

IONOSPHERIC DATA IN JAPAN

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« Real Time Ionograms on the Webhttp://wdc.nict.go.jp/index_eng.html »



NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

This Series contains data on ionosphere (I) and solar radio emission (S) obtained at the following stations under the

National Institute of Information and Communications Technology, Japan.

Stations	Geographic(WGS84)		Geomagnetic (IGRF-10(2005))		Technical Method
	Latitude	Longitude	Latitude	Longitude	
*Wakkanai/Sarobetsu	45°10'N	141°45'E	36.4°N	208.9°	Vertical Sounding (I)
Kokubunji	35°43'N	139°29'E	26.8°N	208.2°	Vertical Sounding (I)
Yamagawa	31°12'N	130°37'E	21.7°N	200.5°	Vertical Sounding (I)
Okinawa	26°41'N	128°09'E	17.0°N	198.6°	Vertical Sounding (I)
Hiraiso	36°22'N	140°37'E	27.6°N	209.1°	Solar Radio Emission (S)

*We moved the observation facilities at Wakkanai to Sarobetsu on February 2009. The new observatory is located at approximately 26km south from the old observatory. The observation at Sarobetsu commenced on March 6, 2009.

IONOSPHERE

Ionospheric observations are carried out at the above four stations in Japan by means of vertical sounding using ionosondes. The ionosonde produces ionograms, which are recorded digitally on a computer storage medium. The digitally-recorded ionograms are collected from each station by the central computer and reduced to numerical values and Summary Plots by the automatic processing system. The ionograms obtained at Kokubunji are manually scaled by experienced specialists to supplement automatically-scaled parameters.

A1. Automatic Scaling

Digital ionograms are automatically scaled by the pattern recognition method. The following five characteristics of the ionospheric are listed below. The reliability of these factors has been ascertained by comparison of the automatically-scaled parameters with the manually-scaled values of large amounts of test ionograms.

The published data consist of tabulations of hourly values of three factors (f_oF2 , fEs , $fmin$) and monthly medians of two factors ($h'Es$, $h'F$), daily Summary Plots and monthly medians plot of f_oF2 .

a. Characteristics of Ionosphere

f_oF2	Ordinary wave critical frequency for the $F2$ layer
fEs	Highest frequency of the Es layer whether it may be ordinary or extraordinary
$fmin$	Lowest frequency which shows vertical iono-spheric reflections
$h'Es$ $h'F$	Minimum virtual height on the ordinary wave for the Es and F layers, respectively

b. Descriptive Letters

The following descriptive letters are used in the tables.

- A Impossible measurement because of the presence of a lower thin layer, for example Es (for f_oF2).
- C Impossible measurement because of any failure in observation.
- G Impossible automatic scaling because of very small ionization density of the layer (for fEs).
- N Impossible automatic scaling because of complex echoes.
- Blank No digital record because of problems occurring in the auto matic data processing system, but existence of film record.

c. Definitions of CNT, MED, UQ ,and LQ

Median count (CNT) is the number of numerical values from which the median has been computed. In addition to numerical values, the count may include a descriptive letter G.

Median (MED) is defined as the middle value when the numerical values are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

Upper quartile (UQ) is the median value of the upper half of the values when they are ranked according to magnitude; the **lower quartile (LQ)** is the median value of the lower half.

If CNT is less than 10, there are blank spaces left.

d. Reliability of Automatic Scaling

The results of the comparison between automatically-scaled values and manually-scaled ones showed that hourly values of f_oF2 , fEs and $fmin$ were scaled within a difference of 1 MHz from about 90, 90 and 99%, respectively of the test ionograms.

e. Summary Plot

Daily Summary Plots which are made from quarter-hourly digital ionograms are published to present general ionosphere conditions. The upper and middle parts of a Summary Plot show the diurnal variation of the frequency range of the echoes reflected from the F and E regions, respectively. The two solid arcing lines indicate the predicted values of f_xE and f_oE calculated by the method described in the CCIR report 340. The lower part shows the diurnal variation of the virtual height where the echo traces become horizontal.

A2. Manual Scaling

The published data consist of tabulations of hourly values of the ionospheric characteristics and figures of daily f -plot.

All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Hand-book of Ionogram Interpretation and Reduction (Second Edition) 1972 " and its revision of chapters I-4, published in July 1978.

a. Characteristics of Ionosphere

fxl	Top frequency of spread F trace
f_oF2 f_oF1 f_oE f_oEs	Ordinary wave critical frequency for the $F2$, $F1$, E , and Es (including particle type E) layers, respectively
$fbEs$	Blanketing frequency of the Es layer, e.g. the lowest ordinary wave frequency visible through Es
$fmin$	Lowest frequency that shows vertical ionospheric reflections
$M(3000)F2$ $M(3000)F1$	Maximum usable frequency factor for a path of 3000 km for transmission by the $F2$ and $F1$ layers, respectively
$h'F2$ $h'F$ $h'E$ $h'Es$	Minimum virtual height on the ordinary wave for the $F2$, whole F , E and Es layers, respectively
Types of Es	See below b. (iii)

b. Symbols

(i) Descriptive Letters

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

- A** Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.
- B** Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.
- 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 in use.
- E** Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.
- F** Measurement influenced by, or impossible because of, the presence of spread echoes.
- G** Measurement influenced by, 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.
- K** Presence of particle *E* layer.
- 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.
- P** Man-made perturbations of the observed parameter; or spur type spread *F* present.
- Q** Range spread present.
- 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 atmospheric.
- 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** Lacuna phenomena, severe layer tilt.
- Z** Third magneto-electronic component present.

(ii) Qualifying Letters

The following letters are entered in the first column before a numerical value on the monthly tabulation sheets, if necessary.

- A** Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.
- 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.

M Mode interpretation uncertain.

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-electronic component.

(iii) Description of Types of *Es*

When more than one type of *Es* trace are present on the ionogram, the type for the trace used to determine *foEs* must be written first. The number of multiple trace is indicated after the type letter.

The types are:

- f** An *Es* trace which shows no appreciable increase of height with frequency.
- l** A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the part *E* layer minimum virtual height.
- c** An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)
- h** An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)
- q** An *Es* trace which is diffuse and non-blanketing over a wide frequency range.
- r** An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.
- a** An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.
- s** A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.
- d** A weak diffuse trace at heights below 95 km as-associated with high absorption and large *fmin*.
- n** The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.
- k** The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

c. Definitions of the CNT, MED, UQ and LQ

Median count (CNT) is the number of values from which the median has been computed. In addition to numerical values, the count may include certain descriptive letters.

Median (MED) is the middle value when the numerical values are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

Upper quartile (UQ) is the median value of the upper half of the values when they are ranked according to magnitude; the **lower quartile (LQ)** is the median value of the lower half.

HOURLY VALUES OF foF2 AT Wakkanai

APR. 2014

LAT. 45° 10.0' N LON. 141° 45.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

$\begin{matrix} H \\ D \end{matrix}$	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	62	52	54	52	63	66	67	85		70	68	70	79	59	91	70	74	69	68	67	66	54	66	54		
2	66	63	62	54	62	63	66	67	60	72	70	69	111	87		93	91	75	69	65	64	63	54	66		
3	67	66	63	64	63	64	66	85	90	91	N		70	75	79	70	92	90	70	A		64	66	67		
4	64	63	66	63	64	69	67	67	70	92	90	62														
5														70	92	86	92	70	71	66	64	65	63	52		
6	67	63	63	53	59	60	65	67	67	67	68	92	69	71	71	66	73	69	67	67	66	63	54	64		
7	64	61	53	53	63	63	66	87	87	73	68	71	70	70	72	68	81	71	70	66	65	64	53	63		
8	64	52	52	53	62	67	67	69	65	69	70	69	59	67	91	91	68	74	68	67	65	64	64	34		
9	54	66	64	54	57	60	94	65	70	70	60	N	N		70	91	63	70	71	69	66	66	63	63		
10	54	34	52	60	53	49	67	68	67	70	66	70	68	68	71	87	72	71	69	69	64	63	53	53		
11	54	58	52	59	57	64	67	67	N		70	92	59	67	61	68	94	68	74	69	67	65	64	63	62	
12	63	62	53	52	53	55	60	57	62	58		65	63	62	49	68	70	70	67	66	62	54	63	52		
13	53	53	52	53	47	50	66	61	67	91	69	N		68	68	61	91	90	74	70	64	64	63	54	54	
14	63	54	64	62	62	54	79	67	70	89	90	69	68	80	66	74	74	71	68	66	69	66	64	53		
15	52	52	52	44	51	58	61	65	66	66	68	70	70	71	N		57	69	69	69	67	65	63	66	64	
16	62	54	63	52	61	62	67	74	43	70	68	70	71	71	58	94	82	88	68	66	67	64	66	64		
17	66	52	64	55	60	64	68	67	67	52	N		70	68	58	69	91	90	60	70	66	64	67	63	66	
18	63	34	54	64	66	67	72	67	65	66	67	60	69	64	92	70	73	74	68	59	65	63	64	62		
19	64	46	52	62	60	63	92	67	68	70	68	68	70	67	66	64	75	68	68	67	64	64	63	54		
20	54	62	52	63	63	66	65	69	66	69	68	67	71	N		68	70	70	70	68	67	66	29	49	62	
21	63	52	34	32	53	60	68	68	69	68	71	70	68	74	68	91	85	73	68	66	65	66	64	63		
22	64	65	63	53	60	63	67	64	63	62	67	69	N		69	51	68	70	N		67	66	64	63	53	54
23	52	54	52	52	60	64	64	70	70	70	69	70	70	52	68	74	86	70	68	67	67	64	64	63		
24	64	67	54	61	62	62	66	67	67	70	70	61	69	76	47	72	71	71	70	66	64	65	54	63		
25	52	54	52	52	58	57	67	64	60	67	61	70	69	69	68	68	69	68	68	66	64	67	54	34		
26	53	56	63	53	58	52	64	66	67	68	66	69	62	70	70	74	70	66	66	66	65	65	54	54		
27	54	52	61	52	56	63	68	67	66	65	66	67	68	N		68	N		80	74	66	66	65	65	66	54
28	63	52	51	60	61	66	67	67	70	67	67	71	67	69	66	69	70	70	70	63	66	66	64	64		
29	63	52	61	58	52	63	70	62	69	62	69	70	69	59	68	74	70	N		69	67	66	65	63	54	
30	64	52	34	52	62	62	69	67	64	69	70	68	68	69	N	N		75	80	N		65	64	32	66	65
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	29	29	29	29	29	29	29	29	27	29	26	26	26	27	26	27	29	27	28	28	29	29	29	29		
MED	63	54	54	53	60	63	67	67	67	69	68	69	69	69	68	72	73	71	68	66	65	64	63	62		
U Q	64	62	63	60	62	64	68	68	70	70	70	70	70	71	72	91	83	74	69	67	66	65	64	64		
L Q	54	52	52	52	56	59	66	65	65	66	67	67	68	64	66	68	70	69	68	66	64	63	54	54		

HOURLY VALUES OF fEs AT Wakkanai

APR. 2014

LAT. 45° 10.0' N LON. 141° 45.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	G	G	G	G	G	G	G	34		G	G	G	G	G	G	G	38	G	G	G	G	G	G	G	
2	G	G	G	G	G	G	48	G	G	G	G	G	G	G		G	36	G	G	G	G	G	G	G	
3	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	35	31	G	34		G	G	G	
4	G	G	G	G	G	G	G	G	G	G	G														
5														G	G	46	38	34	29	26		G	G	G	
6	G	G	G	G	G	G	29	G	38	G	G	G	G	G	G	G	36	G	29	25		G	G	25	28
7	28	G	G	25	27	28	30	62	G	G	G	G	G	G	G	G	G	G	G	27		G	G	G	G
8	G	G	G	G	G	G	34	G	G	G	G	G	G	G	G	G	G	36	25	24		G	G	G	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	30	G	G		G	G	G	G
10	G	G	G	24	32	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	28	G	G
11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	27		G	G	G	G
12	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	32	28	26	27		G
13	G	G	G	26	29	38	38	37	48	G	G	G	G	G	42		G	G	G	G	G	G	G	G	G
14	G	29	28	G	G	G	G	G	G	G	G	52	G	G	G	G	G	G	G	G	G	G	G	G	G
15	G	26	28	G	G	G	G	36	G	G	G	G	44	G	G	G	G	35	29	26		G	G	G	G
16	G	G	G	G	G	G	G	36	38	G	G	G	G	G	G	G	G	33		G	G	G	G	G	G
17	G	G	G	G	G	G	32	38	38	G	G	G	G	G	G	G	36	32	27		G	G	G	G	G
18	G	G	G	G	G	G	G	G	G	G	G	G	43	52	42	G	42	34	34	34	26		G	G	G
19	G	G	34	G	G	G	G	G	G		50	43	G	G	G	G	G	40	36	35	46		G	G	G
20	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40		31	32	28		G	G
21	G		G	G		G		G		G	G	G	G	G	G	G	G	G	G	27		G	G	G	26
22	28	G	G	G	30	G	G	38	40	42	G	G	G	G	G	G	G	G	G	G		G	27		G
23	G	24	G	G	G	G	33	G	39	G	G	G	G	G	G	G	G	33	36	32		G	G	G	G
24	G	G	G	G	G	G	G	G	39		G	50	G	G	G	39	G		33	27	26	28	24	28	G
25	G	G	G	G	G	G	G	G	40	49	G	G	G	44	G	G	G	34	38	37	36		24		G
26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
27	G	28	28	29	32	G	39	G	G	G	53	G	G	G	G	G	G	44	42	30	34	25		37	G
28	G	G	G	G	G	G	G	G	54	G	G	59	G	50	G	G	G	G	36	35	29	32		G	G
29	G	G	G	G	G	G	G	G	49	54	50	G	G	G	G	G	39	G	G	G	G	G	G	G	G
30	G	G	G	G	G	G	G	N	G	G	G	G	G	G	G	G	G	G	G	31	38	40		G	G
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	29	29	29	29	29	29	28	28	29	29	28	28	29	28	29	29	29	29	29	29	29	29	29	29
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	G	G	G	G	
U Q	G	G	G	G	G	G	32	17	39	G	G	G	G	G	G	G	36	34	32	31	27	25	G	G	
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	

HOURLY VALUES OF fmin AT Wakkanai

APR. 2014

LAT. 45° 10.0' N LON. 141° 45.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

$\begin{matrix} H \\ D \end{matrix}$	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	14	14	15	14	15	15	23	14		15	21	17	21	17	14	15	15	14	18	15	15	15	15	15
2	15	15	15	15	15	15	14	14	14	16	17	24	20	18		16	14	14	18	15	15	14	15	15
3	15	15	15	15	14	15	24	14	14	15	18		45	21	17	20	15	15	18	14	15	15	15	15
4	15	16	15	15	14	15	23	14	14	15	15	15												
5														18	22	15	14	14	14	15	15	14	15	14
6	15	15	16	15	15	15	15	14	14	16	17	15	20	20	14	15	14	14	14	14	15	15	15	15
7	14	15	15	15	14	15	15	14	14	14	15	17	20	16	17	16	14	14	16	15	15	15	15	15
8	15	15	15	15	15	16	14	14	14	17	17	21	18	18	15	15	14	14	17	14	15	15	15	15
9	14	15	15	15	14	16	15	14	14	16	16	18	17	15	15	14	14	14	15	15	15	15	15	18
10	15	15	14	14	14	14	14	14	15	26	20	48	21	18	16	18	15	14	15	14	15	16	14	15
11	15	15	14	15	15	17	14	14	15	18	24	20	24	21	15	18	14	14	14	15	15	15	15	15
12	15	14	15	16	17	15	14	14	15	15	21	26	18	20	17	17	15	14	15	15	16	14	15	15
13	15	15	15	16	14	14	14	14	14	15	18	24	21	18	15	14	14	14	20	14	15	14	15	18
14	15	15	15	22	16	16	14	16	15	23	21	24	28	21	23	16	14	14	18	15	15	14	15	14
15	15	15	14	14	14	18	14	14	15	18	28	20	26	20	22	17	14	14	14	16	14	15	15	14
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17	15	15	15	14	14	20	14	14	14	18	20	27	21	53	16	15	14	14	15	14	15	14	15	15
18	14	15	15	14	14	20	15	15	15	17	48	21	21	21	21	18	14	14	16	14	15	15	15	15
19	14	14	16	15	15	20	14	14	14	16	17	27	26	20	15	16	15	14	14	16	14	15	15	15
20	15	15	16	15	14	17	15	14	18	20	17	51	53	30	28	24	15	14	15	14	15	14	15	15
21	14	15	14	16	14	20	14	15	15	18	23	24	21	23	18	18	16	18	15	15	14	15	15	15
22	14	15	14	15	15	20	15	15	16	20	24	28	28	26	20	20	15	15	15	16	15	16	14	14
23	15	16	16	15	14	20	14	15	16	21	27	24	20	22	17	17	15	14	15	14	15	15	14	15
24	15	14	15	14	14	18	14	14	15	21	22	17	22	20	18	15	15	14	15	16	15	14	15	14
25	15	15	15	14	15	18	14	16	16	17	54	53	48	38	20	18	16	15	15	14	15	15	14	15
26	15	14	15	14	15	22	15	14	17	24	18	20	24	21	15	14	16	14	20	15	15	14	14	14
27	14	14	14	14	14	14	14	14	16	16	17	18	20	24	16	18	14	15	14	15	14	15	14	14
28	14	14	14	14	14	20	14	14	16	17	16	20	21	23	21	15	17	15	14	14	15	14	14	15
29	14	14	14	16	15	14	14	15	18	17	18	50	20	17	16	17	17	14	14	15	14	14	15	15
30	15	14	15	15	14	21	18	14	15	18	21	48	27	20	22	18	15	15	15	14	14	14	15	15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	28	29	29	28	28	29	28	29	29	29	29	29	29	29	29	29
MED	15	15	15	15	14	17	14	14	15	17	20	22	21	20	17	17	15	14	15	15	15	15	15	15
U Q	15	15	15	15	15	20	15	14	16	19	22	27	26	23	20	18	15	14	17	15	15	15	15	15
L Q	14	14	14	14	14	15	14	14	14	16	17	19	20	18	15	15	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

APR. 2014

LAT. 35° 43.0' N LON. 139° 29.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

$\begin{matrix} H \\ D \end{matrix}$	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	76	76	72	52	64	67	86	105	120	127	124	131	134	126	115	106	105	108	107	96	78	76	78	73
2	78	74	69	71	67	67	88	103	111	116	118	128	132	132	124	120	113	110	101	86	74	78	78	81
3	84	84	76	63	57	63	84	95	110	114	120	123	127	127	116	112	110	102	88	82	77	80	80	80
4	81	72	69	64	67	73	87	107	112	111	116	126	131	132	127	125	121	115	106	84	67	80	81	78
5	76	76	71	52	52	52	77	97	105	111	121	120	122	127	125	114	106	104	100	88	76	78	78	74
6	74	80	73	65	66	67	87	104	110	111	124	123	128	118	117	104	105	105	101	86	77	76	79	76
7	74	60	67	67	61	52	84	86	105	110	107	106	110	115	117	111	107	102	106	86	73	77	80	78
8	78	76		67	52	75	88	100	110	110	116	123	122	118	110	111	116	112	110	90	71	73	78	77
9	78	74	76	67	54	59	81	88	97	105	118	121	116	117	116	115	111	105	104	91	73	72	72	72
10	72	72	64	54	59	66	82	94	100	102	108	117	116	115	124	122	124	117	106	82	54	52	54	54
11	54	54	54	53	53	61	85	88	90	94	104	112	115	124	125	118	120	118	117	102	84	66	65	67
12	53	67	66	52	57	54	73	71	72	81	90	96	106	122	126	120	110	107	108	85	73	67	66	72
13	71	72	53	63	52	58	74	83	86	88	88	97	118	123	121	116	122	120	121	90	54	66	73	72
14	67	54	52	54	66	63	82	96	101	96	105	111	111	118	118	115	115	109	115	111	101	72	54	55
15	54	54	65	63	49	54	86	97	104	107	97	107	122	126	125	130	135	123	117	102	85	63	54	64
16	64	54	55	52	57	62	91	100	96	95	87	97	111	115	122	123	122	116	112	105	84	76	76	76
17	77	78	76	72	68	71	90	90	101	101	102	112	114	115	114	121	118	110	98	88	86	88	85	81
18	74	67	67	67	65	80	101	98	104	104	104	121	122	119	125	130	121	116	121	107	75	72	73	74
19	72	54	67	54	66	71	86	97	97	98	102	110	110	120	124	121	116	117	115	96	64	52	A	53
20	74	71	64	52	63	62	84	85	88	98	106	111	111	112	112	110	106	102	101	96	84	76	68	68
21	55	58	51	52	57	62	86	86	95	95	102	112	116	118	116	124	121	114	102	86	77	74	76	73
22	73	69	72	71	57	67	88	85	91	98	106	117	123	125	114	104	93	91	96	88	83	81	67	72
23	72	72	72	64	59	63	92	94	92	91	98	105	111	113	113	116	111	110	106	90	87	81	80	80
24	85	84	80	73	72	77	88	90	88	94	95	102	113	123	128	125	117	114	112	106	87	78	77	80
25	80	73	73	74	67	73	77	81	93	87	102	111	118	116	116	108	107	102	98	90	84	81	74	73
26	72	72	64	52	54	54	74	78	82	86	92	102	104	116	120	114	115	110	104	90	74	55	73	73
27	75	54	52	54	55	76	90	75	76	81	94	114	122	122	117	117	114	97	88	87	81	64	65	67
28	67	67	58	52	59	71	81	87	82	85	91	91	108	118	127	127	121	108	101	91	80	73	39	68
29	76	76	65	67	66	78	91	81	74	76	87	100	116	126	132	125	111	104	98	86	71	70	54	66
30	64	59	64	53	49	54	77	74	84	81	73	92	101	110	126	131	120	106	108	88	83	78	78	67
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30
MED	74	72	67	63	59	64	86	90	96	98	103	112	116	118	120	118	115	110	106	90	77	75	74	73
U Q	77	76	72	67	66	71	88	97	105	110	116	121	122	125	125	124	121	115	112	96	84	78	78	77
L Q	67	59	61	52	54	59	81	85	88	88	94	102	111	116	116	112	110	104	101	86	73	67	65	67

HOURLY VALUES OF fEs AT Kokubunji

APR. 2014

LAT. 35° 43.0' N LON. 139° 29.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	G	G	G	G	50	G	G	G	G	G	G	34	G	G	G	32	G	G
2	G	G	G	G	G	G	G	G	G	G	G	46	G	47	47	54	51	40	35	25	G	23	G	G
3	G	G	G	G	G	G	31	G	G	G	G	G	53	69	61	57	48	33	G	G	G	29	G	38
4	G	G	G	G	G	G	47	34	G	G	G	G	44	G	G	G	G	39	39	29	23	G	29	G
5	G	28	52	46	29	40	34	G	G	G	G	G	G	G	G	G	G	39	28	30	G	G	G	G
6	23	G	G	G	G	G	G	34	G	G	G	52	G	G	G	48	G	41	57	59	26	G	31	G
7	29	38	39	30	G	G	30	34	G	G	G	50	G	49	G	G	46	50	34	28	23	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	43	50	50	50	G	G	37	35	45	52	23	G	G
9	G	G	G	G	G	G	G	G	G	51	G	G	G	48	G	G	G	G	34	32	23	G	G	G
10	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
11	G	G	G	G	G	G	G	G	G	G	51	71	51	G	G	G	G	G	G	G	27	26	G	G
12	G	G	G	G	G	G	G	G	G	G	48	G	53	G	52	G	G	34	29	35	G	50	G	G
13	G	G	G	G	G	G	G	G	49	50	50	60	G	G	44	G	G	G	44	26	G	G	G	G
14	G	G	G	G	G	G	G	G	G	G	G	51	G	G	G	G	G	32	49	68	59	33	27	G
15	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	32	33	35	32	34	40	G
16	G	G	G	G	G	G	G	G	46	G	G	45	G	50	43	G	G	53	59	51	44	26	G	G
17	G	G	G	G	G	G	40	G	G	G	G	G	G	61	48	G	G	G	34	46	40	36	40	G
18	G	G	G	G	G	G	G	G	G	G	46	G	G	G	G	G	G	40	40	34	50	24	G	38
19	29	26	G	G	G	G	G	G	G	50	G	47	G	53	G	G	G	47	37	36	41	34	58	26
20	23	G	G	G	G	G	G	G	G	G	G	53	50	G	G	G	G	G	55	32	46	27	G	G
21	G	G	G	G	G	G	G	G	G	45	68	72	55	50	G	47	G	G	30	G	G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	50	G	G	G	G	G	G	G	G	G	G	G	G	G
23	G	G	G	G	G	G	G	G	G	G	45	G	59	G	G	G	G	40	36	40	45	35	G	G
24	G	G	G	G	G	G	G	43	G	G	G	G	G	G	G	G	G	48	45	40	29	31	31	G
25	G	G	G	25	29	G	G	G	46	50	G	G	G	G	G	G	G	G	39	43	35	29	29	51
26	23	G	22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	32	G	29	G
27	24	G	G	G	G	G	G	G	G	G	G	50	57	52	G	50	62	59	61	29	G	25	38	31
28	27	G	G	G	G	G	G	G	48	61	G	53	103	G	G	G	G	G	30	53	38	36	36	24
29	25	G	G	G	G	G	G	47	57	55	53	50	G	58	G	G	37	G	G	36	53	49	30	G
30	G	G	G	G	G	G	G	G	50	57	51	49	G	G	G	G	G	G	29	24	G	G	G	38
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	G	G	G	G	G	G	G	G	G	G	G	22	G	G	G	G	G	32	34	32	26	26	G	G
U Q	23	G	G	G	G	G	G	G	G	45	48	50	50	49	G	G	G	40	40	40	41	33	30	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	25	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

APR. 2014

LAT. 35° 43.0' N LON. 139° 29.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

$\begin{matrix} H \\ D \end{matrix}$	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	13	13	13	13	13	13	14	13	14	21	40	48	45	40	42	22	18	15	17	13	13	13	14	14
2	14	13	13	14	13	14	18	13	17	18	40	44	44	33	42	24	17	13	13	14	14	13	14	14
3	13	13	13	13	13	14	18	15	20	20	40	45	25	35	24	21	18	13	18	13	14	13	14	14
4	14	14	14	13	14	14	24	13	20	21	43	50	50	47	39	39	14	13	13	14	14	14	14	13
5	14	14	13	13	13	13	14	17	18	40	24	44	43	28	22	20	15	13	13	13	14	14	14	17
6	13	14	13	14	14	17	17	13	15	21	39	35	21	39	40	20	15	13	13	14	15	13	13	14
7	14	14	13	13	13	14	13	13	15	20	39	36	46	43	22	18	14	14	13	13	13	13	14	14
8	14	13		13	14	13	18	13	38	20	39	43	39	43	36	21	14	14	13	14	14	14	14	13
9	14	14	13	14	13	14	23	15	15	37	40	44	42	41	40	37	15	13	13	13	14	14	14	14
10	13	13	14	13	14	13	23	17	20	37	42	52	39	44	22	17	13	13	13	14	13	14	13	13
11	17	21	14	15	20	13	18	17	20	38	38	34	33	47	42	36	18	30	13	13	13	15	14	14
12	13	13	14	13	13	14	18	14	17	25	36	43	35	48	34	40	14	13	13	14	21	13	13	13
13	14	18	13	14	14	13	17	13	20	36	38	39	43	40	18	17	39	15	13	14	13	14	14	13
14	13	14	13	15	13	13	13	15	17	37	43	38	46	38	43	39	13	13	15	13	15	14	15	15
15	14	14	17	14	14	15	28	14	20	22	40	42	50	44	40	40	30	13	14	14	13	13	13	14
16	14	14	14	13	13	14	14	13	18	39	39	38	48	41	34	29	39	14	14	13	14	17	13	14
17	14	14	13	13	13	14	23	15	22	22	42	44	43	39	29	40	18	18	14	13	14	13	13	14
18	15	14	13	13	14	14	28	17	39	39	37	47	43	47	44	40	21	14	13	13	14	14	14	13
19	14	15	13	14	14	15	26	17	21	42	46	39	49	38	45	41	20	18	14	13	18	15	13	13
20	14	14	14	13	13	14	31	18	18	39	43	38	39	43	44	38	20	13	13	13	14	13	15	14
21	13	13	20	14	14	14	26	18	21	40	37	39	36	33	48	30	20	14	14	14	13	13	14	14
22	14	15	14	17	13	20	14	15	39	44	39	54	42	47	28	39	18	13	22	14	18	14	14	14
23	14	13	15	14	13	18	14	17	40	40	45	49	39	44	21	39	21	14	13	13	13	13	14	15
24	14	14	14	14	13	15	13	13	21	44	40	53	48	50	43	41	17	13	13	13	13	13	14	14
25	13	14	14	15	13	15	25	20	21	39	56	48	50	45	38	39	22	13	14	13	13	14	14	13
26	14	14	13	14	13	15	26	17	40	39	48	50	49	47	42	22	18	18	23	13	14	14	15	14
27	14	40	14	14	14	17	29	18	18	20	42	49	38	38	39	31	20	13	14	13	14	14	13	13
28	13	14	14	13	14	17	14	17	22	38	47	38	47	49	38	20	20	13	14	13	14	13	14	15
29	17	13	13	13	13	15	14	17	36	38	39	39	49	33	48	22	20	13	13	13	13	13	14	13
30	13	14	14	13	13	18	26	18	33	39	39	38	50	56	42	45	21	13	13	13	14	14	13	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	14	14	14	14	13	14	18	15	20	38	40	44	43	43	40	34	18	13	13	13	14	14	14	14
U Q	14	14	14	14	14	15	26	17	22	39	43	48	48	47	42	39	20	14	14	14	14	14	14	14
L Q	13	13	13	13	13	14	14	13	18	21	39	38	39	38	29	21	15	13	13	13	13	13	13	13

HOURLY VALUES OF foF2 AT Yamagawa

APR. 2014

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

$\begin{matrix} H \\ D \end{matrix}$	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	86	77	78	71	57	68	74	88	114	116	111	95	116	113	113	113	117	115	111	90	86	78	84	87
2	86	83	80	76	70	66	67	91	97	100	111	114	111	142	115	138	116	107	97	88	86	84	86	87
3	78	87	77	64	54	54	53	86	98	110	110	111	134	126	132	89	112	114	107	94	86	81	83	80
4	82	77	72	67	63	67	76	90	99	110	111	114	133	109	144	143	143	115	N	103	80	82	87	84
5	86	88	77	52	56	53	52	87	92	108	110	110	113	119	114	111	114	110	114	89	84	84	86	83
6	81	80	84	53	67	57	67	104	110	110	112	97	114	79	128	112	113	114	114	73	87	85	88	86
7	84	77	77	77	67	63	65	92	100	106	107	98	114	110	110	111	110	114	111	96	85	84	85	87
8	87	85	73	54	N	73	70	88	107	110	100	111	113	113	114	111	111	116	111	97	78	82	84	86
9	86	80	80	80	58	52	63	88	97	100	111	114	111	102	109	116	113	109	110	96	87	77	81	76
10	78	80	73	68	57	53	67	88	99	96	111	109	136	129	148	142	112	111	111	81	78	76	76	77
11	77	77	74	63	63	60	72	93	92	88	95	110	109	114	97	114	113	117	N	111	90	76	76	76
12	74	72	72	52	57	54	73	86	83	90	97	111	115	113	142	112	126	116	118	90	78	55	67	A
13	67	72	65	67	50	52	65	88	88	86	94	98	113	100	112	114	115	139	112	98	77	77	77	77
14	73	72	52	44	67	63	76	101	87	83	95	107	114	111	111	102	114	110	114	141	79	66	54	74
15	66	52	52	67	52	53	65	93	89	92	93	96	111	94	146	145	154	156	157	146	79	86	81	84
16	80	77	74	72	67	67	91	106	91	86	86	94	110	112	112	101	112	114	110	89	85	86	83	79
17	86	88	87	88	77	74	84	98	88	96	94	111	115	98	111	115	116	110	110	96	86	89	87	84
18	A	76	52	77	74	76	76	94	90	95	96	112	113	114	110	130	140	139	138	117	86	78	82	84
19	82	78	78	76	77	78	84	90	101	106	99	113	114	105	115	114	109	110	115	108	82	73	77	83
20	79	74	77	77	73	67	76	82	88	96	98	112	108	115	111	128	114	112	100	111	73	54	A	73
21	A	73	52	54	60	64	74	90	93	92	98	114	98	99	79	140	118	117	114	109	85	78	80	80
22	78	76	78	77	58	63	81	96	95	97	C	108	104	114	116	111	100	113	108	72	88	83	78	82
23	84	77	81	72	62	56	77	88	92	91	95	96	112	108	110	114	111	115	115	111	88	84	84	86
24	87	88	82	81	74	77	88	88	88	88	94	96	115	128	121	111	115	116	111	98	87	78	80	78
25	77	73	72	76	67	52	76	92	92	91		97	113	119	112	108	110	117	112	97	87	86	86	80
26	85	85	77	72	62	52	81	84	85	88	91	96	110	79	108	110	132	117	110	90	86	77	79	78
27	78	78	52	71	68	66	71	70	76	85	95	110	110	116	128	134	100	96	116	90	A	67	53	74
28	76	76	76	66	71	67	78	82	81	82	88	96	117	112	143	144	142	120	110	97	88	79	79	82
29	84	86	77	74	71	68	85	84	72	77	90	94	115	N	142	151	145	117	90	90	85	81	85	80
30	75	55	67	67	60	54	67	72	85	75	74	84	97	95	112	N	137	112	110	96	88	86	85	86
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	30	30	30	29	30	30	30	30	30	28	30	30	29	30	29	30	30	28	30	29	30	29	29
MED	80	77	76	71	63	63	74	88	92	94	96	108	113	112	114	114	114	114	111	96	86	80	82	82
U Q	85	83	78	76	70	67	78	93	98	106	110	111	115	115	128	136	126	117	114	108	87	84	85	85
L Q	77	74	72	64	57	54	67	86	88	88	94	96	110	101	111	111	112	111	110	90	79	77	77	77

HOURLY VALUES OF fEs AT Yamagawa

APR. 2014

LAT. 31° 12.0' N LON. 130° 37.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	G	G	G	G	G	G	G	34	G	G	48	44	44	G	G	G	44	36	80	G	G	G	G	G	
2	G	G	G	G	G	G	G	30	36	G	G	G	G	G	G	G	G	G	G	25	G	G	G	G	
3	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	53	49	66	38	40	29	G	G	G	
4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	53	G	42	50	32	G	G	G	G	
5	G	G	G	G	G	G	G	G	38	40	42	G	G	G	G	G	G	G	G	29	31	G	G	G	
6	28	G	G	G	G	G	G	G	42	G	G	48	G	G	G	G	G	40	34	G	G	G	G	G	
7	G	G	G	G	G	G	G	G	44	G	G	G	G	G	G	G	G	G	36	31	G	G	G	G	
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	41	38	34	28	G	25	
9	G	G	G	G	G	G	G	G	G	G	47	G	45	47	G	51	G	G	33	28	49	26	41	G	
10	29	G	G	30	G	G	G	G	G	47	G	G	G	G	G	G	40	47	44	36	34	28	34	26	
11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	29	24	25	30	G	
12	G	G	G	G	G	G	G	G	G	G	49	G	G	G	43	48	G	52	39	53	56	49	28	32	
13	38	25	G	G	G	24	G	G	G	48	51	53	76	50	G	G	G	36	61	33	34	25	32	31	
14	26	27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	56	89	40	30	40	G	38	
15	G	G	G	G	G	G	G	G	40	41	48	G	48	G	46	G	G	G	G	27	G	32	G	G	
16	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	G	56	44	28	57	G	G	
17	46	G	G	G	G	G	G	G	39	51	61	63	54	45	54	42	G	G	G	29	28	56	79	46	
18	51	G	G	G	G	G	G	39	47	52	59	60	67	46	47	45	49	77	80	52	41	47	44	34	
19	G	G	G	G	50	47	G	G	G	50	52	G	G	G	44	44	50	57	61	59	G	32	40	28	
20	G	24	48	G	29	G	G	G	G	54	48	47	56	G	G	G	G	65	71	56	35	58	80	58	
21	40	24	29	G	G	28	G	35	43	G	C	G	86	72	66	81	G	G	30	28	25	G	G	G	
22	G	G	G	G	G	G	G	G	39	G	G	G	G	G	60	46	48	46	36	G	G	G	G	29	
23	33	39	28	27	25	G	G	G	G	G	G	53	G	G	G	G	G	G	36	30	34	G	G	G	
24	G	G	G	G	G	G	G	G	44	56	54	64	55	G	G	G	G	G	35	33	26	G	G	G	
25	G	G	G	34	G	24	G	G	45	50	G	50	48	49	47	42	G	40	44	48	27	29	29	34	
26	39	43	26	27	34	28	32	G	46	56	51	49	G	53	49	G	G	G	G	G	G	G	G	G	
27	G	44	G	34	G	24	G	43	45	G	62	47	45	57	50	50	44	48	38	32	113	40	38	40	
28	G	G	G	G	G	27	G	41	G	60	50	G	50	G	G	G	G	G	G	60	40	33	58	36	
29	30	27	G	G	G	G	G	47	51	57	60	64	76	51	51	50	G	48	89	50	116	88	36	25	
30	49	28	G	G	G	G	G	G	46	56	56	47	66	G	G	G	42	38	34	28	G	G	G	53	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	G	G	G	G	G	G	G	G	18	G	47	G	G	G	G	G	G	37	37	32	28	26	G	13	
U Q	30	24	G	G	G	G	G	G	44	51	51	49	54	46	47	46	40	48	56	44	34	40	36	34	
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	33	28	G	G	G	G	

HOURLY VALUES OF fmin AT Yamagawa

APR. 2014

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

$\begin{matrix} H \\ D \end{matrix}$	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	14	15	14	15	14	15	15	15	14	21	35	36	36	45	30	38	23	17	23	15	15	15	15	14
2	14	15	15	15	14	15	17	15	14	22	24	28	50	23	46	44	22	18	22	15	15	15	15	15
3	14	15	14	15	16	14	17	26	14	22	28	45	49	42	35	26	24	15	14	16	15	15	15	15
4	14	15	15	15	15	16	17	15	16	21	27	27	58	49	42	35	22	22	16	14	14	16	15	15
5	14	15	14	14	14	15	18	28	17	22	24	47	43	43	42	46	23	32	14	14	14	15	15	15
6	16	14	15	16	14	18	18	16	18	22	23	29	54	26	44	38	23	17	14	15	14	14	15	16
7	15	15	15	15	15	14	20	29	17	23	24	42	42	47	51	40	34	22	14	14	15	15	15	15
8	14	15	15	15	14	15	18	22	20	21	26	44	41	44	56	41	23	20	15	14	14	15	15	14
9	15	15	15	15	14	15	18	27	15	23	26	44	30	34	32	26	23	30	14	14	14	15	14	16
10	14	15	15	14	14	15	18	15	18	22	45	54	34	52	49	46	38	21	16	14	14	14	14	14
11	15	15	14	15	14	15	20	18	22	23	28	49	55	36	59	45	44	21	16	14	14	15	14	15
12	15	14	15	14	15	15	18	27	18	22	35	48	47	53	35	35	35	26	20	17	15	14	14	15
13	14	15	15	15	14	14	18	15	18	22	26	41	42	42	47	37	20	16	14	14	15	15	15	14
14	15	15	17	15	15	15	20	28	18	24	26	57	56	58	54	46	23	22	18	14	14	14	16	14
15	20	14	15	14	18	17	21	16	20	22	29	56	33	56	27	53	23	21	15	15	14	14	14	15
16	15	15	15	15	14	14	20	17	22	23	22	33	30	54	54	42	26	21	18	14	14	16	15	15
17	14	17	15	14	15	15	20	29	21	24	26	41	35	38	35	46	37	22	23	14	15	15	14	14
18	14	15	14	15	15	14	18	15	21	26	29	30	38	39	38	36	34	22	14	14	14	14	14	15
19	15	15	17	15	14	14	14	16	22	23	29	42	52	56	57	36	22	17	15	14	14	14	14	15
20	15	15	15	14	14	15	21	18	24	26	36	40	42	54	44	47	39	27	17	14	15	14	14	14
21	15	16	15	15	15	14	21	17	18	26	43	54	38	35	35	32	24	20	14	14	16	15	20	15
22	15	15	15	14	14	15	21	15	22	27	^C	53	51	36	34	29	24	20	14	18	15	14	15	15
23	14	15	14	14	15	15	15	18	22	24	46	36	54	56	57	52	23	34	22	14	14	15	16	14
24	14	15	15	15	16	20	14	17	18	24	35	35	34	55	50	49	23	20	15	14	15	15	15	15
25	15	16	14	15	15	15	14	16	18	23	111	43	42	41	38	26	23	22	14	14	14	15	15	15
26	14	14	15	16	14	14	17	17	17	21	28	36	52	35	35	26	21	21	26	15	15	14	15	15
27	17	14	15	14	15	15	15	18	20	40	37	38	38	38	37	38	34	22	22	14	17	14	14	14
28	14	16	15	14	14	15	21	18	21	23	35	48	40	40	35	53	26	22	14	14	15	14	14	14
29	14	14	14	15	16	14	22	14	20	22	24	35	28	34	29	24	21	14	21	14	14	14	14	14
30	14	15	15	15	16	15	21	24	20	24	35	35	37	50	57	49	22	20	24	14	15	14	15	15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	14	15	15	15	14	15	18	17	18	23	28	42	42	42	42	39	23	21	16	14	14	15	15	15
U Q	15	15	15	15	15	15	20	24	21	24	35	48	51	53	51	46	34	22	21	15	15	15	15	15
L Q	14	15	14	14	14	14	17	15	17	22	26	35	36	36	35	35	23	20	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

APR. 2014

LAT. 26° 41.0' N LON. 128° 09.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

^H D	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

HOURLY VALUES OF fEs AT Okinawa

APR. 2014

LAT. 26° 41.0' N LON. 128° 09.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

$\begin{matrix} H \\ D \end{matrix}$	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

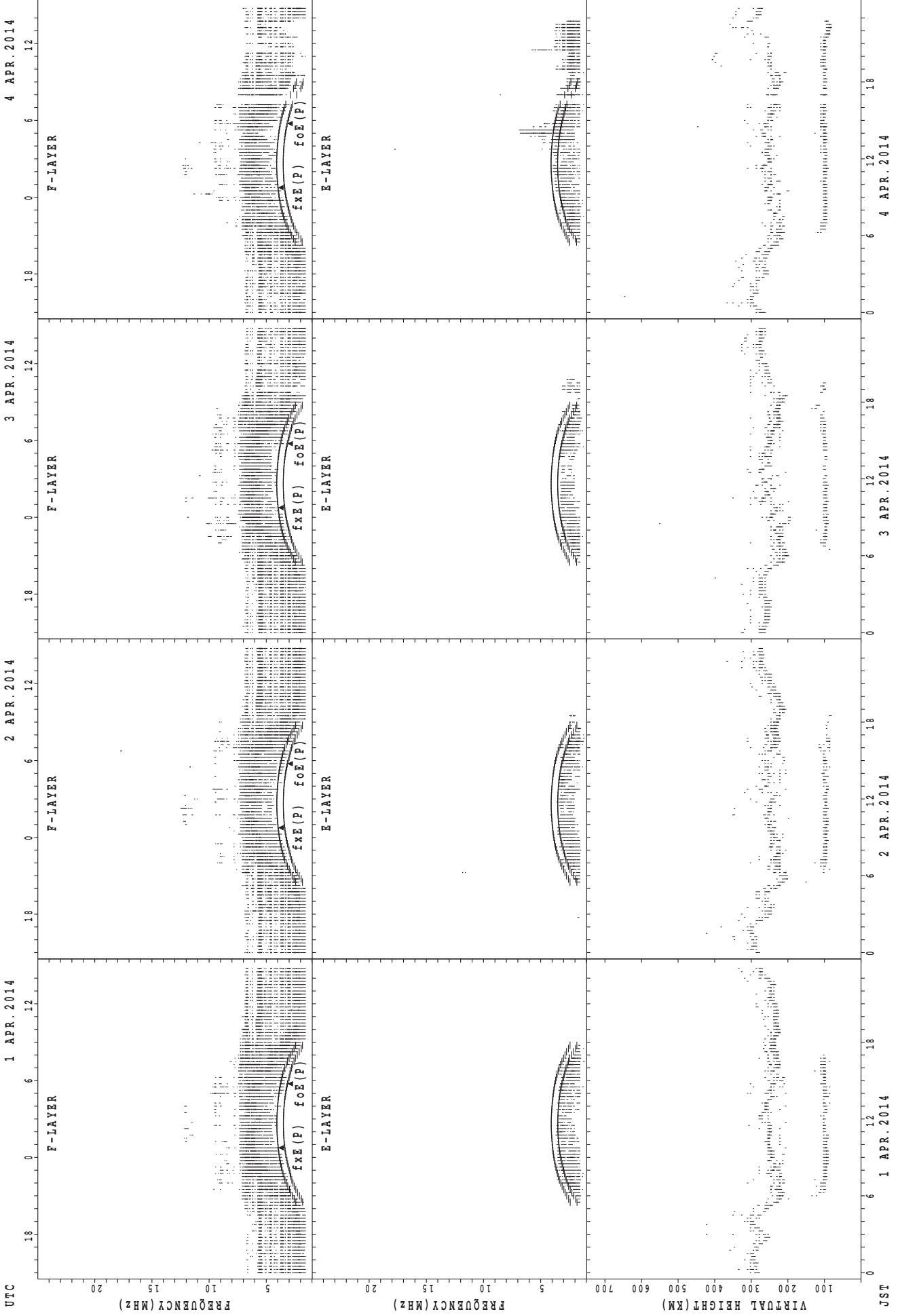
HOURLY VALUES OF fmin AT Okinawa

APR. 2014

LAT. 26° 41.0' N LON. 128° 09.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

$\begin{matrix} H \\ D \end{matrix}$	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

SUMMARY PLOTS AT Wakkanai



f_{x E}(P) ; PREDICTED VALUE FOR f_{x E}
f_{o E}(P) ; PREDICTED VALUE FOR f_{o E}

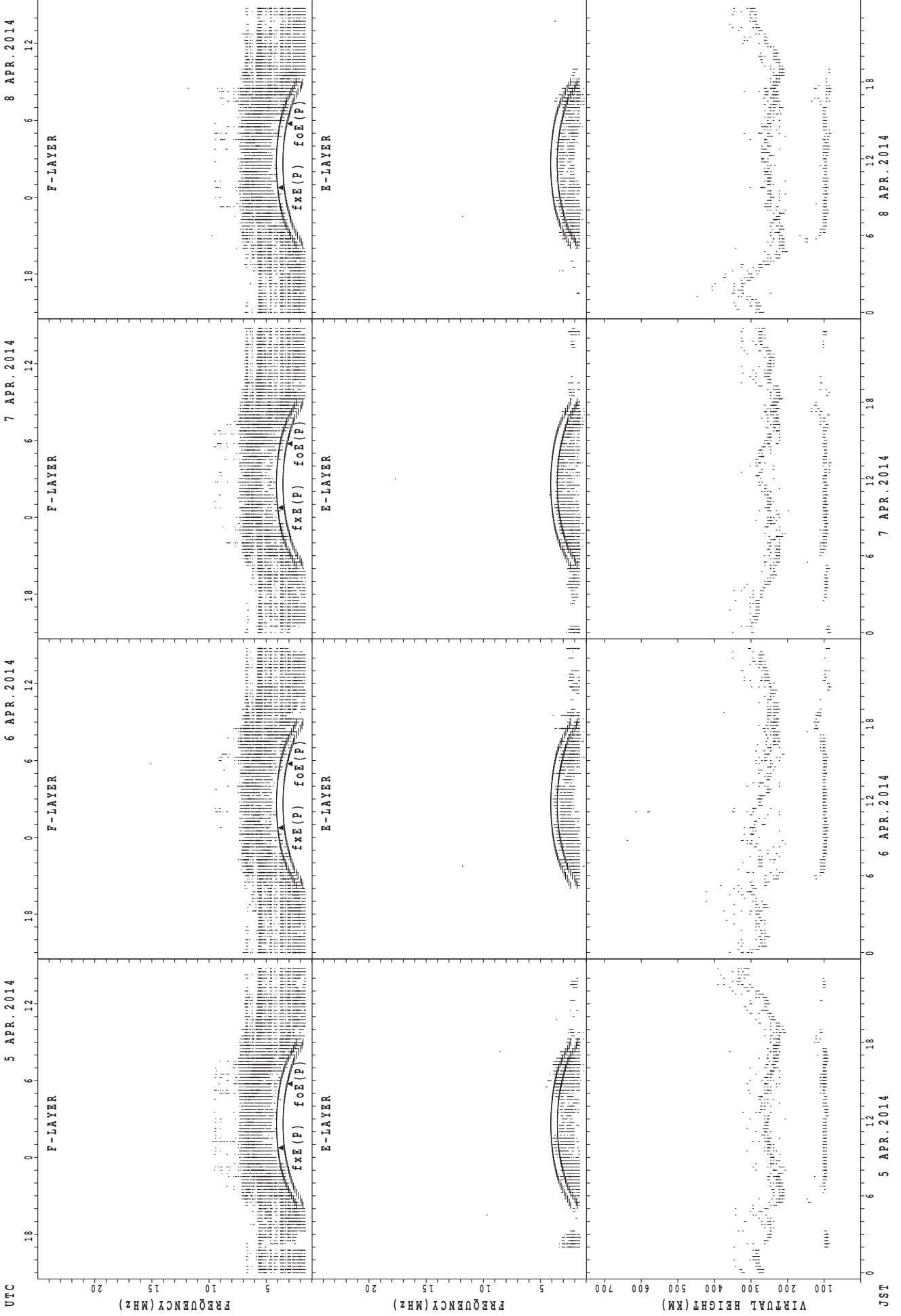
JST 1 APR. 2014

2 APR. 2014

3 APR. 2014

4 APR. 2014

SUMMARY PLOTS AT Wakkanai



f_xE(P); PREDICTED VALUE FOR f_xE
foE(P); PREDICTED VALUE FOR foE

5 APR. 2014

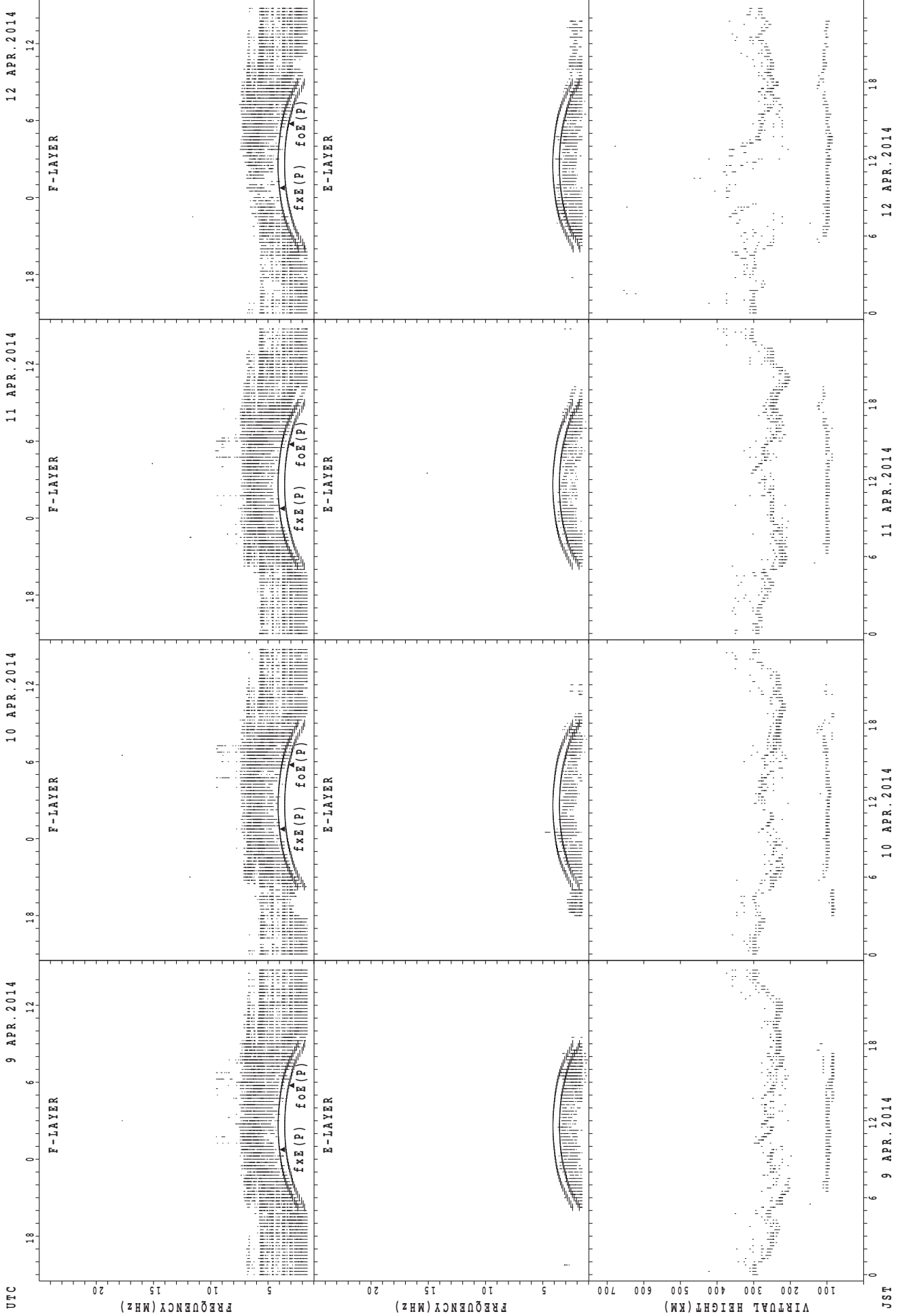
6 APR. 2014

7 APR. 2014

8 APR. 2014

JST

SUMMARY PLOTS AT Wakkanai



fxe(P) ; PREDICTED VALUE FOR fxe
foe(P) ; PREDICTED VALUE FOR foe

12 APR. 2014

11 APR. 2014

10 APR. 2014

9 APR. 2014

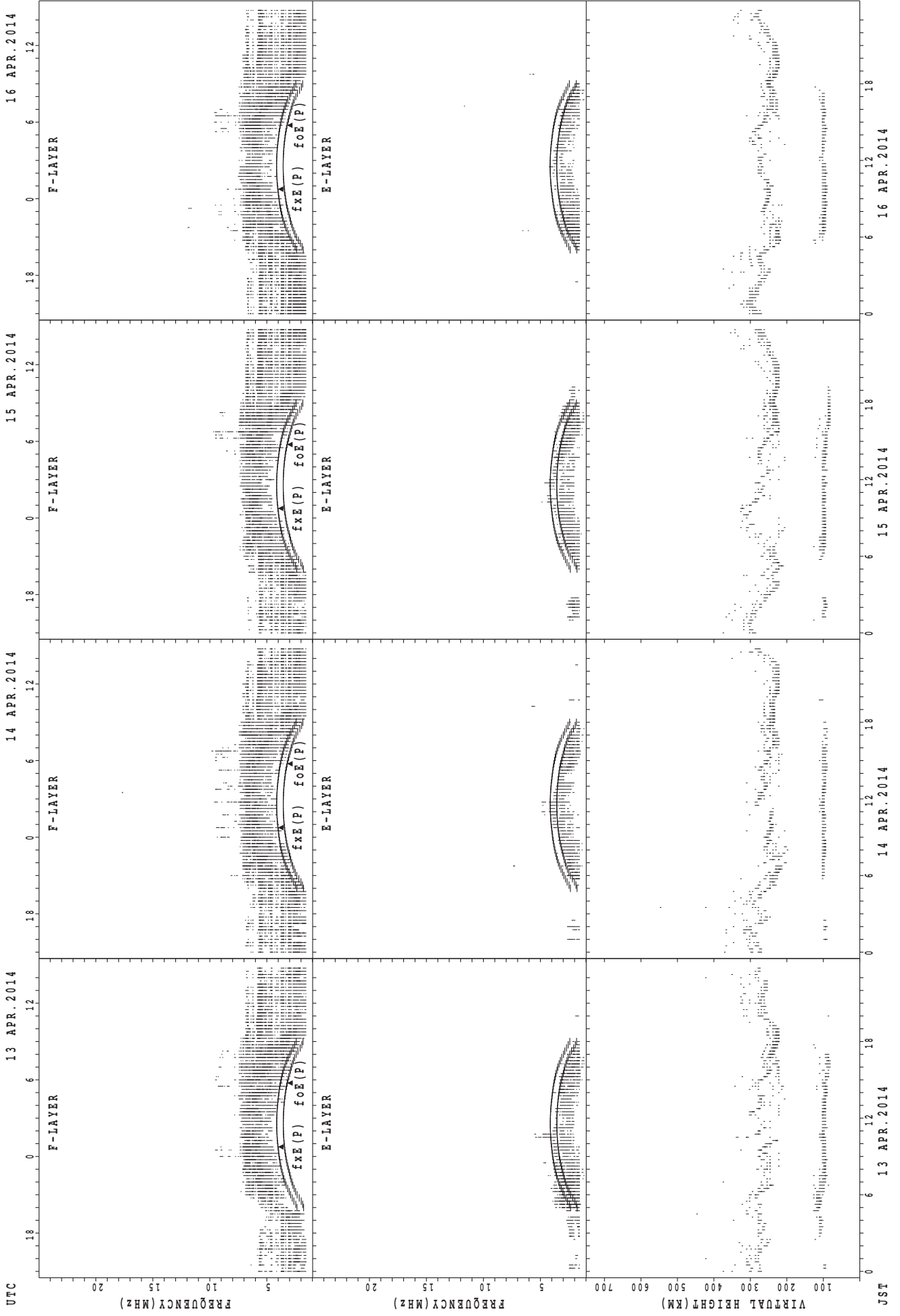
12 APR. 2014

11 APR. 2014

10 APR. 2014

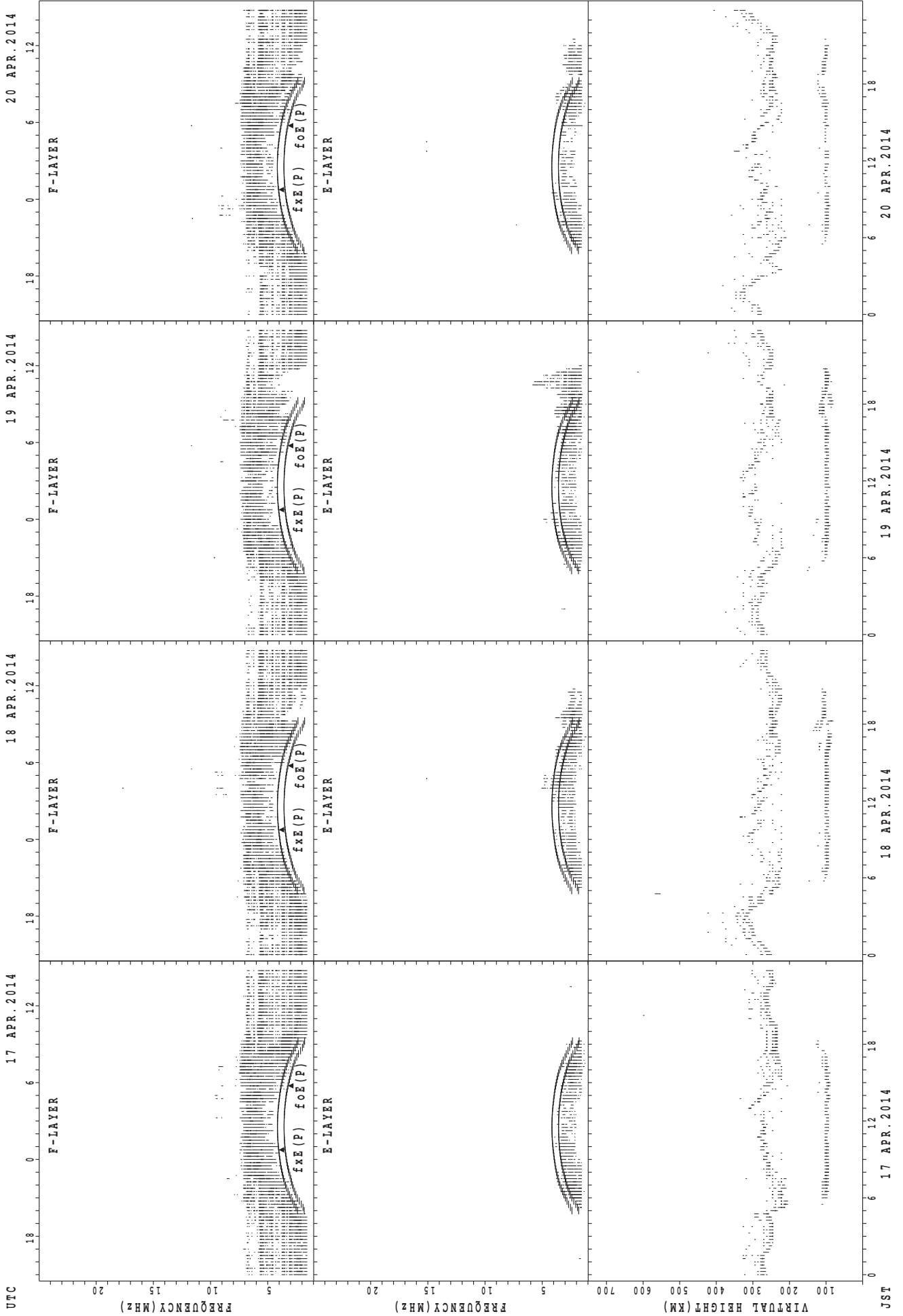
9 APR. 2014

SUMMARY PLOTS AT Wakkanai



f_xE (P) ; PREDICTED VALUE FOR f_xE
foE (P) ; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

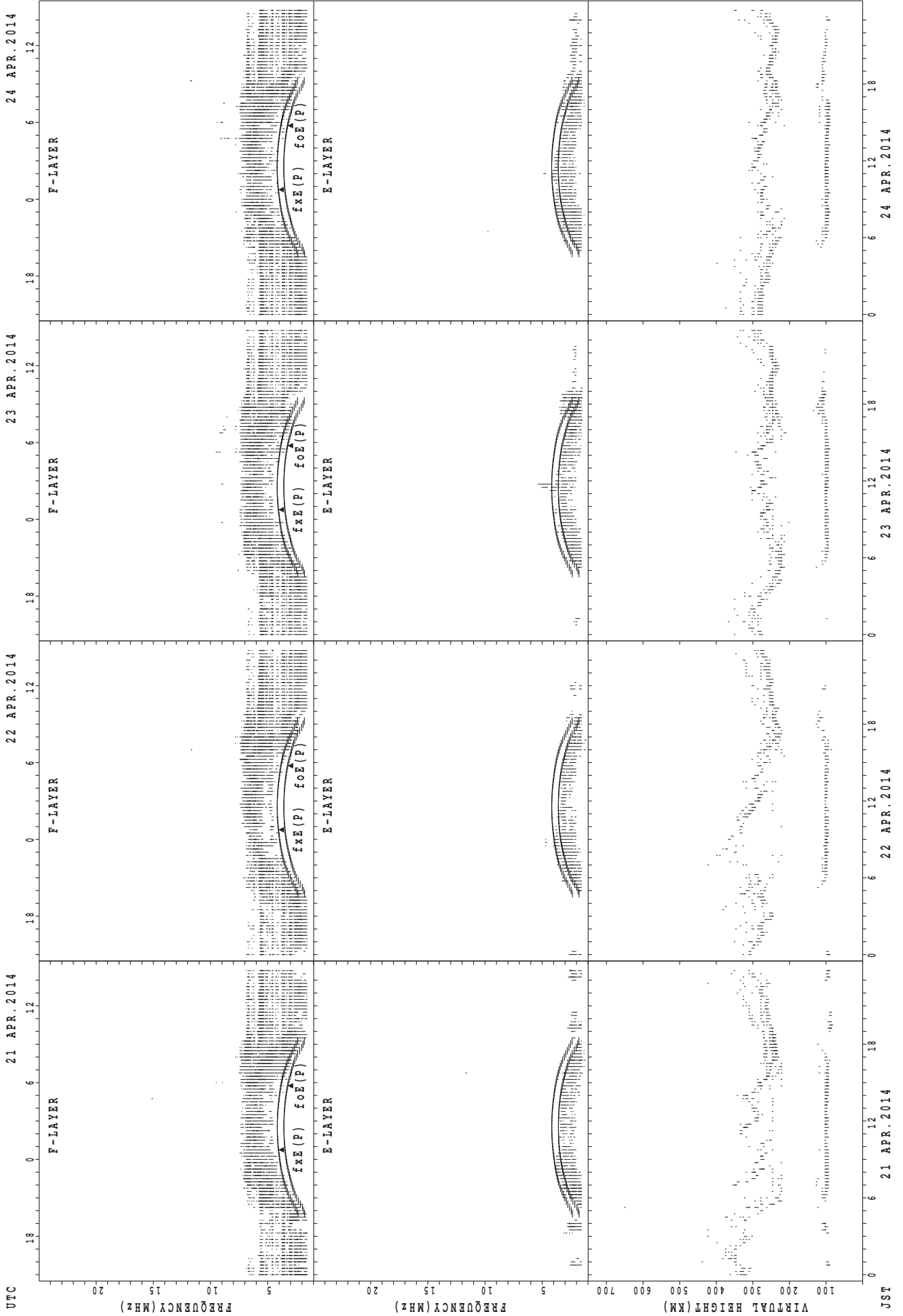


UTC
 17 APR. 2014
 18 APR. 2014
 19 APR. 2014
 20 APR. 2014

foE(P); PREDICTED VALUE FOR foE
 fxe(P); PREDICTED VALUE FOR fxe

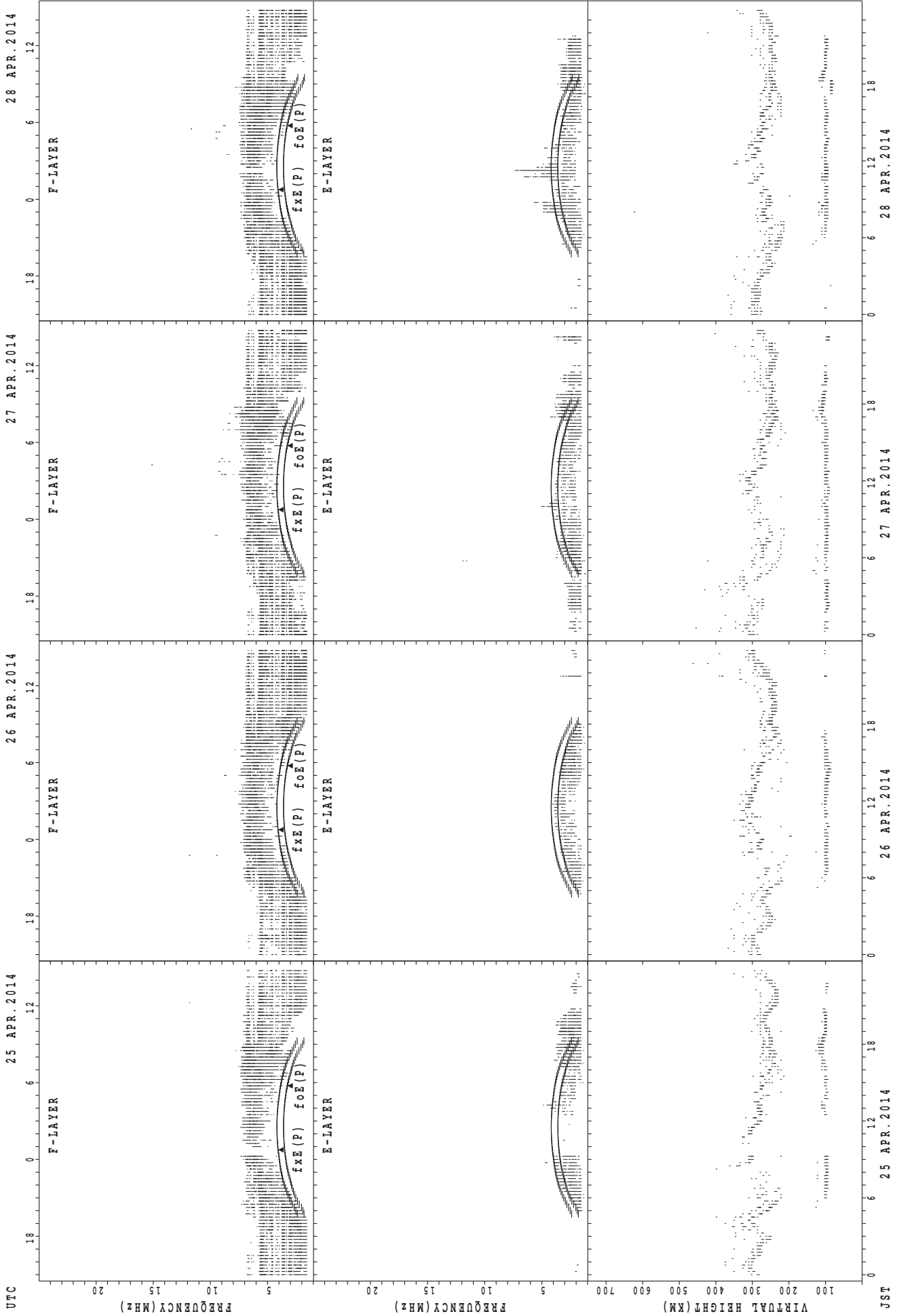
JST
 17 APR. 2014
 18 APR. 2014
 19 APR. 2014
 20 APR. 2014

SUMMARY PLOTS AT Wakkanai



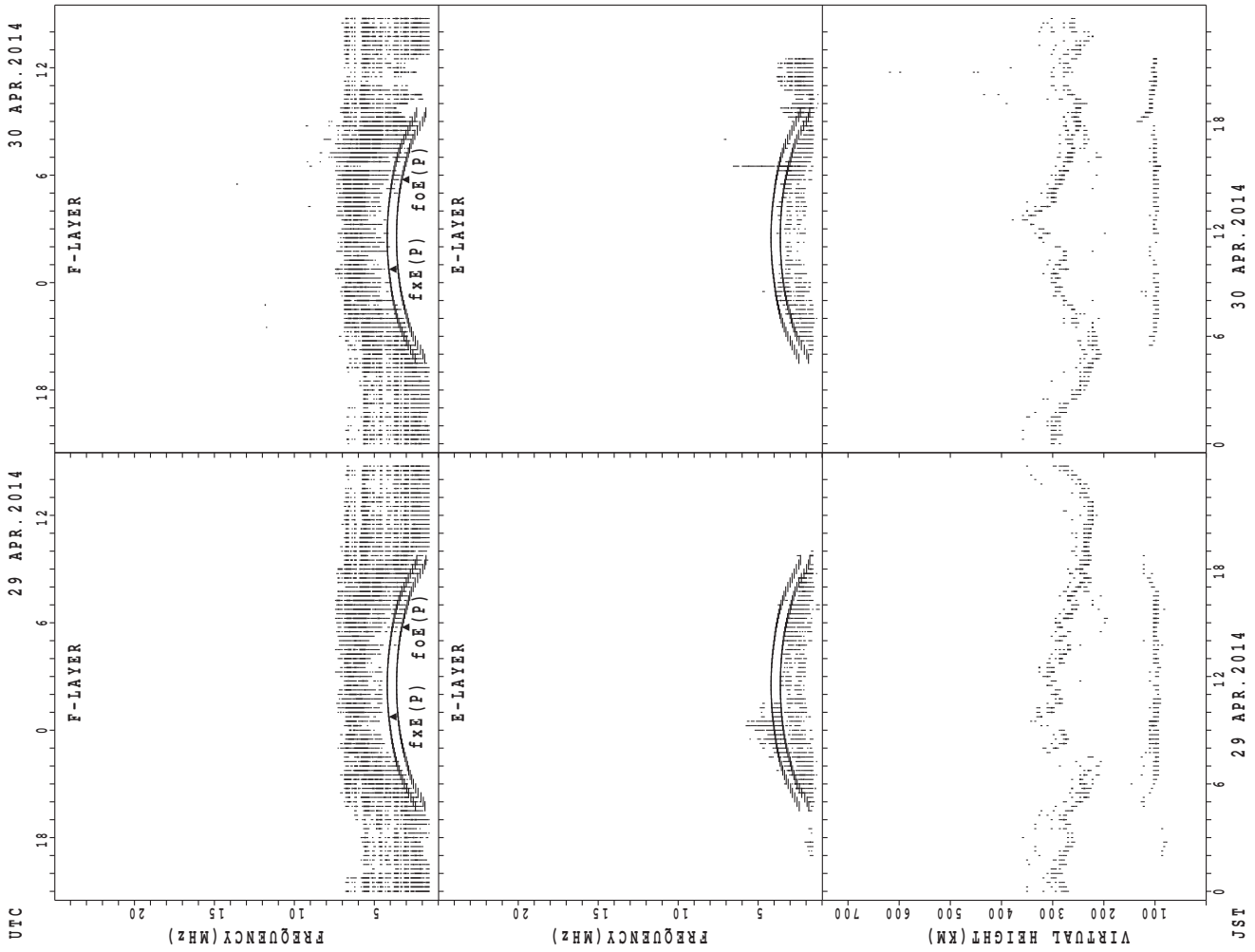
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



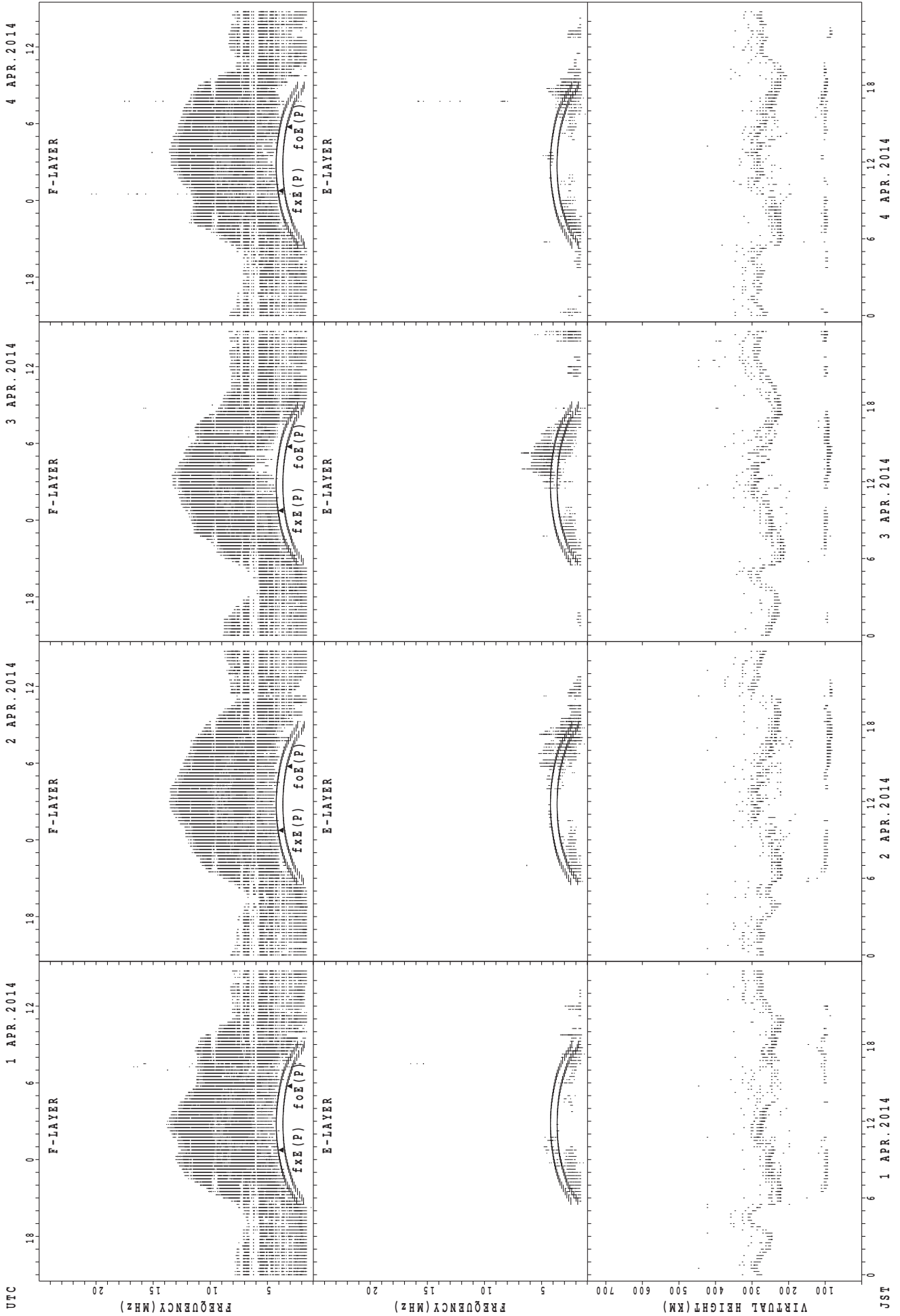
UTC
 25 APR. 2014
 26 APR. 2014
 27 APR. 2014
 28 APR. 2014
 JST
 25 APR. 2014
 26 APR. 2014
 27 APR. 2014
 28 APR. 2014
 fxe(P); PREDICTED VALUE FOR fxe
 foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

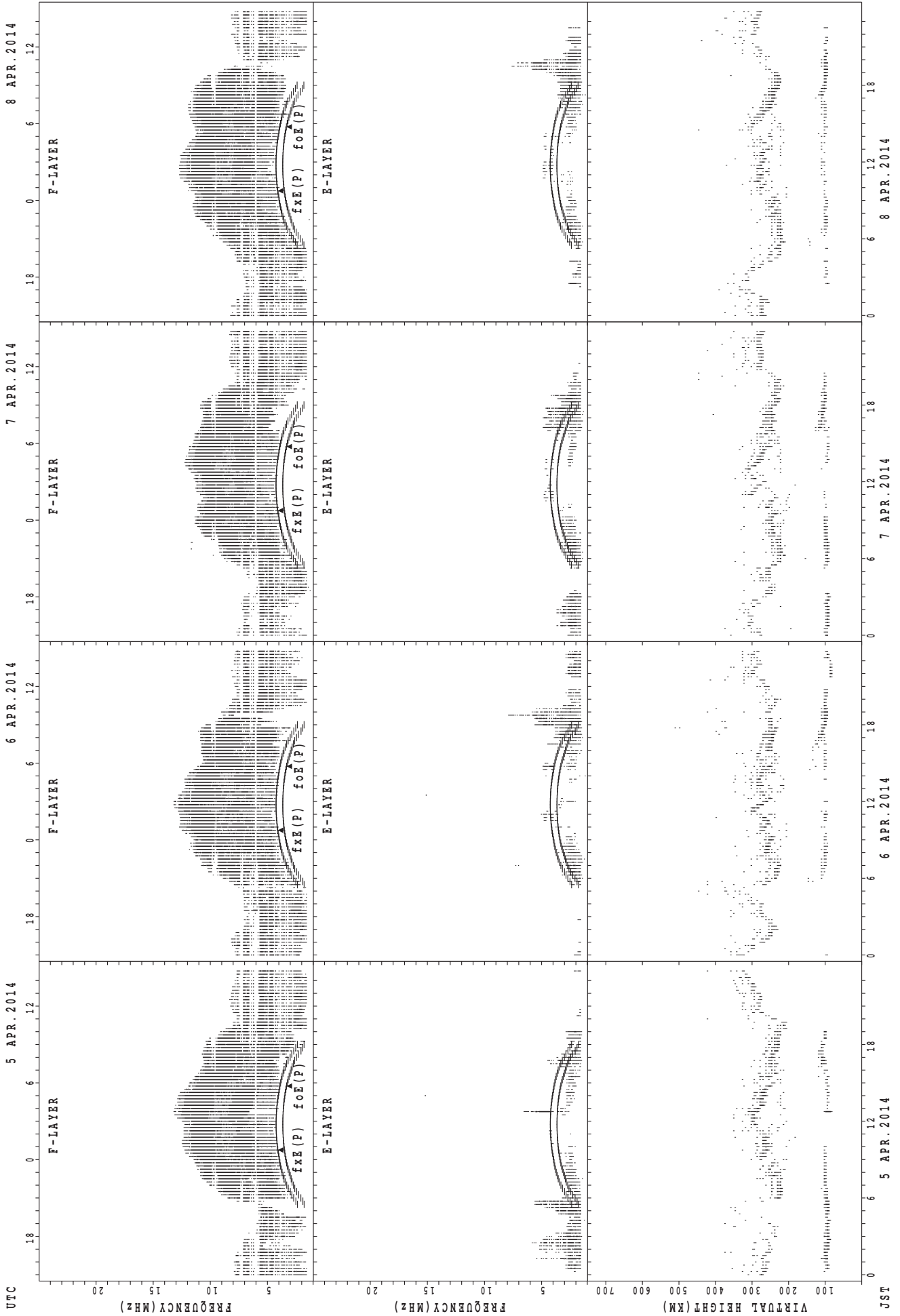


fxe(p); PREDICTED VALUE FOR fxe
foe(p); PREDICTED VALUE FOR foe

SUMMARY PLOTS AT Kokubunji

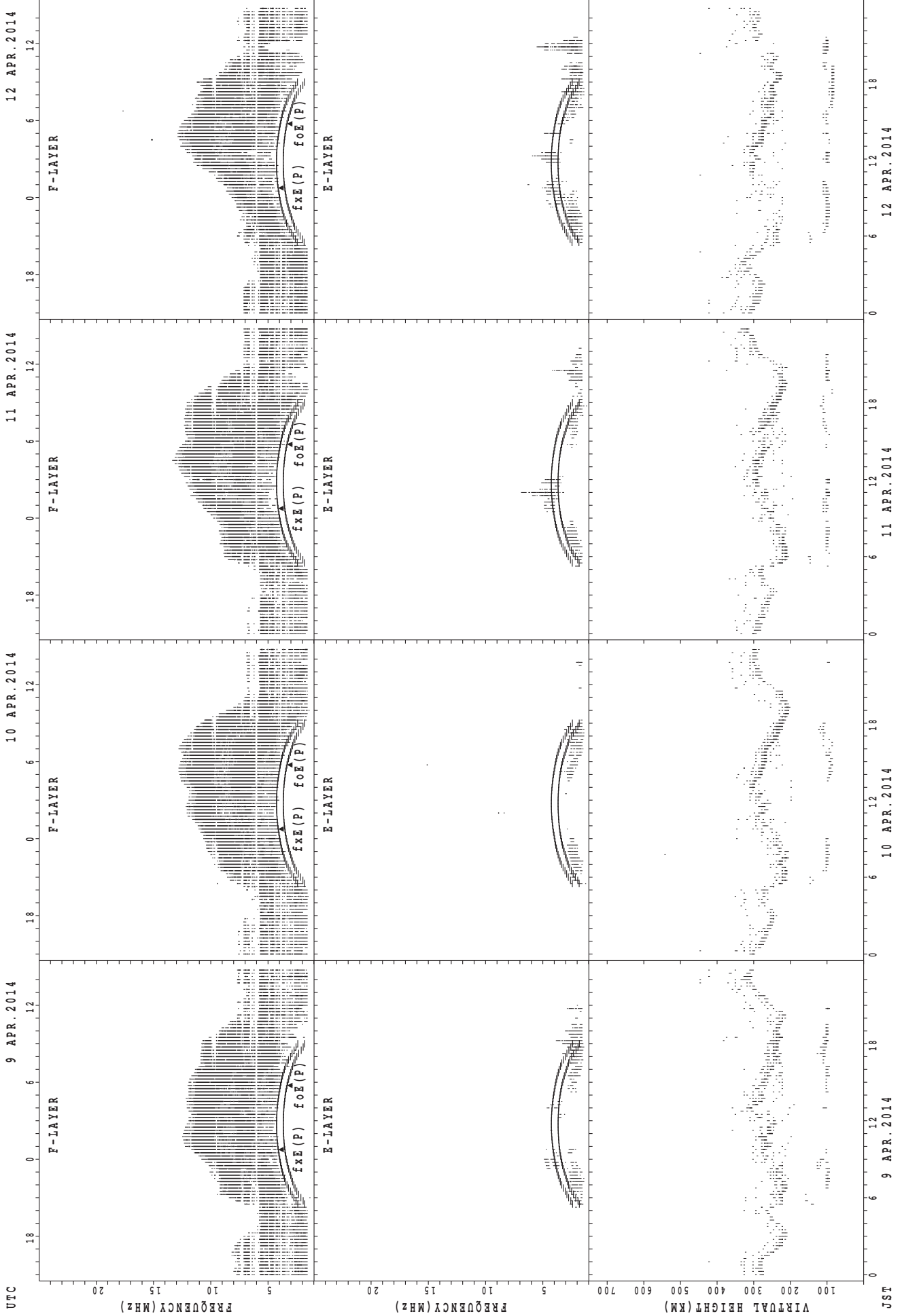


SUMMARY PLOTS AT Kokubunji



JST 5 APR. 2014 6 APR. 2014 7 APR. 2014 8 APR. 2014
f_xE(P); PREDICTED VALUE FOR f_xE
f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Kokubunji



f_{x E}(P); PREDICTED VALUE FOR f_{x E}
f_{o E}(P); PREDICTED VALUE FOR f_{o E}

UTC

9 APR. 2014

10 APR. 2014

11 APR. 2014

12 APR. 2014

JST

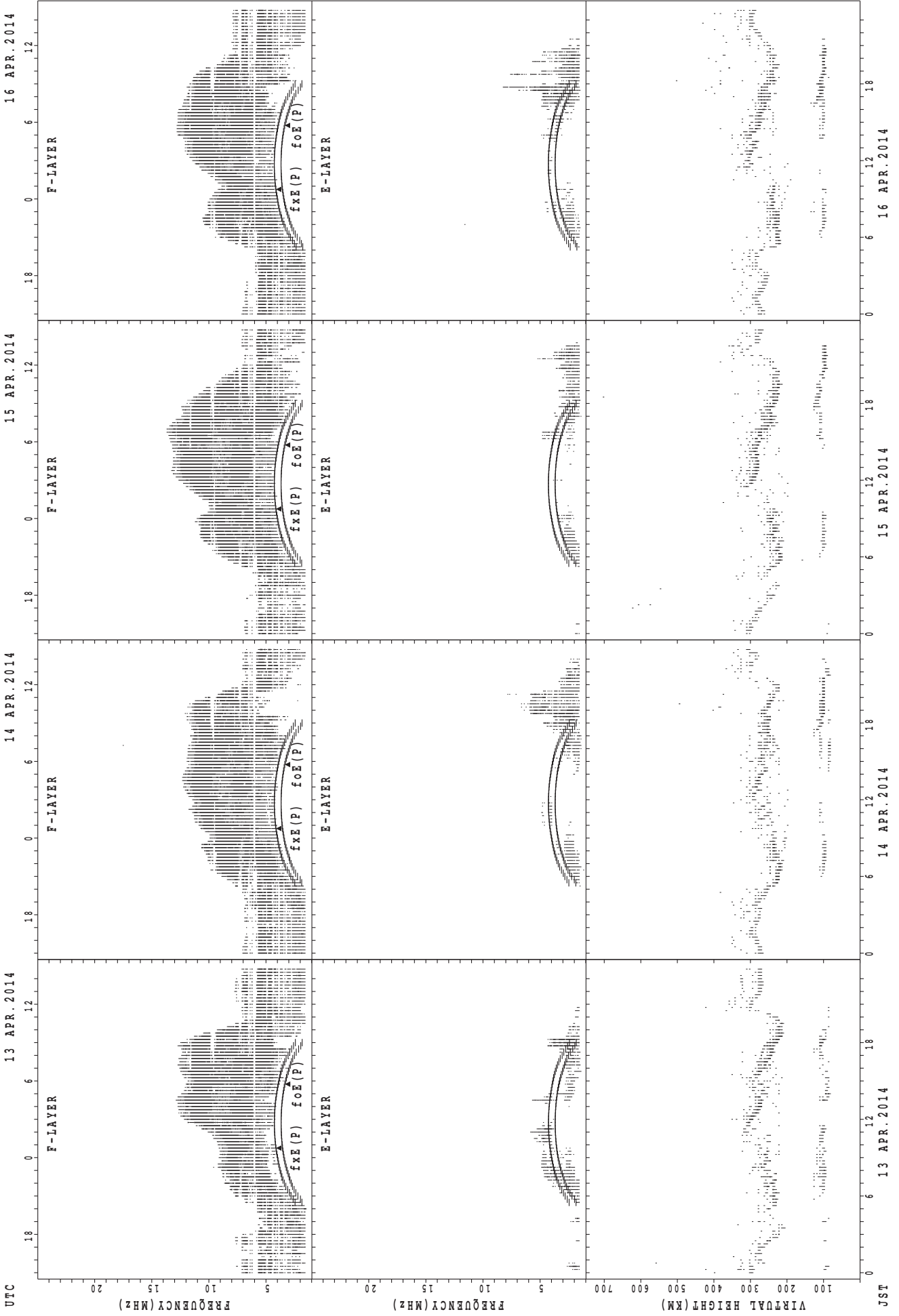
9 APR. 2014

10 APR. 2014

11 APR. 2014

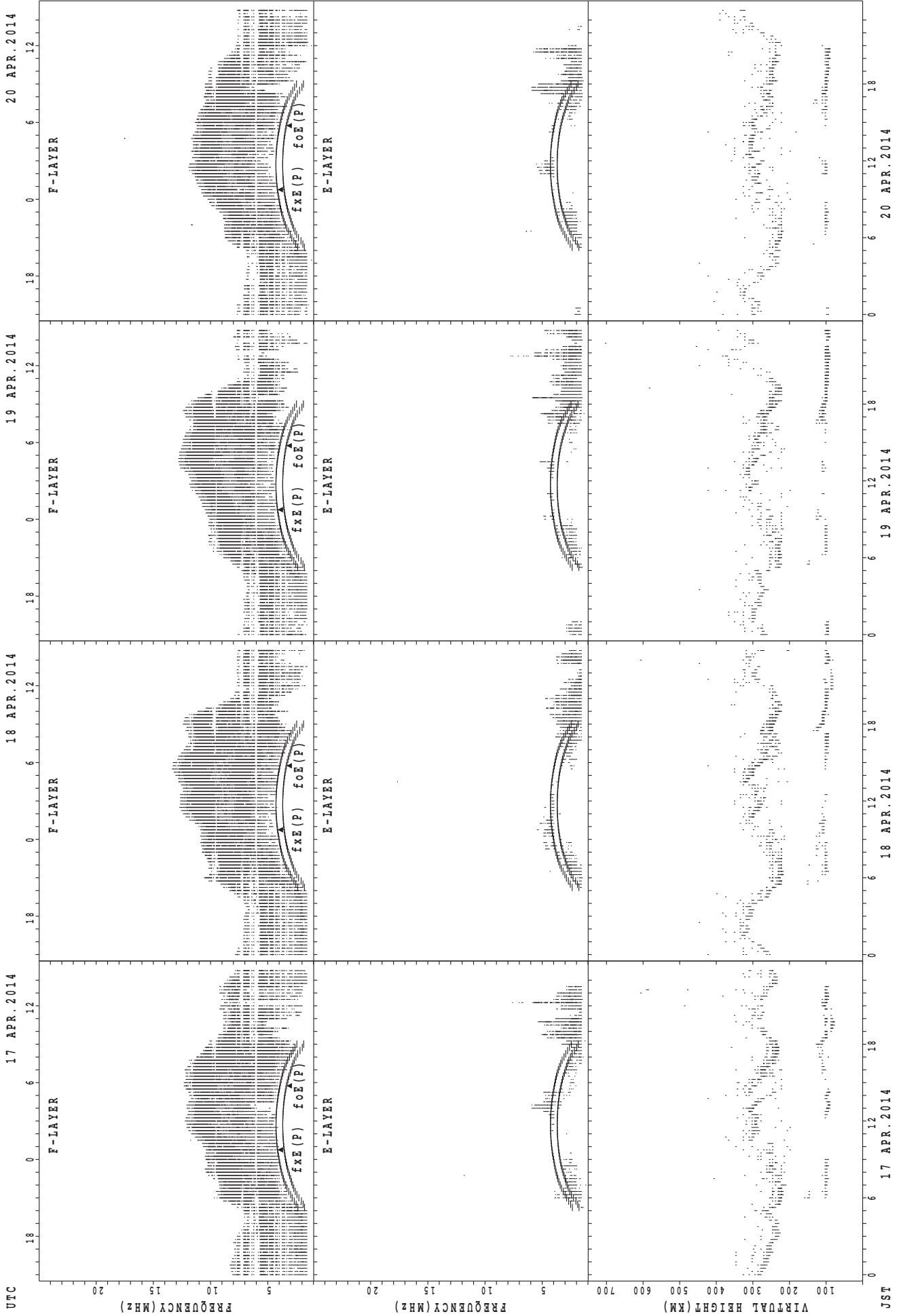
12 APR. 2014

SUMMARY PLOTS AT Kokubunji



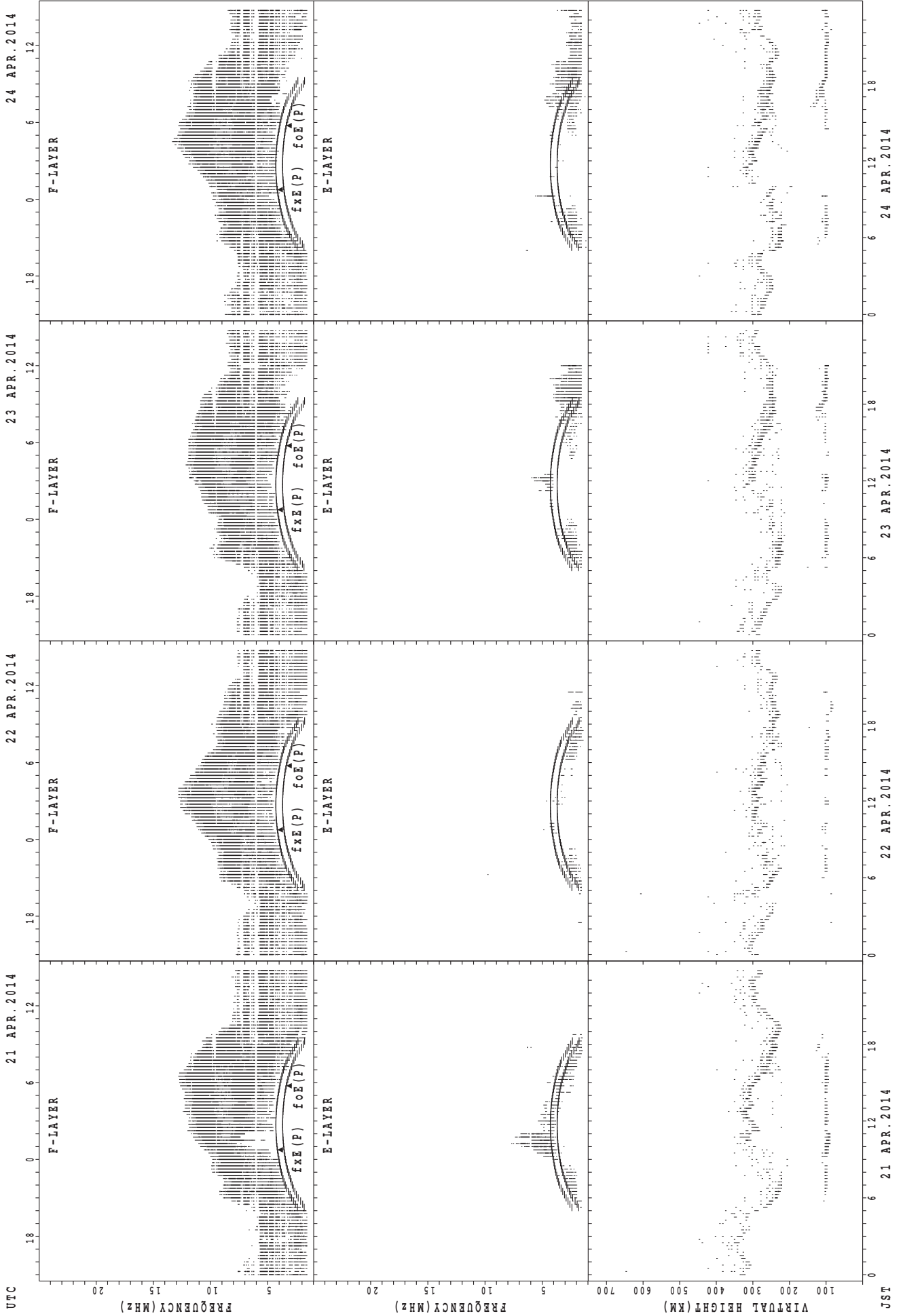
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



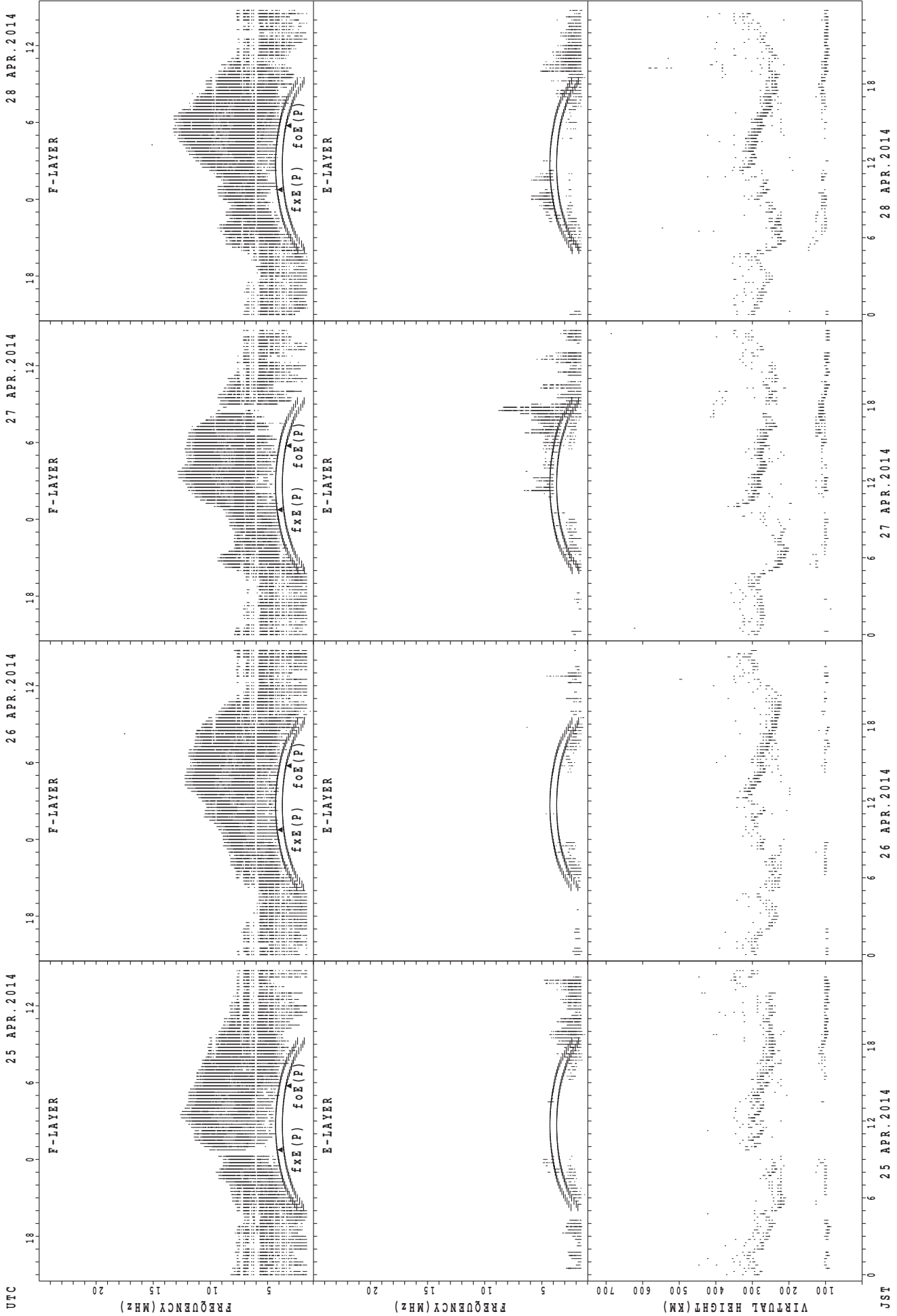
$f_{x E(P)}$; PREDICTED VALUE FOR $f_{x E}$
 $f_{o E(P)}$; PREDICTED VALUE FOR $f_{o E}$

