360 ^S	340	360	360	310	260	250	(310) ^S	340	350	(340) ^S	350	340	330	330	310	(310) ^B	(300) ^B	(310) ^B	B	N	360	(330) ^P	
4	330	340 ^F	350	370	330	290	310	280	320	S	B	S	330	(350) ^B	360	320	320	320	280	260	390	380	410	400	
5	400	360	370	370 ^P	350	300	280	330 ^H	270	270	310	330	330	330	310	310	290	290	290	290	290	350 ^S	350	330 ^B	
6	340 ^J	(330)	340	370	370	280	350	240	280	300	350	320	330	330	330	320	310	280	270 ^S	280	370	370	380	350	
7	360	380	370	370	350	320	270	260	(320) ^A	370	370	360	370	370	370 ^P	360 ^J	370	330	310	350	380 ^S	380 ^S	370 ^S	380	
8	360 ^F	370	300 ^J	330	420	340	280	270	280	C	C	360	350	360	360	360	340	330	320	280	320 ^J	290	370 ^S	380	
9	410	370	340	340	330	310	320	290	280	340	350	340	330	360	350	420	320	300 ^S	300	310 ^S	340	380	380 ^S	380	
10	370 ^P	380 ^J	340	350 ^P	330	290 ^F	280	300	320	280	310	340 ^J	300	310	310	280	260	(280) ^S	300	280 ^P	300	300	330 ^S	350 ^S	
11	(350) ^S	350	380	340	320 ^A	270	290 ^S	290	320 ^H	370	380	370 ^F	360 ^F	360	340	340	310	290	300	340	350	380 ^P	380	370	
12	330	320 ^B	380 ^S	360	(330) ^S	300	370 ^S	270 ^P	360	400	390	380	350	350	370 ^H	350	350	330	370	(340) ^B	(480) ^F	(450) ^B	420 ^J	(400) ^F	
13	380 ^F	430 ^F	500 ^F	510 ^F	430 ^F	BFK	FK	AK	AK	AK	AK	AK	AK	AK	AK	AK	360 ^K	AK	AK	AK	AK	430 ^K	AK	AK	
14	440 ^K	440 ^K	450 ^K	360 ^K	290 ^K	290 ^K	270 ^K	300 ^K	330 ^K	340 ^K	370 ^K	390 ^K	400 ^K	380 ^K	390 ^K	390 ^K	360	340	340	320	320	370	370	380	
15	380	340	330	310	390	320	310 ^H	290	280	320	390	350	320	360	300	310	290	290	280 ^S	280	320	(330) ^J	340	390	
16	400	390	370	380	380	320	330 ^S	320 ^S	310	270	340	340	340	330	(320) ^B	(310) ^B	(290) ^K	(290) ^K	(290) ^S	(290) ^S	270	(330) ^C	380	380	
17	410	410	400	400	410	360	330	320 ^K	400 ^K	410 ^K	280 ^K	300 ^K	280 ^K	260 ^K	260 ^K	270 ^K	270 ^K	330 ^K	(310) ^B	290	370	410 ^B	400 ^J	380	
18	380 ^J	340 ^J	360	370	340	290	310	330	310	330	360	360	350	350	350 ^A	340	350	C	A	360	340 ^A	350 ^A	360	340	
19	340	360	340	350	330	280	260	280	310	340	380	360	350	360	350	320	320	290	310	270	340	350	330	330	
20	330	310 ^F	290 ^F	320 ^F	320 ^F	360	360	270	320 ^S	340	380	390	360	360	360	360	(340) ^A	320	310	280	330	340	330	360	
21	350	380	350	350 ^S	310	290	270	320	350	370	380	370	380	380	380	340	320 ^B	320	(330) ^A	330	350	370	350 ^B	360	
22	400 ^F	340 ^F	310	310 ^J	(300) ^B	290	280	260	290	350 ^B	340 ^J	360	350	380	360	360	340	310	310	320	390	380	(380) ^S	380 ^S	
23	370	340	310 ^A	290	370	300	350	320 ^K	340 ^K	430 ^K	410 ^K	420 ^K	370 ^K	360 ^K	350 ^K	350 ^K	330 ^K	A	A	290	340	400 ^P	430 ^P	410 ^P	
24	360 ^K	350	350 ^F	370	(250) ^N	290	310	270	330	AS	S	B	B	370	390	(360) ^B	330	350 ^J	290	290	370	380 ^J	410	360	
25	390	290 ^J	290	320 ^F	300	(290) ^B	(280) ^B	(350) ^B	(350) ^B	350	390	360	350	330	330	320	290	260	290	290	370	C	C	C	
26	BF	F	410 ^F	400	380	330	(320) ^B	310	360	390	370	370	320	320	320	310 ^H	300	300 ^A	290	(300) ^A	300	360 ^A	330	A	
27	A	330 ^F	420 ^F	400 ^F	360 ^F	350 ^F	330	340	320	350	420 ^A	380	360	370	350	340	320	310	290	320 ^J	360 ^J	(370) ^S	370	340 ^F	
28	(330) ^S	320 ^F	F	F	350	340 ^S	330	320	310	350	370	330	350	380	380	320	320	290	300 ^J	320 ^J	320 ^J	340 ^F	330 ^J	320 ^P	
29	320	350	350	350 ^F	350 ^F	300	300	270	260	300	330	350	370	340	340	350	340	330	310	300 ^S	310	(410) ^S	360 ^S	350 ^S	
30	320	320	260	320	360	410	300	300	310	310	390	380	390	350	340	330	340	310	310	310	330	340	360	350	
31	360	360	330	290	340 ^K	450 ^K	420 ^K	340 ^K	320	350	320	420	360	350 ^P	360	350	320	330	330	290	340	(370) ^A	390	480 ^F	450 ^F
Median Value	360	350	350	360	350	300	310	300	320	340	370	360	350	360	350	330	320	310	300	310	340	370	370	370	360
Count	28	30	30	30	31	30	30	30	30	27	27	28	29	30	30	30	31	28	28	30	29	29	28	27	

Manual

Sweep L=0 Mc to 17.0 Mc in 1.5 min

K 2

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Denkai-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

h_pf₂

Kokubunji, Tokyo

Lat. 35 42.4'N
 Long. 139 29.1'E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	280	250	230	220	240	240	200	220	240	300	290	280	300	310	310	260	230	280	240	230	230	240	220	270
2	260	240	220	210	260	240	230	210	220	310	280	320	300	310	300	250	260	250	220	220	300 ^A	260	270	280
3	250	270	250	250	250	230	210	210	260	310	290	300	310	270	280	300	260	250	220	220	300 ^A	260	280	280
4	280	270	280	250	240	220	230	210	210	210	280	270	300	310	320	300	260	280	230	230	210 ^A	300 ^A	340 ^A	330 ^A
5	300	250	250	270	260	230	210	210	220	230	240	280	270	250	280	240	240	230	220	240	220	230	250	270
6	270	280	260	260	270	260	230	210	200	280	290	280	270	290	290	240	250	240	200	200 ^A	200 ^A	210 ^A	320 ^A	280 ^A
7	300	300	260	280	280	240	230	250	220	320	340	300	340 ^A	310 ^A	320	300 ^A	300	240 ^A	280 ^A	300 ^A	300 ^A	300 ^A	300 ^A	280 ^A
8	280	290	240	230	300	289	220	220	210	C	C	C	310	310	300	280	280	250	240 ^A	A	A	A	270	270
9	290	300	270	260	250	220	230	260	240	300	300	270	330	300	300	260 ^A	250	260	250	230	230	240	310	320
10	290	270	260	260	250	220	230	240	240	200	240	270 ^A	240	250	300	260	230	230	230	250	270	260	270	330 ^A
11	290 ^A	280	290 ^A	280	240	240	230	250	230 ^A	300	250	280	330	330 ^A	330	300	270	240	240	250	300 ^A	270	340 ^A	280
12	270 ^A	280 ^A	280 ^A	290	270	260	230	220	230	380	310	330	310	320	320	310 ^A	300 ^A	260 ^A	240	260 ^A	410	420	320	280
13	300	300	380	400	350	290	310 ^B	A	A	A	A	A	A	A	A	A	330 ^A	A	A	A	A	A	A	A
14	360 ^A	360 ^A	370 ^A	280 ^A	240	240	240	220	260	330 ^A	360	360	370 ^A	370 ^A	360 ^A	330 ^A	330	310	260	250	260	300 ^A	280 ^A	310
15	300 ^A	280 ^A	250 ^A	270 ^A	280 ^A	250 ^A	210 ^A	250 ^A	260	220	260	320	310	320	330 ^A	280 ^A	250	250	240	220	230	230	230	340
16	280	320	310	310	310	250	240	220	290	230	220	310	320	300	280	280	290 ^A	230	230	240 ^A	220	230	230	340
17	320	310	270	290	310	310	290	290	300 ^A	300 ^A	270	280	270	250	230	230	240	260	260	240	270	310	310	310
18	280	280	250	250	260	240	230	260	240	280	310	330	310	350 ^A	320	310	310	310	A	A	350 ^A	340	350	280
19	300	270	280	270	270	260	230	210	250	300	360	310	300	320	310	280	280	240	250	240 ^A	280	280	280	280 ^A
20	290 ^A	250 ^A	240 ^A	240 ^A	250	230	220	240	250	330	350	350	320	320	310	300	300	270	230	240	200	C	C	C
21	270	280	270	270	230	250	240	240	240	310	320	360	330	330	310	300	280	270	280 ^A	280	260	250	280	270
22	280	270	240	260	260	240	220	220	270	310	300	330	310	350	320	310	280	270	250	230	260	300	300	290
23	280	280	270	250	240	250	250	300	350	430	410	420	370	350	340	320	320	A	A	A	230	250	270	330 ^A
24	290 ^A	290	290	330	330	330	330	340	310	330	340	340	340	340	380	330	320	300	270	230	240	300	300	300
25	300	330	220	260	240	310	230	240	270	300	310	320	350	300	310	300	270	230	210	240	200	C	C	C
26	290	370	360	290	300	290	270	270	A	A	350	350	340	310	300	300	290	300	270	270	250	250	310	A
27	A	200	300	310	320	300	300	300	250	280	280	280	320	340	330	300	290	260	270	280	300	310	310	A
28	310 ^A	230	250 ^F	230 ^F	250	260	250	230	270	260	340	280	340	350	300	300	270	260	240	280	260	250	260	250
29	240	250	260	270 ^F	290	230	220	250	240	270	310	330	350	320	320	300	310	280	240	240	230	280	300	260
30	230	2200 ^A	210 ^A	220	240	260	240	230	220	250	370	350	360	350	320	300	300	270	250	220	300	280	280	250
31	270	310	260	220	240	220	240	300	280	310	290	390 ^A	340	350	350	330	300	270	250	260	260	300	370	370 ^A
Value Night Count	290	280	260	270	260	250	230	240	250	300	310	320	320	320	320	300	280	260	240	240	250	280	300	280
	30	31	31	31	31	31	31	30	29	28	29	30	30	30	30	30	31	28	28	30	29	28	29	28

Lat. 35°42.4'N
Long. 139°29.3'E

Kokubunji, Tokyo

f_oF₂

May 1949

IONOSPHERIC DATA

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						Q	Q	Q	L	L	L	5.6	(5.7)L	5.5	5.0	5.0	A	L	A	A				
2						Q	L	Q	(5.4)	(6.8)L	(5.8)L	6.6	5.9	6.4	6.0	A	L	A	A					
3						B	Q	Q	L	L	L	5.0	L	L	A	A	A	A	Q					
4						B	Q	Q	L	Q	L	L	6.3	(6.4)L	6.5	L	L	L	L	AF				
5						Q	Q	Q	Q	L	B	A	S	5.3	B	L	L	L	A	Q				
6						2.9	L	L	A	L	L	5.8	A	L	L	L	L	L	Q					
7						Q	Q	A	A	6.0	L	L	A	A	L	A	A	A	A					
8						Q	Q	Q	Q	C	C	L	L	L	Q	L	L	L	A	Q				
9						Q	Q	L	L	L	5.8	5.5	L	L	L	Q	L	L	Q					
10						Q	Q	L	Q	L	L	L	5.5	B	L	A	A	A	A					
11						Q	L	L	Q	4.9A	A	Q	6.1	A	L	5.4T	4.6A	L	L					
12						Q	L	Q	A	A	A	L	A	L	A	A	A	A	A					
13						F	F	A	A	A	A	A	A	A	A	A	A	A	A					
14						Q	Q	Q	4.4	(5.1)A	(5.8)A	A	A	A	A	A	AF	AF	A					
15						A	L	L	5.0	Q	6.1	5.6P	5.7P	5.1	A	A	A	A	A					
16						Q	A	Q	L	A	A	6.0P	A	A	(5.6)A	A	A	A	A					
17					L	L	4.4	L	A	L	L	L	5.7	6.0	L	A	4.6	A	A					
18						Q	Q	A	A	A	L	5.8	A	A	B	5.2	A	A	A					
19						L	L	A	A	A	A	5.7	A	A	6.0	5.4	(4.9)A	4.3T						
20						L	L	L	L	A	A	6.3	(5.7)L	(5.9)A	(6.0)T	5.4	A	A	A					
21						L	A	A	A	L	L	L	L	L	L	5.9	A	A	A					
22						Q	Q	Q	L	5.8	5.4	5.8	6.0	6.0	(5.5)A	5.0	5.0	L	L					
23						Q	Q	5.0	5.6	A	A	5.8	5.6	5.9	5.6	5.3	AF	A	A					
24						Q	L	L	A	A	A	B	B	A	B	B	B	A	A					
25						B	B	B	A	A	A	5.4	(5.6)A	5.7T	(5.5)P	(5.2)P	5.0	4.6	A					
26						Q	L	A	A	A	L	6.0	5.9	5.6T	5.6	L	A	A	A					
27						A	(5.2)T	5.6T	A	A	A	L	A	A	A	A	A	A	A					
28						L	L	(5.0)A	A	A	A	5.6	6.0	6.0	5.6	(5.4)A	5.2	L	AF					
29						Q	Q	L	4.8	A	A	5.5	6.0B	5.6T	5.7	5.1P	A	L	Q					
30						Q	Q	L	Q	A	A	A	6.2A	(5.6)A	5.0	A	A	A	A					
31						A	A	S	L	A	A	A	5.7A	(5.6)L	(5.6)L	5.6	5.0T	A	A					
Mean Value						—	—	—	5.0	5.8	5.8	5.8	5.8	5.7	5.6	5.4	5.0	—						
Count					1	1	2	3	5	5	5	5	16	16	17	14	12	7	2					

Swamp / 0 Mc to 17.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denkikatsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

