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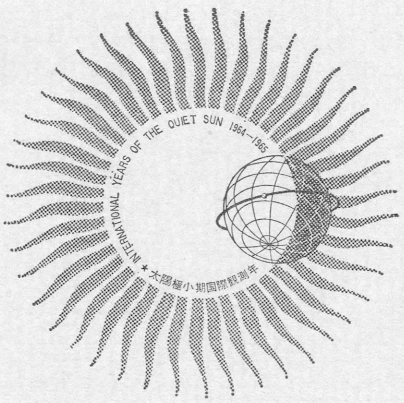
IONOSPHERIC DATA IN JAPAN

FOR MAY 1965

Vol. 17 No. 5



Issued in July 1965

Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

IONOSPHERIC DATA IN JAPAN

FOR MAY 1965

Vol. 17 No. 5

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI TOKYO, JAPAN

CONTENTS

SITE OF THE RADIO WAVE OBSERVATORIES

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

	Latitude	Longitude	Site
Wakkanai	45°23.6′N.	141°41.1′E.	Wakkanai-shi, Hokkaido
Akita	39°43.5′N.	140°08.2′E.	Tegata Nishishin-machi, Akita-shi, Akita-ken
Kokubunji	35°42.4′N.	139°29.3′E.	Koganei-shi, Tokyo-to
Yamagawa	31°12.1′N.	130°37.1′E.	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

Solar radio emission and radio propagation conditions are observed at Hiraiso Radio Wave Observatory.

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

All symbols and terminology in the table of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction," 1961.

Terminology

f_0F2, f_0F1, f_0E — The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.

f_0E_s — The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.

f_bE_s — The lowest ordinary wave frequency at which the E_s layer begins to become transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.

f-min — The frequency below which no echoes are observed.

$M(3000)F2$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.

$M(3000)F1$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.

$h'F2$ — The minimum virtual height, $h'F2$, refers to the highest, most stable stratification observed in the F region and can only be scaled when such stratification is present.

$h'F$ — The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e.g., at night, and with the current $h'F1$ when $F1$ stratification is present.

$h'E_s$ — The lowest virtual height of the trace used to give the f_0E_s.

h_pF2 — The virtual height of the $F2$ layer measured on the ordinary

wave branch at a frequency equal to $0.834 f_0F2$.

ypF2 The semi-thickness of the $F2$ layer deduced from a parabolic fit to the "nose" of the electron density distribution with height and based on the observed $h'f$ trace. (The difference between $hpF2$ and the virtual height at $0.969 f_0F2$).

a. Descriptive Letters

The following letters are entered after or used to replace a numerical value on the monthly tabulation sheets.

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example E_s.

B Measurement influenced by, or impossible because of, absorption in the vicinity of f-min.

C Measurement influenced by, or impossible because of, any non-ionospheric reason.

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. Used in a qualifying sense, see below.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below.

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

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

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

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

M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Letters

The following letters are entered in the first column before a numerical

value on the monthly tabulation sheets.

D greater than.

E less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

O Extraordinary component characteristic deduced from the ordinary component. (Used for x- characteristics only.)

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-ionic component.

c. Description of Standard Types of E_s

The eight standard types of E_s are identified by corresponding lower case letters: *f, l, c, h, q, r, a, s.* These letters suggest the names flat, low, cusp, high, equatorial, retardation, auroral and slant, respectively. It is strongly emphasized that these names are not restrictive. The letter '*n*' is used to designate any E_s trace that does not correspond to any of the eight types.

f An E_s trace which shows no appreciable increase of height with frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat E_s traces observed in the daytime are classified according to their virtual hight: *h* or *l*.

l A flat E_s trace at or below the normal *E* layer minimum virtual height in the day or below the night *E* layer minimum virtual height at night.

c An E_s trace showing a relatively symmetrical cusp at or below f_0E. This is usually continuous with the normal *E* trace, although when the deviative absorption is large, part or all of the cusp may be missing. (Usually a daytime type.)

h An E_s trace showing a discontinuity in height with the normal *E* layer trace at or above f_0E. The cusp is not symmetrical, the low frequency end of the E_s trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)

q An E_s trace which is diffuse and non-blanketing over a wide frequency range. The spread is most pronounced at the upper edge of the trace. (This type is common in daytime in the vicinity of the magnetic equator.)

r An E_s trace showing an increase in virtual height at the high frequency end similar to group retardation but which is non-blanketing over part or all of its frequency range. This is distinguished from the usual group retardation (as in the case of an occulting thick *E* layer) by the lack of group retardation in the *F* layer traces at corresponding frequencies and the lack of complete blanketing.

a An E_s having a well defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. These

sometimes extend over several hundred kilometers of virtual height.

s A diffuse E_s trace which rises steadily with frequency and usually emerges from another type E_s trace. The rising trace alone is classified as '*s*'; the horizontal trace is classified separately. At high latitudes the slant trace usually starts to rise from a horizontal E_s trace such as E_s-*l* or E_s-*f*, at frequencies which grealy exceed the E layer critical frequency, whereas at low latitudes it usually rises from E_s-*q*, E_s-*c*, or E_s-*h* at frequencies near the regular E critical frequency. Type *s* is never used to determine f_0E_s and $h'E_s$. The slant trace is sometimes observed to start at f_0E without echoes clearly identifiable as E_s echoes being seen.

n The designation '*n*' is used to denote an E_s trace which cannot be classified into one of the standard types. When a trace appears to be intermediate between any two classes a choice should be made whenever possible even if it is uncertain. '*n*' should be used sparingly.

d. Multiple Reflections from E_s

When the ionogram shows the presence of multiple reflections from E_s the number of traces seen should be recorded after the letter indicating the type.

B. SOLAR RADIO EMISSION

Solar radio observations are carried out on 200 and 500 Mc/s at Hiraiso Radio Wave Observatory.

Antennas are a broadside array of 6×4 doublets for 200 Mc/s and a parabolic reflector of 5 meter for 500 Mc/s, each having the total power receiver.

Observations are feasible almost from sunrise to sunset.

a. Time and Unit

The time is expressed as U.T.

The unit is 10^{-22} $W \cdot m^{-2} \cdot (c/s)^{-1}$ for both components of polarization.

b. Daily Data

Flux density

The three-hourly and daily mean values are given.

Variability

The three-hourly and daily mean values are given at 200 Mc/s only.

Variability is expressed in the following four grades:

0=Quiet or no burst,
1=A few bursts,
2=Many bursts,
3=Very many bursts.

The number of bursts exceeding the flux level is counted.

c. **Distinctive Events**

The phenomena are picked up on the following criteria:

1. Distinct from the prevailing kind of activity,
2. Correlated with other known solar phenomena,
3. Remarkable change-over from one situation to another.

Starting time and *Time of maximum* are given to nearest minute in general, but to nearest a tenth minute for short intense occurrences or clear commencements.

Duration is given in minutes and to nearest a tenth minute, if short or clear.

Descriptive type is denoted by the following symbols:

S =Simple rise and fall of intensity;
C =Complex variation of intensity,
C+=Prolonged broad-band enhancement of radiation, generally of spectral type IV;
F =Group of bursts: multiple peaks probably belonging to the same event, but separated by relatively short period of quietness;
RF=More or less irregular rise and fall of intensity, at metric or decimetric wavelengths;
e =Sudden beginning of burst with steep rise of intensity;
E =Steep rise of intensity of continuum background;
p.i.=post-burst increase;
onset storm=clear-cut beginning of a noise storm.

Peak intensity is the flux density of the highest peak reached during the occurrence, measured above the pre-burst level.

Mean intensity is the flux density averaged over the burst's duration, measured above the pre-burst level; therefore, multiplying the duration, the total energy of the occurrence can be estimated.

C. RADIO PROPAGATION CONDITIONS

a. **Field Intensities of WWV and WWVH**

Field intensity observations of WWV and WWVH transmitted from Washington D.C. and Hawaii, respectively, are carried out at Hiraiso Radio Wave Observatory. In order to avoid interferences with several standard frequency waves on the same frequency, the upper side-band of 440 c/s is picked up by the use of a narrow band pass filter of ± 40 c/s bandwidth.

Tabulated *field intensity* is the average of peak value of the incident upper side-band field intensity in dB above one microvolt per meter. Tne *duration* of observation is two minutes for WWV and three minutes for WWVH following the time indicated in universal time on the table.

Particulars of the transmitter and receiver are summarized in the following tables:

Transmitter

	WWV	WWVH
Location	Washington, D.C. Long. 76°51′ W Lat. 39°00′ N	Maui, Hawaii Long. 156°28′ W Lat. 20°46′ N
Power	3 kW for the upper side-band	0.5 k W * for the upper side-band
Antenna	$\lambda/2$ vertical	$\lambda/2$ vertical
Distance	10050 km	6270 km

* Reduced from the carrier power of 2 kW with amplitude modulation of 100%.

Receiver

Antenna	4.5 m vertical rod
Bandwidth	±40 c/s for the upper side-band
Calibration	each half hour

Descriptive symbols are as follows:

C: Measurement influenced by, or impossible because of, any non-propagational reasons.

S: Measurement influenced by, or impossible because of, interferences or atmospherics.

( ): Unaccurate measurement influenced by interferences, atmospherics, or non-propagational reasons.

<: Less than the following figure.

b. Radio Propagation Quality Figures

Radio propagation quality figures are usually expressed on the scale that ranges from one to five as follows:

1=very poor (very disturbed)
2=poor (disturbed)
3=rather poor (unstable)
4=normal
5=good

The tabulated circuits contain London (commercial circuit), WWV (frequencies 10, 15, 20 Mc broadcast from Washington, D.C.), San Francisco (commercial circuit) and WWVH (frequencies 10, 15 Mc broadcast from Hawaii), which are received at Hiraiso Radio Wave Observatory near Tokyo.

Warnings of radio propagation broadcast from JJY station are expressed in three grades:

N=normal
U=unstable
W=disturbed

The letter W expresses disturbed condition expected to be during the following 12 hours after issue. The letter U and N means also unstable or normal conditions, respectively.

Whole day radio quality indices are the averages of the 6-hourly indices of London, WWV and S. F.

Start- and end-time of principal geomagnetic storms closely correlated to radio propagation conditions are tabulated from observations at Kakioka.

c. Sudden Ionospheric Disturbance (S. I. D.)

The data of short wave fade-out (SWF) are preparated from the field intensity records on following circuits received at Hiraiso. Characteristics of the phenomenon are classified as follows.

Circuits and Drop-out intensity

WS.....WWV 20 Mc, 15 Mc and 10 Mc (Washington)
SF.....Various commercial circuits (San Francisco)
HA.....WWVH 15 Mc and 10 Mc (Hawaii)
TO.....JJY 15 Mc and 10 Mc (Tokyo)
SH.....BPV 15 Mc and 10 Mc (Shanghai)
LN.....Various commercial circuits (London)

Start-time and Duration, Types and Importances are described from the data of a circuit whose Drop-out Intensity is underlined. Drop-out Intensities of 10 Mc (’), 15 Mc (none) and 20 Mc (”).

Start-times and Durations

Types

S : sudden drop-out and gradual recoverly
Slow : slow drop-out taking 5 to 15 minutes and gradual recoverly
G : gradual disturbances; fade irregular in both drop-out and recoverly

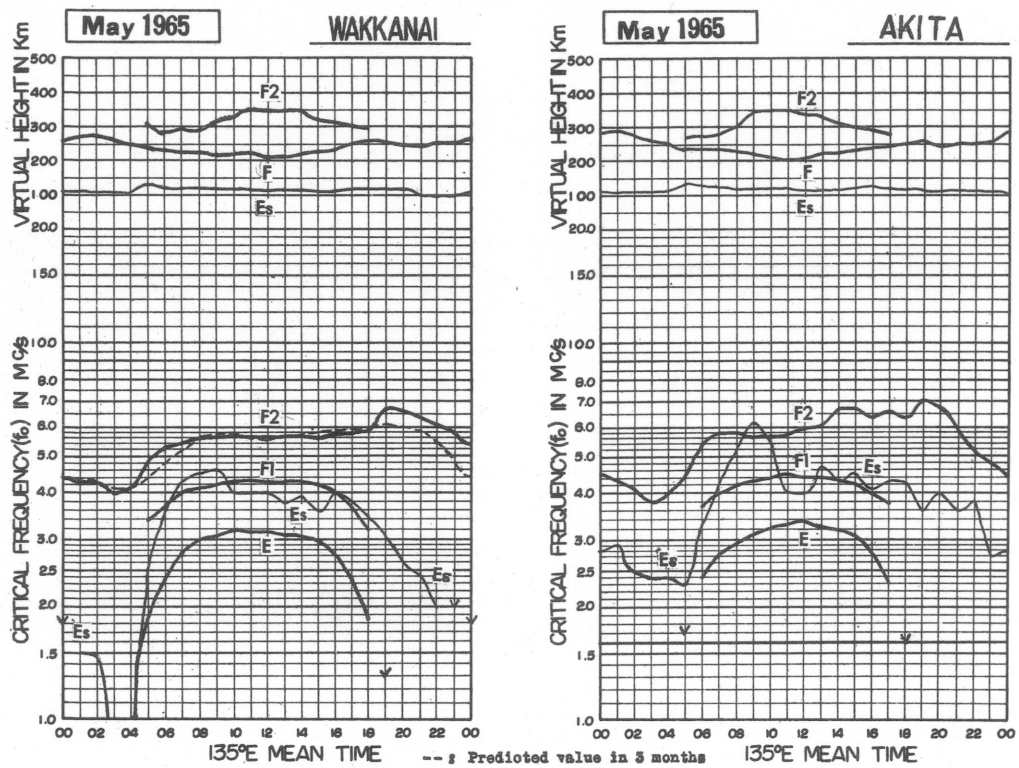
Importances

Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

1−	1	1+
2−	2	2+
3−	3	3+

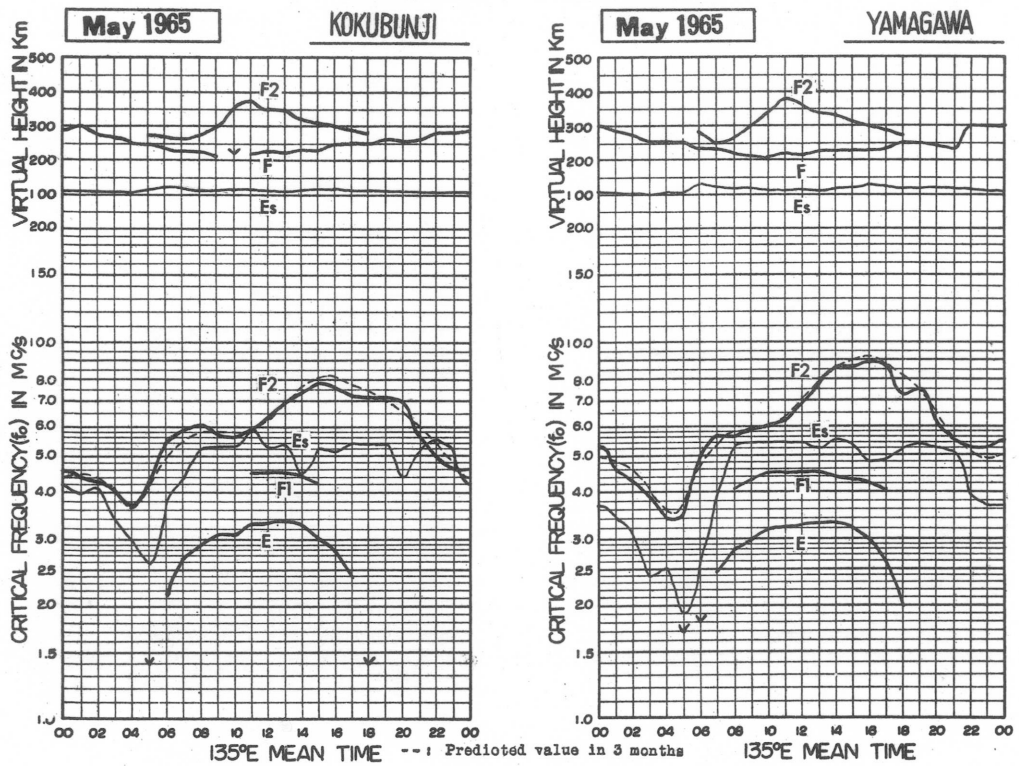
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



-- : Predicted value in 3 months advance by R.R.L.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



-- : Predicted value in 3 months advance by R.R.L.

IONOSPHERIC DATA

May 1965 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | 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	047	045	044	043	047	049	050	056	062	061	057	061	060	058	057	064	063	064	058	U067S	065	063	056	U048S
2	041S	041S	041	039	041S	045	050	051	056	057	055	058	057	057	059	057	060	063	066	073	065	051	040	036
3	036S	036	034	SF	033	043	056	060	059	056	056	056	055	055	057	057	061	056	058	064	064	063	054	041
4	036	036	035S	SF	030F	043	053	053	056	056	056	055	053	055	056	055	054	054	051H	063	064	053	047S	043
5	044	041	039	036	036	045	051	051H	054	054	054	054	062	065	065	073	073	068	S	070S	U067S	057S	U043S	U043S
6	043S	043	040S	SF	SF	052	056	053	052	053	053	061	056	062	059	060	I061A	067S	I061A	063	SF	SF	S	SF
7	046F	I044S	044	SF	035F	A	A	A	A	A	052	050	050	053	057	054	055	057	049	053	058	058	050	042S
8	041	SF	SF	038	040	045	046	048	050	052	057	057	051	057	053	051	053	050H	051	061	064	064	054	044
9	044S	SF	SF	SF	041	043S	042H	050	050	048	051	053	054	046	051	056	059	063	057	061	057	053	050	047
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	051	053	053	055	056	056	053	050	060	058	057	I053S	050S
12	048	043	SF	036	041	056S	I050A	A	A	059	057	058	051	053	056	057	053	061	061	070	073	068	068	051
13	048	046	043	041	045	053	048H	057	064	055	057	058	064	066	060	060	059	057	059	068	U072S	068	058	049S
14	044	041	041	040	040	049	057	055	051	055	064	063	054	053	054	054	056	058	066	S	S	SF	SF	SF
15	SF	SF	043F	040	042	046	057	062	I059A	055	057	055	057	060	056	053	056	I060A	063	068	068	061	059	056
16	050	I048S	048	048	048	054	068	051	061	058	055	056	058	056	054	054	057	058	064	U080S	S	067	056	U055S
17	U053S	U044C	U046C	U028C	U028C	C	040	A	A	W	045	W	I049A	049	A	A	A	051	051	058	U060S	SF	SF	I041S
18	U043S	038	038	037	034	043	I046R	047	A	A	A	I051A	055	051	049	050	051	053	054	061	067	068	061	056
19	SF	SF	F	F	F	049	056	I054A	I054A	A	A	A	058	060	060	061	060	I057A	A	A	059	056	053	051
20	049	046	044	045	SF	043	045	051	060	060	059	058	061	061	062	I058C	061	053H	057	063	068S	065	U063S	055
21	054	053	049	051	048	054	061	064	064	058	060	053	061	067	070	063	057	057	067	U072S	068	U064S	058	054
22	SF	SF	SF	SF	050	053H	056	060	051	I058R	060	054	059	058	057	061	066	065	068	I073S	U073S	I068S	I068S	U063S
23	057	055	053F	052F	050	056	069	068	I065A	066	053	055	064	064	060	063	064	064	066	073S	S	S	S	S
24	S	F	F	050F	F	065	066	A	A	A	065	058	064	A	A	A	I066A	I068A	A	A	A	068S	S	SF
25	A	A	A	SF	C	C	C	C	C	C	C	C	C	C	C	C	057	060	I070S	S	A	A	SF	A
26	A	S	SF	SF	SF	053	I064A	I071A	A	A	A	A	A	A	A	053	054	054	A	A	S	S	A	A
27	A	A	A	SF	SF	057F	058	050	A	A	A	A	A	062	I061A	I060A	060	I061A	058	068	069	065S	SF	SF
28	SF	SF	SF	SF	SF	055	061S	069	U072S	063	I058A	056	054	053	051	051	054	057	069	U073S	I068S	064	055S	SF
29	F	FS	SF	F	F	040F	I050A	059	067	059	053	050	I051R	051	053	053	052	I053A	057	069	S	S	063F	042F
30	043	043	043	039F	043F	049	049	053	056	A	046	I048R	047	050	050	049	044	I044A	048	057	063	U064S	063S	047
31	043	040	038	035	040	043	044	I050A	051	049	047	W	W	048	048	049	051	050	050	056	U069S	063S	059	050
No.	20	18	18	17	20	26	27	24	21	20	24	24	26	27	26	27	29	30	26	25	22	23	22	22
Median	044	043	043	040	041	049	053	054	056	056	056	056	056	056	056	056	057	057	058	067	066	064	056	048
U. Q.	048	046	044	046	046	054	058	060	063	059	058	058	060	061	060	060	061	063	066	071	068	067	061	054
L. Q.	043	041	039	036	036	043	048	051	052	054	053	053	053	053	053	053	054	053	051	061	063	057	053	043
Q. R.	005	005	005	010	010	011	010	009	011	005	005	005	007	008	007	007	007	010	015	010	005	010	008	011

foF2

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W. 1

IONOSPHERIC DATA

May 1965 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | 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								400	410	420	I430C	430	430	430	430	410	400	350						
2								400	400	410	430	430	430	430	420	410	390	360	290					
3							360	400	410	420	430	430	440	430	430H	410	390	I360A	280L					
4							360	I390A	I410A	420	430	430	440	430	430	410	390	360						
5							360L		400	420	430	430	430	430	420	400	390	A						
6								400	400	I420A	430	430	I430A	430	A	A	A	A						
7							A	A	A	A	420	430	430	430	410	400	390	A						
8								390	400	420	430	430	430	430	420	420	390							
9								380	410	420	420	430	430	430	420	410	390	360						
10							C	C	C	C	C	C	C	C	C	C	C	C	C					
11							C	C	C	C	C	I430A	I430A	430	I420A	420	I390A	350						
12								A	A	A	430	430	430H	440	430	400	390	370	U310L					
13								410	420	430	440	440	440	430	430	410	I390A	I360A	320					
14						310	370	390	420	430	430	U440C	430	430	430	A	A	A	A					
15							A	A	A	A	A	A	A	A	430	430	400	A	A					
16						U360L	380	400	420	430	440	440	440	430	430	420	400	380	330					
17							350	A	A	A	A	A	I430A	I430A	A	A	A	370	310					
18							I370A	400	A	A	A	I440A	I440A	I430A	440	I430A	I410A	I390A	A					
19							A	A	A	A	A	A	450H	460	440	430	A	A	A					
20							U410L	430	I430A	440	440	460	460	450	I440A	I430C	410		A					
21							390	I410A	430	450	450	460	440	450	450	430	I410A	380	320					
22							400	390	430	I440A	440	I460A	460	450	440	430	410	390	330					
23						360	390	A	A	A	450	470	450	450	I440A	430	I410A	370	A					
24						A	A	A	A	A	A	450	A	A	A	A	A	A	A					
25						C	C	C	C	C	C	C	C	C	C	C	A	A	A					
26							A	A	A	A	A	A	A	A	A	A	I410A	380	A					
27						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
28						340	370	410	I420A	I440A	I440A	I430A	430	440	430	430	I400A	I380A	330					
29						I330A	I370A	A	A	A	A	A	440	I430A	430	I420A	A	A	A	A				
30							380	A	A	A	430	420	440	I430A	I420A	420	400	A	A	A				
31							370	A	A	A	420	430	420	430	420	420	400	360	A					
No.						5	15	15	15	15	20	23	25	25	24	23	22	17	9					
Median						340	370	400	410	420	430	430	430	430	430	420	400	370	320					
U. Q.																								
L. Q.																								
Q. R.																								

foF1

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 2

12

IONOSPHERIC DATA

May 1965 | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | 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					E	190	225	260	295	300	310	310	315	320	305	295	270	230	E150S	E150S				
2					E	150	240	275	295	310	315	325	325	300	300	300	270	220	E170S	E150S				
3					E	180	230	265	295	295	300	300	310	305	300	300	270	220	180	E130S				
4					E	150	220	265	295	305	310	280	300	300	300	295	265	220	E170S	A				
5					E	195	240	270	290	300	315	320	310	I300A	I305A	I290A	265	230	180	E120S				
6					E	160	230	265	290	300	305	310	310	305	I300A	300	260	220	E160S	E130S				
7					E	155	215	260	285	300	310	315	300	295	A	A	A	A	A	E150S				
8					E	190	240	280	295	300	305	300	290	A	A	A	A	A	A	S				
9					E	190	235	275	295	305	310	305	300	I295A	310	300	275	230	170	E170S				
10					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
11					C	C	C	C	C	C	C	310	310	305	A	A	A	230	185	E150S				
12					E	180	220	260	295	300	300	320	325	325	305	300	270	225	A	E170S				
13					E130S	190	230	275	300	300	315	310	300	290	310	300	275	220	155	E130S				
14	E150S				E	180	235	275	300	305	305	310	315	305	310	305	285	235	190	E140S				
15					120	190	230	270	295	305	315	320	320	305	I290A	I300A	280	245	180	E150S				
16			E		E	185	230	265	290	305	310	315	305	300	305	295	285	245	195	E130S				
17	E150S	E			E130C	200	235	280	300	310	325	320	310	300	275	295	I265A	230	180	E150S				E150S
18					110	190	235	275	300	310	320	325	315	310	300	I285A	I270A	250	200	E150S				
19					E	205	250	285	300	310	320	320	310	315	310	295	300	240	185	E150S				
20					A	205	265	300	305	320	325	315	315	A	A	C	A	255	195	E120S				
21					A	200	240	280	305	325	335	330	330	325	300	A	A	A	185	E110S				
22					A	170	240	300	310	320	340	345	335	320	320	305	285	245	195	E130S				
23					E140S	205	250	285	300	315	315	300	I320A	I335A	I325A	305	290	I240A	190	E150S				
24					A	200	245	295	300	310	320	320	320	315	295	I275A	I255A	A	A	A				
25					C	C	C	C	C	C	C	C	C	C	C	C	285	245	I165A	E110S				
26					A	195	235	280	300	300	295	I300A	300	355	330	310	300	240	190	E120S				
27					115	200	245	285	305	315	315	310	I315A	310	300	A	A	A	A	E110S				
28					A	200	A	A	A	310	315	320	320	330	320	300	285	250	195	E110S				
29					110	200	245	280	300	310	315	320	320	320	300	290	250	235	200	E				
30	E150S				110	195	240	280	305	300	300	330	325	A	A	A	A	250	200	E				
31				E	120	205	255	285	310	315	320	320	305	I305A	305	295	275	245	190	E110S				
No.	3	1	1	1	22	28	27	27	27	28	28	29	29	26	24	22	23	25	25	27				1
Median	E150S	E	E	E	E	190	235	275	300	305	315	315	315	305	305	300	275	235	185	E130S				E150S
U. Q.																								
L. Q.																								
Q. R.																								

foE

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 3

IONOSPHERIC DATA

May 1965 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | 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	E012S	E	E	E	015	G	029	031	038	025	G	G	G	025G	026G	027G	034	031	030	029	E016S	E014S	E016S	E016S
2	E016S	E012S	E	E	E	020	G	034	034	G	G	G	G	034	G	036	035	030	030	020	E016S	E015S	E015S	E015S
3	E	E012S	E	E	E	G	G	032	035	033	035	G	G	G	G	035	039	038	022	018	E014S	E015S	E016S	E015S
4	E012S	E	E	E	E	025	033	047	043	038	040	G	G	G	025G	020G	G	G	020	021	E015S	E013S	E015S	E015S
5	E015S	E012S	E	E	E	G	030	037	039	036	G	G	034	033	036	J035	G	036	026	030	E012S	018	E016S	E013S
6	E015S	E	028	E	E	023	G	033	037	044	042	040	J060	043	046	053	J093	050	J063	023	J053	J043	J053	J040
7	E015S	J036	J028	033	E	J063	J056	J073	051	053	040	039	038	035	034	J035	040	040	023	J023	J025	E015S	E016S	E016S
8	E018S	E012S	E	E	018	G	G	G	G	035	036	040	034	042	035	J033	030	030	033	J024	J020	E018S	E016S	E017S
9	E015S	E	E	E	E	G	G	033	036	G	G	G	034	038	040	032	018G	030	033	031	E015S	E012S	E016S	E017S
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	045	051	043	J048	043	050	027	031	025	J029	J030	J021	J025
12	021	024	026	J023	031	035	J063	070	J053	J053	G	G	G	G	G	033	034	030	025	E017S	E016S	E016S	E014S	E018S
13	E015S	E013S	E	E	E013S	024	028	033	037	G	036	035	036	035	037	039	039	037	028	028	J024	E016S	E015S	E015S
14	E015S	E012S	E	E	E	025	032	038	041	045	040	040	037	037	G	045	051	J059	J061	051	J063	J026	J030	J053
15	026	020	J023	E	G	028	043	J061	J061	050	050	053	053	051	040	033	G	J063	045	040	J035	J023	J021	E015S
16	E015S	E	E	E	E	023	038	053	J063	044	047	040	038	G	G	G	G	033	030	025	025	J030	J022	E015S
17	E015S	E	E	E	E013C	028	034	043	045	049	040	043	J091	043	J051	J063	J111	033	J123	J050	052	J053	022	E015S
18	J023	J028	E	E	G	024	J043	036	J061	055	048	057M	049	050	043	J043	050	050	033	J035	J024	E016S	J025	J024
19	J053	J024	J043	J024	020	032	050	061M	J073	J093	090	J051	041	G	G	040	052	J113	J064	J060	J051	J030	E012S	023
20	024	015	J033	J024	020	G	036	041	047	040	035	040	044	J045	J080	C	034	033	042	J043	J028	J053	036	J032
21	J023	023	015	028	J023	024	035	041	039	041	043	045	040	038	043	033	J053	027	040	038	J023	E015S	E015S	E016S
22	021	J028	J023	J020	015	024	032	G	041	051	040	049	G	G	G	034	G	040	034	031	030	J033	J043	J033
23	023	015	J025	J023	E014S	026	038	J063	J083	J083	J061	035	J045	040	J065	073	J140	J083	051	J061	J061	J043	J053	J025
24	J032	J024	J026	J023	025	J053	J060	J118	J121	J073	J101	J153	J090	J080	J093	J083	J093	081	083	J105	J070	051	J062	J062
25	J063	J083	J073	J053	C	C	C	C	C	C	C	C	C	C	C	C	050	145	050	043	J083	073	J040	J073
26	J063	J050	J043	J043	J033	043	J088	J085	J145	D	J138	J073	J105	144	J065	J046	047	038	J080	J086	J061	J063	J063	J061
27	J063	J054	052	J034	G	J043	041	050	J075	J083	J103	J143	J069	052	J068	J065	J053	J073	040	023	J043	J028	J053	J043
28	J035	J036	J034	J026	J023	027	040	J045	043	045	J066	J073	043	042	039	040	042	040	032	023	J035	J053	J031	J033
29	J032	J036	018	J024	J040	035	J073	044	051	050	051	048	043	048	041	042	042	J074	043	J053	028	J024	E012S	J021
30	E015S	J032	E	E	G	026	035	J043	052	J060	036	G	G	J053	J054	033	034	J058	042	J043	J022	J020	018	E015S
31	E014S	E012S	E	E	G	028	035	051	045	046	J065	043	042	034	G	G	G	032	036	031	J025	E	018	022
No.	29	29	29	29	28	28	28	28	28	28	28	29	29	29	29	28	30	30	30	30	30	30	30	30
Median	E018S	015	015	E	G	025	035	043	045	046	040	040	040	038	039	036	040	038	035	031	J026	J024	020	E020
U. Q.	029	030	028	024	020	030	043	057	061	054	056	050	050	046	050	044	051	059	050	043	051	043	036	033
L. Q.	E015	E012	E	E	G	022	030	034	038	037	036	G	G	G	G	033	030	031	030	023	020	E015	E016	E015
Q. R.	D014	D018				008	013	023	023	017	020					011	021	028	020	020	031	D028	D020	D018

foEs

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 4

IONOSPHERIC DATA

May 1965 | f_bEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | 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	S				G		G	G	038	G				025G	024G	023G	G	017G	029	026	S	S	S	S
2	S	S				G		G	G					G		G	G	G	G	G	S	S	S	S
3		S						G	G	G	G					G	020G	037	G	G	S	S	S	S
4	S					G	G	044	040	G	G				025G	020G			G	017	S	S	S	S
5	S	S					G	G	G	G			G	033	031	034		035	025	026	S	016	S	S
6	S		018			G		G	G	042	G	G	043	G	043	049	A	049	A	020	047	040	S	023
7	S	E036S	020	030		A	A	A	A	A	040	G	G	G	032	033	038	035	021	018	020	S	S	S
8	S	S			E					G	G	G	G	035	032	030	029	028	022	020	018	S	S	S
9	S							G	G				G	035	G	G	018G	019G	032	G	S	S	S	S
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	043	045	G	043	037	048	G	030	020	020	021	020	018
12	E016S	015	E	013	022	G	A	A	A	048						G	G	017	021	S	S	S	S	S
13	S	S			S	G	G	G	G		G	G	G	G	G	G	039	037	025	028	021	S	S	S
14	S	S				G	G	036	040	042	039	G	G	G		043	050	047	050	047	030	E013S	020	019
15	018	017	019			G	040	050	A	048	047	046	047	045	033	032		A	045	038	035	020	018	S
16	S					G	032	G	G	040	042	G	G					G	030	022	017	020	016	S
17	S				C	G	032	A	A	A	040	E043R	A	043	A	A	A	G	G	048	047	045	E016S	S
18	E013S	016				G	E043R	G	A	A	A	A	046	049	040	042	049	048	032	034	023	S	020	020
19	032	013	026	020	017	030	048	A	A	A	A	A	G			G	051	A	A	A	051	017	S	E016S
20	E017S	013	019	017	017		G	040	046	G	G	040	040	040	047	C	030	G	038	040	026	030	020	020
21	020	014	012	023	018	017	G	041	038	041	042	G	G	G	G	030	041	027	028	036	020	S	S	S
22	018	030	020	016	013	G	G		039	E051R	G	049				G		G	G	021	030	E033S	030	020
23	E015S	013	019	017	S	G	G	050	A	056	G	G	043	037	045	025	048	030	030	053	E015S	034	030	020
24	020	017	018	016	019	050	055	A	A	A	045	G	047	A	A	A	A	A	A	A	A	050	042	042
25	A	A	A	020	C	C	C	C	C	C	C	C	C	C	C	C	023G	020	E050S	036	A	A	038	A
26	A	E050S	030	016	019	038	A	A	A	A	A	A	A	A	A	043	040	036	A	A	057	E063S	A	A
27	A	A	A	021		032	041	047	A	A	A	A	A	049	A	A	050	A	031	023	030	024	018	040
28	021	030	020	018	020	G	030	038	042	045	A	050	040	G	G	040	040	039	029	020	032	027	030	033
29	032	028	013	014	030	034	A	041	050	050	050	043	042	047	040	042	042	A	042	048	028	017	S	018
30	S	016				G	G	041	041	A	G			046	043	030	030	A	040	040	018	017	017	S
31	S	S				G	G	A	042	043	G	G	G	034				G	034	026	020		016	E015S
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

f_bEs

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 5

15

IONOSPHERIC DATA

Mav 1965 | f-min | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | 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	E012S	E	E	E	E	015	E	017	018	017	017	018	017	018	017	017	012	011	E015S	E015S	E016S	E014S	E016S	E016S
2	E016S	E012S	E	E	E	011	017	017	017	019	020	017	019	019	018	017	017	012	E017S	E015S	E016S	E015S	E015S	E015S
3	E	E012S	E	E	E	012	011	017	017	016	017	018	018	018	018	018	017	017	012	E013S	E014S	E015S	E016S	E015S
4	E012S	E	E	E	E	E	017	017	017	018	020	020	018	019	017	017	017	017	E017S	E	E015S	E013S	E015S	E015S
5	E015S	E012S	E	E	E	012	015	018	017	017	018	017	017	019	018	017	017	012	E	E012S	E012S	E011S	E016S	E013S
6	E015S	E	E	E	E	E	012	012	017	017	018	018	017	020	018	017	017	016	E016S	E013S	E015S	E015S	E015S	E012S
7	E015S	E012S	E	E	E	E014S	011	017	017	017	018	018	018	017	019	017	012	011	011	E015S	E015S	E015S	E016S	E016S
8	E018S	E012S	E	E	E	E	011	017	017	017	017	017	017	018	017	016	015	011	011	E014S	E016S	E018S	E016S	E017S
9	E015S	E	E	E	E	E011S	E013S	017	018	017	018	017	017	019	018	017	011	011	E	E017S	E015S	E012S	E016S	E017S
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	018	017	017	018	017	017	015	E015S	E013S	E011S	E015S	E015S	E016S
12	E016S	E013S	E	E	E	012	017	017	017	017	018	019	020	020	019	018	015	011	E015S	E017S	E016S	E016S	E014S	E018S
13	E015S	E013S	E	E	E013S	E	012	017	018	018	017	018	018	017	020	020	020	017	011	E013S	E014S	E016S	E015S	E015S
14	E015S	E012S	E	E	E	011	017	016	017	017	017	019	020	019	019	018	018	011	011	E014S	E016S	E013S	E015S	E017S
15	E015S	E012S	E	E	E	012	017	017	017	018	020	020	018	018	018	017	018	017	010	E015S	E013S	E011S	E013S	E015S
16	E015S	E	E	E	E	E	015	017	017	018	019	018	018	020	020	017	018	017	012	E013S	E014S	E015S	E015S	E015S
17	E015S	E	E	E	E013C	E	015	017	018	017	017	020	018	026	020	017	018	011	E012S	E015S	E015S	E016S	E016S	E015S
18	E013S	E	E	E	E	E	017	017	017	018	019	017	019	018	018	017	017	018	016	E015S	E016S	E016S	E013S	E011S
19	E017S	E	E	E	E	011	017	017	017	018	020	019	018	020	018	017	017	017	012	E015S	E015S	E012S	E012S	E016S
20	E017S	E	E	E	E	015	019	018	019	018	020	020	018	018	017	C	017	017	015	E012S	E012S	E017S	E015S	E015S
21	E015S	E011S	E	E	E	011	017	017	017	020	019	017	020	020	017	017	017	017	011	E011S	E013S	E015S	E015S	E016S
22	E015S	E	E	E	E	E	018	017	017	019	020	019	018	019	017	017	017	016	017	E013S	E	E014S	E016S	E013S
23	E015S	E	E	E	E014S	015	012	017	020	019	019	017	018	020	017	016	017	016	015	E015S	E015S	E	E016S	E015S
24	E016S	E	E	E	E	012	012	014	018	018	018	018	019	017	018	018	017	011	011	011	E012S	E011S	E	E015S
25	E015S	E013S	E	E	C	C	C	C	C	C	C	C	C	C	C	C	017	011	011	E011S	E015S	E014S	E012S	E011S
26	E015S	E	E	E	E	E	017	019	020	017	020	030	020	027	019	018	019	017	012	E012S	E013S	E017S	E012S	E015S
27	E017S	E	E	E	E	011	012	018	020	017	020	020	020	021	020	017	016	011	015	E011S	E016S	E012S	E015S	E015S
28	E015S	E	E	E	E	E	011	018	017	017	020	019	022	020	019	017	018	011	011	E011S	E011S	010	010	E
29	E013S	E	E	E	E	011	017	016	018	017	026	020	020	020	018	018	017	012	015	E	E	E	E012S	E011S
30	E015S	E	E	E	E	E	011	017	015	018	025	027	020	018	018	017	011	017	011	E	E012S	E013S	E011S	E015S
31	E014S	E012S	E	E	E	011	011	017	013	017	017	016	017	017	016	011	012	011	011	E011S	E	010	E012S	E015S
No.	29	29	29	29	28	28	28	28	28	28	28	29	29	29	29	29	30	30	30	30	30	30	30	30
Median	E015S	E	E	E	E	011	015	017	017	017	019	018	018	019	018	017	017	014	012	E013S	E014S	E014S	E015S	E015S
U. Q.																								
L. Q.																								
Q. R.																								

f-min

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 6

IONOSPHERIC DATA

May 1965 | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | 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	300	310	320	310	340	350	340	340	355	345	325	330	315	320	320	330	315	345	310	U315S	310	315	320	U315S
2	300S	300S	295	310	325S	360	350	345	355	350	325	330	315	315	320	315	315	315	330	325	340	330	325	315
3	310S	310	295	SF	310	350	340	365	350	320	310	335	315	305	330	320	340	320	330	325	315	320	340	320
4	305	295	315S	SF	300F	345	340	330	340	330	320	335	300	315	325	330	320	335	320H	315	345	320	305S	300
5	295	315	315	335	310	350	355	305H	350	350	335	300	305	310	285	300	320	310	S	330S	U320S	320S	U310S	U300S
6	300S	300	300S	SF	SF	345	355	340	355	315	310	330	305	325	305	335	I320A	330S	I325A	315	SF	SF	S	SF
7	305F	I305S	295	SF	325F	A	A	A	A	A	310	300	290	310	315	310	310	335	320	305	310	315	320	310S
8	300	SF	SF	320	335	340	350	335	320	325	330	335	290	335	315	330	335	325H	315	300	310	330	330	320
9	320S	SF	SF	SF	330	350S	335H	320	285	300	290	300	330	255	300	305	305	320	305	315	310	305	300	310
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	310	290	300	310	325	325	330	320	310	325	305	I310S	315S
12	320	300	SF	315	325	320S	I345A	A	A	325	335	325	320	300	305	335	310	325	310	305	310	310	325	320
13	310	305	325	315	340	360	335H	340	345	325	315	305	315	320	315	320	330	335	305	310	U325S	325	320	305S
14	300	300	295	295	300	325	350	365	315	315	330	335	315	300	320	305	310	310	310	S	S	SF	SF	SF
15	SF	SF	310F	320	340	325	325	350	I345A	325	315	310	305	315	300	320	305	I320A	315	320	325	305	310	310
16	310	I310S	310	315	315	300	340	320	330	340	315	320	310	310	315	315	305	295	285	U315S	S	300	285	U295S
17	U285S	U295C	U330C	U330C	U295C	C	295	A	A	W	250	W	I265A	300	A	A	A	320	320	310	U310S	SF	SF	I295S
18	U270S	305	290	305	325	325	I310R	305	A	A	A	I270A	315	290	270	285	315	320	300	295	300	315	310	320
19	SF	SF	F	F	F	310	320	I315A	I315A	A	A	A	310	305	315	310	335	I325A	A	A	310	305	310	305
20	305	310	295	315	SF	350	300	315	335	315	320	305	300	315	320	I310C	325	300H	315	315	310S	315	U315S	310
21	305	310	305	300	315	325	330	330	340	300	305	280	295	300	315	315	315	310	310	U315S	325	U320S	310	310
22	SF	SF	SF	SF	340	350H	325	355	335	I305R	335	270	290	315	300	295	305	310	295	I315S	U320S	I295S	I285S	U315S
23	305	320	310F	305F	330	310	335	325	I330A	350	310	290	315	315	300	310	315	315	320	300S	S	S	S	S
24	S	F	F	300F	F	335	335	A	A	A	345	295	300	A	A	A	I310A	I310A	A	A	A	295S	S	SF
25	A	A	A	SF	C	C	C	C	C	C	C	C	C	C	C	C	300	305	I300S	S	S	A	SF	A
26	A	S	SF	SF	SF	300	I315A	I320A	A	A	A	A	A	A	A	300	315	315	A	A	S	S	A	A
27	A	A	A	SF	SF	315F	345	280	A	A	A	A	A	305	I305A	I305A	295	I310A	310	305	305	310S	SF	SF
28	SF	SF	SF	SF	SF	315	295S	320	U330S	350	I340A	315	325	290	280	300	300	300	305	U325S	I320S	315	310S	SF
29	F	FS	SF	F	F	295F	I300A	310	335	340	315	300	I305R	305	315	300	310	I305A	300	295	S	S	330F	295F
30	285	290	310	305F	325F	325	305	315	340	A	270	I260R	255	280	310	295	320	I275A	300	300	315	U315S	315S	320
31	300	305	305	320	320	325	305	I320A	320	295	270	W	W	270	275	290	310	300	305	305	U290S	315S	315	305
No.	20	18	18	17	20	26	27	24	21	21	24	26	27	27	26	27	29	30	26	25	22	23	22	22
Median	300	305	310	315	325	325	335	320	335	325	315	305	305	305	310	310	315	315	310	315	310	315	315	310
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F2

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 7

IONOSPHERIC DATA

May 1965 | M(3000) F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | 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								380	I375A	400	I370C	385	395	370	370	365	355	370						
2								380	380	400	375	415	400	370	360	370	365	360	350					
3							370	375	390	400	395	390	390	380	355H	365	I370A	I365A	395L					
4							365	I380A	I395A	405	380	395	390	370	350	365	360	355						
5							390L		390	380	395	395	365	370	375	350	355	A						
6								375	390	I380A	375	370	I375A	380	A	A	A	A						
7							A	A	A	A	A	385	390	370	365	375	A	A						
8								370	380	380	380	395	395	370	380	365	365							
9								360	375	380	385	375	370	375	380	365	360	350						
10						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
11						C	C	C	C	C	C	A	A	370	I370A	I370A	I370A	365						
12								A	A	A	400	420	395H	390	380	380	370	355	U380L					
13								365	365	390	410	385	375	375	370	375	I370A	I375A	375					
14						385	380	I385A	A	A	A	U380C	400	395	370	A	A	A	A					
15							A	A	A	A	A	A	A	A	370	365	360	A	A					
16						U360L	I375A	380	375	I385A	I390A	405	385	375	370	365	365	345	A					
17							A	A	A	A	A	A	I380A	I370A	A	A	A	350	355					
18							I355A	375	A	A	A	I385A	I380A	I385A	I365A	A	A	A	A					
19							A	A	A	A	A	A	400H	375	375	365	A	A	A					
20							U365L	I350A	I370A	385	395	370	380	360	I355A	I350C	370		A					
21							360	I365A	370	375	I375A	375	390	380	365	360	I375A	340	I360A					
22							370	410	380	I395A	385	I370A	390	375	385	355	365	335	360					
23						340	360	A	A	A	400	360	I380A	385	I370A	350	I365A	360	A					
24						A	A	A	A	A	A	375	A	A	A	A	A	A	A					
25						C	C	C	C	C	C	C	C	C	C	C	A	A	A					
26							A	A	A	A	A	A	A	A	A	A	I360A	A	A					
27						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
28						365	380	I370A	I385A	I395A	I380A	I375A	370	385	385	I365A	I355A	A	A					
29						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
30							370	A	A	A	415	430	380	I395A	I370A	365	375	A	A	A				
31							350	A	A	A	405	390	415	390	380	370	360	370	A					
No.						4	13	15	14	14	18	22	23	24	23	21	20	14	7					
Median						360	370	375	380	390	390	385	390	375	370	365	365	360	360					
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

M(3000) F1

IONOSPHERIC DATA

May 1965 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | 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								270	255	280	300	290	320	315	325	295	290	260						
2								275	275	280	300	310	325	320	300	310	300	275	260					
3							275	250	260	300	325	300	340	360	310	315	270	270	260					
4							280	300	285	300	315	310	380	350	315	310	300	280						
5							260		270	290	315	365	330	305	360	310	290	285						
6								290	260	315	360	315	340	310	340	295	A	A						
7							A	A	A	A	360	385	420	355	320	350	310	275						
8								300	340	330	315	310	350	300	340	325	300							
9								330	400	400	420	375	320	510	375	330	320	280						
10						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
11						C	C	C	C	C	C	370	395	370	355	310	300	280						
12								A	A	305	290	320	330	380	350	300	370	355	U380L					
13								295	260	310	335	350	325	305	300	300	280	280	300					
14						290	260	250	330	350	300	300	340	380	350	350	350A	325	A					
15							295	I270A	I270A	320	325	345	350	320	360	325	340	I290A	295					
16						320	260	300	300	295	350	340	340	345	350	335	330	340	325					
17							415	A	A	W	535	W	I470A	400	A	A	A	320	290					
18							I360A	370	A	A	A	A	350	420	410	415	A	A	310					
19							320	I345A	I330A	A	A	A	355	350	325	320	300	I285A	A					
20							U360L	360	285	325	310	345	350	310	325	I320C	310		280					
21							275	290	280	360	345	425	355	330	315	300	310	310	280					
22							280	260	300	I355A	295	460	375	335	375	365	310	300	300					
23						320	275	270	I275A	280A	350	415	325	320	360	320	315	300	270					
24						A	290A	A	A	A	295	380	350	A	A	A	I315A	A	A					
25						C	C	C	C	C	C	C	C	C	C	C	350A	A	A					
26							A	A	A	A	A	A	A	A	A	375	345	325	A					
27						270	250	A	A	A	A	A	A	330	A	A	A	I300A	280					
28						305	315	295	285	280	A	350A	330	400	415	395	345	340	285					
29						A	A	315	290	290	A	370	I380R	385	310	375	350	I345A	325	A				
30							330	340	295	A	465	R	530	420	360	390	345	A	350	300				
31							380	I345A	330	400	470	W	W	460	440	400	350	345	325					
No.						5	18	21	21	21	22	24	27	27	25	26	26	23	17	1				
Median						305	285	295	285	310	325	350	350	350	350	320	310	300	295	300				
U. Q.																								
L. Q.																								
Q. R.																								

h'F2

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 9

19

IONOSPHERIC DATA

May 1965 | $h'F$ km | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	260	260	250	240	225	220	230	220	I240A	210	220	200	210	215	220	215	250	250	260A	260A	240	240	230	245
2	265	265	275	260	235	225	230	245	225	220	215	200	190	245	250	245	240	250	245	240	225	215	235	250
3	275	265	280	235	245	235	225	230	215	200	200	210	200	200	200H	240	I250A	I250A	250	245	250	230	220	225
4	265	280	275	275	260	250	250	I240A	I225A	210	225	210	210	200	240	230	225	220	240H	250	225	230	260	270
5	270	250	250	235	275	250	240	260H	240	220	200	200	230	250	220	250	235	I250A	250	250A	230	220	275	275
6	260	280	295	275	260	250	230	225	225	I240A	220	220	I220A	210	A	A	A	A	A	250	A	A	S	265
7	280	I285A	300	I305A	240	A	A	A	A	A	A	225	210	210	210	245	I250A	I250A	245	260	260	250	250	250
8	270	300	270	245	225	250	240	225	220	225	210	220	210	215	210	220	225	240H	260	270	260	235	225	250
9	265	270	275	250	230	225	240	250	260	230	220	220	210	225	240	250	240	255	I275A	245	245	245	260	260
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	A	A	220	I220A	I225A	I235A	225	260A	260	250	265	250	260
12	250	270	280	275	260	250	I245A	A	A	A	210	195	200H	200	200	235	235	225	230	260	250	245	240	230
13	260	260	250	260	240	235	215H	235	235	215	210	205	210	235	230	225	I255A	I250A	250	260A	250	235	240	230
14	260	270	265	260	260	245	240	I240A	A	A	A	230	205	200	240	A	A	A	A	A	A	225	250	260
15	265	265	260	250	235	250	A	A	A	A	A	A	A	A	220	235	225	A	A	A	I250A	250	250	250
16	245	250	260	245	250	240	I235A	240	250	I245A	I230A	215	215	230	220	220	230	250	I255A	250	235	260	280	260
17	280	270	245	230	300	260	A	A	A	A	A	A	I230A	I230A	A	A	A	250	275	A	A	A	250	275
18	300	280	280	260	260	245	I240A	250	A	A	A	I230A	I230A	I235A	I250A	A	A	A	I275A	I270A	270A	250	250	250
19	I260A	250	350A	290	265	255A	A	A	A	A	A	A	205H	215	200	220	A	A	A	A	A	250	250	260
20	265	275	300	270	230	210H	250	I250A	I235A	225	210	250A	230A	260A	A	C	230	250H	I255A	I260A	265A	I255A	245	250
21	275	260	245	265	260	240H	260	I250A	250	250A	I220A	225	220	235	225	220	I230A	215	I250A	I250A	250	230	250	245
22	275	300	290	280	250	205H	200	205	240	I195A	200	I230A	220	215	225	230	225	235	285	255	A	A	A	255
23	250	250	275	270	240	250	250	A	A	A	230	200	I225A	210	I245A	250	I250A	225	I250A	I250A	250	I250A	I250A	250
24	250	260	260	255	270	A	A	A	A	A	A	240	A	A	A	A	A	A	A	A	A	A	A	A
25	A	A	A	285	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	A	A	A	A
26	A	I320A	I305A	290	260	A	A	A	A	A	A	A	A	A	A	A	I255A	A	A	A	A	A	A	A
27	A	A	A	265	250	A	A	A	A	A	A	A	A	A	A	A	A	A	A	265	270A	255	260	A
28	275	300A	300	300	270	250	230	I215A	I215A	I230A	I235A	I230A	230A	235	220	I250A	I260A	I265A	I260A	250	I240A	255A	285A	I300A
29	I310A	305A	270	295	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	255	215	230	225
30	290	295	250	260	245	240	250	A	A	A	200	200	230	I215A	I240A	220	215	A	A	A	250	255	235	225
31	270	260	260	240	245	235	265A	A	A	A	225	220	205	215	210	220	210	240	I275A	275A	265	235	230	250
No.	26	27	27	29	27	23	20	16	14	14	18	22	23	24	22	20	21	19	20	21	22	24	25	26
Median	265	270	275	260	250	245	240	240	235	220	220	220	210	215	220	230	235	250	255	255	250	245	250	250
U. Q.																								
L. Q.																								
Q. R.																								

