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IONOSPHERIC DATA IN JAPAN

FOR APRIL 1949

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Prepared by THE ELECTRICAL COMMUNICATION LABORATORY

(Denki-Tushin Kenkyujo)

MINISTRY OF TELECOMMUNICATIONS

TOKYO, JAPAN

THE ELECTRICAL COMMUNICATION LABORATORY
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CONTENTS

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° 57.0′ 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

Apr. 1949 | f_{F_2} | 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	6.7P	6.7P	6.8	6.7P	6.0	6.7	C	C	12.2	12.5	[12.6]C	12.6	13.1	12.8	12.9	12.1	[11.6]B	11.0P	10.4	9.7	8.9	8.8	8.2	7.4
2	7.6	[7.4]B	7.1	6.9	6.5	6.4	9.8H	[10.9]C	12.0H	12.7P	13.0H	[13.1]BH	13.1H	12.8H	12.7H	[12.0]BH	11.3H	B	B	9.7	9.5	9.2	8.7	8.2J
3	8.2J	7.4	7.6P	7.2	6.5	7.4	9.7	C	C	C	C	C	C	C	C	C	10.0J	B	B	S	S	S	(7.8)S	6.9JS
4	6.1	7.5	7.6P	6.4P	7.5P	8.5	10.7	11.6	[12.5]C	13.4	C	C	C	C	C	C	11.8	C	C	C	C	C	C	C
5	C	C	7.3P	7.2P	6.2	[7.9]C	9.5	11.7JP	[12.6]C	13.5P	C	C	13.0	12.4	12.1	12.3	12.0H	11.5	10.2	9.7P	8.4B	7.8	7.7J	8.0J
6	7.4P	7.4	7.5	7.2	6.8	7.4	10.1	B	C	C	13.3FH	12.0F	12.8	11.2	12.2	(12.2)B	11.7H	[10.8]BH	(9.8)B	9.2P	S	S	S	7.4
7	7.6	7.4	7.5	C	C	C	C	C	C	C	12.3P	C	C	C	C	C	C	B	9.8	9.7	9.5	9.3	8.2P	C
8	C	C	C	C	C	C	C	C	C	C	C	C	13.6	12.5PH	12.4	11.2J	10.5P	10.0	10.1	8.9	[8.8]B	8.7	8.6	[7.8]B
9	6.9P	6.7P	6.4	6.2	5.6	7.7	8.3P	8.9	9.7	8.5	BH	B	11.3J	11.1JH	11.1JH	B	B	9.5	9.6	8.9	6.8	(7.5)B	8.1J	8.1J
10	7.0	6.7	6.8	6.8	6.5	(6.8)B	9.2	CH	CH	12.5H	12.7H	(13.0)PH	12.7H	12.8	12.2	11.8BH	11.5JPH	10.1	10.5	10.6H	9.4	8.9H	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	(6.7)KS	[6.6]KS
13	6.4K	6.4K	C K	C K	C K	C K	C K	C K	5.1K	5.6K	C K	C K	GK	7.1K	[7.7]KB	8.2K	BK	BK	BK	8.1K	6.6K	6.2KS	6.0K	5.1K
14	5.1K	5.4K	5.4K	5.6KP	5.4KH	6.0P	8.0	[8.7]B	9.3	[10.1]B	10.9JP	10.8	11.1	C	C	11.3	10.8	B	BH	B	B	B	B	B
15	B	7.0P	7.4	[7.2]B	7.0	B	B	B	11.5P	12.0	12.0P	12.1	12.2	B	B	11.9P	11.5	B	C	B	8.1P	8.4P	8.6P	7.8
16	7.6	7.8	B	B	B	8.4B	9.6	10.0PH	11.6	11.8	12.0H	12.0P	12.1	11.9	B	C	C	C	C	C	C	C	C	6.7P
17	(8.0)B	[7.7]B	7.3	7.0P	C	C	C	C	C	C	C	C	C	C	C	11.2	[10.7]B	10.1	B	B	B	B	8.1	8.0P
18	B	B	6.9	7.0	7.0P	8.5JP	10.4	11.4	B	B	B	12.1	12.3	B	B	B	10.0P	B	B	B	C	B	C	7.9
19	8.1	7.9P	7.8	6.8	6.8	C	C	C	C	C	C	C	C	C	C	C	C	B	B	B	B	8.1P	7.9P	8.0P
20	8.0P	[7.9]B	7.7	7.4	[7.0]B	6.6	7.7P	8.1	8.6P	9.8	11.1	11.4	11.4	11.5	11.5	11.6P	11.4	11.2	11.0	B	B	7.8P	7.7P	7.8
21	8.0	8.1	7.2	6.5P	6.5	7.7	9.0	9.9	10.5	11.1	11.3	11.8	12.1	12.5	11.8	11.5	11.3	B	B	B	B	B	6.8JP	7.5
22	8.3	8.3	[8.2]S	8.1	7.6	8.0	10.2	11.3	11.6	12.0	11.9	12.0	12.0	11.5P	11.4	11.4	10.9	10.4	10.4	10.1P	8.7P	8.7	8.3S	8.3S
23	8.5P	8.3	8.0P	7.7	7.0	B	B	11.5P	11.5P	11.8P	12.5	(11.7)B	(11.8)C	11.8	11.2	11.5	11.1	10.8P	10.8	[9.3]B	7.8	7.5J	8.2	7.7
24	8.4P	7.8	7.7	7.1J	(6.8)JB	7.7H	[9.0]B	10.3	10.8	10.7	11.6	(11.7)C	11.8	11.9	12.0	11.5	11.3	9.8P	B	B	B	B	B	B
25	7.6	7.4	7.0	6.9	6.9	7.8	10.3	10.6	11.4	11.4	B	B	B	12.3	[12.1]B	11.9	13.1	11.4P	B	B	8.0	6.0	B	B
26	6.1	8.1	7.8	7.0	7.2	8.5	10.5	11.7	12.1	[12.3]B	12.4	12.1P	[12.3]S	12.5	11.9P	(11.7)S	11.5	11.1	B	B	BH	B	B	B
27	B	8.1	7.8	C	B	8.4B	10.4J	11.6	11.6	11.9	12.1	12.5	C	C	C	C	C	C	B	B	B	B	7.9P	7.2
28	8.0P	7.7	6.9	[6.6]B	6.2J	7.0JB	B	B	B	9.9	9.0J	11.3	11.1	10.7	10.8H	10.0	9.4	S	S	7.7S	[7.8]S	7.8	7.6	7.8
29	7.9S	[7.5]S	7.0J	6.5	6.1	6.7J	10.3	7.5N	10.3	11.1	10.8	11.6	11.2	11.2	11.2	10.9	10.1	10.3	10.1	9.0P	B	B	B	8.4P
30	8.4P	6.8N	7.7	6.7J	6.1	7.5	7.8K	7.2K	7.1K	7.4K	[7.8]KB	8.1K	8.2K	9.0K	9.0K	9.0K	9.5K	BK	BK	CK	BK	BK	BK	BK
31																								
Median Value	7.6	7.5	7.4	6.9	6.7	7.7	9.7	10.6	11.5	11.8	12.0	12.0	12.1	11.9	11.9	11.5	11.3	10.6	10.2	9.3	8.4	8.1	8.0	7.8
Count	23	25	25	23	22	21	19	17	19	21	18	18	21	19	18	20	22	14	11	13	13	15	18	21

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

Electrical Communication Laboratory, Japanese Ministry of Telecommunications
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IONOSPHERIC DATA

Apr. 1949 | $h_P F_2$ | 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	380^{P}	310^{P}	300	270^{P}	300	310	C	C	320	310	[320]^{C}	320	320	310	330	310	[330]^{B}	350^{P}	310	320	330	340	310	350
2	360	[340]^{B}	320	320	330^{J}	410	310^{H}	[310]^{C}	310	300^{P}	310^{H}	[320]$^{B}_{H}$	330^{H}	360^{H}	310^{H}	[320]$^{S}_{H}$	330^{H}	B	B	350	330	310	330	340^{J}
3	370^{J}	350	370^{P}	370	380	380	300	C	C	C	C	C	C	C	C	C	290^{J}	B	B	S	S	S	(350)^{S}	380^{S}
4	310	330	410^{P}	410^{P}	410^{P}	370	300	300	[330]^{C}	360	C	C	C	C	C	C	390	C	C	C	C	C	C	C
5	C	C	330^{P}	310^{P}	340	[330]^{C}	310	290	[310]^{C}	320	C	C	360	330^{H}	340	320	320^{H}	330	290	320^{P}	290^{B}	330	380^{J}	360^{J}
6	320^{P}	340	370	350	(390)^{B}	400	310	B	C	C	310	310	320	340	340	(300)^{B}	320^{H}	[310]$^{B}_{H}$	(300)^{B}	300^{P}	S	S	S	350
7	360	410	340	C	C	C	C	C	C	C	340	C	C	C	C	C	C	B	300	350	330	330	320^{P}	C
8	C	C	C	C	C	C	C	C	C	C	C	C	330	370$^{P}_{H}$	350	340^{J}	340^{P}	330	320	370	[360]^{B}	340	430	B
9	A	360^{P}	400	A	A	350	330^{P}	330^{J}	310	260	BH	B	340^{J}	370$^{J}_{H}$	370$^{J}_{H}$	B	B	270	320	320	310	[360]^{B}	410^{J}	400^{J}
10	290	320	340	350	320^{J}	(330)^{B}	(320)^{B}	CH	CH	340^{H}	340^{H}	(310)$^{P}_{H}$	340^{H}	360	370	330^{H}	320$^{J}_{H}$	310	290	300^{H}	300	(380)$^{B}_{H}$	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	(330)$^{K}_{S}$	[380]$^{K}_{S}$
13	430^{K}	430^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	290^{K}	G^{K}	C^{K}	C^{K}	G^{K}	420^{K}	[380]$^{B}_{K}$	340^{K}	B^{K}	B^{K}	B^{K}	360^{K}	310^{K}	340$^{K}_{P}$	330^{K}	320^{K}
14	410^{K}	430^{K}	390^{K}	400$^{K}_{P}$	400$^{K}_{H}$	350^{P}	300	[350]	400	[380]^{B}	360$^{J}_{P}$	330	370	C	C	330	300	B	BH	B	300	B	B	B
15	B	370^{P}	390^{B}	[370]^{B}	350	B	B	B	310^{P}	340	330^{P}	320	360	B	B	330^{P}	310	B	C	B	320^{P}	360^{P}	390^{P}	360
16	420	380	B	B	B	310^{B}	310	310$^{P}_{H}$	290	310	330^{H}	360^{P}	350	370	B	C	C	C	C	C	C	C	C	390^{P}
17	(420)^{B}	[400]^{B}	370	410^{P}	C	C	C	C	C	C	C	C	C	C	C	330	[350]^{B}	360	B	B	B	B	440	410^{P}
18	B	B	320	420	410^{P}	400$^{J}_{P}$	360	370	B	B	B	360	360	B	B	B	300^{P}	B	B	B	C	B	C	380
19	370	340^{P}	340	360	380	C	C	C	C	C	C	C	C	C	C	C	C	C	B	B	B	340^{P}	310^{P}	360^{P}
20	340^{P}	[350]^{B}	360	350	[350]^{B}	340	410^{P}	310	330	410^{B}	330	330	360	380	330	320^{P}	340	330	330	B	B	360^{P}	340^{P}	410
21	330	440	380	350^{P}	400	380	310	320	330	330	330	340	320	400	370	370	350	B	B	B	B	B	320$^{J}_{P}$	330
22	400	400	[400]^{S}	390	350	350	330	300	310	360	360	360	380	390^{P}	360	380	350	350	370	340^{P}	330^{P}	350	350^{S}	390^{S}
23	390^{P}	390	370^{P}	340	320	B	B	320^{P}	310^{P}	330^{P}	350	(290)$^{B}_{H}$	[330]^{C}	370	360	330	310	350^{P}	360	[340]^{B}	320	370^{J}	380	370
24	350^{P}	360	370	330^{J}	(450)$^{J}_{B}$	410^{H}	[390]^{B}	360	340	340	380	[380]^{C}	370	370	390	340	340	330^{P}	B	B	B	B	B	B
25	410	390	380	390	360	320	320	340	340	360	B	B	B	360	[380]^{B}	390	380	380	B	B	320	310	B	B
26	410	360	370	370	380	310	340	300	300	[310]^{B}	320	360^{P}	[340]^{S}	360	390^{P}	[360]^{S}	330	330	B	B	BH	B	B	B
27	B	370	410	C	B	350^{B}	280^{J}	380	360	370	370	370	C	C	C	C	C	C	B	B	B	B	340^{P}	390
28	390^{P}	390	410	(400)^{B}	390^{J}	330$^{J}_{B}$	B	B	B	370	390^{J}	390	420	400	410^{H}	320	360	S	S	290^{S}	[350]^{S}	410	350	330
29	320^{S}	[350]^{S}	370	330	400	300^{J}	340	300^{N}	390	360	390	370	400	410	390	400	360	390	360	360^{P}	B	B	B	390^{P}
30	400^{P}	320^{N}	400	340^{J}	460	420	360^{K}	440^{K}	400^{K}	B^{K}	B^{K}	440^{K}	410^{K}	370^{K}	380^{K}	390^{K}	350^{K}	B^{K}	B^{K}	C^{K}	B^{K}	B^{K}	B^{K}	B^{K}
31																								
Median Value	380	360	370	360	380	350	320	320	320	340	340	350	360	370	370	330	340	330	320	340	320	340	350	380
Count	22	25	25	22	21	21	19	17	19	20	17	18	21	19	18	20	22	14	11	13	14	15	18	20

Sweep 1.0 Mc to 17.0 Mc in 15 min 'Manual

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IONOSPHERIC DATA

Apr. 1949 | $h'F_2$ | 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	300	230	230	200	200	220	C	C	250	250	[250]^{C}	250	250	200	210	200	210	240	220	220	250	250	250	270
2	270	290	210	210	230	300	200^{H}	[200]^{C}	200^{H}	200	220^{H}	200^{H}	220^{H}	220^{H}	210^{H}	200	220^{H}	220	250	230	250	240	270	250
3	270	290	280	270	280	290	210	210	C	C	C	C	C	C	C	C	200	210	230	230	220	220	250	300
4	260	270	290	310	290	300	220	200	200	240	C	C	C	C	C	C	280	C	C	C	C	C	C	C
5	C	C	270	(230)^{A}	240	[230]^{C}	220	200	220	220	230	[250]^{C}	280	220^{H}	280	200	220^{H}	220	220	220	220	220	270	250
6	250	260	270	280	260^{B}	300	200	200	(200)^{B}	[210]^{C}	220^{H}	200	200	280	290	290	(200)^{A}	240	240	220	240	230	240	300
7	300	300	230	C	C	C	C	C	C	C	210	C	C	C	C	C	C	230	220	260	250	250	260	C
8	C	C	C	C	C	C	C	C	C	C	C	C	280	280	310	280	280	240	250	210	260	270	300	270
9	[270]^{A}	270	A	A	A	280	290	260	290	220	200^{H}	260	300	250^{H}	220^{H}	[230]^{B}	230	200	220	290	250	290	340	310
10	[280]^{A}	250	230^{A}	250	280	280	200	220	200^{H}	210^{H}	210^{H}	200^{H}	210^{H}	260	270	240^{H}	200^{H}	270	200	220^{H}	210	200^{H}	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	240	[240]^{C}	230	250^{K}	250^{K}
13	300^{K}	320^{K}	C^{K}	C^{K}	C^{K}	C^{K}	C^{K}	290^{K}	290^{K}	500^{K}	C^{K}	C^{K}	G^{K}	420^{K}	[350]^{B}	280^{K}	280^{K}	270^{K}	260^{K}	270^{K}	230^{K}	260^{K}	260^{K}	280^{K}
14	340^{K}	320^{K}	310^{K}	300^{K}	310^{K}	280	290	280	290	240	230	260	280	(320)^{T}	[300]^{C}	280	250	210	240^{H}	210	240^{A}	230	270	280
15	280	280	270	280	270	250	230	250	220	290	280	300	290	310	290	210	250	300	200	200	200	280	280	270
16	310	310	300	280	240	250	270	220^{H}	210	220	220^{H}	210	280	300	300	C	C	C	C	C	C	C	C	290
17	300	300	300	300	300	280	C	C	C	C	C	C	C	C	C	290	220	280	240	230	280	320	300	300
18	340	300	250	280	300	280	220	300	250	280	280	250	270	280	280	230	260	290	300	220	[260]^{C}	300	[300]^{C}	300
19	290	280	290	300	280	C	C	C	C	C	C	C	C	C	C	C	C	C	240	230	240	280	270	300
20	290	290	280	260	240	250	350	300	280	(350)^{T}	220	240	310	300	290	290	290	240	240	230	220	240	250	290
21	260	320	280	280	290	280	230	280	280	250	270	260	260	320	280	240	280	270	270	220	210	230	290	290
22	300	300	300	290	230	270	230	250	220	270	270	250	330	300	300	300	290	270	290	260	250	240	240	280
23	290	290	290	280	270	260	240	230	270	280	280	200^{H}	[240]^{C}	280	300	290	250	270	250	270	250	270	280	300
24	280	270	270	250	270	280^{H}	240	300	250	290	290	[290]^{C}	290	250	300	270	240	230	230	230	270^{A}	300^{A}	290	300
25	300	290	290	300	290	260	230	270	300	250	[250]^{B}	240^{H}	250	250	270	270	230	250	250	220	270	280	290	280
26	370	280	280	260	260	220	210	230	230	230	270	300	300	300	280	270	300	240	290	270	240^{H}	270	260	280
27	260	280	300	260	300	260	210	260	240	260	280	310	C	C	C	C	C	C	270	290	280	290	300^{A}	300
28	300	300	280	280	280	260	260	230	260	340	350	350	370	300	250^{H}	250	250	230	270	240	240	270	240	260
29	250	280	300^{A}	250	310	260	250	280	270	270	300	300	350	390	340	320	280	260	270	290	260	270	250	280
30	300^{A}	270	280	260	340	260	300^{K}	430^{K}	400^{K}	390^{K}	[410]$^{B}_{K}$	420^{K}	410^{K}	310^{K}	370^{K}	340^{K}	270^{K}	250^{K}	250$^{A}_{K}$	[250]$^{C}_{K}$	240^{K}	250^{K}	270^{K}	300^{K}
31																								
Median Value	290	290	280	280	280	270	230	250	250	250	270	250	280	290	290	270	250	240	250	230	240	260	270	290
Count	26	26	25	24	24	24	22	23	23	23	22	21	22	22	22	22	24	24	26	27	27	27	26	26

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

W 3

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

IONOSPHERIC DATA

Apr. 1949 | $f_{F_1}^{2}$ | 135°E Mean Time | Wakkanai | Lat. 45°23.6'N | Long. 141°41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						Q	C	C	L	L	C	L	L	Q	Q	Q	Q	Q	Q	Q				
2						Q	Q	C	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
3						Q	Q	Q	C	C	C	C	C	C	C	C	Q	Q	Q	Q				
4						L	Q	Q	Q	Q	C	C	C	C	C	C	L	C	C	C				
5						C	Q	Q	Q	Q	Q	C	L	Q	L	Q	Q	Q	Q	Q				
6						Q	Q	Q	Q	C	Q	Q	Q	L	L	L	Q	Q	Q	Q				
7						C	C	C	C	C	Q	C	C	C	C	C	C	Q	Q	Q				
8						C	C	C	C	C	C	C	L	L	6.6	L	L	Q	Q	Q				
9						Q	Q	Q	L	Q	Q	L	L	Q	Q	Q	Q	Q	Q	Q				
10						Q	Q	Q	Q	Q	Q	Q	Q	L	L	L	Q	L	Q	Q				
11						C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
12						C	C	C	C	C	C	C	C	C	C	C	C	C	C	Q				
13						C	C	Q	Q	4.5	C	C	5.4	5.6	5.8	L	L	L	Q	Q				
14						Q	L	4.5	B	L	Q	L	L	L	C	L	L	Q	Q	Q				
15						Q	Q	Q	Q	L	L	Q	L	L	L	Q	L	Q	Q	Q				
16						L	L	Q	Q	Q	Q	Q	L	L	L	C	C	C	C	C				
17						Q	C	C	C	C	C	C	C	C	C	L	Q	L	Q	Q				
18						Q	Q	L	L	L	L	L	L	L	L	Q	Q	L	Q	Q				
19						C	C	C	C	C	C	C	C	C	C	C	C	C	Q	Q				
20						Q	L	L	L	L	Q	L	L	L	L	L	L	Q	Q	Q				
21						Q	Q	L	L	L	L	L	L	L	L	L	L	L	Q	Q				
22						Q	Q	L	Q	L	L	L	L	L	L	L	L	L	Q	Q				
23						L	L	Q	L	L	L	Q	C	L	L	L	Q	Q	Q	Q				
24						Q	Q	L	Q	L	L	C	L	Q	L	L	Q	Q	Q	Q				
25						Q	Q	Q	L	Q	L	L	L	L	Q	Q	Q	Q	L	Q				
26						Q	Q	Q	L	L	L	L	L	L	L	L	L	Q	Q	Q				
27						Q	Q	Q	Q	L	L	L	C	C	C	C	C	C	Q	Q				
28						Q	Q	Q	L	L	L	L	L	L	Q	L	Q	Q	Q	Q				
29						Q	Q	Q	L	L	5.8	L	L	L	L	L	Q	Q	Q	Q				
30						Q	L	5.0	L	L	5.8	5.5	L	L	5.8	L	L	Q	Q	C				
31																								
Median Value								—		—	—	—	—	—	—									
Count								2		1	2	1	1	1	3									

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr 1949 | $h'F_1$ | 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	C	C	220	210	[210]^{C}	200	200	Q	Q	Q	Q	Q	Q	Q				
2						Q	Q	C	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
3						Q	Q	Q	C	C	C	C	C	C	C	C	Q	Q	Q	Q				
4						230	Q	Q	Q	Q	C	C	C	C	C	C	250	C	C	C				
5						C	Q	Q	Q	Q	Q	C	240	Q	200	Q	Q	Q	Q	Q				
6						Q	Q	Q	Q	C	Q	Q	Q	220	210	210	Q	Q	Q	Q				
7						C	C	C	C	C	Q	C	C	C	C	C	C	Q	Q	Q				
8						C	C	C	C	C	C	C	240	230	220	230	220	Q	Q	Q				
9						Q	Q	Q	240	Q	Q	A	240	Q	Q	Q	Q	Q	Q	Q				
10						Q	Q	Q	Q	Q	Q	Q	Q	210	220	200	Q	220	Q	Q				
11						C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
12						C	C	C	C	C	C	C	C	C	C	C	C	C	C	Q				
13						C	C	Q	Q	B	C	C	240	270	220	240	[230]^{B}	220	Q	Q				
14						Q	220	200	210	200	Q	210	200	(250)^{T}	[230]^{C}	210	200	Q	Q	Q				
15						Q	Q	Q	Q	230	220	Q	220	220	220	Q	210	Q	Q	Q				
16						230	220	Q	Q	Q	Q	Q	210	210	210	C	C	C	C	C				
17						Q	C	C	C	C	C	C	C	C	C	230	Q	260	Q	Q				
18						Q	Q	250	230	230	240	220	230	220	250	Q	Q	250	Q	Q				
19						C	C	C	C	C	C	C	C	C	C	C	C	C	C	Q				
20						Q	300	230	250	(230)^{T}	Q	220	210	230	210	A	A	Q	Q	Q				
21						Q	Q	250	230	250	200	200	200	210	[210]^{B}	210	230	230	Q	Q				
22						Q	Q	220	Q	220	220	200	230	210	230	230	250	220	Q	Q				
23						230	210	Q	230	220	210	Q	C	210	220	220	Q	Q	Q	Q				
24						Q	Q	240	Q	220	240	[250]^{C}	250	Q	230	250	Q	Q	Q	Q				
25						Q	Q	Q	220	Q	230	200	200	200	Q	Q	Q	Q	210	Q				
26						Q	Q	Q	200	210	200	190	200	200	220	210	220	Q	Q	Q				
27						Q	Q	Q	Q	210	230	220	C	C	C	C	C	C	Q	Q				
28						Q	Q	Q	200	200	270	240	260	220	Q	220	Q	Q	Q	Q				
29						Q	Q	Q	220	220	220	220	210	230	220	280	Q	Q	Q	Q				
30						Q	270	300	A	A	200	210	210	230	230	[230]^{A}	220	Q	Q	C				
31																								
Median Value						—	220	240	220	220	220	210	220	220	220	230	220	230	—					
Count						3	5	7	11	13	13	13	18	17	17	14	9	6	1					

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

IONOSPHERIC DATA

Apr. 1949 | f_E | 135°E Mean Time | Wakkanai | Lat. 45°23.6'N | Long. 141°41.1'E

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

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | h'E | 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						A	C	C	100	100	[100]^{C}	100	100	100	100	100	100	100	100	E				
2						B	110^{H}	[110]^{C}	100	[100]^{A}	100	100	[100]^{A}	100	[100]^{A}	100	[100]^{A}	100	B	E				
3						B	110	100	C	C	C	C	C	C	C	C	100	100	A	E				
4						100	100	100	100	100	C	C	C	C	C	C	100	C	C	C				
5						C	100	100	100	100	100	[100]^{C}	100	100	100	100	100	100	100	E				
6						B	100	[100]^{A}	100	[100]^{C}	(100)^{B}	A	A	100	100	100	[100]^{A}	100	100	E				
7						C	C	C	C	C	100	C	C	C	C	C	C	100	100^{H}	E				
8						C	C	C	C	C	C	C	100	100	100	100	100	100	100	B				
9						A	100	100	100	100	100	100	100	100	100	A	A	A	A	A				
10						A	100	100	[100]^{A}	100	100	110	100	100	100	100	[100]^{A}	100	100	A				
11						C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
12						C	C	C	C	C	C	C	C	C	C	C	C	C	C	E				
13						C	C	100	100	100	C	C	100	100	100	100	100	100	B	B				
14						B	B	100	100	100	100	100	100	100	[100]^{C}	100	100	100	100	B				
15						E	120	[110]^{B}	100	100	100	100	100	100	100	100	100	100	B	E				
16						B	120	100	100	100	100	100	100	100	100	C	C	C	C	C				
17						B	C	C	C	C	C	C	C	C	C	100	100	100	B	E				
18						B	100	100	100	100	100	100	100	100	100	100	100	100	B	B				
19						C	C	C	C	C	C	C	C	C	C	C	C	C	100	100				
20						B	100	110	120	(130)^{T}	[120]^{B}	110	100	B	A	A	A	100	B	B				
21						B	100	100	100	100	100	[100]^{A}	100	100	100	100	100	100	100	E				
22						BH	110	100	100	100	100	100	100	100	100	100	100	100	100	120				
23						B	100	100	100	100	100	100	[100]^{C}	100	A	A	100	[100]^{A}	100	E				
24						B	100	100	100	100	100	[100]^{C}	100	100	100	100	100	100	A	E				
25						100	100	100	100	100	100	[100]^{A}	100	100	110	[110]^{A}	110	110	A	A				
26						100	110	100	100	100	[100]^{A}	100	100	[100]^{A}	100	100	100	A	A	100				
27						B	120	110^{H}	100	100	[100]^{A}	100	C	C	C	C	C	C	B	100				
28						100	100	[100]^{B}	100	[110]^{A}	110	100	100	A	A	A	100	100	A	A				
29						B	110	100	100	100	100	100	100	100	100	100	100	[110]^{B}	110	A				
30						B	100	100	100	100	100	100	100	100	100	100	100	120	100	C				
31																								
Median Value						100	100	100	100	100	100	100	100	100	100	100	100	100	100	E				
Count						5	21	23	23	23	22	20	21	20	19	18	22	22	13	16				

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | fes | 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	1.7	G	(1.9)^{B}	(2.1)^{B}	G	G	G	G	C	G	G	G	G	G	G	G	G	G	G	1.9	1.7	G
2	G	1.4	G	G	G	G	G	C	3.6	4.2^{F}	B	B	4.2	B	B	G	3.2	G	G	G	G	G	G	G
3	G	G	G	G	(1.9)^{S}	G	G	G	C	C	C	C	C	C	C	C	G	3.4	2.6	G	G	G	B	G
4	G	G	G	1.6	G	G	G	G	G	B	C	C	C	C	C	C	G	C	C	C	C	C	C	C
5	C	C	G	2.2	G	C	2.4	G	G	G	G	C	G	B	G	G	G	G	2.1	G	G	G	G	G
6	G	G	2.3	1.7	1.9	1.8	2.6	3.4	3.6	C	B	3.7	3.8	B	B	B	4.0	G	G	G	G	G	G	G
7	G	G	1.8	C	C	C	C	C	C	C	G	C	C	C	C	C	C	2.6	2.6	1.3	G	G	G	C
8	C	C	C	C	C	C	C	C	C	C	C	C	B	B	B	S	B	2.9	G	G	2.2	B	G	B
9	5.7	3.3	(5.2)^{B}	7.0	6.5	3.3	3.5	4.0	3.7^{A}	5.3	4.3	5.1^{Y}	B	B	B	4.0	3.2	3.4	3.3	4.9	2.8	G	3.6	G
10	4.2^{F}	1.6	2.5	1.8	(1.3)^{B}	1.5^{F}	2.4	3.2^{Y}	B	4.0	B	B	B	B	B	(3.6)^{T}	3.5	B	2.6^{Y}	2.8	B	B	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	G	C	G	G	G
13	G	G	C	C	C	C	C	3.4	3.4	B	C	C	B	B	B	B	B	B	2.2	2.2	G	G	G	G
14	G	G	G	G	G	B	2.4	3.3	3.4	G	B	B	B	B	C	B	B	2.7	G	B	2.2	2.4	G	G
15	G	G	G	G	G	G	G	B	3.5	4.8	5.5	4.6	B	4.4	(6.0)^{B}	B	G	B	B	G	G	G	G	G
16	G	G	G	G	G	B	G	B	G	B	B	B	B	B	B	C	C	C	C	C	C	C	C	G
17	G	G	G	G	G	B	C	C	C	C	C	C	C	C	C	G	G	G	2.3	2.3^{Y}	G	G	G	G
18	G	G	G	G	G	B	2.9	B	3.6	G	B	G	B	B	B	G	B	B	2.4	B	C	G	C	G
19	G	G	G	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C	G	G	1.9	G	G	G
20	G	G	G	G	G	B	G	G	3.7	G	B	B	B	B	4.3	(6.3)^{B}	5.0	G	B	B	G	G	G	G
21	G	G	2.1	2.6	G	G	3.6	4.5^{Y}	4.6	4.7^{Y}	B	4.0	B	B	B	B	3.7	G	2.5	2.2	G	G	G	G
22	G	G	G	G	2.6^{Y}	B	2.9	3.5	4.1	4.5^{Y}	4.5^{Y}	B	B	B	B	B	3.5^{Y}	G	G	3.2	2.5^{Y}	G	G	G
23	G	G	G	G	G	G	G	G	3.5	G	G	G	C	G	3.7	3.5	G	2.9	4.5	1.9	B	G	G	G
24	G	G	G	G	G	G	G	G	G	3.9	4.3	C	5.7	B	G	G	4.5	6.3	8.0	2.3	2.7	2.7	G	G
25	B	2.4	2.4	G	G	G	G	G	G	4.4	4.3^{Y}	3.8	B	B	G	3.9	G	5.5^{Y}	4.2	3.6	3.7	2.8	G	G
26	G	G	2.9	2.7	2.6	2.2	2.9	G	B	B	4.4	B	B	3.8	G	G	3.5	5.0^{Y}	3.4	3.1	B	1.7	B	G
27	2.2	G	2.6	G	G	G	G	3.5	3.9	4.7^{Y}	6.0	9.6	C	C	C	C	C	C	B	G	4.0	3.0	4.1	2.2
28	2.2	2.6	3.0	G	2.7^{F}	B	G	B	B	3.8	G	G	G	4.7	4.6	4.6	3.8	3.3	3.9^{Y}	3.7	2.6	5.7	2.3	2.5
29	2.7	G	3.3	G	G	G	3.3	G	G	B	G	G	G	4.3	B	B	4.2	4.6	2.5	4.1	2.1	G	2.5	G
30	3.9	G	2.6	3.6	2.7	G	2.9	3.5	5.3	4.3	B	B	4.3^{Y}	4.7^{Y}	4.8^{Y}	4.5^{Y}	4.0	3.5	3.6	C	2.4	G	G	G
31																								
Median Value	G	G	G	G	G	G	G	G	3.5	4.0	4.3	3.7	(G)	(4.3)	G	G	3.4	2.8	2.5	1.9	G	G	G	G
Count	25	26	26	25	25	16	23	20	20	17	12	11	8	7	10	14	20	20	23	23	22	25	23	25

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

W 8

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

IONOSPHERIC DATA

Apr 1949 | F.–M3000 | 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	2.8P	3.1P	3.2	3.3	3.2	3.1	C	C	(3.1)B	3.2	[3.1)C	3.0	3.0	3.0	2.9	2.9	(2.8)B	2.8	3.0	2.9	2.9	2.8	3.0	2.8
2	2.9	[3.0]B	3.1	2.9	3.0	2.6	3.1H	(3.1)C	3.1H	3.2P	3.0H	(2.9]BH	2.9H	2.9H	3.0H	SH	S	B	B	2.8	2.9	3.0	(2.9)B	J
3	J	2.9	2.8P	2.8	2.7	2.7	3.0	C	C	C	C	C	C	C	C	C	J	B	B	S	S	S	(2.9)S	JS
4	B	3.0	2.5P	2.6P	2.6P	2.7	3.1	(3.0)B	[2.9]C	2.8	C	C	C	C	C	C	3.2	C	C	C	C	C	C	C
5	C	C	3.1P	3.1P	2.9	[3.0]C	3.1	JP	C	2.9P	C	C	2.7	2.9H	2.9	2.9	3.0H	2.8	3.1	3.1P	3.1B	3.0	J	J
6	3.0P	2.9	2.8	2.8	2.6	2.7	3.1	B	C	C	3.0H	[3.0]BF	3.1	2.9	2.8	(3.0)B	2.9H	(3.0]BH	3.2	3.2P	S	S	S	3.0
7	2.8	2.7	2.8	C	C	C	C	C	C	C	2.9P	C	C	C	C	C	C	B	3.0	2.8	2.9	2.8	3.0	C
8	C	C	C	C	C	C	C	C	C	C	C	C	2.9	2.7PH	2.9	J	2.8P	2.9	3.1	2.7	[2.7]B	2.8	2.5	(2.5]B
9	2.6P	2.7P	2.6	[2.6]A	2.5	2.8	2.9P	[2.9]B	3.0	3.4	BH	B	J	JH	JH	B	B	3.2	2.9	2.9	3.1	B	J	J
10	3.2	3.0	2.9	2.8	2.9	(2.9)B	3.0	CH	CH	2.8H	2.8H	(3.1)P	[2.9]B	2.8	B	JH	JPH	3.0	3.2	3.2H	3.1	BH	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	(2.9)KS	[2.8]KS
13	2.6K	2.6K	CK	CK	CK	CK	CK	CK	3.3K	2.5K	CK	CK	GK	2.6K	[2.8]BK	3.0K	BK	BK	BK	2.8K	3.0K	JPK	3.1K	3.0K
14	2.7K	2.5K	2.7K	2.6KP	2.6KH	3.0P	3.2	[2.9]B	2.7	B	JP	3.0	2.8	C	C	2.9	3.0	B	BH	B	3.1	B	B	B
15	B	2.8P	2.7	[2.7]B	2.8	B	B	B	3.1P	2.9	3.0P	3.0	2.8	B	B	2.9P	3.1	B	C	B	3.0P	2.9P	2.7P	2.8P
16	2.5	2.9	B	B	B	3.0B	3.1	3.0PH	3.1	2.9	2.9H	2.8H	2.9	2.8	B	C	C	C	C	C	C	C	C	2.8P
17	B	B	2.8	2.7P	C	C	C	C	C	C	C	C	C	C	C	2.9	[2.8]B	2.7	B	B	B	B	2.5	2.6P
18	B	B	2.9	2.5	2.6P	JP	2.7	2.7	B	B	B	2.8	2.7	B	B	B	3.1	B	B	B	C	B	C	2.7
19	2.8	2.9P	2.8	2.7	2.6	C	C	C	C	C	C	C	C	C	C	C	C	C	B	B	B	2.9P	3.1P	2.8P
20	2.9P	[2.8]B	2.8	2.8	[2.8]B	2.9	2.6P	3.2	2.9P	2.6	2.9	2.9	2.8	2.8	2.9	2.9P	2.9	2.9	2.9	B	B	2.8P	2.8P	2.5
21	2.9	2.5	2.7	2.8P	2.6	2.8	3.0	3.0	2.8	2.9	2.9	2.8	2.9	2.6	2.8	2.7	2.8	B	B	B	B	B	JP	3.0
22	2.7	2.8	[2.7]S	2.7	2.8	2.6	2.9	3.1	3.0	2.8	2.7	2.7	2.7	2.7P	2.7	2.7	2.7	2.8	(2.8)B	2.8P	2.9P	2.8	2.9S	2.8
23	2.8P	2.6	2.8P	2.9	3.1	B	B	3.0	3.0P	2.9P	2.8	(3.2)BH	[3.0]C	2.8	2.8	2.8	2.9	2.8	2.7	[2.8]B	3.0	J	2.7	2.8
24	2.8P	2.9	2.8	J	JB	2.6H	[2.7]B	2.8	2.8	2.9	2.7	[2.7]C	2.8	2.7	2.8	2.8	2.9	3.0P	B	B	B	B	B	B
25	2.7	2.7	2.8	2.7	2.7	2.9	2.9	2.8	2.9	2.8	B	B	B	2.8	[2.8]B	2.8	2.7	2.6P	B	B	3.1	3.2	B	B
26	2.7	2.8	2.7	2.7	2.7*	2.9	2.9	3.0	3.0	[2.9]B	2.9	2.7P	[2.8]S	2.9	2.7	[2.8]S	2.9	2.9	B	B	BH	B	B	B
27	B	2.8	2.5	C	B	2.8B	J	2.6	2.8	2.7	2.6	2.7	C	C	C	C	C	C	B	B	B	B	2.9	2.7
28	2.7P	2.7	2.6	B	J	JB	B	B	B	2.8	J	2.7	2.5	2.6	2.6H	3.0	2.8	S	S	3.2S	[2.8]S	(2.5)S	2.9	2.9
29	3.0S	S	J	2.9	2.7	J	2.9	3.3H	2.6	2.8	2.7	2.8	2.6	2.6	2.7	2.7	2.7	2.6	2.8	2.8P	B	B	B	2.7P
30	2.7P	3.0N	2.6	J	2.5	2.5	2.7K	2.4K	2.6K	2.5K	[2.4]BK	2.4K	2.8K	2.7K	2.7K	JK	BK	BK	BK	CK	BK	BK	BK	BK
31																								
Median Value	2.8	2.8	2.8	2.8	2.7	2.8	2.9	3.0	2.9	2.8	2.9	2.8	2.8	2.8	2.8	2.9	2.9	2.8	3.0	2.8	3.0	2.8	2.9	2.8
Count	20	23	24	20	20	18	18	16	18	20	16	18	20	18	16	16	18	14	11	13	14	11	15	17

