F—211

IONOSPHERIC DATA IN JAPAN

FOR JULY 1966

Vol. 18 No. 7

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Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

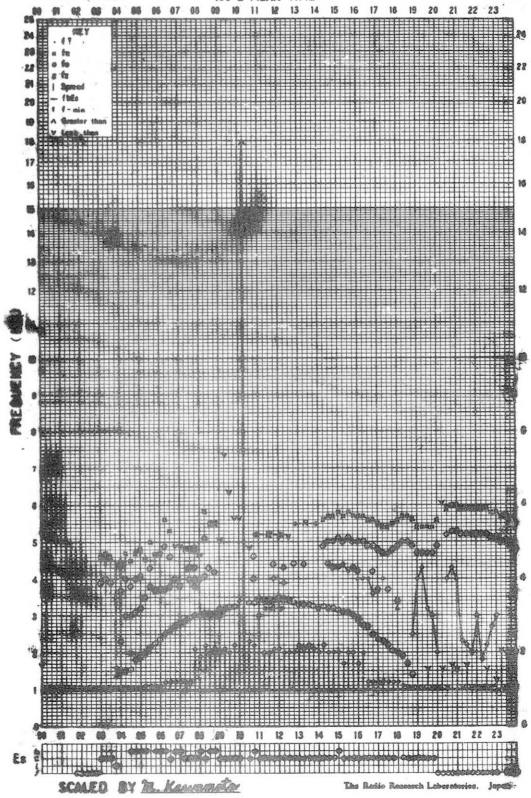
KOKUBUNJI, TOKYO, JAPAN

The f-plot of Ionospheric Data (date May 7, 1966), which appeared on page 89 of the August, 1966 issue (Vol. 18, No. 5) of IONOSPHERIC DATA IN JAPAN, should be replaced by this sheet.

IONOSPHERIC DATA IN JAPAN, Vol. 18 No. 5, May 1966, 89ページの f-plot は誤りでした。この新しい表にお取替え下さい。

f-PLOT OF IONOSPHERIC DATA

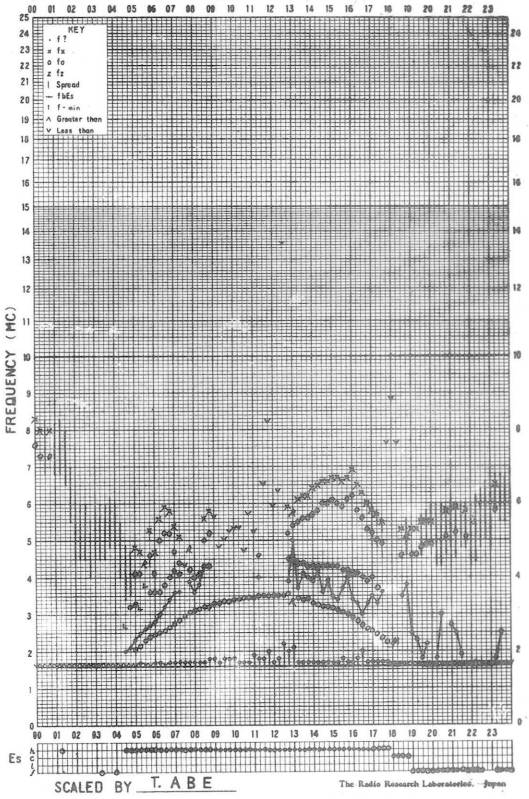
STATION WAKKANAI 135°E MEAN TIME DATE MAY. 27.1966



SCALED BY K. Kawamata The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE May. 27. 1966



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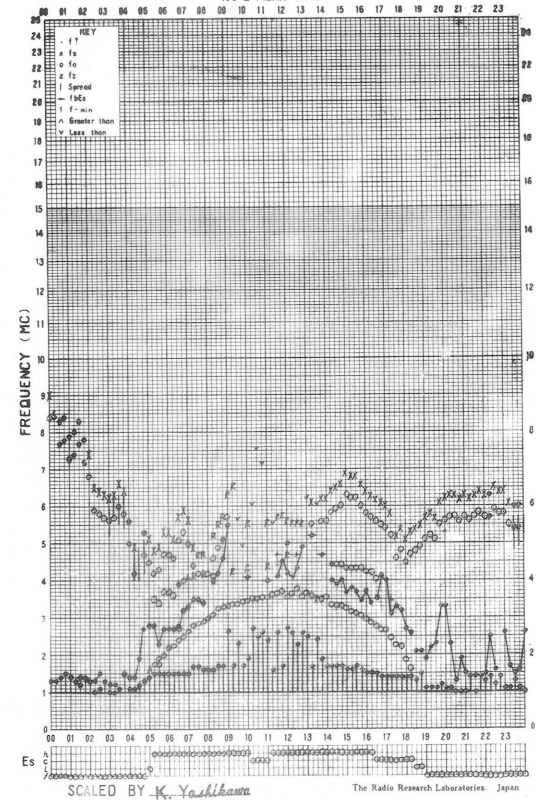
f-PLOT OF IONOSPHERIC DATA

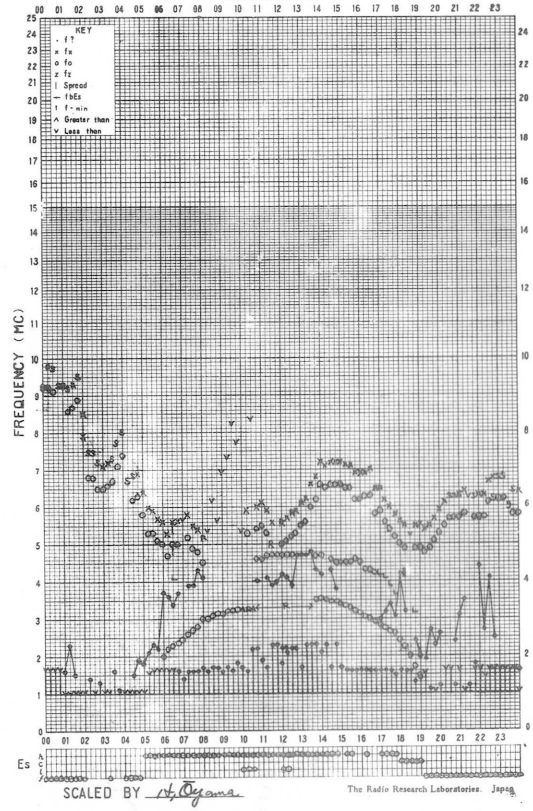
STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 27 1966



SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE MAY. 27. 1966



SCALED BY N. Ogawa The Radio Research Laboratories. Japan

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IONOSPHERIC DATA IN JAPAN

FOR JULY 1966

Vol. 18 No. 7

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.	Midori-cho, Wakkanai-shi, Hokkaido
Akita	39°43.5′N.	140°08.2′E.	Tegata Sumiyoshi-cho, Akita-shi, Akita-ken
Kokubunji	35°42.4′N.	139°29.3′E.	Nukuikita-machi, 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. Tne *duration* of observation is two minutes for WWV and three minutes for WWVH following the time indicated in universal time on the table.

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

Transmitter

	WWV	WWVH
Location	Washington, D.C. Long. 76°51′ W Lat. 39°00′ N	Maui, Hawaii Long. 156°28′ W Lat. 20°46′ N
Power	3 kW for the upper side-band	0.5kW * 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	4.5m 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 Hamburg (commercial circuit), WWV (frequencies 10, 15, 20Mc broadcast from Washington, D.C.), San Francisco (commercial circuit) and WWVH (frequencies 10, 15Mc 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 Hamburg WWV and S. F.

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

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

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

Circuits and Drop-out intensity

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

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

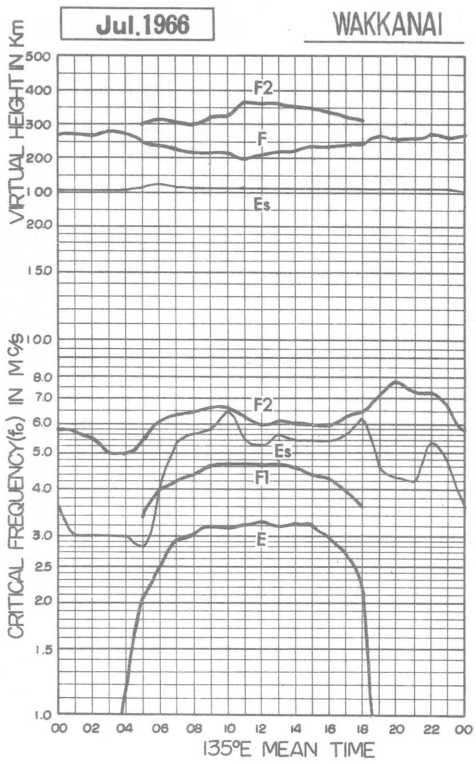
Importances

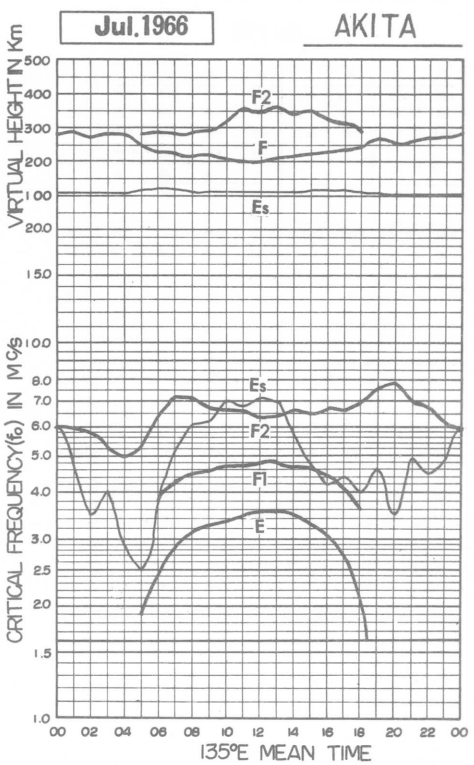
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

1−	1	1+
2−	2	2+
3−	3	3+

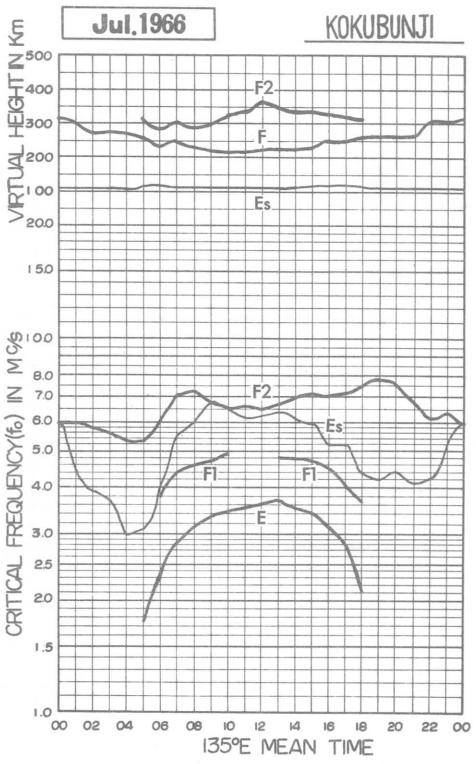
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

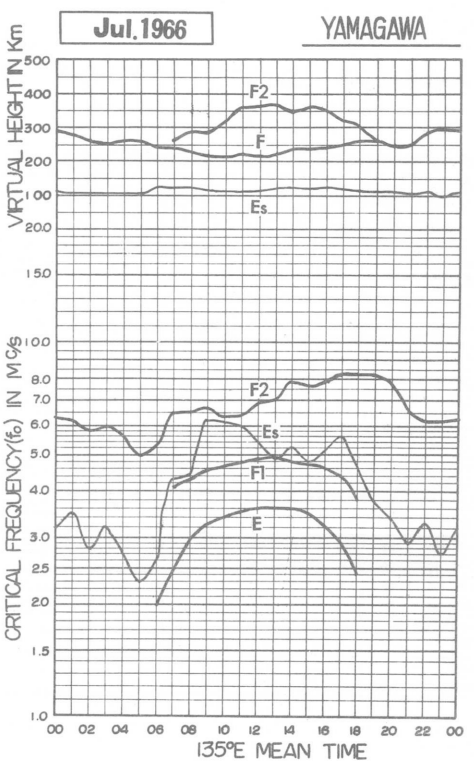
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: WAKKANAI

Jul. 1966

135° E Mean Time (G.M.T. +9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	058	057	055F	050	050	054	061	064	065	066	066·	063	060	061	060	060	060	063	065	072	078	073	073	067
	CNT	16	17	19	17	23	25	26	26	25	25	22	24	24	25	27	26	26	27	26	25	28	25	21	17
	Q R	012	011	010	006	008	005	007	009	007	011	007	004	006	007	008	009	009	007	009	012	008	010	008	010
foF1	MED					240	340	400	U420A	U440A	460	470	470	470	470	460	440	430	400	360	280				
	CNT					3	12	24	20	16	14	17	21	23	21	22	20	22	17	10	1				
foE	MED		E	E	E	115	205	250	295	305	320	320	320	325	320	325	320	300	270	210	E	E			
	CNT		1	1	15	13	19	26	28	27	28	27	26	23	23	22	24	25	25	23	22	9			
foEs	MED	J036	J030	J030	J030	J030	028	040	053	056	J058	J065	054	052	056	054	054	J054	056	J062	J046	J043	J042	J053	J048
	CNT	28	28	28	28	28	28	28	28	27	28	29	30	30	30	31	30	29	30	28	28	28	28	27	28
	Q R	034	025	030	017	020		010	019	023	034	042	031	028	035	034	033	048	033	036	040	023	022	029	043
f-min	MED	E	E	E	E	E	E	E	011	016	017	018	018	018	018	018	017	012	011	E	E	E	E	E	E
	CNT	28	28	28	28	28	28	28	28	27	28	30	30	30	30	31	30	29	30	28	28	28	28	27	28
M (3000) F2	MED	295	290	285F	290	295	300	310	310	315	315	310	300	295	295	305	300	300	295	295	295	290	290	295	300
	CNT	16	17	19	17	23	25	26	26	25	25	22	24	24	25	27	25	26	27	26	25	28	25	21	17
M (3000) F1	MED					335	350	370	U375A	U385A	395	390	390	385	380	375	365	360	355	U345A	340				
	CNT					3	12	19	11	9	10	16	21	21	20	22	20	19	14	9	1				
h'F2	MED					340	300	315	305	300	320	325	365	360	360	355	350	340	325	310	300				
	CNT					3	14	25	27	22	23	21	21	24	22	26	24	23	25	19	3				
h'F	MED	270	275	270	280	275	250	245	230	U220A	215	215	200	210	215	225	240	240	240	250	U270A	260	260	275	260
	CNT	25	25	24	26	24	24	20	7	5	9	16	16	19	19	20	17	17	12	9	12	17	24	21	22
h'Es	MED	105	105	105	105	105	115	120	115	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
	CNT	27	25	24	25	24	20	27	28	27	28	28	26	28	29	29	28	26	28	28	27	27	25	25	26
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: AKITA

Jul. 1966

135° E Mean Time (G.M.T. +9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	060	060	058	053	050	052	064	071	071	067	066	066	064	064	066	065	068	066	069	076	079	070	068	062
	CNT	16	14	17	16	23	26	31	30	30	30	30	28	26	29	29	30	30	31	31	31	28	25	20	14
	Q R	011	007	009	008	007	005	010	014	010	012	009	010	007	008	009	009	012	011	011	010	010	010	009	010
foF1	MED						320	380	430	450	460	U470A	470	480A	480	470	460	440	410	360					
	CNT						2	12	16	24	21	16	15	15	17	22	23	24	19	6					
foE	MED						190	240	280	310	325	335	345	355	355	350	330	305	270	210	E				
	CNT						5	26	26	25	22	17	14	16	15	15	19	22	25	8	6				
foEs	MED	J060	J048	J035	J040	J029	025	J038	J052	J061	J062	J070	J068	J071	J070	J058	J048	J042	J044	J040	J046	J035	J049	J045	J050
	CNT	31	31	31	31	31	31	31	31	31	30	30	31	31	30	30	30	30	30	30	31	31	31	31	31
	Q R	031	033	024	031	024	013	022	016	029	042	027	052	050	046	031	023	030	023	023	038	046	026	030	027
f-min	MED	E	E	E	E	E	E	017	017	017	017	018	019	019	019	018	017	017	017	E	E	E	E	E	E
	CNT	31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	30	30	31	31	31	31	31	31	31
M (3000) F2	MED	290	290	295	295	295	300	310	310	320	320	310	300	300	300	305	300	305	305	300	300	305	300	300	295
	CNT	16	14	17	16	23	26	31	30	30	30	30	28	26	29	29	30	30	31	31	31	28	25	20	14
M (3000) F1	MED						330	355	375	380	390	400	385	U380	375	370	360	355	345	345					
	CNT						2	9	11	18	14	13	10	12	13	18	21	23	16	5					
h'F2	MED						285	290	285	290	295	325	355	350	360	345	350	325	315	290	270				
	CNT						23	29	30	30	29	27	22	20	25	29	29	29	30	30	2				
h'F	MED	280	290	275	280	280	250	230	230	215	220	205	U200A	200	210	215	225	230	240	245	270	255	260	270	275
	CNT	29	29	31	31	30	27	17	11	13	13	11	8	11	12	14	17	20	18	19	30	30	30	30	30
h'Es	MED	105	105	105	105	105	115	120	120	115	110	110	110	110	110	110	120	120	120	115	110	105	105	105	105
	CNT	30	30	28	30	29	29	30	31	31	30	30	30	31	30	29	28	27	30	30	31	29	31	29	30
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: KOKUBUNJI

Jul. 1966

135° E Mean Time (G. M. T. +9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	U060S	U060S	U058S	056S	U053S	053	060	070	073	068	065	066	065	067	070	071	070	071	075S	078S	076S	U068S	U062S	U064S
	CNT	25	27	28	28	30	31	31	29	30	25	26	26	27	29	29	27	30	30	29	30	27	30	25	25
	Q R	010	008	008	007	011	005	013	016	011	010	009	009	006	009	014	012	014	017	014	014	011	009	011	012
foF1	MED						320L	380L	440L	460L	470L	490L	U490L	U500L	480L	U480L	470L	450L	410L	370L					
	CNT						1	10	14	9	7	6	2	4	6	8	10	16	8	6					
foE	MED						175	230	290	315	335	345	355	360	370	355	340	315	280	210					
	CNT						7	21	28	24	24	22	22	20	22	22	20	21	24	16					
foEs	MED	060	044	039	037	030	031	040	055	060	067	065	062	063	064	062	060	052	052	043	042	044	041	042	052
	CNT	31	31	31	31	31	31	31	31	31	31	30	31	30	31	30	30	30	31	31	31	31	31	31	31
	Q R	027	033	017	015	018	017	021	029	017	024	024	025	029	029	028	044	019	041	034	030	043	044	032	037
f-min	MED	013	013	012	011	012	014	015	016	017	018	022	023	026	025	020	018	017	015	014	013	012	013	012	014
	CNT	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	30	30	31	31	31	31	31	31	31
M (3000) F2	MED	U285S	U290S	U295S	290S	U295S	300	310	310	320	305	290	290	280	290	290	290	290	295	300S	300S	295S	U290S	U285S	U285S
	CNT	25	27	28	28	30	31	30	29	30	25	26	25	26	29	29	27	30	30	28	28	27	30	25	25
M (3000) F1	MED						335L	350L	360L	370L	375L	375L	U385L	U380L	390L	U370L	360L	345L	350L	340L					
	CNT						1	10	14	9	7	6	2	4	6	8	10	16	8	6					
h'F2	MED						315	285	300	280	300	325	330	360	350	340	340	330	320	310					
	CNT						9	29	30	28	24	22	23	24	26	26	27	28	30	29					
h'F	MED	310	300	270	275	275	260	235	250	230	220	215	210	220	225	225	230	250	250	260	260	265	265	305	305
	CNT	31	31	30	31	31	30	25	22	18	8	10	11	17	14	17	18	20	20	20	29	30	30	29	29
h'Es	MED	110	110	110	110	110	115	120	115	115	115	115	115	115	115	115	120	120	120	115	110	110	110	110	110
	CNT	31	31	31	31	31	30	30	30	31	30	30	31	29	30	28	27	29	30	31	31	30	30	31	30
hpF2	MED	U360S	U340S	U330S	350S	U335S	320	305	315	295	305	340	355	365	355	355	360	350	345	335S	325S	325S	U335S	U360S	U360S
	CNT	24	27	28	28	30	31	29	27	24	15	14	13	11	17	21	22	27	29	27	27	26	28	24	25
ypF2	MED	U065S	U060S	U065S	065S	U060S	055	060	055	050	055	050	045	050	050	050	055	050	055	055S	055S	055S	U055S	U055S	U060S
	CNT	24	27	28	28	30	31	29	27	24	15	14	13	11	17	21	22	27	29	27	27	26	28	24	25

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: YAMAGAWA

Jul. 1966

135° E Mean Time (G. M. T. +9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	063S	062S	058S	060S	056	050S	052	065	065	067	063	064	069	070	078	076	079	084	083	083S	078S	066S	062S	U062S
	CNT	7	6	10	13	14	20	24	26	26	25	22	22	23	24	24	25	24	24	21	20	14	14	13	8
	Q R	008	007	007	014	009	009	010	008	010	008	009	009	012	009	014	020	024	017	016	015	013	010	008	006
foF1	MED								410L	430	460	470	480	490	490	480	470	460	440	380					
	CNT								9	16	12	13	14	15	17	21	17	19	16	8					
foE	MED							200	250	300	325	340	350	360	360	360	350	325	290	240					
	CNT							10	21	20	18	17	15	17	16	15	16	18	20	15					
foEs	MED	J032	J035	J028	J032	J027	023	026	J043	J044	J062	J061	J060	J054	049	052	J048	051	J056	J046	J038	J034	J029	J033	J027
	CNT	25	25	25	25	25	25	25	26	26	25	26	26	25	25	26	25	26	26	25	26	25	24	25	25
	Q R	020	030	029	031	027	D016	012	018	021	034	029	033	033	017	016	016	027	036	041	035	026	022	031	032
f-min	MED	E016S	E016S	E016S	012	015	E015S	E016S	016	016	017	018	021	023	022	022	020	017	016	016	E016S	E016S	E016S	E016S	E016S
	CNT	25	25	25	25	25	25	25	26	26	25	27	26	26	26	26	26	26	26	25	26	25	24	25	25
M (3000) F2	MED	285S	280S	290S	295S	300	300S	320	330	320	315	300	290	280	280	280	280	285	295	300	300S	295S	280S	270S	U280S
	CNT	7	6	10	13	14	20	24	26	26	25	22	22	23	24	24	25	24	24	21	20	14	14	13	8
M (3000) F1	MED								355L	360	380	385	375	390	380	365	360	355	340	340					
	CNT								9	15	11	11	13	14	14	16	12	14	14	7					
h'F2	MED							280	270	290	290	320	360	365	370	350	360	350	320	300	260				
	CNT							3	23	24	19	20	19	21	24	25	26	22	24	23	11				
h'F	MED	295	280	265	255	260	260	245	240	230	220	210	225	220	230	240	U240A	240	250	260	260	250	255	290	295
	CNT	22	24	24	23	25	24	25	20	18	16	12	14	15	16	19	17	18	15	14	21	21	24	23	23
h'Es	MED	110	105	105	105	105	105	125	120	120	115	110	110	110	120	120	120	125	120	115	110	110	105	110	100
	CNT	24	24	24	23	23	17	25	26	26	25	26	26	25	24	24	23	26	25	24	25	24	23	25	23
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA

Jul. 1966 | 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	SF	SF	063F	060F	F	053F	058F	060	061	057	056	057F	057	A	A	A	A	A	068	I074A	080	083	080	067
2	F	SF	061F	F	053F	058	I057A	A	A	A	A	055	058	061	060	055	056	060	060	074	081	079	070F	A
3	A	F	F	F	A	F	066F	I061A	057	A	A	A	A	A	A	058	053	A	A	A	080F	078F	073F	F
4	F	083F	F	F	F	F	072F	061	064	070	064	064	060	062	057	A	067	066	071	075	081	085	075	057
5	053F	A	F	F	F	060F	057	061	066	A	A	A	A	058	058	057	054	I057A	060	063	071	073	075	063
6	054	052	050	050	050	057	061	068	074	076	070	I061A	060	060	059	054	053	053	064	074	082	071	063F	A
7	F	F	053F	F	050F	050F	057	066	073	070	B	060	060	056	056	056	055	051	053	062	072	073	071	060
8	053	051	050	049	050	057	061	I064A	I059A	067	072	060	060	066	056	052	056	058	065	083	086	078	079	071F
9	SF	F	F	F	056F	048	053	050	R	053	A	A	A	A	056	060	064	064	073	068	074	058	056	I054A
10	053	053	044	050	053	063	070	U063S	060	061	070	A	A	065	067	060	071	072	072	077	076	073	073	066
11	067	053	054	051	050F	047F	053	056	058	051	A	R	R	R	A	053	054	053	054	054	054	061	F	F
12	F	F	F	047F	050F	053F	062	074	066	060	063	060	067	062	066	062	060	063	066H	077	079	083	083F	084
13	083	074	050F	043	038	044	053	062	058	056	055	060	058	I054A	I057A	064	I063A	059	I058A	063	064	065	065	060
14	058	057F	F	F	046	053	061	075	075	066	063H	064	061	I056A	057	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	070	063	055	057	057	063	060	057	056	061	068	079	073	068	F
16	F	065F	F	F	054F	059	063	064	069	I067A	073	067	061	061	060	065	065	070	078	081	079	074	I070C	067
17	061	055	056	050	053	060	062	064	I066A	I073A	074	064	069	066	059	070	A	065	I070A	075	081	083	076	069
18	054	050	051	051S	051	A	F	077	065	056	S	054	053	A	A	A	056	060	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	A	A	060	060	060	054	I058C	063	060	060	I065A	070	066	I058A
20	F	F	F	F	045H	054F	F	F	063	058	067	064	067	064	057	054	055	054	I056A	062	068	F	F	F
21	056F	048F	045F	045F	044F	058	068	067	069	064	068	065	061	059	064	063	069	065	068	080	079	070	069	064
22	058	058	055	052	050F	052	054	065	074	073	I063A	I062A	066	069	068H	I062A	060	I060A	061	072	079	F	F	078F
23	071	064F	063F	054F	053	053	054	060	062	066	063	066	063	067	I066A	I068A	067	I065A	074	080	083	082	074	F
24	068F	062F	060F	055	054	053	060	073	C	C	C	C	C	C	065	068	068	066	069	071	U071R	068F	F	F
25	F	F	056F	F	046F	053	063	070	068	063F	066	064	067	I061A	064	065	064	067	064	073	075	F	F	F
26	F	F	F	F	F	062F	064	068	I065A	066	I062A	063	065	I064R	064	066	I065A	070	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	073	061	064	065	I070A	067	I066A	064	I069A	A	088	085	080	070
28	066	061	060	056F	054	056	056	059	064	063	062	064	061	064	I066A	068	A	A	A	A	074	070	069	069
29	064	060	057	050	045	053	073	080	078	067H	066	063	058	056	058	061	I059A	058	063	066	070	063	F	F
30	055F	051F	048F	048F	054	055F	061	062	063	065	066	064	058	057	I055A	057	061	I064A	I065A	070	077	075	SF	F
31	F	F	057F	056F	055	063	067	072	068	070	068	065	A	056	058	A	A	065	066	072	076	072	075F	070
Count	16	17	19	17	23	25	26	26	25	25	22	24	24	25	27	26	26	27	26	25	28	25	21	17
Median	058	057	055F	050	050	054	061	064	065	066	066	063	060	061	060	060	060	063	065	072	078	073	073	067
U.Q.	066	063	060	054	054	058	064	070	069	070	070	064	064	064	065	065	065	065	069	076	080	080	076	070
L.Q.	054	052	050	048	046	053	057	061	062	059	063	060	058	057	057	056	056	058	060	064	072	070	068	060
Q.R.	012	011	010	006	008	005	007	009	007	011	007	004	006	007	008	009	009	007	009	012	008	010	008	010

foF2

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

The Radio Research Laboratories, Japan

W 1

IONOSPHERIC DATA

Jul. 1966 | 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							410	I440A	I450A	I470A	480	470	460	A	A	A	A	A	A					
2						A	A	A	A	A	A	470	470	460	I460A	450	430	410	I360A	280				
3							370	A	A	A	A	A	A	A	A	A	430	A	A	A				
4							420	I450A	I460A	I460A	470	I460A	I470A	I460A	470	I450A	430	I390A	I350A	A				
5						380	380	A	A	A	A	A	A	A	440	430	430	A	A					
6						370	I410A	420	I430A	450	A	A	A	460	460	440	430	420H	I360A					
7							400	410	I430A	440	B	I460A	470	470	450	430	420	400	A					
8						330	400	I430A	I440A	460H	450	480	460	470	460	490	430	420	360	A				
9					240	330	380	410	A	A	A	A	A	A	A	A	420	390	340					
10						A	380	A	A	A	460	I460A	I460A	460	I460A	I440A	420	I400A	360					
11					250	I330A	I380A	400	I420A	430	I450A	460	450	440	I430A	I430A	410	400	A					
12							400	I420A	A	A	I460A	500H	460	I480A	460	450	440	420H						
13					240	330	370	410	430	460	470	470	I480A	I490A	I460A	440	I420A	A	A					
14						360	I400A	420	I430A	I460A	480H	I470A	470	A	A	C	C	C	C	C				
15					C	C	C	C	C	460	480	I480A	450	470	460	460	430	A	370					
16								A	A	A	460	I480A	I470A	470	I460A	I440A	430	A	A					
17							400	A	A	A	A	I470A	490	470	460	440	I430A	430	A					
18								I410A	440	440	460	460	460	A	A	A	A	A	C	C				
19					C	C	C	C	C	C	A	A	450	460	460	A	C	400	A					
20							390	I420A	A	A	A	A	I470A	A	460	450	430	410	A					
21						340	410	A	A	A	A	460	470	480	450	440	430	400	350					
22							400	I420A	I440A	A	A	A	A	I460A	I460A	I460A	430	I400A	360					
23							380	I420A	440	A	I480A	480	A	A	A	A	A	A						
24						330	I400A	430	C	C	C	C	C	C	470	440	I430A	A	A					
25							I400A	I430A	I470A	520	460	500	490	I470A	I480A	I460A	440	410	A					
26							A	A	A	A	A	A	490	480	470	470	I440A	410	C	C				
27					C	C	C	C	C	C	490	510	500	A	A	A	A	A	A					
28						330	I380A	420	430	460	480	490H	500	500	A	A	A	A						
29						360H	380	I430A	I460A	I490A	480	I470A	480	490	470H	450	I430A	400	380					
30							410	430	I460A	I470A	I480A	490H	480	490	A	A	A	A	A					
31						340	400	I430A	I450A	A	A	A	A	I490A	470	A	A	A						
Count					3	12	24	20	16	14	17	21	23	21	22	20	22	17	10	1				
Median					240	340	400	U420A	U440A	460	470	470	470	470	460	440	430	400	360	280				
U.Q.																								
L.Q.																								
Q.R.																								

foF1

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

The Radio Research Laboratories, Japan

W 2

IONOSPHERIC DATA

Jul. 1966 | foE | 0.01 Mc | 135° E Mean Time (G.M.T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				E	A	215	260	300	310	315	320	315	360	350	335	325	300	265	205	E				
2				E	A	210	250	295	305	320	325	I305A	305	300	300	295	300	260	200	E	E			
3				E	A	A	A	I260A	315	330	335	320	310	310	300	290	A	A	A	A	E			
4				E	A	A	A	300	305	310	305	A	A	A	I325A	300	I275A	I245A	210	E	E			
5				E	A	205	255	300	315	325	325	315	310	I300A	300	315	300	270	225	E	E			
6				E	A	A	245	290	305	305	310	315	A	A	A	A	A	I255A	215	110	E			
7				E	A	210	270	300	305	315	B	B	B	300	310	310	305	270	215	130	E			
8				E	150	215	265	290	305	310	B	340	350	355	A	A	A	A	A	155	S			
9				E	155	210	250	290	315	330	320	325	B	B	A	325	310	290	225	150	E			
10				E	110	205	245	295	305	320	325	330	340	350	340	325	300	280	210	E	E	S	S	
11		E	E	E	120	210	250	285	305	315	320	320	305	I300A	325	320	300	270	215	150	E			
12				E	115	205	260	295	305	320	305	300	A	A	A	325	305	280	225	195	S			
13				E	115	210	245	295	310	325	330	325	320	350	330	325	300	265	190	E				
14				E	A	200	250	295	310	320	325	315	320	I320A	A	C	C	C	C	C	C			
15				C	C	C	C	C	C	305	300	I320A	I340A	I350A	340	325	305	280	215	A				
16				E	A	A	250	295	310	315	I320B	I305S	315	310	I305A	I305A	305	I280A	215	E				
17					120	195	260	300	310	325	330	325	320	I305A	I315A	315	300	270	205	125				
18					105	190	235	295	300	300	I320A	I350A	355	350	340	320	300	270	C	C	C			
19				C	C	C	C	C	C	C	320	310	300	300	300	A	C	A	A	A				
20					A	A	250	290	305	320	325	335	300	A	A	A	280	280	210	E				
21					115	200	250	300	305	320	315	305	I330A	I325A	330	320	I295A	270	205	A				
22					A	200	245	285	300	300	300	A	A	A	A	A	295	270	200	E				
23					A	200	260	300	310	315	310	315	325	310	305	310	I280A	I250A	200	E				
24					E	A	270	290	C	C	C	C	C	C	A	A	300	265	215	120				
25					E	A	255	290	315	320	310	330	340	335	B	305	270	A	A	A				
26					A	A	240	285	295	315	B	B	B	B	345	335	300	250	C	C				
27				C	C	C	C	C	C	C	335	320	330	305	I305A	I300A	305	270	155	E				
28					A	160	250	295	300	315	320	320	I335A	I350A	350	340	305	260	200	E				
29					E	200	250	300	320	340	345	330	310	300	I320A	340	290	I280A	I225A	A				
30					E	A	250	300	305	325	330	I325A	I340A	365	I350A	300	I285A	I265A	205	E				
31					A	200	245	295	300	325	330	330	330	345	325	295	A	A	A	E				
Count		1	1	15	13	19	26	28	27	28	27	26	23	23	22	24	25	25	23	22	9			
Median		E	E	E	115	205	250	295	305	320	320	320	325	320	325	320	300	270	210	E	E			
U.Q.																								
L.Q.																								
Q.R.																								

foE

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

The Radio Research Laboratories, Japan

W 3

IONOSPHERIC DATA

Jul. 1966 | 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	J122	J110	J056	J035	J025	G	040	J065	061	J083	J050	043	061	168	J120	J114	J170	J079	J073	J093	J043	J024	J063	J084
2	J073	J080	J070	J043	J035	J048	J063	J118	J100	118	J140	J053	045	J065	049	036	G	036	J063	J083	J043	J050	J031	J111
3	J093	J064	J056	J063	078	J076	043	J065	J073	J103	J133	J118	J118	J091	J074	J056	J070	J072	J082	J078	J090	J054	J081	J064
4	J070	J025	J055	J034	J031	J054	J053	J053	J070	J135	J073	J094	J074	J068	050	J142	J094	J065	J073	J084	J061	J040	J031	J068
5	J061	J071	J063	J060	J053	G	033	J054	J068	J128	J123	J074	J075	J063	036	G	J051	J058	J051	J069	J053	J033	J043	J078
6	J024	J030	J031	J030	J025	025	J054	043	050	045	J065	J074	048	038	J043	J041	040	033	J040	J036	J029	J040	J071	J088
7	J053	J055	J073	J033	J034	034	034	043	J046	040	B	J050	040	035	G	G	021G	037	040	J045	J043	J043	J030	J025
8	J033	E	J025	J021	G	G	G	J073	J066	041	E040B	G	G	030G	040	041	J041	040	J036	J043	J043	J030	J033	J080
9	J075	J041	J023	J023	015	029	033	038	043	060	J055	J073	J083	J080	045	055	G	G	030	J036	J033	E017S	040	J080
10	J028	021	023	016	J053	043	039	J057	045	050	043	J080	J071	043	063	051	043	J064	035	022	023	E015S	E013S	E015S
11	E	E	015	E	025	J053	J043	040	044	041	J070	G	G	060	060	J073	042	040	045	J060	J043	J053	J073	J059
12	040	J040	J030	J030	G	G	038	043	051	050	055	045	J083	053	044	045	G	G	030	G	E015S	J041	J063	E
13	015	E	E	E	015	028	038	033	039	040	044	048	J063	115	J145	063	J083	J074	J063	023	J080	J074	J053	J024
14	019	J043	J043	J053	051	G	J064	063	J051	063	090	080	046	080	060	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	040	J053	J067	052	040	031G	030G	040	043	033	025	J023	J029	J038	J030
16	J053	J023	J023	J031	J033	028	033	048	070	J085	048	E050S	J055	041	J055	J060	036	051	058	073	J064	J035	C	J031
17	J030	J031	J023	J021	G	029	035	043	J071	J076	J073	J083	038	035	038	043	J083	J163	J144	J055	J040	J053	J034	J021
18	J033	018	E	J073	J054	094	J060	J054	J070	J055	J050	040	043	J061	J075	J075	062	J065	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	131	060	043	042	037	J063	C	J073	J066	J063	J080	J060	J083	J083
20	J074	J035	J030	J024	J033	J040	040	043	054	J065	J073	J074	J060	J051	J054	040	048	048	J087	047	J061	J043	J065	J064
21	J023	015	E	016	G	G	038	J053	J075	058	J065	041	038	038	030G	028G	033	033	032	026	J043	J036	J053	031
22	021	J021	J024	J024	J024	027	J120	J090	J153	J066	087	J070	J063	081	054	093	J081	J071	074	J043	J038	J043	J043	J035
23	J031	J030	J055	J030	J021	G	033	J054	045	J083	J098	043	051	J073	J075	J120	J135	106	J074	J095	J048	J070	J083	J040
24	J051	J029	J031	J054	J065	031	041	027	C	C	C	C	C	C	040	038	075	055	J060	033	023	J075	J055	J038
25	J043	J060	021	J025	J033	030	043	J083	048	J124	043	044	045	J083	J086	054	J044	040	J073	040	J043	070	J054	053
26	043	J038	J051	J030	J038	025	042	051	130	050	J098	J061	041	046	G	038	J103	J073	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	043	054	048	068	J073	J080	J094	J087	138	J100	J053	E016S	J038	J035
28	J023	J043	J031	J034	030	J055	040	053	051	047	044	G	J053	036	140	J073	J097	140	J143	083	J084	J040	E012S	J023
29	016	013	E	E	019	G	031	053	053	J057	044	050	043	038	043	049	J065	036	025	040	J053	J066	J060	J063
30	J023	J030	J040	J046	J043	J043	032	045	J074	J055	J083	043	J080	G	J074	J060	J054	065	J143	J043	J070	J026	J040	J053
31	J053	J050	J043	J031	020	023	032	J060	J056	J054	053	J060	J073	J061	083	111	097	J051	J060	J063	J123	J043	J053	J044
Count	28	28	28	28	28	28	28	28	27	28	29	30	30	30	31	30	29	30	28	28	28	28	27	28
Median	J036	J030	J030	J030	J030	028	040	053	056	J058	J065	054	052	056	054	054	J054	056	J062	J046	J043	J042	J053	J048
U.Q.	057	046	053	039	040	043	043	062	071	082	088	074	071	073	074	073	088	073	074	076	062	054	063	073
L.Q.	023	021	023	022	020	G	033	043	048	048	046	043	043	038	040	040	040	040	038	036	039	032	034	030
Q.R.	034	025	030	017	020		010	019	023	034	042	031	028	035	034	033	048	033	036	040	023	022	029	043

foEs

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

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jul. 1966 | f_bEs | 0.1 Mc | 135° E Mean Time (G.M.T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	025	014	017	015	019		G	053	047	050	G	G	G	A	A	A	A	A	051	A	040	022	051	057
2	021	055	048	028	022	043	A	A	A	A	A	036	G	038	047	G		G	050	019	023	020	024	A
3	A	041	037	040	A	050	027	A	048	A	A	A	A	A	A	050	040	A	A	A	043	037	040	028
4	022	016	040	027	027	040	G	047	056	053	040	050	050	054	037	A	036	056	058	030	016	026	020	024
5	020	A	033	040	040		G	047	050	A	A	A	A	048	G		040	A	039	058	025	013	030	038
6	018	012	011	012	014	022	050	040	045	G	050	A	047	037	035	041	031	029	039	035	028	036	050	A
7	E016S	013	035	018	023	G	G	038	044	G	B	050	040	G			021G	G	037	037	025	016	022	E
8	029		012	018				A	A	040	B			030G	037	040	032	035	030	032	029	024	025	024
9	016	012	017	017	G	G	G	G	E043R	047	A	A	A	A	045	045			G	035	030	S	040	A
10	019	017	E	E	032	033	G	053	044	049	041	A	A	042	054	050	040	040	031	G	020	S	S	S
11			E		018	034	040	G	043	041	A			036	A	045	G	037	041	042	040	020	030	030
12	020	018	017	017			035	043	047	048	050	040	044	050	040	037			G		S	026	040	
13	015				G	G	G	G	G	G	G	G	050	A	A	G	A	056	A	020	029	022	024	018
14	017	021	022	022	027		050	G	050	046	G	055	G	A	050	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	G	042	050	040	039	030G	027G	G	040	G	020	019	020	022	020
16	040	014	027	020	021	026	G	045	065	A	043	S	052	041	050	048	G	040	058	070	040	021	C	017
17	025	015	020	017		G	G	042	A	A	047	063	G	035	035	042	A	040	A	047	033	020	035	020
18	017	016		020	040	A	031	043	G	G	040	036	G	A	A	A	052	040	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	A	A	042	041	G	045	C	034	045	030	A	045	056	A
20	020	020	020	E	023	023	036	042	050	050	049	051	050	045	042	037	G	G	A	044	040	027	042	029
21	E013S	012		E			037	050	066	050	050	G	036	036	029G	028G	031	G	030	025	035	030	030	029
22	017	019	020	020	018	G	G	060	055	048	A	A	050	060	047	A	035	A	G	028	028	028	027	027
23	028	022	050	020	014		G	052	040	050	055	G	049	055	A	A	050	A	067	068	024	018	028	022
24	032	020	016	028	028	023	040	G	C	C	C	C	C	C	040	037	048	048	035	031	020	052	040	025
25	018	028	015	013	024	022	040	060	048	045	G	043	043	A	050	050	042	040	040	032	041	040	036	025
26	018	020	020	020	030	022	041	050	A	048	A	050	G	045		G	A	G	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	042	G	043	057	A	050	A	050	A	A	041	S	026	024
28	018	029	022	025	017	G	040	040	041	G	042		040	036	A	062	A	A	A	A	025	020	S	E
29	E	013			019		G	049	048	053	042	050	041	G	040	043	A	029	023	037	027	025	041	041
30	016	018	021	028	033	030	G	040	055	049	060	038	040		A	050	045	A	A	039	045	017	018	040
31	027	020	E	020	015	017	G	048	055	051	050	060	A	050	G	A	A	048	036	052	042	028	031	041
Count																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

f_bEs | Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation | W 5

IONOSPHERIC DATA

Jul. 1966 | 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	E015S	E	E	E	E	E	011	012	011	E	018	018	017	020	019	017	E	E	E	E	E	E	E	E015S
2	E	E	E	E	E	E	012	011	020	E022C	013	018	017	018	017	016	015	011	E	E	E	E	E	E
3	E	E	E	E	E	E	E	011	011	011	016	017	017	018	017	012	011	E	E	011	E	E	E	E
4	E016S	E	E	E	E	E	E	E	E	E	018	012	020	018	012	011	013	E	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	011	016	012	018	018	018	019	011	012	012	E	E	E	E	E015S	E015S
6	E	E	E	E	E	E	E	011	011	E	018	018	018	020	017	012	012	011	E	E	E	E	E	E
7	E016S	E	E	E	E	E	E	017	011	017	B	038	032	021	019	014	011	011	E	E	E	E	E	E
8	E	E	E	E	E	E	E	016	017	016	040	028	018	017	017	017	011	E	E	E	E015S	E015S	E	E
9	E	E	E	E	E	E	011	012	026	018	020	019	034	040	028	022	020	018	011	011	E	E017S	E	E
10	E	E	E	E	E	E	E	018	018	018	020	020	018	018	018	018	012	018	E	E	E	E015S	E013S	E015S
11	E	E	E	E	E	E	E	E	017	017	017	019	017	018	015	018	018	018	011	E	E	E	E	E
12	E	E	E	E	E	E	E	012	012	018	020	017	017	020	017	018	012	E	E	E	E015S	E015S	E	E
13	E	E	E	E	E	E	E	011	016	018	020	018	021	018	018	018	011	012	E	E	E	E	E015S	E
14	E	E	E	E	E	011	011	011	017	017	012	012	018	017	017	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	017	018	017	020	017	018	017	018	017	E	E	E	E	E	E
16	E	E	E	E	E	E	012	018	021	020	033	E050S	020	020	020	018	018	017	015	E	E	E	C	E
17	E	E	E	E	E	E	012	018	018	020	020	021	016	011	E	018	012	E	E	E	E	E	E	E
18	E	E	E	E	E	E	E	E	E	E	011	017	017	018	012	012	012	011	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	018	017	018	017	017	017	C	E	E	E	E	E	E	E
20	E	E	E	E	E	E	011	E	012	E	017	018	018	018	019	012	011	E	E	E	E	E015S	E015S	E
21	E013S	E	E	E	E	E	011	016	016	017	018	017	018	016	018	017	018	011	E	E	E	E	E	E
22	E016S	E	E	E	E	E	E	011	012	011	012	018	017	018	017	012	E	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E	011	011	017	020	020	027	019	020	022	012	015	E	E	E	E	E	E
24	E	E	E	E	E	E	E	011	C	C	C	C	C	C	017	017	012	E	E	E	E	E	E	E
25	E	E	E	E	E	E	012	011	017	012	018	018	021	023	035	017	017	E	E	E	E	E	E	E
26	E	E	E	E	E	012	012	017	022	023	034	033	032	035	029	022	020	011	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	020	020	020	018	020	019	017	013	E	E	E	E016S	E	E
28	E	E	E	E	E	E	E	011	017	017	017	017	013	017	017	018	013	011	E	E	E	E011S	E012S	E
29	E	E	E	E	E	E	E	011	018	020	022	020	022	020	020	018	017	011	E	E	E	E	E	E
30	E	E	E	E	E	E	E	E	012	018	019	018	018	020	019	017	E	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	017	012	017	019	019	018	019	020	018	018	E	E	E	E	E	E	E015S
Count	28	28	28	28	28	28	28	28	27	28	30	30	30	30	31	30	29	30	28	28	28	28	27	28
Median	E	E	E	E	E	E	E	011	016	017	018	018	018	018	018	017	012	011	E	E	E	E	E	E
U.Q.																								
L.Q.																								
Q.R.																								

f-min

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

The Radio Research Laboratories, Japan

W 6

IONOSPHERIC DATA

Jul. 1966 | 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	SF	SF	285F	290F	F	265F	325F	305	310	320	305	270F	265	A	A	A	A	A	295	I295A	290	290	315	310
2	F	SF	295F	F	285F	315	I310A	A	A	A	A	275	290	300	315	300	305	295	285	280	295	305	315F	A
3	A	F	F	F	A	F	305F	I310A	295	A	A	A	A	A	A	305	290	A	A	A	300F	310F	290F	F
4	F	315F	F	F	F	F	330F	310	295	330	310	330	285	295	290	A	300	290	310	295	295	315	300	315
5	295F	A	F	F	F	290F	325	285	305	A	A	A	A	300	295	320	310	I295A	295	285	285	285	310	335
6	295	290	300	295	295	305	295	310	315	340	340	I305A	290	315	305	330	300	285	295	300	315	310	295F	A
7	F	F	300F	F	300F	295F	295	305	320	320	B	295	310	300	305	320	315	305	285	290	285	300	315	310
8	285	295	300	290	305	315	310	I310A	I310A	310	330	285	290	305	320	250	290	285	270	280	290	280	305	280F
9	SF	F	F	F	275F	270	310	315	R	285	A	A	A	A	255	260	270	265	280	295	320	280	285	I290A
10	300	300	275	280	290	315	320	U315S	345	310	325	A	A	310	310	270	285	290	280	285	290	275	285	275
11	300	270	285	310	270F	270F	270	290	310	310	A	R	R	R	A	285	310	285	310	310	280	275	F	F
12	F	F	F	275F	300F	300F	290	325	320	315	300	265	315	290	305	295	285	285	280H	285	280	275	285F	300
13	305	295	270F	270	275	275	290	325	330	320	285	285	305	I285A	I295A	295	I305A	315	I310A	300	310	280	290	290
14	295	295F	F	F	305	300	285	305	325	335	305H	315	330	I315A	265	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	330	350	275	330	270	305	300	280	290	295	295	300	305	280	F
16	F	290F	F	F	280F	320	315	315	I310A	I305A	320	305	305	295	285	285	290	295	295	315	300	300	I300C	300
17	295	300	305	310	305	290	325	315	I305A	I315A	320	I305A	290	310	270	300	A	300	I285A	280	295	300	305	310
18	295	280	290	295S	280	A	F	310	315	335	S	315	290	A	A	A	285	290	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	A	A	295	300	300	285	I295C	300	310	300	I290A	285	320	I310A
20	F	F	F	F	310H	280F	F	F	290	280	305	310	315	295	320	300	300	315	I300A	285	280	F	F	F
21	305F	300F	310F	290F	295F	310	285	305	295	330	340	325	300	275	285	285	295	310	290	305	305	285	295	295
22	335	295	310	310	300F	310	285	305	340	315	I315A	I305A	280	295	305H	I310A	305	I300A	295	280	280	F	F	300F
23	285	290F	285F	295F	285	315	315	300	325	320	280	305	300	300	I315A	I315A	300	I295A	300	300	300	295	290	F
24	290F	275F	285F	290	295	300	295	325	C	C	C	C	C	C	305	305	310	305	305	310	U295R	295F	F	F
25	F	F	285F	F	285F	280	300	315	325	275F	320	295	330	I295A	310	305	310	315	290	300	305	F	F	F
26	F	F	F	F	F	295F	315	330	I315A	295	I300A	300	295	I295R	295	305	I305A	315	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	315	285	295	285	I305A	315	I305A	290	I260A	A	280	305	300	290
28	275	270	285	290F	295	305	290	305	315	300	305	300	285	285	I290A	300	A	A	A	A	285	275	270	285
29	295	290	285	270	280	275	300	290	310	310H	305	265	295	275	275	295	I300A	295	290	280	305	285	F	F
30	290F	285F	280F	290F	330	300F	330	310	300	305	320	315	310	290	I310A	285	295	I300A	I295A	285	290	295	SF	F
31	F	F	280F	285F	290	310	315	305	325	315	295	310	A	315	295	A	A	310	290	280	290	290	295F	290
Count	16	17	19	17	23	25	26	26	25	25	22	24	24	25	27	26	26	27	26	25	28	25	21	17
Median	295	290	285F	290	295	300	310	310	315	315	310	300	295	295	305	300	300	295	295	295	290	290	295	300
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F2 Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 7