$h'F$

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 10

IONOSPHERIC DATA

May 1965 | h'Es | km | 135° E Mean Time (G. M. T. +9h) | 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	S	E	E	E	140	G	135	125	125	125	G	G	G	105	105	105	130	125	120	115	S	S	S	S
2	S	S	E	E	E	145	G	125	135	G	G	G	G	115	G	140	125	140	120	120	S	S	S	S
3	E	S	E	E	E	G	G	125	115	120	115	G	G	G	G	145	125	125	125	120	S	S	S	S
4	S	E	E	E	E	135	125	120	120	115	115	G	G	G	105	105	G	G	150	105	S	S	S	S
5	S	S	E	E	E	G	150	130	125	125	G	G	120	110	110	110	G	130	125	115	S	110	S	S
6	S	E	105	E	E	145	G	130	125	120	120	125	115	115	140	125	115	120	125	125	115	120	115	105
7	S	105	100	105	E	125	125	120	115	115	115	110	110	110	105	105	100	100	100	100	100	S	S	S
8	S	S	E	E	100	G	G	G	G	125	120	110	110	105	105	105	100	100	100	100	100	S	S	S
9	S	E	E	E	E	G	G	145	140	G	G	G	110	110	120	140	105	150	125	120	S	S	S	S
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	115	115	115	105	110	110	150	125	120	110	110	110	110
12	105	100	105	100	125	120	115	125	120	110	G	G	G	G	G	140	100	100	125	S	S	S	S	S
13	S	S	E	E	S	135	135	125	120	G	120	125	120	115	150	135	125	120	120	120	110	S	S	S
14	S	S	E	E	E	135	135	120	120	110	115	115	120	115	G	135	120	120	115	115	115	110	110	110
15	105	105	100	E	G	125	115	110	110	115	110	110	110	110	110	110	G	120	125	115	115	110	110	S
16	S	E	E	E	E	130	120	115	115	115	110	110	115	G	G	G	G	125	125	120	120	110	110	S
17	S	E	E	E	C	135	125	120	120	115	120	120	110	110	110	115	110	125	120	120	115	115	110	S
18	110	110	E	E	G	130	120	125	115	115	115	115	110	110	110	105	125	125	125	120	120	S	110	110
19	110	105	105	105	105	140	125	120	115	115	110	110	110	G	G	120	125	115	115	115	115	115	S	110
20	110	105	105	105	105	G	140	125	125	125	125	110	110	105	100	C	110	150	130	120	115	115	110	110
21	105	105	105	105	105	105	140	125	125	125	120	120	120	115	110	110	110	115	115	115	110	S	S	S
22	105	100	100	100	100	120	125	G	125	120	150	135	G	G	G	135	G	120	125	115	115	120	110	110
23	110	110	105	105	S	145	135	115	115	110	110	110	105	105	115	120	110	110	120	115	120	115	115	110
24	105	105	105	105	135	125	120	115	110	115	115	110	110	105	105	115	115	115	115	120	115	125	110	110
25	100	105	105	100	C	C	C	C	C	C	C	C	C	C	C	C	120	120	115	110	110	110	110	105
26	105	105	105	105	105	115	115	110	110	110	105	110	110	120	120	115	120	115	115	110	110	110	110	105
27	105	105	105	105	G	120	120	120	115	110	110	110	110	110	110	110	110	105	105	105	105	105	110	110
28	105	105	105	105	110	125	110	110	110	120	110	115	125	140	145	135	125	120	120	120	110	110	110	110
29	110	110	110	110	125	125	125	120	120	110	110	110	120	115	115	110	120	120	125	120	115	110	S	105
30	S	105	E	E	G	125	120	120	120	110	110	G	G	110	110	110	110	120	120	115	115	110	110	S
31	S	S	E	E	G	140	135	120	120	120	120	115	110	110	G	G	G	140	120	120	115	E	110	110
No.	14	16	15	13	10	22	23	26	27	25	23	21	22	23	21	26	24	29	30	29	23	18	17	15
Median	105	105	105	105	105	130	125	120	120	115	115	110	110	110	110	115	115	120	120	115	115	110	110	110
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

h'Es

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

W 11

IONOSPHERIC DATA

May 1965 | Types of Es | 135° E Mean Time (G. M. T. +9h) | 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					c		h	c	c	c				1	1	1	h	c 1	c2	c				
2						h		c	h					c		h	c	h	c	c				
3								c	c	c	c					h	c 1	c	c	c				
4						c	c	c2	c	c	c				1	1			h	1				
5							h	c	c	c			c	1	1	1		c	c	c3		f		
6			f2			h		h	c	c2	c	c	c2	c	h 1	c2	c4	c	c4	c2	f4	f5	f2	f4
7		f4	f2	f4		c3	c2	c3	c2	c2	c	c	c	c	1	12	12	12	1	1	f			
8					1					c	c	c	c	1	1	1	1	12	12	1	f			
9								h	h				c	1	c	h	1	h 1	c	c				
10																								
11												c	c	c	12	1	12	h	c	c2	f2	f2	f2	f
12	f2	f	f	f	c2	c2	c4	c3	c2	c						h	1	1 h	c 1					
13						h	h	c	c		c	c	c	c	h	h	c	c	c	c2	f2			
14						h	h	c	c	c	c	c	c	c		h	c2	c2	c3	c4	f4	f3	f3	f2
15	f2	f	f2			c	c2	c5	c2	c2	c2	c	c2	c2	1	1		c3	c5	c2	f2	f2	f	
16						c	c	c	c	c	c	c	c					c	c2	c	f	f2	f2	
17						h	c	c2	c	c	c	c2	c3	c	c2	c2	12	c	c2	c2	f3	f3	f	
18	f2	f2				c	c	c	c2	c	c	c	c2	c2	c2	12	c213	c4	c2	c2	f		f	f2
19	f3	f	f2	f2	12	c	c4	c3	c2	c3	c3	c2	c			c	c	c4	c2	c4	f2	f2		f
20	f	f	f2	f2	1		h	c	c	c	c	c	c	12	12		1	h	c	c4	f2	f2	f2	f2
21	f2	f2	f	f2	12	1 h	h	c	c	c	c	c	c	c	c2	1	12	1	c2	c4	f2			
22	f2	f2	f	f	1	c	c		c	c	h	h				h		c	c	c2	f2	f4	f3	f2
23	f	f	f4	f		h	h	c2	c3	c2	c2	c	12	1	1	c 1	c2	12	c2	c2	f2	f4	f2	f2
24	f	f	f	f	c 1	c2	c5	c3	c3	c2	c2	c2	c	c4	c4	c312	c31	c31	c51	c51	f3	f f2	f2	f4
25	f3	f3	f4	f2													c 1	c41	c41	c4	f3	f2	f2	f2
26	f2	f3	f3	f2	12	c	c3	c2	c2	c2	c2	1	12	c2	c3	c2	c	c2	c4	c5	f3	f4	f3	f3
27	f5	f4	f5	f2		c	c2	c3	c3	c4	c3	c2	12	c2	c2	13	12	12	12	12	f3	f2	f2	f2
28	f	f2	f2	f	1	c	1	12	1	c	c3	c	c	h	h	h	c2	c	c	c	f	f2	f2	f6
29	f3	f4	f	f	c4	c2	c5	c	c	c	c2	c	c	c	c	c	c	c4	c4	c4	f2	f2		f2
30		f2				c	c	c2	c	c2	c			12	12	1	1	c2	c2	c2	f	f2	f	
31						h	h	c2	c	c	c	c	c2	1				h	c2	c5	f2		f	f
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Types of Es

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

May 1965 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	045	J043R	041	FS	FS	041	051R	060	064	057	058	062	061	061	067	067	067	066	062S	069	068	055	048	043
2	040	040	037	036F	037F	046	045	058	063	056	054	057	057	065	068	069	068	068	072	076R	056	041R	036	034
3	033	034R	032	031	029	039	053	061	058	055	055	058	058	059	068	I070A	I069A	I063A	057	065	067	064	045	031
4	030	031	031	030	F	041	055	065S	068	056	055	052	056	063	070	071S	065	055	053	063	063	051S	044R	044R
5	045S	043S	040	037	036	042R	053	055	054	055	053H	056	063	072	073S	083	090	080	085	I074R	063S	050Z	I042A	U043R
6	U043S	U043R	RF	A	RF	I049R	064	057	055	I054A	058	063	063	I063A	070	I069A	I068A	068	071	071R	U060R	RS	A	A
7	039R	043	RF	RF	RF	040	047	A	A	A	A	053	052	059	061	066	067	061	056	056	060	059	053	046
8	045	045	041	041	039	039	046	051	055	054	060	055	062	057	058	063	056	051	053	066	070	058	047	043
9	043	041	038	038S	034	041	046	050	059H	056	053	060	059	055	058	064	061	066	065	061R	053	046	043	043
10	040R	041	039	038	038	045	050R	049H	051	054	063	058	054	060	I069A	077R	083	073	I063A	062	058V	I053A	051R	A
11	RF	RF	047F	046	042	050	053	052	055	055H	059	I056A	059	065	068	063	058	058	055	059	056S	U054R	U049R	FS
12	FS	041F	FS	037F	042	043	048	052H	I059A	066	I058A	I056A	056	056	059	063	062	062	065	071S	073S	068	060	051R
13	049	046R	043	042	044	048	054	058	062	055	056	064	074	074	069	066	064	I056A	I062A	I070A	083R	U063R	050	I043A
14	I045A	042	040	038	039S	048	062	055	057	I055A	I066A	066	061	056	057	I059A	I058A	A	A	U080R	I078R	I070R	I063R	I059R
15	A	RF	RF	F	F	048F	060	060	I058A	058	I058A	058	059	061	063	060	061	067	066	069	067	FS	J053R	054
16	048	047S	U048R	046R	045	053	057	061	068	062	057	057	061	066	068	068	063	065	I070A	I083R	069S	056	I056R	058
17	055S	061R	043	U033F	I028A	035R	A	A	A	I050A	I051A	A	A	A	A	A	054	060	057	056	FS	RS	A	A
18	A	FS	RF	FS	033F	042	053	053	I050A	I051A	I052A	054	051	052	053	054	058	I058A	060	068	068	FS	063S	052
19	049S	RF	RF	RF	F	045R	057	068	058	I058A	I055A	056	061	068	075	076S	072	I059A	I055A	I058A	I060R	I056A	I052A	050
20	I047R	I045R	042S	F	040V	045	049	057	I060A	058	056	063	063	067	067	073	072	066	056	067	068	I060R	FS	050
21	050	I048R	047R	045	046	051	058	063	060	058	055	061	068	076	076	075	068	065	065	I074R	075	057	J051R	048
22	049	048	045	045	045	050	059	051	056	053	063	060	058	060	064	068	073	074	076S	084	U075R	062F	061S	FS
23	060S	060	056S	051S	051R	058	060	068	066	065	057	057	063	067	066	072	072	068	070	076S	I075R	070S	FS	070S
24	I065R	059F	057F	F	F	054V	066	072	070	058	057	065	076	075	071	070	079	080	074	082	I078R	065S	F	056
25	050F	050S	RF	F	045	053	058F	U073S	I068R	A	C	C	C	C	C	A	061	068	I079A	I082R	A	RS	044R	I040R
26	I040A	I042A	I040R	I039R	U040F	046F	058F	075R	A	A	054	055	I058A	059	061	063	063	058	061	074R	A	A	A	053R
27	I056A	U053R	I048A	I044R	I046R	053F	I052A	I054A	A	A	A	065	I068A	I065A	I070A	078	083R	073	073	072	072S	066	060	059F
28	I048R	043S	F	F	041F	049	063	068H	060	058	059	056	054	057	056	056	059	066	080	J091R	078	051	048R	047
29	FS	039F	039F	037F	035F	043	052	A	A	A	052	C	A	A	056	060	056	055	I066A	I074R	076S	A	FS	FS
30	RS	041S	F	FH	038H	042	056H	I064R	I056A	050	E042G	048	051	052	051	052	050	050	I051A	060	067	060S	FS	045S
31	043	042	040	034	033	042	050	054	051	049	E042G	048	048	053	053	054	051	051	054	062	068	062	056	049
No.	25	27	22	20	24	31	30	28	26	26	28	28	28	28	29	29	31	30	30	31	28	24	23	25
Median	045	043	041	038	040	045	054	058	058	056	056	057	059	061	067	067	064	065	064	070	068	058	051	048
U. Q.	050	048	047	044	044	050	058	064	063	058	058	062	063	066	070	072	072	068	071	076	075	064	056	054
L. Q.	042	041	039	036	036	042	051	054	055	054	054	056	056	057	058	062	058	058	056	062	062	054	045	043
Q. R.	008	007	008	008	008	008	007	010	008	004	004	006	007	009	012	010	014	010	015	014	013	010	011	011

foF2

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 1

IONOSPHERIC DATA

May 1965 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								400A	I420A	430L	430	430	430	430A	420	410	390L	A	A					
2								380L	410	430	450	450	440	430	420	420	400	A	L					
3							L	A	410	430	440	450H	440	440	430A	A	A	A						
4							L	A	U410A	430	430	450	440	430	420A	I400A	I380A	A						
5								390L	410A	I430A	L	430	430H	430	420	410	390	350L	L					
6							A	A	A	A	I440A	440	440	I430A	I420A	A	A	380L	L					
7								A	A	A	A	430	430	430	420	400	390	360L						
8								L	400	430	430	440	440	I440A	420	400	390	LH	L					
9								390L	400A	430A	440	440	440	440	420	420	390H	370	L					
10							L	390	410	440	440	450H	450	430	I420A	I410A	390	A						
11							L	400L	420	430	A	A	A	A	A	410	400	350L	L					
12							L	A	A	430A	A	A	450	450	430A	420	I400A	L	L					
13							L	400	430	440	450	450	450	440	I440R	I410A	A	A	A					
14							A	A	A	A	A	A	I440A	U440A	440	A	A	A	A					
15							A	A	A	A	A	A	450	440R	430	420A	I400A	A	A					
16						L	L	I420A	I430A	440	I450A	460	460	440	440	430	410	A	A					
17							A	A	A	A	A	A	A	A	A	A	400	I370A	L					
18							370L	A	A	A	A	A	460A	440	440	430	410	A	A					
19						L	A	I410A	A	A	A	460	A	A	I440A	I440A	I420A	A	A					
20							370L	410	I430A	440	A	A	A	I460A	450	440	420	A	A					
21							L	400L	450	I450A	I470A	470	460	450	450	440	420	380H	L					
22							L	LH	420	450	460	460	470H	450	440	U440A	I420A	390	L					
23							L	420L	I440A	450L	I460A	470	460	450	440	430	420	380L	L					
24							L	A	A	A	A	470	460	I460A	450	440	420	400	A					
25							L	410	A	A	C	C	C	C	C	A	A	420A						
26							400	A	A	A	450	U460R	I460A	U450A	450A	440A	410	390	L					
27							A	A	A	A	A	A	A	A	A	A	410	A	A					
28						L	L	A	A	430	430	440	430	460	430	420	A	A	A					
29						L	370	A	A	A	470	C	A	A	430H	I420A	400	A	A					
30							I370A	390	I420A	430	420	I420R	420	I420A	420	410H	390H	360	A					
31							L	A	A	420	420	430	430	I420A	410	410	390	360	I320A					
No.							5	14	16	19	18	21	24	25	27	25	25	14	1					
Median							370	400	420A	430	440	450	440	440	430	420	400	375	U320A					
U. Q.																								
L. Q.																								
Q. R.																								

foF1

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 2

IONOSPHERIC DATA

May 1965 | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							215	265A	I280A	305	A	A	A	A	315	295	270	I220A	A					
2						E	235	275	290A	I310A	325	330A	U335R	I330A	315R	295	270A	A	E					
3						E	195A	250	285A	300A	A	A	A	A	A	290	265	230	E					
4						E	A	265A	A	A	315A	A	A	A	A	A	265A	I215A	E					
5							A	A	295A	310	I320A	330	A	A	A	A	A	A	A					
6						A	A	270	I290A	310A	320	325	330	325R	315A	305	270R	I220A	E					
7						E	A	265A	290A	315	320A	A	A	A	A	A	265	A	E					
8						170	A	A	A	305	315	A	A	A	A	A	265	220	E180B					
9						E	240A	275A	295A	310	325	325R	330	330	U320R	300	275	230	E170B					
10						E180B	215	I260A	290A	310	315	A	A	A	A	305A	275	235A	E					
11						E170B	235	270A	295	I315A	325	325	330A	A	A	A	A	A	E					
12						A	230A	270A	290A	310A	A	A	A	A	A	A	260	A	E					
13						180R	240A	280A	295	310R	320A	320R	A	A	A	A	290	235A	E					
14						A	A	A	A	310A	A	A	A	A	A	310H	I290A	245A	A					
15						A	A	A	A	A	A	A	A	A	A	305	A	A	A					
16						A	A	A	300A	I315A	A	A	A	A	A	310	280	240	A					
17						A	245A	280A	U310A	325	335	335	335A	A	A	A	A	245	A					
18						185	I240A	280A	305A	325	330	330A	330A	330R	I320A	315	I280A	245A	A					
19						A	235	I270A	305A	320	335	340R	I335R	I330R	A	A	A	A	A					
20						185	255A	290A	I320A	330A	340A	345A	A	A	A	320	285	235	E170B					
21						A	240	285	310	330	I335R	340A	340A	U335R	A	A	A	A	A					
22						A	A	A	300A	A	A	A	I340A	I335A	325	310R	275	235A	A					
23						A	245	280	300	A	A	A	A	R	330	315	280	A	A					
24						A	A	I280A	310	325A	330	I335R	335	R	A	A	275	235	A					
25						A	A	A	A	A	C	C	C	C	C	315	285	A	A					
26						A	A	A	A	A	A	330	340R	I340A	340	I310A	290A	A	A					
27						A	250A	I285A	310R	325A	I330A	340	R	A	A	A	A	A	A					
28						A	A	A	A	A	A	335	340	335	325	310	280	A	A					
29						A	235	275	A	A	A	C	I335R	330	I320A	300	275	A	A					
30						A	A	A	295	A	A	A	A	A	A	290	275	AH	A					
31						A	A	I280A	305	320	I330A	335	A	A	A	A	270	245	A					
No.						11	16	21	23	22	18	16	13	10	10	18	24	16	12					
Median						E170	240A	275A	295A	310	325	330	335	330	320	310	275	235A	E					
U. Q.																								
L. Q.																								
Q. R.																								

foE

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 3

IONOSPHERIC DATA

May 1965 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J028	J065	J038	J024	J024	J026	031	J051	J053	038	040	039	036	J043	G	032	031	J041	J058	J029	J023	J013E	J013E	E
2	E	E	E	E	E	017	026	031	037	J035	037	035	G	034	037	035	J038	J050	J032	J042	J016E	E	E	J016E
3	E	J025	J031	J033	J033	020	030	J049	J038	035	036	035	J039	043	047	J088	J072	J096	J051	J029	J031	J011E	E	E
4	E	E	J019N	JC19	E	020	030	J047	J043	J040	J041	036	J038	044	044	044	J067	J043	J045	J022	E	E	E	E
5	J011E	E	J011E	E	J025	J031	030	035	042	045	039	035	034	J039	033	035	J037	027	J028	J063	J082	J036	J075	J063
6	J103	J050	J043	J053	J031	J035	J041	J043	J046	J085	J061	J042	037	J110	J047	J077	J075	J041	J032	J028	J088	J079	J064	J114
7	J036	J035	J043	J037	J031	J040	J044	J093	J073	J078	J061	J041	038	J045	037	J036	030	J032	J035	J036	J026	J017	J013E	E
8	020	J018	E	E	E	G	027	035	037	036	037	039	039	J056	J053	031	G	027	024	J021	J018	J013E	E	E
9	E	E	J014E	J018	E	020	030	037	041	044	040	037	037	035	035	032	G	027	023	J023	J020	J022	J012E	E
10	E	E	E	J013E	J012E	019	025	032	J038	J048	J063	J038	J043	J048	J100	J073	J062	J080	J104	J038	J040	J060	J064	J064
11	J034	J043	J018	J021	J014E	J023	G	030	J046	J045	J050	J070	JC82	060	J045	J043	J038	025	022	J033	J058	J033	J033	J035
12	J026	J035	J025	J022	E	J030	029	039	J093	J046	J072	J095	040	J057	J059	J041	J063	J037	024	J016E	J015E	E	E	E
13	E	E	E	E	E	G	025	039	041	037	041	039	039	J038	J048	J068	J050	J063	J084	J078	J036	J024	J019	J063
14	J066	J025	J023	J025	J028	023	J043	J055	J053	J064	J066	J080	J063	J077	J046	J077	J065	J080	J079	J063	J042	J088	J064	J078
15	J060	J053	J026	J033	J020	J038	J055	J055	J067	J078	J064	J061	J050	039	J041	J048	J045	J061	J047	J060	J058	J063	J041	J017
16	J013E	J029	J020	J032	J039	J029	J037	J048	J051	J073	J071	J068	038	J041	J038	033	033	J038	J078	J038	J063	J060	J080	J025
17	J014E	J019	J050	J034	J041	032	J065	J111	J065	J062	J079	JC95	J100	J113	J108	J100	J051	J053	026	J021	J083	J041	J052	J056
18	J050	J035	J041	J043	J018	023M	032	J050	J063	J062	J067	J052	J051	J046	J042	G	040	J072	J049	J031	J061	J053	J041	J021
19	J029	J020	J033	J035	J031	J027	J046	043	J052	J075	J068	044	J067	J056	J056	J083	J058	J069	JC78	J080	J082	J135	J088	J035
20	J035	J035	J023	E	E	022	029	J042	J063	J053	J063	J064	J076	J066	J036	J048	G	043	J055	J051	J053	J048	J036	J035
21	J028	J061	J018	J017	J012E	023	033	038	043	J063	J051	043	041	038	J035	033	035	028	021	J023	J031	J021	J021	J013E
22	J034	J018	J015E	J019	J015E	018	026	029	037	036	035	J035	J041	039	037	045	J053	J035	025	J032	J022	J050	J042	J039
23	J036	J043	J013E	J020	J023	J023	035	039	J050	J065	J068	J047	039	046	J040	G	G	J058	J043	019	J038	J020	J050	J036
24	J026	J025	J028	J055	J052	J036	039	J065	J065	J133	J060	J039	J056	J113	J088	J048	J041	J037	J038	J036	J032	J051	J035	J026
25	J060	J060	J052	J018	J060	J035	J036	040	J058	J088	C	C	C	C	C	J109	J048	J043	J110	J064	J088	J062	J061	J089
26	J107	J072	J061	J053	J028	019	033	J073	J096	D	J048	039	J074	J072	046	J049	039	032	J033	J045	J109	J138	J062	J057
27	J060	J065	J065	J041	J028	J043	J064	J063	J071	J076	J073	JC67	J081	J127	D	J081	J041	J051	J063	J060	J050	J032	J049	J049
28	J068	J028	J033	J029	J043	J034	J035	J053	J051	J063	035	040	G	040	G	J052	J051	J044	J040	J016E	023	J030	J037	J027
29	J028	J029	J040	J038	J033	J022	032	J083	J076	J088	J056	C	J113	D	J058	J050	J051	J058	J088	D	J113	J108	J046	J037
30	J063	J064	J042	J038	J037	J034	J053	J050	J116	J052	J036	036	J040	J048	J035	G	G	031	J067	J055	J041	J064	J038	J013E
31	J018	J017	E	E	J017	028	037	J043	J053	J063	043	038	J046	J059	034	J030	G	030	J040	J031	J016E	J031	J021	J015E
No.	31	31	31	31	31	31	31	31	31	31	30	29	30	30	30	31	31	31	31	31	31	31	31	31
Median	J028	J029	J025	J024	J024	J023	033	J043	J052	J062	J054	J040	J040	J047	J043	J045	J041	J043	J043	J036	J040	J036	J038	J027
U. Q.	060	050	041	037	033	034	041	055	065	076	066	062	063	066	053	073	053	058	067	060	063	062	061	056
L. Q.	E	018	E	017	E	020	029	038	042	044	040	038	038	040	036	033	031	032	028	023	023	020	E	E
Q. R.		032		020		014	012	017	023	032	026	024	025	026	017	040	022	026	039	037	040	042		

The Radio Research Laboratories, Japan

foEs

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

May 1965 | f_bEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	017	017	E	E	026	029	040	042	037	038	037	034	043		031	031	038	055	025	017			
2						017	024	029	033	033	030	035		033	036	034	034	038	028	039				
3		018	020	020	E	018	028	049	036	034	035	035	035	039	043	A	A	A	E051R	027	021			
4			E	E		020	029	046	042	039	040	035	035	042	042	042	048	040	045	020				
5					E	022	028	033	041	044	036	035	034	039	033	034	033	026	025	E063R	032	017	A	030
6	035	027	022	A	021	032	041	040	044	A	049	041	035	A	045	A	A	035	022	E	055	025	A	A
7	029	029	022	029	030	033	043	A	A	A	A	039	037	042	037	032	030	030	023	029	021	E		
8	E	E					026	033	034	034	036	037	038	050	037	030		025	024	E	E			
9				E		020	028	036	040	043	039	037	036	034	034	031		026	023	020	E	022		
10						019	025	031	035	033	036	036	040	039	A	065	035	065	A	035	020	A	043	A
11	020	020	E	E		021		030	035	042	049	A	048	052	044	035	032	G	021	019	040	025	E	021
12	018	020	018	E		029	029	035	A	043	A	A	035	044	043	034	042	027	021					
13							025	034	041	036	039	038	038	036	038	054	050	A	A	A	035	E	E	A
14	A	E	018	018	021	021	042	052	054	A	A	063	046	045	040	A	A	A	A	041	E	046	022	045
15	A	025	019	025	E	037	054	052	A	047	A	050	038	037	038S	042	043	060	E047R	058	040	035	025	E
16		018	E	E	018	020	033	045	044	040	050	039	037	039	035	033	032	038	A	022	055	038	E	023
17		E	020	E	A	025	A	A	A	A	A	A	A	A	A	A	038	053	026	020	018	E041R	A	A
18	A	020	021	029	E	017	031	049	A	A	A	047	046	043	040		039	A	048	030	040	040	035	E
19	020	020	025	020	028	024	045	043	046	A	A	U044R	059	055	055	055	043	A	A	A	051	A	A	021
20	E	018	E			021	027	040	A	039	053	055	049	050	035	041		043	052	048	021	018	E	E
21	018	034	E	E		022	033	035	042	057	049	041	039	037	036	033	034	027	021	019	E	E	E	
22	021	E		E		018	025	029	036	035	035	E035R	037	036	035	045	052	027	023	032	021	019	037	018
23	020	024		E	018	022	033	037	047	038	046	038	037	043	U040R			027	023	E	025	017	032	018
24	E	E	018	033	027	025	036	058	057	050	055	038	044	066	039	039	038	U037R	E038R	035	030	024	020	020
25	024	018	017	E	E	028	E036R	032	047	A	C	C	C	C	C	A	046	042	A	E064R	A	024	029	035
26	A	A	019	E	018	019	032	060	A	A	036	039	A	046	045	044	037	030	028	E045R	A	A	A	046
27	A	050	A	034	019	040	A	A	A	A	A	060	A	A	A	052	032	045	049	039	025	017	022	022
28	030	021	025	025	017	027	035	047	046	036	035	039		040		034	051	039	037		020	021	034	024
29	022	025	036	030	017	020	028	A	A	A	046	C	A	A	037	047	039	052	A	040	044	A	032	E
30	040	025	E	019	018	032	042	033	A	042	036	036	038	045	035			028	A	023	034	036	017	
31	E	E			E	025	035	040	049	034	039	038	036	048	033	030		027	036	025		025	E	
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

f_bEs

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

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IONOSPHERIC DATA

May 1965 | **f-min** | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	E	E	E	018	017	018	018	018	021	018	017	E	E	E	E	E	E	E
2	E	E	E	E	E	E	017	E	E	017	022	017	018	017	017	017	017	E	E	E	E	E	E	E
3	E	E	E	E	E	E	017	E	017	017	018	019	019	018	018	017	017	017	E	E	E	E	E	E
4	E	E	E	E	E	E	017	017	017	017	017	019	018	018	E	017	E	017	E	E	E	E	E	E
5	E	E	E	E	E	017	E	E	E	017	018	017	018	017	017	017	017	017	017	E	E	E	E	E
6	E	E	E	E	E	E	017	E	017	017	017	018	018	018	017	017	018	E	E	E	E	E	E	E
7	E	E	E	E	E	E	E	E	E	018	018	017	018	017	017	017	E	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	E	017	017	017	018	017	017	017	017	017	017	018	E	E	E	E	E
9	E	E	E	E	E	E	017	E	E	018	018	018	018	018	018	017	E	E	017	E	E	E	E	E
10	E	E	E	E	E	018	017	E	017	019	017	017	018	022	017	017	E	E	E	E	E	E	E	E
11	E	E	E	E	E	017	017	E	E	017	017	021	018	019	017	017	017	E	E	E	E	E	E	E
12	E	E	E	E	E	017	017	E	E	017	018	017	018	021	017	017	E	017	E	E	E	E	E	E
13	E	E	E	E	E	017	017	E	018	018	017	018	017	020	018	017	E	017	E	E	E	E	E	017
14	E	E	E	E	E	E	017	E	E	018	017	019	019	018	017	019	E	E	E	E	E	E	E	E
15	E	E	E	E	E	E	017	E	017	017	017	018	017	021	021	018	017	E	E	E	E	E	E	E
16	E	E	E	E	E	E	017	E	017	021	021	018	019	018	021	017	017	017	E	E	019	E	E	E
17	E	E	E	E	E	E	018	017	021	018	025	018	017	021	017	E	017	017	017	E	E	E	E	E
18	E	E	E	E	E	017	017	E	017	019	018	018	020	022	018	018	017	017	017	E	E	E	E	E
19	E	E	E	E	E	E	018	E	017	018	018	021	019	021	022	021	017	018	E	018	E	E	E	E
20	E	E	E	E	E	E	017	E	017	018	018	020	020	021	021	021	E	017	017	E	E	E	E	E
21	E	E	E	E	E	E	E	E	017	020	018	018	018	024	018	017	017	017	E	E	E	E	E	E
22	E	E	E	E	E	E	E	E	017	017	017	022	020	017	E	017	E	018	017	E	E	E	E	E
23	E	E	E	E	E	E	E	017	017	017	021	017	017	018	018	017	017	017	E	E	E	E	E	E
24	E	E	E	E	E	E	017	017	E	018	017	017	017	017	017	E	017	E	017	E	E	E	E	E
25	E	E	E	E	E	E	E	E	017	017	C	C	C	C	C	017	E	E	E	E	E	E	E	E
26	E	E	E	E	E	E	017	017	018	018	018	027	024	018	019	018	017	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	017	017	017	018	018	018	017	017	017	017	E	E	E	E	E	E	E
28	E	E	E	E	E	E	017	E	017	018	017	018	017	020	018	017	017	017	017	E	E	E	E	E
29	E	E	E	E	E	017	017	E	017	017	017	C	018	019	017	017	017	E	017	E	E	E	E	E
30	E	E	E	E	E	E	E	017	017	017	018	018	017	018	017	017	E	E	E	E	E	E	E	E
31	E	E	E	E	E	E	018	017	017	017	017	018	017	018	018	017	E	E	017	E	E	E	E	E
No.	31	31	31	31	31	31	31	31	31	31	30	29	30	30	30	31	31	31	31	31	31	31	31	31
Median	E	E	E	E	E	E	017	E	017	017	018	018	018	018	017	017	017	E	E	E	E	E	E	E
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

f-min

A 6

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IONOSPHERIC DATA

May 1965 | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	305	J315R	315	FS	FS	345	355R	350	360	355	330	320	325	305	320	320	335	335.	325S	320	330	315	315	320
2	315	295	305	295F	315F	360	340	350	360	370	295	315	300	325	310	320	310	330	335	340R	350	335R	305	295
3	315	290R	305	310	325	335	350	360	375	340	325	315	310	300	310	I310A	I330A	I335A	I320R	310	315	350	355	315
4	310	290	295	300	F	340	345	355S	370	355	310	300	285	300	315	325S	335	325	330	330	335	330S	305R	300R
5	300S	315S	315	310	310	340R	345	345	350	340	295H	295	295	290	280S	290	315	310	330	I330R	320S	305Z	I300A	U280R
6	U300S	U295R	RF	A	RF	I355R	370	365	335	I340A	310	315	320	I305A	315	I320A	I315A	325	335	340R	U310R	RS	A	A
7	310R	315	RF	RF	RF	335	345	A	A	A	A	305	285	300	305	320	320	330	325	300	295	310	310	310
8	300	290	305	310	310	335	350	340	350	320	340	325	325	320	345	340	340	315	310	305	330	325	320	305
9	305	295	305	315S	355	355	345	315	305H	325	300	310	305	305	305	315	315	320	330	330R	320	295	305	300
10	295R	295	295	315	335	345	360R	325H	350	305	330	280	280	295	I300A	300R	325	335	I330A	325	295V	I300A	295R	A
11	RF	RF	320F	325	335	330	345	345	325	305H	330	I320A	315	315	325	330	335	340	330	325	305S	U305R	U315R	FS
12	FS	295F	FS	315F	355	365	340	335H	I350A	365	A	A	305	320	310	315	320	320	325	310S	315S	325	330	305R
13	325	315R	315	315	340	350	360	345	355	325	275	295	300	310	315	335	330	I305A	I290A	I305A	350R	U340R	300	I305A
14	I310A	310	300	305	320S	330	345	365	320	I315A	I320A	320	330	300	305	I305A	I310A	A	A	U305R	I305R	I310R	I310R	I305R
15	A	RF	RF	F	F	330F	350	335	I345A	345	I330A	325	310	310	315	315	330	320	320	320	325	FS	J300R	315
16	305	305S	U315R	315R	315	340	315	330	340	350	315	300	305	315	310	310	300	300	I290A	I330R	335S	285	I280R	280
17	280S	330R	325	335F	I320A	305R	A	A	A	I290A	I300A	A	A	A	A	A	295	330	335	330	FS	RS	A	A
18	A	FS	RF	FS	295F	340	320	340	A	A	A	290	290	300	310	295	310	I310A	315	310	305	FS	335S	300
19	305S	RF	RF	RF	F	310R	320	355	330	I320A	I310A	290	I290A	305	305	330S	335	I320A	I320A	I320A	I310R	I305A	I320A	310
20	I300R	I305R	300S	F	305V	350	345	325	I340A	330	I315A	305	300	305	300	305	320	335	305	310	310	I305R	FS	305
21	310	I305R	300R	310	310	335	330	335	335	I330A	280	280	295	305	305	320	310	320	300	I305R	325	310	J305R	300
22	290	290	300	310	310	340	355	355	340	335	300	300	295	295	290	300	300	295	305S	310	U335R	300F	290S	FS
23	300S	310	305S	315S	315R	330	335	325	345	325	310	285	295	300	300	310	305	310	305	290S	I310R	300S	FS	305S
24	I310R	300F	300F	F	F	310V	330	335	350	345	290	300	320	320	310	300	310	310	310	315	I325R	310S	F	315
25	300F	300S	RF	F	325	340	310F	U345S	I350R	A	C	C	C	C	C	A	295	295	I310A	I315R	A	RS	315R	I300R
26	I300A	I295A	I300R	I310R	U325F	325F	325F	320R	A	A	335	295	I310A	305	310	300	320	310	300	325R	A	A	A	285R
27	I300A	U310R	I310A	I300R	I325R	350	I340A	I315A	A	A	A	310	I300A	I295A	I290A	300	310R	315	315	305	295S	315	310	300F
28	I310R	295S	F	F	300F	310	330	310H	320	310	335	285	300	295	290	305	310	310	310	J330R	335	300	285R	285
29	FS	300F	300F	305F	295F	305	300	A	A	A	285	C	A	A	290	325	305	295	I295A	I305R	325S	A	FS	FS
30	RS	285S	F	FH	325H	315	330H	I350R	I345A	365	G	255	290	290	275	295	300	310	I300A	310	315	335S	FS	305S
31	295	310	300	325	305	315	310	330	315	325	G	285	240	290	285	310	300	310	300	295	310	310	305	300
No.	25	27	22	20	24	31	30	28	25	25	26	27	28	28	29	29	31	30	30	31	28	24	23	25
Median	305	300	305	310	320	335	340	340	345	330	310	300	300	305	310	310	315	320	315	315	320	310	305	305
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.6 Mc to16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

M(3000) F2

A 7

IONOSPHERIC DATA

May 1965 | M(3000) F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								A	I365A	385L	395	390	380	I370A	375	370	360L	A	A					
2								370L	370	390	380	365	390	395	360	355	350	A	L					
3							L	A	380	370	370	380H	405	355	360A	A	A	A						
4							L	A	I370A	385	390	380	375	I360A	A	A	A	A						
5								365L	I370A	I360A	L	410	375H	340	355	360	355	375L	L					
6							A	A	A	A	I370A	365	380	I370A	I360A	A	A	370L	L					
7								A	A	A	A	375	380	I385A	375	365	360	365L						
8								L	380	375	395	385	375	I365A	385	375	360	LH	L					
9								A	A	A	365	365	365	365	375	355	360H	330	L					
10							L	385	375	385	370	365H	375	375	I360A	I365A	360	A						
11							L	365L	360	A	A	A	A	A	A	370	355	370L	L					
12							L	A	A	A	A	A	380	A	A	355	I360A	L	L					
13							L	370	I370A	365	380	400	365	380	I350R	I360A	A	A	A					
14							A	A	A	A	A	A	A	A	350	A	A	A	A					
15							A	A	A	A	A	A	380	385R	375	I360A	I340A	A	A					
16						L	L	A	A	365	I390A	370	370	380	365	360	355	A	A					
17							A	A	A	A	A	A	A	A	A	A	A	A	L					
18							350L	A	A	A	A	A	I375A	I375A	365	355	A	A	A					
19						L	A	I360A	A	A	A	A	A	A	A	A	A	A	A					
20							355L	A	A	385	A	A	A	I380A	380	360	355	A	A					
21							L	380L	A	A	I370A	385	370	380	375	365	360	345H	L					
22							L	LH	380	375	390	370	355H	390	365	I360A	I350A	335	L					
23							L	355L	I365A	365L	I390A	365	365	I360A	I365A	350	355	360L	L					
24							L	A	A	A	A	385	A	A	355	345	335	A	A					
25							L	360	A	A	C	C	C	C	C	A	A	I350A						
26							340	A	A	A	400	U375R	I375A	A	A	A	365	360	L					
27							A	A	A	A	A	A	A	A	A	A	375	A	A					
28						L	L	A	A	415	435	425	435	350	405	360	A	A	A					
29						L	365	A	A	A	A	C	A	A	375H	A	A	A	A					
30							I345A	370	I380A	385	420	I415R	405	I390A	390	405H	415H	360	A					
31							L	A	A	400	425	380	400	I395A	390	365	370	365	I355A					
No.							5	10	12	15	17	20	22	21	23	21	20	12	1					
Median							350	370L	U370A	385	390	380	375	375	365	360	360	360	U355A					
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F1

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 8

IONOSPHERIC DATA

May 1965 | $h'F2$ km | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N, Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								270	250	270	300	310	315	350	300	295	270	265	A					
2								275	250	255	345	330	360	305	305	300	290	265	255					
3							250	250	250	300	305	340	340	360	305	I300A	A	A						
4							275	255	250	265	335	380	395	340	300	285	280A	280						
5								270	280	295	410L	360	350	330	345	325	285	250	255					
6							235	250	280	A	345	325	305	I330A	305	I300A	I290A	270	255					
7								A	A	A	A	355	420	350	335	300	290	275						
8								280	270	335	290	325	325	330	295	290	280	295	280					
9								330	295	315	385	350	350	350	345	310	300	290	250					
10							270	300H	285	350	300	355	445	360	I330A	I300A	270	A						
11							240	275	305	335	300	A	345	320	300	295	300	280	260					
12							250	255H	I290A	255	A	A	355	340	330	305	295	290	250					
13							230	275	265	300	380	350	310	305	310	295	290	A	A					
14							250	270A	A	A	A	I300A	300	375	350	A	A	A	A					
15							275	305	I275A	300	I315A	330	345	345	310	330	300	I290A	A					
16						255	270	280	285	270	340	350	345	325	315	305	325	300	A					
17							A	A	A	A	A	A	A	A	A	A	350	305	255					
18							300	I270A	A	A	A	400	435	395	395	390	330	I270A	300					
19						315	300	255	295	I310A	A	385	I380A	340	315	290	260	I270A	A					
20							290	300	I300A	305	I345A	350	350	330	350	310	290	260	A					
21							255	250	295	I300A	425	395	350	320	320	290	285	290	290					
22							260	235	285	305	345	345	375	370	350	325	305	300	280					
23							250	280	275	305	330	400	355	340	345	320	310	285	290					
24							270	285	280	280	I345A	350	300	320A	300	310	300	275	265					
25							290	255	250	A	C	C	C	C	C	C	345	325						
26							300	I270A	A	A	305	395	I360A	355	340	335	305	300	305					
27							A	A	A	A	A	A	A	I350A	I355A	320	290	290	280					
28						310	280	290	290	320	300	400	355	375	385	345	330A	305	285					
29						305L	335	A	A	A	415	C	A	A	375	315	330	A	A					
30							295	270	I290A	345	G	500	410	395	430	370	350	330	A					
31							320	300	I330A	345	G	435	545	I410A	400	345	360	320	300					
No.						4	23	27	24	22	23	25	27	28	29	28	29	26	17					
Median						310	270	270	280	300	345	350	350	340	330	310	300	290	280					
U. Q.																								
L. Q.																								
Q. R.																								

$h'F2$

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 9

IONOSPHERIC DATA

May 1965 | *h'F* | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	275	285	265	245	225	245A	240	I230A	I240A	220	220H	205	205	I240A	220	225	250	A	A	245	225	235	245	240
2	275	280	290	290	250	240	220	245	235	215	200	190	200	175H	250	240	245	A	A	245	200	215	250	285
3	290	300	300	300	275	240	235	I240A	I230A	205	205	195H	200	255	I260A	A	A	A	A	255	250	220	205	255
4	290	300	295	295	280	240	245	I240A	I235A	225A	225	200	205	A	A	A	A	A	A	240	225	235	250	285
5	275	255	265	265	270	245	240	240	A	A	200	195	210	I210A	240	230	250	245	I260A	I245A	235	245	I285A	I315A
6	I310A	I320A	325A	A	265	245	A	A	A	A	I210A	I230A	215	I220A	I215A	A	A	250A	250	240	I235A	250	A	A
7	300A	295	300	A	A	275A	A	A	A	A	A	235A	220	I220A	210	220	245	245	250	270A	275	245	245	260
8	285	285	265	245	245	220	245	245A	220	205	200	205	225	I230A	200	245	210	200H	250	260	240	230	245	275
9	260	280	295	270	210	240	245	A	A	A	240A	225	235	225	215	205	220H	245	250	240	230	260	275	280
10	295	290	295	255	240	235	220	215	240	225	220	200H	225A	225A	I240A	I240A	250A	A	A	260	245	A	A	A
11	275	295	255	245	235	235	230	230	230	A	A	A	A	A	A	215	225	220	230	250	I250A	250	250	275
12	285	300	300	275	220	230	220	A	A	A	A	A	200	A	A	240	I240A	225	245	250	240	240	230	250
13	260	250	250	250	235	220H	225	240	I245A	220	210	190H	235	230	245A	I240A	A	A	A	A	245	225	245	I255A
14	I270A	270	280	290	275	240	A	A	A	A	A	A	A	A	255A	A	A	A	A	280	245	250A	255	A
15	A	A	255	300	255	A	A	A	A	A	A	A	220	230	235A	A	A	A	A	300A	270	250A	275	245
16	255	295	260	250	250	250	245	A	A	I220A	I210A	200H	205	230	245	225	230	A	A	240	A	A	280	300
17	300	225	250	245	I280A	250A	A	A	A	A	A	A	A	A	A	A	A	A	255	235	270	A	A	A
18	A	295	330S	I300A	290	250	270	A	A	A	A	A	I240A	A	A	215	I255A	A	A	265	275A	I270A	245	250
19	285	260	320A	290	I300A	265	I260A	I240A	A	A	A	A	A	A	A	A	A	I245A	A	A	A	A	I250A	255
20	280	300	275	270	260	230	210	A	A	220	A	A	A	I210A	200	I240A	235	I255A	I285A	I270A	250	250	225	250
21	270	I295A	255	250	255	230	245	230	A	A	A	205	220	215	210	210	230	210	225	250	240	205	245	255
22	300	300	285	255	250	230	220	200H	225	200	205	200H	205H	205	215	I235A	I250A	240	250	255A	235	250	I270A	290
23	280	275	250	250	250	245	245	A	A	230	I205A	205	200H	I215A	I210A	205	210H	245	250	260	245	255	II280A	235
24	230	255	260	I260A	255	240	A	A	A	A	A	200	A	A	250	250A	A	A	A	255	235	255	280	250
25	305	300	295	255	240	265	I245A	A	A	A	C	C	C	C	C	A	A	I250A	I250A	I255A	I245A	230	A	A
26	I300A	I310A	I300A	285	255	240	245	A	A	A	195	225	A	A	A	A	240A	245	260	265	A	A	A	A
27	A	A	A	A	235	245A	A	A	A	A	A	A	A	A	A	A	230	A	A	260	255	230	255	260
28	I265A	280	I300A	I295A	275	265	A	A	A	200	190H	200	195	I225A	185H	240	A	A	A	240	205	250	I300A	305
29	310	I310A	I300A	I305A	295	235	235	A	A	A	A	C	A	A	240	A	A	A	A	280A	255A	I260A	270A	280
30	I290A	I290A	240	245	260	I250A	I240A	240	I225A	I210A	195	195	200	I220A	200	205	190H	230	I240A	255	260	255	255	255
31	285	265	270	230	265	250	A	A	A	205	200	210	200	I210A	210	205H	225	240	I275A	280	240	250	235	245
No.	28	29	30	28	30	30	22	13	10	14	17	20	21	19	22	20	19	16	16	29	28	26	26	25
Median	285	290	280	260	255	240	240	240	U230A	220	205	200	205	U220A	220	230	235	245	250	255	245	250	250	255
U. Q.																								
L. Q.																								
Q. R.																								

h'F

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

May 1965 | h'Es | km | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	125	115	115	110	110	120	130	130	115	120	115	115	110	110	G	160	145	130	120	120	100	E	E	E
2	E	E	E	E	E	145	155	145	130	120	130	130	G	120	150	145	135	120	115	110	E	E	E	E
3	E	105	105	105	110	145	140	120	115	115	110	110	100	155	145	130	130	125	125	115	115	E	E	E
4	E	E	N	110	E	140	130	125	115	115	115	110	105	150	150	145	120	120	115	125	E	E	E	E
5	E	E	E	E	110	110	145	135	125	120	120	135	120	110	115	115	110	135	130	120	115	120	125	115
6	110	110	105	100	100	145	135	130	125	115	125	120	130	120	125	125	125	120	115	125	115	115	115	115
7	105	100	100	100	100	100	125	120	115	120	115	110	110	110	105	105	155	100	100	100	100	100	E	E
8	105	100	E	E	E	G	145	130	130	125	120	110	110	105	110	125	G	130	140	125	100	E	E	E
9	E	E	E	100	E	150	145	130	125	125	125	125	130	140	145	145	G	155	125	115	115	110	E	E
10	E	E	E	E	E	150	140	125	125	120	115	115	120	110	110	120	120	115	115	115	120	110	115	110
11	105	105	105	100	E	100	G	145	130	125	120	110	115	110	115	110	110	115	130	125	125	115	115	105
12	105	115	100	100	E	125	130	125	110	110	105	105	110	110	105	115	120	115	120	E	E	E	E	E
13	E	E	E	E	E	G	150	125	120	120	110	110	110	110	110	110	125	115	110	120	110	110	110	105
14	105	110	105	105	100	130	125	115	115	110	110	110	105	105	105	125	115	120	110	120	115	115	110	110
15	105	105	105	105	100	125	120	115	110	110	110	110	110	110	110	120	125	120	120	115	115	110	110	105
16	E	105	105	105	105	105	125	115	110	110	110	110	110	105	105	160	150	125	120	105	115	115	110	105
17	E	105	105	105	105	140	125	120	115	115	115	115	110	110	110	105	105	115	120	115	120	115	110	110
18	110	105	100	100	100	100	130	125	125	115	110	110	110	110	105	G	125	120	115	115	115	120	110	110
19	105	100	105	100	105	140	125	125	125	120	115	115	110	110	105	105	110	110	120	115	125	125	120	110
20	105	100	100	E	E	150	150	125	115	120	115	110	110	105	115	120	G	140	130	120	115	115	110	105
21	105	105	100	100	E	150	135	130	125	120	120	120	115	125	115	120	115	110	110	105	110	105	105	E
22	105	100	E	120	E	125	125	130	115	115	120	110	110	145	140	125	120	120	125	115	115	115	110	110
23	110	105	E	105	105	150	130	125	115	120	115	110	115	135	135	G	G	130	125	120	110	120	120	105
24	105	105	100	100	100	105	130	125	125	115	115	115	125	115	110	120	120	115	115	115	110	110	110	105
25	105	105	105	120	115	120	115	125	120	110	C	C	C	C	C	115	120	115	110	110	110	105	105	105
26	100	100	100	105	105	135	115	110	105	105	105	155	125	125	125	125	125	130	115	110	110	110	105	105
27	105	100	100	100	100	120	125	115	110	115	115	115	110	110	110	110	110	105	100	100	100	125	100	110
28	115	110	105	105	105	115	120	110	110	110	120	145	G	170	G	140	130	125	120	E	115	110	110	110
29	110	110	105	105	110	140	130	120	120	120	125	C	115	120	130	145	145	135	130	120	120	110	115	105
30	140	105	130	100	110	120	120	125	115	115	115	115	120	110	105	G	G	145	130	120	120	120	115	E
31	105	105	E	E	105	140	135	130	125	120	125	125	110	105	110	110	G	145	130	125	E	115	120	E
No.	22	25	21	24	20	29	30	31	31	31	30	29	28	30	28	28	25	31	31	29	27	25	23	20
Median	105	105	105	105	105	130	130	125	115	115	115	115	110	110	110	120	120	120	120	115	115	115	110	110
U. Q.																								
L. Q.																								
Q. R.																								

h'Es

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 11

IONOSPHERIC DATA

May 1965 | Types of Es | km | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f	f3	f2	f2	f2	f3	h3	h2	h2	h2	c2	c2	c	c3		h	h2	h5	h5 12	f2 f2	f2			
2						h	h	h2	h2	h	h	h		h	h	h	h2	c4	14	f4				
3		f2	f2	f3	f2	h	h2	h3	h2	h2	c2	c	12	h 12	h2 c	h3	h3	h3	c3	f5	f4			
4			f	f		h2	h3	h4	h3	h2	h2	c	c2	h c2	h2 13	h2 12	h3	h4	16	f3				
5					f	f3	h3 h	h2	h3	h2	h2 1	h	h	c2	c	h2	c3	h2	h3	f8	f5	f2	f6	f5
6	f6	f3	f3	f6	f4 f	h4	h3	h2	h	h3	h2	h2	h	h4	h2	h4	h6	c5	13	f3	f3	f	f3	f4
7	f3	f4	f5	f5	f8	13	h3	h4	h5	h4	h4	c2	c2	c2	12	13	h2 12	13	12	f3	f3	f		
8	f	f					h2	h3	h2	h	h	c2 1	c2	c3	c2	h		h2	h2	f	f f			
9				f2		h2	h2	h2	h2	h2	h2	h	h	h	h	h		h2	h3	f7	f	f5		
10						h	h	h2	h2	h	h	h	c2	c2	c3	h3	h3	c4	16	f3	f2	f4	f7	f4
11	f4	f3	f	f2		13		h2	h2	h2	h2	c3	c2	c2	c2	c2	c2	c	h2	f3	f3	f3	f	f2
12	f2	f f2	f2	f		h2	h2	h3	c3	c3	c4	c4	c	12	13	h2	h2	c	c3					
13							h	h2	h2	h	c2	c	c2	c2	c2	c3	h2	c6	13	f5 f	f4	f	f2	f2
14	f4	f2	f5	f4	f2	h2 1	c3	h3	h2	c3	c3	c3	c2	c2	c2	h3	h5	c7	14	f4	f4	f2	f3	f3
15	f3	f3	f	f3	f	c4	c5	h4	c6	c2	c3	c3	c	c	c2	h2	h2	h2	c3	f3	f6	f2	f3	f2
16		f5	f	f2	f3	13	c3	c4	c2	c2	c2	c2	c2	c2	c2	h 12	h	h2	c7 13	f3	f5	f6	f3	f5
17		f2	f2	f2	f3	h3 1	c3	h2	c4	c2	c3	h3	c3	c2	c2	c2	c3	c2	c2	f8	f3	f5	f4	f8
18	f3	f2	f2	f3	f	1	h2	h3	h4	h2	c3	c2	c2	c2	c2		h2	c5	c2	f3	f5	f3	f5	f4
19	f3	f3	f2	f3	f5	h3	h4	h3	h2	h4	h3	h2	c3	c2	c2	c3	c3	c3	c5 1	f6	f3	f7	f3	f4
20	f	f2	f			h	h	h3	h4	h2	h2	c3	c2	c	h	h2		h2	h7	f4	f7	f4	f2	f3
21	f2	f4	f2	f2		h3	h2	h2	h2	h2	h2	h2	h2	h	h	h	c2	c2	12	f3	f2	f3	f2	
22	f5	f		f		h	h2	h	h3	h	h	c	c	h h	h	h2	h2	c	c4	f7	f2	f4	f5	f4
23	f4	f4		f2	f3	h2	h4	h3	h3	h2	h2	h	h	h	h2			h	h2	f2	f4	f	f3	f2
24	f2	f	f2	f2	f2	12	h4	h3	h3	h2	h3	h	h2	h3	c2	h2	h3	c2	c2	f3	f3	f6	f5	f5
25	f3	f2	f2	f	f2	c4	c3	h2	h3	c6						h3	h2	c3 12	17	f3	f3	f4	f3	f4
26	f3	f3	f3	f3	f2	h	c4	c4	c2	c3	c	h	h3	h2	h2	h3	h2	h3	c4	f3	f6	f5	f5	f8
27	f4	f6	f3	f3	f2	c3	h4	h3	c3	h3	h5	c3	c4	c4	c3	c3	c3	14	13	f3	f3	f f3	f3	f3
28	f4	f3	f3	f5	f2	c4	h3	c3	c3	c	h	h		h h		h	h2	h2	c3		f4	f5	f4	f5
29	f6	f7	f6	f5	f2 f	h2	h2	h3	h3	h5	h2		h3	h4	h h	h2	h2	h3	h4	f4	f3	f2	f6	f3
30	f4 f	f2 f2	f f	f3	f3	h	h3	h3	c3	c2	h	h	h2	c2	c2			h	h4 1	f3	f6	f5	f2	
31	f2	f2			f	h4	h3	h3	h3	h	h2	h	c2	c2	c2	c		h2	h3	f5		f5	f	
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Types of Es

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 12

IONOSPHERIC DATA

May 1965 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | 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	043	038S	034	U034S	U031S	U037R	U053R	056	061	058	058	057	066	072R	078	081	U075S	070	071	072S	071S	046	043	U040R
2	037	036	034	U035S	037	040	050	062	070	057	053	058R	066	069	079	089	085	075S	075S	074S	060	032S	031	032
3	032	034	030S	030	029	042	A	058	060	058	I058A	060R	063	074	082	085	085	072	I061A	A	A	A	A	029S
4	032S	A	U033S	032S	031S	039	060	068	067R	058	051	056R	U061R	075	084	088	080	A	A	A	056	A	A	044
5	043	041	U042R	U040S	U034S	043	053	057	057	055	054	059	061R	U072S	080	092S	099S	092	089S	S	061S	043	I040A	A
6	A	A	030	035S	034	045	068	A	A	058	J055R	069R	I068A	068	072	U080R	U077R	072S	R	S	056	038	A	A
7	A	U043R	U044R	033R	032R	036	U052R	057	A	A	A	A	060	066	U071R	072R	074	073	066	061	062	056	052	050
8	048	044	041	043	035	043	050R	057	056	061	057	I059R	064R	068	067	074	065	056	057	072S	U073S	053R	048	046
9	045	042	041	039	035S	038	049	051	063	061	061	062	U074R	078R	071	U077R	070	074	I072A	068	052	043	040	041
10	040R	041	040	039	038	044	049	050	J054R	054	059	I054A	060	068	080	090	091	A	058	063	054	A	A	A
11	A	A	043F	044	036	043	053	054	059	065R	058	I058A	062	072	079	072	067	059	I060A	058	I054S	A	A	A
12	A	S	U038R	036	U031S	040	053	056	064R	059R	A	A	A	I063A	062R	069	A	U063R	068	071S	U073S	066	057	053
13	050	046	046	043	039	044	053	057	060	061	061	073	082	083	083	082	C	060	A	A	091S	A	A	A
14	A	A	042R	U041R	I037A	048	064	A	A	A	A	A	076	I069A	068	065	063	A	074	U086S	A	A	A	A
15	A	A	A	I046A	A	050S	A	A	A	A	056	061	067	070	074	079	079	075	071	070S	I070A	A	U045S	I046A
16	I044S	044S	047S	044	U048R	046	054	072	072	062	061R	062	070	078	085	083	I082A	I081A	U077A	A	A	A	A	A
17	A	A	U055S	U056R	I048A	036	A	048R	A	A	A	A	056	060	U054R	058	064	068	071	053	A	A	U044S	A
18	A	U032S	A	A	031	038	061	062	A	A	A	A	A	A	A	059	I065A	066R	A	U080R	073	058	I059A	045
19	U046F	045F	U047F	J040R	I034A	042	059	063	064	C	C	061	A	A	090	092	078	065	062	060	062	I061A	A	A
20	U046S	047S	U045S	U044F	U043F	C	053R	060	061	A	058	064	U066R	074	082	095	086	066	062	065S	067	060S	U055S	U048S
21	U050S	I048A	I045A	043S	045S	053R	067	057	063	054	056	064	075	082	085	092	091	073	066	074S	U074S	059	048S	046S
22	047	045S	045	044	042	053	057	051H	060	A	055	061	061	060	070	076	081	083	083S	U086S	U073S	U064S	060	U060S
23	U066S	I066C	U063S	058	U053S	056	061	071S	065	A	A	A	A	071	073	078	077	072	072S	076	U078S	U072S	I068A	U073S
24	U065S	I064S	S	U060S	U051S	056S	067	A	070	A	060R	071	A	079V	080	081	090	090	084	S	U080S	057	058S	U055S
25	U055S	U055S	U054S	049	042S	047	063	063	061	053	I056A	I057A	065	I070A	067	064	067	077S	086S	088	071S	A	A	I036A
26	U044S	043F	U044F	U038F	U037S	042H	059	067	059	056	J055R	057	063	I066A	072	077	075	066	066R	I077A	059	A	A	A
27	U057R	F	043F	044F	039	050	055	A	A	A	A	061	I072A	076R	083	094	A	A	U091S	079S	070	068	064	054
28	047S	045	I044A	U045F	U042S	045	064	063	061	055	058	055	055	058	065	066	J074R	A	088S	093S	061	047	044	043V
29	U042S	U043F	U043F	041S	038	044	056	061	058	058	056	058	I058A	063R	063	064	059	A	A	084	A	A	A	S
30	U062S	U055F	F	A	U043F	A	065	067R	055	056	049	J051A	053	057	056	058	059	A	I059A	061R	U070S	A	A	I040A
31	041	039S	036S	I034A	031	040	056	060	058	A	R	049	055	066V	069	068	059	053	055	066	069S	056	055S	U053S
No.	23	23	27	29	30	29	28	26	24	19	22	25	26	29	30	31	28	24	26	24	26	18	18	20
Median	046	044	043	041	037	043	056	059	061	058	056	059	064	070	074	078	076	072	071	072	070S	056	050	046
U. Q.	050	047	045	044	042	048	062	063	064	061	058	062	068	074	082	088	084	075	077	080	073	061	058	053
L. Q.	042	041	038	036	034	040	053	056	058	055	055	057	060	066	068	068	066	066	062	064	060	046	044	040
Q. R.	008	006	007	008	008	008	009	007	006	006	003	005	008	008	014	020	018	009	015	016	013	015	014	013

