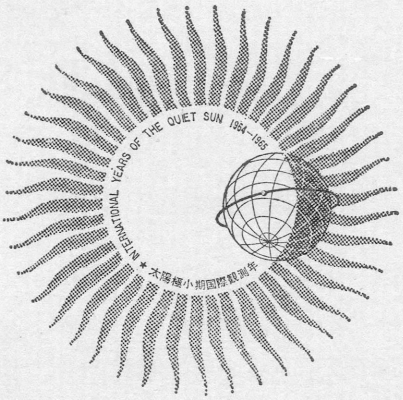
F—194

IONOSPHERIC DATA IN JAPAN

FOR FEBRUARY 1965

Vol. 17 No. 2



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Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

IONOSPHERIC DATA IN JAPAN

FOR FEBRARY 1965

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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.

$hpF2$ — The virtual height of the $F2$ layer measured on the ordinary

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

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

a. Descriptive 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. The *duration* of observation is two minutes for WWV ② and three minutes for WWVH ③ following the time indicated in universal time on the table.

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

① WWV : 3분 15~17 min
② WWVH : " 45~48 min
Time Const : Recorder 입력 0.1~0.2 sec

Transmitter

	WWV	WWVH
Location	Washington, D.C. Long. 76°51′ W Lat. 39°00′ N	Naui, Hawaii Long. 156°28′ W Lat. 20°46′ N
Power	3 kW for the upper side-band	0.5 kw* 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

W S.....WWV 20 Mc, 15 Mc and 10 Mc (Washington)
S F.....Various commercial circuits (San Francisco)
H A.....WWVH 15 Mc and 10 Mc (Hawaii)
T O.....JJY 15 Mc and 10 Mc (Tokyo)
S H.....BPV 15 Mc and 10 Mc (Shanghai)
L N.....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

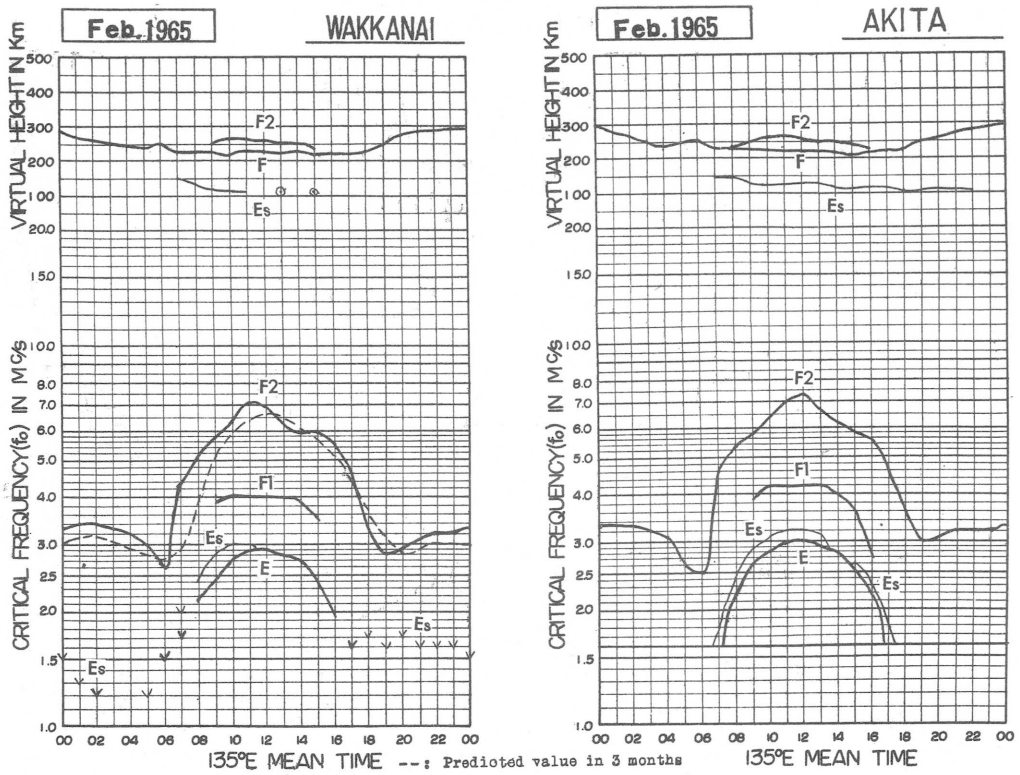
Importances

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

1−	1	1+
2−	2	2+
3−	3	3+

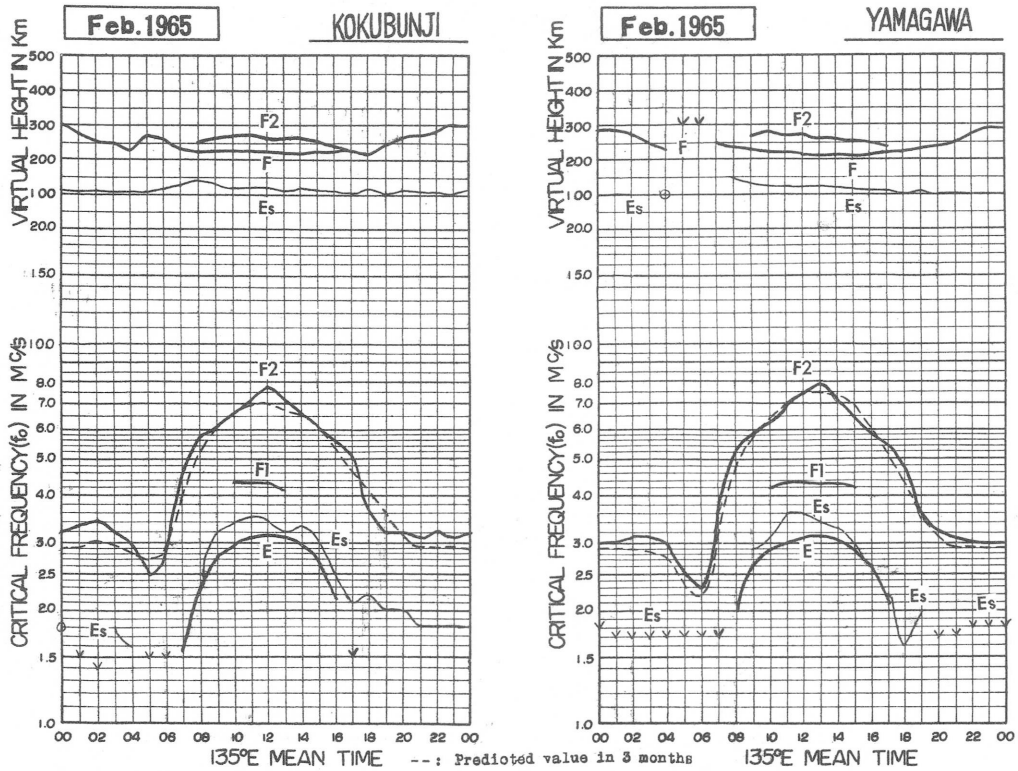
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

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

Feb. 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	033	033	SF	030F	031F	026F	025	038	047	050	058	065	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	SF	SF	033	031	029	U044S	054	058	064	056	074	057	063	060	061H	I042S	028	027	025	027	030	031
3	033	035F	SF	034F	SF	SF	023F	040	050	061	050	048	050H	053	054	060	052	041	030	027	026	027	027	029
4	031S	033	033	U029S	032	031	026	U040S	053	053	058	U073S	058	I056S	058	055	047	040	029	032	027	030	033	035
5	SF	036F	SF	033F	030F	028	028	I040S	I052C	054	061	058	I064C	061	060	056	I052C	046	031	023	I021A	027S	030	033F
6	033F	033F	033F	SF	SF	F	019F	037	U055S	053S	063	067S	U073S	056	058	057	043	035	027	025	028	SF	SF	033F
7	033F	SF	SF	SF	SF	030	025	U043S	051	055	U067S	U076S	068	060	068H	063H	069	078	U045S	026	SF	030F	032F	SF
8	SF	SF	SF	035F	028F	022F	023	I044S	I051S	I060A	J082S	U071S	063	U077S	064	060	052	053	033	SF	S	A	SF	SF
9	SF	035F	SF	SF	SF	SF	S	036	045	058H	I055C	C	C	C	C	S	053	047	037	I031S	SF	030F	030F	030F
10	SF	SF	034F	031F	028F	SF	022	U043S	I046S	I050A	055	I058S	I060S	057	060	060	048	046	033S	034S	035S	033S	025	038
11	040	SF	SF	035F	033	027	026	048	053S	054	053	C	C	C	C	C	C	C	037	028	028	028	033S	033S
12	S	SF	SF	SF	023F	023F	022F	038S	049	051	059	C	C	C	C	C	C	041S	034	S	027S	033S	S	SF
13	SF	033F	033F	030F	030F	026	027	S	S	058H	058	058	I059C	060	052	051	053	042S	034	028	028	I030S	033S	035S
14	SF	038F	SF	SF	033F	033F	031	I047S	052	056	060	U073S	063	061	057	069	058	041	035	037	033	033	032	I033S
15	033S	033S	033S	U033S	U033S	U031S	I033S	I043S	051	051	U063S	I065C	I067C	066S	066	A	C	C	C	A	C	C	030	SF
16	SF	SF	SF	034F	033	032S	023	037	051S	I063C	076	086	086	066S	060	061	054	040	029	026	026	SF	SF	SF
17	030F	SF	028F	027F	SF	SF	SF	U043S	054	060	063	I072S	070	I066S	061	057	055	047	031	025	025	028	032S	U028S
18	SF	SF	SF	SF	SF	SF	032F	I046S	055	058	058	073	063	059	057	057	050	I042S	030	033	034S	031	033S	I031S
19	I030S	U032S	U034S	SF	SF	SF	SF	044	050	057	066S	075	066	066	C	C	C	C	031	031	031	I032S	032S	I032S
20	I031S	I032S	I034S	U033S	027	022	024	046S	048	053H	057	066	081	069	057	055	056	043S	033	029	S	S	S	028S
21	027	027	I030S	029	030S	030	024	U045S	050	051H	063	068	070	062	057	064	066	056	I038S	028	029	U033S	U032S	032S
22	034	I034S	037	033S	032	031	031	053	058	065	064	070	072	059	060	060	061	U040S	030	027	030S	I031S	032S	032S
23	S	S	S	U032S	028S	027	030	044	063	057	071	C	C	C	C	C	C	C	C	027	029	032	032	032
24	034	033	033	033	031	033	035S	043	053	060	076	076	I082C	073	061	064S	I057C	I051C	040S	033	U036S	I037S	I037S	U038S
25	I039S	040S	U041S	041S	038	034	040S	053	054	062H	075	I076C	I079C	081	068H	U063S	I055C	I048C	040	034S	I034C	I037C	I037S	I036C
26	037	I038S	037S	I040S	U040S	SF	SF	048	060	063	075	073	075	066R	067	I065S	I062C	I062S	U045S	I040S	U033S	S	S	S
27	U043S	I039S	U037S	I038S	U043S	S	S	S	057	U065S	070	C	C	C	S	C	062	I054C	040	U035S	S	S	S	U045S
28	U045S	U046S	U044S	U043S	U040S	035	033	051	056	061	061H	083	071	068	063	U063S	060	053	037S	U038S	U038S	I038S	U032S	S
29																								
30																								
31																								
No.	17	18	15	20	21	19	23	26	27	28	28	23	22	22	21	20	22	23	25	24	21	20	20	20
Median	033	034	034S	033	032	030	026	044S	052	058	063	071	069	062	060	060	055	046	033	028	029	031	032S	032S
U. Q.	038	038	037	035	033	032	031	046	055	060	068	075	074	066	064	063	061	053	038	034	034	033	033	035
L. Q.	031	033	033	030	029	026	023	040	050	053	058	065	063	059	057	057	052	041	030	027	026	029	030	031
Q. R.	007	005	004	005	004	006	008	006	005	007	010	010	011	007	007	006	009	012	008	007	008	004	003	004

The Radio Research Laboratories, Japan

foF2

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

W 1

Feb. 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											390L	380	C	C	C	C								
2											400	410	400H	390	380									
3												A		400L										
4												400	400	400L										
5											400L	400	I400C	400	390L	330								
6											400L	400	400	380	360									
7											A	400	400	400										
8												400	390	400	390	350L								
9											C	C	C	C	C	U360L								
10											I400A	380	400	390										
11										380L	380	C	C	C	C	C								
12											390	C	C	C	C	C								
13											380L	400	I400C	400										
14											420	400	400	400	400L	U360L								
15											420	I400C	I400C	400	400	A								
16										C	400H	410	410	400H	390	340								
17										380	410	I410A	420	400H	400L	340								
18											400H	400	410	400	380	360L								
19										380	400	410H	400H	410H	C	C								
20											400	410	400	410	390	350								
21											400	410H	410	400	400	350								
22										390L	400	400	410	400	390L	350								
23											400L	C	C	C	C	C								
24										400	420	420	I420C	400	400									
25											400	I410C	I420C	420		U400L								
26											410	410	420	400	390									
27										I410A	420H	C	C	C	400	I350C								
28												420	420H	400	400	370								
29																								
30																								
31																								
No.										6	22	22	21	22	16	13								
Median										385	400	400	400	400	390	350								
U. Q.																								
L. Q.																								
Q. R.																								

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

The Radio Research Laboratories, Japan

foF1

W 2

IONOSPHERIC DATA

Feb. 1965 | f_oE | 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							E120S	E140S	200	250	270	285	C	C	C	C	C	C	C					
2							E150S	E140S	200	235	I275C	285	280	270	260	230	E180S	E130S						
3							E120S	E170S	210	250	270	280	290	280	270	235	195	E120S						
4							E170S	E120S	A	235	245	260	280	A	A	A	A	E150S						
5							E150S	E150S	C	230	265	R	C	A	A	A	C	E150S						
6							E150S	E150S	I200A	240	255	275	285	I270S	260	220	160	E140S						
7		E	E			E120S	E140S	E150S	A	A	A	A	280	270	250	225	190	E130S	E120S		E110S	E150S		
8	E110S	E					E120S	E140S	170	215	235	240	230	260	250	215	185	E120S						
9							S	E150S	210	245	C	C	C	C	C	200	180	E140C						
10							E130S	E140S	200	I230A	I260A	I280A	280	280	265	230	180	E130S						
11							E150S	E170S	I205A	240	265	C	C	C	C	C	C	C	C					
12							E150S	E160S	215	250	270	C	C	C	C	C	C	E170C						
13							E170C	E170S	210	I245A	A	A	C	280	260	235	200	E190C						
14							E170C	E180S	220	260	280	290	290	285	270	240	E200S	E160S						
15							E190C	E200C	220	235	270	I280C	I290C	285	265	230	C	C	C					
16							E120S	195	A	C	A	A	280	275	A	A	A	E160C						
17							E120S	150	230	265	A	A	A	280	265	I240A	A	E170C						
18							E170S	175	220	I255A	280	290	295	285	275	250	205	A						
19					E		E150S	E180S	I210A	260	280	290	290	290	C	C	C	C						
20							E150S	190	I215A	230	280	300	300	295	280	240	E200S	E170S						
21							E160S	E180S	215	260	285	295	290	290	280	245	200	E160S						
22							E150S	E160S	210	220	280	290	285	I275A	I265A	I250A	215	E170S						
23							E170S	E200S	260	260	280	C	C	C	C	C	C	C	C					
24							E150S	B	B	A	A	A	C	290	280	E270S	C	C						
25							E170S	E170S	215	240	280	I290C	I285C	285	280	270	C	C						
26							E140S	E180S	220	270	295	300	295	295	290	260	C	E170S						
27							E120S	180	220	I255A	275	C	C	C	280	I260C	I210S	C						
28							E150S	165	235	260	280	295	300	295	290	265	215	E160S						
29																								
30																								
31																								
No.	1	2	1		1	1	27	27	23	25	22	17	18	20	19	20	15	19	1		1	1		
Median	E110S	E	E		E	E120S	E150S	E170S	215	245	275	290	290	280	270	240	195	E160S	E120S		E110S	E150S		
U. Q.																								
L. Q.																								
Q. R.																								

f_oE

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

The Radio Research Laboratories, Japan

W 3

IONOSPHERIC DATA

Feb. 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	E	E012S	E012S	E014S	025	031	032	032	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	E012C	E014C	E018C	E012C	E015S	E014S	027	G	E030C	G	G	G	G	G	E018S	E013S	E017S	E012S	E016S	E018S	E015S	E016S
3	E012S	E	E	E	E	E	E012S	E017S	026	G	032	037	G	032	G	G	G	E012S	E012S	E014S	E012S	E013S	E012S	EC13S
4	E014S	E013S	E017S	E012S	E	E013S	E017S	J022	025	G	G	G	G	029	J033	025	024	E015S	E012S	E012S	E014S	E018S	023	E015S
5	E012S	E012S	E013S	E	E	E012S	E015S	E015S	C	031	033	026G	C	030	028	026	C	023	025	J040	J033	E015S	E015S	E012S
6	E017S	E013S	E	E	E	E	E015S	018	024	022G	G	037	034	032	032	032	023	E014S	E018S	E012S	E015S	J021	E012S	E016S
7	E013S	E	E	E	E	E012S	E014S	021	024	J033	J073	J051	G	G	G	G	G	E013S	E012S	E016S	E011S	E015S	E015S	E015S
8	E011S	015	J025	J023	J034	E012S	J023	025	J053	J057	030	J043	J033	G	G	027	023	026	J025	J021	030	J035	J020	E015S
9	E015S	020	015	E	E	E	S	028	027	G	E038C	C	C	C	C	025	G	E014C	E015C	E013S	020	018	J030	E016S
10	E015S	E	E	E	E	E017S	E013S	027	G	J052	J045	J038	J031	G	G	G	G	E013S	E015S	E018S	E012S	E016S	J020	E012S
11	020	020	E	E	E	E	E015S	E017S	023	G	J035	C	C	C	C	C	C	C	J023	E018S	E012S	E014S	E015S	E014S
12	E015S	E	E	J015	E	E012S	E015S	E016S	G	G	G	C	C	C	C	C	C	E017C	E017S	E012S	E018S	E017S	E018S	E018S
13	E017S	023	E	E	E	E018C	E017C	E017S	027	030	030	030	C	027G	G	G	G	E019C	E017C	E017C	E017C	E015C	E018C	E016C
14	E017C	E012S	E011S	E011S	E	E018C	E017C	E018S	G	G	G	G	G	024G	G	026	E020S	E016C	E020C	E020C	E015C	E016C	E017C	E017C
15	E019C	E012S	E016C	E012C	E016C	E017C	E019C	E020C	G	028	033	C	C	032	033	J063	C	C	C	J083	C	C	J025	021
16	E013S	E	024	E	E	E011S	E012S	022	034	C	J045	035	G	G	031	J033	J027	E016C	E016C	E013S	E017S	020	025	E015S
17	E013S	E	016	024	E	E012S	E012S	020	028	032	038	042	030	025G	030	027	020	020	E017C	E017S	E017S	E015S	E015S	024
18	J040	024	022	015	E	E013S	E017S	G	G	027	J033	G	020G	G	G	G	G	J024	J030	E017S	E017S	E016S	E016S	E017S
19	E017S	024	023	E	E	E015S	E015S	E018S	025	029	G	024G	J031	G	C	C	C	C	022	E015S	E015S	E013S	E013S	E015S
20	E012S	E013S	E	E	E	E015S	E015S	G	028	028	025G	G	G	G	G	G	030	027	E017S	E015S	E017S	E016S	E015S	E015S
21	E015S	023	J020	015	E	E	E016S	023	020G	024G	G	033	G	G	033	G	G	E016S	037	E017S	E018S	E017S	E018S	E017S
22	E012S	E015S	E013S	E	E	E012S	E015S	021	025	027	G	020G	023G	028	028	028	G	E017S	E016S	E016S	E017S	E017S	E016S	E016S
23	S	S	E012S	E014S	E014S	E014S	E017S	E020S	G	G	034	C	C	C	C	C	C	C	C	025	E017S	E018S	E016S	E018S
24	E017S	E015S	E	E	E	E015S	E015S	E021B	E026B	034	040	033	C	G	G	E027S	C	C	E015S	E016S	E015S	E016S	E017S	E015S
25	E015S	E013S	E015S	E	E	E017S	E017S	023	G	G	G	C	C	020G	G	G	C	C	E018S	E012S	C	C	E017S	C
26	E017S	E013S	E	E	E	E	E014S	023	G	031	G	G	G	G	G	G	C	E017S	E016S	E016S	E015S	E017S	E016S	E016S
27	E012S	E015S	E012S	E012S	E012S	E012S	E012S	G	G	J046	G	C	C	C	G	C	E025S	C	E015S	E015S	E015S	E015S	E019S	E014S
28	E015S	E013S	E012S	J020	E	E016S	E015S	022	027	032	G	G	020G	G	G	G	G	E016S	E015S	E015S	E017S	E015S	E015S	E013S
29																								
30																								
31																								
No.	26	26	28	28	28	28	27	28	27	27	28	21	17	22	22	22	18	20	25	27	25	25	27	26
Median	E015S	E013S	E012S	E	E	E012S	E015S	E020	024	028	030	030	G	G	G	G	G	E016S	E017S	E016S	E017S	E016S	E016S	E016S
U. Q.	E017	015	E016	E014	E	E015	E017	022	027	032	034	037	030	028	030	E027	023	E020	E021	E018	E017	E018	E019	E017
L. Q.	E012	E	E	E	E	E012	E014	E016	G	G	G	G	G	G	G	G	G	E014	E015	E013	E015	E015	E015	E015
Q. R.								D006																

foEs

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

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Feb. 1965 | f_bE_s | 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					S	S	S	G	G	G	G	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	S	S	G		C						S	S	S	S	S	S	S	S
3	S						S	S	G		G	037		G				S	S	S	S	S	S	S
4	S	S	S	S		S	S	018	023					029	027	024	018	S	S	S	S	S	016	S
5	S	S	S			S	S	S	C	018G	G	E026R	C	030	028	025	C	016	016	E012S	A	S	S	S
6	S	S					S	G	024	021G		G	G	G	017G	G	G	S	S	S	S	E012S	S	S
7	S					S	S	G	021	026	053	030						S	S	S	S	S	S	S
8	S	E	017	020	021	S	018	020	E053S	A	G	037	G			G	G	023	018	018	E030S	A	E014S	S
9	S	012	012				S	028	027		C	C	C	C	C	G		C	C	S	016	016	018	S
10	S					S	S	026		A	040	030	020					S	S	S	S	S	E014S	S
11	017	017					S	S	022		020	C	C	C	C	C	C	C	021	S	S	S	S	S
12	S			013		S	S	S				C	C	C	C	C	C	C	S	S	S	S	S	S
13	S	013				C	C	S	G	026	028	030	C	027G				C	C	C	C	C	C	C
14	C	S	S	S		C	C	S						020G		G	S	C	C	C	C	C	C	C
15	C	S	C	C	C	C	C	C		G	G	C	C	G	G	A	C	C	C	A	C	C	021	016
16	S		013			S	S	G	030	C	031	035			028	026	025	C	C	S	S	016	017	S
17	S		012	013		S	S	G	020G	022G	032	045	030	022G	020	027	020	020	C	S	S	S	S	020
18	018	015	E	013		S	S			026	022		020G					023	020	S	S	S	S	S
19	S	016	012			S	S	S	023	023		021G	021		C	C	C	C	E017S	S	S	S	S	S
20	S	S				S	S		025	G	023G						G	024	S	S	S	S	S	S
21	S	E015S	015	E			S	G	020G	023G		023			G			S	S	S	S	S	S	S
22	S	S	S			S	S	G	G	G		020G	021G	028	028	025		S	S	S	S	S	S	S
23	S	S	S	S	S	S	S	S			G	C	C	C	C	C	C	C	C	E018S	S	S	S	S
24	S	S				S	S	B	B	031	030	030	C			S	C	C	S	S	S	S	S	S
25	S	S	S			S	S	G				C	C	G			C	C	S	S	C	C	S	C
26	S	S					S	G		G							C	S	S	S	S	S	S	S
27	S	S	S	S	S	S	S			046		C	C	C		C	S	C	S	S	S	S	S	S
28	S	S	S	014		S	S	G	G	G			020G					S	S	S	S	S	S	S
29																								
30																								
31																								
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

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

The Radio Research Laboratories, Japan

W 5

IONOSPHERIC DATA

Feb. 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	E012S	E012S	E014S	017	018	017	020	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	E012C	E014C	E018C	E012C	E015S	E014S	017	019	E030C	020	019	019	017	017	E018S	E013S	E017S	E012S	E016S	E018S	E015S	E016S
3	E012S	E	E	E	E	E	E012S	E017S	015	018	017	017	018	017	017	014	014	E012S	E012S	E014S	E012S	E013S	E012S	E013S
4	E014S	E013S	E017S	E012S	E	E013S	E017S	E012S	011	014	017	014	017	017	012	013	013	E015S	E012S	E012S	E014S	E018S	E015S	E015S
5	E012S	E012S	E013S	E	E	E012S	E015S	E015S	C	015	017	018	C	016	016	015	C	E015S	E015S	E012S	E013S	E015S	E015S	E012S
6	E017S	E013S	E	E	E	E	E015S	E015S	012	013	014	015	018	E028S	011	016	E012S	E014S	E018S	E012S	E015S	E012S	E012S	E016S
7	E013S	E	E	E	E	E012S	E014S	E015S	E017S	011	011	011	013	014	014	015	013	E013S	E012S	E016S	E011S	E015S	E015S	E015S
8	E011S	E	E	E	E	E012S	E012S	E014S	011	012	012	012	015	017	012	012	015	E012S	E011S	E015S	E014S	E012S	E014S	E015S
9	E015S	E	E	E	E	E	S	E015S	012	015	E038C	C	C	C	C	015	012	E014C	E015C	E013S	E015S	E014S	E015S	E016S
10	E015S	E	E	E	E	E017S	E013S	E014S	013	012	015	015	016	018	015	012	E015S	E013S	E015S	E018S	E012S	E016S	E014S	E012S
11	E015S	E012S	E	E	E	E	E015S	E017S	012	012	017	C	C	C	C	C	C	C	E012S	E018S	E012S	E014S	E015S	E014S
12	E015S	E	E	E	E	E012S	E015S	E016S	015	014	017	C	C	C	C	C	C	E017C	E017S	E012S	E018S	E017S	E018S	E018S
13	E017S	E	E	E	E	E018C	E017C	E017S	013	017	018	018	C	017	020	018	016	E019C	E017C	E017C	E017C	E015C	E018C	E016C
14	E017C	E012S	E011S	E011S	E	E018C	E017C	E018S	017	017	021	017	020	017	018	018	E020S	E016C	E020C	E020C	E015C	E016C	E017C	E017C
15	E019C	E012S	E016C	E012C	E016C	E017C	E019C	E020C	E020C	020	020	C	C	020	020	018	C	C	C	E017S	C	C	E012S	E013S
16	E013S	E	E	E	E	E011S	E012S	E015S	017	C	016	017	017	017	017	015	013	E016C	E016C	E013S	E017S	E015S	E015S	E015S
17	E013S	E	E	E	E	E012S	E012S	012	012	012	013	013	017	013	016	013	014	E017C	E017C	E017S	E017S	E015S	E015S	E015S
18	E012S	E	E	E	E	E013S	E017S	E015S	012	011	012	013	015	017	017	017	016	E016S	E015S	E017S	E017S	E016S	E016S	E017S
19	E017S	E015S	E	E	E	E015S	E015S	E018S	012	017	017	017	016	017	C	C	C	C	E017S	E015S	E015S	E013S	E013S	E015S
20	E012S	E013S	E	E	E	E015S	E015S	015	017	018	020	020	018	020	019	018	E020S	E017S	E017S	E015S	E017S	E016S	E015S	E015S
21	E015S	E015S	E012S	E	E	E	E016S	E018S	017	017	017	017	016	017	017	017	016	E016S	E015S	E017S	E018S	E017S	E018S	E017S
22	E012S	E015S	E013S	E	E	E012S	E015S	E016S	016	016	020	016	017	017	016	016	017	E017S	E016S	E016S	E017S	E017S	E016S	E016S
23	S	S	E012S	E014S	E014S	E014S	E017S	E020S	018	020	019	C	C	C	C	C	C	C	C	E018S	E017S	E018S	E016S	E018S
24	E017S	E015S	E	E	E	E015S	E015S	021	026	021	021	020	C	023	020	E027S	C	C	E015S	E016S	E015S	E016S	E017S	E015S
25	E015S	E013S	E015S	E	E	E017S	E017S	E017S	017	018	018	C	C	016	020	016	C	C	E018S	E012S	C	C	E017S	C
26	E017S	E013S	E	E	E	E	E014S	E018S	020	016	019	024	020	021	020	017	C	E017S	E016S	E016S	E015S	E017S	E016S	E016S
27	E012S	E015S	E012S	E012S	E012S	E012S	E012S	013	018	018	019	C	C	C	018	C	E025S	C	E015S	E015S	E015S	E015S	E019S	E014S
28	E015S	E013S	E012S	E	E	E016S	E015S	E016S	013	017	017	017	016	019	017	017	016	E016S	E015S	E015S	E017S	E015S	E015S	E013S
29																								
30																								
31																								
No.	26	26	28	28	28	28	27	28	27	27	28	21	17	22	22	22	18	20	25	27	25	25	27	26
Median	E015S	E012S	E	E	E	E012S	E015S	E016S	016	017	017	017	017	017	017	016	014	E016S	E015S	E015S	E015S	E015S	E015S	E015S
U. Q.																								
L. Q.																								
Q. R.																								

f-min

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

IONOSPHERIC DATA

Feb. 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	305	295	SF	300F	325F	355F	330	355	365	345	345	360	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	SF	SF	305	350	320	U345S	355	360	360	355	365	340	370	365	320H	I350S	320	330	320	325	290	295
3	325	315F	SF	325F	SF	SF	325F	355	360	365	365	365	340H	360	340	355	370	360	325	325	310	325	325	305
4	305S	305	305	U330S	320	330	310	U345S	360	360	380	U370S	390	I370S	375	345	355	360	340	330	335	335	295	310
5	SF	310F	SF	325F	360F	320	320	I365S	I370C	350	360	355	I340C	350	340	365	I360C	360	355	350	I295A	305S	300	295F
6	295F	305F	320F	SF	SF	F	320F	380	U350S	355S	350	340S	U340S	355	370	355	375	345	335	320	310	SF	SF	280F
7	295F	SF	SF	SF	SF	300	350	U355S	355	330	U335S	U365S	345	355	345H	350H	335	340	U340S	320	SF	285F	315F	SF
8	SF	SF	SF	335F	330F	275F	275	I340S	I370S	I340A	J340S	U350S	360	U340S	360	355	360	360	350	SF	S	A	SF	SF
9	SF	315F	SF	SF	SF	SF	S	355	340	320H	I350C	C	C	C	C	S	350	340	350	I320S	SF	300F	285F	310F
10	SF	SF	310F	290F	320F	SF	355	U340S	I340S	I340A	345	I340S	I365S	350	365	355	360	345	325S	320S	310S	305S	305	310
11	300	SF	SF	310F	325	335	325	315	360S	350	340	C	C	C	C	C	C	C	330	340	330	305	305S	295S
12	S	SF	SF	SF	365F	330F	320F	370S	355	370	355	C	C	C	C	C	C	355S	325	S	305S	295S	S	SF
13	SF	305F	305F	325F	305F	345	320	S	S	360H	360	350	I350C	370	350	355	370	355S	345	350	320	I315S	305S	320S
14	SF	315F	SF	SF	305F	320F	330	I355S	355	345	315	U350S	350	360	350	355	375	345	315	325	335	335	295	I300S
15	305S	320S	325S	U320S	U320S	U325S	I335S	I350S	370	355	U315S	I330C	I345C	350S	360S	A	C	C	C	A	C	C	320	SF
16	SF	SF	SF	305F	325	350S	350	370	375S	I345C	335	335	350	365S	355	370	375	370	340	330	310	SF	SF	SF
17	280F	SF	320F	330F	SF	SF	SF	U355S	360	365	345	I335S	315	I350S	360	360	380	360	335	325	320	310	315S	U320S
18	SF	SF	SF	SF	SF	SF	315F	I350S	360	365	360	340	350	370	350	355	380	I355S	300	325	325	325	295S	I300S
19	I310S	U305S	U315S	SF	SF	SF	SF	365	360	345	335S	340	345	355	C	C	C	C	355	330	295	I305S	300S	I295S
20	I295S	I320S	I325S	U335S	335	320	335	355S	365	305H	350	335	340	360	355	365	365	350S	335	335	S	S	S	295S
21	305	305	I305S	310	335S	335	320	U355S	380	320H	355	355	345	325	335	345	350	355	I355S	320	310	U310S	U305S	290S
22	305	I335S	350	325S	305	305	325	360	345	355	360	355	355	355	350	355	375	U375S	345	305	310S	I310S	305S	315S
23	S	S	S	U350S	350S	330	335	365	360	320	340	C	C	C	C	C	C	C	C	295	310	305	305	290
24	295	280	295	305	285	305	345S	350	360	325	330	330	I330C	360	360	340S	I345C	I350C	340S	325	U310S	I310S	I310S	U310S
25	I310S	300S	U305S	315S	325	310	325S	345	370	305H	335	I340C	I345C	345	355H	U350S	I345C	I345C	340	325S	I325C	I315C	I325S	I325C
26	305	I310S	325S	I325S	U325S	SF	SF	355	360	345	335	335	345	355R	350	I360S	I360C	I355S	U340S	I345S	U335S	S	S	S
27	U300S	I320S	U325S	I320S	U325S	S	S	S	355	U340S	345	C	C	C	S	C	360	I355C	370	U315S	S	S	S	U300S
28	U310S	U305S	U320S	U325S	U325S	335	340	335	350	330	300H	345	350	355	350	U350S	365	365	375S	U330S	U315S	I310S	U300S	S
29																								
30																								
31																								
No.	17	18	15	20	21	19	23	26	27	28	28	23	22	22	21	20	22	23	25	24	21	20	20	20
Median	305	310	320S	325	325	330	325	355S	360	345	345	345	345	355	355	355	360	355	340	325	310	310	305S	300S
U. Q.																								
L. Q.																								
Q. R.																								

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

The Radio Research Laboratories, Japan

M(3000)F2

W 7

IONOSPHERIC DATA

Feb.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											400L	400	C	C	C	C								
2											400	380	380H	400	395									
3												A		380L										
4												400	400	385L										
5											380L	395	I375C	400	385L	375								
6											375L	380	385	400	390									
7											A	375	390	400										
8												395	380	380	385	400L								
9											C	C	C	C	C	U390L								
10											I375A	385	395	400										
11										395L	400	C	C	C	C	C								
12											385	C	C	C	C	C								
13											400L	385	I385C	395										
14											380	390	390	380	395L	U405L								
15											380	I380C	I385C	390	405	A								
16										C	375H	365	390	400H	400	410								
17										395	375	I380A	390	380H	390L	420								
18											395H	385	390	400	395	415L								
19										395	390	370H	390H	385H	C	C								
20											380	365	380	375	385	385								
21											380	370H	365	390	390	380								
22										385L	385	355	375	390	385L	400								
23											400L	C	C	C	C	C								
24										380	360	380	I370C	385	400									
25											395	I370C	I365C	355		U390L								
26											375	390	380	385	395									
27										I390A	385H	C	C	C	395	I405C								
28												380	390H	395	400	390								
29																								
30																								
31																								
No.										6	22	22	21	22	16	13								
Median										390	380	380	385	390	395	400								
U. Q.																								
L. Q.																								
Q. R.																								

M(3000)F1 Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

IONOSPHERIC DATA

Feb. 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											260	250	C	C	C	C								
2											240	270	245	250	225									
3												250		260										
4												240	230	270										
5											250	260	I260C	250	260	230								
6											260	260	245	240	250									
7											275	245	265	250										
8												230	250	255	250	240								
9											C	C	C	C	C	235								
10											280	260	250	260										
11										235	245	C	C	C	C	C								
12											260	C	C	C	C	C								
13											250	260	I260C	235										
14											310	250	250	250	260	250								
15											285	I265C	I255C	245	250	A								
16										C	260	260	250	230	245	230								
17										245	260	260	265	240	255	225								
18											260	260	260	250	245	245								
19										265	270	250	260	245	C	C								
20											265	295	260	250	245	240								
21											250	260	265	270	270	260								
22										245	250	240	250	255	250	240								
23											245	C	C	C	C	C								
24										290	265	270	I260C	245	240									
25											260	I255C	I255C	260		230								
26											260	260	250	255	245									
27										260	270	C	C	C	240	I235C								
28												255	250	250	245	250								
29																								
30																								
31																								
No.										6	23	23	21	22	16	13								
Median										250	260	260	255	250	250	240								
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

IONOSPHERIC DATA

Feb. 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	300	290	275	250	235	220	250	230	220	225H	245	220	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	235	260	270	220	260	220	230	230	230	210	200H	215	230	225	225H	235	250	250	300	275	300	290
3	275	260	255	240	225	220	250	225	225	250	240	I245A	235H	235	235H	240H	220	215	250	245	275	250	265	300
4	300	280	275	250	250	225	290	230	215	225	225	240	220	210	245	230	210H	230	250	235	260	250	280	295
5	280	270	250	250	200	260	250	220	I220C	240	240	225	I220C	240	235	220	I225C	215	220	220	A	305	285	300
6	295	275	250	220	250	225	275	235	235	230	245	245	240	210	210	240	220	220	265	260	295	275	280	300
7	290	270	260	285	250	285	230	210	225	220H	I245A	220	200	210	240H	240H	245	220	215	250	305	335	270	285
8	290	260	280	250	260	350	355A	250	I230A	I240A	250	I220A	205	255	245	230	225H	220	220	260	A	A	300	285
9	275	250	250	250	260	250	I275S	I250A	245	220	I215C	C	C	C	C	215	220H	220	210	230	250	265	300	300
10	300	275	255	260	250	250	235	240	225	I210A	I240A	225	240	210	200H	200H	220H	225	235	260	250	275	285	265
11	290	285	260	255	245	235	280	250	225	210	200	C	C	C	C	C	C	C	250	250	235	280	260	290
12	305	300	275	240	215	275	250	230	230	220	210	C	C	C	C	C	C	225	245	245	310	280	290	285
13	285	290	260	250	250	240	250	220	220	225H	220	230	I215C	230	230	215H	220	215	225	240	290	290	300	260
14	265	250	265	270	275	265	245	215	215	215H	200	240	220	225	220	240	220H	215	260	250	245	250	300	300
15	300	270	275	255	250	250	245	230	225	245	230	I230C	I230C	225	245	A	C	C	C	A	C	C	300	300
16	285	240	290	280	235	205	210	215	230	I235C	210H	250	225	200H	210	210	220	210	230	250	290	300	315	330
17	255	285	265	250	220	215	250	220	225	230	220	I230A	210	200H	210	225	220	215	230	250	290	290	285	305
18	330	275	260	230	235	210	250	220	225	220H	210	220	220	220	210	220	220	215	290	250	250	260	275	295
19	295	300	275	260	250	230	215	220	220	225	215	195H	200H	225H	C	C	C	C	235	240	275	290	300	300
20	300	270	240	220	230	270	260	225	225	220H	215	200	215	225	220	220	220H	220A	240	250	275	300S	295	295
21	315	300	290	250	245	225	240	220	225	205H	210	210H	210	225	245	210	235	220	I215S	270	280	285	300	310
22	295	270	240	240	250	280	260	225	225	230	210	225	225	210	210	215	220	210	230	285	290	300	300	290
23	I285S	I270S	240	225	240	245	250	215	235	225H	185	C	C	C	C	C	C	C	C	285	275	280	300	310
24	300	290	285	255	310	275	220	205	215	230	240	210	I245C	240	230	210H	I210C	I210C	225	250	260	260	260	300
25	280	275	260	240	225	260	250	230	200	200H	215	I220C	I225C	225	210H	225	I225C	I220C	220	230	I280C	I260C	260	I260C
26	280	260	260	245	225	230	230	220	240	225	240	230	235	220	225	210H	I220C	225	215	220	235	290	280	270
27	270	250	280	250	240	215	250	230	220	I200A	210H	C	C	C	210	I210C	225	I220C	200	270	260	265	270	280
28	260	270	260	245	235	215	230	245	230	205H	220H	210	210H	210	225	215	240	215	210	245	245	260	265	260
29																								
30																								
31																								
No.	27	27	28	28	28	28	28	28	28	28	28	23	22	22	22	22	22	23	25	26	24	25	27	27
Median	290	270	260	250	245	240	250	225	225	225	220	225	220	220	225	220	220	220	230	250	275	280	285	295
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

Feb. 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	E	S	S	S	155	170	150	155	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	S	S	140	G	C	G	G	G	G	G	S	S	S	S	S	S	S	S
3	S	E	E	E	E	E	S	S	155	G	155	145	G	145	G	G	G	S	S	S	S	S	S	S
4	S	S	S	S	E	S	S	105	145	G	G	G	G	105	105	105	105	S	S	S	S	S	105	S
5	S	S	S	E	E	S	S	S	C	150	145	110	C	110	110	110	C	110	110	115	110	S	S	S
6	S	S	E	E	E	E	S	170	170	110	G	145	135	125	120	120	120	S	S	S	S	105	S	S
7	S	E	E	E	E	S	S	125	130	105	105	105	G	G	G	G	G	S	S	S	S	S	S	S
8	S	140	125	120	125	S	130	125	120	120	120	110	110	G	G	135	120	110	110	110	105	105	110	S
9	S	100	100	E	E	E	S	135	140	G	C	C	C	C	C	120	G	C	C	S	105	110	105	S
10	S	E	E	E	E	S	S	110	G	105	105	105	105	G	G	G	G	S	S	S	S	S	110	S
11	105	105	E	E	E	E	S	S	115	G	105	C	C	C	C	C	C	C	100	S	S	S	S	S
12	S	E	E	100	E	S	S	S	G	G	G	C	C	C	C	C	C	C	S	S	S	S	S	S
13	S	110	E	E	E	C	C	S	115	120	120	110	C	110	G	G	G	C	C	C	C	C	C	C
14	C	S	S	S	E	C	C	S	G	G	G	G	G	105	G	120	S	C	C	C	C	C	C	C
15	C	S	C	C	C	C	C	C	G	120	150	C	C	125	120	115	C	C	C	105	C	C	105	110
16	S	E	105	E	E	S	S	170	105	C	105	105	G	G	105	100	100	C	C	S	S	110	110	S
17	S	E	110	105	E	S	S	175	165	155	105	105	105	100	105	105	100	100	C	S	S	S	S	110
18	105	105	110	105	E	S	S	G	G	110	110	G	105	G	G	G	G	100	100	S	S	S	S	S
19	S	105	105	E	E	S	S	S	110	110	G	110	105	G	C	C	C	C	100	S	S	S	S	S
20	S	S	E	E	E	S	S	G	120	115	110	G	G	G	G	G	120	120	S	S	S	S	S	S
21	S	105	105	105	E	E	S	150	110	110	G	105	G	G	130	G	G	S	110	S	S	S	S	S
22	S	S	S	E	E	S	S	150	140	120	G	105	105	100	105	105	G	S	S	S	S	S	S	S
23	S	S	S	S	S	S	S	S	G	G	125	C	C	C	C	C	C	C	C	100	S	S	S	S
24	S	S	E	E	E	S	S	B	B	110	110	105	C	G	G	S	C	C	S	S	S	S	S	S
25	S	S	S	E	E	S	S	160	G	G	G	C	C	105	G	G	C	C	S	S	C	C	S	C
26	S	S	E	E	E	E	S	160	G	150	G	G	G	G	G	G	C	S	S	S	S	S	S	S
27	S	S	S	S	S	S	S	G	G	105	G	C	C	C	G	C	S	C	S	S	S	S	S	S
28	S	S	S	100	E	S	S	150	150	125	G	G	105	G	G	G	G	S	S	S	S	S	S	S
29																								
30																								
31																								
No.	2	7	7	6	1		1	13	17	18	15	14	8	10	8	10	6	5	6	4	3	4	6	2
Median	105	105	105	105	125		130	150	140	120	110	110	105	110	110	110	110	110	105	110	105	110	110	110
U. Q.																								
L. Q.																								
Q. R.																								

h'Es

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

The Radio Research Laboratories, Japan

W 11

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IONOSPHERIC DATA

Feb. 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									h	h	h	h												
2									h															
3									h		h	h		h										
4								12	h 1					1	1	1	1						f	
5										h 1	h	1		1	1	1		1	f	f	f3			
6								h	h 1	1		h	h	c	c 1	c	c					f		
7								c	1	1	12	12												
8		f	f	f	f4		c	c	c2	c2	c	c2	c			c	c	c	f	f2	f2	f	f	
9		f	f					h	h							c					f	f	f2	
10								13		12	12	1	1										f	
11	f	f							1		1								f					
12				f																				
13		f							c	1	1	1		1										
14														1		c								
15										c	h			c	c	c2				f			f	f
16			f					c	1		1	1			1	1	1					f	f	
17			f	f				h	h 1	h 1	13	13	1	1	1	1	1	1						f
18	f2	f	f	f						1	1		1					1	f					
19		f	f						1	1		1	1						f					
20									1	c	1						c	c						
21		f	f	f				h	1	1		1			h				f2					
22								h	h	c		1	1	1	1	1								
23											c									f				
24										1	1	1												
25								h						1										
26								h		h														
27										12														
28				f				h	h	c			1											
29																								
30																								
31																								
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