SUMMARY PLOTS AT Kokubunji



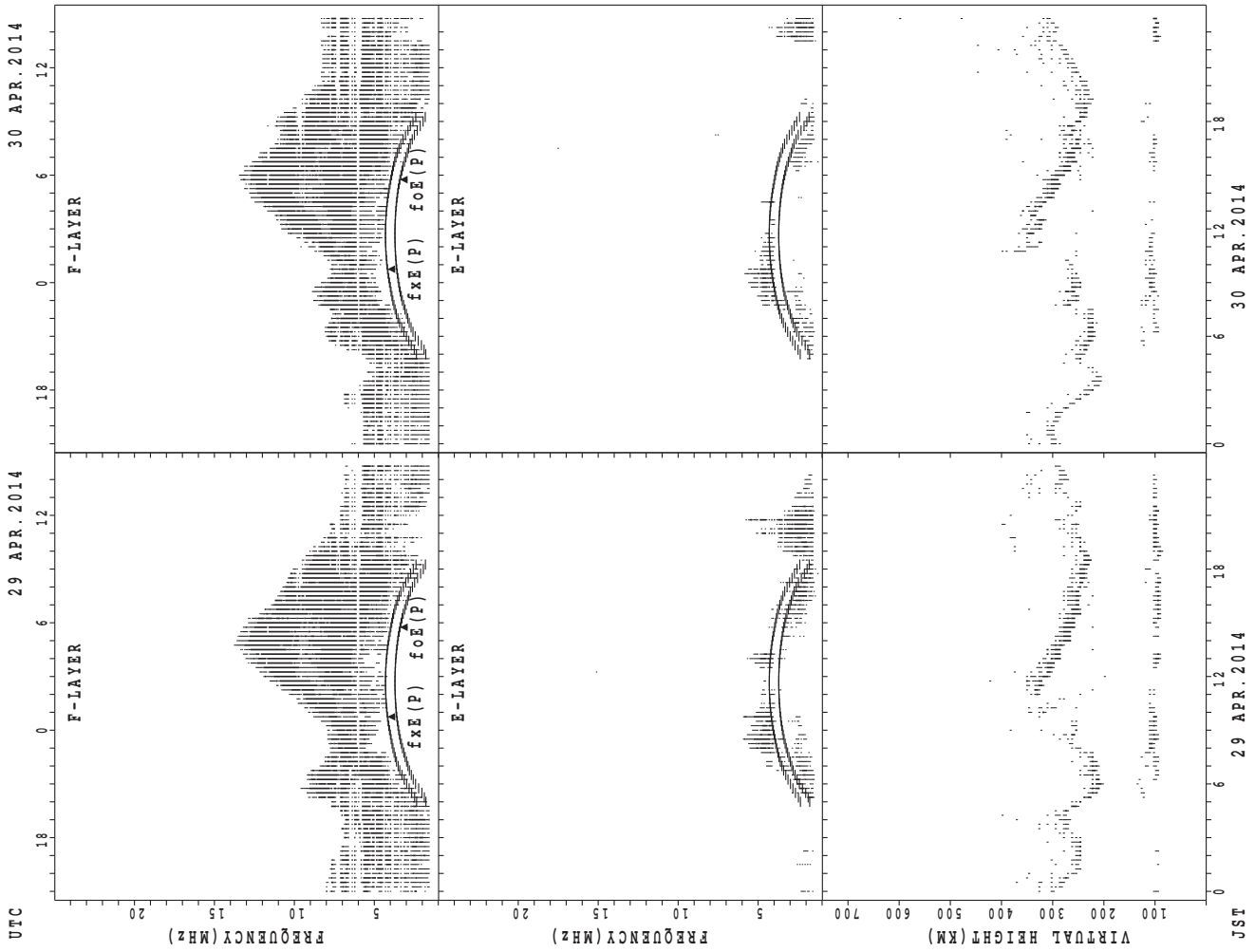
f_xE(P); PREDICTED VALUE FOR f_xE
f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Kokubunji



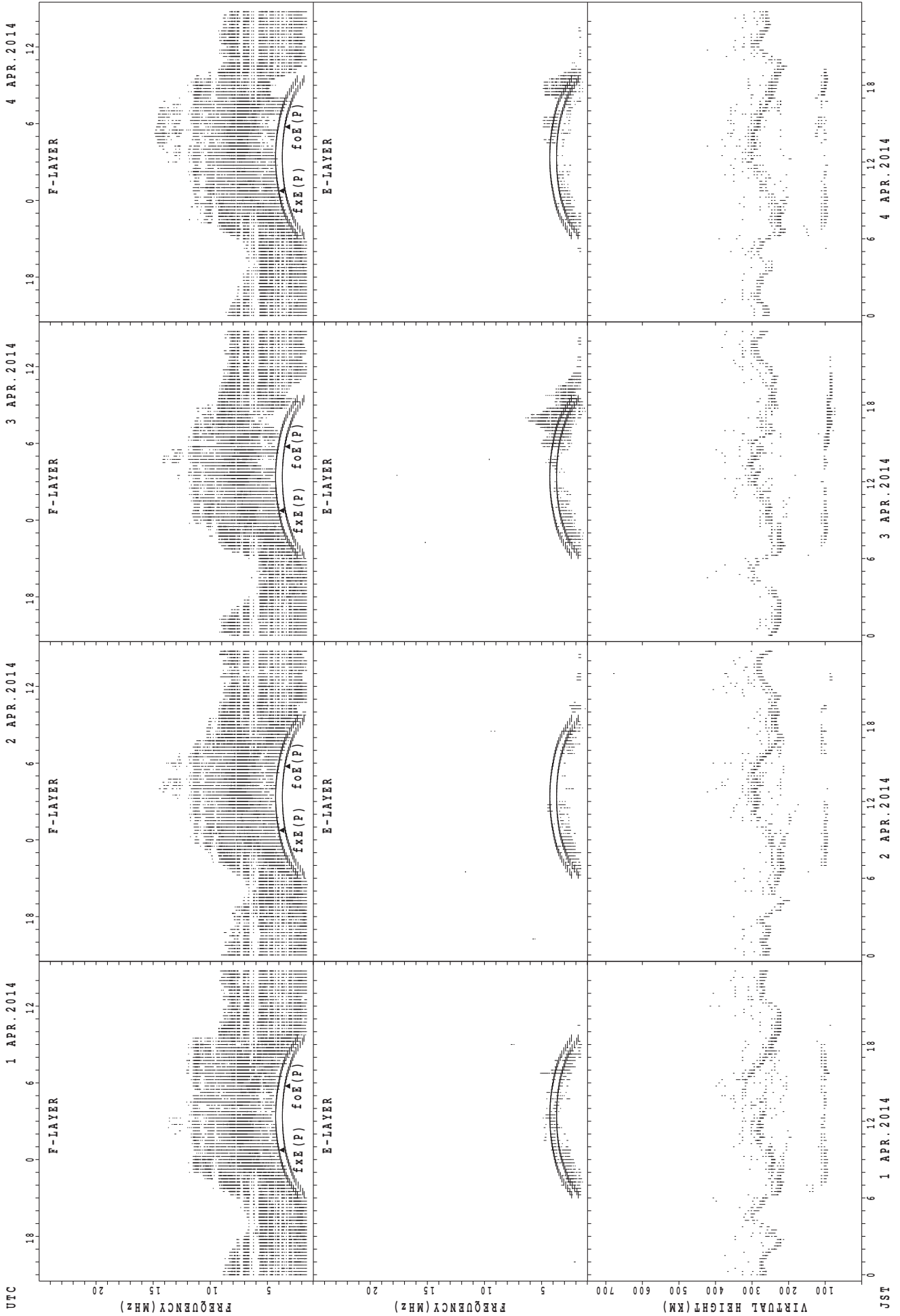
f_xE (P); PREDICTED VALUE FOR f_xE
 f_oE (P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Kokubunji



foE(P); PREDICTED VALUE FOR foE
fxE(P); PREDICTED VALUE FOR fxE

SUMMARY PLOTS AT Yamagawa



fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

1 APR. 2014

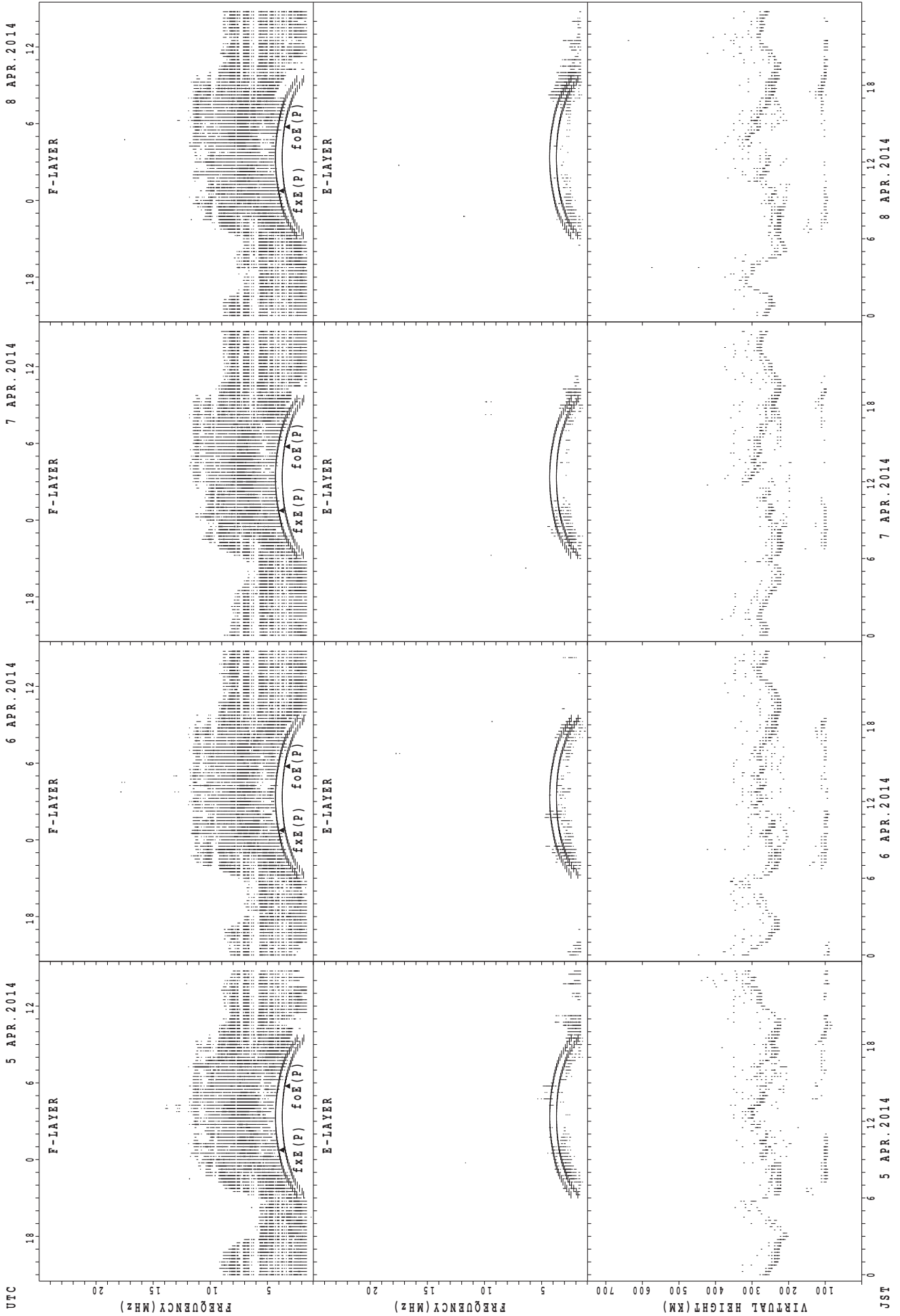
2 APR. 2014

3 APR. 2014

4 APR. 2014

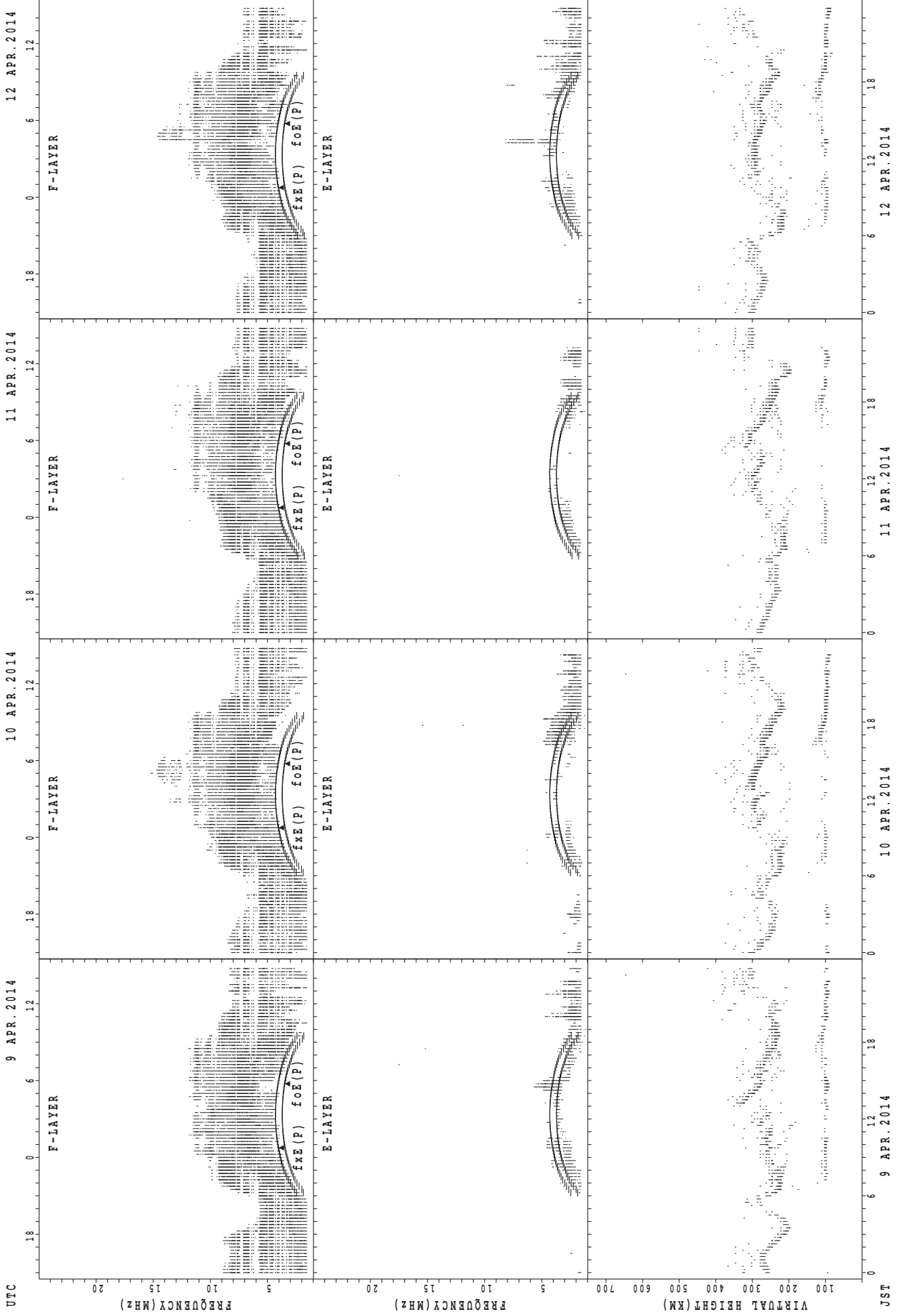
JST

SUMMARY PLOTS AT Yamagawa



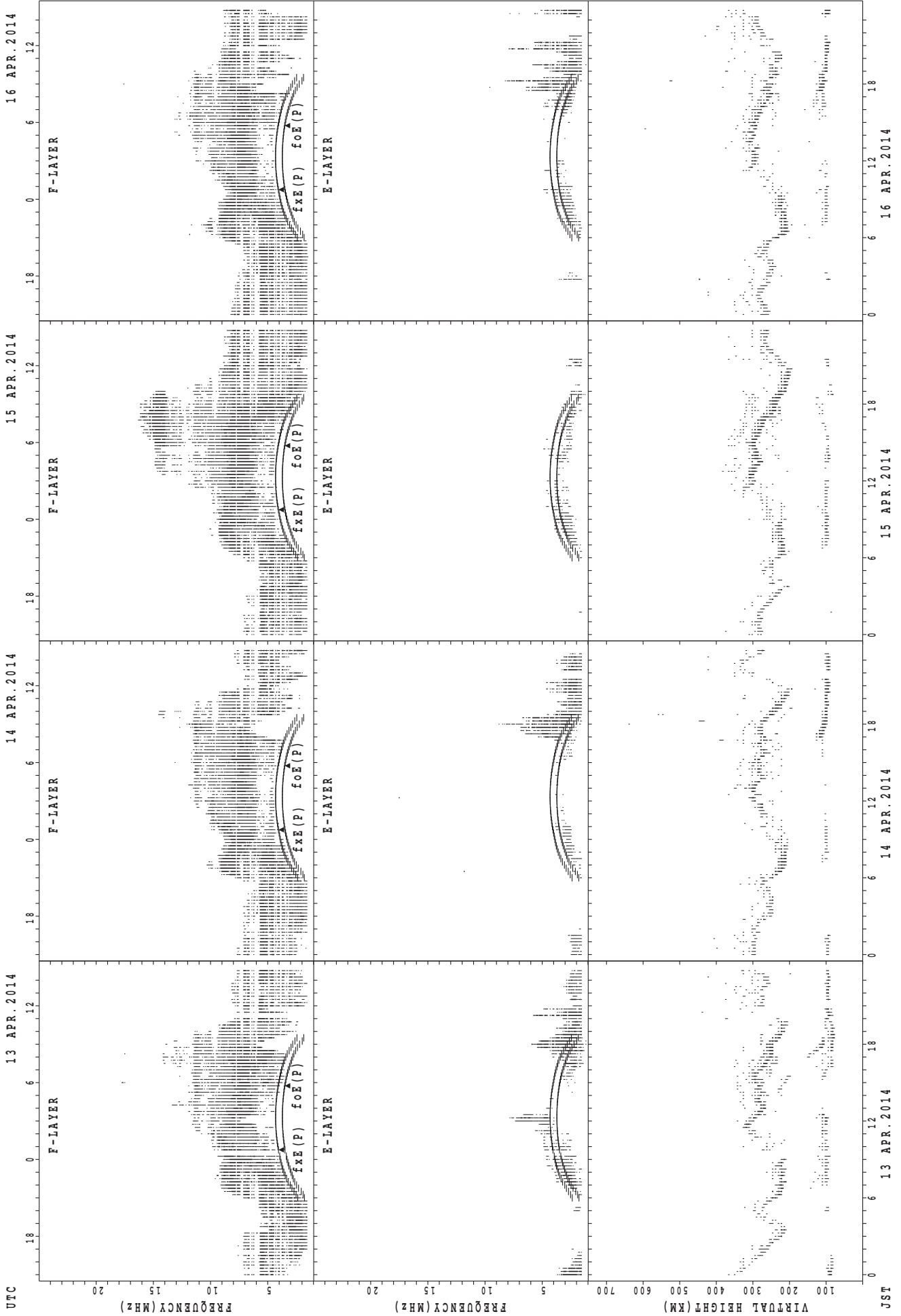
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



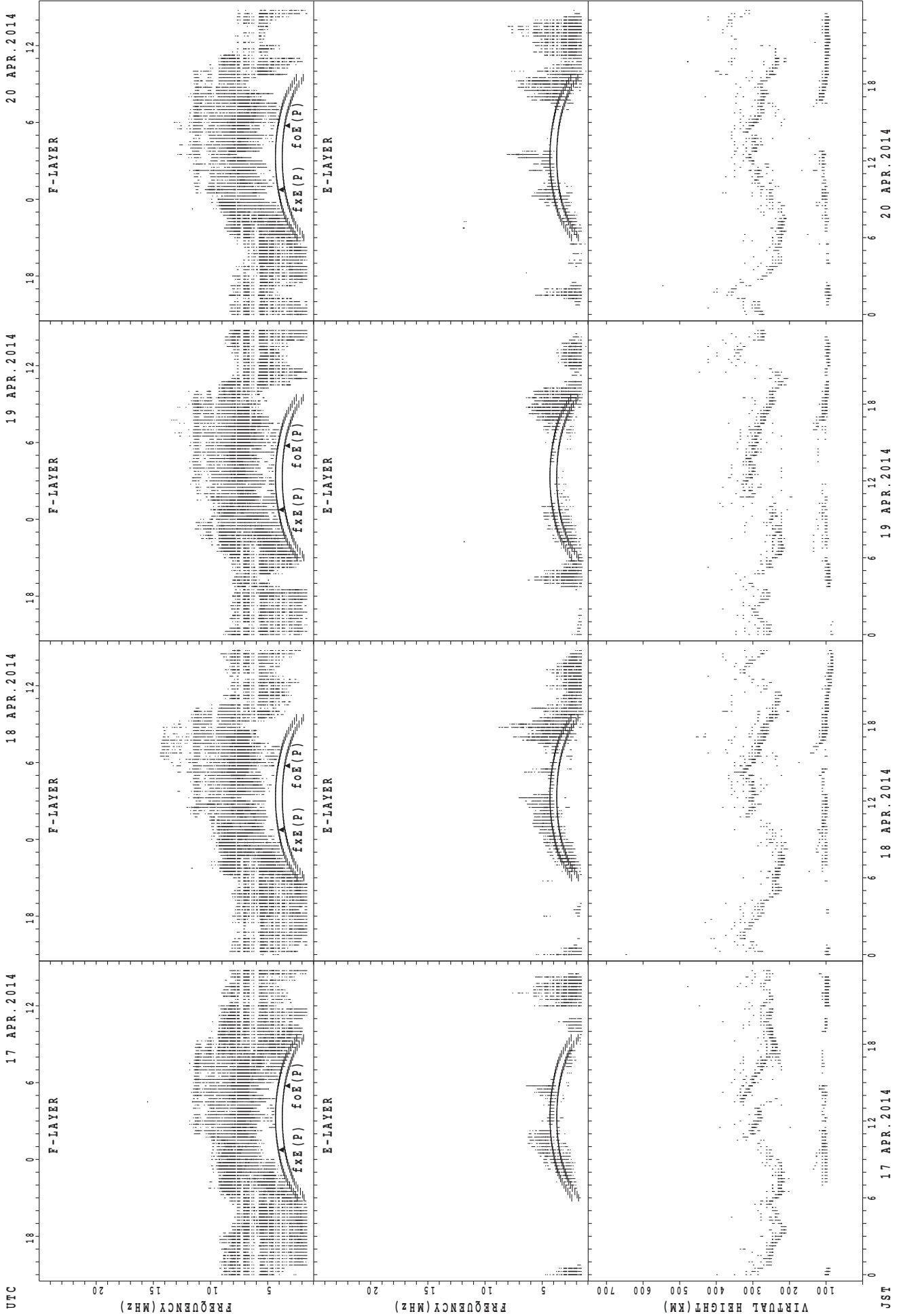
JST 9 APR. 2014 12 APR. 2014
foE(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



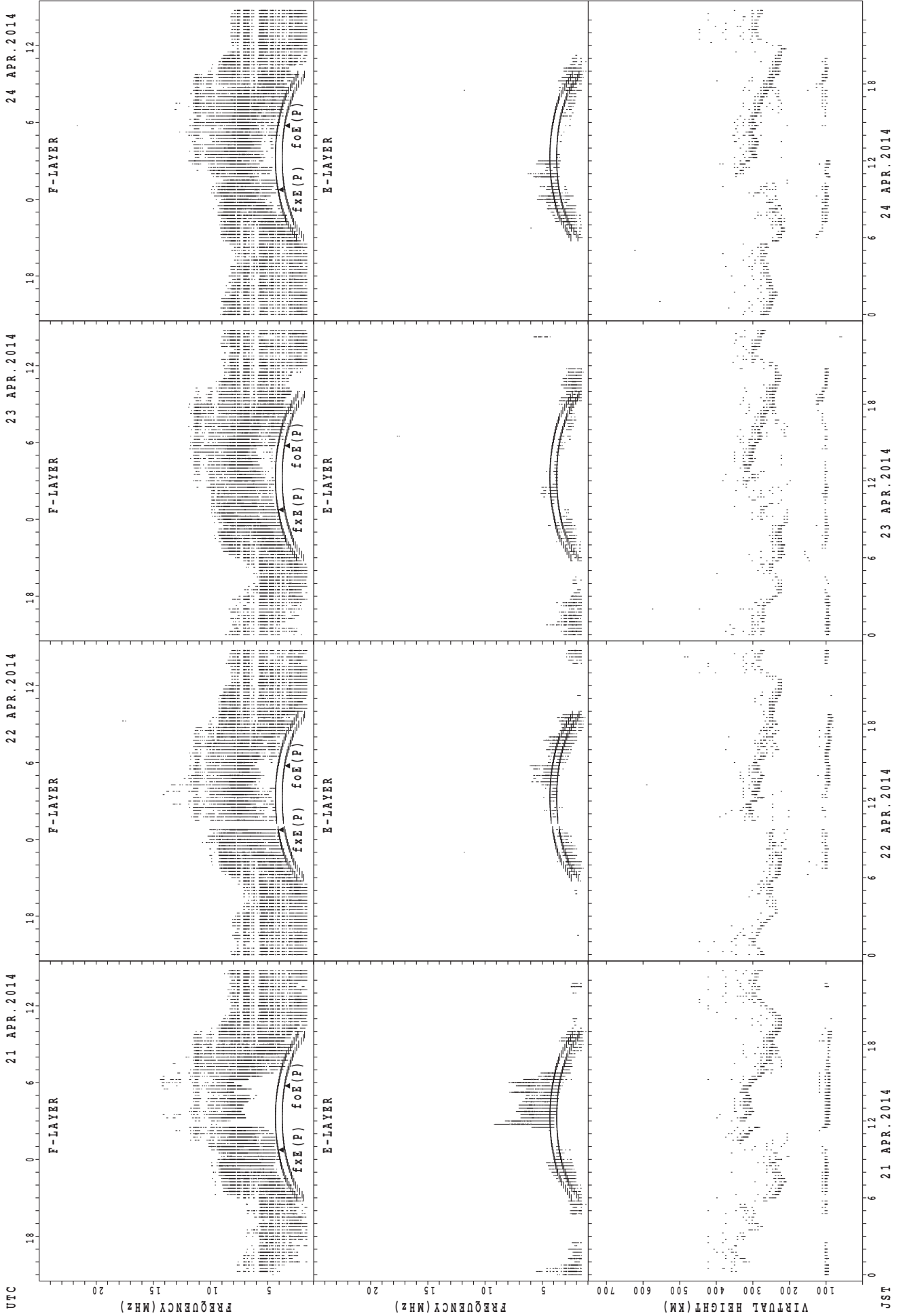
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



f_xE(P); PREDICTED VALUE FOR f_xE
f_oE(P); PREDICTED VALUE FOR f_oE

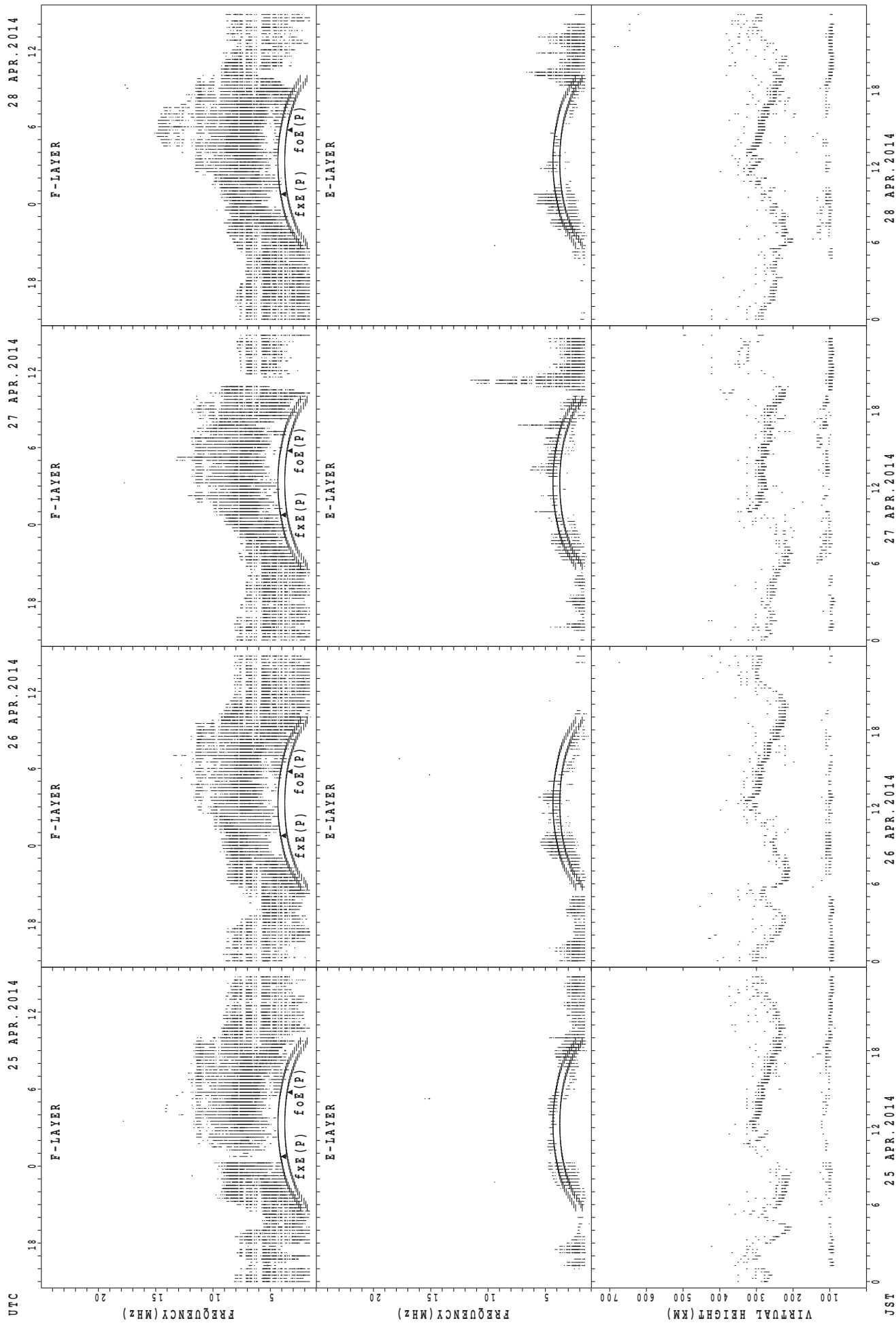
SUMMARY PLOTS AT Yamagawa



fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

JST

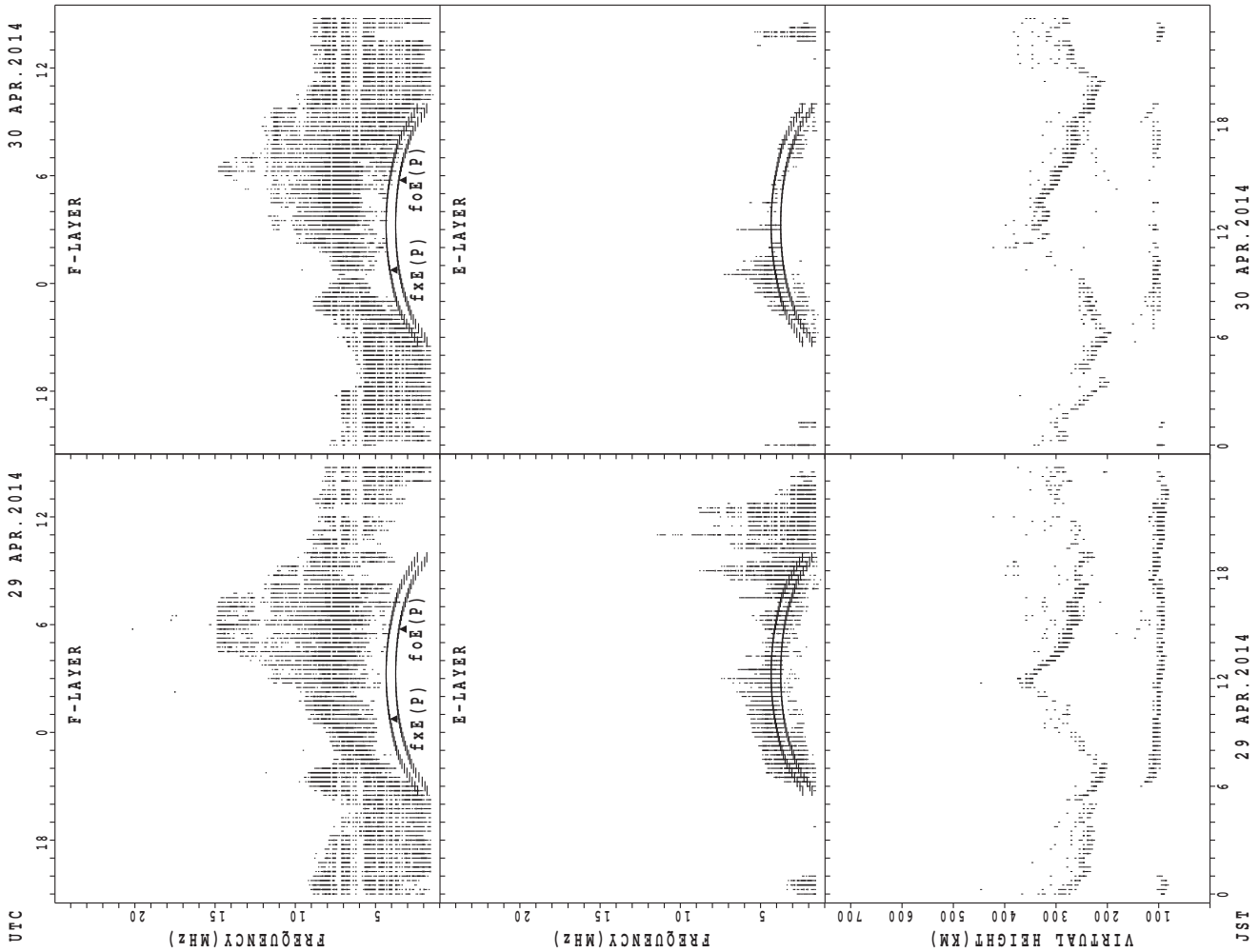
SUMMARY PLOTS AT Yamagawa



foE(P); PREDICTED VALUE FOR foE
fxE(P); PREDICTED VALUE FOR fxE

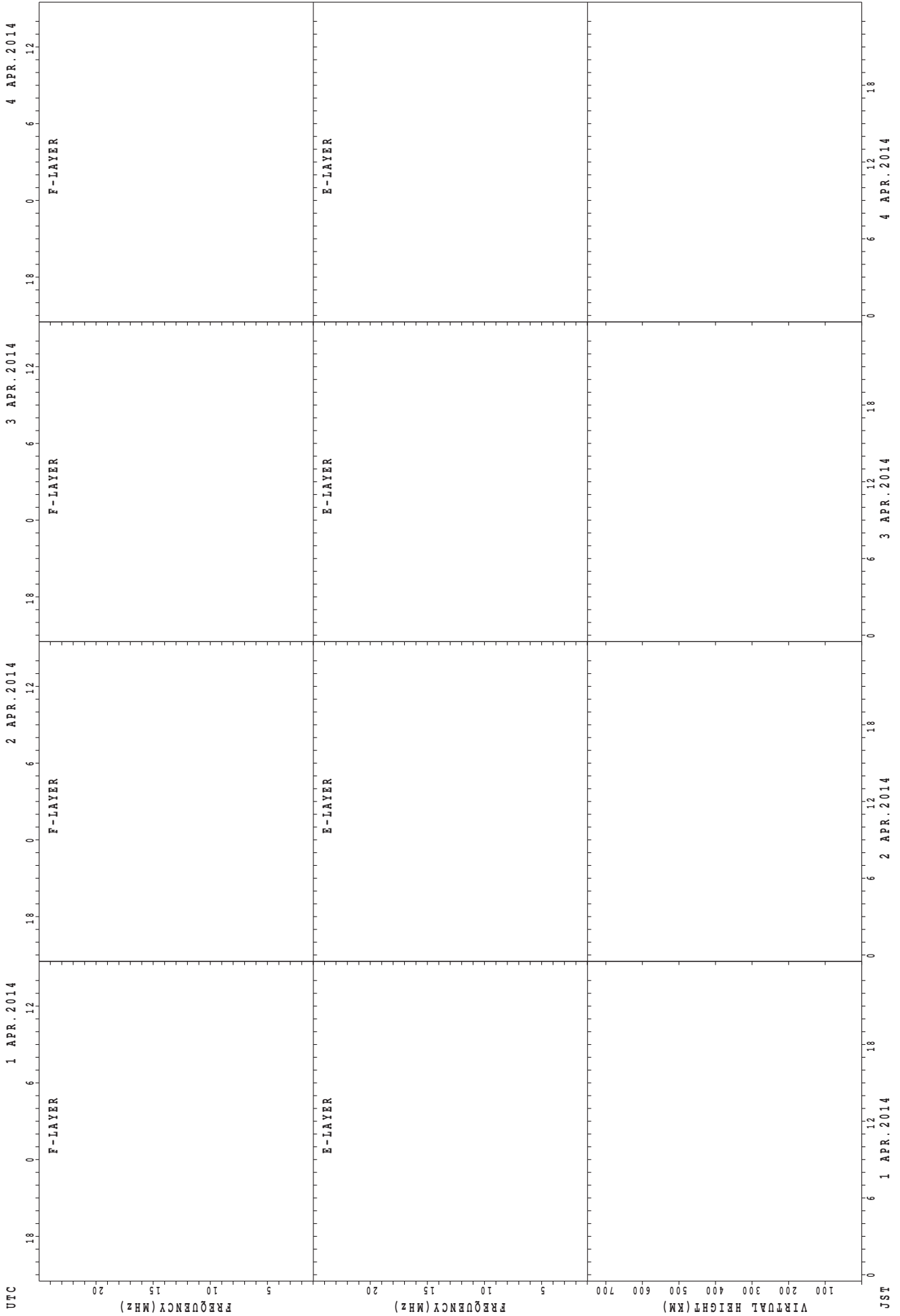
JST

SUMMARY PLOTS AT Yamagawa



fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

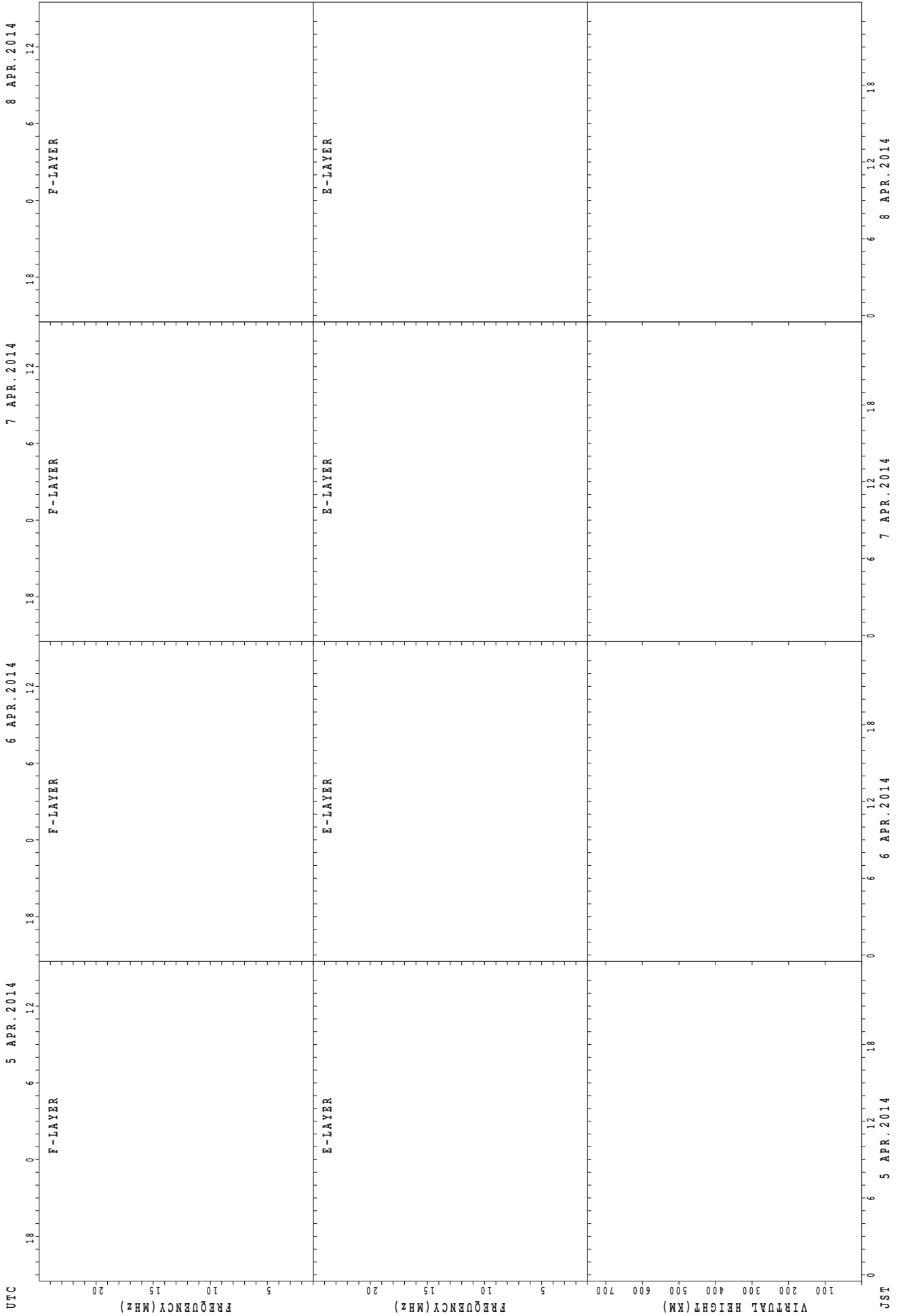
SUMMARY PLOTS AT Okinawa



fxe(P); PREDICTED VALUE FOR fxe
foe(P); PREDICTED VALUE FOR foe

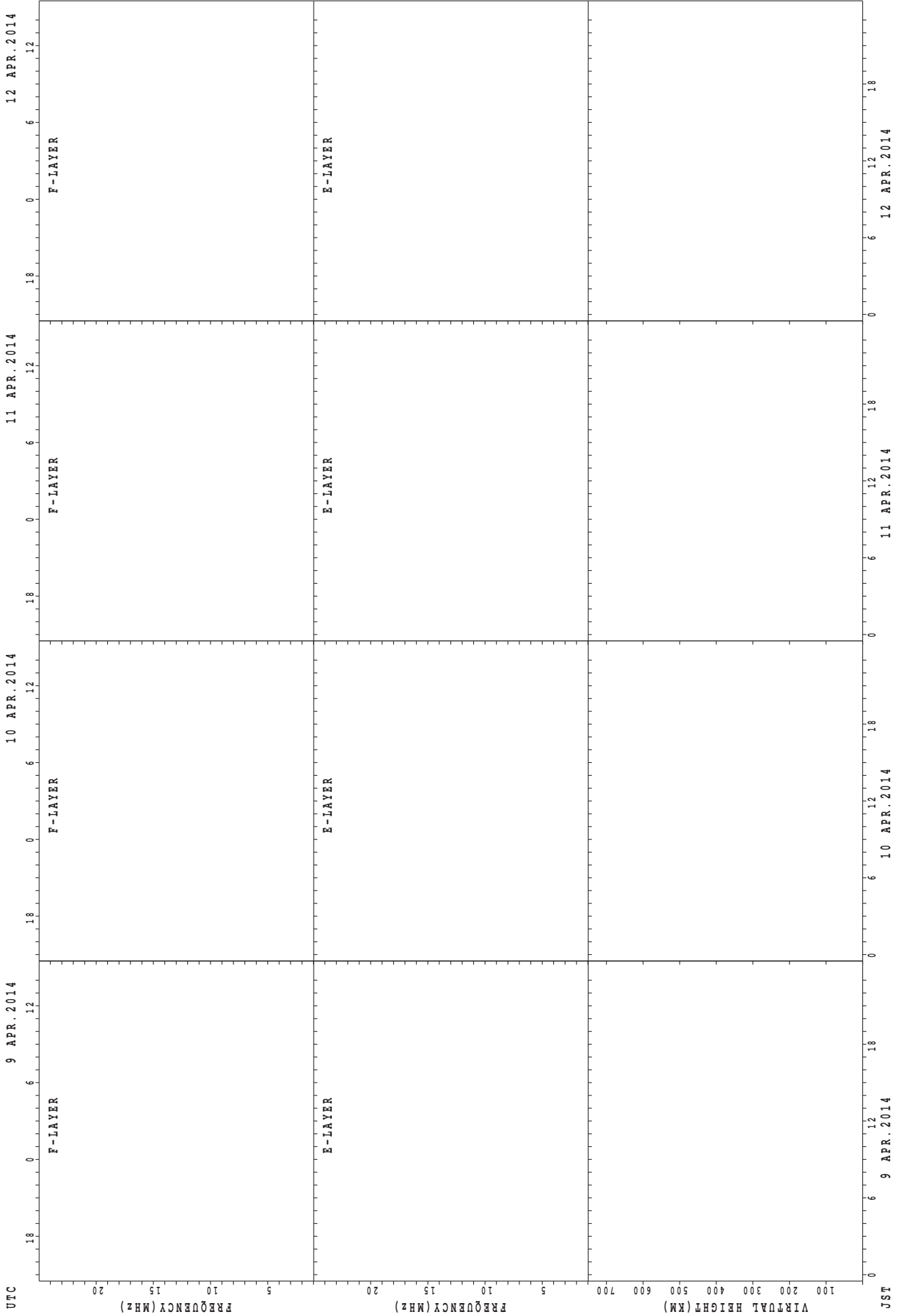
JST

SUMMARY PLOTS AT Okinawa



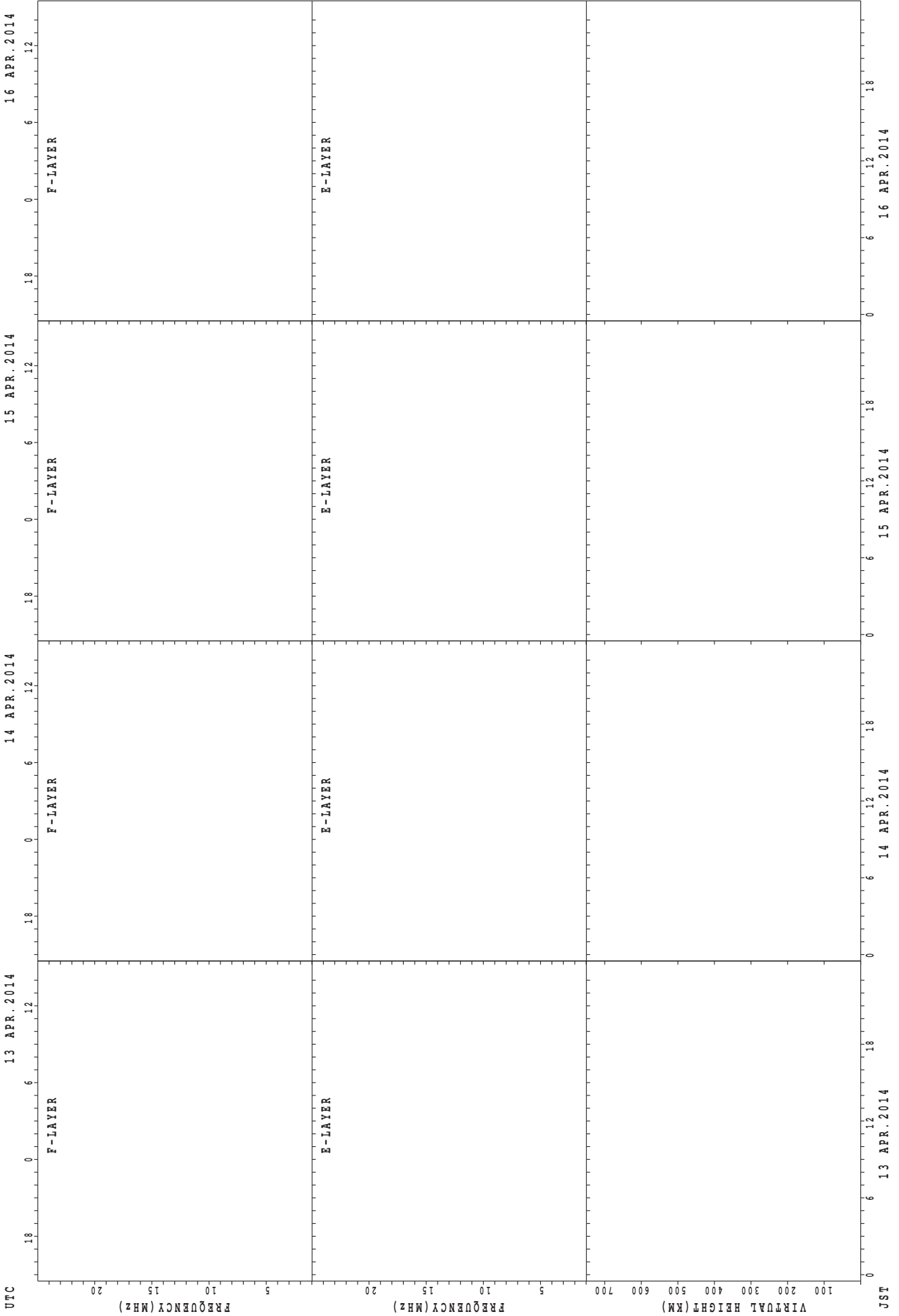
foE(P); PREDICTED VALUE FOR foE
foF2(P); PREDICTED VALUE FOR foF2

SUMMARY PLOTS AT Okinawa



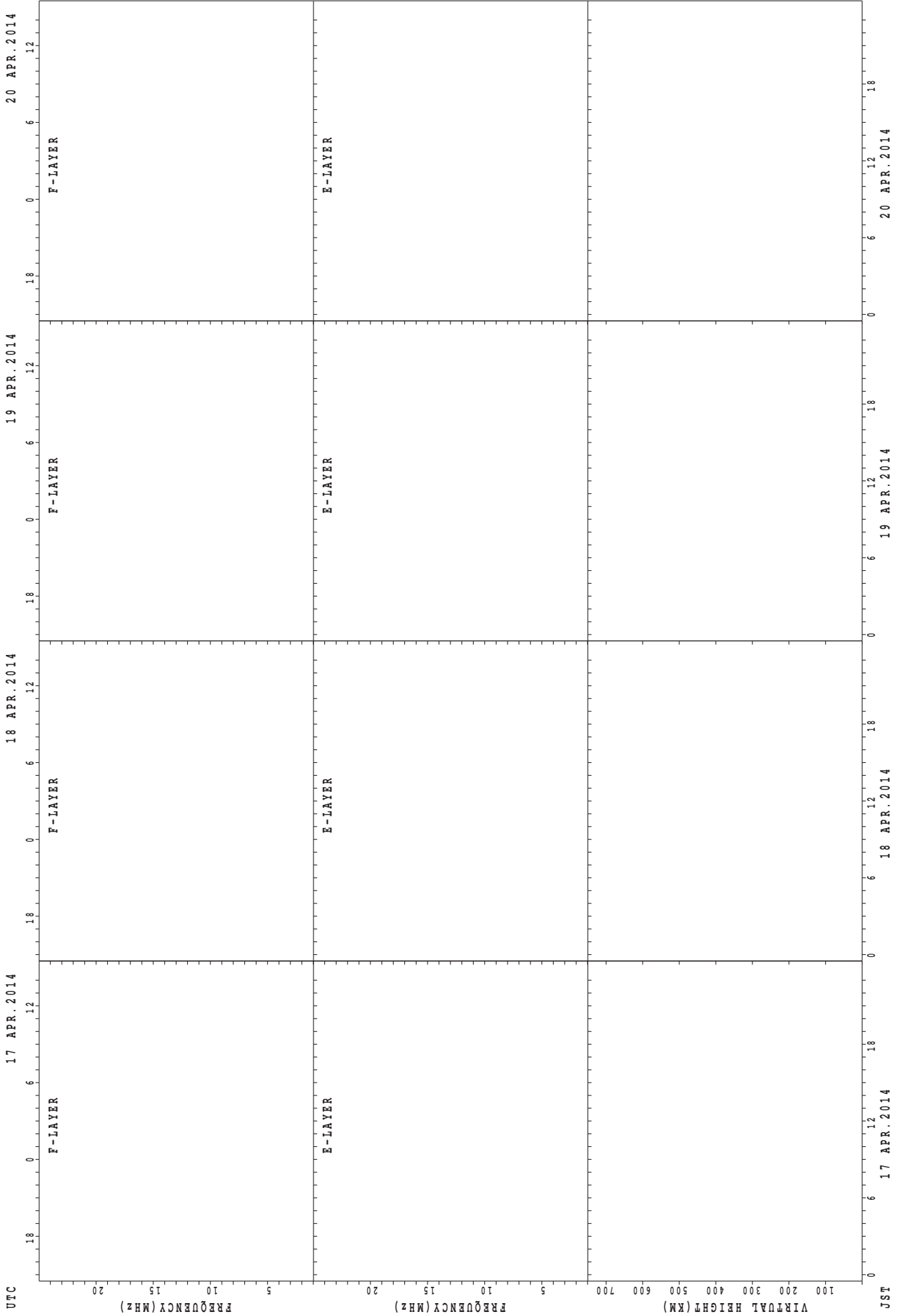
fxe(P); PREDICTED VALUE FOR fxe
foe(P); PREDICTED VALUE FOR foe

SUMMARY PLOTS AT Okinawa



fxe(P); PREDICTED VALUE FOR fxe
foe(P); PREDICTED VALUE FOR foe

SUMMARY PLOTS AT Okinawa

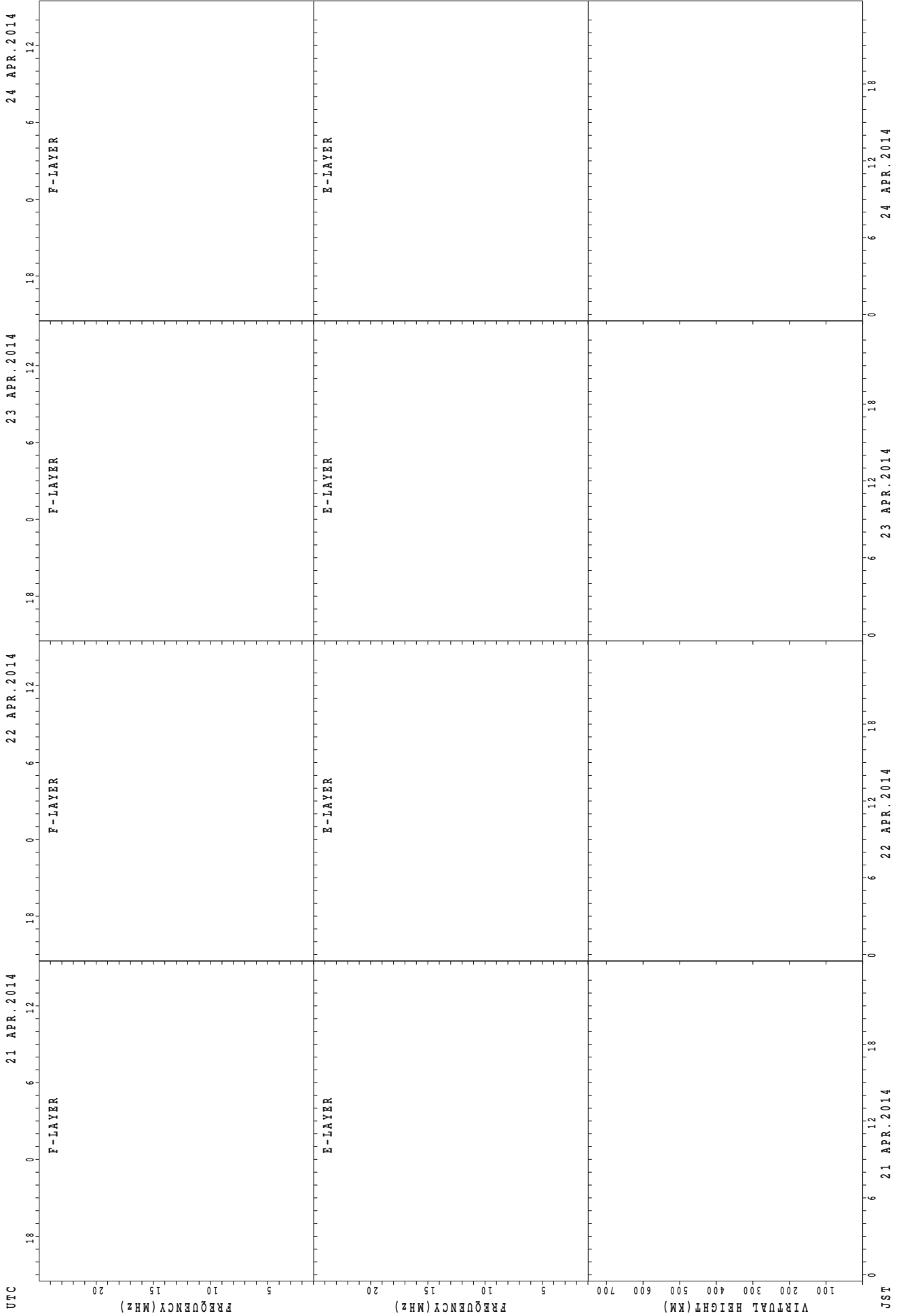


UTC
 17 APR. 2014
 18 APR. 2014
 19 APR. 2014
 20 APR. 2014

JST
 17 APR. 2014
 18 APR. 2014
 19 APR. 2014
 20 APR. 2014

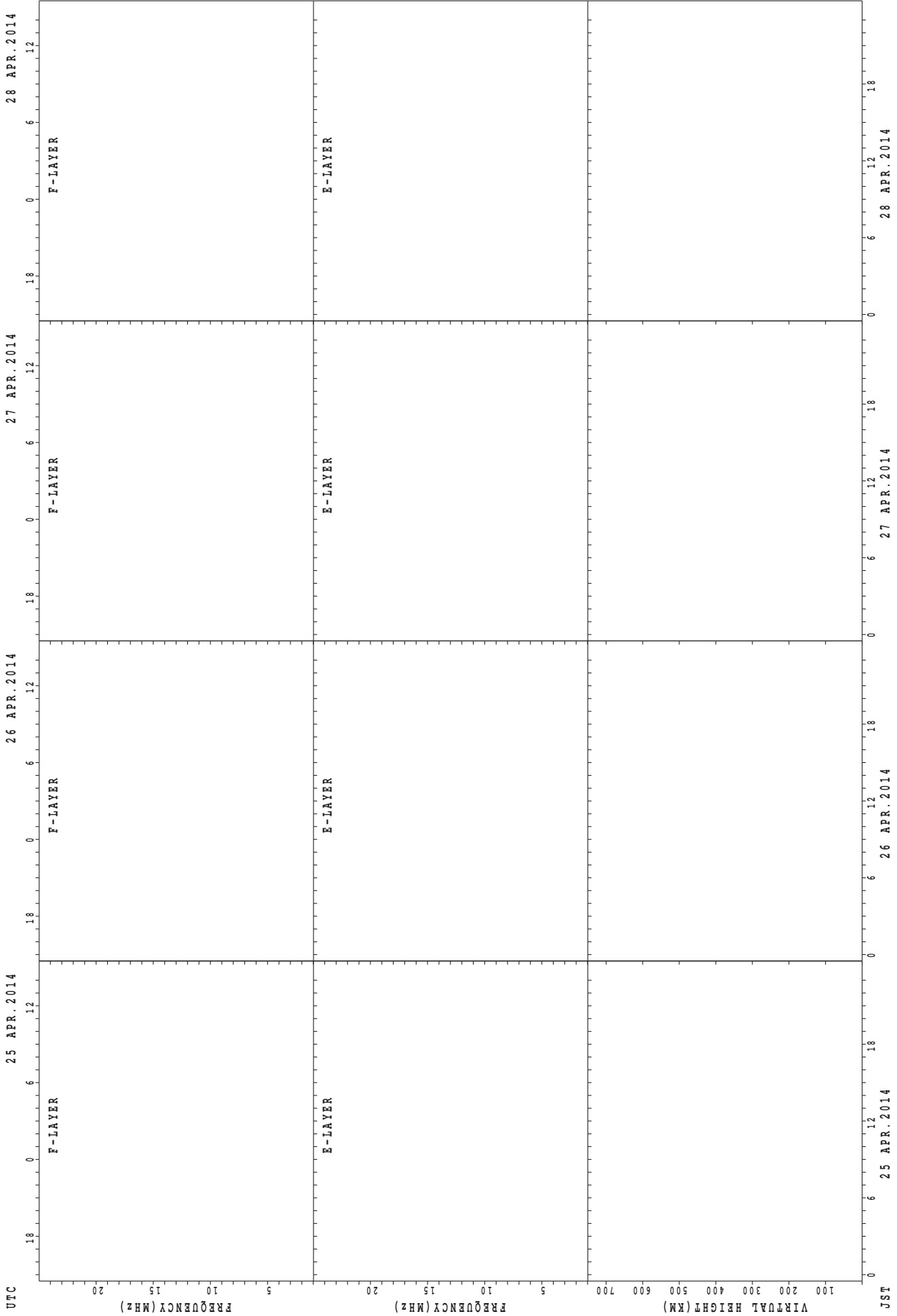
f_{xE}(P); PREDICTED VALUE FOR f_{xE}
 foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



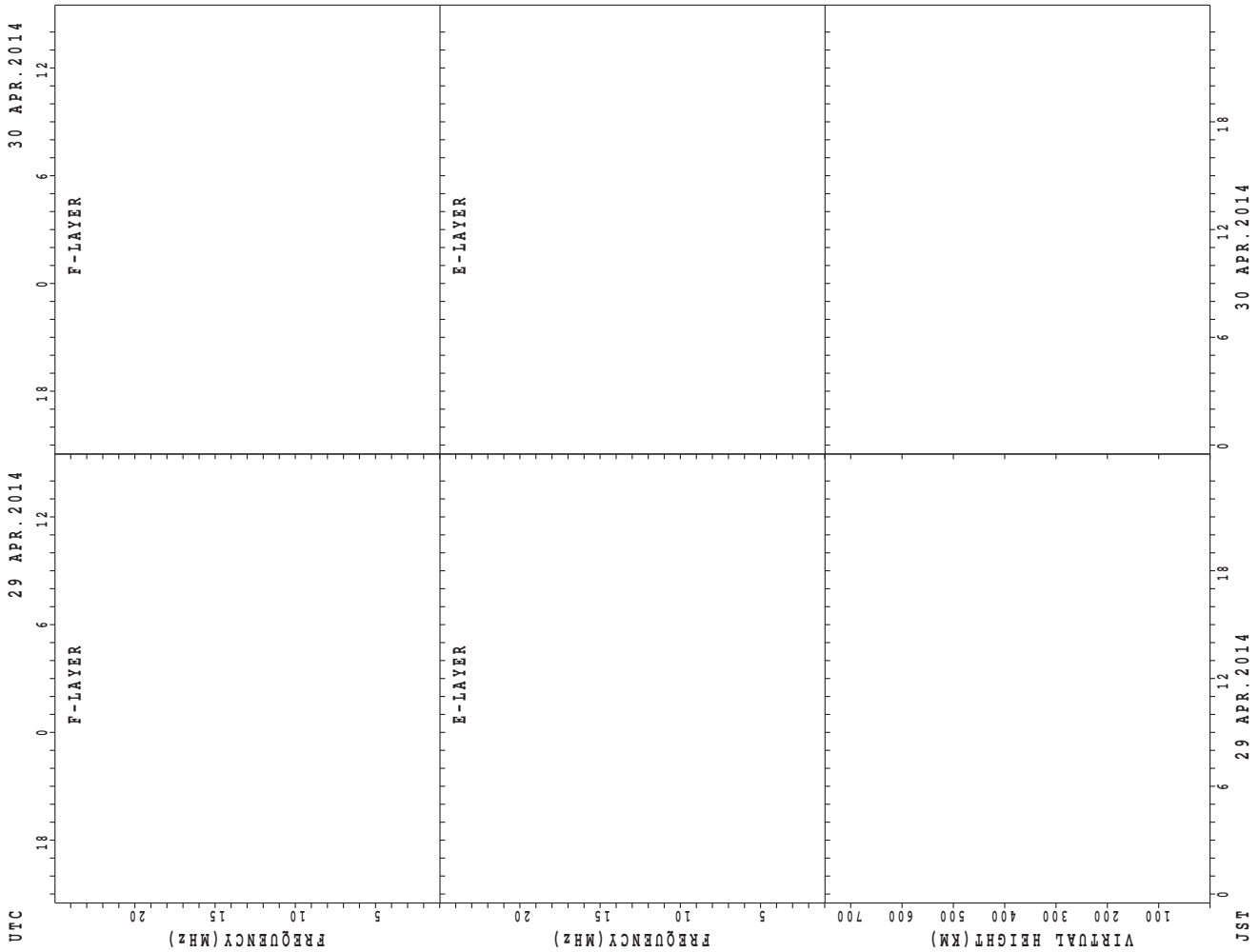
fxe(p); PREDICTED VALUE FOR fxe
foe(p); PREDICTED VALUE FOR foe

SUMMARY PLOTS AT Okinawa



fxe(P); PREDICTED VALUE FOR fxe
foe(P); PREDICTED VALUE FOR foe

SUMMARY PLOTS AT Okinawa



fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

MONTHLY MEDIANS OF h'F AND h'Es
 APR. 2014 135E MEAN TIME (UTC+9H) AUTOMATIC SCALING

h'F STATION Wakkanai LAT. 45°10.0'N LON. 141°45.0'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1			1	4	18	25	9							3	29	29	29	24	17	12	3	3
MED		356			370	330	264	266	248							260	260	262	262	268	286	294	298	328
U Q		178			185	342	296	290	256							262	266	272	266	278	301	306	306	330
L Q		178			185	294	254	251	239							250	254	253	254	263	269	279	296	322

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	5	4	4	5	3	10	6	11	4	3	3	2	3	2	2	9	13	14	18	9	8	4	4
MED	92	99	97	97	95	91	115	101	101	112	109	105	102	103	97	99	101	107	113	105	105	105	104	99
U Q	95	119	99	105	108	113	131	103	113	113	111	105	103	109	101	103	110	113	117	111	111	106	106	103
L Q	89	96	96	93	92	87	113	99	99	107	107	103	101	101	93	95	96	93	101	101	102	102	98	96

h'F STATION Kokubunji LAT. 35°43.0'N LON. 139°29.0'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	5	4			1	28	29	21								30	30	30	28	12	4	10	7
MED	322	336	304			338	248	240	242								262	254	251	256	276	332	348	330
U Q	348	345	315			169	258	252	258								270	260	256	262	288	367	368	348
L Q	296	292	292			169	236	230	238								256	246	242	246	255	322	334	328

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	3	3	3	2	1	5	5	6	8	10	15	10	10	7	6	6	17	23	24	19	19	12	7
MED	97	97	99	97	98	95	143	107	118	113	110	105	102	102	99	103	103	113	107	103	103	103	98	101
U Q	100	103	107	99	99	47	164	115	121	114	113	113	105	111	103	107	119	118	113	103	105	105	101	103
L Q	97	95	95	93	97	47	96	97	113	106	105	101	97	97	91	95	95	104	103	99	101	99	95	95

h'F STATION Yamagawa LAT. 31°12.0'N LON. 130°37.0'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	14	12	5	2	1	12	28	28	8							30	30	30	30	22	9	13	16
MED	311	305	292	304	308	264	251	235	238	251							271	262	249	246	256	312	320	322
U Q	330	314	308	331	364	132	267	247	246	254							280	268	256	254	272	337	344	342
L Q	296	296	272	268	252	132	235	229	233	246							268	254	246	238	246	268	306	316

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	9	4	6	4	7	1	7	15	14	16	13	14	9	12	12	9	17	24	26	20	17	14	15
MED	97	97	98	97	95	99	135	119	111	108	105	105	105	107	105	109	129	113	110	103	103	99	98	97
U Q	97	98	101	103	98	103	67	137	117	111	109	110	111	112	115	119	137	117	114	105	104	100	103	99
L Q	95	95	97	95	95	97	67	103	103	105	104	103	101	97	96	96	96	104	103	99	97	96	95	95

MONTHLY MEDIANS OF h'F AND h'Es
 APR. 2014 135E MEAN TIME (UTC+9H) AUTOMATIC SCALING

h'F STATION Okinawa LAT. 26°41.0'N LON. 128°09.0'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

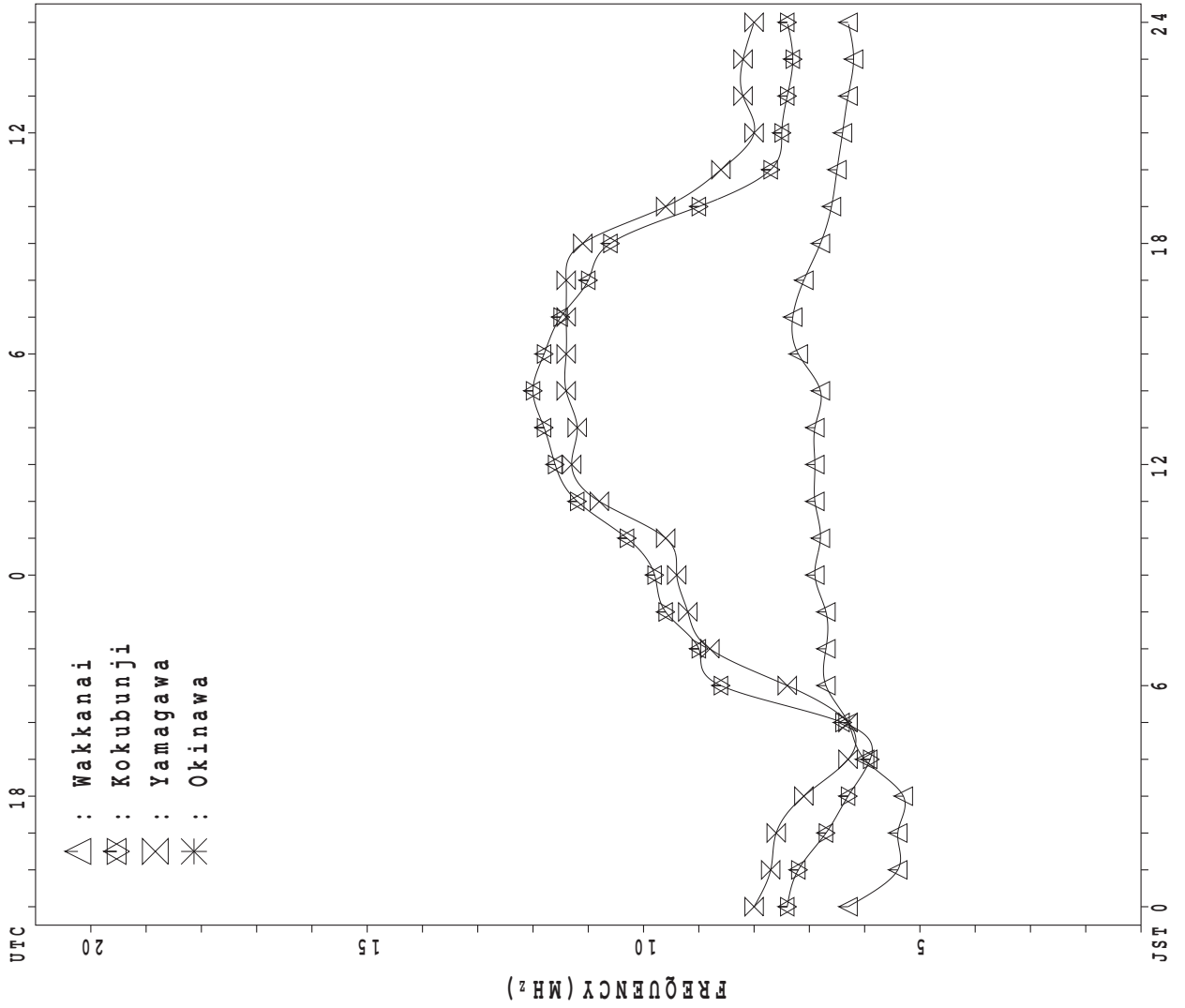
h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

MONTHLY MEDIANS PLOT OF fOF2

APR. 2014

AUTOMATIC SCALING



IONOSPHERIC DATA STATION Wakkanai

APR. 2014 f_{XI} (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	X 75	X 73	X 73	X 71	X 69															X 98	X 93	X 85	X 82	X 78
2	X 76	X 76	X 73	X 74	X 70															X 90	X 80	X 79	X 78	X 78
3	X 82	X 79	X 76	X 72	X 70															X 80	X 81	X 81	X 80	X 81
4	X 80	X 79	X 77	X 77	X 76															X 83	X 82	X 77	X 73	X 71
5	X 73	X 72	X 72	X 67	X 64															X 85	X 82	X 81	X 77	X 74
6	X 77	X 76	X 70	X 69	X 67															X 83	X 81	X 76	X 74	X 74
7	X 72	X 69	X 69	X 67	X 69															X 82	X 82	X 81	X 78	X 78
8	X 76	X 70	X 67	X 67	X 73															X 87	X 81	X 77	X 77	X 76
9	X 73	X 75	X 78	X 69	X 63															X 86	X 86	X 77	X 74	X 72
10	X 70	X 69	X 68	X 67	X 63															X 93	X 79	X 74	X 68	X 68
11	X 69	X 67	X 65	X 65	X 63															X 99	X 80	X 76	X 72	X 72
12	X 71	X 71	X 65	X 59	X 59															X 83	X 74	X 72	X 73	X 69
13	X 68	X 69	X 68	X 62	X 56															X 78	X 79	X 78	X 77	X 75
14	X 74	X 70	X 73	X 70	X 68															X 95	X 97	X 85	X 75	X 70
15	X 69	X 69	X 67	X 68	X 64															X 96	X 84	X 78	X 75	X 71
16	X 70	X 67	X 67	X 67	X 66															X 100	X 92	X 80	X 78	X 78
17	X 79	X 77	X 77	X 73	X 72															X 87	X 80	X 81	X 82	X 82
18	X 77	X 72	X 73	X 72	X 78															X 97	X 82	X 76	X 75	X 75
19	X 75	X 68	X 69	X 68	X 68															X 93	X 81	X 79	X 76	X 74
20	X 75	X 71	X 70	X 71	X 69															X 92	X 86	X 84	X 77	X 76
21	X 74	X 69	X 62	X 64	X 63															X 86	X 81	X 80	X 78	X 78
22	X 76	X 73	X 76	X 67	X 66															X 81	X 79	X 77	X 76	X 74
23	X 70	X 71	X 70	X 69	X 66															X 91	X 88	X 82	X 81	X 78
24	X 78	X 76	X 76	X 71	X 68															X 92	X 87	X 86	X 82	X 77
25	X 74	X 73	X 69	X 67	X 67															X 85	X 85	X 84	X 79	X 75
26	X 72	X 71	X 71	X 67	X 64															X 86	X 85	X 80	X 73	X 73
27	X 72	X 69	X 69	X 69	X 69															X 82	X 82	X 83	X 76	X 71
28	X 69	X 68	X 65	X 64	X 66															X 85	X 84	X 83	X 80	X 75
29	X 73	X 71	X 69	X 66	X 66															X 90	X 87	X 81	X 76	X 71
30	X 71	X 71	X 70	X 67	X 68															X 88	X 85	X 85	X 83	X 79
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30															30	30	30	30	30
MED	X 74	X 71	X 70	X 68	X 67															X 87	X 82	X 80	X 77	X 75
U Q	X 76	X 73	X 73	X 71	X 69															X 93	X 86	X 83	X 79	X 78
L Q	X 71	X 69	X 68	X 67	X 64															X 83	X 81	X 77	X 75	X 72

APR. 2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	68	66	66	64	62	68	76	U R J	R U R	R	R	J R J	R J R	R J R	R J R	R J R	R J R	R J R	R J R	R U R	R R	R	75	71		
2	70	69	66	68	63	70	74	J R U	R U R	U R A	U R A	121	119	Y	Y	J R	100	94	96	J R	83	73	72	71	71	
3	75	72	69	65	64	67	73	R U	R U R	R	R U R	J Y	U R J	R J R	R J R	99	95	87	73	74	74	74	74	74		
4	73	72	70	70	69	70	79	U R J	R U Y	U R	R J R	R J R	Y	Y	R	R	R	R	R	R	89	76	75	70	66	64
5	66	65	65	60	58	60	72	J R U	R J R	R J R	R U R	U R Y	R	R	R	R	R	R	R	R	78	75	74	70	68	
6	70	70	64	62	61	61	68	U R	R	Y	R J R	R J R	Y	U R	U R	U R	J R	J R	J R	80	77	74	68	67	66	
7	65	62	62	60	62	62	72	U R	R U R	J R J	R J R	Y	U R	U R	R	Y	J R	J R	R	R	92	75	74	74	71	71
8	69	63	60	60	66	68	77	R R	R R	R R	Y U Y	U Y	U Y	R	J R J	R J R	R	R	R	R	80	75	70	70	69	
9	66	68	70	63	56	60	71	Y U	Y	Y	Y	Y U	R	R	R	R	R	R	R	U R	R	78	70	67	65	
10	64	62	61	60	56	58	74	R R	R R	Y U	Y U	U R	R	R	R	R	R	R	R	J R	86	72	67	61	61	
11	62	60	59	58	57	62	74	J R J	R U Y	Y	Y	Y	Y U	Y U	Y R	R J R	R	R	R	R	92	76	69	65	65	
12	64	64	58	53	52	52	57	58	60	58	62	69	70	Y	Y U	Y	78	78	75	77	77	67	66	66	62	
13	62	62	61	55	49	50	66	65	75	92	91	86	88	95	91	96	91	90	89	72	72	71	70	68		
14	68	65	66	63	62	62	J R J	R U R	R U R	U Y	Y	Y U	R J R	R U R	R	J R	R	R	R	R	J R	R	68	63		
15	62	62	61	61	57	61	66	70	69	70	74	75	J R J	R R	R J R	R	R	R	R	R	89	72	68	64		
16	63	60	60	60	59	68	75	J R J	R J R	Y	Y	J Y	R J Y	R J Y	R J Y	R J Y	R J Y	R J Y	R J Y	J R J	R	74	71	71		
17	72	71	71	66	65	70	U R	U Y	J R J	R J R	Y	Y	J R	R U R	R U R	R	R	R	R	R	84	80	75	75	75	
18	70	65	66	65	72	72	73	U R	R R	R U R	Y	Y	Y U	Y J	R U R	R J R	R	R	R	R	92	90	76	70	68	69
19	68	62	62	61	60	62	70	73	73	75	76	82	79	89	Y	Y	J R	R	J R J	R	86	72	72	70	67	
20	68	64	63	64	62	66	70	U Y	Y	Y U	Y	Y	Y J	R	Y	U R	R J R	R J R	R	R	86	78	78	70	69	
21	67	62	55	58	56	60	66	70	J Y	Y	Y	Y	Y J	R	Y	U R	R J R	R J R	R	R	84	80	74	71	71	71
22	70	66	70	60	59	62	64	63	62	68	73	80	Y	Y	Y	74	79	78	75	75	73	71	69	67		
23	63	64	63	62	59	62	70	R U	R J R	Y J	R J	J Y	J R	U Y	J R	R	R	R	R	J R J	R	75	74	71	71	
24	71	70	69	64	61	63	71	68	73	76	77	84	Y	Y	96	95	95	89	81	82	84	80	79	76	70	
25	67	66	62	60	60	64	68	64	64	74	70	77	80	Y	Y U	Y	78	78	77	78	78	78	72	68		
26	66	64	63	60	56	58	68	66	74	74	75	76	J R J	R J R	R U R	R	76	73	77	79	R	78	71	66	62	
27	F	F	F	F	F	V	R	R	70	70	72	74	U Y	U Y	Y	Y	R	R	R	R	R	R	R	R	R	
28	F	62	58	57	58	66	72	72	76	75	74	U R	U R	U Y	R U R	R	Y	85	85	85	85	77	76	70	68	
29	66	64	62	59	59	66	72	69	72	70	75	76	J Y	Y J	R U R	R	77	84	81	83	R	80	75	69	64	
30	64	64	64	61	61	60	64	68	72	75	U R	U R	J Y	Y	98	96	95	88	J R J	R	77	77	76	72		
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	30	30	30	30	30	30	30	30	28	29	22	22	23	24	22	27	29	30	30	30	30	30	30	30	30	
MED	66	64	63	60	60	62	72	74	R	78	R	R	R	R	R	R	R	R	R	R	R	76	73	70	68	
U Q	70	66	66	64	62	67	74	R	R	94	98	93	98	100	100	99	93	89	90	86	78	76	71	71		
L Q	64	62	61	60	57	60	68	69	72	74	74	76	80	89	91	83	85	81	81	77	74	70	68	64		

APR. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									L	L	L	L	L	L	L										
2										L	L			L	L										
3									L	L	L	L			L	L									
4									L	L	L	L	L	L	L	L									
5							248			L	L	L	L	L	L	L	L								
6								L	L	L	L	L	L	L	L	L	L								
7								L	L	L	L	L	L	L	L	L	L								
8								L	L	L	L	L	L	L	L	L									
9								L	L	L	L	L	L	L	L	L				L	L				
10							L	L	L	L	L	L	L	L	L	L									
11								L	L	L	L	L	L	L	L	L	L								
12						L	L	L	L	L	L	L	L	L	L	L	L	L							
13							L	L	L	L	L	L	L	L	L	L	L	L							
14							L	L	L	L	L	L	L	L	L	L	L	L							
15								L	L	L	L	L	L	L	L	L	L	L							
16								L	L	L	L	L	L	L	L	L	L	L							
17							304			L	L	L	L	L	L	L	L	L							
18								L	L	L	L	L	L	L	L	L	L	L							
19							L	L	L	L	L	L	L	L	L	L	L	L	L						
20						L	L	L	L	L	L	L	L	L	L	L	L	L	L						
21						L	L	L	L	L	L	L	L	L	L	L	L	L	L						
22							L	L	L	L	L	L	L	L	L	L	L	L	L						
23								L	L	L	L	L	L	L	L	L	L	L	L						
24					L		L	L	L	L	L	L	L	L	L	L	L	L	L						
25					L	L	L	L	L	L	L	L	L	L	L	L	L	L	L						
26						L		L	L	L	L	L	L	L	L	L	L	L	L						
27						L	L	L	L	L	L	L	L	L	L	L	L	L	L						
28							L	L	L	L	L	L	L	L	L	L	L	L	L						
29							L	L	L	L	L	L	L	L	L	L	L	L	L						
30							L	L	L	L	L	L	L	L	L	L	L	L	L						
31								L	L	L	L	L	L	L	L	L	L	L	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT						1	5	4	7	10	9	10	7	7	3	4									
MED						228	328	456	484	504	508	526	532	540	552	502									
U Q							414	478	500	524	528	544	552	572	580	514									
L Q							276	446	464	492	496	508	508	524	524	488									

APR. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	220	284	304	328	U A	U A												
2						B	228	272	316	336	A	R	360	336	340	328	300	244						
3						B	232	272	332	344	R	R	348	360	352	336	292	240	J R					
4						B	240	268	316	336	R	A	U A	U A	A	U A	A	A						
5						B	200	276	320	348	U A	R	U R	U R		A	A	A	A					
6						B	228	284	308	332	340	352	U A	U R	A		320	296	232					
7						A	220	292	320	328	344	A	A	U A	U A									
8						A	216	272	320	344	356	A	A	A	A	336	324	292	240					
9						B	224	276	324	336	368	A		376	360		320	280	240					
10						A	236	284	324	332	364	R		372	360	344	324	292	240					
11						B	252	292	324	348	364	U A	R	356	344	328	308	236						
12						B	236	284	320	340	360	U A	A	360	356	320	292	240						
13						A	232	272	324	340	360	U A	U A	364	352	348	320	288	244					
14						B	240	284	324	352	352	348	U A	A	R		332	296	268	188				
15							180	240	280	324	340	R	360	372	376	364		340	308					
16							184	244	288	324	348	356	U A	U A	A	356	336	312	272	192				
17							176	248	296	344	368	U R	U R	372	364	340	340	316	252	180				
18							180	260	292	332	364	U R	U R	U A	A	A	A	312	260					
19							164	236	296	336	352	U R	R	360	380	368	356	344	328	316	268			
20							176	244	300	332	360	U R	U R	U R	U R	U R	380	352	316	256	180			
21							180	252	300	332	340	U A	R	A	R	R	R	328	312	260				
22							192	268	312	336	364	U A	U R	R	R		372	356	344	308	260			
23							188	252	288	328	356	U R	U R	U A	R	356	328	324	272					
24							A	264	300	328	352	U A	A	A	A	A	336	300	264					
25							180	268	300	332	348	U R	B	B	R	A	356	344	316	268				
26							176	260	296	324	328	A	A	U R	U R	364	352	328	300	236	192			
27							A	252	292	320	336	R	R	U A	U A	U R	364	340	304	260	180			
28							172	268	296	328	340	R	U A	U A	U A	332	312	300	264					
29							204	256	300	316	332	U R	A	R	R	U A	A	260						
30							216	272	300	328	352	U R	U A	R	A	A	R	256	200					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						14	30	30	29	30	26	19	20	18	21	27	27	27	8					
MED						180	242	290	324	342	U	358	364	366	360	348	328	300	256	190				
U Q						188	256	296	330	352	U R	U R	U R	U	348	312	312	264	196					
L Q						176	232	280	320	336	352	360	362	356	344	324	292	240	180					

APR. 2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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 14	B 14	B 18	E 14	B 14	B 14	25	31	33	35	36	G 35	G	G	G 22	G	G	G	J 19	A 16	B 14	18	E 14	B 14		
2	E 14	B 18	B 16	E 17	B 16	B 16	G	G 22	G	G	36	G	G 32	G 27	G	G 27	G 21	G	J 19	J 15	A 15	B 12	19	E 12	B 12	
3	E 13	B 14	B 14	E 16	B 16	B 16	G	G 30	G 27	36	G	G	G	G	G 23	G	G	G	J 29	J 27	A 13	B 12	12	E 13	B 12	
4	E 14	B 14	B 14	E 14	B 14	B 14	G	G	33	G	38	38	39	41	J 63	38	34	31	J 24	J 33	A 24	J 30	J 30	J 30	J 16	
5	E 13	B 13	35	J 25	J 13	J 15	23	29	25	37	42	G	G 30	G 33	38	38	J 30	J 27	J 22	J 17	J 16	J 16	J 14	J 13		
6	J 15	A 12	B 12	E 12	B 14	B 14	G	G 24	34	38	39	39	39	38	38	36	G	G	J 22	J 18	J 15	J 17	J 16	J 25		
7	J 25	A 15	B 15	J 17	J 18	J 25	26	32	34	36	39	40	38	37	30	G	G	G 20	J 21	J 20	J 19	J 17	J 12	E 15	19	
8	E 16	B 16	B 16	E 16	B 16	J 19	25	30	35	40	38	37	39	38	24	G	G	33	J 28	J 21	J 15	J 15	E 15	E 15	B 15	
9	E 15	B 15	B 15	E 18	E 15	B 16	24	30	35	36	30	36	34	32	36	25	J 27	J 30	19	14	15	19	14	14	B 14	
10	E 14	B 14	B 14	J 16	J 26	J 22	G	31	36	38	33	34	34	G	37	G	G	28	22	J 17	J 17	J 19	J 14	J 14		
11	J 17	A 13	B 14	E 14	B 14	B 16	G	G 24	35	38	G	38	34	30	21	25	18	29	21	J 19	J 12	E 12	E 12	E 12		
12	E 14	J 17	J 19	J 11	A 14	B 14	24	32	36	38	40	40	40	28	26	28	G	G	28	23	J 24	J 22	18	18	J 17	
13	J 17	J 15	14	J 17	J 19	J 31	31	33	39	39	40	40	40	34	34	33	22	J 24	21	J 17	J 17	24	19	E 15		
14	E 15	B 26	J 19	J 15	A 12	B 16	24	24	G	38	39	44	40	40	32	28	G	G	18	17	12	16	13	14	20	
15	19	J 24	J 24	J 16	A 14	B 14	G	25	32	34	37	41	41	43	40	38	35	J 25	J 27	J 22	J 19	14	14	14	14	
16	E 16	B 16	B 13	E 19	B 13	G	G	32	34	G	39	42	42	38	40	G	G	28	22	16	13	13	13	13	13	
17	E 13	B 13	B 14	E 14	B 14	G	G	G	35	G	40	40	G	40	32	27	20	G	G	23	19	19	E 15	E 15	B 15	
18	E 15	B 15	B 15	E 15	B 15	G	G	G 25	36	41	41	41	41	51	J 44	37	35	26	G	J 26	J 24	J 19	14	15	J 13	
19	E 14	B 14	B 14	E 14	B 14	20	28	34	37	42	42	43	41	41	38	37	33	33	J 28	J 29	J 40	16	J 13	E 13	13	
20	E 13	B 13	B 13	E 13	B 14	G	26	33	36	38	G	G	44	G	G	33	33	33	22	J 22	J 23	J 20	15	E 15	B 15	
21	E 15	B 20	B 15	E 15	J 21	G	G	34	38	38	38	39	35	35	34	32	22	30	22	J 20	J 15	19	14	E 14	J 15	
22	J 21	A 12	B 12	E 12	B 12	G	28	33	39	42	42	36	34	32	20	26	19	22	22	J 19	J 14	J 19	14	14	B 14	
23	E 14	J 16	B 15	E 15	B 15	G	G	32	36	38	G	G	40	37	33	G	G	26	28	J 27	J 24	J 16	15	E 15	B 13	
24	E 13	B 13	B 13	E 13	J 13	20	27	33	36	39	39	43	40	37	36	36	32	30	J 26	J 19	J 19	J 19	J 14	J 21	J 21	
25	J 15	A 14	B 14	E 14	B 14	G	G	34	39	41	E 48	B 39	B 32	44	G	G	G	34	J 30	J 30	J 30	13	15	J 15	15	
26	E 15	B 15	B 15	E 15	B 15	20	G	33	34	34	39	39	40	G	32	23	25	24	G	E 14	B 14	J 14	J 16	J 16	16	
27	J 15	J 20	J 20	J 20	J 23	23	32	35	35	41	46	40	39	39	G	36	33	34	J 35	J 31	J 26	J 21	15	J 32	32	
28	E 15	B 15	B 15	J 14	J 23	G	28	32	J 45	38	40	J 56	42	43	37	33	25	G	J 31	J 27	J 21	J 21	16	J 14	14	
29	E 13	B 13	B 18	E 18	B 18	G	30	34	42	45	44	38	37	34	34	33	31	22	G	19	18	13	13	E 17	B 13	
30	E 13	B 13	17	E 13	B 13	G	G	32	37	38	38	39	39	39	36	34	30	G	J 23	J 25	J 30	37	E 14	E 14	B 14	
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	E 15	B 14	B 15	E 15	B 14	G	24	32	35	38	39	39	39	G	G	G	G	27	22	J 19	J 16	16	16	E 14	B 14	
UQ	J 15	J 16	17	J 17	J 16	19	26	33	37	39	41	40	40	40	37	35	31	30	J 26	J 24	21	19	15	J 16	16	
LQ	E 14	B 13	B 14	E 14	B 14	G	G	G 29	34	36	36	G	G	G 35	G 34	G 32	G 28	G 25	G 24	20	17	14	14	14	13	

APR. 2014 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	BE	BE	BE	BE	BE	B	G				G	G	G	G	G	G	G	E	BE	BE	BE	BE	BE	BE	B	
2	E	BE	BE	BE	BE	BE	B	G	G	G	U	Y	G	G	G	G	G	G	G	E	BE	BE	BE	BE	BE	BE	B
3	E	BE	BE	BE	BE	BE	B	G	G	G	G	G	G	G	G	G	G	G	G	E	BE	BE	BE	BE	BE	BE	B
4	E	BE	BE	BE	BE	BE	B	G	G		G	G	G	G	G	G	G	G	G	E	BE	BE	BE	BE	BE	BE	B
5	E	BE	B		E	BE	B		G	G		G	G	G						E	BE	BE	BE	BE	BE	BE	B
6	E	BE	BE	BE	BE	BE	B	G	G											E	BE	BE	BE	BE	BE	BE	B
7		E	BE	BE	BE	BE	B		G											E	BE	BE	BE	BE	BE	BE	B
8	E	BE	BE	BE	BE	BE	B		G				U	Y	G	G	G	G	G	E	BE	BE	BE	BE	BE	BE	B
9	E	BE	BE	BE	BE	BE	B		G			G	U	Y	G	G	G	G	G	E	BE	BE	BE	BE	BE	BE	B
10	E	BE	BE	BE	BE	B		G				G	U	G	G	G	G	G	E	BE	B		E	BE	BE	B	
11	E	BE	BE	BE	BE	BE	B		G	G		G	U	G	G	G	G	G	E	BE	BE	BE	BE	BE	BE	B	
12	E	BE	BE	BE	BE	BE	B		G	G		G	G		G	G	G	G	E	BE	BE	BE	BE	BE	BE	B	
13	E	BE	BE	B		E	BE	B		G										E	BE	BE	BE	BE	BE	BE	B
14	E	BE	BE	BE	BE	BE	B		G	G										E	BE	BE	BE	BE	BE	BE	B
15	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	BE	B
16	E	BE	BE	BE	BE	B		G	G											E	BE	BE	BE	BE	BE	BE	B
17	E	BE	BE	BE	BE	B		G	G			G	U	Y	G	G	G	G	E	BE	BE	BE	BE	BE	BE	B	
18	E	BE	BE	BE	BE	B		G	G											E	BE	BE	BE	BE	BE	BE	B
19	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	BE	B
20	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	BE	B
21	E	B		E	BE	B		G	G			G	U	Y	G	G	G	G	E	BE	BE	BE	BE	BE	BE	B	
22		E	BE	BE	BE	B		G	G				U	G	U	G	G	G	E	BE	B		E	BE	BE	B	
23	E	BE	BE	BE	BE	B		G	G			G	U	Y	U	Y	G	G	E	BE	BE	BE	BE	BE	BE	B	
24	E	BE	BE	BE	BE	B		G	G											E	B		E	B		B	
25	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	BE	B
26	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	BE	B
27	E	BE	BE	BE	B								U	Y	U	Y	G	G	E	BE	BE	BE	BE	BE	BE	B	
28	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	BE	B
29	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	BE	B
30	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	BE	B
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
MED	E	BE	BE	BE	BE	B	G	G												E	BE	BE	BE	BE	BE	B	
UQ	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	B	
LQ	E	BE	BE	BE	BE	B		G												E	BE	BE	BE	BE	BE	B	

APR. 2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

$\frac{H}{D}$	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	14	14	13	14	14	14	15	10	10	14	14	14	14	15	15	15	15	15	15	15	14	14	14	14
2	14	18	16	16	16	16	15	16	14	14	15	16	15	14	16	16	16	15	15	12	12	12	12	12
3	13	14	14	16	16	16	16	16	16	15	11	22	17	18	18	19	17	17	16	14	13	12	13	12
4	14	14	14	14	14	14	16	14	13	13	12	12	15	17	17	16	16	16	14	14	14	14	14	13
5	13	13	13	13	13	13	13	13	13	10	13	13	15	13	14	14	16	15	15	14	14	14	14	14
6	12	12	12	12	14	14	14	12	14	14	16	16	16	16	16	16	16	16	15	14	14	14	14	14
7	14	15	15	15	15	13	13	13	13	14	16	16	16	17	17	15	18	16	13	13	15	15	15	15
8	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	13	13	15	15	15	15	15
9	15	15	15	15	15	16	12	12	14	17	17	17	17	17	17	14	14	14	14	14	14	14	14	14
10	14	14	14	14	14	14	14	14	15	19	19	30	21	18	16	15	14	14	14	14	14	14	14	14
11	13	13	14	14	14	16	14	15	15	15	15	15	16	16	16	16	12	12	12	12	12	12	12	12
12	14	14	14	14	14	14	14	14	14	14	17	17	17	17	14	14	14	14	14	16	16	16	16	16
13	14	14	14	14	15	14	14	14	11	12	16	17	17	18	17	14	12	12	15	12	15	15	15	15
14	15	15	12	12	12	16	16	14	14	19	18	18	28	20	20	18	12	12	12	12	16	16	16	16
15	14	14	14	14	14	14	14	14	14	14	14	17	17	17	17	18	14	14	14	14	14	14	14	14
16	16	16	13	13	13	13	13	13	13	13	16	19	20	20	18	16	14	14	12	13	13	13	13	13
17	13	13	14	14	14	14	14	14	16	16	16	16	19	16	16	16	15	15	15	15	15	15	15	15
18	15	15	15	15	15	15	15	12	12	12	12	12	12	15	20	18	14	14	14	14	14	15	15	15
19	14	14	14	14	14	14	14	14	14	14	14	14	17	17	17	17	17	17	14	14	13	13	13	13
20	13	13	13	13	14	14	14	14	14	14	14	17	17	18	18	18	16	16	14	14	15	15	15	15
21	15	15	15	15	15	15	15	15	15	15	21	21	21	20	17	17	17	17	16	16	16	16	14	14
22	12	12	12	12	12	12	12	12	12	17	17	24	26	21	17	17	17	17	17	17	14	14	14	14
23	14	14	15	15	15	15	15	15	15	15	15	19	20	20	18	17	14	14	14	13	13	13	13	13
24	13	13	13	13	13	13	13	13	13	16	17	17	17	17	17	17	16	16	16	13	13	13	13	13
25	14	14	14	14	14	14	14	14	14	14	48	39	23	23	18	18	18	18	16	13	13	13	13	13
26	15	15	15	15	15	15	15	14	14	14	15	15	15	15	15	15	15	15	15	14	14	14	14	14
27	11	16	13	13	12	12	12	12	12	12	12	13	15	16	16	16	16	16	16	14	15	15	15	15
28	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	13	13	13	13
29	13	13	13	13	13	13	13	13	13	16	16	16	16	12	12	12	12	12	12	12	13	13	13	13
30	13	13	13	13	13	13	13	15	15	15	15	17	17	17	17	16	16	16	16	16	14	14	14	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	14	14	14	14	14	14	14	14	14	14	16	16	17	17	17	16	15	15	14	14	14	14	14	14
U Q	15	15	15	15	15	15	15	15	15	16	17	18	19	18	17	17	16	16	15	14	15	15	15	15
L Q	13	13	13	13	13	13	13	13	13	14	14	15	15	16	16	15	14	14	14	13	13	13	13	13