The Radio Research Laboratories, Japan

foF2

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

K 1

IONOSPHERIC DATA

May 1965 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	430L	L	L	R	R	A	L	A	A	A					
2								L	L	440L	L	430L	440L	L	L	A	A	A	A					
3							A	L	A	A	A	A	R	R	R	A	A	L	A					
4						A	A	A	A	A	A	440L	R	R	A	A	A	A	A					
5								A	A	A	A	450L	R	A	R	R	S	L	A					
6							A	A	A	A	L	A	A	A	A	A	L	A	A					
7								A	A	A	A	A	R	R	A	A	L	A						
8								R	A	L	L	R	A	450L	440L	420L	A	A	L					
9								L	A	L	A	440L	440	440	R	420L	L	L	A					
10							L	400L	L	L	A	A	A	A	A	A	A	A	A					
11							L	L	L	L	A	A	A	A	A	A	A	L	A					
12								L	R	A	A	A	A	A	R	A	A	A	A					
13						L		L	A	A	450L	A	A	450L	430L	A	C	A	A					
14						L	L	A	A	A	A	A	A	A	A	A	A	A	A					
15							A	A	A	A	A	A	A	L	450L	A	420L	L	A					
16							A	A	A	A	A	R	450L	450L	A	A	A	A	A					
17						A	A	L	A	A	A	A	L	A	L	A	A	L	A					
18							A	A	A	A	A	A	A	A	A	A	A	A	A					
19							A	A	A	C	C	A	A	A	A	A	A	L						
20						C	A	L	A	A	L	A	A	450L	A	A	A	R	A					
21							L	A	L	A	A	R	460L	470H	450L	450L	L	L	L					
22						L	A		L	A	L	470L	480L	480	450	440L	L	L	A					
23							A	L	A	A	A	A	A	A	L	430	430L	L	L					
24							A	A	A	A	A	A	A	A	A	A	A	A	A					
25						A	L	A	L	L	A	A	A	A	A	A	A	A	L					
26							A	L	L	L	L	460L	450L	A	L	L	410L	L	A					
27							A	A	A	A	A	A	A	A	A	A	A	A	A					
28							L	L	L	L	A	460L	450	A	440	A	A	A	A					
29						L	L	400L	L	A	A	A	A	A	A	A	A	A	A					
30						A	A	L	A	440L	A	A	A	A	L	L	A	A	A					
31							A	A	A	A	R	L	L	450L	R	420L	R	L	L					
No.								2		3	1	7	7	8	6	6	3							
Median								400L		440L	450L	450L	450L	450L	445L	425L	420L							
U. Q.																								
L. Q.																								
Q. R.																								

foF1

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

May 1965 | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	A	270	I310R	R	R	R	330	330R	300	280	220	E130B					
2						E130S	220	260	285R	I310A	320	I330R	340R	R	R	300	275	240	130					
3						E130S	210	260	I290R	I300A	A	A	A	R	R	305	270	240	155					
4						E140S	A	255R	290R	I295R	I310R	A	A	R	325R	300	I280R	230	E130B					
5						E140S	190	260	300R	A	R	R	A	A	A	A	A	R	A					
6						A	A	260	290	315	I310R	I325R	I335R	330R	315	300	270	220	E140B					
7						E150S	200	270	I295A	A	A	A	R	A	A	A	A	A	E130B					
8						E150S	195	270R	R	300R	I310R	A	A	R	R	300	260	230	E140B					
9						E130B	220	270	290	A	R	325R	I330R	I330R	I315R	295	275	235	A					
10						E150S	200	265R	295R	305R	R	R	A	A	330	300	275	225	E140B					
11						E120B	190	I250R	285	A	A	A	330R	320	A	A	A	A	A					
12						E130B	A	270	A	A	A	R	A	A	A	R	I265A	A	E130B					
13						E130B	A	275R	280	I300R	315	A	A	A	A	315	C	A	A					
14						E120B	A	R	A	A	R	A	A	A	A	A	280	240	E140B					
15						A	A	A	R	A	A	A	A	A	A	A	A	230	E130B					
16						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
17						A	235	R	A	A	A	A	A	335	I335R	310	285	I240R	170					
18						A	225	R	A	A	A	R	A	A	A	I310A	290	240	E140B					
19						E140S	215	265	300R	C	C	R	R	A	A	A	A	A	A					
20						C	210	265	A	A	A	A	A	A	325	A	A	250R	A					
21						A	230	R	320	I325R	345	I350R	350R	330	R	R	300	A	A					
22						A	A	A	A	A	A	A	A	A	A	320R	A	250	A					
23						175	A	A	A	A	A	A	A	A	A	A	A	R	190					
24						R	220	R	A	A	R	330	340	350R	I330R	I320R	280	R	150					
25						A	A	A	A	A	A	A	A	350R	335R	315	285	R	A					
26						R	A	A	A	A	A	A	R	I335R	330	305R	285	A	A					
27						A	R	A	A	A	A	A	A	A	A	A	A	A	A					
28						A	A	A	A	A	A	R	R	335	325	310	290	240	A					
29						A	A	A	A	A	A	320	330	I340R	335R	305	260	A	A					
30						175	A	A	A	A	A	A	R	R	A	A	A	A	A					
31						A	225	270	I290A	I310A	A	A	A	A	A	A	A	R	180					
No.						15	15	15	14	10	6	6	7	11	12	17	18	15	16					
Median						E140S	215	265	290	U310R	U310R	U330R	335R	335R	330R	305	280	240	E140B					
U. Q.																								
L. Q.																								
Q. R.																								

foE

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 3

IONOSPHERIC DATA

May 1965 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | 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	J017	J029	J038	J044	J043	J043	J030	030	038	034	J043	033	039	G	044	J043	J053	J043	J040	J040	J042	019	E015S	E014S
2	E013S	E012B	E011B	E011B	018	016	026	J038	J040	J042	033	G	G	035	038	J048	J051	J058	J037	J034	J037	J033	E015S	E013S
3	E014S	018	J018	J054	022	019	J065	J038	J042	J052	J104	J084	036	043	039	J053	J047	J043	J073	J103	J103	J034	J054	J024
4	J068	J070	J039	J026	J031	J030	J038	J054	J059	J048	J045	J041	036	G	050	J148	J118	J147	D	139	J062	J054	J084	E014S
5	J018	J017	018	J018	J018	J033	027	036	J044	J053	049	042	J041	049	J040	J038	J034	025	J043	J030	J037	J029	J054	J043
6	J043	J044	J063	J055	J054	J025	J054	J071	J065	J054	039	J053	J132	J053	J052	J052	034	J054	J055	J060	J041	J054	J061	J054
7	J044	J041	J044	J031	J030	J027	030	J044	106M	J098	J091	J060	J042	036	J045	J043	J032	J043	J031	J030	J026	J018	E015S	E015S
8	E017S	J040	J025	018	E014B	018	025	033	J042	039	J041	036	J067	G	G	G	J043	J053	016	J017	J025	J026	J017	020
9	018	E015B	E	E013B	E014B	019	027	039	J043	J043	J051	048	G	036	G	034	039	J030	J073	J054	J023	J021	J026	018
10	E013S	E013B	018	017	018	020	025	032	035	041	J048	067M	J063	J087	J054	J060	J086	J071	J084	J062	J065	J053	J057	J108
11	J088	J053	J042	J034	J031	J026	024	030	J039	J044	J053	J062	J053	J053	J061	J042	J052	J039	J088	J032	J029	J052	J071	J044
12	J060	J036	J023	J018	J027	J026	032	J042	J028	J053	104M	J087	J080	J067	J040	J063	J117	J121	J064	J037	J018	J018	020	E015S
13	E015S	E013B	E013B	E013B	E013B	019	J030	036	J047	J044	039	051	J076	J042	J039	J053	C	D	J092	J034	J065	J066	J088	J065
14	J083	J084	J053	J053	J043	J043	J044	J087	J095	J113	J092	106	103M	J170	J108	J087	J086	J127	J102	J102	J121	J084	J109	J128
15	J122	J127	J084	J083	J061	J040	J063	J072	J078	J088	J089	J090	J054	D	J108	J076	J085	035	J030	J068	J123	J091	J061	J096
16	J030	J026	J048	024	J022	J025	J034	J054	J067	J061	J060	J073	J051	J042	J053	J094	J147	J088	J155	J111	J109	J139	J161	J106
17	J087	J084	J030	J062	J118	J054	J054	J044	J087	J121	J172	J129	J050	048	G	041	J042	J054	J043	J024	J034	J052	J044	J055
18	J065	J087	J077	J043	J030	030	J048	J058	J083	J106	J128	J087	J090	J087	J077	J091	067	J063	088M	J061	J055	J075	J055	J053
19	J022	J053	J030	J038	J052	020	J053	J052	J052	C	C	J054	J087	J112	J108	J084	J084	J030	J025	J086	J044	J066	J063	J085
20	J030	J023	J060	J044	J045	C	J042	035	J055	J072	J046	J068	J119	J063	J059	J058	J059	038	J044	J053	J030	J096	J057	J031
21	J042	J062	J054	J025	J025	J034	033	J047	J044	J047	J052	042	039	038	040	035	032	J030	J025	J026	J025	J019	J021	J044
22	J025	J016	J019	J018	J013	018	J038	J042	039	J067	J054	J064	J043	040	038	037	J043	J054	J054	J029	J025	J042	J051	J052
23	J043	C	J042	J054	J044	024	J042	050	070	J072	J101	J126	J170	J135	J051	J034	J030	028	025	J052	J029	J025	J078	J066
24	J052	J067	J052	J054	J032	025	J039	082M	J077	J085	J064	J067	J120	J061	J061	J072	J051	J042	J042	J066	J063	J029	J043	J051
25	J029	J039	J041	J026	J061	J067	J053	J073	J054	J045	J068	093M	J054	J076	J063	J051	J044	151	J042	J029	J111	J073	J121	J065
26	J053	J043	J043	J030	E013B	J027	J053	J036	J038	J042	J044	J037	041	J088	042	042	037	J036	J055	J088	J068	J102	J085	J077
27	J058	J033	J053	J031	J024	J028	J051	J070	J080	J088	J075	J111	J076	J069	J114	J079	J122	J130	J114	J051	J054	J043	J029	J060
28	J043	J030	J105	054	J105	J030	J035	J043	J052	J042	J054	G	043	J053	039	J060	J066	J088	J054	J064	016	J020	J023	J033
29	J025	J040	J036	J037	J025	J023	J035	035	036	J053	J053	049	071	J063	047	J077	J104	J088	J119	J062	J085	J110	J086	J062
30	J053	J053	J054	J065	J053	J065	J108	J055	J107	J082	J050	052	046	050	J044	J041	J043	J067	J094	J077	J083	J079	J077	J072
31	J019	J017	J025	J053	J067	J028	J046	J058	J056	J085	J039	J044	035	037	J037	J042	J026	030	026	J042	J036	J020	J026	J029
No.	31	30	31	31	31	30	31	31	31	30	30	31	31	31	31	31	30	31	31	31	31	31	31	31
Median	J042	J040	J041	J034	J030	J026	J038	J044	J052	J053	J053	J060	J053	J053	J045	J052	J051	J054	J054	J054	J044	J052	J055	J052
U. Q.	058	053	053	054	052	033	053	058	077	085	089	087	080	076	061	076	085	088	088	077	083	079	078	066
L. Q.	018	018	023	018	018	020	030	036	040	044	045	042	041	038	039	041	039	036	037	032	029	025	026	024
Q. R.	040	035	030	036	034	013	023	022	037	041	044	045	039	038	022	035	046	052	051	045	054	054	052	042

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

foEs

K 4

IONOSPHERIC DATA

May 1965 | **f_bE_s** | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | 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	012	E	014	015	014	020	026	028	036	033	043	E033R	E039R		043	039	043	040	030	025	040	E	S	S
2	S	B	B	B	E	015	025	032	035	038	037			E035R	035	045	047	054	029	025	015	015	S	S
3	S	E	013	015	E	016	A	036	041	052	A	055	E036R	E043R	E039R	052	039	026	A	A	A	A	A	E
4	018	A	E	013	019	028	035	044	053	045	043	037	E036R		050	043	056	A	A	A	040	A	A	S
5	015	E	E	E	E	019	027	036	042	050	045	041	E041R	045	E040R	033	033	023	040	019	027	019	A	A
6	A	A	021	018	025	025	052	A	A	051	038	052	A	051	051	050	031	046	054	041	040	028	A	A
7	A	035	020	020	025	022	026	043	A	A	A	A	E042R	E036R	044	041	031	040	020	020	025	016	S	S
8	S	016	E	E	B	S	024	E033R	041	037	041	R	053				041	041	E016R	015	E025R	019	015	E
9	E	B		B	B	017	026	036	042	041	046	042		E036R		033	033	029	042	045	E023R	017	017	E
10	S	B	E	E	E	018	024	030	E035R	040	048	A	050	053	053	055	076	A	052	052	025	A	A	A
11	A	A	028	025	022	020	023	029	038	042	053	A	046	051	061	040	051	025	A	021	E	A	A	022
12	A	021	015	E	013	020	025	037	E028R	043	A	A	A	A	E040R	055	A	040	043	021	016	015	E	S
13	S	B	B	B	B	015	028	034	043	040	038	045	053	040	037	048	C	044	A	A	050	A	A	A
14	A	A	028	018	A	020	025	A	A	A	A	A	053	A	047	055	053	057	062	077	A	A	A	A
15	A	A	A	018	A	025	A	A	A	A	045	048	046	044	042	059	031	030	029	056	A	A	016	A
16	020	016	E	014	E	018	032	043	059	053	053	042	040	041	053	060	A	A	050	A	A	A	A	A
17	A	041	015	027	A	020	A	037	A	A	A	A	040	044		041	041	032	038	023	A	A	015	A
18	A	016	A	A	015	019	040	041	A	A	A	A	A	A	A	054	A	056	A	045	051	040	A	025
19	015	024	021	021	A	019	051	051	051	C	C	053	A	A	063	042	040	E030R	025	020	021	A	A	A
20	014	013	013	029	024	C	025	032	051	A	044	053	055	038	045	046	052	E038R	042	040	E030R	054	028	015
21	015	A	A	017	013	020	029	040	038	045	049	042	E039R	037	038	034	G	025	020	013	E	E	018	035
22	016	015	E	012	E	016	036	027	038	A	042	042	040	039	037	035	035	022	050	021	021	017	017	016
23	040	C	034	041	030	020	032	037	054	A	A	A	A	056	036	032	029	027	024	025	017	020	A	040
24	015	015	027	028	020	019	036	A	048	A	056	065	A	056	045	043	044	040	040	051	053	027	015	015
25	E	015	012	013	E	041	032	052	035	035	A	A	047	A	058	051	042	062	019	025	041	A	A	A
26	019	015	017	E	B	025	042	035	035	040	040	E037R	040	A	040	040	037	032	034	A	041	A	A	A
27	042	020	013	020	017	019	044	A	A	A	A	055	A	069	078	066	A	A	085	050	041	020	014	025
28	020	014	025	033	018	025	031	030	035	039	047		040	051	037	053	066	A	051	062	015	015	016	014
29	015	022	025	025	017	015	031	030	033	042	049	047	A	053	046	053	039	A	A	050	A	A	A	040
30	051	040	039	A	015	A	052	035	051	040	045	046	045	049	040	041	042	A	A	054	020	A	A	A
31	016	015	015	A	026	020	042	044	045	A	E039R	040	035	E037R	037	033	E026R	026	024	026	034	014	015	015
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

f_bE_s

K 5

IONOSPHERIC DATA

May 1965 | **f-min** | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | 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	010	011	010	011	011	011	013	012	014	018	015	017	021	020	016	017	015	013	013	011	E015S	E014S	E015S	E014S
2	E013S	012	011	011	011	E013S	013	014	013	016	020	015	016	016	016	015	013	013	011	011	010	010	E015S	E013S
3	E014S	013	011	011	012	E013S	013	013	015	015	017	020	017	016	017	015	015	015	010	E013S	E014S	E015S	012	E014S
4	E013S	014	014	011	011	E014S	013	013	015	016	015	016	016	016	016	014	014	012	013	E013S	E013S	E015S	E015S	E014S
5	011	013	013	013	011	E014S	013	014	014	014	015	015	016	018	016	015	015	013	011	011	E015S	E015S	E015S	E013S
6	011	011	010	010	011	011	014	014	016	016	020	017	019	016	017	016	015	013	014	E015S	E014S	E015S	E014S	010
7	E013S	013	014	013	014	E015S	013	015	014	016	017	019	017	020	015	015	014	014	013	E013S	E015S	E015S	E015S	E015S
8	E017S	013	014	015	014	E015S	013	015	016	015	025	019	018	017	015	015	014	014	014	011	011	010	E013S	E013S
9	E015S	015	010	013	014	013	013	013	014	016	016	018	016	020	016	016	015	013	012	011	010	011	E013S	E015S
10	E013S	013	013	011	011	E015S	013	015	015	015	019	023	026	023	017	016	014	013	014	011	011	010	012	010
11	E013S	015	011	011	010	012	014	015	014	020	019	022	020	022	020	015	014	013	012	E015S	E013S	E015S	E013S	E013S
12	011	013	011	014	010	013	013	013	015	016	017	021	019	016	025	014	015	013	013	E013S	011	010	E013S	E015S
13	E015S	013	013	013	013	013	014	014	015	019	020	017	016	014	016	015	C	014	012	E013S	E013S	E013S	E013S	E015S
14	E013S	013	011	011	011	012	014	013	015	017	016	017	020	023	020	015	014	014	014	E015S	E013S	E013S	E014S	E013S
15	E015S	011	014	013	011	011	013	014	015	024	023	016	019	020	021	016	015	013	013	011	E015S	011	E014S	E015S
16	E015S	011	013	010	013	012	014	014	016	019	025	022	025	020	018	016	017	013	012	011	E013S	E015S	E013S	E015S
17	E013S	013	013	011	011	012	013	014	015	019	025	024	022	025	025	017	015	014	012	010	010	010	010	010
18	E015S	010	010	010	E	010	011	013	014	018	017	023	024	025	020	017	016	015	014	E013S	E015S	012	012	E013S
19	011	011	013	013	013	E014S	014	015	016	C	C	016	016	016	016	016	016	014	013	E013S	012	011	E015S	E013S
20	E013S	011	010	011	010	C	012	015	014	016	017	016	019	016	016	016	014	012	013	011	010	E015S	011	E013S
21	E	E	011	E	010	011	011	013	015	026	017	016	016	015	017	015	016	013	011	011	E015S	E015S	E013S	E015S
22	011	011	013	010	E	011	013	014	015	017	015	017	021	019	017	016	015	014	012	010	E013S	E015S	011	011
23	010	C	010	E	010	012	010	012	014	014	017	016	016	020	016	015	015	012	011	010	011	E015S	010	E013S
24	011	010	010	011	010	012	015	014	014	015	016	016	017	019	016	015	014	012	013	E013S	E013S	E013S	010	E013S
25	011	E	E	011	E	011	011	012	015	014	016	017	015	015	016	016	016	012	013	011	011	E013S	E015S	E013S
26	E014S	011	011	011	013	012	012	014	015	015	022	016	020	020	020	015	015	014	012	011	E014S	E015S	E013S	010
27	011	010	010	011	010	012	013	015	017	016	019	021	019	020	017	016	014	012	012	E013S	E015S	011	E013S	E013S
28	011	010	011	010	011	011	013	014	015	015	015	016	019	016	015	016	015	015	013	011	010	010	E	011
29	010	010	011	011	011	011	012	013	014	015	016	013	020	017	015	014	014	014	010	010	010	E013S	E013S	010
30	011	010	011	010	010	013	012	013	015	015	025	015	015	025	016	015	014	012	011	E013S	010	E013S	011	E013S
31	E014S	E	011	010	011	011	013	013	014	015	016	019	021	020	015	014	013	012	010	011	010	011	010	E014S
No.	31	30	31	31	31	30	31	31	31	30	30	31	31	31	31	31	30	31	31	31	31	31	31	31
Median	E013S	011	011	011	011	012	013	014	015	016	017	017	019	019	016	015	015	013	012	010	E013S	E013S	E013S	E013S
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

f-min

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

K 6

IONOSPHERIC DATA

May 1965 | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	275S	280	U295S	U290S	U325R	U340R	355	325	320	310	275	290	285R	295	305	U325S	310	310	310S	330S	305	290	U290R
2	290	280	295	U275S	310	330	330	340	335	340	290	290R	300	285	285	300	305	310S	320S	335S	340	315S	285	285
3	285	275	295S	290	300	325	A	345	330	320	I320A	310R	285	280	295	300	320	315	I300A	A	A	A	A	270S
4	250S	A	U275S	285S	295S	295	325	330	340R	335	300	295R	U290R	290	295	310	305	A	A	A	320	A	A	290
5	285	290	U285R	U290S	U295S	300	350	340	320	340	275	290	260R	U280S	275	285S	305S	305	310S	S	315S	300	I280A	A
6	A	A	280	270S	270	320	345	A	A	320	J310R	300R	I300A	290	290	U300R	U310R	315S	R	S	340	290	A	A
7	A	U295R	U285R	295R	285R	315	U335R	315	A	A	A	A	300	300	U305R	300R	305	310	310	295	300	295	290	300
8	285	295	300	305	320	315	325R	345	320	315	305	I295R	295R	305	295	310	300	310	290	305S	U325S	300R	285	285
9	285	285	295	305	300S	330	340	275	310	285	295	270	U285R	295R	295	U310R	295	305	I310A	320	335	290	270	275
10	265R	265	280	290	330	330	325	325	R	295	300	A	280	285	285	300	325	A	305	315	290	A	A	A
11	A	A	300F	305	305	320	320	325	315	310R	310	I290A	285	305	315	315	320	305	I320A	315	I310S	A	A	A
12	A	S	U280R	305	U305S	325	340	315	330R	360R	A	A	A	I300A	300R	300	A	U310R	305	305S	U310S	320	300	285
13	290	295	300	300	320	320	335	335	315	310	275	290	290	290	300	310	C	300	A	A	320S	A	A	A
14	A	A	290R	U300R	I290A	325	330	A	A	A	A	A	300	I295A	295	305	305	A	305	U320S	A	A	A	A
15	A	A	A	I280A	A	305S	A	A	A	A	305	290	295	290	290	305	300	305	305	300S	I310A	A	U285S	I280A
16	I280S	285S	285S	290	U305R	325	305	325	325	310	305R	285	275	280	290	290	I290A	I295A	U300A	A	A	A	A	A
17	A	A	U260S	U305R	I300A	295	A	280R	A	A	A	A	265	295	U260R	280	300	315	320	315	A	A	U260S	A
18	A	U265S	A	A	315	320	325	340	A	A	A	A	A	A	A	295	I300A	305R	A	U315R	320	290	I290A	285
19	U280F	285F	U285F	J295R	I265A	295	315	330	340	C	C	290	A	A	295	300	315	300	315	310	290	I280A	A	A
20	U290S	285S	U295S	U275F	U295F	C	315R	325	330	A	295	290	U290R	275	285	295	310	310	305	305S	305	320S	U315S	U290S
21	U290S	I280A	I280A	290S	295S	315R	335	330	315	300	270	275	290	290	285	290	315	305	300	295S	U310S	305	280S	285S
22	285	265S	285	285	295	330	330	310H	315	A	290	295	290	265	280	285	290	290	300S	U315S	U320S	U280S	275	U270S
23	U280S	I295C	U305S	305	U295S	315	325	320S	335	A	A	A	A	290	285	305	295	295	300S	295	U310S	U315S	I295A	U280S
24	U290S	I300S	S	U295S	U295S	290S	320	A	330	A	275R	290	A	290V	285	290	285	305	300	S	U335S	290	270S	U275S
25	U275S	U260S	U285S	300	310S	320	330	355	340	330	I270A	I280A	295	I305A	315	290	295	280S	290S	305	305S	A	A	I275A
26	U275S	285F	U275F	U265F	U235S	300H	320	340	305	300	R	265	295	I300A	290	300	305	305	295R	I320A	330	A	A	A
27	U270R	F	290F	295F	300	330	340	A	A	A	A	295	I290A	270R	280	295	A	A	U320S	310S	280	280	305	315
28	285S	285	I270A	U265F	U300S	300	330	315	310	335	295	300	275	275	300	290	J295R	A	305S	325S	305	285	285	275V
29	U265S	U270F	U270F	295S	290	325	340	325	340	270	295	295	I290A	310R	315	305	315	A	A	325	A	A	A	S
30	U290S	U285F	F	A	U295F	A	330	330R	320	335	280	A	265	290	275	285	305	A	I315A	310R	U305S	A	A	A
31	280	280S	310S	I290A	320	295	320	320	305	A	R	250	255	275V	285	295	320	295	295	290	315S	300	290S	U290S
No.	23	23	27	29	30	29	28	26	23	19	21	23	26	29	30	31	28	24	26	24	26	18	18	19
Median	285	285	285	295	300	320	330	330	325	320	295	290	290	290	290	300	305	305	305	310	310S	300	285	285
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

M(3000) F2

K 7

IONOSPHERIC DATA

May 1965 | M(3000) F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	360L	L	L	R	R	A	L	A	A	A					
2								L	L	365L	L	370L	365L	L	L	A	A	A	A					
3							A	L	A	A	A	A	R	R	R	A	A	L	A					
4						A	A	A	A	A	A	370L	R	R	A	A	A	A	A					
5								A	A	A	A	345L	R	A	R	R	S	L	A					
6							A	A	A	A	L	A	A	A	A	A	L	A	A					
7								A	A	A	A	A	R	R	A	A	L	A						
8								R	A	L	L	R	A	360L	355L	355L	A	A	L					
9								L	A	L	A	355L	345	355	R	350L	L	L	A					
10							L	365L	L	L	A	A	A	A	A	A	A	A	A					
11							L	L	L	L	A	A	A	A	A	A	A	L	A					
12								L	R	A	A	A	A	A	R	A	A	A	A					
13						L		L	A	A	370L	A	A	350L	360L	A	C	A	A					
14						L	L	A	A	A	A	A	A	A	A	A	A	A	A					
15							A	A	A	A	A	A	A	L	350L	A	350L	L	A					
16							A	A	A	A	A	R	355L	335L	A	A	A	A	A					
17						A	A	L	A	A	A	A	L	A	L	A	A	L	A					
18							A	A	A	A	A	A	A	A	A	A	A	A	A					
19							A	A	A	C	C	A	A	A	A	A	A	L						
20						C	A	L	A	A	L	A	A	370L	A	A	A	R	A					
21							L	A	L	A	A	R	365L	355H	360L	350L	L	L	L					
22						L	A		L	A	L	360L	345L	345	360	355L	L	L	A					
23							A	L	A	A	A	A	A	A	L	365	335L	L	L					
24							A	A	A	A	A	A	A	A	A	A	A	A	A					
25						A	L	A	L	L	A	A	A	A	A	A	A	A	L					
26							A	L	L	L	L	360L	345L	A	L	L	355L	L	A					
27							A	A	A	A	A	A	A	A	A	A	A	A	A					
28							L	L	L	L	A	365L	370	A	330	A	A	A	A					
29						L	L	370L	L	A	A	A	A	A	A	A	A	A	A					
30						A	A	L	A	355L	A	A	A	A	L	L	A	A	A					
31							A	A	A	A	R	L	L	370L	R	350L	R	L	L					
No.								2		3	1	7	7	8	6	6	3							
Median								370L		360L	370L	360L	355L	355L	360L	350L	350L							
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F1

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

May 1965 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								260	280	290	325	400	330	350	310	280	280	265	255					
2								265	260	275	350	345	325	355	325	300	280	275	240					
3							A	255	275	310	A	355	365	330	310	300	260	260	A					
4						305	260	255	260	285	315	360	380	330	310	285	285	A	A					
5								260	250	305	400	375	400	365	355	330	295	260	270					
6							235	A	A	305	325	330	A	330	325	290	300	280	280					
7								280	A	A	A	A	350	335	320	315	305	280						
8								260	280	300	325	R	350	320	330	295	305	350	315					
9								350	315	365	350	295	330	310	315	300	300	295	270					
10							255	280	295	345	330	A	395	370	330	300	275	A	345					
11							265	280	310	300	350	A	360	320	300	300	280	305	A					
12								290	285	260	A	A	A	A	345	330	A	305	280					
13						260		255	300	305	380	335	325	325	310	280	C	355	A					
14						275	250	A	A	A	A	A	310	A	335	330	335	A	305					
15							A	A	A	A	370	380	345	335	325	315	280	285	260					
16							260	265	275	310	355	380	365	335	315	320	A	A	305					
17						305	A	370	A	A	A	A	400	350	455	385	330	295	255					
18							255	255	A	A	A	A	A	A	A	390	A	335	A					
19							310	270	255	C	C	380	A	A	315	300	275	300						
20						C	270	265	285	A	360	360	360	360	345	300	270	280	290					
21							230	250	295	300	400	400	330	325	325	300	275	280	290					
22						265	245		305	A	365	360	370	420	360	330	315	300	295					
23							260	290	265	A	A	A	A	350	340	310	300	290	290					
24							260	A	270	A	420	390	A	330	320	310	310	280	280					
25						305	275	245	270	350	A	A	350	A	315	375	320	350	280					
26							280	265	345	L	450	430	355	A	345	310	300	285	325					
27							265	A	A	A	A	400	A	410	420	335	A	A	310					
28							275	270	300	280	365	360	415	380	340	350	R	A	270					
29						260	255	280	275	340	360	360	A	335	325	315	305	A	A					
30						A	270	255	330	260	430	A	345	370	400	360	325	A	A					
31							275	295	315	A	R	530	455	355	335	345	310	335	305					
No.						7	20	25	24	18	20	20	23	25	30	31	25	23	22					
Median						275	260	265	280	300	360	380	355	335	325	310	300	290	285					
U. Q.																								
L. Q.																								
Q. R.																								

h'F2

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 9

IONOSPHERIC DATA

May 1965 | h'F km | 135° E Mean Time (G.M.T. +9h) | 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	280	295	300	265	255	245	250	215	E255A	205	E250R	235	I240R	R	A	E280A	I255A	A	A	250	235	210	255	260
2	275	305	270	280	250	215	240	E250A	240	230	210	200	200	E250R	E255R	A	A	A	A	230	215	215	295	280
3	280	275	270	280	265	225	I230A	E255A	A	A	A	A	240	R	R	A	A	230	A	A	A	I250A	I260A	305
4	365	I320A	305	290	260	A	A	A	A	A	A	215	205	R	A	A	A	A	A	A	295	I300A	I300A	270
5	280	270	270	260	255	245	235	A	A	A	A	E270A	R	A	I240R	240	260	245	I240A	215	255	265	I340A	A
6	A	A	325	360	370	255	A	A	A	A	E260R	A	A	A	A	A	230	A	A	255	230	255	A	A
7	A	340	280	255	340	255	265	A	A	A	A	A	R	245	A	A	250	I260A	250	255	270	260	260	265
8	290	300	270	245	250	235	245	I240R	A	225	E260A	R	A	210	230	210	I230A	A	255	255	245	255	255	270
9	270	290	275	255	250	230	240	E275A	A	E310A	A	E265A	E260R	235	230	215	250	275	I265A	265	230	270	310	305
10	305	305	275	260	230	240	225	230	235	E275A	A	A	A	A	A	A	A	A	A	300	260	A	A	A
11	A	A	290	260	240	250	225	240	E260A	E275A	A	A	A	A	A	A	I250A	230	I250A	245	I250S	A	A	310
12	I330A	350	300	265	220	250	255	220	I210R	A	A	A	A	A	R	A	A	A	A	255	250	235	250	270
13	270	265	255	255	215	230	230	220	A	A	215	A	A	E270A	240	A	C	A	A	A	240	A	A	A
14	A	A	310	260	I290A	255	215	A	A	A	A	A	A	A	A	A	A	A	A	305	A	A	A	A
15	A	A	A	275	I260A	240	A	A	A	A	A	A	A	E320A	E270A	A	230	250	A	305	I270A	I260A	285	I280A
16	295	280	260	260	250	225	I240A	A	A	A	A	220	E260A	E265A	A	A	A	A	A	A	A	A	A	A
17	I355A	290	305	265	I225A	A	A	E300A	A	A	A	A	240	A	260	A	A	280	I250A	230	A	A	325	A
18	A	325	A	A	265	255	A	A	A	A	A	A	A	A	A	A	A	A	A	275	270	310	I335A	300
19	290	315	290	305	I365A	255	A	A	A	C	C	A	A	A	A	A	A	250	275	260	275	I310A	A	A
20	265	260	250	340	300	I245C	A	240	A	A	E255A	A	A	230	A	A	A	R	A	275	260	310	275	270
21	265	I330A	I290A	280	250	250	230	A	E255A	A	A	225	230	225	230	230H	225H	220	230	255	225	225	275	280
22	300	300	285	250	250	210H	I225A	220H	230	A	E255A	245	240	240	225	220	250	275	A	260	225	265	265	305
23	325	I305C	265	310	280	250	A	E265A	A	A	A	A	A	A	225	220	225	240	260	265	240	245	I300A	305
24	245	260	260	255	250	255	A	A	A	A	A	A	A	A	A	A	A	A	A	275	255	250	300	300
25	300	305	275	245	230	I250A	E270A	A	200	200	A	A	A	A	A	A	A	A	245	230	260	I260A	A	I325A
26	290	295	290	275	260	250H	I250A	225	220H	210	200	230	E270R	A	250	250	255	265	I235A	I280A	255	A	A	A
27	375	295	265	295	255	230	A	A	A	A	A	A	A	A	A	A	A	A	A	270	305	275	235	255
28	280	275	310	260	315	255	255	215	225	230	I210A	215	230	A	260	A	A	A	A	250	200	255	285	300
29	320	340	260	300	255	225	250	200H	225	A	A	A	A	A	A	A	A	A	A	265	I255A	A	A	340
30	325	335	305	I320A	270	A	A	E255A	A	E250A	A	A	A	A	250	230	A	A	A	E330A	245	A	A	I280A
31	295	295	255	I340A	355	250	A	A	A	A	205	E250A	210	205	215	230	210	225	255	265	260	235	260	260
No.	25	27	29	30	31	28	19	17	11	10	10	11	12	11	14	10	13	13	12	27	27	22	20	22
Median	290	300	275	265	255	250	240	230	230	215	E230	220	230	225	235	230	250	250	250	260	255	260	280	280
U. Q.																								
L. Q.																								
Q. R.																								

h'F

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 1.0

IONOSPHERIC DATA

May 1965 | **h'Es** km | 135° E Mean Time (G. M. T. +9h) | 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	110	115	110	110	110	105	110	145	115	125	115	125	125	G	130	130	120	125	115	110	110	110	S	S
2	S	B	B	B	130	155	140	130	120	110	115	G	G	E180G	155	130	130	120	110	110	110	110	S	S
3	S	100	110	105	130	150	120	120	115	110	110	110	110	160	155	130	125	125	115	110	115	110	110	115
4	105	110	110	135	100	130	120	115	115	110	110	105	110	G	140	120	120	115	110	110	120	115	115	S
5	110	110	105	105	110	110	150	125	125	110	115	115	110	110	110	110	110	115	110	110	110	110	120	115
6	110	110	105	105	100	100	130	125	120	120	120	120	120	130	120	120	125	115	115	115	110	110	115	110
7	110	105	105	100	100	100	150	130	110	110	110	110	110	110	110	110	110	105	105	100	110	100	S	S
8	S	110	105	105	B	155	150	130	120	120	115	115	110	G	G	G	125	115	145	120	110	110	110	110
9	110	B	E	B	B	150	155	130	125	110	110	120	G	135	G	140	125	120	110	110	110	110	110	110
10	S	B	100	105	105	175	155	145	130	120	115	110	110	110	130	120	115	115	115	110	110	115	115	110
11	105	105	105	100	100	100	150	125	115	115	115	115	115	115	110	110	110	110	110	105	110	125	115	110
12	110	100	100	100	110	110	125	120	110	110	110	110	110	110	110	120	115	115	110	110	110	110	110	S
13	S	B	B	B	B	130	110	115	115	115	115	110	110	110	110	130	C	110	110	110	110	115	115	110
14	110	110	105	105	105	105	110	115	110	110	110	110	110	105	120	110	120	115	115	110	110	115	115	110
15	110	110	105	105	100	110	110	110	115	110	110	110	110	110	110	110	110	120	115	120	115	110	110	110
16	110	105	105	110	110	110	115	110	110	110	110	110	110	110	105	125	110	105	105	105	110	115	110	110
17	110	110	110	105	115	135	120	125	110	110	115	110	115	125	G	135	125	120	120	120	120	115	115	110
18	110	110	105	100	100	165	125	120	110	110	110	115	110	110	110	110	125	120	115	115	115	115	115	110
19	110	110	105	100	100	155	125	120	120	C	C	115	115	110	110	110	110	110	110	110	105	110	115	115
20	110	110	110	110	110	C	130	130	110	110	110	110	110	110	115	110	110	150	130	115	110	110	110	110
21	105	105	105	100	105	100	130	120	125	120	115	120	120	120	115	120	110	110	110	105	105	105	105	100
22	100	100	100	105	120	120	110	110	110	110	110	110	110	110	110	130	110	120	110	110	110	105	110	110
23	110	C	105	105	100	135	115	110	110	110	110	110	110	110	110	110	110	175	140	110	110	110	110	105
24	105	100	100	100	100	145	125	110	110	110	110	110	115	120	120	120	120	115	115	115	110	110	110	110
25	110	105	100	110	120	110	110	110	110	110	110	110	110	120	120	120	120	115	110	105	100	110	110	105
26	105	100	100	100	B	120	110	110	110	105	110	110	135	115	125	120	120	110	110	110	110	110	110	110
27	110	105	105	100	100	110	120	110	110	110	110	110	110	110	110	110	110	110	105	100	100	100	100	110
28	110	110	110	110	110	110	110	110	110	110	105	G	145	130	170	125	120	115	110	110	110	105	105	105
29	105	105	100	100	105	105	120	110	150	125	125	120	115	125	160	115	115	115	115	115	115	110	110	110
30	110	110	110	110	110	130	110	110	110	110	110	110	165	150	105	105	150	105	100	100	110	110	110	110
31	105	100	105	100	100	110	120	120	110	110	110	110	110	110	110	110	110	125	125	110	115	115	110	105
No.	26	26	28	28	27	30	31	31	31	30	30	29	29	28	28	30	30	31	31	31	31	31	28	26
Median	110	110	105	105	105	115	120	120	110	110	110	110	110	110	110	120	120	115	110	110	110	110	110	110
U. Q.																								
L. Q.																								
Q. R.																								

h'Es

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 11

IONOSPHERIC DATA

May 1965 | **Types of Es** | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f2	f2	f2	f2	f3	1	12	h1	c	h	c2	h	h		h	h	c2	h3	13	f5	f4	f		
2					f	h	h2	h2	c2	1	c			h	h	h2	h3	c4	c5	f5	f	f		
3		f	f	f2	f	h	c3	c3	c2	12	12	12	1	h	h	h2	h2	h3	c4	f4	f6	f4	f4	f
4	f3	f3	f2	f	f2	h3	c3	c3	c2	c	c	1	1		h2	c	c2	c3	13	f5	f4	f5	f5	
5	f2	f	f2	f2	f2	12	h	h2	h	12	c3	c	1	12	1	12	12	c	15	f5	f7	f5	f6	f6
6	f6	f5	f3	f2	f4	13	h212	h4	c3	c2	c	c	c3	h	c2	c3	h2	c3	14	f2	f4	f4	f4	f4
7	f3	f4	f3	f	f2	1	h	h3	13	12	12	12	c	1	12	12	13	13	12	f2	f2	f2		
8		f2	f2	f		h	h	h	c2	c	c	1	1				h2	c4	h	f	f5	f6	f3	f2
9	f					h4	h2	h2	h	1	12	c		h		h	h	c2	14	f7	f3	f3	f4	f
10			f	f	f	h	h	h	h2	c	c2	c2	12	12	h2	c3	c4	c4	13	f7	f2	f7	f7	f4
11	f3	f5	f5	f3	f3	12	h	h	c	1	12	12	c2	c2	12	12	12	12	14	f2	f4	f4	f2	f2
12	f2	f2	f2	f2	f	12	h312	c2	1	12	13	c2	12	13	1	c3	13	12	14	f4	f2	f	f2	
13						h	13	c3	c2	c	c	1	12	1	1	h		12	16	f5	f4	f2	f5	f4
14	f5	f5	f5	f4	f3	1	1	c4	13	13	c3	13	12	13	112	12h2	c2	c4	14	f3	f3	f7	f4	f4
15	f5	f4	f5	f5	f5	15	14	15	c3	12	12	12	12	12	12	14	1	c2	12	f6	f4	f3	f3	f6
16	f5	f3	f2	f2	f2	12	14	12	13	12	12	12	12	1	12	h212	13	14	13	f4	f4	f2	f3	f4
17	f3	f3	f2	f2	f4	h4	c4	h3	13	12	1	12	1	h		h	h2	c2	13	f2	f3	f6	f2	f7
18	f7	f2	f5	f3	f2	h1	h3	c2	14	12	12	c2	1	12	12	12	h2	c4	14	f5	f5	f4	f7	f2
19	f2	f4	f4	f2	f4	h	h4	c2	c			c2	c2	13	13	13	12	13	13	f3	f4	f3	f5	f5
20	f2	f3	f2	f5	f5		h	h2	13	13	12	12	12	1	c2	12	14	h4	h4	f6	f7	f3	f4	f4
21	f4	f4	f5	f5	f2	12	h3	c2	h	c	c2	c	c	c	c	c	c	12	12	f2	f2	f2	f2	f5
22	f2	f2	f	f2	f	1	15	1	1	14	12	12	1	12	1	h	1	12h2	15	f3	f5	f3	f3	f2
23	f7		f7	f5	f5	h	13h	13	13	14	12	14	13	13	12	1	1	h	h1	f3	f2	f4	f4	f3
24	f4	f2	f2	f2	f2	h2	h6	c5	12	13	c2	c2	c2	c2	c2	c2	c2	c5	c5	f7	f5	f3	f4	f3
25	f3	f2	f2	f2	f	13	14	13	12	1	13	13	12	c2	c3	c3	c2	c3	13	f3	f3	f6	f4	f5
26	f2	f2	f2	f2		121	14	14	12	12	1	1	h	c2	h2	c	c2	13	14	f5	f2	f4	f3	f5
27	f5	f3	f2	f3	f3	12	c2	14	13	13	13	12	12	13	13	13	13	15	13	f8	f4	f2	f	f2
28	f3	f3	f3	f3	f3	14	15	12	12	12	12		h	h2	h2	h2	c4	c5	16	f7	f	f2	f4	f2
29	f2	f5	f2	f4	f	1	c21	1	h12	h21	h21	c	c3	h2	h	c2	c2	15	14	f5	f3	f5	f3	f2
30	f4	f5	f3	f	f3	h6	13	12	12	12	1	1h	h	h2	1	12	h13	13	14	f4	f3	f4	f3	f4
31	f2	f2	f5	f5	f4	1h2	c3	c3	12	12	1	1	1	1	12	12	12	h	h412	f5	f5	f	f4	f4
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Types of Es

K 12

IONOSPHERIC DATA

May 1965 | h_pF_2 km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N, Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	355	385S	355	U330S	U335S	U280R	U260R	260	285	290	325	400	335	355R	335	305	U295S	305	300	295S	275S	305	340	U340R
2	340	355	330	U345S	305	255	265	265	265	275	350	345R	325	375	345	310	320	300S	280S	265S	255	300S	345	355
3	345	350	340S	340	335	275	A	255	275	A	A	A	365	355	335	315	285	290	A	A	A	A	A	390S
4	435S	A	U385S	335S	320S	330	275	270	260R	285	A	365R	R	355	335	300	305	A	A	A	295	A	A	345
5	350	340	U350R	U365S	U320S	325	250	265	285	A	A	375	R	U380S	390	365S	325S	305	300S	S	295S	350	I390A	A
6	A	A	345	330S	385	280	255	A	A	A	J325R	345R	I340A	355	350	U325R	U305R	305S	R	S	255	355	A	A
7	A	U345R	U340R	330R	340R	290	U275R	295	A	A	A	A	R	340	U340R	325R	320	305	305	320	320	325	335	340
8	350	370	330	310	290	285	270R	265	295	300	330	I350R	350R	335	345	305	320	A	345	310S	U280S	325R	340	350
9	345	350	340	305	305S	280	255	390	315	365	350	400	U350R	335R	330	U315R	320	310	I300A	290	265	340	385	370
10	390R	390	385	335	275	270	270	285	R	345	335	A	A	380	355	325	280	A	A	300	345	A	A	A
11	A	A	320F	295	305	290	275	280	310	305R	A	A	360	335	305	305	290	320	A	295	I300S	A	A	A
12	A	S	U370R	320	U300S	295	265	295	285R	260R	A	A	A	A	345R	340	A	U315R	325	320S	U310S	295	315	345
13	340	335	330	320	280	280	275	260	310	310	385	355	350	350	330	305	C	A	A	A	295S	A	A	A
14	A	A	350R	U335R	I320A	280	250	A	A	A	A	A	330	A	345	A	A	A	305	A	A	A	A	A
15	A	A	A	I360A	A	300S	A	A	A	A	A	A	350	355	335	335	330	305	305	320S	I300A	A	U345S	I340A
16	I350S	340S	345S	335	U300R	270	305	275	280	A	A	385	390	370	345	340	I345A	I340A	U340A	A	A	A	A	A
17	A	A	U395S	U305R	I305A	320	A	370R	A	A	A	A	405	350	G	395	345	305	285	290	A	A	U420S	A
18	A	U395S	A	A	305	270	285	265	A	A	A	A	A	A	A	A	A	335R	A	U300R	290	350	A	350
19	U365F	350F	U345F	J340R	I385A	335	A	275	265	C	C	A	A	A	335	310	295	325	295	310	340	A	A	A
20	U340S	335S	U325S	U375F	U335F	C	300R	275	A	A	360	A	U360R	380	360	340	300	315	315	310S	310	A	U305S	U340S
21	U325S	I360A	I360A	340S	325S	300R	255	280	300	A	400	400	350	350	350	365	295	315	325	325S	U300S	310	365S	355S
22	350	375S	340	330	330	280	265	300H	305	A	365	360	370	420	360	355	345	340	325S	U300S	U285S	U370S	375	U385S
23	U370S	I350C	U320S	320	U320S	295	280	295S	275	A	A	A	A	350	360	335	315	335	345S	345	U300S	U295S	I350A	U370S
24	U335S	S	S	U335S	U315S	315S	280	A	280	A	A	A	A	345V	345	330	350	305	315	S	U285S	340	385S	U365S
25	U370S	U390S	U350S	310	300S	A	275	245	270	285	A	A	350	I325A	A	A	345	355S	345S	305	310S	A	A	I360A
26	U370S	350F	U380F	U375F	U340S	325H	280	265	345	G	R	430	355	I360A	355	335	310	310	335R	I290A	275	A	A	A
27	U390R	F	340F	355F	325	260	270	A	A	A	A	A	A	A	A	350	A	A	A	310S	370	350	305	305
28	350S	355	I360A	U385F	U320S	320	280	290	300	280	A	G	G	A	345	350	R	A	305S	275S	305	345	355	385V
29	U390S	U380F	U380F	335S	340	290	260	280	275	G	A	360	A	A	325	330	305	A	A	295	A	A	A	S
30	U335S	U370F	F	A	U320F	A	285	260R	A	270	G	A	R	A	400	360	335	A	A	A	U320S	A	A	A
31	350	355S	305S	A	A	335	295	295	320	A	R	G	460	410V	355	350	R	335	330	340	290S	315	340S	U330S
No.	23	22	27	28	29	28	27	26	21	12	10	13	18	23	27	28	24	22	21	22	26	16	17	19
Median	350	355	345	335	320	290	275	275	285	290	350	365	350	355	345	330	320	310	315	300	300S	330	345	350
U. Q.																								
L. Q.																								
Q. R.																								

h_pF_2

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 13

IONOSPHERIC DATA

May 1965 | ypF2 km | 135° E Mean Time (G. M. T. +9h) | 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	065	055S	055	U060S	U065S	U060R	U055R	045	055	050	045	050	065	070R	065	070	U055S	070	050	060S	065S	045	060	U060R
2	060	055	050	U060S	065	050	060	055	050	035	050	050R	060	070	060	075	055	050S	060S	065S	050	050S	060	055
3	050	050	060S	060	065	055	A	050	055	A	A	A	075	065	060	065	050	055	A	A	A	A	A	060S
4	065S	A	U065S	065S	060S	060	060	055	055R	050	A	040R	R	045	060	065	075	A	A	A	060	A	A	055
5	050	060	U055R	U085S	U060S	050	055	045	055	A	A	040	R	U060S	055	085S	070S	075	075S	S	060S	060	I060A	A
6	A	A	055	065S	065	060	045	A	A	A	J050R	045R	I050A	055	055	U075R	U050R	050S	R	S	055	045	A	A
7	A	U055R	U055R	070R	060R	055	U070R	050	A	A	A	A	R	050	U050R	050R	055	070	065	055	055	055	055	050
8	060	050	060	060	065	060	055R	045	050	050	050	I045R	050R	065	060	070	075	A	055	085S	U070S	060R	060	055
9	055	050	050	075	060S	050	055	060	070	055	050	055	U060R	065R	065	U065R	065	060	I060A	055	065	060	065	055
10	060R	070	060	065	050	060	055	055	R	055	065	A	A	070	050	070	085	A	A	055	055	A	A	A
11	A	A	050F	055	045	050	050	045	040	060R	A	A	045	050	060	050	060	050	A	050	I075S	A	A	A
12	A	S	U055R	045	U050S	050	045	045	050R	040R	A	A	A	A	045R	060	A	U055R	055	065S	U060S	060	065	055
13	055	055	065	055	055	065	050	050	045	045	050	055	055	055	065	070	C	A	A	A	050S	A	A	A
14	A	A	050R	U065R	I065A	055	065	A	A	A	A	A	065	A	055	A	A	A	065	A	A	A	A	A
15	A	A	A	I060A	A	060S	A	A	A	A	A	A	050	055	070	065	060	065	065	055S	I060A	A	U050S	I070A
16	I055S	060S	050S	065	U050R	055	055	055	055	A	A	055	060	070	060	065	I060A	I060A	U060A	A	A	A	A	A
17	A	A	U055S	U050R	I070A	055	A	080R	A	A	A	A	045	050	G	045	045	050	065	055	A	A	U065S	A
18	A	U065S	A	A	050	055	055	055	A	A	A	A	A	A	A	A	A	040R	A	U070R	060	060	A	050
19	U045F	055F	U055F	J065R	I055A	065	A	050	060	C	C	A	A	A	070	090	060	075	060	060	060	A	A	A
20	U060S	065S	U075S	U070F	U070F	C	055R	055	A	A	050	A	U050R	065	070	070	070	065	055	065S	060	A	U060S	U040S
21	U075S	I055A	I070A	055S	055S	050R	055	060	050	A	050	055	070	060	070	055	065	075	055	085S	U070S	085	065S	060S
22	055	050S	060	065	050	075	060	060H	055	A	055	040	050	040	050	060	055	060	055S	U060S	U070S	U050S	050	U060S
23	U060S	I055C	U060S	055	U060S	050	065	050S	040	A	A	A	A	050	040	055	060	065	050S	050	U070S	U075S	I050A	U055S
24	U065S	S	S	U065S	U075S	070S	065	A	065	A	A	A	A	075V	080	075	065	090	065	S	U065S	050	065S	U065S
25	U055S	U060S	U060S	060	050S	A	045	055	040	055	A	A	045	I055A	A	A	050	065S	055S	065	050S	A	A	I055A
26	U055S	055F	U050F	U055F	U060S	050H	050	050	055	G	R	020	045	I035A	045	040	055	060	065R	I055A	045	A	A	A
27	U050R	F	060F	055F	060	055	045	A	A	A	A	A	A	A	A	065	A	A	A	070S	060	080	065	045
28	050S	055	I065A	U045F	U060S	060	055	045	045	040	A	G	G	A	050	050	R	A	060S	075S	065	060	050	040V
29	U065S	U050F	U070F	065S	060	060	045	050	040	G	A	045	A	A	040	045	050	A	A	045	A	A	A	S
30	U060S	U055F	F	A	U060F	A	055	050R	A	040	G	A	R	A	030	040	045	A	A	A	U055S	A	A	A
31	055	050S	070S	A	A	045	055	055	050	A	R	G	030	050V	065	060	R	065	060	060	070S	055	055S	U060S
No.	23	22	27	28	29	28	27	26	21	12	10	13	18	23	27	28	24	22	21	22	26	16	17	19
Median	055	055	060	060	060	055	055	050	050	050	050	045	050	055	060	065	060	060	060	060	060S	060	060	055
U. Q.																								
L. Q.																								
Q. R.																								

