

IONOSPHERIC DATA IN JAPAN

FOR APRIL 2016

VOL. 68 NO. 4

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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. 2016

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	44	34	34	43	45	49	62	70	66	70	74	68	64	70	67	65	66	70	62	62	60	53	34	36	
2	36	45	34	42	38	40	60	60	66	67	68	69	67	69	70	72	65	59	66	64	66	60	48	53	
3	51	47	42	37	34	38	53	62	54	63	58	70	70	70	64	64	62	65	70	67	67	55	54	54	
4	54	52	54	55	55	61	67	63	67	68	68	59	68	68	68	68	70	78	70	67	72	64	43	37	
5	50	47	46	47	46	51	61	63	64	72	83	70	67	68	71	71	67	70	67	67	67	64	54	55	
6	54	52	50	47	46	42	52	45	60	62	64	67	70	70	69	70	71	65	66	66	62	55	53	50	
7	49	N	34	36	47	53	63	67	67	70	66	67	70	71	70	65	64	65	67	66	66	63	53	46	
8	47	47	43	48	43	50	66	61	68	65	66	70	67	69	68	66	70	70	68	67	66	66	61	51	
9	51	58	54	54	55	58	64	64	68	70	66	69	69	59	71	70	64	65	70	67	66	54	54	61	
10	53	48	52	52	45	50	61	62	65	69	69	72	68	70	70	66	70	66	65	66	66	64	48	36	
11	46	42	43	43	34	44	63	72	67	44	66	69		69	67	70	63	62	66	66	67	66	54	52	
12	54	52	46	N	48	51	58	60	62	61	65	71	68	72	64	67	68	68	68	65	63	55	52	52	
13	50	52	42	43	36	35	46	46	51	62	68	64	65	54	68	70	67	65	68	65	66	66	61	54	
14	52	54	53	52	53	54	60	61	66	69	66	70	69	68	70	68	67	70	67	65	67	54	52	53	
15	42	36	37	34	35	32	34	A	39	39		A		58		56	56	60	61	62	50	45	47	45	
16	43	38	35	34	36	44	54	58	55	A	65	67	72	70	68	66	65	61	63	67	A	61		54	
17	52	54	44	34	34	37		47	A	A	59	58	58	65	66	65	65	66	62	67	64	40	42	43	
18	47	44	46	48	34	42	43	41			59		61	62	63	62	60	60	60	55	52	40	49		
19	36	38	47	37	42	44	45	50	58	58	65	65	65	64	66	64	63	57	61	67	54	52	53	48	
20	42	52	48	44	37	42	52	58	60	62	60	62	60	62	69	69	68	65	67	64	66	55	53	A	
21	45	42	37	34	37	35	43		A	A	A		A		58	58	55	54	52	52	54	52	50	47	
22	36	43	44	42	32	44	56	48	A	A	A	56	A	63	57	61	61	58	51	55	52	42	A	49	
23	42	39	42	44	35	34	A	A			56	53	55	58	60	60	54	58	60	58		54	53	34	
24	52	50	46	37	40	46	49	55	60	60	57	57		A		61	61	66	66	66	58	54	41	52	
25	47	47	44	37	34	40	41							A		60	56	57	55	55	58	58	51	52	42
26	54	52	48	46	47	51	55	55	56	54	66	65	58	57	60	62	62	65	66	62	64	58	58	54	
27	54	52	52	51	44	52	50	52	56	57	63	61	59	61	62	61	65	70	69	62	61	52	52	53	
28	53	51	48	47	46	47	43	44			56		56		57	54	55	58	62	66	64	60	52	54	
29	53	53	53	48	48	53	58	57	57	58	64	64	61	56	62	65	62	58	58	61	66	64	64	52	
30	42	52	34	51	50	55	62	67	65	58	53	61		68	62	69	68	67	61	65	63	66	64	52	
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	29	30	29	30	30	28	26	23	22	25	26	22	26	28	30	30	30	30	30	28	30	28	29	
MED	50	48	45	44	42	45	56	59	62	62	65	66	67	68	66	65	64	65	66	65	64	55	52	52	
U Q	53	52	48	48	47	51	61	63	66	69	67	69	69	70	69	69	67	67	67	67	66	64	54	53	
L Q	43	42	42	37	35	40	47	50	56	58	59	61	60	61	62	61	62	59	61	62	59	52	48	45	

HOURLY VALUES OF fEs AT Wakkanai

APR. 2016

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	25	G	G	G	G	G	G	G	43	51	48	49	G	40	39	G	34	G	G	G	25	32	32	28
2	G	G	G	G	G	G	28	33	G	G	G	G	42	G	G	G	35	32	28	G	G	28	G	G
3	G	G	G	G	G	G	27	33	42	49	44	G	G	G	G	G	36	G	G	G	G	G	G	G
4	G	G	G	G	G	G	G	34	36	G	G	G	G	G	G	G	35	39	30	G	G	11	G	G
5	G	G	G	G	G	G	33	33	G	G	G	G	G	G	G	G	40	40	35	29	26	G	G	G
6	G	G	G	G	G	G	G	G	41	G	44	58	G	G	G	G	34	34	30	24	26	G	G	G
7	G	G	G	G	G	G	31	33	G	G	G	G	40	G	G	G	43	40	29	33	27	G	G	G
8	G	G	G	G	G	G	31	34	G	G	G	G	G	G	G	G	G	43	34	24	32	G	G	G
9	23	G	G	G	G	G	30	34	40	G	G	G	48	51	55	G	34	36	44	32	33	50	39	G
10	G	G	G	G	G	G	43	G	G	G	G	G	G	G	43	49	G	30	28	36	35	30	G	G
11	G	28	G	G	G	G	31	36	36	G	G	G	G	G	G	G	34	G	G	26	26	G	G	G
12	G	G	G	G	G	G	30	34	G	G	40	42	G	G	G	G	G	G	G	G	G	G	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	G	G	26	G	G
14	25	30	24	G	G	G	G	G	G	39	G	59	G	G	43	42	48	62	52	41	26	G	G	G
15	G	24	G	11	G	G	G	39	G	G	G	49	G	G	G	G	39	39	35	51	44	34	26	G
16	G	24	G	G	G	28	G	46	56	55	62	G	44	47	61	58	53	35	G	58	72	49	24	G
17	24	G	G	G	G	G	G	G	42	49	51	48	62	48	G	39	35	42	53	59	25	G	G	G
18	G	G	G	G	24	G	G	G	G	G	G	52	G	G	G	G	G	G	G	G	G	G	G	G
19	G	G	G	G	G	G	30	G	G	G	G	G	G	G	G	G	G	31	G	G	G	G	G	G
20	G	G	G	G	G	G	38	40	37	G	G	G	G	G	G	G	G	45	33	36	34	33	32	38
21	25	G	G	G	G	G	34	G	38	57	64	G	72	G	G	45	48	G	27	G	28	G	G	G
22	G	G	G	G	G	G	37	G	46	51	70	G	42	G	50	46	42	35	G	G	32	36	40	43
23	G	G	G	G	G	28	39	40	G	G	G	G	G	G	G	47	38	G	29	G	G	G	G	G
24	G	G	G	G	G	G	33	G	G	G	G	G	G	G	69	58	51	53	36	32	28	27	29	G
25	G	G	G	G	G	28	33	G	G	G	G	G	G	48	G	G	35	38	31	G	G	G	G	G
26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	G	30	G	G	G	G	G
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	G	G	G	G	G
28	G	G	G	G	G	29	35	G	G	G	G	G	G	G	G	G	G	G	30	27	G	G	G	G
29	G	G	G	G	G	G	32	G	G	G	G	G	G	G	G	G	G	34	34	G	G	G	G	G
30	G	G	G	G	G	30	34	39	G	G	G	51	G	G	G	G	37	44	45	40	G	G	25	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	30	30	30	30	30	30	29	30	30	29	29	30	29	28	30	30	30	30	30	30	29	30	29	30
MED	G	G	G	G	G	G	30	G	G	G	G	G	G	G	G	G	35	34	30	12	25	G	G	G
U Q	G	G	G	G	G	G	33	34	38	20	42	42	20	G	39	39	39	40	34	33	30	28	13	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. 2016

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	15	14	14	15	14	21	14	14	15	15	14	15	15	15	14	14	14	15	14	14	14	15	14
2	16	15	14	14	14	15	14	14	14	15	14	15	15	16	14	14	14	14	14	15	14	14	14	14
3	14	14	14	14	14	14	14	14	14	14	14	15	14	15	14	14	14	14	16	14	14	14	14	14
4	14	14	14	14	15	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	15	14
5	14	14	14	14	14	14	15	14	14	14	14	15	14	15	15	14	14	14	14	14	15	14	14	15
6	14	14	14	15	15	14	14	14	14	14	14	14	17	14	14	14	14	14	15	14	14	14	15	16
7	15	14	15	14	15	15	14	14	14	14	15	15	15	15	14	14	14	14	14	15	14	14	14	14
8	14	15	14	14	14	14	14	14	14	14	14	16	18	15	14	14	14	14	14	14	14	15	14	14
9	15	14	14	15	14	15	14	14	14	14	16	14	16	15	15	14	14	14	14	14	14	14	14	14
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11	14	15	14	14	14	17	14	14	15	14	14	15		16	14	14	14	14	15	14	14	14	14	15
12	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	16	15	14	14	14	14
13	14	14	14	14	14	15	14	14	14	14	14	15	17	20	17	15	14	14	14	14	14	14	15	14
14	14	14	14	14	14	16	14	14	15	17	14	16	16	14	15	14	14	14	14	14	14	15	14	15
15	14	14	14	14	14	14	14	14	14	15	15	15	15	17	14	14	14	14	14	14	15	14	15	14
16	14	14	14	14	14	14	14	14	14	15	16	20	17	15	15	14	14	14	14	14	14	14		14
17	14	14	15	15	14	18		14	16	15	18	17	22	18	18	14	14	14	14	14	14	14	15	14
18	14	14	14	14	14	15	14	14	14	14		18	17	15	14	14	14	14	17	15	14	14	15	15
19	15	14	14	15	14	15	14	14	14	14	15	15	15	14	14	14	14	14	18	14	14	15	15	14
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21	15	14	15	14	14	16	14	14	14	14	14	15	15		14	14	14	14	14	14	14	14	15	14
22	15	14	14	14	14	14	14	14	14	14	15	14	14	15	16	14	14	14	15	14	14	14	14	14
23	14	14	14	14	14	17	14	14	14	14	14	14	15	14	15	14	14	14	14	16		14	14	14
24	14	14	14	14	14	14	14	14	14	14	15	16	15	14	14	14	14	14	14	14	14	14	14	14
25	14	14	14	14	14	14	14	14	14	14	14	14	21	14	14	14	14	14	14	14	14	14	14	14
26	14	15	14	15	14	18	14	14	14	14	18	16	15	15	14	14	14	14	15	14	14	15	14	14
27	14	14	14	14	15	20	14	14	14	14	15	16	15	16	14	15	14	14	14	14	14	14	15	14
28	14	14	14	14	14	14	14	14	14		14	14	15		14	14	14	14	14	14	14	14	14	16
29	14	14	15	15	15	14	14	14	14	14	16	17	16	17	17	14	14	14	15	14	14	15	14	14
30	14	14	14	14	14	14	14	14	14	14	15	15	15	15	14	15	14	14	14	14	14	14	15	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	29	30	30	29	29	30	29	28	30	30	30	30	30	30	29	30	29	30
MED	14	14	14	14	14	15	14	14	14	14	14	15	15	15	14	14	14	14	14	14	14	14	14	14
U Q	14	14	14	14	14	16	14	14	14	15	15	16	16	15	15	14	14	14	15	14	14	14	15	14
L Q	14	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF fof2 AT Kokubunji

APR. 2016

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	44	42	42	44	42	44	58	59	72	77	80	85	88	92	92	76	69	72	81	84	62	44	41	41	
2	38	39	39	42	32	30	49	65	62	72	72	76	86	82	87	77	72	68	76	78	76	54	42	N	
3	39	39	37	35	34	32	52	58	68	72	92	85	90	95	95	75	70	75	86	86	62	A	34	38	
4	41	42	42	42	46	45	58	67	72	72	78	87	90	85	90	96	94	82	88	100	75	42	36	37	
5	31	38	38	39	37	35	59	71	65	66	76	85	92	88	81	85	78	85	91	88	54	49	51	46	
6	48	48	47	46	41	42	49	62	64	69	81	90	106	102	98	80	78	82	81	74	54	46	53	51	
7	49	53	49	44	44	42	59	64	65	78	85	98	92	72	71	71	74	78	91	90	43	48	44	A	
8	44	43	43	42	38	A	66	81	67	102	66	86	97	98	100	68	69	80	91	98	74	A	A	42	
9	39	42	42	42	42	C	A	A	71	74	78	91	96	94	80	80	90	81	83	78	44	52	51	51	
10	51	50	47	A	37	42	62	63	77	77	86	81	N	84	91	97	87	85	91	90	75	54	48	41	
11	40	39	39	38	36	41	64	75	69	72	75	84	87	88	83	77	A	78	80	83	69	54	42	52	
12	52	51	48	46	47	46	72	66	71	75	62	80	85	86	90	88	81	85	86	72	66	52	52	54	
13	53	51	52	52	34	36	54	62	64	67	74	96	86	97	104	75	81	81	95	86	53	47	52	54	
14	47	47	41	42	48	47	61	64	68	84	100	96	A	101	100	86	82	76	88	74	63	52	54	48	
15	51	46	52	38	28	32	48	58	55	A	65	69	71	A	A	99	66	72	75	71	53	47	47	A	
16	42	42	42	40	37	38	56	63	64	63	66	75	87	107	101	95	84	81	80	74	63	51	47	A	
17	49	48	46	46	42	44	42	46	49	A	72	83	74	76	82	77	71	75	81	81	52	A	A	42	
18	44	44	45	44	32	34	52	61	57	62	66	74	72	81	80	72	77	78	77	72	63	52	53	52	
19	52	51	53	54	34	34	51	59	59	65	74	77	76	78	78	78	76	72	75	75	64	52	51	48	
20	47	44	47	38	37	43	52	58	58	65	68	69	75	76	81	88	84	78	78	81	65	53	39	51	
21	48	47	48	44	38	23	59	58	56	55	59	62	68	67	72	74	71	67	64	69	46	54	52	52	
22	51	48	46	44	30	39	56	61	63	59	56	56	66	77	84	80	74	67	66	61	54	52	54	54	
23	47	44	42	42	39	44	46	48	A	55	66	71	72	76	81	86	84	70	67	68	54	51	49	49	
24	46	44	44	48	32	37	48	61	59	66	61	64	61	67	68	76	A	A	80	78	58	47	A	A	
25	48	49	42	41	41	42	58	56	49	58	61	65	66	71	66	71	67	58	62	72	72	61	52	52	
26	51	53	49	52	44	45	49	78		63	64	66	68	72	74	77	77	71	77	75	63	52	47	48	
27	47	42	47	44	42	44	59	57	59	66	71	75	81	76	82	86	91	76	77	71	54	55	54	53	
28	51	44	44	44	38	20	58	61	59	59	61	62	61	60	64	76	70	65	68	67	53	53	52	54	
29	49	46	53	52	42	39	58	66	63	67	67	68	69	75	74	84	75	63	61	67	71	67	54	53	
30	51	47	47	47	44	48	61	67	67	61	61	65	69	86	95	91	75	65	62	71	62	A	66	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	30	30	30	29	30	28	29	29	28	28	30	30	28	29	29	30	28	29	30	30	30	26	27	24	
MED	48	45	46	44	38	42	58	62	64	66	70	76	78	82	82	79	76	76	80	75	62	52	51	51	
U Q	51	48	48	46	42	44	59	66	68	73	78	85	89	93	93	86	83	81	86	84	66	54	53	52	
L Q	44	42	42	41	34	34	50	58	59	62	64	68	69	75	76	76	71	69	75	71	54	48	44	44	

HOURLY VALUES OF fEs AT Kokubunji

APR. 2016

LAT. 35°43.0'N LON. 139°29.0'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	59	57	G	G	25	G	45	G	G	G	G	42	G	G	G	G	G	G	G	G	11	G	G	G	
2	G	G	G	G	G	G	37	G	G	G	G	G	G	G	G	G	G	G	G	25	24	G	G	G	
3	G	G	G	G	G	G	45	G	G	45	48	45	48	G	G	45	G	G	27	G	22	31	G	G	
4	G	G	G	G	G	G	29	G	G	G	48	G	G	G	G	G	G	34	33	35	50	33	G	G	
5	G	G	G	G	G	G	29	G	43	52	G	49	52	G	G	51	54	55	61	53	60	37	58	37	
6	28	G	G	G	G	G	30	40	51	54	58	60	71	61	56	G	G	38	47	84	50	53	G	28	
7	29	G	G	G	G	G	G	G	46	49	53	49	49	57	G	G	G	51	41	83	32	29	G	38	
8	28	G	33	38	26	39	71	43	41	45	49	48	G	G	G	G	G	36	32	39	30	69	49	G	
9	31	29	G	25	33	C	73	73	46	G	G	G	G	G	G	G	64	43	26	23	50	30	33	33	
10	27	28	36	82	G	G	47	40	48	57	60	71	89	58	G	G	46	55	61	104	57	36	26	39	
11	48	G	G	G	24	24	36	39	G	43	45	49	G	G	50	52	75	57	62	34	69	70	36	25	
12	G	G	G	G	G	G	47	44	42	44	G	54	G	G	G	G	G	41	33	29	G	G	G	G	
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	37	G	G	23	G	G	G	
14	G	G	G	G	G	G	G	G	G	51	56	59	103	G	G	48	55	55	32	25	G	G	G	G	
15	G	34	24	G	G	G	31	G	G	56	G	G	42	72	86	55	59	36	39	39	58	32	27	50	
16	34	33	G	40	25	28	G	43	38	G	51	55	48	G	47	G	43	G	G	46	45	34	50	92	60
17	34	28	G	26	G	G	G	G	50	54	55	55	59	60	58	41	G	G	G	24	43	53	57	29	
18	29	G	29	27	G	G	G	G	G	82	51	55	G	44	G	G	G	35	29	27	G	G	G	G	
19	G	G	G	G	G	G	47	G	G	G	G	G	G	G	G	G	G	G	34	23	41	31	G	G	
20	G	G	G	24	G	G	32	39	44	40	48	51	71	99	50	G	G	41	34	35	82	30	34	60	
21	48	39	26	G	27	26	49	43	48	G	G	51	G	G	G	G	G	35	27	G	31	G	25	G	
22	G	G	26	24	26	G	G	41	43	48	47	G	G	G	G	G	40	G	26	26	35	32	34	G	
23	32	37	25	G	G	28	40	40	44	47	G	G	G	50	48	G	G	41	50	52	37	35	29	G	
24	G	G	G	G	G	G	G	G	G	47	G	49	G	66	53	70	84	80	35	35	44	56	58	59	
25	41	G	G	G	G	G	32	39	50	G	G	G	G	G	G	G	G	42	39	44	39	28	25	G	
26	G	G	G	G	G	24	G	G	G	48	50	49	G	G	G	G	G	43	36	34	27	G	25	G	
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	33	32	34	23	G	G	
28	G	G	G	G	G	G	G	G	44	44	G	G	G	G	G	G	55	69	53	92	33	26	G	G	
29	G	G	G	G	G	G	G	G	50	G	G	G	G	G	G	G	G	52	42	42	G	G	29	26	
30	G	G	G	G	G	G	G	G	43	G	G	G	G	51	52	52	47	49	36	79	74	70	43	60	
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	29	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	G	G	G	G	G	G	30	G	42	44	G	46	G	G	G	G	G	40	34	34	34	30	25	G	
U Q	31	28	G	24	G	G	45	40	46	49	50	51	48	51	48	41	47	51	42	45	50	37	34	37	
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	27	25	24	G	G	G	

HOURLY VALUES OF fmin AT Kokubunji

APR. 2016

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	14	13	14	13	13	14	13	14	17	22	20	22	41	23	15	13	13	15	14	13	13	14	13
2	14	13	14	14	13	14	14	13	14	18	18	24	23	18	15	20	14	13	15	13	13	13	13	14
3	13	13	13	13	13	14	13	13	13	14	30	36	34	41	22	18	13	13	13	14	13	13	14	13
4	13	13	13	13	13	13	14	14	13	17	21	42	38	36	42	15	15	14	13	13	13	13	13	13
5	15	14	13	13	14	13	13	13	13	14	17	40	34	22	18	17	14	13	13	13	13	13	13	13
6	13	13	13	14	13	13	13	17	13	15	34	33	31	29	22	18	14	13	13	13	14	13	14	13
7	14	13	13	14	14	14	13	13	18	17	33	18	30	33	39	18	17	14	13	13	14	13	13	13
8	13	13	13	13	13	13	13	13	14	18	21	33	43	30	21	18	13	13	13	13	13	14	13	14
9	13	13	14	13	13	C	13	14	13	15	22	31	47	42	20	34	15	13	13	13	13	13	14	14
10	13	13	14	13	13	13	22	13	18	15	22	35	33	34	18	14	15	13	13	13	13	13	13	13
11	13	15	13	13	13	15	13	13	15	21	33	34	22	25	26	14	14	13	13	13	13	14	13	13
12	14	14	13	13	13	13	22	14	15	18	41	28	29	43	18	15	13	13	13	13	14	14	14	14
13	14	13	13	13	15	14	17	13	14	15	22	21	46	44	39	21	13	13	13	13	14	13	14	15
14	13	13	14	13	13	13	14	13	17	22	20	33	29	43	21	18	15	13	13	15	14	15	13	14
15	14	13	14	13	13	14	17	13	18	30	44	48	50	33	22	21	18	13	13	13	13	13	14	14
16	14	13	14	13	14	13	14	14	18	28	31	30	36	42	29	22	17	13	13	14	13	13	13	13
17	13	14	13	13	14	15	14	14	15	18	35	36	34	34	25	18	18	13	15	14	13	13	13	13
18	13	13	13	13	13	14	14	13	18	20	37	34	41	17	22	18	13	13	13	14	14	14	13	13
19	13	13	13	13	14	13	25	14	14	18	21	43	44	44	14	43	14	13	14	14	13	14	17	14
20	13	13	13	14	13	14	17	14	18	22	36	34	34	34	31	20	17	13	13	13	13	13	13	13
21	13	13	13	13	13	13	13	14	14	18	18	35	43	21	17	18	17	13	13	13	14	14	15	13
22	13	13	13	13	13	17	17	13	17	20	22	47	31	48	42	15	13	13	14	13	13	13	13	15
23	13	13	13	13	13	13	13	14	20	20	46	48	48	34	31	21	18	14	13	15	13	13	14	13
24	13	14	13	13	14	13	18	14	15	18	42	25	50	36	34	20	13	13	13	13	14	14	13	13
25	13	14	13	13	13	13	13	13	14	20	46	48	48	47	34	17	14	13	13	13	13	13	14	14
26	15	14	13	14	13	14	13	13		21	25	28	50	48	43	14	13	13	13	13	13	14	14	14
27	13	13	13	13	14	15	13	13	17	20	45	48	49	44	42	15	18	13	13	13	13	14	15	14
28	13	13	15	14	20	14	13	14	14	18	23	47	48	44	21	18	15	14	13	13	14	13	14	14
29	14	14	13	13	14	15	13	13	20	18	21	34	49	50	38	15	14	15	13	13	13	13	13	14
30	17	13	14	14	13	14	14	14	29	20	44	40	52	24	43	20	14	13	13	14	13	13	13	13
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	29	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	13	13	13	13	13	14	14	13	15	18	28	34	40	36	24	18	14	13	13	13	13	13	13	13
U Q	14	14	14	14	14	14	17	14	18	20	37	42	48	44	38	20	17	13	13	14	14	14	14	14
L Q	13	13	13	13	13	13	13	13	14	17	21	30	31	30	21	15	13	13	13	13	13	13	13	13

HOURLY VALUES OF fof2 AT Yamagawa

APR. 2016

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	44	40	41	40	40	36	47	54	67	72	78	78	92	96	97	96	81	77	84	88	72	44	36	40	
2	41	39	41	45	43	30	36	52	66	70	71	75	83	95	90	88	77	77	81	90	84	51	34	34	
3	34	34	34	32	29	31	48	52	63	72	98	71	76	97	109	81	76	81	88	98	81	34	29	A	
4	31	34	34	41	37	29	41	53	67	63	72	80	88	97	97	95	96	96	106	110	84	A	40	40	
5	37	42	42	40	40	30	40	52	72	65	74	83	94	96	96	88	90	96	97	90	78	A	A	A	
6	A	42	45	45	40	38	46	57	62	68	80	86	100	116	110	98	90	86	82	75	54	46	44	46	
7	46	44	48	48	41	38	46	60	60	70	92	101	94	83	81	77	81	85	75	88	48	A	A	38	
8	33	38	38	40	69	29	44	76	65	64	65	81	96	98	110	86	78	87	96	73	88	35	34	37	
9	A	37	37	40	38	32	45	54	66	75	75	87	108	97	94	103	N	108	97	88	76	A	43	A	
10	A	44	A	A	A	A	46	70	78	77	78	71	76	90	94	96	95	92	91	90	80	28	A	A	
11	A	40	43	45	A	A	45	67	72	72	67	78	90	97	86	98	100	97	88	77	81	50	54	54	
12	51	61	51	50	51	50	62	72	76	63	67	85	90	94	97	88	91	81	77	78	76	44	51	54	
13	51	51	51	53	34	29	48	68	64	61	72	110	90	93	113	91	92	90	94	88	77	43	46	47	
14	A	44	43	46	52	45	47	58	65	75	88	94	106	112	98	96	104	96	90	88	72	60	54	52	
15	64	52	66	51	34	B	44	A	64	66	72	83	90	88	96	86	82	78	84	85	77	44	42	44	
16	48	42	42	45	37	A	48	63	63	64	A	72	87	111	132	109	114	91	90	78	54	A	50	52	
17	52	50	51	54	45	30	45	51	51	58	66	86	90	94	95	87	78	80	78	88	52	40	42	42	
18	A	42	51	47	29	B	45	65	61	65	73	77	88	95	95	86	95	90	84	82	67	53	53	51	
19	54	51	53	60	38	31	42	60	58	66	67	74	82	90	92	83	84	88	88	84	54	43	48	50	
20	50	46	48	45	42	34	51	56	58	57	69	74	80	95	87	93	91	90	A	80	48	A	50	51	
21	51	A	53	50	32	32	54	60	63	61	A	67	82	78	82	87	86	80	82	80	77	63	53	52	
22	50	47	43	42	38	37	51	65	60	61	48	68	78	87	96	108	94	81	77	74	66	52	44	45	
23	44	A	42	36	36	32	52	A	55	55	66	74	85	A	97	111	109	87	72	76	63	48	A	47	
24	42	46	46	44	34	30	45	59	63	52	61	66	73	78	84	85	85	86	86	72	52	54	52	52	
25	51	47	43	40	A	40	57	54	62	67	65	64	77	80	82	80	81	67	71	82	84	53	51	53	
26	51	50	46	48	46	25	45	58	66	70	66	65	75	90	94	90	90	82	76	82	86	55	46	48	
27	A	47	42	49	40	38	50	54	70	70	72	70	75	88	87	95	C	95	78	70	71	73	40	52	52
28	50	42	46	45	42	34	52	67	66	65	64	65	70	78	89	A	95	85	78	73	53	52	52	54	
29	52	54	63	62	47	41	52	67	72	72	70	64	73	82	82	86	A	85	77	67	76	78	53	51	54
30	50	52	54	50	47	45	64	65	57	61	62	68	80	94	96	A	A	A	A	A	A	A	A	54	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	23	28	29	29	27	25	30	28	30	30	28	30	30	29	30	28	28	29	28	29	29	23	26	26	
MED	50	44	45	45	40	32	46	60	64	66	70	74	86	94	95	89	90	86	84	82	76	48	49	50	
U Q	51	50	51	50	45	38	51	66	67	70	74	83	90	97	97	96	95	90	90	88	80	53	52	52	
L Q	42	41	42	40	36	30	45	54	61	61	66	68	77	87	87	86	81	80	77	76	54	43	42	44	

HOURLY VALUES OF fEs AT Yamagawa

APR. 2016

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	28	G	46	G	26	G	G	32	G	43	50	G	N	G	G	G	G	34	29	29	G	G	G	G	
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	26	G	11	G	G	
3	G	G	G	G	G	G	G	G	36	48	47	G	55	G	56	50	G	G	G	G	25	G	G	30	
4	G	G	G	G	G	G	G	33	G	44	46	G	48	G	G	G	44	42	36	34	37	48	G	G	
5	G	G	G	G	G	G	23	35	G	45	50	48	G	G	43	G	44	46	40	46	53	91	48	71	
6	50	40	45	46	34	36	35	40	G	50	53	53	48	59	48	44	39	37	35	70	69	45	45		
7	59	38	34	26	G	25	25	36	35	G	52	54	64	56	G	G	G	56	44	47	53	59	49	35	
8	36	32	G	27	G	23	24	34	42	44	43	47	G	G	G	G	G	G	48	24	29	33	G	G	
9	50	34	24	25	36	33	33	36	G	G	G	G	49	42	G	56	40	48	51	56	30	69	40	59	
10	67	33	49	58	58	44	44	36	56	57	59	76	G	G	G	G	G	G	40	34	58	32	37	65	
11	73	35	28	31	40	39	53	31	41	49	43	G	G	G	66	57	64	54	55	58	35	30	G	32	
12	G	30	G	G	G	G	G	35	44	G	44	44	46	76	66	G	G	70	46	65	58	60	28	G	
13	G	G	G	G	11	G	29	36	41	G	G	G	G	G	G	G	G	36	36	34	28	G	G	G	
14	57	29	G	G	G	G	G	40	G	47	51	60	64	G	G	G	50	48	40	32	33	49	33	41	
15	G	G	G	G	G	B	30	60	54	58	56	G	56	66	48	G	G	40	36	72	53	56	46	G	
16	31	38	39	26	26	39	30	33	46	59	93	65	51	48	52	73	62	60	48	34	59	61	49	43	
17	32	35	36	26	G	G	29	40	G	G	54	48	G	52	57	46	G	G	G	G	G	G	G	G	
18	49	46	26	G	25	B	28	32	G	G	G	56	52	46	49	46	50	50	30	G	G	G	G	G	
19	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	G	28	48	34	
20	G	G	G	G	G	G	29	41	48	46	54	49	51	56	53	82	46	50	96	72	44	43	33	29	
21	G	33	32	46	29	28	36	46	51	52	61	55	53	G	G	52	G	G	G	39	26	G	G	24	
22	G	G	G	G	G	G	G	39	G	G	50	G	G	G	G	G	G	G	G	26	58	40	34	G	
23	48	68	54	43	32	G	34	51	45	50	50	62	52	85	57	48	44	45	34	32	27	59	54	48	
24	G	G	G	G	G	G	G	G	60	G	G	G	G	G	G	G	41	53	74	55	60	27	40	40	34
25	G	G	G	G	G	G	35	40	49	50	49	46	G	48	46	G	G	45	45	29	30	27	32	G	
26	G	G	G	G	G	G	G	38	44	G	G	G	G	G	45	G	G	G	G	G	50	43	35	25	
27	32	G	G	G	G	G	G	35	G	G	G	G	G	G	44	46	G	G	42	32	G	54	36	24	
28	G	G	G	G	G	G	G	36	43	G	47	48	G	42	60	C	46	48	48	62	44	40	43	34	
29	28	G	G	G	G	G	G	36	36	40	G	G	G	G	G	G	G	53	33	G	G	G	G	G	
30	35	G	G	G	G	G	G	G	56	43	G	G	50	46	50	97	95	116	86	82	107	80	46	30	
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	28	30	30	30	30	30	30	29	30	30	29	30	30	30	30	30	30	30	30	30
MED	14	G	G	G	G	G	G	36	38	42	47	43	46	G	44	G	G	44	38	34	32	40	34	27	
U Q	48	34	32	26	26	24	29	40	45	48	51	53	52	48	53	49	46	50	48	56	53	59	45	35	
L Q	G	G	G	G	G	G	G	32	G	G	G	G	G	G	G	G	G	G	29	26	25	11	G	G	

HOURLY VALUES OF fmin AT Yamagawa

APR. 2016

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	17	15	15	14	14	15	14	23	15	17	18	18	21	20	17	16	14	14	14	14	14	15	15	16
2	15	15	14	15	14	14	15	14	15	15	17	23	48	22	18	17	17	16	14	17	15	15	15	17
3	15	14	15	16	15	15	15	14	14	16	18	45	23	23	27	17	16	14	18	15	14	15	16	14
4	15	14	14	14	14	15	15	14	14	14	18	17	18	46	41	21	17	16	14	14	15	14	15	15
5	18	15	15	17	14	14	15	14	14	16	18	23	18	28	22	40	14	17	15	14	14	14	14	15
6	14	14	14	14	14	14	14	14	14	18	21	26	23	21	26	18	17	15	14	14	15	14	14	14
7	14	14	14	14	15	15	17	15	14	20	20	22	27	27	20	42	18	14	14	14	14	14	14	14
8	14	14	14	14	15	15	15	14	14	17	21	24	26	38	26	21	18	15	14	15	16	15	15	15
9	14	14	14	15	14	14	16	15	16	17	20	24	23	35	45	21	14	15	14	14	14	14	14	14
10	14	14	14	15	14	14	17	14	17	18	21	23	26	22	52	20	17	15	14	14	14	14	14	14
11	15	14	14	14	15	14	14	14	15	17	21	27	26	28	23	21	17	14	14	14	14	14	16	16
12	15	14	14	15	15	15	16	14	14	18	20	38	30	30	22	18	18	14	14	14	14	15	15	17
13	18	15	15	14	14	15	14	14	14	16	18	45	45	45	44	40	18	16	14	14	15	15	15	15
14	14	15	14	14	16	14	17	14	15	24	20	34	22	46	24	18	18	14	14	14	14	14	15	14
15	15	15	15	15	21	B	14	14	15	17	20	27	28	24	22	18	18	14	14	14	14	14	14	14
16	14	14	15	15	15	14	14	14	18	17	23	23	29	30	22	22	28	14	14	14	14	14	15	14
17	14	15	15	16	15	14	15	14	16	17	21	21	28	30	27	20	14	15	14	15	16	17	15	15
18	14	14	14	14	16	B	15	14	15	20	46	27	22	24	24	18	17	14	14	15	15	16	15	17
19	15	15	15	14	14	17	20	14	16	22	21	44	24	49	44	22	18	14	15	15	15	15	14	14
20	14	14	14	14	14	16	14	14	16	17	22	24	26	34	22	18	18	15	14	15	14	15	14	15
21	14	14	14	15	14	14	15	20	14	18	23	22	36	26	48	21	17	17	23	14	18	16	28	14
22	17	20	14	15	15	15	18	14	17	18	26	21	26	24	22	17	18	17	15	15	14	14	14	15
23	14	14	14	14	14	14	14	14	18	17	18	33	34	20	18	18	17	17	14	14	14	14	14	14
24	15	14	15	15	15	15	15	15	17	20	23	48	22	29	26	23	15	16	14	14	14	15	15	15
25	15	15	15	15	14	15	15	14	17	17	28	27	26	27	27	20	21	16	16	14	14	15	14	16
26	15	16	16	15	15	14	17	14	16	21	21	27	51	51	27	23	20	14	14	14	15	14	15	18
27	16	14	14	18	15	18	18	14	17	18	44	46	56	35	52	18	16	15	15	14	14	14	14	14
28	14	16	20	14	15	15	14	14	16	18	33	29	27	24	24	C	23	17	14	14	15	15	14	15
29	14	14	15	15	15	15	14	15	16	21	20	35	50	49	50	20	39	15	14	15	16	15	16	21
30	15	15	15	15	15	15	14	14	16	23	45	50	33	29	36	21	18	16	14	14	16	14	14	17
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	28	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30
MED	15	14	14	15	15	15	15	14	16	18	21	27	26	28	26	20	18	15	14	14	14	14	15	15
U Q	15	15	15	15	15	15	16	14	16	20	23	35	33	35	41	21	18	16	14	15	15	15	15	16
L Q	14	14	14	14	14	14	14	14	14	17	20	23	23	24	22	18	17	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

APR. 2016

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	46	42	37	38	34	N	36	58	64	70	82	82	95	110	124	121	110	101	94	88	76	53	43	43	
2	40	43	38	45	43	26	30	50	62	70	70	85	96	108	106	104	100	95	99	106	86	44	29	30	
3	B	B		30	28	30	42	47	61	87	115	78	84	118	110	105	93	98	107	121	58	38	31	40	
4	42	46		45	29	26	31	54	63	68	72	84	101	105	111	101	106	111	124	118	67	48	A	43	
5	43	43	43	45	45	B	29	52	67	84	78	88	104	111	108	107	113	124	115	104	83	54	42	42	
6	A	44	42	42	A	A	A		63	67	71	84	92	110	127	140	137	111	106	92	82	67	A	A	
7	52	51	54	54	43	31	34	58	60	76	94	111	113	106	105	101	100	113	110	87	52	38	A	38	
8	42	42	51	51	43	A	34	67	72	72	66	85	114	123	126	108	104	111	122	89	77	A	43	44	
9	44	40	51	53	56	N	32	57	66	69	80	100	107	118	131	134	134	131	118	108	78	A	A	44	
10	44	40	40	44	39	29	36	72	78	75	A	71	89	110	125	124	130	126	127	126	111	54	A	42	
11	44	52	54	67	36	N	37	64	72	69	75	91	106	111	116	118	120	122	116	109	74	54	50	53	
12	42	54	52	52	56	58	58	67	67	64	72	88	106	110	116	116	107	92	84	88	78	64	65	67	
13	67	63	67	65	34	26	42	72	60	54	71	111	105	90	127	116	118	113	105	116	71	52	44	A	
14	52	52	47	46	48	42	41	52	70	82	84	100	117	109	116	126	127	116	110	110	74	43	73	74	
15	A	67	73	58	37	35	37	64	76	86	81	94	105	A	108	108	104	97	A	A	78	50		42	
16	47	42	52	50	42	29	39	59	66	A	71	84	102	130	146	148	155	149	137	100	71	A	49	65	
17	66	60	59	63	44	B	37	52	64	61	67	91	106	107	111	114	97	90	96	88	47	A	A	40	
18	44	44	46	32		B	37	58	67	67	74	78	98	111	117	118	116	112	102	105	77	54	61	62	
19	52	65	76	72	40	29	42	58	67	72	68	72	90	102	101	96	108	111	107	92	66	52	53	53	
20	52	50	52	52	40	34	42	58	62	64	68	75	91	102	110	105	101	98	110	111	60	52	51	52	
21	52	54	52	45	A	28	50	62	66	A	65	71	88	91	96	98	101	106	89	104	84	A	60	58	
22	52	51	51	45	41	38	48	60	56	50	C	77	C	C	118	126	111	98	93	82	77	54	A	42	
23	A	39	42	40	B	29	42	50	55	55	66	74	92	108	126	141	135	97	86	86	74	49	44	47	
24	47	44	44	45	B	N	38	61	66	53	62	78	85	96	94	102	104	97	85	78	76	52	49	52	
25	51	47	42	40	39	34	46	52	66	71	66	72	90	101	98	98	90	86	92	103	88	A	50	54	
26	51	43	45	45	41	B	40	51	67	71	68	74	87	102	114	116	110	102	88	101	101	54	A	A	
27	A	46	47	46	29		44	66	66	70	70	73	81	100	118	124	113	94	74	76	A	78	49	48	50
28	51	47	48	46	38	34	48	67	67	66	67	65		90	109	121	120	102	85	A	72	64	53	67	
29	72	74	78	58	44	42	47	71	72	76	68	68	80	97	105	97	95	97	102	102	84	58	51	54	
30	52	51	53	58	46	50	52	56	60	65	65	77	91	110	110	87	82	76	81	88	87	72	67	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	25	29	28	30	25	19	29	30	30	28	28	30	28	28	30	30	30	30	29	28	30	23	22	27	
MED	51	47	51	46	41	31	40	58	66	70	70	80	97	108	112	115	109	102	102	102	76	52	50	50	
U Q	52	53	53	54	44	38	45	64	67	73	79	91	106	111	124	124	118	113	112	108	83	54	53	58	
L Q	44	43	43	45	36	29	36	52	62	64	67	74	89	101	108	102	101	97	88	88	71	49	44	42	

