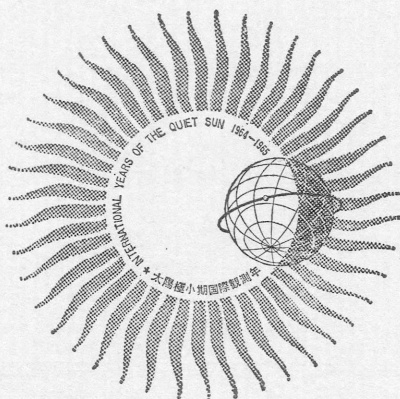


F—200

IONOSPHERIC DATA IN JAPAN

FOR AUGUST 1965

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Prepared by

THE RADIO RESEARCH LABORATORIES
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KOKUBUNJI, TOKYO, JAPAN

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FOR AUGUST 1965

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI TOKYO, JAPAN

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SITE OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

f_oF2 f_oF1 f_oE	}	The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.
f_oE_s		The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.
f_oE_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_oE_s .
$hpF2$		The virtual height of the $F2$ layer measured on the ordinary

$ypF2$ wave branch at a frequency equal to $0.834f_oF2$.

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 $0.969f_oF2$).

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 height: *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 greatly 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_oE_s and $h'E_s$. The slant trace is sometimes observed to start at f_oE 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 $10^{-22} \text{ W} \cdot \text{m}^{-2} \cdot (\text{c/s})^{-1}$ 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 Hiraio Radio Wave Observatory. In order to avoid interferences with several standard frequency waves on the same frequency, the upper side-band of 440 c/s is picked up by the use of a narrow band pass filter of ± 40 c/s bandwidth.

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

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

Transmitter

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

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

Receiver

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

Descriptive symbols are as follows:

- C: Measurement influenced by, or impossible because of, any non-propagational reasons.
- S: Measurement influenced by, or impossible because of, interferences or atmospherics.
- (): Unaccurate measurement influenced by interferences, atmospherics, or non-propagational reasons.
- <: Less than the following figure.

b. Radio Propagation Quality Figures

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

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

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

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

- N=normal
- U=unstable
- W=disturbed

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

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

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

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

The data of short wave fade-out (SWF) are prepared 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)
 S F.....Various commercial circuits (San Francisco)
 HA.....WWVH 15 Mc and 10 Mc (Hawaii)
 TO.....JJY 15 Mc and 10 Mc (Tokyo)
 SH.....BPV 15 Mc and 10 Mc (Shanghai)
 LN.....Various commercial circuits (London)

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

Start-times and Durations

Types

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

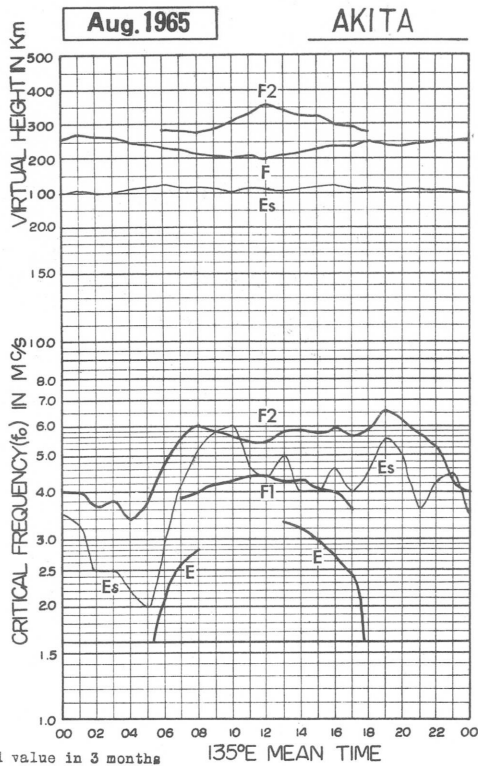
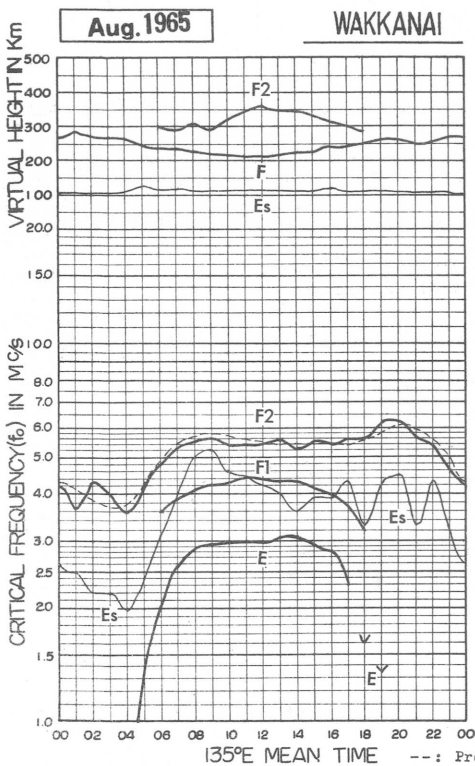
Importances

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

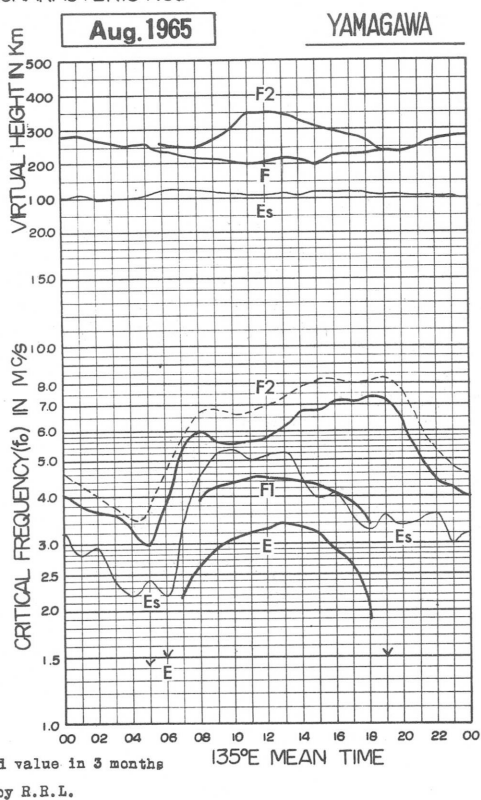
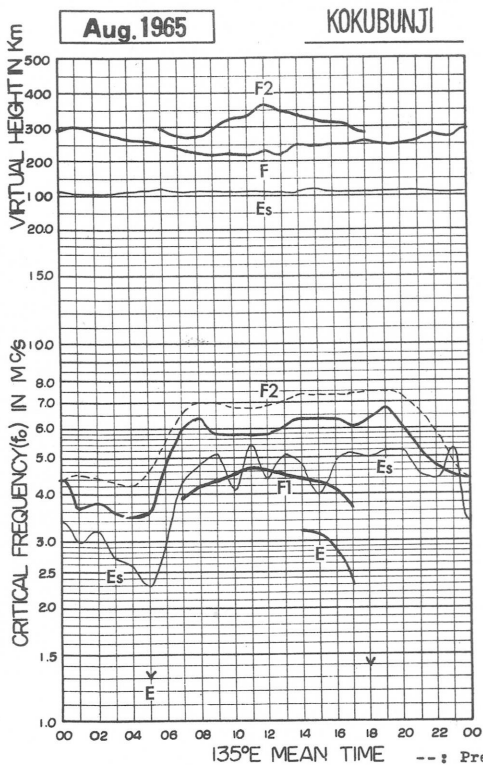
1-	1	1+
2-	2	2+
3-	3	3+

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

Wakkanai

Lat. 45° 23.6'N
Long. 141° 41.1'E

0.1 Mc 135° E Mean Time (G. M. T. +9h.)

Aug. 1965

f_oF₂

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	I053A	O52	A	A	O53	O50	O45	O46	O48	O49	O55	O59	O56F	A	SF
2	O40F	F	O43F	O43F	O40	O44	O44	O50	O55	I058A	O56	O50	O53	O55	O53	O52	O55	O59	O57	O62	O65S	F	O57F	O53F
3	A	SF	O43F	I037A	O35F	O43F	O48	O49	O51	O54	O50	R	R	A	A	A	A	A	O46	O48	SF	F	O46F	O46F
4	O45F	SF	S	O32F	SF	O40F	O44H	O44	I052A	O57	O53	O56	O54	O57	I058A	I053A	I052A	I053A	O50	O57	O57	I052S	O50	O49
5	O50F	SF	F	F	O40F	O38	I046A	O56	O56	I057A	O56	I057A	O56	O55	O49	O50	O53	O57	O51	O62	S	A	SF	A
6	SF	SF	O43F	F	F	F	O56	O52	O51	O57	O51	O53	O56	O51	O53	O56	O57	I058A	O62	I068S	O64S	O55S	SF	SF
7	SF	O43F	F	O43F	F	O44F	O57	I059A	O58	O59	O53	O50	I053A	I053A	I054A	I056A	O54A	A	A	A	O63	SF	F	O57F
8	O50F	F	O47F	O46F	O43F	O47	O55	O60	I059A	O63	O59	O52S	O56	O58	O55	O60	O57	O60	I062A	I071S	I066S	SF	O53F	O40
9	O41	O43	O43	O42F	O39F	O47S	O60	O53	I059A	O68	O58	O57	O56	O55	O60	O57	O56	O62	O65	AS	A	S	SF	A
10	SF	F	A	O43F	O36F	O39	O51	O62	O58	O53	O55	O50	I053A	O57	O62	O58	O57	O56	O63	O64S	O61	O55	O53S	O50F
11	O45F	O45F	O43F	O44F	F	O47	I046A	O47	O48	O61	I058A	O57	O50	O50	O55	O60	O60	O57	O56	O57	I065S	SF	A	F
12	A	SF	O40	F	F	O54F	O55	O58	O63	O64	O56	O56	O57	O57	O53	O55	O55	I057A	I060A	I066S	I071S	O63S	A	F
13	F	F	F	O48F	F	F	O55	O53	O53	O53	O60	O57	O55	O51	O50	O45	O50	O54	O61	S	SF	AS	SF	F
14	O36F	O35	F	F	O34F	O50	O46	O50	O54	O60	O53	O57	O56	O54	O60	O64	O60	O56	O57	O67S	I067S	O65S	O63	O55
15	F	F	F	I045A	O43F	O41	O51	I053A	I062A	O75	I067S	A	A	I052A	O58	O55	O53	O50	O47	O59	O63	O63	O63	O50
16	O33	O33	O31F	O33F	O33F	O35	W	O55	O50	O50	O50	O46	I048A	O55	O50	O50	O51	I052A	O51	O63	O63	O63	O58	O50
17	O44	O42	O43	F	O33F	O37	O53	A	C	O58	O58	O58	O58	O51	O54	O57	O58	O63	O68S	I070S	O73S	SF	SF	SF
18	O57F	O46F	O43F	O41F	O36F	O38	O51	O61	O65	O51	O56	O65	O61	O61	O51	O54	O57	O57	O60	I066A	O58	O56F	SF	SF
19	S	SF	F	O33F	O33F	O35	O48	O44	I054A	I053A	I053A	I052A	O50	I051A	I052A	O58	O53	I062A	A	S	S	O53S	SF	F
20	F	F	F	F	F	O43	O44	I045S	O56	O50	O56	I054A	O53	O59	O57	O57	O59	O56	O55	I063S	I064S	O63	O58	O50
21	O51	O50S	O46	F	F	O46H	O43	O50	O53	O55	O53	O47	O47	O55	O50	O51	O51	O51	O51	O61	O61	O61	O56	O36S
22	O36	O33	O34	O32	O30	O35H	O46	O50	I048A	O48	O57	O51	O46	O58	O48	O54	O54	O56	O52	O59	O59	O56	O43	O41
23	O36	O33	O33	O35F	O35F	O35	O46	O50	O60	O54	O50	O51	O53	I048S	O48	O46	O50	O53	O51	O58	O60	I048C	I034A	O33
24	A	O34	O34	I033A	O30F	O36	O46	O56	O60	I057A	O53	I054S	O54	I054A	I056A	I057A	I058A	O62	I065S	O57	O51	I045S	I041A	I038A
25	A	O37F	O36F	O38F	I059A	O43	O57	O66	O56	O53	O53	O53	I057C	O54	O53	O55	O54	O54	O54	O54	O60	O54	O53	O48
26	O36	O33F	O33F	O36F	O36F	SF	O50	O63	O65	I052A	O54	O51H	O61	O61	O56	O52	O50	I050A	O54	I061A	SF	A	A	A
27	SF	SF	SF	SF	O35F	O37F	O53	O51	O50	A	A	A	A	A	O48	O48	A	A	A	O70S	O69S	O60F	I047C	O55F
28	O34	O36	O35	O36	O36	O40	O46	O48	I048A	O50	O54	O50	O51	O50	O50	O53	I054S	I052S	O46	O57	O57	O56	SF	O43F
29	O37	O37	O40	O36	O44	O46	O53	O52	C	C	C	C	C	C	C	C	O51	O50	O57	O67	I064S	I057S	A	O40
30	O43	O43	O43	O43	O50	O49	O51	O53	I052A	O56	O56	O53	O57	O57	O57	O57	O53	O48	O54	I068S	I065S	O66S	O63	O47
31	O44	SF	O43F	O44F	SF	SF	O56	O63	O56	O56	O53	O50	O54	O63	O67	O59	O58	O60	O60	I064S	O67	O63	O60S	O50
No.	18	16	20	22	22	26	28	29	29	29	29	26	26	29	29	29	29	28	28	27	25	21	17	20
Median	O42	O37	O43F	O40F	O36F	O42	O48	O53	O55	O56	O54	O54	O54	O55	O53	O55	O54	O56	O56	O63	O63	O56	O53	O46
U. Q.	O46	O43	O43	O43	O40	O46	O54	O58	O59	O60	O56	O57	O56	O57	O57	O57	O57	O58	O60	O67	O66	O63	O58	O50
L. Q.	O36	O34	O34	O35	O34	O37	O46	O50	O52	O53	O53	O50	O51	O51	O50	O52	O52	O52	O51	O58	O60	O54	O46	O40
Q. R.	O10	O09	O09	O08	O06	O09	O08	O07	O07	O07	O07	O07	O05	O06	O07	O05	O05	O05	O06	O09	O09	O06	O09	O12

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

The Radio Research Laboratories, Japan

W 1

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G.M.T. +9h)

foF1

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						C	C	C	C	A	A	A	A	A	420	410	390	370	330					
2						360	400	400	410	A	A	A	A	430	I430A	A	400	I370A	320					
3						340L	I370A	A	410	I410A	I420A	430	430	A	A	A	A	A	A					
4								A	A	430	430	430	440	430	A	A	A	A	A					
5								A	A	A	A	A	A	A	A	430	I400A	A	A					
6						360	I390A	I420A	I420A	430	I440A	440	440	430	430	A	A	A	330					
7						350	A	A	A	A	A	450	A	A	A	A	A	A	A					
8						370L	A	A	A	A	440	450	440	440	430	420	400	380	A					
9						360	I410A	I420A	I420A	A	430	I440A	460	440	430	420	410	I380A	A					
10						300	360	390	I420A	430	430	440	440	440	I430A	I420A	400	I360A	320					
11							A	A	440	I430A	I430A	430	450	430	430	420	400	A	A					
12						360L	400	400	I420A	A	I430A	440	440	440	430	420	400	A	A					
13						400	400	400	420	430	I430A	440	440	440	430	420	400	370	320					
14								A	420	430	430	440	440	430	420	400	390							
15								A	A	A	A	A	A	I430A	I420A	410	400	370						
16						360	380	380	I410A	420	430	430	I430A	440	420	420	400	I360A	300					
17							A	A	C	420	I430A	440	440	430	A	A	A	370	310					
18							380	380	A	420	430	430	440H	430	430L	410	400H	I370A	A					
19							360	390	A	A	A	A	440	440	I430A	I400A	400	A						
20							340	370	400	I420A	430	I440A	I440A	430	420	420	380	360	290L					
21							330	390	400	400	430	440	430	430	420	410	380	370						
22						340L	370	I400A	I400A	420	I430A	430	430	420	420	400	A	340						
23							350	I380A	400	420	430	I420A	430	I430S	420	420	390	340L						
24						340L	360L	400	400	A	A	A	I440A	A	A	A	A	A						
25							A	I380A	400	I430A	430	450	440	430	430	A	A	A						
26						360	360	400	400	410	I420A	I430A	I410H	430	420	400	400	A						
27						I340A	I390A	A	A	A	A	A	A	430	410	400	A	A						
28						340	380	I400A	I400A	A	430	430	430	440	420	410	I390S							
29								A	A	C	C	C	C	C	C	C	390	350						
30							390	A	A	A	430	430	I430A	430	430	400	400H							
31						320L	370	400	400	420	430	430	430H	430	410	410	400L	330L						
No.						2	22	20	19	17	22	23	24	25	24	21	22	17	8					
Median						320L	360	385	410	420	430	440	440	430	430	410	400	370	320					
U. Q.																								
L. Q.																								
Q. R.																								

foF1

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

IONOSPHERIC DATA

0.01 Mc 135° E Mean Time (G. M. T. +9h)

foE

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					C	C	C	C	C	300	300	285	I295A	I310A	315	I300A	I275A	250	A	E120S				
2					E	190	215	270	295	300	305	310	295	290	290	290	300	245	185	E				
3					E	175	220	260	285	295	300	300	I300A	I300A	300	I290A	290	I265A	200	E110S				
4					E	170	230	275	290	295	300	300	I325A	345	330	I310A	285	245	E150S	E110S				
5					E	155	230	280	300	310	310	310	305	305	A	A	A	255	180	E110S				
6					E170S	145	215	255	285	295	290	A	A	A	A	325	310	285	220	A	E130S			
7					E	A	215	265	A	A	A	A	A	A	A	A	A	A	A	A	E120S			
8					E	190	235	290	300	320	320	300	300	315	320	305	285	230	E170S	E160S				
9					E150S	E130S	215	260	280	290	A	A	A	340	330	315	285	250	180	E180S				
10					E	175	I215A	I250A	265	I285A	I310A	330	335	330	320	300	280	230	E170S	E180S				
11					E	E160S	225	270	280	290	295	A	A	A	I305A	285	290	240	155	E140S				
12					E	I165A	230	270	295	300	300	A	A	A	315	300	290	245	E160S					
13					E	150	205	240	280	300	A	A	A	A	A	A	A	A	A	A				
14					E	A	210	250	290	A	A	A	335	325	A	A	275	I230A	155					
15					E	140	205	270	300	310	310	300	295	I300A	295	I290A	I280A	A	160					
16					E	A	215	270	290	290	300	305	295	I305A	310	300	270	225	A					
17					E	160	220	260	I285C	300	300	290	290	A	A	A	A	A	A	E140S				
18					E	140	205	260	290	300	300	E300B	A	A	305	I290A	280	225	E160S	E150S				
19					E	120	220	265	285	300	300	300	A	A	A	A	A	285	235	E130S				
20					E	130	205	260	290	300	305	305	300	A	A	A	A	280	225	185	E140S			
21					E	155	210	260	290	300	300	305	320	320	310	295	280	240	E170S					
22					E	E150S	200	270	A	A	A	A	A	305	310	300	265	230	E150S					
23					E	A	200	240	265	I285A	I295A	I305A	I310A	315	I300A	290	265	A	E160S					
24					E	E150S	A	A	295	300	310	315	315	315	300	280	I250A	A	E150S					
25					E	E	190	235	I255A	I270A	280	315	I315A	I315A	310	300	270	210	E120S					
26					E	115	200	250	275	I285A	I295A	300	I315A	315	305	295	270	215	E120S					
27					E120S	195	240	275	290	290	300	A	A	R	A	A	A	A	E150S					
28					E	200	245	285	295	300	300	I300A	I305R	300	295	I260S	220S	200	E150S					
29					E	115	205	250	285	C	C	C	C	C	C	C	260	200	E130S					
30					E120S	195	245	275	295	295	300	290	I290A	I290A	295	265	205	A						
31					E140S	200	240	265	265	255	290	265	I300A	300	295	A	A	A	E150S					
No.	1	3	1	26	26	29	29	29	28	27	25	21	20	20	22	21	25	23	24	14				
Median	E	E	E	E		140	210	260	285	295	300	300	300	310	310	295	280	230	E160S	E135S				
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

Aug. 1965

foEs

0.1 Mc

135° E Mean Time (G. M. T. +9h)

Wakkanai

Lat. 45° 23.6'N
Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	J130	046	J085	J071	045	034	035	034M	030	J033	033	J033	J043	J053	J025
2	J030	J025	E	013	015	015G	G	033	035	J073	045	050	J075	043	048	041	040	J063	051	060M	J051	J025	031	J046
3	J063	J043	J033	J053	J038	032	J041	040	050	J085	J082	045	047	053	058	J061	063	J073	J053	J045	J053	J043	J033	J043
4	J026	J028	015	J040	J044	026	031	041	J061	052	040	039	040	073	110	115	J138	062M	J140	043	J055	040M	J050	J050
5	J025	020	J023	J023	013	026	052M	039	J046	J063	J073	J063	J053	J055	J051	J052	J043	040	J051	J080	J050	J053	J033	J064
6	J075	J040	J038	023	J025	028	052	052	J058	J045	J045	J053	040	036	G	044	J051	070M	J064	J063	J060	J053	J053	J033
7	J026	J045	J044	033	017	022	026	J088	J055	J051	053	050	J082	J083	J070	063	J063	093	J083	J083	J035	J053	J043	J030
8	J023	J031	J025	016	E	G	030	044	J074	052	045	043	036	G	G	G	034	040	063	J063	J053	J033	J021	EO178
9	EO178	EO128	EO128	EO128	EO158	034	037	J043	J076	042	J042	045	040	038	G	040	040	043	J037	J093	J091	EO178	J043	J063
10	J038	J025	J051	J038	025	026	J040	050	J053	038	038	G	G	G	046	045	035	040	028	EO188	EO188	040	J043	J033
11	020	EO128	J025	J033	023	029	J043	042	035	J053	J061	033	043	040	034	G	036	J064	J045	J051	J053	J031	060M	J073
12	J053	J053	021	021	E	019	031	037	051	064	045	050	045	040	G	G	038	J100	092	J036	J053	J061	J064	J025
13	EO168	J025	EO138	J033	021	027	036	035	040	J043	046	036	035	048	033	033	031	030	022	J033	J053	J073	J053	J039
14	J023	J038	J024	020	021	023	030	040	043	040	046	035	G	G	J035	040M	035	026	029	J033	J033	J053	J045	J033
15	031	EO138	J027	J061	033	027	J050	J063	J080	J058	046	063M	094	J083	049	033	033	026	022	024	J032	J028	J043	020
16	J024	J033	E	015	021	024	028	033	J053	J073	044	051	053	040	G	036	053	J083	J033	J053	J028	EO208	EO178	EO128
17	017	EO138	018	J021	E	G	038	J063	C	040	047	043	042	036	J054	044	051	J043	033	026	J055	J033	J033	J030
18	EO178	E	E	E	E	G	025	034	041	046	039	037	034	039	G	036	045	J055	J053	J073	J053	J043	J033	J050
19	J040	J033	J026	J041	J038	035	033	039	054	J070	J063	059	034	J053	J066	052	036	J125	J093	J053	J035	J033	EO178	022
20	021	J023	J025	018	015	020	031	036	037	046	039	063	030	043	040	030	021G	030	G	J043	EO208	026	EO178	J030
21	J025	EO198	E	E	E	G	025	034	033	038	049	037	G	G	G	036	030	030	026	028	J045	J033	033	J073
22	040	J043	018	019	019	EO158	G	G	J083	038	050M	040	042	G	040	040	J055	029	030	030	J030	J024	023	J033
23	038	022	016	E	J026	J022	034	J043	033	040	J062	045	J045	036	040	038	040	036	EO168	J043	J036	C	J050	023
24	J063	J038	J033	040M	J036	027	031	034	040	062M	050	043	060	063	J078	J081	J063	050	J043	J063	EO188	EO188	J100	J053
25	J053	J031	J031	J050	J043	J033	040	J057	J073	J053	041	030G	040	039	036	040	053	050	041	J025	032	022	J043	J032
26	022	E	E	E	E	025	030	036	J048	041	071	J065	063	040	G	034	036	J070	J033	J078	J060	098	J143	J053
27	J033	J040	J030	J030	J023	016	033	050	043	080	J073	J083	J073	G	039	040	060	076	J083	J053	051	032	C	030
28	025	J022	018	J023	016	025	031	035	058M	045	036	G	038	G	G	G	S	030	027	J023	J033	J023	J033	EO188
29	J032	J025	E	E	E	020	030	J044	043	C	C	C	C	C	C	C	038	031	031	J043	J048	J053	060M	040
30	EO178	EO148	E	014	E	025	032	036	053	053	036	G	045	J043	036	G	G	020G	J033	J025	EO178	EO188	EO178	027
31	024	J022	J022	022	020	EO148	028	033	033	040M	G	035	033	G	G	029	034	030M	020	021	EO208	EO188	EO228	022
No.	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	31	31	31	31	30	30	31
Median	J026	J025	J022	022	020	024	031	040	050	052	046	045	042	040	036	039	039	043	033	J043	J045	J033	J043	J033
U. Q.	038	033	027	033	025	027	037	044	058	063	053	053	053	048	049	044	053	J070	053	063	053	053	053	050
L. Q.	022	EO19	EO12	015	E	016	028	035	040	041	041	037	036	G	033	034	034	030	028	028	032	024	031	025
Q. R.	016	EO14	EO15	018		011	009	009	018	022	012	016	017		011	019	019	040	025	035	021	029	022	025

Sweep 1.0 Mc tot 8.0 Mc in 40 sec in automatic operation

foEs

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

0.1 Mc 135° E Mean Time (G. M. T. +9h)

fbEs

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	A	A	043	A	A	043	028G	033	031	023	028	027	028	030	A	018	
2	020	019		E	015	015G	G	G	A	A	044	045	049	G	044	041	037	050	029	051	030	018	030	024	
3	A	040	027	A	020	030	040	040	A	042	043	G	037	G	A	A	A	A	035	040	021	020	027	036	
4	019	018	015	020	022	G	G	040	A	040	043	G	038	026G	025G	A	A	A	036	019	052	040	040	036	
5	020	018	017	015	013	G	A	G	041	050	043	A	050	045	044	032	040	040	040	050	048	A	017	A	
6	017	020	020	018	020	030	G	043	047	040	043	040	036	036		042	042	A	024	027	018	025	020	023	
7	017	028	023	030	017	020	G	A	052	045	045	036	A	A	A	A	A	A	A	A	032	040	040	020	
8	017	027	015	014			G	041	A	044	040	G	G			G	036	A	065S	030	022	019	S		
9	S	S	S	S	S	S	034	040	A	042	040	044	040	G		G	040	040	037	A	A	S	030	A	
10	030	016	A	030	020	G	030	032	044	036	036				046	045	G	040	G	S	S	040	027	018	
11	017	S	020	025	020	G	A	042	G	047	A	038	038	036	034		G	044	043	050	037	030	A	040	
12	A	024	017	014			G	G	050	053	044	038	042	035			025	A	A	035	034	050	A	018	
13	S	020	S	018	018		G	033	037	040	045	036	035	033	033	031	029	027	019	030	042	A	036	018	
14	021	020	018	012	013	018	G	040	040	034	036	035			034	034	022	025	025	030	023	026	037	022	
15	022	S	020	A	027	G	040	A	A	057	045	A	A	A	045	031	029	026	G	020	022	020	046	016	
16	021	030		E	E	020	G	G	046	G	G	G	A	035		G	036	A	020	030	020	S	S	S	
17	017	S	017	017			038	A	C	038	043	G	G	036	045	043	048	039	020	0014S	030	025	018	020	
18	S						G	G	040	040	039	G	033	035		030	G	048	032	A	030	036	022	024	
19	038	018	018	015	020	032	032	037	A	A	A	A	034	A	A	050	G	A	A	050	032	030	S	020	
20	018S	020	017	E	G	G	G	036	G	045	G	A	045	036	040	030	021	G	040	040	020	022	S	024	
21	017	S					G	G	G	G	040	G				G	G	G	G	G	020	030	024	0033S	021
22	030	020	021	015	019	S			A	034	046	037	036		G	G	038	G	026	028	026	021	0017S	029	
23	030	017	013		018	018	G	040	032	033	036	044	042	G	037	G	024	030	S	040	029	C	A	020	
24	A	020	018	A	017	G	028	027	G	A	043	0043S	A	046	A	A	A	048	040	046	S	S	A	A	
25	A	027	022	025	A	023	040	057	030	048	040	030	038	037	G	040	049	050	040	024	025	020	030	025	
26	018						G	G	G	037	A	047	033	G		G	G	A	031	A	034	A	A	A	
27	026	024	018	020	018	016	033	043	042	A	A	A	A	A	037	030	A	A	A	018	033	030	C	025	
28	016S	016	013	012	012	021	030	G	A	042	G		038			S	S	G	G	020	030	020	025	S	
29	018	017					G	G	041	C	C	C	C	C	C	C	023G	G	024	040	040	030	046	A	030
30	S	S					G	032	G	048	A	G	045	039	031		020G	025	018	S	S	S	S	020	
31	017S	E	020	017	016	S	G	G	G	G	G	G	033			029	033	025	G	019	S	S	S	019	
No.																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

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

W 5

fbEs

Wakkanai

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G. M. T. + 9h)

f-min

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E	E	E	E	E
2	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
4	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
6	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
7	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
9	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
11	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
12	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
13	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
14	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
15	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
16	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
18	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
21	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
22	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
26	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
28	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
No.	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	31	31	30	30	30	31
Median	E	E	E	E	E	E	E	E	018	018	020	020	020	020	018	018	017	012	E012S	E015S	E017S	E016S	E017S	E017S
U. Q.																								
L. Q.																								
Q. R.																								

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

f-min

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6'N
Long. 141° 41.1'E

135° E Mean Time (G. M. T. + 9h)

0.01

M(3000)F2

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	I335A	345	A	A	315	320	345	295	315	315	315	310	310F	A	SF
2	305F	F	305F	335F	325	345	290	310	325	I345A	340	320	300	315	300	310	310	315	315	325	310S	F	300F	305F
3	A	SF	325F	I315A	295F	300	300	285	295	315	320	R	R	A	A	A	A	A	325	315	SF	F	290F	290F
4	310F	SF	S	280F	SF	325F	340H	340	I330A	315	290	300	295	310	I325A	I310A	I305A	I330A	305	320	300	I300S	300	305
5	320F	SF	SF	F	F	340F	320	I305A	335	325	335	I305A	320	310	310	295	300	335	310	305	S	A	SF	A
6	SF	SF	280F	F	F	F	F	355	315	335	330	310	310	300	285	315	325	I320A	325	I315S	315S	310S	SF	SF
7	SF	290F	F	315F	F	320F	365	I350A	360	355	360	300	I305A	I310A	I320A	I320A	I325A	A	A	A	300	SF	F	315F
8	295F	F	300F	310F	305F	320	325	355	I330A	350	320	245S	305	330	290	315	315	315	I315A	I310S	I315S	SF	305F	290
9	300	300	280	290F	300F	320S	335	330	I315A	340	345	335	290	290	320	305	320	325	310	AS	A	S	SF	A
10	SF	SF	A	300F	305F	295	300	340	330	330	330	310	I300R	305	305	310	320	325	320	330S	315	310	300S	290F
11	305F	290F	280F	320F	F	340	I355A	320	295	345	I325A	335	300	280	300	305	315	325	330	310	U285S	SF	A	F
12	A	SF	300	F	F	335F	330	310	315	345	320	320	300	315	320	310	325	I310A	I305A	I300S	I305S	U315S	A	F
13	F	F	F	315F	310F	F	F	345	340	320	330	335	325	300	320	340	290	315	310	S	SF	AS	SF	F
14	305F	305	F	F	325F	345	370	325	350	350	340	315	320	310	310	320	320	320	325	300S	I300S	U320S	310	310
15	F	F	F	I310A	335F	325	325	I295A	I315A	335	U330S	A	A	I285A	315	320	320	325	320	295	300	U315S	320	345
16	325	305	315F	335F	305F	325	W	340	300	315	340	250	I260A	315	310	295	295	I310A	310	295	295	U330C	305	305
17	300	290	300	F	305F	325	295	A	C	340	330	345	350	310	300	315	300	300	300S	I300A	315S	SF	SF	SF
18	315F	290F	285F	320F	310F	310	315	360	345	360	325	325	315	330	325	335	335	315	335	I320S	310	300F	SF	SF
19	S	SF	F	335F	305F	310	335	290	I320A	I330A	I335A	I325A	295	I300A	I305A	310	290	I300A	A	S	S	300S	SF	F
20	F	F	F	F	F	300	325	I285S	330	300	305	I330A	300	315	325	330	325	340	320	I305S	I300S	300	310	300
21	310	315S	305	F	F	305H	290	280	325	310	320	270	300	325	320	310	320	315	315	310	300	310	I310S	330S
22	310	295	320	315	300	295H	350	340	I335A	315	335	335	325	295	300	320	320	340	315	310	305	320	325	305
23	305	305	295	295F	315F	315	305	325	350	350	320	315	320	I305S	315	310	320	335	315	330	335	I340C	I310A	305
24	A	290	300	I305A	300F	340	340	340	365	I340A	330	I320S	I300A	310	I325A	I320A	I325A	325	U325S	315	315	U300S	I295A	I295A
25	A	295F	305F	315F	I315A	280	320	350	355	360	315	275	I335C	320	295	325	330	330	315	U315S	300	315	310	315
26	320	305F	305F	295F	305F	SF	305	350	340	370	I320A	315	295H	310	340	315	310	I310A	300	I300A	SF	A	A	A
27	SF	SF	SF	SF	315F	325F	360	315	360	A	A	A	A	325	325	315	A	A	A	315S	320S	330F	I300C	325F
28	305	315	315	310	315	305	355	I335A	340	335	335	335	335	285	320	305	I325S	I320S	335	300	315	305	SF	315F
29	310	315	305	320	310	360	350	345	345	C	C	C	C	C	C	C	335	305	320	315	I325S	I340S	A	305
30	300	310	305	310	300	340	305	350	340	I335A	320	335	315	320	325	335	320	315	315	U295S	U315S	U330S	340	320
31	320	SF	300F	320F	SF	SF	320	370	370	375	330	300	295	315	330	315	310	310	315	305	I310S	300	315	310
No.	18	16	20	22	22	26	29	29	29	29	29	26	26	29	29	29	29	28	28	27	25	21	17	20
Median	310	300	300F	315F	310F	320	325	340	330	340	330	320	300	310	320	315	320	320	315	310	310	315	310	305
U. Q.																								
L. Q.																								
Q. R.																								

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

The Radio Research Laboratories, Japan

W 7

M(3000)F2

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time (G. M. T. +9h)

0.01

M(3000) F1

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						C	C	C	C	A	A	A	A	A	370	375	385	350	360					
2						360	370	400	400	A	A	A	A	395	I385A	A	I365A	I360A	I370A					
3						345L	I355A	A	390	I395A	I410A	405	395	A	A	A	A	A	A					
4								A	A	A	375	385	385	400	A	A	A	A	A					
5								A	365	A	A	A	A	A	A	370	I365A	A	A					
6						360	I375A	I380A	390	I400A	410	410	390	395	395	A	A	A	365					
7						400	A	A	A	A	400	400	A	A	A	A	A	A	A					
8						400L	A	A	A	A	385	385	400	375	380	360	375	I355A	A					
9							A	A	A	A	I370A	350	380	415	365	I375A	I360A	A						
10						365	340	370	I370A	395	395	385	390	410	I375A	I370A	375	I380A	375					
11							A	A	365	I385A	I400A	420	380	395	370	355	355	A	A					
12						405L	375	I375A	A	I375A	385	I380A	375	370	360	375	375	A	A					
13						350	375	385	I395A	I385A	390	390	385	370		365	365	340	345					
14							A	A	A	415	415	390	385	370	370	380	375	360						
15								A	A	A	A	A	A	I385A	I380A	365	375	350						
16						360	340	I365A	380	395	395	I400A	365	380	355	I370A	I360A	370						
17							A	A	C	380	I395A	365	385	395	A	A	A	350	350					
18						370	395	A	A	A	370	405	385H	380	370L	375	355H	I365A	A					
19							A	A	A	A	A	A	390	I370A	I365A	I360A	350	A						
20						365	I365A	355	I365A	370	I380A	370	I380A	375	I360A	375	375	365	370L					
21						360	360	390	390	400	I380A	385	395	375	380	365	370	350						
22						380L	385	I370A	405	I390A	395	400	405	360	350	A	A	380						
23						350	I360A	370	380	380	415	I400A	I370A	I370S	360	355	360	375L						
24						385L	415L	380	A	A	A	A	I390A	A	A	A	A	A						
25							A	I380A	385	I380A	400	360	365	370	370	A	A	A						
26						340	I385A	375	380	I410A	I415A	420H	370	360	380	365	365	A						
27						I380A	I380A	A	A	A	A	A	A	380	365	375	A	A						
28						385	390	I390A	A	395	395	415	370	380	360	I355S								
29							A	A	A	C	C	C	C	C	C	C	365	370						
30						365		A	A	A	420	420	I390A	370	375	370H								
31						405L	400	380	380	380	400	405	405H	380	385	365	350L	380L						
No.						2	20	18	17	15	20	23	24	25	24	21	22	17	8					
Median						355L	365	375	380	385	395	395	390	380	370	365	370	360	370					
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F1

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

The Radio Research Laboratories, Japan

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

IONOSPHERIC DATA

km 135° E Mean Time (G. M. T. +9h)

h'F2

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						G	G	C	C	A	A	A	A	350	345	340	340	330	300					
2							400	350	310	A	310	360	375	340	380	350	330	1395A	280					
3						365	350	445	360	345	R	R	R	A	A	A	A	A	300					
4							A	A	1310A	320	400	370	360	350	A	A	A	1300A	300					
5							A	300	310	A	305	1335A	335	355	375	400	330	290	320					
6							255	315	350	300	345	360	360	400	415	335	310	1395A	275					
7							225	1245A	1255A	275	275	380	1380A	1375A	1350A	1335A	1315A	A	A					
8							260	250	1305A	290	320	550S	360	310	405	315	320	300	A					
9							260	280	1300A	270	290	320	395	390	320	340	315	300	290					
10						340	345	270	310	320	315	375	415	355	330	335	310	280	270					
11							A	360	420	285	1310A	300	380	450	375	325	300	285	275					
12							255	340	305	1285A	325	340	350	325	340	345	305	A	A					
13							300	270	290	350	310	300	320	380	345		385	315	295					
14							300	300	275	265	300	340	330	360	325	310	290	300	300					
15							A	A	A	280	290	A	A	A	315	300	300	295						
16							W	300	400	360	310	550	A	340	360	395	360	1305A	285					
17							350	A	C	295	315	275	270	370	360	325	350	300	300					
18							350	255	255	260	325	310	325	305	300	310	295	290	270					
19							310	420	1335A	1305A	1315A	A	415	1380A	1370A	350	375	1320A						
20							300	1395S	305	370	350	1320A	380	320	305	315	290	265	270					
21							360	390	315	340	340	460	430	320	340	375	315	300						
22							270	270	1315A	470	300	335	370	400	370	320	290	265						
23							360	300	270	285	370	375	340	S	360	380	310	275						
24							275	250	245	1280A	315	S	1370A	350	A	A	A	290						
25							295	280	275	290	350	450	300	320	375	310	310	320						
26							320	260	270	240	A	350	310H	320	315	325	325	1300A						
27							245	335	260	A	A	A	A	330	410	340	A	A						
28							275	280	1335A	320	320	320	335	420	350	350	1295S							
29								275	290	C	C	C	C	C	C	C	320	300						
30							350		295	1295A	325	310	350	310	310	275	310							
31							250	245	250	260	310	370	360	340	290	300	300	265						
No.						2	24	26	28	26	28	24	25	27	27	26	27	25	14					
Median						350	300	290	305	290	315	345	360	350	350	335	310	300	290					
U. Q.																								
L. Q.																								
Q. R.																								

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

The Radio Research Laboratories, Japan

W 9

h'F2

IONOSPHERIC DATA

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

135° E Mean Time (G. M. T. +9h)

km

h'F

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	A	A	A	A	A	240	230	235	235	265A	265	260A	I260A	I250A	260	
2	280	300	245	225	225	240	235	240	220	A	A	A	A	220	I235A	I225A	I225A	I235A	I245A	I260A	I255A	250	260A	280	
3	I295A	I300A	245A	I265A	315	275	I260A	I245A	235	I230A	I225A	205	230	A	A	A	A	A	A	A	290	285	325	I290A	
4	270	250	200	325	300	260	255H	A	A	A	240	215	220	225	A	A	A	A	A	265	I260A	I275A	I290A	I290A	
5	265	270	300	275	250	250	I245A	250	A	A	A	A	A	A	A	230	I245A	A	A	A	A	A	240	I245A	
6	270	260	290	270	265	265A	215	I240A	I225A	240	I230A	215	195	220	200	A	A	A	A	250	225	255	300	300	
7	265	320A	280	I290A	235	245	220	A	A	A	A	200	A	A	A	A	A	A	A	A	A	A	A	250	
8	295	290	270	255	260	245H	230	A	A	A	A	220	200	210	215	235	235	I245A	A	A	A	A	240	270	
9	265	270	290	270	275	270A	A	A	A	A	A	I210A	225	240	200	260	I235A	I225A	I245A	I245A	I245A	230	I245A	I285A	
10	I300A	285	I295A	I265A	280	250	250	235	I210A	205	210	210	200	200	I250A	I235A	225	I240A	250	250	240	I280A	290A	260	
11	290	285	290	280	260	230	I235A	I225A	235	I240A	I230A	220	215	205	225	220	240	A	A	A	A	A	A	I250A	
12	I255A	270	280	275	250	245	240	245	I245A	I240A	I215A	220	I215A	210	220	220	250	A	A	A	A	A	A	240	
13	250	300	270	275	250	250H	250	220	215	I210A	I210A	210	200	195	240	230	225	250	240	A	A	A	A	245	
14	300	300	305	275	260	225	220H	A	A	200	200	190	200	220	225	225	235	230	260	I260A	255	270A	I280A	275	
15	260	250	260	I260A	250A	250	A	A	A	A	A	A	A	A	I205A	I210A	215	235	245	245	285	270	250	I245A	220
16	290	300	260	250	275	250	225	250	I240A	225	220	225	I200A	230	215	230	I250A	I260A	250	275A	260	260	250	245	
17	250	290	275	260	225	250	A	A	C	240	I215A	220	215	210	A	A	A	250	260	280	A	300	270	275	
18	240	250	260	230	250	250	220	240	A	A	245	200	190H	230	250	215	250H	I270A	A	A	A	I265A	280	300	
19	I300A	290	275	260	350	A	A	A	A	A	A	A	210	I240A	I240A	I240A	250	I250A	I250A	I250A	I225A	I245A	245	225	
20	245	300	265	245	265	250	250	I250A	240	I235A	235	I230A	I220A	220	I240A	220	250	240	250	I270A	260	270	250	280	
21	285	245	250	250	295	265H	240	260	220	215	I240A	215	210	200	225	235	230	240	260	260	I260A	250	I270A	290	
22	I310A	310	270	270	290	250H	240	230	I215A	210	I215A	200	205	205	220	265	I250A	230	260	260A	260	250	245	295A	
23	I295A	285	300	280	280	250	260	I260A	240	210	200	I200A	I225A	225	250	250	250	250A	220H	I260A	255A	I235C	I280A	280	
24	A	305	320	I330A	310	250	250	230	250	A	A	A	A	A	A	A	A	A	A	A	230	250	A	A	
25	A	325A	300	265A	I265A	295	I250A	I240A	210	I215A	210	245	250	230	230	A	A	A	A	A	260	250	I255A	290	
26	250	270	280	285	265	270	250	I240A	250	240	I220A	I205A	190H	240	210	230	245	A	A	A	A	I260A	I245A	I245A	
27	350	350	325	310	265	250	I245A	I230A	A	A	A	A	A	235	240	230	A	A	A	255	I245A	245A	I255C	275A	
28	275	265	270	275	250	290	240	235	I230A	I220A	210	210	200	220	200	250	I245H	250	250	270	I270A	280	240	245	
29	265	280	250	245	260	235	225	A	A	C	C	C	C	C	C	C	250	260	260	A	A	A	A	300A	
30	255	255	250	250	265	250	235	235	A	A	195	200	I195A	250	230	220	215H	240	290A	270	260	245	220	230	
31	245	245	290	280	260	250	235	230	230	210	200	200	195H	200	225	225	260	250	260	255	270	250	260	250	
No.	28	30	30	30	30	29	26	21	17	17	20	23	24	25	24	23	23	20	19	20	22	25	25	29	
Median	270	285	275	270	265	250	240	240	230	220	215	210	210	220	225	230	245	245	250	260	260	250	255	270	
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

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

h'F

W 10

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6'N
Long. 141° 41.1'E

km 135° E Mean Time (G. M. T. + 9h)

f^oEs

Aug. 1965

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

The Radio Research Laboratories, Japan

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

f^oEs

W 11

Lat. 45° 23.0'N
Long. 141° 41.1'E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time (G.M.T. + 9h)