ypF2

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 14

IONOSPHERIC DATA

May 1965 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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	S	I039S	I037S	I031S	J025S	A	045	J051S	056	064	055	058	I077S	J088S	J086S	J089S	085S	I076S	073S	J084S	I063S	I045S	J037S	I036S
2	037S	036S	J036S	I032S	030	F	J047S	I061S	I062S	053	054	060	J074S	J079S	J086S	J100S	J102S	J083S	A	A	A	S	S	S
3	028	029	028S	029S	028S	029	I047S	058	055	057	060S	064S	J081S	I088S	096	J105S	094	067S	I067H	I081A	A	A	A	A
4	A	A	A	A	A	I033A	I047S	A	A	A	A	U062S	J083S	J099S	J110S	J109S	J107S	J089S	J080S	A	A	A	S	A
5	A	S	S	031S	I031S	I034S	050S	056	052	I053A	057	058	061S	I073S	085	J096S	J104S	I104S	U090S	I075S	S	S	S	A
6	A	A	A	035S	I035S	038S	060	053	051	I055S	I060A	A	S	A	J076S	J082S	J080S	088S	I094S	I088S	I064S	S	A	A
7	A	S	S	I031A	I031A	030S	050S	058	A	A	A	S	071	085	J086S	J087S	U092S	I088S	S	S	S	S	S	S
8	S	I044S	I041S	038S	034S	U035S	052	057S	054	057	056	059	J067S	J081S	J086S	085	I084S	069	J061S	I074S	I072S	I055S	038	S
9	S	038	J038S	034S	I028S	023	045	052	058	I063S	I066S	067	J085S	I094S	089S	084S	J089S	A	A	063S	I060S	I057S	I052C	I051S
10	I050S	I050C	I050C	I051C	050S	C	C	C	055	058	054	055S	063S	I076A	I089S	A	C	C	S	S	U062S	A	S	S
11	A	S	A	S	A	C	C	C	058	060	059	I064S	I080S	S	A	A	A	S	S	S	J051S	S	S	S
12	S	S	S	S	I031S	U034S	043	054	I057S	060	052	I054S	059	066	I074S	J084S	I077S	I071S	I066A	067S	S	S	J042S	038
13	S	S	045S	043	036S	030	I046S	049	057	056	U062S	I072S	I081S	U089S	I092S	S	S	S	S	A	S	S	S	S
14	A	A	A	A	I028S	I033S	044S	049S	053	064	I069S	I064S	I068A	I076S	J085S	I088S	I087S	J085S	A	S	S	S	A	S
15	S	S	S	S	I029S	I037S	I048A	049	A	A	A	A	A	A	A	A	J089S	A	A	A	S	A	S	A
16	A	S	I043A	I043S	I037S	I030S	044S	I057S	I058S	058	I062A	I070S	089	J102S	J109S	112S	I113S	S	S	S	S	S	S	S
17	S	S	S	057S	052S	J040S	050	059	A	S	057	I061A	065S	J064S	065S	I080S	I086S	J091S	A	S	S	A	S	S
18	A	A	A	A	A	A	J051S	I055A	I056A	A	A	A	056S	A	A	S	I081A	091	S	S	A	S	A	A
19	A	A	A	I040S	U034S	042	051	I055A	I057A	S	A	A	066	I085S	S	S	S	I102S	S	S	S	S	S	S
20	S	S	A	S	A	A	053S	I060S	062S	I059A	I062S	I065S	I070A	I080S	094S	J103S	I093S	S	S	S	S	S	S	S
21	A	I048S	047S	I041S	J038S	I042S	059S	055	I053A	I055A	053	063S	I076S	I087S	I096S	J110S	J104S	S	S	S	S	J053S	J053S	I055S
22	J055S	J052S	I054S	056S	I049S	J045S	050S	060S	S	A	060	S	A	S	A	086S	S	S	S	S	S	S	I059H	I058S
23	057S	S	S	050S	I050S	050S	I059S	059S	A	A	061	I064A	I070A	I076S	J082S	I081S	S	S	S	S	S	S	060S	S
24	S	I059S	055	043S	038	041S	053	I060S	061S	I060A	I065S	A	S	A	086	S	J101S	I092S	S	S	S	S	I056S	U054S
25	S	S	S	050	I048S	I042S	054	057	055	S	I066S	U068S	084	U087S	S	S	S	S	S	S	S	S	S	S
26	S	S	S	S	S	031S	054	I060S	I055C	055	055	I059S	I065S	S	S	S	S	S	S	S	S	S	A	A
27	A	A	A	A	S	032S	045S	057S	058S	A	S	A	A	A	A	104	I112S	114S	S	S	S	C	C	J052S
28	053	I048S	I042S	I037S	I036A	I038A	050	I059S	I063S	058	I055A	055	055	059	I061S	068S	J082S	087S	A	S	S	A	S	S
29	057	S	S	S	S	044	051	I058S	054	J053S	060	I065S	064	074S	I071S	I069S	S	S	S	S	S	S	S	A
30	S	S	046S	S	A	I041S	057S	I054A	J052S	A	A	056	I066S	070S	I069S	I071S	I078S	I066S	S	A	S	S	S	S
31	S	A	S	035	I033S	031S	050S	064S	058	A	A	S	068S	072S	I076S	I075S	U068S	057S	S	S	S	S	S	A
No.	7	10	13	20	23	25	29	28	25	19	23	22	26	23	23	22	22	18	7	7	6	4	8	7
Median	053S	U046S	043S	039S	U034S	035S	050S	057S	056	058	060	U062S	069S	080S	086S	086S	U089S	088S	U073S	U075S	U062S	U054S	052S	U052S
U. Q	057	U050	049	046	038	042	053	059	058	060	U062	U065	080	U088	092	103	102	091	U090	U084	U064	U056	U058	U055
L. Q.	037	038	038	033	U030	031	046	054	054	055	055	058	065	073	076	081	U082	071	U066	067	U060	U049	040	U038
Q. R	020	012	011	013	008	011	007	005	004	005	007	007	015	015	016	022	020	020	024	017	004	007	018	017

The Radio Research Laboratories, Japan

foF2

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

Y 1

IONOSPHERIC DATA

May 1965 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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									A	430	A	460R	450H	A	A	A	A	A	A					
2								L	410	430	450	440R	460H	440	A	A	A	A	A					
3									A	430	I440A	450	I450R	A	A	A	I400A	L						
4								A	A	A	A	A	A	A	A	A	A	L						
5								A	A	A	A	A	A	430	430R	A	A	A						
6										A	A	A	A	A	I440A	420	400	400	L					
7								A	A	A	A	A	A	A	440	430	410	L	L					
8									A	A	I440A	450	I450A	430H	430H	420	A	L	A					
9									A	I430A	I440A	I430A	A	A	A	A	A	A	A					
10							C	C	400	A	A	A	A	A	A	A	C	C	A					
11							C	C	A	A	440	450	430	A	A	A	A	A	L					
12								A	A	420R	I450A	450R	450	440	I440A	420	410	A						
13								A	A	I440A	I440A	430	440H	460H	440	I420A	I410A	L	A					
14							L	A	A	430	440H	L	I450A	450	440	420	420	A	A					
15								A	A	A	A	A	A	A	A	A	A	A	A					
16							L	A	A	460	A	A	460	A	A	430	I410A	390	L					
17							L	A	A	A	A	A	A	A	A	A	A	A	A					
18								A	A	A	A	A	460	A	A	A	A	A	A					
19								A	A	A	A	A	A	A	A	A	A	A	A					
20								A	A	A	A	A	A	A	A	A	440	400	A					
21								A	A	A	I460A	I470A	450	470	I450A	I440A	430	410	LH					
22							310	L	A	A	A	A	A	A	A	A	430	410L	A					
23								L	A	A	L	I470A	I460A	460R	460	440	420	A	A					
24							L	L	A	A	470R	A	A	A	A	I440A	430	A	A					
25								L	LH	450	470	I470A	I460A	460	460	460	430R	420	370L					
26							L	L	C	L	460	450	460	I450A	450	450H	440	410	370					
27								A	A	A	A	A	A	A	A	A	A	A	A					
28							A	L	I430A	450	I460A	460	460R	450	440	A	A	A	A					
29							L	L	400	440	450	440	450	A	A	A	I430A	A	A					
30								A	L	A	A	I440A	A	A	A	R	410	A	A					
31							A	A	A	A	A	A	A	440	430R	420	410	380	350R					
No.							1		4	11	14	15	16	12	13	13	17	8	3					
Median							310		405	430	U450A	450	450	450	440	430	420	405	370					
U. Q.																								
L. Q.																								
Q. R.																								

foF1

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 2

IONOSPHERIC DATA

May 1965 | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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							A	250	280	A	A	A	R	R	R	310R	295	260	195					
2							E180S	240	270	295H	I310R	320R	R	R	R	325	295	260	200					
3							E170S	225	270	290	A	A	A	I345R	340	330	295	260	200					
4							E170S	240	275	300	320	A	A	A	325	320	295	260	190					
5							195	250H	275	I305A	320R	330	I320R	315	310R	I305A	290	250	195					
6							190	240H	275	295R	305R	I315R	I325R	I325R	325R	315R	290	250	200					
7							E180S	235	280	305R	310	320	E330B	320R	A	A	290R	235	A					
8							E170S	225	270	300	310	I310R	I320R	A	A	310R	300R	265	195					
9							200	240	275	300R	310R	I320R	I330R	I330R	325R	310	290	255	200					
10						C	C	C	280	305	U320S	320R	R	R	I320R	305R	I290C	I255C	200					
11						C	C	C	290	310	R	A	A	A	A	A	A	A	A					
12							E180S	235	280	300	320	I320R	A	A	A	A	A	255	215					
13						E160S	E160S	225	270	300R	315R	A	A	A	A	A	300	260	190					
14						E170S	E170S	240	280	A	A	A	A	A	I340R	I325R	310R	270	200					
15						E170S	205	240	280	300R	I310R	E330B	E340B	340R	R	320R	310	275	215					
16						E170S	E160S	250	280	300	315R	R	A	A	A	A	I310R	A	E170B					
17						E180S	185	250	290	310	R	A	E340B	E350B	E360B	320R	300R	270	200					
18						E170S	E170S	A	290	310R	R	R	R	340	A	A	310	265	210					
19						E170S	195	260	290	300	I320R	320R	330R	R	A	A	A	A	A					
20						E170S	210	260H	295R	I320R	340	340	E350B	E340B	A	A	A	270	225					
21						E170S	220	260	295	R	320	R	E360B	350R	340R	320	300	I250A	200					
22						E170S	190	260	290	310	330	330	330	R	A	A	A	A	A					
23						E170S	195	I250A	285	310	325	345	E350B	E400B	E360B	R	300R	A	A					
24						E190S	195	250	290	320R	I330R	340	350	340	340	A	A	A	I205A					
25						E170S	E160S	A	260	290	I305A	I320R	325R	R	R	330R	300	265	A					
26						E170S	E170S	A	C	R	A	R	R	R	R	320	300R	260	220					
27						E160S	200	260	290	320R	350	350	335R	A	A	A	A	A	E160S					
28						E160S	E170S	A	A	300	A	A	A	A	350	340R	310R	265	210					
29						E170S	E170S	R	A	A	A	A	R	R	R	R	310R	260	A					
30						E170S	E180S	240	280	A	A	A	A	A	A	A	I315R	I275A	220					
31						E170S	200	255	295	310	325	330	R	E340B	E340B	A	A	I255R	220					
No.						19	28	24	28	25	21	17	15	13	13	16	23	24	24					
Median						E170S	E180S	245	280	300	320	320	325	330	330	320R	300	260	200					
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

foE

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

Y 3

IONOSPHERIC DATA

May 1965 | **foEs** | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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	E017S	024M	025F	022M	021M	J026	J039	029	054	041	045	039	040	052	J054	J054	J054	063	060M	J052	031M	023	J029	E018S
2	E016S	021M	E017S	E017S	021M	E017S	022	029	036	038	043	037	J037	043	054	J065	J074	J079	084	J085	117M	J052	030	025
3	E019S	E017S	E017S	E017S	025M	021	020	037	044	039	054	J053	038	047	J074	J053	J058	J038	033	136M	110M	090M	070M	J053
4	J051	J053	060M	090M	J054	058M	J041	J101	090M	064	064	J052	J054	J067	J083	J054	045	040	J052	J084	116M	058M	043M	067M
5	059M	057M	057M	021M	025M	025	022	035	040	J054	J052	J052	J052	052	J037	J058	J077	J083	J038	J053	J054	J052	J053	J051
6	085M	090M	059M	043M	J031	038M	021	033	036	J054	J071	J074	J068	J107	J066	G	034	034	027	022	022M	J052	J053	058M
7	J081	030M	032M	042M	033M	E016S	021	J039	J084	J083	J066	061	065	046	038	035	028G	G	J032	J025	035M	024M	023M	021M
8	020M	E017S	E017S	021M	J022	021M	025	J038	J053	J053	J054	041	J065	J052	043	G	J041	J040	J041	J045	J026	027M	022M	J025
9	E017S	020M	E017S	E016S	E017S	E017S	G	036	043	J051	J054	J051	J054	J057	J080	J063	J055	091M	J139	J037	J052	031M	C	022M
10	022M	C	C	C	E018S	C	C	C	040	046	046	J053	090M	J083	J069	J113	C	C	J062	J061	J043	J063	J036	J052
11	J052	031M	J052	026M	J051	C	C	C	J051	042	J045	J052	J042	046	J104	090M	J100	072M	035	J023	J036	023	J030	J037
12	J030	J022	025M	021M	E017S	E017S	J027	J041	J052	J057	J054	037	J052	J054	070M	J046	J038	J052	067M	J053	J038	J052	028M	J023
13	021M	E018S	021M	J019	J024	022	J023	036	J043	J049	J052	043	043	J039	J042	J054	052	J038	J052	110M	J051	023	042M	J036
14	J052	056M	J054	J037	J051	021	025	J043	J052	J038	038	113M	J084	044M	043	G	039	J051	071M	J054	059M	J051	J054	022
15	024	J037	J025	031M	022M	025	J051	J052	J084	J084	J079	070M	J112	147M	165M	J125	J051	144M	132M	168M	060M	068M	J051	J052
16	J050	J037	J052	044M	021M	021M	021	J051	J054	J052	093M	J055	J052	J059	J052	039	045	034	J036	J036	J054	J052	J053	J026
17	J051	J052	056M	J037	033M	J018	032	J052	J079	J058	J054	J085	J049	J053	J054	J049	045	J081	090M	J054	046M	067M	024M	J025
18	068M	J052	J053	J042	J044	J038	J042	J058	090M	065M	J111	J104	046	077M	084M	J065	J085	074M	J062	091M	106M	J051	058M	057M
19	093M	061M	067M	J024	J026	J023	J037	J079	085	J072	J085	J066	J064	J084	091M	070M	090M	J052	J053	J044	J052	067M	039M	J052
20	J051	J039	059M	J038	J042	J053	035	J062	059	071	J061	J053	072M	J052	084M	J053	J039	027G	036	J052	043M	039M	057M	026M
21	057M	042M	024M	025M	020M	023	023	J039	J054	J088	069M	054	J051	046	J055	064M	043	J036	022	025M	E017S	021M	E018S	022M
22	E019S	028M	030M	034M	027M	E017S	G	038	J053	062M	J053	J068	J088	064M	J078	J051	035	031	J038	J030	J024	J041	057M	J054
23	J038	057M	J036	022	024	E017S	032	033	J062	072M	043	J077	169M	E040B	043	038	J052	J053	J048	J051	058M	024	039M	052M
24	J025	023M	022M	E017S	J026	E019S	026	032	J058	J111	085M	113M	071M	112M	067M	J047	J052	041	J049	J043	J027	J051	023	J041
25	042M	027	J027	023	022M	J051	J038	J051	J052	J051	J047	J054	J054	043	042	028G	028G	029	J038	J037	J052	J041	024	023M
26	028M	025M	J022	022	022M	E017S	E017S	032M	C	030G	034	042	042	J054	040	035	040	025G	028	J053	E040S	058M	J052	J053
27	J052	J053	J051	J038	027M	023	030	J050	J053	J075	J056	J110	J109	116	J104	J064	J054	J048	064M	J054	J058	C	C	023M
28	024M	031M	027M	J053	047M	042M	035M	033	J048	J048	J064	059M	048	037	041	J048	J054	J062	J107	J053	J054	090M	058M	043M
29	033M	043M	045M	022M	021M	021M	E017S	030	034	J037	037	037	034	050	062	J053	J054	J055	J053	J053	J053	J025	J035	J054
30	032M	022	022M	021M	040M	021	J052	114M	126M	143M	145M	J050	J047	J054	J051	J042	039	J050	J053	J054	J053	J052	035M	031M
31	J037	J053	J032	027M	035M	027M	037	J053	J054	J064	060	J055	J065	J039	040	032	033	021G	025	J052	031M	023M	024M	J051
No.	31	30	30	30	31	29	29	29	30	31	31	31	31	31	31	31	30	30	31	31	31	30	29	31
Median	037	034M	031M	024M	025M	021	026	J039	J053	J054	J054	J054	J054	052	055	J053	J048	J049	J052	J053	J052	051	039M	J037
U. Q.	052	053	053	038	035	026	037	052	062	072	069	070	071	067	080	064	054	063	064	054	058	058	053	052
L. Q.	022	023	022	021	021	E018	021	033	044	046	046	050	046	046	043	038	039	034	036	037	033	025	026	023
Q. R.	030	030	031	017	014	D008	016	019	018	026	023	020	025	021	037	026	015	029	028	017	025	033	027	029

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 4.

foEs

IONOSPHERIC DATA

May 1965 | **f_bEs** | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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	S	018	E	E	017	A	037	029	053	040	E045R	039	039	050	054	054	054	063	048	050	029	E	022	S
2	S	E	S	S	E	S	021	029	036	037	040	036	037	042	052	065	074	070	A	A	A	E052S	E030S	E025S
3	S	S	S	S	E	019	020	037	043	039	047	039	E038R	047	063	E053S	051	037	028	A	A	A	A	A
4	A	A	A	A	A	A	E041S	A	A	A	A	048	E054S	067	081	E054S	E045R	036	052	A	A	A	E043S	A
5	A	020	019	E	017	022	G	035	039	A	050	048	046	040	036	E058S	E077S	081	036	E053S	E054S	E052S	E053S	A
6	A	A	A	026	E031S	028	G	033	034	E054S	A	A	E068S	A	E066S		032	033	026	021	E	E052S	A	A
7	A	019	E032S	A	A	S	G	039	A	A	A	E061S	E065S	046	036	034	025G		028	022	034	019	E023S	018
8	E	S	S	E	019	E	023	034	047	045	049	040	047	035	035		E041R	034	E041S	E045S	E	019	E	022
9	S	017	S	S	S	S		035	042	047	E054S	046	045	E057S	080	050	E055S	A	A	027	E052S	E031S	C	022
10	E	C	C	C	S	C	C	C	038	045	046	050	054	A	E069S	A	C	C	E062S	E061S	E043S	A	E036S	E052S
11	A	E031S	A	019	A	C	C	C	046	042	042	042	041	046	A	A	A	E072S	026	020	034	E023S	020	E037S
12	019	E022S	019	E	S	S	026	039	049	040	044	E037R	041	039	E070S	039	035	047	A	037	028	045	028	E
13	E	S	018	019	E024S	020	022	035	040	046	047	037	036	039	039	E054S	046	034	049	A	E051S	020	E042S	E036S
14	A	A	A	A	020	019	025	041	047	034	037	047	A	039	039		038	051	A	E054S	050	E051S	A	E022S
15	E024S	E037S	E025S	E031S	E	020	A	036	A	A	A	A	A	A	A	A	042	A	A	A	E060S	A	019	A
16	A	E037S	A	024	021	018	G	043	042	039	A	047	039	050	045	039	045	032	029	E036S	E054S	E052S	E053S	E026S
17	E051S	019	020	032	033	S	031	045	A	E058S	052	A	048	048	053	046	043	E081S	A	E054S	E046S	A	022	E025S
18	A	A	A	A	A	A	035	A	A	A	A	A	044	A	A	E065S	A	E074S	E062S	050	A	E051S	A	A
19	A	A	A	E024S	022	023	033	A	A	046	A	A	051	E084S	088	047	047	049	047	030	E052S	E067S	E039S	E052S
20	E051S	E039S	A	E038S	A	A	034	E062S	056	A	E061S	050	A	048	080	051	035	024G	035	E052S	E043S	E039S	E057S	E026S
21	A	E042S	E	019	E	G	G	036	A	A	047	051	042	041	045	055	037	031	G	E	S	018	S	019
22	S	026	E030S	023	E	S		038	E053S	A	048	E068S	A	056	A	045	034	E031R	036	029	E024S	038	023	E054S
23	038	026	026	019	018	S	027	029	A	A	042	A	A	B	043	038	G	051	043	020	E058S	E024S	E039S	E052S
24	E025S	E023S	019	S	025	S	026	030	055	A	038	A	E071S	A	046	045	042	040	047	043	E027S	046	020	E041S
25	019	E027S	E027S	E	E	025	035	034	036	037	040	054	053	042	041	027G	026G	E029R	035	037	050	E041S	E024S	019
26	019	018	E	E	E	S	S	026	C	E030R	E034R	E042G	042	054	038	E035R	039	025G	025	027	S	027	A	A
27	A	A	A	A	E027S	022	028	041	051	A	E056S	A	A	A	A	E064S	E054S	046	064	054	E058S	C	C	E023S
28	019	026	019	026	A	A	034	032	044	043	A	040	040	E037R	041	047	E054S	E062S	A	053	E054S	A	E058S	E043S
29	029	E043S	E045S	E022S	019	G	S	G	033	035	036	037	E035R	050	E062S	E053S	042	048	040	E053S	E053S	E025S	E035S	A
30	E032S	022	020	020	A	020	045	A	038	A	A	045	047	E054S	044	E042R	037	050	E053S	A	E053S	E052S	E035S	E031S
31	E037S	A	E032S	018	020	023	037	052	048	A	A	E055S	063	038	039	E032R	033	021G	025	E052S	026	020	019	A
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

f_bEs

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 5

IONOSPHERIC DATA

May 1965 | f-min | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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	E017S	E017S	E017S	E017S	009	E016S	E016S	016	018	018	018	018	020	026	027	020	018	017	E016S	E017S	E017S	E018S	E017S	E018S
2	E016S	E017S	E017S	E017S	E017S	E017S	E018S	017	016	018	024	018	018	019	019	018	018	018	018	E016S	E017S	E017S	E016S	E016S
3	E019S	E017S	E017S	E017S	E017S	E017S	E017S	016	018	018	018	025	022	022	018	018	019	018	E017S	E017S	E017S	E017S	E016S	E017S
4	E017S	E016S	E016S	E016S	E017S	E017S	E017S	017	017	019	018	026	022	020	019	020	018	017	E016S	E017S	E018S	E017S	E016S	E017S
5	E016S	E016S	E016S	E016S	006	E017S	E017S	017	017	018	018	019	018	020	019	019	018	017	E018S	E017S	E017S	E017S	E018S	E017S
6	E017S	E017S	E017S	007	E016S	E017S	E017S	016	017	018	022	022	019	019	019	018	018	017	E017S	E016S	E017S	E017S	E017S	E017S
7	E016S	E016S	E017S	E016S	E017S	E016S	E018S	016	016	026	019	019	033	020	023	018	020	017	E016S	E017S	E017S	E016S	E017S	E016S
8	E017S	E017S	E017S	E016S	010	E016S	E017S	017	017	018	018	020	019	019	018	018	018	017	E016S	E017S	E017S	E017S	E017S	E016S
9	E017S	E016S	E017S	E016S	E017S	E017S	E017S	017	017	018	019	024	026	020	025	019	017	017	E018S	E016S	E017S	E017S	C	E016S
10	E017S	C	C	C	E018S	C	C	C	017	017	018	018	018	024	026	018	C	C	E017S	E016S	E017S	E018S	E017S	E017S
11	E017S	E016S	E016S	E017S	E017S	C	C	C	016	019	020	018	031	022	018	019	018	017	E016S	E017S	E017S	E017S	E017S	E017S
12	E017S	E017S	E017S	E017S	E017S	E017S	E018S	017	016	019	025	026	019	022	019	019	017	017	E017S	E017S	E017S	E017S	E016S	E017S
13	E017S	E018S	E017S	009	E016S	E016S	E016S	016	017	018	019	019	027	026	022	019	017	017	E017S	E017S	E018S	E017S	E017S	E016S
14	E016S	E016S	E016S	E017S	E016S	E017S	E017S	016	017	020	025	025	026	026	026	028	020	017	017	E017S	E017S	E017S	E016S	E017S
15	E017S	E017S	E016S	E016S	E017S	E017S	E017S	017	017	022	025	033	034	025	018	026	019	018	017	E017S	E017S	E017S	E017S	E017S
16	E017S	E017S	E017S	E016S	E017S	E017S	E016S	018	016	019	026	026	026	025	032	020	025	017	017	E018S	E017S	E017S	E017S	E016S
17	E017S	E017S	E017S	E014S	E017S	E018S	E017S	017	018	027	024	026	034	035	036	026	018	018	E016S	E017S	E017S	E017S	E017S	E017S
18	E017S	E017S	E017S	E016S	E016S	E017S	E017S	016	018	019	027	019	026	027	026	025	018	017	E016S	E017S	E017S	E016S	E017S	E017S
19	E016S	E017S	E016S	010	E015S	E017S	E017S	016	017	018	018	022	026	026	019	020	020	017	E016S	E017S	E018S	E017S	E017S	E017S
20	E016S	E017S	E017S	E017S	E017S	E017S	E017S	017	018	023	019	027	035	034	022	025	018	018	E017S	E016S	E016S	E017S	E017S	E017S
21	E017S	E017S	E017S	E017S	E016S	E017S	E018S	017	017	026	026	027	036	025	020	022	019	018	017	E017S	E017S	E017S	E018S	E017S
22	E019S	E017S	E017S	009	E017S	E017S	E017S	017	018	018	024	026	026	025	025	026	020	017	E016S	E018S	E017S	E017S	E018S	E017S
23	E017S	E017S	E017S	E017S	E017S	E017S	E017S	017	017	019	032	026	035	040	036	019	019	016	E017S	E016S	E017S	E017S	E017S	E017S
24	E016S	E017S	E017S	E017S	E017S	E019S	E017S	017	018	019	027	027	032	026	024	022	019	017	E017S	E017S	E017S	E016S	E018S	E017S
25	E017S	E017S	E017S	E017S	013	E017S	E016S	017	019	018	019	020	026	018	025	019	018	018	E016S	E016S	E017S	E017S	E016S	E017S
26	E017S	E017S	E017S	E017S	E018S	E017S	E017S	017	C	018	026	026	026	026	025	026	017	017	E017S	E018S	E040S	E017S	E017S	E017S
27	E017S	E017S	E017S	E016S	E017S	E016S	E017S	017	018	024	025	026	027	026	026	026	018	017	E016S	E017S	E017S	C	C	E017S
28	E017S	E016S	E018S	E014S	009	E016S	E017S	017	019	018	018	026	027	027	026	026	020	018	019	E016S	E016S	E016S	E017S	E016S
29	E017S	E017S	E016S	E017S	E017S	E017S	E017S	018	018	018	019	026	026	026	019	019	018	017	017	E018S	E018S	E017S	E017S	E017S
30	E017S	E018S	E017S	E017S	E017S	E017S	E018S	018	018	019	016	032	027	032	026	019	023	019	019	E018S	E017S	E017S	E017S	E017S
31	E017S	E016S	E016S	E017S	E017S	E017S	E017S	017	018	018	026	026	026	034	034	018	018	019	E017S	E017S	E018S	E017S	E018S	E017S
No.	31	30	30	30	31	29	29	29	30	31	31	31	31	31	31	31	30	30	31	31	31	30	29	31
Median	E017S	E017S	E017S	E016S	E017S	E017S	E017S	017	017	018	020	026	026	025	024	019	018	017	E017S	E017S	E017S	E017S	E017S	E017S
U. Q.																								
L. Q.																								
Q. R.																								

f-min

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 6

IONOSPHERIC DATA

May 1965 | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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	S	I295S	I310S	I325S	J340S	A	365	J375S	355	370	325	275	I300S	J310S	J300S	J320S	325S	I315S	315S	J345S	I340S	I330S	J295S	I305S
2	310S	305S	J285S	I305S	335	F	J355S	I355S	I375S	360	305	300	J295S	J280S	J295S	J315S	J330S	J330S	A	A	A	S	S	S
3	310	310	325S	315S	320S	320	I355S	365	345	350	335S	280S	J285S	I300S	315	J325S	340	315S	I310H	I320A	A	A	A	A
4	A	A	A	A	A	I330A	I345S	A	A	A	A	U275S	J280S	J305S	J320S	J320S	J325S	J335S	J325S	A	A	A	S	A
5	A	S	S	325S	I325S	I310S	355S	375	350	A	320	290	285S	I270S	280	J290S	J300S	I325S	U335S	I325S	S	S	S	A
6	A	A	A	295S	I290S	340S	385	395	355	I325S	I310A	A	S	A	J305S	J305S	J305S	305S	I335S	I345S	I340S	S	A	A
7	A	S	S	I310A	I325A	320S	360S	345	A	A	A	S	280	290	J290S	J300S	U315S	I315S	S	S	S	S	S	S
8	S	I295S	I305S	320S	295S	U295S	365	370S	345	350	300	290	J285S	J295S	J310S	300	I330S	310	J345S	I330S	I340S	I330S	275	S
9	S	290	J290S	295S	I340S	315	360	345	315	I300S	I320S	280	J295S	I315S	310S	300S	J325S	A	A	340S	I320S	I295S	I285C	I285S
10	I280S	I295C	I275C	I305C	355S	C	C	C	355	340	305	270S	285S	I300A	I300S	A	C	C	S	S	U310S	A	S	S
11	A	S	A	S	A	C	C	C	350	330	320	I285S	I285S	S	A	A	A	S	S	S	J315S	S	S	S
12	S	S	S	S	I300S	U300S	350	335	I350S	365	310	I270S	290	295	I305S	J310S	I320S	I335S	I330A	315S	S	S	J310S	295
13	S	S	295S	330	365S	335	I345S	335	350	325	U295S	I300S	I295S	U300S	I310S	S	S	S	S	A	S	S	S	S
14	A	A	A	A	I320S	I320S	335S	325S	320	330	I320S	I300S	I295A	I285S	J285S	I300S	I315S	S	A	S	S	S	A	S
15	S	S	S	S	I350S	I355S	I360A	345	A	A	A	A	A	A	A	A	J325S	A	A	A	S	A	S	A
16	A	S	I360A	I365S	I345S	I315S	320S	I330S	I325S	310	I295A	I280S	280	J295S	J295S	305S	I315S	S	S	S	S	S	S	S
17	S	S	S	370S	315S	J300S	300	335	A	S	295	I290A	290S	J295S	275S	I290S	I305S	J320S	A	S	S	A	S	S
18	A	A	A	A	A	A	J370S	I360A	I330A	A	A	A	300S	A	A	S	I290A	315	S	S	A	S	A	A
19	A	A	A	I305S	U295S	315	355	I355A	I370A	S	A	A	275	I290S	S	S	S	I315S	S	S	S	S	S	S
20	S	S	A	S	A	A	340S	I340S	340S	I325A	I320S	I300S	I280A	I290S	290S	J310S	I315S	S	S	S	S	S	S	S
21	A	I290S	300S	I320S	J300S	I320S	355S	380	I340A	I330A	305	285S	I290S	I290S	I290S	J310S	J315S	S	S	S	S	J305S	J290S	I280S
22	J275S	J295S	I310S	325S	I305S	J315S	340S	325S	S	A	310	S	A	S	A	290S	S	S	S	S	S	S	I290H	I275S
23	285S	S	S	300S	I305S	320S	I350S	340S	A	A	290	I280A	I275A	I285S	J295S	I295S	S	S	S	S	S	S	285S	S
24	S	I320S	335	315S	305	315S	335	I335S	315S	I315A	I320S	A	S	A	280	S	J315S	I305S	S	S	S	S	I290S	U280S
25	S	S	S	320	I335S	I340S	350	350	310	S	I290S	U280S	300	U320S	S	S	S	S	S	S	S	S	S	S
26	S	S	S	S	S	290S	335	I340S	I335C	300	275	I280S	I290S	S	S	S	S	S	S	S	S	S	A	A
27	A	A	A	A	S	315S	340S	370S	345S	A	S	A	A	A	A	300	I315S	325S	S	S	S	C	C	J310S
28	300	I305S	I310S	I305S	I300A	I290A	320	I325S	I355S	340	I330A	300	265	290	I290S	305S	J310S	325S	A	S	S	A	S	S
29	300	S	S	S	S	340	315	I365S	345	J300S	300	I295S	295	295S	I300S	I300S	S	S	S	S	S	S	S	A
30	S	S	305S	S	A	I320S	350S	I330A	J310S	A	A	280	I295S	270S	I295S	I295S	I315S	I330S	S	A	S	S	S	S
31	S	A	S	305	I295S	285S	300S	335S	360	A	A	S	295S	290S	I295S	I305S	U325S	300S	S	S	S	S	S	A
No.	7	10	13	20	23	25	29	28	25	18	23	22	26	23	23	22	22	17	7	7	6	4	8	7
Median	300S	U295S	305S	315S	U320S	315S	350S	345S	345	330	310	U280S	290S	295S	295S	300S	U315S	315S	U330S	U330S	U330S	U320S	290S	U285S
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F2

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 7

IONOSPHERIC DATA

May 1965 | M(3000) F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12. 1'N | Long. 130° 37. 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									A	A	A	370R	375H	A	A	A	A	A	A					
2								L	370	395	375	430R	380H	A	A	A	A	A	A					
3									A	370	A	400	R	A	A	A	A	L						
4								A	A	A	A	A	A	A	A	A	A	L						
5								A	A	A	A	A	A	375	395R	A	A	A						
6										A	A	A	A	A	I360A	380	370	340	L					
7								A	A	A	A	A	A	A	385	370	365	L	L					
8									A	A	I370A	375	I370A	395H	395H	380	A	L	A					
9									A	A	A	A	A	A	A	A	A	A	A					
10							C	C	A	A	A	A	A	A	A	A	C	C	A					
11							C	C	A	A	A	A	405	A	A	A	A	A	L					
12								A	A	A	A	415R	360	385	I375A	375	365	A						
13								A	A	A	A	420	420H	370H	370	A	A	L	A					
14							L	A	A	395	400H	L	I390A	400	385	380	365	A	A					
15								A	A	A	A	A	A	A	A	A	A	A	A					
16							L	A	A	355	A	A	390	A	A	395	A	360	L					
17							L	A	A	A	A	A	A	A	A	A	A	A	A					
18								A	A	A	A	A	A	A	A	A	A	A	A					
19								A	A	A	A	A	A	A	A	A	A	A	A					
20								A	A	A	A	A	A	A	A	A	365	350	A					
21								A	A	A	I375A	A	375	365	I380A	I370A	350	365	LH					
22							375	L	A	A	A	A	A	A	A	A	350	350L	A					
23								L	A	A	L	I390A	I375A	400R	A	365	375	A	A					
24							L	L	A	A	360R	A	A	A	A	I380A	A	A	A					
25								L	LH	400	355	A	I390A	390	370	385	370R	355	A					
26							L	L	C	L	400	C	380	I375A	385	375H	365	365	355					
27								A	A	A	A	A	A	A	A	A	A	A	A					
28							A	L	A	A	A	395	420R	380	385	A	A	A	A					
29							L	L	380	375	400	410	405	A	A	A	A	A	A					
30								A	L	A	A	I410A	A	A	A	R	350	A	A					
31							A	A	A	A	A	A	A	410	420R	380	365	375	345R					
No.							1		2	6	8	10	14	11	12	12	12	8	2					
Median							375		375	385	375	405	385	385	385	380	365	360	350					
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F1

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 8

IONOSPHERIC DATA

May 1965 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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									E300A	250	320	420	340	295	310	295	280	E320A	290					
2								240	245	260	325	365	340	340	340	300	280	290	A					
3									275	280	305	380	350	315	300	280	250	285						
4								A	A	A	A	390	350	325	300	290	260	255						
5								245	260	A	E330A	400	380	390	350	340	310	290						
6										A	A	A	A	A	E350S	305	300	300	260					
7								250	A	A	A	A	E420A	320	300	310	300	290	250					
8									E290A	280	370	370	380	340	300	290	290	285	295					
9									290	320	A	400	340	300	E350A	310	E300S	A	A					
10							C	C	275	295	340	E425A	E390A	A	E340S	A	C	C	A					
11							C	C	265	295	330	355	330	295	A	A	A	A	250					
12								300	245	250	310	400	395	345	I350A	300	270	280						
13								250	260	310	350	320	345	315	305	E320A	295	305	280					
14							250	E300A	345	295	290	375	I345A	350	335	310	280	280	A					
15								250	A	A	A	A	A	A	A	A	280	I330A	I295A					
16							250	280	240	330	I355A	365	350	320	300	300	275	260	270					
17							325	285	A	A	E390A	I360A	350	350	395	345	300	300	A					
18								A	A	A	A	A	380	A	A	A	A	E350S	A					
19								A	A	345	A	A	405	A	E350A	300	300	270	260					
20								A	I300A	A	A	350	A	350	350	295	290	270	265					
21								230	A	A	360	380	365	350	330	300	275	275	280					
22							250	295	A	A	345	A	A	370	I350A	335	325	290	270					
23								250	A	A	350	I385A	I355A	360	330	320	305	320	280					
24							260	270	E330A	A	315	I335A	I370A	A	340	315	285	285	300					
25								245	L	325	350	405	320	295	340	350	345	310	265					
26							285	230	C	350	430	330	360	375	350	340	320	290	275					
27								250	285	A	A	A	A	I360A	I350A	340	300	270	A					
28							290	310	240	300	I310A	390	440	395	380	340	300	I290A	I255A					
29							300	245	255	365	370	320	350	325	I320A	330	I310A	350	300					
30								A	300	A	A	405	360	375	330	345	295	320	A					
31							285	280	255	A	A	A	E395A	340	340	300	300	340	300					
No.							9	19	19	16	20	23	26	25	28	27	28	28	19					
Median							285	250	265	300	340	380	355	340	335	310	300	290	275					
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

h'F2

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

Y 9

IONOSPHERIC DATA

May 1965 | h'F km | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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	305	295	290	240	E240A	I250A	270	225	I235A	A	I200A	240	225H	A	A	A	A	A	A	250	215	210	310	280
2	255	295	320	300F	260	300F	240	240	245	220	E245A	190	190H	A	A	A	A	A	A	A	A	A	A	A
3	E290S	300	300	270	275	250	225	245	A	E250A	A	195	I230A	A	A	A	A	A	280H	I265A	A	A	A	A
4	A	A	A	A	A	I280A	I260A	A	A	A	A	A	A	A	A	A	A	I240A	260	A	A	A	A	A
5	A	340	275	255	255	E315A	230	A	A	A	A	A	A	E250A	220	A	A	A	250	I250A	A	A	A	A
6	A	A	A	E340A	A	260	225	220	230	A	A	A	A	A	I260A	225	220	E270A	250	220	205	A	A	A
7	A	330	I305A	A	A	300	250	A	A	A	A	A	A	A	220	215	215	240	I250A	250	260	240	I285A	300
8	290	290	280	250	290	260	240	250	A	A	I215A	240	A	190H	210H	230	A	A	A	270	210	215	300	300
9	295	300	280	260	225	E300S	230	250	A	A	A	A	A	A	A	A	A	A	A	255	A	A	I300C	300
10	300	I300C	I290C	I255C	210	C	C	C	A	A	A	A	A	A	A	A	C	C	A	A	300	A	A	A
11	I250A	I250A	I260A	205	A	C	C	C	A	A	A	I230A	E250A	A	A	A	A	A	250	235	275	300	315	I300A
12	270	310	305	265	E270S	E270S	250	A	A	A	I205A	200	E250A	230	I240A	E255A	E250A	A	A	270	290	240	290	295
13	305	280	280	235	230	250	230	A	A	A	A	200	180H	245H	250	A	A	250	I285A	I270A	I230A	200	A	A
14	A	A	A	A	280	250	230	I215A	I210A	220	195H	A	I225A	225	230	245	265	A	A	A	E250A	A	A	325
15	A	A	A	A	230	250	I245A	A	A	A	A	A	A	A	A	A	A	A	I245A	I260A	A	A	300	A
16	A	A	A	240	E280A	E260A	235	A	A	E240A	A	A	215	A	A	245	I250A	240	250	E305S	A	A	A	A
17	A	280	250	245	E240A	290	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	350	I345A
18	I340A	A	A	A	A	A	240	A	A	A	A	A	E320A	A	A	A	A	A	A	310	I290A	A	A	A
19	A	A	A	I255A	E310A	290	255	A	A	A	A	A	A	A	A	A	A	A	A	250	A	A	A	E350S
20	E320S	I265A	A	A	A	A	255	A	A	A	A	A	A	A	A	A	220	245	I255A	A	280	A	A	A
21	A	I290A	260	250	275	250	245	A	A	A	A	I215A	E250A	E250A	A	A	250	230	235H	250	230	250	295	300
22	300	320	E325S	250	240	255	200	A	A	A	A	A	A	A	A	A	245	240	I250A	245	255	E305S	300H	A
23	310	E340A	300	260	280	245	245	230	A	A	E270A	A	A	215	A	245	210	I235A	I250A	275	I270A	I250A	E320S	I310A
24	300	I260A	245	230	300	260	240	240	A	A	225	A	A	A	A	I230A	A	A	A	260	230	E260S	300	E350S
25	325	I325A	E330S	255	230	245	250	230	200H	180	250	I230A	I225A	E250A	E250A	220	230	230	I235A	250	240	A	I340A	330
26	345	295	260	290	290F	295	230	220	I215C	195	200	I235C	E250A	A	225	215H	E270A	220	215	225	E250S	275	A	A
27	A	A	A	A	I285A	250	255	A	A	A	A	A	A	A	A	A	A	A	A	A	A	C	C	E270S
28	270	E295A	290	320	A	A	A	245	A	A	A	220	205	245	250	A	A	A	A	E275A	A	A	A	A
29	300	I290A	I295A	275	250	240	225	240	220	220	200	210	210	A	A	A	A	A	A	A	A	A	A	A
30	A	290	250	250	A	250	270	A	E260A	A	A	I195A	A	A	A	A	E250A	A	A	A	250	A	A	A
31	A	A	I250A	275	E340A	E340A	A	A	A	A	A	A	A	210	220	220	245	225	245	A	240	230	305	I290A
No.	18	22	22	24	23	26	26	13	8	7	10	13	14	10	11	11	13	12	16	21	19	12	14	15
Median	300	290	280	255	U255	255	240	240	220	U210	205	215	U210	U225	230	230	U230	240	250	250	245	240	300	300
U. Q.																								
L. Q.																								
Q. R.																								

h'F

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 10

IONOSPHERIC DATA

May 1965 | h'Es | km | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'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	S	120	120F	100	100	140	140	140	120	120	110	110	175	140	135	130	130	125	125	120	120	115	120	S
2	S	105	S	S	105	S	145	140	130	125	120	120	125	160	145	130	130	125	125	120	120	120	120	120
3	S	S	S	S	110	110	140	125	120	115	110	110	115	150	140	145	135	135	135	120	120	120	120	115
4	110	110	100	110	110	125	130	125	115	115	115	110	110	110	120	120	120	140	125	120	120	120	115	110
5	110	110	110	110	110	110	155	140	130	120	120	120	120	120	120	145	125	125	120	120	115	115	110	110
6	110	115	115	110	105	105	155	140	130	120	120	115	120	120	130	G	145	130	125	120	120	115	115	115
7	115	105	100	120	100	S	145	125	120	115	115	115	110	110	120	120	115	G	100	100	125	100	100	100
8	110	S	S	105	100	105	140	130	120	120	115	120	115	115	105	G	145	145	130	120	120	120	110	115
9	S	100	S	S	S	S	G	130	130	125	120	125	125	120	120	120	130	125	120	120	120	115	C	110
10	105	C	C	C	S	C	C	C	135	125	120	115	120	130	125	125	C	C	115	110	110	110	120	110
11	105	105	105	100	105	C	C	C	120	120	115	110	110	110	105	105	105	110	105	105	105	130	120	120
12	120	100	100	100	S	S	125	120	120	110	110	110	110	105	100	100	105	125	125	120	120	110	110	110
13	110	S	100	100	100	100	105	125	125	120	115	140	130	105	110	125	125	125	115	110	110	110	105	110
14	110	110	105	100	100	110	130	120	120	110	115	105	105	105	130	G	150	120	115	110	110	105	105	115
15	110	105	105	100	100	130	130	130	120	115	110	115	110	120	120	120	125	130	125	110	120	120	115	110
16	105	105	100	100	100	100	140	120	110	110	110	110	110	110	105	110	145	145	115	110	120	120	120	115
17	110	105	105	110	110	S	135	130	120	115	115	110	110	105	130	145	135	130	120	120	120	115	120	115
18	110	110	105	105	105	100	140	130	125	120	120	115	120	115	105	135	130	125	120	120	120	120	120	115
19	105	110	105	100	100	100	130	120	120	120	115	115	115	110	105	105	105	105	100	100	100	120	120	120
20	115	110	105	105	100	100	140	130	125	120	115	120	115	115	105	120	105	105	130	120	120	125	120	120
21	110	110	105	100	100	100	100	125	120	120	115	125	125	125	120	115	120	115	170	110	S	105	S	105
22	S	120	120	120	120	S	G	145	130	130	115	110	110	110	110	110	115	110	125	120	105	115	105	115
23	110	110	110	105	120	S	140	125	115	115	120	120	115	B	135	145	130	105	105	105	110	120	115	115
24	105	100	105	S	110	S	140	140	120	120	120	120	115	110	115	110	140	130	125	120	120	120	120	110
25	110	110	110	110	115	115	120	115	115	110	110	110	115	150	140	110	110	155	120	110	100	100	100	100
26	110	110	110	110	110	S	S	105	C	110	110	145	145	125	130	145	130	110	135	115	S	110	105	115
27	110	110	100	100	100	100	130	125	120	120	120	115	110	105	105	105	110	105	100	100	100	C	C	100
28	105	115	110	115	115	110	110	115	110	110	105	110	110	120	150	140	125	120	120	115	115	120	120	110
29	105	100	100	100	100	100	S	160	105	115	115	115	120	150	145	140	135	130	125	120	115	115	105	105
30	100	105	100	100	125	120	120	115	115	110	110	110	110	105	105	100	140	130	120	120	120	120	120	115
31	110	105	100	100	100	100	130	125	120	115	115	115	115	115	110	115	105	105	135	120	120	125	120	120
No.	26	27	26	26	28	20	25	29	30	31	31	31	31	30	31	28	30	29	31	31	29	30	28	30
Median	110	110	105	100	105	105	135	125	120	120	115	115	115	115	120	120	130	125	120	120	120	120	120	115
U. Q.																								
L. Q.																								
Q. R.																								

h'Es

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 11

IONOSPHERIC DATA

May 1965 | Types of Es | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		f2	f	f	f	f3f	h312	h212	c212	h 1	12	1	h	h	h	h2	h2	c3	c4	f2	f4	f	f2	
2		f			f		h2	h	h	h	c	c	c	h 1	h 1	h4	h3	c5	c3	f3	f2	f2	f4	f
3					f	f	h	h3	h2	c2	c2	c	c	h	h2	h2	h2	h2	h2	f4	f3f	f3	f5	f2
4	f5	f3	f2	f3	f2	f2	h3	c3	c3	c5	c2	1	12	13	c21	c21	c2	h2	c3	f2	f3	f2	f2	f4
5	f2	f3	f2	f	f2	f6	h	h2	h	c 1	c	c	c	c	c	h2c	h2	h4	c2	f2	f2	f2	f2	f2
6	f2	f2	f2	f3	f4	f4	h 12	h2	h	c2	c2	c2	c2	c3	h2		h	h2	c	f2	f	f3	f5	f5
7	f3	f3	f2	f f2	f2		h	c3	c3	c2	c3	c4	c2	c2	c	c	1		14	f4	f f3	f3	f2	f
8	f			f	f2	f	h3	h2	c2	c2	c2	c	c2	c	1		h	h2	c2	f3	f	f	f	f2
9		f						h	h	c2	c2	c	c	c2	c2	c2	h5	c2	c5	f2	f2	f2		f
10	f								h2	h	h	c2	h	h	h2	h			c2	f2	f2	f3	f2	f2
11	f3	f2	f2	f	f4				h3	h	c	12	1	12	13	12	13	12	12	f2	f2	f	f2	f2
12	f2	f2	f	f			c	c2	c2	c2	c2	c	12	1	12	12	1 h	h21	c4	f2	f6	f	f2	f
13	f		f	f2	f3	12	1 h	h	h2	c2	c2	h 1	h 1	1	1	h31	h2	h	c2	f2	f2	f2	f2	f2
14	f2	f3	f2	f3	f3	1	h2	h2	c5	1	1	12	12	1	h		h	c2	c3	f2	f2	f2	f2	f3
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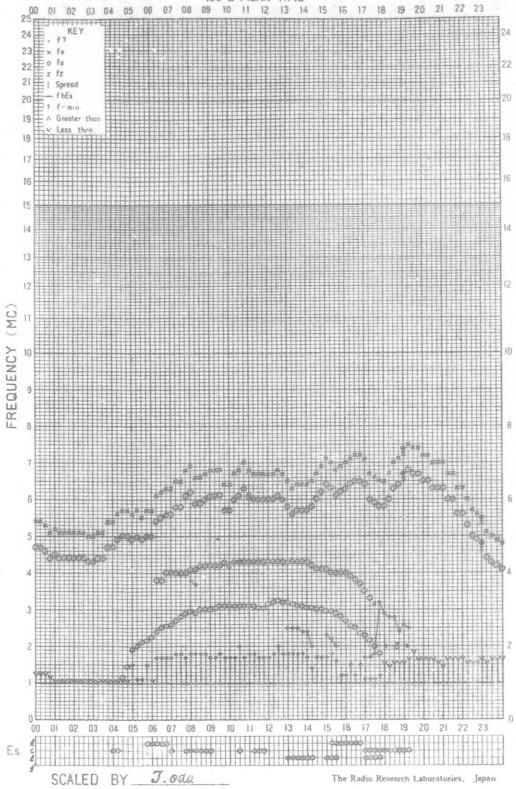
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 1.1965



SCALED BY J. Oda

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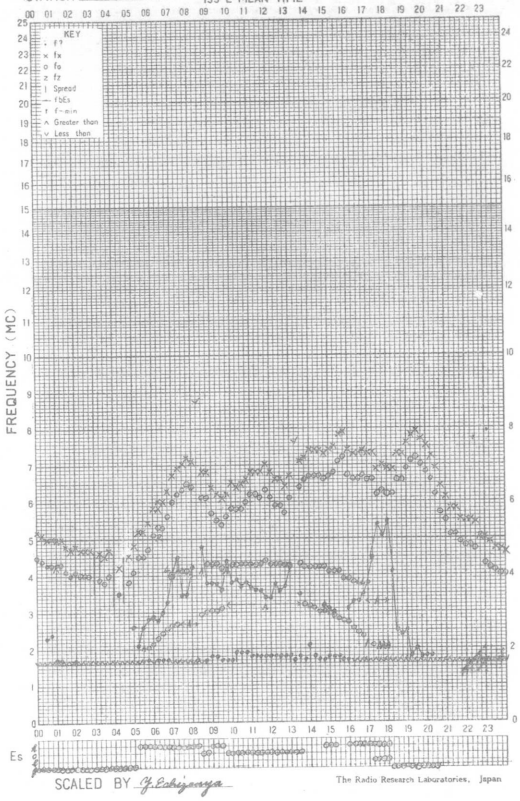

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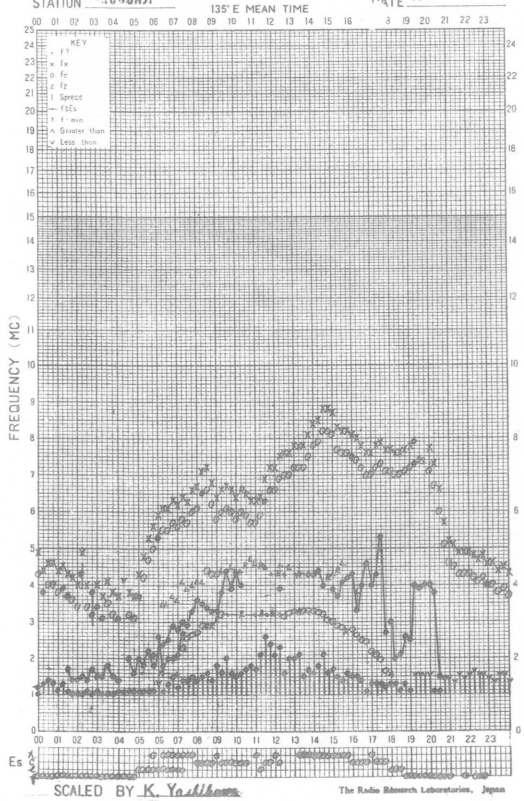

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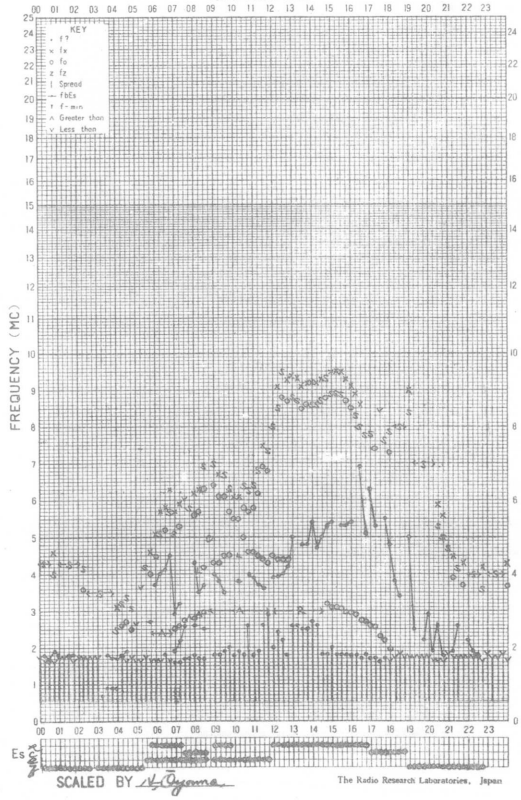

SCALED BY H. Oyama

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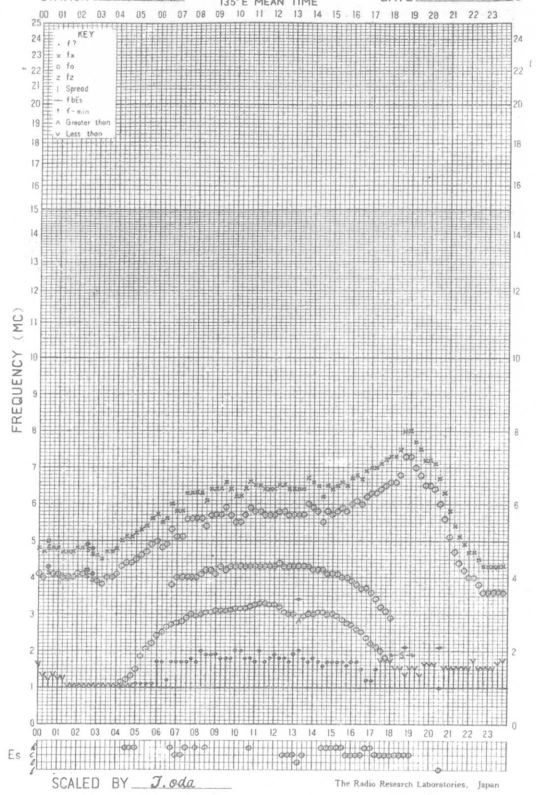

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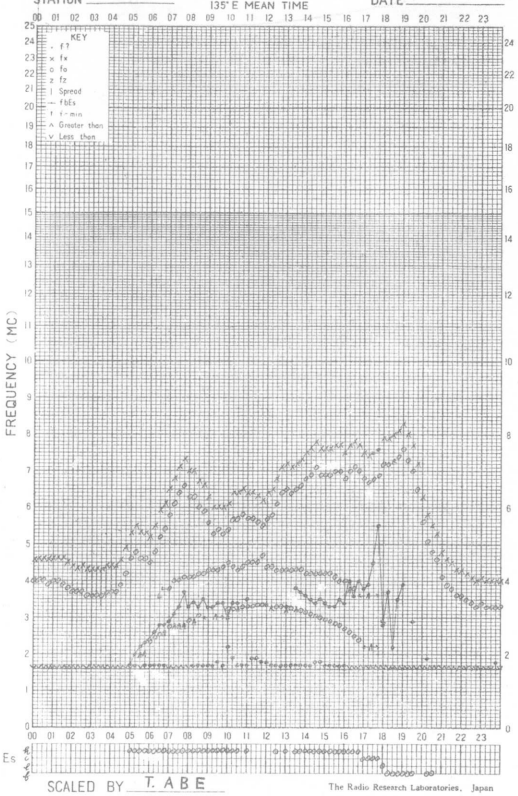