HOURLY VALUES OF fEs AT Okinawa

APR. 2016

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	G	G	G	G	G	G	G	G	G	G	G	43	53	62	60	G	39	G	29	G	G	G	G	G	
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	46	66	58	32	11	G	G	
3	B	B	G	G	G	G	G	G	39	G	G	G	G	G	45	41	43	G	G	32	27	26	G	27	
4	36	25	G	26	24	25	G	G	G	44	53	49	50	G	G	46	55	64	60	42	30	25	30	G	
5	G	G	G	G	G	B	G	G	G	44	G	G	G	G	G	G	49	50	53	54	36	34	27	G	
6	48	45	49	33	65	40	35	36	56	58	54	54	54	57	45	G	G	43	44	51	39	30	28	87	
7	44	39	34	40	G	G	G	43	49	45	45	44	45	44	G	G	44	44	55	50	91	45	33	28	
8	G	25	34	29	32	45	24	36	34	42	50	49	47	49	G	G	G	G	32	27	21	48	34	36	
9	33	24	33	32	G	G	G	G	G	43	47	G	G	G	45	G	G	55	44	40	40	85	67	34	
10	36	34	46	57	27	G	G	37	67	53	79	50	G	56	G	G	G	G	36	91	50	46	57	26	
11	G	G	G	G	28	G	G	34	51	78	62	56	48	G	54	41	G	G	40	35	55	72	G	28	
12	40	43	59	G	90	68	51	34	39	48	49	50	G	G	54	53	49	56	58	60	60	68	57	52	50
13	G	G	41	G	G	G	G	38	43	43	52	G	G	G	G	G	G	G	G	46	49	43	40	40	
14	26	G	43	G	32	34	32	30	37	47	G	G	52	G	G	41	39	44	60	46	46	50	30	30	
15	27	G	24	29	27	G	G	40	60	78	76	79	94	106	82	78	60	50	110	88	73	43		50	
16	25	44	48	51	28	30	G	34	42	70	62	60	78	64	68	65	58	64	66	70	46	50	49	57	
17	58	44	32	G	34	B	G	36	46	50	G	G	59	50	79	64	49	45	48	39	47	47	35	G	
18	G	G	G	G	G	B	G	52	57	59	G	G	45	58	52	64	48	35	G	30	G	26	G	G	
19	G	G	G	G	G	G	G	G	G	G	41	43	G	G	49	50	48	51	52	53	40	52	41	30	
20		G			G	G											48	51	52	53	40	52	41	G	
21	28		37	37	30			35	47	48	56	63	52	54	61	68	58	80	50	34	30	40	30		
22	45	29	G	G	39	G	G	40	49	62	53	45	50	56	47	48	G	G	35	40	46	74	59	40	30
23	G	G	33	26	G	G		34	G	G	C	G	C	C	46	G	G	G	36	60	49	40	57	33	
24	50	G	G	26	B	G		43	46	53	58	53	72	73	52	51	50	44	36	37	G		32	46	
25	36	48	29	G	B	G		36	42	50	43	54	58	55	56	64	48	40	34	G	41	27	28	41	
26	39	G	G	G	G	G		38	48	62	60	G	G	G	47	45	124	66	60	60	82	80	111	50	56
27	G	G	G	G	G	B	G	34	41	42	43	47	G	G	G	G	G	40	31	G	G	29	58	57	
28	67	G	G	G	G	G		36	43	50	G	G	43	G	51	50	G	G	G	31	34	58	41	34	
29	35	29	G	G	G	G		35	44	58	53	51		62	72	52	68	76	69	88	36	53	44	58	
30	46	34	G	G	G	24	28	36	36	40	48	47	47	46	45	G	46	G	50	39	26	G	G	G	
31	G	25	G	G	G	G		36	48	46	49	G	G	57	72	88	82	92	86	43	43	59	56	35	
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	30	30	28	26	30	30	30	30	29	30	28	29	30	30	30	30	30	30	30	30	29	30	
MED	28	G	G	G	G	G	G	36	42	48	49	44	46	49	46	44	45	44	46	44	40	44	34	32	
U Q	42	34	34	29	29	24	24	37	48	58	55	51	52	57	56	64	55	55	60	58	49	53	49	46	
L Q	G	G	G	G	G	G	G	32	34	42	G	G	G	G	G	G	G	G	34	34	30	27	27	G	

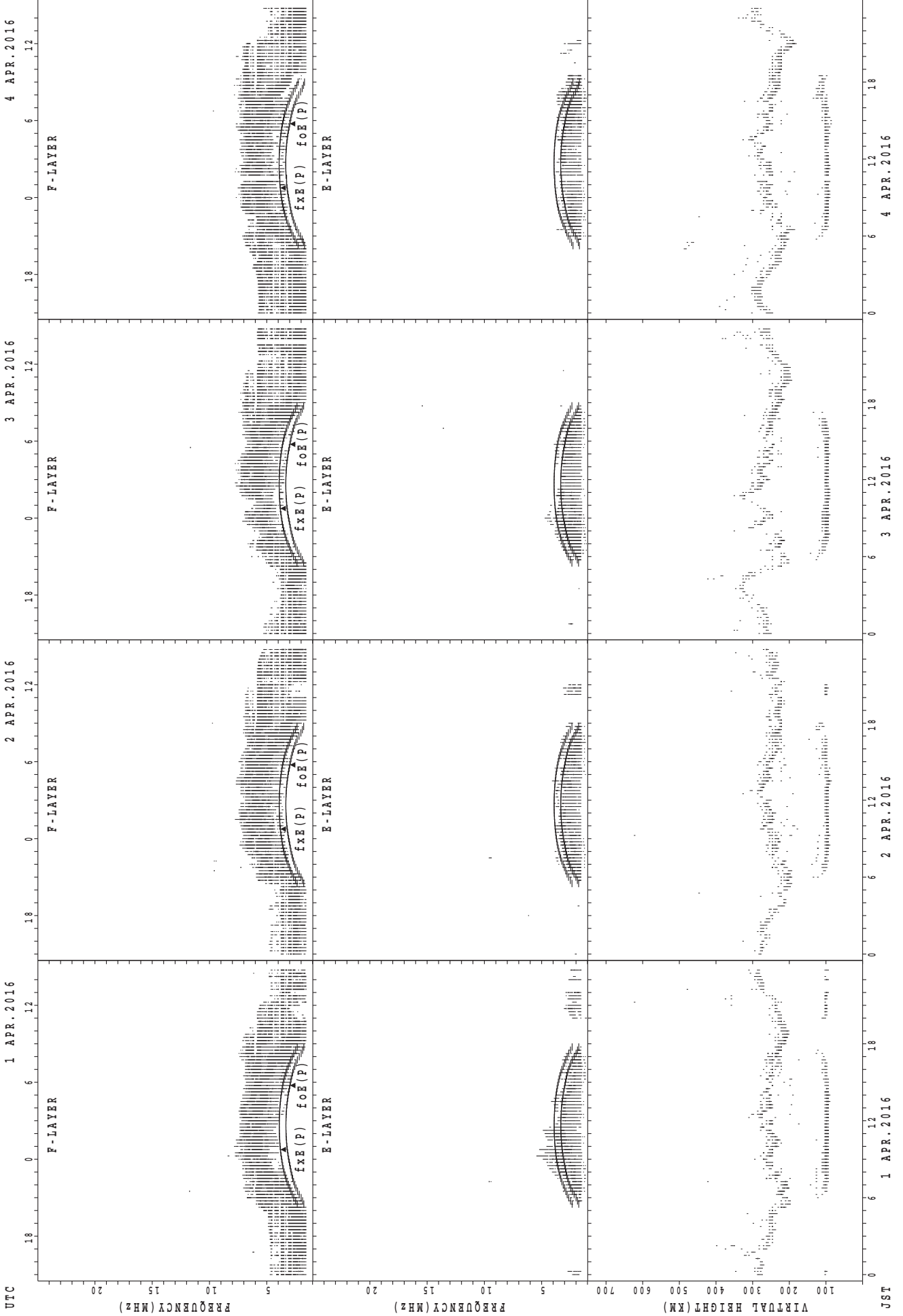
HOURLY VALUES OF fmin AT Okinawa

APR. 2016

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	15	14	16	16	15	16	20	21	15	17	22	27	23	26	23	20	22	15	14	15	16	16	24	16
2	18	18	16	17	18	15	15	24	17	20	35	45	45	45	44	43	33	20	16	14	14	16	66	16
3	B	B	21	15	66	15	14	22	16	21	24	43	54	32	30	26	21	14	14	14	15	17	20	15
4	14	15	27	15	15	14	15	17	15	30	24	26	26	48	44	34	30	18	15	14	15	16	15	17
5	20	15	15	15	15	B	16	18	16	18	35	44	44	46	50	43	22	23	15	14	15	15	14	15
6	14	15	14	14	14	14	14	14	18	20	28	28	33	32	29	43	20	27	18	14	14	15	14	14
7	14	15	15	15	20	17	14	14	15	20	26	23	28	29	26	45	21	15	14	15	14	15	14	14
8	17	14	15	14	14	15	14	14	17	20	28	33	34	29	44	42	23	17	14	15	16	14	14	14
9	15	14	14	14	14	16	15	23	17	21	24	47	43	48	46	44	22	17	14	14	14	14	14	14
10	14	15	14	15	14	14	16	15	18	29	30	33	49	40	45	44	33	17	16	14	14	14	14	15
11	17	16	17	22	14	15	16	16	16	26	29	29	34	54	28	45	20	14	15	14	14	14	17	14
12	15	18	16	26	17	14	15	15	17	21	29	32	54	40	37	35	29	20	14	15	15	14	14	15
13	15	15	14	16	14	17	17	14	16	20	29	46	45	52	44	22	36	18	14	14	14	14	15	15
14	15	16	14	17	14	15	14	14	17	22	40	45	35	48	43	26	21	16	15	14	15	14	14	14
15	14	15	15	14	16	16	17	18	18	18	24	29	30	29	27	26	20	17	14	14	14	14		16
16	21	15	14	14	14	16	16	14	18	22	28	30	30	33	36	33	27	17	16	14	15	14	14	14
17	15	14	15	18	15	B	16	14	16	21	48	50	33	34	28	23	18	15	14	14	16	15	14	23
18	16	16	14	15	16	B	17	15	17	24	44	49	50	34	30	28	23	17	22	14	18	15	20	16
19	17	18	15	16	15	18	17	26	17	22	24	48	33	51	36	42	33	17	15	16	14	14	15	15
20	14	17	17	15	15	14	16	22	30	22	29	36	37	36	40	34	21	20	18	14	15	15	14	16
21	15	15	21	15	14	14	14	14	16	21	34	29	50	30	23	24	21	18	14	16	15	15	14	15
22	17	18	16	15	17	15	16	14	17	21	C	33	C	C	26	27	35	28	17	14	14	14	14	14
23	14	15	15	14	B	17	14	20	18	30	29	32	35	37	28	34	18	17	14	14	15	15	14	14
24	15	14	14	17	B	14	18	14	16	18	28	32	29	29	29	22	18	24	15	16	15	17	16	15
25	14	15	16	15	18	16	14	14	14	18	33	47	51	33	29	28	20	20	14	15	15	15	15	14
26	29	21	15	14	18	B	18	14	17	26	27	33	55	33	53	47	40	16	14	14	16	15	14	15
27	14	15	20	15	21	71	20	15	15	28	33	49	51	55	36	27	20	17	14	14	15	14	14	14
28	15	17	15	14	20	15	18	15	18	23	32	34		42	42	38	34	18	16	14	15	14	14	15
29	17	15	15	18	15	16	15	14	15	21	27	40	51	52	51	49	33	20	14	15	14	18	17	20
30	21	32	15	16	15	18	18	14	18	33	38	45	54	39	38	23	32	21	15	14	14	14	14	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	30	30	28	26	30	30	30	30	29	30	28	29	30	30	30	30	30	30	30	30	29	30
MED	15	15	15	15	15	15	16	15	17	21	29	34	40	37	36	34	22	17	14	14	15	15	14	15
U Q	17	17	16	16	17	16	17	18	18	24	33	45	50	48	44	43	33	20	16	15	15	15	15	16
L Q	14	15	14	14	14	14	14	14	16	20	26	30	33	32	28	26	20	17	14	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai



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

1 APR. 2016

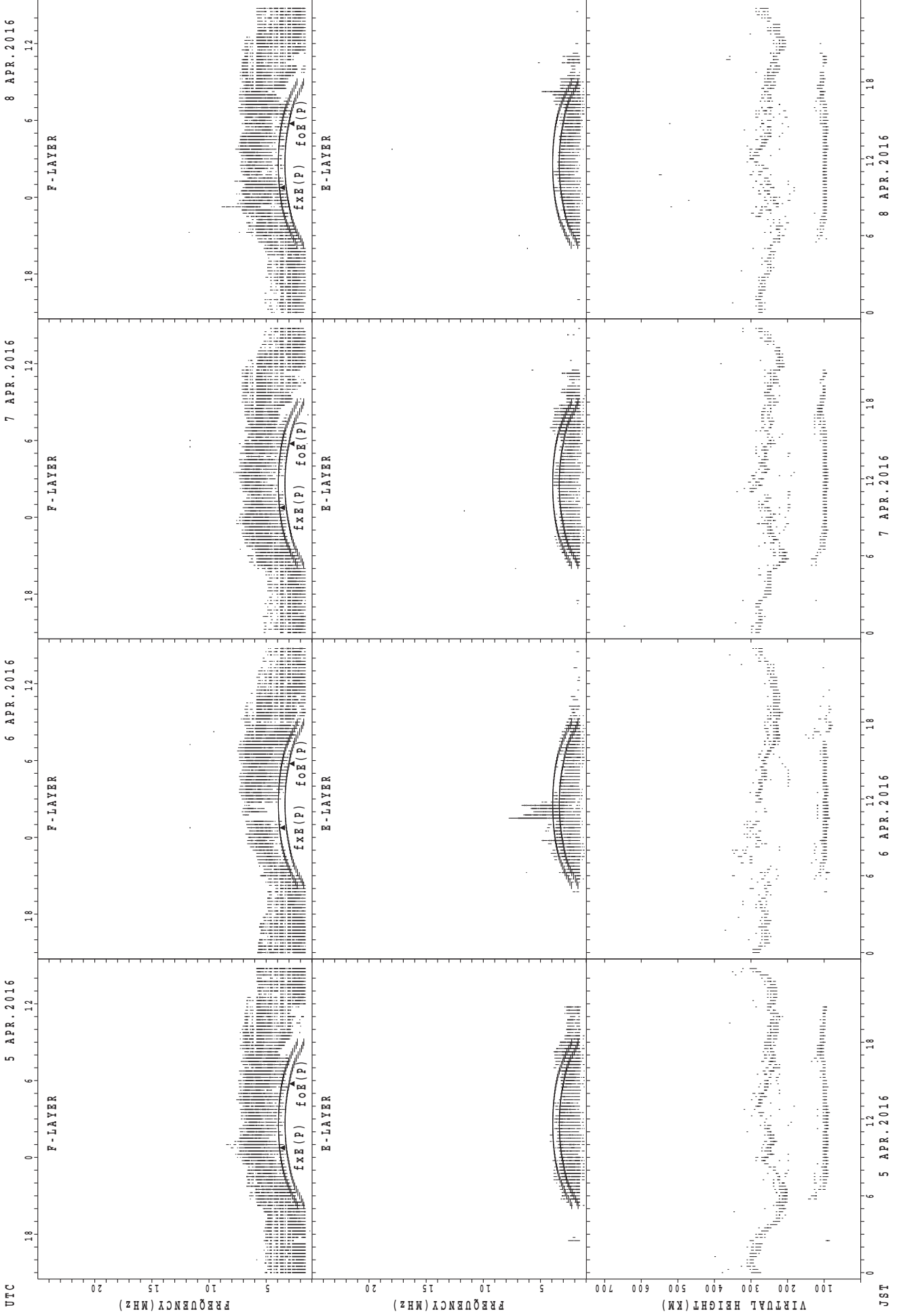
2 APR. 2016

3 APR. 2016

4 APR. 2016

JST

SUMMARY PLOTS AT Wakkanai



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

5 APR. 2016

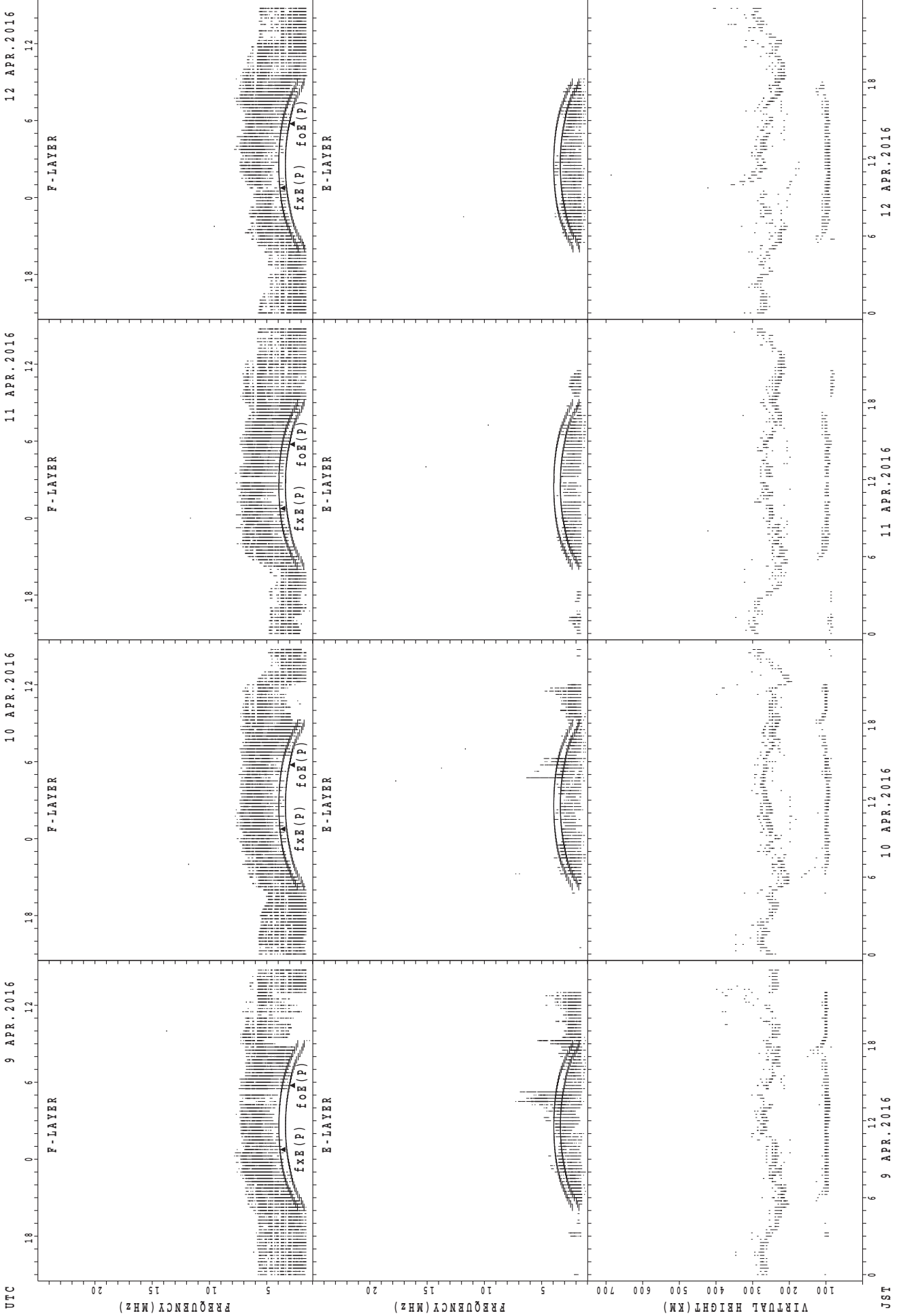
6 APR. 2016

7 APR. 2016

8 APR. 2016

JST

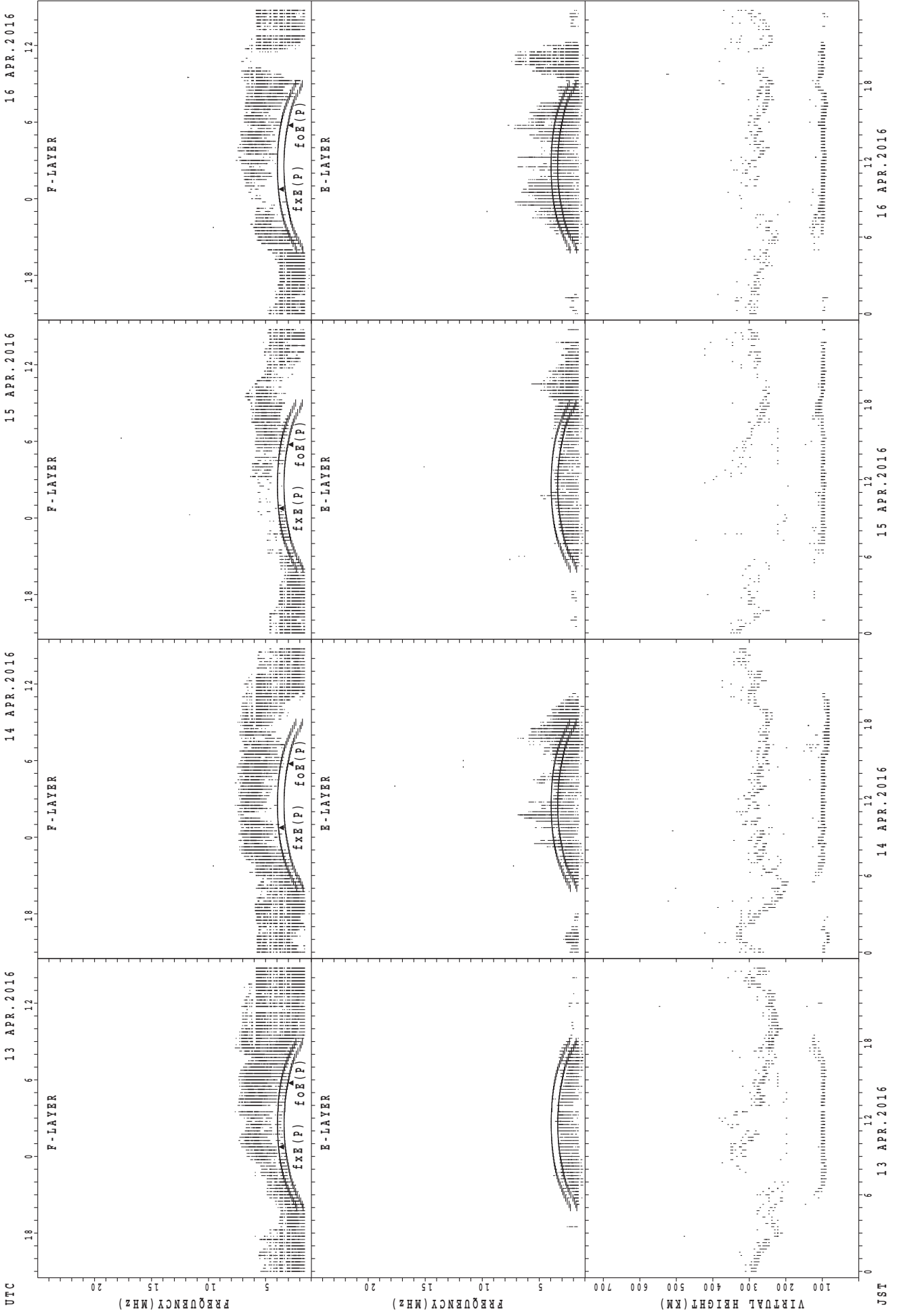
SUMMARY PLOTS AT Wakkanai



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

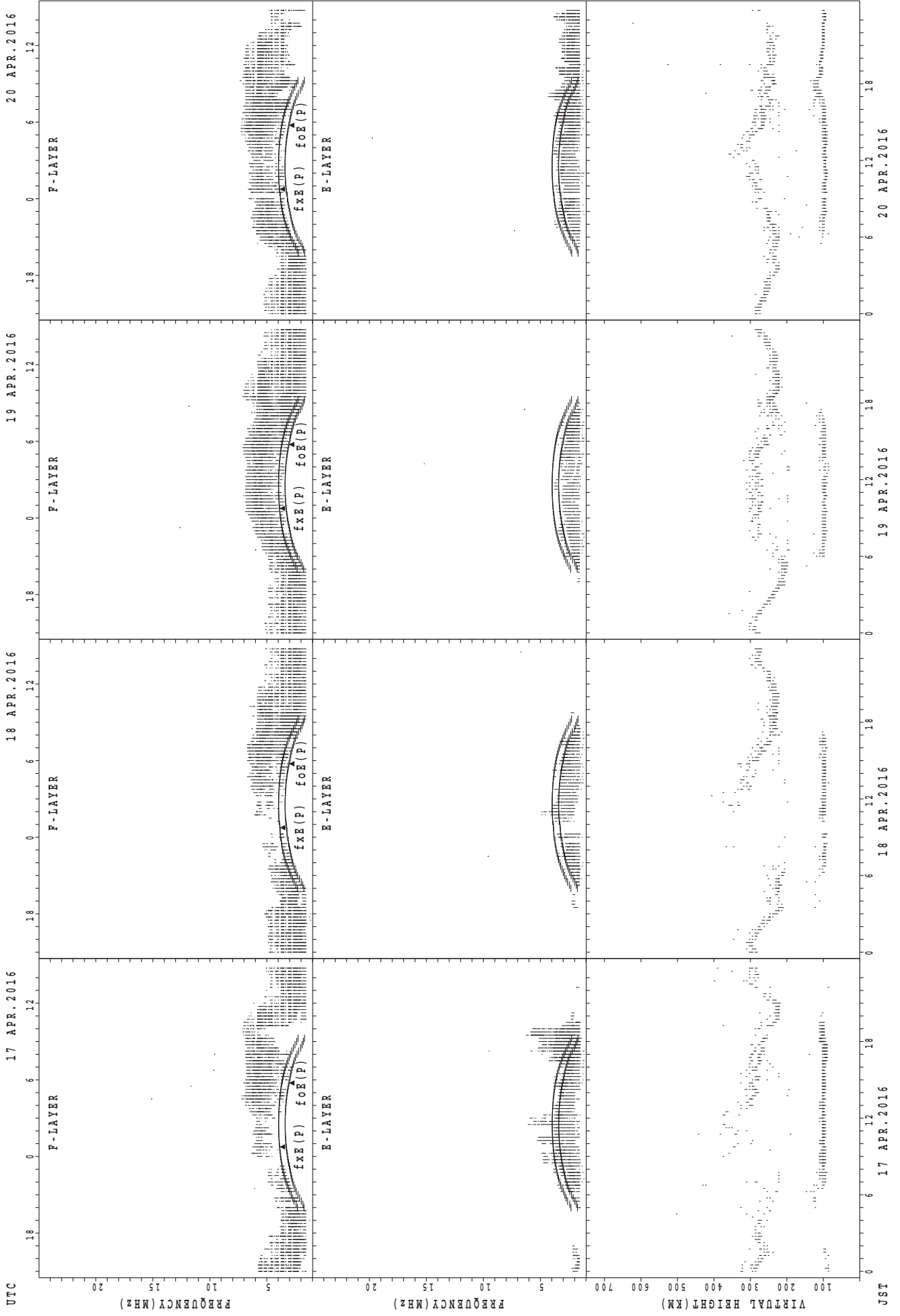
JST

SUMMARY PLOTS AT Wakkanai



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

SUMMARY PLOTS AT Wakkanai

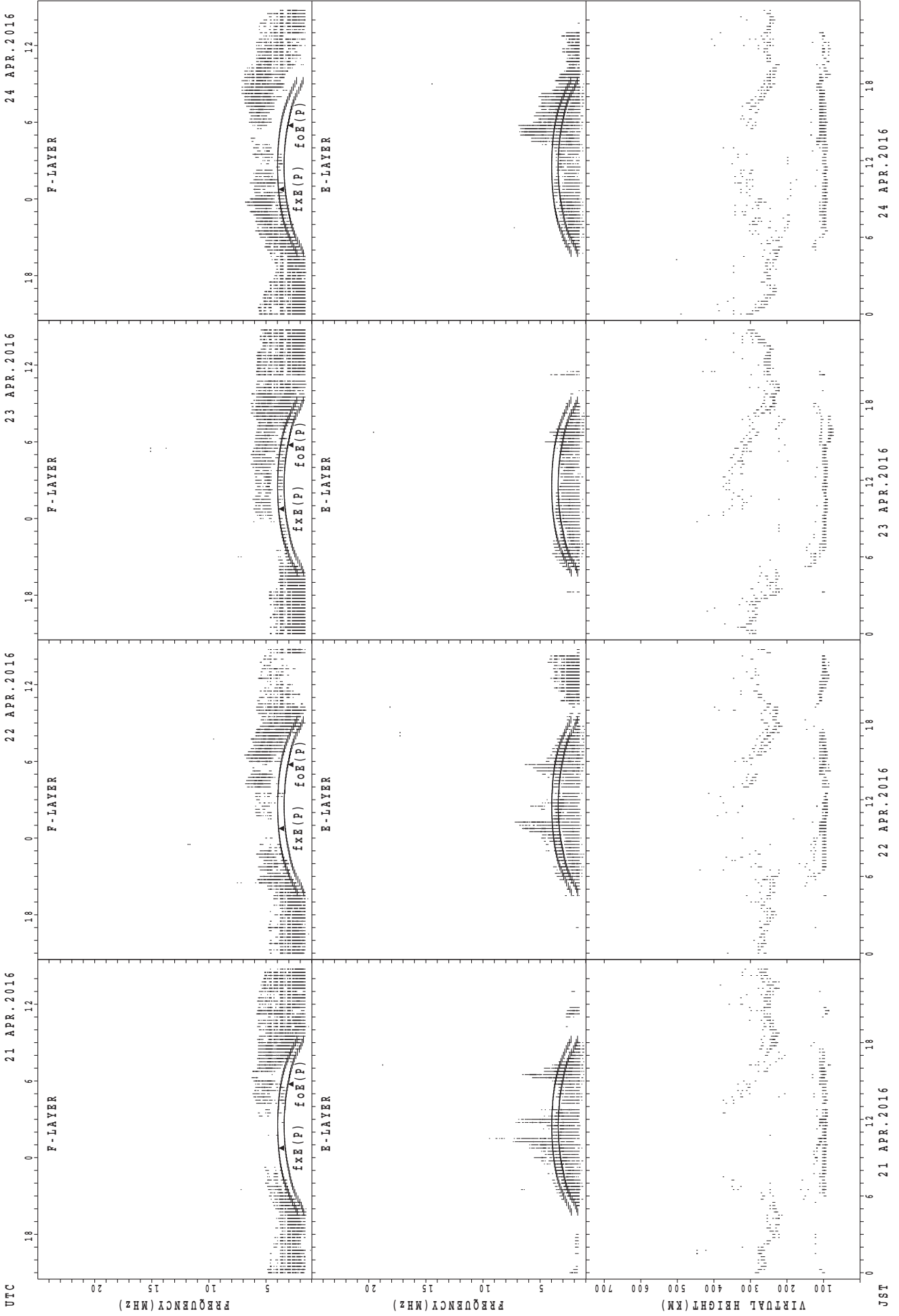


UTC
 17 APR. 2016
 18 APR. 2016
 19 APR. 2016
 20 APR. 2016

JSR
 17 APR. 2016
 18 APR. 2016
 19 APR. 2016
 20 APR. 2016

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

SUMMARY PLOTS AT Wakkanai



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

21 APR. 2016

22 APR. 2016

23 APR. 2016

24 APR. 2016

21 APR. 2016

22 APR. 2016

23 APR. 2016

24 APR. 2016

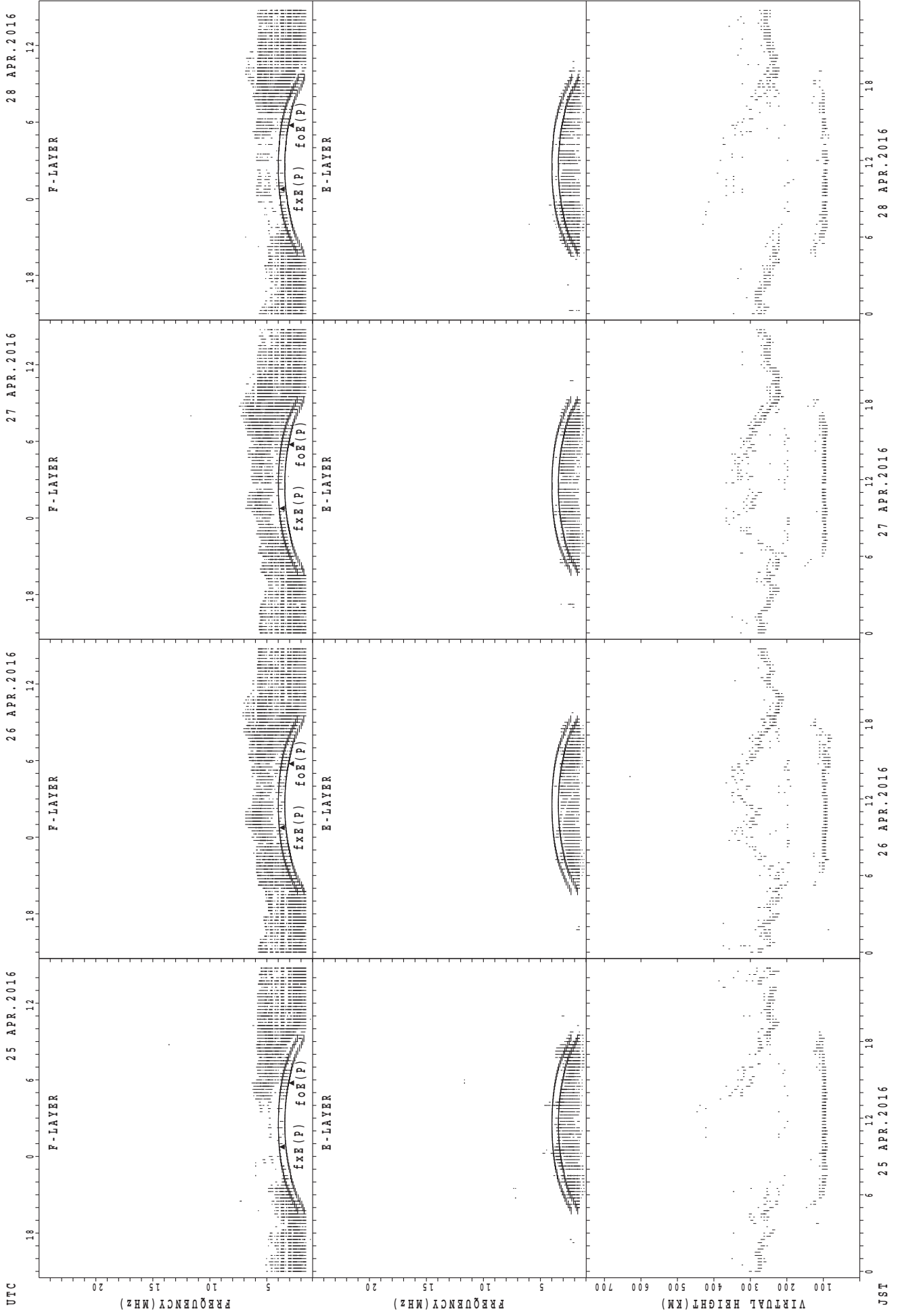
21 APR. 2016

22 APR. 2016

23 APR. 2016

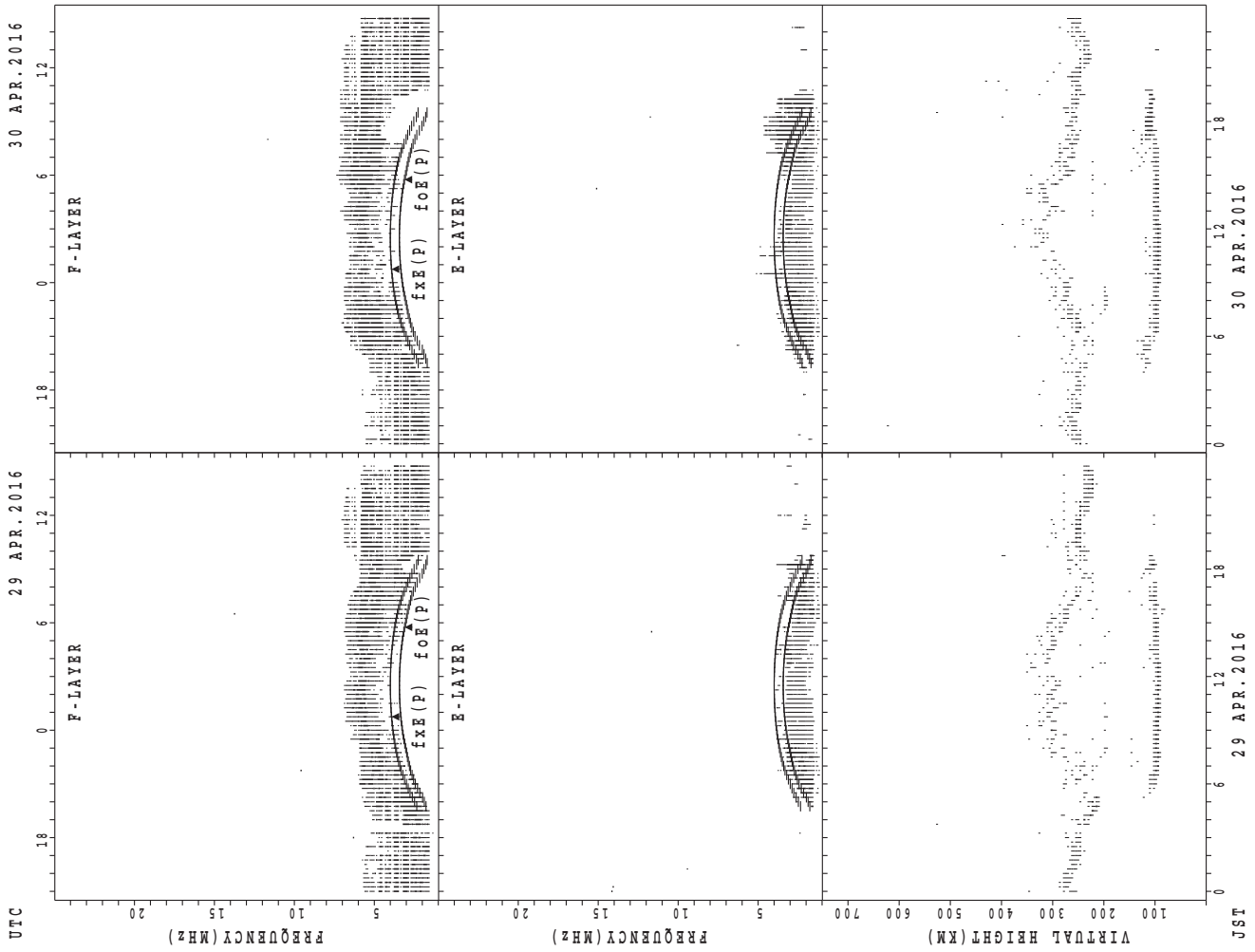
24 APR. 2016

SUMMARY PLOTS AT Wakkanai



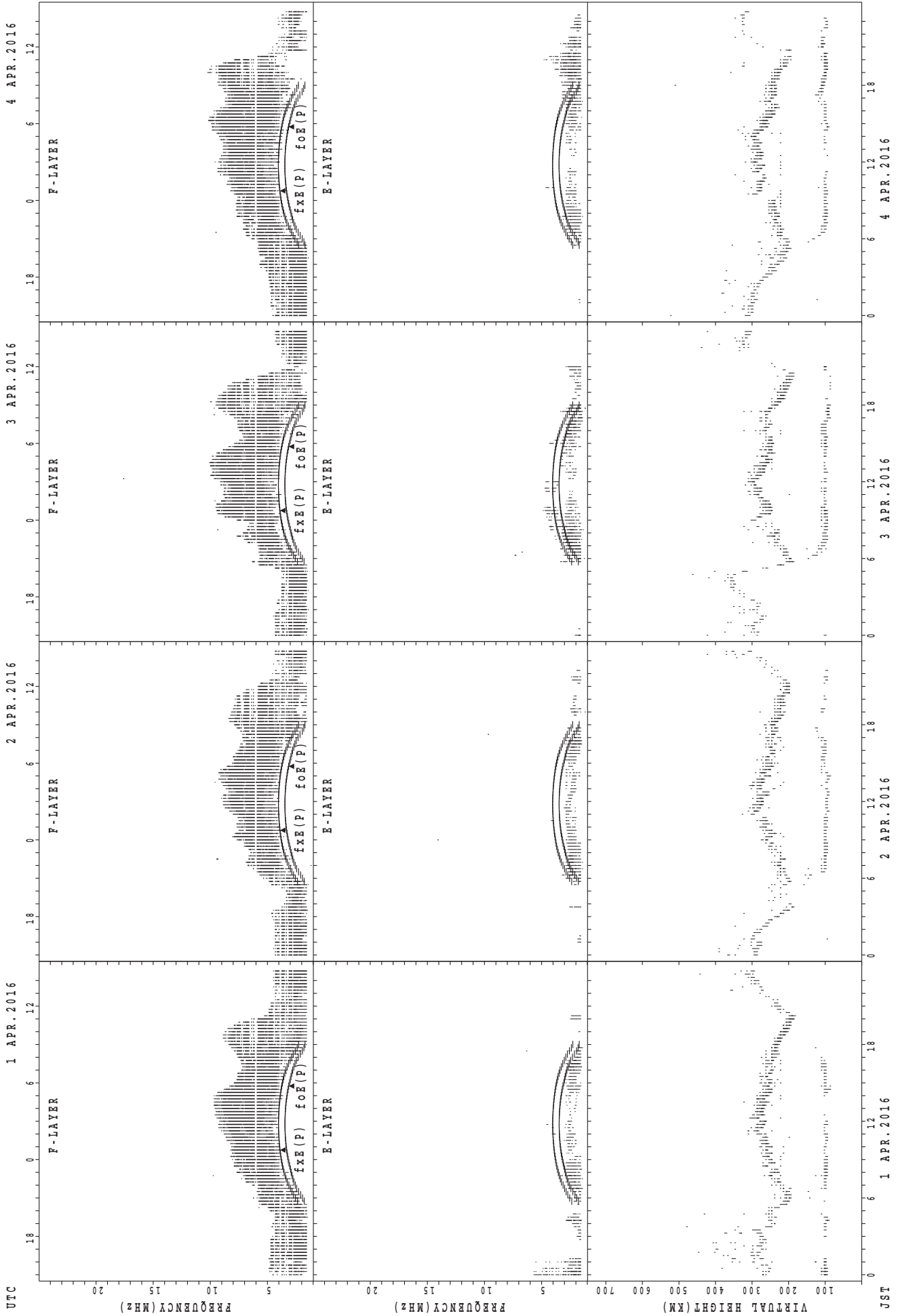
UTC
 JST
 fxE(P); PREDICTED VALUE FOR fxE
 foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