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

IONOSPHERIC DATA

Apr. 1949 | $f_{E\,min}$ | 135°E Mean Time | Wakkanai | Lat. 45°23.6'N | Long. 141°41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.2	E	E	E	E	1.3	C	C	3.3	3.5	[3.7]^{C}	3.9	3.9	3.9	3.6	3.4	3.0	2.4	1.9	1.1	1.1	1.1	1.2	1.5
2	1.1	1.1	1.1	E	E	1.4	2.2	[2.8]^{C}	3.4	[3.8]^{A}	4.2	4.1	[4.1]^{A}	4.1	4.2	3.4	3.5	2.5	1.9	1.4	1.2	1.2	1.4	1.3
3	1.1	E	E	E	E	1.4	2.3	3.0	C	C	C	C	C	C	C	C	3.0	2.4	1.8	1.2	E	1.2	1.4	E
4	E	E	E	E	E	1.5	2.7	2.9	3.4	4.0	C	C	C	C	C	C	3.1	C	C	C	C	C	C	C
5	C	C	1.1	A	E	C	2.6	3.1	3.8	3.7	4.1	[4.1]^{C}	4.0	4.2	3.7	3.5	3.2	2.7	2.2	1.5	1.5	1.4	1.3	1.1
6	1.2	1.2	1.2	A	E	1.5	2.6	2.9	3.4	[4.3]^{C}	5.2	3.8	4.0	4.0	3.7	3.9	[3.4]^{A}	2.8	1.9	1.3	1.3	1.3	1.2	1.2
7	E	E	E	C	C	C	C	C	C	C	3.8	C	C	C	C	C	C	2.8	2.4	1.2	E	E	E	C
8	C	C	C	C	C	C	C	C	C	C	C	C	5.1	5.2	3.9	3.5	3.2	3.0	2.2	1.3	[1.4]^{A}	1.4	1.4	1.2
9	A	A	A	A	A	A	A	3.2	3.7^{A}	[3.9]^{A}	4.1^{A}	[4.7]^{A}	5.3	5.4	5.9	6.0	3.9	3.0^{A}	2.6	A	A	1.2	[1.2]^{A}	1.2
10	[1.4]^{A}	1.5^{A}	1.2^{A}	1.1^{A}	E	1.5	2.4	3.1	3.6	[3.8]^{A}	4.0	4.0	4.1	4.2	4.1	(3.5)^{T}	3.3	2.8	2.0	[1.7]^{A}	1.3	1.2	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	1.8	[1.8]^{C}	1.7	1.4	1.6
13	1.4	1.3	C	C	C	C	C	3.1	3.4	4.2	C	C	4.4	4.0	4.0	4.2	4.1	3.2	2.0	2.0	2.0	2.0	2.0	2.0
14	2.0	1.4	1.5	1.5	1.4	2.0	2.7	3.3	3.5	4.0	4.2	4.1	4.3	4.2	[3.9]^{C}	3.5	3.2	2.7	2.4	1.9	2.2^{A}	1.9	1.7	1.9
15	1.6	1.5	1.5	1.5	1.5	1.5	2.5	3.1	3.3	4.1^{A}	4.0	3.9	4.0	3.9	[3.7]^{A}	3.5	3.1	4.0	2.0	1.6	1.5	1.5	1.6	1.6
16	1.6	1.6	2.0	1.5	1.6	1.7	3.2	3.1	3.4	4.0	4.1	3.9	4.0	4.0	4.0	C	C	C	C	C	C	C	C	1.5
17	1.5	1.5	1.4	1.5	1.4	2.2	C	C	C	C	C	C	C	C	C	3.5	3.0	2.7	2.2	1.9	1.7	1.7	1.6	1.6
18	1.6	1.6	1.6	1.4	1.4	2.2	2.9	3.3	4.0	4.0	4.0	4.0	4.1	4.2	4.2	4.0	3.7	3.0	3.3	2.6	[2.2]^{C}	1.8	[1.7]^{C}	1.5
19	1.5	1.6	1.6	1.6	1.6	C	C	C	C	C	C	C	C	C	C	C	C	C	2.3	2.2	2.1	1.8	1.9	1.9
20	1.7	1.6	1.5	1.5	1.5	2.1	2.5	3.2	3.7	(2.9)^{S}	3.6	4.1	4.1	3.6	3.5^{A}	A	A	3.0	2.2	1.7	1.7	1.6	1.6	1.5
21	1.6	1.3	1.5	1.5	1.4	2.0	3.0	3.5	3.7	4.0	4.0	4.2	4.1	4.2	4.3	4.2	3.3	2.8	2.2	1.6	1.5	1.7	1.6	1.6
22	1.6	1.4	1.4	1.4	1.4	2.1	2.8	3.2	3.5	4.2	4.1	4.1	4.3	4.1	4.2	4.1	3.4	3.0	2.3	2.0	1.8	1.5	1.5	1.5
23	1.5	1.5	1.5	1.5	1.4	2.2	3.2	3.5	3.4	4.0	3.8	3.9	[3.9]^{f}	3.8	4.2	3.8	3.5	[3.2]^{A}	2.8	1.5	1.6	1.6	1.6	1.6
24	1.6	1.5	1.5	1.5	1.5	1.8	2.7	3.2	4.0	4.0	4.2	[4.3]^{C}	4.4	4.4	4.1	3.9	3.8	A	A	1.6	A	A	1.5	1.5
25	1.5	1.6	1.4	1.3	1.4	1.9	2.7	3.5	3.8	5.1	4.5	4.0	4.1	4.2	4.2	4.1	3.3	3.0	A	A	A	A	1.6	1.5
26	1.5	1.5	1.4	1.5	1.6	2.2	2.8	3.5	3.9	4.0	[4.0]^{A}	4.0	4.2	4.0	4.0	3.8	3.5	A	A	A	1.6	1.7	1.6	1.6
27	1.5	1.5	1.4	1.5	1.5	1.7	2.5	3.5	3.7	4.1	4.3	4.5	C	C	C	C	C	C	1.9	1.9	A	A	A	1.4
28	1.3	1.3	[1.4]^{A}	1.4	1.4	2.0	2.9	3.9	3.9	3.8	3.9	5.1	4.0	[4.0]^{A}	4.0	[3.6]^{A}	3.2	3.2	A	A	2.0	[1.8]^{A}	1.5	[1.6]^{A}
29	1.6	1.5	[1.5]^{A}	1.4	1.6	2.3	2.9	3.4	3.8	3.8	3.8	4.0	4.0	4.2	4.0	4.0	[3.5]^{A}	3.0	2.4	[2.0]^{A}	1.5	1.6	1.6	1.5
30	1.5	1.5	A	A	1.5	2.3	2.9	3.5	A	A	4.3	4.2	4.1	[4.0]^{A}	3.9	[3.7]^{A}	3.4	A	A	C	1.9	1.5	1.5	1.5
31																								
Median Value	1.5	1.5	1.4	1.5	1.4	2.0	2.7	3.2	3.7	4.0	4.1	4.1	4.1	4.1	4.0	3.8	3.3	3.0	2.2	1.7	1.6	1.6	1.5	1.5
Count	25	25	24	21	24	22	21	23	22	22	22	21	22	22	22	21	23	21	21	22	23	24	25	26

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

W 10

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

IONOSPHERIC DATA

Apr 1949 | $f_{E\,min}$ | 135°E Mean Time | Wakkanai | Lat. 45°23.6'N | Long. 141°41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	1.5	G	1.7	E	C	C	1.4	1.6	[1.4]^{C}	1.2	1.9	1.4	1.3	1.2	E	E	E	G	G	1.7	1.6	G
2	G	1.1	G	G	G	1.1	1.3	[1.4]^{C}	1.4	1.2	1.3	1.3	1.4	1.4	1.2	1.6	1.3	E	1.6	G	G	G	G	G
3	G	G	G	G	E	G	1.3	1.5	C	C	C	C	C	C	C	C	1.6	1.1	1.3	G	G	G	B	G
4	G	G	G	E	G	E	E	1.4	1.4	1.8	C	C	C	C	C	C	1.2	C	C	C	C	C	C	C
5	C	C	G	E	G	C	1.3	1.3	1.3	1.5	1.5	[1.5]^{C}	1.4	1.4	1.4	1.4	1.3	1.3	1.1	G	G	G	C	G
6	G	G	1.8	1.1	1.3	1.3	1.3	1.3	1.3	[1.5]^{C}	1.7	1.3	2.1	1.4	1.5	1.3	E	1.3	1.3	G	G	G	G	G
7	G	G	1.5	C	C	C	C	C	C	C	1.5	C	C	C	C	C	C	E	E	1.1	G	G	G	C
8	C	C	C	C	C	C	C	C	C	C	C	C	1.9	1.3	1.3	E	E	1.2	1.4	G	1.4	B	G	B
9	1.3	1.1	E	E	E	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.8	1.5	2.1	2.0	1.4	1.4	1.4	1.2	G	1.2	G
10	E	1.3	E	E	E	1.4	1.3	2.1	E	1.5	1.5	2.4	2.8	2.0	2.9	(2.9)^{T}	1.5	1.2	1.3	1.2	B	B	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	G	C	G	G	G
13	G	G	C	C	C	C	C	2.2	2.2	1.9	C	C	2.3	2.4	2.3	2.3	2.3	2.3	2.0	2.0	G	G	G	G
14	G	G	G	G	G	B	2.3	1.9	2.1	2.0	2.0	2.3	2.3	2.2	[2.4]^{C}	2.5	2.2	1.6	1.8	[1.7]^{B}	1.6	1.7	G	G
15	G	G	G	G	G	G	1.5	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.1	1.7	1.8	B	G	G	G	G	G
16	G	G	G	G	G	B	1.8	1.6	1.6	2.2	2.2	2.6	2.9	2.9	B	C	C	C	C	C	C	C	C	G
17	G	G	G	G	G	B	C	C	C	C	C	C	C	C	C	1.8	1.6	1.6	1.6	1.6	G	G	G	G
18	G	G	G	G	G	B	1.5	1.5	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2	2.2	1.5	2.0	B	C	G	C	G
19	G	G	G	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C	1.5	1.6	1.6	G	G	G
20	G	G	G	G	G	B	2.0	1.6	2.1	1.9	[2.6]^{C}	3.3	2.3	3.5	2.9	2.9	1.7	2.0	B	B	G	G	G	G
21	G	G	1.5	2.0	G	1.6	1.6	1.5	1.7	1.7	1.9	1.9	2.3	1.9	2.1	1.5	1.5	1.5	1.5	1.5	G	G	G	G
22	G	G	G	G	1.4	1.6	1.5	1.7	1.7	1.9	2.2	2.2	2.2	2.4	2.2	2.1	1.5	1.5	1.5	1.5	1.5	G	G	G
23	G	G	G	G	G	1.5	1.5	1.5	1.6	1.7	1.7	1.9	[1.9]^{C}	1.8	2.0	1.8	1.8	1.5	1.5	1.5	B	G	G	G
24	G	G	G	G	G	1.6	1.6	1.6	1.9	2.0	2.0	[2.1]^{C}	2.1	2.1	1.9	1.8	1.8	1.5	1.5	1.5	1.6	1.5	G	G
25	B	1.4	1.4	G	G	1.4	1.6	1.6	1.6	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	1.8	1.6	1.4	1.6	1.5	G	G
26	G	G	1.4	1.5	1.4	1.5	1.6	1.6	1.6	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.0	2.0	1.6	[1.6]^{B}	1.5	B	G
27	1.5	G	1.6	G	G	1.7	1.6	1.7	1.5	1.7	1.7	2.1	C	C	C	C	C	C	B	1.5	1.5	1.5	1.6	1.4
28	1.3	1.3	1.3	G	1.4	1.5	1.5	[1.9]^{B}	2.3	1.5	2.2	2.1	2.2	2.2	2.2	2.2	1.6	1.6	1.6	1.5	1.6	1.6	1.5	1.4
29	1.6	G	1.3	G	1.3	G	2.2	2.0	1.7	1.6	1.6	1.7	1.8	1.7	1.7	1.8	1.6	1.6	1.5	1.6	1.6	G	1.5	G
30	1.5	G	1.5	1.5	1.5	1.7	1.6	1.6	1.6	1.9	2.2	2.2	2.1	2.0	1.9	2.0	1.5	1.6	1.4	[1.5]^{C}	1.5	G	G	G
31																								
Median Value	G	G	G	G	G	1.4	1.5	1.6	1.6	1.8	2.0	2.1	2.1	2.1	2.1	2.1	1.6	1.5	1.5	1.5	1.2	G	G	G
Count	25	26	26	25	25	18	22	23	23	23	22	21	22	22	21	22	24	24	23	25	23	25	23	25

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**

IONOSPHERIC DATA

Apr. 1949 | $f\bar{F}_2$ | 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	7.9	7.9	7.9	7.0	6.4	6.8	9.1	C	C	C	C	C	C	C	C	C	C	C	11.0	10.4	9.4	9.4	9.2	9.2
2	9.1	9.0	7.8	7.5	7.2	7.9	10.7	12.0	B	B	12.8^{P}	11.5	B	B	BH	12.3^{H}	12.3^{H}	12.0^{H}	11.5	10.7	9.7	9.5	9.1	9.3
3	8.8	7.6	8.0	7.0	7.0	7.1	10.2	12.0	12.8	12.8^{H}	12.5^{H}	B	BH	B	B	BH	12.0	11.5	11.5	10.7	10.3	9.4	(9.1)^{C}	9.8
4	8.6	9.0	8.2	7.7	7.8	8.3	10.8	12.0	12.4^{H}	12.9^{P}	14.0	13.6	13.0$^{P}_{H}$	13.4^{P}	13.5^{H}	13.0	11.5^{S}	12.0	11.5	10.2	9.6	9.2	8.4	8.6
5	8.2	8.2	7.5	7.4	6.4	6.9	9.4	11.8	12.7^{P}	(12.9)^{S}	(13.1)^{S}	S	B	B	12.8	12.5^{P}	12.5$^{P}_{H}$	11.7	11.4	10.1	9.2	6.3	8.3	8.4
6	8.4	8.4	8.4	7.7	6.8	7.4	9.9	11.6	12.5	13.2^{P}	13.5^{P}	12.8	12.8^{P}	12.5$^{J}_{P}$	12.2$^{J}_{P}$	12.0^{S}	11.7	11.6	11.2	9.9	9.2	9.6	C	C
7	C	C	C	7.7	7.3	7.9	10.2	C	C	C	C	12.0^{J}	12.6^{P}	12.6^{P}	12.3^{P}	12.2	12.1^{S}	11.7	11.1	10.1	9.9	9.8	9.9	9.3
8	9.0	8.6	8.2	7.6	7.6	8.6	9.1	C	C	C	C	C	C	C	C	C	C	C	11.1	10.5	10.8	10.0	9.4^{P}	10.5
9	8.3	8.8	8.0	7.6	7.3	7.9	9.5	10.9	11.5	11.8	11.6	12.9	12.0^{P}	13.0	BH	12.1$^{P}_{H}$	11.5	10.2	10.4	9.3	8.3	8.3	8.7	9.1
10	8.5	8.4	7.9	7.6^{V}	7.4^{F}	8.0^{F}	10.3	12.2	B	B	13.0^{P}	B	B	B	B	12.0	11.7^{S}	11.8^{S}	11.8	11.2	9.6	9.4	8.5^{S}	8.4
11	8.4	8.6	8.5	7.7	7.0	8.4	10.1	11.2^{F}	10.8	11.5	11.6^{H}	12.1^{H}	11.5	11.9	11.1	11.0	10.8^{H}	10.7	10.6	9.9	9.3^{H}	9.0	8.5	8.4
12	8.1^{H}	7.7	7.2	6.3	7.3	8.3	11.5	11.9^{J}	12.0	12.9^{B}	13.2^{B}	B	B	(13.6)$^{B}_{P}$	13.2^{B}	12.8	12.0^{H}	11.7^{H}	10.9	10.8	10.0	8.5	7.8	8.2^{H}
13	6.9	7.8	7.2^{K}	5.9$^{H}_{K}$	5.8^{K}	6.4^{K}	7.0^{K}	6.4^{K}	6.5^{K}	6.7^{K}	7.4^{K}	8.6$^{K}_{P}$	10.2^{K}	9.8^{K}	10.0^{K}	9.9$^{K}_{H}$	9.9^{K}	9.1^{K}	8.9^{K}	8.5^{K}	7.4^{K}	7.2^{K}	7.1^{K}	6.5^{K}
14	6.1^{K}	6.0^{K}	6.2^{K}	5.9^{K}	5.9^{K}	6.8	9.2	10.0	11.7^{H}	11.7	11.9	11.8$^{J}_{H}$	(12.1)^{B}	12.4^{P}	12.3$^{P}_{H}$	C	C	11 5	11.2	10.2	9.2	8.7	8.7^{P}	8.6
15	8.5	8.1^{H}	7.9	7.7	7.2	(7.5)^{C}	8.2	9.8^{H}	C	C	C	C	C	C	C	C	C	C	11.6	10.4^{S}	9.3	9.3	9.3	9.3
16	9.2	9.0	9.1	8.8	8.0	8.8	9.6	10.7	11.6	12.0	12.4	12.1^{B}	13.2	12.8^{P}	13.2	13.0	11.9^{H}	11.8^{H}	10.9	10.7	9.8	9.2^{S}	8.6^{S}	8.0
17	8.6	8.6	8.7	8.1	7.8	8.8	10.4	11.5	13.0$^{P}_{H}$	8 H	B	B	12.8	12.4	12.6	B	B	12.5	11.8	10.6	9.3	9.1	9.0	8.5
18	8.8	9.4	8.5	7.3	7.7	8.9	10.5	11.5	12.5	12.4	12.8	(12.8)^{C}	12.8^{J}	12.9	12.2^{J}	12.1^{P}	B	B	11.2	10.2	8.6^{H}	8.9	9.3	9.0
19	9.0	7.3	7.4	7.3	7.3	8.2	10.5	11.2^{H}	12.2^{S}	12.1^{S}	12.0	12.2^{S}	S	S	S	S	12.0	11.8	11.6	10.2	9.2	9.2^{H}	9.2^{H}	9.6
20	9.2	8.7	8.8	7.9	7.6	8.5	9.8	10.7	11.8	12.0	12.3	12.8$^{P}_{H}$	B	C	12.3^{P}	12.7^{P}	13.0^{P}	12.2	11.9	10.7	9.0	8.2	8.6	8.9
21	8.6	8.7	8.2	7.8	7.3	8.8	10.2	10.5	11.1^{H}	(11.2)^{H}	11.2	B	B	B	B	11.7^{J}	(11.6)^{B}	11.5	11.3	10.8^{P}	C	C	9.6	9.8
22	9.8	9.7	9.4	8.2	7.3	8.4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	11.6	B	B	B	B	BH	12.1^{P}	12.1	12.6$^{J}_{P}$	11.8	(11.7)^{B}	11.6^{J}	10.6	9.4	9.4	9.3	9.2
24	9.8	9.5	8.5	8.4	7.5	8.1	9.7^{P}	12.0^{P}	B	B	B	C	C	C	C	C	C	10.6	10.0^{S}	9.5^{J}	8.5	8.7	8.4	9.0
25	8.9	8.4	8.5	7.6	7.3	8.7	10.4	11.3	11.5	12.1	12.6	13.4	13.3	13.2^{J}	13.0	12.7	12.8	12.4	(11.5)^{S}	10.5	9.4	9.3	9.5	9.2
26	8.8	8.7	8.3	8.4	7.9	8.4	10.1	10.3	13.0^{B}	12.6	8	8	8	8	8	12.4$^{J}_{P}$	11.9	11.2	11.2	10.5	10.1	9.2	9.4	9.6
27	9.7	9.3	8.6	7.6	7.9	9.3	11.4	12.2^{J}	11.9	12.3	13.0	C	B	B	B	12.1	12.1	12.0	11.5	10.6	9.3	9.0	9.1	8.6
28	8.4	8.5	7.8	7.6	7.0	8.1	9.6	10.7	11.7	11.7	B	B	B	12.2	11.9	11.7	11.3	10.8	10.8	10.0	8.6	8.4	8.3	8.6
29	8.0	8.7	7.8	6.8	6.7	8.2	9.5	C	C	C	C	C	C	C	C	C	C	C	C	10.7	9.7	10.0	9.6	9.7
30	9.6	9.5	8.8	7.0	6.6	8.1	8.6	8.4^{K}	8.2^{K}	8.9$^{K}_{J}$	9.4^{K}	10.5^{K}	11.1^{K}	11.4	11.5	11.1	11.0	10.8	10.6	9.4	7.8	7.8	7.7	7.3
31																								
Median Value	8.6	8.6	8.2	7.6	7.3	8.2	10.0	11.3	11.9	12.1	12.5	12.2	12.7	12.5	12.3	12.2	11.9	11.7	11.2	10.4	9.3	9.2	9.1	9.0
Count	28	28	28	29	29	29	28	25	20	19	19	14	12	15	16	20	21	24	28	29	28	28	28	28

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

IONOSPHERIC DATA

Apr. 1949 | $h_P F_2$ | 135°E Mean Time | Fukaura | Lat. 40°36.6'N | Long 139°54.1'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	340	360	350	350	390	390	300	C	C	C	C	C	C	C	C	C	C	C	320	330	360	370	370	420
2	360	370	380	380	400	370	300	300	B	B	320P	350	B	B	BH	340H	380H	340H	320	320	340	340	340	360
3	350	320	310	340	400	390	300	300	310	300H	310H	B	BH	B	BH	BH	340	330	320	320	320	340	(370)C	400
4	370	360	330	450	440	370	330	300	320H	330P	350	370	350PH	390P	360H	360	320S	340	330	350	350	380	340	350
5	390	350	370	440	400	410	330	330P	310F	(320)S	(320)S	S	B	B	380	380P	350PH	330	350	310	340	320	410	410
6	360	350	320	360	400	410	320	320	320	320P	340P	340	370P	370JP	360J	360S	370	360	330	330	340	360	C	C
7	C	C	C	370	400	380	310	C	C	C	C	340JP	350P	320P	350P	360P	370S	340	320	360	370	380	370	370
8	380	400	420	380	390	310	320	C	C	C	C	C	C	C	C	C	C	C	340	400	390	440	480P	380
9	440	410	390	430	450	430	350	360	310	310	300	350	310P	350	(340)BH	330PH	350P	340	320	330	360	400	370	360
10	390	380	360	390V	440F	440F	340	310	B	B	340P	B	B	B	B	380	370S	350S	320	340	350	400	380S	420
11	410	400	410	440	480	440	340	330	320	330	340	380	370	380	370	350	330	320	310	380	330	390	370	420
12	410	410	420	440	410	400	330	(320)J	300	340	340	B	B	370	380	380	340	340	320	330	320	330	420	420
13	400	420	330NK	510HK	490K	470K	430K	540K	530K	460K	500K	420K	400K	380K	380K	360K	310K	320K	330K	330H	340K	400K	410K	420K
14	470K	450K	420K	430K	430K	410	310	330	320	300	310	360J	B	350	350	C	C	330	340	310	340	370	410	410
15	400	400	370	360	360	(370)C	370	320	C	C	C	C	C	C	C	C	C	C	330	320	360	390	400	400
16	390	380	360	370	340	360	310	300	330	320	380	360B	370	380P	390	380	360H	340H	300	320	310	340S	410S	400
17	410	400	380	380	400	370	300	330	330P	BH	B	B	330	370	370	B	B	330	320	320	330	340	400	390
18	400	350	310	400	410	390	310	320	320	310	360	(360)C	360J	360	(360)J	360P	B	B	300	300	360H	400	380	380
19	380	340	340	330	350	380	330	310H	300S	320S	360	380S	S	S	S	S	340	340	330	320	330	400	370	380
20	380	400	350	390	390	410	310	310	300	310	330	360	B	C	370P	350	340	330	320	300	380	390	370	380
21	400	370	340	370	400	350	310	300	310H	(310)C	300	B	B	B	B	370J	(360)B	350	330	330P	C	C	400	380
22	430	350	330	310	410	340	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	300	B	B	B	B	BH	390P	380	400P	350	(360)B	370J	330	340	380	410	430
24	380	350	400	390	420	470	430P	350P	B	B	B	C	C	C	C	C	C	340	310J	380J	400	400	400	410
25	400	400	370	400	420	420	320	340	340	350	390	390	370	380J	390	370	340	370	(350)C	330	390	400	400	410
26	410	380	370	380	370	320	280	300	320B	350	B	B	B	B	B	390PJ	350	330	360	340	350	390	390	400
27	370	330	360	390	400	400	330	340J	350	380	400	C	B	B	B	390	360	340	350	350	350	410	400	420
28	410	400	410	410	430	400	360	380	380	370	B	B	B	390	370	380	350	350	340	340	400	420	400	410
29	390	360	340	370	430	360	300	C	C	C	C	C	C	C	C	C	C	C	C	360	390	400	410	420
30	420	390	340	430	480	410	340	360K	430K	430K	420K	430K	390K	400	400	380	350	350	310	310	350	370	370	430
31																								
Median Value	400	380	360	390	400	390	320	320	320	320	340	360	370	380	370	370	350	340	330	330	350	390	400	410
Count	28	28	28	29	29	29	28	25	20	19	19	14	11	15	17	20	21	24	28	29	28	28	28	28

Sweep 40 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

Apr. 1949 | $h'F_2$ | 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	290	290	260	220	250	270	250	240	C	C	C	C	C	C	C	C	C	C	250	250	230	260	280	290
2	280	280	250	240	270	290	230	230	230	220	250	250	270	280	220H	240H	220H	240H	250	250	240	250	250	270
3	290	240	260	260	270	300	240	250	230	220H	220H	280	230H	280	280	220H	260	240	250	250	260	240	(270)L	300
4	300	280	260	300	300	310	230	230	230H	240	240	240	250H	300	250H	250	270	260	250	250	260	280	290	280
5	300	300	300	290	300	310	250	230	240	250	260	270	240	270	280	230	240H	240	250	230	240	240	300	300
6	290	280	260	230	230	310	240	230	240	260	230	260	270	240	250	250	240	240	240	240	250	280	C	C
7	C	C	C	250	280	290	210	250	C	C	C	300	280	280	280	300	300	260	250	240	(300)A	(290)A	270	280
8	300	300	300	290	260	280	250	C	C	C	C	C	C	C	C	C	C	C	260	300	(300)A	300	330	290
9	300	300	(230)A	300	340	320	270	300	230	270	260	240	260	280	240H	230H	250	250	250	250	260	270	300	300
10	290	280	280	A	A	310	250	240	260	280	280	290	300	300	260	260	260	270	280	250	(280)A	260A	280	300
11	310	320	300	300	350	330	250	270	310	310	250H	260H	350	300	290	300	250H	270	270	280	250H	260	270	290
12	300H	300	300	290	300	280	280	260	250	310	300	300	250	250	240	250	250H	250H	250	260	270	250	(250)B	300
13	300	320	230K	310K	400K	350K	400K	G K	G K	460K	500K	410K	340K	330K	250K	250K	240K	240K	250K	270K	280K	270K	280K	260K
14	320K	320K	320K	290K	290K	300	220	260	260H	250	280	250H	310	280	270H	C	C	250	280	260	260	280	290	290
15	300	280H	290	270	290	(280)C	260	240H	C	C	C	C	C	C	C	C	C	C	260	240	240	270	280	290
16	300	300	280	260	250	250	230	240	230	250	250	250	300	340	280	320	250H	260H	270	250	250	250	290	300
17	310	300	300	290	280	270	230	240	240H	230H	250	290	280	280	280	280	280	280	250	250	260	270	280	290
18	300	280	240	260	300	300	230	230	250	240	280	(300)C	310	290	290	250	270	260	270	240	240H	300A	290	290
19	270	270	280	280	280	290	230	220H	250	250	290	300	300	300	290	280	250	250	270	260	280	280H	300H	300
20	290	300	290	260	270	250	270	280	250	240	260	300H	320	(330)C	340	300	270	250	250	240	230	290	300	300
21	300	290	280	260	260	260	240	240	230H	(240)C	240	280	310	320	320	280	260	290	260	260	C	C	290	300
22	300	280	280	240	280	270	260	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	270	280	310	300	270	300H	300	330	260	260	250	250	230A	220A	280	300	310
24	300	260	280	270	300	280	250	240	290	280	300	C	C	C	C	C	C	290A	280A	(280)A	280	290	310	310
25	300	280	280	250	280	260	240	240	240	280	300	320	340	340	300	320	290	260	240A	260	240	300A	300A	290
26	290	290	290	290	280	270	250	250	260	250	300	300	310	350	310	310	300	290	270	(290)A	310A	290A	310A	310A
27	290	280	280	280	310	280	240	230	260	310	330	(340)C	350	350	360	330	300	320A	280	270	310	250	280	290
28	(300)C	300	290	290	290	270	260	270	240	260	300	290	340	360	280	320	300	290	300A	250A	270	300	320A	320
29	310	280	260	250	320	280	260	C	C	C	C	C	C	C	C	C	C	C	C	290	290A	290	290	320
30	310A	290	280	300	380	260	240	250K	370K	370K	410K	400K	350K	350	370	370	280	280	280	270	240	290	300	320
31																								
Median Value	300	290	280	280	290	280	250	240	250	260	280	290	300	300	280	280	260	260	260	250	260	280	290	300
Count	28	28	28	28	28	29	29	27	24	24	24	24	24	24	24	23	23	25	28	29	28	28	28	28

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

IONOSPHERIC DATA

Apr 1949 | f_{F_1} | 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	Q	Q	C	C	C	C	C	C	C	C	C	C	Q					
2						Q	Q	Q	Q	Q	L	L	L	L	Q	Q	Q	Q	Q					
3						Q	Q	Q	Q	Q	Q	L	Q	L	L	Q	L	Q	Q					
4						Q	Q	Q	Q	Q	L	Q	L	L	L	Q	L	Q	Q					
5						Q	Q	Q	Q	Q	L	L	Q	L	L	Q	Q	Q	Q					
6						Q	Q	Q	Q	L	Q	Q	L	Q	Q	Q	Q	Q	Q					
7						Q	Q	Q	C	C	C	L	L	L	Q	Q	Q	Q	Q					
8						L	Q	C	C	C	C	C	C	C	C	C	C	C	Q					
9						Q	Q	Q	Q	A	Q	Q	L	L	Q	Q	L	Q	Q					
10						Q	Q	Q	Q	Q	Q	L	Q	5.7	L	Q	Q	Q	Q					
11						Q	Q	Q	Q	Q	(5.2)B	L	L	L	L	L	Q	Q	Q					
12						Q	L	L	Q	Q	Q	L	B	Q	Q	Q	Q	Q	Q					
13						Q	L	5.0	4.8	5.1	5.7	6.2	L	L	Q	Q	Q	Q	Q					
14						Q	Q	L	Q	Q	L	L	L	L	L	C	C	Q	L					
15						C	Q	Q	C	C	C	C	C	C	C	C	C	C	Q					
16						Q	Q	Q	Q	L	Q	Q	L	Q	L	L	Q	A	Q					
17						Q	Q	Q	Q	Q	L	L	L	L	5.1	L	L	4.3	Q					
18						Q	Q	Q	Q	Q	L	C	L	L	L	Q	Q	Q	Q					
19						Q	Q	Q	L	Q	L	Q	Q	Q	L	Q	Q	Q	Q					
20						Q	Q	L	Q	Q	Q	Q	Q	C	Q	Q	L	Q	Q					
21						Q	Q	Q	Q	C	Q	L	Q	Q	L	L	Q	L	Q					
22						Q	Q	C	C	C	C	C	C	C	C	C	C	C	C					
23						C	C	L	Q	Q	Q	L	Q	Q	5.6	Q	Q	Q	Q					
24						Q	Q	Q	Q	L	L	C	C	C	C	C	A	A	A					
25						Q	Q	Q	L	L	L	L	L	Q	L	5.8	L	Q	Q					
26						Q	Q	Q	Q	Q	L	L	L	L	L	L	Q	L	Q					
27						Q	Q	Q	Q	Q	L	C	L	Q	L	L	Q	A	A					
28						Q	Q	L	Q	L	L	Q	A	A	Q	L	Q	Q	Q					
29						Q	L	C	C	C	C	C	C	C	C	C	C	C	C	L				
30						Q	Q	Q	L	A	5.3	A	A	5.0	5.0	Q	L	L	Q					
31																								
Median Value								–	–	–	–	–		–	–	–								
Count								1	1	1	3	1		2	3	1								

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | h'_F | 135°E Mean Time | Fukaura | Lat 40°36.6'N | Long 139°54.1'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						Q	Q	Q	C	C	C	C	C	C	C	C	C	C	Q					
2						Q	Q	Q	Q	Q	230	230	210	220	Q	Q	Q	Q	Q					
3						Q	Q	Q	Q	Q	Q	230	Q	220	220	Q	240	Q	Q					
4						Q	Q	Q	Q	Q	210	Q	220	220	220	Q	240	Q	Q					
5						Q	Q	Q	Q	Q	220	230	Q	220	230	Q	Q	Q	Q					
6						Q	Q	Q	Q	230	Q	Q	240	Q	Q	Q	Q	Q	Q					
7						Q	Q	Q	C	C	C	220	260	A	Q	Q	Q	Q	Q					
8						240	Q	C	C	C	C	C	C	C	C	C	C	C	Q					
9						Q	Q	Q	Q	A	Q	Q	230	240	Q	Q	230	Q	Q					
10						Q	Q	Q	Q	Q	Q	220	Q	220	B	Q	Q	Q	Q					
11						Q	Q	Q	Q	Q	B	250	(210)	250	230	200	Q	Q	Q					
12						Q	240	240	Q	Q	Q	240	B	Q	Q	Q	Q	Q	Q					
13						Q	280	280	250	230	260	B	230	B	Q	Q	Q	Q	Q					
14						Q	Q	240	Q	Q	230	220	220	220	230	C	C	Q	260					
15						C	Q	Q	C	C	C	C	C	C	C	C	C	C	Q					
16						Q	Q	Q	Q	230	Q	Q	250	Q	240	240	Q	A	Q					
17						Q	Q	Q	Q	Q	220	200	220	220	220	230	230	260	Q					
18						Q	Q	Q	Q	Q	220	(220)C	220	220	250	Q	Q	Q	Q					
19						Q	Q	Q	230	Q	230	Q	Q	Q	240	Q	Q	Q	Q					
20						Q	Q	250	Q	Q	Q	Q	Q	C	Q	Q	250	Q	Q					
21						Q	Q	Q	Q	C	Q	230	Q	Q	260	250	Q	260	Q					
22						Q	Q	C	C	C	C	C	C	C	C	C	C	C	C					
23						C	C	230	Q	Q	Q	240	Q	Q	250	Q	Q	Q	Q					
24						Q	Q	Q	Q	230	220	C	C	C	C	C	A	A	A					
25						Q	Q	Q	220	220	250	250	260	Q	A	250	250	Q	Q					
26						Q	Q	Q	Q	Q	230	B	220	270	250	250	Q	250	Q					
27						Q	Q	Q	Q	Q	240	(250)C	260	Q	230	250	Q	A	A					
28						Q	Q	250	Q	220	210	Q	A	A	Q	240	Q	Q	Q					
29						Q	240	C	C	C	C	C	C	C	C	C	C	C	C	250				
30						Q	Q	Q	A	A	240	A	A	220	230	Q	260	260	Q					
31																								
Median Value						–	–	250	–	–	230	230	230	230	220	230	250	240	–	–	–			
Count						1	3	6	3	6	14	14	14	12	14	8	7	4	1	1				