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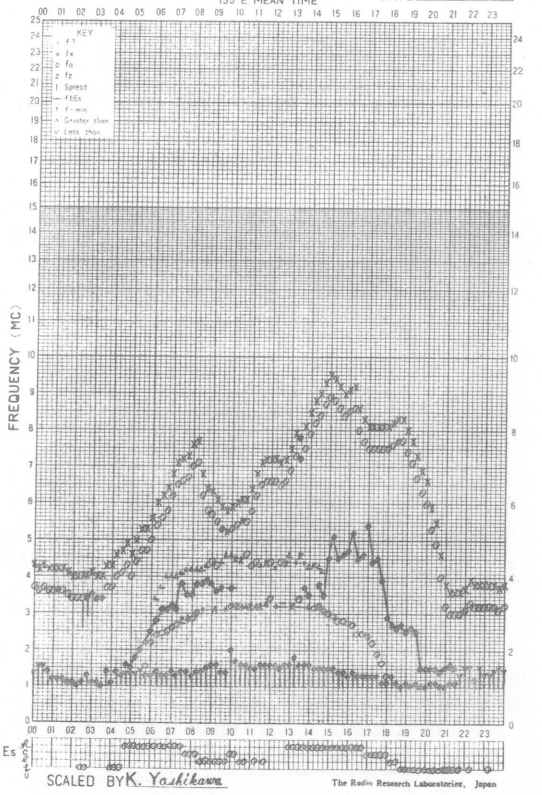

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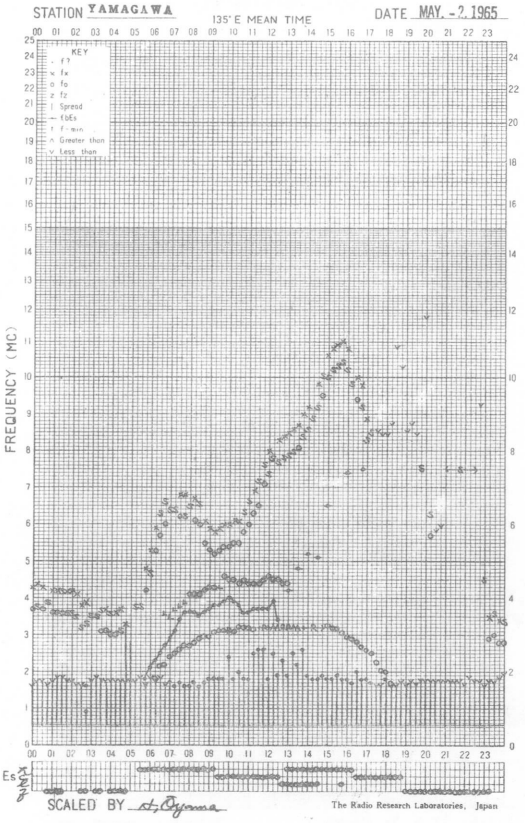

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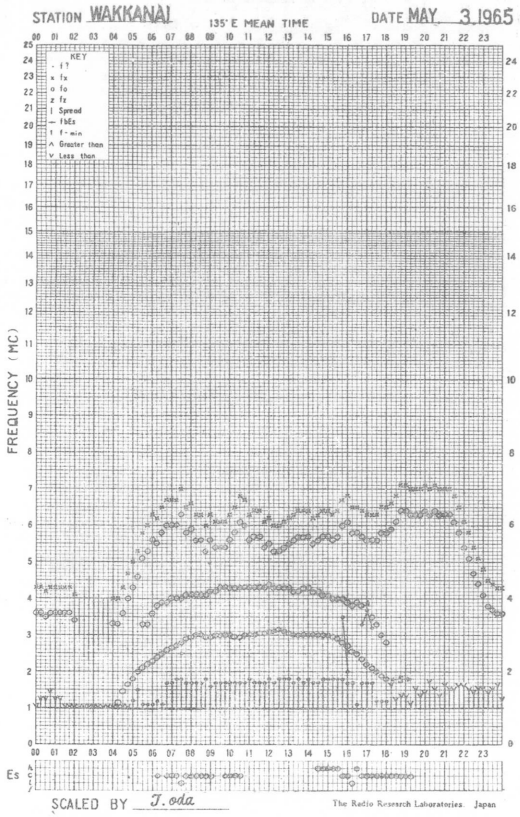

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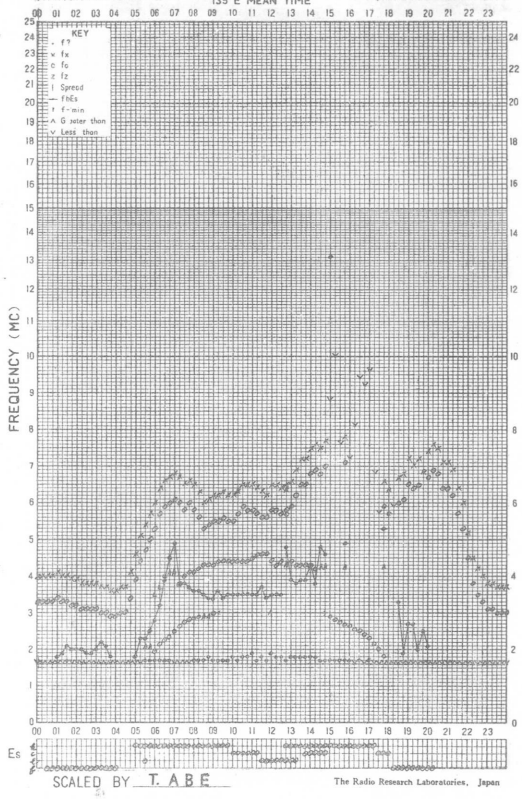

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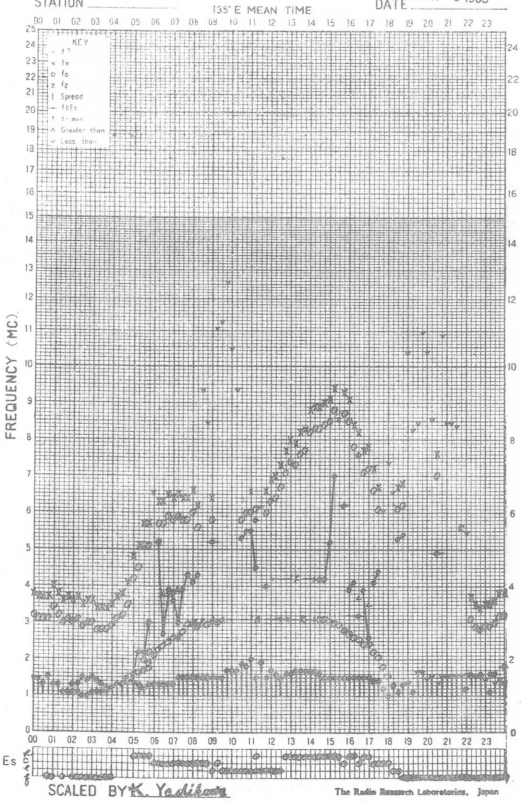

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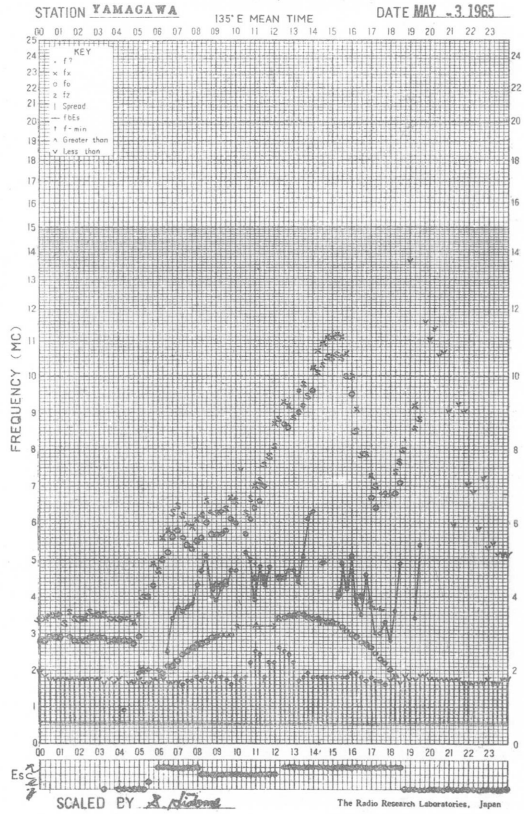

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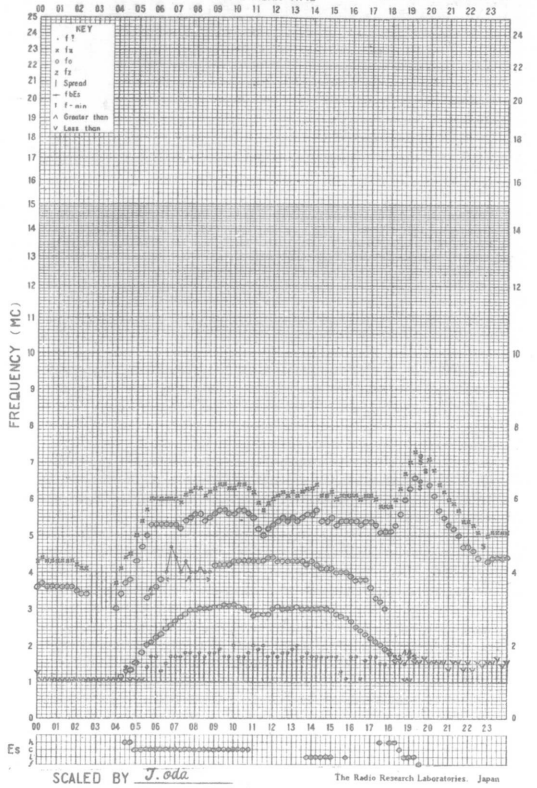

SCALED BY J. oda

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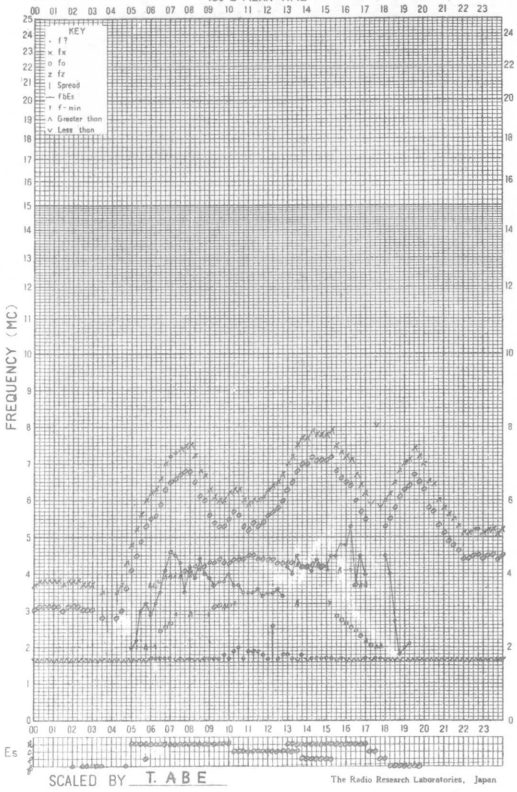

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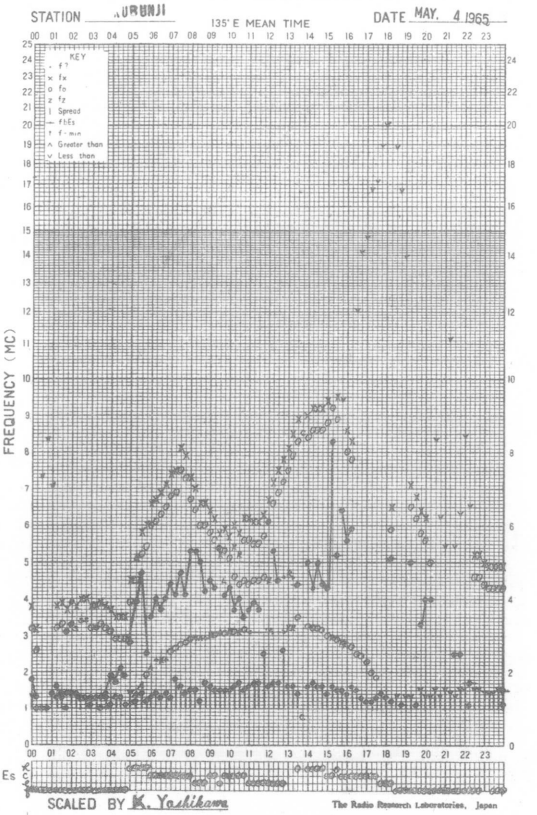

SCALED BY K. Yoshikawa

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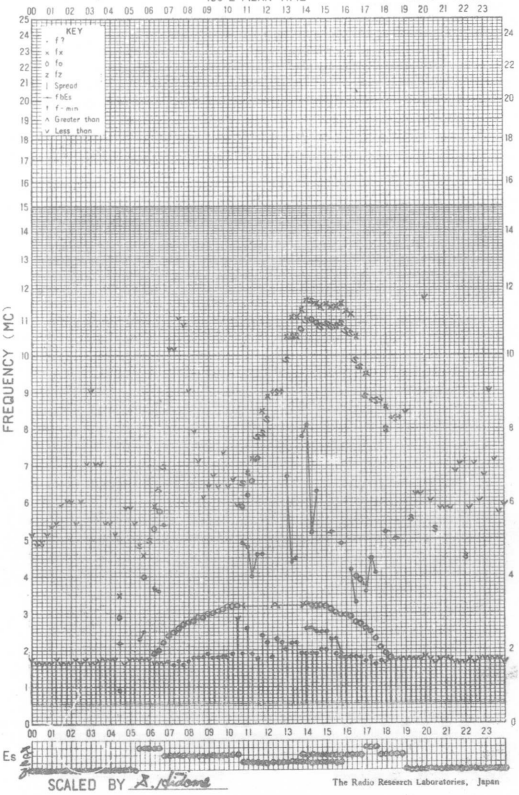

SCALED BY A. Sakova

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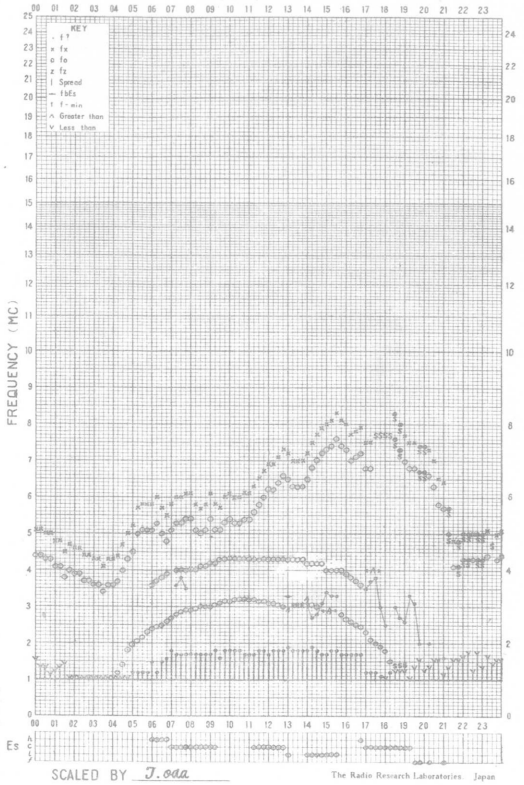

SCALED BY T. oda

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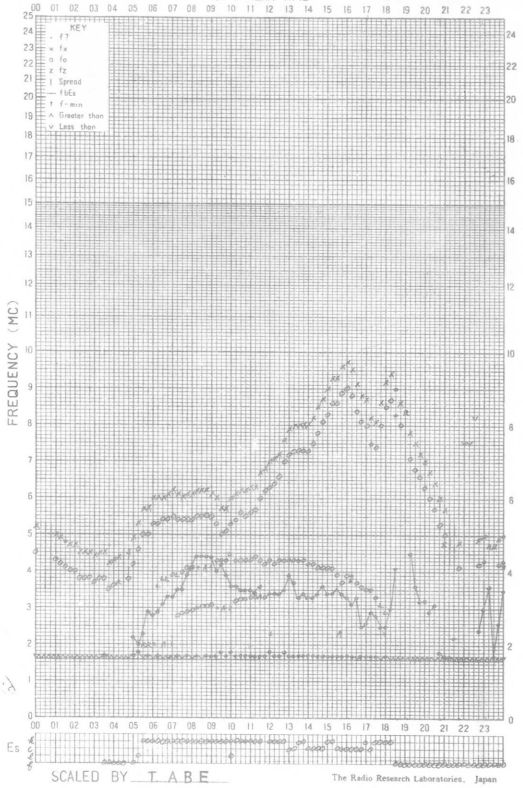

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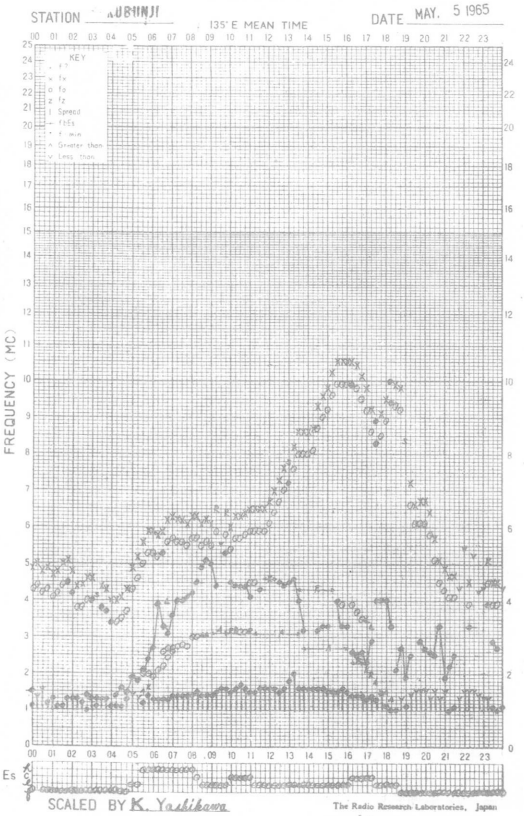

SCALED BY K. Yasbikawa

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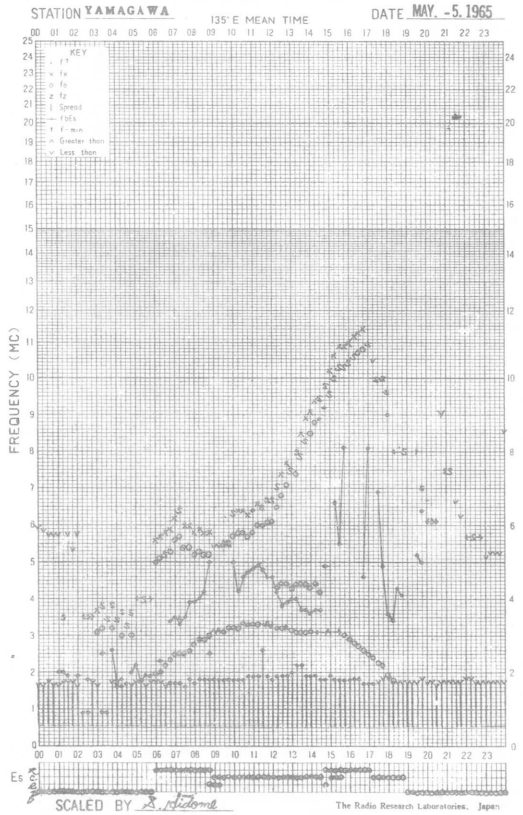

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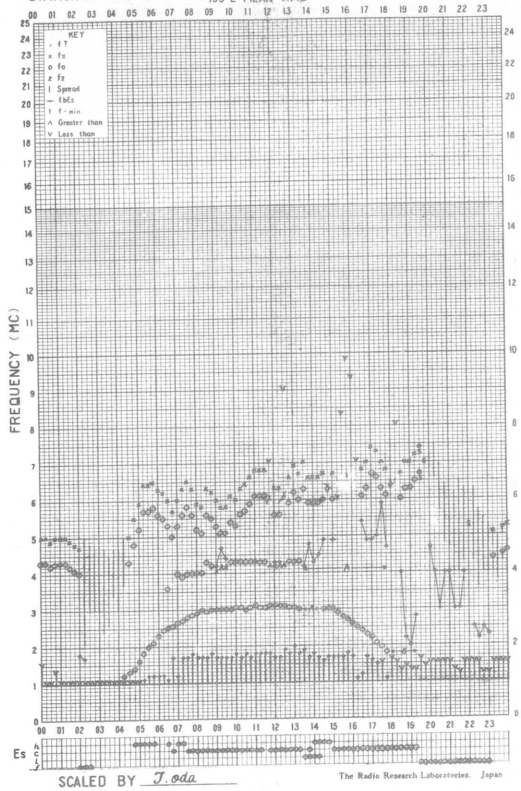

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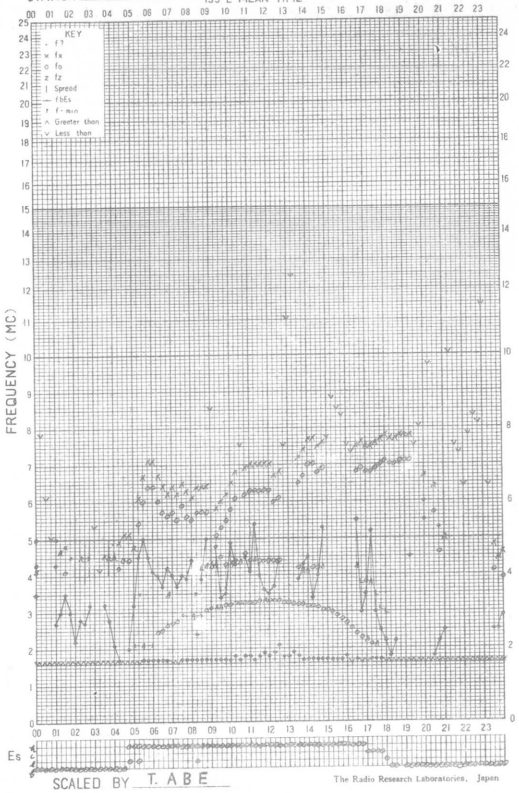

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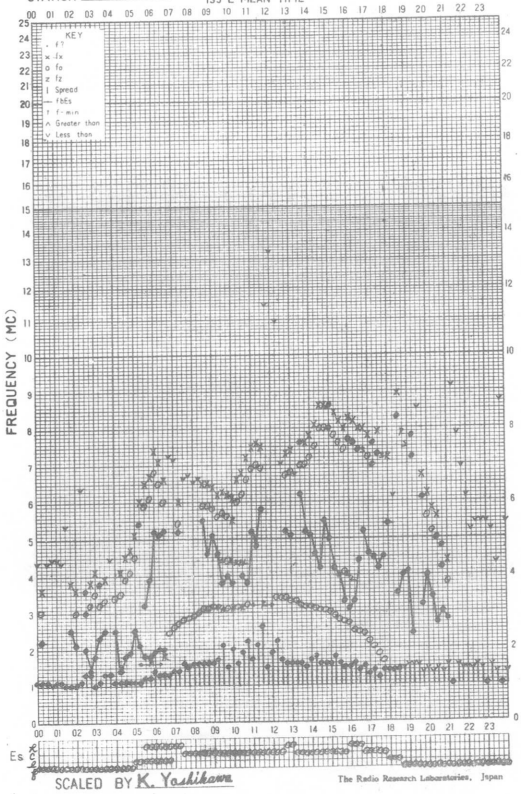

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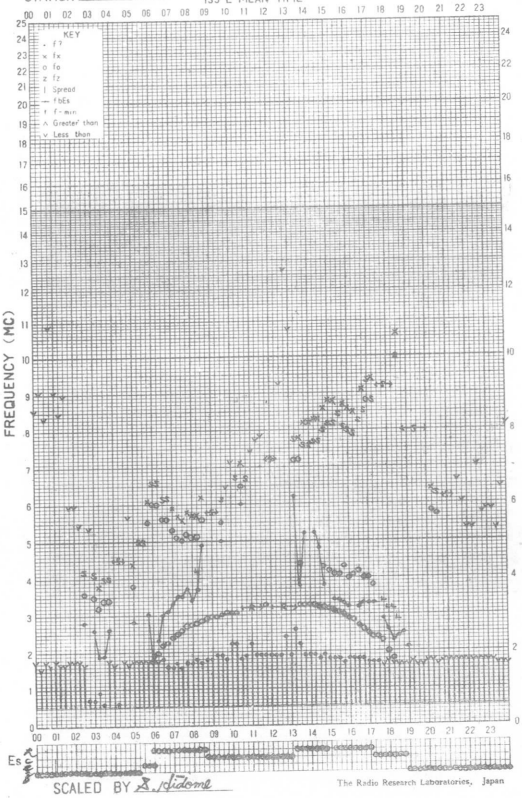

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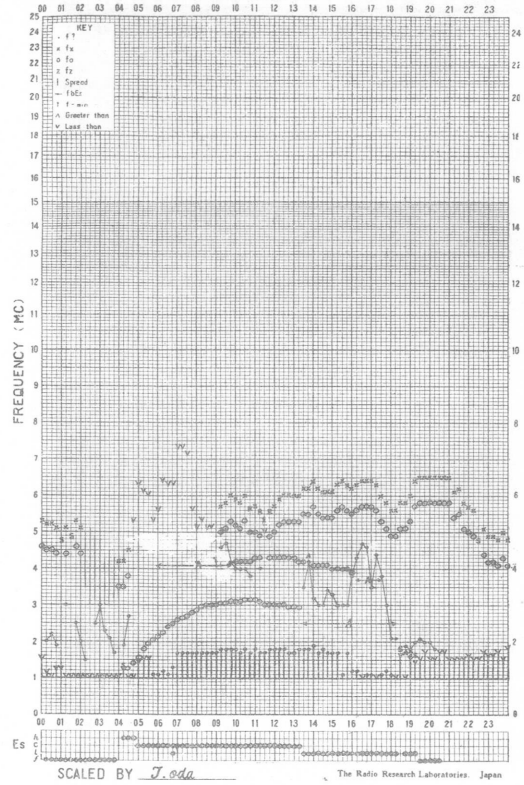

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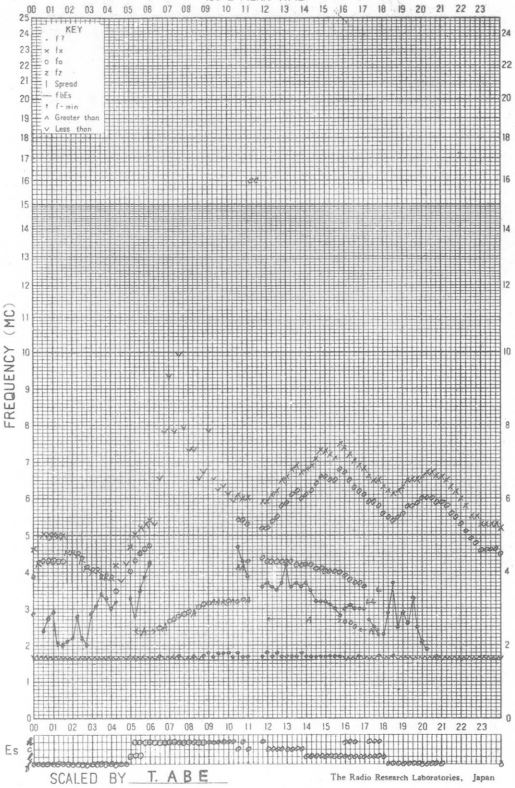

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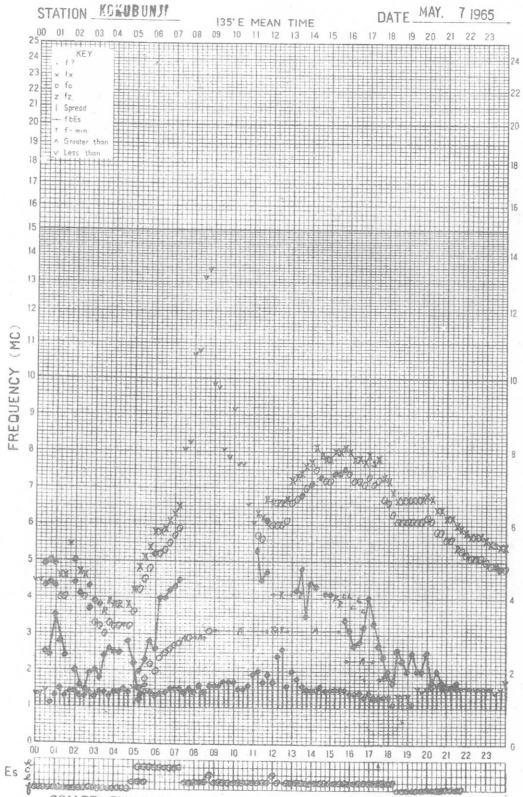

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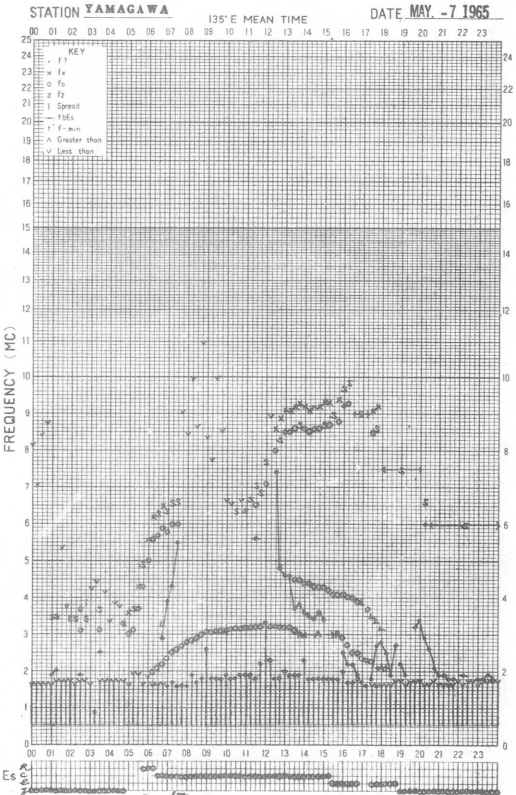

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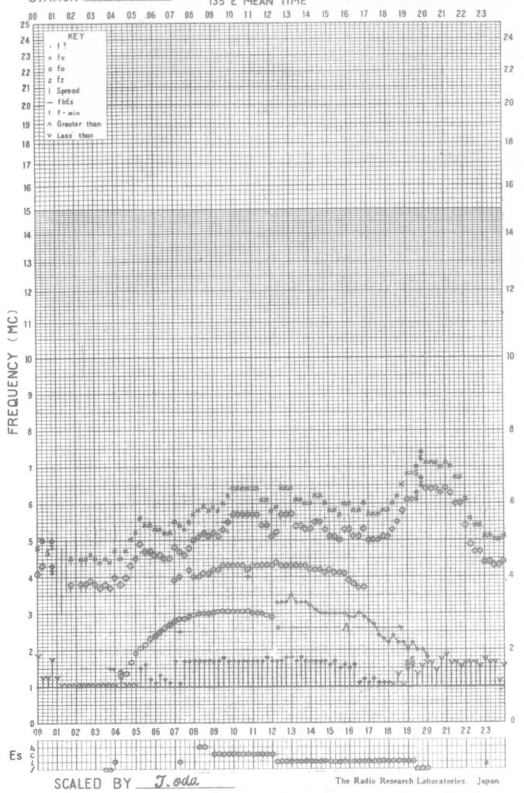

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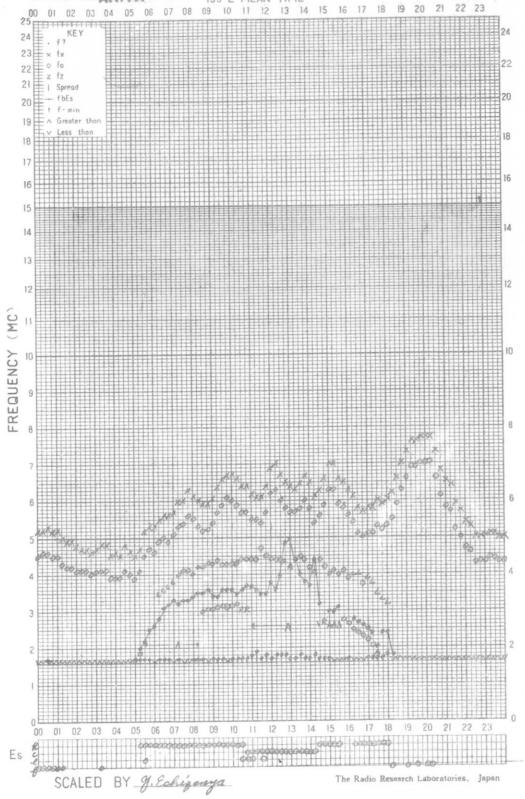

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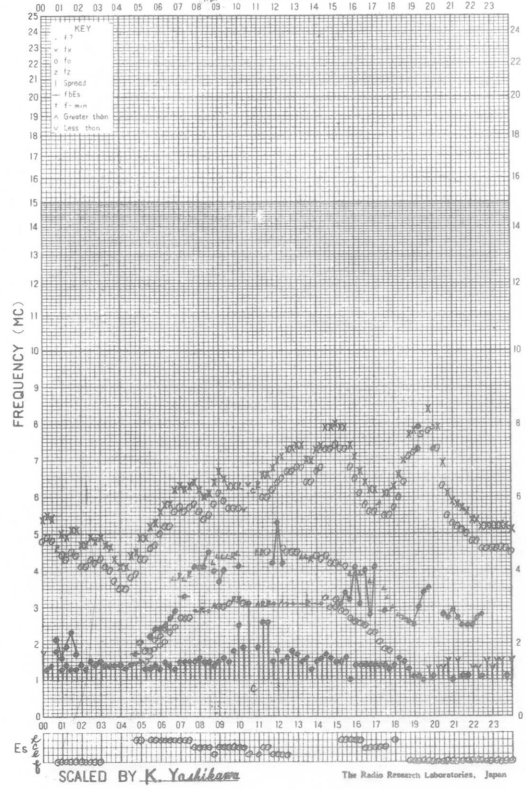

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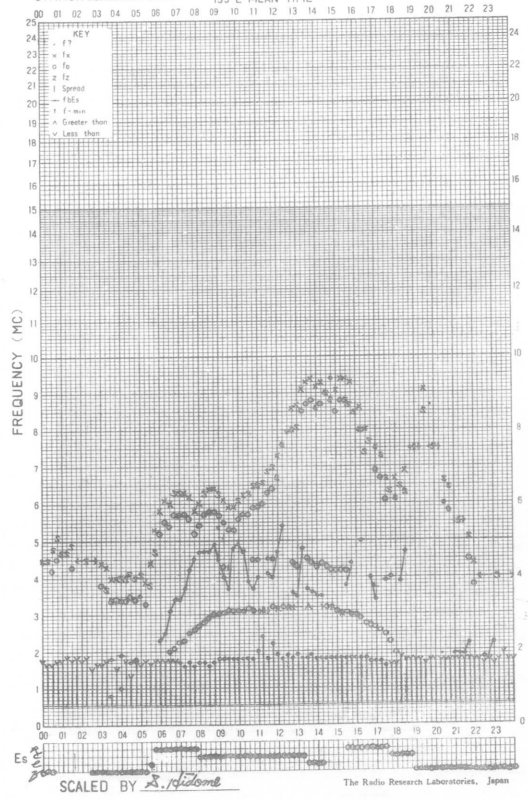

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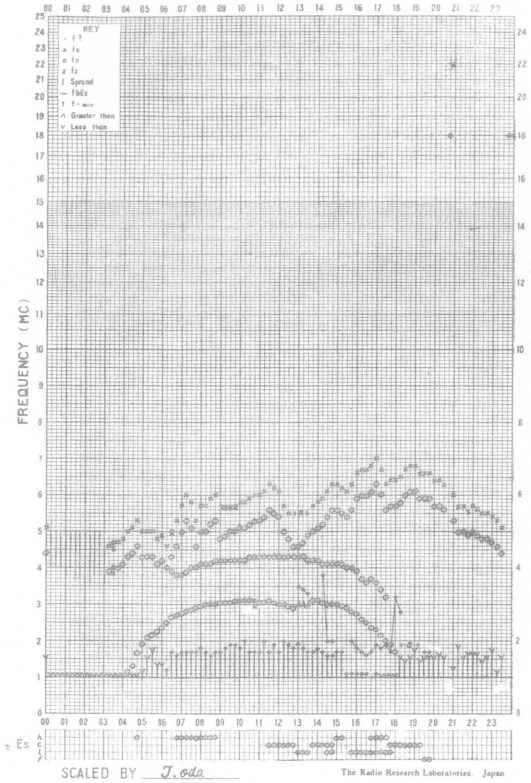

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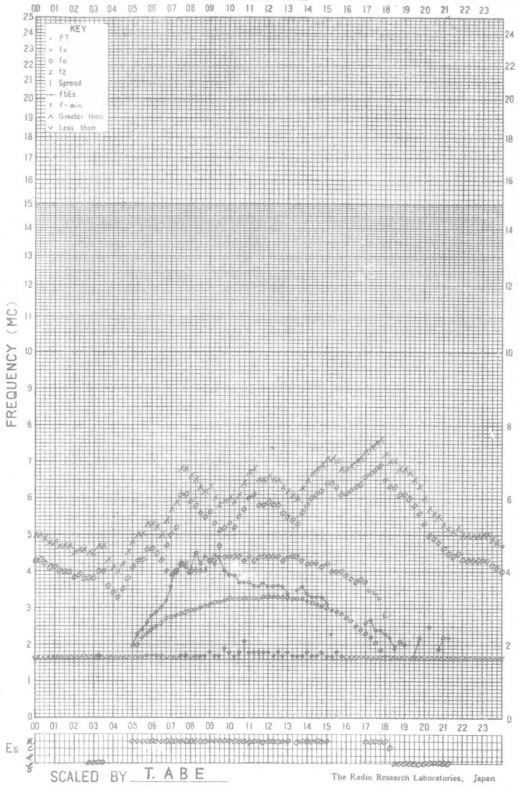

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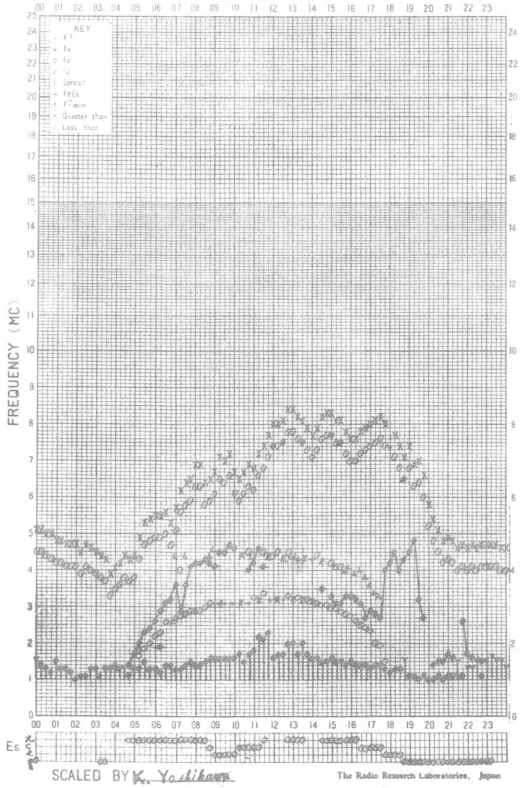

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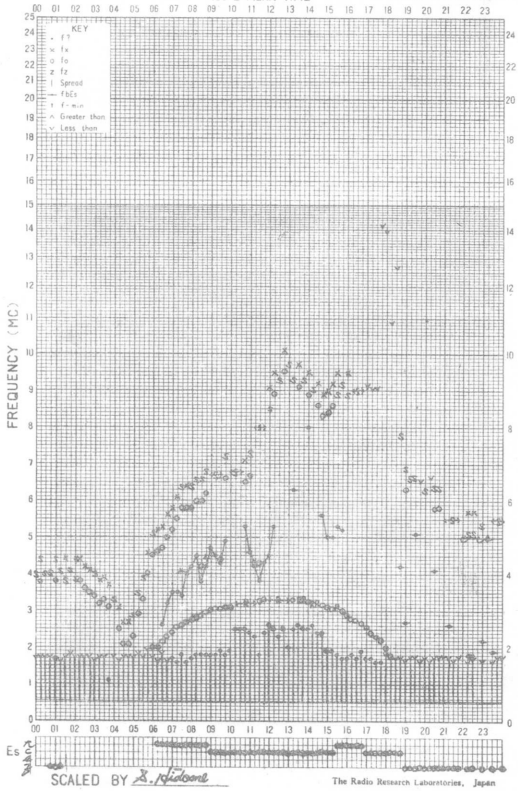

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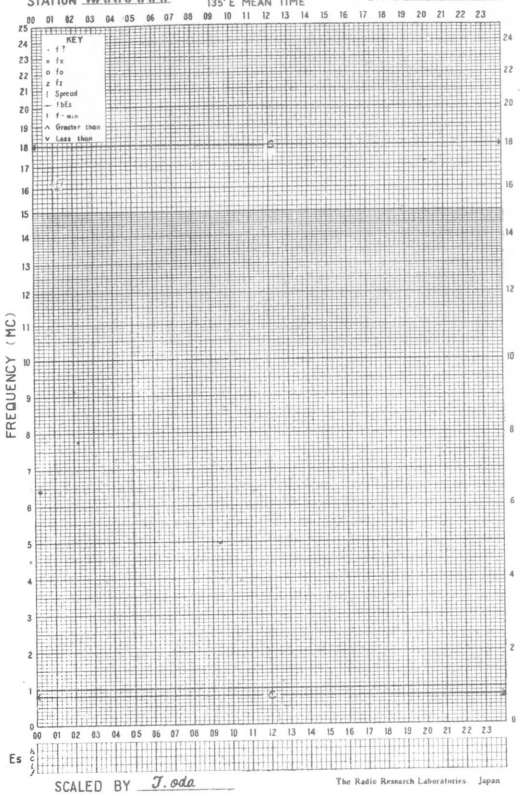

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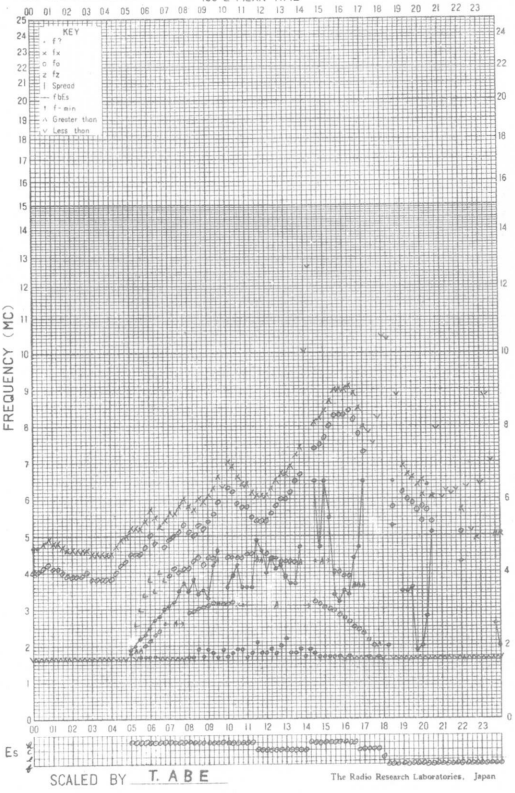

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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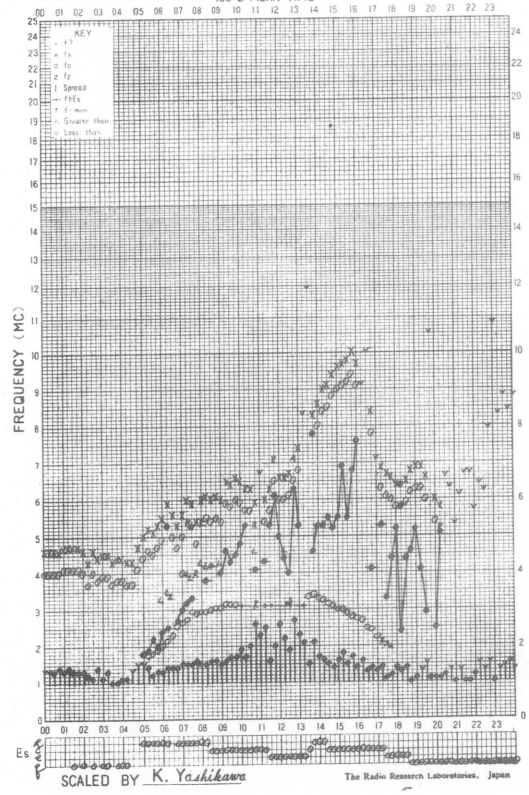

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The Radio Research Laboratories, Japan

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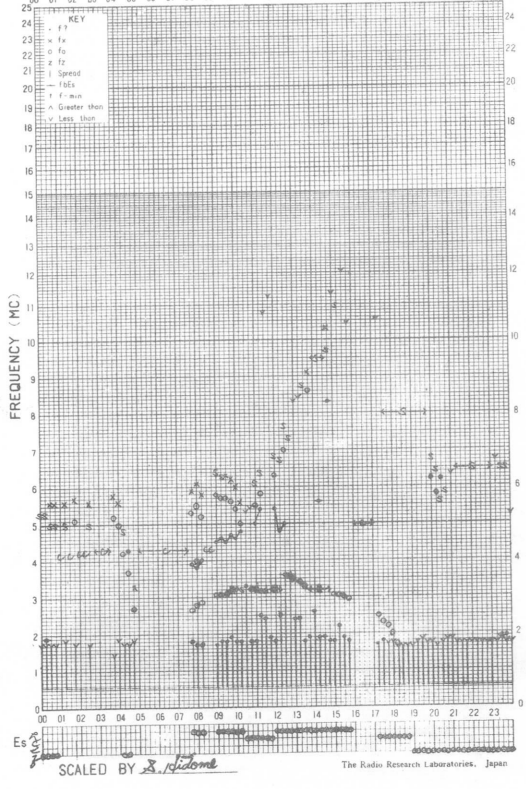

SCALED BY S. Kidoma

The Radio Research Laboratories, Japan

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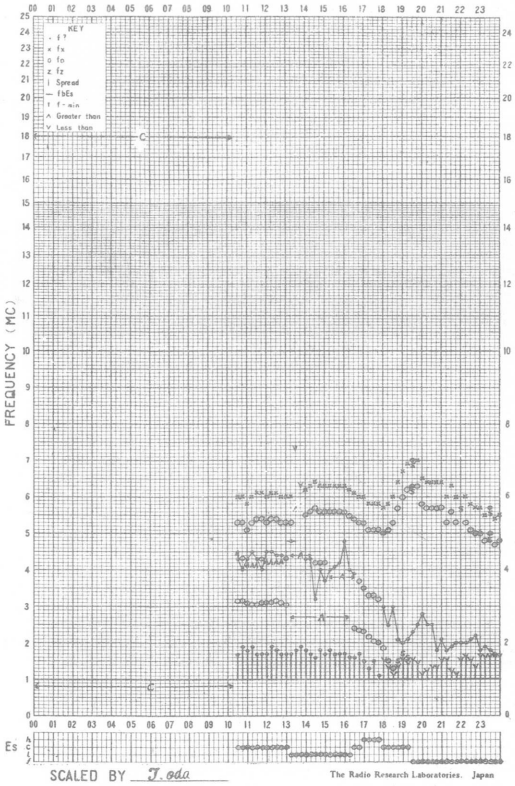

SCALED BY J. oda

The Radio Research Laboratories, Japan

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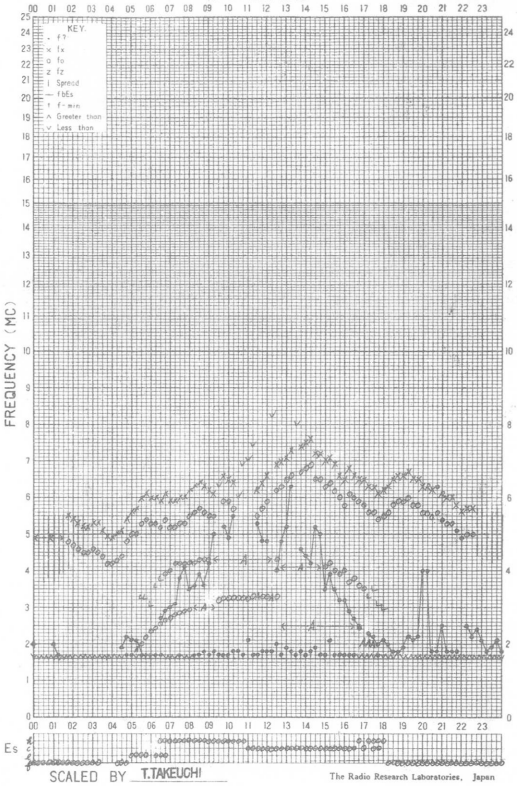

SCALED BY T.TAKEUCHI

The Radio Research Laboratories, Japan

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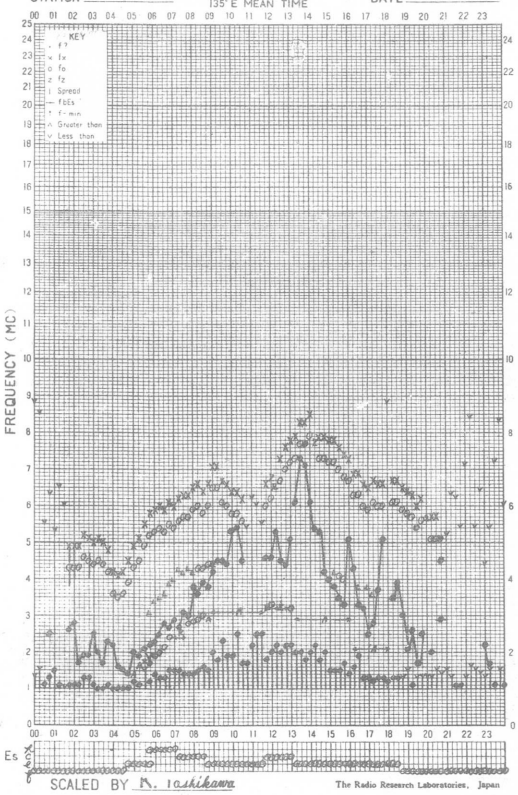

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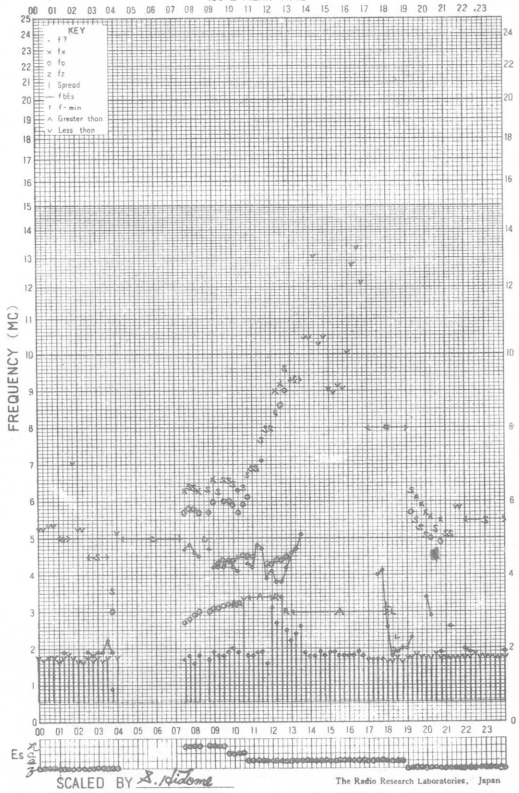

SCALED BY S. Kitami

The Radio Research Laboratories, Japan

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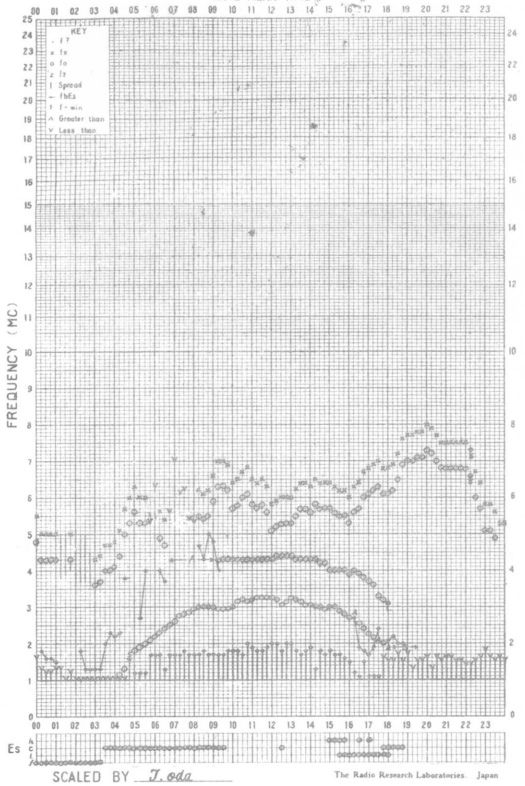

SCALED BY T. oda

The Radio Research Laboratories. Japan

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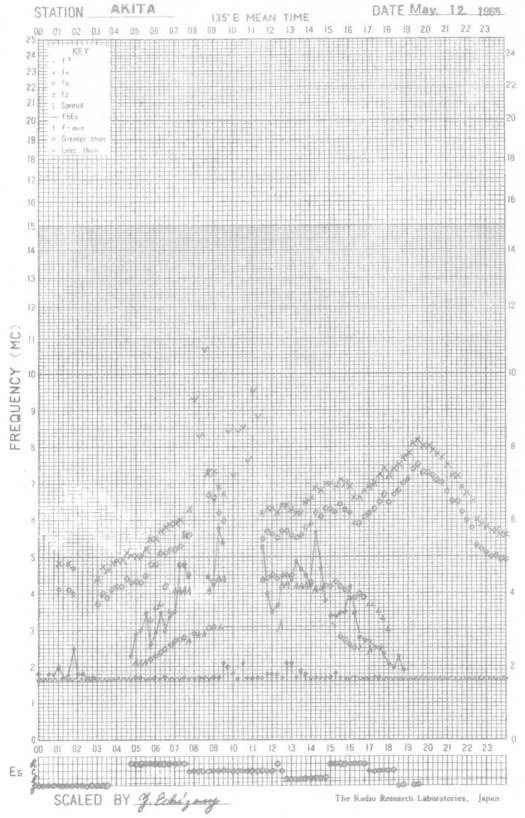

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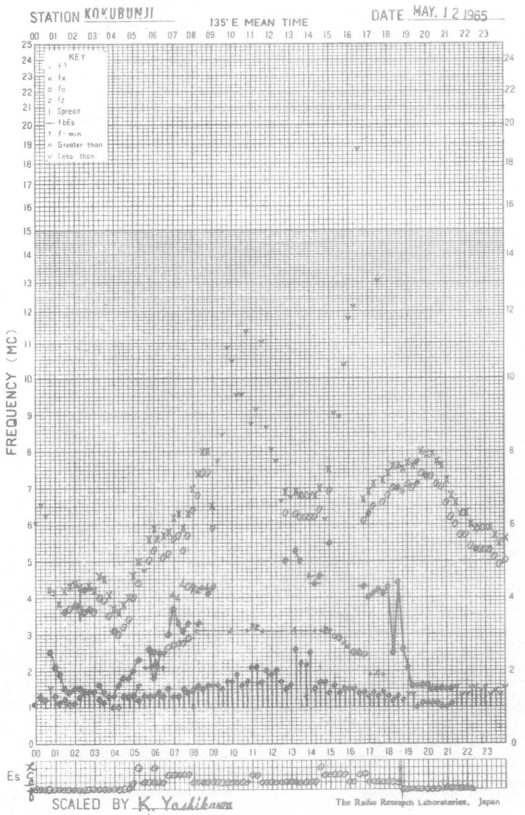