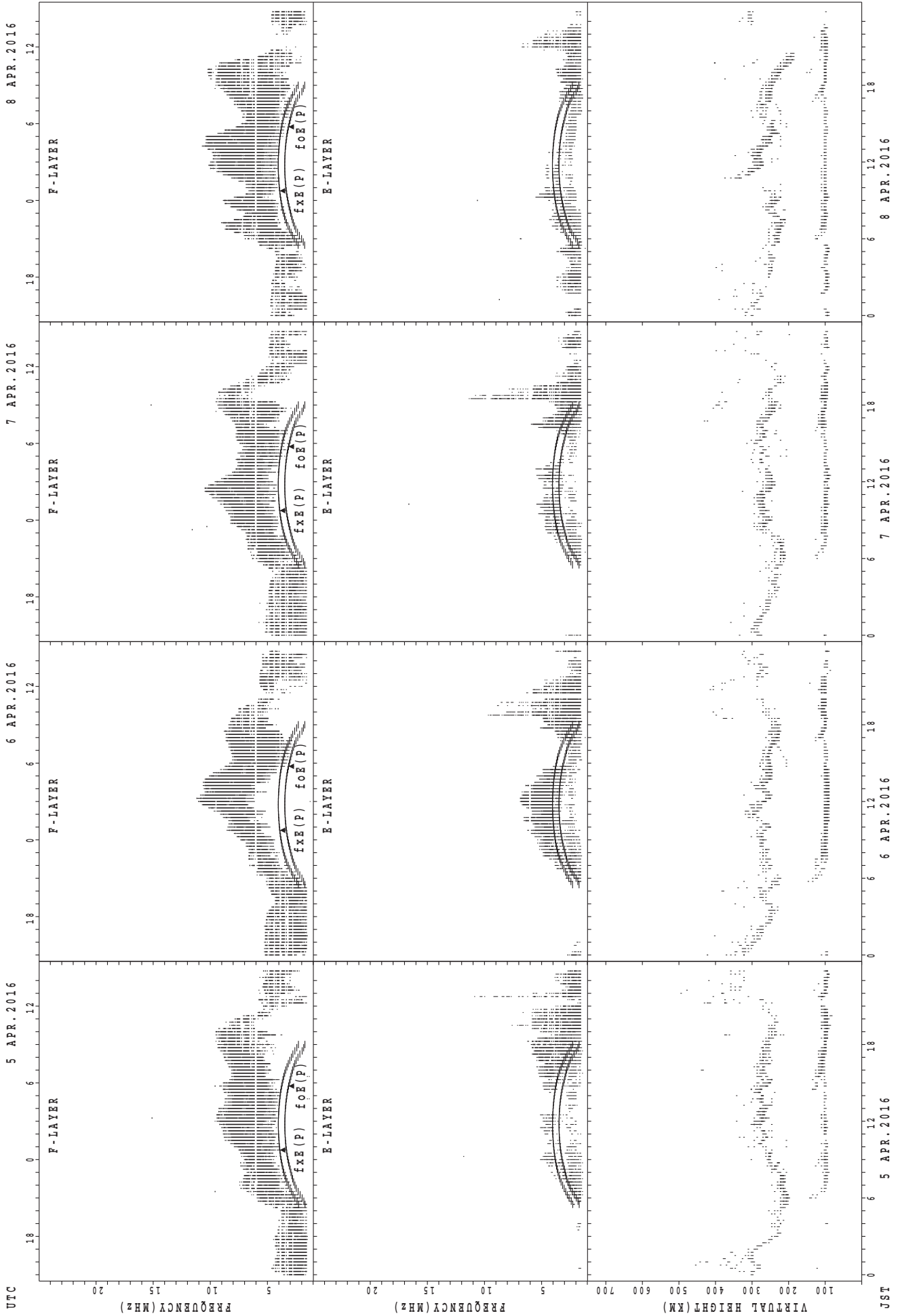
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



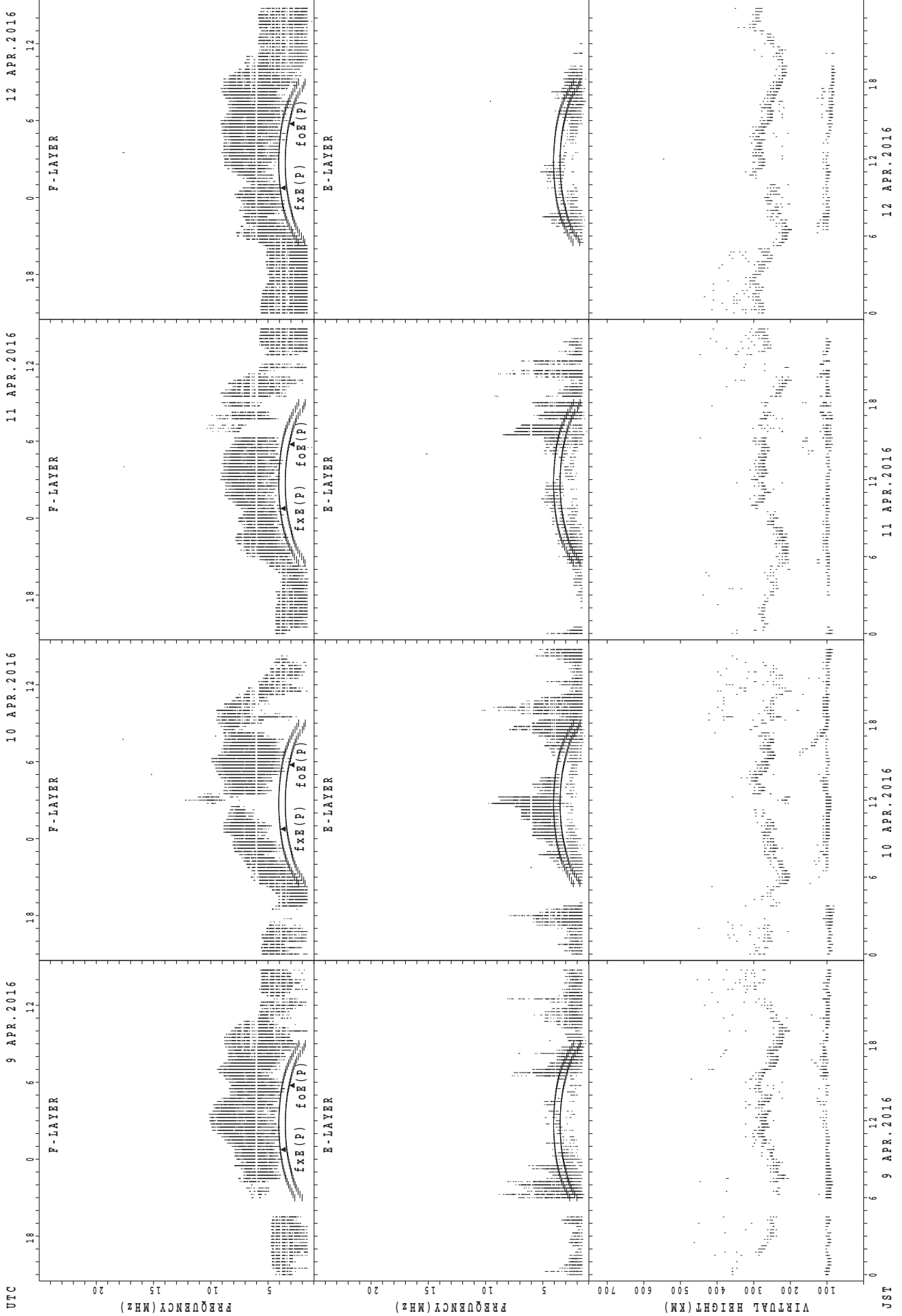
$f_{xe}(P)$; PREDICTED VALUE FOR f_{xe}
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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

SUMMARY PLOTS AT Kokubunji



UTC
 9 APR. 2016
 10 APR. 2016
 11 APR. 2016
 12 APR. 2016

F-LAYER
 F-LAYER
 F-LAYER
 F-LAYER

E-LAYER
 E-LAYER
 E-LAYER
 E-LAYER

fxe(P)
 fxe(P)
 fxe(P)
 fxe(P)

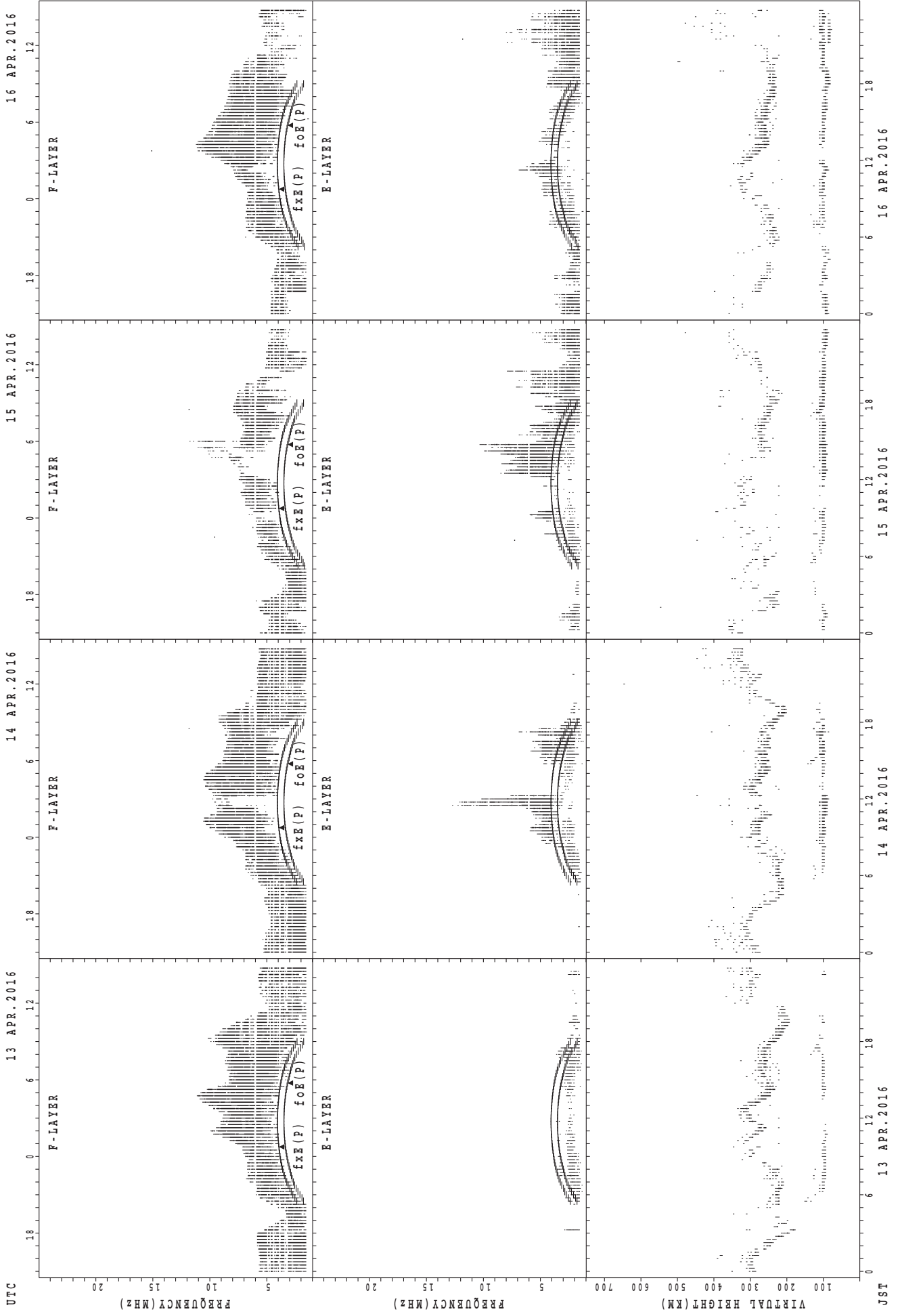
foE(P)
 foE(P)
 foE(P)
 foE(P)

VIRTUAL HEIGHT (KM)
 FREQUENCY (MHZ)
 FREQUENCY (MHZ)
 FREQUENCY (MHZ)

JST
 9 APR. 2016
 10 APR. 2016
 11 APR. 2016
 12 APR. 2016

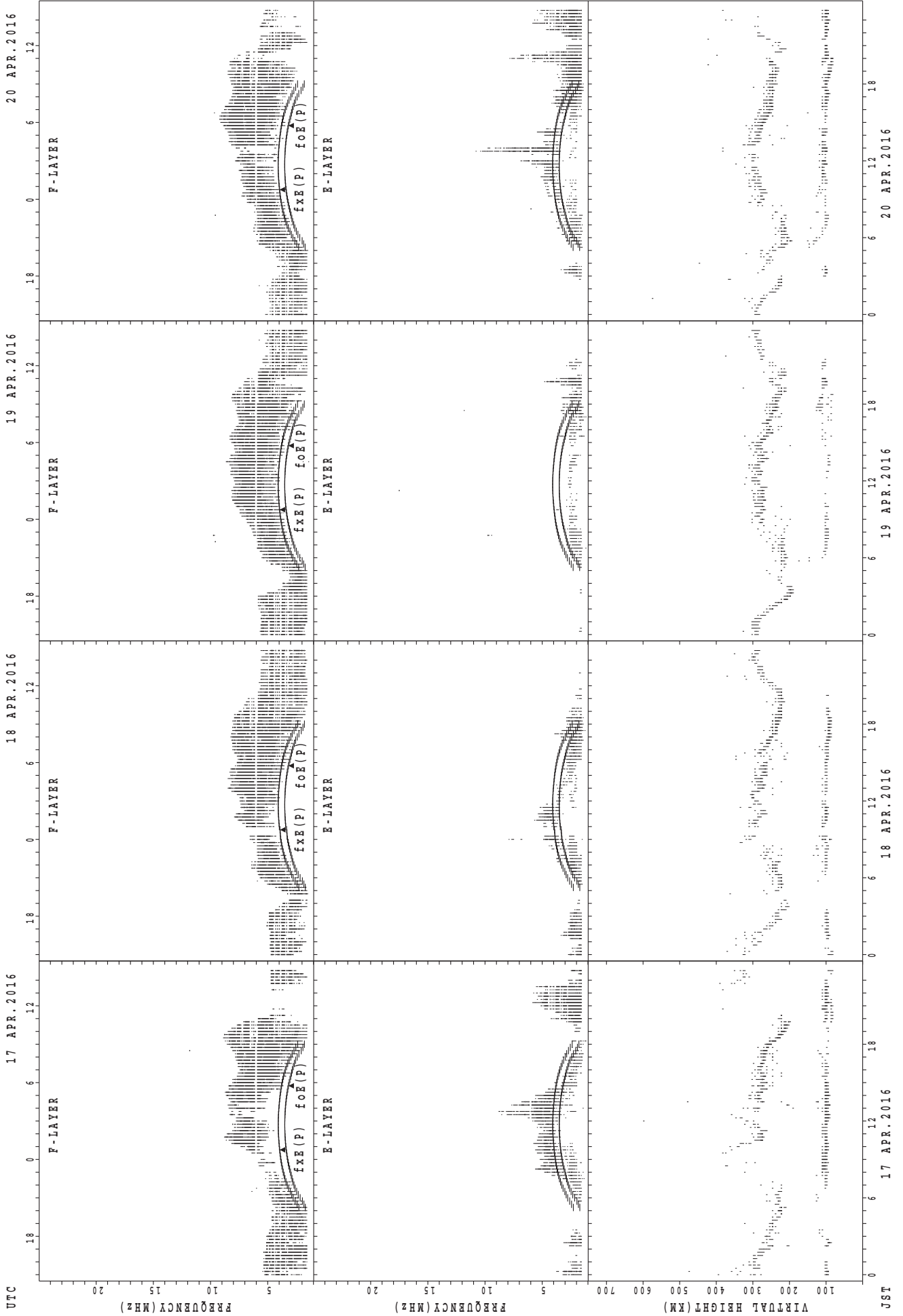
fxe(P); PREDICTED VALUE FOR fxe
 foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



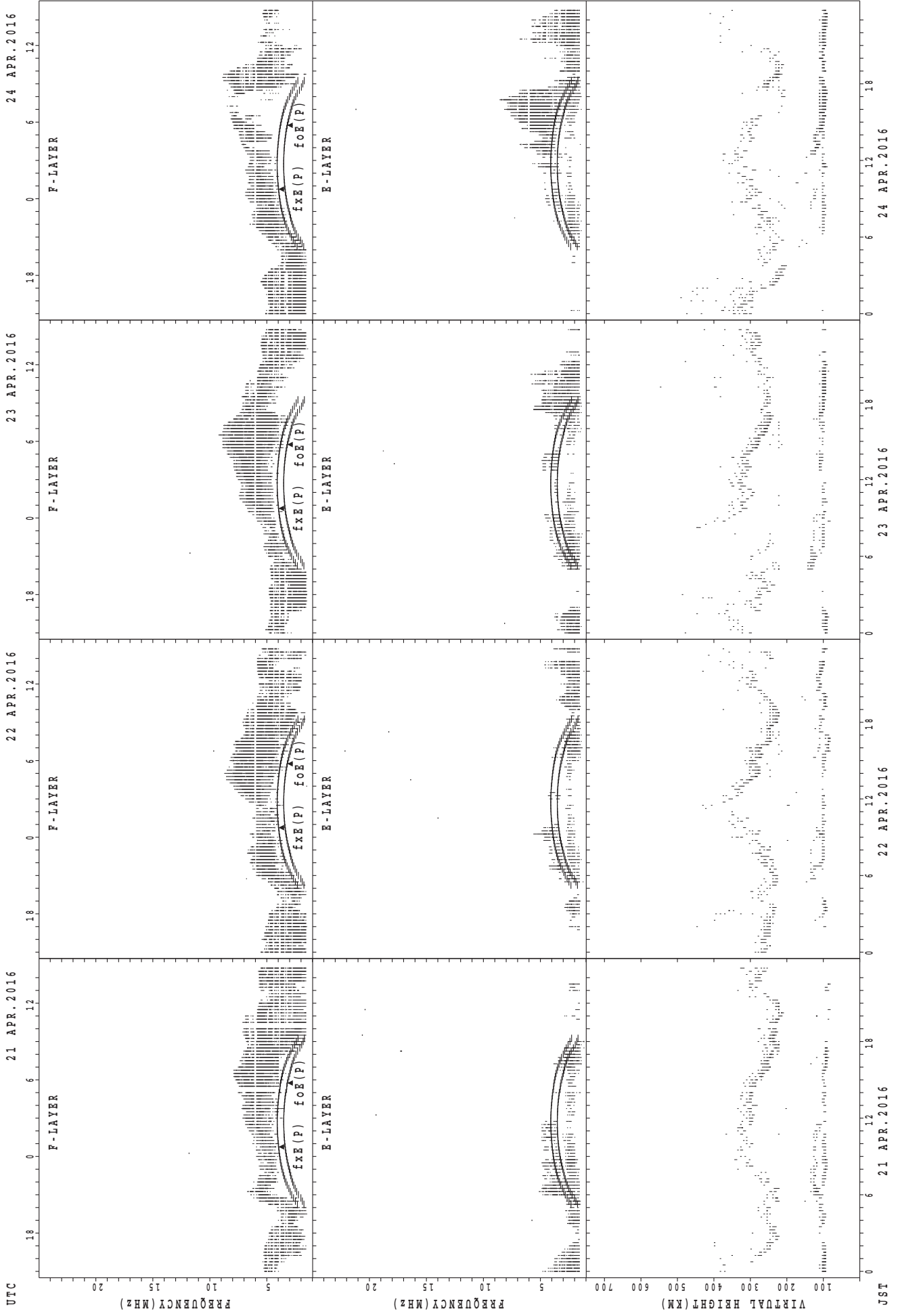
fxE(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



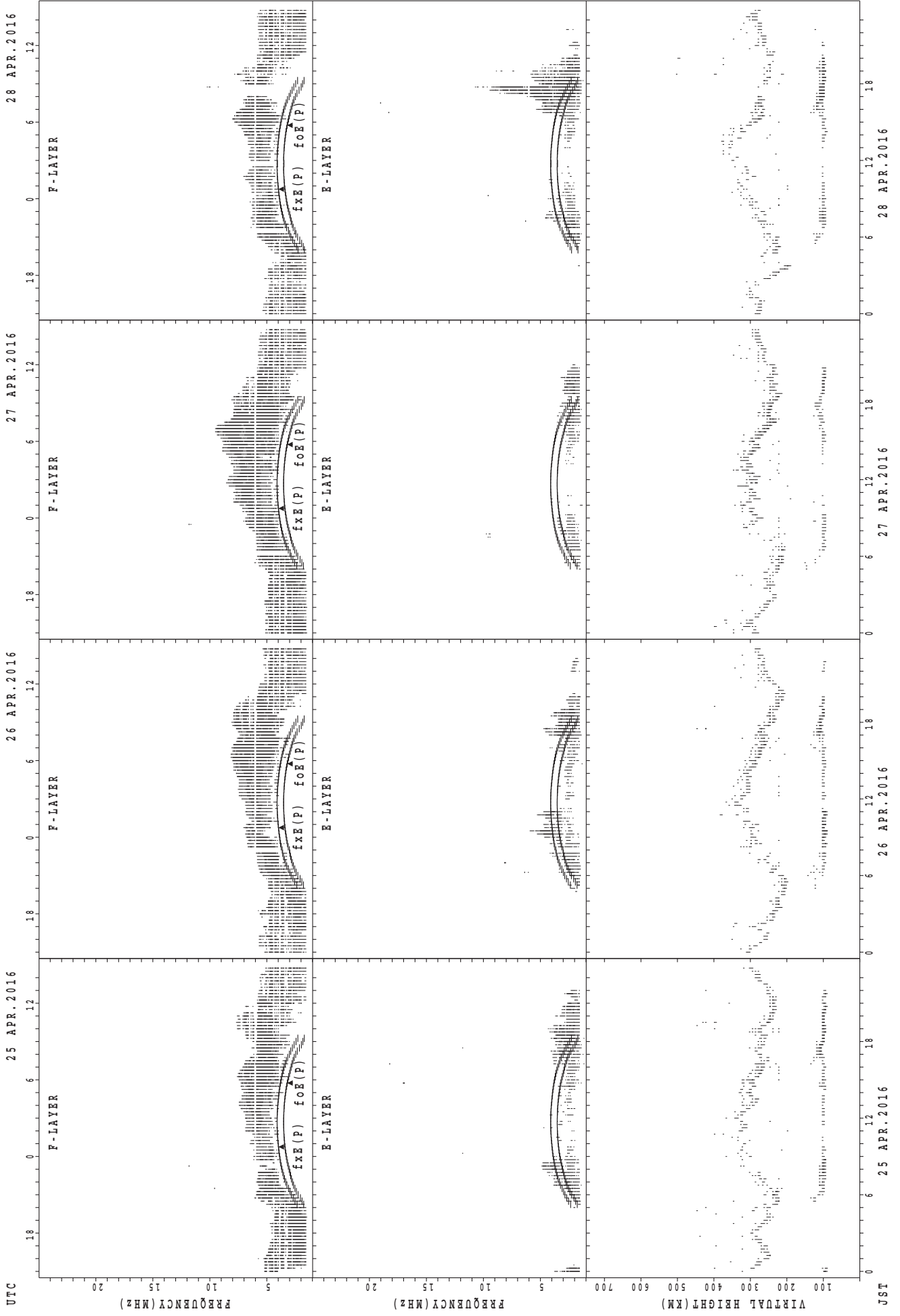
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Kokubunji



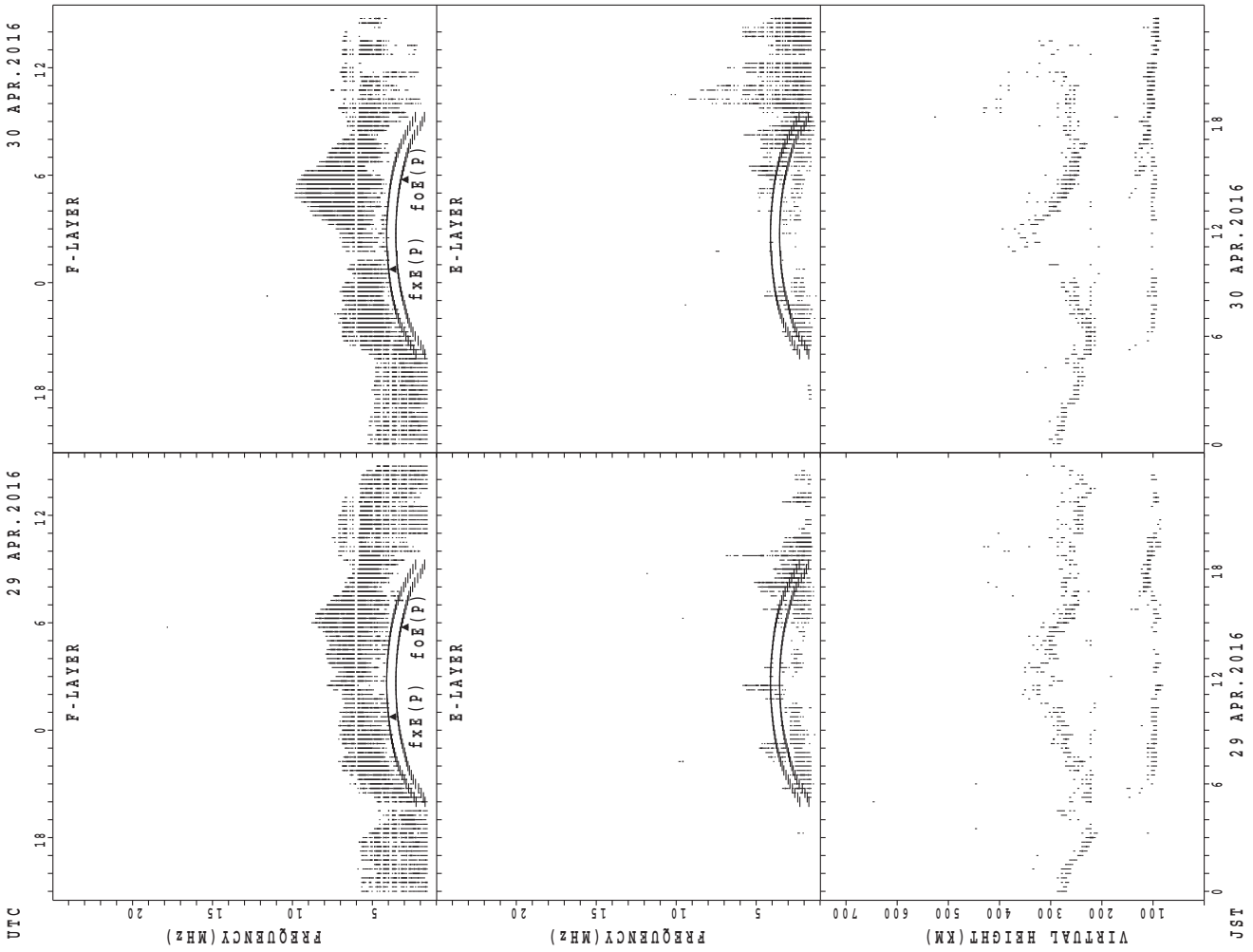
fxE(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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

SUMMARY PLOTS AT Kokubunji

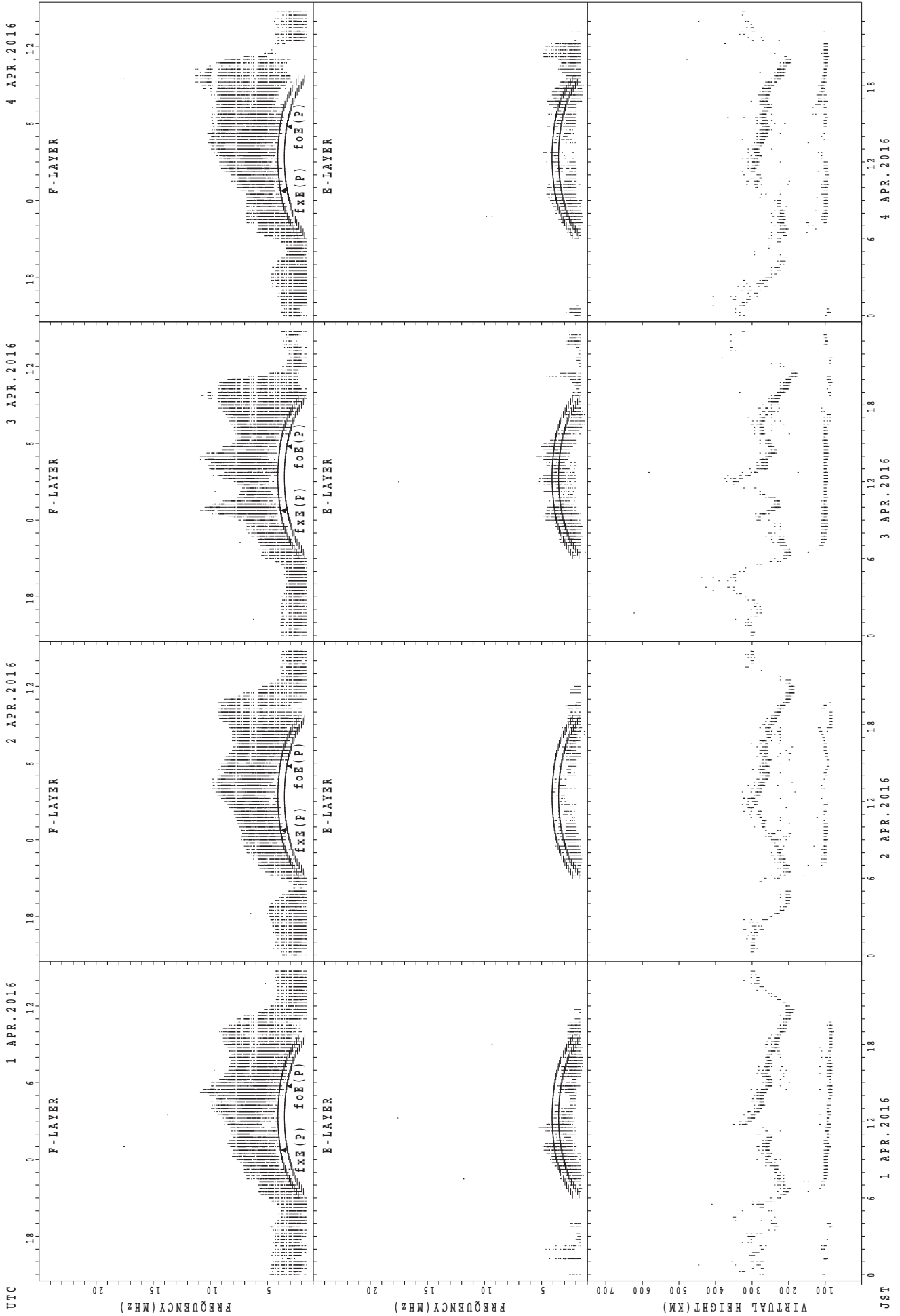


UTC 29 APR. 2016 30 APR. 2016

JST 0 6 12 18 0 6 12 18

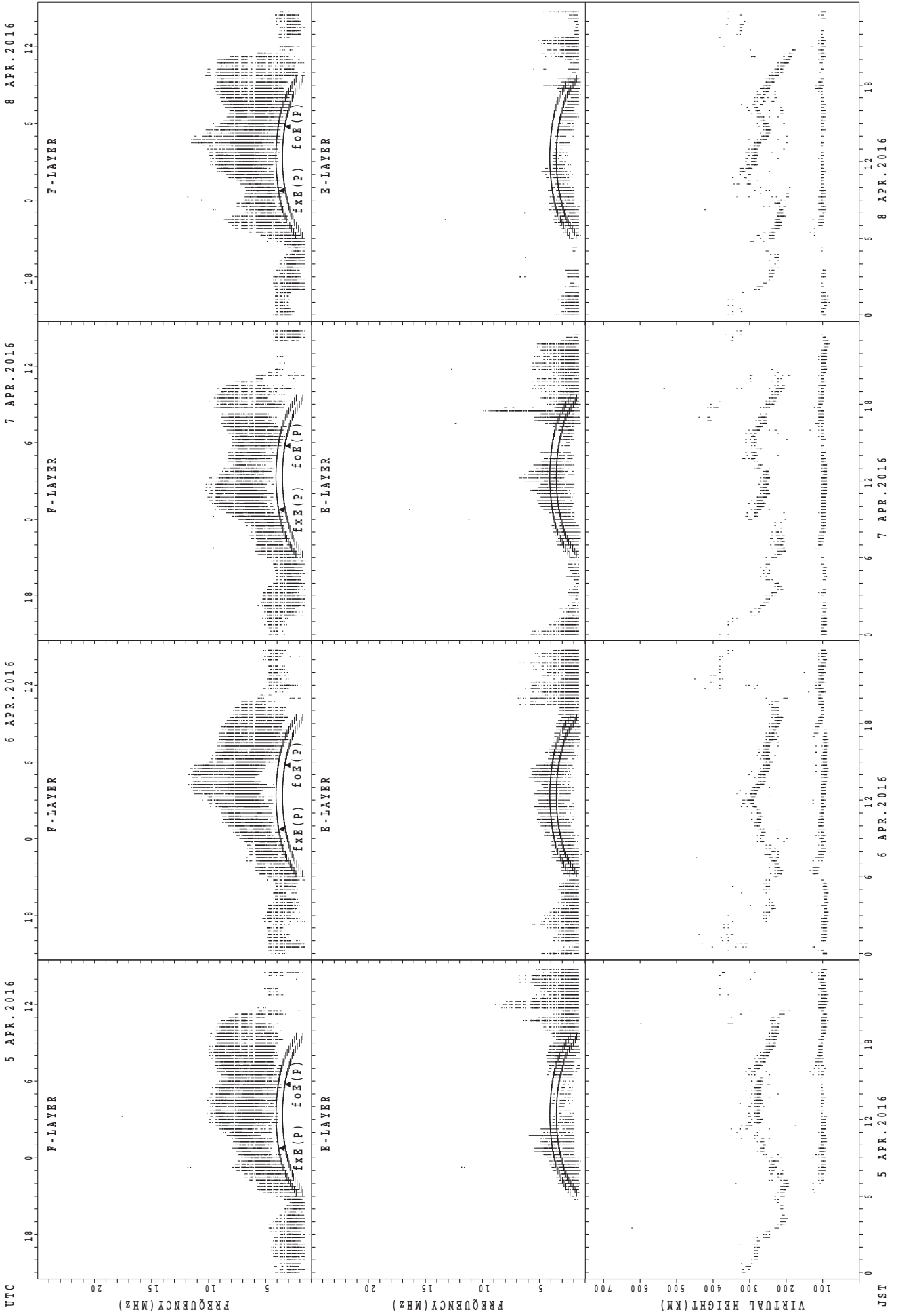
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



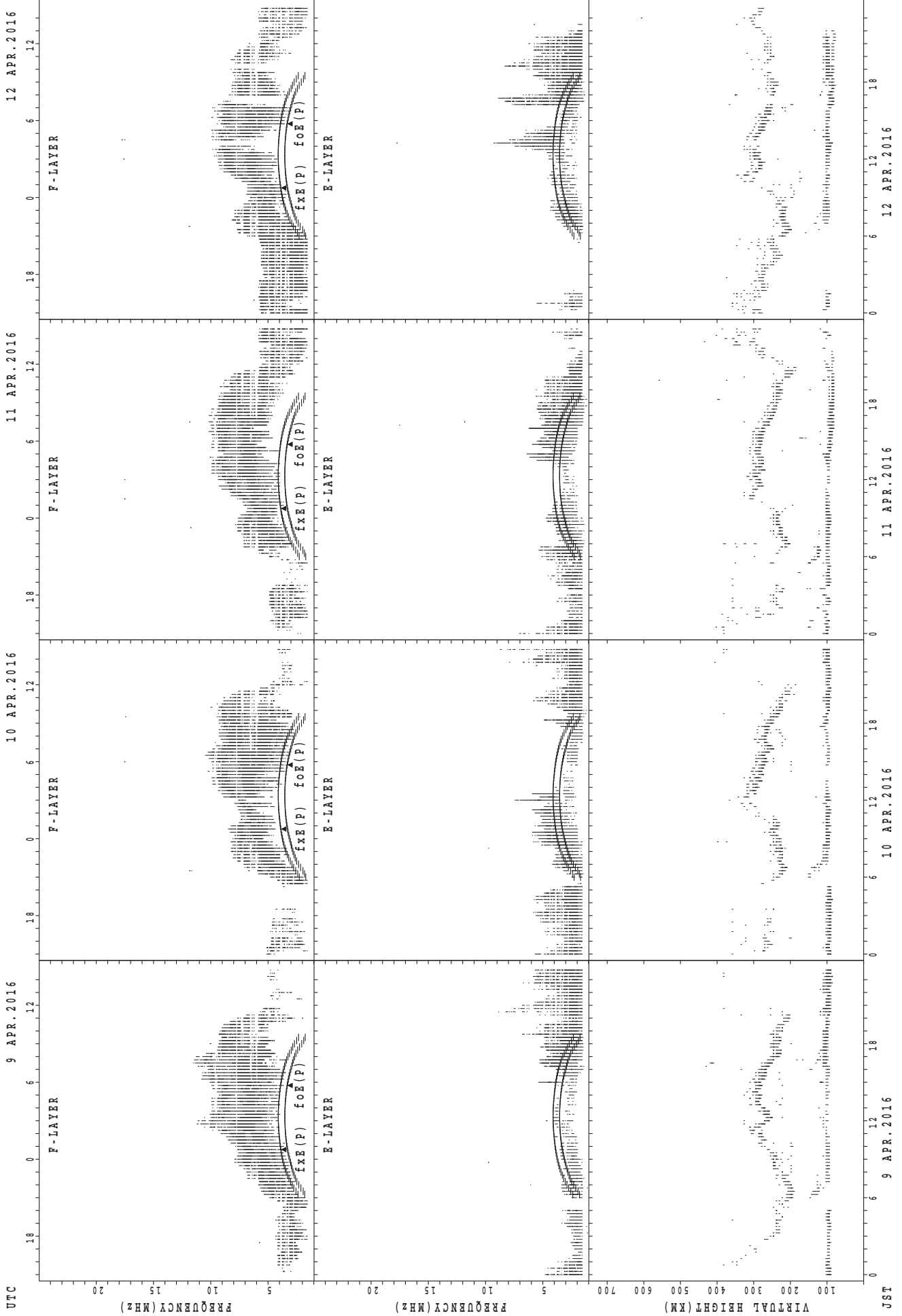
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



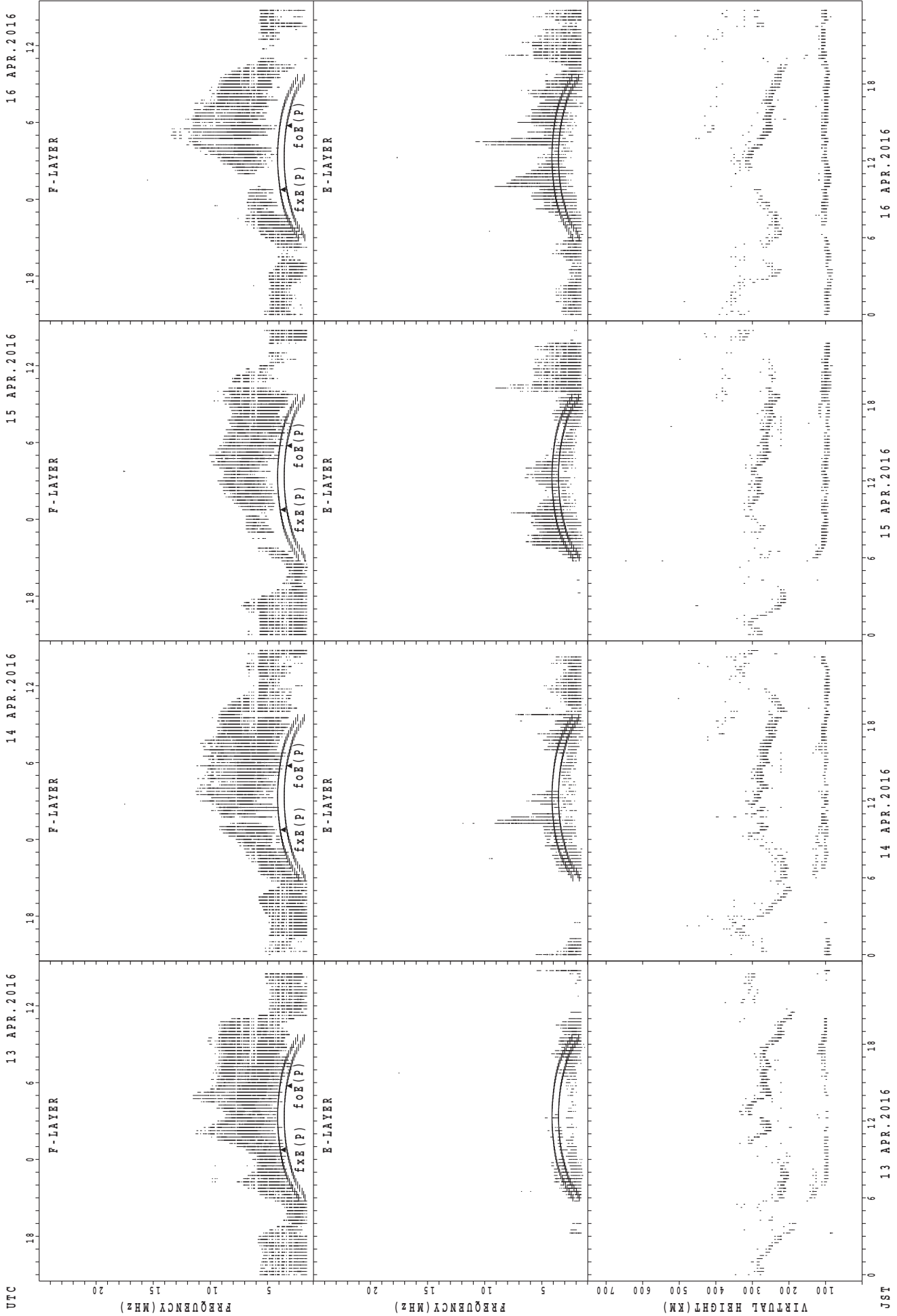
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