Sweep 1.0 Mc to 17.0 Mc in 15 min. Manual

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

IONOSPHERIC DATA

Apr. 1949 | f_E | 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						E	2.0	A	C	C	C	C	C	C	C	C	C	C	1.7					
2						1.2	1.9	2.7	3.2	3.5	3.8	A	A	B	B	B	3.0	A	A					
3						E	2.0	2.6	(3.1)A	3.6	B	B	B	B	A	A	3.3	2.6	1.8					
4						1.4	2.2	2.6	3.1	3.4	3.3	3.3	B	B	3.6	3.2	3.3	2.4	2.0					
5						E	E	A	3.4	B	B	B	B	3.8	(3.7)A	3.6	3.5	2.7	1.9					
6						1.4	2.3	2.9	3.2	3.4	(3.6)B	3.7	B	3.4	3.5	3.2J	3.0	(2.5)A	1.9					
7						(1.3)B	2.2	(3.0)A	C	C	C	A	3.4	A	B	A	3.2	2.4	(2.2)B					
8						1.8	2.1	C	C	C	C	C	C	C	C	C	C	C	1.9					
9						1.6	2.1	2.6	3.0	A	A	A	B	B	B	A	3.3	(2.8)A	2.2					
10						(1.6)B	2.4	3.0	3.1	B	B	A	B	3.8	(3.7)B	3.5	(3.2)A	2.9	1.8					
11						1.6	2.0H	B	B	3.6	(3.2)B	3.2	(3.3)B	(3.3)A	3.3	3.4	3.3	2.7	A					
12						E	1.9	2.9	3.2	3.3	3.7	(3.7)B	(3.8)B	(3.8)B	(3.7)A	3.5	3.4	2.7	2.3					
13						1.6	2.2	2.8	3.2	3.6	3.5	3.3B	(3.3)B	(3.4)B	3.5	3.2	3.0	2.5	2.2					
14						E	2.0H	(2.5)A	3.0	3.6	(3.7)B	3.8J	B	B	B	C	C	2.6	2.1					
15						C	E	2.3	C	C	C	C	C	C	C	C	C	C	2.0					
16						1.6	2.2	2.9	3.4	(3.5)B	3.6	B	B	3.8	3.5	3.3	3.2	A	A					
17						1.6	2.3	3.0H	3.3	3.5	3.9	B	B	4.0	A	B	A	2.6	1.9					
18						1.5	2.5	2.9	3.3J	3.6	3.9	C	B	B	3.4	3.5	3.2	3.0	2.0					
19						B	2.2	2.8	3.2J	(3.4)B	3.6	B	B	B	B	A	A	2.6	1.9					
20						1.5J	2.3J	2.8	3.0J	(3.3)A	3.6	B	B	C	3.3	3.7	(3.3)A	2.8	1.7					
21						1.9	2.4	3.0	3.5	C	A	A	B	B	3.4	3.3	3.0J	2.6	A					
22						1.7H	2.2H	C	C	C	C	C	C	C	C	C	C	C	C					
23						C	C	3.3	3.3	3.6	3.5	4.0	4.2	B	A	3.6	3.2	2.8	1.9					
24						1.9	2.5H	3.2	3.5	(3.8)A	4.0	C	C	C	C	C	A	A	A					
25						1.8	2.5	3.1	3.2	3.3	B	B	4.1	4.0	(3.8)A	3.6	3.3	2.8	1.8					
26						A	A	A	3.3	3.3	3.5	B	B	4.0J	(3.7)B	3.4	3.4	2.7	2.1					
27						2.0	2.6	3.3	3.9	4.0	4.0	C	B	B	A	3.8	A	A	A					
28						1.8	2.8	3.2	3.5	(3.4)B	3.3	A	A	A	A	3.6	(3.2)A	2.8	B					
29						A	2.2H	C	C	C	C	C	C	C	C	C	C	C	C					
30					1.2	2.2	2.7	3.1H	3.3	3.4	3.5	(3.4)A	3.3	3.4	3.5	A	A	A	A					
31																								
Median Value					–	1.6	2.2	2.9	3.2	3.5	3.6	3.6	3.4	3.8	3.5	3.5	3.2	2.7	1.9					
Count					1	25	28	23	23	20	18	8	7	11	14	16	19	20	20					

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

IONOSPHERIC DATA

Apr 1949 | h'E | 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						E	110	A	C	C	C	C	C	C	C	C	C	C	120					
2						E	110	120	100	110	110	A	A	110	110	100	110	A	A					
3						E	130	110	(110)A	110	110	110	110	110	A	A	110	110	110					
4						E	A	120	110	110	100	100	100	110	100	100	110	110	B					
5						E	E	A	110	(110)B	(110)B	(110)B	(110)B	110	(110)A	100	110	110	B					
6						E	(110)S	(110)A	110	110	(110)B	110	110	110	110	110	110	(110)A	110					
7						B	110	A	C	C	C	A	110	(110)A	(110)B	(110)A	110	110	B					
8						120	110	C	C	C	C	C	C	C	C	C	C	C	A					
9						110	120	110	100	A	A	A	(110)B	(110)B	(110)B	(120)A	120	A	A					
10						A	A	110	110	(110)B	(100)B	(110)A	(110)B	100	100	100	(110)A	110	120					
11						B	BH	B	100	110	90	100	110	110	110	100	110	110	A					
12						E	120	110	110	110	110	110	110	110	100	110	100	100	110					
13						B	150	110	110	100	110	110	110	110	110	110	100	110	100					
14						E	110H	(110)A	110	110	110	110	110	110	110	C	C	100	100					
15						C	E	120	C	C	C	C	C	C	C	C	C	C	120					
16						B	120	110	110	110	110	110	110	110	110	110	110	A	A					
17						B	120	110H	110	110	110	110	110	110	(110)A	110	(110)A	110	120					
18						B	120	120	110	110	110	(110)C	110	(110)B	110	110	110	110	130					
19						B	110	110	110	110	110	110	110	110	110	A	A	110	110					
20						B	110	120	120	(120)A	120	(120)B	120	(120)C	120	110	(110)A	110	B					
21						B	120	110	110	C	A	A	110	110	110	100	100	100	A					
22						B	110H	C	C	C	C	C	C	C	C	C	C	C	C					
23						C	C	110	110	110	110	110	110	110	110	110	110	110	110					
24						B	110	110	110	(110)A	110	C	C	C	C	C	A	A	A					
25						B	120	120	110	100	120	110	100	100	(110)A	120	100	110	B					
26						A	A	A	110	110	110	110	110	110	110	110	110	110	110					
27						120	110	110	120	120	120	(120)C	120	120	(120)F	120	A	A	A					
28						110	120	110	110	110	110	A	A	A	A	110	(110)A	110	B					
29						110	110H	C	C	C	C	C	C	C	C	C	C	C	C					
30					110	130	110	110H	110	110	110	(110)A	110	110	110	A	A	A	A					
31																								
Median Value					-	E	110	110	110	110	110	110	110	110	110	110	110	110	110					
Count					1	14	25	22	24	22	22	19	22	23	22	20	20	19	13					

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

IONOSPHERIC DATA

Apr. 1949 | fEs | 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	G	G	G	G	1.4	2.1	G	3.2	C	C	C	C	C	C	C	C	C	C	2.5	3.4	G	2.2	G	G
2	G	G	1.7	G	G	G	G	G	G	4.0	G	3.8 Y	4.0 Y	B	B	B	3.2 Y	3.0	1.8	G	2.0	G	G	G
3	G	G	2.4	G	G	G	G	3.2 Y	3.2	G	B	B	B	B	3.6	3.5	G	3.2	3.2	2.6	2.4	2.4	C	G
4	G	G	G	G	G	1.9	2.5	3.3 Y	G	G	4.2	G	B	B	4.0	G	3.7	3.0	3.0 Y	G	2.3	2.6	3.0	2.4
5	2.5	4.8	G	G	G	(2.0) B	(3.0) B	3.2	G	B	B	B	B	G	B	G	G	3.4	G	G	G	G	G	G
6	G	G	G	G	G	G	G	3.2	G	3.9 Y	B	B	B	B	B	3.9	4.0	3.2	2.9	G	2.0	G	C	C
7	C	C	C	G	G	2.4	G	G	C	C	C	3.7	B	3.8	B	(4.4) S	8.4	G	3.1	2.4	4.4	5.0	G	G
8	G	G	G	G	G	G	G	C	C	C	C	C	C	C	C	C	C	C	3.3	3.4	3.8	2.9	2.5	2.4
9	2.2	3.4	3.3	3.2	3.6	G	G	G	6.3	6.2	(4.0) B	(3.8) B	B	B	B	3.7	G	3.0	G	1.8	2.0	2.8	2.8	3.0
10	2.6	2.2	2.6	6.2	3.4	2.4	3.6	3.4	G	B	B	3.8	B	B	B	G	3.8	G	3.2	2.6	3.2	2.8	2.2	G
11	G	G	2.0	G	2.2	1.9	2.4	B	B	B	B	B	B	3.9 B	G	G	G	3.0	3.6	4.6	3.4	3.0	G	G
12	G	G	G	G	G	1.6	G	B	G	B	B	B	B	B	4.6	G	G	3.1	3.0	3.0	2.6	2.2	G	G
13	G	G	G	B	B	B	3.3	3.2	4.4	G	B	B	B	B	B	B	G	G	G	2.2	2.6	2.3	2.3	G
14	1.6	1.6	G	G	G	G	B	B	G	G	B	G	B	B	B	C	C	4.0	3.6	2.2	1.8	G	G	G
15	G	G	G	G	2.2	C	G	G	C	C	C	C	C	C	C	C	C	C	3.0	3.6	3.1	2.2	G	G
16	G	2.2	G	G	G	4.3 Y	G	G	3.7	3.8	G	B	B	G	G	G	G	2.8	3.8	2.8	2.8	3.0	1.9	2.3
17	3.0	G	G	2.2	1.9	1.9	G	3.2	3.7	4.0	G	B	B	G	3.9	B	3.5	G	3.8	3.0	2.8	1.8	G	G
18	G	2.0	G	G	G	B	3.5	3.5	G	5.0	5.0 Y	C	B	6.1 Y	3.7	G	G	G	2.2	3.0	3.0	4.0	2.4	3.0
19	G	G	G	2.0	2.0	2.2	B	3.0	3.6	B	B	B	B	B	B	3.4	3.5	G	2.5	3.4	2.8	3.0	3.0	2.4
20	3.0	G	2.4	2.4	1.8	B	3.3	3.3	G	3.7	7.6 Y	B	B	C	5.3	5.1	3.5	G	G	2.2	2.1	3.3	G	2.1
21	G	G	G	G	G	2.6	3.6	G	G	C	3.8	4.8	B	B	B	B	G	4.5	3.2	3.6	C	C	G	G
22	G	3.3	2.0	G	G	3.0 F	G	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	G	4.0	4.0	B	B	B	B	B	G	3.8	3.0	G	5.0	3.4	2.8	2.4	1.8
24	2.2	G	G	G	G	3.1	3.4	3.4 F	4.7	3.8	4.4	C	C	C	C	C	C	7.4	5.8	8.6	6.4	G	2.6	G
25	2.2	G	G	G	G	G	3.3	4.4	4.6	G	B	B	B	G	4.2	G	G	4.6	4.0	4.0	3.0	3.4	3.8	2.4
26	G	G	G	G	G	3.0	3.8	4.0	4.3	B	4.4	B	B	B	B	B	5.1	4.6	G	6.8	5.0	5.0	6.0	4.8
27	3.4	2.6	2.8	2.8	2.7	3.0	3.2	G	4.3	4.6	4.5	C	B	B	4.2	4.0	6.2	8.4	9.0	4.4	6.2	2.4	2.1	6.4
28	5.0	5.8	3.2	3.1	2.4	G	3.3	B	B	B	4.1	B	7.4	7.0	6.6	4.6	4.0	G	6.4	4.8	3.2	2.6	6.4	G
29	2.2	2.8	3.0	2.4	2.4	B	G	C	C	C	C	C	C	C	C	C	C	C	C	4.8	6.0	3.8	2.8	G
30	4.2	G	2.2	2.6	G	G	G	G	4.9	6.7	5.7 Y	6.0	5.0	4.8	5.0	4.8	3.4	3.2	4.6	5.0	3.0	3.0	3.0	3.2
31																								
Median Value	G	G	G	G	G	1.9	G	3.2	3.4	3.9	4.2	3.8	–	3.8	4.1	G	3.4	3.0	3.2	3.0	2.9	2.7	2.2	G
Count	28	28	28	28	28	24	27	23	22	16	13	8	3	9	12	18	23	25	28	29	28	28	27	28

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

IONOSPHERIC DATA

Apr. 1949 | F_2–M3000 | 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	2.9	2.8	2.8	2.7	2.6	2.6	3.1	C	C	C	C	C	C	C	C	C	C	C	2.9	2.9	2.8	2.7	2.7	2.6
2	2.8	2.7	2.7	2.7	2.6	2.7	3.0	3.1	B	B	3.0 P	3.1	B	B	BH	2.9 H	2.8 H	2.8 H	3.0	2.9	2.9	2.9	2.8	2.8
3	2.8	3.0	3.0	2.8	2.5	2.6	3.1	3.1	3.1	3.2 H	3.1 H	B	BH	B	BH	BH	2.8	2.9	3.0	3.0	2.9	2.8	(2.7) C	2.7
4	2.7	2.8	2.9	2.4	2.4	2.7	2.9	3.0	3.1	3.0	2.9	2.8	2.9 PH	2.9	2.8	2.8	3.0 S	2.8	2.8	2.7	2.9	2.7	2.9	2.9
5	2.7	2.8	2.7	2.4	2.6	2.6	2.9	2.9 P	3.0 P	(3.0) S	(3.0) S	S	B	B	2.7	2.8 P	2.8 PH	3.0	2.9	3.1	2.9	2.9	2.7	2.7
6	2.8	2.9	2.9	2.7	2.6	2.6	2.9	3.1	3.0	3.1 P	2.9 P	2.9	2.8	JP	JP	2.8 S	2.8	2.8	2.9	2.9	2.8	2.8	C	C
7	C	C	C	2.7	2.6	2.7	3.0	C	C	C	C	JP	3.1 P	3.1 P	2.9 P	2.9	2.8 S	2.9	2.9	2.7	2.7	2.7	2.7	2.7
8	2.7	2.6	2.5	2.6	2.6	3.1	2.9	C	C	C	C	C	C	C	C	C	C	C	2.8	2.5	2.6	2.5	2.3 P	2.7
9	2.5	2.5	2.6	2.5	2.4	2.5	2.7	2.8	3.0	3.0	3.1	2.8	3.1 P	2.8	(2.8) BH	2.9 PH	2.8 P	2.8	2.9	2.9	2.7	2.6	2.8	2.8
10	2.6	2.7	2.7	2.6 V	2.5 F	2.4 F	2.8	3.1	B	B	2.8 P	B	B	B	B	2.8	2.9 S	3.0	3.0	2.8	2.8	2.6	2.8 S	2.5
11	2.5	2.7	2.5	2.4	2.4	2.4	2.8	2.9 F	2.9	2.8	2.7 H	2.8 H	2.7	2.8	2.7	2.8	2.8 H	2.9	2.9	2.8	2.9 H	2.6	2.7	2.5
12	2.7 H	2.7	2.6	2.5	2.6	2.6	2.9	J	3.0	2.8 B	2.9 B	B	B	(2.8) BP	2.8 B	2.8	2.8 H	2.9 H	2.9	2.9	3.0	2.9	2.6	2.7 H
13	2.5	2.6	2.9 KN	2.2 KH	2.3 K	2.4 K	2.5 K	2.3 K	2.2 K	2.4 K	2.4 K	2.5 KP	2.6 K	2.7 K	2.7 K	2.8 KH	3.0 K	3.0 K	2.9 K	2.9 K	2.9 K	2.6 KH	2.6 K	2.5 K
14	2.4 K	2.4 K	2.5 K	2.5 K	2.4 K	2.5	2.9	3.0	2.9	3.0	3.1	JH	B	2.9 P	2.9 PH	C	C	2.9	2.8	2.9	2.8	2.7	2.5 P	2.6
15	2.5	2.7 H	2.7	2.8	2.7	(2.7) C	2.7	2.9 H	C	C	C	C	C	C	C	C	C	C	2.8	3.0 S	2.7	2.6	2.6	2.6
16	2.6	2.6	2.7	2.7	2.8	2.8	3.0	3.1	3.0	3.0	2.7	2.9	2.8	2.9 P	2.7	2.8	2.9 H	2.8 H	3.2	3.0	3.0	2.9 S	2.6 S	2.6
17	2.6	2.6	2.7	2.7	2.6	2.7	3.2	2.9	2.9 PH	BH	B	B	2.8	2.8	2.8	B	B	3.0	3.0	2.9	2.9	2.8	2.6	2.7
18	2.6	2.8	3.0	2.6	2.6	2.6	3.0	2.9	3.1	3.0	2.8	C	J	2.8	J	2.9 P	B	B	3.2	3.2	2.7 H	2.5	2.6	2.7
19	2.7	3.0	2.8	2.9	2.8	2.8	3.0	3.0 H	3.2 S	3.0 S	2.8	2.8 S	S	S	S	S	2.9	2.8	2.9	3.0	2.9	2.7 H	2.9 H	2.6
20	2.7	2.6	2.8	2.6	2.6	2.7	2.9	3.1	3.1	3.1	3.0	2.8 PH	B	C	2.9 P	2.8 P	2.9 P	3.0	3.0	2.9	2.6	2.6	2.7	2.7
21	2.6	2.7	2.9	2.7	2.6	2.8	3.0	3.1	3.0 H	(3.1) C	3.2	B	B	B	B	J	B	2.8	2.9	2.9 P	C	C	2.6	2.7
22	2.5	2.8	2.8	3.0	2.6	2.8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	3.0	B	B	B	B	BH	2.8 P	2.9	JP	2.9	B	J	2.9	2.9	2.6	2.5	2.5
24	2.6	2.7	2.6	2.6	2.4	2.4	2.6 P	2.7 P	B	B	B	C	C	C	C	C	C	2.9	3.1 S	J	2.5	2.6	2.6	2.5
25	2.5	2.6	2.7	2.6	2.6	2.9	2.9	2.9	2.8	2.9	2.7	2.7	2.7	J	2.7	2.8	2.9	2.7	(2.8) C	2.9	2.6	2.6	2.6	2.6
26	2.6	2.7	2.8	2.6	2.7	2.9	3.1	3.2	3.0 B	2.8	B	B	B	B	B	JP	2.8	2.9	2.8	2.8	2.8	2.7	2.7	2.6
27	2.7	2.9	2.7	2.6	2.6	2.6	2.9	J	2.7	2.8	2.6	C	B	B	B	2.7	2.8	2.9	2.7	2.9	2.8	2.5	2.6	2.5
28	2.6	2.7	2.6	2.5	2.6	2.5	2.7	2.7	2.7	2.7	B	B	B	2.8	2.7	2.7	2.8	2.7	2.9	2.8	2.6	2.5	2.6	2.6
29	2.6	2.8	2.8	2.7	2.5	2.7	3.0	C	C	C	C	C	C	C	C	C	C	C	C	2.8	2.7	2.6	2.6	2.5
30	2.6	2.6	2.8	2.8	2.4	2.5	2.8	2.7 K	2.5 K	2.5 K	2.5 K	2.5 K	2.6 K	2.6	2.6	2.7	2.8	2.8	3.1	3.0	2.8	2.7	2.7	2.6
31																								
Median Value	2.6	2.7	2.7	2.6	2.6	2.6	2.9	3.0	3.0	3.0	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.9	2.8	2.6	2.6	2.6
Count	28	28	28	29	29	29	28	23	20	19	19	11	10	13	15	17	20	23	27	28	28	28	28	28

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

IONOSPHERIC DATA

Apr 1949 | $f_{F\,min}$ | 135°E Mean Time | Fukaura | Lat 40°36.6 N | Long 139°54.1 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	1.4	1.4	E	E	E	E	2.1	A	C	C	C	C	C	C	C	C	C	C	1.8	1.5	1.5	1.6	1.6	1.5
2	1.5	1.3	E	E	E	1.2	2.4	3.0	3.4	3.6	4.0	4.0	(4.0)A	4.0	4.0	3.6	3.1	2.2	1.6	1.4	1.5	1.5	1.6C	1.5
3	1.5	1.4	1.4	1.6	1.6	1.4	2.3	3.2	(3.5)A	3.8	3.2	4.0	4.2	4.0	4.0	3.4	3.4	3.0	1.9	1.6	1.6	1.6	(1.6)C	1.5
4	1.6	1.5	1.5	1.2	1.1	2.1	2.4	3.0	3.1	3.8	4.1	4.0	4.2	4.1	4.0	3.9	3.7	2.7	2.0	1.8	1.8	1.8	1.8	1.8
5	1.8	1.6	1.5	1.5	1.5	1.7	1.6	(2.5)A	3.4	4.0	4.0	4.0	4.2	4.4	4.3	4.2	4.0	3.4	2.6	1.9	1.7	1.7	1.1	E
6	1.1	E	E	E	E	1.4	2.3	2.9	3.2	3.8	4.7	4.9	4.6	4.9	4.6	4.2	3.1	2.7A	2.0	1.4	1.4	1.6	C	C
7	C	C	C	1.4	E	1.6	2.2	3.0	C	C	C	4.2	4.3	4.0	4.3	(3.9)A	3.4	2.9	2.2	1.6	A	A	1.6	1.7
8	1.8	E	E	E	E	2.3	2.4	C	C	C	C	C	C	C	C	C	C	C	A	2.1	A	A	1.5	1.8
9	1.4	A	A	A	A	1.6	2.4	2.9	A	A	5.0	5.0	5.0	5.0	5.0	4.0	4.0	2.1	2.2	1.8	2.0	2.0	A	A
10	A	1.4	1.6	A	A	1.6	2.4	3.0	3.5	3.8	4.0	4.0	4.5	4.6	4.9	3.6	3.4	2.9	1.9	1.4	(1.5)A	1.6A	1.4	1.4
11	1.4	1.1	1.1	1.1	1.4	1.6	2.2	5.1	4.8	5.2	5.2	4.7	4.6	4.8	4.1	3.4	3.6	2.8	(2.3)A	2.0	1.5	1.8	1.4	1.5
12	1.3	1.2	1.2	1.2	1.2	1.2	2.0	3.6	3.6	5.2	4.2	4.4	4.2	4.6	4.0A	3.6	3.4	2.7	2.3	1.6	1.6	1.6	1.6	1.6
13	1.6	E	1.2	1.2	1.2	1.6	2.4	3.0	3.5	4.0	4.7	5.0	4.5	4.5	4.5	3.5	3.2	2.8	2.2	1.8	1.8	2.0	1.6	1.4
14	1.4	1.7	1.8	1.3	1.2	1.4	2.7	3.0	3.6	3.5	4.2	4.4	4.0	4.0	4.0	C	C	2.9	2.6	2.0	2.0	1.8	1.4	1.4
15	1.5	1.4	1.4	1.4	1.4	(1.5)C	1.6	2.4	C	C	C	C	C	C	C	C	C	C	2.0	1.9	1.8A	1.3	1.5	1.2
16	1.2	1.2	E	1.1	1.1	1.6	2.6	3.0	3.6	4.0	4.7	5.0	5.3	5.0	4.0	3.4	3.3	2.8	A	A	1.8	1.6	1.5	1.4
17	1.4	1.4	1.4	1.4	1.4	1.9	2.6	3.0	3.6	4.0	4.0	4.1	4.2	4.1	4.1	4.2	3.5	3.4	1.9	1.5	1.7	1.4	1.4	1.4
18	1.4	1.2	1.2	1.2	1.2	1.5	2.5	3.1	4.0	4.5A	4.3	(4.4)C	4.4	4.3	4.5	4.3	3.8	3.0	2.2	1.4	1.9	(1.9)A	1.8	1.4
19	1.4	1.2	1.2	1.4	1.4	1.8	3.4A	3.0	3.8	4.2	4.4	4.7	4.6	4.4	4.5	4.3	(3.6)A	2.9	2.3	A	A	1.6	1.6	1.7
20	1.7	1.2	1.2	1.2	1.6	2.1	2.9	3.2	4.3	4.3	5.2	5.3	4.6	(4.4)C	4.2	4.5	3.5	3.2	2.2	1.7	1.6	2.1	1.4	1.4
21	1.4	1.4	1.2	1.3	1.2	1.9	2.6	3.0	4.0	(4.0)C	4.0	4.0	4.2	4.6	4.6	4.4	4.0	3.0	2.7	2.0	C	C	1.6	1.6
22	1.4	1.6	1.6	1.8	1.6	1.8	2.8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	3.2	4.0	5.0	5.0	5.0	5.2	5.2	4.8	3.7	3.4	(2.7)A	1.9	(1.7)A	1.4	1.8	1.8	1.8
24	1.8	1.4	1.4	1.4	1.3	1.9	2.7	3.4	3.7	4.3	4.4	C	C	C	C	C	C	A	A	A	A	1.4	1.8	1.4
25	1.2	1.2	1.2	1.3	1.4	1.8	2.7	3.3	3.9	4.1	4.9	5.1	4.9	5.2	(4.9)A	4.5	3.8	A	A	A	A	A	A	1.8
26	1.2	1.2	1.2	1.2	1.2	(2.1)A	3.0	3.8	4.3	4.4	4.4	5.4	4.3	4.6	4.2	4.4	4.2	3.0	2.1	A	A	A	A	A
27	1.7	(1.8)A	1.8	1.4	1.8	2.0	2.9	3.3	3.9	4.6	4.5	(4.9)C	5.2	5.3	4.2	4.0	A	A	A	1.8	(1.8)A	1.8	1.4	1.2
28	A	A	1.1	(1.3)A	1.4	2.0	2.8	4.0	4.0	3.7	4.0	5.4	A	A	A	4.2	3.4	2.9	A	A	2.0	2.0	(2.0)A	2.0
29	2.0	2.0	2.0	2.0	1.7	2.3	2.6	C	C	C	C	C	C	C	C	C	C	C	C	2.3	2.1	2.0	1.8	2.3A
30	2.0	1.1	1.1	1.1	1.3	2.2	2.8	4.0	(4.3)A	A	4.6	A	A	4.2	4.5	(4.1)A	3.6	3.0	(2.6)A	2.2	2.0	2.0	1.8	1.8
31																								
Median Value	1.4	1.4	1.2	1.3	1.3	1.7	2.5	3.0	3.7	4.0	4.4	4.7	4.5	4.5	4.3	4.0	3.5	2.9	2.2	1.8	1.8	1.8	1.6	1.5
Count	26	26	27	27	27	29	29	27	23	22	24	23	22	23	23	23	22	22	22	23	22	24	25	26

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

IONOSPHERIC DATA

Apr. 1949 | f_E min | 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	G	G	G	G	E	2.0	E	1.5	C	C	C	C	C	C	C	C	C	C	1.2	1.6	G	1.5	G	G
2	G	G	E	G	G	E	1.6	1.6	1.5	E	1.1	1.1	1.1	1.8	1.5	1.8	1.1	1.2	1.4	G	1.6	G	G	G
3	G	G	1.6	G	G	G	1.6	1.4	1.4	1.2	1.2	1.2	1.2	1.5	1.1	1.2	E	E	E	1.6	1.6	1.6	C	G
4	G	G	G	G	G	1.5	1.8	1.1	1.1	1.2	1.6	1.7	1.6	1.8	1.7	1.7	1.7	1.8	1.8	G	2.0	1.6	1.6	1.8
5	1.8	3.0	G	G	G	(1.8)^B	1.5	1.5	1.6	1.7	1.8	1.8	2.0	1.7	1.7	1.7	1.7	1.6	1.6	G	G	G	G	G
6	G	G	G	G	G	E	1.7	1.1	1.1	1.4	1.6	1.8	1.5	1.7	1.7	1.7	1.7	1.6	1.4	G	1.3	G	C	C
7	C	C	C	G	G	1.8	1.5	1.6	C	C	C	1.5	1.6	1.7	1.7	1.1	1.1	1.4	1.7	1.6	1.6	1.6	G	G
8	G	G	G	G	G	1.6	1.6	C	C	C	C	C	C	C	C	C	C	C	1.5	1.5	1.7	1.6	1.8	1.8
9	1.6	E	E	E	E	1.4	1.5	1.5	1.4	1.4	1.4	1.8	1.8	1.7	1.8	2.4	1.7	1.5	1.6	1.5	1.6	1.4	1.4	1.4
10	1.4	1.6	1.3	1.4	1.4	1.4	1.4	1.6	1.6	1.7	1.6	1.6	2.2	1.7	1.7	1.7	1.8	1.4	1.4	1.4	1.4	1.4	1.4	G
11	G	G	1.6	G	1.8	1.6	1.6	(2.2)^B	2.8	2.6	2.6	2.6	2.8	2.8	2.0	1.8	1.1	1.4	1.6	2.0	1.6	1.7	G	G
12	G	G	G	G	G	1.2	1.4	1.5	1.5	1.8	2.0	1.9	1.8	1.9	1.7	1.7	1.4	1.4	1.5	1.6	1.6	1.7	G	G
13	G	G	G	B	B	B	1.8	1.4	1.4	1.5	1.8	1.9	1.8	1.8	1.7	1.9	1.8	1.5	1.5	1.4	1.6	1.6	1.4	G
14	1.4	G	G	G	G	G	1.6	1.5	1.6	1.5	1.6	1.6	1.8	1.8	1.6	C	C	1.6	1.6	1.4	1.4	G	G	G
15	G	G	G	G	2.0	C	G	1.5	C	C	C	C	C	C	C	C	C	C	1.4	1.9	1.4	1.3	G	G
16	G	1.6	G	G	G	2.3	1.7	1.6	1.7	1.7	2.4	2.0	2.6	2.2	1.6	1.8	2.0	1.6	1.6	1.4	1.6	1.6	1.5	1.4
17	2.6	G	G	2.0	1.4	1.3	1.5	1.5	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.6	1.6	1.5	1.5	1.5	1.5	1.6	G	G
18	G	1.4	G	G	G	B	1.5	1.7	1.6	1.6	1.8	[1.9]^C	2.0	2.7	2.1	1.8	1.6	1.6	1.5	1.8	1.6	1.4	1.6	1.8
19	G	G	G	1.6	1.6	1.8	1.5	1.4	1.6	1.8	2.0	2.4	2.4	2.2	2.1	1.8	1.8	1.6	1.6	1.6	1.5	1.6	1.5	1.7
20	1.7	G	1.6	1.2	1.2	1.6	1.4	1.5	1.7	2.5	2.6	2.5	2.3	(1.9)^C	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.6	G	1.7
21	G	G	G	G	G	1.5	1.4	1.4	1.4	[1.4]^C	1.4	[1.4]	1.4	1.5	1.5	1.4	1.4	1.4	1.6	1.4	C	C	G	G
22	G	2.4	1.6	G	G	1.4	1.4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	1.7	1.6	1.7	1.7	2.1	2.0	2.0	1.6	1.7	1.6	1.8	1.6	1.5	1.4	1.6	1.6	1.6
24	1.6	G	G	G	G	1.4	1.4	1.6	1.6	1.7	1.8	C	C	C	C	C	C	1.5	1.4	1.6	1.6	G	1.4	G
25	2.0	G	G	G	G	1.6	1.7	1.7	1.8	1.8	2.2	2.3	2.1	2.1	2.2	1.8	1.7	1.6	1.6	1.6	1.6	1.7	1.5	1.8
26	G	G	G	G	G	1.6	1.6	1.6	1.8	1.8	1.8	1.8	1.6	1.7	1.7	1.8	1.8	1.7	1.8	1.7	1.7	1.7	1.7	1.7
27	1.7	1.2	1.2	1.2	1.2	1.4	1.8	1.8	1.7	1.8	2.3	[2.3]^C	2.2	2.2	2.1	2.0	1.7	1.6	1.6	1.6	1.6	1.6	1.4	1.2
28	1.1	1.1	1.1	1.1	1.4	1.6	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.0	2.4	2.3	2.0	1.7	1.9	1.6	1.5	2.0	2.0	G
29	1.8	1.7	1.7	1.7	1.7	1.7	1.7	C	C	C	C	C	C	C	C	C	C	C	C	1.4	1.8	2.0	2.2	G
30	2.0	G	1.1	1.1	E	1.8	1.9	1.8	1.8	2.0	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.8	1.8	2.3	2.0	2.0
31																								
Median Value	G	G	G	G	G	1.6	1.6	1.5	1.6	1.7	1.8	1.9	1.9	1.8	1.7	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.4	G
Count	28	28	28	28	28	26	29	27	24	24	24	24	24	24	24	23	23	25	28	29	28	28	27	28