Types of Es

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1																									
2	f2	f2		f	1	1			c	e3	e2	e3	1	12	h 1	12	1	12	12	e2	f2	f4	f2	f2	
3	f4	f4	f2	f2f2	12	h2	e3	e2	c	e2	e2	e2	c	c	e2	e2	h	e2	e2	e2	f2	f2	f2	f3	
4	f2	f2	f	f	1	h	h	e3	e2	e2	e2	e	1	c 1	e 1	e2 1	e3	e3	e2	c	f2	f3	f3	f2	
5	f	f	f	f	1	c	e2	e	c	e3	e2	e2	e2	e2	1	1	1	e	e2	e3	f	f2	f	f4	
6	f2	f2	f2	f	1	e2	e	e2	e2	e2	e2	12	1	1	c	c	e2	e5	12	1	f	f2	f2	f2	
7	f	f2	f2	f	1	1	h	e2	12	12	12	1	12	12	12	12	12	12	13	f2	f2	f2	f4	f2	
8	f	f2	f	f			h	e2	e2	e2	e2	c	c	c	e2	e2	c	e2	e3	e2	f2	f	f		
9						e2	e2	e2	e2	e2	e2	1	1	h	h	h	h	e	e2	e2	f2	f2	f2	f2	
10	f2	f	f2	f2	c 1	c	12	1	e2	1	1				c	c	c	e3	c			f2	f2	f2	
11	f		f	f	1	c	e2	c	c	e2	e2	1	12	1	c 1		h	e4	e4	e6	f2	f2	f2	f4	
12	f3	f	f	f2	1	c	c	c	c	e2	e2	1	12	1	c 1		e 1	e3	e3	f3	f2	f2	f3	f	
13		f		f	1	e2	e2	c	c	e2	12	1	1	1	1	1	13	12	1	f2	f6	f2	f2	f	
14	f2	f2	f	f	1	1	c	e2	e2	1	1	1	1	1	1	1	e 1	1	e2	f5	f4	f2	f4	f2	
15	f		f2	f2	13	c	e2	e3	e2	e2	c	e3	12	1	e2	1	1	1	c	f2	f3	f2	f4	f	
16	f2	f2		f	1	c	h	c	e3	e2	c	e2	c3	1	h	h	c	e3	12	f2	f				
17	f		f	f			e2	e3		c	c	c	1	12	1	13	12	1	1	1	f2	f	f2	f2	
18							c	c	c	e2	c	c	1	1	1	e	e2	e2	e3	f2	f2	f2	f2	f2	
19	f2	f2	f	f	13	c	e2	e2	c	c	e2	c	1	12	13	12	h	e4	e4	f2	f2	f2	f	f	
20	f	f2	f2	f	c	h	c	e2	c	e2	c	e2	c	1	12	1	1	e	e3	e3	f2	f2	f2	f2	
21	f2					h	h	h	h	c	c	c			c	c	h	h	c	f4	f2	f2	f3	f	
22	f3	f	f	f	c				12	1	12	12	1		h	h	e2	c	e3	f3	f2	f2	f	f2	
23	f2	f	f		1	1	e2	e3	c	1	1	1	12	h	c 12	c 12	e 1	e 1	f4	f4	f2		f3	f	
24	f2	f2	f2	f	12	c	12	1	c	e2	e2	c	c	e2	e2	e2	12	e3 1	e4	f2			f2	f4	
25	f2	f2	f	f	e2	e2	e2	e2	1	1	c	1	12	12	h	h	e2	e2	e3	f2	f2	f	f2	f2	
26	f					c	c	c	e2 ^{sp}	12	12	e2	1	c	h	h	h	e2	e2	f2	f5	f3	f2	f2	
27	f2	f2	f2	f	f	c	e2	e2	e2	e2	e2	12	12	1	12	e2 12	e2 12	e2 1	e4	f2	f4	f2	f2	f2	
28	f	f	f	f2	f	e2	c	c	e4	e2	c	1	1				h	e2	f2	f4	f4	f2	f2		
29	f2	f2				h	c	e3	e2								c 1	c	e3	f2	f2	f3	f4	f2	
30				f	f	c	c	c	e2	e2	c	e2	12	1	1	1		1	13	f2			f	f	
31	f	f	f	f	f	c	c	c	c	c	c	c	1		1	13	13	12	c	f			f	f	
No.																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G.M.T. + 9h)

foF2

Aug. 1965

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	FS	FS	FS	FS	041	046	I046R	053	067	I052R	I048A	I051A	059	058	050	047	048	050	I056A	053	A	RS	A	
2	A	FS	FS	F	F	038S	045	056	066	052H	061Z	054	I053A	055	I060A	058	060	073S	068	066	059S	FS	I058R	052S	
3	049S	046F	038F	I039A	I035R	I035A	I040A	056	I060A	059	A	A	R	051	C	C	C	C	C	C	C	C	C	C	
4	C	C	C	C	C	C	C	C	C	C	I057A	I058A	I058A	059	058	054	058	050	052	A	FS	FS	F	FS	
5	FS	043F	F	F	039F	036	049	064	059	058	052H	062H	062V	058	050H	050	059	053	056	062	FS	FS	FS	A	
6	A	RS	FS	040F	041F	044F	045	I055A	072	I066A	054	I053A	055	054	056	061	A	A	A	A	A	FS	FS	FS	
7	FS	A	FS	044F	FS	048F	059F	054F	056H	I059R	059	052	053	057	056H	059	066	056	053	061F	061	FS	FS	FS	
8	FS	FS	FS	FS	FS	046S	055	065	059	052	065	I059A	056	060	060	061	067	067	069	076	069S	056	054	048S	
9	041S	FS	FS	FS	038F	FS	051	059	072	064	058	C	C	C	C	C	C	C	C	C	C	C	C	C	
10	FS	FS	FS	045F	FS	I038A	054	057	060	054	051	052	056	062	I062A	I065A	066	069	072	064	054	050	RS	FS	
11	RS	RS	043F	FS	FS	046F	047	054	060	067	I061A	058	054	054	060	068	076	065	062	I057R	FS	060F	FS	FS	
12	R	A	FS	FS	FS	043F	054F	054F	071	067	I061A	060	057	I058A	057	057	062	I056A	058	I078R	RS	A	RF	FS	
13	FS	FS	FS	FS	F	F	059	I058A	I057A	061	060	060	053H	051	050	050	051	I058C	065	075S	074S	FS	A	FS	
14	FS	A	FS	034F	F	041S	053	050	060	064	053	057	057	058	063	065	068	064	055	070	067	062	FS	FS	
15	FS	FS	049F	044S	034	038	050	057	066	I070A	057	065	060	058	059	065	058	052	050	057	066	FS	FS	041F	
16	034	FS	A	RS	029S	034	042	055	053	I055C	051	050	048	053	056	049	055	I056A	055	066S	FS	058F	053F	FS	
17	FS	FS	044F	035S	034F	035	046	050	058	I064A	062	060H	056	051	060	I061A	060	064	074	I078R	I078R	062S	054F	RS	
18	FS	FS	048F	044F	033	035	052	058	060	050H	049	062	068	070	062	057	062	062	060	065	057	050S	FS	FS	
19	FS	FS	036F	035F	037F	FS	044	I050A	061	I052A	I050A	050	I054A	058	058	063	060	061	076	RS	FS	FS	FS	040	
20	039	FS	FS	FS	F	044	048	056	063	066F	056	064	061	068	057	061	059	061	058	068	065F	F	054S	051	
21	049	046F	041	039	034F	036F	043	060H	I072R	061	055H	048	051	060	057	052	056	051	061	070	054	049S	047S	040S	
22	041S	040F	041F	034F	030S	033	044	055	I056A	055	055H	053	049	051	048	058	059	I056A	056	061	F	053	050S	046F	
23	F	035	033	034F	033	034	048	I054A	061	060	048	046	051	055	055	053	052	051	I058A	I068A	061	FS	FS	032	
24	I031A	031	030	031	028F	031	045	054H	054	I058A	I058A	047	056	064	062	057	065	068	072	057	046	041S	039	036S	
25	F	FS	FS	FS	F	041F	057F	065S	053	053	058	052	060	056	057	056	062	053S	056	064	059	058	051	044F	
26	045F	036	036F	038F	037F	036F	051	I068R	061	063	057	057	053	061	060	051	052	049	059	067F	I065R	FS	FS	A	
27	FS	FS	FS	FS	FS	039F	046	I051A	I053R	C	C	C	C	058	048	I049C	050	049	059	RS	RS	054S	I048A	041S	
28	036F	F	035F	034F	036F	039S	050	059	047H	053	057	061	051	055	049	054	058	056	049	058	062	058	FS	FS	
29	040S	039F	034	034S	033F	035F	048	053H	058	055	050	051	054	054	056	I054A	057	I058A	059	RS	A	FS	A	A	
30	A	A	036S	I038R	F	041S	046	055S	055	053H	056	055	054	058	058	I053A	056	051	I055A	F	RS	FS	FS	FS	
31	039	040S	FS	F	F	F	058S	054	060	056	056	050	056	060	067	067	063	060	069	072S	069	069	061F	055	
No.	11	9	14	17	17	26	30	30	30	29	29	28	28	30	29	29	28	28	28	23	18	14	11	12	
Median	040	040F	037F	038F	034F	038	048	055	060	058	056	054	054	058	058	057	059	059	056	058	066	062	057	053	042
U. Q.	045	044	043	042	037	041	053	058	061	064	058	060	057	060	060	061	062	063	066	070	067	060	054	050	
L. Q.	036	036	035	034	033	035	045	054	056	054	052	050	052	054	056	052	056	052	055	061	057	050	048	040	
Q. R.	009	008	008	008	004	006	008	004	005	010	006	010	005	006	004	009	006	011	011	009	010	010	006	010	

The Radio Research Laboratories, Japan

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

foF2

A 1

Lat. 39° 43.5'N
Long. 140° 08.2'E

IONOSPHERIC DATA

Akita

0.01 Mc 135° E Mean Time (G.M.T. +9h)

foF1

Aug. 1965

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							360L	L	390A	I410A	I430A	A	A	A	430A	420	400	I360A	A					
2					L		360	390	410	440	440	I440A	A	A	A	420	390	360	L					
3						C	A	390	I390A	A	A	A	430R	430R	C	C	C	C	C					
4							C	C	C	C	I430A	A	A	A	440A	430	400	390	L					
5							360	390	410	I420A	430H	430	440	450	450	420H	410	400	A					
6							A	A	A	A	440	I450A	440	450	420	A	A	A	A					
7					A		L	380L	420	L	I440A	450	440H	440H	410	420	350L	A						
8					L		L	L	410L	440	450	I450A	430	430	420	400	370	L						
9							L	400	430	430	A	C	C	C	C	C	C	C						
10							A	A	410A	430	430L	440	440	430	A	A	A	A						
11							I360A	L	I400A	I440A	I440A	440A	450	450	430	420	400	360	L					
12							L	420	I430A	440A	I450A	I440A	I450A	A	A	A	I400A	I370A	L					
13							A	A	420	440	440	440	440	440	430	L	400	I360C	L					
14					L		L	L	I410A	430	460	450	450	450	I440A	430	410H	360L	A					
15							L	400	A	A	I440A	440	440	I450A	420	410	390	360L	L					
16							A	370	400	I420C	420	430	430	430	420	420	A	A	L					
17							340L	I380A	400A	I420A	430	430	440	430	410	I410A	380A	I340A	290					
18							L	L	400	450L	440L	440	I440A	I430A	440	410	390	360L	L					
19							A	A	A	I430A	I440A	430	A	A	430H	420	390	A	L					
20							350L	370	400	420	430	430	430	420	430A	I410A	400L	L	L					
21							L	360	380	420	430	I4	430	430	430L	420	400	A	L					
22							L	L	I390A	I410A	430	I440A	430	420	430	400A	400	A	L					
23							L	A	410	I420A	420	430L	L	430	410	390	A	A	A					
24							L	A	410	I420A	I420A	430	420	420	430A	I400A	390A	A	A					
25							A	L	400	430	I430A	440	430	430	420	420	A	A	A					
26							L	390	400	420	430	430	440	I430A	420	410	400	370L	L					
27							L	A	I400A	C	C	C	C	A	L	C	460L	340L	A					
28							L	I370A	I400A	420A	430	I440A	440H	430	430	410	400	L						
29							L	L	400	410	I420A	440	430	430	420	I410A	A	A						
30							390L	A	430	430A	I430A	410A	430A	420	A	A	A	A						
31							A	A	400	420	420	440	I430A	430	I420A	410	390L	L						
No.							6	14	25	25	27	25	25	24	25	23	22	15	1					
Median							360L	390	400	420	430	440	440	430	430	410	400	360	290					
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

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

foF1

IONOSPHERIC DATA

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

0.01 Mc 135° E Mean Time (G.M.T. +9h)

f_oE

Aug. 1965

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	205	A	A	A	A	A	A	A	A	A	A	A	A					
2						E	215	255	A	A	310	I320A	330	335	I350A	305	285	A	A					
3						E	A	A	A	A	A	A	A	A	C	C	C	C	C					
4						C	C	C	C	C	A	A	A	A	A	305	280	250	A					
5						E	A	A	A	305	A	A	A	A	A	300	295	255	A					
6						E	A	A	A	A	A	A	A	A	A	A	A	A	A					
7						A	225	I260A	A	A	A	A	A	340	I320R	305	290	250	A					
8						E	A	A	A	A	A	A	A	A	A	A	A	A	A					
9						E	205	A	A	A	A	C	C	C	C	C	C	C	C					
10						E	A	A	A	A	A	A	A	I340A	320	300	270	240	A					
11						E	A	255	280	A	A	A	A	A	A	315	280	A	A					
12						E	210	255	I290A	310	A	A	A	A	A	A	A	A	A					
13						E	A	A	A	A	A	A	A	A	A	A	275	I230C	A					
14						E	A	A	A	A	A	A	A	A	A	A	A	A	A					
15						E	A	A	I300A	I320A	I330A	A	A	A	A	A	A	A	A					
16						E	A	A	A	C	A	A	A	A	A	295	265	235	A					
17						E	A	255	A	A	A	A	A	A	A	A	A	A	A					
18						E	A	A	A	A	A	A	A	A	I315A	300	270	A	A					
19						A	245	A	275	A	A	A	A	A	320	310	A	A	A					
20						E	A	A	295	A	A	A	A	A	A	A	A	A	A					
21							200	255	A	A	A	A	A	330	320	295	260	A	A					
22							A	A	A	A	A	A	A	A	310	300	265	A	E					
23							A	A	A	A	A	I325A	330	330	305	295	265	A	E					
24							A	A	A	A	I315A	325	325	320	300	A	A	A	A					
25							A	A	A	A	A	A	A	A	A	295	I270A	230A	A					
26							A	A	A	A	A	A	330	325	I315A	300	A	A	E					
27							A	A	A	C	C	C	C	A	A	C	A	A	E					
28							A	A	A	A	A	A	A	R	A	A	A	215	E					
29						E	A	I245A	A	A	A	A	A	A	A	A	A	A	A					
30							A	230	265	305	I310A	310	A	A	A	A	A	A	E					
31							A	A	255	A	A	A	A	A	A	A	A	A	E					
No.					18		6	9	7	4	4	4	4	7	10	14	13	8	7					
Median					E		210	255	280	310	U310A	U320A	330	330	320	300	270	240	E					
U. Q.																								
L. Q.																								
Q. R.																								

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

The Radio Research Laboratories, Japan

f_oE

A 3

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G. M. T. + 9h)

foEs

Aug. 1965

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	J063	J036	J036	J025	J023	J019	J035	J038	J041	J059	J061	J054	J073	J060	J060	J037	J032	J042	J049	J061	J030	J078	J059	J043
2	J071	J023	J039	J030	J023	J018	J028	J034	J038	J039	J046	J046	J064	J048	J069	J060	J035	J030	J030	J030	J022	J036	J105	J060
3	J038	J024	J050	J045	J051	J035	J058	J060	J105	J060	J103	J088	041	J046	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	J026	J028	J024	E	J024	J021	J033	J050	J059	J069	J052	J036	J056	J050	J036	J038	J040	J035	J057	J055	J050	J035	J063	J061
6	J069	J039	J025	J035	J018	J019	J041	J069	J077	J126	J078	J071	J064	J065	J052	J056	J138	J181	D	D	J137	J083	J060	J060
7	J060	J059	J038	J018	J040	J040	J038	J038	J035	J100	J058	040	J038	J034G	029G	029G	032	G	J068	J053	J047	J041	E	J050
8	J065	J018	J018	J023	J030	J024	J030	J030	J053	J061	J119	J118	J063	J039	J037	J078	J058	J063	J063	J033	J020	J035	J031	J025
9	J035	J018	J018	J018	E	J016E	026	J049	J055	J050	J097	C	C	C	C	C	C	C	C	C	C	C	C	C
10	J036	J049	J021	J025	J018	J036	J043	J064	J064	J051	J035	040	J039	J053	J091	J085	J057	J055	J053	J036	J017	J015E	J029	J043
11	J060	J055	J024	J033	J028	J018	J037	J033	J052	J057	J110	J049	J038	J050	J046	J029G	J060	J033	J030	J083	J060	J060	J031	J056
12	J086	J056	J049	J059	J028	J023	J030	J039	J050	J047	J065	J077	J060	J075	J066	J091	J052	J065	J025	J041	J060	J110	J064	J038
13	J053	J039	J031	J025	J024	J025	J071	J087	J063	J048	J038	J040	035	J061	J038	J032	J031	C	J023	J018	J016E	J064	J119	J113
14	J066	J046	J020	J027	J018	J024	028	J035	J052	J047	J061	J076	J034	J050	J051	J038	036	J029	J062	J073	J073	J063	J025	J050
15	J035	J020	J025	J028	J020	J019	026	J038	J078	J138	082	J081	J075	J092	J059	J035	J038	J035	J029	J035	E	J035	J042	J023
16	J019	J028	J056	J034	J031	019	J038	037	J043	C	J038	J045	J044	J036	J036	035	J046	J120	J064	J090	J060	J048	J025	J020
17	J021	J018	J033	J015E	J019	019	J037	J047	J056	J073	J080	J045	J046	J036	J050	J065	J061	J061	J030	J028	J023	J026	J058	J020
18	J046	J024	J023	J042	J033	023	J038	J036	035	J036	J038	J049	J063	J049	J052	031	030	030	J023	J034	J035	J035	J025	J045
19	J023	J033	J016E	J025	J023	J028	J038	J051	J056	J118	J136	035	J060	J056	035	033	J063	J061	J035	J120	J064	J018	J060	J035
20	J019	J018	J031	J015E	J013E	J016E	028	J035	J032	J036	J051	037	J039	J056	J063	J079	J051	J035	J045	J031	J060	J045	J024	J014E
21	E	J020	E	E	J015E	E	022	0	J043	J055	J052	J035	J034	038	G	J046	J038	J039	020	E	J013E	J017	J048	J063
22	J035	J035	J035	J035	J030	J024	027	J041	J062	J048	J060	J064	036	034	036	J065	J105	J098	020	J063	J063	J028	J041	J057
23	J035	J025	J019	J018	J022	J019	025	J080	J060	J055	J048	J039	G	040	038	040	J042	J086	J105	J064	J064	J026	J029	
24	J050	J038	J035	J028	J035	J021	028	J043	J050	J058	J068	037	041	042	J044	J061	J063	J040	J039	J019	J020	J023	E	J023
25	J018	J051	J034	J028	J028	J045	J038	J038	J042	J052	J065	J059	J058	J036	037	041	042	J085	J065	J068	J042	J036	J016E	J053
26	J035	J036	J019	J018	E	J018	026	J043	J064	J065	J036	038	035	J060	J040	039	J037	J064	J084	J060	J060	J060	J038	J059
27	J030	J026	J031	J026	J015E	J025	J028	J060	J060	C	C	C	C	J051	J037	C	J051	027	J049	J060	J083	J050	J049	J046
28	J025	J033	J025	J029	J018	J018	030	J043	J045	J058	J062	J049	034	C	031	029	J030	026	019	J031	J040	J034	J060	J032
29	J025	J018	J016E	E	J015E	018	026	J041	J040	J053	J051	J041	J041	J038	J036	J057	J102	J136	J134	J114	J085	J080	J053	J077
30	J071	J060	J025	J025	J017	J018	026	J038	J046	J059	J055	J056	J056	J046	031	J058	J050	035	J060	J075	J086	J083	J050	J018
31	J025	J035	J015E	J025	J018	J020	J033	J060	J045	J060	J060	J047	J055	J052	J062	J051	J029	028	J038	J049	J036	J030	J028	J037
No.	30	30	30	30	30	30	30	30	30	28	30	29	29	30	29	28	29	28	29	29	29	29	29	29
Median	J035	J033	J025	J025	J022	J020	030	J041	J052	J058	J060	J046	J044	J050	J040	J040	J046	J040	J045	J055	J050	J036	J042	J045
U. Q.	060	039	035	030	028	024	038	051	060	063	078	068	062	056	056	060	060	064	064	078	064	064	060	059
L. Q.	025	023	019	018	018	018	027	037	043	049	051	040	037	038	036	034	036	030	030	032	022	032	026	028
Q. R.	035	016	016	012	010	006	011	014	017	014	027	028	025	018	020	026	024	034	034	046	042	032	034	031

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

The Radio Research Laboratories, Japan

foEs

IONOSPHERIC DATA

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

0.1 Mc 135° E Mean Time (G. M. T. + 9h)

f_oF₂

Aug. 1965

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	029	025	E	E	017	034	035	039	045	050	A	A	045	043	033	030	040	031	A	026	A	017	A	
2	A	E	018	E	E	017	028	030	035	047	037	043	A	046	A	040	032	026	028	027	E	030	018	018	
3	017	E	022	A	026	A	A	030	A	053	A	A	041	038	C	C	C	C	C	C	C	C	C	C	
4	C	C	C	C	C	C	C	C	C	C	A	A	A	050	044	034	034	026	029	A	040	018	E	E	
5	E	017	E	E	E	018	030	033	039	049	035	035	040	039	035	028	038	033	051	052	E	035	018	A	
6	A	039R	020	019	E	017	041	A	045	A	042	A	042	039	036	045	A	A	A	A	A	047	029	031	
7	050	A	026	018	033	019	027	027	033	043	046	039	038	030G	027G	028G	030	039	039	039	047R	040		025	
8	040	E	E	E	E	020	018	024	038	039	038	A	038	034	035	035	033	032	025	018	E	E	018	017	
9	020	E	E	E	E		025	032	037	032	046	C	C	C	C	C	C	C	C	C	C	C	C	C	
10	E	E	E	E	E	A	040	040	041	041	035	037	036	037	A	A	045	035	050	030	E		029	027	
11	017	028	020	025	E	E	039	032	044	048	A	044	035	034	034	028G	023	027	025	017	045	E	E	043	
12	E	A	028	018	E	020	027	039	045	043	A	049	051	A	045	052	043	A	020	040	040	A	021	018	
13	027	033	018	E	E	017	034	A	A	036	034	035	034	035	036	032R	022	C	019	E		040	A	E	
14	E	A	E	E	E	E	024	034	052	040	039	041	034	034	046	033	030	029R	044	050	038	025	E	E	
15	020	E	017	017	E	E	024	033	054	A	049	055	040	053	039	033	033	024	022	032		017	027	E	
16	E	017	A	020	018	E	038R	034	039	C	034	035	041	034	034	034	040	A	023	018	018	018	017	E	
17	E	E	017		E	018	032	043	040	A	040	036	038	034	035	A	038	040	020	017	E	018	018	030	
18	E	018	E	E	E	021	028	031	032	035	035	039	059	048	035	031	030	030	021	019	034	025	E	021	
19	018	E	E	018	E	018	038R	A	052	A	A	035	A	050	033	G	030	051	024	020	040	E	026	025	
20	E	E	017		E	025	030	030	030	033	034	036	036	041	043	056	030	024	021	022	E	023	E		
21	E	E				G			034	037	036	034	034	035		041	037	038	019		E	018	018		
22	020	021	018	E	024	018	025	036	A	048	038	050	035	034	035	040	030	A	018	018	040	025	033	025	
23	030	E	E	E	E	E	024	A	034	047	038	034		038	036	038	042	038	A	A	027	023	020	018	
24	A	025	020	023	019	E	028	039	035	A	A	036	038	039	043	049	039	038	038	E	017	022		E	
25	E	019	019	018	E	024	037	035	038	039	050	037	036	034	035	033	039	044	049	050	018	020		023	
26	018	022	E	E	E	E	024	038	035	035	033	037	035	050	038	038	031	030	018	E	E	029	032	A	
27	E	E	023	022		E	029	A	045	C	C	C	C	045	038	C	030	021	040	018	046	034	A	026	
28	018	023	018	E	E	E	027	040	042	042	036	045	034		031	029	026	025	018	030	026	022	040	E	
29	017	E				017	023	035	032	033	044	035	035	034	033	A	045	A	038	022	A	044	A	A	
30	A	A	A	018	025	E	026	031	040	035	043	045	041	043	031	A	045	024	A	017	040	032	033	E	
31	019	E			E	E	029	050	039	034	035	034	045	041	033	036	027	023	030	E	020	021	017	E	
No.																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

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

The Radio Research Laboratories, Japan

A 5

27

f_oF₂

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G. M. T. +9h)

f-min

Aug. 1965

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	E	E	E	017	019	017	018	017	017	E	017	E	E	E	E	E	E
2	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	E	017	E	E	E	E	E	E	E
3	E	E	E	E	E	E	017	E	017	017	017	017	018	017	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	E	E	019	017	017	018	017	017	017	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	017	E	017	E	E	E	E	E
6	E	E	E	E	E	E	017	E	017	017	017	017	018	017	017	017	017	E	E	E	E	E	E	E
7	E	E	E	E	E	017	017	E	017	017	017	018	017	018	017	017	017	E	E	E	E	E	E	E
8	E	E	E	E	E	E	017	E	E	017	017	017	017	017	017	017	017	E	E	E	E	E	E	E
9	E	E	E	E	E	E	017	E	017	E	017	C	C	C	C	C	C	C	C	C	C	C	C	C
10	E	E	E	E	E	E	E	E	E	017	017	017	021	017	017	017	017	E	E	E	E	E	E	E
11	E	E	E	E	E	E	E	E	E	017	017	018	017	017	017	017	017	E	E	E	E	E	E	E
12	E	E	E	E	E	E	E	E	E	017	017	018	018	017	017	017	E	E	E	017	E	E	E	E
13	E	E	E	E	E	E	017	E	E	E	017	017	018	E	017	E	E	C	E	E	E	E	E	E
14	E	E	E	E	E	E	E	E	017	E	E	017	018	017	017	017	E	E	E	E	E	E	E	E
15	E	E	E	E	E	E	017	017	017	017	017	017	017	017	017	017	017	E	E	E	E	E	E	E
16	E	E	E	E	E	E	E	E	E	C	E	017	017	017	017	E	017	E	E	E	E	E	E	E
17	E	E	E	E	E	E	017	017	017	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E
18	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E
19	E	E	E	E	E	E	017	E	017	017	017	017	018	017	017	017	017	E	E	017	E	E	E	E
20	E	E	E	E	E	E	E	E	017	017	017	018	017	017	017	017	017	E	E	E	E	E	E	E
21	E	E	E	E	E	E	017	E	E	017	017	017	017	017	017	E	017	E	E	E	E	E	E	E
22	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	E	E	017	017	018	017	017	017	017	E	E	E	E	E	E	E	E
26	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	E	E	C	C	C	C	017	017	C	E	E	E	E	E	E	E	E
28	E	E	E	E	E	E	E	017	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	E	E	017	E	017	017	017	017	E	E	E	E	E	E	E	E	E
30	E	E	E	E	E	E	017	E	E	017	E	017	017	017	E	017	E	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	E	E	017	017	017	017	017	E	E	E	E	E	E	E	E	E	E
No.	30	30	30	30	30	30	30	30	30	29	30	29	29	30	29	28	29	29	29	29	29	29	29	29
Median	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation The Radio Research Laboratories, Japan A 6

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

135° E Mean Time (G. M. T. + 9h)

0.01

Aug. 1965

M(3000) F2

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	FS	FS	FS	FS	325	350	I300R	315	365	I110A	I20A	I110A	320	330	325	310	315	330	I325A	320	A	RS	A
2	A	FS	FS	F	F	290S	315	325	355	310H	315Z	355	I280A	300	I110A	300	305	320S	350	315	315S	FS	I290R	310S
3	295S	305F	335F	I290A	I305R	I300A	I290A	295	I310A	330	A	A	R	275	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	FS	310F	F	F	315F	310	305	350	340	320	315H	320H	325V	320	290H	290	345	310	310	A	FS	FS	FS	A
6	A	RS	FS	305F	310F	335F	295	I320A	340	I350A	315	I300A	310	290	290	315	A	A	A	A	A	FS	FS	FS
7	FS	A	FS	290F	FS	325F	350F	340F	320H	I330R	330	350	295	310	295H	310	305	330	305	300F	300	FS	FS	FS
8	FS	FS	FS	FS	FS	320S	335	350	355	320	330	I310A	280	300	315	305	320	330	305	320	330S	305	300	305S
9	300S	FS	FS	FS	FS	FS	FS	305	325	340	315	C	C	C	C	C	C	C	C	C	C	C	C	C
10	FS	FS	FS	305F	FS	I320A	335	315	335	310	320	310	290	315	I300A	I305A	310	320	340	330	300	290	RS	FS
11	RS	RS	300F	FS	FS	325F	340	315	320	350	I330A	325	285	280	290	310	330	330	340	I310R	FS	310F	FS	FS
12	R	A	FS	FS	FS	320F	315F	295F	325	320	I330A	310	305	I300A	305	305	330	I320A	315	I310R	RS	A	RF	FS
13	FS	FS	FS	FS	F	F	360	I360A	I330A	340	335	340	335H	315	270	275	295	I315C	315	315S	325S	FS	A	FS
14	FS	A	FS	315F	F	325S	355	330	335	370	305	320	305	310	315	325	310	330	295	315	320	285	FS	FS
15	FS	FS	315F	320S	310	315	315	320	320	I340A	320	320	325	300	315	325	340	340	305	290	310	FS	FS	330F
16	310	FS	A	RS	305S	300	I290A	320	325	I345C	320	290	275	295	325	285	320	I325A	315	315S	FS	305F	300F	FS
17	FS	FS	290F	305S	305F	325	330	300	335	I330A	335	320H	320	265	305	I310A	300	305	310	I300R	I330R	325S	315F	RS
18	FS	FS	305F	305F	300	305	340	355	345	295H	290	305	310	325	320	315	325	330	335	330	335	305S	FS	FS
19	FS	FS	310F	310F	315F	FS	320	I350A	360	I330A	I310A	300	I300A	320	310	315	325	285	305	RS	FS	FS	FS	315
20	290	FS	FS	FS	F	340	295	315	315	335F	300	320	320	340	320	320	325	330	300	315	305F	F	310S	290
21	305	295F	315	320	295F	290F	270	290H	I345A	330	335H	305	285	305	305	300	350	315	315	335	315	290S	305S	305S
22	300S	300F	305F	305F	310S	305	320	345	I350A	335	335H	310	300	325	275	320	320	I330A	320	315	F	315	305S	310F
23	F	300	290	310F	310	295	320	I320A	355	335	315	300	285	300	335	335	330	330	I315A	I330A	345	FS	FS	315
24	I310A	295	285	315	300F	340	345	325H	325	I320A	I340A	305	305	310	320	280	305	335	340	345	320	305S	310	330S
25	F	FS	FS	FS	F	310F	325F	370S	345	330	360	295	330	315	290	300	345	325S	325	300	315	320	315	305F
26	325F	295	295F	285F	310F	315F	330	I350R	355	350	335	325	280	330	320	345	310	305	305	315F	I330R	FS	FS	A
27	FS	FS	FS	FS	FS	310F	335F	360	I350R	C	C	C	C	325	300	I310C	310	310	310	RS	RS	305S	I305A	305S
28	305F	F	305F	310F	310F	315S	340	380	325H	330	350	355	295	320	290	305	320	350	310	305	330	335	FS	FS
29	305S	310F	310	305S	335F	335F	330	350H	325F	365	365	310	305	315	315	I310A	325	I320A	315	RS	A	FS	A	A
30	A	A	315S	I305R	F	345S	370	340S	360	335H	345	340	310	320	315	I310A	330	315	I295A	F	RS	FS	FS	FS
31	310	305S	FS	F	F	F	360S	350	365	360	350	320	320	305	310	305	315	305	310	310S	305	315	310F	315
No.	11	9	14	17	17	26	30	30	30	29	29	28	28	30	29	29	28	28	28	23	18	14	11	12
Median	305	300F	305F	305F	310F	320	330	340	330	330	330	320	305	310	310	310	320	320	320	315	320	305	305	310
U. Q.																								
L. Q.																								
Q. R.																								

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

The Radio Research Laboratories, Japan

A 7

M(3000) F2

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

M(3000)F1 0.01 135° E Mean Time (G. M. T. +9h)

Aug. 1965

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	I380A	I390A	I400A	A	A	A	A	390	365	I350A	A					
2					L	345	370	370	410	415	A	A	A	A	A	A	A	375	370	L				
3						A	360	I375A	A	A	A	A	415R	C	C	C	C	C	C	C				
4					C	C	C	C	I420A	I420A	I420A	A	A	A	I390A	365	360	360	L					
5						340	385	I380A	I420A	435H	435	400	415	395	370H	370	350	A						
6						A	A	A	A	A	400	I410A	405	365	385	A	A	A	A					
7						L	410L	410	L	I440A	385	400	410H	360H	400	360	390L	A						
8					L	L	L	L	380L	405	435	I400A	400	395	375	360	360	L						
9						L	L	L	370	400	A	C	C	C	C	C	C	C	C					
10						A	A	A	I400A	400L	390	385	395	A	A	A	A	A	A					
11						I360A	L	I370A	I380A	I415A	I430A	405	380	370	360	355	370	L						
12						L	A	A	A	A	A	A	A	A	A	I360A	I370A	L						
13						A	A	A	415	405	385	390	400	375	L	355	I350C	L						
14					L	L	L	L	I390A	395	395	405	420	I375A	355	360H	365L	A						
15						L	L	L	375	A	A	I400A	390	I390A	415	370	370	365L	L					
16						A	365	I370A	I405C	405	400	410	405	370	365	A	A	A	L					
17						A	A	A	A	380	415	415	410	375	A	A	A	355						
18						L	L	L	385	370L	385L	365	A	A	365	365	365	L						
19						A	A	A	A	A	I400A	435	A	A	375H	370	355	A	L					
20						345L	370	360	380	375	385	390	I370A	I370A	365	370L	L	L						
21						L	400	I390A	370	375	IH	395	370	365L	I355A	375	A	L						
22						L	L	L	A	A	370	I385A	410	410	360	I355A	365	A	L					
23						L	A	A	350	I400A	405	410L	L	370	365	A	A	A	A					
24						L	A	A	365	I370A	I390A	395	A	A	A	A	A	A	A					
25						A	L	L	390	365	I400A	410	350	370	375	350	A	A	A					
26						L	I385A	385	405	430	405	390	I370A	355	370	360	350L	L						
27						L	A	A	I380A	C	C	C	C	A	C	C	355L	A						
28						L	I390A	I385A	I395A	370	I385A	405H	395	365	355	345	L							
29						L	L	L	395	425	I405	405	410	375	375	A	A	A						
30						370L	A	A	395	I410A	I400A	I410A	I380A	360	A	A	A	A						
31						A	A	A	A	385	405	400	A	A	A	370	370L	L						
No.						4	12	20	21	26	23	20	21	22	18	20	14	1						
Median						345	370	380	395	400	400	400	395	370	365	360	360	355						
U. Q.																								
L. Q.																								
Q. R.																								

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

The Radio Research Laboratories, Japan

A 8

M(3000)F1

IONOSPHERIC DATA

L.A. 39° 43.5'N
Long. 140° 08.2'E

Akita

135° E Mean Time (G. M. T. + 9h)

km

h'F2

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						275	290	340	340	250	325	I350A	I370A	315	300	350	350	325	280					
2					370L	345	300	250	360	330	290	A	A	370	I330A	345	345	275	245					
3						A	345	I300A	305	A	A	A	580	420	C	C	C	C	C					
4						C	C	C	C	C	I335A	A	A	A	A	305	355	280	325	295				
5						345	260	290	335	355	310	300	315	395	405	305	325	325	A					
6						A	I300A	265	I245A	250	A	350	385	380	310	A	A	A	A					
7					280	245	250	270	280	305	300	400	355	355	340	310	260	300	300					
8					255	255	250	260	310	300	A	405	355	320	345	300	280	285	285					
9						325	300	245	290	340	C	C	C	C	C	C	C	C	C					
10						280	340	280	350	325	360	385	340	I350A	I330A	305	280	255	255					
11						240A	270	295	280	I300A	325	405	425	365	305	280	280	245	245					
12						300	355	280	300	A	345	I355A	I350A	350	I335A	290	I300A	275	275					
13						230	I250A	I265A	290	300	300	320	350	470	L	270	I310C	280	280					
14					245	250	280L	285A	250	375S	345	350	345	335	300	295	275	A	A					
15						280	280	305	I290A	320	340	300	A	315	300	290	295	285L	285L					
16						A	310	300	I290C	340	400	445	395	300	400	315	I300A	295	295					
17						280	I300A	290	I300A	305	310	335	450	345	I320A	340	305	280	280					
18						265	245	250	370L	L	345	340A	300	315	305	305	285	250	250					
19						I285A	I270A	250	I310A	A	390	I375A	330	335	315	295	I330A	300	300					
20						335	300	305	275	350	315	310	295	310	I300A	295	280	265L	265L					
21						L	345	345	245	305	L	405	345	315	350	270	300	280	280					
22						305	280	I275A	295	300	I310A	355	345	450	315	300	I280A	270	270					
23						280L	I300A	265	260	330	390L	L	355	300	300	300	305	A	A					
24						270	305	305	I290A	A	380	350	320	320	I325A	310	275	245	245					
25						280	230	260	300	270	400	310	345	345	345	280	I280A	I280A	I280A					
26						280	245	245	280	300	305	420	315	300	290	330	305	295	295					
27						245	I240A	A	C	C	C	C	320	L	C	310	315	285	285					
28						270	230	300A	315	290	380	380	330	390	345	305	250	250	250					
29						250	240	295	270	255	340	360	345	330	I330A	295	A	A						
30							280	245	280	295	305	315	315	320	I310A	295	I290A	I290A						
31						245	I250A	250	255	285	300	335	345	315	315	285	295	295	295					
No.					4	25	30	29	29	25	24	26	28	28	27	28	27	21	21					
Median					260	280	280	275	275	290	305	330	355	345	330	325	300	295	280	280				
U. Q.																								
L. Q.																								
Q. R.																								

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

h'F2

The Radio Research Laboratories, Japan

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

135° E Mean Time (G. M. T. + 9h)

h'F

Aug. 1965

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	I245A	I245A	225	245	245	I240A	I240A	I210A	I200A	I200A	A	A	A	A	225	240	I230A	I250A	I250A	230	I235A	235	A	
2	A	250	230	245	255	250	235	230	230	200	200	A	A	A	A	A	235	235	I220A	245	220	280	300	240	
3	280	240	240	I290A	I280A	A	A	250	I240A	A	A	A	A	200	C	C	C	C	C	C	C	C	C	C	
4	C	C	C	C	C	C	C	C	C	C	I210A	A	A	A	I215A	200H	240	210	I250A	I240A	I270A	280	I265A	245	255
5	245	270	270	270	245	250	I240A	220	I215A	I195A	185	195	210	230	200	215	A	A	A	A	245	I265A	245	A	
6	A	A	255	295	235	245	I210A	I225A	A	A	A	I205A	220A	245	220	A	A	A	A	A	A	A	A	280A	290
7	A	A	A	255	285	I245A	200H	190	195	I200A	I185A	225	205	185H	200	200	225	220	I230A	290A	I250A	I275A	230	290	
8	I250A	275	250	260	265	245	245	245	I230A	220	190	I215A	205	210	230	245	230	240	240A	245	210	245	250	240	
9	290	260	300	280	260	240	230	215	215	195	A	C	C	C	C	C	C	C	C	C	C	C	C	C	
10	255	300	280	260	235	A	A	A	A	I200A	200	200	205	210	A	A	A	A	A	A	230	270	I250A	275A	
11	280	I290A	250	I250A	245	225	I240A	245	I235A	I225A	I205A	I180A	180H	195	205	230	245	220	I240A	240	I255A	250	250	I240A	
12	250	I250A	I275A	275	245	250	230	A	A	A	A	A	A	A	A	A	I225A	I230A	250	I260A	I230A	I240A	275	250	
13	A	A	295	255	235	240	I240A	A	A	200	195	215	205	200	220	245	245	I240C	245	245	220	A	A	225	
14	245	I270A	255	260	250	220	225	230A	I200A	I205A	200	I190A	195	180	I200A	235	195H	A	A	A	I250A	I245A	240	250	
15	240	250	245	230	240	245	250	240	A	A	A	A	220	I210A	200	200	215	240	245	I280A	245	230	235	210	
16	255	260	I265A	I265A	295	230	A	A	I230A	I200C	195	200	210	195	210	220	A	A	A	A	255	240	245	260	250
17	255	270	255	240	275	255	A	A	A	A	A	215A	200	190	200	A	A	A	255	265	215	230	240	I245A	
18	230	280	260	250	245	270	I235A	220	205	205	200	230A	A	A	230	215	235	240A	245	240	240	255A	295	290	
19	245	255	255	265	265	270	A	A	A	A	I220A	190	A	A	215	205	230	I250A	I255A	220	I210A	215	I270A	I270A	
20	245	300	255	250	240	220	245	230	220	210	200H	210	200	I220A	I220A	I230A	225	215	245	260	255	255	235	260	
21	240	255	255	245	280	245	230	200H	I200A	245	220	205	200H	240	220	I240A	I235A	I250A	250	230	220	245	250	255	
22	300A	250A	280	245	I280A	255	230	A	A	A	230	I210A	190	200	235	I215A	240	I240A	245	230	I250A	245	I250A	250	
23	I280A	285	300	270	250	250	245	I240A	240	I210A	220	185	190	240	240A	A	A	A	A	I240A	220	275A	250	245	
24	A	A	340A	I290A	I290A	240	250	I230A	220	I220A	I210A	205	230	A	A	A	A	A	A	A	210	240	280A	245	245
25	265	290A	290	270	245	290A	A	A	230	I210A	I200A	200	255	240	230	245	A	A	A	I270A	250	240	230	I240A	
26	245	I270A	290	290	275	245	250	I225A	205	200	185	220	190	I195A	I210A	I240A	245	240A	270	250	235	240A	I230A	A	
27	310	300	I320A	I290A	255	240	235	I230A	I220A	C	C	C	C	I235A	240	I240C	240	240	I250A	230	230A	A	A	I270A	
28	280	I255A	270	280	265	250	I240A	I220A	I210A	1210A	210	I230A	195H	200	200	205	240	245	250	270A	245	230	I255A	245	
29	260	260	260	275	245	225	I215A	210	195	I200A	200	200	190	220	215	A	A	A	A	260A	240	A	A	A	
30	A	I245A	275	I280A	250	230	210	230	I200A	205	I200A	I215A	I200A	I210A	205	I240A	I260A	275	I290A	270	260	270A	240A	245	
31	250	270	285	280	270	245	A	A	A	205	210	200	A	A	A	A	245	245	260	245	255	250	230	240	
No.	23	26	29	30	30	28	23	21	22	25	23	21	22	23	20	20	20	19	21	26	27	25	26	25	
Median	255	270	265	265	250	245	240	230	I215A	205	200	205	200	210	215	230	240	240	250	245	240	245	250	250	
U. Q.																									
L. Q.																									
Q. R.																									

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

The Radio Research Laboratories, Japan

h'F

IONOSPHERIC DATA

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

135° E Mean Time (G. M. T. + 9h)

f'ES

Aug. 1965

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

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

f'ES

The Radio Research Laboratories, Japan

A 11

Lat. 39° 43.5'N
Long 140° 08.2'E

Akita

IONOSPHERIC DATA

135° E Mean Time (G.M.T. +9h)

Types of Es

Aug. 1965

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	f3	f4	f8	f2	f	h	h2	h3	h2	o3	o3	o3	o3	o3	l3	l3	l3	h2	h2	h2	f3	f7	f	f5
2	f3	f2	f3	f2	f2	h	h2	h3	h2	h2	h2	h2	h3	h2	h3	h2	h2	h2	h2	h2	f	f5	f3	f2
3	f2	f2	f4	f4	f5	h5	h3	o3	o4	h3	o3	1	h	o2	h2									
4											o2	o4	o3	l3	l3		h2	h2	h2	h2	f3	f2	f2	f2
5	f2	f3	f2		f2	h	h3	h3	h3	o3	h	h	o2	o	h	h	h3	h4	o3	f2	f2	f4	f3	f3
6	f3	f6	f3	f2	f2	h	h6	o3	h	o2	o3	o3	o3	o2	h	h3	h4	o3	o3	f3	f3	f3	f3	f3
7	f3	f3	f2	f	f2	l3	1	o3	o2	l2	l4	h	h	l2	l2	l2	h	h	l2	l2	f3	f3	f3	f6
8	f	f2	f2	f2	f2	1	h2	h	o3	o2	o2	o4	o2	h	h	h2	h2	h3	o3	f2	f	f2	f3	f2
9	f2	f	f	f	f	o2	o2	o3	o2	h	o2	l2												
10	f4	f2	f2	f3	f2	h5	o6	o3	o3	o3	o	h	h	h	h3	h4	h3	h3	o3	f4	f	f3	f3	f3
11	f2	f2	f3	f5	f3	h	h2	h2	h3	o2	o5	o2	h	h	h	h2	h	h3	o4	f3	f2	f2	f4	f4
12	f3	f7	f3	f2	f2	h5	h2	h3	h2	h2	o4	o2	o2	o3	l3	l2	h3	h2	h2	f2	f3	f3	f3	f2
13	f3	f2	f2	f2	f	o2	o4	o3	o4	o3	l2	l2	l2	l2	l2	l3	l3	l3	l2	h2	f5	f5	f4	f2
14	f2	f8	f2	f2	f2	l2	h3	o3	o2	o2	l2	h2	h	h2	l3	l2	h2	o2	l3	f3	f4	f2	f2	f2
15	f2	f2	f2	f2	f	1	h2	h2	h3	h4	h2	h2	h2	o3	o3	h2	o3	l3	l4	f7	f	f4	f4	f2
16	f2	f3	f4	f2	f	h	h4	h4	h4	o	o2	o2	o2	l2	o2	h2	h3	h3	o2	f2	f2	f2	f2	f2
17	f2	f2	f2		f	h2	h4	h3	h3	o4	o2	o2	h	h	h	l4	l2	l3	l3	f2	f2	f2	f2	f2
18	f2	f2	f	f	f3	h4	h2	h2	o2	h2	o2	o2	o5	l2	l2	h	h	h	o2	l2	f3	f3	f2	f3
19	f3	f	f2	f	f	f2	h4	h4	h3	h3	o3	h	o3	o4	h	h	h	o3	o2	f2	f5	f	f	f4
20	f2	f2	f2	f2		h3	h3	h3	h	h	h	o2	o2	o3	o3	l3	l2	l2	l3	f5	f2	f3	f2	f2
21	f					h	h	h	h2	o2	o2	h	h	h	h2	h3	h3	o3	o2	f2	f2	f3	f3	f3
22	f3	f3	f3	f3	f4	f2	o3	o3	o3	o2	o2	o3	h	h	h	h2	h	o4	c	f3	f4	f5	f3	f5
23	f4	f2	f2	f2	f2	f	o2	o4	l2	l2	l3	l2	h2	h2	h2	h3	h3	o6	o4	f3	f3	f5	f4	f3
24	f3	f3	f2	f2	f	f	o3	h2	h	h3	o3	h	h2	h2	h3	h3	o3	o4	l5	f	f2	f3	f2	f2
25	f2	f5	f3	f2	f2	f3	h8	o3	o3	o2	h	o4	l2	h	h	h	h2	h4	o3	f4	f3	f2	f2	f3
26	f4	f4	f2	f		f	h2	o4	h	h2	o	h	h	o3	h2	h3	h3	h2	h2	f2	f5	f5	f3	f5
27	f3	f2	f3	f2		f2	h5	h5	h3					o3	o2	l3	l3	h2	o6	f2	f2	f3	f6	f3
28	f2	f3	f2	f2	f2	f	h3	h4	h2	o2	o2	o2	o2	o2	h2	h2	l2	h2	h3	f3	f4	f2	f2	f2
29	f3	f2				h	h3	o4	h3	h2	o3	o2	o2	o2	h	h3	h4	h3	l2	f2	f3	f3	f5	f4
30	f3	f3	f3	f3	f2	f	h3	h2	h2	h2	h2	h2	o2	o3	l2	l5	h	h	h	f2	f2	f3	f3	f2
31	f2	f2				f	h4	o5	h3	h3	l1	o2	o2	o3	l5	l3	o3	h2	o2	f3	f2	f3	f2	f2

No.																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

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

Types of Es

The Radio Research Laboratories, Japan

A 12

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G. M. T. + 9h)

foF2

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	F	040S	032S	041S	046	050	071S	064	050	A	A	062	065R	055	053R	054	053	058	054S	040	A	F
2	R	A	057S	030S	033S	051R	066	060	059	050	060	A	A	057	A	074	075	083R	082R	099	054	052	051S	055R
3	R	F	039	039	037	038	A	A	069	067	A	R	R	053R	060	058	051	051	050R	049S	A	A	F	A
4	S	035S	041F	034S	030A	051R	049R	058R	052A	053R	058R	R	064R	067R	060	065	056	055	054	058	051S	F	F	F
5	U047F	046F	039	036S	031F	031	053R	072S	058A	A	058	065	062	063R	057	077R	058	A	A	A	060S	A	A	A
6	A	F	F	F	035F	039	043R	053	068	A	A	A	058R	059	063A	A	A	A	A	A	054S	F	F	F
7	U047S	U044S	042	041S	040S	045S	057	058	056R	051	054R	055R	054R	057	064R	065	069	060	055	060	060S	061S	051	052S
8	U046F	F	046F	046F	042S	045F	053R	060	056	056	057	064A	063	064A	070R	067	0707R	080A	079S	083S	S	U052S	050S	049F
9	043S	041S	037	037	039	040	050	066	075	057	065	061	061	061	070	072	078	074	065	070	069	053S	A	F
10	A	F	F	F	043	034	A	A	068	057	060	055	061	066	067	067	076	081S	076S	A	045	044F	048	045A
11	U044S	F	F	041F	A	036	048	064	067	078R	058	054R	060	062	071	080	082	078	061	061	056F	F	F	F
12	U044S	A	F	F	032A	056S	042S	058	061	064	061	062A	065A	068	066	068	067	060A	063	065	067	060F	F	U056F
13	F	U045F	F	F	U045S	049S	053	058R	061	A	A	U063R	U056A	C	A	059	060	060	069	069	U076S	055	F	A
14	F	C	C	C	C	C	C	C	C	A	061	U056A	058	061	067	068	075	071S	067	074S	071S	065S	U060S	U058F
15	F	U054S	U055S	U051F	031	034	049	072S	072C	063	A	A	073	U063R	U067A	071S	075S	056	052	061	U065S	U068S	F	040S
16	A	U050S	C	029	028	033	044	054	064S	059	056	U055R	050R	U053R	060	057R	058	063	U060R	073S	U069S	F	F	F
17	U044S	F	U044S	041S	035S	033	045	049	063	U060R	U068A	A	A	A	U063R	C	C	U071R	U081S	S	S	U063S	056	047F
18	S	U045F	040S	043F	039	038	059S	063	U052R	057	C	059	U062R	U078R	074	074	U067R	071	063	066	055	045	045S	F
19	F	036S	037S	U031F	F	U033S	S	U068R	U065R	052R	U052R	C	060	060	067R	066	U066R	065	S	U101S	044	039S	U028S	U035S
20	U039S	036S	040	043S	043	048	046	068	073	076	061	069	075	U071C	067	U064R	063R	099	067	U073S	U071S	F	U055S	F
21	U046F	F	044F	042F	033S	U030S	045	065	U084S	059	057	U052R	056R	065	068	063	056	057	U076S	U076S	050	043S	044	U038A
22	036	040	037	036	030	032	047	055	U064R	059	059R	A	U055R	U056A	U054C	058	U064R	060	063	071S	061	050	F	A
23	F	037	036F	035	031	033	048S	054	U076R	R	U052R	R	055	067	063R	059	059	053	A	A	A	A	F	A
24	A	A	030F	031F	025S	029	042	U069R	058	059	A	A	A	A	U063R	073R	C	C	U078S	A	060S	045	040	038
25	034	034	033	037S	040S	U040S	055	U071S	058	058	059	U057A	057	059	057	059	064	059	060	067S	064S	F	U047S	039
26	S	036S	035	034F	U036S	041	056	U079S	060	057	068	065	U057R	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	057R	U053A	C	C	C	C	C	C	C	C	C	U061S	A	U040S	A
28	040	055S	034	032	U040S	036S	049	U073S	A	A	A	U054A	056	059	058	058	063	059	097	065	068	053	U037S	A
29	A	A	034	U036F	A	031	050	058	U059A	062	061	A	A	064	061A	063R	070	U068A	U069A	065	048	A	F	F
30	A	A	F	A	038F	045	044	054	061	058	057	055	A	058	059	057	U061A	061	A	C	072S	059	042R	U042A
31	U041R	036R	U035A	U032S	F	F	055	056	U065R	058	061	053	056	U058A	064	074	068	068	U074S	U076S	U074S	U072S	F	A
No.	13	17	21	24	25	27	26	28	28	25	24	18	23	26	27	26	26	27	24	24	26	20	15	13
Median	U044	037S	038	036	035	036	049	060	064	058	058	058	058	061	064	064	064	061	064	068S	061S	052	047S	045
U. Q.	046	045	042	041	040	041	053	068	068	062	061	064	062	064	067	068	075	071	072	074	069	060	051	052
L. Q.	040	035	035	033	031	033	045	054	058	056	056	055	055	058	060	058	059	059	058	060	054	044	040	038
Q. R.	006	010	007	008	009	008	008	014	010	006	005	009	007	006	007	010	016	012	014	014	015	016	011	014