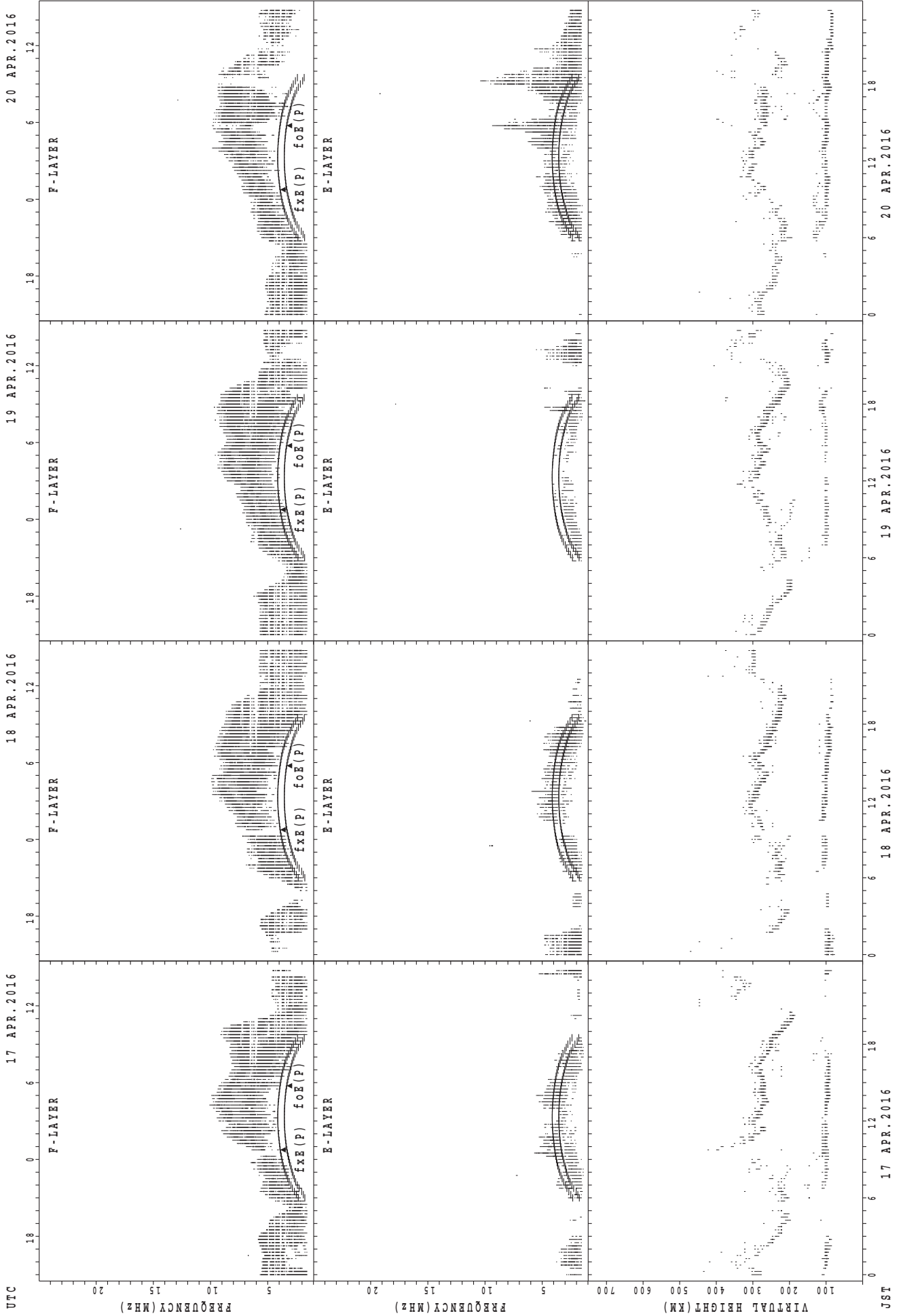
UTC
 9 APR. 2016
 10 APR. 2016
 11 APR. 2016
 12 APR. 2016
 JST
 9 APR. 2016
 10 APR. 2016
 11 APR. 2016
 12 APR. 2016
 fxe(P); PREDICTED VALUE FOR fxe
 foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



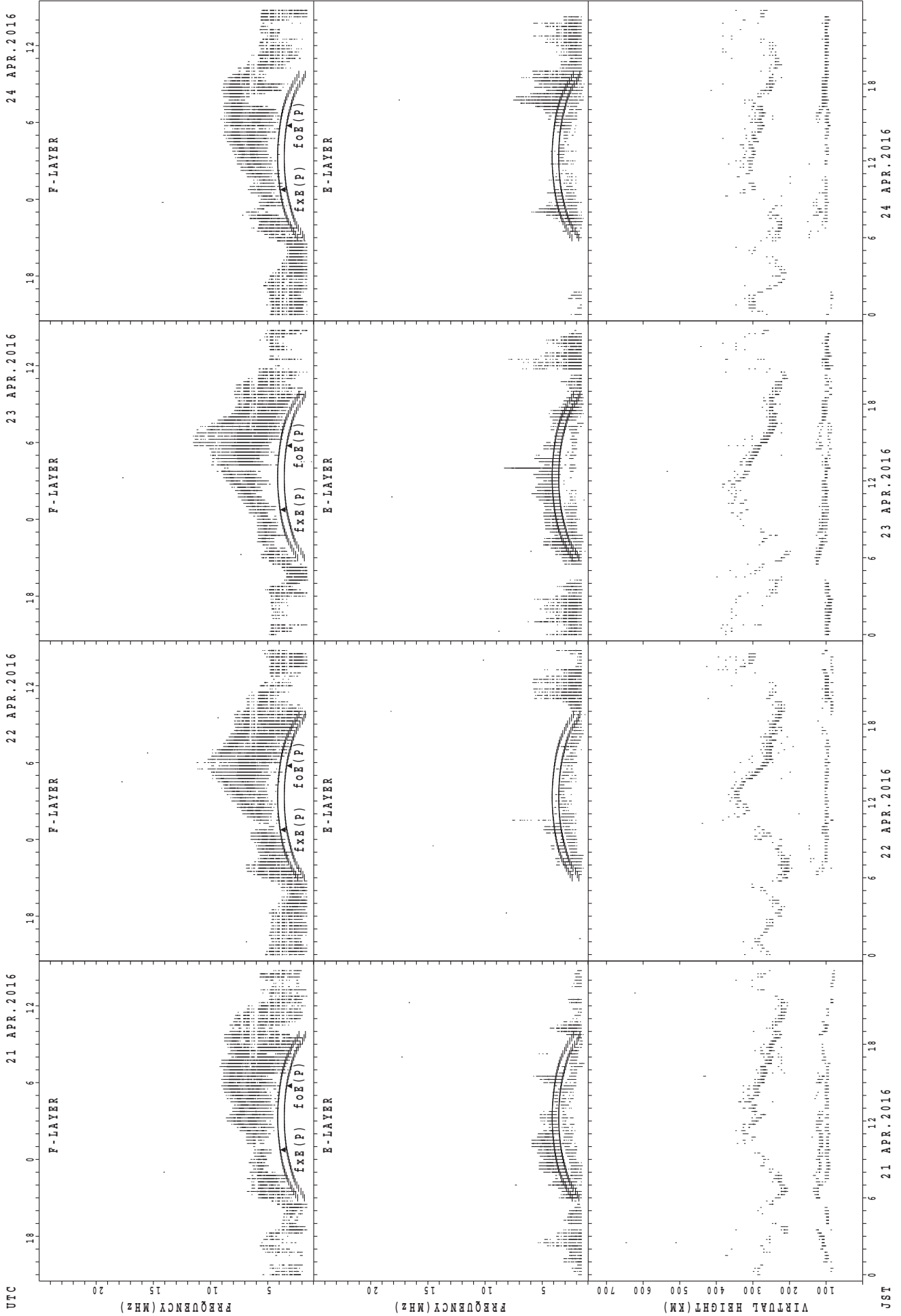
fxE(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



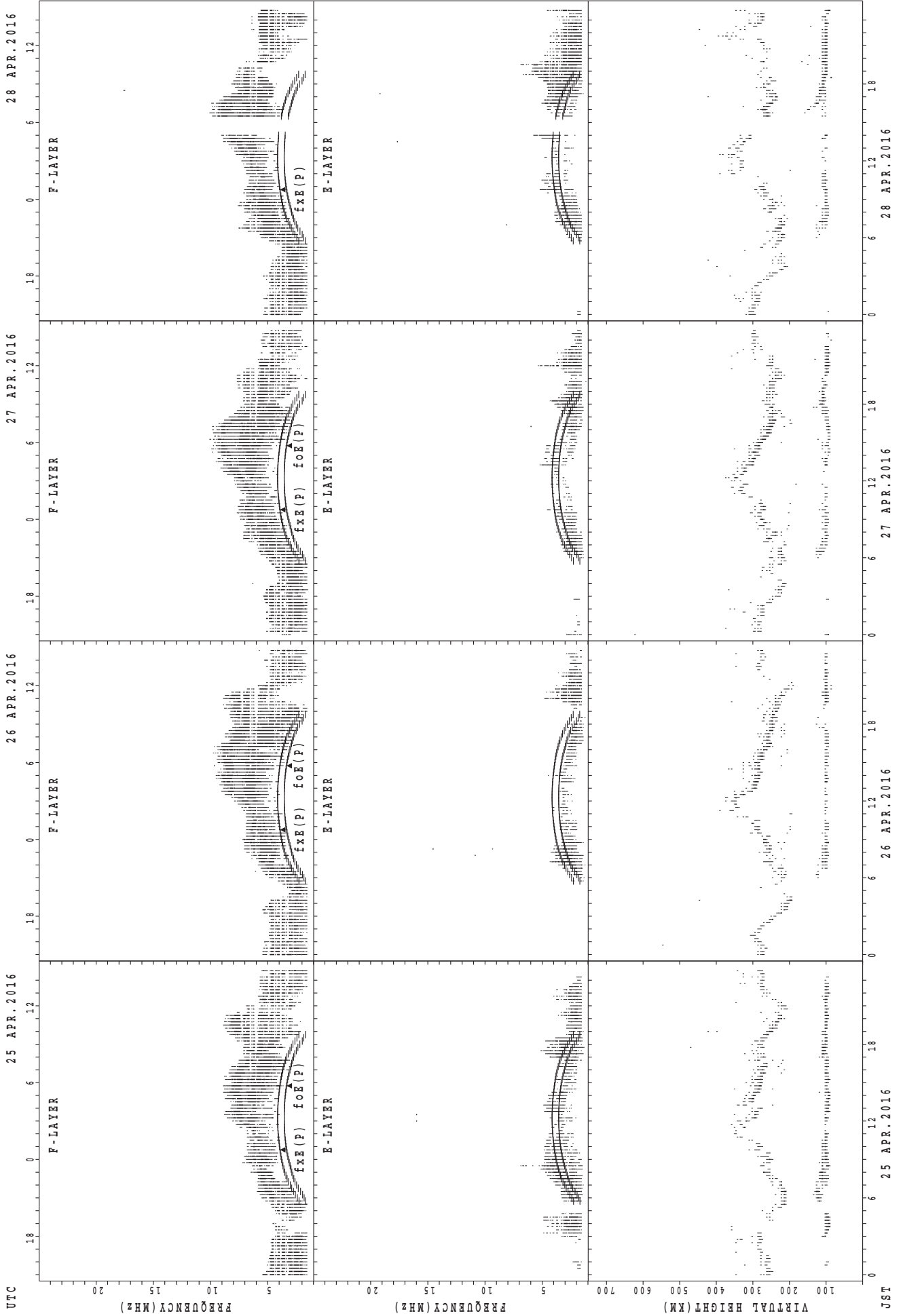
JST
17 APR. 2016
18 APR. 2016
19 APR. 2016
20 APR. 2016
 $f_{xe}(P)$; PREDICTED VALUE FOR f_{xe}
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



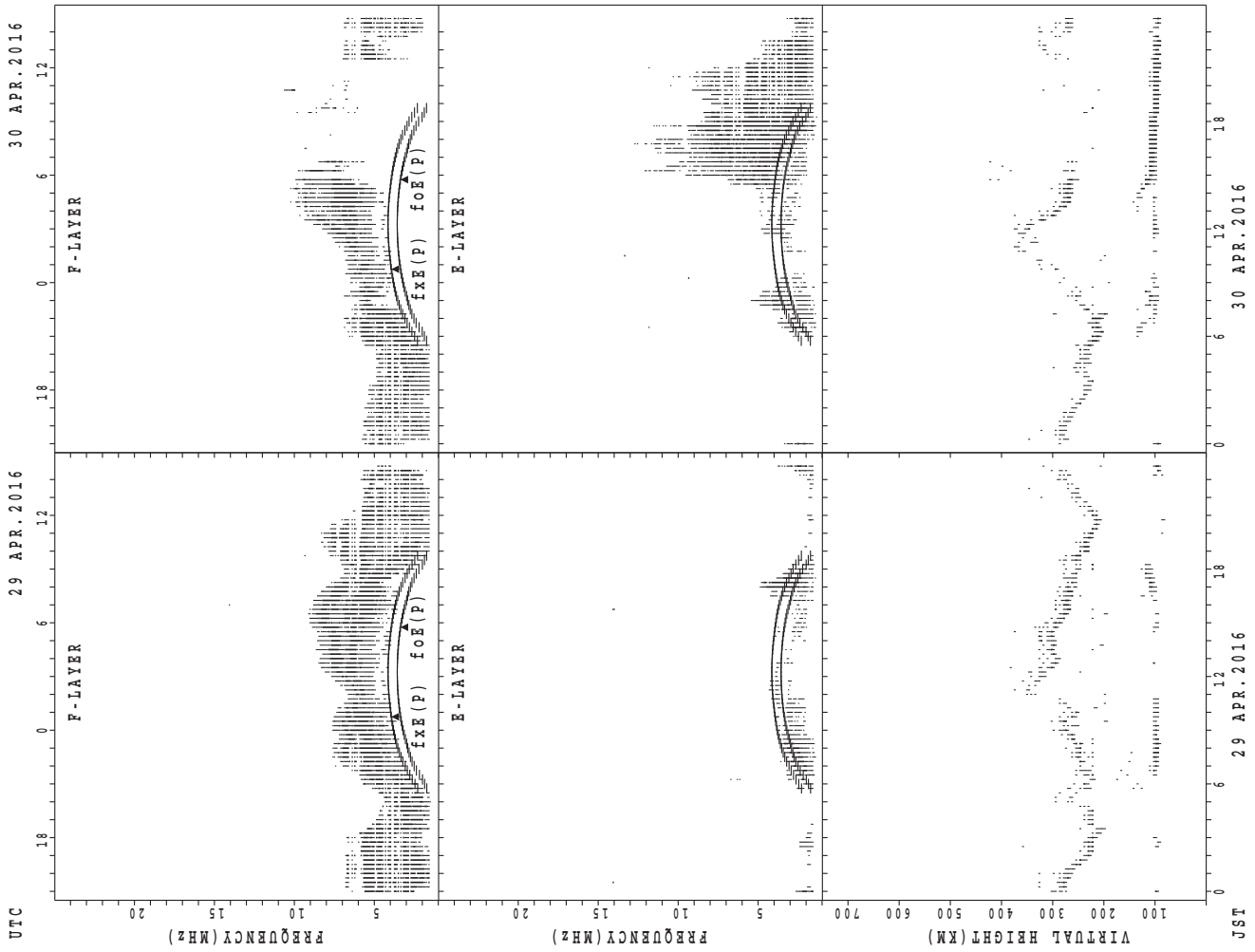
UTC
21 APR. 2016
22 APR. 2016
23 APR. 2016
24 APR. 2016
JST
21 APR. 2016
22 APR. 2016
23 APR. 2016
24 APR. 2016
 $f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



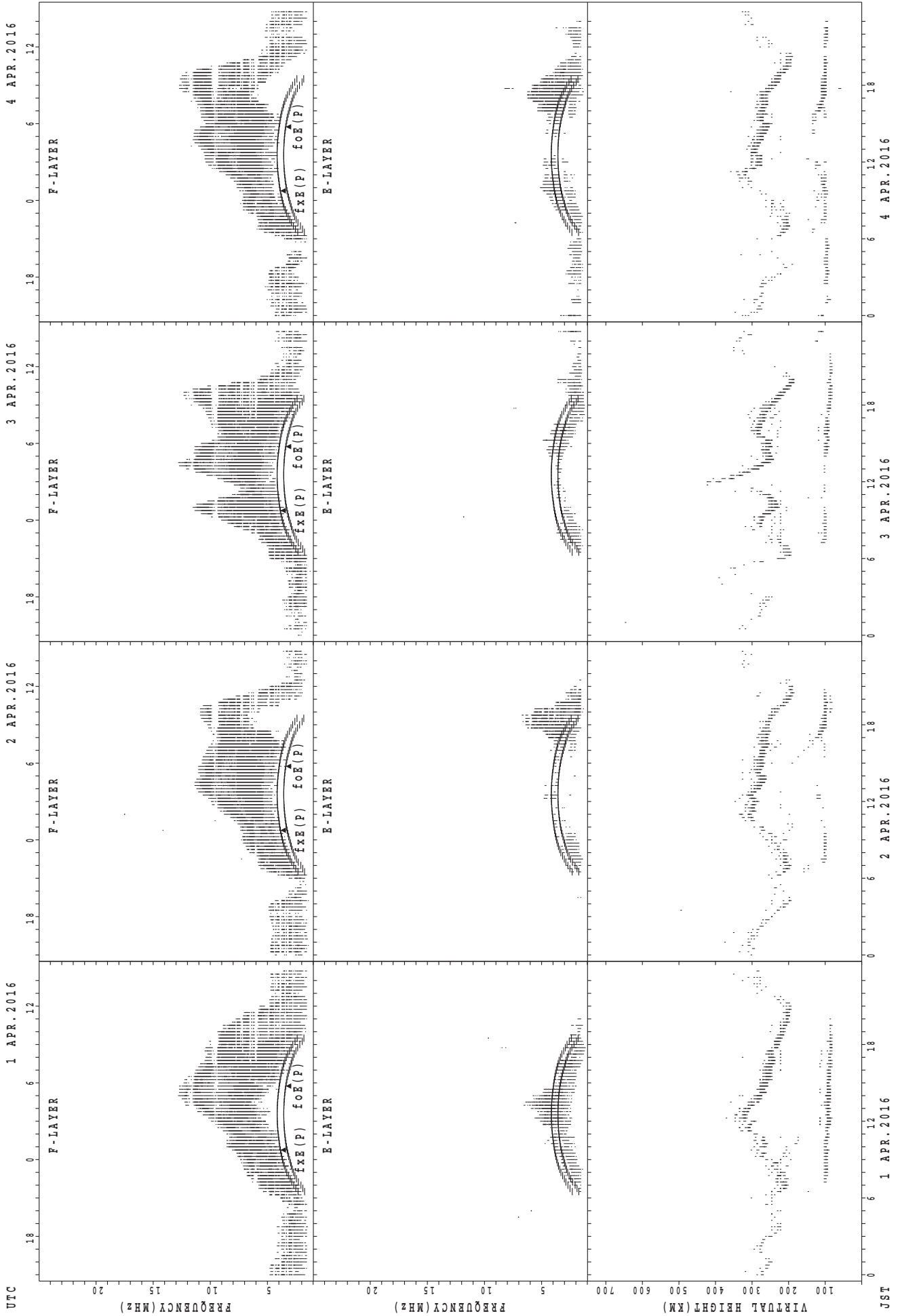
UTC
25 APR. 2016
26 APR. 2016
27 APR. 2016
28 APR. 2016
JST
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



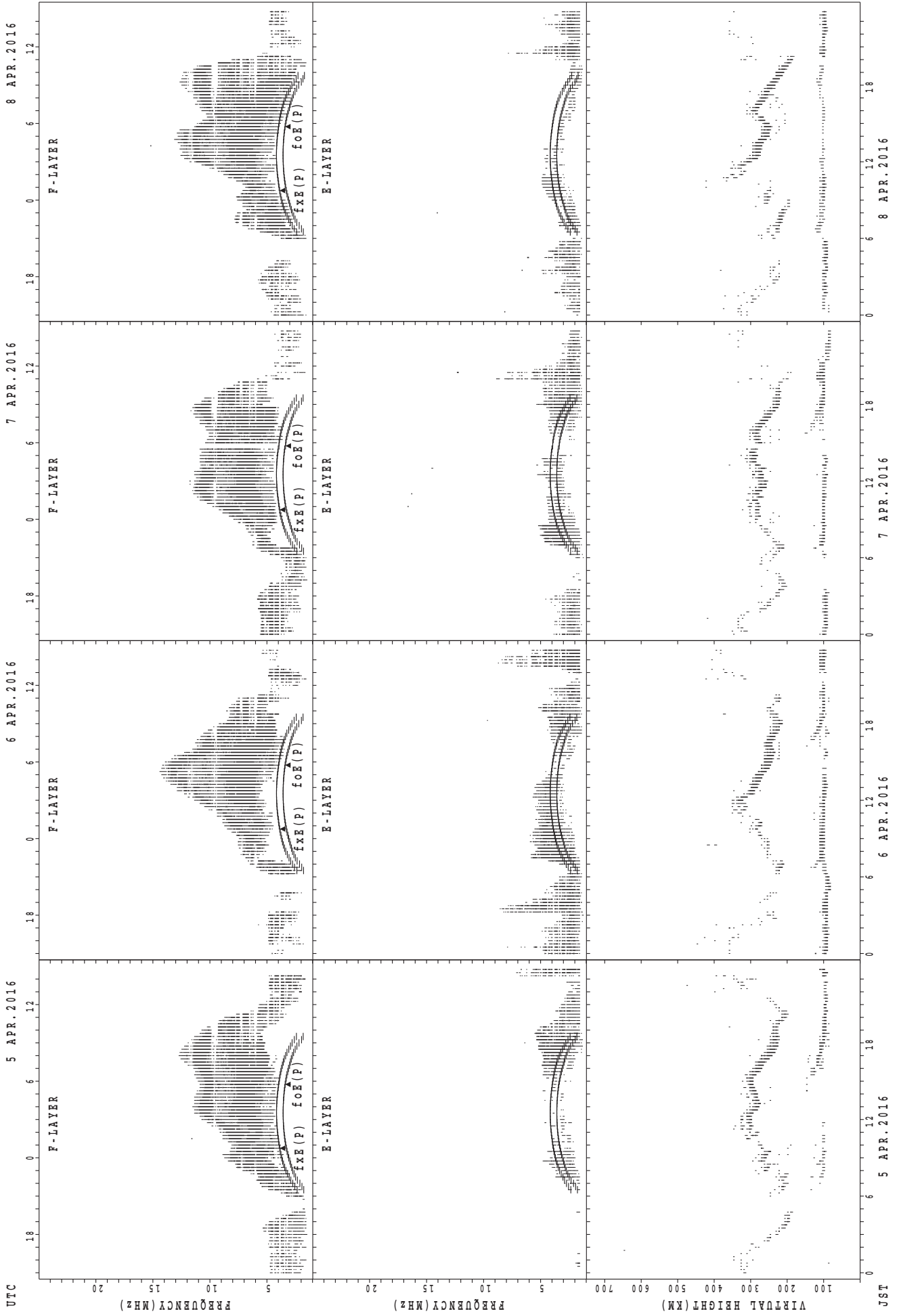
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



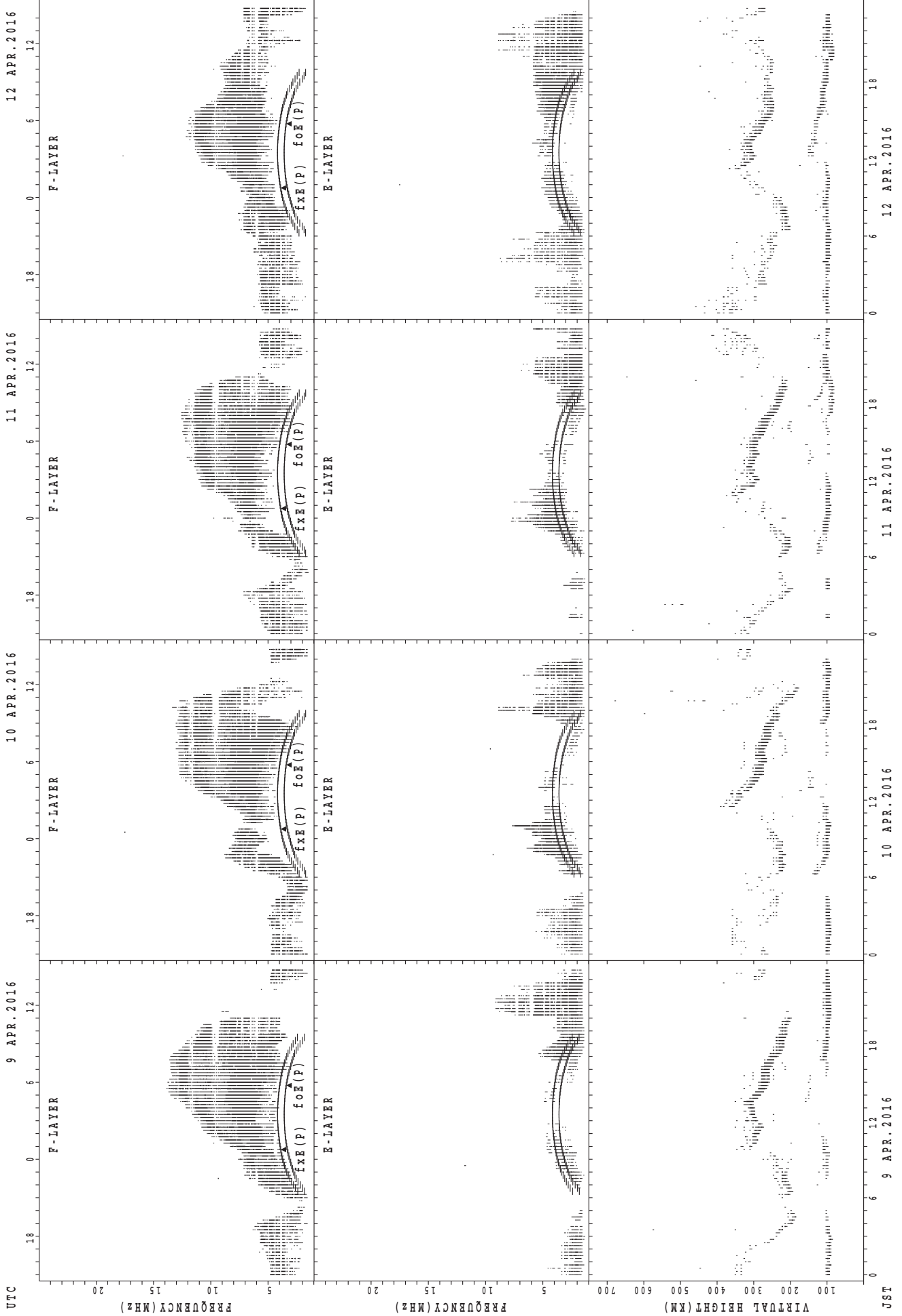
f_xE(P); PREDICTED VALUE FOR f_xE
f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



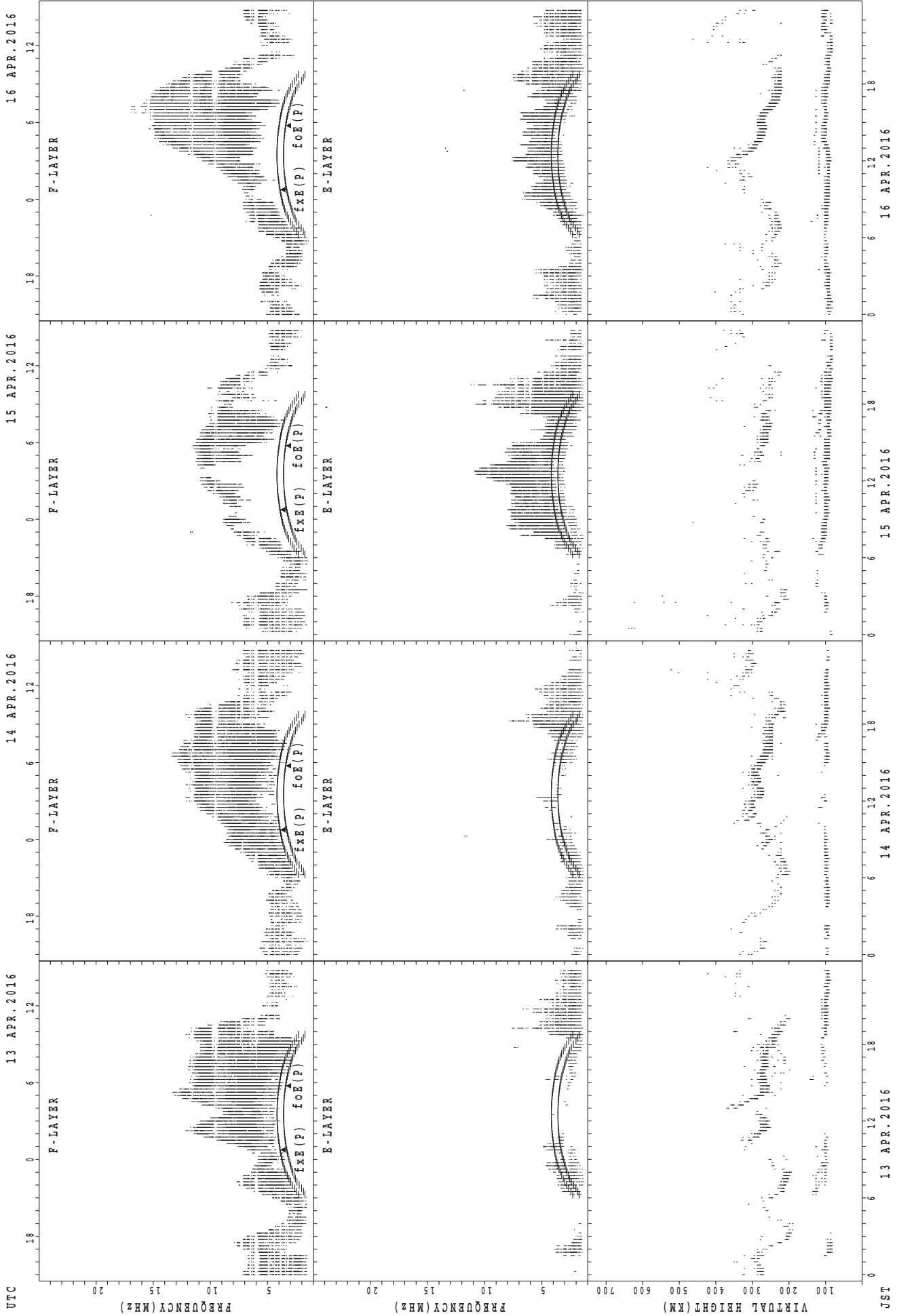
UTC
JST
fxe(P); PREDICTED VALUE FOR fxe
foe(P); PREDICTED VALUE FOR foe

SUMMARY PLOTS AT Okinawa



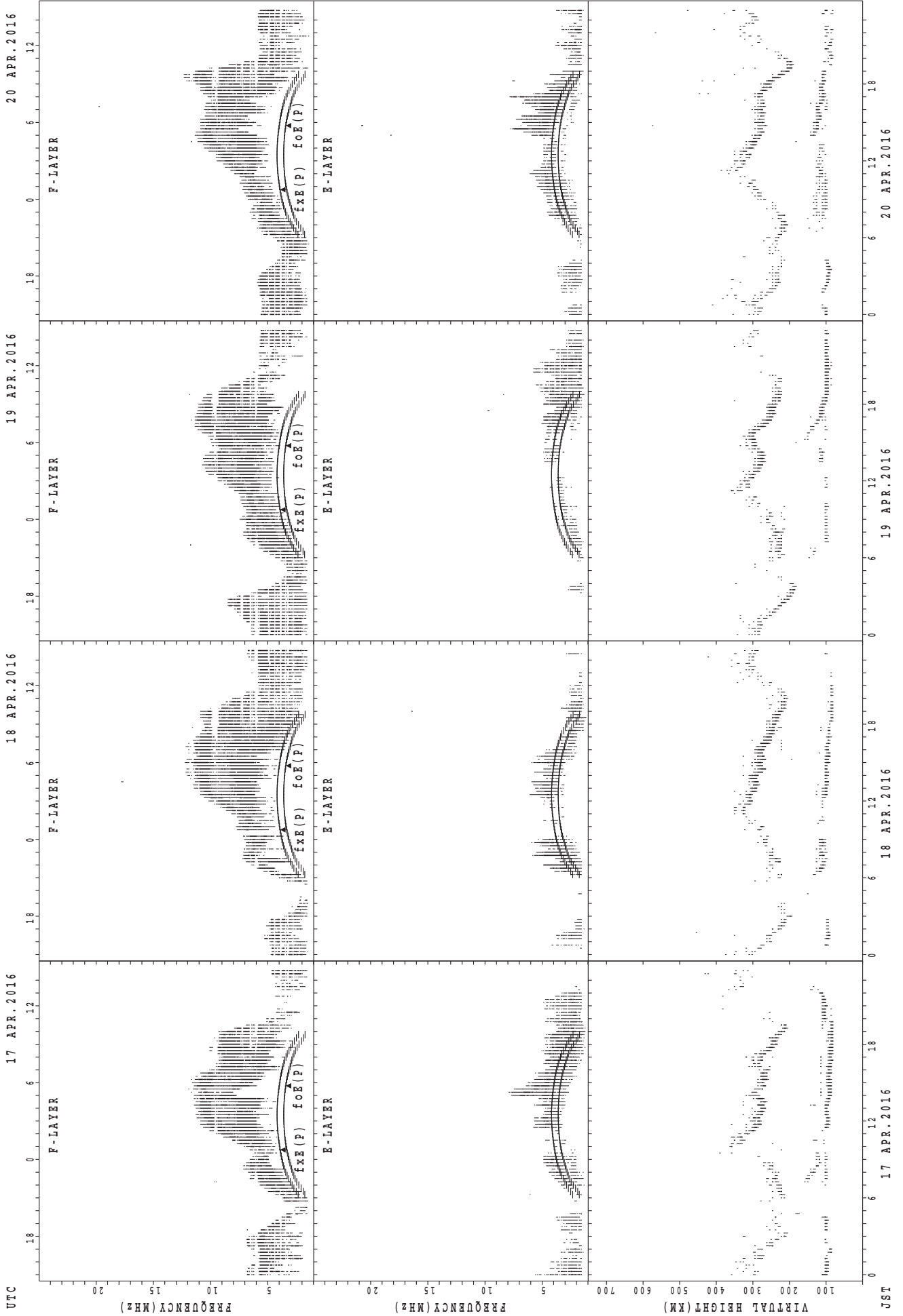
f_xE(P); PREDICTED VALUE FOR f_xE
f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



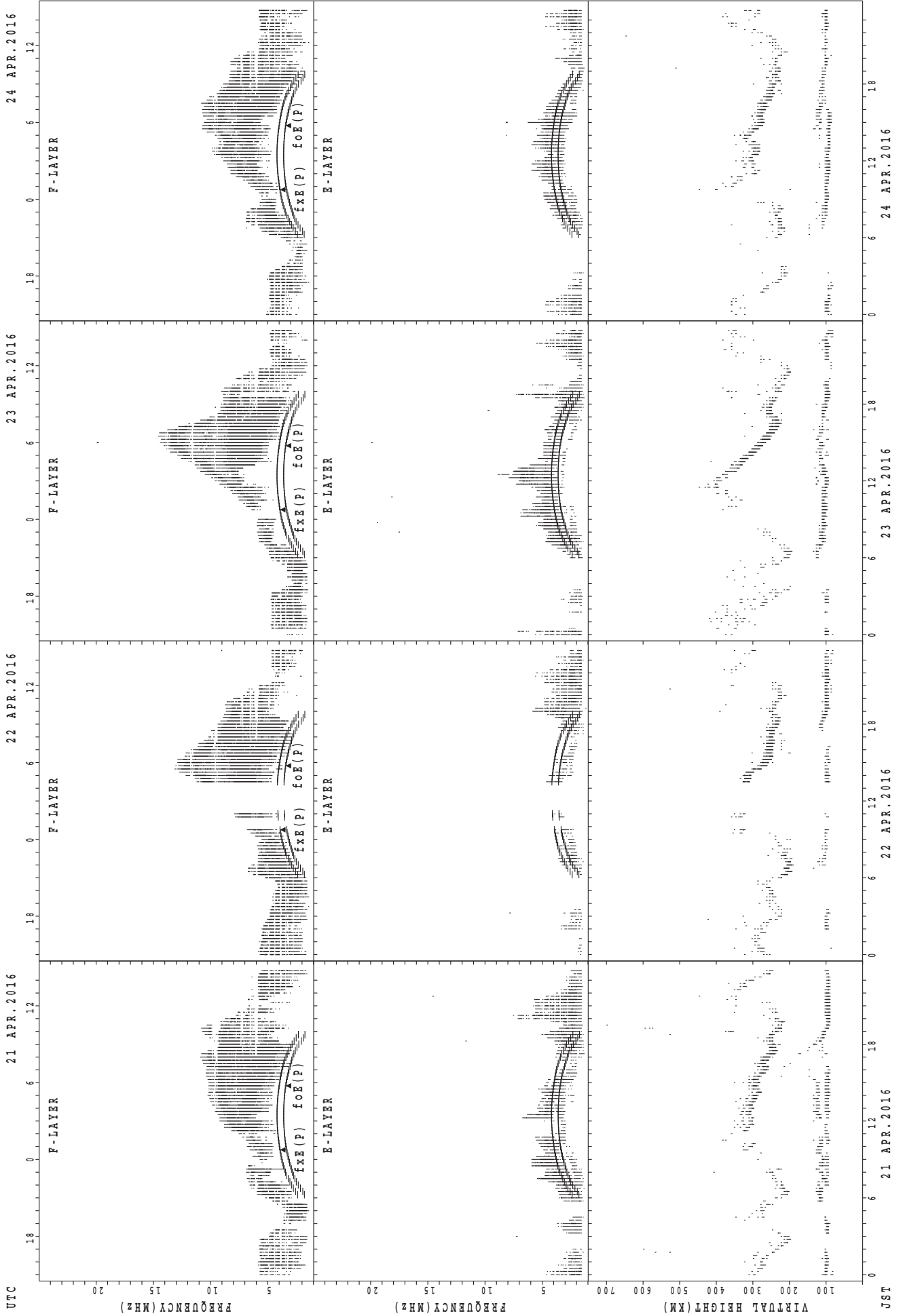
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



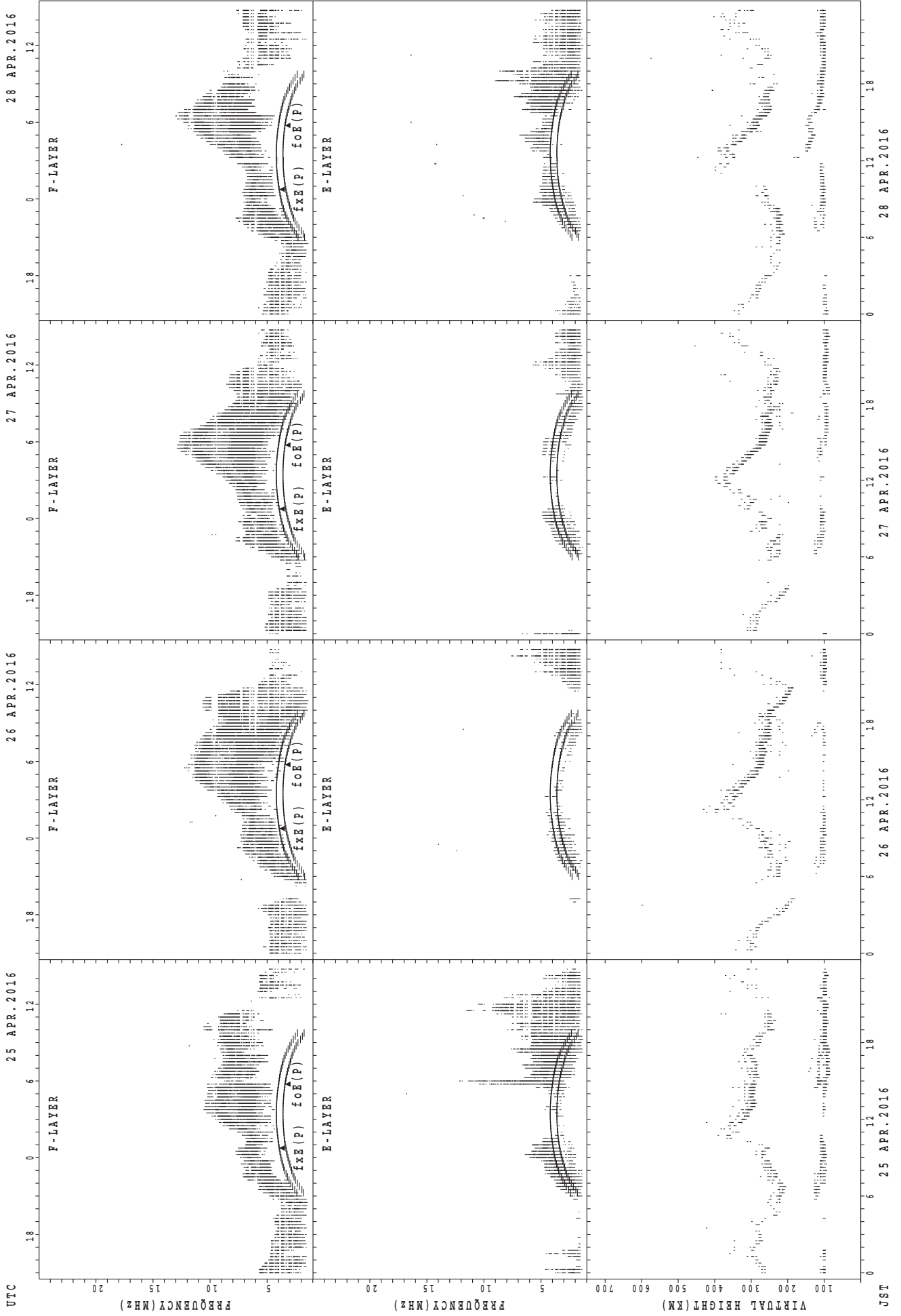
UTC JSJ
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