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

F 11

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

IONOSPHERIC DATA

Apr. 1949 | f_{F_2} | 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	8.6	8.3	8.3	7.1	6.3	6.3	7.5	10.6	12.3	12.8	C	C	13.7	14.2	13.6	13.0	12.4	11.8	11.8	10.8	9.5	9.5	9.3	9.2
2	9.2	8.8	7.9	7.5	7.1	7.3	10.0	12.3	12.7	12.0	13.2	13.1	13.5^{H}	14.3	13.9	13.1^{H}	12.8	12.7^{P}	12.0	11.2^{P}	9.9	9.5	9.0	8.8
3	8.9	8.8	8.7	7.1	6.7	7.0	9.4	11.3	12.5	13.0	13.1	13.6	14.1	14.2	13.5	13.1	12.4	11.8	12.0	11.2	10.2	9.5	9.4	9.2
4	9.1	9.2	8.9	7.6	6.8	8.5	[10.4]^{C}	12.2	12.8	13.4	14.2	14.4	14.2	14.3	14.4	13.5	12.7	11.7^{P}	11.7	10.7	9.6	9.4	9.2	9.2
5	8.6	8.5	8.6	7.2	6.5	6.7	8.6^{S}	11.7	13.0	13.5	13.7	13.6	13.5	13.5	13.1	12.6	12.7	12.1	11.7	10.7	9.5	9.0	8.8	8.8
6	9.0	8.8	8.7	7.3	6.7	7.0	9.4	11.2	12.6	13.4	13.2	13.3	13.3	12.9	12.6	12.1	12.1	11.7	11.6	10.3^{S}	9.6^{S}	9.6^{S}	9.6^{S}	9.3
7	9.5	8.5	8.0	7.4	7.1	7.4	9.6	11.7	13.2	13.1	12.6	13.4	13.8	13.8	13.4	12.7	12.7	12.0	11.4	10.4^{J}^{S}	10.1	10.1	[9.9]^{S}	9.6
8	9.7	8.8	8.4	8.1	7.9	8.3	10.2	12.4	13.0	14.0	13.6	13.7	14.9	14.4	13.5	13.0	12.0	11.8	11.6^{P}	11.0	10.9	10.1	9.5	11.0
9	9.0	9.2	9.0	8.2	7.9	8.5	10.6^{P}	C	C	C	C	C	C	C	C	12.8	11.4	10.6	10.6	9.7^{P}	8.8	8.9	9.3	9.6
10	9.0	8.8	8.4	7.7	7.2^{S}	8.0	10.7	13.5	13.5	13.2	13.3	13.4	14.3	13.9	13.6	12.6	12.5	12.6	12.7	11.5	9.5^{B}	9.5^{P}	9.1	8.8
11	8.7	9.0	8.7	8.1	7.7	8.2	11.1	11.4^{H}	10.7^{S}	12.5	12.7^{H}	12.7^{H}	12.0	12.3	11.7	11.5	11.3^{H}	11.1	10.9^{S}	10.1	(10.0)^{S}	8.9	8.7	8.6
12	8.5	8.1	7.7	7.1	7.7	8.8	11.3	13.0	12.6	13.2	13.6	14.7^{H}^{B}	14.5	[14.1]^{S}	13.7	[13.3]^{C}	12.9	11.8^{P}^{S}	12.3	C	C	C	C	8.7
13	7.7	8.3	7.3	5.6^{K}	6.3^{K}	6.7^{K}	C^{K}	C^{K}	7.0^{K}	7.3^{B}^{K}	8.8^{K}	10.0^{K}	11.3^{K}	11.2^{K}	11.1^{K}	10.1^{K}	11.0^{K}	9.8^{K}	9.4^{K}	8.7^{K}	7.8^{K}	7.3^{K}	7.0^{K}	6.8^{K}
14	6.3^{K}	6.1^{K}	6.1^{K}	5.8^{K}	5.9^{K}	6.7	9.2	10.4	11.4	12.3	12.1	13.4^{H}	14.6	(14.2)^{S}	13.9	13.1	12.8	12.0	11.4	[10.4]^{S}	9.3	9.0	8.9	9.1
15	8.7	8.7	8.4	8.0	7.6	7.7	9.4	C	C	C	C	C	C	C	C	C	C	C	12.1	11.6	9.3	9.4^{S}	9.5	9.8^{S}
16	9.6	9.6	9.7	9.2	8.3	7.7	9.9	10.9	11.4	11.9	12.8^{H}	13.2^{H}	13.8	13.7	13.7^{H}	13.7^{H}	13.0	12.5	12.5	11.3	10.5	9.9	9.1	8.8
17	9.2	9.2	[9.0]^{C}	8.7	8.1	9.0	10.3	11.4	13.3^{P}	13.9	13.6	13.8	13.6	13.6	13.7	13.6	13.3	13.2	12.5	10.9	9.5	9.7	9.4	9.3
18	9.2	9.8	9.2	7.4	7.9	8.9	10.7	11.4	12.8	13.0	12.7^{H}	13.7	14.0^{S}	13.9	13.5	13.4	13.2^{P}	13.0	12.4	[10.8]^{S}	9.2	9.1	9.7	9.7
19	9.2	9.0	8.8	7.8	7.7	8.3	10.7	11.7	12.4	12.0	12.1	12.9	13.2	13.5^{S}	13.4	12.9	13.1	12.6	12.0	11.4	(10.2)^{S}	10.0	10.1^{J}^{S}	9.9^{S}
20	9.7	9.1	8.6	7.8	7.7	8.3	10.4	11.5	13.0	13.2	13.4	13.7	14.0	13.5	14.4^{B}	14.4^{B}	14.1	C	C	C	C	9.2	9.2	9.9
21	9.2	8.9	8.7	7.9	7.0	7.7	10.1^{J}	10.9	C	C	C	C	C	C	C	C	12.6	11.9	11.7	11.3	9.7^{P}	S	S	S
22	S	10.1	[9.3]^{S}	8.4	7.2	8.0	10.6	11.6	12.2	12.9	[13.2]^{S}	13.4	13.3	12.8	13.0^{S}	12.0	11.4	11.4^{H}	11.6	11.2	9.4	9.2^{S}	9.3	9.6
23	(9.7)^{J}^{S}	9.9	9.9	9.0	8.4	8.8	10.9	11.8^{H}	12.8	13.2	C	C	C	C	C	13.1	13.4	12.6	12.3	10.7	9.4	9.4^{P}	9.3	9.3^{P}
24	10.2	9.9	8.5	8.3	7.5	7.7	9.4	11.7	13.6	13.5	14.3	14.1	14.5	14.2^{P}	13.6	13.1	12.6	11.6	11.1	10.2	8.8	8.8	9.1	9.2
25	9.0	8.8	8.6	7.8	7.3	8.2	10.1	11.2	11.7	12.2	13.0	14.0	[14.5]^{B}	15.0	14.7	14.3	13.8	12.8	12.4	10.6	[9.9]^{S}	9.3	9.5	9.4
26	9.2	9.1	8.7	8.1	7.8	8.5	10.8	12.1	13.2	13.2	13.5	14.2	14.9	[14.8]^{S}	14.6	13.5	12.9	12.3	12.0	11.2	10.7	9.7	9.7	10.3
27	10.3	9.7	9.0	8.1	7.7	8.4	10.8	11.8	12.0	12.9	13.3	13.6^{P}	14.1	13.5	13.3	13.5	13.0	12.5	12.1	10.7	9.4^{S}	9.3	9.4	9.0
28	9.1	8.9	8.0	7.6	7.2	7.8	9.6^{J}	11.3	12.3	12.8	13.3	13.4	13.9	13.3	13.0	12.6	11.9	11.8	11.5	10.0	8.8	8.6	9.0	9.1
29	9.2	9.5	8.3	7.4	6.8	7.6^{S}	9.4	10.7	C	C	C	C	C	C	C	C	12.6	12.1	11.6	10.8	9.8	[10.0]^{S}	10.1	10.2
30	10.2	9.8^{P}	9.2	7.6	7.2	7.9	9.1^{H}	8.9^{K}	9.0^{H}^{K}	9.2^{K}	10.7^{K}	11.7^{K}	12.7^{H}^{K}	13.1	12.9	12.8	12.4	12.0	11.7	10.1	8.3	8.5	8.6	8.4
31																								
Median Value	9.2	9.0	8.7	7.8	7.3	8.0	10.1	11.5	12.6	13.0	13.2	13.5	13.9	13.8	13.5	13.1	12.7	12.0	11.7	10.8	9.5	9.4	9.3	9.2
Count	29	30	30	30	30	30	29	27	26	26	24	24	25	25	25	27	29	28	29	28	28	28	28	29

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

S 1

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

IONOSPHERIC DATA

Apr. 1949 | $h_P F_2$ | 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	380	380	320	330	370	370	320	280	290	290	C	C	350	360	370	360	340	360	320	340	340	360	380	380
2	360	340	340	350	390	390	330	290	310	320	320	350	370^{H}	370	370	390^{H}	370	340^{P}	330	320^{P}	360	350	360	370
3	350	360	320	320	400	390	300	290	290	310	340	370	340	380	360	390	380	350	340	350	330	330	410	400
4	410	380	340	340	460	420	[360]^{F}	300	300	320	340	340	380	370	370	390	380	370^{P_S}	330	350	350	390	360	(360)^{S}
5	360	390	350	340	400	400	360^{S}	310	310	330	340	370	380	390	380	370	370	360	320	340	360^{S}	390	410	420
6	380	380	320	340	420	390	330	300	310	320	330	380	360	370	360	380	360	340	350	350^{S}	370^{S}	390^{S}	370^{S}	370
7	350	320	350	370	410	390	290	220	300	330	350	380	360	380	390	390	380	350	330	350^{S}	370	360	[350]^{S}	340
8	370	370	400	400	400	370	350	320	330	370	340	380	390	390	400	390	400	390	370^{P}	400	410	400	450	400
9	430	410	370	440	430	460	360^{P}	C	C	C	C	C	C	C	C	340	320	320	310	350^{P}	380	420	400	350
10	370	370	360	380	400^{S}	400	420	340	300	320	360	380	360	380	360	390	380	360	360	340	330^{B}	400^{P}	420	400
11	440	410	390	410	450	430	270	310^{H}	300^{S}	310	330^{H}	340^{H}	380	360	350	390	350^{H}	330	330^{S}	330	(380)^{S}	380	(400)^{S}	420
12	380	400	390	400	420	380	280	300	330	340	340	350^{B_H}	370	[360]^{S}	340	[340]^{F}	340	320^{P_S}	340	C	C	C	C	400
13	410	470	340	510^{K}	530^{K}	520^{K}	C^{K}	C^{K}	440^{K}	480^{B}	370^{K}	380^{K}	350^{K}	380^{K}	330^{K}	370^{K}	310^{K}	330^{K}	300^{K}	330^{K}	340^{K}	400^{K}	410^{K}	390^{K}
14	430^{K}	430^{K}	430^{K}	420^{K}	410^{K}	430^{K}	300	300	320	330	360	350^{H}	360	(380)^{S}	360	320	330	290	300	[310]^{S}	310	370	(300)^{S}	370
15	360	370	380	360	340	370	270	C	C	C	C	C	C	C	C	C	C	C	320	320	350	380^{S}	390	380^{S}
16	380	390	340	310	330	290	280	270	270	290	350^{H}	370^{H}	350	370	360^{H}	380^{H}	360	340	330	350	330	390	390	450
17	400	410	[400]^{C}	380	390	370	280	290	330^{P}	300	320	320	340	330	340	330	350	350	300	340	320	340	380	380
18	380	320	290	390	380	380	290	280	290	300	310^{H}	360	370^{S}	330	380	370	360^{P}	350	320	[370]^{S}	410	410	400^{S}	390^{S}
19	340	390	350	360	400	370	340	280	310	310	330	350	360	370^{S}	350	350	320	300	300	280	(310)^{S}	370	380^{T_S}	360^{S}
20	360	390	380	320	370	320	270	310	300	300	370	370	380	350	380^{B}	340^{B}	310	C	C	C	C	380	370	380
21	390	370	340	320	360	370	300^{T}	280	C	C	C	C	C	C	C	C	330	330	310	310	360^{P}	S	S	S
22	S	370	[330]^{S}	290	360	390	300	300	310	310	[330]^{S}	350	370	390	390^{S}	380	340	360^{H}	320	320	320	410^{S}	420	410
23	(400)^{T_S}	380	370	330	360	350	320	300^{H}	320	330	C	C	C	C	C	400	370	350	360	340	380	410^{P}	400	410^{P}
24	370	340	360	370	420	460	380	340	350	360	380	370	370	370^{P}	380	370	370	310	330	310	360	410	390	370
25	380	390	350	350	360	320	280	350	310	350	390	420	[400]^{B}	380	380	380	370	340	310	(330)^{S}	[370]^{S}	400	360	380
26	400	400	400	380	390	260	310	310	320	380	390	390	400	[390]^{S}	380	370	380	370	380	360	360	390	370	390
27	370	330	360	350	400	360	300	300	350	320	370	400^{P}	390	390	390	400	360	330	340	340	340^{S}	410	420	410
28	420	380	360	390	400	380	310^{J}	390	350	370	400	380	380	390	390	370	360	370	340	330	370	420	400	380
29	370	320	300	340	420	360^{S}	290	340	C	C	C	C	C	C	C	C	350	360	320	350	340	[360]^{S}	380	390
30	390	370^{P}	320	420	480	470	320^{H}	320^{K}	400^{H_K}	360^{K}	400^{K}	390^{K}	370^{K}	400	350	370	350	350	320	330	400	430^{S}	400	420
31																								
Median Value	380	380	350	360	400	380	300	300	310	320	350	370	370	380	370	370	360	350	330	340	360	390	390	390
Count	29	30	30	30	30	30	29	27	26	26	24	24	25	25	25	27	29	28	29	28	28	28	28	29

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

IONOSPHERIC DATA

Apr 1949 | h_{F_2} | 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	290	290	260	230	230	270	240	220	230	240	C	C	300	280	270	240	230	230	240	260	240	270	270	270
2	260	260	240	230	260	290	240	240	230	210	250	290	290H	300	260	260H	280	240	250	270	270	270	270	270
3	290	270	240	220	240	300	250	230	220	230	230	260	200	250	210	220	220	230	270	240	250	220	290	300
4	300	290	260	280	310	300	(260)C	220	220	260	280	260	240	290	250	230	250	250	240	250	230	280	260	280
5	260	290	270	230	240	300	270	250	250	230	280	250	250	260	280	300	280	240	240	260	250	260	290	300
6	290	280	250	230	260	290	250	230	250	250	230	330	240	280	230	320	250	280	250	260	240	280	270	270
7	280	250	240	250	290	300	230	230	230	240	220	240	300	250	290	240	250	250	250	220	260	270	280A	(300)A
8	(300)A	270	300	290	260	240	230	240	230	290	270	320	310	340	360	320	290	240	280	270F	300	300	320	300
9	260	290	250F	320F	320F	320F	230	C	C	C	C	C	C	C	C	230	230	240	220	240	260	300	(300)A	290
10	280	270	270	270	290	340A	240	260	230	220	230	260	280	300	220	300	230	260	250	260	260	250	270	290
11	340	310	300	260	310	320	220	230H	210	240	240H	210H	290	270	310	290C	230H	230	(250)A	250A	260	260	260	290
12	280	290	270	260	300	300	220	220	220	230	210	250H	250	240	310	(270)C	230	240	280	C	C	C	C	300
13	270	310	240	400K	400K	480K	CK	CK	(440)T	480K	360K	370K	300K	290K	300K	240K	210K	240K	260K	(250)K	270K	270K	280K	260K
14	300K	310K	320K	310K	310K	320	250	230	260	240	210	240H	260	250	240A	240	260	220	230	240	250	250	290	290
15	270	280	290	270	260	290	210	C	C	C	C	C	C	C	C	C	C	C	230	240	230	270	290	290
16	290	290	280	260	230	230	220	220	210	250	240H	270H	260	260	240H	230H	240	280	220	260	260	260	280	300
17	310	290	(270)C	250	280	230	210	210	240	240	240	290	300	300	280	280	250	240	230	230	240	280	270S	290
18	300	260	220	220	290	300	210	210	240	200	220H	310	300	280	270	250	290	250	270	250	240	280	300	290
19	280	280	270	260	290	280	220	220	260	240	290	280	260	270	300	270	260	220	250	220	240	300A	(300)A	280
20	270	280	270	230	240	280	220	220	250	260	270	280	290	290	330	290	250	C	C	C	C	270	290	290
21	280	280	270	250	250	300	230	230	C	C	C	C	C	C	C	C	290	270	250F	250	230	270	290	300
22	290	280	260	240	260	260	220	220	250	240	270	240	280	330	270	300	230	250F	270	(260)A	260	270	300	300
23	300	290	280	260	250	280	220	210H	270	240	C	C	C	C	C	280	270	260	260	250	250	290	300	320
24	300	270	290	250	280	300	220	230	220	280	270	290	290	330	270	310	260	230	250	250	240	320	320A	290
25	290	280	270	230	260	240	220	220	220	260	310	370	270	310	300	300	300	260	250	260	(240)A	300A	(300)A	(300)A
26	(300)A	300A	290	280	250	170	220	220	280	250	300	340	350	330	320	320	270	260	270	270	260	(280)A	300A	(300)A
27	290	260	270	250	300A	280	250	230	290	290	300	280	330	350	320	350	310A	(290)A	270A	250A	260	300A	290	300
28	300A	270	280	280	A	A	(260)A	240	260	310	310	290	300	290	300	290	300	300	260	270A	(280)A	280	280	290
29	270	240	220	220	280	280	220	200	C	C	C	C	C	C	C	C	280	260	290A	270A	300A	290A	310A	300
30	300A	270	260	260	350	280	220M	250K	250K	300K	340K	340K	330K	360	290	300	280	280	250	260	250	290	290	300
31																								
Median Value	290	280	270	260	280	290	220	230	240	240	270	280	290	290	280	280	260	250	250	250	250	280	290	290
Count	30	30	30	30	29	29	29	27	26	26	24	24	25	25	25	27	29	28	29	28	28	29	29	30

Sweep 1.0 Mc;tp 17.0 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | fF_1 | 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						Q	Q	Q	L	L	C	C	L	L	L	L	L	Q	Q					
2						Q	Q	Q	Q	Q	L	L	L	L	L	L	L	Q	Q					
3						Q	Q	Q	Q	Q	L	L	Q	L	Q	Q	Q	Q	Q					
4						Q	C	Q	Q	Q	Q	L	Q	L	L	Q	L	Q	Q					
5						Q	Q	Q	Q	Q	Q	L	L	L	L	L	L	Q	Q					
6						Q	Q	Q	L	L	Q	L	L	Q	L	Q	Q	L	Q					
7						Q	Q	Q	Q	L	L	B	L	L	Q	Q	Q	Q	L					
8						Q	Q	Q	Q	Q	L	L	A	A	A	L	L	Q	Q					
9						Q	Q	C	C	C	C	C	C	C	C	L	L	Q	Q					
10						Q	A	L	Q	L	L	L	L	Q	Q	L	Q	Q	Q					
11						Q	Q	Q	Q	Q	Q	Q	L	L	L	L	Q	Q	Q					
12						Q	Q	Q	Q	Q	Q	L	L	L	Q	C	Q	Q	L					
13						L	C	C	4.8	6.0	5.6	L	L	L	Q	L	Q	Q	A					
14						Q	Q	Q	L	Q	Q	L	L	L	A	L	L	Q	Q					
15						Q	Q	C	C	C	C	C	C	C	C	C	C	C	A					
16						Q	Q	Q	Q	L	L	L	L	L	L	L	L	Q	L					
17						Q	Q	Q	L	L	L	Q	L	L	L	Q	L	Q	A					
18						Q	Q	Q	L	Q	A	5.0	L	L	L	L	Q	Q	Q					
19						Q	Q	Q	L	L	L	Q	L	L	L	L	L	L	L					
20						Q	Q	Q	Q	L	L	L	Q	Q	L	L	Q	C	C					
21						L	L	C	C	C	C	C	C	C	C	C	C	L	L	A					
22						Q	Q	Q	Q	L	A	L	5.5	Q	L	Q	Q	Q	Q					
23						Q	Q	Q	L	L	C	C	C	C	C	L	Q	L	Q					
24						Q	Q	L	Q	Q	L	Q	L	L	L	L	L	A	A					
25						Q	L	Q	Q	L	Q	5.5	A	L	L	Q	Q	L	L					
26						Q	Q	Q	Q	L	Q	A	Q	Q	Q	Q	Q	Q	Q					
27						Q	Q	Q	Q	Q	Q	L	Q	L	5.8	F	A	A	A					
28						A	A	L	L	Q	L	A	L	A	L	L	L	Q	Q					
29						Q	Q	Q	C	C	C	C	C	C	C	C	Q	L	A					
30						Q	Q	L	Q	5.7	L	5.6	Q	L	L	L	L	L	A					
31																								
Median Value									—	—	—	—	—		—									
Count									1	2	1	3	1		1									

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

S 4

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

IONOSPHERIC DATA

Apr. 1949 | $h'F_1$ | 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						Q	Q	Q	210	220	C	C	200	230	240	220	220	Q	Q					
2						Q	Q	Q	Q	Q	210	200	210	200	210	220	220	Q	Q					
3						Q	Q	Q	Q	Q	210	230	Q	220	Q	Q	Q	Q	Q					
4						Q	C	Q	Q	Q	Q	220	Q	210	220	Q	230	Q	Q					
5						Q	Q	Q	Q	Q	Q	220	220	210	220	230	240	Q	Q					
6						Q	Q	Q	220	210	Q	230	220	Q	220	Q	Q	250	Q					
7						Q	Q	Q	Q	220	200	(210)B	220	230	Q	Q	Q	Q	230					
8						Q	Q	Q	Q	Q	240	220	A	A	A	230	230	Q	Q					
9						Q	Q	C	C	C	C	C	C	C	C	220	220	Q	Q					
10						Q	A	230	Q	210	200	210	210	Q	Q	220	Q	Q	Q					
11						Q	Q	Q	Q	Q	Q	Q	210	220	230	230	Q	Q	Q					
12						Q	Q	Q	Q	Q	Q	210	210	210	Q	C	Q	Q	240					
13						360	C	C	230	230	220	210	200	210	Q	230	Q	Q	A					
14						Q	Q	Q	220	Q	Q	200	200	200	(210)A	210	210	Q	Q					
15						Q	Q	C	C	C	C	C	C	C	C	C	C	C	A					
16						Q	Q	Q	Q	200	200	220	210	220	220	210	Q	230	Q					
17						Q	Q	Q	220	210	210	Q	210	200	200	Q	230	Q	A					
18						Q	Q	Q	210	Q	A	210	220	200	230	220	Q	Q	Q					
19						Q	Q	Q	220	210	210	Q	230	220	220	220	210	210	230					
20						Q	Q	Q	Q	A	230	210	Q	Q	200	220	Q	C	C					
21						Q	210	200	C	C	C	C	C	C	C	C	220	220	A					
22						Q	Q	Q	Q	210	(200)A	190	210	Q	230	Q	Q	Q	Q					
23						Q	Q	Q	230	210	C	C	C	C	C	B	Q	240	Q					
24						Q	Q	200	Q	Q	220	Q	(220)F	240	240	230	230	A	A					
25						Q	200	Q	Q	220	Q	230	(240)A	240	220	Q	Q	240	210F					
26						Q	Q	Q	Q	220	Q	A	Q	Q	Q	Q	Q	Q	Q					
27						Q	Q	Q	Q	Q	Q	210	Q	220	200	220	A	A	A					
28						A	A	220	210	Q	220	(220)A	220	(230)A	240	220	230	Q	Q					
29						Q	Q	Q	C	C	C	C	C	C	C	C	Q	A	A					
30						Q	Q	220	Q	220	240	220	Q	230	230	230	240	250	A					
31																								
Median Value						-	-	220	220	210	210	210	210	220	220	220	230	240	-					
Count						1	2	5	9	13	14	19	18	19	18	17	13	7	4					

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | f_E | 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	(2.0)B	2.8	3.4	3.5	C	C	(3.9)B	3.7	(3.6)B	3.5	3.0	2.6	1.8					
2						E	2.2	2.7	3.0	3.2	3.5	3.9	3.9	3.8	(3.5)B	(3.3)B	3.1	2.5	1.7H					
3						E	2.2H	2.7	3.1	3.6	3.7	3.8	(3.8)B	3.8	3.7	3.5	3.0F	(2.7)A	A					
4						E	C	3.0	(3.3)B	3.4	3.4	3.5	[3.7]B	3.8F	3.7F	3.5	3.0	2.1	1.9H					
5						E	A	3.0	3.4F	3.8	3.9	4.1	B	A	3.8F	3.8	3.1	2.7	1.8F					
6						E	2.1	(3.0)A	3.3	(3.8)A	3.9	(3.4)B	3.8	4.0	3.7	3.6	[3.2]A	(2.8)A	1.9					
7						E	1.9	2.9	3.3	3.5	3.7	[3.8]B	(3.9)B	3.9	3.5	3.4	3.2	2.7	A					
8						A	2.4	2.7	3.4F	(3.5)B	3.7	3.8	3.7	(3.6)A	3.4	[3.3]A	(3.1)A	2.7F	2.1F					
9						A	(2.0)B	C	C	C	C	C	C	C	C	(3.8)B	3.7	2.7	(2.1)A					
10						A	A	(3.0)	[3.3]B	3.5	(3.6)E	B	B	A	A	3.5	(3.5)B	2.8	1.8					
11						B	2.4	B	B	B	B	B	4.2	4.0F	3.8	3.5	3.2	2.8	A					
12						E	(2.4)A	(3.0)B	3.1	3.6	3.9	(4.0)B	(4.0)B	3.8	A	C	3.1	2.9	(1.9)A					
13						(1.4)B	C	C	3.3	3.4	3.4	A	B	A	3.8	3.5	3.0	(2.3)B	A					
14						E	2.6H	(2.6)H	3.2	3.3	B	A	A	3.7	[3.7]A	(3.6)A	(3.3)A	2.9F	A					
15						E	2.2	C	C	C	C	C	C	C	C	C	C	C	A					
16						(1.4)B	2.5H	3.1H	3.3	[3.5]B	3.7	(3.8)B	3.9	[3.6]B	3.3	(3.5)B	3.0	2.9	A					
17						(1.4)B	2.2F	(3.1)A	(3.7)B	3.5F	3.8	(3.8)B	[3.8]A	3.8	(3.8)A	3.4	3.2	(2.8)J	A					
18						(1.4)B	(2.7)A	[3.0]A	3.3	(3.7)	3.9	(4.0)B	A	A	3.9	3.7	3.2	2.7	1.9					
19						1.5	2.3F	3.0	3.3	3.7	(3.8)B	4.0	4.2	4.0	3.8	3.7	3.2	[2.7]A	2.2					
20						(1.5)A	2.4F	3.2	3.4	(3.7)B	3.9	4.0	4.1	3.9	3.9	3.7	A	C	C					
21						1.6B	2.4	3.1	C	C	C	C	C	C	C	C	2.9F	2.9	A					
22						1.6F	2.7F	3.1	3.6F	3.8	[4.0]B	4.1	[4.0]B	3.8	[3.8]B	3.7	3.3	2.9	2.2					
23						1.4	2.6	3.1	(3.3)B	3.7	C	C	C	C	C	3.4	3.2	2.7H	1.9J					
24						1.6	2.4	3.2	3.7	3.6	3.9	4.0	4.1	4.1	3.8	3.7	3.4	2.9F	A					
25						1.5	2.5	3.1	3.3	(3.7)J	3.7	3.8	4.1J	4.1	3.9	3.4	3.3	3.0	1.9					
26						1.8	2.6	3.0H	3.3	3.3	3.5	[3.8]A	4.0	4.1	4.0	3.5	3.4	3.0	[2.2]A	1.4				
27						(2.0)A	2.4	3.0	3.3	3.8	3.6H	3.6	3.6	[3.6]A	3.6	3.5	3.2	A	A					
28						A	A	3.2	3.7J	3.6	4.0	4.0	4.0	3.4	[3.4]B	3.3	3.4	2.8	1.8					
29						B	2.7	3.0	C	C	C	C	C	C	C	C	3.3	(2.7)A	A					
30						2.1J	2.6	3.2	3.4	3.8	3.8	3.9	3.8	[3.8]A	3.7	3.6	3.2	3.0	1.9					
31																								
Median Value						1.4	2.4	3.0	3.3	3.6	3.8	3.9	3.9	3.8	3.7	3.5	3.2	2.8	1.9	—				
Count						24	25	26	25	25	22	20	20	21	23	26	28	27	17	1				

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr 1949 | h'_E | 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	A	100	(100)A	100	C	C	100	100	100	100	100	(100)A	(100)B					
2						E	160	100	100	100	100	100	100	100	100	100	100	100	BH					
3						E	BH	100	100	100	100	100	100	100	100	100	100	110	A					
4						E	C	(100)B	(100)B	100	100	100	(100)B	100	100	100	100	100	120H					
5						E	A	A	100	100	(100)A	100	B	A	100	100	100	100	120					
6						E	100	A	100	100	100	100	100	100	100	100	A	AF	120					
7						E	(100)B	A	100	100	100	(100)B	100	100	100	100	100	110	A					
8						A	A	(110)A	100	100	100	100	100	(100)A	100	(100)A	(100)B	100	B					
9						A	A	C	C	C	C	C	C	C	C	100	B	100	A					
10						A	A	A	B	100	100	(100)B	(100)B	A	A	100	(100)B	100	100					
11						B	110	B	B	B	B	B	120	110	100	100	100	100	A					
12						E	A	100	100	100	100	100	(100)A	100	A	C	100	A	A					
13						E	C	C	100	100	100	(100)A	(100)B	(100)B	100	100	100	100	A					
14						E	130H	110H	100	100	(100)B	A	A	100	A	A	(100)A	100F	A					
15						E	A	C	C	C	C	C	C	C	C	C	C	C	A					
16						B	110H	100H	100	(100)B	100	(100)B	100F	(110)B	100	100	100	100	A					
17						B	100F	(100)A	100F	100	A	A	A	100	100	100	100	A	A					
18						B	A	A	100	(100)A	100	100	(100)B	A	A	100	110	120	130					
19						B	120	100	100	100	100	130	100	100	100	100	100	A	A					
20						A	130	100	100	100	100	100	100	100	100	100	A	C	C					
21						B	100	100	C	C	C	C	C	C	C	C	100	100	A					
22						B	110	100	110	(110)B	100	100	100	100	(100)B	100	100	100	120					
23						E	110	100	100	100	C	C	C	C	C	100	100	100H	130					
24						B	100	100	100	100	100	100	(100)B	100	100	110	110	100	A					
25						100	110	100	100	100	100	100	100	100	100	100	100	110	110					
26						B	110	(110)A	100	100	100	(100)A	100	100	100	100	110	110	A	B				
27						100	110	100	100	100	100H	100	100	(100)A	100	100	100	A	A					
28						A	A	100	100	100	100	100	100	100	(100)B	100	120	110	130					
29						B	A	110	C	C	C	C	C	C	C	C	100	A	A					
30						A	110	100	100	100	100	100	100	(100)A	100	100	100	120	120					
31																								
Median Value						E	110	100	100	100	100	100	100	100	100	100	100	100	120					
Count						14	17	21	24	25	22	21	22	22	21	25	26	22	11					

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

S 7

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

IONOSPHERIC DATA

Apr. 1949 | f_{ES} | 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	G	G	(2.7)^{B}	B	3.1	3.8	3.9	C	C	3.9	G	G	G	3.4	3.4	2.2	2.5	2.2	G	1.7	2.0
2	G	2.1	1.8	2.6	G	G	2.8	G	3.4	3.7	3.9^{F}	G	G	G	B	4.0	G	(2.7)^{B}	2.1	G	G	G	G	G
3	B	G	G	G	G	G	2.2	B	B	4.2	4.0	4.1	G	4.0	4.0	4.2	4.2	3.2	2.8	2.3	G	G	G	G
4	G	G	G	G	B	G	C	B	3.9	B	3.9	4.4	B	G	G	4.4	3.9	2.9^{F}	2.4	G	2.8	2.5	3.1	G
5	2.3	G	2.5	G	1.3	2.5	2.8	3.5	G	G	4.0	G	B	4.8	4.6	4.8^{Y}	3.3	3.2	2.3^{F}	2.1	G	G	G	G
6	G	G	G	G	G	G	2.6^{F}	3.4	3.6	G	G	B	3.9	3.9	4.5	4.5	3.1	2.8	2.3	2.2	G	G	G	G
7	G	G	G	G	G	G	2.6^{F}	3.2	3.6	4.3	4.9	B	G	4.3	6.3	6.3	4.3	G	2.9	2.9	2.6	G	3.8	6.7^{F}
8	4.7^{F}	2.8	2.0	1.7	2.1^{Y}	2.6	G	G	5.5	4.7	4.8	4.4	7.2	12.6	8.9	4.6	4.5	3.5	2.2	4.5	5.4	4.4	3.1	G
9	1.8	1.9	5.3	8.7	4.5	2.8	3.4	C	C	C	C	C	C	C	C	G	B	4.7	3.5	2.6	2.6	G	3.0	2.5
10	G	G	2.0	2.4	2.6^{F}	5.4	4.3	3.4	B	3.9	G	B	B	4.2^{Y}	4.7	3.9	3.6	G	2.8	5.5	2.4	2.2	2.6	2.2
11	G	G	G	B	G	G	G	B	4.0	B	B	B	G	G	G	4.4	3.8	3.1	3.1	3.0	2.3	2.4	2.9	1.8
12	1.8	1.9	G	G	G	G	3.0	G	3.8	4.8	4.6	3.9	4.7	4.0	4.5	C	G	2.9	3.1	C	C	C	C	G
13	2.4	G	G	G	G	B	C	C	4.7	4.8	5.8	4.8	B	4.5	6.3	3.8	3.3	G	4.4^{F}	5.4^{F}	3.4^{F}	3.3^{F}	G	2.1
14	G	G	G	G	G	G	G	3.2	G	3.7	B	4.7^{Y}	5.0^{Y}	G	6.2	4.6	4.0^{F}	4.0^{Y}	3.2^{F}	(2.9)^{Y}	3.2	1.8	G	G
15	G	G	G	(2.8)^{Y}	2.4	G	2.7	C	C	C	C	C	C	C	C	C	C	C	4.8	3.9	5.2	2.5	G	G
16	3.2	1.8	G	G	G	2.6	2.8	4.6	4.1	B	(3.9)^{B}	B	G	B	G	4.1	3.8	(3.0)^{B}	2.9	3.0^{F}	3.1	2.6	2.8	1.8
17	1.8	G	C	2.7	2.2	2.9^{F}	3.0^{F}	4.4^{F}	4.1	4.6	4.9	6.1^{Y}	4.8	6.2^{Y}	6.4^{Y}	5.2	3.5	3.8^{F}	4.3^{F}	3.2^{F}	3.2^{F}	2.1	B	G
18	G	B	1.7	2.5^{F}	2.8	B	3.7^{F}	3.1	4.3	4.9	6.2	4.8	4.8	4.0	G	4.0	5.3	3.0	3.1	2.8	3.0	G	G	2.8^{F}
19	3.4	2.4	B	2.6^{F}	G	B	2.8	3.4	G	4.8^{Y}	5.1^{Y}	(4.7)^{B}	6.1	4.7	5.1	5.4	5.2	4.2	2.5	3.8	3.1	3.1	2.4	2.3
20	2.8	2.1	2.4	4.3^{Y}	2.7^{Y}	2.6	2.5^{Y}	4.0^{Y}	3.9	5.3	G	4.4	5.4	5.1	G	5.1	4.3^{F}	C	C	C	C	2.7	3.8	2.2
21	G	G	G	G	G	B	(3.8)^{B}	G	C	C	C	C	C	C	C	C	G	4.4	4.2^{F}	2.9	2.5	G	G	G
22	G	B	G	G	G	B	G	(4.9)^{F}	5.3	4.0	10.5	G	B	G	3.9	5.2	6.5	5.5	3.2	B	3.3	2.8	3.1	G
23	G	2.6	2.8	2.8	(3.3)^{B}	B	3.7	3.5	4.6	4.1	C	C	C	C	C	3.8	3.9	3.8	3.2	G	2.3	3.4^{F}	4.1	G
24	G	G	G	2.3	(1.7)^{B}	2.3	G	3.4^{F}	3.8	4.9	4.3	4.2	5.8	5.6	5.3	5.6	B	5.4^{F}	5.0	4.3	3.1	3.0	2.9	2.8
25	B	2.6^{F}	G	2.7^{F}	2.7	B	3.6	4.8	4.3	5.2	4.9	4.2	5.2	4.8	G	G	3.9	4.1	3.6	4.3	3.3	3.7	4.2	4.6
26	5.4	4.4^{F}	2.3	2.6	2.7	2.8	3.9	4.0	4.4	3.9	5.1	7.4	5.8	G	G	6.1	4.6	4.8	3.1	G	2.8	4.6	3.0	3.2
27	3.2	3.2	4.5	4.1	3.2	2.9	G	3.4	4.2	6.2	5.6	4.9	5.4^{Y}	5.3	4.1	5.9	9.4	6.8	4.3	4.3	4.5	7.4	G	G
28	4.2	2.8	2.8	3.0	4.0	4.1	4.0	4.2	4.6	4.2	7.1	7.2	6.4	6.9	5.5	4.5	3.9	4.0	3.5	5.3	5.4^{F}	2.8	3.2	9.1^{F}
29	3.1	2.8	2.8^{Y}	2.8	3.0^{F}	G	3.2	G	C	C	C	C	C	C	C	C	7.4	6.5	7.4	6.3	7.4	5.2^{F}	3.0^{F}	1.9
30	4.0^{Y}F	4.8^{F}	4.8^{F}	2.7^{F}	2.6^{F}	2.7^{F}	3.8	3.7^{F}	4.8	5.3	5.4	5.4	4.2	6.0	5.8	4.8	4.3^{F}	5.8	4.7	4.1	2.7	G	G	G
31																								
Median Value	G	G	G	2.4	1.7	2.5	2.8	3.4	4.1	4.3	4.9	4.4	4.8	4.3	4.5	4.5	3.9	3.8	3.1	3.0	2.9	2.5	2.8	G
Count	28	28	28	29	29	23	27	24	24	23	22	19	20	24	24	26	27	28	29	27	28	29	28	30