IONOSPHERIC DATA

Jul. 1966 | 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							355	A	A	A	375	405	410	A	A	A	A	A	A					
2						A	A	A	A	A	A	410	385	370	I375A	365	370	345	I340A	340				
3							380	A	A	A	A	A	A	A	A	A	A	A	A	A				
4							380	I360A	I365A	I370A	380	I380A	I385A	I375A	360	I365A	370	I370A	I375A	A				
5						330	390	A	A	A	A	A	A	A	390	370	A	A	A					
6						350	I365A	I375A	I390A	400	A	A	A	370	375	I380A	360	350H	I345A					
7							370	I390A	I400A	410	B	I390A	385	385	380	370	375	360	A					
8						395	375	I390A	I405A	400H	420	380	400	385	380	345	355	I345A	I335A	A				
9					335	340	375	385	A	A	A	A	A	A	A	A	380	340	360					
10						A	375	A	A	A	370	I375A	I385A	390	I380A	I365A	I355A	I360A	I365A					
11					320	I335A	I355A	390	I380A	I390A	I405A	415	400	380	I370A	I345A	360	A	A					
12							A	A	A	A	I385A	380H	I385A	I375A	370	360	345	335H						
13					335	335	365	375	370	395	390	375	I380A	I360A	I370A	370	I375A	A	A					
14						360	I365A	380	I395A	I395A	395H	I385A	405	A	A	C	C	C	C	C				
15					C	C	C	C	C	390	I415A	I415A	445	385	370	365	395	A	345					
16								A	A	A	I385A	I400S	I395A	385	I390A	I395A	350	A	A					
17							380	A	A	A	A	I385A	370	385	385	355	I350A	A	A					
18								I375A	385	410	415	435	370	A	A	A	A	A	C	C				
19					C	C	C	C	C	C	A	A	A	I380A	350	A	C	355	A					
20							A	A	A	A	A	A	I415A	A	I375A	380	350	365	A					
21						355	A	A	A	A	A	415	385	375	380	365	350	355	A					
22							360	I375A	I385A	A	A	A	A	I390A	I370A	I365A	360	I365A	335					
23							395	A	A	A	I375A	375	A	A	A	A	A	A						
24						360	I355A	355	C	C	C	C	C	C	365	385	A	A	A					
25							A	A	A	A	415	365	I375A	I385A	I375A	I370A	I390A	A	A					
26							A	A	A	A	A	A	380	I360A	365	345	I345A	345	C	C				
27					C	C	C	C	C	C	A	375	A	A	A	A	A	A	A					
28						350	A	A	A	370	370	395H	360	350	A	A	A	A						
29						305H	370	A	A	A	395	I400A	340	355	360H	I370A	I360A	375	325					
30							355	A	A	A	I385A	410H	380	390	A	A	A	A	A					
31						355	370	A	A	A	A	A	A	A	390	A	A	A						
Count					3	12	19	11	9	10	16	21	21	20	22	20	19	14	9	1				
Median					335	350	370	U375A	U385A	395	390	390	385	380	375	365	360	355	U345A	340				
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

Jul. 1966 | 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							300	350	310	330	340	400	360	A	A	A	A	A	315					
2						295	A	A	A	A	A	450	400	350	325	360	350	335	I340A	300				
3							290	I305A	395	A	A	A	A	A	A	350	400	A	A	A				
4							270	335	360	300	325	315	410	375	400	A	310	I305A	310	290				
5						345	270	350	320	A	A	A	A	385	375	315	335	I340A	305					
6						300	315	320	300	270	295	A	395	345	340	300	350	385	325					
7							350	320	280	300	B	380	345	390	370	325	340	350	350					
8						270	300	I290A	I325A	320	295	400	360	340	335	525	360	370	360	300				
9					315	385	320	325	A	400	A	A	A	A	480	550	365	400	290					
10						300	270	315	280	330	310	A	A	325	330	410	325	310	300					
11					340	395	410	360	340	375	A	R	R	R	A	420	350	400	310					
12							320	295	345	345	355	425	320	390	345	350	360	345						
13					355	395	360	300	300	355	425	375	360	A	I400A	325	A	A	A					
14						300	375	300	285	295	350	345	325	A	470	C	C	C	C	C				
15					C	C	C	C	C	300	290	465	320	450	340	350	350	355	315					
16								320	A	A	305	330	350	360	390	370	345	315	305					
17							265	300	A	A	295	A	345	320	415	325	A	325	A					
18								295	270	305	S	360	410	A	A	A	A	340	C	C				
19					C	C	C	C	C	C	A	A	375	360	350	400	C	315	270					
20							350	295	340	400	320	340	325	350	325	360	360	330	A					
21						305	350	300	A	290	300	310	345	400	370	360	335	300	300					
22							365	I290A	275	320	A	A	395	350	320H	I310A	335	I320A	310					
23							270	355	300	310	400	350	360	350	I315A	A	325	I325A						
24						300	325	275	C	C	C	C	C	C	350	325	300	320	300					
25							325	I270A	300	370	325	385	310	A	350	330	315	305	300					
26							300	295	I320A	370	I380A	365	360	345	360	340	I325A	295	C	C				
27					C	C	C	C	C	C	295	380	350	395	I325A	310	I315A	325	I350A					
28						305	350	320	300	345	350	355	415	380	A	A	A	A						
29						390	290	320	295	300	350	420	390	445	420	350	I340A	310	310					
30							290	310	I345A	340	I345A	330	350	405	I365A	400	350	A	A					
31						285	290	305	300	320	330	I305A	A	355	400	A	A	310						
Count					3	14	25	27	22	23	21	21	24	22	26	24	23	25	19	3				
Median					340	300	315	305	300	320	325	365	360	360	355	350	340	325	310	300				
U.Q.																								
L.Q.																								
Q.R.																								

h'F2

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

The Radio Research Laboratories, Japan

W 9

IONOSPHERIC DATA

Jul. 1966 | 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	270	260	290	260	265	240	275	A	A	A	220	200	200	A	A	A	A	A	A	A	A	270	A	A
2	270	A	A	250	270	A	A	A	A	A	A	200	210	210	I220A	225	225	240	I245A	250	250	255	250	A
3	A	A	A	A	A	A	235	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	295
4	295	245	A	295A	290A	I285A	260	A	A	I250A	250	A	A	I235A	225	A	245	A	A	I265A	260	250	250	235
5	280	A	A	A	A	245	240	A	A	A	A	A	A	A	200	240	A	A	A	A	270	260	280A	I250A
6	250	260	270	260	260	245	I235A	I225A	I220A	210	A	A	A	200	210	I210A	200	220H	I245A	I255A	250A	A	A	A
7	260	255	I270A	285	260	245	235	A	A	200	B	A	235	210	215	205	225	250	I265A	I275A	265	260	250	225
8	300A	275	270	275	225	245	220	I230A	I215A	200H	200	205	200	200	210	250	200	A	A	A	260A	260	250	260
9	260	250	295	305	285	255	240	235	A	A	A	A	A	B	A	A	215	250	260	I285A	I245A	255	A	A
10	260	275	290	290	I270A	A	240	A	A	A	250	A	A	225	I225A	A	A	A	A	250	270	275	260	290
11	225	270	260	260	310	I280A	I245A	225	I225A	I220A	I205A	200	195	225	I240A	I250A	260	A	A	A	A	315	A	A
12	305	280	270	285	270	250	A	A	A	A	I220A	200H	I220A	I235A	250	250	250	225H	260H	280	270	300	I310A	250
13	250	240	250	250	300	275	255	240	235	215	215	230	I230A	A	A	220	I225A	A	A	260	270A	290	280	275
14	275	285	265	260	295A	250	A	220	A	A	200H	A	210	A	A	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	225	I210A	I205A	190	210	210	260	215	I215A	250	275	260	240	300	285
16	A	250	300A	300	295	245	245	A	A	A	I220A	I215S	I220A	230	A	A	250	A	A	A	A	250	I255C	260
17	260	260	270	250	250	245	250	A	A	A	A	A	210	200	225	I235A	A	A	A	A	A	250	I250A	235
18	245	295	280	300	A	A	250H	A	220	210	210	180	240	A	A	A	A	A	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	A	A	A	A	240	I245A	I245C	240	A	A	A	A	A	A
20	300	280	300	275	250H	250	A	A	A	A	A	A	I210A	I185A	I230A	250	250	250	A	A	I280A	285A	I275A	265
21	240	250	245	260	275	255	A	A	A	A	A	200	210	200	215	220	225	245	I250A	260	A	275A	280A	260
22	295	275	260	250	250	250	245	A	A	A	A	A	A	I225A	I235A	I230A	240	I250A	275	I270A	I280A	I290A	295A	260
23	A	280	I280A	280	290	250	250	A	A	A	I220A	215	A	A	A	A	A	A	A	A	280	260	255	295
24	I300A	300	280	310A	300A	250	I245A	245	C	C	C	C	C	C	235	225	A	A	A	A	255	I280A	I290A	300
25	300	315	260	245	325	250	A	A	A	A	210	240	I225A	I220A	I220A	A	A	A	A	A	A	A	A	260
26	265	290	260	300	275A	240	A	A	A	A	A	A	235	I250A	240	250	I255A	250	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	A	225	A	A	A	A	A	A	A	A	A	225	260A	260
28	285	310	285	295	275	275	A	A	A	240	240	190H	230	215	A	A	A	A	A	A	260	260	300	260
29	260	250	215	225	300	250H	245	A	A	A	215	I210A	260	240	235H	I250A	I250A	225	240	I270A	250	275	I310A	I305A
30	260	285	300	340A	A	240A	240	A	A	A	I215A	190H	210	215	A	A	A	A	A	A	A	255	250	I275A
31	285	300	275	290	260	260	245	A	A	A	A	A	A	A	220	A	A	A	A	A	A	275	275A	I260A
Count	25	25	24	26	24	24	20	7	5	9	16	16	19	19	20	17	17	12	9	12	17	24	21	22
Median	270	275	270	280	275	250	245	230	U220A	215	215	200	210	215	225	240	240	240	250	U270A	260	260	275	260
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

W10

IONOSPHERIC DATA

Jul. 1966 | $h'Es$ 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	110	110	105	100	100	G	135	125	115	110	110	110	130	110	110	115	115	110	110	110	105	105	105	105
2	105	105	105	105	105	120	115	110	110	110	105	105	110	105	105	105	G	115	110	110	110	110	110	110
3	105	105	105	105	105	105	110	105	110	110	110	110	110	110	110	110	105	110	110	110	105	110	110	110
4	110	110	110	105	105	115	115	115	110	110	105	105	105	105	110	105	105	105	110	105	105	105	100	105
5	105	105	105	100	100	G	125	115	110	110	110	105	105	105	115	G	135	120	120	110	110	110	110	110
6	110	110	105	105	105	105	115	125	115	115	110	105	105	105	105	105	110	110	115	110	115	110	110	110
7	125	110	110	105	105	130	125	115	115	120	B	110	110	110	G	G	105	125	120	110	110	110	110	110
8	100	E	105	105	G	G	G	110	110	105	B	G	G	105	100	100	100	100	100	120	115	110	110	105
9	105	105	105	105	135	135	125	125	115	110	110	110	105	105	105	110	G	G	125	120	120	S	110	105
10	105	110	110	110	115	120	120	115	120	110	110	110	110	135	135	125	125	120	110	120	115	S	S	S
11	E	E	125	E	125	125	120	130	125	120	110	G	G	110	120	125	125	120	120	110	110	115	120	110
12	110	105	100	110	G	G	135	120	115	115	110	105	105	120	140	140	G	G	160	G	S	115	110	E
13	100	E	E	E	135	125	125	125	120	115	115	110	110	110	110	125	110	110	110	115	110	110	110	115
14	105	105	105	105	105	G	115	120	120	110	110	110	110	105	125	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	110	110	105	105	105	105	105	125	120	115	110	110	110	110	105
16	105	100	100	100	100	120	135	115	110	110	110	S	110	110	110	105	140	125	115	110	110	105	C	100
17	100	105	105	110	G	150	140	135	115	110	110	110	110	105	105	115	110	110	115	115	110	110	105	105
18	105	105	E	110	115	110	110	115	110	110	105	110	150	120	120	115	115	110	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	110	110	105	110	110	110	C	105	105	105	115	110	110	110
20	105	105	105	105	105	110	125	120	120	110	110	110	110	105	105	105	115	120	120	110	110	115	110	110
21	110	105	E	110	G	G	125	115	110	110	110	105	110	105	105	105	110	125	115	110	110	110	110	110
22	105	105	100	100	105	120	115	110	110	110	105	105	105	115	120	115	115	120	115	110	115	115	110	110
23	105	105	105	105	105	G	125	115	120	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
24	105	105	110	100	105	105	115	120	C	C	C	C	C	C	110	105	115	115	115	110	110	110	110	110
25	105	105	105	105	105	115	120	110	120	110	110	110	120	110	110	110	110	105	105	105	105	120	110	110
26	110	110	105	105	100	105	120	110	110	110	110	110	115	120	G	150	110	110	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	115	110	110	110	110	115	110	115	110	110	110	S	105	105
28	110	105	105	100	105	115	120	110	110	110	110	G	105	110	115	115	110	110	110	110	110	105	S	115
29	110	105	E	E	140	G	130	115	110	110	110	110	110	110	110	125	110	115	110	110	110	110	110	105
30	110	105	100	100	105	100	125	110	110	110	110	110	105	G	110	110	105	120	110	110	110	110	110	105
31	100	100	100	100	105	100	120	110	110	110	110	110	110	110	110	110	110	105	105	100	100	105	110	110
Count	27	25	24	25	24	20	27	28	27	28	28	26	28	29	29	28	26	28	28	27	27	25	25	26
Median	105	105	105	105	105	115	120	115	110	110	110	110	110	110	110	110	110	110	110	110	110	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

IONOSPHERIC DATA

Jul. 1966 | 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	f2	f	f2	12	12		h	c2	c2	c2	c	c	h	c3	c2	c3	c4	c3	c5	c5	f3	f3	f5	f5
2	f3	f7	f6	12	12	c3	c3	c4	c3	c	c3	1	c	c2	c2	c		c	c5	c2	c3	f3	f4	f5
3	f4	f4	f4	14	14	14	1	12	c2	c4	c4	c3	c4	c4	c3	c3	12	c212	c412	c512	c2	f5	f3	f4
4	f2	f2	f4	12	13	c212	c21	c3	c4	c3	c2	12	12	12	1	c4	12	12	c4	c2	c	f3	f	f2
5	f2	f3	f2	13	13		c	c2	c2	c4	c4	c2	c2	12	c		h	c3	c3	c4	c3	f	f4	f2
6	f2	f2	f2	12	1	1	c5	c	c2	c	c2	c2	12	1	1	1	1	1	c3	c2	c	f6	f6	f6
7	f	f2	f4	12	12	h	c	c2	c2	c		c	c	c			1	c	c4	c2	c2	f	f2	f
8	f2		f	12				c3	c3	c				1	1	12	12	13	13	c	c2	f4	f4	f2
9	f2	f2	f2	f2	h	h	c	c	c	c2	c2	c2	c2	c	1	c			c2	c2	c		f6	f4
10	f2	f	f	1	c3	c3	c	c2	c	c	c	c2	c4	h	h2	c	c2	c2	c2	c	c			
11			c		c	c3	c2	h	c	c	c			1	c2	c2	c	c	c4	c5	f2	f2	f2	f2
12	f2	f2	f2	12			h	c2	c2	c2	c2	c2	1	c 1	h 1	h			h			f2	f4	
13	f				h	c	c	c	c	c	c	c	c	c3	c3	c	c3	c4	c5	c	f2	f2	f4	f2
14	f	f2	f3	13	13		c3	c	c2	c	c	c2	c	c3 1	c 1									
15										c	c2	12	12	1	1	1	c	c	c3	12	f2	f2	f3	f2
16	f4	f	f3	f2	1	c 1	h	c2	c2	c2	c		c2	c	1	1	h	c 1	c2	c6	f5	f4		f2
17	f5	f2	f3	f2		h	h	h	c2	c	c	c2	c	1	1	c	c3	c2	c6	c3	f4	f2	f4	f2
18	f3	f		f2	c3	c4	c2	c2	c2	c	1	1	h	c2	c2	c3	c3	c3						
19											c2	c2	c	c	c	12		13	13	13	f f	f5	f5	f6
20	f2	f2	f2	f	12	1	c2	c2	c2	c2	c2	c2	c2	12	1	1	c	c	c4	c2	f2	f2	f2	f3
21	f	f		f			c	c2	c3	c3	c2	c	1	1	1	1	1	c	c3	1	f4	f3	f3	f2
22	f2	f2	f2	f2	12	c	c2	c3	c2	c2	c2	14	13	c2 1	c 1	c212	c	c2	c2	c3	f	f3	f3	f4
23	f4	f2	f4	f2	12		c	c2	c	c2	c2	c	c	c2	c2	c2	12	13	c3	c2	f2	f2	f2	f2
24	f2	f	f	f	12	1	c3	c							1	12	c2 1	c3 1	c2	c2	f	f4	f3	f2
25	f2	f2	f	f	12	1	c3	c2	c	c	c	c	c	c4	c	c	c	12	13	12	f4	f f	f2	f2
26	f	f2	f2	f2	15	1	c2	c2	c2	c2	12	1	c	c		h	c3	c2						
27											c	c	c	c3	13	c	c3	c3	c5	c4	f4		f2	f2
28	f2	f3	f2	f4	1	c2	c3	c2	c	c	c		12	1	c2	c3	c3	c4	c4	c4	f2	f2		f
29	f	f			h		h	c2	c2	c2	c	c2	c	c	1	c	c3	1	1	14	f2	f3	f4	f4
30	f	f2	f3	f2	12	12	c	c2	c2	c2	c3	1	12		12	c2	13	c 1	c4	c4	f2	f2	f2	f2
31	f2	f2	f	f2	1	1	c	c2	c2	c	c2	c2	c3	c2	c2	c3	13	12	13	14	f3	f2	f4	f4
Count																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

Types of Es

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

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jul. 1966 | 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	065	063F	061F	F	F	059	061	061	066	065	061	056	063	059	058	063	066	066	072	079	082	I077R	077	066
2	F	F	FS	F	F	F	054	A	A	A	A	A	A	I064A	066	064	063	061	067	079	087	I076R	068S	065
3	FS	FS	FS	F	F	FS	057H	061	064	064	059	A	A	A	A	059	059	062	070	079	081	067S	FS	FS
4	FS	FS	FS	FS	FS	FS	067F	076S	079	081	062	061	061	062	069	072	072	066	074	076	I083R	078F	069	F
5	057	051	047	045	042F	051	064	064	065	061	059	A	A	066	066	065	057	054	I062A	I069A	074	FS	076S	052F
6	044S	FS	047S	I045A	045F	054F	056F	059F	082F	081	062	056	059	064	C	C	C	I060A	065	077	079	066	056	F
7	I056A	056F	053	F	049	057	054	062	I069A	067	I065B	066	I061A	I061A	061	058	055	052	056	066	FS	073S	068S	056
8	056	054F	F	053F	051F	054	053H	059	065	067	065	064	063	066	069	052	058	058	066	I078R	I086R	075	I074R	I071R
9	FS	FS	FS	FS	FS	F	061	056	056	051H	E045G	057	064	I058B	053	060	074	071	075	074	072	059	059	052
10	054S	056F	047F	046F	F	059	081	I071R	063H	071	067	066	067	070	074	064	074	082	I080R	I081R	085	077S	076	072S
11	073S	069	061	062	056	059	066	060	061	055	E046G	E047G	R	E045G	053	056	060	051	055	056	054	056	FS	058F
12	FS	FS	F	054F	052F	052	070	076	064	062	061	066	069	070	069	071	069	072	081	081	081	079S	RS	RS
13	I084R	079S	059	058	050H	049	058	061	064H	060H	055	058	065	I062A	065	068	069	061	059	068	074	I068R	066	FS
14	069	064	058F	052	049	052F	064	080	078	068	I067A	066	I067A	060	059	I066A	I070A	072	079	080	I068R	066	064S	066F
15	066	F	061	F	046	049	061	075	073	069	064	053H	056	060	066	065	I058A	057	065	074	081	071	061	F
16	F	F	F	F	051	056H	058	064	076	077	067	066	A	A	061	069	076	080	086	I084R	080	065	FS	F
17	F	F	A	A	047	056	070	071	071	077	071	I065A	I070A	I074A	I074A	073	075	077	078	I080R	I081R	I081R	I073A	I061A
18	053	F	050F	046	043	051	I072A	I084A	071	056	055H	I054A	060	060	I059A	057	059	062	069	081	087	069	061	056
19	055	056	056	F	049	051	068	080	078	J062A	I058A	056	061	067	069	065	066	064	057	058	066	062	FS	FS
20	F	F	F	F	046F	047	066	074	066	069	069	074	070	066	066	058	058	062	060	069	066	FS	F	F
21	F	F	F	F	045S	051	066F	077	074	080	068	066	061	063	064	069	077	079	077	088	081	067	066	062
22	061	061	058	051	050	053	059	071S	I071A	I074A	070H	059	I066A	I074A	075	065	063	061	063	070	076	073	F	F
23	F	F	063F	061	059F	F	052	065	062	I060A	I070A	069	I066A	068	078	068	067	071	080	085	079	074	067	066S
24	FS	FS	062S	058	055	051	066	075	074	063	066	I066A	I067A	I070A	071	071	071	071	076	I076R	072	FS	069S	RS
25	FS	061F	F	FS	FS	052	069	078	066	071	071	I070A	068	I064A	I066R	I071R	074	I068A	067	074	076	069	FS	FS
26	RS	FS	057F	055F	053	059	070	073	I074A	I060A	061	069H	064	067	068	I072A	072	I072C	074	I074R	FS	FS	072	FS
27	F	058	059	055	054	056	066	074	072	066	068	069	I070A	071	075	068	069	074	071	078	082	085	FS	FS
28	068	061	FS	FS	060	055	059	I065A	063	I062A	071	066	I070A	I069A	071	078	073	075	072	066	068	A	A	FS
29	RS	FS	FS	053	050	050	069	080	I086R	I080C	I072A	069	I069A	061	062	I066A	065	064	066	071	072	066	063	I061R
30	060	058	054S	051	044	049	061	065	I072A	070	075	I069A	I061A	I059A	062	060	I064A	065	067	071	A	A	RS	FS
31	I059R	FS	FS	FS	FS	056	066	077	081	076	070	J062R	062	I057A	I058A	063	071	072	069	071	075	070	063	FS
Count	16	14	17	16	23	26	31	30	30	30	30	28	26	29	29	30	30	31	31	31	28	25	20	14
Median	060	060	058	053	050	052	064	071	071	067	066	066	064	064	066	065	068	066	069	076	079	070	068	062
U. Q.	067	063	061	056	053	056	068	076	074	074	070	068	068	068	070	069	072	072	076	080	082	076	072	066
L. Q.	056	056	052	048	046	051	058	062	064	062	061	058	061	060	061	060	060	061	065	070	072	066	063	056
Q. R.	011	007	009	008	007	005	010	014	010	012	009	010	007	008	009	009	012	011	011	010	010	010	009	010

foF2

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 1

IONOSPHERIC DATA

Jul. 1966 | 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						A	L	430	450A	460	460	480	470R	470	I450A	450A	440	U410A	A					
2							A	A	A	A	A	A	A	A	460	450	420	420	360	L				
3						L	380L	420	440H	450	A	A	A	A	A	450	420H	I390A	A					
4						A	I410A	A	I440A	I460A	A	A	A	480	460	A	A	A	L					
5						L	400	L	I440A	I460A	A	A	A	A	A	A	430	A	A					
6							L	430	I440A	I460A	470	470A	470H	480	C	C	C	I410A	A					
7						L	L	430	440	440	B	B	A	A	460	440	430H	420L	A					
8						L	370L	410	430	460R	U460R	470	480A	460	I460A	460	420	410	370					
9						310	A	A	430	440	450	460	A	B	A	A	410	410H	350L					
10						L	370L	A	I460A	460	I470A	480L	A	A	460H	I440A	430	U410A	A					
11						320	370	420	I430A	440	460	470	I460R	450	450	420	430	400	360L					
12						L	400	420	430	I460A	I460A	I470A	I460A	I470A	470	440	430L	400	360					
13						A	I380A	I430A	460	I460A	470A	460A	I470A	490	470	460H	I430A	410	L					
14						L	410	A	A	A	A	A	A	480	480	A	A	420	L					
15						L	L	430	450	460	480	480	490	480	460	I460A	I440A	420	L					
16						L	L	440	I450A	460	470H	A	A	A	A	460	A	A	A					
17							A	430	460	460	A	A	A	A	A	450A	440H	420H	L					
18						L	A	A	440	I450A	I460A	I470A	460A	A	A	A	440	420	I370A					
19						L	A	A	450	A	A	A	I480A	I470A	I460A	460	A	A	A					
20						L	380	440	I450A	A	A	470A	I480A	480A	470	450H	430	410	L					
21							A	A	I460A	I460A	I470A	470	I480A	470	470	450	440	410	A	L				
22						L	L	A	A	A	A	490	I470A	I460A	460	450	450H	L	L					
23							L	A	A	A	A	A	A	A	A	I460A	I450A	410	L					
24						L	390	I410A	430	450	480	A	A	A	A	470	450	A	A					
25						L	L	A	A	A	A	A	480	I480A	I490A	I460A	440	A	A					
26						L	L	I430A	I450A	I460A	I490A	490	500	490	480	A	A	C	L					
27						L	A	430	450A	I460A	A	A	A	490	490	A	440	L	A					
28						L	A	A	A	A	I490A	A	A	A	480	470	450	410	L					
29						L	400	L	460	C	A	A	A	A	480A	I460A	L	L	L					
30							L	420	A	A	A	A	A	A	470	460A	I440A	L	A					
31							A	A	450	470	I480A	490A	490	I490A	I490A	470	440	L	L					
Count						2	12	16	24	21	16	15	15	17	22	23	24	19	6					
Median						320	380	430	450	460	U470A	470	480A	480	470	460	440	410	360					
U.Q.																								
L.Q.																								
Q.R.																								

foF1

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 2

IONOSPHERIC DATA

Jul. 1966 | 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						A	240	290	320	A	A	355	I360A	I355A	I350A	I330A	305	260	A					
2						190	235	280	320	330A	335	345	355	A	A	A	A	260	A					
3						A	235	I280A	325	A	A	350	360	355A	A	A	A	A	A	E				
4						A	A	A	A	A	A	A	A	A	A	340	300	240	A	E				
5						A	245	290	I320A	330	345	I350A	I355A	A	A	A	A	A	210	E				
6						A	230	275	300	320	I330R	R	A	A	C	C	C	270	A	E				
7						A	250	A	A	325	B	B	B	A	A	320	310	I275A	240	E				
8						A	240	285	310	325A	B	A	A	A	A	325	305	270	A					
9						A	245	280	315R	330	335A	A	B	B	B	A	310	290	225					
10						A	245	280	305	320	330R	I335R	I340R	345	335	320	305	280	210					
11						195	250	285	310A	325	330	335R	340R	I345A	340	325	305	270	210					
12						190	250	290	315	325	335A	335	345	345	325	325	310	280	230A					
13						A	A	280	310	325	325	345	355	355	340	315	305	270	A					
14						A	250	285	310	320	325	335A	345	350	340	320	305	265	A					
15						200	I240A	A	A	A	A	A	A	355	I350A	330	305	265	A					
16						A	255	I290A	315	325	A	A	A	A	A	A	A	265	A					
17						A	235	I280A	320	330	340	345	355	I360A	355	335	310	265	210					
18						A	250	280	A	A	A	A	A	355	350	330	305	270	A					
19						A	250	290	310	A	A	A	345	A	A	A	A	A	A					
20						A	I245A	I285A	305	325	335	A	A	A	350	330	315	275	A					
21						A	240	I290A	315	330	A	A	A	A	A	A	I300A	265	205	E				
22						A	235	265	300	325	A	A	I345A	360	340	325	315	280	A					
23						190	I240A	280	I305A	I325A	340	I345A	350	I355A	355	340	320	A	A					
24						A	I220A	I280A	310	325	340	A	A	A	A	A	A	275	A					
25						A	A	290	315	325	345	355	360	360	A	A	A	A	A					
26						A	250	I280A	305	A	A	A	360	365	355	340	320	270	C					
27						A	A	A	A	A	A	A	A	A	355	335	315	285	A					
28						A	230	285	310	325	335	A	A	A	A	345	320	275	A					
29						A	240	280	A	C	335	350	A	A	A	A	A	A	A					
30						A	A	A	315	I320A	A	A	A	A	A	A	I300A	270	A					
31						A	230	280	310	325	340	350	355	350	340	I320A	305	270	A					
Count						5	26	26	25	22	17	14	16	15	15	19	22	25	8	6				
Median						190	240	280	310	325	335	345	355	355	350	330	305	270	210	E				
U.Q.																								
L.Q.																								
Q.R.																								

foE

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 3

IONOSPHERIC DATA

Jul. 1966 | 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	J050	J065	J049	J040	J028	J035	032	035	J056	039	038	J056	J062	J049	J061	J045	J045	J062	J038	J073	J073	J063	J048	J064
2	J062	J063	J059	J043	J024	033	J052	J063	J100	J177	J125	D	J100	J171	J039	033	031	029	023	J023	J027	J080	J057	J052
3	J078	J063	J035	J037	J048	026	029	J037	036	J051	J058	J060	J062	J073	J076	J039	J036	J043	J045	J033	J028	J025	J050	J023
4	J064	J064	J049	J063	J068	J050	J067	J052	J051	J059	J078	J108	J057	J041	042	J065	J064	J051	J034	J056	J083	J043	J031	J047
5	J035	J033	J018	J019	J015E	023	034	J044	J048	J054	J056	J083	J113	J070	J100	J065	J064	J051	J113	J096	J073	J064	J076	J053
6	J029	J038	J051	J063	J051	J035	031	J049	J075	J060	J050	J047	J040	J044	C	C	C	J088	J047	J032	J035	J088	J070	J054
7	J073	J053	J068	J032	J017	026	J050	J045	J070	J056	B	J113	J098	J091	039	G	034	038	J041	J078	J063	J042	J043	J036
8	E	J035	J015E	J013E	J018	020	026	033	040	045	045	046	J054	J042	J055	040	032	037	J037	J058	J034	J036	J048	J050
9	J061	J079	J039	J051	J039	J036	J063	J049	J073	037	J056	J061	J067	B	J060	J066	G	040	J040	J063	J035	J049	J067	J063
10	J061	J036	J035	J018	J025	J025	034	J059	J050	045	J054	048	050	J070	046	J057	037	J042	J056	J058	J050	J028	J035	J024
11	J018	J018	J016E	J028	J023	G	G	J037	J077	J085	041	G	043	J065	043	042	039	033	027	J060	J040	J030	J045	J036
12	J060	J058	J035	J033	J033	022	032	039	J073	J072	J079	J054	J050	045	G	G	G	032	027	J024	J020	J038	J060	J065
13	J061	J050	J025	J018	J051	J040	J049	J055	042	J060	J047	J060	J120	J080	J067	J063	J063	J052	J037	J038	J060	J075	J028	J050
14	J018	E	J021	J060	J053	J028	J040	J052	J070	J073	J070	J128	J083	J056	J066	J113	J154	036	J064	J110	J062	J039	J029	J024
15	J052	J049	J013E	J019	J023	G	027	J033	J042	J042	J045	J054	J050	033G	J049	J061	J077	J060	J035	J046	J035	J040	J035	J038
16	J062	J054	J042	J048	J030	022	030	J048	J061	J077	J108	J122	J110	J119	J081	042	J065	J080	J064	J045	J035	J050	J074	J050
17	J060	J068	J065	J088	J029	J036	J061	J043	J042	J064	J072	J084	J103	J091	J093	J046	033	J055	J056	J075	J074	J111	J109	J108
18	J038	J045	J035	J045	J029	J036	J071	J138	J123	J095	J080	J083	J050	J060	J061	J060	J046	J056	J061	J064	J016E	J049	J044	J050
19	J063	J056	J039	J040	J035	J033	J060	J060	J060	J069	J080	J056	J072	J093	J049	J060	J073	J057	J040	J032	J025	J040	J039	J064
20	J052	J063	J048	J039	J031	J025	J029	J061	J079	J060	J073	J065	J122	J057	041	037	034	031	J028	J026	J085	J063	J043	J065
21	J061	J030	J033	J076	J037	J040	J048	J053	J058	J080	J102	J066	J071	J036	042	J033	039	035	J042	018	J013E	J064	J052	J037
22	J026	J030	J028	J035	J054	022	J043	J063	J145	J105	J082	J068	J088	J080	J066	J050	J053	J070	J074	J036	J035	J078	J028	J061
23	J063	J048	J045	J058	J048	020	J038	J052	J057	J060	J090	D	J144	J111	J110	J051	J111	J045	J034	J029	J021	J019	J013E	E
24	J020	J029	J020	J025	J029	024	J050	J098	J078	J048	J045	J083	J085	J113	J080	J053	039	J073	J120	J070	J077	J048	E	J070
25	J050	J040	J059	J061	E	023	J038	J060	J076	J093	J084	J114	J053	J098	J110	J110	J058	J063	J061	J056	J061	J050	J037	J061
26	J063	J077	J050	J018	J023	019	J029	J058	J081	J140	J110	J045	041	045	043	J108	J088	C	C	J070	J137	J052	J061	J037
27	J034	J028	J021	J052	J047	J025	J053	J059	J069	J105	J073	J083	J093	J043	J046	J047	G	J039	J048	J028	J026	J060	J065	J028
28	J024	J025	J026	J034	J023	024	J053	J100	J056	J114	J053	J074	J110	J071	J050	039	037	J037	J031	J042	J051	J089	J109	J065
29	J062	J050	J030	J023	J022	018	J030	J060	J040	C	J071	J065	J083	J078	J063	J129	J045	J088	025	J035	J025	J035	J028	J050
30	J031	J029	J033	J041	J026	J028	J037	J047	J079	J103	J063	J084	J071	J068	J042	J045	J063	J039	J057	J078	J121	J088	J073	J066
31	J085	J045	J026	J056	J045	J036	J050	J066	J040	J050	J063	J123	J043	J082	J074	040	039	J036	J029	J038	J033	J023	J037	J057
Count	31	31	31	31	31	31	31	31	31	30	30	31	31	30	30	30	30	30	30	31	31	31	31	31
Median	J060	J048	J035	J040	J029	025	J038	J052	J061	J062	J070	J068	J071	J070	J058	J048	J042	J044	J040	J046	J035	J049	J045	J050
U.Q.	062	063	049	056	047	035	052	060	077	093	080	108	100	091	074	063	064	060	057	070	073	064	065	064
L.Q.	031	030	025	025	023	022	030	044	048	051	053	056	050	045	043	040	034	037	034	032	027	038	035	037
Q.R.	031	033	024	031	024	013	022	016	029	042	027	052	050	046	031	023	030	023	023	038	046	026	030	027

foEs | Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Jul. 1966 | 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	038	038	029	020	E	032	032	034	045	039	U038R	041	040	042	052	045	041	042	U038R	055	054	050	037	018
2	045	040	039	030	018	026	049	A	A	A	A	A	A	A	037	033	031	028	022	019	E	045	037	030
3	040	040	018	018	019	023	029	033	034	042	048	A	A	A	A	038	035	U043R	045	023	019	E	037	E
4	036	029	019	021	020	033	047	045	050	049	055	052	049	040	038	051	052	051	032	050	056	028	023	022
5	019	022	E	E		022	030	039	046	052	048	A	A	055	054	058	037	050	A	A	041	E	040	035
6	018	E	E	A	032	029	029	042	051	049	041	047	040	E044R	C	C	C	A	047	024	023	029	019	031
7	A	025	028	020	E	024	036	037	A	040	B	054	A	A	038		033	035	040	022	018	025	018	018
8		023			E	020	026	032	039	U045R	U045R	044	048	041	053	035	032	033	029	045	031	031	024	050
9	040	048	028	040	035	028	039	043	040	036	037	043	056	B	049	048		034	026	032	E	045	018	018
10	041	026	020	E	E	020	034	043	049	045	053	047	U050R	065	041	057	034	042	045	022	038	E	017	017
11	018	E		018	E			034	052	038	038		E043R	039	039	039	039	033	025	042	040	026	035	E
12	022	035	E	018	E	021	031	038	035	050	052	050	050	U045R				031	028	018	017	021	056	018
13	025	040	020	E	038	038	046	055	042	052	047	046	051	A	042	036	058	031	028	037	028	053	E	E
14	E		E	022	017	024	040	048	062	061	A	049	A	045	045	A	A	034	035	039	041	029	024	E
15	019	024		018	E		027	033	035	036	037	044	038	033G	042	049	A	038	024	037	023	022	030	025
16	041	020	027	033	E	022	030	040	047	040	036	057	A	A	049	041	048	052	047	033	030	042	053	035
17	022	020	A	A	022	036	055	041	042	039	061	A	A	A	A	045	033	028	031	063	050	024	A	A
18	028	025	025	019	E	024	A	A	041	050	049	A	046	052	A	048	040	041	048	033		034	036	040
19	037	039	E	026	025	023	055	054	044	A	A	054	053	058	048	038	054	049	U040R	028	018	022	024	040
20	035	036	E	025	018	020	025	041	050	050	059	047	052	048	040	035	G	030	026	019	045	E	030	031
21	045	018	020	E	024	032	045	048	054	075	048	044	055	038	037	U033R	036	034	042	018		042	029	025
22	018	020	018	020	025	021	039	047	A	A	052	041	A	A	039	041	G	032	029	036	035	035	020	026
23	040	029	030	022	025	020	027	045	052	A	A	054	A	052	063	051	052	036	032	029	019	E		
24	020	E	E	018	E	022	034	047	041	042	045	A	A	A	061	037	039	062	055	046	018	030		035
25	021	026	027	018		021	035	054	052	055	052	A	043	A	057	065	040	A	054	045	050	044	030	040
26	050	025	E	E	E	019	028	051	A	A	052	039	041	045	043	A	046	C	C	055	040	038	035	030
27	021	024	018	018	025	023	045	040	045	054	063	055	A	043	040	046		039	041	018	019	040	040	024
28	020	022	018	028	018	022	043	A	050	A	052	053	A	A	038	037	034	035	028	035	052	A	A	050
29	040	039	026	018	018	018	029	041	042	C	A	063	A	051	048	A	042	041	024	027	023	034	025	030
30	019	022	022	025	018	024	025	040	A	049	051	A	A	A	042	046	A	038	048	053	A	A	050	035
31	034	030	019	018	028	019	047	055	039	044	057	048	043	A	A	040	034	033	028	038	018	022	027	028
Count																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

f_bEs Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 5

IONOSPHERIC DATA

Jul. 1966 | 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	017	017	018	017	018	018	019	017	017	017	017	017	E	E	E	E	E	E
2	E	E	E	E	E	017	017	017	017	018	017	022	020	018	018	017	017	017	017	E	E	E	E	E
3	E	E	E	E	E	E	017	017	017	017	017	021	020	018	017	017	017	017	E	E	E	E	E	E
4	E	E	E	E	E	E	E	017	017	017	017	017	018	018	017	017	017	017	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	017	017	017	018	018	018	017	018	017	E	017	E	E	E	E	E
6	E	E	E	E	E	E	017	E	017	017	022	023	018	019	C	C	C	017	E	E	E	E	E	E
7	E	E	E	E	E	017	017	017	017	017	B	045	037	031	020	021	017	017	017	E	E	E	E	E
8	E	E	E	E	E	E	017	017	017	018	035	030	020	021	020	018	017	E	E	E	E	E	E	E
9	E	E	E	E	E	E	017	017	025	018	019	019	036	B	035	028	023	017	017	E	E	E	E	E
10	E	E	E	E	E	E	017	017	017	018	022	024	022	019	018	017	017	018	017	E	E	E	E	E
11	E	E	E	E	E	017	017	017	017	018	018	017	022	028	023	019	017	017	017	E	E	E	E	E
12	E	E	E	E	E	017	018	017	017	017	021	018	022	023	017	017	018	017	017	E	E	E	E	E
13	E	E	E	E	E	E	017	017	017	019	021	022	020	019	018	017	017	018	017	E	E	E	E	E
14	E	E	E	E	E	E	017	017	017	017	018	018	018	020	018	017	017	E	E	E	E	E	E	E
15	E	E	E	E	E	E	E	017	017	017	017	019	018	017	017	E	017	E	E	E	E	E	E	E
16	E	E	E	E	E	E	017	E	017	017	017	018	017	017	017	017	017	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	E	017	018	017	017	017	019	018	018	017	E	E	E	E	E	E	E
18	E	E	E	E	E	E	017	017	E	017	019	017	018	017	017	017	017	017	E	E	E	E	E	E
19	E	E	E	E	E	E	E	017	017	017	017	019	019	018	018	017	017	017	E	E	E	E	E	E
20	E	E	E	E	E	E	E	017	017	018	017	021	017	017	018	017	E	017	E	E	E	E	E	E
21	E	E	E	E	E	E	E	E	017	018	018	018	019	017	018	017	E	E	E	E	E	E	E	E
22	E	E	E	E	E	E	017	E	017	017	018	017	017	017	017	017	018	E	E	E	E	E	E	E
23	E	E	E	E	E	017	E	E	017	017	017	018	027	019	021	023	017	018	E	E	E	E	E	E
24	E	E	E	E	E	E	E	017	017	018	018	017	018	018	018	017	017	017	E	E	E	E	E	E
25	E	E	E	E	E	E	017	017	E	017	018	019	018S	018	027	017	017	E	E	E	E	E	E	E
26	E	E	E	E	E	E	017	E	E	018	022	018	017	023	021	023	017	E018C	E021C	E	E	E	E	E
27	E	E	E	E	E	E	017	E	017	018	019	019	023	020	018	018	017	E	017	E	E	E	E	E
28	E	E	E	E	E	E	E	E	017	017	018	018	019	021	019	018	017	017	E	E	E	E	E	E
29	E	E	E	E	E	E	017	E	018	C	018	020	027	022	019	018	018	017	E	E	E	E	E	E
30	E	E	E	E	E	E	E	E	017	018	018	021	018	017	018	018	E	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	E	E	017	019	019	021	019	017	017	017	017	E	E	E	E	E	E
Count	31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	30	30	31	31	31	31	31	31	31
Median	E	E	E	E	E	E	017	017	017	017	018	019	019	019	018	017	017	017	E	E	E	E	E	E
U.Q.																								
L.Q.																								
Q.R.																								

f-min | Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Jul. 1966 | 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	290	285F	285F	F	F	325	310	305	325	330	280	280	320	305	300	300	310	305	305	290	300	I300R	310	295
2	F	F	FS	F	F	F	315	A	A	A	A	A	A	I300A	310	300	305	290	280	300	315	I310R	300S	300
3	FS	FS	FS	F	F	FS	310H	320	315	320	295	A	A	A	A	280	295	295	295	300	315	315S	FS	FS
4	FS	FS	FS	FS	FS	FS	270F	310S	315	335	325	295	295	285	305	315	315	290	310	305	I305R	310F	305	F
5	300	305	290	295	290F	300	325	300	340	290	310	A	A	310	305	320	305	290	I285A	I290A	300	FS	325S	295F
6	285S	FS	290S	I290A	300F	320F	330F	280F	315F	335	325	280	290	300	C	C	C	I300A	295	310	320	310	290	F
7	I290A	285F	305	F	285	320	300	325	I320A	330	I320B	300	I300A	I295A	310	295	315	280	285	295	FS	305S	305S	295
8	295	285F	F	310F	305F	325	325H	340	320	320	295	285	290	305	315	265	300	270	275	I280R	I310R	295	I290R	I305R
9	FS	FS	FS	FS	FS	F	315	305	300	295H	G	270	300	I270B	245	245	290	275	290	285	305	290	275	280
10	280S	295F	305F	285F	F	300	340	I335R	320H	320	305	290	305	295	310	270	270	295	I300R	I290R	305	285S	275	280S
11	290S	290	285	300	280	275	285	290	315	320	G	G	R	G	275	285	320	295	290	300	285	275	FS	280F
12	FS	FS	F	300F	295F	295	305	315	340	325	300	295	285	290	295	300	285	290	310	295	290	270S	RS	RS
13	I305R	320S	290	285	270H	280	315	310	290H	315H	320	290	310	I310A	305	310	325	310	295	290	300	I295R	290	FS
14	290	300	310F	295	295	290F	290	310	335	305	I310A	325	I310A	300	295	I295A	I310A	310	320	335	I300R	295	285S	290F
15	290	F	310	F	305	290	300	305	330	335	320	320H	285	300	310	320	I290A	285	310	300	320	310	300	F
16	F	F	F	F	280	325H	330	295	330	340	310	305	A	A	280	295	305	300	305	I310R	315	280	FS	F
17	F	F	A	A	300	295	300	325	315	315	310	I310A	I300A	I305A	I295A	290	305	310	300	I310R	I315R	I305R	I305R	I305R
18	285	F	300F	300	290	300	I320A	I340A	325	305	320H	I305A	300	300	I305A	285	290	290	290	310	320	305	300	305
19	280	290	300	F	305	300	280	325	325	I325A	I315A	275	290	305	315	310	305	325	315	300	320	305	FS	FS
20	F	F	F	F	300F	305	305	340	325	300	300	315	305	305	320	300	300	320	305	315	295	FS	F	F
21	F	F	F	F	300S	300	305F	300	325	350	325	330	290	290	275	290	290	305	305	310	315	285	295	290
22	290	295	315	295	290	300	300	340S	I330A	I330A	300H	255	I290A	I300A	315	305	315	315	305	295	295	290	F	F
23	F	F	300F	280	290F	F	330	340	325	I350A	I330A	330	I310A	300	310	305	305	300	300	310	300	305	300	290S
24	FS	FS	295S	295	295	295	310	315	350	320	330	I300A	I290A	I305A	310	305	310	310	305	I310R	295	FS	305S	RS
25	FS	295F	F	FS	FS	300	320	330	325	315	325	I320A	315	I300A	I290R	I300R	310	I310A	300	305	310	320	FS	FS
26	RS	FS	295F	295F	300	315	330	330	I340A	I330A	280	290H	295	285	290	I300A	305	I310C	300	I310R	FS	FS	295	FS
27	F	290	295	290	285	305	310	325	320	320	285	305	I315A	290	305	280	295	310	290	295	295	285	FS	FS
28	300	285	FS	FS	310	305	320	I305A	315	I285A	305	290	I300A	I295A	290	310	305	315	320	305	295	A	A	FS
29	RS	FS	FS	285	285	280	305	275	I300R	I310C	I305A	295	I295A	300	280	I305A	305	310	305	300	305	290	295	I295R
30	285	280	280S	300	310	310	330	310	I305A	315	310	I325A	I310A	I300A	310	295	I305A	310	305	295	A	A	RS	FS
31	I290R	FS	FS	FS	FS	315	295	310	315	315	320	J310R	295	I270A	I290A	290	315	310	310	295	305	305	280	FS
Count	16	14	17	16	23	26	31	30	30	30	30	28	26	29	29	30	30	31	31	31	28	25	20	14
Median	290	290	295	295	295	300	310	310	320	320	310	300	300	300	305	300	305	305	300	300	305	300	300	295
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F2 | Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 7

IONOSPHERIC DATA

Jul. 1966 | M(3000)F1 | 0.01 | 135° E Mean Time (G.M.T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	L	355	I360A	375	405	355	385R	380	I385A	I405A	360	I360A	A					
2							A	A	A	A	A	A	A	A	365	360	355	340	340	L				
3						L	390L	380	385H	I405A	A	A	A	A	A	360	355H	A	A					
4						A	A	A	I380A	A	A	A	A	375	390	A	A	A	L					
5						L	355	L	A	A	A	A	A	A	A	A	355	A	A					
6							L	A	A	A	405	I410A	380H	I370A	C	C	C	I345A	A					
7						L	L	375	I395A	420	B	B	A	A	380	375	360H	340L	A					
8						L	400L	380	400	I355A	I390A	A	A	380	I385A	365	355	340	335					
9						340	A	A	A	390	410	370	A	B	A	A	360	330H	345L					
10						L	380L	A	I360A	A	A	A	A	A	370H	I365A	345	A	A					
11						320	345	365	I375A	370	410	420	I405R	395	385	I380A	335	360	380L					
12						L	335	375	415	I375A	I390A	I405A	I380A	I375A	385	360	355L	340	350					
13						A	A	A	350	A	A	A	I390A	I360A	385	360H	I360A	360	L					
14						L	A	A	A	A	A	A	A	A	A	A	A	340	L					
15						L	L	375	395	395	400	380	390	415	370	A	A	345	L					
16						L	L	345	I320A	395	400H	A	A	A	A	350	A	A	A					
17							A	A	370	395	A	A	A	A	A	I375A	365H	350H	L					
18						L	A	A	400	I395A	I390A	I385A	I370A	A	A	A	340	A	A					
19						L	A	A	A	A	A	A	A	A	A	370	A	A	A					
20						L	370	365	I375A	A	A	A	A	A	340	380H	365	345	L					
21							A	A	A	I385A	I390A	395	I380A	385	375	360	350	345	A	L				
22						L	L	A	A	A	A	385	I375A	I380A	390	375	340H	L	L					
23							L	A	A	A	A	A	A	A	A	I360A	I350A	350	L					
24						L	335	I355A	375	395	375	A	A	A	A	360	355	A	A					
25						L	L	A	A	A	A	A	400	A	A	I340A	360	A	A					
26						L	L	A	A	A	I380A	380	365	370	355	A	A	C	L					
27						L	A	I375A	I395A	A	A	A	A	370	370	A	355	L	A					
28						L	A	A	A	A	I410A	A	A	A	370	345	355	350	L					
29						L	325	L	370	C	A	A	A	A	A	A	L	L	L					
30							L	A	A	A	A	A	A	A	360	I365A	I340A	L	A					
31							A	A	380	370	A	A	370	I370A	I370A	360	345	L	L					
Count						2	9	11	18	14	13	10	12	13	18	21	23	16	5					
Median						330	355	375	380	390	400	385	U380	375	370	360	355	345	345					
U.Q.																								
L.Q.																								
Q.R.																								