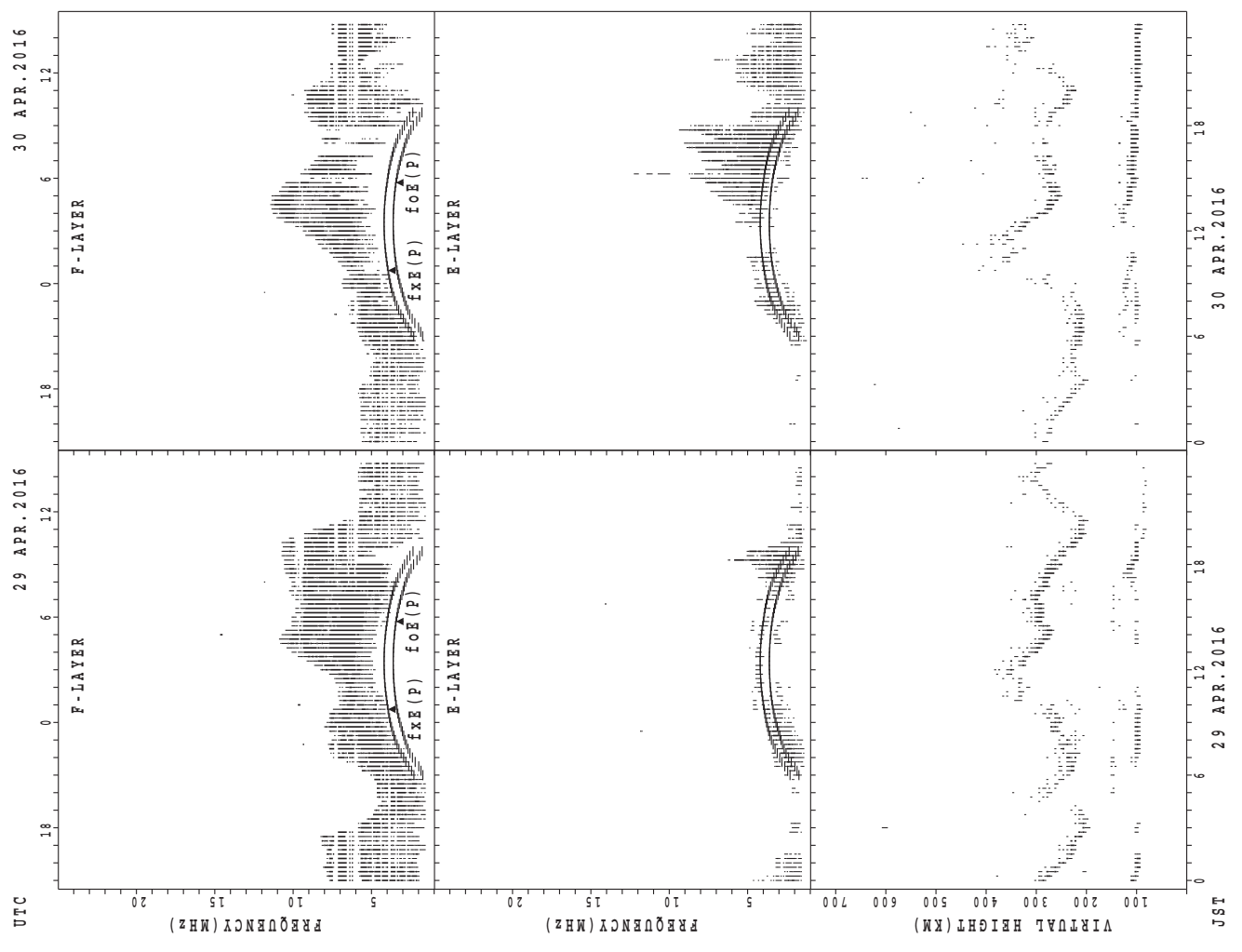
UTC
VIRTUAL HEIGHT (KM)
FREQUENCY (MHz)
FREQUENCY (MHz)
JST
21 APR. 2016
22 APR. 2016
23 APR. 2016
24 APR. 2016
 $f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



UTC
25 APR. 2016
26 APR. 2016
27 APR. 2016
28 APR. 2016
JST
f_xE(P); PREDICTED VALUE FOR f_xE
f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es
 APR. 2016 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	3	9	8							1	23	16	14	17	8	4		
MED						306	278	240	255							278	274	273	266	268	263	265		
U Q						153	306	269	282							139	290	287	272	274	278	326		
L Q						153	252	233	251							139	266	263	254	262	257	254		

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	5	4	1	1	1	5	19	14	11	7	8	8	7	5	8	8	20	19	22	15	16	10	7	4
MED	101	94	97	97	115	129	131	116	113	107	103	101	109	97	101	104	104	113	111	103	103	103	99	98
U Q	105	99	48	48	57	146	143	125	113	119	109	107	179	102	106	111	112	131	119	109	106	103	103	101
L Q	93	88	48	48	57	119	113	107	107	103	101	99	95	96	96	98	101	105	107	95	101	101	95	97

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							3	11	13								24	26	24	19	7			
MED							236	254	246								259	264	253	238	232			
U Q							258	272	272								269	274	262	254	260			
L Q							236	238	238								254	256	245	232	216			

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	13	8	7	8	7	6	16	12	17	18	14	17	10	10	9	8	11	23	26	26	25	21	17	13
MED	97	97	101	99	97	106	131	117	111	104	104	101	102	103	109	114	107	111	103	103	103	103	103	97
U Q	102	102	105	103	103	123	152	125	118	107	109	107	105	111	133	129	113	117	107	107	106	109	107	99
L Q	95	95	97	97	97	95	119	107	105	103	99	97	99	101	96	102	101	107	103	97	101	99	97	97

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								6	13	4							29	28	26	26	18			1
MED								240	248	255							264	258	248	239	232			330
U Q								242	262	284							276	268	266	258	248			165
L Q								224	228	244							254	247	244	230	222			165

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	15	14	11	11	10	8	14	25	19	16	20	16	15	13	16	13	13	20	24	25	23	22	19	18
MED	97	97	97	97	97	97	130	119	111	105	105	105	101	103	103	101	115	109	103	103	101	102	97	102
U Q	103	99	107	107	97	99	139	131	115	107	108	107	105	114	108	113	125	113	108	105	105	105	99	107
L Q	97	95	95	97	95	96	121	113	105	102	102	101	99	96	98	95	97	103	101	97	99	99	97	97

MONTHLY MEDIANS OF h'F AND h'Es
 APR. 2016 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		1	2	4				8	17	13							28	30	28	27	19	1		
MED		336	294	252				231	244	262							268	255	246	230	232	284		
U Q		168	330	262				240	257	273							276	262	254	246	258	142		
L Q		168	258	235				226	237	245							251	246	234	222	218	142		

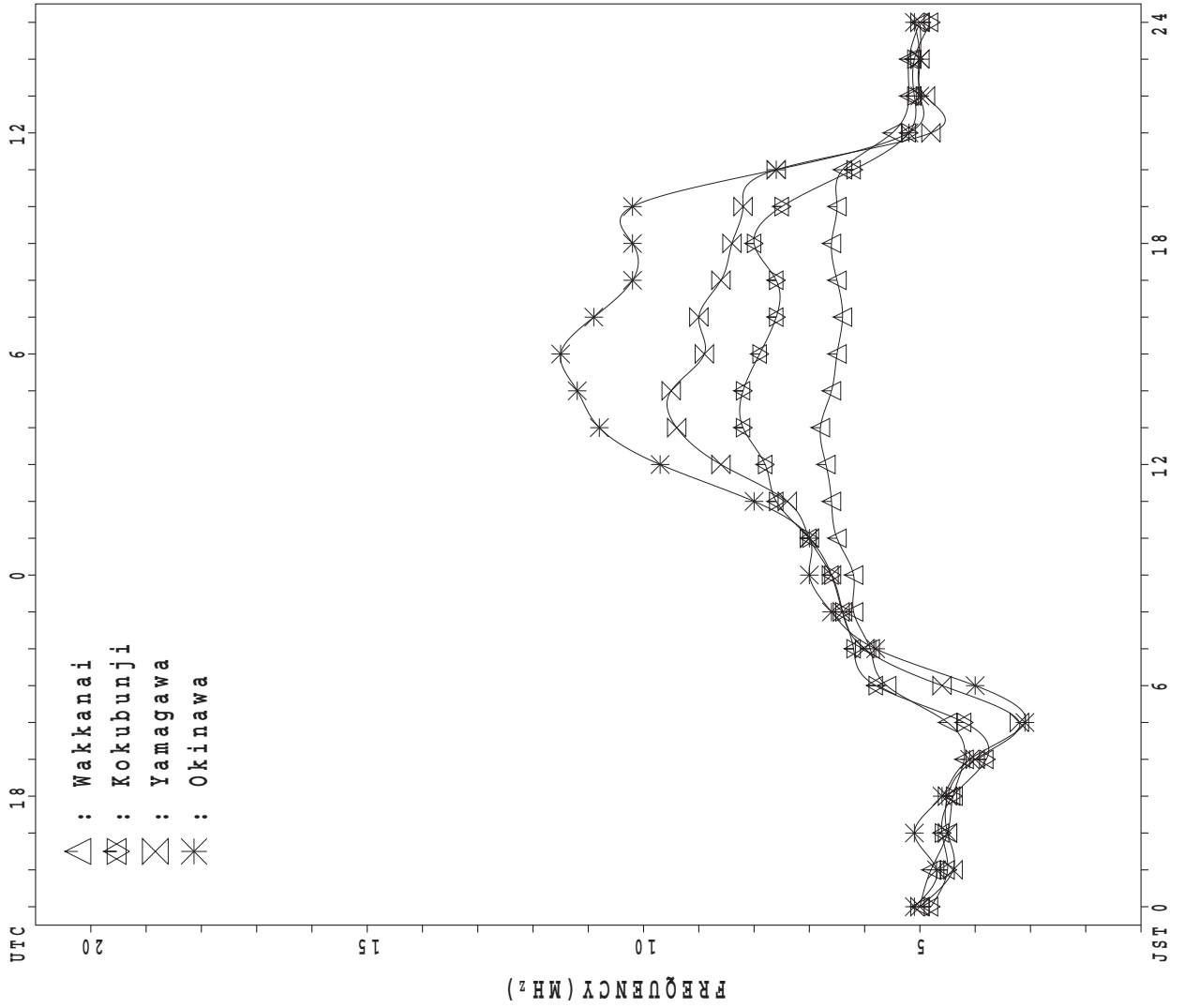
h'Es

	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	18	14	14	11	12	7	8	24	23	25	21	18	17	18	21	18	20	21	26	27	26	26	23	22
MED	101	99	97	97	101	97	110	115	107	105	103	103	103	104	107	112	114	111	105	103	101	102	99	102
U Q	103	101	97	103	103	103	123	126	113	109	106	105	118	127	133	131	124	118	111	103	103	105	103	105
L Q	97	95	95	95	96	95	98	111	105	103	101	97	97	97	100	103	99	108	103	95	97	97	97	95

MONTHLY MEDIANS PLOT OF fOF2

APR. 2016

AUTOMATIC SCALING



IONOSPHERIC DATA STATION Wakkanai

APR. 2016 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	50	X	X	X	X																X	X	X	X	
2	X	X	X	X	X																	X	X	X	X
3		X	X	X	X	50																X	X	X	X
4	X	X	X	X	X																	X	X	X	X
5	X	X	X	X	X	X																X	X	X	X
6	X	X	X	X	X																	X	X	X	X
7	X	X	X	X																		X	X	X	X
8	X	X	X	X																		X	X	X	X
9	X	X	X	X																		X	X	X	X
10		X	X	X																		X	X	X	X
11	X	X	X	X																		X	X	X	X
12	X	X	X			X																X	X	X	X
13	X	X	X	X																		X	X	X	X
14	X	X	X	X																		X	X	X	X
15	X	X	X	X																		X	X	X	X
16	X	X	X	X																		X	X	X	X
17	X	X	X	X																		X	X	X	X
18	X	X	X	X		X																X	X	X	X
19	X	X	X	X																		X	X	X	X
20		X	X	X																		X	X	X	X
21	X	X	X	X																		X	X	X	X
22	X	X	X	X		X																X	X	X	X
23	X	X	X	X																		X	X	X	X
24	X	X	X	X																		X	X	X	X
25	X	X	X	X		X																X	X	X	X
26	X	X	X	X																		X	X	X	X
27	X	X	X	X																		X	X	X	X
28	X	X	X	X																	X	X	X	X	
29	X	X	X	X																	X	X	X	X	
30	X	X	X	X																	X	X	X	X	
31																						X	X	X	X
	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	27	30	30	29	8	4														2	30	30	30	30	
MED	X	X	X	X	X	X															X	X	X	X	
U Q	55	55	52	50	48	52															70	72	65	60	57
L Q	X	X	X	X	X	X															X	X	X	X	
	50	50	49	47	46	48															77	70	65	62	
	X	X	X	X	X																X	X	X	X	
	50	50	49	47	46	48															65	61	57	55	

APR. 2016 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2016 f_oF₂ (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	43	43	40 ^F	40	42	46	62	65	68	74	84	74	70	75	67	64	64	69	68	60	57	52	35 ^R	43	
2	42	43	41	40	40	40	55	59	66	68	74	76	66	75	72	71	64	64	64	69	65	60	52	50	
3	48	46	43	40	39	36 ^F	48	60	52	68	56	72	76 ^Y	77	69	63	67	68	76	75	68	54	52	54	
4	52	51	51	54	55	59	64	60	72 ^R	78	74 ^J	81 ^R	68	69	75 ^Y	73	70	78	76	74	78	60	46	48	
5	48	50	46	47	43	48	60	61	61	76 ^Y	84	72	69	74	75	70	67	68	72	74	72	61	60	54	
6	53	48	49	44	43	40	47	51	58	61	62	67	70	70	69	70	72	64	64	65	60	58	51	50	
7	46	48	45	46	44	52	60	65	67	72	66	69	73	73	71	65	62	63	66	70	72	62	54	48	
8	48	46	43	47	46	47	58	60	72 ^V	72 ^Y	72	72	70	74	67	64	70	68	72	78	74	69	60	56	
9	57	56	56	56	53	57	62	60	74	76	73	74	76 ^R	76	71	71	64	63	70	74	70 ^J	61 ^R	58	60	
10	54	55	50	51	46	48		67	71	76	77	77	74	72	70	66	70	65	70	73	72	63	49	46	
11	42	42	41	43	40	44	62	74	74	76	71	76	76 ^V	70	66	72	64	61	65	73	74	65	55	54	
12	52	50	44	45	46	49	59	58	61	58	63	73	72	76	69	68	69	76	74	70	60	57	51	49	
13	49	48	45	41	35	35	45	46	49	64	69	62	67 ^J	83 ^R	68	70	66	65	75	71	70	66	58	58	
14	56	52	51	53 ^F	52	53	55	59	73	74 ^Y	72	72	74	75 ^R	73	70	64	69	72	70	66	66	58	52	
15	43	43	37	34	34	32	35	42	43	49 ^R			61	59	56	53	54	54	56	57	58	48	42	48	48
16	42	37	35	35	34	42	51	57 ^V	52	57	62	66	74	72	66	65	63	61	61	72	69	58	58	56	
17	55	53	42	40	35	35	39	46		54	57	58	58	65	66	64	63	63	68	71	64	50	46	45	
18	45	42	43	46	32	40	43	40	49	51		54 ^R		59	61	62	62	59	56	60	56	50	47	47	
19	45	46	46	44	40	42	44	50	57	60	64	64	63	62	65	64	62	57	58	68	61	58	49	48	
20	48	49	45	43	38	40	50	57	57	61	59	61	56	61	68	70	68	65	68	70	68	63	52	44	
21	44	42	39	38	36	37	42 ^J	46 ^R	48		A		A		54 ^J	57 ^R	56	52	52	50	50	51 ^J	49 ^R	50	47
22	43	44	43	40	39	41	50	48	50	51		54	54	62	60	60	60	56	50	54	50	50	50	46	
23	42	41	41	42	33	32				51	56	53	54	57	58	58	53	55	57	57	54	52	51	50	
24	50	49	42	37	37	44	49	53	56	58	58	56 ^R		56		60	60	65	66	64	58	55	53	50	
25	45	45	44	43	40	40	40	40	45		49	49	50	52	58	55	54	54	53	58	58	56	55	56	
26	53	50	47	43	44	48	51	54 ^V	54	57	65	65	59	56	58	61	61	64	63	69	61	57	56	53	
27	52	49	49	48	46	49	49	51 ^R	54	56	62	60	59	59	62	60	63	68	70	60	60	57	56	50	
28	53	49	48	45	45	45	43		47	54	54	52	55	55	57	54	54	56	60	66	63	60	59	57	
29	53	54	51	47	46	50	56	54	56	57	65	63	61	62	62	62	62	56	56	60	65	65	65	58	
30	50	50	48	48	48	54	60	66	64	64	59	60	60	67	61	70	68	68	66	70	70	70	65	62	
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	28	28	28	28	26	29	27	30	29	30	30	30	30	30	30	30	30	30	30
MED	48	48	44	44	41	44	50	57	57	61	64	65	67	68	66	64	64	64	66	70	64	58	52	50	
U Q	53	50	48	47	46	49	60	60	68	73	72	72	73	74	70	70	67	68	70	72	70	63	58	56	
L Q	44	43	42	40	37	40	44	49	51	56	59	59	59	59	60	60	61	57	58	60	58	54	50	48	

APR. 2016 f_oF₂ (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2016 f_oF1 (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								352	L	L	L	L	L	460	416	L	L	L						
2								L	L	L	L	L	460	460	L	L								
3								L	L	L	L	L	L	L	L	L	L	L						
4								L	L	424	456	448	460	460	L	L	L	L						
5								L	L	L	L	L	L	L	L	L	L	L						
6							L	380	L	L	L	L	456	L	448	428	L							
7								L	L	L	L	L	L	L	L	L	416							
8								L	L	436	L	L	472	L	L	L	404	L						
9							240	L	428	456	L	L	L	460	L	L	424	L						
10	A							L	436	L	L	L	L	L	L	L	L	L						
11							L	L	L	L	L	L	L	L	L	L	L	L						
12								L	L	460	L	L	L	L	L	L	L	L	L					
13							316	L	L	L	L	L	L	L	L	L	428	428						
14								428	428	L	464	L	L	460	L	L	L	L						
15								L	L	L	L	L	L	448	L	432	L							
16								L	L	A	L	L	L	456	456	432	L	L						
17								L	L	U R	R	L	L	L	L	L	L	416	L					
18								L	L	404	L	R	A	L	L	L	432	388	L					
19						L	L	L	L	452	464	464	464	448	448	428	L	L						
20						L	L	L	L	A	A	L	L	452	452	424	404	L						
21							L	L	L	A	A	L	A	L	L	L	L	L	328					
22							L	L	L	A	A	L	U R	L	L	L	L	L	352					
23							352	372	388	L	U R	U R	U R	L	U R	L	408	L	L					
24							L	L	L	L	L	L	L	476	456	A								
25								L	428	432	444	392	L	436	416	404	L	L						
26								L	436	444	L	L	L	L	L	L	424	376	L					
27							L	412	436	L	L	460	460	L	L	444	416	L	L					
28								L	L	L	L	L	L	L	L	L	L	L	L	312				
29								L	L	L	L	L	L	472	L	L	L	L	L					
30						L	L	L	L	L	L	L	L	L	L	L	428	L	L					
31								L	432	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							3	5	11	11	8	9	12	9	10	15	6	3	1					
MED							316	380	428	444	446	460	460	456	446	428	406	352	312					
U Q							352	420	436	456	458	462	462	460	448	432	416	376						
L Q							240	362	420	432	436	450	454	450	432	424	404	328						

APR. 2016 f_oF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2016 f_oE (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	192	256	284	308	316	292	292	268	A	300	256	208	B	B				
2						B	204	256	288	316	332	332	340	340	316	304	272	216	A	A				
3						B	204	252	292	312	320	316	316	328	320	304	264	188	B	B				
4						B	212	248	300	304	304	312	312	336	312	300	252	216	U R	A				
5							208	260	292	296	312	312	352	328	316	288	268	216	A	204				
6						B	220	252	284	312	304	292	336	336	308	304	260	236	200	A				
7					B	B	208	268	292	308	332	320	312	320	316	300	264	216	A	A				
8					B	B	200	256	284	316	328	328	348	340	312	288	268	220	A	B				
9					212	A	208	260	288	304	316	328	336	268	A	308	264	216	A	A				
10	148				B	B		268	304	308	336	352	352	340	300	260	264	232	A	A				
11					A	B	216	256	300	324	332	U R	348	348	352	324	308	272	224	B	A			
12				E B	B		232	272	304	304	288	348	320	320	324	300	268	232	172	A				
13					B	B	212	260	296	316	308	340	A	A	312	296	264	228	A	A				
14					B	B	220	268	300	328	332	332	296	288	256	288	276	236	A	A				
15					B	B	208	256	300	320	320	332	312	U A	U R	U A	300	256	232	J A	A			
16					B		216	232	280	300	324	336	332	300	360	320	292	A	220	164	A			
17					B		160	200	264	296	324	340	328	332	332	324	280	212	A	244	A			
18					B		224	260	292	308	340	340		324	296	240	264	240	180	A				
19					A	A	220	260	268	320	328	328	328	324	304	296	280	232	180	B				
20	148				B		196	244	276	288	324	324	324	340	340	324	304	280	228	176	A			
21					B		176	220	268	304	308	332	332	332	328	316	304	272	228	176	B			
22					B		228	268	296	320	320	320	A	308	324	312	260	200	160	A				
23					B		188	236	260	292	316	332	332	332	344	328	A	A	B	A				
24					B	B	224	268	300	332	332	332	352	336	316	316	276	224	164	A				
25					B		240	264	288	312	324	324	316	316	324	304	284	232	180	A				
26					B		180	232	272	292	316	316	336	336	312	308	280	224	176	A				
27					B		200	248	276	312	316	344	320	276	340	332	304	288	228	180	B			
28					B		172	232	280	308	328	328	364	364	348	308	308	284	240	172				
29					B		200	236	268	304	316	356	356	356	344	324	304	272	232	272				
30					B		204	256	284	324	336	348	348	348	352	332	312	280	244	168	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	2			1	1	10	29	30	30	30	30	30	27	29	28	29	28	29	18	1				
MED	148		E B	140	212	192	220	264	296	316	328	330	332	336	316	304	268	228	178	204				
U Q						200	232	268	300	324	332	340	348	340	324	306	278	232	200					
L Q						176	208	256	288	308	316	320	312	320	312	294	264	216	172					

APR. 2016 f_oE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2016 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	J A 17	E B 14	E B 14	E B 14	E B 13	E B 14	G	28	35	J A 44	J A 40	J A 42	34	34	32	J A 27	29	24	E B 14	20	24	30	J A 24	30	
2	24	E B 14	E B 14	E B 14	21	E B 14	23	29	32	37	37	37	37	28	36	35	29	25	J A 21	J A 29	E B 14	J A 21	E B 14	14	
3	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	29	36	40	37	38	34	33	31	36	J A 30	22	E B 14	E B 14	E B 15	E B 14	E B 15	14	
4	E B 14	E B 14	E B 14	19	E B 15	E B 13	23	28	36	36	35	36	36	36	37	36	34	32	26	24	E B 14	E B 14	E B 14	14	
5	E B 14	19	E B 14	E B 14	E B 14	E B 14	26	31	33	36	36	37	40	34	35	35	32	31	J A 28	J A 23	J A 18	J A 14	E B 14	14	
6	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	28	34	38	37	J A 51	40	25	33	32	29	25	J A 30	23	25	19	E B 14	14	
7	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	23	31	31	35	36	36	36	36	37	34	36	32	J A 23	J A 25	26	E B 14	E B 14	14	
8	E B 14	18	E B 14	E B 14	21	23	24	29	32	36	36	40	36	37	36	32	32	J A 37	J A 27	J A 19	29	20	E B 14	14	
9	23	E B 14	E B 14	J A 20	J A 20	21	24	J A 26	32	37	36	38	40	J A 44	J A 54	G	G	16	28	J A 36	J A 25	J A 31	J A 38	E B 33	
10	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	30	35	34	30	G	G	G	G	J A 41	J A 42	32	27	20	34	35	34	E B 14	22	
11	21	26	19	22	18	E B 14	J A 23	29	J A 31	35	26	26	26	34	25	28	26	24	18	26	23	E B 14	E B 14	14	
12	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	24	29	35	35	34	31	35	35	30	32	30	28	J A 21	21	24	E B 14	E B 14	14	
13	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	22	29	33	26	34	33	36	36	28	27	28	26	20	27	14	14	20	26	
14	J A 23	29	20	J A 19	E B 16	E B 15	24	28	35	39	39	58	40	38	44	36	39	J A 62	40	41	26	E B 14	E B 14	14	
15	E B 14	24	20	22	19	E B 15	25	32	34	35	37	42	38	36	34	35	33	32	J A 29	J A 43	J A 37	J A 27	J A 20	15	
16	20	J A 17	20	E B 13	E B 15	28	27	38	J A 48	J A 48	53	40	J A 38	J A 44	J A 53	51	54	28	22	58	J A 84	J A 43	E B 14	23	
17	J A 16	J A 17	J A 22	E B 14	E B 14	17	22	30	35	40	43	41	J A 55	38	37	32	28	52	J A 45	J A 58	25	22	20	E B 15	
18	E B 13	18	E B 14	E B 19	J A 17	G	24	28	32	36	37	45	34	34	28	35	19	G	J A 21	E B 14	E B 19	E B 15	E B 14		
19	E B 15	E B 15	E B 15	E B 23	20	J A 26	J A 23	33	34	34	36	36	G	G	34	34	32	J A 24	G	E B 14	E B 14	E B 14	E B 14		
20	E B 11	E B 14	E B 15	E B 14	E B 14	18	27	32	36	36	36	36	36	30	35	35	33	J A 37	24	36	32	33	31	37	
21	J A 19	19	21	21	21	G	J A 30	33	36	50	59	40	J A 64	36	37	39	J A 40	25	20	20	28	21	J A 17	E B 14	
22	E B 14	E B 14	19	E B 14	E B 14	20	29	31	40	44	63	39	40	40	42	39	34	28	22	J A 17	J A 25	J A 29	J A 41	42	
23	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	31	32	33	37	38	38	G	G	G	J A 40	36	24	21	26	14	14	14	14	
24	E B 14	E B 14	E B 14	E B 14	E B 14	20	26	24	34	35	37	35	38	40	67	50	44	J A 48	27	32	28	28	30	E B 14	
25	E B 15	E B 15	20	E B 14	E B 14	20	25	34	34	39	37	37	35	40	34	35	35	31	J A 24	J A 17	20	20	E B 14	14	
26	E B 14	E B 14	19	E B 14	E B 14	G	26	22	32	34	35	33	33	29	31	36	36	29	22	22	E B 14	E B 14	E B 14	E B 14	
27	E B 14	25	E B 14	E B 14	E B 13	J A 26	28	31	34	34	35	36	34	G	G	G	J A 28	29	28	22	E B 14	E B 14	E B 14	E B 14	
28	E B 14	E B 14	E B 14	E B 19	E B 14	22	29	33	34	34	34	G	G	G	34	34	37	33	28	23	26	26	E B 14	14	
29	E B 14	E B 14	E B 14	E B 14	E B 14	G	20	33	33	36	36	G	39	39	32	35	35	35	J A 28	J A 19	23	23	E B 14	14	
30	E B 14	E B 14	18	E B 14	E B 24	J A 23	28	32	39	26	G	G	46	G	39	37	37	37	J A 37	J A 35	24	14	E B 26	E 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	29	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	
MED	E B 14	E B 14	E B 14	E B 14	E B 14	18	24	30	34	36	36	38	36	34	35	35	33	28	22	24	24	19	E B 14	E B 14	
U Q	16	18	19	19	18	20	28	32	36	39	37	40	40	38	37	37	36	J A 32	J A 28	32	28	27	20	15	
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	23	28	33	35	35	36	G	G	G	G	32	29	25	20	20	E B 14	E B 14	E B 14	

IONOSPHERIC DATA STATION Wakkanai

APR. 2016 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 14	E 14	E 14	E 14	E 13	E 14	G	26	33	42	E 38	A 40	33	33	30	G 23	28	22	E 14	E 14	E 14	19	19	E 15	
2	E 15	E 14	E 14	E 14	E 14	E 14	E 14	21	28	31	36	35	36	28	34	31	G 22	22	19	E 14	E 14	E 14	14	14	E 14
3	E 14	E 14	E 14	E 14	E 14	E 14	G	27	33	39	35	36	32	G 32	G 31	G 28	G 26	20	E 14	E 14	E 14	15	14	E 15	E 14
4	E 14	E 14	E 14	E 14	E 14	E 15	E 13	20	26	31	34	33	34	G 33	G 33	34	28	30	E 26	E 14	E 14	E 14	14	14	E 14
5	E 14	E 14	E 14	E 14	E 14	E 14	E 14	24	30	31	35	34	34	G 34	G 31	33	32	30	29	25	E 14	E 14	E 14	14	E 14
6	E 14	E 14	E 14	E 14	E 14	E 14	E 14	G	27	32	36	36	48	34	22	G 30	G 26	28	G 23	E 18	E 14	E 14	14	14	E 14
7	E 15	E 14	E 14	E 14	E 14	E 14	E 14	21	28	30	32	34	34	34	32	32	32	34	26	20	22	19	E 14	E 14	E 14
8	E 14	E 14	E 14	E 14	E 14	E 14	E 14	22	26	30	32	32	36	G 34	G 33	32	31	29	32	23	16	E 13	E 14	E 14	E 14
9	E 14	E 14	E 14	E 14	E 18	E 14	G	22	26	30	34	34	36	E 39	A 39	36	G	16	26	22	23	31	23	E 19	E 14
10	E 14	E 14	E 14	E 14	E 14	E 14	E 14	28	34	32	G 30	G 28	G 25	G 22	34	34	30	25	E 14	E 14	22	20	15	E 14	E 14
11	E 14	E 14	E 14	E 14	E 14	E 14	E 14	21	27	29	32	24	24	24	32	22	26	26	22	17	17	E 14	E 14	E 14	E 14
12	E 14	E 14	E 14	E 14	E 14	E 14	E 14	24	28	32	32	31	30	G 33	G 33	30	30	29	25	E 16	E 14	E 14	E 14	E 14	E 14
13	E 14	E 14	E 14	E 14	E 14	E 14	E 14	21	28	31	22	32	33	34	34	26	24	26	25	18	14	E 14	E 14	E 14	E 14
14	E 14	20	E 15	E 14	E 16	E 15	E 14	21	27	31	33	37	E 48	A 36	35	40	34	38	35	26	30	E 14	E 14	E 14	E 14
15	E 14	E 14	E 14	E 14	E 14	E 15	E 14	22	30	33	32	34	38	38	34	G 32	33	30	30	23	37	28	19	E 15	E 15
16	E 15	E 15	E 15	E 13	E 15	E 25	G	23	36	44	45	50	35	36	36	41	29	30	22	16	44	E 55	E 14	E 14	E 14
17	E 14	E 14	E 15	E 14	E 14	E 14	E 15	20	28	33	39	38	36	36	36	34	32	26	30	40	24	E 13	E 13	E 14	E 15
18	E 13	E 14	E 14	E 14	E 14	E 14	G	24	26	32	34	A	A	G	32	32	25	27	18	G	E 15	E 14	E 15	E 15	E 14
19	E 15	E 15	E 15	E 15	E 15	E 15	E 15	23	26	28	33	33	34	G 20	G 17	32	30	G 27	G 23	G	E 14	E 14	E 14	E 14	E 14
20	E 11	E 14	E 15	E 14	E 14	E 16	E 16	25	30	35	35	35	35	35	30	G 34	34	29	32	23	27	25	23	28	28
21	E 14	E 14	E 14	E 14	E 14	E 14	E 14	26	30	35	A 50	A 59	A 37	A 64	34	A	E 34	A 36	G 22	E 17	E 14	E 14	E 14	E 14	E 14
22	E 14	E 14	E 14	E 14	E 14	E 18	E 18	28	30	38	43	A 63	36	38	37	40	37	33	24	18	14	22	26	28	31
23	E 14	E 14	E 14	E 14	E 14	E 14	E 14	29	30	31	35	35	35	G 29	G 32	G 28	33	32	21	20	14	E 14	E 14	E 14	E 14
24	E 14	E 14	E 14	E 14	E 14	E 16	E 16	23	23	32	32	35	34	34	38	A 67	44	41	36	26	14	18	E 14	E 14	E 14
25	E 15	E 15	E 14	E 14	E 14	E 18	E 18	24	26	32	38	36	36	34	38	G 31	31	27	28	20	14	E 14	E 14	E 14	E 14
26	E 14	E 14	E 14	E 14	E 14	E 14	E 14	24	20	30	32	32	32	30	28	G 31	31	28	G 25	20	15	E 14	E 14	E 14	E 14
27	E 14	E 14	E 14	E 14	E 13	E 20	E 20	26	30	32	32	34	35	32	32	G 30	26	28	25	20	14	E 14	E 14	E 14	E 14
28	E 14	E 14	E 14	E 14	E 14	E 19	E 19	25	29	32	32	33	G	G 25	G 33	33	34	26	26	20	17	E 14	E 14	E 14	E 14
29	E 14	E 14	E 14	E 14	E 14	E 18	E 18	20	31	34	34	G	G 34	G 38	G 29	34	33	28	26	24	14	E 14	E 14	E 14	E 14
30	E 14	E 14	E 14	E 14	E 14	E 20	E 20	27	29	33	23	23	39	G 27	G 36	36	34	34	35	32	32	E 14	E 14	E 14	E 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	29	30	30	30	29	29	29	30	29	30	30	30	30	30	30	30	30	30	30
MED	E 14	E 14	E 14	E 14	E 14	E 15	E 24	28	32	34	34	35	34	32	32	32	28	25	20	14	E 14	E 14	E 14	E 14	E 14
UQ	E 14	E 14	E 14	E 14	E 14	E 18	E 24	30	33	36	36	36	36	35	34	34	30	30	G	22	18	14	E 14	E 14	E 14
LQ	E 14	E 14	E 14	E 14	E 14	E 14	E 21	26	31	32	32	G	G 31	G 31	G 30	G 29	G 27	G 22	G 18	E 14	E 14	E 14	E 14	E 14	E 14

APR. 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2016 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	14	14	13	14	14	13	13	13	15	14	14	14	14	14	15	14	14	12	12	14	15	15
2	15	14	14	14	14	14	14	14	14	14	14	18	16	15	13	16	13	13	15	15	14	14	14	14
3	14	14	14	14	14	14	14	13	13	13	13	13	12	13	14	14	14	14	14	14	15	14	15	14
4	14	14	14	14	15	13	13	14	12	12	14	12	13	14	13	12	12	12	14	14	14	14	14	14
5	14	15	14	14	14	14	14	14	14	13	12	15	15	15	15	12	14	13	14	13	14	14	14	14
6	14	14	14	14	14	14	14	14	12	13	13	14	14	14	13	13	13	16	14	14	14	14	14	14
7	15	14	14	14	14	14	14	14	13	14	14	14	14	14	14	12	12	12	13	14	14	14	14	14
8	14	14	14	14	14	14	14	14	14	14	13	17	20	15	15	13	12	13	13	14	14	14	14	14
9	14	14	14	14	14	14	14	13	12	14	15	13	16	16	15	14	12	14	14	14	14	14	14	14
10	14	14	14	14	14	14		15	15	15	14	16	15	14	12	12	13	14	14	14	14	14	14	14
11	14	14	14	14	14	14	14	14	14	14	14	13	18	17	14	14	13	12	14	14	14	14	14	14
12	14	14	14	14	14	14	14	12	14	14	14	14	16	14	13	13	14	13	14	14	14	14	14	14
13	14	14	14	14	14	14	13	12	12	16	15	15	15	15	13	13	12	13	12	14	14	14	14	14
14	14	14	14	14	16	15	14	14	14	16	15	14	14	12	14	14	14	14	13	12	15	14	14	14
15	14	14	14	14	14	15	14	12	12	15	16	15	16	15	12	12	12	12	15	12	14	15	15	15
16	15	14	15	13	15	14	14	14	13	15	14	20	15	16	14	14	15	13	12	12	14	14	14	14
17	14	14	15	14	14	12	15	14	13	16	20	16	20	19	20	14	13	14	15	14	14	14	14	15
18	13	15	14	14	14	16	14	14	14	12	24	18		12	13	14	12	13	12	14	14	14	15	14
19	15	15	15	15	14	14	14	14	14	15	16	16	15	15	14	13	13	13	14	14	14	14	14	14
20	11	14	15	14	14	14	15	14	12	16	16	13	17	16	16	14	12	14	15	14	14	14	14	14
21	14	14	14	14	14	14	15	13	13	13	13	14	14	14	14	11	13	13	11	14	14	14	14	14
22	14	14	14	14	14	14	12	12	14	13	14	13	14	15	14	13	13	13	13	12	14	14	14	14
23	14	14	14	14	14	14	13	13	15	14	14	14	14	15	15	15	13	12	14	14	14	14	14	14
24	14	14	14	14	14	15	14	13	14	15	15	15	15	12	12	12	12	12	12	14	14	14	14	14
25	15	15	15	14	14	14	12	12	12	14	14	13	18	16	13	13	13	12	13	14	14	14	14	14
26	14	14	14	14	14	14	14	14	13	13	18	12	12	15	15	14	12	12	13	14	14	14	14	14
27	14	14	14	14	13	15	14	14	14	14	16	16	14	14	14	14	14	14	12	14	14	14	14	14
28	14	14	14	14	14	13	13	13	13	13	13	13	13	13	13	13	13	13	13	14	14	14	14	14
29	14	14	14	14	14	14	14	14	14	14	15	17	15	16	15	15	12	14	16	15	13	13	14	14
30	14	14	14	14	14	14	13	13	13	12	12	15	16	14	14	14	13	13	12	13	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	29	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30
MED	14	14	14	14	14	14	14	14	13	14	14	14	15	15	14	14	13	13	14	14	14	14	14	14
U Q	14	14	14	14	14	14	14	14	14	15	15	16	16	15	15	14	13	14	14	14	14	14	14	14
L Q	14	14	14	14	14	14	14	13	13	13	14	13	14	14	14	13	13	12	12	13	14	14	14	14

APR. 2016 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2016 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	290	287	263 ^F	306	304	304	327	371	328	318	349	335	326	346	335	325	336	337	346	339	333	321	325	298 ^R			
2	307	300	312	324	347	344	372	372	334	360	332	354	328	325	330	334	341	327	328	324	323	333	325	316			
3	297	311	294	288	266	287 ^F	343	362	300	348	322	311		Y	319	338	317	329	331	336	331	346	307	289	276		
4	285	287	285	295	307	329	353	364	341 ^R	310	310		R	315	327		Y	320	330	323	337	336	320	355	297	279	
5	280	257	282	275	328	350	378	373	357		Y	343	329	310	320	330	335	336	334	314	327	326	314	305	296		
6	270	294	287	299	304	314	319	325	313	321	325	343	324	322	331	328	337	338	337	317	321	298	311	288			
7	297	303	294	307	305	320	366	347	352	346	326	309	329	329	329	344	338	333	325	316	324	321	307	305			
8	303	298	312	304	298	319	326	342 ^V		Y	337	337	331	317	340	343	345	331	329	323	327	334	326	306	286		
9	282	292	288	295	304	335	349	355	367	352	354	334	335	351	327	329	326	323	325	334	315	905 ^{J R}	302	301			
10	296	282	283	292	304	311		359	342	357	333	344	328	322	330	340	335	330	326	330	327	345	305	292			
11	306	301	292	313	303	318	351	363	346	351	302	344	333	343	320	327	341	327	314	322	329	325	284	301			
12	290	300	283	310	290	315	348	356	350	340	304	319	333	324	328	336	318	349	338	321	305	313	277	284			
13	287	291	326	349	305	308	342	334	313	275	305	311	273		R	315	326	334	293	326	325	298	295	286	254		
14	249	264	259	254 ^F	318	375	303	320	330		Y	319	312	309	332	327	325	353	327	335	316	273	273	287	268		
15	263	267	290	263	274	277	338	279	345	285		R	278	285	323	298	324	322	330	326	329	305	305	264	272		
16	294	280	276	277	284	303	341	348	347		V	339	306	320	342	337	327	337	332	327	315	215	311	284	277		
17	268	285	316	294	297	297	347	345		R	301	329	333	290	313	324	324	313	328	315	307	310	316	294	280		
18	281	298	295	334	323	359	354	375	291	282		R	316		323	319	329	322	325	336	312	319	316	296	287		
19	298	287	295	329	350	360	366	343	332	334	332	333	343	326	329	338	346	327	319	329	320	309	320	307			
20	298	301	311	318	304	337	351	356	367	341	327	341	333	315	318	336	329	321	308	312	337	335	316	307			
21	294	308	329	317	316	344	322		R	309		A		A	R	A	J R	309	343	333	329	330	330	328	311	321	291
22	297	295	300	318	297	299	359	331	352	337		A	307	309	317	331	318	326	342	319	314	303	296	305	308		
23	286	280	274	307	309	324		R	R	R	290	322	309	305	315	317	321	322	323	329	329	301	293	303	266		
24	266	285	323	292	321	331	333	333	314	337	326	341		R	306		A	313	312	329	320	328	302	311	294	311	
25	299	297	309	315	300	329	329	350		R	280	278	269	279	311	326	322	323	319	308	298	311	318	268			
26	280	296	300	328	314	361	338	316	323	334	326	327	318	331	322	318	318	318	325	320	330	309	307	298			
27	292	299	308	313	304	359	327	346	322	306	328	347	316	318	309	305	318	334	332	319	315	294	295	321			
28	296	287	287	309	313	327	323		R	283	312	312	300	307	304	319	318	318	323	327	319	305	294	288	289		
29	296	290	304	306	305	347	341	332	337	332	301	317	314	313	313	336	330	322	312	299	293	306	307	331			
30	311	309	317	310	306	322	329	350	325	326	333	317	297	340	315	331	345	322	321	315	287	301	298	292			
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	28	27	26	25	26	28	26	29	28	30	30	30	30	30	30	29	30	30			
MED	293	293	294	307	304	326	342	348	333	334	326	323	316	323	327	327	330	328	326	322	315	311	302	292			
U Q	297	300	311	317	314	344	352	362	347	344	333	338	328	332	330	335	337	332	332	329	326	323	307	305			
L Q	281	285	285	294	300	311	328	333	314	308	312	310	307	315	318	321	322	323	319	315	302	300	289	279			

APR. 2016 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 2016 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								400	L	L	L	L	L	368	390	L	L	L						
2								L	L	L	L	L	378	378	L	L								
3								L	L	L	L	L	L	358	L	L	L	L						
4								L	L	L	L	L	L	L	L	L	L							
5								L	L	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	L							
9								L	L	L	L	L	L	L	L	L	L							
10	A							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							
13								L	L	L	L	L	L	L	L	L	L							
14								L	L	L	L	L	L	L	L	L	L							
15								L	L	L	L	L	L	L	L	L	L							
16								L	L	L	L	L	L	L	L	L	L							
17								L	L	L	L	L	L	L	L	L	L							
18								L	L	L	L	L	L	L	L	L	L							
19								L	L	L	L	L	L	L	L	L	L							
20								L	L	L	L	L	L	L	L	L	L							
21								L	L	L	L	L	L	L	L	L	L							
22								L	L	L	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								L	L	L	L	L	L	L	L	L	L							
26								L	L	L	L	L	L	L	L	L	L							
27								L	L	L	L	L	L	L	L	L	L							
28								L	L	L	L	L	L	L	L	L	L							
29								L	L	L	L	L	L	L	L	L	L							
30								L	L	L	L	L	L	L	L	L	L							
31								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							3	5	11	11	8	9	12	9	10	15	6	3	1					
MED							364	369	374	368	371	378	374	373	370	367	358	362	350					
U Q							422	387	380	377	384	386	378	378	379	379	370	379						
L Q							363	348	364	362	363	370	369	356	359	359	353	350						