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

S 8

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

IONOSPHERIC DATA

Apr. 1949 | F_2–M3000 | 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	2.7	2.7	2.9	2.9	2.7	2.8	2.9	3.2	3.1	3.1	C	C	2.8	2.8	2.8	2.8	2.9	2.8	3.0	2.8	2.9	2.8	2.7	2.7
2	2.8	2.9	2.9	2.9	2.6	2.7	2.9	3.1	2.9	2.9	2.8	2.8	2.8 H	2.7	2.8	2.7 H	2.8	2.8 P	2.9	2.9 R	2.8	2.8	2.7	2.8
3	2.8	2.8	3.0	2.9	2.6	2.6	3.1	3.2	3.2	2.9	2.9	2.7	2.8	2.8	2.8	2.7	2.7	2.8	2.9	2.9	2.9	2.9	2.6	2.6
4	2.6	2.7	2.9	2.5	2.4	2.5	[2.8] C	3.1	2.9	2.9	2.8	2.9	2.7	2.8	2.7	2.7	2.7	2.8 P B	2.9	2.8	2.8	2.7	2.8	2.8
5	2.7	2.6	2.9	2.8	2.6	2.7	2.7 S	2.9	3.0	2.9	2.8	2.8	2.6	2.6	2.8	2.7	2.7	2.8	2.9	2.9	2.8	2.6	2.6	2.6
6	2.7	2.7	2.9	2.9	2.5	2.6	2.8	3.0	3.0	2.9	2.9	2.8	2.8	2.8	2.8	2.7	2.8	2.8	2.8	2.9 S	2.7 S	2.6 S	2.9 S	2.7
7	2.9	3.0	2.8	2.7	2.5	2.7	3.1	3.0	3.0	2.9	2.9	2.7	2.8	2.7	2.7	2.6	2.6	2.9	2.9	J S	2.7	2.9	[2.9] S	2.9
8	2.8	2.9	2.7	2.5	2.6	2.8	2.8	2.9	2.9	2.7	2.8	2.7	2.7	2.7	2.7 H	2.6	2.6	2.7	2.8 P	2.7	2.6	2.6	2.5	2.7
9	2.5	2.6	2.6	2.6	2.5	2.4	2.8 P	C	C	C	C	C	C	C	C	2.9	3.0	3.0	3.1	2.9 P	2.7	2.7	2.6	2.8
10	2.9	2.8	2.8	2.7	2.7 S	2.6	2.9	2.8	3.1	3.0	2.8	2.7	2.8	2.9	2.8	2.7	2.7	2.9	2.8	2.9	2.9 B	2.6 P	2.6	2.6
11	2.5	2.6	2.7	2.5	2.5	2.5	3.2	3.0 H	3.0 S	2.9	2.8 H	2.9	2.7	2.7	2.8	2.7	2.8 H	2.9	2.9 S	2.9	(2.7) S	2.7	2.6	2.7
12	2.6	2.6	2.7	2.6	2.6	2.6	3.2	3.0	2.9	2.8	2.9	2.9 H	2.7	[2.7] S	2.8	[2.7] C	2.7	2.8 P S	2.8	C	C	C	C	2.6
13	2.5	2.3	2.8	2.3 K	2.2 K	2.2 K	C K	C K	2.6 K	2.5 B K	2.7 K	2.7 K	2.8 K	2.7 K	2.8 H	2.8 K	3.0 K	2.9 K	3.0 K	2.9 K	2.8 K	2.6 K	2.6 K	2.6 K
14	2.5 K	2.5 K	2.5 K	2.6 K	2.5 K	2.4	3.0	3.0	2.9	2.8	2.7	2.9 H	2.8	(2.7) S	2.8	2.9	2.8	3.1	3.0	[2.9] S	2.9	2.7	2.7	2.7
15	2.7	2.6	2.7	2.7	2.8	2.8	3.1	C	C	C	C	C	C	C	C	C	C	C	2.9	2.8	2.8	(2.6) S	2.7	2.7 S
16	2.7	2.6	2.8	2.9	2.9	3.1	3.2	3.3	3.1	3.0	2.8 H	2.7 H	2.8	2.8	2.8 H	2.8 H	2.8	2.8	2.8	2.8	2.8	2.7	2.6	2.5
17	2.6	2.6	[2.6] C	2.7	2.6	2.8	3.1	3.1	2.8 P	3.1	2.9	3.0	2.9	2.9	2.8	2.9	2.8	2.8	3.2	2.8	2.9	2.8	2.7	2.8
18	2.7	3.0	3.1	2.7	2.6	2.7	3.0	3.2	3.1	3.1	2.9 H	2.7	2.8 S	2.8	2.7	2.8	2.8	2.8	2.9	[2.7] S	2.6	2.6	2.6 S	2.7 S
19	2.8	2.9	2.8	2.7	2.7	2.7	2.9	3.2	3.0	3.0	2.9	2.8	2.8	2.8 S	2.9	2.8	2.9	3.0	3.0	3.2	(2.7) S	2.8	J S	2.8 S
20	2.8	2.7	2.7	3.0	2.8	2.9	3.0	3.0	3.0	3.1	2.7	2.9	2.7	2.8	2.7 B	2.9 B	3.0	C	C	C	C	2.7	2.8	2.6
21	2.7	2.8	2.9	2.9	2.7	2.8	J	3.3	C	C	C	C	C	C	C	C	2.8	2.8	3.0	3.0	2.8 P	S	S	S
22	S	2.8	[2.9] S	3.1	2.9	2.7	3.1	3.0	3.0	3.0	[2.9] S	2.8	2.7	2.7	2.7 S	2.6	2.9	2.8 H	2.9	3.0	2.9	2.6 S	2.6	2.6
23	J S	2.7	2.8	2.8	2.7	2.8	2.9	3.1 H	2.9	2.7	C	C	C	C	C	2.7	2.8	2.8	2.7	2.9	2.6	2.6 P	2.7	2.6 P
24	2.7	2.9	2.8	2.8	2.5	2.4	2.6	2.8	2.8	2.8	(2.8) S	2.8	2.8	2.8 P	2.8	2.7	2.7	3.0	2.8	3.0	2.7	2.6	2.7	2.8
25	2.7	2.7	2.9	2.8	2.7	3.0	3.2	2.8	3.0	2.7	2.6	2.6	[2.6] B	2.7	2.7	2.7	2.7	3.1	3.2	2.8	[2.7] S	2.7	2.8	2.8
26	2.7	2.7	2.7	2.7	2.6	3.3	2.9	3.0	2.9	2.7	2.7	2.7	2.6	[2.6] S	2.7	2.7	2.7	2.7	2.8	2.7	2.7	2.7	2.8	2.7
27	2.8	2.9	2.7	2.8	2.6	2.7	3.2	3.1	2.8	2.9	2.7	2.6 P	2.6	2.8	2.7	2.6	2.8	2.9	2.8	2.8	2.8 S	2.6	2.5	2.6
28	2.5	2.8	2.8	2.7	2.6	2.7	J	2.6	2.7	2.7	2.6	2.6	2.7	2.6	2.6	2.7	2.7	2.7	2.9	2.9	2.7	2.5	2.6	2.7
29	2.7	2.9	3.1	2.8	2.6	2.8	3.1	C	C	C	C	C	C	C	C	C	2.7	2.8	3.0	2.8	2.8	(2.8) S	2.8	2.6
30	2.7	2.7	2.9	2.5	2.3	2.4	2.9 H	2.9 K	2.6 H	2.7 K	2.6 K	2.6 K	2.6 K	2.6	2.7	2.7	2.7	2.8	2.9	2.9	2.5	2.5	2.6	2.5
31																								
Median Value	2.7	2.7	2.8	2.7	2.6	2.7	3.0	3.0	2.9	2.9	2.8	2.7	2.7	2.7	2.8	2.7	2.8	2.8	2.9	2.9	2.8	2.7	2.7	2.7
Count	28	30	30	30	30	30	27	27	26	26	24	24	25	25	25	27	29	28	29	27	28	28	27	29

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

S 9

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

IONOSPHERIC DATA

Apr. 1949 | 1F 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	1.1	1.2	E	E	E	E	2.0	2.8	3.4	3.7	C	C	3.9	3.8	3.8	3.6	3.2	2.7	2.0	1.5	1.5	1.5	1.4	1.4
2	1.1	1.1	E	E	E	E	2.2	2.9	3.2	3.7	4.0	4.1	4.0	4.2	(3.8)B	3.8	3.2	2.5	1.9	1.4	1.4	1.4	1.4	1.5
3	1.2	E	E	E	E	E	2.2	2.9	3.3	3.6	3.8	4.2	3.8	4.1	3.8	3.6	3.2	2.9	2.6	1.5	1.4	1.4	1.3	1.1
4	E	E	E	E	E	E	C	3.0	3.4	(3.8)A	3.9	4.3	4.5	4.1	4.1	3.8	3.2	2.9F	2.0	1.4	1.4	[1.4]A	1.3	1.1
5	1.3	E	E	1.2	E	E	2.1F	3.0	3.3	3.8	3.9	4.1	4.5	4.1	3.8	3.8	3.3	2.8	2.0F	1.4	1.3	1.5	1.4	1.2
6	E	E	E	E	E	E	2.3	3.0	3.6	3.8	4.3	4.4	4.3	4.3	3.8	A	A	2.8	2.0	1.5	1.5	1.5	1.5	1.1
7	E	E	E	E	E	1.3	2.4	3.0	3.7	4.1	3.9	5.7	4.3	4.3	[4.1]A	3.9	[3.5]A	3.0	A	A	1.6	1.4	A	A
8	A	E	1.1	E	1.1	1.6	1.6	2.7	3.7	3.7	4.3	4.4	A	A	A	A	3.4	3.0	2.0F	A	A	A	A	1.4
9	1.3	1.1	1.1	A	A	1.5	2.0	C	C	C	C	C	C	C	C	3.8	3.7	3.1	2.1	A	A	1.5	[1.5]A	1.5
10	1.5	1.3	1.4	E	A	A	A	3.0	4.7	3.7	4.8	4.3	4.4	4.3	4.1	3.5	3.6	3.2	2.1	A	A	1.6	1.6	1.4
11	1.5	1.5	1.5	1.1	E	1.4	2.6	4.6	3.8	5.6	4.5	4.4	4.5	4.2	4.0	3.7	3.4	3.0	[2.6]A	1.7	1.5	1.4	[1.3]A	1.1
12	1.1	E	E	E	E	1.5	2.1	3.3	3.8	4.1	4.1	4.2	4.2	4.0	4.0	[3.8]C	3.5	2.9	1.9	C	C	C	C	E
13	E	E	E	E	E	1.4	C	C	3.5	4.2	[4.4]A	4.5	4.6	3.9	3.7	3.6	3.2	3.0	A	A	A	1.5	1.4	1.1
14	1.1	E	E	E	E	1.5	2.7	3.2	3.4	3.6	4.4	4.1	4.2	4.4	[4.1]A	3.7	3.3	3.3	2.1	A	A	A	1.5	1.4
15	1.1	E	1.1	1.2	E	1.4	2.3	C	C	C	C	C	C	C	C	C	C	C	A	A	A	1.4	1.5	1.3
16	E	1.4	E	E	E	1.4	2.5	3.2	3.4	[3.7]A	3.9	4.3	4.2	4.0	4.6	3.5	3.5	2.9	A	A	A	1.6	1.6	1.3
17	E	E	C	1.4	1.5	1.4	2.5F	3.1	3.7	3.7	3.8	4.0	4.3	3.9	3.8	3.6	3.5	2.8	[2.2]A	1.6	1.4	1.4	1.3	1.3
18	E	E	E	E	E	1.4	2.7F	[3.2]A	3.6	4.4	4.5	4.3	4.4	4.1	3.9	3.7	3.3	3.0	2.1	1.6	1.4	1.5	1.4	[1.5]A
19	1.5	E	E	E	E	1.5	2.4	3.3	3.6	4.1	4.2	4.7	4.5	4.5	4.1	4.3	[3.3]A	2.2	2.2	1.5	A	A	A	1.4
20	1.1	1.1	1.1	1.1	E	1.5	2.7	3.4	3.9	[4.0]A	4.1	4.3	4.4	4.3	4.1	4.3	A	C	C	C	C	A	A	1.5
21	1.1	E	E	E	E	1.6	2.6	3.3	C	C	C	C	C	C	C	C	3.7	3.4	A	A	1.5	1.2	1.6	1.1
22	1.2	E	E	E	1.3	1.7	3.0	3.3	3.7	4.0	[4.1]A	4.2	4.7	4.3	4.3	4.3	3.4	3.4	2.6	1.6	[1.6]A	1.6	A	E
23	E	A	A	E	E	1.6	2.5	3.2	3.7	4.1	C	C	C	C	C	4.4	4.3	3.0	1.9	1.4	1.5	1.6	[1.5]A	1.3
24	1.4	E	E	E	E	1.6	3.0	3.3	3.8	4.3	4.3	4.3	4.3	4.4	4.2	4.2	3.5	A	A	A	1.6	1.5	1.5	E
25	E	E	E	E	1.1	1.5	2.6	3.2	3.5	3.1	3.9	4.3	4.5	4.4	4.0	3.7	4.1	3.1	1.9	A	A	A	A	A
26	A	A	A	E	E	1.8	2.6	3.2	3.7	3.7	A	A	4.6	4.2	4.4	A	A	3.4	[2.4]A	1.4	2.0A	A	A	A
27	A	A	A	A	1.4	2.0	2.6	3.4	3.7	4.3	4.3	4.2	4.3	4.6	4.4	4.6	A	A	A	A	A	A	1.7	1.4
28	A	E	A	1.6	A	A	A	3.8	3.7	3.9	4.3	[4.3]A	4.3	[4.3]A	4.3	3.6	3.5	2.8	2.0	A	A	A	1.6	1.2
29	E	E	E	E	E	2.0	2.7	3.1	C	C	C	C	C	C	C	C	A	A	A	A	A	A	1.4	1.5
30	1.4	E	A	1.6	2.1	2.3	2.8	3.2	3.7	4.3	4.4	4.4	4.5	4.5	[4.2]A	3.8	3.7	3.1	2.5A	1.8	1.7	1.4	1.2	E
31																								
Median Value	1.1	E	E	E	E	1.5	2.5	3.2	3.7	3.9	4.1	4.3	4.4	4.3	4.1	3.8	3.5	3.0	2.1	1.5	1.5	1.5	1.5	1.3
Count	26	27	24	28	27	28	26	27	26	26	23	23	24	24	24	24	24	25	21	14	16	20	22	27

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

IONOSPHERIC DATA

Apr. 1949 | f_E 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	G	G	G	G	G	2.3	1.5	1.4	1.5	1.7	C	C	2.1	2.0	2.0	1.9	1.5	1.2	1.2	1.8	1.7	G	1.5	1.7
2	G	1.9	1.5	2.1	G	G	1.6	1.5	1.5	1.5	1.6	2.0	2.0	1.8	1.7	1.6	1.5	E	1.5	G	G	G	G	G
3	G	G	G	G	G	G	1.4	1.5	1.5	1.6	1.8	1.8	1.8	1.8	1.7	1.5	1.2	1.2	1.1	1.5	G	G	G	G
4	G	G	G	G	B	G	C	1.5	1.5	1.6	1.5	2.1	(2.1)^{B}	2.0	1.8	1.6	1.5	1.5	1.5	G	1.4	1.7	1.5	G
5	1.1	G	2.1	G	E	2.0	1.5^{F}	1.5	1.4	1.6	1.9	2.1	(2.1)^{B}	2.1	1.9	1.9	1.4	1.2	1.4	1.5	G	G	G	G
6	G	G	G	G	G	G	1.5	1.4	1.6	1.4	2.2	1.9	2.2	(2.0)^{B}	2.0	1.4	1.6	1.5^{F}	1.3	1.8	1.7	G	G	G
7	G	G	G	G	G	G	1.4	1.5	1.6	1.6	1.9	1.8	2.3	2.1	2.0	1.9	1.5	1.5	1.4	1.4	1.4	G	1.4	E
8	E	E	E	1.5	E	E	1.6	1.5	1.9	1.9	1.8	1.9	2.0	2.3	1.9	1.8	1.5	1.4	1.7	1.5	1.5	1.4	1.4	G
9	1.5	1.5	E	E	E	E	1.5^{F}	C	C	C	C	C	C	C	C	1.9	(1.9)^{B}	1.8	1.6	1.5	1.5	G	1.5	1.8
10	G	E	E	1.7	E	E	1.5	1.8	1.9	1.8	1.9	2.0	1.9	1.9	1.9	1.8	1.8	1.7	1.5	1.4	1.5	1.6	1.5	1.6
11	G	G	G	B	G	G	1.7	B	B	B	B	B	3.3	3.0	3.0	1.9	1.5	1.4	1.5	1.4	1.5	1.4	1.4	1.5
12	1.5	1.6	G	G	G	G	1.4	1.7	1.4	2.0	2.1	2.1	1.9	2.1	2.1	(1.8)^{C}	1.5	1.2	1.6	C	C	C	C	G
13	1.7	G	G	G	G	E	C	C	1.8	2.2	2.0	2.1	1.7	1.8	1.9	2.1	1.8	1.5	1.3	1.4^{F}	1.4^{F}	1.6^{F}	G	1.5
14	G	G	G	G	G	G	1.6	1.6	1.4	1.6	2.0	2.1	2.2	2.1	1.8	1.5	1.4	1.7^{F}	1.6^{F}	1.6	1.5	1.5	G	G
15	G	G	G	E	1.8	G	1.4	C	C	C	C	C	C	C	C	C	C	C	1.4	1.4	1.5	2.3	G	G
16	2.7	E	G	G	G	1.5	1.5	1.5	1.7	2.1	2.3	2.1	2.8	3.0	2.0	1.6	1.6	1.6	1.5	1.4^{F}	1.5	1.4	1.4	1.3
17	1.5	G	C	E	E	1.7	1.5^{F}	1.4	1.7	1.8	1.7	1.9	2.0	2.1	1.7	1.7	1.6	1.6	1.3^{F}	1.4	1.8^{F}	1.7	B	G
18	G	B	E	E	2.1	B	1.6	1.5	1.6	1.9	1.8	2.0	3.7	3.5	1.8	1.6	1.8	1.4	1.5	1.4	1.5	G	G	1.4^{F}
19	1.2	(1.7)^{B}	B	1.3^{F}	G	B	1.6^{F}	1.6	1.6	1.9	1.8	2.0	1.7	2.4	2.0	1.8	1.8	1.4	1.5	1.5	1.1	1.3	1.4	1.4
20	1.4	1.4	1.2	1.1	E	E	1.7	1.7	1.9	2.2	2.2	2.1	2.3	2.1	2.0	2.0	1.8	C	C	C	C	1.5	1.5	1.1
21	G	G	G	G	G	B	1.5	1.5	C	C	C	C	C	C	C	C	1.8	1.6	1.5^{F}	1.5	1.7	G	G	G
22	G	B	G	G	G	1.4	1.5^{F}	1.6	1.7	1.8	2.1	2.0	2.0	2.1	2.2	1.8	1.7	1.7	1.5	1.5	1.3	1.6	1.4	G
23	G	E	E	E	(1.6)^{B}	E	1.6	1.5	1.5	1.8	C	C	C	C	C	1.7	1.6	1.6	1.5	G	1.5	1.4	1.4	G
24	G	G	G	E	E	(1.7)^{B}	1.4	1.5	1.6	2.1	2.1	2.3	2.0	2.2	1.8	1.8	1.8	1.6	1.5	1.6	1.4	1.4	E	2.0
25	(2.2)^{B}	2.3^{F}	G	E	E	1.1	1.1	1.6	1.6	1.9	2.1	2.4	2.4	2.5	2.0	1.8	1.6	1.6	1.4	1.4	1.4	1.5	1.4	E
26	E	E	E	E	E	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.1	1.9	1.9	1.8	2.1	1.6	1.6	G	1.4	1.3	1.3	1.4
27	E	E	E	E	E	1.2	1.6	1.5	1.6	1.6	1.8	1.9	2.1	1.9	1.8	1.8	1.5	1.5	1.4	1.4	1.5	1.4	G	G
28	E	E	E	E	E	1.4	1.6	2.1	2.0	1.9	1.9	2.2	2.0	2.4	3.7	2.0	1.7	1.4	1.6	1.3	1.6	1.3	1.5	1.1
29	E	E	E	E	E	G	1.5	1.6	C	C	C	C	C	C	C	C	1.4	1.6	1.4	1.4	1.4^{F}	1.6	1.4	1.4
30	E	E	E	E	E	E	1.4	1.5	1.7	1.7	2.0	2.0	2.1	2.0	1.8	1.8	1.8	1.5	1.6	1.2	1.2	G	G	G
31																								
Median Value	G	E	G	E	E	E	1.5	1.5	1.6	1.8	1.9	2.0	2.1	2.1	1.9	1.8	1.6	1.5	1.5	1.4	1.5	1.4	1.4	G
Count	30	28	28	29	29	27	28	26	25	25	23	23	25	25	25	27	29	28	29	28	28	29	28	30

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

S 11

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

IONOSPHERIC DATA

Apr. 1949 | f_{F_2} | 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	8.8	8.7	8.7	7.1	6.5	6.7	9.0	11.1	12.4	13.0	13.0^{H}	13.6	C	C	C	14.0	13.3	12.8	12.6	11.3	10.2^{S}	10.1$^{B}_{P}$	9.8^{B}	9.5
2	9.8	9.2	8.1	7.7^{B}	7.2^{B}	7.5	10.6^{P}	11.8	12.5	13.2	13.5	13.3	14.3	14.8	14.7	14.1^{P}	13.8	13.6	(13.0)^{S}	12.3	10.4	9.9	9.4	9.5
3	10.0$^{J}_{F}$	9.6^{F}	8.8	7.0	6.7	6.9	9.7	11.6	12.7	13.0	13.1	14.3^{P}	14.5^{P}	14.6	13.8	13.2	12.8	12.4^{P}	12.4	11.8	10.0$^{P}_{S}$	10.1	9.8	9.6
4	9.7	9.6	9.5	7.9	7.9	7.9	11.0	12.4	12.9	14.2	14.2	14.7	14.5	(14.8)^{P}	14.8	14.1	13.6	12.6	12.4	11.3	(10.5)$^{K}_{S}$	10.0^{P}	10.1	10.0$^{J}_{S}$
5	9.2$^{P}_{S}$	8.6	9.0	8.0	6.9	7.1	(9.7)$^{P}_{S}$	12.3^{P}	13.5	13.3	14.2	14.2	13.9^{H}	(13.8)^{C}	13.6	13.2^{H}	13.1	12.8	12.3	11.3	10.0	9.6	9.3	9.4
6	9.3	8.2	8.6	7.0	6.6	6.8	10.8	11.5	12.9	13.3	13.1	13.2	13.5	13.3^{H}	12.9	12.5	11.5	12.6^{P}	(11.9)^{A}	11.1	9.8$^{P}_{S}$	9.7$^{J}_{S}$	10.0$^{P}_{S}$	9.8
7	9.9	9.3	8.1	7.5	7.1	8.7	10.1	11.7	13.2	13.2	12.8	13.4	14.0	13.8	12.8	13.0	12.9	12.8	12.3	11.4	10.7	11.2	11.6	10.3
8	9.5^{S}	9.3	8.9	8.7	8.2	8.4	10.1	12.3	13.5	13.9	14.3	14.2	15.0^{P}	14.9^{P}	14.0	13.2	12.4	12.3	12.3	11.6^{S}	11.0^{S}	10.7	(11.2)^{S}	11.6
9	9.7	9.6	9.3	8.4	8.6	9.2	11.1	13.4	13.8^{H}	14.4	(15.0)^{B}	15.6^{P}	15.0	(15.0)^{P}	(15.1)^{P}	13.4	12.2	11.4	11.2	10.2	9.0$^{S}_{H}$	9.4	10.0	10.3
10	9.7	9.5	8.9	7.9	7.5	8.2	11.2	13.1	14.8	13.3	13.2	14.2	14.9$^{B}_{P}$	14.8^{P}	14.0	13.2	13.1	14.2	12.9	11.7	9.8^{P}	9.5	9.7	9.2
11	9.2	9.4	9.0	8.6	7.9	8.5	11.6	11.8	11.3	13.1	13.2	13.2	11.7^{H}	12.9	12.5	11.8	11.8	11.7	11.7	10.9	10.0	9.1	9.1	9.0
12	8.9	8.4	8.2	7.5$^{J}_{B}$	8.0	11.1	12.0	12.7	13.0	13.7^{H}	14.7^{H}	15.3$^{P}_{H}$	15.2$^{P}_{H}$	15.3^{H}	14.4$^{P}_{H}$	13.8^{H}	13.5	13.0	12.1^{H}	11.6$^{J}_{P}$	10.8	10.4	8.7	9.2
13	8.4	7.1^{H}	7.1	5.4$^{K}_{H}$	4.9$^{K}_{N}$	6.5$^{K}_{H}$	6.4^{K}	7.8$^{K}_{S}$	8.0^{K}	(9.3)$^{K}_{C}$	10.5^{K}	11.6^{K}	12.4^{K}	12.5^{K}	12.4^{K}	12.1^{K}	12.1^{K}	10.8^{K}	10.4^{K}	9.3^{K}	7.7^{K}	7.5$^{K}_{S}$	7.3$^{K}_{S}$	7.1$^{K}_{S}$
14	6.5^{K}	6.5^{K}	6.4^{K}	6.4^{K}	6.4^{K}	7.0	9.4	11.0	11.6	12.2	12.8	14.4	15.3	15.2^{P}	14.8$^{S}_{P}$	14.2	13.6	12.7	11.8	10.5	9.1^{S}	9.0	9.2	9.0
15	9.1	9.1	8.8$^{P}_{S}$	8.4	7.6^{J}	8.0	10.3	11.2	11.8	12.2	12.7	14.1^{H}	14.3	15.3	15.0	14.0	13.2	12.9	(12.4)^{S}	11.9^{J}	(9.7)^{P}	9.6	9.7	(9.9)^{P}
16	9.8	10.1$^{S}_{P}$	10.1$^{S}_{P}$	9.2	8.7	8.6	C	C	C	C	C	C	C	14.7	14.5	14.5	13.8	13.2	13.1	11.7^{S}	10.7^{S}	10.2$^{J}_{S}$	9.5	9.2
17	9.6	9.7^{B}	9.3	9.0	8.4	9.1	(10.5)^{S}	11.9	13.2	14.2	13.8	14.4^{P}	14.4^{P}	14.6	14.3	14.6	14.2	13.8	13.2	11.5	S	S	S	S
18	9.5^{S}	S	S	7.9	8.2	8.8	11.6	11.8	12.3	12.5	13.1	15.1	14.5	14.6	14.0	14.0	14.3	13.6	13.0	11.0$^{P}_{S}$	9.5$^{P}_{S}$	(9.8)$^{P}_{S}$	10.4$^{P}_{S}$	10.4
19	10.0	8.7$^{J}_{S}$	9.2	8.0	8.1	9.0	10.8	12.2	12.4	12.5	12.6	13.3	14.1	14.2^{B}	14.4	13.9	13.9	13.4	13.0	11.9	10.5^{S}	10.8^{P}	10.9	10.8$^{P}_{S}$
20	10.3	9.9^{P}	9.2	8.4	8.3	(9.0)^{S}	10.9	12.2	13.4	13.7	13.6	14.8	14.7	14.5	15.1	15.5	14.9	14.3	13.5	12.1	(11.1)^{P}	10.7^{P}	10.7^{P}	10.8^{P}
21	10.3	10.2	C	C	C	C	C	11.5	11.4	12.5^{H}	13.4	14.0	14.5	14.4	14.1^{P}	13.7	13.0	12.7	12.6	12.0	(11.5)$^{P}_{B}$	11.5	10.8$^{P}_{B}$	11.2$^{P}_{B}$
22	11.0	10.9	10.0	8.0	7.3	8.5	10.2	11.5	(11.7)$^{P}_{B}$	13.2^{H}	13.5^{H}	14.0	13.9	13.3^{H}	13.4	12.7	11.9	11.7	11.4	11.1	8.4	8.6	8.3^{P}	9.9
23	10.1	10.5	10.0	9.2	8.2^{S}	9.1	11.0	(11.7)^{S}	12.3^{S}	13.6	13.8	14.1	14.1	14.1	14.2	13.8	13.7	12.8	12.5	11.5	9.6	10.3	9.8	10.2
24	10.6	10.4	9.1	8.7	7.5	8.7	9.8	12.4	13.4	14.2^{P}	13.4$^{P}_{H}$	(14.7)^{P}	(15.0)^{P}	(14.1)^{P}	14.2	13.6	13.0	12.4	11.6	10.7^{P}	9.1	9.4$^{A}_{S}$	9.6	9.7^{S}
25	9.5	9.2	8.7	7.8$^{S}_{P}$	7.4	8.2	10.3	11.0	11.9	12.3^{H}	13.7^{H}	14.5	15.2^{P}	(15.0)$^{P}_{B}$	(14.9)$^{P}_{B}$	(14.8)$^{P}_{B}$	(14.5)$^{P}_{B}$	13.2	12.3	10.8^{H}	9.9	10.2	10.4	10.2
26	9.9	9.6	9.0	7.0	8.1	8.5	11.0	11.7	13.0^{H}	13.4^{H}	13.5^{H}	14.2	14.8^{P}	14.8^{P}	14.0^{P}	13.4^{H}	12.6$^{P}_{F}$	12.2$^{S}_{P}$	11.7$^{S}_{P}$	10.8$^{S}_{P}$	10.6	9.6$^{P}_{S}$	10.1	10.6
27	10.7	9.9	9.2	8.3	7.8	8.4	11.0	11.9	12.0	12.6	13.6	14.2$^{P}_{B}$	14.2$^{B}_{P}$	14.1$^{B}_{P}$	13.9	13.8	13.9$^{P}_{B}$	12.9	12.4	10.7$^{J}_{S}$	9.5$^{P}_{B}$	(9.5)^{B}	9.4$^{P}_{B}$	8.6$^{P}_{B}$
28	9.2	(9.0)$^{P}_{B}$	8.0^{B}	7.7^{B}	7.3$^{P}_{B}$	8.6^{P}	9.3	10.7	12.6	13.1	13.4^{P}	13.9^{H}	14.3^{P}	13.7	13.5	12.9	12.3	12.4	12.4	10.3	9.0^{S}	8.9^{S}	(9.3)^{C}	9.7^{S}
29	9.7^{S}	9.5^{S}	7.9^{S}	7.5	6.8	7.9	9.3^{S}	10.2^{S}	10.9	12.3	13.3	13.6	14.2	14.1	13.7	13.1	13.2	12.8	12.2	11.3	10.2^{P}	10.0$^{P}_{S}$	(9.4)^{S}	(11.1)^{S}
30	10.9$^{J}_{S}$	10.8$^{J}_{S}$	10.0$^{J}_{S}$	7.8	7.2	7.6	9.8$^{J}_{S}$	9.4^{K}	9.4^{K}	10.0^{K}	11.8^{K}	11.8^{K}	13.3^{K}	13.6	13.7	13.4	12.8^{A}	12.6	12.2^{P}	10.2^{P}	8.6	8.7	8.2	9.2
31																								
Median Value	9.7	9.5	9.0	7.9	7.5	8.4	10.4	11.7	12.5	13.2	13.4	14.2	14.4	14.5	14.0	13.7	13.2	12.8	12.4	11.3	10.0	9.7	9.7	9.8
Count	30	29	28	29	29	29	28	29	29	29	29	29	28	29	29	30	30	30	30	30	29	29	29	29

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

K 1

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

IONOSPHERIC DATA

Apr. 1949 | $h_P F_2$ | 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	300	290	270	260	310	380	270	250	280	280	320H	290	C	C	C	350	350	330	310	300	310S	(330)B	320B	320
2	310	300	300	300B	340B	350	280P	260	290	290	310	320	340	340	340	330P	330	310	(300)S	290	310	310	340	(340)S
3	(330)J	280F	280	280	360	350	270	260	270	290	310	350P	320P	340	330	330	340	310P	310	290	280S	340	360	370
4	330	330	290	350	400	370	300	280	290	320	300	310	350	(360)P	330	320	320	330	330	310	(330)S	(360)S	340	320S
5	320P	330	310	330	360	380	(320)S	300P	270	310	320	330	360H	(360)C	360	360H	330	320	320	320	330	350	370	370
6	340	280	270	350	390	390	270	270	300	310	320	330	360	360H	360	380	370	310P	(310)A	310	320S	250S	330S	320
7	320	280	300	300	360	250	280	310	300	340	370	380	360	370	360	370	380	350	330	350	360	380	340	330
8	370S	360	370	410	390	370	350	330	320	370	360	380	400P	390P	390	390	410	310	330	330S	330S	370	(370)	360
9	350	370	300	390	390	390	330	270	270H	290	(310)B	320P	300	(290)P	(300)P	270	280	280	300	300	320H	350	340	310
10	300	350	310	320	360	370	310	280	280	270	320	350	360B	330P	350	370	340	310	290	320	330P	360	360	360
11	380	380	340	380	410	410	260	260	280	420	380	400	410H	420	400	400	350	320	310	320	340	380	380	380
12	370	390	380	400B	410	320	280	300	300	330H	350H	340H	340H	360H	360H	360H	350	300	310H	310P	330	320	300	380
13	360	350H	300	410H	410N	450H	310	400J	260	(350)C	340	350	320	320	330	320	270	270	270	270	280	350S	350P	330S
14	370	380	380	370	360	320	260	250	280	300	310	320	310	340P	310P	310	310	280	280	280	380S	450	440	420
15	430	410	390S	390	400J	420	370	340	340	340	330	380H	350	360	350	340	340	320	(320)S	320J	(300)P	360	330	(320)P
16	320	320	290	290	290	290	C	C	C	C	C	C	C	330	330	310	310	310	310	310S	320S	340	380	390
17	420	370B	370	350	400	330	330S	330	340	350	370	340P	320	340	350	330	350	300	280	280	S	S	S	S
18	360S	S	S	420	390	380	290	300	320	320	390	400	380	380	370	370	400	290	270	270P	310S	(340)P	(330)P	320
19	310	290S	280	310	320	290	260	260	270	280	300	330	320	310B	310	310	300	300	280	270	300S	340P	340	320F
20	390	420P	300	(340)S	340	(310)S	290	280	290	280	300	330	300	330	340	330	320	300	300	290	(340)P	340P	(330)S	320P
21	310	300	C	C	C	C	C	250	240	340H	330	330	340	350	330P	350	330	300	340	360	(390)B	460	410B	400B
22	390	390	340	360	390	280	350	340	(330)B	370H	390H	380	390	410H	410	390	400	390	360	390	340	430	420P	430
23	350	370	360	330	380S	380	320	(340)S	350S	330	370	370	390	400	400	380	360	370	330	340	400	430	440	440
24	320	340	360	380	460	300	350	330	360	320P	320H	(320)P	(340)P	(350)P	340	340	340	330	330	340P	380	400S	380	370S
25	350	350	320	330P	360	350	260	280	320	380	380	370	380	370	340	370	370	320	320	350	360	380	360	350
26	360	350	320	290	360	340	280	280	320H	350H	490H	490	450P	460P	440P	450H	490P	470P	430P	440P	440	460S	420	410
27	380	360	370	380	410	370	320	360	390	390	(360)S	370B	410B	400B	380	380	360B	350	320S	(370)S	360B	(380)B	390B	330B
28	400	(350)B	340B	360B	360B	310P	270	360	350	360	(400)P	370H	370P	360	360	360	360	330	320	330	340S	390S	(390)C	380S
29	360S	310S	280S	350	410	340	370S	280S	350	410	340	370	350	340	340	360	330	300	290	290P	360P	370B	(320)S	(370)S
30	(340)S	(320)S	310S	370	400	410	320S	310	310	370	350	340	340	350	320	330	300A	310	300P	290P	370	370	320	380
31																								
Median Value	350	350	320	350	390	350	300	300	300	330	340	350	350	360	350	360	340	310	310	310	330	360	360	360
Count	30	29	28	29	29	29	28	29	29	29	29	29	28	29	29	30	30	30	30	30	29	29	29	29

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

IONOSPHERIC DATA

Apr. 1949 | h_{F_2} | Kokubunji, Tokyo | Lat. 35.42.4 N | Long. 139.29.7 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	260	250	240	200	220	270	240	240	240	210	210H	270	C	C	C	210	270	230	230	230	220	240	250	260
2	260	240	220	210	230	250	220	210	200	210	220	220	250	250	260	230	240	240	230	220	210	230	230	240
3	250F	240F	220	190	230	270	220	210	220	220	220	260	250	280	240	220	270	230	250	230	230	230	260	280
4	270	250	230	240	290	260	210	220	210	230	260	280	240	290	260	220	250	250	240	220	230	240	230	240
5	240	250	230	200	230	280	250	230	220	230	220	200	250H	(230C	200	230H	220	220	240	220	210	230	270	270
6	260	240	220	200	250	300	240	220	250	250	240	220	280	240H	290	290	310	240	(250A	260AF	210	240	250	250
7	250	220	230	250	270	230	220	230	240	270	300	300	310	280	310	270	250	250	240	240	250	260	260	260
8	(300A	280	280	280	260	270	240	240	240	300	270	340	240	300	320	320	300	320	220	240	220A	(290A	(290A	270
9	230	230	230	230A	250	310	220	220	200H	200	220	200	250	210	240	200	200	200	220	210	200A	250	260	240
10	230	230	220	210	250	300	230	230	210	210	200	250	290	280	300	270	230	240	230	230	210	250	250	250
11	280	240	240	240	300	240	220	210	230	210	270	350	350H	360	320	310	230	240	240	250	240	270	260	290
12	270	280	280	260	290	230	230	210	220	230H	240H	230H	230H	230H	240H	240H	260	230	210H	210A	230	230	240	270
13	260	250HF	220	230H	200N	390H	250	(400A	350	(320C	290	280	260	270	230	270	230	230	220	220AF	220	210	250	240
14	240	270	260	260	260	240	210	210	200	200	250	250	250	220	280	250	240	210	230A	220	270	300	340	320
15	320	310	300	300	280	320	280	260	270	240	240	220H	320	320	300	280	260A	210	240	240	200	240	270	250
16	250	240	240	220	210	220	210	200	C	C	C	C	C	270	250	270	250	230	260	230	240	230	260	300
17	320	290	280	270	250	260	240	230	230	280	260	250	240	260	260	290	270	240	220	220	240	250	260	280
18	270	270	230	210	280	300	200	230	240	250	240	280	290	300	310	290	300	230	220	210	210	230	250	240
19	240	230	230	200	230	220	200	200	210	190	190	280	240	260	250	210	260	200A	210	200	220A	240	270	250
20	300	300	250	210	240	240	210	210	210	210	220	270	270	210	300	300	230	220	220	210	210	220	250	250
21	230	230	C	C	C	C	C	210	190	230H	220	270	230	260	230	230	240	220AF	250	240	250	290	310	300
22	300	280	280	250	230	240	270	260	260	240H	240H	320	300	310H	350	270	310	280	290S	300	250	310	320	330
23	320	300	280	260	270	310	250	240	270	280	310	330	320	360	350	320	310	270	270	250	250	330	350	350
24	300	270	270	270	300	230	200	220	220	210	200H	250	260	260	260	230	210	240	250A	250A	200A	(310A	300	300A
25	270	270	240	230	240	270	210	210	210	280H	300H	320	270	270	280	270	(270A	260A	220A	230A	270	290	270	270
26	280	300	240	240	300A	280	220	230	240H	250H	320H	390	360	370	380	400H	420	360	330	300	310	320	310	320
27	290	270	260	260	290	290	240	240	250	280	280A	320	350S	340	340	360AS	290	270	250	240	260	280	310	260
28	280	270	250	260	250	250	230	260	270	280	280	310H	300	310	320	300	240	260	250	210	270	290A	(280C	270
29	300A	250	250	230	290	280	230	220	200	310	260	250	310	280	300	300	300	240	240	240	230AF	270AH	280	260
30	240	250	230	220	310	250	230	210	240	240	310	280	320	300	290	280	300A	250	220	230	220	260	270	250
31																								
Median Value	270	250	240	240	250	270	230	220	230	240	240	270	270	270	290	270	260	240	240	230	230	250	270	270
Count	30	30	29	29	29	29	29	30	29	29	29	29	28	29	29	30	30	30	30	30	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