May 1949

h'F₁

IONOSPHERIC DATA

Kokubunji, Tokyo

Lat. 35°42.4'N
Long. 139°29.3'E

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						Q	Q	Q	220	230	230	200	200	240	210	200	200	210	A						
2						Q	210	Q	200	190	180	(200) ^S	200	220	200	(200) ^A	200	(210) ^A	220						
3						220	Q	Q	210	210	210	200	210	210	210	(230) ^A	250	A	Q						
4						B	Q	Q	230	Q	200	220	210	230	230	210	240	250	AF						
5						Q	Q	Q	210	180	(190) ^A	190	210	(210) ^B	240	220	A	Q							
6						240	210	210	(210) ^A	200	210	190	(230) ^A	270	180	200	220	210	Q						
7						Q	Q	A	A	A	A	A	A	A	A	A	A	A	A						
8						Q	Q	Q	Q	C	C	220	250	210	Q	200	220	A	Q						
9						Q	Q	Q	230	210	200	210	220	220	210	Q	230	A	Q						
10						Q	Q	Q	210	Q	180	270	180	(220) ^B	260	(240) ^A	210	A	A						
11						Q	220	230	Q	260	A	Q	290	(280) ^A	(270) ^A	240	240	A	230						
12						Q	220	Q	A	260	(250) ^A	220	(260) ^A	300	A	A	A	A	A						
13						F	F	A	A	A	A	A	A	A	A	A	A	A	A						
14						Q	Q	Q	190	(240) ^A	(280) ^A	A	A	A	A	A	A	AF	AF						
15						A	A	A	220	220	Q	200	200	200	320	A	A	220	230						
16						Q	A	Q	240	A	A	200	A	A	(200) ^A	A	A	A	A						
17					280	260	240	230	(200) ^B	(170) ^A	(150) ^B	170	(180) ^B	(190) ^A	200	(200) ^A	200	A	A						
18						Q	Q	A	A	A	240	200	280	(250) ^A	210	250	A	A	A						
19						240	210	A	A	A	220	200	(260) ^A	310	220	A	210	(260) ^A	300	A					
20						230	210	200	A	A	200	A	230	A	A	A	200	A	A						
21						230	A	A	A	A	A	Q	260	A	A	220	A	A	A						
22						Q	Q	Q	A	230	200	220	(230) ^A	240	A	230	210	220	A						
23						Q	Q	Q	240	A	A	270	230	290	A	A	AF	A	A						
24						Q	220	230	(230) ^A	A	B	B	A	B	B	B	B	A	A						
25						B	200	B	A	A	A	200	(200) ^A	200	200	200	220	210	A						
26						Q	260	A	A	A	260	(230) ^A	190	200	230	240	A	A	A						
27						A	220	250	A	A	A	A	290	(300) ^A	300	A	A	A							
28						230	230	210	250	A	A	200	220	(240) ^A	260	220	210	(230) ^B	220						
29						Q	Q	230	200	A	A	200	(220) ^B	230	220	(230) ^A	230	Q							
30						Q	Q	210	Q	A	A	A	270	(250) ^A	220	A	A	A							
31						A	A	230	A	A	A	A	A	210	270	210	220	250	A						
Average						230	220	230	220	210	210	200	220	230	220	220	220	230	—						
Count					1	7	12	14	14	11	16	22	25	24	20	20	18	12	3	1					

Sweep 1.0 Mc to 17.0 Mc in 15 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denkikatsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

Lat. 35°42.4'N
Long. 139°29.3'E

Kokubunji, Tokyo

IONOSPHERIC DATA

fb

May 1949

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						1.5	(2.4) ^A	(3.2) ^A	(3.6) ^A	3.7	3.7 ^F	3.8 ^B	(3.8) ^B	3.7	3.6	3.1	A	A	A						
2						1.6	2.4	3.2	(3.4) ^A	3.5	(3.5) ^B	(3.6) ^S	B	B	3.9	3.6	3.5	2.8	B						
3						1.9	2.6	B	3.8	B	S	B	B	B	B	B	A	A	A						
4						B	2.4	A	B	B	B	B	B	B	A	B	3.6	3.0	2.0						
5						1.3	2.5	3.2	B	B	B	B	B	B	A	3.8	(3.3) ^B	2.7	A						
6						1.9 ^F	2.5	3.0	3.4 ^A	3.6	4.0 ^A	A	A	A	B	3.8 ^B	3.3 ^S	(2.0) ^A	A						
7						1.9	2.7	A	A	3.4	(3.6) ^B	(3.8) ^B	A	B	(3.9) ^B	3.3 ^A	2.8	2.1							
8						A	2.8	3.5	A	C	3.9 ^B	3.9	(3.9) ^B	(3.7) ^B	3.4	3.4	(2.8) ^A	2.2							
9						(1.9) ^A	2.6	3.2	3.6	3.6	3.9 ^B	3.9 ^B	4.0 ^B	4.0 ^B	3.6	3.8	3.4	3.0	A	1.7 ^A					
10						1.3	2.3	3.2	3.7	(3.8) ^A	(3.8) ^A	A	B	B	B	(3.8) ^A	(3.5) ^A	2.9	2.0						
11						A	2.8	3.2	3.3 ^T	B	B	B	B	3.9 ^T	A	B	B	2.7	2.0						
12						A	2.4	2.9	3.4	3.6	B	B	B	3.7	A	A	2.8	2.2							
13						A	A	A	A	A	A	A	A	A	A	A	A	A	A						
14						A	A	3.0	3.2	3.4 ^F	3.8	(3.9) ^B	(4.0) ^B	(3.8) ^B	3.7	3.5	3.3	A	A						
15						A	A	A	3.6 ^X	3.4	3.7	(3.9) ^A	4.1 ^A	A	A	A	3.6 ^A	3.0	A						
16						1.6	2.5	A	B	A	B	B	B	A	B	B	A	A	A						
17						1.6	2.6	A	B	3.5	B	B	B	B	B	3.9	3.6	2.9	A						
18						1.4	(2.7) ^A	(3.2) ^S	3.6	3.8	A	B	A	A	A	B	B	(3.0) ^A	A						
19						A	2.8	3.1	B	B	B	B	A	B	A	B	B	2.9	A						
20						1.9	2.8	(2.9) ^A	2.9 ^T	3.1 ^B	3.5 ^B	A	B	B	B	3.6	3.1	3.4	A						
21						1.8	A	A	3.5	3.7	3.8	3.9	3.8 ^B	3.7	(3.9) ^A	4.1	A	A	A						
22						2.0	3.0	(3.2) ^A	3.3	B	A	B	B	B	B	3.8 ^B	3.4 ^B	A	A						
23						1.6 ^T	2.4	3.2	3.5	3.7	A	A	4.1	(4.0) ^B	(3.8) ^B	(3.7) ^B	3.3	2.3	A						
24						1.8 ^T	2.7	3.2	B	B	B	B	B	B	B	B	B	2.5 ^T	A						
25						B	2.6	3.2	A	B	B	B	B	B	B	B	3.9	B	A	B					
26						2.1	2.7	3.3	3.4	3.6	B	B	B	B	B	B	3.6	B	A	A					
27						A	A	A	A	A	B	B	B	B	A	3.5	A	A	A						
28						2.3	2.8	3.2	B	B	B	B	B	B	3.8 ^B	(3.8) ^B	3.8	(3.5) ^B	3.1	(2.3) ^F	1.4				
29						1.5	2.4	3.0	3.6	B	S	B	B	B	B	3.9	3.5	(3.3) ^B	3.0	A					
30						2.0	2.6	(2.1) ^A	3.5 ^S	(3.7) ^A	3.8	A	A	A	A	3.6	A	A	A						
31						A	A	A	3.4	3.8	A	A	3.6 ^B	3.8 ^B	3.5	(3.5) ^T	3.5 ^T	3.0	A						
Median Value						1.8	2.6	3.2	3.5	3.6	3.8	3.9	3.9	3.8	3.7	3.8	3.4	2.9	2.1						
Count						20	25	21	19	17	11	8	9	9	13	20	17	19	7						

Sweep 1.0 Mc to 17.0 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Benkeitsusium Kenkyujo, Gotanda Shinagawa-ku Tokyo Japan)

IONOSPHERIC DATA

May 1949

h_ε

35°42.4'N
 139°29.5'E

Kokubunji, Tokyo

Day	135° E Mean Time											16	17	18	19	20	21	22	23
	00	01	02	03	04	05	06	07	08	09	10								
1						100	100	100	100	100	100	100	100	100	100	100	100	100	100
2						150 ^B	100	100	100	100	100	100	100	100	100	100	100	100	100
3						140	100	100	100	100	100	100	100	100	100	100	100	100	100
4						100	110	A	B	90	100	100 ^B	100	100	100	100	100	100	100
5						B	110	20	100	100	100	100 ^B	100	e	B	100	100	100	100
6						100	100	100	100	100	100	B	A	A	100	100	100	100	100
7						100 ^A	100	A	A	110	100	100	100	100	100	100	100	100	100
8						A	100	100	A	C	110	110	110	110	110	100	100	100	110
9						100	110	110	100	100	100	100	100	100	100	100	100	100	100
10						100	100	100	100	100	100	100	100	100	100	100	100	100	100
11						A	110	100	110	110	110	100	100	100	100	100	100	100	100
12						A	100	100	100	100	100	100	100	100	100	100	100	100	100
13						A	A	A	A	A	A	A	A	A	A	A	A	A	A
14						A	A	A	100	100	100	100	100	100	100	100	100	100	100
15						A	A	A	100	100	100	100	100	100	100	100	100	100	100
16						B	100	100 ^A	100	100	100	100 ^B	100	B	100	B	100	100	100
17						110	100	100 ^A	100	100	100	100 ^B	100	B	B	100	100	100	100
18						100	100 ^A	100	100	100	100	100 ^A	100	A	A	100	100	100	100
19						A	100	100	100	100	100	100	100	100	100	100	100	100	100
20						100	100	100 ^A	100	100	100	A	B	100 ^B	100	100	100	100	100
21						100	A	A	100	100	100	100	100	100	100 ^A	100	A	A	A
22						100	100	100 ^A	100	100	100	100 ^A	100	100	100	100	100	100	100
23						140	100	100	100	100	100	100	100	100	100	100	100	100	100
24						110	110	110	110	B	B	B	100	A	A	A	100	A	A
25						A	100	100	90	100 ^A	20	B	B	100	100 ^B	A	A	A	A
26						120	110	110	100	100	100	100	100	100	100	100	100	100	100
27						A	A	A	A	100	100	100	100	100	100	100	100	100	100
28						90	100	100	100	100	100	100	100	100	100	100	100	100	100
29						100	100	100	100	100	100	100	100	100	100	100	100	100	100
30						100	110	100	100	100	100	100	100	100	100	100	100	100	100
31						A	A	A	100	100	A	A	100	100	100	100	100	100	100
Mean Value						100	100	100	100	100	100	100	100	100	100	100	100	100	100
Count						19	25	24	26	27	23	22	20	23	25	23	20	20	20

Sweep 1.0 Mc to 17.0 Mc in 1.5 min

Manual

IONOSPHERIC DATA

May 1949

fEs

Lat. 35°42.4'N
Long. 139°29.3'E

Kokubunji, Tokyo

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	G	G	G	G	G	G	3.4	4.6	5.2	5.8	5.6	4.4Y	B	4.2Y	5.4	4.6	4.9	4.0	4.8	G	B	G	G	G
2	G	G	G	G	G	G	2.5	4.2	5.2Y	3.9	5.7	6.5	G	G	G	7.6	4.8	7.4	3.1	3.0	3.0	5.6Y	3.0	5.0
3	2.2	3.0	4.1	2.0	1.4	G	2.9	B	G	5.6	4.4	5.4Y	6.4	4.2Y	6.4	5.8	6.4	6.4	4.0	3.0	8.4	5.5	7.7	4.3
4	4.0	3.2	2.8	2.8	1.4	B	G	3.0	5.0	5.4	5.2Y	5.4	5.6	4.8Y	6.2	5.6	5.4	4.7	4.9	5.2	2.6	2.8	3.6	6.2
5	2.2	G	1.2	1.6	G	1.8	3.0Y	3.6	4.8	(4.8)Y	B	6.8	(4.7)Y	4.6	4.6	5.6	5.2	5.0	3.8	4.2	3.4	4.6	3.8	3.4
6	1.8	(1.8)Y	2.8	2.8	2.3	2.8	2.8	4.4	6.1	6.2	7.2	5.2	1.28	1.0Z	B	3.9	4.6	4.4	4.0	4.3	7.6	7.7	7.8	2.8
7	5.6	5.4	4.7	3.4	3.0	3.2	4.1	6.0	8.1	6.2	6.6	7.2	1.18	8.8F	6.2	6.2	6.8	8.2	7.3	7.0	9.2	7.0	10.6	5.5Y
8	5.6	4.2F	3.8F	3.0F	3.6F	2.8	3.8	G	8.6	C	5.9	B	4.4	5.2Y	G	G	G	6.0	G	6.8	7.7	5.2	G	1.8
9	6.6	5.6A	3.6	3.6	2.6	G	3.1	4.2	5.1	5.1	G	G	4.2	5.7	9.0F	6.8	4.1	4.4	4.2	2.8	2.8	3.4	5.6	4.6
10	4.0	2.8	2.2	1.6	2.2	G	3.0Y	3.4	5.8	5.7	4.8	4.5	B	B	6.5	9.6	7.1	8.6	8.0	4.3	6.4	6.3	7.5	7.0
11	6.9	4.7	3.6	4.2	3.9	3.2	3.1	4.3Y	G	5.8	9.0	5.6	5.0	11.2	5.4	6.0	5.6	4.9	3.4	3.4	5.7	3.3	5.8	2.8
12	(4.2)F	(5.9)F	3.8	3.0	3.4	2.8	3.4	4.8	7.4	7.5	7.8	4.8	6.8	7.6	8.2	7.2	9.5	5.2	4.4	7.2	6.2	4.6	2.8Y	2.8
13	2.4	2.0	1.2	2.8	2.4	2.4	3.0	5.0	6.0	6.2	5.5	13.0	13.6	8.0	5.5	9.0	5.2	11.0	8.0	10.4	7.0	5.8	8.2	8.4
14	7.6	5.9	3.8	3.0	2.2Y	3.0	3.4	G	4.4	7.2	8.2	6.6	6.8	8.8	8.0	6.8	6.8	10.0	7.1	9.0	7.2	6.4	3.3	3.2
15	3.8	3.2	3.2	3.0	3.0	3.0	3.7	4.2	3.8	5.3	5.3	5.1	5.1	6.5	13.9	9.8	6.7	4.4	5.4	4.0	4.0	2.8	3.6	3.0
16	2.4	4.8	4.6	5.2	4.0	2.1	4.4	3.8	5.0	5.8	5.8	4.2Y	9.0	6.4Y	6.2	7.0	8.6	5.0	8.0	5.6	7.0	C	3.6	4.8
17	3.8	4.0	3.0	3.2	1.6	3.2	3.6Y	3.4	5.6	4.9	3.6	4.3	B	5.0	4.4	6.2	4.9	4.6	5.6	4.5	1.7	3.0Y	G	2.9
18	2.8	4.3	2.1Y	G	G	3.0	4.0	5.6Y	5.8	7.2	6.0	5.1Y	5.7	9.4	5.2	5.2	6.4	6.4	12.6	7.9	8.0	7.4	5.4	G
19	2.2	2.8	3.3	2.2	2.0	2.8	G	4.8	6.4	7.4	8.0	6.0	7.6	6.8	5.4	B	5.2	4.1	5.2	6.1	6.3	3.4F	5.8	7.5
20	7.2	6.0	5.6	4.4	2.6	2.9	4.6	4.8	5.6	6.6	9.8	9.4	6.4	6.3	6.4	G	D	13.1	11.0	5.8	6.5	7.1	4.5	4.0
21	4.0	2.4	4.6	4.4	2.8	G	4.8	5.2	5.9	6.5	6.5	5.6	5.7	5.8	6.2	5.9	6.2	6.8	13.0	12.6	4.6	2.2	2.6	2.2
22	5.0	5.8	5.0	5.8	3.6	3.6	3.0	4.8	6.4	6.1	4.9	5.2	5.7	4.4	6.7	5.3	5.2	4.8	3.6	2.8	3.0	2.8	3.0	3.6F
23	3.0	7.4F	7.4F	4.4F	2.0	3.0	3.6	4.8	5.9	6.9	6.8	5.7	5.5	6.0	6.3	5.2	5.9	13.4	11.3	4.4	3.0	G	6.0	5.6
24	6.0	5.8	7.0	5.8	2.0	G	3.2	4.8	6.4	8.0	6.0	7.1	6.2Y	B	B	6.0	8.6	8.2	7.4	3.4	3.0	3.2	8.4	3.2
25	3.2	3.4	4.2	3.0	2.6	B	5.4	6.2	8.8	8.7F	12.2F	10.2F	9.6	5.4	B	G	3.6	3.1	4.4	3.0	4.8	C	C	C
26	6.4	5.3	5.4	4.0F	3.6F	3.0	4.4	7.6	11.6	7.9	5.9	5.8	5.9	5.4	5.6	4.8	6.4	8.2	7.3	14.4	7.3	8.2	6.4	9.7
27	10.4	2.0	8.0	5.8F	4.0	3.0	3.0	5.0	6.0	6.6	13.2F	12.4F	7.4	9.0	7.0	7.6	7.6	6.4	6.4	5.6	9.4	6.4	8.0	8.8Y
28	7.6	3.0	3.6	3.0	3.0	G	3.7	5.6	6.2	6.6	6.8	6.8	6.2	6.4	6.6	5.8	4.8	4.8	4.8	5.8	7.4	9.4	4.0	3.2
29	2.6	2.2	4.6Y	3.0	2.2	G	4.2	5.3	5.4	6.6	6.2	7.6Y	B	(4.8)Y	4.8	4.5	6.8	6.2	3.8	2.8	2.2	5.8	7.8	5.2
30	2.4	4.5	5.3	3.7	3.8	G	4.4	4.4	6.0	7.2	7.4	7.2	7.8	8.0	6.6Y	9.2	7.4	5.7	4.8	5.6	6.8	7.4	3.8	2.4
31	2.8	5.8	3.0	2.2	2.2	3.6	3.0	5.1	7.8	7.9	7.4	8.1	7.4	4.0	5.6	4.2	4.6	5.4	5.4	4.8	6.0	3.6	7.2	7.8
Median Value	3.8	4.0	3.8	3.0	2.4	2.8	3.4	4.8	5.9	6.4	6.5	5.7	6.3	6.0	6.2	5.9	5.9	5.7	5.2	4.8	6.3	5.2	5.5	3.8
Count	3	3	3	3	3	2	3	3	3	3	2	3	2	2	3	3	3	3	3	3	3	3	2	3