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APR. 2016 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								232	254	302	260	270	274	278	278	282	274	264							
2								250	266	256	288	262	274	298	290	284									
3							242		334	266	300	326	284	294	266	294	288	276							
4							238	238	284	278	276	278	288	292	296	282	266								
5								240	262	280	264	274	278	300	288	290	266								
6							300	332	340	306	312		296	294	288	296	270								
7								262	270	270	286	318	286	288	288	266									
8								234	272	252	278	294	298	280	264	270	266								
9							246	248	248	248	252	286	274	270	304	276	278								
10	A								266	252	268	274	280	294	286	280	272	276							
11							256	256	256	272	272	268	290	270	292	282	266								
12								272	284	296	332	308	282	282	282	270	286	250							
13							282	298	332	344	344	304	384	294	294	286	278	294							
14								300	286	292	298	324	320	280	290	274									
15								434		420	R	R	432	336	340	336	318								
16									262		308	328	308	272	304	310	282	282							
17								284	R	366	340	332	340	322	304	308	308	308							
18							252		382	368	R	E	A	334	324	294	306	302	266						
19						244	238	250	296	296	290	294	286	298	298	280	270	276							
20						268		268	266	296	298	296	310	320	320	282	282	282							
21							324	352	362		A	A	R	A	364	338	310	290	280						
22							248	306	284	292		A	348	356	320	292	320	292	264						
23							R	R	R		378	336	336	346	334	330	320	314	302	274					
24							294	304	328	288	290	310	R	352	A										
25								418	R	428	444	242	2416	332	318	306	306	280							
26							250	298	302	302	302	322	308	328	310	288	288	262							
27							262	282	324	360	304	286	316	330	324	324	318	280	258						
28							R	416	358	350	378	364	386	330	336	310	298	286							
29							286	274	296	296	312	312	312	312	318	294	278	266							
30						292	286	268	288	288	296	348	332	294	328	294	278	278							
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	14	23	27	27	26	27	27	30	29	29	26	19	5						
MED						268	259	268	286	296	298	306	298	298	296	294	282	280	274						
U Q						292	286	300	332	344	312	332	332	324	326	310	302	294	283						
L Q						244	246	250	266	272	278	286	282	288	288	281	272	266	260						

APR. 2016 h'F2 (KM)

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APR. 2016 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		292	278	270 ^Q	262	248	276	244	210	214	244	244 ^{E A}	242	180	206	192	208	214	224	236	236	248	240	254	282 ^Q		
2		282	274	274	254	224	230	218	208	202	202	192	192	206	194	194	236	258	262	248	258	252	238	254	254		
3		268 ^Q	276	278	324	326	254 ^Q	210	250	226	252 ^{E A}	212	200	200	214	212	212	230	230	240	256	218	232	254 ^Q	272 ^Q		
4		270	306	284 ^Q	274	242	246	208	200	206	206	204	192	192	198	204	216	222	272	262	248	260	210	262	292		
5		298 ^Q	298	286 ^Q	278	250	234	230	218	206	196	208	204	198	190	216	232	230	264	264	264	242	262	254	270		
6		308 ^Q	264 ^Q	274	274	284	304	228	228	222	222	222	286	186	200	198	210	226	258	260	256	256	256	256	288		
7		292	284	290	270	270	242	230	220	218	208	198	198	186	192	196	226	268	270	252	252	240	240	240	258		
8		282	294	282	276	272	290	252	204	216	198	198	196	238	212	212	212	242	270	258	252	254	242	252	264		
9		284	288	286	276	254	246	198	214	220	208	198	192	196		218	218	210	252	252	244	220	264	252	262		
10			284 ^A	274 ^Q	256 ^Q	250	276		256	212	210	198	188	198	198	198	214	226	238	258	244	244	230	230	282		
11		298	292 ^Q	292 ^Q	278	248	234	226	220	198	216	216	202	202	202	210	210	216	262	272	272	252	244	244	282		
12		292	284	310	284	294	282	250	224	224	202	200	192	192	210	224	214	220	226	252	248	270	230 ^Q	298	304 ^Q		
13		294	302	266	236	248	274	212	206	206	206	198	206	202	202	202	222	222	230	260	242	242	246	260	302 ^Q		
14		284 ^Q	300	314 ^Q	288 ^Q	248	236	262	222	234	204	204		196	204	220	220	272	284	242	244	310	284	296	308 ^Q		
15		328	312	282	294	296	306	272	224	224	208	216	234	220	268	208	224	226	274	260	258	246	268	288	284 ^Q		
16		300 ^Q	300 ^Q	290 ^Q	290 ^Q	264	290	254	268		262	338 ^{E A}		210	196	214		216	216	222	268	262	352 ^{E A}	232	248	286 ^Q	
17		294 ^Q	270	262	278	276 ^Q	310	232	220	212	278 ^{E A}	220	228	194	194	210	224	224	270	288	280	250	250	264	294		
18		302	310	278	250	244	232	214	204	204	212						202	208	216	216	222	246	260	248	256	266	294
19		284	284	268	244	224	186	196	196	186	194	202	194	190	196	210	198	218	212	274	240	246	246	242	264		
20		296	282	262	254	244	196	254	236	228	212	196	202	196	192	202	244	216	250	268	262	236	236	236	272		
21		282	276	270	242	248	248	236	236	236			208		208		210	236	212	266	266	266	262	250	250 ^Q		
22		274	270	278	250	250	254	238	228				198	218	234		244	232	214	254	248	262	284	284	284 ^Q		
23		290	302	290 ^Q	234 ^Q	242 ^Q	242	238	230	216	220	220	198	198	212	202	214	218	218	238	238	250	262	262	276 ^Q		
24		302 ^Q	260 ^Q	238	260	260	256	216	202	202	202	180	198	198	206		280	280	280	264	238	252	252	264	264 ^Q		
25		264	288	270	252	252	254	244	214	202	206	206	206	186	204	204	204	218	224	224	262	262	262	254	274 ^Q		
26		274 ^Q	254	266 ^Q	234	244	226	256	204	192	190	204	194		196	196	196	218	218	228	248	226	272	258	258		
27		276	276	276	250	270	252	208	208	208	198	196	206	206	196	196	204	204	234	230	246	246	260	274	268		
28		284	294	294	270	246	258	248	208	180	190	202	202	202	184	192	222	210 ^H	242	242	258	258	260	262	268		
29		274	274	274	274	264	238	222	222	204	200	200	200	198	198	198	198	204	204	260	272	272	272	246	246		
30		258	278	260	260	284	218	200	222	198	198	194	194	194	204	212	212	222	234	254	256	264	264	264	264		
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	30	30	30	30	30	29	30	29	28	26	28	27	29	26	30	30	30	30	30	30	30	30	30		
MED		284	284	277	266	250	250	230	220	210	206	202	200	198	202	204	215	222	236	256	254	250	254	255	273		
U Q		297	298	286	278	270	276	249	228	223	214	212	206	202	209	212	224	230	264	264	262	262	262	264	286		
L Q		275	276	270	250	246	234	213	208	202	199	198	194	192	196	198	210	216	222	242	244	244	240	250	264		

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APR. 2016 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	118	122	122	122	114	114	114	114	A	118	118	118		B	B			
2						B	126	122	122	122	116	116	116	116	110	120	122	122		A	A			
3						B	122	124	124	118	118	112	112	112	112	118	126	116		B	B			
4						B	108	116	116	116	112	112	112	112	112	112	124	116	128		A			
5							122	116	116	116	104	106	106	116	116	116	128	118		A	112			
6						B	114	114	114	114	108	108	118	110	110	110	120	120	110		A			
7					B	B	122	116	108	108	110	110	110	110	116	118	118	122		A	A			
8					B	B	116	112	114	114	114	114	114	114	114	114	114	118		A	B			
9						A	124	126	116	116	112	112	112	112		A	112	110	122		A	A		
10					B	B		122	116	116	114	120	114	112	112	112	112	124		A	A			
11					A	B	122	114	114	114	114	114	114	114	110	110	114	114	128		A			
12					B		128	114	114	114	106	114	114	108	114	114	120	120	116		A	A		
13					B	B	130	116	116	116	116	110		A	A	110	112	122	122		A	A		
14					B	B	122	124	114	114	114	114	108	108	108	120	112	112		A	A			
15					B	B	108	114	114	120	116	116	112	108	114	114	114	120	120		A			
16					B		116	130	124	124	118	108	108	108	108	108		A	118	128		A		
17					B		128	122	122	114	114	114	114	114	114	114	114		A	116		A		
18					B		124	118	118	112	116	116		116	108	110	114	114	128		A			
19					A	A	128	112	112	112	106	106	108	108	108	114	120	120	144		B			
20					B		148	122	112	112	114	114	114	114	114	114	126	116	128		A			
21					B		134	116	116	110	110	110	110	110	110	110	114	114	122		B			
22					B		124	124	114	114	114	106		A	106	106	112	112	112	112		A		
23					B		132	120	120	112	112	112	112	112	112		A	A		B	A			
24					B	B	112	112	112	112	112	112	112	112	112	112	112	112	112		A			
25					B		116	116	116	116	108	108	108	108	112	112	114	120	120		A			
26					B		120	120	120	110	110	110	110	114	114	110	110	110	128		A			
27					B		126	126	126	116	116	116	116	110	110	118	118	118	118		B			
28					B		118	118	118	108	108	108	108	116	116	116	124	116	116	116				
29					B		132	122	112	112	112	112	112	112	112	112	112	112	114					
30					B		126	120	120	120	110	110	110	110	110	110	110	110	110		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					1	10	29	30	30	30	30	30	27	29	28	29	28	29	19	1				
MED					118	127	122	117	114	114	112	112	112	112	112	112	114	118	120	112				
U Q						132	124	122	116	116	114	114	114	114	114	117	120	120	128					
L Q						120	117	114	112	112	110	110	110	109	110	111	112	113	114					

APR. 2016 h'E (KM)

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APR. 2016 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	112	B	B	B	B	B	G	152	116	116	112	106	110	106	106	114	172	148	B	98	114	114	106	106
2	106	B	B	B	106	B	168	148	136	114	114	114	156	110	110	118	156	124	124	96	B	114	B	B
3	B	B	B	B	B	B	G	150	126	114	114	198	108	108	106	106	116	136	B	B	B	B	B	B
4	B	B	B	134	B	B	134	166	108	116	110	108	110	112	112	112	112	122	116	116	B	B	B	B
5	B	100	B	B	B	B	140	128	128	106	108	104	102	112	156	138	128	124	122	112	112	112	B	B
6	B	B	B	B	B	B	G	138	124	118	110	106	106	102	110	110	152	126	94	92	110	90	B	B
7	B	B	B	B	B	B	142	138	138	112	112	112	108	110	114	150	130	122	118	110	110	B	B	B
8	B	96	B	B	110	122	122	116	118	118	118	110	110	110	118	152	118	122	116	116	108	114	B	B
9	108	B	B	108	102	104	176	110	120	112	114	114	110	104	120	G	100	142	120	112	116	114	114	B
10	B	B	B	B	B	B	132	122	114	106	106	100	100	110	110	146	134	130	112	112	114	B	B	98
11	98	98	102	102	96	B	124	118	112	110	104	102	102	124	102	98	118	150	128	94	94	B	B	B
12	B	B	B	B	B	B	164	152	118	116	102	102	108	186	108	108	154	124	120	92	92	B	B	B
13	B	B	B	B	B	B	170	156	128	108	112	108	108	108	102	102	144	144	126	106	B	B	112	132
14	104	98	98	100	B	B	182	140	140	112	114	108	108	108	112	112	132	100	100	100	100	B	B	B
15	B	102	138	128	136	B	128	124	130	126	120	120	108	112	108	126	126	120	120	118	110	110	110	B
16	108	104	104	B	B	124	150	128	124	112	108	108	102	110	110	116	108	108	124	118	118	112	104	B
17	98	98	104	B	B	134	130	130	120	116	110	110	118	110	110	114	110	114	118	112	112	112	102	B
18	B	142	B	138	116	G	136	136	128	120	120	112	110	108	106	126	116	G	100	B	100	B	B	B
19	B	B	B	100	90	90	120	112	112	144	140	136	98	98	108	108	110	122	G	B	B	B	B	B
20	B	B	B	B	B	94	170	160	140	138	126	126	130	104	182	144	144	128	128	118	118	118	118	108
21	108	126	126	126	126	G	94	138	130	124	124	124	116	136	122	114	114	144	120	120	108	98	120	B
22	B	B	120	B	B	160	136	148	130	128	116	110	106	122	120	110	110	110	174	130	118	118	116	116
23	B	B	B	B	B	B	132	132	132	132	116	116	104	104	104	98	98	84	128	92	B	B	B	B
24	B	B	B	B	B	126	126	108	112	134	122	128	128	138	120	120	120	120	120	120	106	106	116	B
25	B	B	136	B	B	136	136	102	124	118	110	108	108	104	110	110	112	122	116	114	114	116	B	B
26	B	B	90	B	B	G	142	106	172	130	112	112	112	112	112	118	118	124	124	126	B	B	B	B
27	B	116	B	B	B	98	148	148	146	140	188	110	110	110	110	110	120	146	138	B	B	B	B	B
28	B	B	B	96	B	134	134	124	124	124	120	G	104	116	114	114	114	126	126	120	94	B	B	B
29	B	B	B	B	B	94	110	140	140	140	G	190	132	98	178	178	112	134	124	90	116	116	B	B
30	B	B	130	B	122	132	146	146	116	102	102	120	102	130	186	152	136	130	120	120	120	108	108	104
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	10	10	9	9	13	26	30	30	30	29	29	29	30	30	29	30	30	26	27	21	17	10	6
MED	107	101	112	108	110	124	136	137	125	117	114	110	108	110	110	114	119	124	121	112	112	114	113	107
U Q	108	116	130	131	124	134	150	148	132	128	120	120	111	112	120	123	136	134	126	118	116	115	116	116
L Q	101	98	102	100	99	96	128	124	118	112	110	108	104	104	108	109	112	120	118	98	107	108	108	104

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IONOSPHERIC DATA STATION Wakkanai

APR. 2016 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	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	F2								CL12	C2	C2	C2	C2	C2	C2	L2	L1	HL21	CL22		L1	F1	F2	F3	F2	
2	F1				F1			C2	C2	CL22	C2	C2	C1	HL11	L1	CL11	CL21	CL21	CL21	L4	L1		F1			
3									C2	C2	C2	C2	C2	C1	C2	C3	C3	C2	C2							
4				F1				C2	H2	C2	C2	C2	C1	C1	CL11	CL11	CL12	C2	C3	CL21	C1					
5		F1						C2	C2	C2	C2	C2	C2	C2	C2	HL12	HL11	C2	C3	L5	L2	F1	F1			
6									C2	C2	C2	C2	C2	C2	LC11	CL11	CL21	HL11	C2	L2	L2	F1	F1			
7								C2	C2	C2	C2	C1	C1	C2	C1	C1	C2	C2	C4	L6	L4	F3				
8		F1			L1	L1		C2	C2	C2	C2	C1	C1	C1	C1	C1	C1	C2	C4	C5	C1	F3	F1			
9	F2			F2	L1	L1		H1	L2	CL21	C2	C2	C2	C2	L2	L2		CL21	C2	L4	L5	F3	F8	F5		
10									C2	C2	C2	L1	L1	L1	L1	C2	C2	C3	C3	C5	F5	F5	F6		F1	
11	F1	F2	F1	F2	L1			C2	C2	C1	LC21	LC11	LC11	LC11	C1	L1	LC21	C2	C2	C2	L2	F2				
12								C2	C2	C2	C2	C2	L1	C1	HL11	LC11	LC12	CL21	CL21	C1	L1	F1				
13								HL11	HL11	L1	L1	L1	L1	L2	L2	L2	L2	CL21	C2	C3	C1			F1	F1	
14	F2	F5	F2	F1				C2	C2	C2	C2	C1	C2	C2	C1	C2	C2	CL23	LC32	LL61	L6	F2				
15		F2	F1	F1	L1			C2	C3	C2	C1	C1	C1	C1	C1	C2	C2	C4	C5	L8	F6	F6	F2			
16	F1	F2	F1			C2		C2	C2	C2	C2	C1	C1	C2	C1	C2	C2	L3	L3	C3	L6	F5	F4		F1	
17	F2	F2	F2			C2		C2	C2	C2	C2	C1	C1	C1	C1	C2	C2	LL2	LL3	C5	L5	F1	F1	F1		
18		F1		F1	C1			C2	C1	C1	C1	C1	C1	C1	C2	C2	C2	C2	C2		L1		L1			
19				F1	L1	L1		L1	C1	C1	C1	CL11	CL11	L1	L1	C2	C1	L1	C2							
20					L1			C2	C2	C1	C1	C1	C2	L1	L1	HL11	C1	CL21	C3	C3	L4	F5	F5	F4	F6	
21	F3	F1	F1	F1	L1			LC12	C2	C2	C1	C2	C1	C1	C3	C2	C2	C2	C2	C1	C1	F1	F1	F1		
22			F1			C3		C2	C2	C2	C2	C2	C1	C2	C2	C2	C3	C2	C2	C1	L1	F4	F4	F4	F5	
23								C3	C2	C1	C1	C1	C1	L1	L1	L1	L2	L2	LC2	C2	LL11					
24					L2			C2	L2	C1	C1	C1	C1	C1	C1	C2	C2	C2	C4	C5	C1	F1	FF21	FF21		
25			F1		L2			C2	LC2	C1	C2	C1	C1	C2	C2	C1	C2	C3	C4	C1	F1	F1				
26			F1					C2	LC2	H1	C1	C1	C1	L1	L1	L1	CL12	CL12	CL21	C2	C1					
27		FF11			LH11			C1	CL21	C2	C1	C1	C1	C1	L1	L1	L2	C2	C2	C2						
28				F1				C2	C2	C2	C1	C1		L2	L1	L2	C2	C2	C2	C2	C1	F1				
29					L1			LC21	CL22	C2	C1		H1	C1	L1	H1	H1	C2	CL12	C3	L1	F1	F1			
30			F1		C1			C2	C2	C2	C2	L1	L1	C1	L2	C1	H1	H1	C2	C2	C3	F1		F2		
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. 2016 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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 47	X 52	X 48	X 46	X 46	X 46														X 90	X 67	X 51	X 46	X 46	
2	X 46	X 45	X 44	X 46	X 38	X 34														X 83	X 80	X 65	X 48	X 46	
3	X 45	X 45	X 47	X 41	X 40	X 46														X 92	X 73	X 40	X 42	X 43	
4	X 51	X 51	X 52	X 55	X 61	X 62														X 104	X 82	X 45	X 43	X 43	
5	X 44	X 42	X 44	X 45	X 43	X 41														X 100	X 82	X 56	X 57	X 58	
6	X 55	X 55	X 54	X 52	X 46	X 46														X 79	X 61	X 59	X 59	X 56	
7	X 54	X 55	X 55	X 51	X 49	X 46														X 94	X 74	X 56	X 52	X 50	
8	X 52	X 50	X 48	X 46	X 44	X 46														X 104	X 81	X 44	X 46	X 47	
9	X 47	X 48	X 52	X 52	X 51	C														X 86	X 68	X 58	X 64	X 64	
10	X 56	X 55	X 54	X 54	X 47	X 47														X 97	X 82	X 66	X 54	X 46	
11	X 46	X 44	X 44	X 44	X 41	X 45														X 91	X 76	X 63	X 64	X 66	
12	X 57	X 59	X 58	X 52	X 53	X 55														X 78	X 70	X 63	X 60	X 60	
13	X 59	X 58	X 62	X 62	X 39	X 42														X 93	X 66	X 56	X 58	X 58	
14	X 58	X 54	X 49	X 49	X 54	X 54														X 80	X 68	X 65	X 66	X 64	
15	X 56	X 51	X 60	X 44	X 35	X 38												X 80	X 78	X 58	X 52	X 51	X 50	X 50	
16	X 48	X 47	X 46	X 46	X 43	X 43														X 81	X 70	X 56	X 53	X 62	
17	X 59	X 54	X 54	X 51	X 46	X 48														X 89	X 64	X 47	X A	X 48	
18	X 49	X 49	X 50	X 50	X 38	X 40														X 79	X 69	X 60	X 58	X 58	
19	X 58	X 57	X 60	X 62	X 39	X 39														X 81	X 70	X 58	X 58	X 55	
20	X 54	X 52	X 53	X 45	X 45	X 46														X 87	X 84	X 62	X 59	X 55	
21	X 55	X 54	X 52	X 48	X 43	X 44														X 75	X 73	X 61	X 58	X 58	
22	X 55	X 54	X 54	X 48	X 40	X 44														X 69	X 62	X 58	X 61	X 60	
23	X 54	X 49	X 51	X 48	X 46	X 47														X 73	X 65	X 58	X 56	X 55	
24	X 56	X 54	X 55	X 53	X 40	X 41														X 85	X 64	X 56	X 56	X 54	
25	X 55	X 54	X 48	X 45	X 46	X 47														X 78	X 79	X 68	X 59	X 58	
26	X 57	X 60	X 53	X 57	X 48	X 50														X 81	X 69	X 59	X 57	X 57	
27	X 54	X 52	X 53	X 50	X 47	X														X 77	X 70	X 61	X 60	X 60	
28	X 59	X 57	X 52	X 55	X 43	X 50														X 76	X 63	X 63	X 61	X 61	
29	X 63	X 60	X 60	X 59	X 47	X 49														X 75	X 78	X 75	X 70	X 60	
30	X 58	X 56	X 54	X 52	X 50	X 56														X 78	X 74	X 73	X 72	X 70	
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	28													1	30	30	30	29	30	
MED	X 55	X 54	X 52	X 50	X 46	X 46													X 80	X 81	X 70	X 58	X 58	X 58	
U Q	X 57	X 55	X 54	X 53	X 47	X 48														X 91	X 78	X 63	X 60	X 60	
L Q	X 49	X 49	X 48	X 46	X 40	X 42														X 78	X 66	X 56	X 52	X 50	

APR. 2016 f_{XI} (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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

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	41	F	42	39	40	40	57	60	74	75	79	84	88	92	92	75	69	72	81	84	62	45	40	40
2	40	39	38	41	32	28	48	62	62	73	72	76	85	82	87	77	72	68	76	77	74	59	42	40
3	39	39	F	35	34	F	53	57	68	72	91	84	90	94	94	75	70	75	93	86	67	34	36	37
4	F	F	F	F	F	F	56	65	73	72	79	85	89	86	88	95	92	82	88	98	76	41	37	37
5	38	36	38	39	36	35	58	70	64	66	76	84	92	88	82	86	77	84	90	93	76	50	F	F
6	F	49	47	46	40	40	49	60	62	70	81	88	106	101	97	80	77	84	80	73	54	52	53	50
7	49	49	49	45	43	40	58	62	66	78	84	97	92	74	72	71	73	79	90	88	68	50	46	43
8	46	44	42	40	38	40	64	83	66	86	66	86	96	98	100	68	68	78	91	98	75	38	39	41
9	40	42	F	F	F	C	58	69	70	73	79	91	96	93	80	80	89	80	84	80	62	52	F	F
10	50	49	F	F	F	40	60	64	76	77	86	81	80	83	90	95	86	83	90	91	76	60	48	40
11	40	38	38	37	35	39	60	73	70	71	75	83	88	86	85	77	73	77	86	85	71	57	F	F
12	51	F	F	46	46	F	67	65	70	74	62	79	83	85	86	87	80	84	86	72	64	57	54	54
13	53	52	56	56	32	35	56	59	63	66	75	95	86	97	104	80	81	80	95	87	60	50	52	52
14	F	F	43	43	48	48	61	64	68	83	99	93	92	99	99	86	82	80	88	74	62	59	F	F
15	50	45	54	38	28	32	48	53	55	55	64	68	70	71	78	70	65	72	74	72	52	45	45	44
16	42	41	40	40	37	37	56	61	64	62	66	74	88	107	98	92	84	82	79	74	64	50	47	F
17	F	47	F	45	40	42	42	46	49	54	71	82	74	81	81	78	70	73	82	83	58	41	A	42
18	43	43	44	44	32	34	52	60	57	62	66	74	70	80	80	73	76	78	76	73	63	54	52	52
19	52	50	54	56	33	33	51	55	59	64	74	77	76	78	78	78	75	72	74	75	64	52	52	49
20	48	46	47	39	39	40	52	57	57	64	67	69	72	74	80	87	83	79	78	81	78	56	53	49
21	49	48	46	42	37	37	60	55	52	55	58	60	68	68	70	73	71	66	62	69	67	55	52	51
22	49	48	F	41	34	38	55	60	62	59	56	56	65	77	83	78	74	66	66	63	56	52	55	54
23	48	43	F	42	39	41	44	48	48	56	65	70	71	74	80	85	83	73	68	67	58	52	50	49
24	F	F	F	47	34	35	48	60	58	62	62	63	61	67	70	76	75	A	80	79	58	50	50	48
25	49	48	42	39	40	40	56	54	50	58	60	64	64	69	66	70	66	58	61	72	73	62	53	52
26	50	54	47	51	42	44	49	54	59	64	64	66	68	71	73	76	77	71	77	75	62	53	50	51
27	48	46	47	44	41	47	58	56	59	65	70	74	81	76	82	86	90	76	76	71	64	55	54	54
28	53	50	46	49	37	44	53	59	60	58	61	63	60	61	65	74	69	65	69	70	57	56	55	55
29	57	54	54	53	41	43	55	66	63	67	67	68	68	74	74	84	75	62	60	68	72	69	64	54
30	52	49	48	46	44	50	66	66	66	63	61	64	70	86	94	91	75	64	62	71	68	66	66	64
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	25	25	21	27	27	26	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	25	25
MED	49	47	46	43	38	40	56	60	62	66	68	76	80	82	82	78	75	76	80	75	64	52	52	49
U Q	50	49	48	46	41	42	58	65	68	73	79	84	89	92	92	86	82	80	88	85	72	57	54	53
L Q	42	42	42	39	34	35	51	56	58	62	64	68	70	74	78	75	71	70	74	72	60	50	46	42

APR. 2016 foF2 (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 f_oF₁ (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	U	L	U	L	U	L	L								
2											484	484	472	472	464		L	L							
3										456	480	492		L	U	L	L								
4										U	L	L	U	L	A	U	L	A	L	L					
5										484		488	504		468		L	L	A						
6									L	L	A	L	L	L	U	L	L	L	A						
7											A	U	L	L	A	U	L	A	A	A					
8											476			472											
9									L	A	A	A	A	A	A	A	L	L							
10										L	A	A	A	A	A	L	L	L	A						
11																									
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22																									
23																									
24																									
25																									
26																									
27																									
28																									
29																									
30																									
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									6	17	18	18	20	19	21	11	4								
MED									U	L	U	L	U	L	U	L	U	L							
U Q									442	464	466	480	480	472	464	444	410								
L Q									U	L	U	L	U	L	U	L	U	L							
									444	468	480	488	494	484	470	460	416								
									U	L	U	L	U	L	U	L	U	L							
									436	454	460	468	472	468	456	444	400								

APR. 2016 f_oF₁ (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 f_oE (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							B 236	A	R	R	R	R	R	R	R	R	U 276	U 220	R	B					
2							200	268	300		R	R	R	R	R	R	U 276	U 224	R	B					
3							U 204	R 256	A	A	A	A	A	A	A	A	A	A	A	B					
4							176	256		R	R	A	R	R	R	R	R	A	A	B					
5							B 268		A	A	A	A	A	A	R	A	A	A	A	B					
6							U 204	A	A	A	A	A	A	A	A	A	R	A	A	B					
7								R	A	A	A	A	A	A	A	A	A	A	A	B					
8							196	A	A	A	A	A	A	A	A	R	U 312	U 292	R	A	B				
9							A	A	A	A	A	A	A	A	A	R	A	A	A	B					
10							212	272		A	A	A	A	A	A	A	U 316	U 296	A	B					
11							A	A	A	A	A	A	A	A	R		U 348	U 340	A	A	B				
12							208		A	A	A	A	A	A	R		R	U 276	A	A	B				
13							196	264		A	A	A	A	A	R	R	U 284	U 232	A	B					
14							A	A	A	A	A	A	A	A	R	U 316	A	A	A	B					
15							A	A	A	A	A	A	A	A	A	A	A	A	A						
16							220		A	A	A	A	A	A	A	A	A	A	A	B					
17							224	268		A	A	A	A	A	A	A	A	R	A	B					
18							208		R	A	A	B	A	A	A	R	U 336	R	A	B					
19							232	276		R	R	R	R	R	R	R	R	R	R	B					
20							204		A	A	A	A	A	A	A	A		R	A	B					
21							A 280	U A	A	A	A	A	R	R	A	R	A	A	A	B					
22							212		A	A	A	A	A	A	A	R	A	A	A	B					
23							A	A	A	A	A	A	A	A	A	R	A	A	A	B					
24							220	272		A	A	R		A	A	A	A	A	A	B					
25							R	A	A	A	R		R	A	R	U 332	R	R	A	B					
26							A	A	A	A	A	A	A	A	A	A	A	U 240	A	B					
27						B	232	284		A	A	R	A	A	A	R	A	R	A	B					
28							A	A	A	A	A	A	A	A	R	A	R	A	A	B					
29							236	288		A	A	A	A	A	R	R		A	A	B					
30							232		A	A	U 392	R		A		380	356	328	A	A	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							18	13	1		1	1			1	2	9	6	6						
MED							210	268	300		U 392	R 372			380	352	U 316	U 280	230						
U Q							224	278									U 334	U 292	236						
L Q							204	260									U 308	U 276	224						

APR. 2016 f_oE (0.01MHz)

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APR. 2016 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	J A 66	J A 40	E B 15	E B 20	J A 19	E B 15	22	27	31	G	G 28	G 29	G 28	G	G	G	G	G	E B 15	E B 20	E B 15	E B 15	E B 14	E B 16	
2	E B 16	19	E B 14	E B 15	18	E B 14	24	29	35	G	G 28	G 31	G 30	G 26	G 25	G	G	27	18	J A 20	22	E B 15	22	E B 15	
3	22	E B 14	E B 15	E B 15	E B 16	E B 15	G	32	36	39	J A 44	J A 39	J A 43	39	38	40	33	27	J A 24	J A 20	22	J A 27	E B 15	E B 15	
4	E B 15	20	E B 15	E B 15	E B 15	E B 15	23	29	G	G 24	42	G	G	G	G	25	33	30	J A 29	J A 32	J A 50	J A 31	22	23	
5	E B 16	18	E B 14	E B 14	21	E B 15	23	30	36	J A 47	J A 40	42	47	G	41	46	50	50	J A 56	J A 48	J A 56	J A 44	82	J A 36	
6	J A 28	22	E B 14	E B 19	E B 15	E B 14	24	J A 34	J A 46	J A 48	J A 52	J A 55	J A 66	62	J A 50	28	31	J A 32	J A 44	J A 84	J A 71	J A 65	J A 21	J A 23	
7	J A 30	E B 15	E B 15	E B 15	E B 15	E B 15	23	G	J A 41	J A 43	J A 48	J A 45	J A 44	J A 53	37	G	35	46	J A 35	J A 105	J A 45	J A 24	J A 24	J A 37	
8	J A 22	E B 15	E B 32	E B 36	E B 22	E B 32	23	J A 38	36	41	44	41	40	38	G	28	G	G	J A 30	J A 27	J A 32	J A 26	J A 76	J A 50	
9	J A 25	J A 23	20	J A 21	J A 27	C	J A 74	J A 69	J A 41	37	39	40	43	41	G	38	62	36	20	22	J A 48	J A 25	J A 28	J A 26	
10	J A 26	J A 22	J A 33	J A 87	22	20	G	33	40	52	55	66	84	54	40	39	38	J A 49	J A 59	J A 108	J A 51	J A 34	J A 21	J A 37	
11	J A 49	E B 15	19	20	J A 20	J A 20	33	33	36	37	44	44	41	31	42	45	70	52	60	31	96	84	35	24	
12	E B 15	E B 15	E B 16	E B 15	E B 14	E B 14	24	36	36	40	40	51	39	40	G	26	32	38	29	28	20	19	E B 15	E B 15	
13	E B 14	E B 14	E B 15	E B 15	E B 14	E B 14	25	31	37	38	40	42	41	G	G	G	32	31	19	20	22	20	J A 20	20	
14	E B 15	E B 15	19	E B 14	E B 20	E B 14	24	30	34	J A 46	J A 51	J A 55	J A 99	G	G	41	J A 54	J A 48	J A 26	J A 20	18	E B 15	E B 15	E B 15	
15	19	J A 29	J A 24	20	20	E B 15	27	31	35	J A 52	41	40	42	J A 72	J A 82	J A 50	55	32	J A 33	J A 57	70	J A 30	J A 22	J A 50	
16	J A 30	J A 28	J A 23	J A 38	J A 22	J A 24	26	38	39	J A 39	J A 50	J A 60	J A 44	J A 41	J A 46	37	J A 36	26	41	39	28	55	112	J A 56	
17	J A 34	J A 24	E B 15	J A 22	E B 14	E B 14	G	31	J A 45	J A 50	J A 52	J A 48	J A 55	J A 54	J A 52	36	26	27	E B 16	22	42	J A 53	J A 56	J A 24	
18	J A 22	20	J A 23	J A 24	E B 20	E B 14	26	G	35	J A 48	45	51	44	41	G	30	24	30	27	21	21	E B 16	E B 15	E B 15	
19	18	E B 15	E B 16	E B 15	E B 14	E B 14	25	31	G	G	G	G	G	G	G	29	24	G	J A 30	J A 28	J A 23	J A 41	J A 32	J A 15	
20	E B 15	E B 15	E B 15	E B 21	J A 26	J A 15	27	33	38	40	43	J A 47	J A 74	J A 96	J A 45	36	G	J A 38	J A 30	J A 35	J A 76	J A 26	J A 28	J A 64	
21	J A 46	J A 37	J A 23	J A 20	J A 22	J A 24	44	38	41	40	43	J A 48	G	G	39	G	J A 33	31	22	16	J A 25	J A 20	J A 25	J A 15	
22	E B 15	E B 14	E B 22	E B 20	J A 22	J A 15	29	36	37	42	41	40	39	41	G	37	34	28	22	22	31	28	38	E B 15	
23	J A 28	J A 38	J A 23	J A 14	E B 14	E B 20	32	34	38	41	38	41	40	44	42	G	35	J A 38	J A 45	J A 44	J A 38	J A 32	J A 24	J A 15	
24	E B 15	E B 15	E B 15	E B 15	J A 21	J A 16	26	32	37	42	G	42	41	61	49	65	77	73	32	30	41	55	58	58	
25	J A 37	E B 15	E B 15	E B 15	E B 15	E B 14	G	G	J A 44	36	G	G	G	G	G	37	36	G	J A 34	J A 40	J A 33	J A 25	J A 20	J A 16	
26	E B 14	E B 15	E B 14	E B 14	E B 14	18	26	32	38	J A 42	J A 46	J A 43	41	40	37	37	36	36	J A 33	J A 29	J A 23	14	J A 19	J A 22	
27	22	E B 14	E B 15	E B 15	E B 15	17	26	32	36	38	G	40	42	38	G	37	G	32	J A 28	J A 26	28	23	E B 14	E B 15	
28	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	27	32	J A 39	40	39	40	41	G	40	G	J A 50	J A 62	J A 51	J A 96	J A 30	J A 20	E B 16	J A 19	
29	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	28	33	J A 45	37	41	J A 42	38	G	G	40	39	J A 47	J A 38	J A 38	21	15	23	J A 22	
30	E B 16	E B 15	E B 16	E B 19	E B 15	E B 15	28	32	39	40	G	G	G	G	G	42	44	44	45	42	J A 44	J A 34	J A 84	J A 71	J A 78
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	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	20	E B 15	E B 15	E B 16	E B 17	E B 15	26	32	37	40	41	42	41	40	37	36	34	34	J A 30	J A 30	J A 32	J A 26	J A 22	J A 21	
U Q	J A 28	J A 22	J A 22	J A 20	J A 21	J A 18	27	34	40	43	45	48	44	44	42	40	42	46	38	44	50	44	35	36	
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	23	30	36	37	38	40	39	G	G	G	G	G	30	24	22	22	E B 20	E B 16	

APR. 2016 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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 15	E 15	E 15	E 15		19	25	29	G	G	G	G	G	G	G	G	E 15	E 15	E 15	E 15	E 14	E 16		
2	E 16	E 15	E 14	E 15	E 14	E 14		23	29	34	G	G	G	G	G	G	G		24	18	E 15	E 15	E 15	E 15	E 15	
3	E 14	E 14	E 15	E 15	E 16	E 15		G	28	33	36	37	37	38	37	36	35	29	25	18	E 15	E 15	23	E 15	E 15	
4	E 15	E 15	E 15	E 15	E 15	E 15		22	27		G	G	G	G	G	G	G	24	31	29	24	24	31	E 15	E 15	E 14
5	E 16	E 15	E 14	E 14	E 15	E 15		21	28	34	39	38	40	42		G	39	39	44	46	49	46	37	E 16	17	22
6	E 15	E 15	E 14	E 16	E 15	E 14		22	31	39	43	47	49	60	59	46	G	26	29	28	39	34	27	E 16	E 15	E 15
7	E 15	E 15	E 15	E 15	E 15	E 15		G	22		35	38	44	42	41	46	35	G	33	35	30	36	25	20	E 15	E 15
8	E 19	E 15	E 20	E 20	E 16	E 30		21	32	34	36	38	38	38	37	G	G	G		28	24	21	21	20	E 16	E 16
9	E 15	E 15	E 15	E 15	E 18	C		44	58	33	35	38	38	42	38		G	36	39	30	18	E 15	20	17	19	E 14
10	E 15	E 15	E 18	E 18	E 15	E 15		G	30	38	47	47	62	68	46	39	37	37	39	54	30	43	24	E 15	E 22	
11	E 23	E 15	E 15	E 14	E 15	E 16		23	30	34	34	38	38	38	29	40	42	64	35	48	22	20	E 14	E 14	E 15	
12	E 15	E 15	E 16	E 15	E 14	E 14		23	35	34	38	38	44	36	37	G	G	G	31	32	22	18	E 14	E 15	E 15	
13	E 14	E 14	E 15	E 15	E 14	E 14		22	28	35	34	39	39	39		G	G	G	31	30	18	E 14	E 15	E 15	E 15	
14	E 15	E 15	E 15	E 14	E 14	E 14		22	29	33	41	45	50	50		G	G	40	40	31	20	E 15	E 15	E 15	E 15	
15	E 15	E 15	E 15	E 15	E 15	E 15		23	30	34	46	40	38	38	59	70	44	39	28	27	28	22	E 15	E 14	19	
16	E 18	E 16	E 14	E 15	E 16	E 18		23	35	34	37	39	40	39	39	35	34	35	25	36	34	26	18	22	32	
17	E 19	E 14	E 15	E 15	E 14	E 14		G	30	40	44	45	44	52	48	44	34	24	26	E 16	E 16	33	22	A 56	17	
18	E 15	E 15	E 15	E 15	E 15	E 14		G	23		34	42	43	43	37	37	G	G	G	26	21	17	E 16	E 16	E 15	
19	E 16	E 15	E 16	E 15	E 14	E 14		25	30		G	G	G	G	G	G	G		27	21	19	20	E 15	E 15	E 15	
20	E 15	E 15	E 15	E 15	E 15	E 15		26	31	35	38	42	44	40	39	40	34	G		E 32	E 36	21	41	22	24	26
21	E 22	E 21	E 15	E 14	E 15	E 15		38	33	37	38	40	40		G	G	G	32	28	16	E 16	E 15	E 15	E 15	E 15	
22	E 15	E 14	E 15	E 15	E 15	E 15		26	32	34	38	38	37	38	38		G	36	32	26	19	E 15	20	22	E 24	E 15
23	E 19	E 18	E 14	E 14	E 14	E 18		29	30	34	38	36	38	38	41	41		G	32	32	39	40	18	E 15	E 15	E 15
24	E 15	E 15	E 15	E 15	E 16	E 16		24	31	34	38	G	41	40	58	42	60	69	A 73	24	18	22	31	35	31	
25	E 24	E 15	E 15	E 15	E 15	E 14		G	G	24	38	34		G	G	34	36	G	G	24	34	31	37	22	E 17	E 16
26	E 14	E 15	E 14	E 14	E 14	E 16		24	30	34	38	41	39	38	38	35	32	34	34	28	22	20	E 14	E 15	E 15	
27	E 15	E 14	E 15	E 15	E 15	E 16		25	30	34	36	G	39	41	37		G	36	G	30	24	20	23	E 15	E 14	E 15
28	E 15	E 15	E 15	E 16	E 15	E 15		25	30	37	38	37	37	41		G	39	G	44	50	43	35	24	18	E 16	E 15
29	E 14	E 15	E 15	E 15	E 15	E 15		25	31	36	36	40	40	37		G	G	39	35	38	31	19	E 15	E 15	E 19	E 15
30	E 16	E 15	E 16	E 15	E 15	E 15		26	31	36	37	G	G	40	42	40	44	40	38	30	17	18	21	17	33	
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	29	30	30	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		23	30	34	38	38	39	38	37	35	33	32	30	24	20	20	E 16	E 15	E 15	
UQ	E 16	E 15	E 15	E 15	E 15	E 16		25	31	36	38	41	42	41	41	40	37	39	35	36	30	25	20	17	17	
LQ	E 15	E 15	E 15	E 15	E 14	E 14		22	28	34	35	G	G	G	G	G	G	G		E 27	E 19	E 16	E 15	E 15	E 15	

APR. 2016 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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