APR. 2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	280	274	277	285	273	275	330	U R	R	U R	R	R	R	R	R	R	R	R	R	U R	R	R	302	293		
2	279	282	271	275	279	303	335	R	U R	U R	U R	U R	A	Y	Y	R	305	325	335	R	314	304	295	298		
3	286	298	286	291	279	289	341	U R	U R	U R	U R	U R	U R	Y	U R	R	R	319	313	325	323	313	304	302	302	
4	302	282	278	279	279	295	315	U R	U R	U R	U R	U R	J R	Y	Y	314	328	321	329	322	319	295	292	297		
5	289	286	290	306	283	285	347	R	U R	R	R	R	U R	U R	Y	R	R	323	334	317	324	296	300	278	269	
6	274	281	277	274	265	267	277	U R	R	R	Y	R	R	U R	U R	U R	321	R	R	R	302	294	286	288		
7	290	284	286	288	286	294	338	U R	U R	U R	R	R	Y	U R	U R	Y	R	R	R	321	324	315	312	290	287	
8	283	271	259	267	297	303	339	R	R	R	Y	U Y	U Y	U Y	R	J R	R	319	334	317	R	316	290	290	276	
9	279	289	292	303	292	295	348	348	Y	U Y	Y	Y	Y	U R	R	R	R	316	313	309	U R	312	315	282	283	
10	272	278	283	289	275	286	341	327	R	U R	U R	U R	U R	313	314	335	320	335	337	338	J R	321	297	288	288	
11	283	283	282	288	288	308	338	R	U R	Y	342	314	Y	Y	U Y	U Y	R	317	314	338	321	285	290	271		
12	273	271	282	277	277	299	293	291	301	308	297	291	284	R	R	Y	321	325	323	316	316	279	275	274	278	
13	278	275	280	281	276	305	311	322	R	U R	U R	315	320	R	Y	314	311	314	318	323	299	283	289	275		
14	276	274	269	281	273	293	R	U R	U R	U R	U R	Y	Y	U R	R	U R	324	328	R	R	R	R	307	287		
15	278	280	286	302	294	338	319	316	305	311	331	325	R	R	320	326	R	302	311	310	324	309	296	287		
16	286	282	282	282	280	302	351	J R	R	R	Y	Y	Y	Y	Y	R	R	R	R	J R	R	305	299	276		
17	292	284	286	303	291	333	325	U R	U R	U R	Y	Y	Y	U R	U R	R	314	290	302	302	310	305	306	322	310	
18	286	277	271	256	279	287	318	U R	R	U R	U R	Y	Y	U Y	Y	U R	J R	334	335	307	330	320	322	294	285	284
19	293	288	281	283	289	286	305	305	320	314	309	331	297	U R	U R	Y	J R	291	301	J R	J R	320	294	286	284	
20	273	262	260	289	281	279	312	U Y	Y	U Y	Y	Y	Y	Y	Y	U R	U R	J R	J R	R	R	309	311	304	273	
21	259	254	250	262	250	271	295	287	Y	U Y	Y	Y	Y	Y	Y	U R	R	R	R	313	298	304	309	286	276	
22	273	288	272	293	282	284	296	303	305	288	304	R	Y	U Y	Y	R	336	322	316	317	307	298	307	286	287	
23	282	281	281	287	300	324	331	U R	U R	R	Y	R	Y	U R	Y	322	R	318	310	342	J R	J R	334	305	285	
24	286	289	290	296	289	281	300	325	329	323	335	304	U R	Y	Y	306	321	312	308	302	302	311	296	281		
25	277	280	286	272	274	309	315	324	R	U R	U R	312	U R	U R	Y	U Y	336	339	337	328	324	310	311	312	276	
26	283	273	279	295	276	316	298	327	313	325	307	314	J R	322	R	U R	317	314	328	303	297	302	294	268	267	
27	F	F	F	F	F	V	R	R	342	342	335	309	U Y	U Y	Y	Y	R	R	R	R	R	R	R	R	R	
28	F	276	289	297	289	302	324	325	329	337	333	347	U R	U Y	U Y	U R	312	301	308	U R	U R	324	318	300	297	
29	278	278	283	279	283	308	341	311	322	316	317	315	Y	Y	U R	316	331	R	R	R	R	318	311	301	297	
30	281	281	281	299	325	322	337	333	323	310	333	317	U R	Y	Y	295	316	315	307	J R	J R	302	303	306	289	
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	30	30	30	30	30	30	29	26	22	25	19	18	14	16	13	23	21	23	30	29	28	30	30	30		
MED	280	280	281	286	282	295	324	325	R	323	325	318	U	U	320	322	320	322	316	317	316	312	304	294	286	
U Q	286	284	286	295	289	308	338	333	R	U R	U R	U R	U Y	U R	U R	U R	U R	U R	U R	U R	U R	320	311	302	290	
L Q	274	274	275	279	276	285	308	320	313	314	309	309	297	311	320	315	314	307	311	308	302	294	286	276		

APR. 2014 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	L	L	L	L									
2										L	L			L	L									
3									L	L	L	L			L	L								
4									L	L	L	L	L	L	L	L								
5							496			L	L	LU	L	L	L	L	L							
6								L	L	LU	L	LU	L	L	L	L	L							
7								L	L	L	L	L	L	L	L	L	L							
8								L	L	L	L	L	L	L	L	L	L							
9								LU	L	L	LU	L	L	L	L	L	L	L	L					
10							L	L	L	L	L	L	L	L	L	L	L	L						
11								L	L	LU	L	LU	L	L	L	L	L	L						
12						L	LU	LU	L	LU	LU	L	L	L	L	L	L	L	L					
13							L	L	L	L	L	L	L	L	L	L	L	L	L					
14							398	L	LU	L	L	L	L	L	L	L	L	L	L					
15								L	LU	LU	L	L	L	L	L	L	L	L	L					
16								L	L	L	L	L	L	L	L	L	L	L	L					
17							410		L	L	L	L	LU	L	L	L	L	L						
18								LU	L	L	L	L	L	L	L	L	L	L						
19							L	L	L	L	LU	L	LU	L	L	L	L	L	L	L				
20						LU	L	L	LU	L	L	L	LU	LU	L	L	L	L	L					
21						369	376	L	L	L	LU	L	L	LU	L	L	L	L	L					
22								362	354	L	LU	L	L	L	L	L	L	L	L					
23								LU	L	L	LU	L	L	L	L	L	L	L	L					
24						L	L	L	L	L	L	LU	L	L	L	LU	L	L	L					
25						L	L	L	LU	L	LU	L	L	L	L	L	L	L	L					
26							L	LU	L	L	L	LU	R	L	LU	L	L	L	L					
27						U	L	L	L	L	L	LU	L	L	L	L	L	L	L					
28								L	L	L	L	A	L	L	L	L	L	L	L					
29							L	L	L	LU	LU	LU	LU	L	L	L	L	L	L					
30								L	L	L	L	LU	L	LU	L	LU	L	L	L					
31								361	362	353	380	381	348	339	345									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	5	4	7	10	9	10	7	7	3	4								
MED						L	L	L	LU	LU	LU	LU	LU	LU	LU	L	L	L						
U Q						369	398	352	361	362	367	363	361	352	344	349								
L Q								L	LU	L	LU	LU	L	LU	LU	L								
								453	358	367	376	388	380	381	359	344	356							
								U	LU	L	LU	LU	L	LU	L	L								
								381	348	345	361	360	352	355	348	339	343							

APR. 2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									260	260	260	260	278	278	272										
2										266	266			266	266 ^L										
3									244	244	274	274			274	262									
4									258	258	258	258	264	264	264	264									
5							234		234	236	240	258	258	266	266	266	258								
6								290	290	290	274	288	284	284	276	276	276								
7								270	272	250	250	250	284	290	290	284	284								
8								252	258 ^L	258	258	258	262	262	268		264								
9								262	256	256	274	274	274	274	274		262	262							
10							258	258	256	254	256	256	264	276	274		256								
11									242	242	248 ^L	248	270	276	276	272									
12						296	308	352	334	352	358	358	280 ^H	322	298	298	270								
13							284	276	274	274	256	264	282 ^L	282	282	282	274								
14								274	270	268	246	246	264	264	264	264	264								
15								264	308	310	308	286	286	286 ^L	286	278	270								
16								256	256	256	254	254	258	260	288	284	272								
17							228			260	260	260	264	302	288	288									
18									288	302	296	296	288	288	276										
19								292	292	292	292	302	302	344 ^L	334	298	286	286	286						
20						242	282	282	258	274	266	266	294	308	308	276	274								
21						360 ^L		356	306	286	278	338	288	290	312	296									
22							298	306	334	354	342	320	292	292	292	284	284								
23									284	284	268	286	286	286	286	278	278								
24						262		262	270	270	270	310	296	296	296	292	270	270							
25						274	278	284	274	294	276 ^B	316	280	280	280	280	268								
26							276		300	282	292	292	296	296	296	280	270	266							
27							268	268	268	268	298	306	310	290	290	290	264								
28								264	268	268	268	268	320	298	298	280	276	274							
29								250 ^L	290	290	290	300	300	304	292	292	292	274	268						
30								268	276	280	288	288	306	324	304	292	272	272							
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT						5	12	20	28	30	30	29	28	29	30	24	22	7							
MED						274	277	272	271	269	269	274	284	286	286	281	271	270							
U Q						328	288	290	290	290	292	301	295	296	296	289	276	274							
L Q						252	254	263	258	258	258	258	267	275	274	276	264	266							

APR. 2014 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D	H	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		274	288	288	274	290	274	234	224	224	220	220	220	212	212	212	214	220	234	234	234	234	234	234	242
2		278	286	290	268	268	248	230	230	230	230	210	232	232	218	218	218	220	220	226	226	226	226	234	276
3		290	276	268	268	270	270	218	218	218	204	204	182	250	250	228	228	228	228	228	228	228	252	256	266
4		270	284	292	260	260	260	242	230	230	204	204	204	198	198	A	234	234	234	232	232	232	232	258	278
5		278	286	286	266	258	258	182	214	214	214	238	226	218	210	214	220	220	226	226	226	226	228	252	298
6		300	270	270	276	276	282	250	242	224	224	214	214	210	210	210	210	212	236	236	236	236	236	244	262
7		274	286	286	286	280	246	242	240	H	184	206	206	206	206	H	218	218	218	222	222	222	250	250	252
8		288	288	306	304	254	224	224	178	H	198	208	208	200	208	208	212	216	216	216	220	220	228	248	288
9		292	292	272	260	250	254	228	228	228	228	214	214	214	214	214	214	214	214	224	230	230	230	256	290
10		292	296	290	286	284	272	238	238	238	210	210	E Y	226	212	212	210	226	228	228	228	228	228	234	280
11		298	296	296	280	262	256	234	234	236	214	214	204	E Y	236	222	222	222	226	226	238	234	220	244	302
12		302	302	278	302	302	280	248	236	236	236	214	214	214	214	218	218	218	248	248	248	248	266	266	266
13		286	286	258	258	268	268	A	246	A	246	238	A	238	238	222	218	218	218	230	230	230	260	260	260
14		272	298	298	280	280	262	248	216	216	216	216	A	216	216	224	224	224	226	226	226	226	226	226	234
15		284	294	288	256	220	222	236	236	226	226	E A	206	A	208	208	208	210	228	228	228	228	228	238	250
16		268	288	288	262	264	264	228	228	228	224	212	202	214	214	220	218	226	228	240	238	238	238	248	268
17		262	264	258	258	258	250	224	224	224	224	224	224	200	200	200	200	214	234	234	234	246	248	256	256
18		256	272	286	304	284	248	238	218	218	218	218	216	E A	212	264	230	230	230	230	230	230	230	254	254
19		286	286	286	286	278	264	248	248	A	244	244	220	212	210	210	210	234	234	234	246	246	258	258	258
20		266	298	308	270	264	246	234	234	H	214	214	228	228	216	A	214	214	214	234	242	242	242	242	290
21		312	330	330	316	330	300	240	240	230	222	212	212	212	212	212	212	212	230	240	240	240	252	268	268
22		294	294	294	250	264	264	264	252	252	242	234	E A	232	246	242	230	230	230	230	230	230	248	256	256
23		268	278	284	284	242	242	236	236	E Y	224	202	E Y	222	216	216	216	220	220	230	236	242	242	242	270
24		270	270	270	270	266	258	238	230	A	230	230	202	206	206	206	216	216	232	232	252	252	252	252	252
25		278	284	284	274	290	270	238	238	A	238	238	264	228	250	250	228	228	228	240	250	260	256	250	250
26		276	282	274	254	264	264	220	228	220	220	220	220	198	206	206	206	206	220	244	244	244	244	248	268
27		292	292	292	292	292	266	240	240	E Y	216	216	A	E Y	216	238	232	232	222	222	222	222	234	240	248
28		266	278	278	278	262	254	240	234	A	256	214	A	212	212	212	212	212	212	248	248	248	248	248	248
29		268	296	288	264	270	254	226	226	A	236	A	E A	236	208	208	208	208	216	224	236	236	236	232	236
30		288	288	286	252	248	222	222	222	222	222	222	218	E Y	206	266	224	220	220	224	242	242	264	264	254
31																									
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		30	30	30	30	30	30	30	30	30	28	28	29	30	29	29	30	30	30	30	30	30	30	30	30
MED		278	287	286	272	267	259	237	232	228	222	214	215	212	213	214	218	220	228	232	234	240	243	251	261
U Q		292	294	292	286	280	268	242	238	236	229	224	226	228	222	223	224	226	232	240	242	250	252	258	276
L Q		270	282	278	260	260	248	228	224	218	214	211	206	208	208	210	214	214	222	228	228	230	234	242	252

APR. 2014 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	108	108	108	108	108	108	108	108	108	108	108	108	B					
2						B	108	120	118	118	A	110	110	110	110	110	110	110	B					
3						B	110	110	124	118	118	116	114	114	114	114	114	114	A					
4						B	114	108	108	108	108	108	106	106	106	106	106		A					
5						B	106	114	114	110	110	110	110	118	116				A					
6						B	116	116	112	110	110	112	112	112	110	110	110	124						
7						A	124	120	116	116	102			102	110	110	110	110	B					
8						A	124	114	110	110	110	110		A	A	110	110	110	A					
9						B	110	110	108	108	108	A	108	108		108	108		A	A				
10						A	108	108	108	108	116	A	112	104	104	104	104	104						
11						B	106	122	108	108	108	108	A	108	108	108	108	108	A					
12						B	108	106	106	104	104	104	A	108	108	110	110	110	A					
13						A	118	118	108	108	108	108	108	108	108	108	108	108						
14						B	128	122	110	110	110	110	110	A	A	110	110	114	E A	A				
15							176	116	116	110	104	104	104	104	104	104	104		A	A				
16							170	116	116	116	100	100	100	100	A	116	108	108	130	130				
17							140	130	108	A	108	108	108	108	108	110	110	110	114					
18							132	110	116	116	106	106	106	106	A	A		E A	A					
19							152	116	114	110	108	108	108	106	106	106	104	110	110	A				
20							132	122	106	106	106	106	106	106	102	102	122	122	120	120				
21							180	118	112	112	112	114	A	A	106	122	122	122	A					
22							138	122	122	118	110	110	A	A	116	116	116	116	116					
23							182	104	102	102	102	102	102	102	A	102	102	118	118	A				
24						A	118	118	104	104	104	A	A			106	106	106	A					
25							122	122	118	118	114	B	B	A	114	114	114	108	108	A				
26							120	114	106	106	106	A	106	A	106	110	110	110	110	124				
27							110	108	108	108	108	108	108	A	108	108	108	108	108	A				
28							116	114	108	108	108	108	108	108	108	108	116	116						
29							124	124	108	108	108	108	108	A	112	112		A	112					
30							138	120	110	110	110	110	110	110	110		A	A	110	130				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						14	30	30	29	30	27	23	21	22	24	27	27	26	7					
MED						138	116	113	110	108	108	108	108	108	109	110	110	110	122					
U Q						170	122	118	115	110	110	110	110	110	111	110	114	116	130					
L Q						124	110	108	108	106	106	106	106	106	108	108	108	108	114					

APR. 2014 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
1	B	B		B	B	B	176	168	132	112	112	112	G	G		G	G	G			B		B	B									
2	B	B	100		B	B	G	98	G	G		G	102	102		G	102	102	G	100	100	B	100	B	B								
3	B	B	B	B	B	B	G	210	102	136		G	G	G		G	G	G			B	B	B	B									
4	B	B	B	B	B	B	G	G	184		G	116	116	108	108	108	110	108	108	108	108	108	108	108	108								
5	B	B	108	102	102	102	146	154	104	132	124		G	102	102	114	114	114	114	114	114	114	114	114	114								
6	102		B	B	B	B	G		102	160	118	118	118	116	160	112	136		G	138	134	124	114	96	96	96							
7	96		B	96	96	96	200	214	118	118	118	112	112	112	104		G	104	98	124	120	120	96		98								
8	B	B	B	B	B	106	158	158	148	126	126	116	116	112	104		G	132	132	88	82	92		B	B	B							
9	B	B	B		B	B	162	168	160	136	98	98	98	98	98	96	96	162	122		B	96	96		B	B							
10	B	B	B	96	96	96	G	150	130	108	108	108	104		G	186		G	G	140	122	88	112	112		B	B						
11	90		B	B	B	B	G		92	146	126		G	120	108	108	100	100	100	100	136	126	118		B	B	B	B					
12	B	100	96	96		B	B	208	144	114	114	114	114	110	104	102	100		G	138	126	118	118	116	116	116	B						
13	106	106		118	118	118	118	118	118	118	118	114	114	114	106	118	92	92	134	98	92	92	92										
14	B	92	92	96		B	B	96	96		114	114	112	112	112	110	110		G	104	104		B	B	104	104	104						
15	102	138	100	100		B	G	210	210	150	136	118	118	116	116	108	108	96	94	94	94		B	B	B	B	B						
16	B	B	B		B	G	G		174	160		124	112	112	106	184		G	100	100	96		B	B	B	B	B						
17	B	B	B	B	B	G	G	G		108		108	112		G	110	110	102	102		G	122	98	88		B	B	B					
18	B	B	B	B	B	G	G		106	146	140	136	122	122	102	102	102	100	100	120	120	118	118		B	96	B						
19	B	B	B	B	B	152	160	154	140	124	122	204	122	114	128	212	104	116	116	116	112	112	102		B	102	B						
20	B	B	B	B	B	G		154	154	136	136		G	G		198		G	G	100	142	132	132	122	114	100		B	B				
21	B	100	B	B	108	G	G		132	132	116	116	102	102	102	102	102	102	146	136	100	100	100		B	100	100	B					
22	104		B	B	B	G		134	132	120	120	120	106	106	106	94	94	94	96	130	120		B	114	114		B	B					
23	B	110	B	B	B	G		G	138	134	132		G	G			G	106	126	126	120	120	114	112				B	B				
24	B	B	B	B	B	126	126	132	132	118	118	118	114	112	112	112	202	184	164	122	122	122	118	116	116				B	B			
25	108		B	B	B	B	G		120	120	120		B	B		108	108		G	G		110	110	110	110		B	110	108	B			
26	B	B	B	B	B	164	G		154	136	122	120	120	108		G	108	108	108	108		G	B	B	B		B	108	108	B			
27	106	106	106	106	104	142	136	128	128	128	110	110	110	110		G	212	176	124	124	94	98	102		B	102		102	102	B			
28	B	B	B		102	132	G		146	146	120	120	120	118	118	112	112	112	110	148	92	102	102	102	102	102	102	102	102	B	B		
29	B	B	94	94	94		G		116	116	116	114	114	120	114	100	100	116	108	108	118	118		B	B		102	B	B	B			
30	B	B	102	B	B	G		G	162	132	132	132	130	128	128	114	114	114	114	128	124	118	116						B	B	B		
31																																	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
CNT	8	7	9	13	9	9	16	28	28	26	25	24	27	25	26	22	23	26	29	26	20	21	14	13									
MED	103	106	100	96	104	118	150	145	132	121	118	114	112	108	107	109	104	115	122	112	112	104	108	104									
U Q	106	110	104	102	122	147	169	160	146	132	121	119	116	112	112	116	114	138	126	120	118	114	114	111									
L Q	99	100	95	94	96	99	133	119	118	118	113	112	108	103	102	102	100	104	103	98	99	99	102	99									

APR. 2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2014 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D	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			F1				H1	HL11	CL11	CL11	CL11	L1			L1				L1	F1		F1			
2				F2				L1			C1		L1	L1		L1	L1		L1	F1		F1			
3								H1	L1	H1					L1				L1	L3					
4									H1		C1	C1	C1	C1	C2	C2	C2	C2	L3	F3	F2	F3	F2	F1	
5			F3	F3	F1	L1	H1	H1	L1	H1	C1		L1	L1	C1	C2	C2	L3	L3	F1	F1	F1	F1	F1	
6	F1							L1	H1	CL11	CL11	CL11	CL11	HL11	C1	HL11		HL11	C3	F1	F1	F1	F1	F1	
7	F2		F1	F2	F2	L2	H1	H1	C1	C1	C1	C1	C1	L1	L1		L1	L1	C3	FF11	FF11	F1		F1	
8					L1	HL21	HL21	HL21	H1	H1	C1	C1	C1	CL11	L2		H1	CL21	CL21	F1	F1				
9			F1				H1	H1	H1	HL11	L1	L1	L1	L1	CL11	L2	L3	HL12	C2		F2	F1			
10			F2	F2	L2		H1	HC11	C1	L1	L1	L1	L1		H1			HL11	CL21	F1	FF11	F2			
11	F1						L2	H1	H1		C1	L1	L1	L1	L1	L1	L1	H2	C3	F1					
12		F1	F1	F1			H1	H1	C1	C1	C1	C1	C1	L1	L1	L1		C1	C2	F3	F2	F1	F2	F2	
13	F1	F1		F2	F3	L4	CL22	C2	C1	C1	C1	C1	C1	L1	L1	CL11	L2	L2	CL11	F1	F1	F1			
14		F2	F2	F1			L1	L1		C1	C1	C1	C1	C1	L1	L1		L2	L2			F1	F1	F1	
15	F1	F1	F1	F1			H1	HL12	H1	H1	C1	C1	C1	C1	C1	L2	L2	L2	L3	F2					
16			F1					HL12	HL12		C1	C1	C1	C1	HL11		L1	L1	L1						
17								L1			C1	C1		C1	L1	L2	L1		C1	F1	FF11				
18							L1	HL11	HL11	HL11	CL11	C1	C1	L1	L1	L2	L3	L3	CL31	F5	F1	F1		F1	
19					H1	HC11	H1	H1	C1	C1	H1	C1	C1	C1	HC11	L1	L1	C1	CL12	FF32	F4	F2	F1		
20							H1	H2	H1	H1						L1	H1	C1	C2	F3	F3	F3			
21		F2			F3			H1	C1	C1	C1	L1	L1	L1	L1	L1	L1	HL11	C2	F3	F2	F2		F1	
22	F2						H1	C1	C1	C1	C1	L1	L1	L1	L1	L1	L1	L1	L1	F1		F2	F1		
23		F1						H1	C1	C1			C1	L1	L1			L1	C2	F3	F1	F1	F1		
24				F1	C2	H1	C1	C2	C1	C1	C1	C1	C1	C1	C1	HL12	HL12	HL12	L3	F2	F2	F2	F2	F2	
25	F1							HL11	CL11	C1				L1	C1				C1	C3	C4	F4	F1	F1	
26						H1		H1	H1	C1	CL11	C1	C1		L2	L2	L1	L1					F1	F1	
27	F1	F2	F2	F2	F2	CL11	CL11	C1	H1	C1	C1	C1	CL11	CL11		H1	H1	C1	C4	FF12	F3	F2		F3	
28				F1	F1		H1	H1	C1	C1	C1	C1	C1	C2	C2	C1	L1	H1	C2	F3	F2	F2	F1	F1	
29			F1	F1	F1		CL11	C2	C1	C1	C1	C1	C1	L1	L1	L1	L1	L1	L1	F1			F1		
30			F1				H1	C1	C1	C1	C1	C1	C1	C1	C1	C1	L1	L1	C2	F3	F3	F5			
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
U Q																									
L Q																									

APR. 2014 TYPES OF Es
 NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 f_{XI} (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	X 83	X 82	X 79	X 74	X 72	X 77														X 102	X 86	X 84	X 85	X 85	
2	X 84	X 82	X 77	X 78	X 73	X 73														X 94	X 83	X 86	X 87	X 89	
3	X 91	X 90	X 83	X 72	X 67	X 70														X 90	X 85	X 86	X 87	X 86	
4	X 86	X 80	X 79	X 76	X 75	X 78														X 92	X 82	X 88	X 88	X 84	
5	X 83	X 82	X 76	X 69	X 64	X 65														X 95	X 82	X 87	X 85	X 82	
6	X 80	X 86	X 77	X 71	X 75	X 74														X 94	X 84	X 82	X 85	X 84	
7	X 82	X 76	X 75	X 74	X 70	X 71														X 99	X 81	X 85	X 87	X 87	
8	X 86	X 84	X 74	X 74	X 78	X 82														X 99	X 77	X 81	X 85	X 85	
9	X 84	X 82	X 82	X 73	X 67	X 66														X 98	X 83	X 79	X 77	X 78	
10	X 78	X 78	X 76	X 70	X 67	X 70														X 90	X 74	X 71	X 72	X 72	
11	X 72	X 70	X 70	X 66	X 62	X 65														X 109	X 92	X 76	X 77	X 75	
12	X 75	X 76	X 73	X 68	X 69	X 67														X 92	X 80	X 78	X 78	X 80	
13	X 78	X 78	X 77	X 76	X 61	X 64														X 98	X 74	X 78	X 80	X 79	
14	X 75	X 73	X 70	X 72	X 71	X 74														X 124	X 107	X 77	X 71	X 73	
15	X 72	X 72	X 70	X 70	X 62	X 66														X 107	X 92	X 75	X 73	X 75	
16	X 74	X 73	X 71	X 67	X 65	X 68														X 111	X 93	X 84	X 83	X 84	
17	X 84	X 86	X 83	X 80	X 74	X 76														X 97	X 94	X 96	X 96	X 91	
18	X 82	X 76	X 75	X 75	X 75	X 87														X 114	X 88	X 80	X 80	X 81	
19	X 79	X 76	X 75	X 73	X 72	X 76														X 102	X 77	X 76	X 78	X 82	
20	X 81	X 79	X 72	X 73	X 71	X 75														X 105	X 94	X 81	X 78	X 79	
21	X 78	X 76	X 68	X 68	X 67	X 68														X 99	X 84	X 84	X 84	X 84	
22	X 80	X 80	X 79	X 78	X 68															X 95	X 91	X 88	X 77	X 79	
23	X 79	X 80	X 78	X 70	X 66															X 106	X 95	X 88	X 89	X 88	
24	X 91	X 90	X 85	X 79	X 77	X 84														X 112	X 100	X 87	X 85	X 88	
25	X 87	X 81	X 83	X 81	X 75	X 80														X 98	X 92	X 88	X 81	X 80	
26	X 79	X 77	X 76	X 68	X 63	X 66														X 98	X 83	X 78	X 80	X 79	
27	X 81	X 79	X 74	X 71	X 71															X 94	X 88	X 78	X 78	X 77	
28	X 75	X 73	X 73	X 67	X 68															X 99	X 87	X 78	X 80	X 79	
29	X 81	X 81	X 77	X 73	X 72															X 94	X 82	X 78	X 72	X 73	
30	X 71	X 68	X 69	X 69	X 57															X 101	X 91	X 87	X 87	X 89	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	24														30	30	30	30	30	
MED	X 80	X 79	X 76	X 72	X 70	X 72														X 98	X 86	X 82	X 80	X 82	
U Q	X 84	X 82	X 79	X 75	X 73	X 76														X 105	X 92	X 87	X 85	X 85	
L Q	X 78	X 76	X 73	X 69	X 66	X 66														X 94	X 82	X 78	X 78	X 79	

APR. 2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	77	76	73	68	66	71	87		119	126	124	130	134	127	118	109	108	108	108	96	80	78	79	79
2	78	76	71	72	66	67	86	103	111	116	120	130	133	132	126	120	113	110	100	88	77	80	81	83
3	85	84	77	66	61	64	83	94	110	114	120	124	129	128	119	112	110	102	89	84	79	80	81	80
4	80	74	73	70	68	72	87	107	113	112	118	127	132	132	129	125	121	116	106	86	76	82	82	78
5	77	76	70	63	58	58	80	96	105	112	120	120	122	128	125	115	105	102	100	88	76	81	79	76
6	74	80	71	65	68	68	88	104	110	112	124	122	128	118	116	103	103	104	101	88	78	76	79	77
7	76	70	69	68	64	65	84	92	104	109	106	104	110	116	117	112	108	102	106	92	75	79	81	81
8	79	78	67	68	72	76	89	99	109	110	114	123	123	119	110	111	115	112	110	93	71	74	79	78
9	78	76	76	67	61	60	81	89	96	105	118	120	116	118	117	116	110	104	104	92	77	72	71	72
10	72	72	70	64	61	64	82	94	98	102	107	117	116	117	124	122	123	116	106	84	68	65	66	66
11	66	64	64	60	57	59	84	87	89	94	103	113	120	126	127	118	119	118	118	102	86	69	71	69
12	69	70	F	F	F	61	74	68	73	80	88	97	112	122	125	119	109	107	108	86	74	72	72	74
13	72	72	71	70	55	58	74	80	86	87	88	98	118	124	121	117	122	121	122	92	68	72	74	73
14	69	66	64	66	65	68	88	94	101	96	105	112	111	118	118	115	115	112	115	118	101	71	65	67
15	66	66	64	64	55	60	86	96	104	107	97	109	123	127	126	130	133	121	117	101	86	69	67	69
16	68	66	65	61	59	61	87	99	97	96	88	98	111	118	123	124	123	116	114	105	87	78	77	78
17	78	80	77	74	68	70	89	90	100	101	103	113	119	118	114	120	118	109	99	90	88	90	90	85
18	76	70	69	69	69	80	101	98	102	105	108	121	123	121	126	130	120	116	120	108	82	74	74	75
19	73	70	69	67	66	70	85	95	96	98	103	110	113	122	124	121	115	117	116	96	71	70	72	75
20	75	73	66	67	65	69	82	84	89	98	107	112	112	112	112	109	104	101	101	99	88	75	72	73
21	72	70	62	62	61	62	86	84	95	96	105	113	116	121	119	124	120	114	102	93	78	78	78	78
22	74	74	73	72	62	70	88	92	92	98	107	118	122	125	113	104	94	91	94	89	85	82	71	73
23	73	74	72	63	60	63	91	94	92	91	98	104	112	116	116	116	112	110	105	100	89	82	83	82
24	85	84	79	73	71	78	88	87	90	94	96	105	115	126	128	124	117	112	113	106	94	80	79	82
25	81	75	77	75	69	74	76	80	92	87	103	111	118	119	115	110	107	100	98	92	86	82	75	74
26	73	71	70	62	57	60	73	78	82	86	91	102	103	116	119	114	114	109	103	92	77	72	74	73
27	75	73	68	65	65	75	91	75	76	80	95	112	121	121	117	117	113	98	89	88	82	72	72	71
28	69	67	67	60	62	70	82	86	83	85	90	93	109	119	128	127	121	108	99	93	81	72	74	73
29	75	75	70	67	66	79	87	80	74	76	88	100	116	126	132	124	111	103	97	88	76	72	66	67
30	65	62	63	63	51	57	76	73	84	80	74	89	105	113	126	130	120	106	108	95	85	81	81	83
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	29	29	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	74	73	70	67	64	68	86	92	96	98	104	112	117	121	120	118	114	109	106	92	80	76	74	75
U Q	78	76	73	70	67	71	88	96	104	109	114	120	123	126	126	124	120	116	113	99	86	80	79	79
L Q	72	70	66	63	60	61	82	82	89	87	95	104	112	118	117	112	109	103	100	88	76	72	72	73

APR. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									L	L	L	L	L	L	L		L								
2											L	L	U L 560	L	L	L	E A								
3									L	L	L	L	U L E A 568	A	A	L	L								
4										L	L	L	L	L	L	L	L								
5										L	L	U L 584	L	L	L										
6									L	L	L	L	U L 552	L	L	A	L	A	A						
7									L	L	L	L	U L 536	L	L	A	A	A							
8									A	L	L	U L 616	L	L	L	L	L								
9									L	L	L	U L 508		L	L	L	L								
10										L	L	L	L	L	L	L	L								
11									L	L	A	A	L	L	L	L	L								
12									L	L	L	L	L	L	L	L	L								
13								A	A	A	A	A	L	L	L	L	L								
14									L	L	L	L	L	L	L	L	L	L	A						
15									L	L	L	L	L	L	L	L	L	L	A						
16										L	L	L	L	U L 588	L	L	A	A	A						
17									L	L	L	L	L	U L 600	L	L	L								
18										L	L	L	L	L	L	L	L			A					
19									A	L	L	L	L	L	L	L	L	L	A						
20										L	L	U L 600	L	L	U L 580	L	L	A	A						
21									L	L	A	A	L	U L 588	L	L	L								
22								L	L	L	A	U L 628	L	U L 632	L	L	L								
23									L	L	A	L	L	L	L	L	L	L	A	A					
24									L	A	L	L	U L 588	U L 552	L	L	L	L	A	A					
25									L		L	L	L	L	L	L	L	L	A	A					
26									L	L	L	L	U L 572	U L 548	U L 548	L	L								
27									L	L	L	L	A	A	U L 544	U L 556	A	A							
28								A	L	A	U L 536	U L 572	U L 624	U L 544	U L 556	L	L	L	A						
29										A	U L 580	U L 584	U L 544	A	U L 508	L	L								
30									A	A	A	U L 536	U L 536	U L 536	L	U L 516	L	L							
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT											2	9	9	8	5	2									
MED											U L 558	U L 584	U L 560	U L 570	U L 548	U L 536									
U Q											U L 608	U L 580	U L 594	U L 568											
L Q											U L 536	U L 540	U L 546	U L 526											

APR. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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							204		R	A	A	R	A	A	A	A	A	A	A	B					
2							188	U R 296	A	A	A	A	A	A	A	A	A	A	A	B					
3							188	U R 292	A	A	A	A	A	A	A	A	A	A	A	B					
4							192	284	A	A	A	A	A	R	A	A	A	A	B						
5							A	R	A	A	A	A	A	A	A	A	A	A	B						
6							196	A U R 348	A	A	A	A	R	A	A	A	A	A	B						
7							A	A	A	R	A	A	R	A	A	A	A	A	B						
8							196	288	A	A	A	A	A	A	A	R	304	A	B						
9							212	304	A	A	A	R	R	A	A	R	A	A	B						
10							216	R	R	R	R	R	R	R	R	R	R	R	A	B					
11							200	R	A	A	A	A	A	A	A	U R 348	R	A	B						
12							204	296	A	A	A	A	A	A	A	A	A	R	A	B					
13							U R 240	A	A	A	A	A	A	A	A	R	R	252	B						
14							220	R	A	A	A	A	A	A	A	A	A	A	B						
15							224	R U 360	A	A	A	A	A	A	A	A	A	A	A						
16							232	R	A	A	A	A	A	A	A	A	A	A	B						
17							260	A	A	A	A	A	A	A	A	R	R	R	A						
18							232	A	A	A	A	A	A	A	A	A	A	A	B						
19							248	A	A	A	A	A	A	A	A	A	A	A	B						
20							R	A	A	R	A	A	A	R	R	360	U A 324	A	B						
21							232	R	A	A	A	A	A	A	A	A	A	A	B						
22						B	252	A	R	A	A	A	A	A	R	A	R	260	A	B					
23						B	244	R	A	A	A	A	A	R	R	R	R	U A 268	B						
24							U R 264	A	A	A	R	R	A	R	R	R	312	A	B						
25							A	R	A	A	A	A	A	A	A	R	R	A	A						
26							244	A	A	A	A	A	A	A	A	A	A	U R 284	A						
27						B	A	A	A	R	A	A	A	A	A	A	A	A	B						
28							B U A 248	A	A	A	A	A	R	R	R	A	U R U A 324 260	A							
29							B	A	A	A	A	A	A	A	A	A	A	U R 264	A						
30							B	U R 256 320	A	A	A	A	A	A	A	A	A	A	U R 256	B					
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							24	7	2							2	4	7							
MED							228	296	U R 354							354	318	U 260							
U Q							246	304									U 324	U 268							
L Q							202	288									308	256							

APR. 2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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 15	BE 15	BE 16	BE 15	BE 15	BE 14	24		39	41	44	G	43	41	42	41	J A 44	30	19	J A 23	E B 14	J A 30	20	E B 14	
2	E 14	BE 15	BE 15	BE 15	BE 15	BE 15	25	G 26	38	42	43	44	42	J A 44	J A 46	J A 50	J A 44	J A 36	J A 34	J A 22	J A 19	J A 22	19	E B 15	
3	E 15	B 20	E 14	BE 14	BE 14	BE 14	25	G	42	41	44	42	J A 49	J A 64	J A 55	J A 50	J A 42	J A 28	J A 21	E B 15	J A 17	J A 22	15	J A 36	
4	J A 28	AE 15	B 18	E 15	21	22	25	32	J A 39	42	44	44	44	G	43	39	38	J A 36	J A 35	J A 23	J A 17	E B 15	J A 21	15	E B 15
5	E 16	B 26	J A 53	J A 46	J A 23	J A 37	J A 35	G 26	40	41	42	42	43	44	42	42	37	J A 35	J A 21	J A 25	20	21	15	E B 15	
6	22	22	E 15	B 18	E 15	BE 15	25	33	G	43	42	J A 47	42	G	41	43	36	J A 36	J A 53	J A 66	J A 21	21	31	22	
7	J A 26	J A 38	J A 37	J A 25	E B 20	E B 15	J A 25	J A 33	J A 37	G 34	42	J A 45	G	44	41	40	42	J A 45	J A 31	J A 24	J A 17	E B 15	14	E B 14	
8	E 15	BE 15	B 19	J A 20	20	20	25	32	40	43	42	45	J A 45	J A 44	43	G	36	32	J A 30	J A 46	J A 52	J A 18	23	E B 14	
9	E 15	BE 15	BE 15	BE 14	BE 14	BE 14	25	36	38	44	43	G	G 44	J A 40	G	37	30	J A 28	J A 30	J A 18	22	15	15	E B 15	
10	E 15	BE 14	BE 14	BE 14	BE 15	BE 14	26	G	G	G	G	G	G	G	G	G	G	G	E 15	BE 14	BE 14	14	14	21	
11	E 16	BE 15	BE 15	BE 15	BE 15	BE 15	26	25	39	43	45	J A 66	J A 49	41	42	G	G	34	22	20	J A 22	J A 22	15	E B 15	
12	E 15	BE 16	BE 14	BE 14	BE 14	BE 14	26	34	38	42	44	J A 42	J A 52	40	J A 47	J A 38	21	J A 31	J A 28	J A 32	J A 21	44	22	E B 15	
13	20	E 15	BE 16	BE 16	BE 21	BE 14	G	36	42	44	44	J A 55	42	42	J A 42	25	G	J A 29	J A 39	J A 21	20	15	15	E B 15	
14	E 15	BE 15	BE 14	BE 15	BE 15	BE 15	27	G	38	41	43	44	43	41	42	40	34	J A 34	J A 44	J A 68	J A 56	J A 28	24	J A 22	
15	J A 18	AE 15	BE 15	BE 15	BE 15	BE 15	28	G	32	42	42	42	45	41	39	40	38	J A 34	J A 26	J A 32	J A 27	J A 30	40	J A 14	
16	E 15	BE 14	BE 14	BE 15	BE 14	BE 15	26	G	40	43	45	45	43	J A 42	J A 46	39	46	J A 48	J A 68	J A 45	J A 40	22	14	E B 14	
17	E 15	BE 14	BE 14	BE 14	BE 15	BE 15	35	39	40	43	43	42	45	J A 56	J A 46	G	G	G	J A 20	J A 28	J A 44	J A 34	36	E B 15	
18	E 15	BE 16	BE 15	BE 14	BE 14	BE 15	26	35	41	43	47	45	45	44	42	42	38	J A 36	J A 36	J A 28	J A 43	J A 28	22	J A 33	
19	J A 26	J A 20	AE 15	BE 14	BE 14	BE 14	29	36	40	44	45	48	44	47	44	43	38	J A 43	J A 32	J A 34	J A 40	37	70	J A 21	
20	22	E 15	BE 14	BE 15	BE 15	BE 16	G	38	40	G	J A 42	J A 48	J A 45	G	G	44	37	J A 36	J A 48	J A 26	J A 44	J A 46	21	E B 15	
21	E 16	BE 15	BE 14	BE 15	BE 15	BE 14	27	G	40	41	68	68	52	46	42	41	35	J A 30	J A 24	J A 19	E B 15	BE 15	BE 15	E B 15	
22	E 16	BE 14	BE 15	BE 18	BE 15	BE 18	30	35	G	43	45	44	J A 44	J A 44	G	42	G	29	21	J A 20	J A 18	15	15	E B 15	
23	E 15	BE 15	BE 14	BE 15	BE 14	BE 18	30	G	40	43	46	43	J A 53	G	G	G	G	35	J A 32	J A 36	J A 42	J A 30	14	E B 15	
24	E 14	BE 15	BE 14	BE 15	BE 14	BE 16	G	36	40	44	G	G	44	G	G	G	39	J A 42	J A 41	J A 36	J A 24	J A 27	27	J A 18	
25	J A 20	J A 21	J A 16	J A 28	J A 26	J A 14	26	G	40	44	44	46	46	45	42	G	G	J A 34	J A 35	J A 40	J A 31	J A 24	28	J A 50	
26	J A 17	J A 20	J A 20	E 15	BE 16	30	36	40	42	42	43	42	41	41	40	G	G	22	J A 21	J A 26	J A 15	J A 24	15	E B 15	
27	J A 19	AE 14	B 19	E 21	B 14	20	31	35	40	42	44	44	J A 52	J A 47	42	45	J A 59	J A 56	J A 70	J A 24	J A 24	22	37	J A 26	
28	J A 21	AE 15	BE 15	BE 15	BE 14	19	30	36	J A 42	J A 58	43	J A 48	G	G	G	40	G	33	J A 24	J A 47	J A 40	33	31	J A 37	
29	J A 19	AE 14	BE 14	BE 14	BE 14	19	28	39	J A 56	J A 50	47	45	43	J A 52	41	40	38	J A 23	J A 23	J A 36	J A 52	J A 43	28	J A 23	
30	E 15	BE 15	BE 15	BE 14	BE 14	20	32	G	44	J A 51	J A 47	48	45	44	42	41	34	G	J A 22	J A 20	15	14	14	J A 38	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	E 16	BE 15	BE 15	BE 15	BE 15	BE 15	26	33	40	43	44	44	44	43	42	40	36	J A 34	J A 29	J A 27	J A 23	J A 22	22	E B 15	
U Q	J A 20	J A 16	J A 16	J A 18	J A 15	J A 18	30	36	40	44	45	J A 47	J A 45	J A 44	J A 43	42	J A 38	J A 36	J A 36	J A 36	J A 40	J A 30	28	J A 22	
L Q	E 15	BE 15	BE 14	BE 14	BE 14	BE 14	25	G	38	41	42	42	42	40	40	G	G	30	J A 22	J A 21	18	15	15	E B 15	

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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 15	E 15	E 16	E 15	E 15	E 14			35	38	42		G 41	40	37	39	32	27	19	E 15	E 14	E 14	E 15	E 14				
2	E 14	E 15	E 15	E 15	E 15	E 15		G 23	24	32	38	39	40	38	40	40	37	30	27	18	E 15	E 14	E 15	E 15				
3	E 15	E 15	E 14	E 14	E 14	E 14			39	38	42	41	41	55	52	37	38	25	17	E 15	E 15	E 20	E 15	E 15				
4	E 15	E 15	E 15	E 15	E 15	E 15			24	30	33	38	39	40	42		G 38	33	35	29	29	17	E 15	E 15	E 21	E 15		
5	E 16	E 16	E 14	E 19	E 18	E 28		G 24	24	35	38	40	40	42	40	38	35	34	29	18	21	E 15	E 15	E 15	E 15			
6	E 15	E 14	E 15	E 15	E 15	E 15			23	31				G 40	40	41	40		39	41	34	34	46	38	E 17	E 15	E 22	E 15
7	E 15	E 26	E 30	E 21	E 15	E 15			22	30	34	33	38	42		G 41	40	38	38	39	23	19	E 15	E 15	E 14	E 14		
8	E 15	E 15	E 16	E 16	E 16	E 17			25	30	36	38	39	42	42	40	40		G 34	29	26	34	35	E 16	E 15	E 14	E 14	
9	E 15	E 15	E 15	E 14	E 14	E 14			24	33	36	42	41		G 40	39		G 34	28	23	22	E 15	E 15	E 15	E 15			
10	E 15	E 14	E 14	E 14	E 15	E 14			25					G 30	24		G 21	28	19	14	E 15	E 14	E 14	E 14	E 15			
11	E 16	E 15	E 15	E 15	E 15	E 15		G 24	22	35	40	44	47	42	41	39		G 29	20	E 15	19	17	E 15	E 15				
12	E 15	E 16	E 14	E 14	E 14	E 14			25	32	36	40	38	40	41	39	41	28		G 26	20	26	18	E 32	E 15	E 15		
13	E 15	E 15	E 16	E 16	E 16	E 14			G 33	39	41	42	51	40	41	37	24		G 27	33	E 15	E 15	E 15	E 15	E 15			
14	E 15	E 15	E 14	E 15	E 15	E 15			25		G 35	38	41	42	41	38	40	36	32	31	40	54	38	18	E 18	E 17		
15	E 15	E 15	E 15	E 15	E 15	E 15			25		G 31	39	39	40	40	40	38	37	36	31	25	22	22	25	E 15	E 14		
16	E 15	E 14	E 14	E 15	E 14	E 15			25		G 37	40	42	44	42	41	42	37	40	37	31	25	22	18	E 14	E 14		
17	E 15	E 14	E 14	E 14	E 15	E 15			32	35	38	41	40	41	42	44	40		G 16	G 23	G 40	33	15	17	E 15	E 15		
18	E 15	E 16	E 15	E 14	E 14	E 15			25	33	38	41	44	43	42	41	40	36	32	31	30	22	35	E 14	E 15	E 25		
19	E 16	E 17	E 15	E 14	E 14	E 14			27	33	38	42	42	46	42	44	42	37	35	38	27	24	31	25	26	E 17		
20	E 15	E 15	E 14	E 15	E 15	E 16			G 34	38		41	45	42		G 39	35	33	38	24	34	16	E 15	E 15	E 15	E 15		
21	E 16	E 15	E 14	E 15	E 15	E 14			25		G 37	39	57	63	48	43	40	38	32	29	22	E 15	E 15	E 15	E 16	E 15		
22	E 16	E 14	E 15	E 15	E 15	E 17			27	32		40	43	43	40	40		G 38		G 28	20	15	E 16	E 15	E 15	E 15		
23	E 15	E 15	E 14	E 15	E 14	E 17			27		G 37	40	44	42	47		G 33	29	30	34	15	E 14	E 14	E 15	E 15			
24	E 14	E 15	E 14	E 15	E 14	E 16			34	36	41		G 40		G 37	38	36	31	20	21	19	17						
25	E 15	E 15	E 14	E 15	E 17	E 14			25		G 38	41	42	42	43	43	39		G 33	29	34	24	16	E 18	E 22			
26	E 15	E 15	E 15	E 14	E 15	E 16			26	33	37	38	39	41	41	38	40	37		G 20	E 16	20	E 15	E 19	E 15			
27	E 15	E 14	E 15	E 15	E 14	E 17			28	33	36	39	42	43	47	43	40	41	38	39	35	18	17	E 15	E 29	E 22		
28	E 19	E 15	E 15	E 15	E 14	E 18			27	36	39	52	40	42		G 37		G 31	20	23	20	18	E 15	E 15	E 15			
29	E 16	E 14	E 14	E 14	E 14	E 16			27	37	47	46	44	42	40	48	37	34	33	20	20	26	33	E 18	E 15	E 16		
30	E 15	E 15	E 15	E 14	E 14	E 18			28		G 40	48	44	46	41	41	40	39	32		G 21	E 15	E 15	E 14	E 14	E 20		
31																												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30			
MED	E 15	E 15	E 15	E 15	E 15	E 15			25	30	36	40	41	42	41	40	39	36	32	29	24	22	18	E 15	E 15	E 15		
UQ	E 15	E 15	E 15	E 15	E 15	E 16			27	33	38	41	42	43	42	41	40	38	35	33	30	26	31	18	E 18	E 16		
LQ	E 15	E 15	E 14	E 14	E 14	E 14			23		G 35	38	39	40	40		G 38	37		G 27	20	15	E 15	E 15	E 15	E 15		

APR. 2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

$\begin{matrix} H \\ D \end{matrix}$	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	15	15	16	15	15	14	15		14	17	17	24	19	14	16	17	16	12	14	15	14	14	15	14
2	14	15	15	15	15	15	14	16	16	15	17	17	16	20	16	14	14	12	13	14	15	14	15	15
3	15	15	14	14	14	14	14	14	17	16	18	19	15	18	20	14	16	14	14	15	15	15	15	15
4	15	15	15	15	15	14	14	14	14	15	14	16	16	16	18	16	13	15	14	15	15	15	15	15
5	16	15	14	14	14	14	14	14	14	14	18	17	16	16	18	19	14	13	15	14	15	15	15	15
6	15	14	15	15	15	15	14	14	14	15	13	15	16	19	15	16	13	14	14	14	14	15	15	15
7	15	15	15	15	15	15	14	12	12	14	16	20	19	16	18	15	14	12	14	14	15	15	14	14
8	15	15	16	16	16	17	14	13	12	17	18	16	18	16	13	17	14	15	15	14	14	16	15	14
9	15	15	15	14	14	14	14	15	14	14	16	19	18	18	21	17	15	13	13	15	15	15	15	15
10	15	14	14	14	15	14	14	13	14	19	20	19	17	16	19	18	14	13	13	14	15	14	14	15
11	16	15	15	15	15	15	15	13	16	19	21	20	19	17	17	15	19	14	14	15	15	15	15	15
12	15	16	14	14	14	14	14	14	16	14	16	16	21	18	19	14	14	13	13	14	15	14	15	15
13	15	15	16	16	15	14	14	14	14	17	19	18	16	20	16	14	14	14	15	15	15	15	15	15
14	15	15	14	15	15	15	15	14	14	18	17	16	18	18	17	15	12	13	15	15	15	15	14	15
15	15	15	15	15	15	15	15	13	15	16	17	16	20	17	16	15	16	13	14	14	15	15	15	14
16	15	14	14	15	14	15	14	13	14	15	18	20	26	20	17	14	14	15	14	15	15	14	14	14
17	15	14	14	14	15	15	14	14	18	18	16	18	18	18	18	18	17	13	14	14	14	14	14	15
18	15	16	15	14	14	15	15	13	14	16	16	17	14	14	14	16	13	14	14	14	14	14	15	15
19	14	15	15	14	14	14	14	14	14	16	17	16	14	15	16	18	16	13	15	13	14	14	14	15
20	15	15	14	15	15	16	14	16	17	20	20	20	18	19	20	16	18	14	14	15	14	16	16	15
21	16	15	14	15	15	14	14	13	12	14	17	17	18	18	14	14	13	13	14	15	15	15	16	15
22	16	14	15	16	15	15	14	13	15	15	16	16	16	16	18	18	14	13	16	15	16	15	15	15
23	15	15	14	15	14	16	14	14	16	17	18	17	18	18	19	16	18	14	13	13	15	15	14	15
24	14	15	14	15	14	16	15	14	20	18	18	21	15	15	15	16	11	13	16	14	14	14	14	14
25	15	15	14	15	14	14	14	16	16	17	22	17	17	17	15	18	16	15	14	14	15	14	15	14
26	14	15	15	14	15	16	14	16	17	19	18	18	19	16	16	14	16	14	13	16	15	15	15	15
27	15	14	15	15	14	14	14	14	14	17	21	22	20	19	20	16	16	13	14	14	15	15	15	14
28	15	15	15	15	14	14	14	15	16	18	18	21	21	20	22	18	16	12	11	14	14	14	15	15
29	16	14	14	14	14	14	14	14	18	16	18	20	17	18	17	15	14	14	14	14	14	16	15	16
30	15	15	15	14	14	14	16	14	18	19	21	21	19	22	19	18	13	13	12	15	15	14	14	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	15	15	15	15	15	14	14	14	14	16	18	18	18	18	17	16	14	13	14	14	15	15	15	15
U Q	15	15	15	15	15	15	14	14	16	18	18	20	19	19	19	18	16	14	14	15	15	15	15	15
L Q	15	15	14	14	14	14	14	13	14	15	16	16	16	16	16	15	14	13	13	14	14	14	14	14

APR. 2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	279	278	284	290	263	274	307		316	317	300	301	298	294	285	282	291	301	309	311	286	278	279	282
2	283	281	270	282	281	293	327	331	320	305	291	288	297	294	295	296	307	318	320	307	271	275	277	285
3	300	315	313	303	270	288	337	328	320	306	298	296	296	295	286	289	301	323	296	295	281	280	280	278
4	293	271	272	274	271	277	307	323	324	305	290	294	293	297	294	298	304	312	323	306	270	280	288	285
5	289	295	292	325	275	274	323	322	316	309	308	300	288	299	302	300	301	308	320	312	279	274	270	264
6	261	296	300	272	277	256	287	306	305	307	306	295	303	299	305	304	310	315	325	308	286	278	281	283
7	283	282	281	291	279	300	335	333	329	323	315	294	286	290	297	298	305	307	319	314	276	271	281	278
8	292	290	261	271	276	297	320	325	327	315	307	308	299	294	285	290	307	313	321	327	273	270	270	279
9	281	278	312	318	285	282	331	333	331	306	307	309	293	291	290	298	303	310	316	319	301	281	276	267
10	270	289	295	292	281	289	345	340	327	315	308	307	296	290	298	304	314	329	337	325	300	275	271	279
11	275	287	288	293	275	298	353	347	335	321	299	302	294	291	294	296	301	310	317	318	311	287	280	274
12	264	271	F	F	F	266	303	317	315	309	309	292	294	301	302	311	305	312	323	297	296	268	264	273
13	270	281	286	318	282	299	339	339	324	325	306	292	300	304	302	291	304	311	334	331	272	264	276	286
14	279	274	271	282	283	293	331	329	329	320	300	301	297	303	306	298	303	302	307	326	338	312	274	280
15	272	276	291	310	289	304	329	328	327	332	301	287	295	297	291	299	309	307	318	325	316	293	273	283
16	292	281	288	289	275	293	331	345	340	335	310	291	289	294	290	294	299	304	316	316	306	276	275	273
17	281	290	294	303	299	294	333	323	320	310	290	290	295	291	280	287	303	307	304	289	281	284	289	300
18	278	265	263	264	272	291	336	315	312	294	285	293	291	286	293	295	299	296	316	331	307	279	271	285
19	282	272	272	278	275	288	310	318	319	311	287	279	285	287	290	291	298	301	317	322	282	263	267	276
20	277	275	255	284	284	289	320	307	303	299	294	291	288	287	295	298	307	301	310	305	313	285	267	259
21	254	258	246	248	260	267	312	319	308	295	283	289	284	281	281	290	299	307	308	303	267	264	269	267
22	268	264	281	292	263	278	320	314	307	294	293	293	295	305	305	308	308	308	307	297	295	302	276	276
23	273	282	292	298	275	298	344	356	321	314	301	296	284	293	290	295	303	307	312	307	303	279	275	270
24	281	289	293	286	280	294	338	319	334	309	281	280	288	290	298	301	298	306	309	310	310	280	272	274
25	278	268	283	293	297	288	324	318	333	306	293	295	293	304	308	302	312	319	314	307	297	289	278	275
26	275	277	297	295	284	289	310	324	311	307	304	303	285	295	309	298	307	309	315	307	302	271	276	279
27	282	279	274	282	277	312	351	335	320	316	286	303	302	314	304	308	326	322	308	318	307	278	281	281
28	281	286	291	277	284	310	336	351	334	314	325	280	293	296	303	304	315	318	314	310	308	274	275	270
29	281	290	297	284	281	315	352	353	336	311	289	278	289	300	314	314	313	320	322	318	308	286	284	283
30	278	279	300	329	305	314	359	343	344	346	297	277	277	278	291	308	308	294	310	311	290	272	270	277
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	29	29	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	279	280	288	290	279	292	331	328	322	310	300	294	293	294	295	298	304	308	316	311	296	278	276	278
U Q	282	289	294	300	284	298	338	340	331	317	307	301	296	299	303	304	308	315	320	319	307	284	280	283
L Q	273	274	272	280	275	282	320	318	316	306	290	289	288	290	290	294	301	306	309	307	281	272	271	273

APR. 2014 M(3000)F2 (0.01)

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APR. 2014 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									L	L	L	L	L	L	L		L								
2											L	L	U L 359	L	L	L	E A								
3									L	L	L	L	U L E A 359	A	A	L	L								
4										L	L	L	L	L	L	L	L								
5										L	L	U L 352	L	L	L										
6									L	L	L	L	U L 362	L	L	A	L	A	A						
7									L	L	L	L	U L 385	L	L	A	A	A							
8									A	L	L	U L 332	L	L	L	L	L								
9									L	L	L	U L 390		L	L	L	L								
10										L	L	L	L	L	L	L	L								
11									L	L	A	A	L	L	L	L	L								
12									L	L	L	L	L	L	L	L	L								
13									A	A	A	A	A	L	L	L	L	L							
14									L	L	L	L	L	L	L	L	L	L	A						
15									L	L	L	L	L	L	L	L	L	L	A						
16										L	L	L	L	U L 344	L	L	A	A	A						
17									L	L	L	L	L	U L 349	L	L	L								
18										L	L	L	L	L	L	L	L			A					
19									A	L	L	L	L	L	L	L	L	L	A						
20										L	L	U L 348	L	L	U L 346	L	L	A	A						
21									L	L	A	A	L	U L 344	L	L	L								
22									L	L	L	A	U L 322	L	L	L	L								
23									L	L	A	L	L	L	L	L	L	L	A	A					
24									L	A	L	L	U L 340	U L 356	L	L	L	A	A						
25									L		L	L	L	L	L	L	L	A	A						
26									L	L	L	L	U L 357	U L 362	U L 346	L	L								
27									L	L	L	L	A	A	U L 363	U L 352	A	A							
28									A	L	A	U L 374	U L 357	U L 322	U L 348	U L 340	L	L	L	A					
29										A	U L 345	U L 348	U L 362	A	U L 361	L	L								
30									A	A	A	U L 383	U L 361	U L 357	L	U L 340	L	L							
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT											2	9	9	8	5	2									
MED											U L 360	U L 352	U L 359	U L 348	U L 346	U L 346									
U Q											U L 380	U L 362	U L 356	U L 362											
L Q											U L 340	U L 348	U L 344	U L 343											

APR. 2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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									274	258	280	282	284	270	294		296							
2											280	296	280	300	286	294	256							
3									262	260	270	296	286	292	264	262	292							
4										256	288	286	288	286	294	278	274							
5										282	270	270	300	290	282									
6									276	252	268	282	262	280	284	254	278	256	240					
7									254	256	270	304	276	312	288	266	248	244						
8									252	254	282	282	276	258	270	304	276							
9									258	276	278	266		312	286	288	270							
10										248	274	284	284	310	294	282	276							
11									256	258	242	278	296	300	284	294	278							
12									286	310	292	310	296	296	282	282	274							
13								248	252	254	254	314	310	290	286	292	268							
14									244	258	264	290	286	286	272	280	280	250						
15									252	252	266	300	308	290	290	290	270	252						
16										250	246	298	306	294	312	288	274	256	240					
17									264	264	272	308	292	308	318	306	278							
18										292	306	292	294	308	284	274		254						
19									250	272	286	300	304	314	280	292	276	270						
20										270	304	286	288	310	302	302	278	^E _A 248	248					
21									280	292	292	306	306	310	318	302	276							
22								278	278	272	276	298	294	294	284	286	258							
23									270	270	258	290	308	304	302	296	276	260	246					
24									248	254	366	316	304	294	282	286	276	260	256					
25									254		300	284	302	284	288	282	268	256	242					
26									286	280	300	286	306	300	282	282	270							
27										278	338	290	290	272	280	278	256	252						
28								230	254	284	284	294	310	298	294	280	262	264	244					
29										250	322	330	320	292	270	264	256							
30										260	252	264	334	326	336	308	290	262	256					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	21	27	30	30	29	30	30	28	29	13	8					
MED								248	258	258	279	295	296	294	286	286	274	256	245					
U Q								278	275	276	292	306	306	308	294	293	277	260	251					
L Q								230	252	254	268	284	286	290	282	280	265	251	241					

APR. 2014 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D	H	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 280	E 282	E 250	E 238	E 290	E 288	220		220	206	198	188	202	202	200	216	E 226	E 234	E 234	228	216	E 250	E 268	E 274	
2		E 266	E 274	E 268	E 252	E 224	E 250	220	222	214	208	186	188	172	208	210	220	E 236	E 226	E 222	222	216	E 278	E 276	E 272	
3		E 254	E 236	E 230	E 226	E 250	E 274	216	218	218	204	212	200	200			208	220	230	222	230	E 246	E 272	E 282	E 282	
4		E 264	E 276	E 276	E 276	E 262	E 274	216	220	216	210	192	188	206	204	216	216	224	230	218	208	E 240	E 266	E 258	E 262	
5		E 268	E 258	E 240	E 230	E 236	E 308	224	218	214	206	202	176	202	212	216	214	216	232	226	216	230	E 274	E 274	E 294	
6		E 308	E 262	E 230	E 258	E 272	E 328	E 236	220	216	210	192	204	188	212	216		A 212		E 250	228	E 252	E 280	E 268	E 268	
7		E 276	E 288	E 294	E 268	E 238	E 252	220	216	206	212	198	200	186	206	216		A	A	E 236	220	216	E 274	E 268	E 268	
8		E 264	E 254	E 310	E 300	E 264	E 222	218	220		A	204	198	192	206	212	214	220	220	E 236	E 228	E 224	E 256	E 276	E 290	
9		E 270	E 274	E 236	E 214	E 230	E 264	222	214	212	210	204	192	222	204	212	214	220	234	234	222	216	E 246	E 274	E 308	
10		E 296	E 276	E 260	E 242	E 268	E 264	214	222	210	198	196	208	200	192	204	220	238	234	226	206	212	E 244	E 278	E 284	
11		E 290	E 282	E 264	E 244	E 254	E 276	216	212	208	200			206	212	208	216	210	234	238	216	216	E 224	E 276	E 290	
12		E 306	E 286	E 274	E 290	E 310	E 276	236	230	210	204	196	196	216	204	220	208	218	236	232	E 248	230	E 308	E 278	E 284	
13		E 290	E 268	E 268	E 218	E 248	E 242	232		A		A		222	212	216	206	208	236	230	214	216	E 286	E 270	E 266	
14		E 266	E 274	E 282	E 272	E 270	E 250	220	216	202	202	192	210	192	190	200	208	226		E 252	E 252	226	E 208	E 268	E 284	
15		E 288	E 286	E 268	E 230	E 220	E 244	220	220	208	204	202	204	188	200	194	218	E 236	A		232	228	218	E 224	E 268	
16		E 268	E 274	E 260	E 250	E 272	E 262	220	226	226	204	198	194	192	192	224	222		A	A		230	E 224	E 242	E 288	
17		E 280	E 264	E 246	E 232	E 226	E 260	220	222	216	208	204	204	208	204	220	226	222	234	234	E 260	E 276	E 272	E 262	E 236	
18		E 242	E 288	E 310	E 308	E 294	E 250	232	220	218	214	216	202	206	196	198	220	232	E 234		224	224	E 224	E 232	E 288	
19		E 266	E 280	E 290	E 268	E 272	E 256	230	220		A	216	206	208	208	216	216	204	220		A	236	E 222	E 236	E 288	
20		E 284	E 280	E 312	E 276	E 228	E 228	226	220	216	196	202	204	210	212	220	216	214		A	E 244	E 234	E 214	E 260	E 308	
21		E 316	E 306	E 316	E 326	E 298	E 284	230	220	210	206		A	E 244	E 222	210	212	224	234	E 236	E 226	E 238	E 272	E 286	E 292	
22		E 282	E 294	E 272	E 252	E 234	E 276	236	222	212	206		A	206	210	208	212	210	202	232	240	230	E 238	E 246	E 278	
23		E 282	E 276	E 262	E 226	E 226	E 254	228	226	210	208		A	204	E 232	198	204	212	224		A	E 238	E 246	E 240	E 286	
24		E 280	E 266	E 248	E 244	E 284	E 242	226	212	210		A	198	190	196	206	184	216	232		A	E 242	E 230	E 230	E 286	
25		E 282	E 288	E 274	E 254	E 238	E 234	220	218	206	218	254	218	210	208	206	218	220			E 244	E 252	E 244	E 242	E 298	
26		E 284	E 284	E 254	E 226	E 240	E 240	226	222	218	206	202	198	202	198	204	204	214	232	234	E 224	226	E 244	E 290	E 288	
27		E 290	E 272	E 264	E 276	E 284	E 246	218	204	210	194	210	214		A	A		212	216		A	E 242	E 234	E 234	E 300	
28		E 290	E 274	E 266	E 248	E 270	E 250	220		A	206	A	200	200	188	214	216	210	222	220		A	230	E 220	E 252	E 290
29		E 290	E 256	E 244	E 248	E 266	E 242	212	216	234		A	220	202	194		208	204	216	232	236	230	E 244	E 242	E 270	
30		E 282	E 292	E 268	220	206	E 238	224	218		A	A	A	200	204	216	210	230	210	220	E 248	E 232	E 230	E 250	E 290	
31																										
D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		30	30	30	30	30	30	30	27	26	25	24	27	29	27	29	28	26	19	22	30	30	30	30	30	
MED		E 282	E 276	E 267	E 249	E 258	E 253	220	220	212	206	200	200	203	206	212	216	220	234	230	225	223	E 246	E 274	E 285	
UQ		E 290	E 286	E 276	E 272	E 272	E 274	228	222	216	210	205	204	210	212	216	219	224	234	236	238	238	E 272	E 278	E 290	
LQ		E 268	E 268	E 250	230	234	242	220	216	210	204	197	192	193	200	204	209	214	232	228	222	218	E 240	E 268	E 274	

APR. 2014 h'F (KM)

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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							122		114	114	114	112	A	A	A	A	A							
2							116	112	A	A	A	A	A	A	A	A	A	A	A	B				
3							118	112	A	A	A	A	A	A	A	A	A	A	A	B				
4							114	112	A	A	A	A	114	118		A	A	118	A	B				
5							A	120	A	A	A	A	A	A	A	A	A		A	B				
6							116	120	118	112		A	A	A		A	116	116	110	B				
7							A	A	A		A	A	112	A	A		112	112	112	B				
8							120	114	A	A	A	A	A	A	A		116	108	120	B				
9							118	112	112	116	114	114	120		A	A	116	118	118	B				
10							116	110	110	110	110	118	122	122	112	112	116	116	B					
11							116	114	A	114		A	A	A	114	110	110	118	B					
12							118	112	108	A	A	A	A	A	A	A		112	A	B				
13							110	112	112	112	112		A	112	A	A	110	118	116	B				
14							114	118	110	112	114	114	114	114	116	112	116	116	B					
15							122	116	116	116		A	A	A	A		118	114	118	120				
16							118	114	112	112	112	116	110	116		A	A	120	118	B				
17							112	112	112	112		A	A	A	A		112	114	120	118				
18							114	112	114	112	116	116	116	116	118		A	A	A	B				
19							118	108	110	112	112	114	116	116	116	114	114	116	B					
20							120	A	110	110	110		A	A	116	120	112	112	110	B				
21							110	114	116	A	A	A	A	A	A	A	A	A	B					
22						B	116	114	114	116	116	116		A	A	A	116	114	B					
23						B	112	112	112	A	120	120		A	112	112	112	116	114	B				
24							120	108	110	112	112	118	118	118	114	116	114	114	B					
25							114	114	114	114	A	124	118	118	112	116	114	114	A					
26							116	110	114	108		A	A	A	A	A		114	112	112				
27						B	116	112	114	114	118	118		A	A	A	A	118	116	B				
28						B	114	114	114	A	114	112	114	116	116	110	116	114	114					
29						B	116	114	114	A	A	A	A	A	A	A	A	114	112					
30						B	116	114	114	A	A	A	A		A	112	A	110	B					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							28	27	23	19	14	13	12	13	11	17	23	24	5					
MED							116	112	114	112	114	116	116	116	116	112	114	116	114					
U Q							118	114	114	114	116	118	118	118	116	116	116	117	119					
L Q							114	112	110	112	112	114	114	115	112	112	114	114	112					

APR. 2014 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23											
1	B	B	B	B	B	B	B	144		124	116	114		G	100	104	104	104	104	122	114	106		B	94	94	B									
2	B	B	B	B	B	B	B	142	100	100	104	104	104	104	98	102	94	94	92	92	90	96	88	88		B										
3	B		96	B	B	B	B			G	106	102	102	102	100	96	96	94	98	96	96		B	102	102		B	106								
4	122		B	98	B	96	96	160	168	104	104	104	102	114		G	102	102	116	104	100	106	104			88	B	B								
5	B		98	102	96	96	98	100	102	106	106	104	104	104	96	100	102	124	104	112	106	94	94				B	B								
6	100	100		B	100	B	B	144	124		122	106	104	100		G	104	122	122	120	104	102	102	100	88	86		B	B							
7	94	96	96	96	96	B	B	98	102	104	98	102	104		G	106	106	126	118	118	104	104	104					B	B							
8	B		B	104	104	102	100	148	152	100	104	104	110	106	104	104		G	120	118	108	104	102	100	98			B	B							
9	B	B	B	B	B	B	B	156	140	130	112	114		G	G	106	106		G	120	124	106	106	106	104			B	B							
10	B	B	B	B	B	B	B	144		G	G	G	G	G	G		G	98	96	98	120	116					B	B	B	110						
11	B	B	B	B	B	B	B	152	104	104	116	106	100	98	104	116		G	G		126	120	90	104	104			B	B	B						
12	B	B	B	B	B	B	B	146	152	116	104	104	106	104	104	104	104		G	92	94	94	106	108	108	108			B	B	B					
13	120		B	B	B	98	B			G	122	118	114	114	106	108	102	94	94		G	142	114	114	96			B	B	B						
14	B	B	B	B	B	B	B	148		G	122	118	114	116	114	114	112	118	112	130	116	108	104	104	94	98			B	B	B					
15	96		B	B	B	B	B	156		G	104	128	104	102	102	102	106	118	116	128	124	114	106	102	102			B	B	B						
16	B	B	B	B	B	B	B	158		G	128	124	112	114	114	114	104	106	134	118	106	104	104	100				B	B	B						
17	B	B	B	B	B	B	B	146	120	114	116	108	106	104	100	102		G	G		96	122	106	106	104	102			B	B	B					
18	B	B	B	B	B	B	B	148	138	124	120	114	114	110	110	116	104	104	104	102	116	112	106	96	90	98			B	B	B					
19	100	100		B	B	B	B	152	138	124	118	114	112	112	112	120	120	118	118	108	102	102	98	98	96			B	B	B	B					
20	100		B	B	B	B	B			G	102	128		114	106	104		G	G	140	134	128	100	100	100	110	106			B	B	B				
21	B	B	B	B	B	B	B	158		G	126	106	102	102	104	104	104	102	102	144	116	110						B	B	B	B					
22	B	B	B		B	152	152	128		G	116	114	112	102	102		G	104		G	124	124	96	92			B	B	B	B						
23	B	B	B	B	B	156	150			G	118	106	112	114	104		G	G	G		G	122	114	104	104	104			B	B	B					
24	B	B	B	B	B	B	B			G	116	112	118		G	G		G	G		G	130	120	112	104	102	102	102	102			B	B	B		
25	116	102	102	100	98	B	B	128		G	120	116	102	122	120	116	116		G	G		128	104	102	100	102	98	98			B	B	B			
26	98	98	98	100	B	B	B	158	132	116	116	102	106	106	104	100	104		G	G		120	108	108		102			B	B	B	B				
27	100		B	90	102	B	B	136	124	126	120	120	120	116	102	106	108	106	122	118	108	106	102	102	100	100			B	B	B	B				
28	98		B	B	B	B	B	140	128	126	118	104	118	108		G	G	G	120		G	124	114	100	102	98	102	98			B	B	B			
29	98		B	B	B	B	B	130	126	118	118	106	106	104	104	98	100	100	96	100	118	98	102	102	100	102			B	B	B	B				
30	B	B	B	B	B	160	160			G	114	106	106	106	104	122	108	112	104		G	122	114						B	B	B	B	98			
31																																				
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23											
CNT		12	7	7	8	6	9	27	20	27	28	28	26	26	23	25	23	22	28	30	28	26	22	18	12											
MED		100	98	98	100	97	136	148	125	118	115	106	106	104	104	104	104	116	120	113	105	102	102	99	98											
UQ		108	100	102	101	98	154	156	138	124	118	114	112	110	110	108	118	122	125	116	107	104	104	102	102											
LQ		98	96	96	96	96	99	142	110	106	105	104	104	102	102	101	102	102	104	104	102	102	98	94	98											

APR. 2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2014 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D	H	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							H2		CL12	CL22	CL22		L2	L2	L2	L2	L2	C1	C2	F2		F2	F2			
2							H2	L2	L2	L2	L2	L2	L2	L2	L2	L2	L2	L3	L3	L3	F4	F2	F2	F2		
3		F2					H2		L2	L1	L1	L1	L2	L2	L3	L3	L2	L2	L2		F1	F4		F2		
4	F2		F1		F2	F2	H2	H2	L2	L2	L2	L2	C1		L1	L1	CL11	L2	L3	F3	F2		F4			
5		F3	F4	F4	F3	F5	L3	L2	L2	L1	L2	L2	L2	L3	L1	L2	C2	C2	L3	C4	F3	F2	F1			
6	F1	F1		F1			H2	C2		C2	L2	L3	L2		L2	C2	C2	C2	L5	F5	F4	F2	F2	F2		
7	F2	F5	F4	F4	F1		L3	HL3	L2	L1	L2	L2		L2	L2	C1	C1	C2	L3	F2	F2					
8			F1	F2	F2	F2	H2	HL12	L2	L1	L2	L2	L2	L2	L2	L2	C1	C2	L3	F4	F3	F2	F1			
9							H2	H1	C1	C2	C2			L3	L2		CL11	C1	L3	F3	F1	F2				
10							H2								L2	L2	L2	C1	C2					F2		
11							H2	L2	L2	C2	L2	L2	L2	L2	L2	C2		C1	C1	F1	F3	F2				
12							H2	H2	C1	L2	L2	L2	L2	L2	L2	L2	L2	L2	L2	FF32	F3	F6	F2			
13	F1				F2			C2	C2	C2	C2	C2	C1	L2	L2	L2		H1	C3	F3	F1					
14							H2		C1	C2	C1	C1	C2	C2	C1	C1	CL11	HL12	CL32	F4	F3	F2	F3	F2		
15	F2						H2		L2	C1	L2	L2	L2	L2	L2	C2	C2	C2	C3	F3	F3	F3	F3			
16							H2		C1	C1	C1	C1	C1	C2	L2	L2	CL12	C2	L3	F3	F3	F2				
17							H1	C2	L2	C1	L2	L2	L2	L2	L2			L2	C2	F4	FF22	F2	F3			
18							H1	C1	C2	C2	C1	C1	C2	C2	C2	C2	L2	L2	L2	C3	F4	F5	F2	F2	F4	
19	F2	F2					H2	C1	C1	C1	C1	C1	C1	C1	C2	C2	C2	C3	L3	F3	F3	F4	F3	F4		
20	F2						L2	C1		C1	L2	L1				H1	C1	C1	L3	F5	F4	F1	F2			
21							H1		C2	L2	L2	L2	L2	L2	L2	L2	L2	HL12	C2	F2						
22			F1		H2	H2	C1		C1	C2	C2	L1	L2					CL22	C1	F2	F1					
23					H1	H1		C1	L1	C1	C1	L1						C1	C2	F4	F3	F3				
24							C2	C2	C2				C2					H2	C2	C2	F4	F5	F4	F2	F2	
25	F2	F1	F2	F3	F4		C2		C2	C1	L2	C2	C2	C2	C1			C1	L4	F4	F5	F3	F4	F2		
26	F2	F1	F2	F1			H1	C1	C1	C1	L2	L2	L2	L1	L2	L2			CL11	F1	F3		F2			
27	F2		F2	F2		H1	C1	C1	C1	C1	C2	C1	L2	L2	L2	L2	C2	C2	L3	F3	F3	F2	F3	F4		
28	F5					H3	C2	C2	C2	L3	C2	C2					C1		C1	C3	F5	F3	F3	F2		
29	F2					H1	C1	C1	C2	L2	L2	L1	L2	L2	L2	L2	L2	L2	L1	C3	F3	F3	F3	F2		
30						H2	H1		C1	L2	L2	L1	L1	C1	L2	C1	L1		C1	F1					F6	
31																										
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																										
MED																										
U Q																										
L Q																										

APR. 2014 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 2014 f_{XI} (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	X 94	X 90	X 85	X 78	X 70	X 74														X 114	X 96	X 92	X 95	X 97	
2	X 96	X 90	X 87	X 83	X 78	X 72															X 108	X 97	X 93	X 98	X 99
3	X 104	X 96	X 84	X 70	X 63	X 64															X 108	X 96	X 92	X 90	X 90
4	X 90	X 84	X 79	X 76	X 72	X 73															X 117	X 95	X 98	X 100	X 96
5	X 95	X 98	X 90	X 71	X 64	X 60															X 116	X 92	X 92	X 94	X 91
6	X 89	X 89	X 90	X 74	X 74	X 70															X 115	X 99	X 95	X 99	X 98
7	X 92	X 85	X 84	X 84	X 74	X 69															X 114	X 94	X 93	X 94	X 96
8	X 95	X 93	X 80	X 76	X 79	X 79															X 114	X 92	X 94	X 96	X 96
9	X 94	X 88	X 89	X 87	X 66	X 60															X 110	X 98	X 85	X 86	X 88
10	X 87	X 89	X 84	X 77	X 68	X 68															X 112	X 91	X 83	X 83	X 83
11	X 83	X 83	X 81	X 74	X 69	X 65															X 122	X 108	X 84	X 84	X 83
12	X 81	X 82	X 78	X 71	X 68	X 70															X 110	X 90	X 79	X 77	X 78
13	X 75	X 78	X 77	X 75	X 60	X 58															X 123	X 85	X 85	X 86	X 83
14	X 79	X 78	X 74	X 74	X 72	X 68															X 141	X 120	X 75	X 75	X 80
15	X 79	X 74	X 75	X 72	X 64	X 59															X 154	X 126	X 122	X 107	X 94
16	X 88	X 84	X 83	X 79	X 74	X 74															X 124	X 108	X 93	X 92	X 93
17	X 98	X 102	X 100	X 96	X 84	X 80															X 112	X 106	X 104	X 98	X 93
18	X 87	X 85	X 83	X 84	X 81	X 82															X 133	X 98	X 90	X 91	X 95
19	X 96	X 86	X 85	X 82	X 83	X 84															X 122	X 90	X 82	X 86	X 92
20	X 89	X 88	X 85	X 83	X 78	X 74															X 126	X 106	X 84	X 81	X 83
21	X 80	X 80	X 72	X 72	X 70	X 71															X 120	X 95	X 90	X 90	X 89
22	X 90	X 84	X 85	X 82	X 73	X 74					C										X 113	X 110	X 92	X 87	X 89
23	X 90	X 85	X 86	X 80	X 70	X 68															X 122	X 101	X 94	X 97	X 99
24	X 100	X 100	X 92	X 87	X 83	X 84															X 120	X 101	X 84	X 86	X 88
25	X 86	X 80	X 80	X 81	X 75	X 64															X 120	X 100	X 97	X 94	X 95
26	X 92	X 92	X 91	X 85	X 72	X 72															X 112	X 92	X 84	X 87	X 85
27	X 85	X 83	X 79	X 74	X 74	X 71															X 119	X 88	X 78	X 80	X 81
28	X 81	X 83	X 82	X 74	X 76	X 74															X 120	X 104	X 91	X 92	X 95
29	X 97	X 98	X 95	X 86	X 77	X 74															X 105	X 94	X 88	X 92	X 87
30	X 83	X 74	X 72	X 74	X 63	X 64															X 116	X 104	X 98	X 99	X 101
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30														30	30	30	30	30	
MED	X 90	X 85	X 84	X 78	X 72	X 71															X 116	X 98	X 92	X 92	X 92
U Q	X 95	X 90	X 87	X 83	X 77	X 74															X 122	X 104	X 94	X 96	X 96
L Q	X 83	X 83	X 79	X 74	X 68	X 65															X 112	X 92	X 84	X 86	X 85

APR. 2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 2014 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	88	84	79	72	64	68	74	95	111	118	119	130	U R	R	U R	R	U R	R	R	108	90	86	89	91	
2	90	84	81	77	72	66	70	87	102	110	113	U R	U R	R	R	R	R	107	107	102	91	87	92	93	
3	98	90	78	64	57	58	64	86	98	112	115	U R	R	R	R	R	118	112	107	102	90	86	84	84	
4	84	78	73	70	66	67	76	96	108	112	116	U R	U R	R	R	R	R	130	123	111	89	92	94	90	
5	89	92	84	65	58	54	58	89	105	110	116	U R	R	U R	R	R	115	113	112	110	86	86	88	85	
6	83	83	84	68	68	64	72	105	111	115	118	U R	U R	R	R	R	116	116	113	109	93	89	93	92	
7	86	79	78	78	68	63	70	94	103	106	108	R	R	U R	U R	R	118	114	114	108	88	87	88	90	
8	89	87	74	70	73	73	71	95	106	112	108	118	116	118	126	121	126	120	115	108	86	88	90	90	
9	88	82	83	81	60	54	63	90	99	106	114	118	116	116	131	124	118	116	113	104	92	79	80	82	
10	81	83	78	71	62	62	70	90	101	102	113	118	U R	R	R	R	U R	U R	U R	R	85	77	77	77	
11	77	77	75	68	63	59	71	86	88	92	100	114	J R	U R	R	R	R	R	U R	R	102	78	78	77	
12	75	76	72	65	62	64	72	86	84	92	100	114	U R	R	R	R	U R	J R	U R	R	84	73	71	72	
13	69	72	71	69	54	52	70	90	92	88	95	108	R	U R	R	R	R	R	R	117	79	79	80	77	
14	73	72	68	69	66	62	76	100	88	85	102	112	115	120	122	129	120	120	128	141	114	69	69	74	
15	73	68	69	66	58	53	70	87	96	96	95	110	U R	R	R	R	151	157	164	161	148	120	114	100	88
16	82	78	77	73	68	68	94	106	92	87	88	99	R	118	128	134	136	132	126	118	102	87	86	87	
17	92	96	94	90	78	74	84	100	94	96	97	114	U R	R	R	R	R	R	R	R	100	98	92	87	
18	81	79	77	78	75	76	80	95	93	96	102	115	J R	U R	R	R	U R	R	U R	R	92	84	85	89	
19	90	80	79	76	77	78	85	97	107	108	103	116	U R	R	R	R	R	R	R	116	84	76	80	86	
20	83	82	79	77	72	68	76	82	91	107	112	118	U R	R	J R	R	U R	R	R	120	100	78	75	77	
21	74	74	66	66	64	65	76	87	94	100	105	125	U R	J R	J R	J R	U R	U R	U R	R	89	84	84	83	
22	84	78	79	76	67	68	81	96	103	106	118	C J R	R	R	J R	R	R	R	R	106	104	86	81	83	
23	84	79	80	74	64	62	77	88	94	93	100	108	U R	R	R	R	U R	U R	R	116	95	88	91	93	
24	94	94	86	81	77	78	91	91	94	92	96	104	R	J R	R	R	J R	U R	U R	R	95	78	80	82	
25	80	74	74	75	69	58	76	92	91	92	100	117	U R	R	U R	R	R	J R	U R	R	94	91	88	89	
26	86	86	85	79	66	66	81	83	86	89	94	104	R	U R	R	R	J R	R	R	106	86	78	81	79	
27	79	77	73	68	68	65	71	70	75	85	102	118	U R	R	U R	R	129	116	108	116	82	72	74	75	
28	75	76	76	68	70	68	78	82	80	84	94	106	R	118	132	143	145	142	130	124	98	85	86	89	
29	91	92	89	80	71	68	90	84	73	78	90	99	U R	116	139	148	152	146	132	116	99	88	82	86	81
30	77	68	66	66	57	58	66	73	86	75	75	90	U R	110	116	132	U R	J R	J R	R	98	92	93	95	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	84	79	78	72	66	65	75	90	94	96	102	116	R	130	130	131	128	126	120	110	92	86	86	86	
U Q	89	84	81	77	71	68	80	95	103	108	113	118	R	129	137	138	138	136	130	125	116	98	88	90	90
L Q	77	76	73	68	62	59	70	86	88	89	96	108	R	116	126	128	124	120	116	114	106	86	78	80	79

APR. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 2014 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	L	L	L	L	L	L	L						
2								260		L	L	U L 636	L	L	L	L	L	L						
3								260		L	L	U L 564	L	L	L	L	L	L						
4								264		L	L	L	L	L	L	L	L	L						
5								268		L	U L 536	U L 540	L	L	L	L	L	L	332					
6									L	L	L	L	L	L	L	L	L	L						
7									L	U L 520	L	U L 684	L	U L 564	L	L	L	L						
8										L	L	L	L	U L 608	L	L	L	L						
9									L	L	L	U L 524	L	U L 592	L	L	L	L						
10										U L 560	L	U L 592	L	U L 564	U L 544	L	L	L						
11								272		L	L	L	L	L	L	L	L	L	L	L				
12									L	L	U L 572	L	L	U L 560	L	L	L	L						
13									L	A	L	L	A	U L 556	L	L	L	L	A					
14									L	L	U L 564	L	L	U L 584	L	L	L	L	A					
15									L	L	L	L	L	U L 584	L	L	L	L	L					
16								292		L	L	L	U L 616	U L 564	L	L	L	L	A					
17										L	A	A	L	U L 588	L	L	L	L						
18									L	L	L	U L 660	L	U L 592	L	L	L	A						
19									L	L	U L 644	L	L	U L 564	L	L	L	L						
20								212		L	L	L	L	U L 608	L	L	L	A						
21								212		L	L	U L 572	A	A	L	A	L	L	L					
22								212		L	L	C	L	L	L	L	L	U L 444	L	L				
23									L	L	L	L	U L 644	U L 624	U L 596	U L 552	L	L	L					
24									L	L	L	U L 624	L	L	L	U L 576	L	L	L					
25								208		L	L	L	L	L	U L 588	L	L	L	A					
26									L	L	U L 540	U L 568	U L 564	L	U L 524	L	L	L						
27										L	U L 568	L	L	U L 564	U L 560	L	L	L						
28									L	A	U L 520	U L 532	U L 560	L	U L 568	L	L	L	L					
29								220		A	A	L	L	L	L	U L 552	U L 520	L	L	A				
30									L	L	A	L	L	L	L	L	L	L	L					
31											U L 588	L	L	U L 532	U L 540	U L 500								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	6			5	11	10	12	13	6			2					
MED							212	266			U L 536	U L 572	U L 586	U L 574	U L 564	U L 534			388					
U Q							216	272			U L 564	U L 624	U L 644	U L 586	U L 592	U L 552								
L Q							210	260			U L 520	U L 540	U L 560	U L 560	U L 560	U L 520								

APR. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 2014 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							B	244	296	348	A	372	376	380	376	R	R	R	A	U	A	U	A		
2							B	236	300	336	348	A	A	R	R	R	360	360	344	296	220				
3						J	A	160	240	300	U	R	352	364	376	376	372	364							
4							B	224	300	R	340	360	R	380	R	R	380	364	336	300	U	A	200		
5							B	236	A	A	A	R	R	B	384	368	324	288	R	224					
6							172	240	304	336	348	R	A	368	U	R	R	356	320	280	U	A	192		
7							176	252	300	352	368	R	R	372	R	B	R	356	332	288	212	A			
8							172	256	304	336	U	R	360	376	380	U	R	364	364	332	288	U	A	208	
9							176	252	308	336	U	A	U	A	A	A	A	R	320	288	212	A			
10							176	256	308	340	R	R	352	B	U	A	U	A	U	R	372	332	292	216	
11							172	248	308	348	U	R	368	372	380	R	R	B	R	344	328	300	U	A	224
12							184	256	308	348	R	U	360	360	380	R	R	R	B	336	304	220	A		
13							176	260	312	344	A	U	364	380	376	384	388	364	352	300	A				
14							180	252	300	340	R	R	352	R	B	B	B	R	356	340	308	220	A		
15							184	268	320	356	U	A	372	368	A	A	A	384	U	A	316	288	240	A	
16							188	256	316	356	372	416	396	396	396	396	384	356	U	A	304	244	A		
17							196	264	332	368	U	A	392	408	396	396	368	376	344	316	R	228	A		
18							176	268	336	376	U	A	396	400	400	408	B	376	348	308	212	A			
19							A	276	324	360	U	A	388	388	380	400	388	372	348	308	228	A			
20							B	268	328	364	U	A	384	404	B	B	B	U	R	R	384	356	304	220	
21							B	A	U	A	U	R	308	364	388	R	A	A	A	A	288	236	R		
22							B	280	316	348	U	A	C	U	R	U	A	A	A	A	A	A	A		
23							U	A	184	284	328	352	R	B	372	364	364	B	A	324	292	228	R		
24							U	R	208	268	320	356	360	U	A	A	A	360	332	328	288	236	U	A	
25							B	260	328	352	B	B	B	B	B	B	396	384	356	288	236	A			
26							192	268	320	360	U	A	372	376	380	372	A	348	308	296	224	R			
27							A	180	276	308	348	U	A	380	388	388	388	376	372	332	296	232	R		
28							176	276	316	352	360	R	U	384	388	R	360	368	340	288	248	U	A		
29							B	268	316	348	368	U	A	372	376	A	A	400	332	292	228	A			
30							184	264	320	344	364	U	A	372	388	392	376	348	324	A	232	A			
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							20	29	29	29	26	23	21	17	17	24	26	27	27						
MED							178	260	312	348	366	376	380	384	376	366	332	292	224	A					
U Q							184	268	320	356	372	388	388	394	388	376	344	304	232	A					
L Q							176	250	304	342	360	R	372	376	372	364	356	324	288	212	U	A			

APR. 2014 foE (0.01MHz)

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APR. 2014 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	E	B	E	B	E	B	E	B	E	B		G				G	G	J	A		E	B	J	A	E	B	E	B	E	B
2	E	B	E	B	E	B	E	B	E	B		G	G			G	G	G		G	J	A	E	B	E	B	J	A	E	B
3	E	B	E	B	E	B	E	B			G					G	J	A	J	A	J	A	J	A	J	A	J	A	J	A
4	E	B	E	B	E	B	E	B		J	A								J	A	J	A								
5	E	B	E	B	E	B	E	B													G	J	A	J	A	E	B	J	A	
6	J	A			J	A	E	B	E	B		G																		
7	E	B		E	B	E	B	E	B		G																			
8	E	B	E	B	E	B	E	B	E	B		G																		
9		E	B	E	B	E	B	E	B		G																			
10	J	A		E	B	J	A		E	B		G																		
11	E	B	E	B	E	B	E	B	E	B		G																		
12		E	B	E	B	E	B	E	B		G																			
13	J	A	J	A			E	B	J	A		G																		
14	J	A	J	A		E	B		E	B		G																		
15		E	B	E	B	E	B	E	B		G																			
16	E	B	E	B	E	B	E	B	E	B		G																		
17	J	A		E	B	E	B	E	B		G																			
18	J	A		E	B		E	B																						
19	J	A	J	A		E	B	J	A	J	A																			
20	E	B	J	A	J	A	J	A	E	B																				
21	J	A	J	A	J	A	E	B	E	B	J	A																		
22	E	B	E	B	J	A	E	B	E	B	J	A																		
23	J	A	J	A	J	A	J	A	E	B																				
24	E	B		E	B	J	A	E	B	E	B																			
25		J	A	J	A	J	A	J	A	J	A																			
26	J	A	J	A	J	A	J	A	J	A																				
27	J	A	J	A	J	A	J	A	J	A																				
28		E	B		J	A	J	A	J	A																				
29	J	A	J	A	J	A	E	B	E	B																				
30	J	A	J	A	E	B	E	B	E	B																				
31																														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30					
MED	20	18	E	B	E	B	E	B	E	B	16	28	35	39	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
UQ	J	A	J	A	J	A	J	A	J	A	J	A																		
LQ	E	B	E	B	E	B	E	B	E	B																				

APR. 2014 foEs (0.1MHz)

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APR. 2014 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	36	40	42	43	41	U Y	G	G	36	29	21	16	E 16	E 16	E 16	E 16	E 16	E 16	E 16			
2	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	25	G	U Y	U Y	36	42	G	G	30	G	G	16	E 16	E 16	E 16	E 16	E 16	E 16	E 16			
3	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	25	31	G	39	40	40	40	G	42	40	50	23	28	20	E 16	E 16	E 16	E 16	E 16			
4	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	24	G	G	G	G	G	43	43	36	34	42	18	E 16	E 16	E 16	E 16	E 16	E 16	E 16			
5	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	26	36	36	39	G	G	44	43	44	32	32	G	22	20	E 16	E 16	E 16	E 16	20			
6	20	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	28	34	36	G	40	G	U Y	42	G	38	G	32	26	E 16	E 16	E 16	E 16	E 16	E 16			
7	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	28	36	38	39	G	41	41	E B	G	G	G	30	27	23	E 16	E 16	E 16	E 16	E 16			
8	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	28	32	36	38	40	U Y	40	U Y	G	G	38	35	36	33	30	20	E 16	E 16	E 16			
9	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	27	32	36	40	U Y	37	38	40	40	43	G	30	26	18	26	E 16	E 16	E 16	E 16			
10	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	28	32	40	39	42	42	U Y	39	42	40	38	39	36	28	23	19	21	16	16			
11	E 16	E 16	E 16	E 16	E 15	E 16	E 16	E 16	G	G	26	G	G	40	39	U Y	42	42	G	G	G	G	27	19	E 16	E 16	E 16	E 16	E 16			
12	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	27	33	37	42	G	42	43	41	41	36	38	30	38	48	39	19	21	16	16			
13	29	19	E 16	E 16	E 16	E 16	E 16	E 16	G	G	27	34	40	44	45	69	46	41	37	40	34	54	25	26	E 16	E 16	E 16	18	16			
14	17	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	U Y	26	32	36	40	G	E B	U Y	U Y	U Y	G	G	45	60	32	E 16	20	E 16	E 16	19			
15	18	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	27	33	38	42	40	41	38	36	42	U Y	34	30	24	16	E 15	16	E 16	E 16	16			
16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	27	34	38	40	44	43	44	G	42	37	31	48	36	18	33	E 16	E 16	E 16	E 16			
17	20	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	30	37	44	53	56	46	44	44	42	U Y	G	G	G	21	19	42	21	21	16			
18	26	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	19	30	38	42	51	52	49	45	44	45	38	57	72	31	20	28	31	27	16			
19	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	20	30	37	41	42	42	40	42	42	42	40	46	51	52	E 16	E 16	22	25	17	16		
20	E 16	E 16	35	E 16	E 16	E 16	E 16	E 16	G	G	16	29	35	44	46	44	55	43	45	40	U Y	38	59	67	42	21	37	45	30	16		
21	25	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	19	29	35	39	U Y	40	42	74	64	57	72	U Y	34	31	27	20	E 16	E 16	E 16	E 16	16	
22	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	20	30	34	38	C	U Y	42	42	42	51	44	40	36	27	20	16	E 16	E 16	E 16	E 16	16	
23	20	26	20	17	E 16	E 16	E 16	E 16	G	G	22	29	36	38	40	45	40	41	39	35	G	G	G	31	29	22	24	E 16	E 16	E 16	E 16	16
24	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	20	29	35	42	46	43	48	36	U Y	G	G	G	G	26	24	16	E 16	E 16	E 16	E 16	16	
25	E 16	E 16	E 16	E 16	E 16	E 15	E 16	E 16	G	G	28	36	41	48	49	47	49	46	42	38	30	36	40	16	20	20	18	16	16	16	16	
26	21	20	E 16	E 16	24	18	24	29	37	47	43	43	42	45	46	G	U Y	34	G	G	G	24	17	E 16	E 16	E 16	E 16	E 16	E 16	E 16	16	
27	E 16	19	E 16	E 16	E 16	E 16	E 16	E 16	G	G	22	35	37	37	52	48	45	50	44	46	36	42	30	16	79	E 16	E 16	E 16	19	16		
28	E 16	E 16	E 16	E 16	E 15	E 16	E 16	E 16	G	G	22	32	35	52	43	G	43	G	40	39	36	G	28	53	32	E 16	E 16	21	20	16	16	
29	20	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	19	36	42	48	51	54	44	48	44	41	37	38	64	24	44	40	19	E 16	E 16	13	16	
30	21	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	21	31	37	47	50	43	46	43	40	U Y	38	35	30	26	18	E 16	E 16	E 16	E 16	45	16	
31																																
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
CNT	30	30	30	30	30	30	29	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
MED	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	28	34	38	40	42	42	42	40	40	36	32	28	22	17	E 16	E 16	E 16	E 16	E 16	E 16		
U Q	20	16	16	16	16	16	16	16	G	G	30	36	42	46	44	46	44	44	44	42	38	38	42	31	23	20	20	19	16	16		
L Q	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	G	19	27	32	36	39	G	G	40	G	G	G	G	G	G	E 16	E 16	E 16	E 16	E 16	E 16	E 16	