Sweep 1.0 Micro 17.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denkikatsushin Kenkyujo) Gotanda, Shinagawa ku Tokyo, Japan

IONOSPHERIC DATA

Lat. 35°42.4' N
Long. 139°29.3' E

Kokubunji. Tokyo

F₂-M3000

May 1949

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2.7	2.9	3.0	3.0	2.9	3.1	3.0	2.9	2.8	2.7	2.8	2.7	2.8	2.9	2.8	2.9	2.9	2.9	2.9	2.9	(2.9) ^S	2.7	(2.7) ^S	(2.9) ^S	
2	(2.9) ^S	3.0	2.9	2.9	2.8	3.1 ^P	3.2	(3.0) ^B	2.9	2.8	2.7	2.8	2.8	2.8	2.9	2.9	3.0	2.9	3.0	J	(2.9) ^S	2.8	(2.9) ^S	(2.9) ^S	
3	2.9 ^S	2.7 ^S	2.8	2.8	2.8	3.0	3.4	(3.2) ^S	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9	3.0	(3.0) ^B	3.1	3.1	B	N	2.9	(2.9) ^P	
4	3.0	2.8 ^P	2.8	2.8	2.8	3.1	3.0	3.1	2.9	S	B	2.7 ^S	2.9	J ^B	2.8	2.9	2.9	2.9	3.2	3.4	2.7	2.7	2.6	2.6	
5	2.7	2.8	2.8	2.8 ^P	2.9	3.1	3.0 ^H	3.2	(3.1) ^S	(2.8) ^S	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	2.8 ^P	2.9	J ^P	
6	J	(2.9) ^P	2.8	2.8	2.6	3.2	3.4	3.5	3.1	3.0	2.8	2.7	2.7	2.8	2.8 ^P	2.8 ^H	2.8	2.9	3.3	3.3	2.7	2.7	2.7	2.9	
7	2.8	2.8	2.7	2.8	2.8	2.9	3.2	3.4	2.7	2.6	2.8	2.7	2.7	2.8	2.8 ^P	2.8 ^H	2.8	2.9	2.9	2.9	2.7	2.8 ^S	J ^S	2.7	
8	J ^F	2.7	J	2.9	2.5	2.9	3.2 ^S	3.2	3.1	C	C	2.8	2.8	2.8	2.8	2.8	2.8	2.9	3.0	3.2	2.9 ^P	2.6	2.8	2.8	
9	2.7	2.7	2.9	2.8	2.9	3.0	3.0	3.1	3.1	2.8	2.8	2.8	2.8	2.9	3.0	3.0	3.0 ^S	3.0	3.0	J ^S	2.9	2.8	J ^S	2.8	
10	2.8 ^P	J	2.9	2.7 ^P	3.0	3.1 ^P	3.2	3.0	2.9	3.1	3.0	2.9 ^H	3.1	3.1	3.1	3.2	(3.1) ^S	3.0	3.2 ^S	3.0	3.2 ^S	3.1	3.1	3.0 ^B	3.0 ^B
11	(2.9) ^S	2.8	2.8	(2.9) ^S	3.3	3.1	3.1	3.0 ^H	2.7	2.6	2.7	2.7	2.7	2.7	2.7 ^H	2.9	2.9	3.0	2.9	3.1	2.8	2.7	2.7	2.7	
12	2.9	3.0	(2.8) ^S	2.8	(2.9) ^S	3.0	3.3	3.2 ^P	2.8	2.6	2.7	2.8	2.8	2.7	2.8 ^H	2.8	2.8	3.0	3.3	2.9	(2.3) ^P	(2.4) ^B	2.5	F	
13	J ^F	J ^F	J ^F	J ^F	J ^F	B	J ^F	A	A	A	A	A	A	A	A	A	2.9	A	A	A	A	J	A	A	
14	2.5 ^P	2.5	2.4	2.9	3.2	3.1 ^B	3.4	3.0	2.8	3.0	2.8	2.7	2.6	2.7	2.7	2.6	2.8	2.9	2.8	2.9	2.9	2.7	2.7	2.8	
15	2.7	J	2.9	3.2	2.6	3.0	3.0 ^H	3.1	3.1	2.9	2.7	2.7	2.9	2.8	2.8 ^P	3.0	3.3	3.1	(3.1) ^S	3.2	3.0	(2.9) ^S	2.8	2.7	
16	2.6	2.7	2.7	2.7	2.7	3.0	J ^S	J ^S	3.0	3.2 ^P	2.8	2.8	3.0	3.0	J ^P	J ^P	J ^P	P	S	J ^P	3.3	(3.0) ^C	2.7	2.8	
17	2.7	2.6	2.6	2.6	2.6	2.8	3.0	2.9	2.5	3.0	3.2	3.1	3.2	3.4	3.4	3.3	3.2	3.0	(3.1) ^B	3.1	2.7	J ^B	J ^B	2.8	
18	J	2.8	2.7	2.8	3.1	3.0	3.0	2.9	3.0	2.9	2.8	2.8	2.7	2.9	2.9	2.9	2.8	C	A	2.8	3.0	2.9	2.7	2.9	
19	3.0	2.8	2.8	2.8	2.9	3.2	3.2	3.1	3.0	2.6	2.7	2.8	2.9	2.8	2.9	3.0	3.0	3.2	3.1	3.2	2.8	2.8	2.8	2.9	3.0
20	2.9	3.0 ^F	3.0	3.0 ^F	3.0	3.3	3.3	3.2	2.9	2.8	2.6	2.6	2.7	2.7	2.8	2.9	3.0 ^B	2.9	(2.9) ^A	2.9	2.8	2.7	2.8	2.8	
21	2.8	2.7	2.9	2.8	3.1	3.1	3.2	2.8	2.8	2.7	2.7	2.7	2.7	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9	(2.7) ^S	2.6	S	
22	2.6	J ^P	3.0	J	B	3.3 ^B	3.1	3.4	(3.1) ^B	2.8	J	2.8	2.7	2.6	2.7	2.8	2.9	A	A	A	3.1	2.9	2.6 ^P	2.5	2.6
23	2.7	2.8	3.1	3.1	2.7	3.0	2.8	3.0	2.9	2.5	2.7	2.6	2.9	2.8	2.9	2.8	(2.7) ^B	2.8	J	3.0	3.1	2.8	J	2.6	3.0
24	2.7 ^S	2.8	2.8 ^P	2.7	3.4 ^N	3.1	3.0	3.3	2.9	A ^S	S	B	B	2.7	2.6	(2.7) ^B	2.8	J	3.0	3.1	2.8	J	2.6	3.0	
25	2.7	J	3.1	3.0 ^P	3.1	3.2	3.1	2.8	(2.8) ^B	2.8	2.6	2.7	2.8	2.9	2.9	2.9	3.2	3.3	3.1	3.1	3.3	C	C	C	
26	(2.6) ^B	2.5 ^F	2.6 ^F	2.8	2.6	2.7	3.0	(2.9) ^B	2.9	2.8	2.7	2.8	2.8	3.0	3.0	3.0 ^H	3.1	3.0	3.0	(3.0) ^A	3.1	2.9	3.0	A	
27	A	J ^F	J ^F	J ^F	J ^F	J ^F	2.9	2.9	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.8	3.0	2.9	3.2	J	J	S	2.8	J	
28	S	J ^F	2.8	(2.9) ^S	2.8	(2.9) ^S	3.0	3.0 ^S	3.0	2.7	2.7	2.8	2.8	2.8	2.9	3.0	3.0	3.1	J	J	J	J ^F	J	2.9 ^P	
29	3.0	2.8	2.8	2.7 ^F	2.8	3.0	3.3	3.3	3.0	2.9	2.8	2.7	2.8	2.8	2.9	2.9	2.9	3.0	3.0	3.1	3.0	(2.8) ^S	2.7	(2.8) ^S	
30	2.9 ^S	3.0	3.4	3.0	2.8	2.5	3.1	3.0	3.0	2.6	2.7	2.6	2.7	2.8	2.8	2.8	2.8	3.0	3.0	3.0	2.9	2.8	2.8	2.8	
31	2.8	2.6	2.9	3.2	2.8	2.4	J	2.8	2.9	2.8	3.0	2.6	2.8	2.9 ^P	2.8	2.9	3.0	2.9	3.0	2.9	2.7	J	2.4 ^F	J ^P	
Minimum Value	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.9	3.0	3.0	3.1	2.9	2.8	2.7	2.8	
Count	25	24	28	28	28	28	29	30	27	26	29	29	29	29	30	29	29	25	26	25	26	23	24	23	

Sweep: 1.0 Mc to 1.7 Mc in 1.5 min

Manual

IONOSPHERIC DATA

Lat. 35°42.4'N
Long. 139°29.3'E

Kokubunji, Tokyo

f_F min

May 1949

Day	135°E Mean Time																				23			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19		20	21	22
1	E	E	E	E	E	1.6	2.6	3.8	4.4	4.8	5.2	4.4	4.2	4.3	4.3	3.4	(3.4)A	3.3	A	2.2	1.8	1.8	1.8	2.6
2	1.6	E	E	E	1.7	2.7	3.8	3.8	4.0	4.4	(4.8)S	4.4	4.6	4.2	(4.1)A	4.0	(3.2)A	2.4	1.7	1.6	(1.6)A	1.6	(1.5)A	
3	1.3	E	E	E	1.9	3.2	3.6	3.8	4.2	4.2	4.2	4.5	4.6	(4.4)B	5.8A	4.8	5.2A	5.6A	3.3	2.2	A	A	A	
4	A	1.6	1.6	1.2	1.3	3.6	2.7	3.4	(3.8)A	4.2	4.4	4.3	4.6	4.6	4.8	4.0	3.8	A	A	A	1.9A	A	A	
5	E	E	E	E	1.4	2.8	3.6	4.4	4.4	(4.3)A	4.4	4.5	4.6	(4.6)B	A	A	A	A	A	A	A	A	A	
6	1.6	1.5	1.5	1.2	1.4	1.9	2.6	3.7	4.1	4.4	4.3	4.4	A	A	4.0	4.0	3.8	3.6	2.4	A	A	A	A	
7	1.5A	1.3	(1.5)A	1.6	2.0	1.9	2.7	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
8	A	A	A	A	1.2	(2.1)A	3.0	3.5	4.3	C	C	4.4	5.1	4.6	4.7	3.9	(2.8)A	2.3	A	A	A	A	1.2	
9	1.2	A	A	A	A	2.0	2.7	3.7	4.3A	4.5A	4.3	4.6	4.5	4.6	4.1	(4.0)A	3.9A	A	1.7	1.9	2.0A	A	A	
10	A	1.6A	1.2	1.6	1.2	1.6	2.8	3.3	3.8	(4.0)A	4.3	4.5	4.6	5.8	(5.2)A	4.6	A	A	(6.0)S	A	1.6	2.0	A	
11	A	A	A	A	A	2.5	3.5	3.7	3.9	4.9	(4.7)A	4.5	A	4.8	4.1	5.8	2.8	2.0	A	A	2.2	(2.1)A	1.9	
12	A	A	A	A	2.0	2.1	2.8	3.5	A	A	A	4.2	A	A	A	A	A	A	A	A	A	A	2.0	
13	1.2	1.1	1.1	1.4	1.7	2.0	3.6	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
14	A	A	A	A	A	1.6	2.0	(2.8)A	3.6	3.7	A	A	A	A	A	A	A	A	A	A	2.0	1.8	1.8	
15	A	A	A	A	A	1.8	A	A	A	3.1	4.2	4.4	4.3	A	A	A	A	A	A	A	A	A	(4.0)S	
16	1.4	A	A	A	A	2.2	2.6	2.6	4.4	A	A	4.7	A	A	A	(4.3)A	(4.0)A	(3.9)A	A	A	A	C	A	
17	A	A	A	E	1.2	1.6	2.6	3.8	A	A	4.3	4.3	4.8	(4.7)A	4.6	(4.3)A	(4.0)A	(3.9)A	A	A	1.4	(1.4)A	1.4	
18	A	A	A	E	E	2.4	2.7	A	A	A	A	A	A	A	A	A	4.2	(3.9)A	3.5	A	A	A	A	
19	A	A	A	A	A	A	1.9	A	A	A	A	A	A	A	A	A	3.9	A	A	A	A	A	A	
20	A	A	A	A	A	2.0	3.3	(3.6)A	3.9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
21	A	A	A	A	2.0	A	A	A	A	A	A	A	A	A	A	4.4	A	A	A	A	A	1.6	1.8A	
22	1.1	1.4A	1.4	(1.6)A	1.8	2.2	3.0	3.6	A	A	A	A	5.2	(4.8)A	4.3	3.8	A	A	A	A	A	A	A	
23	A	A	A	A	1.4	1.8	(2.9)A	4.0	A	A	A	A	4.7	A	A	A	A	A	A	A	A	1.2	A	
24	A	A	A	A	A	2.6	3.2	3.6	A	6.0	7.1	(6.8)A	6.4	6.0	7.6	7.9	A	A	A	A	2.1	1.8	2.0	
25	2.2A	2.4A	A	A	2.0	2.6	3.0	A	A	A	4.8	(4.5)A	4.4	4.4	A	A	A	2.4	A	A	C	C	C	
26	A	A	A	A	1.2	2.3	2.8	A	A	A	A	A	4.4	4.4	A	A	A	A	A	A	A	A	A	
27	A	1.2	A	A	A	1.6	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
28	A	E	A	A	A	2.4	3.2	A	A	A	A	A	A	A	A	A	A	3.4	A	A	A	A	A	
29	A	A	A	A	A	1.9	2.7	A	A	A	A	6.0	4.6	4.5	4.2	A	A	A	2.3	2.0	A	A	A	
30	1.2	A	A	A	A	2.3	2.6	(3.2)A	3.8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
31	A	A	A	A	A	A	2.6	A	A	A	A	A	4.3	(4.1)A	3.9	3.8	A	A	A	A	A	A	A	
Median Value	1.3	1.2	1.2	1.2	1.3	2.0	2.8	3.6	3.9	4.3	4.3	4.5	4.6	4.6	4.6	4.1	3.9	(3.4)	(2.4)	(1.9)	1.7	1.8	(1.6)	
Count	12	13	11	13	19	26	28	19	14	10	12	16	15	15	16	17	14	9	7	6	8	10	9	