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The Radio Research Laboratories, Japan

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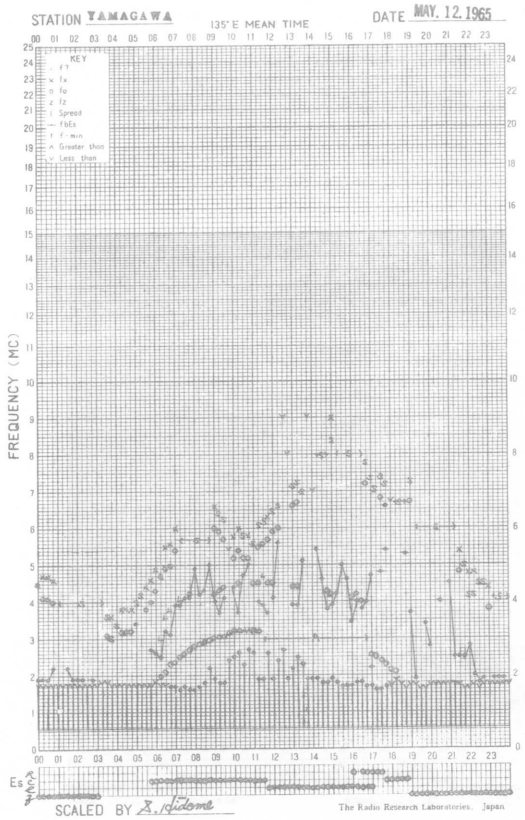

SCALED BY S. Kidome

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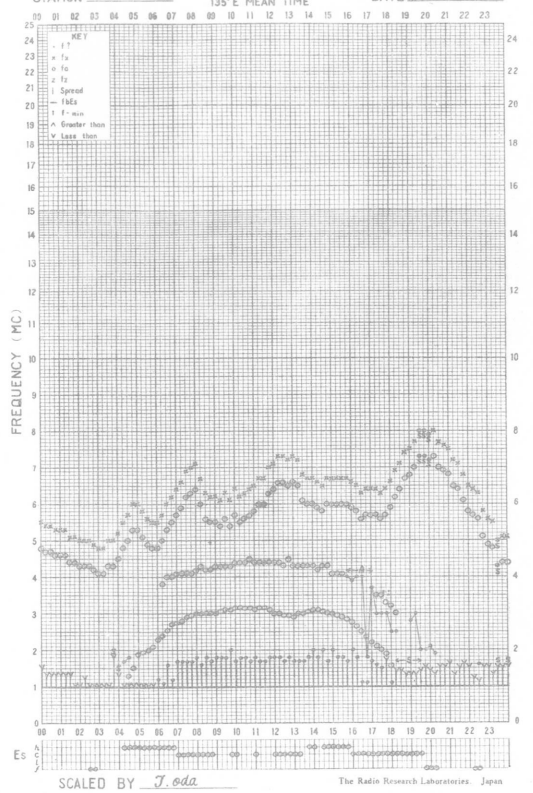

SCALED BY J. oda

The Radio Research Laboratories, Japan

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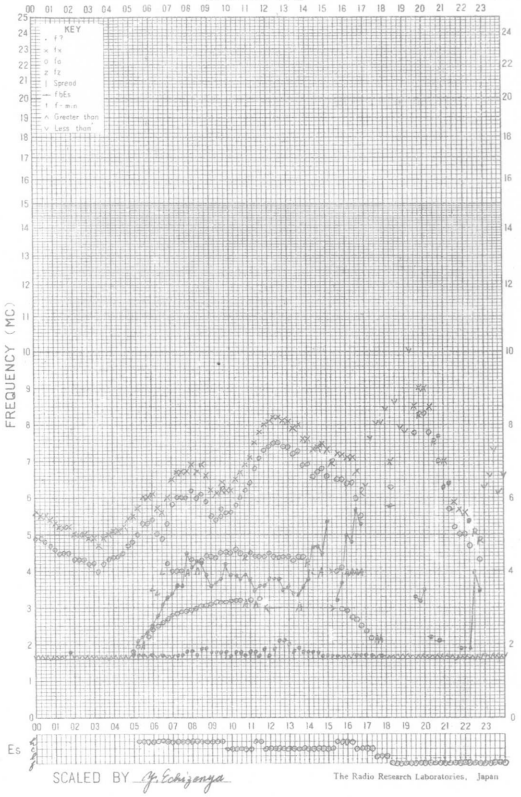

SCALED BY G. Echizenya

The Radio Research Laboratories, Japan

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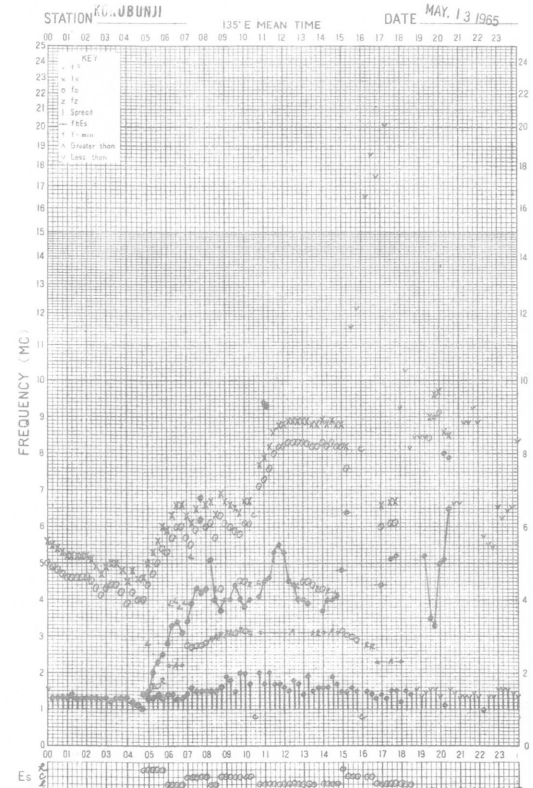

SCALED BY K. Yoshikawa

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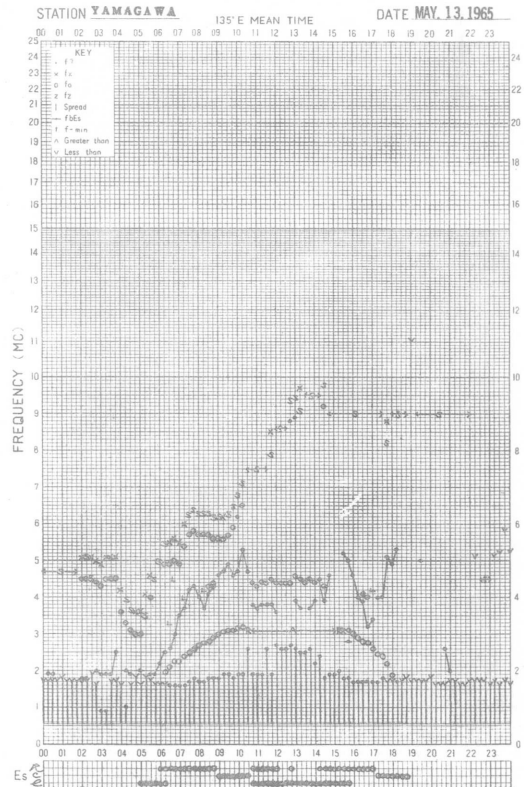

SCALED BY S. Kidome

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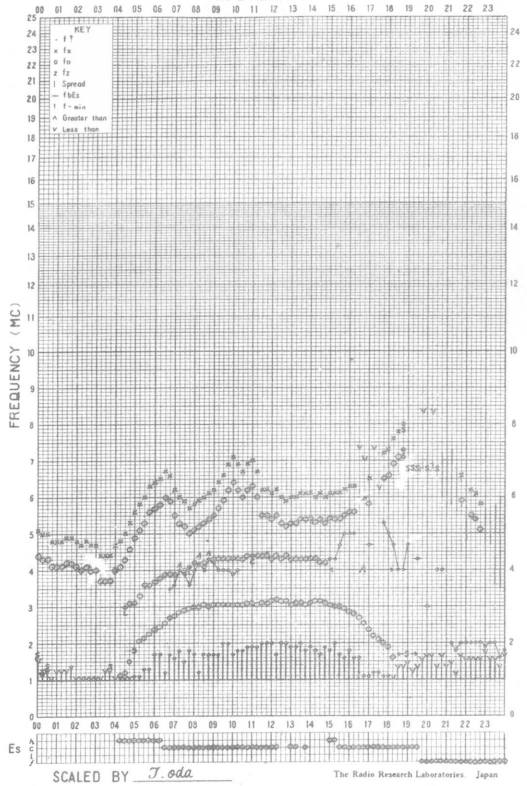

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The Radio Research Laboratories, Japan

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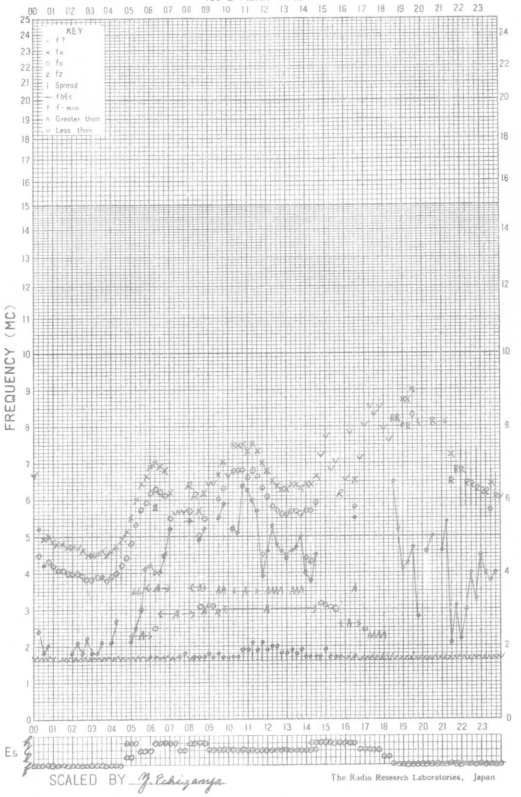

SCALED BY T. Ichizawa

The Radio Research Laboratories, Japan

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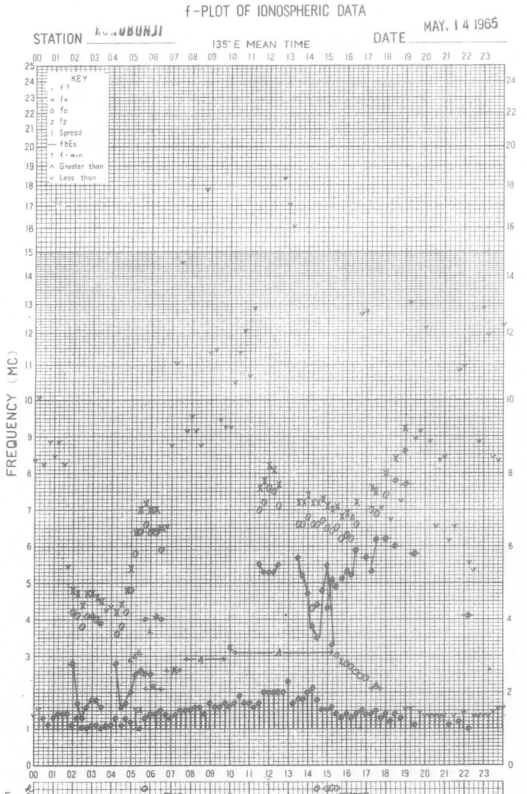

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The Radio Research Laboratories, Japan

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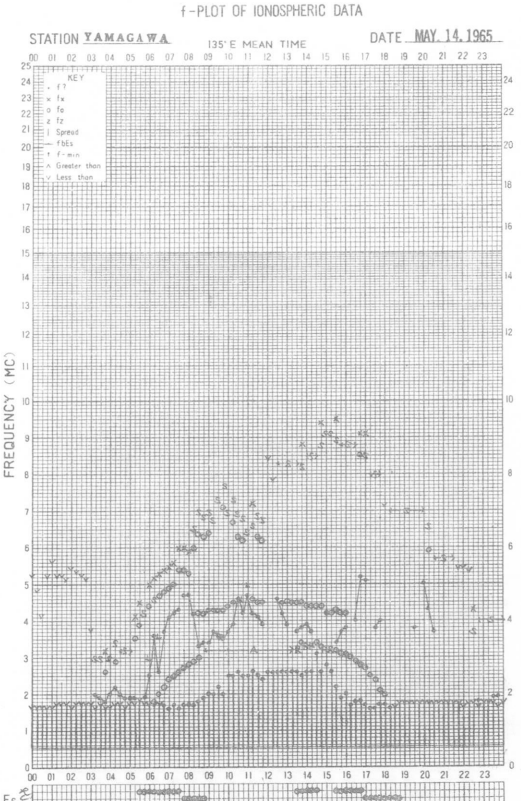

SCALED BY S. Sidomi

The Radio Research Laboratories, Japan

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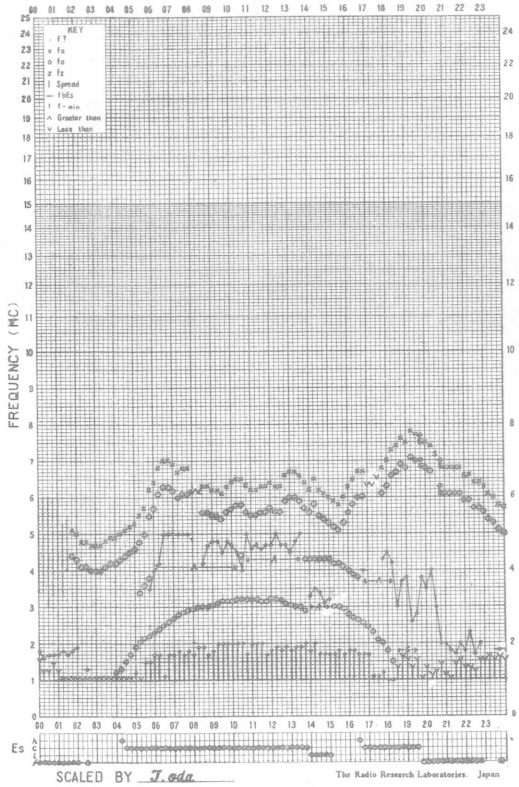

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The Radio Research Laboratories, Japan

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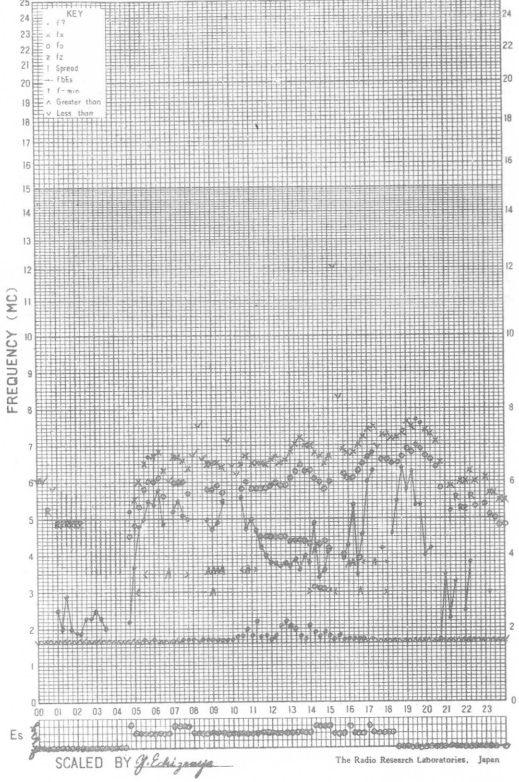

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The Radio Research Laboratories, Japan

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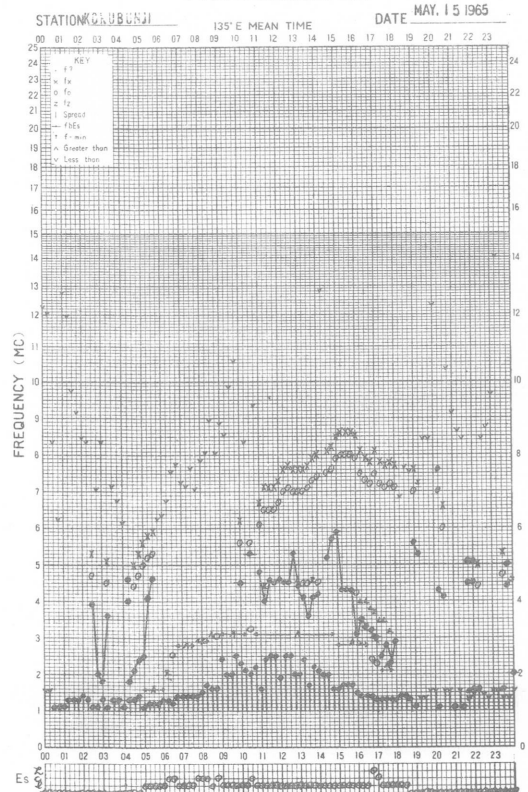

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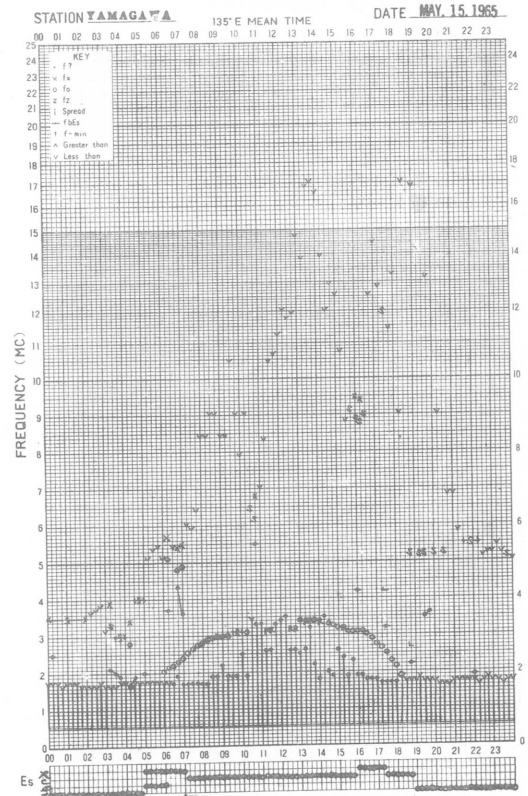

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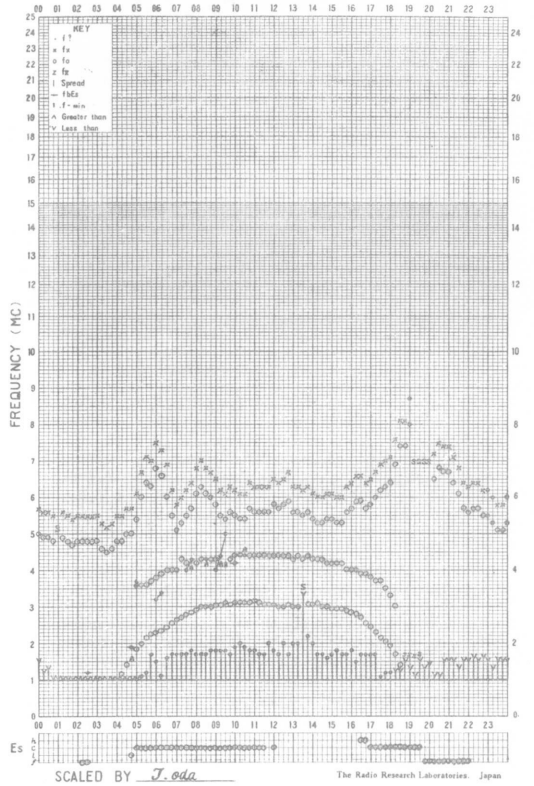

SCALED BY T. oda

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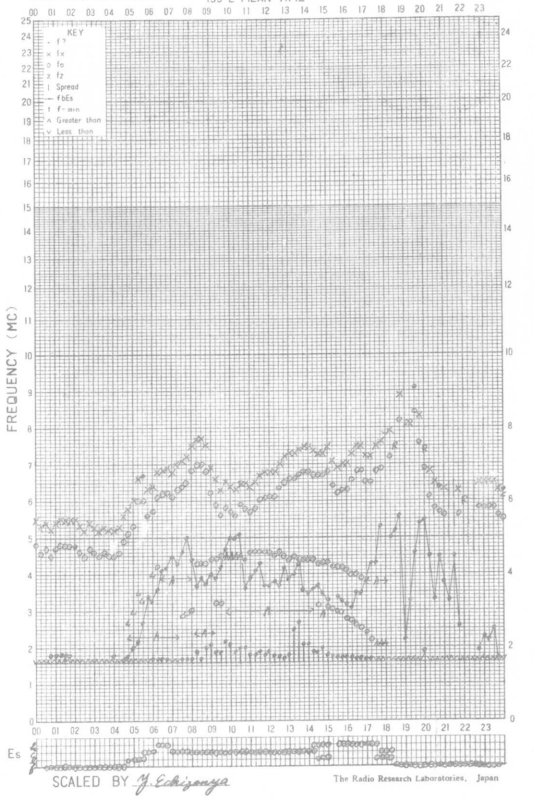

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The Radio Research Laboratories, Japan

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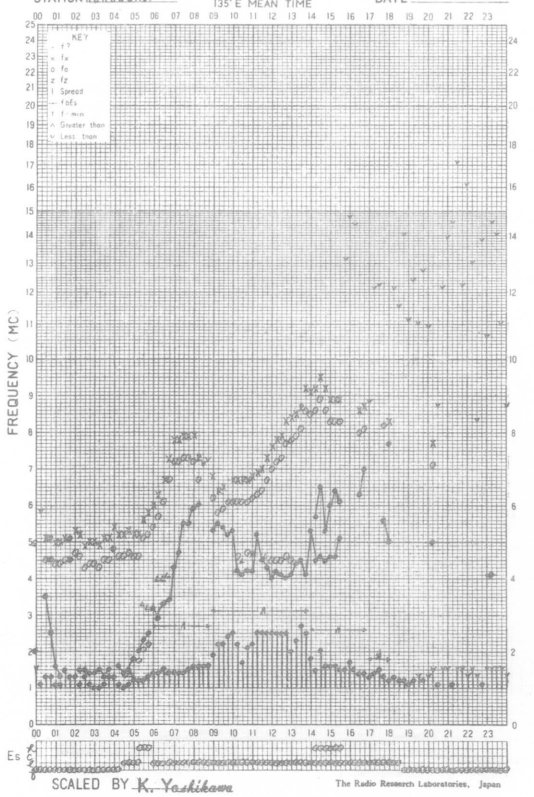

SCALED BY K. Yashikawa

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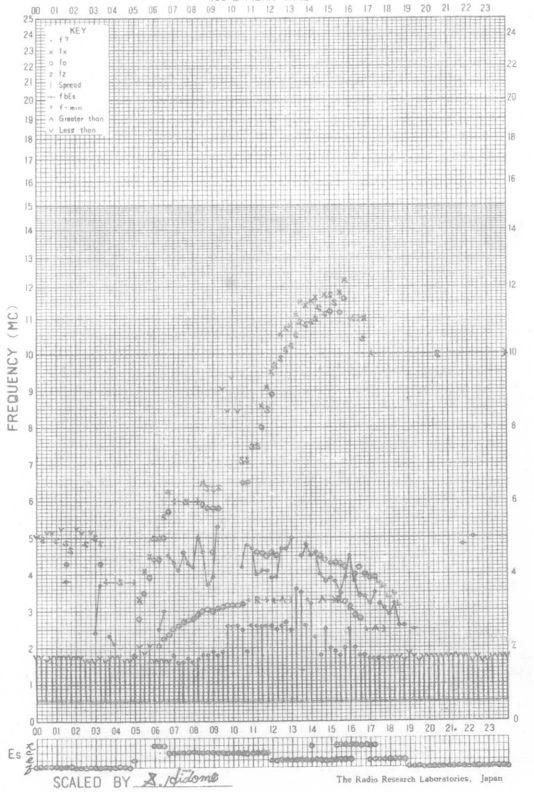

SCALED BY S. Kidome

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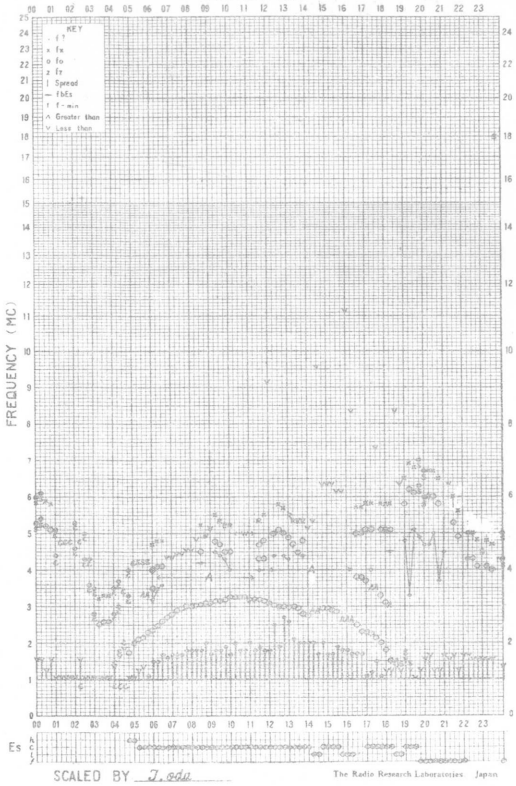

SCALED BY T. ODA

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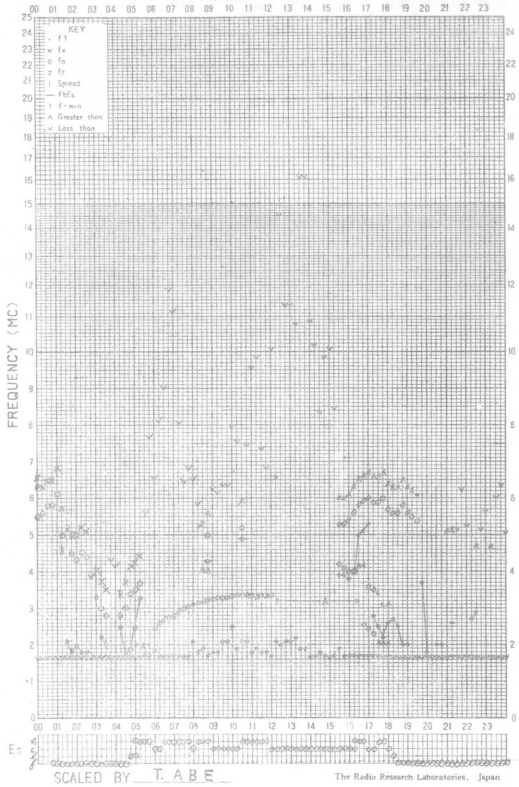

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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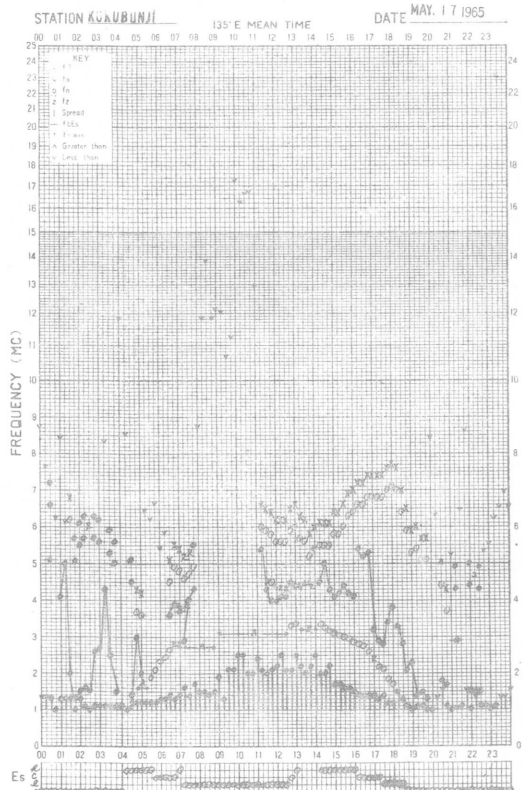

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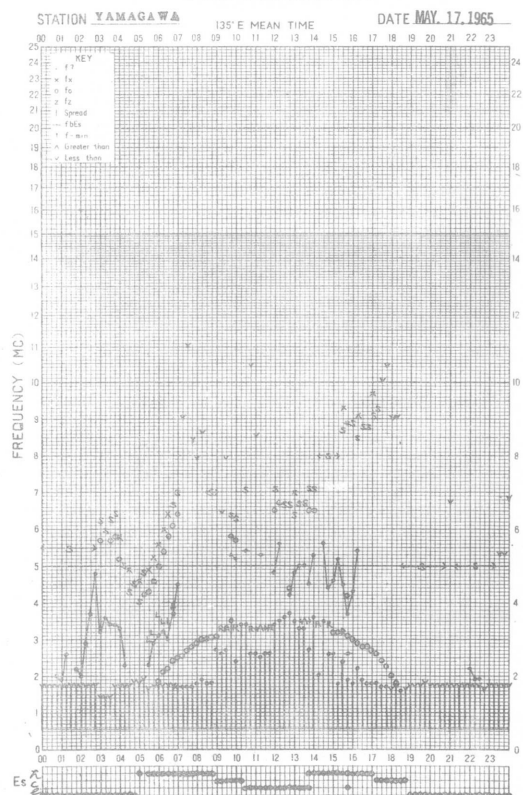

SCALED BY K. Sidomi

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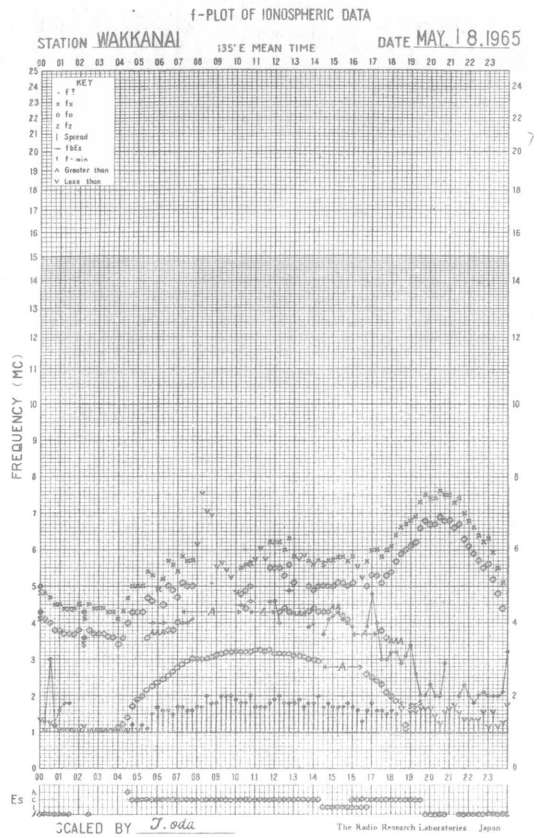
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135°E MEAN TIME
DATE MAY. 18.1965
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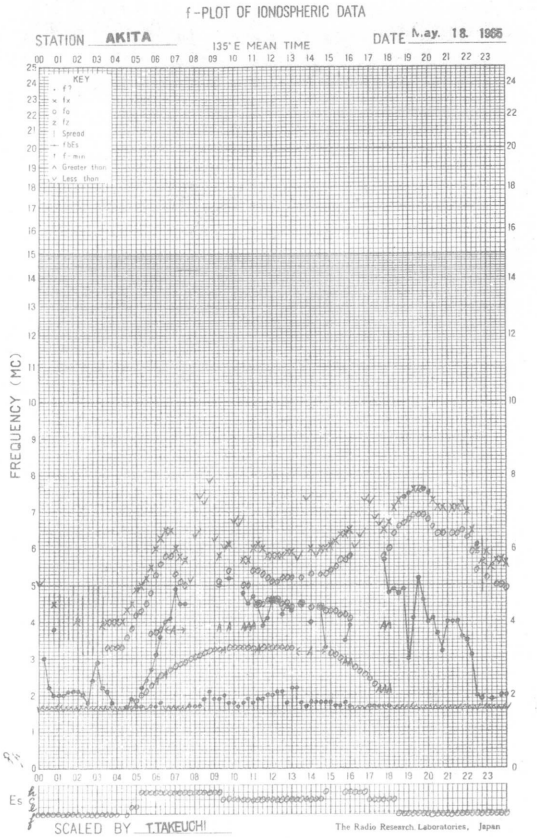
SCALED BY T. oda
The Radio Research Laboratories Japan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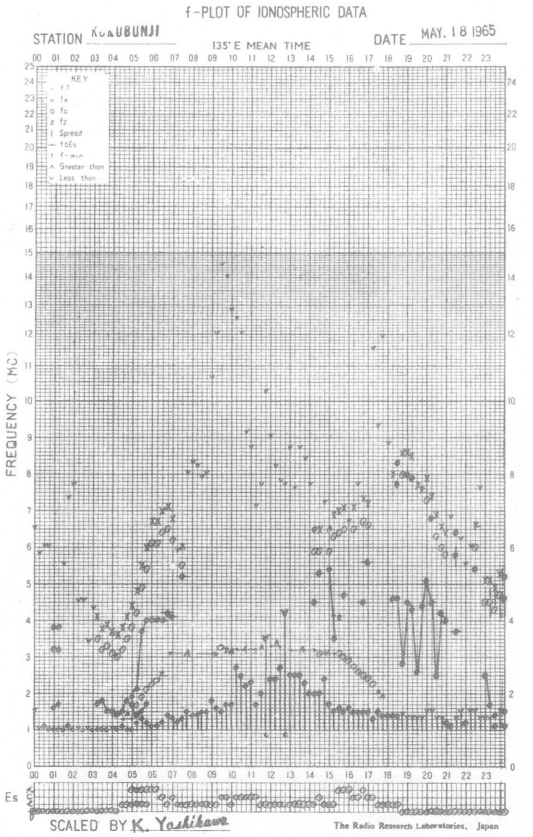
SCALED BY T.TAKEUCHI
The Radio Research Laboratories, Japan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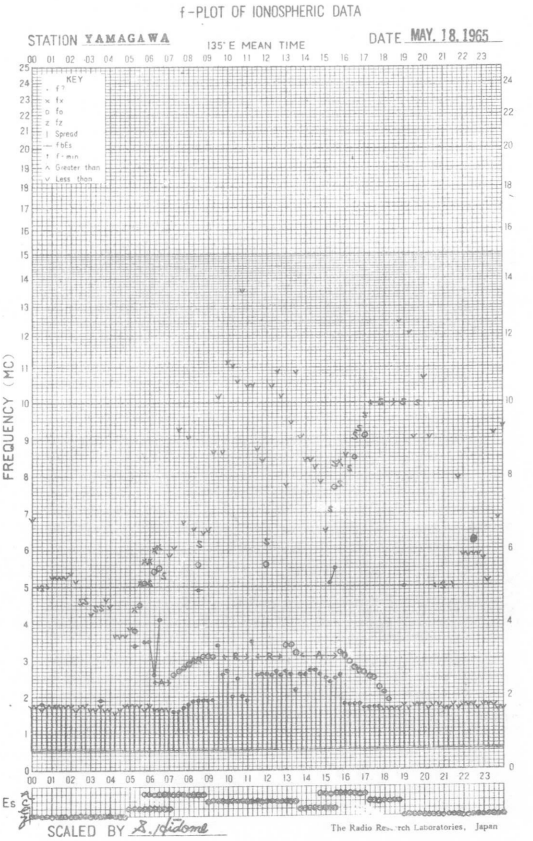
The Radio Research Laboratories, Japan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The Radio Research Laboratories, Japan

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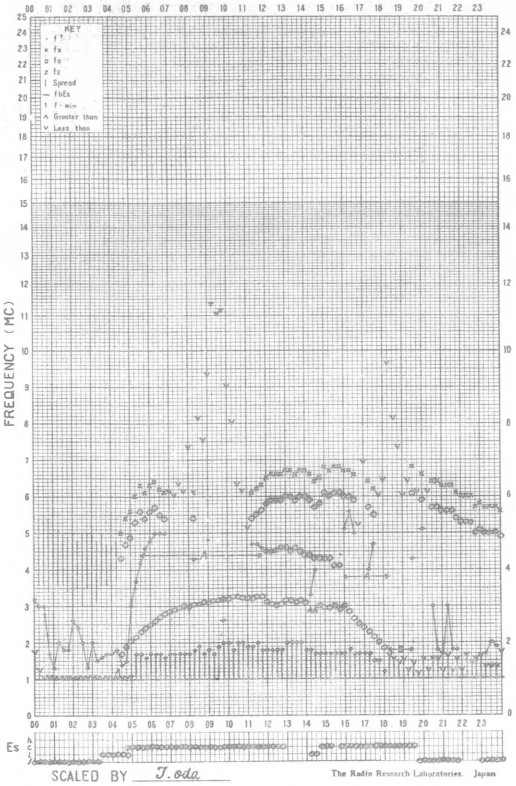

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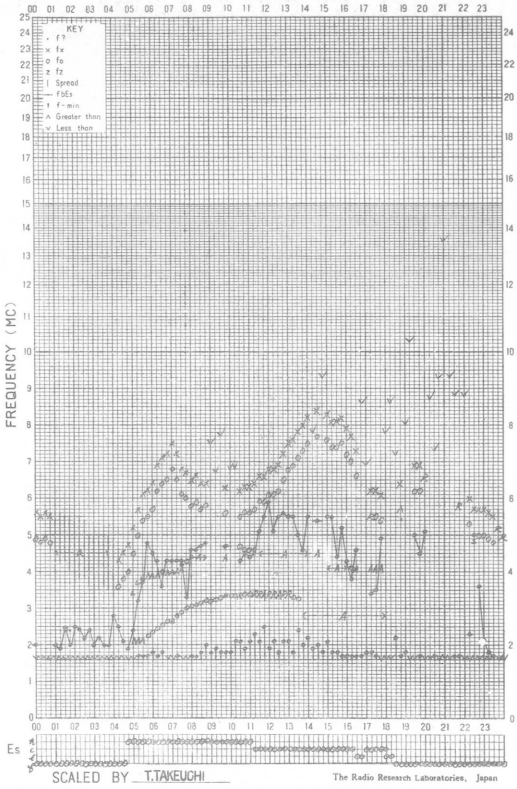

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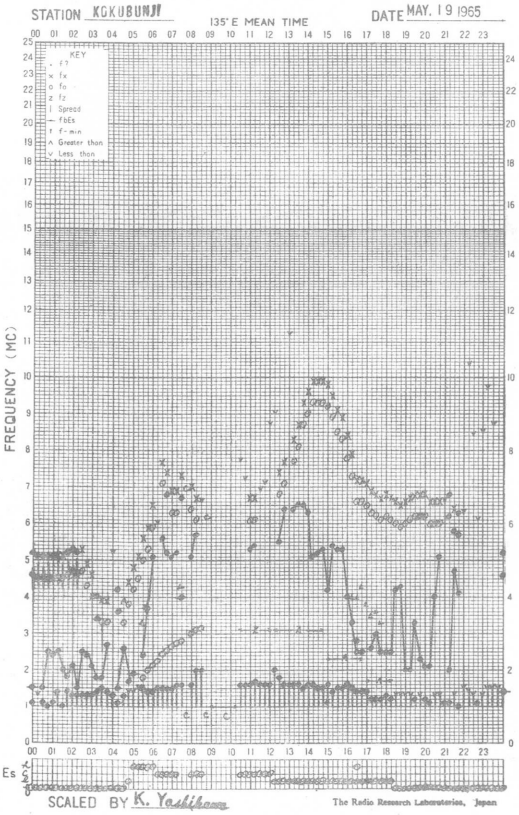

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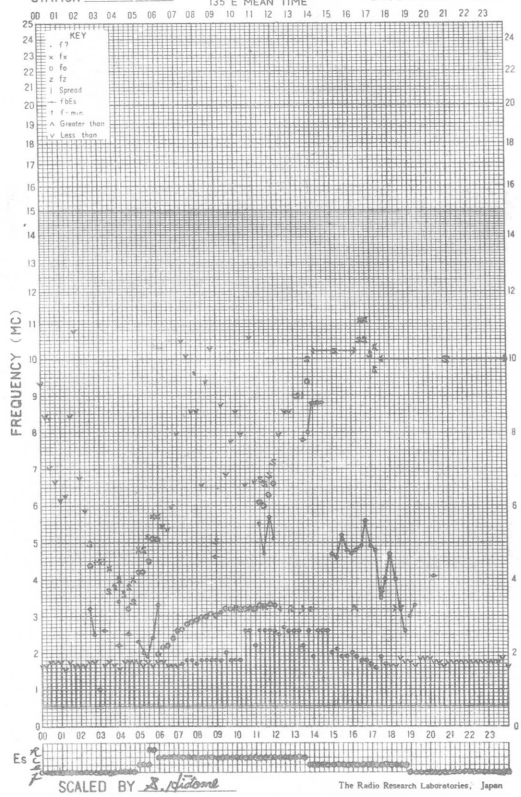

SCALED BY S. Kitami The Radio Research Laboratories, Japan

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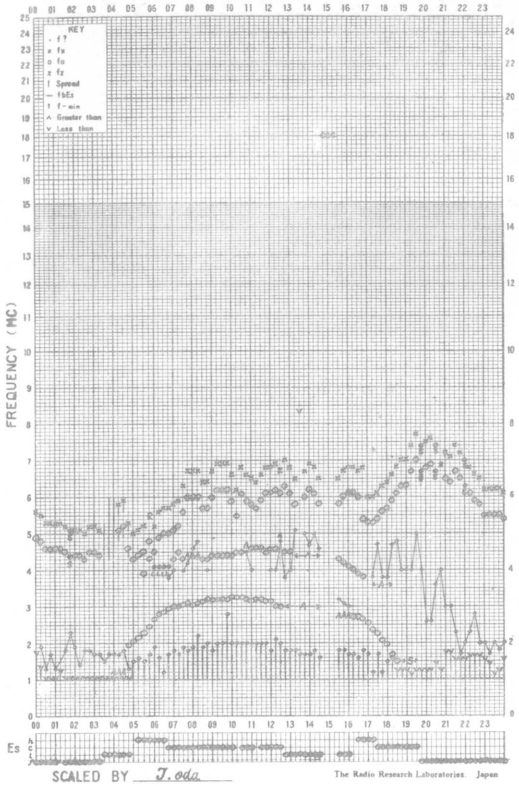

SCALED BY J. Oda

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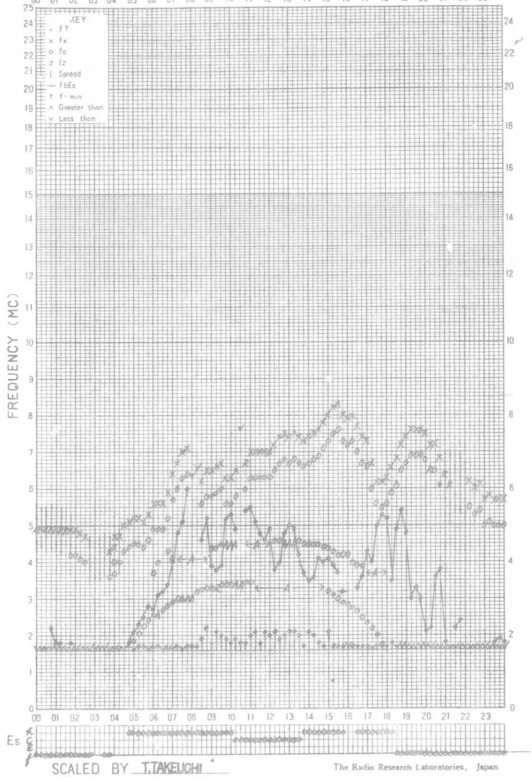

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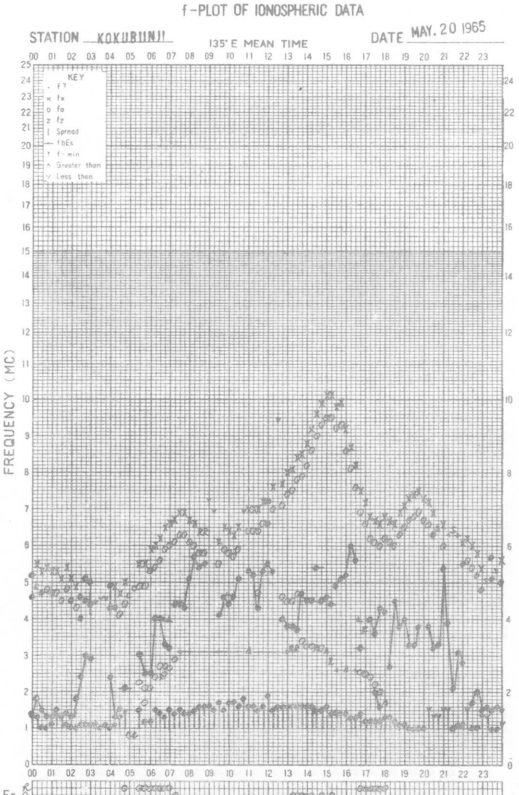

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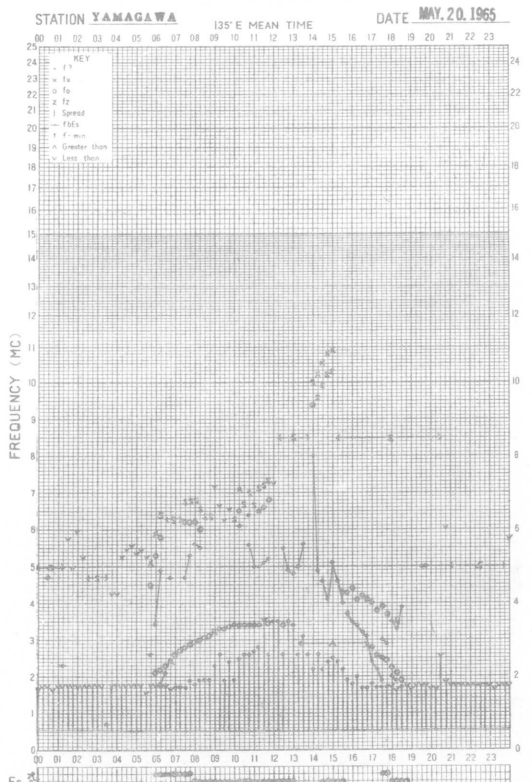

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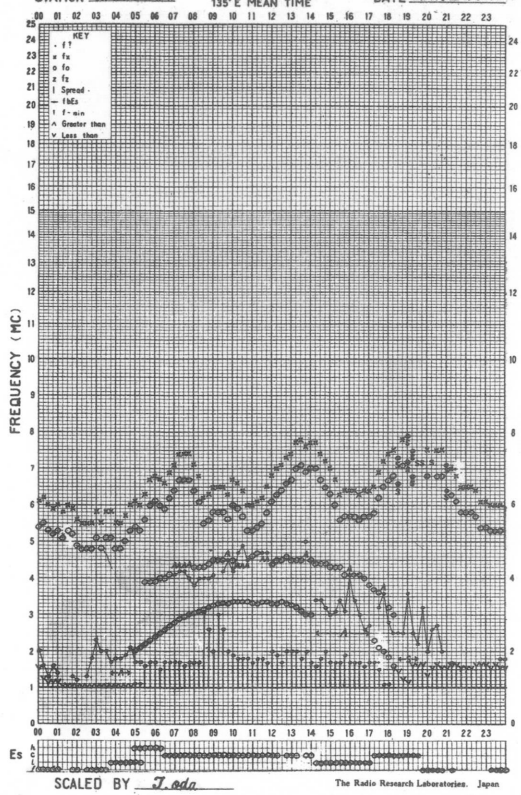
STATION WAKKANAI 135° E MEAN TIME DATE MAY. 21. 1965



SCALED BY T. oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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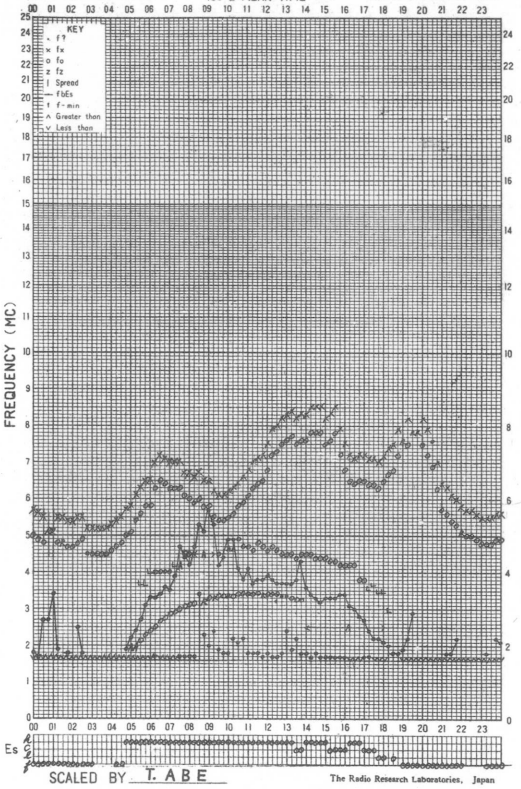

SCALED BY T. A B E

The Radio Research Laboratories, Japan

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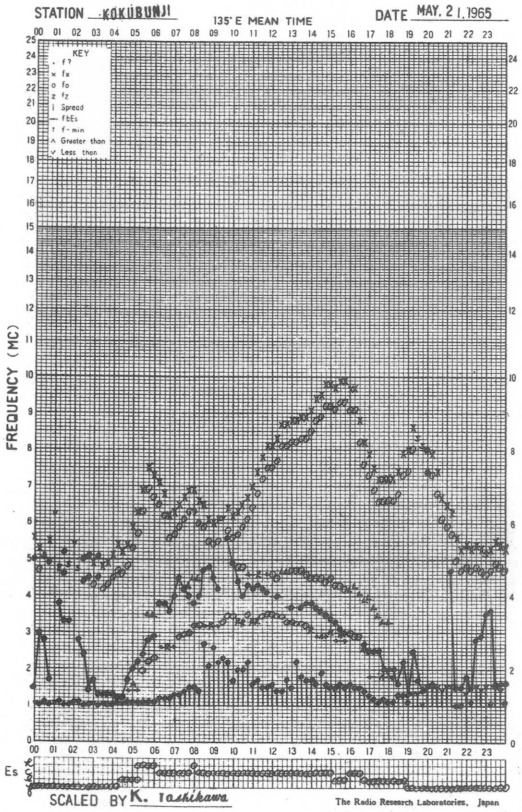

SCALED BY K. Yashikawa

The Radio Research Laboratories, Japan

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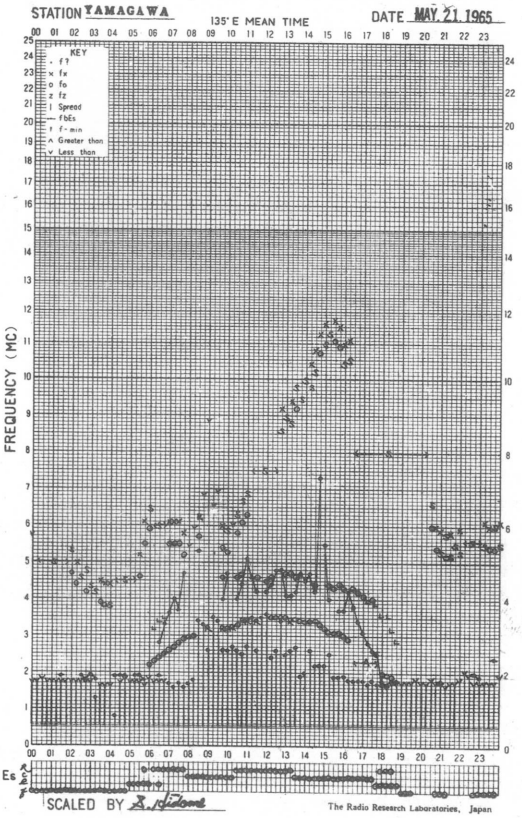
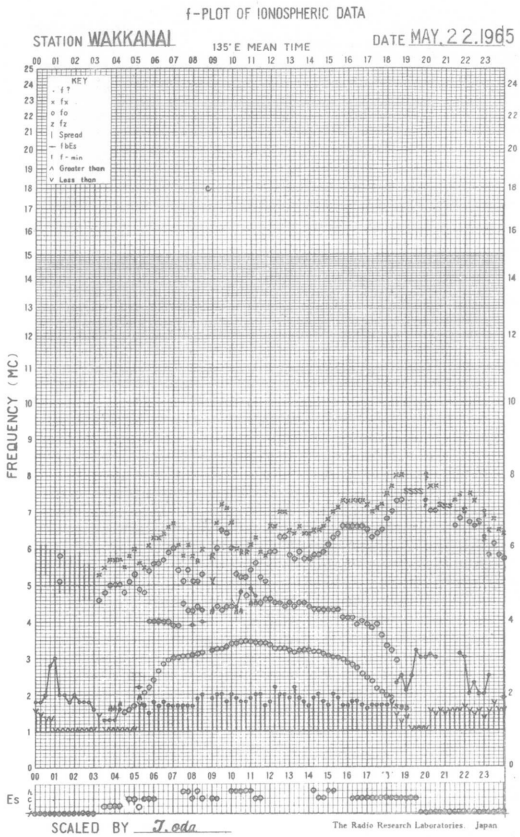


SCALED BY S. Nikami

The Radio Research Laboratories, Japan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135° E MEAN TIME
DATE MAY. 22. 1965
KEY
FREQUENCY (MC)
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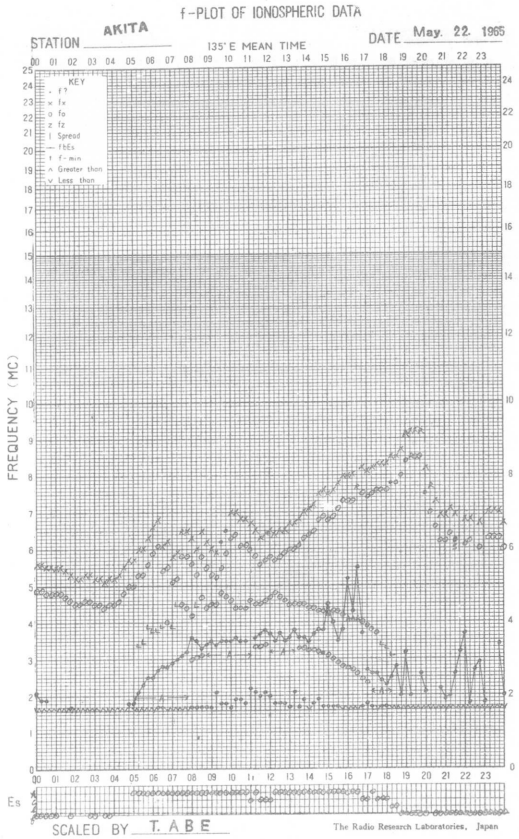
SCALED BY J. oda
The Radio Research Laboratories, Japan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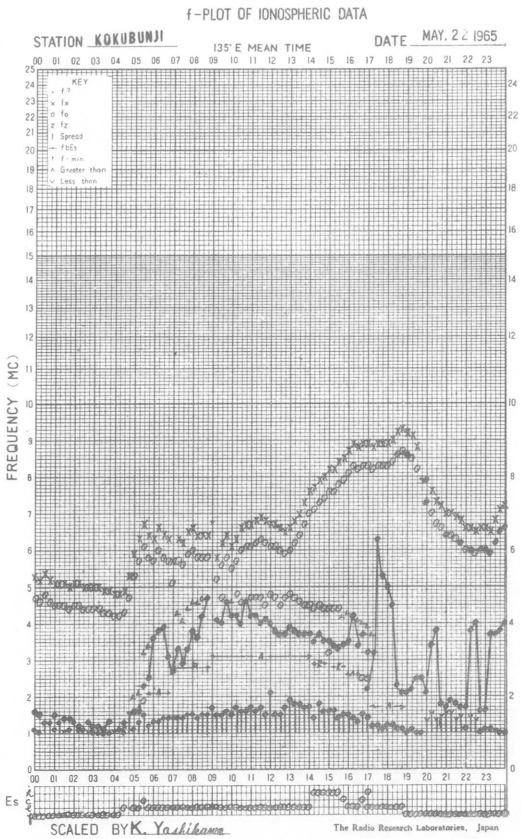
The Radio Research Laboratories, Japan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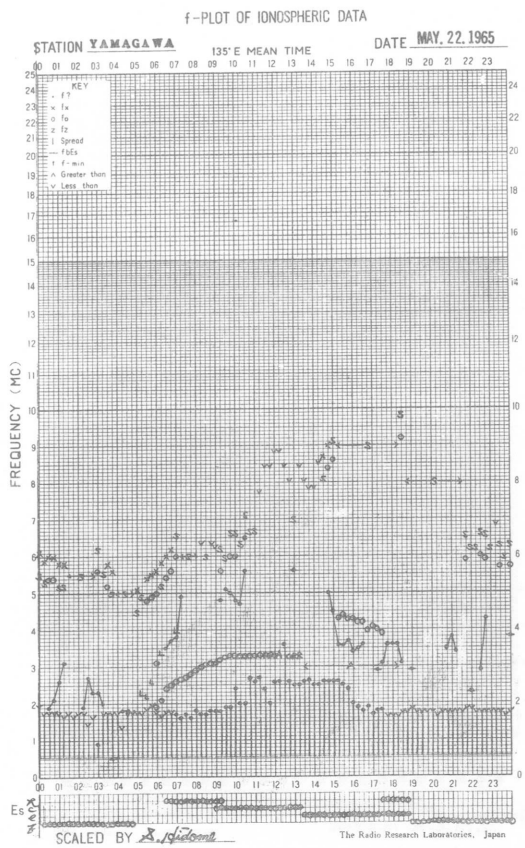
The Radio Research Laboratories, Japan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The Radio Research Laboratories, Japan