APR. 2014 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

APR. 2014 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

$\frac{H}{D}$	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	16	16	16	16	16	16	16	16	16	18	22	27	29	29	29	23	21	16	14	16	16	16	16	16
2	16	16	16	16	16	16	16	16	16	20	25	25	26	22	28	30	20	16	14	16	16	16	16	16
3	16	16	16	16	16	16	16	16	16	18	27	21	26	28	27	19	27	16	14	16	16	16	16	16
4	16	16	16	16	16	16	17	16	16	20	19	24	31	30	29	24	20	16	14	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	20	26	26	28	40	28	20	18	17	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	19	20	25	25	24	28	29	21	16	14	16	16	16	16	16
7	16	16	16	16	16	16	16	16	16	16	20	24	28	41	19	20	20	16	14	14	16	16	16	16
8	16	16	16	16	16	16	16	16	16	17	19	22	20	26	21	20	20	16	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	23	20	20	28	29	24	20	18	16	16	16	16	16	16	16
10	16	16	16	16	16	16	16	16	16	19	20	42	28	28	28	19	20	20	16	16	16	16	16	16
11	16	16	16	16	15	16	14	16	19	22	28	30	24	29	42	21	22	20	16	16	16	16	16	16
12	16	16	16	16	16	16	16	16	16	19	21	22	28	29	28	36	21	16	18	16	16	16	16	16
13	16	16	16	16	16	16	16	16	16	16	20	27	28	28	20	20	16	16	14	16	16	16	16	16
14	16	16	16	16	16	16	16	16	16	20	26	28	42	37	37	24	20	20	16	15	16	16	16	16
15	18	16	16	16	16	16	16	16	16	20	18	23	28	22	29	20	20	19	16	15	15	16	16	16
16	16	16	16	16	16	16	16	16	18	20	21	29	30	30	27	26	23	20	16	14	16	16	16	16
17	16	16	16	16	16	16	16	16	20	21	25	29	30	30	30	26	21	21	16	14	16	16	16	16
18	16	16	16	16	16	16	16	16	21	26	28	29	29	30	39	29	18	16	14	12	16	16	16	16
19	16	16	16	16	16	14	15	16	20	23	21	28	30	28	25	20	20	16	15	16	16	16	16	16
20	16	16	16	16	16	16	14	20	21	21	21	29	41	42	42	23	20	18	16	16	16	16	16	16
21	16	16	16	16	16	14	16	16	19	28	26	30	30	29	30	28	19	17	14	12	16	16	16	16
22	16	16	16	16	16	16	16	16	18	24	C	30	30	28	30	28	20	18	14	12	16	16	16	16
23	16	16	16	16	16	16	16	16	18	21	38	29	30	36	36	30	18	17	16	14	13	16	16	16
24	16	16	16	16	16	16	16	16	18	20	26	36	20	30	17	19	20	17	15	14	16	16	16	16
25	16	16	16	16	16	12	16	16	16	20	41	43	42	42	30	24	21	16	16	16	16	16	16	16
26	16	16	16	16	16	16	15	16	16	20	20	28	28	29	36	18	16	16	16	14	16	16	16	16
27	16	16	16	16	16	16	15	19	17	20	24	30	28	26	20	19	17	16	16	14	16	16	16	16
28	16	16	16	15	16	16	16	16	16	19	22	22	28	26	29	29	19	18	16	16	16	16	16	16
29	16	16	16	16	16	16	16	16	16	20	23	26	25	29	19	18	20	15	16	14	13	12	12	12
30	15	16	16	16	16	16	16	16	16	19	19	20	31	31	31	29	16	16	16	14	16	16	16	16
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	16	16	16	16	16	16	16	16	16	20	22	28	28	29	28	23	20	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	18	21	26	29	30	30	30	28	21	18	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	19	20	24	28	28	25	20	18	16	14	14	16	16	16	16

APR. 2014 fmin (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

APR. 2014 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	296	290	308	297	270	276	291	327	321	322	300	298	U R	R U	R	U R	294	316	315	318	300	280	285	292					
2	293	290	299	291	312	290	315	325	324	321	299	U R	294	294	290	297	R	309	299	303	304	295	282	282	287				
3	315	328	329	308	277	271	302	338	327	315	309	U R	R	R	R	296	293	300	309	296	285	277	281						
4	298	287	278	281	278	283	293	321	325	308	303	R	U R	290	289	290	291	296	309	313	316	289	279	295	302				
5	301	323	328	321	294	278	293	328	327	313	310	295	R	U R	301	301	290	289	300	303	313	295	276	280	274				
6	268	298	319	280	280	271	270	321	330	320	331	R	U R	304	U R	300	R	305	317	308	319	310	284	286	302				
7	295	290	288	297	296	300	306	339	341	330	318	R	R	U R	U R	R	310	305	311	320	295	283	282	290					
8	301	309	268	268	275	312	305	330	335	333	309	314	302	R	U R	288	305	302	318	317	324	293	277	289	290				
9	305	290	310	333	312	280	305	335	341	319	317	311	305	286	296	300	U R	312	319	316	318	307	282	276	274				
10	286	304	302	302	292	290	302	336	328	315	301	311	U R	R	R	R	U R	U R	U R	U R	332	310	270	277	280				
11	286	299	302	309	303	304	318	353	339	320	297	294	R	306	293	291	296	304	317	327	343	274	268	273					
12	275	285	289	277	267	276	291	336	323	310	294	297	296	U R	R	R	U R	U R	U R	U R	314	320	305	262	267	274			
13	269	279	295	319	288	289	331	359	341	312	309	295	301	305	297	300	298	305	323	338	289	271	289	294					
14	282	280	276	291	305	302	312	357	345	319	303	308	297	U R	U R	310	300	307	309	313	325	345	308	268	281				
15	282	283	292	315	303	302	333	345	344	322	296	273	291	R	298	297	298	304	316	314	318	334	273	266	288				
16	296	286	289	290	290	296	341	363	357	345	301	290	296	U R	297	291	293	301	U R	304	316	324	318	278	275	277			
17	287	305	310	323	298	298	312	347	333	316	298	287	U R	302	293	293	292	R	303	316	305	300	295	306	302	297			
18	284	266	268	274	282	328	307	335	313	331	285	290	J R	R	U R	U R	U R	U R	U R	U R	326	321	282	271	283				
19	295	287	278	281	288	298	305	327	319	330	285	282	U R	290	287	287	290	290	303	317	318	298	261	264	285				
20	282	279	268	283	291	307	324	344	306	309	299	300	U R	291	293	R	293	U R	299	310	314	329	332	278	261	267			
21	269	269	255	257	271	262	291	333	321	302	278	290	U R	R	R	R	U R	U R	U R	U R	292	296	305	311	311	290	270	276	270
22	288	266	279	298	286	298	310	335	322	306	C	R	R	R	R	R	R	297	296	299	300	304	317	302	274	281			
23	292	291	297	314	294	294	330	336	350	318	311	U R	285	289	286	294	294	305	303	320	317	323	276	273	287				
24	304	317	295	290	278	291	325	340	335	299	309	279	R	301	294	R	295	305	313	321	316	270	272	277					
25	287	278	281	296	345	278	301	338	330	302	291	288	U R	302	298	299	304	308	R	320	315	314	294	282	282				
26	290	294	310	294	288	280	328	344	327	312	294	295	U R	292	300	300	R	307	315	330	315	302	273	272	278				
27	285	291	295	295	296	312	331	341	312	297	294	311	U R	307	303	308	304	313	304	317	325	332	273	271	278				
28	283	288	301	304	297	306	350	348	338	320	303	286	R	306	294	298	300	U R	314	321	323	339	288	285	279				
29	303	304	306	307	305	293	348	374	334	309	312	285	U R	283	299	307	314	309	R	323	328	313	277	281	283				
30	281	283	301	343	309	332	371	349	352	352	298	262	U R	282	289	291	U R	298	R	R	319	325	276	281	285				
31																													
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	30	30	30	30	30	30	30	30	30	30	29	29	27	29	27	28	30	26	29	30	30	30	30	30	30				
MED	288	290	295	296	292	294	311	338	330	317	301	295	296	296	R	298	302	305	314	319	310	278	276	282					
U Q	296	299	306	309	303	302	330	347	341	322	309	303	U R	302	301	300	301	307	315	318	325	323	283	282	288				
L Q	282	283	279	283	280	280	302	333	323	309	295	286	291	R	289	290	292	296	303	310	315	295	273	271	277				

APR. 2014 M(3000)F2 (0.01)

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APR. 2014 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	L	L	L	L	L	L	L						
2								481		L	L	U L	L	L	L	L	L	L						
3								451	L	L	L	U L	L	L	L	L	L	L						
4								481	L	L	L	L	L	L	L	L	L	L						
5								494	L	L	U L	U L	L	L	L	L	L	L	458					
6									L	L	L	L	L	L	L	L	L	L						
7									L	L	U L	L	U L	L	L	L	L	L						
8										L	L	L	L	L	L	L	L	L						
9									L	L	L	L	U L	L	L	L	L	L						
10										L	U L	L	U L	L	L	L	L	L						
11								495	L	L	L	L	L	L	L	L	L	L	L					
12									L	L	L	U L	L	L	L	L	L	L						
13									L	A	L	L	L	A	L	L	L	L	A					
14									L	L	L	U L	L	L	L	L	L	L	A					
15									L	L	L	L	L	L	L	L	L	L						
16								506	L	L	L	L	U L	L	L	L	L	L	A					
17									L	A	A	L	L	L	L	L	L	L						
18									L	L	L	L	L	L	L	L	L	L	A					
19									L	L	L	L	L	L	L	L	L	L						
20								502		L	L	L	L	L	L	L	L	A						
21								496	L	L	L	L	L	L	L	L	L	L						
22								513	L	L	C	L	L	L	L	L	L	L						
23									L	L	L	L	L	L	L	L	L	L						
24									L	L	L	L	L	L	L	L	L	L						
25								352	L		L	L	L	L	L	L	L	L	A					
26									L	L	L	L	L	L	L	L	L	L						
27										L	L	L	L	L	L	L	L	L						
28									L	A	L	L	L	L	L	L	L	L						
29								527	A	A	L	L	L	L	L	L	L	L	A					
30									L	L	A	L	L	L	L	L	L	L						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	6			5	11	10	12	14	6		2						
MED							502	488			U L	U L	U L	U L	U L	U L		416						
U Q							520	495			U L	U L	U L	U L	U L	U L								
L Q							424	481			U L	U L	U L	U L	U L	U L								

APR. 2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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									248	246	248	280	280	294	310	312	298	270						
2								220		244	264	292	292	292	292	288	252	230						
3								216	232	254	252	272	296	296	292	296	248							
4								222	230	240	258	288	308	294	296	284	268	246						
5								220	246	248	252	262	294	296	266	260	296	238						
6									238	252	246	288	280	272	286	250	270	252						
7									224	252	246	254	316	292	284	284	268	254						
8									244	246	272	260	300	310	290	278	254							
9									232	260	262	254	264	324	298	274	278	256						
10										236	280	294	284	298	292	274	258	256						
11								212	232	258	262	302	302	276	266	306	288	266	246					
12									224	262	282	282	294	296	280	270	284	264						
13									220	214	278	302	302	268	280	292	280	254	246					
14									216	224	268	264	298	298	278	288	266	266	270					
15									232	264	262	262	296	296	290	296	282	260	238					
16								212	216	226	270	302	300	284	298	296	280	258	248					
17									248	250	296	292	288	320	298	276	256							
18									252	306	320	302	302	300	^H 302	282	270							
19			252						232	250	248	^H 302	320	300	296	292	290	270						
20							220			256	274	284	304	294	294	294	276	270						
21							240		244	238	264	312	314	302	312	298	264	258	248					
22							236		236	254	^C 306	292	288	274	294	284	248							
23									230	278	266	288	316	314	304	288	282	274	244					
24								224	244	230	270	344	312	296	302	302	286	272	254					
25							236		234		290	296	308	296	288	282	270	262	240					
26									256	260	288	264	304	298	290	284	272	260	238					
27									286	318	288	278	284	284	276	260		260						
28									230	242	262	276	302	316	290	280	268	252	246					
29							222	204	222	294	282	318	348	306	278	262	262	246	254					
30								228	236	242	334	382	340	318	318	296	270	258	260					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				1			5	9	23	29	29	30	30	30	30	30	30	28	14					
MED			252				236	220	232	250	264	288	301	296	292	289	276	258	247					
U Q							238	223	238	259	281	302	308	300	300	296	282	266	254					
L Q							221	212	224	241	252	272	292	292	284	280	268	253	244					

APR. 2014 h'F2 (KM)

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APR. 2014 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D	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	266	266	236	232	260	282	262	222	216	210	206	194	H	H	H	210	206	230	246	226	224	232	264	266	
2	256	262	250	254	216	240	228	168	218	208	202	H	H	H	232	198	214	216	234	230	228	248	274	274	
3	242	224	220	228	262	286	260	200	218	214	212	194	192	182	210	226	230	252	230	236	234	246	282	284	
4	254	268	274	260	236	284	254	160	216	208	204	204	198	196	216	232	224	224	236	216	222	278	264	252	
5	256	230	228	206	234	272	262	162	222	214	198	H	198	194	232	224	232	H	198	240	226	210	264	272	292
6	304	256	228	234	256	288	276	232	222	204	210	H	H	206	196	220	212	222	232	228	224	238	276	260	
7	256	260	266	250	222	220	246	218	218	210	198	204	H	H	184	194	228	224	224	238	218	220	242	268	270
8	254	240	282	304	274	206	220	224	224	206	204	186	210	188	H	196	224	224	228	242	230	228	260	276	268
9	254	262	244	210	200	252	250	218	214	194	214	212	182	182	H	202	234	214	224	234	232	238	222	306	296
10	286	256	236	234	240	260	234	222	220	206	202	220	196	196	214	228	226	246	236	214	216	252	286	286	
11	272	260	246	228	232	226	232	166	206	204	188	188	184	212	218	202	226	230	242	232	208	200	302	296	
12	294	280	266	260	286	282	242	218	212	218	200	196	210	210	218	230	218	254	248	232	256	320	300	306	
13	324	294	260	220	218	262	238	222	214	A	206	220	A	232	214	210	250	238	A	216	220	266	270	260	
14	282	282	282	252	246	256	246	214	210	202	210	194	194	208	228	218	210	260	A	234	208	202	290	288	
15	272	280	264	234	234	244	230	216	212	212	212	204	208	188	182	H	230	228	240	240	214	202	200	238	264
16	258	268	270	248	242	262	236	160	210	208	196	H	H	190	174	222	232	234	228	A	232	218	242	268	282
17	288	250	244	218	218	232	234	220	216	226	A	A	220	202	234	H	242	222	232	238	246	252	266	236	240
18	278	298	308	276	270	226	232	220	220	216	248	250	244	210	216	268	224	A	258	234	220	258	304	286	
19	254	256	284	250	282	266	236	220	224	218	204	190	190	212	216	226	238	264	244	238	208	276	316	272	
20	270	278	336	264	226	230	144	218	220	226	216	202	266	220	224	218	228	A	266	244	224	242	344	330	
21	332	302	342	320	284	298	154	218	216	220	208	206	A	A	A	A	224	226	240	232	224	258	286	288	
22	270	292	282	242	238	248	152	226	218	210	C	208	196	210	H	A	H	226	230	234	244	234	218	256	282
23	274	270	266	232	214	252	222	214	222	208	224	224	200	216	214	204	214	230	240	240	220	232	292	278	
24	258	248	246	252	258	262	218	222	222	220	238	192	244	206	196	192	224	232	236	232	224	214	286	286	
25	268	278	288	262	212	264	254	220	214	208	258	282	242	242	232	232	238	220	H	A	236	226	236	264	288
26	286	276	240	214	236	274	232	214	212	240	214	206	190	206	248	200	212	216	236	224	216	240	290	288	
27	272	272	250	260	246	240	214	212	200	188	A	E	A	242	266	218	240	206	248	242	224	336	250	296	300
28	280	268	254	258	246	238	208	222	214	A	216	196	190	188	210	H	212	H	214	244	232	224	222	284	288
29	276	238	242	228	238	220	132	A	A	A	252	270	302	218	300	242	224	224	242	A	222	256	292	278	268
30	292	290	260	222	242	222	208	226	216	A	270	180	262	220	H	212	222	224	234	228	216	246	266	308	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	29	29	27	28	29	28	29	29	29	30	28	25	30	30	30	30	30	
MED	272	268	260	245	239	254	233	218	216	210	210	200	197	210	216	226	224	230	240	232	224	244	280	285	
U Q	286	280	282	260	258	272	246	222	220	218	220	216	219	220	226	232	226	241	243	234	228	260	292	288	
L Q	256	256	244	228	226	232	218	213	213	206	203	194	190	192	206	211	214	224	235	224	216	232	268	268	

APR. 2014 h'F (KM)

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APR. 2014 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							B 106	98	98	100	100	102	104	102	102		A 100	100							
2							B 102	100	100	100		A 102	A 104		98	106	112	100	102	108					
3							B 102	96	98	100	98	100	100	98			A 104	A 104	A 104	A 104					
4							B 102	100	98	92	96	98	98	100	100		94	100	108						
5							B 102		A 104	A 104		102	102		B 104	98	114	112	108						
6							138	104	98	98	98		A 98	104	104	108	104	98	106						
7							158	100	98	98	98	98	98		B 96	96	102	102	108						
8							142	100	100	96	96	96	96	100	96	98	98	102	106						
9							E B 188	H 98	96	100	100	102		A 104	A 104	A 104	A 104		102	100	104				
10							148	H 104	94	96	96		B 104	104	98	92	100	104	108						
11							144	106	100	98	98	100	104	104		B 90	104	108	112						
12							142	108	96	96	94	94	104	104	104		B 100	106	116						
13							E B 160	B 118	100	100	98	98	100	100	100	104	98	102							A
14							136	100	98	98	98	100		B 104	B 104	B 104	106	96	104	108					
15							E B 146	B 160	A 110		A 96	98		A 104	A 104	A 104		98	100	104	116				
16							140	100	100	100	96	98	98	98	100	104	106	106	110						
17							152	104	102	100	100	100	100	100	102	106	104	108	108						
18							140	100	100	104	102	102	100	100		B 112	100	100	106						
19							A 104	102	100	100	100	100	102	98	100	100	100	110							
20							B 98	98	98	98	104		B 104		B 104	B 104	102	96	104	108					
21							B 100	98	102	102	102		A 104	A 104	A 104	A 104	A 104	A 104	A 104	A 104					
22							B 102	102	102		C 102		96	100	102		A 104	A 104	A 104	A 104	A 104				
23							E B 150	B 102	100	100		B 102	102		B 104	B 104	A 104	98	100	100					
24							120	104	102	100	100		A 102	A 102	A 104	100	94	96	100	102					A
25							B 100	98	98		B 104	B 104	B 104	B 104		102	100	100	100						
26							120	100	100	98	98	100	100	100		A 96	96	100	108						
27							124	112	104	102	102	104	102	104	100	100	96	100	106						
28							122	114	100	98	100	100	104	102	108	110	104	104	106						
29							B 100	100	98	100	102	98		A 104	A 104	A 104		A 106	110						
30							132	102	102	100	98	96	108	112	112	106	102		A 118						
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							19	30	29	28	26	25	22	19	19	23	25	26	25						
MED							139	102	100	98	98	100	100	102	100	100	100	102	108						
U Q							E B 150	104	101	100	100	102	102	104	104	106	103	104	110						
L Q							132	100	98	98	98	98	98	100	98	98	97	100	106						

APR. 2014 h'E (KM)

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APR. 2014 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	B	B	B	B	B	B	B	140	G	124	110	104	102	102	G	G	96	108	120	B	102	B	B	B	
2	B	B	B	B	B	B	B	166	G	G	G	96	98	156	G	100	G	G	G	108	B	B	94	B	
3	B	B	B	108	B	B	G	174	184	G	116	116	110	104	G	94	92	90	90	88	88	86	86	84	
4	B	B	B	B	B	98	98	162	G	G	G	G	G	G	116	112	114	114	100	100	90	100	88	108	
5	B	B	B	B	B	B	B	148	98	98	98	G	G	172	134	130	100	190	G	100	100	B	100	94	
6	94	90	90	92	B	B	G	142	122	136	G	94	G	172	G	172	G	118	104	106	B	B	104	B	
7	B	92	B	B	B	B	G	154	132	126	128	G	114	B	G	G	G	136	112	104	106	B	B	B	
8	B	B	B	B	B	B	G	146	140	126	130	110	116	G	G	170	168	118	108	104	98	98	98	96	
9	94	B	B	B	B	B	G	154	126	112	100	102	100	98	100	98	G	138	112	106	100	100	94	B	
10	94	98	B	92	102	B	G	134	160	116	108	B	102	106	178	148	132	114	104	102	98	98	96	94	
11	B	B	B	B	B	B	G	160	G	G	116	116	G	110	B	G	G	G	112	106	104	98	100	Q	B
12	92	92	B	B	B	B	G	154	134	114	108	G	108	108	108	110	146	116	114	102	102	98	98	94	
13	92	84	94	100	B	98	G	134	118	110	106	106	102	110	120	130	194	146	108	84	98	98	98	96	
14	94	94	94	B	94	B	G	176	134	118	114	G	B	108	106	126	G	118	106	102	100	98	122	92	
15	88	B	B	B	B	B	G	216	154	102	114	102	98	98	92	172	116	160	132	88	88	94	B	B	
16	B	B	B	100	B	B	G	154	134	122	122	134	122	106	G	162	152	114	112	106	102	98	B	B	
17	Q	96	B	B	B	98	G	146	110	114	106	102	104	104	100	124	G	G	G	104	104	98	98	98	
18	98	96	B	98	98	B	100	136	118	112	108	104	104	106	114	168	128	106	102	100	100	90	Q	88	
19	86	84	84	B	92	92	100	134	120	112	106	108	108	126	120	116	124	110	104	100	B	96	96	96	
20	B	94	94	100	94	B	100	144	134	110	106	106	108	164	150	176	148	108	104	102	100	96	96	96	
21	98	100	100	B	B	100	102	102	102	120	122	124	96	96	96	94	94	94	118	110	88	88	104	B	
22	B	B	102	B	B	100	138	132	118	110	C	106	106	100	94	96	96	94	92	92	108	B	B	100	
23	98	96	96	96	98	B	142	154	128	122	112	100	102	102	102	94	G	194	120	106	102	B	B	102	
24	B	98	B	102	B	B	134	128	108	100	100	98	94	100	G	G	G	G	112	102	102	90	B	B	
25	96	110	100	96	98	98	122	132	116	108	108	112	118	110	112	180	200	108	120	100	100	98	98	94	
26	94	94	96	98	94	98	130	124	112	104	104	104	104	96	98	G	116	G	198	114	88	B	B	B	
27	98	100	96	92	128	96	128	116	112	122	106	114	112	106	108	128	130	116	116	108	98	98	98	98	
28	98	B	96	104	90	92	128	124	128	110	108	G	112	G	106	138	188	G	126	98	96	98	98	94	
29	92	96	100	100	B	B	126	112	108	108	104	102	100	96	94	92	146	104	106	106	98	114	88	100	
30	98	92	B	B	B	B	142	130	118	108	104	104	108	114	116	106	104	100	124	106	B	B	88	96	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	18	18	13	14	10	10	14	30	26	26	26	23	25	26	21	25	21	24	27	29	26	21	22	19	
MED	94	95	96	99	96	98	127	143	121	112	108	104	104	106	108	126	128	114	112	102	100	98	98	96	
U Q	98	98	100	100	98	98	134	154	134	122	114	112	111	110	118	165	150	127	120	106	102	98	98	98	
L Q	92	92	94	96	94	96	100	132	112	108	106	102	101	100	99	99	102	107	104	100	98	95	94	94	

APR. 2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 2014 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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								H1		C1	C1	C1	C1			L1	C1	C1		F1					
2								H1				L1	L1	H1		L1				F1			FF12		
3				FF12				H1	H1		C1	C1	C1			L2	L2	L4	L2	F8	F6	F1	F1	F2	
4						F1	L1	H1							C1	C1	C1	C4	F4	F1	FF11	F1	F1		
5								H1	L2	L1	L1			H1	H1	H1	L1	HL11		F3	F4		F1	F3	
6	F3	F2	F1	F1				H1	C1	H1		L1		HL11		H1		C2	C3	F1			F1		
7		F1						H2	H1	C1	C1	C1						H1	C2	F3	F1				
8								H1	H1	C1	C1	C1				H1	H1	C1	C2	F3	F5	F4	F1	F2	
9	F1							H1	C1	C1	C1	C1	L1	L1	L1	L1		H1	C2	F3	F3	F3	F6		
10	F4	F1		F3	F1			H2	H1	C1	C1		C1	C1	H1	H1	H1	C3	C4	F4	F3	F2	F6	F2	
11								H1			C1	C1		C1					C2	F2	F1	F1	F2		
12	F1	F2						HL11	H1	C1	C1		C1	C1	C1	C1	H1	C1	C2	F5	FF52	F7	F2	F4	
13	F3	F2	F1	F1		F2		HL11	C1	C1	C1	C1	C1	C1	C1	CL11	H1	HL13	CL43	F4	FF31	FF31	F3	F3	
14	F2	F2	F1		F1			H1	H1	C1	C1			C1	C1	C1		C2	C5	F4	F4	F3	FF12	F4	
15	F1							HL11	HL11	CH11	C1	C1	L1	L1	L1	H1	C1	H1	H1	F2	F1	FF11			
16				F1				H1	H1	C1	C1	H1	C1	C1		H1	H1	C1	C3	F8	F3	F5			
17	F3	F1				F1		H1	C1	C1	C1	C1	C1	C1	C1	C1				F3	F3	F5	F3	F3	
18	F2	F1		F1	F1	L1		H2	C1	C1	C1	C1	C1	C1	C1	H1	C1	C5	C4	F4	F3	F4	F2	F2	
19	F1	F2	F1		F5	F4		L1	H1	C1	C1	C1	C1	C1	C1	C1	C1	C4	C5	F6		FF41	F4	F4	
20		F1	F8	F1	F2			L1	H1	H1	C1	C1	C1	H1	H1	H1	H1	C2	C2	F5	F5	F6	F4	F4	
21	F5	F2	F3			F2		C1	C1	C1	CC11	C1	C1	L2	L2	L1	L1	L1	CL11	FF12	F1	F1	F1		
22			F1			F1		H1	H1	C1	C1		C1	C1	C1	L2	L1	L1	L3	L3	F3	FF11		F4	
23	F4	F4	F5	F4	F1			H1	H1	C1	C1	C1	C1	C1	C1	L1		H1	C2	F3	F3			F1	
24		F1		FF11				H1	C1	C1	C1	L1	L1	L1					C2	F3	F3	F1			
25	F1	F1	F3	F3	F1	F1		C1	H1	C1	C1	C1	C1	C1	C1	H1	H1	C1	CC31	F5	FF41	F3	F3	F4	
26	F4	F3	F3	F1	F5	F5		C3	C2	C1	C1	C1	C1	L1	L2		C1		H1	F3	F1				
27	F1	FF35	F1	F3	FF11	F2		C1	CL11	C1	C1	C1	C1	C1	C1	C1	C1	C2	C1	FF21	F7	F3	F3	F4	
28	F2		F2	F1	F1	F1		C1	CL21	C1	C3	C1		C1	C1	H1	H1		C1	F8	F6	F3	F3	F3	
29	F4	F2	F1	F1				C1	C2	C3	C2	C2	C1	L2	L1	LH21	HL11	CL31	C6	F3	F5	FF35	F4	F2	
30	F3	F3						H1	H1	C2	C2	C1	C1	C1	C1	C1	C1	L1	CL11	F2			F1	F6	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
U Q																									
L Q																									

IONOSPHERIC DATA STATION Okinawa

APR. 2014 f_{XI} (0.1MHz)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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					
2							C	C	C	C	C	C	C	C	C	C	C	C	C					
3							C	C	C	C	C	C	C	C	C	C	C	C	C					
4							C	C	C	C	C	C	C	C	C	C	C	C	C					
5							C	C	C	C	C	C	C	C	C	C	C	C	C					
6							C	C	C	C	C	C	C	C	C	C	C	C	C					
7							C	C	C	C	C	C	C	C	C	C	C	C	C					
8							C	C	C	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	C	C	C	C	C					
11							C	C	C	C	C	C	C	C	C	C	C	C	C					
12							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					
14							C	C	C	C	C	C	C	C	C	C	C	C	C					
15							C	C	C	C	C	C	C	C	C	C	C	C	C					
16							C	C	C	C	C	C	C	C	C	C	C	C	C					
17							C	C	C	C	C	C	C	C	C	C	C	C	C					
18							C	C	C	C	C	C	C	C	C	C	C	C	C					
19							C	C	C	C	C	C	C	C	C	C	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	C	C	C					
21							C	C	C	C	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	C	C	C	C	C	C	C	C					
23							C	C	C	C	C	C	C	C	C	C	C	C	C					
24							C	C	C	C	C	C	C	C	C	C	C	C	C					
25							C	C	C	C	C	C	C	C	C	C	C	C	C					
26							C	C	C	C	C	C	C	C	C	C	C	C	C					
27							C	C	C	C	C	C	C	C	C	C	C	C	C					
28							C	C	C	C	C	C	C	C	C	C	C	C	C					
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	C	C	C	C	C	C	C	C					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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					
2							C	C	C	C	C	C	C	C	C	C	C	C	C					
3							C	C	C	C	C	C	C	C	C	C	C	C	C					
4							C	C	C	C	C	C	C	C	C	C	C	C	C					
5							C	C	C	C	C	C	C	C	C	C	C	C	C					
6							C	C	C	C	C	C	C	C	C	C	C	C	C					
7							C	C	C	C	C	C	C	C	C	C	C	C	C					
8							C	C	C	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	C	C	C	C	C					
11							C	C	C	C	C	C	C	C	C	C	C	C	C					
12							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					
14							C	C	C	C	C	C	C	C	C	C	C	C	C					
15							C	C	C	C	C	C	C	C	C	C	C	C	C					
16							C	C	C	C	C	C	C	C	C	C	C	C	C					
17							C	C	C	C	C	C	C	C	C	C	C	C	C					
18							C	C	C	C	C	C	C	C	C	C	C	C	C					
19							C	C	C	C	C	C	C	C	C	C	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	C	C	C					
21							C	C	C	C	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	C	C	C	C	C	C	C	C					
23							C	C	C	C	C	C	C	C	C	C	C	C	C					
24							C	C	C	C	C	C	C	C	C	C	C	C	C					
25							C	C	C	C	C	C	C	C	C	C	C	C	C					
26							C	C	C	C	C	C	C	C	C	C	C	C	C					
27							C	C	C	C	C	C	C	C	C	C	C	C	C					
28							C	C	C	C	C	C	C	C	C	C	C	C	C					
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	C	C	C	C	C	C	C	C					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 M(3000)F2 (0.01)

IONOSPHERIC DATA STATION Okinawa

APR. 2014 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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					
2							C	C	C	C	C	C	C	C	C	C	C	C	C					
3							C	C	C	C	C	C	C	C	C	C	C	C	C					
4							C	C	C	C	C	C	C	C	C	C	C	C	C					
5							C	C	C	C	C	C	C	C	C	C	C	C	C					
6							C	C	C	C	C	C	C	C	C	C	C	C	C					
7							C	C	C	C	C	C	C	C	C	C	C	C	C					
8							C	C	C	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	C	C	C	C	C					
11							C	C	C	C	C	C	C	C	C	C	C	C	C					
12							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					
14							C	C	C	C	C	C	C	C	C	C	C	C	C					
15							C	C	C	C	C	C	C	C	C	C	C	C	C					
16							C	C	C	C	C	C	C	C	C	C	C	C	C					
17							C	C	C	C	C	C	C	C	C	C	C	C	C					
18							C	C	C	C	C	C	C	C	C	C	C	C	C					
19							C	C	C	C	C	C	C	C	C	C	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	C	C	C					
21							C	C	C	C	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	C	C	C	C	C	C	C	C					
23							C	C	C	C	C	C	C	C	C	C	C	C	C					
24							C	C	C	C	C	C	C	C	C	C	C	C	C					
25							C	C	C	C	C	C	C	C	C	C	C	C	C					
26							C	C	C	C	C	C	C	C	C	C	C	C	C					
27							C	C	C	C	C	C	C	C	C	C	C	C	C					
28							C	C	C	C	C	C	C	C	C	C	C	C	C					
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	C	C	C	C	C	C	C	C					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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					
2							C	C	C	C	C	C	C	C	C	C	C	C	C					
3							C	C	C	C	C	C	C	C	C	C	C	C	C					
4							C	C	C	C	C	C	C	C	C	C	C	C	C					
5							C	C	C	C	C	C	C	C	C	C	C	C	C					
6							C	C	C	C	C	C	C	C	C	C	C	C	C					
7							C	C	C	C	C	C	C	C	C	C	C	C	C					
8							C	C	C	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	C	C	C	C	C					
11							C	C	C	C	C	C	C	C	C	C	C	C	C					
12							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					
14							C	C	C	C	C	C	C	C	C	C	C	C	C					
15							C	C	C	C	C	C	C	C	C	C	C	C	C					
16							C	C	C	C	C	C	C	C	C	C	C	C	C					
17							C	C	C	C	C	C	C	C	C	C	C	C	C					
18							C	C	C	C	C	C	C	C	C	C	C	C	C					
19							C	C	C	C	C	C	C	C	C	C	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	C	C	C					
21							C	C	C	C	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	C	C	C	C	C	C	C	C					
23							C	C	C	C	C	C	C	C	C	C	C	C	C					
24							C	C	C	C	C	C	C	C	C	C	C	C	C					
25							C	C	C	C	C	C	C	C	C	C	C	C	C					
26							C	C	C	C	C	C	C	C	C	C	C	C	C					
27							C	C	C	C	C	C	C	C	C	C	C	C	C					
28							C	C	C	C	C	C	C	C	C	C	C	C	C					
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	C	C	C	C	C	C	C	C					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2014 h'F2 (KM)

IONOSPHERIC DATA STATION Okinawa

APR. 2014 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31																								
	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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U Q																								
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APR. 2014 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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					
2							C	C	C	C	C	C	C	C	C	C	C	C	C					
3							C	C	C	C	C	C	C	C	C	C	C	C	C					
4							C	C	C	C	C	C	C	C	C	C	C	C	C					
5							C	C	C	C	C	C	C	C	C	C	C	C	C					
6							C	C	C	C	C	C	C	C	C	C	C	C	C					
7							C	C	C	C	C	C	C	C	C	C	C	C	C					
8							C	C	C	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	C	C	C	C	C					
11							C	C	C	C	C	C	C	C	C	C	C	C	C					
12							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					
14							C	C	C	C	C	C	C	C	C	C	C	C	C					
15							C	C	C	C	C	C	C	C	C	C	C	C	C					
16							C	C	C	C	C	C	C	C	C	C	C	C	C					
17							C	C	C	C	C	C	C	C	C	C	C	C	C					
18							C	C	C	C	C	C	C	C	C	C	C	C	C					
19							C	C	C	C	C	C	C	C	C	C	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	C	C	C					
21							C	C	C	C	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	C	C	C	C	C	C	C	C					
23							C	C	C	C	C	C	C	C	C	C	C	C	C					
24							C	C	C	C	C	C	C	C	C	C	C	C	C					
25							C	C	C	C	C	C	C	C	C	C	C	C	C					
26							C	C	C	C	C	C	C	C	C	C	C	C	C					
27							C	C	C	C	C	C	C	C	C	C	C	C	C					
28							C	C	C	C	C	C	C	C	C	C	C	C	C					
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	C	C	C	C	C	C	C	C					
31																								
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CNT																								
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APR. 2014 h'E (KM)

IONOSPHERIC DATA STATION Okinawa

APR. 2014 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
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APR. 2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2014 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

H D	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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CNT																								
MED																								
U Q																								
L Q																								

f-PLOTS OF IONOSPHERIC DATA

KEY OF f-PLOT	
	SPREAD
◊	f _o F ₂ , f _o F ₁ , f _o E
×	f _x F ₂
*	DOUBTFUL f _o F ₂ , f _o F ₁ , f _o E
⊗	f _b E _s
└	ESTIMATED f _o F ₁
†,‡	f _{min}
^	GREATER THAN
∨	LESS THAN

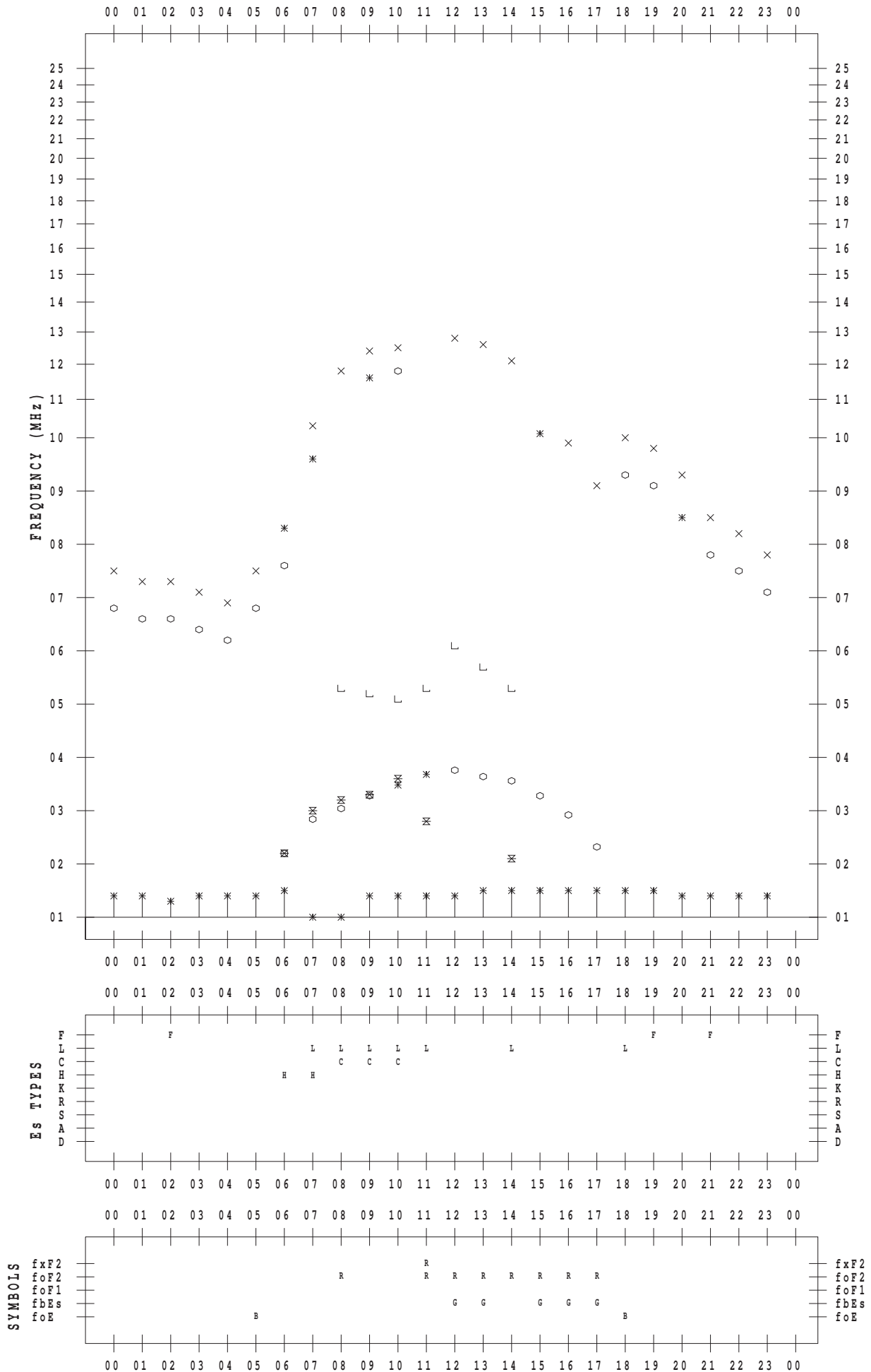
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 1

135 ° E MEAN TIME



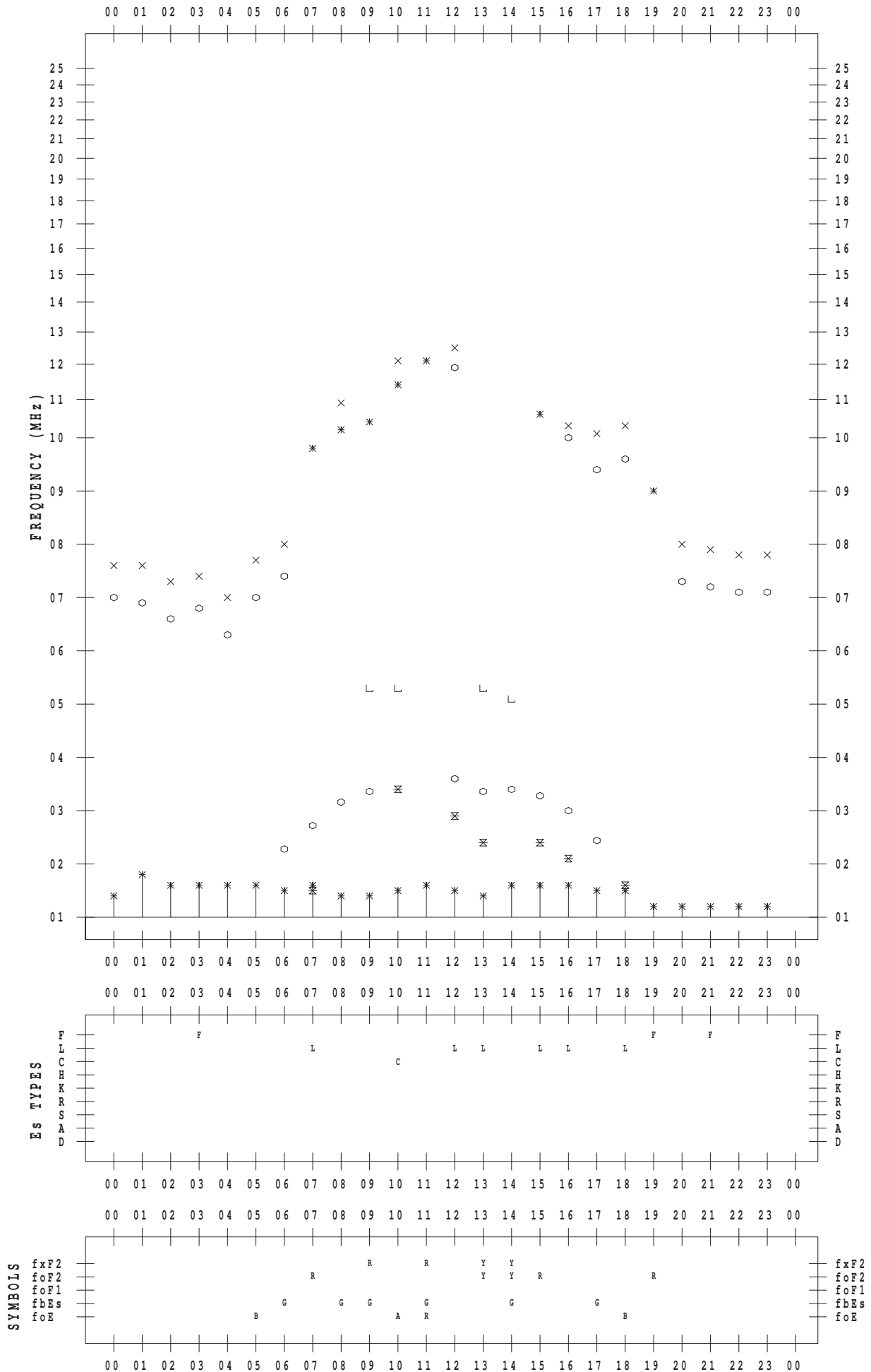
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 2

135 ° E MEAN TIME



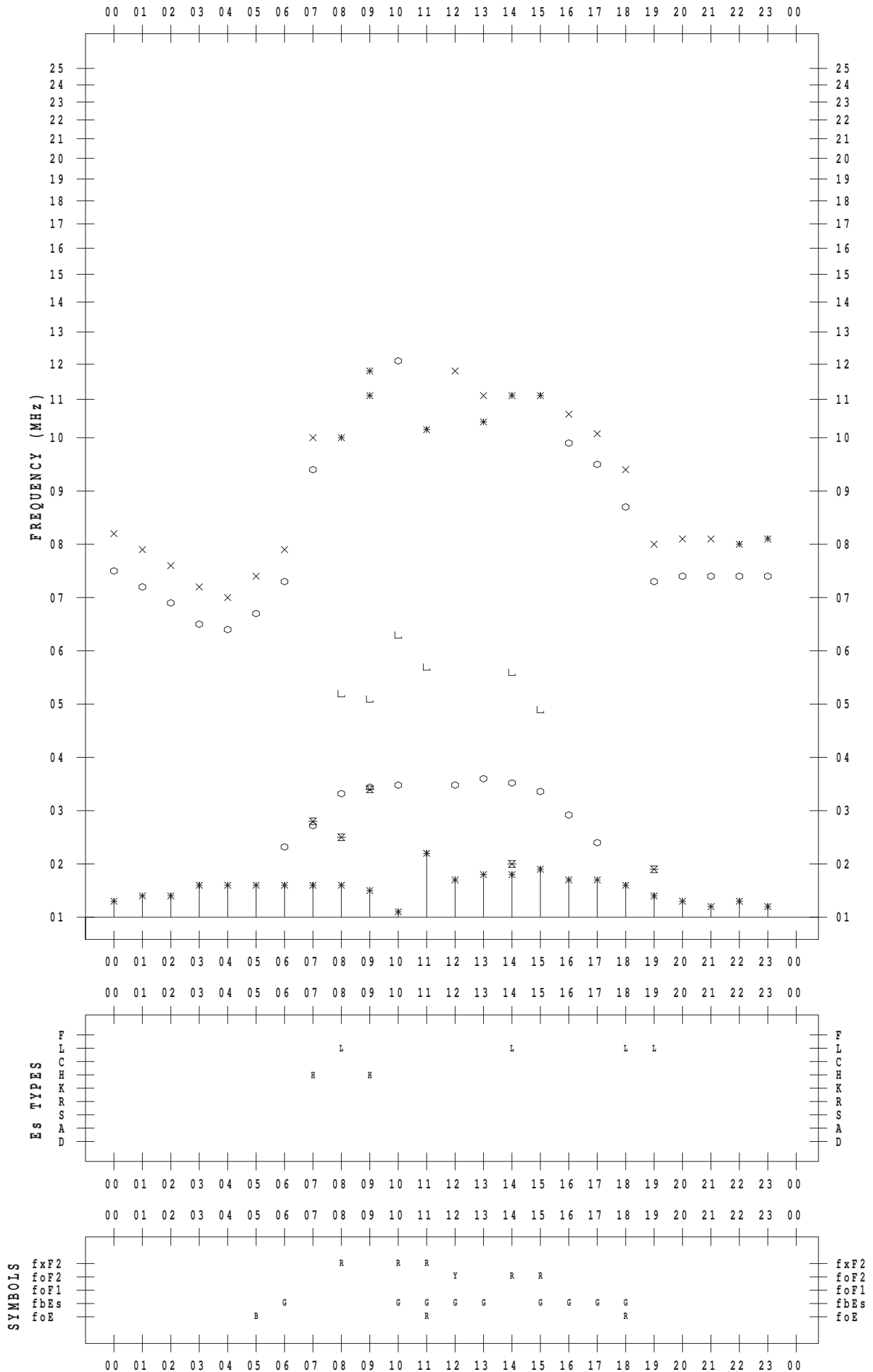
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 3

135 ° E MEAN TIME



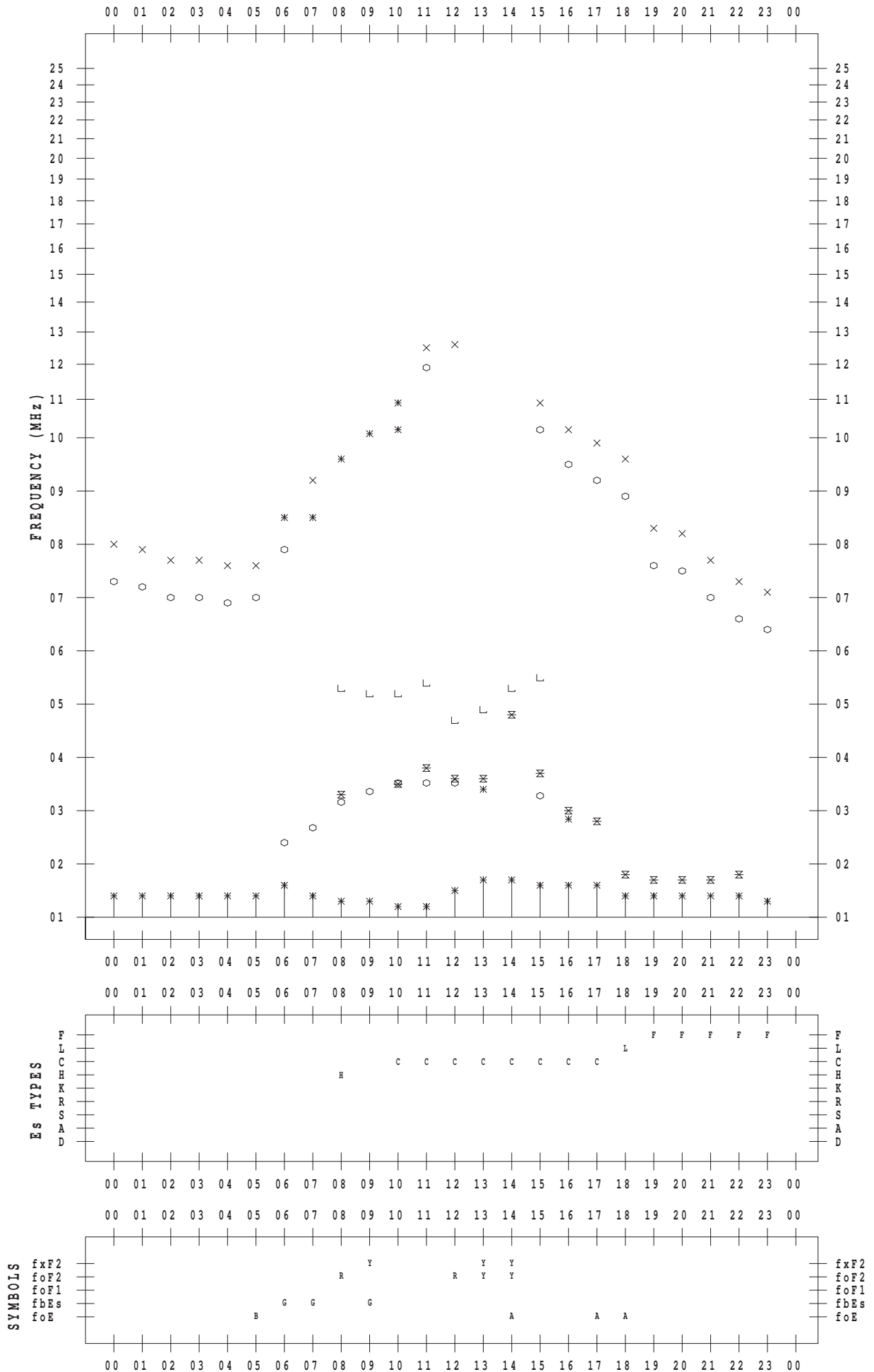
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 4

135 ° E MEAN TIME



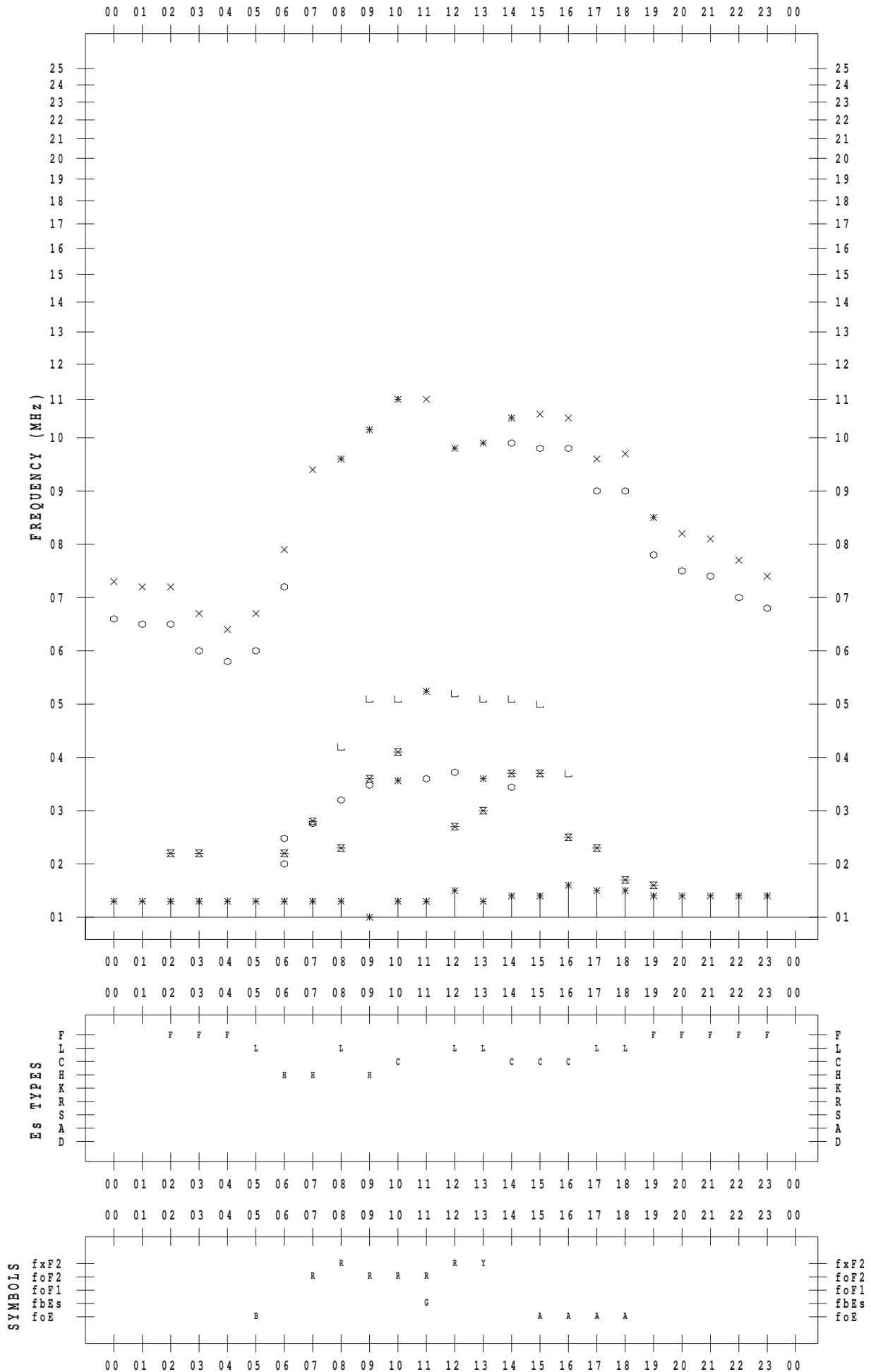
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 5

135 ° E MEAN TIME



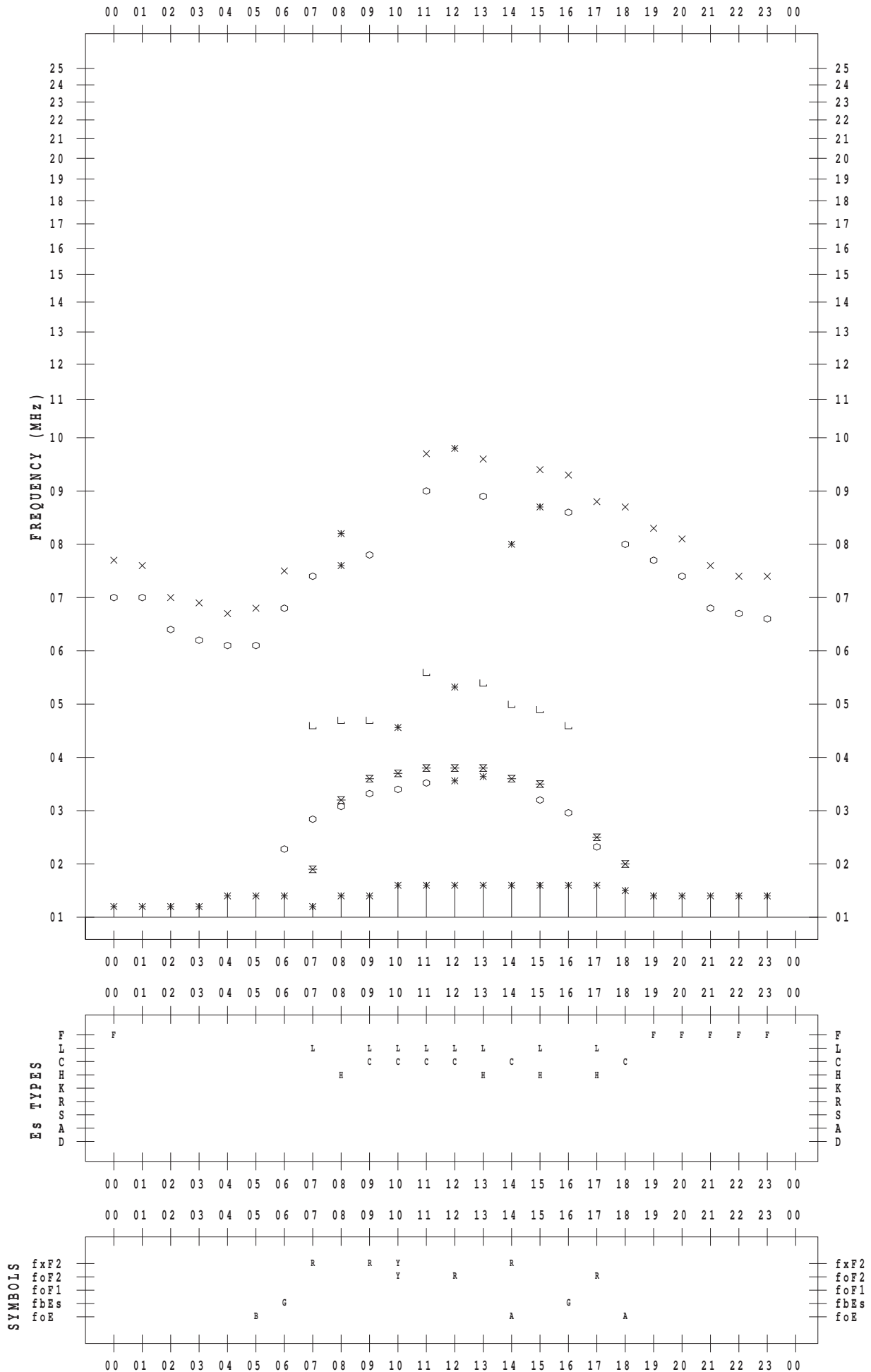
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 6

135 ° E MEAN TIME



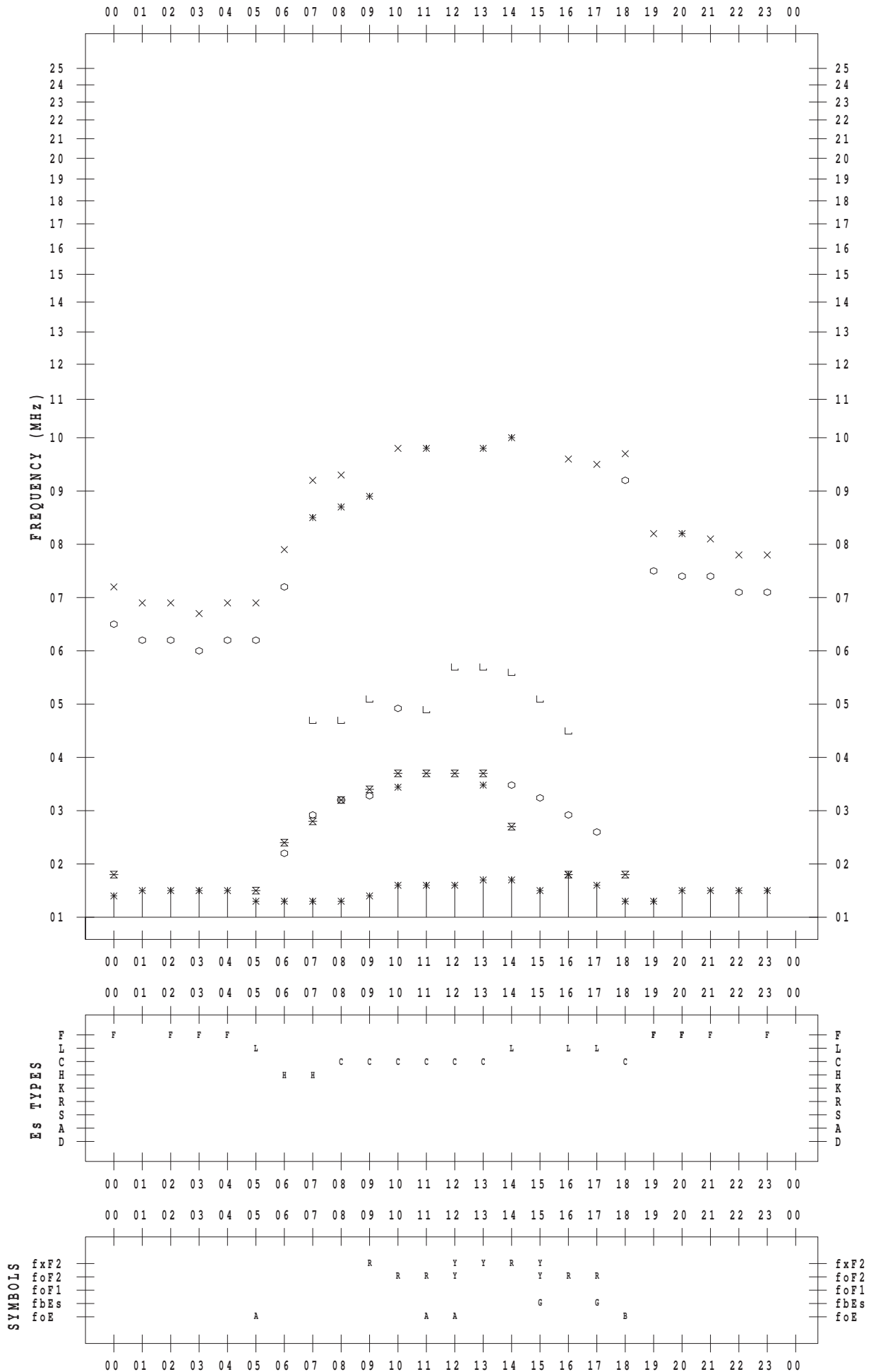
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 7

135 ° E MEAN TIME



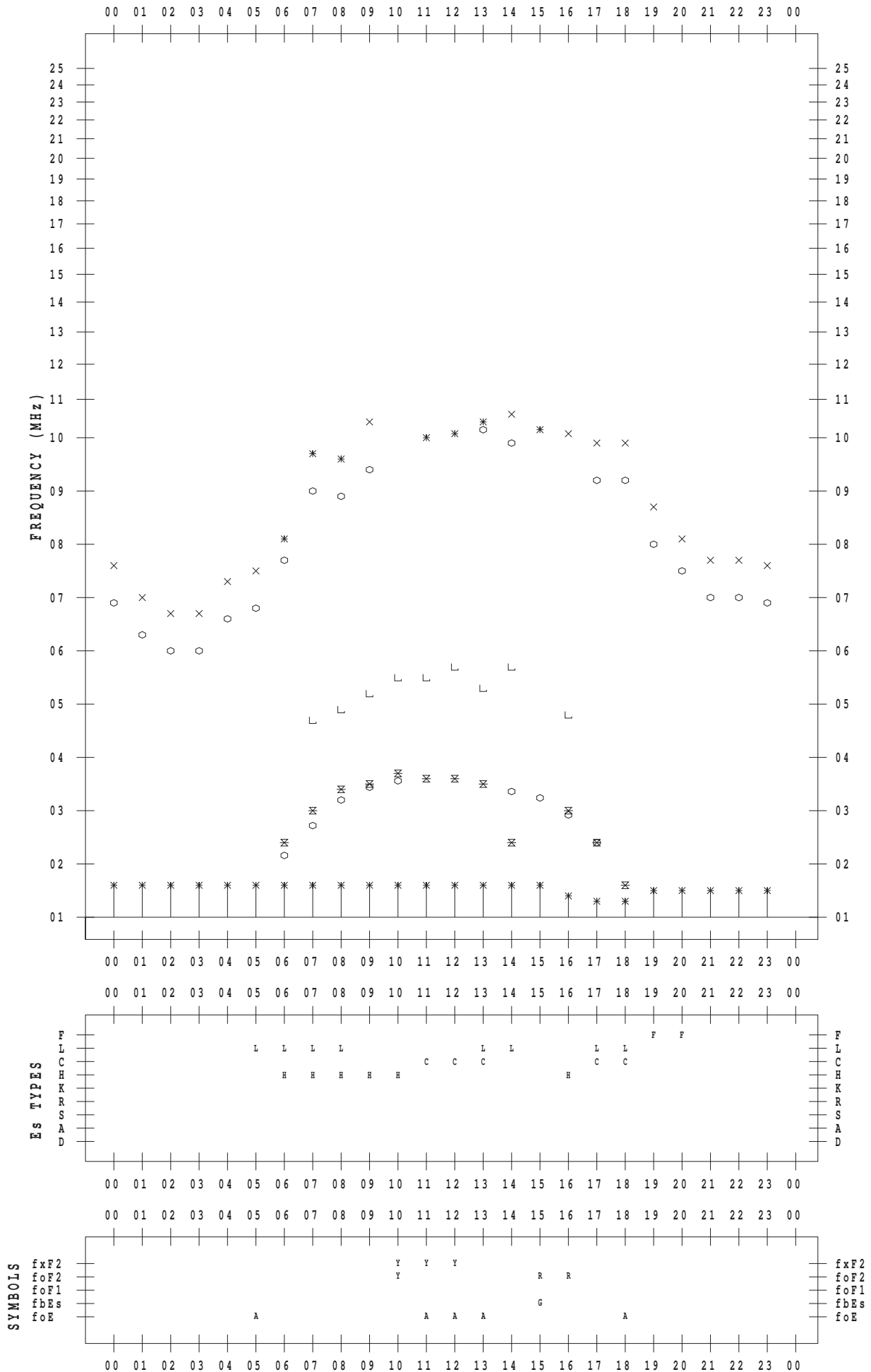
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 8

135 ° E MEAN TIME



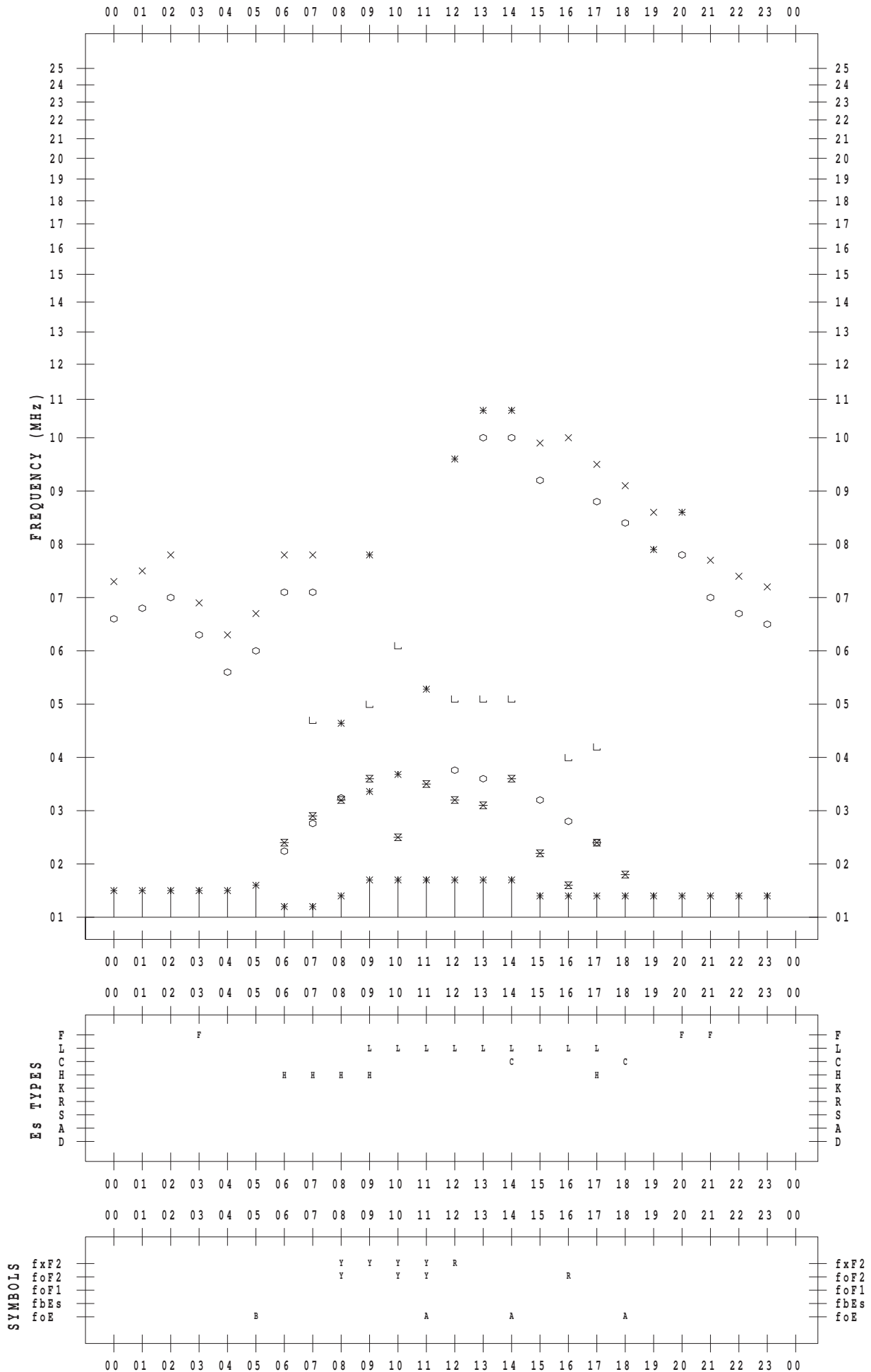
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 9

135 ° E MEAN TIME



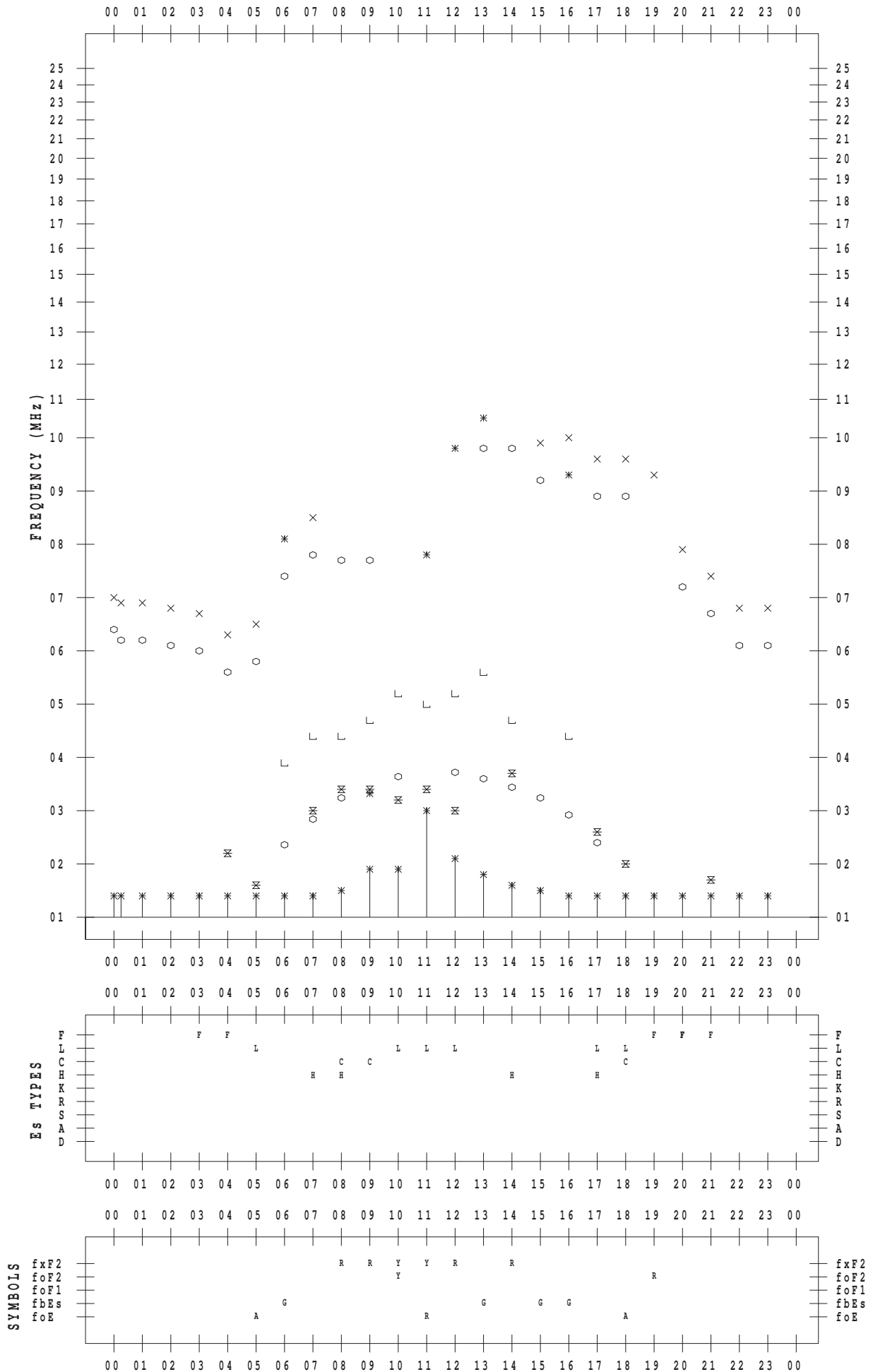
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 10

135 ° E MEAN TIME



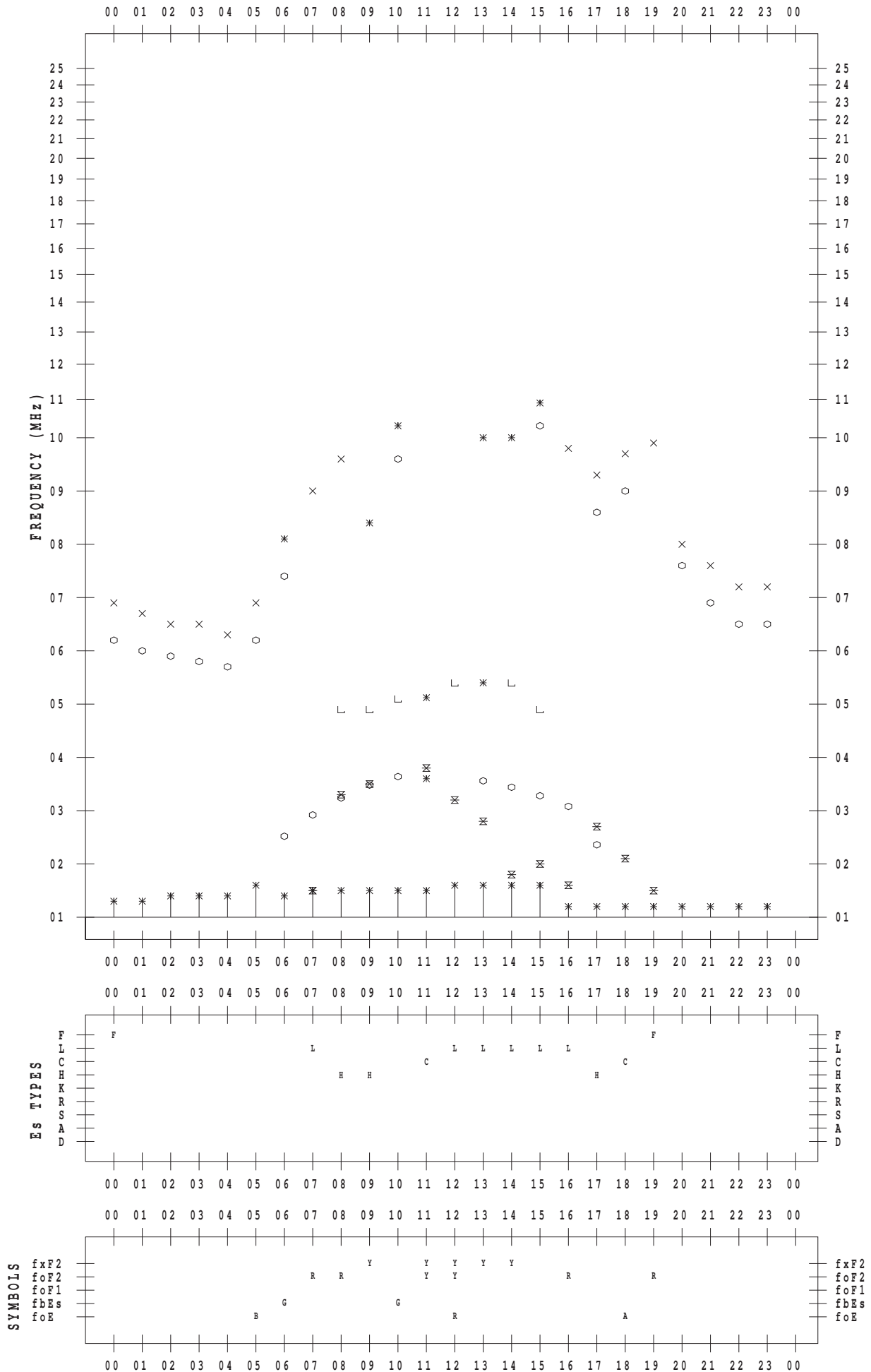
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 11

135 ° E MEAN TIME



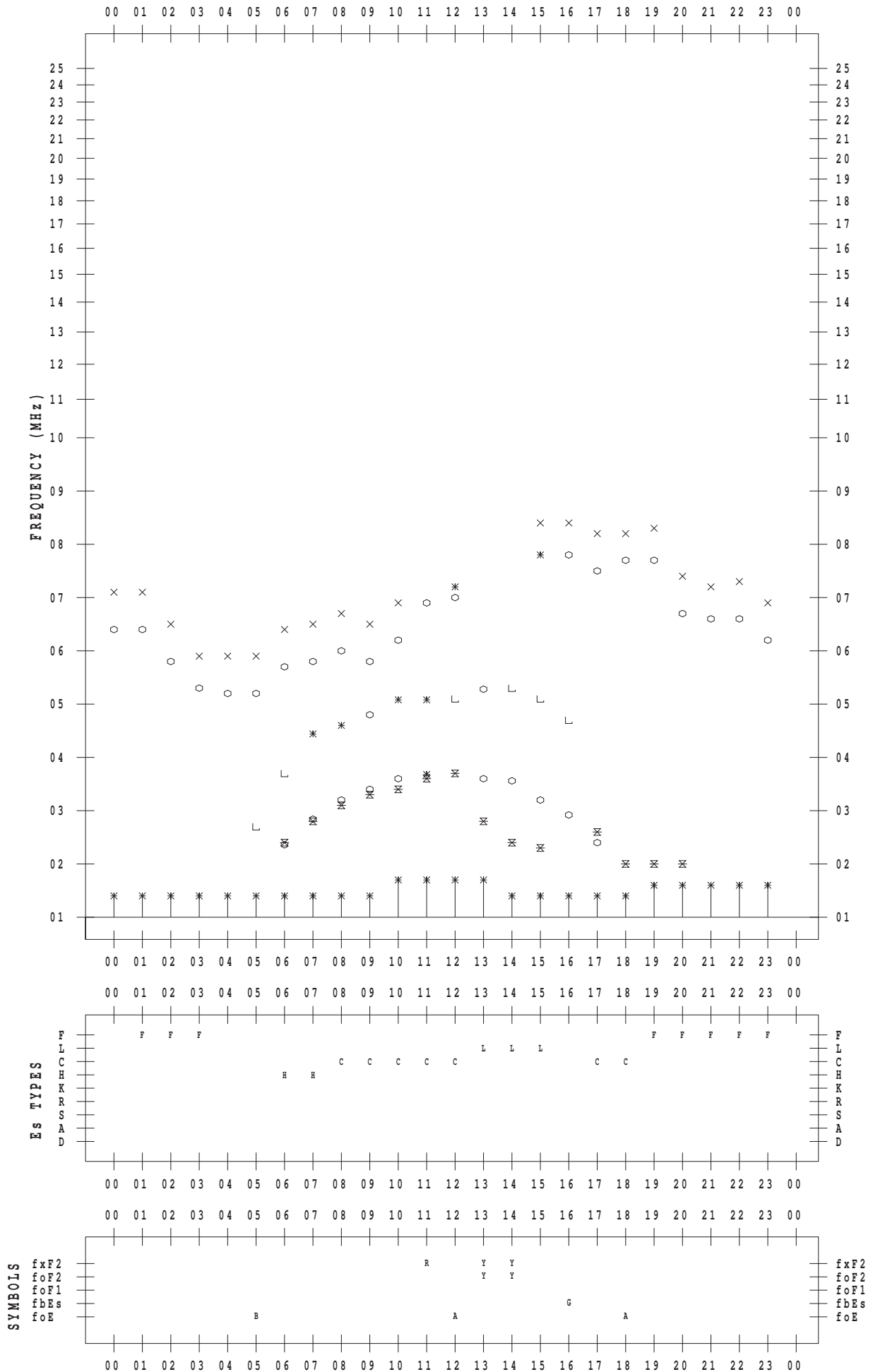
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 12

135 ° E MEAN TIME



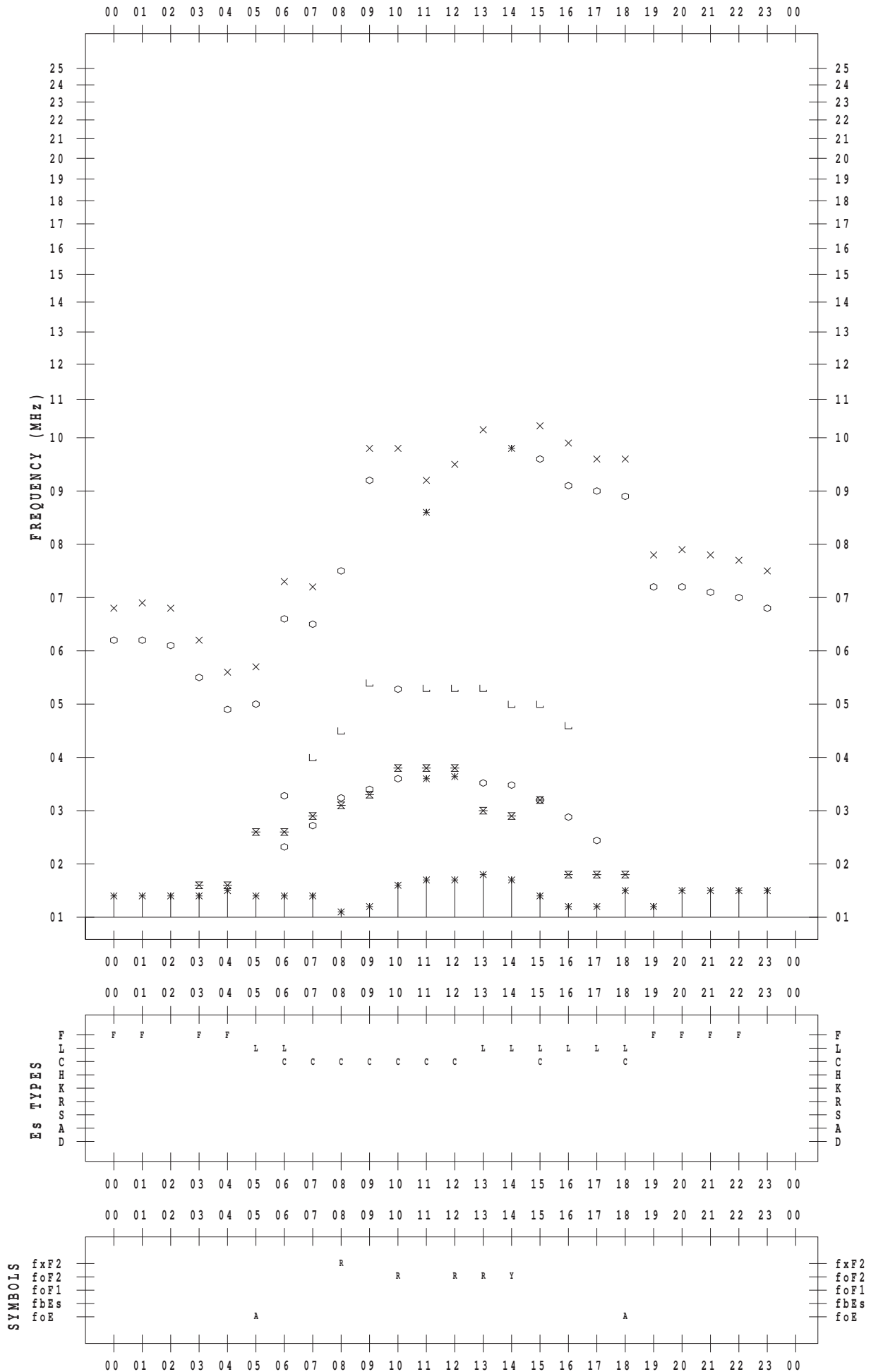
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 13

135 ° E MEAN TIME



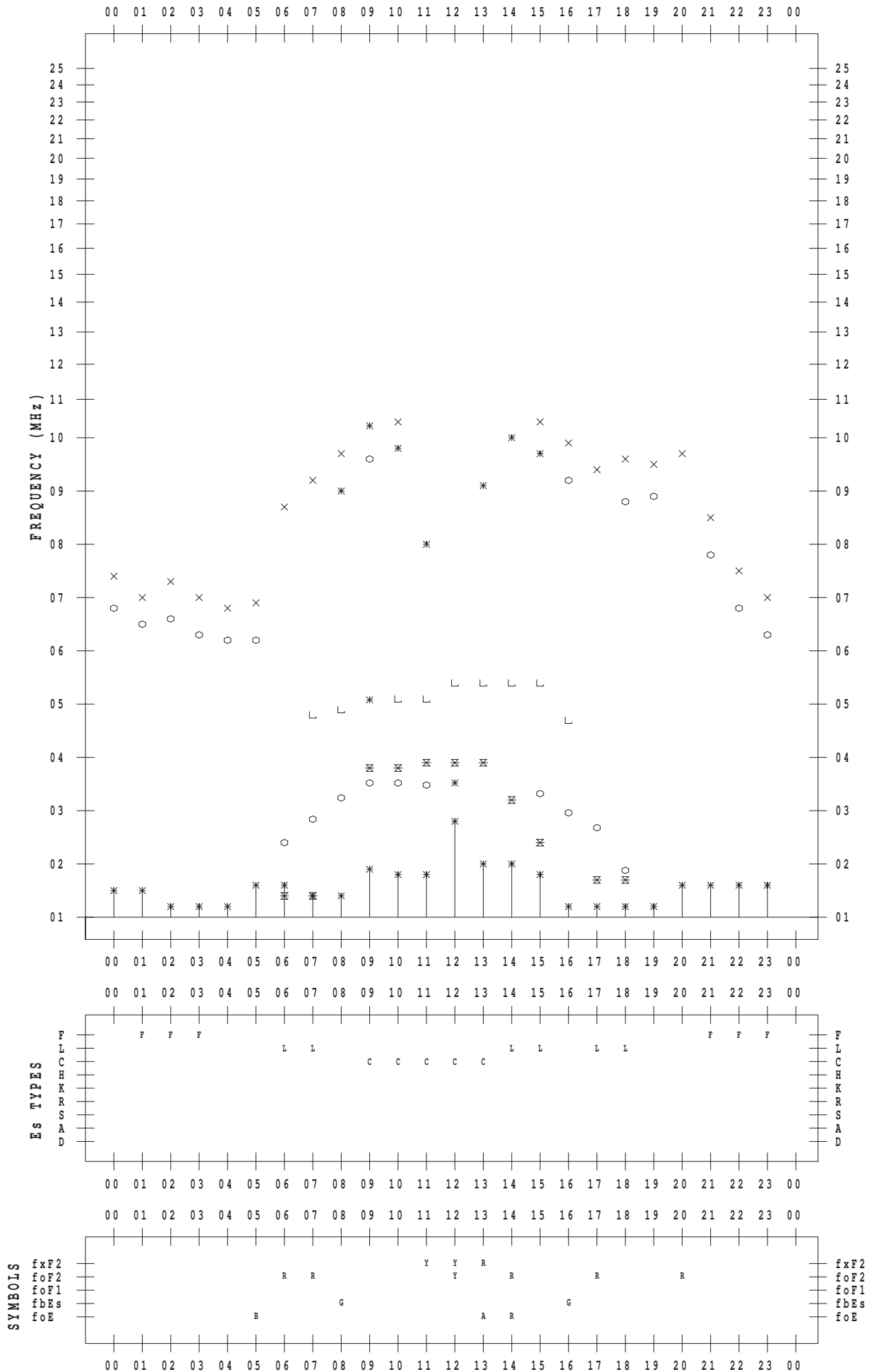
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 14

135 ° E MEAN TIME



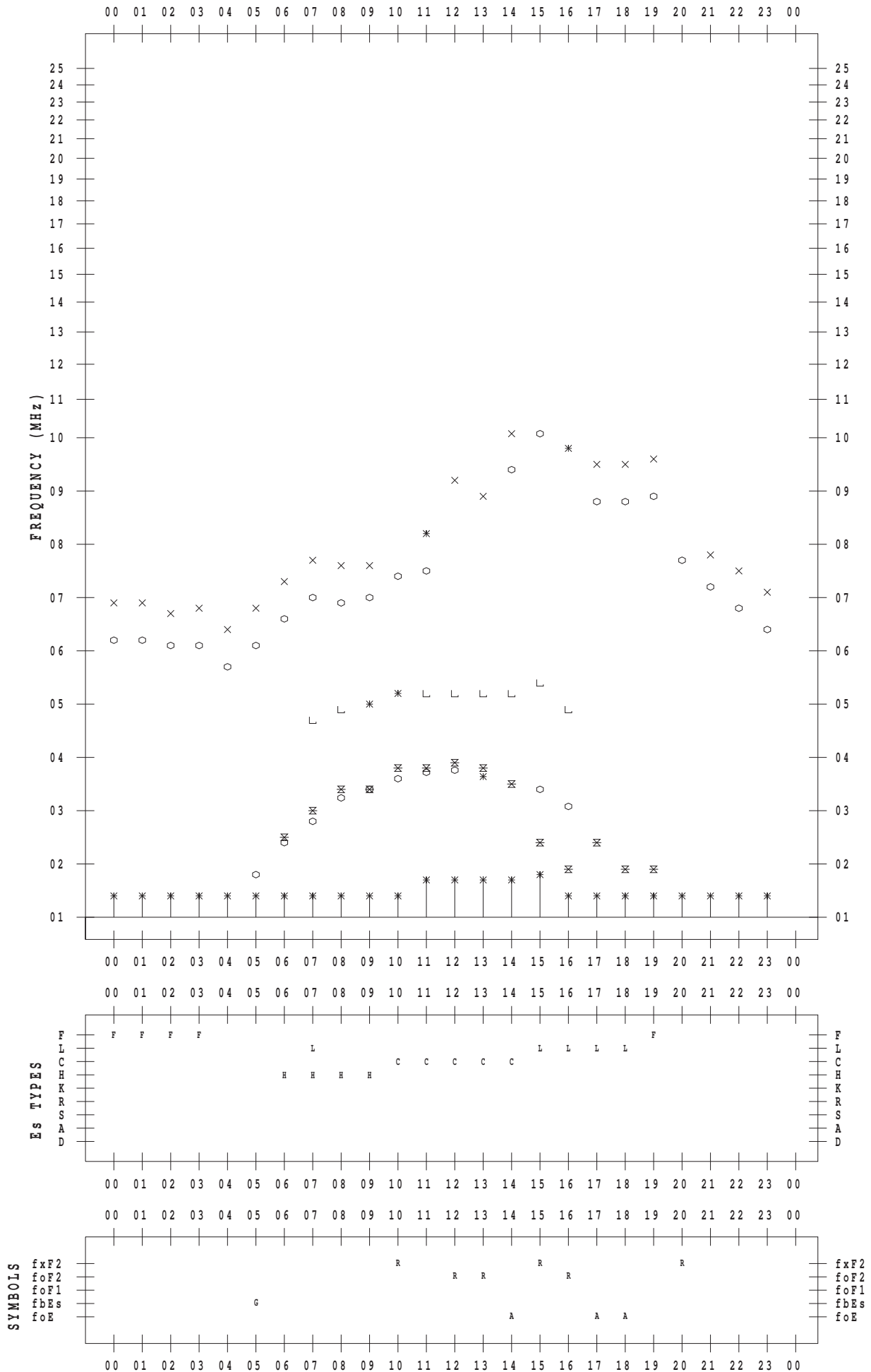
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 15

135 ° E MEAN TIME



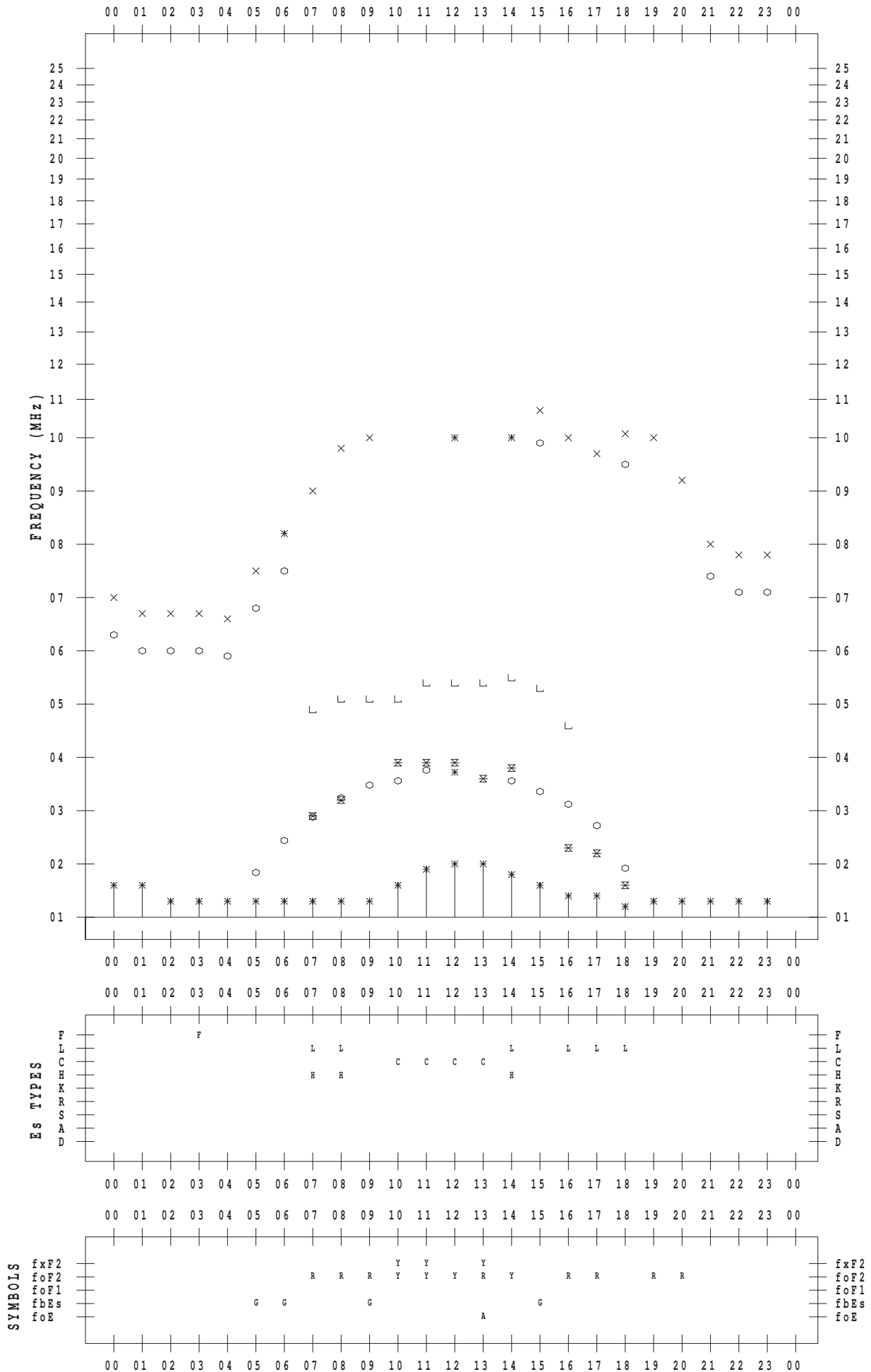
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 16

135 ° E MEAN TIME



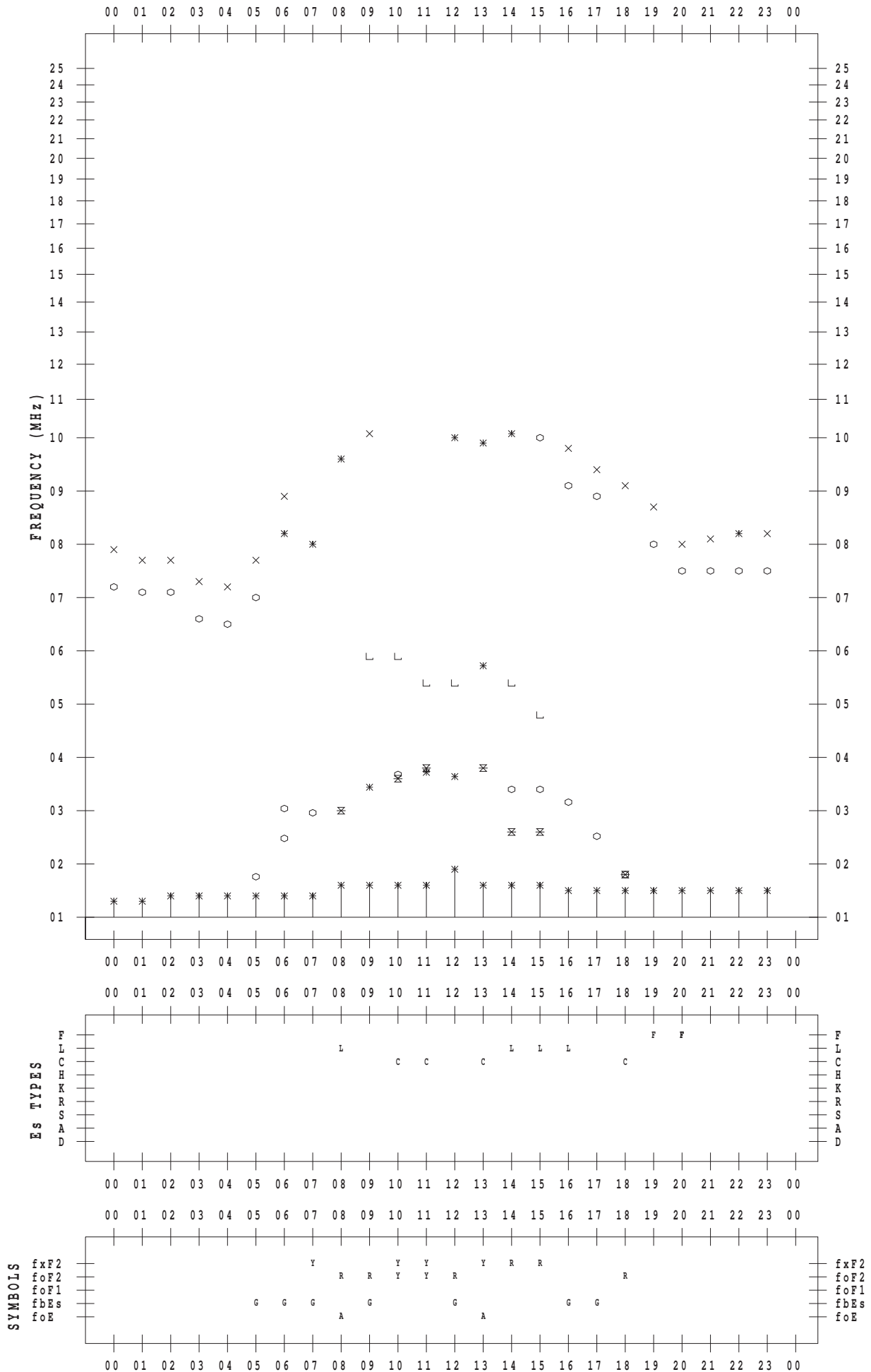
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 17