M(3000)F1 Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Jul. 1966 | 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						250	255	325	295	295	350L	405	330	355	380L	350	320	310	290					
2							A	A	A	A	A	A	A	I350A	340	345	335	345	325	285				
3						250	250H	305	330	305	385	A	A	A	A	400	350	345	310					
4						265	AH	300	295	265	I285A	I325A	400A	395	340	305	290	330	295					
5						330	265	315	265	370	345	A	A	345	345	I320A	340	A	A					
6							260	370	295	255	295	415	395	360	C	C	C	I325A	325					
7						275	350	295	I310A	305	I305B	310A	I365A	I370A	345	370	305	395	330					
8						280	255	265	320	320	355	370	370	340	290	470	350	390	335					
9						345	290	340	355	395H	G	440	355	B	545	480	330	365	300					
10						270	270	260	260	310	320	365	345	I350A	310	I370A	380	300	280					
11						355	335	365	340	345	G	G	R	G	440	395	320	325	310					
12						280L	305	260	270	305	360	365	360	370	350	345	350	335	285					
13						A	330	I330A	325	I310A	330	400	345	I340A	350	315	300	305	280L					
14						280	335	295	275	A	A	320	I340A	350	385	I390A	A	285	275					
15						265	335	280	280	280	320	340	435	365	340	310	I350A	375	280					
16						265	260	340	285	270	320	A	A	A	415	365	315	295	275					
17							310	265	305	290	I300A	A	A	A	I335A	340	325	285	290					
18						300	I295A	I280A	270	I290A	I350A	I360A	370	370	I370A	390	380	360	330					
19						310	I350A	270	280	I290A	A	A	390	350	330	330	330	295	280					
20						300	310	260	280	315	330	310	345	360	305	350	345	310	300					
21							295	310	280	295	320	320	A	385	405	355	330	295	290	260				
22						285	315	260	I275A	I295A	320	480	A	I340A	295	325	320	300	310					
23							260	270	310	I290A	I300A	305	I340A	350	310	320	330	320	285					
24						305	310	275	260	280	325	A	A	A	320	330	310	325	285					
25						290	260	270	280	340	310	I315A	315	I360A	I365A	A	305	I300A	320					
26						280	240	280	I250A	I285A	450	365	375	380	355	I355A	305	290	295					
27						295	280	255	290	280	I345A	350	I315A	365	325	330	310	305	300					
28						295	290	I290A	320	I365A	340	320	I335A	I340A	355	315	305	280	270					
29						380	280	290H	305	I315C	A	A	A	355	370	I340A	305	320	280					
30							260	260	I290A	300	315	A	A	A	345	355	I350A	320	300					
31							310	295	290	275	300	340	345	I390A	I400A	375	305	300	280					
Count						23	29	30	30	29	27	22	20	25	29	29	29	30	30	2				
Median						285	290	285	290	295	325	355	350	360	345	350	325	315	290	270				
U.Q.																								
L.Q.																								
Q.R.																								

h'F2 Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jul. 1966 | 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	300	300	290	275	230	I245A	235	215	I230A	225	205	I190A	210	205	A	A	A	A	A	310A	300A	I275A	250A	250
2	I290A	I290A	285A	250	230	245	A	A	A	A	A	A	A	A	205	225	220	240	240	270	245	255A	270A	270
3	A	A	260	290	280	245	240	210	195H	I200A	A	A	A	A	A	210	235	A	A	280	240	220	I300A	275
4	I280A	290A	280A	250	280	A	A	A	I215A	A	A	A	A	200H	210	A	A	A	A	300	290	245	250	255
5	255	270	275	290	310	245	230	I220A	A	A	A	A	A	A	A	A	A	A	A	A	285A	255	255	I260A
6	285	295	270	I300A	I300A	245	245	A	A	A	200	I190A	190H	I210A	C	C	C	A	A	265	240	240	240	290A
7	I275A	285	255	280	265	240	I230A	230	I215A	200	B	B	A	A	210	230	220	A	A	280A	285	255	210	235
8	255	305	255	265	245	240	215	220	210	I220A	I205A	A	A	230	I230A	230	215	260	255	I280A	250	270	295	I280A
9	300A	I300A	295A	I310A	280	A	A	A	A	220	200	A	A	B	A	A	240	I250A	285	270	245	I260A	290	270
10	I280A	290	275	285	275	250	A	A	A	A	A	A	A	A	A	A	235	I255A	I270A	255H	270	255	270	290
11	250	260	255	280	290	260	230	245	I235A	245	210	205	I200A	205	245	I230A	I245A	240	245	300A	I280A	305A	I300A	290
12	295	I300A	240	275	280	250	250	245A	200	I210A	I220A	I210A	I220A	I215A	190	220	225	230	250	255	255	305	I265A	255
13	255	260	275	285	A	A	A	A	A	A	A	A	I220A	I215A	210	225	I230A	225	245	270	270	I255A	260	275
14	260	255	245	300	280	245	A	A	A	A	A	A	A	A	A	A	A	240	I240A	240	I260A	280	285	275
15	265	265	235	235	255	230	220	230	205	200	195	I200A	190	195	A	A	A	240	245	270	245	240	250	300
16	I290A	295	I295A	300A	280	240	225	A	A	225	190H	A	A	A	A	275	A	A	A	240	240	I255A	I280A	275
17	285	290	I285A	I260A	255	260	A	A	A	210	A	A	A	A	A	A	200H	220H	I240A	I270A	280	280	I280A	I300A
18	300	300	280	265	300	255	A	A	225	I230A	I230A	A	A	A	A	A	A	A	A	270	225	250	I260A	A
19	A	A	265	300	290	255	A	A	A	A	A	A	A	A	A	215	A	A	A	280	245	260	310A	270
20	I265A	I275A	260	285	265	255	225	I245A	I225A	A	A	A	A	A	270	205H	210	225	240	260	280	260	300	300
21	I280A	255	300	300	280	270	A	A	A	I225A	I220A	210H	I190A	205	205	225	230A	I235A	I250A	I240A	220	I260A	280	290
22	275	285	245	240	290	255	A	A	A	A	A	195	I190A	I190A	190	I225A	215	250	230A	280	265	290A	300	300
23	295	300	285	275	270	220	250	A	A	A	A	A	A	A	A	A	A	A	I235A	255	240	245	245	275
24	295	295	265	290	270	255	I250A	A	A	225	A	A	A	A	A	225	240	A	A	270	255	285	220	I260A
25	275	285	300	280	275	260	A	A	A	A	A	A	190	A	A	A	230	A	A	290	290	275	I280A	I305A
26	I290A	270	275	245	255	250	220	A	A	A	I190A	210	210	I235A	I240A	A	A	I240C	I240C	I260A	285	280A	265	275
27	270	290	275	270	290	255	I245A	I235A	I215A	A	A	A	A	220	240	I220A	220	I225A	I240A	270	250	I270A	290	255
28	250	290	285	290	255	A	A	A	A	A	A	A	A	A	220	230	230	230A	250	255	A	A	A	I295A
29	I300A	290	270	290	285	245	225	I225A	230	C	A	A	A	A	A	A	I225A	I230A	230	260	245	260	265	I280A
30	310	290	300	265	240	255	230	A	A	A	A	A	A	A	250A	I235A	I245A	A	A	310	I295A	I270A	I265A	290
31	I295A	300	290	275	265	255	A	A	225	A	A	A	225	A	A	240	235	240	245	275	240	245	290	305
Count	29	29	31	31	30	27	17	11	13	13	11	8	11	12	14	17	20	18	19	30	30	30	30	30
Median	280	290	275	280	280	250	230	230	215	220	205	U200A	200	210	215	225	230	240	245	270	255	260	270	275
U.Q.																								
L.Q.																								
Q.R.																								

h'F

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Jul. 1966 | 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	110	105	105	105	110	105	130	125	120	115	115	125	115	120	120	125	125	120	110	110	110	110	100	105
2	105	100	100	100	105	145	120	120	115	110	110	110	110	110	110	110	110	125	120	105	105	105	100	110
3	110	105	105	105	105	125	120	120	130	115	110	110	110	110	110	110	105	105	105	100	100	100	100	105
4	110	110	105	105	105	105	110	110	110	110	110	105	105	110	110	115	115	110	115	105	105	105	100	100
5	100	100	105	100	E	130	130	115	110	110	110	105	110	110	110	110	110	130	120	120	115	115	110	110
6	105	105	100	100	100	100	130	120	115	110	110	110	110	110	C	C	C	120	110	115	105	110	110	105
7	105	105	105	100	105	135	125	125	110	130	B	115	110	105	105	G	150	115	125	120	110	105	105	100
8	E	105	E	E	100	100	140	120	115	110	110	105	105	105	105	140	E150G	120	105	100	100	100	105	110
9	110	110	105	100	100	130	120	120	115	115	120	110	110	B	110	110	G	125	125	120	110	110	105	105
10	110	110	105	110	110	115	125	115	115	120	125	120	120	120	140	130	145	125	120	115	110	115	110	110
11	105	110	E	125	120	G	G	135	120	130	130	G	145	110	140	130	130	125	125	115	120	115	115	110
12	105	105	110	115	110	145	135	130	120	120	110	115	120	130	G	G	G	130	130	130	120	120	115	110
13	105	110	110	110	110	110	120	120	120	115	120	130	120	125	120	120	120	120	120	115	110	110	115	120
14	115	E	110	110	105	110	125	120	115	110	110	110	110	120	135	130	125	125	110	110	105	105	105	105
15	105	105	E	110	105	G	155	115	110	110	110	105	105	105	105	125	115	120	125	115	110	105	105	105
16	100	100	100	100	100	150	155	120	115	115	115	105	105	105	105	125	120	120	110	110	110	110	105	105
17	105	105	105	105	105	135	130	125	125	125	120	115	115	110	110	115	130	125	120	110	110	115	105	110
18	105	105	100	105	105	115	115	110	105	105	105	105	125	125	120	120	120	115	115	110	E	105	105	105
19	105	100	105	100	100	100	120	120	115	105	105	110	110	105	110	110	105	100	100	105	105	100	105	110
20	105	105	105	100	105	115	115	115	115	115	110	110	105	105	160	130	125	130	125	115	105	105	105	105
21	105	105	140	135	125	110	125	115	115	110	105	105	105	105	125	115	130	120	110	120	E	105	105	100
22	105	100	100	100	105	130	125	120	110	110	105	105	110	120	120	125	125	115	110	110	105	105	110	105
23	105	105	100	100	100	105	115	125	115	115	115	105	105	110	110	120	115	115	110	110	110	110	E	E
24	100	100	105	105	105	120	115	115	110	115	105	105	105	105	100	100	125	120	115	110	110	105	E	105
25	105	100	100	105	E	140	125	125	115	115	115	115	110	115	110	105	105	105	105	100	100	100	105	110
26	110	105	110	105	105	150	120	110	105	105	105	110	145	135	130	125	120	C	C	110	105	110	105	105
27	100	100	100	110	105	105	105	110	105	105	105	105	105	105	130	125	G	120	115	115	105	105	105	105
28	105	105	105	105	105	120	115	110	115	105	105	105	105	105	105	130	125	120	120	110	110	110	110	110
29	105	105	105	100	105	125	120	110	120	C	110	105	105	115	110	105	110	110	115	105	105	105	100	105
30	105	100	100	100	100	100	105	110	110	105	105	105	105	105	110	110	105	125	115	110	105	105	105	105
31	105	100	100	100	105	110	115	110	120	110	105	105	110	110	110	135	140	120	115	105	105	100	100	105
Count	30	30	28	30	29	29	30	31	31	30	30	30	31	30	29	28	27	30	30	31	29	31	29	30
Median	105	105	105	105	105	115	120	120	115	110	110	110	110	110	110	120	120	120	115	110	105	105	105	105
U.Q.																								
L.Q.																								
Q.R.																								

h'Es

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 11

IONOSPHERIC DATA

Jul. 1966 | 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	f5	f4	f5	f3	f	13	h2	h2	h3	c2	c2	h2	c2	h	h2	h2	h2	c4	12	f4	f3	f4	f4	f3
2	f3	f6	f3	f3	f2	h2	h2	h5	h3	c3	c3	c2	c3	c2	c2	c	c2	h	h 1	12	f2	f3	f3	f5
3	f3	f4	f2	f2	f2	c2	h	h2	h	c2	c2	c4	c3	c3	c3	c2	12	13	13	12	f2	f2	f2	f2
4	f3	f4	f2	f4	f5	13	14	c3	c2	c2	c2	c3	c2	c2	c	h3	h3	c3	c3 12	14	f4	f3	f3	f2
5	f2	f4	f	f2		h2	h3	h3	c2	c3	c2	c3	c2	c3	c3	c2	c2	h3 1	c3	c3	f5	f2	f2	f3
6	f2	f2	f2	f2	f3	13	h2	h2	h3	c2	c2	c	c	c				h3	12	c2	f2	f3	f3	f5
7	f5	f4	f3	f2	f	h2	h2	h2	c2	h2		c	c2	c2	12		h	h2 c2	h5	c2	f2 f	f f	f	f2
8		f3			f	1	h	h	c2	c2	c	1	12	12	13	h 12	h	h2	13	f4	f4	f3	f2	f4
9	f4	f5	f3	f5	f2	h 1	h2	h4	c2	h	h	c2	c2		c	12		h2	h2	f4	f2	f5	f2	f3
10	f3	f4	f3	f2	f	c	h3	h3	h2	h	h2	h	h	h3	h	h2	h	h2	c2	f3	f2	f2	f2	f2
11	f2	f2		f2	f3			h2	h2	h	h2		h	1 h	h	h2	h	h2	h3	f2	f2	f2	f3 f	f2
12	f3	f3	f2	f3	f2	h	h2	h2	h	h3	c2	h2	h2	h				h2	h2	f2	f2	f2	f5	f2
13	f3	f4	f4	f f	f3	14	h2 12	h3	h2	h2	h	h h2	h2	h3	h2	h	h2	h	c2	f2	f2	f3	f2	f2
14	f		f2	f2	f	12	h2	h2	c5	c4	c4	c2	c3	h2	h2	h2	h5	h2	c3	f3	f2	f2	f3	f2
15	f2	f3		f2	f		h 12	c2	c2	c2	c2	12	c2	12	12 h	h2	h3	h2	h3	f4	f4	f4	f3	f3
16	f4	f2	f3	f3	f2	h	h	h3	h3	h2	h2	c3	13	13	12	h 12	h2	h3	c3	f4	f3	f5	f5	f3
17	f3	f4	f5	f3	f4	h3	h3	h2	h2	h2	h3	h3	h2	c4	c3	h2	h	h2	h5	f6	f3	f3	f5	f3
18	f3	f3	f3	f2	f2	c3	c3	c4	c2	c2	c2	c2	h 12	h3	h2	h3	h2	c3	c3	f2		f4	f2	f3
19	f5	f3	f2	f3	f2	12	h3	h3	h3	c3	c2	c2	c3	c3	c2	c2	13	13	13	f3	f2	f2	f5	f3
20	f3	f5	f3	f2	f3	c	c2	c3	c3	c2	c4	c2	c2	c2	h h	h	h	h	h2	f3	f3	f2	f2	f6
21	f4	f3	f3 f2	f2 f2	f2 f3	13	h3	c5	c3	c3	c2	12	13	12	h2	c2	h2 12	h3 12	c2	c2		f3	f3	f3
22	f2	f3	f3	f3	f2	h2	h4	h3	c3	c3	c3	c2	c3	h2	h	h	h	h2	c3	f3	f3	f3	f5	f4
23	f3	f5	f4	f2	f3	1	c3	h3	c3	c2	h3	c2	c2	c2	c3	h	h3	c2	c3	f3	f3	f2		
24	f2	f2	f2	f4	f2	h2	c3	c3	c2	h2	c2	13	14	14	13	12	h2	h4	c2	f4	f2	f3		f3
25	f4	f4	f3	f3		h	h3	h3	h3	h3	h2	h4	c2	h3	c2	c3	c3	14	14	f3	f5	f4	f3	f4
26	f4	f4	f3	f2	f2	h2	h2	c4	c3	13	13	c2	h	h2	h	h3	h2			f3	f3	f4	f3	f3
27	f2	f2	f2	f2	f3	12	12	c3	c3	13	13	13	13	12	h	h2		h	c2	f2	f2	f5	f4	f3
28	f3	f3	f2	f4	f3	c2	c3	c5	h4	c4	c2	c3	13	14	12	h	h	h2	c2	f4	f4	f4	f5	f3
29	f4	f5	f4	f2	f2	h2	h2	c2	h2		c3	c2	13	c2	c2	c3	c2	c2	c2	f3	f4	f3	f3	f3
30	f2	f3	f3	f3	f3	12	12	c3	c3	c2	12	13	c2	c4	c2	c2	c3	h3	c3	f3	f3	f5	f3	f4
31	f4	f2	f2	f2	f3	12	h3	c3	h2	c2	c3	12	c	c4	c3	h	h2	h2	c2	f3	f3	f3	f4	f4
Count																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

Types of Es

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 12

IONOSPHERIC DATA

Jul. 1966 | 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	U064S	U064S	U062S	064	063	064	060	063S	066	070	062	062	063	061	063	065	069	070	072S	S	081S	U072S	071F	U065S
2	073S	U075S	U065S	U072S	068S	057	054	064	I065A	068	A	A	061	065	A	I073A	069	073S	U078S	090	090S	071S	U060S	061
3	U059S	U055S	U058S	054	U059S	058	055	057	070	067	055	060	R	061	064	061	I065A	069	U080S	086S	083S	U064S	062S	065S
4	U060S	U058F	U058F	U062F	U053F	U053S	060S	078	085	068	I061A	I062A	I062A	069	080	A	I074A	U066R	078S	U082S	080S	U073S	068S	067S
5	063	U059S	055	051	047	050	070S	070	066	A	061	062	065R	068R	I071A	071	063	I056A	058	070S	U073S	U081F	S	U053S
6	U053F	050S	U049S	U046S	F	U053S	055	069S	079	087	062	J054R	060	069	066	067	I065A	064	069S	080S	S	060S	U053S	U051S
7	I054A	U053S	U053F	F	U047S	U058S	056	060	075	061	B	A	062	063	061	A	057	U053R	059	J062A	A	U061S	U057S	U057S
8	U058S	U059S	U060F	057S	055	050	052	061	066	069	062	066	065	067	066	057	058	060	066	079S	086S	U068S	U071S	U071S
9	U069S	U064S	U059S	U057F	U056F	058S	060S	I060A	061R	A	A	A	065	A	B	061	080	072	I074S	077S	063S	U060S	057	U057S
10	U052S	057S	A	045S	U042S	053	J074S	061	U067R	080	065	069	059R	070	072	065	070	084	083	J084S	085S	080S	U073S	U074S
11	U079S	U079S	064	058	060S	060	069	061	056	U055R	U051R	R	R	U051R	057	059	061	055	055	056	056	U055S	U056S	062S
12	U057F	U060S	U052S	U048S	U053S	055	069	073S	U073R	A	065	070R	067	073R	073	074	076	085	U092S	091S	U080S	U070S	U074F	U084S
13	U086S	U069S	069S	056S	055S	054	060	060	U073R	A	I060A	060	A	067	I070A	074R	070	063	066	073S	073S	073S	069	U070S
14	F	U070S	060S	057	053	050	061	083	075	060	065	071	066	063	064	068	078S	084	088S	U074S	062S	059F	U063S	F
15	F	U061S	U065S	052	I044A	044	060	084S	075	U063R	066R	U058A	058	U062S	070	065	060	064	J069S	U081S	077S	U070S	058	057
16	U057F	U056F	U055F	F	U043F	U050S	055	063	I074A	I072A	I069A	065	067	062	066	A	082	086	090S	091S	A	U061S	F	F
17	U063S	U060S	U052S	U055S	U044S	051	067	071S	077	082	065	062	070	086	083	078	082	087	090S	086	R	U070S	F	U058S
18	F	F	U050S	F	U044F	051	U077S	U079S	067	063	A	U056R	061	066	060	059	063	065	U076S	091S	091S	063S	056	050
19	U051S	052	U050S	U050S	U045F	046S	057	084	077	062	057	062	065	067	078R	080	I070S	061	062	063	U070S	066S	U055S	I056A
20	055F	U054F	U049S	U046S	U043S	050S	064	070S	065	072	I072A	075	068	070	073	065	061	067	069S	U070S	064	U061S	F	F
21	U060S	F	U048S	U046S	U042S	045S	058S	A	I078R	070	058	064	061	065	070	077	085	091S	U090S	I094A	072S	F	U058S	U063S
22	U063S	U062S	059S	050S	U045S	051S	069	070	079	065	I064A	I062A	I068A	080	I081R	U072S	064	061S	067	U072S	U074S	U071S	U066S	U063S
23	F	U066S	U064S	U060S	U058S	U060S	054	A	063	060	072S	074	066	R	I084A	U082S	U072S	080S	083S	U089S	U073S	069S	U067S	U068S
24	061S	061S	U059S	057S	053S	051	065	072S	076S	062	072S	A	A	U075S	073R	074	074S	078	078S	U074S	U076S	U064S	A	A
25	U067S	F	F	U057F	U053S	053	072S	U069S	070R	063	070	080	I069C	I072A	I073A	I080A	083S	A	A	I078A	I080A	063	060S	F
26	F	U064S	F	U057F	U054F	055	065	U083S	068	A	065	068	066	I072A	078	077	083	078S	079	U075S	U067S	I062A	U058S	U068S
27	056S	I054A	055F	052	U053S	054S	070S	085	073	U067R	062	U071R	J078A	081	083	080	082	080	U081S	U079S	I084S	U083S	U081S	U083F
28	U069S	U067S	U060S	063S	061	U053S	059	069	A	A	A	080	I080A	080	079	C	C	087	075S	062	065S	U066S	U069S	U070S
29	A	U062S	058S	053S	U051S	049	066	079	078	077	I080A	081	074	I072A	I069A	071	068	072	073	077S	U075S	067S	063S	064S
30	U058S	060S	059S	056	050S	051	055	075	073	068	072S	067R	I062A	I064A	065	065R	065	067	073	072S	U076S	U074S	A	A
31	U061S	F	U059F	U055F	U056F	050S	063	U076S	086	075	070	066	065	061	U061A	067	073	081	A	U073S	081S	069S	060S	U064S
Count	25	27	28	28	30	31	31	29	30	25	26	26	27	29	29	27	30	30	29	30	27	30	25	25
Median	U060S	U060S	U058S	056S	U053S	053	060	070	073	068	065	066	065	067	070	071	070	071	075S	078S	076S	U068S	U062S	U064S
U.Q.	066	064	060	057	056	055	069	078	077	072	070	071	068	072	078	077	078	081	082	086	081	071	069	069
L.Q.	056	056	052	050	045	050	056	062	066	062	061	062	062	063	064	065	064	064	068	072	070	062	058	057
Q.R.	010	008	008	007	011	005	013	016	011	010	009	009	006	009	014	012	014	017	014	014	011	009	011	012

The Radio Research Laboratories, Japan

foF2 | Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation | K 1

IONOSPHERIC DATA

Jul. 1966 | 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	440L	R	460L	L	R	A	A	A	L	A	A	A					
2							L	440L	A	A	A	A	A	A	A	A	450L	420L	370L					
3								440L	A	A	470L	A	R	R	U460L	A	A	A	A					
4							420L	A	A	460L	A	A	A	A	A	A	A	A	A					
5						L	380L	430L	440L	A	R	A	A	A	A	A	L	A	A					
6							A	A	U460L	A	490L	A	R	A	R	A	A	A	A					
7							420L	420L	U450L	A	B	A	A	A	A	A	450L	400L	L					
8							370L	430L	460L	460L	R	A	U490L	A	470L	R	450L	420L	L					
9							360L	A	A	A	A	A	A	B	B	R	440L	410L	L					
10						L	L	L	A	A	A	A	R	R	R	470L	460L	L	L					
11						320L	380L	400L	A	470L	470L	R	R	R	A	450L	420	L	370L					
12						L	400L	A	A	A	A	R	R	R	R	470L	450L	A	350L					
13						L	380L	450L	A	A	A	A	A	R	A	440L	450L	L	370L					
14							400L	A	L	A	A	A	R	U480L	R	470L	430L	A	L					
15							A	L	470L	470L	A	A	R	490L	U460L	470L	450L	A	A					
16							A	L	A	A	A	A	A	A	U480L	A	A	A	A					
17						A	A	A	A	A	490L	U480L	U500R	470L	480L	480L	A	A	A					
18							A	L	A	A	A	R	A	A	A	A	A	A	370L					
19							A	A	L	A	A	A	A	A	480L	A	S	L	360L					
20						L	380L	420L	440L	A	A	A	U500L	A	A	A	450L	410L	L					
21							L	A	A	A	A	A	R	A	A	A	A	A	A					
22							A	430L	A	A	A	A	A	480L	A	A	A	A	L					
23							A	A	A	A	A	A	A	A	A	470L	A	410L	L					
24						L	L	U420L	460L	480L	A	A	A	A	A	A	450L	L	A					
25							A	A	A	L	490L	500L	C	A	A	A	460L	A	A					
26							L	L	R	A	A	A	A	A	U500L	A	A	440L	A					
27						A	L	450L	460L	480L	A	A	A	A	R	L	440L	A	L					
28							A	A	A	A	A	R	A	510L	A	C	C	L	A					
29							L	460L	A	A	A	A	R	A	A	480L	460L	400L	L					
30								440L	460L	A	A	A	A	A	480L	A	470L	L	A					
31							L	A	A	A	500L	A	510L	490L	A	470L	A	A	A					
Count						1	10	14	9	7	6	2	4	6	8	10	16	8	6					
Median						320L	380L	440L	460L	470L	490L	U490L	U500L	480L	U480L	470L	450L	410L	370L					
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

Jul. 1966 | foE | 0.01 Mc | 135° E Mean Time (G.M.T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	230	I290A	305	325	I340A	360	370	380	365	340	320	255	200					
2						175	260	300	315	335	345	345	345	340	325	A	A	260	A					
3						A	220	310	I320A	325	I355A	370	355	350	R	A	A	A	A					
4						A	A	A	A	A	A	A	A	A	375	345	315	255	B					
5						170	230	I305A	A	A	A	365	350	A	A	A	A	A	220					
6						A	245	285	310	325	335	340	345	350	350	I345R	315	280	205					
7						175	240	295	A	335	B	B	B	R	A	A	A	A	A					
8						A	240	290	A	A	B	A	A	A	A	A	315	275	A					
9						A	225	280	315	320	I330A	345	B	B	B	B	315	280	235					
10						A	245	275	305	340	355	I375R	370	I365R	I350R	340	320	280	B					
11						A	230	290	325	340	355	360	340	I360R	355	340	310	280	215					
12						A	I230A	300	325	345	360	I380R	R	R	330	340	315	285	I220A					
13						A	A	300	315	335	350	370	380	375	355	330	300	275	210					
14						180	A	300	310	330	340	350	365	375	355	350	320	285	190					
15						A	225	275	295	A	A	A	A	370	I360A	340	320	280	I200B					
16						A	245	285	315	320	330	A	A	A	A	A	315	275	B					
17						A	245	290	315	340	I355A	360	355	355	345	335	I295A	270	B					
18						A	A	250	A	A	A	R	380	370	355	345	315	275	A					
19						A	A	285	310	I330A	335	340	350	340	A	A	A	A	A					
20						A	A	A	A	A	A	340	360	370	355	335	320	275	215					
21						A	A	285	315	335	335	340	A	A	A	A	A	265	I200A					
22						A	195	275	I305A	A	A	350	370	360	355	330	315	A	I220A					
23						180	230	290	I325A	I335A	340	355	360	375	360	355	330	300	200					
24						170	230	305	320	340	360	350	340	A	A	A	A	290	A					
25						B	240	290	325	I340A	350	360	I350C	375	365	I320A	A	A	B					
26						A	230	I295A	320	I330A	335	A	A	380	380	340	330	280	215					
27						A	A	280	315	335	A	A	A	I350A	I360A	340	325	295	B					
28						185	215	280	315	340	330	365	390	385	370	C	C	275	A					
29						A	A	A	A	350	350	B	A	355	345	330	325	280	I210B					
30						A	A	275	320	335	345	350	I360A	I355A	355	365	A	285	215					
31						A	260	270	320	340	360	355	370	370	335	340	320	A	A					
Count						7	21	28	24	24	22	22	20	22	22	20	21	24	16					
Median						175	230	290	315	335	345	355	360	370	355	340	315	280	210					
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

Jul. 1966 | 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	J070	J065	J040	J028	020	J026	J033	065	050	060	061	042	065	065	067	046	058	J083	J045	J079	J044	J054	J044	J041
2	J044	J043	J041	J028	024	026	035	043	093	J081	069	J145	062	065	J104	J119	J042	028	036	J024	J025	024	J029	J029
3	025	J067	J027	J026	J044	038	J042	J040	067M	J084	J062	050	050	050	G	J077	J088	J042	J060	J026	J038	J033	J028	026
4	J025	026	J077	J044	J031	J030	034	J068	J080	J041	J081	J118	J109	J064	077	J107	081	J063	056	J062	J088	J061	J041	J042
5	J038	J025	J025	J026	022	023	J040	J040	048	072	050	062	J119	J105	J090	J059	J054	066	J036	J078	J060	J103	J060	J070
6	J062	J044	J041	J035	J028	026	J056	J120	J064	J081	048	058	043	050	041	068	J086	J085	J062	J058	J055	J036	J074	J085
7	J106	J094	J039	J042	J030	J038	J043	041	061	058	B	J085	066	063	J090	J092	057	J043	J035	J108	J119	J109	J055	J055
8	J041	J030	J028	J030	J029	J030	031	034	040	046	048	J059	J064	055	042	041	036	035	J035	J037	J055	J037	J026	J044
9	J062	J044	J034	J043	J041	J043	033	J091	066	J118	J129	J094	J076	070	B	E040B	G	032	030	058	J031	J070	J061	J084
10	J070	J080	J073	J044	J025	J037	036	050	062	050	068	055	047	049	045	G	035	J084	J036	J039	J039	022	J025	E017S
11	J038	J027	022	J034	J051	020	028	G	J048	G	046	046	G	042	060	041	039	048	J064	J027	E015S	J026	J034	J054
12	J069	J042	J024	024	J025	033	060	060	J067	077	060	048	048	043	G	G	040	051	J032	019	J023	J029	J029	J074
13	J120	J029	J023	J035	J039	J028	036	038	047	J139	J144	065	110	044	J097	J090	J043	J041	026	J025	022	E012B	J042	J034
14	J043	J035	024	023	022	G	028	J055	050	065	J058	082	060	043	058	037	J042	J100	J043	J085	J054	J039	J029	J059
15	J062	J040	J051	J043	J111	J029	J058	J149	060	062	J079	J071	047	G	045	038	J044	J089	J084	J059	J061	J040	J071	J057
16	J057	J045	J060	J038	J025	J027	J044	J067	J107	J136	J127	J064	057	J079	J064	J144	J066	J085	J087	J042	J121	J109	J059	J050
17	J070	J109	J044	J042	J029	J042	055	J058	J070	050	042	045	049	060	057	049	061	J071	J070	J054	J071	J185	J070	J082
18	J064	J080	J044	J043	J032	J109	J118	J109	J110	067	J064	048	061	062	061	063	J059	J057	J060	J045	J044	J035	J029	J037
19	J043	J034	J044	J040	J043	J045	J064	J070	J058	J064	J067	J069	065	076	065	J085	050	J038	J043	J042	J028	J030	J059	J116
20	J043	J044	J041	J031	025	J058	J034	J038	045	J076	J169	080	050	058	049	063	036	J037	J036	J041	025	J041	J039	J074
21	J044	J059	J035	J025	J025	J056	J054	J083	J065	J064	060	065	068	J067	J064	J054	J046	J056	J083	J108	J034	J085	J060	J043
22	J044	J059	J043	J071	J084	J031	J070	060	J056	J130	070	J138	J119	J105	J074	062	J057	J074	J038	J035	J061	J060	J039	J071
23	J060	J056	J026	J032	J030	027	J041	069	J065	J091	066	J061	078	J070	J099	040	J050	J061	J042	J032	022	018	022	026
24	023	021	023	020	023	021	J039	J043	J060	049	068	071	J116	J114	J061	060	049	J044	J100	J088	J068	J058	J111	J113
25	J078	J030	J036	J037	J031	J037	J044	044	J058	J071	J054	043	C	112M	J141	J088	J066	J134	J119	J094	J089	J062	J038	J035
26	J070	J070	J087	J043	022	J044	028	037	J058	J114	J075	J080	060	J084	042	J085	J120	047	J113	J044	J073	J086	J035	J052
27	J061	J085	J073	J062	J061	J063	J054	045	060	062	J055	055	078	J074	050	060	035	J052	J035	J036	J042	J071	J061	J052
28	J057	J060	028	J044	J030	J041	J047	J070	J128	J133	J145	060	J108	045	J063	C	C	J043	063	J039	J081	J073	J066	J061
29	J086	J052	J030	J044	J050	J030	J038	J071	060	066	J080	056	046	J078	J087	J055	061	G	025	018	J024	023	J060	J029
30	J070	J035	J032	J026	J024	025	J027	J043	040	J071	J062	J065	J138	J094	057	073	066	051	J036	J044	J115	J131	J114	J105
31	J058	J081	J127	J119	J070	J071	G	J053	060	J061	044	057	041	044	J074	042	J053	J092	J117	032	J029	J026	J034	J039
Count	31	31	31	31	31	31	31	31	31	31	30	31	30	31	30	30	30	31	31	31	31	31	31	31
Median	060	044	039	037	030	031	040	055	060	067	065	062	063	064	062	060	052	052	043	042	044	041	042	052
U.Q.	070	067	044	043	043	043	054	070	067	084	079	080	078	078	077	085	061	083	070	062	071	073	061	074
L.Q.	043	034	027	028	025	026	033	041	050	060	055	055	049	049	049	041	042	042	036	032	028	029	029	037
Q.R.	027	033	017	015	018	017	021	029	017	024	024	025	029	029	028	044	019	041	034	030	043	044	032	037

The Radio Research Laboratories, Japan

foEs

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

K 4

IONOSPHERIC DATA

Jul. 1966 | 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	026	042	020	017	E	021	028	033	040	043	047	040	058	055	057	045	053	050	044	048	017	040	041	035
2	041	027	027	020	015	024	030	037	A	060	A	A	055	058	A	A	040	028	029	024	018	E	027	018
3	016	017	016	015	015	028	033	037	056	053	045	048	045	044		048	A	041	056	021	027	028	019	016
4	016	015	016	027	023	022	033	054	052	040	A	A	A	053	054	A	A	052	051	053	062	028	038	027
5	028	018	018	016	E	020	032	037	041	A	042	053	057	056	A	051	041	A	035	052	044	060	041	042
6	018	017	026	018	019	025	041	052	041	070	041	E058R	042	E050R	E041R	056	A	041	057	052	035	015	017	042
7	A	026	017	017	017	030	037	038	042	052	B	A	059	055	056	A	041	035	032	039	041	041	027	041
8	017	016	016	021	022	027	029	033	036	039	E048R	048	042	053	040	040	034	033	027	028	053	022	023	020
9	053	028	026	026	016	027	032	A	057	A	A	A	060	B	B	B		029	027	028	026	051	048	047
10	041	041	A	019	E	022	033	047	055	048	057	052	043	E049R	041		035	037	030	029	027	E	021	S
11	033	017	E	016	029	019	027		048		041	042		040	054	037	037	037	027	027	S	020	025	020
12	016	016	016	013	013	022	027	055	052	A	053	E048R	E048R	041			040	047	024	017	017	023	016	028
13	017	015	E	015	027	025	030	035	045	A	A	057	046	040	A	036	039	033	025	017	E	B	026	016
14	017	015	E	014	014		026	045	043	054	053	056	043	042	037	036	033	042	027	041	033	024	017	028
15	017	023	018	018	A	023	053	040	041	043	053	054	038		040	036	038	041	042	058	020	017	047	035
16	042	042	041	020	E	018	037	038	A	A	A	045	047	055	041	058	051	053	053	028	A	033	027	026
17	041	028	016	015	E	038	047	057	057	E050S	041	043	041	042	042	043	047	057	042	018	042	041	047	042
18	035	046	026	028	023	028	054	039	054	052	A	043	053	048	047	053	047	041	028	015	028	E	018	018
19	026	020	026	027	019	036	046	047	043	054	054	054	054	063	039	070	S	030	028	024	023	018	027	A
20	015	027	016	014	013	020	025	033	038	053	A	062	046	053	048	050	033	031	028	038	016	018	017	035
21	027	027	028	020	015	034	029	A	056	048	047	054	042	055	061	054	045	049	061	A	016	028	042	028
22	027	024	016	033	024	019	053	038	054	052	A	A	A	044	041	056	047	042	027	027	031	028	031	013
23	042	040	018	017	015	024	037	A	056	055	052	051	045	050	A	038	041	038	023	029	E	014	015	018
24	017	E	E	E	013	018	027	033	041	045	062	A	A	063	055	054	036	037	064	052	041	047	A	A
25	028	E	017	014	015	029	042	042	052	041	041	041	C	A	A	A	042	A	A	A	A	028	023	026
26	042	018	028	022	E	018	026	036	047	A	053	056	049	A	041	053	047	033	040	040	042	A	017	018
27	018	A	025	036	033	035	034	037	041	045	053	054	076	063	044	046	034	047	031	029	040	022	038	051
28	018	018	012	027	016	030	046	057	A	A	A	043	A	043	062	C	C	032	039	019	027	037	053	041
29	A	039	017	028	033	023	030	039	055	060	A	054	E046R	A	A	046	040		025	017	018	E	052	025
30	016	023	021	017	017	015	026	040	037	065	051	063	A	A	040	063	039	040	035	027	021	026	A	A
31	042	047	038	026	018	020		046	049	052	042	054	041	041	054	040	046	067	A	028	017	018	025	020
Count																								
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

Jul. 1966 | 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	014	012	011	011	012	014	015	015	017	016	019	020	023	018	022	016	018	015	013	011	014	013	013	012
2	014	010	013	010	012	014	015	017	017	019	026	027	023	026	020	018	018	016	014	013	011	E016S	012	014
3	011	012	011	010	011	015	015	016	017	017	019	027	024	027	024	017	014	016	014	011	E015S	014	E015S	E015S
4	014	012	011	012	014	013	016	015	016	018	016	016	027	025	026	017	016	015	016	014	012	014	013	E015S
5	014	011	013	011	013	015	015	016	017	016	020	023	020	018	020	017	017	017	013	012	014	012	011	013
6	014	012	012	010	011	013	017	016	016	018	027	027	026	023	027	020	017	017	014	014	012	014	012	010
7	012	013	011	013	011	015	015	016	017	020	B	045	040	030	021	017	017	016	014	013	012	013	014	014
8	013	014	012	012	011	014	016	017	017	026	039	033	028	027	021	017	016	014	012	E015S	E015S	012	012	014
9	014	013	014	012	011	015	015	016	027	019	020	029	040	054	B	040	023	018	016	E015S	011	011	014	014
10	012	013	013	011	012	014	016	015	017	025	026	027	027	018	025	019	017	016	015	013	011	013	012	E017S
11	014	012	E015S	010	012	014	015	016	018	025	020	017	026	026	026	020	016	015	016	014	E015S	014	012	012
12	012	013	011	010	012	014	015	017	017	019	022	028	025	018	023	020	016	019	014	014	E015S	011	011	013
13	013	013	014	013	013	014	016	017	016	019	022	026	027	027	019	020	024	016	016	014	014	012	014	014
14	E015S	013	013	011	010	014	016	018	016	017	019	018	027	027	019	014	013	018	015	013	014	011	013	012
15	014	013	013	012	012	013	015	017	016	018	022	020	019	022	018	018	017	017	016	013	013	012	013	014
16	012	011	012	013	014	013	015	016	016	017	022	018	027	028	019	018	017	014	016	E016S	E015S	014	013	014
17	012	012	014	012	011	015	015	017	016	018	019	019	027	019	022	019	016	014	015	014	011	013	013	013
18	012	011	011	010	011	013	014	017	018	016	023	023	023	019	018	019	018	014	014	013	014	012	012	013
19	013	013	011	013	013	014	015	016	017	018	019	025	023	024	019	013	017	015	014	014	013	013	012	014
20	013	013	011	011	011	012	014	014	017	016	032	021	027	027	019	021	017	015	014	012	014	012	014	013
21	012	013	013	013	012	013	014	014	016	017	018	019	023	022	019	017	018	014	012	012	012	014	013	014
22	013	014	011	012	012	012	014	015	017	016	017	019	019	023	018	015	016	014	013	013	E018S	014	012	011
23	012	E015S	011	011	012	013	014	016	017	016	025	019	025	018	015	027	018	015	014	012	014	013	014	014
24	014	014	013	010	011	014	014	016	017	017	023	025	023	025	018	019	017	016	014	013	012	014	012	013
25	014	013	013	012	012	019	017	017	019	018	018	027	C	026	028	026	018	015	016	014	014	013	014	013
26	013	011	011	011	010	013	015	015	017	018	023	020	027	025	027	023	018	014	015	012	E015S	013	013	E015S
27	013	013	011	013	012	015	015	016	017	018	026	023	023	025	024	018	016	016	016	013	012	011	013	E015S
28	014	012	011	011	010	014	012	015	015	017	023	025	021	018	018	C	C	014	014	012	013	012	E015S	013
29	011	012	012	013	014	013	014	018	026	028	027	037	032	026	018	019	017	015	015	012	011	014	E016S	014
30	012	010	010	010	013	013	014	016	016	016	023	020	026	023	020	019	017	016	014	011	012	013	012	011
31	012	013	011	011	010	014	016	016	017	018	020	026	027	024	018	016	016	016	013	011	011	011	E015S	011
Count	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	30	30	31	31	31	31	31	31	31
Median	013	013	012	011	012	014	015	016	017	018	022	023	026	025	020	018	017	015	014	013	012	013	012	014
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

Jul. 1966 | 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	U280S	U280S	U285S	295	300	315	335	320S	295	320	305	255	305	290	300	290	290	295	280S	S	310S	U305S	280F	U290S
2	275S	U285S	U310S	U305S	330S	325	310	295	I315A	325	A	A	250	305	A	I295A	285	280S	U295S	300	320S	310S	U295S	280
3	U315S	U275S	U305S	295	U305S	330	280	280	305	320	290	300	R	285	285	295	I280A	280	U290S	310S	320S	U285S	285S	275S
4	U310S	U295F	U295F	U330F	U300F	U290S	280S	300	325	330	I290A	I290A	I275A	270	285	A	I310A	U295R	290S	U315S	310S	U305S	295S	290S
5	290	U295S	295	295	270	295	325S	320	300	A	280	275	280R	295R	I305A	305	280	I290A	270	280S	U285S	U290F	S	U290S
6	U285F	275S	U280S	U285S	F	U300S	285	290S	330	315	330	R	265	285	295	300	I305A	300	285S	300S	S	295S	U290S	U295S
7	I290A	U300S	U300F	F	U295S	U335S	295	325	325	310	B	A	290	280	285	A	290	U290R	300	A	A	U360S	U290S	U275S
8	U285S	U270S	U300F	300S	310	355	315	310	320	305	290	295	270	295	310	270	275	260	270	265S	310S	U300S	U285S	U280S
9	U290S	U290S	U280S	U285F	U275F	300S	300S	I310A	330R	A	A	A	310	A	B	250	290	265	I260S	295S	310S	U290S	260	U270S
10	U285S	275S	A	260S	U295S	320	S	310	U310R	305	290	325	280R	285	290	270	260	285	300	S	295S	285S	U275S	U270S
11	U275S	U305S	315	285	295S	290	295	295	265	U270R	U280R	R	R	U235R	290	280	295	290	280	315	285	U270S	U280S	265S
12	U280F	U305S	U295S	U310S	U285S	280	295	315S	U340R	A	290	295R	275	295R	275	280	265	275	U300S	290S	U295S	U275S	U270F	U300S
13	U290S	U300S	310S	285S	285S	285	325	290	U320R	A	I310A	280	A	300	I300A	310R	305	305	305	285S	295S	290S	285	U270S
14	F	U285S	290S	290	310	315	305	325	355	300	310	290	300	295	280	285	305S	305	315S	U325S	290S	275F	U265S	F
15	F	U295S	U305S	300	I290A	295	315	315S	330	U295R	310R	U305A	255	U285S	295	275	310	280	S	U290S	310S	U300S	285	280
16	U275F	U295F	U310F	F	U280F	U320S	325	285	I310A	I305A	I300A	295	295	280	265	A	285	285	305S	295S	A	U285S	F	F
17	U290S	U300S	U345S	U290S	U285S	295	300	310S	310	315	325	275	255	275	295	280	285	280	300S	300	R	U285S	F	U290S
18	F	F	U290S	F	U270F	290	U305S	U330S	335	335	A	U240R	270	315	300	295	280	275	U285S	315S	340S	310S	295	275
19	U275S	270	U290S	U260S	U290F	290S	300	320	305	330	275	280	275	290	290R	305	I305S	315	315	290	U295S	300S	U280S	I290A
20	305F	U300F	U280S	U290S	U280S	310S	315	285S	300	295	I290A	295	290	280	300	285	305	310	310S	U310S	295	U290S	F	F
21	U295S	F	U270S	U300S	U300S	295S	300S	A	I320R	320	305	280	260	270	255	270	280	295S	U300S	I315A	320S	F	U300S	U285S
22	U275S	U290S	310S	285S	U285S	305S	310	295	320	340	I290A	I280A	I260A	290	I300R	U315S	295	300S	295	U285S	U290S	U295S	U280S	U285S
23	F	U300S	U300S	U300S	U280S	U325S	320	A	340	235	285S	295	270	R	I290A	U315S	U290S	290S	295S	U310S	U305S	295S	U285S	U280S
24	285S	295S	U270S	290S	315S	275	310	310S	315S	285	305S	A	A	U290S	295R	280	295S	300	295S	U310S	U280S	U280S	A	A
25	U280S	F	F	U295F	U295S	300	315S	U330S	335R	285	290	320	I285C	I290A	I275A	I295A	310S	A	A	I290A	I300A	295	285S	F
26	F	U285S	F	U290F	U300F	300	315	U315S	320	A	295	285	280	I280A	280	285	300	295S	305	U305S	U275S	I285A	U295S	U295S
27	275S	I270A	285F	270	U270S	285S	315S	315	335	U245R	260	U270R	A	290	290	295	290	300	U290S	U305S	I280S	U285S	U285S	U295F
28	U290S	U260S	U285S	285S	295	U290S	320	315	A	A	A	280	I280A	285	285	C	C	315	305S	300	270S	U275S	U290S	U285S
29	A	U275S	305S	270S	U270S	280	305	290	300	280	I290A	305	305	I280A	I280A	305	285	305	300	300S	U305S	290S	285S	285S
30	U265S	275S	290S	315	305S	305	310	305	325	285	305S	300R	I295A	I300A	290	300R	295	295	300	295S	U290S	U305S	A	A
31	U280S	F	U285F	U280F	U320F	290S	290	U295S	310	320	295	295	295	315	U275A	290	295	305	A	U290S	305S	295S	285S	U275S
Count	25	27	28	28	30	31	30	29	30	25	26	25	26	29	29	27	30	30	28	28	27	30	25	25
Median	U285S	U290S	U295S	290S	U295S	300	310	310	320	305	290	290	280	290	290	290	290	295	300S	300S	295S	U290S	U285S	U285S
U.Q.																								
L.Q.																								
Q.R.																								

M(3000) F2 Sweep 1.0Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 7

IONOSPHERIC DATA

Jul. 1966 | 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	375L	R	350L	L	R	A	A	A	L	A	A	A					
2							L	340L	A	A	A	A	A	A	A	A	345L	350L	330L					
3								355L	A	A	340L	A	R	R	U380L	A	A	A	A					
4							345L	A	A	350L	A	A	A	A	A	A	A	A	A					
5						L	375L	360L	375L	A	R	A	A	A	A	A	L	A	A					
6							A	A	U355L	A	375L	A	R	A	R	A	A	A	A					
7							350L	370L	U375L	A	B	A	A	A	A	A	335L	340L	L					
8							380L	385L	370L	380L	R	A	U375L	A	375L	R	345L	355L	L					
9							375L	A	A	A	A	A	A	B	B	R	355L	320L	L					
10						L	L	L	A	A	A	A	R	R	R	350L	340L	L	L					
11						335L	345L	375L	A	375L	370L	R	R	R	A	355L	345	L	325L					
12						L	325L	A	A	A	A	R	R	R	R	380L	335L	A	350L					
13						L	370L	365L	A	A	A	A	A	R	A	385L	340L	L	350L					
14							340L	A	L	A	A	A	R	U385L	R	360L	370L	A	L					
15							A	L	340L	380L	A	A	R	395L	U370L	360L	355L	A	A					
16							A	L	A	A	A	A	A	A	U385L	A	A	A	A					
17						A	A	A	A	A	385L	U390L	U390R	400L	400L	360L	A	A	A					
18							A	L	A	A	A	R	A	A	A	A	A	A	315L					
19							A	A	L	A	A	A	A	A	345L	A	S	L	350L					
20						L	350L	370L	375L	A	A	A	U380L	A	A	A	350L	350L	L					
21							L	A	A	A	A	A	R	A	A	A	A	A	A					
22							A	350L	A	A	A	A	A	365L	A	A	A	A	L					
23							A	A	A	A	A	A	A	A	A	345L	A	355L	L					
24						L	L	U355L	365L	375L	A	A	A	A	A	A	345L	L	A					
25							A	A	A	L	385L	380L	C	A	A	A	335L	A	A					
26							L	L	R	A	A	A	A	A	U355L	A	A	335L	A					
27						A	L	340L	385L	405L	A	A	A	A	R	L	360L	A	L					
28							A	A	A	A	A	R	A	360L	A	C	C	L	A					
29							L	345L	A	A	A	A	R	A	A	340L	345L	360L	L					
30								335L	360L	A	A	A	A	A	355L	A	340L	L	A					
31							L	A	A	A	375L	A	385L	395L	A	355L	A	A	A					
Count						1	10	14	9	7	6	2	4	6	8	10	16	8	6					
Median						335L	350L	360L	370L	375L	375L	U385L	U380L	390L	U370L	360L	345L	350L	340L					
U.Q.																								
L.Q.																								
Q.R.																								