IONOSPHERIC DATA

Apr. 1949 | f_0 | 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	L	L	L	Q	Q	L	C	C	C	Q	L	L	Q					
2						Q	Q	Q	Q	Q	L	L	L	L	L	L	L	L	Q					
3						Q	Q	Q	Q	L	L	L	L	L	L	Q	L	Q	Q					
4							Q	Q	Q	(5.8)$^{J}_{S}$	L	Q	B	(6.8)^{A}	L	Q	(4.9)^{A}	Q	L					
5						Q	Q	L	Q	L	Q	Q	Q	C	Q	Q	Q	Q	L					
6						L	L	Q	L	L	L	Q	(5.4)^{A}	L	(5.0)^{A}	Q	Q	L	A					
7						Q	Q	Q	L	L	L	L	L	A	A	L	L	Q	Q					
8						Q	Q	Q	Q	5.9	6.0	7.9	7.3	L	S	(6.6)^{F}	5.9	Q	Q					
9						Q	Q	Q	Q	Q	A	Q	5.6	A	B	Q	Q	Q	Q					
10						Q	A	A	Q	L	Q	L	7.4	L	L	L	Q	Q	Q					
11						L	Q	Q	L	B	L	(6.0)^{A}	(7.1)^{A}	L	L	L	Q	B	Q					
12						Q	Q	Q	Q	5.5	L	L	L	L	(4.8)^{A}	L	L	Q	A					
13						2.3	Q	5.5	6.0	[6.0]^{C}	6.0	L	L	L	L	L	L	A	A					
14						Q	Q	Q	Q	L	Q	L	L	Q	L	L	L	Q	A					
15						Q	Q	Q	5.0	(5.3)^{A}	L	Q	S	L	L	L	A	Q	Q					
16						Q	Q	Q	C	C	C	C	C	L	L	L	L	L	Q					
17						Q	Q	Q	Q	L	L	L	L	L	L	L	L	Q	Q					
18						Q	Q	L	L	5.2	L	6.4	6.4	6.0	6.0	L	L	Q	Q					
19						Q	Q	Q	Q	Q	Q	L	L	L	L	Q	Q	Q	Q					
20						Q	Q	Q	Q	Q	Q	L	L	Q	Q	Q	Q	Q	Q					
21						C	C	Q	Q	L	5.2	L	L	L	L	Q	L	AF	A					
22						Q	Q	L	Q	Q	Q	L	L	L	7.0	L	6.0	Q	S	L				
23						Q	Q	Q	L	L	L	L	L	7.0^{J}	7.0^{H}	L	L	Q	Q					
24						Q	Q	Q	Q	Q	Q	B	B	Q	Q	Q	Q	L	A					
25						Q	Q	Q	Q	L	L	5.6	5.6	L	6.0	L	A	A	A					
26						Q	Q	L	L	L	L	(6.2)^{S}	6.0^{S}	L	5.4	L	Q	A	Q					
27						Q	Q	Q	Q	Q	A	L	S	6.6	A	(5.8)^{A}	Q	L	Q					
28						L	L	A	L	L	L	L	L	L	B	L	L	L	Q					
29						Q	Q	Q	Q	L	L	L	5.5	L	L	L	L	AF	A					
30						Q	Q	Q	L	A	6.3	L	6.9	L	A	A	A	L	A					
31																								
Median Value						–		–	–	(5.7)	–	6.2	6.4	–	6.0	–	–							
Count						1		1	2	6	4	5	10	4	7	2	3							

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

Apr. 1949 | $h'F_1$ | 135°E Mean Time | Kokubunji, Tokyo | Lat. 35°42.4'N | Long. 139°29.3'E

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

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

IONOSPHERIC DATA

Apr. 1949 | fE | 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					E	B	(2.0)^{J}	(2.7)^{A}	3.4	3.7	B	B	C	C	C	3.6^{B}	3.2^{B}	2.8	A	B				
2					E	B	2.3	2.7	(3.1)^{A}	3.4	3.6	S	S	B	B	3.4	3.2	2.7	(2.0)^{B}	E				
3					E	1.2^{J}	2.4	2.8	3.1	3.5	[3.8]^{B}	4.1	(4.5)^{B}	B	B	A	3.4^{B}	3.2^{B}	(2.0)^{A}					
4							2.5	2.9	3.5	[3.8]^{S}	(4.1)^{B}	S	B	S	S	S	(3.3)^{A}	2.6	2.0	(1.4)^{B}				
5					E	B	A	B	(3.0)^{J}	[3.3]^{B}	(3.5)^{J}	B	B	C	A	B	A	2.8	2.2					
6						B	A	(2.8)^{A}	3.3	3.4	[3.6]^{B}	(3.8)^{A}	[3.8]^{B}	(3.7)^{J}	(3.5)^{B}	3.2^{J}	2.9	(2.5)^{F}	A					
7						A	A	A	A	(3.6)^{A}	3.7	3.9	A	B	3.9	(3.8)^{S}	3.2	(2.6)^{A}	A	A				
8						A	2.0	2.6	3.6^{F}	3.8	3.9	S	B	B	S	A	3.0	2.8	2.0					
9					E	B	2.0	(2.6)^{B}	[3.2]^{A}	3.7	B	B	A	A	B	B	B	2.8	1.7	A				
10						B	A	A	A	3.4	A	C	B	B	S	B	B	3.0	(1.9)^{A}					
11						B	2.5	B	B	3.5	(4.0)^{B}	B	A	4.0^{B}	3.7	3.6	3.6^{J}	2.4	B					
12						2.0	(2.5)^{B}	2.9	(3.1)^{B}	3.3^{B}	B	B	B	(3.9)^{B}	[3.7]^{A}	3.4	3.2	3.0^{J}	2.2					
13						A	A	2.8^{J}	(3.1)^{J}	[3.5]^{C}	3.8	A	A	B	(3.6)$^{B}_{F}$	(3.2)^{J}	A	A	A					
14						B	2.5	3.0	3.3	3.5	B	B	B	B	B	A	A	2.9	A					
15						B	2.0	2.9	3.3	[3.4]^{B}	3.5	B	S	B	A	B	A	2.9	2.0					
16						(1.6)^{B}	2.0	2.6	C	C	C	C	C	B	B	B	3.3	2.8	(2.2)^{A}	(2.0)^{A}				
17						B	(2.3)^{B}	3.2	3.6	[3.8]^{A}	(3.9)^{A}	3.9	[3.9]^{A}	(3.9)^{B}	3.8	(3.6)^{B}	3.5	2.8	A					
18						1.3	2.3	3.1	[3.3]^{B}	3.4	A	A	B	B	B	3.6	(3.2)^{B}	2.8	2.1					
19						A	A	A	A	(3.8)^{B}	4.0	(4.1)^{B}	[4.1]^{B}	(4.1)^{B}	4.0	3.7	3.1^{A}	(2.7)^{A}	2.2	A				
20						1.7	2.6	3.2	3.7	A	B	B	B	B	B	B	A	A	A					
21						C	C	3.0	(3.3)^{J}	B	B	3.7	4.2	4.0	[3.9]^{B}	3.8	3.4	2.8	2.0	A				
22						B	2.6^{J}	A	A	3.4^{J}	3.6$^{J}_{S}$	3.7$^{J}_{S}$	B	B	B	3.2	3.2	3.0^{B}	2.0	B				
23						1.3	2.4	3.0	3.2^{J}	3.4^{J}	3.9	S	S	B	B	B	(3.3)^{B}	3.0	A	A				
24						B	2.4	(3.1)^{B}	3.4	4.0	B	B	B	B	B	B	B	(2.7)^{J}	2.3^{A}	A				
25						1.8	2.5	3.0	[3.2]^{C}	3.4^{J}	[3.8]^{B}	4.1	4.2	4.1	4.0	3.5^{J}	3.4^{J}	A	A	A				
26						1.4	2.4	2.8^{J}	3.4^{J}	[3.8]^{B}	(4.2)^{J}	B	B	B	B	3.8	[3.4]^{B}	2.9	1.8^{B}					
27					E	2.8	2.4	3.0	3.6	3.9^{B}	3.9	B	B	B	3.4	(2.8)^{A}	2.8	A	A	A				
28						B	2.4	B	A	B	3.8	(4.0)^{B}	A	B	B	3.5	3.4	3.0	2.4	A				
29						E	2.6	B	B	3.3^{J}	3.5	3.5	3.6	3.5	3.5	3.5	3.6	2.8^{A}	A	A				
30						1.6	2.4	3.3^{J}	3.6	A	B	B	B	B	A	B	A	3.2	A	A				
31																								
Median Value						1.6	2.4	2.9	3.3	3.5	3.8	3.9	3.9	4.0	3.7	3.5	3.3	2.8	2.0	–				
Count						11	23	21	22	25	19	10	7	8	11	17	21	26	17	3				

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

K 6

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

IONOSPHERIC DATA

Apr. 1949 | hE | Kokubunji, Tokyo | Lat. 35.42.5 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					E	B	B	A	120	100	100	100	C	C	C	100	100	100	A	B				
2					E	B	140	100	(100)^{A}	100	100	100	100	100	100	100	100	100	100	E				
3					E	B	150	100	100	100	100	100	100	100	100	100	90	90	A					
4							100	100	100	100	S	S	B	110	100	(100)^{S}	100	100	110	B				
5					E	B	B	B	100	100	100	100	B	C	100	100	100	100	110					
6						B	A	100	110	100	(100)^{B}	100	100	100	100	100	100	100	A					
7						A	A	A	A	110	110	110	B	B	100	100	100	A	A	A				
8						A	(130)^{B}	110	100	100	100	110	110	100	110	(110)^{A}	110	100	110					
9					E	B	110	100	(100)^{B}	100	100	100	100	(100)^{B}	B	B	100	110	A	A				
10						B	A	A	A	100	(100)^{A}	100	100	110	100	100	(100)^{B}	100	110					
11						B	B	B	110	(120)^{B}	(120)^{B}	B	A	120	120	130	100	110	B					
12						B	110	100	100	100	110	110	100	100	(100)^{A}	100	100	100	100					
13						A	A	100	100	(100)^{C}	100	100	100	100	100	100	A	A	A					
14						B	110	100	100	100	100	100	(100)^{A}	100	100	A	A	100	A					
15						B	(150)^{B}	120	130	110	100	100	100	110	(110)^{A}	100	(100)^{A}	100	100					
16						B	110	100	C	C	C	C	C	(100)^{A}	100	(100)^{E}	100	100	A	100				
17						B	B	110	100	A	100	100	100	100	100	100	100	90	A					
18						B	100	100	110	110	100	100	100	110	110	110	110	100	100					
19						A	A	A	A	100	100	100	100	100	100	100	100	(100)^{A}	100	A				
20						B	110	100	A	A	B	B	B	B	B	B	A	A	A					
21						C	C	100	100	100	100	100	100	100	100	100	100	110^{A}	120^{A}	A				
22						100	150	130	(130)^{B}	120	110	120	B	B	120	110	120	120	(140)^{B}	B				
23						B	110	110	120	110	110	110	110	110	120	110	110	120	A	A				
24						B	90	100	100	100	100	100	B	B	100	100	100	110	110	A				
25						120^{B}	110	100	(100)^{A}	100	B	B	110^{B}	110	110	100	110	A	A	A					
26						110	100	100	100	110	140^{B}	B	B	B	130^{B}	130	130	130	B					
27					E	100	110	110	110	110	100	(100)^{B}	100	110	100	100	100	A	A	A				
28						100	100	B	A	B	100	100	(100)^{A}	100	(100)^{B}	100	100	100	100	A				
29						E	140	100	100	100	100	100	100	100	100	100	100	100	A	A				
30						110	110	100	100	(100)^{A}	100	(100)^{B}	B	B	A	B	A	100	A	A				
31																								
Median Value						100	110	100	100	100	100	100	100	100	100	100	100	100	110	—				
Count						7	20	23	24	26	26	24	18	22	23	26	26	25	13	2				

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

IONOSPHERIC DATA

Apr. 1949 | fEs | 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	G	G	G	G	(2.1)F	2.0F	G	3.0	G	4.3	B	B	C	C	C	B	B	3.2	2.4	2.5	2.2	1.8	G	G
2	G	1.8	G	1.3	G	G	G	3.3	(3.6)B	3.6	B	S	S	B	B	B	G	G	G	G	G	G	G	G
3	G	2.2Y	2.0	2.1	3.4Y	2.5	G	G	3.5	G	B	G	(5.1)Y	(5.8)Y	B	5.9	B	B	2.4	3.0	G	G	G	G
4	G	G	G	G	G	G	G	3.4	3.8	S	S	S	B	S	S	S	3.4	3.0Y	G	2.4Y	G	G	G	2.4Y
5	G	2.4	G	2.0	G	B	2.4Y	B	G	B	G	B	B	C	5.0Y	B	3.5	3.4	G	G	G	G	G	G
6	G	G	G	G	G	B	3.0	3.8	4.0	4.0	4.5	4.4	4.5Y	5.0	B	4.0	3.8	3.1	15.4	8.2	(4.2)F	2.4	G	G
7	G	G	G	G	3.0	3.0	3.2	3.2	(4.4)B	4.9	4.9B	4.3	B	6.4	7.3	4.8	B	G	3.3	3.2	3.1	G	3.5F	3.0
8	5.9F	6.1	1.6	2.0	3.0	2.4	G	G	5.0	5.1	4.8	6.3	5.9	7.0	7.3	7.2	4.4	3.4	G	2.8	4.0	6.7	(4.0)Y	G
9	2.3	G	1.8	3.0Y	G	2.4Y	3.8Y	B	4.2	5.4	6.8	5.4	5.2	6.2	B	B	B	3.0	3.2	2.9	3.8	3.0	3.5	3.1
10	2.6	2.5	2.0	2.2	3.4	G	4.4	5.0	4.0	4.2	5.0	C	5.0	B	4.2Y	B	B	G	4.5	3.2	4.7Y	4.3	3.6	3.0Y
11	2.7	1.8	1.2	3.0Y	3.0Y	2.4Y	3.2	B	B	4.4	4.4	5.0Y	5.0	B	4.9	4.2	G	3.8Y	3.6	3.4	3.0	B	B	B
12	G	1.2	1.2	1.2	1.2	3.2	3.0Y	4.4	B	3.9Y	4.4Y	B	B	B	4.8F	B	3.5	4.2	4.8	3.8	2.4	G	G	G
13	G	3.2	1.6	G	G	1.7	3.0Y	G	B	C	4.2	5.0	4.7Y	B	B	B	4.4	5.9	7.8	4.4	3.6	3.8	3.1	3.2
14	1.8	1.6	1.4	1.3	1.3	B	G	3.6	4.5	4.0	B	B	B	B	5.5Y	4.7	4.5	4.6	7.0	4.8	4.4	G	3.0	2.4
15	3.2	3.0	(1.6)B	1.7	1.6	B	G	G	3.8	5.0	4.1Y	B	S	B	4.9	B	9.2Y	G	G	3.6	G	G	G	G
16	1.6	1.3	1.3	1.3	1.3	B	G	G	C	C	C	C	C	B	B	B	4.0	G	3.6	2.8	3.2	2.4	2.1	1.9
17	1.8	G	B	B	G	B	G	G	4.6	4.8	4.8	5.9	3.9	B	4.2Y	G	3.9	4.2	4.2	3.8	3.8	G	G	G
18	G	G	G	G	G	G	G	3.6	B	G	5.7	7.1	B	B	B	B	B	3.9	4.2	4.0	2.7	2.0	G	1.4
19	1.4	3.6	3.0	3.0	2.6	3.0	3.6	4.0	4.0	4.2	5.3	B	5.2	4.7	6.1	4.9	4.4	3.8	G	2.6Y	3.8	2.6	2.4	3.0
20	1.8	4.2Y	2.8	1.3	2.2Y	G	G	3.6	4.2	5.0	4.8	5.1	5.0	4.5	5.0	4.7	4.8	3.8	3.8	3.4	2.4	3.8	1.8	2.8
21	1.8Y	1.9Y	C	C	C	C	C	B	4.2	B	B	4.4	5.5	4.8	B	4.2	5.2	5.5	6.8	3.4	G	G	G	G
22	G	G	G	G	1.2	B	G	4.4	4.9	5.0	4.5Y	4.9	B	B	B	3.6	5.9	B	(3.0)Y	2.1	2.0	2.2	G	G
23	G	G	3.0	G	1.5Y	B	3.0	G	4.9Y	4.8	6.0	5.8Y	4.6Y	4.8Y	B	B	3.7	4.4	3.0	2.6	2.2	2.0	2.4	2.4
24	2.0	2.0	G	G	G	G	G	4.2	4.8	4.4	B	B	4.8Y	B	B	B	B	4.5	4.8	4.2	4.4	9.5S	2.3	3.2
25	2.4Y	1.4	1.8Y	1.6	1.4	G	3.6	B	4.8	4.4	4.3	4.6	4.6	4.8	B	5.0	10.0Y	6.3	4.5	4.2	5.9	4.0	3.4	3.2
26	2.6	1.8	1.3	1.3	4.0	G	G	G	G	B	4.8Y	5.0Y	(4.6)Y	(4.6)Y	5.2	5.6	4.8Y	6.8	4.6	2.4	2.8	3.1	5.8	3.8
27	3.6	2.8	1.3	2.3	G	2.9	3.6Y	4.1Y	5.3Y	6.5	7.8	4.8	5.0	6.3	8.1	8.9	5.3	4.4	4.4	3.8	5.0	4.0	3.0	2.2
28	2.8	1.8	1.7	G	G	B	3.0	7.8	6.4Y	5.2	4.4	5.2	4.4	B	B	B	3.6	4.3	4.4	2.3	7.4	6.0	C	2.3
29	7.3	3.2	3.8	2.4	1.4	1.7	G	B	B	5.2	4.8Y	4.5Y	4.1	B	4.8Y	6.9	6.5	7.0	6.6	5.2	4.4	6.2	3.6	3.4
30	1.8	2.8	1.2	G	G	G	3.7Y	4.8	5.6	6.7	5.2	4.4Y	4.5Y	5.2	7.6	7.2	14.4	10.0	6.7	4.6	2.6	3.0	2.5	G
31																								
Median Value	1.8	1.8	1.3	1.3	1.3	1.7	G	3.5	4.2	4.6	4.8	5.0	4.8	5.0	5.1	5.0	4.4	4.1	4.0	3.3	2.9	2.4	2.3	2.2
Count	30	30	28	28	29	20	29	24	24	24	22	19	19	13	16	16	23	28	30	30	30	29	28	29

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

IONOSPHERIC DATA

Apr. 1949

F_2–M3000

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	3.1	3.1	3.3	3.3	3.0	2.7	3.2	3.4	3.3	3.2	3.0^{H}	3.1	C	C	C	2.8	2.8	2.9	3.0	3.0	(3.0)^{S}	(3.0)$^{S}_{B}$	3.0^{B}	3.0
2	3.1	3.1	3.0	3.1^{B}	2.9^{B}	2.9	3.2^{P}	3.3	3.1	3.1	3.0	3.0	2.9	2.9	2.8	2.9^{P}	2.9	3.0	(3.0)^{S}	3.1	3.0	3.0	2.9	2.9
3	JF	3.2^{F}	3.3	3.1	2.7	2.9	3.2	3.3	3.2	3.2	3.0	2.9^{P}	2.9^{P}	2.9	2.9	2.8	2.8	3.0^{P}	3.0	3.1	3.3$^{P}_{S}$	2.8	2.8	2.8
4	3.2	3.0	3.1	2.8	2.7	2.8	3.0	3.2	3.1	3.0	3.0	3.1	2.8	(2.9)^{P}	3.1	2.9	2.9	3.0	3.0	3.0	(2.9)$^{P}_{S}$	2.8^{P}	2.9	JS
5	2.9$^{P}_{S}$	2.9	3.1	2.9	2.8	2.7	(3.0)$^{P}_{S}$	3.1$^{P}_{S}$	3.2	3.0	3.0	2.9	2.8^{H}	(2.8)^{C}	2.8	2.8^{H}	2.8	2.9	2.9	2.9	2.9	2.8	2.7	2.8
6	3.0	3.4	3.3	2.8	2.7	2.7	3.3	3.2	3.1	3.0	3.0	2.8	2.8	2.7^{H}	2.8	2.8	2.8	3.0^{P}	(3.0)^{A}	3.0	3.0$^{P}_{S}$	2.9$^{J}_{S}$	3.0$^{P}_{S}$	3.0
7	3.1	3.3	3.1	3.1	2.8	3.3	3.1	3.0	3.1	2.8	2.8	2.7	2.8	2.7	2.7	2.7	2.7	2.8	2.9	2.8	2.8	2.7	2.8	2.9
8	2.7^{S}	2.7	2.7	2.6	2.6	2.8	2.9	2.9	3.0	2.7	2.8	2.7	2.6^{P}	2.6^{P}	2.6	2.6	2.6	3.0	2.9	3.0^{S}	2.9^{S}	2.7	[2.7]^{S}	2.8
9	2.7	2.7	3.1	2.7	2.6	2.6	2.8	3.3	3.2^{H}	3.1	(3.0)^{B}	3.0^{P}	3.1	(3.1)^{P}	(3.1)^{P}	3.3	3.2	3.2	3.1	3.0	3.0$^{S}_{H}$	3.0	2.9	3.0
10	3.1	2.9	3.0	2.9	2.9	2.8	3.1	3.2	3.3	3.2	3.9	2.8	2.8$^{B}_{P}$	2.9^{P}	2.8	2.8	2.9	3.0	3.1	3.2	2.9^{P}	2.8	2.7	2.8
11	2.7	2.7	2.9	2.6	2.6	2.6	3.3	3.3	3.2	2.5	2.7	2.7	2.6	2.5	2.7	2.6	2.8	2.9	2.9	3.1	2.8	2.7	2.7	2.7
12	2.7	2.6	2.7	JB	2.6	3.0	3.2	3.1	3.0	2.9^{H}	2.8^{H}	2.9$^{P}_{H}$	2.9	2.8	2.8	2.8	2.8	2.6	3.2	JP	2.9	2.9	3.1	2.8
13	2.8	2.9^{H}	3.2	2.7^{H}	2.6^{N}	2.5^{H}	3.0	J	2.7	(2.8)^{C}	2.9	2.9	2.9	2.9	2.9	2.9	3.2	3.3	3.2	3.2	3.2	JS	2.8$^{S}_{P}$	JS
14	2.8	2.7	2.7	2.7	2.8	2.9	3.3	3.4	3.1	3.0	3.0	3.0	3.1	2.8^{P}	3.0$^{S}_{P}$	3.0	3.0	3.3	3.2	3.2	2.7^{S}	2.4	2.5	2.6
15	2.5	2.6	2.7$^{P}_{S}$	2.7	J	2.6	2.7	2.8	2.8	2.8	2.9	2.7^{H}	2.9	2.8	2.8	2.8	2.9	2.9	S	J	(3.0)^{P}	2.8	2.9	(3.0)^{P}
16	3.0	2.9$^{S}_{P}$	3.1	3.1	3.1	3.1	C	C	C	C	C	C	C	3.0	2.9	3.0	3.0	3.1	3.0	3.0	3.0	JS	2.7	2.7
17	2.5	2.7	2.7	2.8	2.7	2.9	[2.9]$^{B}_{S}$	2.9	2.8	2.8	2.8	2.9^{P}	2.9	2.9	2.8	2.9	2.9	3.1	3.2	3.2	S	S	S	S
18	2.8^{S}	S	S	2.5	2.7	2.8	3.1	3.0	3.0	2.9	2.7	2.5	2.7	2.7	2.7	2.7	2.6	3.1	3.3	3.2$^{P}_{S}$	3.0$^{P}_{S}$	(2.9)$^{P}_{S}$	2.9$^{P}_{S}$	3.0
19	3.1	JS	3.2	3.0	3.0	3.1	3.3	3.4	3.2	3.1	3.1	2.9	2.9	3.0^{B}	3.0	3.0	3.1	3.1	3.3	3.2	3.1^{S}	2.9^{P}	2.9	3.0$^{P}_{S}$
20	2.7	2.5^{P}	3.0	2.9	2.9	(3.0)^{S}	3.1	3.3	3.2	3.3	3.1	3.0	3.1	3.0	3.0	2.9	2.9	3.0	2.9	3.2	2.9^{P}	2.8	2.9^{P}	3.0^{P}
21	3.1	3.1	C	C	C	C	C	3.4	3.5	2.9^{H}	3.0	2.9	2.9	2.9	2.9^{P}	2.8	2.9	3.0	2.8	2.8	(2.6)$^{P}_{B}$	2.5	2.6$^{P}_{B}$	2.6$^{P}_{B}$
22	2.7	2.7	2.9	2.8	2.7	3.1	2.8	2.8	(2.9)$^{P}_{B}$	2.8^{H}	2.6^{H}	2.6	2.8	2.6^{H}	2.6	2.6	2.6	2.7	2.9	2.7	2.9	2.6	2.6^{P}	2.5
23	2.9	2.7	2.8	3.1	(2.7)^{S}	2.7	3.0	[2.9]^{S}	2.8	2.8	2.7	2.7	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.8	2.6	2.5	2.6	2.5
24	3.0	3.0	2.5	2.7	2.4	2.6	2.9	2.9	2.8	2.9^{P}	3.0$^{P}_{H}$	(3.0)^{P}	(2.9)^{P}	(2.8)^{P}	2.9	2.7	2.8	2.9	2.9	2.8^{P}	2.7	(2.6)$^{S}_{A}$	2.7^{S}	2.8^{S}
25	2.8	2.8	2.9	2.9$^{S}_{P}$	2.8	2.8	3.3	3.1	3.0	2.8^{H}	2.7^{H}	2.8	2.7^{P}	(2.8)$^{P}_{B}$	(2.8)$^{P}_{B}$	(2.8)$^{P}_{B}$	(2.8)$^{P}_{B}$	2.9	3.0	2.8^{H}	2.8	2.7	2.8	2.8
26	2.7	2.8	2.7	3.2	2.7	2.8	3.1	3.2	3.0^{H}	2.8^{H}	2.3^{H}	2.4	2.5^{P}	2.4^{P}	2.5^{P}	2.4^{H}	2.3$^{P}_{F}$	2.4$^{P}_{S}$	2.5	2.4	2.4	2.4$^{P}_{S}$	2.5	2.6
27	2.7	2.8	2.7	2.7	2.6	2.7	2.9	2.7	2.6	2.6^{S}	2.8	2.7$^{P}_{B}$	2.6$^{P}_{B}$	2.6	2.6	2.7	2.8$^{P}_{B}$	2.8	2.9	JS	2.8$^{P}_{B}$	[2.8]^{B}	2.8	3.0
28	2.6	(2.9)$^{P}_{B}$	[2.9]^{B}	2.8^{B}	2.8$^{P}_{B}$	3.0^{P}	3.1	2.7	2.9	2.8	2.7^{P}	2.6^{H}	2.7^{P}	2.7	2.7	2.7	2.9	2.8	3.0	2.9	2.8^{S}	2.6	[2.7]^{C}	2.7^{S}
29	2.8^{S}	3.1^{S}	3.2^{S}	2.8	2.6	2.8	3.3^{S}	3.1^{S}	2.8	2.6	2.8	2.7	2.9	2.8	2.9	2.8	2.9	3.0	3.1	3.0	2.8^{P}	2.7$^{P}_{H}$	[2.8]^{S}	3.0
30	JS	2.9	JS	2.8	2.7	2.5	JS	3.0	3.0	2.7	2.8	2.8	3.0	2.9	2.9	2.9	3.2	3.1	3.1	3.0$^{S}_{P}$	2.8	2.7	3.0	2.7
31																								
Median Value	2.8	2.9	3.0	2.8	2.7	2.8	3.1	3.1	3.0	2.9	2.9	2.8	2.9	2.8	2.8	2.8	2.9	3.0	3.0	3.0	2.9	2.8	2.8	2.8
Count	28	28	27	28	28	29	26	27	29	29	28	29	28	29	29	30	30	30	29	27	29	27	27	27

Sweep 1.0 Mc to 17.0 Mc in 15 min Manual

K 9

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

IONOSPHERIC DATA

Apr. 1949 | $f_{F\,min}$ | 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	1.5	1.5	1.5	1.2	1.3	1.6	2.3	3.0	3.5	3.8	4.0	4.4	C	C	C	3.8	3.3	2.8	2.8	2.0	1.6	1.6	1.6	1.8
2	1.8	1.4	1.2	1.2	1.2	1.6	2.3	3.0	2.8	3.9	4.2	4.2	4.3^{S}	4.5	4.6	3.9	3.3	2.9	2.0	1.6	1.6	1.6	2.0	1.5
3	1.2	E	1.1	1.1	1.2	1.5	2.4	2.9	3.8	3.9	4.3	4.2	4.7	4.5	4.2	4.2	3.5	3.4	2.2	2.0	1.5	1.4	1.2	1.2
4	1.2	1.2	1.2	1.2	1.2	1.2	2.5	3.0	3.5	6.0	4.1	(4.5)^{A}	6.3	4.7^{S}	4.9^{S}	4.7^{S}	3.4	2.8	2.0	1.6	1.6	1.6	1.6	1.3
5	1.2	1.1	1.1	1.2	1.2	1.6	2.1	3.0	3.6	4.0	4.2	4.4	4.8	[4.5]^{C}	4.2	4.3	3.4	2.9	2.3	1.6	1.5	1.6	1.6	1.5
6	1.4	E	1.1	E	1.1	1.5	2.8	3.8	3.4	3.9	4.5	4.4	4.7	4.5	4.3	4.0	(3.0)^{A}	3.1	A	AF	1.8^{A}	1.6	1.4	1.4
7	1.4	1.1	1.1	1.2	1.2	1.8	2.5	4.0	A	A	4.0	4.4	6.0	A	A	4.4	3.6	A	A	A	A	1.2	A	A
8	A	A	E	1.2	A	A	2.3	3.2	3.6	4.2	4.2	5.0	4.8	6.4^{A}	5.2^{A}	5.2	3.3	3.1	2.1	2.0^{A}	3.8^{A}	(6.1)^{A}	3.8^{A}	1.1
9	1.2	1.4	1.6	2.0	1.4	1.8	2.0	3.2	4.0	4.5	6.4^{A}	5.0	4.4	5.7	4.8	4.3	4.8	3.1	2.2	1.8	(1.7)^{A}	1.5	1.6	1.6
10	1.2^{A}	1.4	1.4	1.1	1.9	1.6	4.0^{A}	4.9^{A}	(4.4)^{A}	3.8	4.0	[4.2]^{C}	4.4	4.4	4.6	3.9	3.8	3.3	(4.0)^{A}	3.2^{A}	1.7	1.8	1.8	1.6
11	1.2	E	1.1	1.1	1.1	1.5	2.5	4.6	4.2	4.3	4.6	4.5	4.8	4.4	4.1	3.8	3.7	2.5	3.4	A	2.0	2.8	1.8	1.2
12	1.1	1.1	1.1	1.1	1.1	2.0	2.3	3.2	3.6	4.0	4.4	4.2	4.4	4.4	4.4	4.2	3.7	3.7	[2.7]$^{A}_{S}$	1.6	1.6	1.7	1.2	1.1
13	1.2	E	E	E	2.0	1.6	2.7	3.4	3.8	[4.1]^{C}	4.4	4.5	4.3	4.2	4.0	4.0	3.2	2.9	3.6	1.8$^{A}_{F}$	2.5	2.4	1.5	1.2
14	1.2	1.1	E	E	E	1.6	2.5	3.0	3.7	4.0	(4.8)^{S}	4.3	4.6	5.0	5.0	3.8	3.8	4.0	4.4^{A}	3.2	2.6	1.3	2.0	1.1
15	1.8	1.6	1.2	1.3	1.4	1.5	2.4	3.1	3.8	4.4	4.2	4.6	6.2	6.0	4.3	4.3	6.2	3.0	2.1	3.2	1.7	1.6	1.6	1.5
16	1.2	1.1	1.1	1.2	1.2	1.6	2.5	3.0	C	C	C	C	C	4.2	4.1	4.5	3.5	3.2	[2.6]^{A}	2.0	2.2^{A}	1.8	1.7	1.6
17	1.6	1.2	1.2	E	E	2.4	2.6	3.6	4.0	4.0	4.1	4.3	4.0	4.2	4.1	3.9	3.6	3.8	4.2	3.6	2.6	1.5	1.5	1.5
18	1.5	1.5	1.5	1.2	1.2	1.2	2.7	3.4	3.8	4.3	4.9	5.8	4.6	4.5	4.7	4.2	4.1	3.5	2.2	2.6	1.5	1.4	1.1	1.1
19	1.1	1.1	1.1	1.1	1.1	1.8	3.0	A	A	4.2	4.6	4.3	[4.6]^{A}	4.8	4.8	4.5^{A}	3.5	[3.0]^{A}	2.4	A	A	1.3	A	A
20	1.2	1.2	1.3	1.1	1.1	1.7	2.7	3.8	4.3	4.5	5.0	4.8	5.0	4.8	5.2	4.6	3.8	3.2	3.2	2.4	1.6	1.6	1.4	1.4
21	1.1	E	C	C	C	C	C	3.4	4.2	4.0	4.4	4.4	4.8	4.4	4.3	4.4	3.8	[3.8]$^{A}_{F}$	3.8	1.4	1.4	1.6	1.6	E
22	E	E	E	E	E	2.0	2.8	3.8	4.0	4.2	4.6	4.9	4.4	4.4	4.3	3.9	4.3	4.0	(2.5)^{A}	2.0	2.0	1.8	1.8	1.6
23	1.5	1.6	1.2	1.1	E	1.6	2.7	3.5	4.2	4.4	4.6	4.4	4.5	4.8	4.3	3.8	4.0	3.6	2.0^{A}	1.3	1.3	1.3	1.7	1.2
24	1.2	1.2	E	E	E	1.8	2.4	3.6	3.9	4.4	4.1	6.0	5.0	6.0	5.6	4.4	4.2	3.5	3.9^{A}	2.3^{A}	2.7^{A}	3.7^{A}	1.6	1.9
25	1.8	1.2	1.2	1.8	1.6	1.8	3.4	3.6	4.4	4.5	4.4	4.6	4.2	5.0	4.6	4.6	A	A	3.4	3.0	4.0^{A}	3.3	2.2	2.2
26	2.0	1.1	1.1	1.1	4.0	1.6	2.8	3.4	4.0	4.6	4.8	5.7	5.7	5.4	4.7	4.4	4.8	6.2	4.1	2.8	2.0	1.9	2.6	2.6
27	2.2	1.8	1.1	1.5	1.1	2.0	3.2	3.4	4.2	5.2^{A}	7.5	6.6	5.2	5.9	7.6	5.0^{A}	4.5	4.4	4.2	3.2	3.6	4.0	4.4	1.8
28	1.6	1.7	1.7	1.6	1.6	3.8	3.0	7.2	A	A	A	4.6	4.4^{A}	4.0	5.6	4.1	3.6	3.7	3.6^{A}	1.5	A	A	C	A
29	A	A	A	A	1.1	(1.9)^{A}	2.6	3.9	4.0	4.1	4.3	4.5	4.5	4.5	4.8	4.0	4.5^{A}	A	A	A	AF	A	A	A
30	A	A	1.4	1.1	1.2	1.6	2.7	3.9	4.0	A	A	4.5	5.6	4.7	A	A	A	3.8^{A}	A	A	A	A	A	1.2
31																								
Median Value	1.2	1.2	1.1	1.1	1.2	1.6	2.6	3.4	4.0	4.2	4.4	4.5	4.7	4.5	4.6	4.2	3.7	3.3	2.8	2.0	1.7	1.6	1.6	1.5
Count	27	27	28	28	28	28	29	29	26	26	27	29	28	28	27	29	28	26	26	25	25	27	25	26