135 ° E MEAN TIME



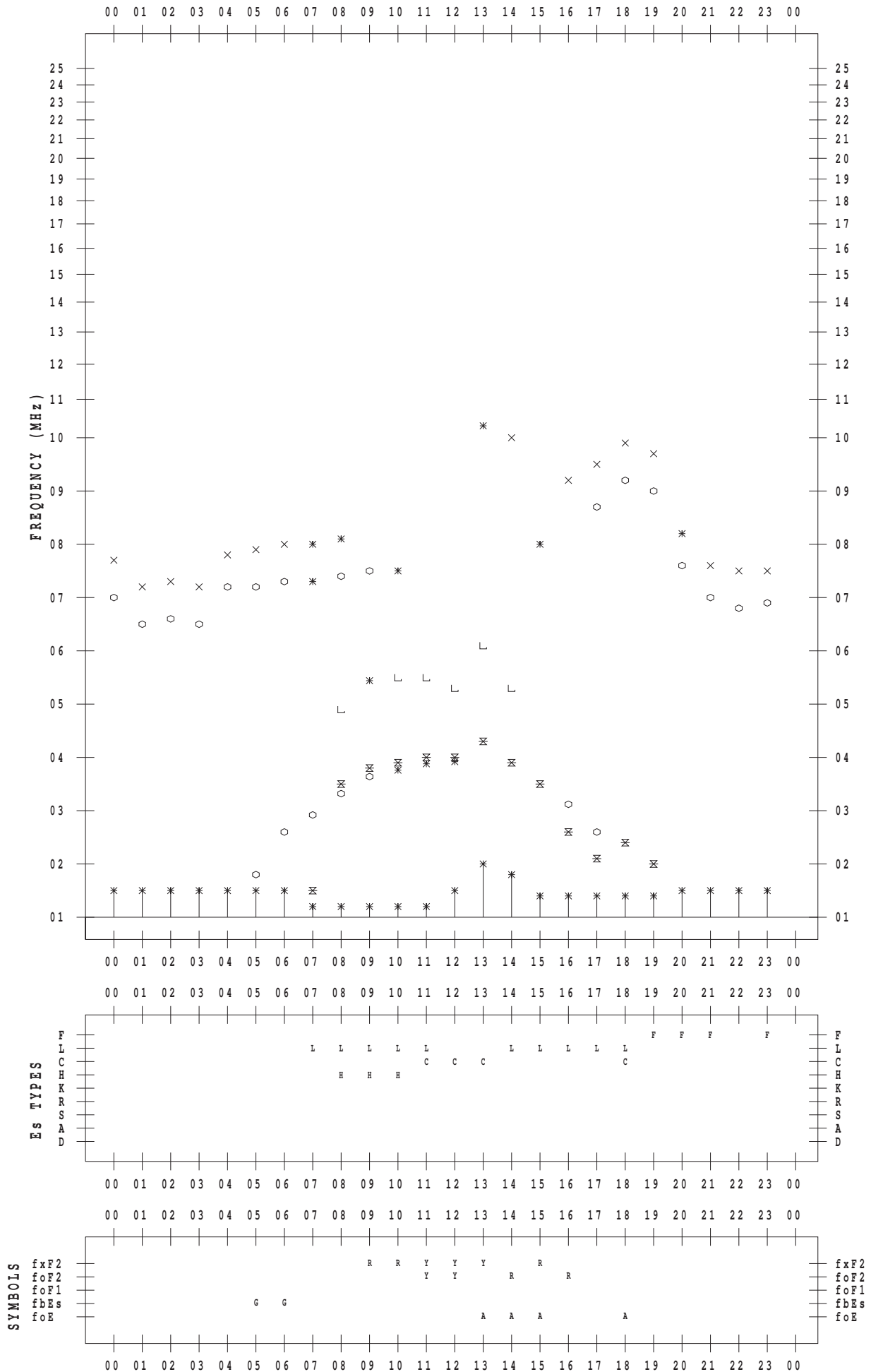
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 18

135 ° E MEAN TIME



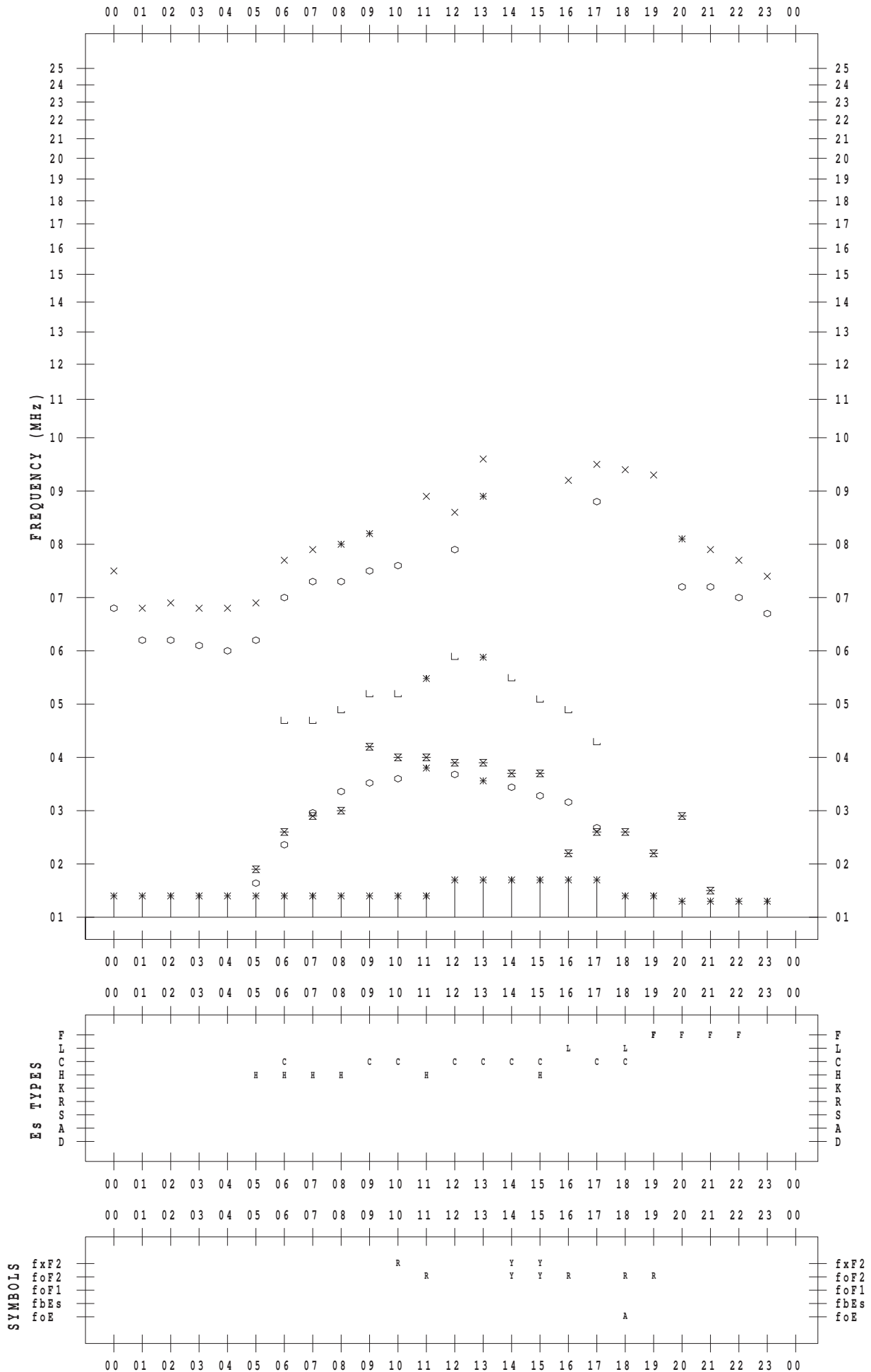
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 19

135 ° E MEAN TIME



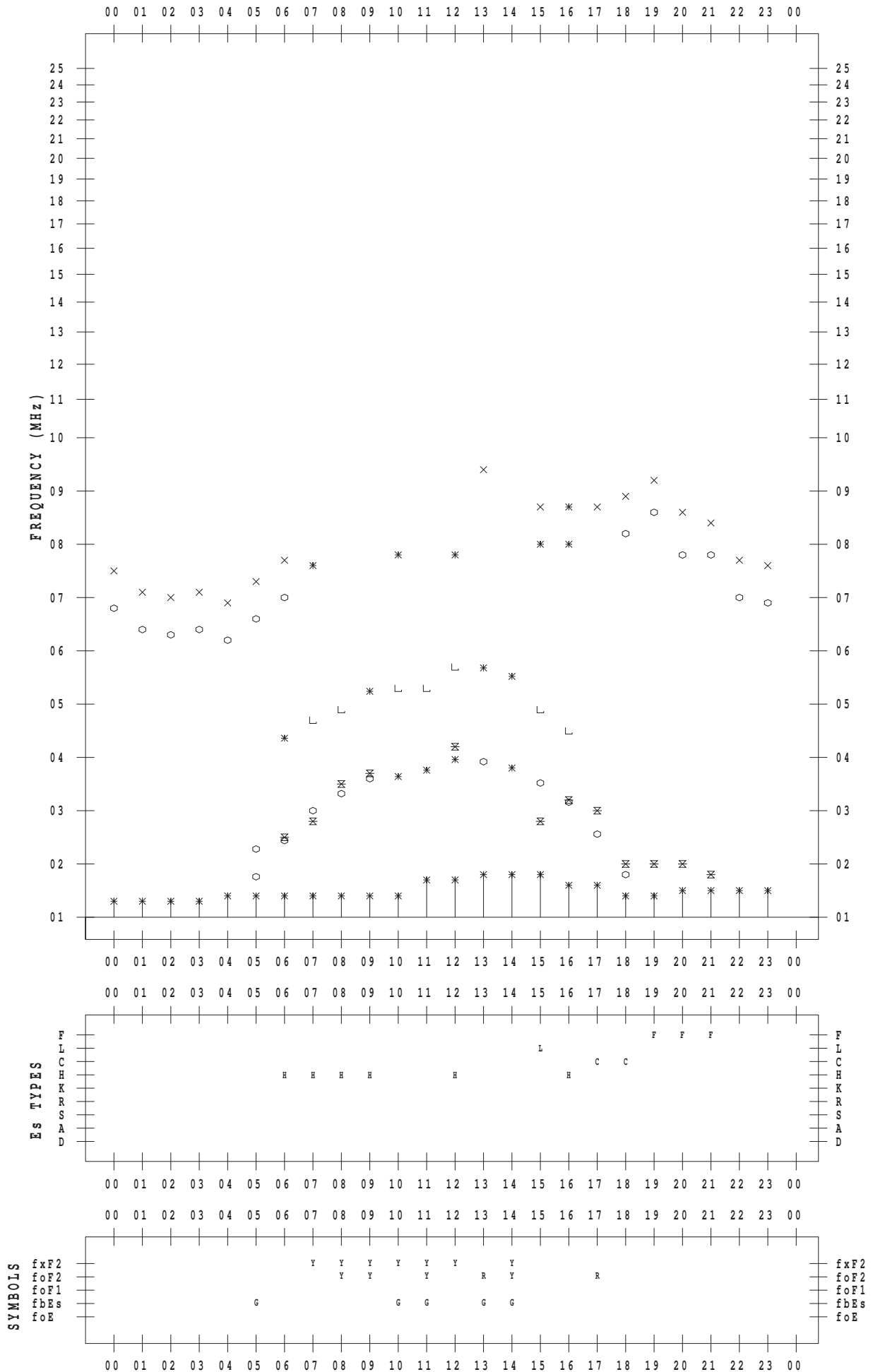
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 20

135 ° E MEAN TIME



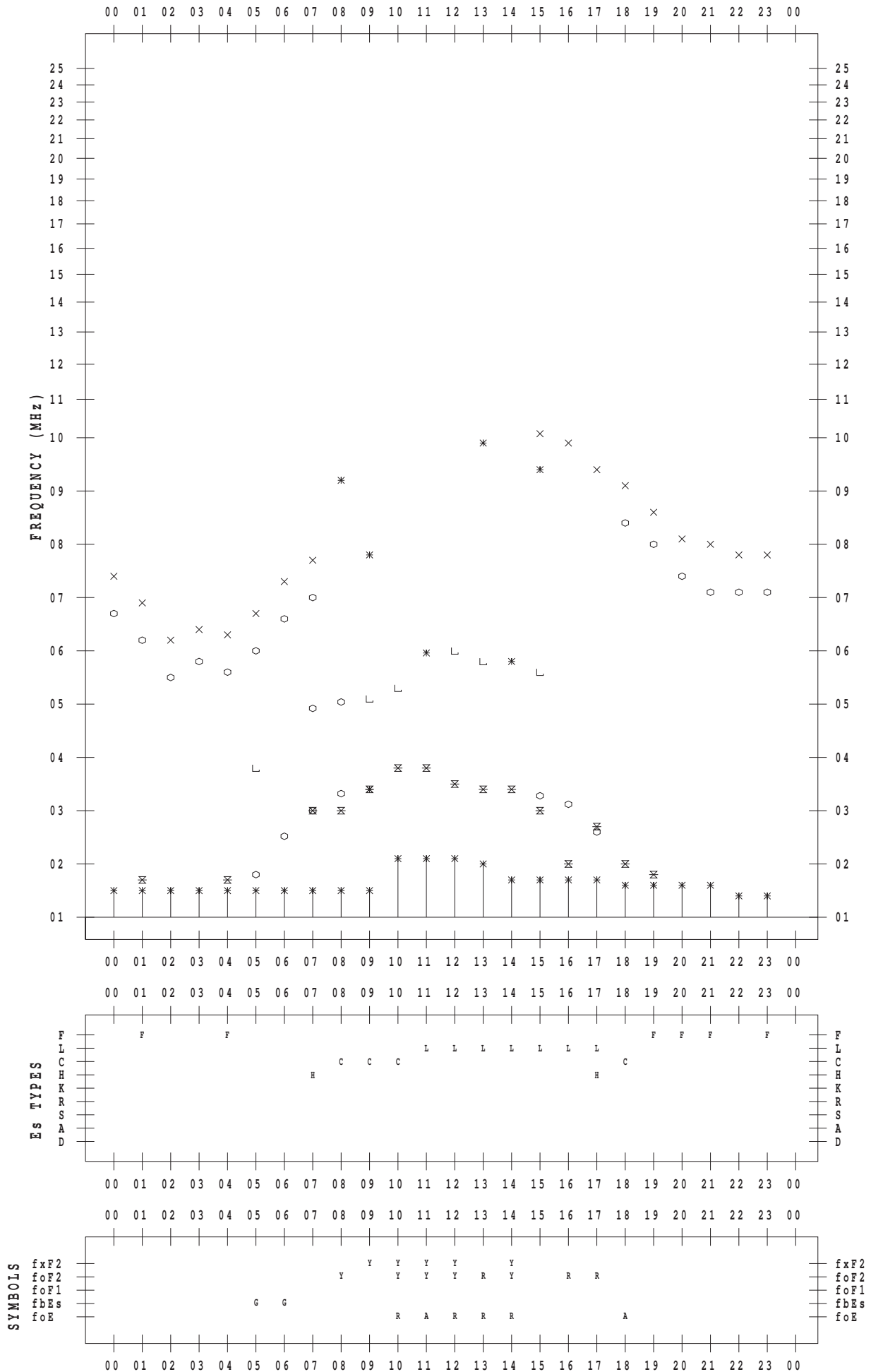
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 21

135 ° E MEAN TIME



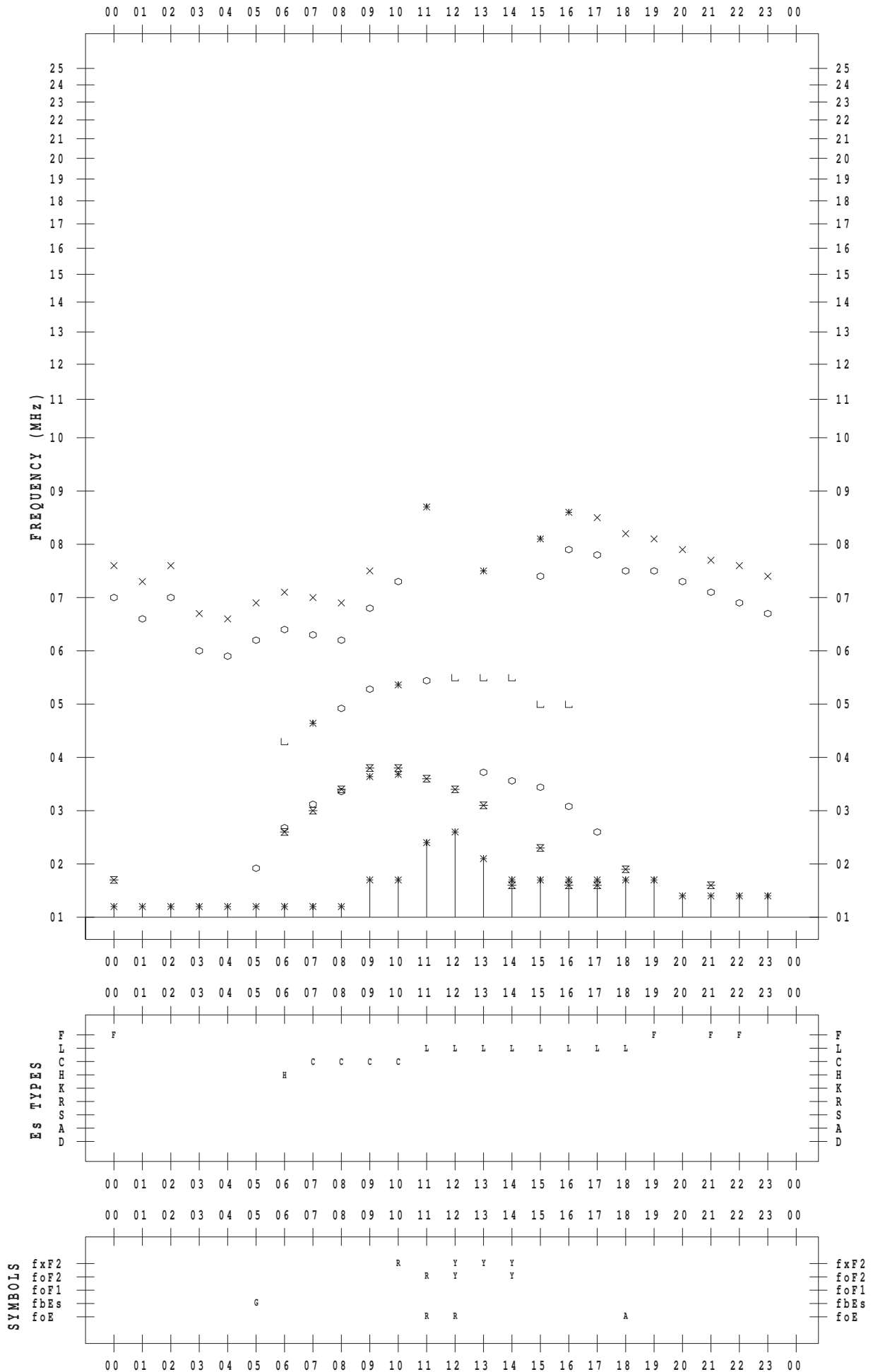
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 22

135 ° E MEAN TIME



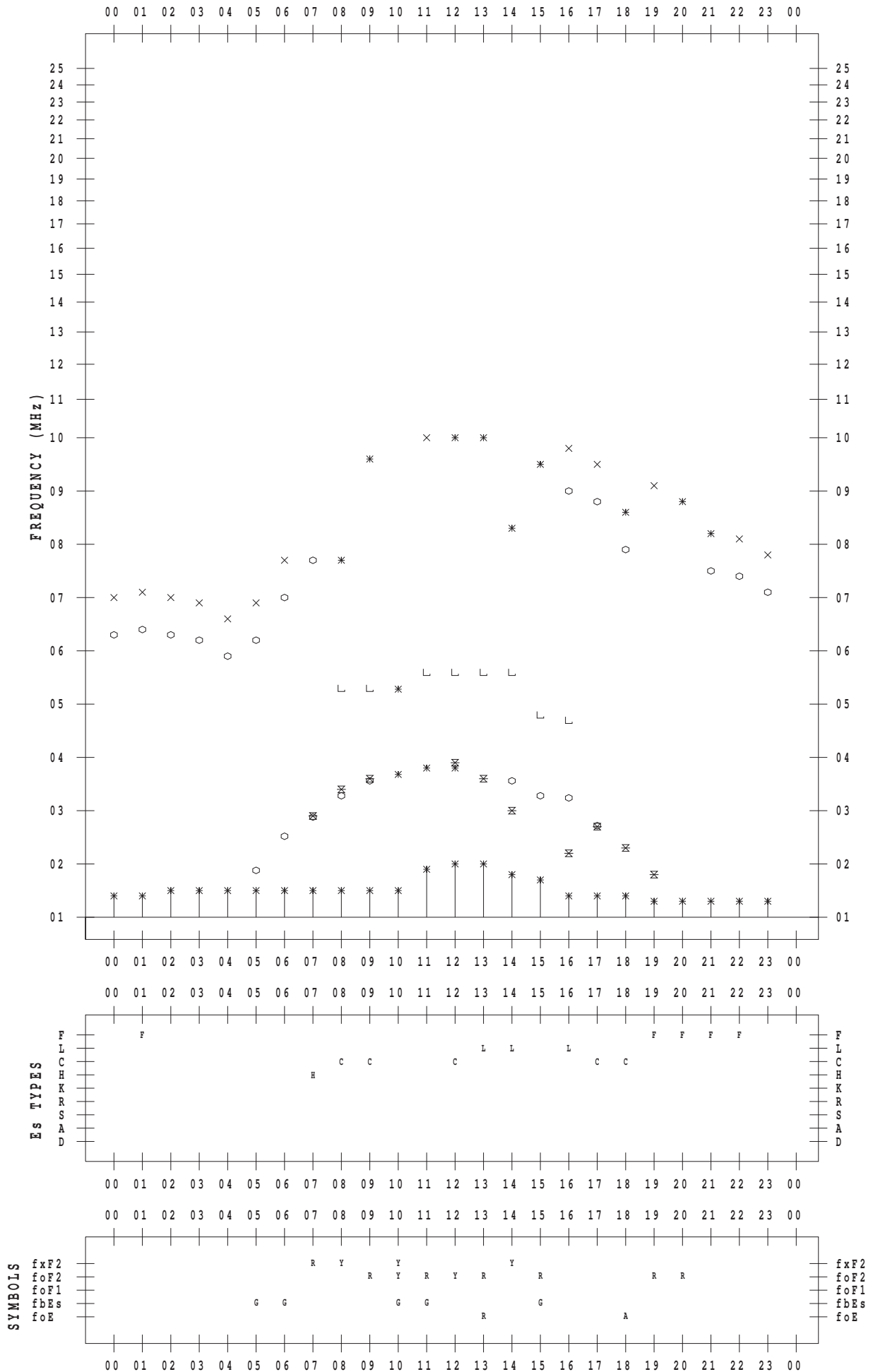
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 23

135 ° E MEAN TIME



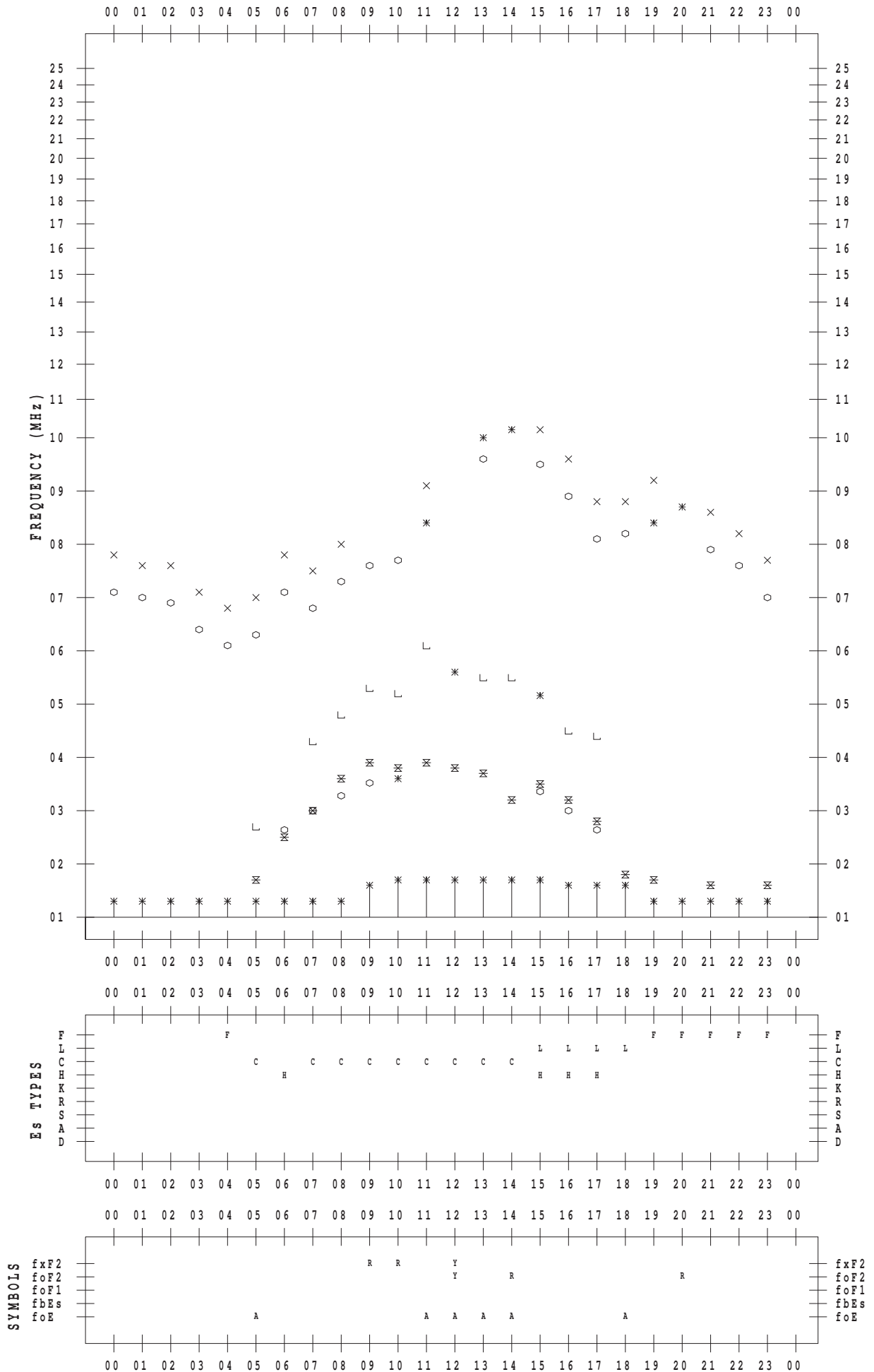
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 24

135 ° E MEAN TIME



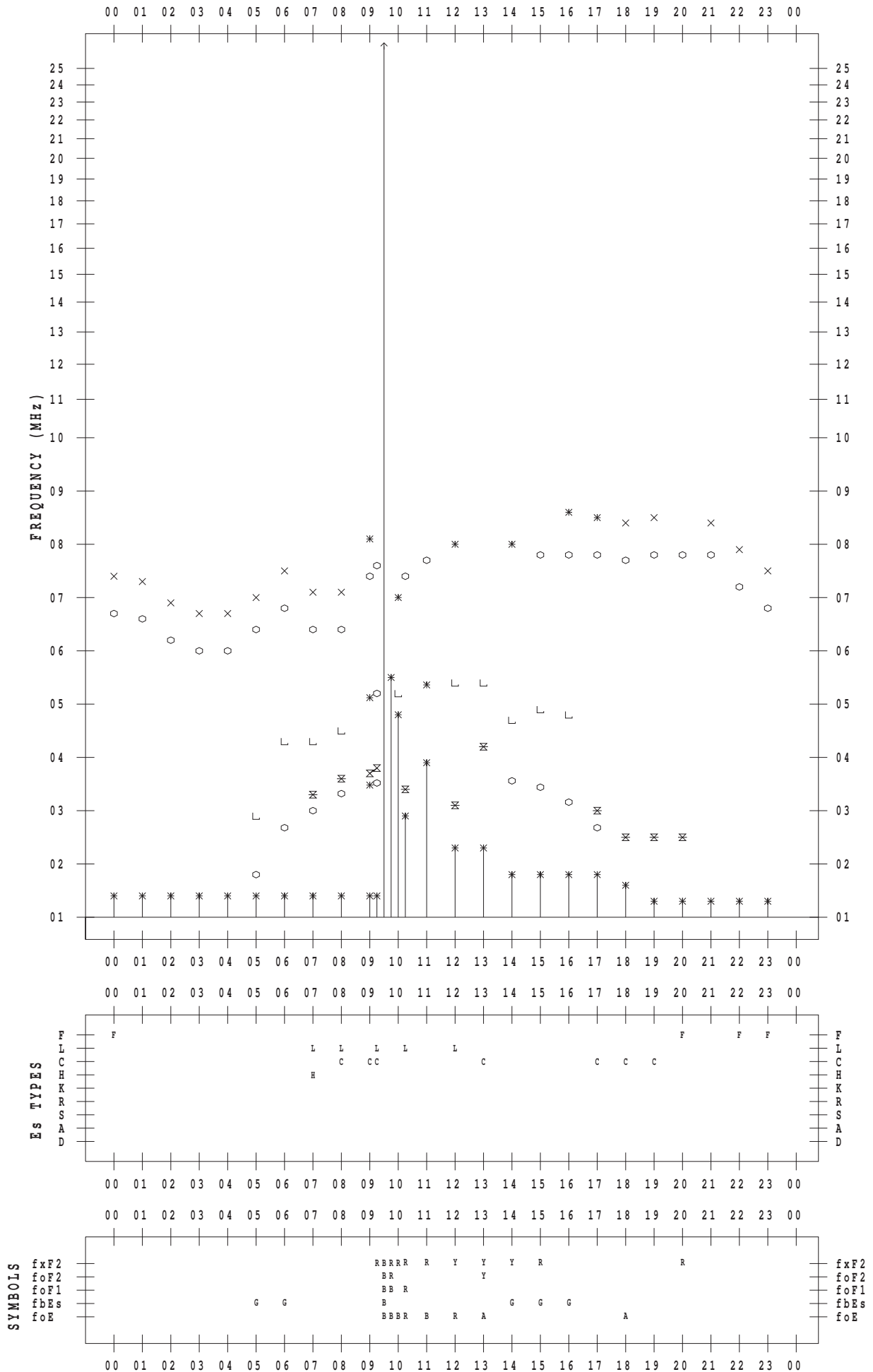
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 25

135 ° E MEAN TIME



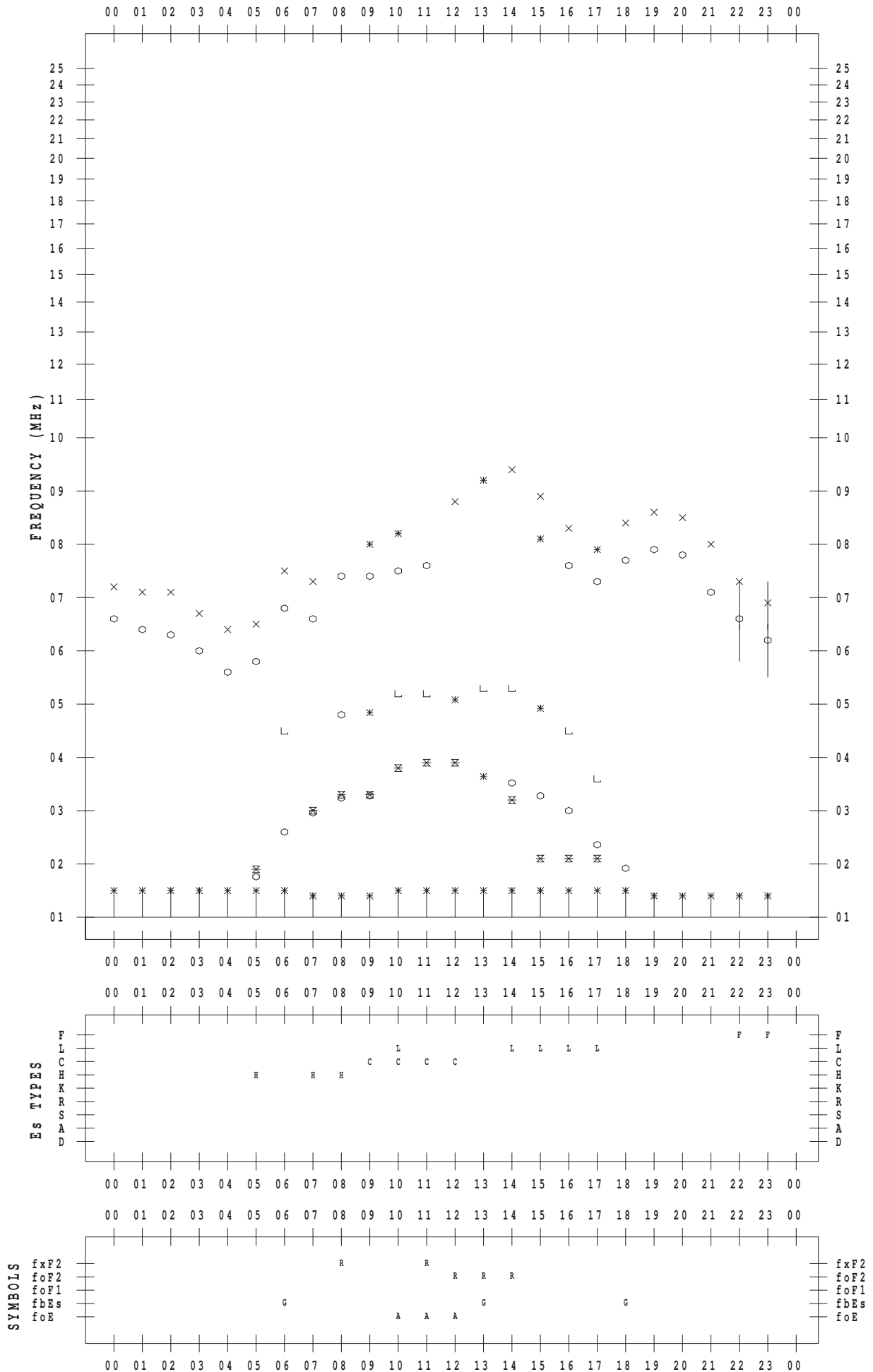
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 26

135 ° E MEAN TIME



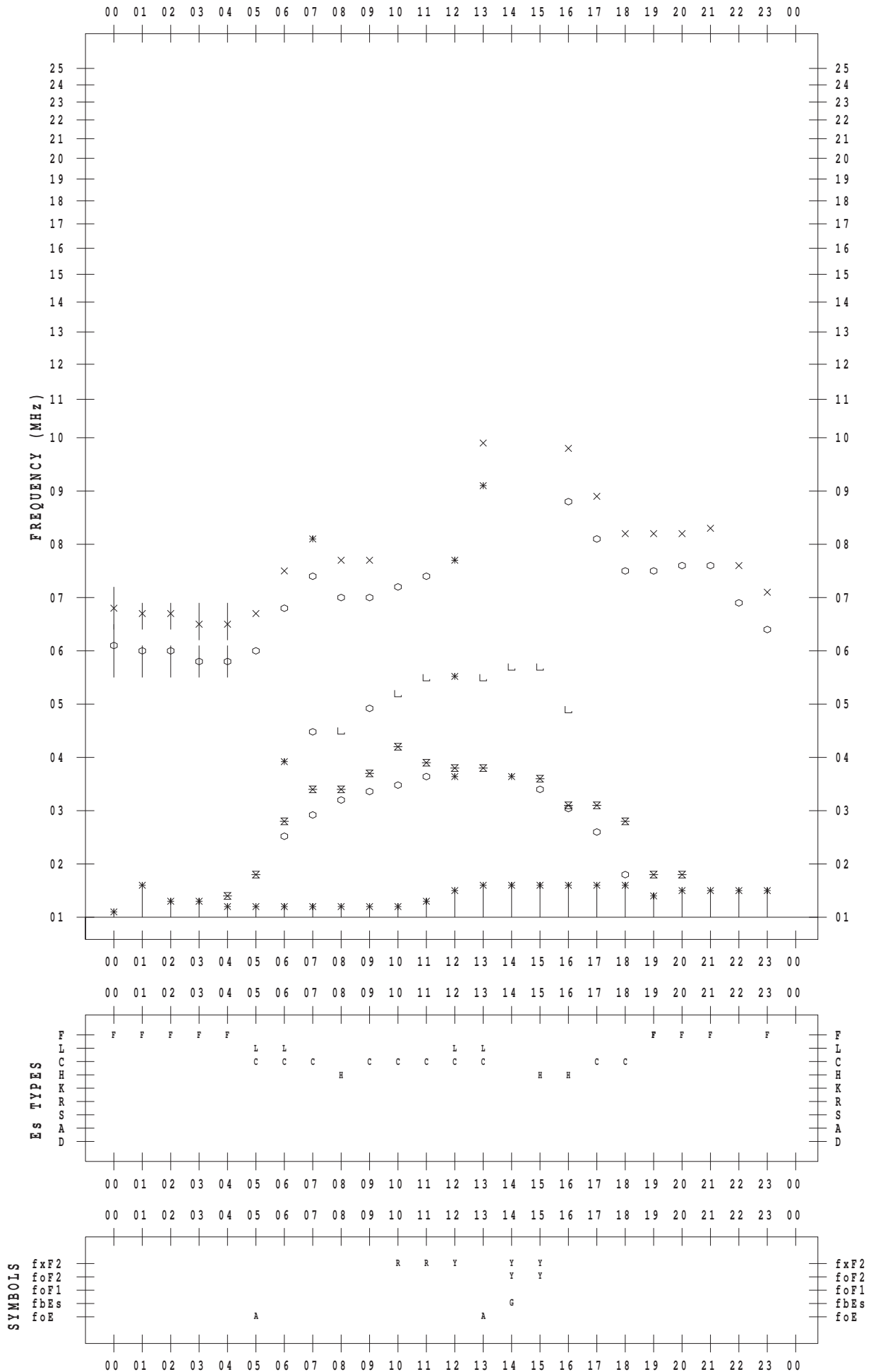
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 27

135 ° E MEAN TIME



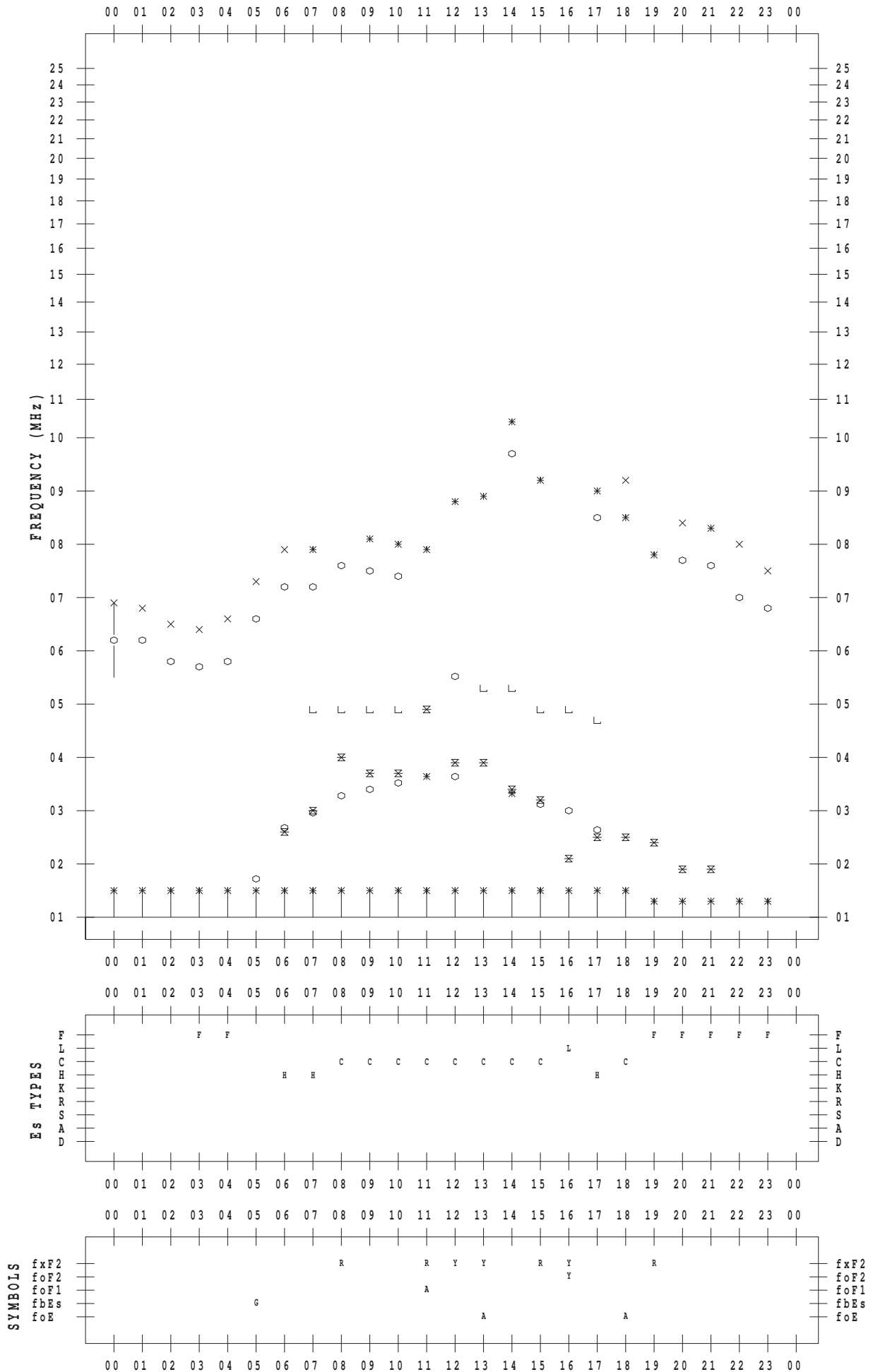
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 28

135 ° E MEAN TIME



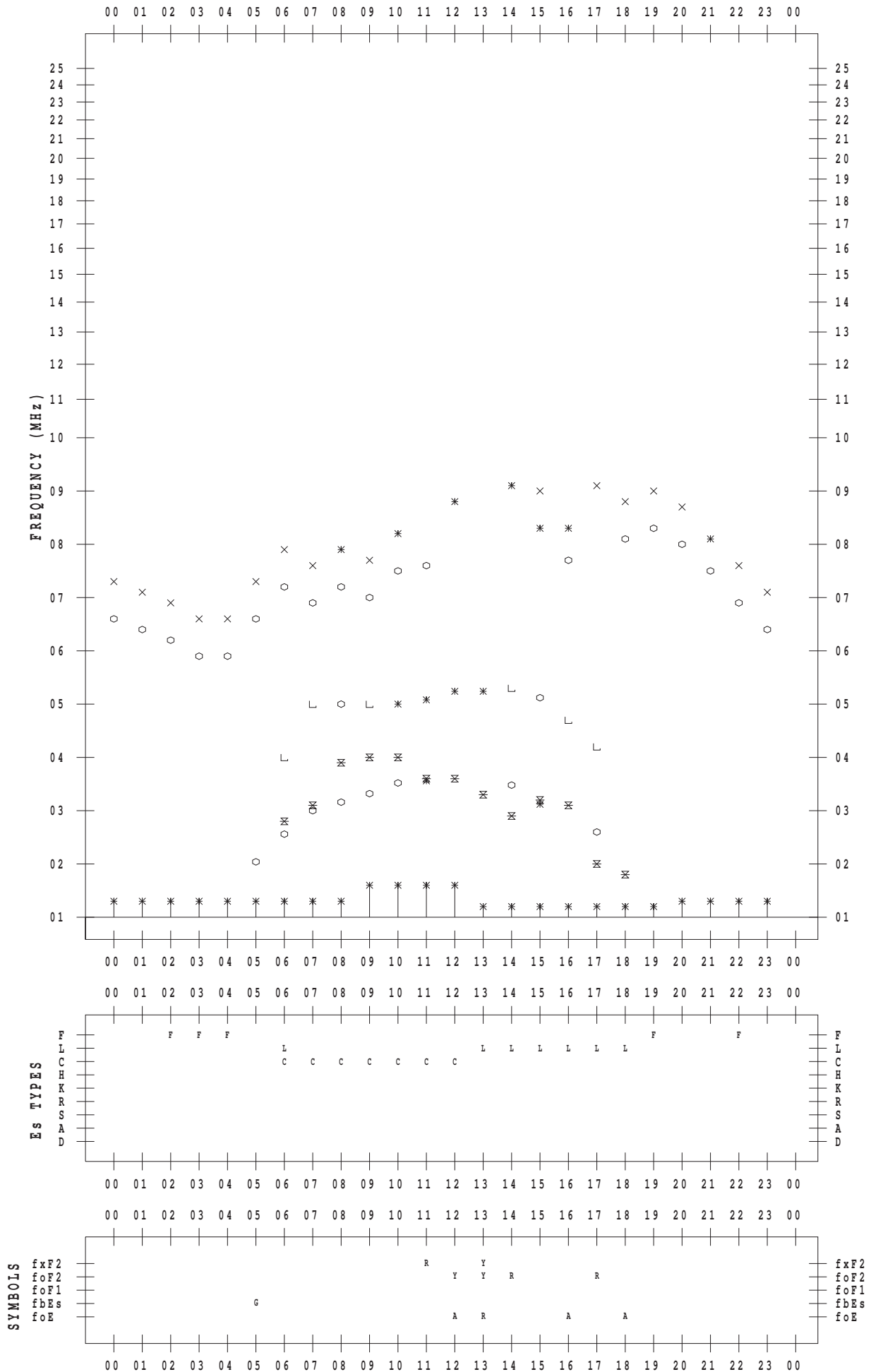
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 29

135 ° E MEAN TIME



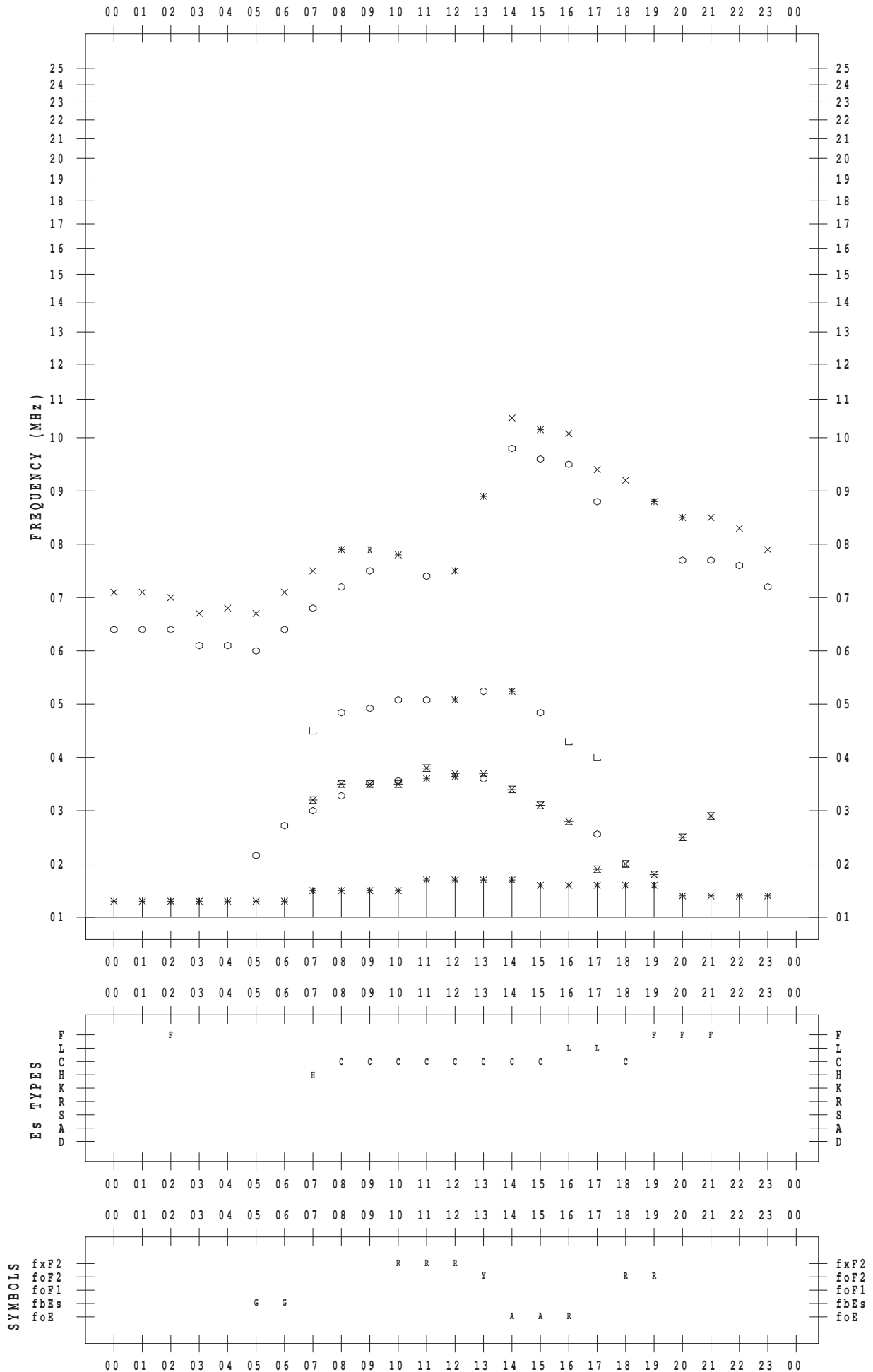
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 4 / 30

135 ° E MEAN TIME



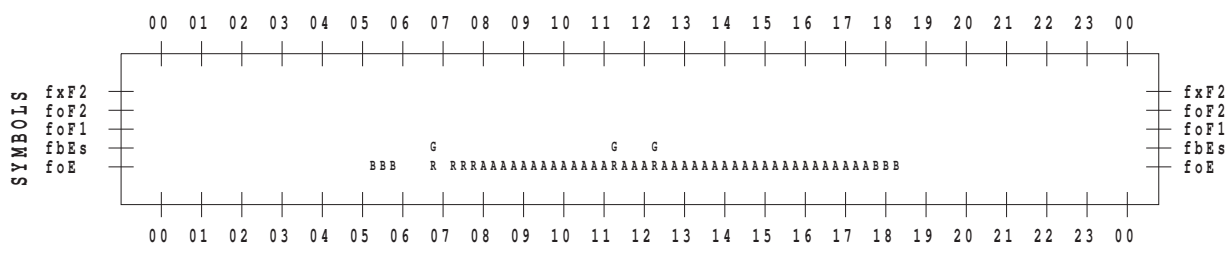
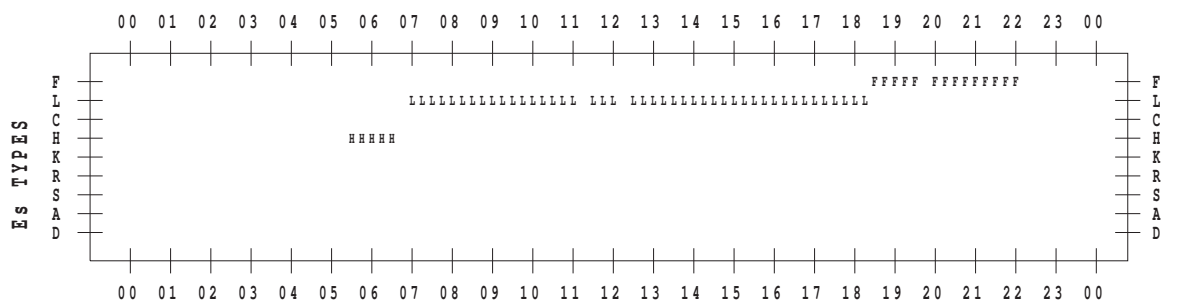
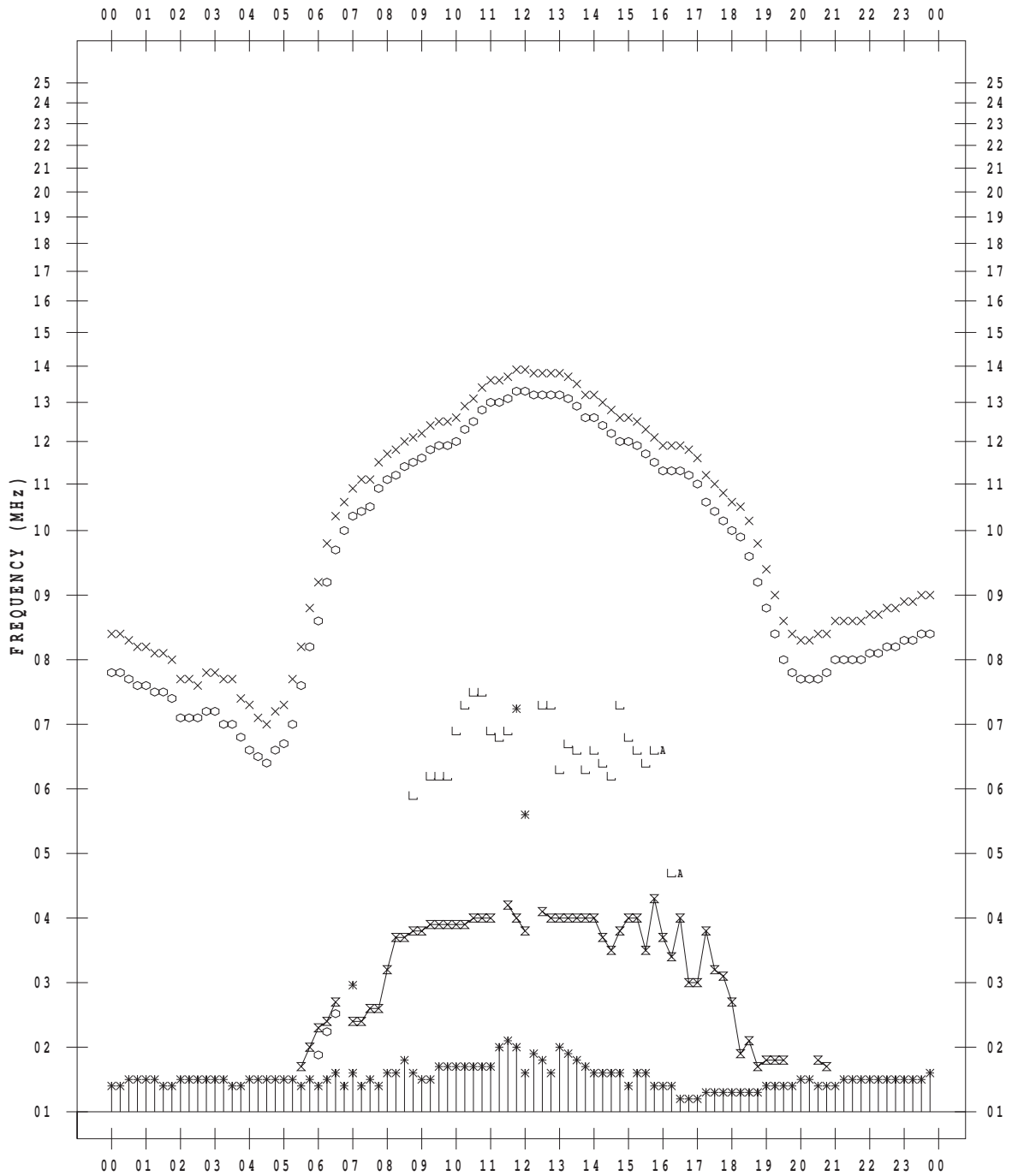
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 2

135 ° E MEAN TIME



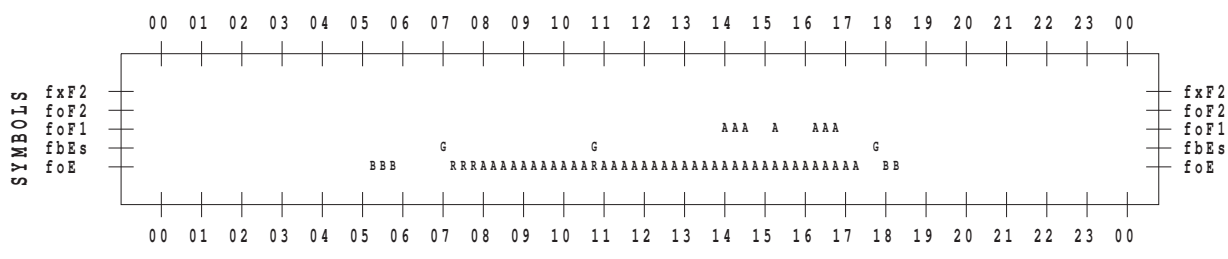
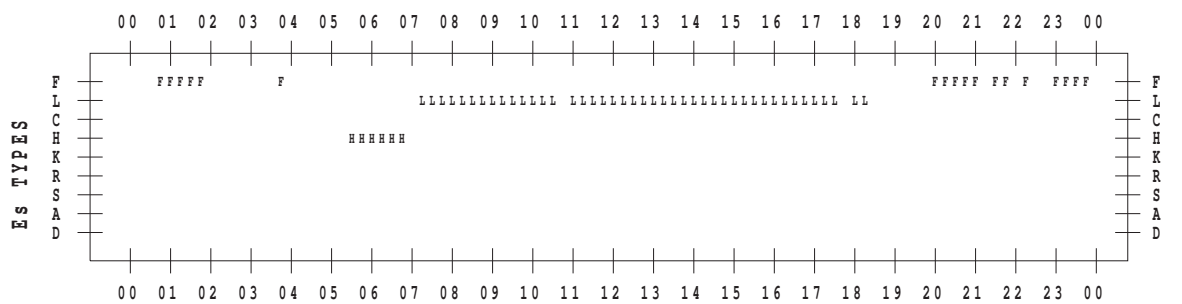
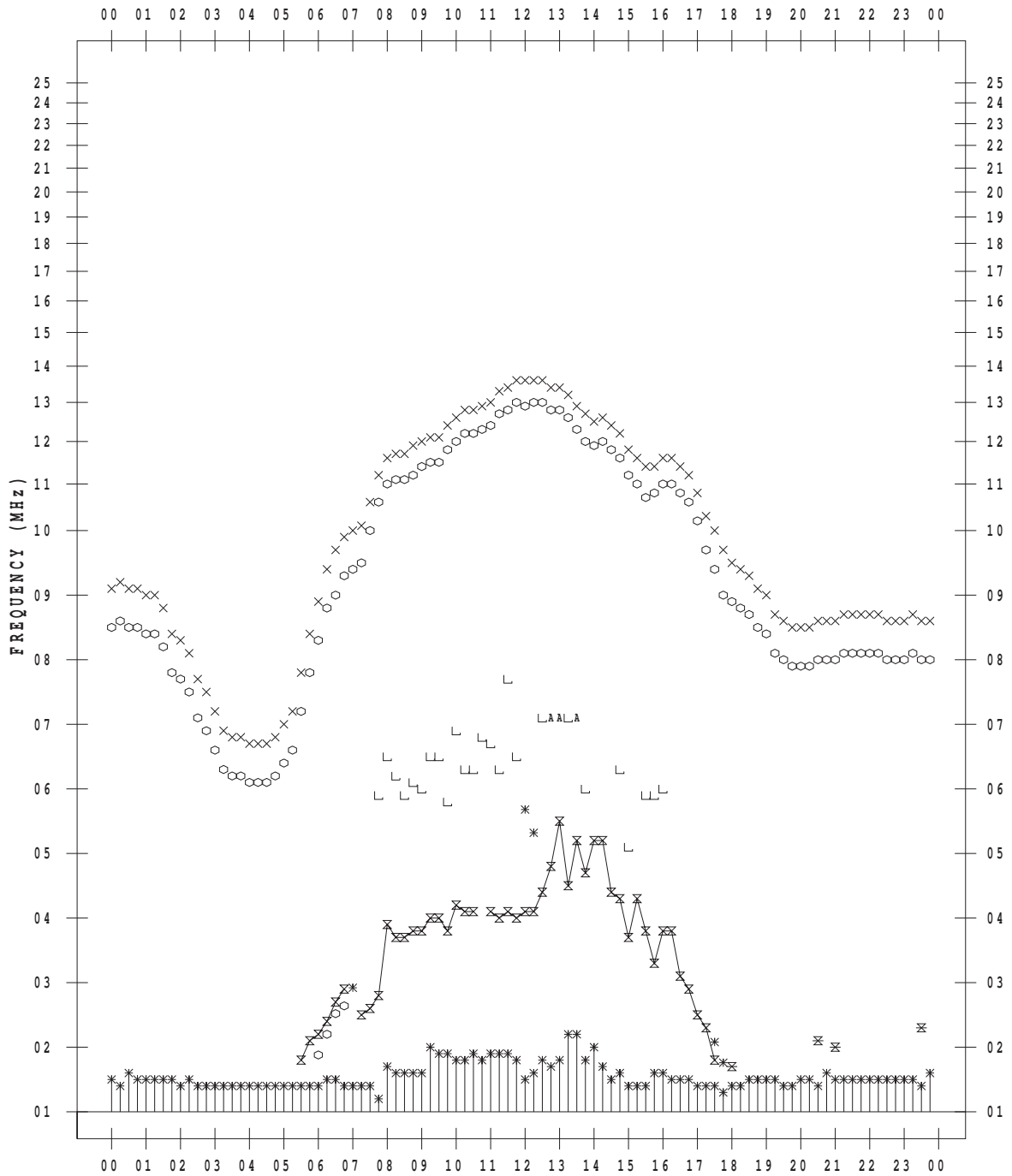
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 3

135 ° E MEAN TIME



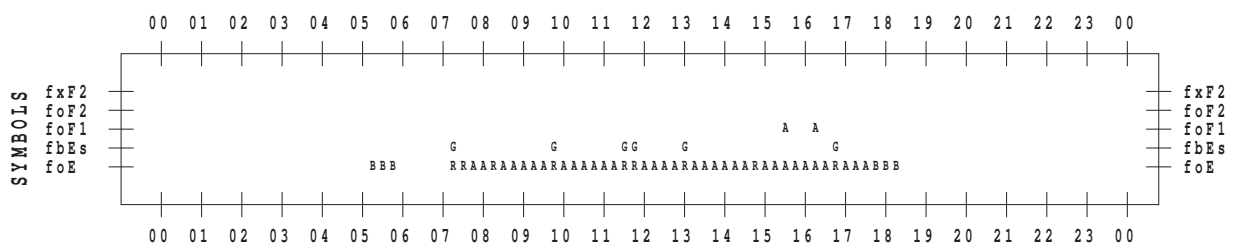
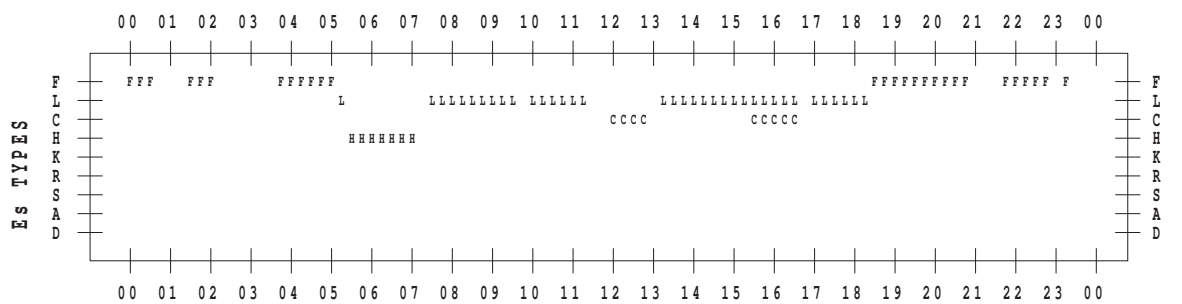
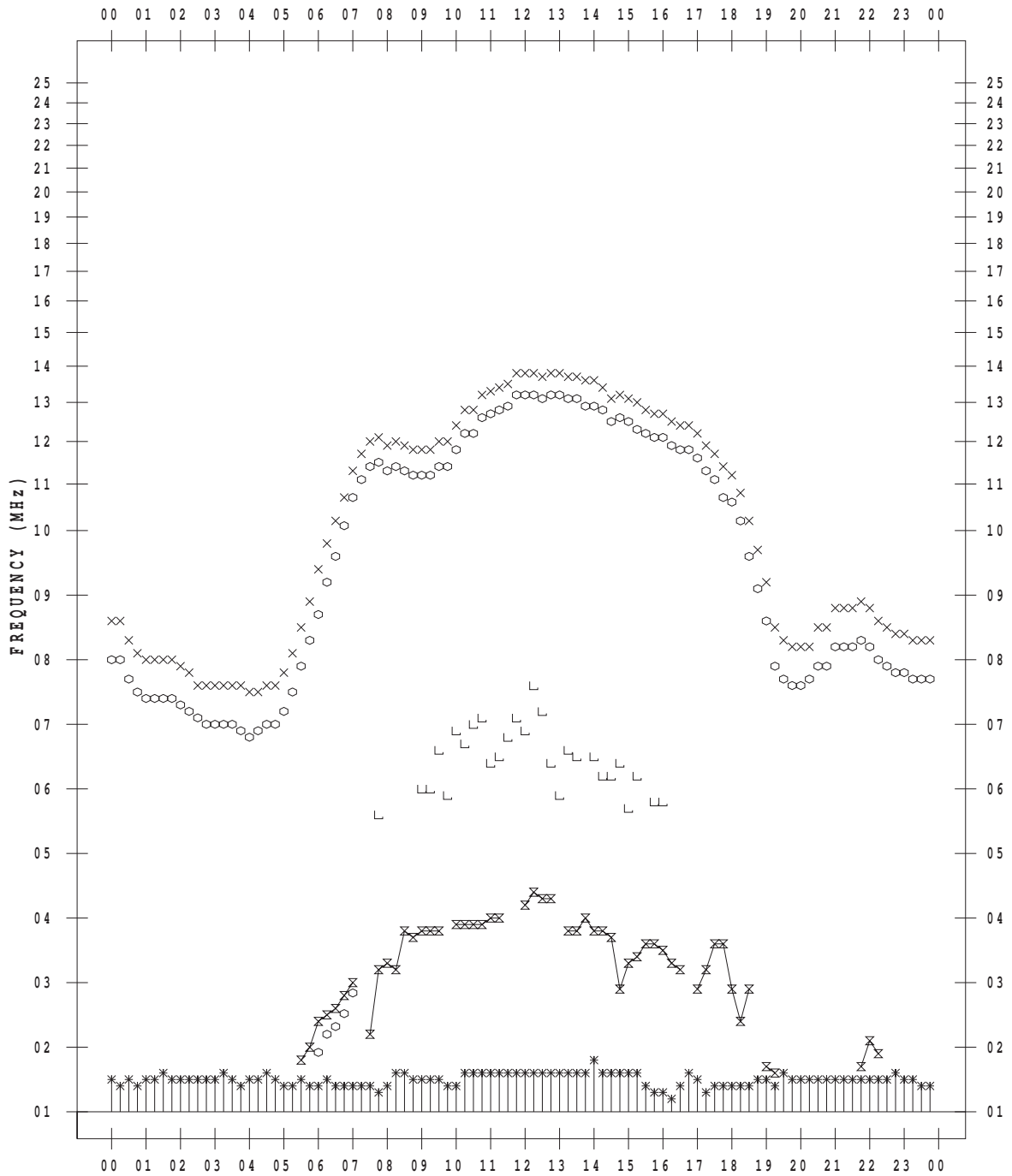
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 4

135 ° E MEAN TIME



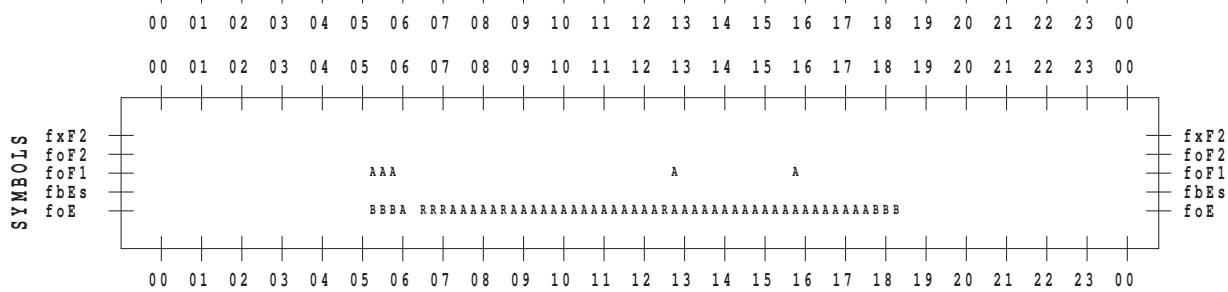
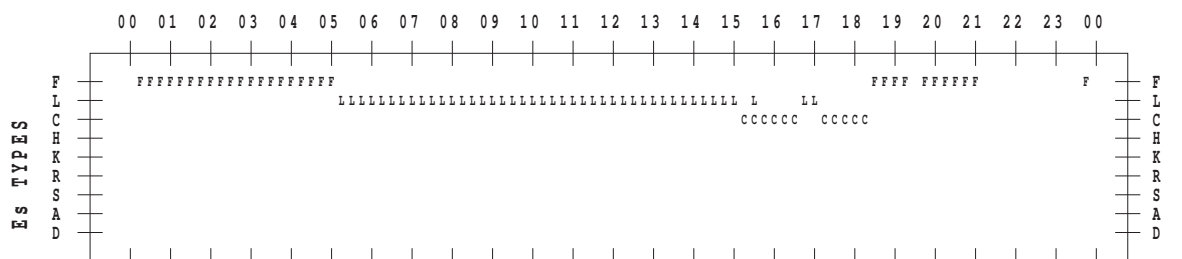
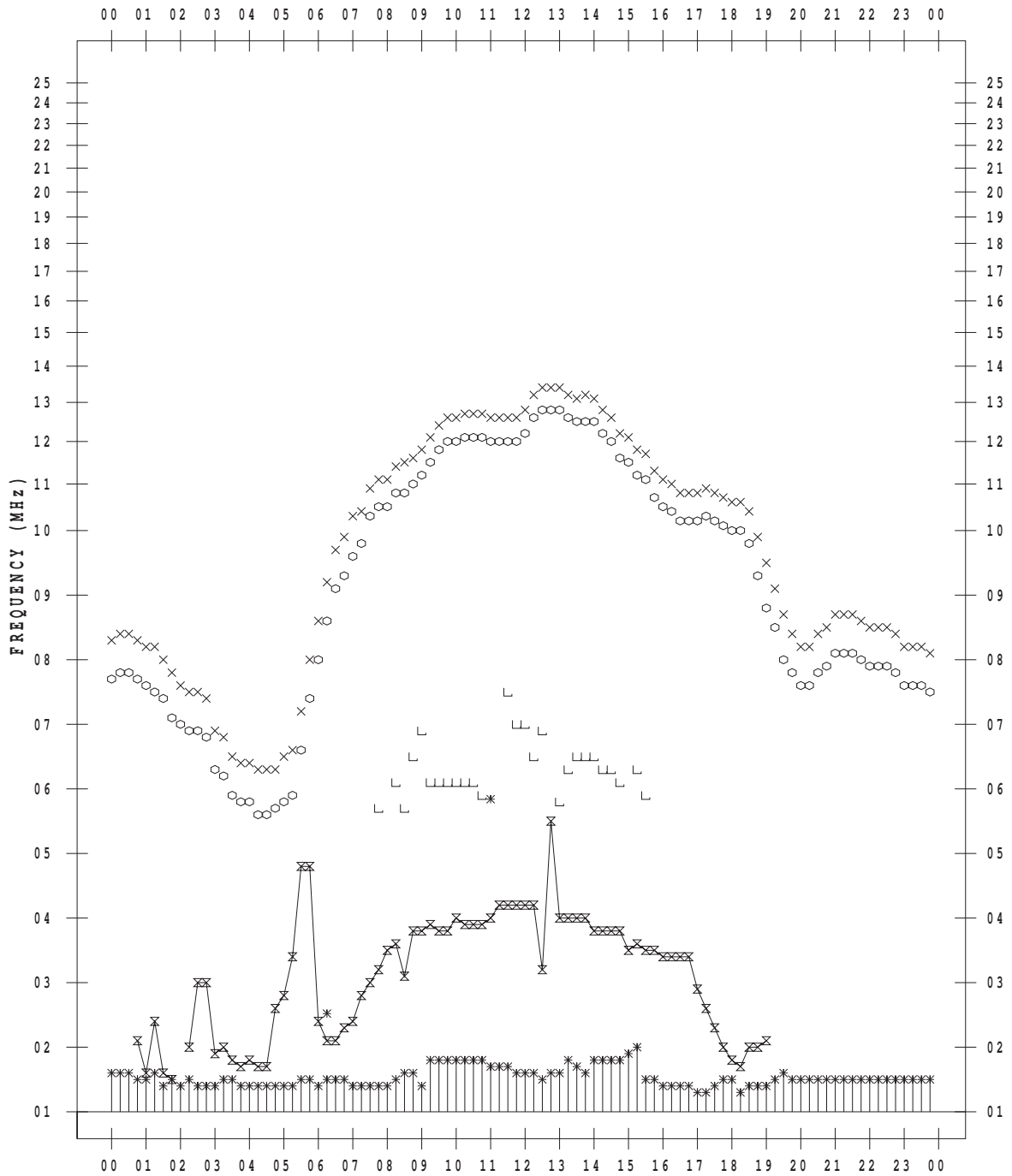
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 5

135 ° E MEAN TIME



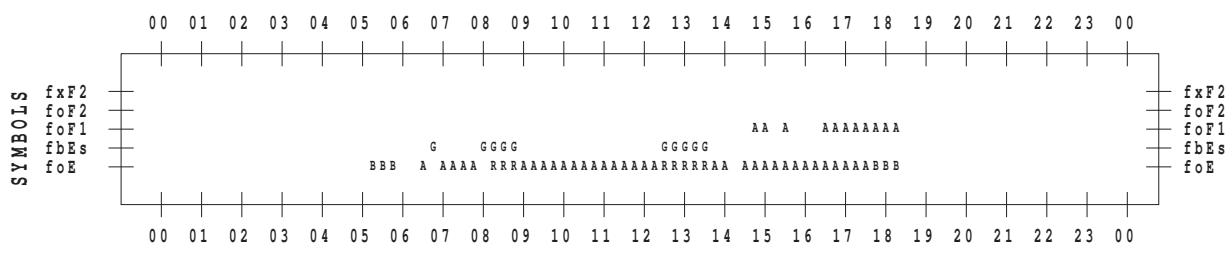
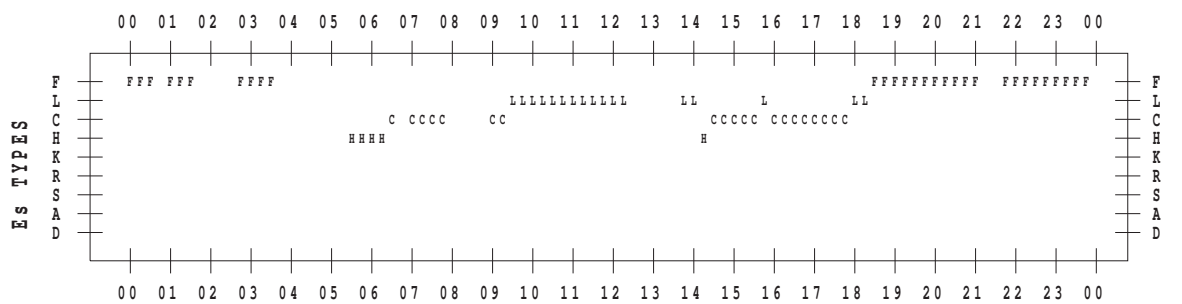
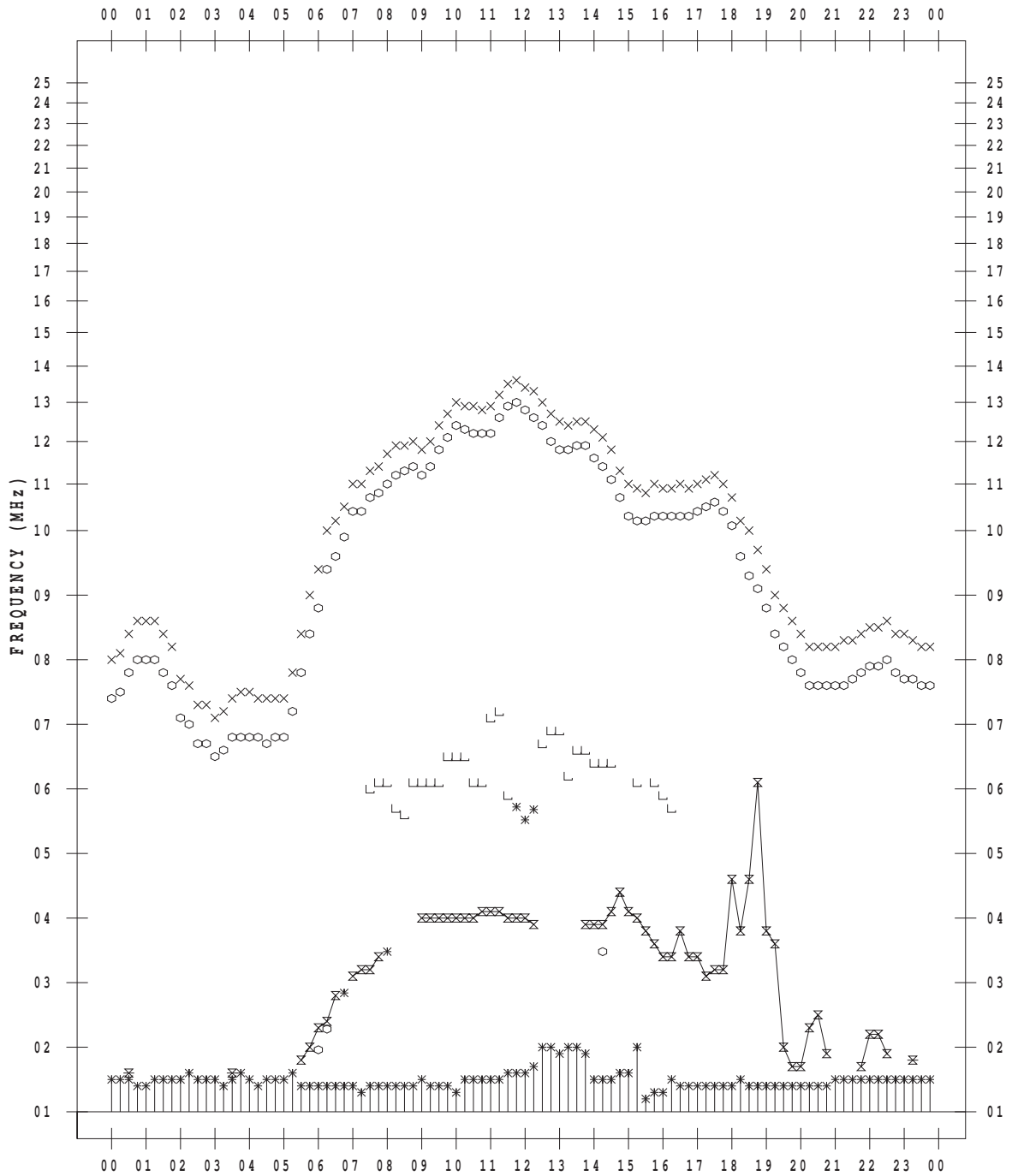
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 6

135 ° E MEAN TIME



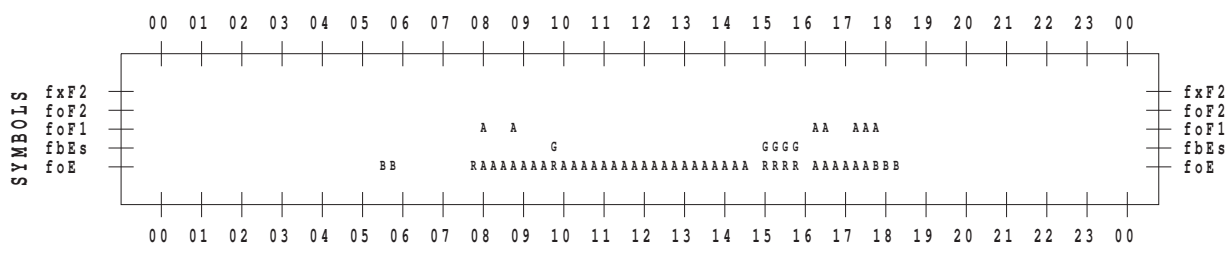
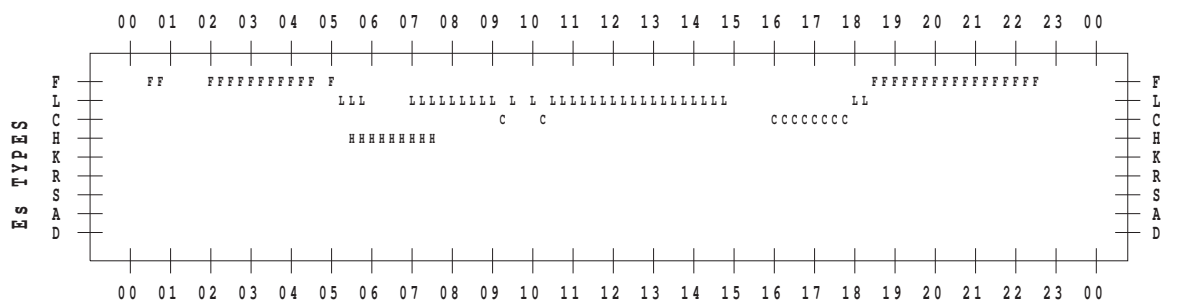
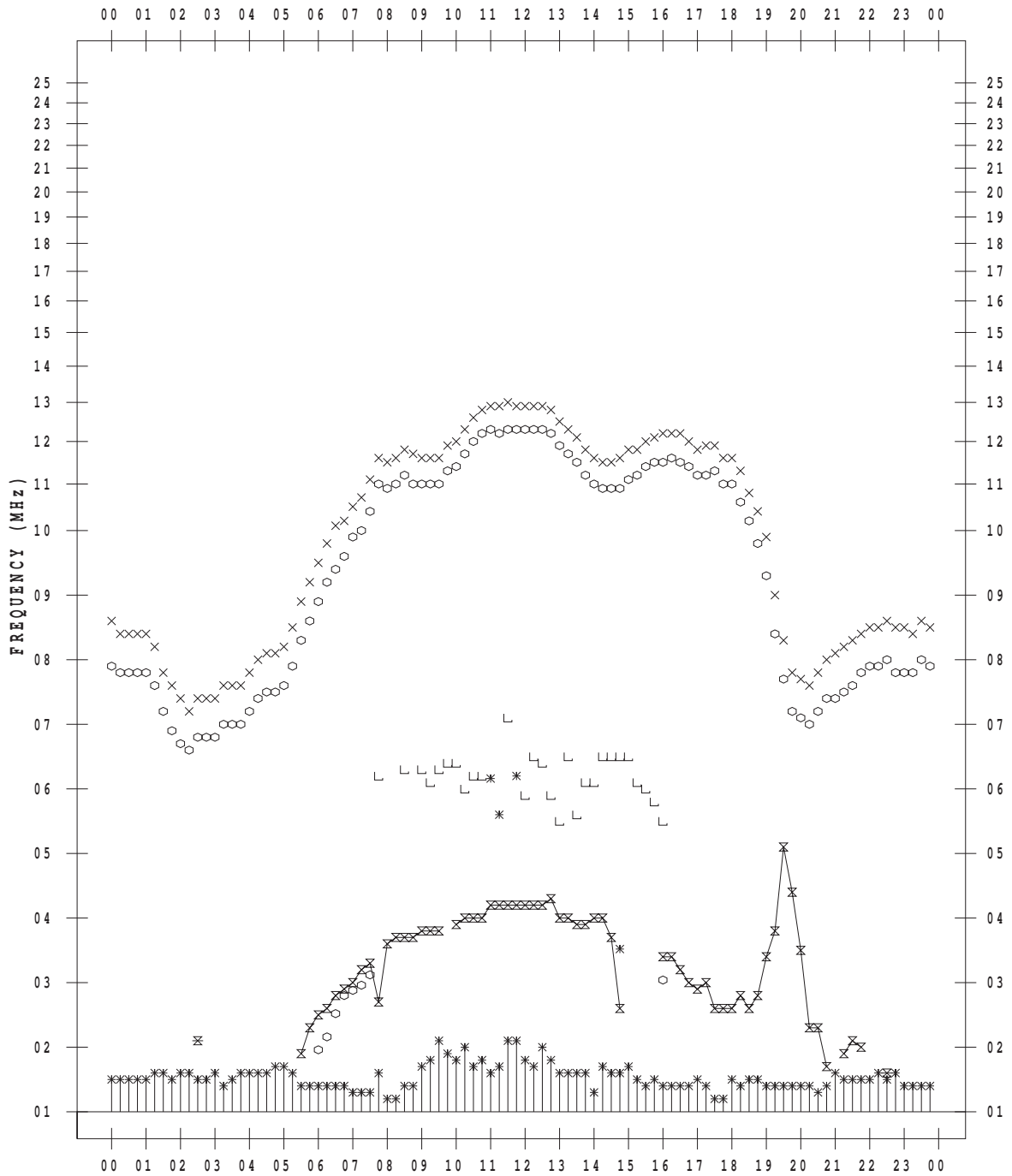
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 8

135 ° E MEAN TIME



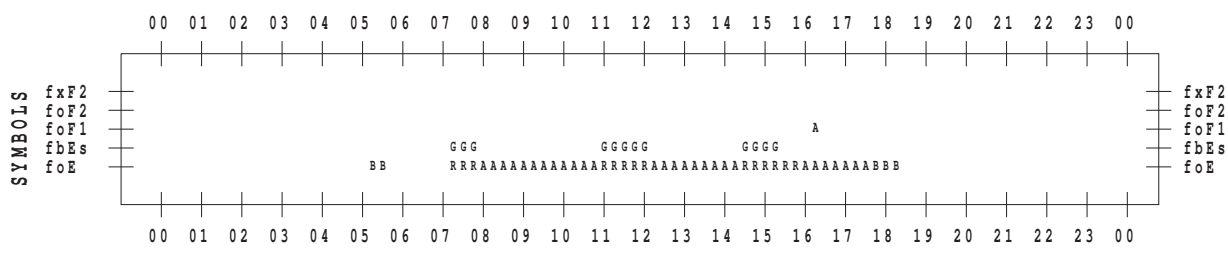
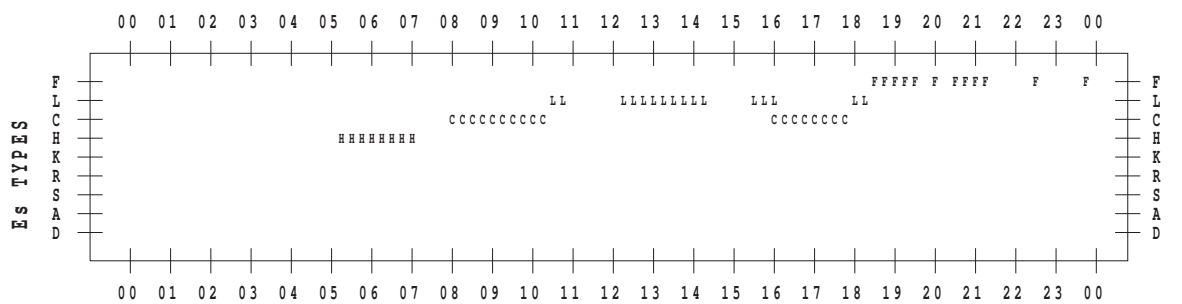
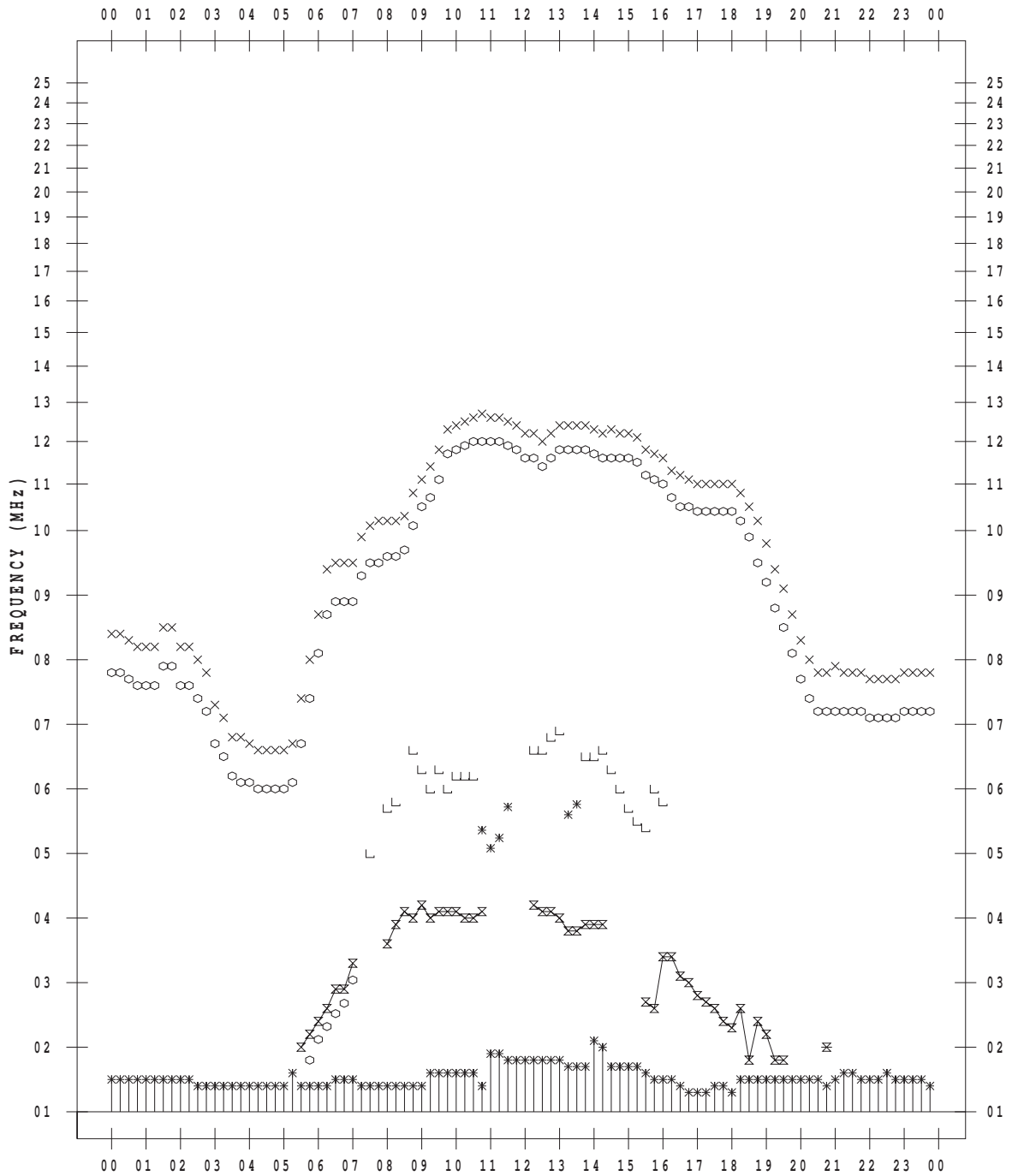
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 9

135 ° E MEAN TIME



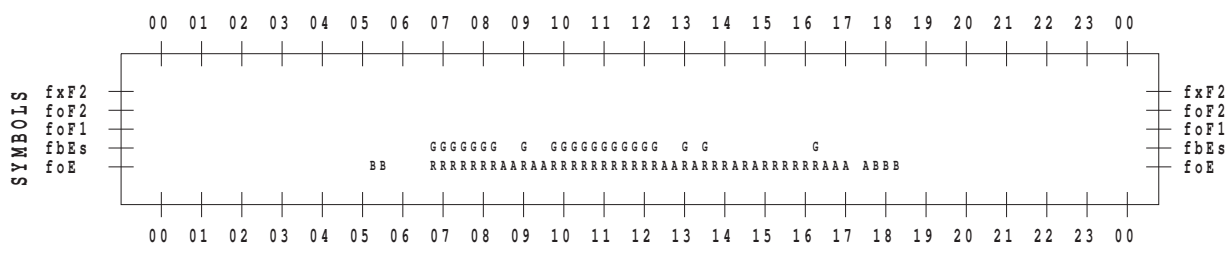
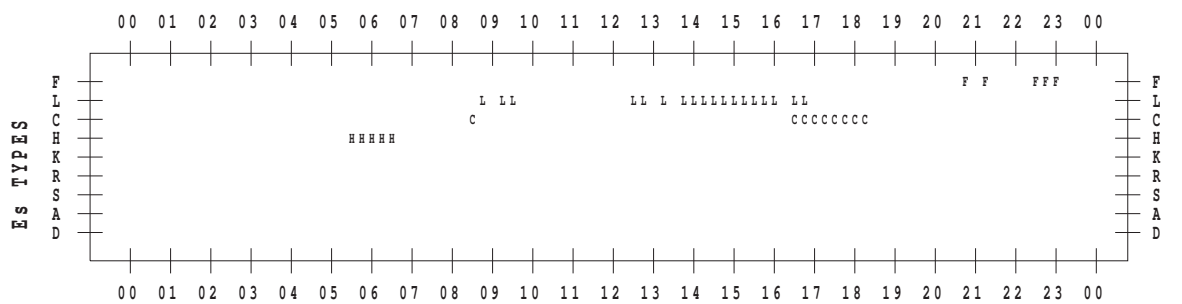
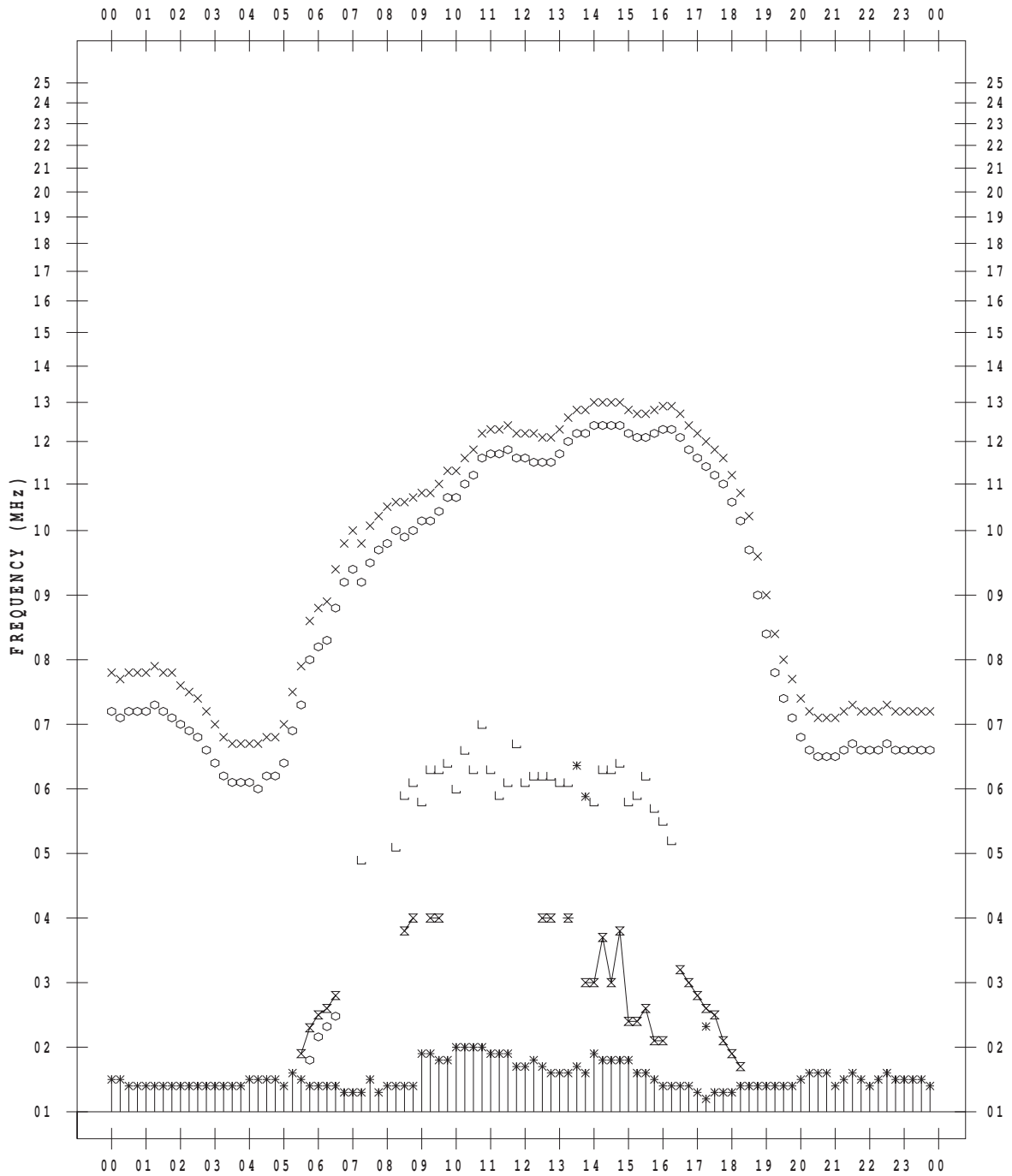
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 10