M(3000) F1 Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 8

IONOSPHERIC DATA

Jul. 1966 | 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							265	275	350	310	325	565	E355A	E385A	E370A	355	340	305	320					
2							260	320	A	E310A	A	A	E465A	E370A	A	I330A	330	330	310					
3								405	315	280	E380A	350	R	400	360	E370A	A	350	310					
4							360	310	260	275	A	A	A	E380A	E350A	A	I310A	320	310					
5						295	275	275	280	A	415	E410A	E400A	340	I320A	325	305	I325A	330					
6							300	310	265	285	310	A	450	375	330	345	A	300	350					
7							275	295	275	330A	B	A	E410A	E365A	E400A	A	E360A	365	310					
8							300	325	310	310	380	350	380	345	335	430	400	405	330					
9							280	I340A	325	A	A	A	E360A	B	B	470	350	365	325					
10						275	255	310	300	300	E365A	285	410	360	320	380	400	315	320					
11						315	310	330	E425A	450	455	R	R	610	E415A	390	360	345	340					
12						310	295	275	260	A	E365A	350	420	345	375	365	365	330	280					
13						330	275	350	300	A	A	E435A	300	340	I330A	305	300	325	300					
14							315	275	235	E360A	320	E350A	330	365	380	370	310	300	250					
15							320	300	270	350	310	E380A	500	385	330	350	335	345	310					
16							275	320	A	A	A	335	340	E415A	375	E380A	320	315	315					
17						315	300	310	285	265	270	390	430	345	325	360	325	325	290					
18							300	250	260	265	A	520	E430A	315	360	E375A	E380A	E365A	320					
19							335	275	300	310	E445A	E380A	E380A	E420A	345	335	I300S	275	265					
20						280	285	310	310	325	I340A	E370A	350	E365A	330	335	350	300	300					
21							310	A	250	285	300	E370A	E450A	E420A	E425A	E365A	325	305	E305A					
22							280	325	275	275	A	A	A	315	340	310	330	320	305					
23							265	I290A	285	E550A	350	330	400	350	A	305	330	315	275					
24						330	275	285	275	380	310	A	A	345	345	350	325	305	320					
25							275	260	280	315	345	300	C	A	A	A	290	A	A					
26							270	285	300	A	E345A	E370A	E365A	A	355	E345A	310	310	280					
27						325	270	265	260	500	E430A	E400A	E405A	E330A	330	330	315	305	300					
28							300	E300A	A	A	A	355	I360A	350	350	C	C	265	260					
29							285	325	270	350	I340A	280	330	A	A	315	335	300	300					
30								305	280	E450A	E305A	E380A	A	A	350	E400A	330	320	290					
31							305	275	280	270	330	355	350	350	E415A	350	320	E315A	A					
Count						9	29	30	28	24	22	23	24	26	26	27	28	30	29					
Median						315	285	300	280	300	325	330	360	350	340	340	330	320	310					
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

Jul. 1966 | 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	350	365	305	260	250	245	235	220	E310A	E290A	E350A	200H	I210A	I210A	A	E375A	A	A	A	250	280	280	310	300
2	320	315	260	260	210	220	225	260	A	A	A	A	A	A	A	A	275	225	250	270	230	215	285	280
3	280	325	260	260	260	240	255	250	A	A	E320A	A	E430A	230	215	A	A	A	A	260	250	280	300	285
4	285	285	280	250	260	260	240	I250A	I235A	220	A	A	A	A	A	A	A	A	A	280	310	265	270	300
5	275	270	260	275	300	255	225	230	230	A	250	A	A	A	A	A	265	A	I290A	330	310	E330A	340	325
6	325	315	320	300	300	260	I270A	I255A	235	A	230	I200A	205	I250A	I260R	I250A	A	A	I280A	E280A	230	220	275	E340A
7	I315A	280	260	310	280	260	215	250	230	A	B	B	A	A	A	A	E300A	260	E290A	285	I280A	270	295	320
8	275	300	265	275	260	235	215	210	225	210	I220R	I210A	225	A	215	265	230	250	265	310	280	255	275	295
9	310	295	280	315	305	280	260	A	A	A	A	A	A	B	B	E280B	255	250	260	260	250	E355A	E425A	E380A
10	340	335	A	280	270	255	225	230	A	A	A	A	230	R	215	225	225H	295	260	280	265	260	305	305
11	310	250	225	275	320	270	235	220	I245A	230	225	210	180H	230	I245A	240	260	300	260	255	270	310	350	330
12	310	260	250	260	300	260	250	A	A	A	A	R	R	210	225H	220	250	A	235	260	245	300	330	275
13	265	240	225	255	315	E290A	235	210	A	A	A	A	A	230	I215A	210	250	235	230	270	245	250	280	290
14	300	275	245	275	250	260	225H	A	250H	A	A	A	255	210	200H	190H	215	I235A	245	260	290	310	310	320
15	310	280	255	250	I270A	250	I260A	260	230	220	A	A	180	200	220	230H	260	I255A	I250A	310	250	250	350	315
16	350	310	315	275	275	230	I230A	255	A	A	A	260	E340A	I230A	220	I250A	A	A	A	260	I270A	315	340	275
17	300	270	210	250	260	A	A	A	A	A	215	200	230	215	230	230	A	A	A	250	305	300	310	330
18	300	340	325	350	315	300	A	250	I240A	A	A	210	A	A	I260A	I260A	I260A	I260A	260	260	250	255	250	270
19	330	300	290	350	310	330	A	A	E340A	A	A	A	A	A	230	A	S	210	225	260	250	250	280	A
20	260	300	280	260	280	255	225	210	215	A	A	A	250	A	A	A	210	225	250	260	230	260	310	325
21	295	310	340	275	250	325	255	A	A	A	A	A	225	I225A	A	A	A	A	A	A	220	275	325	310
22	315	300	230	310	315	250	I265A	265	I270A	A	A	I210A	I230A	250	220	I240A	I290A	I275A	265	275	280	275	315	315
23	325	300	255	260	275	230	A	A	A	A	A	A	260	A	A	215H	220	280	250	250	240	260	275	295
24	305	300	290	270	260	260	230	215	225	215	I210A	A	A	A	A	A	250	295	A	280	315	350	A	A
25	305	260	260	300	285	280	A	I230A	I220A	210	190	200H	C	A	A	A	280	A	A	A	A	250	285	345
26	310	325	325	270	260	250	245	250	260	A	A	A	A	A	230H	A	A	230	A	260	E325A	A	300	255
27	270	I340A	300	330	320	I280A	255	265	230	290	A	A	A	A	275	E350A	225	I255A	260	275	275	275	330	E300A
28	250	335	300	280	250	290	A	A	A	A	A	210	I210A	225	A	C	C	240	I245A	240	310	345	310A	315A
29	I310A	315	255	310	350	280	270	245	A	A	A	A	I205R	A	A	210	250	235	295	260	230	230	E355A	290
30	310	315	280	250	230	235	230	240	220	A	A	A	A	A	225	A	245	260	A	255	295	260	A	I345A
31	320A	365A	315	315	255	260	230	A	A	A	200	I205A	180H	215	A	230	A	A	A	250	245	250	280	315
Count	31	31	30	31	31	30	25	22	18	8	10	11	17	14	17	18	20	20	20	29	30	30	29	29
Median	310	300	270	275	275	260	235	250	230	220	215	210	220	225	225	230	250	250	260	260	265	265	305	305
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

IONOSPHERIC DATA

Jul. 1966 | 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	105	105	110	110	110	120	115	115	115	115	110	130	120	120	125	125	120	115	115	115	105	105	100	105
2	100	100	100	100	100	140	130	125	115	115	115	110	110	110	110	110	110	130	110	110	100	105	105	100
3	100	110	110	110	110	110	115	115	115	110	115	115	115	115	G	110	110	105	105	105	105	105	105	105
4	105	100	110	105	110	110	110	110	110	110	110	110	110	115	120	120	115	115	115	110	105	100	105	100
5	100	100	100	100	105	130	120	115	110	110	115	115	115	115	110	110	110	110	115	110	105	110	110	110
6	110	110	100	100	100	125	120	115	115	115	115	115	115	115	115	125	120	115	115	110	105	115	110	110
7	110	105	105	105	125	130	125	120	110	125	B	120	115	115	105	100	105	100	100	105	110	110	105	105
8	100	100	100	100	100	100	130	120	115	115	110	110	110	110	130	125	120	120	120	100	105	105	100	105
9	110	105	100	100	100	110	125	120	115	115	115	115	115	115	B	B	G	130	125	115	110	110	110	105
10	110	110	105	105	110	115	125	115	120	125	120	130	130	130	145	G	140	120	115	115	115	120	115	S
11	110	105	110	120	115	125	150	G	130	G	140	145	G	150	130	130	130	120	120	120	S	115	115	115
12	115	110	110	115	115	115	115	120	115	120	120	125	130	140	G	G	130	120	120	120	115	115	115	110
13	110	110	110	110	110	110	110	125	130	120	120	130	125	130	120	120	120	130	125	120	115	B	115	115
14	115	110	110	110	110	G	130	115	115	115	115	115	115	135	130	150	130	120	115	110	105	110	110	110
15	110	120	115	110	110	115	115	115	115	110	110	110	110	G	110	140	125	120	115	120	110	110	110	105
16	105	100	105	105	110	120	120	115	115	110	110	110	110	110	110	105	120	115	115	115	115	110	115	110
17	115	115	115	110	125	130	130	125	120	120	120	120	120	120	115	120	120	115	115	115	105	110	110	110
18	110	105	100	105	100	110	110	115	110	110	110	125	125	125	120	120	120	120	115	115	110	110	110	110
19	105	105	105	100	100	115	115	115	115	115	115	115	115	115	110	110	110	115	115	100	100	100	105	115
20	110	110	115	115	115	115	110	115	115	110	115	115	120	125	130	120	130	120	115	110	115	105	110	110
21	105	105	100	105	110	115	115	115	115	115	115	115	110	110	110	110	110	120	115	110	110	110	110	110
22	110	110	110	110	110	110	120	120	115	110	110	115	115	120	120	125	120	115	120	115	115	110	110	110
23	110	110	110	110	115	140	130	120	115	115	115	115	115	115	120	140	120	115	115	115	115	110	105	105
24	100	105	105	110	110	130	120	120	115	120	115	110	115	110	110	110	115	120	110	110	110	110	110	110
25	110	110	110	110	110	130	120	125	115	115	115	125	C	115	115	115	110	105	100	100	100	100	100	100
26	110	110	110	110	115	115	150	120	115	115	115	110	140	125	150	125	115	120	115	115	110	115	120	115
27	115	110	110	110	110	110	115	110	115	115	110	110	110	110	115	125	145	120	115	115	110	110	110	115
28	110	110	110	100	110	120	120	115	115	115	115	125	120	130	120	C	C	120	115	115	115	115	115	110
29	110	110	110	100	100	110	110	110	110	110	110	110	115	110	110	125	120	G	115	105	110	105	100	100
30	105	100	100	100	100	115	110	115	115	115	110	110	110	110	115	125	110	125	115	110	105	110	110	110
31	110	100	110	110	110	110	G	110	115	115	115	110	115	120	115	130	130	110	110	110	110	105	100	105
Count	31	31	31	31	31	30	30	30	31	30	30	31	29	30	28	27	29	30	31	31	30	30	31	30
Median	110	110	110	110	110	115	120	115	115	115	115	115	115	115	115	120	120	120	115	110	110	110	110	110
U.Q.																								
L.Q.																								
Q.R.																								

h'Es

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

The Radio Research Laboratories, Japan

K 11

IONOSPHERIC DATA

Jul. 1966 | 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	f4	f4	f4	f3	f	c2	c3	c2	c2	c2	12	h	c2	c2	h	h2	c4	c2	c4	f3	f	f3	f5	f6
2	f5	f5	f4	f2	f	h4	h4	h2	c3	c3	c3	c3	c2	c2	c2	13	13	h	13	f2	f3	f	f5	f2
3	f2	f2	f3	f2	f3	13	c3	c3	13	c2	c2	c	c	c2		13	12	14	13	f5	f4	f4	f2	f2
4	f2	f2	f2	f4	f4	14	13	13	12	12	c2	12	12	12	c3	c3	c3	c2	14	f4	f4	f2	f5	f2
5	f2	f3	f2	f2	f	h2	c4	c2	12	12	12	c2	c2	12	12	12	12	13	14	f4	f4	f6	f2	f3
6	f2	f2	f3	f2	f2	h3	c3	c2	c2	c2	c	c	c	c2	c2	h2	c2	c2	c4	f3	f6	f	f3	f3
7	f3	f3	f3	f2	f2	h5	h4	c2	12	h2		1	1	c2	13	12	12	13	14	f6	f2	f2	f3	f3
8	f2	f2	f	f3	f3	13	h2	c	1	12	1	1	12	12	h1	h12	c	c2	c212	f4	f3	f3	f3	f2
9	f3	f5	f3	f2	f2	13	h3	c4	c2	c	12	c2	12	1				h	h2	f3	f5	f4	f5	f4
10	f4	f5	f4	f3	f2	12	h3	c2	c2	h	c2	h	h	h	h		h	c2	12	f4	f3	f	f2	
11	f4	f2	f	f4	f6	h2	h		h2		h	h		h	h2	h	h	c2	c2	f2		f2	f6	f3
12	f2	f3	f2	f2	f2	13	12	c3	c2	c2	c	h	h	h			h	c2	c	f	f2	f5	f2	f3
13	f3	f2	f	f2	f5	12	12h	h	h2	c2	c2	h2	h	h	c2	c2	c	h2	h2	f2	f		f2	f
14	f2	f2	f2	f2	f2		h212	c3	c3	c2	c2	c2	c	h	h	h	h	c2	c2	f3	f3	f6	f2	f5
15	f2	f4	f6	f2	f4	1h2	c4	c2	c	12	12	13	1		1h	h	h2	c3	13	f6	f3	f4	f4	f4
16	f5	f4	f3	f3	f	1	c3	c4	c2	c3	c2	12	1	1	1	12	c3	c2	14	f6	f4	f3	f5	f4
17	f5	f3	f	f2	f	h4	h	h3	c2	c	c	c2	c	c	c	c2	c	c3	c3	f6	f3	f2	f3	f4
18	f4	f3	f3	f3	f2	15	c3	c3	1	13	1	h	h	h2	c2	c2	c2	c3	c3	f2	f3	f4	f3	f2
19	f3	f5	f3	f3	f2	14	c4	c2	c2	c2	c2	c2	c2	c2	1	13	12	c12	c12	f3	f4	f2	f2	f2
20	f2	f3	f2	f2	f	12	12	12	12	12	14	c2	c	h	h2	c2	h	c2	c3	f5	ff	f3	f	f3
21	f5	f3	f5	f4	f2	15	12	c3	c3	c2	c2	c2	1	12	13	13	13	c3	c4	f6	f2	f2	f4	f2
22	f4	f5	f2	f4	f2	1	c4	c2	c3	12	13	c2	c2	c	c	h2	c3	c2	c3	f3	f2	f4	f6	f6
23	f5	f5	f3	f2	f3	h3	h2	c2	c3	13	c2	c2	c2	c2	c3	h	c2	c3	c2	f4	f	f	f	f2
24	f	f	f2	f	f	h	c2	c2	c2	c2	c2	c	c2	13	13	12	13	c3	14	f5	f3	f6	f5	f5
25	f4	f3	f4	f2	f2	h2	c3	h	c2	c	c	h		c3	c2	c2	12	13	15	f6	f5	f5	f3	f2
26	f5	f3	f4	f3	f	1h	h2	c3	c3	13	c2	12	h1	h2	h	h2	c2	c2	c4	f6	f2	f6	f6	f6
27	f5	f4	f4	f6	f3	12	13	c3	c2	c2	12	12	12	12	12	h2	h	c3	14	f6	f5	f5	f4	f4
28	f3	f3	f2	f4	f3	c4	c4	c4	c3	c3	c2	h	c2	h2	c2			c2	14	f4	f2	f5	f6	f4
29	f6	f6	f4	f5	f5	12	13	12	12	c2	c2	12	12	c2	c2	h2	c2		12	f	f2	f2	f4	f4
30	f2	f3	f6	f7	f3	1	12	c2	c2	c4	c2	c3	12	12	c	h2	12	h3	c4	f7	f2	f3	f4	f4
31	f5	f4	f3	f3	f3	12		c3	c3	c3	c2	c2	c	c2	c2	h	h4	13	14	f3	f6	f4	f3	f3
Count																								
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

IONOSPHERIC DATA

Jul. 1966 | 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	U380S	U395S	U360S	325	310	300	275	280S	365	315	330	G	A	A	A	360	350	335	370S	S	315S	U320S	370F	U370S
2	375S	U370S	U315S	U330S	260S	275	300	330	A	A	A	A	A	A	A	I335A	365	370S	U355S	340	300S	295S	U335S	360
3	U330S	U385S	U330S	345	U340S	270	290	G	325	295	G	G	R	R	365	380	A	370	U340S	315S	285S	U335S	340S	375S
4	U315S	U335F	U335F	U275F	U315F	U330S	365S	320	285	275	A	A	A	395	365	A	A	U330R	335S	U315S	320S	U325S	325S	365S
5	335	U335S	325	350	375	325	295S	295	310	A	415	A	A	345R	I330A	330	305	I360A	385	365S	U340S	U365F	S	U330S
6	U375F	375S	U355S	U350S	F	U320S	355	335S	280	295	310	R	R	380	340	345	A	320	350S	325S	S	325S	U355S	U345S
7	A	U345S	U330F	F	U330S	U290S	355	295	290	A	B	A	A	A	A	A	365	U375R	335	A	A	A	U335S	U370S
8	U335S	U385S	U345F	335S	315	275	320	330	315	320	R	355	380	355	340	G	405	415	385	385S	325S	U320S	U330S	U370S
9	U350S	U335S	U335S	U375F	U375F	325S	305S	A	A	A	A	A	A	A	B	475	350	385	I380S	325S	305S	A	A	U400S
10	U355S	370S	A	375S	U320S	310	S	315	U310R	305	A	295	R	365	325	385	410	350	325	S	335S	375S	U365S	U395S
11	U365S	U320S	310	370	365S	345	335	340	A	G	G	R	R	G	A	400	360	350	360	300	350	U390S	U380S	395S
12	U365F	U325S	U325S	U345S	U360S	365	315	290S	U275R	A	365	355R	R	350R	375	375	410	365	U330S	340S	U335S	U370S	U405F	U330S
13	U345S	U325S	295S	335S	360S	355	295	355	U300R	A	A	A	A	345	I330A	315R	305	335	325	335S	335S	335S	370	U385S
14	F	U340S	335S	350	320	320	335	295	250	A	325	355	345	375	385	375	345S	315	280S	U280S	335S	375F	U400S	F
15	F	U335S	U320S	325	I330A	310	A	320S	280	U375R	315R	A	G	U395S	350	360	355	355	S	U325S	305S	U315S	355	360
16	U365F	U340F	U325F	F	U335F	U295S	275	325	A	A	A	350	350	A	385	A	345	370	335S	305S	A	U345S	F	F
17	U335S	U315S	U275S	U360S	U335S	325	325	315S	305	305	275	400	445	365	345	370	365	360	330S	330	R	U335S	F	U350S
18	F	F	U330S	F	U375F	330	U320S	U275S	270	265	A	R	A	320	360	A	385	380	U350S	305S	275S	305S	340	375
19	U375S	385	U335S	U405S	U325F	345S	345	310	A	A	A	A	A	A	355R	A	I320S	295	285	325	U325S	310S	U385S	I350A
20	345F	U340F	U340S	U335S	U350S	315S	305	345S	315	330	I340A	A	355	375	335	345	350	315	305S	U300S	320	U350S	F	F
21	U335S	F	U385S	U325S	U320S	330S	330S	A	I295R	290	A	A	R	A	A	390	370	330S	A	A	325S	F	U340S	U360S
22	U380S	U335S	300S	360S	U345S	320S	295	345	285	275	A	A	A	330	R	U315S	345	320S	340	U330S	U345S	U350S	U375S	U350S
23	F	U325S	U320S	U325S	U375S	U270S	275	A	A	A	350S	330	400	R	A	U310S	U350S	360S	320S	U310S	U320S	310S*	U375S	U370S
24	375S	335S	U375S	345S	335S	370	300	300S	285S	G	A	A	A	A	350R	360	335S	320	325S	U305S	U380S	U385S	A	A
25	U360S	F	F	U365F	U335S	295	295S	U275S	280R	335	345	305	I365C	A	A	A	310S	A	A	I340A	A	325	360S	F
26	F	U360S	F	U330F	U325F	320	310	U285S	305	A	350	370	370	I400A	365	355	325	335S	315	U305S	U370S	I340A	U325S	U330S
27	380S	I380A	345F	380	U385S	365S	285S	280	275	G	A	U400R	A	355	350	355	335	335	U335S	U335S	I360S	U365S	U385S	U335F
28	U340S	U410S	U365S	365S	295	U345S	305	300	A	A	A	365	I370A	355	355	C	C	295	300S	320	385S	U380S	U355S	U355S
29	A	U365S	320S	350S	U385S	370	305	355	300	360	I355A	300	330	A	I370A	325	355	310	325	325S	U315S	340S	360S	355S
30	U395S	380S	340S	325	305S	285	310	315	295	A	305S	A	A	A	355	A	345	345	325	325S	U370S	U320S	A	A
31	U360S	F	U345F	U365F	U305F	325S	330	U315S	315	280	345	360	355	350	A	350	330	A	A	U330S	320S	330S	355S	U370S
Count	24	27	28	28	30	31	29	27	24	15	14	13	11	17	21	22	27	29	27	27	26	28	24	25
Median	U360S	U340S	U330S	350S	U335S	320	305	315	295	305	340	355	365	355	355	360	350	345	335S	325S	325S	U335S	U360S	U360S
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

hpF2 | Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

K 13

IONOSPHERIC DATA

Jul. 1966 | 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	U060S	U055S	U070S	070	075	060	065	060S	045	045	045	G	A	A	A	055	050	060	045S	S	055S	U055S	045F	U060S
2	055S	U060S	U055S	U050S	055S	055	050	060	A	A	A	A	A	A	A	I055A	045	060S	U055S	055	050S	065S	U065S	065
3	U055S	U065S	U070S	065	U060S	060	060	G	050	055	G	G	R	R	045	035	A	055	U065S	055S	070S	U065S	060S	065S
4	U065S	U075F	U070F	U070F	U060F	U055S	065S	060	050	055	A	A	A	055	045	A	A	U060R	075S	U050S	055S	U045S	065S	040S
5	070	U075S	070	050	050	055	055S	045	055	A	040	A	A	055R	I050A	065	060	I060A	040	055S	U065S	U035F	S	U070S
6	U050F	055S	U070S	U065S	F	U050S	050	060S	070	050	040	R	R	045	050	050	A	055	050S	060S	S	050S	U050S	U065S
7	A	U055S	U065F	F	U060S	U040S	055	050	055	A	B	A	A	A	A	A	050	U040R	060	A	A	A	U070S	U055S
8	U080S	U065S	U055F	065S	070	055	045	055	040	055	R	045	070	045	045	G	050	085	070	070S	045S	U055S	U050S	U060S
9	U065S	U080S	U065S	U055F	U050F	070S	060S	A	A	A	A	A	A	A	B	030	055	065	I060S	075S	070S	A	A	U075S
10	U075S	075S	A	050S	U075S	055	S	060	U065R	060	A	055	R	045	065	065	050	055	070	S	065S	065S	U075S	U055S
11	U085S	U045S	065	055	045S	055	060	055	A	G	G	R	R	G	A	050	040	055	055	060	060	U060S	U065S	065S
12	U080F	U060S	U065S	U060S	U065S	070	070	055S	U045R	A	035	040R	R	050R	075	055	050	055	U065S	065S	U070S	U060S	U045F	U065S
13	U060S	U070S	055S	070S	060S	050	055	065	U050R	A	A	A	A	050	I055A	050R	060	060	050	065S	060S	060S	040	U060S
14	F	U060S	060S	060	055	045	050	055	050	A	050	045	040	040	050	050	055S	055	050S	U045S	065S	060F	U055S	F
15	F	U055S	U055S	050	I065A	070	A	050S	055	U045R	050R	A	G	U035S	045	065	045	050	S	U055S	050S	U065S	060	055
16	U075F	U060F	U065F	F	U065F	U055S	050	060	A	A	A	030	060	A	075	A	045	045	045S	080S	A	U060S	F	F
17	U065S	U055S	U055S	U055S	U065S	060	055	055S	050	040	055	050	055	065	035	080	050	085	065S	055	R	U065S	F	U065S
18	F	F	U065S	F	U055F	070	U060S	U075S	065	055	A	R	A	050	040	A	055	065	U055S	055S	055S	045S	060	050
19	U050S	045	U070S	U065S	U075F	070S	060	045	A	A	A	A	A	A	050R	A	I055S	055	065	065	U050S	055S	U055S	I060A
20	055F	U060F	U070S	U070S	U055S	050S	055	060S	075	055	I050A	A	045	055	055	060	050	055	050S	U060S	055	U055S	F	F
21	U065S	F	U055S	U070S	U055S	060S	060S	A	I050R	055	A	A	R	A	A	065	060	065S	A	A	040S	F	U060S	U045S
22	U060S	U055S	060S	065S	U055S	055S	060	055	070	040	A	A	A	065	R	U060S	060	065S	055	U065S	U050S	U045S	U055S	U065S
23	F	U060S	U075S	U065S	U045S	U055S	065	A	A	A	045S	050	050	R	A	U055S	U050S	050S	060S	U050S	U055S	055S	U045S	U070S
24	055S	065S	U075S	065S	065S	060	065	055S	070S	G	A	A	A	A	055R	065	060S	065	075S	U060S	U050S	U055S	A	A
25	U070S	F	F	U050F	U050S	070	055S	U070S	050R	065	050	045	I055C	A	A	A	045S	A	A	I050A	A	055	045S	F
26	F	U075S	F	U075F	U060F	065	040	U070S	045	A	050	045	060	I050A	055	055	045	050S	070	U050S	U070S	I080A	U075S	U055S
27	060S	I070A	035F	065	U065S	060S	060S	065	050	G	A	U065R	A	055	045	050	060	055	U060S	U065S	I050S	U050S	U040S	U065F
28	U065S	U055S	U055S	060S	080	U055S	060	055	A	A	A	050	I050A	050	055	C	C	060	050S	045	065S	U070S	U055S	U060S
29	A	U065S	050S	075S	U045S	055	055	045	050	050	I050A	050	045	A	I055A	055	055	050	050	050S	U055S	060S	065S	065S
30	U060S	065S	075S	055	060S	070	075	050	050	A	060S	A	A	A	050	A	055	055	045	055S	U045S	U055S	A	A
31	U065S	F	U060F	U050F	U060F	075S	065	U055S	045	050	055	045	045	030	A	050	055	A	A	U045S	055S	055S	050S	U060S
Count	24	27	28	28	30	31	29	27	24	15	14	13	11	17	21	22	27	29	27	27	26	28	24	25
Median	U065S	U060S	U065S	065S	U060S	055	060	055	050	055	050	045	050	050	050	055	050	055	055S	055S	055S	U055S	U055S	U060S
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

Jul. 1966 | foF2 | 0.1 Mc | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	S	S	059	061S	I069S	069S	A	A	A	068	I067A	I064A	067	I074S	079	082	089S	085S	S	S	S
2	S	S	S	S	056	J050S	053	068	081	069	066S	071S	I068A	070	079	I085A	A	A	A	A	A	S	063S	S
3	S	S	S	I068S	058S	055	I052A	058	079	I068S	061S	058	062C	070	064S	063	J076S	087	093S	I089S	I070S	I064S	I062S	058
4	058S	058	058S	052S	044	041S	050	I069S	I072S	067	I059A	I058S	059	J077S	J097S	I094S	090S	093S	I088A	I091A	087S	I074S	S	S
5	S	S	S	S	058S	056S	I070S	081	063	055	I058A	067	078	I075S	072S	J076S	I060S	061	I064A	I067S	S	S	S	A
6	A	S	S	S	S	I048S	047	078S	I072S	I066A	A	C	C	C	C	C	C	C	C	C	C	C	S	A
7	066S	065	I065S	066S	S	S	S	062	071	063S	B	R	B	068R	R	R	I069R	068R	R	R	S	S	S	S
8	S	S	S	S	S	047S	051	064S	063S	I065R	074R	I070A	072	067R	068	065	065	068	I068R	055S	I081S	I075S	I064S	S
9	S	S	I059S	057	055	052	U062S	065	056	I055A	A	A	A	B	R	075R	088	I083R	I085R	I082S	I066S	I058S	I055A	S
10	S	A	A	S	A	I042S	050	051	072S	070	I067A	062S	I062S	I067A	082	078	070	084	S	S	S	S	S	S
11	S	S	S	I069S	I063S	054	060	061S	I056A	I057A	054	E046G	E046G	055	058	I060A	062	055	057	054S	056S	054S	058S	061S
12	S	S	I057S	I051S	049S	I047S	059	066S	061S	061S	I068S	062	I069A	070	084	086	I095S	104S	I103S	S	S	S	S	S
13	S	J087S	I072S	062	058S	050	050	058	062S	068	J062C	I064C	069	084	U075C	065	067	074S	I082C	C	S	061S	I067S	I071S
14	I063S	S	S	S	I054S	046S	057	I067S	068	061S	I064C	J064C	C	C	C	C	C	C	C	J062S	C	C	C	C
15	C	C	C	C	C	C	C	C	C	072S	C	A	057C	I061C	069	067	064	073S	S	S	S	061	I061S	I063S
16	063S	060S	058	053	047	047	052S	070S	078	067	067	I064A	I064A	070	J078S	085	095	096S	I090S	I087S	A	A	S	S
17	S	F	S	S	A	A	051F	I076S	082	I068A	058	I057A	070	091S	093	088	102	108	100S	I089S	I078S	I063S	S	A
18	S	S	F	F	F	F	063	068	066	056	054	062	057	067	I063S	063	066	073	083	098	C	C	C	C
19	C	C	C	C	C	C	C	I058C	I062C	I054A	056	A	A	A	092	090	A	A	073S	J077S	S	S	053S	S
20	F	F	F	S	F	F	049F	056	072	069	I067S	076	074S	069	080S	076S	077S	083	081	071	067S	I067S	067S	I065S
21	I054S	F	055F	052F	042F	039F	049F	062S	A	A	A	I063A	061	066	071	085	I097S	105	107	I090S	S	S	067S	S
22	S	S	S	F	059	I055S	052F	073S	072S	I067C	I060A	060	070	074	077	073S	077	077	076S	078	078S	071	S	S
23	S	S	S	I065S	F	055F	056	058	J055S	I068A	065	I072A	I076A	074	085	091	098	103S	106	101S	073S	068S	I068S	I066S
24	066S	065S	064	060	057	057S	050	064	063	073	061	061S	069	I069S	080	086	094S	086	079	081	080S	S	S	S
25	S	S	065	I061S	F	F	057S	065	061	068	076	072	I076A	083	I086A	089	088	086	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	064	I059C	057	068	080	085	083	088	089	089	085	084	092S	085	S	S
28	S	S	S	S	S	051F	060	065	064	067	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	082	091	087	085	081	076	081	084	084	J078S	I075S	068	060S	I062S
30	062	058	058	058S	056	041	053	072S	061	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	066	070	065	067	071	073	086	087	076S	087	083	062	060	059S
Count	7	6	10	13	14	20	24	26	26	25	22	22	23	24	24	25	24	24	21	20	14	14	13	8
Median	063S	062S	058S	060S	056	050S	052	065	065	067	063	064	069	070	078	076	079	084	083	083S	078S	066S	062S	U062S
U.Q.	066	065	065	066	058	055	060	069	072	068	067	070	074	076	084	087	092	091	092	089	083	071	067	066
L.Q.	058	058	058	052	049	046	050	061	062	060	058	061	062	067	070	067	068	074	076	074	070	061	059	060
Q.R.	008	007	007	014	009	009	010	008	010	008	009	009	012	009	014	020	024	017	016	015	013	010	008	006

foF2

Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 1

IONOSPHERIC DATA

Jul. 1966 | 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								390L	470L	A	A	A	470	A	A	I470A	450	460	A					
2								L	430	A	A	A	A	490	A	A	A	A	A					
3								430L	I430A	440	460	470	I470A	490	460	470	450	I410A	380L	L				
4							L	L	430	460	A	480	480	I490A	460	450	I460A	A	A	A				
5							L	A	I430A		A	I470A	I460A	I470A	I470A	450	I440A	A	A	L				
6								A	A	A	A	C	C	C	C	C	C	C	C	C				
7								A	A	A	B	A	B	R	I470A	I460A	450	420	R	A				
8								A	A	460	B	A	A	I500R	480R	A	A	460	A					
9								L	420	A	A	A	A	B	A	B	I450R	420	L					
10									450	A	A	A	A	I490A	480	I450A	460	A	A					
11								L	A	A	440	460R	460	A	I460A	I450A	A	430	380					
12								L	430	I460A	I470A	490	A	A	470	B	450	I430A	400	L				
13								L	450L	450	A	C	A	A	I480A	L	I460A	460	L					
14							L	370	A	460	I470C	500	C	C	C	C	C	C	C					
15								C	C	A	A	A	480C	I480A	470	470	460	440C	A					
16								400L	A	460	I470A	A	A	A	A	A	A	A	A					
17								A	A	A	L	I510A	480L	480	480	460	460	I430A	390L	L				
18								A	A	A	480	480	500	470	480	A	450	410	420	L				
19								400	I450C	A	460	A	A	A	A	A	A	A	380	A				
20								430L	430	I470A	I490A	A	500	A	480	470	I460A	I430A	380	L				
21								440L	A	A	A	I480A	500	470	470	470	I450A	A	A					
22								410L	I430A	I440C	I470A	490L	490	480	490	I490A	470	A	A					
23									490L	A	A	A	A	I490A	I490A	I480A	A	A	A	A				
24								410	460	470	470L	530L	490	I510A	I500A	480	460	A	A	A				
25									A	A	A	A	A	520	I500A	A	L	I450A	C	C				
26								C	C	C	C	C	C	C	C	C	C	C	C	C				
27								C	420	I500C	530	510	490	490	510H	480	460	440	A					
28								L	450L	530L	C	C	C	C	C	C	C	C	C	C				
29								C	C	C	480	490	510	500	490	480	470	450	400L					
30								L	L	C	C	C	C	C	C	C	C	C	C	C				
31								C	C	C	490	480	500	500	I490A	500	450	440	L	L				
Count								9	16	12	13	14	15	17	21	17	19	16	8					
Median								410L	430	460	470	480	490	490	480	470	460	440	380					
U.Q.																								
L.Q.																								
Q.R.																								

foF1

Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 2

IONOSPHERIC DATA

Jul. 1966 | 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						S	200	250	A	A	A	A	360	370	355	340	325	I280A	A	A				
2						S	200	260	305	325	340	355	365	350	340	A	A	A	A	S				
3						S	A	A	A	A	A	A	355C	350	350	340H	320	280H	I255A	S				
4						S	200	255	I290A	320	330	330	350	365	340	345H	325	280H	220H	S				
5						S	180	230	270	320	330	340	I350A	I345A	A	A	A	A	A	S				
6						S	A	250	285	320	A	C	C	C	C	C	C	C	C	C				
7						S	I225A	260	I295A	330	B	B	B	A	A	A	R	300	B	B				
8						S	S	I235A	300	A	B	B	B	A	A	A	R	300	R	S				
9						S	S	250	300	320	340	B	B	B	B	B	R	310	250	S				
10						S	A	A	A	A	350	I350A	I360R	B	R	350	320	290	250	S				
11						S	A	A	A	A	A	A	360	I360R	350R	340	320	290	240	S				
12						S	A	A	300R	320	345R	350	I370R	360R	I355R	I345B	330	I290A	I240A	A				
13						S	215	255	I300A	325	C	C	C	C	C	I345C	320	290	240	S				
14						S	A	I265A	I300A	I325A	I340C	C	C	C	C	C	C	C	C	S				
15						C	C	C	C	A	A	A	A	A	A	A	320	290	245	S				
16						S	180	270	305	320	A	A	A	A	A	A	325	290	230	S				
17						S	190	260	300	330	340	I350R	350	350	340	I335A	325	A	A	S				
18						S	190	250	300	330	345	360	360	370R	360	340	320	290	250	A				
19						C	C	250	I285C	320	330	340	350	350	A	A	A	A	A	S				
20						S	A	260	300	330	350	360	370R	370	370	350	320	285	I235A	S				
21						S	S	230	280	A	A	A	A	A	A	A	A	A	A	S				
22						S	S	250	290	I310C	I335A	I350A	370	370	365	350	335	300	240	S				
23						S	210	250	290	330	340	350	I360B	360	360	I350B	I325A	300	A	S				
24						S	A	240	A	A	A	A	A	A	I365A	I350A	I330A	300	240	S				
25						S	S	I250A	300	340	350	360	370	370	I365B	355	320	290	C	C				
26						C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
27						C	C	C	R	C	330	350	A	A	A	A	A	A	240	A				
28						S	A	A	A	330	C	C	C	C	C	C	C	C	C	C				
29						C	C	C	C	C	350	370	370	370	370	360	330	300	A	S				
30						S	A	250	290	C	C	C	C	C	C	C	C	C	C	C				
31						C	C	C	C	C	350	I360A	380	370	I360A	350	330	290	240	S				
Count							10	21	20	18	17	15	17	16	15	16	18	20	15					
Median							200	250	300	325	340	350	360	360	360	350	325	290	240					
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

foE

Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

Y 3

IONOSPHERIC DATA

Jul. 1966 | 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	J031	J032	J022	J061	J058	J029	024	034	J042	J075	J083	J085	042	J099	J117	J058	J050	J048	110M	061	J036	023	J023	J022
2	J025	J034	J026	J026	J039	E015S	029	035	J041	J062	J054	J067	J092	041	J051	110M	J147	183M	151M	J136	J112	J044	J023	J019
3	J030	020	023	E014S	021	J027	069M	J053	J054	J082	J056	J054	J050	044	G	038	046	J077	029	J028	J030	J027	J026	J019
4	J035	J020	J018	021	J020	E016S	026	029	J040	J053	061	J053	050	J082	J053	039	J061	J104	J120	122	J059	J040	J054	J051
5	J036	035	J030	J024	J031	021	026	J056	J053	040	092	J066	J086	J075	J056	J043	J060	J060	J120	J029	J032	030	J053	J085
6	J121	J102	J055	J039	J027	J025	J038	J053	J064	J094	J134	C	C	C	C	C	C	C	C	C	C	C	J045	J098
7	J040	J052	J022	J034	J029	J031	J055	J056	J061	J055	B	051	B	047	048	J055	028G	037	031	J034	J049	028	022	027
8	J033	030	J024	021	J024	E017S	026	040	J058	J043	054	J084	059	J046	037	J048	049	037	J038	028	034	J035	J043	020
9	E016S	E021S	J020	E016B	E015B	E016S	024	031	035	J123	J066	071	125	B	072	B	025G	G	G	E021S	E016S	E017S	J066	J055
10	J052	J060	J060	043	J054	J033	J022	J060	J039	J122	J116	J054	J060	J097	045	048	036	J066	J051	J068	J031	J022	J021	020
11	020	020	J024	J020	020	E017S	022	J033	J109	J058	041	040	041	047	053	J077	044	032	031	J035	049	J022	J033	E017S
12	J057	J063	J045	J032	J025	J026	J033	J043	033	048	J065	053	074	059	G	E046B	J061	J065	029	J019	021	021	022	022
13	J026	J040	J024	024	J028	021	J034	J043	J037	043	048	C	052	054	051	J053	J060	J041	035	J066	J054	J056	J021	J022
14	J024	J045	J052	J050	J040	J054	J031	J041	J042	038	C	047	C	C	C	C	C	C	C	023	C	C	C	C
15	C	C	C	C	C	C	C	C	C	J062	J065	J106	J048	052	J041	046	035	J051	042	J040	J023	020	J033	J050
16	J023	J021	J023	021	021	E013B	029	033	J054	J058	J121	J065	J065	J065	J058	J064	J062	J120	J079	J063	J081	067M	J063	J056
17	J030	J035	J061	J054	J050	J067	J045	J055	J062	J088	J054	J065	J054	G	041	J043	035	J054	J030	J025	J056	J028	J052	J066
18	J053	J046	J043	J023	J020	E015S	024	J046	J046	067	J061	046	046	055	J060	J060	086G	J053	J063	033G	J060	C	C	C
19	C	C	C	C	C	C	C	050	C	J066	J054	J133	J144	J095	J075	J066	J104	J085	059	J054	J030	J044	J022	J023
20	J034	J044	J083	J058	J023	029	J044	J044	040	J071	J065	J052	046	049	044	046	072	J045	J037	J042	J023	J030	J038	E016S
21	J029	J030	J028	J051	021	J023	026	J035	J141	J084	J121	J064	066	J048	J054	044	J087	J118	J081	J067	J047	J054	146	J031
22	J055	J052	J053	J097	J084	062	J052	J052	J052	C	J121	J086	J053	048	047	J054	J052	J058	J046	J066	J054	J052	J054	J023
23	J044	J053	J029	J052	J045	J047	028	J051	J047	J078	J054	J119	J088	063	J100	J063	J084	J095	J066	J030	J031	J021	J030	J023
24	J032	J023	E016S	019	E016B	022	019	026	J035	038	038	042	043	J064	J082	042	037	J059	J050	J052	J043	117M	J084	J113
25	J114	084	J033	J036	J054	E014S	021	J043	J060	J065	J076	J056	J138	048	150	J053	J064	J062	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	029G	C	038	038	J059	J049	043	J052	040	038	J046	J047	019	021	J040	J041
28	J031	J054	J055	J062	J054	J043	J025	J036	037	J044	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	J055	042	J047	047	044	048	038	036	025	030	J028	J039	J027	J034
30	J030	022	J028	J022	J021	021	019	029	037	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	J049	J088	J047	J046	J059	G	037	J043	J039	J027	J028	J023	J029	028
Count	25	25	25	25	25	25	25	26	26	25	26	26	25	25	26	25	26	26	25	26	25	24	25	25
Median	J032	J035	J028	J032	J027	023	026	J043	J044	J062	J061	J060	J054	049	052	J048	051	J056	J046	J038	J034	J029	J033	J027
U.Q.	048	052	052	052	048	032	036	052	058	080	083	084	080	064	060	059	064	077	072	063	054	044	054	053
L.Q.	028	022	023	021	021	E016	024	034	037	046	054	051	047	047	044	043	037	041	031	028	028	022	023	021
Q.R.	020	030	029	031	027	D016	012	018	021	034	029	033	033	017	016	016	027	036	041	035	026	022	031	032

foEs

Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jul. 1966 | f_bEs | 0.1 Mc | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	020	031	019	017	017	026	023	031	037	A	A	A	042	A	A	054	042	042	068	035	036	E	017	018
2	024	023	017	023	033	S	026	034	033	060	053	064	A	040	047	A	A	A	A	A	A	036	021	017
3	E	017	E	S	E	G	A	034	047	040	042	044	E050C	043		037	040	074	027	025	022	019	020	018
4	E	018	017	E	017	S	024	029	039	038	A	043	043	062	040	039	054	073	A	A	029	022	029	031
5	021	028	020	020	020	G	022	043	045	037	A	060	054	053	053	040	E060S	049	A	021	032	026	E053S	A
6	A	045	E055S	032	023	017	029	046	E064S	A	A	C	C	C	C	C	C	C	C	C	C	C	045	A
7	E	021	022	034	029	023	039	046	060	047	B	E051R	B	E047R	E048R	E055R	026G	035	E031R	031	E049R	027	021	027
8	E033R	030	021	019	022	S	025	040	049	036	051	A	053	E046R	E037R	E048R	047	034	036	E028R	032	028	020	020
9	S	S	020	B	B	S	020	031	034	A	A	A	A	B	E072R	B	E025R			S	S	S	A	044
10	E052S	A	A	E043S	A	021	022	041	037	048	A	052	E060S	A	044	048	034	065	049	037	023	022	016	E
11	E	E	019	016	E	S	020	028	A	A	040	040	041	047	050	A	043	031	031	027	044	018	E	S
12	E057S	E	018	014	016	017	028	031	032	047	E065S	042	A	057		B	040	054	E029R	018	E	E	018	019
13	019	022	021	017	021	G	G	021	034	040	047	C	051	054	E051C	048	E061S	036	035	045	E054S	045	E021S	021
14	016	030	026	035	025	019	023	029	042	037	C	046	C	C	C	C	C	C	C	022	C	C	C	C
15	C	C	C	C	C	C	C	C	C	046	055	A	043	E052C	041	044	034	033	039	E040S	020	E	031	017
16	E	E	E	014	013	B	025	030	045	040	060	A	A	056	056	050	062	087	062	044	A	A	039	032
17	028	032	045	E054S	A	A	036	048	062	A	044	A	043		039	041	035	045	025	022	E056S	025	025	A
18	045	031	031	015	014	S	021	041	044	045	040	041	041	045	046	047	035	035	035	022	019	C	C	C
19	C	C	C	C	C	C	C	033	C	A	041	A	A	A	074	059	A	A	037	043	021	018	018	023
20	021	033	024	024	018	G	032	024	036	057	E065S	048	044	049	042	046	069	044	030	020	E	018	E	S
21	E	025	021	025	017	017	025	035	A	A	A	A	045	042	042	043	E087S	087	074	028	038	041	051	029
22	045	033	021	016	014	041	030	037	044	C	A	044	046	043	044	051	044	058	044	062	046	021	031	E
23	023	041	E	031	031	023	025	038	045	A	050	A	A	058	078	063	045	095	065	029	028	E	023	019
24	022	019	S	015	B	G	019	G	032	038	037	042	042	E064S	074	042	E037R	059	046	047	043	023	042	047
25	055	037	021	026	022	S	021	032	056	063	047	054	A	044	A	049	047	062	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	E029R	C	038	038	043	041	043	044	037	036	046	036	018	E	029	030
28	022	049	045	045	020	025	021	030	036	039	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	045	041	045	042	043	043	037	033	025	021	018	026	023	031
30	023	E	025	017	016	G	019	G	035	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	039	042	042	G	054		036	037	037	024	023	017	017	E
Count																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

f_bEs

Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 5

IONOSPHERIC DATA

Jul. 1966 | 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	E016S	E016S	E016S	016	016	E015S	E016S	016	016	017	017	018	018	019	021	018	016	016	016	012	E016S	E016S	E015S	E016S
2	E016S	E016S	E015S	016	016	E015S	E016S	016	016	016	017	018	019	022	018	021	017	016	013	E016S	E016S	E015S	E016S	E016S
3	E016S	E016S	E016S	E014S	016	E016S	E016S	015	016	017	017	019	017	023	016	017	016	016	016	E016S	E016S	E016S	E016S	E016S
4	E016S	E016S	E016S	E016S	011	E016S	E016S	016	016	017	020	018	021	017	019	017	017	016	016	E016S	E016S	E016S	E016S	E016S
5	E016S	E016S	E015S	016	016	E016S	E016S	016	016	017	018	018	019	017	019	017	016	016	016	E015S	E016S	E016S	E016S	E016S
6	E016S	E015S	E015S	015	016	E015S	E016S	016	016	016	017	C	C	C	C	C	C	C	C	C	C	C	E016S	E016S
7	E016S	E015S	E016S	016	016	E015S	E016S	016	015	018	B	044	B	036	033	031	022	018	024	015	E016S	E016S	E016S	E016S
8	E016S	E016S	E016S	014	015	E017S	E017S	017	017	020	050	039	039	028	027	029	015	014	015	E015S	E016S	E016S	E015S	E016S
9	E016S	E021S	E019S	016	015	E016S	E015S	016	020	021	021	035	050	B	051	054	022	022	020	E021S	E016S	E017S	E015S	E015S
10	E016S	E016S	E016S	015	015	E015S	E015S	016	016	021	025	022	029	037	022	022	017	018	016	E016S	E016S	E016S	E015S	E015S
11	E015S	E016S	E015S	011	016	E017S	E015S	015	016	016	022	021	024	026	025	025	017	016	015	E016S	E016S	E016S	E016S	E017S
12	E016S	E015S	E016S	010	014	E015S	E016S	016	016	017	022	022	025	025	022	046	017	017	E016S	E015S	E016S	E017S	E016S	E016S
13	E016S	E016S	E016S	015	E	E016S	E015S	016	017	016	E035C	C	E041C	E040C	E040C	E022C	E022C	018	E018C	E016C	E016S	E016S	E016S	E016S
14	E015S	E015S	E016S	016	015	E015S	E015S	015	016	017	C	E022C	C	C	C	C	C	C	C	E015S	C	C	C	C
15	C	C	C	C	C	C	C	C	C	E019C	E022C	E030C	E033C	E032C	E023C	E024C	E017C	015	015	E015S	E016S	E016S	E016S	E016S
16	E016S	E016S	E015S	E	E	013	E015S	012	015	017	017	018	024	032	025	023	016	013	016	E016S	E017S	E016S	E016S	E016S
17	E016S	E016S	E015S	012	015	E016S	E015S	013	016	018	017	025	022	019	022	016	015	016	011	E016S	E016S	E016S	E016S	E016S
18	E015S	E015S	E015S	E	E	E015S	E016S	012	013	017	016	018	018	017	017	016	017	016	016	E016S	E015S	C	C	C
19	C	C	C	C	C	C	C	015	C	017	018	018	022	019	019	019	017	015	017	E015S	E016S	E017S	E017S	E017S
20	E017S	E016S	E	E	E	E017S	E016S	016	015	018	019	017	024	025	024	022	017	017	017	E016S	E016S	E017S	E015S	E016S
21	E016S	E016S	E015S	015	010	010	E017S	016	018	017	018	022	018	019	018	019	017	016	014	E016S	E016S	E016S	E016S	E016S
22	E017S	E017S	E014S	E	E	E016S	E016S	016	015	C	018	018	023	024	024	018	017	017	015	E016S	E016S	E016S	E016S	E017S
23	E015S	E015S	E016S	E	015	E015S	E016S	016	017	017	018	018	037	018	018	037	017	017	015	E015S	E016S	E016S	E016S	E015S
24	E016S	E015S	E016S	E	016	E016S	E016S	015	016	017	018	023	025	019	019	023	018	017	016	E016S	E017S	E016S	E015S	E017S
25	E016S	E016S	E016S	010	015	E014S	E017S	016	017	018	018	024	024	027	041	022	017	016	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	017	C	019	022	020	021	021	019	017	016	013	011	E016S	E016S	E016S	E016S
28	E016S	E016S	E016S	E	013	E016S	E016S	016	016	016	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	022	022	022	022	023	017	017	016	014	E014S	E013S	E016S	E016S	E015S
30	E015S	E016S	E015S	E	E	E015S	E016S	016	016	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	018	022	021	019	017	017	016	016	013	E015S	E016S	E016S	E016S	E016S
Count	25	25	25	25	25	25	25	26	26	25	27	26	26	26	26	26	26	26	25	26	25	24	25	25
Median	E016S	E016S	E016S	012	015	E015S	E016S	016	016	017	018	021	023	022	022	020	017	016	016	E016S	E016S	E016S	E016S	E016S
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

f-min

Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Jul. 1966 | M(3000) F2 | 0.01 | **135° E Mean Time** (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	S	S	300	320S	I300S	290S	A	A	A	300	I295A	I290A	285	I275S	280	280	290S	290S	S	S	S
2	S	S	S	S	315	J300S	300	310	325	335	285S	290S	I280A	270	275	I275A	A	A	A	A	A	S	290S	S
3	S	S	S	I300S	300S	295	I300A	295	330	I330S	295S	275	300C	285	285S	270	J270S	285	310S	I320S	I300S	I285S	I285S	280
4	285S	290	300S	310S	300	295S	310	I325S	I330S	330	I310A	I320S	245	J260S	J280S	I300S	295S	300S	I305A	I300A	295S	I295S	S	S
5	S	S	S	S	295S	285S	I310S	335	315	315	I265A	275	295	I290S	290S	J305S	I310S	295	I290A	I300S	S	S	S	A
6	A	S	S	S	S	I300S	305	335S	I325S	I310A	A	C	C	C	C	C	C	C	C	C	C	C	S	A
7	290S	280	I290S	275S	S	S	S	325	315	320S	B	R	B	300R	R	R	I290R	300R	R	R	S	S	S	S
8	S	S	S	S	S	300S	315	320S	285S	I295R	295R	I300A	300	280R	295	290	265	265	I280R	275S	I295S	I280S	I270S	S
9	S	S	I290S	280	275	290	U325S	350	330	I260A	A	A	A	B	R	255R	275	I280R	I280R	I285S	I280S	I270S	I275A	S
10	S	A	A	S	A	I305S	340	335	320S	330	I325A	310S	I280S	I275A	285	295	245	260	S	S	S	S	S	S
11	S	S	S	I270S	I260S	295S	325	320S	I335A	I290A	310	G	G	265	265	I280A	290	275	300	295S	290S	280S	265S	280S
12	S	S	I285S	I290S	270S	I280S	320	350S	310S	300S	I300S	265	I280A	255	270	265	I260S	285S	I290S	S	S	S	S	S
13	S	J275S	I320S	285	300S	320	320	315	310S	320	J315C	I290C	290	320	U295C	275	290	270S	I300C	C	S	330S	I310S	I290S
14	I300S	S	S	S	I290S	285S	325	I340S	335	285S	I315C	J290C	C	C	C	C	C	C	C	J300S	C	C	C	C
15	C	C	C	C	C	C	C	C	C	310S	C	A	265C	I275C	290	285	270	300S	S	S	S	280	I275S	I285S
16	I290S	300S	315	300	285	300	310S	330S	320	315	305	I300A	I260A	270	J255S	270	285	300S	I300S	I310S	A	A	S	S
17	S	F	S	S	A	A	320F	I310S	355	I340A	345	I270A	245	285S	280	275	285	305	310S	I310S	I310S	I315S	S	A
18	S	S	F	F	F	F	335	345	335	320	300	310	260	290	I270S	270	275	290	290	305	C	C	C	C
19	C	C	C	C	C	C	C	I295C	I320C	I310A	275	A	A	A	285	310	A	A	300S	J290S	S	S	270S	S
20	F	F	F	S	F	F	315F	310	320	320	I290S	290	280S	275	285S	280S	290S	300	310	315	295S	I280S	285S	I295S
21	I280S	F	305F	325F	310F	310F	320F	310S	A	A	A	I280A	240	265	260	255	I270S	305	320	I310S	S	S	270S	S
22	S	S	S	F	305	I310S	310F	330S	335S	I350C	I295A	285	285	285	295	275S	285	295	290S	290	305S	280	S	S
23	S	S	S	I290S	F	310F	330	340	J280S	I320A	320	I280A	I295A	275	270	265	275	280S	310	325S	290S	265S	I270S	I280S
24	275S	275S	280	295	280	300S	300	330	305	330	305	285S	305	I270S	275	275	300S	300	290	290	290S	S	S	S
25	S	S	295	I300S	F	F	335S	325	345	310	305	305	I295A	275	I280A	280	285	285	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	345	I300C	265	270	280	285	275	285	280	300	285	275	295S	295	S	S
28	S	S	S	S	S	315F	315	335	315	290	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	285	300	290	280	300	300	295	300	310	J310S	I295S	295	270S	I275S
30	275	275	280	295S	320	300	340	335S	320	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	295	310	290	290	285	280	295	310	290S	300	315	275	265	270S
Count	7	6	10	13	14	20	24	26	26	25	22	22	23	24	24	25	24	24	21	20	14	14	13	8
Median	285S	280S	290S	295S	300	300S	320	330	320	315	300	290	280	280	280	280	285	295	300	300S	295S	280S	270S	U280S
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F2 Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 7

IONOSPHERIC DATA

Jul. 1966 | 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								355L	360L	A	A	A	400	A	A	A	A	A	A					
2								L	350	A	A	A	A	365	A	A	A	A	A					
3								350L	I365A	395	375	365	I390A	365	390	345	A	A	345L	L				
4							L	L	370	375	A	A	375	A	395	385	A	A	A	A				
5							L	A	A		A	I375A	I390A	I375A	A	360	I365A	A	A	L				
6								A	A	A	A	C	C	C	C	C	C	C	C	C				
7								A	A	A	B	A	B	R	I360A	I370A	370	360	R	A				
8								A	A	380	B	A	A	R	410R	A	A	325	A					
9								L	370	A	A	A	A	B	A	B	I340R	335	L					
10									335	A	A	A	A	I390A	335	I360A	335	A	A					
11								L	A	A	410	380R	390	A	I380A	I370A	A	350	345					
12								L	360	A	A	365	A	A	360	B	355	I340A	335	L				
13								L	355L	360	A	C	A	A	A	L	I350A	325	L					
14							L	410	A	385	I370C	340	C	C	C	C	C	C	C					
15								C	C	A	A	A	395C	I380A	385	360	355	340C	A					
16								370L	A	385	I380A	A	A	A	A	A	A	A	A					
17								A	A	A	L	I340A	395L	395	375	365	335	I345A	335L	L				
18								A	A	A	395	375	360	380	A	A	375	355	335	L				
19								375	I370C	A	400	A	A	A	A	A	A	A	A	A				
20								330L	360	I345A	I345A	A	370	A	365	A	I350A	I335A	340	L				
21								330L	A	A	A	I395A	360	415	360	A	A	A	A					
22								365L	I365A	I395C	I395A	365L	A	385	365	A	A	A	A					
23									345L	A	A	A	A	I370A	A	A	A	A	A	A				
24								350	350	380	405L	375L	410	A	A	355	350	A	A	A				
25									A	A	A	A	A	345	I365A	A	L	I335A	C	C				
26								C	C	C	C	C	C	C	C	C	C	C	C	C				
27								C	385	I360C	350	390	395	370	370H	355	375	345	A					
28								L	355L	340L	C	C	C	C	C	C	C	C	C	C				
29								C	C	C	A	385	370	360	350	375	360	335	350L					
30								L	L	C	C	C	C	C	C	C	C	C	C	C				
31								C	C	C	385	395	385	385	365	340	360	340	L	L				
Count								9	15	11	11	13	14	14	16	12	14	14	7					
Median								355L	360	380	385	375	390	380	365	360	355	340	340					
U.Q.																								
L.Q.																								
Q.R.																								