W 12

IONOSPHERIC DATA

Feb. 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	F	U031F	F	030	028R	025	024	041	049	048	058	063	061	056	058H	055R	057	036R	037	040S	036	032	033	U033R
2	033	035R	034	029	030	028	024	041	056	059	065	070	057	068	061	059	048	043	I032R	026R	025	029	029	030
3	031	033S	035	036S	031S	027R	024	041	050S	052	060	052	051	057	061	058	057	039	036	028	026	029F	029S	029F
4	031	032S	031	029	030	026	024	044S	055	063	060	072	066	057	052	058	051	039	031	031	032	031	030	033
5	034S	034	036R	030	030	026S	026	048	051R	053	061	069	058	066	060	063	050	044	032	027	025	025	028	030
6	032	032	033S	028	026R	024	021S	040S	049	056	053	069	081	063	054	055	048	041	025	028	030	033	033	032S
7	033	033	033	029	032	030	026R	045	050	056	066	086	080	059	060	067	065	058	036	030	028	030V	FS	FS
8	FS	032S	032S	033S	027S	025S	I026A	054	070	074	070	090	068	063	069	069	063	049	I038A	027	FS	FS	FS	FS
9	FS	FS	F	031F	FS	F	019F	041	048	062	J080R	069	062	058	060	065	063	049	037	029	030	031	030	F
10	U031F	FS	032	030	031	030	019H	039S	050	051	061	074	066	069	057	058	053	044	034	034	034S	035S	FS	036F
11	037F	F	FS	F	034	F	F	045S	062	058	057	063	063	064	058	060	062	053	037	030	030	027	030	030
12	U031R	FS	FS	033R	027R	FS	024	043	052	053	060	070	065	058	058	055	051	043	032	035	030	031	033	036S
13	FS	034S	033	032	031	025S	022	045	053	052	053H	061R	067	060	052	052	054	045	033	032	031	032	UC34R	038F
14	036	035	035	036	035	036	030	047	050	060	060	JC71R	078	060	062	056	056	050	035	039	036S	033	031	FS
15	FS	032F	UC34R	034	I034S	023R	026	051R	053R	055	059	075	U083R	073	063	062	053	042	032	033R	031	030	031	034
16	035	036	FS	033S	041	020	021S	045	050	072	083	087	099	U085R	069	058	052	043	029	028	I026A	I028R	FS	030S
17	035S	032F	U031F	036S	030	J018R	020S	048	055	060	058	063	081	074	062	059	055	043	036	027	025	028	030	030F
18	FS	032S	032S	032S	032	025	025	046	056	058	064	067	076R	064	057	062	056	043	I028A	028	033	032R	031	031
19	FS	031	031	030	FS	024	028F	046	049	054	068	073	080	072	065	057	056	046	030	028	029	028R	028	030
20	027R	029	031	030	027	018	022	045	050	051	057	066	083	078	063	054	052	047	034	030	032	028	029	030
21	028	028	029	031	035	025	024	042	050	051	060	067	072	071	063	057	064	060	042	026	031	032	033	032
22	033	036	039	028	029	028	028	053	054	059	072	068	064	067	063	060	058	046	028	028	030	032	033	033
23	032	034	036	027	026	026	029	047	055	069	068	070	079	066	060	056	061	058	041	028	030	032	033	032
24	032	031	031	032	028	031	032	049	056	063	070	087	084	081	068	060H	065	054	037	I034R	035	036	037	036
25	036	035	039	033	032	031	032	054	064	064	076	085	090	086	078	061	055	060	046	034	033	034S	034R	035
26	035	036	036	034R	035	031R	034	052R	056	062	070	081	073	075	069	063	062	060	045	038	038S	036	041S	042
27	041	042	041	042	042	041S	036S	054	060	076R	073	085	075	082	068	056	057	060	043	034	037S	J038R	041R	042
28	044	044	047	048	041S	035F	035F	052	060	068	069	082	086	070	065	060	059	055	043	036	038S	040	040	043
29																								
30																								
31																								
No.	21	24	23	27	26	25	27	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	24	24
Median	033	033	033	032	031	026	025	046	053	058	064	070	074	066	062	058	056	046	036	030	031	032	032	032
U. Q.	036	035	036	034	034	030	029	050	056	063	070	082	081	074	065	062	062	054	038	034	034	033	034	036
L. Q.	031	032	031	030	028	024	022	042	050	053	060	067	064	060	058	056	052	043	032	028	030	029	030	030
Q. R.	005	003	005	004	006	006	007	008	006	010	010	015	017	014	007	006	010	011	006	006	004	004	004	006

The Radio Research Laboratories, Japan

foF2

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

A 1

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IONOSPHERIC DATA

Feb. 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										LH	390	410	420L	400L	LH	LH	A							
2										L	420L	L	420	410L	L	350L	L							
3										L	L	L	420L	I410A	L	L	L							
4										L	400	410L	410L	L	L	LH	260L	190						
5									LH	L	400L	420	410L	410	410	L	A							
6										390L	420L	420	400H	LH	390L	L	250							
7											440L	410	420	400	LH	L	L							
8									L	L	L	I420A	L	L	A	A	A							
9									L	400L	410H	410H	390L	L	LH	L	L							
10										L	LH	LH	I420A	L	380L	330L								
11									L	L	400L	430L	400H	400L	390L	370L	L							
12										L	390L	400R	430L	400H	390L	360L								
13										L	390L	L	420	420L	390L	LH	L							
14									290	L	L	430	L	420L	LH	L	L							
15										L	410	420	420L	410	A	L	L							
16									L	L	L	440L	400	410	390L	L	L							
17									L	400L	420L	420	430H	420L	410L	L	270	210L						
18									LH	L	400	420	420	400L	400	LH	290L							
19										L	420L	430	420	420L	400L	L	L	200L						
20										L	400	400	420	420	400	L	270L							
21										390L	420L	430L	420	420	400L	380L	L							
22										L	420L	420	420	420L	380R	L								
23										L	420	420	430L	420L	LH	L	LH							
24										380L	420L	LH	430	420	420L	L	L							
25									L	LH	420L	440L	LH	420	LH	360L	L							
26									LH	L	L	L	420L	420L	LH	L	L							
27									300H	L	L	430	450	400	LH	L	290L							
28									L	L	430L	440H	450L	L	420L	L	LH							
29																								
30																								
31																								
No.									2	5	21	22	25	22	15	6	6	3						
Median									300	390L	420L	420	420	420L	400L	360L	270L	200L						
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

IONOSPHERIC DATA

Feb. 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								E	220	265	285	295	295R	I290A	275R	245	A							
2									220	255	285	300	305A	290A	270	A	A							
3									200	I255A	270	290	I300A	300	I280A	255	215							
4								E180S	225	250	270S	I285A	290	290A	275A	I240A	195	E						
5								E	200	250	275R	I280A	290	I290A	275S	250	A							
6								E	220	250	275	285	290R	285	265	RS	A							
7								A	A	RS	280A	285	I290A	275	260	240	195							
8								A	210	245	275	A	A	280	270	240	A							
9								A	A	A	A	290	290	285	275	250	A	E						
10								A	A	A	280	290	A	A	I280A	250	A							
11								E170B	A	A	I270A	I290A	295	290	275	245	A							
12								E	A	A	A	A	I300A	295	280	260	A	E						
13								E170B	A	A	A	A	A	295	285	260	215	E						
14								E	A	S	A	A	305A	295	280A	I255A	205	E170B						
15								E	I225A	I245A	I270A	290	295	290	275	A	A							
16								A	225	265	280	295	300	290	275	250R	A	E						
17								A	225	I260A	280	300	I300A	290	280	265	A	E						
18								E	I220A	A	A	A	305	305	290	A	A	E170B						
19								E	235	260	I280A	295R	300	295	280	250	A	E						
20								A	A	A	I280A	295	300	300	280	255	220	E170B						
21								A	A	A	I285A	I300A	305	295	I280A	I260A	A	E						
22								E	215H	260H	280	295	300	290	280	250	A	E						
23								190	I230A	260A	285	300R	U305R	295	285	260	I220R	E180B						
24								A	220A	270	290A	305	310	305	290	A	A	A						
25								E	A	I270A	290A	300A	310	A	A	A	A	E180B						
26								E	230A	280H	300H	305A	310	305	300	270	225	E						
27								195	240	265	290	I305A	I310A	305	295	A	A	A						
28								E	230	265	295	310	315R	I310A	300	275	225	E170B						
29																								
30																								
31																								
No.								17	18	18	23	23	25	26	27	21	9	16						
Median								E	220	260	280	295	300	290	280	250	215	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

Feb. 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	J018	E	J013E	E	J015E	J012E	E	018	025	G	035	034	035	034	034	026	J029	022	J020	J021	E	E	J019	J020
2	J016E	J015E	J016E	J016E	E	E	E	E018B	026	029	030	G	031	030	031	J033	023	E	E	E	E	E	E	J012E
3	E	E	E	E	E	J023	J014E	E	G	026	031	036	040	045	034	G	G	021	J025	020M	J018	J016E	J017	J013E
4	J013E	E	E	E	E	J013E	J013E	E018B	025	029	J031	J037	031	032	030	025	G	J017	J016E	J013E	E	J015E	E	J015E
5	J014E	E	E	E	E	J016E	E	E	G	G	034	033	031	033	031	J035	J048	J038	J016E	J037	J018	J018	J013E	J013E
6	J015E	E	J012B	J016E	J030	E	J016E	020	025	G	023G	026G	034	031	029	S	023	E	E	J016E	E	E	E	J017
7	J013E	E	E	E	E	E	J015E	024	029	034	032	J031	J036	J028	J028	G	G	E	J015E	J015E	E	J031	E	E
8	J011E	J014E	J030	J038	J038	J016E	J028	J035	J029	031	036	J050	032	G	041	J056	J053	J034	J064	J032	J025	J021	J013E	J019
9	J013E	E	J012E	J015E	E	E	J012E	023	028	027	028	028G	025G	026G	024G	023G	J023	JC22	J025	J020	JC16E	J016E	J013E	J013E
10	J020	E	J018	J016E	E	E	E	019	J032	J041	G	G	J058	J044	J037	J023G	022	J023	020	J021	E	J019	J021	J019
11	E	J018	E	J031	J028	J018	E	E017B	024	030	029	J030	G	J028G	G	026	021	E	E	E	E	E	E	E
12	E	J017	J015E	J018	J013E	E	E	J017N	026	028	J036	J030	033	G	021G	027	021	J020	J016E	J015E	E	E	E	E
13	E	E	E	J020	E	J018	J013E	020	026	J030	J033	J045	J037	G	G	G	G	E	E	E	E	E	J017	J014E
14	E	E	J015E	E	E	E	E	E	023	S	J031	034	035	G	030	025	J018G	E017B	E	E	J020	J025	J013E	J018
15	J017	J013E	J015E	J014E	S	E	E	E	023	032	030	035	042	J045	J051	034	027	024	021	J035	J023	J020	E	J013E
16	J013E	E	E	E	E	E	J015E	024	G	032	G	G	G	G	026G	J046	J027	J032	J027	J031	J028	J029	J013E	JC42
17	J017	E	E	E	E	E	E	023	027	025	032	033	J032	031	J025G	J022G	022	J016E	J018	E	E	E	J015E	J032
18	J018	J020	J019	E	E	E	E	020	023	028	J030	J032	G	G	G	028	026	E017B	J052	J018	J019	J029	J038	J013E
19	E	E	E	E	E	E	E	020	G	026G	J032	J023G	035	033	G	032	023	E	E	E	E	J016E	E	E
20	J017	E	E	E	E	E	J012E	025	025	J032	032	G	G	032	033	027	G	E017B	E	J025	J033	J019	J031	J015E
21	J011E	J015E	J017	E	E	J018	E	022	028	030	029	J035	J032	031	033	J027	024	J019	022M	J013E	J015E	E	J023	E
22	J036	E	J021	J017	J019	J014E	E	E	G	031	032	G	031	G	024G	J024G	J025	J025	J028	JC17	J013E	J017	J013E	E
23	J013E	J012E	J011E	E	E	E	E	021	026	030	G	G	022G	020G	G	020G	019G	E018B	J013E	E	E	E	E	E
24	J013E	J015E	E	E	E	E	E	024	026	029	030	022G	027G	J033	020G	029	028	025	J025	J031	J023	E	J016E	J012E
25	E	E	J018	J017	J015E	E	E	E	027	029	033	033	G	033	029	027	J029	E018B	J018	J021	019	E017B	J018	E
26	J016E	J015E	J015E	E	J013E	J011E	E	018	025	035	034	034	033	032	G	G	G	E	E	E	E	J018	J018	E
27	E	E	E	020M	E	E	E	G	G	032	034	036	J035	033	G	028	J026	J020	J019	E	E	E	E	E
28	E	E	E	E	E	E	E	E	029	G	G	G	029G	031	019G	018G	G	E017B	E	E	E018B	E	E	E
29																								
30																								
31																								
No.	28	28	28	28	27	28	28	28	28	27	28	28	28	28	28	27	28	28	28	28	28	28	28	28
Median	E	E	E	E	E	E	E	018	025	029	031	032	032	031	G	026	023	018	E	E	E	E	E	E
U. Q.	E	E	E	E	E	E	E	022	027	032	033	034	035	033	032	029	026	022	024	021	019	019	018	E
L. Q.	E	E	E	E	E	E	E	E	023	026	029	G	G	G	G	G	G	E	E	E	E	E	E	E
Q. R.									004	006	004													

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

The Radio Research Laboratories, Japan

foEs

IONOSPHERIC DATA

Feb. 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							018	025		035	033	035	033	033	026	028	E	E	018			E	E
2								E018B	024	029	030		031	030	031	026	022							
3						E				026	031	036	035	041	031			E	018	E	017		E	
4								E018S	025	029	025	032S	031	031	029	U025R		E						
5											033	032	031	032	030	022	037	026		017	E	017		
6			B		018			018	025		023G	025G	034	031	029	S	021							E
7								023	026	U034R	032	U031R	032	025	022							E		
8			020	018	E		A	025	026	030	033	042	032		040	054	045	032	A	018	E	E		E
9								019	025	025	028	026G	025G	025G	022G	017G	022	020	018	E				
10	018		E					019	025	037			052	036	034	019G	022	017	E	E		E	E	E
11		E		017	020	E		E017B	024	028	028	030		026G		026	021							
12		E		E				E	025	028	031	030	033		021G	027	U021R	017						
13				E		E		020	026	028	031	034	032										E	
14									023	S	031	031	032		030	U025R	017G	E017B			017	019		E
15	E				S				023	031	030	033	040	036	046	033	026	022	019	018	E	E		
16								024		U032R					023G	020	022	026	023	018	A	024S		E
17	017							022	027	U025R	032	033	032	031	024G	019G	022		018					E
18	E	E	E					020	023	028	029	031				028	025	E017B	A	017	018	028	021	
19								E		024G	028	021G	035	033		029	023							
20	E							024	025	028	030			031	033	027		E017B		E	E	E	E	
21			E			E		022	027	029	029	031	028	031	032	027	024	018	E				019	
22	E		E	E	017					031	032		031		023G	023G	025	023	021	E		E		
23								021	026	029			E022R	020G		019G	018G	E018B						
24								024	026	U029R	030	U022R	025G	022	020G	029	026	025	017	E031R	020			
25			E	E					027	028	032	U033R		031	U029R	027	025	E018B	E	E	019	E017B	E	
26								018	025	034	034	034	033	032								E	E	
27				E						U032R	034	036	035	033		028	025	U020R	017					
28									028				028G	U031R	019G	018G		E017B			E018B			
29																								
30																								
31																								
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

Feb. 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	017	017	017	018	017	017	017	E	E	E	E	E	E	E	E
2	E	E	E	E	E	E	E	018	017	018	018	017	017	018	018	017	017	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E	E	E	017	017	018	017	017	017	017	017	E	E	E	E	E	E	E
4	E	E	E	E	E	E	E	E018S	E	017	E	E	017	017	017	E	017	E	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	E	E	E	E	E	E	E	E	E
6	E	E	018	E	E	E	E	E	E	E	017	018	017	017	017	017	017	E	E	E	E	E	E	E
7	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	017	E	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	017	E	E	E	E	E	E	E
9	E	E	E	E	E	E	E	E	E	017	017	017	017	017	E	017	E	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E	E	E	017	017	017	017	017	E	E	E	E	E	E	E	E	E	E
11	E	E	E	E	E	E	E	017	017	E	017	E	017	017	017	017	E	E	E	E	E	E	E	E
12	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E
13	E	E	E	E	E	E	E	017	017	017	017	017	017	017	017	017	017	E	E	E	E	E	E	E
14	E	E	E	E	E	E	E	E	017	017S	017	017	017	017	017	E	017	017	E	E	E	E	E	E
15	E	E	E	E	S	E	E	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E	E
16	E	E	E	E	E	E	E	017	E	017	017	017	017	017	E	E	E	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	E	E	017	017	017	017	017	E	017	E	E	E	E	E	E	E	E
18	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	017	017	E	E	E	E	E	E
19	E	E	E	E	E	E	E	E	017	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	017	E	017	017	017	017	017	018	017	017	017	E	E	E	E	E	E
21	E	E	E	E	E	E	E	E	017	017	017	017	017	017	E	017	017	E	E	E	E	E	E	E
22	E	E	E	E	E	E	E	E	E	017	017	017	017	017	E	E	E	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E	017	017	017	017	017	E	E	017	E	E	018	E	E	E	E	E	E
24	E	E	E	E	E	E	E	017	E	017	018	017	017	017	E	E	E	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	E	017	017	E	018	017	017	017	017	017	018	E	E	E	017	E	E
26	E	E	E	E	E	E	E	E	017	018	017	017	E	017	018	017	018	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	017	E	017	018	018	017	018	017	017	017	017	E	E	E	E	E	E
28	E	E	E	E	E	E	E	E	017	017	020	020	021	018	017	E	017	017	E	E	018	E	E	E
29																								
30																								
31																								
No.	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
Median	E	E	E	E	E	E	E	E	E	017	017	017	017	017	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

f-min

IONOSPHERIC DATA

Feb. 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	F	U295F	F	335	330R	320	310	365	380	375	350	365	355	375	355H	355R	370	375R	310	350S	335	285	305	U305R
2	305	330R	325	310	320	325	315	335	360	345	335	370	365	345	370	370	355	350	I370R	305R	310	305	315	300
3	295	305S	330	340S	340S	350R	335	365	360S	350	350	355	360	355	350	355	375	335	335	350	310	295F	315S	295F
4	290	300S	320	310	325	310	315	345S	385	380	350	380	385	375	355	340	365	340	345	325	315	315	310	305
5	295S	320	345R	305	325	315S	325	355	375R	355	360	365	345	350	350	365	360	345	345	335	295	295	320	295
6	315	315	345S	355	345R	375	335S	355S	365	340	340	335	360	380	360	360	375	345	335	315	300	295	305	305S
7	300	305	310	280	305	300	345R	360	345	340	320	355	355	340	325	360	370	345	335	350	295	285V	FS	FS
8	FS	295S	315S	335S	335S	280S	I300A	355	345	360	320	340	365	305	355	370	380	350	I325A	300	FS	FS	FS	FS
9	FS	FS	F	315F	FS	F	325F	345	345	315	J350R	355	340	365	345	340	365	345	330	310	325	330	325	F
10	U295F	FS	315	315	330	315	E	385S	340	345	350	355	345	375	360	360	350	350	325	310	325S	315S	FS	310F
11	290F	F	FS	F	330	F	F	340S	355	355	365	340	350	360	365	350	355	370	350	335	335	335	300	285
12	U295R	FS	FS	350R	370R	FS	325	350	365	360	370	345	345	365	370	365	375	370	320	320	320	300	310	335S
13	FS	295S	305	320	350	345S	320	360	375	365	315H	350R	360	355	370	365	370	340	335	325	325	305	U310R	320F
14	335	315	300	310	320	335	335	360	360	350	350	J310R	370	350	360	360	350	360	330	335	330S	320	295	FS
15	FS	305F	U300R	325	I355S	345R	305	370R	360R	350	340	335	U360R	360	360	380	370	360	320	320R	325	310	315	300
16	305	305	FS	290S	365	355	325S	365	340	335	330	335	355	U365R	375	365	365	370	320	340	I320A	I310R	FS-	300S
17	315S	320F	U305F	345S	365	J280R	305S	360	365	350	350	335	340	350	355	370	375	350	360	325	310	300	305	305F
18	FS	305S	315S	345S	345	310	330	365	360	360	360	350	345R	345	340	370	365	360	I340A	305	305	315R	305	295
19	FS	315	305	305	FS	335	325F	370	355	350	355	340	350	355	370	355	375	370	335	320	325	300R	290	295
20	295R	295	350	365	380	305	320	365	360	355	335	325	330	365	370	365	355	350	335	330	305	310	305	295
21	295	290	295	305	350	305	315	365	360	355	335	330	340	350	355	345	345	365	355	305	295	300	295	285
22	290	320	345	320	295	305	320	360	355	330	355	365	355	365	365	355	360	370	320	315	300	305	290	305
23	295	310	345	365	315	320	315	360	345	365	340	340	365	365	370	345	360	375	365	320	300	310	305	295
24	290	295	295	305	275	295	340	375	360	365	295	335	340	345	355	335H	340	355	340	I330R	310	295	310	305
25	305	310	320	325	315	305	310	355	360	345	330	330	335	350	370	360	365	365	335	320	350	295S	310R	315
26	300	310	330	325R	340	325R	325	370R	350	335	330	350	345	350	350	355	345	350	345	300	305S	305	305S	310
27	305	315	295	315	325	280S	315S	340	325	340R	335	355	350	365	390	375	350	355	350	300	315S	J315R	295R	305
28	305	305	315	330	350S	335F	330F	355	350	345	345	330	350	360	355	360	370	360	325	300	305S	300	310	310
29																								
30																								
31																								
No.	21	24	23	27	26	25	26	28	28	28	28	28	28	28	28	28	28	28	28	27	28	27	24	24
Median	295	305	315	320	330	315	320	360	360	350	340	340	350	360	360	360	365	355	335	320	310	305	305	305
U. Q.																								
L. Q.																								
Q. R.																								

M(3000)F2

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

Feb. 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										LH	385	375	365L	375L	LH	LH	A							
2										L	365L	L	380	390L	L	370L	L							
3										L	L	L	380L	I375A	L	L	L							
4										L	365	355L	365L	L	L	LH	390L	425						
5									LH	L	370L	360	380L	355L	365	L	A							
6										355L	360L	375	375H	LH	385L	L	400							
7											345L	375	360	400	LH	L	L							
8									L	L	L	I360A	L	L	A	A	A							
9									L	365L	355H	390H	385L	L	LH	L	L							
10										L	LH	LH	I370A	L	400L	400L								
11									L	L	390L	360L	390H	375L	380L	365L	L							
12										L	380L	395R	370L	390H	385L	385L								
13										L	400L	L	370	355L	385L	LH	L							
14									415	L	L	365	L	375L	LH	L	L							
15										L	365	355	370L	380	A	L	L							
16									L	L	L	365L	400	370	390L	L	L							
17									L	380L	355L	385	370H	365L	365L	L	425	405L						
18									LH	L	375	370	370	380L	375	LH	395L							
19										L	355L	360	360	365L	375L	L	L	400L						
20										L	380	375	360	365	375	L	410L							
21										365L	355L	350L	360	360	365L	385L	L							
22										L	355L	360	380	355H	400R	L								
23										L	370	385	350L	370L	LH	L	LH							
24										370L	360L	LH	375	360	360L	L	L							
25									L	LH	355L	365L	LH	395	LH	385L	L							
26									LH	L	L	L	380L	370L	LH	L	L							
27									405H	L	L	370	375	400	LH	L	415L							
28									L	L	370	365H	355L	L	370L	L	LH							
29																								
30																								
31																								
No.									2	5	21	22	25	22	15	6	6	3						
Median									410	365L	365L	365	370	370L	375L	385L	405L	405L						
U. Q.																								
L. Q.																								
Q. R.																								

M(3000)F1

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

IONOSPHERIC DATA

Feb. 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										230	275	250	270	245	255	200	230							
2										275L	290	240	250	290	245	250	235							
3										250	250	250	260	270	280	250	230							
4										230	280	235	230	240	250	265	235	240						
5									235	240	255	250	255	255	255	245	215							
6										290	260	285	250	240	250	245	230							
7											305	250	250	255	295	250	235							
8									255	240	265	270	245	255L	245	245A	230							
9									240	295	260	260	270	255	270	255	230							
10										260	275	260	255A	245	250	245								
11									250	245	250	290	260	255	250	255	240							
12										250	245	280	255	260	245	245								
13										240	250L	255	260	250	250	250	235							
14									230	260	255	300	230	255	250	240	245							
15										250	300	280	235L	245	230	235	230							
16									245	275	245	255	250	235	240	240	225							
17									230	260	250	280	255	255	250	240	230	215						
18									245	250	255	260	255	255	265	245	235							
19										265	275	270	255	250	245	235	225	210						
20										250	295	300	285	245	245	245	235							
21										250	295	295	275	255	255	255	245							
22										255	255	245	260	250	250	245								
23										250	260	275	250	250	240	245	235							
24										250	290	270	260	250	245	245	250							
25									240	255	255	265	255	255	235	240	235							
26									250	290	280	245	255	255	250	245	245							
27									240	250	260	245	255	240	230	235	235							
28									250	250	280	270	260	250	250	240	235							
29																								
30																								
31																								
No.									12	27	28	28	28	28	28	28	25	3						
Median									240	250	260	260	255	250	250	245	235	215						
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

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IONOSPHERIC DATA

Feb. 1965 | h'F 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	305	305	300	250	240	250	290	230	230	200H	230	230	245	230	230H	190H	I210A	210	250	230	245	285	290	285
2	270	245	250	250	260	245	285	250	240	225	205	220	205	180	245	220	200	230	230	230	255	270	265	295
3	300	285	250	240	230	230	255	225	225	240	240	240	230	I240A	245	220	235	215	225	220	250	290	245	290
4	295	275	255	280	245	240	280	245	235	245	225	235	220	220	205	200H	220	195	215	250	245	245	275	275
5	295	280	245	245	230	260	265	220	200H	200	240	225	220	215	220	245	I215A	225	225	245	275	300	285	310
6	285	270	245	225	260	220	E300E	225	230	200H	235	230	225	200H	205	200	200	235	235	255	295	285	295	300
7	295	290	270	305	295	280	245	220	230	240	225	245	225	215	210H	230	245	230	210	230	295	340	295	295
8	275	285	280A	270	255	E350E	I300A	250	255	245	245	I245A	225	225	A	A	A	235A	A	295A	280	230	230	255
9	275	245	245	265	240	260	E295E	230	215	250	200H	180H	175H	240	205H	225	220	215	230	245	245	245	250	295
10	310	300	285	275	255	250	E375E	250	240	I250A	200H	190H	I220A	I200A	230A	205	245	230	230	250	245	245	275	285
11	285	265	240	250	250	245	255	245	240	210	200H	205	200H	225	205	210	240	220	220	230	250	235	285	300
12	305	325	275	235	210	E320E	250	230	230	215H	205	205	240	210H	200H	210	240	215	245	245	255	290	290	250
13	270	275	280	255	240	250	E300E	230	230	225	200	240	225	210	200	200H	225	215	220	245	250	265	275	255
14	245	270	280	280	250	245	220	215	200	245	230	210	245	230	200H	210	200	215	240	245	245	250	275	315
15	295	295	265	250	I220S	230	290	220	235	235	210H	245H	I235A	230H	I225A	I230A	230	220	235	255	245	255	250	275
16	285	285	285	300	225	220	E300E	230	240	250	225H	200	200H	200	230	215	225	215	260	255	I260A	I270A	300	300
17	270	250	290	240	210	E495E	E320E	235	230	220	230	220	205H	215	205	230	200	200	215	250	270	295	285	285
18	305	270	270	235	235	250	260	240	200H	215	205	205	205	200H	200	205H	205	210	I230A	290	270	A	305	295
19	300	285	295	295	250	235	250	215	220	205H	190H	230	240	230	230	225	230	200	215	255	250	310	325	305
20	310	290	245	235	205	E360E	270	225	235	235	205	200	235	245	245	205	210	225	220	250	245	250	290	295
21	305	310	295	265	220	260	250	225	240	210	200	200	235	225	220	210	240	215	210	260	285	295	305	310
22	300	250	245	245	300	290	270	235	235	230	230	205	200	200H	200	200	240	215	250	255	295	285	300	290
23	300	270	240	210	265	270	255	220	230	230H	210	210	220	225	220H	210	200H	225	205	245	280	275	295	300
24	300	300	300	290	345	275	205	215	230	225	200H	210H	210	205	230	220	240	210	210	I250A	290	295	270	275
25	285	285	250	245	250	260	260	225	240	200H	225	225	210H	200	220H	200	225	225	215	250	250	270	275	265
26	295	280	250	245	235	250	245	220	200H	245	230	245	220	205	225	220	200	220	205	230	245	250	270	255
27	260	245	280	250	230	225	250	220H	195	250	240	250	225	200	200H	210	200	225	205	260	255	255	280	270
28	255	270	255	240	210	240	240	230	225	235	225	195H	225	220	215	215	200H	220	205	250	260	260	275	260
29																								
30																								
31																								
No.	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	27	28	27	28	28	27	28	28
Median	295	280	270	250	240	250	255	230	230	230	225	220	220	215	220	210	220	220	220	250	255	270	280	290
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

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IONOSPHERIC DATA

Feb. 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	105	E	E	E	E	E	E	155	150	G	150	150	160	150	145	145	115	110	105	105	E	E	105	100
2	E	E	E	E	E	E	E	B	160	160	150	G	140	130	155	125	145	E	E	E	E	E	E	E
3	E	E	E	E	E	100	E	E	G	145	170	145	135	130	130	G	G	120	105	105	100	E	105	E
4	E	E	E	E	E	E	E	S	155	155	100	100	145	130	125	115	G	110	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	G	G	155	150	155	155	150	105	105	105	E	105	110	100	E	E
6	E	E	B	E	105	E	E	160	170	G	105	105	155	150	150	S	120	E	E	E	E	E	E	100
7	E	E	E	E	E	E	E	135	135	130	130	105	100	100	100	G	G	E	E	E	E	145	E	E
8	E	E	125	120	120	E	130	130	130	145	130	125	120	G	145	135	125	120	110	110	115	115	E	105
9	E	E	E	E	E	E	E	135	130	125	120	115	115	115	110	105	100	100	100	100	E	E	E	E
10	110	E	105	E	E	E	E	150	105	105	G	G	100	100	100	100	145	130	100	120	E	110	115	105
11	E	100	E	100	100	100	E	B	135	120	120	125	G	100	G	155	140	E	E	E	E	E	E	E
12	E	105	E	100	E	E	E	N	130	130	120	125	160	G	100	155	140	100	E	E	E	E	E	E
13	E	E	E	115	E	150	E	150	150	130	125	120	110	G	G	G	G	E	E	E	E	E	110	E
14	E	E	E	E	E	E	E	E	145	S	130	125	140	G	135	125	100	B	E	E	105	105	E	105
15	105	E	E	E	S	E	E	E	135	130	140	150	130	125	120	120	115	110	105	105	105	105	E	E
16	E	E	E	E	E	E	E	155	G	165	G	G	G	G	105	100	100	100	110	110	110	105	E	110
17	100	E	E	E	E	E	E	160	160	120	165	145	105	160	100	100	125	E	100	E	E	E	E	110
18	110	105	110	E	E	E	E	160	135	145	120	120	G	G	G	125	115	B	110	110	110	110	110	E
19	E	E	E	E	E	E	E	110	G	105	105	105	150	150	G	140	145	E	E	E	E	E	E	E
20	100	E	E	E	E	E	E	145	150	120	120	G	G	155	140	160	G	B	E	120	110	105	105	E
21	E	E	100	E	E	100	E	145	145	130	130	110	110	160	120	110	150	100	100	E	E	E	110	E
22	105	E	100	100	100	E	E	E	G	145	150	G	145	G	100	100	100	100	100	100	E	105	E	E
23	E	E	E	E	E	E	E	150	140	140	G	G	105	100	G	105	110	B	E	E	E	E	E	E
24	E	E	E	E	E	E	E	145	150	140	145	105	105	105	105	130	120	115	105	105	105	E	E	E
25	E	E	105	100	E	E	E	E	160	130	125	130	G	125	130	120	110	B	105	105	105	B	105	E
26	E	E	E	E	E	E	E	145	150	155	155	150	145	E160G	G	G	G	E	E	E	E	105	105	E
27	E	E	E	100	E	E	E	G	G	165	155	155	100	155	G	125	100	100	100	E	E	E	E	E
28	E	E	E	E	E	E	E	E	160	G	G	G	110	115	100	100	G	B	E	E	B	E	E	E
29																								
30																								
31																								
No.	7	3	6	7	4	4	1	16	22	23	24	21	23	21	21	23	21	14	14	13	10	11	9	7
Median	105	105	105	100	100	100	130	150	150	130	130	125	130	130	120	120	115	110	105	105	110	105	105	105
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

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IONOSPHERIC DATA

Feb. 1965 | Types of Es | 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							h	h2		h	h	h	h h	h	h	12	f	f	f2			f	f
2									h	h	h		h	h	h	h h	h							
3						f2				h	h	h	h h	h2	h2			f	f2	f	f2		f	
4									h2	h	12 h	12 h	h	h	h	c2		1						
5											h	h h	h 12	h 1	h 1	12	12	f3		f	f	f2		
6					f2			h2	h2 12		12	12	h 12	h	h 1		c							f
7								h3	h2	h	h2 12	1 h	12	1	12							f2		
8			f7	f3	f3		f3	h5	h2	h2	h2	h2	h2		h3	h3	h5	f5	f2	f2	f2	f		f2
9								h2	h2	h2	c2	1	1	1	1	12	12	12	f2	f2				
10	f		f					h c	12	13			14	13	12	1	h	f f	f	f f		f	f	f
11		f		f2	f2	f2			h	c2	c	h		12		h	h							
12		f		f				h	h2	h2	c2	h	h h		1	h	h 1	1						
13				f2		f f2		h2 1	h3	h2	h2	c2	c2										f	
14									h		h	h	h		h	h 12	1				f2	f4		f2
15	f2								h	h2 h	h	h	h2	h2	h2	c2	12	f2	f2	f3	f3	f2		
16								h4		h					12	12	1 h	12	f3	f3	f3	f3		f2
17	f							h2	h	h	h	h2	12	h 1	12	12	h 12		f					f2
18	f	f	f					h	h	h	h	h				h	c2		f3	f	f5	f4	f4	
19								1		12	12	12	h2 12	h 12		h2	h 1							
20	f2							h3	h	h	h			h	h	h				f	f2	f2	f2	
21			f2			f		h2	h2	h	h	12	1	h	h2	12	h 1	12	f				f5	
22	f2		f2	f	f					h	h		h		12	12	12	13	f2	f2		f2		
23								h	h	h			1	1		12	1							
24								h2	h	h	h	1	1	1	12	h 12	c2 13	12 1	f2	f4	f3			
25			f2	f2					h h	h	h	h		h	h 1	c	12		f	f2	f2		f	
26								h	h	h	h	h	h	h										
27				f						h	h	h 13	13	h		h	12	13	f					
28									h				1	c2	1	1								
29																								
30																								
31																								
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

Feb. 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	030	028F	028	032	024	024	023	042	052	057	053R	061	060	061	056	056	054	050	033	044	036	032	034	033
2	032	033	035	030	030	026	024	042	066	062	068	074	063	057	071	061	056	041	035	027	030	030	032	030
3	030	033	034	033	036	030	028	046	050	054	060	058	056	J060R	058	058	057	049	039	029	026	029R	032R	027R
4	029	030	033	028F	032	024	023	044	061	065	066	068	061	062	052R	052	054	042	037	033	033	032	027F	033
5	033	036R	035	030	029	030	030	050	063R	058	059	067	066	062	062R	065	051	041	034	034	026	024F	027	027
6	030	032	033	028	026	025	021	045	047	056	067	085	069	078	061	053	052	041	033	026	030	032	033	033
7	032	033	033	030	030	030	026	046	052	070	078	095	082	063	061	076R	059	053	044	037	030	030	029	031F
8	029	030	033	030F	026	023	A	052R	069	081	082	080R	092	057	069	072	057	A	A	A	032	I034A	031F	U031F
9	032F	033F	U042R	U043R	036	U030R	031	043	053	061	092	071	059	062	062	070	071	053	037	030	031	028	028	026
10	030R	030	030	031	030	029	021	040	048	055	066	074	076R	059	066	055	052	050	038	032	033	I034A	031	033F
11	034F	036	035	033	034	030	031	048	061	069	065	058	062	067	063	057	062	059	042	030	032	030	025F	028F
12	028	U029F	030F	034	024	022	023	041	054R	053	053	057	073R	065	058	054	053	051	032	032R	033	032	032	037
13	030	032	031	031	032	025	023	047	060	053	060	070	070	066	059	051	052R	046	034	033	033	034	033	033F
14	034	035	034	035	035	033	030	046	056	058	066	070	082	073	060	053	051	055	036	038	038	030	030	031
15	031F	031	032R	033R	037	022	024	051	057	060	060	068	096	073	058	052	058	051	035	033	034	029	032	033
16	034	033	031	031	041	018	030	047	056	074	100	107	117	106	078	056	058	045	034	028	028	030	030	030F
17	032R	U031R	037	046	026	020	028	051	059	066	070	062	087	083	073R	062	052	051	036	028	030	029	030	031
18	U030R	034R	036	035	032	023	023	044	066	058	067	072	079	077R	061	060	056	047	033	I027A	031	033	029	031F
19	030	033F	032F	032	037	023	024	C	C	058	066	079	084	080	073R	062	056	051	030	025	028	028	028	028
20	028S	028	030	032	024	017	023	044	052	055	060	065R	J081R	J101R	066	058	051	051	035	031	035	031	028	030
21	028	028	030	031	038	022	028	042	050	055R	054R	066	U077R	R	072R	060	U063R	061	041	031	030	032	033	031F
22	032	040	037	025	026	025	027	052	052	068	066	074R	066	066	U066R	061	054	050	034	028	030	031	031	031F
23	032	033	036	024	024	024	025	052	055	071	068	071	077	073	065R	060	056	057	043	030	030	031	032	031
24	030	030	031	032	028	030	032	046	U064R	065	067	094	104	082	074	058	064	061	042	032	033	035	038R	034
25	036	036	036	033	029	029	030	054	064	074R	078	089	090	090	081R	U064R	055	054	047	038	034	031	032	034
26	033	036	040	031	030	029	030	052	058	061	071	086	072R	075R	070	066	069	058	048	036	035	035S	036	039
27	037	038	040	038	037	030	032	048	067	077R	093	092	085	071	067	059	053	057	050	038	036	036	040	U040R
28	041	045F	046S	U050S	035	034	034	051	059	072	074	077R	093	078R	071	067	058	055	047	034	038	040	038	040
29																								
30																								
31																								
No.	28	28	28	28	28	28	27	27	27	28	28	28	28	27	28	28	28	27	27	27	28	28	28	28
Median	032	033	034	032	030	025	027	046	057	061	066	072	077	071	066	060	056	051	036	032	032	031	032	031
U. Q.	033	036	036	034	036	030	030	051	063	070	072	082	086	078	071	063	058	055	042	034	034	034	033	033
L. Q.	030	030	031	030	026	023	023	044	052	056	060	066	066	062	060	056	052	047	034	028	030	030	029	030
Q. R.	003	006	005	004	010	007	007	007	011	014	012	016	020	016	011	007	006	008	008	006	004	004	004	003

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

The Radio Research Laboratories, Japan

foF2

K 1

IONOSPHERIC DATA

Feb. 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	L	L	L	L	A	L	L						
2									L	L	420L	420L	420L	L	R	A	L							
3									L		L	L	L	A	410L	L	L							
4											L	420L	L	L	L	A	A							
5									L	L	L	L	L	430L	L	L	L							
6										L	L	430L	420L	L	L	L	L							
7										L	L	L	L	L	L	L	L							
8									L	L	L	A	L	L	L	L	A	A						
9									L	L	420L	420L	L	L	L	L	L	L						
10										L	430L	430L	420L	L	430L	L	L							
11									L	L	410L	420L	440L	430L	410L	L	L							
12									L	L	L	L	L	L	400L	L	L							
13									L	L	L	L	440L	L	L	L								
14									L	L	L	430L	430L	420L	L	L	L							
15									L	L	L	L	L	A	L	A	A	A						
16									L	430L	430L	430L	430L	430L	L									
17									L	L	430L	L	L	430L	420L	L	L							
18									L	L	L	430L	440L	L	420L	L	L	L						
19								C	C	L	440L	L	430	L	L	390L	L	L						
20										L	430L	L	L	420L	L	L	L	L						
21									L	L	L	430L	S	S	L	L	L							
22									L	L	L	L	L	L	L	L	L							
23									L	420L	420L	L	L	L	L	L	L	L						
24									L	L	L	L	L	L	L	L	L							
25									L	L	L	440L	L	440L	L	L	L							
26									L	L	L	L	L	L	L	L	L	L						
27								L	L	L	L	L	L	L	L	L	L							
28								L		L	L	L	L	L	L	L	L							
29																								
30																								
31																								
No.										2	9	11	9	7	6	1								
Median										425L	430L	430L	430L	430L	415L	390L								
U. Q.																								
L. Q.																								
Q. R.																								

foF1

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

The Radio Research Laboratories, Japan

K 2

IONOSPHERIC DATA

Feb. 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								E140S	220	270	290	300	320	310	300	265	180	E140S						
2								E140S	235	255R	290R	315	315	315	295R	A	180R	E160S						
3								E130S	210	280R	290R	305R	320	305	285	I265A	240R	E160S						
4								E160S	220	I270A	290	A	300A	295	280	250R	A	E140S						
5								160	210	255R	290	305	A	A	A	A	A	E150S						
6								E140S	A	A	A	300	310	305	285	250	A	E150S						
7								E130B	A	260	290	295	300	I310A	290	270	205	E150B						
8								165	205	250	280	300	305	300R	285	270	220	E140B						
9								150	225	255	I290A	300A	305	310	290	265R	220	A						
10								170	240	265	305R	305	305	300	290A	I260A	A	E160S						
11								165	225	270	280R	I290A	315	310	285	270	230	E						
12								170	230	275R	I290A	I305A	320R	305	295	270	235	E150S						
13								E150S	205	265	295	310R	320R	I310A	A	A	A	E160S						
14								E140S	215	250	300R	310R	I320A	315R	295R	A	225	E150S						
15								E150S	225	285	300	A	310	305	290	255R	A	E150S						
16								170A	220	275	300	I305A	I310A	310R	295R	260R	235	E140S						
17								E160S	240	275	300	305R	310R	305	305	285	235	A						
18								E150S	230	285	A	A	A	A	A	A	A	E150S						
19								C	C	A	295R	305R	315R	310	300	A	215	E160S						
20								165R	250R	275R	295R	310R	315R	310R	295R	270R	220R	E140B						
21								E150S	195R	A	A	305R	A	A	A	A	A	E140B						
22								E160S	210	275	300	310R	315R	305R	295R	255R	I230A	A						
23								165	235	280	300	305	315	320	300	275R	240	E160B						
24								155	240	275R	295	305	315R	295	300	285	250R	170						
25								165	245	275	290	305R	310	300	A	A	A	160						
26								180	230	270	300	315	325	310	300	280	245R	180						
27								160R	245	280R	305R	315	325	315	310	I290A	245R	175						
28								150	235	295	305	310	305	295	315	285R	A	E150B						
29																								
30																								
31																								
No.								27	25	25	25	25	25	25	23	20	18	25						
Median								155	225	275	295	305	315	310	295	270	230	E150S						
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

Feb. 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	E014S	E014B	E011B	020	E011B	E015B	E015S	E014S	G	G	030	031	G	037	038	J042	J028	J023	J025	J025	J026	J025	J027	J023
2	J025	E013B	022	E014B	E014B	E016B	E012B	E014S	G	032	032	033	G	G	033	J042	J027	E016S	023	E014S	E016S	E011B	E016S	E015S
3	E015S	E014B	E014B	018	E014B	E015S	018	019	G	034	036	035	J042	J051	J034	J031	G	E016S	022	024	019	E016S	J017	018
4	E014S	E013B	E014B	024	018	018	020	023	025	032	J043	036	035	033	032	J040	J047	J028	025	023	018	019	J017	E014S
5	E016S	E015B	E013B	E013B	J018	E015B	018	G	G	G	035	036	037	J042	J030	J034	J029	J025	J026	J018	J019	023	023	020
6	018	E011B	E014B	J018	J021	J025	020	J028	J030	035M	J035	035	035	035	032	027	033	E015S	J032	024	E015S	019	E015S	E013S
7	E016S	023	024	E014B	016	E013B	J018	024	029	032	J044	036	035	J042	034	G	023	E015B	021	J027	J024	026	019	E015S
8	025	J018	J029	J029	J025	021	J026	023	032	034	J043	J035	J039	G	034	035	J042	J057	J110	J083	J030	J054	J028	019
9	018	J025	J018	021	E	E014B	E013S	019	024	J039	J043	030	G	032	033	032	J026	J025	021	E014S	E014S	J018	J018	018
10	019	E017B	J024	E015B	E014B	E014B	E015S	022	G	G	037M	G	033	034	035	032	J030	J028	E015S	E015S	020	J045	E014S	J021
11	J024	022	E011B	019	E011B	E013B	E013B	G	025	030	032	J033	036	G	032	029	G	024	E014S	E014S	E014S	E016S	E015S	E014S
12	E016S	E015B	J018	J018	022	018	E014S	G	026	036	J034	036	030G	033	G	G	G	J024	024	022	022	022	018	E015S
13	019	E015B	E014B	019	E014B	E014B	E016S	E015S	G	030	034	G	G	031	J033	J029	024	018	E015S	E015S	J022	J018	J019	023
14	J017	E013B	E014B	019	021	E013B	E015S	E014S	G	G	033	036	036	G	036	J030	G	J025	J023	E016S	E014S	E015S	019	E015S
15	E015S	J025	022	E015B	023	018	E016S	E015S	G	031	G	034	038	051	037	J037	J033	J044	035	039	J028	J018	023	J026
16	020	E016B	E014B	E014B	E013B	015	J013S	G	G	025G	G	036	036	G	G	G	G	J025	020	033	J024	E013S	J030	E013S
17	J025	E	J023	J026	019	J015S	J015S	026	031	032	033	035	G	G	035	037	G	J039	J028	J019	021	J016	J019	J035
18	023	021	018	J025	E011B	018	E014S	E015S	G	G	035	036	036	J033	037	038	J026	J019	J019	040	027	032	032	J027
19	J030	E015B	E014B	015	018	018	018	C	C	J030	030	033	G	036	J024G	J030	J026	E016B	E015S	E015S	E014S	017	E015S	017
20	E014S	E014B	019	E016B	E015B	E014B	019	024	035	036	035	G	G	G	G	G	G	018	E015S	021	E014S	020	E015S	J029
21	J025	020	E014B	021	024	024	024	023	G	J035	032	G	J034	J038	J036	034	035	031	J023	024	J025	J023	024	019
22	J027	E014B	J018	J025	034	024	019	022	G	032	033	036	033	030G	030	J021G	J024	J026	J024	019	E016S	E014S	E016S	020
23	E015S	E014B	E013B	E015B	E014B	E014B	E015S	G	030	032	032	032	G	G	G	G	G	E016B	E016S	022	021	020	018	017
24	E015S	E015B	E014B	E	E014B	017	E014S	G	G	031	035	033	G	032	G	G	G	G	023	J022	J022	J022	019	E013S
25	021	E014B	E014B	E011B	E014B	E014B	E013S	G	G	030	J041	036	037	034	033	J030	J029	G	E014S	E013S	E015S	018	E015S	019
26	018	020	021	024	025	023	020	G	G	G	033	035	037	G	G	G	018G	G	E015S	E013S	J025	020	022	J025
27	E013S	024	020	017	018	018	E014S	G	030	035	034	036	036	031G	033	033	G	G	E014S	E015S	E015S	E015S	E016S	E013S
28	E015S	E014B	E013B	E011B	E011B	E015B	E015S	G	032	034	G	036	032	032	G	G	032	E015B	E014S	E014S	E015S	E015S	E014S	E015S
29																								
30																								
31																								
No.	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
Median	018	E015B	E014B	018	016	E015	E015S	G	G	032	034	035	034	032	033	030	025	021	022	020	020	018	018	018
U. Q.	024	020	020	021	021	018	018	023	030	034	036	036	036	036	034	034	030	026	024	024	024	022	022	022
L. Q.	E015	E014	E014	E014	E014	E014	E014	G	G	G	032	032	G	G	G	G	G	E016	E015	E015	E015	E016	E016	E015
Q. R.	D009	D006	D006	D007	D007	D004	D004				004	004						D010	D009	D009	D009	D006	D006	D007