Sweep 1.0 Mc to 1.5 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawaku Tokyo, Japan

IONOSPHERIC DATA

May 1949 f_E min Kokubunji, Tokyo Lat. 35°42.4'N Long. 139°29'3"E

Day	135°E Mean Time												20	21	22	23									
	00	01	02	03	04	05	06	07	08	09	10	11					12	13	14	15	16	17	18	19	
1	G	G	G	G	G	1.2	1.3	1.6	1.6	1.7	1.8	2.4	2.1	2.8	2.4	1.8	1.6	1.6	1.6	G	B	G	G	1.8	G
2	G	G	G	G	G	1.2	1.6	1.6	1.6	2.0	2.0	2.1	2.8	[2.6] ^B	2.4	2.2	1.8	1.6	1.3	1.2	1.2	1.3	1.3	1.3	1.1
3	E	E	E	E	E	1.5	1.2	2.0	2.0	2.2	2.6	4.1	4.2	4.0	2.7	2.6	2.1	2.2	1.8	1.8	1.5	1.6	1.6	1.7	
4	E	E	E	E	E	1.5	1.5	1.5	3.8	1.5	2.8	2.4	2.6	2.6	2.3	1.8	1.8	1.2	1.1	1.3	1.3	1.3	1.1	1.1	
5	E	G	E	E	G	1.3	1.5	1.6	1.6	2.2	2.2	2.5	2.6	3.9	3.4	2.0	1.8	1.6	1.6	1.6	1.2	1.4	E	E	
6	E	E	E	E	E	1.2	1.3	1.3	1.7	1.9	1.8	2.3	3.8	2.6	2.8	2.8	1.8	1.2	3	1.1	1.1	1.1	1.1	1.6	
7	1.5	1.3	E	E	E	E	1.2	1.4	1.4	2.3	2.1	2.2	2.6	2.0	2.2	2.0	1.8	1.3	1.6	1.2	1.2	1.2	1.2	1.2	
8	1.2	E	E	E	E	E	1.5	1.5	1.8	C	C	3.0	3.3	3.3	4.1	2.2	1.8	1.3	1.2	1.4	1.2	1.2	G	1.1	
9	1.2	E	1.6	E	1.3	1.3	1.6	1.8	2.0	2.2	2.3	2.8	2.8	4.0	2.9	2.3	2.0	1.5	1.5	1.2	1.2	1.2	1.1	E	
10	E	1.2	E	1.2	1.2	1.2	2.0	1.6	1.6	1.8	1.9	2.6	2.6	(3.5) ^B	4.3	2.0	1.6	1.5	1.2	1.6	1.3	1.3	1.5	1.2	
11	1.2	E	E	E	E	E	2.1	2.0	1.7	1.8	2.7	2.7	2.1	1.8	1.8	2.0	1.6	1.4	1.4	1.3	1.5	1.3	1.3	E	
12	E	1.1	E	E	E	E	1.3	1.4	1.2	1.6	2.2	2.6	2.8	2.2	1.8	1.7	1.6	1.6	1.6	1.4	1.4	1.2	1.2	1.6	
13	1.1	1.1	E	1.1	1.1	1.1	1.1	1.8	2.0	2.2	2.4	2.4	3.6	3.4	2.2	1.8	1.9	1.4	1.3	1.2	1.2	1.8	1.2	1.2	
14	1.1	1.2	1.2	E	E	1.4	1.5	1.4	1.2	1.9	1.9	2.2	2.4	3.2	2.2	1.8	1.8	1.8	1.6	1.3	1.2	E	E	E	
15	E	E	E	E	E	E	1.4	1.8	1.8	1.7	2.4	2.6	2.4	2.0	2.0	2.2	1.7	1.4	1.2	1.6	1.4	1.6	1.6	1.6	
16	1.2	E	E	E	E	1.4	1.4	1.6	1.8	2.2	3.6	2.4	3.6	4.2	2.4	3.6	2.2	1.8	2.1	1.5	1.6	(1.6) ^C	1.6	1.6	
17	1.2	E	E	1.1	1.2	1.2	1.2	1.4	2.2	1.2	2.4	3.9	2.6	4.2	4.3	1.8	1.6	1.4	1.2	1.3	1.5	1.3	E	1.2	
18	1.2	E	1.1	E	E	1.1	1.3	1.4	1.8	1.8	2.4	2.4	2.3	2.5	2.4	1.8	1.8	1.8	2.0	2.4	2.0	1.8	1.6	1.5	
19	1.3	1.1	E	E	E	1.1	1.8	1.8	2.0	2.3	2.4	2.4	2.8	3.6	3.4	2.0	1.5	1.8	1.3	1.2	1.2	1.2	1.2	1.1	
20	E	E	E	E	E	1.2	1.6	1.8	1.8	2.0	2.4	2.8	3.8	3.1	1.8	2.2	1.8	1.8	1.4	1.2	1.2	1.2	1.2	1.1	
21	1.1	E	1.2	E	E	2.2	1.2	2.0	1.6	1.5	1.8	2.4	2.4	2.4	2.4	2.3	1.6	1.6	1.6	1.2	1.2	1.4	1.2	1.2	
22	1.1	1.2	1.2	1.2	1.2	1.6	1.4	1.8	1.6	1.7	2.5	2.3	3.9	2.6	2.4	2.3	1.6	1.2	1.4	1.2	1.2	1.2	1.2	1.2	
23	1.2	E	E	E	E	1.5	1.5	1.5	2.0	2.4	2.3	2.8	3.4	2.5	2.3	2.2	1.6	1.5	1.2	1.2	1.4	G	1.6	1.2	
24	1.2	1.2	E	E	E	1.2	1.7	1.8	2.0	4.6	B	B	4.2	2.6	2.4	2.3	1.8	1.4	1.2	1.2	E	E	E	1.1	
25	1.1	1.4	1.2	1.2	1.4	E	1.6	1.8	1.8	1.8	2.6	4.2	4.3	4.1	2.6	2.3	2.0	2.1	1.6	1.5	1.7	C	C	C	
26	1.1	E	E	E	E	1.3	1.3	1.3	1.6	1.9	1.8	1.9	2.0	2.2	2.4	2.3	2.2	1.6	1.6	1.6	1.4	1.1	1.1	1.1	
27	E	1.2	E	E	E	1.6	1.6	1.8	1.8	2.4	2.4	2.4	2.6	2.4	2.4	2.3	1.8	1.8	1.8	1.4	1.4	1.3	E	E	
28	E	E	E	E	E	1.1	1.8	1.5	1.8	2.6	2.4	2.6	2.6	2.4	2.3	1.9	1.8	1.4	1.4	1.2	1.4	1.4	E	E	
29	E	E	E	E	E	E	1.2	1.3	1.7	2.3	2.4	2.1	2.6	2.6	2.5	2.0	2.1	1.8	1.8	1.6	2.0	1.6	1.6	1.6	
30	1.4	1.1	1.1	1.1	1.1	1.1	1.2	1.3	1.6	1.6	2.4	3.6	3.8	3.8	2.4	2.4	1.7	1.8	1.8	1.2	1.4	1.4	1.6	1.2	
31	1.2	E	E	1.2	E	1.4	1.5	1.6	1.7	1.8	2.0	2.0	2.5	2.5	2.6	2.5	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.2	
Median Value	1.1	E	E	E	E	1.2	1.5	1.6	1.8	1.9	2.4	2.6	2.6	2.6	2.4	2.2	1.8	1.6	1.4	1.3	1.3	1.3	1.2	1.2	
Count	31	31	31	31	31	31	31	31	31	30	29	30	31	31	31	31	31	31	31	31	30	30	30	30	

Sweep 1.0 Mc to 17.0 Mc in 15 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

May 1949

Z_{sd}

Kokubunji, Tokyo

Lat. 35 42.4 N
Long. 139 29.1 E

IONOSPHERIC DATA

Day	135° E													Mean Time												
	00	01	02	03	04	05	06	07	08	09	10	11	12		13	14	15	16	17	18	19	20	21	22	23	25
1	90	80	90	90	80	110	20	100	130	130	100	120	110	100	100	120	100	110	(120) ^B	100	(120) ^P	100 ^P	100 ^P	PS	PS	
2	S	100	60	100	100	(110) ^B	(20) ^P	90	(100) ^B	110	140	110	110	100	90	90	90	90	100	90 ^J	90 ^J	(100) ^S	100 ^S	100 ^S	100 ^S	
3	80 ^S	(80) ^S	130	100	90	80	90	(60) ^B	(60) ^B	110	100	(100) ^B	90	90	100	110	120	(100) ^B	(80) ^B	(60) ^B	B	N	60	(90) ^P	(90) ^P	
4	70	100 ^P	70	70	130	150	160	110	140	S	B	S	90	(100) ^B	100	110	110	120	70	80	80	90	80	90	90	
5	70	80	60	80 ^P	110	90	70	90 ^H	170	30	120	100	70	80	80	90	90	100	100	100	120	110	90 ^S	70	40 ^P	
6	80 ^J	(120) ^P	80	60	110	110	90	150	130	(50)	120	100	100	100	120	90	90	90	90 ^B	60	130	100	90	80	80	
7	90	70	100	80	100	120	130	110	(120)	130	90	150	100	70	90 ^P	120 ^H	80	100	110	110	(100) ^S	60 ^S	(90) ^S	80	80	
8	(20) ^F	130	100 ^J	100 ^J	100	90	110	100	140	C	C	90	100	110	90	110	110	90	80	110	100	60 ^S	80	80	80	
9	60	90	100	120	130	130	120	90	120	140	100	110	100	110	80	100	80	110 ^S	110	90 ^J	100	70	90 ^S	50	50	
10	80 ^P	90 ^J	90	(130) ^P	80	110 ^P	80	140	30	70 ^H	150	120	100 ^P	120 ^B	70	100	110	(120) ^F	130	90 ^S	80	110	(60) ^S	(40) ^S	90	
11	(80) ^S	120	70	90	(110) ^B	70	(140) ^S	130	70 ^H	150	120	120	100 ^P	120 ^B	70	100	100	140	130	130	120	(120) ^F	100	90	90	
12	90	70	60 ^S	90	(100) ^S	100	110 ^S	110 ^P	150	100	90	100	90	80	90 ^H	90	90	80	70	(100) ^B	(110) ^F	(110) ^F	110 ^J	(100) ^F	90	
13	80 ^J	160 ^F	70 ^F	60 ^F	70 ^F	BF	F	A	A	A	A	A	A	A	A	A	90	A	A	A	A	90 ^J	A	A	A	
14	80 ^P	100	120	80	90	100	90	170	100	90	80	120	120	140	110	140	100	110	110	110	120	120	100	60	60	
15	120	50 ^J	100	70	100	110	90	90 ^H	110	110	90	90	120	130	110	100 ^P	110	90	90	(90) ^S	80	110	(110) ^J	110	100	
16	100	100	100	100	110	110	30 ^S	120 ^S	90	150 ^P	120 ^P	110	100	90	110	(110) ^B	(100) ^P	(130) ^P	(110) ^S	(80) ^F	80	(80) ^C	80	60	60	
17	70	80	90	90	90	80	100	140	170	140	160	100	100	60	100	110	110	70	(90) ^B	90	100	(70) ^B	70 ^J	50	50	
18	70 ^J	60 ^J	70	100	100	110	90	110	110	110	90	120	130	110 ^A	120	120	100	C	A	90	70 ^A	70 ^A	90	70	70	
19	40	70	110	80	90	70	120	120	130	170	110	90	80	90	80	90	80	80	80	90	140	120	100	100	70	
20	110	90 ^F	100 ^F	70 ^F	90 ^F	110	100	90	120 ^S	90	120	120	110	110	110	80	(70) ^A	60 ^A	70	120	150	120	20	20	20	
21	90	80	70	140 ^B	70	80	120	140	130	120	120	130	100	100	90	100	70 ^B	120	(130) ^F	130	130	90	90	90 ^B	90	
22	100 ^F	90 ^J	100	120 ^J	(80) ^B	40	100	100	110	160 ^B	40 ^J	30	140	120	120	90	100	140	110	100	(120) ^S	110	(120) ^F	120 ^S	120 ^S	
23	120	90	60 ^A	120	110	100	120	110	120	90	80	80	40	140	80	120	130	A	A	130	80	(90) ^P	(100) ^P	90	90	
24	100 ^Z	110	100 ^P	100	(90) ^N	120	120	100	100	AS	S	B	B	120	(110) ^B	90	70 ^J	110	110	110	80	50	70	120	120	
25	80	60 ^J	110	110 ^P	70	(90) ^B	(110) ^B	(160) ^B	(150) ^B	130	120	150	140	130	120	100	100	110	80	70	70	C	C	C	C	
26	BF	F	80 ^F	70	120	100	110	(130) ^B	140	70	110	130	130	150	120	150 ^H	120	100 ^A	100	(90) ^A	80	70 ^A	60	A	A	
27	A	130 ^F	100 ^F	60 ^F	150 ^F	80 ^F	130	110	150	180	100 ^A	120	150	130	120	120	120	120	90	110 ^J	70 ^J	(70) ^S	70 ^P	90 ^F	90 ^F	
28	(90) ^S	(80) ^F	F	F	90	150 ^S	70 ^H	90	140	190	130	160	120	120 ^S	120	140	100	110	120 ^J	80 ^J	120 ^J	100 ^F	100 ^J	100 ^P	100 ^P	
29	80	70	90	140 ^F	90 ^F	150	120	110	110	140	50	140	110	100	110	130	80	100	100	80 ^J	110	(100) ^S	90 ^S	100 ^S	100 ^S	
30	100 ^S	80	80	80	110	80	90	130	110	100	120	120	110	110	130	140	120	110	130	90	130	120	80	100 ^S	100 ^S	
31	130	160	90	80	100	100	60 ^J	150	130	140	150	90	80	100 ^P	100	90	90	70	110	110	(100) ^A	80 ^A	(80) ^F	(90) ^F	(90) ^F	
Median Value	90	90	90	90	100	100	110	110	130	130	110	120	100	110	100	110	100	100	100	100	100	110	100	90	90	90
Count	28	30	30	30	31	30	30	30	30	27	27	28	29	30	30	30	31	28	28	30	29	29	28	27	27	

Sweep 1.0 Mc to 17.0 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denkirisushin Kenkyujo) Gotanda, Shinagawa ku Tokyo, Japan