M(3000) F1 Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jul. 1966 | 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								265	295	A	A	A	335	I360A	I370A	380	350	345	E350A					
2								280	270	270	370	E370A	A	390	340	I370A	A	A	A					
3								325	275	275	340	410	470	370	375	405	365	E350A	275	250				
4							290	250	250	270	A	340	500	405	315	295	320	315	A	A				
5							260	255	240H		A	405	315	340	345	310	A	340	I320A	290				
6								255	A	A	A	C	C	C	C	C	C	C	C	C				
7								270	300	275	B	R	I365B	325	345	I370A	350	305	300	260				
8								270	330	305	320	I310A	320	355	335	360	395	400	340					
9								225	280	A	A	A	A	B	A	400	350	345	330					
10									295	275	I290A	300	A	I385A	340	335	430	400	315					
11								280	I290A	A	355	G	G	455	425	I400A	350	380	340					
12								260	300	325	A	415	I370A	425	365	375	360	310	300	265				
13								275	300	300	310	C	370	305	330	370	E390S	350	300					
14							280	245	270	325	I320C	360	C	C	C	C	C	C	C					
15								C	C	280	270	A	440	I425A	355	350	390	310	280					
16								270	290	285	E340A	I365A	A	390	395	370	330	E350A	310					
17								285	250	I260A	310	A	440	340	340	360	325	290	270	255				
18								240	245	250	360	350	470	360	360	400	395	350	320	260				
19								240	C	A	420	A	A	A	350	300	A	A	300	295				
20								300	280	305	I360A	350	350	400	345	355	370	310	275	250				
21								305	A	A	A	A	515	415	420	400	A	275	280					
22								270	255	I290C	I350A	365	375	360	345	350	340	325	290					
23									400	I305A	300	I420A	I350A	370	E430A	350	340	E400A	280	235				
24								290	340	290	300	420	340	I395A	400	350	310	300	275	290				
25									E300A	350	315	300	I345A	350	I345A	340	340	330	C	C				
26								C	C	C	C	C	C	C	C	C	C	C	C	C				
27								C	250	C	465	405	365	340	360	325	325	300	300					
28								260	290	350	C	C	C	C	C	C	C	C	C	C				
29								C	C	C	320	300	320	330	320	330	325	310	290					
30								250	290	C	C	C	C	C	C	C	C	C	C	C				
31								C	C	C	315	315	365	380	350	360	325	290	285	275				
Count							3	23	24	19	20	19	21	24	25	26	22	24	23	11				
Median							280	270	290	290	320	360	365	370	350	360	350	320	300	260				
U.Q.																								
L.Q.																								
Q.R.																								

h'F2 Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

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IONOSPHERIC DATA

Jul. 1966 | 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	310	290	250	255	240	265	240	240	230	A	A	A	205	A	A	A	I240A	A	A	270	260	245	300	290
2	295	290	250	225	260	250	245	250	230	I240A	A	A	A	210	A	A	A	A	A	A	A	250	280	280
3	300	275	240	240	240	245	I245A	250	A	220	E240A	255	I220A	250	200	230	I245A	I250A	240	I240A	220	275	260	290H
4	300	280	250	235	250	290	250	245	240	230	A	E260A	250	I230A	210	230	A	A	A	A	245	240	305	350
5	300	280	265	290	295	280	225	A	A	205H	A	I260A	I250A	I245A	I240A	250	I250A	A	A	265	255	225	A	A
6	A	320	I295A	300	270	275	260	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	300	A
7	255	275	280	320	245	245	250	A	A	A	B	B	B	A	I265A	I235A	220	240	I265A	I260A	A	240	275	300
8	A	290	250	250	250	255	250	A	A	195H	B	A	A	A	185	A	A	245	I260A	280	260	235	280	290
9	265	250	275	295	295	275	245	230	240	I265A	A	A	A	B	A	B	I250R	215	280	250	210H	280	A	E390A
10	A	A	A	A	I360A	285	240	250	250	A	A	A	A	I210A	I215A	I235A	240H	A	A	265	240	250	280	320
11	300	250	230	250	270	250	240	230	A	A	205	230	215	I230A	I245A	I225A	I220A	225	250	260	E330A	290	295	250
12	I325A	275	280	250	300	300	255	250	225	I225A	I220A	225	A	A	250	I240B	250	I255A	260	260	240	265	285	260
13	300	270	230	260	250	225	235	250	240	E250A	A	C	A	A	I240A	I240A	I210A	250	I260A	260	A	290	I275A	295
14	280	300	260	275	255	290	250	225	I210A	215	I240C	I245A	C	C	C	C	C	C	C	240	C	C	C	C
15	C	C	C	C	C	C	C	C	C	A	A	A	200	I225A	225	I200A	230	200	I250A	260	230	250	315	280
16	250	250	250	250	275	260	245	240	I265A	245	I235A	A	A	A	A	A	A	A	A	250	I305A	I310A	E360A	290
17	290	280	280	A	I340A	A	280	A	A	A	250	I250A	210	200	235	240	250	I235A	235	250	A	250	270	I345A
18	E350A	270	250	250	275	270	240	I240A	I245A	I210A	200H	215	225	250	A	A	200H	E270A	260	250	220	C	C	C
19	C	C	C	C	C	C	C	A	I200C	A	210	A	A	A	A	A	A	A	A	A	250	240	230	295
20	340	E350A	270	280	255	220	250	240	250	A	A	A	250	A	250	I230A	I220A	I250A	240	245	250	275	255	250
21	265	300	270	250	250	270	240	250	A	A	A	I200A	255	200	250	A	A	A	A	255	250	300	E370A	290
22	E300A	E305A	E300A	255	250	290	255	I240A	I215A	I220C	I230A	250	I220A	230	250	A	A	A	A	E325A	260	275	E330A	295
23	E300A	E360A	260	E300A	E300A	260	240	260	A	A	A	A	A	I250A	I250A	I250A	A	A	A	A	250	300	300	300
24	315	300	280	255	290	250	240	225H	210	220	200	200	195H	A	A	250	250	A	A	A	270	300	300	300
25	E350A	280	280	270	315	240	210H	250	I220A	I230A	A	A	A	250	I245A	I245A	I230A	I260A	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	220	I200C	210	200	200	250	220H	I250A	240	250	I270A	290	265	250	250	320
28	275	E350A	E345A	275	250	250	245	240	240	235	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	A	220	240	230	265	245	240	230	230	260	250	260	300	320
30	300	295	300	255	240	210H	255	225	200	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	200	200	200H	230	I220A	215H	225	250	270	270	230	220	300	300
Count	22	24	24	23	25	24	25	20	18	16	12	14	15	16	19	17	18	15	14	21	21	24	23	23
Median	295	280	265	255	260	260	245	240	230	220	210	225	220	230	240	U240A	240	250	260	260	250	255	290	295
U.Q.																								
L.Q.																								
Q.R.																								

h'F Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

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IONOSPHERIC DATA

Jul. 1966 | 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	100	100	100	110	105	105	145	125	110	105	105	105	150	125	120	120	125	125	115	120	115	100	100	100
2	100	095	100	125	120	S	135	125	125	115	115	115	110	120	110	105	105	105	100	100	100	100	100	100
3	110	100	110	S	125	110	105	105	105	105	105	105	110	110	G	145	130	115	100	100	100	125	110	100
4	105	100	100	100	115	S	140	130	120	110	110	105	110	110	110	145	125	115	110	110	110	105	105	100
5	100	125	120	100	130	120	115	110	110	110	110	110	110	105	105	110	105	100	100	100	100	100	115	110
6	110	105	105	105	100	130	120	115	110	110	105	C	C	C	C	C	C	C	C	C	C	C	110	110
7	105	105	095	095	100	100	130	125	120	115	B	110	B	110	145	135	105	120	115	130	120	100	100	100
8	100	100	100	100	100	S	140	130	120	115	120	105	100	100	100	100	155	140	115	110	120	110	110	100
9	S	S	100	B	B	S	140	140	140	120	115	110	110	B	110	B	105	G	G	S	S	S	115	115
10	115	110	110	105	105	100	105	100	105	115	120	120	120	125	170	150	150	120	115	110	110	110	110	100
11	100	100	115	110	115	S	115	110	105	105	105	150	150	140	135	120	130	150	130	120	110	115	115	S
12	110	110	110	105	105	105	105	105	150	125	120	135	130	125	G	B	120	110	115	100	100	100	110	110
13	110	110	110	110	110	105	105	105	105	130	130	C	130	125	130	120	120	125	120	115	115	110	100	100
14	105	105	110	110	110	105	105	110	105	145	C	130	C	C	C	C	C	C	C	130	C	C	C	C
15	C	C	C	C	C	C	C	C	C	105	100	105	105	105	105	130	150	125	120	115	115	100	110	110
16	100	100	100	105	105	B	140	130	120	110	105	105	105	105	110	105	120	115	110	110	110	105	110	110
17	110	110	105	105	105	105	125	125	120	115	110	110	110	G	115	110	145	125	100	100	115	100	110	110
18	110	110	110	105	105	S	145	120	120	120	120	140	140	125	125	120	120	125	115	115	110	C	C	C
19	C	C	C	C	C	C	C	115	C	110	115	110	110	110	125	110	120	115	120	100	100	120	110	100
20	110	110	110	110	110	110	110	105	130	115	115	125	140	130	145	130	125	120	120	110	115	110	115	S
21	120	110	105	110	120	115	130	115	110	110	110	110	110	110	110	110	105	105	100	115	110	115	115	110
22	110	105	105	105	105	130	120	120	120	C	115	120	130	135	130	125	125	120	120	110	110	110	110	115
23	110	110	105	105	105	105	125	125	125	120	115	110	110	120	120	120	110	110	110	105	100	100	100	100
24	100	100	S	115	B	120	125	140	105	125	110	110	110	140	130	140	145	120	120	115	110	115	110	110
25	110	105	105	105	105	S	140	125	120	120	115	115	110	120	120	125	115	115	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	110	C	110	115	110	105	140	100	130	125	115	110	105	100	110	100
28	105	105	105	105	105	105	105	105	130	125	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	110	120	115	115	140	125	130	120	115	110	110	105	100	100
30	100	100	100	100	100	100	120	125	120	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	115	110	120	115	110	G	140	125	120	100	115	110	110	110
Count	24	24	24	23	23	17	25	26	26	25	26	26	25	24	24	23	26	25	24	25	24	23	25	23
Median	110	105	105	105	105	105	125	120	120	115	110	110	110	120	120	120	125	120	115	110	110	105	110	100
U.Q.																								
L.Q.																								
Q.R.																								

h'Es

Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

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IONOSPHERIC DATA

Jul. 1966 | Types of Es | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

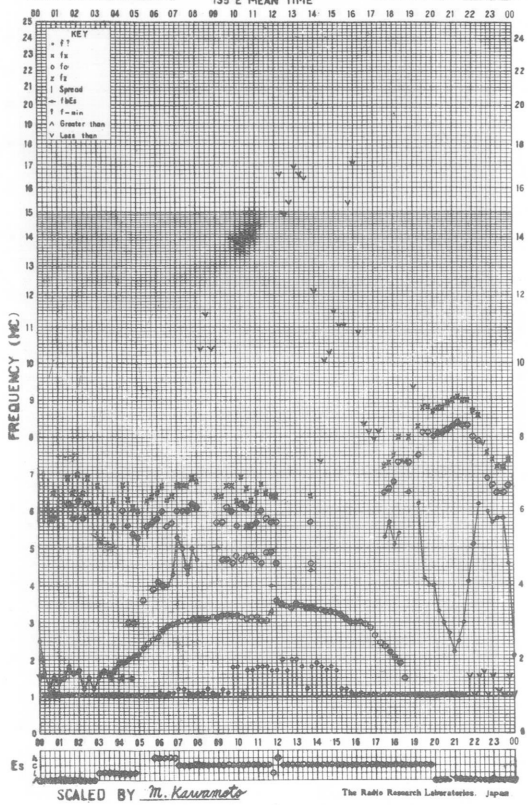
Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f5	f5	f2	f2f	f3	16	h3	h2	c3	c3	c3	c3	h	h3	c2	c2	h	h213	c412	c213	f f2	f2	f2	f2
2	f3	f5	f2	f2f2	f5		h3	h3	h2	c3	c2	c3	c2	c	c2	c6	12	16	13	15	f3	f4	f4	f2
3	f f2	f	f2		f	12	14	14	12	12	12	12	c2	c		h	h	c312	12h	12	f4	f2f	f2f2	f3
4	f f	f3	f	f	f2f		h2	h2	c212	c2	c2	c2	c2	c3	c	h	h2	c4	c3	c21	f3	f4	f3	f3
5	f2	f2f2	f2f3	f2	f2f2	c51	c4	c4	c3	c2	c2	c2	c2	c3	c3	c2	c3	14	13	12	f5	f6	f2f3	f5
6	f4	f3	f3f2	f3f2	f2	h 1	c31	c4	c4	c2	c2												f2f2	f3f
7	f2f	f2f3	f3	f2	f2	12	h212	h312	c412	c2		1		1	h 1	h 1	1	c 1	c	h 1	f f	f	f	f
8	f	f2	f	f2	f2		h	h 12	c2	c 1	c	1	12	1	1	1	h21	h 1	c 1	c 1	f	f2f	f2f	f
9			f				h	h	h	c	c2	c	c3		c		1						f2	f3
10	f3	f3	f4	f3	f3	12	14	13	12	c21	c2	c 1	c	h	h	h	h	c3	c2	c2	f6	f2	f2	f
11	f	f	f2f	f	f		c2	c2	13	12	12	h 1	h	h2	h2	h	h	h	h	c	f4	f2	f2	
12	f3	f2	f2	f2	f	12	12	12	h	h2	h2	h 1	h 1	h 1			c 1	c31	c 1	1	f	f	f2f	f2
13	f3	f2	f2	f	f2	1	12h2	12h	12h	h 1	h		h	h	h	c2	c	h2	c	c	f3	f2	f2	f
14	f	f2	f3	f3	f2	12	12	12	13	h 1		h								h				
15										13	12	12	1	1	12	h 1	h	h2	c2	c2	f5	f	f3	f2
16	f2	f2	f2	f3	f2		h2	h	c2	c	c3	12	12	12	12	13	c3	c3	c2	c3	f4f	f2	f3f3	f2f
17	f3	f3	f6	f3	f3	12h2	h3	h3	c2	c3	c2	c	c		c	c2	h 1	h 13	12	14	f4f6	f2	f f3	f2f2
18	f4	f4	f4	f4	f3		h2	h3	h3	c	c	h	h	h	h	h3	h2	h2	c3	c3	f2			
19								c3		c3	c2	c3	c4	c3	h2c3	c2	c414	c216	c213	13	f2f	f f2	f f2	f2
20	f4	f5	f2	f3	f2	1	14	12h	h21	c2	c2	h	h	h	h	h21	h 1	c31	c21	c 12	f2	f2	f2	
21	f	f2f2	f2	f2f2	f	12	h	c3	c3	c3	c3	c2	c	c	c	c	12	14	15	c312	f2f2	f2f	f2f	f5
22	f3	f3	f2	f3	f2	h 13	c4	c4	c2		c2	c2	h	h	h	h2	h	c2	c5	c5	f3	f2	f3	f2
23	f3	f4	f2	f4	f4	12	h3	h3	h2	c3	c3	c3	c	c	c2	c	c2	c3	c8	13	f3	f2	f3	f2
24	f3	f3		f		c	c	h	12	h 12	1	1	1	h 1	h21	h 1	h 12	c41	c5	c3	f2f2	f2f	f3	f2f2
25	f5	f3	f3	f4	f2		h2	h 12	c3	c3	c2	c2	c2	c	c5	c	c2	c2						
26																								
27									12		c	c	c2	12	h 1	13	h 12	h 12	c312	c513	f2	f2	f3f	f3
28	f2	f4	f6	f7	f5	15	16	14	12h3	h31														
29											c2	c	c	c	h	h2	h	c21	c21	c2	f3f	f3f2	f3	f4
30	f5	f2	f3	f5	f2	12	1 1	h	c2															
31											c	c	c	c	c3		h	h21	c21	14c	f3f2	f f	f2f2	f2f2
Count																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

Types of Es

Sweep 1.0 Mc to 18.7 Mc in 20 sec in automatic operation

f-PLOT OF IONOSPHERIC DATA

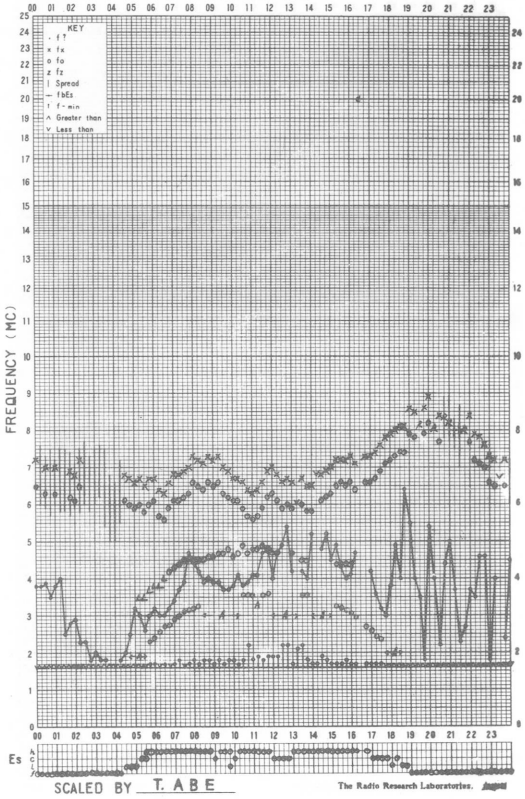
STATION WAKKANAI 135°E MEAN TIME DATE JUL. 1.1966



SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

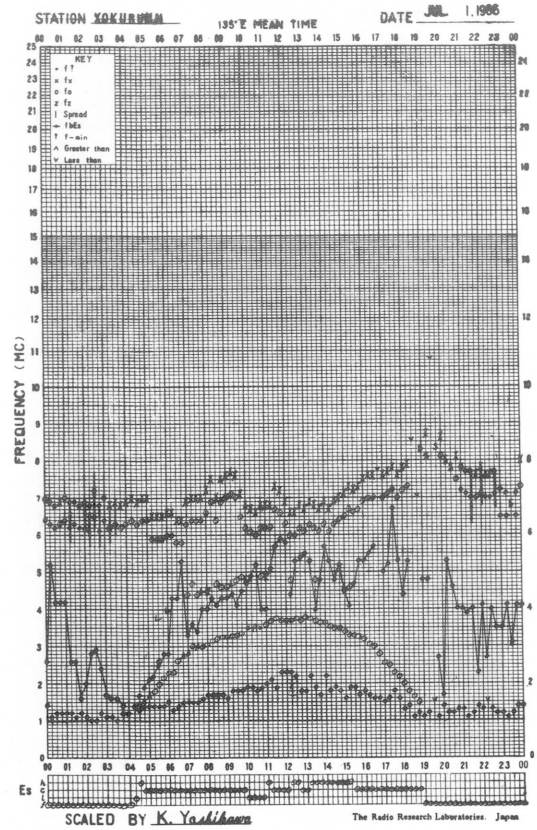
STATION AKITA 135°E MEAN TIME DATE Jul. 1. 1966



SCALED BY T. ABE The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

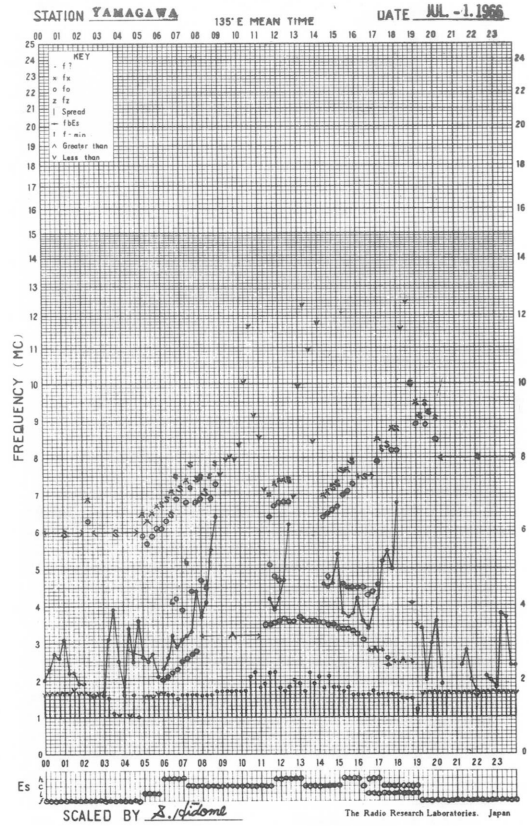
STATION YOKURUM 135°E MEAN TIME DATE JUL. 1.1966



SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

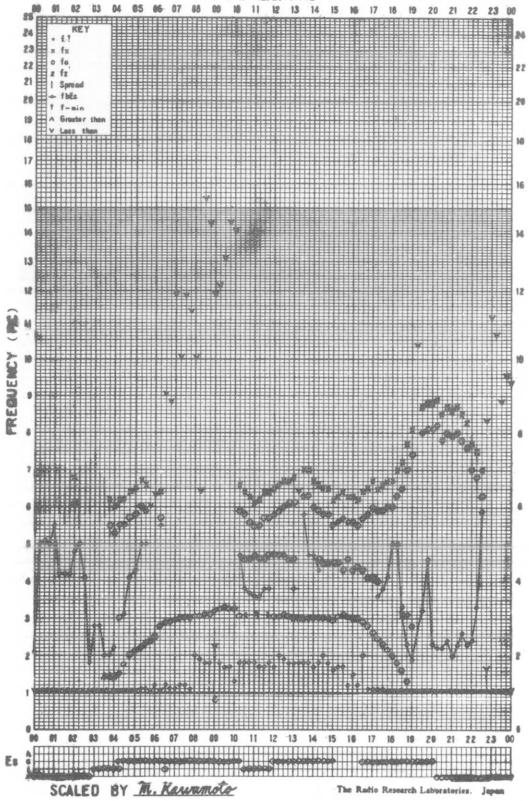
STATION YAMAGAWA 135°E MEAN TIME DATE JUL. -1.1966



SCALED BY S. Tidome The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUL. 2, 1966



SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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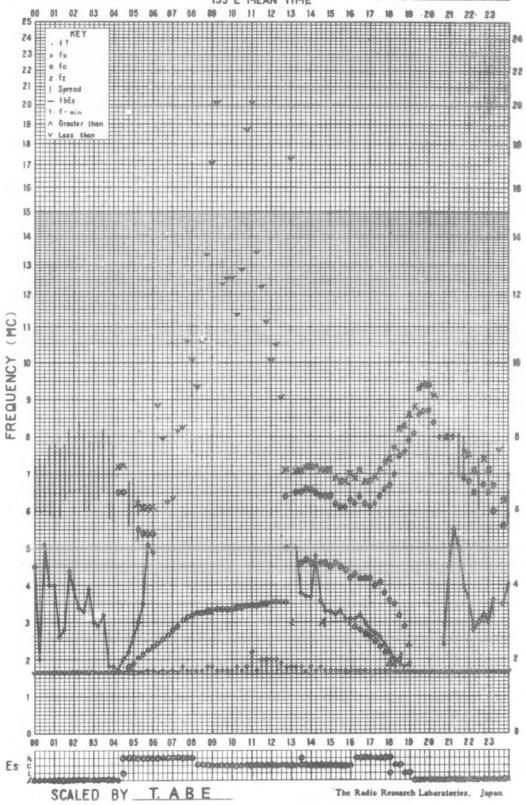

SCALED BY T. A B E The Radio Research Laboratories. Japan

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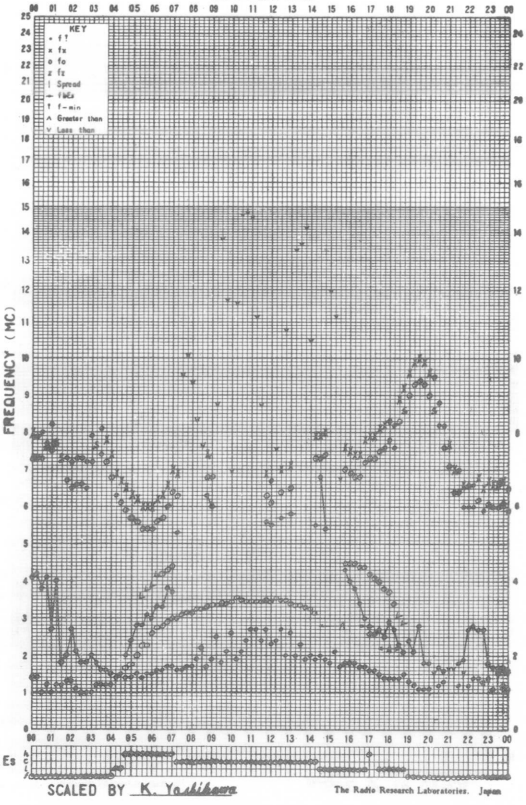
STATION KOKUBUNJI 135°E MEAN TIME DATE JUL. 2 1966



SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

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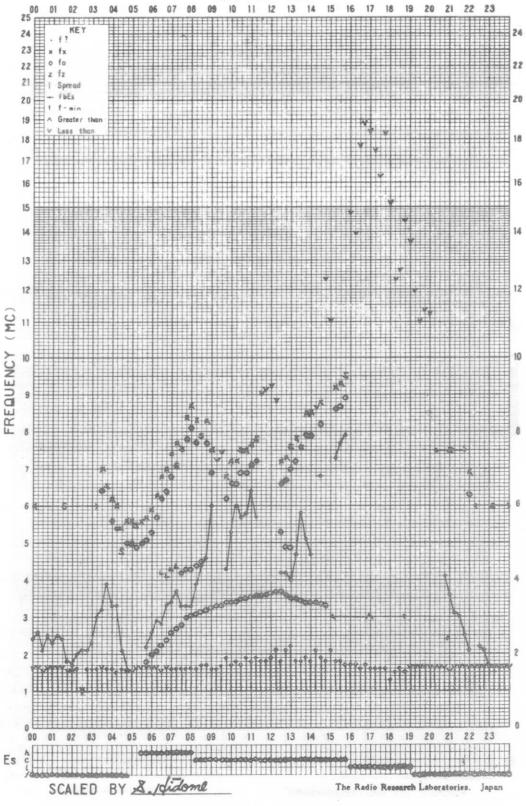

SCALED BY S. Ichimi The Radio Research Laboratories. Japan

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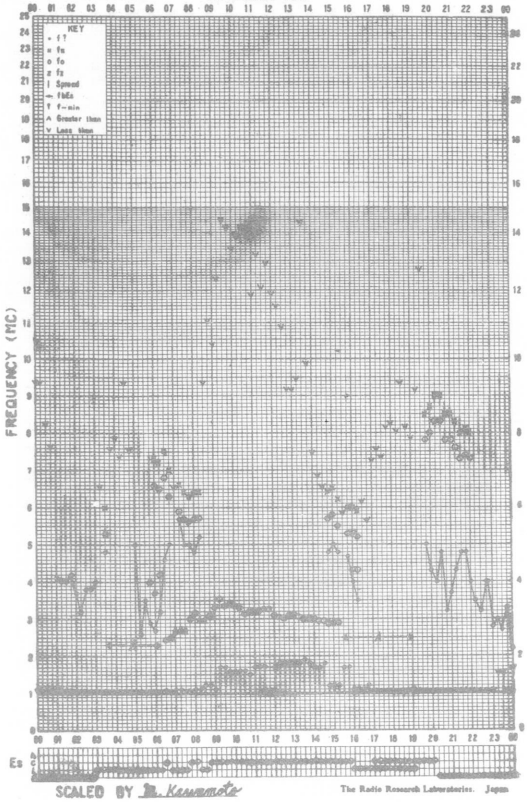

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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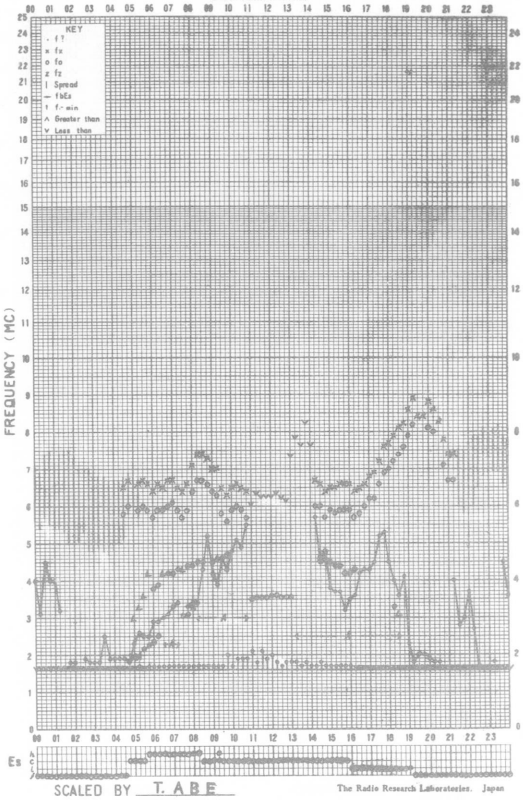

SCALED BY T. ABE The Radio Research Laboratories. Japan

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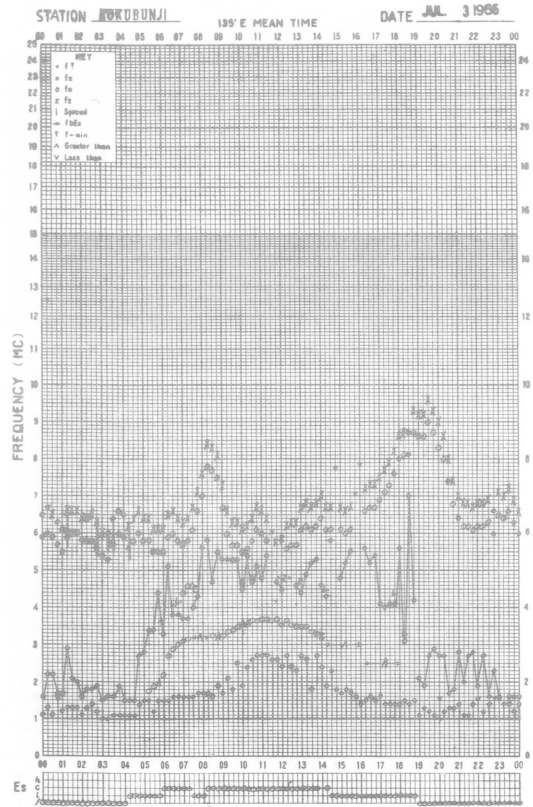

SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

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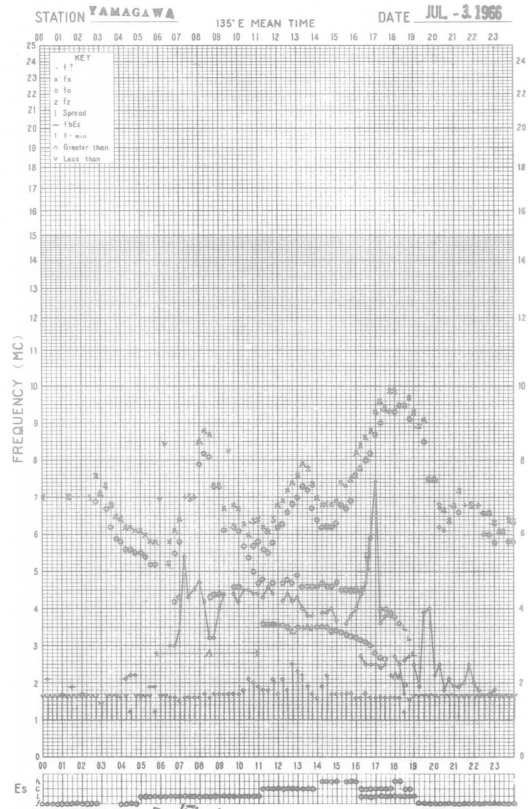

SCALED BY S. Kitami The Radio Research Laboratories. Japan

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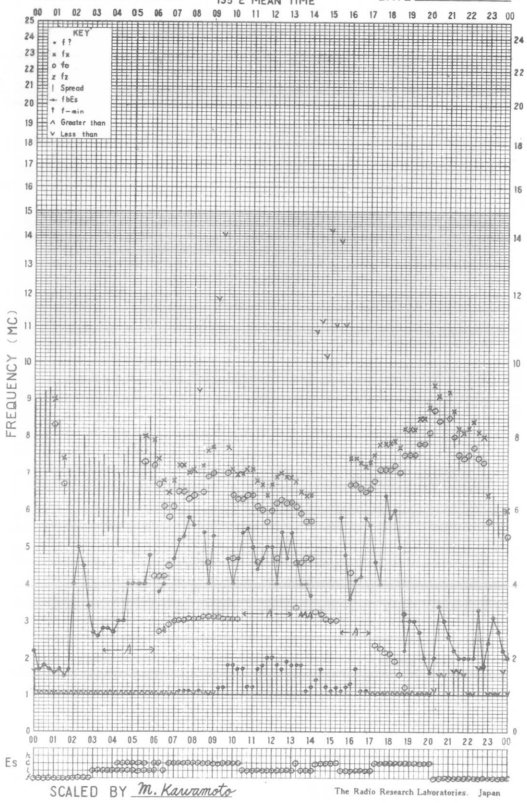

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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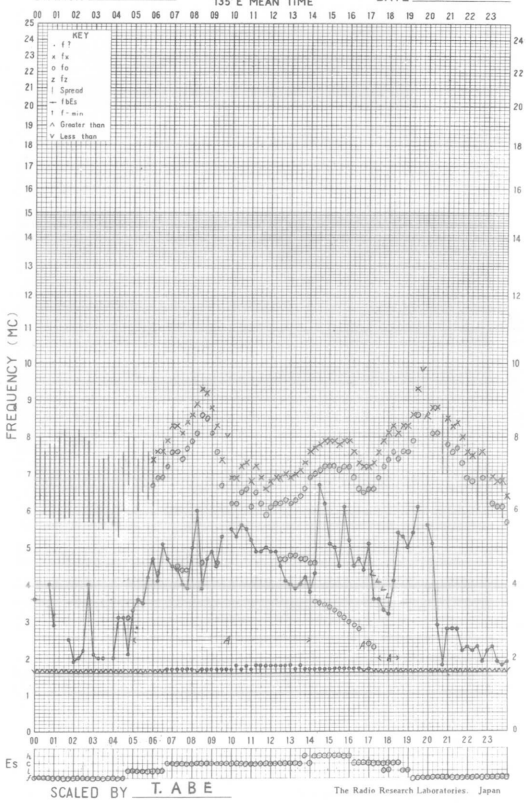

SCALED BY T. ABE The Radio Research Laboratories. Japan

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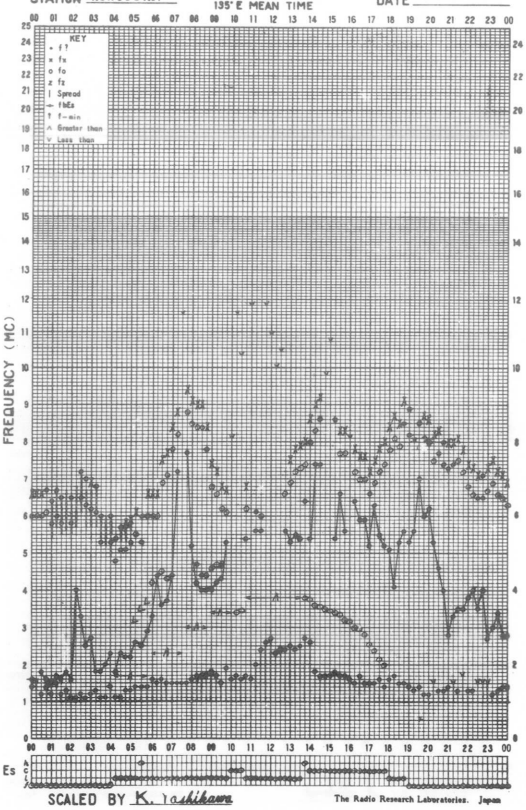
STATION KOKUBUNJI 135°E MEAN TIME DATE JUL. 4 1966



SCALED BY K. Yashikawa The Radio Research Laboratories. Japan

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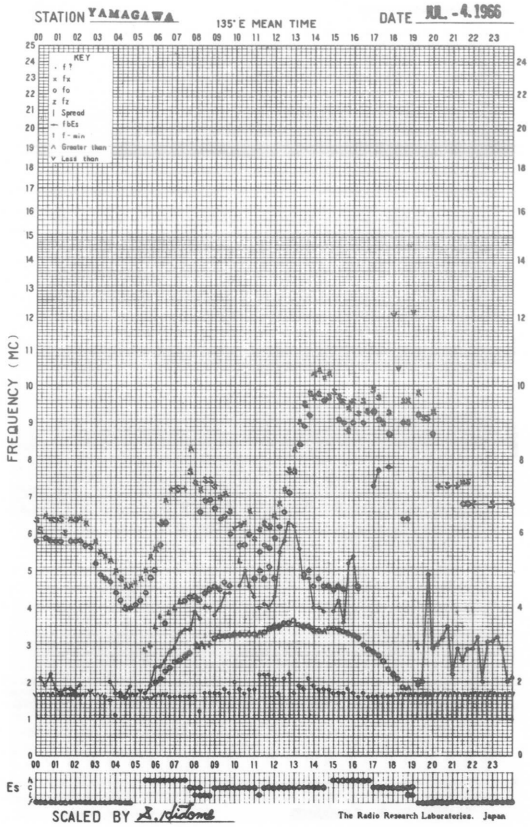

SCALED BY E. Sitomé The Radio Research Laboratories. Japan

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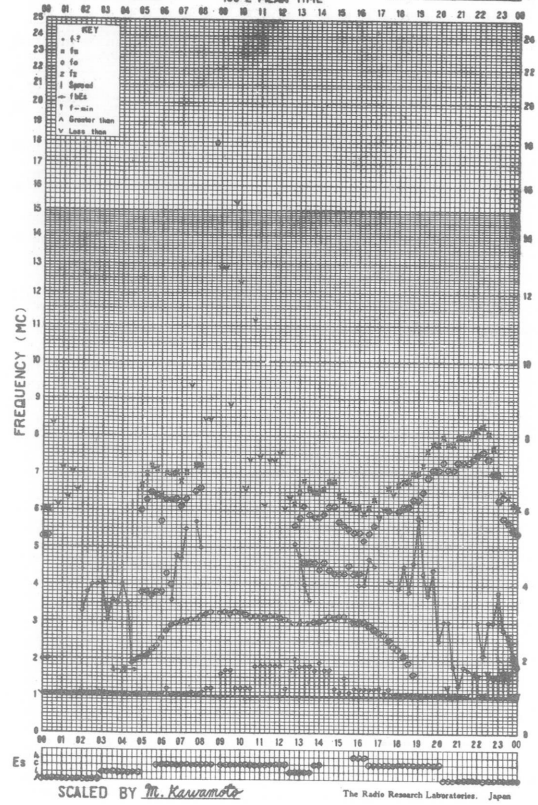
STATION WAKKANAI 135°E MEAN TIME DATE JUL. 5 1966



SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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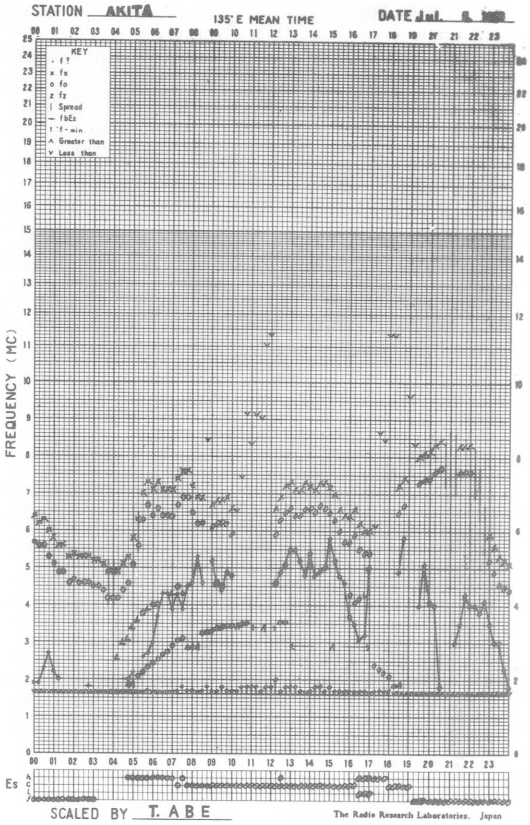

SCALED BY T. ABE The Radio Research Laboratories. Japan

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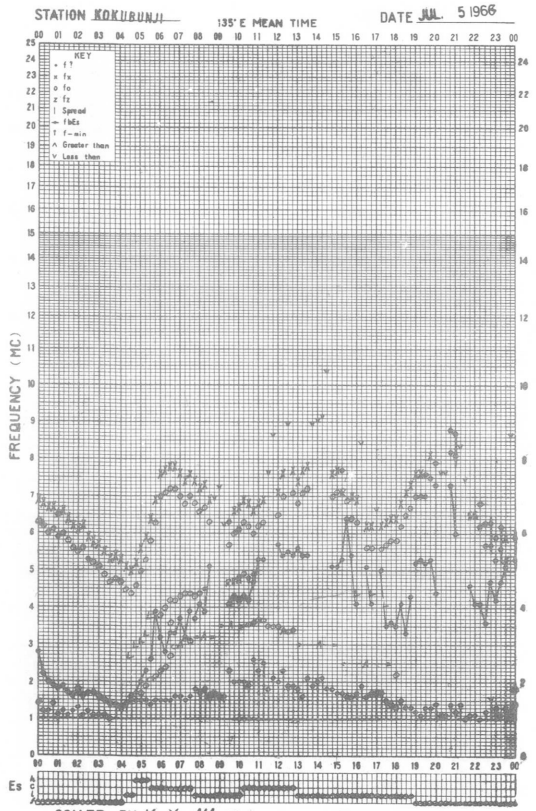

SCALED BY K. Yashihara The Radio Research Laboratories. Japan

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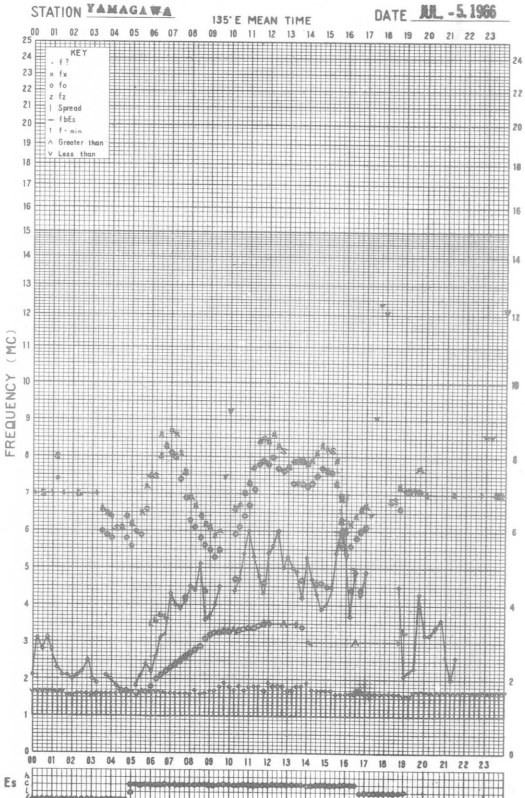

SCALED BY S. Nidome The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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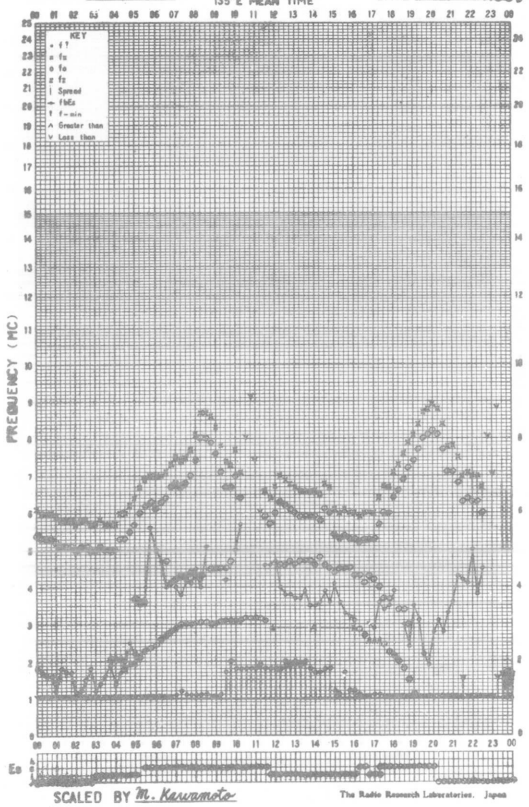

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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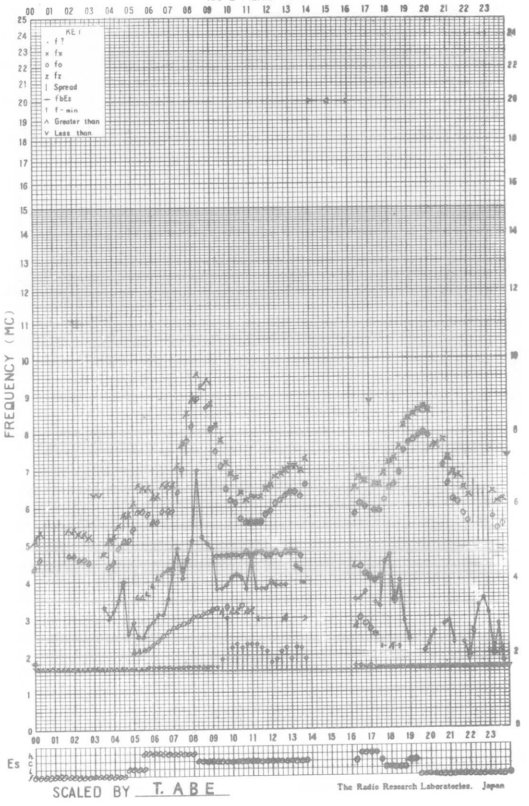

SCALED BY T. ABE The Radio Research Laboratories. Japan

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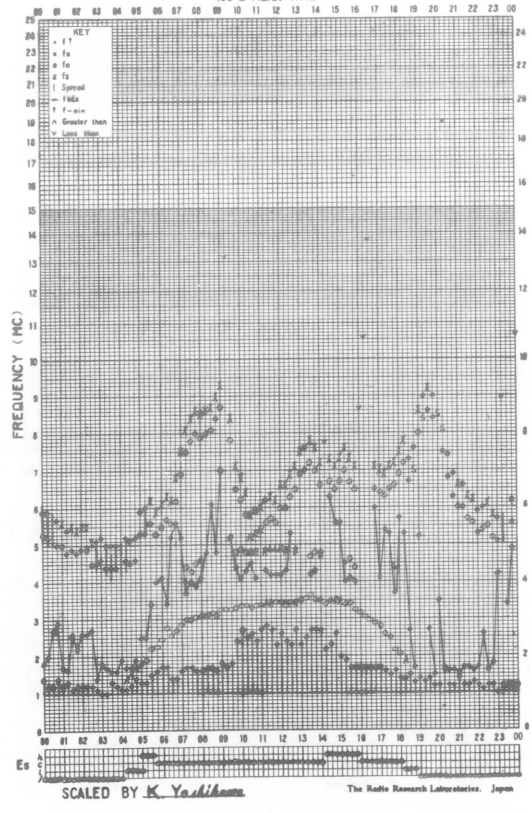

SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

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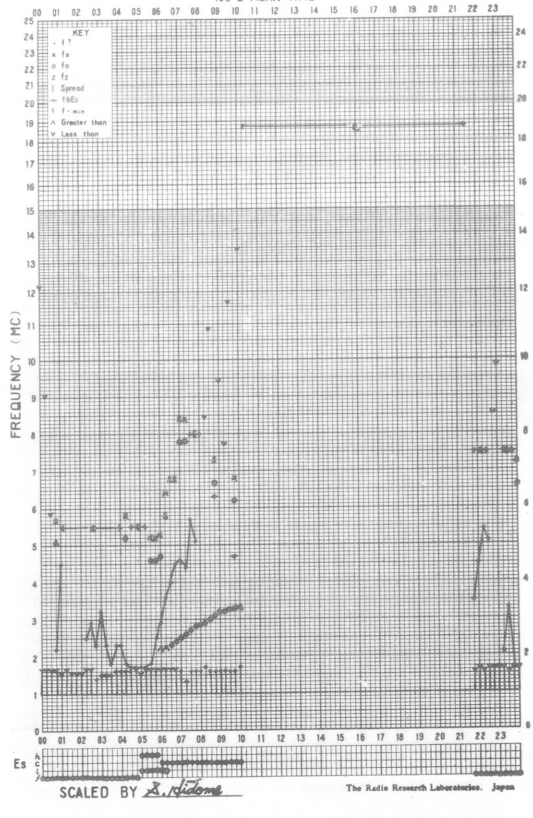

SCALED BY S. Sidomi The Radio Research Laboratories. Japan

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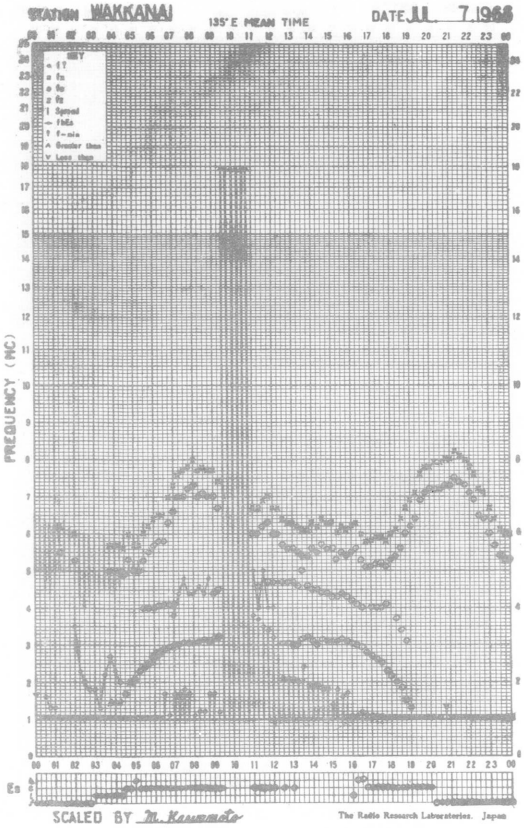

SCALED BY M. Kanamoto

The Radio Research Laboratories. Japan

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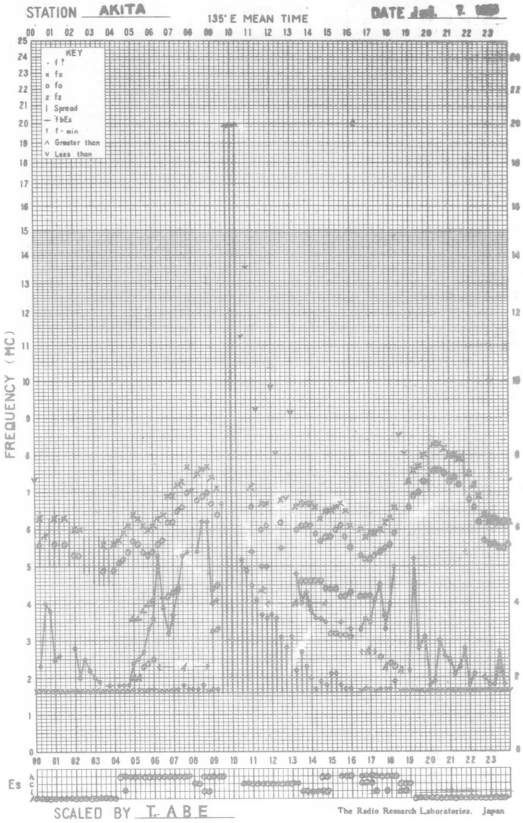

SCALED BY T. ABE

The Radio Research Laboratories. Japan

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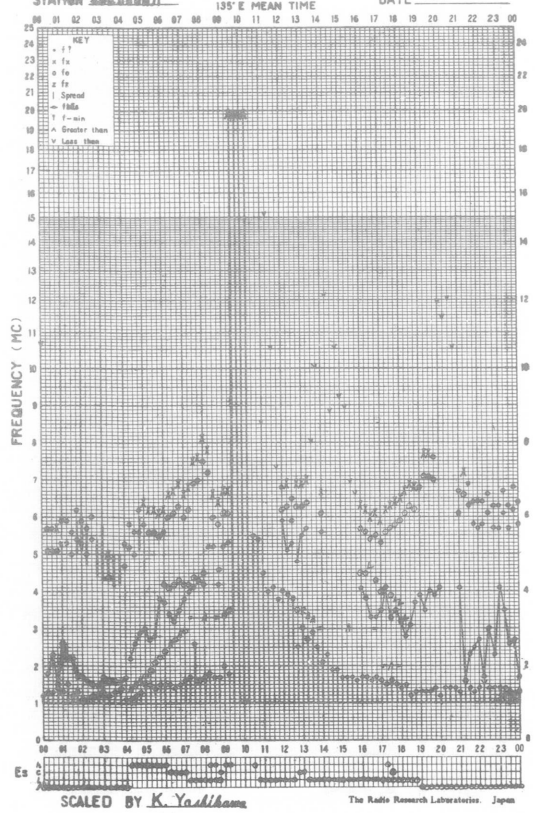