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

The Radio Research Laboratories, Japan

foEs

K 4

IONOSPHERIC DATA

Feb. 1965 | f_bEs | 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	S	B	B	E	B	B	S	S			030	030		037	U038A	041	027	017	016	015	020	018	015	018
2	016	B	E	B	B	B	B	S		031	032	033			033	038	024	S	S	S	S	B	S	S
3	S	B	B	E	B	S	S	018		034	035	035	034	045	033	028		S	S	S	S	S	S	016
4	S	B	B	E	E	E	E	017	025	032	033	033	034	033	031	040	045	026	E025S	E023S	E018S	E019S	E017S	S
5	S	B	B	B	E	B	S				033	034	034	033	030	030	023	017	E	016	S	017	E	E
6	E	B	B	014	015	019	E	020	026	032	034	034	034	033	030	021	023	S	E	016	S	018	S	S
7	S	E	016	B	E	B	015	022	026	030	030	G	035	034	030		022	B	S	026	021	019	E	S
8	S	014	025	023	014	S	A	022	025	031	030	034	034		031	032	038	A	A	A	018	A	016	E
9	E	015	E	E		B	S	018	024	034	028	027		032	027	021G	019	016	E	S	S	E	E	E
10	017	B	016	B	B	B	S	022			026		033	032	026	031	027	018	S	S	E	A	S	015
11	016	E	B	E	B	B	B		024	029	029	028	032		031	028		015	S	S	S	S	S	S
12	S	B	E	015	E	S	S		024	029	031	035	026G	026				020	017	016	E015S	E	E	S
13	E	B	B	E	B	B	S	S		030	031			031	033	026	024	018	S	S	017	016	017	018
14	E	B	B	E	E	B	S	S			032	033	033		031	028		017	017	S	S	S	S	S
15	S	015	E	B	E	S	S	S		G		033	034	047	037	035	033	043	030	030	019	015	S	026
16	S	B	B	B	B	015	S			025G		030	032					022	E	016	019	S	023	S
17	014		015	016	E	S	E	024	030	031	032	035			032	030		026	015	E	S	015	E	018
18	015	E	E	E	B	E	S	S			033	033	033	033	032	028	025	017	016	A	015	017	025	016
19	S	B	B	E	E	E	E	C	C	029	028	026		036	021G	029	018	B	S	S	S	016	S	017
20	S	B	E	B	B	B	S	023	027	029	032							017	S	S	S	S	S	E
21	015	E	B	017	E	017	017	021		027	031		E034S	E038S	E036S	033	026	022	020	S	S	S	016	S
22	016	B	016	020	018	018	S	022		031	033	035	E033S	028G	025	021G	023	020	018	S	S	S	S	016
23	S	B	B	B	B	B	S		028	030	032	E032S						B	S	E	E	E	S	S
24	S	B	B		B	E	S			030	032	033		025					013	020	021	019	016	S
25	S	B	B	B	B	B	S			029	030	035	033	033	032	030	025		S	S	S	S	S	S
26	S	E	016	017	E	014	S				E033S	034	E037S				018G		S	S	020	014	S	S
27	S	016	E	E	E	E	S		029	035	E034S	E036S	035	031G	032	030			S	S	S	S	S	S
28	S	B	B	B	B	B	S		032	032		E036S	E032S	032			026	B	S	S	S	S	S	S
29																								
30																								
31																								
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

f_bEs

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

The Radio Research Laboratories, Japan

K 5

IONOSPHERIC DATA

Feb. 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	E014S	014	011	013	011	015	E015S	E014S	014	016	016	016	017	016	017	016	014	E014S	E014S	E013S	E015S	E013S	E014S	E014S
2	E015S	013	014	014	014	016	012	E014S	014	015	016	016	015	015	016	015	014	E016S	E014S	E014S	E016S	011	E016S	E015S
3	E015S	014	014	011	014	E015S	E015S	E013S	015	015	015	015	016	016	015	016	015	E016S	E014S	E015S	E014S	E016S	E015S	E015S
4	E014S	013	014	014	011	014	013	E016S	014	011	014	014	014	018	015	015	014	E014S	E015S	E014S	E016S	E017S	E015S	E014S
5	E016S	015	013	013	011	015	E014S	013	014	014	015	015	017	016	015	014	013	E015S	E015S	E015S	E017S	E015S	E014S	E015S
6	E015S	011	014	011	011	011	E014S	E014S	014	014	014	014	015	014	013	013	015	E015S	E014S	E013S	E015S	E016S	E015S	E013S
7	E016S	015	014	014	014	013	E013S	013	014	014	015	014	014	014	014	014	014	015	E014S	E014S	E014S	E015S	E014S	E015S
8	E014S	011	010	011	011	E014S	E015S	012	012	014	014	015	015	015	014	015	014	014	E014S	E015S	011	010	E015S	E014S
9	E014S	011	014	011	010	014	E013S	013	013	014	015	016	015	016	015	015	014	012	E016S	E014S	E014S	E015S	E015S	E015S
10	E015S	017	014	015	014	014	E015S	014	013	014	015	016	015	015	013	012	014	E016S	E015S	E015S	011	E014S	E014S	E013S
11	E015S	014	011	011	011	013	013	013	013	015	014	015	015	015	013	014	016	010	E014S	E014S	E014S	E016S	E015S	E014S
12	E016S	015	014	011	014	E013S	E014S	014	014	015	016	015	015	015	014	014	014	E015S	E015S	E015S	E015S	E014S	E015S	E015S
13	011	015	014	014	014	014	E016S	E015S	015	014	013	015	016	016	015	015	017	E016S	E015S	E015S	E013S	E013S	011	E015S
14	E014S	013	014	011	014	013	E015S	E014S	014	014	015	016	015	015	015	014	015	E015S	E015S	E016S	E014S	E015S	E015S	E015S
15	E015S	011	014	015	010	E014S	E016S	E015S	013	014	015	015	014	016	015	015	014	E015S	E015S	E015S	E015S	E013S	E015S	E015S
16	E015S	016	014	014	013	011	E014S	015	014	014	015	016	014	015	014	014	013	014	E015S	011	011	E013S	E015S	E013S
17	011	010	011	011	010	E015S	E013S	E016S	014	014	013	015	016	016.	015	016	013	013	011	E015S	E014S	E013S	E013S	E015S
18	011	011	011	011	011	014	E014S	E015S	013	013	013	016	015	016	014	015	013	E015S	E014S	E014S	E014S	011	E014S	E013S
19	E015S	015	014	011	014	014	011	C	C	014	014	014	015	014	015	014	014	016	E015S	E015S	E014S	E015S	E015S	E015S
20	E014S	014	013	016	015	014	E014S	013	012	015	016	016	019	016	017	015	014	014	E015S	E015S	E014S	E015S	E015S	E015S
21	E014S	015	014	014	016	014	E015S	E015S	014	015	014	016	015	016	016	015	014	014	E013S	E015S	E015S	E015S	E015S	E015S
22	E013S	014	015	014	013	015	E015S	E016S	015	016	015	015	015	016	014	015	013	013	E015S	E015S	E016S	E014S	E016S	E015S
23	E015S	014	013	015	014	014	E015S	013	014	015	016	016	016	017	016	016	017	016	E016S	E015S	E014S	E015S	E016S	E015S
24	E015S	015	014	011	014	014	E014S	013	014	014	014	016	015	016	016	016	014	014	011	011	011	E015S	E015S	E013S
25	E013S	014	014	011	014	014	E013S	013	014	014	014	016	016	015	014	015	014	014	E014S	E013S	E015S	E013S	E015S	E016S
26	E016S	013	014	013	014	011	E015S	014	016	014	015	017	016	016	017	016	014	014	E015S	E013S	E013S	011	E014S	E015S
27	E013S	011	015	013	014	013	E014S	014	014	014	015	015	016	015	017	014	013	013	E014S	E015S	E015S	E015S	E016S	E013S
28	E015S	014	013	011	011	015	E015S	013	014	015	015	016	016	018	017	017	013	015	E014S	E014S	E015S	E015S	E014S	E015S
29																								
30																								
31																								
No.	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
Median	E015S	014	014	013	014	014	E014S	014	014	014	015	016	015	016	015	015	014	014	E014S	E015S	E014S	E015S	E015S	E015S
U. Q.																								
L. Q.																								
Q. R.																								

f-min

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

The Radio Research Laboratories, Japan

K 6

IONOSPHERIC DATA

Feb. 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	300	315F	305	340	335	305	325	350	365	355	350R	345	340	355	350	350	350	380	295	340	335	315	310	295
2	305	310	315	325	325	315	315	330	355	340	335	335	355	350	335	355	355	335	360	335	305	300	315	300
3	295	310	340	340	360	350	315	340	355	350	335	340	340	J325R	320	350	345	355	350	345	325	285R	265R	295R
4	295	310	325	285F	345	300	305	325	375	335	355	355	350	325	365R	345	355	360	325	305	325	320	280F	295
5	295	305R	315	300	300	305	325	340	345R	355	345	345	360	330	340R	355	365	360	325	340	325	295F	290	280
6	285	330	360	320	310	300	315	355	330	325	325	310	335	345	355	340	350	355	340	310	305	305	290	280
7	290	305	310	290	300	310	325	345	335	335	310	335	340	355	320	335R	355	335	345	350	305	305	280	285F
8	280	295	315	305F	310	305	A	345R	325	340	335	315R	340	355	330	325	350	A	A	A	310	I310A	300F	U295F
9	285F	290F	U295R	U285R	305	U300R	315	350	340	280	320	350	365	340	345	335	355	355	340	325	325	320	310	290
10	265R	270	300	315	300	305	295	340	335	330	330	345	360R	340	355	350	340	335	340	315	310	I310A	305	305F
11	290F	305	315	315	325	305	310	335	360	355	350	340	340	325	345	340	345	355	350	320	320	350	285F	260F
12	275	U275F	290F	350	365	295	320	360	365R	345	330	315	340R	350	340	345	350	360	345	295R	310	305	315	325
13	315	305	305	325	315	365	305	335	370	355	330	330	335	350	340	345	365R	360	320	310	310	320	315	320F
14	310	310	310	300	315	315	320	325	355	325	340	335	330	350	365	370	335	350	330	320	335	330	315	295
15	275F	300	315R	320R	370	310	300	330	350	340	330	310	345	355	365	360	340	345	340	305	320	330	305	300
16	295	300	295	295	345	270	295	330	330	300	330	350	335	320	355	340	365	360	325	305	315	315	330	295F
17	310R	U295R	295	340	365	325	335	345	355	345	325	320	330	335	350R	370	340	350	330	320	325	310	305	310
18	U295R	295R	295	345	340	315	315	330	355	335	310	325	330	350R	345	350	365	360	360	I280A	315	310	295	300F
19	300	295F	315F	300	320	350	305	C	C	340	315	310	330	340	330R	350	350	345	335	300	310	295	280	290
20	300S	310	300	350	345	280	295	340	335	330	320	295R	J335R	J345R	345	335	345	340	330	320	320	310	320	295
21	305	295	295	325	355	295	340	345	340	345R	315R	305	U320R	R	330R	335	U330R	365	335	320	315	290	290	285F
22	305	315	345	310	270	300	300	330	335	335	330	340R	345	340	U345R	345	345	345	330	300	300	300	295	295F
23	305	305	335	330	310	310	325	360	335	330	340	340	320	340	340R	350	345	340	340	325	305	300	300	305
24	295	295	290	295	285	295	315	360	U340R	320	295	310	335	330	335	345	350	360	330	315	295	290	290R	295
25	305	300	315	335	305	300	325	355	330	335R	310	315	315	330	335R	U350R	345	330	325	315	320	290	305	310
26	300	300	335	315	315	310	315	345	350	345	320	335	325R	345R	345	335	350	355	325	345	310	310S	305	310
27	320	300	335	315	320	310	320	320	325	325R	340	340	335	340	355	355	350	340	330	315	285	295	280	U295R
28	300	285F	320S	U310S	345	305	325	340	300	320	320	305R	340	325R	345	350	335	360	335	305	310	285	290	285
29																								
30																								
31																								
No.	28	28	28	28	28	28	27	27	27	28	28	28	28	27	28	28	28	27	27	27	28	28	28	28
Median	300	300	315	315	320	305	315	340	340	335	330	335	340	340	345	350	350	355	335	315	310	310	300	295
U. Q.																								
L. Q.																								
Q. R.																								

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

M(3000)F2

The Radio Research Laboratories, Japan

K 7

IONOSPHERIC DATA

Feb. 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	L	L	L	L	A	L	L						
2									L	L	375L	355L	375L	L	R	A	L							
3									L		L	L	L	A	370L	L	L							
4											L	360L	L	L	L	A	A							
5									L	L	L	L	L	370L	L	L	L							
6										L	L	360L	380L	L	L	L	L							
7										L	L	L	L	L	L	L	L							
8									L	L	L	A	L	L	L	L	A	A						
9									L	L	360L	380L	L	L	L	L	L	L						
10										L	355L	355L	360L	L	355L	L	L							
11									L	L	380L	375L	365L	360L	390L	L	L							
12									I	L	L	L	L	L	375L	L	L							
13									L	L	L	L	350L	L	L	L								
14									L	L	L	360L	360L	360L	L	L	L							
15									L	L	L	L	L	A	L	A	A	A						
16									L	345L	365L	360L	370L	370L	L									
17									L	L	350L	L	L	360L	370L	L	L							
18									L	L	L	360L	360L	L	365L	L	L	L						
19								C	C	L	350L	L	360	L	L	380L	L	L						
20										L	345L	L	L	360L	L	L	L	L						
21									L	L	L	360L	S	S	L	L	L							
22									L	L	L	L	L	L	L	L	L							
23									L	350L	355L	L	L	L	L	L	L	L						
24									L	L	L	L	L	L	L	L	L							
25									L	L	L	355L	L	345L	L	L	L							
26									L	L	L	L	L	L	L	L	L	L						
27								L	L	L	L	L	L	L	L	L	L							
28								L		L	L	L	L	L	L	L	L							
29																								
30																								
31																								
No.										2	9	11	9	7	6	1								
Median										350	355	360	360	360	370	380								
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

M(3000)F1

K 8

42

IONOSPHERIC DATA

Feb. 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										250	265	260	265	260	260	255	245	215						
2									235	265	265	255	260	260	275	240	250							
3									230		270	275	285	325	290	245	245							
4											250	250	260	270	250	260	260							
5									245	250	275	275	260	280	265	250	225							
6										270	300	260	275	260	250	255	225							
7										275	270	265	260	255	300	255	240							
8									240	250	255	300	250	245	280	275	240	A						
9									250	345	265	245	255	275	275	270	240	225						
10										295	285	260	250	275	255	250	235							
11									250	250	255	270	275	290	270	255	260							
12									235	265	245	275	260	250	260	250	250							
13									240	255	285	285	275	260	260	255								
14									250	260	270	265	265	255	255	240	255							
15									245	255	295	290	260	245	245	245	250	250						
16									270	305	265	260	250	255	240									
17									255	265	280	280	275	260	250	240	215							
18									245	280	295	265	275	250	260	255	235	235						
19								C	C	265	300	285	260	260	260	245	230	210						
20										270	300	315	270	255	250	255	230	225						
21									255	255	300	310	290	260	260	260	260							
22									250	265	275	260	265	270	255	240	250							
23									260	270	260	260	280	265	260	255	250	230						
24									260	265	305	280	260	265	260	260	250							
25									265	260	285	275	270	260	255	235	250							
26									250	265	295	265	270	260	265	255	245	220						
27								250	270	270	260	260	255	255	250	245	235							
28								230		270	270	300	260	260	250	255	230							
29																								
30																								
31																								
No.								2	20	26	28	28	28	28	28	27	26	8						
Median								240	250	265	270	270	260	260	260	255	245	225						
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

Feb. 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	315	310	300	230	205	295	290	230	230	225H	200	175H	175H	250	230	I225A	230	210	270	250	240	265	280	300
2	295	275	250	250	230	260	270	240	230	235	215	205	230	245	200	I250A	225	210	225	240	245	270	250	290
3	305	275	235	235	210	210	260	230	230	250	240	250	260	I230A	220	210	210	215	210	220	245	290	300	305
4	300	265	250	260	225	300	275	250	230	230	215	225	200	210	205	A	A	235	250	250	250	250	315	270
5	295	265	260	250	245	260	245	260	230	225	235	250	220	220	210	255	225	210	230	225	260	300	300	325
6	295	260	220	245	265	E330A	275	235	220	220	260	230	225	195	210	205	200	215	210	300	265	275	280	295
7	305	295	255	300	290	275	250	230	245	240	250	245	240	220	260	215	240	230	210	260	285	300	345	300
8	300	290	275	310	300	290	A	250	260	250	255	I230A	250	225	215	240	A	A	A	A	290	I265A	270	265
9	290	280	255	240	215	275	240	220	215	210	230	200	220	200	210	215	225	200	210	220	230	235	255	315
10	335	315	300	270	250	265	290	225	250	255	230	230	215	215	200	225	225	225	220	255	250	I260A	270	285
11	305	260	225	250	210	270	250	235	210	230	215	210	215	210	210	210	230	225	210	230	250	220	320	330
12	355	310	275	230	205	315	260	230	230	220	210	205	260	220	210	240	230	230	215	270	250	275	280	245
13	245	270	295	260	235	210	300	250	240	230	210	195	210	245	220	210	230	210	235	260	250	255	265	260
14	255	270	270	265	250	240	245	240	235	220	230	235	210	210	210	210	205	235	210	245	245	225	260	305
15	315	305	255	260	205	280	315	250	230	225	225	225	260	I230A	220	A	A	I240A	260	345	270	250	270	335
16	280	305	305	300	220	360	260	245	245	240	255	230	210	205	230	220	230	210	215	250	265	265	295	305
17	300	300	270	235	200	295	265	245	230	240	225	240	225	230	210	210	205	225	230	255	245	275	270	275
18	320	270	255	235	205	265	290	250	240	220	210	210	215	210	220	205	230	230	215	A	275	255	E350A	305
19	270	295	255	280	230	205	260	C	C	210	200	195	250	210	210	225	210	200	210	270	255	310	330	310
20	300	300	245	215	200	310	290	230	250	225	200	225	250	220	215	210	225	205	210	260	250	255	290	300
21	310	305	295	255	210	285	250	225	230	235	215	200	I250S	I250S	220	235	245	225	225	245	265	310	305	310
22	290	250	225	300	330	325	265	235	215	230	235	220	205	200	215	215	200	225	225	275	290	295	275	305
23	295	265	230	255	270	265	265	230	225	230	215	205	185	225	240	225	200	210	205	225	260	275	300	300
24	310	305	300	280	310	305	210	210	250	230	230	210	255	245	215	215	200	220	210	275	300	300	270	275
25	270	275	255	240	255	275	225	235	250	230	225	240	240	210	220	230	225	230	225	225	245	275	280	270
26	300	270	230	250	245	270	265	230	210	225	240	210	250	220	230	235	210	200	225	225	260	250	270	255
27	250	270	260	240	220	225	250	195	255	250	245	265	230	240	205	205	210	225	210	230	265	270	300	270
28	260	265	260	230	200	255	250	210	230	225	245	255	210	220	220	230	215	225	210	230	265	265	280	270
29																								
30																								
31																								
No.	28	28	28	28	28	28	27	27	27	28	28	28	28	28	28	26	25	27	27	26	28	28	28	28
Median	300	275	255	250	230	270	260	235	230	230	230	225	225	220	215	220	225	225	215	250	260	270	280	300
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 10

IONOSPHERIC DATA

Feb. 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	S	B	B	105	B	B	S	S	G	G	130	125	G	150	130	115	110	110	105	105	100	100	105	100
2	100	B	100	B	B	B	B	S	G	160	145	150	G	G	175	110	110	S	110	S	S	B	S	S
3	S	B	B	105	B	S	105	165	G	175	165	155	125	115	115	110	G	S	110	110	105	S	115	105
4	S	B	B	110	105	110	110	110	150	125	100	110	120	115	130	110	110	110	110	105	100	100	100	S
5	S	B	B	B	115	B	110	G	G	G	175	160	110	110	110	110	110	105	110	100	100	100	105	100
6	115	B	B	105	110	105	110	110	110	110	110	180	155	140	130	105	115	S	120	110	S	105	S	S
7	S	100	100	B	115	B	130	125	110	130	125	115	120	100	100	G	160	B	110	105	110	110	105	S
8	155	130	115	115	115	110	145	140	130	135	125	125	125	G	155	130	120	115	110	110	110	105	105	110
9	110	105	105	105	E	B	S	165	155	115	110	110	G	145	110	105	105	105	105	S	S	105	100	100
10	100	B	110	B	B	B	S	115	G	G	100	G	130	120	105	105	100	100	S	S	130	110	S	110
11	110	105	B	105	B	B	B	G	170	135	120	115	110	G	160	155	G	110	S	S	S	S	S	S
12	S	B	110	105	105	105	S	S	130	130	115	115	110	110	G	G	G	105	100	100	100	100	100	S
13	100	B	B	110	B	B	S	G	G	145	125	G	G	110	110	105	115	105	S	S	110	110	110	110
14	105	B	B	105	105	B	S	S	G	G	130	115	115	G	115	110	G	100	100	S	S	S	105	S
15	S	105	105	B	105	105	S	S	G	125	G	125	140	120	115	110	110	110	110	110	110	105	105	100
16	100	B	B	B	B	180	S	G	G	110	G	110	105	G	G	G	G	E195G	110	110	110	S	100	S
17	105	E	110	110	105	S	S	150	155	155	155	160	G	G	135	145	G	110	110	130	135	110	105	105
18	105	105	105	105	B	105	S	S	G	G	110	110	110	110	110	110	110	105	110	110	110	110	110	110
19	110	B	B	105	105	105	105	C	C	105	110	110	G	150	100	100	100	B	S	S	S	130	S	110
20	S	B	105	B	B	B	155	155	125	120	115	G	G	G	G	G	G	130	S	100	S	100	S	105
21	110	100	B	100	100	100	100	105	G	110	110	G	110	110	110	105	100	100	100	100	110	110	105	115
22	110	B	105	100	100	105	105	105	G	155	145	130	150	100	105	100	100	100	100	100	S	S	S	110
23	S	B	B	B	B	B	S	G	135	125	130	130	G	G	G	G	G	B	S	105	105	105	110	105
24	S	B	B	E	B	100	S	G	G	155	125	125	G	110	G	G	G	G	110	105	110	110	105	S
25	110	B	B	B	B	B	S	G	G	145	120	110	115	110	110	110	110	G	S	S	S	105	S	105
26	105	105	100	100	100	100	120	G	G	G	135	125	165	G	G	G	100	G	S	S	105	110	110	105
27	S	100	100	100	100	105	S	G	170	155	155	155	150	105	155	115	G	G	S	S	S	S	S	S
28	S	B	B	B	B	B	S	G	160	155	G	145	125	130	G	G	100	B	S	S	S	S	S	S
29																								
30																								
31																								
No.	16	9	13	17	14	13	11	11	12	22	25	24	19	19	21	20	18	17	18	17	17	20	18	17
Median	110	105	105	105	105	105	110	125	140	130	125	125	120	110	115	110	110	105	110	105	110	105	105	105
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

h'Es

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

K 11

IONOSPHERIC DATA

Feb. 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				f							h	h		h	h2	c2	c2	1	f	f2	f2	f3	f	f2
2	f2		f2							h	h	h			h1	13	12h2		f					
3				f			f	h		h	h	h	h	c2	c2	1			f	f	f		f	f
4				f2	f	f	f2	1	h1	h12	12	12	c	c	h	c2	15	13	f	f	f	f	f	
5					f		f				h	hc	12	12	12	14	12	1	f	f	f	f2	f	f
6	f			f2	f2	f4	f2	1	13	12h	13	h	h	h	h	12	1		f	f		f2		
7		f	f		f		f	h3	1	h	h	c	c	12	1		h		f	f5	f5	f4	f	
8	f	f2	f6	f7	f	f	f3	h4	h	h2	h	h	h		h	h2	c4	14	f3	f3	f2	f3	f2	f
9	f	f2	f	f				h	h	c	1	1		h	1	1	12	1	f	f		f	f	f
10	f		f					c			12		h	c	1	1h	1	1			f	f4		f2
11	f2	f		f					h	h	c	c	c		h	h		1						
12			f	f	f	f			h	h	c	c	1	1				12	f	f	f	f	f	
13	f			f						h	h			12	12	1	12	1			f2	f2	f2	f3
14	f2			f	f						h	c	c		c	1		1	f				f	
15		f2	f		f	f				h		h	h	c	c2	c2	12	15	f4	f5	f3	f3	f	f
16	f					f	f			1		1	1					h1	f	f	f3		f2	
17	f3		f5	f3	f	f	f	h	h	h	h	h			h	h		12	f	f	f	f2	f2	f2
18	f2	f	f	f		f					1	1	1	1	1	12	12	1	f	f5	f2	f2	f4	f2
19	f2			f	f	f	f			1	1	1		h1	1	1	1					f		f
20			f				f	h	h	c	c							h		f		f		f
21	f2	f		f2	f	f3	f2	1		1	1		1	12	12	1	12	12	f2	f	f	f2	f2	f
22	f5		f	f2	f3	f2	f	12		h	h	h	h	1	1	1	1	12	f3	f2				f
23									h	h	h	h								f	f2	f2	f	f
24						f				h1	h	h		1					f	f2	f5	f2	f2	
25	f									h	c	c	c	c	1	1	12					f		f2
26	f	f	f2	f2	f2	f2	f				h	h	h				1				f3	f2	f	f2
27		f	f	f	f	f			h	h1	h	h	h	1	h	1								
28									h1	h		h	h	h			12							
29																								
30																								
31																								
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Types of Es

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

The Radio Research Laboratories, Japan

K 12

IONOSPHERIC DATA

Feb.1965 | hpF2 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	350	320F	330	255	250	305	300	255	245	250	265R	260	280	260	260	260	255	230	330	280	270	305	310	345
2	330	325	290	300	285	295	310	280	255	270	275	260	260	270	285	250	260	275	245	275	290	335	295	340
3	345	305	270	275	235	250	300	260	240	265	275	275	285	J325R	295	255	265	240	250	255	280	355R	380R	345R
4	365	310	295	345F	250	350	325	300	230	265	250	255	260	280	250R	265	260	240	295	305	300	295	380F	325
5	335	305R	300	295	325	300	295	270	260R	260	275	275	265	285	265R	255	230	230	290	255	290	330F	355	385
6	360	290	245	280	300	345	305	250	260	300	300	300	280	260	250	260	250	235	260	335	305	330	340	350
7	350	315	290	350	340	310	295	255	265	280	300	270	270	255	300	260R	250	275	250	255	305	315	395	375F
8	375	335	300	325F	335	335	A	265R	290	260	260	305R	260	245	295	290	255	A	A	A	310	I310A	315F	U340F
9	340F	340F	U330R	U365R	310	U325R	295	245	265	375	285	255	255	275	275	285	255	250	265	275	275	280	290	350
10	395R	380	340	305	335	325	335	255	270	295	290	260	255R	275	255	250	245	255	260	295	295	I300A	310	325F
11	345F	320	275	295	270	330	295	265	255	255	260	270	275	295	270	265	270	245	245	285	280	250	340F	390F
12	390	U385F	345F	250	225	350	300	245	245R	265	275	300	260R	255	270	255	260	250	255	330R	295	325	325	280
13	320	320	330	295	280	240	325	265	245	260	290	285	280	260	260	255	240R	245	290	305	295	300	305	300F
14	315	305	310	310	285	280	295	275	255	285	275	275	280	260	255	240	265	265	265	290	280	275	310	355
15	380F	350	300R	310R	235	310	345	270	255	260	295	300	270	250	245	250	265	A	275	A	310	295	305	335
16	330	345	350	350	255	375	335	270	285	340	290	260	275	270	255	255	240	230	285	305	300	300	295	345F
17	335R	U350R	355	255	230	295	295	270	260	270	300	295	290	275	260R	245	250	240	270	305	290	305	305	315
18	U355R	335R	300	260	255	305	310	260	255	295	325	285	285	255R	260	260	245	235	250	A	315	300	A	330F
19	315	345F	300F	325	285	245	325	C	C	275	305	300	280	260	270R	260	255	245	255	325	305	345	380	345
20	345S	325	280	250	250	345	345	265	265	275	300	325R	J290R	J265R	255	255	255	250	265	300	290	300	305	345
21	350	350	340	290	245	355	265	245	255	260R	300R	310	U300R	R	275R	270	U280R	245	255	290	305	370	350	355F
22	335	295	255	325	385	340	310	255	270	265	285	270R	270	275	U260R	250	255	250	255	330	345	340	345	345F
23	325	305	260	280	310	300	295	245	275	285	265	260	295	270	270R	255	260	265	250	280	310	320	340	330
24	355	340	350	325	370	350	280	235	U260R	280	335	305	270	280	270	260	260	245	255	305	335	345	325R	330
25	315	330	295	275	305	325	280	260	275	270R	295	300	300	270	270R	U245R	260	255	280	280	300	345	315	310
26	340	320	280	300	305	335	300	255	265	275	300	280	280R	260R	270	260	255	230	275	280	300	290S	305	305
27	280	335	310	295	295	290	300	280	290	295R	270	265	260	255	250	245	245	255	270	285	345	330	355	U335R
28	305	350F	280S	U290S	240	305	295	255	305	280	290	315R	260	275R	255	265	255	245	265	305	305	345	350	330
29																								
30																								
31																								
No.	28	28	28	28	28	28	27	27	27	28	28	28	28	27	28	28	28	26	27	25	28	28	27	28
Median	340	330	300	295	285	320	300	260	260	270	290	280	275	270	260	255	255	245	265	290	300	310	325	340
U. Q.																								
L. Q.																								
Q. R.																								

hpF2

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

The Radio Research Laboratories, Japan

K 13

IONOSPHERIC DATA

Feb. 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	050	060F	070	055	070	065	040	045	050	050	045R	040	055	040	040	040	045	050	045	040	035	045	040	045
2	040	035	045	045	045	055	050	040	045	050	055	040	040	035	045	045	040	040	055	060	040	060	050	060
3	055	045	035	030	040	040	050	040	060	035	035	035	035	J045R	055	045	040	055	050	050	055	070R	070R	060R
4	055	050	055	060F	050	050	050	045	050	035	050	045	045	065	045R	035	035	050	030	045	040	040	050F	050
5	040	060R	040	045	065	065	050	040	040R	040	035	030	040	035	040R	045	065	045	050	045	060	070F	050	055
6	060	045	045	065	055	045	075	050	045	045	050	045	050	040	040	040	045	055	040	045	045	035	035	055
7	050	045	035	050	050	040	055	045	035	040	045	050	050	045	050	060R	045	040	050	045	045	040	055	055F
8	055	065	045	045F	065	065	A	035R	050	045	050	050R	080	045	035	040	045	A	A	A	040	I035A	045F	U060F
9	060F	060F	U070R	U075R	060	U075R	050	055	035	070	065	050	045	045	040	045	040	040	030	040	060	060	060	055
10	055R	070	055	045	040	055	070	045	060	035	040	040	045R	040	045	045	045	045	040	050	045	I040A	040	035F
11	050F	050	045	030	050	045	050	035	045	045	040	040	035	045	035	040	045	045	055	055	055	045	060F	050F
12	060	U060F	055F	045	050	055	050	045	050R	035	030	040	040R	045	035	050	040	045	045	045R	035	035	035	045
13	040	035	035	050	045	050	050	035	045	040	030	050	050	045	045	045	050R	050	055	045	050	045	045	045F
14	045	045	040	040	060	040	035	045	045	035	030	050	045	040	040	045	035	035	040	055	030	055	040	045
15	050F	050	035R	040R	040	045	055	035	045	055	035	050	040	045	045	040	045	A	050	A	040	045	045	040
16	035	035	050	050	045	050	045	035	035	040	055	050	050	080	045	050	050	050	040	045	045	080	040	055F
17	040R	U045R	040	045	050	055	055	030	040	030	040	045	035	035	040R	045	050	045	035	045	060	055	050	045
18	U045R	055R	055	040	040	050	045	050	045	035	035	045	045	045R	040	040	045	055	045	A	040	050	A	040F
19	040	055F	055F	035	060	055	050	C	C	035	045	050	050	050	050R	040	040	050	045	055	045	050	050	055
20	050	040	045	055	040	050	055	045	040	035	040	060R	J055R	J045R	045	045	045	050	035	050	040	040	060	040
21	050	045	055	050	045	060	045	050	045	040R	045R	040	U040R	R	045R	035	U030R	045	045	040	045	040	055	060F
22	055	055	045	075	065	050	050	045	050	040	045	040R	030	035	U045R	050	045	045	045	045	040	060	040	050F
23	045	045	040	045	055	050	055	050	035	035	040	045	045	035	040R	045	045	035	050	055	040	035	035	040
24	045	055	050	045	050	050	050	050	U045R	030	060	085	055	045	040	045	040	050	045	045	035	045	045R	045
25	040	035	035	040	065	050	040	040	035	040R	045	050	050	065	055R	U050R	040	050	030	030	035	035	040	040
26	045	030	055	045	045	035	050	045	035	035	040	040	045R	040R	035	040	040	050	035	030	035	045S	045	040
27	035	035	040	050	035	035	045	035	040	045R	045	055	045	045	050	040	050	040	045	040	045	035	050	U040R
28	050	050F	045S	U050S	050	045	045	045	055	055	040	045R	045	035R	045	035	045	040	035	040	045	030	030	040
29																								
30																								
31																								
No.	28	28	28	28	28	28	27	27	27	28	28	28	28	27	28	28	28	26	27	25	28	28	27	28
Median	050	050	045	045	050	050	050	045	045	040	040	045	045	045	045	045	045	045	045	045	040	045	045	045
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

Feb. 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	028S	028	U031S	031	036	020	021S	028	053	049	I053C	060S	060	063S	064S	060S	052	J049S	042S	036	S	034S	030S	I034S
2	032	032	I035S	J033S	031	024	026S	I027S	053S	J063S	J080S	U069S	072	087	062	065	058	055	045	034S	033S	I032S	I028S	026S
3	028	027	I030S	030	031	019	020	026S	052S	054S	056	062S	059	062S	J063S	060S	I058C	059H	044	I034S	030	023	I024S	I023S
4	I023S	026S	028	027	026	024S	024S	028	057	053	053	065	J063S	068S	053	057	058H	054	J041S	032S	I032S	032S	I030S	029
5	030S	I029S	030S	030	I027S	025S	J025S	032	056	J063S	055	066	S	S	I067S	065	058H	051H	040S	I035S	032S	026	025	027
6	028	I030S	I031S	029	027	027	024	028	045S	059S	059	066	J076S	J076S	I070S	061	055H	J051S	J039S	I033S	J028S	034S	032	J032S
7	032S	032	032S	031	I030S	030S	024	I034S	J053S	I066S	088S	I102S	J103S	089	067	071S	060	054	054	I050S	054	030	032	I032A
8	I031S	035	I035S	030	I026A	J027S	023	036	J062S	088S	067S	089	091S	077S	062S	I069S	064	063H	I047S	031	S	A	S	030S
9	I029S	I029S	030	033	031	023	I026S	035	J050S	054H	088S	I088S	J065S	064S	070S	081S	J077S	J078S	061S	039S	030S	027S	026S	025S
10	024S	U026S	028	029	031	028	026	031S	043	058	066	I070S	J067S	072S	067	065	051	054	054	J032S	030S	I030S	029	028S
11	I029S	U030S	031S	028	028	025	026	I039S	J063H	058H	J065S	062S	J064S	063S	069S	080	I078S	J078S	060S	031S	I029S	028	022S	024S
12	S	S	028S	029S	028	021	020S	033	048S	054S	058	058	067	J076S	I067S	056	054	051S	045S	034S	029	032S	S	S
13	S	I028S	027F	S	S	029	022	032S	J052S	051	057	055	071S	J080S	I070S	056	J048S	049H	042	034	032	031S	029S	028S
14	028	026S	027S	027	028	021	J022S	I033S	J050S	052	056	J064S	065S	070	072	057	053	J050S	055	J041S	J039S	I031S	024	J026S
15	I028S	I029S	029S	030S	J038S	017S	019	J030S	055H	J061S	055	069	S	079S	065S	055	058	053	J049S	030	030	033S	I032S	030S
16	I031S	031S	030S	I031S	I032S	024	I019A	030S	J052S	I065S	I099S	117S	I126S	126	104	J076S	U070H	056H	044	034S	032S	J032S	030	026
17	028S	I032S	030	031S	028	J017S	J018S	032S	056	060S	J077S	086	092S	I100S	086	064S	054	056	047S	032	026	028	028	026S
18	I028S	030	032	035S	032	025S	021	034S	053H	058	062	070	083	J077S	078S	080	064	053	047S	039S	028	031S	032	030S
19	I028S	031S	032	032S	036	025	J019S	035	J054S	056	057	J077S	C	C	C	C	C	056	I046C	I032C	C	C	C	C
20	C	C	C	C	025S	C	C	C	J051S	056	J061S	060	I084C	I096S	J077S	060	053	054	J049S	035	035	029	I028S	J029S
21	030S	I031S	031S	031S	032	023	025	035	043	050H	052	054	I070S	083	091	J078S	065S	066S	053	037S	I034S	J031S	032	033S
22	I033S	I036S	037S	031S	028	028	027S	037S	051S	057	C	C	I071S	I071S	I069S	063	055	052	046S	036	026	028S	030	031
23	I035S	I037S	029	025	024	I023C	I026C	036S	053S	061S	083	079S	077S	083	078	063S	057	056	058	037S	028	029	028S	032S
24	I030S	029	I030S	033	028	029S	031S	044	050S	059	064	087S	116	092S	J076S	I070S	064	057	056S	038S	034S	I032S	I034S	035
25	036	034	032	035	028	021	022	J040S	056	066	J076S	076	080	106	085	064	057	057	053S	052S	036S	032S	031S	I031S
26	I032S	035S	034S	030	035S	022	024	043S	J052S	058	069S	081	078S	085	072S	J079S	J082S	061S	046S	U047S	U043S	038S	034	036
27	033	029S	032	034	032S	022S	022	036S	I060S	065S	C	C	C	C	C	C	C	053	056	I048S	030	032	031S	I030S
28	034S	034S	032S	035	038	021	022S	039S	054H	057H	078	080	092S	095	J076S	I070S	062S	058S	052S	041S	I038S	U033S	I031S	I032S
29																								
30																								
31																								
No.	25	26	27	26	27	27	27	27	28	28	26	26	24	25	26	26	26	28	28	28	25	26	25	26
Median	030S	030S	031S	031	030	024	023	034S	053S	058	063	070	074S	079S	070S	064	058	054	047S	035S	032S	031S	030S	030S
U. Q.	032	032	032	033	032	027	026	036	056	062	077	081	088	090	077	071	064	058	054	039	034	032	032	032
L. Q.	028	029	029	029	028	021	021	030	050	054	056	062	066	070	067	060	054	052	044	032	029	029	028	026
Q. R.	004	003	003	004	004	006	005	006	006	008	021	019	022	020	010	011	010	006	010	007	005	003	004	006

foF2

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

The Radio Research Laboratories, Japan

Y 1

IONOSPHERIC DATA

Feb. 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											C	420L	430H	430	430L	L	LH							
2										L	420	430	430	430H	420H	390	L							
3										L	420L	420	440	430	420	410H	C							
4										L	L	430	430	430H	L	400								
5										L	410	430	430	440H	430H	420								
6										L	LH	440	430H	420	L	420L	A							
7										L	420	410S	430H	440	430	L	L	L						
8										L	420L	420	430	440	L	420	L							
9											420H	420	430	L	430H	430	L	L						
10										L	420L	430	430	430	L	S	A							
11											L	430	430S	440	430	420H	380H							
12											400L	430	430	430	420	L	L							
13										L	420L	430	420	430	430	400L	L							
14										L	430L	430	430	420	420	400L	L	L						
15										L	L	420	420	430	420	L	L	L						
16										LH	L	430	430	430	430	410								
17										L	420	I430A	430	430	420	L	L							
18										L	430L	430	430	430	420	420	L	LH						
19										L	420	430	430	430	420	420	C							
20										L	410	430	I430C	430H	430	410	L	L						
21											L	430H	430	430	430	420H	L	L						
22										L	C	C	430	430S	430H	L	L	L						
23										L	430	430	440	430	430	420L	L	L						
24										L	430L	440	440H	440H	440	410L	L	L						
25										L	430	430	440	430	L	L	L	L						
26											LH	430	450	450	440	430H	L	L	L					
27										L	C	C	C	C	C	C	C	L						
28											430	440	440	440H	430	L	L	L						
29																								
30																								
31																								
No.											18	26	27	26	22	18	I							
Median											420	430	430	430	430	420	380H							
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

Feb. 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								E170S	E170B	250	I285C	320	320	315	I310C	275	250	A						
2								E180S	I195S	240	265	I295A	320	320	310	280H	260	S						
3								E160S	190	250	290	I305C	325	320	A	A	I255C	200						
4								E170S	190	260	280	290	300	305	295	270	C	A						
5								E180S	180	245	270	R	A	A	305R	I285A	I235A	180						
6								E170S	190	250	280	I285A	I290A	300	300	280R	A	S						
7								E170S	190	255	280	295	310	310	310	I285A	I250R	205						
8								E160S	190	260	290	300	300	310	300	280	250	200						
9								E170S	200	235	260	300	300	310	300	290	250	200						
10								E160S	210	260	290	310	320	I310A	300R	I280A	260	220						
11								E170S	200	250	280H	300	300	I300A	300	280	260	220						
12								E160S	210	270	290R	300	310	300	A	A	265	A						
13								E170S	190	270	280	300	305	300	280	280	250	E160S						
14								E160S	200	260	280	I300R	300	I305A	300	300	260	210						
15								E170S	180	250	290	300	305	310R	310	290	240	210						
16								E170S	200	250	I275A	290	I290A	305	300	I290A	I260A	210						
17								E170S	220	270H	290H	305	310	310	305	290	265	210						
18								E170S	195	260H	280	300	A	A	A	300	260	220						
19								E170S	200	260H	280	300	C	C	C	C	C	A						
20								C	210	260	295	300	C	A	310	295	270	210						
21								E170S	210	275	300	I310A	320	325	320	290	260	210						
22								E170S	225H	250	C	C	295	300	I295A	290	260	220						
23								E170S	230	265	I290A	300R	305	295	305	290	270	220						
24								E170S	220	280	295S	305	305	310R	315	290	270	210						
25								E170S	220	270	290R	I310A	I310S	310	310	A	A	A						
26								E170S	220	265	290	310	315	305	305	295	255	A	E160S					
27								E160S	220	275	C	C	C	C	C	C	C	220						
28								E180S	210	270	300	310	320	305	295	295	270	210						
29																								
30																								
31																								
No.								27	28	28	26	25	23	23	23	23	23	20	1					
Median								E170S	200	260	290	300	305	310	305	290	260	210	E160S					
U. Q.																								
L. Q.																								
Q. R.																								

foE

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

The Radio Research Laboratories, Japan

Y 3

IONOSPHERIC DATA

Feb. 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	E017S	E017S	E017S	E016S	E016S	E018S	E017S	E017B	G	C	037	036	G	C	028	024G	021	J021	E017S	023M	021M	020M	021M
2	023	024M	E017S	E010B	E016S	E017S	E016S	E018S	021	029	030	032	G	G	033	034	G	030	J030	021M	021M	021	E018S	022
3	021	E017S	E017S	E010B	E009B	E016S	E017S	E016S	G	G	G	038	039	035	037	029	C	J022	021M	021	E016S	021	E018S	E018S
4	021	E017S	E016S	E016S	E017S	E017S	E018S	E017S	023	031	032	036	033	034	037	036	C	031	J028	J021	J022	E016S	E017S	E018S
5	E017S	E018S	E017S	E017S	E018S	E017S	E017S	E018S	G	G	033	035	035	034	G	030	027	020	E017S	020M	E016S	E018S	E017S	E017S
6	E017S	E017S	E017S	E017S	021M	E016S	E016S	021M	024	024G	J029	J033	033	035	G	G	J032	J024	J026	020M	E017S	038	E018S	E018S
7	E017S	E017S	E017S	E017S	E017S	E016S	E018S	E017S	026	028	033	034	039	040	J037	032	027	018G	E017S	021M	022	022	J018S	J033
8	024	023M	J026	057M	J053	020M	E015S	018	024	030	036	039	036	030G	029G	G	G	023	E016S	036M	J022	058M	058M	036M
9	J021	J022	J020	J021	J020	E018S	E017S	E017S	G	025	030	J051	036	G	J023G	J023G	021G	G	J020	022M	E019S	020M	020M	E017S
10	E018S	E019S	E018S	E017S	021M	022M	E017S	E016S	G	029	030	036	034	J037	034	J037	039	J032	023	030	E017S	E017S	J022	022M
11	E017S	E017S	E016S	E010B	E017S	E017S	E017S	E017S	G	029	031	044	J037	038	028G	026G	G	G	023	E018S	E018S	E017S	E018S	E017S
12	E017S	E017S	E017S	E016S	E007B	023	023	022	021	030	G	035	039	040	037	030	021G	J029	J032	028M	J022	023M	021	E019S
13	E017S	E016S	E017S	E018S	020M	E017S	021M	E017S	022	029	033	037	J038	038	046	031	028	025	E017S	021	E016S	E019S	E018S	E018S
14	J021	021M	E018S	021M	E017S	E017S	E019S	E016S	G	G	032	035	J037	037	028G	G	G	G	E017S	E017S	E017S	E017S	E017S	E017S
15	E017S	E018S	E018S	E017S	021M	021	E017S	E017S	G	G	G	034	037	035	036	032	031	020G	E016S	E017S	E017S	E017S	E017S	023M
16	020M	E017S	E017S	E008B	E008B	J016S	J022	022M	021	020G	030	G	032	034	G	030	028	G	E016S	J023	024M	E017S	E017S	E017S
17	E017S	021	E017S	J020	J020	021	E018S	E017S	G	029	G	J052	J038	039	J037	033	G	G	E017S	E016S	E017S	E017S	J022	023
18	022	023	021M	J020	021	J020	021M	E017S	G	G	031	038	J037	J037	034	G	G	G	J018S	J021	J021	024M	020M	020M
19	021M	026M	021M	E016S	E017S	E018S	E017S	E017S	G	G	022G	021G	C	C	C	G	C	022	C	C	C	C	C	C
20	C	C	C	C	E017S	C	C	C	026	030	J037	036	C	J037	029G	030	G	G	J018S	E016S	E017S	E017S	E017S	E017S
21	021M	E016S	E016S	E016S	J016	J015S	E017S	021M	G	G	J038	J038	J037	G	039	032	G	J024	J022	023M	E016S	E017S	E017S	E017S
22	E018S	J022	E017S	J020	E009B	E017S	E017S	E017S	G	030	C	C	035	034	032	026G	024G	024	E017S	E016S	E016S	E017S	E017S	022M
23	E018S	E017S	021M	019M	E017S	C	C	E017S	G	035	J038	036	034	031	G	G	G	G	E018S	E016S	E016S	E017S	021M	E017S
24	022M	E017S	025M	E018S	021M	E017S	E018S	E017S	028	034	G	038	036	034	034	032	G	022	J015S	E017S	022M	E017S	E017S	021M
25	E017S	021M	021M	E017S	E011B	E017S	E018S	E017S	G	030	033	039	J038	035	036	032	029	J024	J024	J025	J023	E017S	E017S	021M
26	E017S	E017S	022M	E017S	E017S	E017S	E018S	E017S	G	029	031	034	036	G	G	032	031	025	E016S	E017S	E017S	E017S	020M	023M
27	J022	020M	021M	E017S	E009B	E017S	E017S	019	028	030	C	C	C	C	C	C	C	G	E018S	E017S	E017S	E017S	E017S	E017S
28	E017S	E017S	E017S	E009B	E009B	E017S	E017S	E018S	024	030	034	036	037	034	032	029G	G	G	E017S	E017S	E017S	E017S	E017S	E017S
29																								
30																								
31																								
No.	27	27	27	27	28	26	26	27	28	28	25	26	25	26	25	27	24	28	27	27	27	27	27	27
Median	E018S	E017S	E017S	E017S	E017	E017S	E017S	E017S	G	029	031	036	036	034	033	030	G	022	016S	020	E017S	E017S	E018S	E018S
U. Q.	021	021	021	019	020	E018	E018	E018	024	030	033	038	038	037	037	032	028	024	023	022	022	021	020	022
L. Q.	E017	E017	E017	E016	E014	E017	E017	E017	G	G	E029G	034	034	031	G	G	G	G	E017	E017	E017	E017	E017	E017
Q. R.	D004	D004	D004	D003	D006							004	004	006					D006	D005	D005	D004	D003	D005