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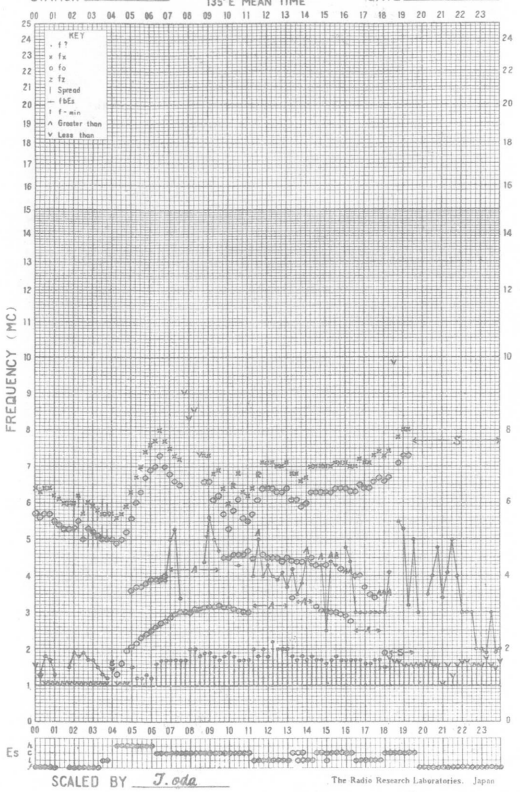

SCALED BY J. oda

The Radio Research Laboratories, Japan

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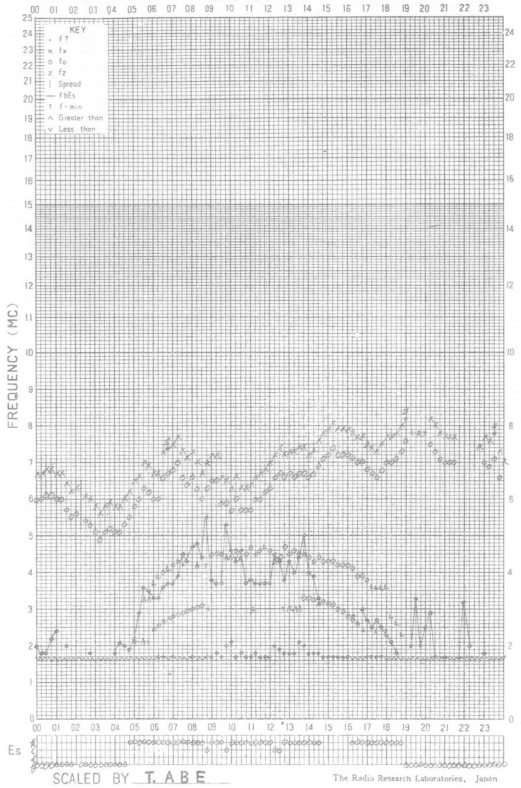

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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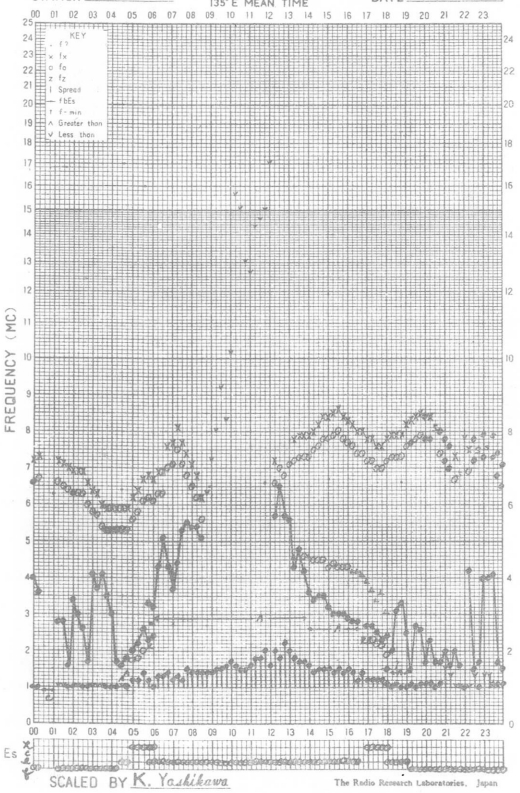

SCALED BY K. Yashikawa

The Radio Research Laboratories, Japan

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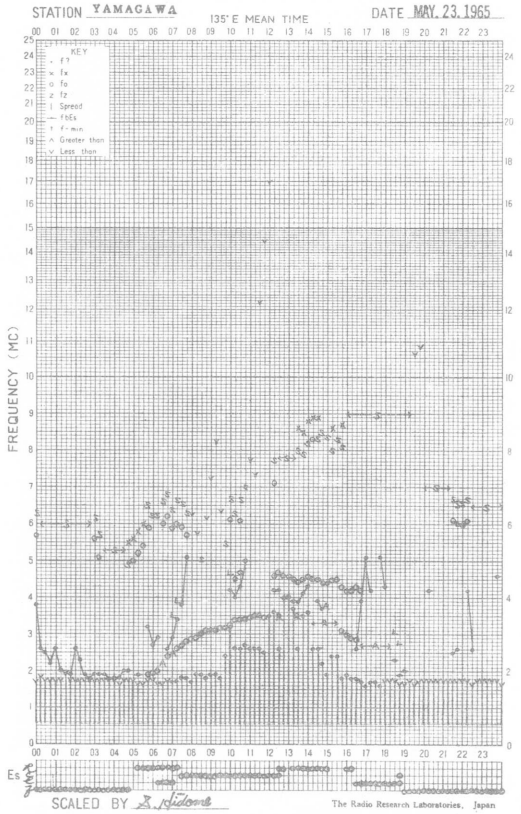

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The Radio Research Laboratories, Japan

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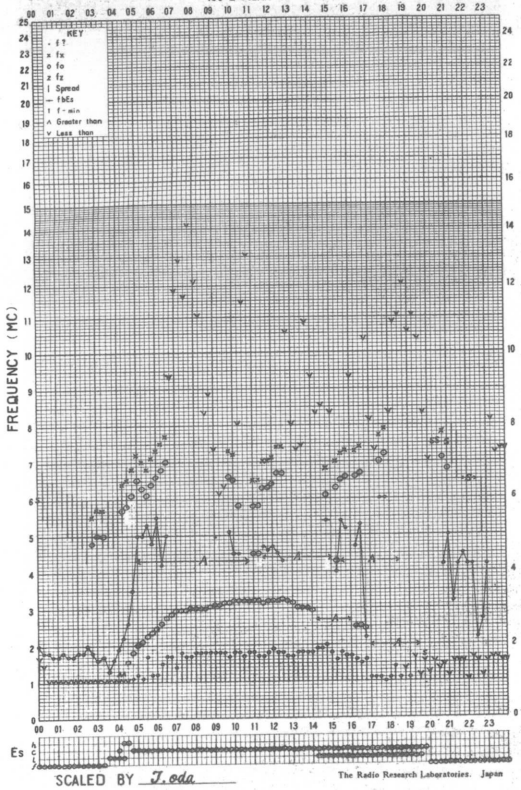

SCALED BY T. oda

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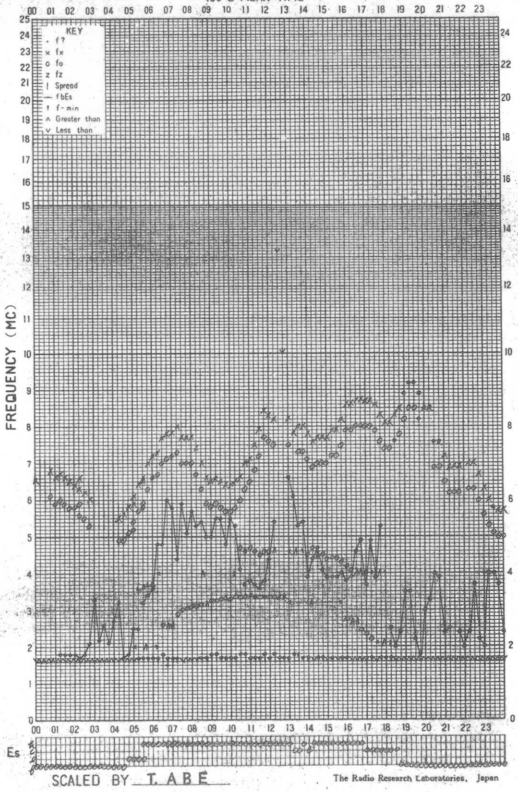

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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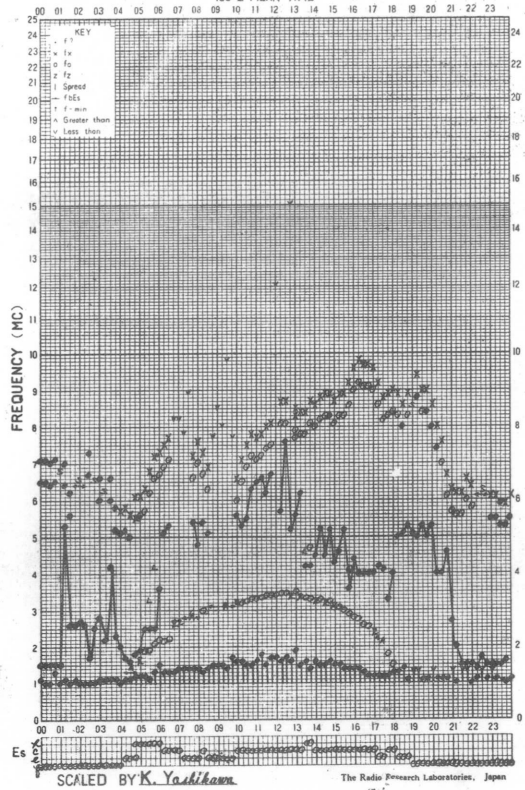

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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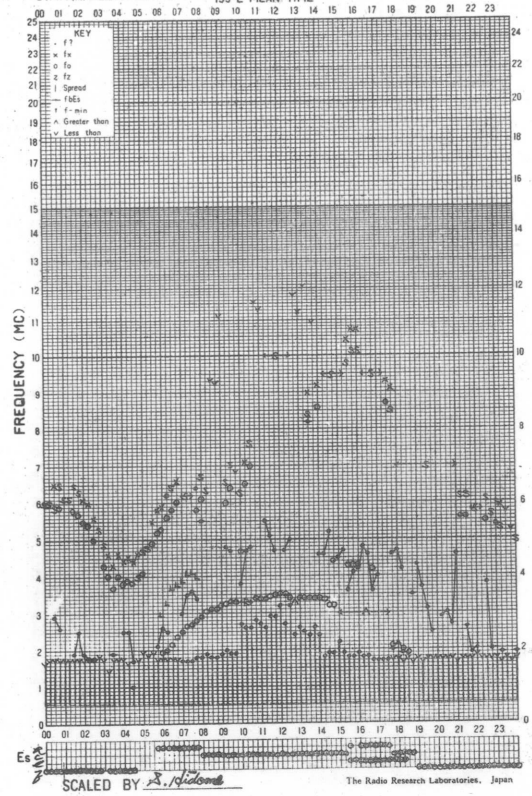

SCALED BY S. Nidome

The Radio Research Laboratories, Japan

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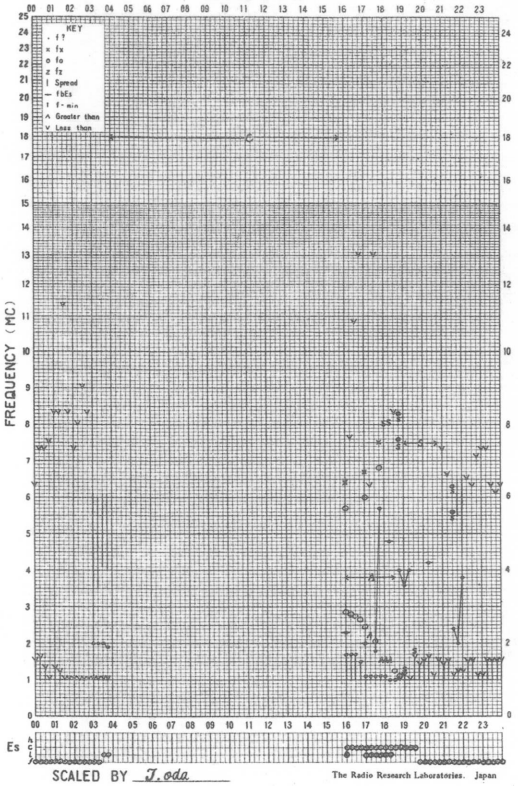

SCALED BY J. oda

The Radio Research Laboratories, Japan

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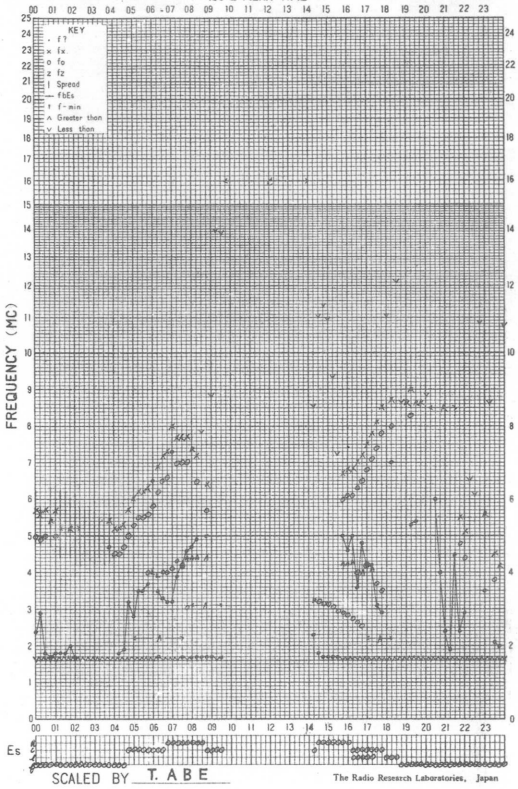

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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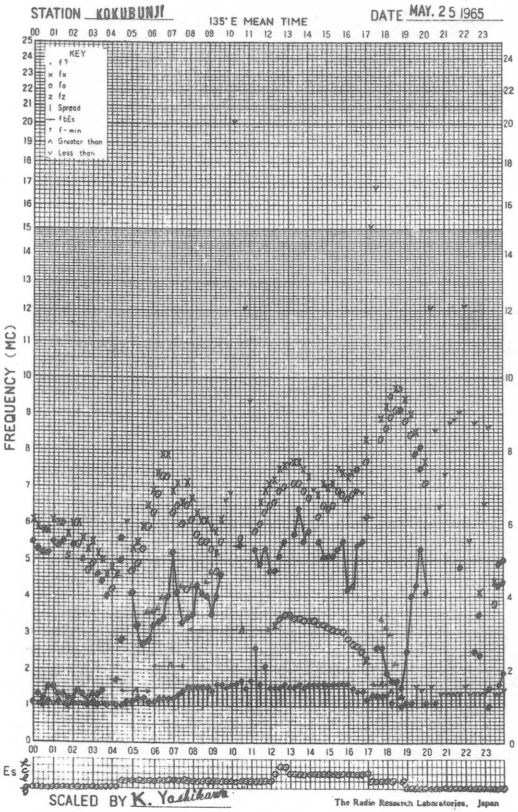

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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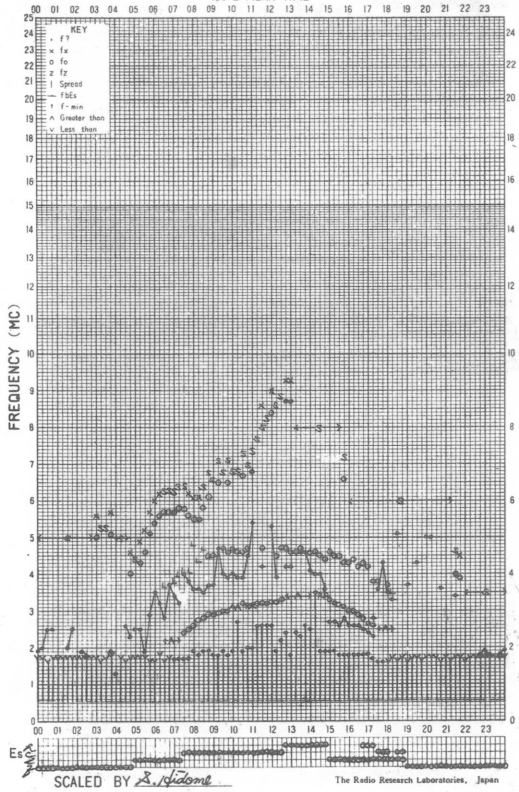

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The Radio Research Laboratories, Japan

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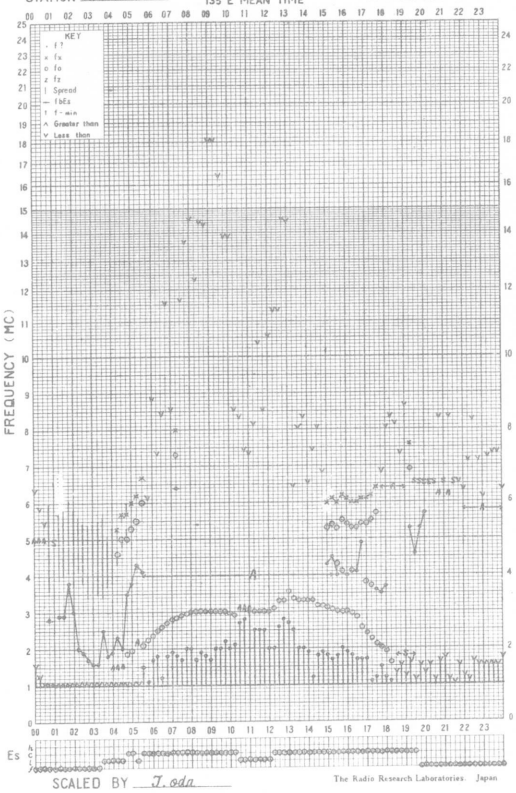

SCALED BY J. oda

The Radio Research Laboratories, Japan

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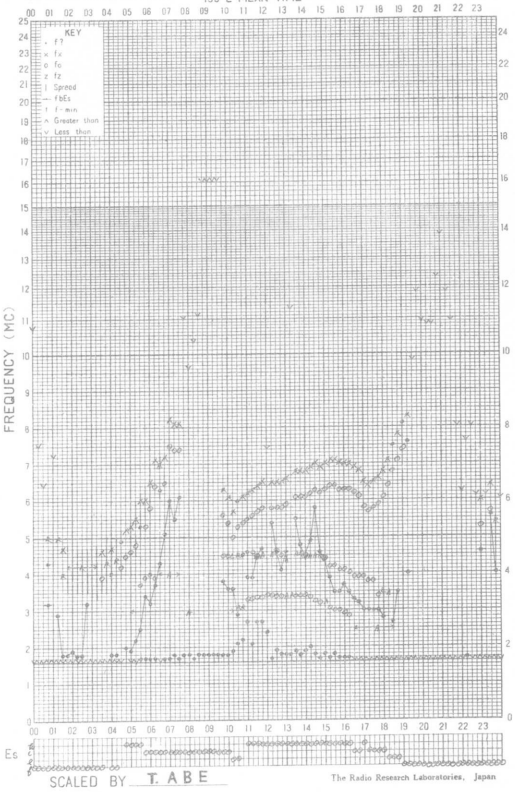

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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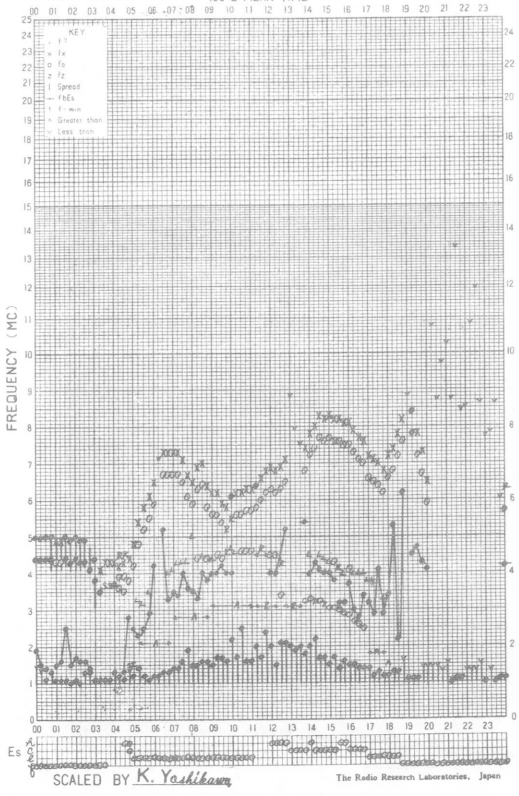

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The Radio Research Laboratories, Japan

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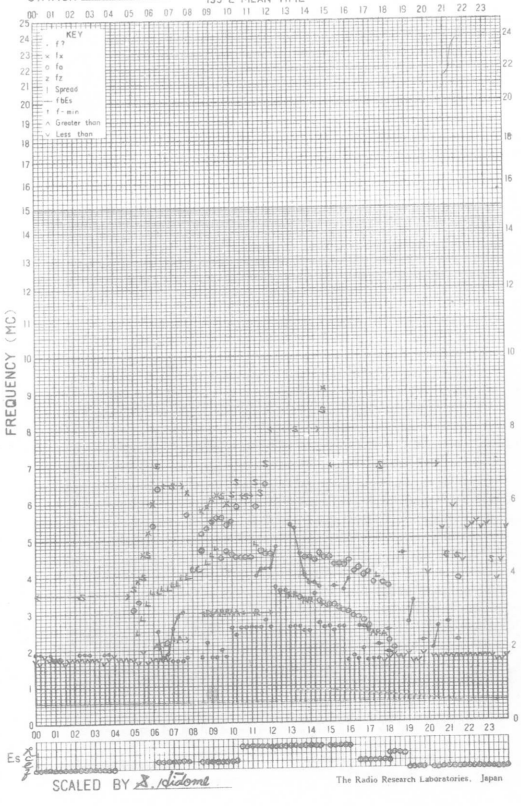

SCALED BY S. Ishioma

The Radio Research Laboratories, Japan

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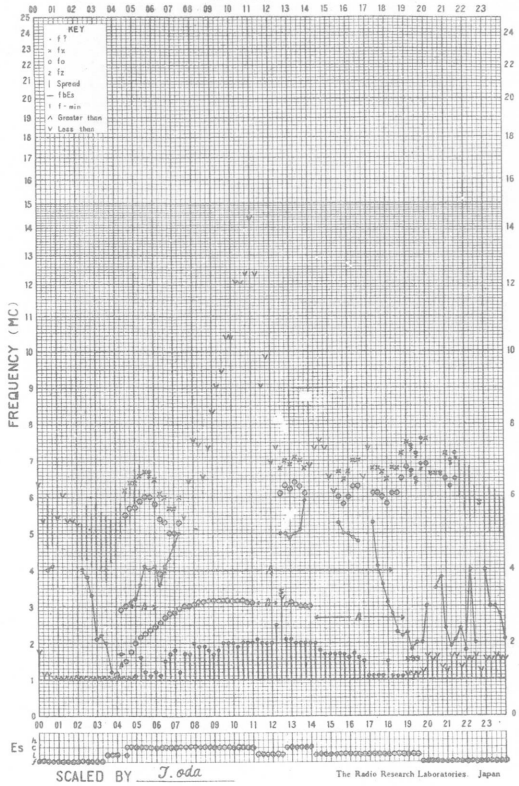

SCALED BY J. oda The Radio Research Laboratories, Japan

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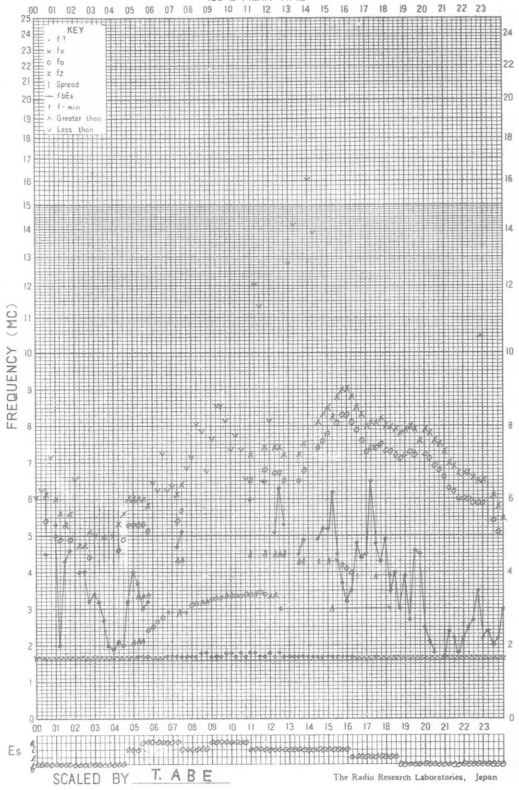

SCALED BY T. ABE The Radio Research Laboratories, Japan

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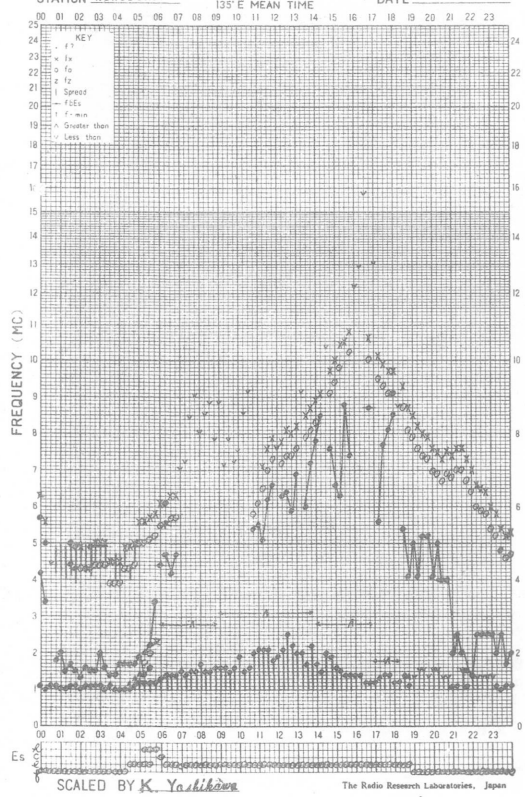

SCALED BY K. Yashikawa The Radio Research Laboratories, Japan

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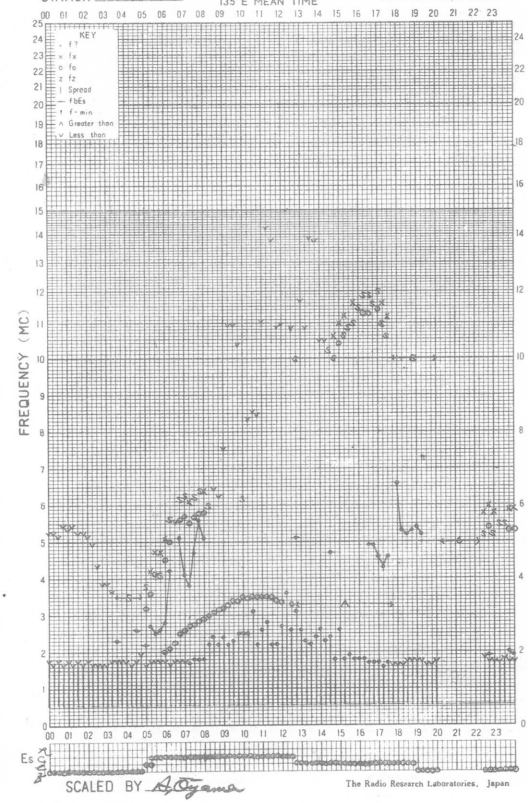

SCALED BY A. Ogawa The Radio Research Laboratories, Japan

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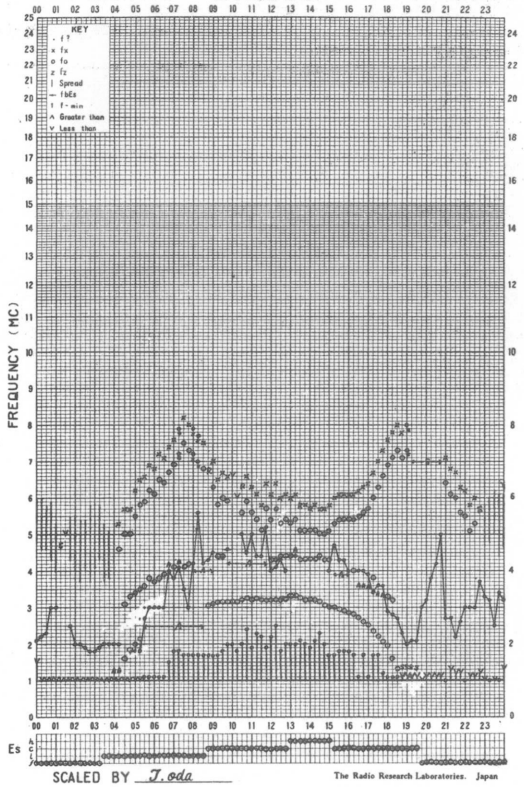

SCALED BY J. Oda

The Radio Research Laboratories, Japan

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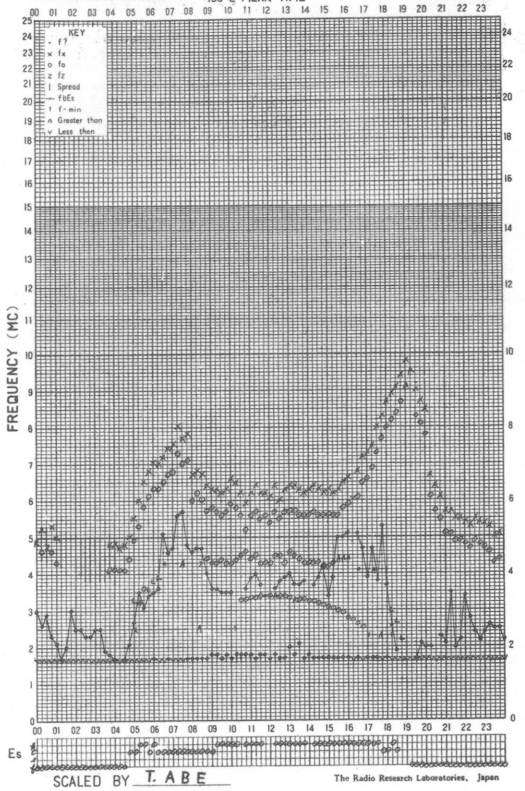

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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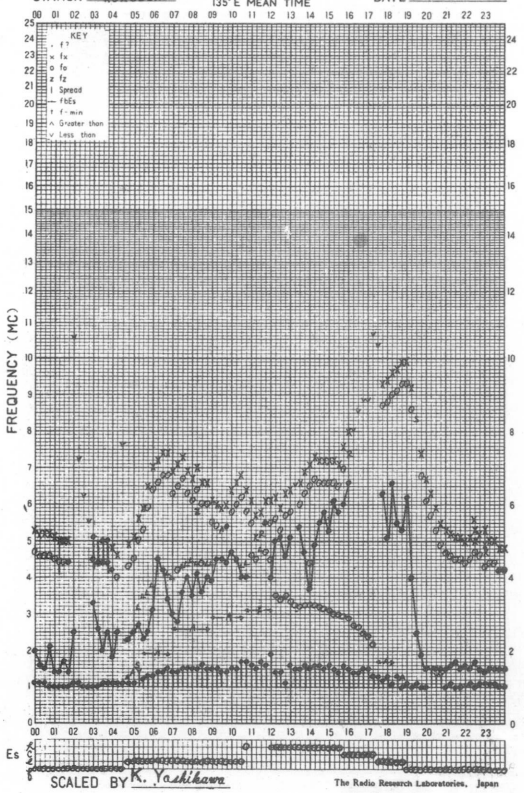

SCALED BY K. Yashikawa

The Radio Research Laboratories, Japan

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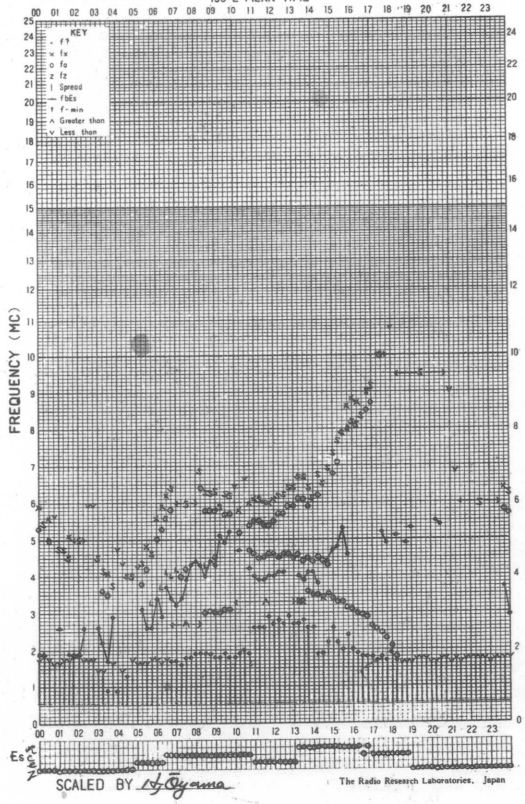

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The Radio Research Laboratories, Japan

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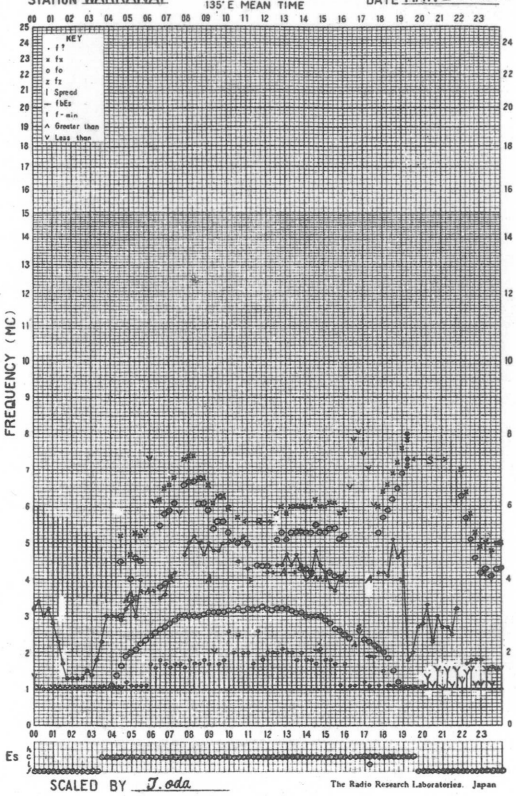

SCALED BY J. oda

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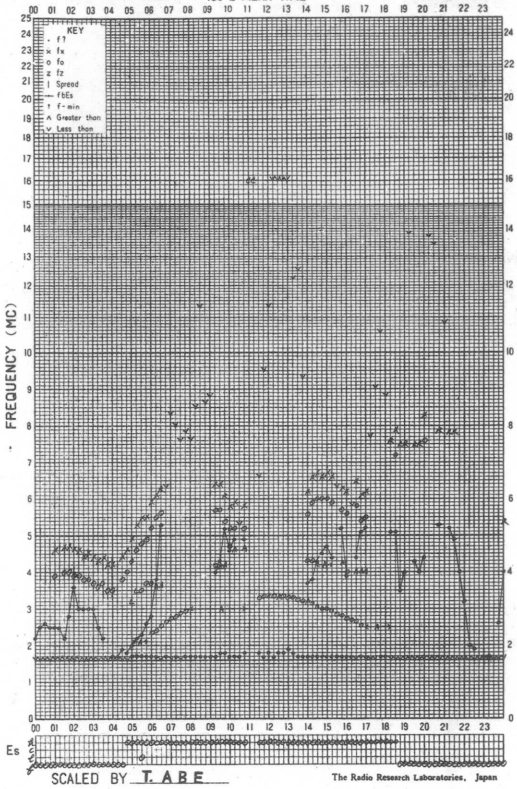

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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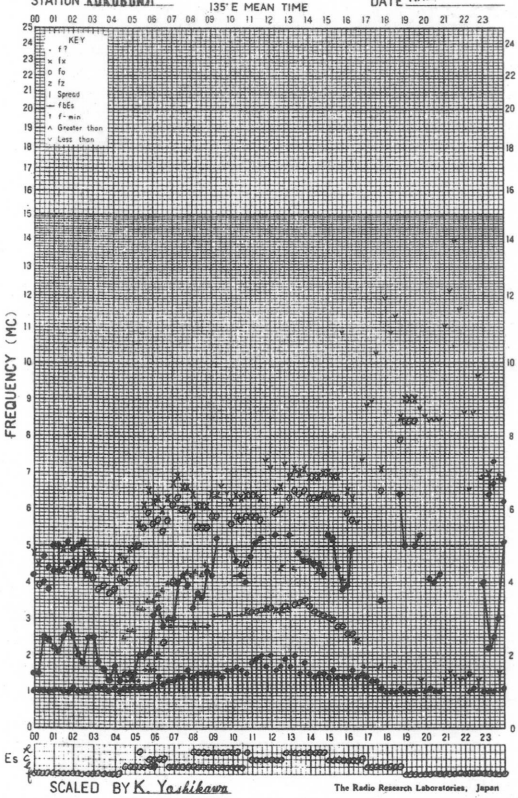

SCALED BY K. Yashikawa

The Radio Research Laboratories, Japan

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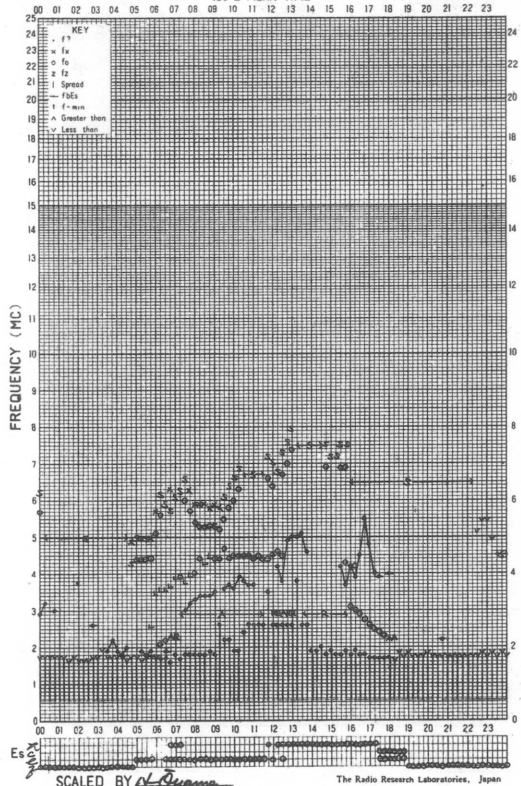

SCALED BY A. Oyama

The Radio Research Laboratories, Japan

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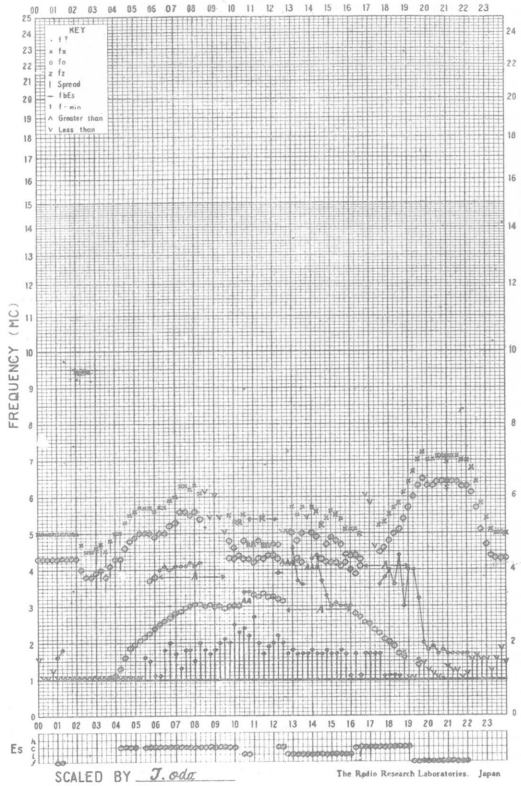

SCALED BY J. oda

The Radio Research Laboratories, Japan

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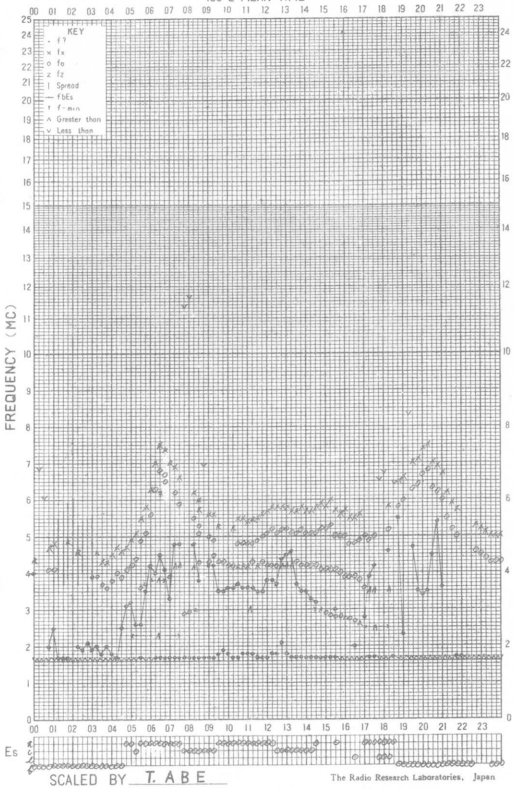

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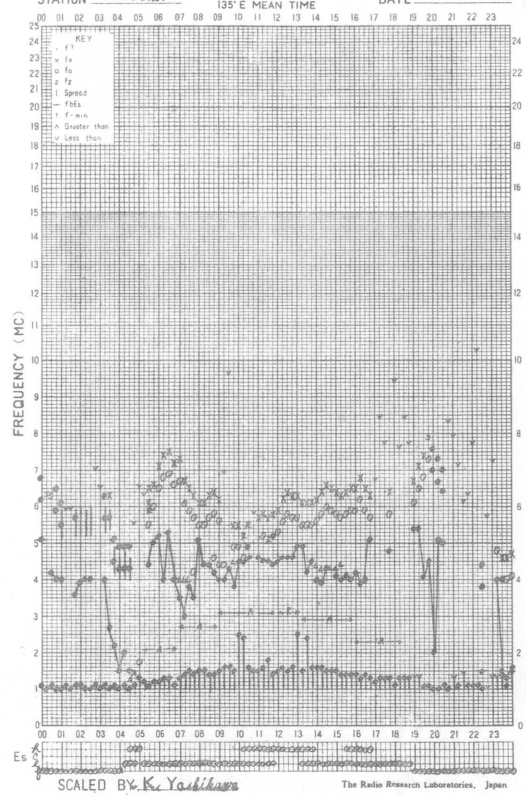

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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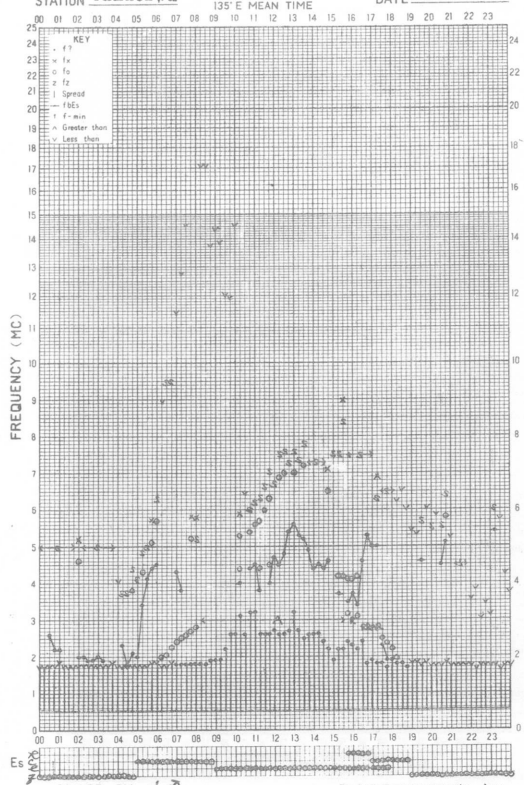

SCALED BY N. Ogawa

The Radio Research Laboratories, Japan

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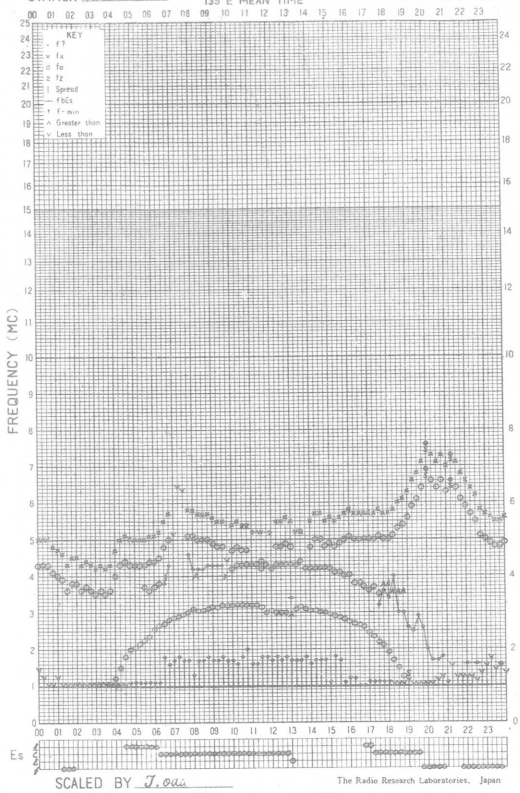

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The Radio Research Laboratories, Japan

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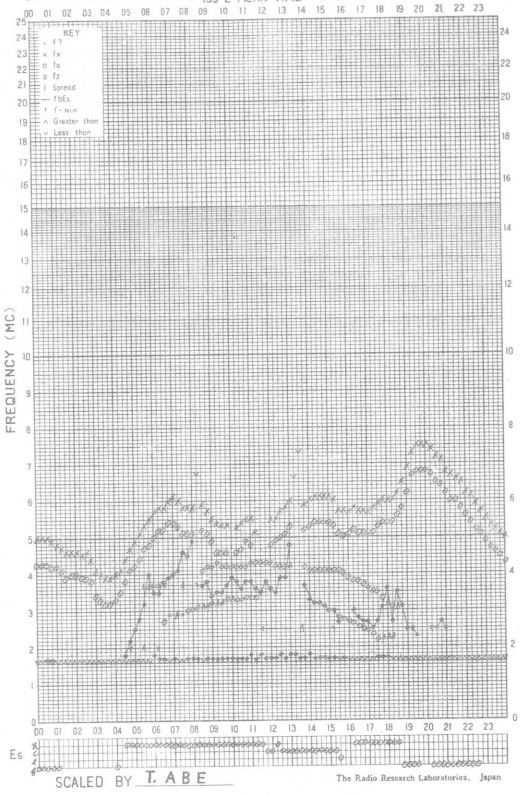

SCALED BY T. ABE

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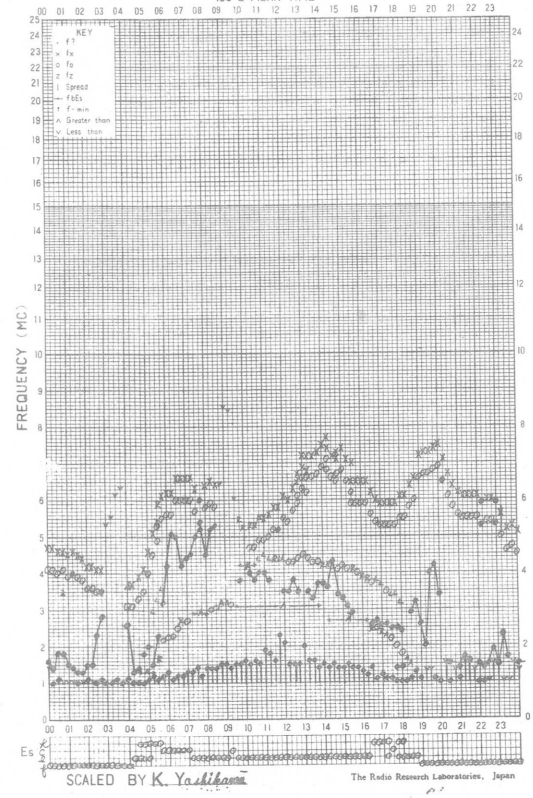

SCALED BY K. Yoshikami

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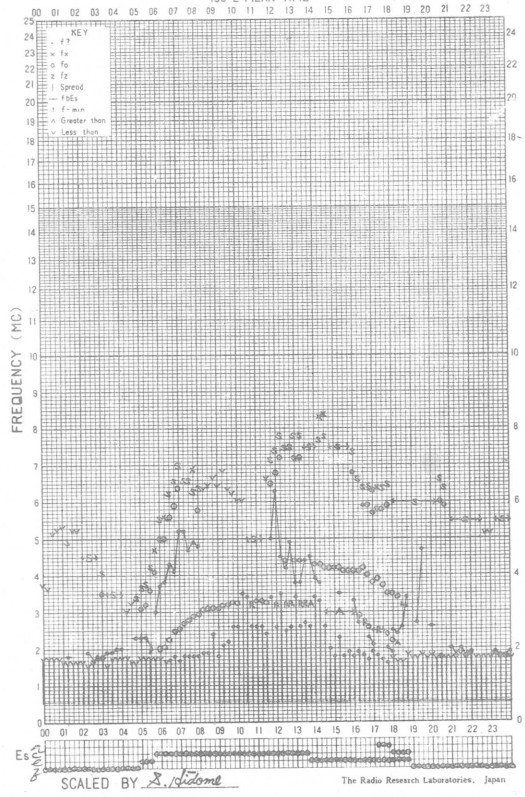

SCALED BY S. Tidome

The Radio Research Laboratories, Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: May 1965.
Observing Station: Hiraiso
Frequency: 200 Mc/s

	Flux density 10^{-22} Wm^{-2}(c/s)$^{-1}$					Variability 0 to 3				
UT	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
Date										
1	5	5	5	5	5	0	0	0	0	0
2	5	4	4	5	5	0	0	0	0	0
3	5	4	4	6	5	0	0	0	0	0
4	5	5	5	5	5	0	0	0	0	0
5	5	6	5	7	5	0	0	0	0	0
6	5	-	5	-	6	0	-	0	-	0
7	6	5	5	-	5	0	0	0	-	0
8	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	6	5	-	6	6	0	0	-	0	0
12	5	6	6	5	6	0	0	0	0	0
13	5	4	4	5	4	0	0	0	0	0
14	5	-	-	-	5	0	-	-	-	0
15	6	6	6	5	6	0	0	0	0	0
16	6	5	5	6	5	0	0	0	0	0
17	5	4	-	-	5	0	0	-	-	0
18	-	-	-	-	-	-	-	-	-	-
19	6	5	(5)	5	5	0	0	(0)	0	0
20	6	6	5	5	6	0	0	0	2	0
21	6	8	7	6	7	2	1	1	1	2
22	5	5	6	6	5	1	1	1	1	1
23	6	6	6	6	6	1	0	0	0	1
24	6	5	5	6	5	0	0	0	1	0
25	5	7	6	5	6	0	0	0	0	0
26	5	5	(5)	-	5	0	0	(0)	-	0
27	-	-	-	-	-	-	-	-	-	-
28	5	5	5	6	5	0	0	0	0	0
29	6	5	5	-	5	0	0	0	-	0
30	(5)	5	6	5	5	(0)	0	0	0	0
31	5	5	(5)	5	5	0	0	(0)	0	0

Note No observations during the following periods:

6th	0335-		0720	19th	0630-		0940
6th	1930-	7th	0005	21st	0300-		0425
7th	1930-	10th	2400	26th	0700-	28th	0010
11th	0600-		0940	29th	1930-	30th	0220
14th	0230-		2400	31st	0700-		0940
17th	0600-	18th	2340				

SOLAR RADIO EMISSION

Flux Density

Month: May 1965.
Observing Station: Hiraiso Frequency: 500 Mc/s

Flux density 10^{-22} $Wm^{-2}(c/s)^{-1}$

UT	00-03	03-06	06-09	21-24	Day
Date					
1	26	26	26	24	25
2	26	26	26	-	26
3	(27)	28	25	22	27
4	25	26	26	24	25
5	25	26	25	24	25
6	25	26	25	24	25
7	25	27	25	-	25
8	26	26	24	22	25
9	24	25	24	-	24
10	24	25	24	21	25
11	23	24	25	20	23
12	23	23	23	20	22
13	22	24	24	-	22
14	25	26	26	23	25
15	24	26	25	-	24
16	-	25	23	20	24
17	25	24	26	23	23
18	26	26	25	(27)	25
19	26	28	25	24	27
20	27	28	28	25	27
21	31	30	29	26	29
22	30	30	29	25	29
23	28	30	26	24	27
24	28	28	27	25	27
25	(26)	27	24	22	25
26	25	25	24	23	24
27	24	25	23	23	24
28	26	26	24	24	25
29	26	27	25	27	25
30	26	25	26	24	26
31	28	26	26	26	26

Note No observations during the following periods:

2nd	1930-	3rd	0200	15th	1930-	16th	0300
7th	1930-		2400	18th	1930-		2300
10th	1930-		2400	25th	0100-		0300
13th	1930-		2400	25th	0500-		0700

Distinctive Events

(single-frequency observations)

Month: May 1965.
Observing Station: Hiraiso
Normal observing period: 1930 - 0940 (sunrise to sunset)

Date	Frequency	Starting time	Time of Maximum	Duration	Type	Flux density 10^{-22} Wm^{-2}(c/s)$^{-1}$		Remarks
	Mc/s	UT	UT	minutes		peak	mean	
20	200	2335	2336.5	2	C	150	20	
21	200	2332	2332.5	1	C	191	39	
	500	2332.5	2330	1	C	28	16	
25	200	2241	2243	4	C	142	22	
	500	2241.5	2243	4.5	C	21	10	