IONOSPHERIC DATA

May 1949

f_oF₂

Yamagawa

Lat 35° 12.5' N
Long 139° 57.7' E

155° 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	25
1	120	3.5 ^Z	(12.7) ^Z	11.3	10.2	9.7	9.1	8.4	7.3	12.1	13.1	13.9	14.3	14.9	14.9	14.8	13.9	13.7	13.0	(22.8) ^S	11.3	11.4	(12.2) ^N	13.7	12.8
2	3.7	12.0	12.7	(10.5) ^S	8.3	8.0	9.4	10.3	9.9	10.3	11.4	12.3	14.0	14.4	14.6	14.8 ^P	14.7	14.0	13.5	13.7	13.3	13.8	13.7	12.8	
3	11.3	10.4	10.5	9.7	9.0	8.1	9.3	9.9	10.5	12.5	12.6	13.3	13.7	C	C	C	14.1	11.9	12.6	12.6	B	C	11.2	11.3	
4	10.8	10.3	10.3	9.0	7.1	7.6	8.6	9.5	10.2	10.4	12.0	13.0 ^S	C	C	C	C	C	C	12.2	11.4	9.7	9.3	9.6	9.6	
5	9.3	9.6	8.4	7.9	7.7	7.7	8.3	9.8	10.7	11.0	11.4	(12.4) ^S	13.4	13.1	12.8	13.5	12.7	13.7	13.1	13.7	11.9	10.7	9.8	9.6	
6	9.0	9.0	9.1	8.9	8.4	8.8 ^M	(11.7) ^M	10.2	8.2	9.5	11.0	10.8	12.7	12.8	14.1	13.9	14.3	13.7	12.4	11.5	10.6	10.5	9.9	10.7	
7	9.9	9.5	8.8	7.7	8.2	7.9	9.4	9.5	9.0	10.5	12.3	12.3	12.9	12.8	13.3	13.2	3.1	2.2	2.1	11.1	10.9	10.5	10.4	8.8	
8	11.8	14.5	11.6	8.8	8.3	8.3	9.6	10.3	9.3	9.8	11.5	12.6	12.5	14.2	14.6	14.5	14.5	14.7	14.5	12.6	11.3	11.5	11.0	(10.8) ^S	
9	10.5	10.2	10.6	9.3	8.6	8.5	9.3	10.6	10.4	10.3	11.2	12.1	12.0	11.9	13.4	13.7	13.5	3.2	11.4	10.3	10.0	9.3	8.3	8.7	
10	8.7	8.2	8.0	8.5	8.0	8.5	9.4	9.3	10.0	10.0	11.1	11.0	13.2	13.9	14.2	14.0	13.1	12.0	11.3	11.5	10.6	10.7	10.8	9.9	
11	9.3	9.1	8.9	9.4	9.1	8.6	9.4	8.8	8.6	9.5	(11.0) ^C	(11.9) ^M	(2.7) ^S	3.6	(13.7) ^C	14.8 ^M	(3.7) ^M	11.7	11.7	10.6	10.0	10.0	9.6	10.2	
12	10.0	10.0	8.7	8.7	8.9	9.2 ^M	8.9	7.9	8.0	9.1	10.0	10.6	11.5	12.0	12.5	12.7	12.3	(14.2) ^S	12.1	10.7	10.7	11.2	12.1	8.7	
13	BE	B2	5.9 ^N	(6.5) ^N	7.0 ^N	8.3 ^N	(6.7) ^N	5.1 ^N	(5.7) ^N	6.3 ^N	6.3 ^N	6.4 ^N	6.6 ^N	6.3 ^N	6.4 ^N	7.6 ^N	7.2 ^N	7.4 ^N	8.1 ^N	7.9 ^N	7.4 ^N	6.9 ^N	7.3 ^N	6.4 ^N	
14	6.0 ^N	(6.7) ^N	7.4	7.0	7.4	7.2 ^N	7.9	6.9 ^T	7.3	8.1	8.3 ^T	8.6	11.4	11.5	11.9	11.9	12.7	11.9	11.2	11.0 ^T	0.7	9.7	9.6	9.9	
15	9.3	9.5	8.4	7.8	8.0 ^Z	8.4	9.4	10.0	9.9	9.7	9.8	10.8	12.0	12.2	13.4	13.8	13.0	11.8	11.7	10.7	9.4	9.4 ^P	9.6	9.6	
16	9.3 ^T	9.2	8.6	9.4	7.0	7.2	8.7	9.3	10.4	9.0	9.8	10.7	10.8	B	B	2.9	2.0	3.4	12.7	11.6	10.4	8.6	(8.0) ^S	10.0	
17	10.1	10.0	8.7	8.0	8.0	7.9	7.7 ^F	6.5	7.5 ^N	8.8 ^N	9.4 ^N	C ^N	C ^N	C ^N	C ^N	10.2	9.8 ^N	9.6 ^N	10.7 ^N	10.0 ^T	8.5	9.0 ^P	9.7 ^P	9.6	
18	9.1 ^M	8.7	8.0	8.1	8.2	7.6	8.9	9.7	10.4	C	C	0.6	1.7	1.9	2.1	2.4	2.2	0.4	10.2	10.2	9.2	8.6	10.4 ^Z	10.4	
19	10.3 ^T	9.7	11.8	(11.0) ^F	10.1	8.5	8.5	8.6	9.0	9.1	10.5	11.6	10.9	12.3	13.3	14.1	14.2	14.2	13.6	(11.6) ^S	10.6	11.0 ^P	11.5 ^P	12.3	
20	12.1	11.6	11.0	7.0	6.9	8.2	7.7	7.7	8.5	9.3	9.6	11.4	12.4	13.0	14.1 ^P	14.7	14.9	S	S	12.8	11.5 ^P	10.6 ^P	(13.1) ^F	S	
21	S	11.6	10.8	10.4	9.7	9.3	9.3	9.6	9.5	10.3	10.6	11.4	11.7	12.2	13.6	13.8	13.3	14.1 ^S	(13.6) ^B	13.0 ^F	14.0	11.9	13.1	14.2	
22	3.9	2.8	2.6	10.4	9.6	9.2	9.4	8.8	9.3	9.9	10.9	10.6	10.1	A	A	13.5 ^M	12.8	12.0 ^T	11.1	10.6	10.4	10.6	11.4	11.3	
23	11.7	10.4	9.8	8.4	7.8	7.7	8.9	10.3	9.5	9.9	10.4	11.1	11.7	11.8	11.1	11.9	11.1	10.9	11.2	10.8	8.9	9.1	9.3	9.5	
24	9.6	9.1	8.4	7.8	8.0	8.3	9.0	8.7	8.1	9.0	10.0	10.6	11.2	10.7	11.8	11.9	12.0	12.1	A	A	9.0	9.9	10.6	10.6	
25	10.3	10.3	9.1	7.8	7.4	6.9	6.8	7.6	9.8	A	A	12.5	13.1	13.0	13.2	12.9	12.4	10.9	11.3	10.3	9.2	9.3	9.3	9.1	
26	7.6	7.5 ^F	7.9 ^F	8.4 ^F	8.2 ^F	8.0 ^Z	9.3	10.4	10.4	9.6 ^S	9.7	10.4	11.7	12.1	12.1	11.2	10.7	10.2	10.0	9.8 ^T	9.0	8.6	8.5 ^F	8.0 ^F	
27	(9.2) ^A	10.0 ^F	9.5 ^F	8.3 ^F	8.4 ^F	7.7 ^F	9.9 ^F	10.7	9.6	9.8	10.2	10.7 ^Z	11.1 ^Z	10.8	10.7 ^Z	9.7 ^S	10.3	10.2	9.3	8.9	8.7	8.5	8.6 ^F	9.5	
28	10.3	9.6	9.4	8.4	7.8 ^T	7.7	8.3	9.2	10.0	9.6	10.3	10.5	10.9	11.5	11.8	12.0	12.3 ^S	11.3	10.4	8.7	9.0	8.9	9.4	9.1 ^F	
29	8.0	7.7 ^Z	8.3 ^F	8.5	(8.4) ^F	8.2	9.2	9.4	9.3	8.9	9.0	9.2	9.5	10.2	10.6 ^S	11.6	11.4	11.6	11.1	11.1	10.2	10.2	9.8	9.8	
30	11.4	10.5 ^N	10.1	9.2	7.8	7.9	9.2	9.3	9.3	8.4	8.6	9.6	10.0	11.3	11.9	11.0	12.0	(10.8) ^F	9.6	10.0	9.3 ^S	8.7	9.3 ^S	9.2 ^S	
31	9.6	9.8 ^N	8.3 ^S	8.8	8.8 ^M	5.8 ^S	6.5 ^S	8.3 ^S	(9.3) ^N	10.3 ^N	8.2 ^N	9.0 ^N	10.1	10.8	10.6	11.7	12.2	10.7	10.1	9.2 ^S	9.2	8.5	8.6	8.6 ^N	
Month Total	120	100	9.1	8.5	8.2	8.1	9.2	9.4	9.5	9.7	10.5	10.9	11.7	12.2	13.0	13.1	12.7	12.0	11.3	10.9	10.1	9.8	9.8	9.8	
Count	29	31	31	31	31	31	31	31	31	29	29	30	29	26	26	30	30	29	29	30	30	30	31	29	

Sweep 1/2 Mc to 18.5 Mc in 5 min

Manual

Y I

IONOSPHERIC DATA

May 1949 HP F Yamagawa 31 12.7 N
Long 139°17.7 E

Day	135°E Mean Time															20	21	22	23					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14					15	16	17	18	19
1	350	390	(330) ^F	350	360	340 ^F	340 ^F	340 ^F	350	350	420	400	410	400 ^F	400	410	400	420	400	390 ^S	390	430	(470) ^S	400
2	390	340	340	(340) ^F	340	400	280	280	360	400 ^H	450	420 ^F	410 ^F	400	390 ^F	400	400	400	360	380	370	440	420	390
3	390	400	390	400 ^F	380	380	380	310	380	390	430	400	C	C	C	400	400	450	380	390	E	C	430	390
4	340	350	360	360	340	370	320	360	340	410	460	370 ^F	C	C	C	C	C	370	380	370	410	420	420	
5	410	350	320	410	430	370	330	350	310	390	380	(370) ^C	400	280	400	390	360	400	330	340 ^F	320 ^H	340	400	390
6	380	410	370	350	380	400	310 ^F	240	290	360 ^F	380	360 ^F	450 ^F	400 ^F	420	380	360	380	330	350	360	370	400	440
7	390	380	380	390	380	390	310	290	370	390	460	420	400	420	380	430	380	400	350	350	380	420	400	350
8	390	360	310	320 ^F	410	410	310 ^F	500	330	350	400 ^S	360	400 ^H	400	400	400	370	380 ^H	360	340	370	400 ^F	390	(400) ^F
9	410	390	380	350	350	330	310	280	290	380	400	350	400	410	380	380	380	350	340	340	390	380	420	420
10	370	380	400	400	400	370	410	310	300	360	380	400	410	360 ^S	360	360	360	360	360	350	370	380	390	380 ^F
11	390	390	400	340	320	270	280	280	310	360	(390) ^C	400 ^H	400	410	(410) ^C	400 ^H	350 ^F	340 ^F	370	350	400	400	410	390 ^F
12	360	340 ^F	390	390	320	300 ^F	270	300	300	360	410	400	400	500	420	410	420 ^F	(370) ^C	320 ^F	390	420	510 ^F	410	BF
13	BF	450	600 ^K	(630) ^K	450 ^K	650 ^{PH}	C ^F	G ^K	F ^K	G ^K	B ^K	G ^K	G ^K	G ^K	G ^K	430 ^K	420 ^K	400 ^F	380 ^K	350 ^K	(430) ^B	300 ^K	370 ^K	420 ^F
14	320 ^A	(410) ^A	490	420	350	420 ^F	440	280 ^F	290	290	350 ^F	(380) ^F	410 ^F	390	440 ^F	400	390	360	370	340	390	340	400	420
15	400	390	370	420 ^H	390	360 ^F	300	310	310	400	390	400	390	400	400	370 ^F	360	350	350	350	360	400 ^F	400	400 ^F
16	400 ^F	360	370	340	400	370	310	320	300	370	440	430	440	B	B	410	370	370	350	340	320	400	(400) ^F	400 ^F
17	400	400	380	400	400	370	300 ^F	350	500 ^K	420 ^K	390 ^K	C ^K	C ^K	C ^K	C ^K	330	340 ^F	370 ^K	320 ^K	460 ^H	490	460 ^F	450 ^F	430
18	(420) ^S	340	320	350	350	340	300	350	310	C	400	400	350	400	360	390	340	340	310	340	370	410	440 ^F	390 ^F
19	400 ^F	360	340	(350) ^F	290	290	290	320	320	380	460	(420) ^S	410	420	410	390	390	360	320	(350) ^S	370	400 ^F	400 ^F	400
20	370	350	320	280	290	300	280	280	300	390	430	410	420	400	420 ^P	390	380	S	S	S	320	370 ^P	(400) ^P	S
21	S	370	370 ^S	330	320	320	260	320	410	410	380	410	410	420	390	400	370	340 ^S	(340) ^B	340 ^F	370	350	360	350
22	360	400	330	290	360	330	300	300	340	370	360	330	360	A	A	400 ^H	390	350 ^F	340	370	390	410	390	380 ^P
23	(370) ^S	350	330	390	370	380	350	360	360	440	410	430	380	380	390	390	380	340	320	330	360	420	400	390
24	390	350	350	360	370	320	310	300	390	400	400	420	400	400	400	410	380	360	A	A	450	450	400	370
25	410	350	310	290	320	280	290	270	450	A	A	400	420	400	390	360	340	370	340	320	380	410 ^F	370	380 ^F
26	350 ^F	400 ^F	450 ^F	440 ^F	450 ^F	(410) ^B	360	350	320	(400) ^A	470	430	400	380	380	380	370	340	330	350 ^F	370	400	410 ^F	410 ^F
27	(420) ^A	420 ^F	440 ^F	F	F	F	F	360	360	470	450	460 ^F	490 ^H	410	400 ^F	400 ^S	380	360	390	380	360	400	480 ^F	410 ^F
28	410	330	380	380	430 ^F	370	450	300	330	390	480	430	(420) ^F	400	400	380	390 ^S	360	330	330	340	400 ^F	400 ^F	340 ^F
29	390	420 ^F	440 ^F	420	(410) ^F	400	390	320	330	350	370	430	400	410	400 ^S	380	360	360	330	340	340	390	380	380
30	370	360	310	310	340	350	320	300	360	340	270	(340) ^F	400	430	410	400	360	(340) ^F	310	320	(350) ^S	380	490 ^J	420 ^S
31	430	390 ^F	310 ^S	290	340 ^F	440 ^F	320 ^F	330 ^F	(510) ^K	250 ^A	350 ^A	430 ^F	370	390	(400) ^A	410	360	320	350	340 ^S	380	370	450	430 ^F
Median Value	390	380	370	350	370	370	310	310	320	390	400	410	400	400	400	400	380	360	340	350	370	400	400	400
Count	29	31	31	30	30	30	29	31	30	29	28	30	29	26	26	30	30	29	29	29	30	30	30	29

Sweep 1.2 Mc to 18.5 Mc in 1.5 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki Tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Lat 35° 12.5'N
Long 139° 37.7'E

Yamagawa

hr:

May 1949

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	310	250	250	260	250	300	300	280	270	330	300	340	380	350	370	350	320	250	280	300	(300) ^A	300	300
2	290	300	270	270	(280) ^A	300	280	220	240	300	340 ^H	400	390	360	350	340	300	300	300	270	280	280	280	290 ^A
3	340 ^A	320	290	300	300	270	250	280	300	300	250	360	350	300	300	310	330	360	280	300	300	(300) ^C	300	300
4	300	300	290	280	260	260	230	250	270	370	310	C	C	C	C	C	C	C	250	250	230 ^A	300	310	310
5	320	270	230	280	280	270	240	250	300	A	C	C	300	310	300	300	330	300	290	280	250 ^H	230	310 ^A	320 ^A
6	320	310 ^A	300	300	300	310 ^H	240 ^H	210	240	280	290	300	(310) ^A	310	350	350	290	300	280	240	(250) ^A	290 ^A	A	A
7	300	320	300	330	300	300	270	250	290	290	300	380	340	350	330	330	300	300	300	280	280	270 ^A	320	A
8	A	250	260	A	A	340 ^A	260	250	240	300	320	320	350	350	370	300	330	310 ^H	300	270	290	280	230	220 ^H
9	310	330	300	260	280	250 ^A	250 ^A	250	250	310	300	300	300	350	370	320	300	300	310	250	300	250	300	320
10	310	300	310	290	300	290	300	220	270	250	300	290	350 ^H	330	320	(310) ^A	(300) ^A	(300) ^A	300	250	260	300	300	300
11	290	310	300	260	250	220	240	240	250	300	(330) ^C	300 ^H	380	380	380	360 ^H	300	300	260 ^A	300	300	290	300	300 ^A
12	300	270	300	300	290	290 ^H	230	230	230	230	230	370	380	330	340	380	380	(330) ^C	280	280	320	(340) ^S	360	350 ^F
13	360 ^F	380	430 ^K	440 ^K	500 ^K	430 ^K	BFK	GK	FK	GK	GK	600 ^K	560 ^K	550 ^K	530 ^K	420 ^K	390 ^K	340 ^K	360 ^K	300 ^K	280 ^K	A ^K	A ^K	A ^K
14	300 ^A	(310) ^A	320	320	240	220 ^H	240	240	240	390	310	320	400	350	370 ^H	(340) ^A	300	300	300	280	300 ^A	300	A	A
15	300	(300) ^A	300	300 ^H	300	280 ^H	270	290	310	380	380	400	380	360	370	330	300	300	290	270	300	290	330 ^A	320
16	310	310	280	280	300	290	260	250	260	290	300	340	370	240	360	350	330	320	320	290	250	260	300	320
17	300	310	300	310	300	300	250	250	250	500 ^K	330 ^K	340 ^K	C K	C K	C K	C K	300 ^K	300 ^K	300 ^K	A H	A	A	A	310 ^A
18	330 ^F	250	280	260	280	270	260	270	270	C	C	300	360	300	350	350	300	330	270	270	(290) ^A	310	A	A
19	A	A	A	C	260 ^A	A	A	220	290	A	A	A	A	A	360	360	340	320	270	250	250	(280) ^F	310	300
20	290	270	250	250	240	240	260	250	A	A	370	360	330	340	350	350	340	300	270	220	250	A	A	280
21	290	(300) ^A	310	270	250	260	240	230	240	340	340	360	330	320	360	360	330	300	300	250	260	280 ^A	290	270 ^F
22	260	260	220	240	260	240	240	220	300	310	330	310	290	A	A	350 ^H	370	280	240	(250) ^A	250 ^A	340	300	250 ^A
23	290 ^A	290	260	250 ^A	280 ^A	(270) ^A	250	300	230	(310) ^A	380	400	350	360	350	370	330	300	300	250	250	290	310	(300) ^A
24	290	280	300	300	280	300	300	250	220	(300) ^B	370	(360) ^A	390	380	380	360	330	A	A	A	A	A	310	310
25	280	300	250	240	240	230	240	280	380	A	A	390	350	350	350	330	300	290	300	280	340 ^A	(330) ^A	300 ^A	A
26	A	A	A	A	350 ^F	340	280	280	250	330 ^A	460	400	400	370	340	350	330	320	290	270	A	A	A	A
27	A	A	A	A	A	330 ^A	300	260	240	(340) ^A	440	430	A H	A	400	400	330	280	280	290	300	(340) ^F	330	A
28	340	280	330	A	A	A	320	230	280	340	350	360	(370) ^A	380	350	340	330	300	290	(280) ^A	260	290 ^F	310	300 ^A
29	240	290	310	300	260	310	280	270	230	280	270	390	380	400	370	360	350	330	310	250	300	(310) ^A	320 ^A	320 ^A
30	290	270	250	250	230	270	290	250	320	270	260	A	A	A	A	350	330	(310) ^C	280	240	(240) ^S	280	290	320 ^A
31	300	290	280	240 ^A	230 ^A	350 ^K	(330) ^A	300 ^K	300 ^K	280 ^K	300 ^K	410 ^K	350	350	(360) ^A	360	(330) ^A	290	250	250	240	(300) ^A	350 ^A	340 ^H
Mean Value	300	300	300	280	280	260	250	250	300	330	360	350	350	350	350	350	330	300	290	270	280	290	310	310
Count	27	28	28	26	28	29	31	29	27	27	27	27	26	26	27	30	30	29	30	29	28	27	24	24

Sweep 1.2 Mc to 10.5 Mc in 15 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

fta

Yamagawa

Lat. 31 12.5 N
Lon. 139 37.7 E

Day	135°E Mean Time																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						Q	Q	L	A	Q	(5.6) ^h	Q	L	L	L	L	L	L	L	L	L	L	L	L
2						Q	Q	L	L	L	L	L	Q	L	L	L	L	L	L	L	L	L	L	L
3						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
4						Q	Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
5						Q	Q	Q	Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L
6						Q	Q	Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
7						Q	Q	Q	L	A	L	A	L	A	L	5.2	L	L	L	L	L	L	L	L
8						Q	Q	Q	A	A	A	Q	Q	L	L	L	L	L	L	L	L	L	L	L
9						Q	Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
10						Q	Q	L	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
11						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
12						Q	Q	Q	Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L
13						B	3.6	(4.1) ^f	4.6	5.0	5.0	5.0	5.1	5.0	5.0	5.0	5.1	5.0	5.1	5.0	5.0	5.1	5.0	
14						Q	Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
15						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
16						L	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
17						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
18						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
19						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
20						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
21						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
22						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
23						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
24						Q	Q	Q	Q	B	A	A	L	L	L	L	L	L	L	L	L	L	L	L
25						Q	Q	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
26						L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
27						L	Q	Q	A	A	A	A	A	A	5.3	5.1 ^h	Q	L	L	L	L	L	L	L
28						Q	Q	A	A	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
29						L	L	Q	A	Q	A	L	L	L	L	L	L	L	L	L	L	L	L	L
30						L	Q	L	Q	L	A	A	A	A	A	A	A	A	A	A	A	A	A	A
31						A	L	A	A	A	A	L	L	L	L	L	L	L	L	L	L	L	L	L
Median Value																								
Count						1	2	2	2	4	4	2	2	4	6	3	3	3	1	1				

Sweep 1.2 Mc to 18.5 Mc in 1.15 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki tsushin Kenkyujo) Gotanda, Shinagawa ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

h_{F1}

Yamagawa

Lat. 31°12.5'N
Long. 139°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							Q	Q	Q	A	Q	Q	Q	Q	Q	[240] ^A	250	240	230					
2							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	[250] ^B	240	260					
3							Q	Q	Q	Q	Q	Q	[260] ^P	250	B	A	250	B	Q					
4							Q	Q	Q	Q	Q	Q	C	C	C	C	C	C	A					
5							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	250					
6							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	240	A				
7							Q	Q	Q	Q	Q	Q	A	A	A	A	260	B	210	270				
8							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	A	A	270				
9							Q	Q	Q	Q	A	Q	Q	Q	Q	Q	Q	Q	Q	Q				
10							Q	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A				
11							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
12							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
13							320F	270	F	B	B	B	B	B	B	B	270	250	A	A				
14							Q	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A				
15							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
16							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
17							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
18							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
19							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
20							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
21							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
22							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
23							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
24							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
25							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
26							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
27							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
28							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
29							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
30							Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
31							A	250	A	A	A	A	A	A	A	A	A	A	A	A				
Median							250	250	250	230	250	240	240	250	250	250	240	250	240	250				
Min							6	6	11	11	B	12	11	11	16	16	16	16	16	16				
Count																								

Sweep 1.2 MC to 1.85 MC in 15 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

Lat. 31°12.5'N
Long. 136°37.7'E

Yanagawa

IONOSPHERIC DATA

fe

May 1949

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						1.8	2.7	3.2	3.5	3.6	(3.7) ^B	A	B	B	B	3.4	3.2 ^J	A	A					
2						2.0	2.7	A	A	A	A	B	B	B	B	B	B	B	3.0	2.6	1.9			
3						2.2 ^H	2.9 ^J	3.3	A	B	B	B	B	B	B	B	B	B	B	B				
4						2.0	2.2 ^J	3.1	3.6	B	B	C	C	C	C	C	C	C	C	C				
5						1.9	2.6	3.0 ^J	B	B	B	C	4.2 ^J	B	B	B	B	B	3.3	2.7				
6						B	2.5	3.3 ^J	B	B	B	B	B	B	B	B	B	B	(3.1) ^B	(2.5) ^B				
7						2.4 ^J	2.6	3.4	A	B	B	A	B	B	B	3.4	B	B	B					
8						A	2.8	3.0 ^J	A	B	B	B	B	B	B	B	B	B	3.0	[2.6] ^A	2.1 ^A			
9						B	A	(2.9) ^B	3.7	A	(3.6) ^B	3.9 ^J	[4.1] ^B	(4.2) ^B	4.1	(3.8) ^B	B	B	B	B				
10						(2.3) ^B	(2.7) ^B	3.1	3.4	C	B	B	B	B	B	B	B	A	3.1	[2.6] ^A	2.0			
11						2.0	2.7	(3.1) ^A	(3.5) ^A	B	B	B	B	B	B	B	B	B	3.0	2.6				
12						B	2.8	A	B	B	B	B	B	B	B	B	B	B	C	2.3				
13						A	2.6	A	A	A	A	A	A	A	A	A	A	A	3.2	2.6				
14						2.1 ^J	[2.5] ^A	2.9	3.4	3.3	A	A	A	A	A	3.4 ^B	(3.6) ^B	A	A	2.6	(2.1) ^B			
15						2.0	2.6	3.1	3.5 ^J	A	A	A	A	A	A	A	A	A	B	3.2	2.5			
16						1.9	2.5	3.0	3.4	3.5	C	C	C	C	C	C	C	B	(3.5) ^A	A				
17						B	A	(3.3) ^B	C	C	A	A	A	A	A	A	A	A	3.2	2.5				
18						A	2.9	2.9	[3.3] ^A	(3.6) ^A	A	(3.7) ^A	(3.9) ^A	4.1 ^J	4.0	3.8	3.6 ^J	3.3 ^H	3.0					
19						A	A	3.2	A	A	A	(3.7) ^A	3.7	[3.7] ^A	3.7 ^A	A	A	A	A	A				
20						[2.2] ^A	2.9 ^A	3.2	3.3 ^J	3.7 ^J	(3.7) ^A	A	A	A	A	A	A	B	A	2.4	2.5			
21						1.8	2.7	3.3	3.4	A	A	A	A	A	A	A	A	B	A	2.4	2.5			
22						2.3	2.7	3.4	[3.6] ^A	3.7	A	A	A	A	A	A	A	3.7	A	A				
23						A	2.5	A	A	3.5 ^A	A	A	4.1 ^A	3.9 ^J	(3.5) ^J	A	A	A	A	A				
24						2.4	A	A	A	A	A	A	A	A	A	A	A	A	3.3	2.5	2.4 ^J			
25						(2.1) ^B	2.3	A	A	3.6	A	A	4.1	A	A	A	A	3.6	3.3	2.3 ^A				
26						2.0	2.7	3.3 ^A	3.4	A	A	A	A	A	A	A	A	A	A	A	2.0 ^J			
27						A	A	A	3.7 ^A	3.8 ^J	[3.8] ^A	3.8	A	A	A	3.6	3.5	3.2	2.7					
28						1.9	[2.6] ^A	3.3 ^A	A	A	A	A	A	A	3.7 ^A	3.7 ^J	3.6	3.2	A					
29						1.7 ^H	2.7 ^H	3.0	A	A	A	A	A	A	A	A	A	A	A	A				
30						A	2.9	A	A	A	A	A	A	A	3.7	[3.7] ^A	3.7	A	A	A				
31																								
Median Value						2.0	2.7	3.1	3.4	3.6	3.7		4.1	3.8	3.7	3.6	3.2	2.5	2.1					
Count						19	25	23	15	10	5	4	8	10	10	9	1.7	1.9	7					

Sweep 1.1-3.3 Mc to 1.6.5 Mc in 15 min Manual

Y 6

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
 (Denki-tsushin/Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

h' E

Yamagawa

Lat. 31°12.5'N
 Long. 130°37.7'E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B 110	110	110	120	110	A	B 120	120	A	120	A	A						
2							B 110	110	A	A	110	B	B 110	B	B 110	B	110	110	110	110	110			
3							B 120	120	120	110	B	B	B	B	B	B	B	B	B	B	B			
4							B 120	120	120	110	B	B	C	C	C	C	C	C	C	C	C			
5							B 110	110	110	110	110	110	110	120	B	B	B	100	120	120				
6							B 120	110	120	120	B	B	B	B	B	B	B	B	B	B	B			
7							170	110	110	A	B	B	A	B	B	110	110	120	B	B				
8							A 110	110	A	B	B	B	B	B	B	B	B	110	110	100	100			
9							A 110	110	120	120	110	110	120	110	110	110	130	B	B	B				
10							B 110	110	110	110	A	A	B	B	B	B	A	140	120	120				
11							B 130	110	110	C	B	B	B	B	B	B	110	120	110	110				
12							170	110	A	110	B	B	B	B	B	B	B	C	130					
13							A 110	110	A	B	B	B	B	B	B	110	110	110	100	100				
14							A 110	110	A	A	A	A	A	A	A	A	A	A	110	110				
15							110	110	100	100	100	A	A	110	100	110	110	110	110	110	A			
16							B 110	110	110	110	A	A	A	A	A	A	B	110	110	110				
17							130	110	110	110	100	C	C	C	C	C	110	110	A	A				
18							B 110	110	110	C	C	100	A	A	110	110	110	110	120	120				
19							A 100	110	110	A	A	A	A	A	A	A	100	110	110	110				
20							A 100	110	110	A	A	110	A	A	110	110	100	100	100	100				
21							A 100	100	100	100	A	A	110	110	110	A	A	A	A	A				
22							100	100	100	100	A	A	A	A	A	A	B	A	A	110				
23							130	100	110	110	110	A	A	A	A	A	100	A	A	A				
24							A 130	A	A	A	110	A	A	110	110	110	A	A	A	A				
25							100	A	A	A	A	A	A	A	A	A	A	A	100	100				
26							120	110	A	A	110	A	A	110	A	A	110	110	110	110				
27							A 100	110	A	110	A	A	A	A	A	B	A	A	A	110				
28							A 100	110	A	110	110	A	100	A	A	A	100	100	100	110				
29							B 110	110	A	110	A	A	A	A	A	A	110	110	A	A				
30							110	110	A	A	A	A	A	A	A	A	A	A	C	A				
31							A 100	A	A	A	A	A	A	110	110	110	A	A	A	A				
Mean Value							130	110	110	110	110	110	110	110	110	110	110	110	110	110				
Count							10	20	18	16	10	6	5	7	10	14	15	16	17	6				