135 ° E MEAN TIME



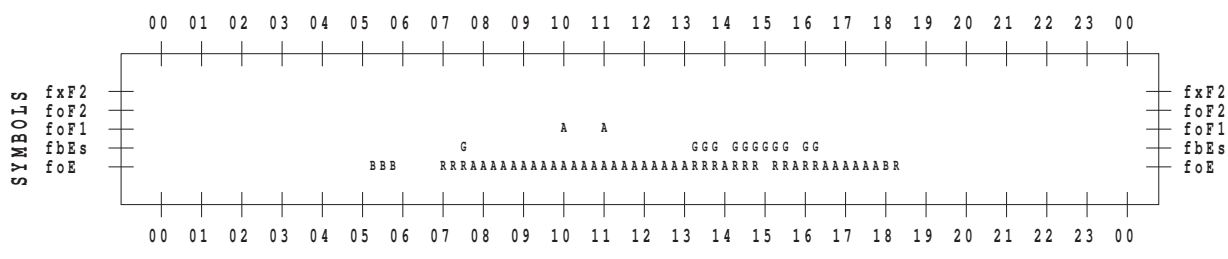
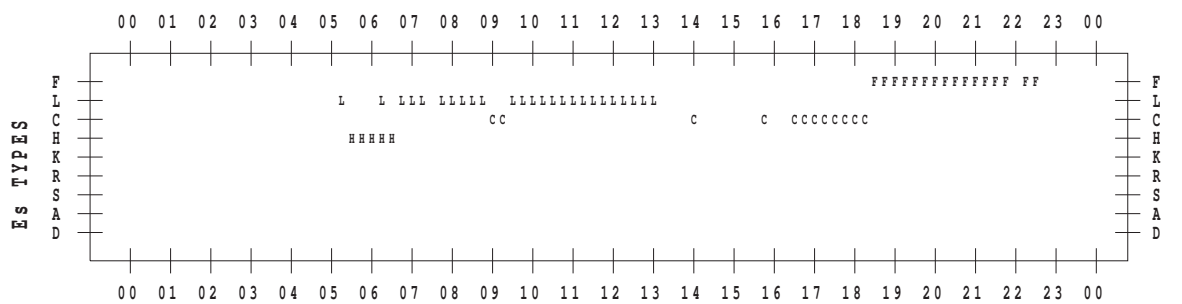
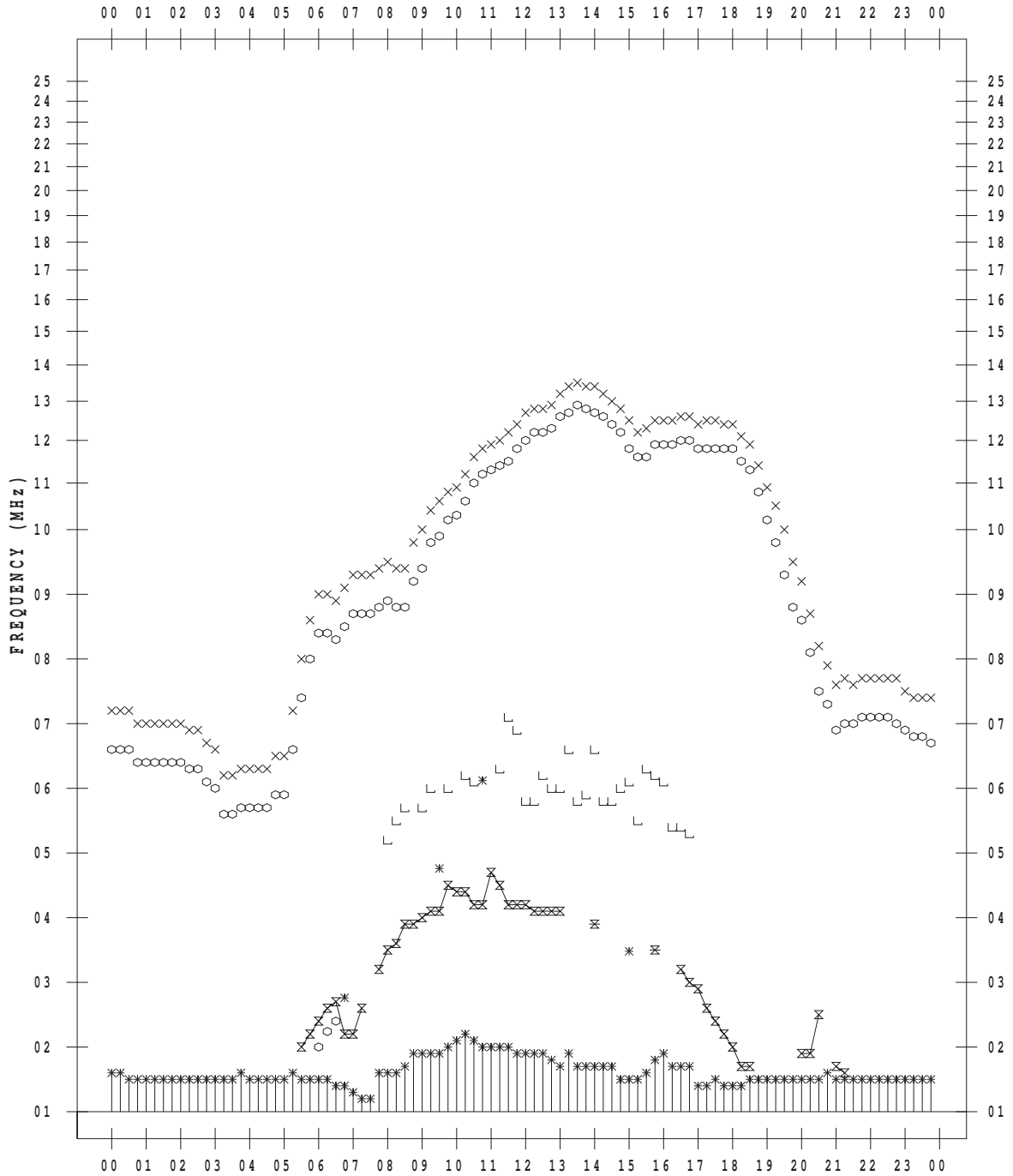
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 11

135 ° E MEAN TIME



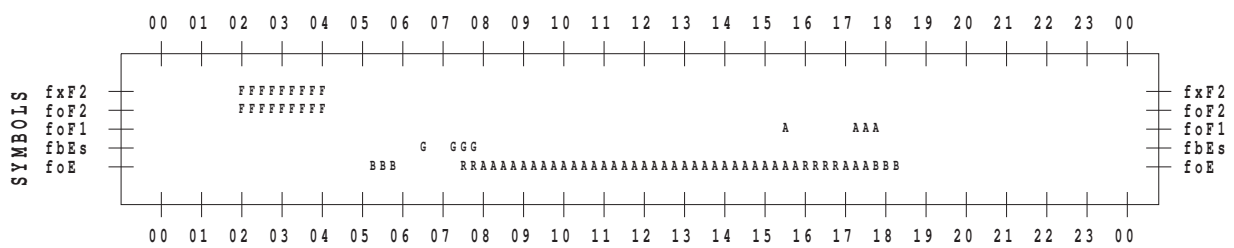
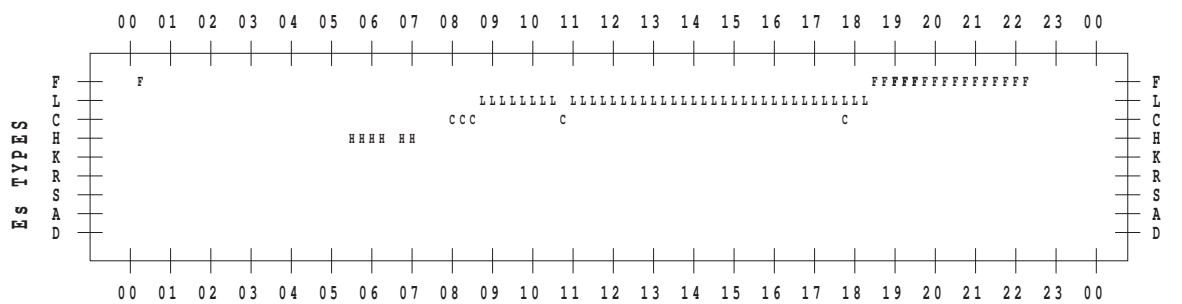
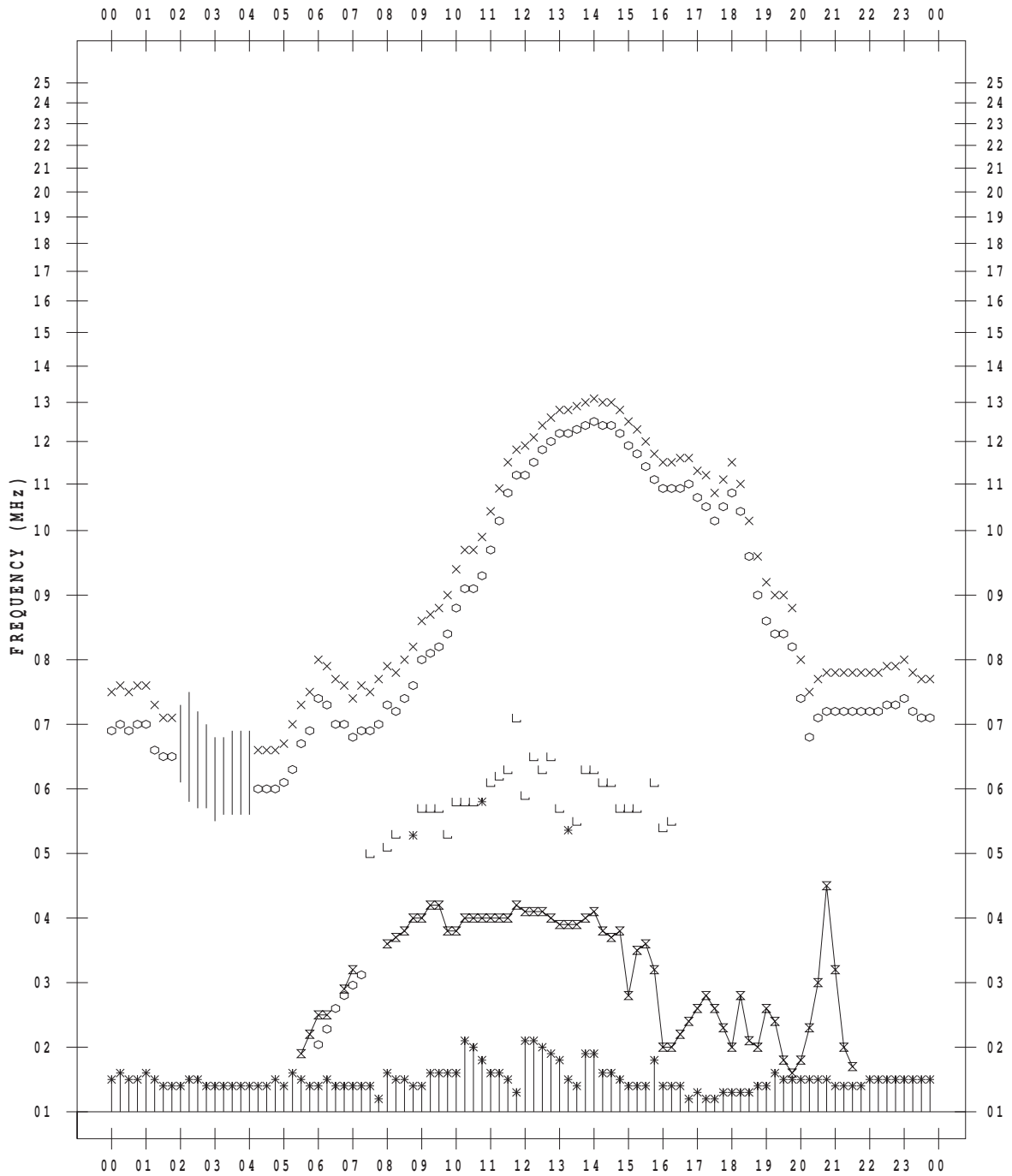
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 12

135 ° E MEAN TIME



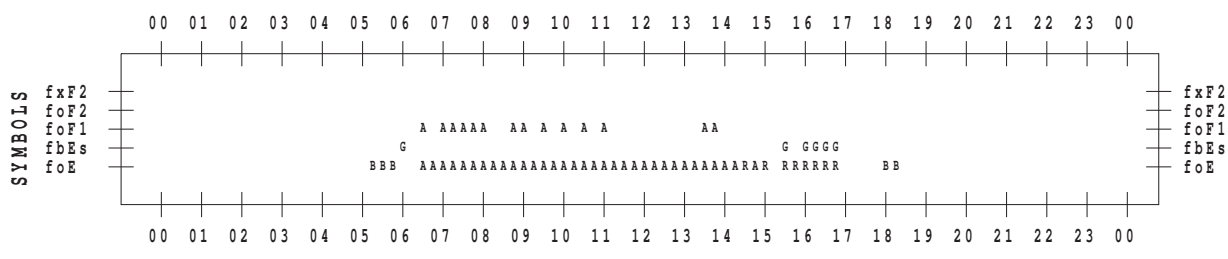
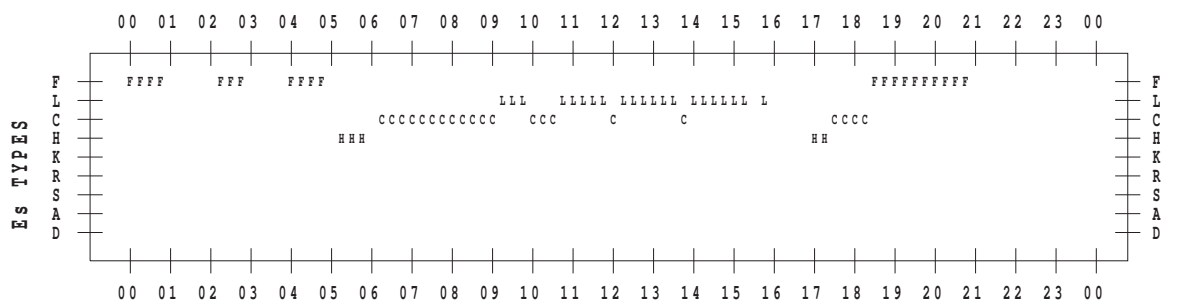
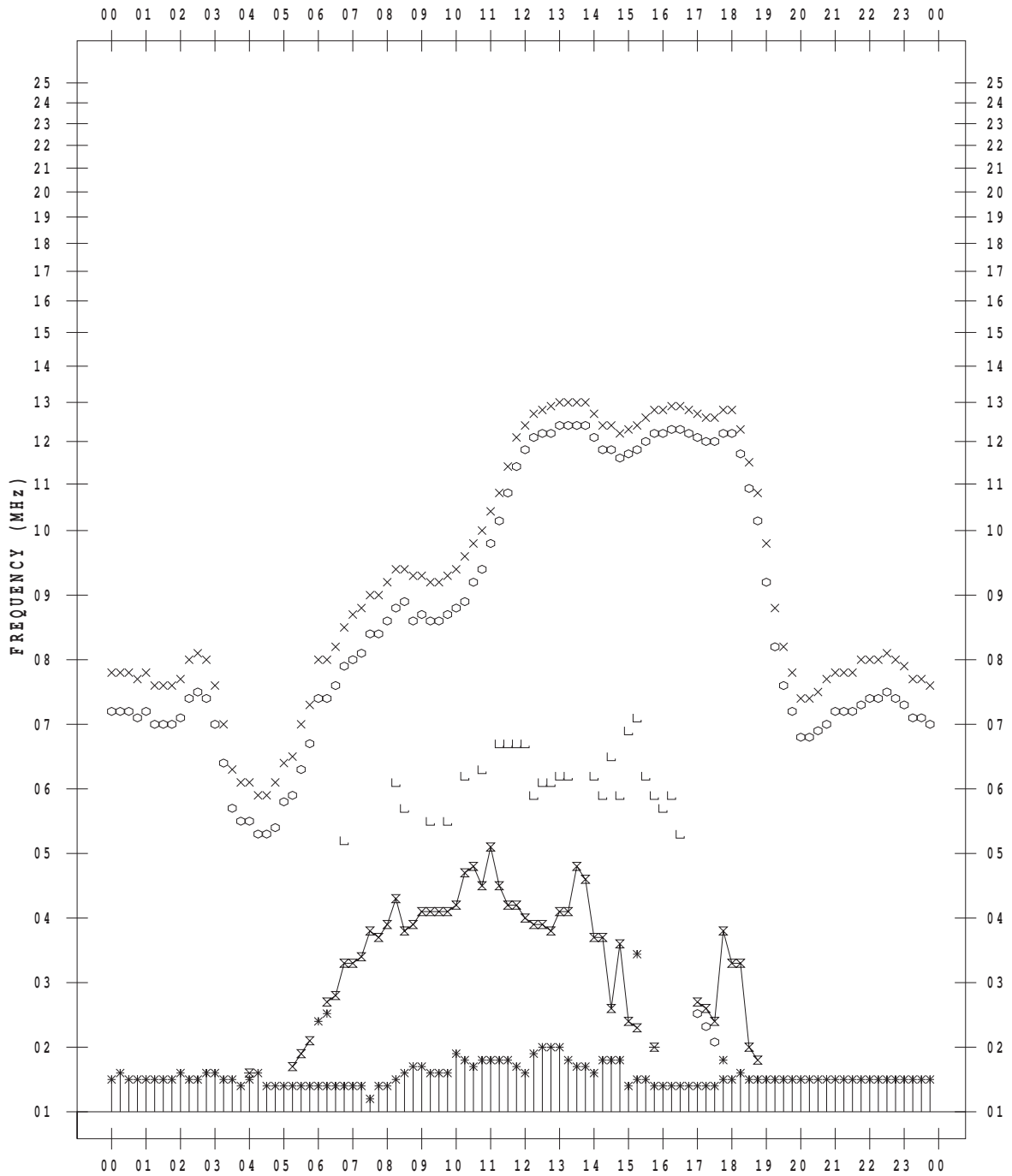
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 13

135 ° E MEAN TIME



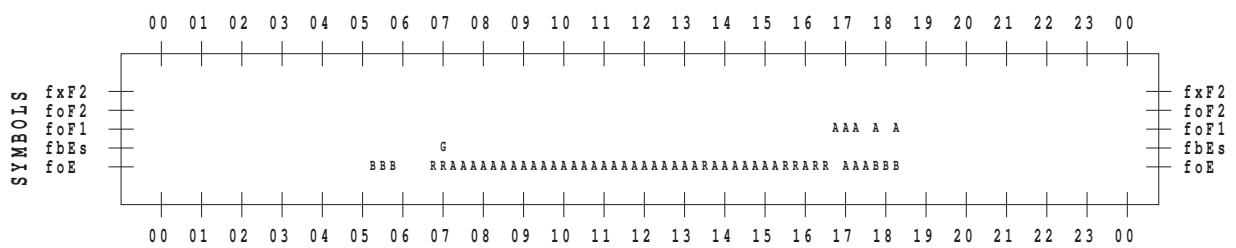
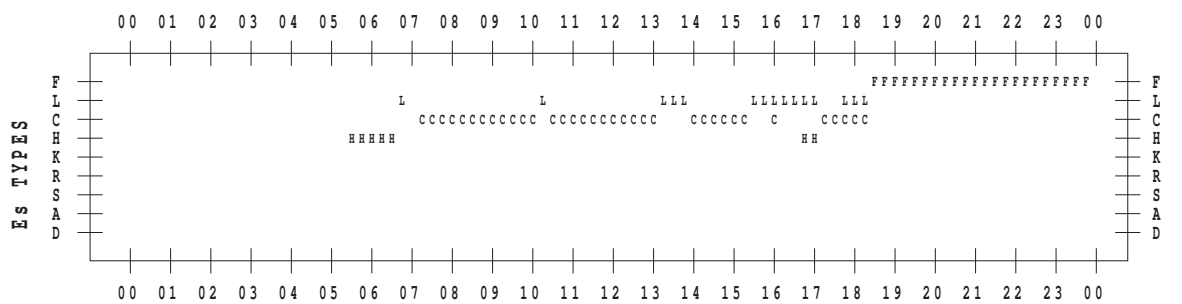
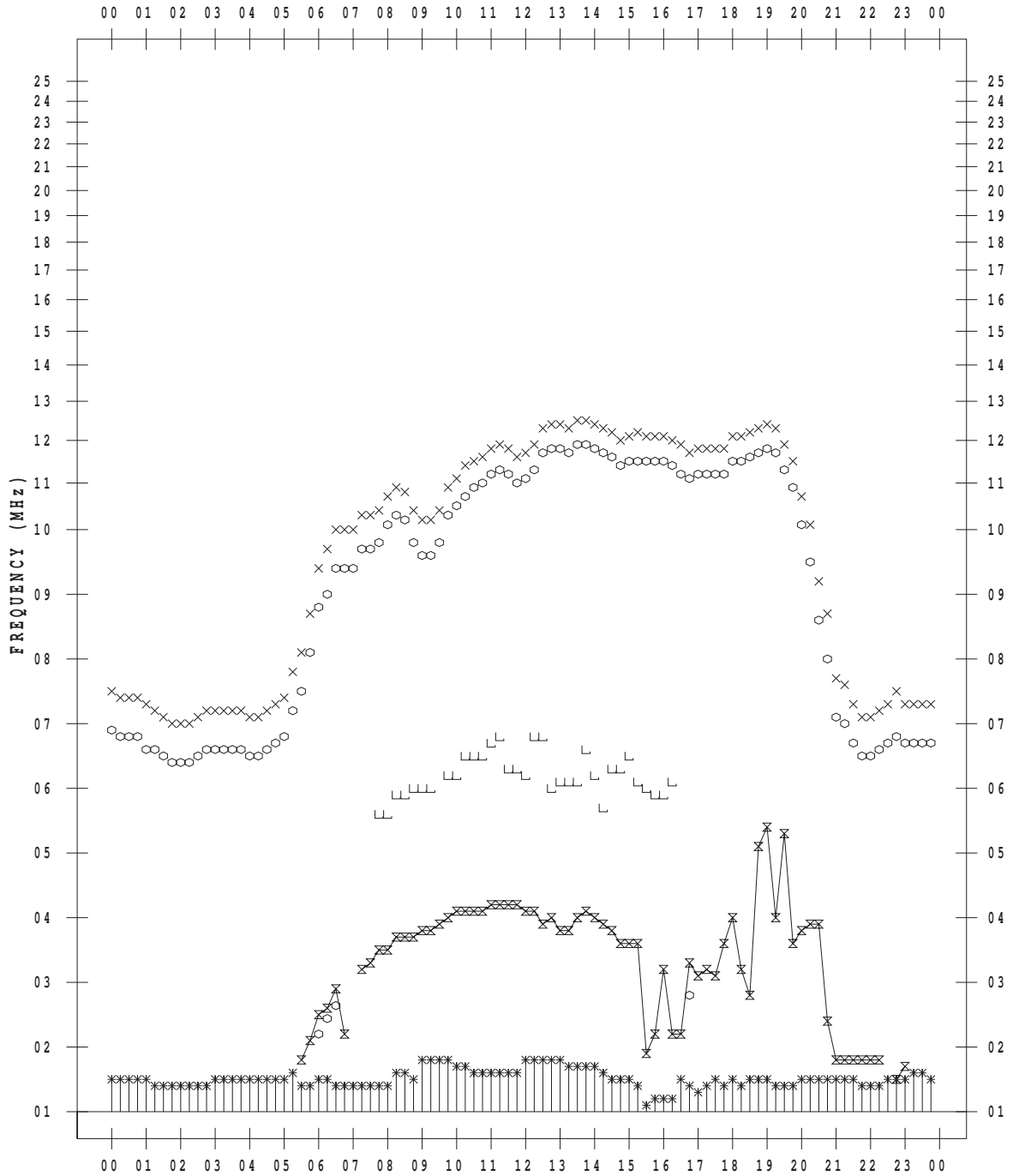
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 14

135 ° E MEAN TIME



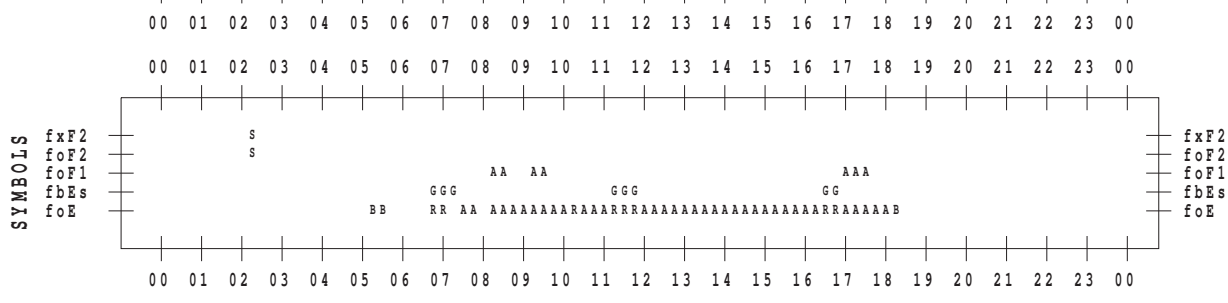
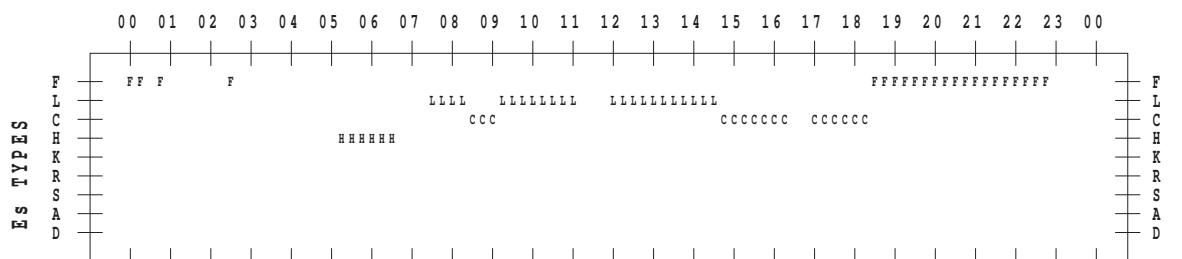
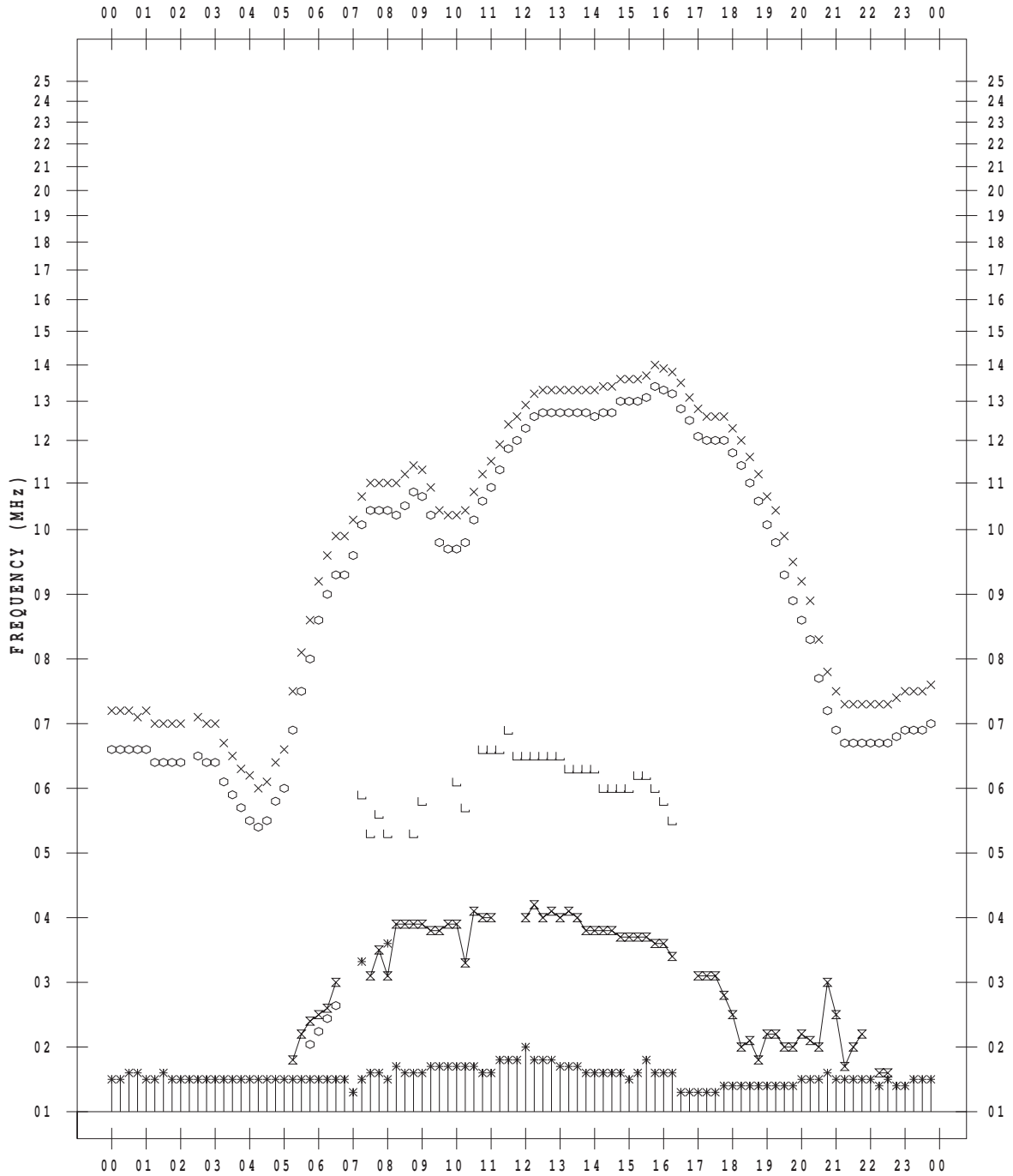
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 15

135 ° E MEAN TIME



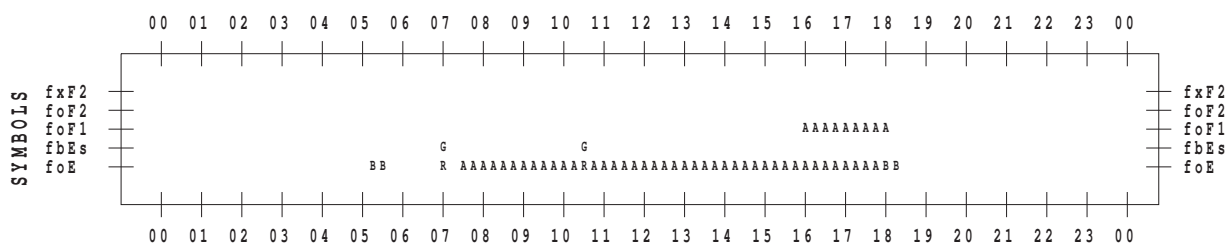
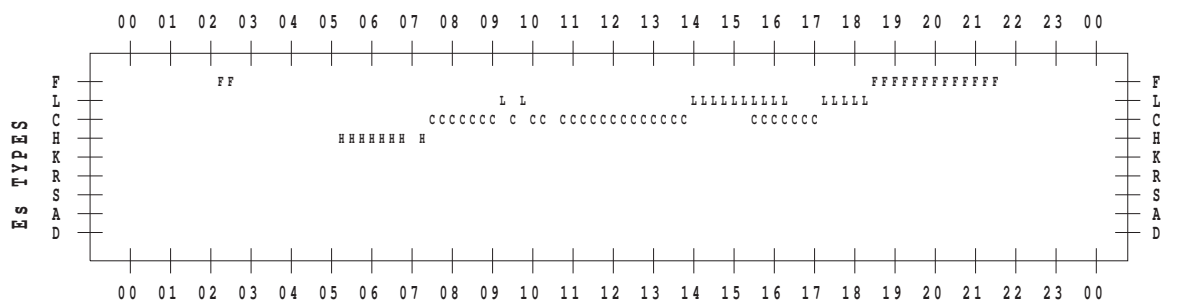
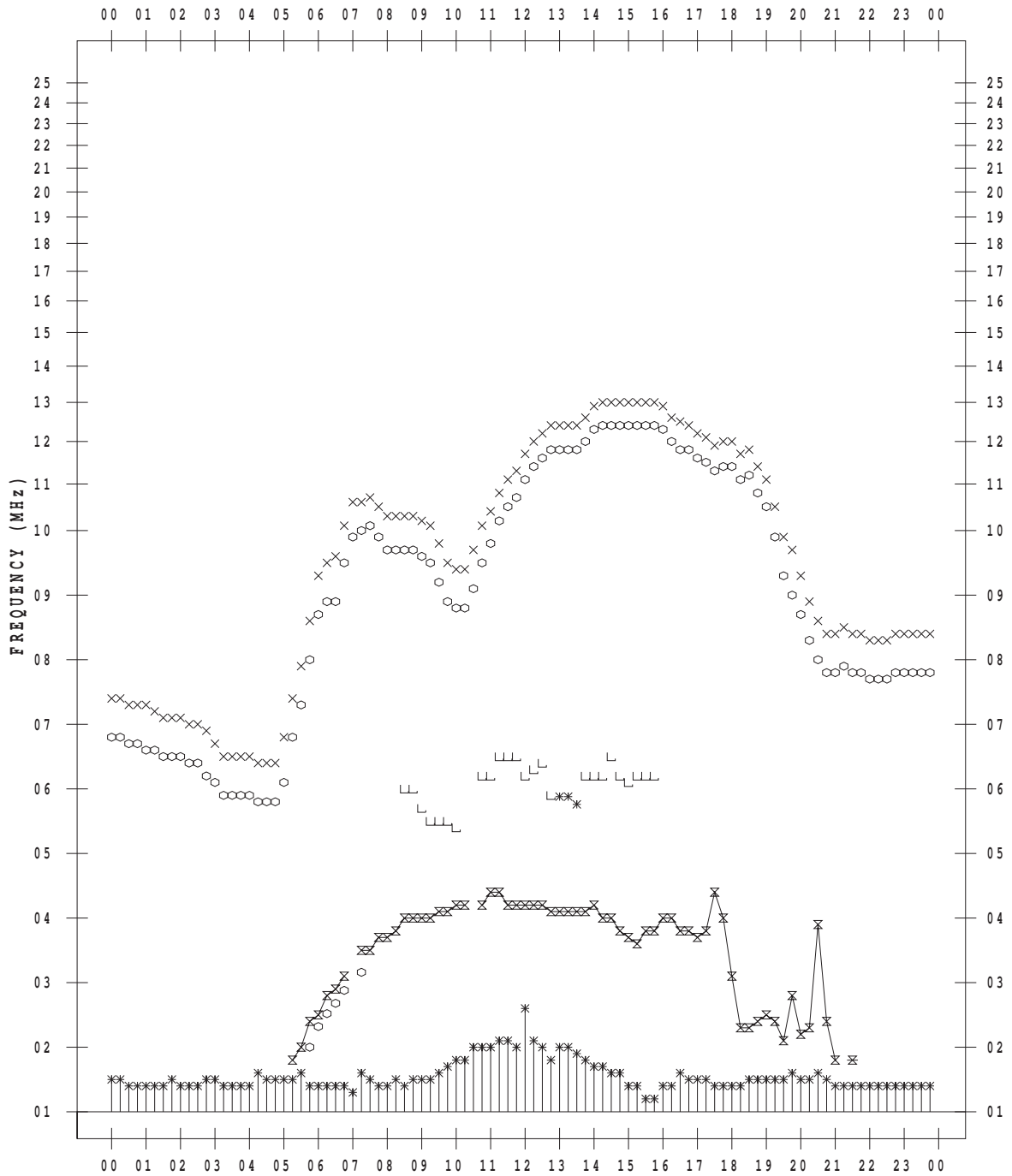
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 16

135 ° E MEAN TIME



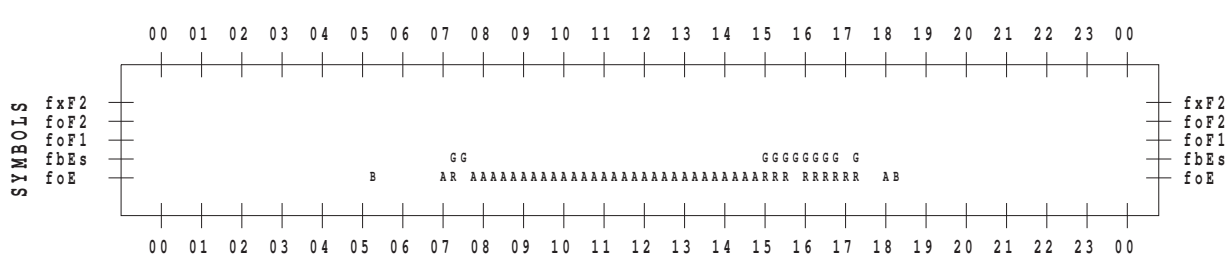
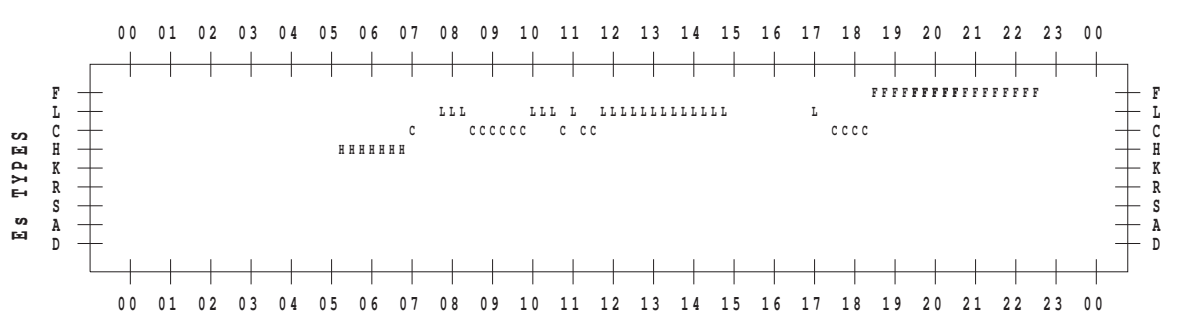
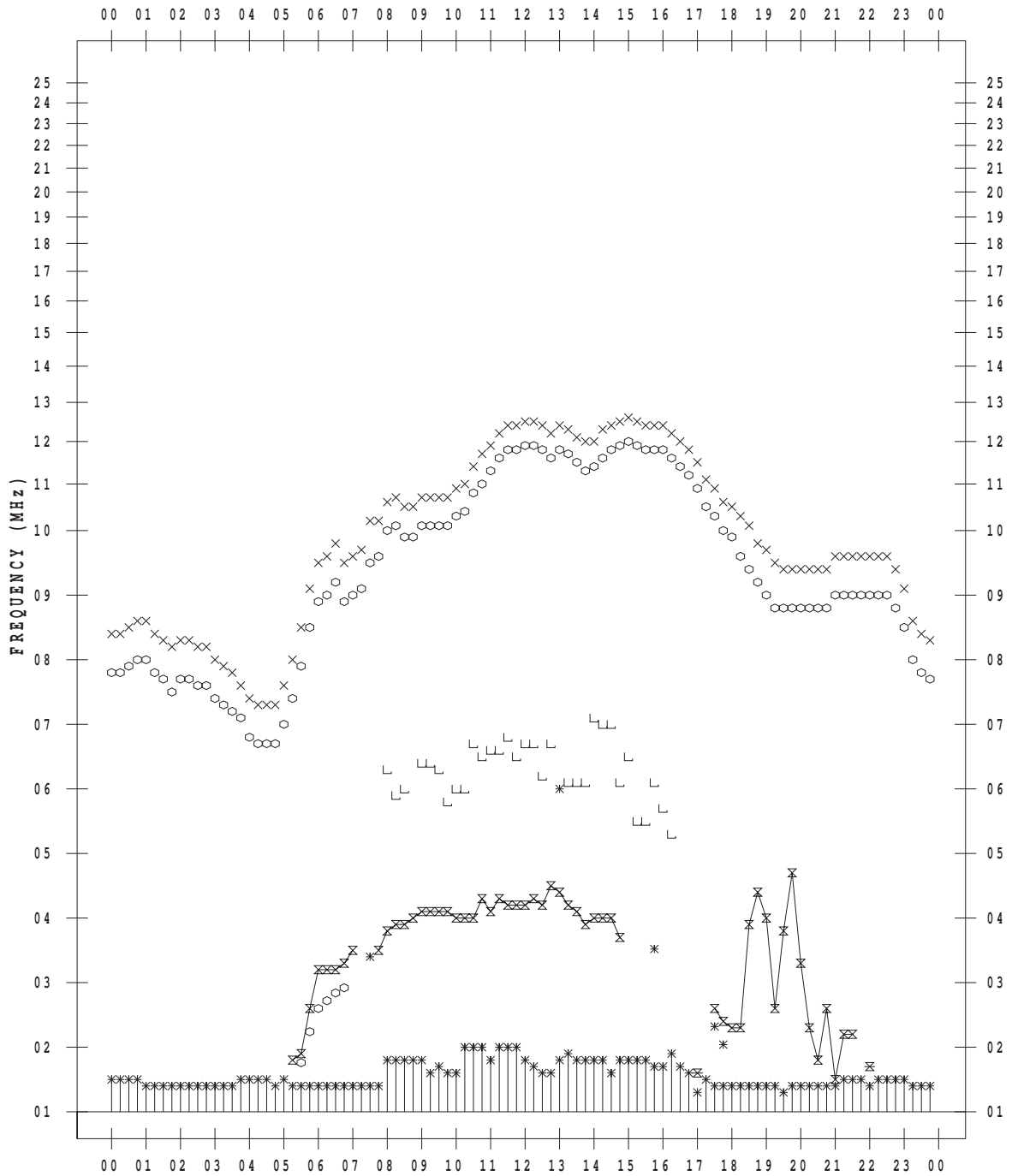
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 17

135 ° E MEAN TIME



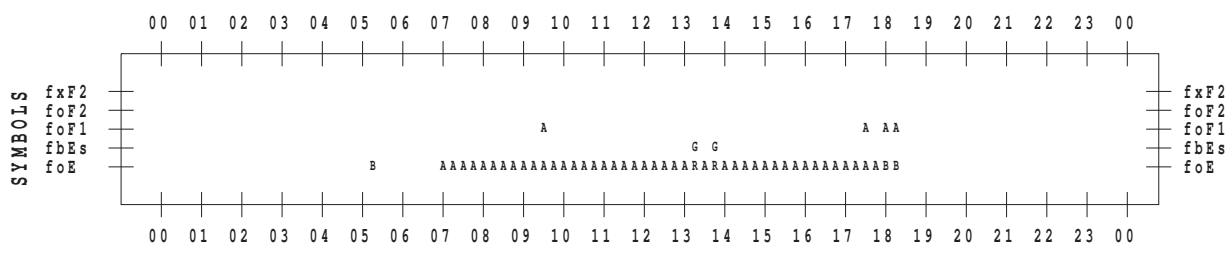
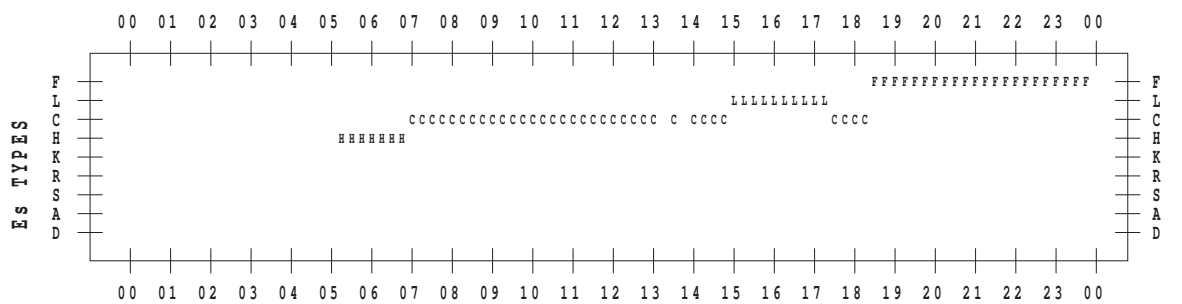
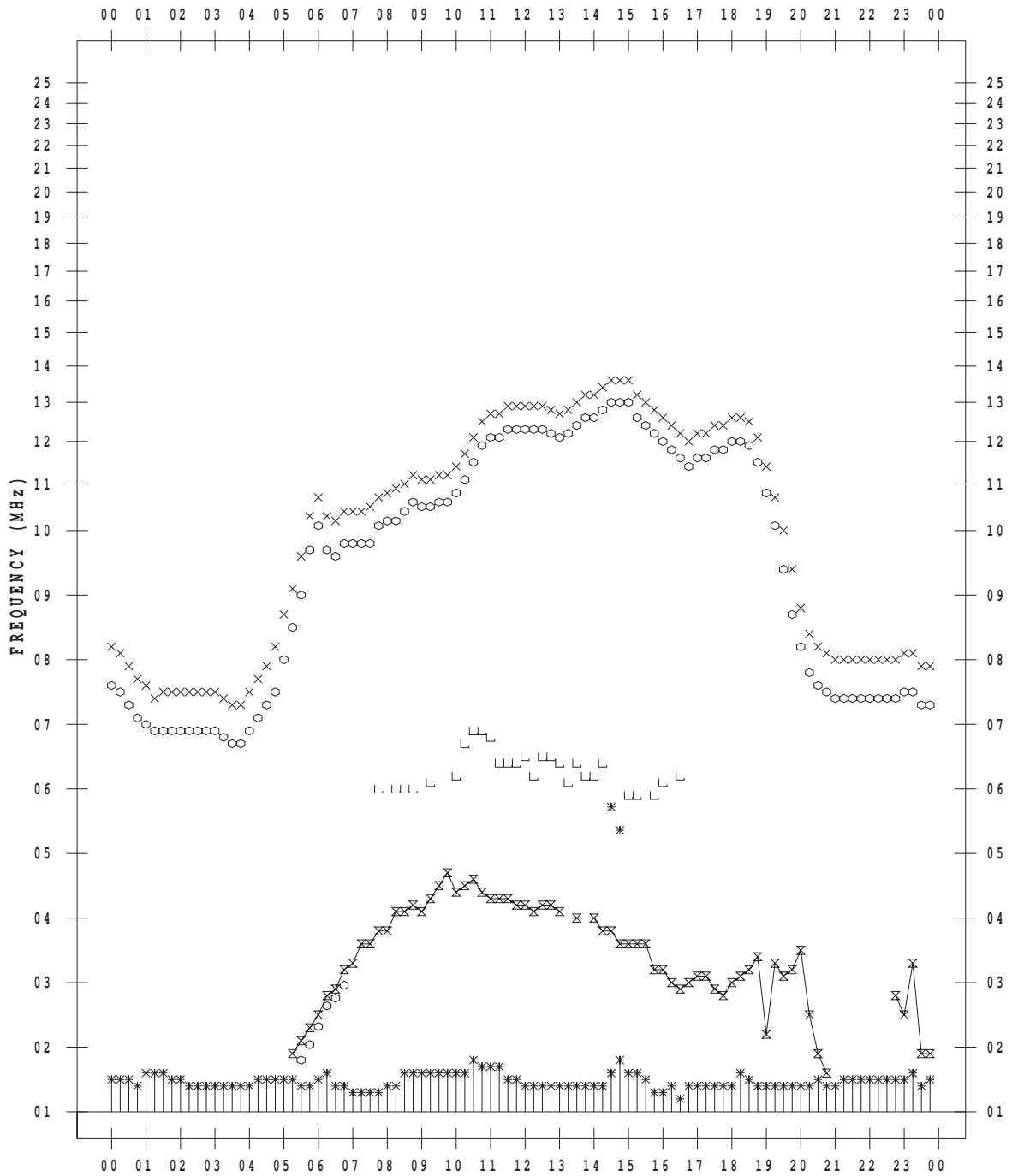
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 18

135 ° E MEAN TIME



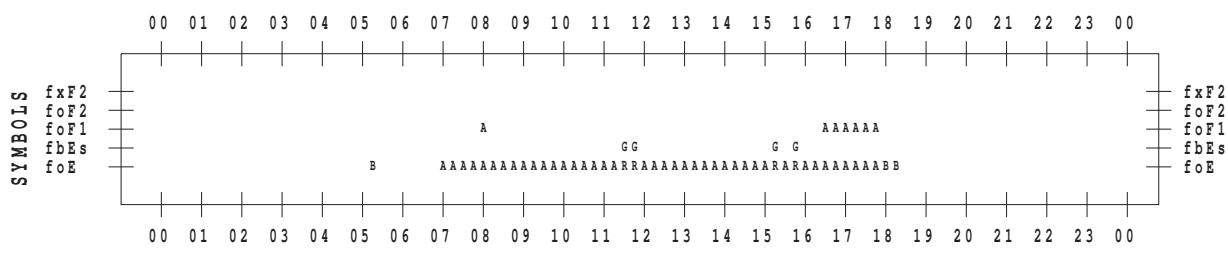
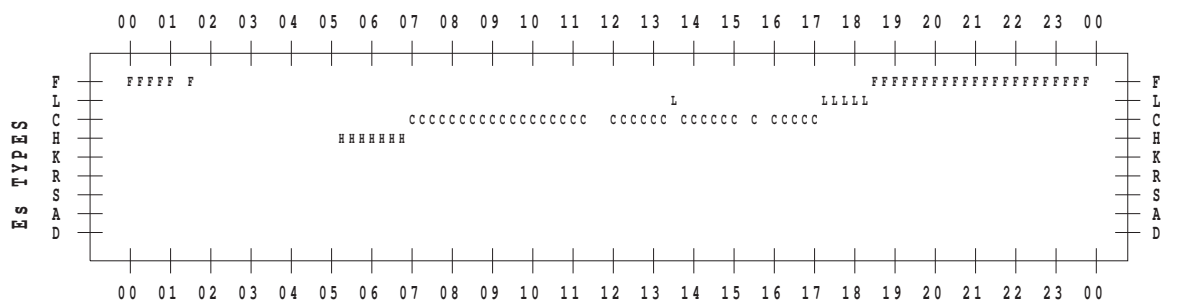
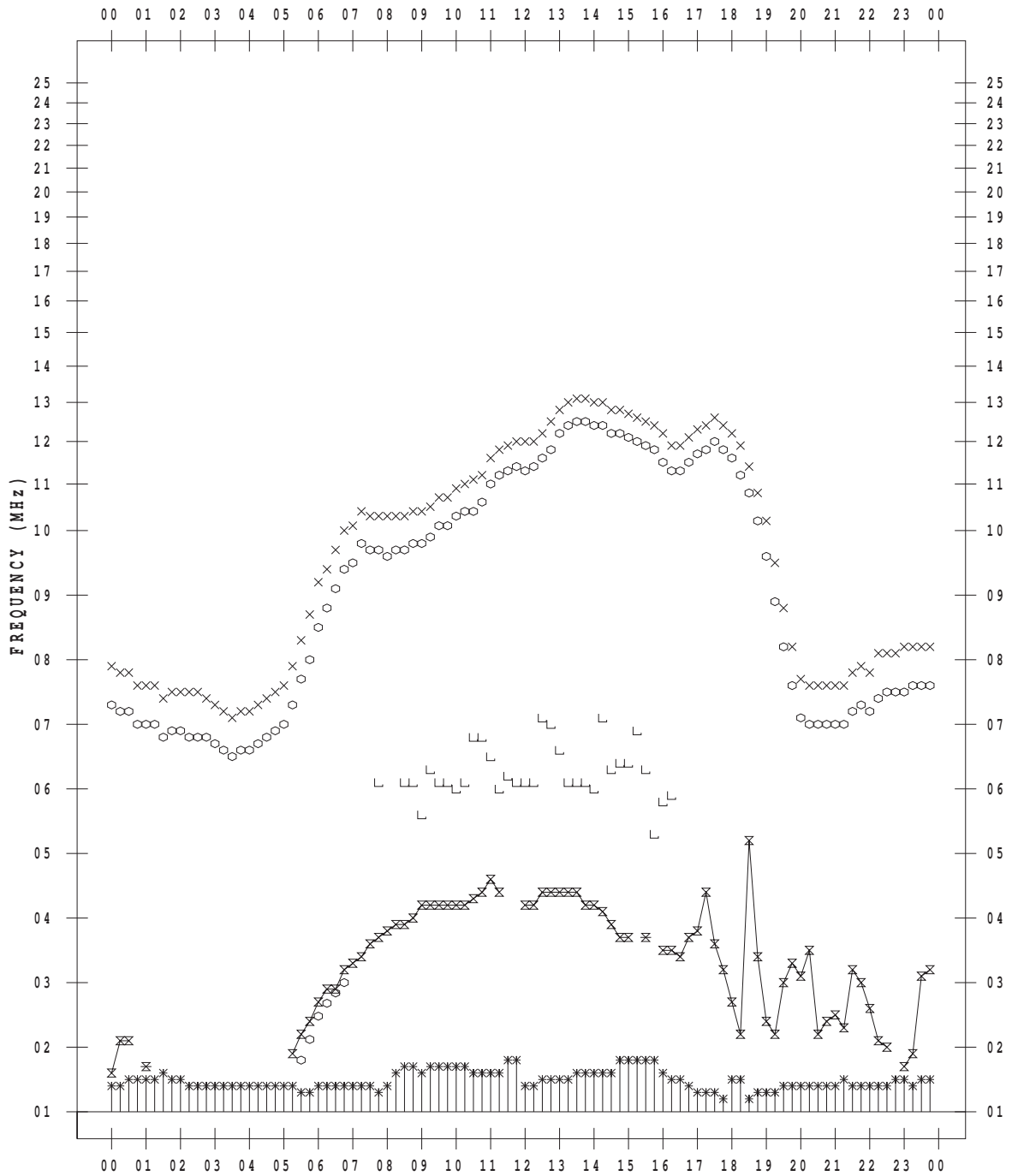
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 19

135 ° E MEAN TIME



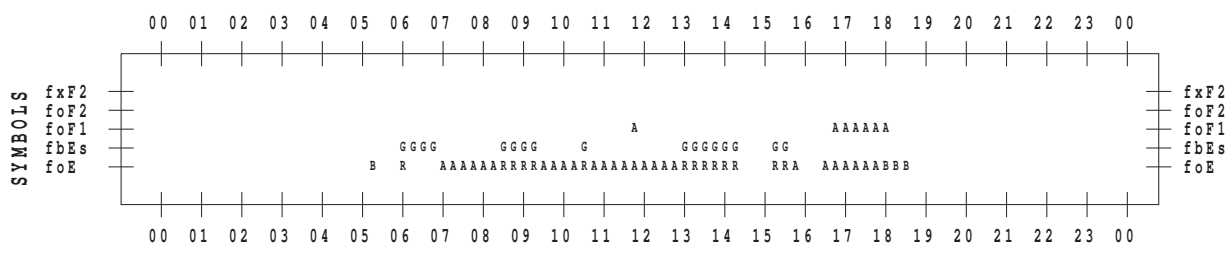
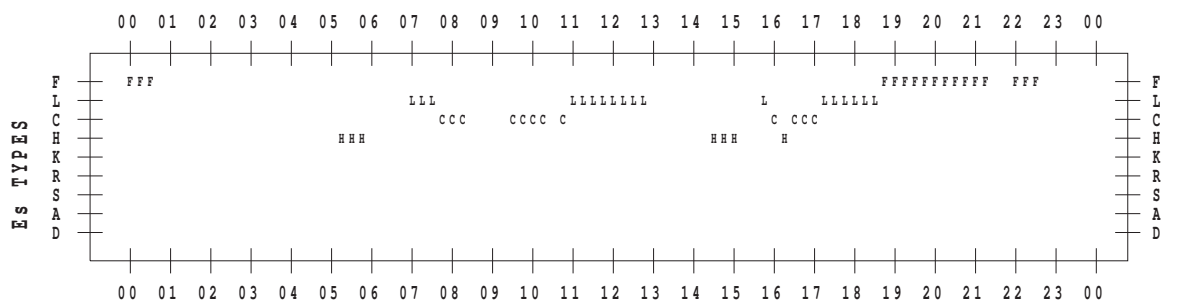
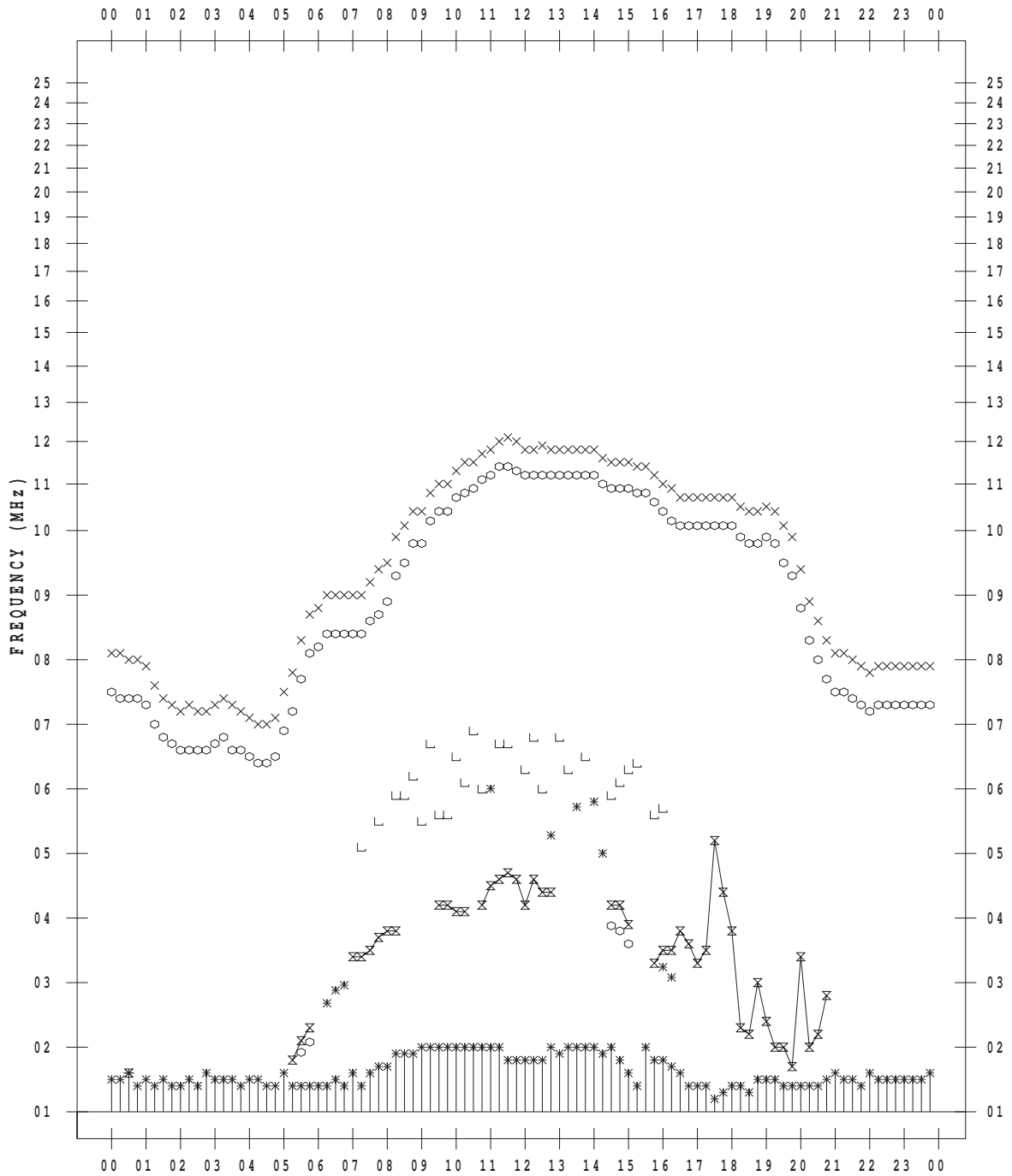
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 20

135 ° E MEAN TIME



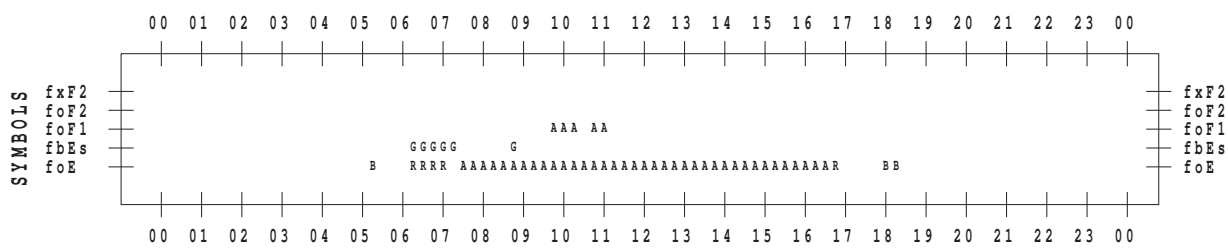
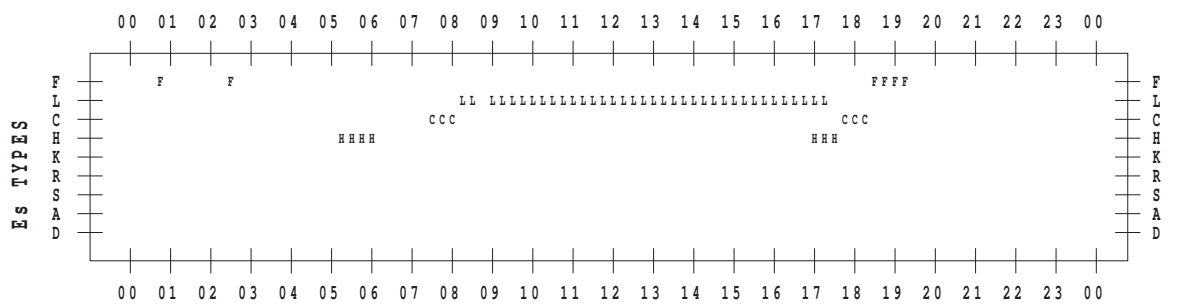
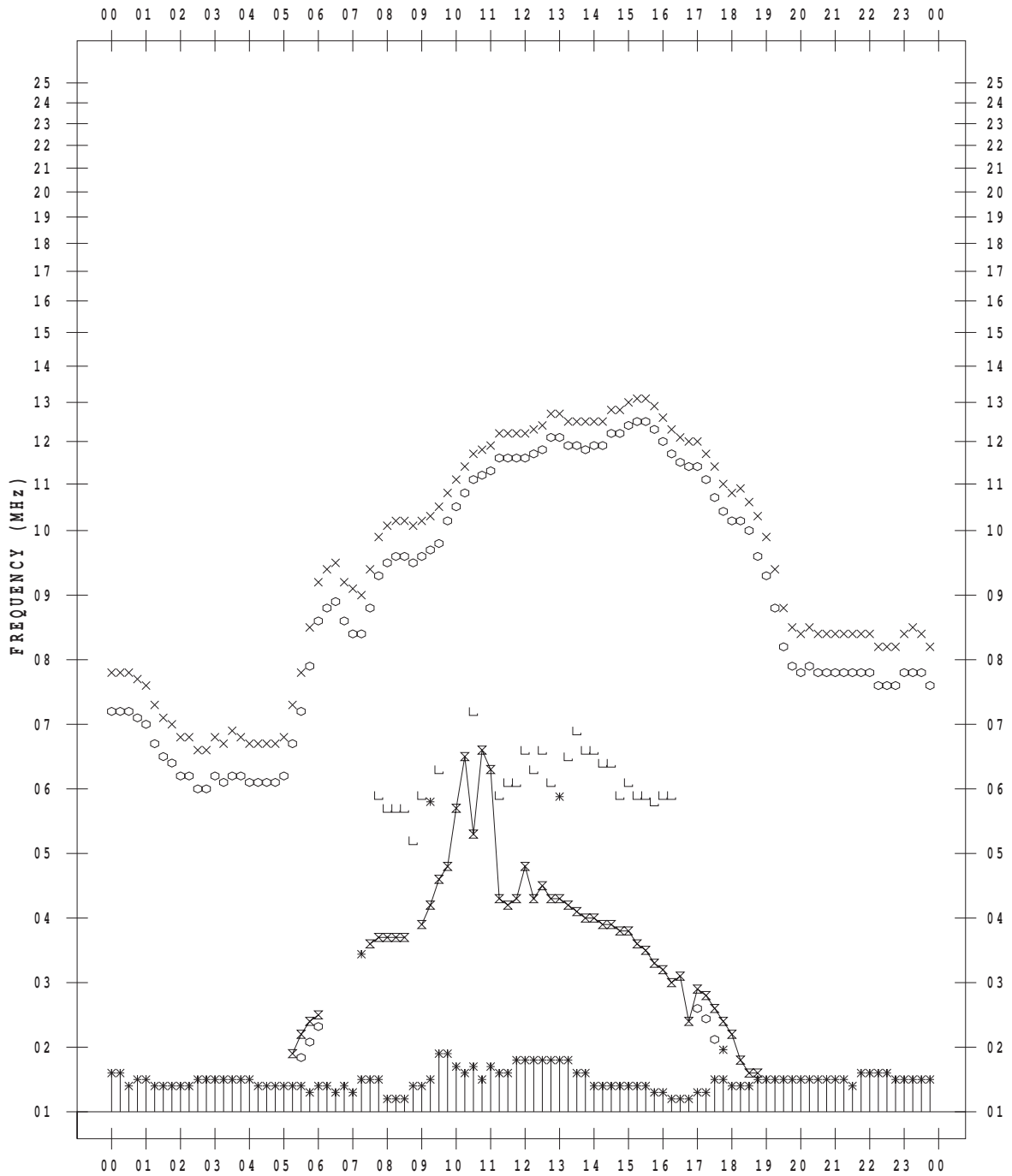
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 21

135 ° E MEAN TIME



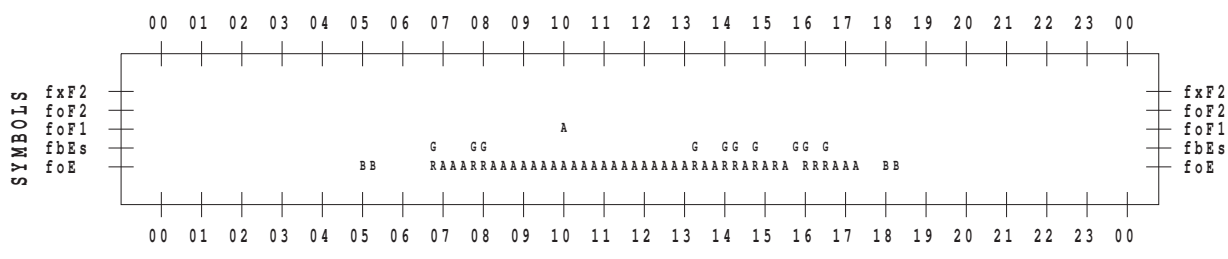
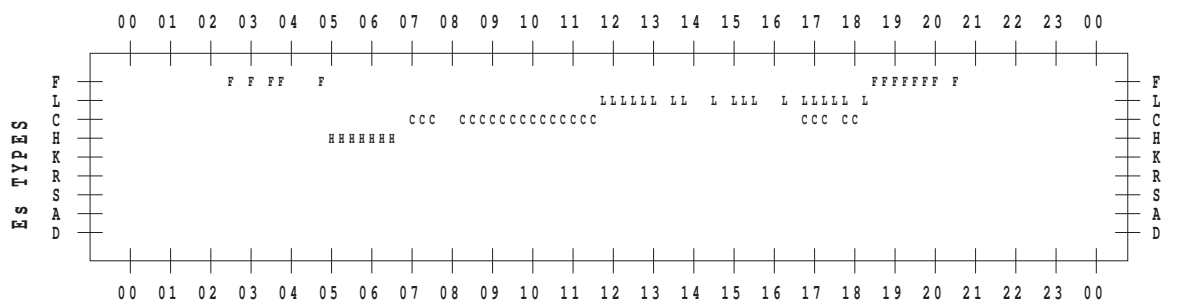
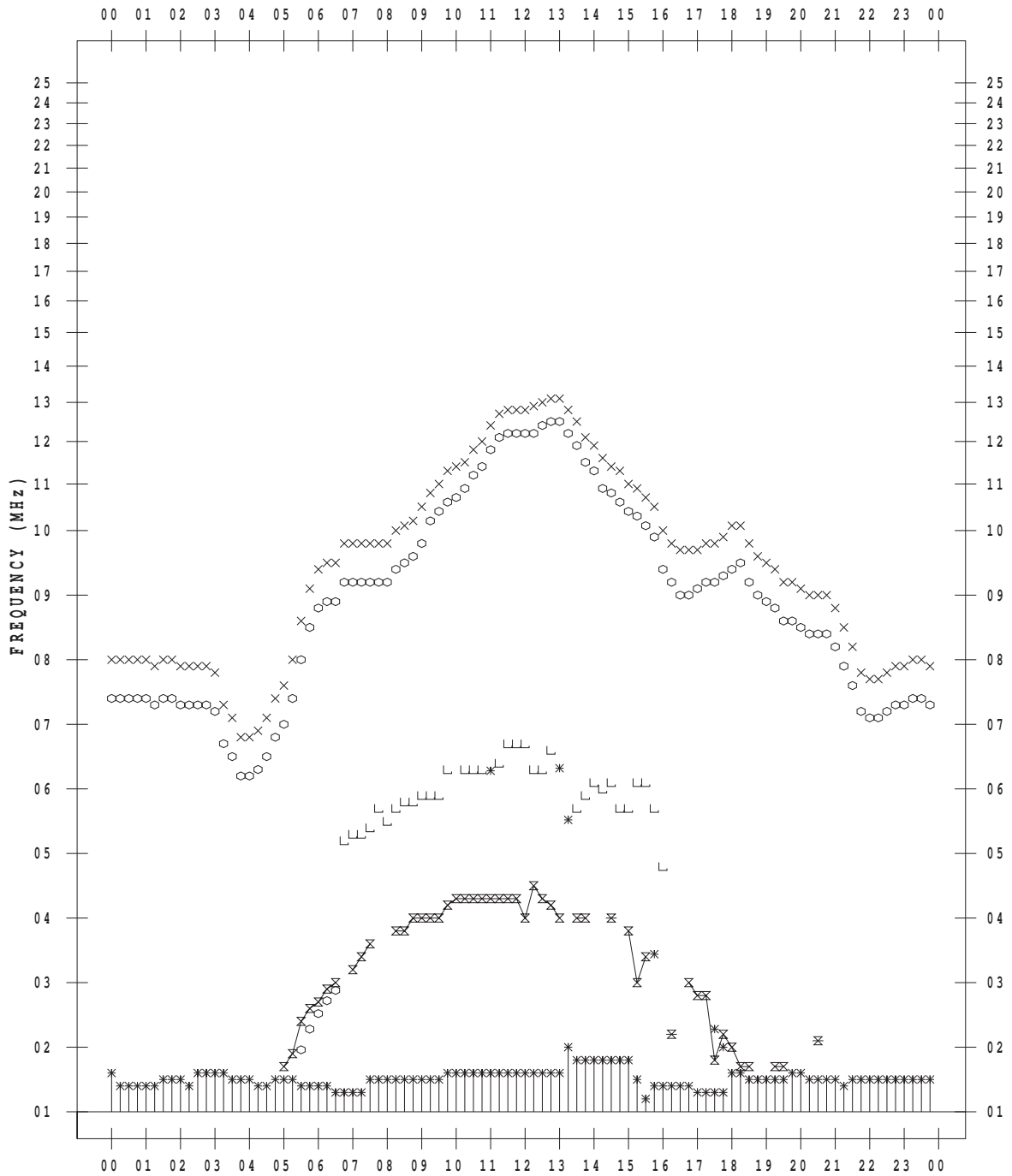
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 22

135 ° E MEAN TIME



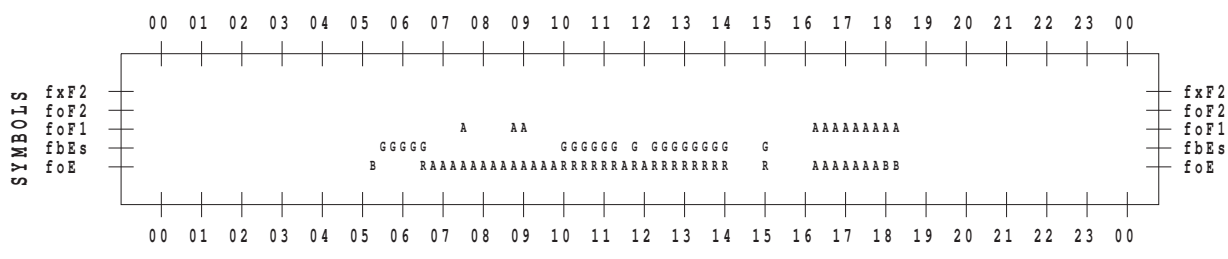
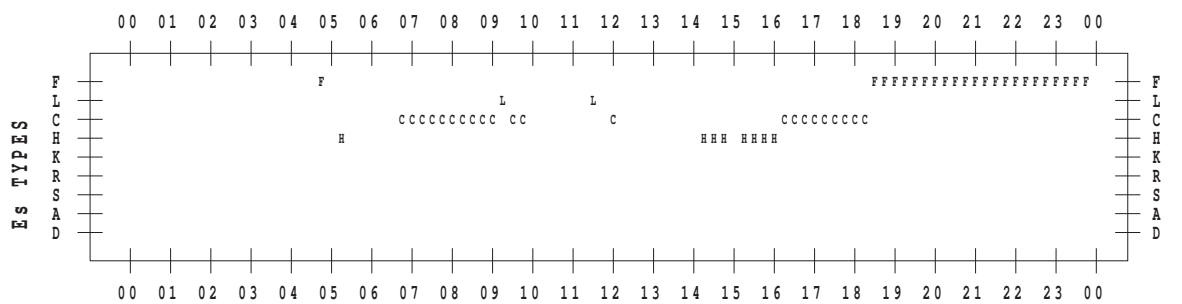
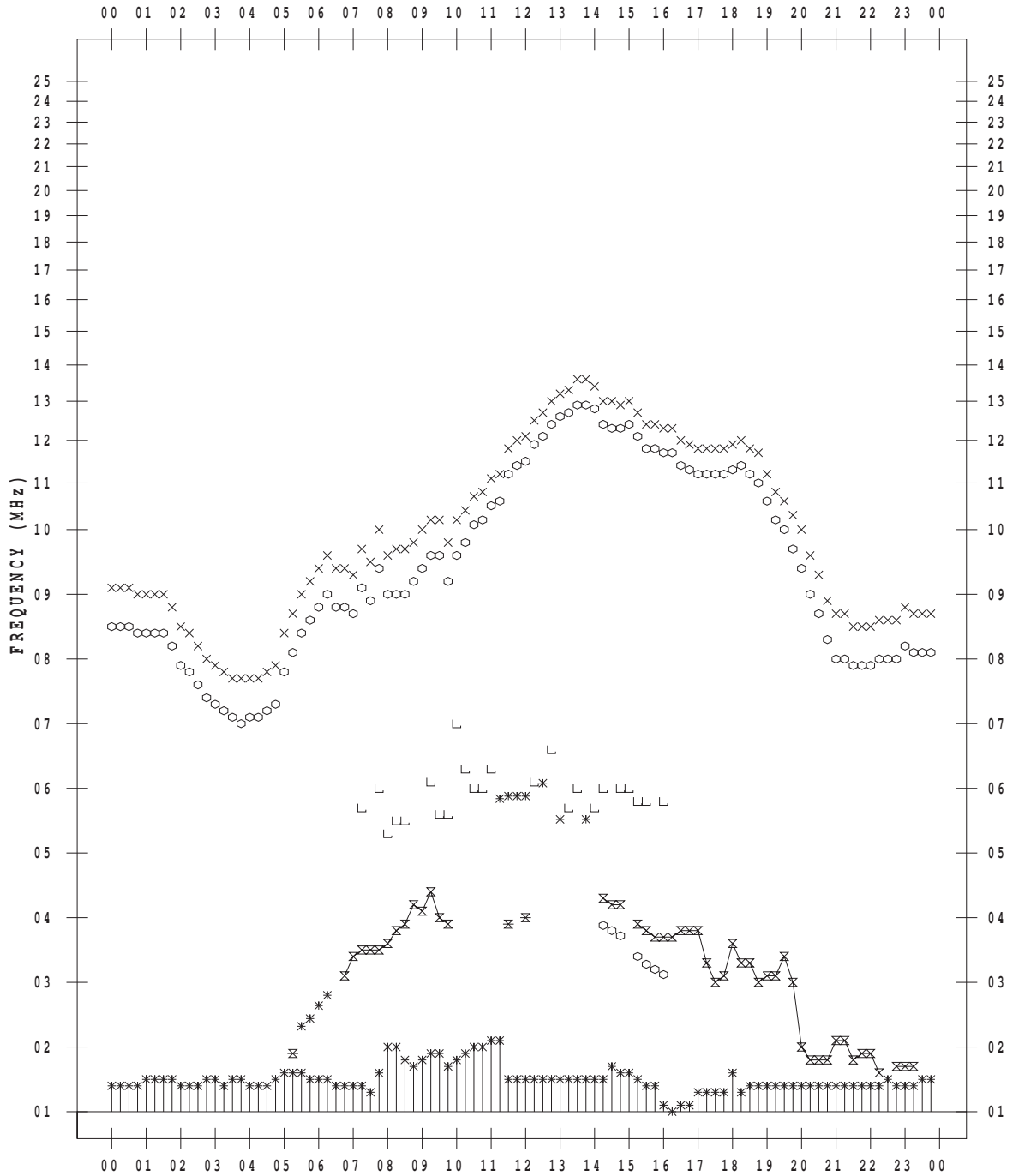
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 24

135 ° E MEAN TIME



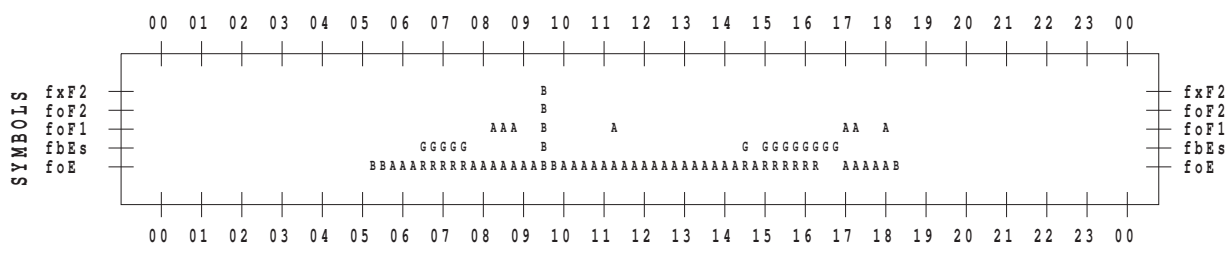
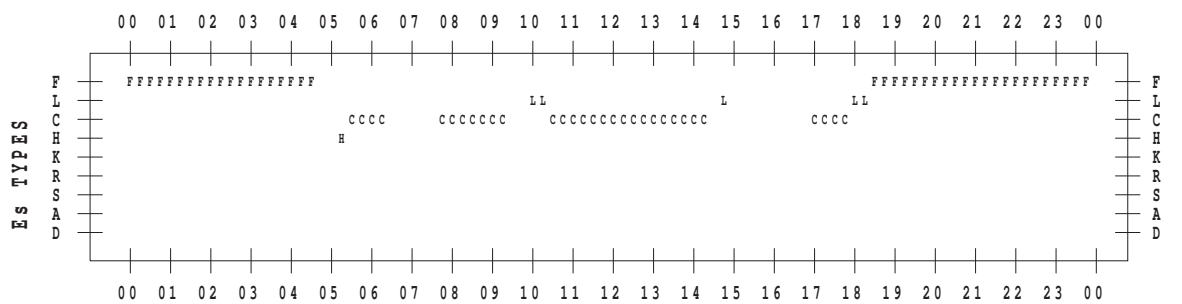
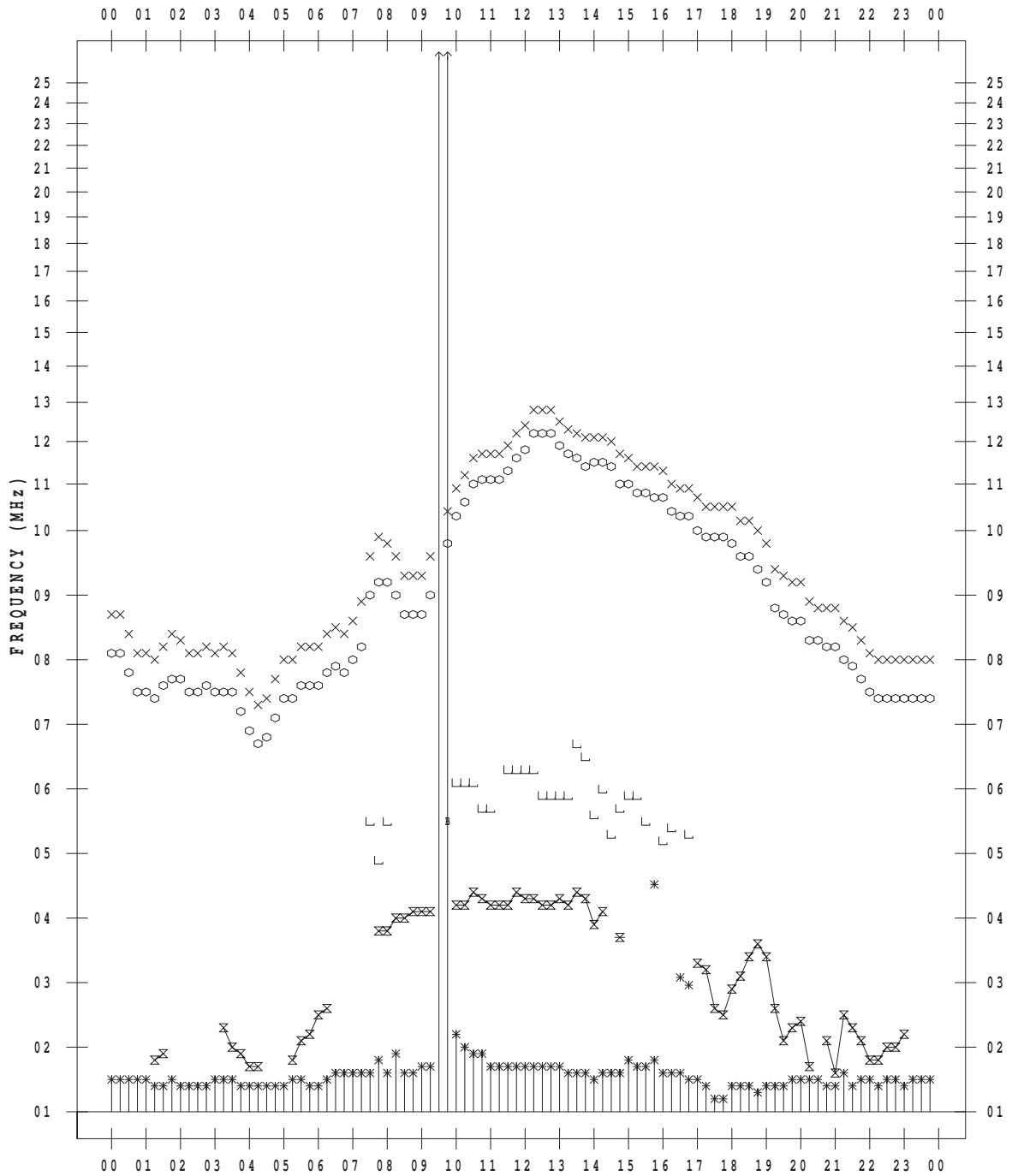
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 25

135 ° E MEAN TIME



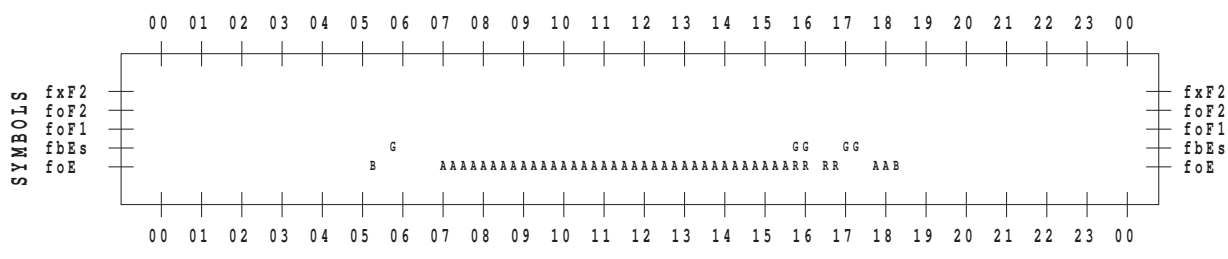
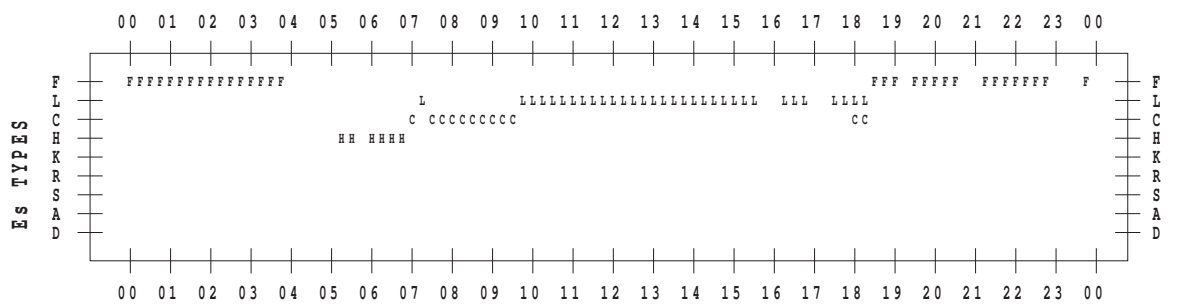
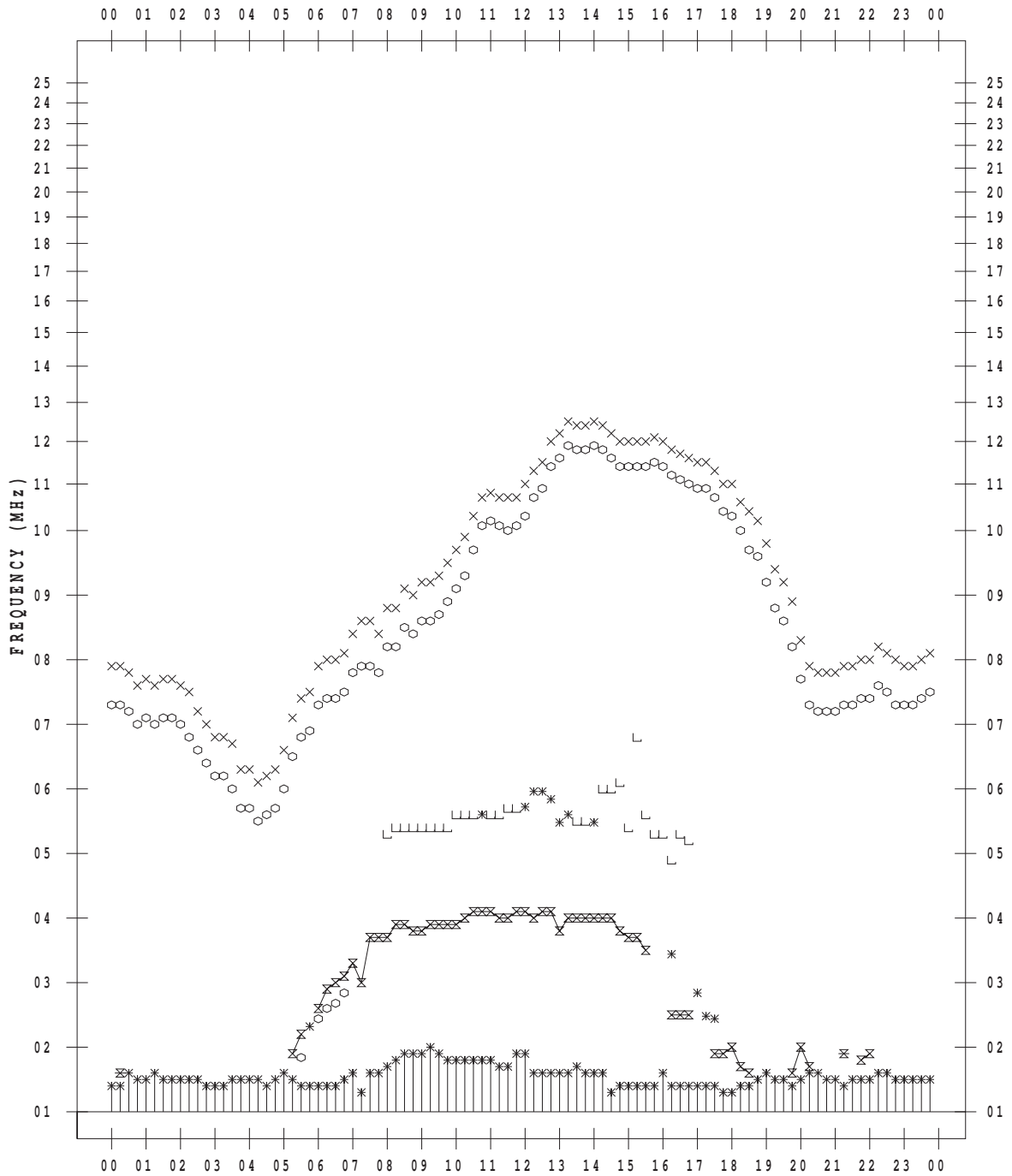
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 26

135 ° E MEAN TIME



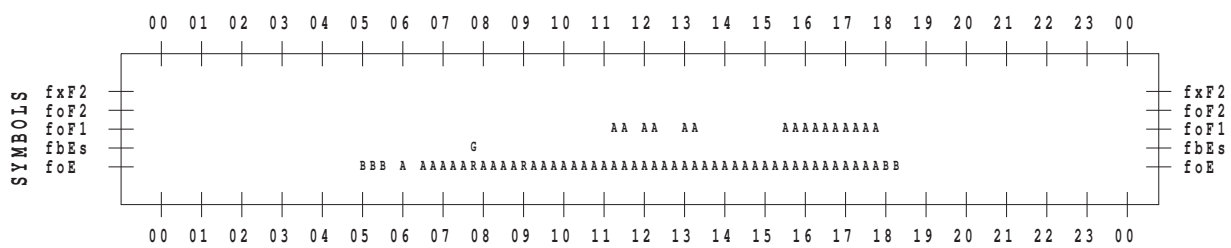
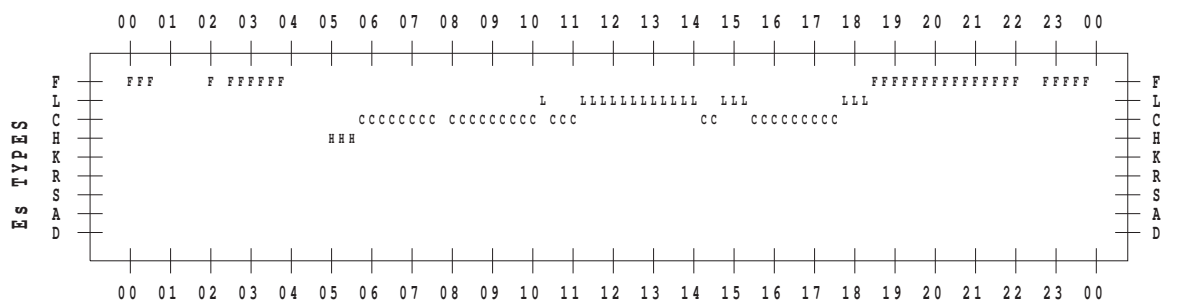
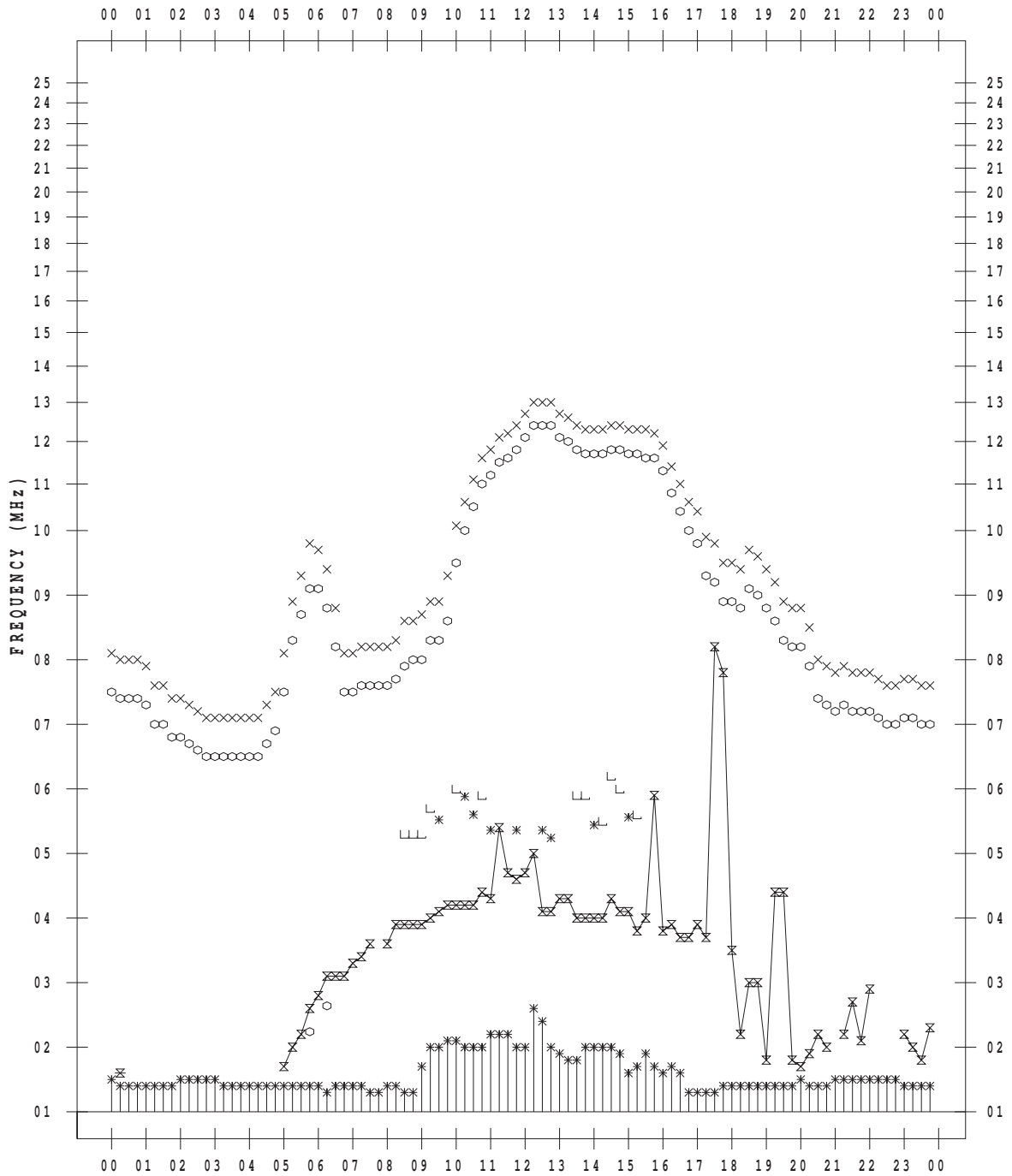
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 27

135 ° E MEAN TIME



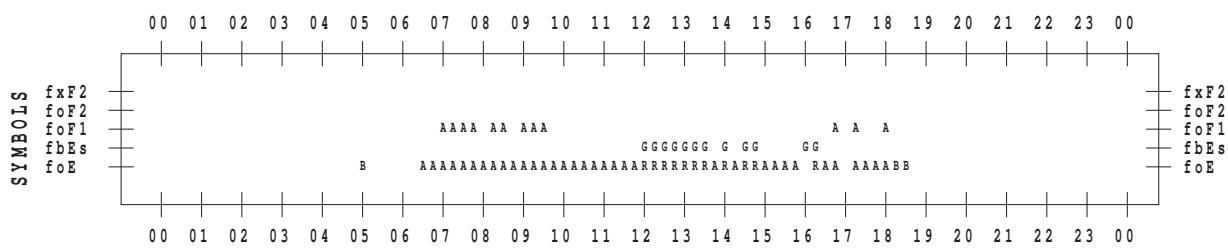
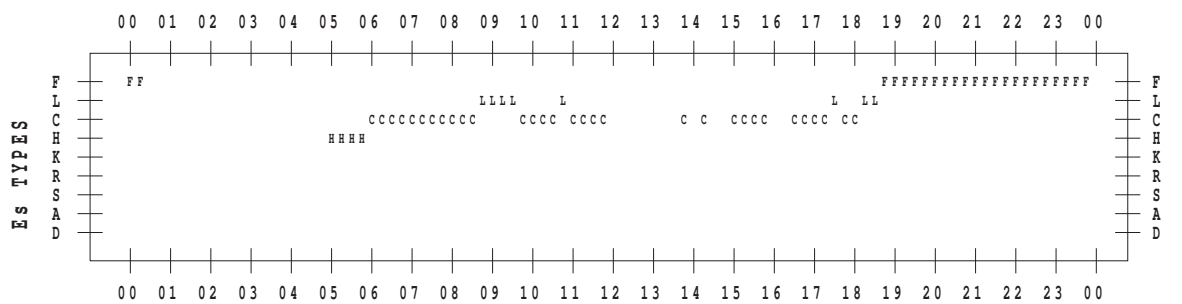
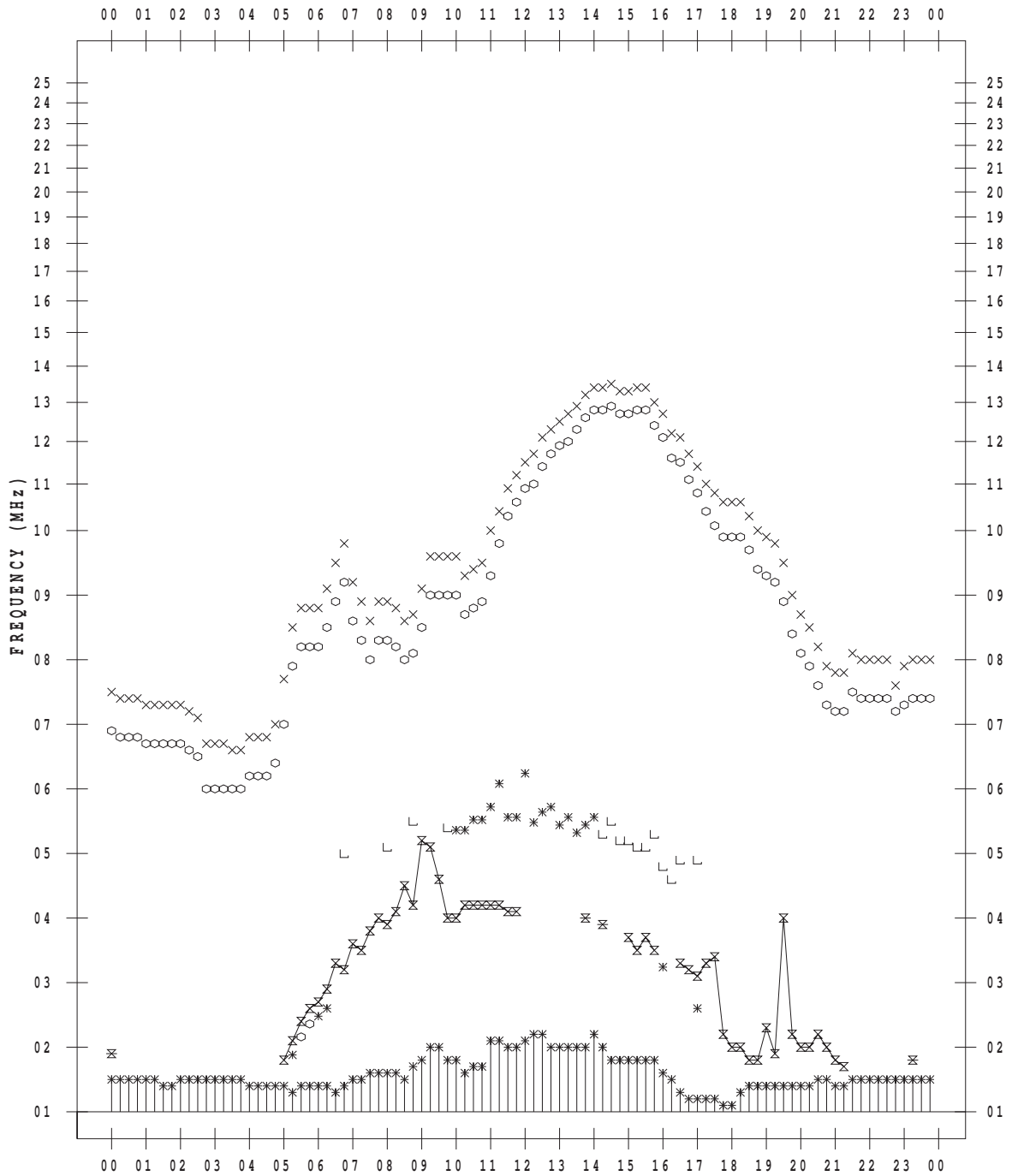
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 28