The Radio Research Laboratories, Japan

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

foF2

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

0.01Mc 135° E Mean Time (G.M.T. +9h)

foF1

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	A	A	A	A	A	A	420	420L	380	L					
2							340L	390L	A	430R	A	A	A	A	A	A	A	A	L	L				
3						A	A	A	A	420R	A	A	R	A	A	430	400	370L						
4						A	L	A	A	440L	440	450	440	450	450	430R	L	A	L					
5							350	A	A	A	A	A	460	R	A	A	A	A	A					
6						L	L	A	A	A	A	A	A	A	A	A	A	A	A					
7						L	L	U370L	410L	440L	450L	470L	470L	460	I460R	440	I420A	U380L	L					
8						L	L	A	U430L	A	A	A	460	A	440	A	A	A	L					
9						L	L	410L	430L	440H	460	470	470	440	440	A	420L	A	A					
10							A	A	A	A	A	460	460	460	460	A	A	A	A					
11							L	A	A	A	450	470	460	450	450	430L	A	A	A					
12							L	L	A	A	A	A	A	A	I440A	430R	A	A	A					
13							L	410L	430L	A	A	A	A	A	A	A	A	370L	A					
14						C	C	C	C	A	I440A	A	A	460	440	440L	A	A	A					
15							L	L	C	L	A	A	460	A	A	A	A	A	A					
16							A	A	A	440	450	460	L	440	440	430	410	370L	A					
17								A	A	A	A	A	A	A	A	C	C	A	A					
18							A	L	L	440L	I460C	440L	R	450R	R	U420R	410	I370A	A					
19							A	A	A	430L	L	C	R	R	R	430L	A	A	L					
20							L	380L	U420R	440L	450S	U460S	U460S	I450A	430	L	L	L						
21						L	U350L	390L	410	410R	440L	460	I450A	440	440	430	410	A	A					
22							A	400L	400	A	R	A	A	R	A	I420C	A	U380L						
23							L	L	410	A	R	R	U450S	A	R	410S	A	A	A					
24								L	L	A	A	A	A	A	A	C	C	A	A					
25							L	A	420L	410	A	A	A	440S	U440S	U410S	400L	A	A					
26							L	A	L	420	430S	440S	L	C	C	C	C	C	C					
27						C	C	C	C	A	A	C	C	C	C	C	C	C	A					
28							L	A	A	A	A	A	A	A	R	430L	410L	A	A					
29							A	A	A	A	A	A	A	A	A	A	A	A	A					
30							A	A	A	L	A	L	A	A	L	R	A	L	A					
31							A	A	A	A	460	A	U460S	A	450	440	410L	L	A					
No.						3	7	9	12	12	10	10	12	11	13	15	10	7						
Median						350L	390L	420L	435	450	460	460	460	450	440	430	410	370L						
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 0.0 Mc in 20 sec in automatic operation

foF1

The Radio Research Laboratories, Japan

K 2

IONOSPHERIC DATA

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

0.01 Mc 135° E Mean Time (G. M. T. + 9h)

f_oE

Aug. 1965

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						E140B	R	A	A	A	A	A	A	A	A	A	A	A	A					
2						E140B	215	A	A	300	340	I340A	340	A	A	320	A	A	A					
3						E140B	A	A	A	A	A	A	A	A	A	A	A	A	A					
4						E150B	A	R	A	A	R	R	R	R	R	R	R	R	R					
5						E120B	A	A	A	A	A	A	A	A	A	A	A	A	A					
6						E130B	A	A	A	A	A	A	A	A	A	A	A	A	A				E140B	
7						E	R	A	A	A	A	A	A	A	A	325	A	250	190					
8						E140B	A	A	A	A	A	A	A	A	A	I325R	R	A	E150B					
9						E110B	A	A	A	A	A	A	R	R	R	315	290	A	E140B					
10						E120B	A	A	A	A	A	A	350	350	330	310	290	230	A					
11						E120B	A	A	A	A	R	R	R	R	R	315	290	I245R	E140B					
12						E140B	R	R	A	A	A	A	A	A	A	I320R	R	A	A					
13						E130B	A	A	A	A	A	A	A	C	A	A	A	A	A					
14						C	C	C	C	A	A	A	A	A	A	R	320R	I280R	A	E150B				
15						E120B	R	R	C	A	A	A	R	A	A	A	A	A	A	E130B				
16						E130B	A	A	A	A	A	A	R	A	R	R	R	R	R	A				
17						E110B	A	R	A	A	A	A	A	A	A	A	C	C	A	E130B				
18						E120B	A	A	A	A	C	R	A	A	A	A	A	A	A	E130B				
19						E140B	A	250	I285A	A	A	C	A	R	A	305	I290A	A	E130B					
20						E130B	185	I260R	R	A	R	R	A	C	A	A	A	A	A	E130B				
21						E150B	A	A	A	A	A	R	A	R	R	R	I260R	A	E150B					
22						E110B	A	A	A	A	A	A	A	R	I320C	I300R	A	A	E140B					
23						E110B	A	A	A	A	A	A	R	335	325	300	275	230	E130B					
24						R	A	A	A	A	A	R	R	330	305	C	C	A	E150B					
25						E130B	A	A	A	A	A	A	A	R	I320A	300	I260R	225	E130B					
26						E110B	A	A	A	A	A	R	A	C	C	C	C	C	C					
27						C	C	C	C	A	A	C	C	C	C	C	C	C	C	E150B				
28						E130B	A	A	A	A	A	A	A	A	A	300	280	A	A					
29						E140B	A	A	A	A	A	A	A	A	A	A	A	A	A	E140B				
30						E130B	195	255	280	315	I320R	330	A	A	A	A	A	A	225	A				
31						E130B	A	A	A	A	A	A	A	A	A	A	I270A	A	A					
No.						28	3	3	2	2	2	2	2	3	5	13	10	6	18					
Median						E130B	195	255	U280A	310	U330R	U335A	345	335	320	315	U280	230	E140B					
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

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

f_oE

K 3

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G. M. T. + 9h)

foEs

Aug. 1965

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	J065	J053	J051	J033	J031	J024	026	032	J042	J044	J043	J068	J054	J058	J055	040	J042	J035	J030	J031	J037	J064	J086	J055	
2	J053	J052	J050	J042	J025	023	030	032	J054	038	049	J054	096	J060	J090	J075	J052	039	036	J056	J023	J025	023	J030	
3	J053	J033	J034	023	J028	J030	J043	J091	J052	J040	J092	J110	038	J043	J055	040	037	J037	J041	J083	J103	J063	J036	J057	
4	J031	J023	J021	J026	J033	J054	J032	J054	J063	J044	042	040	G	041	G	039	J043	J051	J062	J043	J052	J030	J054	J033	
5	J031	J018	J018	J026	025	J034	033	J092	J083	J089	J049	J062	J041	J043	J043	J087	J053	J121	J142	J122	J082	J071	J078	J111	
6	J080	J031	J054	J044	J030	020	030	J055	J078	J106	J107	J111	J114	J113	J105	J107	J176	J145	D	J123	J063	J053	J044	J044	
7	J034	018	J043	J027	J025	J025	J027	J032	J044	J033	J043	J043	J043	G	038	036	J054	030	G	024	J103	J044	J024	J026	
8	J028	J025	J020	J027	J029	J018	J030	J043	J031	J061	J056	J128	J044	J123	042	049	J055	J164	J085	J052	J030	021	J018	J021	
9	J030	J030	J019	J018	J016	J018	J032	J054	J045	036	J043	J042	043	J053	045	J061	J052	128M	J061	028M	J039	J046	J130	J054	
10	J080	J043	J043	J043	J025	J025	J067	J083	J074	082	J054	J040	G	043	J074	J075	072	J080	050	J080	J060	035	J034	J055	
11	J053	J051	J043	J034	J049	J029	J042	J063	J052	J053	J044	039	041	034	040	034	J049	J045	J038	J025	J076	J062	J063	J068	
12	J052	J045	J043	J018	J064	J018	029	035	J052	J061	J073	J085	J113	J141	J104	041	J049	J060	J055	J032	J073	J055	J043	J053	
13	J029	J030	J026	J027	J019	023	J030	047	J062	J150	J132	J067	J062	G	J059	J058	J049	J055	J042	J026	J018	J017	J031	J075	
14	J023	G	G	G	G	G	G	G	G	J068	J074	J085	J077	036	G	036	J048	J063	J043	J061	J061	J052	J071	J051	
15	J023	025	023	021	J026	017	029	034	G	J055	J086	J116	039	J058	J109	J054	J054	J054	J052	J026	J027	J052	J042	J028	
16	J060	J037	G	020	J031	J028	J043	J044	J044	J040	J044	037	G	J043	G	G	034	J044	J063	J052	J030	J052	J081	J040	
17	J040	J044	J030	J030	J026	J024	027	J044	J044	J064	J107	J084	J094	J106	J062	G	G	J040	J031	J030	J030	J029	019	J044	
18	J043	024	J054	J034	J022	J024	J061	J037	J043	J037	G	G	J040	J055	J035	035	036	J040	J037	J052	J053	J038	J054	J054	
19	J034	J028	J026	J018	J011B	J025	J044	038	J053	J044	036	G	J043	G	J033	G	J053	J052	J034	J038	J030	J029	J072	J055	
20	J026	J028	022	021	J019	017	026	J038	035	035	G	G	037	G	035	033	J030	J028	J026	J026	J052	J032	J031	J054	
21	J020	J026	J026	J022	J026	J018	J025	J044	J033	J041	036	G	J061	046	G	035	035	J055	J053	J026	J018	022	J021	J043	
22	J025	J019	J030	J029	J042	J029	J053	J038	037	J045	J042	J078	J043	J071	G	J052	J053	J029	J030	022	J051	J044	J043	J054	
23	J045	J052	J042	J052	J026	021	J027	J027	J038	J060	J034	036	041	049	042	037	J049	J051	J139	J159	J069	J105	J030	J053	
24	J045	017	J013B	020	J024	J022	J034	J043	J037	J031	J080	J064	J067	J051	J052	G	J034	J052	J073	J062	J025	023	021	017	
25	J032	J027	024	J029	J030	J025	J031	J041	J035	J051	G	G	J049	G	037	040	J034	J052	J052	J063	J054	J025	J053	J025	
26	G	G	G	G	G	G	G	G	G	J069	J060	G	G	G	G	G	G	G	G	G	G	G	G	G	G
27	G	G	G	G	G	G	G	G	G	J069	J060	G	G	G	G	G	G	G	G	G	G	G	G	G	G
28	024	024	J043	019	J016	023	025	J044	J099	J064	J079	J069	058M	J070	036	G	030	J101	032M	J032	J034	J035	J027	J049	
29	J080	J053	J048	J030	046M	J058	J042	J051	070	J045	058	060M	J076	086M	J053	J093	050	J063	J096	070M	J070	J053	049M	J049	
30	J054	J053	J050	J053	J034	J013B	J033	J043	J108	J044	J048	038	J054	J054	J077	036	J072	J044	J106	G	J054	J108	J053	J053	
31	J043	J038	J040	J026	022	022	J030	J054	J070	J062	040	J051	J044	J082	J076	037	J028	J026	J050	J053	J057	J053	J058	J070	
No.	30	29	28	29	29	29	29	29	28	31	30	29	30	27	28	27	27	29	30	29	30	30	30	30	30
Median	J034	J030	J032	J027	J026	J023	J030	J043	J048	J051	J041	J054	J044	J051	J048	J040	J049	J051	J050	J052	J052	J045	J044	J053	
U. Q.	053	044	043	034	031	026	042	054	062	064	074	081	062	071	068	058	053	062	063	066	063	055	058	055	
L. Q.	028	024	024	021	022	018	028	036	040	040	042	038	041	041	036	036	036	040	036	027	030	029	030	040	
Q. R.	025	020	019	013	009	008	014	018	022	024	043	021	030	032	032	022	017	022	027	039	033	026	028	015	

The Radio Research Laboratories, Japan

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

foEs

K 4

IONOSPHERIC DATA

Kokubunji Tokyo

0.1 Mc 135° E Mean Time (G. M. T. + 9h.)

fbEs

Aug. 1965

Lat. 35° 42.4'N
Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	030	024	016	016	022	027	038	052	040	A	A	053	047	E040R	037	033	027	019	016	018	A	024
2	A	033	023	A	016	015	027	031	054	E038R	049	052	A	053	A	064	043	029	020	040	E	017	E	017
3	E	016	018	E	018	029	A	042	043	037	A	A	E038R	E043A	045	E039R	037	040	020	015	027	028	025	022
4	020	015	015	014	A	A	030	044	A	035	039	040		039		E039R	037	040	020	015	027	028	025	022
5	023	017	E	017	E	019	027	042	A	A	049	054	041	042	043	052	044	A	A	A	038	A	A	A
6	A	026	A	024	019	015	029	051	057	A	A	A	053	054	A	A	A	A	A	A	029	053	042	042
7	025	E	026	017	015	015	025	029	032	E035R	042	043	041		E038R	E036R	043	026		E	025	021	016	017
8	017	019	017	017	019	016	025	040	031	048	054	A	044	A	039	045	054	A	027	038	020	E	016	E
9	016	017	017	015	E	015	026	029	039	033	041	040	042	042	042	044	035	064	054	015	016	027	A	044
10	A	026	035	025	015	019	A	A	044	045	053	040		041	052	063	062	042	040	A	032	019	017	A
11	021	017	018	022	A	015	026	054	044	044	037	039	040	032	E040R	G	046	044	035	023	028	017	026	016
12	027	A	016	E	A	015	027	033	047	053	057	A	A	054	045	041	047	A	047	032	016	022	041	026
13	019	017	019	017	014	G	023	028	040	A	A	054	A	C	A	053	041	030	033	022	018	E	023	A
14	017	C	C	C	C	C	C	C	C	A	046	A	053	E036R		034	043	055	030	031	040	021	018	016
15	E	E	E	E	E	E	015	026	033	C	042	A	A	E039R	053	A	044	044	035	015	019	025	025	018
16	A	017	C	E	016	015	038	040	042	039	041	E037R		036			033	052	047	033	025	020	041	025
17	032	041	017	025	017	020	026	038	042	043	A	A	A	A	056	C	C	038	030	023	019	027	017	027
18	017	E	017	016	015	024	052	030	032	035	C		E040R	E035R	E035R	E035R	032	E040R	036	026	026	023	037	025
19	024	015	E	E	B	021	042	038	046	042	E036R	C	E043R	E033R			046	051	022	022	020	022	018	E
20	026	016	018	016	E	015	020	034	030	034			E037R	C	E035R	E035R	029	026	026	020	040	040	017	023
21	018	017	E	E	B	B	020	027	030	040	E036R			038		033	034	052	050	015	016	E	020	A
22	015	020	016	015	014	015	037	035	037	043	E042R	A	E043R	A	C	045	051	025	025	E	037	029	033	A
23	016	015	022	016	015	020	021	027	033	034	032	R	036	046	E042R	E037R	046	042	A	A	A	A	027	A
24	A	A	026	024	015	021	025	029	033	044	A	A	A	A	049	044	C	C	043	A	044	018	E	016
25	S	E	B	E	015	015	028	042	035	E039R	046	A	045		E037R	039	033	045	038	045	040	016	030	016
26	021	E	015	013	028	025	028	039	033	033			046	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	053	A	C	C	C	C	C	C	C	C	039	025	039	A	015
28	E	015	020	E	013	G	025	040	A	A	A	A	A	055	E036R		G	040	021	019	023	034	020	A
29	A	A	018	016	A	017	040	042	A	044	054	A	A	A	051	A	050	043	A	A	053	038	A	025
30	A	A	026	A	019	B	033	041	045	042	045	037	A	054	042	E036R	A	028	A	C	026	025	025	A
31	025	026	A	015	E	022	025	044	053	052	040	048	043	A	042	035	028	026	042	041	029	032	029	A
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

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

The Radio Research Laboratories, Japan

K 5

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G.M.T. +9h)

f-min

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E014S	011	014	011	014	014	012	013	014	016	018	014	025	020	018	016	015	015	013	E014S	E015S	013	E015S	E014S
2	013	013	011	014	011	014	014	015	016	015	019	021	020	020	019	018	015	016	013	E015S	E015S	E015S	E016S	E015S
3	013	E015S	014	013	011	014	013	014	015	017	019	015	020	020	015	016	014	012	011	013	011	E015S	E015S	E015S
4	E014S	013	011	011	010	015	013	013	014	015	014	022	015	020	013	017	017	015	011	013	E015S	E014S	E014S	E015S
5	E015S	013	011	013	014	012	014	014	015	019	017	025	015	021	017	020	014	015	012	011	E015S	E015S	013	E015S
6	E014S	E015S	013	014	013	013	015	015	016	015	017	020	019	021	021	014	014	014	014	E015S	E015S	E015S	E014S	E014S
7	E015S	E015S	015	014	013	010	015	015	016	014	018	016	016	018	018	017	015	013	015	E015S	E014S	012	E015S	E015S
8	E015S	013	011	014	011	014	014	014	014	016	016	020	026	022	019	017	015	014	015	011	013	E015S	011	E015S
9	E015S	E014S	014	011	013	011	012	013	015	015	019	020	019	021	017	015	015	014	014	E014S	011	012	011	011
10	011	011	011	010	011	012	012	015	015	015	018	015	023	019	016	014	014	015	011	011	E014S	012	011	011
11	E014S	E015S	011	013	E	012	013	015	014	014	020	020	019	021	017	015	014	015	014	012	E014S	E015S	E015S	E015S
12	E015S	013	013	011	011	014	014	013	016	016	019	020	024	017	017	017	016	012	012	E015S	012	E015S	E015S	011
13	E014S	013	014	012	011	013	014	012	015	015	015	016	018	C	015	016	014	013	010	E014S	E015S	012	E014S	E014S
14	E014S	C	C	C	C	C	C	C	C	015	015	016	017	017	017	014	014	017	015	013	012	011	E015S	013
15	013	E014S	014	011	013	012	012	014	C	017	015	017	017	016	014	015	014	015	013	011	013	013	013	E015S
16	E014S	013	C	011	014	013	013	013	014	014	015	025	020	016	017	016	015	013	012	013	011	E015S	013	E014S
17	011	011	011	013	011	011	013	013	014	015	017	019	021	019	017	C	C	014	013	013	E014S	011	E014S	E015S
18	E014S	013	011	011	011	012	014	013	014	015	C	016	026	019	016	016	015	019	013	E015S	E015S	E017S	E014S	E015S
19	013	013	014	013	011	014	015	014	014	016	017	C	022	022	018	017	016	013	013	013	013	013	E015S	E014S
20	011	013	013	012	013	013	014	016	015	021	025	022	017	C	019	017	015	014	013	010	E015S	E014S	013	013
21	013	013	013	013	014	015	014	014	016	015	015	016	019	019	016	015	015	014	015	013	013	013	E016S	E015S
22	012	E014S	011	013	011	011	013	013	014	014	017	025	023	017	C	014	014	014	014	E015S	013	012	013	013
23	013	013	012	013	011	011	013	013	014	015	014	017	016	021	014	015	016	014	013	011	013	013	E014S	E015S
24	E014S	013	013	013	011	010	013	013	014	015	015	019	018	017	016	C	C	014	015	011	013	E015S	013	E015S
25	E014S	E014S	013	013	010	013	011	015	015	015	017	017	021	019	014	013	014	014	015	E015S	E014S	013	E015S	E014S
26	E015S	013	013	010	013	011	013	013	014	014	018	015	016	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	015	016	C	C	C	C	C	C	C	015	E015S	013	E014S	011	E015S
28	E014S	012	011	013	010	013	012	014	015	016	015	016	019	017	019	017	017	015	011	E015S	E014S	E014S	013	E015S
29	E015S	E014S	012	014	012	014	012	014	014	016	E025S	016	018	019	016	015	017	014	014	E015S	013	E014S	012	E015S
30	E014S	E015S	014	010	011	013	014	014	016	015	016	016	019	024	017	015	014	014	012	C	013	E015S	E014S	E015S
31	E014S	013	010	010	012	013	012	014	014	016	019	020	016	022	017	018	015	015	012	E014S	E015S	E015S	E015S	E015S
No.	30	29	28	29	29	29	29	29	28	31	30	29	30	27	28	27	27	29	30	29	30	30	30	30
Median	E014S	013	013	013	011	013	013	014	014	015	017	017	019	019	017	016	015	014	013	012	E014S	E014S	E014S	E015S
U. Q.																								
L. Q.																								
Q. R.																								

Lat. 35° 42.4'N
 Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

M(3000) F2 0.01 135° E Mean Time (G.M.T. +9h)

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	F	F	3108	3008	U3008	310	290	U3208	340	315	A	A	300	305R	315	U290R	315	310	320	U2908	290	A	F
2	A	U3358	U3208	U300A	2958	2858	U320R	325	305	360	315	305	A	290	A	280	285	325R	U330R	325	305	285	J3008	J300R	
3	R	F	280	280	300	290	A	300	305	310	A	A	R	U275R	290	310	250	285	310R	285S	A	A	F	A	
4	S	2908	295F	3308	U290A	A	325R	285R	U300A	U340R	310R	R	290R	300R	295	305	305	305	310	320	285S	F	F	F	
5	U310F	U315F	290	285S	285F	285	U315R	340S	U325A	A	295	300	300	U325R	300	295R	310	A	A	A	A	A	A	A	
6	A	F	A	F	300F	290	305R	300	335	A	A	A	295R	290	U295A	A	A	A	A	A	A	U3008	F	F	F
7	U3008	U2758	270	2858	U3008	3108	345	350	330R	310	U295R	U280R	U265R	275	U305R	305	310	315	300	295	305S	3008	295	3058	
8	U300F	F	290F	U300F	3008	320F	310R	335	340	300	290	U305A	305	U290A	305R	285	U310R	U305A	305S	325S	S	U2908	2808	290F	
9	3008	2708	285	295	305	300	290	305	340	315	305	305	U265R	270	295	305	320	325	310	315	335	J3108	A	F	
10	A	F	F	F	345	295	A	A	340	310	275	280	295	305	300	295	295	U3208	U3358	A	285	280F	290	U290A	
11	U2708	F	F	F	310F	A	315	290	325	330R	335	U265R	310	285	280	295	305	320	320	305	275F	F	F	F	
12	U3358	A	F	F	U290A	3208	3258	320	320	305	320	U300A	U300A	295	300	305	310	U310A	315	300	300	290F	F	U290F	
13	F	U280F	F	F	U2958	3208	325	335R	320	A	A	U330R	U325A	C	A	315	310	305	300	U3108	U3258	305	F	A	
14	F	C	C	C	C	C	C	C	C	C	C	A	305	U295A	300	295	305	290	3058	285	U2958	3008	3208	U280F	
15	F	U2958	U3008	U345F	290	295	285	3208	U320C	320	A	A	300	U295R	U320A	3058	325S	315	305	310	U2908	U325S	F	295S	
16	A	U2858	C	305	290	295	300	290	U2958	330	300	R	270R	U275R	290	280R	300	305	U300R	3108	U3358	F	F	F	
17	U2958	F	U2908	2958	300F	300	295	310	310	U300R	U315A	A	A	A	U300R	C	C	U290R	U3008	S	S	U3208	305	275F	
18	S	U270F	2708	300F	300	295	3208	340	U335R	315	C	280	R	U295R	U305R	305	U310R	315	315	325	320	280	2858	F	
19	F	2908	2858	U300F	F	U2758	S	U355R	U355R	345R	U310R	C	315	285	310R	290	U300R	270	S	U3308	320	2658	U3058	U3108	
20	U2858	2708	280	3058	315	315	285	310	280	320	295	300	300	U305C	305	U310R	325R	315	290	U3058	U3108	F	U2808	F	
21	U290F	F	295F	295F	2808	U2658	260	300	U3358	330	320	U260R	285R	300	310	310	295	300	U3108	U3308	320	2758	280	U280A	
22	275	290	285	295	285	285	280	290	U325R	340	315R	A	R	A	U290C	285	U310R	310	315	3008	315	280	F	A	
23	F	275	270F	295	295	285	2908	300	U325R	R	U330R	R	270	310	320R	320	330	290	A	A	A	F	A	A	
24	A	A	285F	305F	2958	285	335	U350R	340	315	A	A	A	U280R	295R	C	C	U3158	A	3208	290	295	305	315	
25	280	280	280	2858	U2858	U2858	320	U3408	345	335	315	U290A	290	315	290	310	315	330	295	2908	3308	F	U3008	290	
26	S	2908	285	275F	U3008	300	320	U3558	350	320	330	320	U295R	C	C	C	C	C	C	C	C	C	C	C	
27	C	C	C	C	C	C	C	C	C	C	265R	A	C	C	C	C	C	C	C	C	C	C	C	C	
28	305	3008	275	315	U3058	2908	310	U3558	A	A	A	A	U295A	A	305	300	315	335	300	305	315	340	U3208	A	
29	A	A	295	U305F	A	300	330	345	U350A	360	315	A	A	295	U310A	315R	315	U320A	U330A	335	310	A	F	F	
30	A	A	A	F	315F	335	310	315	325	345	340	310	A	295	285	300	U305A	320	A	C	3158	325	300R	U290A	
31	U290R	290R	U285A	U2858	F	F	345	345	U330R	345	330	305	320	U290A	280	300	310	305	J3008	J3108	J3208	J3208	F	A	
No.	13	17	21	24	25	27	26	28	28	25	23	17	21	24	27	26	26	27	24	24	26	20	15	13	
Median	U295	2908	285	300	295	310	320	325	320	315	300	295	295	295	300	305	310	315	310	3108	3108	300	3008	290	
U. Q.																									
L. Q.																									
Q. R.																									

Sweep 1.0 Mc to 60.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

M(3000) F2

K

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

M(3000)F1 0.01 135° E Mean Time (G. M. T. +9h)

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	A	A	A	A	A	A	A	A	355L	360	L				
2							355L	360L	A	R	A	A	A	A	A	A	A	A	L	L				
3						A	A	A	A	R	A	A	R	A	A	A	355	360L						
4						A	L	A	A	360L	355	360	365	355	355	R	L	A	L					
5							350	A	A	A	A	A	360	R	A	A	A	A	A	A				
6						L	L	A	A	A	A	A	A	A	A	A	A	A	A	A				
7						L	L	U365L	360L	350L	355L	U340L	350L	355	U360R	355	U350A	U350L	L					
8						L	L	A	U345L	A	A	A	A	A	345	A	A	A	L					
9						L	L	350L	360L	365H	350	340	350	A	A	A	355L	A	A					
10							A	A	A	A	A	365	370	370	A	A	A	A	A					
11						L	L	A	A	A	345	350	355	360	350	355L	A	A	A					
12							L	A	A	A	A	A	A	A	U350A	R	A	A	A					
13						L	345L	A	A	A	A	A	A	C	A	A	A	340L	A					
14						C	C	C	A	U350A	A	A	A	345	360	345L	A	A	A					
15						L	L	L	C	L	A	A	345	A	A	A	A	A	A					
16						A	A	A	A	340	350	345	L	A	A	340	335	345	340L	A				
17							A	A	A	A	A	A	A	A	A	C	C	A	A					
18						A	L	L	L	340L	U365C	360L	R	R	R	R	345	A	A					
19						A	A	A	A	A	L	C	R	R	R	350L	A	A	L					
20						L	A	A	R	350L	340S	S	S	C	R	R	L	L						
21						L	U355L	360L	360	A	355L	350	U350A	350	355	345	340	A	A					
22						A	340L	A	A	R	A	R	A	A	C	A	A	U350L						
23						L	L	L	350	A	R	R	S	A	R	S	A	A	A					
24							L	L	A	A	A	A	A	A	A	C	C	A	A					
25						L	A	A	350L	340	A	A	A	S	S	U340S	340L	A	A					
26						L	A	A	L	340	S	350S	L	C	C	C	C	C	C					
27						C	C	C	C	A	A	C	C	C	C	C	C	C	A					
28						L	A	A	A	A	A	A	A	A	R	350L	350L	A						
29						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
30						A	A	A	A	L	A	L	A	A	L	R	A	L	A					
31						A	A	A	A	A	390	A	A	A	A	345	340L	L	A					
No.						3	6	6	8	8	11	9	8	6	8	10	10	6						
Median						350L	355L	355L	345	355	355	350	350	355	350	350	350	350L						
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

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

M(3000)F1

IONOSPHERIC DATA

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

135° E Mean Time (G. M. T. +9h)

km **f'F₂**

Aug. 1965

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	350	280	255	330	A	A	A	350	310	320	375	305	295				
2							295	270	E355A	295	340	E345A	A	E380A	A	E380A	320	270	250					
3							E300A	A	340	300	A	A	R	415	345	310	305	345						
4							A	260	E375A	A	270	330	350	330	355	320	310	310	285					
5							305	250	A	A	375	330	330	315	335	E370A	325	A	A					
6							280		385	270	A	A	380	385	A	A	A	A	A					
7							265	250	280	325	355	415	460	425	345	310	305	300	255					
8							300	280	270	350	400	A	330	A	320	350	310	A	275					
9							265	290	285	260	285	325	330	450	370	345	320	290	E300A	E310A				
10							A	A	270	310	E400A	350	375	345	325	E400A	330A	260	250					
11							310	300A	280	260	280	460	365	385	345	315	275	265	275					
12								275	285	315	325	A	A	350	330	325	300	A	280					
13							265	270	305	A	A	290	A	C	A	350	310	310	285					
14							C	C	C	A	330	A	375	370	340	355	310	310	300					
15							335	260	C	300	A	A	315	350	A	315	265	300	300					
16							310	330	305	285	355	360	430	450	360	395	355	310	300					
17								315	320	330	A	A	A	A	360	C	C	330	300					
18							300	260	265	300	C	400	350	340	310	310	310	300	260					
19							275	225	260	275	305	C	340	400	320	350	330	375	300					
20							300	305	330	275	360	335	320	C	310	310	285	310						
21							400	400	305	265	280	310	455	410	330	310	300	350	365	300				
22							335	275	275	275	315	A	R	A	C	355	310	295						
23							325	305	270	320	R	R	430	310	300	300	295	325	A					
24								225	265	300	A	A	A	355	315	C	C	265	A					
25							295	230	260	295	310	A	350	305	360	315	295	290	285					
26							275	255	250	300	285	310	360	C	C	C	C	C	C					
27							C	C	C	455	A	C	C	C	C	C	C	C	C					
28							280	230	A	A	A	A	A	A	345	345	300	290						
29							260	260	A	255	340	A	A	A	325	A	310	260	A					
30							290	300	300	260	270	320	A	E380A	370	330	A	295	A					
31								250	275	290A	290	E350A	325	A	390	305	300	290	280					
No.	4	21	28	24	26	21	15	19	21	24	25	25	19											
Median	280	295	270	270	295	330	340	360	350	340	320	310	300	285										
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

K 9

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

f'F₂

IONOSPHERIC DATA

135° E Mean Time (G. M. T. +9h)

km

Aug. 1965

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	I305A	265	255	290	260	230	220	265	A	255	A	A	A	A	R	250	255	270	230	255	255	I310A	270	
2	A	A	250	230	I305A	280	270	240	I220A	R	A	A	A	A	A	A	A	250A	230	250A	250	310	300	260	
3	280	250	300A	280	290	I250A	I250A	I240A	I225A	215	A	A	225	I240A	I250A	250	205	240	265	275	A	A	300A	I300A	
4	270	305	290	250	I310A	A	255	A	A	225	210	205	245	225	250	I210R	260	A	250	230	300	310	305	275	
5	260	245	275	280	255	275	245	I240A	I215A	A	A	A	245	210	A	A	A	A	A	A	A	250A	A	A	
6	A	A	320A	A	300A	255	215	245R	A	A	A	A	A	A	A	A	A	A	A	A	A	265	E395A	E320A	305A
7	295	290	295	295	270	250	220	210	185	210	220	255	205	255	230	230	I220A	210	200R	235	260	260	250	250	
8	290	280	285	270	255	255	225	I240A	210	A	A	A	235	I240A	235	A	A	A	255	260	210	230	270	260	
9	270	300	310	280	250	210	230	230	245	200R	210	250	250	230	E300A	I230A	245	A	I255A	240	220	250A	A	E350A	
10	A	A	320	E340A	300A	210	250	I250A	A	A	A	220	210	230	A	A	A	A	A	A	A	E320A	300	270	I295A
11	300A	300	290	250	I255A	230	245	A	A	E300A	205	200	235	205	260	225	A	A	A	A	250	255	265	310	275
12	245	A	270	250	I250A	255	250	245	A	A	A	A	A	A	I240A	E300R	A	A	A	280	250	275	E320A	255	
13	265	290	335	290	230	230	215	220	E300A	A	A	A	A	C	A	A	A	250	I255A	250	225	225	310	I270A	
14	230	C	C	C	C	C	C	C	C	A	I220A	I250A	I250A	210	I260R	250	A	A	A	A	260	260A	260	280	
15	255	265	255	215	265	265	255	250	C	E300A	A	A	255	A	A	A	A	A	A	A	265	275	245	235	265
16	I300A	275	C	250	275	280	A	A	A	245	245	210	210	I220A	250	250	260	280	A	275A	210	265	E325A	300	
17	310A	E360A	255	300	260	255	235	A	A	A	A	A	A	A	A	C	C	A	I250A	260	250	240	250	310	
18	325	300	310	260	270	260	I250A	230	235	215	C	210	R	R	R	250	250	I260A	I260A	260	250	305	E350A	320	
19	310	305	300	290	325	305	A	A	A	A	205	C	R	R	R	250	I250A	A	280	230	230	345	295	270	
20	315	335	315	265	250	270	255	265	230	225	255	220	I225R	I220C	275	I220R	230	230	285	255	250	310	265	275	
21	300	300	260	230	255	330	260	240	220	I220A	275	230	I260A	220	205H	255H	250	I270A	I260A	235	225	275	300	A	
22	305	305	280	250	305	280	I250A	235	E300A	A	R	A	I205R	A	I270C	I240A	I250A	250	275	230	260	305	310	I305A	
23	310	305	350	285	300	310	255	250	250	A	A	A	R	A	R	270	A	A	A	A	A	A	A	E365A	A
24	A	A	A	370	300	300	255	230	200	250	A	A	A	A	A	C	C	A	E265A	240	255	255	240	240	
25	250	300	295	290	265	270	250	I240A	225	265	I260A	A	A	R	E330R	260	220	I260A	I260A	E310A	E250A	230	255A	255	
26	300	270	300	310	310	255	255	A	230	210	E295R	225H	A	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	A	I250A	C	C	C	C	C	C	C	A	250	E255A	A	265	I260A	
28	255	255	330A	260	250	265	255	A	A	A	A	A	A	A	R	230	240	I250A	250A	250	250	250	250	A	
29	A	A	A	310A	250	A	300	A	A	I225A	A	A	A	A	A	A	A	A	A	A	A	E270A	E300A	A	300A
30	A	A	E340A	A	240	240	260A	A	A	E270A	A	210	A	A	A	E280R	I250A	220	A	C	235	215	265	I285A	
31	305	310A	A	290	270	255	245	A	A	I230A	200	I250A	E300A	A	A	240	220	230	I270A	E290A	250	260	250	A	
No.	23	25	26	28	28	28	26	17	16	15	15	13	15	12	13	18	15	14	17	24	28	26	27	25	
Median	295	300	295	280	265	260	250	240	230	220	220	220	230	220	250	245	250	250	260	250	250	260	260	275	
U. Q.																									
L. Q.																									
Q. R.																									

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation The Radio Research Laboratories, Japan K'10

R'F

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (G.M.T. + 9h)

km
R₁Es

Aug. 1955

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	110	110	125	130	125	110	110	110	110	110	105	110	135	105	125	105	105	105	105	105	110	110
2	110	110	110	105	110	130	125	125	110	125	115	110	110	110	110	110	110	115	110	110	105	105	105	110
3	110	105	105	105	115	115	110	110	110	110	115	120	125	125	110	135	125	110	105	105	110	110	110	110
4	110	105	105	125	120	115	115	110	110	110	125	120	g	g	g	g	130	110	110	110	110	110	110	110
5	105	105	105	125	110	110	125	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
6	110	105	100	100	100	130	125	110	110	110	110	105	105	110	110	110	110	110	110	110	110	105	100	100
7	095	100	105	110	110	110	110	110	110	110	110	105	105	g	g	110	110	110	g	105	110	110	105	105
8	100	100	100	105	105	105	110	110	110	110	110	110	105	135	130	120	110	110	110	110	110	105	105	105
9	105	105	100	100	100	120	110	110	110	105	105	105	130	130	145	115	125	110	110	110	105	105	110	110
10	100	100	100	100	100	110	110	110	105	105	105	100	g	g	120	115	115	110	110	105	105	105	105	105
11	105	100	100	105	105	110	110	110	110	110	120	115	120	120	120	170g	130	120	115	110	110	110	110	110
12	110	105	105	110	130	130	120	120	110	110	110	110	110	110	120	120	115	110	110	110	110	110	105	105
13	105	100	110	100	110	115	115	110	110	110	110	110	105	c	110	110	105	105	100	110	100	110	110	110
14	110	c	c	c	c	c	c	c	c	110	115	110	115	110	g	160	140	125	110	120	110	110	110	105
15	110	110	105	105	105	150	125	125	c	110	120	110	110	110	110	110	110	110	110	110	110	110	110	110
16	110	105	c	105	105	110	115	110	110	115	115	115	g	110	g	g	150	130	115	110	110	110	110	110
17	105	110	105	100	100	105	125	115	110	120	115	120	115	115	115	c	c	115	110	110	110	110	110	115
18	115	120	120	110	110	110	130	125	125	115	c	g	120	115	155	140	130	125	110	120	120	120	120	120
19	120	125	130	150	B	135	130	130	130	120	120	c	115	g	115	g	135	130	125	110	110	130	125	120
20	120	115	115	115	115	140	130	130	130	120	g	g	120	c	110	165	110	110	110	105	105	105	110	110
21	110	105	110	110	B	B	110	120	120	120	115	g	110	150	g	170	145	130	115	120	120	130	120	115
22	110	115	115	110	120	115	125	125	120	115	115	115	120	150	c	145	125	125	120	125	115	115	115	115
23	115	110	110	110	110	110	110	120	120	110	110	110	160	130	130	130	115	110	110	110	110	110	110	105
24	100	100	100	105	110	140	115	110	110	110	110	110	110	115	110	c	c	110	110	110	110	110	110	115
25	S	100	B	110	110	110	110	110	110	110	110	110	105	g	100	125	125	115	110	110	110	110	110	110
26	105	105	105	105	105	105	115	110	110	110	g	g	110	c	c	c	c	c	c	c	c	c	c	c
27	C	C	C	C	C	C	C	C	C	110	110	c	c	c	c	c	c	c	100	105	110	105	110	110
28	105	100	100	105	135	115	125	115	110	105	105	105	105	105	g	150g	110	110	110	110	110	110	105	105
29	105	105	105	100	100	110	120	110	110	105	105	105	105	105	115	105	105	105	105	105	105	105	105	105
30	105	105	105	105	105	B	120	115	125	120	115	120	110	110	110	110	110	125	105	c	105	105	105	105
31	105	110	105	110	110	110	120	110	110	110	110	105	105	105	105	105	105	115	110	105	105	105	105	105
No.	29	29	27	29	27	27	29	29	28	31	28	25	27	24	24	24	27	29	29	29	30	30	30	30
Median	110	105	105	105	110	115	120	110	110	110	110	110	110	110	110	120	115	110	110	110	110	110	110	110
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

K 11

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

R₁Es

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (G. M. T. + 9h)

Types of Es

Aug. 1965

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	f3	f4	f3	f6	f2	h	h	1	1	12	1	13	12	12	13	h12	12h	h21	12	f2	f2	f2	f3	f4
2	f4	f3	f3	f4	f3	h	h2	h21	13	h	c	12	o2	1	12	o2	12	o2	1	f3	f2	f3	f2	f2
3	f2	f2	f2	f	f	13	13	13	12	12	12	12	h	h	1	h12	h13	12	13	f2	f4	f4	f4	f5
4	f2	f2	f3	f3	f5	14h	16	c3	13	f	h	c	h	h	h	h	1	12	12	f2	f3	f4	f4	f3
5	f3	f2	f2	f2	f	12	h	12	13	12	12	12	1	12	12	13	12	14	15	f5	f3	f3	f2	f4
6	f4	f3	f2	f3	f2	h1	h2	12	13	13	13	12	12	12	12	12	13	12	13	f3	f3	f2	f2	f2
7	f3	f	f2	f2	f	12	1	12	12	12	12	12	1	13	h1	c	1	12	f	f3	f2	f2	f2	f2
8	f2	f2	f2	f2	f2	1	12	12	12	13	13	14	1	13	h1	h	o2	15	13	f2	f	f2	f2	f2
9	f2	f	f	f	f	1	12	12	12	1	1	1h	h	h	h	o2	o2	13	14	f2	f2	f3	f5	f5
10	f5	f4	f4	f3	f2	13	14	13	13	12	12	12	h	h	h2	c3	c3	e4	14	f5	f3	f3	f4	f5
11	f4	f3	f4	f4	f4	1	13	13	13	12	1	c	c	c	c	h	h2	o2	14	f2	f2	f2	f2	f2
12	f3	f4	f4	f2	f4f	h	c	o2	12	12	12	12	12	12	1	o2	o2	15	13	f4	f2	f3	f4	f4
13	f4	f	f	f2	f	1	12	1	13	14	13	12	12	13	13	13	13	13	13	f2	f2	f2	f2	f3
14	f2									14	12	12	13	12	h	h	h	h5	13	f3	f3	f2	f3	f2
15	f	f	f	f	f	h	h2	h2	12	12	13	12	o2	13	13	12	12	13	14	f2	f2	f3	f2	f6
16	f4	f2				1	14	13	12	1	1	1	12	12	1		h	h3	14	f2	f2	f2	f2	f2
17	f4	f3	f2	f3	f2	14	h3	c3	1	1	12	12	12	12	1		13	13	13	f3	f2	f2	f2	f2
18	f2	f	f2	f2	f	1	h6	h4	h2	1	1	1	1	1	12	h12	h212	h12	h41	f2	f2	f2	f2	f2
19	f4	f2	f2	f2	f2	h4	h4	h3	h3	1	1	1	1	1	12	h2	h2	h2	h212	f2	f	f2	f2	f2
20	f5	f2	f2	f2	f	h	h2	h3	h	1	1	1	1	1	h12	12	12	12	12	f4	f4	f2	f3	f3
21	f2	f2	f	f	f	h	12	1	1	1	1	1	12	h	h	h	h	h3	13	f	f	f	f3	f2
22	f2	f3	f3	f	f	12	h2	h3	12	12	1	12	1	h2	h2	h2	h3	h	12	f	f3	f3	f4	f5
23	f2	f2	f3	f2	f2	12	12	1	13	12	12	1	h	h	h	h	o2	o3	14	f5	f5	f5	f4	f4
24	f4	f4	f2	f3	f2	h	12	1h	12	1	12	o2	o2	o2	o2			13	14	f5	f2	f2	f2	f
25	f	f	f2	f2	f2	12	13	13	12	12	12	12	12	12	12h	h	h2	o3	13	f3	f3	f2	f2	f2
26	f4	f2	f2	f2	f5	13	12	13	12	12			1											
27											13	12							14	f2	f2	f4	f2	f5
28	f2	f2	f2	f2	f	1	h3	13	13	13	13	12	12	12	12	h	h	12	12	f4	f4	f3	f3	f3
29	f4	f4	f3	f2	f4	12	13	13	13	12	12	12	13	13	12	12	13	13	14	f5	f5	f5	f5	f2
30	f5	f4	f4	f5	f4	o2	o2	o2	h2	c	o2	c	12	12	1	1	12	h3	15	f4	f	f3	f3	f3
31	f2	f4	f8	f2	f	1	12	13	13	13	1	12	12	13	12	12	1	c	15	f4	f3	f3	f3	f4
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Types of Es

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

The Radio Research Laboratories, Japan

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (G.M.T. + 9h)

km **f_pF₂**

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	F	295S	325S	U325S	305	355	U300S	255	G	A	A	A	310R	325	G	305	310	285	U340S	335	A	F
2	A	U270S	U280S	U340A	340S	345S	U295R	280	A	R	A	A	A	A	A	A	350	410	295R	280	305	360	J310S	J305R
3	R	F	360	340	320	320	310	305	310	305	A	R	R	A	350	310	410	360	295R	330S	A	A	F	A
4	S	340S	345F	280S	U340A	A	285R	A	G	G	G	R	350R	340R	355	325	315	325	310	285	355S	F	F	F
5	U310F	U295F	340	350S	375F	355	U305R	265S	U290A	A	A	330	330	R	R	A	325	A	A	A	305S	A	A	A
6	A	F	A	F	320F	320	G	A	A	A	A	A	A	A	A	A	A	A	A	A	U320S	F	F	F
7	U330S	U360S	355	355S	U330S	300S	265	255	280R	G	G	G	G	G	R	310	310	305	310	345	320S	320S	350	305S
8	U350F	F	340F	U310F	320S	295F	310R	A	270	A	A	U335A	335	A	320R	355	U330R	U315A	315S	300S	S	U345S	355S	355F
9	330S	370S	360	330	320	310	330	305	260	310	330	340	G	G	375	360	300	A	A	315	300	275	J300S	A
10	A	F	F	F	255	310	A	A	270	310	A	G	G	G	345	330	340	U290S	J265S	A	350	360F	340	A
11	U370S	F	F	300F	A	295	315	A	290	275R	285	G	G	G	390	370	305	305	280	300	315	375F	F	F
12	U275S	A	F	F	U355A	295S	265S	300	295	A	A	U360A	U350A	355	345	330	305	A	A	300	320	330	340F	F
13	F	U360F	F	F	U335S	285S	300	275R	305	A	A	A	A	C	A	A	325	315	325	S	U275S	320	F	A
14	F	C	C	C	C	C	C	C	C	A	A	A	A	G	335	365	335	320S	320S	360	U325S	320S	U315S	U360F
15	F	U325S	U315S	U255F	345	330	350	285S	U290C	300	A	A	335	U350R	A	335S	280S	305	320	310	U350S	U275S	F	330S
16	A	U340S	C	320	330	350	320	335	U340S	285	355	R	G	G	365	395R	355	320	U325R	320S	U265S	F	F	F
17	U325S	F	U325S	330S	330S	295	290	335	U330R	U330R	U310A	A	A	A	A	A	C	U350R	U325S	S	S	U290S	320	355F
18	S	U385F	375S	335F	325	320	A	265	U270R	300	C	G	R	U350R	U325R	335	U325R	300	300	285	285	370	355S	F
19	F	335S	370S	U340F	F	U365S	S	U245R	U280R	A	U305R	C	A	R	320R	355	U345R	395	S	U275S	280	400S	U305S	U300S
20	U355S	380S	370	320S	290	300	340	320	365	290	360	345	335	U315C	320	U310R	295R	310	330	U310S	U295S	F	U355S	F
21	U335F	F	335F	340F	335S	U400S	400	315	U290S	280	310	G	A	A	330	310	305	350	A	U310S	U275S	280	365S	340
22	370	345	335	330	345	340	345	340	U280R	275	320R	A	R	A	C	360	U315R	305	300	320S	300	345	F	A
23	F	370	380F	330	330	360	350S	325	U290R	R	R	R	R	R	310	300R	295	330	A	A	A	A	F	A
24	A	A	A	320F	340S	330	280	U235R	265	300	A	A	A	U360R	330R	C	C	U300S	A	270S	310	320	305	285
25	365	330	345	350S	370S	U345S	300	U250S	260	295	310	A	350	305	360	320	295	295	330	335S	275S	F	U350S	325
26	S	335S	345	355F	U345S	355	300	U255S	250	300	290	310	G	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C
28	325	305S	375	305	U315S	335S	310	U245S	A	A	A	A	A	A	320	345	300	290	345	325	290	265	U290S	A
29	A	A	A	320	J305F	A	330	280	A	260	A	A	A	A	340	A	310R	300	U295A	U290A	290	300	A	F
30	A	A	F	A	290F	280	300	290	300	260	270	330	A	A	370	335	U330A	305	A	C	310S	270	325R	U330A
31	U355R	335R	U380A	U355S	F	F	250	250	A	A	290	A	A	A	390	325	310	310	J310S	J310S	J300S	J305S	F	A
No.	15	17	20	24	25	27	24	24	24	17	13	7	7	7	12	21	25	24	24	23	26	20	15	12
Median	U335	340S	345	330	330	325	300	280	290	295	310	335	350	350	335	330	315	305	310	310S	300S	320	335S	330
U. Q.																								
L. Q.																								
Q. R.																								