Errata

Daily flux of 500 Mc/s. April, 1965

day	interval	read	for
30	21-24	21	24

Measurement of H.F. Field Strength (Upper Side-band of WWV)

Oct. 1964 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

UT / Date	0015	0115	0215	0315	0415	0515	0615	0715	0815	0915	1015	1115	1215	1315	1415	1515	1615	1715	1815	1915	2015	2115	2215	2315
1	- 8	<-18s	<-32s	-15	<-18s	<-12s	<-33s	<-26s	<-26s	<-24s	<-24s	<-33s	<-28s	<-38s	<-38s	<-38s	<-39s	<-40s	<-38s	-38s	-27	-12	-11	- 9
2	<- 3s	<-19s	<-37s	<-38s	<-13s	<-11s	<-32s	<-28s	-22s	-14s	<-25s	<-34s	-31	-34s	<-35s	<-39s	-39s	<-39s	<-38s	-39s	-26	- 3	-11	-24
3	-17	<-37s	<-36s	-33	<-24s	<-14s	<-31s	<-27s	-25s	< 0s	-31s	<-31s	-32s	-33s	<-33s	<-39s	<-39s	<-40s	<-40s	-40s	-25	- 9	- 3	- 4
4	- 7	-16	-23	<-27s	<-18s	<-14s	<-32s	<-28s	<-28s	<-38s	<-36s	-34s	-34s	-34s	<-35s	<-41s	<-41s	<-41s	<-41s	-41s	-11	- 3	-14	1
5	C	-15	-37	-28	<-14s	<-14s	<-39s	-34s	-27s	-39s	-39s	C	C	C	C	C	C	C	C	C	C	C	C	C
6	- 9	-23	-13	<-12s	<-17s	<-18s	<-33s	<-27s	C	C	C	C	C	C	-39s	<-13s	<-29s	-29	-30	<-32s	-28	-17	-17	C
7	C	C	C	C	<-15s	<-14s	<-37s	-37s	<-30s	-21s	<-25s	<-29s	-21s	-21s	-26s	-42s	<-42s	<-42s	<-42s	-42s	-13	- 9	-14	- 6
8	- 9	-16	<-32s	<-36s	<-28s	<-17s	<-38s	-21s	<-20s	-26s	<-36s	<-37s	-37s	-37s	-37s	<-38s	-38s	<-39s	-29	<-39s	-28	- 4	- 2	- 5
9	3	<-18s	<-20s	<-34s	<-19s	<-16s	<-30s	-25s	<-18s	-20s	<-39s	-35s	-29s	-37s	-34s	<-39s	<-39s	<-39s	-22	- 8	-14	- 6	- 4	- 5
10	-10	-20	<-37s	<-39s	<-14s	<-18s	<-17s	-23s	<-27s	<-28s	-29s	<-29s	-17s	-31s	-25	-39s	<-39s	-33	-15	-31	-12	- 5	- 5	-11
11	- 6	<-28s	<-27s	<-40s	<-16s	<-17s	<-31s	<-21s	<-21s	-26s	<-33s	-33s	<-33s	-19s	-17	<-38s	<-39s	-34	-12	-13	- 7	- 6	-16	- 8
12	-11	<-32s	<-17s	<-18s	<-10s	<-15s	<-13s	<-20s	<-21s	-28s	<-32s	-28s	<-36s	-38s	-38s	<-39s	<-39s	<-39s	-21	<-38s	<-39s	-15	-10	-20
13	<- 5s	<-22s	<-27s	<-21s	<-12s	<- 7s	<-18s	<-18s	<-18s	-23s	<-23s	-31s	<-15s	-37s	-37s	<-40s	<-40s	<-40s	<-40s	<-40s	-35	- 8	- 4	- 6
14	- 4	<-32s	<-13s	C	<- 8s	<- 9s	<-19s	<-21s	<-26s	-33s	<-27s	-30s	<-37s	-38s	<-38s	<-31s	<-39s	<-39s	<-38s	-20	-15	- 3	- 1	- 3
15	- 4	<-27s	<-30s	<-30s	<-16s	<-14s	<-23s	<-22s	<-30s	-33s	<-37s	<-37s	<-38s	-38s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	-12	-18	-12	- 7
16	-15	-22	<-30s	<-28s	<-21s	<-20s	-22	<-21s	<-20s	<-24s	<-37s	<-31s	<-38s	<-38s	<-39s	<-40s	<-40s	<-40s	-15	-16	-10	- 1	2	- 1
17	-13	<-30s	<-26s	<-29s	<-17s	<-16s	<-32s	<-25s	<-23s	<-26s	<-35s	<-35s	<-32s	<-35s	<-39s	<-38s	<-38s	-38s	-25	-23	-24	10	2	- 1
18	- 1	<-27s	C	C	C	C	C	C	C	<-31s	<-34s	<-35s	<-35s	<-35s	<-35s	<-39s	<-39s	<-39s	<-39s	-24	-29	- 9	- 8	- 1
19	- 5	-28	-27	<-28s	<-21s	<-21s	-28s	<-26s	-21	<-23s	<-29s	<-29s	<-31s	-35s	<-39s	<-32s	<-36s	<-32s	- 6	-22	-22	1	- 4	2
20	-11	<-28s	<-28s	<-28s	<-19s	<-13s	<-32s	<-26s	<-32s	<-27s	-36s	<-36s	<-36s	<-36s	<-36s	-33	-36	-25	-13	-13	- 8	- 4	-13	- 3
21	- 5	<-12s	<-33s	<-31s	<-12s	<-18s	<-29s	<-28s	<-31s	<-31s	-31s	<-26s	<-38s	-28	-25	(-30s	-26	<-16s	-17	-26	-12	-17	-12	- 3
22	- 3	-30	<-25s	-15	<-23s	<-23s	<-25s	-23	<-24s	<-34s	-37s	<-32s	<-31s	-28	-25	-30	<-31s	<-41s	<-41s	-23	-31	- 5	- 3	- 8
23	-25	-23	<-23s	-25	<-11s	<-15s	<-25s	-26s	<-28s	<-31s	-35s	<-29s	<-31s	<-26s	-28	<-35s	<-39s	<-39s	<-40s	-23	-18	-10	- 6	-12
24	<-26s	-24	<-25s	<-29s	<-15s	<-23s	<-29s	<-22s	<-26s	<-33s	<-30s	<-30s	-33s	-21	<-34s	-13	-12	- 8	- 9	-18	- 9	- 5	- 7	1
25	<-19s	<-30s	<-27s	<-34s	<-16s	<-11s	<-28s	<-24s	<-25s	<-31s	<-35s	<-28s	<-31s	-25	-31	<-32s	<-35s	-28	<-36s	C	C	C	C	C
26	-22	-26	-22	< 13s	<-17s	<- 2s	<-31s	<-26s	<-26s	<-25s	<-33s	<-16s	-29	-29	<-38s	<-37s	<-37s	<-37s	<-36s	<-36s	<-32s	-15	- 7	- 7
27	< 4s	<-26s	<-17s	-21	<-19s	<-14s	-25	<-23s	<-28s	<-29s	<-35s	-28	<-36s	<-36s	<-36s	<-39s	<-39s	<-38s	<-39s	<-39s	<-35s	-14	-11	- 8
28	-11	<-33s	<-37s	<-41s	<-19s	<-21s	<-26s	<-26s	<-27s	<-34s	<-34s	<-26s	<-34s	<-34s	<-34s	<-38s	<-38s	<-38s	<-38s	<-38s	-31	-15	- 7	- 5
29	- 8	-18	<-37s	<-37s	<-17s	<-13s	<-36s	<-24s	<-23s	<-32s	<-37s	<-20s	<-38s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	-31	-12	- 4	1
30	-12	<-28s	-24	-27	<-10s	< 2s	-27	<-27s	<-37s	<-30s	<-30s	<-26s	-32s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	-27	-27	- 2	2	- 3
31	-12	-22	-20	-16	<-25s	<-15s	<-28s	<-27s	<-25s	-38s	<-33s	<-25s	-34s	<-39s	<-39s	<-40s	-35	-39	-28	-11	-13	- 1	0	- 8
Median	(-10s	<-25s	<-27s	<-28s	<-27s	<-14s	<-29s	<-26s	<-26s	<-28s	<-34s	<-30s	<-33s	<-35s	<-36s	<-38s	<-39s	<-39s	<-37s	-31	-24	- 6	- 7	- 5
Med. Count	29	30	29	28	30	30	30	30	29	30	30	29	29	29	30	30	30	30	30	29	29	29	29	28
Upper decile	<- 1s	<-16s	<-17s	<-15s	<-10s	<- 7s	<-18s	<-21s	-20s	<-20s	<-25s	<-25s	<-21s	<-21s	-25	<-30s	<-29s	<-25s	-12	-13	- 9	- 1	2	1
Lower decile	<-22s	<-32s	<-37s	<-39s	<-24s	<-21s	<-37s	<-28s	<-31s	<-38s	<-37s	<-36s	<-38s	<-39s	<-39s	<-40s	<-40s	<-41s	<-41s	<-40s	<-35s	-17	-14	-12

Measurement of H.F. Field Strength (Upper Side-band of WWV)

Nov. 1964 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

UT Date	0015	0115	0215	0315	0415	0515	0615	0715	0815	0915	1015	1115	1215	1315	1415	1515	1615	1715	1815	1915	2015	2115	2215	2315
1	-16	<-38s	<-28s	-30	<-16s	<-13s	<-34s	<-31s	<-27s	<-24s	<-25s	<-28s	<-37s	-28	-30	<-33s	-14	-30	-26	- 4	- 2	-12	5	5
2	1	-31	<-26s	<-29s	<-15s	<- 9s	<-25s	<-16s	<-22s	<-25s	<-25s	<-23s	<-29s	-29	-13	-26	-23	-15	-21	- 2	2	0	4	1
3	-27	-26	<-28s	<-35s	<-14s	<-13s	<-30s	<-26s	<-30s	<-30s	<-35s	<-35s	<-31s	<-36s	-20	-24	<-37s	<-24s	-24	- 6	-13	-.9	0	<- 8s
4	<-21s	<-28s	<-35s	-23	<-14s	-11	-26	<-35s	<-34s	<-36s	<-36s	<-36s	<-37s	<-37s	<-37s	<-37s	<-36s	<-36s	-31	-20	<-36s	-10	0	3
5	- 2	<-25s	<-25s	<-30s	<-13s	<-18s	<-32s	<-30s	<-30s	<-34s	<-34s	<-34s	<-37s	<-37s	<-37s	<-38s	<-37s	<-38s	<-38s	-24	<-31s	- 8	- 5	- 6
6	- 3	-26	<-27s	<-31s	<-18s	<-16s	<-36s	<-32s	<-24s	<-29s	<-34s	<-30s	<-38s	<-32s	<-38s	<-40s	<-40s	<-40s	<-40s	<-40s	-29	-16	- 6	<- 8s
7	<-40s	<-30s	<-41s	<-37s	<-15s	<-20s	<-34s	<-25s	<-37s	<-37s	<-37s	<-31s	<-39s	<-35s	<-39s	<-36s	<-36s	<-36s	<-36s	-36	-27	- 4	2	2
8	<-28s	<-19s	<-19s	<-39s	C	C	C	<-34s	<-35s	<-36s	<-36s	<-36s	<-36s	<-36s	<-36s	-33	<-36s	-33	-26	-15	-19	-23	- 4	- 3
9	-23	-30	<-41s	<-40s	<-16s	<-15s	<-32s	<-29s	<-28s	<-33s	<-33s	<-33s	<-33s	<-33s	<-33s	-25	(-39)s	<-39s	<-39s	<-39s	<-27s	C	C	C
10	- 9	-19	<-28s	<-37s	<- 9s	< 0s	<-32s	<-23s	<-36s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	C	C	C	C	C	C	- 3	- 6	- 8
11	<-31s	<-27s	<-22s	<-28s	<- 7s	<-13s	<-29s	<-30s	<-32s	<-34s	<-36s	<-39s	<-36s	<-40s	<-40s	<-41s	<-41s	<-41s	<-41s	-18	-12	- 7	4	- 7
12	<-26s	<-39s	<-30s	<-29s	<-14s	<-15s	<-32s	<-28s	<-32s	<-36s	<-37s	<-37s	<-37s	<-38s	<-38s	<-40s	<-40s	<-41s	<-41s	<-40s	-16	-17	- 5	- 4
13	<-30s	<-31s	<-31s	<-27s	<-12s	<- 6s	<-25s	<-31s	<-33s	<-29s	<-37s	<-39s	<-39s	<-39s	-30	-33	-32	-34	<-40s	-27	<-35s	-18	- 5	- 4
14	<-16s	<-33s	<-33s	<-34s	<-14s	<-20s	<-33s	<-29s	<-33s	<-39s	<-39s	<-39s	<-40s	<-21s	<-40s	<-40s	<-40s	<-40s	<-39s	<-39s	-34	-11	2	<- 3s
15	<-29s	<-25s	<-30s	<-31s	<-11s	<-18s	<-33s	<-32s	<-35s	<-35s	<-39s	<-35s	<-39s	<-40s	<-40s	<-37s	<-34s	<-36s	<-34s	<-42s	-30	- 7	13	3
16	- 1	<-20s	<-26s	<-30s	-14	- 8	- 6	<-23s	<-23s	<-23s	<-27s	<- 6s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	-21	-20	-12	- 1	-11	-12
17	<-26s	<-25s	-22	-20	<-16s	<-13s	-26	<-30s	<-31s	<-23s	<-30s	<-31s	<-38s	-35	-28	-33	-33	-27	-20	-28	<-34s	-13	- 6	- 4
18	<-26s	<-29s	<-27s	<-29s	<-17s	<-19s	<-32s	<-35s	<-34s	<-36s	<-36s	<-23s	<-35s	(-30)s	-22	<-36s	<-37s	<-20s	<-27s	<-25s	<- 8s	- 6	- 5	- 1
19	<-26s	<-24s	<-27s	<-37s	<-19s	<-14s	<-30s	<-23s	<-33s	<-34s	<-34s	<-38s	<-38s	-21	<-39s	<-38s	<-38s	<-38s	<-38s	<-38s	-34	1	8	- 8
20	<-25s	<-25s	<-28s	<-32s	<-35s	<-18s	<-29s	<-25s	<-38s	<-38s	<-39s	<-39s	<-39s	<-39s	<-39s	<-38s	<-37s	<-34s	<-37s	<-37s	<-33s	- 2	11	1
21	<-25s	<-24s	<-37s	<-30s	<-13s	<-13s	<-29s	<-28s	<-37s	<-34s	<-38s	<-38s	<-38s	<-39s	<-40s	<-38s	<-39s	<-39s	<-35s	<-38s	<-33s	- 2	7	- 7
22	<-32s	<-30s	<-25s	<-19s	<-12s	<- 3s	<-31s	<-38s	<-35s	<-38s	<-38s	<-38s	<-38s	<-39s	<-39s	<-39s	<-39s	<-40s	<-39s	<-39s	<-30s	1	9	4
23	- 9	-11	-26	<-32s	- 5	<-15s	<-28s	<-30s	<-29s	<-37s	<-37s	<-23s	<-38s	<-37s	<-38s	<-39s	<-39s	<-35s	<-34s	<-34s	-27	-23	-22	<-10s
24	<-18s	<-22s	<-23s	<-25s	<-20s	<-20s	<-31s	<-31s	<-29s	<-32s	<-38s	<-19s	<-38s	<-39s	<-38s	<-39s	<-39s	<-39s	<-40s	<-40s	-33	- 2	2	<-16s
25	<-28s	<-28s	<-26s	<-11s	<- 1s	<-14s	<-29s	<-35s	<-35s	<-39s	<-40s	<-33s	<-40s	<-40s	<-40s	<-40s	<-40s	<-39s	<-39s	<-39s	<-39s	<-22s	2	<- 7s
26	<-35s	<-24s	<-25s	<-38s	<- 9s	<- 9s	<-29s	<-32s	<-35s	<-38s	<-38s	<-35s	<-39s	<-38s	<-39s	<-40s	<-39s	<-39s	<-39s	<-39s	<-29s	-13	0	<- 9s
27	<-25s	<-23s	<-22s	<-25s	<-11s	<- 6s	<-16s	<-24s	<-31s	<-36s	<-33s	<-40s	<-40s	<-41s	<-40s	<-40s	<-39s	<-39s	<-40s	C	C	C	C	C
28	-20	<-23s	<-22s	<-37s	<- 8s	<-13s	<-29s	<-24s	<-25s	<-25s	<-25s	<-25s	<-25s	<-26s	<-25s	<-29s	<-22s	<-34s	-39	-30	<-17s	-16	0	- 7
29	<-27s	<-26s	<-23s	<-26s	<- 5s	<-10s	<-26s	<-27s	<-33s	<-37s	<-37s	<-38s	<-39s	<-39s	<-39s	<-40s	<-40s	<-41s	<-41s	<-41s	<-28s	-22	- 1	4
30	<-31s	<-31s	<-27s	<-35s	<-21s	<-13s	<-32s	-19	<-34s	<-35s	<-41s	<-41s	<-42s	<-40s	<-40s	<-37s	<-37s	<-37s	<-38s	-20	<-14s	-20	10	4
Median	<-20s	<-26s	<-27s	<-30s	<-14s	<-13s	<-30s	<-30s	<-33s	<-35s	<-36s	<-35s	<-38s	<-37s	<-38s	<-38s	<-38s	<-38s	<-38s	<-35s	(-30)s	-10	0	<- 4s
Med. Count	30	30	30	30	29	29	29	30	30	30	30	30	30	30	30	29	29	29	29	28	28	28	28	28
Upper decile	- 2	<-19s	<-22s	<-20s	<- 5s	<- 6s	<-25s	<-23s	<-24s	<-24s	<-25s	<-23s	<-31s	<-26s	-22	-26	<-23s	<-24s	-21	- 6	<- 8s	0	10	4
Lower decile	<-32s	<-33s	<-37s	<-38s	<-20s	<-20s	<-34s	<-35s	<-37s	<-38s	<-39s	<-39s	<-40s	<-40s	<-40s	<-40s	<-40s	<-41s	<-41s	<-40s	<-35s	<-22s	- 6	<-10s

Measurement of H.F. Field Strength (Upper Side-band of WWV)

Dec. 1964 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

UT Date	0015	0115	0215	0315	0415	0515	0615	0715	0815	0915	1015	1115	1215	1315	1415	1515	1615	1715	1815	1915	2015	2115	2215	2315
1	⩽17s	-20	⩽23s	⩽19s	⩽ 5s	< 0s	⩽23s	⩽19s	⩽23s	⩽37s	⩽37s	⩽29s	⩽36s	⩽37s	⩽38s	⩽38s	⩽38s	⩽37s	⩽38s	⩽38s	⩽17s	-24	- 7	- 7
2	⩽33s	⩽24s	⩽33s	⩽32s	⩽ 7s	⩽13s	-24	-28	⩽33s	⩽33s	⩽28s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽37s	⩽38s	⩽38s	⩽38s	⩽15s	- 8	- 8	1
3	⩽27s	⩽24s	⩽30s	⩽36s	⩽17s	⩽18s	-21	⩽32s	⩽36s	⩽37s	⩽38s	⩽37s	⩽37s	⩽38s	⩽38s	⩽37s	⩽37s	⩽37s	⩽38s	⩽38s	⩽37s	-24	- 2	- 9
4	⩽27s	⩽18s	⩽30s	⩽36s	⩽13s	⩽ 9s	-22	⩽30s	⩽37s	⩽37s	⩽38s	⩽31s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽36s	⩽36s	⩽36s	C	C	C
5	- 6	-19	-23	-35	⩽20s	⩽17s	⩽35s	⩽35s	⩽36s	⩽37s	⩽37s	⩽18s	⩽37s	⩽37s	⩽37s	⩽37s	⩽38s	⩽37s	⩽38s	⩽38s	⩽22s	-22	- 1	-11
6	-13	⩽27s	⩽34s	-28	⩽20s	⩽18s	⩽36s	⩽20s	⩽27s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽39s	⩽38s	⩽39s	⩽39s	⩽38s	⩽38s	-22	- 3	⩽14s
7	C	-25	⩽32s	⩽36s	⩽ 9s	⩽ 2s	⩽32s	⩽31s	⩽36s	⩽38s	⩽36s	⩽37s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽37s	⩽38s	⩽37s	⩽37s	-12	5	- 1
8	⩽30s	⩽21s	⩽28s	⩽36s	⩽ 6s	⩽10s	⩽27s	⩽30s	⩽30s	⩽31s	⩽36s	⩽37s	⩽37s	⩽38s	-31	-31	⩽37s	⩽37s	⩽38s	⩽33s	-26	-10	2	⩽10s
9	C	⩽24s	⩽24s	⩽24s	⩽ 8s	⩽11s	⩽28s	⩽28s	⩽33s	⩽37s	⩽32s	⩽32s	⩽34s	⩽38s	⩽39s	⩽39s	⩽39s	⩽39s	⩽38s	⩽38s	-34	-14	10	- 7
10	⩽22s	⩽28s	⩽23s	⩽25s	⩽13s	⩽15s	⩽26s	⩽31s	⩽37s	⩽38s	⩽38s	⩽37s	⩽38s	⩽38s	⩽39s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	-21	0	-14
11	⩽30s	⩽32s	⩽29s	⩽34s	⩽10s	⩽13s	⩽31s	⩽32s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽38s	⩽39s	⩽39s	⩽39s	⩽38s	⩽38s	⩽38s	-31	-20	6	- 9
12	⩽26s	⩽31s	⩽34s	⩽36s	- 8	⩽24s	⩽36s	⩽33s	⩽29s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽36s	-19	12	- 9
13	(-23)s	⩽24s	⩽36s	⩽31s	⩽19s	⩽15s	⩽38s	⩽32s	⩽34s	⩽35s	⩽35s	⩽39s	⩽40s	⩽39s	⩽39s	⩽34s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	-21	- 5	-14
14	-24	⩽28s	⩽26s	⩽31s	⩽14s	⩽11s	-22	-24	⩽29s	⩽32s	⩽32s	⩽35s	⩽27s	⩽31s	⩽35s	⩽36s	⩽36s	⩽36s	⩽35s	⩽35s	⩽35s	-27	- 2	C
15	C	-25	⩽32s	⩽33s	⩽11s	< 1s	-25	-22	⩽30s	⩽32s	⩽32s	⩽34s	⩽34s	⩽34s	⩽34s	⩽34s	⩽34s	⩽34s	⩽34s	⩽34s	-33	-16	1	- 6
16	-18	⩽22s	⩽29s	⩽28s	⩽20s	⩽ 9s	⩽33s	⩽26s	⩽34s	⩽30s	⩽35s	⩽34s	⩽35s	⩽35s	⩽35s	⩽35s	⩽35s	⩽35s	⩽35s	⩽35s	⩽35s	-14	0	5
17	0	6	⩽30s	⩽25s	⩽15s	⩽ 2s	⩽32s	⩽25s	⩽30s	⩽30s	⩽27s	⩽26s	⩽30s	⩽33s	⩽34s	⩽31s	⩽35s	⩽35s	⩽35s	⩽31s	-15	-27	7	- 1
18	-22	⩽ 8s	⩽24s	⩽25s	⩽ 8s	⩽ 8s	⩽27s	⩽27s	⩽28s	⩽24s	⩽34s	⩽35s	⩽35s	⩽35s	⩽34s	⩽33s	⩽40s	⩽40s	⩽40s	⩽40s	⩽40s	12	3	4
19	-13	-11	-12	-25	⩽13s	⩽14s	⩽27s	⩽25s	⩽30s	⩽29s	⩽33s	⩽27s	⩽38s	⩽37s	⩽37s	⩽31s	⩽31s	⩽25s	⩽25s	⩽24s	⩽31s	-16	- 4	- 3
20	-14	⩽27s	⩽27s	⩽23s	⩽14s	⩽21s	⩽27s	⩽26s	⩽31s	⩽32s	⩽39s	⩽33s	⩽33s	⩽33s	⩽33s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽18s	-21	- 3	- 3
21	-12	-12	-18	-19	⩽15s	⩽ 9s	⩽25s	⩽26s	⩽33s	⩽33s	⩽30s	⩽37s	⩽38s	⩽37s	⩽42s	-29	⩽40s	⩽32s	⩽33s	⩽33s	⩽33s	-23	- 2	4
22	-16	-22	-25	-24	⩽ 7s	⩽18s	⩽30s	⩽30s	⩽37s	⩽35s	⩽35s	⩽35s	⩽39s	⩽39s	⩽39s	⩽40s	⩽41s	⩽41s	⩽41s	⩽41s	⩽41s	-32	- 1	-22
23	⩽32s	⩽34s	⩽36s	⩽32s	⩽17s	⩽27s	⩽32s	⩽31s	⩽34s	⩽40s	⩽40s	⩽41s	⩽42s	⩽42s	⩽41s	⩽42s	⩽41s	⩽41s	⩽41s	⩽41s	⩽41s	-30	1	- 4
24	⩽27s	⩽28s	⩽28s	⩽30s	⩽12s	⩽14s	⩽26s	⩽28s	⩽32s	⩽32s	⩽39s	⩽35s	⩽39s	⩽40s	⩽40s	⩽41s	⩽41s	⩽41s	⩽41s	⩽41s	⩽41s	⩽34s	-10	⩽17s
25	⩽22s	⩽29s	⩽29s	⩽29s	⩽14s	⩽25s	⩽32s	⩽31s	⩽32s	⩽34s	⩽36s	⩽36s	⩽36s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽35s	- 1	- 7
26	1	⩽29s	⩽18s	⩽28s	⩽10s	⩽13s	⩽12s	⩽31s	⩽35s	⩽36s	⩽36s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	-29	⩽36s	-17	- 6	- 8
27	-19	⩽25s	-18	-17	-19	-20	-25	⩽32s	⩽36s	⩽36s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽39s	⩽39s	⩽39s	⩽39s	⩽38s	⩽38s	-26	0	- 5
28	-15	⩽24s	⩽29s	-24	⩽26s	⩽10s	-22	⩽29s	⩽33s	⩽37s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	⩽33s	- 4	- 5
29	-18	⩽24s	⩽25s	-17	⩽12s	⩽ 8s	⩽28s	⩽28s	⩽31s	⩽33s	⩽26s	⩽36s	⩽37s	-27	-33	-20	-34	(-20)s	⩽38s	⩽37s	⩽14s	⩽34s	2	3
30	-18	-23	-16	⩽36s	⩽15s	⩽ 8s	-24	-13	⩽35s	⩽37s	⩽36s	⩽36s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	-20	⩽37s	⩽36s	0	-13
31	-12	(-24)s	⩽36s	⩽25s	⩽10s	⩽ 9s	⩽32s	⩽29s	⩽33s	⩽36s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	-37	-37	⩽37s	⩽37s	(-37)s	-20	-13	- 7	- 7
Median	(-20)s	(-24)s	(-28)s	(-28)s	(-13)s	(-13)s	(-27)s	(-29)s	(-33)s	(-36)s	(-36)s	(-36)s	(-37)s	(-37)s	(-38)s	(-37)s	(-38)s	(-37)s	(-38)s	(-37)s	(-36)s	-22	- 1	- 7
Med. Count	28	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	29
Upper decile	- 6	⩽11s	-18	-19	⩽ 7s	⩽ 1s	⩽22s	⩽20s	⩽28s	⩽30s	⩽28s	⩽27s	⩽33s	⩽33s	⩽33s	-31	⩽34s	⩽32s	⩽34s	⩽29s	⩽15s	-10	7	4
Lower decile	⩽30s	⩽31s	⩽36s	⩽36s	⩽20s	⩽24s	⩽36s	⩽32s	⩽37s	⩽38s	⩽39s	⩽38s	⩽39s	⩽39s	⩽40s	⩽40s	⩽41s	⩽41s	⩽41s	⩽41s	⩽41s	⩽34s	- 7	⩽14s

Measurement of H.F. Field Strength (Upper Side-band of WWVH)

Oct. 1964 Frequency: 15 Mc/s, Bandwidth: ± 40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

UT / Date	0045	0145	0245	0345	0445	0545	0645	0745	0845	0945	1045	1145	1245	1345	1445	1545	1645	1745	1845	1945	2045	2145	2245	2345
1	- 2	1	6	10	6	-15	-15	-17	⩽24s	⩽24s	⩽33s	⩽26s	⩽22s	⩽38s	⩽38s	⩽38s	⩽39s	⩽40s	-30	- 8	0	4	2	3
2	- 4	3	9	8	14	-15	5	-11	-16	⩽15s	-17	⩽34s	-29	⩽34s	⩽35s	⩽39s	⩽39s	⩽39s	⩽38s	- 4	7	5	5	- 5
3	- 2	- 2	2	11	13	17	- 6	-18	⩽26s	⩽31s	⩽31s	⩽31s	⩽32s	⩽33s	⩽33s	⩽39s	⩽40s	⩽40s	⩽40s	0	2	7	3	- 2
4	- 1	- 2	11	9	17	13	1	- 9	- 2	-31	⩽36s	⩽34s	⩽34s	⩽35s	⩽35s	⩽41s	⩽41s	-37	-40	3	6	2	4	- 2
5	5	1	7	4	13	- 8	-16	-17	-32	⩽39s	⩽39s	C	C	C	C	C	C	C	C	C	C	C	C	C
6	2	5	8	8	18	7	- 1	-18	C	C	C	C	C	C	⩽14s	⩽13s	⩽43s	-30	-24	- 1	2	2	C	C
7	C	C	C	C	17	14	-17	-20	⩽32s	⩽19s	⩽26s	⩽13s	⩽18s	⩽19s	⩽38s	⩽42s	⩽42s	⩽42s	⩽42s	- 2	7	- 1	- 2	4
8	2	1	8	14	12	- 4	8	-12	⩽15s	⩽33s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽38s	⩽38s	⩽39s	-16	- 4	8	4	2	0
9	- 2	5	6	13	14	5	6	-18	-14	⩽22s	⩽39s	-26	- 7	-26	⩽34s	⩽39s	⩽39s	- 3	- 9	- 2	7	5	6	2
10	0	5	6	12	18	2	-10	-13	- 6	-22	-10	- 5	-16	-28	-28	⩽39s	⩽39s	-12	- 4	1	4	7	7	2
11	3	4	8	8	18	0	- 9	-11	- 1	- 6	- 8	-11	- 8	⩽35s	⩽36s	-34	-32	-10	- 5	3	8	5	- 2	0
12	7	5	9	12	19	7	13	1	-10	-20	-28	-27	⩽37s	⩽38s	⩽38s	⩽39s	-21	-11	- 5	2	2	9	4	7
13	7	6	4	15	20	14	6	4	- 6	-17	⩽27s	⩽27s	⩽20s	⩽37s	⩽37s	-35	⩽40s	(-40)s	-30	4	5	4	4	0
14	2	3	9	13	9	2	-11	-10	⩽27s	⩽29s	⩽30s	⩽36s	-34	⩽38s	⩽38s	⩽39s	⩽39s	(-39)s	-38	- 4	4	5	4	6
15	3	6	10	15	9	6	-12	-18	⩽29s	⩽33s	⩽37s	⩽37s	⩽38s	⩽38s	⩽38s	⩽38s	⩽38s	-27	(-38)s	-11	3	2	4	4
16	1	5	2	11	16	9	- 4	1	-11	-19	⩽31s	⩽38s	⩽38s	⩽38s	⩽39s	⩽40s	⩽40s	⩽40s	-28	- 3	0	6	5	- 2
17	- 2	6	5	7	14	17	-10	- 4	⩽20s	⩽32s	⩽35s	⩽35s	⩽32s	⩽35s	⩽39s	⩽38s	⩽38s	-28	-34	3	8	8	6	4
18	6	C	C	C	C	C	C	C	-13	-22	-18	⩽34s	⩽35s	⩽34s	⩽35s	⩽39s	⩽39s	⩽39s	⩽35s	-13	7	6	3	2
19	3	5	7	9	6	5	-12	- 5	-19	-10	-17	⩽31s	⩽39s	⩽35s	⩽39s	⩽39s	⩽39s	-11	⩽39s	-19	2	9	6	6
20	5	11	10	5	7	(-21)s	-21	⩽25s	⩽21s	⩽40s	⩽36s	⩽36s	⩽36s	⩽36s	⩽36s	⩽40s	⩽39s	-25	-27	- 3	6	6	5	8
21	6	8	4	6	- 3	- 9	-17	-23	⩽31s	⩽31s	(-31)s	- 3	-12	⩽38s	-29	⩽33s	⩽34s	4	- 4	- 5	8	8	7	10
22	6	7	10	13	11	5	- 8	-19	⩽25s	-10	-28	-25	⩽39s	⩽39s	⩽39s	⩽37s	⩽41s	-33	-37	-19	4	4	1	3
23	6	10	10	18	3	(-17)s	-20	(-28)s	⩽31s	⩽28s	⩽29s	⩽31s	⩽35s	⩽39s	⩽38s	⩽35s	⩽39s	-10	-13	-10	3	4	7	- 1
24	3	5	7	9	9	-16	-15	-15	⩽32s	-27	⩽33s	⩽30s	⩽33s	⩽34s	-10	⩽35s	⩽32s	⩽19s	-25	-12	3	2	6	4
25	9	6	9	13	19	-12	-16	-19	⩽25s	-25	-34	-28	⩽31s	⩽35s	⩽34s	⩽32s	⩽35s	⩽35s	⩽36s	C	C	C	C	C
26	1	4	7	5	5	6	-16	⩽22s	⩽18s	-24	-31	⩽20s	-25	⩽38s	⩽38s	⩽37s	⩽37s	⩽36s	⩽36s	- 8	10	7	4	2
27	4	8	7	7	14	- 1	⩽12s	-20	-25	-28	-29	-28	⩽37s	⩽36s	⩽36s	⩽39s	⩽38s	⩽39s	-24	-22	4	7	4	6
28	5	4	7	7	- 8	⩽21s	-11	-22	- 5	-30	-31	⩽30s	⩽34s	⩽34s	⩽34s	⩽38s	⩽38s	⩽38s	-37	-29	5	6	6	6
29	5	7	7	12	4	-12	-16	-20	-29	-30	-19	⩽19s	⩽38s	⩽39s	⩽39s	⩽39s	⩽39s	⩽39s	⩽39s	-26	2	11	3	11
30	5	8	11	13	9	< 2s	-12	-22	-28	-28	-30	⩽28s	⩽35s	⩽39s	⩽39s	⩽39s	⩽39s	⩽33s	-33	-23	3	7	6	10
31	5	8	9	12	-11	- 8	-23	⩽27s	⩽37s	⩽28s	⩽33s	⩽26s	⩽34s	⩽39s	⩽39s	⩽40s	⩽40s	-39	⩽40s	-33	1	3	4	3
Median	3	5	7	11	12	2	-12	-18	(-24)s	(-28)s	(-31)s	(-28)s	(-34)s	(-36)s	(-37)s	(-39)s	(-39)s	(-37)s	-34	- 4	4	5	4	3
Med. Count	30	29	29	29	30	30	30	30	30	30	30	29	29	29	30	30	30	30	30	29	29	29	28	28
Upper decile	7	8	10	15	19	14	6	1	- 5	-10	-17	-11	-12	⩽28s	⩽28s	⩽33s	⩽32s	-10	- 5	3	8	9	7	10
Lower decile	- 2	1	4	5	- 3	(-17)s	-20	⩽25s	⩽32s	⩽33s	⩽37s	⩽37s	⩽38s	⩽39s	⩽39s	⩽40s	⩽41s	⩽40s	⩽40s	-26	1	2	1	- 2

Measurement of H.F. Field Strength (Upper Side-band of WWVH)

Nov. 1964 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

UT Date	0045	0145	0245	0345	0445	0545	0645	0745	0845	0945	1045	1145	1245	1345	1445	1545	1645	1745	1845	1945	2045	2145	2245	2345
1	4	7	8	9	-13	⩽23s	-23	-27	⩽25s	⩽37s	⩽23s	⩽38s	⩽34s	⩽37s	⩽31s	-30	⩽33s	-26	-20	9	9	7	4	5
2	4	6	10	7	12	- 1	-11	-13	-21	⩽21s	⩽23s	⩽26s	⩽31s	⩽39s	⩽35s	⩽39s	⩽39s	6	14	2	0	5	6	4
3	7	7	11	10	4	-12	-18	-17	-15	⩽30s	⩽35s	⩽25s	⩽37s	⩽36s	⩽36s	⩽39s	⩽36s	-26	-20	6	9	12	9	9
4	9	15	12	12	1	5	-14	-17	⩽30s	⩽36s	⩽36s	⩽36s	⩽37s	⩽37s	⩽37s	⩽37s	⩽36s	-26	-36	-29	4	14	10	8
5	8	15	10	11	- 6	-12	-18	⩽30s	⩽30s	⩽34s	⩽34s	⩽34s	⩽37s	⩽37s	⩽37s	⩽39s	⩽38s	⩽37s	⩽37s	-29	1	8	14	0
6	12	7	13	13	6	- 9	-16	⩽27s	⩽32s	⩽30s	⩽38s	- 6	⩽38s	⩽38s	-28	⩽40s	⩽40s	-34	-39	-29	2	9	13	9
7	12	13	11	12	- 3	-13	-14	-23	-28	⩽34s	⩽37s	⩽37s	⩽39s	⩽35s	⩽39s	⩽36s	⩽36s	⩽36s	⩽36s	-32	7	2	9	8
8	8	7	14	C	C	C	C	⩽31s	⩽35s	⩽36s	⩽36s	⩽36s	⩽36s	⩽36s	⩽36s	⩽36s	⩽36s	⩽36s	⩽36s	-33	5	9	9	14
9	10	15	15	8	1	-18	⩽30s	-20	⩽40s	⩽33s	⩽33s	⩽33s	⩽33s	⩽33s	⩽33s	⩽38s	⩽39s	⩽39s	⩽39s	⩽37s	1	C	C	(11c
10	9	7	12	14	14	-10	⩽21s	⩽21s	⩽35s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	⩽37s	C	C	C	C	-33	2	4	3	9
11	6	8	7	8	⩽15s	⩽14s	⩽25s	⩽29s	⩽33s	⩽34s	⩽39s	⩽36s	⩽36s	⩽40s	⩽35s	⩽40s	⩽41s	-21	-29	-20	2	4	6	4
12	5	9	4	12	15	1	-14	⩽28s	⩽36s	⩽36s	⩽37s	⩽37s	⩽37s	⩽38s	⩽38s	⩽40s	⩽40s	-28	-40	-32	6	0	1	4
13	7	14	8	7	8	-11	-22	⩽31s	⩽38s	⩽33s	⩽38s	⩽34s	⩽39s	⩽39s	⩽39s	⩽40s	⩽39s	⩽40s	-35	⩽39s	3	5	7	8
14	1	3	7	14	- 1	-14	-17	⩽31s	⩽38s	⩽38s	⩽39s	⩽38s	⩽40s	⩽40s	⩽40s	⩽40s	⩽40s	⩽39s	-38	-38	9	7	1	4
15	2	3	4	8	- 2	- 8	-24	-27	⩽35s	⩽35s	⩽35s	⩽35s	⩽39s	⩽40s	⩽40s	⩽35s	⩽35s	⩽34s	⩽41s	-32	11	11	4	7
16	11	10	12	13	- 6	-15	⩽ 9s	⩽27s	⩽19s	⩽26s	-10	-12	⩽39s	⩽39s	⩽39s	⩽39s	⩽39s	-31	-31	-17	8	7	7	7
17	5	4	12	7	⩽ 9s	-15	-20	⩽31s	⩽26s	⩽27s	⩽34s	⩽38s	⩽39s	⩽39s	⩽39s	⩽36s	⩽36s	⩽36s	⩽36s	-23	0	4	6	7
18	5	8	13	7	⩽19s	-22	-25	⩽34s	-33	⩽36s	⩽40s	-22	⩽35s	⩽29s	⩽27s	⩽37s	⩽36s	⩽23s	⩽23s	⩽37s	- 4	6	7	2
19	7	4	9	17	⩽ 6s	-19	-22	⩽29s	⩽31s	⩽34s	⩽34s	⩽37s	⩽38s	⩽38s	⩽39s	⩽38s	⩽38s	⩽38s	⩽38s	-34	4	7	7	5
20	5	9	8	9	-17	⩽25s	⩽30s	⩽31s	⩽38s	⩽39s	⩽38s	⩽39s	⩽39s	⩽40s	⩽39s	⩽37s	-34	-33	⩽37s	-31	- 3	3	2	1
21	7	6	6	3	⩽ 6s	- 3	⩽25s	⩽31s	⩽37s	⩽34s	⩽38s	⩽38s	⩽39s	⩽39s	⩽35s	⩽39s	⩽39s	⩽35s	⩽39s	⩽35s	- 2	11	5	5
22	6	6	8	6	- 3	⩽20s	-28	⩽32s	⩽35s	⩽35s	⩽35s	⩽38s	⩽39s	⩽39s	⩽39s	⩽39s	⩽39s	⩽39s	⩽39s	-20	9	8	9	5
23	3	6	6	11	⩽ 9s	⩽21s	⩽20s	⩽20s	⩽25s	⩽21s	⩽20s	⩽38s	⩽31s	⩽38s	⩽38s	⩽39s	⩽34s	⩽32s	⩽34s	-34	0	6	12	9
24	9	10	9	10	- 7	-18	-26	⩽25s	-27	-12	⩽38s	⩽19s	⩽39s	⩽38s	⩽38s	⩽40s	⩽39s	-33	-33	-19	2	5	6	1
25	3	4	2	< 4s	⩽ 3s	-19	-21	⩽32s	⩽39s	⩽39s	⩽40s	⩽36s	⩽40s	⩽40s	⩽40s	⩽40s	⩽40s	⩽39s	⩽39s	⩽39s	7	10	7	3
26	3	8	7	7	⩽ 2s	⩽16s	⩽30s	⩽35s	⩽38s	⩽39s	⩽38s	⩽32s	⩽39s	⩽39s	⩽40s	⩽39s	⩽39s	-35	⩽39s	-35	4	5	5	5
27	6	6	7	5	3	⩽ 8s	⩽23s	⩽26s	⩽33s	⩽33s	⩽36s	⩽40s	⩽40s	⩽41s	⩽40s	⩽39s	⩽39s	⩽39s	⩽39s	C	C	C	C	7
28	3	6	12	9	2	-18	-20	-19	-19	⩽34s	⩽25s	⩽25s	⩽30s	⩽26s	⩽26s	⩽34s	⩽38s	⩽39s	-34	-34	5	11	1	4
29	- 1	8	10	19	- 5	⩽ 8s	⩽26s	-22	⩽33s	⩽37s	⩽34s	⩽34s	⩽39s	⩽39s	⩽39s	⩽40s	⩽40s	⩽41s	⩽41s	⩽40s	0	17	6	4
30	0	4	8	1	⩽ 5s	⩽17s	-26	⩽29s	⩽35s	⩽38s	⩽41s	⩽42s	⩽41s	⩽40s	⩽40s	⩽37s	⩽37s	⩽37s	⩽37s	-33	1	6	4	5
Median	6	7	9	9	- 3	⩽14s	⩽22s	⩽28s	⩽33s	⩽34s	⩽36s	⩽36s	⩽38s	⩽38s	⩽38s	⩽39s	⩽39s	⩽35s	⩽37s	-32	3	7	6	5
Med. Count	30	30	30	29	29	29	29	30	30	30	30	30	30	30	30	29	29	29	29	29	29	28	28	30
Upper decile	11	15	13	14	12	- 1	⩽14s	-17	⩽19s	⩽21s	⩽23s	⩽19s	⩽31s	⩽33s	⩽28s	⩽35s	⩽34s	⩽23s	-20	2	9	12	12	9
Lower decile	1	4	4	< 4s	⩽15s	⩽22s	⩽30s	⩽32s	⩽38s	⩽39s	⩽40s	⩽39s	⩽40s	⩽40s	⩽40s	⩽40s	⩽40s	⩽39s	⩽40s	⩽39s	- 2	3	1	1

Measurement of H.F. Field Strength (Upper Side-band of WWVH)

Dec. 1964 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

UT Date	0045	0145	0245	0345	0445	0545	0645	0745	0845	0945	1045	1145	1245	1345	1445	1545	1645	1745	1845	1945	2045	2145	2245	2345
1	4	8	6	6	<- 7s	<-19s	<-22s	<-23s	<-36s	<-37s	<-33s	<-33s	<-36s	<-37s	<-38s	<-38s	<-38s	<-37s	<-38s	-31	- 5	7	9	6
2	5	8	6	12	<-12s	<-23s	-29	<-31s	<-26s	-28	<-33s	<-37s	<-38s	<-38s	<-38s	<-38s	<-37s	<-38s	<-38s	-37	0	4	6	3
3	5	3	10	2	<-15s	<-13s	<-32s	<-27s	<-37s	<-38s	<-37s	<-37s	<-38s	<-38s	<-37s	<-37s	<-37s	<-37s	<-38s	<-38s	- 3	5	9	5
4	10	6	3	4	- 1	<-21s	<-28s	<-31s	<-37s	<-38s	<-37s	<-34s	<-38s	<-38s	<-38s	<-38s	<-38s	<-36s	<-36s	<-36s	- 1	C	C	5
5	6	8	5	8	- 5	<-21s	<-29s	<-35s	<-37s	<-37s	<-37s	<-27s	<-37s	<-37s	<-37s	<-37s	<-37s	<-38s	<-38s	<-37s	3	2	7	4
6	1	3	12	10	< 2s	<-12s	<-31s	<-27s	<-38s	<-38s	<-37s	<-38s	<-38s	<-30s	<-38s	<-39s	<-39s	<-39s	<-37s	<-38s	4	8	3	5
7	5	6	10	7	- 3	<-21s	<-28s	<-35s	<-33s	<-36s	<-36s	<-38s	<-38s	<-38s	<-38s	<-37s	<-38s	<-38s	<-37s	<-36s	9	6	4	5
8	4	12	5	3	1	0	<-32s	<-27s	<-33s	<-36s	<-37s	<-37s	<-38s	<-38s	<-38s	<-37s	<-37s	<-38s	<-38s	-33	6	2	3	7
9	3	9	8	7	9	-18	<-27s	<-27s	<-31s	<-37s	<-32s	-25	<-29s	<-39s	<-39s	<-39s	<-38s	<-38s	<-38s	<-38s	- 4	2	6	4
10	6	4	6	11	4	- 2	-23	<-28s	<-37s	<-38s	<-37s	<-37s	<-38s	<-39s	<-38s	<-37s	<-37s	<-37s	<-37s	<-37s	1	7	5	5
11	7	7	3	13	3	-17	<-31s	<-29s	<-37s	<-37s	<-37s	<-37s	<-37s	<-38s	<-39s	<-39s	<-39s	<-38s	<-37s	<-38s	9	13	8	2
12	7	4	8	8	4	-21	<-33s	<-29s	<-37s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	<-37s	<-37s	<-37s	<-37s	<-37s	9	12	10	9
13	5	7	6	8	-13	- 6	-32	<-27s	<-34s	-33	<-39s	<-40s	<-40s	<-39s	<-39s	<-39s	<-38s	<-38s	<-38s	-29	11	5	7	4
14	4	4	8	6	- 2	-16	-26	<-26s	<-32s	<-32s	<-32s	<-25s	<-28s	<-40s	<-35s	<-36s	<-36s	<-36s	<-35s	<-35s	- 2	6	4	C
15	4	5	6	14	15	- 9	-19	<-26s	<-30s	<-32s	<-32s	<-34s	<-34s	<-34s	<-34s	<-34s	<-34s	<-34s	<-34s	<-34s	5	6	3	7
16	5	5	14	12	4	- 6	-24	<-26s	<-34s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	- 5	9	5	7
17	6	6	5	13	- 4	<-19s	<-26s	<-29s	<-30s	<-30s	<-30s	<-27s	<-34s	<-33s	<-34s	<-35s	<-35s	<-35s	<-35s	(-31)s	2	7	11	5
18	7	16	<14s	<6s	1	1	-17	- 7	-17	<-25s	<-35s	<-35s	<-35s	<-35s	<-35s	<-33s	<-40s	<-40s	<-40s	-33	-16	5	5	4
19	8	5	4	<5s	<10s	C	-18	2	-23	<-31s	<-33s	<-38s	<-38s	<-37s	<-30s	<-41s	<-21s	<-25s	<-25s	<-31s	<-15s	0	4	7
20	4	9	2	3	- 5	-14	-12	-24	<-35s	<-29s	<-32s	<-33s	<-33s	<-33s	<-33s	<-38s	<-38s	<-38s	<-38s	-33	- 2	3	7	7
21	0	3	- 2	8	3	<-14s	-24	<-25s	<-40s	<-33s	<-40s	<-37s	<-38s	<-32s	<-32s	<-34s	<-34s	<-40s	<-33s	(-33)s	- 6	1	2	1
22	4	4	1	5	5	1	-16	<-27s	<-37s	<-35s	<-35s	<-39s	<-35s	<-39s	<-39s	<-41s	<-41s	<-41s	<-41s	(-41)s	-14	- 6	- 1	1
23	8	6	7	9	3	1	- 6	<-27s	<-34s	<-40s	<-40s	<-37s	<-42s	<-42s	<-41s	<-42s	<-41s	<-41s	<-41s	<-41s	- 3	- 8	7	7
24	7	7	4	8	<- 8s	<- 9s	-16	<- 2s	-29	-28	<-35s	<-35s	<-39s	<-40s	<-40s	<-41s	<-41s	<-41s	<-41s	<-41s	-16	7	1	12
25	8	2	5	10	1	(3)s	-11	-18	<-29s	<-36s	<-36s	<-36s	<-36s	<-41s	<-37s	<-37s	<-37s	<-37s	-26	-30	4	8	6	4
26	6	5	10	12	(7)s	<-18s	<-24s	<-31s	<-35s	<-36s	<-36s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	-13	-24	-17	6	3	5
27	6	5	1	10	C	2	- 4	-19	-13	-17	<-37s	<-37s	<-37s	<-37s	-32	<-39s	<-39s	<-39s	-34	(-39)s	-31	4	2	8
28	8	7	9	2	15	-21	-26	<-21s	<-33s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	-33	-37	-26	5	1	7
29	9	5	6	6	5	(-11)s	-25	-26	-20	-33	<-30s	<-33s	<-37s	<-37s	(-37)s	<-38s	<-37s	-23	<-38s	-36	<- 7s	4	6	7
30	6	6	2	8	- 7	-26	-27	<-32s	<-35s	<-33s	<-37s	<-27s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	-22	-33	- 7	5	2	6
31	8	3	7	<9s	<-12s	<-25s	< 3s	<- 4s	<-36s	<-36s	<-37s	<-37s	<-37s	<-37s	<-37s	<-38s	<-38s	<-38s	-25	- 8	5	- 3	2	5
Median	6	6	(6)s	(8)s	(1)s	(-16)s	(-26)s	(-27)s	(-34)s	(-36)s	(-36)s	(-37)s	(-37)s	(-38)s	(-37)s	(-38)s	(-37)s	(-38)s	(-37)s	(-36)s	- 2	5	5	5
Med. Count	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30
Upper decile	8	9	<12s	13	<10s	1	<- 6s	<- 4s	-20	<-28s	<-32s	<-27s	<-33s	<-33s	<-32s	<-34s	<-34s	<-34s	-25	-29	9	9	9	8
Lower decile	3	3	1	3	<-12s	<-23s	<-32s	<-32s	<-37s	<-38s	<-38s	<-38s	<-39s	<-40s	<-39s	<-41s	<-41s	<-41s	<-41s	<-41s	-17	- 3	1	2

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

May 1965	Whole Day Index	L. N. 06 12 18 / 12 18 24	W W V 00 06 12 18 / 06 12 18 24	S. F. 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	4+	5 4 5	3 - - 4	5 5 4 4	4 4 4 4	N N N N			
2	4o	- - -	4 - - 4	(4) 5 4 3	4 3 4 4	N N N N			
3	4o	4 (4) C	4 - - 4	4 5 4 3	4 3 (4 4)	N N N N			
4	4+	5 4 4	5 - - 4	5 4 4 4	4 4 4 4	N N N N			
5	3+	3 4 (4)	3 - - 2	4 3 4 (3)	4 5 5 3	N U U U			
6	4-	4 5 4	3 - - 1	(4) 4 4 4	3 4 (4) 3	U N N N			
7	4-	3 4 4	2 (4) - 3	4 5 4 4	3 4 4 4	N N N N			
8	4-	4 4 4	4 - - 3	4 4 3 (4)	4 4 4 4	N N N N			
9	4o	- - -	3 - - 3	5 5 4 4	(4 4 3 3)	N N N N			
10	4-	3 4 4	3 - (4) 3	4 5 5 3	4 5 (5) 4	N N N N			
11	4o	(4) 5 5	2 - (4) 4	3 4 5 4	3 4 (4) 4	N N N N			
12	4-	4 4 4	4 - 3 4	4 4 4 (3)	4 5 (5) 4	N N N N			
13	4+	5 4 5	4 - 4 4	3 5 5 (3)	4 4 (4) 4	N N N N			
14	4o	4 5 4	4 - C (3)	4 5 4 3	4 (4 4 4)	N N N N			
15	4o	5 4 4	4 - 4 4	4 5 4 3	4 4 (4 3)	N N N N			
16	3o	- - -	C - 3 1	(3 4 4 3)	3 (5) 5 3	N N U U	0036	18xx	79γ
17	3+	4 5 4	2 - 3 3	3 4 4 3	3 4 4 3	U N N N			
(18)	4o	5 5 4	4 (4) 5 4	3 4 4 3	3 5 4 3	N N N N			
(19)	4o	4 5 4	4 - 5 4	3 5 (4) 3	3 4 5 3	N N N N			
(20)	5-	4 5 4	5 (5) 5 5	4 5 (5 3)	4 5 4 4	N N N N			
21	5-	4 5 4	5 (5) 5 5	3 5 5 4	3 5 4 4	N N N N			
22	4o	4 4 4	4 - 4 5	4 4 5 3	4 5 5 4	N N N N			
23	4+	- - -	5 (4) 5 4	4 (4) 5 4	4 5 5 4	N N N N			
24	4+	4 5 4	3 (4) 5 5	4 5 4 3	4 5 4 4	N N N N			
25	4+	4 5 4	4 (4) 5 5	4 5 4 5	4 4 3 4	N N N N			
26	5-	4 5 4	5 (5) 5 5	5 5 4 4	4 4 3 4	N N N N			
27	4+	4 4 4	3 - 5 5	5 5 4 4	4 5 5 4	N N N N			
28	4+	4 5 4	5 - 4 4	4 4 4 4	4 4 3 4	N N N N			
29	4o	3 4 4	4 (5) 4 4	4 4 (4) 3	4 4 3 4	N N N N			
30	4o	- - -	3 (5) 4 5	4 4 (4) 3	3 4 4 4	N N N N			
31	4-	4 (3 3)	3 - 4 4	3 5 4 3	4 4 3 4	N N N N			

IQSY GEOALERT and ADALERT (Western Pacific Region)

* = MAGSTORM

o = MAGCALME

△ = COSMIC EVENT

( ) = Regular World Day

\- = impossible to evaluate

( ) = inaccurate

C = artificial accident

----= continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

May 1965	S W F									Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag.
	WS	SF	HA	TO	LN	SH							
2	17		-	-			00.45	20	S	1+			x
20	19"	30	-	-	-		23.18	68	S	2			
25	8	7	-	-	-		22.42	10	S	2-			

IONOSPHERIC DATA IN JAPAN FOR MAY 1965
第 17 巻　第5号

1965年7月20日　印　刷
1965年7月25日　発　行　（不許複製非売品）

編集兼発行人　糟谷績
東京都小金井市貫井北町4の573

発行所　郵政省電波研究所
東京都小金井市貫井北町4の573
電話国分寺(0423)(21)1211(代)

印刷所　山内欧文社印刷株式会社
東京都豊島区日ノ出町2の228
電話 (971) 9341