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

The Radio Research Laboratories, Japan

foEs

IONOSPHERIC DATA

Feb. 1965 | f_bE_s | 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	S	S	S	S	S	S	S	B		C	036	036		C	024	022G	018	018	S	018	E	E	019
2	019	E	S	B	S	S	S	S	G	G	G	E032S			032	033		025	029	019	E	018	S	E
3	018	S	S	B	B	S	S	S				038	038	034	036	029	C	018	E	E	S	E	S	S
4	E	S	S	S	S	S	S	S	E023S	030	032	G	033	033	035	032	C	029	027	018	E022S	S	S	S
5	S	S	S	S	S	S	S	S			033	035	035	033		E030R	026	G	S	E	S	S	S	S
6	S	S	S	S	S	S	S	G	G	022G	018	033	032	034			032	024	022	E	S	026	S	S
7	S	S	S	S	S	S	S	S	025	G	033	033	037	039	034	032	G	018G	S	E	E	019	S	A
8	E024S	E	019	E	A	E	S	E018S	G	E030R	033	038	G	029G	024G			023	S	022	018	A	018	018
9	018	018	018	018	019	S	S	S		G	030	035	034		019G	021G	018G		E	E	S	018	019	S
10	S	S	S	S	E	E	S	S		029	G	G	033	032	G	E037S	037	032	018	018	S	S	019	020
11	S	S	S	B	S	S	S	S		028	G	037	037	034	024G	022G			E	S	S	S	S	S
12	S	S	S	S	B	018	017	017	G	029		034	037	038	034	E030R	018G	025	029	028	E022S	E	E	S
13	S	S	S	S	009	S	E	S	G	G	032	036	037	033	037	E031R	027	G	S	E	S	S	S	S
14	E	E	S	018	S	S	S	S			032	E035S	032	034	023G				S	S	S	S	S	S
15	S	S	S	S	E	E	S	S				033	036	033	034	032	031	019G	S	S	S	S	S	018
16	018	S	S	B	B	S	A	G	019	019G	E030R		E032R	G		E030R	E028R		S	022	E	S	S	S
17	S	E	S	016	017	S	S	S		G		048	G	036	034	033			S	S	S	S	019	E
18	E	E	E	016	018	018	E	S			031	034	037	033	032				S	020	018	017	E	E
19	018	025	E	S	S	S	S	S			018G	018G	C	C	C		C	E022C	C	C	C	C	C	C
20	C	C	C	C	S	C	C	C	026	E030C	034	033	C	033	022G	022			S	S	S	S	S	S
21	018	S	S	S	016	S	S	G			034	032	G		G	G		018	021	E	S	S	S	S
22	S	018	S	014	B	S	S	S		029	C	C	033	E034S	E032R	023G	022G	024	S	S	S	S	S	E
23	S	S	E	E	S	C	C	S		031	032	034	G	E031R					S	S	S	S	017	S
24	E	S	018	S	E	S	S	S	G	032		037	035	034	034	032		020	S	S	019	S	S	E
25	S	E	E	S	B	S	S	S		G	033	036	037	034	033	031	027	023	024	025	018	S	S	E
26	S	S	E	S	S	S	S	S		G	G	034	035			G	030	024	S	S	S	S	E	018
27	022	018	E	S	B	S	S	G	027	G	C	C	C	C	C	C	C		S	S	S	S	S	S
28	S	S	S	B	B	S	S	S	024	E030S	E034S	035	036	G	G	029G			S	S	S	S	S	S
29																								
30																								
31																								
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

f_bE_s

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

The Radio Research Laboratories, Japan

Y 5

IONOSPHERIC DATA

Feb. 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	E016S	E016S	E018S	E017S	017	016	C	016	017	018	E024C	017	016	E016S	E016S	E017S	E017S	E017S	E017S	E016S
2	E016S	E016S	E017S	010	E016S	E017S	E016S	E018S	017	016	016	016	017	017	017	016	E019C	E017S	E016S	E017S	E017S	E017S	E018S	E017S
3	E016S	E017S	E017S	010	009	E016S	E017S	E016S	016	016	017	E035C	017	018	017	017	C	E016S	E017S	E017S	E016S	E017S	E018S	E018S
4	E016S	E017S	E016S	E016S	E017S	E017S	E018S	E017S	016	016	017	016	017	016	017	018	E038C	E016S	E017S	E016S	E017S	E016S	E017S	E018S
5	E017S	E018S	E017S	E017S	E018S	E017S	E017S	E018S	016	016	016	017	016	016	016	016	016	E016S	E017S	E016S	E016S	E018S	E017S	E017S
6	E017S	E017S	E017S	E017S	010	E016S	E016S	E017S	016	016	016	017	017	016	016	017	017	E016S	E017S	E016S	E017S	E017S	E018S	E018S
7	E017S	E017S	E017S	E017S	E017S	E016S	E018S	E017S	016	016	016	016	016	017	017	017	016	E016S	E017S	E016S	E017S	E017S	E016S	E017S
8	E017S	E017S	E016S	E017S	007	E017S	E015S	E016S	016	016	017	017	016	017	017	016	017	E016S	E016S	E017S	E016S	E017S	E016S	E017S
9	E016S	E016S	E017S	006	010	E018S	E017S	E017S	016	017	017	016	017	017	016	016	016	E016S	E016S	E017S	E019S	E017S	E018S	E017S
10	E018S	E019S	E018S	E017S	E017S	E017S	E017S	E016S	017	017	018	017	017	016	016	017	017	E016S	E016S	E017S	E017S	E017S	E016S	E018S
11	E017S	E017S	E016S	010	E017S	E017S	E017S	E017S	016	017	017	017	017	017	017	017	016	E017S	E017S	E018S	E018S	E017S	E018S	E017S
12	E017S	E017S	E017S	E016S	007	E016S	E016S	E016S	017	017	017	018	017	017	017	016	017	E017S	E016S	E017S	E017S	E017S	E017S	E019S
13	E017S	E016S	E017S	E018S	E	E017S	E017S	E017S	016	017	016	017	017	018	018	018	018	E016S	E017S	E017S	E016S	E019S	E018S	E018S
14	E017S	E016S	E018S	E017S	E017S	E017S	E019S	E016S	016	016	016	017	017	017	017	017	017	E017S	E017S	E017S	E017S	E017S	E017S	E017S
15	E017S	E018S	E018S	E017S	E016S	E016S	E017S	E017S	016	017	016	017	017	017	017	017	016	E016S	E016S	E017S	E017S	E017S	E017S	E017S
16	E017S	E017S	E017S	008	008	E020S	E017S	E017S	017	016	017	016	017	019	017	017	017	E016S	E016S	E017S	E017S	E017S	E017S	E017S
17	E017S	E017S	E017S	009	006	E017S	E018S	E017S	017	016	017	017	017	018	017	017	016	E016S	E017S	E016S	E017S	E017S	E017S	E017S
18	E017S	E017S	E017S	006	E017S	E016S	E017S	E017S	017	017	017	017	017	016	017	016	017	E017S	E018S	E016S	E017S	E016S	E018S	E017S
19	E016S	E016S	E016S	E016S	E017S	E018S	E017S	E017S	017	016	017	016	E026C	E023C	E041C	E024C	E041C	E019C	E024C	C	C	C	C	C
20	C	C	C	C	E017S	C	C	C	019	017	017	018	C	017	017	016	016	E016S	E017S	E016S	E017S	E017S	E017S	E017S
21	E017S	E016S	E016S	E016S	007	E018S	E017S	E017S	017	016	016	016	017	016	017	016	017	E016S	E017S	E016S	E016S	E017S	E017S	E017S
22	E018S	E016S	E017S	009	009	E017S	E017S	E017S	016	016	C	C	016	016	017	018	017	E017S	E017S	E016S	E016S	E017S	E017S	E017S
23	E018S	E017S	E017S	010	E017S	C	C	E017S	016	017	016	016	017	017	017	017	017	E017S	E018S	E016S	E016S	E017S	E016S	E017S
24	E017S	E017S	010	E018S	011	E017S	E018S	E017S	017	017	016	018	017	018	017	017	017	E017S	E017S	E017S	E017S	E017S	E017S	E017S
25	E017S	E017S	E016S	E017S	011	E017S	E018S	E017S	016	016	017	016	016	017	016	017	016	E016S	E016S	E017S	E017S	E017S	E017S	E017S
26	E017S	E017S	E017S	E017S	E017S	E017S	E018S	E017S	017	017	016	017	016	018	017	016	016	E016S	E016S	E017S	E017S	E017S	E017S	E017S
27	E016S	E016S	E016S	E017S	009	E017S	E017S	E016S	016	016	C	C	C	C	C	C	C	E016S	E018S	E017S	E017S	E017S	E017S	E017S
28	E017S	E017S	E017S	009	009	E017S	E017S	E018S	016	017	017	017	017	017	017	016	016	E016S	E017S	E017S	E017S	E017S	E017S	E017S
29																								
30																								
31																								
No.	27	27	27	27	28	26	26	27	28	28	25	26	26	27	27	27	26	28	28	27	27	27	27	27
Median	E017S	E017S	E017S	E016S	E014S	E017S	E017S	E017S	016	016	017	017	017	017	017	017	016	E016S	E017S	E017S	E017S	E017S	E017S	E017S
U. Q.																								
L. Q.																								
Q. R.																								

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

f-min

The Radio Research Laboratories, Japan

Y 6

IONOSPHERIC DATA

Feb. 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	285S	305	U310S	325	385	300	290S	330	360	365	I350C	350S	350	335S	360S	350S	365	J345S	345S	305	S	325S	300S	I310S
2	300	315	I310S	J335S	345	300	310S	I310S	355S	J335S	J345S	U360S	320	345	340	345	345	365	360	325S	305S	I325S	I330S	295S
3	295	310	I320S	335	360	315	310	325S	365S	355S	340	360S	330	340S	J365S	350S	I335C	370H	345	I360S	335	350	I310S	I300S
4	I315S	305S	320	305	315	300S	305S	320	385	360	360	345	J360S	325S	365	335	360H	370	J365S	310S	I315S	335S	I330S	280
5	300S	I300S	285S	335	I320S	290S	J320S	340	340	J370S	365	330	S	S	I340S	340	360H	370H	325S	I310S	320S	325	290	290
6	295	I305S	I330S	345	300	305	305	350	375S	330S	340	325	J345S	J355S	I360S	355	345H	J355S	J335S	I330S	J270S	280S	315	J315S
7	280S	305	315S	290	I300S	315S	290	I320S	J340S	I305S	310S	I330S	J335S	350	340	350S	350	350	335	I330S	330	335	300	I290A
8	I280S	295	I335S	325	I300A	J315S	275	320	J340S	350S	330S	335	340S	340S	355S	I335S	345	365H	I360S	325	S	A	S	355S
9	I325S	I310S	315	335	360	285	I310S	345	J360S	310H	330S	I350S	J355S	330S	330S	335S	J340S	J345S	375S	360S	335S	320S	320S	325S
10	310S	U285S	285	310	325	290	340	360S	370	345	350	I350S	J335S	345S	345	370	350	355	365	J340S	305S	I325S	340	290S
11	I315S	U300S	315S	325	325	295	310	I360S	J365H	360H	J360S	355S	J345S	335S	320S	350	I345S	J360S	385S	355S	I330S	350	330S	295S
12	S	S	305S	315S	355	295	300S	380	385S	370S	345	320	360	J350S	I350S	355	355	350S	360S	325S	310	320S	S	S
13	S	I305S	335F	S	S	345	320	345S	J385S	365	350	330	340S	J350S	I370S	355	J375S	370H	360	325	310	325S	345S	305S
14	290	295S	305S	300	335	310	J320S	I335S	J365S	350	340	J345S	330S	350	360	370	360	J325S	350	J340S	J340S	I330S	300	J310S
15	I280S	I300S	280S	305S	J385S	330S	395	J335S	345H	J370S	330	320	S	365S	365S	350	360	355	J345S	320	300	325S	I315S	315S
16	I310S	305S	295S	I320S	I350S	415	I290A	335S	J345S	I305S	I325S	335S	I340S	340	345	J340S	U370H	355H	345	325S	315S	J315S	315	310
17	285S	I315S	305	320S	430	J290S	J290S	325S	355	335S	J325S	335	325S	I345S	350	365S	370	375	360S	345	340	320	320	310S
18	I290S	300	325	350S	370	360S	300	355S	360H	345	325	345	335	J350S	335S	350	370	360	360S	360S	305	305S	345	300S
19	I315S	290S	315	315S	355	390	J305S	345	J365S	360	320	J325S	C	C	C	C	C	355	I370C	I345C	C	C	C	C
20	C	C	C	C	360S	C	C	C	J355S	360	J345S	320	I315C	I345S	J365S	350	360	350	J350S	345	330	325	I310S	J295S
21	300S	I310S	310S	330S	345	305	325	375	370	360H	330	315	I310S	320	330	J345S	355S	360S	360	340S	I325S	J305S	295	305S
22	I300S	I325S	365S	325S	290	305	320S	350S	370S	340	C	C	I340S	I350S	I345S	375	370	350	350S	350	315	295S	300	315
23	I335S	I370S	350	330	335	I325C	I315C	360S	360S	330S	335	345S	325S	330	355	365S	345	360	355	350S	325	315	320S	315S
24	I320S	290	I285S	305	300	275S	300S	365	370S	340	315	310S	345	360S	J345S	I355S	360	355	360S	370S	325S	I290S	I300S	300
25	310	345	315	350	335	290	320	J335S	355	345	J330S	330	315	340	355	360	370	350	350S	345S	360S	315S	290S	I320S
26	I300S	315S	350S	335	350S	295	290	350S	J355S	345	335S	335	325S	345	345S	J340S	J365S	375S	350S	U320S	U350S	330S	325	335
27	335	310S	315	335	345S	325S	310	335S	I350S	335S	C	C	C	C	C	C	C	345	340	I350S	335	315	295S	I330S
28	325S	310S	305S	315	395	285	320S	350S	350H	345H	335	320	335S	345	J340S	I355S	365S	345S	370S	330S	I330S	U320S	I305S	I290S
29																								
30																								
31																								
No.	25	26	27	26	27	27	27	27	28	28	26	26	24	25	26	26	26	28	28	28	25	26	25	26
Median	300S	305S	315S	325	345	305	310	345S	360S	345	335	335	335S	345S	350S	350	360	355	360S	340S	325S	320S	315S	310S
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

M(3000)F2 | Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

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IONOSPHERIC DATA

Feb. 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											C	405L	395H	385	350L	L	LH							
2										L	360	375	395	390H	380H	395	L							
3										L	360L	390	365	355	425	375H	C							
4										L	L	375	375	385H	L	400								
5										L	380	395	395	365H	370H	380								
6										L	LH	370	375H	390	L	380L	A							
7										L	360	410S	395H	365	370	L	L	L						
8										L	360L	A	370	365	L	370	L							
9											355H	365	390	L	360H	355	L	L						
10										L	365L	370	395	370	L	S	A							
11											L	370	375S	365	370	355H	370H							
12											385L	390	370	365	385	L	L							
13										L	355L	375	385	365	350	380L	L							
14										L	350L	370	380	380	360	380L	L	L						
15										L	L	380	380	375	380	L	L	L						
16										LH	L	370	360	395	395	380								
17										L	355	A	375	375	380	L	L							
18										L	370L	375	370	380	380	360	L	LH						
19										L	375	370	350	375	C	355	C							
20										L	365	370	I370C	355H	370	390	L	L						
21											L	370H	385	370	370	360H	L	L						
22										L	C	C	370	395S	375H	L	L	L						
23										L	350	390	390	395	390	370L	L	L						
24										L	350L	365	370H	385H	375	365L	L	L						
25										L	355	375	370	370	L	L	L	L						
26											LH	375	375	360	385	370H	L	L	L					
27										L	C	C	C	C	C	C	C	L						
28											360	365	385	380H	395	L	L	L						
29																								
30																								
31																								
No.											18	24	27	26	21	18	1							
Median											360	375	375	375	375	370	370H							
U. Q.																								
L. Q.																								
Q. R.																								

M(3000)F1 Sweep 0.55 Mc to 17.9 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 8

IONOSPHERIC DATA

Feb. 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											I260C	260	270	290	265	250	245							
2										270	255	250	275	260	260	290	255							
3										250	270	255	300	295	250	250	I255C							
4										245	250	290	255	300	255	280								
5										245	260	295	280	285	275	260								
6										275	280	295	260	260	250	250	240							
7										300	275	265	270	250	275	250	250	240						
8										250	285	275	255	260	255	290	255							
9											280	240	250	295	300	260	255	250						
10										270	255	250	275	260	260	250	240							
11											245	270	280	300	295	255	270							
12											275	305	255	260	260	250	250							
13										250	275	300	280	255	250	255	240							
14										250	290	270	285	255	250	250	250	240						
15										250	300	300	265	240	250	255	250	245						
16										325	280	255	255	250	240	250								
17										275	295	270	275	250	250	245	250							
18										270	290	265	275	260	275	250	245	240						
19										250	300	300	250	260	255	250	250							
20										260	290	300	I290C	250	245	250	250	240						
21											275	325	310	290	270	255	250	245						
22										275	C	C	280	250	260	250	245	250						
23										275	275	250	280	270	250	255	260	240						
24										265	300	300	255	240	260	250	250	235						
25										255	280	265	285	265	250	245	250	245						
26											275	270	270	265	270	260	245	230	205					
27										275	C	C	C	C	C	C	C	230						
28											280	285	270	255	255	250	250	245						
29																								
30																								
31																								
No.										21	26	26	27	27	27	27	24	14	1					
Median										265	280	270	275	260	255	250	250	240	205					
U. Q.																								
L. Q.																								
Q. R.																								

h'F2

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

The Radio Research Laboratories, Japan

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IONOSPHERIC DATA

Feb. 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	E315S	E310S	E270S	245	220	S	E350S	250	230	245	I210C	205	200H	200	245	240	200H	230	205	275	245	250	E300S	E300A
2	E300A	E295S	255	235	240	E295S	E275S	E290S	240	230	245	205	200	180H	200H	210	235	235	215	230	265	250	250	E300S
3	E300A	E300S	E275S	240	200	S	E300S	260	240	235	210	220	245	230	230	205H	C	240H	205	200	230	250	280	E350S
4	320	300	275	290	270	E300S	E300S	250	230	230	210	210	200	195H	225	200	I240H	235	230	E275A	A	250	240	280
5	E295S	310	310	250	200	E310S	E295S	250	245	245	230	225	200	195H	195H	230	210H	195H	220	230	250	E250S	E300S	300
6	325	285	250	230	280	270	E290S	260	240	230	220H	205	190H	200	220	220	I220A	230	230	210	E320S	E330A	270	295
7	305	290	275	290	290	245	E320S	265	245	225	220	200	210H	E250A	220	205	225	240	235	245	245	220	E295S	A
8	E375S	300	255	255	A	295	355	290	255	270	240	E250A	225	200	255	215	230	240H	210	250	275	I280A	290	240
9	E300A	E300A	280	250	240	E345S	E290S	220	245	200H	195H	225	205	200	200H	230	215	200	205	220	E250S	250	E260A	260
10	300	E340S	310	290	250	E300A	255	245	230	240	240	215	200	240	205	I210A	I220A	245	220	240	E270S	240	250	E300A
11	260	300	270	215	E250S	E300S	E300S	250	230H	220H	205	E245A	240	210	205	200H	200H	245	215	225	245	250	E275S	E315S
12	300	305	300	260	215	E350A	E350A	225	230	230	210	220	E250A	E250A	200	230	225	230	230	E295A	E320S	250	255	300
13	300	290	E290S	300	225	240	E300S	245	230	210	200	225	210	200	E250A	215	210	215H	225	240	250	250	250	280
14	E300S	E330S	295	E300A	250	E340S	E300S	245	240	230	230	240	205	200	215	220	205	200	230	240	240	200	E300S	E300S
15	280	E280S	300	285	210	S	S	250	205H	220	205	200	225	230	215	200	225	210	225	E225S	E275S	265	275	280
16	265	295	320	250	205	200	A	250	250	200H	280	255	245	215	200	200	215H	230H	220	250	265	255	265	E300S
17	340	280	300	255	200	S	S	250	245	245	230	I240A	230	225	205	210	200	230	230	225	E250S	E265S	E295A	E300S
18	300	300	260	230	230	240	E300S	250	240H	240	230	215	250	200	200	200	225	200H	225	210	30A	280	250	280
19	290	E340A	270	255	240	200	E350S	245	245	240	205	200	200	250	I210C	215	C	225	210	I240C	C	C	C	C
20	C	C	C	C	205	C	C	C	245	250	240	210	I215C	200H	215	205	200	200	220	215	250	250	285	300
21	300	300	290	250	240	E300S	265	215	210	205H	235	200H	180	240	225	205H	215	210	220	240	230	E280S	305	295
22	300	270	230	250	250	300	265	245	240	230	C	C	200	225	200H	200	210	200	225	230	E245S	300	300	280
23	250	225	215	205	245	C	C	240	235	225	225	210	200	210	210	205	200	215	230	205	245	275	300	290
24	275	305	310	300	255	350	300	210	220	240	210	220	200H	205H	215	215	225	210	225	215	240	290	290	290
25	275	245	260	245	210	E350S	E345S	250	235	245	245	230	230	215	230	225	205	225	225	250	210	E260S	300	280
26	300	275	245	E250S	240	E290S	E320S	240	235	230	210H	235	220	245	215	205H	205	200	220	250	225	250	250	250
27	270	295	280	250	225	E265S	E345S	250	245	240	C	C	C	C	C	C	C	200	225	220	E240S	275	300	290
28	275	270	295	250	200	E310S	E320S	235	200H	230H	235	245	220	210H	205	200	225	200	205	230	235	250	275	305
29																								
30																								
31																								
No.	27	27	27	27	27	22	23	27	28	28	26	26	27	27	27	27	25	28	28	28	26	27	27	26
Median	290	290	275	250	235	E300S	E300S	250	240	230	220	220	210	210	210	210	215	220	220	230	240	250	270	290
U. Q.																								
L. Q.																								
Q. R.																								

h'F

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

IONOSPHERIC DATA

Feb. 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	S	S	S	S	S	S	S	B	G	C	150	170	G	C	105	105	100	100	S	100	100	100	100
2	100	100	S	B	S	S	S	S	130	120	120	120	G	G	160	150	G	110	105	105	100	100	S	100
3	100	S	S	B	B	S	S	S	G	G	G	160	150	150	115	105	C	105	105	100	S	100	S	S
4	105	S	S	S	S	S	S	S	155	125	125	120	125	125	120	110	C	105	100	100	100	S	S	S
5	S	S	S	S	S	S	S	S	G	G	155	150	150	105	G	110	105	145	S	150	S	S	S	S
6	S	S	S	S	110	S	S	110	105	105	100	100	115	120	G	G	110	105	105	150	S	100	S	S
7	S	S	S	S	S	S	S	S	140	145	130	140	130	120	120	115	E160G	120	S	130	120	120	S	125
8	125	130	120	120	120	120	S	155	165	150	135	125	120	105	105	G	G	150	S	105	100	105	100	100
9	100	100	100	100	100	S	S	S	G	140	125	110	110	G	100	100	100	G	100	100	S	100	100	S
10	S	S	S	S	100	100	S	S	G	E175G	E140G	125	125	100	150	100	125	125	115	110	S	S	110	100
11	S	S	S	B	S	S	S	S	G	140	150	120	120	105	105	105	G	G	100	S	S	S	S	S
12	S	S	S	S	B	100	100	100	100	150	G	130	110	110	105	105	100	100	100	100	100	100	100	S
13	S	S	S	S	105	S	100	S	145	E150G	130	125	115	110	110	E125G	120	110	S	100	S	S	S	S
14	100	100	S	100	S	S	S	S	G	G	145	130	120	110	105	G	G	G	S	S	S	S	S	S
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16	100	S	S	B	B	S	100	105	115	100	100	G	120	165	G	110	110	G	S	105	105	S	S	S
17	S	110	S	110	100	100	S	S	G	E180G	G	125	125	120	120	130	G	G	S	S	S	S	120	115
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19	105	105	105	S	S	S	S	S	G	G	100	100	C	C	C	G	C	115	C	C	C	C	C	C
20	C	C	C	C	S	C	C	C	150	150	125	130	C	105	100	100	G	G	S	S	S	S	S	S
21	100	S	S	S	100	S	S	100	G	G	120	120	130	G	125	130	G	100	100	100	S	S	S	S
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27	100	100	105	S	B	S	S	150	150	E150G	C	C	C	C	C	C	C	G	S	S	S	S	S	S
28	S	S	S	B	B	S	S	S	150	E180G	E155G	130	115	110	115	105	G	G	S	S	S	S	S	S
29																								
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31																								
No.	12	10	9	7	10	6	4	6	12	20	20	25	24	21	20	21	13	18	11	15	10	9	9	12
Median	100	100	100	100	100	100	100	110	150	U135	130	125	120	115	115	110	110	110	100	105	100	100	100	100
U. Q.																								
L. Q.																								
Q. R.																								

h'Es

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

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IONOSPHERIC DATA

Feb. 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												h	h			1	12	1	f		f	f	f	f
2	f	f2							h	c	c	c			h	h		c3	f2	f	f	f		f2
3	f											h	h	h	1	12		1	f	f		f		
4	f2								h	h2	h	c1	c	h	h	c		12	f3	f	f3			
5											h	h 1	h 1	1		1	12	h		f				
6					f			1	1	12	12	12	c 12	c 1			13	13	f3	f		f3		
7									h2	h	h	h 1	h 1	c 1	c 1	c	h	1		f	f	f	f	f3
8	f2	f	f2	f	f4	f		h	h2	h	h	h2	h	1	1			h		f2	f2	f	f2	f2
9	f2	f2	f2	f	f					h	h	c	c		1	12	1		f	f		f	f	
10					f	f				h	h	h	h	1	h 1	12	h21	c4	f	f2			f3	f3
11										h	h	h2	h	1	1	1			f					
12						f	f2	1	1	h		h	c	c2	12	12	12	13	f3	f3	f2	f	f	
13					f		f2		h 1	h	h 1	h 1	c 1	c	c	c	c	c21		f				
14	f	f		f							h	h	h	1	1									
15					f	f						h	h	h	h	h	c	1						f
16	f					f	f2	12	1	1	12		1	h		1	12			f4	f			
17		f2		f	f2	f				h		h	h	h	h	h							f2	f2
18	f	f2	f	f2	f2	f2	f				h	h	1	1	1				f	f	f	f	f	f
19	f2	f3	f2								1	1						1						
20									h	h	h	h		1	1	12			f					
21	f2				f	f		1			h2	h	h		h	h		12	f2	f2				
22		f3		f2						h			c 1	c 12	c	1	1	h 1						f
23			f2	f						h	h	h	h	h									f	
24	f2		f2		f				h	h		h	h	h	h	h		1	f		f			f
25		f	f							h	h	1	h	h	h	1	12	12	f2	f5	f			f
26			f							h	h	h	h			h	c	12					f	f4
27	f3	f2	f					h	h	h														
28									h2	h	h	h	h	c	c	1								
29																								
30																								
31																								
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Types of Es

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

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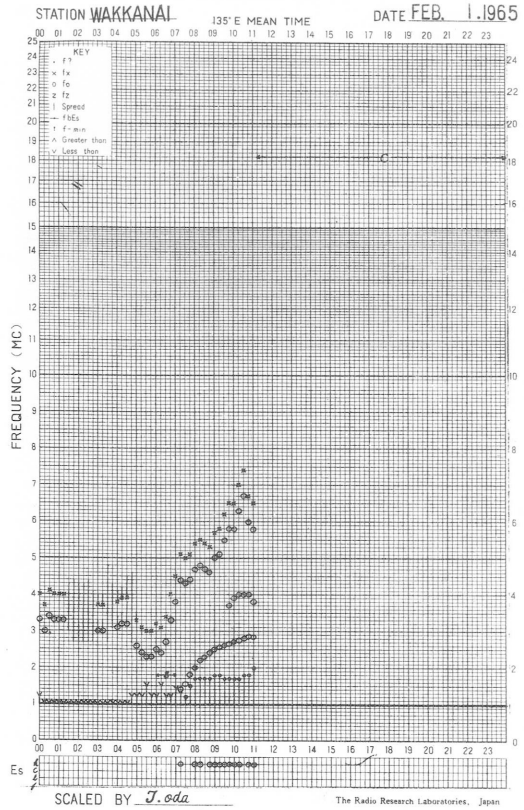
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE FEB. 1. 1965



SCALED BY J. oda The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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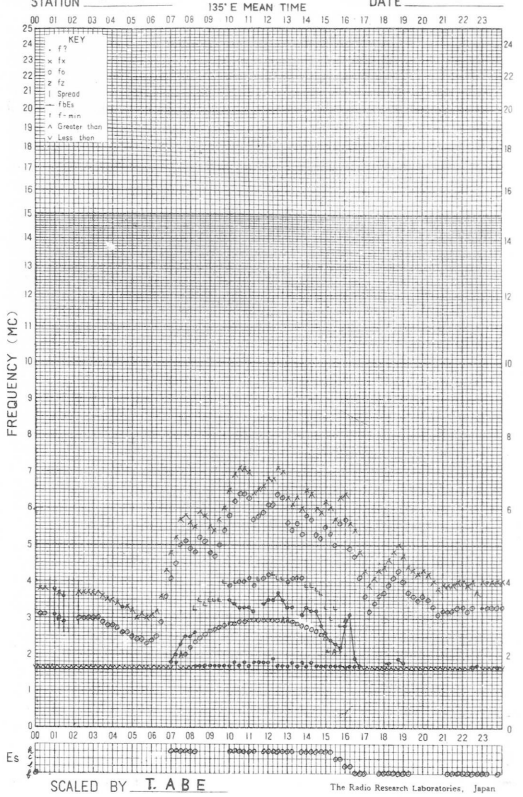

SCALED BY T. ABE The Radio Research Laboratories, Japan

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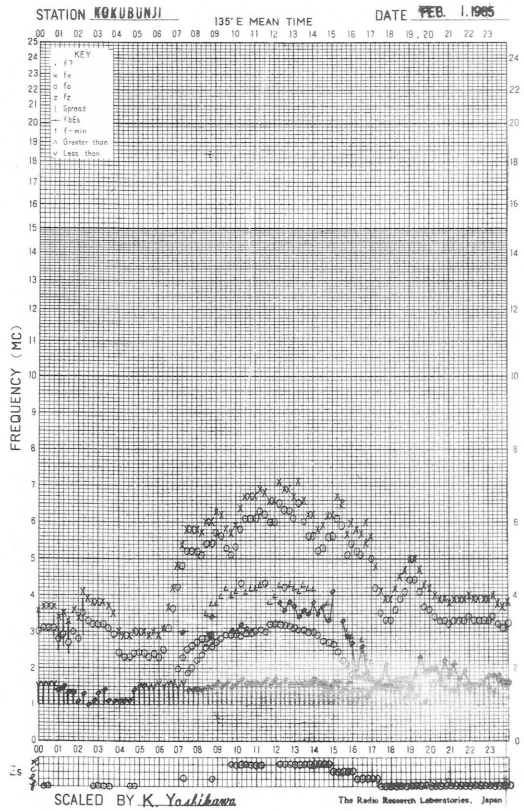

SCALED BY K. Yashikawa The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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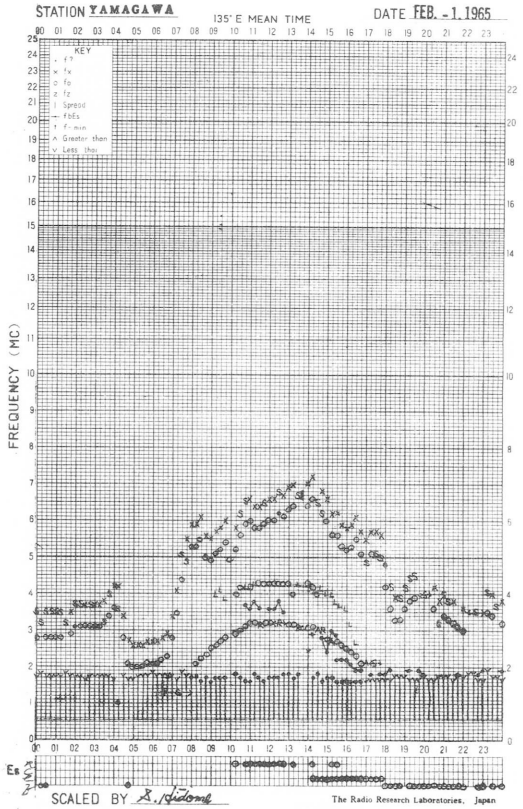

SCALED BY S. Shidomi The Radio Research Laboratories, Japan

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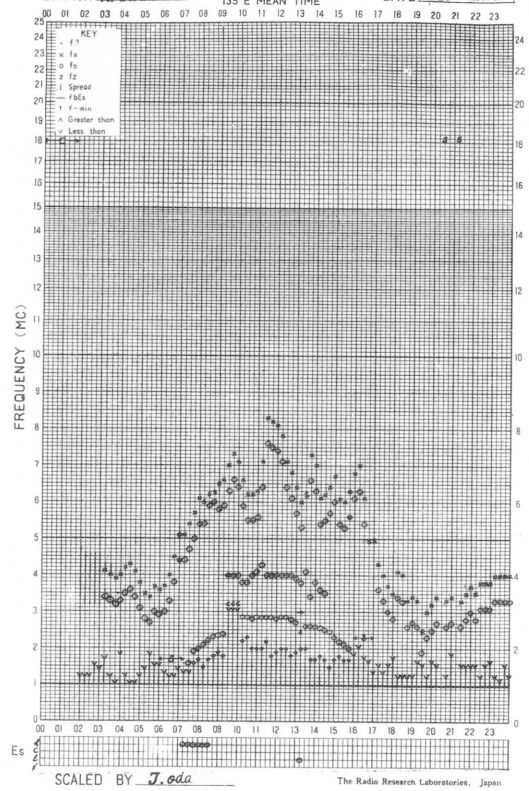

SCALED BY T. oda

The Radio Research Laboratories, Japan

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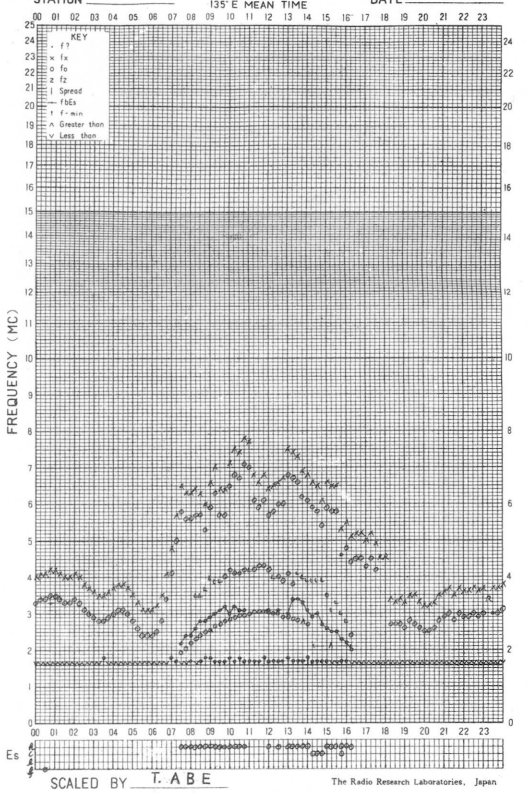

SCALED BY T. ABE

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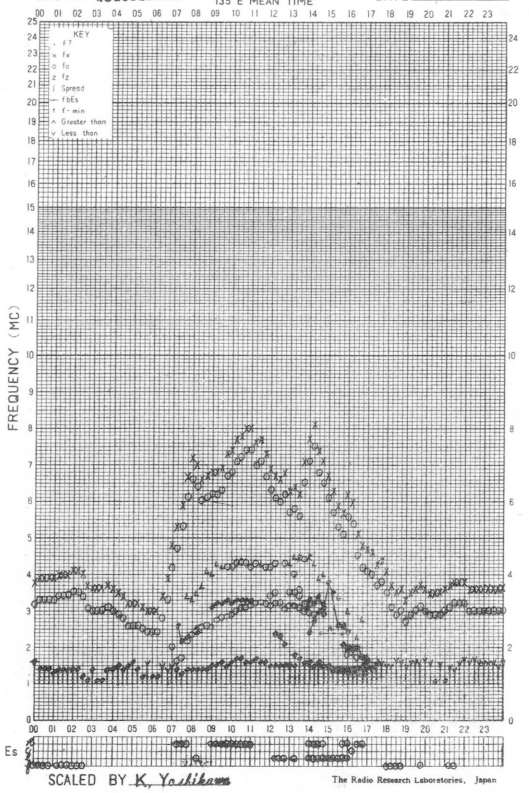

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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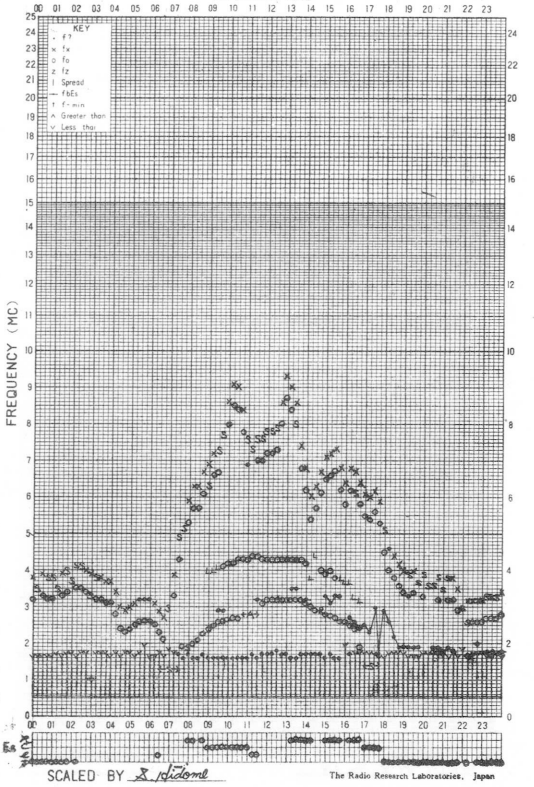

SCALED BY S. Ichimoto

The Radio Research Laboratories, Japan

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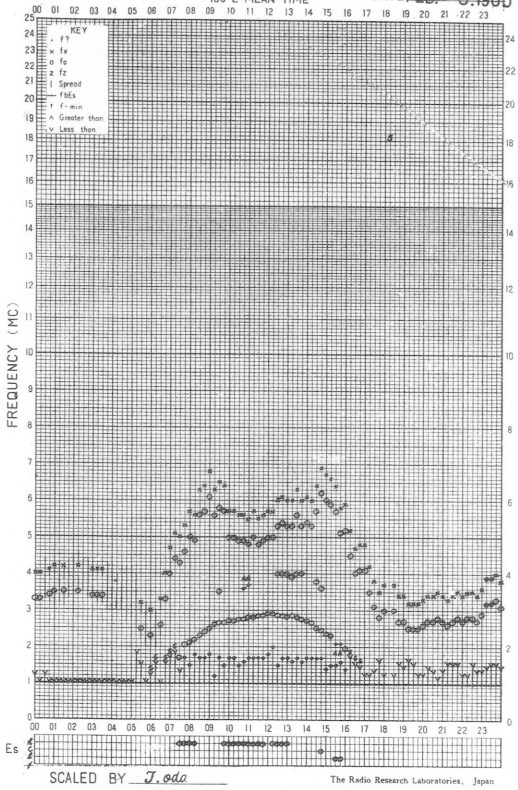

SCALED BY J. oda

The Radio Research Laboratories, Japan

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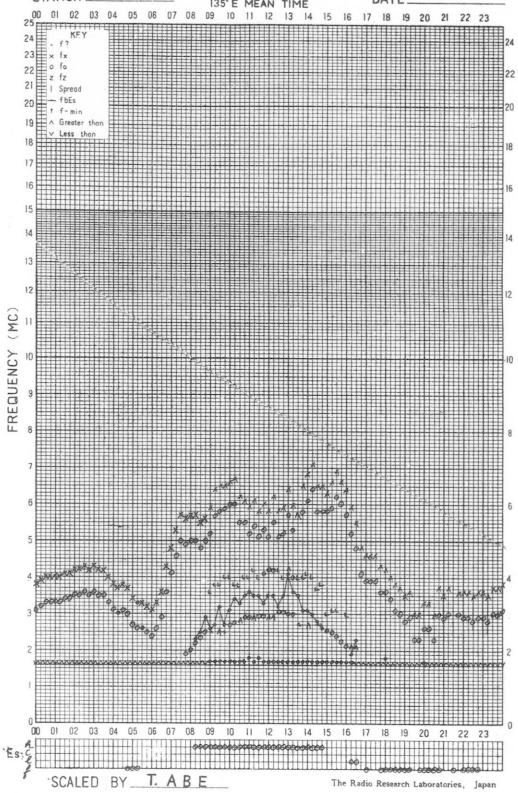

SCALED BY T. A B E

The Radio Research Laboratories, Japan

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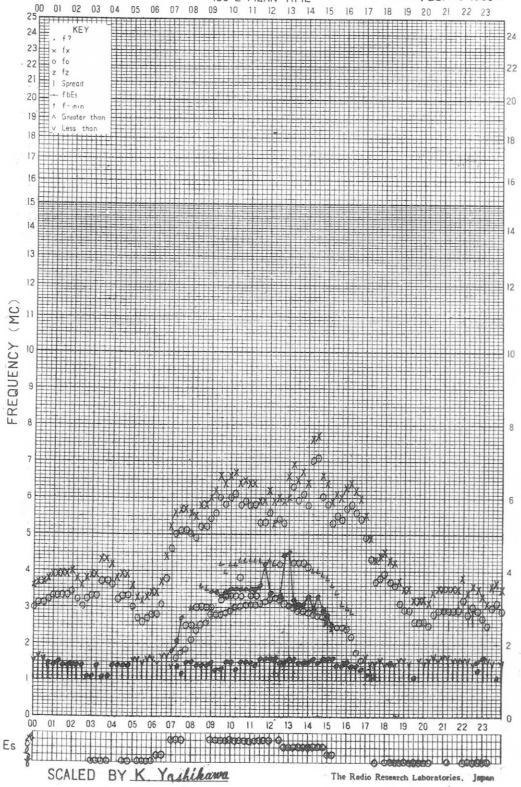

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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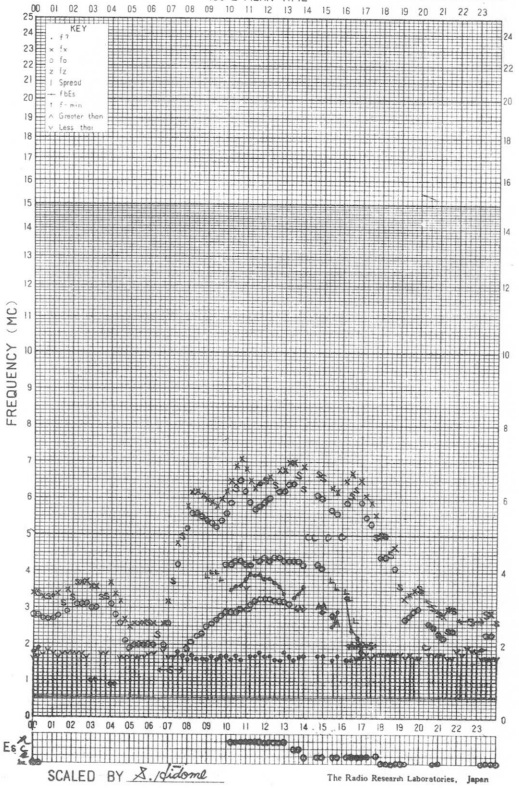

SCALED BY S. Tidome

The Radio Research Laboratories, Japan

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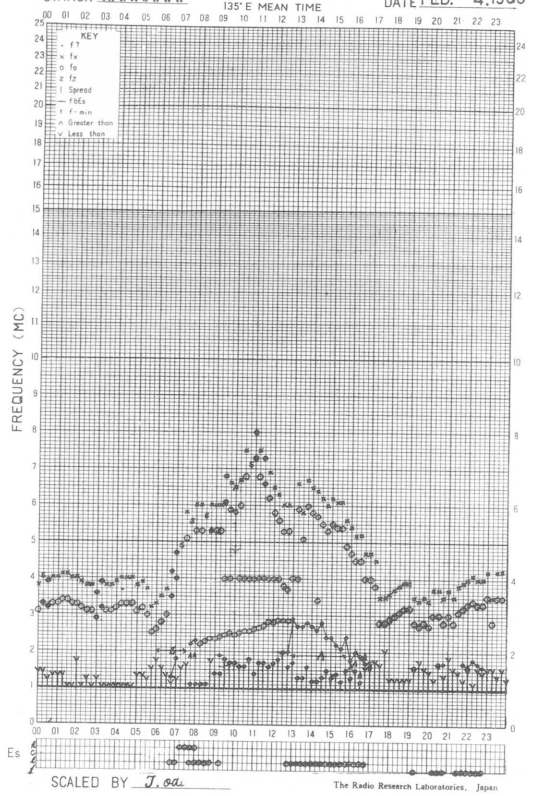

SCALED BY T. Oa

The Radio Research Laboratories, Japan

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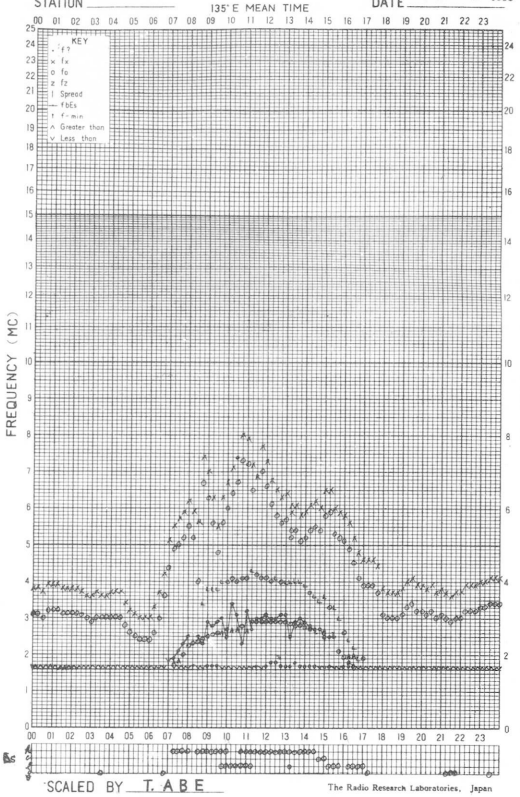

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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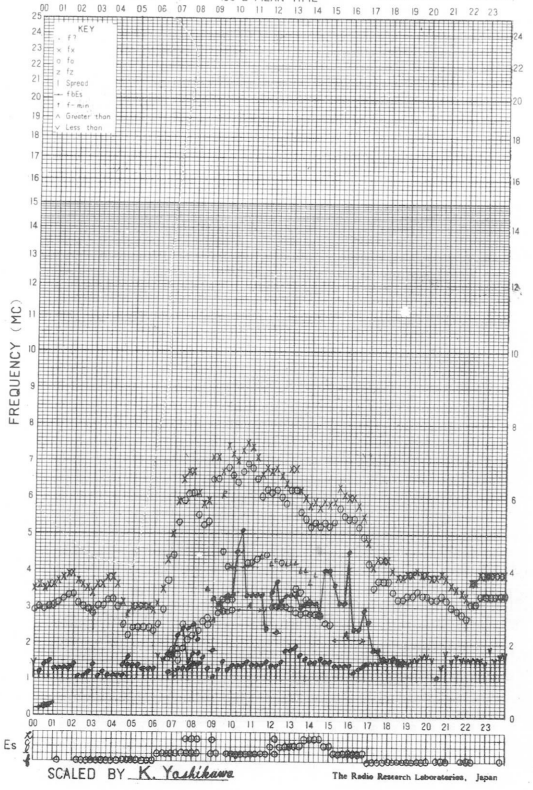