Sweep 1.0 MC to 17.0MC in 15 min ✱ Manual

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

IONOSPHERIC DATA

Apr. 1949 | $f_{E\,min}$ | 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	G	G	G	G	(2.0)^B	1.6	1.6	1.6	1.8	1.9	2.0	2.0	C	C	C	1.8	1.8	1.4	1.6	2.0	1.9	1.6	G	G
2	G	1.6	G	1.2	G	G	1.6	1.5	1.6	1.8	1.9	2.0	2.0	1.8	1.8	1.6	1.8	1.6	2.0	G	G	G	G	G
3	G	E	1.1	1.8	1.8	1.9	1.8	1.6	1.8	1.8	1.8	2.0	1.8	1.9	1.9	1.8	1.7	1.6	1.5	1.5	G	G	G	G
4	G	G	G	G	G	G	1.5	1.5	1.6	1.5	B	B	B	2.5	2.3	1.8	1.8	1.6	1.4	(1.3)^B	G	G	G	1.7
5	G	1.6	G	1.2	G	B	1.8	B	1.7	1.8	1.8	2.8	B	C	2.0	1.9	1.6	1.6	G	G	G	G	G	G
6	G	G	G	G	G	B	1.8	1.7	1.7	1.6	4.2	1.9	2.2	2.1	2.2	1.8	1.6	1.3	1.2	1.2	1.2	1.4	G	G
7	G	G	G	G	1.2	1.2	1.3	1.3	1.3	1.6	1.7	1.8	3.8	4.6	1.9	1.8	1.7	1.3	E	E	1.4	G	1.2	1.2
8	E	E	E	E	E	E	1.6	1.6	1.6	1.8	1.8	2.7	2.2	2.1	1.9	1.8	1.6	1.6	1.5	1.1	1.1	(6.1)^A	1.2	G
9	1.1	G	1.2	E	E	(1.3)^B	1.6	1.6	1.6	1.8	(1.8)^E	2.0	2.2	3.8	3.8	B	B	1.7	1.3	1.2	1.5	1.8	1.6	E
10	E	E	E	1.1	1.2	(1.4)^B	1.6	1.6	1.6	1.6	2.0	2.4	2.7	2.7	1.8	2.2	(2.3)^B	2.3	1.2	1.4	1.3	1.2	1.5	1.1
11	E	1.2	E	1.1	1.1	2.2	1.8	(2.5)^B	3.2	3.3	3.3	4.1	3.4	3.4	2.7	1.8	1.8	1.6	3.4	1.8	2.8	B	B	B
12	G	1.1	1.1	1.1	1.1	1.6	1.6	1.6	1.7	2.8	3.2	3.2	2.2	3.0	3.2	1.8	1.6	1.8	1.8	1.6	1.5	G	G	G
13	G	2.0	1.1	G	G	E	2.0	1.8	2.0	[2.1)^C	2.1	2.5	2.6	2.6	2.6	2.6	2.0	1.9	1.6	1.6	1.5	1.5	1.5	1.2
14	1.2	1.1	E	E	E	B	1.6	1.6	1.3	2.2	2.6	3.0	2.6	2.4	2.0	1.9	1.9	1.8	1.6	1.2	1.2	1.3	1.2	1.1
15	1.2	1.1	1.2	1.3	1.2	[1.4)^B	1.6	2.0	1.8	2.1	2.4	2.2	2.6	3.0	2.1	1.9	2.0	1.7	1.6	1.4	G	G	2.9	G
16	1.1	1.1	1.1	1.2	1.2	[1.4)^B	1.6	1.9	C	C	C	C	E	3.1	2.5	(2.1)^B	1.7	1.7	1.2	1.2	1.6	1.6	1.6	1.6
17	1.6	G	B	B	G	B	2.2	1.6	1.8	2.2	1.7	1.8	2.0	2.3	2.3	1.8	1.2	1.2	1.3	1.2	1.5	G	G	G
18	G	G	G	G	B	1.2	1.4	1.6	1.8	2.1	2.5	2.4	2.3	2.3	1.9	1.9	1.8	1.5	1.5	1.1	1.5	E	G	1.1
19	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.8	1.8	1.8	(2.1)^B	2.8	2.8	2.1	1.8	1.6	1.2	1.2	1.3	1.2	1.2	1.2	1.2
20	1.2	1.2	1.3	1.1	1.1	1.6	1.6	1.8	1.8	1.8	4.2	3.8	4.1	4.0	4.0	3.7	2.8	1.5	1.4	1.2	1.2	1.2	1.2	G
21	1.1	G	C	C	C	C	C	1.3	1.4	2.4	2.3	2.2	2.4	2.2	2.1	1.8	1.6	1.2	1.2	1.2	G	G	G	G
22	G	G	G	G	E	1.2	1.8	1.8	2.6	2.1	2.4	2.4	B	B	2.3	1.8	1.8	2.0	1.8	1.8	1.8	1.8	G	G
23	G	G	E	G	1.3	1.1	1.2	1.6	1.9	1.8	2.0	1.9	2.2	2.2	1.9	1.8	1.7	1.7	1.6	1.3	1.3	1.3	1.4	1.1
24	1.1	1.1	G	G	G	B	1.5	1.5	1.6	2.4	2.2	2.6	4.6	(3.3)^B	2.0	1.9	1.8	1.8	1.8	1.8	1.6	1.6	1.5	1.2
25	1.2	1.2	1.1	E	1.1	1.2	1.6	1.7	1.8	2.4	4.0	4.0	3.8	3.4	3.6	2.2	2.0	1.7	1.8	1.7	1.5	1.5	1.6	1.2
26	1.1	1.1	1.1	1.1	E	1.1	1.8	1.8	2.1	2.1	3.7	4.5	4.4	4.4	2.4	2.0	2.0	2.0	1.8	1.8	1.4	1.4	2.5	1.1
27	1.1	1.1	1.2	1.2	1.1	1.2	1.6	1.8	1.9	1.9	3.2	2.6	2.9	2.9	1.9	1.8	1.6	1.8	1.6	1.4	1.6	1.6	1.6	1.8
28	1.6	1.4	1.5	G	G	2.0	1.8	4.0	2.0	4.0	3.4	3.3	3.9	3.2	(2.7)^B	2.1	1.9	1.3	1.2	1.1	1.1	1.1	[1.1)^C	1.1
29	1.1	E	E	E	E	1.2	1.4	1.9	2.0	2.2	2.7	2.3	2.8	1.8	2.0	2.1	1.6	1.5	1.4	1.5	1.5	1.3	1.2	1.2
30	1.2	1.1	E	G	G	G	1.6	1.7	2.2	2.2	2.4	(2.8)^B	4.2	3.9	3.8	3.8	1.6	1.5	1.6	1.3	1.2	1.2	1.3	G
31																								
Median Value	1.1	1.1	E	E	E	1.2	1.6	1.6	1.8	2.1	2.4	2.4	2.6	2.7	2.0	1.8	1.8	1.6	1.6	1.4	1.4	1.3	1.2	1.1
Count	30	30	28	28	28	24	29	29	29	29	28	28	25	27	28	29	29	30	30	30	30	29	29	29

Sweep 1.0 Mc to 12.0 Mc in 15 min

K 11

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

IONOSPHERIC DATA

Apr. 1949 | Zd | 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	90	130	70	100	170	160	160	130	90	120	100^{H}	120	C	C	C	90	80	100	80	100	70^{S}	(100)$^{B}_{P}$	80^{B}	70
2	70	80	90	110^{B}	80^{B}	70	90^{P}	90	90	90	90	100	100	90	90	130^{P}	110	130	(120)^{S}	100	100	110	90	(130)^{S}
3	(140)$^{J}_{F}$	90^{F}	60	120	110	80	100	110	100	90	110	90^{P}	100^{P}	70	120	120	90	100^{P}	100	80	(90)$^{P}_{S}$	120	110	90
4	70	90	100	100	90	90	130	90	90	130	80	70	70	(50)^{P}	40	100	120	90	90	100	(100)$^{P}_{S}$	(100)$^{P}_{S}$	120	70$^{J}_{S}$
5	90$^{P}_{S}$	90	90	180	120	100	(80)$^{P}_{S}$	80^{r}	100	90	100	110	120^{H}	(110)^{C}	90	100^{H}	110	110	100	100	100	100	110	100
6	70	50	80	160	100	80	120	120	100	100	100	130	100	110^{H}	100	80	70	110^{P}	(100)^{A}	90	90$^{P}_{S}$	(90)$^{J}_{S}$	90$^{P}_{S}$	80
7	70	80	90	120	100	140	120	90	100	90	100	100	120	120	130	110	100	100	140	140	100	80	100	100
8	90^{S}	110	110	90	110	80	80	100	100	110	90	100	80^{P}	110^{P}	130	120	110	110	100	90^{S}	110^{S}	120	(100)^{S}	70
9	130	110	140	90	100	110	110	100	120^{H}	100	(90)^{B}	80^{P}	90	(100)^{P}	(100)^{P}	110	80	110	100	110	80	80	90	90
10	110	90	80	100	60	90	70	90	80	120	120	100	90^{B}	90^{P}	90	80	120	100	100	100	130^{P}	70	100	110
11	100	110	90	140	90	130	100	100	110	110	100	100	100^{H}	110	70	80	110	110	120	90	170	120	110	80
12	80	120	80	110$^{J}_{B}$	90	110	100	90	90	120^{H}	90^{H}	90$^{P}_{H}$	90$^{P}_{H}$	90$^{P}_{H}$	80$^{P}_{H}$	110^{H}	100	90	70$^{B}_{H}$	80$^{P}_{J}$	80	160	150	60
13	70	80^{H}	60	60^{H}	70^{N}	100^{H}	70	60^{J}	120	(130)^{C}	130	80	100	100	100	110	70	70	90	130	80	100$^{J}_{S}$	(90)$^{S}_{P}$	(70)$^{J}_{S}$
14	80	80	100	100	90	110	120	100	130	100	90	100	90	90^{P}	100$^{P}_{S}$	110	100	80	90	90	140^{S}	(110)^{S}	90	90
15	110	100	90$^{P}_{S}$	100	90^{J}	90	90	130	140	110	110	90^{H}	70	70	120	90	70	130	(110)^{S}	90^{J}	(80)^{P}	110	90	(60)^{P}
16	60	(80)^{S}	(90)^{S}	100	90	80	C	C	C	C	C	C	C	100	90	100	110	90	90	90^{S}	90^{S}	120$^{J}_{S}$	90	90
17	100	100^{B}	120	100	90	80	(90)$^{B}_{S}$	90	110	110	110	80^{P}	90	100	100	110	90	100	90	130	S	S	S	S
18	S	S	S	100	100	80	80	100	100	110	60	130	110	80	100	90	90	110	90	100$^{P}_{S}$	100$^{P}_{S}$	(90)$^{P}_{S}$	90$^{P}_{S}$	90
19	100	70$^{J}_{S}$	100	100	90	90	80	80	90	120	80	90	100	80^{B}	90	110	100	100	80	110	(100)^{S}	100^{P}	80	100$^{P}_{S}$
20	110	120^{P}	90	(100)^{S}	100	(80)^{S}	110	100	90	130	140	110	80	80	80	120	80	90	100	70	(80)^{P}	150^{P}	(120)^{S}	90^{P}
21	70	70	C	C	C	C	C	60	80	80^{H}	80	100	70	80	110^{P}	90	120	120	120	80	(160)$^{P}_{B}$	70	100$^{P}_{B}$	110$^{P}_{B}$
22	100	70	100	100	100	140	110	100	(100)$^{P}_{B}$	110^{H}	120^{H}	120	50	110^{H}	100	110	100	70	60	90	70	90	80^{P}	80
23	70	110	100	120	80^{S}	90	120	(110)^{S}	90^{S}	110	130	140	110	110	90	110	120	80	120	120	110	130	50	90
24	100	60	110	120	110	80	200	140	110	110^{P}	80$^{P}_{H}$	(80)^{P}	(70)^{P}	(80)^{P}	90	120	100	100	80	130^{P}	80	110$^{A}_{S}$	80	70^{S}
25	120	100	110	80$^{S}_{P}$	80	100	(150)^{S}	120	110	70^{H}	100^{H}	60	80^{P}	(70)$^{B}_{P}$	(70)$^{B}_{P}$	(70)$^{B}_{P}$	(80)$^{B}_{P}$	100	80	120^{H}	70	80	90	120
26	110	90	130	80	150	140	230	60	170^{H}	100^{H}	100^{H}	90	60^{P}	100^{P}	90^{P}	110^{H}	100$^{P}_{F}$	(110)$^{S}_{P}$	(120)$^{S}_{P}$	120$^{S}_{P}$	100	(100)$^{P}_{S}$	90	90
27	100	100	100	110	90	90	120	140	140	120	(110)^{S}	(100)$^{P}_{B}$	(100)$^{P}_{B}$	80$^{P}_{B}$	100	100	110$^{P}_{B}$	110	110^{S}	(100)$^{J}_{S}$	(80)$^{P}_{B}$	(70)^{B}	50$^{P}_{B}$	(70)$^{P}_{B}$
28	90	(70)$^{P}_{B}$	(60)^{B}	70^{B}	(120)$^{P}_{B}$	110^{P}	110	150	90	100	(110)^{P}	110^{H}	100^{P}	100	110	110	90	100	90	90	140^{S}	140^{S}	(130)^{C}	110^{S}
29	80^{S}	80^{S}	60^{S}	110	80	120	110^{S}	110^{S}	120	110	110	110	80	100	100	100	100	110	100	140	90^{P}	(110)$^{P}_{H}$	(80)^{S}	(110)^{S}
30	(80)$^{J}_{S}$	(100)$^{J}_{S}$	80$^{J}_{S}$	90	100	110	90$^{J}_{S}$	80	130	140	100	100	80	90	130	110	50^{A}	80	100^{P}	130^{P}	70	90	90	100
31																								
Median Value	90	90	90	100	90	90	110	100	100	110	100	100	90	90	100	110	100	100	100	100	90	100	90	90
Count	29	28	28	29	29	29	27	29	29	29	28	29	28	29	29	30	30	30	29	30	29	29	28	29

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

IONOSPHERIC DATA

Ap 1949

fF_2

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	9.8	9.2	9.3	9.4	7.0	5.7	(6.2)^{B}	9.6	11.2	11.8	11.3^{TS}	12.8	[13.6]^{S}	14.4^{J}	14.3^{H}	13.7	[13.3]^{B}	12.8^{J}	13.2^{J}	12.9^{P}	12.0^{S}	11.0	11.3	10.8
2	11.0	10.8^{H}	9.4	8.8^{P}	7.7^{H}	6.7^{H}	7.5	10.0	10.8	12.2	12.5	13.0	13.9^{H}	14.5^{J}	[14.5]^{SH}	14.5^{P}	14.6^{TS}	14.6^{TS}	14.4^{TS}	[12.9]^{S}	11.4	11.9	11.4TH	[11.3]^{SH}
3	11.2	10.9^{H}	10.5	8.5	7.1	7.3^{H}	7.4	9.4	11.1	12.1	12.2^{S}	12.9	13.6^{J}	14.0^{H}	13.6	13.0	11.5	13.1	13.3	12.8	11.2	10.5^{H}	10.6	10.5
4	10.5	10.4^{H}	10.1TH	C	C	C	9.1	11.0	11.4	13.1	[13.3]^{C}	13.5^{H}	14.4^{P}	13.9^{J}	13.8^{J}	14.0^{J}	13.4^{TP}	13.7^{THS}	13.7^{PS}	12.9^{S}	[12.2]^{S}	11.5	11.4	11.5
5	10.9	11.1	10.4	10.0	7.4^{J}	5.2	6.6	10.1	11.5	12.8	13.1	13.7	14.0	(14.3)^{P}	13.5	13.3	12.9^{H}	12.8^{P}	11.9^{S}	11.9^{J}	10.6^{J}	8.8^{PS}	[9.3]^{S}	9.8^{H}
6	9.8	9.4^{J}	8.7^{J}	7.7	6.5	6.3	6.6	9.2	11.9	12.5	12.0^{J}	C	C	C	C	C	C	13.0	12.7	[11.7]^{f}	10.7	10.0	[10.2]^{S}	10.3^{S}
7	9.8^{S}	8.9	8.5	7.0	6.5	6.5	7.8	C	C	C	C	C	C	C	C	C	C	C	C	C	11.9^{S}	11.2^{H}	11.8	11.0
8	10.3	10.4	9.9	8.4	8.2^{H}	7.7	8.2	11.1	12.9	S	C	S	C	14.1TH	14.0^{TP}	C	C	C	C	S	11.2^{TP}	10.4TH	10.0	10.0
9	9.8	9.0	9.1	7.8	8.0	8.1	9.0^{P}	11.3	11.8	14.2^{J}	[14.7]^{C}	15.1^{TP}	14.9^{P}	14.9^{S}	14.7TH	14.4^{S}	13.9^{J}	C	S	11.7^{J}	10.7	9.8	9.1	11.9
10	11.3	12.8^{J}	11.6	8.9	8.3	8.7	9.0	12.6	13.2^{H}	12.0	(11.8)^{S}	S	S	S	14.4^{J}	14.2	14.4	13.7^{J}	13.4^{J}	[12.0]^{S}	10.5^{SP}	10.1^{SP}	9.7^{P}	9.7^{J}
11	9.6	9.7	10.0	8.9	7.6	7.8^{N}	9.3	10.3	10.5	12.0	13.2^{J}	12.8^{H}	13.2	13.7^{P}	13.8^{PH}	12.5	12.0	12.5^{S}	12.3	11.8	10.4	9.6	9.7	9.8
12	9.8	8.7	8.6	7.8	8.2	8.7	9.6	11.7	12.3	13.3^{P}	14.1^{J}	[14.8]^{B}	15.5^{B}	15.4^{B}	15.2^{PH}	14.1^{H}	14.0^{BH}	[13.8]^{S}	13.6	12.4	11.5	11.5	9.4	9.0^{S}
13	9.3	7.8	8.8	7.1	6.5	6.6	8.4	10.0	10.5	10.8	11.9	14.2	15.1	14.4	15.3^{J}	15.2^{TP}	14.3	13.0	12.5^{J}	11.2	9.7	8.4	8.2^{H}	8.5
14	8.1	7.2	7.0	6.5	7.2	6.5	7.1	10.1	11.3	11.6	12.0	13.3	[14.4]^{S}	(15.5)^{P}	15.6^{PH}	15.1TH	14.7^{J}	13.3	13.6TH	11.0^{S}	10.4	9.6^{SP}	9.4^{H}	10.6^{J}
15	10.7^{J}	10.4^{J}	10.4^{J}	9.4^{J}	7.6	7.8	8.0	9.6^{H}	10.6	10.6	12.6	14.3	15.0^{J}	15.2^{P}	[14.8]^{B}	14.4^{J}	14.2^{J}	14.3^{H}	13.7^{P}	13.3^{S}	11.1	8.9^{H}	10.4	11.1
16	11.3	10.8	11.1	10.8	9.0	7.2	8.3	10.4	[10.6]^{S}	10.7	12.1^{H}	14.2TH	14.5^{J}	15.0^{J}	14.9^{J}	14.5TH	14.3^{TS}	14.2	13.8^{H}	12.3	11.5	11.1^{H}	9.8^{H}	9.9^{H}
17	9.9^{H}	10.6	10.3	9.4	8.4	7.4	7.8	10.8	11.3	12.7	12.9	14.8	14.6	14.0^{J}	13.8	13.7^{J}	13.0TH	12.4^{J}	11.9^{J}	11.9^{H}	11.3	11.0	10.7	9.8
18	10.7^{J}	10.1^{Z}	9.8^{H}	7.7^{H}	7.9^{H}	8.3	9.3^{S}	10.5	10.8^{H}	11.7	11.9	[13.2]^{BK}	14.5$^{TN}_{K}$	14.8^{TK}	14.9^{TK}	[15.2]^{BK}	15.4^{BK}	B	S	S	10.3^{J}	11.0^{H}	11.2	11.8
19	9.9^{TS}	9.9	[10.3]^{C}	10.7	9.4	9.1	9.9	10.9	11.0	11.3	11.5	11.9^{J}	[11.4]^{C}	12.9^{P}	12.7^{PH}	C	C	C	C	C	C	C	11.7	11.7^{S}
20	[11.7]^{S}	11.6	10.4	8.5	8.4	7.8^{H}	9.3	10.9	12.0	11.9^{PS}	12.7^{BP}	B	B	B	14.9	S	S	14.4^{BJ}	13.2^{TJ}	13.0TH	12.3	[12.6]^{S}	(12.9)^{PH}	12.3^{H}
21	12.9^{TS}	S	B	10.9^{J}	8.4	7.4	9.2	9.7	10.8	S	B	14.3TH	B	B	B	13.7^{J}	13.4	13.3^{S}	12.1^{S}	11.5^{J}	C	C	S	11.8
22	"B	B	B	9.6	7.4	6.9	8.1	10.0	11.6	12.4	13.6^{J}	13.7^{J}	13.9^{J}	[13.9]^{B}	13.9	13.4	12.9	12.5	13.6	11.8	9.4	7.6	9.1^{J}	8.2
23	11.0	10.8	11.5	9.2	8.2	7.6	8.5	10.5	10.9	11.3^{J}	[12.4]^{S}	13.5^{J}	13.2^{J}	13.2	13.1	13.4	12.9	13.3^{J}	12.5	10.4^{J}	[10.4]^{S}	10.1^{J}	10.6	10.8^{J}
24	10.3	10.8	10.5^{SH}	8.7	7.5	6.9^{Z}	6.8	[9.3]^{C}	11.7	12.9	14.0^{J}	[14.4]^{B}	14.7^{J}	14.4^{S}	14.8	13.7^{S}	13.5^{S}	12.8^{S}	[11.8]^{S}	10.7^{J}	10.5	10.4	10.8	8.8
25	8.9	8.2	10.7	10.0	7.4	6.6	7.9	10.6^{J}	11.3	11.6	11.8	[13.1]^{B}	14.3^{J}	[14.8]^{B}	15.3^{J}	15.5	15.0^{J}	13.9	12.6^{J}	12.2^{J}	11.3	11.2	11.3	11.5
26	[11.3]^{S}	11.1	9.9	8.4	7.5	7.4	8.9^{J}	10.0	9.9	11.8	12.9^{J}	13.5	15.0^{TJ}	B	B	C	C	13.5	12.8	12.8	C	C	11.9	[13.0]^{S}
27	14.1	13.6^{SH}	11.4^{S}	9.6^{S}	8.5^{J}	7.6	9.0	10.4	11.2	10.7	12.7	S	B	C	C	C	C	C	C	C	10.6^{H}	10.0	9.2	10.0
28	10.2	10.4	8.8	8.5	8.1	7.5	8.2	10.1	12.1	11.2	13.3	14.1	14.7	14.6	14.7	14.1	13.2	13.1	13.3	12.9^{H}	10.5	9.6	10.4	10.4
29	10.9	10.3	9.6	8.0	6.7	6.7	7.8	10.3	10.1	10.4	11.6	C	C	C	C	13.3	13.8	13.6	13.0	12.4	10.5	12.2^{K}	13.3^{KZ}	SF^{K}
30	BF^{K}	12.2^{KF}	12.1^{TKF}	10.4^{K}	S^{K}	S^{K}	SF^{K}	10.4^{K}	8.7^{K}	8.9^{TK}	11.3^{K}	14.1	13.8^{J}	14.1^{J}	14.4	14.6^{J}	14.0^{J}	[13.7]^{S}	13.0	[12.1]^{S}	11.2	10.1	10.4	11.3^{J}
31																								
Median Value	10.4	10.4	10.1	8.8	7.7	7.4	8.2	10.3	11.2	11.8	12.5	13.7	14.4	14.4	14.5	14.1	13.8	13.3	13.1	12.1	10.7	10.4	10.4	10.6
Count	28	28	28	29	28	28	29	29	29	27	27	23	22	22	24	23	23	24	24	25	27	27	29	29

Sweep 1.2 Mc to 18.5 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr 1949 | hr F, | 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	350	300	280	300	300	330	(360)^{B}	290	300	310	300$^{J}_{S}$	380	[370]^{S}	360^{J}	400^{H}	390	[360]^{B}	330^{J}	360^{J}	360^{P}	340^{S}	360	370	360
2	340	340^{H}	320	320$^{P}_{H}$	340^{H}	330$^{S}_{H}$	360	270	300	320	340	370	390	370^{J}	[390]$^{S}_{H}$	400^{P}	400$^{J}_{S}$	360$^{J}_{S}$	340$^{J}_{S}$	[350]$^{S}_{H}$	350	370^{H}	330$^{H}_{M}$	[350]$^{S}_{H}$
3	360	320^{M}	320^{H}	300	340	330^{H}	370	260	320	320	360^{S}	380	350^{J}	380^{H}	390	400	380	390	370	340	350	400^{H}	390	400
4	390	330^{H}	300$^{J}_{H}$	C	C	C	340	300	300	320	[350]^{C}	370^{H}	380^{P}	370^{J}	370^{J}	400^{J}	420$^{J}_{P}$	400$^{J}_{S}_{H}$	360$^{S}_{P}$	320^{S}	[350]^{S}	370	340	350
5	330	330	300	300	340^{J}	360	380	330	300	300	310	380	400	(380)^{P}	360	400	390^{H}	380^{P}	350^{S}	340^{J}	320^{J}	350^{P}	[380]^{S}	400^{H}
6	330	320^{J}	300^{J}	280	370	390	380	300	290	300	300^{J}	C	C	C	C	C	C	370	340	[350]^{C}	360	400	[370]^{S}	340^{S}
7	330^{S}	320	290	350	360	380	360	C	C	C	C	C	C	C	C	C	C	C	C	C	410^{S}	370^{H}	390	370
8	360	370	380	340	360^{H}	400	400	360	320^{S}	S	C	S	C	410$^{J}_{H}$	420$^{J}_{P}$	C	C	C	C	S	370$^{J}_{P}$	400$^{P}_{H}$	400	390
9	350	340	390	380	460	440	420^{P}	310	280	360^{J}	[370]^{C}	370^{P}	350^{P}	390^{S}	390^{J}	400^{S}	370^{J}	C	S	350^{J}	(370)^{S}	360	390	340
10	320	320^{J}	320	310	400	400	360	300	300^{H}	290	(400)^{S}	S	S	S	410^{J}	400	420	400^{J}	370^{J}	[370]^{S}	370$^{S}_{P}$	440$^{S}_{P}_{H}$	400^{P}	400^{J}
11	410	400	360	350	350	470^{N}	310	300	320	310	340^{J}	400^{H}	400	400^{P}	430$^{J}_{P}$	390	380	390^{S}	350	340	320	380	400	390
12	400	380	390	430	330	280	330	320	320	360^{P}	390^{J}	[390]^{B}	390^{B}	400^{B}	400$^{P}_{H}$	400^{H}	400$^{B}_{H}$	[390]^{S}	370	350	350	320	360	400^{S}
13	390	410	370	430	420	530	500	330	350	360	370	390	370	380	400^{J}	390$^{P}_{H}$	360	330	350^{J}	330	320	380	410^{H}	410
14	360	400	360	400	400	400	370	290	300	300	360	420	[400]^{S}	(380)^{P}	400$^{P}_{H}$	390$^{P}_{H}$	400^{J}	380	390$^{P}_{H}$	320^{S}	320	410$^{P}_{S}$	400^{H}	400^{J}
15	370^{J}	360^{J}	350^{J}	330^{J}	(380)^{B}	420	360	350^{H}	310	360	400	420	400^{J}	380$^{P}_{J}$	[390]^{B}	390^{J}	390^{J}	370$^{J}_{H}$	360^{P}	(330)$^{J}_{S}$	320	400^{H}	420	400
16	350	360	340	310	300	330	310	290	[310]^{S}	330	420^{H}	430^{H}	380^{J}	390^{J}	380^{J}	390$^{J}_{H}$	390$^{S}_{H}$	400	350^{H}	340	350	370^{H}	400^{H}	400^{H}
17	420^{H}	360	350	340	320	320	340	300	320	350	400	400	390	390^{J}	380	400^{J}	380$^{J}_{H}$	360^{J}	330^{J}	340^{H}	350	400	390	380
18	380^{J}	410^{Z}	320^{H}	330^{H}	420^{H}	420	330^{S}	300^{J}	300^{H}	310	370	[390]^{B}	400$^{J}_{H}$	400^{J}	390^{J}	[380]^{B}	370^{B}	B	S	S	380^{J}	380^{H}	390	370
19	380$^{J}_{S}$	350	[350]^{C}	340	310	290	300	290	300	330	370	400$^{J}_{K}$	[390]$^{C}_{K}$	380$^{P}_{K}$	400$^{J}_{P}_{H}$	C^{K}	C^{K}	C	C	C	C	C	400	390^{S}
20	[370]^{S}	350	340	340	340	370^{H}	350	310	340	350$^{P}_{S}$	390$^{B}_{P}$	B	B	B	390	S	S	410^{B}	360$^{J}_{S}$	400$^{J}_{H}$	410	[420]^{S}	(420)$^{P}_{H}$	400^{H}
21	350$^{J}_{S}$	S	B	330^{J}	380	380	360	350	340	S	B	390$^{J}_{H}$	B	B	B	410^{J}	410	420^{S}	350^{S}	330^{J}	C	C	S	360
22	B	B	B	310	350	370	350	310	340	310	350^{J}	400^{J}	400^{J}	[390]^{B}	380	400	400	340	360	320	340	400	400^{J}	380
23	370	330	320	310	330	360	320	300	280	300^{J}	[340]^{S}	380^{J}	370^{J}	380	390	390	350	380^{J}	350	320^{J}	[370]^{S}	410^{J}	410	390^{J}
24	340	310	350$^{S}_{H}$	320	320	460^{J}	400	[360]^{C}	320	360	390^{J}	[380]^{B}	370^{J}	370^{S}	390	390^{S}	380^{S}	370^{S}	[340]^{S}	310^{J}	370	420	420	370
25	350	380	310	300	310	350	360	320^{J}	270	370	380	[390]^{B}	390^{J}	[380]^{B}	360^{J}	360	370^{J}	390	370^{J}	370^{J}	390	400	390	380
26	[360]^{S}	340	330	350	360	390	370^{J}	300	320	360	450^{J}	430	430^{J}	B	B	C	C	400	410	380	C	C	400	[390]^{S}
27	380	380$^{S}_{H}$	330^{S}	360^{S}	390^{J}	390	350	290	320	340	450	S	B	C	C	C	C	C	C	C	410^{H}	390	380	370
28	400	380	330	370	380	390	370	330	330	300	400	400	400	400	400	390	380	430	390	360^{H}	390	390	390	390
29	370	320	300	310	340	370	330	290	310	340	400	C	C	C	C	410	400	380	360	370	360	410^{K}	350$^{J}_{S}_{K}$	SF^{K}
30	BF^{K}	370$^{F}_{K}$	340$^{J}_{F}_{S}_{K}$	S^{K}	S^{K}	S^{K}	SF^{K}	300^{K}	300^{K}	340$^{J}_{K}$	360^{K}	420	390^{J}	430^{J}	410	380^{J}	360^{J}	[360]^{S}	360	[340]^{S}	310	330	390	350^{J}
31																								
Median Value	360	350	330	330	350	380	360	300	310	330	370	390	390	380	390	390	380	380	360	340	350	390	390	390
Count	28	28	28	28	28	28	29	29	29	27	27	23	22	22	24	23	23	24	24	25	27	27	29	29

Sweep 1.2 Mc to 18.5 Mc in 15 min Manual

Y 2

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

IONOSPHERIC DATA

Apr. 1949 | h_{F_2} | Yamagawa | Lat 31.2.5 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	290	260	250	230	210	240	290	240	300	300	250	300	300	300	300	300	340	300	300^{H}	290	280	240	280	250
2	250	240^{H}	230	220^{H}	230^{H}	260^{H}	280	220	230	300	240	310	310^{H}	310	300^{H}	350	300	300	240	250^{H}	250	300	230^{H}	270^{H}
3	300	250^{H}	250^{H}	210	240	250^{H}	(250)^{B}	250	250	250	250	240	300	290^{H}	300	270	220	300	300	280	240	240^{H}	280	300
4	300	240^{H}	240^{H}	C	C	C	300	300	260	250	[280]^{C}	300^{H}	300	310	300	300	340	300^{H}	260	260	260	260	250	270
5	270	260	260	230	220	290	230	260	250	300	300	280	300	300	290	350	300^{H}	300	300	290	250	240	290	300^{H}
6	290	280	240	220	260	290	290	250	280	290	290	C	C	C	C	C	C	300	300	[280]^{C}	250	280	280	260
7	280	270	220	220	250	280	290	[270]^{C}	240	C	C	C	C	C	C	C	C	C	C	C	300	290^{H}	280	290
8	290	290	300	280	260^{H}	290	320	260	300	300	300	290	(300)^{F}	300^{H}	250	(250)^{A}	C	C	C	280	300	280^{H}	300	300
9	300	300^{A}	310^{A}	290	310	320	330	260	240	260	[260]^{C}	260	300	290	260^{H}	300	250	[250]^{C}	240	230	290	290	290	300
10	290	270	250^{A}	240^{A}	280	290	290	260	240^{H}	230	230	230	400	350	380	380	400	300	290	260	300	270$^{A}_{H}$	300	300
11	310	310	300	280	290	370^{N}	280	270	300	250	280	300^{H}	250	250	300	290	310	270	270	280	270	290	290	300
12	300	300	300	300	330	280	270	230	270	290	270	270	290	280	310^{H}	300^{H}	300^{H}	300	300	300^{A}	290	270	250	290
13	300	300	290	300	330	480	400	300	300	220	280	300	230	290	290	300	290	300	280	230	270	240	290^{H}	300
14	290	300	290	280	280	290	290	250	240	250	270	310	300	300	300^{H}	300^{H}	290	290	280^{H}	240	240	220	300^{H}	300
15	280	280	270	280	280	300	290	270^{H}	260	350	350	400	340	330	280	300	310	290^{H}	300	230	250	240$^{B}_{H}$	320	300
16	300	290	260^{A}	250	220	220	250	220	210	240	320^{H}	300^{H}	300	340	330	350^{H}	340^{H}	300	280^{H}	280	240	230^{H}	250^{H}	300^{H}
17	310^{H}	290	290	260	250	250	250	240	310	300	300	350	350	310	350	350	300^{H}	300	250	230$^{A}_{H}$	300	300	330^{A}	320
18	270	280	250^{H}	230^{H}	290^{H}	300	290	230	230^{H}	290	310	340	340^{H}	320	350	360	220	310	300	270	250	280^{H}	280	290
19	290	270	280	280	250	250	250	250	290	280	280	380^{K}	390^{K}	[360]$^{A}_{K}$	320$^{H}_{K}$	C^{K}	C^{K}	C	C	C	C	C	300	300
20	280	280	280	250	280	280^{H}	260	240	290	260	350	330	340	350	370	340	300	290	300	280^{H}	300	300	300^{H}	320$^{A}_{H}$
21	290	280	280	250	310	280	300	290	290	290	310	280^{H}	300	320	320	380	370	340	290	300	C	C	290	270
22	260	260	250	230	240	280	270	250	300	270	300	350	360	350	320	350	320	280	250	250	220	280	310	290
23	290	280	250	230	240	250	280	290	230	270	240	300	300	320	310	310	290	310	280	270	300	300	300	300
24	290	240	230^{H}	230	240	400	270	[280]^{C}	280	220	270	240	340	300	350	320	330	320	320	250	(220)^{A}	290	310	300
25	280	320	280	220	210	230	300	300	230	250	220	290	360	350	310	310	300	300	300	290	(290)^{A}	290	320	290
26	270	270	270	250	280	280	270	260	250	300	270	380	390	360	390	300	[340]^{C}	380	390	250	C	C	260	290
27	280	240^{H}	260	230	280	270	260	260	250	250	350	380	380	C	C	C	C	C	C	C	280^{H}	280	310	320
28	300	290	250	250	270	270	280	260	280	200	280	290	300	300	360	360	300	320	320	220^{H}	250	270	290	310
29	300	270	240	250	290	310	300	250	270	300	330	C	C	C	C	370	350	300	320	300	270	280^{K}	270$^{F}_{K}$	330$^{F}_{K}$
30	300$^{F}_{K}$	270^{K}	250^{K}	230^{K}	300^{K}	360^{K}	280^{K}	250^{K}	210^{K}	290^{K}	220^{K}	340	310	360	350	350	310	330	300	250	[270]^{A}	280	320	300
31																								
Median Value	290	280	260	250	270	280	280	260	260	270	280	300	300	310	310	320	300	300	300	270	270	280	290	300
Count	30	30	30	29	29	29	30	30	30	29	29	27	27	26	26	26	25	26	26	27	27	27	30	30