Sleep 1.2 - Mc to 18.5 Mc in 15 min Manual

IONOSPHERIC DATA

May 1949

fes

Yamagawa

31 15° N
139° 37' E

Day	135° E Mean Time											Yamagawa					31 15° N 139° 37' E								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	3.4	G	G	G	G	G	G	4.2	5.2	5.9	6.0	6.7	4.3	B	B	B	G	B	B	B	5.2	5.2	2.2	G	
2	3.2	4.0	2.8	4.0	3.8	G	G	G	5.4	4.8	5.2	B	B	B	B	B	B	B	B	B	2.2	G	G	3.8	
3	8.4	3.6	2.5	4.2	G	G	G	G	3.8	4.4	4.9	B	B	B	B	B	B	B	B	B	B	C	2.4	2.6	
4	2.0	G	G	G	G	G	G	3.2	G	5.2	B	C	C	C	C	C	C	C	C	3.8	G	G	G	4.7	
5	G	G	G	G	G	G	G	4.6	G	B	5.8	B	B	B	B	B	4.8	4.8	G	4.6	4.6	4.6	4.6	3.2	
6	3.8	3.8	(3.8) ^B	(4.6) ^B	4.3	(3.4) ^B	B	B	G	B	4.4	6.4	6.2	6.2	6.2	B	B	B	B	5.0	5.2	4.4	4.6	7.9	
7	2.8	2.8	2.0	4.2	4.8	G	G	3.4	6.6	5.0	8.2	5.4	4.4	4.4	B	B	5.0	5.0	3.8	3.6	10.6	(9.0) ^B	5.0	5.0	
8	8.8	8.4	6.6	10.2	6.2	6.6	5.2	5.6	5.8	6.4	7.8	6.8	5.0	B	B	B	4.1	4.4	3.9	3.5	5.0	3.4	3.4	3.4	
9	3.4	3.2	3.2	G	G	3.8	6.2	5.2	5.0	6.4	B	B	B	B	B	4.7	5.3	4.4	5.4	5.4	4.7	4.0	2.8	4.0	
10	G	2.8	G	G	G	G	G	2.2	3.4	5.0	4.6	5.8	5.2	5.4	5.5	11.2	10.4	9.6	5.8	3.7	3.4	3.4	3.0	4.2	
11	3.0	G	G	G	G	G	G	3.7	3.3	8.4	C	B	B	B	B	10.0	5.0	5.0	7.2	3.2	2.6	3.4	(7.0) ^B	4.4	
12	3.6	3.6	4.4	3.6	3.8	2.8	G	G	3.6	4.2	B	B	B	B	B	B	B	C	3.7	G	2.6	3.1	2.6	2.2	
13	2.2	3.6	G	G	G	G	B	3.4	4.5	B	B	4.5	B	B	B	5.2	5.8	7.2	5.8	7.2	3.2	5.4	4.8	5.6	
14	4.9	8.6	3.4	5.2	4.4	2.6	4.0	5.0	4.8	4.8	5.2	8.5	6.0	8.0	7.2	6.0	4.7	(6.0) ^B	3.7	6.6	9.4	6.8	4.6	5.2	
15	G	(5.4) ^B	4.8	2.2	(3.2) ^B	3.0	5.0	B	5.2	5.0	4.8	6.8	5.2	5.4	4.7	4.2	3.4	3.4	3.0	2.8	2.2	2.4	4.4	3.2	
16	3.0	1.8	2.8	G	G	G	2.4	G	3.0	4.8	5.6	4.0	5.0	9.0	5.0	4.2	B	G	6.8	6.2	6.0	5.2	5.6	5.8	
17	(4.0) ^B	4.7	2.8	3.2	G	G	G	3.8	5.3	4.7	(10.0) ^B	C	C	C	B	B	5.4	5.8	6.2	5.8	7.8	7.8	8.6	4.0	
18	3.0	G	G	G	G	G	G	3.0	4.7	G	5.0	5.8	7.0	4.4	6.6	3.7	5.7	5.7	8.2	10.2	9.0	7.0	10.2	7.6	
19	7.2	7.8	8.6	C	7.0	6.2	4.1	3.7	5.4	8.2	7.9	8.6	10.4	4.8	4.2	6.6	4.4	4.2	3.8	4.2	4.2	8.0	5.2	3.4	
20	4.8	4.2	6.2	5.2	2.6	G	2.8	5.2	7.2	7.2	9.6	8.6	5.0	5.2	5.2	4.2	G	3.4	3.5	3.0	6.6	9.6	5.2	4.2	
21	3.6	(4.6) ^B	(4.2) ^B	4.0	3.0	2.0	3.8	3.6	4.7	(9.5) ^B	6.6	6.4	6.5	4.8	9.4	6.2	6.0	6.0	7.0	(4.6) ^B	4.6	4.6	4.0	4.6	
22	4.2	3.8	4.2	4.6	2.0	4.0	3.2	3.9	4.8	6.2	7.0	9.0	7.2	13.0	12.6	8.2	8.0	6.0	4.6	5.2	6.8	4.2	4.2	3.6	
23	4.2	3.0	4.2	4.8	5.0	4.6	3.2	3.4	5.3	10.1	8.2	6.0	4.4	4.5	4.8	6.0	B	5.4	5.2	3.2	4.2	G	4.6	3.8	
24	3.0	3.0	4.2	3.6	2.4	4.6	(3.2) ^B	4.0	4.3	5.4	6.0	10.4	6.4	6.6	B	6.8	9.8	(10.0) ^B	12.8	12.0	6.8	5.8	2.6	3.4	
25	4.2	3.0	3.2	3.0	2.7	5.0	G	3.6	7.8	12.2	15.6	(11.8) ^B	(8.8) ^B	5.8	4.3	4.2	3.8	5.4	2.7	B	8.2	7.0	7.2	10.4	
26	5.2	6.4	6.6	5.2	3.8	2.7	3.0	3.6	6.6	9.2	6.5	5.6	7.0	5.2	4.2	6.2	5.1	4.8	4.7	7.6	5.4	8.4	5.0	11.2	
27	12.0	7.2	10.2	8.6	8.6	5.2	5.4	5.2	6.6	(8.8) ^B	(9.2) ^B	7.4	5.6	7.4	4.8	4.2	4.4	3.8	3.6	3.4	3.6	4.6	4.0	4.6	
28	4.8	7.8	(5.2) ^B	5.4	4.8	3.8	4.6	6.2	6.5	5.8	5.2	6.1	11.2	6.0	6.3	5.0	5.9	5.6	5.0	(7.2) ^B	(4.6) ^B	8.2	7.6	8.4	
29	2.4	1.8	2.4	3.0	3.4	5.2	3.6	4.6	5.4	6.6	5.0	7.8	5.0	6.2	6.0	5.2	6.8	4.8	(6.8) ^B	6.6	8.4	7.4	5.0	6.0	
30	5.2	4.2	4.4	4.6	3.6	3.6	3.8	3.6	5.0	5.8	6.8	10.1	8.8	(8.8) ^B	9.8	9.2	5.4	C	3.7	4.8	8.6	4.4	4.0	5.6	
31	5.0	3.8	4.4	3.5	2.5	3.4	(4.9) ^B	6.0	8.0	8.6	8.0	6.8	7.8	8.2	11.4	11.6	8.6	7.0	4.2	4.8	6.6	4.4	3.2	5.6	
Median Value	3.6	3.6	3.4	3.6	2.7	2.7	3.0	3.7	5.0	5.9	6.5	6.4	6.3	5.6	5.2	5.8	5.2	5.0	4.7	4.8	4.7	4.6	4.6	4.2	4.1
Count	3	3	3	3	3	3	3	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Sweep 1.2 Mc to 16.5 Mc in 1.5 min

Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
Denki-tsushin Kenkyujo Gotanda Shinagawa-ku, Tokyo Japan

IONOSPHERIC DATA

May 1949

F₂-M3000

Yamagawa

31°15'N
139°37'E

135°E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	3.0	2.8 ^Z	(3.0) ^P	2.8	2.7	2.7	2.8	2.8	2.7	2.6	2.6	2.6	2.5	J	2.6	2.6	2.6	2.5	2.6	2.5F	2.6	2.5	(2.6) ^F	2.7	
2	2.7	3.0	2.8	(2.8) ^B	2.6	2.6	2.8	3.2	3.0	2.7	2.6 ^M	2.4	2.7	J	2.7	2.8	2.7	2.6	2.7	2.7	2.7	2.5	2.5	2.6	
3	2.7	2.6	2.7	J	2.7	2.8	2.9	2.9	2.9	2.9	2.7	2.6	2.7	C	C	2.6	2.7	2.6	2.8	2.7	B	C	2.3	2.6	
4	2.7	2.9	2.8	2.8	2.8	2.7	3.0 ^C	3.0	2.9	2.5	2.4	2.9 ^Z	C	C	C	C	C	C	2.7	2.6	2.7	2.5	2.5	2.5	
5	2.6	2.9	2.9	2.5	2.5	2.7	2.9	2.8	3.0	2.9	2.7	(2.6) ^K	2.9	2.7	2.7	2.7	2.8	2.8	3.0	J	3.1 ^H	2.9	2.7	2.9	
6	2.8	2.6	2.7	2.8	2.7	2.7 ^M	3.2	3.6	3.2	J	2.7	J	J ^P	J	2.6	2.8	(2.8) ^B	2.8	2.9	2.8	2.7	2.6	2.7	2.6 ^Z	
7	2.7	2.7	2.7	2.9	2.8	2.8	(3.0) ^B	3.2	2.9	2.7	2.4	2.6	2.6	2.7	2.7	2.5	2.7	2.8	2.8	2.8	2.6	2.6	2.7	3.0	
8	2.8	2.8	3.1	J	2.5	2.5	3.0 ^F	3.1	2.9	2.8	2.6	2.7	2.7	2.7	2.6	2.7	2.8	2.9	2.7	2.7	2.7	2.5 ^F	2.6	(2.4) ^H	
9	2.6	2.7	2.7	2.7	2.8	2.9	2.9	3.2	3.1	2.6	2.6	2.8	2.7	2.6	2.6	2.7	2.7	2.8	2.9	2.8	2.7	2.6	2.5	2.6	
10	2.7	2.6	2.7	2.5	2.7	2.8	2.6	3.1	3.1	2.8	2.6	2.6	2.6	2.6	2.8 ^S	2.8	2.8	2.8	2.8	2.8	2.7	2.8	2.7	2.7	
11	2.7	2.7	2.6	2.9	2.9	3.3	3.2	3.2	3.0	2.7	(2.6) ^K	2.7 ^M	2.7	2.6	(2.7) ^S	2.8 ^M	J	J	2.7	2.7	2.6	2.6	2.6	2.7	
12	2.8	J	2.7	2.7	3.0	3.3 ^M	3.4	3.0	3.1	2.8	2.6	2.8	2.7	2.4	2.6	2.6	J	C	J	2.6	2.5 ^A	J	2.7 ^A	J ^M	
13	2.8	2.4	J ^K	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
14	3.1 ^K	(2.7) ^K	2.3	2.6	2.9	(2.5) ^K	2.5	J	3.1	2.7	J	2.7	J	2.6	2.6 ^M	(2.7) ^B	2.8	2.8	2.7	J	2.7	2.9	2.6	2.5	
15	2.7	2.7	2.7	2.5 ^M	2.7 ^B	2.8 ^M	3.0	3.0	3.1	2.6	2.6	2.5	2.6	2.7	2.8	J	2.9	2.8	2.9	2.9	2.7	2.6 ^P	2.6	2.5	
16	J	2.7	2.7	2.8	2.7	2.7	2.9	3.0	3.0	2.8	2.4	2.4	2.5	B	B	2.6	2.8	2.7	2.9	2.9	3.0	2.6	(2.8) ^B	J ^P	
17	2.6	2.6	2.7	2.6	2.6	2.7	3.1 ^F	2.9	2.2 ^K	2.5 ^M	2.6 ^K	C ^K	C ^K	C ^K	C ^K	2.9 ^M	2.9 ^K	2.9 ^K	J ^A	J ^A	2.4	2.4	2.5 ^P	2.6	
18	2.6 ^M	2.8	3.2	2.9	2.7	2.9	3.1	2.9	3.1	C	C	2.6	2.6	2.8	2.7	2.8	2.8	2.9	3.0	2.8	2.7	2.7	2.7	2.6 ^Z	
19	2.6 ^Z	2.7	2.9	(3.0) ^S	3.2	3.1	3.1	2.9	3.1	2.6	2.4	2.6	2.4	2.4	2.6	2.7	2.8	2.7	2.8	2.9	(2.8) ^S	2.7	2.8 ^P	2.6	
20	2.8	3.0	3.1	3.3	3.2	3.2	3.3	3.3	3.1	2.6	2.5	2.6	2.6	2.6	2.5	2.7	2.8	S	S	S	3.0 ^P	2.7 ^P	(2.7) ^P	S	
21	S	2.7	2.6 ^S	2.9	2.9	3.0	(3.3) ^B	2.9	2.5	2.4	2.6	2.6	2.5	2.6	2.6	2.8	2.9	2.9	(2.9) ^B	2.9 ^P	2.7	2.7	2.8	2.9	
22	2.7	2.6	3.0	3.1	2.8	2.9	3.0	3.0	2.8	2.7	2.7	2.9	2.9	A	A	2.8 ^M	2.9	J	2.8	(2.7) ^B	2.6	2.6	2.7	2.8 ^F	
23	2.7	2.9	2.9	2.9	2.7	2.7	2.8	2.7	2.7	2.5	2.5	2.5	2.7	2.7	2.7	2.8	2.6	2.9	3.1	2.9	2.7	2.6	2.7	2.6	
24	2.7	2.7	2.8	2.8	2.8	3.0	3.2	2.9	2.4	2.5	(2.6) ^B	2.5	2.5	2.6	2.6	2.7	2.7	2.9	A	A	2.6	2.5	2.6	2.8	
25	2.6	2.9	3.1	3.3	3.1	3.3	3.3	3.3	2.4	A	A	2.7	2.6	2.6	2.7	2.8	2.9	2.7	2.9	2.9	2.7	2.5 ^F	2.7	2.8 ^F	
26	2.9 ^F	J	2.6 ^F	2.4 ^F	2.4 ^F	2.6	2.5	2.8	2.8	(2.5) ^S	2.3	2.6	2.5	2.6	2.7	2.7	2.7	2.7	3.0	J	2.7	2.6	2.7	2.6 ^F	
27	(2.6) ^A	2.6 ^F	2.5 ^F	J ^F	2.7 ^F	J ^F	2.8	2.8	2.9	2.4	2.4	2.5 ^Z	2.5	2.7	2.7 ^B	2.9 ^S	2.8	2.7	2.7	2.7	2.8	2.6	2.4 ^F	2.6	
28	2.5	2.9	2.8	2.6	J	2.7	2.5	3.1	2.8	2.6	2.3	2.5	2.4	2.6	2.6	2.7	2.6	2.8	2.8	3.0	2.8	2.6	2.6 ^F	J ^F	
29	2.6	2.5 ^F	2.6	2.5	(2.5) ^S	2.5	2.6	3.0	2.9	2.8	2.7	2.4	2.5	2.5	2.7 ^S	2.7	2.7	2.8	3.0	2.9	2.8	2.7	2.8	2.8	
30	2.8	2.8	3.0	3.0	2.7	2.8	2.9	3.0	2.8	2.8	3.3	2.4	2.6	2.5	2.6	2.7	2.7	(2.9) ^C	3.1	2.9	J ^S	2.7	2.3 ^S	2.5 ^S	
31	2.5	2.8 ^Z	3.1 ^S	3.2	2.9 ^M	2.5 ^K	3.0 ^K	3.0 ^K	(3.0) ^C	3.1 ^K	2.7 ^K	2.5 ^K	2.7	2.7	(2.5) ^A	2.6	2.8	2.9	2.7	2.9 ^S	2.6	2.9	2.4	2.5 ^H	
Median Value	2.7	2.7	2.7	2.8	2.7	2.8	3.0	3.0	2.9	2.7	2.6	2.6	2.6	2.6	2.7	2.7	2.8	2.8	2.8	2.8	2.7	2.6	2.6	2.6	2.6
Count	28	29	30	27	28	28	29	30	30	28	27	28	25	23	25	29	28	25	27	25	29	29	29	31	24