SCALED BY K. Yoshikawa

The Radio Research Laboratories. Japan

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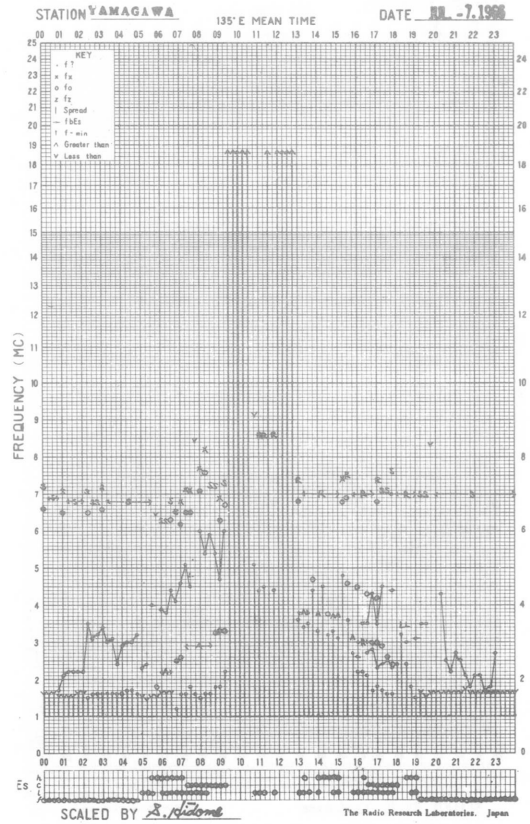

SCALED BY S. Sakuma

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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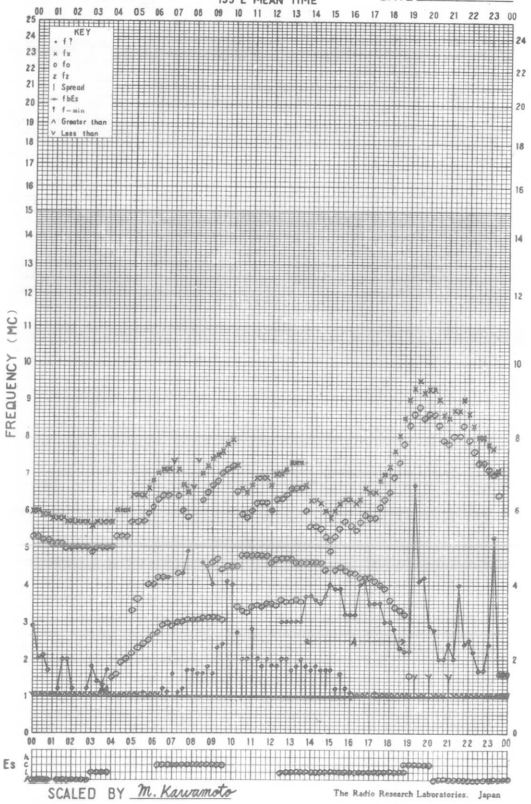

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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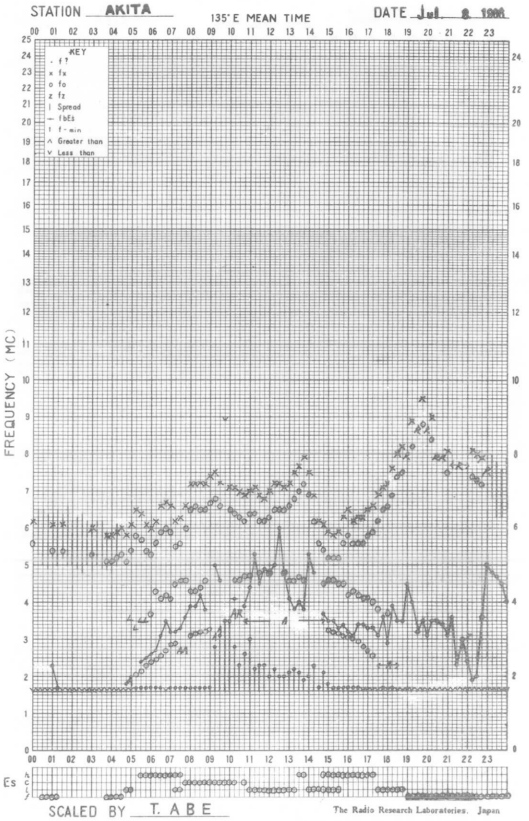

SCALED BY T. ABE

The Radio Research Laboratories. Japan

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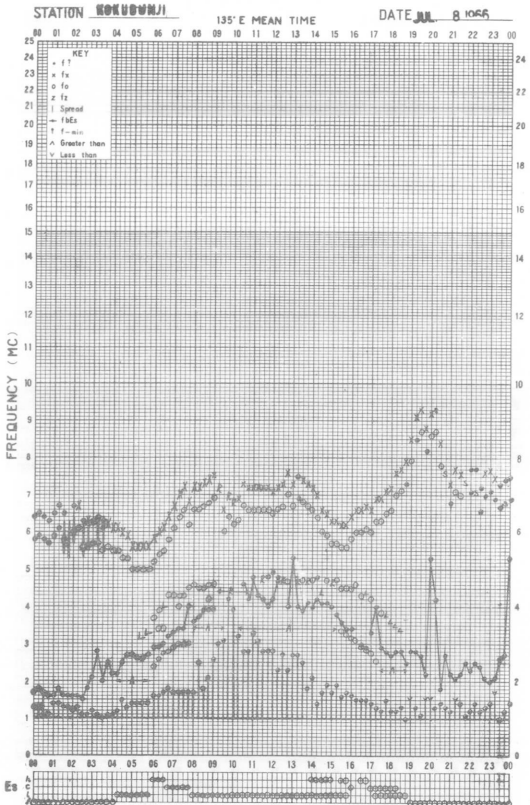

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The Radio Research Laboratories. Japan

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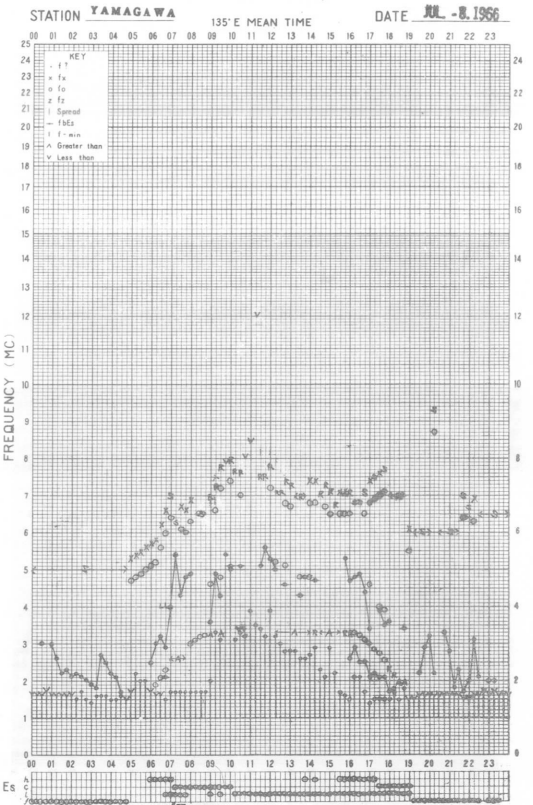

SCALED BY R. Tsukomi

The Radio Research Laboratories. Japan

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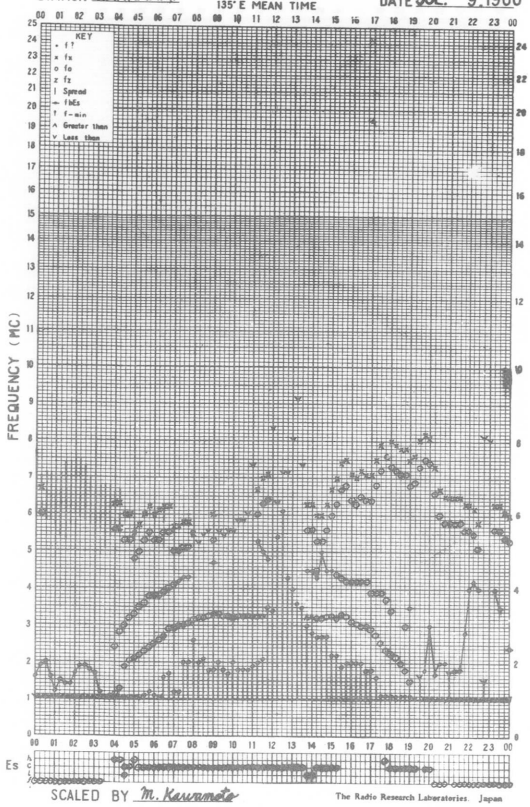

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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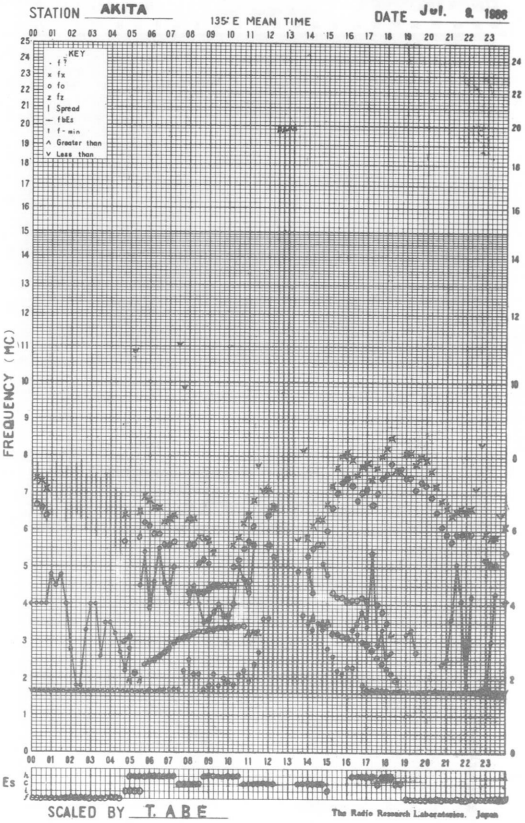

SCALED BY T. ABE

The Radio Research Laboratories. Japan

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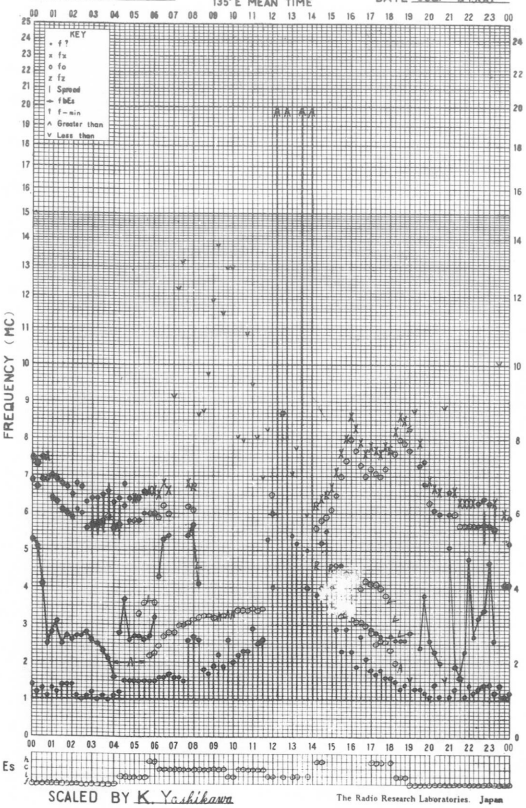

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The Radio Research Laboratories. Japan

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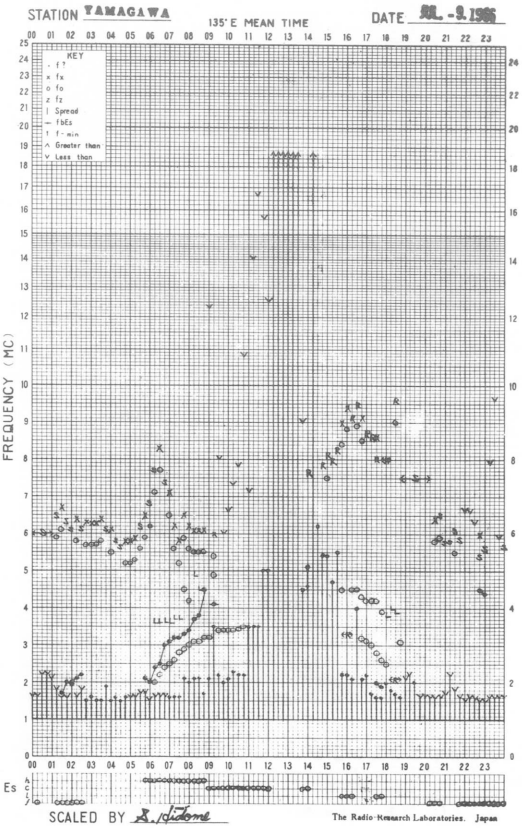

SCALED BY S. Ichidome

The Radio Research Laboratories. Japan

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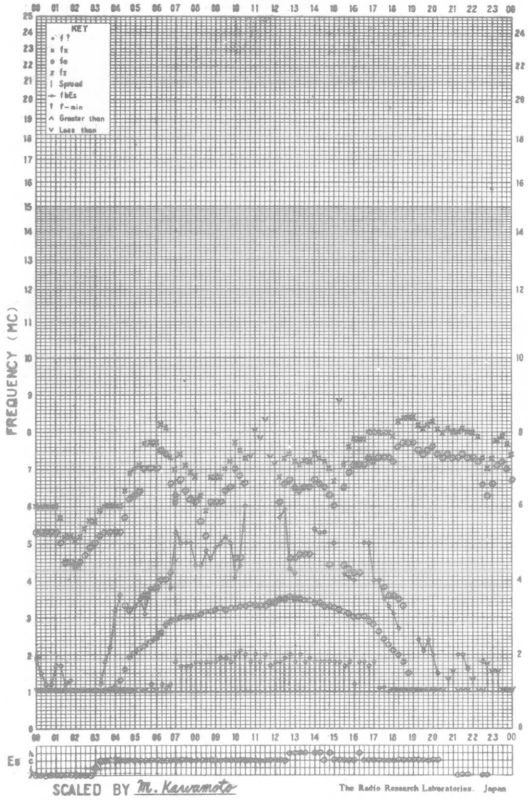

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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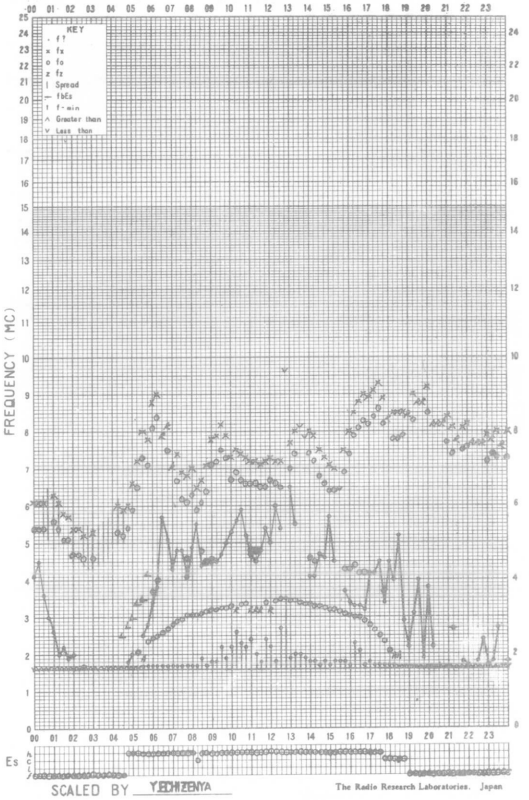

SCALED BY Y. ICHIZENYA The Radio Research Laboratories. Japan

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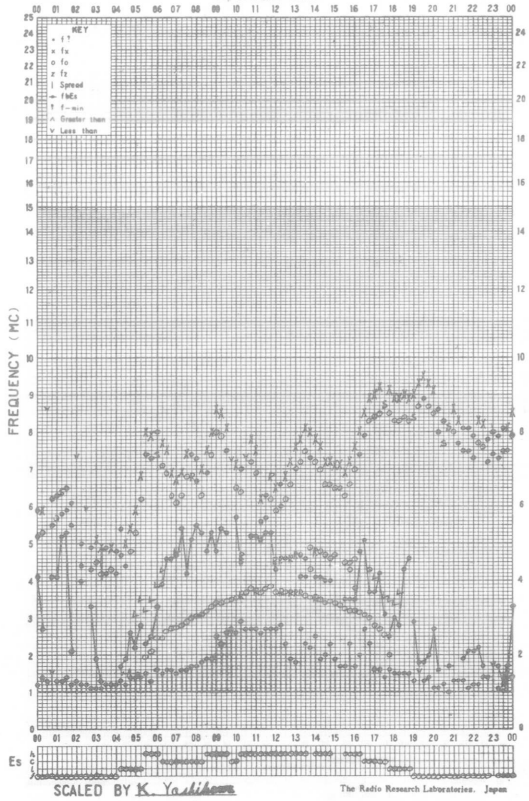

SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

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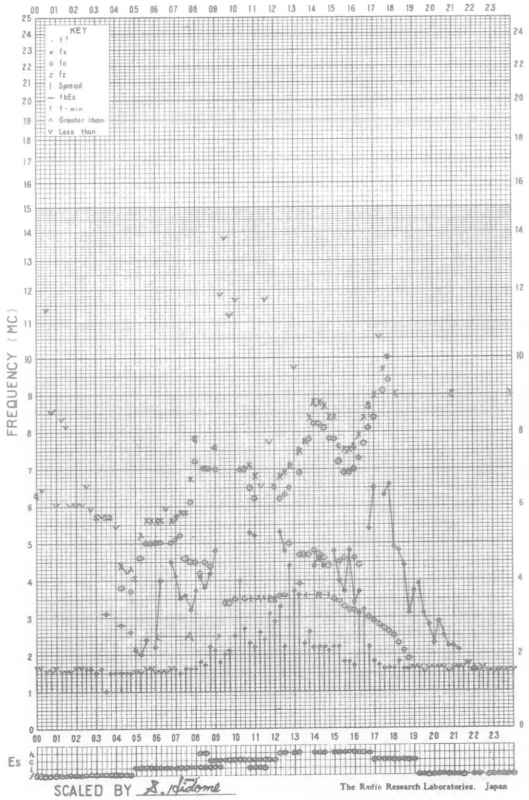

SCALED BY A. Shitome The Radio Research Laboratories. Japan

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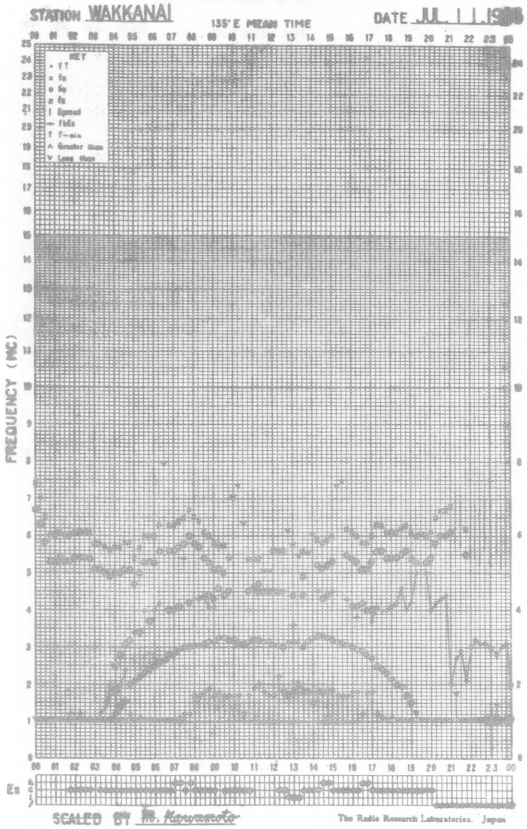

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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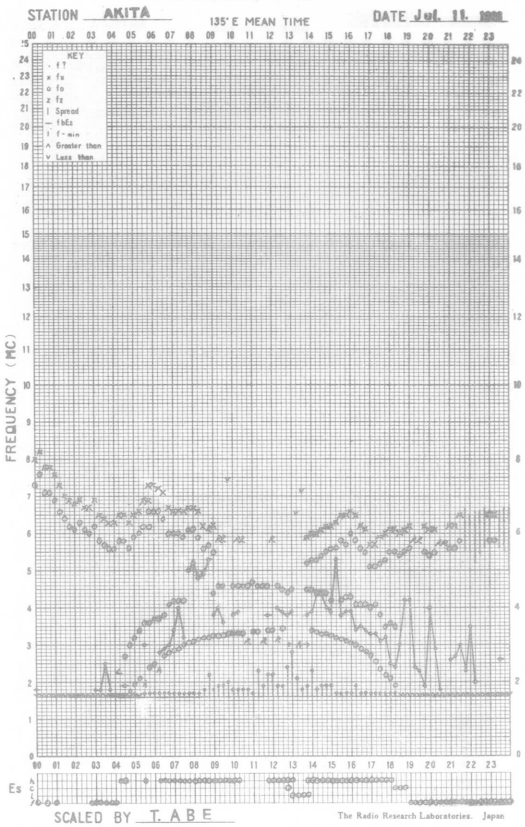

SCALED BY T. ABE

The Radio Research Laboratories. Japan

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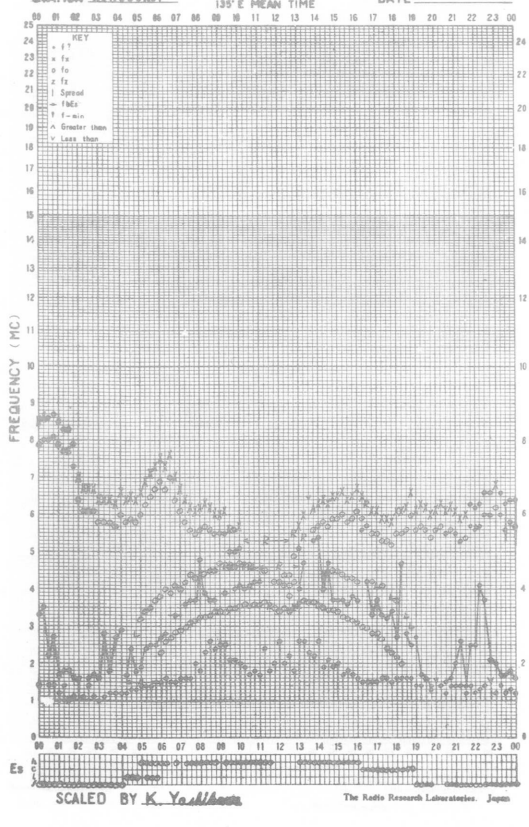

SCALED BY K. Yoshihara

The Radio Research Laboratories. Japan

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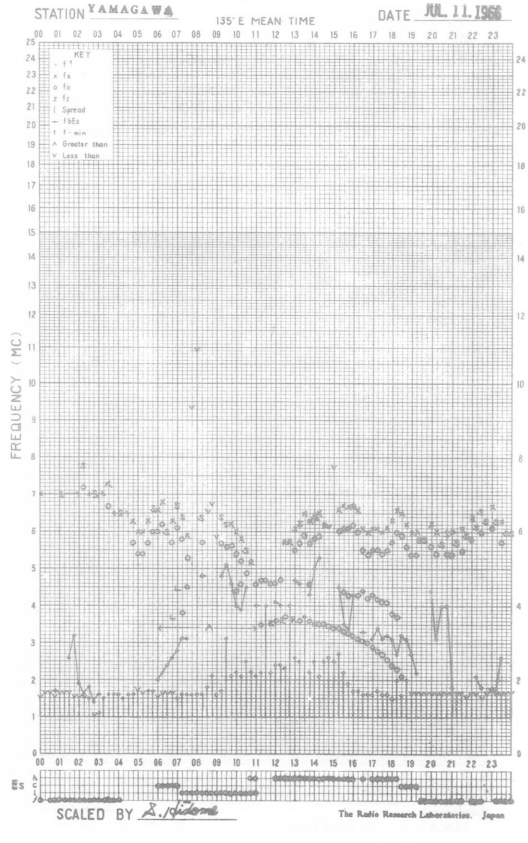

SCALED BY S. Sakamoto

The Radio Research Laboratories. Japan

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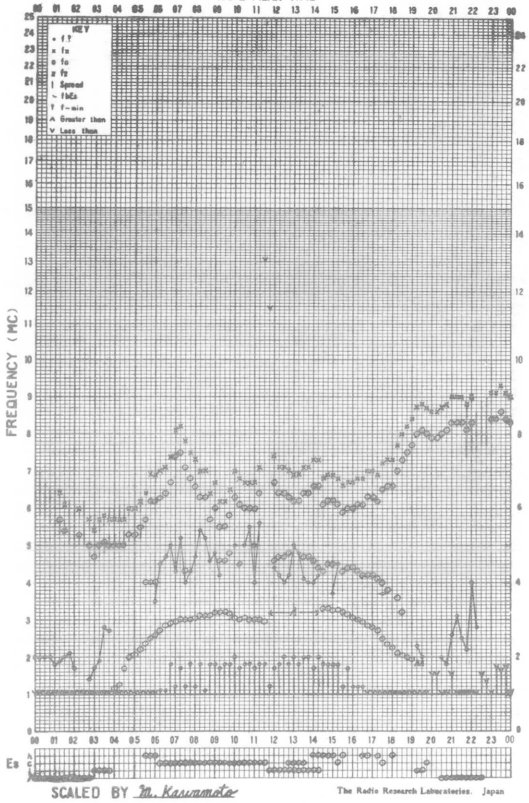

SCALED BY M. Kasuyamoto The Radio Research Laboratories. Japan

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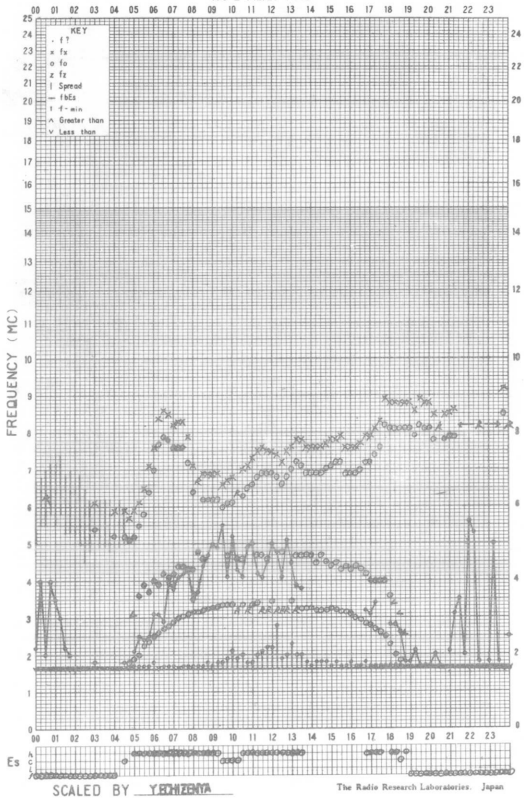
STATION AKITA 135°E MEAN TIME DATE Jul. 12. 1966



SCALED BY YOHIZENYA The Radio Research Laboratories. Japan

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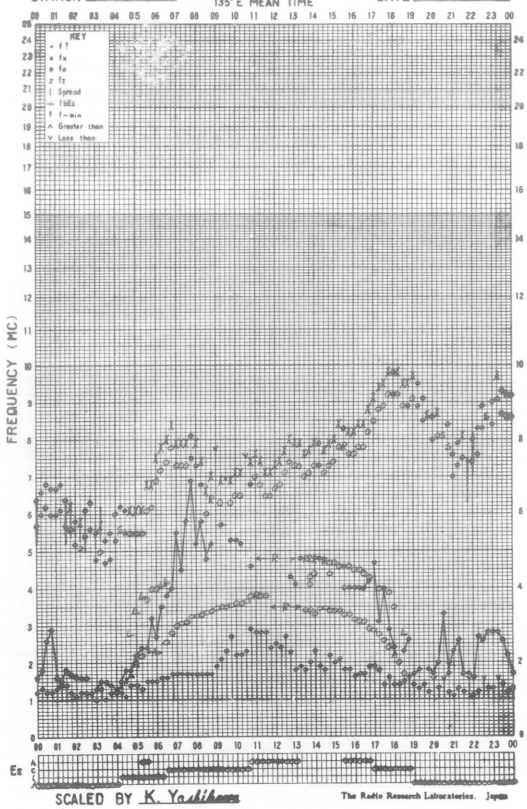
STATION KOKUBUNJI 135°E MEAN TIME DATE JUL. 12 1966



SCALED BY K. Yashikawa The Radio Research Laboratories. Japan

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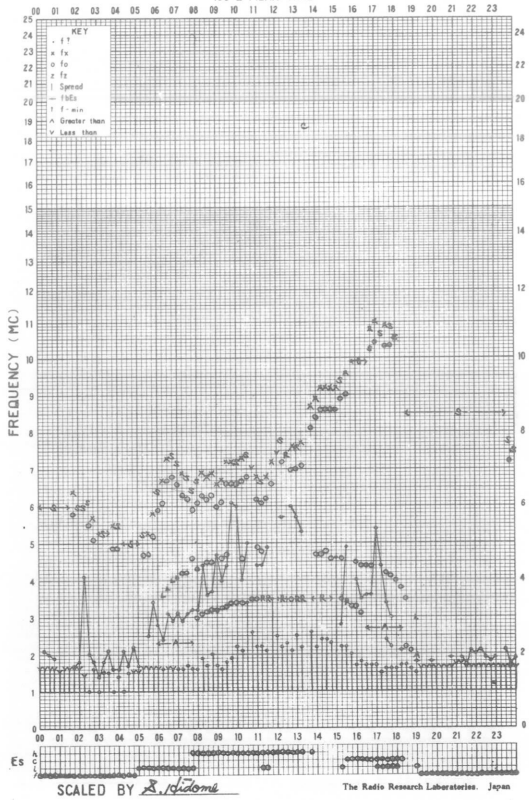

SCALED BY S. Sidomi The Radio Research Laboratories. Japan

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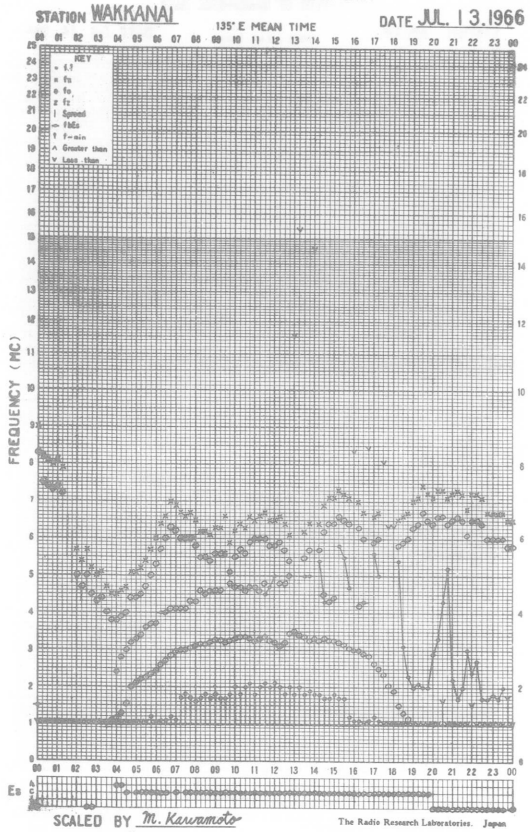

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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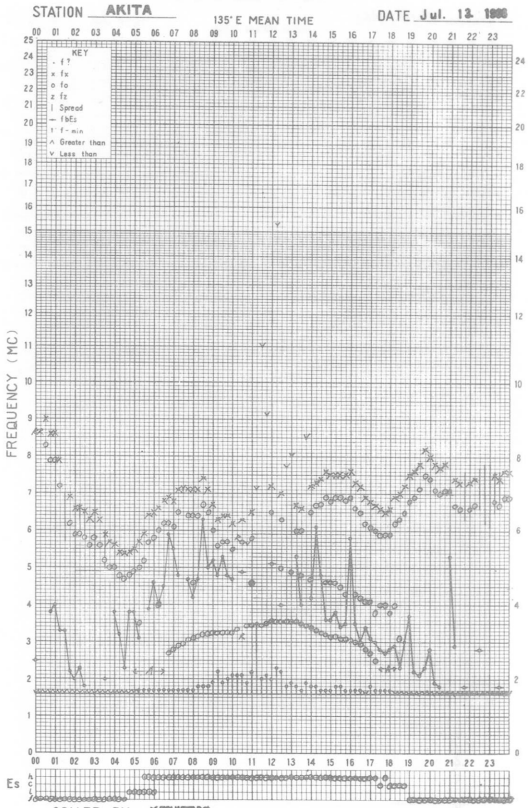

SCALED BY Y. ICHIZAWA The Radio Research Laboratories. Japan

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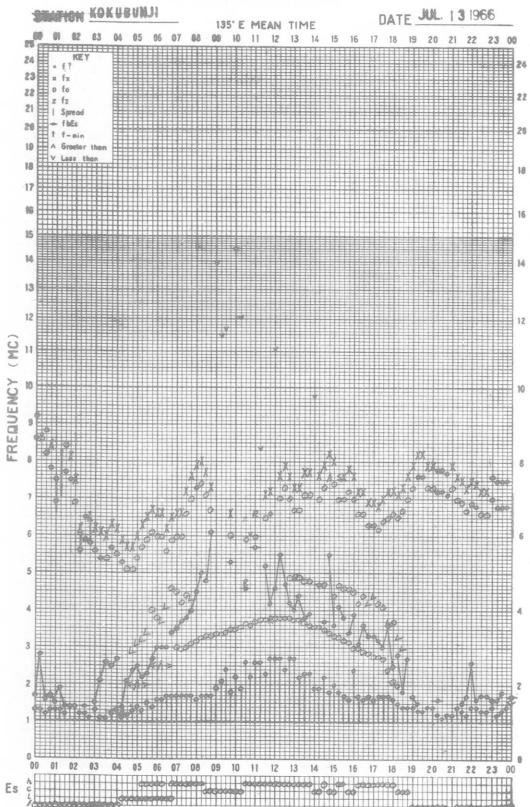

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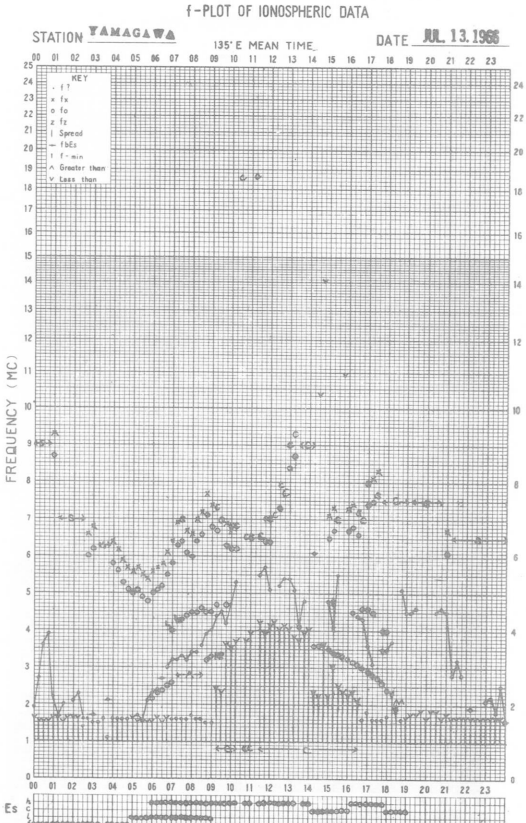

SCALED BY S. Sidome The Radio Research Laboratories. Japan

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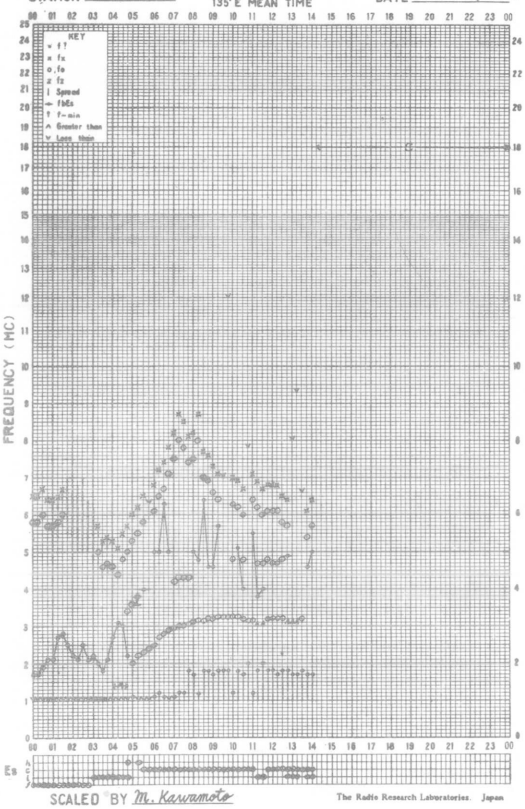

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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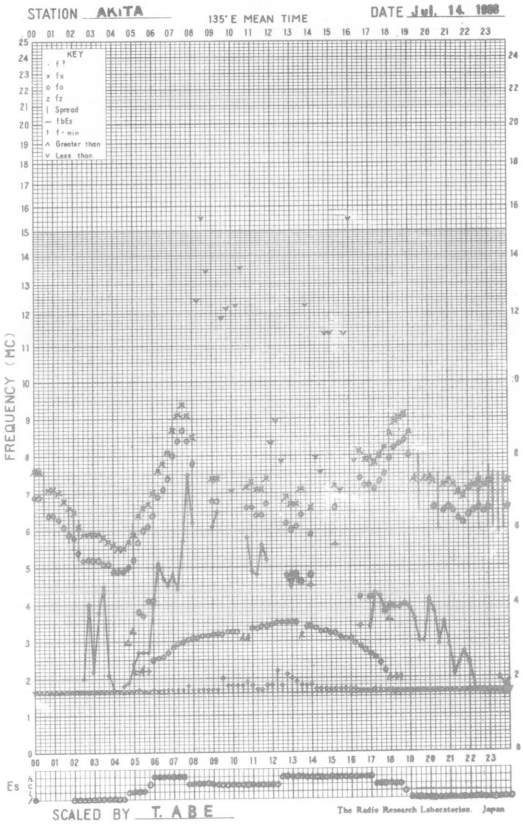

SCALED BY T. ABE

The Radio Research Laboratories. Japan

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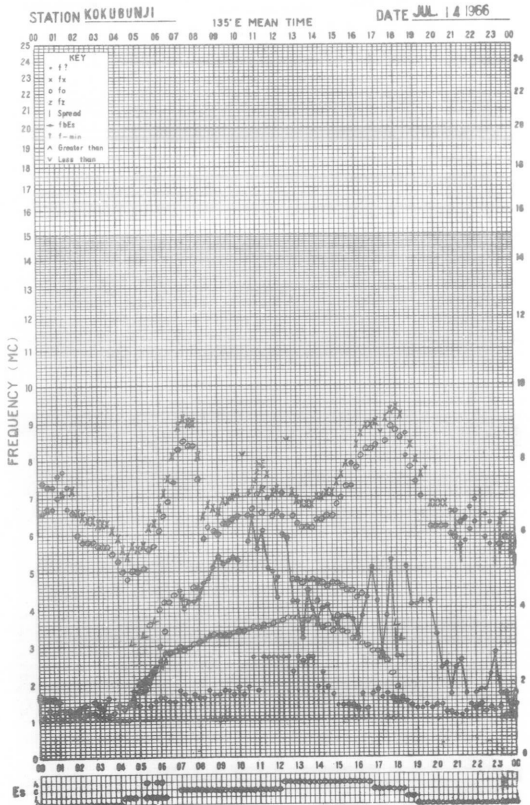

SCALED BY K. Yasukawa

The Radio Research Laboratories. Japan

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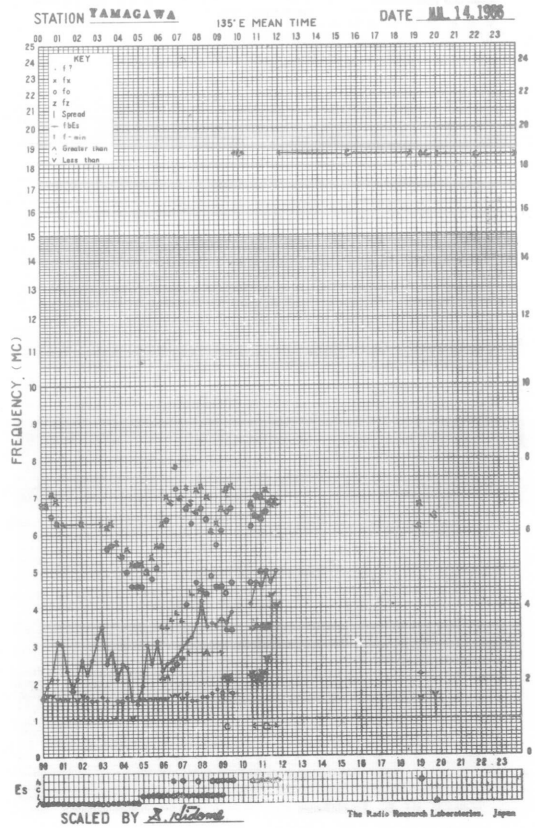

SCALED BY S. Kidoma

The Radio Research Laboratories. Japan

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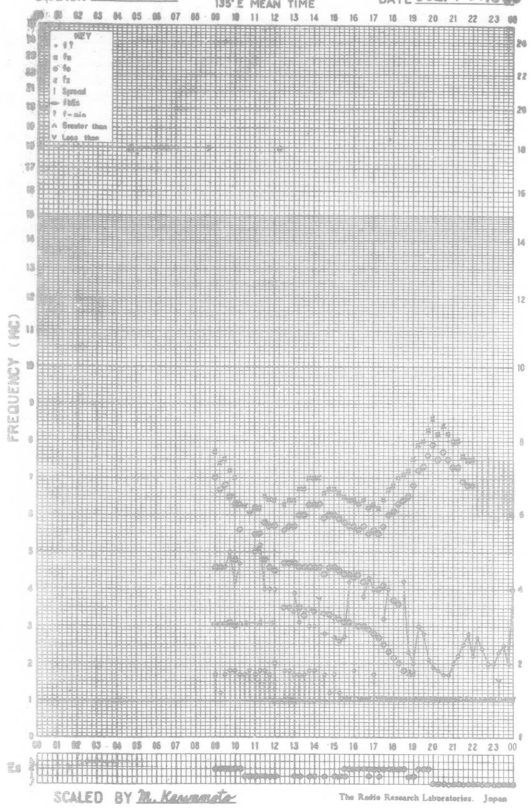

SCALED BY M. Kawamata The Radio Research Laboratories, Japan

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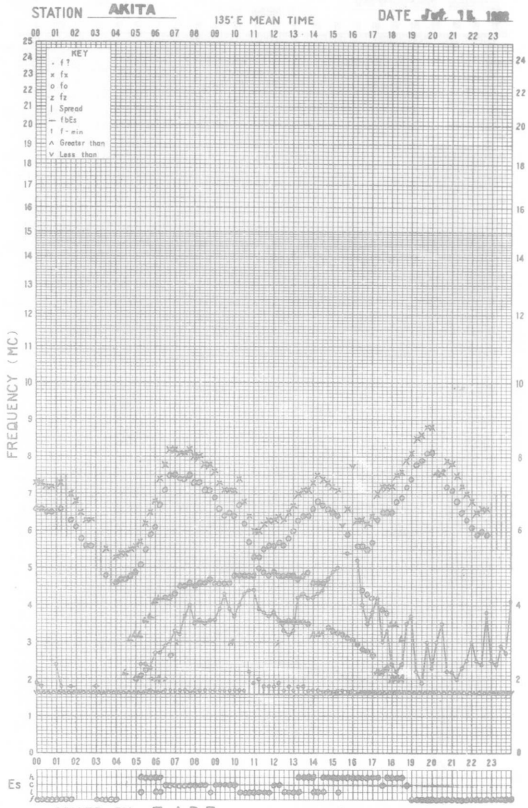

SCALED BY T. ABE The Radio Research Laboratories, Japan

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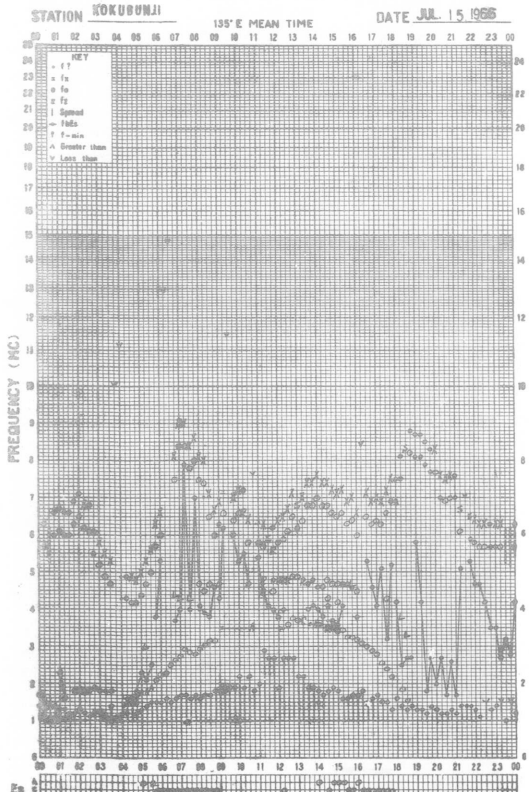

SCALED BY [illegible] The Radio Research Laboratories, Japan

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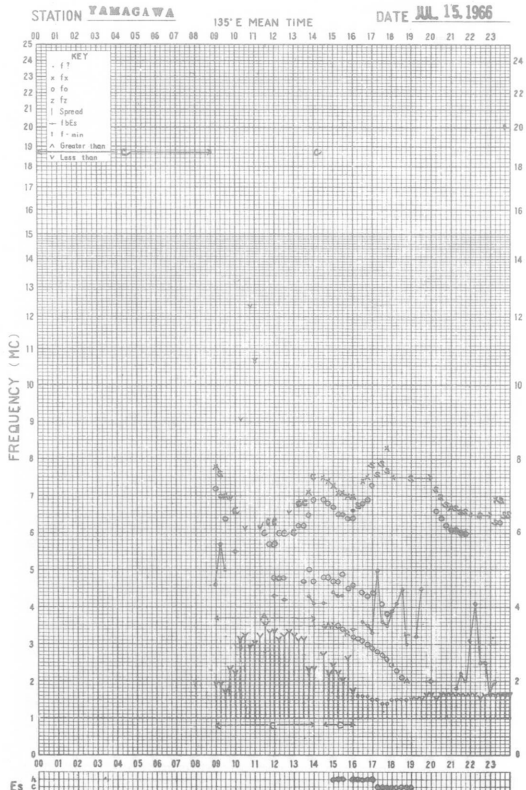

SCALED BY S. Nishimura The Radio Research Laboratories, Japan

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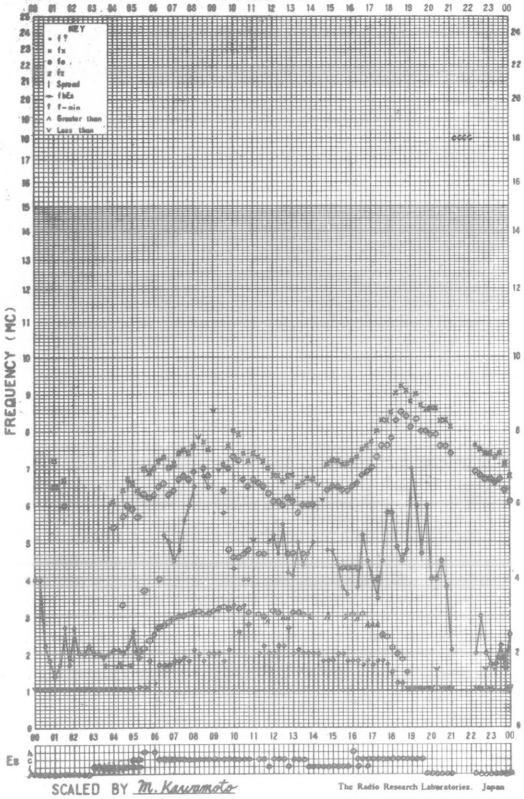

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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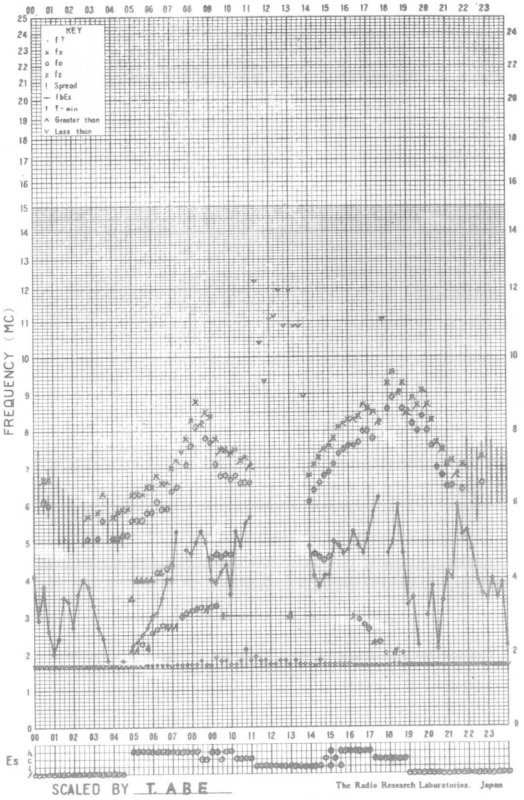

SCALED BY T. ABE The Radio Research Laboratories. Japan

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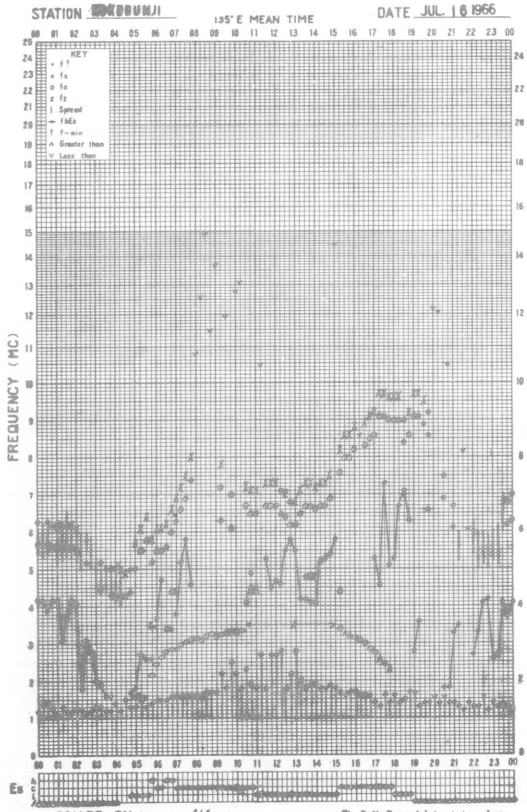

SCALED BY [redacted] The Radio Research Laboratories. Japan

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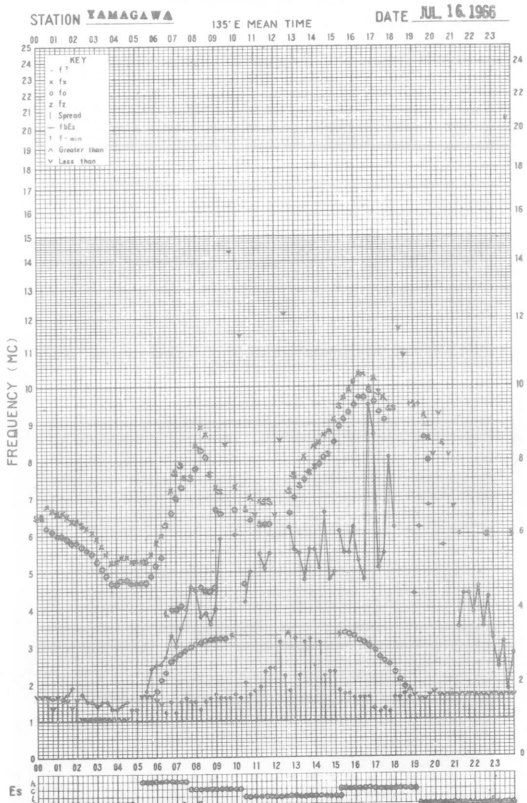

SCALED BY S. Kidoma The Radio Research Laboratories. Japan

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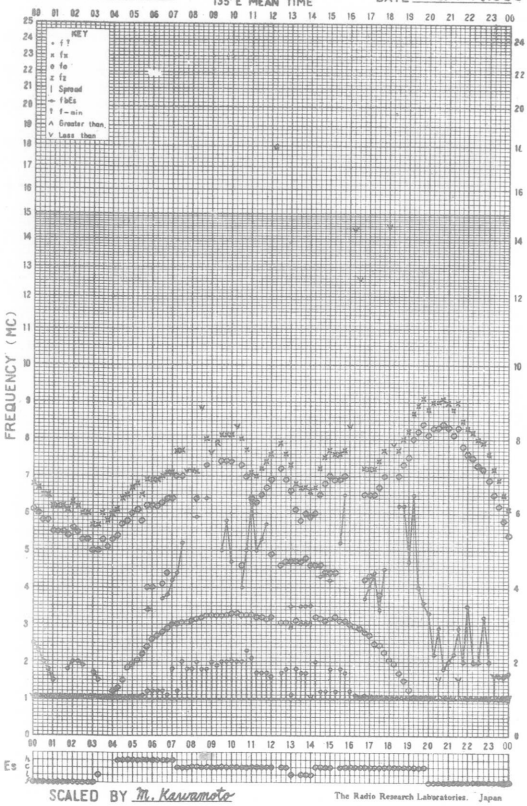