135 ° E MEAN TIME



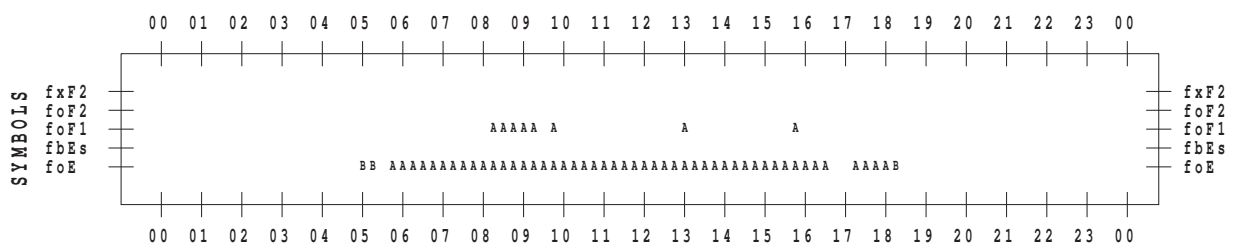
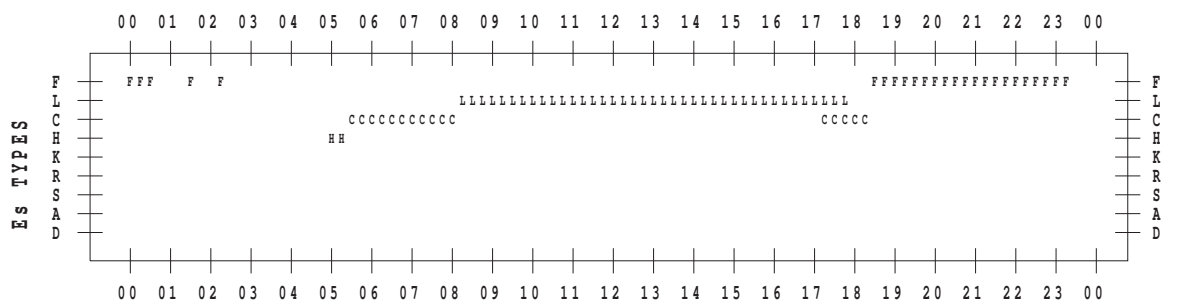
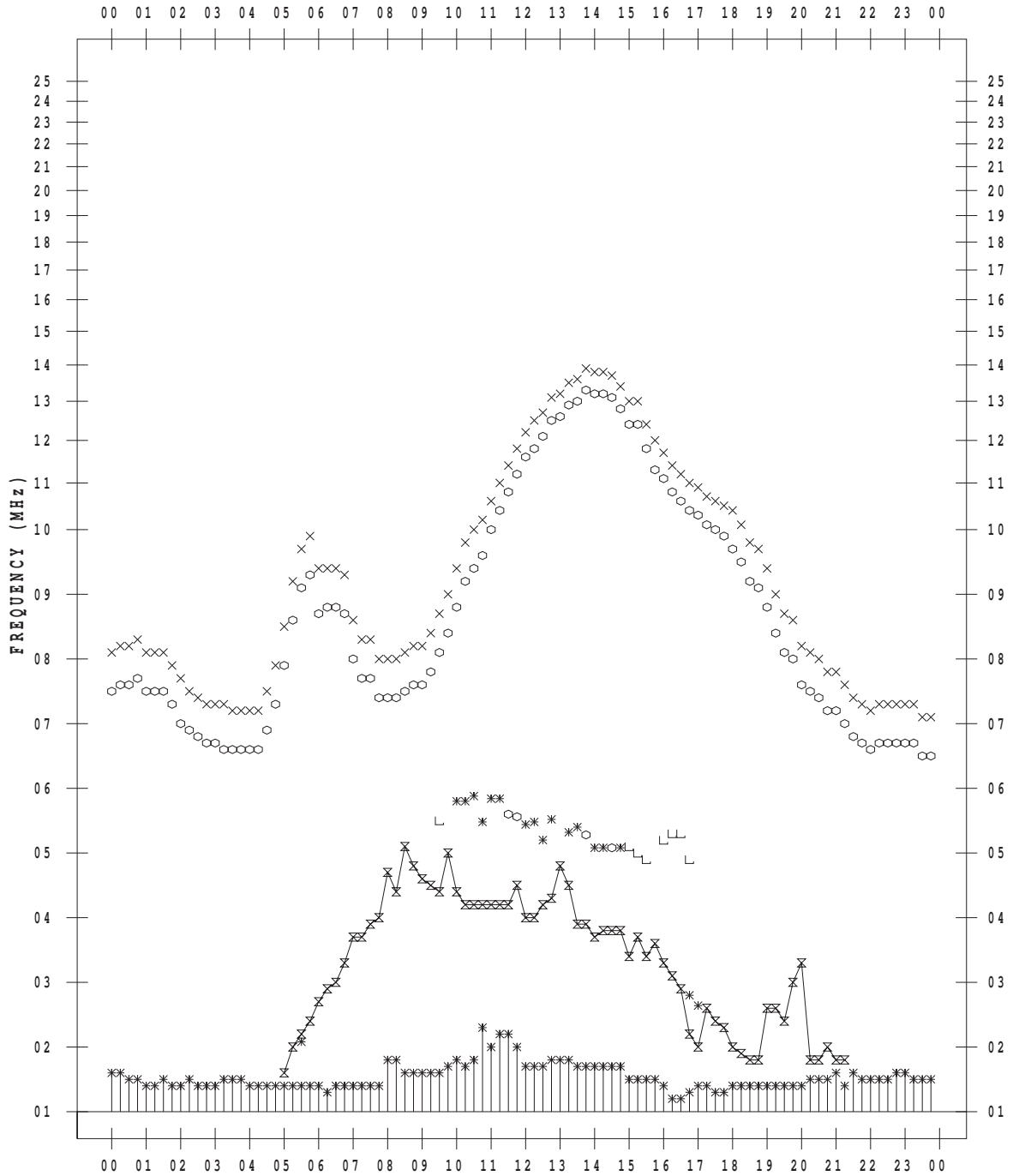
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 29

135 ° E MEAN TIME



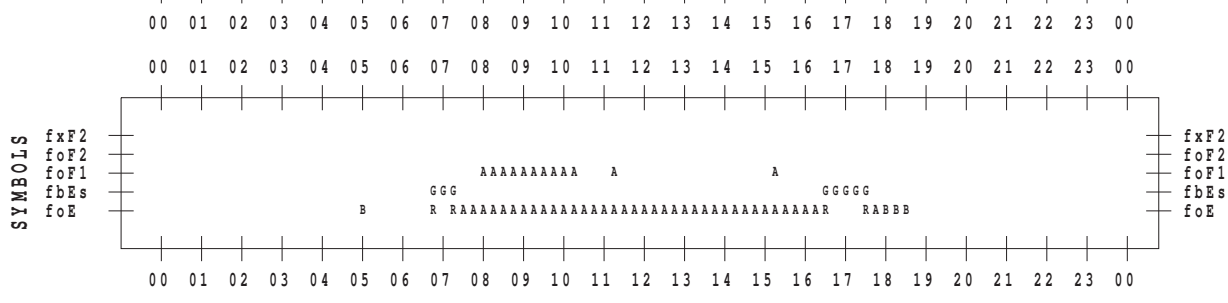
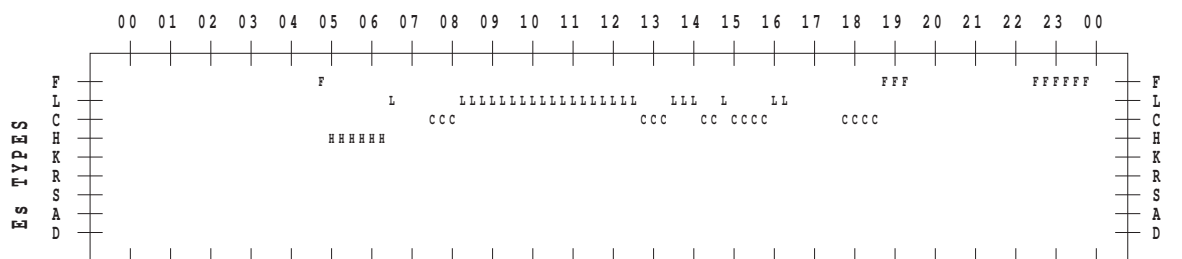
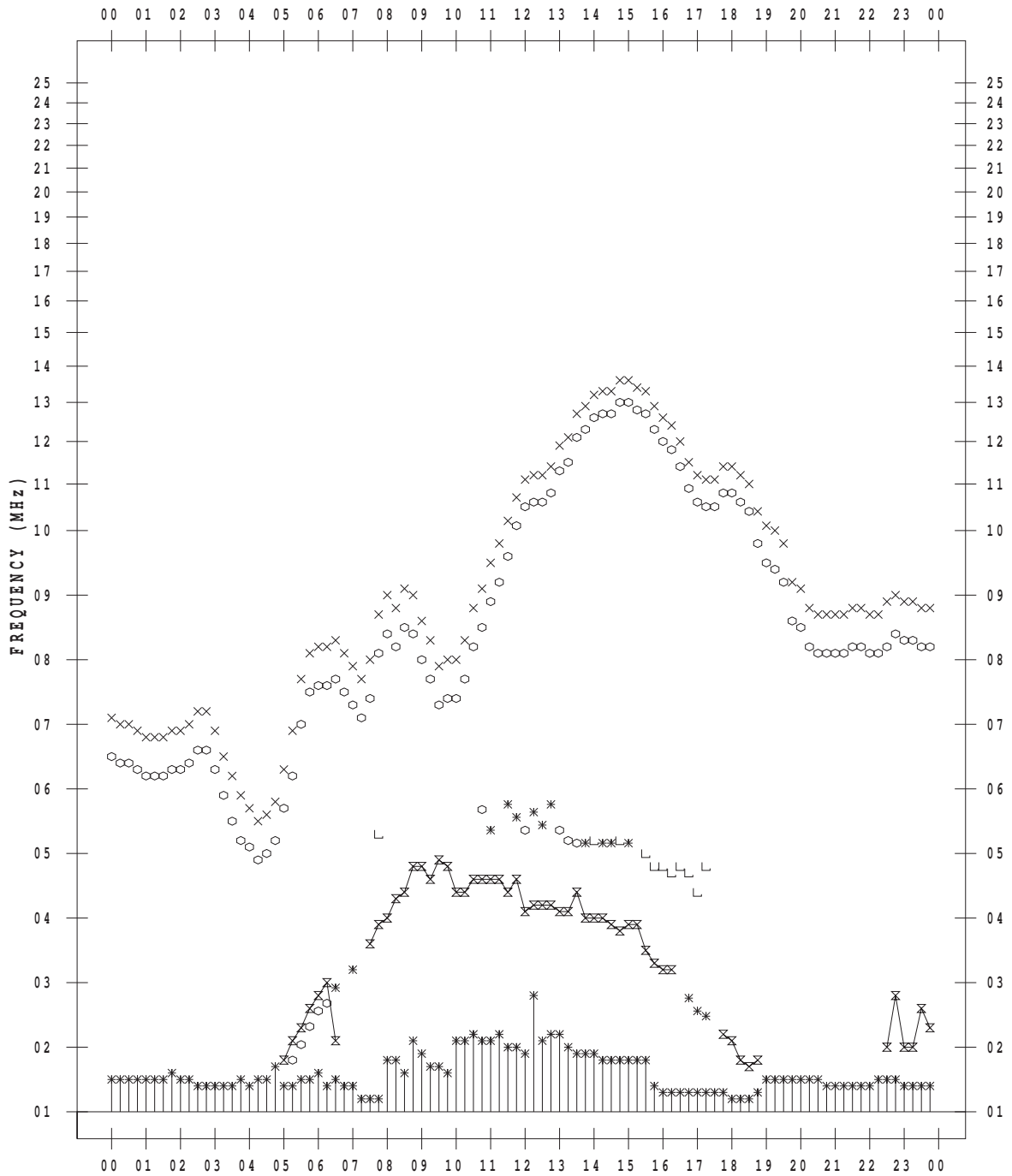
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 4 / 30

135 ° E MEAN TIME



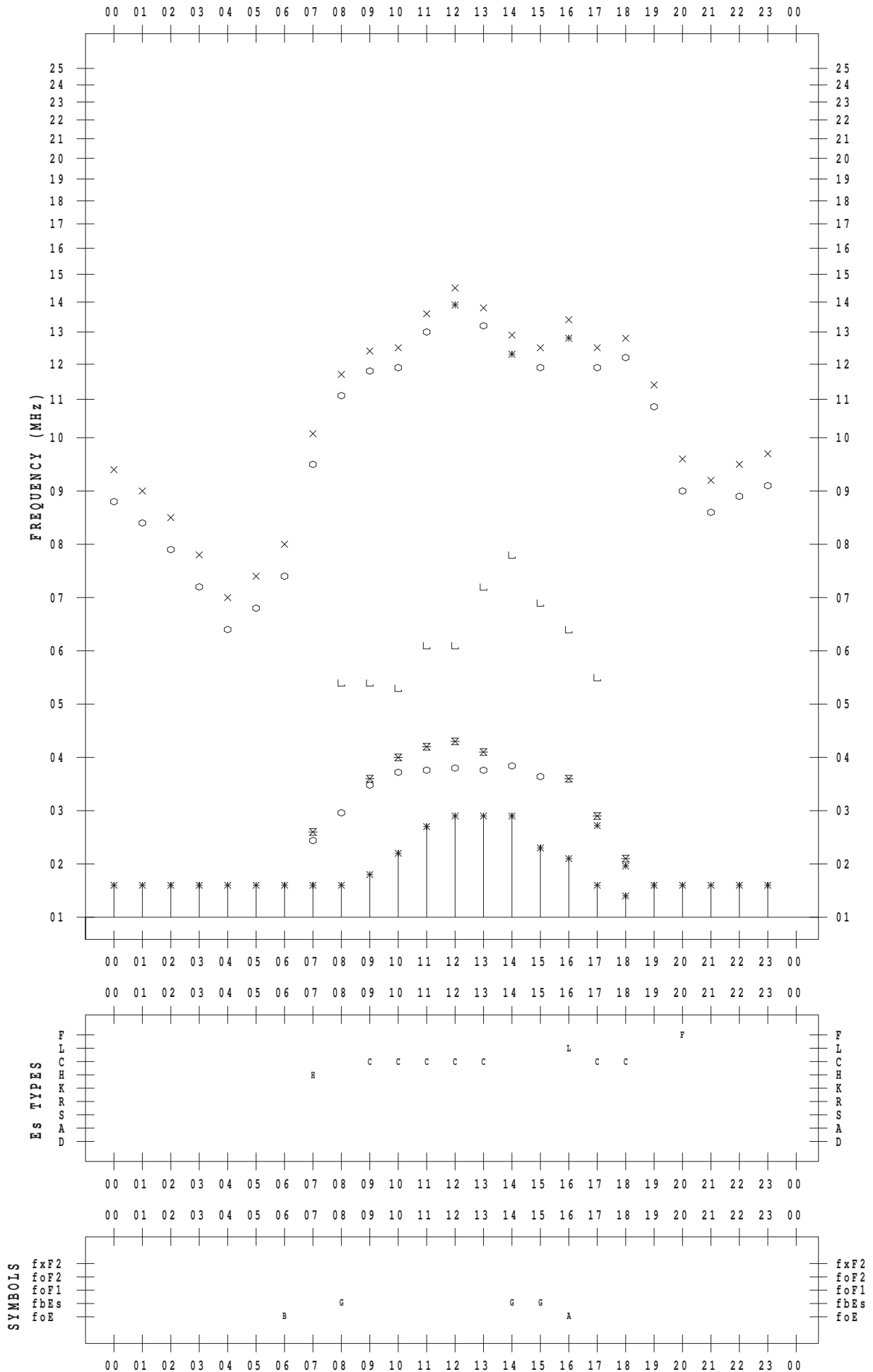
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 1

135 ° E MEAN TIME



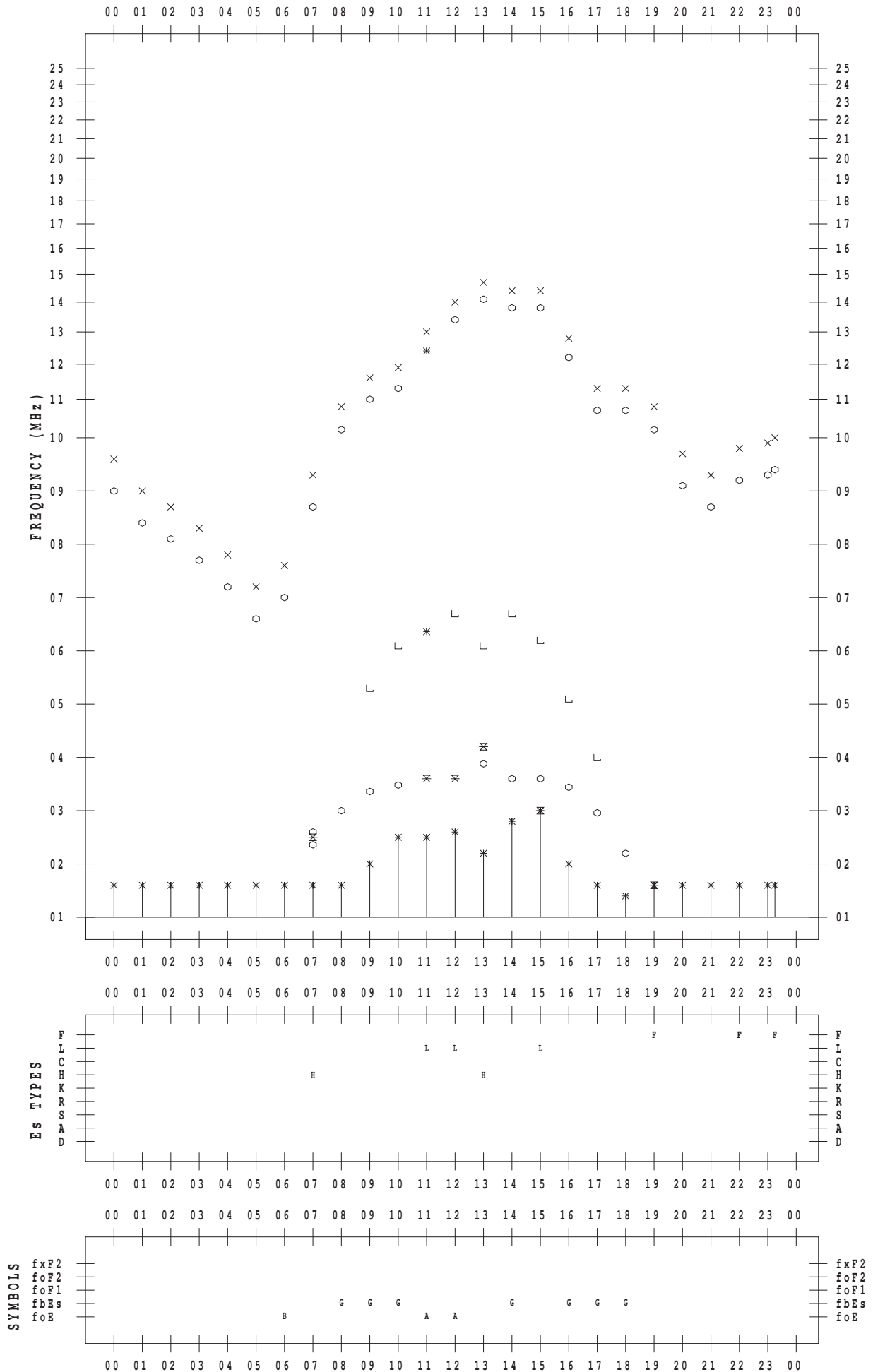
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 2

135 ° E MEAN TIME



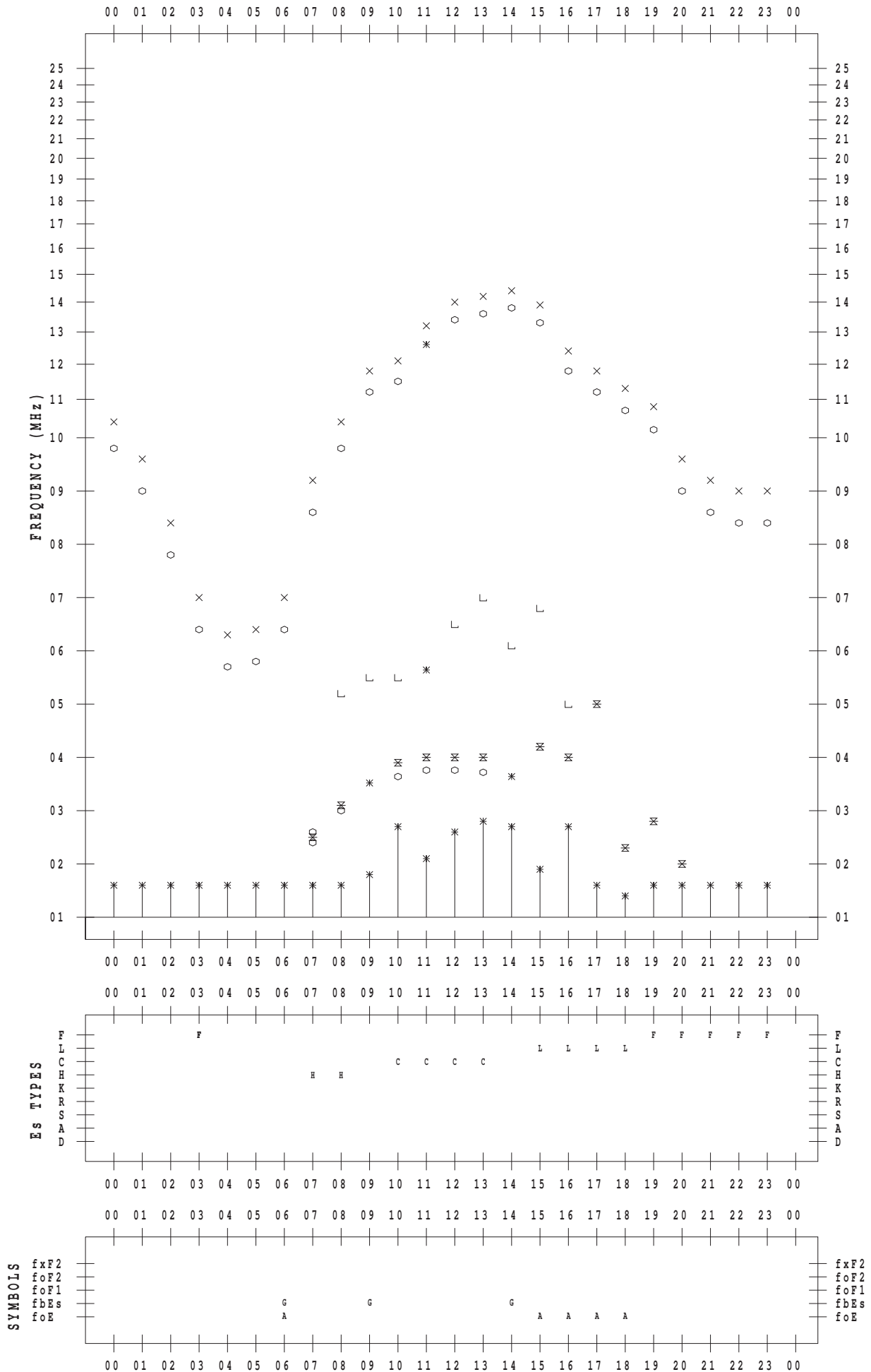
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 3

135 ° E MEAN TIME



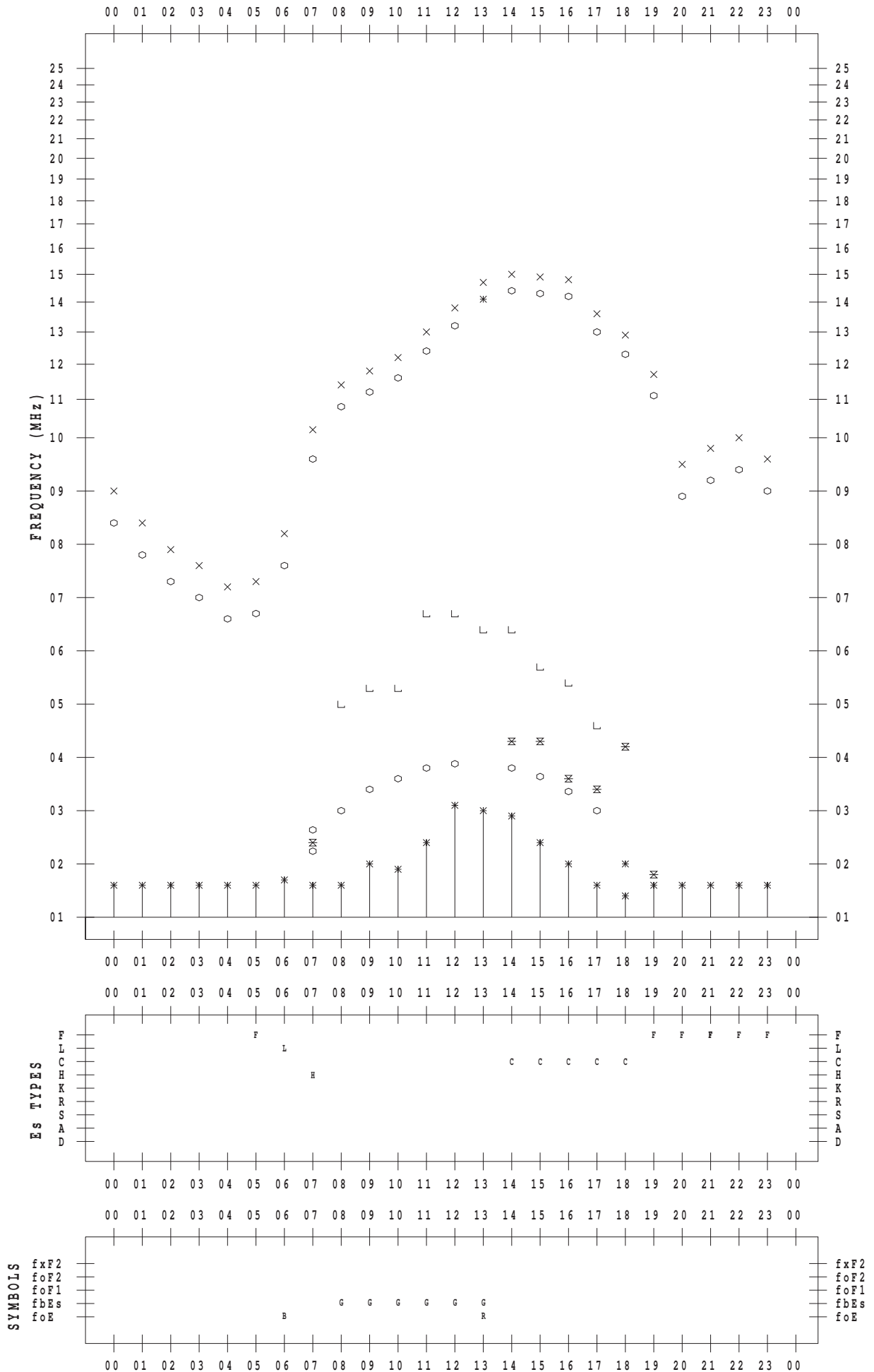
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 4

135 ° E MEAN TIME



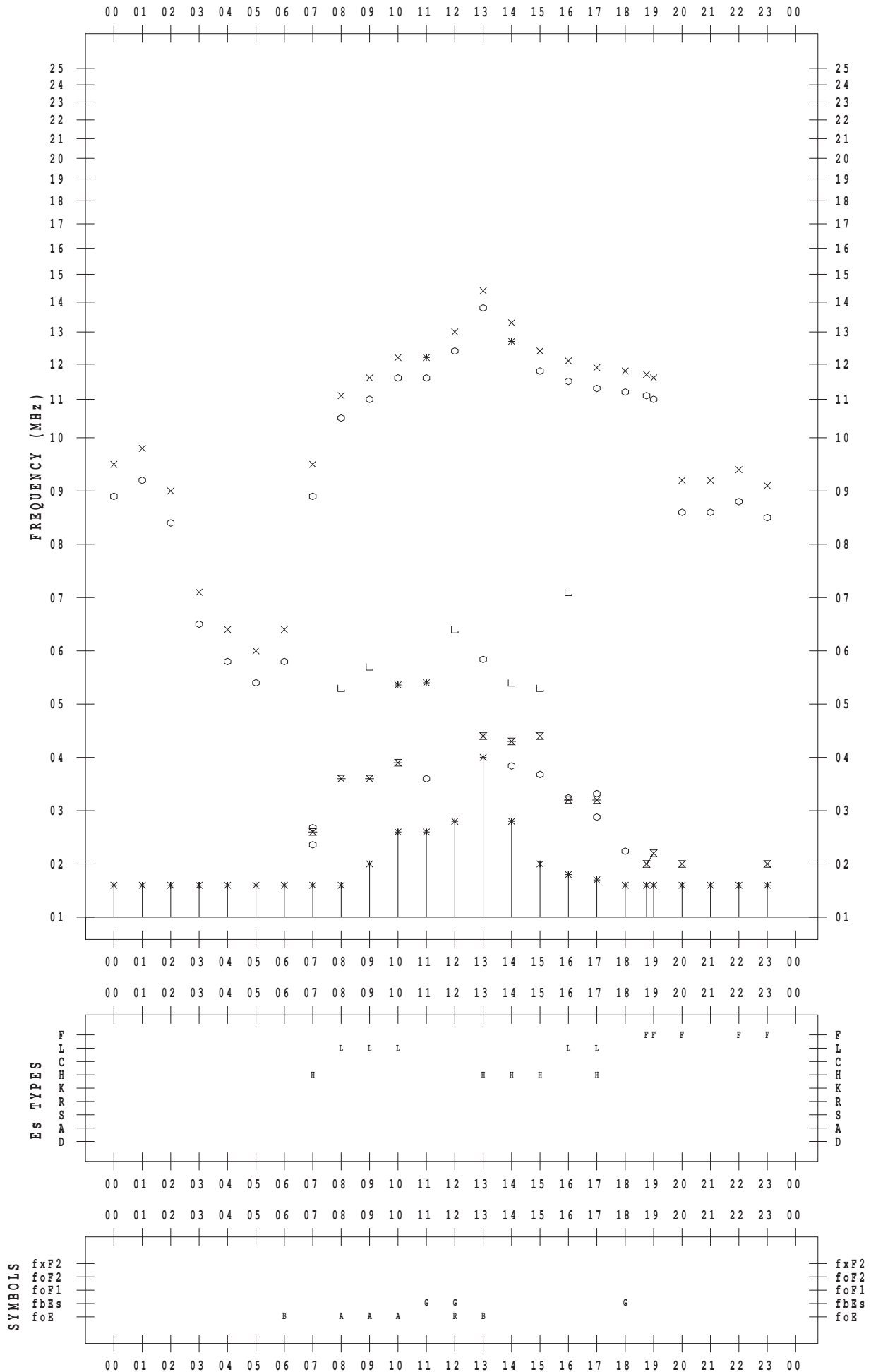
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 5

135 ° E MEAN TIME



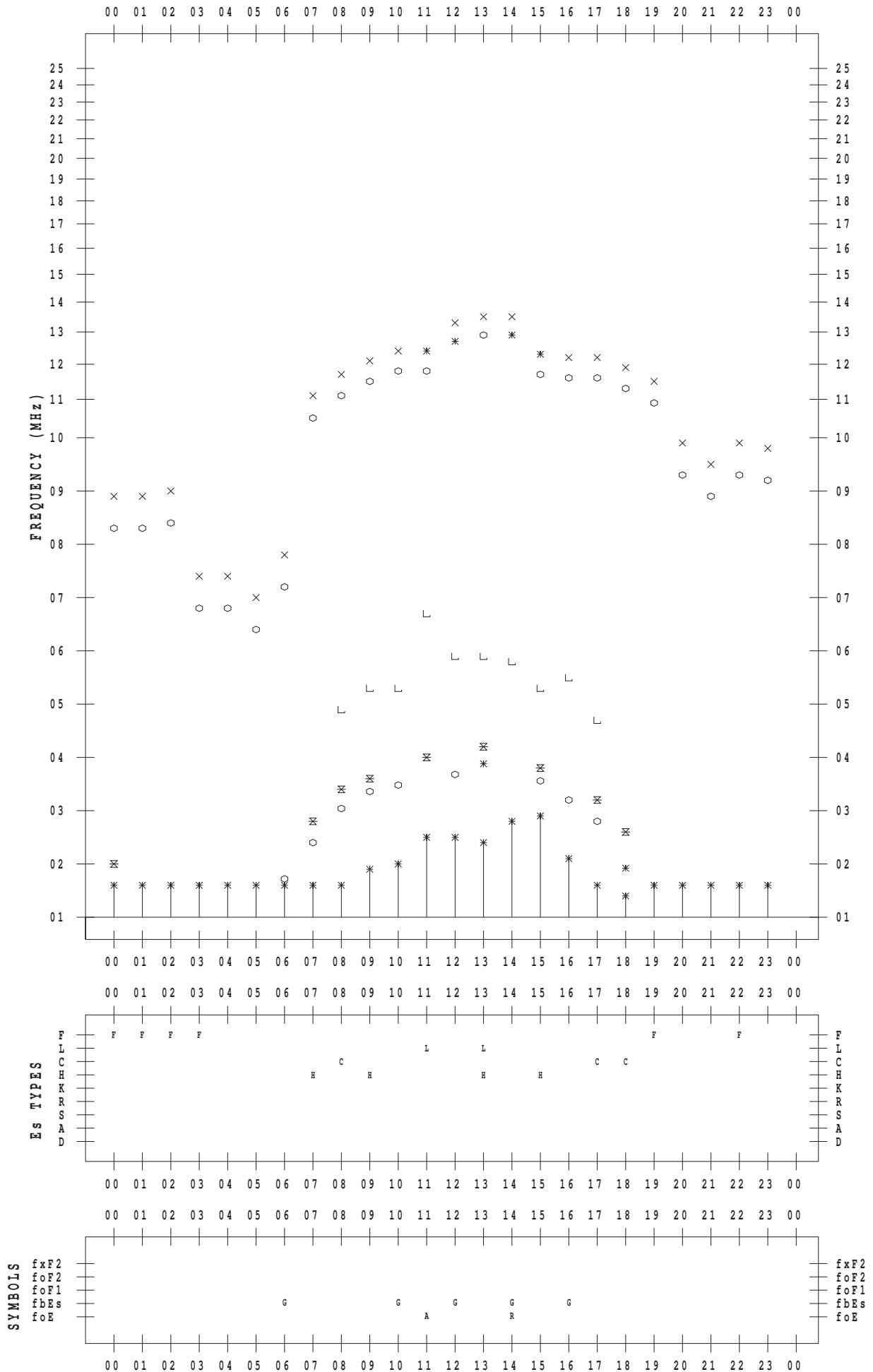
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 6

135 ° E MEAN TIME



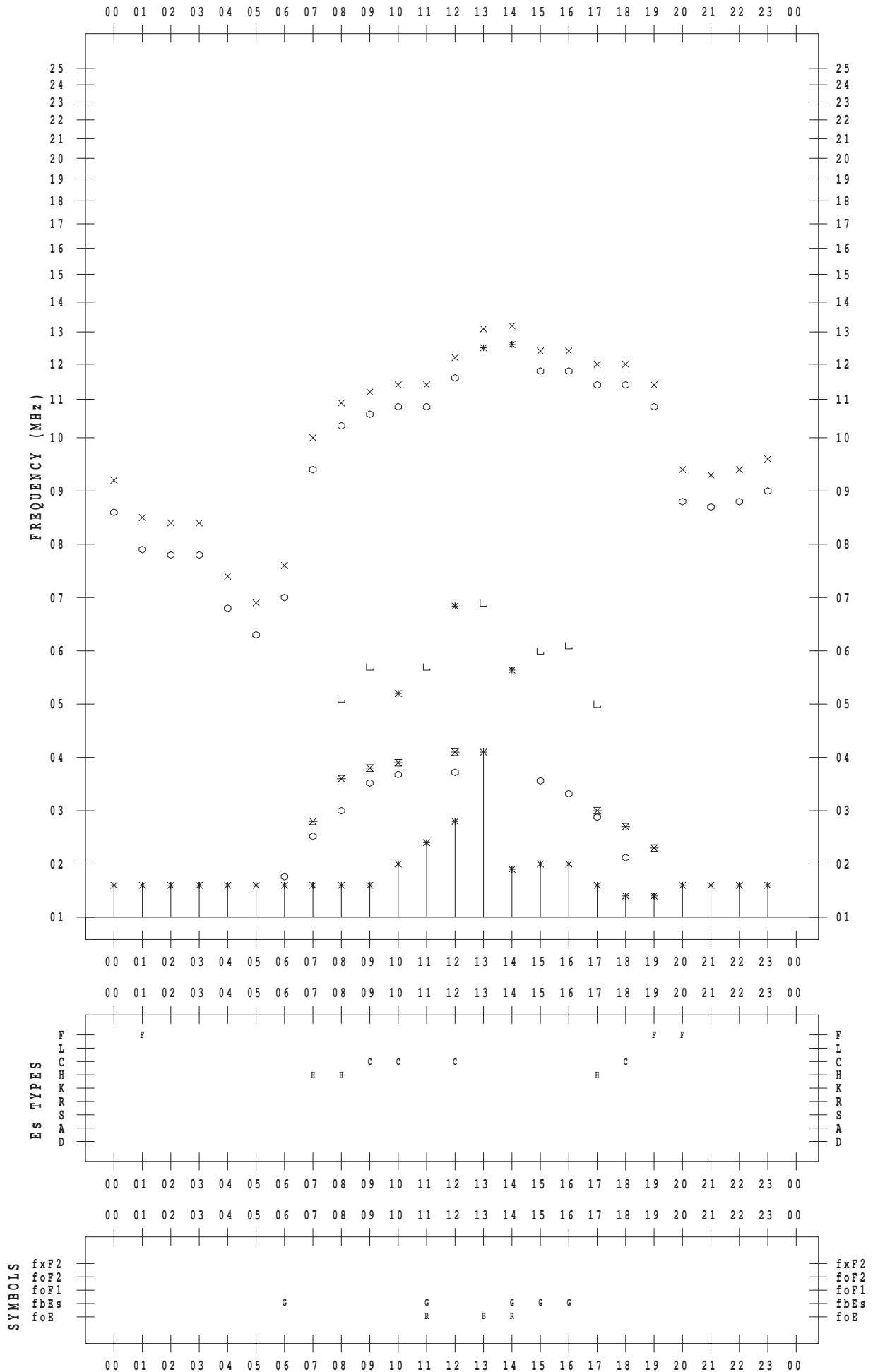
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 7

135 ° E MEAN TIME



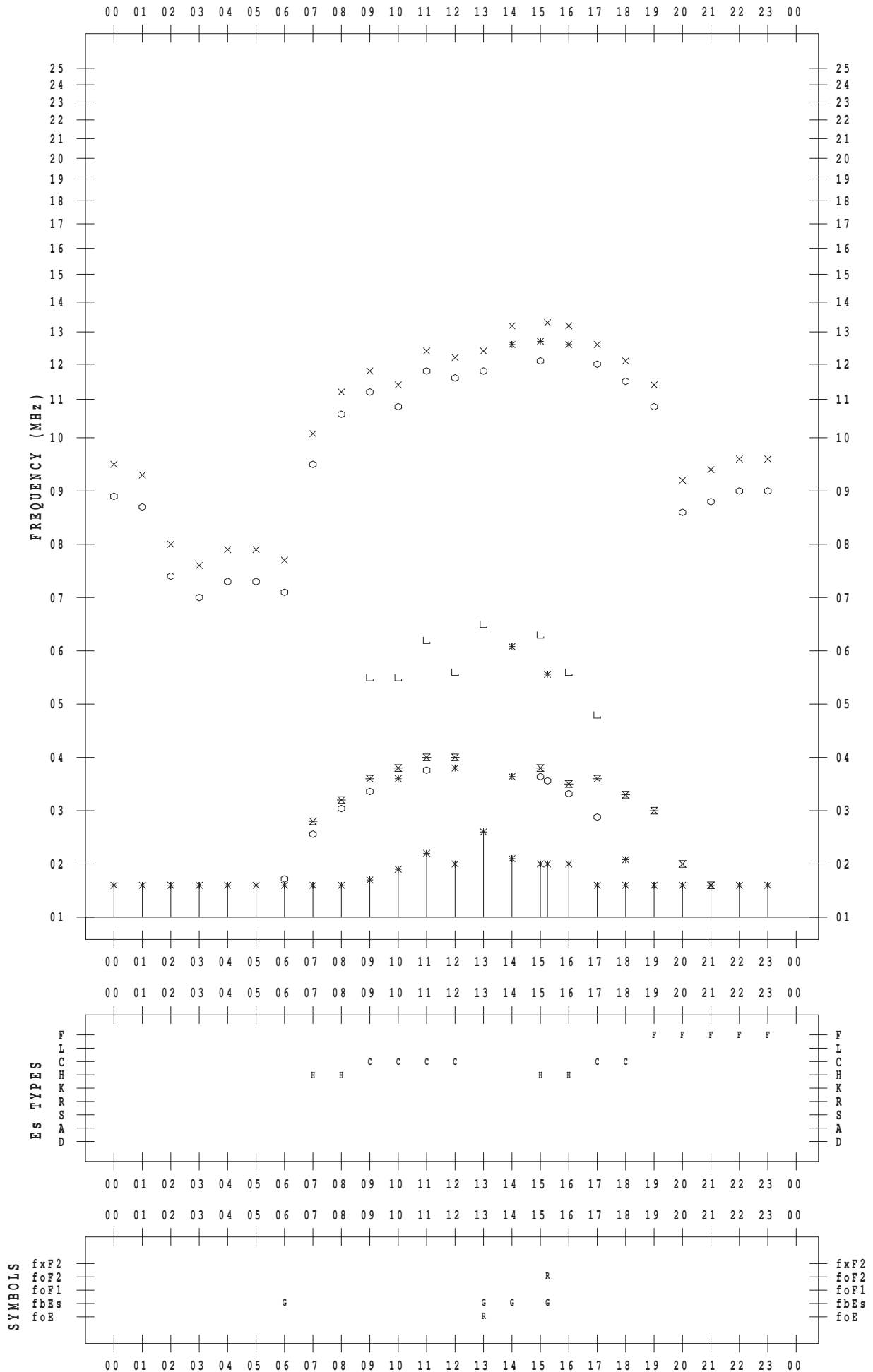
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 8

135 ° E MEAN TIME



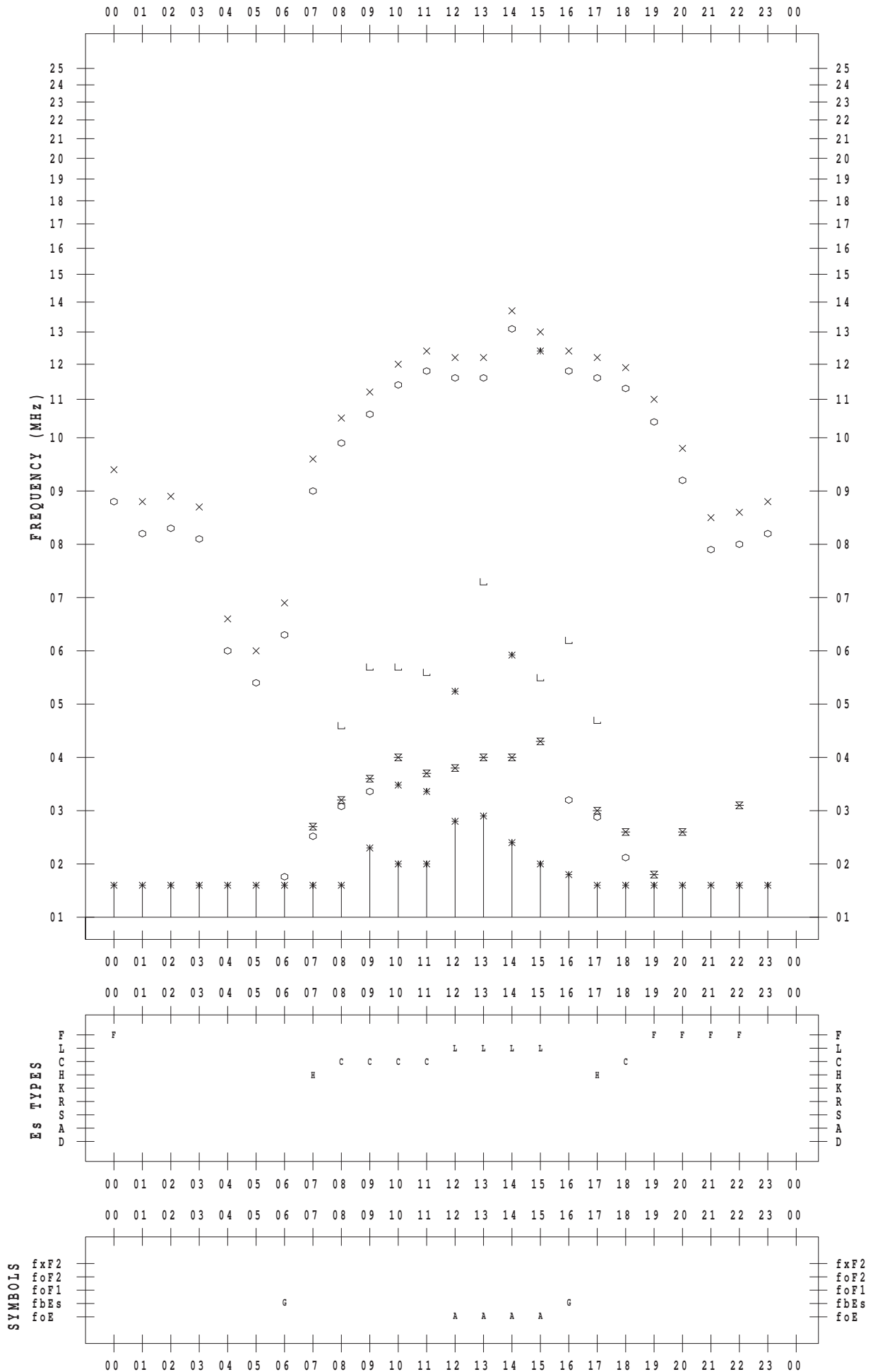
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 9

135 ° E MEAN TIME



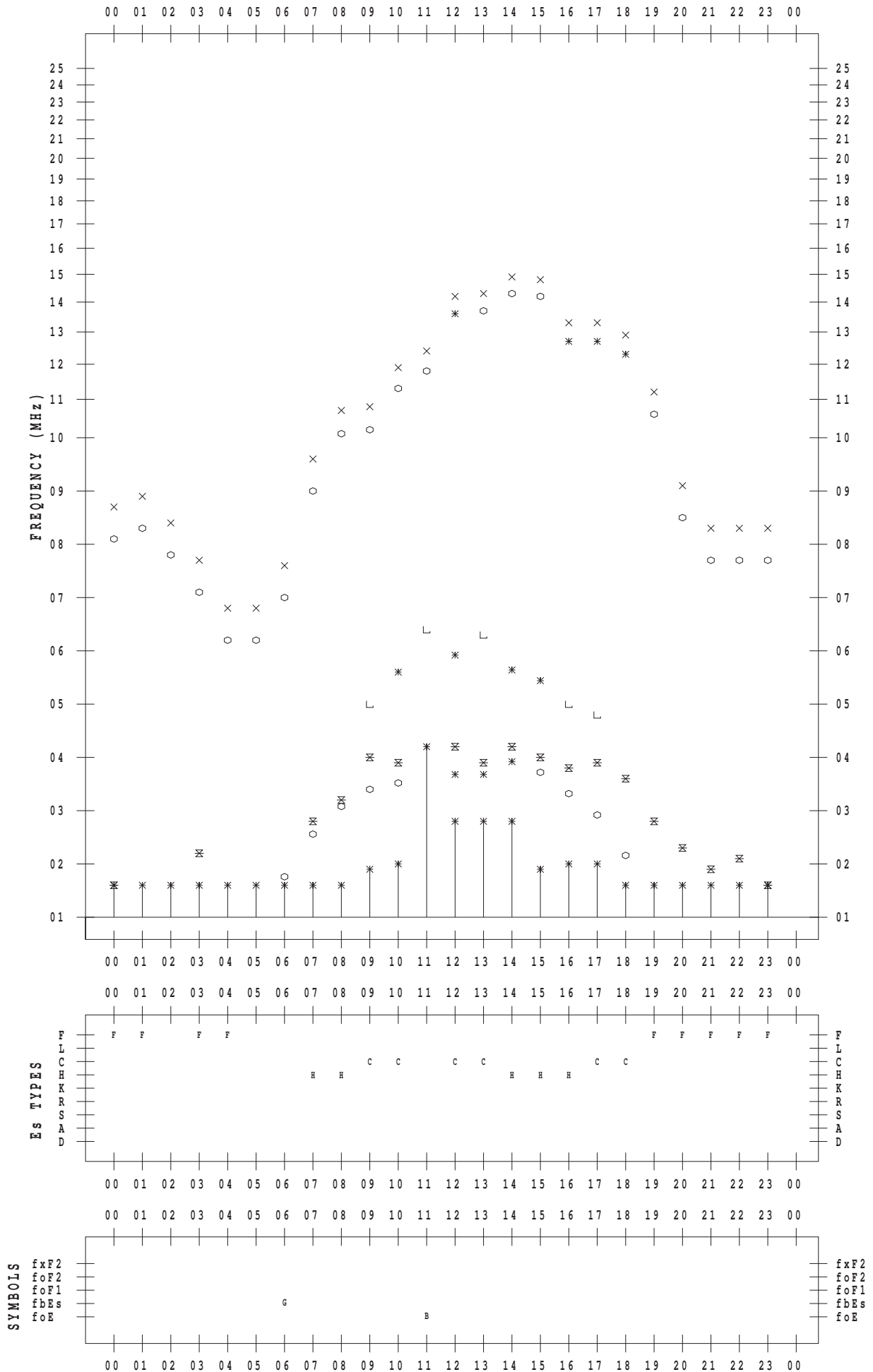
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 10

135 ° E MEAN TIME



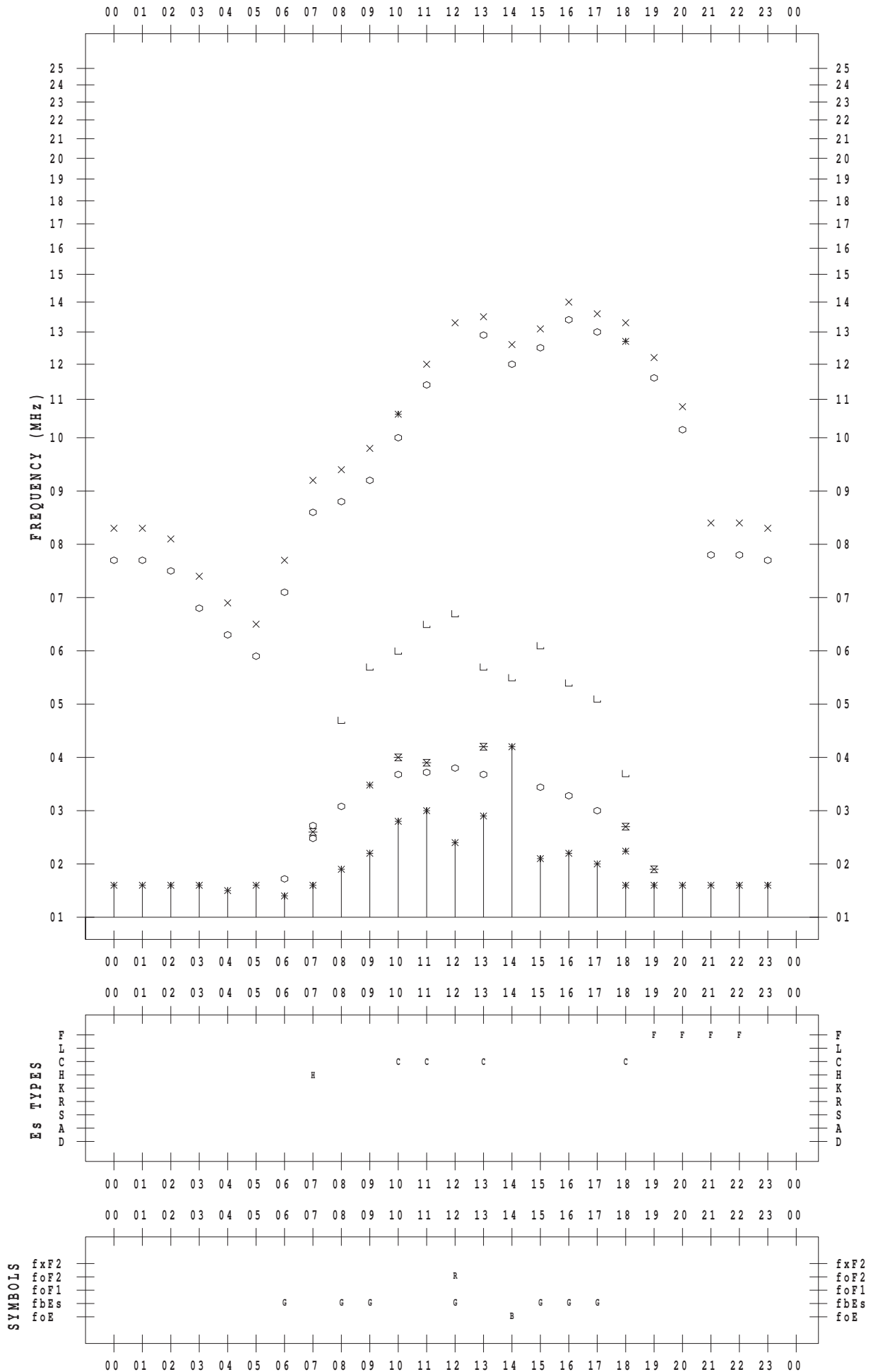
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 11

135 ° E MEAN TIME



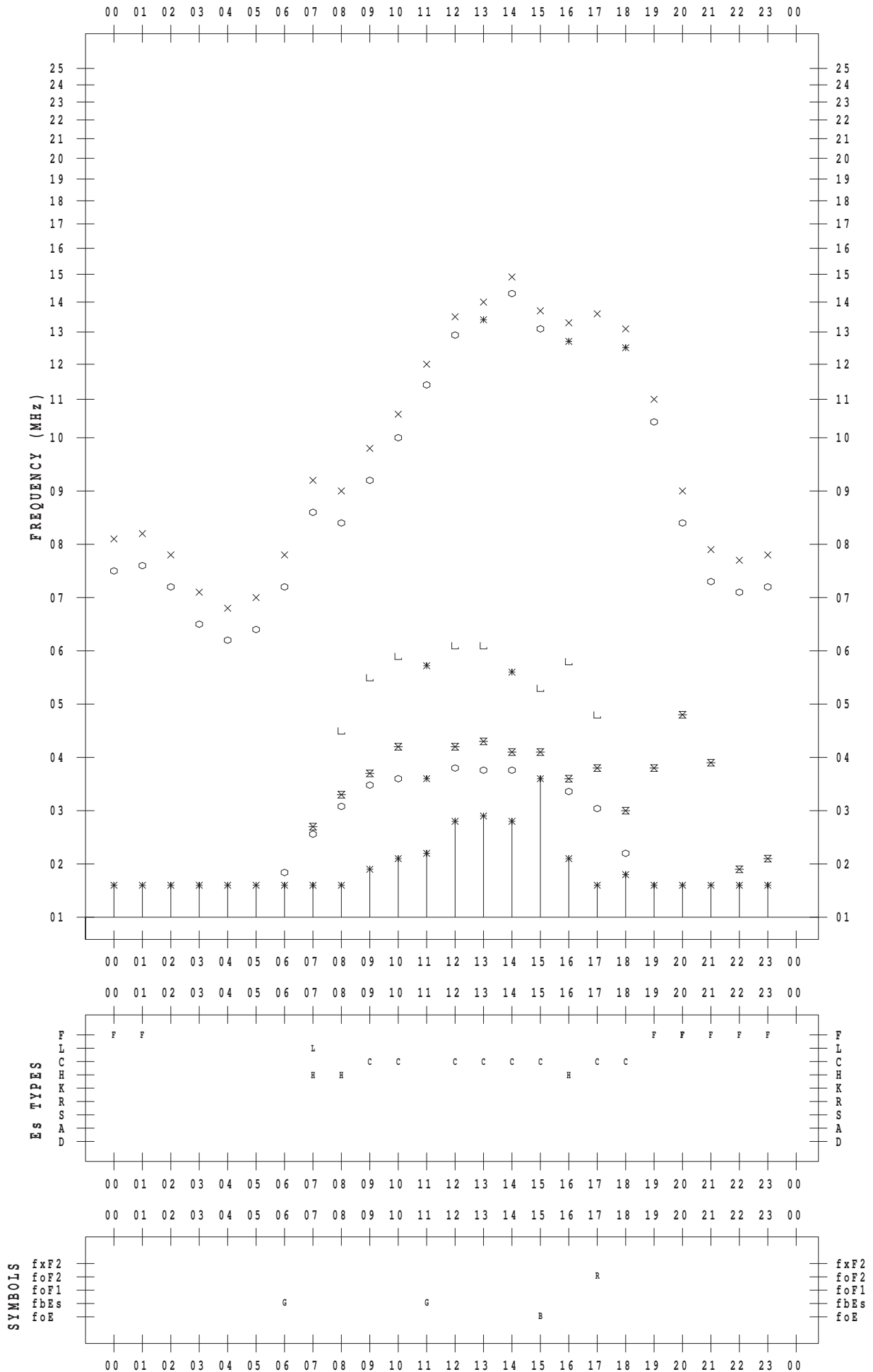
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 12

135 ° E MEAN TIME



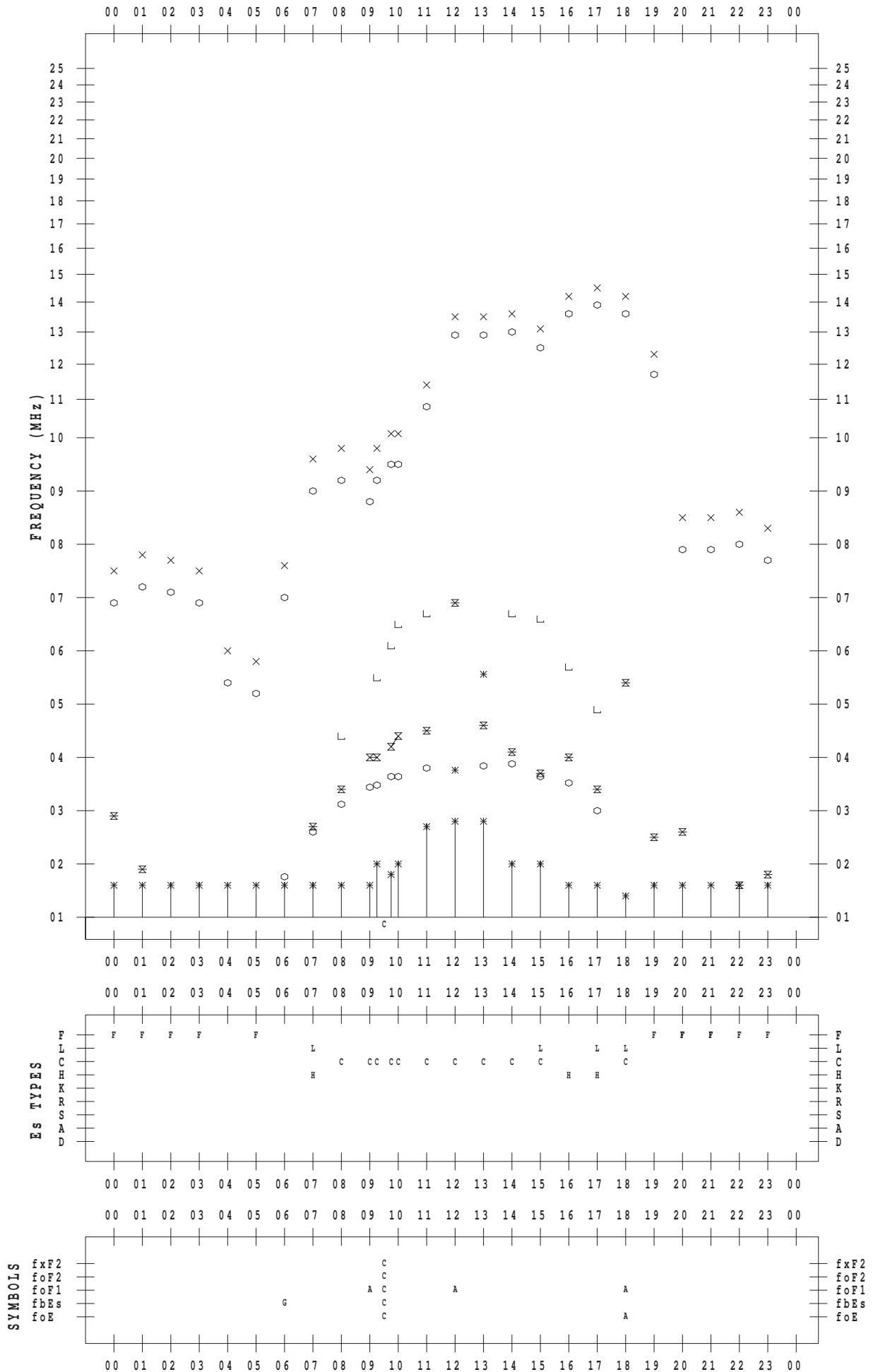
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 13

135 ° E MEAN TIME



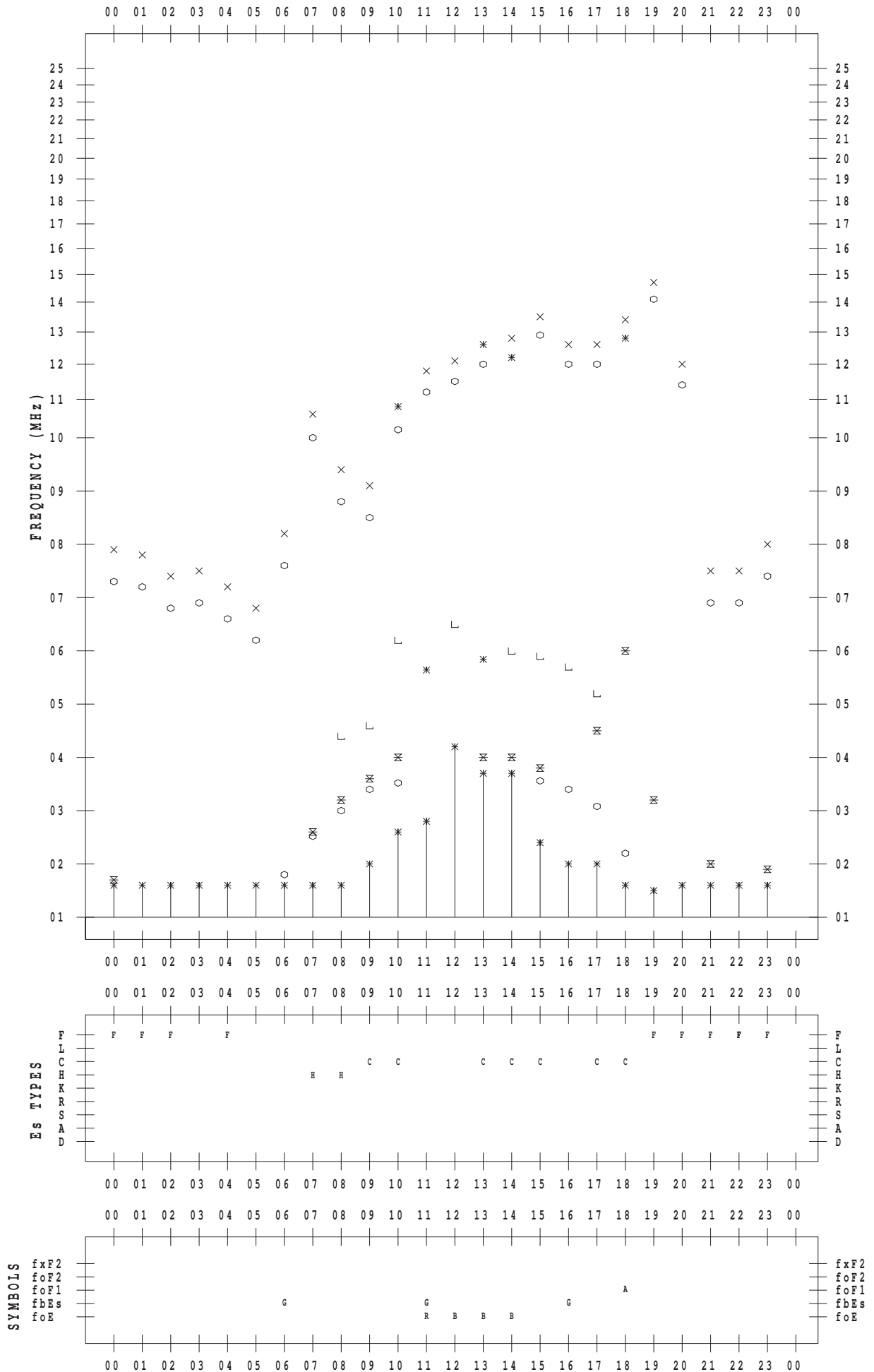
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 14

135 ° E MEAN TIME



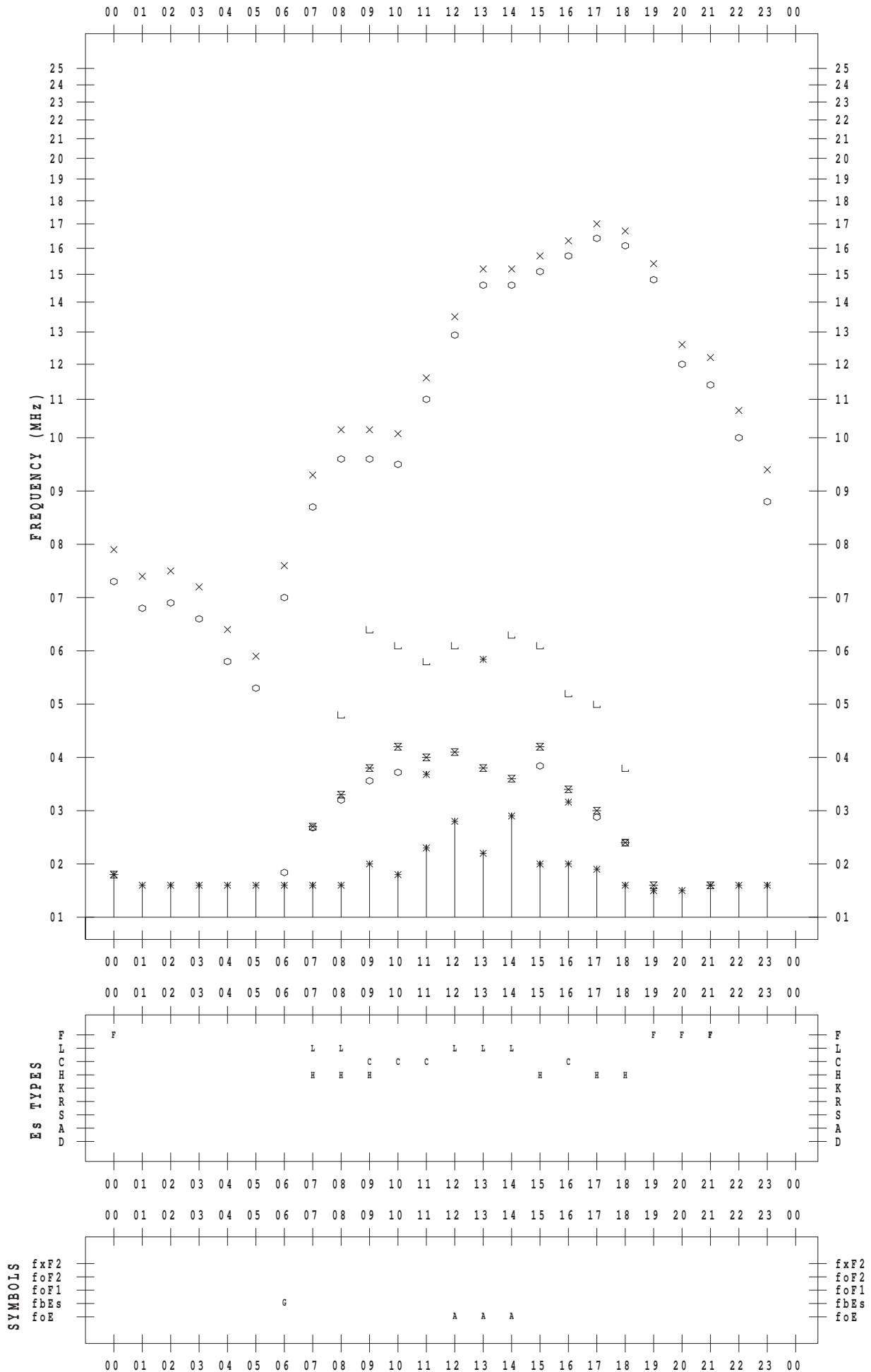
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 15

135 ° E MEAN TIME



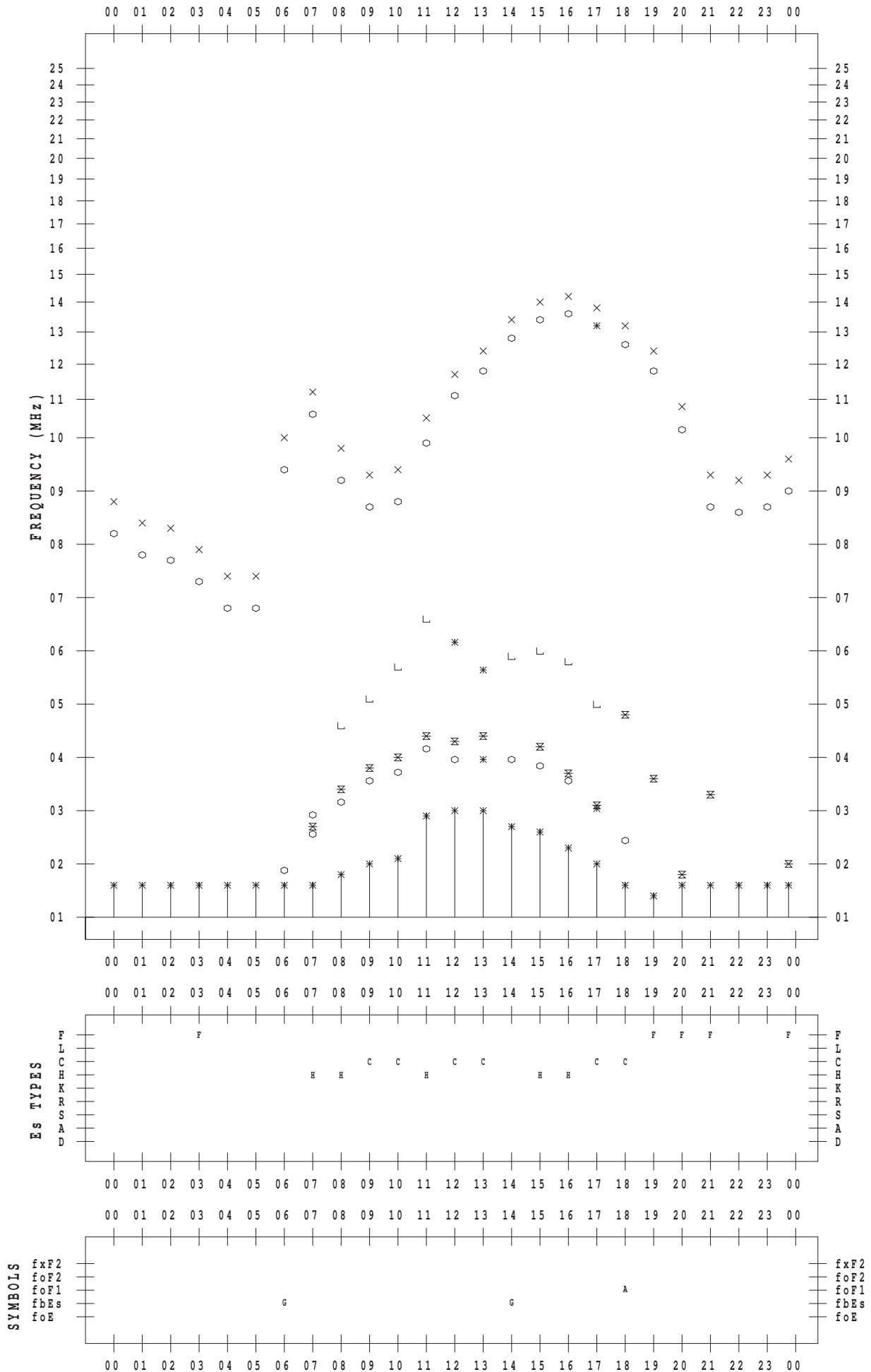
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 16

135 ° E MEAN TIME



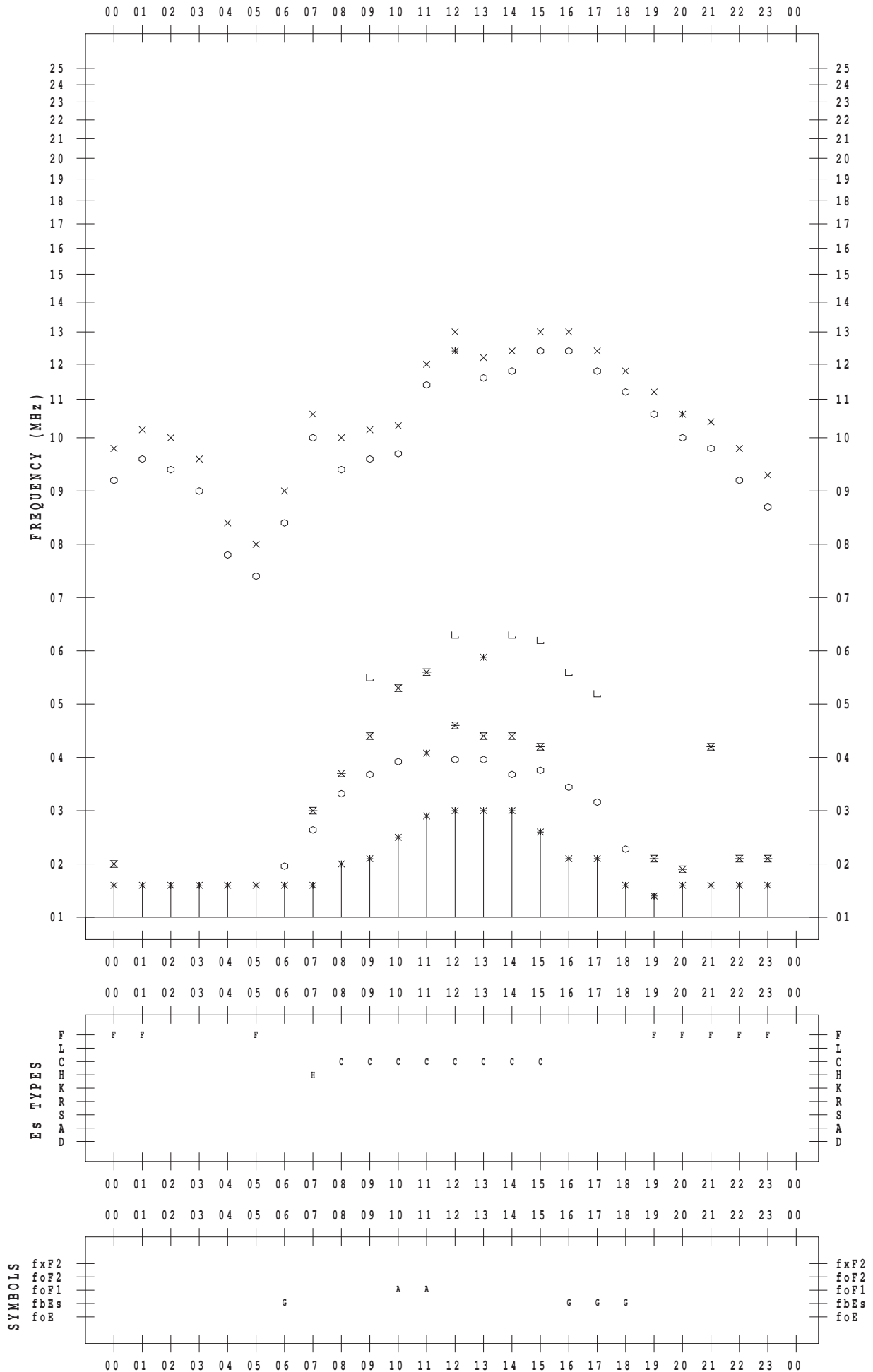
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 17

135 ° E MEAN TIME



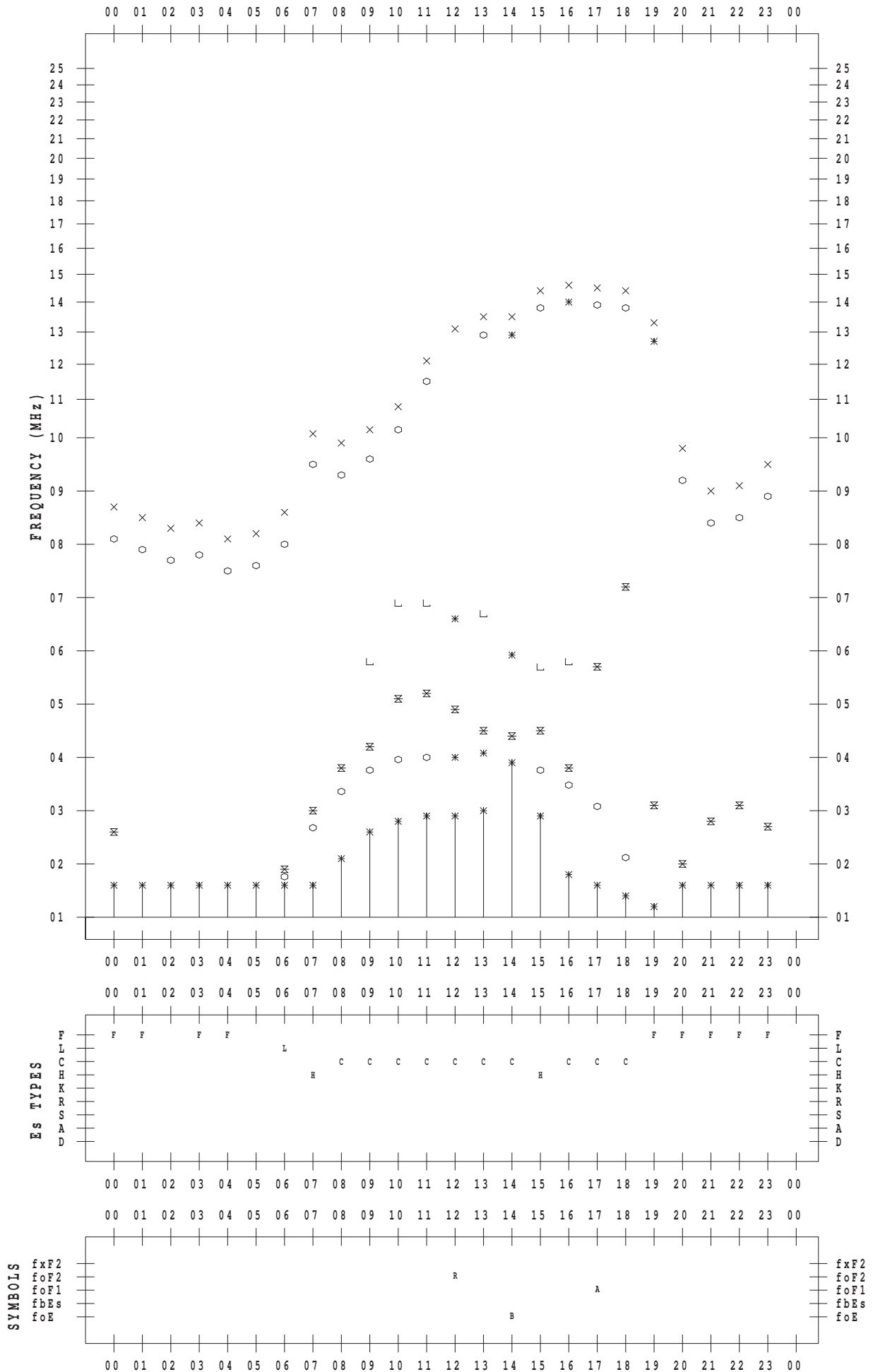
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 18

135 ° E MEAN TIME



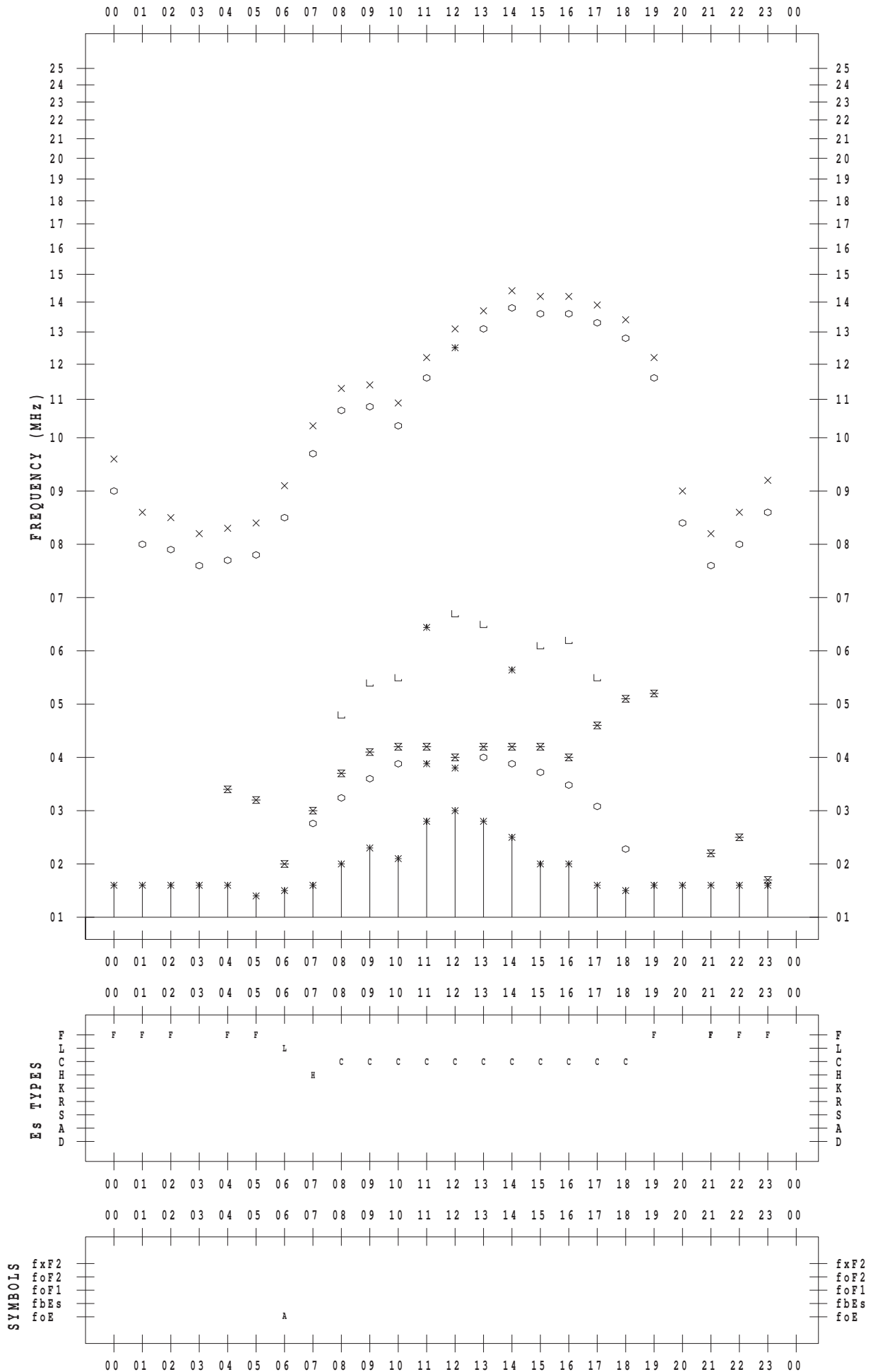
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 19

135 ° E MEAN TIME



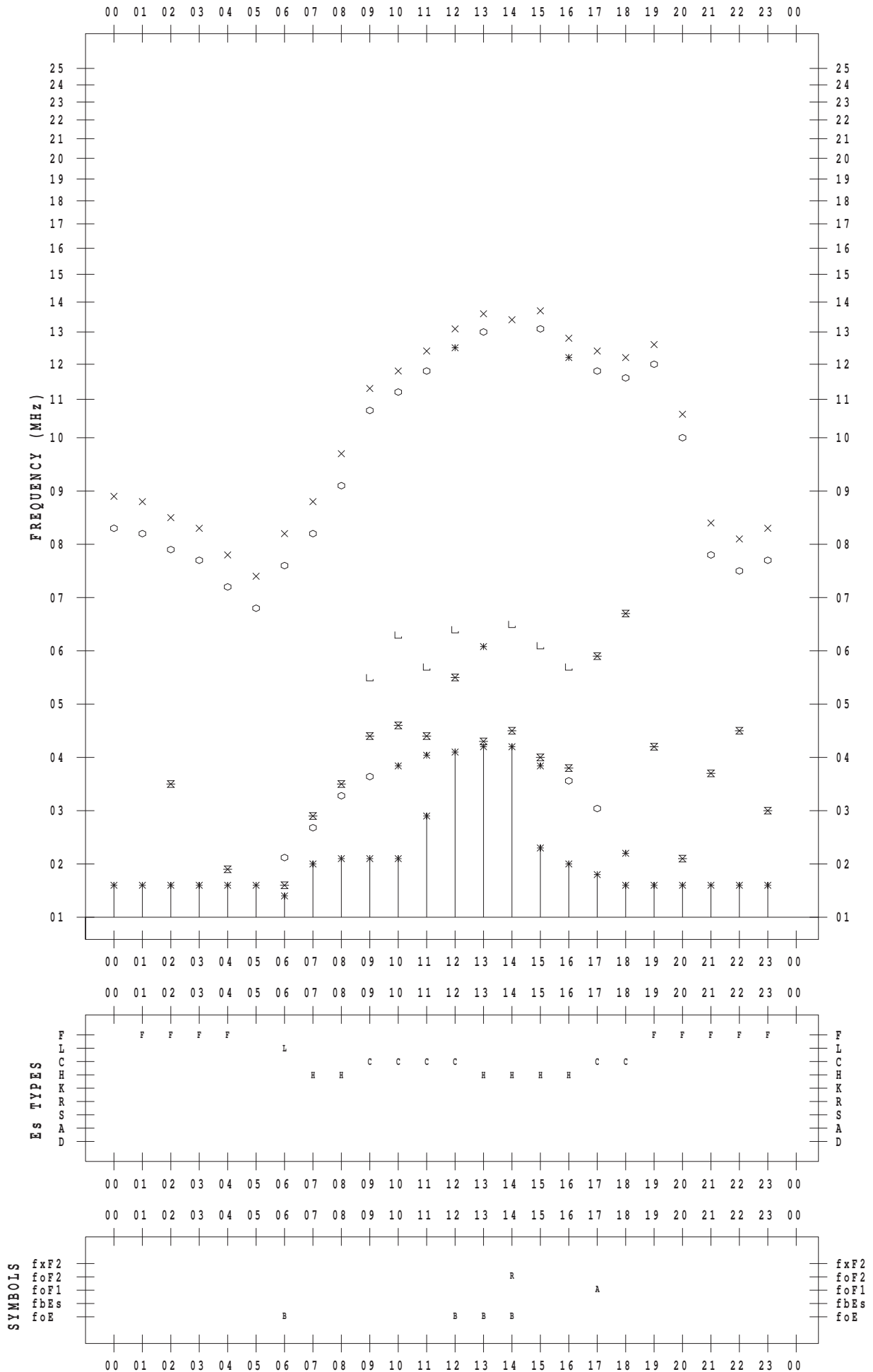
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 20

135 ° E MEAN TIME



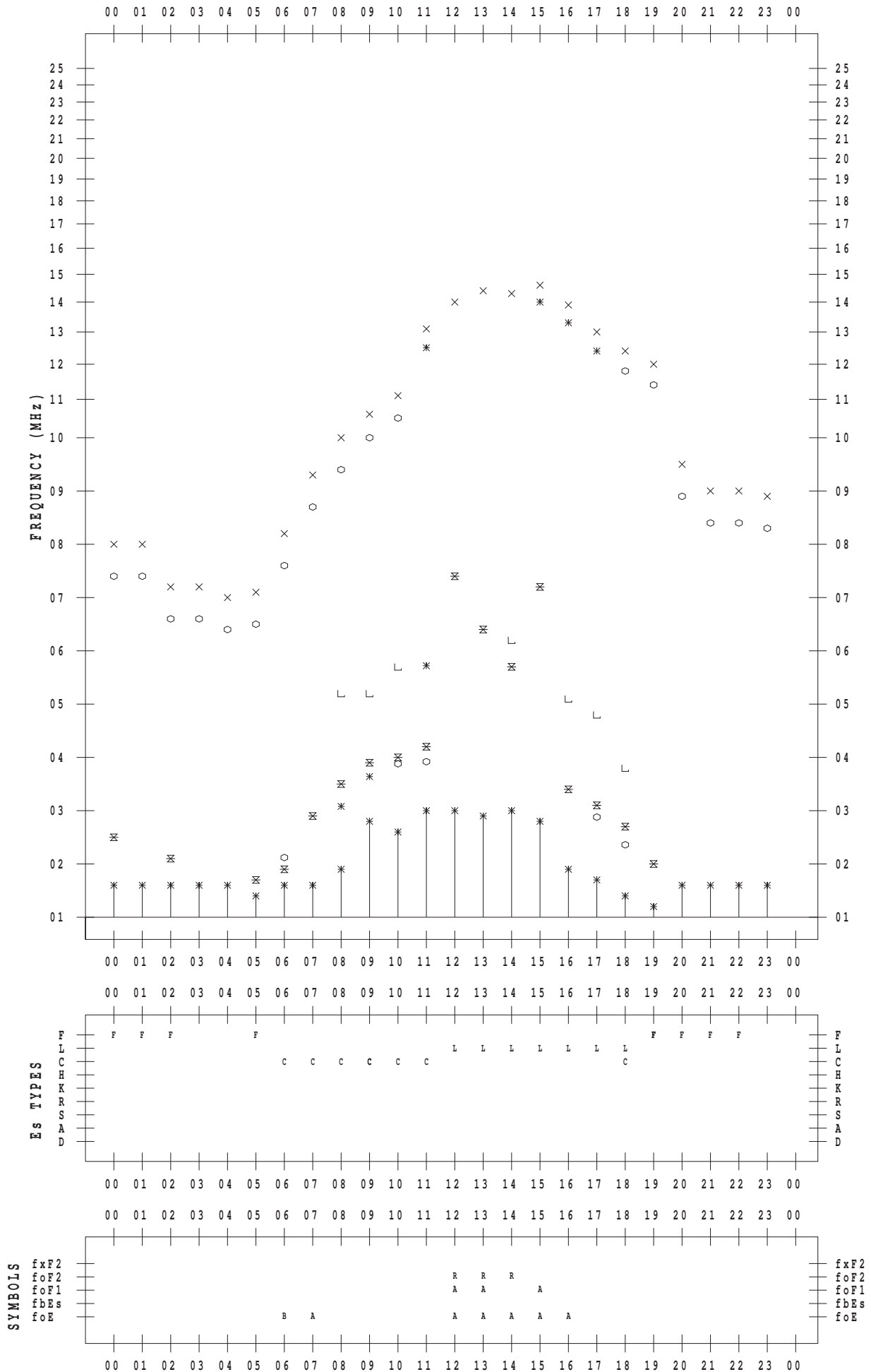
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 21

135 ° E MEAN TIME



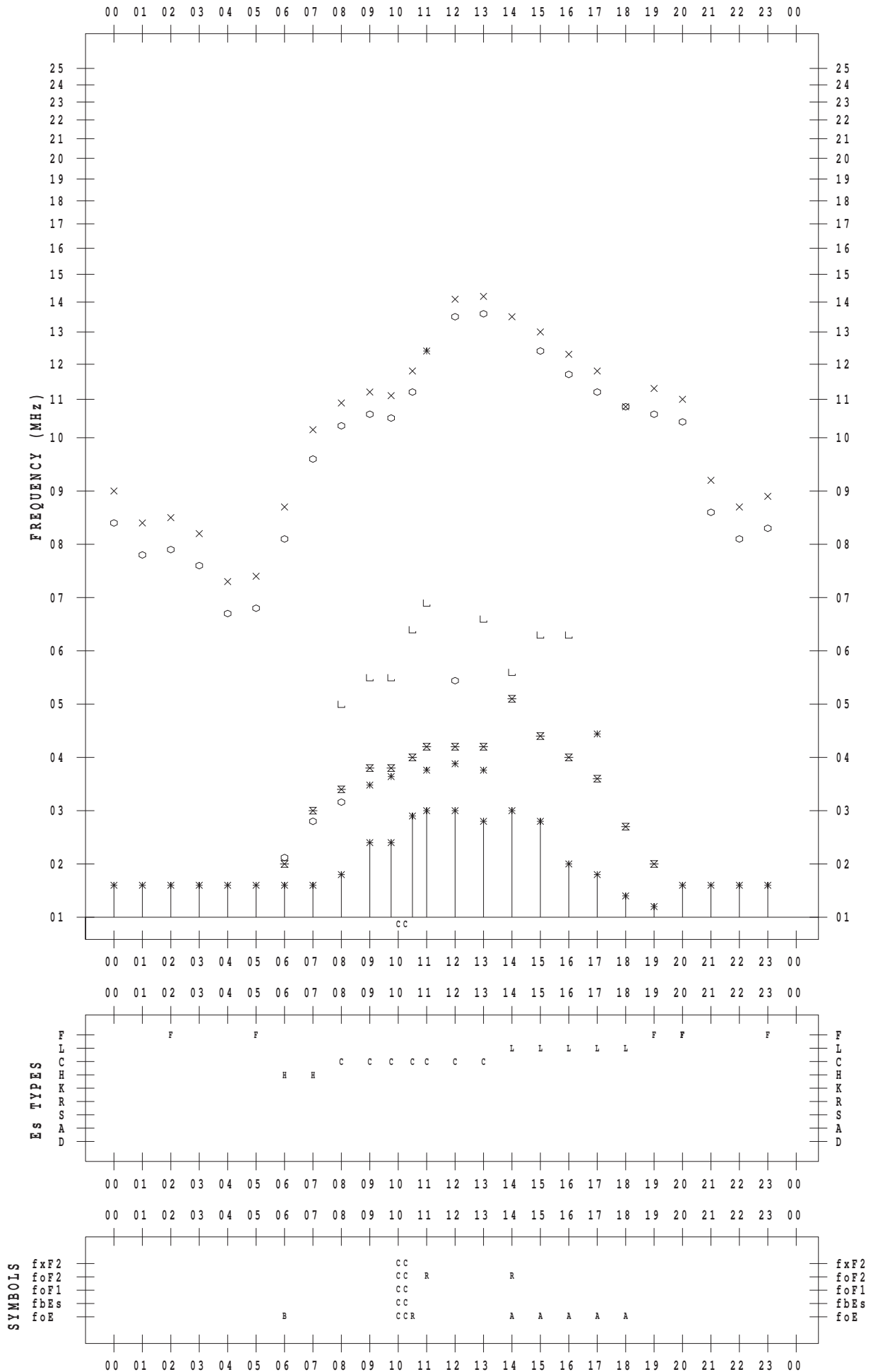
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 22

135 ° E MEAN TIME



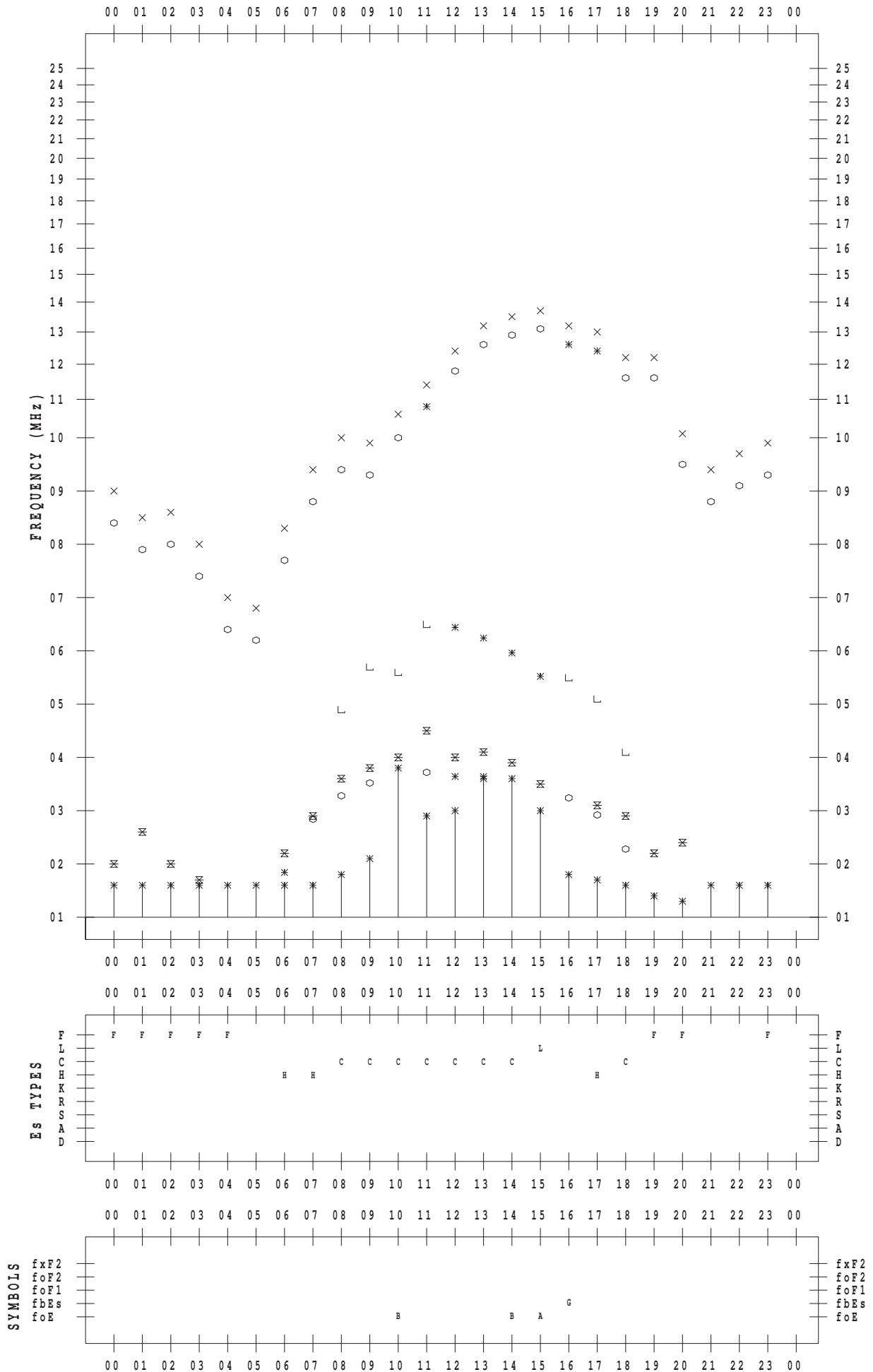
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 23