f_pF₂

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

The Radio Research Laboratories, Japan

K 13

IONOSPHERIC DATA

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

135° E Mean Time (G. M. T. +9h)

km
ypF2

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	F	055S	070S	070S	070	045	U055S	055	G	A	A	A	A	050R	035	G	050	040	045	U060S	075	A	F
2	A	U050S	U060S	I060A	060S	050S	U055R	060	A	R	A	A	A	A	A	A	A	050	050R	J050R	065	045	J080S	J055R	
3	R	F	080	060	075	085	A	050	085	090	A	A	R	A	A	045	040	040	065	055R	060S	A	A	F	A
4	S	055S	060F	065S	I060A	A	055R	A	A	G	G	R	050R	055R	050	050	045	050	050	040	055	050S	F	F	F
5	U065F	U055F	065	050S	050F	050	U070R	060S	I055A	A	A	065	045	R	R	A	045	A	A	A	A	070S	A	A	A
6	A	F	A	F	055F	070	G	A	055	A	A	A	A	A	A	A	A	A	A	A	A	U060S	F	F	F
7	U070S	U055S	055	050S	U065S	055S	040	045	070R	G	G	G	G	G	R	060	050	050	050	050	050	050S	050S	050	050S
8	U055F	F	060F	U065F	050S	055F	045R	A	040	A	A	I050A	040	A	055R	055	U050R	I060A	065S	055S	S	U050S	075S	065F	
9	050S	055S	045	065	050	040	045	055	055	060	070	060	G	055	050	060	045	A	A	050	060	045	J060S	A	F
10	A	F	F	F	045	085	A	A	040	040	A	G	G	040	050	A	060	J060S	J055S	A	060	070F	060	A	
11	U080S	F	F	095F	A	065	085	A	055	050R	050	G	G	035	060	070	065	065	065	055	050F	F	F	F	
12	U050S	A	F	F	I060A	060S	075S	050	050	A	A	I030A	I035A	055	045	055	055	A	A	055	060	060F	F	U050F	
13	F	U060F	F	F	U045S	055S	075	050R	045	A	A	A	A	C	A	A	055	050	050	065	S	U075S	050	F	A
14	F	C	C	C	C	C	C	C	C	A	045	A	A	G	050	045	065	065	065S	060	U065S	070S	U075S	U050F	
15	F	U065S	U072S	U070F	050	060	070	060S	I055C	050	A	A	060	U050R	A	045S	055S	045	055	060	U045S	U050S	F	060S	
16	A	U065S	C	055	060	050	075	065	U065S	055	045	R	G	G	040	045R	045	055	U075R	055S	U065S	F	F	F	
17	U065S	F	U060S	070S	065S	055	060	060	050	U040R	I050A	A	A	A	A	C	C	U055R	U055S	S	S	U055S	055	045F	
18	S	U050F	050S	065F	055	050	A	040	U045R	045	C	G	R	U050R	U055R	055	U065R	055	045	S	065	055	070S	F	
19	F	060S	050S	U060F	F	U055S	S	U050R	I050R	A	U045R	G	A	R	050R	050	U045R	045	050	060S	050	050S	U065S	U070S	
20	U055S	050S	050	065S	060	060	065	060	055	055	045	045	050	I055C	055	U055R	050R	050	065	U055S	U060S	F	U055S	F	
21	U070F	F	070F	055F	065S	U050S	045	065	U055S	055	030	G	A	050	060	055	050	A	U065S	U065S	060	065S	065	I070A	
22	060	065	065	045	060	055	060	040	U060R	060	045R	A	R	A	C	050	U065R	055	050	060S	060	060	F	A	
23	F	070	070F	065	060	065	055S	065	U055R	R	R	R	R	060	045R	040	055	060	060	A	A	A	F	A	
24	A	A	A	A	060S	075	055	U060R	065	040	A	A	A	U040R	065R	C	C	U055S	A	080S	095	080	070	065	
25	090	075	060	065S	055S	U065S	055	U080S	045	040	040	A	050	050	040	040	055	050	070	065S	055S	F	U055S	055	
26	S	065S	060	055F	U055S	050	050	J045S	050	035	055	045	G	C	C	C	C	C	C	C	C	C	C	C	
27	C	C	C	C	C	C	C	C	C	A	A	C	C	C	C	C	C	C	C	050	065S	U050S	A	U075S	A
28	050	070S	075	045	U060S	065S	045	U055S	A	A	A	A	A	A	055	050	060	050	055	065	065	085	U055S	A	
29	A	A	A	080	J075F	A	070	050	045	A	030	A	A	A	040	A	055R	060	I055A	I055A	060	090	A	F	F
30	A	A	F	A	060F	A	070	055	055	040	050	050	A	A	050	055	I050A	090	A	C	050S	055	050R	I065A	
31	U065R	065R	I070A	U050S	F	F	055	050	A	A	060	A	A	A	060	075	060	085	J065S	J080S	J050S	F	A	F	A
No.	13	17	20	24	25	27	24	24	24	17	13	7	7	12	21	21	25	24	24	23	26	20	15	12	
Median	U065	060S	060	060	060	055	055	055	055	050	045	050	050	050	050	050	055	055	055	060S	060S	060	065S	060	
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

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

ypF2

IONOSPHERIC DATA

Aug. 1965

f_oF₂

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	I038S	037S	025	F	030S	038	048	090S	056	E04.6G	I04.9A	056	065	J076S	077	072S	071S	062S	057	046S	J047S	I04.4S	041	
2	I04.0A	I04.5S	S	A	J026S	I028S	034	052S	051	053	054	056S	048	053	I062S	073	085	093S	082	057	I054S	050	056S	I052S	
3	I050S	J04.5S	037S	A	036S	037	047	056	I062A	070	053	049	051	062	068	058	052	049	047S	052	053	048	I04.2S	I04.5S	
4	S	S	S	A	A	S	038	047	055	051	052	055	060	061	071S	067S	059	062	056S	057	I072S	065S	I04.8S	04.8S	
5	J04.8S	I04.8S	046S	I038S	J033S	I034S	044	059	055S	I052A	060	060	058	054S	054	054	054S	060	067	I072S	J066S	053S	I04.8S	04.8S	
6	04.0	I04.1S	041	I039C	I035S	J032S	041S	052	065	052	050	052	057	074S	083S	086	082	I072A	J075S	081	I072S	J066S	058	I060S	
7	J063S	I059S	I055S	J048S	046	J04.3S	050S	067S	051	054	050	052S	053	062	060	063	073	073S	066	I070S	071S	062S	04.6S	04.6S	
8	04.5	04.3S	J04.1S	040	040S	036	044	056	054	056	061	059	I058A	072S	083	086	087	083	I071S	068S	A	S	S	S	
9	I04.5S	04.1	J04.1S	035	I033S	028S	040	058	052	058	061	056	I052R	056	078	J077S	078	J084S	085	080S	I066A	I04.4S	I04.5S	J04.3S	
10	04.0	037	J034H	037	037	I030S	I038A	051S	A	A	A	068	078	I070S	060	066	080	091	J083S	I063A	04.3S	I04.5A	A	A	
11	A	A	S	S	I025H	027	038	054	071S	I067A	052	057	065	J076S	081	085	093S	084	I073S	I073S	059S	052S	A	S	
12	S	S	J039S	I033S	I034S	030	041	054	061	058	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
13	C	C	C	C	C	C	C	C	C	C	066	057	054S	053	056R	067	061S	064	I071S	J078S	061S	053	J052S	050S	
14	I04.3S	I039S	I038S	J036S	I034S	028	039	060	057	055	058	060	I063A	065	067	070S	076S	071	J070S	I075S	082S	060S	J056S	052	
15	I04.9S	J04.5S	051S	032S	I032S	I029S	J037S	061	075S	057	058	060	062	061	J075S	077	I072S	062S	068	I070S	I068S	S	S	A	
16	A	A	A	A	A	030S	026S	038	053	070	059	055	I051A	054S	I055A	062	I070R	068S	070	076S	S	065	I054S	J047S	
17	A	A	A	S	031S	I030S	I037A	045	060S	I068C	061	A	A	061S	082	063	071	I079S	084	I078S	J054S	040S	037S	037S	
18	034S	035S	I039C	036	038	I034S	I047C	051	051	053	I050A	I056A	064	071	084	085	J076S	060	C	C	U056C	A	A	I038C	
19	I04.0S	I037S	033	036	J033S	J033S	047	J056S	056	056	I050A	055	056	056	068	067S	0714S	073S	J082S	I095S	U074S	I036A	I027C	029S	
20	I029A	I026S	I027S	036S	I031S	A	A	056	067	069	060	063S	075	072	074S	068	065	064S	071S	I073S	I066S	057	S	S	
21	S	J054S	052	044S	034	032S	J039S	066	072S	056	050	057	062	064S	082	060	054	J071S	094S	082	042S	036S	I038S	I039S	
22	I037S	I038S	I038S	I033A	023	024	033	052	061	061	056	055S	050	061	I057A	I060A	061	067	I074S	078S	060	J042S	035S	034S	
23	I032S	S	S	J028S	028	027S	033	057	084	C	C	A	A	A	074	066	058	057	062	066S	070	049	039S	U037S	036
24	036	I034S	I032S	I034S	023S	024	041	053	057	056	051	054	I058S	064	082	097	I096S	084	I074S	065	051S	J041S	A	I04.2S	
25	033S	J030S	030	028	031	030S	041	J066S	055	050H	055	053	J059S	060	I063C	063	I061C	057	060S	J061S	U070S	J059S	I04.3S	I036A	
26	I037S	038	037	I037S	039S	J04.2S	J04.4S	060S	056	J061S	058	061	067	070	070	067S	U073S	J078S	085S	089S	J071S	047S	037S	I037S	
27	036S	037S	035	033S	035	027	037S	052	054	050	050S	061	078	084	088	093S	087	065	056	I065S	064	042	A	S	
28	S	S	A	J033S	I029S	029	I044S	054	063	055	059	A	A	058	I062A	064	067	068	I074S	J083S	I074A	A	S	A	
29	A	S	I036S	I035S	I026A	I027A	I037S	050	066	062S	I054A	I052A	A	A	I067A	070S	I080A	084	080	J083S	060S	A	S	A	
30	A	A	I038A	I037S	039S	J029S	037	055	I059A	J062S	I058A	053	053	A	A	A	J076S	082S	088S	J082S	080S	U071S	I044S	A	
31	S	A	J034S	I038A	I038S	I04.0S	I044S	060	I063A	061	I056A	059	057	054	059	081	085	085	083	082	I080S	I066S	S	S	
No.	19	20	23	25	28	28	29	30	29	28	28	27	26	28	29	29	30	30	29	28	29	24	18	19	
Median	I04.0S	I038S	037S	036S	033S	030S	039	054	060	056	055	056	058	062	068	068	072	071	074S	073S	065S	051S	U044S	04.2S	
U. Q.	04.5	04.5	04.1	038	036	034	044	059	066	061	058	060	063	070	080	079	080	083	082	082	072	058	052	04.8	
L. Q.	036	037	034	033	030	028	037	052	055	054	050	053	054	057	062	063	061	064	066	065	054	04.3	038	037	
Q. R.	009	008	007	005	006	006	007	007	011	008	008	007	009	013	018	016	019	019	016	017	018	015	014	011	

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

f_oF₂

Y 1

Lat. 31° 12' 1"N
Long. 130° 37' 1"E

Yamagawa

IONOSPHERIC DATA

0.01 Mc 135° E Mean Time (G. M. T. +9h)

f_oF₁

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	420L	460	I440A	440H	440R	I430A	I420A	I400A	400	L						
2							L	A	I410A	460	440	I450A	460R	A	A	A	380	340L	L					
3							L	370L	I390A	410H	440	450	440	430H	420	420	390	IH	A					
4							L	L	400L	I420A	440	I450A	I460A	A	430	410	390H	A	L					
5							L	L	A	A	440H	450	I450A	450R	450S	420	390	350	L					
6							L	L	410L	440	460	450	I460A	450	A	A	A	A	A					
7							L	350	L	440	450	460R	440H	450R	440R	410	400	L	L					
8							L	L	L	450L	440	440R	A	A	I440A	A	A	A	A					
9							L	L	L	I440A	450	450H	440R	450	450	440	I400A	350	A					
10							A	L	A	A	A	450S	450H	450	450	410	A	A	A					
11							L	L	390	A	A	450	I450A	450S	440	430	410	390	L	A				
12								A	A	A	C	C	C	C	C	C	C	C	C	C				
13							G	C	C	C	A	450	460	440R	420	400	400	340						
14							L	L	L	450	A	I450A	I450A	I450A	430	I420A	390	L						
15							L	L	A	A	440	I450A	A	460	I440A	430	400	I370A	340					
16							L	L	390	A	A	A	A	A	440R	430R	I410A	400	330	A				
17							L	L	390	C	A	A	A	A	420S	400	380H	330L						
18							C	L	380	430	I440A	I450A	440R	430	430H	410	400	C	C					
19							L	L	420	420	A	440R	440H	430H	430	410	390	L						
20							A	L	390	420	A	A	A	A	430	410	390L	340L						
21							A	A	390L	IH	L	450	I450A	I440A	430	430	390	L						
22							L	L	390	420H	430	440	450	440S	A	A	A	A	A					
23							360L	390	C	C	A	A	A	A	A	A	410	400	L					
24									A	420	L	I430A	I440A	440S	410	400	380	L	L					
25							L	L	A	L	430	430	440R	440	I440C	420	C	L	L					
26							L	L	370	430	440	450	A	A	440	440	410	390	L					
27							180	L	390	430	A	I430A	440	450H	440	420	400	380	L					
28							L	L	L	L	430	A	A	A	A	430	400	390	A					
29							A	A	A	A	A	A	A	A	A	A	A	A	A					
30							A	A	A	A	A	A	450R	A	A	A	A	390	L					
31							A	A	A	A	I440A	450	I460A	450	440	440	420	400L	L					
No.							1	3	14	16	16	22	21	21	19	23	24	25	8					
Median							180	360L	390	425	440	450	450	450	440	430	410	390	340					
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 19.5Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 2

f_oF₁

IONOSPHERIC DATA

Lat. 31° 12.1'N
Long. 130° 37.1'E

Yamagawa

0.01 Mc **foE** 135° E Mean Time (G. M. T. +9h)

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					E120S	170	R	I260R	I295R	320	315	I320A	R	A	A	A	A	A	A					
2					E150S	A	230	280	305	310R	330R	340	340	340	330R	310	290R	270	210					
3					E120S	170	215	260	290	305R	A	A	A	A	A	A	R	265	220					
4					E150S	E150S	235	270	305	330	I340A	I350A	340R	340R	330R	325	300R	270	205	E150S				
5					E150S	150	A	A	A	A	A	A	R	I330R	I320R	300	I270A	A	E150S					
6					E150S	E150S	225	I265A	I295A	315	I330R	I345A	350	I345R	330	310	275	210	E150S					
7					E120S	E150S	250H	A	R	R	R	A	A	R	A	A	R	280R	190	E150S				
8					E140S	E140S	I235A	260	300	320R	320	A	A	A	A	A	A	A	220H	E150S				
9					E150S	E150S	205	250	A	A	A	A	A	R	340R	320	295H	265	A	E150S				
10					E150S	E150S	205	245	A	A	A	A	R	345R	I340R	I320A	300R	260	190	E150S				
11					E120S	E150S	215	250	A	A	A	A	A	A	A	A	I290R	250	160	E150S				
12					E120S	E150S	230	270	300H	C	C	C	C	C	C	C	C	C	C					
13					C	C	C	C	C	C	A	A	A	R	A	A	A	A	A					
14					E120S	E130S	230H	270R	295	300	310	A	A	A	A	A	A	A	A					
15					E150S	E150S	230	265	290H	310	325	320	A	A	A	A	A	A	A					
16					E160S	E150S	220	265	295	310	A	A	A	A	A	A	A	A	200	E140S				
17					E150S	E150S	A	265	C	A	A	A	A	A	A	A	A	A	200					
18					E110S	E200C	U220C	I260A	U300C	U305C	A	A	A	A	R	R	A	E200C	C					
19					E110S	E140S	215	260	280R	A	A	A	A	A	I330R	I320R	295R	260	180					
20					E130S	E150S	220	265	300	320	325	320	A	A	A	A	A	A	A					
21					E120S	E150S	A	A	A	A	A	A	340	335	330R	320R	290	250H	190					
22					E130S	E140S	I210A	240	300	300	A	A	A	335	I325A	315	295R	260H	190					
23					E150S	E150S	A	A	C	C	A	A	A	A	390	310	285	235H	A					
24					E150S	E150S	A	270	295	310	330	330	330	330	320R	305	290	250	180	E150S				
25					E140S	E150S	190	245	A	A	A	A	A	R	C	315	I280C	250	I185A					
26					E150S	A	200	260	I285R	300	I320A	I330A	340	330	320	300	260	200						
27					E130S	E150S	220H	270H	285	300	I310A	I325A	335	320	315	290	260	175						
28					E150S	E160S	210	260	295	305R	310	A	A	A	A	A	300R	260	185					
29					E150S	E150S	215	260	285	300	A	A	A	A	A	A	290	250	180					
30					E140S	E160S	220	270H	295	310R	320	330	A	A	A	A	290	255	E150S					
31					E150S	E160S	200	265	295	310	A	A	A	A	R	310	290	250	190					
No.					30	28	24	26	21	19	13	11	9	13	15	19	25	23	10					
Median					E145S	E150S	220	260	295	310	320	330	340	390R	320	290	260	190	E150S					
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 19.5Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 3

foE

Lat. 31° 12.1'N
Long. 130° 37.1'E

Yamagawa

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G. M. T. +9h)

foEs

Aug. 1965

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	039M	J029	037M	J030	025M	J020	J038	J040	J060	038	039	J070	J037	040	J063	082M	J061	039	036	J028	J039	J027	J065	070M
2	J052	057M	035M	J061	J021	J038	059M	035	J047	J061	J063	041	047	J092	J085	J061	042	032	026	J029	022M	021M	021M	022M
3	J031	J029	J023	J022	J021	J018	024	035	J064	031	034	J051	038	J038	J040	035	033	032	024	J033	022M	144M	J033	038M
4	J041	034M	J031	J039	041M	J022	021	028	J084	J071	J142	037	J049	J058	045	039	G	G	J046	J051	036M	J030	032M	J030
5	057M	J028	J030	J018	J023	J021	019	J033	J074	J063	041M	J050	J050	035	029G	J048	J051	J053	J040	J036	J029	J051	033M	J022
6	J024	033M	034M	G	E015S	J019	019	028	J053	J055	112M	040	062M	J071	J060	J086	J073	J112	069M	J063	J083	090M	059M	060M
7	028M	033M	J021	021M	J020	E012S	E015S	025	029	029G	026G	029G	035	037	032G	032	027G	027G	029	E015S	E015S	E015S	E015S	E016S
8	E015S	021M	J018	E013S	E	E014S	021	029	031	J051	J040	039	J086	J055	J053	049	J058	J048	J054	J065	091M	041M	J030	J022
9	023M	027M	024M	J020	J023	J023	017	028	029	057	J036	J041	043	J053	G	J053	J046	J108	147M	145M	141M	J028	057M	023M
10	022M	018M	024M	J020	J047	J038	J053	J036	090M	J136	J122	J054	039	049	040	040	J046	J070	116M	J104	059M	103M	070M	057M
11	077M	055M	J029	J041	E	030	023	032	J038	J065	J053	J042	J058	J043	J039	036	028G	035	J036	J050	J032	J038	068M	J042
12	J034	J043	J039	J053	J026	J024	021	J046	J050	J054	G	G	G	G	G	G	G	G	G	G	G	G	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
14	J022	E015S	J021	J016	E	E012S	024	035	040	039	J052	J046	101M	090M	J060	058M	J052	032	031	J030	J030	040M	J051	035M
15	J025	021M	J022	J022	J024	022M	021	029	J054	J052	J054	069M	J045	J053	J055	105M	J046	J054	070M	090M	061M	J051	030M	J061
16	131M	060M	067M	048M	036M	J053	J020	J041	J054	J059	J055	J080	117M	J076	J040	040	J055	033	029	J025	J029	J042	J052	030M
17	J061	J063	J051	J055	J021	J029	J051	J037	J046	G	J066	J177	J074	115M	J062	J046	J040	022G	031	J023	J041	J024	J024	023M
18	023M	J022	G	J020	J024	034M	J037	J040	035	J054	J089	J088	J056	040	028G	029G	J036	J051	G	G	J064	J064	J037	G
19	J033	J029	J035	J029	037M	J022	020	028	038	034	J062	J038	039	040	032G	029G	041	J044	J036	060	J054	J051	G	J019
20	J053	089M	060M	043M	J023	J050	J050	032	036	036	J051	J055	J050	J076	J060	J037	J038	030	J024	J026	022M	J020	021M	J029
21	J026	021M	J021	020M	020M	J013S	G	J044	J044	035	J040	041	J054	045	G	037	037	036	028	J030	J030	J030	J022	J022
22	039M	028M	J022	J053	J050	J039	J022	J039	029	033	040	040	038	040	J071	087	J084	039	J050	J051	024	J026	J029	028M
23	028M	022M	E015S	J021	J021	J031	032M	J035	J037	G	G	J058	J063	J059	J056	050	039	J037	J032	J051	032M	J026	J025	023M
24	E017S	E015S	J021	J024	J022	J040	J041	J034	J046	J046	J046	039	060	052	040	037	036	030	023	J022	J030	J030	040M	J032
25	J036	022M	J018	E	E	E014S	J015S	024	J043	J038	J052	035	036M	023G	G	036	G	028	025	J030	J036	J053	028	J036
26	E015S	J017	J021	J021	J020	J025	036M	031	034	J064	J053	J046	J063	J052	052	036	J052	J041	J054	J053	J059	059M	J062	055M
27	J028	J028	J032	J028	J019	J017	J023	032	033	J051	J062	J053	037M	026G	038	028G	032	034	031	J053	J143	030M	J054	J055
28	J031	022M	J052	J022	J020	E015S	J017S	025	038	036	045	J102	J077	J131	J152	J039	027G	J050	J065	J073	102M	J060	J036	J054
29	J043	J036	J023	J026	035M	041	030	J043	J054	J053	J117	J066	J067	J064	J085	127	J108	J044	J039	J053	J140	J084	J036	J039
30	J046	J052	J051	J029	J020	J052	J022	J051	064	J061	J080	J052	041	J061	J111	J084	J066	037	J033	029	J027	J030	J042	J043
31	J051	J040	030	J046	J063	031	021	J061	J104	J109	J068	J054	J054	034	030G	040	028G	G	025	J022	J020	J032	J052	J030
No.	30	30	29	29	30	30	30	30	30	28	29	30	30	30	29	30	29	30	29	30	29	30	29	29
Median	J032	028M	J029	J024	J022	J024	022	034	J045	J052	J053	J050	J051	J052	J045	040	J041	036	033	J036	J034	J035	J036	J030
U. Q.	046	040	036	042	026	038	036	040	054	061	067	058	063	064	061	058	054	044	052	056	061	053	053	048
L. Q.	024	022	021	020	020	018	020	029	036	037	040	040	039	040	G	036	034	030	028	027	027	027	026	022
Q. R.	022	018	015	022	006	020	016	011	018	024	027	018	024	024		022	020	014	024	029	034	026	027	026

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

foEs

IONOSPHERIC DATA

Lat. 31° 12' N
Long. 130° 37' E
Yamagawa

0.1 Mc 135° E Mean Time (G. M. T. + 9h)

f_oF₂

Aug. 1965

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	022	022	011	025	014	023	037	056	037	038	A	036	040	059	051	041	035	031	022	029	023	019	E
2	A	025	016	A	E	G	023	034	046	046	041	039	048	041	047	050	042	031	024	016	E	E	E	E
3	E	E	E	015	015	G	016	G	A	G	E034R	038	038	038	036	035	033	018	024	019	E	016	E035S	E
4	E	023	E031S	015	015	G	019	026	036	049	040	037	046	047	E045R	037			042	022	022	018	E	018
5	023	019	021	015	015	G	018	032	050	A	033	041	047	E035R	E028R	035	034	031	023	019	025	023	024	016
6	016	019	017	G	S	016	E019S	026	035	041	040	039	047	040	054	057	051	A	065	049	023	035	016	030
7	E	E	E	E	011	S	S	G	E029R	E029R	E026R	E029R	E035R	037	E032R	E032R	E027R	024G	026	S	S	S	S	S
8	S	E	E	S			020	026	031	038	035	E039R	A	046	051	045	050	043	051	050	A	032	E030S	E
9	018	E	E	E	017	G	E017R	028	E029R	047	036	039	041	039	043	043	037	055	026	046	A	019	022	E
10	016	E	E	E	013	G	A	031	A	A	A	039	039	043	039	037	037	063	057	A	033	A	A	A
11	A	A	022	023		015	020	032	035	A	048	038	051	040	036	034	E028R	033	030	019	022	023	A	017
12	022	030	016	018	017	G	019	044	048	052	C	C	042	E033R	E035R	035	031	E028R	024	020	016	016	016	019
13	C	G	C	G	C	G	C	G	040	034	044	041	A	048	056	042	043	030	030	026	028	E	028	E
14	E	S	E	013		S	024	033	040	046	040	054	044	040	047	034	036	041	029	040	040	033	017	A
15	E	E	E	011	016	G	G	G	049	046	040	054	044	040	047	034	036	041	029	040	040	033	017	A
16	A	A	A	A	017	017	G	030	036	045	049	A	044	A	038	034	043	031	028	023	026	016	E052S	E
17	A	A	A	017	015	E029S	A	029	036	C	050	A	A	050	046	037	032	022G	027	018	040	020	020	E
18	E	E	G	015	015	015	E020G	028	021	U036G	A	A	E056R	040	E028R	E029R	035	U034G	C	C	030	A	A	G
19	023	016	022	018	017	G	G	027	036	G	A	038	039	040	E032R	036	037	036	029	020	031	A	C	E
20	A	019	022	014	015	A	A	030	035	033	045	052	047	063	048	033	031	028	022	023	016	016	E	018
21	019	E	E	012	011	S	S	036	034	032	038	038	046	045	A	035	032	034	025	028	027	029	019	019
22	E	E	020	A	017	015	016	034	029	033	038	039	037	039	A	A	047	032	042	041	022	025	025	E
23	E	E	S	015	013	016	020	026	036	C	C	A	A	048	054	048	035	033	029	046	017	019	015	E
24	S	S	016	021	017	020	030	026	043	041	041	038	056	050	039	036	032	028	022	020	E030S	027	A	030
25	016	E	E			S	S	024	041	035	036	035	036	022G	C	036	C	027	022	016	022	031	018	A
26	S	E	017	019	017	023	018	018	030	040	041	039	048	045	036	E036R	037	034	016	051	045	025	033	016
27	016	025	020	016	016	G	G	030	030	037	044	049	035	025G	038	027G	G	030	030	038	053	E	A	019
28	E031S	017	A	016	018	S	S	G	036	034	038	A	A	051	A	037	027G	031	041	037	A	A	025	A
29	A	019	018	024	A	A	E030S	038	054	050	A	A	A	A	A	064	A	040	037	047	037	A	031	A
30	A	A	A	023	015	015	019	047	A	054	A	A	041	A	A	A	057	029	031	021	027	027	E042S	A
31	019	A	016	A	019	016	018	050	A	052	A	037	047	E034R	E030R	038	026G		023	021	016	019	E052S	029
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 19.5Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 5

f_oF₂

Lat. 31° 12' 1N
Long. 130° 37' 1E

Yamagawa

IONOSPHERIC DATA

0.1 Mc 135° E Mean Time (G. M. T. + 9h)

f-min

Aug. 1965

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	E014S	E015S	E	E	E012S	E014S	014	014	015	015	017	019	015	016	015	015	015	013	E015S	E015S	E015S	E015S	E015S
2	E015S	E014S	E015S	E	E	E015S	E014S	015	015	015	016	019	022	019	022	015	015	015	E014S	E015S	E015S	E015S	E015S	E015S
3	E015S	E015S	E015S	E	E	E012S	E014S	012	014	015	017	023	023	025	022	016	015	015	E015S	E015S	E015S	E015S	E015S	E015S
4	E015S	E015S	E015S	E	E	E015S	E015S	013	015	015	015	022	022	021	021	016	015	015	E014S	E015S	E015S	E015S	E015S	E015S
5	E015S	E015S	E	E	E	E015S	E014S	015	015	015	022	023	023	024	022	020	016	015	E015S	E015S	E016S	E015S	E015S	E015S
6	E015S	E015S	E015S	C	E015S	E015S	E015S	015	015	018	017	016	017	023	020	017	015	015	E013S	E015S	E014S	E015S	E015S	E015S
7	E015S	E015S	E015S	012	E	E012S	E015S	015	015	018	020	023	030	023	019	019	015	015	E015S	E015S	E015S	E015S	E015S	E016S
8	E015S	E015S	E014S	E013S	E	E014S	E014S	015	015	018	018	018	019	019	023	016	016	E019C	E015S	E015S	E015S	E015S	E015S	E015S
9	E015S	E015S	E015S	013	E	E015S	E015S	015	014	015	015	020	024	017	019	015	015	015	E015S	E015S	E014S	E015S	E015S	E015S
10	E015S	E013S	E015S	E	E	E015S	E015S	014	014	015	015	019	020	019	021	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S
11	E015S	E015S	E015S	E	E	E012S	E015S	015	015	019	019	020	019	019	020	017	015	015	E015S	E015S	E015S	E015S	E015S	E015S
12	E015S	E015S	011	E	E	E012S	E015S	015	015	016	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	E015S	E015S	E015S	E	E	E012S	E013S	015	014	015	015	015	015	019	018	016	015	015	E014S	E015S	E015S	E015S	E015S	E015S
15	E015S	E015S	E015S	E	E	E015S	E015S	014	015	015	015	015	018	024	016	016	015	016	E015S	E015S	E015S	E015S	E015S	E015S
16	E015S	E015S	E015S	E015S	E015S	E016S	E015S	015	015	015	021	016	016	016	018	023	015	015	E015S	E014S	E015S	E015S	E015S	E015S
17	E015S	E015S	E015S	E015S	E	E015S	E015S	013	015	C	016	017	015	015	015	015	014	014	E015S	E015S	E015S	E015S	E015S	E015S
18	E015S	E015S	C	E	E	E011S	E020C	E020C	E020C	E020C	E020C	018	024	019	019	015	015	E020C	C	E020C	E015S	E015S	E015S	C
19	E015S	E015S	E015S	E	E	E011S	E014S	012	014	015	018	019	022	020	016	017	015	015	E014S	E015S	E015S	E015S	E015S	E015S
20	E015S	E015S	E014S	E	E	E013S	E015S	015	014	015	018	022	021	019	019	016	015	015	E014S	E012S	E015S	E015S	E015S	E015S
21	E015S	E015S	E012S	E	E	E012S	E015S	013	014	016	015	019	023	020	016	016	015	015	012	E015S	E015S	E015S	E015S	E015S
22	E015S	E015S	E012S	E	E015S	E013S	E014S	013	015	015	015	016	016	016	018	016	015	015	E015S	E015S	E015S	E015S	E015S	E015S
23	E015S	E015S	E015S	E	E	E015S	E015S	015	015	C	C	016	016	018	016	015	015	014	E015S	E015S	E015S	E015S	E015S	E015S
24	E017S	E015S	E015S	E	E	E015S	E015S	015	015	015	015	016	017	018	015	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S
25	E015S	E015S	E014S	E	E	E014S	E015S	015	014	015	015	017	018	019	C	015	C	015	015	E015S	E014S	E015S	E015S	E015S
26	E015S	E014S	E015S	E	E	E015S	011	015	015	015	015	020	022	020	015	015	015	015	E015S	E015S	E016S	E015S	E015S	E015S
27	E015S	010	E015S	E	E	E013S	E015S	015	015	015	016	020	017	016	018	016	015	015	013	E015S	E015S	E015S	E015S	E015S
28	E015S	E015S	E015S	E	E	E015S	E016S	015	018	016	016	018	017	016	019	015	015	015	E014S	E015S	E015S	E015S	E015S	E015S
29	E015S	E010S	E015S	E	E016S	E015S	E015S	014	013	015	015	017	017	020	016	017	015	015	012	E015S	E015S	E015S	E015S	E015S
30	E015S	E015S	E015S	E	E	E014S	E016S	013	015	016	016	017	017	016	015	015	015	015	E015S	E016S	E015S	E015S	E017S	E016S
31	E015S	E015S	E015S	E	E	E015S	E016S	015	015	016	016	016	017	016	015	016	014	014	013	E015S	E014S	E015S	E015S	E015S
No.	30	30	29	29	30	30	30	30	30	28	29	30	30	30	29	30	29	30	29	30	29	30	29	29
Median	E015S	E015S	E015S	E	E	E014S	E015S	015	015	015	016	018	019	019	018	016	015	015	E015S	E015S	E015S	E015S	E015S	E015S
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 19.5Mc in 20 sec in automatic operation

f-min

IONOSPHERIC DATA

Lat. 31° 12' 1N
Long. 130° 37' 1E

Yamagawa

135° E Mean Time (G. M. T. + 9h)

M(3000) F2

Aug. 1965

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	I315S	330S	290	F	315S	340	315	375S	390	G	I305A	295	290	J300S	290	310S	315S	340S	335	330S	J310S	I305S	300	
2	I300A	U335S	S	A	J310S	I310S	325	355S	355	340	290	330S	270	285	I280S	280	300	325S	340	315	320S	I315S	300	320S	I310S
3	I305S	J310S	305S	305S	280S	325	340	340	I315A	355	340	275	260	295	295	330	300	330	325	320S	325	J900S	S	S	S
4	S	S	S	A	A	S	320	340	350	315	290	310	285	295	285S	300S	305	340	320S	325	320	315	I305S	I305S	
5	J315S	I310S	290S	I310S	J335S	I320S	340	330	325S	I315A	315	310	330	295S	310	315	295S	300	305	I325S	J335S	325S	I310S	305S	
6	285	I290S	295	I310C	I315S	J290S	340S	345	360S	365	275	300	280	285S	290S	290	300	I305A	J305S	320	U305S	J305S	295	I295S	
7	J285S	I315S	I290S	J315S	315	J310S	360S	360S	390	335	305	300S	265	325	290	295	305S	305S	320	U285S	315S	325S	305S	295S	
8	295	300S	J295S	300	320S	335	340	340	340	305	330	305	I285A	280S	290	300	310	335	I320S	310S	A	S	S	S	
9	I325S	295	J295S	285	U305S	305S	330	350	350	335	345	330	I260R	270	310	J275S	295	J300S	330	350S	I335A	U300S	I290S	J300S	
10	285	290	J295H	285	330	U300S	I310A	325S	A	A	A	295	315	U315S	280	290	300	300	J360S	I325A	290S	I295A	A	A	
11	A	A	S	S	U320H	300	320	335	340S	I380A	310	300	300	J275S	285	295	310S	335	U315S	I320S	320S	310S	A	S	
12	S	S	J320S	I290S	U295S	300	315	335	360	345	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
13	C	C	C	C	G	G	G	G	G	C	350	315	295S	275	285R	305	315S	315	I315S	J335S	290	J300S	320S	320S	
14	I290S	I280S	I305S	J335S	I305S	320	325	370	385	330	330	315	I315A	310	295	285S	305S	300	J300S	I305S	340S	335S	J305S	300	
15	I305S	J300S	335S	295S	I300S	I310S	J325S	345	375S	360	310	300	315	295	J285S	310	I310S	290S	310	I310S	I320S	S	S	A	
16	A	A	A	A	300S	345S	320	325	330	355	355	I325A	300S	I280A	290	I305R	310S	315	315S	S	330	300S	I320S	J320S	
17	A	A	A	S	300S	I310S	I340A	335	340S	I355G	345	A	A	295S	290	275	280	J280S	305	320S	I325S	J355S	315S	290S	
18	275S	290S	I305G	305	320	I310S	I355G	380	370	340	I315A	I300A	315	295	310	305	J330S	335	G	G	U355G	A	A	I290G	
19	I295S	I285S	335	320	J275S	J310S	380	J360S	345	375	I360A	310	325	285	320	300S	295S	295S	J305S	I340S	U350S	I330A	I270G	275S	
20	I285A	I285S	I285S	295S	I320S	A	A	340	330	335	320	290S	305	320	300S	330	315	315S	300S	I315S	340S	I340S	305	S	
21	S	J280S	330	320S	295	270S	J310S	335	360S	330	360	305	305	300S	330	335	280	J315S	335S	365	320S	285S	I290S	I300S	
22	I290S	I285S	I305S	I345A	270	295	315	335	330	380	340	345S	300	330	I315A	I315A	320	330	I320S	340S	340	J330S	335S	295S	
23	I295S	S	S	J295S	305	300S	305	335	370	G	G	A	A	325	335	330	330	325	335S	345	330	310S	U295S	305	
24	305	I300S	I305S	I355S	305S	290	340	380	370	355	335	280	I290A	280	295	330	I330S	335	I325S	350	325S	J335S	A	I320S	
25	I308	J305S	285	290	290	315S	335	J365S	380	320R	325	330	J310S	300	I310C	330	I325C	320	315S	J315S	U330S	J340S	I295S	I300A	
26	I295S	275	295	I290S	320S	J340S	J350S	350S	365	J360S	330	330	305	315	315	290S	U310S	J320S	305S	345S	J350S	320S	295S	I300S	
27	295S	275S	285	310S	310	370	360S	360	390	360	320S	290	295	300	295	300S	335	340	320	I335S	345	320	A	S	
28	S	S	A	J315S	I335S	325	I350S	335	355	340	345	A	A	310	I310A	295	310	310	I325S	J335S	I335A	A	S	A	
29	A	S	I305S	I340S	I340A	I325A	I365A	355	365	355S	I365A	I320A	A	A	I310A	295S	I310A	315	325	J350S	335S	A	S	A	
30	A	A	I305A	I320S	335S	J295S	350	345	I360A	J370S	I365A	340	315	A	A	A	J305S	315S	320S	315S	335S	U360S	I335S	A	
31	S	A	J325S	I335A	I315S	I315S	I350S	365	I360A	375	I345A	340	340	265	265	290	305	305	310	315	330S	I360S	S	S	
No.	19	20	23	25	28	28	29	30	29	28	28	27	26	28	29	29	30	30	30	29	28	29	24	18	19
Median	U295S	U290S	305S	310S	310S	310S	340	340	360	355	330	310	300	295	295	300	310	315	320S	325S	330S	320S	U305S	300S	
U. Q.																									
L. Q.																									
Q. R.																									

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

M(3000) F2

The Radio Research Laboratories, Japan

Y 7

Lat. 31° 12' N
Long. 130° 37' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time (G. M. T. + 9h)

0.01

M(3000) F1

Aug. 1965

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								A	A	390L	390	I395A	410H	385R	A	A	A	365	L					
2								L	A	I410A	350	365	I380A	370R	A	A	A	370	380L	L				
3							L	365L	I380A	390H	385	380	390	385	385H	390	365	360	LH	A				
4							L	L	360L	A	410	420	I350A	I370A	A	375	390	335H	A	L				
5							L	L	A	A	385H	400	I400A	395R	375S	405	380	380	345	L				
6							L	L	390L	A	390	400	I380A	400	A	A	A	A	A	A				
7							L	375	L	395	400	390R	390R	410H	400R	385R	390	375	L	L				
8							L	L	L	375L	405	410R	A	A	A	I370A	I365A	A	A	A				
9							L	L	L	I375A	400	400H	410R	400	390	A	330	I345A	365	A	A			
10							A	L	A	A	A	375S	375H	A	375	395	365	A	A	A				
11							L	L	385	A	A	400	I400A	360S	365	370	370	360	L	A				
12								A	A	A	C	C	C	C	C	C	C	C	C	C				
13							C	C	C	C	A	380	360	390	395R	380	375	350	355					
14							L	L	L	375	A	410	I405A	I405A	I380A	A	I365A	360	L					
15							L	L	A	A	365	I370A	A	390	I355A	360	385	I365A	350					
16							L	L	385	A	A	A	A	A	385R	370R	A	350	310	A				
17							L	L	360	C	A	A	A	A	A	385S	375	365H	370L					
18							G	L	L	385	I405A	I375A	I355A	405R	375	360H	370	385	C	C				
19							L	L	L	390	380	A	440R	410H	385R	405H	360	365	A	L				
20							A	L	L	360	380	A	A	A	A	A	370	365	340L	355L				
21								A	L	395L	LH	L	365	A	A	395	370	350	345	L				
22							L	L	L	385	370H	395	400	410S	A	A	A	340	A					
23							355L	A	C	C	A	A	A	A	A	A	365	355	L					
24								A	A	A	L	L	I385A	I375A	385S	390	355	355	L	L				
25							L	L	L	A	L	400	395	410R	385	I370C	370	C	L	L				
26							L	L	400	370	385	400	A	A	390	350	345	340	L					
27							415	L	L	390	A	I430A	440	375H	385	365	370	370	L					
28							L	L	L	L	395	A	A	A	A	365	375	360	A					
29								A	A	A	A	A	A	A	A	A	A	A	A					
30								A	A	A	A	A	410R	A	A	A	A	345	L					
31							A	A	A	A	I395A	395	I390A	400	380	365	345	350L	L					
No.							1	3	13	13	16	22	20	19	18	21	22	24	8					
Median							415	365L	385	380	395	395	395	390	385	370	365	360	355					
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F1

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Lat. 31° 12' N
Long. 130° 37' E

Yamagawa

135° E Mean Time (G. M. T. + 9h)

h'F₂

Aug. 1965

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								345	240	230	G	A	370	350	325	305	305	280	255					
2							255	E250A	300	375	310	E500A	430	355	360	300	300	265	240	230				
3							270	I300A	250	290	460	480	355	300	300	350	320	300	260	260				
4							250L	270	280	E340A	385	350	400	365	350	310	340	280	295	255				
5							270	270	255	E325A	A	325	335	310	370	375	350	370	330	295	240			
6								270	250	265	425	380	410	350	330	325	300	I310A	330	265				
7								230	225	230	325	350	380	460	335	375	345	320	295	280	275			
8								255	245	280	350	300	355	I410A	375	325	305	290	270	275	280			
9								265	250	295	300	315	R	450	325	325	330	300	265	240				
10							I320A	300	A	A	A	345	295	295	395	350	300	270	240	A				
11								270	260	I240A	E350A	380	340	335	340	310	290	270	260	240				
12								290	250	290	G	G	C	C	C	C	C	C	C	C				
13								G	C	C	G	275	335	365	440	400R	315	300	275					
14								235	230	300	300	335	I335A	320	340	330	315	300	295					
15								255	230	265	350	E350A	320	360	330	300	285	340	290					
16								275	250	250	290	I335A	375	I410A	360	310	305	300	280	240				
17								300L	280	I255G	290	A	A	E365A	370	385	345	335	280					
18								C	220	240	300	A	I375A	350	335	300	290	275	285	C				
19								230	285	245	I280A	360	315	400	300	335	320	310	290					
20								A	275	285	275	300	365	325	320	305	290	295	290					
21								255	235	295	275	350	345	345	290	295	375	300	255					
22								295	285	240	295	295	380	325	A	I320A	310	280	270					
23								280	225	C	C	A	A	300	290	300	300	290	245					
24									245	280	260	350	I375A	390	325	280	275	255	255	215				
25								275	230	240	285	320	305	345	355	I320G	300	I290G	300	295				
26									230	245	265	295	320	325	315	295	340	305	285	280				
27									225	235	290	325	375	325	300	300	300	270	250	280				
28									250	240	290	275	A	A	I350A	340	310	300	270					
29									250	250	255	A	A	A	A	E370A	I300A	275	250					
30									E260A	A	255	A	E320A	350	A	A	320	290	265					
31									I235A	250	I275A	300	295	445	430	330	295	290	260					
No.								8	29	28	27	25	25	28	27	29	30	30	29	11				
Median								260	255	250	270	300	350	350	330	310	300	290	275	240				
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 19.2Mc in 20 sec in automatic operation

h'F₂

Lat. 31° 12.1' N
Long. 130° 37.1' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time (G. M. T. + 9h)

km *f*'F

Aug. 1965

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	285	300	240	E250A	300	260	250	A	A	225	190	I200A	195H	230	A	A	A	260	I220A	240	255	280	250	270	
2	I310A	220	300	I285A	280	265	245	E250A	I230A	A	E270A	270	A	240	A	A	A	235	225	230	230	255	250	250	
3	265	245	275	270	300	240	250	225	I205A	175H	240	220	220	215	200H	225	225	225	220H	I245A	245	280	I305A	290	
4	290H	E340A	A	I250A	I265A	260	230	220	E250A	A	200	190	A	A	A	220	205	215	215H	A	I250A	245	260	305	275
5	275	275	275	270	240	255	245	A	A	A	175H	200	I205A	210	225	205	215	205	225	A	A	215	245	290	250
6	290	315	275	I260C	270	245	250	230	250	A	220	205	I230A	225	A	A	A	A	A	A	A	250	265	260	300
7	260	250	260	265	250	240	200	200	205	195	200	210	200	180H	210	200	225	225	240	250	230	215	245	260	
8	265	270	275	260	230	225	235	225	225	215	200	200	A	A	A	A	A	A	A	A	I260A	240	I280A	250	
9	270	285H	270	275	245	285	245	230	210	A	210	190H	210	210	220	A	E270A	A	220	I230A	I250A	225H	300	270	
10	300	290	290H	280	255	245	I270A	E250A	A	A	A	230	205H	I215A	230	205	250	A	A	A	E320A	A	A	A	
11	A	A	285	250	175H	300	245	245	E230A	A	A	190	I200A	E260A	210	210	230	E250A	E250A	A	240	270	I275A	270	
12	240	E300S	270	260	250	255	230	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
13	C	C	C	C	C	C	C	C	C	C	A	E250A	E280A	215	205	205	225	230	240	240	215	250	270	245	
14	250	300	250	235	225	260	250	245	I220A	210	I200A	210	I205A	I200A	I225A	I245A	I210A	220	E275A	280	230	225	275	280	
15	260	270	245	200	275	265	245	240	A	A	E260A	A	A	205	A	240	225	A	E255A	270	250	265	230	A	
16	A	A	A	A	290	265	240	230	E250A	A	A	A	A	A	225	200	240	240	240	255	A	230	275	I250A	225
17	I255A	I260A	I270A	265	280	I260A	I240A	245	E275A	C	A	A	A	A	A	225	225	225	220H	E250A	240	235	205	250	275
18	320	300	I280C	255	250	265	230	220	210	200	I210A	I230A	I240A	220	200	225H	235	E250A	C	C	230	A	A	I300C	
19	E300A	350	280	290	310	275	205	205	220	210	I200A	180	190H	230	195H	245	E260A	E280A	260	240	215	A	C	345	
20	I335A	E350A	E325A	245	250	A	A	E250A	E250A	210	A	A	A	A	A	220	225	225	225	230	245	220	225	255	305
21	290	280	230	220	260	305	245	I240A	235	200H	250	250	I225A	I240A	225	220	240	I235A	250	220	E240A	E350A	305	280	
22	285	300	255	A	E355A	E320A	240	E275A	230	210H	210	200	200	200	A	A	A	E250A	A	230A	225	250	250	250	
23	300	300	300	270	270	315	255	230	I220A	C	C	A	A	A	A	A	230	240	A	A	240	245	245	275	
24	250	270	285	240	E310A	E350A	255	210	A	A	A	210	I225A	A	225	215	240	210	220	I210A	250	270	A	E290A	
25	250	295	300	275H	260H	260	235	230	I220A	215	195	180	190	220	I205C	260	I215C	230	245	235	240	250	255	I285A	
26	275	275	285	270	250	225	220	230	215	A	E250A	180	A	A	205	250	E280A	270	255	240	235	230	E350A	270	
27	300	340	310	300	250	200	200	240	220	200	I195A	I185A	180	230H	225	225	220	240	A	250	E250A	220	A	300	
28	I285A	245	I260A	250	225	240	230	210	I240A	210	215	A	A	A	A	E230A	200	230	I235A	240	I250A	A	330	A	
29	A	A	295	270	250	A	A	I245A	I240A	A	A	A	A	A	A	A	A	A	A	240	230	A	E300A	A	
30	A	I300A	A	275	235	E300A	230	A	A	A	A	A	210	A	A	A	A	A	230	I260A	235	205	A	A	
31	300	I285A	265	I240A	275	270	230	A	A	A	I210A	190	I200A	200	205	E250A	240	235	240	250	225	205	A	325	
No.	26	28	27	28	29	28	29	25	21	13	20	22	19	19	17	21	22	24	21	23	30	25	23	25	
Median	280	285	270	260	255	260	240	230	220	210	205	200	205	215	210	200	225	230	235	240	235	250	270	275	
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

f'F

IONOSPHERIC DATA

Lat. 31° 12' 1N
Long. 130° 37' 1E

Yamagawa

135° E Mean Time (G. M. T. +9h)

km

f_o'Es

Aug. 1965

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	110	110	115	140	130	130	120	120	105	110	155	105	100	100	130	125	100	120	120	115	110	
2	110	110	110	105	110	110	110	130	125	120	120	140	130	120	120	120	125	135	125	110	105	100	100	
3	115	115	115	110	110	130	130	110	105	120	110	110	110	105	105	150	145	100	125	100	100	120	115	
4	105	105	105	105	105	100	125	125	120	110	110	105	130	125	125	145	g	g	115	110	105	105	105	
5	100	100	100	105	110	105	120	110	105	105	105	100	100	100	125	120	115	110	105	105	105	105	100	
6	105	120	120	g	s	100	155	130	120	115	115	150	130	125	140	125	120	120	120	110	105	105	110	
7	105	105	105	100	110	s	s	140	100	105	105	105	140	110	110	105	100	100	115	s	s	s	s	
8	s	100	100	s	e	s	110	115	110	110	115	110	105	105	140	105	130	120	115	110	110	110	105	
9	100	120	100	100	100	105	140	150	120	105	105	130	125	g	125	120	120	110	110	105	100	100	100	
10	100	100	100	100	100	100	115	110	105	105	100	150	140	150	145	130	120	110	110	110	110	110	105	
11	100	100	100	100	e	110	130	125	110	105	105	105	105	105	105	100	100	120	110	100	100	100	110	
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Median	100	105	100	100	100	105	120	120	120	115	110	105	105	110	105	120	120	120	115	110	105	105	105	
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 9.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Lat. 31° 12.1'N
Long. 130° 37.1'E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time (G.M.T. +9h)