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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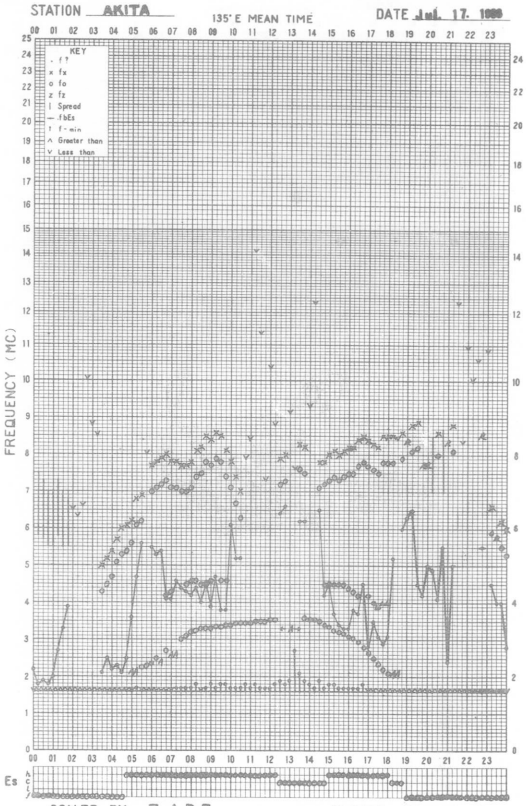

SCALED BY T. ABE The Radio Research Laboratories. Japan

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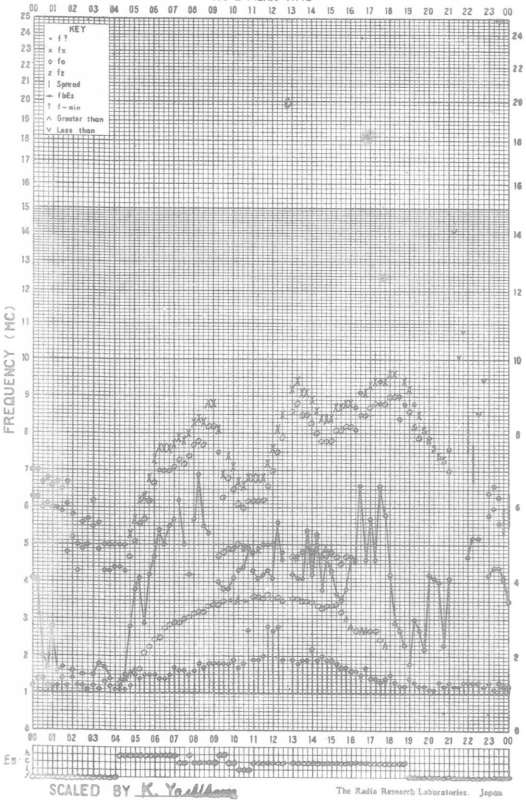

SCALED BY K. Yasukawa The Radio Research Laboratories. Japan

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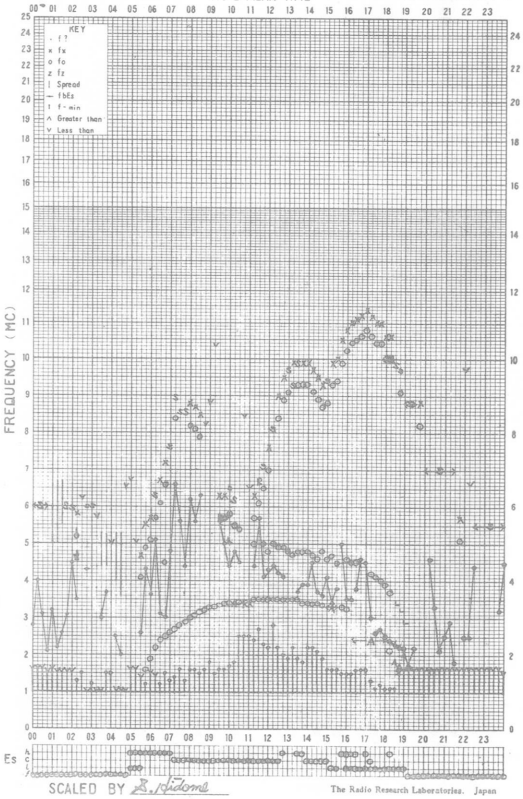

SCALED BY S. Nidome The Radio Research Laboratories. Japan

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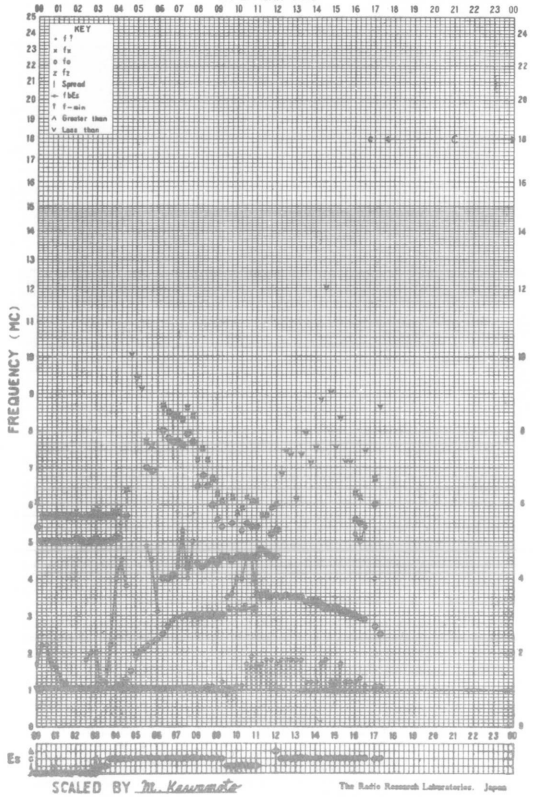

SCALED BY M. Kasumoto The Radio Research Laboratories. Japan

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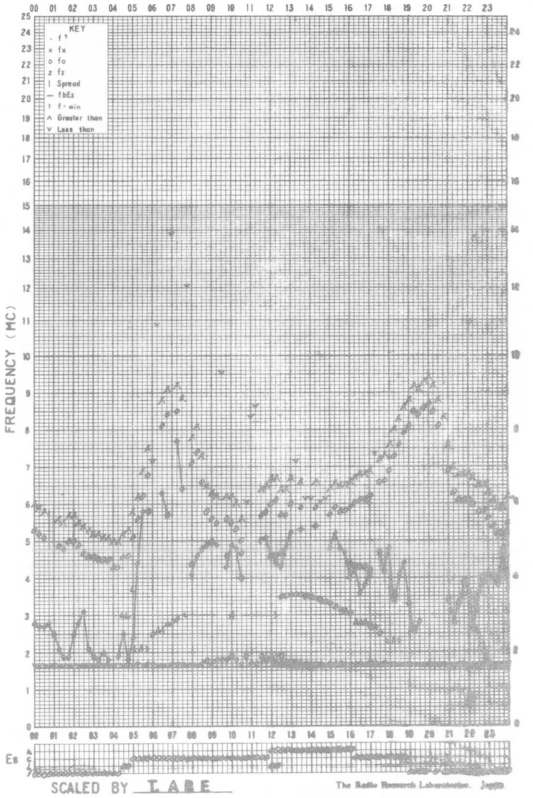

SCALED BY T. ABE The Radio Research Laboratories. Japan

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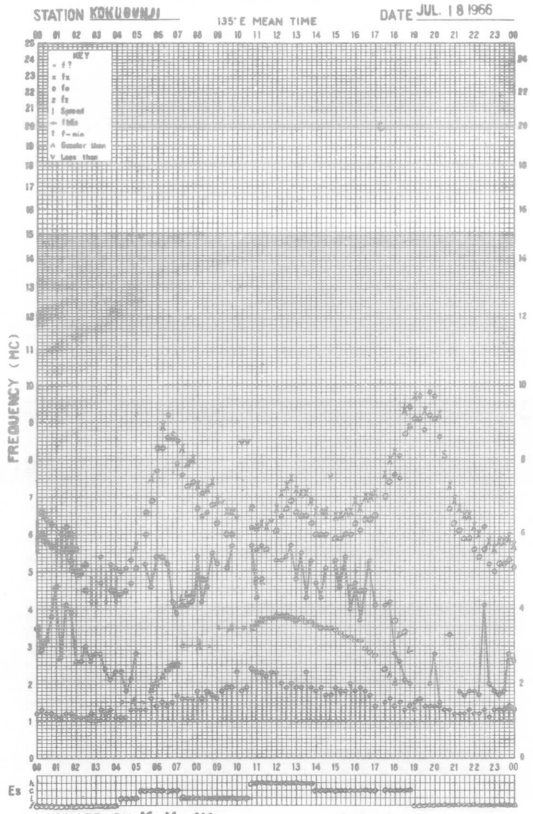

SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

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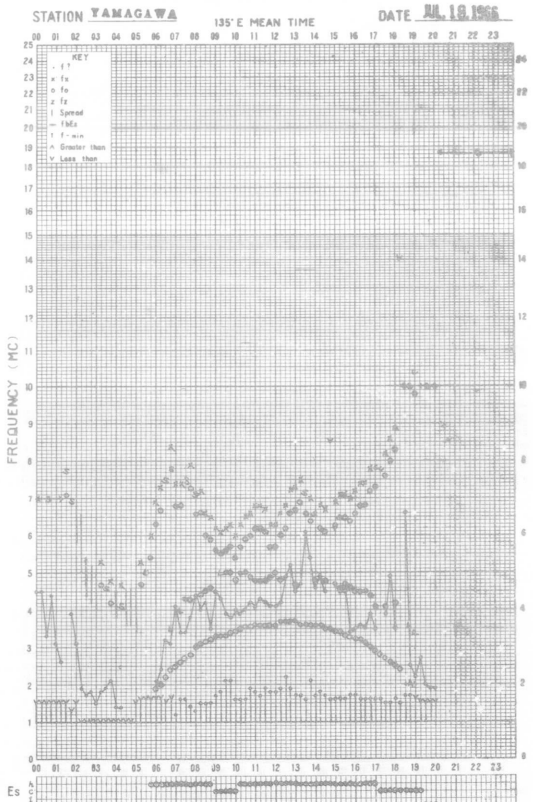

SCALED BY S. Ishioma The Radio Research Laboratories. Japan

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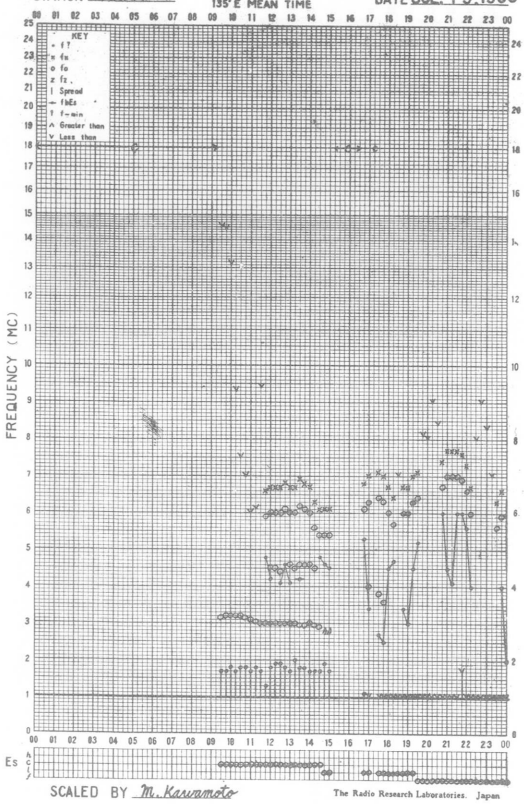

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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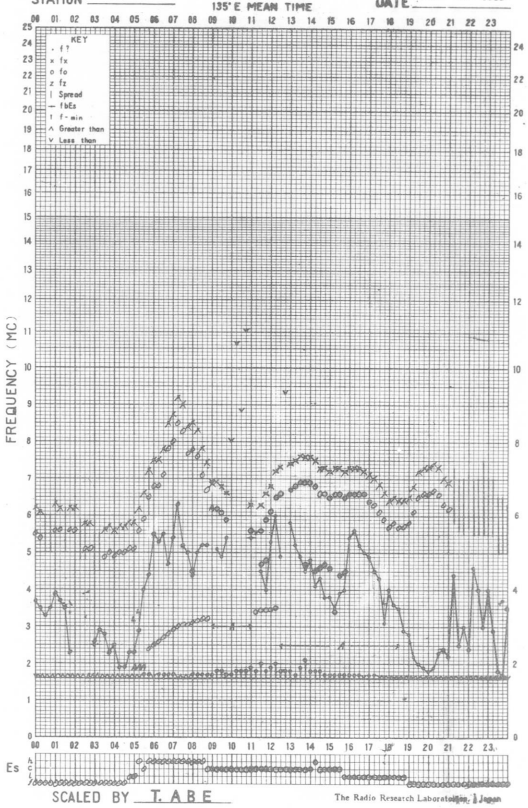

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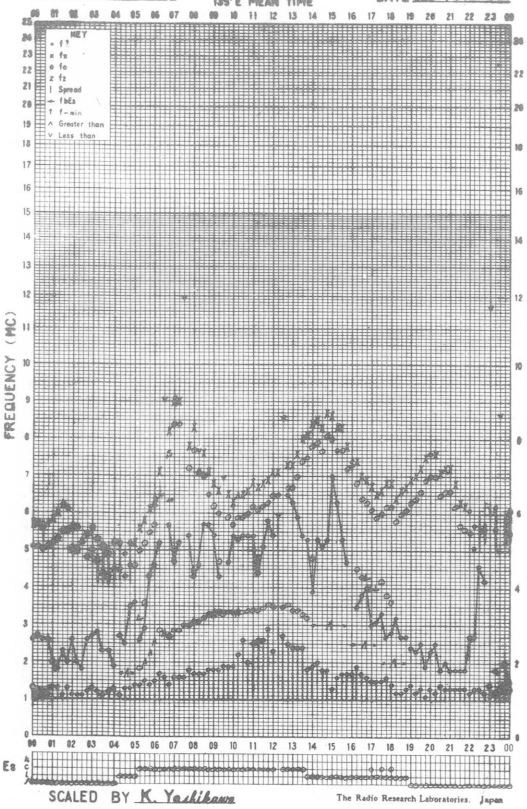

SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

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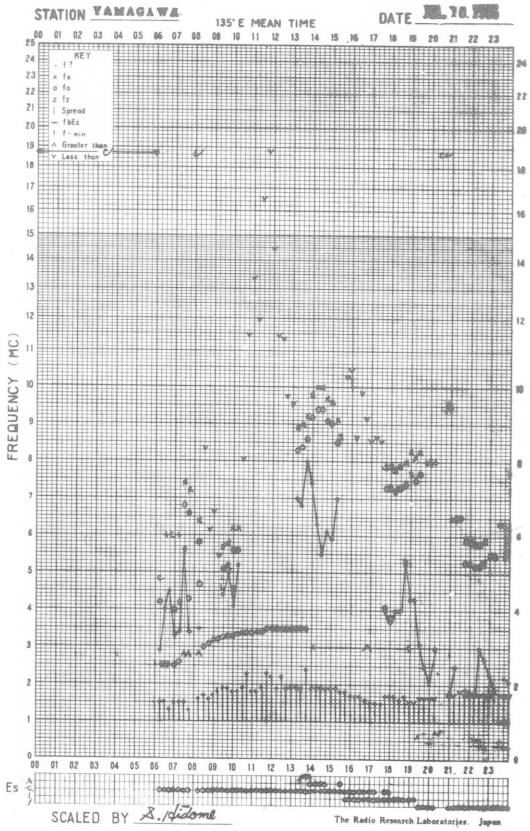

SCALED BY S. Shidome The Radio Research Laboratories. Japan

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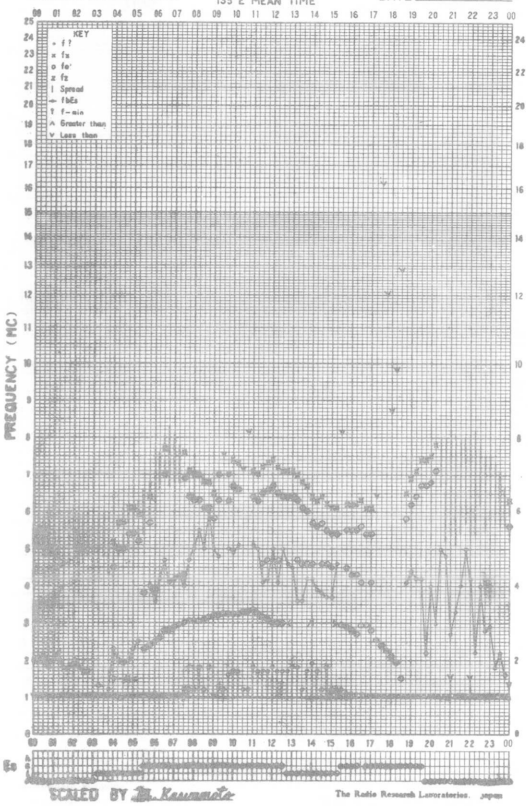

SCALED BY H. Kawamoto The Radio Research Laboratories. Japan

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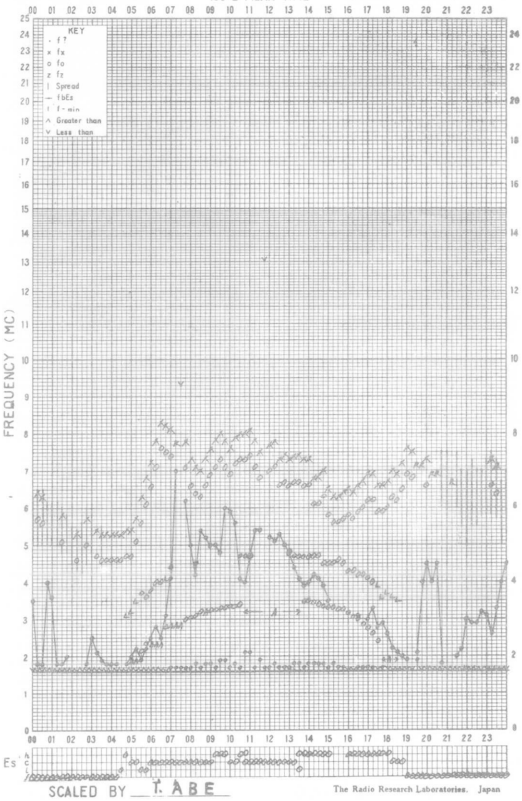

SCALED BY T. ABE The Radio Research Laboratories. Japan

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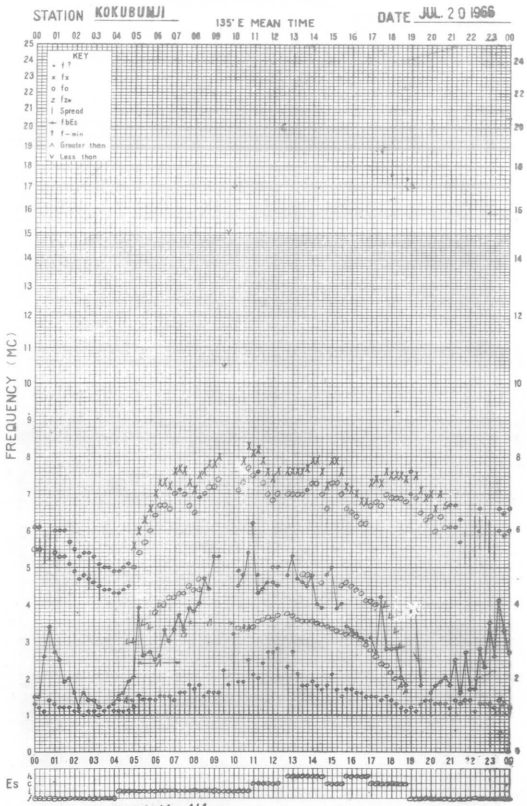

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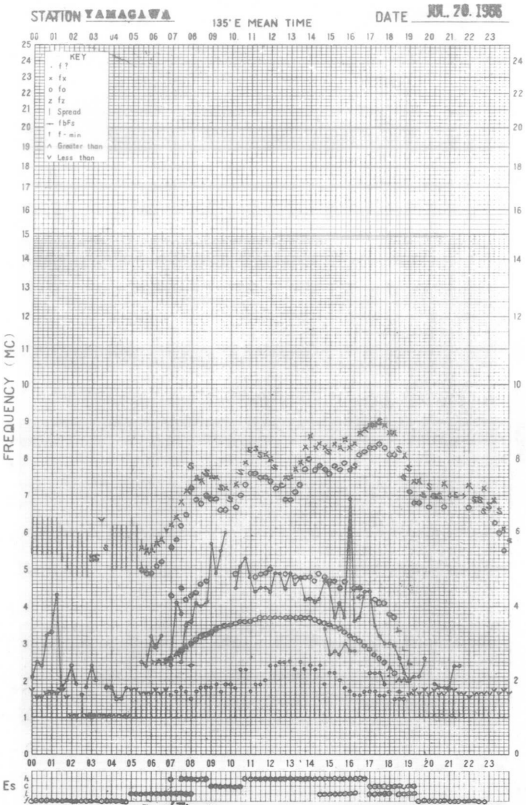

SCALED BY S. Nishimoto The Radio Research Laboratories. Japan

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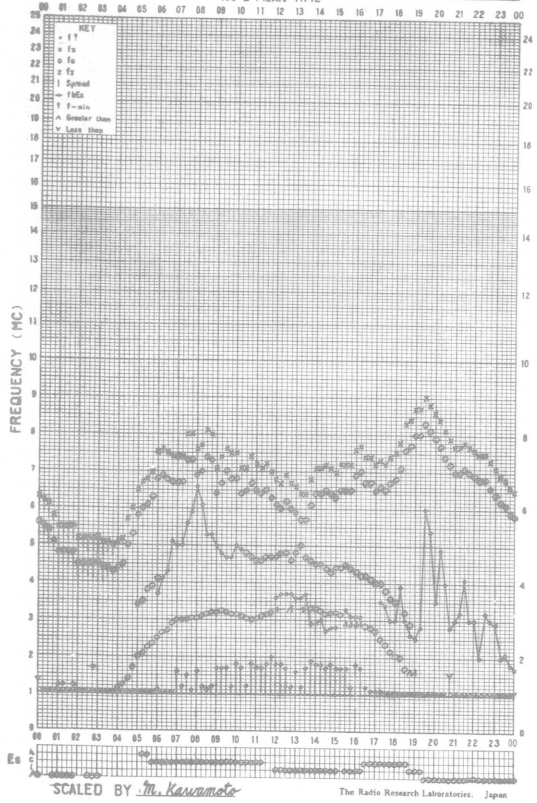

SCALED BY M. Kawamoto The Radio Research Laboratories, Japan

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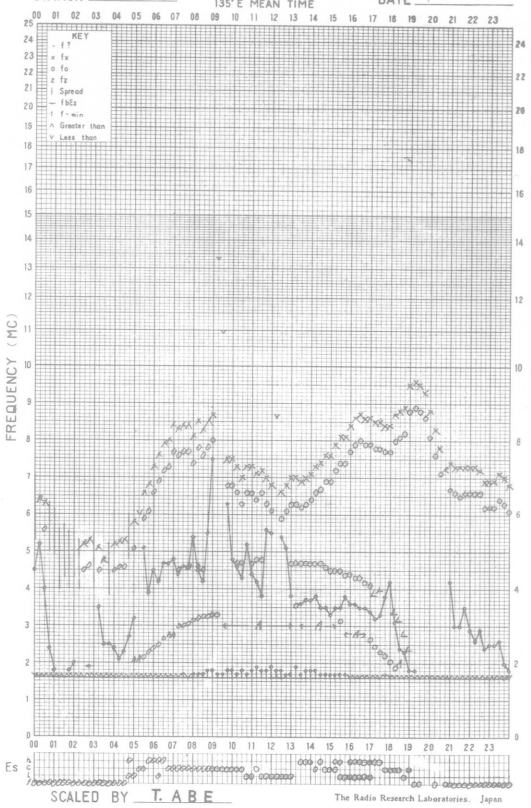

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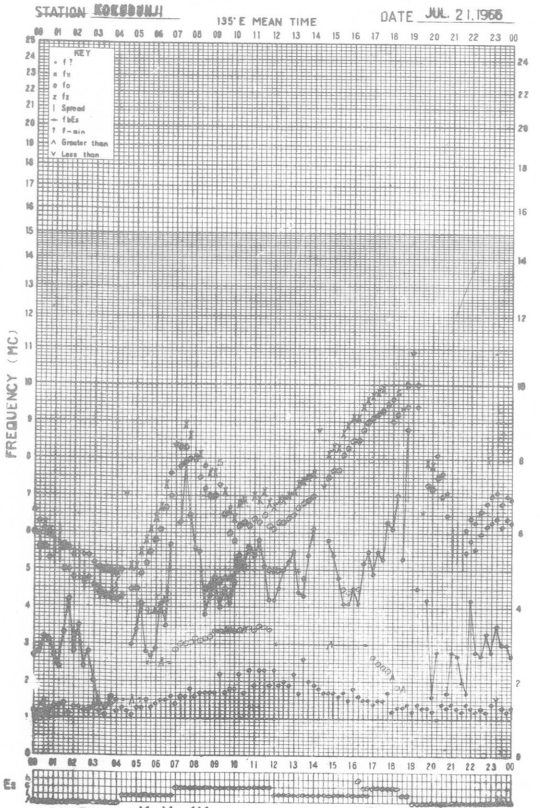

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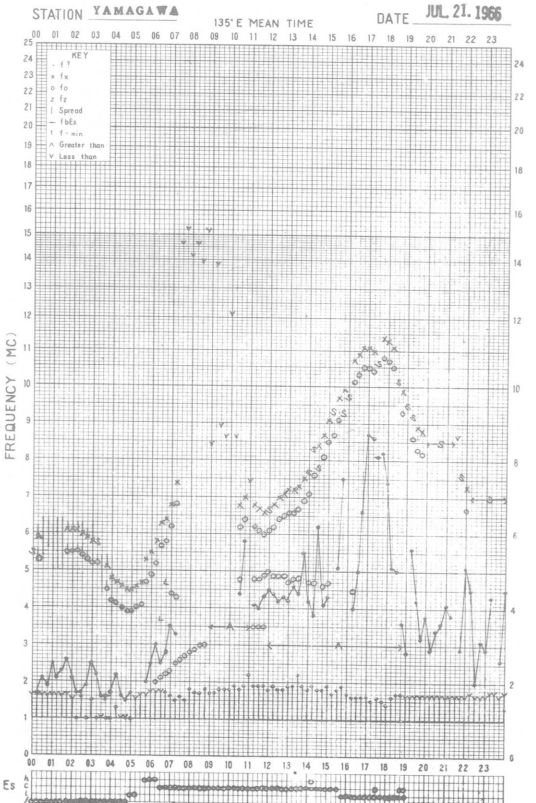

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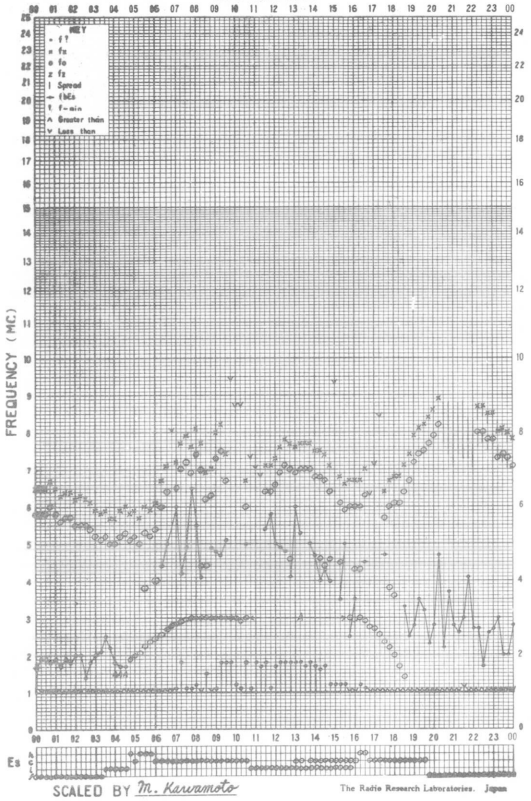

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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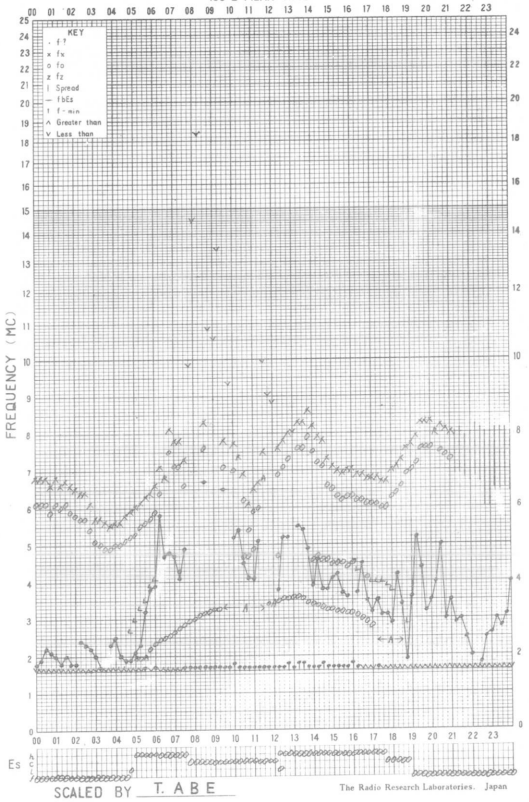

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The Radio Research Laboratories. Japan

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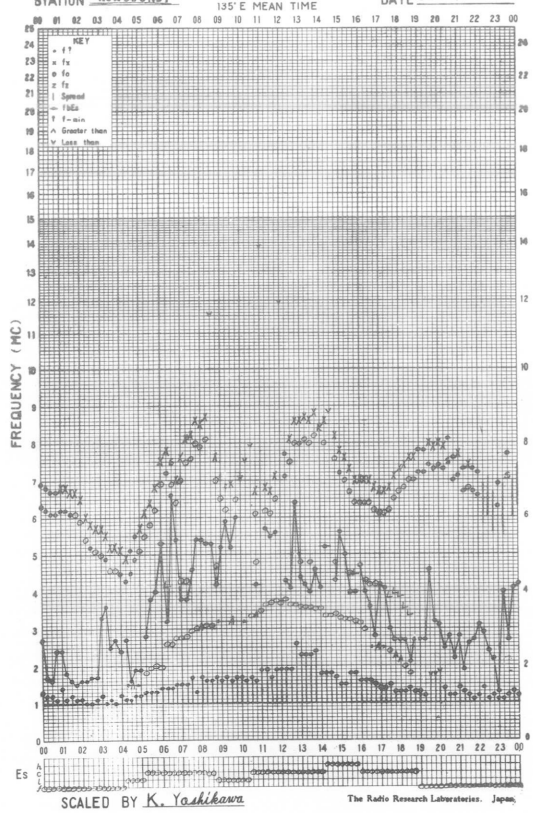

SCALED BY K. Yashikawa

The Radio Research Laboratories. Japan

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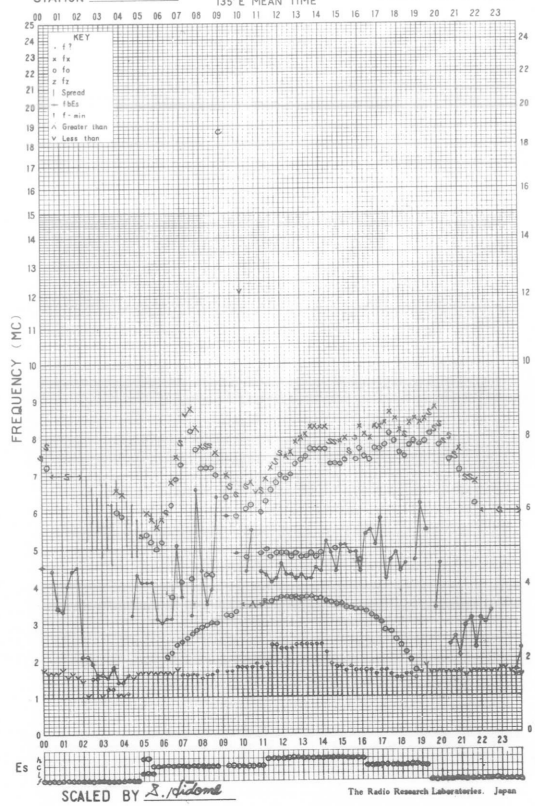

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The Radio Research Laboratories. Japan

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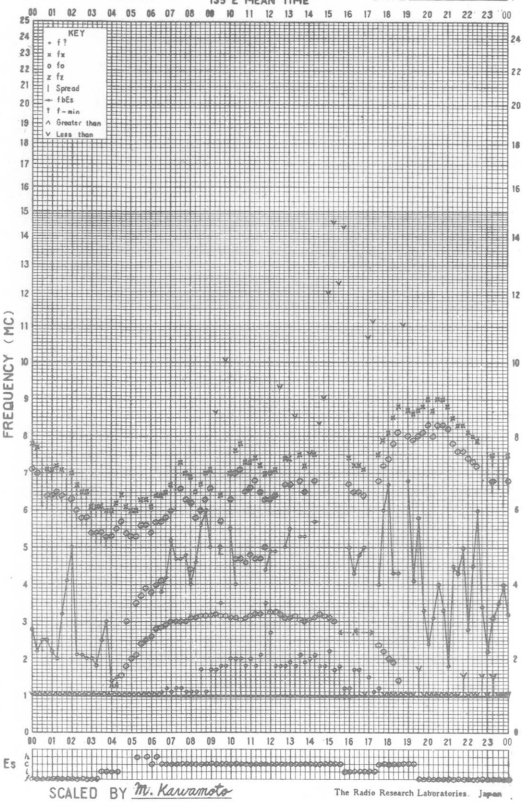

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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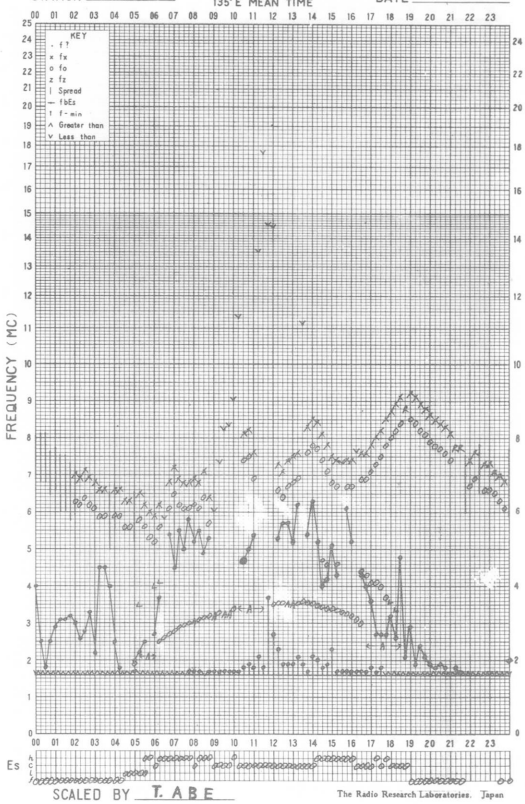
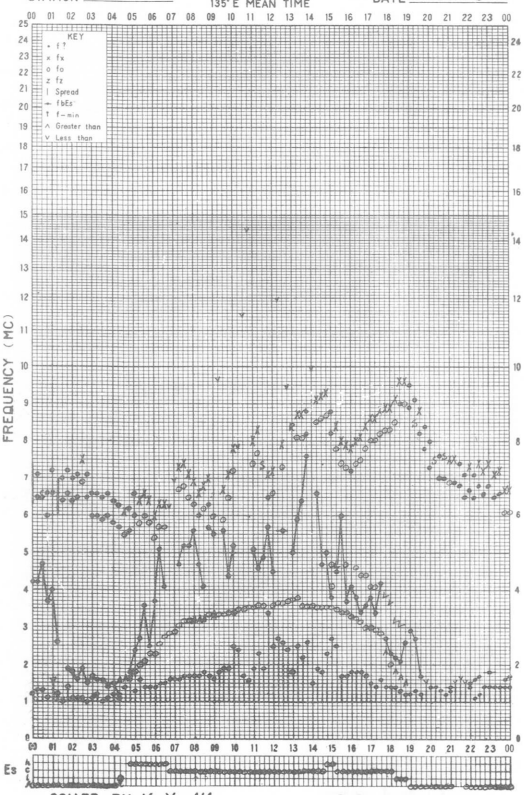


SCALED BY T. ABE

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE JUL. 23 1966

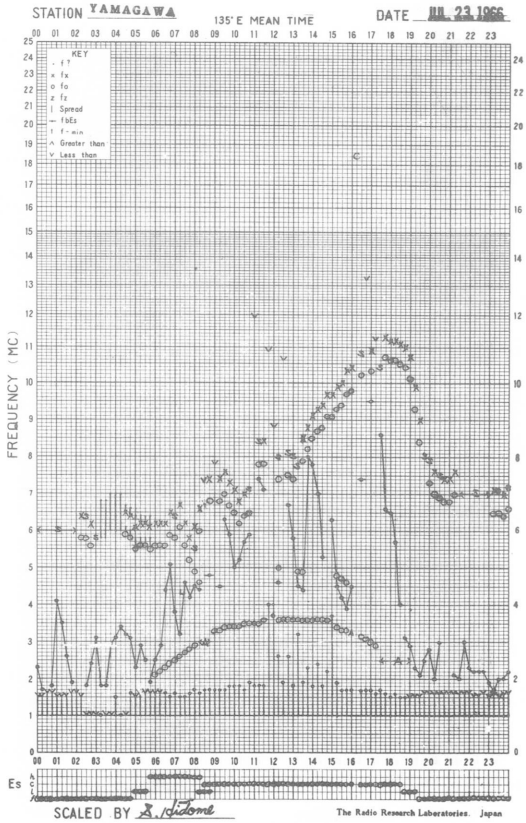


SCALED BY K. Yoshikawa

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135° E MEAN TIME DATE JUL. 23 1966

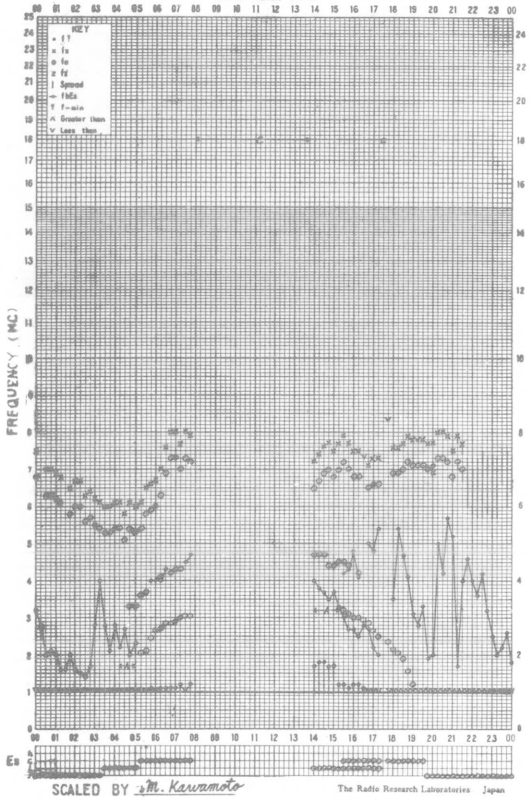


SCALED BY S. Sidomi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUL. 24. 1966



SCALED BY M. Kawamoto The Radio Research Laboratories Japan

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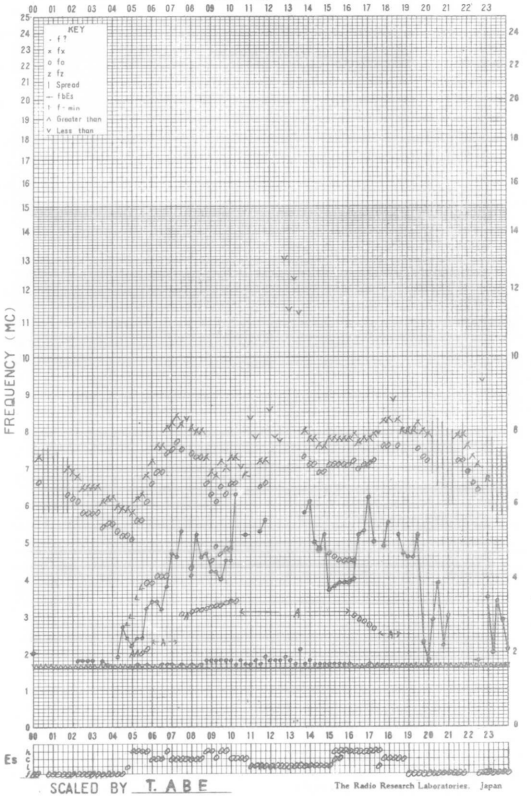
STATION AKITA 135°E MEAN TIME DATE Jul. 24. 1966



SCALED BY T. ABE The Radio Research Laboratories Japan

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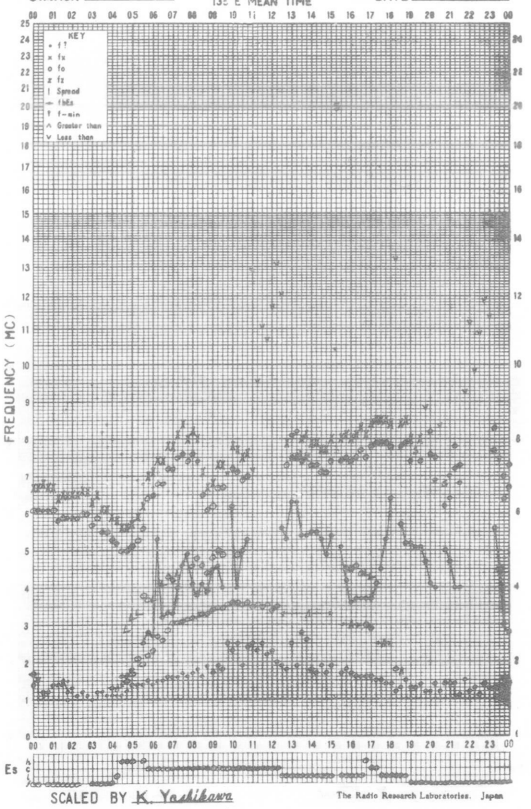

SCALED BY K. Yashikawa The Radio Research Laboratories Japan

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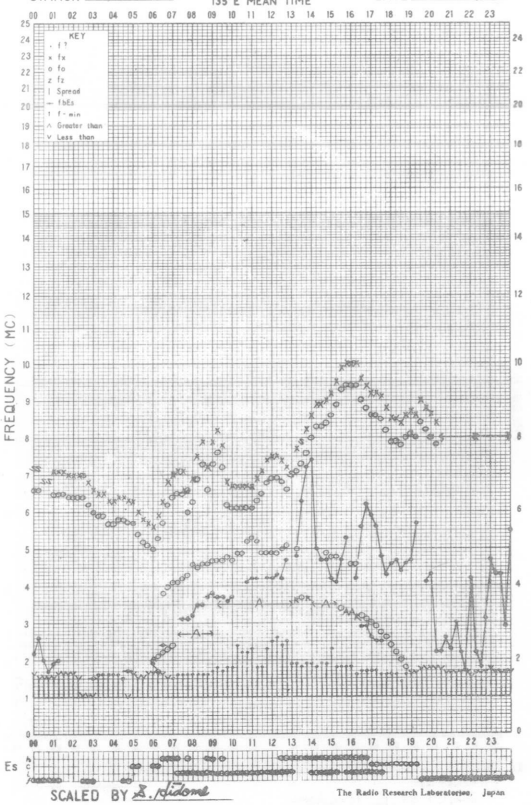

SCALED BY S. Kidomi The Radio Research Laboratories Japan

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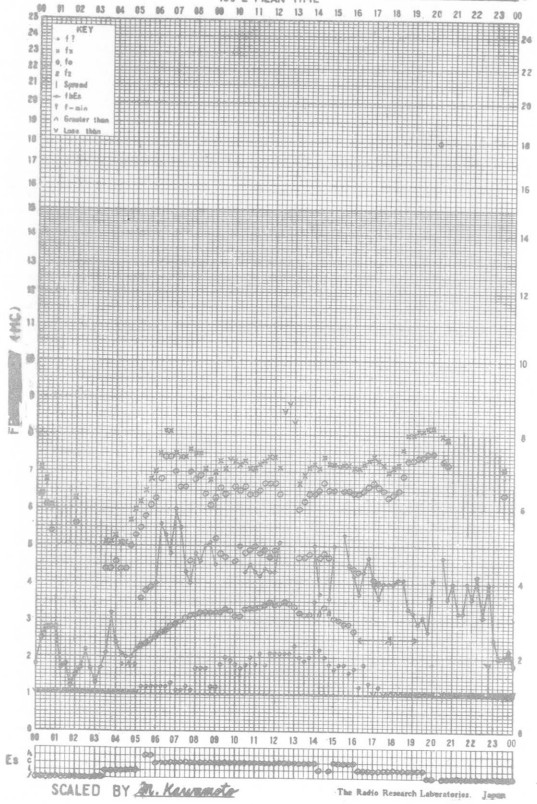

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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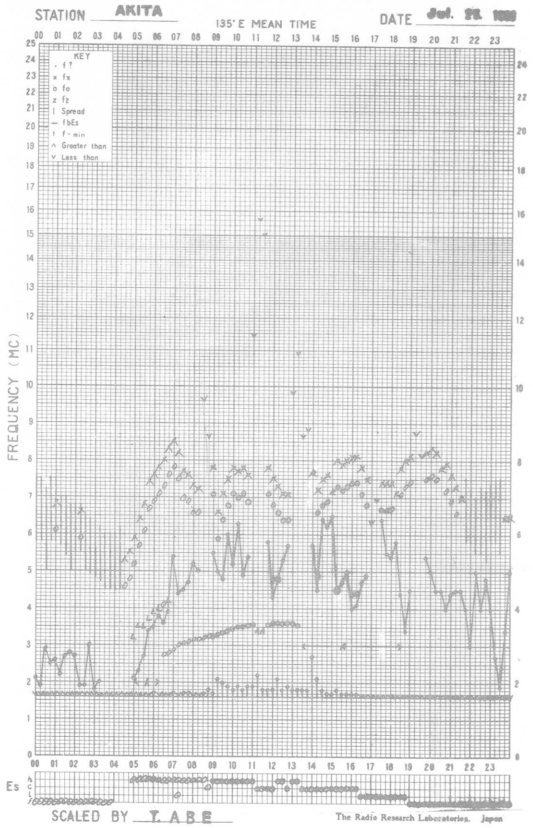

SCALED BY T. ABE The Radio Research Laboratories. Japan

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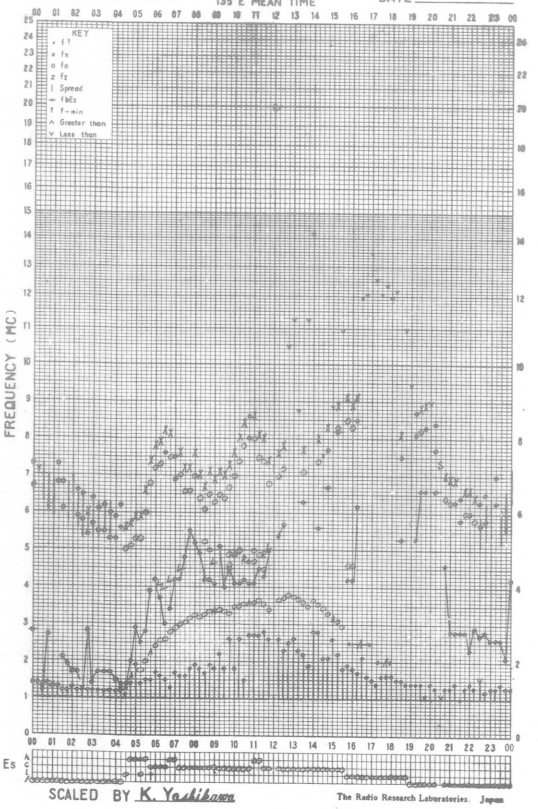

SCALED BY K. Yashikawa The Radio Research Laboratories. Japan

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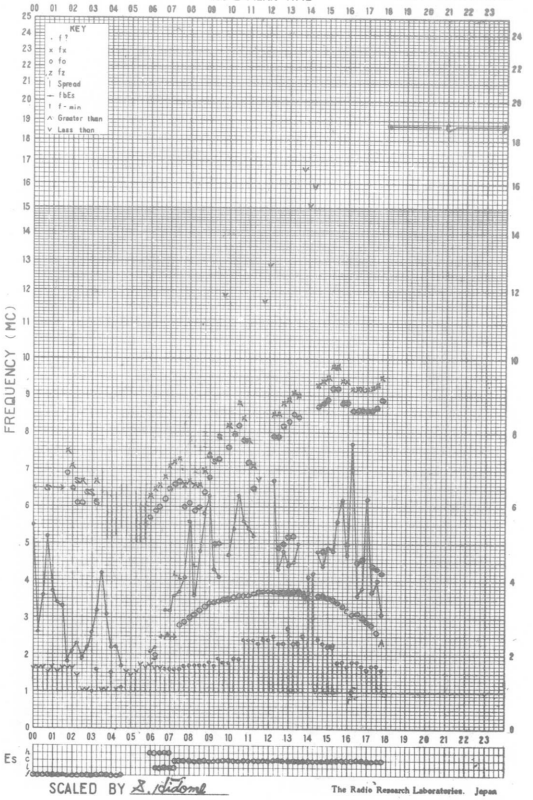

SCALED BY S. Kidomi The Radio Research Laboratories. Japan

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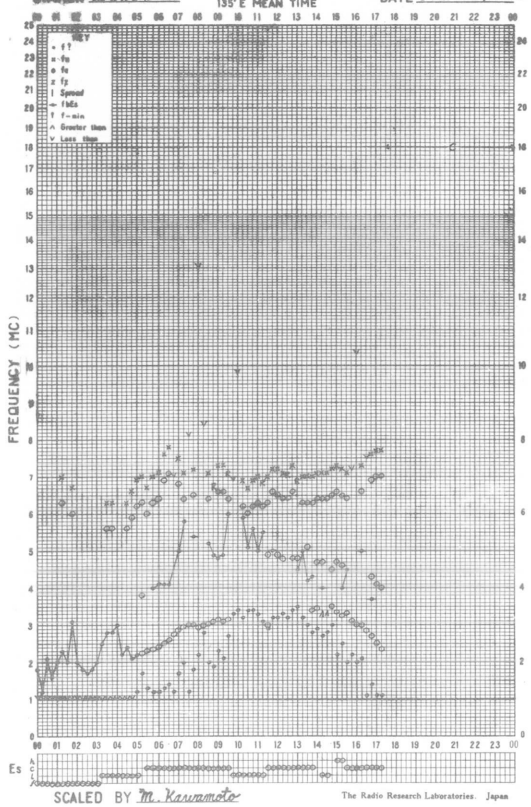
STATION WAKKANAI 135° E MEAN TIME DATE JUL. 26, 1966



SCALED BY M. Kasumoto The Radio Research Laboratories. Japan

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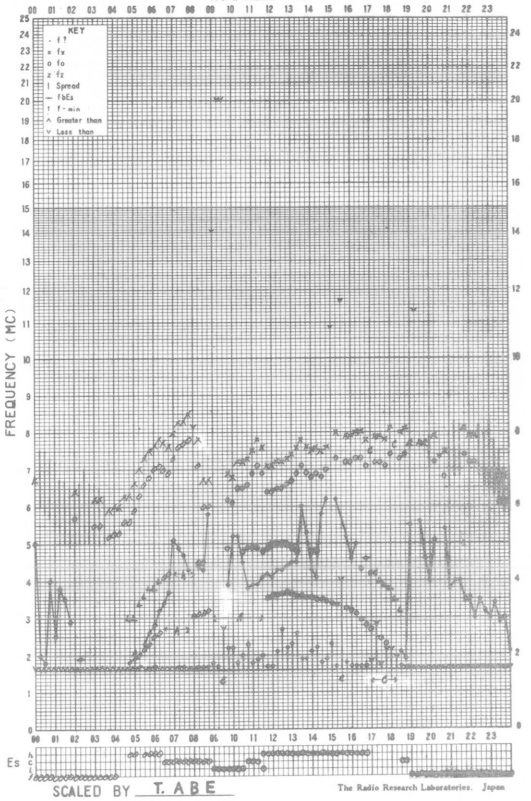