$\frac{H}{D}$	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	15	15	15	15	15	15	14	14	16	13	16	15	16	16	16	14	15	15	15	15	15	15	14	16	
2	16	15	14	15	14	14	15	14	16	15	17	13	18	12	14	14	12	14	13	15	15	15	15	15	
3	14	14	15	15	16	15	14	15	14	13	14	16	18	18	16	16	15	15	14	15	15	15	15	15	
4	15	15	15	15	15	15	12	13	14	14	16	16	16	18	18	15	15	13	14	15	15	15	15	14	
5	16	15	14	14	16	15	15	14	12	14	12	14	16	20	17	14	15	14	14	14	14	16	16	15	16
6	15	15	14	16	15	14	15	15	12	14	13	18	20	20	16	13	12	14	12	14	16	16	15	15	
7	15	15	15	15	15	15	13	14	16	16	17	18	18	20	16	16	14	14	14	14	15	14	15	16	
8	15	15	14	15	14	15	14	14	14	14	17	18	20	18	18	14	15	13	14	15	14	15	16	16	
9	15	15	15	15	15	C	15	15	14	12	16	18	17	22	18	16	15	15	13	15	15	14	15	14	
10	15	15	15	14	16	15	13	14	15	14	19	21	26	20	17	15	16	14	15	15	15	15	15	16	
11	16	15	15	14	15	15	14	13	14	15	18	18	19	18	15	13	15	15	15	14	15	14	14	15	
12	15	15	16	15	14	14	15	14	13	14	17	16	16	16	14	14	14	13	14	14	14	15	15	15	
13	14	14	15	15	14	14	15	13	13	14	17	17	17	16	18	16	14	14	14	14	15	15	15	14	
14	15	15	15	14	14	14	14	14	13	18	18	18	18	18	17	16	12	12	12	15	15	15	15	15	
15	15	15	15	15	15	15	14	14	16	16	16	17	13	17	17	18	13	12	14	14	15	14	14	15	
16	14	14	14	15	14	15	14	14	14	19	19	17	23	20	14	16	14	14	13	14	15	15	14	15	
17	15	14	15	15	14	14	14	12	15	14	21	21	20	18	20	17	14	14	16	16	16	14	15	15	
18	15	15	15	15	15	14	13	13	13	16	35	18	17	17	14	18	13	13	13	14	16	16	15	15	
19	16	15	16	15	14	14	14	13	13	13	17	18	18	21	14	14	14	12	15	14	14	15	15	15	
20	15	15	15	15	15	15	14	14	16	17	15	16	21	20	14	14	14	13	36	14	15	14	15	15	
21	15	15	15	14	15	15	14	13	13	18	16	16	18	15	16	17	13	12	13	16	15	15	15	15	
22	15	14	15	15	15	15	13	14	14	17	19	18	18	20	18	15	14	13	14	15	15	15	14	15	
23	14	15	14	14	14	14	14	14	13	17	18	17	17	16	18	17	14	12	13	14	14	15	15	15	
24	15	15	15	15	16	16	14	14	13	14	19	16	16	20	19	15	13	13	14	14	15	15	15	15	
25	16	15	15	15	15	14	14	14	12	16	22	17	17	18	18	16	16	14	14	14	14	14	15	16	
26	14	15	14	14	14	14	14	14	14	14	17	19	16	18	18	15	15	13	15	15	15	14	15	15	
27	15	14	15	15	15	14	14	15	14	18	16	21	18	16	17	16	14	13	14	14	15	15	14	15	
28	15	15	15	16	15	15	15	14	14	18	17	19	18	20	17	19	15	14	14	15	15	15	16	15	
29	14	15	15	15	15	15	14	14	18	15	18	20	20	18	16	15	13	14	14	14	15	15	15	15	
30	16	15	16	15	15	15	14	14	14	17	16	19	20	17	18	14	14	14	13	15	16	14	15	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	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	15	15	15	15	15	15	14	14	14	15	17	18	18	18	17	15	14	14	14	14	15	15	15	15	
U Q	15	15	15	15	15	15	14	14	15	17	18	18	20	20	18	16	15	14	14	15	15	15	15	15	
L Q	15	15	15	15	14	14	14	14	13	14	16	16	17	17	16	14	13	13	13	14	15	14	15	15	

APR. 2016 fmin (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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

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		320	F	301	297	313	329	365	360	359	353	342	319	312	322	339	336	335	328	336	354	374	321	293	288
2		292	294	307	337	326	339	370	376	352	341	341	311	327	319	330	341	340	329	320	338	342	355	316	307
3		289	300	F	274	268	F	384	351	360	303	334	315	303	320	336	346	329	315	340	346	361	333	274	286
4		F	F	F	F	F	F	338	354	350	339	319	303	317	315	311	326	336	331	328	346	365	299	285	282
5		280	300	288	332	338	330	383	373	352	344	312	318	325	331	317	339	325	328	335	337	353	314	F	F
6		F	275	299	308	319	306	337	353	350	336	339	309	331	319	333	333	338	341	347	342	316	273	291	287
7		292	294	301	315	321	323	360	353	338	349	312	319	334	334	328	320	334	333	342	352	339	308	290	292
8		297	288	302	333	318	321	353	354	358	364	317	291	313	318	341	348	320	324	323	344	376	292	272	285
9		282	284	F	F	F	C	373	371	363	345	314	323	320	313	324	310	337	337	345	347	346	306	F	F
10		295	303	F	F	F	307	379	351	356	345	345	334	318	314	318	321	324	329	326	331	344	320	310	289
11		301	315	308	313	313	343	363	355	356	361	327	336	320	326	330	328	333	332	329	341	335	294	F	F
12		281	F	F	286	294	F	360	354	360	349	358	313	305	322	321	334	333	332	343	320	315	297	290	283
13		284	274	321	358	356	314	369	343	362	321	279	321	306	307	334	316	331	324	336	345	330	276	273	297
14		F	F	270	284	324	347	361	349	320	308	321	298	309	311	333	333	340	325	336	343	283	276	F	F
15		255	276	338	336	291	296	348	339	330	315	321	328	322	314	327	335	342	335	334	342	336	289	289	281
16		282	291	288	297	303	300	332	347	334	326	311	312	303	324	325	329	326	336	342	344	336	293	286	F
17		F	282	F	321	317	369	357	337	321	313	296	333	306	317	324	333	310	319	316	341	369	270	A	283
18		286	296	306	341	367	357	353	365	350	323	328	339	320	330	332	324	330	336	336	329	336	286	292	278
19		281	292	319	371	331	335	374	372	347	331	331	334	325	317	326	329	335	323	329	345	342	295	290	299
20		292	298	331	303	316	330	380	386	364	340	348	329	318	306	319	327	334	331	310	328	331	301	288	288
21		279	299	336	338	321	344	339	366	319	328	333	322	330	329	324	325	340	340	329	319	339	314	297	294
22		299	300	F	323	302	322	339	355	357	323	309	305	292	300	323	319	327	333	339	330	316	280	281	312
23		301	285	F	302	294	351	322	355	304	302	301	317	304	313	305	318	336	338	330	325	326	297	287	281
24		F	F	F	350	314	343	334	336	349	324	327	307	312	326	321	322	320	A	330	347	322	292	287	277
25		294	319	302	283	310	322	359	348	346	333	325	317	310	328	318	326	338	319	310	309	320	322	298	293
26		282	298	291	308	342	353	352	350	319	330	341	321	313	318	314	321	332	326	337	329	334	309	298	293
27		296	295	308	317	311	341	374	357	319	341	309	328	319	309	314	306	336	326	326	322	323	301	298	287
28		291	295	289	332	311	350	348	354	350	331	304	321	313	304	293	328	333	335	344	330	303	292	288	286
29		292	288	313	344	303	318	345	340	339	304	344	307	325	332	317	335	348	336	317	309	306	303	323	305
30		286	294	298	320	313	328	366	345	356	362	335	306	289	323	328	342	352	339	323	307	311	288	292	301
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		25	25	21	27	27	26	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	25	25
MED		291	294	302	320	314	330	360	354	350	332	326	318	315	318	324	328	334	331	332	340	336	297	290	288
U Q		296	300	316	337	324	344	370	360	357	345	339	328	322	326	330	335	338	336	339	345	344	309	298	296
L Q		282	286	294	302	303	321	345	348	334	323	312	309	306	313	318	321	329	326	326	328	320	289	286	283

APR. 2016 M(3000)F2 (0.01)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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	U	L	U	L	U	L	L								
2											381	394	402	377	359		L	L							
3										392	388	383		L	U	L	L								
4									U	L	L	U	L	U	L	A	L	L							
5									L	L	A	L	L	L	U	L	L	L	A						
6											A	U	L	L	A	U	L	L	A	A	A				
7								L	A	A	A	A	A	A	A	A	L	L	L						
8									L	A	A	A	A	A	L	L	L	L	A						
9								A	L	L	L	U	L	A	L	L	L	A	A						
10									A	A	A	A	A	A	A		L	A	A						
11								L	L	L	U	L	L	U	L	L	A	A	A	A	A				
12									L	U	L	L	A	U	L	U	L	L	L	L	A				
13									A	L	L	L	L	U	L	L	L	L	L	A					
14										U	L	A	A	A	U	L	U	L	A	A	A				
15								L	U	L	A	U	L	L	A	A	A	A	L						
16									L	U	L	U	L	U	L	U	L	L	L	L					
17								L	A	A	A	A	A	A	A	A	U	L	L	L					
18									L	A	E	B	A	U	L	U	L	L	L	A					
19									L	U	L	U	L	U	L	U	L	U	L	L					
20									L	U	L	L	A	U	L	L	U	L	L	A					
21							A	A	U	L	U	L	U	L	U	L	U	L	L	L					
22								L	U	L	U	L	U	L	U	L	U	L	L	L					
23								A	U	L	L	U	L	A	U	L	U	L	L	A	A				
24								A	U	L	L	U	L	A	A	A	A	A	A	A					
25								L	A							U	L	L	L	A					
26								L	L	U	L	U	L	U	L	U	L	U	L	A					
27									L	U	L	U	L	U	L	U	L	L	L	A	A				
28								L	L	391	426	389	379	U	L	374	373	357	A	A	A				
29									U	L	U	L	U	L	U	L	A	A	A	A					
30									L	U	L	U	L	U	L	A	A	A	A						
31										384	401	405	368	378	357										
	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									6	17	18	18	20	19	21	11	4								
MED									U	L	U	L	U	L	U	L	U	L	U	L	U	L	U	L	U
U Q									372	384	390	390	386	380	376	367	379								
L Q									U	L	U	L	U	L	U	L	U	L	U	L	U	L	U	L	U
									378	391	399	403	396	392	387	372	381								
									U	L	U	L	U	L	U	L	U	L	U	L	U	L	U	L	U
									364	378	381	383	376	371	368	363	371								

APR. 2016 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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									236	246	250	278	278	272	266	262	264							
2										266	264	302	274	288	260	254	262							
3										300	252	282	296	270	264	252	272	278						
4									246	252	282	272	292	282	298	270	254	258						
5										250	272	276	276	272	276	256	260	256						
6								258	260	270	252	294	268	268	254	254	260							
7									268	258	272	274	242	260	272	292	272	258						
8									250	234	286	316	278	282	252	254	282	270						
9								240	248	250	272	276	268	290	260	292	258	246						
10									246	246	250	266	E A 320	272	286	272	260	252						
11								258	240	248	298	260	296	274	274	276	E A 306	258	254					
12									242	268	240	302	282	284	280	258	258	256						
13									236	306	322	274	302	292	250		270	270						
14										300	280	254	286	292	260	260	254	246						
15								278	296	E A 340	318	294	302	E A 324	E A 316	264	262	266						
16									272	298	326	292	308	266	266	266	264	260						
17								290	E A 310	E A 328	342	276	E A 302	290	284	266	292	272						
18									272	308	284	268	292	280	264	270	272	250						
19									262	278	272	278	288	284	276	284	258							
20									246	276	284	292	300	314	286	272	258	254						
21								246	252	326	318	302	324	300	292	304	288	256	250					
22									264	256	320	346	348	356	320	286	288	276	252					
23									256	378	354	318	298	332	306	310	282	260	252	244				
24									266	270	306	292	330	336	320	296	296	336	A	254				
25									268	258	302	318	326	344	296	300	294	268	258					
26									256	306	288	288	316	322	310	312	290	274	264					
27									310	276	318	288	288	300	300	294	254	252	244					
28									268	266	298	324	304	350	362	352	286	262	E A 264	246				
29									272	284	284	326	296	284	304	274	254	256	262					
30									252	254	294	356	372	288	274	254	242	236						
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	12	26	30	30	30	30	30	30	29	30	25	6					
MED							246	261	260	278	285	292	295	286	277	271	261	256	250					
U Q								268	272	306	318	316	320	300	300	288	272	264	254					
L Q								256	246	254	272	276	282	274	264	259	258	252	244					

APR. 2016 h'F2 (KM)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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

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	E	B	E	B	E	B	E	B	E	B	E	B	E	B
2	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
3	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
4	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
5	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
6	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
7	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
8	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
9	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
10	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
11	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
12	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
13	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
14	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
15	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
16	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
17	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
18	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
19	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
20	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
21	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
22	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
23	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
24	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
25	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
26	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
27	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
28	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
29	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
30	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	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	29	29	26	25	23	23	22	23	22	25	22	20	11	24	30	30	30	29	30
MED	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
UQ	296	288	276	254	240	246	225	222	217	210	208	202	216	216	217	212	221	232	242	230	226	264	290	294
LQ	272	270	250	224	220	220	210	212	207	198	194	190	196	198	202	204	212	218	230	216	210	218	255	270

APR. 2016 h'F (KM)

IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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							B 122		A 112	114	116	116	116	114	112	112	116		B					
2							124	112	108	108	114	116	116	114	114	114	114	114		B				
3							122	118	112	108		A	A	A	A	A		114	112		B			
4							112	112	110	116	114	112	112	112	112	118	118	122		B				
5							B 114	114		A	A	A	A		114	114	112	112	110		B			
6							118	114		A	A	A	A	A	A		114	116	120		B			
7							120	116		A	A	A	A		A		110	112	112		B			
8							112	114		A	A	A	A		A	110	116	114	114		B			
9							A	A		A	A	A	A		A	114	112		A	116		B		
10							116	112	112		A	A	A		A	110	110	108	110		B			
11							A			A	A	A	A		114	112	112		A	A	B			
12							118	110	110	110		A	A	A		110	112	112		A	B			
13							116	114	116	116	114		A	A	112	118	116	112	112		B			
14							118	118	118		A	A	A		114	114	112		A	A	B			
15							122	122	112	112	112	114	114		A	A	A		A	114				
16							116	112	110	110		A	A	A		112		A	112		B			
17							120	112	116		A	A	A	A	A	A		116	120		B			
18							112	114	118		A	B	A	A	A		120	116	112		A	B		
19							114	112	110	110	110	110	110	114	112	112	110	110		B				
20							112	114	110	114	110		A	A		110	110	110		A	B			
21							118	116	114	114	112	110	110	110	110	108		114		B				
22							112	112	108	110	110	112		A		114	116	112	112		B			
23							126	120	114	110	112	108	112	112	112	112	116	118		B				
24							118	108	112	112	112	114		A	114	116		A	A		B			
25							118	118		A	A	A	A		A	116	116	116	114		B			
26							114	114	112		A	A	A	A	A	A		110	116		B			
27						B	116	108	110	110	114	114		A	A		114	114	112	112		B		
28							118	112		A	A	A	A		A	108	110	108		A	B			
29							112	110		A	A	A	A		A	114	114	110	114	116		B		
30							116	110	110		A	110	110		A	110	110	110	114	114		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							26	29	22	15	14	12	8	15	22	24	23	23						
MED							117	114	112	110	112	112	112	114	114	112	112	114						
U Q							118	117	114	114	114	114	115	114	114	115	114	116						
L Q							114	112	110	110	110	110	111	112	110	110	112	112						

APR. 2016 h'E (KM)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	102	102	B	108	106	B	140	134	104	G	104	102	102	G	G	G	G	G	B	98	B	B	B	B
2	B	98	B	B	98	B	144	142	146	G	102	102	100	100	96	G	G	146	114	112	110	B	104	B
3	104	B	B	B	B	B	G	136	120	110	104	104	104	104	104	102	112	128	96	96	96	100	B	B
4	B	126	B	B	B	B	140	162	G	104	116	G	G	G	G	102	134	124	112	110	102	112	112	106
5	B	120	B	B	102	B	132	136	118	108	104	104	104	G	132	120	118	114	102	102	100	106	108	102
6	102	102	B	102	B	B	128	120	106	104	100	100	96	94	98	104	128	126	102	102	108	108	110	104
7	104	B	B	B	B	B	154	G	108	104	102	98	100	100	104	G	122	116	108	104	104	98	106	100
8	100	B	102	98	104	102	120	112	102	106	102	102	104	102	G	98	G	124	106	102	100	102	104	B
9	104	102	100	100	100	C	100	98	98	102	104	104	106	104	G	122	108	124	120	112	108	100	100	104
10	98	96	96	96	96	104	G	132	118	100	100	98	98	104	122	164	156	122	100	102	106	106	100	98
11	96	B	100	100	100	100	102	114	114	104	104	104	104	98	142	156	102	106	108	104	120	114	106	104
12	B	B	B	B	B	B	158	122	110	116	106	102	104	106	G	98	124	118	92	90	92	92	B	B
13	B	B	B	B	B	B	138	138	122	116	112	106	102	G	G	G	142	120	116	112	108	108	104	104
14	B	B	104	B	102	B	130	130	120	108	102	104	100	G	G	128	104	108	114	112	100	B	B	B
15	110	106	102	122	120	B	128	124	124	116	120	110	110	102	100	102	102	122	108	108	108	106	102	98
16	100	100	110	104	100	98	158	124	122	122	108	104	104	116	106	104	102	148	94	102	106	106	106	112
17	104	104	B	112	B	B	G	148	116	104	104	104	106	100	102	102	102	126	B	94	108	108	106	104
18	94	92	100	106	108	B	142	G	120	108	114	104	106	104	G	104	104	98	98	98	98	B	B	B
19	94	B	B	B	B	B	166	154	G	G	G	G	G	G	102	96	G	G	140	122	114	106	114	B
20	B	B	B	110	116	B	128	134	120	120	110	108	108	106	114	136	G	104	108	98	B	108	104	106
21	106	102	102	116	116	112	120	126	126	122	120	120	G	G	122	G	106	116	98	114	90	94	B	B
22	B	B	102	108	100	B	132	122	124	116	116	122	104	106	G	116	114	108	112	110	102	114	114	B
23	102	102	100	B	B	132	126	126	126	120	122	114	114	114	114	G	124	120	104	102	102	102	102	B
24	B	B	B	B	98	B	146	148	126	126	G	144	102	124	116	106	102	102	104	104	106	106	106	102
25	98	B	B	B	B	B	G	106	104	102	G	G	G	G	104	102	G	104	114	108	104	104	100	100
26	B	B	B	B	B	108	120	122	114	102	100	100	106	106	106	102	116	120	110	104	104	B	104	104
27	104	B	B	B	B	B	146	148	140	122	118	G	116	106	102	G	138	G	120	116	108	102	100	B
28	B	B	B	B	B	B	124	128	106	106	106	104	106	G	100	G	122	104	104	102	100	106	B	92
29	B	B	B	B	B	B	142	144	110	104	104	98	98	G	G	160	126	120	108	112	96	98	98	96
30	B	B	B	96	B	B	134	126	120	104	G	G	106	148	140	132	122	122	110	108	106	106	100	100
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	17	13	11	14	15	8	26	28	28	27	25	26	26	22	19	21	24	29	28	29	29	24	22	17
MED	102	102	102	105	102	106	133	129	119	108	104	104	104	104	106	106	115	120	108	104	104	106	104	104
U Q	104	105	102	110	108	122	144	139	122	116	113	108	106	106	122	134	124	124	112	110	108	108	106	104
L Q	98	99	100	100	100	101	126	122	109	104	102	102	102	102	100	102	104	111	102	102	100	100	100	99

APR. 2016 h'Es (KM)

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IONOSPHERIC DATA STATION Kokubunji

APR. 2016 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

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	F3	F2	F2	F2	F2		HL11	CL11	L2		L2	L2	L2							F1					
2		F2			F1		H2	H1	H1		L1	L2	L1	L1	L2			H1	C2	F1	F1		F2		
3	F2						H2	C1	C1		L2	L1	L2	L2	L2		C1	CL11	L2	F1	F2	F4			
4		F1					H2	H1			L2	C1				L2	C1	C2	C3	F4	F4	F1	F1	F1	
5		F1			F1		H2	H1	CL22		L2	L2	L2		C1	C2	C2	C4	L4	F5	F4	F2	F2	F4	
6	F1	F1		F1			C2	C2	L2		L2	L3	L3	L2	L2	L2	CL11	C2	L5	F3	F2	F3	F2	F2	
7	F3						H3		L2		L2	L2	L2	L3	L2		C1	C3	L4	F4	F3	F4	F2	F2	
8	F4		F2	F3	F2	F4	C2	C2	L2		L2	L2	L1	L1		L1		C2	L4	F2	F6	F3	F2		
9	F2	F2	F2	F2	F4		L3	L2	L2		L1	L1	L1	L1		C1	L2	C1	C3	F2	F2	F3	F4	F2	
10	F3	F4	F4	F2	F1	F1		H2	C1		L2	L2	L3	L2	CL11	H1	H1	C2	L5	F5	F4	F5	F2	F4	
11	F3		F1	F2	F2	F3	L2	C2	C2		L2	L2	L2	L1	HL11	HL12	L3	L3	L4	F5	F12	F2	F2	F2	
12							H2	C2	C1		L1	L2	L2	L2		L2	CL12	CL23	L4	F3	F1	F1			
13							H2	H1	CL12		CL12	L2	L2	L2			H1	C1	C3	F1	F1	F2	F1	F1	
14			F2		F1		C1	C1	C1		L1	L2	L3	L2		C2	L2	L2	C2	F2	F1				
15	F1	F2	F3	F1	F2		C3	C1	C2		CL22	C1	C1	L2	L3	L2	L3	C2	L4	F5	F3	F2	F2	F3	
16	F3	F3	F2	F2	F2	F2	H2	C2	C1		L3	L2	L2	C1	L2	L1	L2	HL12	L3	F4	F3	F3	FF25	FF43	
17	F3	F2		F2			H1	C2	L2		L2	L2	L2	L2	L2	L1	L1	C1		F3	FF63	FF32	F5	F2	
18	F2	F2	F2	F2	F1		H1	C1	L2		C2	L2	L1	L3		L1	L2	L3	L4	F2	F1				
19	F2						H1	H1						L1	L1			HL12	C3	FF22	F2	F2			
20				F2	F2		C2	C1	C1		C1	L2	L2	L2	C3	H1		L3	L2	F3	FF34	F4	F4	F3	
21	F3	F5	F4	F1	F4	F3	CL22	C2	CL22		CL11	C1			C1		L2	CL13	L2		F1	F1	F2		
22			F3	F1	F2		H2	C1	C2		C2	C2	L2	L2		C1	CL12	CL12	C2	F2	F3	F3	F4		
23	F4	F3	F2			F3	C2	C1	C2		C2	C1	C1	C1	C2		C1	C2	L5	F4	F3	F3	F2		
24				F1			H2	H2	C1		H1	L2	L2	C2	C2	L3	L4	L4	L3	F3	F6	F5	F5	F4	
25	F4						L2	L2	L2					L2	L2		L2	C3	C3	F4	F3	F5	F2		
26					F1		C2	C1	C1		L2	L2	L1	L1	L1	L1	C1	C3	L4	F4	F4		F2	F1	
27	F1				H2		H1	H1	C1		C1	L2	L2			C1		C2	C2	F5	F7	F1			
28							C2	C1	L2		L1	L2	L2		L2		C2	L5	L5	F5	F4	F3		F1	
29							H2	H1	L2		L2	L3	L2			H1	CL12	C2	L3	F4	F2		F4	F1	
30				F1			H2	C1	C1		L2		L2	H1	H1	H1	C2	C3	L2	F2	F4	F2	F5	F4	
31																									
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	
CNT																									
MED																									
U Q																									
L Q																									

IONOSPHERIC DATA STATION Yamagawa

APR. 2016 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 49	X 46	X 46	X 46	X 44	X 42														X 95	X 78	X 51	X 44	X 44	
2	X 46	X 46	X 45	X 49	X 48	X 33														X 100	X 89	X 57	X 40	X 40	
3	X 42	X 40	X 40	X 38	X 33	X 36														X 111	X 89	X 41	X 37	X 39	
4	X 40	X 41	X 41	X 42	X 42	X 33														X 117	X 89	X 46	X 45	X 46	
5	X 44	X 46	X 46	X 46	X 48	X 35														X 103	X 84	X 54	X 52	X 54	
6	X 47	X 54	X 50	X 54	X 45	X 43														X 80	X 66	X 51	X 51	X 52	
7	X 52	X 51	X 54	X 53	X 46	X 43														X 100	X 74	A	X 42	X 43	
8	X 44	X 43	X 43	X 44	X 41	X 35														X 110	X 95	X 42	X 42	X 42	
9	X 43	X 44	X 44	X 46	X 43	X 38														X 102	X 80	X 54	X 51	X 53	
10	X 54	X 50	X 49	X 46	X 40	X 39														X 106	X 94	X 54	X 41	X 41	
11	X 42	X 51	X 50	X 50	X 43	X 33														X 97	X 86	X 62	X 62	X 62	
12	X 62	X 63	X 62	X 55	X 57	X 56														X 86	X 83	X 68	X 62	X 62	
13	X 62	X 57	X 58	X 61	X 38	X 35														X 100	X 84	X 51	X 52	X 54	
14	X 54	X 52	X 50	X 54	X 57	X 50														X 95	X 80	X 67	X 68	X 70	
15	X 68	X 63	X 71	X 56	X 38	X 33														X 90	X 82	X 61	X 46	X 50	
16	X 55	X 51	X 48	X 50	X 39	X 41														X 84	X 60	X 56	X 57	X 57	
17	X 56	X 54	X 56	X 58	X 50	X 34														X 95	X 65	X 45	X 48	X 47	
18	X 47	X 48	X 56	X 53	X 34	X 26														X 88	X 75	X 60	X 60	X 62	
19	X 63	X 62	X 61	X 65	X 46	X 36														X 90	X 69	X 56	X 54	X 55	
20	X 55	X 53	X 53	X 51	X 48	X 41														X 104	X 77	X 58	X 56	X 60	
21	X 57	R	X 59	X 55	X 41	X 38														X 88	X 83	X 70	X 58	X 59	
22	X 55	X 52	X 52	X 49	X 46	X 42														X 80	X 71	X 58	X 51	X 53	
23	X 55	X 48	X 48	X 51	X 40	X 36														X 82	X 70	X 56	X 50	X 52	
24	X 50	X 52	X 52	X 47	X 40	X 37														X 78	X 70	X 62	X 58	X 58	
25	X 56	X 52	X 49	X 46	X 46	X 44														X 89	X 91	X 73	X 60	X 59	
26	X 57	X 55	X 52	X 54	X 52	X 33														X 88	X 92	X 62	X 53	X 55	
27	X 54	X 52	X 50	X 56	X 44	X 44														X 77	X 78	X 70	X 58	X 58	
28	X 57	X 56	X 52	X 55	X 49	X 41														X 78	X 70	X 64	X 64	X 68	
29	X 68	X 70	X 70	X 68	X 52	X 46														X 81	X 86	X 68	X 64	X 62	
30	X 62	X 59	X 59	X 57	X 52	X 52														X 84	X 89	X 75	X 73	X 71	
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	29	30	30	30	30														30	30	29	30	30	
MED	X 54	X 52	X 51	X 52	X 44	X 38														X 90	X 81	X 58	X 52	X 54	
U Q	X 57	X 56	X 56	X 55	X 48	X 43														X 100	X 89	X 66	X 60	X 60	
L Q	X 47	X 47	X 48	X 46	X 40	X 35														X 84	X 71	X 52	X 46	X 47	

APR. 2016 f_{XI} (0.1MHz)

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APR. 2016 f_oF₂ (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

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	43	40	40	40	38	36 ^V	46	56	66	72	79	80	90	99	103	98	80	79	84	89	72	45	38	38	
2	40	40	39 ^V	43	42	27	35	53	64	68	71	75	84	95	95	88	77	77	81	94	83	51	34	34	
3	36	34	34	32	29 ^F	30	47	53	62	72	103	71	80	102	109	80	75	81	94	105	83	35	31	33	
4	34	35	34	36	36	27	40	58	66	64	74	80	91	99	103	95	96	96	106	111	83	40	39	40	
5	38	40	40	40	42	29	39	52	72	68	76	84	96	101	96	88	90	97	98	97	78	48	46	48	
6	46	46 ^F	44	48	39	37	44	60	61	68	80	91	106 ^R	117	118	102	88	86	83	74	60	45	45	46	
7	46	45	48	48	40	37	45	58	60	70	90	100	99	83	79	77	80	86	95	94	68	A	36	37	
8	38	37	37	38	35	29	43	76	64	65	65	83	98	106	111	87	79	88	98	104	89	36	36	36	
9	37	38	38	40	37	32	46	55	65	75	75	87	109 ^R	100	96	103	108	109	99	96	74	48	45	47	
10	48	44	43	40	34	33	46	69	77	77	78	72	81	94	100	102	96	90	92	100	88	48	35	35	
11	36	44 ^F	44	44	37	27	45	67	72	72	67	84	92	99	92	98	102	98	95	91	80	56	56	56	
12	56	57	56	49	51	50	62	70	75	62	67	87	93	96	97	94	92	81	77	80	77	62	56	56	
13	56	51	52	55 ^R	32	29	47	68	60	60	74	109	91	92	113	97	95	90	99	94	78	45	46	48	
14	48	46	44	48	51	44	48	58	65	76	90	95	106	110	106	106 ^{U R}	104	98	92	89	74	61	62	64	
15	62	57	65	50	32	27	43	59	63	65	72	84	90	90	97	86	82	78	82	84	76	55 ^V	40	44	
16	49	45	42	44	33	35	48	62	62	63	63	75	92	112 ^R	131 ^{R J R}	125 ^R	114	102 ^R	93	78	54	50	50	51 ^R	
17	50	48	50	52	44	28	45	50	55	56	66	87	90	96	95	87	77	79	79	89	59	39	42	41 ^R	
18	41	42	50 ^V	47 ^V	28	20	46	64	60	64	73	78	90	98	96	88	96	91	84	82	69	54	54	56	
19	57	56	55	59	40	30	42	56	58	66	68	74	82	91	93	83	86	88	90	84	63	50	48	49 ^R	
20	49	47	47	45	42	35	50	55	60	59	69	74	80	94	90	93	92	91	94	98	71	52	50	54 ^R	
21	51	R	53	49	35	32	54	60	62	61	60	67	82	78	84	87	86	80	82	82	R	R	64	52	53
22	49	46	46	43	40	36	53	64	55	60	53	68	78	88	102	109	94	82	76	74	65	52	45	47	
23	49	42	42	42 ^F	34	30	51	51	55	58	66	75	87	97	106	114	109	86	72	76	64	50	44	46	
24	44	46	46	41	34	31	44	60	64	52	62	67	74	78	85	85	85	86	85	72	64	56	52	52	
25	50	46	43	40	40	38	51	56	61	66	65	66	79	80	83	83	80	69	70	83	85	67	54	53	
26	51	49	46	48	46	27	44	54	65	69	66	66	76	91	94	94	94	84	77	82	86	56	47	49	
27	48	46	44	48 ^F	38 ^V	38	48	58	69	69	72	71 ^R	76	90	94	101	98	80	69	71	72	64	52	52 ^F	
28	51	50	46	49	43	35	52	67	66	65	65	66	70	80	90	C	98	85	77	72	64	58	58	61 ^F	
29	62	64	64	62	46	40	52	65	72	72	70	64	74	82	81	87	86	77	66	75	80	62	58	56	
30	56	53	53	51	46	46	64	65	59	61	63	70	80	99	102	A	80	A	A	78	83	69	67	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	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	29	29	30	30	29	30	30	
MED	48	46	45	46	38	32	46	58	64	66	70	75	88	96	96	94	91	86	84	84	75	52	46	48	
U Q	51	50	50	49	42	37	51	65	66	70	75	84	92	99	103	102	96	91	94	94	83	60	54	54	
L Q	41	41	42	40	34	29	44	55	60	61	65	70	80	90	92	87	80	80	77	78	65	46	40	41	

APR. 2016 f_oF₂ (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

APR. 2016 f_oF1 (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								244	L	L	L	U	L	L	L	L	L	L	L					
2								252	L	U	L	U	L	U	L	L	L	L	L	L				
3								244	L	L	U	L	U	L	U	L	L	L	L	L				
4								248	L	L	U	L	U	L	L	L	L	L	L	L				
5								A	L	U	L	U	L	L	L	L	L	L	L					
6								L	L	L	L	L	U	L	L	A	L	L	L	L				
7									L	L	U	L	U	L	L	U	L	U	L	L	L			
8								L	L	L	L	L	U	L	L	L	L	L	L	L				
9									L	L	L	U	L	L	L	L	L	L	L	A				
10								A	L	L	L	A	A	L	L	L	L	L	L					
11									L	L	L	L	L	U	L	A	A	A	A	A				
12									L	U	L	U	L	L	A	L	U	L	U	L	L			
13									L	L	U	L	U	L	L	L	L	L	L	L				
14									L	L	L	L	L	A	L	U	L	L	L	L				
15								A	A	A	L	U	L	L	A	L	A	L	L	L				
16								L	L	A	A	A	L	L	A	L	A	A	A	A				
17									U	L				L		A	U	L	L	L	L			
18									L	U	L	U	L	U	L	L	L	U	L	L	L	L		
19								204	260	L	U	L	L	L	L	L	L	L	L	L	L			
20									L	U	L	L	L	A	L	A	U	L	L	A	A			
21								A	A	L	A	A	L	U	L	L	L	L	L	L				
22								L	U	L	U	L	U	L	R	L	L	L	L	L	L			
23								A	L	U	L	L	A	L	A	L	L	L	L	L	L			
24								204	A	U	L	L	L	L	L	L	L	L	L	A				
25									L	U	L	L	L	L	L	L	L	L	L	L	L			
26								216	L	U	L	L	L	L	L	L	L	L	L	L	L			
27								192	U	L	U	L	L	L	L	L	L	L	L	L	L			
28									L	U	L	L	L	L	A	C	L	L	L	L	L			
29								228	L	L	L	L	L	L	L	L	L	L	L	L	L			
30									L	A	L	L	L	L	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	5	5	16	20	20	26	26	24	23	19	6	1					
MED							204	248	U	L	U	L	L	L	L	L	L	L	L	L	256			
U Q							222	256	U	L	U	L	L	L	L	L	L	L	L	L				
L Q							198	244	U	L	L	L	L	L	L	L	L	L	L	L				

APR. 2016 f_oF1 (0.01MHz)

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APR. 2016 f_oE (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	208	272	U A	A	A	A	316	368	316	292	248	204						
2							B	204	276	308	328	R	332	324	340	328	324	304	264	220					
3							B	212	U A	A	A	U A	A	U A	A	A	A	296	248	192					
4							B	204	A	280	308	328	340	348	360	348	332	300	252	180					
5							A	212	284	312	332	332	U A	U A	U A	U A	312	300	264	204					
6							B	232	284	320	348	A	348	348	328	A	A	A	268	192					
7							A	216	284	316	324	A	A	A	A	A	320	316	272	208					
8							B	228	A	280	U R	U A	U A	U A	R	U A	U A	U A	256	200					
9							B	224	288	308	312	316	A	R	R	324	336	324	272	200					
10							B	256	A	288	308	328	A	U A	U A	U A	U A	R	U A	204					
11							U A	192	260	288	A	U A	U A	U A	U A	A	A	A	A	A					
12							B	240	280	316	332	320	320	308	A	A	A	308	308	276	A				
13							A	216	244	284	312	320	R	A	A	R	328	360	328	312	284	200			
14							B	240	A	280	324	340	360	A	R	364	352	336	308	264	188				
15							A	168	224	280	320	A	U R	U A	U A	U A	U A	336	292	276	192				
16							A	236	288	320	336	A	A	U A	U A	U A	U A	A	A	A	A				
17							B	172	256	296	316	332	U A	U A	U A	U A	A	A	308	268	204				
18							B	240	284	328	368	368	356	348	340	300	A	U A	A	220	212				
19							A	240	288	312	332	R	A	A	A	340	320	304	268	212	U A				
20							A	196	252	312	316	348	348	348	356	R	344	324	304	264	212	U A			
21							B	184	248	288	324	344	356	360	352	352	328	292	264	196					
22							B	260	284	320	340	352	352	A	A	332	312	292	268	208					
23							B	232	288	312	332	336	R	344	324	332	324	304	264	B					
24							A	240	300	320	340	328	U A	372	368	348	348	304	268	208	A				
25							A	168	248	296	320	U A	336	316	A	A	324	312	280	208	A				
26							U A	160	248	292	312	328	328	348	364	336	316	308	260	216					
27							B	280	296	332	340	352	352	356	340	332	316	272	220						
28							U A	192	U A	300	324	332	340	R	348	344	336	C	320	276	212	A			
29							B	240	288	320	336	352	R	368	364	R	344	320	280	216	A				
30							A	212	256	276	320	336	340	A	376	364	340	320	276	216	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							10	30	30	28	28	25	23	26	23	25	27	28	26						
MED							188	240	288	318	332	340	348	348	340	324	304	268	206						
U Q							196	248	292	320	340	352	352	360	352	336	312	274	212						
L Q							A	168	224	280	312	328	328	336	328	332	316	296	264	200					

APR. 2016 f_oE (0.01MHz)

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APR. 2016 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	J A	J A	J A	J A	J A	E B				J A	J A		J A	J A				J A	J A	J A	J A		E B	E B	E B			
2	E B	E B	E B	E B	J A	E B	E B			23	31	33	37	36	34	36	29	G	22	28	J A	J A	21	E B	E B	E B		
3	E B	E B		E B	E B	E B	E B			J A	J A		J A		J A	J A				J A	J A			J A		J A		
4	J A		E B	E B	E B	E B	E B												J A	J A	J A	J A		E B		E B		
5	J A	E B	E B	E B	E B	E B	E B	J A			J A	J A						J A	J A	J A	J A	J A	J A	J A	J A	J A		
6	J A	J A	J A	J A	J A	J A	J A	J A			J A	J A	J A	J A	J A	J A	J A			J A	J A	J A	J A	J A	J A	J A	J A	
7	J A	J A	J A	J A		J A	J A				J A	J A	J A	J A			G		J A	J A	J A	J A	J A	J A	J A	J A	J A	
8	J A	J A	J A	J A	J A	J A	J A			J A									J A	J A	J A	J A	J A	J A	J A	J A	J A	
9	J A	J A	J A	J A	J A	J A	J A												J A	J A	J A	J A	J A	J A	J A	J A	J A	
10	J A	J A	J A	J A	J A	J A	J A	J A			J A	J A	J A	J A			G		J A	J A	J A	J A	J A	J A	J A	J A	J A	
11	J A	J A	J A	J A	J A	J A	J A	J A			J A				J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	
12	E B	J A	E B	E B	E B	E B		E B						J A	J A	J A			J A	J A	J A	J A	J A	J A	J A	J A	J A	
13	19	E B	E B		J A	E B								G	G				J A	J A	J A	J A	E B	E B	E B	E B		
14	J A	J A	E B	E B		E B												J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	
15	E B	E B	18	19	22	19	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	
16	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	
17	J A	J A	J A	J A	J A	E B				G	J A	J A	J A	J A	J A	J A	J A			J A	E B	E B						
18	J A	J A	J A		J A						J A								J A	J A	J A		J A		E B		E B	
19	E B	E B	E B	E B	E B	E B	E B	J A											J A	J A			J A	J A	J A	J A	J A	
20	J A	E B			E B						J A		J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	
21	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
22	18	16	17	19	16	16	16	32			35	42	40	40	42		34	34	29	24	19	53	34	31	21			
23	J A	J A	J A	J A	J A	E B	J A	J A			J A		J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
24	J A	J A		20	19	18	20	26	30	54	37	37	35	41	39	38	40	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
25	19	J A	E B	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
26	E B	E B	18		E B	E B	E B	J A							G	G	J A				J A	J A	J A	J A	J A	J A	J A	J A
27	J A			E B	E B	E B	E B	E B											J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
28	J A	18	E B	E B	E B	E B	E B	21	29	35	38	40	41	39	40	59			J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
29	J A			J A		E B											G		J A		J A				J A		J A	J A
30	J A	E B	E B	E B	E B	E B			J A				J A				J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J 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	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	
MED	J A	J A	22	18	19	18	18	20	29	34	38	40	40	41	40	40	38	36	36	J A	J A	J A	J A	J A	J A	J A	J A	J A
U Q	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
L Q	E B	E B	E B	E B	E B	E B	E B													J A								