Types of Es

Aug. 1965

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	
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2	f5	f2	f2	f2	f	12	13b2	b4	b2	b2	h	h	h	b2	b2	b2	h	h	e4	e3	f2	f	f	f	
3	f2f	f2	f2	f2	f2	e	e2	e4	e2	e	e	1	1	1	1	h1	h1	1 h	e13	12	f2	f2	f7	f3	
4	f3	f3	f3	f4	f4	13	e1	e12	e2	e3	e2	1	h212	h	h	h		e3	13	13	f4	f3	f	f2	
5	f3	f2	f3	f2	f2	12	e	e2	e3	12	1	1	12	1	1	h21	h	e	12	12	f4	f2	f2	f	
6	f2	f f2	f f2			1	h1	h12	e1	e21	e	h	h1	h	h	h2	e2	e2	e2	e4	f2	f3	f3	f3	
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9	f2	f f	f	f	f2	1	h	b2e	e	1	1	1	h1	h e		h2	h	h3	e3	e3	f5	f3	f3	f2	
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13											12	1	1	1	1	1	1	h12	12	f2	f2	f2	f2	f2	
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No.																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

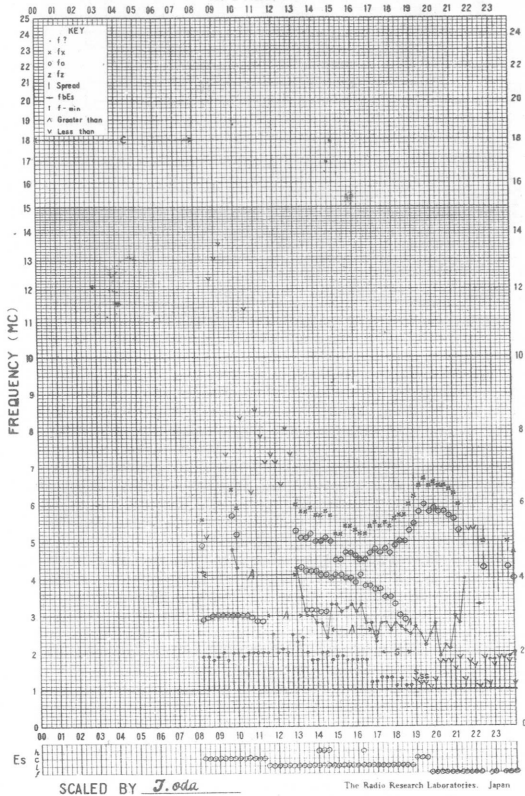
The Radio Research Laboratories, Japan

Y 12

Types of Es

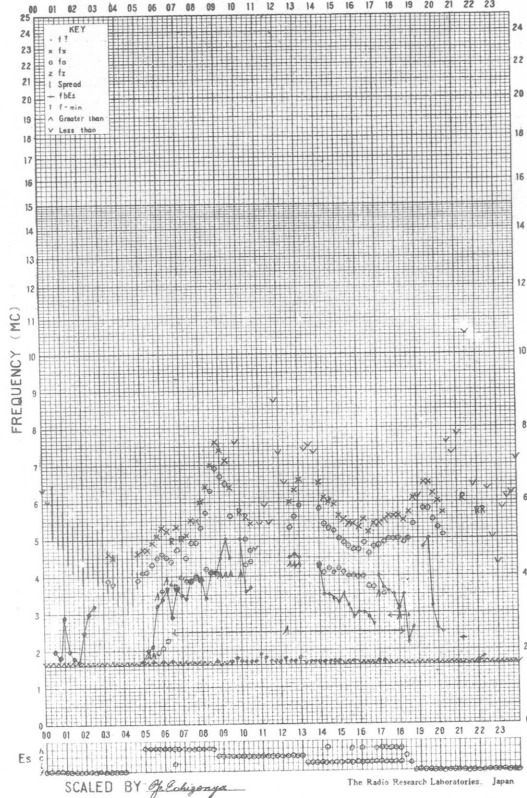
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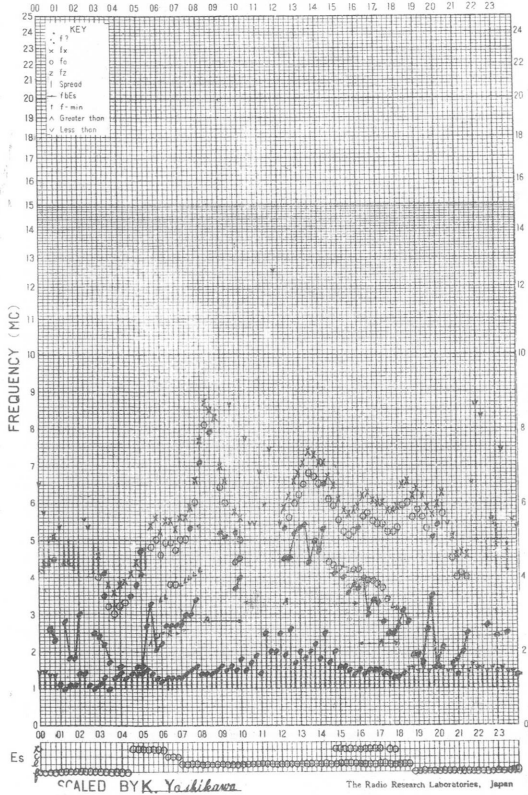
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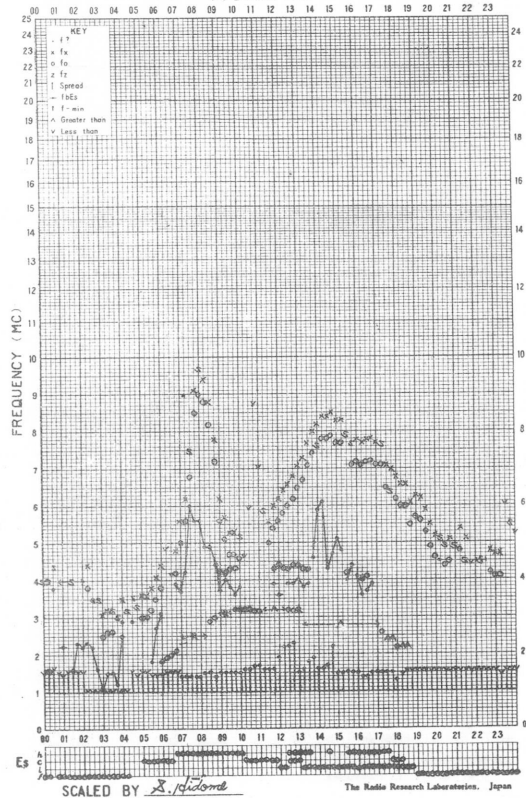
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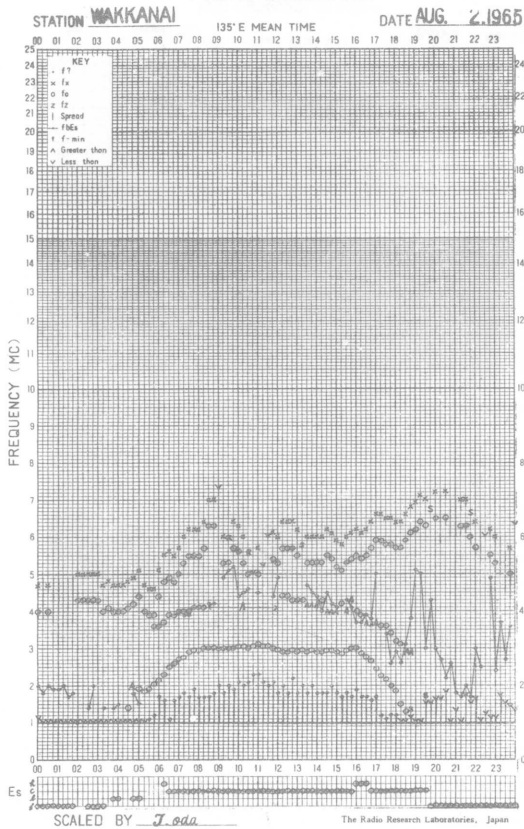


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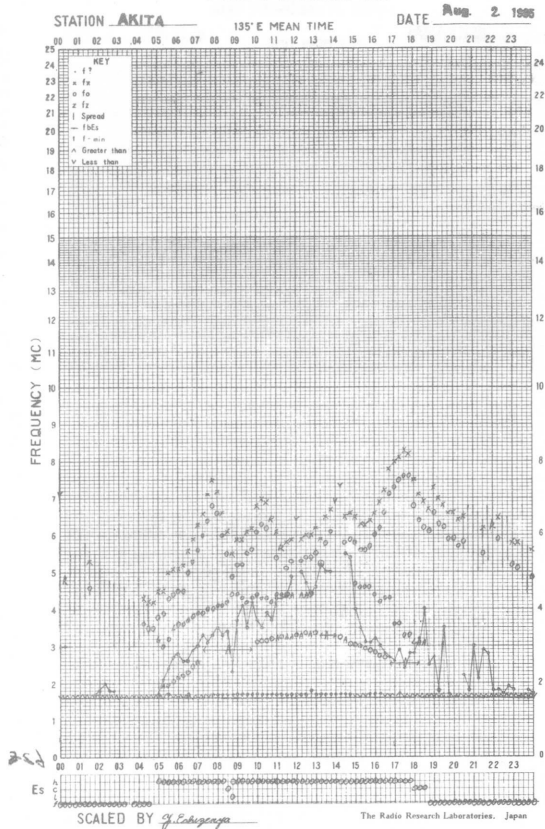
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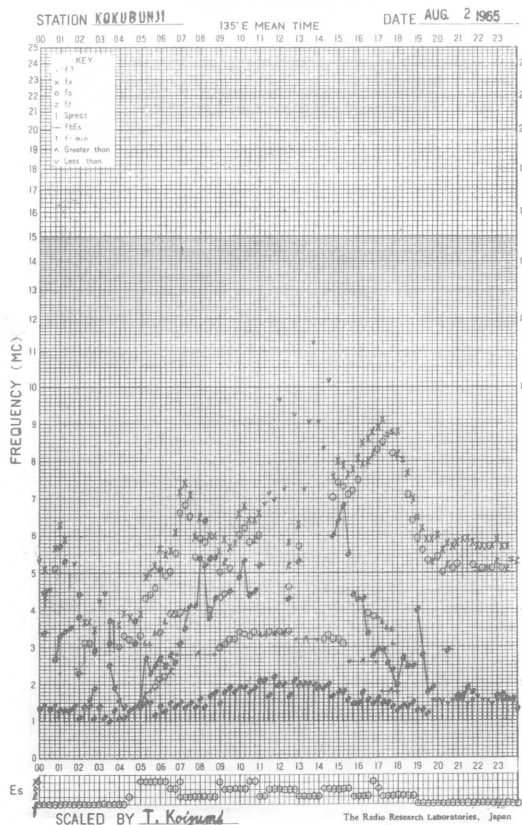
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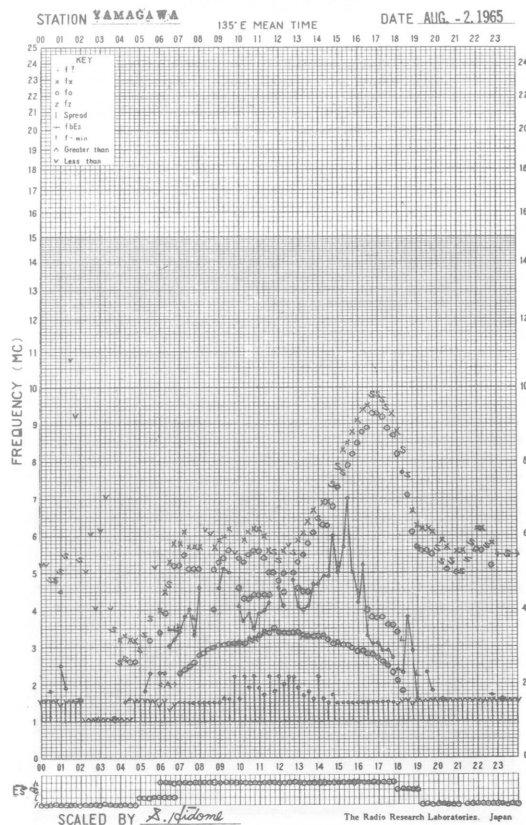
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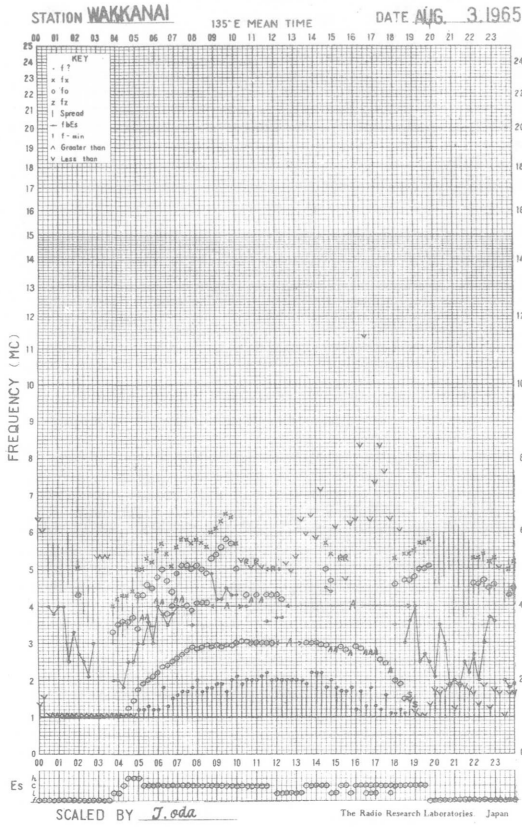
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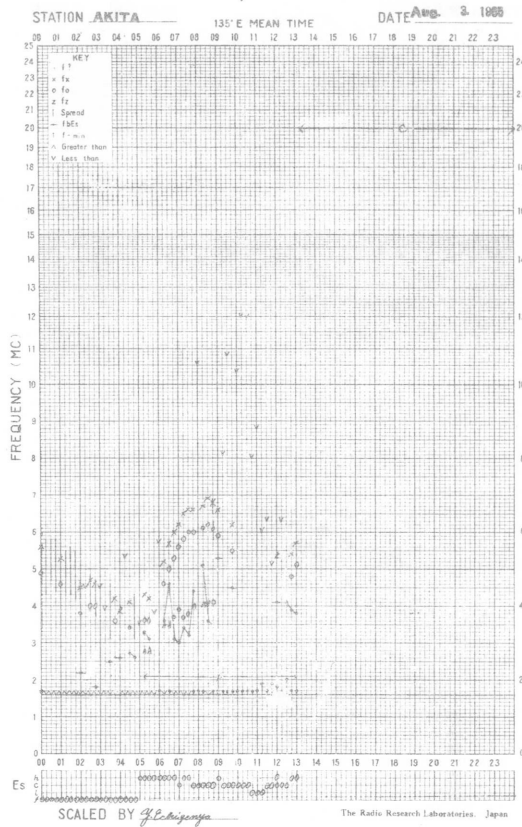
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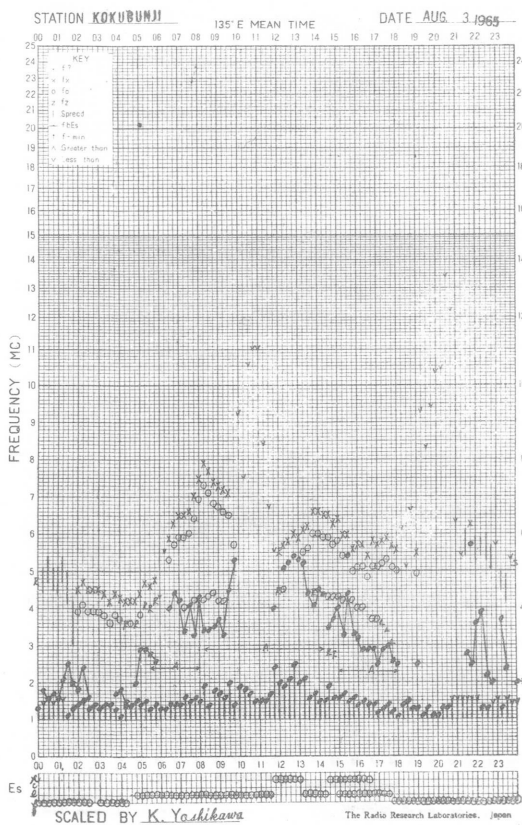
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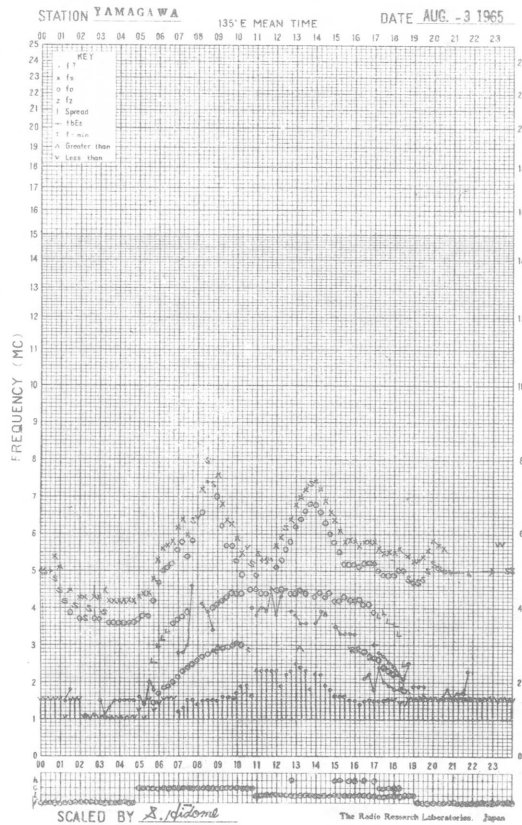
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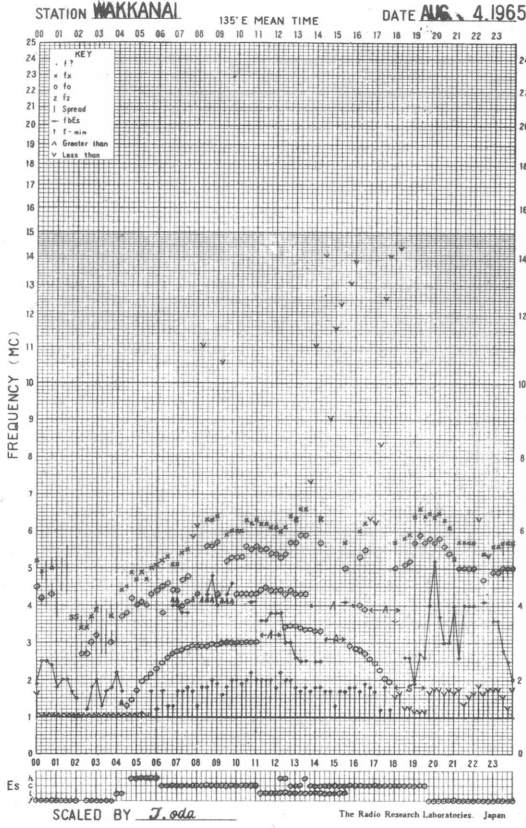
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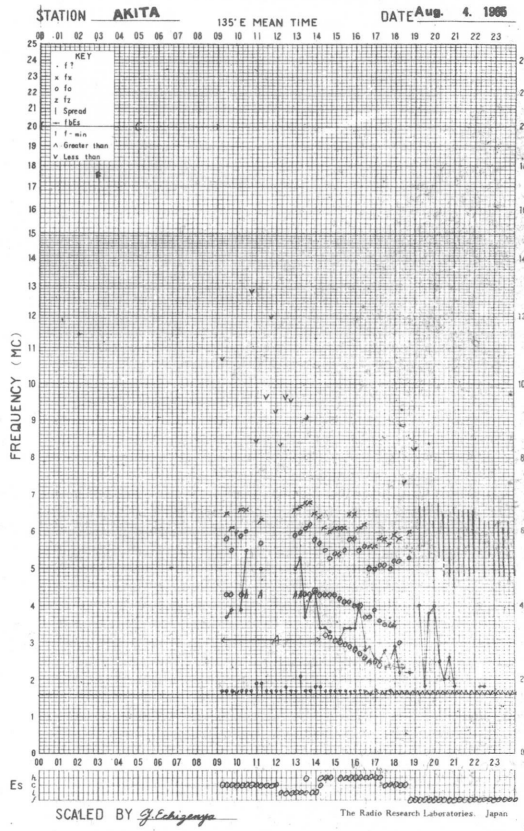
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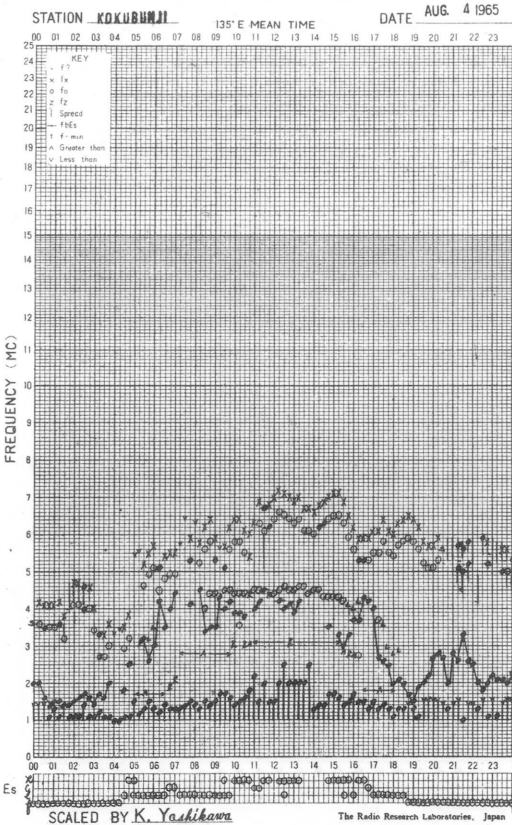
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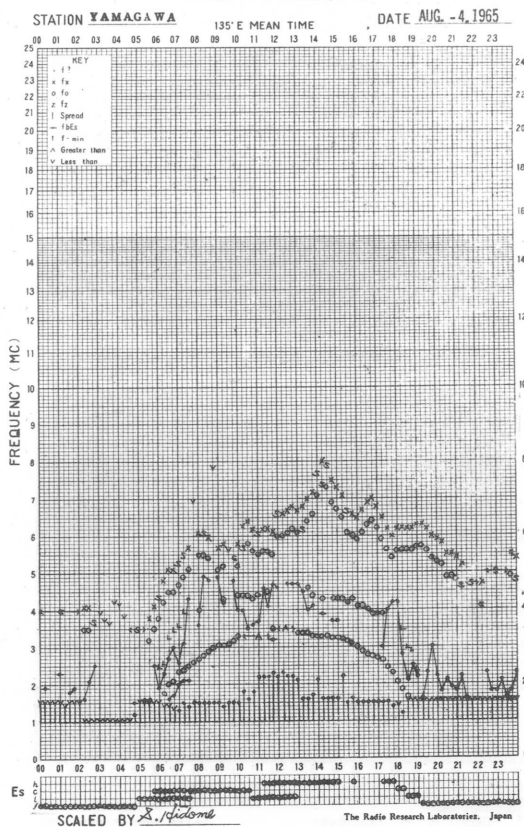
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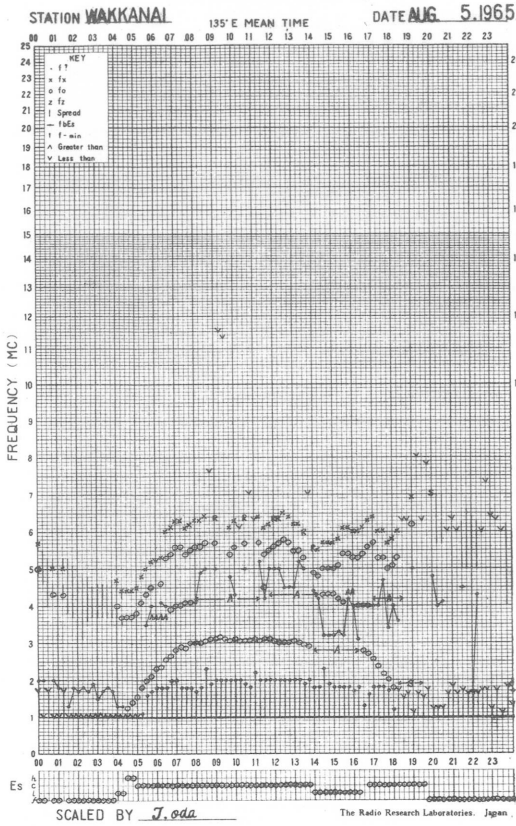
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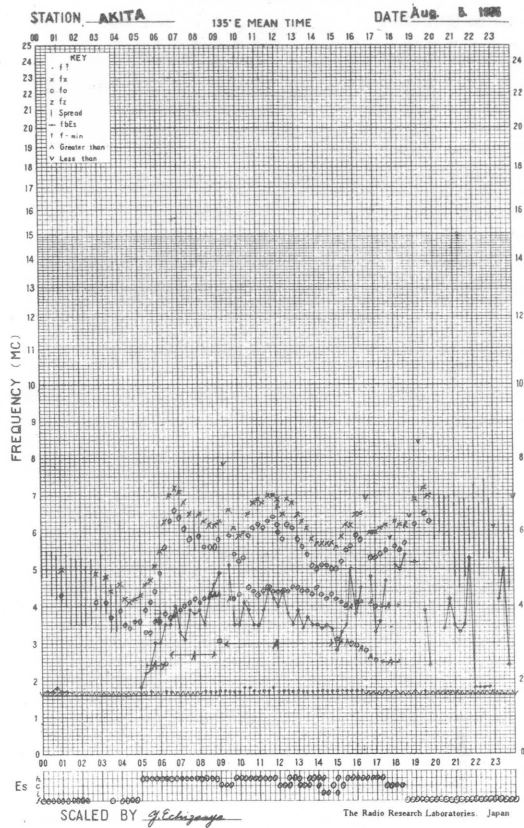
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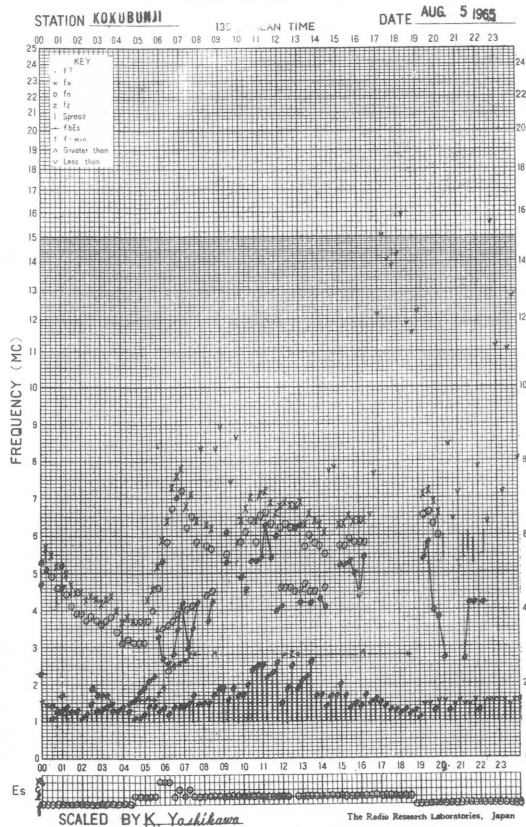
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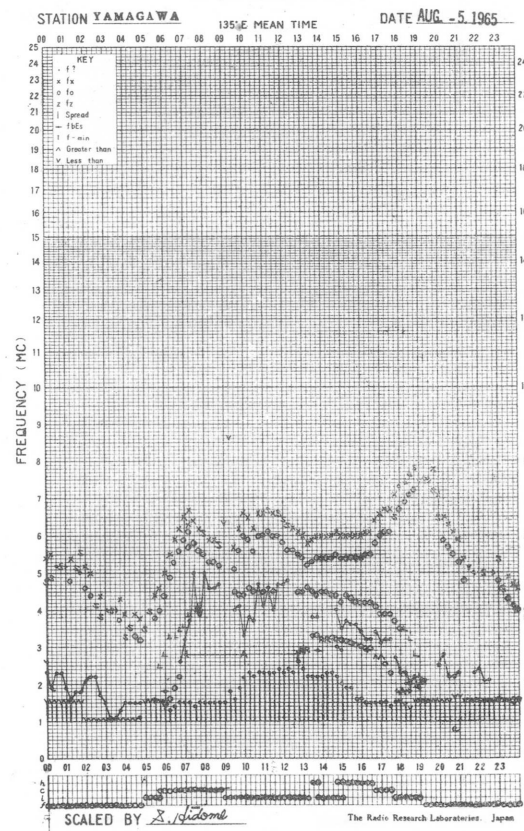
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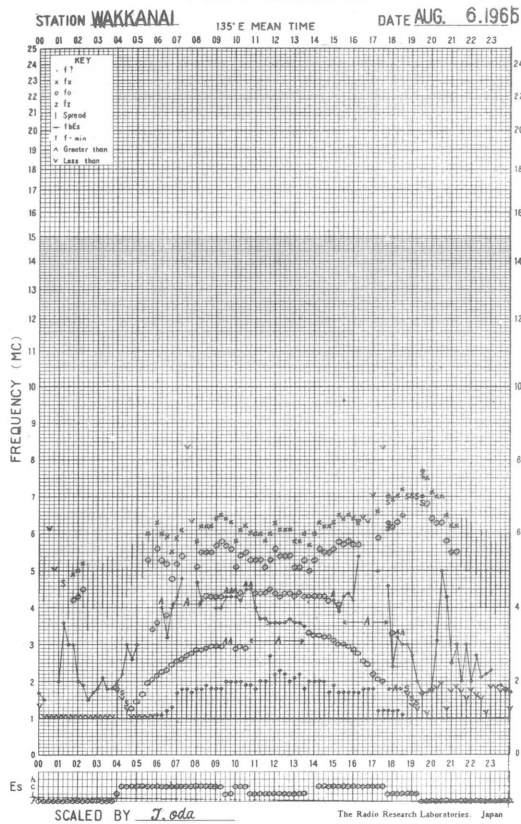
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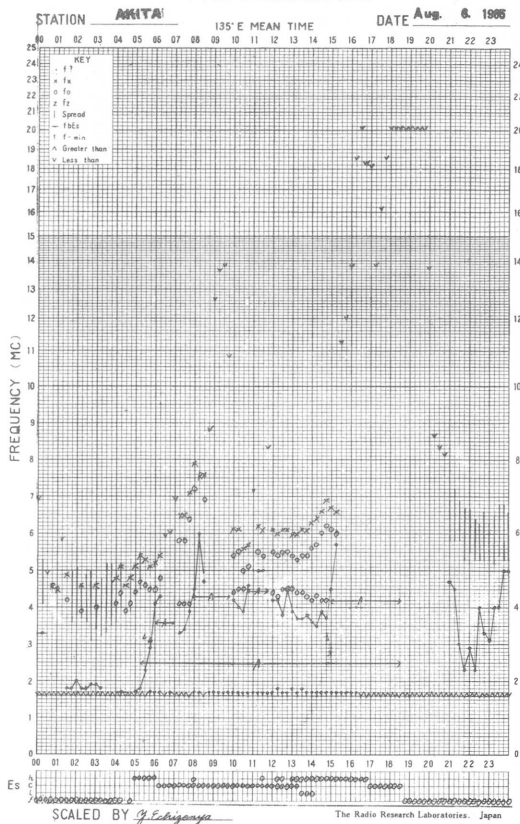
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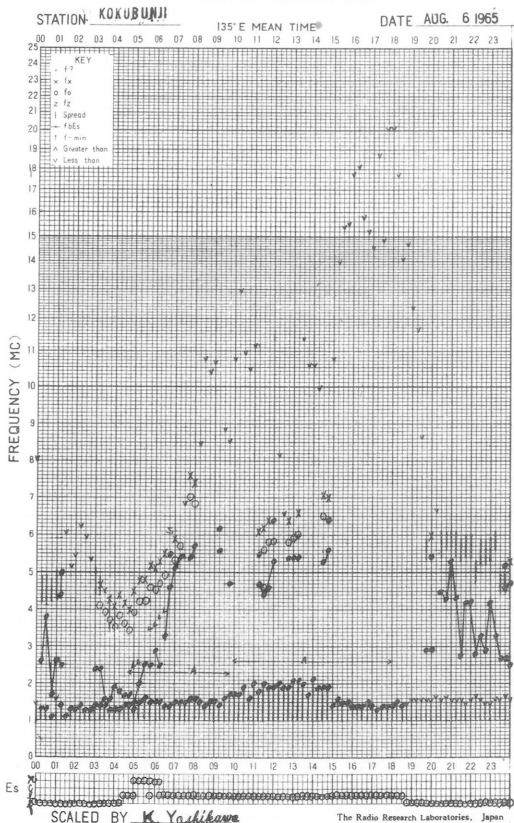
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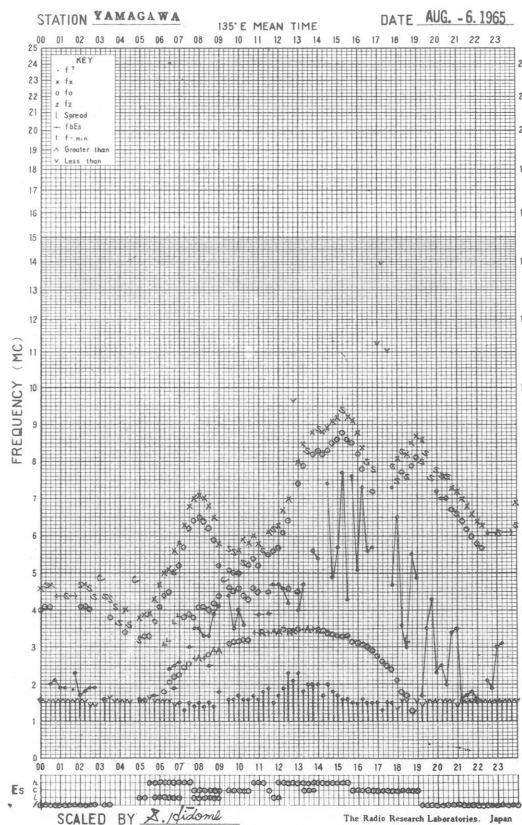
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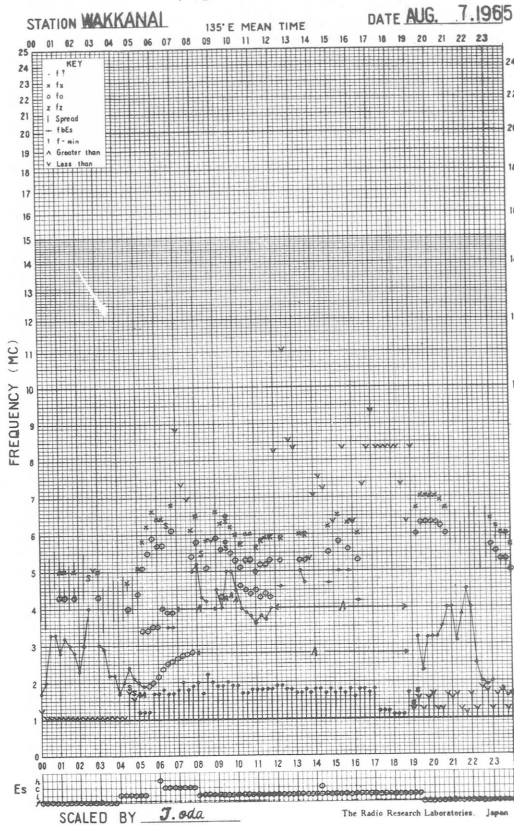
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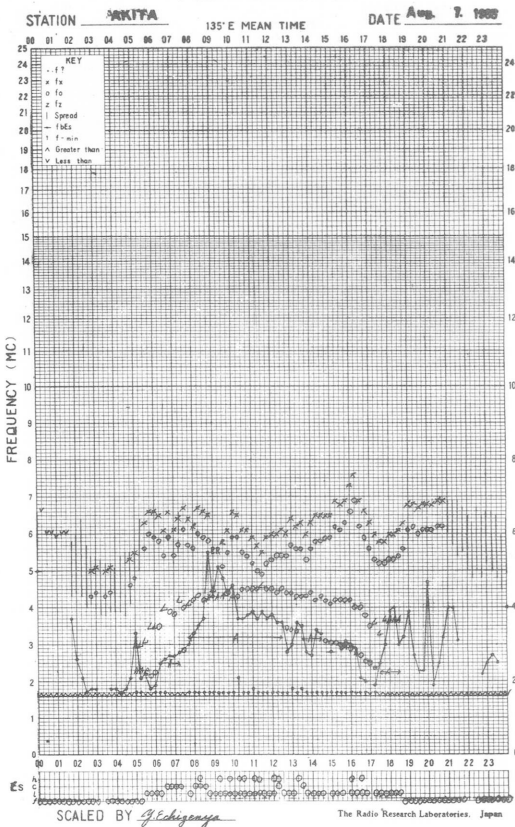
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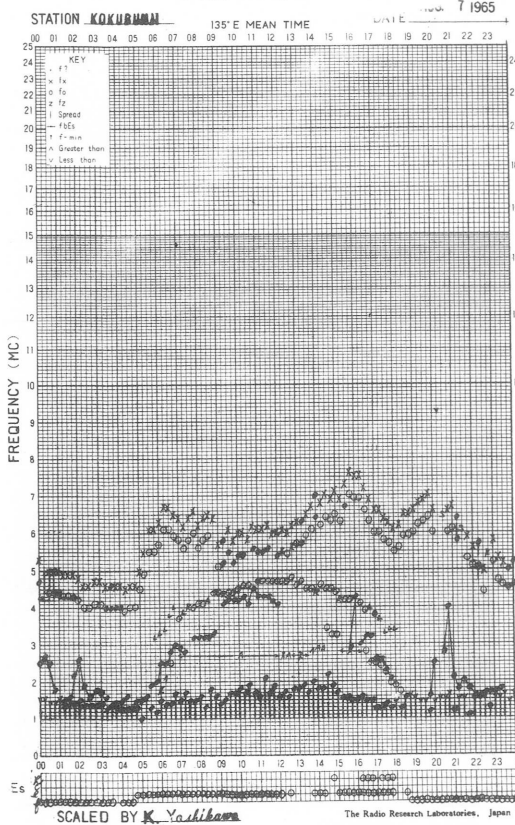
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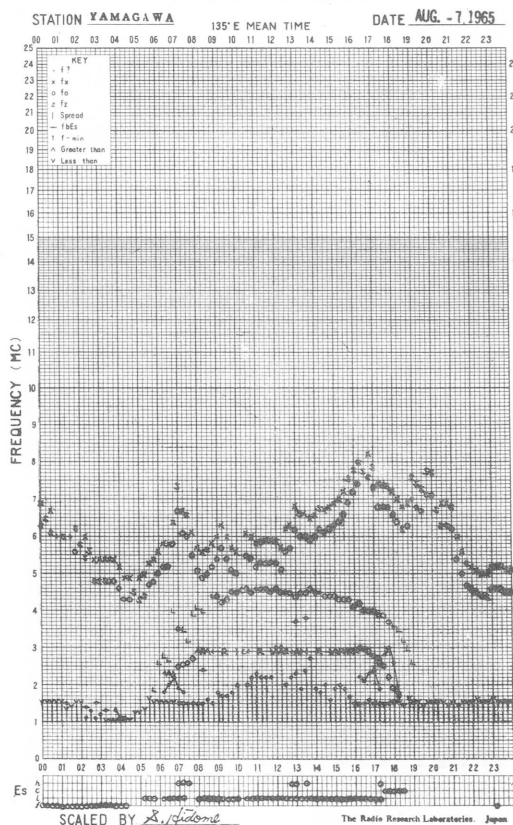
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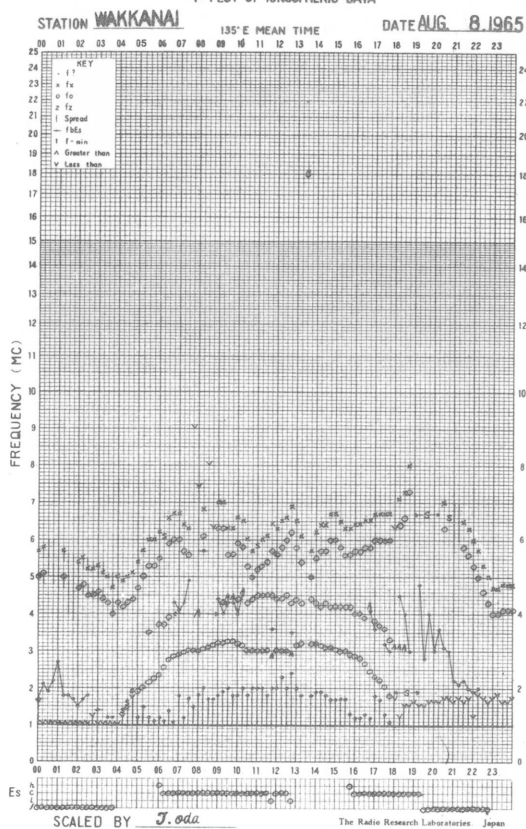
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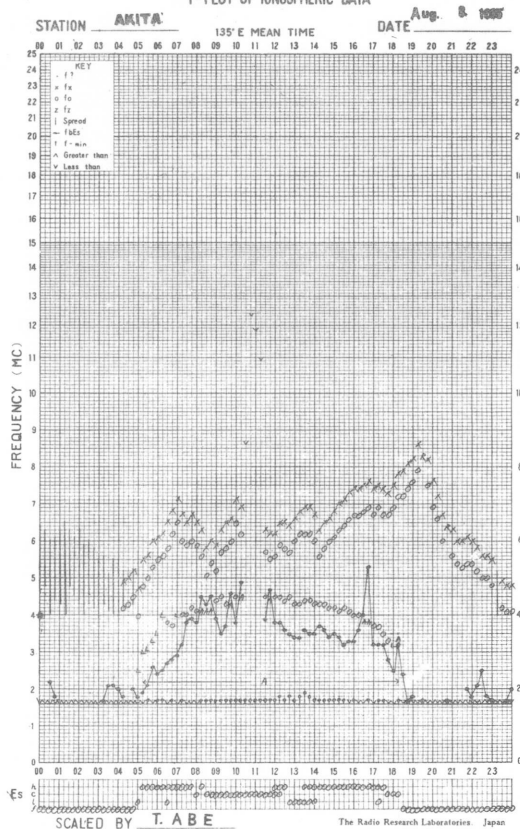
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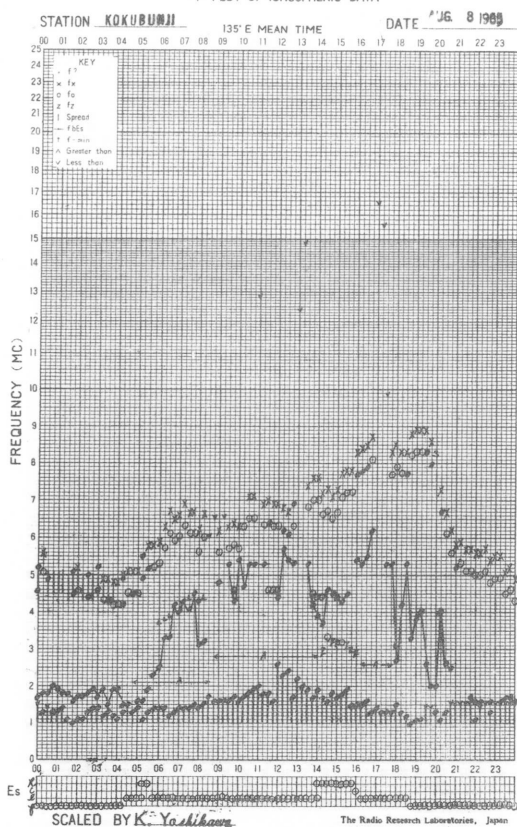
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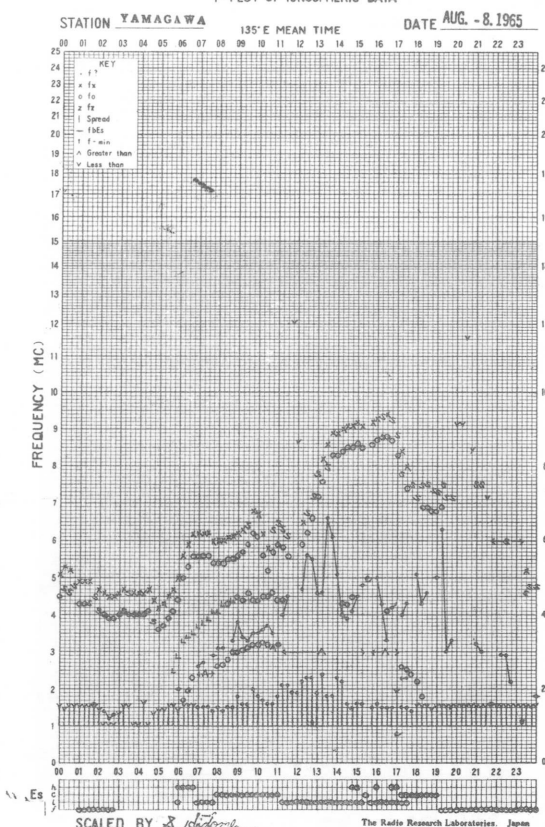
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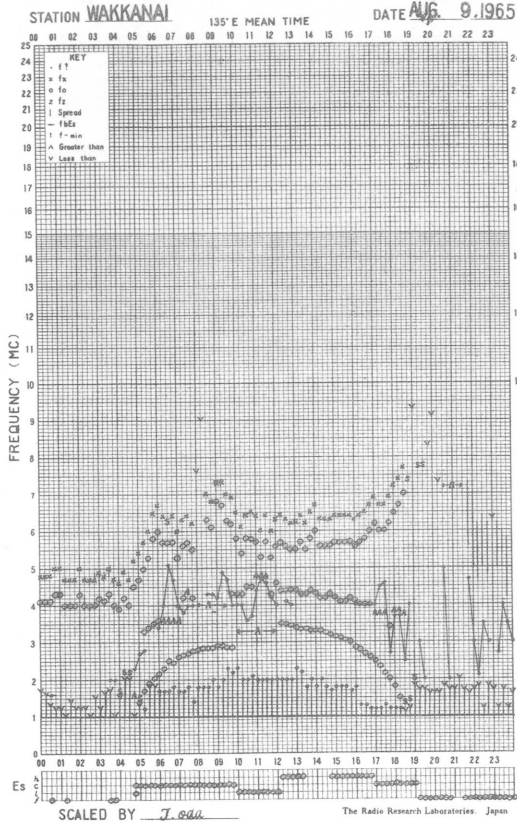
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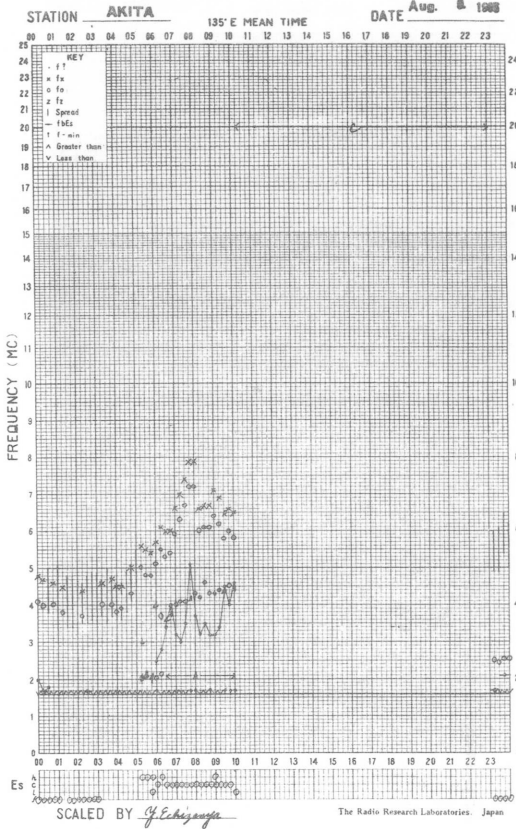
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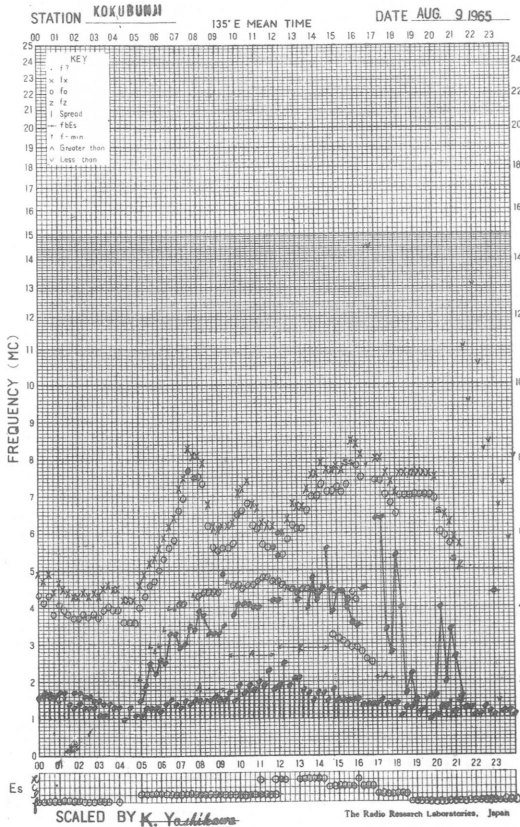
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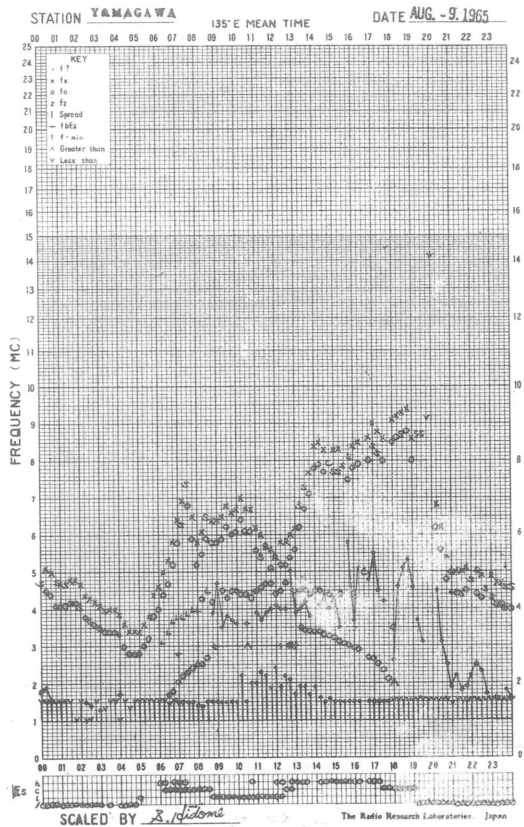
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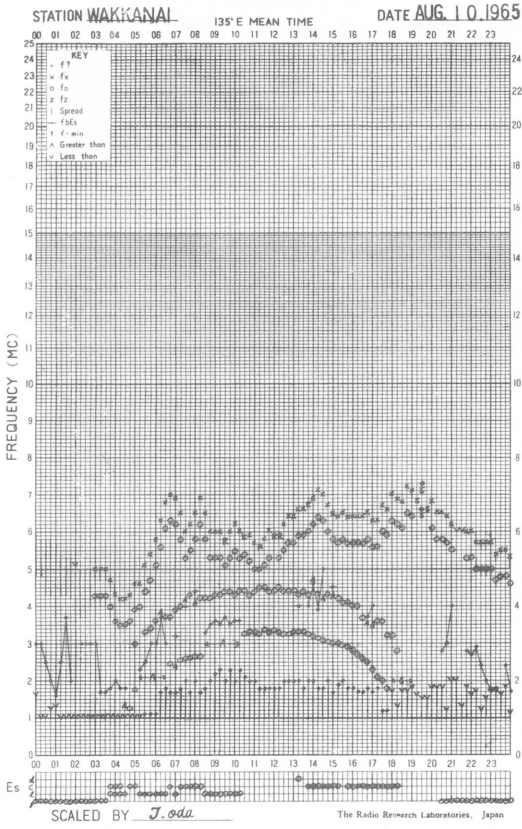
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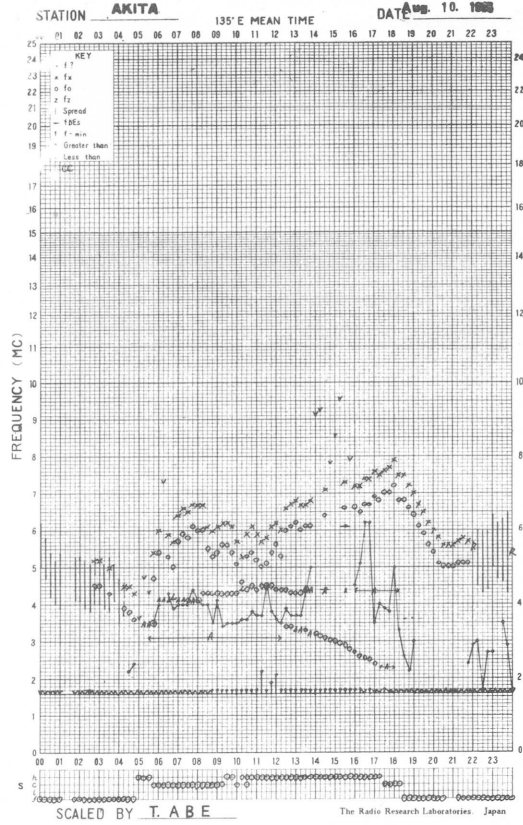
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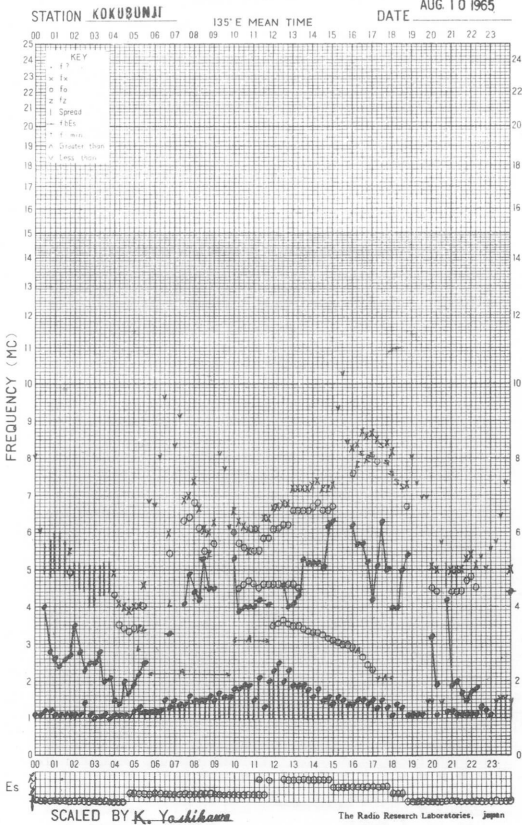
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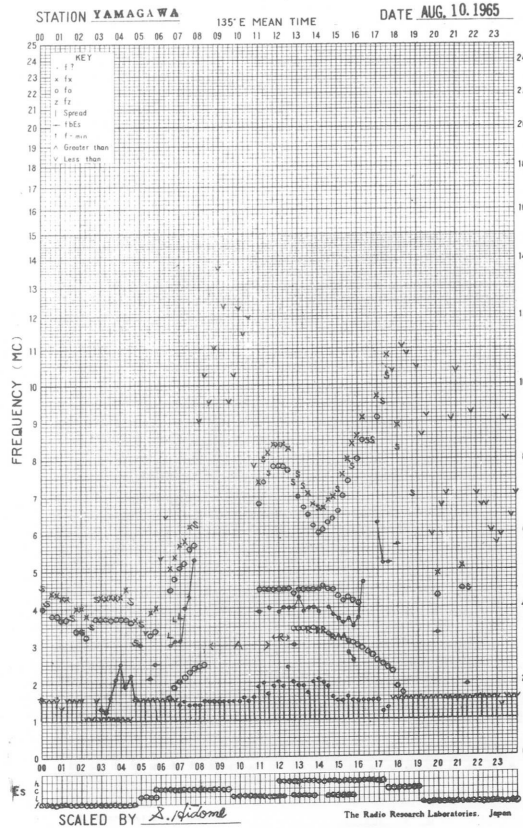
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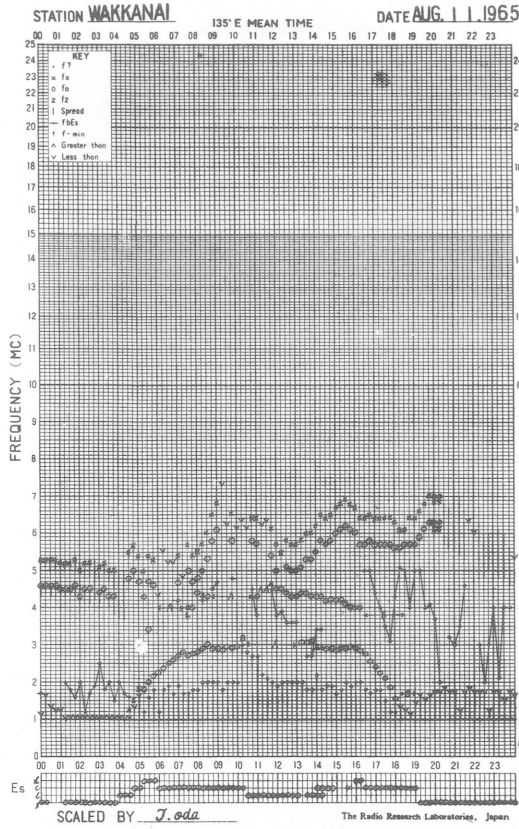
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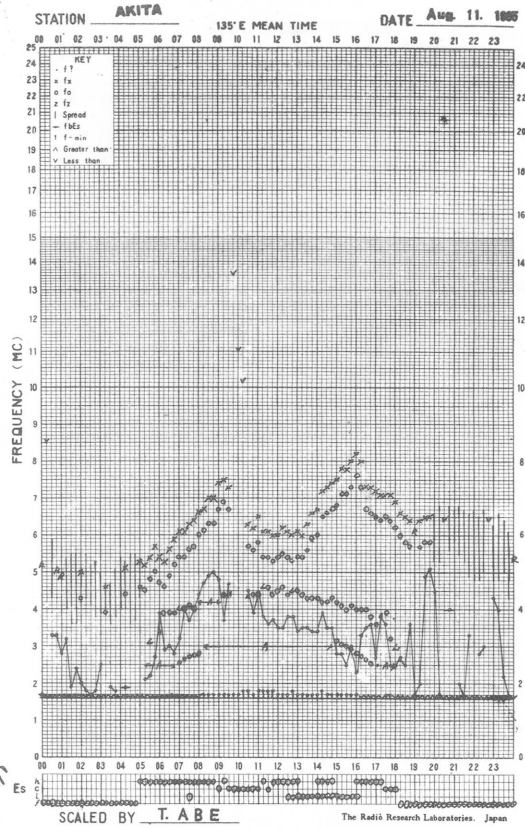
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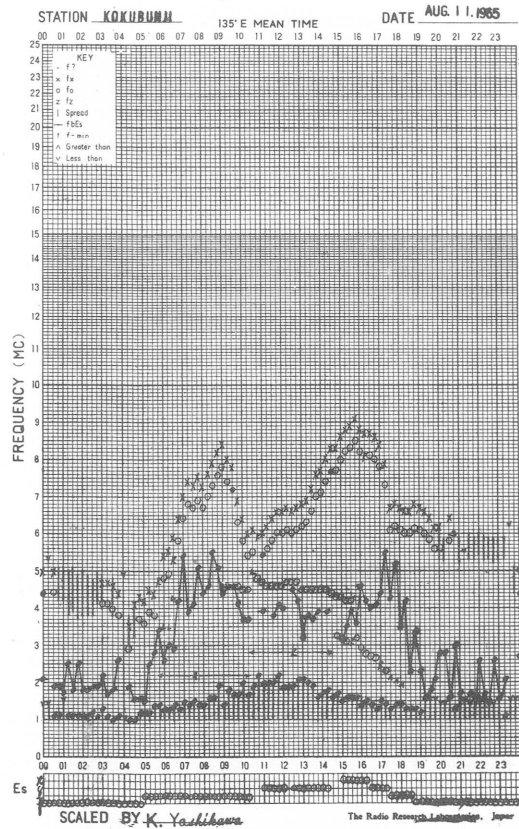
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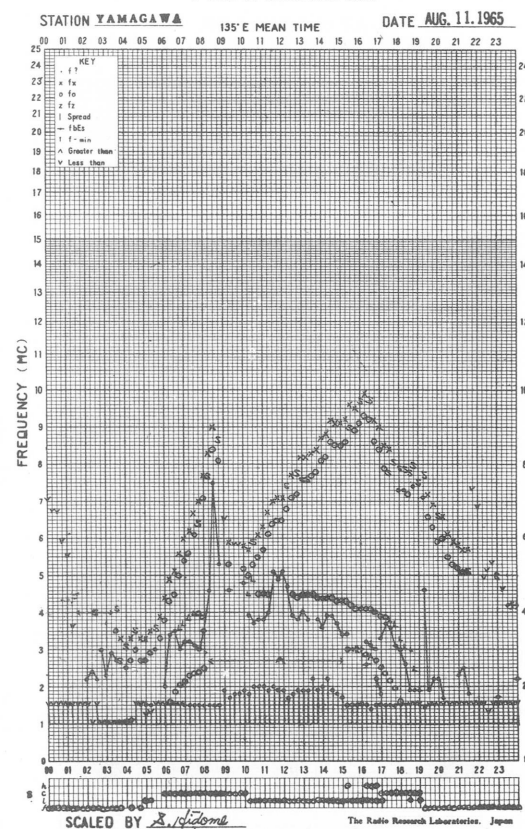
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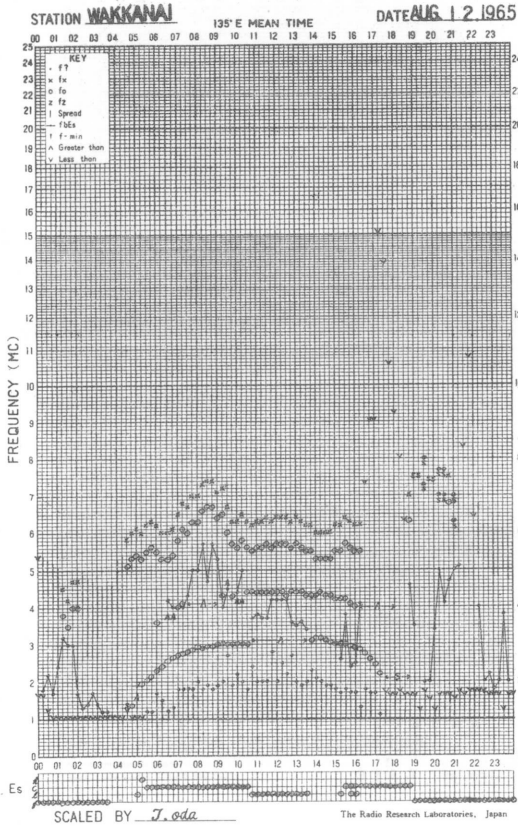
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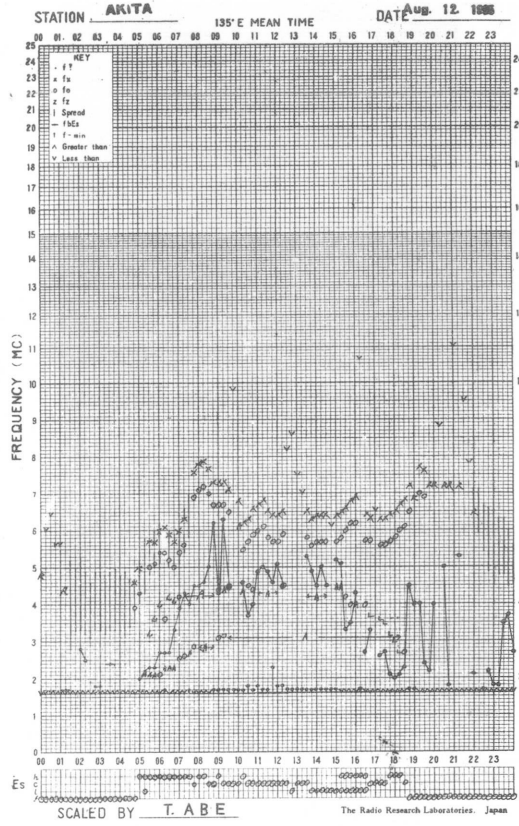
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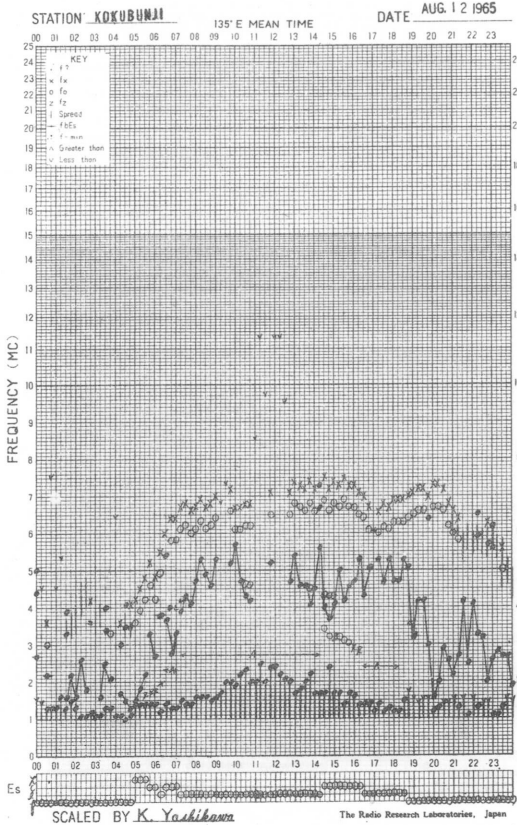
f- PLOT OF IONOSPHERIC DATA