Sweep 1.2 Mc to 18.2 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | fF_1 | 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							Q	Q	L	L	L	L	L	L	L	L	L	L	L	L				
2							Q	Q	Q	L	Q	L	L	L	L	L	L	L	Q					
3							Q	Q	L	L	L	L	L	L	L	L	Q	L	L	L				
4							L	Q	L	L	C	L	L	L	L	L	L	L	Q					
5							Q	Q	Q	L	L	L	L	L	L	L	L	L	L					
6							Q	Q	L	L	L	C	C	C	C	C	C	L	L					
7							Q	C	Q	C	C	C	C	C	C	C	C	C	C					
8							Q	Q	L	L	A	A	C	L	Q	Q	C	C	C					
9							Q	Q	Q	Q	C	L	L	L	Q	L	Q	C	Q					
10							Q	Q	Q	Q	Q	Q	L	L	L	L	L	L	L					
11							Q	Q	L	Q	Q	Q	Q	Q	L	L	Q	L	Q					
12							Q	Q	L	L	L	L	L	L	L	L	L	L	A					
13							L	L	L	Q	L	L	Q	L	L	L	L	L	Q					
14							Q	Q	Q	L	L	L	L	L	L	L	L	Q	L					
15							Q	Q	L	L	L	L	L	L	L	L	L	Q	L					
16							Q	Q	Q	Q	L	L	L	L	L	L	L	L	L					
17							Q	Q	L	Q	L	L	L	L	L	L	L	L	L					
18							Q	L	Q	L	L	L	L	L	L	L	Q	Q	Q					
19							Q	Q	Q	Q	Q	L	L	Q	L	C	C	C	C					
20							Q	Q	L	Q	L	L	Q	Q	L	L	Q	L	Q					
21							Q	Q	L	L	L	L	L	L	L	L	L	A	Q	L				
22							Q	Q	Q	L	5.7	L	L	L	L	L	L	L	Q					
23							L	L	L	L	L	L	L	L	L	L	L	L	L	L				
24							Q	C	L	Q	L	Q	L	L	Q	L	L	L	Q					
25							L	Q	Q	L	Q	L	L	L	L	L	L	L	L	L				
26							Q	Q	Q	Q	L	L	6.7	6.4	L	L	C	L	L					
27							Q	Q	Q	Q	L	L	L	C	C	C	C	C	C					
28							Q	L	L	Q	L	L	L	L	L	L	L	L	Q					
29							L	L	L	L	L	C	C	C	C	L	L	L	Q	L				
30							Q	Q	Q	L	Q	L	L	L	L	L	L	L	Q					
31																								
Median Value											—		—	—										
Count											1		1	1										

Sweep 1.2 Mc to 18.5 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | $h'F_1$ | 135°E Mean Time | Yamagawa | Lat. 31°12.5'N | Long 130°37.7'E

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

Sweep 1.2 Mc to 18.6 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | f_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	2.2	2.5 J	3.2	B	B	B	B	B	B	(3.6) B	(3.1) A	2.5	(1.6) B				
2							(1.5) B	1.9	2.8	3.6 A	3.7	B	B	B	B	(3.7) B	(3.2) B	(2.7) A	2.0 H					
3							E	2.2	(2.7) A	3.1	(3.9) B	3.8	3.7 J	B	B	B	3.6	3.1	2.6	(1.8) B				
4							1.7 H	2.2 H	2.9 H	(3.4) B	C	B	B	B	B	B	B	A	2.4	(1.4) B				
5							(1.8)	(2.2) J	3.1	3.8	3.8	B	B	A	A	B	(3.6)	3.1	2.4					
6							1.4	(2.6) S	3.0 H	3.5	3.8 J	C	C	C	C	C	C	3.2	2.4					
7							(1.6) B	C	A	C	C	C	C	C	C	C	C	C	C					
8							B	2.5	3.1	(3.5) A	3.9	A	C	A	A	A	C	C	C					
9							1.6	2.6	2.9	3.3	(3.5) C	(3.6)	A	B	(3.8) B	A	B	3.0	2.5					
10							A	2.1 H	3.1 H	(3.5) A	(3.9) A	A	B	B	B	(3.9)	(3.4) B	(2.9) A	2.5					
11							E	B	B	(3.2) B	B	B	B	B	B	A	A	3.3	A					
12							(1.6) B	2.1	3.0	A	B	B	B	(3.9) B	(3.5) B	(3.5) B	3.4	3.1	2.5					
13							1.7	2.4	2.8	3.4	B	A	B	B	B	A	3.2	3.0	2.4	1.6 J				
14							1.6	2.1 J	2.5 J	3.2	B	B	B	B	B	(3.5) B	2.9	3.2	2.4					
15							E	2.3 H	3.2	B	B	B	B	B	A	A	A	2.0	2.4					
16							1.8	2.4	(3.0) A	(3.6) B	3.6	B	B	B	B	B	3.5 H	2.8 J	A					
17							1.7	2.3 H	3.1	3.4	3.5	B	B	B	A	A	A	A	A					
18							E	2.4	3.1	3.4	3.7	3.7	B	B	B	B	3.5	3.2	2.6					
19							2.2	2.4	3.3	3.5	B	B	B	(4.2) B	(4.1) B	C	C	C	C					
20							2.2	2.5	3.2	B	B	B	B	B	B	B	A	A	A					
21							2.0	2.7	(3.2) B	(3.6) B	B	B	B	B	B	A	A	(2.9) A	2.4					
22							1.6	2.5	3.0	3.4	(3.7) B	4.0 J	B	B	B	B	B	B	2.8					
23							2.0	2.5 H	A	A	B	B	B	B	B	B	B	B	A	1.7 J				
24							2.0	(2.6) C	3.2	3.6	3.7	(3.9) B	4.1	A	B	B	3.7	3.3	A					
25							2.0	2.5	3.2	3.7	A	A	A	3.9 J	B	B	A	3.0	2.4					
26							2.3	2.6	3.1	(3.4) B	(3.7) B	3.9 J	(3.9) B	3.8	B	B	C	3.3	2.5					
27							2.3	2.6	3.4	A	B	A	B	C	C	C	C	C	C					
28							A	2.6	(3.2) A	A	A	A	4.0 J	B	B	4.2	(3.9) A	3.5	A					
29							B	2.8	3.5	A	A	C	C	C	C	B	B	A	2.5					
30							2.0	2.7	A	A	A	A	B	A	B	3.8	3.5 J	(3.0) A	2.4					
31																								
Median Value							1.7	2.5	3.1	3.4	3.7	3.9	—	—	—	3.8	3.5	3.1	2.4	1.6				
Count							25	28	26	21	13	6	4	4	3	6	13	20	19	5				

Sweep 1.2 Mc to 18.5 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | hE | 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	910	100	B	B	B	B	B	120	110	110	B				
2							B	110	100	100	110	120	110	B	B	110	110	110	110^{H}					
3							E	(130)^{B}	100	100	100	100	110	B	B	B	110	110	120	B				
4							BH	120^{H}	110^{H}	(110)^{B}	C	B	B	B	B	B	B	A	120	B				
5							110	110	100	110	100	100	(110)^{B}	110^{A}	110	(120)^{B}	120	100	100					
6							B	110	110^{H}	110	110	C	C	C	C	C	C	100	110					
7							B	C	A	C	C	C	C	C	C	C	C	C	C					
8							B	120	110	(110)^{A}	110	110	C	A	A	A	C	C	C					
9							B	110	110	110	(110)^{C}	110	(120)^{A}	120	110	(120)^{A}	120	110	110					
10							A	110^{H}	110^{H}	(120)^{A}	120	A	B	B	B	B	B	110	120					
11							E	B	B	B	B	B	B	(120)^{B}	B	A	A	100	A					
12							B	110	110	110	B	B	110	110	B	B	110	110	130					
13							B	120	120	120	B	A	B	B	110	(110)^{A}	110	130	130	130				
14							B	110	120	120	120	120	(120)^{B}	120	110	(120)^{B}	120	110	B					
15							E	140^{H}	100	150	150	B	B	110	A	A	A	B	B					
16							140	110	(110)^{A}	110	100	130	(120)^{B}	110	110	100	110^{H}	110	A					
17							A	110^{H}	110	110	110	110	110	120	(120)^{A}	110	120	(110)^{A}	100					
18							E	130	110	110	110	110	110	110	110	110	120	120	120					
19							B	120	110	110	120	B	B	B	120	C	C	C	C					
20							B	120	120	B	B	B	B	110	B	B	A	A	A					
21							B	130	(130)^{B}	130	B	B	B	B	B	A	A	110	130					
22							B	B	100	110	(110)^{B}	110	110	B	B	110	110	120	120					
23							150	120^{H}	A	A	100	B	B	B	B	B	B	B	A	A				
24							B	C	100	100	100	110	110	(110)^{A}	110	(110)^{B}	110	110	A					
25							B	110	110	110	A	A	A	130	B	B	A	110	110					
26							(170)^{B}	110	120	(110)^{B}	100	120	(120)^{B}	110	120	B	C	110	110					
27							140	110	110	A	B	A	B	C	C	C	C	C	C					
28							A	100	A	A	A	A	110	110	(110)^{B}	110	(120)^{A}	120	A					
29							B	100	130	A	A	C	C	C	C	B	B	A	120					
30							B	120	110	110	A	A	B	A	B	B	B	140	130					
31																								
Median Value							150	110	110	110	110	110	110	110	110	110	120	110	120	—				
Count							5	26	26	23	18	12	13	14	11	11	14	21	18	1				

Sweep 1.2 Mc to 18.5 Mc in 15 min Manual

Y 7

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

IONOSPHERIC DATA

Apr. 1949 | fes — | Yamagawa | Lat 31.12° 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	G	G	G	G	G	G	B	G	B	3.6 Y	B	B	B	B	4.8	B	B	3.4	3.1	2.2	G	G	G	G
2	G	G	G	G	G	G	B	3.4	G	4.2	3.9	B	B	B	5.4	B	B	3.8	G	(2.8) B	2.8	G	G	3.0
3	G	G	G	G	G	G	G	B	G	(4.2) Y	B	G	B	B	B	B	G	G	G	2.4	G	G	G	G
4	G	G	G	C	C	C	G	G	3.8	G	C	B	B	5.0	B	B	B	3.8	G	B	G	G	3.8	G
5	G	G	G	G	G	G	G	G	G	B	B	B	B	4.9	4.0	3.7	B	G	G	2.6	G	G	G	G
6	G	G	G	G	G	G	G	G	G	3.8	4.6	C	C	C	C	C	C	5.0	5.2	C	3.8	4.4	3.6	G
7	G	G	G	G	G	G	G	C	3.2	C	C	C	C	C	C	C	C	C	C	C	2.2	2.6	2.8	G
8	G	G	2.2	2.0	G	2.4	B	B	G	4.2	8.0	8.2	C	5.6	4.6	5.2	C	C	C	G	G	2.8	B	6.4
9	(4.2) B	5.2	7.0 Y	4.6	3.2	2.4	2.2	2.8	4.1	6.6	C	6.6	5.6	6.3	5.4 Y	5.0	B	G	G	3.2	3.0	4.0	3.6	4.4
10	3.2	4.0	4.2	3.8	3.6	2.4	2.4	G	G	4.2	4.6	4.0	5.4	B	B	4.2	B	4.4	4.6	4.2	6.2	2.8	2.4	G
11	G	G	G	G	G	G	G	B	B	G	B	B	B	4.8	5.0	4.6	4.8	G	4.6	3.4	4.2	2.0	G	G
12	G	2.8	2.6	G	G	G	B	3.2	4.2 Y	4.8	4.8	4.4	4.8	4.8	5.6	(6.2) B	G	3.6	7.6	7.9	4.8	2.5	G	G
13	G	G	G	G	G	G	B	G	3.8	4.2	4.4	4.2	B	4.8	B	5.1	3.8	4.2	4.6 Y	4.0	3.8	2.7	G	G
14	G	G	G	G	G	3.0	B	B	G	3.8	B	B	B	B	B	B	B	G	4.2	3.4	3.8	3.2	B	G
15	2.4	G		G	G	G	G	3.2	G	B	B	B	B	B	4.2	4.2	4.6	3.8	3.2 Y	3.0	4.6 Y	G	2.2	G
16	G	4.2 Y	3.0	3.0	2.4	2.8	G	G	3.6	B	B	B	B	B	B	B	3.6	3.7	3.0	3.2	G	G	G	G
17	G	G	G	G	G	G	1.8	G	4.4	3.7 Y	B	B	B	4.4 Y	6.8	4.6	4.0	3.8	3.8	4.8	5.0	4.6	5.4	(2.2) B
18	2.0	G	G	G	G	G	G	B	4.2 Y	4.6 Y	4.8	B	4.8	B	B	B	B	G	3.0	3.0	2.6	G	G	2.0
19	2.4	(2.7) B Y	G	(2.2) B	G	G	B	3.4	3.8	4.8	6.6	B	B	5.2	5.2	C	C	C	C	C	C	C	3.4	3.4
20	G	G	G	G	G	G	G	G	4.2	B	4.0	B	5.2 Y	B	B	5.2	5.2	4.6	4.6	4.6	4.4	3.6	3.2	3.8
21	G	G	G	G	G	G	G	G	3.6	B	B	5.0	5.4	B	6.2	6.8	6.4	7.3	5.4	4.2	G	G	G	G
22	G	G	G	G	4.7	G	G	G	3.7	B	B	B	B	B	B	B	B	B	G	G	G	3.2	2.6	2.6
23	G	5.2	G	G	G	G	G	G	4.2	3.6	B	B	3.8	4.8	B	B	4.8	4.1	3.8	2.7	G	G	2.7	2.2
24	G	G	G	G	G	2.8	G	C	4.8	5.0	5.2	B	4.6	6.4	6.2	6.6	4.9	4.4 Y	3.8	3.4	3.2	2.2	G	
25	G	G	G	G	G	G	G	B	4.0	5.0	4.8	5.1	4.2	5.2	B	B	4.2	G	G	4.8	8.6	3.0	8.0 Y	1.8
26	G	G	G	G	3.0	2.8 Y	G	G	G	3.8	B	B	B	B	B	B	C	3.6	4.6	4.6	C	C	2.6	G
27	G	G	G	G	G	G	2.7	3.1	4.4	4.9	4.7	5.0	B	C	C	C	C	C	C	C	2.8	4.8	3.2	3.6
28	3.0	3.2	2.0	G	G	2.4	4.3	B	4.0	5.2	4.8	5.0	G	B	B	G	4.6	5.0	6.4	5.0	3.4	3.2	G	2.0
29	4.2	G	G	2.6	3.0	4.6 Y	B	G	4.2	4.2	5.2	C	C	C	C	B	B	5.4	(5.6) B	3.8	2.4	G	2.2	G
30	2.6	G	G	G	G	2.6	G	G	4.2	4.6	4.4	4.7	5.4	(5.2) B	4.6	B	7.0 Y	3.8	(5.6) B	6.0	6.2	5.0	G	G
31																								
Median Value	G	G	G	G	G	G	G	G	3.8	4.2	4.8	5.0	5.2	5.0	5.2	5.0	4.6	3.8	3.8	3.4	3.0	2.6	2.2	G
Count	30	30	30	29	29	29	21	21	28	23	15	11	11	13	13	13	14	25	26	25	27	27	28	30

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

Apr. 1949

F_2–M3000

135°E Mean Time

Yamagawa

Lat 31.2 N
Long 130.6 E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.9	3.2	3.3	3.0	3.1	2.8	2.7	3.3	3.2	3.0	JS	2.7	S	J	2.7 H	2.7	B	J	J	2.8	3.0 S	2.9	2.8	2.8
2	2.9	3.0 H	3.0	(3.0) H P	2.8 H	(2.9) H B	2.8	3.2	3.2	3.1	2.8	2.8	2.7	J	S H	2.8 P	JS	JS	JS	S H	2.9	2.9	J H	S H
3	3.0	3.2 H	3.0 H	3.1	2.9	2.9 H	2.7	3.3	3.0	2.9	2.8 S	2.8	J	2.9 H	2.6	2.6	2.7	2.7	2.8	2.9	2.8	2.6 H	2.7	2.7
4	2.7	2.9 H	J H	C	C	C	2.7	3.1	3.2	2.9	[2.9] C	2.9 H	2.6 P	J	J	J	J P	J S H	2.8 S P	3.1	[2.9] S	2.7	2.8	2.9
5	2.9	2.8	3.0	3.2	J	2.7	2.8	3.1	3.2	3.1	3.0	2.8	2.9	(2.8) P	2.7	2.7	2.7 H	2.7 P	2.9 S	J	J	2.9 S P	[2.6] S	2.7 H
6	2.9	J	J	3.2	2.8	2.7	2.8	3.1	3.3	3.0	J	C	C	C	C	C	C	2.8	2.9	[2.8] C	(2.7) S F	2.6	[2.7] S	2.9 S
7	3.0 S	3.1	3.1	2.8	2.8	2.7	2.7	C	C	C	C	C	C	C	C	C	C	C	C	C	2.5 S	2.8 H	2.7	2.9
8	2.8	2.8	2.8	2.9	2.7 H	2.7	2.6	2.7	3.0 S	S	C	S	C	J H	J P	C	C	C	C	S	J P	2.6 P H	2.6	2.8
9	2.8	2.8	2.7	2.7	2.3	2.4	2.5 P	3.0	3.1	J	C	J P	2.9 P	2.8 S	J H	2.6 S	J	C	S	J	2.8	2.8	2.7	3.0
10	3.1	J	2.9	3.1	2.6	2.6	2.8	3.0	3.2 H	3.2	(2.7) S	S	S	S	J	2.8	2.6	J	J	S	2.7 S P	(2.5) S H	(2.7) P	J
11	(2.6) B	2.7	2.8	2.9	2.9	2.5 N	3.1	3.1	3.0	3.1	J	2.8 H	2.7	B P	J P	(2.6) B	2.7	2.7 S	2.8	2.8	2.7	2.7	2.6	2.7
12	2.7	2.6	2.7	2.4	2.4	2.7	2.9	2.9	2.9	2.9 P	J	B	2.7 B	(2.7) B	2.7 P H	2.7 H	2.8 H B P	(2.7) S	(2.7) S	2.8	2.8	3.0	2.8 S	2.8 S
13	2.7	2.7	2.7	2.4	[2.3] S	(2.2) S	2.3	(2.5) S	2.8	2.7	2.8	2.7	2.9	2.8	J	J P	2.9	2.9	J	3.0	2.9	2.7	2.5 H	2.6
14	2.8	2.7	2.8	2.6	2.6	2.7	2.8	3.2	3.1	3.1	2.8	2.6	[2.7] S	(2.9) P	2.8 P H	J H	J	2.6	J H	3.1 S	2.9	2.6 S P	2.6 H	J
15	J	J	J	J	B	2.5	2.9	3.0 H	3.0	2.8	2.7	2.6	J	J P	B	J	J	J H	2.8	S J	3.0	2.7 H	(2.6) B	2.7
16	2.8	2.8	3.0	3.0	3.1	2.8	3.0	3.1	[3.0] S	2.9	2.6 H	J H	J	J	J	J H	2.8 S H	2.6	2.8 H	2.9	2.9	2.7 H	2.8 H	2.7 H
17	2.6 H	2.8	2.8	2.9	3.0	2.9	(3.0) B	3.2	3.0	2.8	2.7	2.7	2.8	J	2.8	J	J H	J	J	2.9 H	2.8	2.8	2.8	S
18	J	2.6 Z	3.0 H	2.9 H	2.6 H	2.5	3.1 S	J	3.2 H	3.0	2.8	B	J H	J	J	B	(2.8) B	B	S	S	J	2.8 H	2.8	2.9
19	J S	(2.9) S	[2.8] C	2.8	3.0	3.1	3.2	3.3	3.1	2.9	2.7	J K	C K	2.9 K P	2.8 P H K	C	C	C	C	C	C	C	2.6	2.8 S
20	[2.8] S	2.9	3.0	2.9	2.9	2.9 H	2.8	(3.0) B	2.9	2.8 P S	2.8 P B	B	B	B	2.8	S	S	J B	J S	J H	2.7	(2.6) S	(2.6) B P H	2.7 H
21	J S	S	B	J	2.7	2.7	2.9	2.9	3.0	S	B	J H	B	B	B	J	B	2.6 S	2.8 S	J	C	C	S	2.8
22	B	B	B	3.0	2.7	2.5	2.8	2.9	2.8	3.1	J	J	J	B	2.7	2.6	2.6	2.8	2.9	3.0	2.9	2.7	J	2.7
23	2.9	3.0	3.1	3.0	2.9	2.7	3.0	3.1	3.3	J	S	J	J	2.7	2.7	2.8	2.8	J	2.8	J	S	J	2.7	J
24	2.8	3.1	2.9 S H	2.9	2.9	2.4 Z	2.6	[2.7] C	2.9	2.7	J	B	J	S	2.6	[2.6] S	2.7 S	2.8 S	S	J	2.8	2.7	2.7	2.7
25	2.9	2.8	3.1	3.1	[3.0] B	2.8	2.7	J	3.2	2.8	2.9	B	J	B	J	2.9	J	B	J	J	S	2.6	2.6	2.8
26	[2.8] S	2.9	2.9	2.8	2.7	2.7	J	B	3.2	2.7	J	2.6	J	B	B	C	C	2.6	2.6	2.7	C	C	2.6	[2.7] S
27	2.8	2.7 S H	2.9 S	2.9 S	J	2.6	2.8	3.5	2.9	2.8	2.5	S	B	C	C	C	C	C	C	C	2.6 H	2.8	2.8	2.9
28	2.6	2.8	2.9	2.7	2.7	2.6	2.6	2.8	2.9	3.1	2.5	2.5	(2.7) B	(2.7) B	2.7	2.7	2.8	2.6	2.7	2.8 H	2.7	2.7	2.7	2.7
29	2.8	3.0	3.2	3.0	2.8	2.7	2.9	3.2	3.1	(2.9) B	2.7	C	C	C	C	2.7	2.7	2.6	2.9	2.7	2.9	2.7 K	JFS K	SF K
30	BF K	2.8 F K	S K	S K	S K	S K	SF K	3.1 K	3.1 K	J K	2.8 K	2.6	J	J	2.6	J	J	S	2.8	(3.0) S	3.2	2.9	2.7	J
31																								
Median Value	2.8	2.8	2.9	2.9	2.8	2.7	2.8	3.1	3.1	2.9	2.8	2.7	2.7	2.8	2.7	2.7	2.7	2.7	2.8	2.9	2.8	2.7	2.7	2.8
Count	24	25	24	26	25	28	28	26	29	24	18	13	10	9	13	14	13	14	15	15	22	26	26	23

Sweep 1.2 Mc to 18.5 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | $f_{F\,min}$ | 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	1.6	1.5	1.5	1.5	1.6	1.5	1.8	2.6	3.1	3.5	3.8	4.5	4.2	3.9	4.5	4.5	3.7	3.2	2.5	1.6	1.5	1.4	1.4	1.5
2	1.5	1.4	1.5	1.4	1.5	1.6	1.5	2.2	3.1	3.7	4.1	4.0	4.1	4.3	4.1	4.1	4.2	3.2	2.4	2.2 A	1.9	2.0	1.9	[1.9] A
3	1.8	1.8	1.8	1.5	1.4	1.5	1.6	3.2	3.0	[3.6] A	4.1	3.8	4.0	4.6	4.3	3.8	3.7	3.1	2.6	1.9	1.8	1.6	1.6	1.5
4	1.5	1.5	1.5	C	C	C	1.7	2.6	3.1	3.8	[4.2] C	4.6	4.5	4.6	4.6	4.0	4.2	3.3 A	2.4	1.5	1.7	1.6	1.6	1.5
5	1.4	1.4	1.4	1.4	1.4	1.5	1.8	2.9	3.6	4.2	4.4	4.4	5.2	4.4 A	4.4	4.1	4.0	3.2	2.6	2.7	1.6	1.5	1.8	1.5
6	1.5	1.6	1.4	1.5	1.5	1.5	1.4	2.6	3.2	3.5	4.4	C	C	C	C.	C	C	3.5 A	A	C	A	A	1.6	1.6
7	1.6	1.6	1.6	1.7	1.5	1.5	1.6	[2.3] C	3.0 A	C	C	C	C	C	C	C	C	C	C	C	1.8 A	1.8 A	1.5	1.5
8	1.5	1.5	2.0 A	1.8 A	1.8	2.0 A	1.8	2.5	3.3	4.2	A	A	C	A	4.2 A	A	C	C	C	1.7	1.8	2.0 A	1.6	1.8 A
9	[1.9] A	2.0 A	2.0 A	[2.0] A	2.0 A	1.6	1.6	2.6	3.4	4.3 A	[4.4] C	4.5 A	A	A	5.1	5.2	4.0	3.0	2.5	2.0	A	A	A	A
10	2.0	A	A	A	A	1.8 A	2.0	2.5	3.3	3.8	4.2 A	4.2	[4.4] A	4.6	4.2	4.0	4.4	3.6	2.7	A	A	A	1.6	1.5
11	1.5	1.4	1.6	1.5	1.4	1.5	1.6	3.6	4.0	4.2	4.4	4.6	4.6	A	A	4.2 A	[4.0] A	3.8	[3.2] A	2.6 A	2.4 A	1.8	1.7	1.7
12	1.6	A	A	1.5	1.7	1.7	1.7	3.2	3.4	4.1	A	A	A	A	A	A	3.4	3.5	A	A	A	2.0	1.7	1.6
13	1.7	1.5	1.5	1.4	1.5	1.6	1.7	2.7	3.5	4.0 A	4.0 A	4.0 A	3.6	3.8	3.8	[3.6] A	3.4	[3.1] A	2.7	2.0	[2.0] A	2.0 A	1.5	1.5
14	1.5	1.5	1.5	1.4	1.5	1.5	1.6	2.7	3.1	4.1	4.2	4.2	4.6	4.2	4.3	4.0	3.0	3.2	2.8	2.0	1.6	1.6	1.6	1.6
15	1.6	1.6	1.4	1.5	1.5	1.6	1.6	3.2	3.2	3.4	4.1	4.4	4.2	4.2	[4.1] A	4.0 A	[3.0] A	2.0	3.0	1.8	[1.7] A	1.6	1.7	1.5
16	1.5	1.5	A	A	1.8 A	1.7	1.8	2.6	[3.2] A	3.8	4.4	4.4	4.6	4.2	4.2	4.1	4.0	3.2	2.8 A	4.0	1.7	1.7	1.8	1.6
17	1.7	1.7	1.6	1.5	1.5	1.5	1.7	2.7	3.4	4.0	4.0	4.4	4.8	A	A	4.1 A	3.8 A	[3.0] A	2.2	2.0	A	A	A	1.8 A
18	[1.6] A	1.4	1.5	1.7	1.5	1.6	1.7	2.8	3.5	4.0	4.2	4.4	4.4	4.6	(4.2) B	4.2	4.0	3.2	2.6	[2.3] A	2.0 A	1.6	1.5	1.6
19	1.6	1.6	1.5	2.0 A	1.5	1.5	2.2	2.8	3.3	4.1	4.2	4.2	4.7	A	A	C	C	C	C	C	C	C	2.2 A	2.2 A
20	1.5	1.6	1.9	1.5	1.5	1.5	2.2	3.1	3.8 A	4.0	[4.4] A	4.8	[4.9] A	5.0	5.0	A	A	4.0 A	3.8 A	A	A	2.4 A	2.2 A	[1.9] A
21	1.5	1.5	1.5	1.4	1.5	1.5	2.0	2.7	3.0	3.8	3.8	[4.0] A	(4.2) A	4.6	(4.6) A	(5.0) A	4.2	A	A	2.0	C	C	1.6	1.6
22	1.6	1.6	1.6	1.4	1.6	1.6	1.9	2.8	3.5	4.2	4.2	4.4	4.6	4.4	4.5	4.2	4.2	4.2	2.8	1.8	1.6	2.0	[1.7] A	1.4
23	1.5	1.7	1.8	1.7	1.7	1.7	2.0	2.8	A	A	3.8	4.0	5.0	4.2	3.8 A	4.2	[4.0] A	3.8	2.6 A	2.4	1.8	1.7	2.0	1.8
24	1.8	1.8	1.4	1.5	1.4	2.0	2.0	[2.7] C	3.4	4.2	4.6	4.7	4.8	4.8 A	(4.7) A	4.6	(4.1) A	3.4	3.6	2.5	A	A	1.5	1.6
25	1.6	1.6	1.5	1.5	1.5	1.6	2.4	3.0	3.3	4.2	4.2	4.6	4.4	4.4	4.0	3.8	4.0	3.6	2.5	A	A	2.3	2.2	1.6
26	1.5	1.4	1.5	1.4	2.0	2.3	2.3	2.9	3.6	4.0	4.0	4.6	4.8	4.2	4.2	4.4	[3.8] C	3.3	3.0	2.0	C	C	2.0	1.6
27	1.6	1.6	1.6	1.8	2.0	1.8	2.4	2.9	4.0	A	A	A	4.7	C	C	C	C	C	C	C	A	A	A	4.0
28	2.0	1.6	[1.6] A	1.5	1.5	1.9 A	[2.5] A	3.0	3.4	4.2 A	4.2 A	4.4 A	4.3	4.6	4.8	4.4	4.0	4.0	3.2 A	2.8 A	1.8	1.8	1.7	A
29	A	1.7	1.6	A	A	1.8	2.0	2.8	3.6	A	A	C	C	C	C	4.2	3.8	A	A	A	1.8	1.8	1.7	1.8 F
30	1.8	1.8	1.5	1.5	1.6	1.6	2.0	3.0	3.4	4.0	4.0	A	A	A	A	3.8	4.2	A	A	A	A	A	1.5	1.6
31																								
Median Value	1.6	1.6	1.5	1.5	1.5	1.6	1.8	2.8	3.4	4.0	4.2	4.4	4.6	4.4	4.3	4.1	4.0	3.3	2.7	2.0	1.8	1.8	1.7	1.6
Count	29	28	27	26	27	29	30	30	29	26	25	23	23	19	21	23	24	23	21	21	17	20	27	28

Sweep 1.2 Mc to 18.5 Mc in 15 min Manual

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

IONOSPHERIC DATA

Apr. 1949 | $f_{E\,min}$ | 135°E Mean Time | Yamagawa | Lat. 31°12.5'N | Long 130°37.7'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	B	1.7	1.7	2.1	2.4	B	B	B	4.5	[3.7]B	2.8	2.0	1.6	1.6	G	G	G	G
2	G	G	G	G	G	G	G	1.6	1.5	2.0	2.2	2.2	2.9	[3.8]B	4.7	3.2	2.1	1.6	1.5	1.5	1.9	G	G	1.8
3	G	G	G	G	G	G	G	1.6	1.6	1.8	2.2	2.6	3.1	B	B	B	2.7	2.1	2.0	1.9	G	G	G	G
4	G	G	G	C	C	C	1.5	1.6	1.6	(2.1)B	C	B	B	4.2	B	B	B	2.2	1.6	B	G	G	2.6	G
5	G	G	G	G	G	G	1.5	1.6	1.8	2.1	2.7	3.0	[3.2]B	3.4	3.6	3.4	2.8	1.8	1.7	1.6	G	G	G	G
6	G	G	G	G	G	G	B	1.5	2.0	2.1	2.7	C	C	C	C	C	C	1.6	1.6	(1.6)C	1.5	1.5	3.0	G
7	G	G	G	G	G	G	B	C	1.8	C	C	C	C	C	C	C	C	C	C	C	1.6	1.6	2.0	G
8	G	G	1.6	1.5	G	1.6	[1.9]B	1.7	1.8	1.1	2.1	2.4	2.7	3.0	3.0	3.2	C	C	C	B	G	1.6	(1.6)B	1.6
9	1.5	1.5	1.5	1.6	1.5	2.0	1.8	1.6	1.8	2.0	[2.3]C	2.5	3.2	3.5	3.1	3.4	3.1	1.9	1.7	1.6	1.6	1.5	1.4	1.5
10	2.0	1.5	1.5	1.6	1.5	1.4	1.4	1.5	1.7	1.7	2.4	3.0	4.4	B	B	3.6	[2.8]B	2.0	1.7	1.6	1.6	1.6	2.0	G
11	G	G	G	G	G	G	G	B	B	3.2	B	B	B	3.2	4.2	3.0	2.3	1.8	1.7	1.8	1.9	1.8	G	G
12	G	1.7	1.5	G	G	G	B	1.6	2.2	2.4	3.8	3.7	3.3	3.3	3.4	3.5	2.2	2.0	1.7	1.6	1.6	2.0	G	G
13	G	G	G	G	G	G	B	1.8	1.8	2.0	3.6	3.2	B	3.6	2.8	2.5	2.0	1.8	1.8	1.8	1.6	1.6	G	G
14	G	G	G	G	G	1.5	[1.5]B	1.5	1.8	2.1	2.6	2.8	B	3.1	3.2	3.2	2.2	2.1	1.7	1.6	1.6	1.6	G	G
15	2.0	G	G	G	G	G	G	1.8	1.8	2.0	3.3	B	B	3.2	2.7	2.7	2.8	2.0	2.4	1.8	1.8	G	1.5	G
16	G	1.5	1.4	1.5	1.5	1.7	1.6	1.7	2.0	2.0	2.6	3.2	[3.1]B	3.0	2.8	2.5	1.8	1.9	1.6	1.8	G	G	G	G
17	G	G	G	G	G	G	1.5	1.6	1.6	2.1	2.2	2.6	3.2	3.0	3.0	3.0	2.0	1.9	1.7	1.8	1.8	1.6	1.7	[1.5]B
18	1.6	G	G	G	G	G	G	1.8	2.1	2.2	3.0	3.0	3.0	2.9	3.0	2.2	2.5	2.0	1.8	1.5	1.6	G	G	1.5
19	1.5	1.6	G	1.5	G	G	2.1	1.8	1.8	2.6	3.4	B	B	4.3	3.4	C	C	C	C	C	C	C	1.5	1.6
20	G	G	G	G	G	G	1.8	1.9	2.2	[3.0]B	3.8	3.6	[3.5]B	3.3	[4.0]B	4.6	3.0	2.2	2.0	1.9	1.8	1.6	1.6	1.6
21	G	G	G	G	G	G	1.8	1.8	3.0	3.0	[3.3]B	3.6	4.0	3.6	4.0	3.6	3.0	2.5	1.9	1.6	C	C	G	G
22	G	G	G	G	4.3	G	1.6	2.6	2.0	2.2	[2.7]B	3.2	3.2	B	B	2.4	3.2	2.8	2.0	G	G	2.0	1.6	1.5
23	G	5.0	G	G	G	G	1.6	1.8	2.0	2.0	2.4	[3.4]B	4.2	4.2	B	B	3.6	3.6	1.8	1.6	G	G	1.8	1.8
24	G	G	G	G	G	1.4	2.4	[2.3]C	2.2	2.0	2.8	3.2	3.0	3.4	3.4	3.2	2.1	2.1	2.0	1.8	1.8	1.7	G	G
25	G	G	G	G	G	G	1.7	1.9	2.0	3.0	3.0	3.4	3.2	3.6	B	B	2.0	2.2	1.7	1.6	1.7	1.6	1.6	1.6
26	G	G	G	G	1.4	1.6	1.7	G	2.2	3.6	3.0	3.0	[3.1]B	3.1	3.4	B	C	1.8	1.6	1.6	C	C	1.6	G
27	G	G	G	G	G	G	2.0	1.9	2.0	2.9	4.1	3.7	B	C	C	C	C	C	C	C	2.0	1.6	1.5	1.6
28	1.5	1.6	1.5	G	G	1.5	1.6	2.3	2.2	2.6	2.8	3.4	3.4	3.4	[3.3]B	3.2	3.0	2.8	2.0	1.8	1.8	1.6	G	1.6
29	1.5	G	G	1.8	1.6	1.6	[1.7]B	1.8	2.0	2.5	2.6	C	C	C	C	B	B	2.1	2.0	1.6	1.7	G	1.7	9
30	1.8	G	G	G	G	1.4	1.6	1.6	2.3	2.6	3.0	3.0	4.4	3.6	4.2	3.7	3.6	2.0	1.7	1.8	1.7	1.7	G	G
31																								
Median Value	G	G	G	G	G	G	1.6	1.7	2.0	2.1	2.7	3.1	3.2	3.4	3.4	3.2	2.8	2.0	1.7	1.6	1.6	1.6	1.5	G
Count	30	30	30	29	29	29	24	28	29	29	27	22	19	22	20	20	22	26	26	25	27	27	29	30

Sweep 1.2 Mc to 8.5 Mc in 15 min ; Manual

Y 11

IONOSPHERIC DATA IN JAPAN FOR APRIL 1949
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