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denkitsu-shin Kenkyujo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

Lat. 31°12.5'N
Long 139°37.7'E

Yamagawa

f_oF min

May 1949

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	1.6	1.4	1.5	1.4	1.5	1.5	2.2	2.8	3.4	4.5	4.5	4.6 ^A	4.7	4.3	4.3	(4.7) ^A	4.0	3.6 ^A	2.8	A	A	A	2.0	1.6	
2	(1.8) ^A	2.0	1.6	A	1.6	2.0	3.1	A	A	A	4.2	4.2	4.1	5.2	4.4	4.4	4.5	3.1	2.7	1.9	1.9	1.5	1.5	A	
3	A	1.7	1.6	(1.7) ^A	1.7	2.5	3.4	3.6	4.1	4.5	4.6	4.6	4.6	5.2	(4.7) ^A	4.2	4.0	4.0	3.8	4.0	(2.0) ^F	(3.0) ^F	2.0	2.0	
4	1.8	1.8	1.6	1.6	1.6	1.8	2.0	2.6	3.4	4.1	4.6	4.2	C	C	C	C	C	C	A	2.0	2.0	2.0	1.8	1.8	
5	1.6	1.5	1.6	1.4	1.5	1.4	1.9	2.7	3.6	4.2	A	C	A	4.5	4.6	4.2	4.0	3.6	2.8	A	A	2.0	A	A	
6	2.0 ^A	(1.9) ^A	1.8	1.8	1.8	1.8	2.2	3.0	3.8	4.0	A	A	A	4.0	5.0	3.8	3.3	4.0	A	A	A	A	A	A	
7	1.5	1.6	A	A	A	A	3.0	3.6	3.4	4.0	A	A	A	A	4.2	4.6	4.4	(3.6) ^B	3.2	2.8 ^A	A	A	A	A	
8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	4.2	4.6	4.4	(3.6) ^B	3.2	2.8 ^A	A	A	A	A	
9	2.0	2.0	(1.8) ^A	1.6	1.5	A	A	A	3.6	(4.0) ^A	4.4	4.6	4.5	4.3	4.2	4.0	A	A	A	A	A	2.2	1.7	(1.9) ^A	
10	2.0	2.0	1.8	1.8	1.7	1.7	1.7	(2.7) ^A	3.5	4.0	A	A	A	A	5.0	4.2	4.6	(3.9) ^A	3.2	2.2	2.4	2.2	2.4	2.2	1.7
11	2.0	1.8	1.8	1.7	1.5	1.5	2.6	(3.0) ^A	3.4	4.2	(4.6) ^C	4.5	4.2	4.2	4.4	4.3	4.2	4.0	A	A	A	2.0	2.0	2.1	
12	2.0 ^A	A	A	2.0 ^A	1.6	2.0	2.8	A	A	A	A	A	A	4.2	4.4	4.2	3.9	3.5 ^F	3.0	1.9	2.0	3.4	2.0	2.0 ^F	
13	2.0 ^F	1.6	1.5 ^F	1.8 ^F	1.8 ^F	1.6 ^F	2.2 ^F	2.8	(3.6) ^A	4.4	4.2	(4.5) ^F	4.7	4.2	4.4	4.0	3.8	A	A	A	A	2.2	A	A	
14	1.4	A	2.0	2.0	1.8	1.8	(2.5) ^A	3.1	A	A	A	A	A	A	A	A	4.4	(4.2) ^A	4.0	4.2	2.7	2.4	(2.0) ^A	1.6	
15	1.5	(1.6) ^A	1.6	1.6	2.0	1.6	2.0	2.6	3.1	3.6	4.2 ^A	4.2	A	A	A	A	4.0	3.6	3.4	A	A	A	2.0 ^A	1.6	
16	1.5	1.6	1.6	1.7	1.5	1.6	2.0	3.1	3.8	3.8	(4.0) ^A	4.2	A	A	C	C	4.0	(3.6) ^A	3.2 ^A	A	A	A	A	A	
17	A	A	1.6	2.0 ^A	1.6	1.7	2.0	3.0 ^A	(3.4) ^A	4.7	A	C	C	C	C	A	4.0	4.0	A	A	A	A	A	A	
18	2.0	1.8	1.6	1.6	1.8	1.8	3.0 ^A	3.4	C	C	4.5	A	A	A	A	A	4.0	4.0	A	A	A	A	A	A	
19	A	A	A	C	A	A	A	2.9	3.2	A	A	A	A	A	4.2	4.2	(3.7) ^A	3.2	A	A	2.0 ^A	(2.0) ^A	2.0	2.0 ^A	
20	1.8	2.0	1.8	1.8	(1.7) ^A	1.5	(2.0) ^A	2.4 ^A	A	A	A	A	A	4.7	4.4 ^A	4.0	4.0	(3.5) ^A	3.0	2.0 ^A	A	A	A	A	
21	A	A	(5.8) ^A	2.3 ^A	2.0 ^A	1.5	(2.3) ^A	3.0	3.3	A	A	A	A	3.8	A	A	A	A	A	A	A	A	A	A	
22	2.0	1.8	1.8	1.7	1.6	1.5	2.2	2.8	4.0 ^A	3.6	A	A	A	A	A	A	A	4.0	4.0	A	A	A	A	A	
23	A	1.8 ^A	1.6	A	A	3.4	(3.7) ^A	4.0 ^A	3.4	(3.7) ^A	4.0 ^A	A	A	A	4.0 ^A	(4.2) ^A	(4.4) ^B	A	A	A	(2.0) ^A	1.5	1.7	1.7 ^A	
24	1.6	1.8 ^A	A	A	2.0 ^A	(5.2) ^A	A	A	2.9 ^A	6.4	7.0	A	A	A	4.2	A	A	A	A	A	A	A	A	1.5	
25	(1.7) ^A	1.8 ^A	(1.9) ^A	2.0 ^A	1.9 ^A	1.8	2.4	A	A	A	A	A	A	A	A	A	A	A	A	2.9	3.6	A	A	2.0	
26	A	A	A	A	A	A	3.0	4.0	A	A	A	A	A	A	A	A	A	A	A	2.0	A	A	A	A	
27	A	A	A	A	A	A	2.0	2.7	3.4	A	A	A	A	A	4.4	4.4	A	A	A	2.4	1.6	1.8 ^A	1.8 ^A	2.0 ^A	
28	2.0 ^A	A	A	A	A	A	1.8	A	A	A	A	A	A	A	A	A	(4.4) ^A	A	A	A	1.8	A	A	A	
29	1.7 ^A	1.5	1.4	2.0 ^A	1.6	1.8	1.9	2.4 ^A	3.4	A	A	A	A	A	A	A	A	3.3	A	A	A	A	A	2.0 ^A	
30	A	2.0 ^A	2.0 ^A	1.6 ^A	1.5	2.2	2.9	3.2	3.2	A	A	A	A	A	A	A	A	C	A	A	1.8 ^A	(1.9) ^A	2.0 ^A	(2.0) ^F	
31	2.0 ^A	2.0 ^A	2.0 ^A	A	A	A	A	3.8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	

Sweep 1.2 Mc to 18.5 Mc in 1.5 min

Manual

Median
Value
Count

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
(Denki-tsushin Kenkyūjo) Gotanda, Shinagawa-ku, Tokyo, Japan

IONOSPHERIC DATA

May 1949

f_oF min

Yamagawa

Lat. 31°12.5'N
Long. 139°37.7'E

Day	135°E Mean Time												16	17	18	19	20	21	22	23				
	00	01	02	03	04	05	06	07	08	09	10	11									12	13	14	15
1	2.2	G	G	G	G	G	1.7	1.8	2.4	2.6	2.9	3.0	3.4	4.0	3.3	3.0	2.8	2.8	2.0	2.0	1.8	1.6	1.8	G
2	1.7	1.6	1.6	1.5	1.6	G	1.8	1.8	2.2	2.8	3.0	3.3	3.3	B	B	3.1	2.2	2.0	1.8	B	B	C	2.0	1.5
3	1.5	1.5	1.6	1.6	G	G	2.0	1.9	2.0	2.2	3.1	B	B	4.8	[4.5] ^B	4.2	B	B	B	B	B	C	2.0	1.5
4	1.4	G	G	G	G	G	2.3	1.9	2.4	[3.3] ^B	4.2	C	C	C	C	C	C	C	C	C	C	2.2	1.8	G
5	G	G	G	G	G	G	1.8	1.8	2.0	3.0	3.4	[3.4] ^C	3.4	4.2	[4.4] ^F	4.6	3.8	2.0	2.0	1.8	1.9	1.8	1.6	1.6
6	1.5	1.6	1.8	1.8	3.8	(1.8) ^B	1.8	3.5	2.2	4.0	4.0	4.0	4.0	B	B	B	B	3.2	2.6	1.8	1.6	1.6	1.5	1.5
7	1.8	1.5	1.6	1.7	1.5	G	1.8	2.0	3.3	3.8	4.0	3.2	4.2	4.2	[3.7] ^B	3.1	(4.2) ^B	2.8	(2.4) ^B	2.0	1.6	(1.6) ^B	1.7	1.6
8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.0	2.2	3.0	4.0	4.0	4.6	B	B	B	3.6	2.2	2.2	1.5	1.5	1.8	1.7	1.6
9	1.4	1.5	1.4	G	G	1.6	1.6	2.0	2.7	(2.9) ^B	3.0	[3.2] ^B	3.4	2.8	2.9	3.3	3.3	3.0	2.2	2.0	1.8	2.2	2.2	2.2
10	G	2.2	G	G	1.4	G	2.0	2.0	2.3	3.2	3.4	4.2	[4.7] ^B	5.2	4.2	2.8	2.7	2.2	1.7	1.6	1.8	1.6	1.6	
11	1.6	G	G	G	G	G	3.0	2.0	2.1	C	B	4.3	4.7	4.4	4.2	2.2	2.0	2.0	1.5	1.6	1.5	1.5	1.6	
12	1.5	1.6	1.6	1.5	1.5	1.7	1.8	2.0	2.0	B	B	4.2	B	B	B	B	C	1.8	G	1.5	1.4	1.6	1.6	
13	1.8	1.5	G	G	G	G	1.8	2.0	3.2	B	B	4.3	B	B	4.1	2.6	2.1	2.0	1.9	2.0	1.9	2.0	1.8	
14	1.8	1.6	2.0	1.8	1.8	1.8	1.8	2.0	2.0	2.2	3.0	2.2	3.0	3.0	3.0	3.0	2.2	2.0	2.0	1.8	1.6	1.6	1.6	
15	G	1.6	1.6	1.6	(2.2) ^B	2.2	2.0	(1.9) ^B	1.8	2.0	1.9	3.1	2.9	2.7	3.0	2.6	2.2	2.0	1.8	1.8	1.6	2.2	(1.6) ^B	1.5
16	1.5	1.6	1.8	G	G	G	2.0	2.0	2.0	2.6	3.2	3.3	3.2	3.0	3.2	3.0	3.9	(3.2) ^B	3.4	1.5	1.6	1.6	1.6	1.5
17	1.5	1.5	1.4	1.6	G	G	1.8	1.6	1.7	2.0	2.5	C	C	C	C	2.1	2.1	2.2	2.0	1.8	1.8	1.6	1.6	1.7
18	1.7	G	G	G	G	G	1.8	1.8	C	C	1.8	2.8	2.0	2.1	2.1	2.1	1.8	1.8	1.7	1.5	1.5	1.5	1.6	1.4
19	1.4	1.6	1.3	(1.3) ^C	1.3	1.6	1.6	2.2	2.5	2.0	2.2	2.4	2.3	2.5	2.8	2.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
20	1.6	1.8	1.5	1.4	1.3	1.5	1.5	2.0	1.8	2.2	2.6	2.6	2.6	2.4	2.3	2.0	1.5	1.3	1.5	1.5	1.5	1.5	1.4	1.5
21	2.3	1.4	(1.4) ^B	1.6	1.8	1.8	1.5	1.6	1.6	1.8	2.0	2.3	2.6	1.5	2.1	2.2	2.1	1.8	1.8	1.8	1.5	1.8	(1.7) ^B	1.8
22	1.0	1.8	1.8	1.6	1.6	1.5	1.5	1.5	1.6	1.8	1.9	2.0	2.0	2.4	2.5	5.8	2.0	1.8	1.8	1.4	1.8	(1.7) ^B	1.8	1.8
23	1.5	1.6	2.0	1.3	1.4	1.5	1.5	1.5	1.6	1.8	1.8	3.6	2.7	2.2	2.1	1.8	2.1	2.2	1.6	1.4	1.4	G	1.7	1.5
24	1.5	1.4	1.6	1.6	1.5	1.8	(1.7) ^B	2.2	1.7	2.2	2.2	2.3	2.3	3.0	[2.6] ^F	2.5	2.0	2.0	1.8	1.4	1.5	1.5	1.5	1.4
25	1.5	1.4	1.6	1.5	1.5	1.6	1.7	1.6	1.8	2.1	2.6	2.8	3.0	2.3	2.3	2.1	1.8	1.5	1.5	1.5	1.5	1.8	1.6	1.5
26	1.4	1.4	1.4	1.6	1.6	1.5	1.5	1.4	1.6	2.2	3.0	3.0	3.0	3.0	2.2	2.2	2.0	2.2	2.0	1.6	1.6	1.8	1.8	1.6
27	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.8	2.0	2.4	2.0	3.8	4.6	3.0	2.4	2.0	1.6	1.5	1.4	1.4	1.4	1.5
28	1.4	1.4	1.6	1.5	1.5	1.6	1.6	1.8	1.7	2.0	2.4	2.1	2.4	3.0	2.2	2.0	2.0	1.7	1.6	1.9	1.8	1.5	1.5	1.5
29	1.4	1.4	1.4	1.6	1.6	1.8	1.8	1.7	1.8	2.0	2.2	2.2	2.4	2.1	2.2	2.1	1.7	1.8	1.4	1.4	1.6	1.5	1.4	1.4
30	1.4	1.4	1.3	1.4	1.5	1.5	1.5	1.8	2.0	2.2	2.3	3.0	2.8	2.0	2.0	(1.9) ^C	1.8	1.5	1.5	1.5	1.5	1.5	1.5	1.6
31	1.6	1.6	1.6	1.4	1.3	1.5	1.5	1.6	1.7	1.9	2.2	2.3	2.8	2.1	2.3	2.3	1.9	1.5	1.5	1.6	1.5	1.5	1.5	1.4
f																								
Minimum Value	1.5	1.5	1.6	1.5	1.4	1.5	1.7	1.8	2.0	2.0	2.2	2.8	3.0	2.8	2.6	2.1	2.0	1.8	1.7	1.6	1.6	1.6	1.6	1.5
Count	31	31	31	31	31	28	31	29	27	27	26	26	25	27	27	27	28	30	30	30	30	30	31	31

Sweep 1-2 Mc to 18.5 Mc in 1.5 min

Manual

IONOSPHERIC DATA IN JAPAN FOR MAY 1949

電波觀測報告 第1卷 第5號

1949年6月1日印刷

1949年6月5日發行

(不許複製非賣品)

編集兼
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