SCALED BY T. ABE The Radio Research Laboratories. Japan

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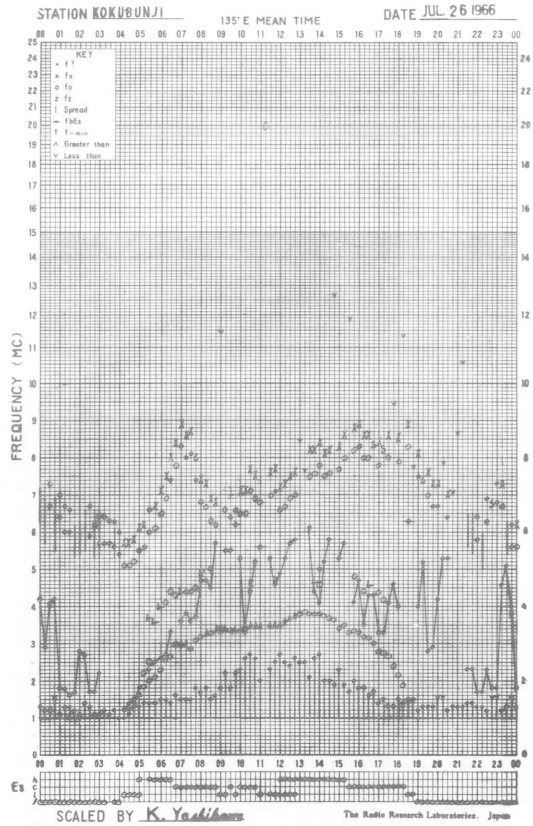

SCALED BY K. Yashikawa The Radio Research Laboratories. Japan

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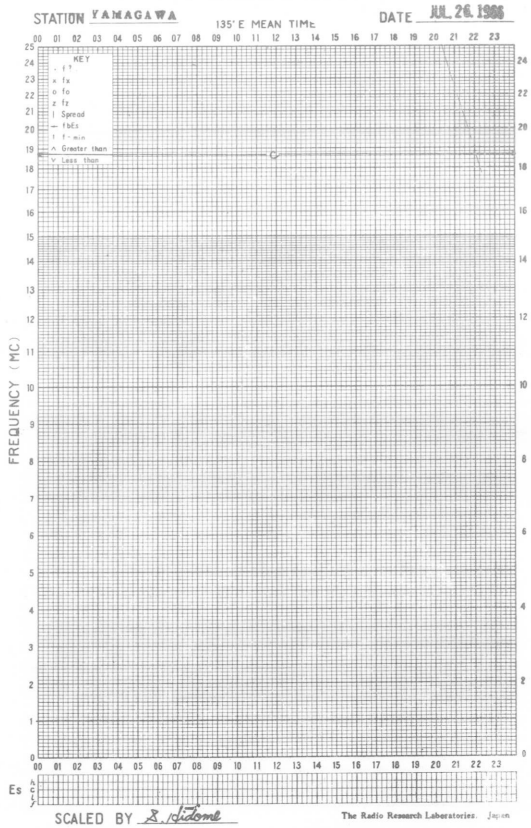

SCALED BY S. Sitomi The Radio Research Laboratories. Japan

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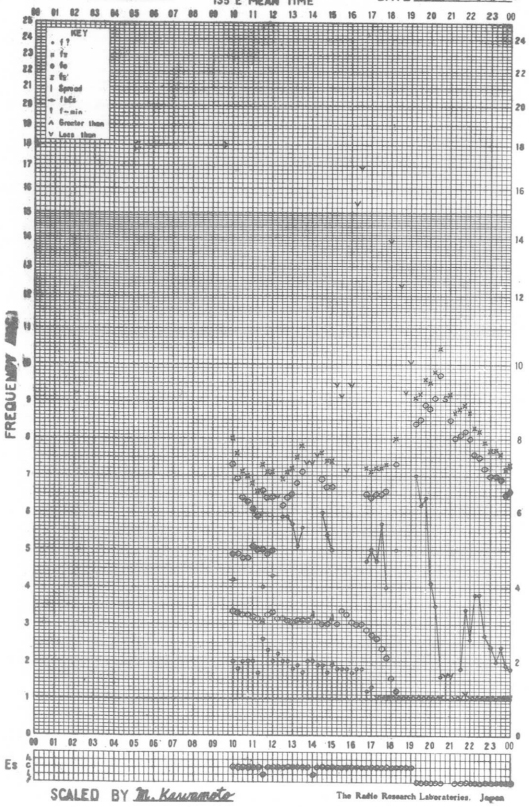
STATION WAKKANAI 135°E MEAN TIME DATE JUL. 27. 1966



SCALED BY M. Kawamoto

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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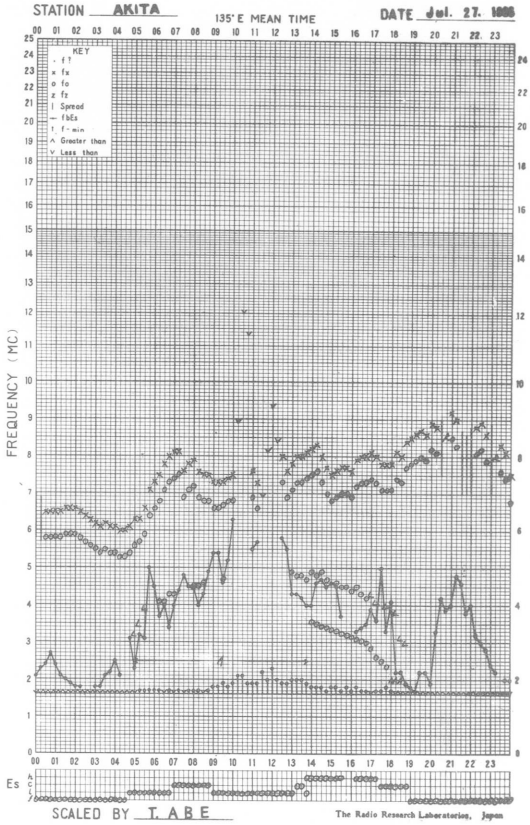

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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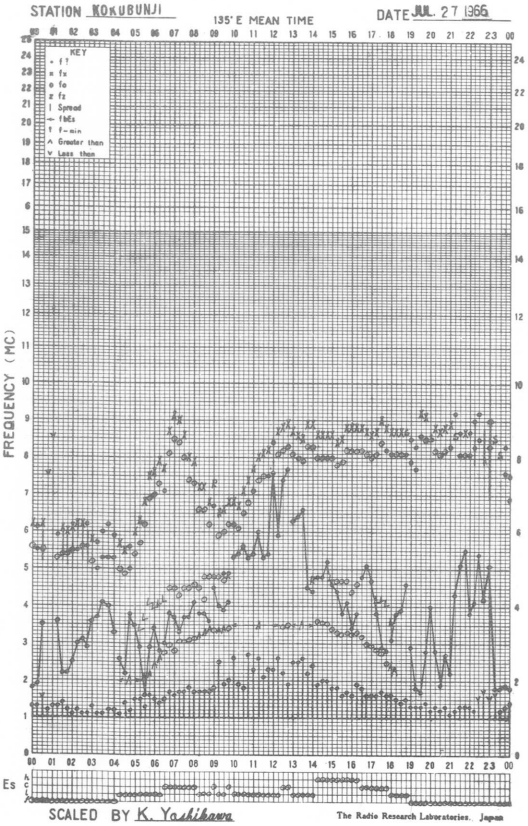

SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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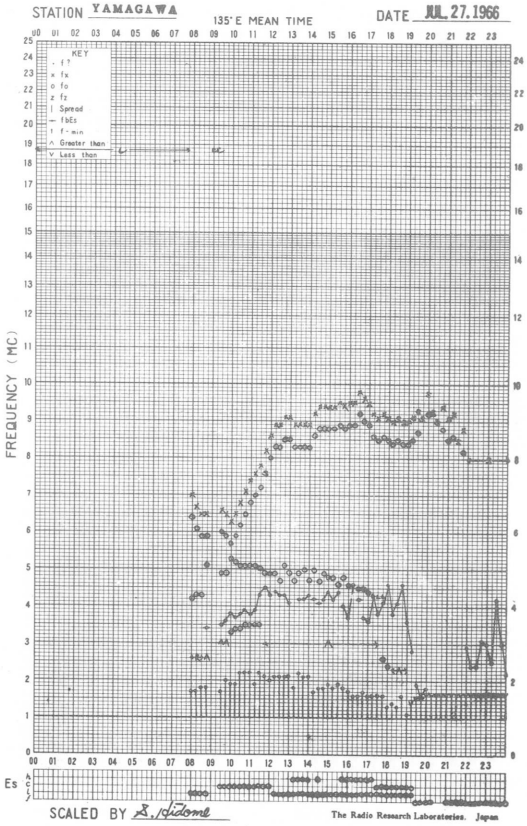

SCALED BY S. Ichiomi

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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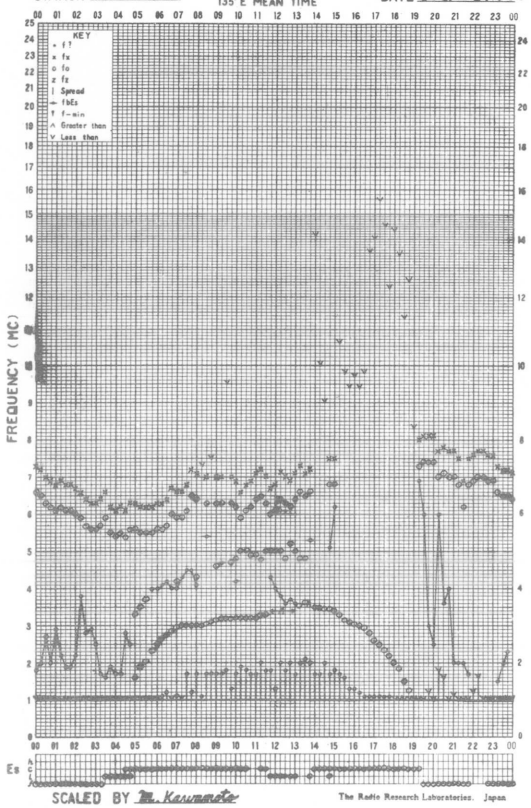

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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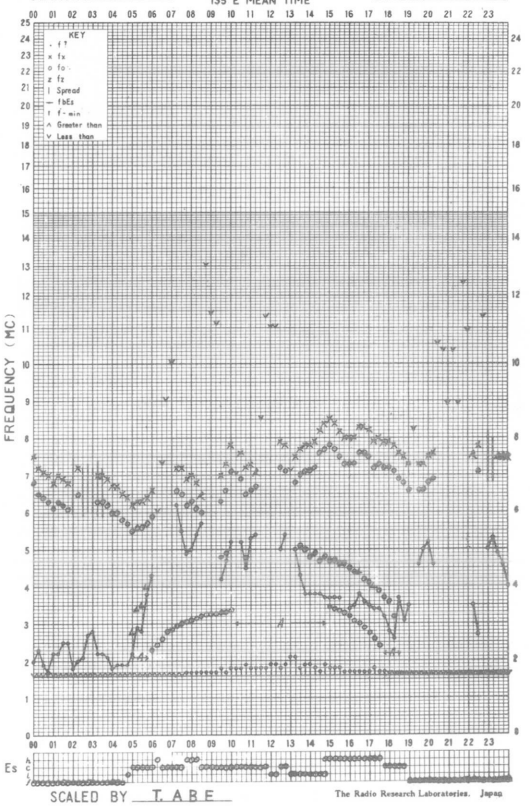

SCALED BY T. ABE The Radio Research Laboratories. Japan

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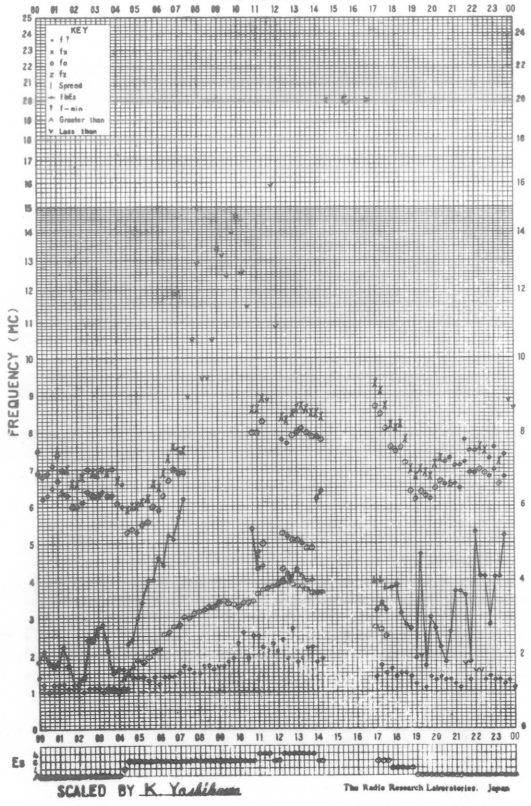
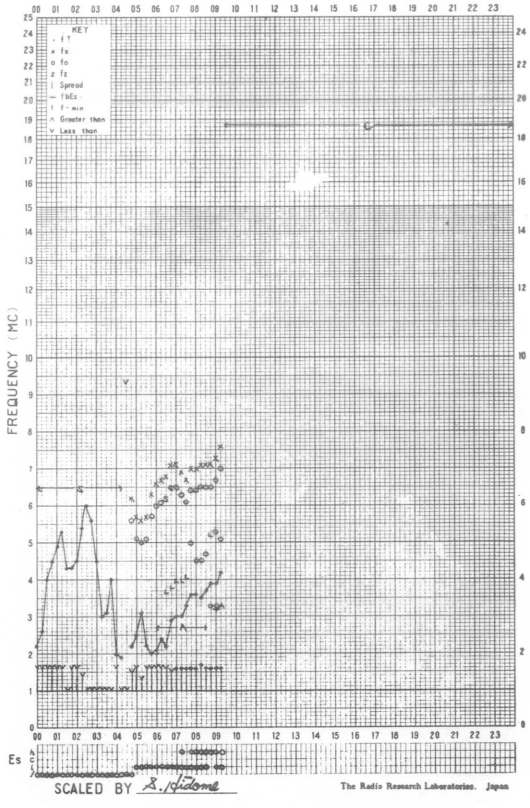


SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

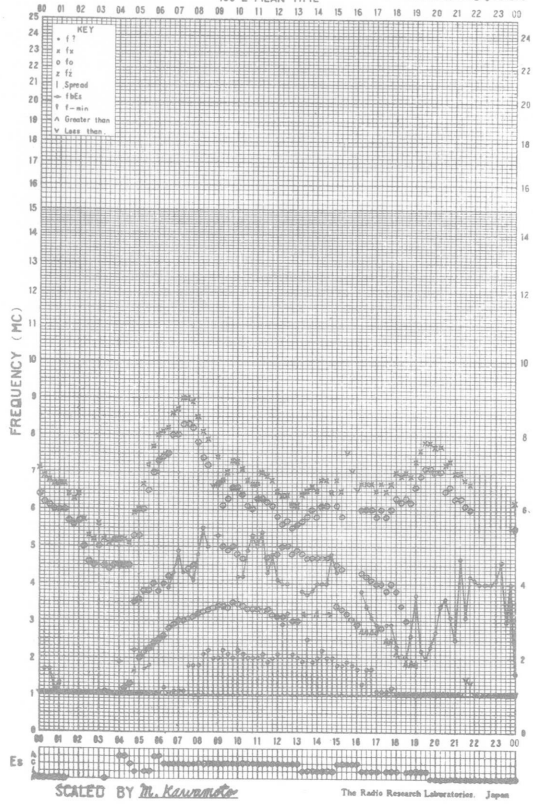
STATION YAMAGAWA 135°E MEAN TIME DATE JUL. 28. 1966



SCALED BY S. Aitome The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUL. 29, 1966



SCALED BY M. Kawamoto

The Radio Research Laboratories, Japan

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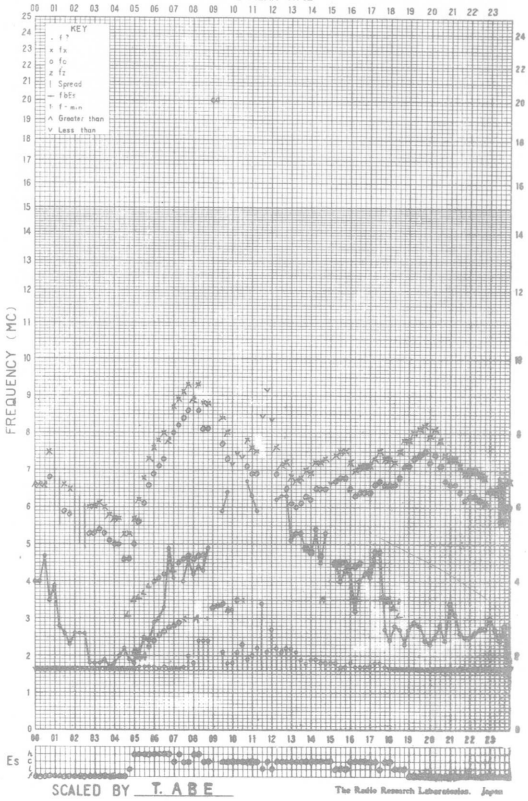

SCALED BY T. ABE

The Radio Research Laboratories, Japan

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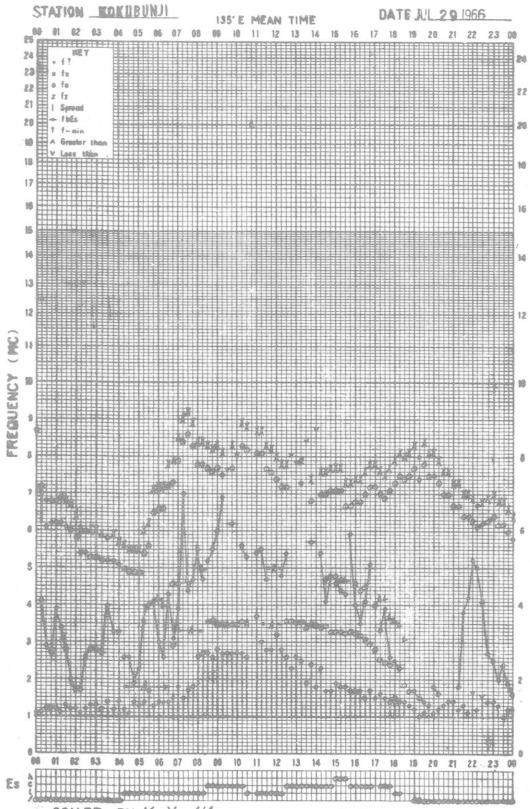

SCALED BY K. Yashikawa

The Radio Research Laboratories, Japan

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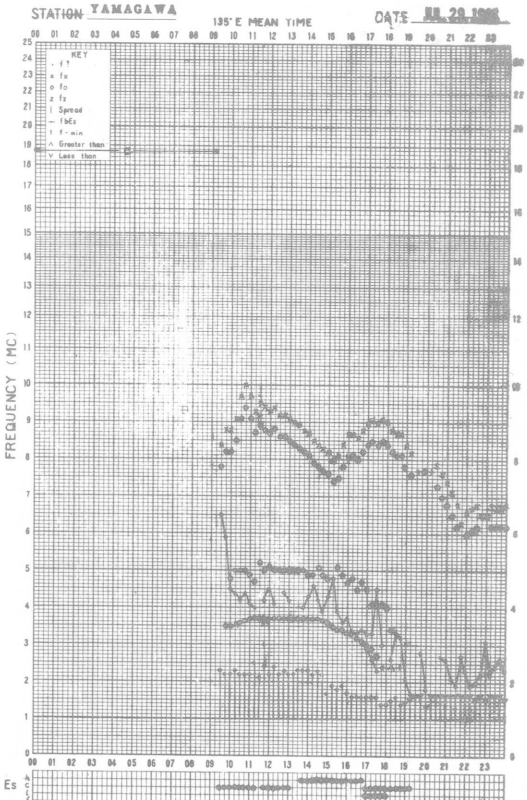

SCALED BY S. Midorikawa

The Radio Research Laboratories, Japan

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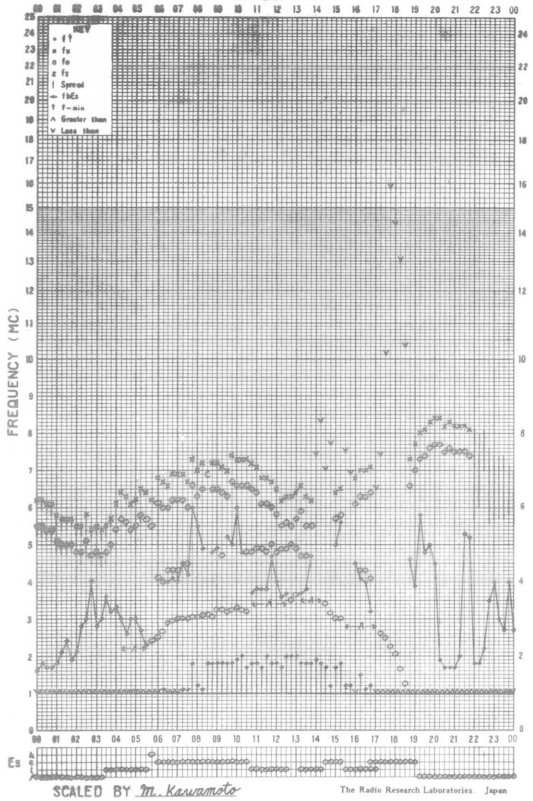

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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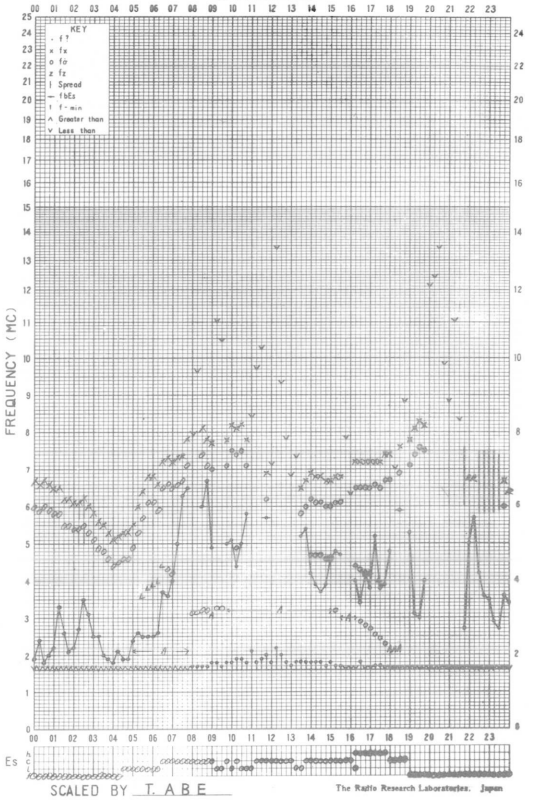

SCALED BY T. A B E

The Radio Research Laboratories. Japan

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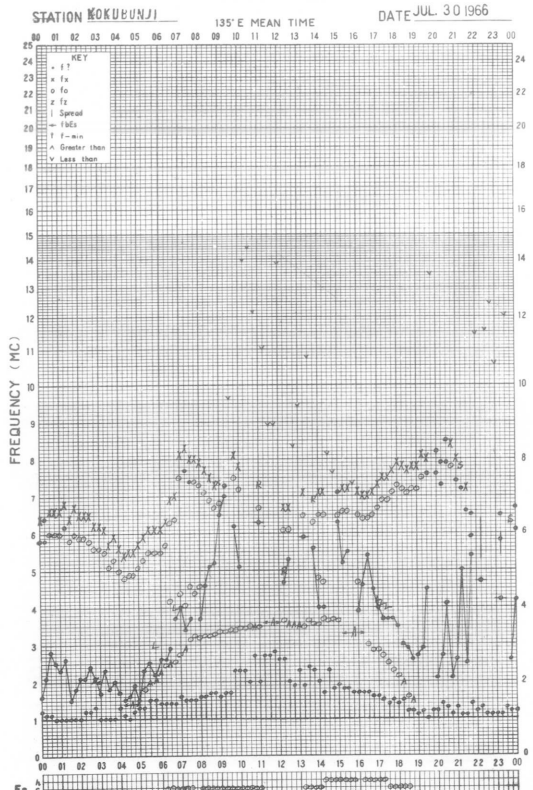

SCALED BY K. Yoshikawa

The Radio Research Laboratories. Japan

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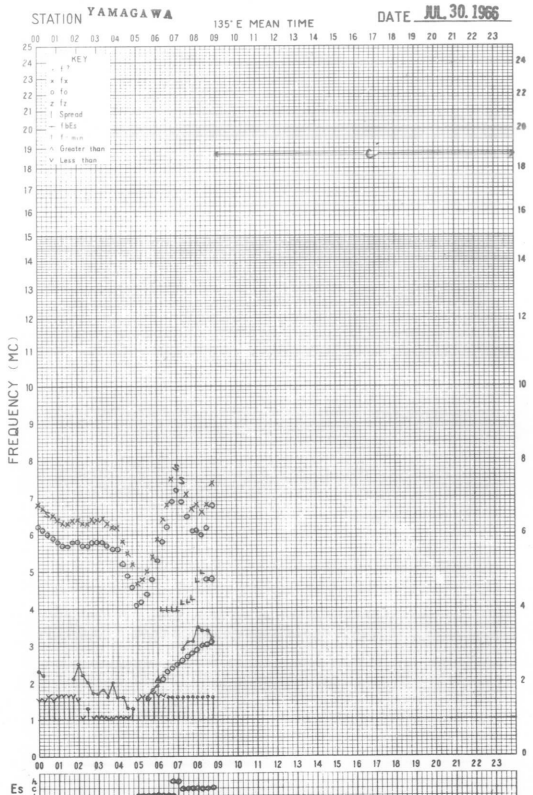

SCALED BY S. Ichimoto

The Radio Research Laboratories. Japan

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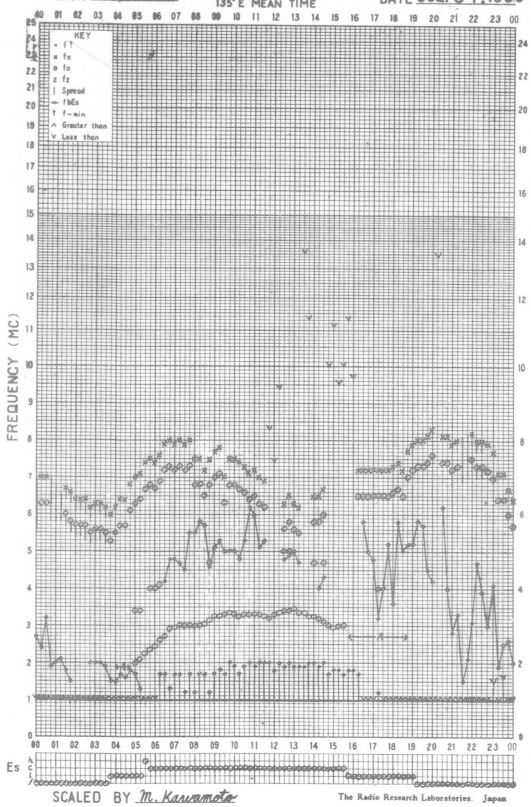

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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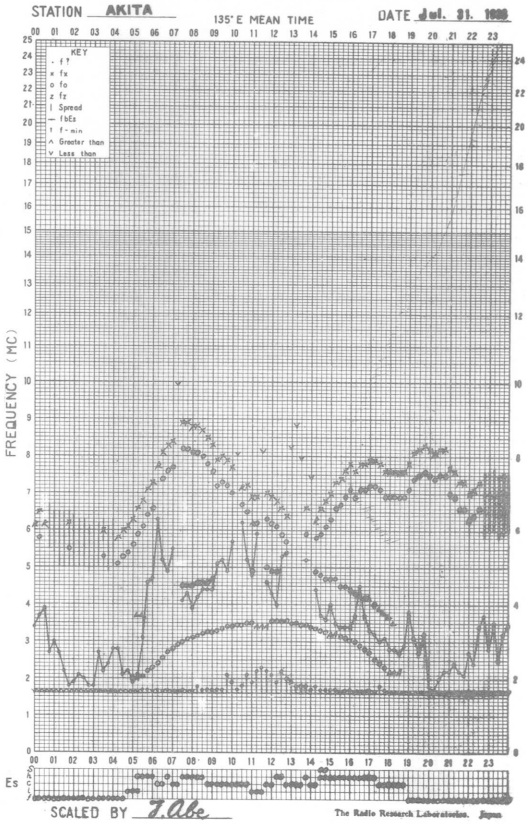

SCALED BY T. Abe The Radio Research Laboratories. Japan

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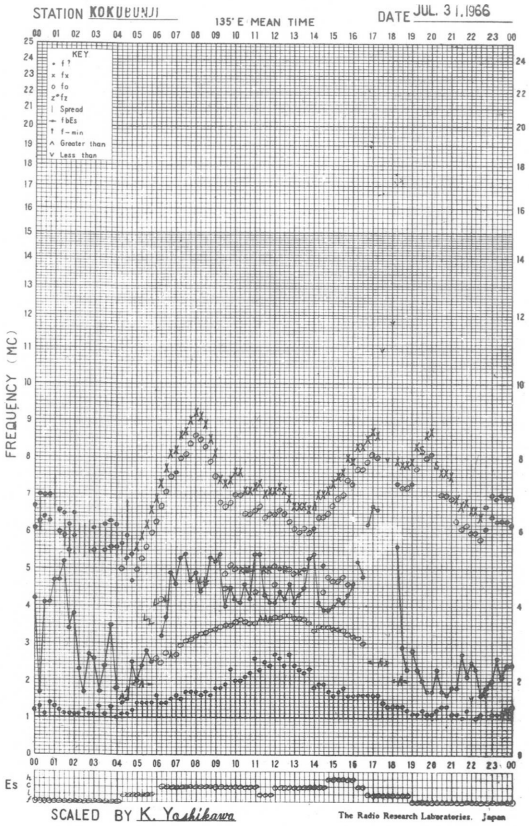

SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

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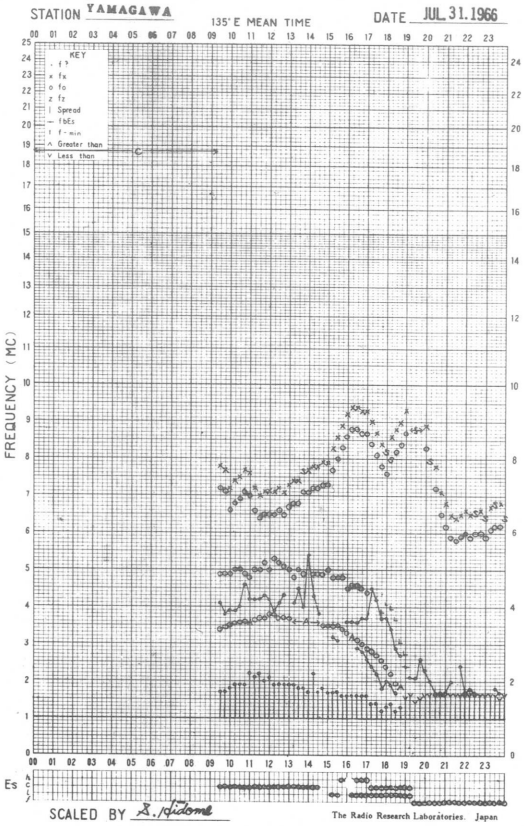

SCALED BY S. Kidomi The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: July 1966
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	8	8	7	7	0	0	0	0	0
2	9	9	9	9	9	0	0	0	1	0
3	9	8	9	8	9	0	0	0	0	0
4	7	7	7	8	7	0	0	0	0	0
5	8	8	7	7	7	0	0	0	0	0
6	8	9	9	8	8	0	0	0	0	0
7	9	9	9	9	9	3	0	0	0	1
8	9	9	9	9	9	0	0	0	1	0
9	10	16	10	8	11	1	3	1	0	2
10	8	8	8	8	8	0	0	0	0	0
11	8	9	8	8	8	0	0	0	0	0
12	7	8	8	7	8	0	0	0	0	0
13	8	8	7	8	7	0	0	0	0	0
14	8	7	7	7	7	0	0	0	0	0
15	7	9	8	9	8	0	0	0	0	0
16	-	(9)	9	10	9	-	(0)	0	1	0
17	10	10	11	10	10	1	1	1	1	1
18	11	11	11	9	11	0	0	0	0	0
19	10	9	10	7	9	0	1	1	0	1
20	7	9	8	7	8	0	0	0	0	0
21	7	8	8	7	8	0	0	0	0	0
22	7	8	8	8	8	0	0	0	0	0
23	8	7	8	8	8	0	0	0	0	0
24	8	8	9	9	8	0	0	0	0	0
25	7	7	7	8	8	0	0	0	0	0
26	7	7	8	8	7	0	0	0	0	0
27	8	10	9	10	9	0	0	0	1	0
28	11	16	16	16	13	1	2	2	2	2
29	13	9	8	11	12	2	1	0	1	1
30	10	13	12	12	12	1	1	1	1	1
31	12	12	11	8	12	1	2	1	1	1

Note No observations during the following periods:

16th 0000- 0450
31st 2255- 2350

SOLAR RADIO EMISSION

Flux Density

Month: July 1966
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	27	29	28	25	28
2	27	27	29	25	27
3	27	27	27	25	26
4	26	25	26	27	26
5	25	25	26	25	26
6	25	25	26	25	25
7	25	25	25	25	25
8	27	26	26	-	26
9	-	28	28	28	28
10	25	25	25	27	26
11	28	27	26	28	27
12	28	28	27	28	28
13	27	27	26	27	27
14	26	26	25	28	26
15	28	26	25	28	27
16	26	27	25	28	26
17	29	26	26	26	27
18	27	27	26	29	27
19	28	28	27	27	28
20	28	27	29	27	28
21	26	27	28	27	27
22	28	26	26	28	27
23	27	27	28	29	27
24	28	28	26	28	28
25	27	26	27	28	27
26	27	27	28	29	28
27	28	28	29	28	28
28	28	27	26	29	27
29	32	30	28	30	30
30	29	28	26	30	28
31	28	28	27	29	28

Note No observations during the following periods:

5th 0200- 0300
8th 1930- 9th 0300
23rd 0600- 0700

Distinctive Events

(single-frequency observations)

Month: July 1966
Observing station: Hiraiso
Normal observing period: 1930 - 0950 (sunrise to sunset)

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density $10^{-22}Wm^{-2}(c/s)^{-1}$		Remarks
	Mc/s	UT	UT	minutes		peak	mean	
7	500	0029	0037.8	110	C	1435	155	
〃	200	0030	0038.3	96	C	810	95	
8	200	2143	2143.8	5	C	310	25	
9	200	0037	0039	2.5	C	260	25	
〃	500	0309	0402	111	C	200	50	
〃	200	0315	0329.3	80	C	140	45	
25	500	0500	0501.5	4	C	12	2	
27	500	2249.3	2249.5	0.6	C	158	25	
〃	200	2249.4	2249.8	1	C	650	150	
28	500	2215.5	-	14.5	C+	1020	200	1st part
〃	500	2233	-	84.5	C+	1040	340	2nd part
29	500	0131	0229.4	117.5	C	38	8	

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

July 1966 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	-23	-28	-28	-18	-21	-19	<-16s	-20	<-15s	<-13s	<- 3s	4	7	5	- 8	- 1	- 6	- 3	<- 7s	- 2	- 3	-13	-17	-14
2	C	<-22s	<-24s	-15	- 9	<-22s	<-19s	<-19s	<-17s	<-14s	- 9	3	6	1	- 4	0	- 9	- 4	- 9	-17	-11	<- 4s	<- 5s	<-21s
3	<-16s	<-28s	-28	-19	<-21s	<-22s	<-20s	<-20s	<-18s	<-12s	<-11s	1	4	- 7	- 7	2	0	- 9	<- 5s	-10	- 8	- 9	- 9	-15
4	-17	-17	-10	-12	-10	-19	-23	-12	-16	<- 9s	- 8	9	5	- 4	-10	<- 6s	-19	-14	<-15s	- 5	- 8	3	6	1
5	-14	-30	-25	<-13s	<-21s	<-22s	- 8	-11	-11	-10	- 6	- 4	2	1	- 8	<-12s	-20	-22	- 4	- 7	3	- 4	- 8	0
6	- 7	- 7	- 8	- 8	- 9	-10	-18	-19	-20	-11	-12	- 4	2	- 4	- 3	1	- 7	- 8	- 7	-13	- 5	- 4	- 8	- 8
7	-11	<-37s	<-37s	<-33s	<-19s	<-23s	<-24s	-17	-18	-17	- 7	- 2	5	-12	-15	<-14s	<-25s	<-25s	<-13s	-12	-21	-12	-25	<-34s
8	<-25s	<-22s	<-28s	<-11s	<-18s	<-10s	-18	-17	- 5	<-10s	-11	- 3	S	- 2	-15	<- 8s	-16	-18	<- 2s	<-21s	- 6	-16	-19	C
9	C	C	C	C	<-27s	<-35s	<-27s	<-15s	<-13s	<-10s	<- 5s	<-14s	< 3s	<-16s	<-21s	<- 4s	<-19s	<-31s	<-13s	-30	(-32s	-17	- 9	<-30s
10	<-17s	<-30s	-23	-27	<-15s	<-22s	<-22s	<-21s	<-14s	<- 5s	<- 5s	<- 9s	<- 4s	<-12s	< 4s	<- 4s	<-10s	<-19s	<-11s	<-25s	<-20s	-11	-22	-14
11	-23	-36	-25	-29	-28	-25	-23	-17	-23	-18	<-16s	- 6	2	- 6	- 5	- 9	-11	<-23s	<-11s	-20	-16	-14	-10	1
12	- 9	8	-13	-18	-18	<- 6s	<- 6s	<-18s	- 7	< 1s	<- 9s	<- 8s	< 2s	<-16s	<-10s	<- 8s	<-19s	<-25s	<-19s	-24	-22	-13	-11	- 5
13	-12	<-17s	-20	-13	<-16s	<-19s	<-19s	-12	-10	- 8	- 7	5	8	3	0	- 1	- 1	- 9	-10	<-23s	-10	-12	-12	-10
14	-12	<-18s	<-27s	<-20s	<-19s	<-18s	<-19s	<-18s	- 6	-10	-10	6	- 1	7	- 3	<- 4s	- 8	- 8	<- 1s	-14	- 7	- 8	-10	-14
15	-13	-11	-16	-14	-11	- 5	- 9	0	- 1	< 1s	4	3	14	1	- 1	- 2	- 7	- 4	- 7	-13	- 6	- 9	- 3	-11
16	-20	-25	-25	-13	<-15s	-11	-11	-15	<-21s	<- 3s	<- 1s	1	1	- 4	-10	- 4	0	- 4	-11	-11	- 7	-15	-15	-12
17	-14	-18	-13	-14	<- 6s	-19	-19	-19	<- 3s	< 0s	< 2s	3	10	2	- 3	<- 2s	-16	-15	- 9	-12	- 2	- 4	- 8	-13
18	<-26s	<-28s	<-28s	<-26s	<-26s	<-34s	<-20s	-16	<-15s	-10	< 0s	3	- 3	- 4	- 2	- 5	- 7	- 8	- 8	-14	-10	- 8	- 8	- 6
19	-14	-29	-22	-15	-16	-18	- 8	-15	<-21s	-12	-12	7	10	8	0	- 3	-10	- 5	- 5	-10	5	1	- 3	- 7
20	- 4	-18	-18	-19	-12	<-14s	-14	- 7	0	- 1	4	- 2	6	6	2	4	-10	- 9	- 5	-11	- 3	- 6	- 6	- 7
21	-14	-20	-19	(-14s	-20	-16	- 9	- 6	-11	-10	- 3	3	< 3s	- 4	-16	- 5	- 8	-14	- 6	-12	- 5	- 1	- 6	-13
22	- 5	- 8	<-35s	<-21s	<-12s	<- 8s	<-14s	<-18s	<-19s	<-15s	<- 4s	- 7	- 8	0	-11	- 6	- 3	-11	<- 5s	- 8	- 5	-15	-15	<-18s
23	-27	<-35s	<-21s	<-32s	<-25s	<-25s	<-25s	<-18s	<-14s	<-13s	- 9	- 6	< 2s	0	-14	- 3	-12	- 6	<-16s	-19	- 8	- 9	-16	- 7
24	-11	-19	-27	-17	-14	- 7	- 8	- 8	-13	-11	<- 9s	12	(5s	- 1	2	0	-12	- 9	- 6	-10	-18	- 7	- 6	-19
25	-20	-16	-13	-11	-13	-23	-12	-13	<-14s	<- 6s	<- 1s	14	9	1	0	1	6	-16	<- 3s	-13	-11	-12	-10	-16
26	-22	-17	-19	-16	-14	-16	-15	-12	-13	< 4s	< 22s	15	3	- 1	- 1	- 4	- 6	-11	-14	-16	- 8	-10	-20	-20
27	-27	C	-24	-24	-27	-21	-24	-21	<-13s	<- 2s	<- 6s	< 19s	< 11s	4	-15	<- 9s	<-24s	-15	<- 5s	- 6	- 2	- 8	-11	- 8
28	-15	-12	-10	<-22s	<-22s	<-23s	<-14s	<- 9s	<- 4s	<- 7s	<-11s	<- 7s	< 8s	- 1	-11	<- 3s	<-14s	<-13s	<-13s	-18	5	- 1	- 7	-16
29	<-18s	<-15s	<-19s	<-23s	<-22s	<-11s	<-14s	-19	<-17s	-11	-15	- 8	< 4s	- 2	- 4	- 3	-16	-20	-17	-18	- 4	- 8	-12	-15
30	-17	-15	-11	-14	-15	<-22s	- 6	- 5	-24	-10	- 3	5	< 7s	2	- 5	- 5	1	-12	<- 9s	-10	-11	- 7	- 5	(-11s
31	-11	<-22s	-16	-18	-12	- 9	<-16s	-14	-16	S	- 2	7	7	- 2	- 6	(- 2s	- 8	- 7	<- 8s	-30	-13	-12	-20	-22
Median	-15	(-21s	(-22s	(-18s	(-18s	<-19s	<-16s	(-17s	<-14s	<-10s	<- 9s	(2s	(4s	- 1	(- 0s	(- 4s	(-10s	-11	<- 8s	-13	- 8	(- 9s	(-10s	-13
Median Count	29	29	30	30	31	31	31	31	31	30	31	31	30	31	31	31	31	31	31	31	31	31	31	30
Upper decile	- 7	- 8	-10	<-11s	<- 9s	<- 7s	<- 8s	- 6	<- 3s	< 1s	< 4s	< 14s	< 10s	6	< 2s	1	0	- 4	<- 3s	- 6	3	- 1	- 3	0
Lower decile	<-26s	<-35s	<-28s	<-29s	<-27s	<-25s	<-24s	<-20s	<-21s	<-15s	<-12s	<- 8s	<- 3s	<-12s	<-15s	<- 9s	<-20s	<-25s	<-16s	<-25s	<-21s	<-15s	<-20s	<-22s

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

July 1966 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	0	- 2	3	6	8	13	21	22	25	22	23	23	24	21	15	5	18	10	5	12	1	4	- 9	- 7
2	- 8	- 8	- 3	6	9	13	21	17	19	21	21	24	21	14	11	9	14	11	13	12	7	5	1	3
3	- 8	5	- 8	- 3	5	16	18	22	20	23	25	22	16	16	16	9	21	17	11	10	5	5	5	- 3
4	- 1	2	3	9	16	14	17	16	19	23	21	17	12	16	8	6	- 1	-15	7	5	3	8	- 1	- 8
5	-10	- 4	- 3	6	7	11	17	17	21	14	18	22	14	4	- 7	<-12s	1	10	- 8	7	10	4	- 5	1
6	-13	-11	- 7	2	7	16	17	24	19	7	- 6	17	- 3	0	- 2	- 3	8	14	7	11	1	5	- 3	- 4
7	<-33s	<-37s	-14	- 5	6	11	11	14	18	24	18	14	18	6	- 6	<-12s	- 2	- 3	5	- 3	- 4	- 2	- 8	- 1
8	-13	- 2	1	7	12	11	17	21	23	22	19	19	18	22	14	13	-11	11	2	11	- 1	- 5	C	C
9	C	C	C	<-27s	- 6	0	15	23	23	25	26	26	13	11	13	14	19	12	7	6	- 4	- 2	- 2	- 4
10	- 5	2	4	4	10	8	-16	4	6	15	14	1	7	- 1	<- 7s	< 1s	- 8	26	- 4	-12	- 6	- 5	- 4	- 9
11	-14	-20	- 9	- 7	9	8	23	23	17	19	6	- 3	- 3	-12	- 9	-13	<-22s	8	- 3	8	4	- 1	- 1	0
12	- 7	- 4	7	8	11	13	15	19	16	23	24	21	13	20	23	10	14	12	-13	- 5	- 3	1	- 5	- 5
13	- 7	- 6	3	8	5	9	13	26	18	18	23	20	15	11	- 8	- 8	- 8	- 6	4	6	3	4	- 6	-12
14	- 6	- 6	- 2	7	7	14	12	20	22	19	19	19	24	- 8	<- 8s	<- 5s	10	11	<- 7s	- 2	- 1	4	- 3	- 1
15	0	0	2	2	14	11	15	22	27	<- 7s	<- 8s	<-10s	< 3s	<-20s	<-20s	5	5	10	6	10	6	6	3	3
16	3	- 4	2	8	19	20	23	24	24	27	25	16	18	20	10	<-11s	-21	4	4	5	4	- 4	2	- 1
17	3	- 1	2	5	15	17	18	26	27	26	25	19	21	24	13	- 2	·9	5	- 3	0	2	8	4	1
18	- 5	-13	-10	4	13	14	15	21	24	22	23	21	8	8	12	11	14	16	1	5	1	7	2	- 1
19	- 1	- 3	- 2	2	11	15	16	18	21	19	20	17	16	19	13	- 7	- 4	4	7	7	7	5	5	2
20	- 3	- 4	7	9	13	19	16	22	21	23	14	20	10	10	9	- 4	6	7	0	6	2	3	5	- 4
21	- 4	3	4	5	12	18	19	25	22	18	17	21	18	- 2	- 4	<- 1s	22	11	- 4	9	6	6	1	- 3
22	- 3	- 1	4	10	10	13	21	11	- 5	1	- 5	9	14	16	10	4	- 6	10	5	3	6	1	1	- 1
23	0	0	- 6	7	11	15	20	22	23	24	22	12	22	- 1	15	11	21	18	<-11s	4	3	2	- 1	- 4
24	- 4	- 4	3	10	9	14	17	19	22	22	22	8	16	19	16	4	17	7	- 3	4	4	4	1	0
25	- 7	- 6	- 3	3	5	12	17	17	21	22	20	21	15	16	9	7	5	13	3	3	1	- 2	1	-10
26	-16	- 7	- 4	2	9	14	18	21	23	25	21	21	19	<- 3s	0	<- 7s	6	14	7	0	5	5	9	- 7
27	- 4	C	3	6	8	16	17	23	25	21	22	25	24	21	24	15	6	16	18	3	3	5	- 2	- 3
28	- 7	- 1	1	7	7	14	18	23	23	22	19	23	19	17	3	<- 1s	<-13s	-11	2	10	12	4	- 7	-14
29	-12	-12	- 2	1	5	22	16	18	21	26	27	25	13	10	- 6	2	2	6	7	3	2	- 4	1	- 1
30	- 7	- 2	- 1	4	3	11	13	17	21	17	18	18	21	< 2s	<-17s	<- 5s	17	4	6	13	5	- 1	- 4	- 3
31	- 4	- 5	- 2	2	8	17	21	23	23	23	23	16	18	22	11	- 2	3	15	6	4	9	2	- 1	- 5
Median	- 6	- 4	0	5	9	14	17	21	21	22	21	19	16	11	9	(1)s	6	10	4	5	3	4	- 1	- 3
Median Count	30	29	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30
Upper decile	0	2	4	9	15	19	21	25	25	26	25	25	24	22	16	13	21	17	11	12	9	7	5	2
Lower decile	-14	-13	- 9	- 5	5	8	12	14	16	7	- 5	1	< 3s	<- 8s	<- 9s	<-12s	<-13s	- 6	<- 8s	- 3	- 4	- 4	- 7	-10

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

July 1966	Whole Day Index	H B 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	4 4 4	3 (4) 5 4	4 4 5 4	4 5 5 4	N N N N			
2	4o	4 5 4	2 4 5 (4)	(4) 4 (5 4)	4 4 5 4	N N N N			
3	4o	4 4 4	1 4 5 5	4 5 (5) 4	4 5 5 4	N N N N			
4	4+	4 4 4	5 4 4 5	4 4 4 4	4 4 4 4	N N N N			
5	4o	4 4 (4)	3 4 4 5	4 4 4 3	4 4 4 4	N N N N			
6	4o	4 4 4	5 4 4 4	3 4 4 5	4 3 4 4	N N N N			
7	4-	4 4 4	1 4 3 4	2 4 4 5	2 4 4 4	U N N N	20.5	---	153γ
8	3+	4 4 C	3 4 3 3	2 3 (4) 3	4 4 4 (4)	U U U U	---	---	
9*	2o	(3) C C	1 (2) 1 2	1 3 3 (3)	(2) 4 4 4	U U W W	---	---	
10	3-	3 4 (4)	1 (1) 1 2	3 3 3 (3)	3 3 3 3	U U U U	---	---	
11	4-	3 4 4	2 3 4 4	3 4 (4) 4	3 4 3 4	N N N N	---	11xx	
(12)	3+	4 (3) 4	4 (2 1) 4	4 3 3 3	4 4 5 4	N N N N			
(13)	4o	4 4 4	4 4 5 4	4 4 (3) 4	4 4 4 4	N N N N			
(14)	4o	4 4 4	4 4 4 5	4 4 4 4	4 4 3 4	N N N N			
15	4+	4 4 4	5 5 5 5	4 4 4 4	4 (4) C 4	N N N N	1500	---	35γ
16	4+	4 4 4	4 4 5 5	4 4 4 5	4 4 4 4	N N N N	---	16xx	
17	4-	4 4 C	4 (3) 3 4	4 3 (4 4)	4 4 4 4	N N N N			
18	3+	(3) C 4	1 3 4 4	4 4 (4) 4	3 4 4 4	N N N N			
19	4o	4 (4) C	3 4 4 4	4 4 4 4	4 4 4 4	N N N N			
20	4o	4 4 (4)	4 5 4 4	4 4 4 4	4 4 4 4	N N N N			
21	4+	4 4 (4)	4 4 4 4	4 5 5 4	4 4 4 4	N N N N			
22	4-	4 4 C	3 3 4 4	4 4 4 C	4 (3) 4 4	N N N N			
23	4-	4 4 4	2 3 4 4	4 4 (4) 4	4 4 4 4	N N N N			
24	4o	4 5 4	3 4 4 4	4 4 4 4	4 4 4 4	N N N N			
25	4o	4 4 4	4 4 4 4	4 5 4 4	4 4 4 4	N N N N			
26	4o	4 4 4	4 (3) 4 4	4 4 4 4	3 4 3 (4)	N N N N			
27	4-	4 4 4	3 (3 2) 4	4 4 4 4	4 4 4 4	N N N N	0602	20xx	44γ
28	3+	4 4 4	(3 3) 3 3	4 3 (3 4)	4 4 3 3	N N N N			
29	3+	(4) 4 4	2 3 4 4	2 4 3 4	2 4 4 4	U N N N			
30	4o	4 5 (4)	4 5 4 4	4 4 (3) 4	4 4 4 4	N N N N			
31	4o	4 5 C	4 4 4 5	4 4 (3) 4	4 5 4 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

Time in U.T.

July 1966	S W F										Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag.
	WS	SF	HA	TO	HB	SH							
6		10			20	-	05.34	13	S	2-	x		
7	28	45	25	-	15	-	00.26	192	S	3+	x	x	
,	-	42	10	-	15		23.55	65	G	3-	x	x	
8	-	19	10	-	-		01.46	16	S	1+	x	x	
9	-	38		13			02.31	>37	Slow	3-	x		
,	-	>43		-			03.08	>65	S	3	x	x	
,	-	>43		-			04.15	>30	Slow	3	x	x	
23		13	11			9"	02.42	20	S	1	x		
,		6	5		4		05.49	13.	S	1	x		
,			6'										
25		20	12		18	10'	04.58	20	Slow	1+	x		
,			22'										
,						26'	05.17	41	G	2			

IONOSPHERIC DATA IN JAPAN FOR JULY 1966
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