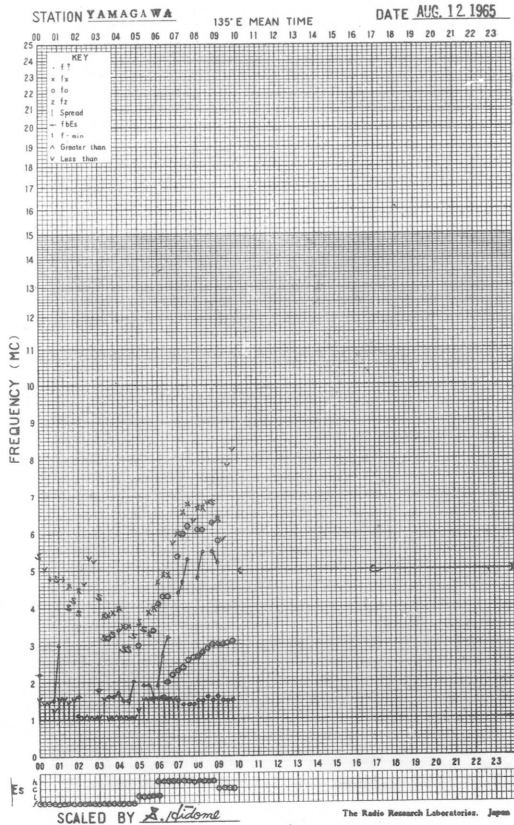
f- PLOT OF IONOSPHERIC DATA



f- PLOT OF IONOSPHERIC DATA

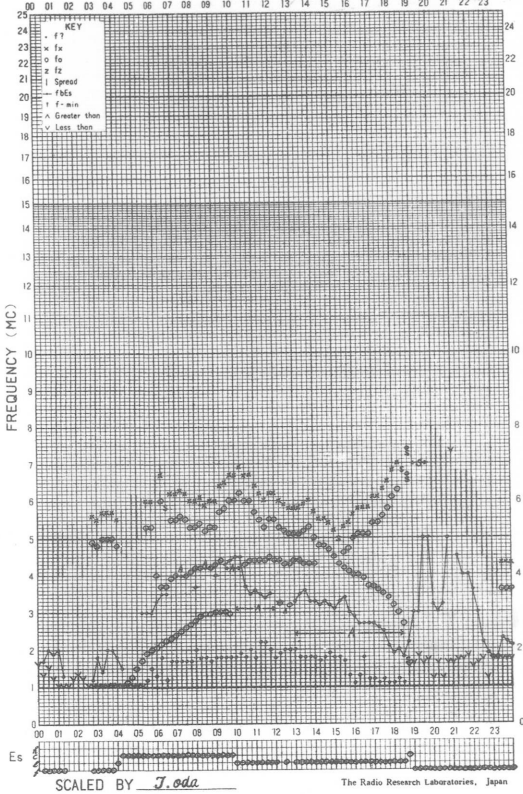


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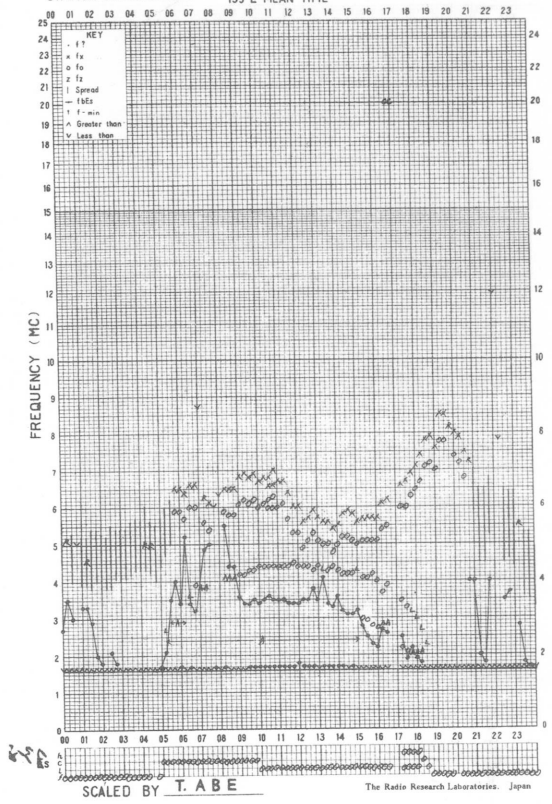
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STATION **WAKKANAI** 135° E MEAN TIME DATE **AUG. 13. 1965**



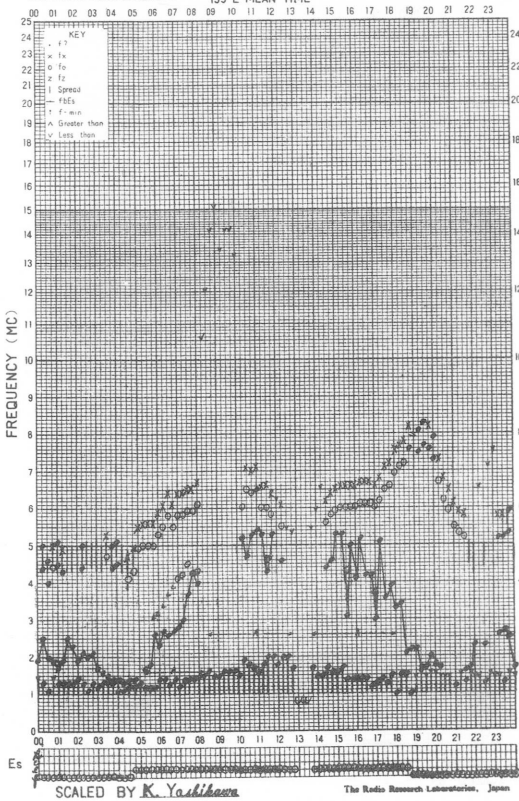
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STATION **AKITA** 135° E MEAN TIME DATE **Aug. 12. 1965**



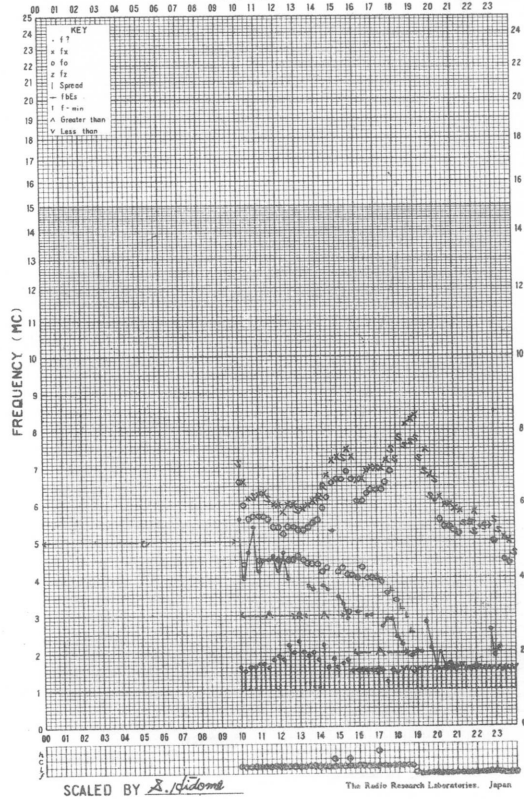
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STATION **KOKUBUNJI** 135° E MEAN TIME DATE **AUG. 13. 1965**



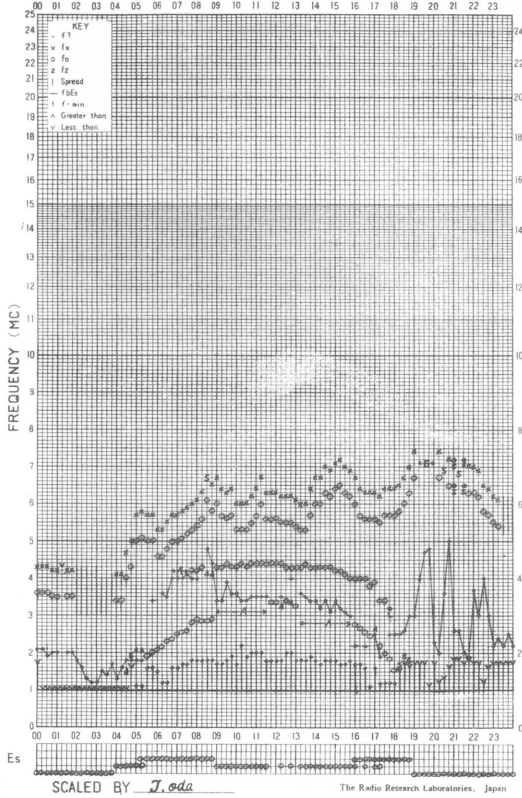
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STATION **YAMAGAWA** 135° E MEAN TIME DATE **AUG. 13. 1965**



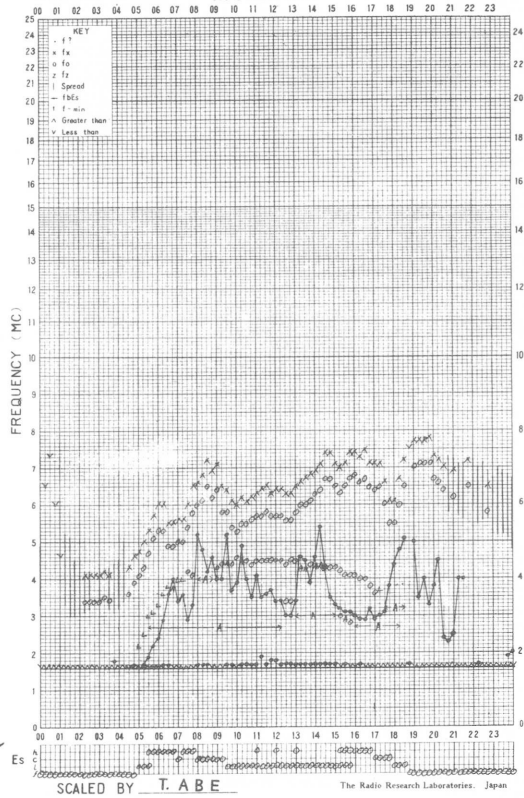
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STATION WAKKANAI 135° E MEAN TIME DATE AUG. 14, 1965



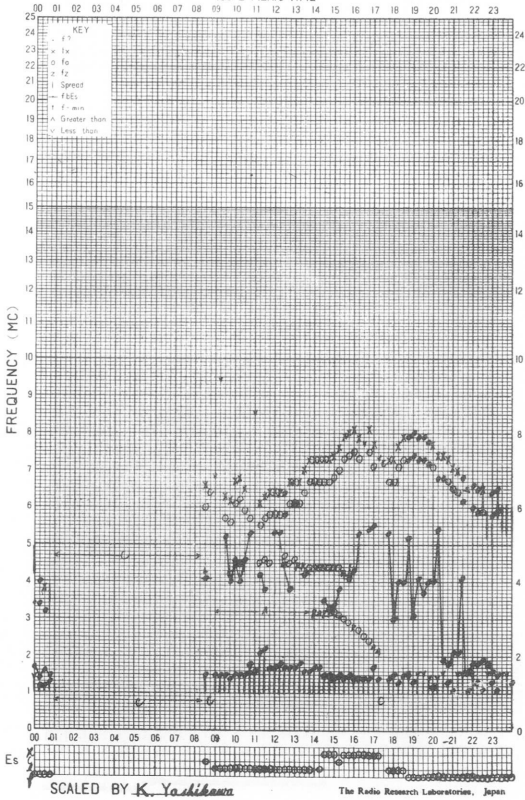
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STATION AKITA 135° E MEAN TIME DATE Aug. 14, 1965



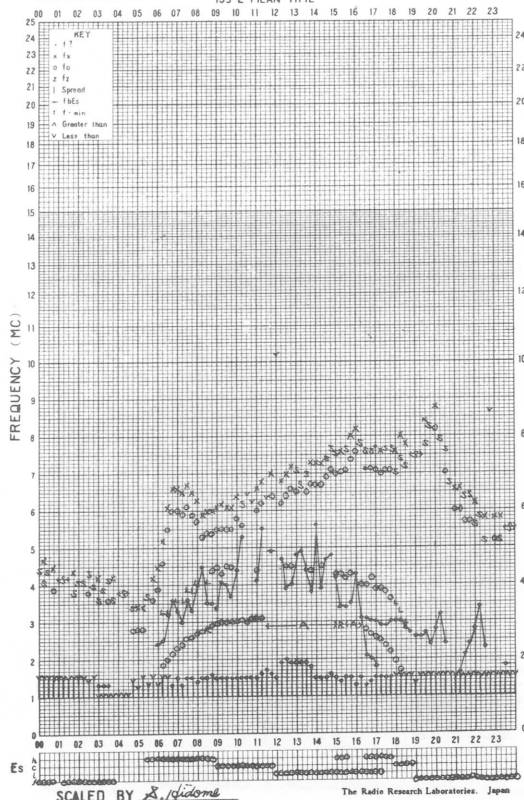
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STATION KOKUBUNJI 135° E MEAN TIME DATE AUG 14 1965

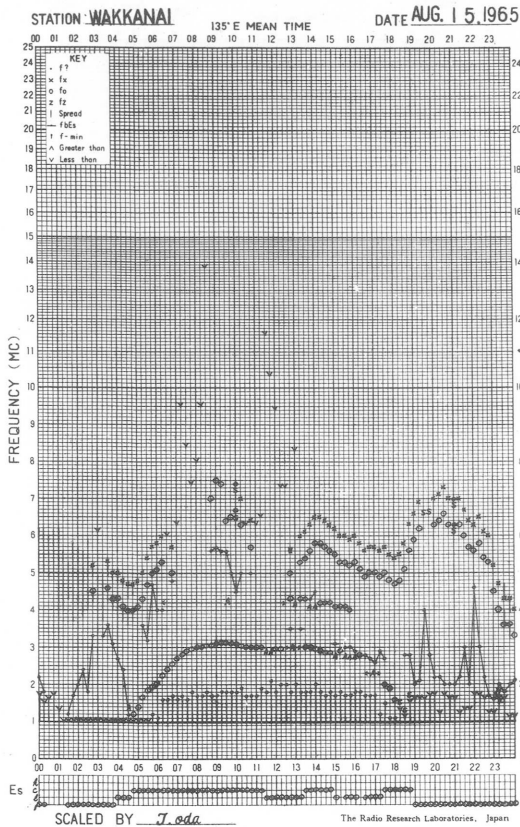


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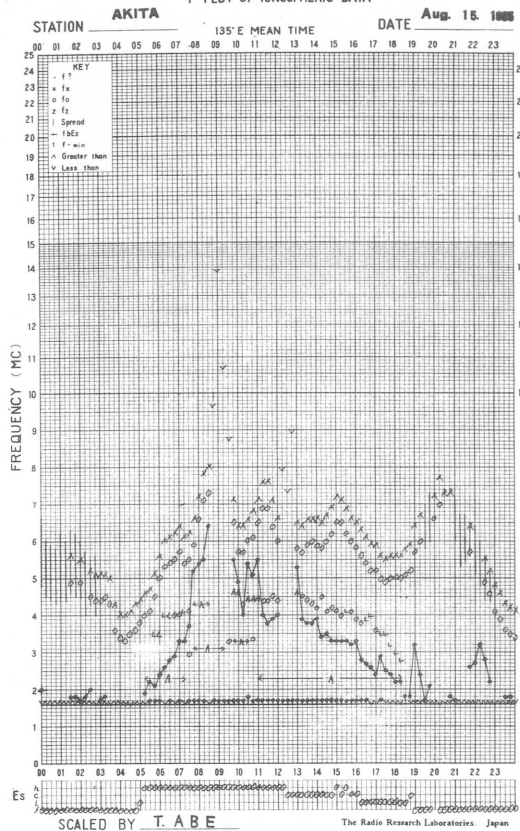
STATION YAMAGAWA 135° E MEAN TIME DATE AUG. 14, 1965



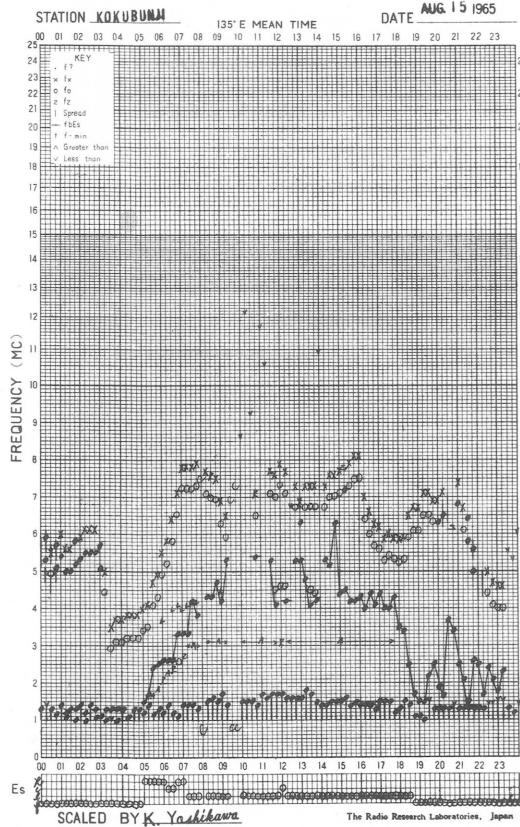
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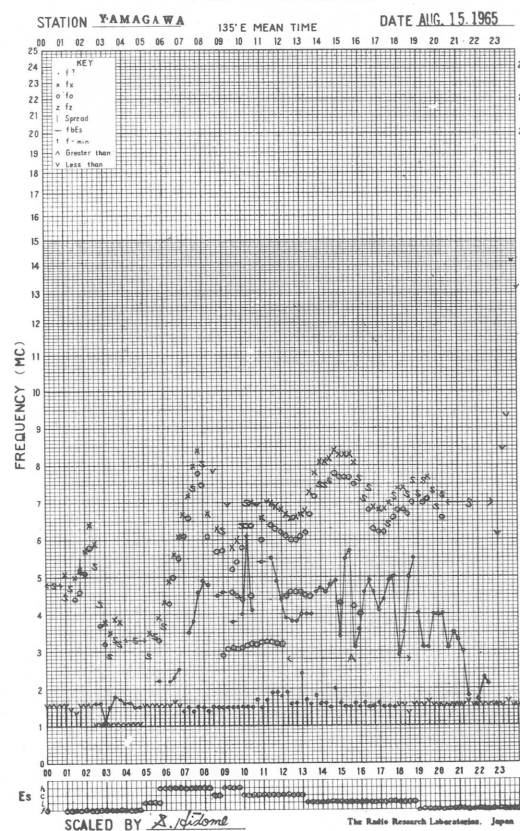
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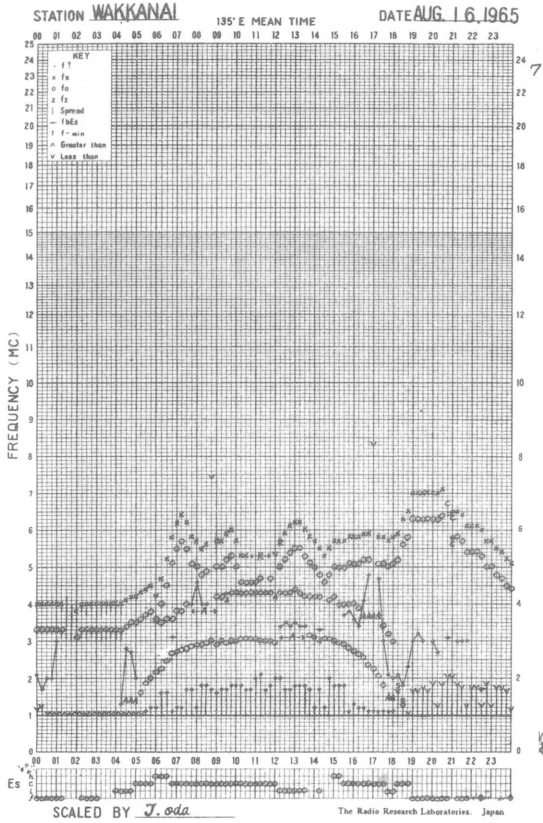
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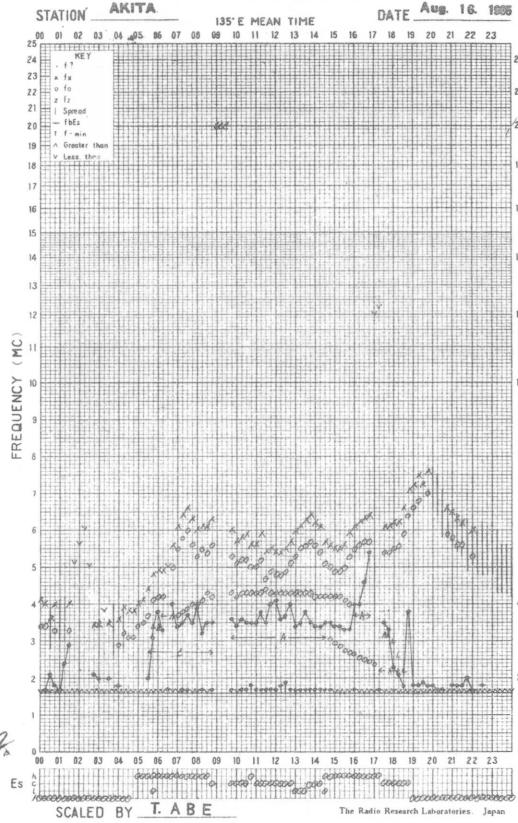
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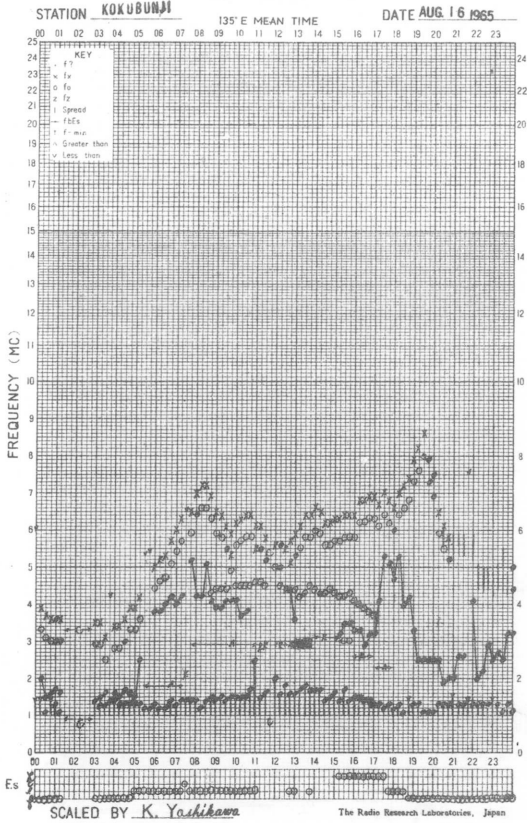
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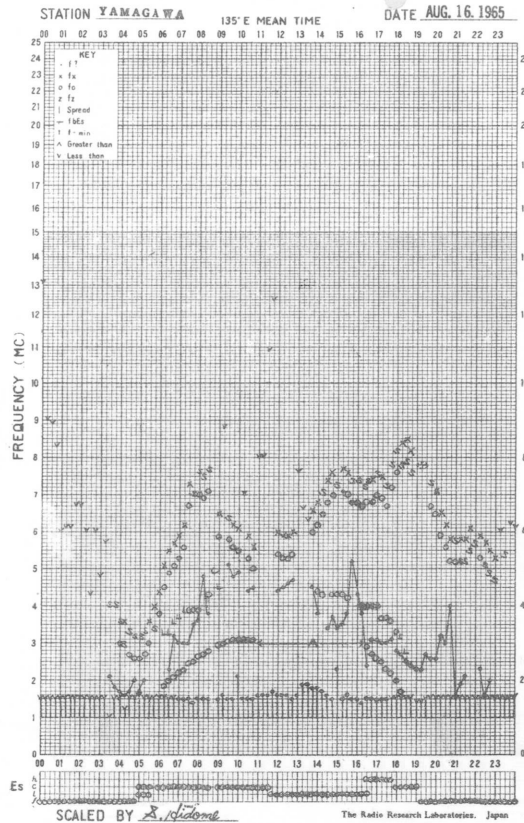
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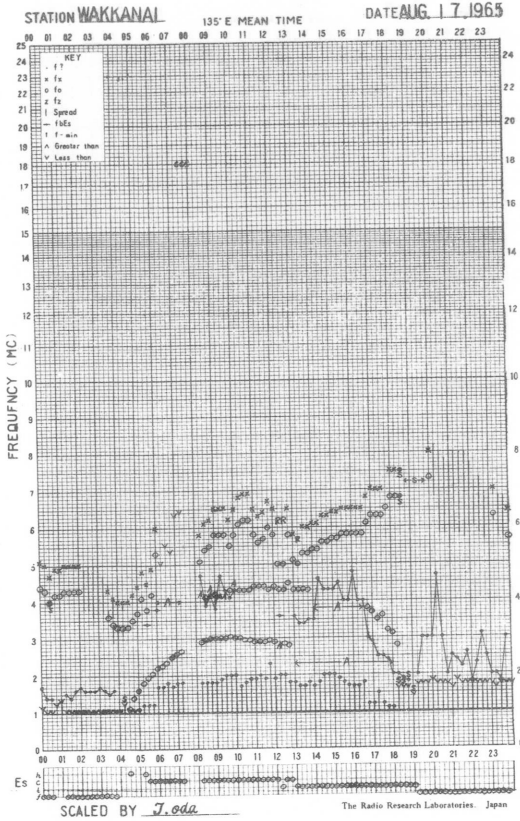
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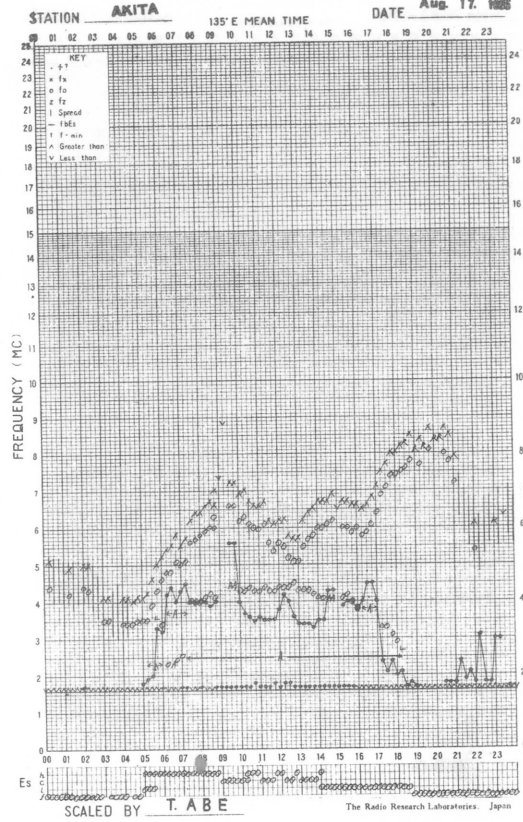
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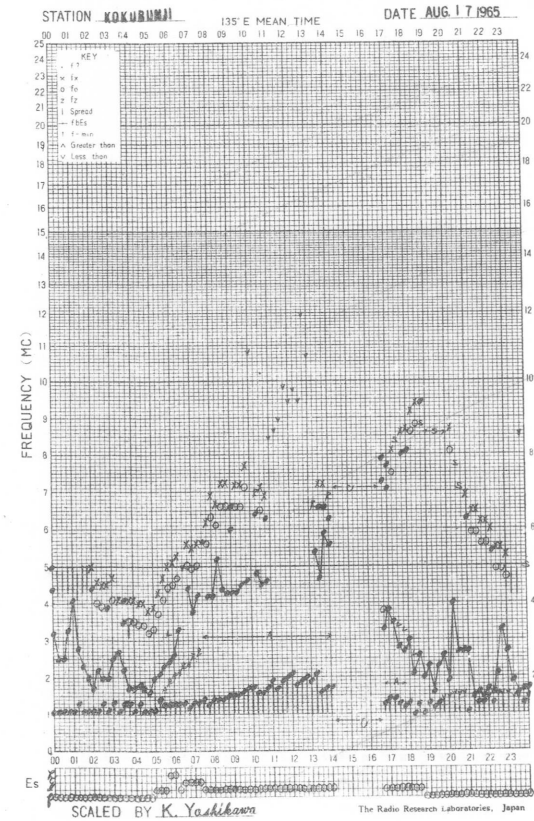
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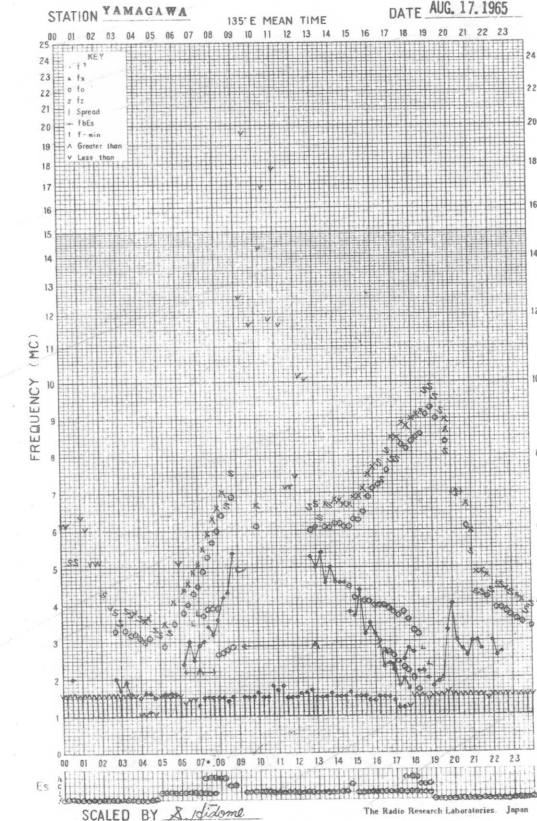
f- PLOT OF IONOSPHERIC DATA



f- PLOT OF IONOSPHERIC DATA

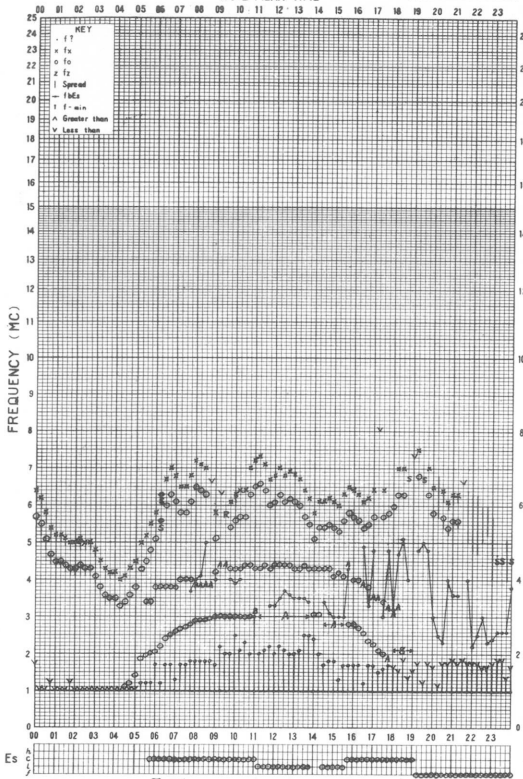


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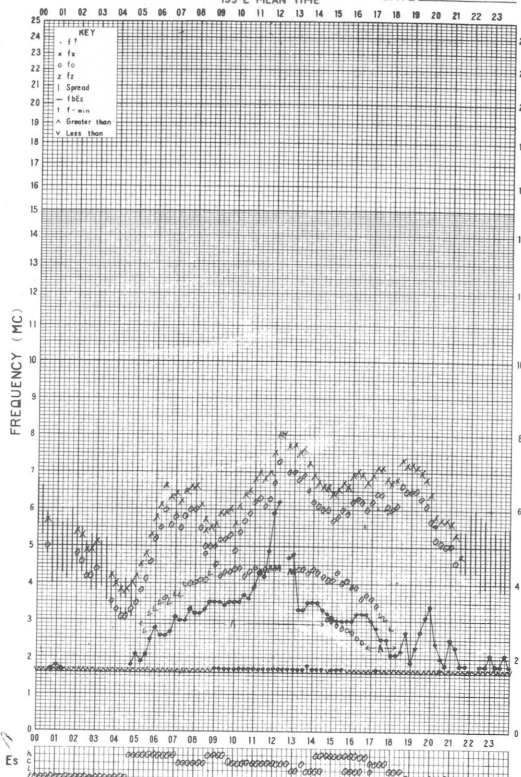
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STATION **WAKKANAI** 135° E MEAN TIME DATE **AUG. 18, 1965**