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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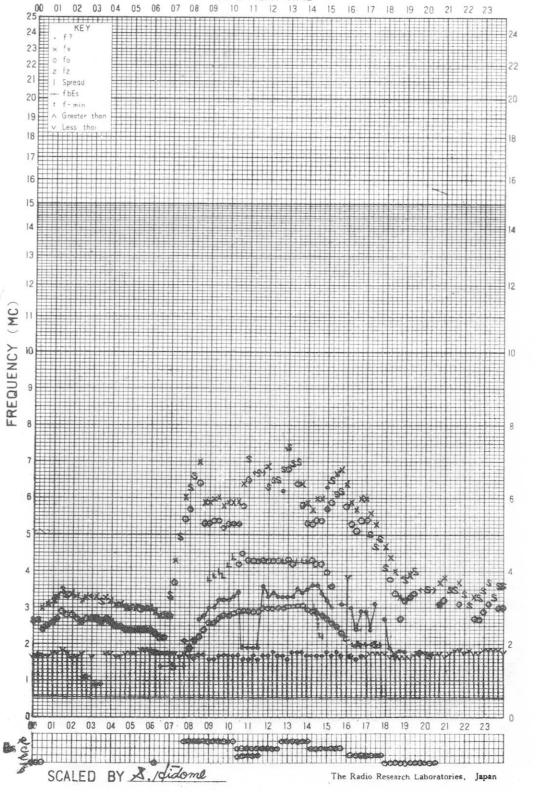

SCALED BY S. Kitsome

The Radio Research Laboratories, Japan

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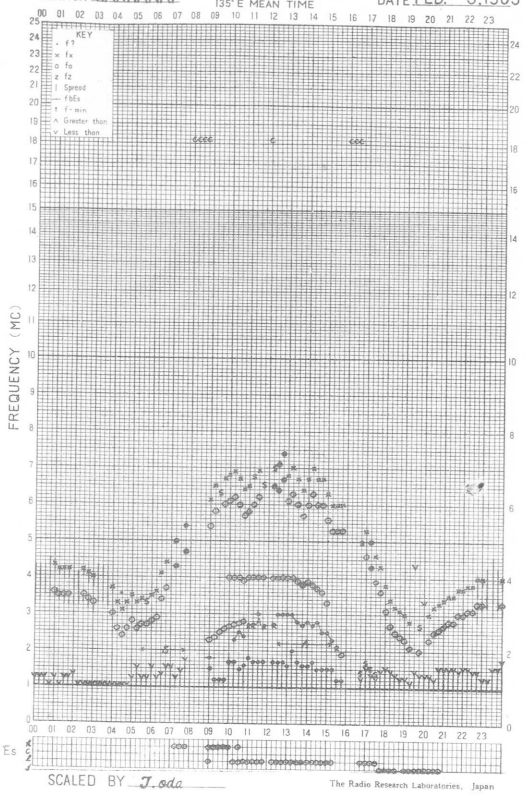

SCALED BY T. Oda

The Radio Research Laboratories, Japan

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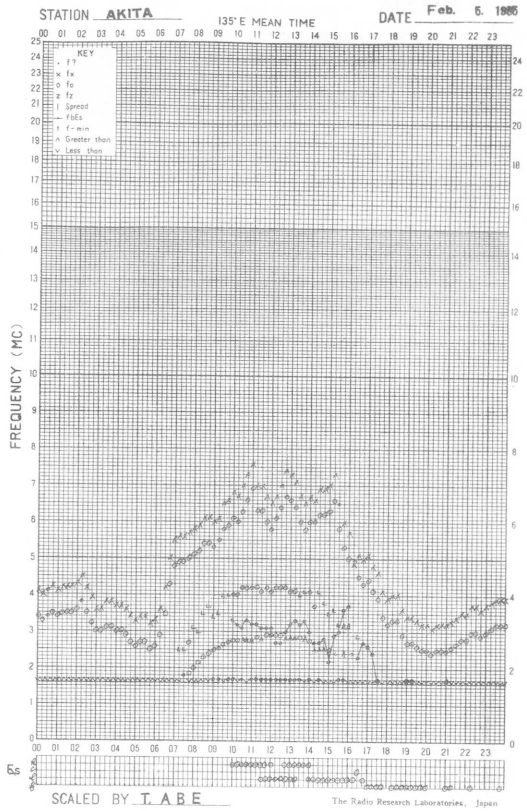

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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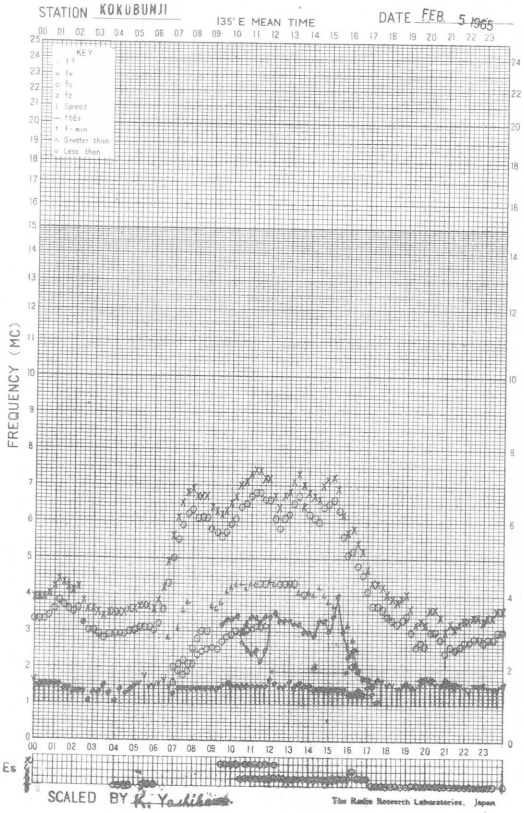

SCALED BY K. Yoshihara

The Radio Research Laboratories, Japan

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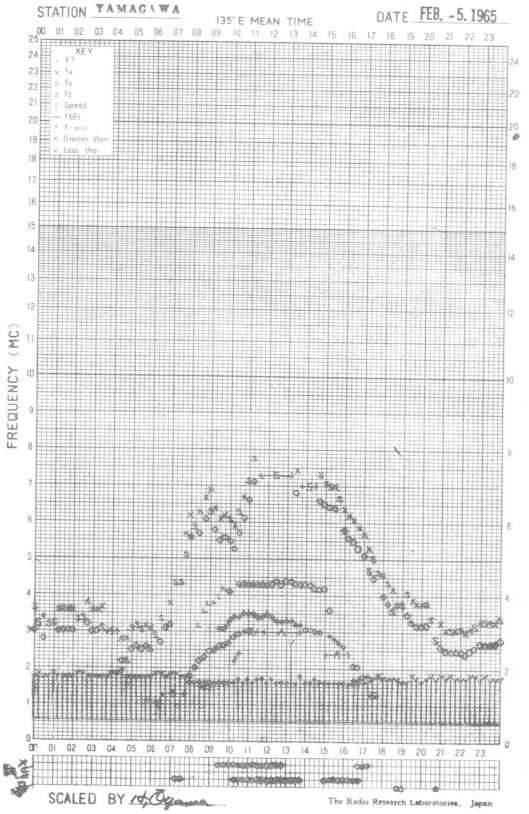

SCALED BY M. Ogawa

The Radio Research Laboratories, Japan

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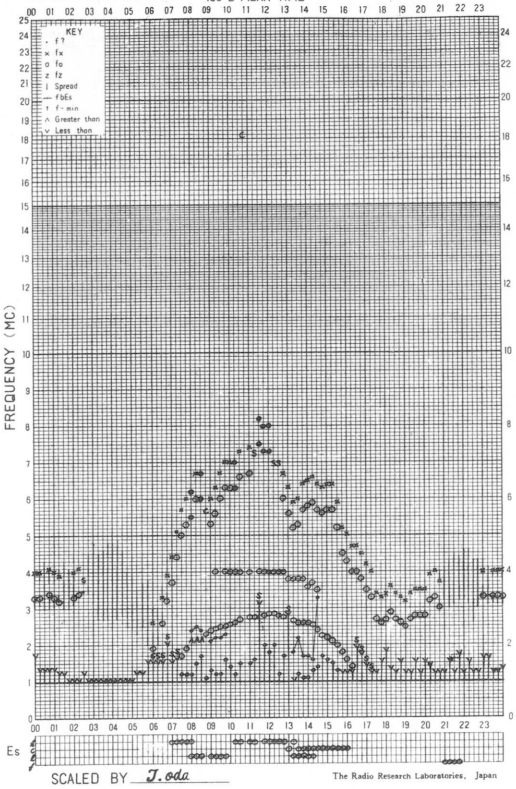

SCALED BY J. oda

The Radio Research Laboratories, Japan

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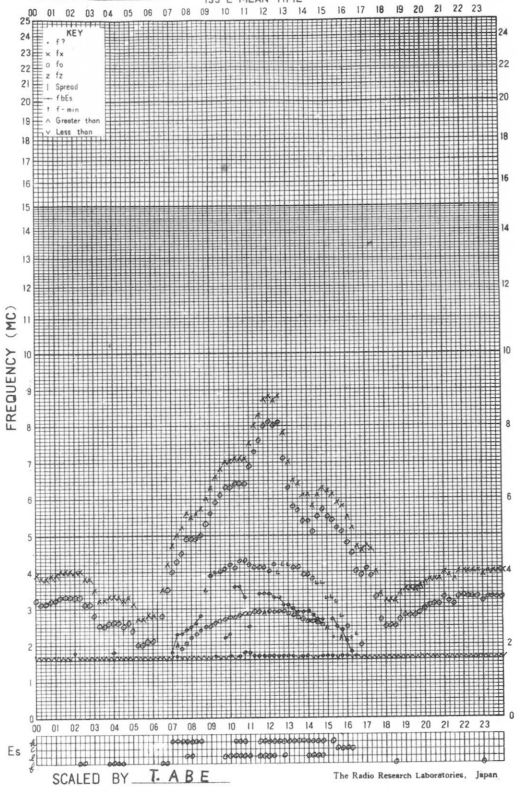

SCALED BY T. A B E

The Radio Research Laboratories, Japan

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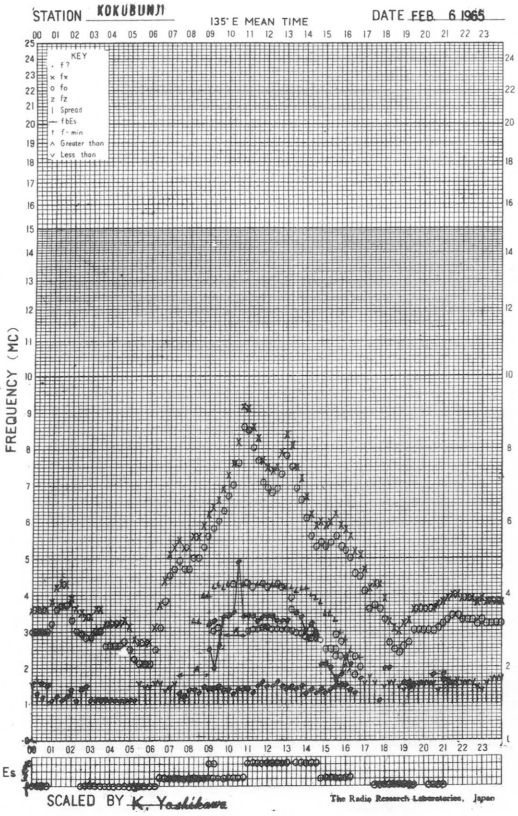

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The Radio Research Laboratories, Japan

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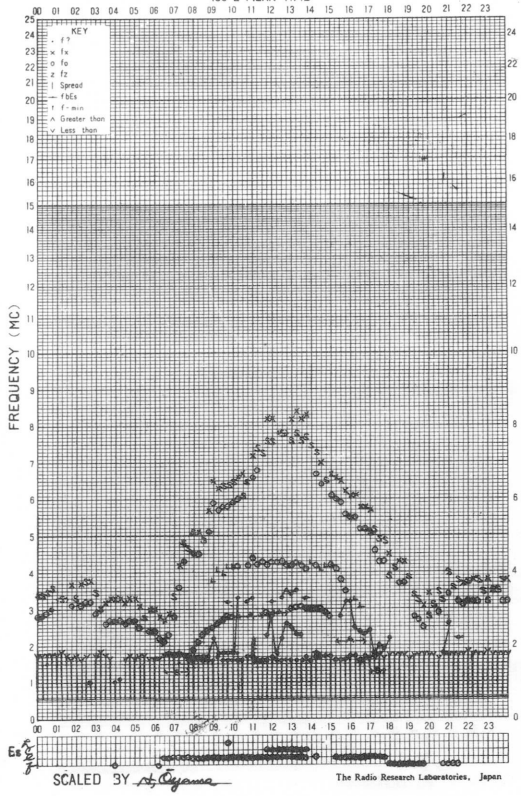

SCALED BY A. Oyama

The Radio Research Laboratories, Japan

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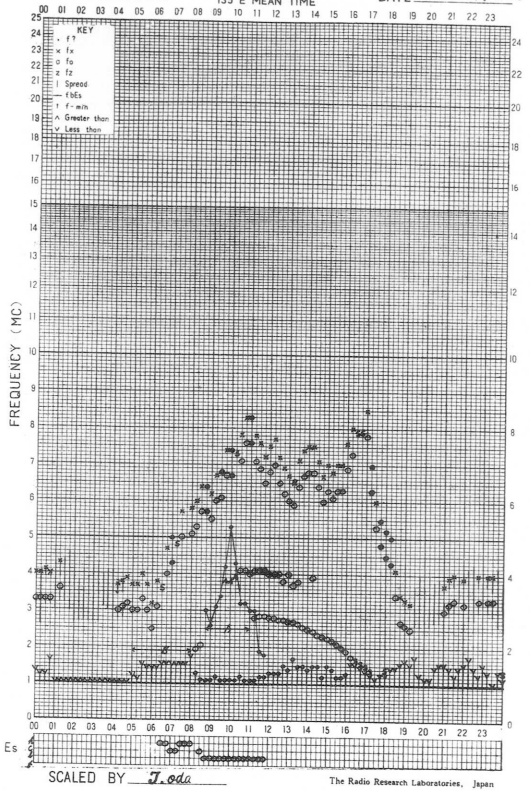

SCALED BY J. Oda

The Radio Research Laboratories, Japan

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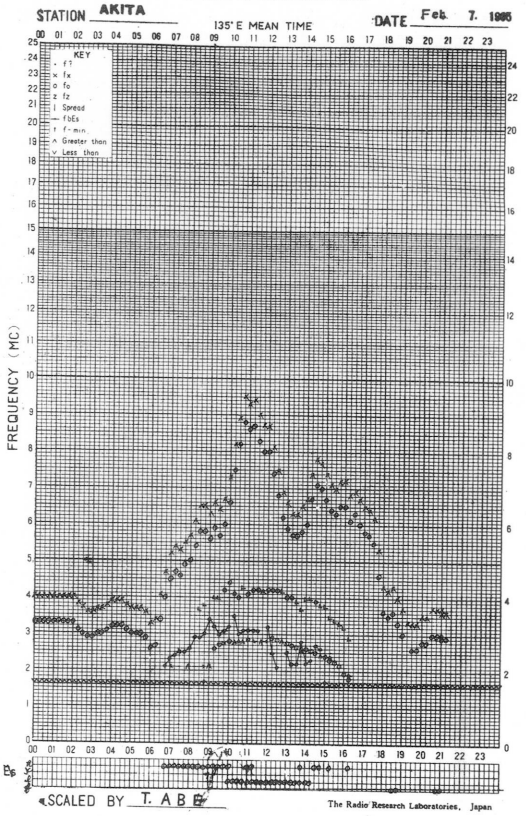

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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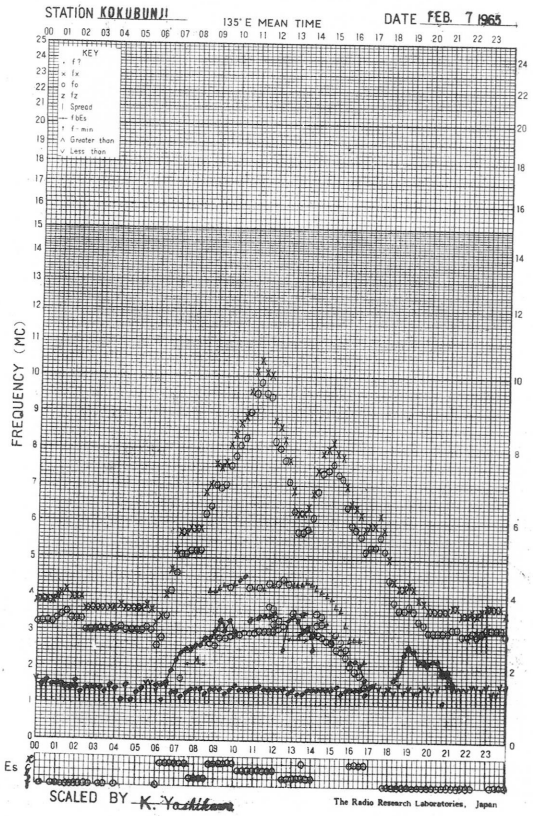

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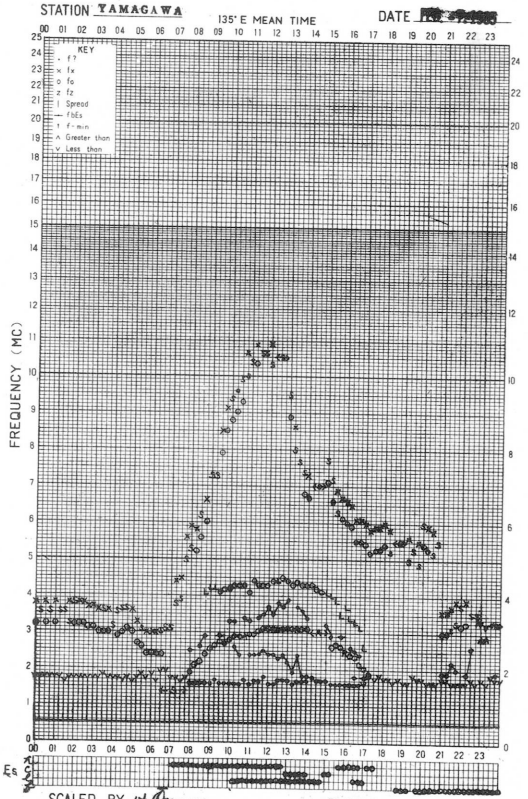

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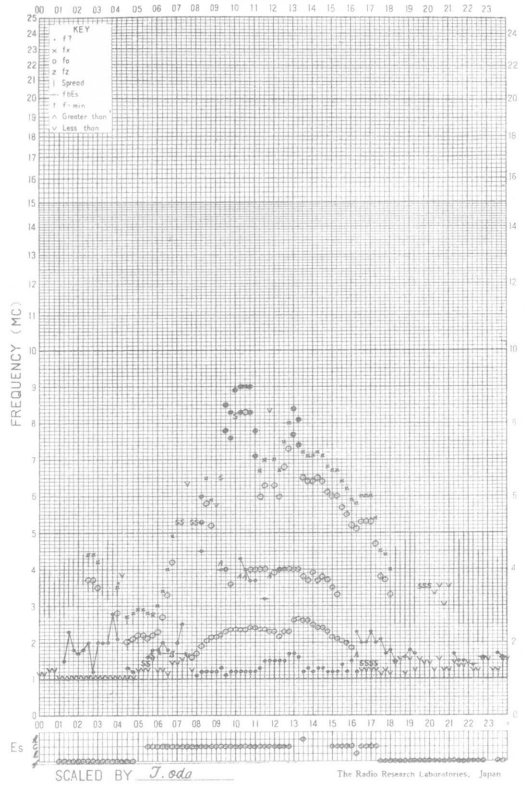

SCALED BY T. oda

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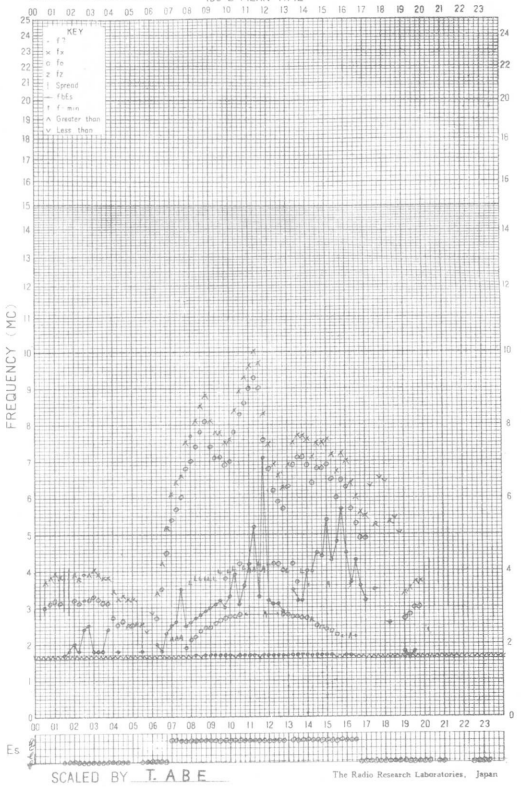

SCALED BY T. A B E

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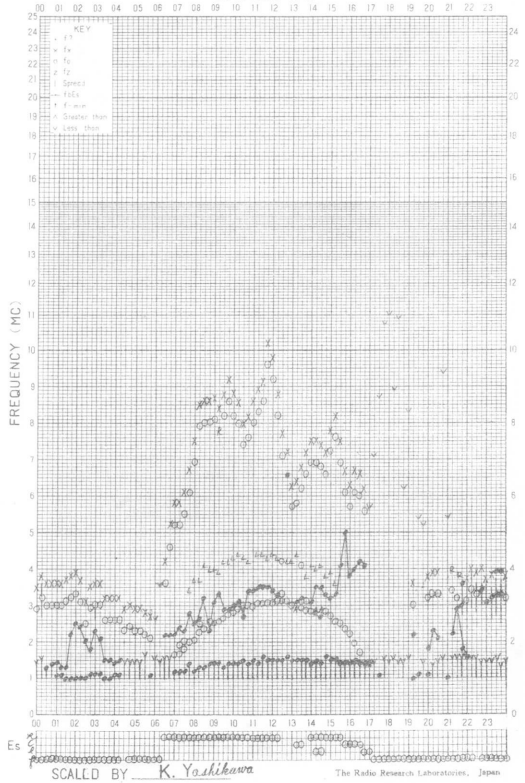
STATION KOKUBUNJI 135°E MEAN TIME DATE FEB. 8 1965



SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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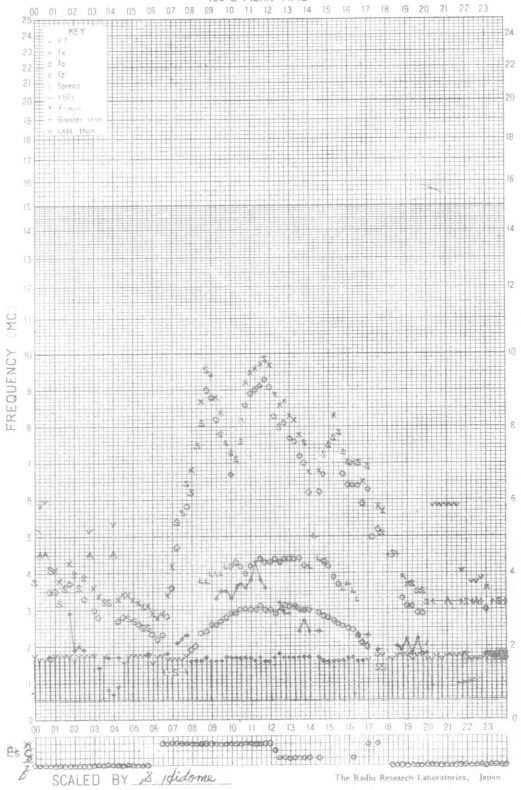

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The Radio Research Laboratories, Japan

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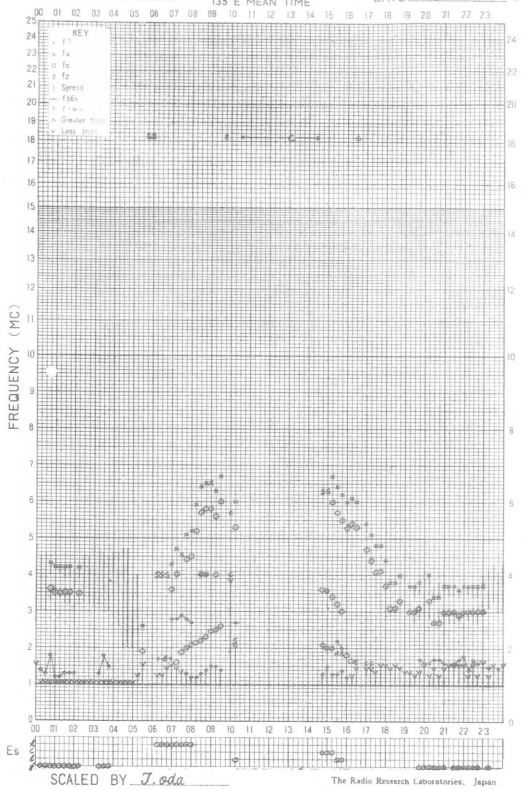

SCALED BY T. oda

The Radio Research Laboratories, Japan

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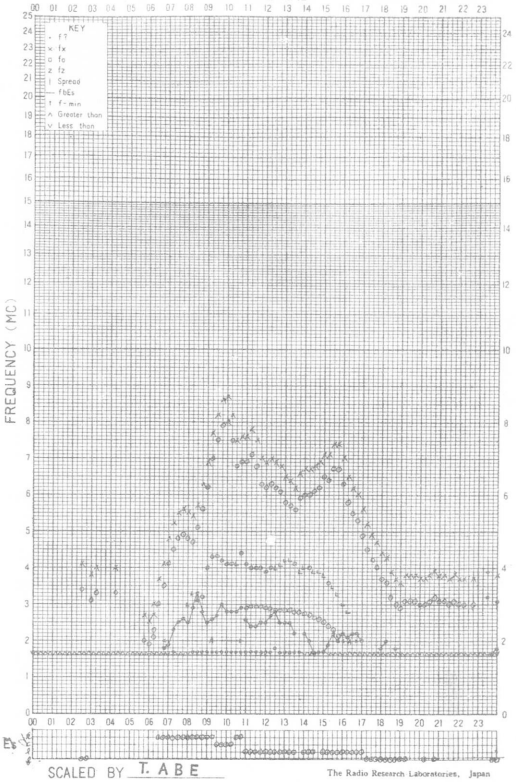

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The Radio Research Laboratories, Japan

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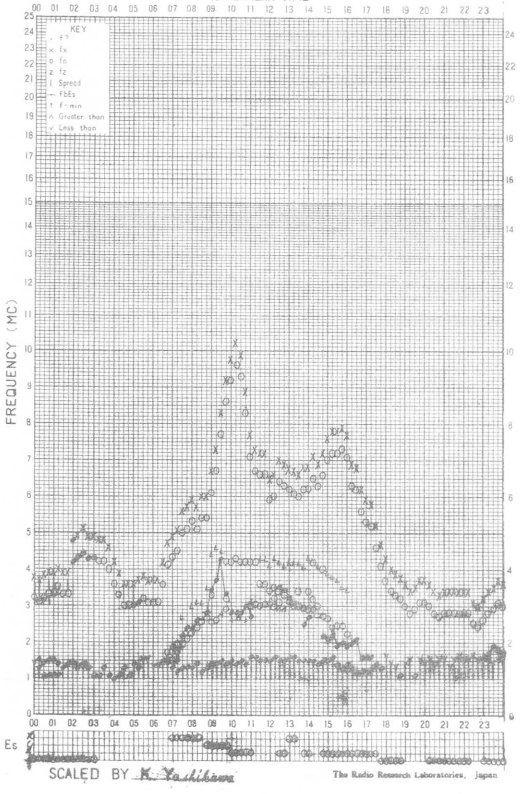

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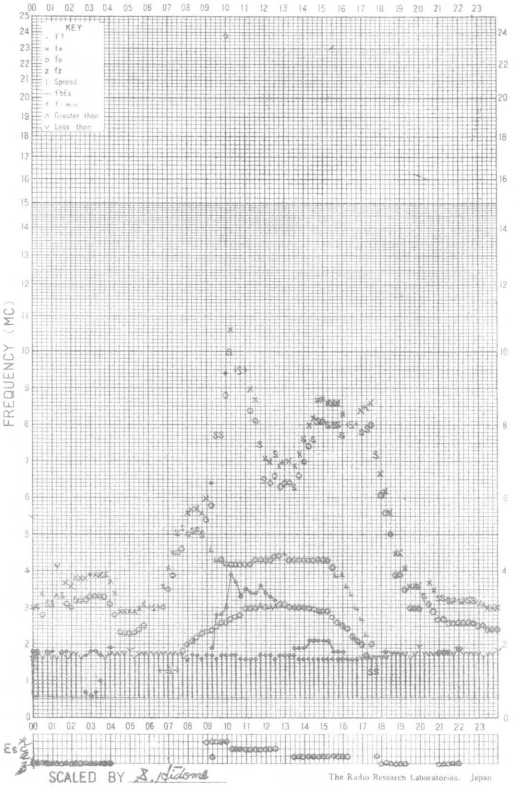
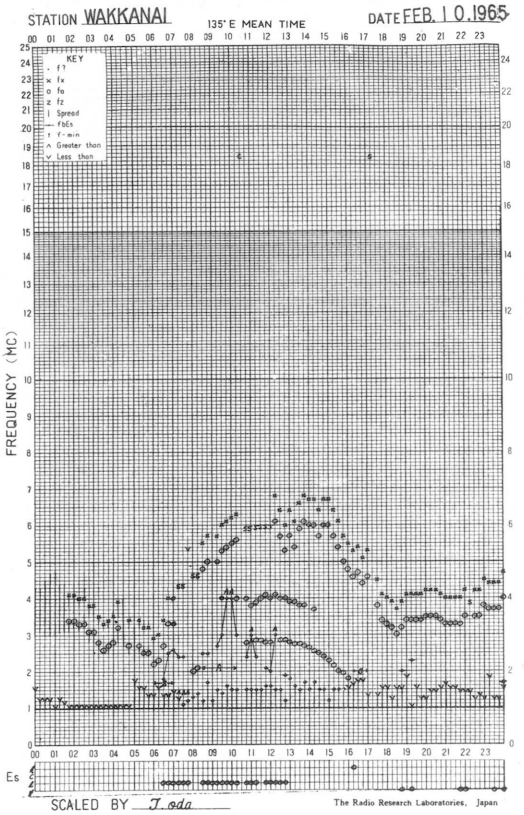


SCALED BY S. Ishioma

The Radio Research Laboratories, Japan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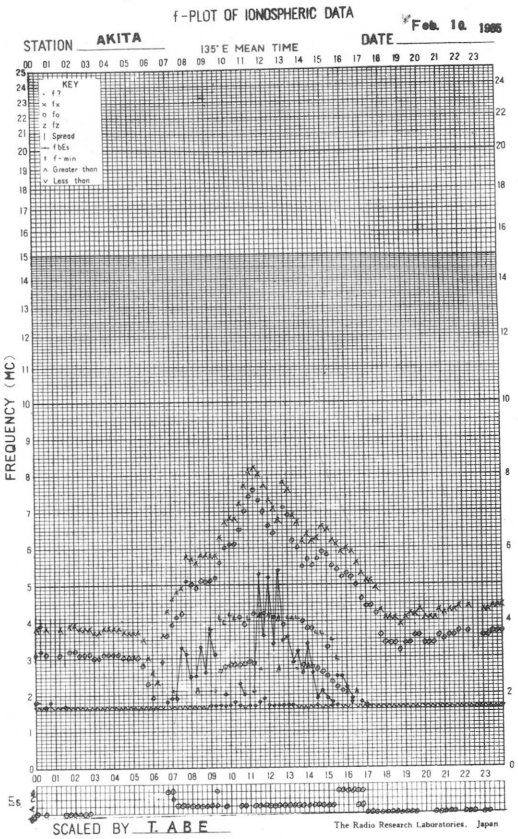
SCALED BY T. oda
The Radio Research Laboratories, Japan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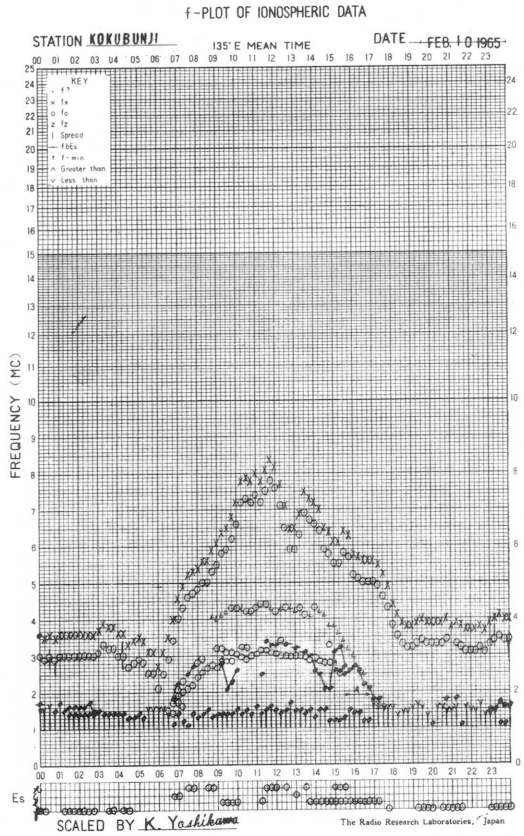
The Radio Research Laboratories, Japan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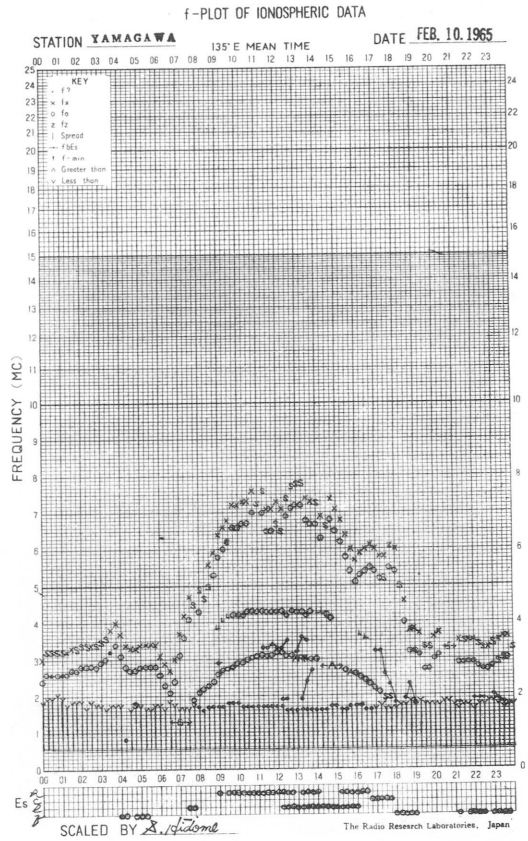
The Radio Research Laboratories, Japan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The Radio Research Laboratories, Japan

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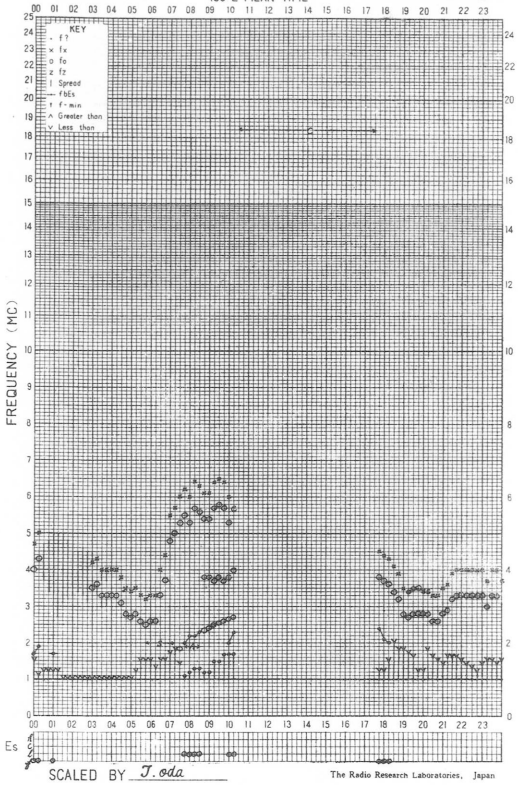

SCALED BY T. oda

The Radio Research Laboratories, Japan

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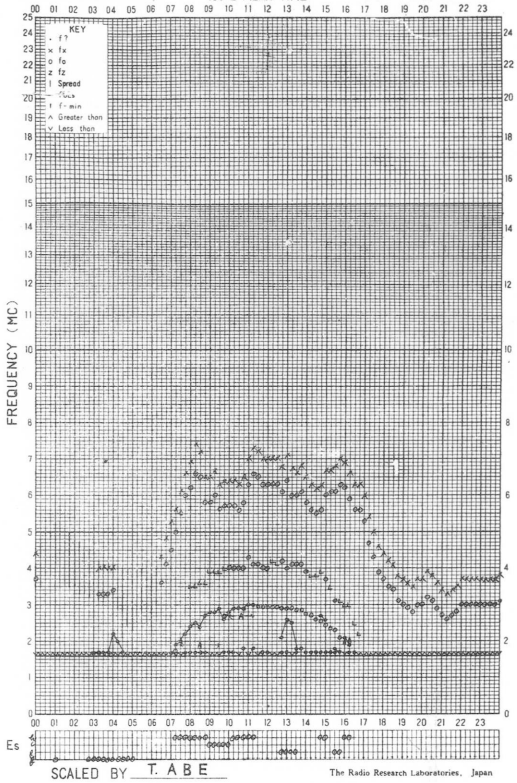

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The Radio Research Laboratories, Japan

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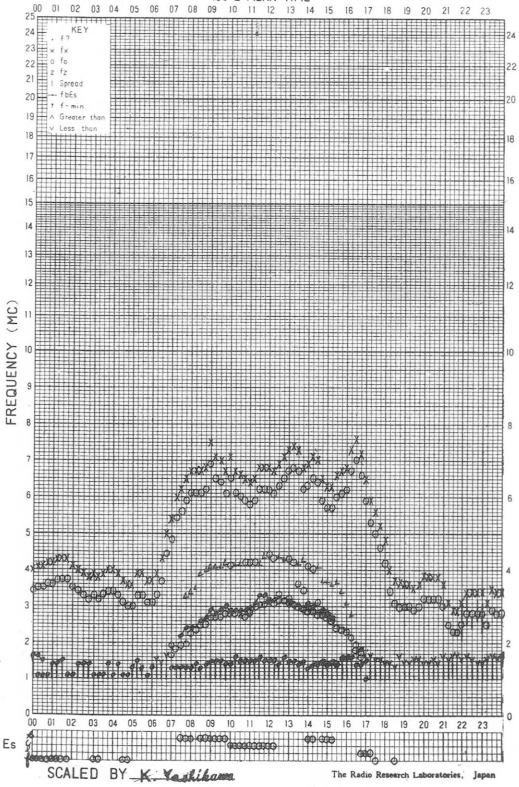

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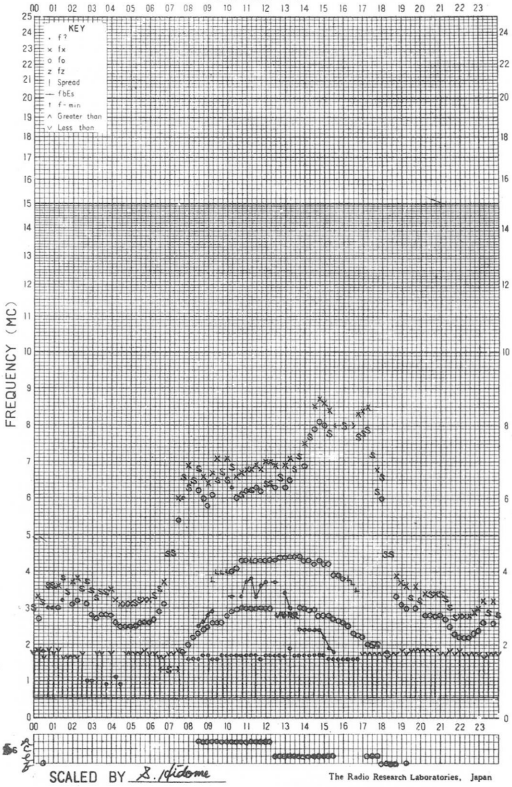

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The Radio Research Laboratories, Japan

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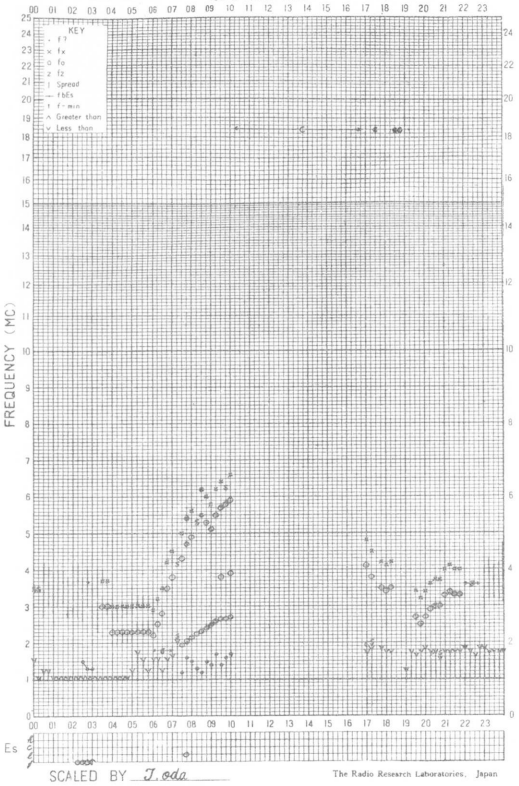

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The Radio Research Laboratories, Japan

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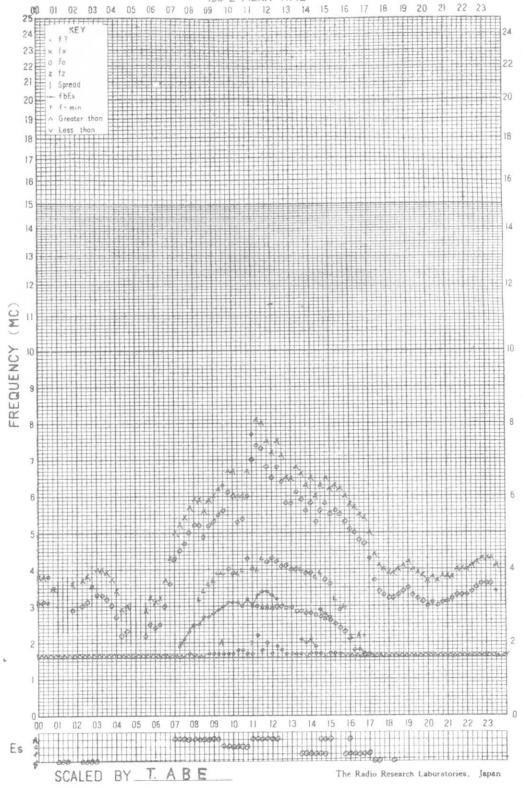

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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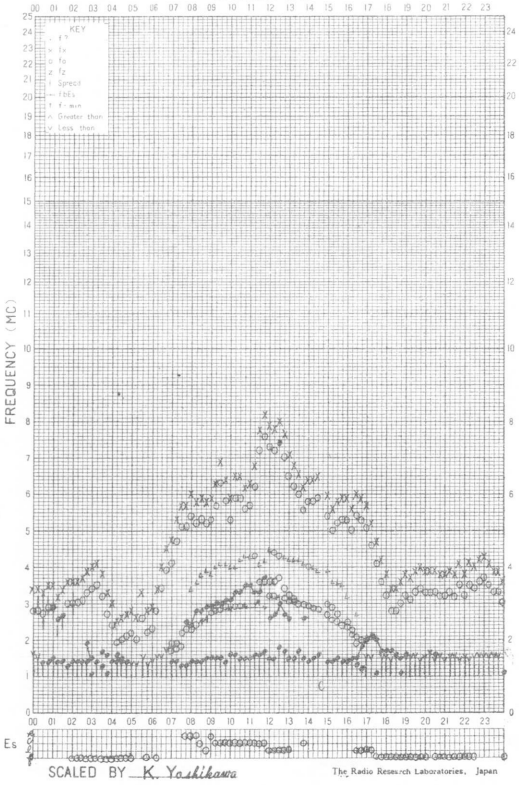

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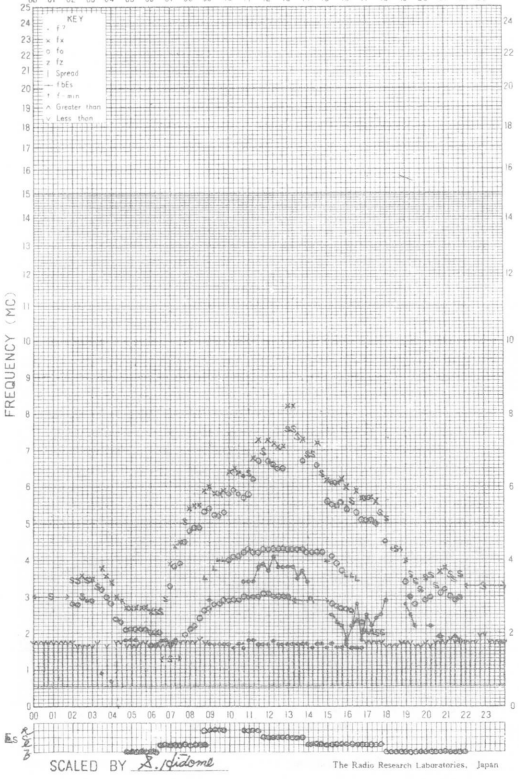

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The Radio Research Laboratories, Japan

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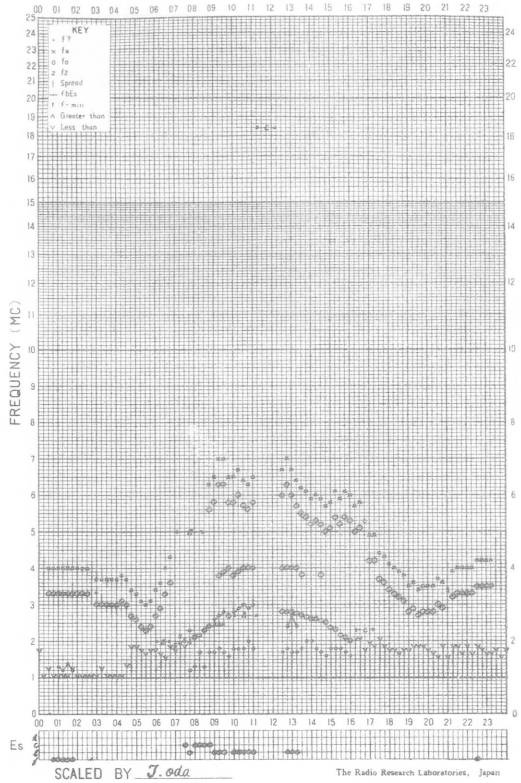