135 ° E MEAN TIME



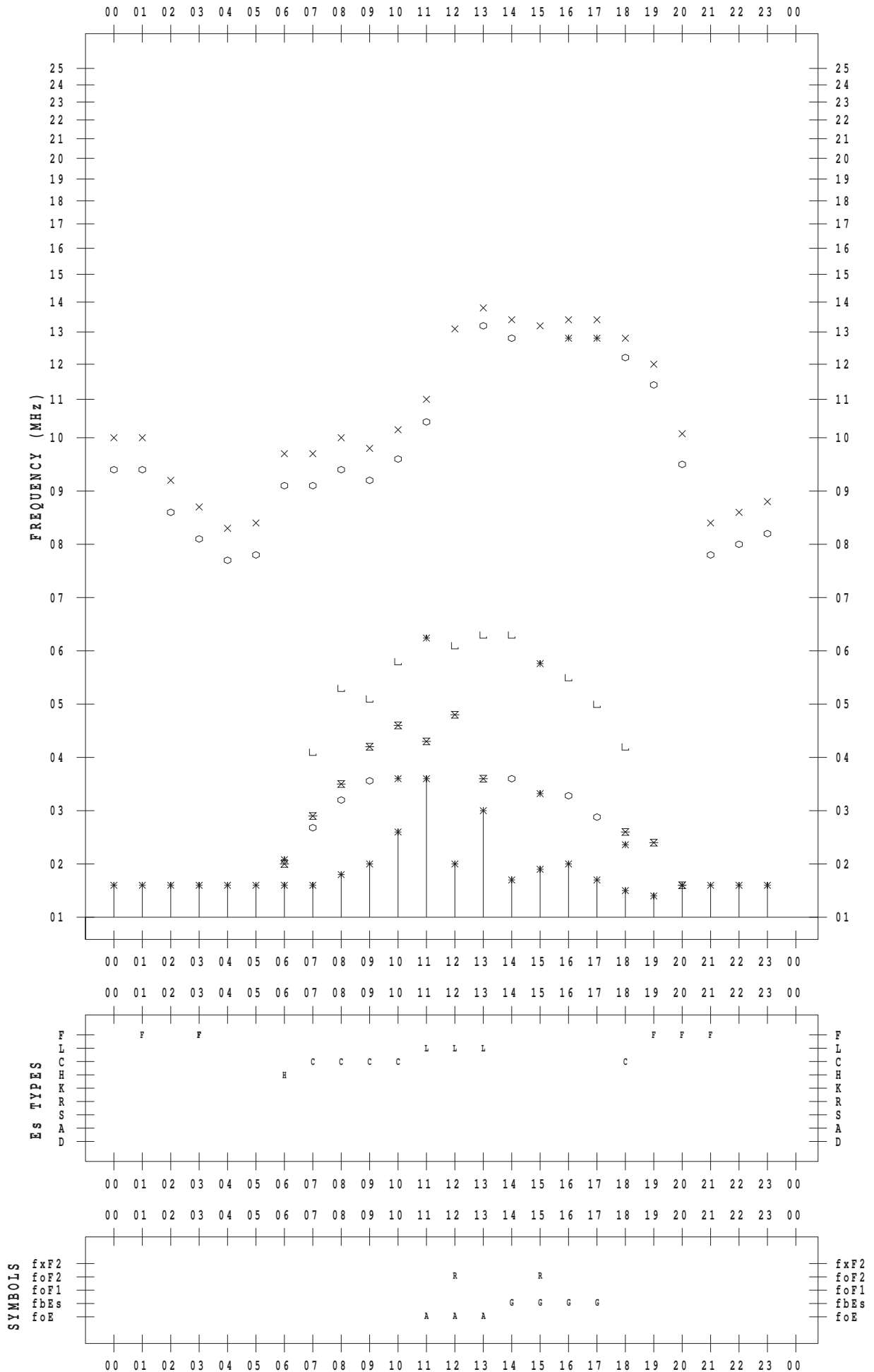
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 24

135 ° E MEAN TIME



Es TYPES

SYMBOLS

fxF2
foF2
foF1
fbEs
foE

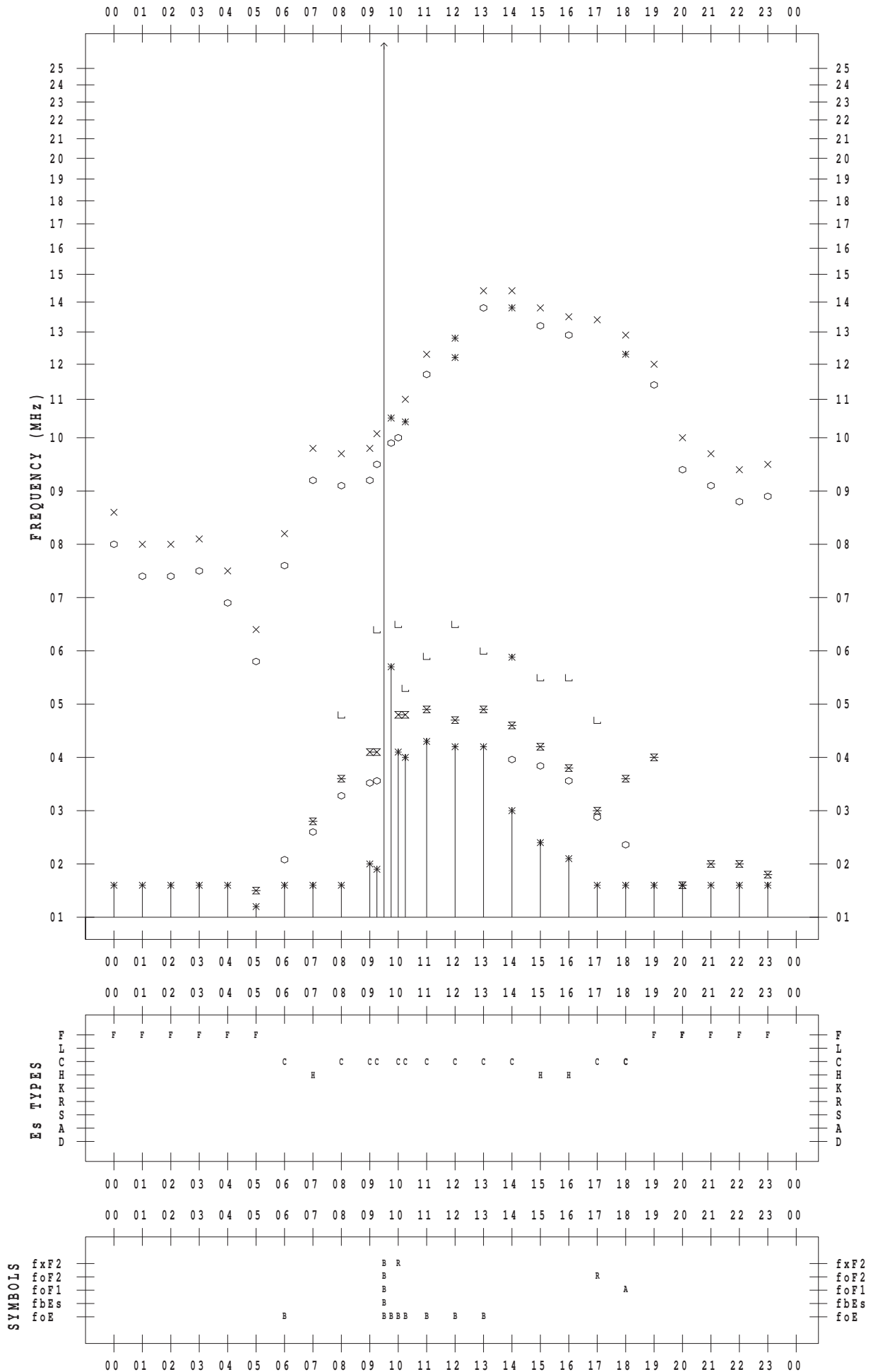
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 25

135 ° E MEAN TIME



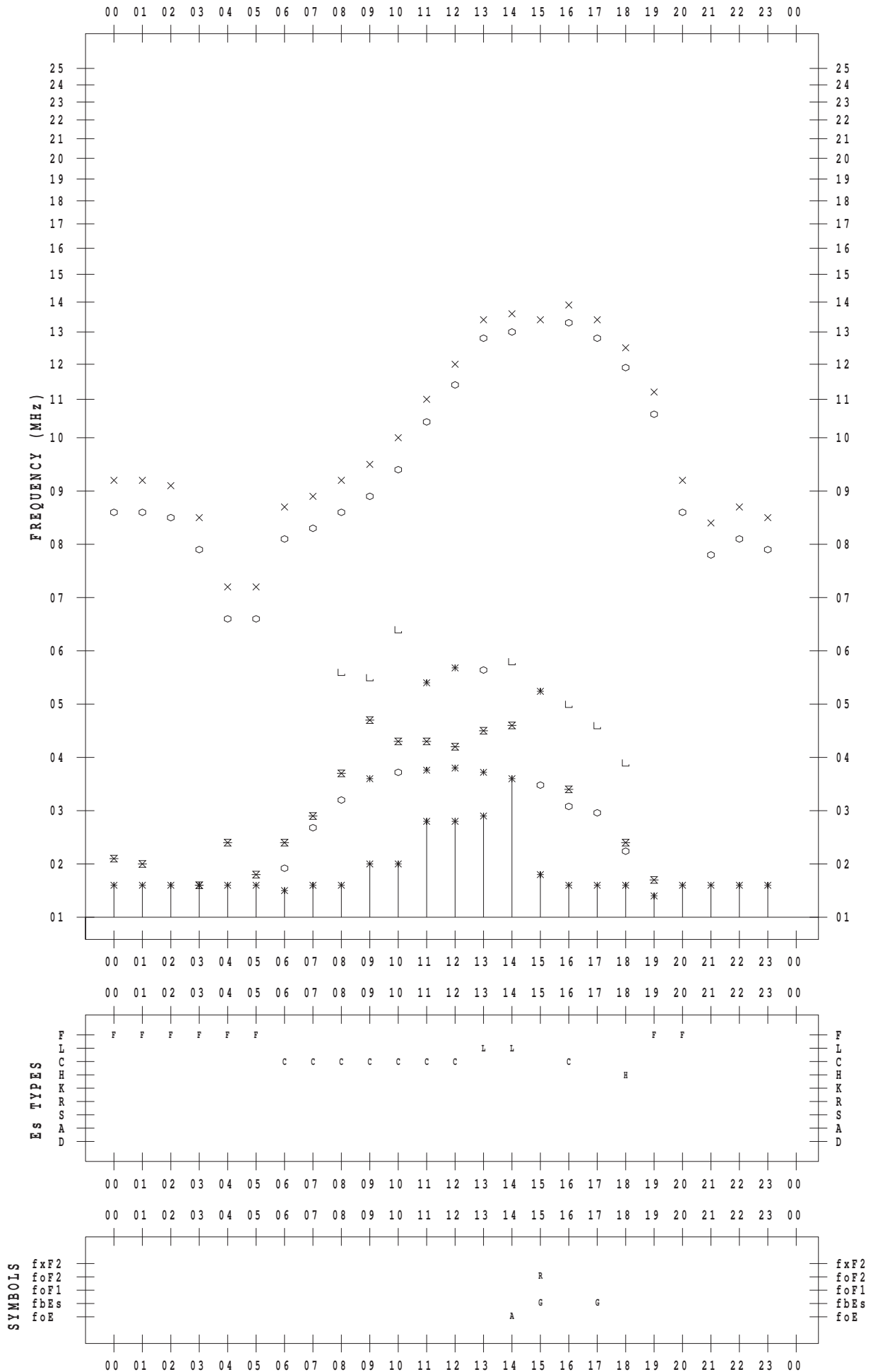
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 26

135 ° E MEAN TIME



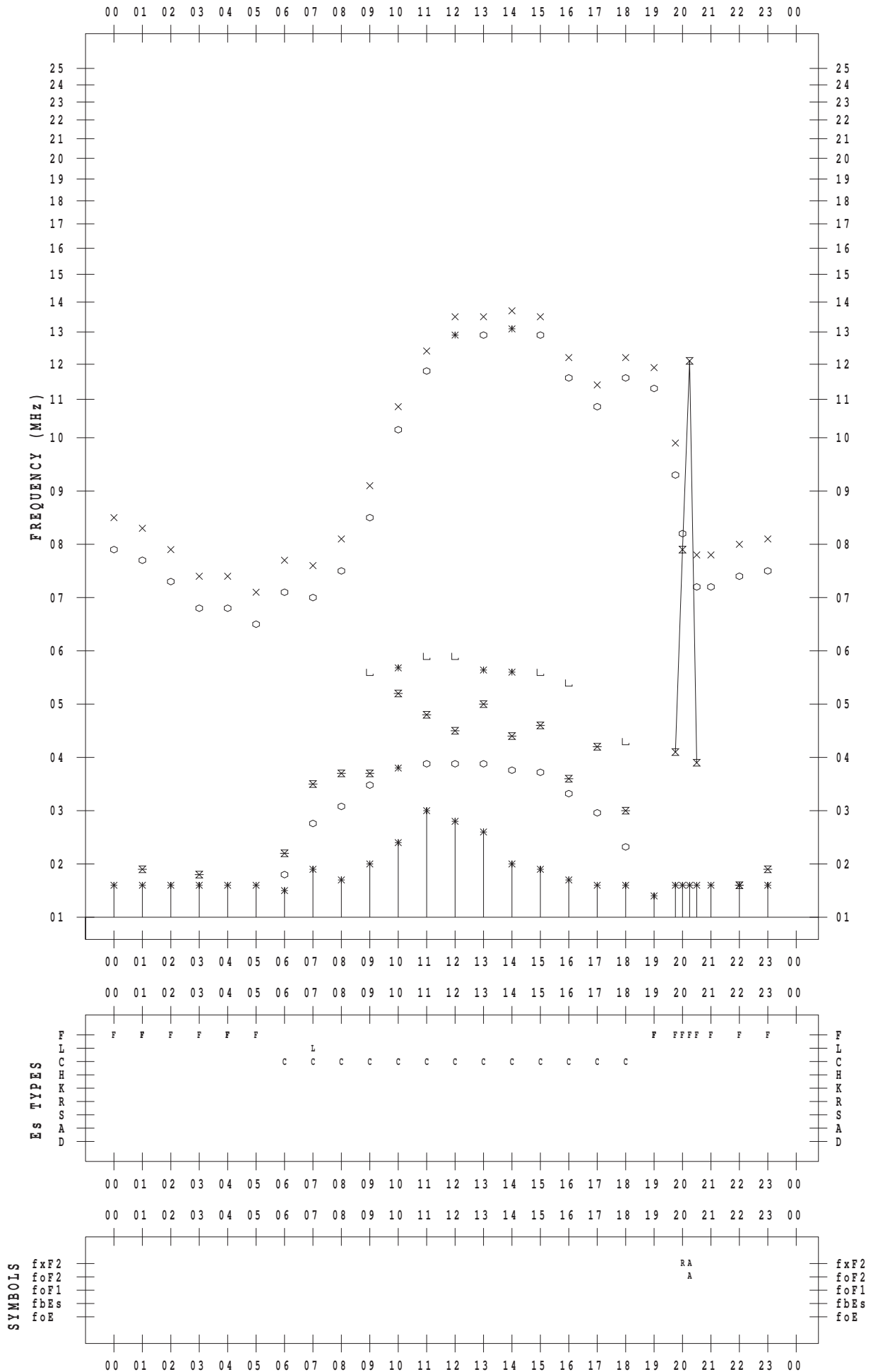
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 27

135 ° E MEAN TIME



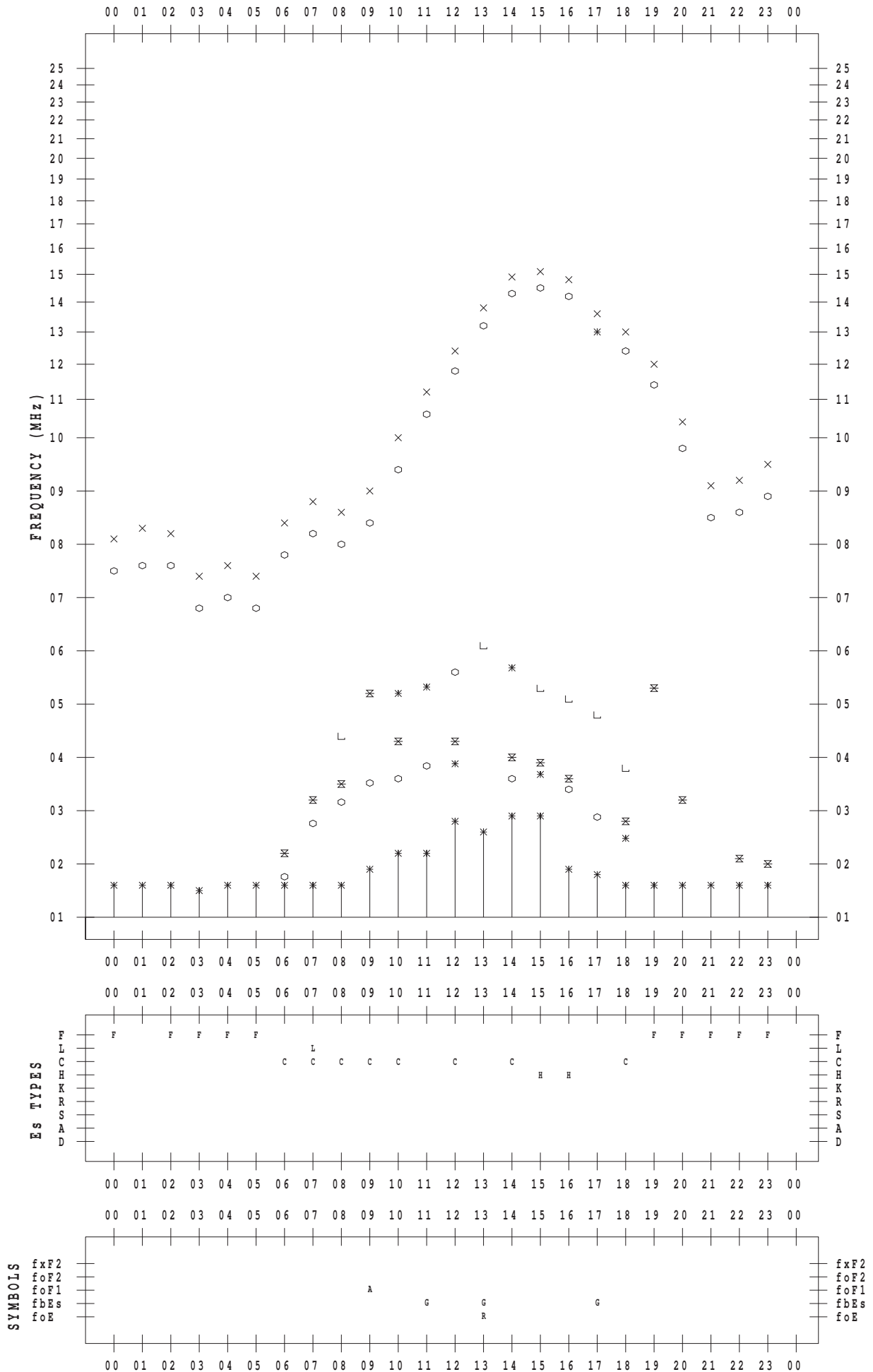
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 28

135 ° E MEAN TIME



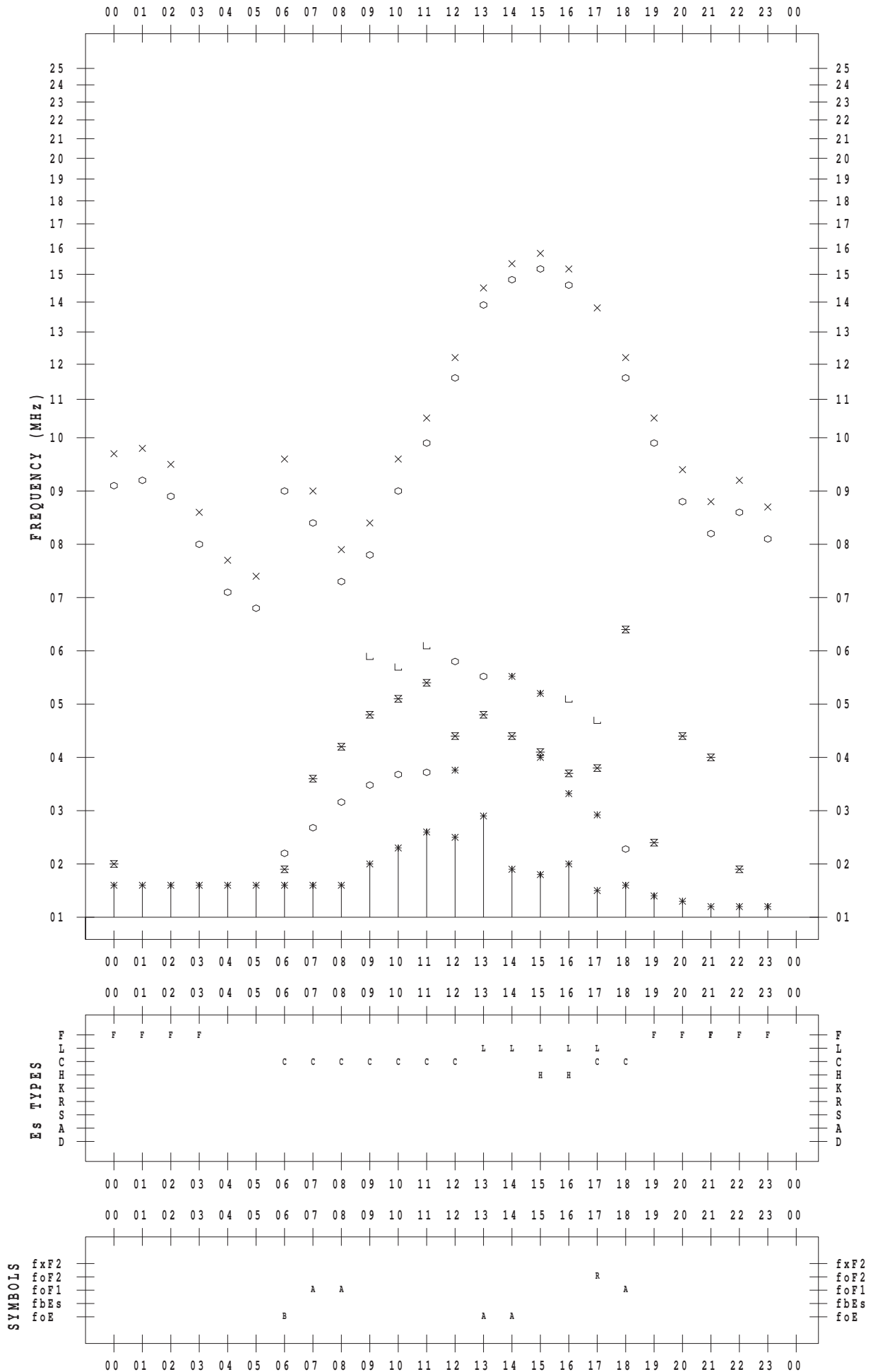
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 29

135 ° E MEAN TIME



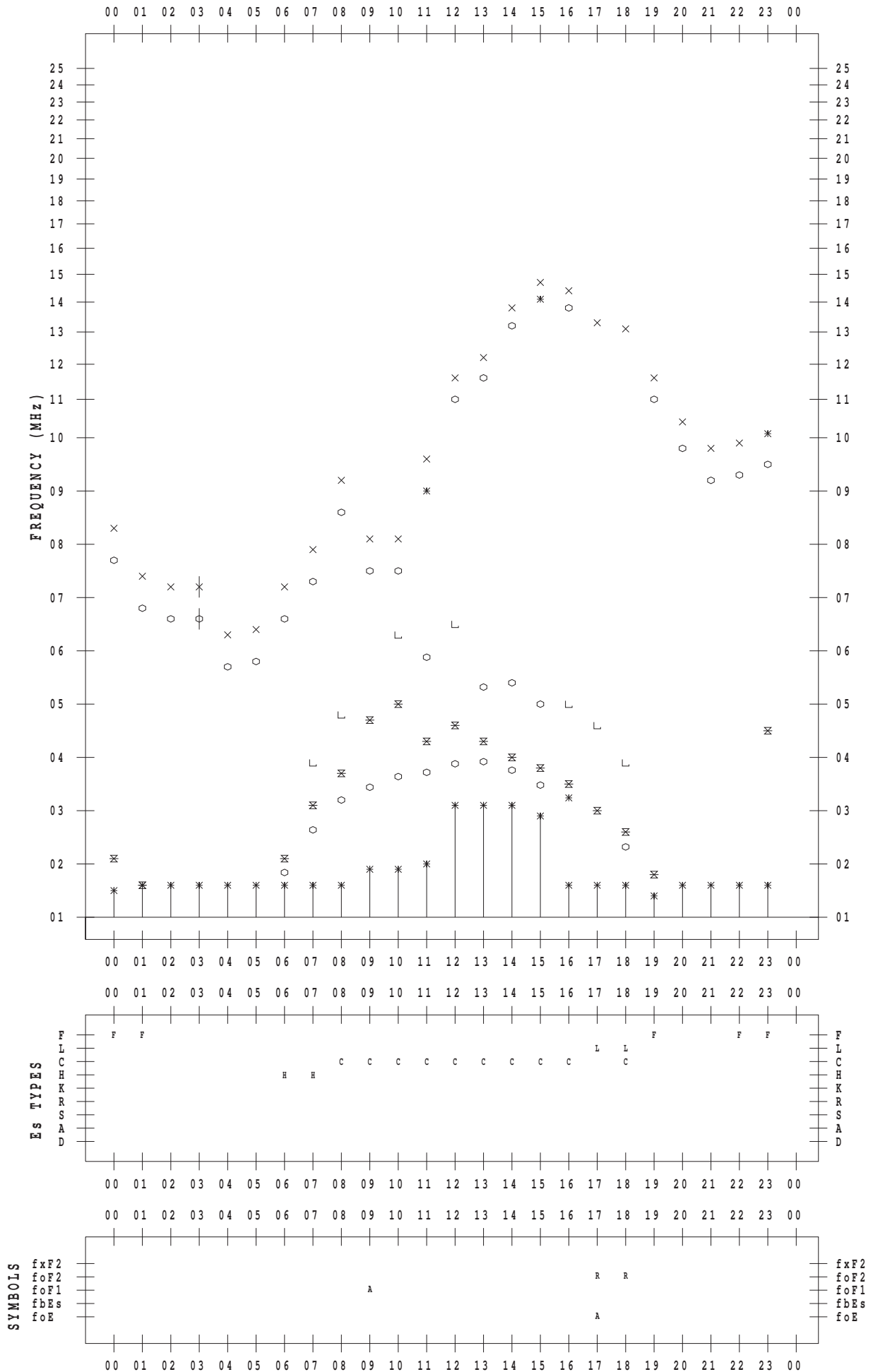
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 4 / 30

135 ° E MEAN TIME



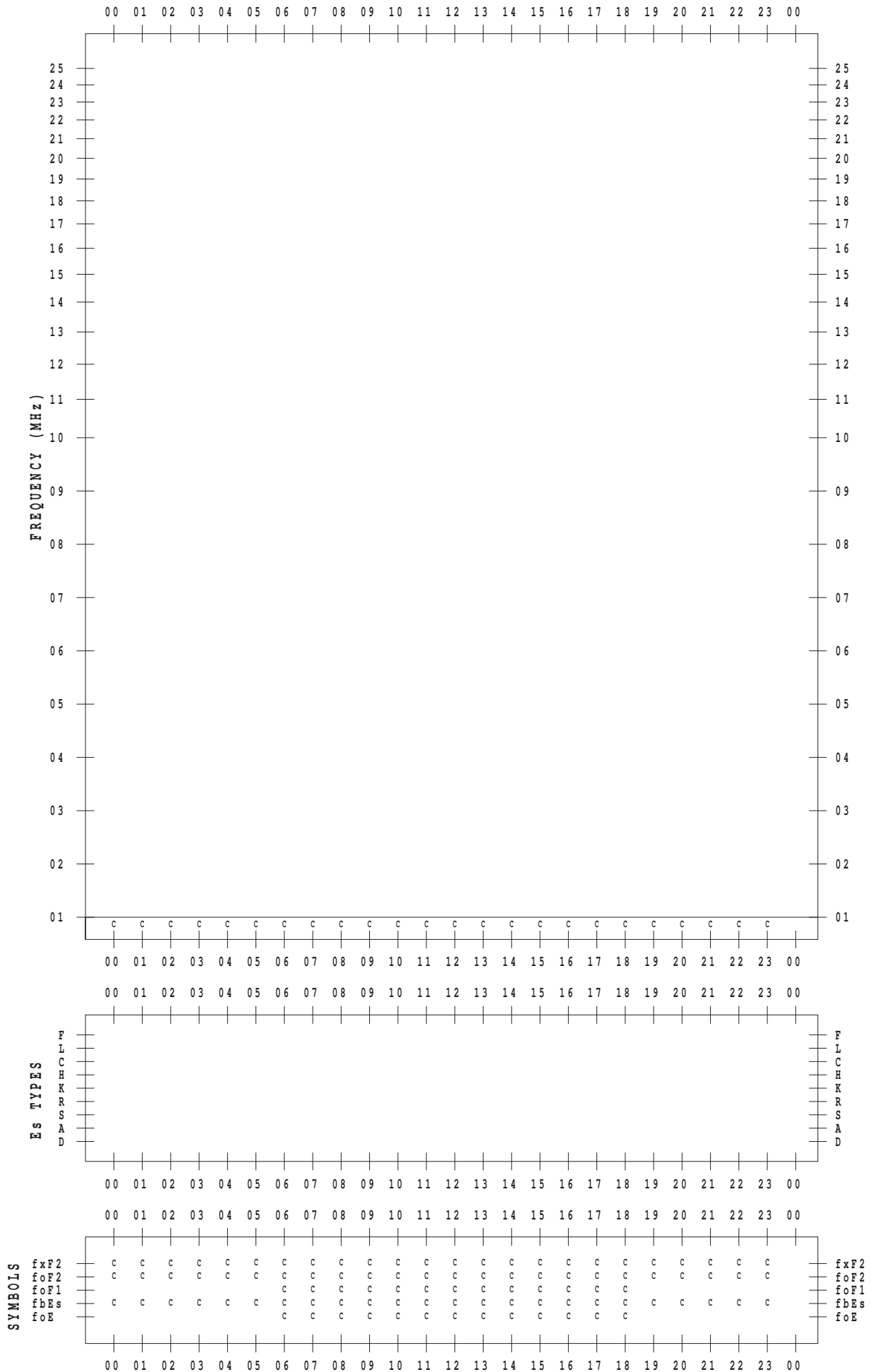
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 1

135 ° E MEAN TIME



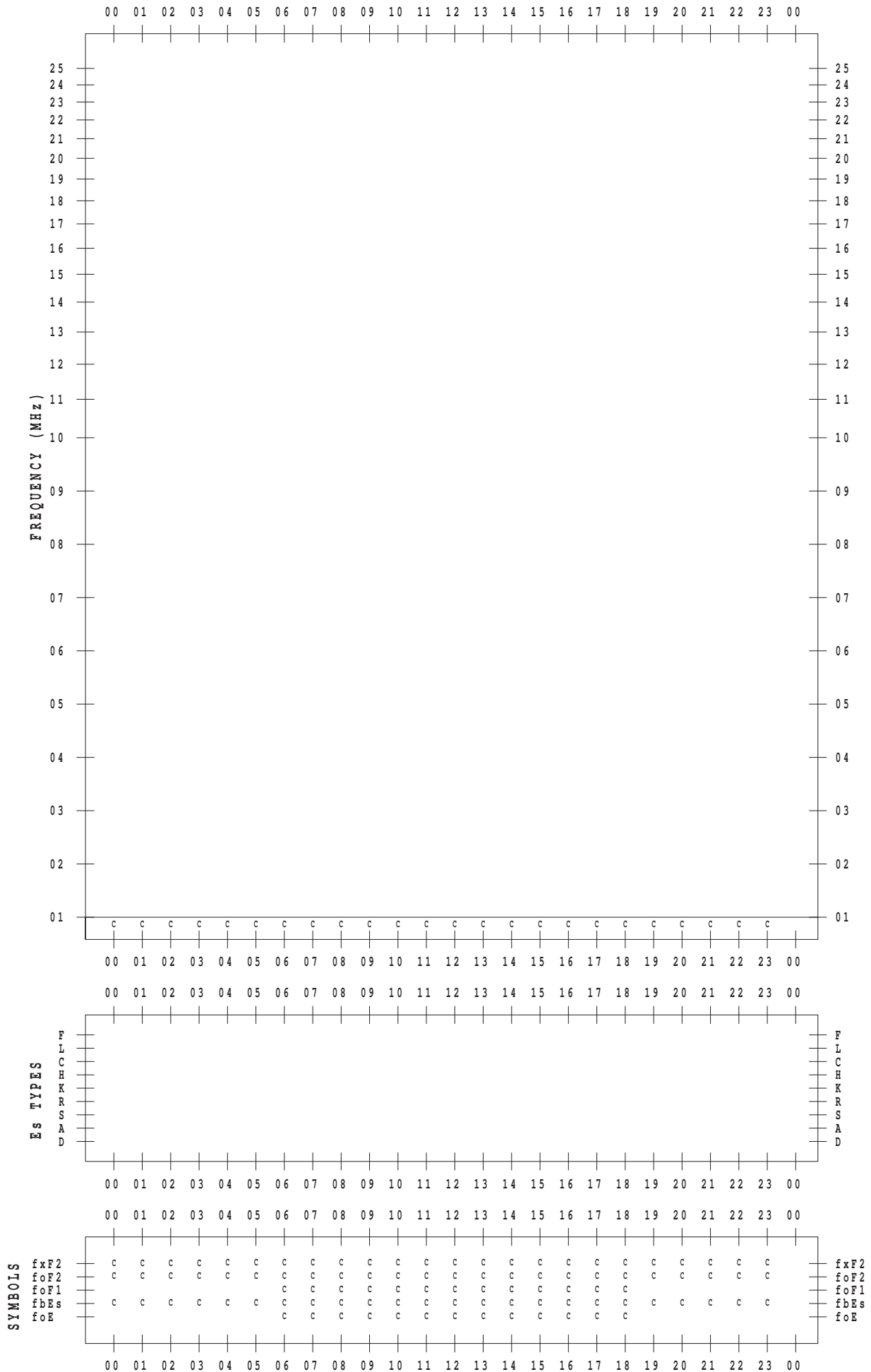
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 3

135 ° E MEAN TIME



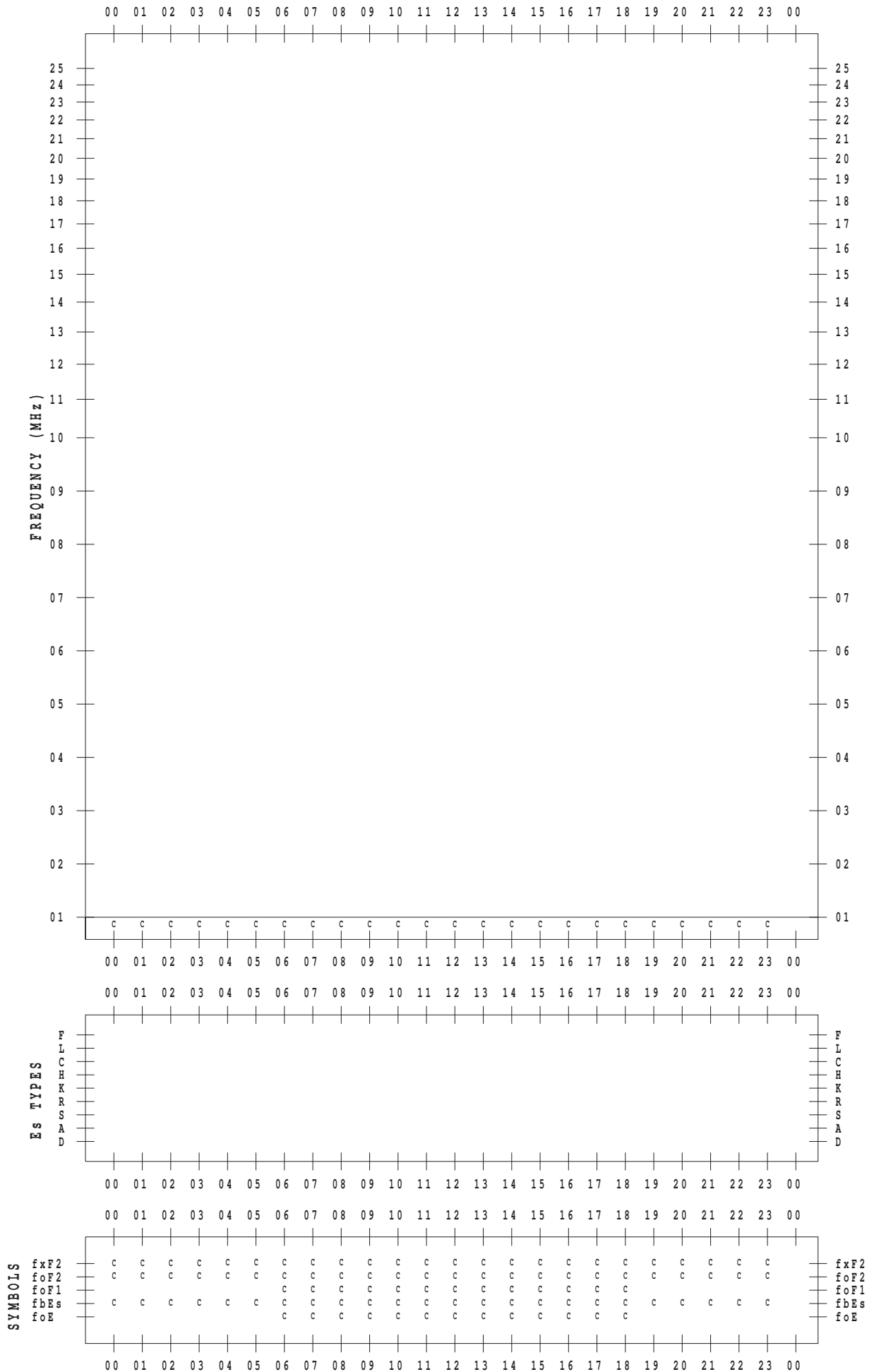
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 4

135 ° E MEAN TIME



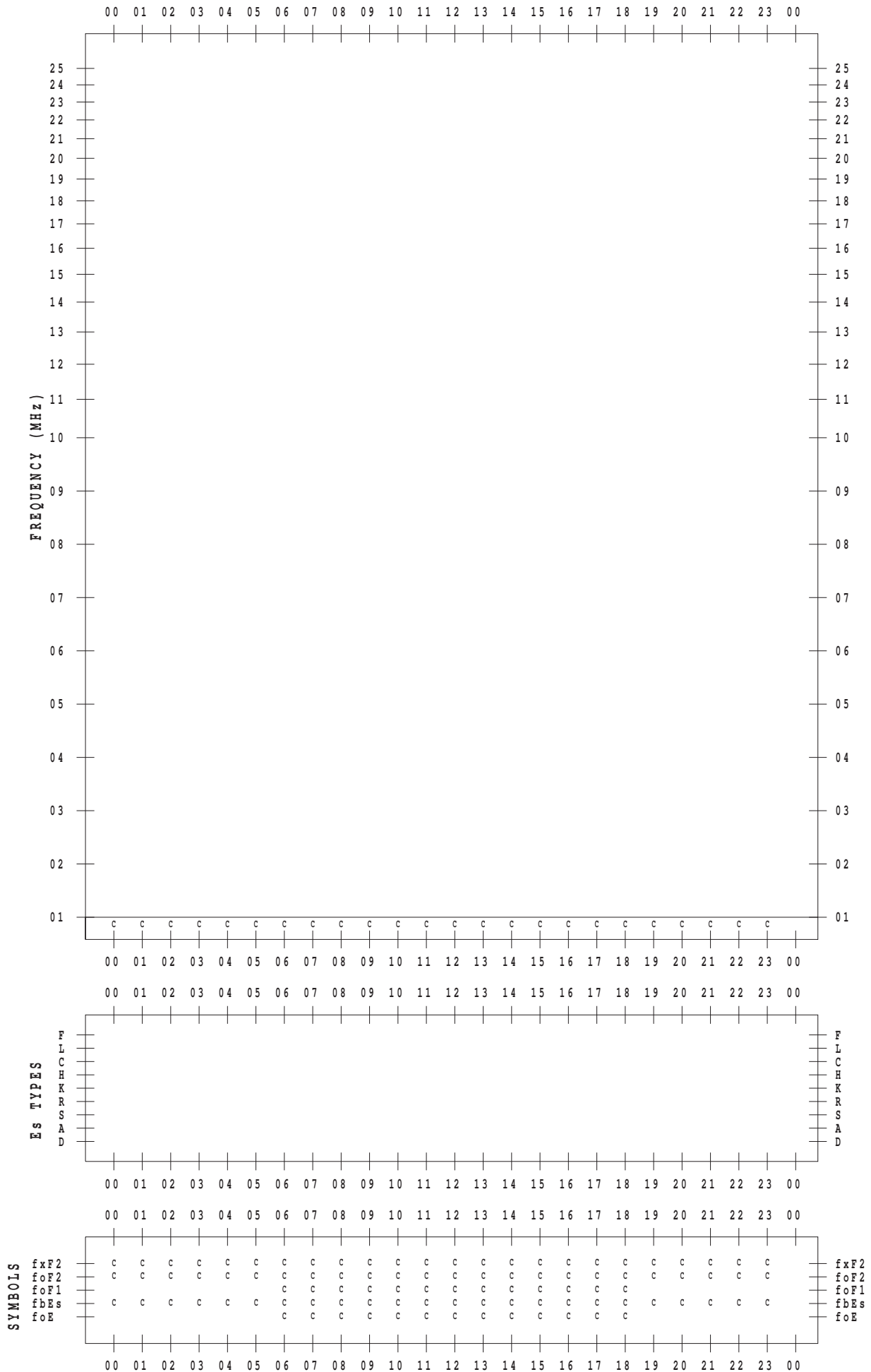
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 7

135 ° E MEAN TIME



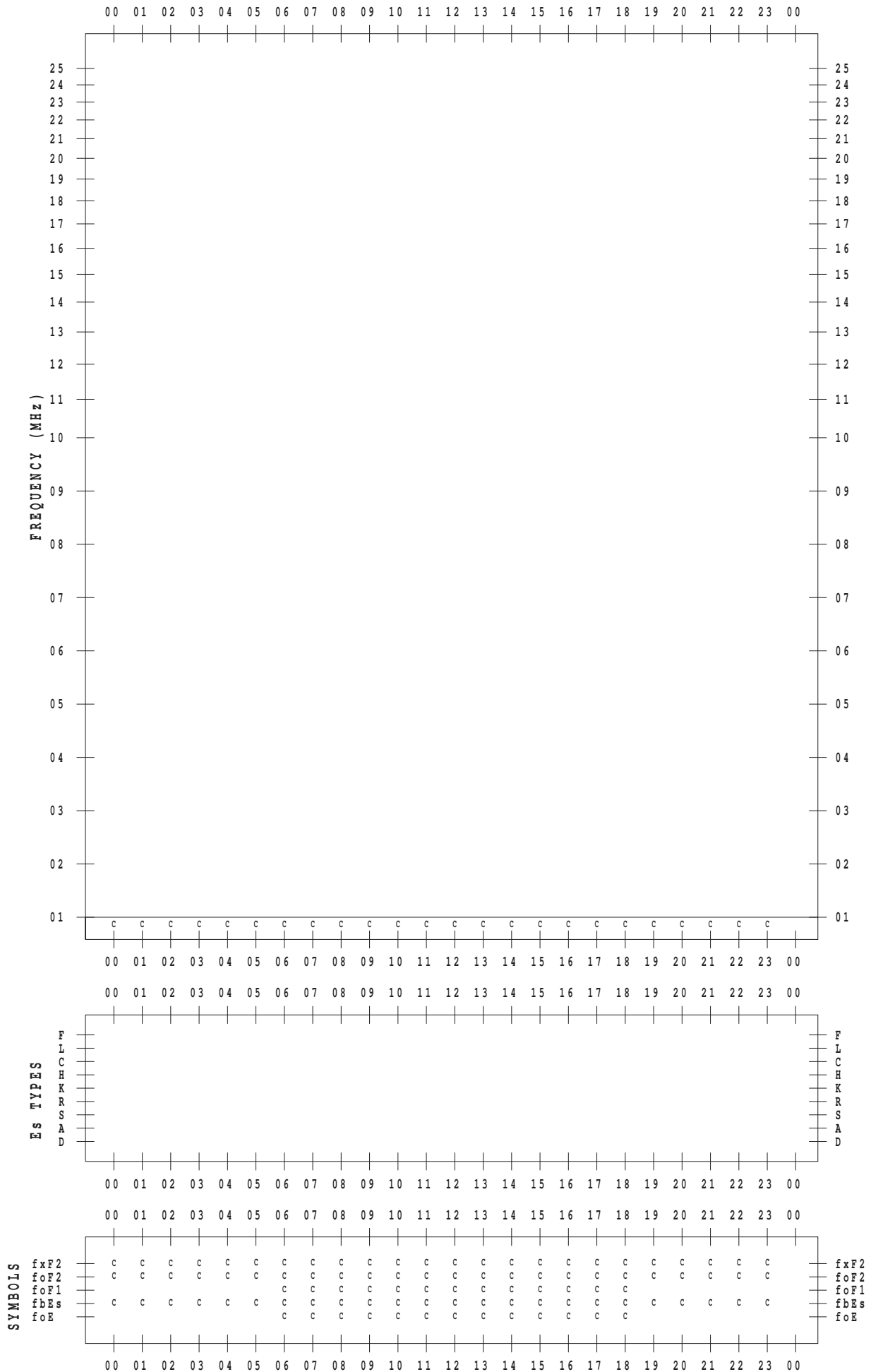
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 8

135 ° E MEAN TIME



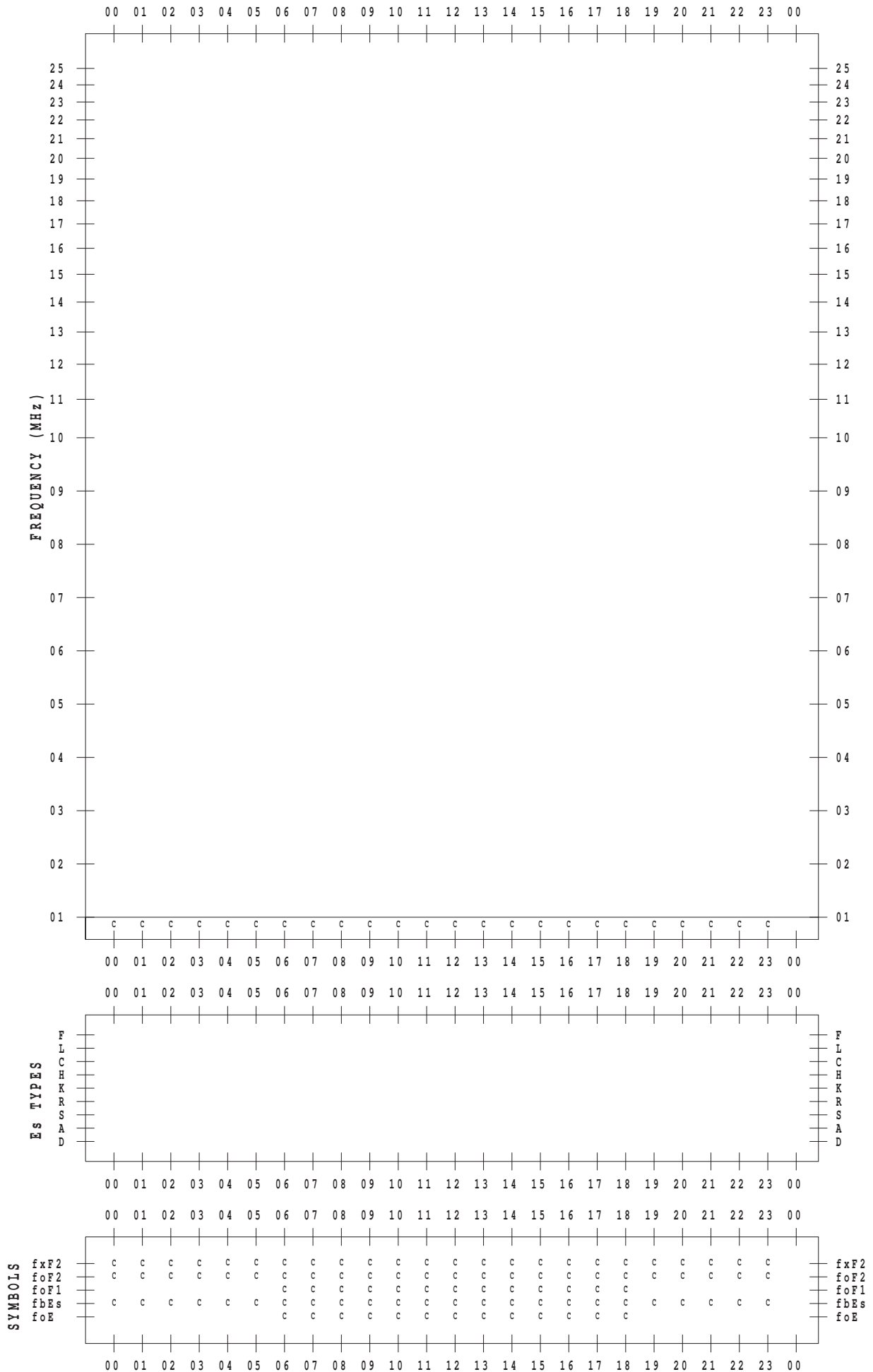
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 11

135 ° E MEAN TIME



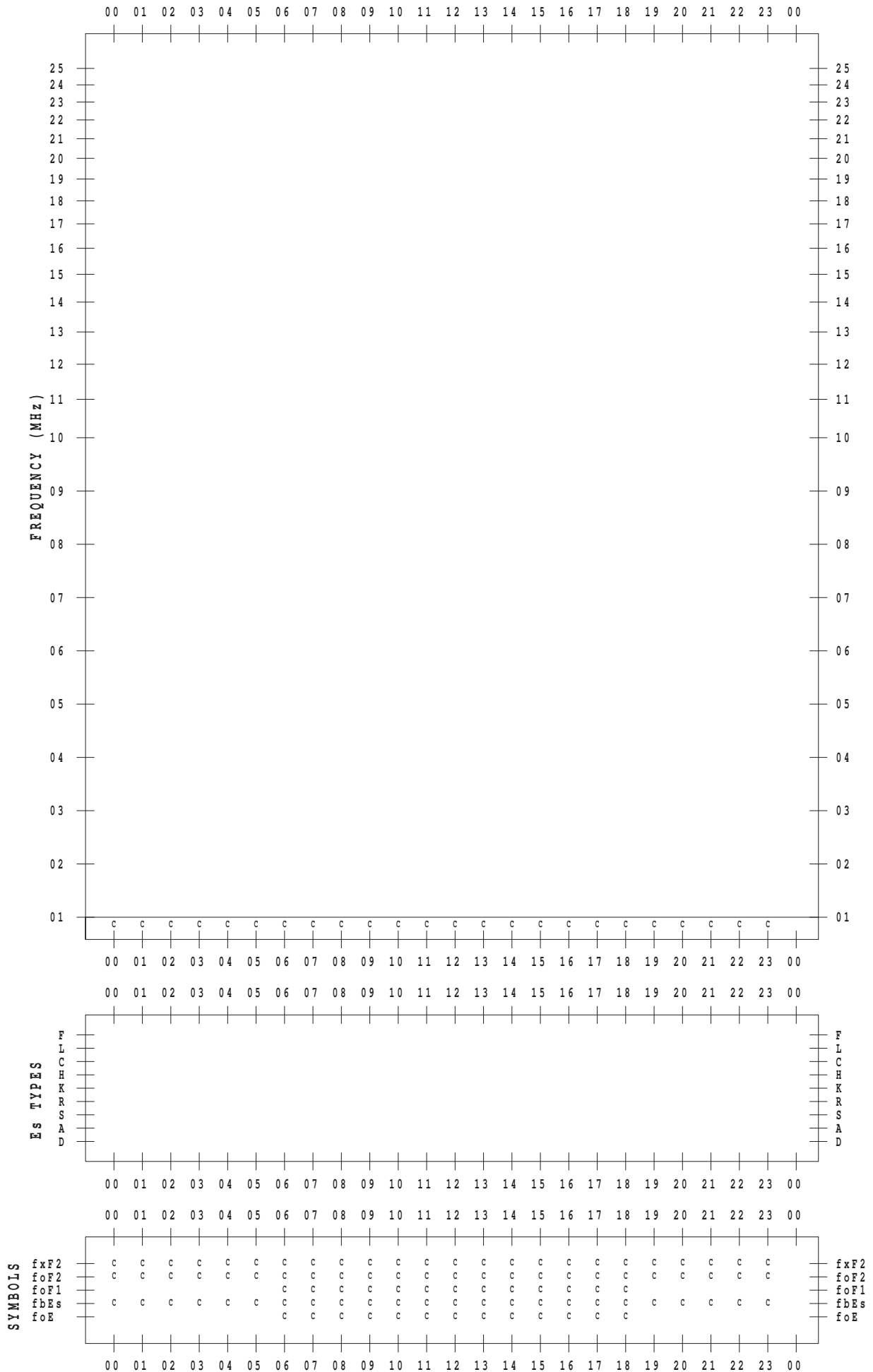
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 12

135 ° E MEAN TIME



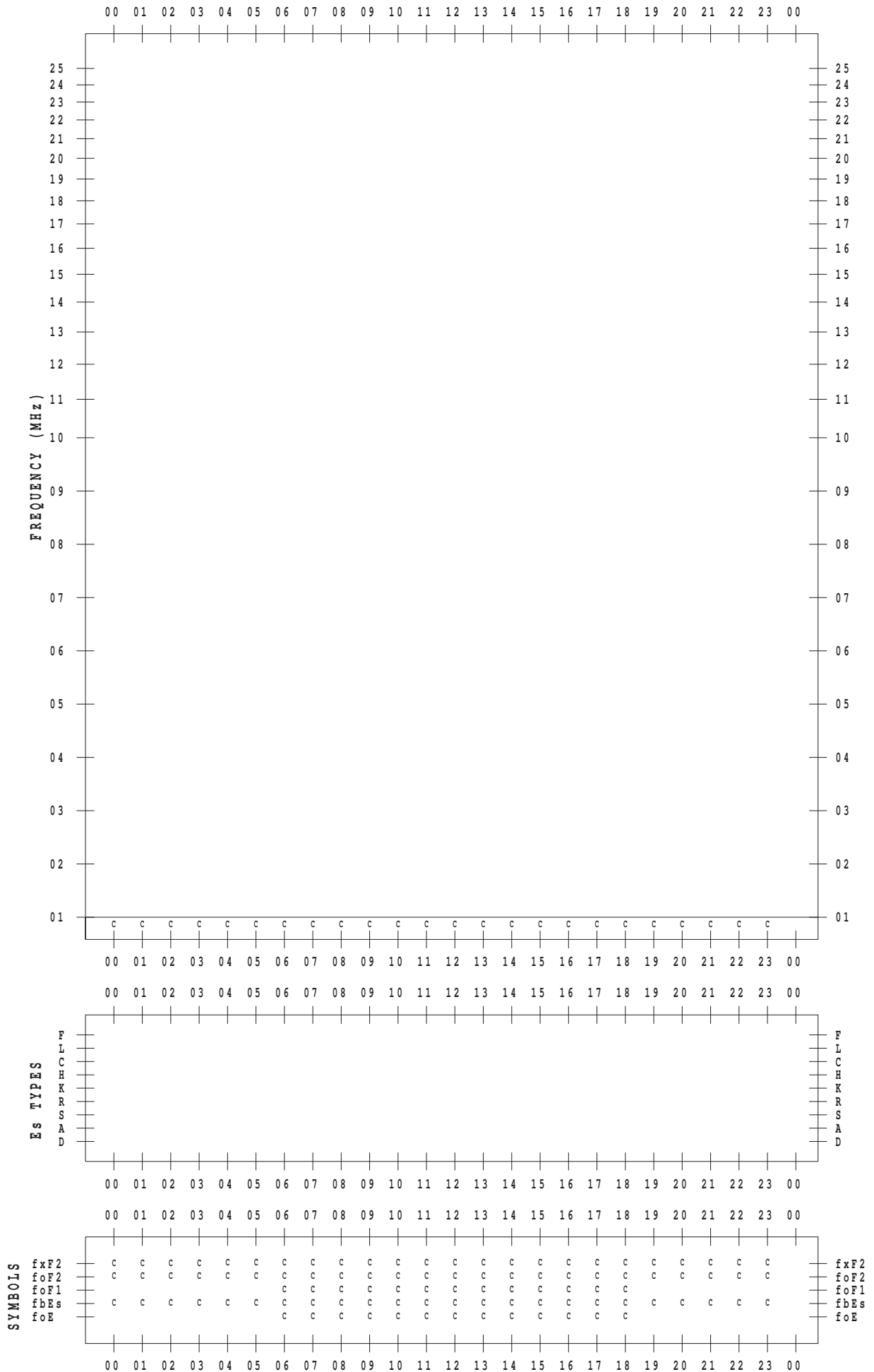
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 14

135 ° E MEAN TIME



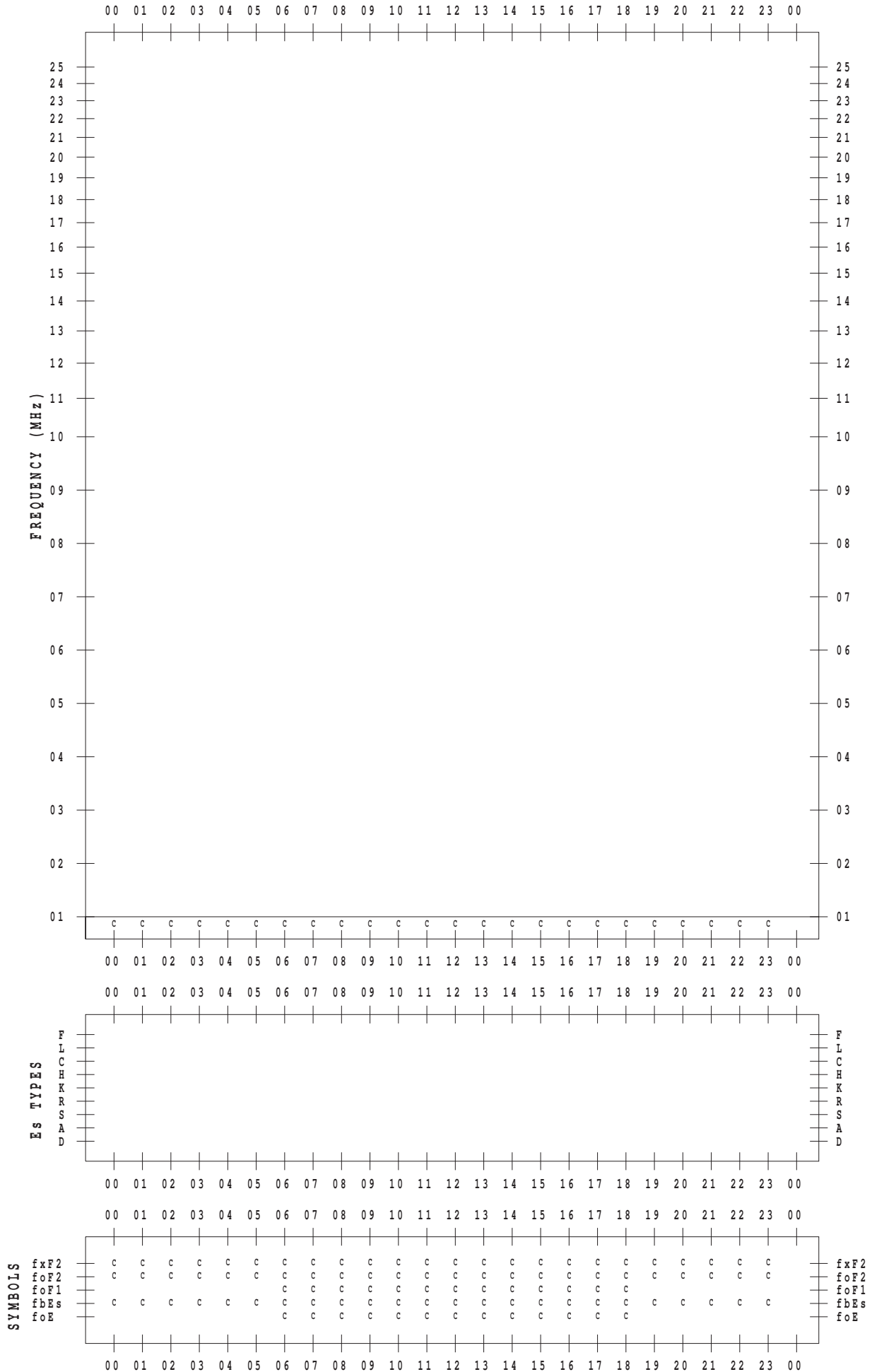
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 15

135 ° E MEAN TIME



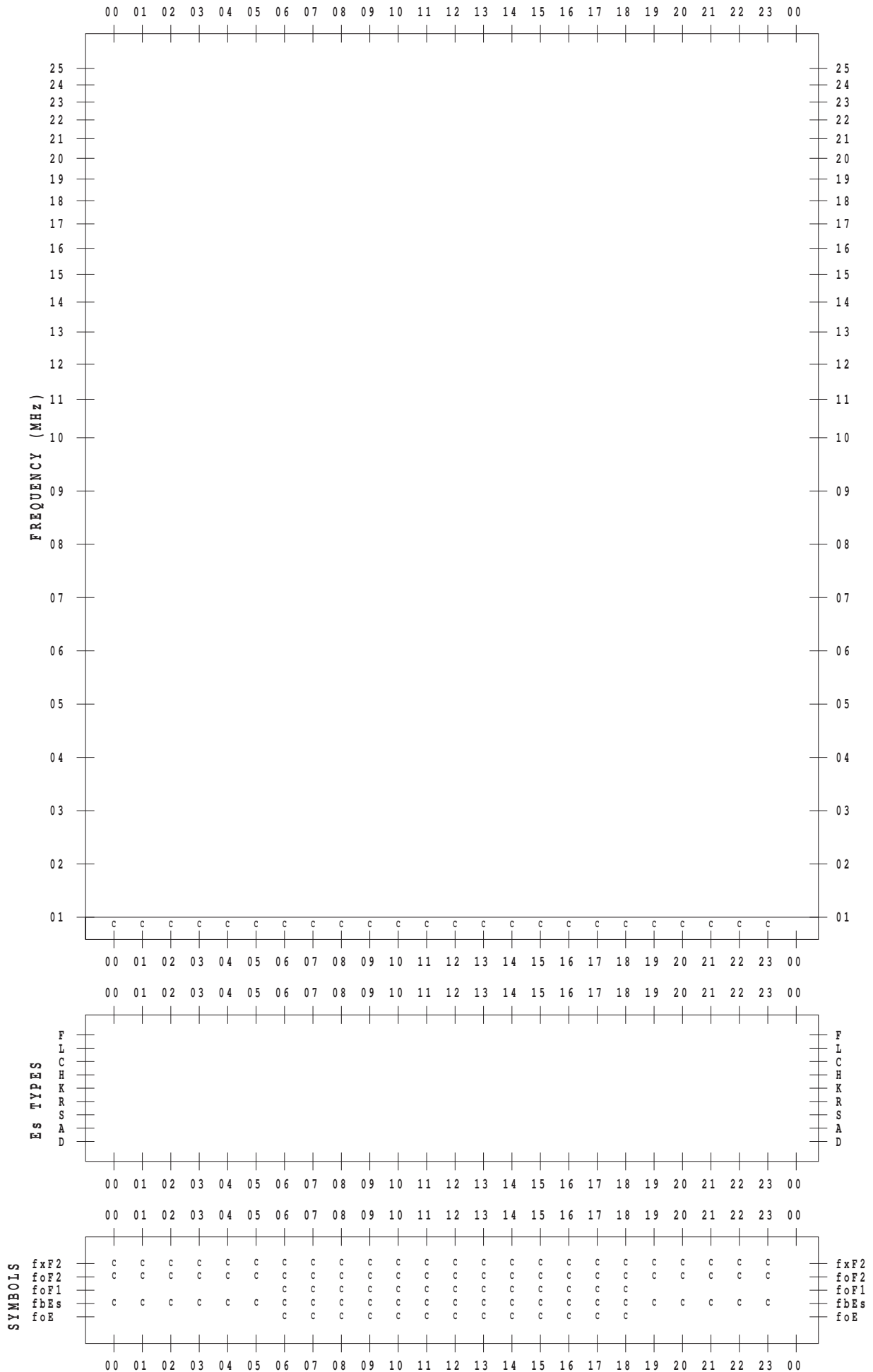
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 16

135 ° E MEAN TIME



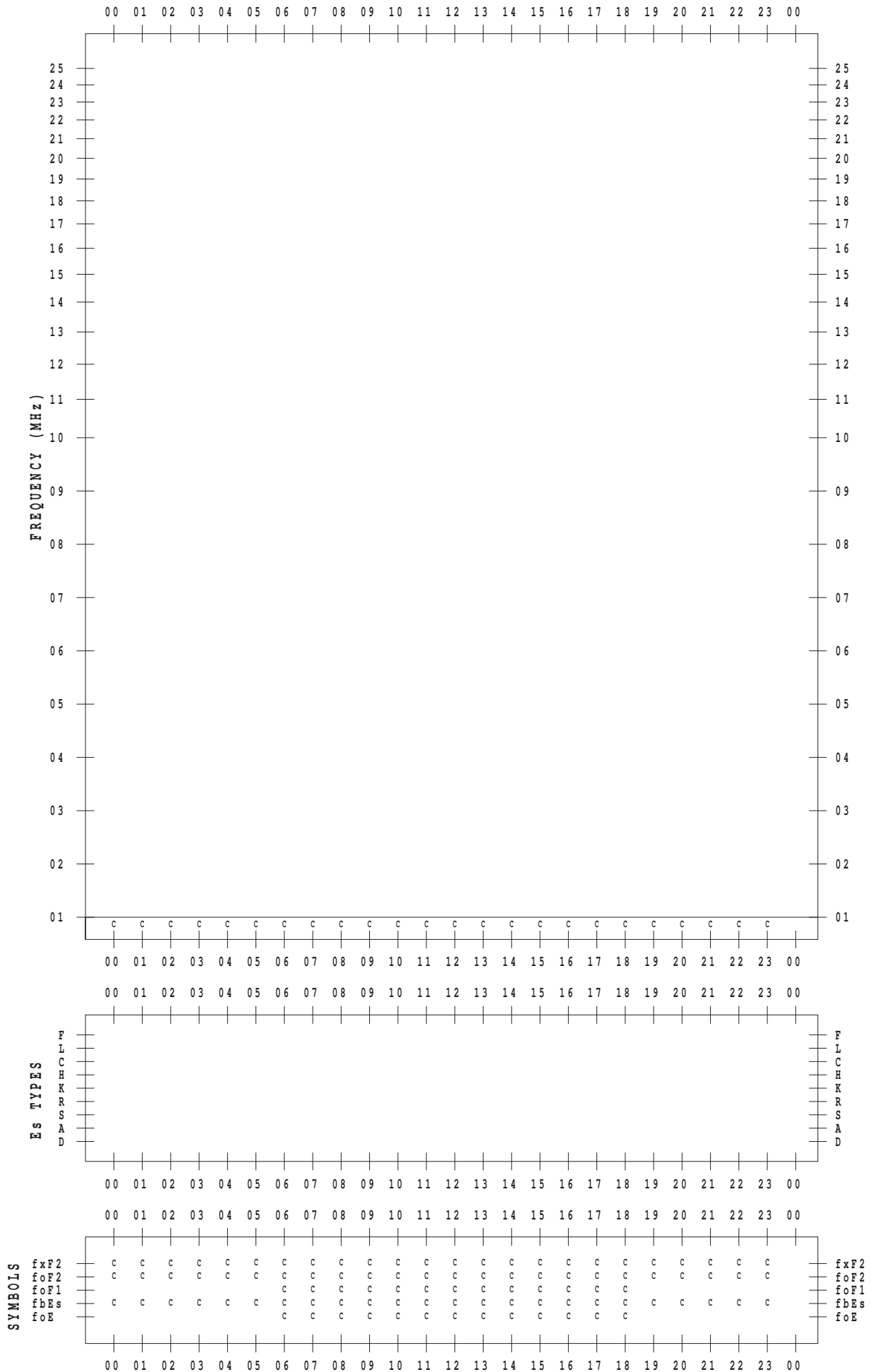
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 17

135 ° E MEAN TIME



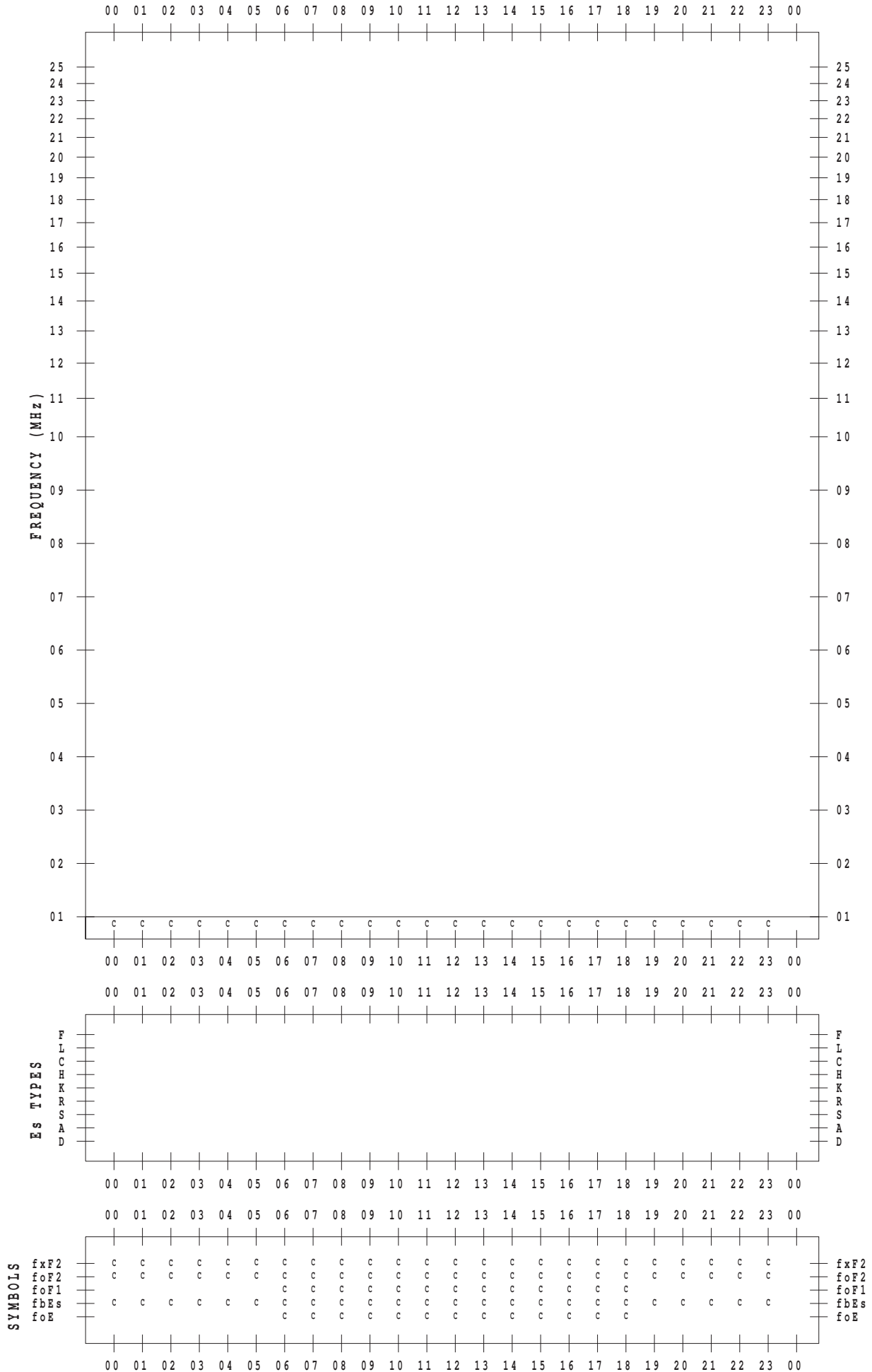
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 18

135 ° E MEAN TIME



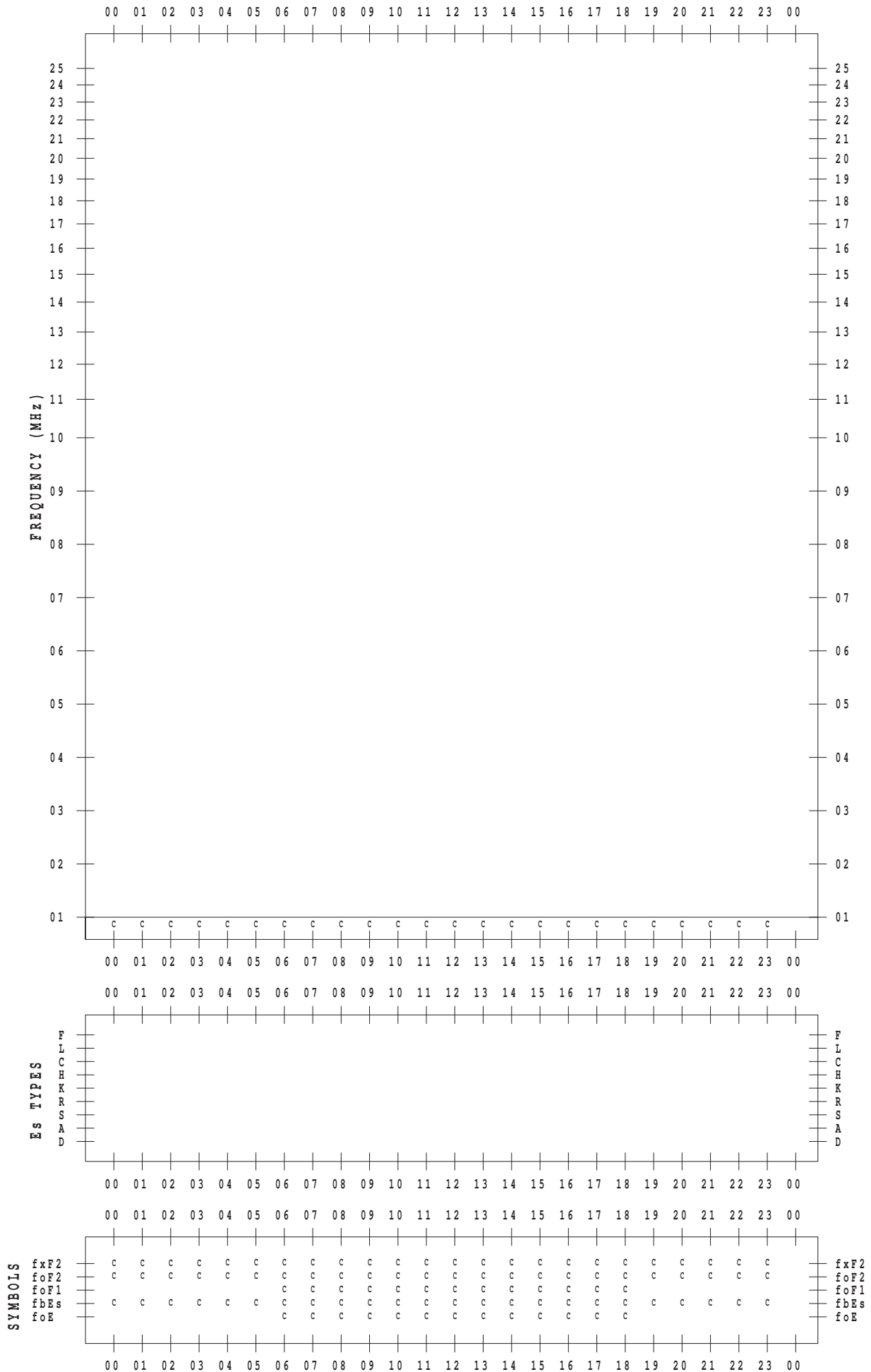
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 19

135 ° E MEAN TIME



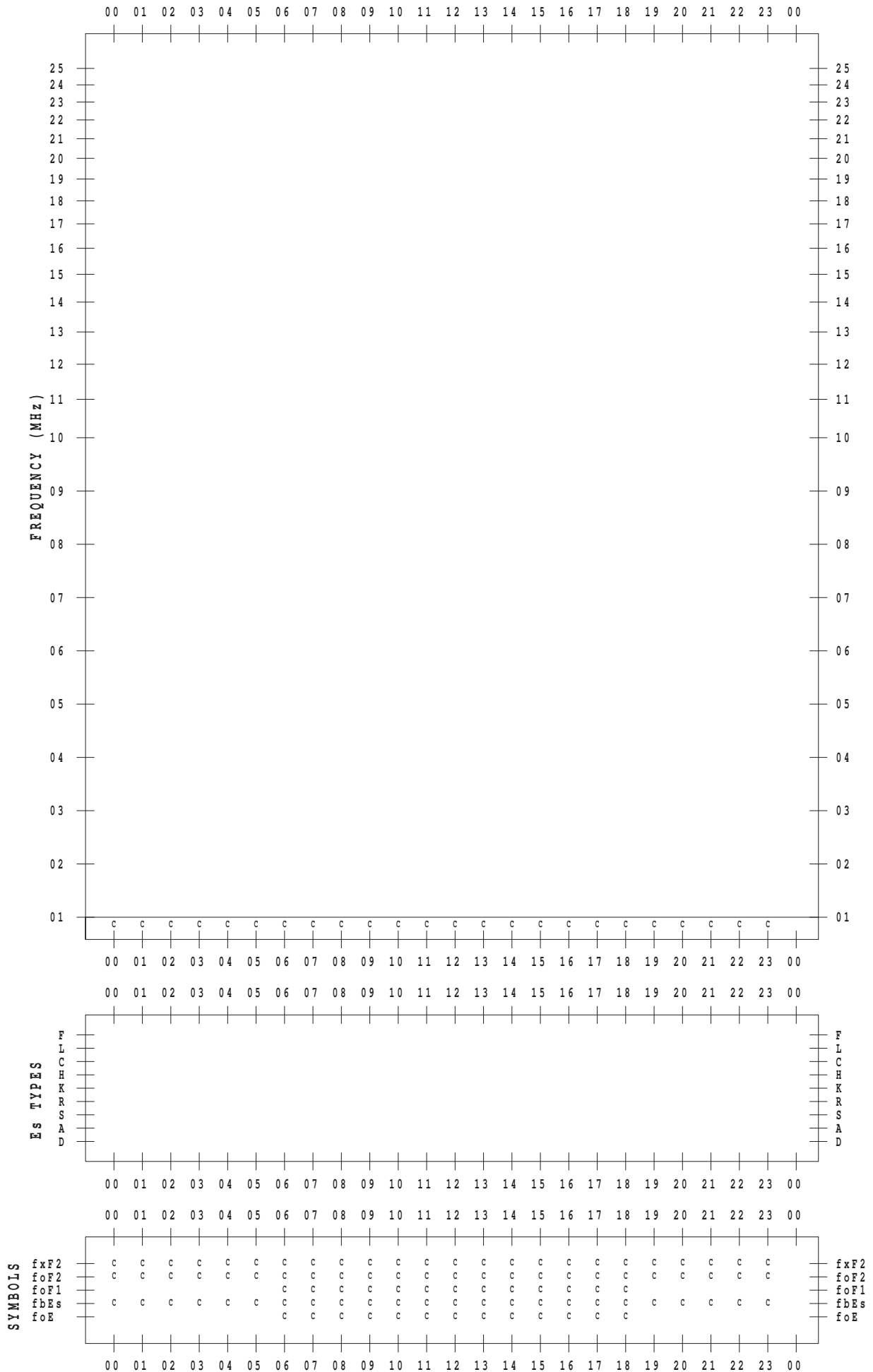
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 20

135 ° E MEAN TIME



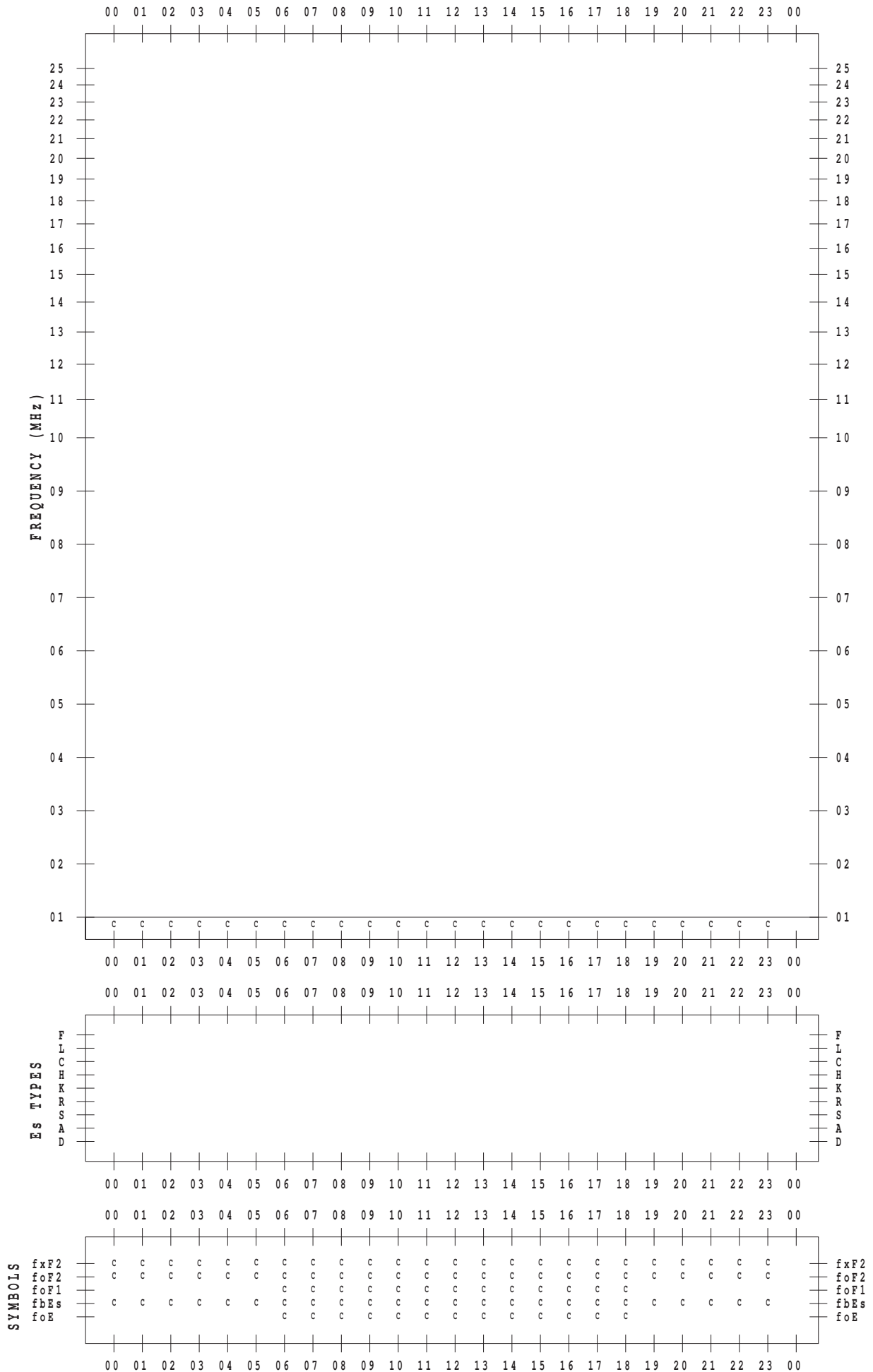
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 22

135 ° E MEAN TIME



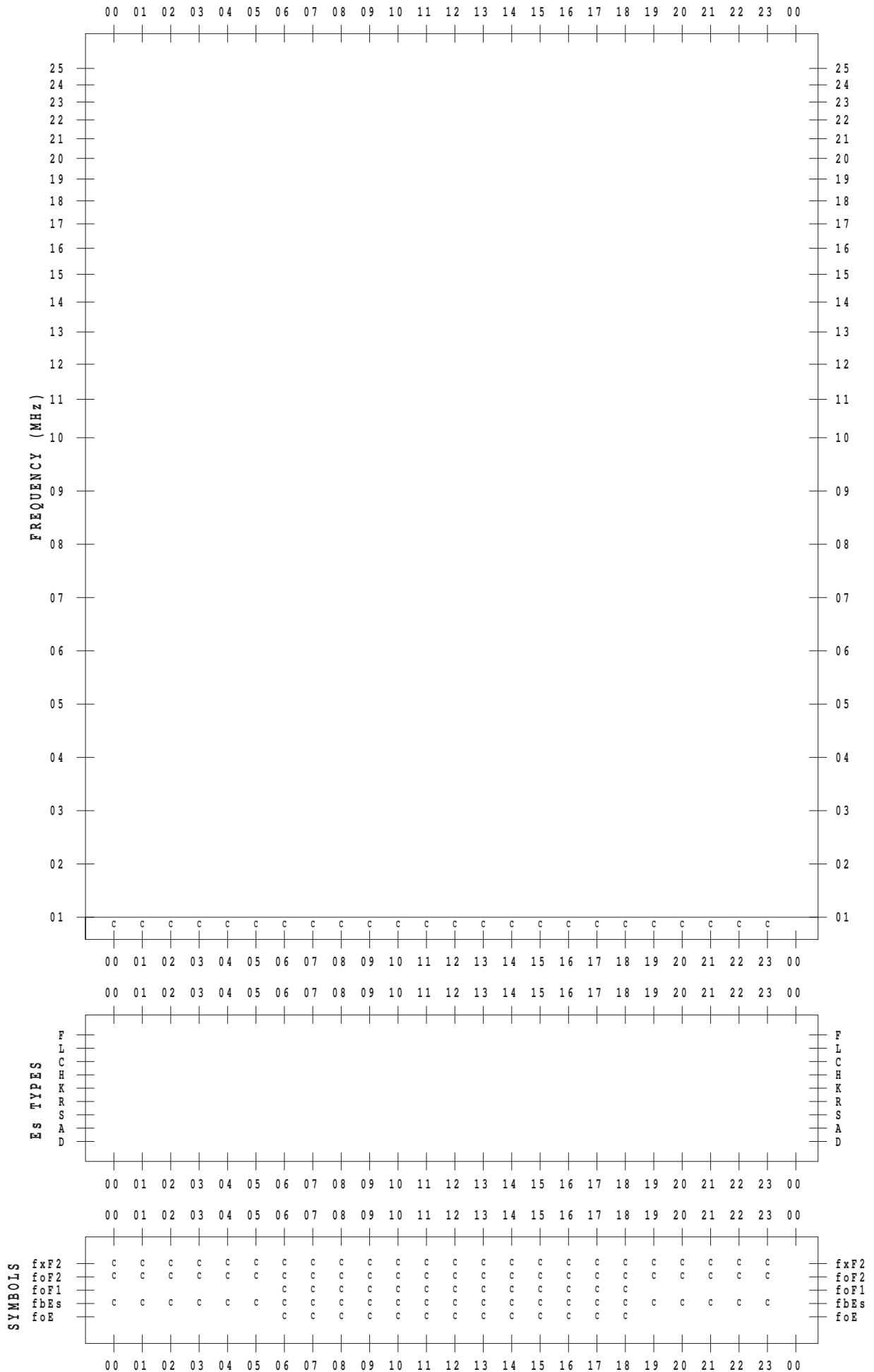
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 24

135 ° E MEAN TIME



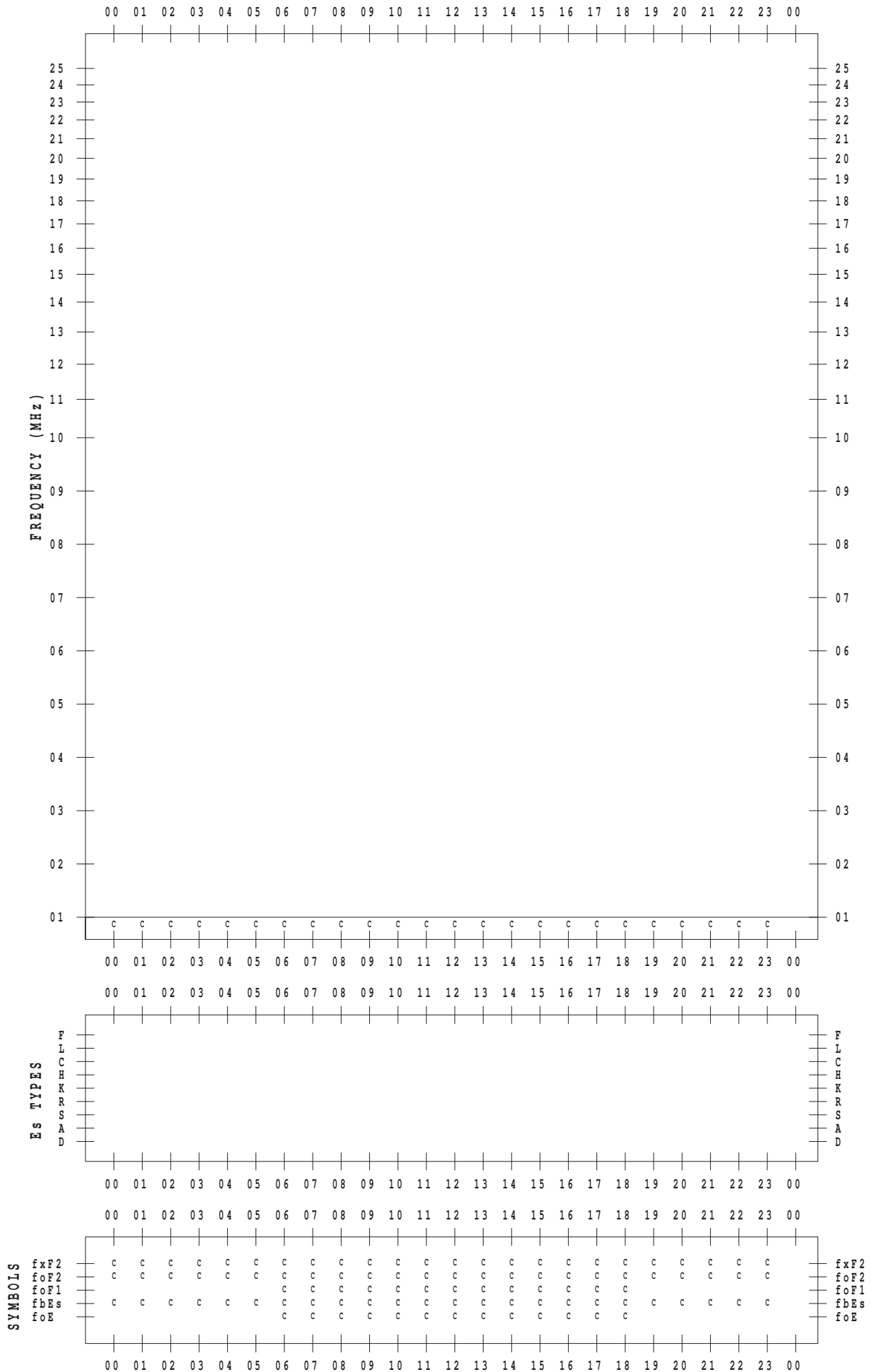
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 25

135 ° E MEAN TIME



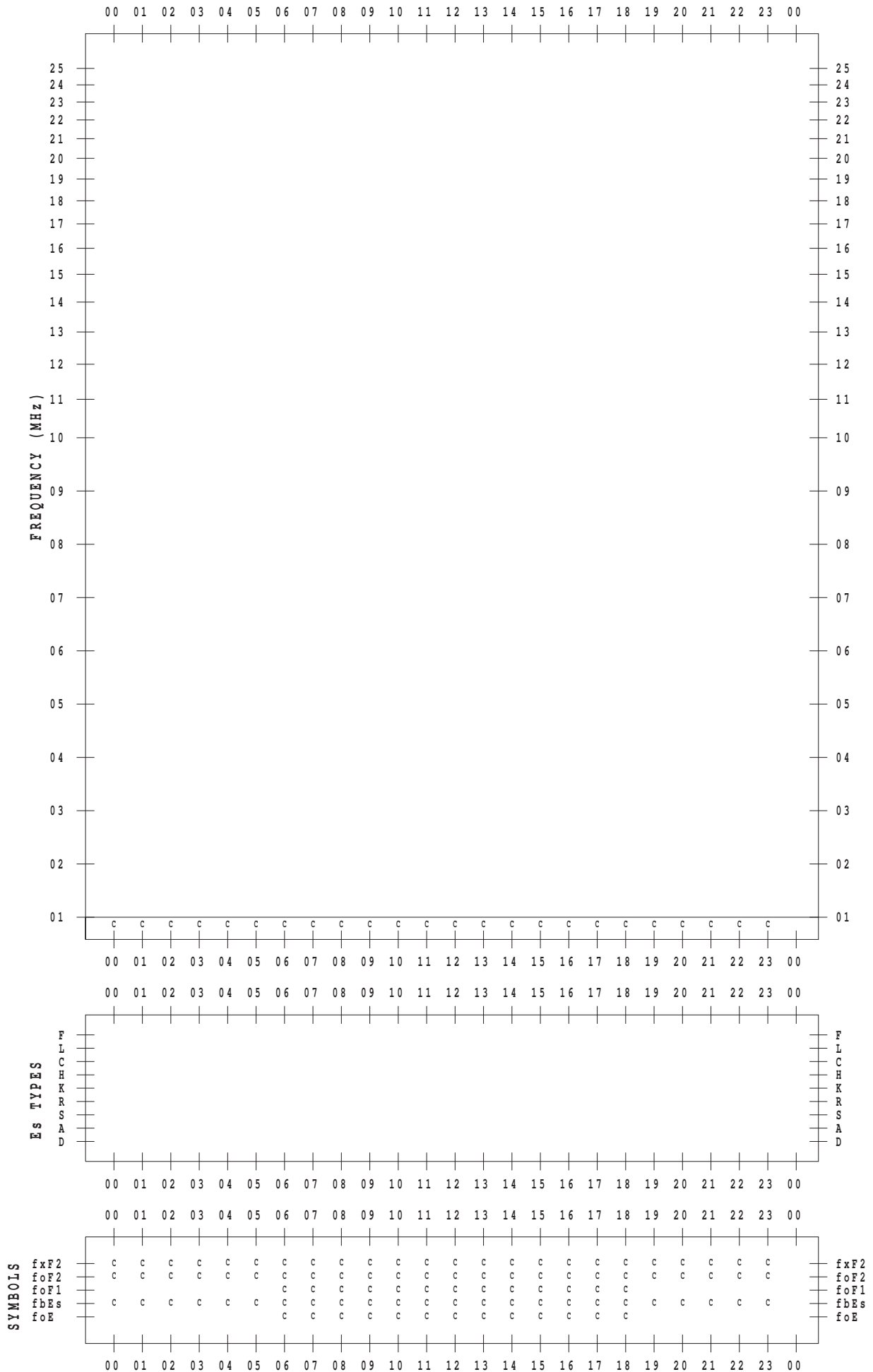
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 27

135 ° E MEAN TIME



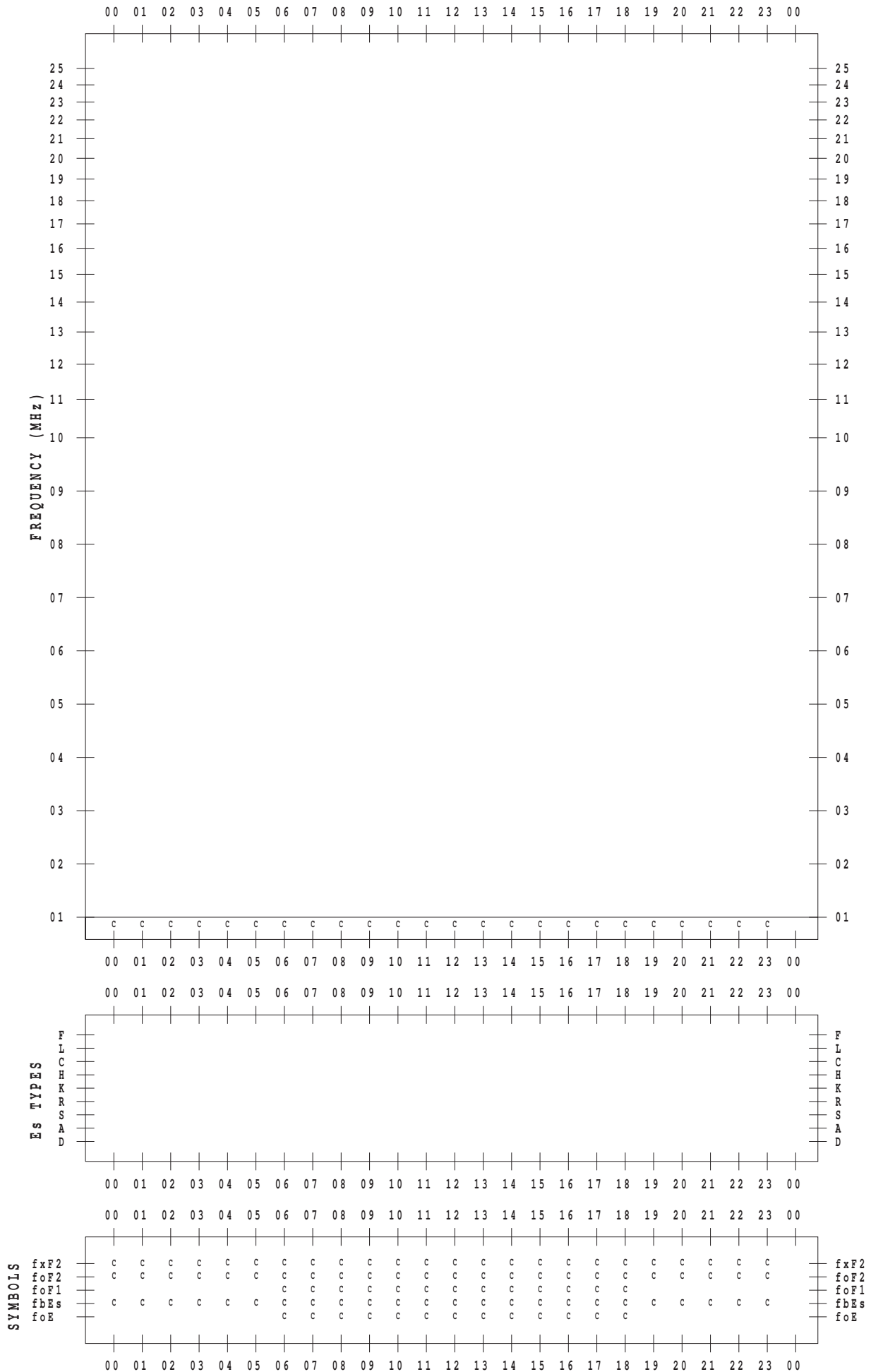
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 29

135 ° E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 4 / 30

135 ° E MEAN TIME