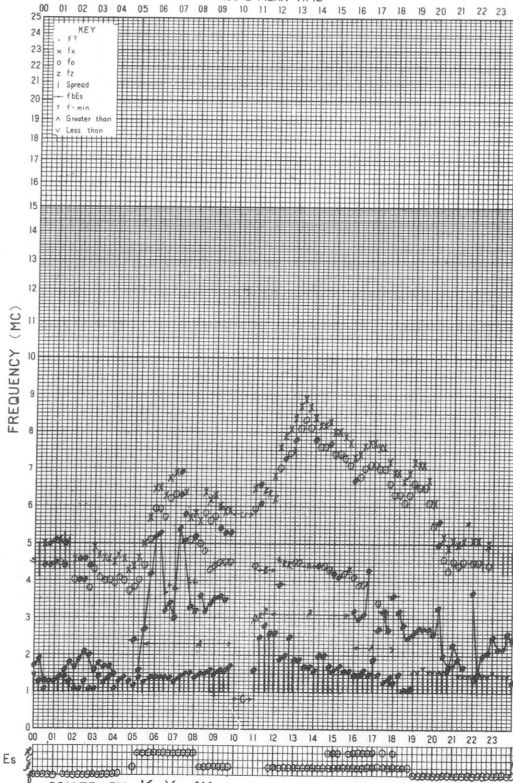
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STATION **AKITA** 135° E MEAN TIME DATE **Aug. 18, 1965**



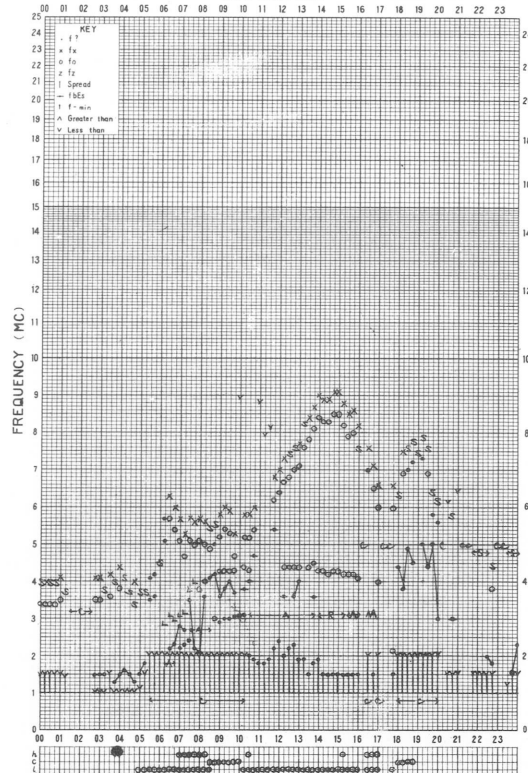
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STATION **KOKUBUNJI** 135° E MEAN TIME DATE **AUG. 18, 1965**

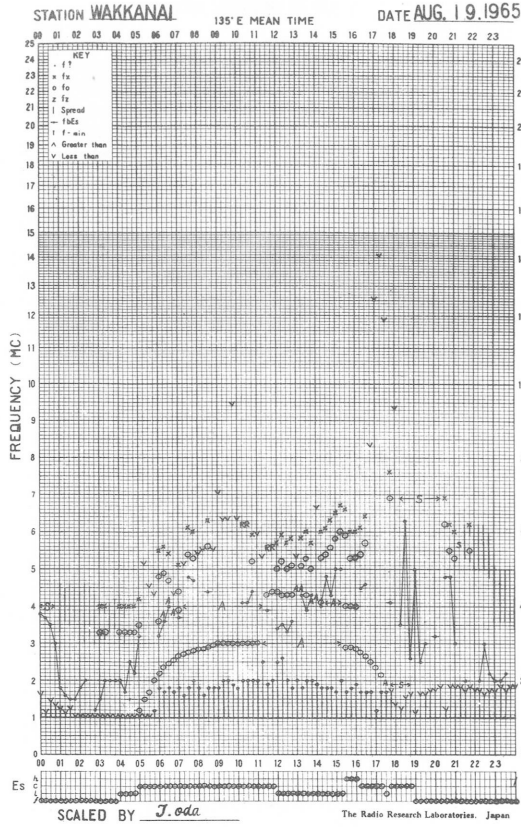


f-PLOT OF IONOSPHERIC DATA

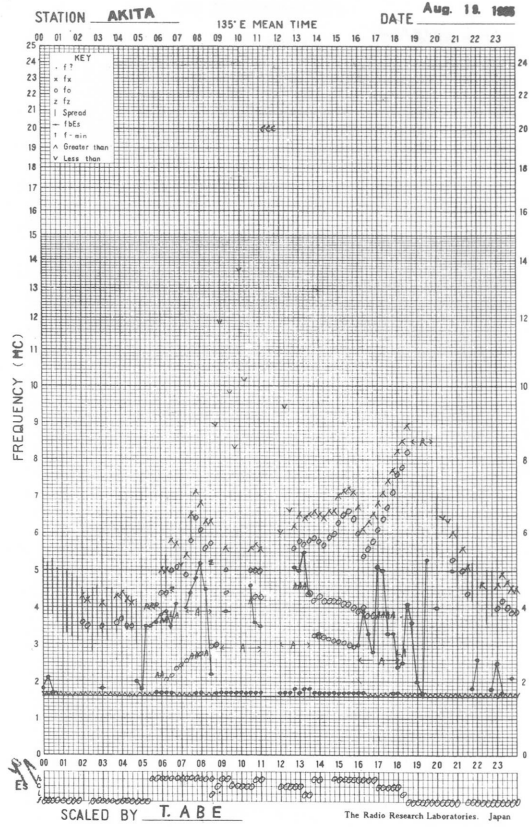
STATION **YAMAGAWA** 135° E MEAN TIME DATE **AUG. 18, 1965**



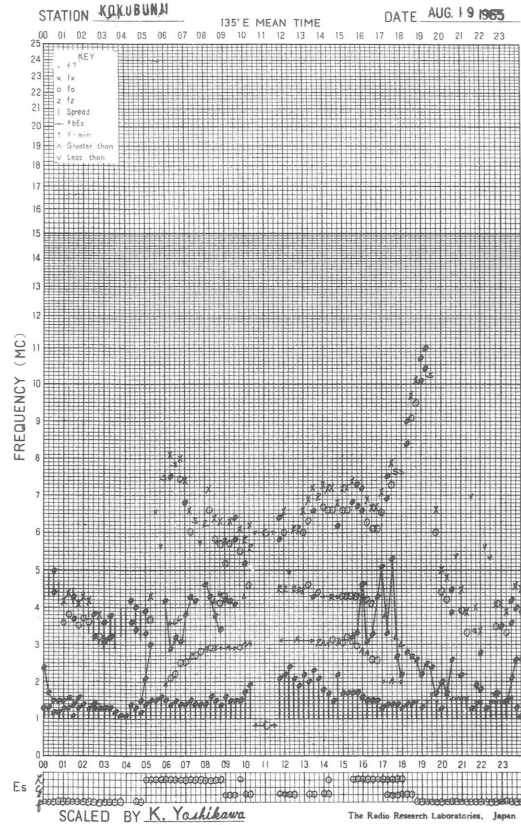
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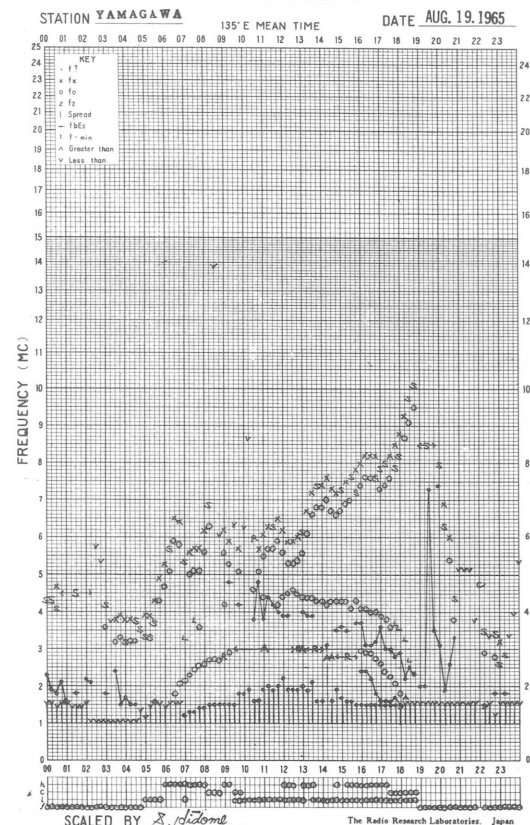
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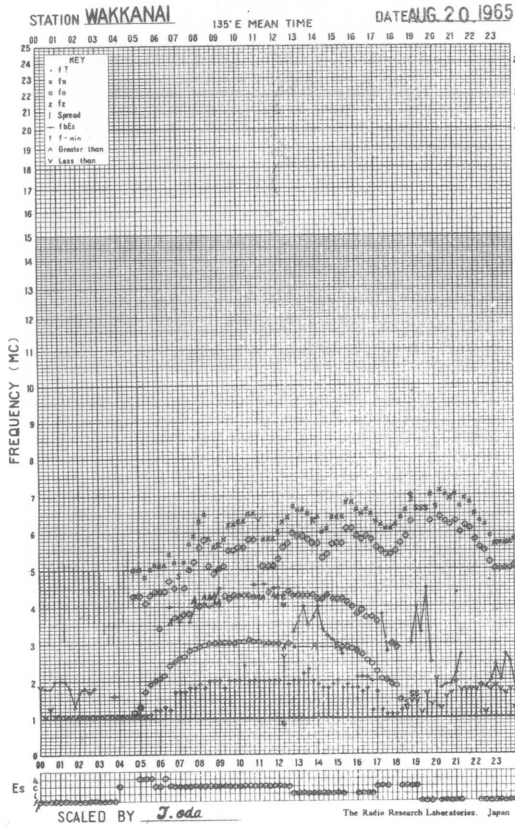
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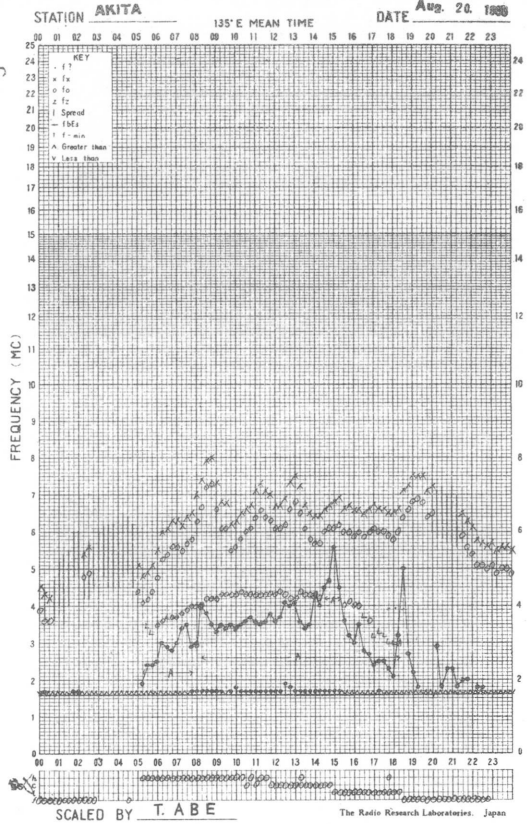
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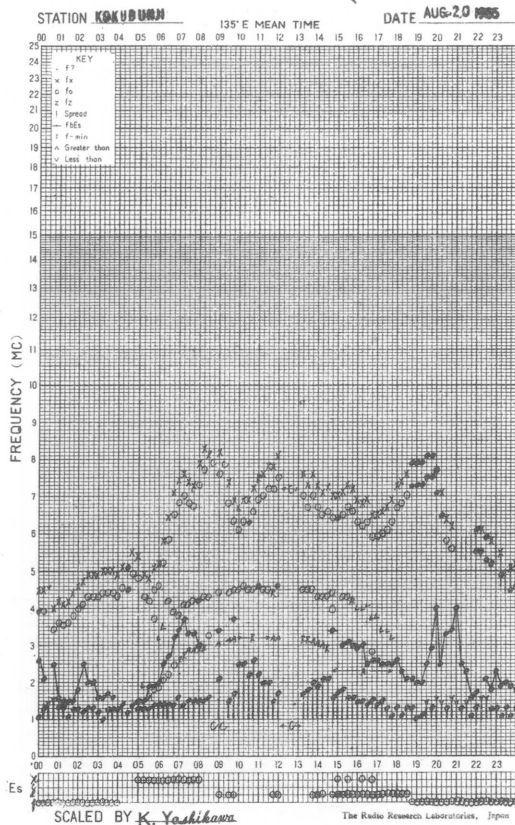
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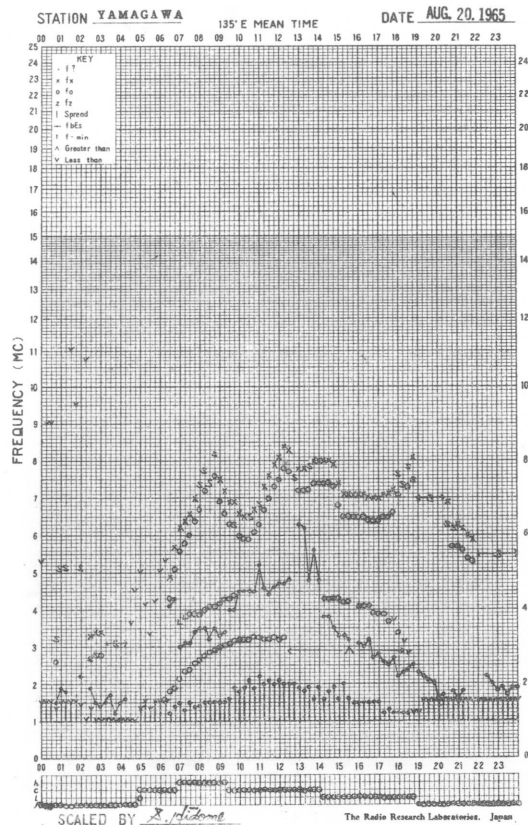
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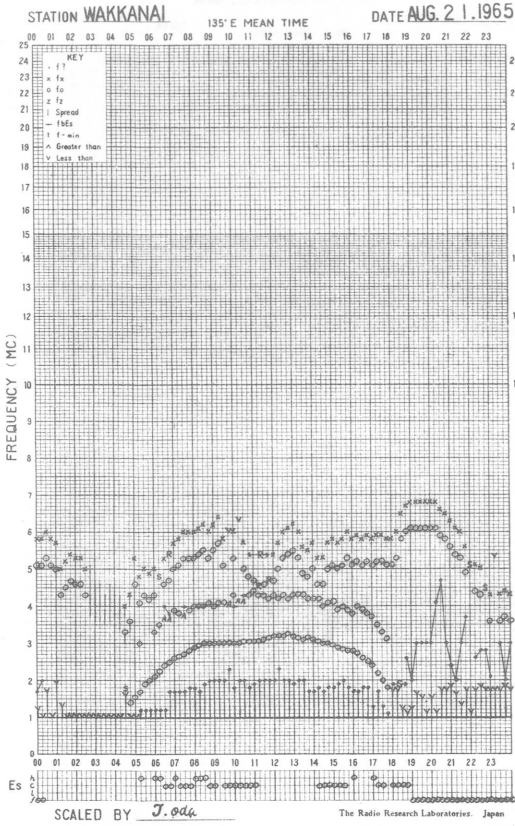
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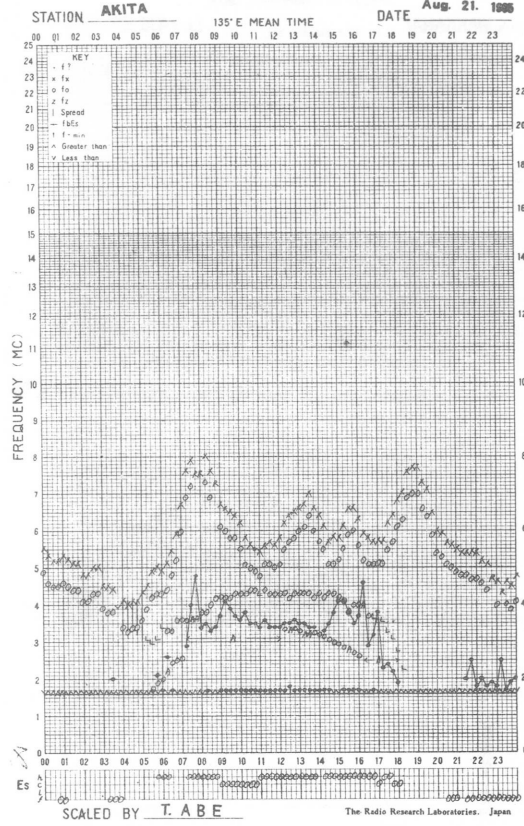
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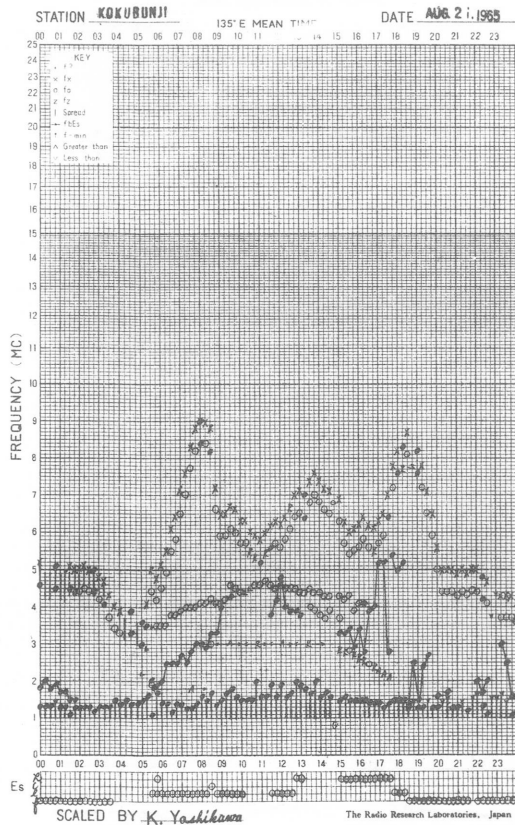
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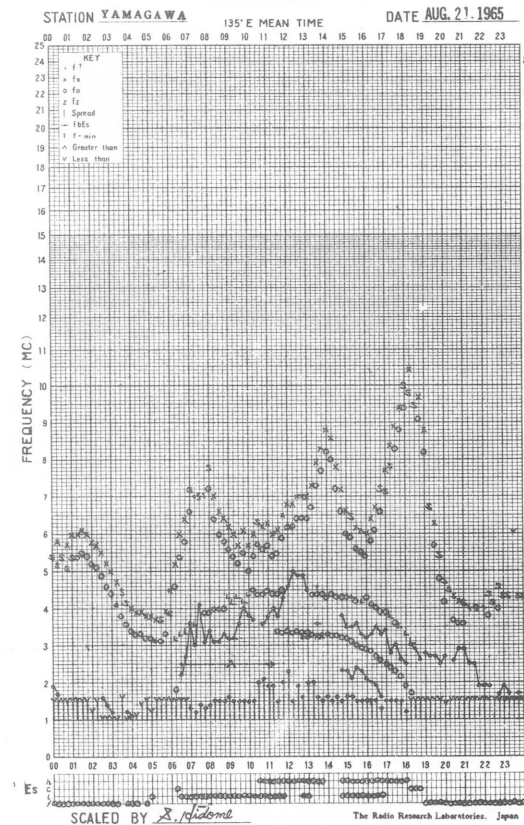
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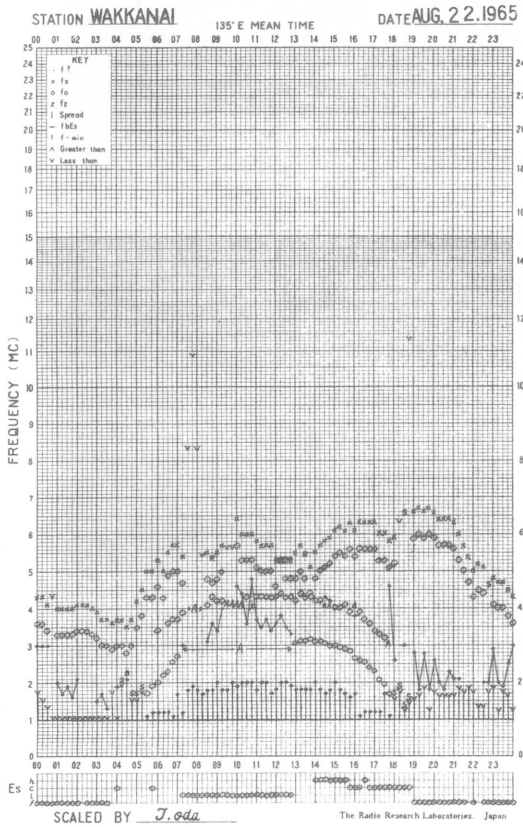
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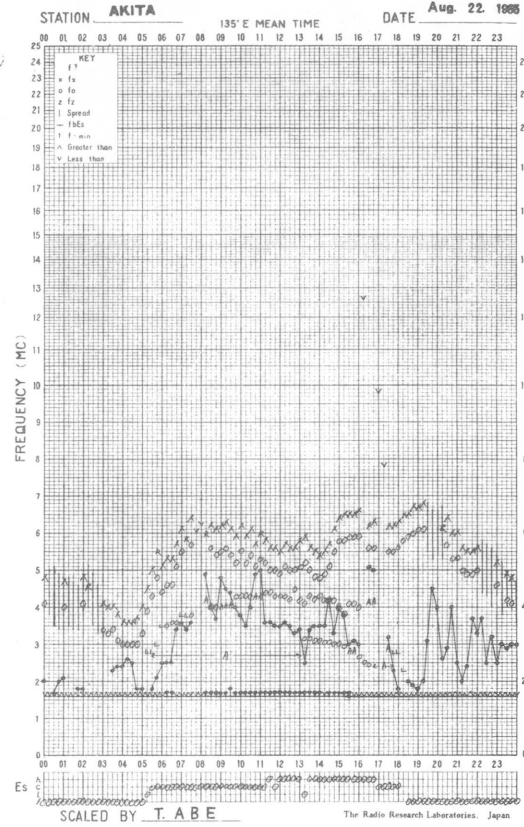
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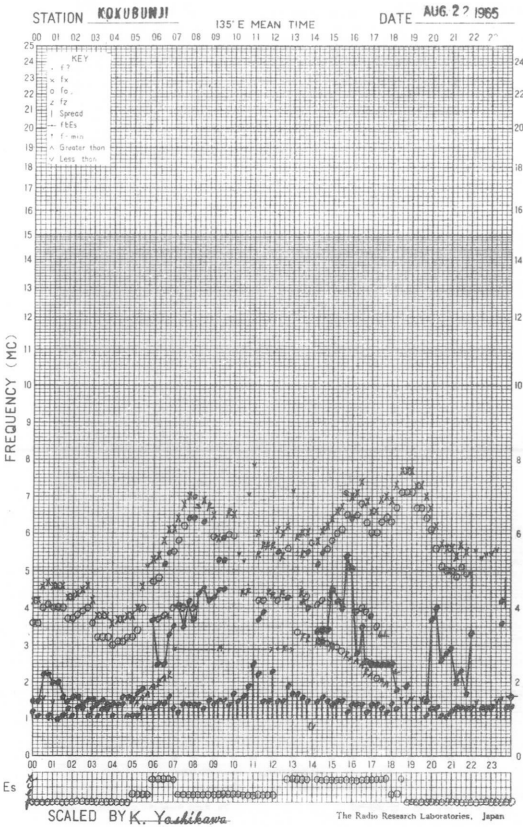
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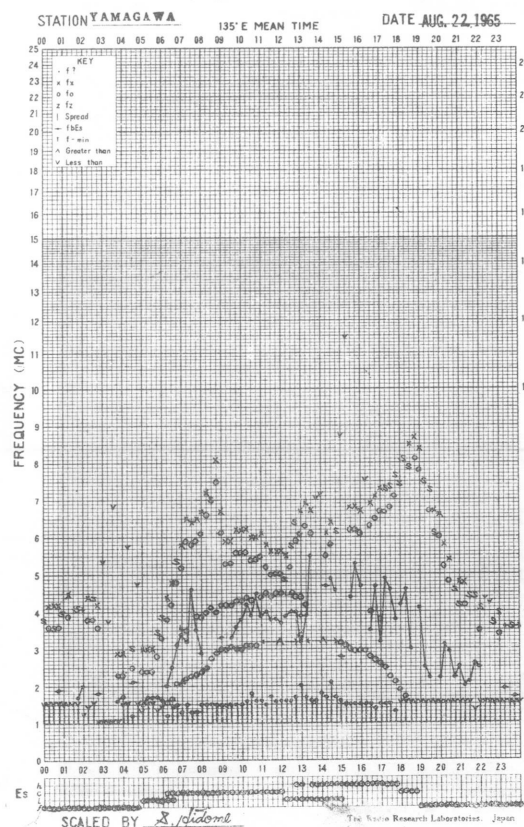
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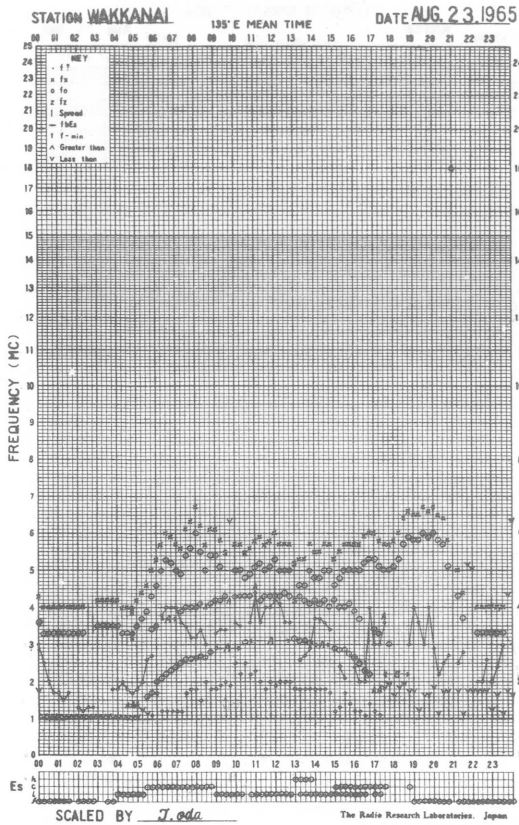
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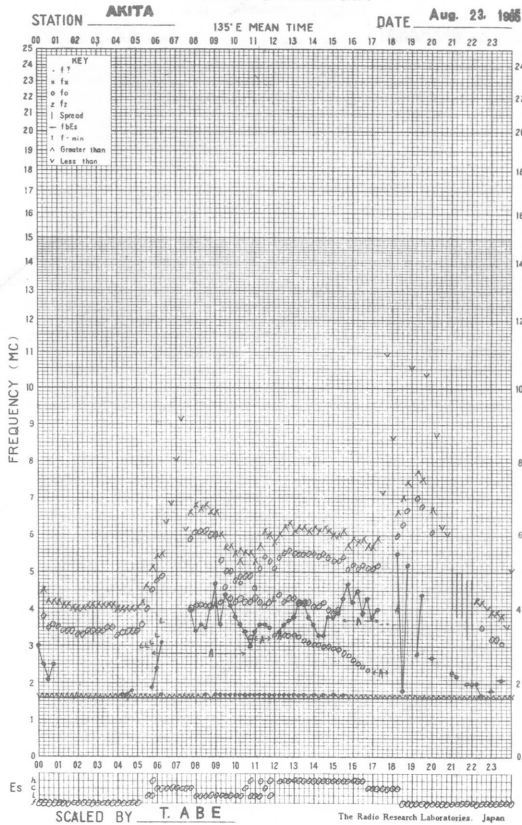
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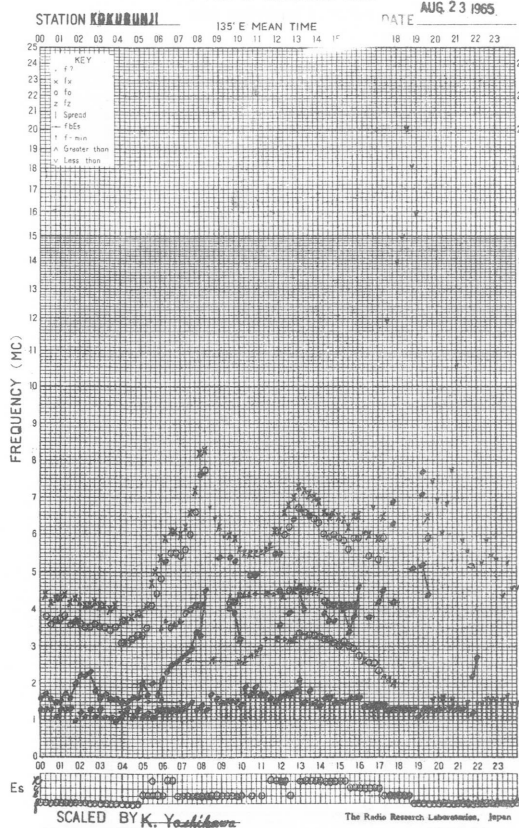
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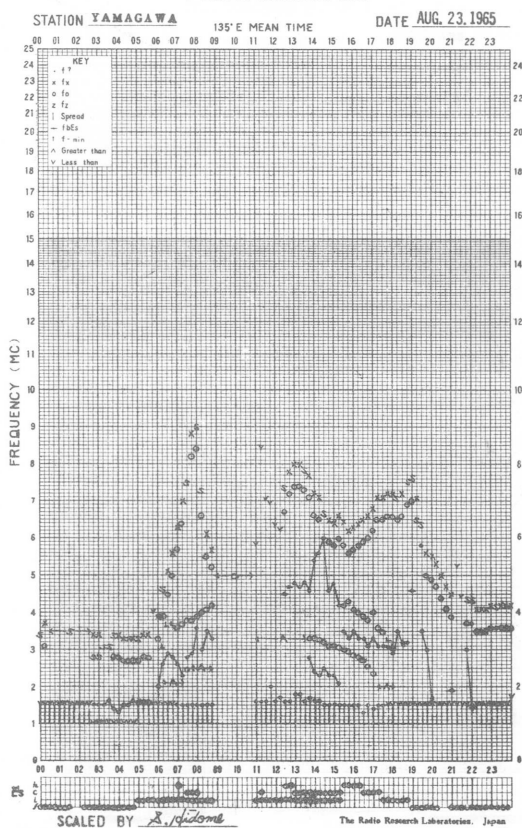
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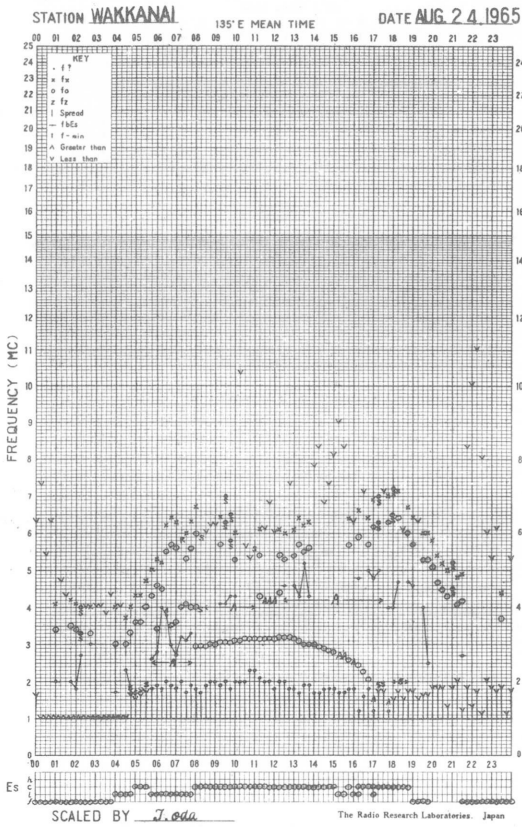
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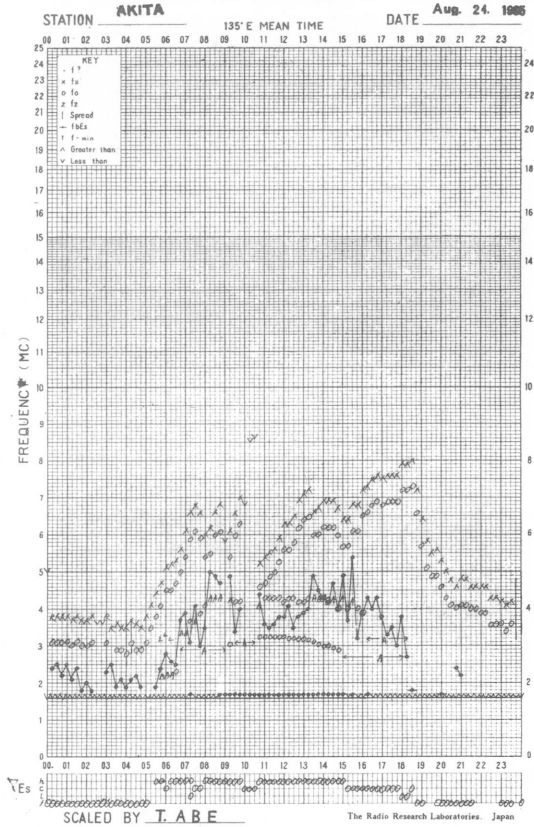
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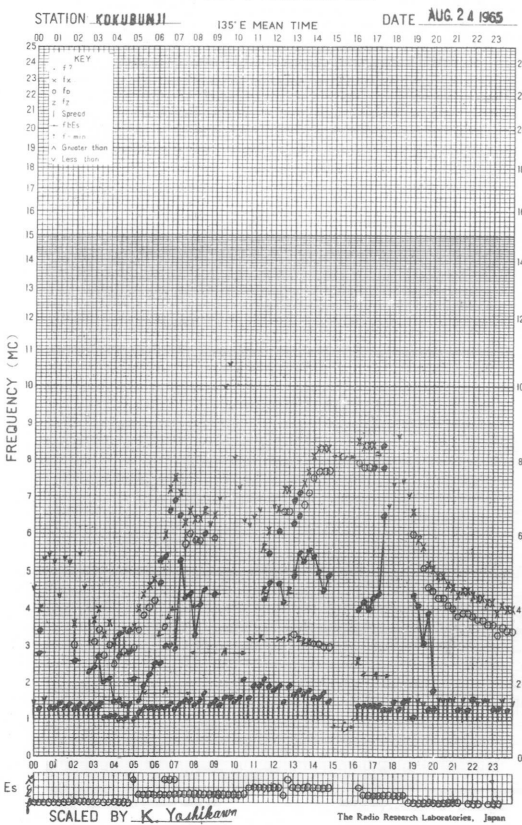
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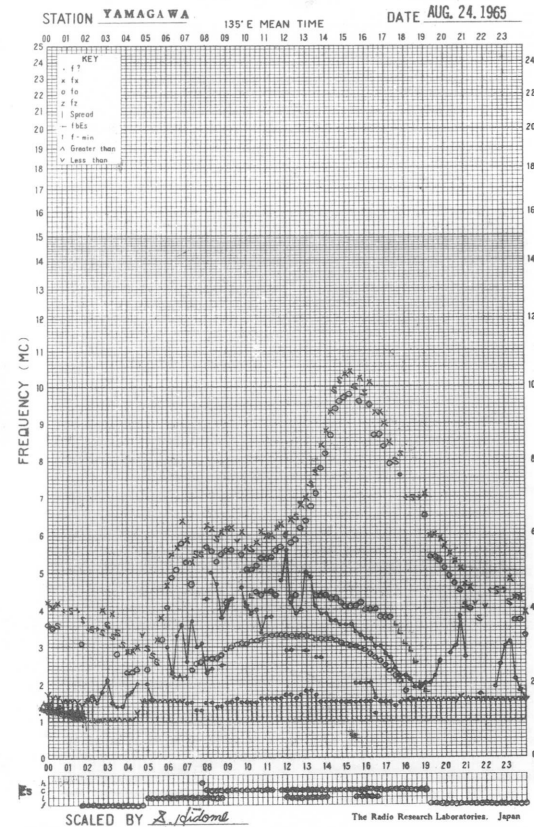
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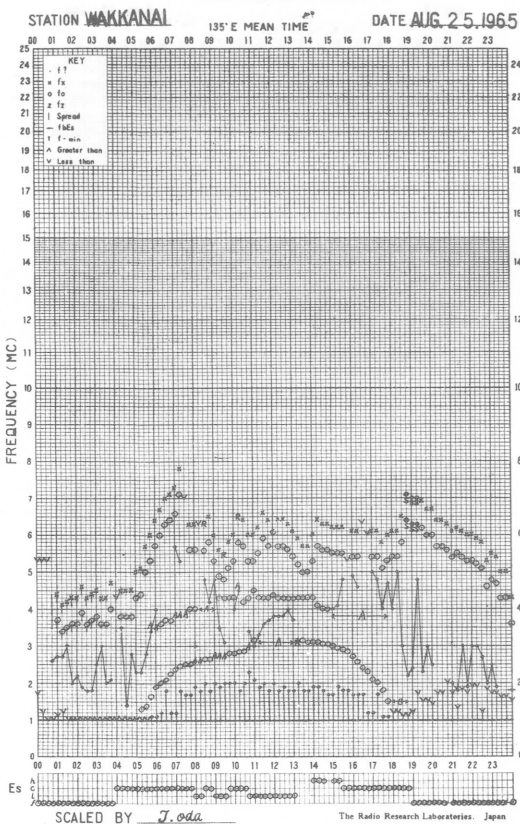
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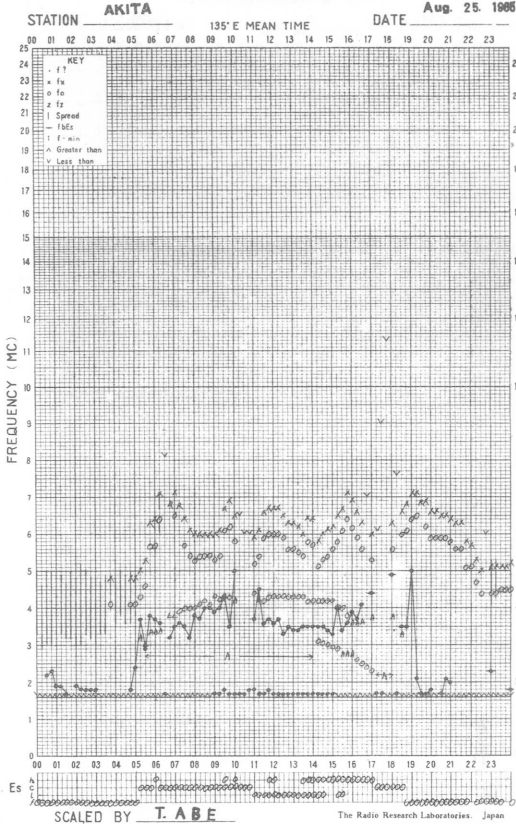
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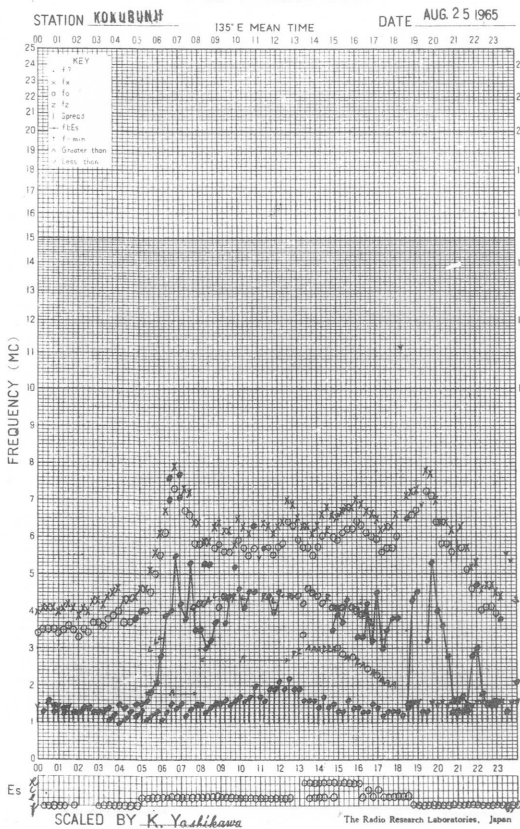
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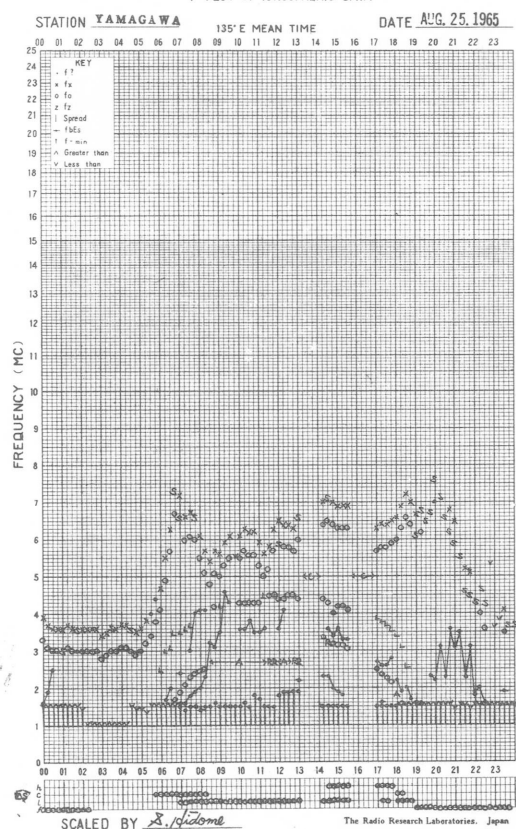
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f- PLOT OF IONOSPHERIC DATA

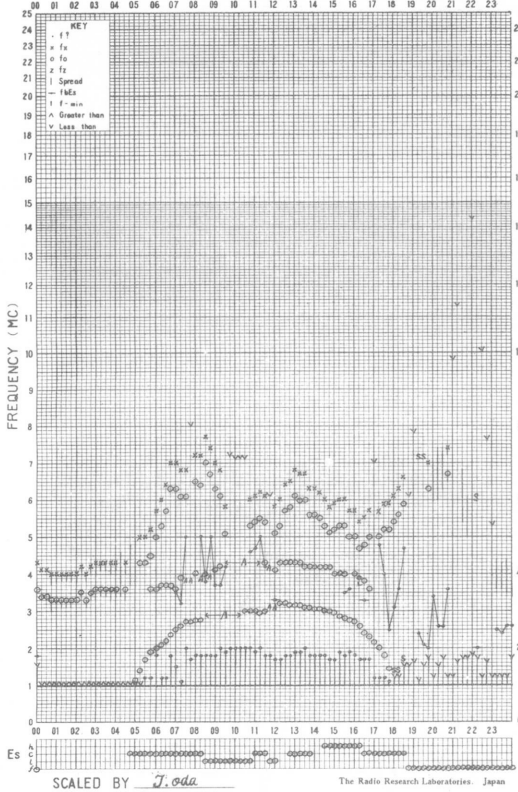


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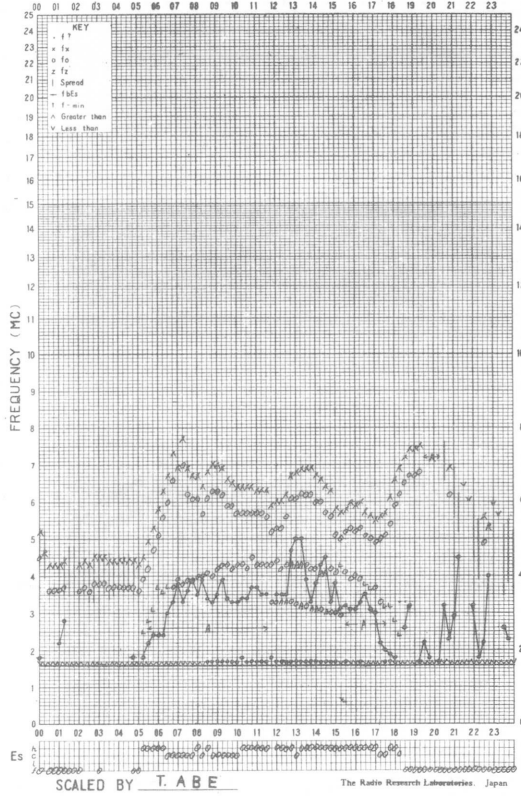
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STATION WAKKANAI 135° E MEAN TIME DATE AUG 26 1965