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The Radio Research Laboratories, Japan

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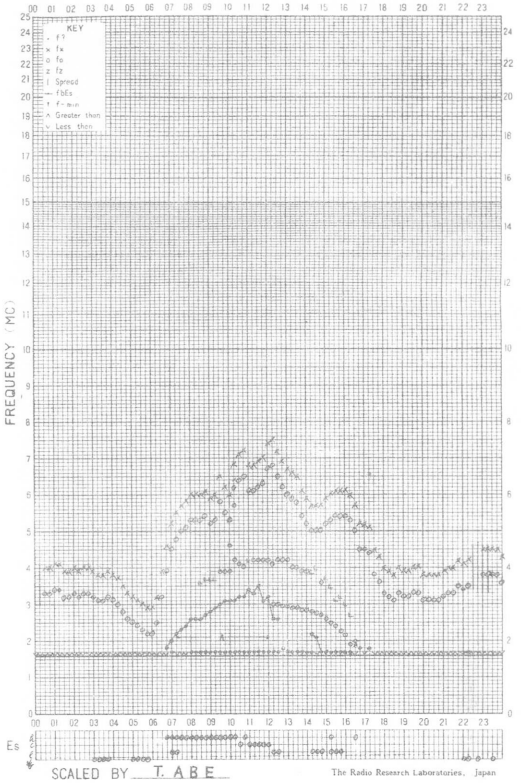

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The Radio Research Laboratories, Japan

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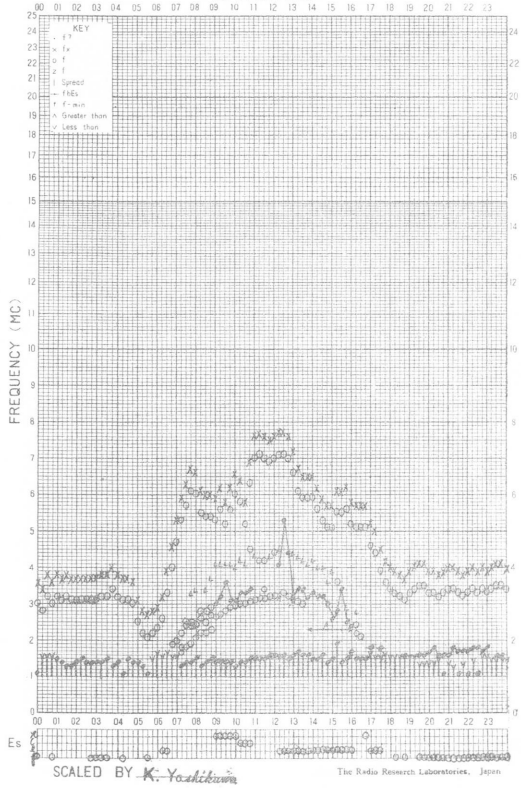

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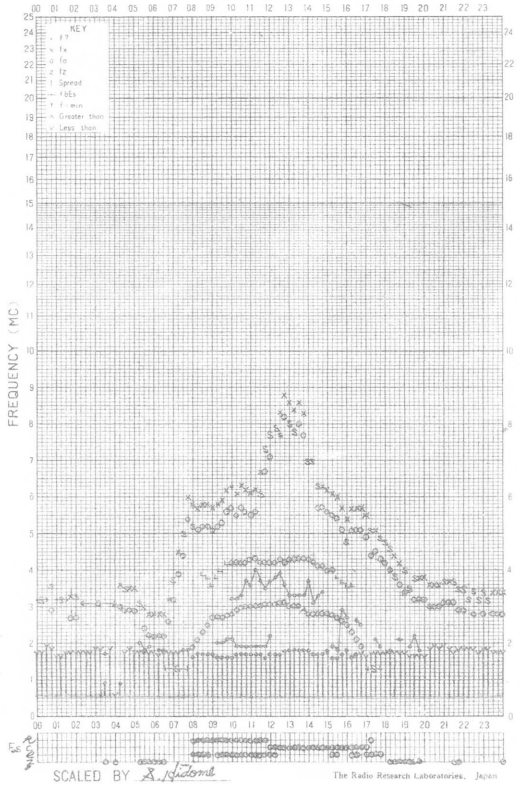

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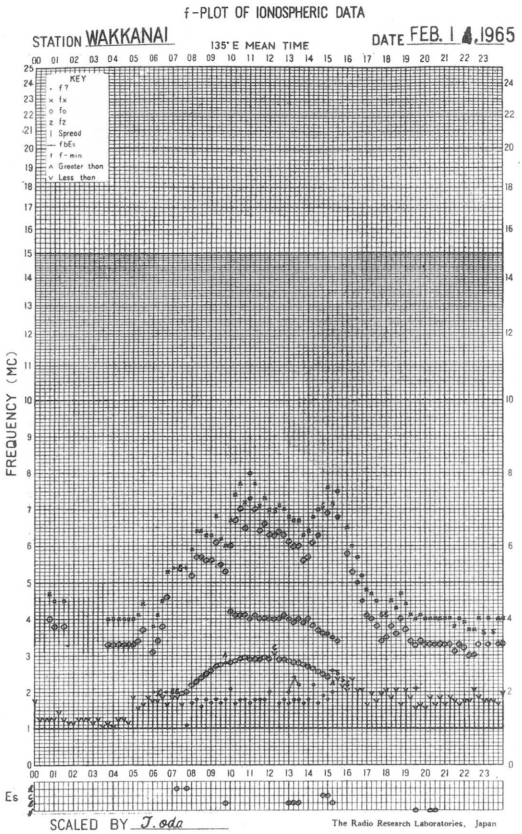
The Radio Research Laboratories, Japan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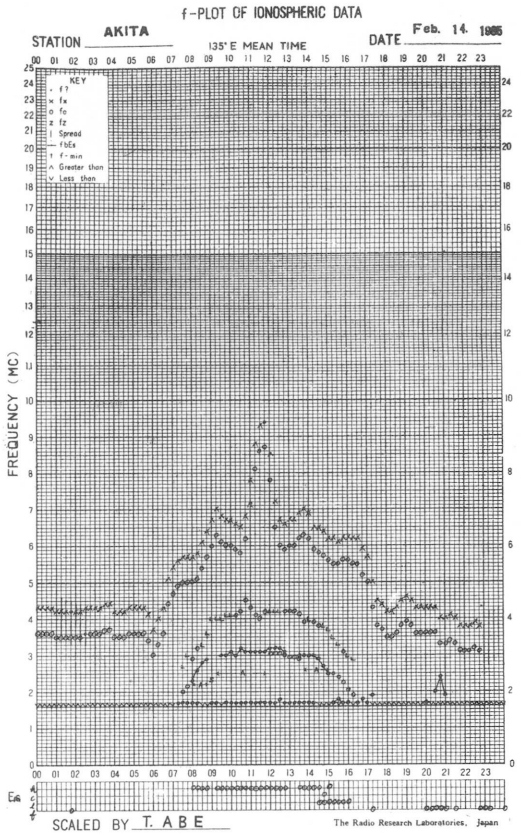
The Radio Research Laboratories, Japan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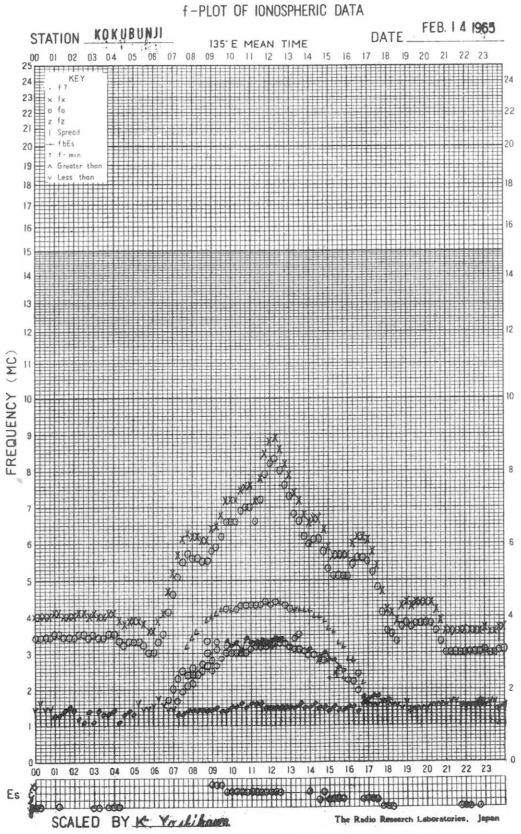
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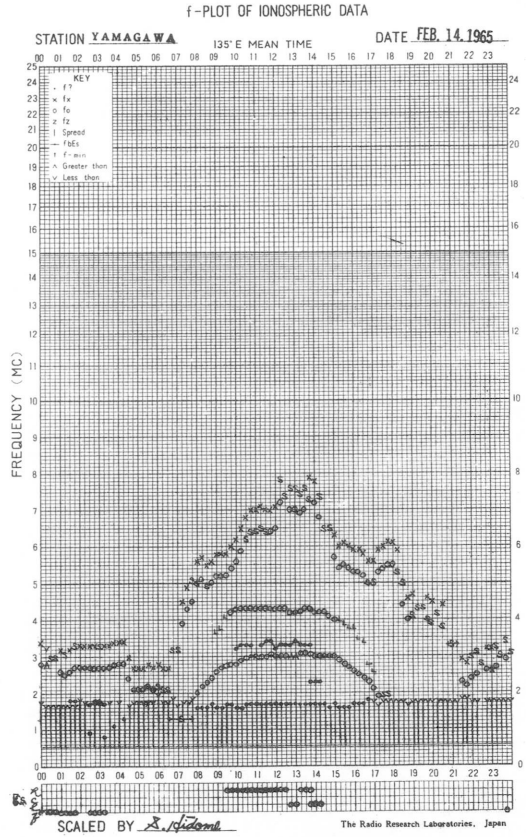
The Radio Research Laboratories, Japan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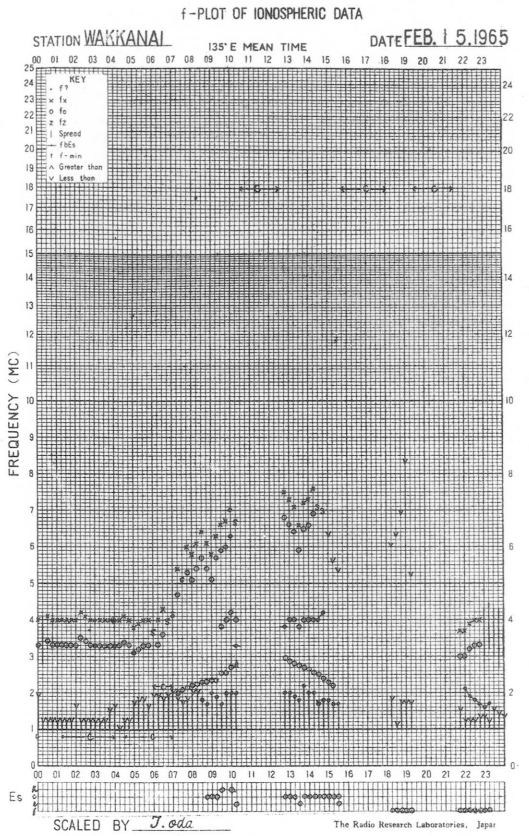
The Radio Research Laboratories, Japan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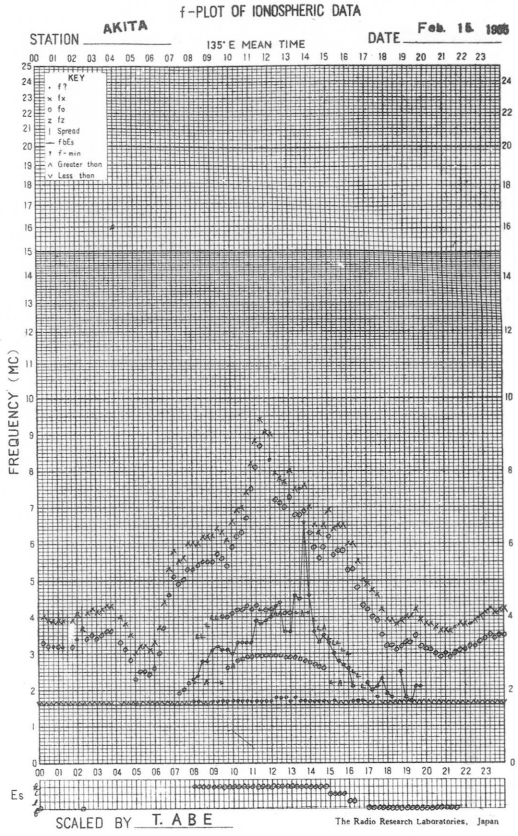
SCALED BY J. oda
The Radio Research Laboratories, Japan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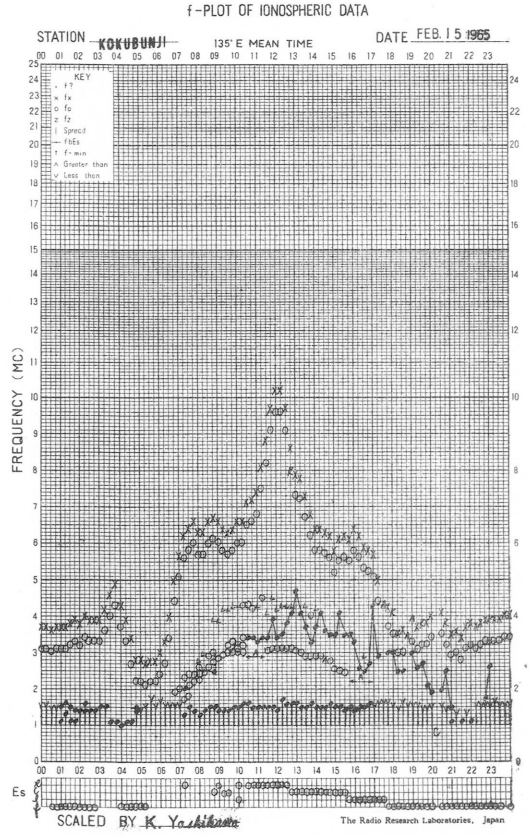
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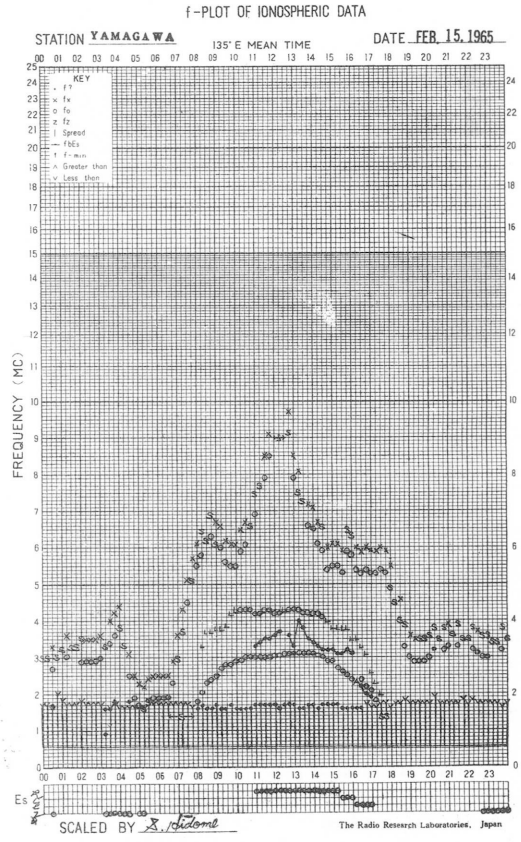
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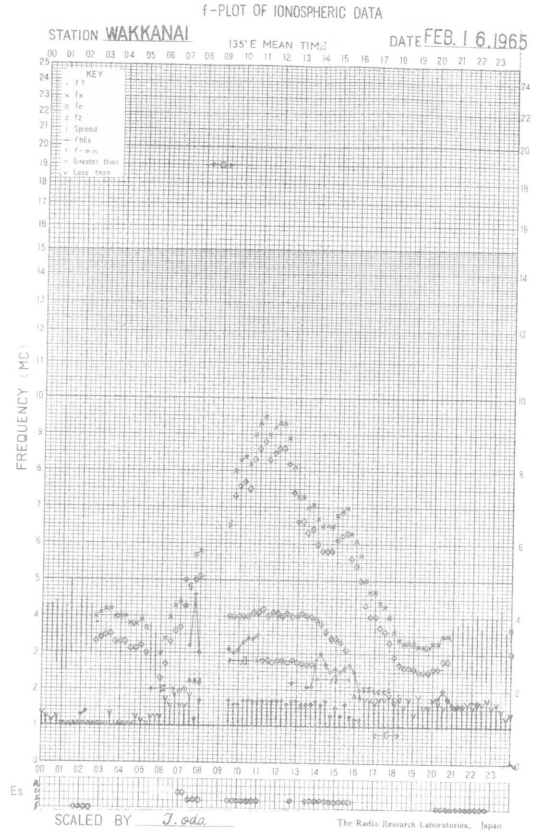
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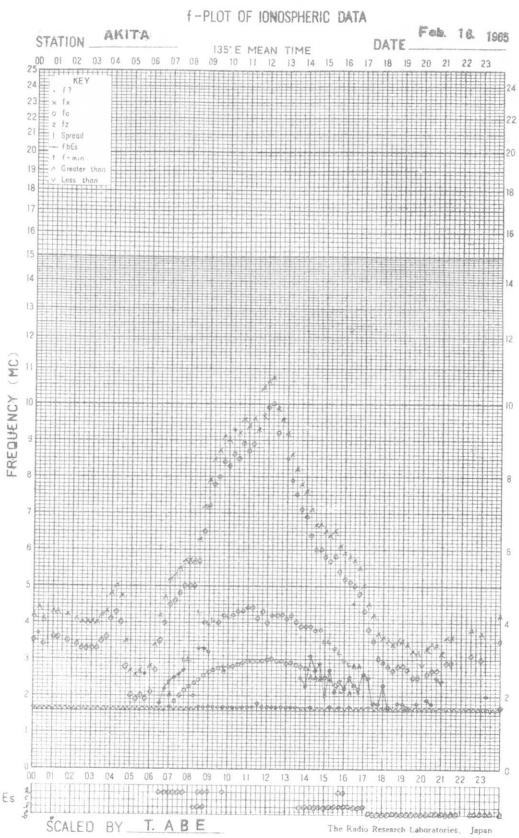
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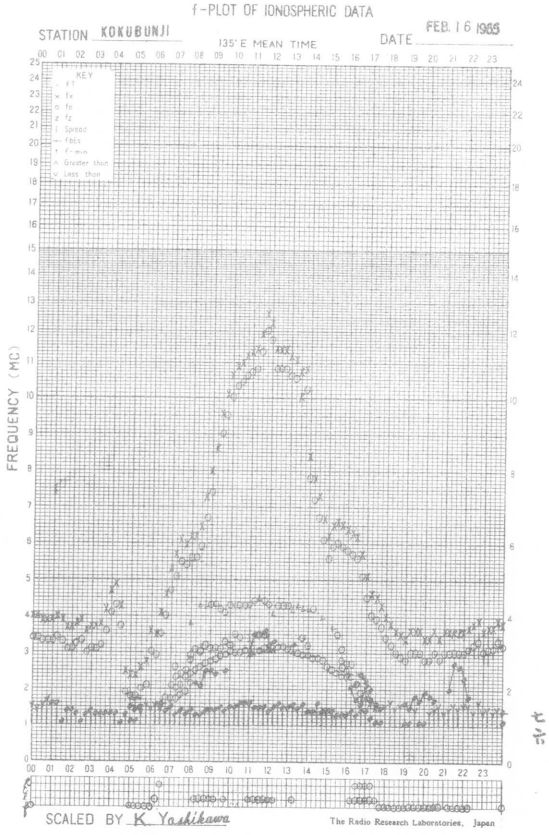
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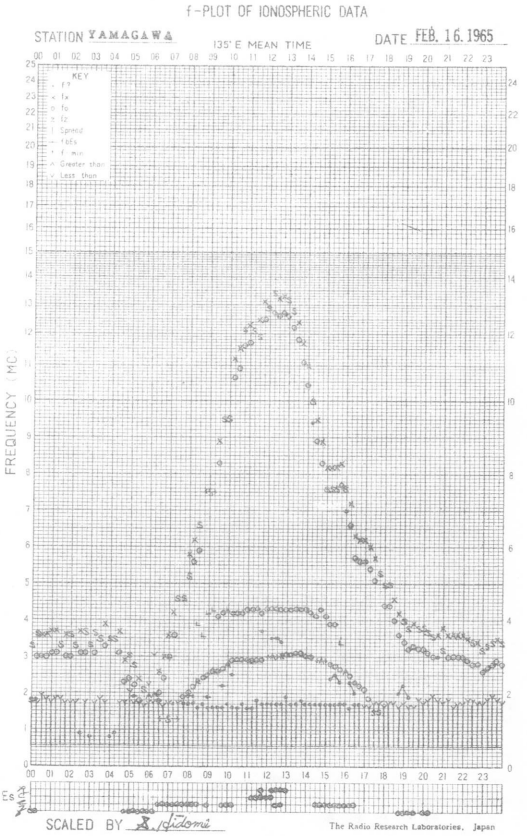
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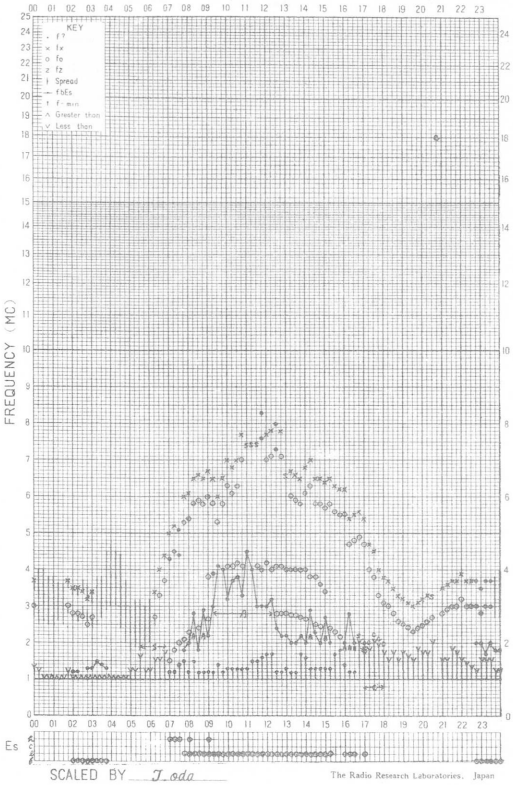

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The Radio Research Laboratories, Japan

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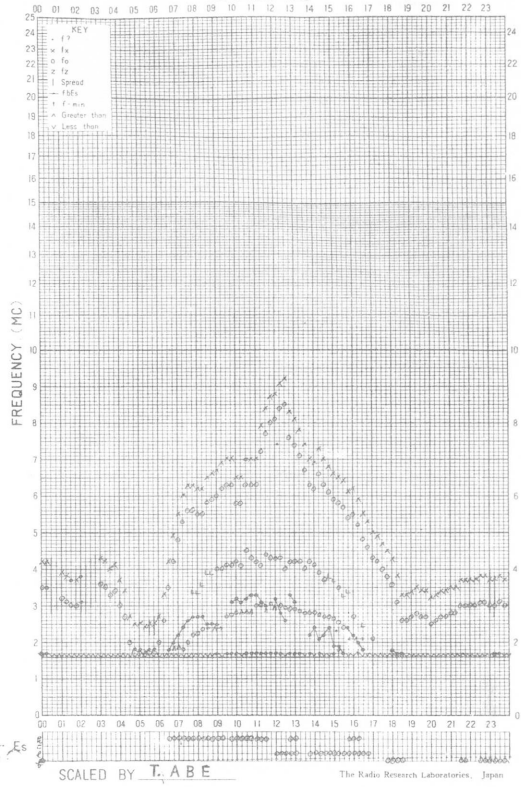

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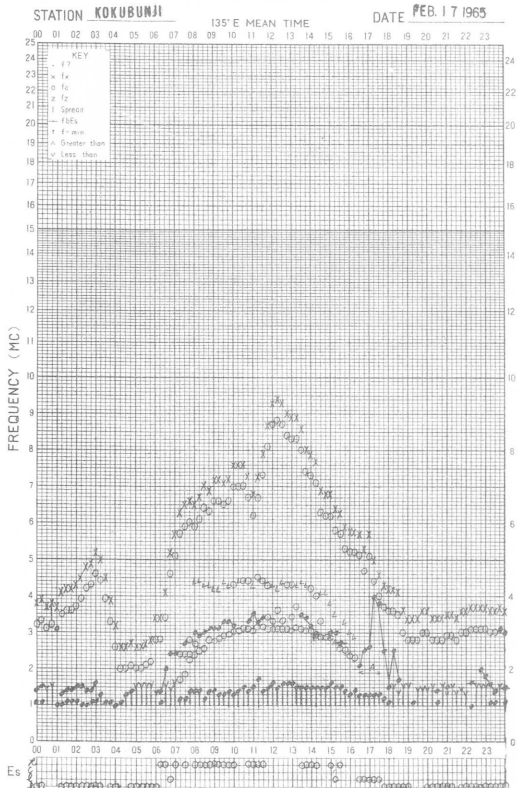

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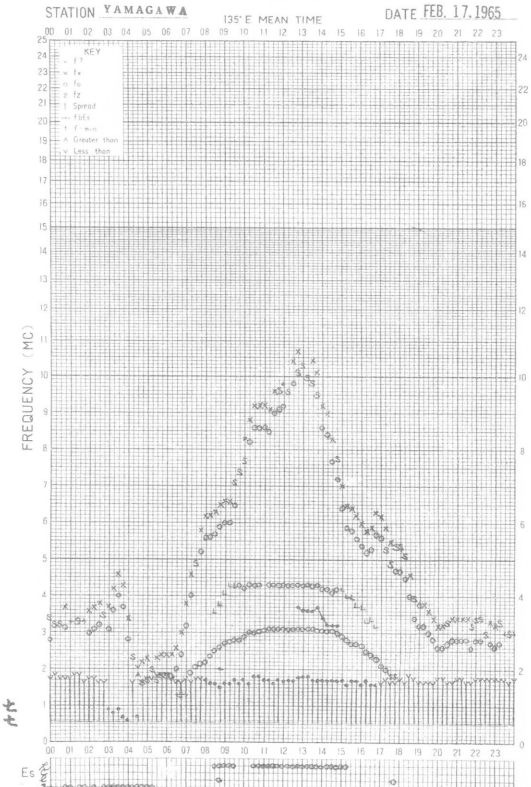

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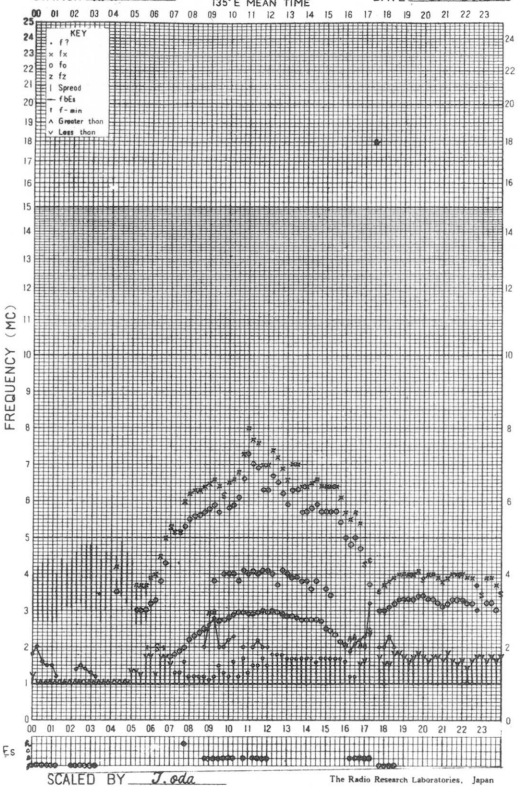

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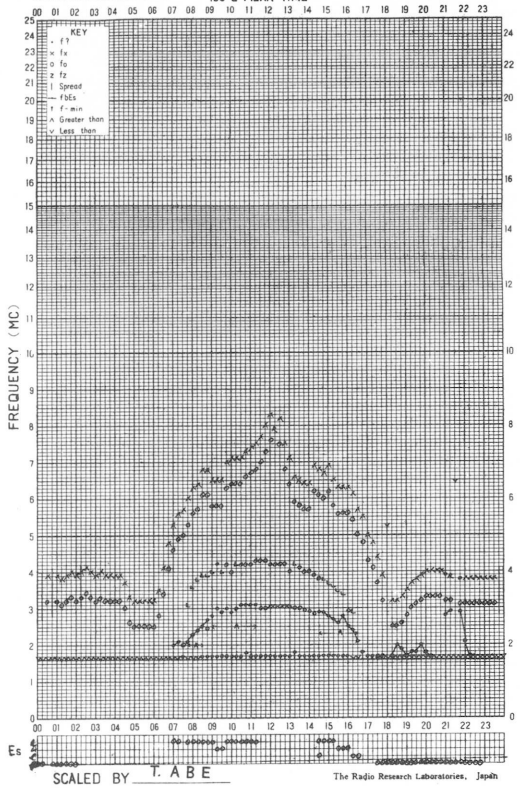

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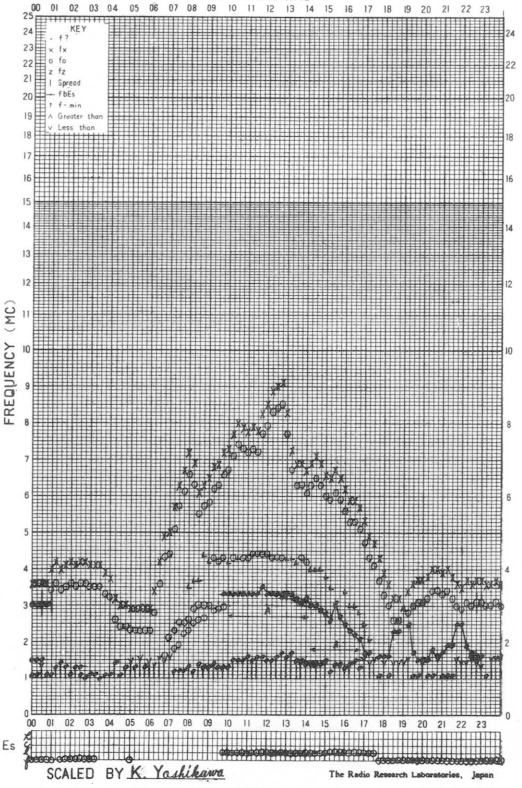
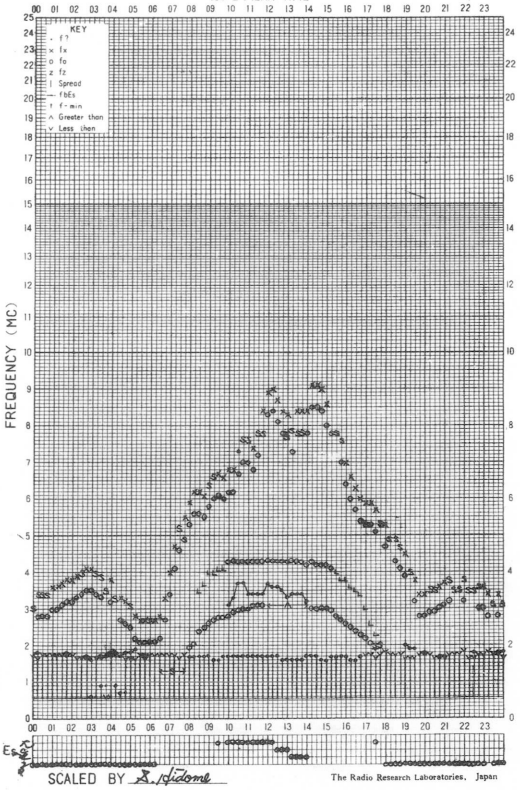
STATION KOKUBUNJI 135°E MEAN TIME DATE FEB. 18 1965



SCALED BY K. Yoshikawa The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE FEB. 18. 1965



SCALED BY A. Hidomi The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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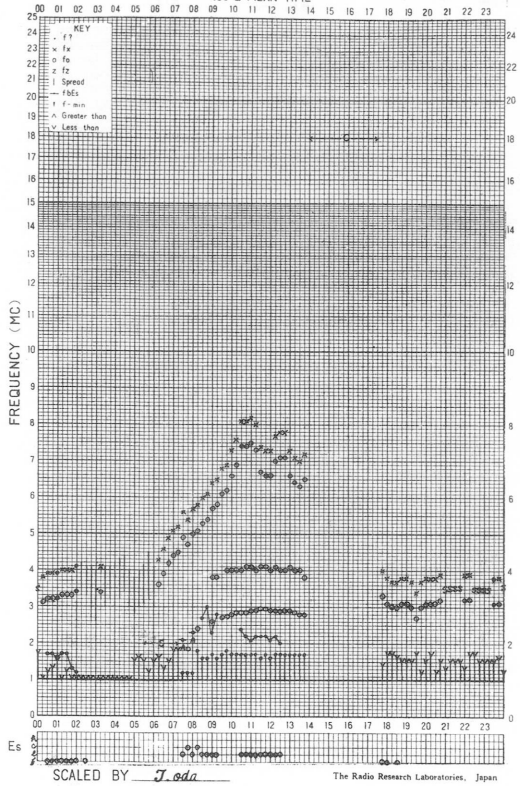

SCALED BY J. Oda The Radio Research Laboratories, Japan

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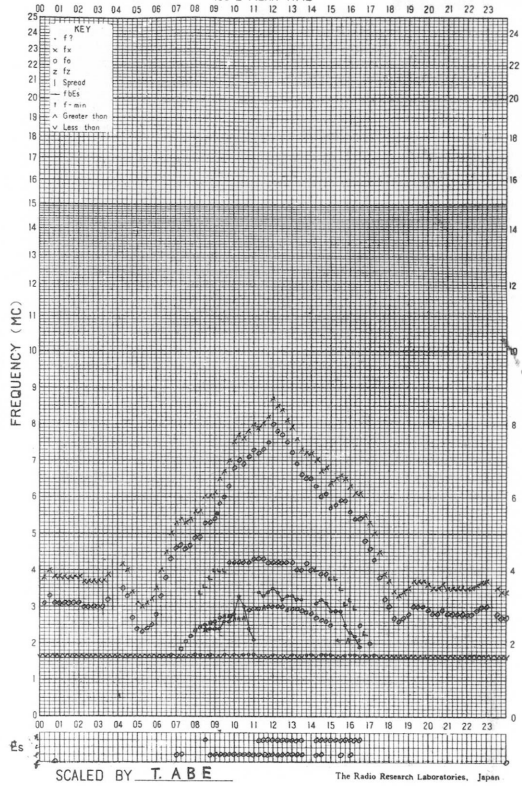

SCALED BY T. ABE The Radio Research Laboratories, Japan

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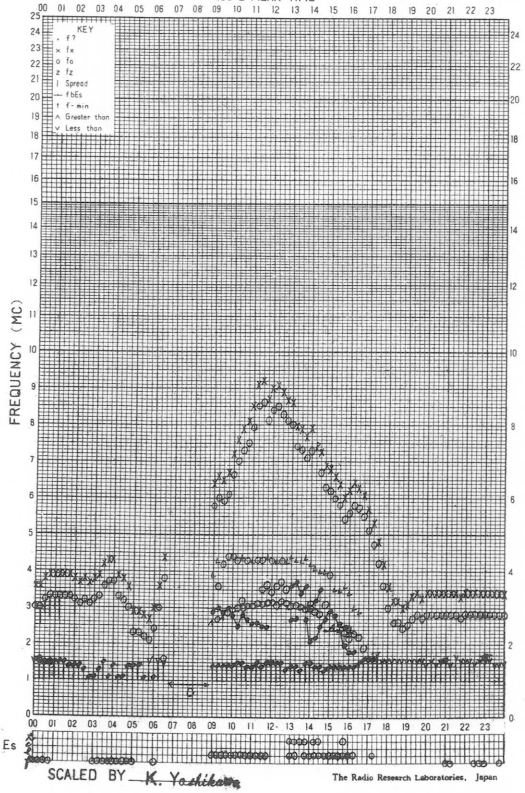

SCALED BY K. Yoshikawa The Radio Research Laboratories, Japan

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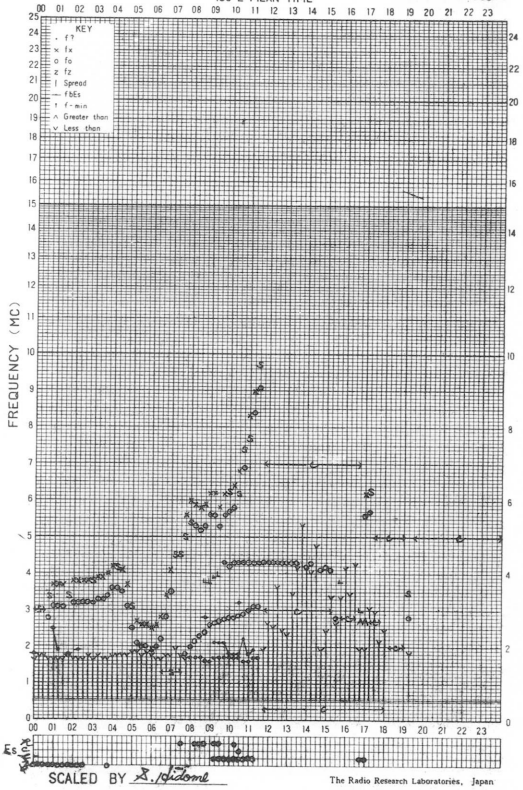
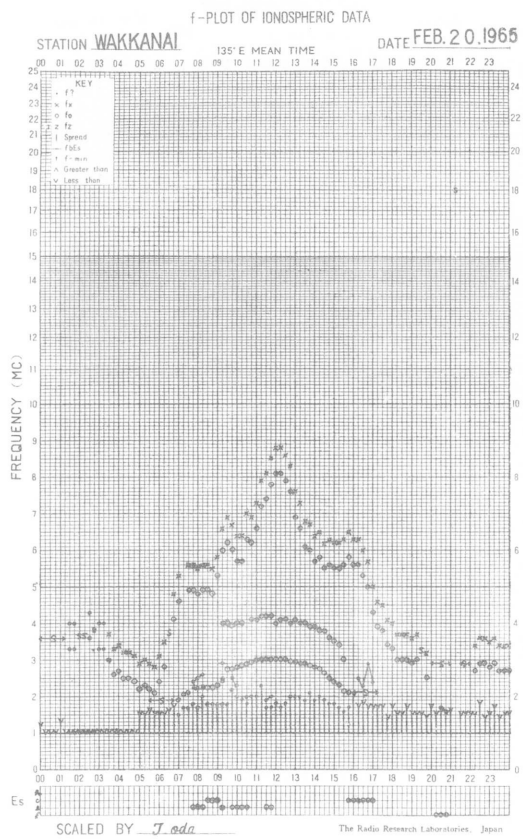


SCALED BY A. Shiomi The Radio Research Laboratories, Japan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STATION WAKKANAI
135° E MEAN TIME
DATE FEB. 20. 1965
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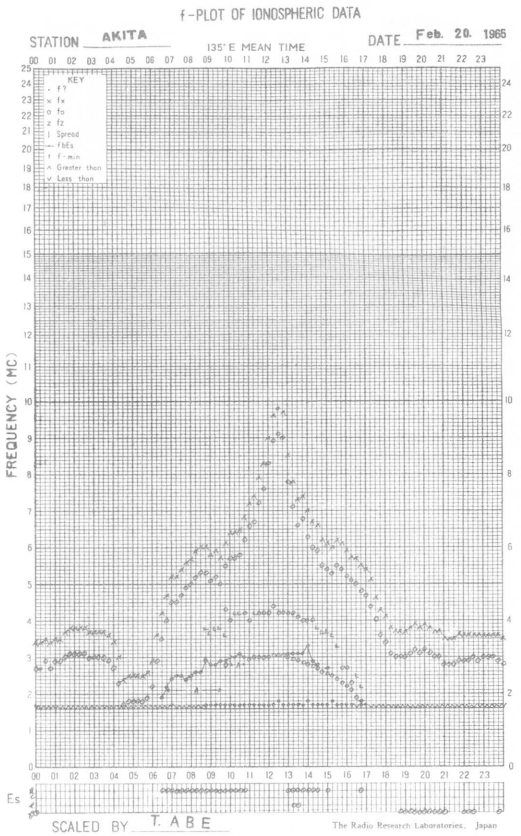
Greater than
Less than
FREQUENCY (MC)
Es
SCALED BY T. Oda
The Radio Research Laboratories, Japan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135° E MEAN TIME
DATE Feb. 20. 1965
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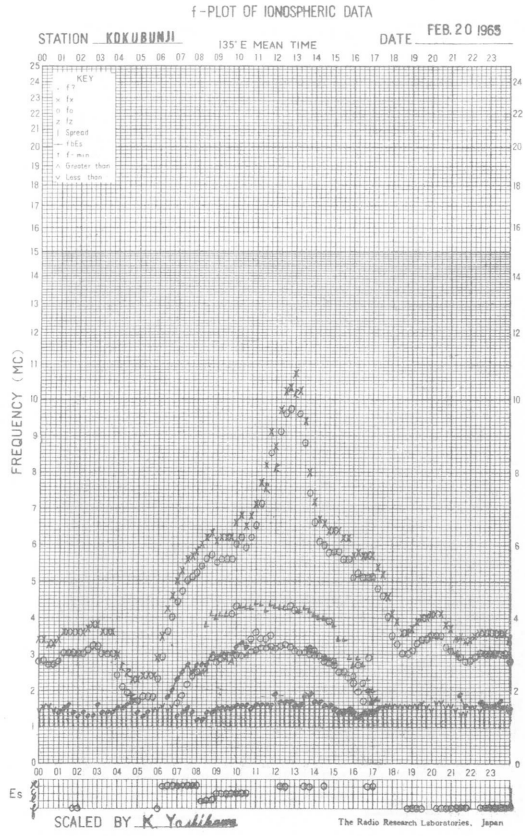
SCALED BY T. ABE
The Radio Research Laboratories, Japan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FREQUENCY (MC)
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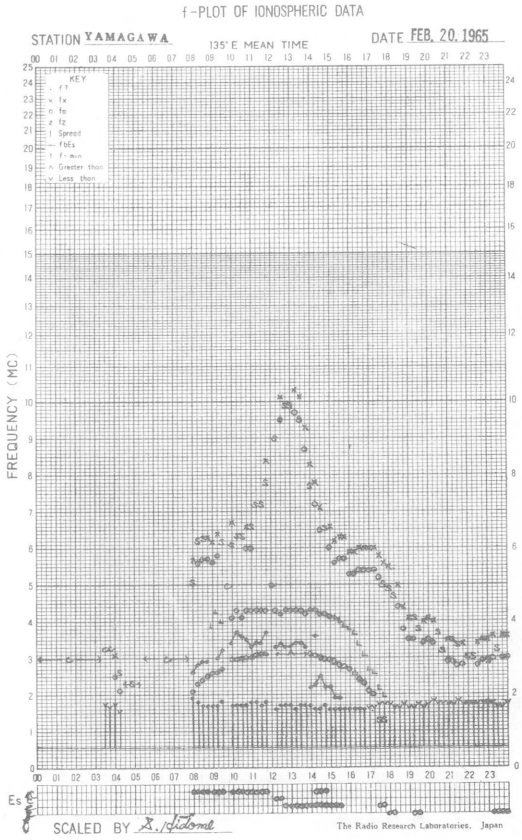
SCALED BY K. Yoshikawa
The Radio Research Laboratories, Japan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DATE FEB. 20, 1965
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FREQUENCY (MC)
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SCALED BY S. Sidomi
The Radio Research Laboratories, Japan

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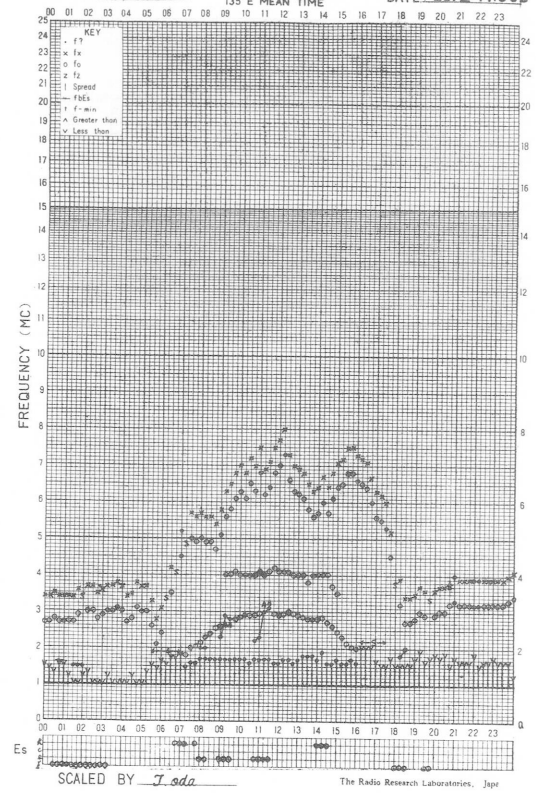
STATION WAKKANAI 135° E MEAN TIME DATE FEB. 2 1. 1965



SCALED BY T. Oda

The Radio Research Laboratories, Japan

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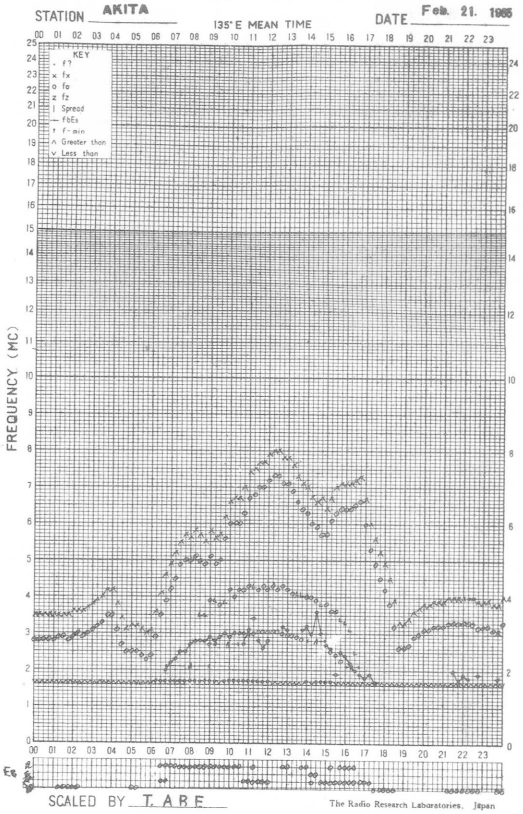

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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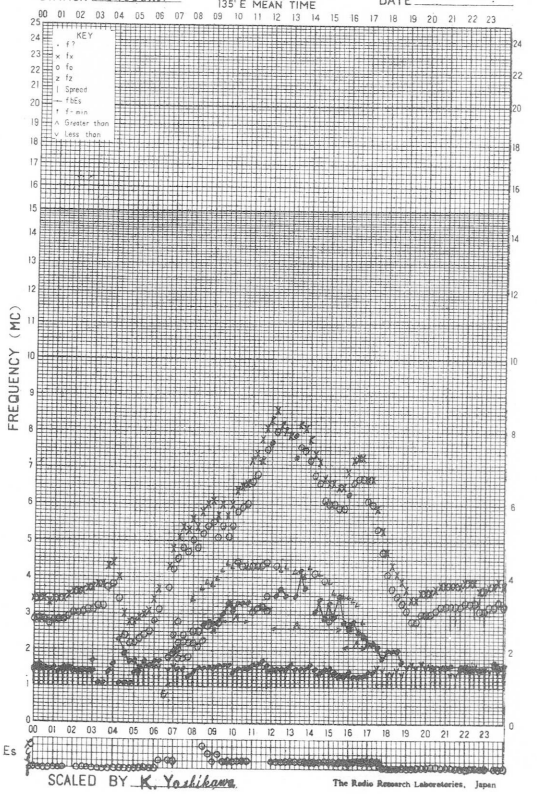

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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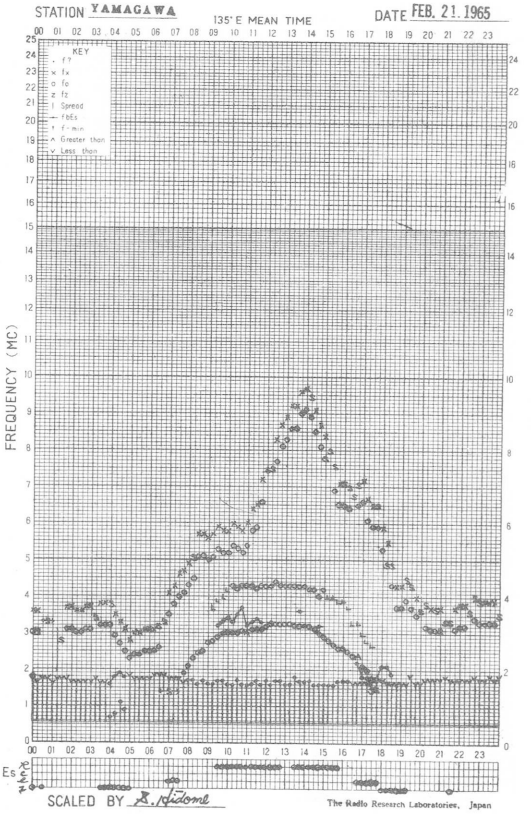

SCALED BY K. Shitomi

The Radio Research Laboratories, Japan

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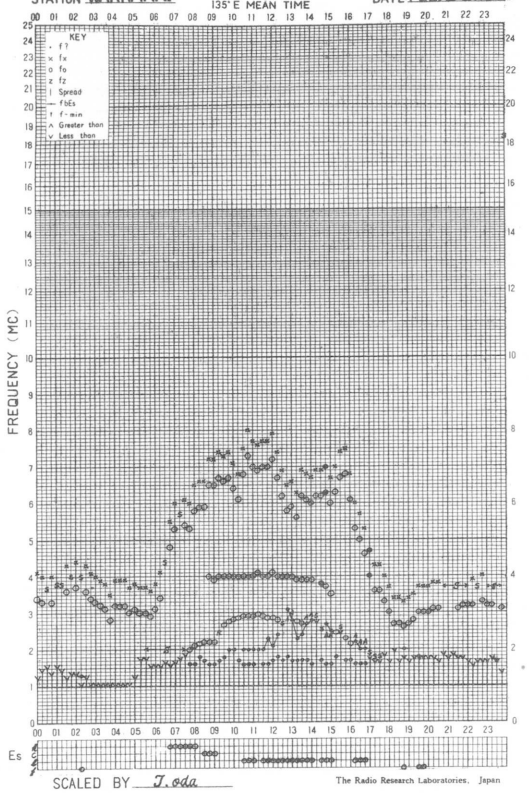

SCALED BY T. oda

The Radio Research Laboratories, Japan

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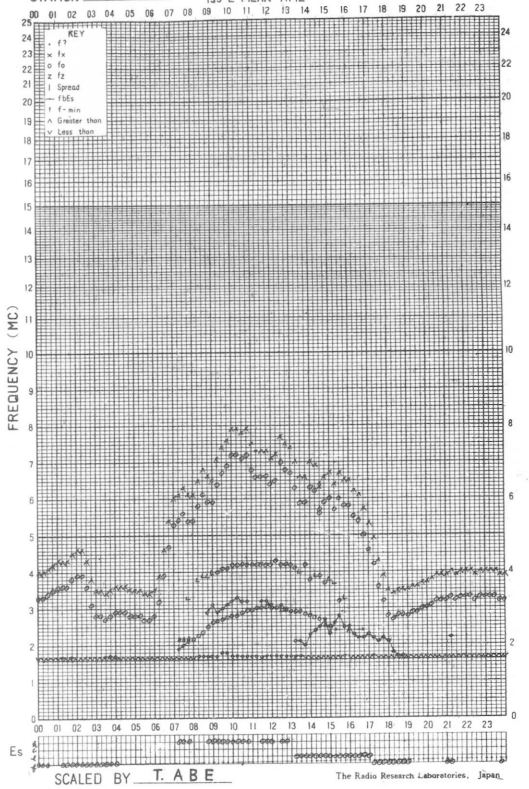

SCALED BY T. A B E

The Radio Research Laboratories, Japan

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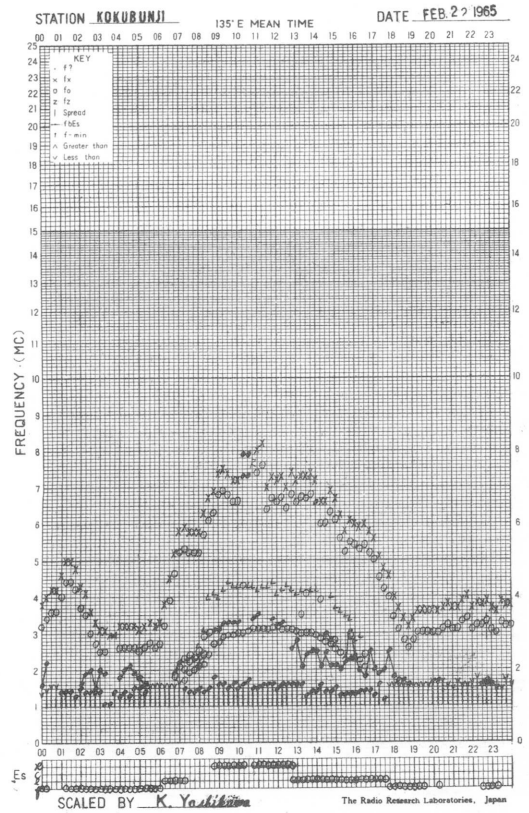

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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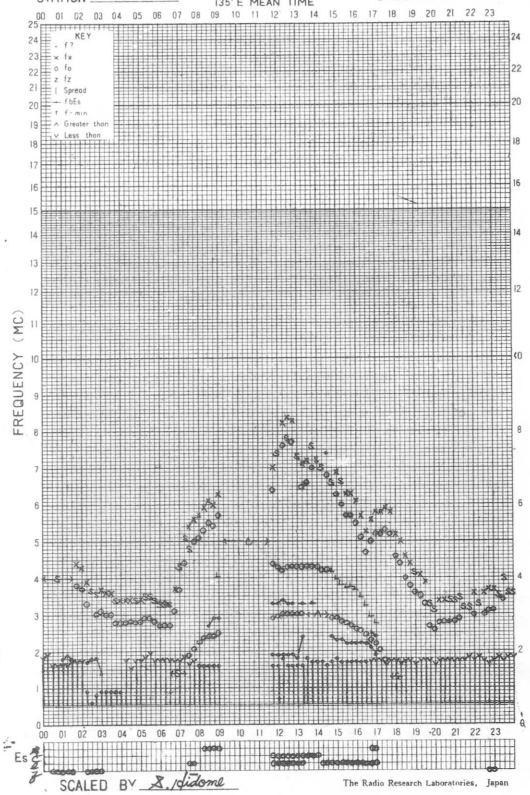

SCALED BY S. Hidomi

The Radio Research Laboratories, Japan

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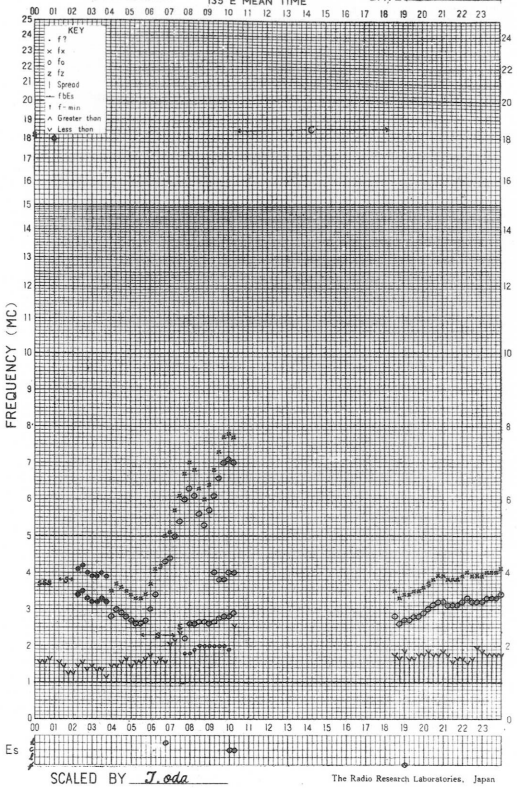

SCALED BY J. oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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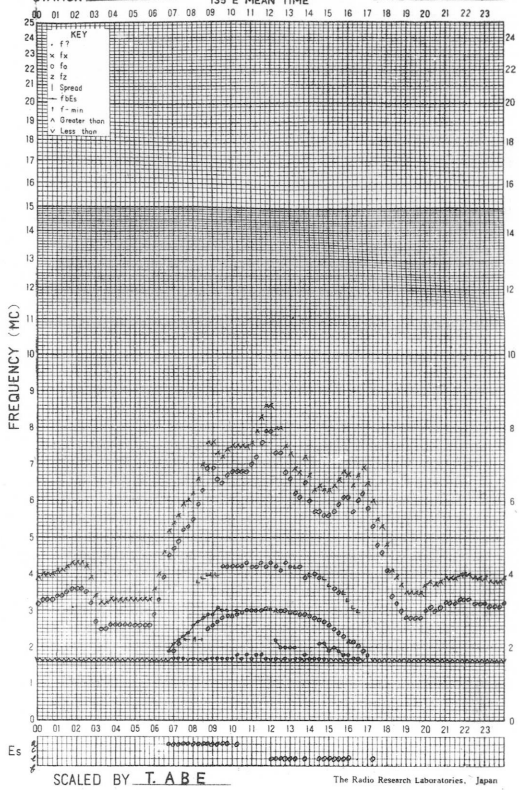

SCALED BY T. A B E

The Radio Research Laboratories, Japan

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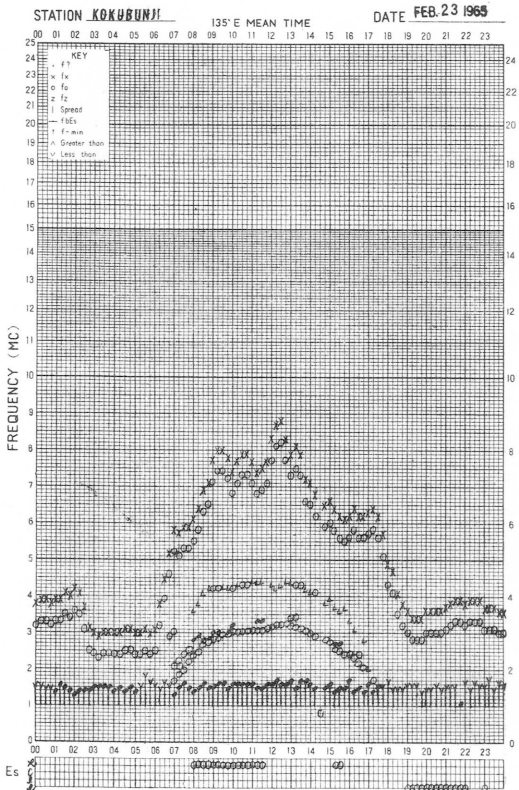

SCALED BY K. Yashikawa

The Radio Research Laboratories, Japan

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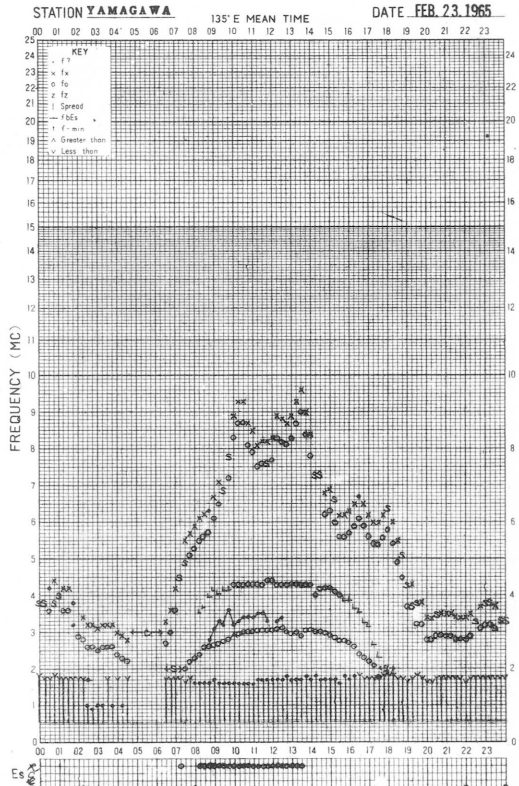

SCALED BY S. Ichidome

The Radio Research Laboratories, Japan

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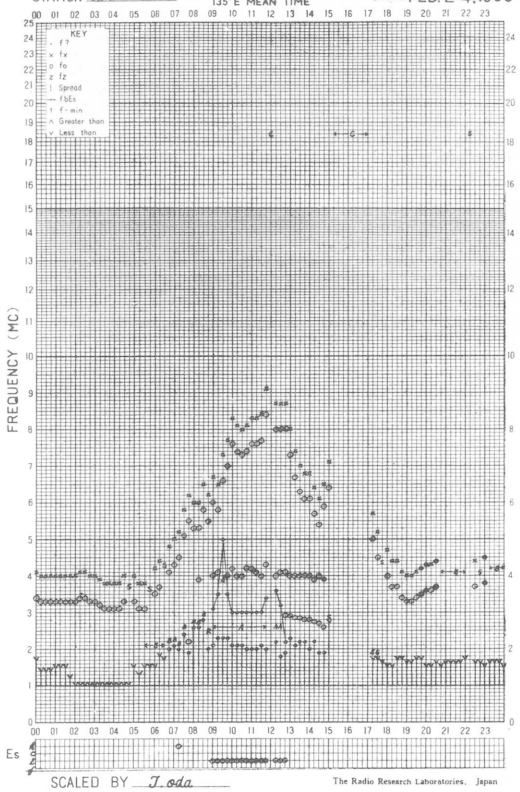

SCALED BY T. oda

The Radio Research Laboratories, Japan

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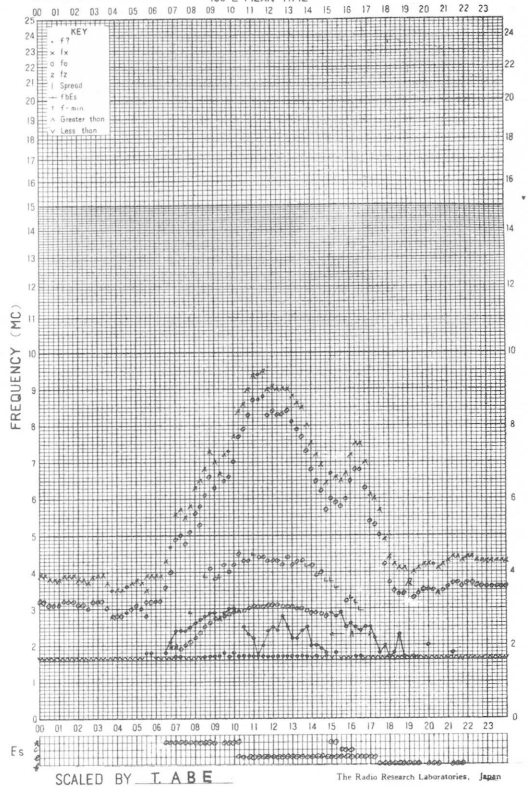

SCALED BY T. A B E

The Radio Research Laboratories, Japan

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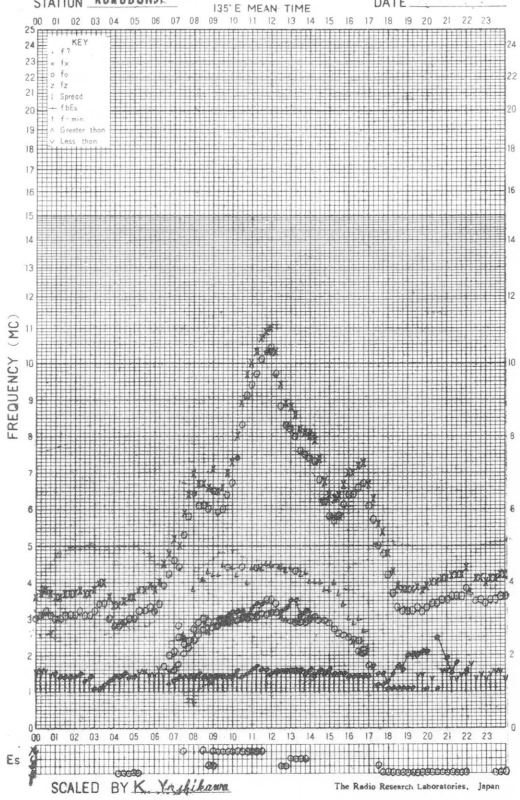

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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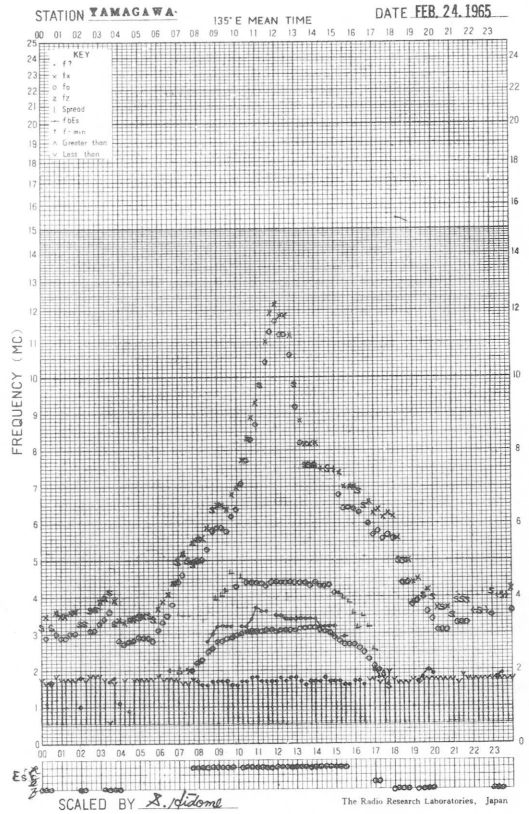

SCALED BY S. Odome

The Radio Research Laboratories, Japan

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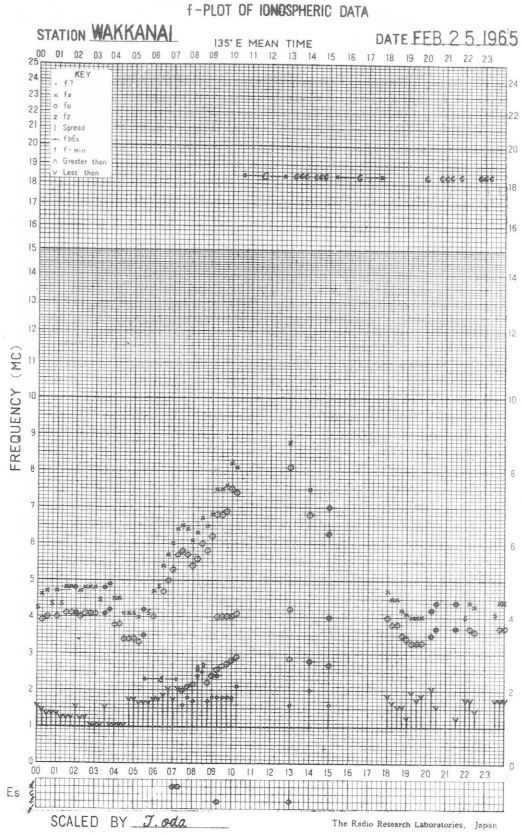

SCALED BY T. oda

The Radio Research Laboratories, Japan

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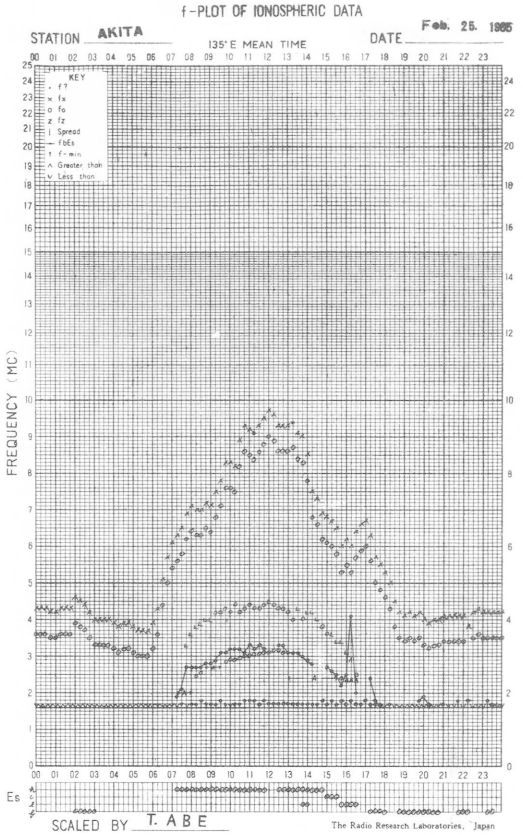

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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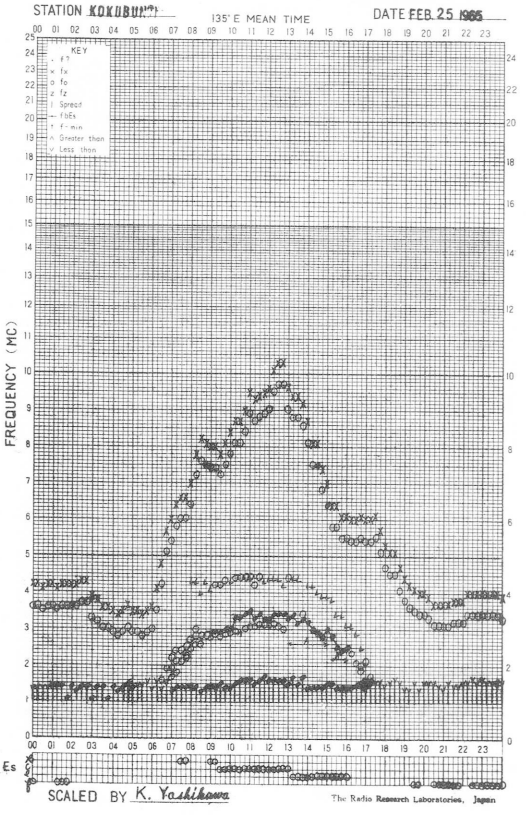

SCALED BY K. Yashikawa

The Radio Research Laboratories, Japan

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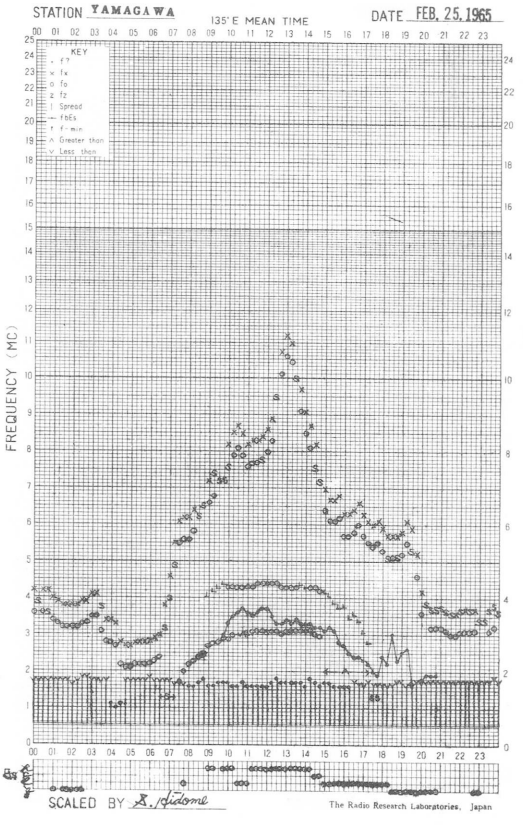

SCALED BY A. Ichimi

The Radio Research Laboratories, Japan

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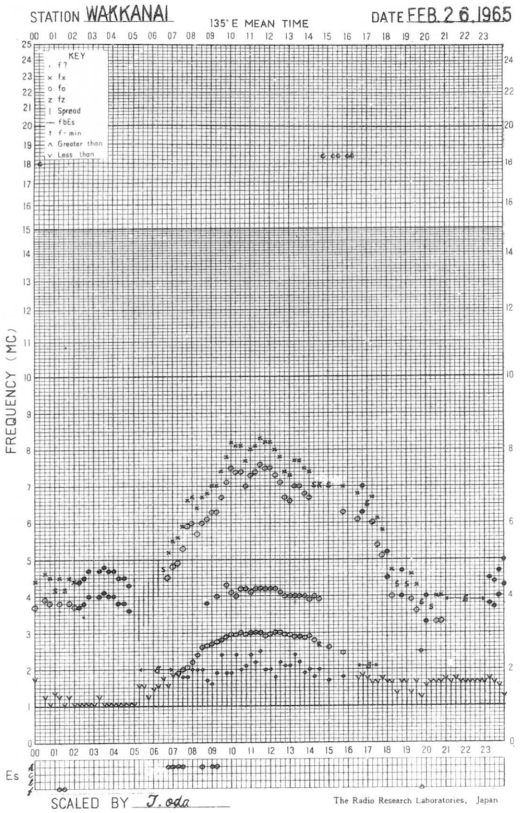

SCALED BY T. Oda

The Radio Research Laboratories, Japan

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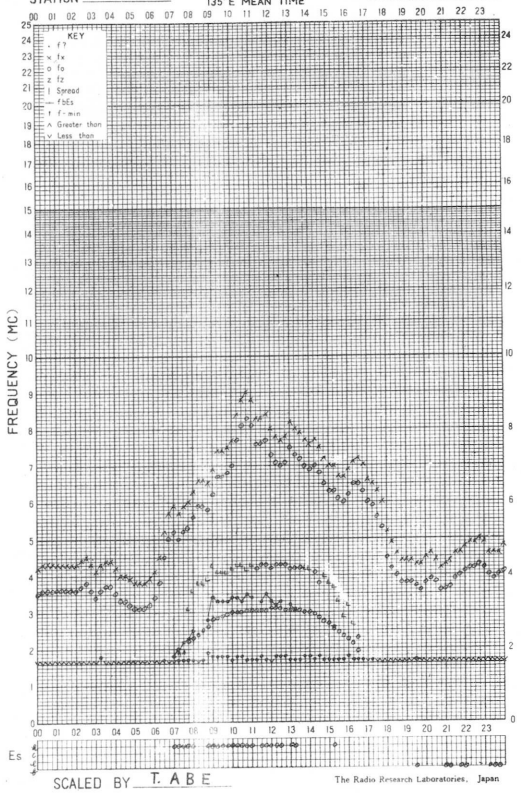

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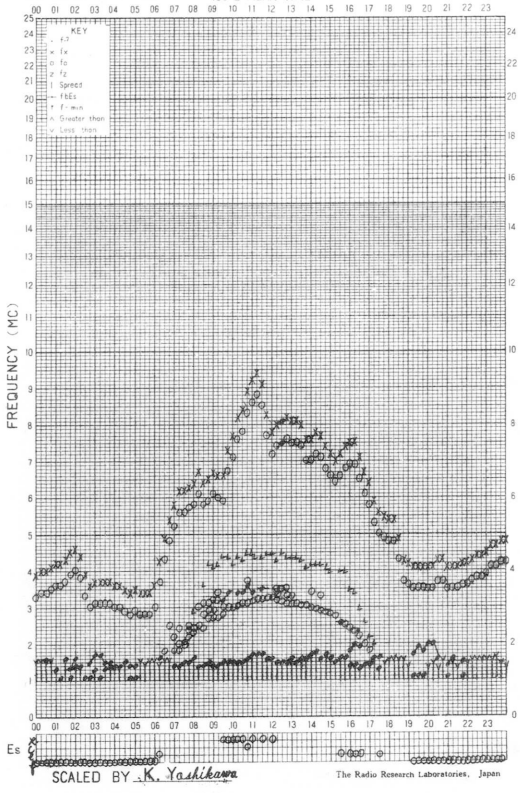

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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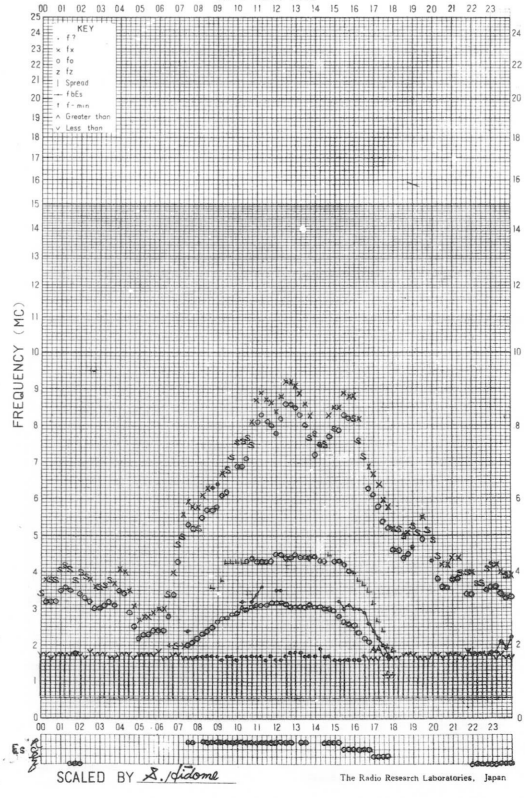

SCALED BY S. Sidome

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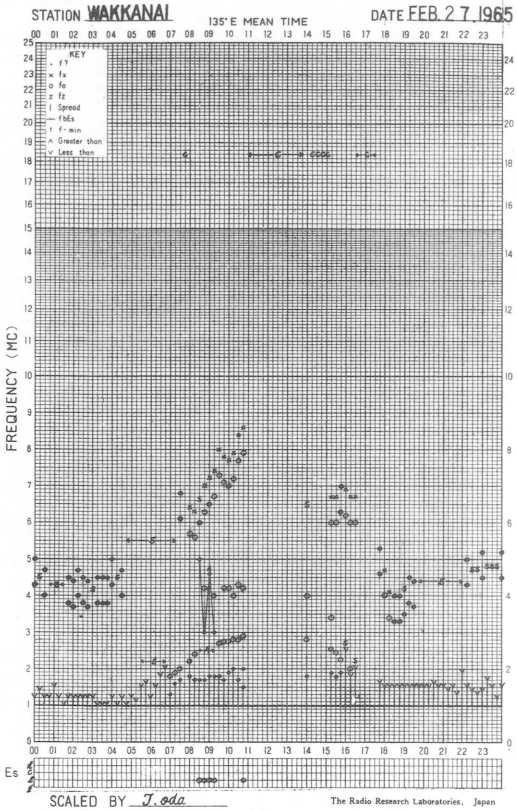

SCALED BY T. Oda

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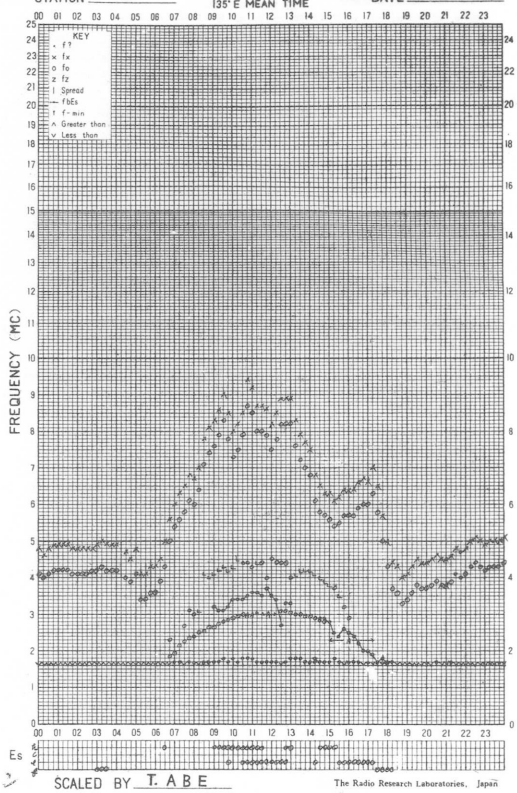

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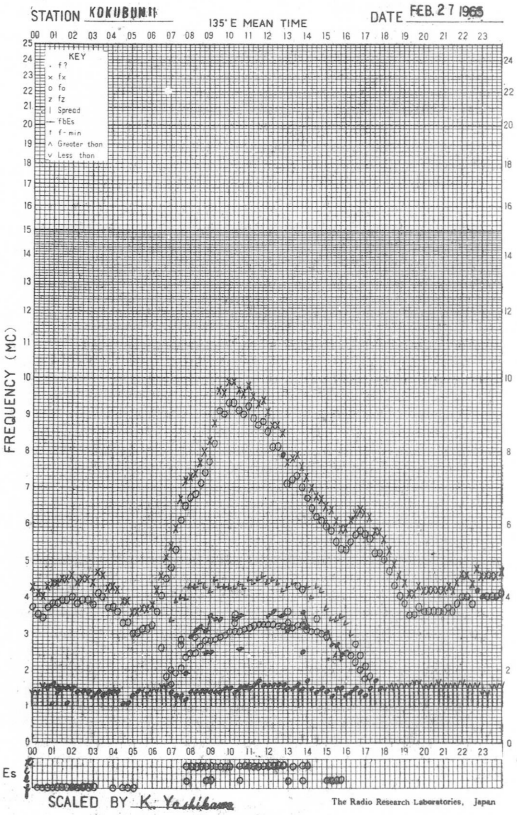

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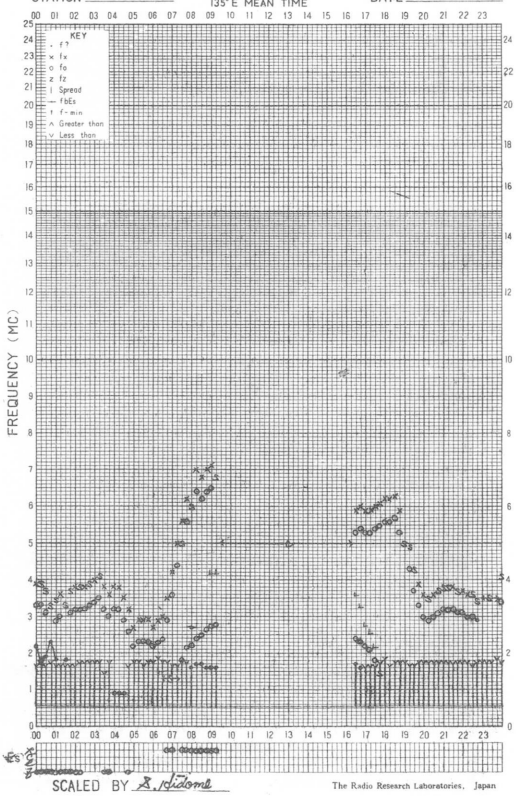

SCALED BY S. Shibomi

The Radio Research Laboratories, Japan

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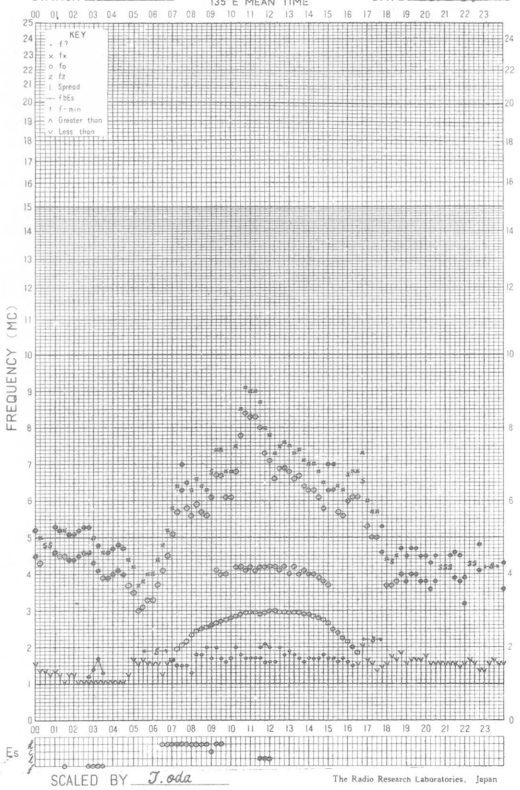

SCALED BY J. oda

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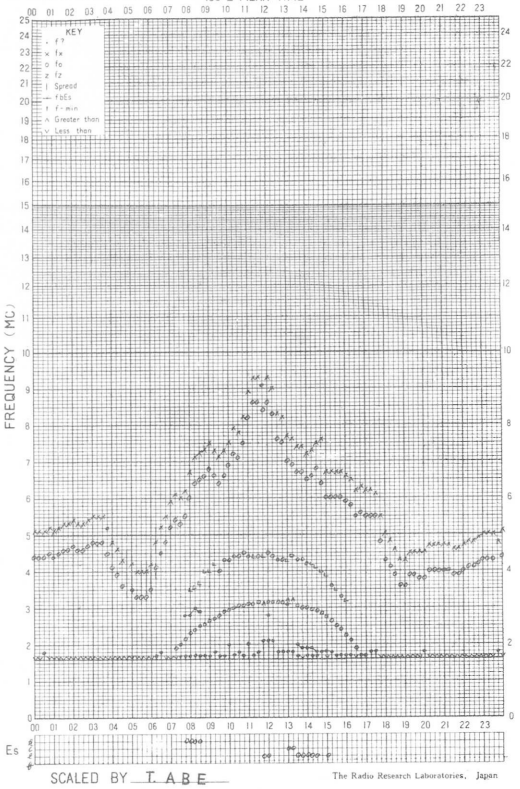

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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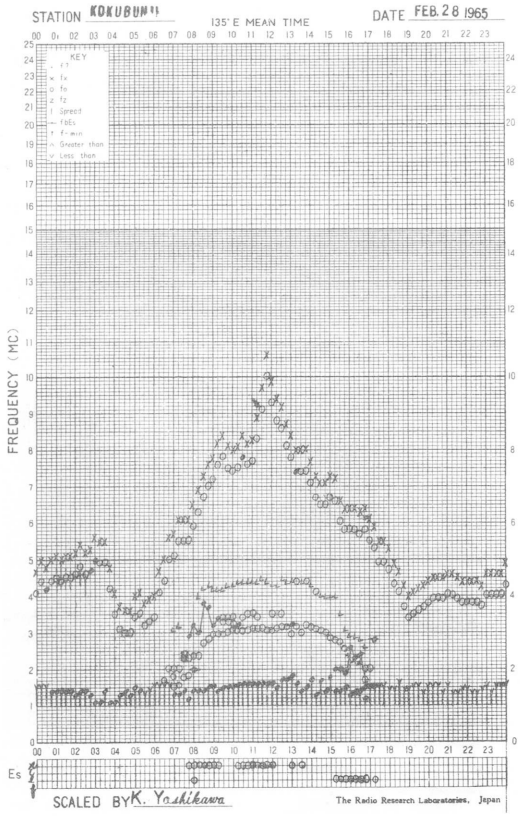

SCALED BY K. Yoshikawa

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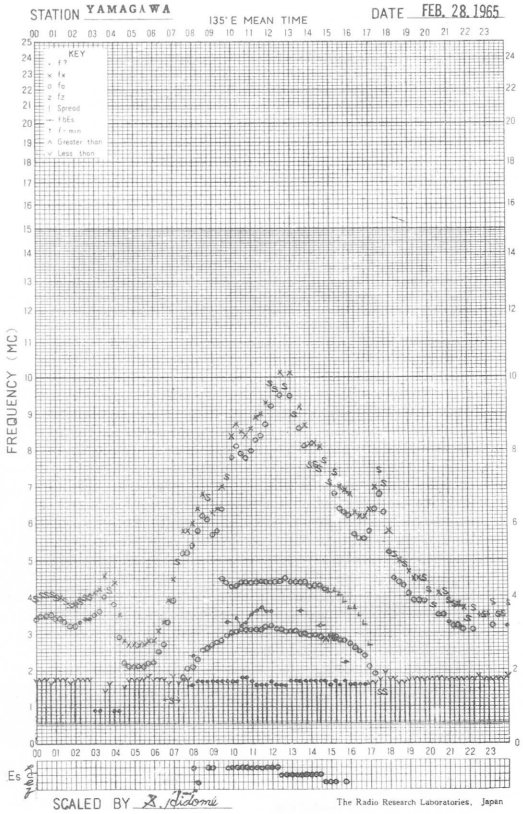

SCALED BY S. Kitami

The Radio Research Laboratories, Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: February 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	7	7	(7)	(7)	7	0	0	(0)	(0)	0
2	7	7	(7)	-	7	0	0	(0)	-	0
3	9	9	9	(6)	9	0	0	0	(0)	0
4	7	7	8	(6)	7	0	0	0	(0)	0
5	6	8	(9)	(7)	8	0	0	(0)	(0)	0
6	7	7	-	(7)	7	0	0	-	(0)	0
7	7	8	-	(6)	8	0	0	-	(0)	0
8	7	7	7	(6)	7	0	0	0	(0)	0
9	6	6	7	(6)	7	0	0	0	(0)	0
10	6	7	7	(6)	7	0	0	0	(0)	0
11	(7)	7	6	(6)	7	(0)	0	0	(0)	0
12	6	9	10	(6)	8	0	0	0	(0)	0
13	7	8	7	-	7	0	0	0	-	0
14	-	8	6	-	7	-	0	0	-	0
15	(6)	7	-	(6)	7	(0)	0	-	(0)	0
16	7	7	7	-	7	0	0	0	-	0
17	-	6	(6)	-	6	-	0	(0)	-	0
18	(8)	9	9	-	9	(0)	0	0	-	0
19	(9)	9	9	-	9	(0)	0	0	-	0
20	-	-	-	-	-	-	-	-	-	-
21	6	6	-	(6)	6	0	0	-	(0)	0
22	-	6	-	(7)	(6)	-	0	-	(0)	(0)
23	7	6	-	-	7	0	0	-	-	0
24	7	7	7	(6)	7	0	0	0	(0)	0
25	7	8	-	(6)	7	0	0	-	(0)	0
26	6	7	-	(6)	6	0	0	-	(0)	0
27	7	7	-	-	7	0	0	-	-	0
28	8	7	7	7	7	0	0	0	0	0

Note No observations during the following periods, at 200 Mc/s:

2nd 2120- 3rd 0045
6th 0450- 0820
7th 0700- 0820
11th 0050- 0410
13th 2120- 14th 0110
14th 2120- 15th 0025
16th 2120- 17th 0200
17th 2120- 18th 0200
18th 2120- 19th 0820

20th 2120- 21st 0100
21st 0400- 0820
22nd 0000- 0600
23rd 0430- 0820
23rd 2120- 24th 0110
25th 0415- 0820
27th 0410- 0820
27th 2120- 2400

SOLAR RADIO EMISSION

Flux Density

Month: February 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	20	19	19	(20)	19
2	21	20	19	(21)	20
3	23	-	-	-	22
4	25	26	22	(22)	25
5	24	25	23	(20)	24
6	23	23	21	(22)	22
7	23	25	22	(18)	23
8	19	20	18	(20)	19
9	20	20	20	(22)	20
10	23	23	22	(21)	22
11	23	21	21	(18)	20
12	20	20	20	(20)	20
13	21	20	21	(19)	20
14	21	21	21	(21)	21
15	22	22	21	(20)	22
16	21	21	21	(20)	21
17	22	22	21	(19)	21
18	22	21	22	(20)	21
19	21	21	21	(18)	21
20	21	21	22	(18)	21
21	20	20	21	(19)	20
22	20	21	21	(19)	20
23	21	22	21	(20)	21
24	22	21	22	(19)	21
25	21	21	21	(18)	21
26	21	21	21	(18)	21
27	21	20	20	(18)	20
28	20	20	21	(20)	20

Note No observation during the following period:

3rd 0130- 4th 0100

Distinctive Event

No Distinctive Event was observed during February, 1965.

Note No observations during the following periods, at 200 Mc/s:

2nd	2120-	3rd	0045	20th	2120-	21st	0100
6th	0450-		0820	21st	0400-		0820
7th	0700-		0820	22nd	0000-		0600
11th	0050-		0410	23rd	0430-		0820
13th	2120-	14th	0110	23rd	2120-	24th	0110
14th	2120-	15th	0025	25th	0415-		0820
16th	2120-	17th	0200	27th	0410-		0820
17th	2120-	18th	0200	27th	2120-		2400
18th	2120-	19th	0820				

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Feb. 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	4o	5 (4) C	- - (4) 5	3 4 4 4	4 3 - 4	N N N N			
2	4o	5 C C	- - - 5	3 3 4 4	4 3 - 4	N N N N			
3	4+	5 4 (4)	(5) - - 5	4 4 5 4	4 (4) - 4	N N N N			
4	4o	4 (4) 4	(4) - - 4	4 4 4 5	5 4 - 4	N N N N			
5	4o	4 4 4	- - - 2	5 5 4 4	4 4 - 4	N N N N	1414	---	130γ
6	4+	4 (4) 4	- - - 4	5 4 4 5	5 3 - 4	N N N N	---	24xx	
7	4-	4 4 4	- - - 3	5 4 2 4	5 5 - 4	N U U U			
8	4-	4 4 4	- - - 4	3 4 3 4	(4) 5 - 5	U N N N			
9	4o	(4) 4 4	(5) - - 4	3 4 4 4	5 5 - 4	N N N N			
10	4-	4 4 4	(4) - - 3	3 4 4 4	4 5 - (4)	N N N N			
11	4o	4 (5) 4	- - - 3	4 4 3 4	4 4 - 4	N N N N			
12	4o	4 5 4	(4) - - 4	5 4 4 3	4 3 - 4	N N N N			
13	4o	4 5 (4)	(4) - - (5)	4 3 4 (4)	4 (4) - 4	N N N N			
14	4+	5 (4) 4	C - - 3	(5) 5 4 4	(5) 5 - 4	N N N N			
15	4-	4 4 3	- - - 3	4 4 4 4	4 (4) - 4	N N N N			
(16)	4+	C C (4)	- - - 4	4 5 5 3	4 3 - 4	N N N N			
(17)	4o	4 4 4	- - - 5	4 4 4 3	4 3 - 4	N N N N			
(18)	4-	4 3 4	- - - 4	3 4 4 4	4 3 - 4	N N N N			
19	4o	4 4 4	- - - 5	3 3 4 (4)	5 3 - (3)	N N N N			
20	4o	4 3 4	- - - 5	4 4 4 3	5 4 - 4	N N N N			
21	4o	4 3 4	- - - 3	4 5 5 4	4 5 - 4	N N N N			
22	3+	3 4 3	- - - 4	3 3 4 3	4 4 - 4	N N N N			
23	4-	4 4 4	- - - 4	3 4 4 3	5 4 - 4	N N N N			
24	4o	4 5 4	(4) - - 4	4 4 4 4	4 4 - 5	N N N N			
25	4o	4 4 4	(4) - - 4	4 4 5 4	4 4 - 5	N N N N			
26	4-	4 4 4	(4) - - 3	4 4 4 3	(4) 5 - 5	N N N N			
27	4o	4 4 4	(4) - - 5	3 4 4 4	4 5 - 4	N N N N			
28	4o	(4) 4 3	(4) - - 5	4 4 4 4	4 5 - 4	N N N N			

IQSY GEOALERT and ADALERT (Western Pacific Region)

* = MAGSTORM

o = MAGCALME

Δ = COSMIC EVENT

( ) = Regular World Day

\- = impossible to evaluate

( ) = inaccurate

C = artificial accident

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES (S.I.D.)