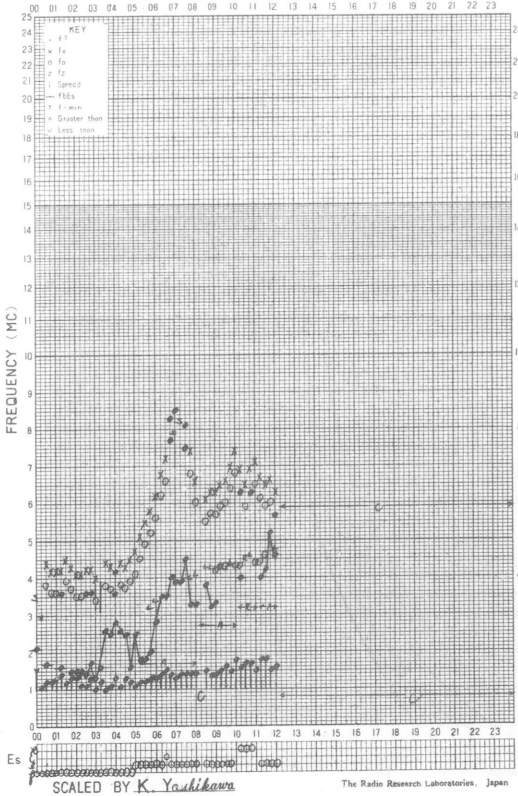
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STATION AKITA 135° E MEAN TIME DATE Aug. 26 1965



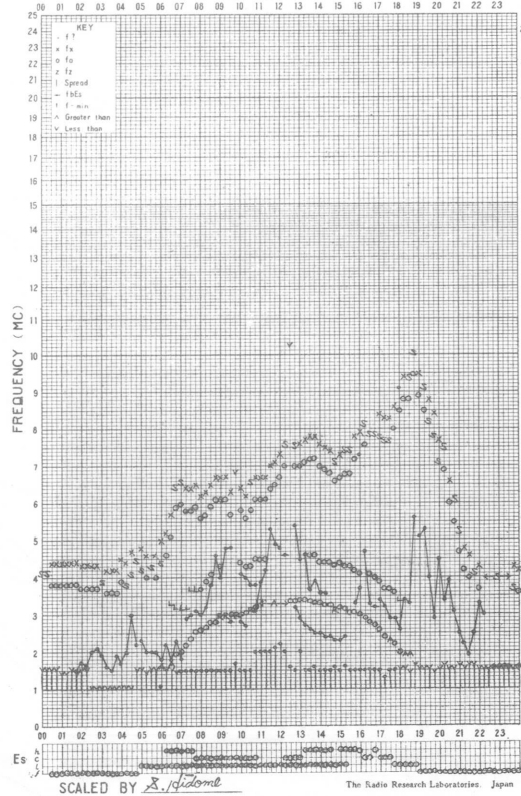
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STATION KOKUBUNJI 135° E MEAN TIME DATE AUG 26 1965

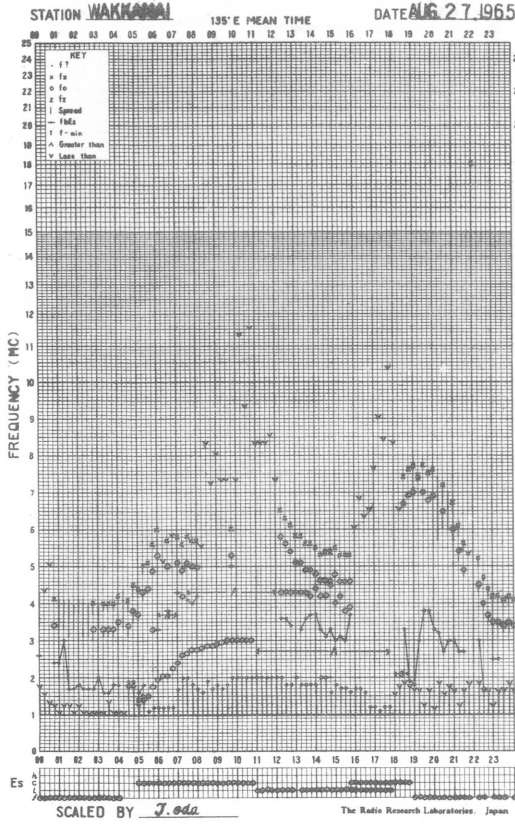


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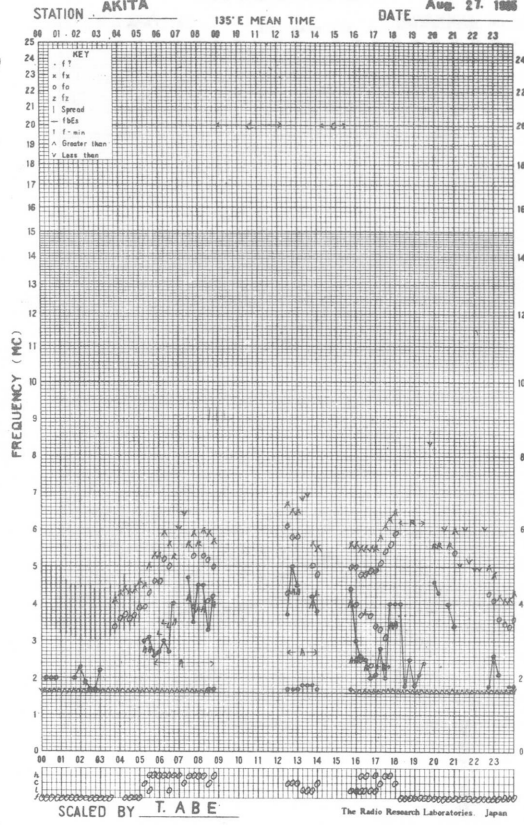
STATION YAMAGAWA 135° E MEAN TIME DATE AUG 26 1965



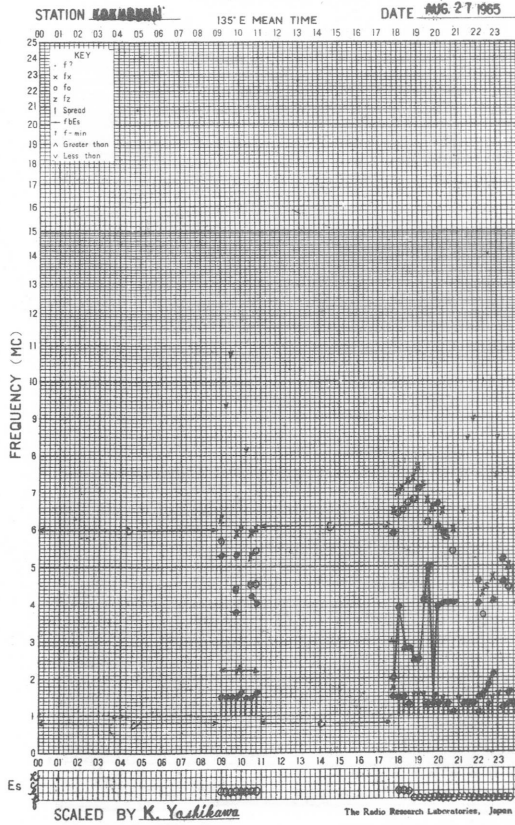
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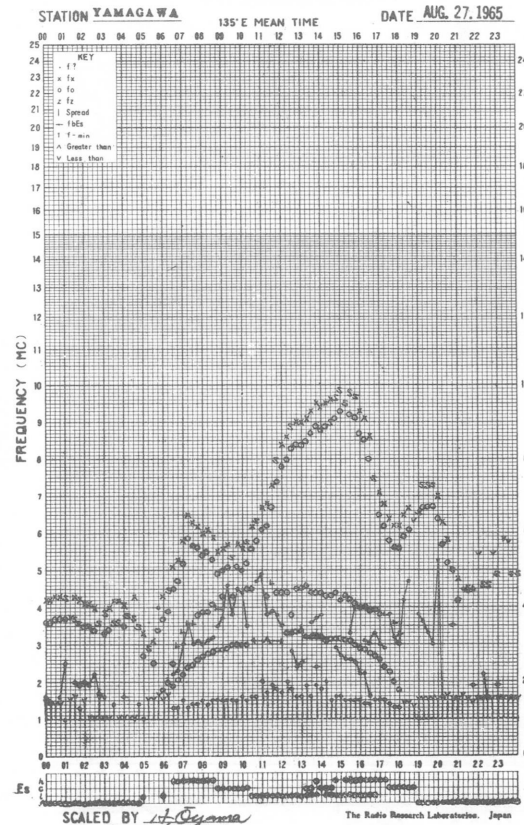
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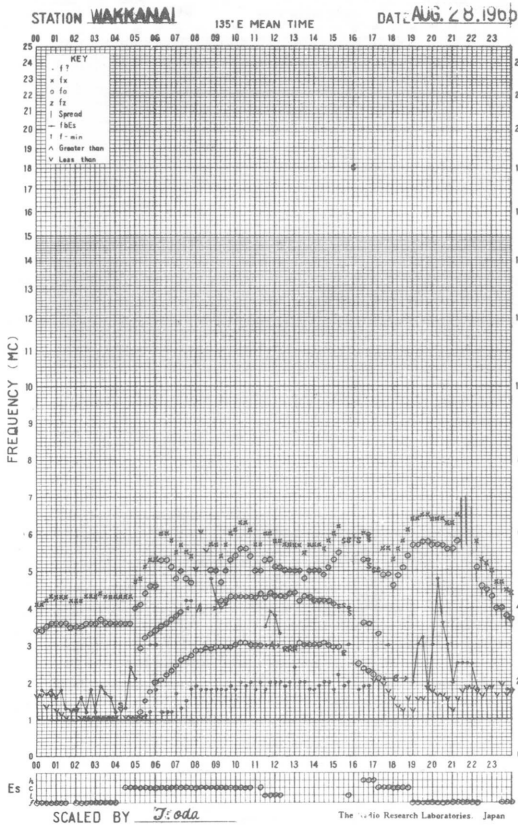
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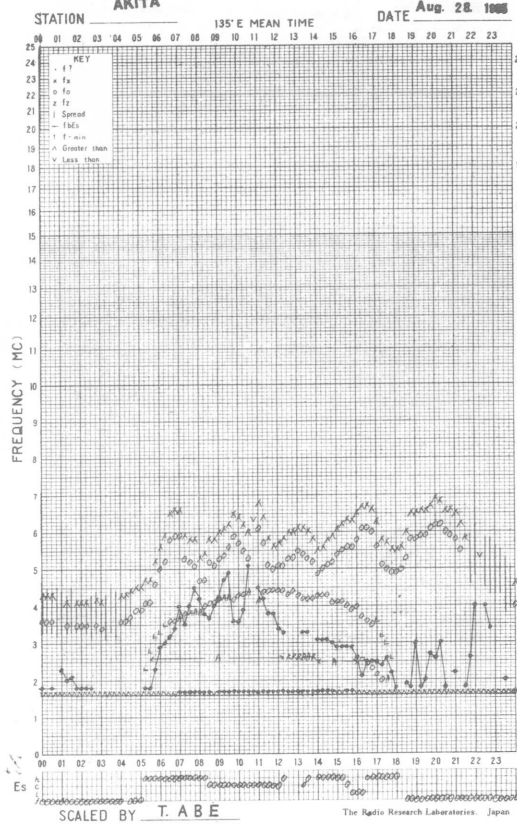
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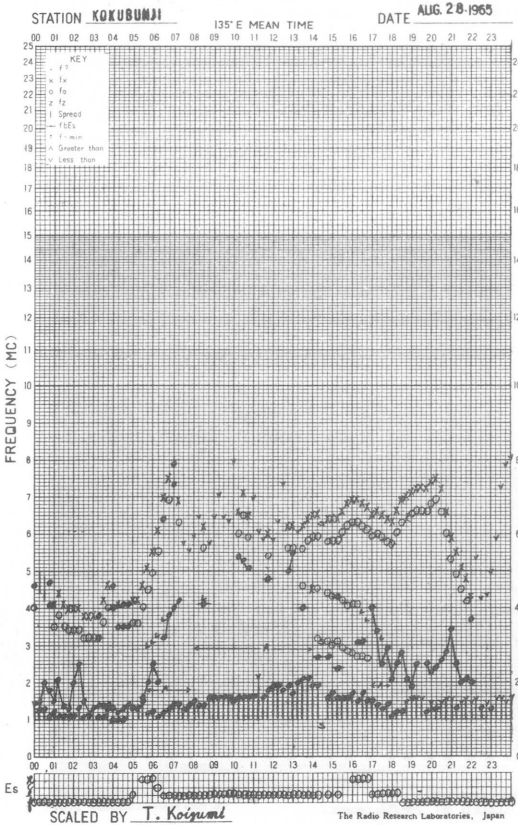
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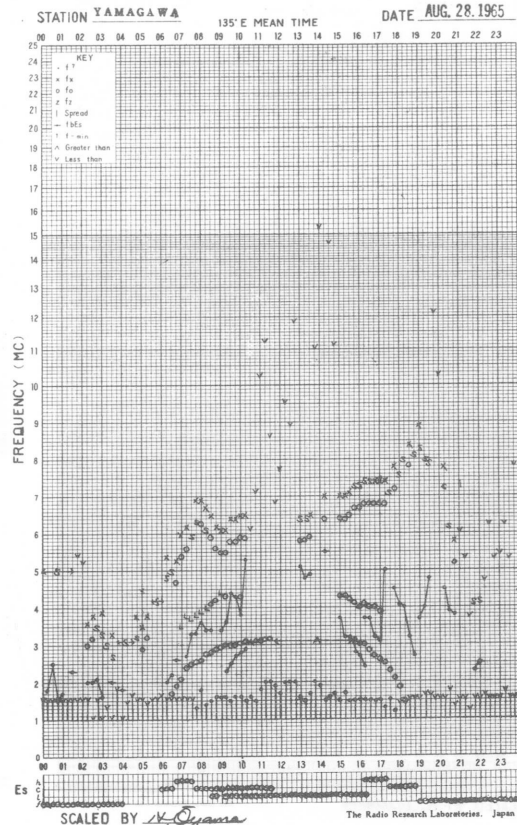
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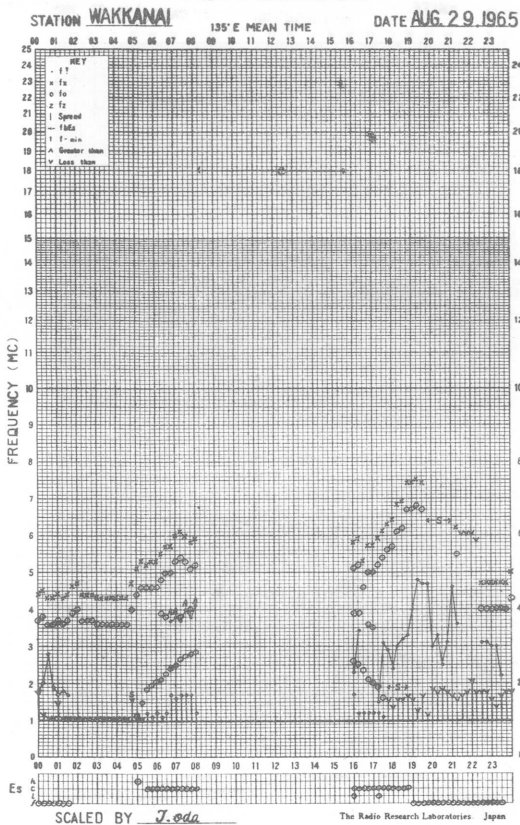
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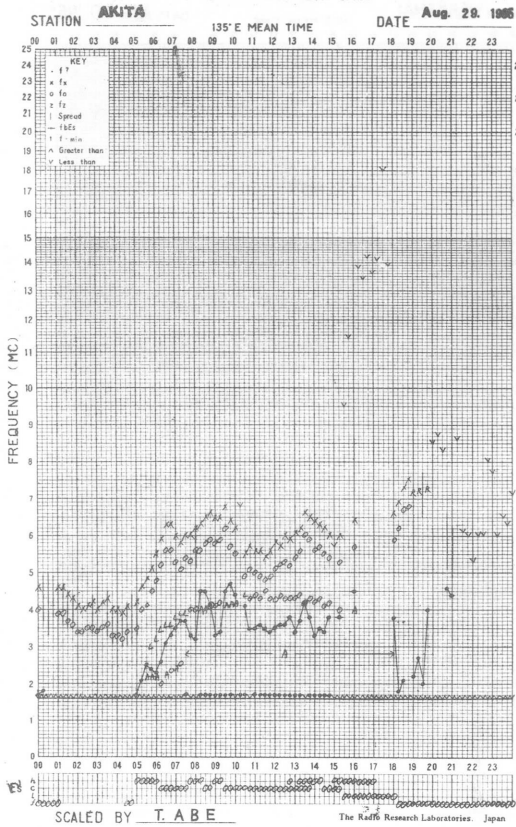
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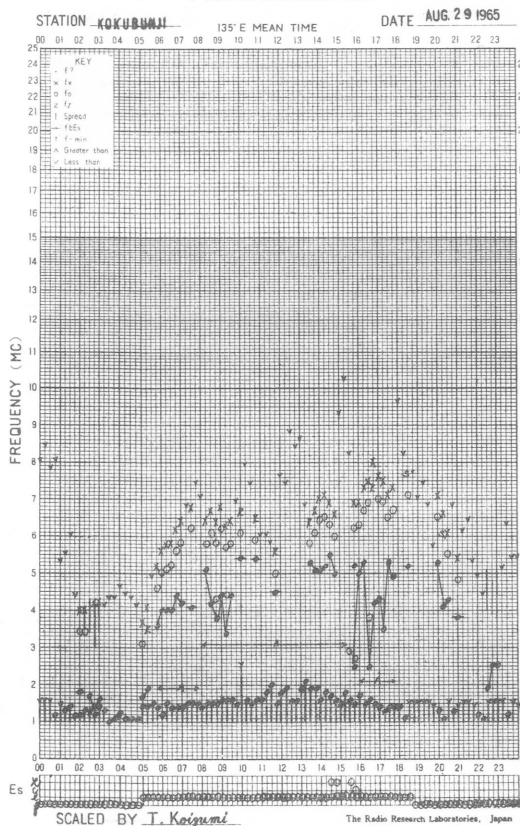
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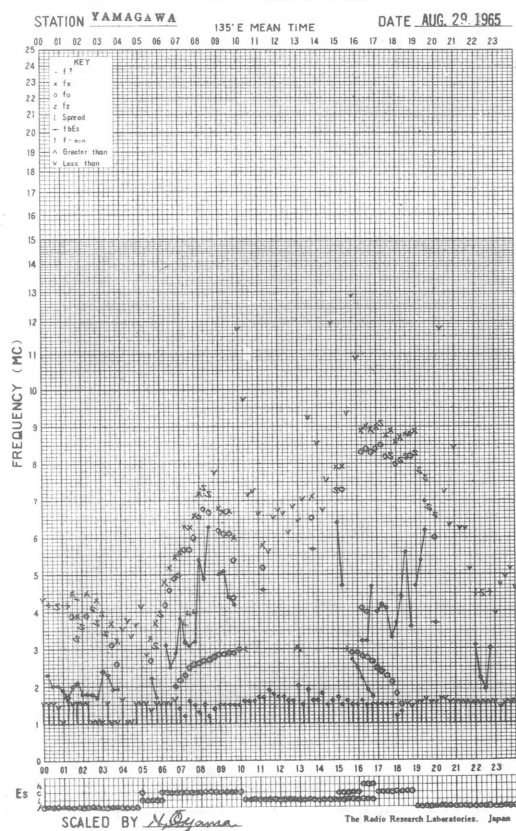
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f- PLOT OF IONOSPHERIC DATA



f- PLOT OF IONOSPHERIC DATA

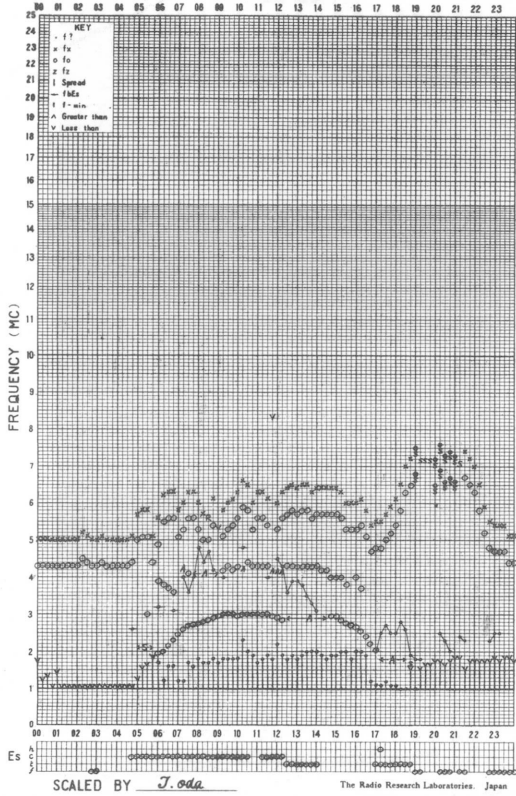


f-PLOT OF IONOSPHERIC DATA

STATION **WAKKANAI**

135° E MEAN TIME

DATE **AUG. 30, 1965**

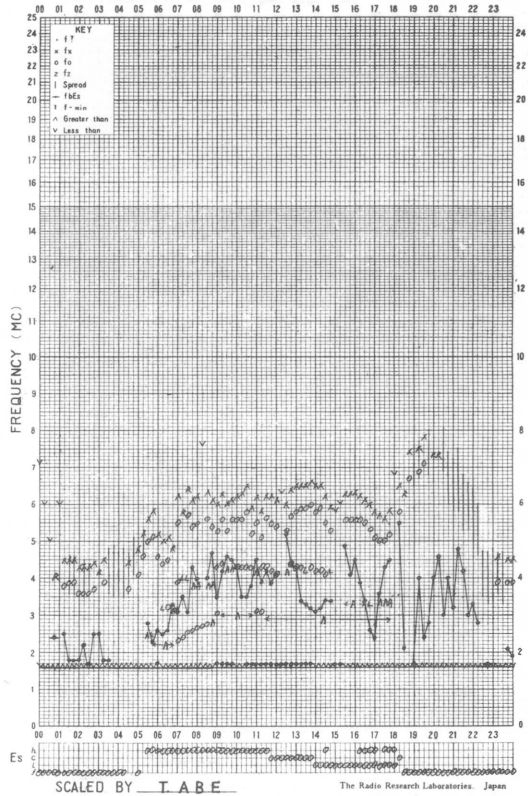


f-PLOT OF IONOSPHERIC DATA

STATION **AKITA**

135° E MEAN TIME

DATE **Aug. 30, 1965**

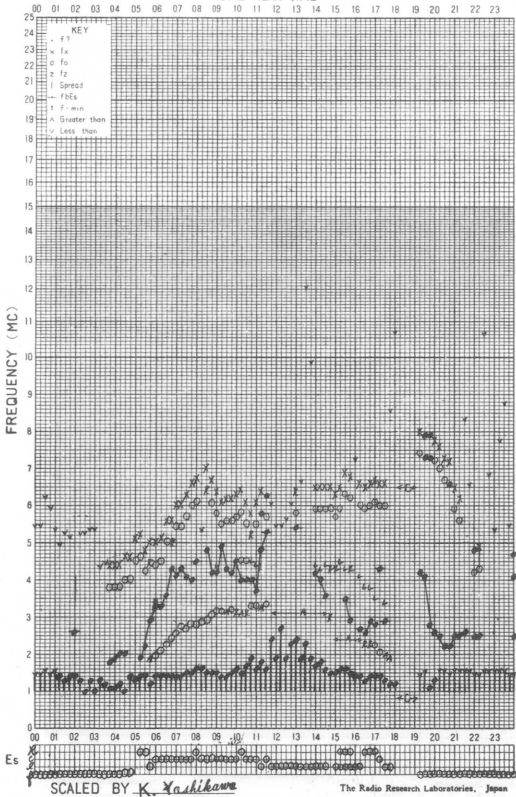


f-PLOT OF IONOSPHERIC DATA

STATION **KOKUBUNJI**

135° E MEAN TIME

DATE **AUG. 30 1965**

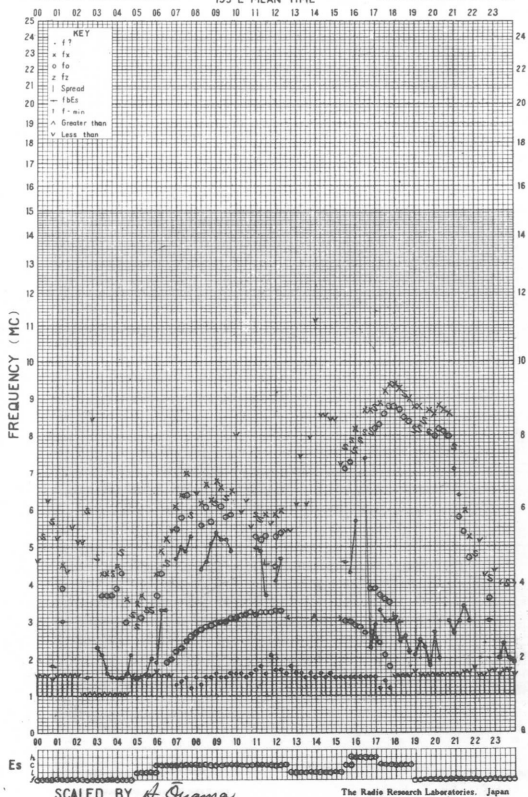


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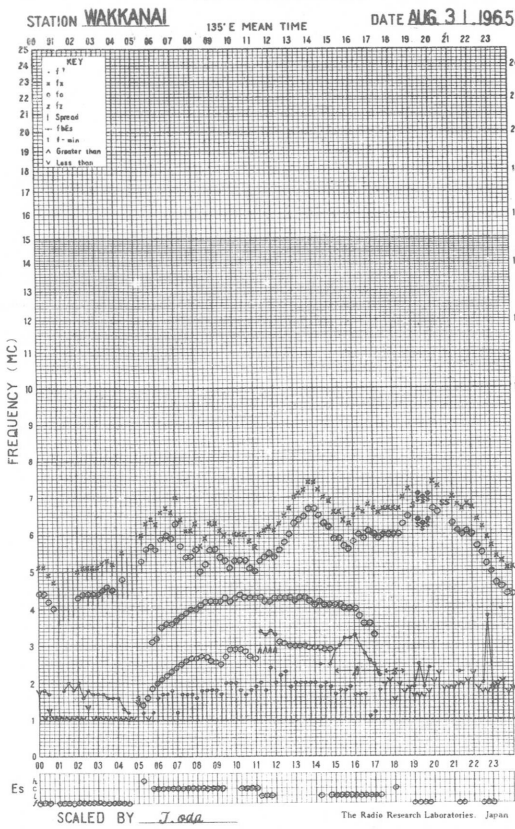
STATION **YAMAGAWA**

135° E MEAN TIME

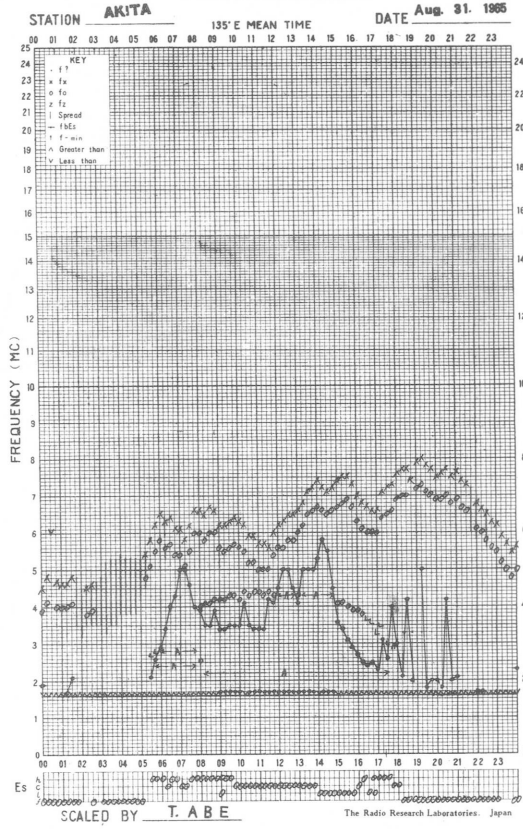
DATE **AUG. 30, 1965**



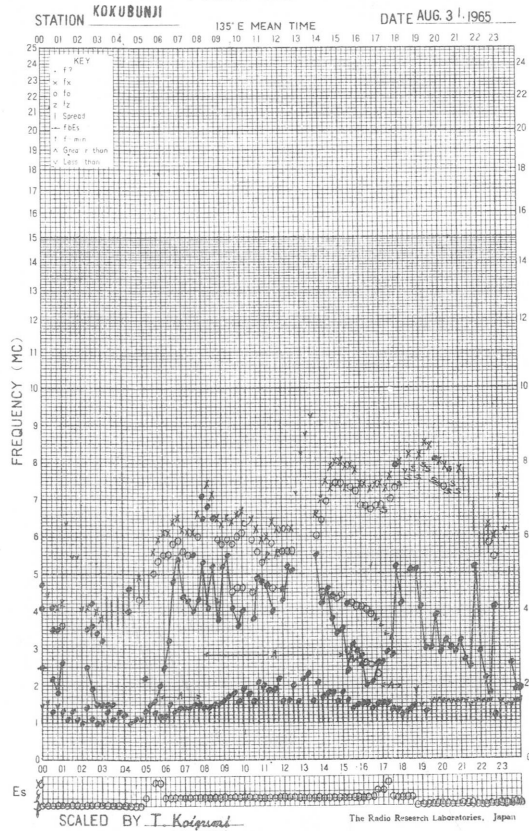
f-PLOT OF IONOSPHERIC DATA



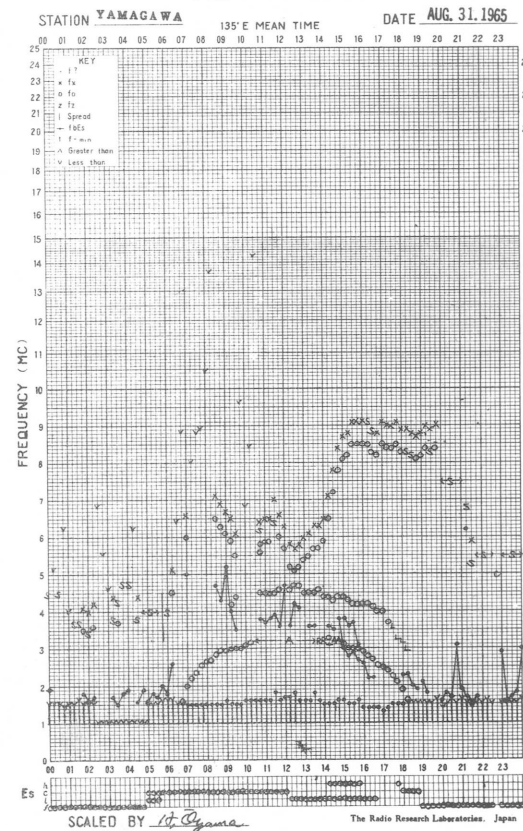
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



SOLAR RADIO EMISSION

Flux Density and Variability										
Month: August 1965.						Frequency: 200 Mc/s				
Observing station: Hiraiso										
Flux density $10^{-22} W_m^{-2} (c/s)^{-1}$						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	6	7	9	7	0	0	0	0	0
2	8	8	8	7	8	0	0	0	0	0
3	7	q	q	7	(7)	0	0	0	0	(0)
4	6	q	q	6	(6)	0	0	0	0	(0)
5	(5)	q	q	5	(6)	(0)	0	0	0	(0)
6	(5)	q	5	6	(5)	(0)	0	0	0	(0)
7	(6)	q	q	6	(6)	(0)	0	0	0	(0)
8	6	q	5	6	6	0	0	0	0	0
9	(6)	(5)	5	7	6	(0)	(0)	0	0	0
10	7	6	5	-	6	0	0	0	-	0
11	6	6	6	-	6	0	0	0	-	0
12	8	8	7	-	7	0	0	0	-	0
13	6	8	8	8	7	0	0	0	0	0
14	9	8	8	(10)	8	0	0	0	(0)	0
15	9	8	8	(5)	8	0	0	0	(0)	0
16	6	5	5	6	5	0	0	0	0	0
17	6	7	6	7	6	0	0	0	0	0
18	7	7	7	8	7	0	0	0	0	0
19	8	8	7	8	8	0	0	0	0	0
20	7	7	6	-	7	0	0	0	-	0
21	7	7	8	7	7	0	0	0	0	0
22	7	7	7	8	7	0	0	0	0	0
23	8	7	7	7	7	0	0	0	0	0
24	7	8	7	6	7	0	0	0	0	0
25	6	6	6	8	6	0	0	0	0	0
26	7	7	7	-	7	0	0	0	-	0
27	7	7	7	8	7	0	0	0	0	0
28	8	7	6	6	7	0	0	0	0	0
29	6	6	-	-	6	0	0	-	-	0
30	5	6	6	6	6	0	0	0	0	0
31	-	-	-	6	(6)	-	-	-	0	(0)

Note No observations during the following periods:

2nd	0300-	0400	15th	1950-	2300
10th	1950-	11th 0010	20th	1950-	21st 0015
11th	0405-	0450	26th	1950-	2345
11th	1950-	12th 0035	28th	0525-	0630
12th	0145-	0235	29th	0520-	2400
12th	1950-	2350	31st	0000-	0930
14th	1950-	2300			

q : quiet, flux of 6 or 7

SOLAR RADIO EMISSION

<u>Flux Density</u>					
Month: August 1965.					
Observing station: Hiraiso			Frequency: 500 Mc/s		
Flux density $10^{-22} \text{Wm}^{-2} (\text{c/s})^{-1}$.					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	24	26	25	25	24
2	(25)	26	26	27	26
3	29	27	27	28	28
4	27	28	26	28	27
5	28	27	27	27	27
6	28	27	26	27	27
7	29	28	29	30	28
8	29	29	29	27	29
9	27	28	28	29	27
10	27	28	27	28	28
11	26	25	25	28	26
12	27	27	26	28	27
13	29	27	27	27	28
14	26	27	26	27	27
15	28	28	27	28	27
16	28	27	29	27	28
17	25	25	25	26	25
18	25	26	25	28	25
19	25	25	25	25	26
20	25	25	24	23	25
21	25	25	23	25	24
22	26	26	25	24	25
23	25	24	25	25	25
24	25	24	25	25	25
25	25	24	26	26	25
26	24	24	25	27	25
27	25	24	26	27	25
28	25	24	25	29	25
29	26	24	24	27	26
30	25	24	24	26	25
31	26	25	25	27	26

Note No observations during the following periods:

2nd	0000-	0215
2nd	0300-	0400
28th	0500-	0600

Distinctive Event

No Distinctive Event was observed during August, 1965.

Measurement of H.F. Field Strength (Upper Side-band of WWV)
 Frequency: 15 Mc/s, Bandwidth: ± 40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraïso

July 1965

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	<-11s	<-20s	<-7s	<-11s	<-15s	<-13s	<-11s	-6	<-7s	<-5s	<-5s	<-3	<-7s	<-11s	<-12s	<-16s	-27	<-29s	<-20s	<-29s	-31	-6	-2	-6
2	<-14	<-4s	<-11s	<-16s	<-18s	<-12s	<-6s	<-11s	<-6s	<-6s	<-8s	<-6s	<-9s	<-9s	<-2	<-7s	-3	-8	<-15s	-11	-13	-20	-16	-12
3	<-19	<-30s	<-19	<-19	<-10s	<-9s	<-9s	<-6s	<-6s	<-6s	<-6s	<-5	<-9s	<-2	<-2	<-2	-2	-8	<-9	-6	-7	-11	-1	-6
4	<-23s	<-25s	<-23	<-19	<-18s	<-27s	<-27s	<-15	<-19s	<-17s	<-13s	<-15s	<-3s	<-3s	<-4	<-7	-17	-10	5	-15	-13	-11	-13	-8
5	<-12s	-19	<-20s	-11	-24	<-11s	<-4s	<-14s	<-15s	<-10	<-6s	6	3	8	3	4	-7	-9	1	-18	-11	-10	-15	-22
6	-11	-3	-5	-12	-17	<-20s	<-21s	<-22s	<-18s	<-15s	<-14s	<-20s	<-17s	<-18s	<-10s	<-3s	<-21s	<-33s	<-20s	<-38s	<-38s	-28	<-25s	<-35s
7	<-27s	<-27s	<-29s	<-31s	<-31s	<-28s	-17	<-28s	<-29s	<-19s	-15	-19	-8	-5	<-14s	<-22s	<-28s	<-23s	<-10s	<-28s	-29	-19	-23	-21
8	-15	-8	-23	<-30s	<-27s	<-32s	<-9s	-23	-15	-16	(-18)	-7	-8	-9	-8	-11	-16	<-42s	-36	<-42s	-20	-13	<-30s	-10
9	-18	<-22s	-17	<-40s	<-24s	<-30s	-19	-8	-15	-23	-18	<-6s	<-0s	0	<-19s	<-13s	<-34s	<-34s	<-35s	<-40s	-32	<-23s	-18	-16
10	-16	-27	<-27s	<-29s	<-32s	<-25s	<-22s	<-19s	<-19s	<-20s	-19	<-17s	<-9s	-12	<-16s	<-12s	-8	-16	5	-1	-16	3	-8	-7
11	-11	<-10s	-25	-19	<-24s	<-19s	-6	-3	-5	-10	-11	7	<-4s	2	4	7	-24	-14	-18	-18	-9	2	1	-2
12	-16	-18	-19	-17	-2	<-15s	<-24s	3	<-28s	<-17s	<-6s	13	23	12	2	-5	-13	<-23s	<-16s	-14	-3	-9	-6	-14
13	<-35s	-8	-8	<-33c	-10	<-27s	<-26s	<-27s	<-21s	<-19s	<-1s	<-3s	<-1s	5	-2	<-7s	<-18s	-15	-11	-13	5	-9	-21s	<-19s
14	<-8s	-17	-8	-11	-18	-15	<-9s	-6	<-9s	<-8s	8	1	<-3s	-9	<-20s	-9	1	-3	-22	-7	-25	-7	1	3
15	-14	1	-22	-10	-14	<-25s	<-18s	<-14s	<-6s	<-9s	<-0s	<-9s	<-0s	<-10s	<-10s	<-7s	<-27s	<-34s	<-35s	-26	<-35s	<-14s	<-24s	<-26s
16	<-22s	<-21s	-21	<-32s	<-32s	<-18s	<-21s	<-14s	<-12s	<-11s	<-24s	-13	(0)s	-1	<-5s	<-7s	-3	-21	-7	1	1	-5	-9	-9
17	-7	<-5s	-9	-10	-10	<-26s	<-11s	-17	<-23s	<-20s	-17	-5	9	6	2	1	-3	-12	-8	-5	-11	-15	-18	-12
18	-12	-18	-19	-11	-7	-15	<-27s	-14	-14	-11	-7	25	<-2s	9	<-2s	5	-1	-1	-9	-11	-9	-7	-4	-13
19	-12	-8	-8	-12	-20	-8	<-11s	<-17s	-17	<-19s	<-12s	<-12s	<-1s	7s	<-6s	3s	<-22s	<-25s	<-13s	<-34s	<-36s	-26	<-26s	-24
20	-27	-16	-9	-18	-13	-20	<-26s	<-25s	<-19s	<-20s	<-22s	<-17s	5	8	5	7	-11	-22	-24	-27	-35	-20	-20	-21
21	<-21s	-21	-14	-13	-14	-4	-11	-15	0	0	-2	-4	-1	0	0	<-5s	-14	-21	<-25s	-30	-18	1	8	-10
22	17	-7	-7	-5	-7	-5	-6	-6	1	-7	-8	3	-13	-14	-15	-14	-8	-25	-23	-14	3	3	6	-5
23	-8	-19	<-21s	-18	<-5s	<-22s	<-24s	-15	<-20s	<-9s	-7	-6	6	6	<-21s	<-21s	<-33s	<-25s	<-33s	<-33s	<-32s	-13	-21	<-20s
24	<-23s	-19	-23	<-26s	-28	-24	<-26s	<-20s	<-20s	<-20s	<-20s	<-18s	<-3s	-16	<-14s	<-17s	<-25s	<-29s	<-57s	<-35s	<-35s	<-35s	<-27s	<-27s
25	<-21s	-21	-15	-15	<-23s	<-19s	<-22s	<-20s	<-22s	<-20s	<-14s	1	7	-4	-4	<-11s	<-26s	<-31s	<-21	-23	-1	5	-5	-8
26	<-21s	-21	-12	-10	-15	<-12s	-11	<-21s	<-18s	<-13s	<-8s	<-8s	<-4s	-1	-17	<-13s	-23	-26	-28	-28	-16	<-12s	-15	-11
27	-7	-15	-14	-9	<-19s	<-12s	<-9s	<-24s	-11	<-8s	0	8	6s	<-13s	<-15s	<-11s	-24	-32	-20	-28	-26	<-13	4	6
28	-14	-15	-20	<-31s	<-18s	<-10s	<-26s	<-18s	<-22s	<-18s	<-16s	<-16s	8	6	<-19s	<-15s	<-31s	<-23	-12	-25	-8	4	0	6
29	-8	-20	-24	<-32s	<-21s	<-26s	8	<-11s	<-15s	<-6s	<-13s	<-13s	<-1s	C	C	C	C	C	C	C	C	C	C	C
30	-19	-23	-19	<-36s	<-26s	<-18s	<-19s	<-16s	C	SC	SC	SC	<-14s	<-22s	-17	<-14s	-6	-22	-14	-32	-15	1	3	-13
31	-20	-22	-29	<-29s	<-29s	<-25s	<-26s	<-17s	<-14s	<-22s	<-18s	<-14s	4	9	-9	-9	-25	<-29s	<-27s	-23	-6	-6	-9	-22
Median	(-17)s	(-19)s	(-19)s	(-18)s	(-18)s	(-19)s	(-16)s	(-16)s	(-15)s	(-13)s	(-8)s	(-6)s	(0)s	-6	(-9)s	(-7)s	(-18)s	(-24)s	(-21)s	(-23)	-16	-10	-11	-12
Med. Count	31	31	31	31	31	30	30	30	28	29	29	30	30	30	30	30	30	30	30	30	30	30	30	29
Upper decile	-7	<-4s	<-7s	-10	<-7s	<-5s	<-6s	<-6s	(9)s	9	2	2	-2	-8	-1	-5	-1	-5	-1	-5	-1	3	1	-5
Lower decile	<-27s	<-27s	<-27s	<-33s	<-31s	<-28s	<-26s	<-25s	<-23s	<-20s	<-19s	<-18s	<-13s	<-16s	<-31s	<-34s	<-31s	<-34s	<-35s	<-38s	<-35s	<-23s	<-25s	<-26s

Measurement of H.F. Field Strength (Upper Side-band of WWVH)
 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraio

July 1965

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

Med. Count
 Upper decile
 Lower decile

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Aug. 1965	Whole Day Index	L. N.			W W V				S. F.				W W V H				Warning				Principal magnetic storms				
		06	12	18	00	06	12	18	00	06	12	18	00	06	12	18	00	06	12	18	Start	End	Δ H		
		12	18	24	06	12	18	24	06	12	18	24	06	12	18	24	06	12	18	24					
1	4+	C	C	C	5	-	(4)	4	(4)	5	4	4	4	4	4	4	(4)	4	N	N	N	N			
2	4-				5	(5)	2	2	(4)	4	4	4	4	4	4	4	(4)	3	N	N	N	N			
3	3-				1	-	2	2	4	3	3	3	3	3	3	3	4	4	N	N	N	N			
4	4o				4	(4)	4	4	4	5	4	4	4	4	4	4	(3)	3	N	N	N	N			
5	4o				4	-	4	4	4	4	4	4	4	4	4	5	5	4	N	N	N	N			
6	4+				4	-	5	4	4	4	5	4	4	4	(5)	5	5	4	N	N	N	N			
7	4o				4	-	5	5	4	4	4	3	3	5	5	5	4	4	N	N	N	N			
8	4-				4	-	3	3	4	4	4	3	3	5	5	(5)	4	4	N	N	N	N			
9	4o				3	-	2	4	4	5	5	(5)	5	4	5	5	5	5	N	N	N	N			
10	3+				2	-	3	4	(4)	4	4	3	3	4	5	5	4	4	N	N	N	N			
11	4+				4	-	5	4	4	4	5	5	5	4	(4)	4	4	4	N	N	N	N			
12	4+				4	-	4	4	4	5	5	5	5	4	5	4	4	4	N	N	N	N			
13	4+				4	-	3	4	5	5	5	5	5	4	5	4	4	4	N	N	N	N			
14	4o				3	-	(3)	3	5	5	4	5	5	4	5	4	4	4	N	N	N	N			
15	4o				2	-	(2)	4	5	5	(5)	5	5	4	5	(5)	3	3	N	N	N	N			
16	5-				4	-	-	(4)	5	5	5	(5)	5	4	4	4	(4)	4	N	N	N	N			
(17)	4+				C	-	-	4	5	4	4	4	4	5	5	5	4	4	N	N	N	N	13.0	---	107 ^y
(18)	4o				3	-	(4)	4	4	4	4	4	4	4	(4)	4	4	4	N	N	N	N	---	---	
(19)	4-				3	-	C	C	4	4	(4)	4	4	4	5	C	C	C	N	U	U	U	---	---	
20	3o				2	-	-	1	4	3	4	4	4	4	4	3	4	4	N	N	N	N	---	---	
21	2+				1	-	-	1	4	3	3	3	3	4	4	3	3	3	N	U	U	U	---	14xx	
22	3o				2	-	-	3	3	3	3	4	4	3	4	(3)	3	3	N	N	N	N			
23	4-				4	-	-	4	4	3	3	4	4	4	3	3	4	4	N	N	N	N			
24	4-				4	-	-	3	4	4	3	5	5	4	(4)	4	4	4	N	N	N	N			
25	3+				3	-	-	3	4	4	4	3	3	4	4	3	4	4	N	N	N	N			
26	4-				4	-	-	4	3	3	4	4	4	4	4	4	4	4	N	N	N	N			
27	4o				5	-	-	4	4	4	4	4	4	4	5	5	4	4	N	N	N	N			
28	4+				4	-	-	4	5	4	5	4	4	4	4	4	4	4	N	N	N	N			
29	4o				3	-	(5)	4	4	4	4	4	4	4	4	4	4	4	N	N	N	N			
30	4-				3	-	-	4	4	3	4	4	4	4	4	3	4	4	N	N	N	N			
31	4o				C	C	C	C	4	4	4	4	4	4	5	4	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.)

HIRAIISO

No Sudden Ionospheric Disturbance was observed during August, 1965.

IONOSPHERIC DATE IN JAPAN FOR AUGUST 1965

第 17 卷 第 8 号

1965年10月20日 印 刷
1965年10月25日 發 行 (不許複製非売品)

編 集 兼
發 行 人

糟

谷

績

東京都小金井市貫井北町4の573

發 行 所

郵 政 省 電 波 研 究 所

東京都小金井市貫井北町4の573

電話 国分寺(0423)(21) 1211(代)

印 刷 所

山 内 欧 文 社 印 刷 株 式 會 社

東京都豊島区日ノ出町2の2 28

電 話 (971) 9341