HIRAISO

No Sudden Ionospheric Disturbance was observed during February, 1965.

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

Feb. 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	C	<28s	<12s	<11s	<16s	<16s	<17s	<33s	<34s	<40s	<41s	<41s	<40s	<41s	<40s	<40s	<40s	<40s	<40s	<40s	<39s	<36s	-22	-16
2	<25s	<25s	< 8s	<16s	<21s	<19s	<24s	<37s	<42s	<41s	<41s	<41s	<41s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<36s	-17	<36s
3	<39s	< 7s	<35s	<28s	- 6	<21s	<32s	<25s	<38s	<38s	<40s	<37s	<37s	<41s	<41s	<40s	<40s	<40s	<40s	<39s	<39s	<25s	-14	<24s
4	<32s	<23s	<38s	<34s	<20s	<23s	C	<22s	<21s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<39s	-27	<23s
5	<40s	<27s	<30s	<40s	<18s	<20s	<22s	<33s	<37s	<36s	<41s	<39s	<40s	<40s	<40s	<41s	<41s	<41s	<41s	<37s	<37s	-15	-15	-23
6	<43s	<36s	<25s	<17s	<26s	<41s	<28s	<27s	<24s	<18s	<40s	<43s	<42s	<41s	<41s	<42s	<44s	<44s	<44s	<42s	<43s	<39s	<37s	<32s
7	<44s	<13s	<24s	<29s	<18s	<20s	<13s	C	< 2s	<19s	<39s	<39s	<39s	<39s	<41s	<40s	<40s	<40s	<40s	<40s	<38s	<38s	<35s	-18
8	<37s	<21s	<17s	<10s	<21s	<22s	<22s	<11s	<24s	<40s	<40s	<41s	<41s	<41s	<41s	<39s	<39s	<39s	<39s	-21	-21	-22	-15	2
9	-15	< 9s	<10s	<16s	<18s	<16s	(-23)s	<23s	<12s	<41s	<41s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<40s	<39s	C	<27s
10	<32s	C	C	- 9	<19s	<21s	<16s	<21s	<18s	<38s	<39s	<33s	<33s	<33s	<33s	<33s	<33s	<33s	<33s	<33s	<27s	-25	-20	-14
11	<21s	<11s	- 4	< 5s	<13s	<15s	<16s	< 2s	<11s	<37s	<37s	<25s	<38s	<29s	<37s	<37s	<34s	<34s	<34s	<33s	<33s	-18	-11	-14
12	<30s	<30s	<14s	<24s	<16s	<18s	<20s	<26s	<34s	<38s	<25s	<36s	<35s	<35s	<35s	<37s	<38s	<38s	<38s	<34s	<23s	<24s	<34s	- 9
13	<34s	<24s	<19s	<10s	<12s	<16s	<22s	C	<20s	<38s	<36s	<38s	<38s	<38s	<38s	<37s	<37s	<37s	<37s	<37s	<37s	<34s	<31s	C
14	<31s	< 2s	<22s	<30s	<16s	<17s	C	< 9s	- 7	<28s	<38s	<39s	<39s	<39s	<39s	<31s	<31s	<35s	<33s	<25s	<33s	<33s	<33s	-13
15	<24s	<23s	<23s	<23s	<19s	<18s	<32s	<18s	<26s	<39s	<39s	<40s	<40s	<40s	<40s	<38s	<37s	<39s	<39s	<38s	<38s	<35s	-27	<20s
16	<20s	<28s	<32s	<15s	<14s	<17s	<21s	<11s	<22s	<38s	<38s	<38s	<38s	<38s	<38s	<39s	<39s	<38s	<38s	<38s	<38s	<38s	<37s	-18
17	<23s	<27s	<26s	<15s	<10s	<15s	<18s	< 8s	<35s	<36s	<36s	<36s	<36s	<36s	<36s	<39s	<38s	<38s	<38s	<37s	<37s	<37s	<26s	-13
18	<28s	<37s	<24s	<27s	<22s	<17s	<20s	<25s	<24s	<36s	<36s	<37s	<37s	<37s	<37s	<37s	<37s	<37s	<37s	-30	<36s	-27	-12	-10
19	<33s	<30s	C	< 8s	<14s	C	C	C	C	<34s	<35s	<35s	<35s	<35s	<35s	<36s	<36s	<35s	<35s	-16	-35	-35	- 3	- 3
20	-22	C	C	<23s	<15s	<16s	C	C	C	<35s	<36s	<36s	<36s	<35s	<35s	<35s	<35s	<35s	-29	<35s	<31s	-25	-18	- 7
21	- 7	C	C	<33s	<20s	<18s	C	C	C	<37s	<37s	<37s	<37s	<37s	<37s	<38s	<38s	<35s	<38s	<34s	<35s	<30s	-23	<21s
22	<30s	(-40)c	C	<14s	<12s	<12s	<16s	<15s	<17s	<35s	<34s	<31s	<31s	<31s	<31s	<31s	<31s	<31s	<31s	-16	<27s	(-25)s	-10	C
23	C	C	C	C	C	C	<17s	<15s	<14s	<32s	<33s	<31s	<31s	<31s	<31s	<32s	<32s	<32s	<32s	<32s	<32s	<32s	<28s	- 8	-12
24	C	- 7	<18s	<14s	<11s	<12s	<12s	<10s	< 6s	<32s	<34s	<26s	<26s	<35s	<35s	<32s	<32s	<32s	<32s	<31s	<32s	-13	- 3	- 9
25	<21s	< 2s	<15s	< 3s	<13s	<12s	<12s	< 7s	<13s	<35s	<36s	<35s	<35s	<35s	<35s	<35s	<35s	<35s	<35s	<34s	<34s	<28s	-19	-12
26	<33s	<10s	< 9s	< 9s	<12s	< 9s	< 9s	< 1s	<15s	<24s	<34s	<34s	<33s	<33s	<33s	<27s	-20	<22s	<33s	<35s	<25s	- 7	<23s	-11
27	<22s	C	C	C	C	C	C	C	<34s	< 8s	<35s	<35s	<35s	<35s	<35s	C	C	C	C	C	C	C	C	C
28	C	C	C	<11s	< 8s	<11s	<10s	<12s	<11s	C	C	<35s	<36s	<35s	<36s	<35s	<35s	<35s	<35s	<35s	<35s	-19	-19	-20
29	-15	<15s	<17s	<16s	<13s	<13s	<12s	< 3s	<11s	< 3s	<33s	<34s	<34s	<35s	<35s	(-35)s	-35	<36s	<36s	-27	<35s	2	2	- 3
Median	(<30)s	(<23)s	(<19)s	(<16)s	(<16)s	(<17)s	(<18)s	(<15)s	(<20)s	(<36)s	(<37)s	(<37)s	(<37)s	(<37)s	(<37)s	(<37)s	(<37)s	(<37)s	(<38)s	(<35)s	(<35)s	<28s	-19	-14
Med. Count	25	23	21	27	27	26	23	23	26	28	28	29	29	29	29	28	28	28	28	28	28	28	27	26
Upper decile	-15	< 2s	< 8s	< 8s	<10s	<12s	<10s	< 1s	< 7s	<18s	<33s	<31s	<31s	<31s	<33s	<31s	<31s	<32s	<32s	-21	<25s	-13	- 3	- 3
Lower decile	<40s	<37s	<35s	<33s	<21s	<23s	<32s	<33s	<37s	<40s	<41s	<41s	<41s	<41s	<41s	<40s	<40s	<40s	<40s	<40s	<40s	<39s	<35s	<27s

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

Mar. 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	-10	< 5s	< 1s	< 3s	< 2s	< 2s	< 4s	<12s	< 1s	< 1s	<-34s	<-35s	<-36s	<-29s	<-34s	<-32s	<-31s	<-31s	<-31s	<-28s	<-33s	-12	-17	<-21s
2	< 8s	<-24s	C	< 5s	< 3s	< 7s	< 3s	< 5s	< 4s	<-16s	<-34s	<-34s	<-34s	<-34s	<-34s	-35	-24	-32	-14	- 9	-11	- 7	-11	- 7
3	-11	(-20)s	< 7s	< 6s	< 7s	<-15s	<-15s	< 7s	< 1s	<-21s	<-36s	<-35s	<-39s	<-39s	<-39s	<-38s	<-38s	<-38s	<-38s	<-33s	<-27s	- 9	-18	(- 7)s
4	(- 8)s	- 1	(- 8)s	< 6s	< 5s	< 4s	<-11s	< 8s	< 4s	<-24s	<-41s	<-26s	<-39s	<-39s	<-39s	<-34s	<-28s	<-38s	<-34s	<-36s	<-27s	-18	(-21)s	-11
5	< 1s	< 8s	< 2s	< 9s	<-10s	< 5s	< 0s	< 3s	< 1s	<-11s	<-11s	<-36s	<-36s	<-36s	<-36s	<-36s	<-36s	<-36s	<-36s	<-36s	<-37s	<-27s	<-29s	-10
6	<-18s	< 0s	< 6s	< 0s	< 7s	< 5s	<-10s	< 3s	<-22s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-36s	<-36s	-15	-12	-15
7	(-11)s	< 4s	< 2s	< 2s	< 6s	< 0s	< 3s	<-23s	<-17s	<-20s	<-32s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-35s	<-36s	<-36s	-17	-12	-17
8	< 7s	< 2s	< 7s	< 4s	< 4s	< 4s	< 6s	<-13s	< 3s	C	C	<-35s	<-29s	<-32s	<-36s	<-36s	<-36s	<-36s	<-37s	<-36s	<-36s	- 7	-13	<-16s
9	< 7s	< 5s	<-16s	<-16s	<-14s	<-11s	<-15s	C	<-12s	<-23s	<-38s	<-38s	<-38s	<-39s	<-39s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	-15	-18	-21
10	<-16s	C	< 3s	<-23s	<-14s	-12s	-17s	- 8s	- 3s	-11s	-37s	-38s	<-35s	<-31s	<-35s	<-38s	<-39s	<-39s	<-34s	<-34s	<-38s	-25	-18	-16
11	<-20s	<-32s	<-32s	<-29s	-35s	<-33s	<-14s	- 5s	< 5s	C	<-30s	<-37s	<-35s	<-38s	<-38s	<-38s	<-38s	<-38s	<-34s	<-34s	-34	-12	- 7	-24
12	<-23s	<-19s	(<-35)s	(<-34)s	<-16s	<-17s	<-17s	(<-17)s	< 7s	< 8s	<-37s	<-38s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-40s	<-39s	-32	(-23)s	-23	<-26s
13	<-24s	<-13s	<-16s	<-26s	<-25s	<-23s	<-21s	<-16s	C	<-24s	<-38s	<-38s	<-38s	<-33s	<-39s	<-38s	<-38s	<-38s	<-38s	<-35s	-25	- 9	-12	-14
14	- 4	< 8s	(-15)s	<-26s	<-16s	- 8s	<-25s	<-15s	<-14s	<-19s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-34s	<-34s	<-34s	-18	-21	<-12s
15	<-18s	<-26s	<-27s	<-26s	<-13s	<-17s	<-28s	<-19s	<-24s	<-23s	<-34s	<-34s	<-35s	<-37s	<-34s	<-35s	<-35s	<-35s	<-35s	<-35s	-25	-15	- 1	-10
16	- 9	- 6	<-27s	<-32s	<-20s	<-20s	<-27s	-17s	-20s	-28s	<-34s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-36s	<-36s	<-32s	(-29)s	- 9	- 9	- 4
17	- 3	5	-12	<-28s	<-16s	<-17s	<-16s	< 2s	< 6s	< 3s	<-17s	<-26s	<-25s	<-35s	<-35s	<-27s	<-29s	<-34s	<-33s	<-33s	-32	-10	- 8	- 7
18	(-15)s	<-26s	<-26s	-17s	<-27s	<-23s	< 8s	-15s	<-12s	<-11s	<-26s	<-28s	<-23s	<-38s	<-38s	<-40s	<-36s	<-36s	<-21s	<-29s	-16	(-15)c	(-10)c	(- 5)c
19	(-12)s	(< 9)s	(-12)s	(< 7)s	(< 7)s	(< 8)s	(< 6)s	(< 2)s	(< 1)s	(<-20)s	<-38s	<-38s	<-38s	<-38s	<-38s	<-37s	<-37s	<-37s	<-37s	(-36)s	-17	- 3	- 4	4
20	<-22s	<-11s	<-11s	(< 6)s	(< 7)s	(< 6)s	(< 6)s	(< 2)s	(< 2)s	(< 1)s	<-31s	<-29s	-29	<-38s	<-38s	<-36s	<-35s	<-35s	<-38s	-27	<-34s	<-17s	<-34s	-14
21	- 1	-20	< 7s	<-25s	<-25s	< 3s	<-12s	<-12s	< 2s	< 9s	<-23s	<-13s	<-28s	<-39s	<-39s	<-35s	<-36s	<-36s	<-36s	<-36s	-30	-12	- 3	-24
22	- 3	-10	<-24s	<-23s	<-22s	<-21s	<-21s	<-22s	<-22s	<-18s	<-25s	<-40s	<-22s	<-39s	<-39s	<-38s	<-38s	<-38s	(-38)s	-11	<-38s	-26	- 8	(2)c
23	(-14)c	C	C	<-28s	<-22s	<-33s	<-22s	C	<-14s	<-18s	<-38s	<-38s	<-30s	<-35s	<-31s	<-37s	<-37s	<-39s	<-38s	<-38s	<-31s	<-17s	(-25)s	-13
24	- 9	<-10s	< 8s	<-20s	<-24s	C	<-27s	C	<-20s	<-21s	<-26s	<-39s	<-18s	<-39s	<-37s	<-29s	<-36s	<-36s	<-36s	<-36s	<-36s	-32	-17	-25
25	-17	C	C	<-31s	<-20s	C	<-39s	<-30s	<-29s	<-20s	<-27s	<-35s	<-35s	<-36s	<-36s	<-36s	<-36s	<-37s	<-24s	<-37s	<-37s	<-21s	-26	-20
26	-15	C	C	C	C	C	C	C	C	<-16s	<-29s	<-37s	<-37s	<-37s	<-37s	<-36s	<-32s	<-33s	<-24s	<-37s	-23	- 6	-11	-10
27	- 5	- 2	-26	<-22s	<-24s	<-24s	<-35s	(<-35)s	<-21s	<-21s	<-35s	<-37s	-36	<-31s	<-30s	<-36s	<-36s	<-36s	<-36s	<-37s	-10	-12	- 8	C
28	<-24s	<-33s	<-30s	<-37s	<-23s	<-24s	<-25s	<-24s	<-14s	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	-15	-10	<-36s	<-29s	<-24s	<-25s	<-39s	<-29s	<-24s	<-24s	<-30s	<-31s	-19	-17	-33	<-36s	<-36s	<-37s	-36	<-36s	-21	-13	-14	-16
30	-15	- 9	-14	<-30s	<-25s	<-35s	<-34s	<-22s	<-21s	<-13s	<-22s	<-17s	<-20s	-15	-25	-17	-29	<-36s	<-36s	<-30s	-25	-15	<-18s	-23
31	-25	<-27s	<-31s	<-35s	<-16s	<-22s	<-33s	<-24s	<-21s	<-14s	<-27s	<-33s	-33	-18	<-30s	<-38s	-20	-22	-26	(-38)s	-26	< 9s	-13	-12
Median	(-14)s	(<-10)s	(<-14)s	(<-23)s	(<-16)s	(<-16)s	(<-16)s	(<-15)s	(<-12)s	(<-18)s	(<-34)s	(<-35)s	(<-35)s	(<-36)s	(<-36)s	(<-36)s	(<-36)s	(<-36)s	(<-36)s	(<-36)s	(-32)s	(-15)s	(-13)s	(-14)s
Med. Count	31	27	27	30	30	28	30	27	29	28	29	30	30	30	30	30	30	30	30	30	30	30	30	29
Upper decile	< 3s	< 4s	< 1s	< 4s	< 3s	< 2s	< 3s	< 2s	< 2s	< 3s	<-22s	<-26s	<-20s	-18	<-30s	<-29s	<-28s	<-32s	<-24s	-27	-16	- 7	- 4	(- 4)s
Lower decile	<-24s	<-27s	<-32s	<-34s	<-25s	<-33s	<-35s	<-29s	<-24s	<-24s	<-38s	<-38s	<-39s	<-39s	<-39s	<-38s	<-38s	<-39s	<-38s	<-38s	<-38s	<-26s	<-26s	<-24s

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

Jan. 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	<-29s	<-29s	<-29s	(<-24)cs	(<-19)cs	(<-19)cs	<-36s	<-35s	<-36s	<-36s	<-36s	<-36s	<-36s	<-40s	<-20s	<-40s	<-40s	<-40s	<-40s	<-40s	<-39s	<-40s	-13	<-24s
2	<-35s	<-39s	<-24s	<-23s	(<-10)cs	(<-10)cs	<-21s	<-25s	<-39s	<-25s	<-34s	<-39s	<-39s	<-39s	<-39s	<-39s	<-40s	<-40s	<-40s	<-39s	<-39s	<-41s	<-34s	<-20s
3	<-26s	<-19s	<-21s	<-25s	(<-12)cs	(<-12)cs	<-27s	<-14s	<-40s	<-40s	<-39s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-41s	<-37s	<-17s	<-40s	(-21)s	<-27s
4	<-24s	<-30s	<-32s	<-23s	<-14s	(<-13)cs	<-16s	<-29s	(<-24)cs	<-39s	<-38s	<-33s	<-38s	<-34s	<-38s	<-38s	<-38s	<-37s	<-38s	<-37s	<-31s	<-36s	-11	-17
5	<-30s	<-34s	<-27s	<-31s	(<-10)cs	(<-10)cs	<-21s	<-22s	<-40s	<-38s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-40s	<-40s	<-40s	<-38s	<-38s	<-38s	-23	<-32s
6	<-38s	(<-23)cs	<-24s	<-39s	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	<-40s	<-40s	<-41s	<-41s	<-40s	<-40s	<-40s	<-41s	<-40s	<-42s	<-38s	<-38s	<-38s	-27	<-31s
8	<-28s	<-6s	<-12s	<-22s	<-11s	<-13s	C	<-24s	<-38s	<-40s	<-39s	<-42s	<-40s	<-39s	<-39s	<-39s	<-40s	<-39s	<-40s	<-40s	<-36s	<-39s	-14	-12
9	<-21s	<-32s	<-26s	<-29s	<-14s	<-17s	<-39s	<-20s	<-23s	<-40s	<-41s	<-40s	<-41s	<-41s	<-41s	<-39s	<-39s	<-40s	<-40s	<-40s	-27	-27	-18	-12
10	<-20s	<-13s	<-18s	<-24s	<-6s	<-15s	<-25s	<-24s	<-36s	<-37s	<-39s	<-42s	<-42s	<-42s	<-42s	<-41s	<-41s	<-40s	<-41s	<-41s	<-37s	<-37s	-19	-14
11	<-24s	<-27s	<-21s	<-38s	<-4s	<-13s	<-9s	<-17s	<-37s	<-37s	<-39s	<-32s	<-38s	<-31s	<-40s	<-39s	<-41s	<-41s	<-41s	<-41s	<-41s	<-37s	-19	<-26s
12	<-31s	<-25s	<-13s	<-14s	-6	-11	<-31s	<-27s	<-37s	<-38s	<-27s	<-39s	<-38s	<-40s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-37s	<-35s	<-31s	<-31s
13	<-24s	<-6s	<-6s	C	C	C	C	C	<-34s	<-38s	<-38s	<-39s	<-39s	<-39s	<-39s	<-38s	<-38s	<-38s	<-38s	-33	-22	-13	-10	-18
14	<-23s	<-31s	<-22s	<-24s	-17	-10	<-41s	<-32s	<-37s	<-37s	<-36s	<-38s	<-37s	<-33s	<-34s	<-38s	<-39s	<-39s	<-39s	<-39s	<-39s	-17	-11	-15
15	<-27s	-21	<-21s	<-30s	<-7s	<-22s	<-29s	<-29s	<-37s	<-37s	<-36s	<-33s	<-33s	<-37s	<-31s	<-39s	<-40s	<-40s	<-40s	<-36s	<-36s	<-36s	<-31s	-9
16	<-27s	<-27s	<-20s	<-24s	<-20s	<-19s	<-18s	<-18s	<-17s	<-32s	<-40s	<-40s	<-40s	<-40s	<-39s	C	C	C	C	C	C	C	C	C
17	C	C	<-24s	<-23s	<-19s	-21	<-16s	<-42s	<-38s	<-38s	<-39s	<-34s	<-39s	<-40s	<-40s	<-39s	<-39s	<-39s	<-39s	<-38s	<-34s	<-34s	-17	-27
18	<-37s	<-11s	<-15s	<-21s	<-17s	<-16s	<-28s	<-27s	<-20s	<-38s	<-38s	<-39s	<-39s	<-39s	<-39s	<-39s	<-30s	<-38s	<-38s	<-37s	<-38s	<-37s	<-33s	<-37s
19	<-23s	<-23s	<-38s	<-37s	<-17s	<-18s	<-21s	<-20s	<-27s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-38s	<-33s	<-31s	<-35s	-22	<-28s
20	<-29s	<-29s	<-39s	<-33s	<-15s	<-17s	<-25s	<-36s	<-36s	<-40s	<-39s	<-40s	<-39s	<-39s	<-39s	<-40s	<-40s	<-40s	<-40s	<-37s	<-32s	<-32s	-23	<-30s
21	<-26s	<-27s	<-39s	<-21s	<-8s	<-2s	<-21s	<-25s	<-33s	<-39s	<-38s	<-39s	<-40s	<-33s	<-24s	<-21s	<-40s	<-40s	<-40s	<-29s	<-39s	<-29s	-21	-22
22	<-29s	<-26s	<-15s	<-27s	<-18s	<-16s	<-20s	<-34s	<-39s	<-39s	<-39s	<-35s	<-39s	<-39s	<-39s	<-39s	<-40s	<-40s	<-40s	<-40s	<-39s	<-35s	-15	<-23s
23	-26	<-27s	<-27s	<-22s	<-18s	<-21s	<-26s	<-11s	<-37s	<-38s	<-38s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-40s	<-36s	<-36s	-8	<-32s
24	<-29s	<-30s	<-32s	<-27s	<-16s	<-18s	<-35s	<-21s	<-32s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	<-39s	<-39s	<-39s	<-39s	<-33s	-27	<-31s	<-33s	<-14s
25	<-26s	<-26s	<-38s	<-19s	<-18s	<-18s	<-21s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-38s	<-38s	<-38s	<-38s	<-38s	-23	-24	-21	-11
26	<-27s	<-27s	<-40s	<-39s	<1s	<-17s	<-19s	<-12s	<-16s	<-39s	<-39s	<-39s	<-40s	<-40s	<-40s	<-39s	<-39s	<-39s	<-39s	<-40s	<-39s	<-33s	-13	<-25s
27	<-28s	<-23s	<-38s	<-37s	<-17s	C	C	<-23s	<-39s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-39s	<-39s	-30	-27	-16	<-33s	-14	<-22s
28	<-26s	<-29s	<-22s	<-23s	<-19s	<-15s	<-22s	C	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-39s	<-35s	-14	-10
29	<-27s	<-29s	<-39s	<-37s	<-16s	<-20s	<-30s	C	<-37s	<-38s	<-38s	<-37s	<-37s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	<-38s	<-39s	<-37s	<-30s	<-15s
30	<-20s	<-12s	<-12s	<-12s	<-19s	<-18s	<-26s	<-39s	<-39s	<-38s	<-39s	<-39s	<-40s	<-39s	<-39s	<-40s	<-40s	<-40s	<-40s	<-39s	<-39s	<-39s	<-36s	<-15s
31	<-15s	<-8s	<-6s	<-22s	<-18s	<-13s	<-25s	<-16s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-39s	<-39s	<-39s	<-35s	<-36s	<-33s	C	C	C
Median	<(-27)s	<(-27)s	<(-24)s	<(-24)s	<(-16)s	<(-16)s	<(-25)s	<(-24)s	<(-37)s	<(-38)s	<(-39)s	<(-39)s	<(-39)s	<(-39)s	<(-39)s	<(-39)s	<(-39)s	<(-39)s	<(-38)s	<(-37)s	<(-36)s	-19	<-22s	
Med. Count	29	29	30	29	28	27	26	26	29	30	30	30	30	30	30	29	29	29	29	29	28	28	28	
Upper decile	<-20s	<-8s	<-12s	<-19s	<-6s	<-10s	<-16s	<-14s	<-20s	<-36s	<-36s	<-33s	<-37s	<-33s	<-31s	<-38s	<-38s	<-38s	<-35s	<-29s	<-22s	-24	-11	-11
Lower decile	<-35s	<-32s	<-39s	<-38s	<-19s	<-21s	<-36s	<-39s	<-39s	<-40s	<-40s	<-41s	<-41s	<-40s	<-40s	<-40s	<-41s	<-40s	<-41s	<-40s	<-39s	<-40s	<-33s	<-32s

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

Jan. 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	5	(1)c	(- 7)c	(←21)s c	←36s	←36s	←36s	←36s	←35s	←36s	←36s	←40s	←40s	←40s	←40s	←40s	←40s	←40s	(-25)s	1	2	- 1
2	6	1	2	(4)c	(- 8)s	← 5s	←17s	←13s	1	- 4	←37s	-34	←39s	-27	-27	←39s	←40s	←40s	-25	-22	-18	- 1	1	3
3	- 3	6	6	(8)c	(0)c	(-10)s c	(-14)s c	-31	←39s	←40s	←40s	←40s	←40s	←40s	←40s	←40s	←40s	←40s	←41s	←36s	-10	4	5	7
4	8	- 6	4	7	(1)c	(←15)s c	- 5	←17s	-11	-16	←38s	-33	-25	-34	←38s	←38s	←38s	←37s	←38s	←37s	-18	2	6	6
5	2	- 1	1	5	(0)c	(-16)s c	- 7	←25s	←35s	←39s	←39s	←39s	←39s	←39s	←39s	←40s	←40s	←40s	←40s	←37s	(-38)s	3	4	5
6	0	- 4	- 2	2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	←40s	←40s	←41s	←41s	←40s	←40s	←40s	←41s	←40s	←42s	←38s	←38s	- 5	- 2	- 2
8	(← 1)s c	- 3	- 2	- 1	- 7	←21s	←22s	C	←39s	←40s	←39s	←35s	←40s	←39s	←39s	←39s	←40s	←39s	←40s	←40s	(-37)s	-11	- 1	1
9	5	- 1	2	1	- 4	-11	←30s	←25s	(-32)s	←41s	←39s	←39s	←41s	←41s	←41s	←39s	←40s	←40s	←40s	←39s	-31	0	0	9
10	2	- 4	- 5	4	- 2	←14s	←22s	←37s	-15	-27	←21s	←35s	←42s	←42s	-33	←41s	←41s	←39s	-33	←38s	-31	6	3	4
11	6	- 1	C	C	←13s	←17s	←12s	←24s	-29	←36s	←33s	←38s	←37s	←40s	←40s	←39s	←41s	←41s	←41s	←41s	-35	- 5	- 5	4
12	- 9	0	0	7	←10s	←11s	(-22)s	←34s	←35s	←32s	←38s	←39s	←39s	←40s	←39s	←39s	←39s	←39s	←32s	-23	-21	4	3	2
13	- 4	3	C	C	C	C	C	←38s	←38s	←38s	←39s	←39s	←39s	←39s	←39s	←38s	←38s	←38s	-27	-27	-27	4	4	3
14	2	- 1	- 2	7	←11s	←13s	(-29)c	←38s	←30s	←32s	←37s	(-32)s	←33s	←33s	←34s	←39s	←39s	←39s	-10	- 3	- 1	- 2	1	2
15	5	- 4	- 4	4	- 3	←19s	-15	←19s	(-28)s	-25	←33s	←33s	←33s	←31s	←33s	←39s	←40s	-34	-34	-29	-19	- 2	- 1	- 1
16	- 3	- 5	5	10	0	←19s	←16s	←19s	-10	←16s	←32s	(-30)s	←40s	←40s	-23	C	C	C	C	C	C	C	C	C
17	C	- 6	- 3	- 5	- 8	(-19)s	←43s	←41s	←32s	←39s	(-27)s	←39s	←40s	←40s	←39s	←39s	←39s	←39s	-17	-27	- 9	4	3	- 1
18	0	(- 7)s	- 6	5	- 2	- 2	←25s	←23s	←33s	←38s	←38s	←39s	←39s	←39s	←39s	←38s	←38s	←38s	←38s	←27s	←37s	5	3	1
19	1	0	3	- 1	- 2	- 9	-11	←37s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	←32s	-30	←33s	-13	4	- 7	- 1
20	1	1	1	1	- 1	←18s	←19s	-30	-16	←30s	←39s	←38s	←39s	-30	←39s	←40s	←40s	←40s	-34	←37s	←35s	←31s	2	- 1
21	- 1	- 3	1	- 1	← 2s	← 3s	←12s	- 7	←39s	←39s	←38s	←40s	←40s	←25s	←24s	←36s	←32s	←32s	-19	-14	-21	1	5	- 1
22	- 5	1	1	0	←16s	←27s	←23s	←38s	←38s	←39s	←40s	←39s	←39s	←39s	←39s	←39s	←40s	←40s	←40s	-21	-29	- 1	- 2	1
23	- 3	- 1	- 7	7	←17s	-13	←14s	←37s	←37s	←38s	←38s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	-33	(-36)s	-30	- 3	3	0
24	4	- 2	- 4	- 4	- 4	←20s	←20s	←32s	←32s	←38s	←38s	←38s	←38s	←38s	←38s	←39s	←39s	←36s	←33s	-22	-31	-12	3	4
25	5	2	3	- 1	- 1	-17	-23	-25	←37s	←37s	←37s	←39s	←39s	←39s	←39s	←38s	←38s	←38s	←38s	←38s	-12	0	0	1
26	5	0	0	8	2	←17s	←16s	←16s	←35s	←38s	←38s	←39s	←39s	←40s	←40s	←39s	←39s	←39s	←39s	←40s	-25	4	4	0
27	2	7	- 5	1	2	C	C	←22s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	-22	-23	4	- 2	1	- 6
28	1	- 2	- 4	- 1	- 3	(-19)s	←16s	←29s	←38s	←38s	←38s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	←39s	2	7	3	4
29	3	2	5	5	3	C	1	-25	←37s	←38s	←38s	←37s	←37s	←38s	←38s	←38s	←38s	←38s	←38s	←38s	(-38)s	9	4	3
30	2	- 2	- 1	←38s	←15s	←24s	←22s	←38s	←37s	←38s	←38s	←38s	←39s	←38s	←38s	←40s	←40s	←40s	←39s	←39s	←26s	5	- 3	1
31	4	4	0	- 2	←15s	← 6s	←26s	←36s	←37s	←37s	←37s	←37s	←37s	←37s	←37s	←38s	←38s	←35s	←35s	←36s	(-15)s	C	C	C
Median	2	- 1	0	(4)s	(- 3)s	(←16)s	(←19)s	(←30)s	(←35)s	(←38)s	(←38)s	(←39)s	(←39)s	(←39)s	(←39)s	(←39)s	(←39)s	(←39)s	(←38)s	(←36)s	(-25)s	1	2	1
Med. Count	29	30	28	28	28	26	27	28	29	30	30	30	30	30	30	29	29	29	29	29	29	28	28	28
Upper decile	6	4	5	(8)s	2	← 5s	- 7	←16s	-11	←16s	←32s	(-33)s	←33s	←30s	←27s	←38s	←38s	←34s	-19	-21	- 1	6	5	6
Lower decile	- 4	(- 6)s	- 5	(- 4)s	←15s	(←21)s	←30s	←38s	←39s	←40s	←40s	←40s	←41s	←40s	←40s	←40s	←41s	←40s	←41s	←40s	(←38)s	-11	- 3	- 1

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

Feb. 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	C	2	2	0	4	- 8	-12	<-33s	<-38s	<-38s	<-39s	<-39s	<-39s	<-40s	<-37s	<-40s	<-40s	<-40s	<-40s	<-40s	-22	- 6	4	- 6
2	- 2	0	2	4	-13	<-18s	<-33s	<-33s	<-39s	<-39s	<-39s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	(-34)s	2	0	- 4
3	- 3	1	5	1	- 1	<-19s	- 9	<-38s	<-38s	<-38s	<-38s	<-36s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-39s	<-39s	- 2	- 1	- 3
4	- 6	- 1	3	3	3	C	-15	<-40s	<-39s	<-38s	<-38s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	2	5	4
5	- 4	1	0	- 3	- 4	-10	(- 7)s	<-23s	<-31s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-41s	<-41s	<-41s	<-33s	<-37s	- 6	- 1	- 6	-13
6	- 8	1	1	1	- 4	-13	(-14)s	(-18)s	<-22s	-23	-17	<-43s	<-42s	<-41s	<-41s	<-42s	<-42s	<-42s	<-28s	<-32s	-12	- 2	- 4	- 2
7	- 1	- 6	- 6	- 3	- 5	- 6	<- 9s	<-10s	<-23s	<-40s	<-40s	<-39s	<-39s	<-39s	<-41s	<-40s	<-40s	<-40s	<-40s	<-35s	(-10)s	- 3	1	- 1
8	2	0	2	2	0	- 2	- 9	<-25s	<-31s	<-27s	-31	<-40s	<-41s	<-41s	<-41s	<-39s	<-39s	<-39s	-15	-12	8	2	0	4
9	2	4	7	- 1	7	- 8	-25	<-29s	<-23s	<-40s	<-41s	<-40s	<-40s	<-23s	<-40s	<-40s	<-40s	<-40s	<-27s	<-28s	-11	3	1	1
10	C	C	C	9	- 5	<-18s	C	<-19s	<-38s	<-38s	<-39s	<-33s	<-33s	<-33s	<-33s	<-33s	<-33s	<-33s	<-33s	<-31s	-13	7	0	- 7
11	- 1	(2)s	0	2	<-13s	<-13s	- 8	<- 2s	<-36s	<-37s	<-37s	<-31s	<-25s	<-37s	<-37s	<-36s	<-33s	<-33s	<-33s	<-33s	-17	- 9	4	-11
12	- 2	1	<-18s	5	- 3	<-23s	<-19s	<-21s	<-37s	<-38s	<-33s	<-35s	<-35s	<-35s	<-35s	<-37s	<-38s	<-38s	<-38s	<-32s	0	3	4	0
13	5	1	4	7	- 2	<-16s	<-17s	<-11s	-22	-33	<-36s	<-38s	<-38s	<-38s	<-38s	<-37s	<-37s	<-37s	<-37s	<-37s	- 6	- 4	4	C
14	- 2	8	5	5	1	<-13s	-19	<- 9s	<-36s	<-37s	<-37s	<-39s	<-39s	<-39s	<-39s	<-31s	<-35s	<-35s	<-33s	<-33s	- 1	2	- 1	- 1
15	3	- 1	- 1	5	- 1	<-18s	<-14s	<-22s	<-24s	<-39s	<-39s	<-39s	<-39s	<-39s	<-38s	<-38s	<-39s	<-39s	<-39s	<-38s	-23	1	8	2
16	2	- 2	5	6	4	<-16s	<-18s	<-14s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-38s	<-38s	<-38s	<-38s	<-38s	-19	- 6	- 6	0
17	3	2	2	2	5	<-16s	< 0s	<- 8s	<-37s	<-36s	<-36s	<-36s	<-36s	<-36s	<-36s	<-38s	<-38s	<-38s	<-38s	<-37s	-26	3	3	5
18	3	5	7	5	3	- 6	<-13s	<-35s	<-20s	<-36s	<-36s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	-14	-24	-27	- 2	- 2	4
19	- 4	2	1	5	- 6	C	C	C	C	<-34s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	C	<-35s	-29	-29	-21	- 2	2	- 1
20	0	C	C	2	1	C	C	C	C	<-35s	<-36s	<-36s	<-36s	<-35s	<-35s	<-35s	<-35s	<-35s	C	<-35s	-21	3	0	- 1
21	- 1	C	C	9	2	C	C	C	C	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-38s	<-38s	<-38s	<-38s	(-32)s	- 1	1	0	2
22	1	- 1	C	2	3	- 4	<-13s	<-14s	<-35s	<-35s	<-34s	<-31s	(-31)s	<-31s	<-31s	<-31s	<-31s	<-31s	-27	-24	4	- 4	- 1	C
23	C	C	C	C	C	<-16s	<-16s	<-14s	<-32s	<-32s	<-33s	<-31s	<-31s	<-31s	<-31s	<-32s	<-32s	<-32s	<-32s	<-32s	1	2	-11	- 2
24	-11	- 7	- 1	2	2	<-18s	<-13s	<- 4s	<- 1s	<-34s	<-34s	<-26s	<-31s	<-35s	<-35s	(-32)s	<-32s	<-32s	<-32s	<-31s	-12	5	7	- 4
25	- 7	(- 3)s	1	9	- 1	<-11s	<-12s	<-13s	<- 3s	<-36s	<-36s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-30s	5	- 1	3	2
26	- 5	- 3	- 3	- 1	- 8	<-18s	<-18s	<-11s	<- 9s	<-30s	<-30s	<-33s	<-33s	<-33s	<-33s	<-33s	<-33s	<-33s	<-34s	<-34s	-14	3	1	- 5
27	- 4	C	C	C	C	0 C	C	C	<-17	<-35	<-35	<-35	<-35	<-35	C	C	C	C	C	C	C	C	C	C
28	C	C	C	(2)s	(- 1)s	(- 3)s	<- 7s	<-23s	<-25s	C	<-35s	<-36s	<-36s	<-35s	<-36s	<-35s	<-35s	<-35s	<-35s	<-35s	6	0	- 6	- 8
29	- 9	- 5	- 9	2	4	<-16s	<- 9s	C	<- 4s	<-30s	<-24s	<-34s	<-34s	<-35s	<-35s	<-36s	<-36s	<-36s	(-36)s	-31	- 5	0	1	-10
Median	- 2	(1)s	2	2	- 1	<(-14)s	<(-13)s	<(-18)s	<(-31)s	<(-36)s	<(-36)s	<(-36)s	<(-37)s	<(-37)s	<(-37)s	<(-37)s	<(-38)s	<(-38)s	<(-35)s	<(-33)s	(-12)s	0	0	- 1
Med. Count	25	23	22	27	27	24	24	24	26	28	29	29	29	29	29	28	27	28	27	28	28	28	28	26
Upper decile	3	5	5	9	4	(- 3)§	<- 7s	<- 4s	<- 4s	<-30s	<-30s	<-31s	<-31s	<-31s	<-33s	<-32s	<-32s	<-32s	-27	-24	4	3	5	4
Lower decile	- 8	- 6	- 9	- 1	- 8	<-19s	<-25s	<-38s	<-38s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	<-40s	(-34)s	- 6	- 6	-10

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

Mar. 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	9	6	10	14	15	< 3s	< 1s	< 3s	< 5s	<-32s	<-34s	(-34)s	-29	-28	<-34s	<-32s	<-31s	<-32s	<-32s	<-32s	2	2	- 2	0
2	18	C	C	12	13	(8)s	< 2s	< 7s	<-13s	<-34s	<-34s	<-34s	<-34s	<-34s	<-31s	<-33s	<-35s	- 5	-25	(-32)s	- 4	0	- 2	1
3	- 2	1	< 0s	6	6	<-13s	< 2s	<-14s	<-23s	<-31s	<-32s	<-39s	<-39s	<-39s	<-39s	<-39s	<-38s	-28	(-34)s	(-34)s	-10	1	-16	0
4	5	(6)s	7	14	(5)s	8	< 14s	< 6s	<-20s	<-41s	<-41s	<-26s	<-39s	<-39s	<-39s	<-34s	<-38s	<-34s	<-33s	<-35s	- 1	5	2	- 9
5	- 4	3	- 1	3	(- 2)s	1	(< 5)s	< 4s	<-26s	<-25s	<-35s	-31	-35	<-36s	<-36s	<-36s	<-36s	-34	<-36s	-15	- 6	3	3	5
6	8	9	11	18	18	2	< 6s	< 7s	<-31s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	-35	- 3	1	0	8
7	7	C	9	14	15	< 5s	< 3s	< 4s	<-16s	<-36s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	<-37s	-14	-28	(-35)s	- 9	0	4	3
8	10	7	10	12	11	(7)s	< 10s	< 13s	C	C	C	<-36s	<-27s	<-37s	<-35s	<-36s	<-37s	<-36s	<-34s	-35	-10	- 1	0	0
9	5	- 5	- 4	- 2	- 3	< 6s	- 6	<-13s	< 4s	<-24s	<-38s	<-38s	<-38s	<-39s	<-39s	<-38s	<-38s	<-38s	<-38s	-37	-18	- 2	- 5	(-14)s
10	- 5	- 2	1	2	2	<-13s	<-13s	<-12s	<-11s	<-19s	<-38s	<-38s	<-31s	<-30s	<-35s	<-39s	<-39s	<-38s	<-34s	<-34s	-10	(4)s	- 1	2
11	- 7	-34	- 9	- 1	0	(- 9)s	<-10s	< 2s	< 3s	(<-31)gs	< 4s	< 5s	<-38s	<-38s	<-38s	<-38s	<-38s	<-34s	<-34s	(-38)s	0	- 1	- 6	- 1
12	- 3	0	2	8	3	(-10)s	<-17s	< 4s	<-11s	<-17s	<-39s	<-38s	<-39s	<-39s	<-38s	<-39s	<-39s	<-39s	<-40s	(-34)s	2	0	- 2	- 3
13	- 2	- 6	- 1	- 7	- 5	<-22s	<-19s	C	<-10s	<-37s	<-38s	<-38s	<-38s	<-33s	<-38s	<-38s	<-38s	<-38s	<-35s	(-32)	0	2	2	3
14	2	6	10	11	8	7	1	- 7	<-21s	<-30s	<-36s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-34s	<-34s	-31	- 2	4	10	7
15	6	11	6	11	11	-14	-15	(-24)s	-16	-23	<-33s	<-35s	<-35s	<-34s	<-34s	<-35s	<-35s	<-35s	<-35s	- 7	- 2	4	- 1	0
16	- 2	2	4	0	0	(-22)s	<-19s	<-21s	<-17s	<-34s	<-34s	<-35s	<-35s	-27	<-35s	<-35s	<-35s	<-36s	<-16s	-24	- 3	0	1	6
17	- 1	2	2	-22	7	- 9	< 9s	C	< 4s	<-14s	<-21s	<-24s	<-34s	<-35s	<-35s	<-33s	<-34s	-25	(-33)s	-27	- 5	3	- 3	6
18	- 5	- 4	- 5	1	0	- 1	C	<-14s	<-10s	<-29s	<-30s	<-28s	<-28s	<-38s	<-39s	<-36s	<-36s	<-36s	<-27s	-26	- 3	- 5	(- 4)c	(- 2)c
19	(5)c	(9)c	(10)c	(8)c	(13)c	(- 4)c	(- 2)c	(< 5)gc	(< 6)gc	<-31s	<-38s	<-38s	<-38s	<-38s	<-38s	<-37s	<-37s	<-37s	<-37s	(-32)s	- 1	0	3	3
20	0	13	11	(15)c	(12)c	(17)c	(18)c	(< 3)gc	(< 1)gc	(-17)c	-18	<-22s	<-37s	<-38s	<-38s	<-36s	<-35s	<-32s	<-30s	- 4	3	6	2	- 3
21	3	- 3	- 5	5	1	8	7	- 1	< 3s	<-23s	<-17s	<-29s	<-37s	<-32s	<-39s	<-35s	<-36s	<-36s	<-36s	<-36s	4	1	- 7	1
22	- 8	- 3	- 1	1	0	- 7	-18	<-23s	<-19s	<-29s	-26	<-40s	<-15s	<-39s	<-39s	<-38s	<-38s	<-38s	(-21)s	2	4	- 4	(18)c	(9)c
23	- 3	C	C	1	1	3	-14	4	- 3	<-37s	<-38s	<-37s	<-34s	<-33s	<-35s	<-37s	<-37s	<-37s	<-39s	- 4	- 1	0	- 1	3
24	(- 5)s	- 7	- 6	1	2	(- 5)c	C	(- 7)s	<-17s	<-26s	-29	<-39s	<-24s	<-34s	<-33s	<-29s	<-36s	-29	-29	-19	- 1	0	- 7	- 5
25	(- 7)c	C	C	- 2	10	4	(- 5)c	-14	(-15)s	(-23)s	-15	(-28)s	(-35)s	<-36s	<-36s	<-36s	<-36s	-28	<-27s	-17	- 3	- 4	- 4	- 7
26	3	C	C	C	C	C	C	C	-10	-16	-28	<-37s	<-37s	<-37s	<-37s	<-32s	<-33s	<-28s	<-30s	<-37s	- 6	5	2	- 4
27	- 6	- 3	- 1	7	1	-17	-17	-17	(-15)s	3	(-31)s	<-37s	<-37s	<-31s	<-30s	<-36s	<-36s	<-36s	<-36s	- 1	5	- 1	1	(- 7)c
28	- 4	1	2	9	C	11	-12	-11	-18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	- 4	- 2	- 6	7	11	15	12	- 4	8	15	-22	(-33)s	<-38s	<-38s	<-38s	-32	<-37s	-36	(-36)s	- 3	9	3	- 6	- 4
30	- 5	- 3	0	6	5	12	11	14	< 8s	- 6	- 6	<-26s	<-21s	<-35s	<-37s	<-36s	<-36s	<-36s	<-32s	- 6	1	5	- 2	1
31	- 1	- 1	2	6	13	17	- 1	- 7	- 9	<-19s	<-28s	<-33s	<-30s	<-30s	<-30s	<-38s	<-38s	<-38s	<-38s	0	- 4	- 5	- 3	- 2
Median	(- 2)s	(0)s	(2)s	(6)s	(5)s	(- 2)s	(< 8)s	(< 6)s	(<-11)s	(<-26)s	(<-33)s	(<-35)s	(<-35)s	(<-36)s	(<-36)s	(<-36)s	(<-36)s	(<-36)s	(<-34)s	(-32)s	- 3	(0)s	(- 1)s	0
Med. Count	31	26	27	30	29	30	28	28	30	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30
Upper decile	9	9	10	(14)s	15	(15)s	< 12s	< 7s	< 3s	- 6	<-15s	<-24s	<-24s	<-30s	<-31s	<-32s	<-34s	-25	<-25s	- 1	4	5	(4)s	(7)s
Lower decile	- 7	- 5	- 6	- 2	(- 2)s	<-17s	<-18s	<-21s	<-23s	<-37s	<-38s	<-39s	<-39s	<-39s	<-39s	<-39s	<-38s	<-38s	<-38s	<-36s	-10	- 4	- 7	(- 7)s

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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