APR. 2016 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

APR. 2016 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	23	29	33	41	36	37	U Y	38	33	31	27	20	G	19	E 16	E 16	E 16	E 16		
2	E 16	E 16	E 16	E 16	E 16	E 16	E 16	22	30	32	36	36	U Y	34	36	29	G	22	27	G	21	19	E 16	E 16	E 16	E 16	
3	E 16	E 16	E 16	E 16	E 16	E 16	E 16	22	29	38	34	36	37	35	46	40	G	30	25	G	20	E 16	19	E 16	E 16	20	
4	E 16	E 16	E 16	E 16	E 16	E 16	E 16	23	31	36	38	37	40	39	38	38	36	34	28	23	28	32	E 16	E 16	E 16		
5	E 16	E 16	E 16	E 16	E 16	E 16	E 16	27	32	37	39	39	U Y	34	U Y	33	32	36	37	30	32	36	37	16	19		
6	E 16	E 16	E 23	19	17	21	E 16	26	32	34	42	45	44	39	48	38	36	30	28	28	E 16	E 16	E 16	E 16	E 16		
7	E 16	E 16	E 16	E 16	E 16	E 16	18	28	31	34	42	42	42	40	U Y	34	G	32	34	26	24	20	A 57	A 18	E 16		
8	16	20	E 16	E 16	E 16	E 16	E 16	26	34	35	35	40	39	38	37	33	30	27	32	E 16	18	18	E 16	E 16	E 16		
9	32	E 16	E 16	E 16	E 16	E 16	E 16	18	28	30	34	36	34	41	41	34	39	39	41	21	40	19	36	18	24		
10	22	E 16	23	25	24	28	18	35	31	42	45	52	63	U Y	36	U Y	34	30	35	28	32	24	39	18	20	23	
11	E 16	18	E 16	E 16	24	20	36	27	35	41	36	35	35	38	55	49	54	44	40	32	22	E 16	E 16	E 16	E 16		
12	E 16	E 16	E 16	E 16	E 16	E 16	E 16	29	34	35	37	36	39	54	41	34	31	30	33	56	21	E 16	18	E 16	E 16		
13	E 16	E 16	E 16	E 16	E 16	E 16	E 16	20	27	34	35	36	37	U Y	G	G	38	G	35	31	27	23	21	E 16	E 16	E 16	
14	39	19	E 16	E 16	E 16	E 16	E 16	18	30	32	39	42	45	57	40	38	38	40	36	32	19	E 16	16	21	17		
15	E 16	E 16	E 16	E 16	E 16	E 16	E 16	23	54	44	49	42	38	44	56	40	35	31	30	26	28	40	20	22	E 16	16	
16	E 16	E 16	20	E 16	E 16	20	19	24	40	47	54	53	41	40	44	62	54	44	40	20	E 16	16	39	26	27		
17	E 16	E 16	E 16	E 16	E 16	E 16	E 16	21	31	G	35	45	41	38	44	48	35	G	30	21	E 16	E 16	E 16	E 16	E 16		
18	34	32	E 16	E 16	19	18	20	26	30	34	40	44	45	41	40	38	40	30	21	G	E 16	E 16	E 16	E 16	E 16		
19	E 16	E 16	E 16	E 16	E 16	E 16	E 16	25	30	33	35	34	34	31	36	34	36	28	22	24	E 16	E 16	E 16	29	20		
20	E 16	E 16	E 16	E 16	E 16	E 16	E 16	21	32	36	37	42	41	43	46	45	47	36	42	79	50	36	34	23	20		
21	E 16	24	16	19	19	E 16	27	37	42	44	52	48	46	40	39	42	G	24	29	21	24	20	E 16	U Y	19		
22	E 16	E 16	E 16	E 16	E 16	E 16	E 16	32	G	34	42	36	40	38	G	33	30	29	22	16	42	19	17	E 16	16		
23	32	16	20	E 16	E 16	17	E 16	26	43	36	41	42	54	44	78	38	40	36	34	25	20	E 16	27	21	34		
24	E 16	E 16	E 16	E 16	E 16	E 16	E 16	30	52	37	37	U Y	35	41	38	38	38	42	52	32	53	19	E 16	26	22		
25	E 16	E 16	E 16	E 16	E 16	E 16	E 16	26	31	38	42	40	38	37	34	39	38	G	31	32	37	20	E 16	18	16		
26	E 16	E 16	E 16	E 16	E 16	E 16	E 16	17	28	34	34	35	35	U Y	G	G	38	G	G	27	22	E 16	36	20	17	16	
27	19	E 16	E 16	E 16	E 16	E 16	E 16	30	31	36	36	37	U Y	38	40	42	38	G	31	30	30	19	E 16	28	24	18	
28	E 16	E 16	E 16	E 16	E 16	E 16	E 16	20	29	34	36	39	40	39	39	59	C	36	38	37	55	20	E 16	28	E 16	16	
29	16	E 16	E 16	E 16	E 16	E 16	E 16	20	28	32	35	37	40	40	38	G	37	33	40	23	16	16	E 16	E 16	E 16	E 16	
30	20	E 16	E 16	E 16	E 16	E 16	E 16	21	29	42	36	U Y	36	37	42	45	43	A 95	A 64	A 110	A 84	71	62	58	22	E 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	30	30	30	29	30	29	30	30	30	30	30	30	30	30	30		
MED	E 16	E 16	E 16	E 16	E 16	E 16	E 16	18	28	32	36	39	38	40	39	38	38	35	30	28	23	20	16	18	E 16	16	
U Q	16	16	16	16	16	16	21	31	36	39	42	42	43	41	43	40	36	38	32	32	28	28	22	20	20		
L Q	E 16	E 16	E 16	E 16	E 16	E 16	E 16	26	30	34	36	U Y	36	37	36	36	33	G	29	22	19	16	16	E 16	E 16	E 16	E 16

APR. 2016 fbEs (0.1MHz)

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APR. 2016 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	16	16	18	21	20	17	17	16	16	15	16	16	16	16	16
2	16	16	16	16	16	16	16	15	16	16	16	16	17	17	16	16	16	16	16	16	16	16	16	16
3	16	16	16	16	16	16	16	15	16	16	17	20	21	18	17	18	16	13	14	16	16	16	16	16
4	16	16	16	16	16	16	16	16	16	16	16	16	19	17	22	20	16	16	16	15	16	16	16	16
5	16	16	16	16	16	16	16	16	14	16	20	16	19	19	20	18	16	16	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	17	16	19	18	20	19	16	16	16	16	16	16	16	16	16
7	16	16	16	16	16	16	16	16	16	16	19	19	16	20	20	19	16	16	16	16	16	16	16	16
8	16	16	16	16	16	16	16	16	16	17	18	21	24	24	20	16	16	16	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	16	20	20	21	20	19	18	16	16	14	16	16	16	16	16
10	16	16	16	16	16	16	16	16	16	18	20	19	20	20	20	19	17	16	16	12	16	16	16	16
11	16	16	16	16	16	16	16	14	16	16	19	21	19	18	16	18	16	16	16	16	16	16	16	16
12	16	16	16	16	16	16	16	14	16	18	18	24	20	21	20	17	16	16	14	16	16	16	16	16
13	16	16	16	16	16	16	16	16	16	16	16	20	19	21	20	17	16	16	16	16	16	16	16	16
14	16	16	16	16	16	16	14	14	16	20	18	20	20	21	18	19	17	16	16	16	14	16	16	16
15	16	16	16	16	16	16	16	16	16	16	19	22	24	20	20	16	16	16	16	16	16	16	16	16
16	16	16	16	16	16	16	16	16	16	18	18	22	25	24	20	19	20	16	16	13	16	16	16	16
17	16	16	16	16	16	16	16	16	16	16	16	20	18	20	17	17	16	16	16	16	16	16	16	16
18	16	16	16	16	16	16	16	16	16	18	27	24	21	19	21	18	17	16	14	16	16	16	16	16
19	16	16	16	16	16	16	16	16	16	17	20	20	19	21	20	19	18	16	16	16	16	16	16	16
20	16	16	16	16	16	16	16	16	16	16	17	20	18	20	18	16	18	16	15	16	16	16	16	16
21	16	16	16	16	16	16	16	16	16	16	17	20	22	20	17	16	16	16	14	16	16	16	16	16
22	16	16	16	16	16	16	16	16	16	16	18	20	24	21	20	16	16	16	16	16	16	16	16	16
23	16	16	16	16	16	16	15	16	16	16	19	20	24	20	18	18	20	16	16	16	16	16	16	16
24	16	16	16	16	16	16	16	16	16	16	16	19	20	21	21	19	16	16	16	16	16	16	16	16
25	16	16	16	16	16	16	16	16	16	16	19	20	21	20	25	20	16	16	16	14	16	16	16	16
26	16	16	16	16	16	16	14	15	16	17	19	19	19	21	21	20	17	17	15	16	16	16	16	16
27	16	16	16	16	16	21	14	16	16	16	20	20	19	27	20	16	16	16	16	16	16	16	16	16
28	16	16	16	16	16	16	14	16	16	16	17	19	20	20	21	C	17	16	16	15	16	16	16	16
29	16	16	16	16	16	16	16	16	16	19	16	20	20	20	19	20	16	16	16	16	16	16	16	16
30	16	16	16	16	16	16	16	16	16	16	19	26	20	22	22	20	16	16	16	15	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	30	30	30	30	30	29	30	30	30	30	30	30	30	30
MED	16	16	16	16	16	16	16	16	16	16	18	20	20	20	20	18	16	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	17	19	20	21	21	20	19	17	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	16	16	19	19	20	18	16	16	16	15	16	16	16	16	16

APR. 2016 fmin (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

APR. 2016 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

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		312	290 ^F	313	293 ^F	330	322 ^V	343	376	369	342	338	318	305	322	328	341	331	337	333	357	370	346	317	295	
2		301	302	293 ^V	337	374	404	348	374	366	363	340	325	310	322	334	336	333	333	329	350	375	375	309	307	
3		295	290 ^F	308 ^F	294 ^F	274 ^F	287 ^F	371	362	348	318	368	329	288	330	345	343	327	323	335	356	373	305	278	285	
4		289	280 ^F	281 ^F	319 ^F	342 ^F	323 ^F	356	375	383	347	326	303	315	317	330	323	332	321	333	356	384	291	288	288	
5		293	308 ^F	311	321	354	379	342	377	361	341	337	295	318	322	320	318	318	335	346	356	363	341	289	295	
6		280	283 ^F	280	326 ^F	342	340	348	364	366	337	318	303	307 ^R	323	332	343	338	353	361	350	367	292	277 ^F	291 ^F	
7		291 ^F	289 ^F	312 ^F	328	325	322	344	382	373	319	328	339	332	328	323	324	330	335	348	361	370		301 ^A	289 ^F	
8		288	297	306	340	340	341	335	373	391	373	303	296	310	319	336	339	320	324	340	359	387	275 ^H	287	282	
9		284	290	303	332	339	370	380	370	364	359	327	308	336	315	315	319	328	348	349	361	363	313	305	296	
10		315	303 ^F	336	334	338	308	343	368	369	369	365	324	287	309	318	323	333	314	328	342	378	373	295	283	
11		284	292 ^F	355	345	328	344	346	384	369	363	318	309	309	313	333	313	320	340	341	338	366	304	289	291	
12		310 ^F	299 ^F	303	295	323	304	335	358	385	344	305	314	311	316	318	327	337	341	340	324	341	335	294	289	
13		300	296	318	357 ^R	342	320	351	379	392	330	270	330	327	292	335	331	328	321	335	347	382	285	293	284	
14		308	303	274 ^F	304 ^F	339	380	366	381	349	311	325	316	317	322	322	335	337	351	338	348	325	279	283	277	
15		300	277	343	342	311	296	337	334	327	318	312	318	329	320	336	335	344	346	335	345	343	346	307	279	
16		279 ^F	288 ^F	308 ^F	332 ^F	316	322	352	360	360	344	308	298	292	319	332		334	325	347	358	342	276	281	296	
17		301 ^F	288 ^F	297 ^F	341	339	375	377	366	315	336	301	324	317	329	325	330	317	331	331	354	377	275	274	281	
18		278	301	335	372 ^V	376	473	356	384	354	340	326	313	307	320	338	306	333	334	339	338	343	305	285	285	
19		292	306	319	363	362	323	352	366	365	354	342	341	316	326	326	318	321	330	346	358	338	314	291	291	
20		300	299	317	332	339	330	368	376	367	318	339	315	303	322	311	326	326	325	333	361	358	312	278	299	
21		302		320 ^R	358	354	306	359	371	364	357	309	301	323	315	315	326	323	342	333	338	341	345	289	302	
22		313	305	317	322	318	328	341	406	365	354	352	311	285	293	319	335	338	330	340	344	339	337	286	299	
23		293 ^F	281 ^F	315	312 ^F	352	312 ^F	364	347	343	307	290	289	288	299	313	331	338	347	328	340	360	340	285	299	
24		303	299 ^F	319	338	335	297	355	375	370	361	334	316	314	316	314	315	315	333	343	338	321	319	291	291	
25		312	315	296	300	324	326	367	364	362	357	341	297	309	317	314	321	327	320	307	322	349	340	301	297	
26		301	305	306	327	370	300	365	350	358	337	334	297	284	310	320	315	330	322	319	325	356	355	296	299	
27		303	300	301	337 ^F	332 ^V	314	351	335	363	340	340	303 ^R	295	295	319	327	337	337	330	304	326	326	294	292	
28		292	294	293	325	319	304	361	375	356	363	342	301	305	292	292		328	344	338	337	311	302	285	297	
29		296	300	329	353	333	309	348	348	356	350	361	303	309	310	308	319	324	333	327	321	340	336	300	303	
30		294	302	317	333	315	335	361	390	360	333	304	285	286	322	332		344 ^A				310 ^A	337	312	300	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	29	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	29	29	30	30	29	30	30	
MED		298	299	312	332	338	322	352	372	364	343	328	310	309	318	322	326	330	333	335	346	357	314	290	292	
U Q		303	302	319	341	342	341	364	377	369	357	340	318	317	322	332	335	337	342	342	356	370	340	300	299	
L Q		291	290	301	321 ^F	324	308	344	362	356	333	309	301	295	310	315	319	324	324	330	338	340	297	285	285	

APR. 2016 M(3000)F2 (0.01)

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APR. 2016 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								484	L	L	L	H	L	L	L	L	L	L	L					
2								492	L	U	L	U	L	U	L	H	L	U	L	L	L			
3								548	L	L	U	L	U	L	H	A	U	L	L	L	L			
4								553	L	L	U	L	U	L	L	U	L	L	L	L	L			
5								A	L	U	L	U	L	L	L	L	U	L	L	L	L			
6								L	L	L	L	L	U	L	A	A	L	U	L	L	L			
7								L	L	L	L	L	L	U	L	U	L	U	L	L	L	L		
8								L	L	L	L	L	U	L	L	U	L	L	L	L	L			
9								L	L	L	L	U	L	L	L	L	L	L	L	A				
10								A	L	L	L	A	A	L	L	L	L	L	L	L				
11								L	L	L	L	L	L	U	L	A	A	A	A	A				
12								L	U	L	U	L	H	H	A	L	U	L	U	L	L			
13								L	L	U	L	U	L	U	L	L	L	L	L	L	L			
14								L	L	L	L	L	A	L	U	L	L	L	L	L				
15								A	A	A	L	U	L	L	A	L	L	L	L	L				
16								L	L	A	A	A	L	L	L	L	A	A	A	A				
17								U	L	L	A	A	L	L	L	A	U	L	L	L	L			
18								L	U	L	U	L	U	L	L	L	L	L	L	L	L			
19							480	504	L	U	L	L	L	L	L	L	L	L	L	L	L			
20								L	U	L	L	L	L	A	L	L	A	U	L	L	A	A		
21								A	A	L	A	A	A	L	L	L	L	L	L	L	L			
22								L	442	U	L	U	L	U	L	R	L	L	U	L	L			
23								A	L	U	L	L	L	A	L	A	L	L	U	L	L	L		
24							516	L	A	U	L	L	L	L	L	L	L	A	A					
25								L	U	L	L	L	L	L	L	L	L	L	U	L	A			
26							427	L	U	L	L	L	L	L	L	L	L	L	L	L	L			
27							508	U	L	U	L	L	L	L	L	L	L	L	L	L	L			
28								L	U	L	L	L	L	L	A	C	L	L	L	A				
29							459	L	L	L	L	L	L	L	L	L	L	L	L	L	L			
30								L	A	L	L	L	L	L	L	L	A	A	A	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							5	5	5	16	20	20	25	26	24	23	18	6	1					
MED							480	504	386	392	386	385	380	384	374	376	370	382	442					
U Q							512	550	421	400	396	400	398	398	389	383	379	389						
L Q							443	488	372	378	370	372	362	376	362	368	368	379						

APR. 2016 M(3000)F1 (0.01)

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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								212	236	258	258	252 ^H	304	278	274	246	256	256	238					
2								202	226	234	268	282	290	276	258	264	264	256	244					
3								210	244	282	226	270	342	264	250	254	274	266	244					
4								210	220	240	288	284	286	288	264	264	258	258	246					
5								194	246	238	258	280	268	276	272	268	278	252						
6								230	234	264	278	276	290	276	260	240	252	238						
7									224	294	266	246	254	276	282	284	278	258	240					
8								222	214	214	258	300 ^H	286	282	252	254	278	266						
9									220	236	260	280	258	272	282	284	268	234						
10								222	230	228	234	286	336	290	278	266	250	268						
11									230	236	314	300	284	282	284	282	272	248	230					
12									216	226	232	292 ^H	286	288	286	262	254	244						
13									208	276	266	264	258	306	252	262	262	266	244					
14									222	284	260	292	290	262	274	258	264	242						
15								302	280	288	312	274	278	292	264	264	258	240						
16								240	240	276	320	326	312	288	262	254	248	244	230					
17									310	282	358	284	292	274	270	270	278	268	252					
18									232	280	276	300	298	284	260	282	266	254	236					
19							210	224	238	254	262	272	304	282	276	278	282	258	236					
20									238	320	270	308	320	286	290	264	264	264	288					
21								218	232	256	338	314	290	296	286	270	268	244	240 ^H					
22								208	216	280	280	320	334	334	294	260	252	252	242					
23								264	274	332	340	330	336	334	292	266	244	238	238					
24							230		242	270	294	312	306	300	294	278	274	262						
25									254	248	276	346	314	278	294	278	274	266	276					
26							216	240	256	266	282	322	350	292	284	286	264	258	248					
27							214		236	272	270	320	334	320	286	276	254	242						
28								216	254	244	272	354	328	338	306	^C	264	238						
29							234	246	246	272	252	338	318	288	298	286	270	258	250					
30								208	230	284	284	370	344	290	266	^A	270	^A	^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							5	18	30	30	30	30	30	30	30	28	30	29	18					
MED							216	220	235	268	271	296	301	287	277	266	264	256	243					
U Q							232	240	246	282	288	320	328	292	286	278	274	263	248					
L Q							212	210	224	240	260	280	286	276	264	261	256	243	238					

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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	262	256	260	280	230	238	222	168	H 204	196	222	154	H 164	H 158	H 210	H 196	206	216	232	214	192	196	228	272	
2	286	288	268	236	198	194	230	H 164	H 216	H 198	198	174	H 172	H 162	H 170	214	204	220	236	224	198	188	230	282	
3	290	300	268	300	344	318	208	140	222	230	202	202	182	164	A	220	202	H 206	H 230	214	192	208	324	336	
4	306	314	266	242	214	214	220	134	214	H 208	204	198	210	224	H 224	210	228	242	246	214	196	342	286	296	
5	302	272	266	240	200	202	204	A	208	210	202	190	H 158	H 190	H 162	H 162	230	A	230	222	208	244	308	296	
6	296	304	334	234	220	244	226	218	218	200	230	262	246	H 180	A	216	216	220	220	218	200	242	328	298	
7	298	286	264	226	212	238	226	214	212	204	264	240	248	208	214	196	226	248	A 246	214	200	A	294	332	
8	312	310	270	232	224	230	238	220	A 214	206	190	212	224	206	200	200	212	228	244	216	192	H 196	298	306	
9	374	302	278	238	214	204	198	200	200	204	190	186	192	H 230	206	244	256	A	224	222	200	272	284	332	
10	266	256	250	254	254	336	234	A	218	A	A	A	A	H 182	H 210	H 200	240	220	250	224	204	184	276	346	
11	308	306	222	230	228	258	254	206	216	232	192	196	208	200	A	A	A	A	A	224	200	188	272	298	
12	276	290	262	266	238	232	218	210	214	194	180	166	H 162	A	228	196	214	232	232	270	230	216	274	288	
13	274	280	246	222	176	252	218	218	A	210	196	222	198	198	230	220	238	232	240	216	198	254	282	296	
14	332	270	334	270	234	200	210	210	204	232	260	270	A	242	216	240	258	A	236	206	222	258	306	312	
15	276	296	230	210	H 254	272	260	A	A	A	236	188	270	A	222	198	212	218	238	224	230	210	292	318	
16	294	294	298	238	244	250	232	H 168	226	A	A	A	206	H 190	H 274	A	A	A	A	216	208	376	346	294	
17	278	292	276	234	210	200	206	214	208	200	338	220	H 184	H 252	A	208	220	230	230	220	190	266	324	312	
18	388	340	232	212	208	174	226	224	212	202	218	264	264	232	224	212	E 272	A 230	234	224	210	218	286	286	
19	290	262	246	210	190	242	136	156	206	198	190	182	182	184	180	194	226	210	228	212	204	220	314	304	
20	268	278	248	228	226	230	198	208	234	206	254	210	262	A	274	A	214	A	232	214	254	322	286		
21	272	278	246	226	220	268	230	A	A	254	A	A	A	A	206	216	E 290	A 192	H 224	202	224	218	206	274	276
22	250	276	252	224	224	254	208	A	172	H 196	226	176	210	194	212	182	H 182	H 204	224	218	248	220	266	296	
23	356	326	266	254	216	268	216	A	226	264	254	A	302	A	224	242	230	232	226	226	204	236	332	340	
24	260	284	246	226	230	280	146	222	A	210	198	172	228	206	210	222	A	A	236	250	220	228	308	286	
25	252	254	274	274	248	240	212	216	248	244	200	204	172	200	204	206	206	252	A	250	216	204	252	266	
26	266	272	272	236	202	276	176	212	224	204	190	190	188	186	212	210	202	198	212	236	216	192	270	264	
27	286	276	266	228	206	252	118	212	216	200	184	178	168	174	258	212	204	216	240	228	226	238	280	288	
28	288	282	282	240	212	250	218	216	208	202	198	178	202	178	A	C	228	A	256	262	230	238	326	266	
29	272	262	228	210	220	256	180	224	200	198	190	190	176	160	182	204	204	256	218	232	222	214	244	250	
30	276	274	252	228	228	228	210	E 212	A	A	188	200	H 186	H 210	H 286	266	A	A	A	A	352	274	292	282	260
31																									
CNT	30	30	30	30	30	30	30	24	25	27	27	26	27	26	25	25	26	21	25	30	30	29	30	30	
MED	286	283	265	234	220	243	217	212	214	204	200	190	202	196	213	209	214	224	232	224	208	220	286	296	
U Q	302	300	272	242	230	258	226	217	220	210	230	212	228	208	226	220	230	232	240	232	222	254	314	312	
L Q	272	272	246	226	210	228	204	184	207	198	190	178	176	180	205	197	204	216	225	216	200	205	274	282	

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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		A		A	A	A											
								104		94				104	106	106	108	108	114					
2							B												A					
								104	100	98	98	100	98	98	114	110	106	106						
3							B						A		A	A								
								106	102	96	96	98		94			118	104	110					
4							B																	
								102	98	98	98	96	96	96	104	98	100	106	110					
5							A																	
								102	100	96	96	96	96	96	98	98	108	104	106					
6							B									A	A	A						
								102	100	100	96	100	100	100					112	110				
7							A																	
								102	98	98	96		A	A	A		96	98	98	108				
8							B																	
								102	98	98	100	100	100	102	98	98	98	98	106					
9							B											A	A					
								104	108	96	96	98	98	100	98	98				102				
10							B																	
								102	100	98	98		98	98	98	106	108	98	106					
11							A	A							A	A	A	A	A					
									100		98	96	94											
12							B									A								
								118	100	100	98	100	100	98		96	108	108						
13							130	100	98	98	96	96	96	96	96	98	100	104	110					
14							B							A					E	A				
								100	98	102	98	98		98	98	98	98	98	110					
15							B										A							
								100	100	98	98	98	96	96	96		102	104	106					
16							A							A	A				A	A				
								104	100	100	100			100	96	96	100							
17							B	H								A	A							
								104	100	98	98	98	98	98				94	102	102				
18							B											A						
								106	100	100	104	104	98	100	100	96		106	112					
19							A																	
								100	100	100	98	94		A	A	102	102	102	102	108				
20							128	108	98	96	96	96	96	96	96	96	98	98		A	A			
21							118	108	108	108	108	108	108	112			96	100	102	108				
22							B																	
								106	102	108	100	100	100		96	94	94	94	102					
23							B																	
								102	102	98	98	96	98	96	92	100	110	104						
24							A																	
								102	98	96	96	98		A	A	A		110	102	102				
25							B																	
								100	98	94	94	94	98		A	A	112	112	112	108				
26							118	100	98	98	98	96	98	98	98	100	96	96	104					
27							B																	
								102	98	98	98	98	98	98	110	108	108	108	108					
28							122	106	96	98	90	100	100	98	100		C	100	100	106				
29							B																	
								98	104	104		A	A	96	96	94	108	100	102	106				
30							132	102	98	98	98	104		A	100	100	98	98	102	108				
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							6	29	29	29	28	26	22	24	21	23	26	26	24					
MED							125	102	100	98	98	98	98	98	98	98	100	103	108					
U Q							130	105	100	100	98	100	100	100	101	106	108	106	110					
L Q							118	101	98	97	96	96	96	96	96	96	98	100	106					

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APR. 2016 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

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	104	118	106	92	88	98	B	152	146	100	92	92	94	92	192	116	88	108	86	82	88	94	B	B	
2	B	B	B	B	100	B	B	144	168	144	114	114	110	122	96	162	96	176	88	88	90	B	B	B	
3	B	B	126	B	B	B	B	132	132	104	104	106	98	102	96	100	100	92	138	90	108	88	88	98	
4	98	104	B	B	B	B	B	132	124	114	108	114	108	156	150	134	124	116	108	102	100	98	90	B	
5	88	B	B	B	B	B	88	116	112	112	104	104	104	102	102	110	120	110	104	98	96	96	122	104	
6	96	98	96	94	92	92	134	116	114	110	108	102	100	100	94	94	92	118	108	102	108	108	104	112	
7	98	98	102	102	94	94	98	106	120	116	100	96	96	118	98	G	126	106	106	104	100	96	98	88	
8	96	96	104	100	92	104	130	120	114	110	104	100	102	104	104	106	102	144	104	108	104	100	100	100	
9	96	96	96	96	94	96	144	120	140	112	104	104	110	118	128	112	144	118	104	104	120	96	112	106	
10	96	98	100	96	96	96	144	120	110	100	100	98	96	118	112	98	180	174	104	98	98	98	94	100	
11	102	100	126	108	96	98	126	146	116	106	102	106	114	108	108	92	92	90	90	88	122	104	122	104	
12	B	98	B	B	B	102	B	120	108	108	102	102	98	96	98	104	142	92	110	100	100	100	86	86	
13	84	B	B	94	102	B	138	124	122	114	112	108	G	G	196	G	174	118	110	104	102	B	96	96	
14	96	96	B	B	102	B	128	122	122	118	114	108	98	172	176	182	118	108	104	98	98	96	96	106	
15	B	B	94	136	122	136	130	108	108	104	106	106	106	106	108	96	122	118	116	108	122	100	98	128	
16	100	98	92	90	92	96	100	128	110	102	96	94	100	106	108	102	102	98	98	96	108	108	106	106	
17	108	104	102	96	96	B	142	148	G	124	106	106	106	102	96	96	G	124	142	94	B	108	102	100	
18	98	96	98	100	94	102	128	126	132	120	116	106	102	102	102	96	92	92	92	92	92	88	92	B	
19	B	B	B	B	B	B	94	156	138	156	144	104	100	100	124	116	H	130	154	118	102	92	116	96	102
20	130	B	90	90	108	126	122	118	128	112	114	100	104	102	100	124	116	102	98	98	98	84	106		
21	88	102	114	112	98	98	120	116	116	116	112	112	112	120	124	114	94	174	138	106	110	90	108	84	
22	80	84	102	102	B	B	B	134	G	144	108	102	100	100	G	134	110	192	128	88	96	98	100	86	
23	98	94	94	94	96	B	120	114	114	110	108	102	104	96	110	114	112	104	104	100	100	100	100	100	
24	90	100	86	86	86	90	90	140	114	122	170	108	146	156	142	122	112	104	104	100	100	98	100	98	
25	100	98	B	106	110	138	118	112	112	104	104	100	100	96	94	96	98	112	104	104	100	102	96	98	
26	B	B	90	B	B	B	96	110	104	106	106	106	G	G	102	G	G	160	130	116	100	102	100	100	
27	98	98	98	B	B	B	B	132	128	118	114	118	114	106	106	108	120	112	112	110	108	98	98	100	
28	94	88	B	B	124	B	150	118	112	112	104	104	112	108	100	C	142	118	110	102	110	104	102	102	
29	116	102	100	98	104	B	134	154	126	126	124	112	124	130	G	162	160	108	110	112	88	86	90	100	
30	96	B	B	B	B	136	140	118	110	110	116	112	98	128	130	110	106	106	104	102	98	98	98	104	
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	21	20	19	20	16	23	30	28	30	30	30	28	28	28	26	28	30	30	30	29	28	28	26	
MED	97	98	99	96	96	98	128	122	116	112	107	106	102	106	107	109	115	114	105	101	100	98	98	100	
U Q	100	101	103	102	102	106	138	134	127	120	114	108	110	119	126	116	128	124	112	104	108	102	102	104	
L Q	95	96	94	94	93	96	100	116	112	106	104	102	99	101	99	98	99	106	104	96	97	96	95	98	

APR. 2016 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 2016 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

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	F	FF	FF	FF	F	F		H	HL	C	L	L	L	L	HL	CL	L	CL	L	F	F	F			
2					F	1		H	H	H	C	C	C	C	L	HL	L	H	L	L	FF	F			
3			F					H	H	C	C	C	L	C	L	L	L	L	HL	F	FF	F	F	F	
4	F	F						H	C	C	C	C	C	H	H	H	C	CL	C	C	F	F	FF	F	
5	F						L	C	C	C	C	C	C	C	C	C	CL	C	C	F	F	FQ	FF	F	
6	FF	F	F	FQ	F	FF	H	C	C	C	C	C	C	C	L	L	L	CL	C	F	FF	FF	FF	FF	
7	FF	FF	FF	FF	F	F	L	C	C	C	C	L	L	CL	L		C	C	C	F	FF	FF	F	F	
8	F	FF	FF	F	F	F	C	C	C	C	C	C	C	C	C	C	C	H	C	F	F	FF	F	FF	
9	F	FF	FF	F	F	F	H	C	HL	C	C	C	C	C	C	C	HC	CC	C	F	FF	FF	FF	FF	
10	F	FF	FF	F	FF	F	H	C	C	C	C	L	L	C	C	L	HL	H	C	F	FF	FF	FF	FQ	
11	FF	FF	FF	FF	FF	FF	FF	CL	HL	HL	CL	C	C	C	CL	CL	L	L	L	FFF	FFF	FF	FF	FF	
12		FF				F		CL	C	C	C	C	L	LC	L	C	HL	LC	CL	FF	FFF	FFF	FF	F	
13	F			F	F		H	C	C	C	C	C				H	C	C	F	FF	FF		F	F	
14	F	FF			F		C	C	C	C	C	C	L	H	H	H	C	C	C	F	FF	F	F	F	
15			F	F	F	F	C	C	C	C	C	C	C	C	C	L	CL	CL	CL	FFF	FFF	FF	FF	FF	
16	F	F	FF	F	F	FF	LC	C	C	C	L	L	C	C	C	C	C	L	L	F	FFF	FFF	FFF	FF	
17	FFF	FF	FF	FF	FF		HL	H		C	C	C	C	C	L	L		CL	H	F		F	FF	FF	
18	FFF	FF	FF	F	F	F	C	C	H	C	C	C	C	C	C	L	L	L	L	F	F	F	F	F	
19							L	H	H	H	H	C	L	L	C	C	C	H	C	F	FF	FFF	FFF	FF	
20	F		F	F		F	C	C	C	C	C	CC	C	C	C	C	C	CL	CL	F	F	FF	F	FF	
21	F	FF	FF	FF	FF	F	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	C	L	H	H	F	FF	F	FF	
22	F	FF	FF	F			H			HL	C	C	C	L		H	C	H	C	F	FF	FF	FF	FF	
23	F	F	FF	FF	FF		CL	C	C	C	C	C	C	L	L	CL	CL	CL	C	FF	FF	FF	FF	F	
24	F	FF	F	F	F	F	L	H	C	C	H	C	HC	HL	HL	CL	CL	C	F	F	F	F	F	F	
25	F	F		F	FF	F	C	C	C	C	C	C	C	L	L	L	L	CL	C	F	F	F	F	F	
26			F				LC	C	C	C	C	C				C		H	C	F	FF	FF	FF	FF	
27	FF	F	F				H	C	C	C	C	C	C	C	CL	CL	CL	CL	C	F	F	F	F	FF	
28	F	F			F		H	CL	C	C	C	C	C	C	C	C	H	C	C	F	FFF	FQ	FQ	F	
29	FF	F	F	F	F		H	H	CL	CL	CL	C	C	C		HL	H	C	C	F	F	F	F	FF	
30	F					FF	H	C	C	C	C	C	L	C	C	C	C	C	C	F	F	F	F	FF	
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. 2016 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	X 52	X 48	X 44	X 44	X 41	X 36															X 82	X 60	X 50	X 50	
2	X 50	X 49	X 48	X 51	X 48	X 33																X 92	X 51	X 37	X 38
3	X 38	X 38	X 39	X 39	X 34	X 36	49															X 68	X 48	X 44	X 45
4	X 49	X 54	X 58	X 51	X 36	X 32																X 76	X 58	X 56	X 53
5	X 52	X 52	X 50	X 53	X 50	X 26																X 90	X 59	X 49	X 55
6	X 52	X 55	X 54	X 53	X 46	X 42																X 77	X 51	X 52	X 58
7	X 58	X 58	X 63	X 60	X 48	X 38																X 63	X 46	X 42	X 45
8	X 47	X 50	X 56	X 56	X 48	A																X 85	X 51	X 50	X 50
9	X 50	X 52	X 57	X 58	X 61	X 31																X 87	X 60	X 51	X 52
10	X 48	X 54	X 53	X 54	X 49	X 38	45															X 122	X 64	X 44	X 52
11	X 58	X 66	X 69	X 78	X 51	X 38																X 83	X 62	X 66	X 71
12	X 82	X 88	X 70	X 67	X 65	X 66																X 84	X 72	X 71	X 76
13	X 73	X 70	X 73	X 72	X 40	X 33																X 78	X 58	X 56	X 54
14	X 57	X 58	X 54	X 51	X 54	X 47																X 82	X 78	X 81	X 81
15	X 79	X 74	X 77	X 64	X 46	X 41																X 88	X 56	X 50	X 53
16	X 58	X 64	X 63	X 58	X 53	X 39	51															X 77	X 57	X 60	X 73
17	X 70	X 68	X 70	X 69	X 48	X 32																X 54	X 47	X 47	X 48
18	X 50	X 52	X 58	X 41	X 29	X 23																X 84	X 67	X 67	X 68
19	X 70	X 72	X 85	X 79	X 46	X 37																X 72	X 61	X 60	X 58
20	X 58	X 59	X 60	X 59	X 46	X 44																X 67	X 63	X 62	X 62
21	X 64	X 66	X 65	X 56	X 36	X 41																X 90	X 69	X 66	X 67
22	X 63	X 58	X 56	X 50	X 48	X 47					C		C		C							X 83	X 61	X 46	X 48
23	X 54	X 54	X 53	X 54	X 31	X 37	50															X 80	X 54	X 49	X 54
24	X 55	X 54	X 51	X 54	X 37	X 33																X 82	X 67	X 58	X 61
25	X 60	X 54	X 52	X 47	X 45	X 40																X 95	A	X 61	X 59
26	X 56	X 56	X 52	X 53	X 48	X 27																X 107	X 68	X 54	X 56
27	X 56	X 53	X 53	X 53	X 38	X 36																X 86	X 70	X 58	X 56
28	X 56	X 54	X 54	X 51	X 43	X 39																X 77	X 71	X 71	X 79
29	X 82	X 81	X 84	X 66	X 50	X 48																X 90	X 65	X 62	X 64
30	X 64	X 59	X 62	X 65	X 54	X 56																X 99	X 78	X 77	X 77
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	29	4														30	29	30	30	
MED	X 56	X 56	X 56	X 54	X 47	X 38	50														X 83	X 61	X 56	X 56	
U Q	X 64	X 66	X 65	X 64	X 50	X 42	50														X 90	X 68	X 62	X 67	
L Q	X 52	X 53	X 53	X 51	X 40	X 33	47														X 77	X 55	X 49	X 52	

APR. 2016 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2016 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

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		46	42	38	38	35	30	36	58	64	69	82	83	95	112	125	122	112	100	98	93	76	54	44	44	
2		44	43	42	45	42	27	29	55	62	70	70	85	96	110	106	104	100	94	100	106	86	45	31	32	
3		32	32	33	33	28	30	40 ^F	47	61	87	114	78	85	118	114	104	92	98	107	121	62	42	38	39	
4		43	48	52	45	29 ^F	26	32	54	62	69	72	84	100	105	114	101	106	112	125	118	70	52	50	47 ^F	
5		46	46	44	47	44	20	30	52	68	84	78	89	104	114	109	108	114	123	115	103	84	53	43	44 ^F	
6		44 ^F	45 ^F	45 ^F	44 ^F	41 ^F	36	36	61	69	71	84	94	112	128	140	137	113	105	88	81	71	45	45 ^F	50 ^F	
7		51 ^F	50 ^F	53 ^F	54	42	32	36	58	62	76	94	112	113	109	105	101	99	109	110	93	57	40	36	39	
8		41	44	50	50	42		35	69	73	73	65	85	114	124	126	109	104	112	122	120	79	45	44	44 ^F	
9		44	46	51	52	55	25	33	54	66	71	80	100	109	118	133	136	133	133	119	109	81	54	45	43 ^F	
10		42	44 ^F	42 ^F	46 ^F	42 ^F	30 ^F	35 ^F	70	78	74	70	72	91	111	124	125	129	127	127	130	116	58	38	39 ^F	
11		48 ^F	55 ^F	63 ^F	72 ^F	45 ^F	29 ^F	40 ^F	60	72	70	75	93	108	113	117	120	122	122	117	109	77	56	56 ^F	60 ^F	
12		47 ^F	50 ^F	50 ^F	56 ^F	57 ^F	58 ^F	57 ^F	69	69	63	72	89	107	112	117	116	106	90	83	88	78	66	65	70 ^F	
13		67	63 ^F	67 ^F	65 ^F	34	27	41	71	60	56	73	114	105	95	128	116	118	114	106	116	72	52	50	48	
14		51	52	48	45	48	41	40	58	70	83	85	101	118	117	117	126	127	116	114	114	76	72	75	75 ^F	
15		73	68	71	58	40	34 ^F	38	60	76	85	81	93	106	106	110	110	103	97	97	98	82	50	44	45 ^F	
16		48 ^F	53 ^F	56 ^F	50 ^F	40 ^F	29 ^F	39 ^F	58	65	66	70	86	104	130	153	162	171 ^{JR}	161	139	100	71	51	51 ^F	64 ^F	
17		64	60 ^F	60 ^F	63	42	26	37	52	64	61	68	92	106	113	114	115	98	92	96	89	48	41	41	42	
18		44	46	52	35	23	17	36	60	68	68	74	79	98	112	118	119	117	112	102	105	78	61	61	62	
19		62 ^F	64 ^F	77 ^F	73	40	31	41	58	68	71	68	72	90	102	101	96	108	114	107	94	66	55	54	52	
20		52	50 ^F	54 ^V	53 ^V	40	38 ^Z	42	57	61 ^H	64	69	76	90	101	110	105	101	99	112	113	61	57	56 ^V	56 ^V	
21		58	56	59	50	30	34 ^F	50	61	66	57	65	74	88	92	98	98	100	106	94	104	84	63	60	58 ^F	
22		57	52	50	44	40	38	48	60	54	55		78			118	126	113	98	91	83	77	55	40	42 ^F	
23		44 ^F	43 ^F	44 ^F	42 ^F	25	29 ^F	42 ^F	49	56	57	67	78	94	110	126	141	135	98	86	86	74	48	43	43 ^F	
24		48 ^F	46 ^F	42 ^F	45 ^F	29	27	38	58	64	52	62	79	86	95	95	102	103	98	85	78	76	61	52	55	
25		54	46 ^F	41 ^F	40 ^F	39	34	46	57	64	70	65	74	93	102	99	98	90	86	91	102	89		55	53 ^F	
26		50	50	46	47	42	21	39	56	68	70	68	75	89	102	115	117	110	103	90	100	101	62	48	48 ^F	
27		49 ^F	47	47	47	32	30	43	66	66	69	70	75	84	100	118	125	113	95	76	76	80	64	52	50	
28		50	48	48	45	37	33	49	66	68	66	67	64	78	91	109	121	120	102	85		71	65	63 ^F	70 ^F	
29		74 ^F	75	78	59	42 ^F	42	48	68	72	76	69	70	80	98	104	98	94	98	102	104	84	59	56	58 ^F	
30		58	53	56	59	48	50	55	56	59	66	66	78	92	111	111	94	82	77	81	94	93	72	70 ^F	70 ^F	
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	29	30	30	30	30	29	30	29	29	30	30	30	30	30	29	30	29	30	30	
MED		48	49	50	47	40	30	40	58	66	70	70	81	96	110	114	116	109	102	101	102	77	55	50	49 ^F	
U Q		57	53 ^F	56	56	42	35	43	61	69	73	79	92	106	114	124	125	118	114	114	111	84	62	56	58 ^F	
L Q		44	46	44	45	34	27	36	56	62	64	68	75	90	102	109	102	100	98	90	91	71	49	43	43	

APR. 2016 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2016 f_oF1 (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										L	464	496	476	504	476	456	452							
2										L	476	504	488	488	472	476		L	A					
3										L	468	472	520	484	484		476	L	L	L				
4										L		L			U	L	L	A	A					
5									U	L	424	472	468	496	488	484	508	492		L	L	A		
6											L	464	552	508		472	472		L	L				
7										U	L	484	492	496	496	488	492	444		L				
8									L	U	L	444	508	508	496	484	468	476	420	L				
9									L	L	U	L	528	500	532	508	484	480	448		L			
10											A	L		U	A	L	L	L	L	L	L			
11											A	L	500	488	508	492	492	416	404					
12									L	L	L	452		U	L	L	L	A	A					
13										L	U	L	492	496	492	540	484		L	U	L	L		
14										U	L	452	484	532	492	484	464	436		L				
15											A	A	A	A	A	A	A	L	L	440				
16								L	L	A	A	A	A	A	A	A	A	A	A					
17											U	L	508	488	500		A	L	L	L				
18									A	L	U	L	476	516	492	496		468	L	L	L	L		
19									L	L	U	L	488	512	492	480	488	464	452		A			
20										L	A	A		U	A	A	A	U	A	A				
21										A	A	L	L	484	476	468	472	468	452	L	L	L		
22									L	U	L	C	424	472		C	468	460	444		L	L		
23											A	L	496		A	A	464	456	440	404	L	L		
24									L		L	480	464	480	468		A	A	L	L				
25									L	A	A	U	L	492	476	484	484		A	A	A	A		
26									L	L	U	L	472	508	492	484	468	464	460	408	L	L		
27								L	L		U	L	492	504	496	472	468	468	432	436	L	L	L	
28									L	A	L	U	L	516	508	544	484		A	A	A	A	A	
29								L	L	U	L	L	468	492	488	480	480	472	468		L			
30										U	L	U	L	476	516	480	492	496		A	A	A	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									1	8	14	25	24	24	23	19	18	7						
MED									U	L	U	L	U	L	L	L	L	L	U	L	U	L		
U Q									424	460	478	496	492	490	484	472	452	408						
L Q									U	L	U	L	U	L	L	L	L	L	L	L				
									474	492	506	508	500	484	480	468	436							
									U	L	L	L	L	L	L	L	L	L	L	L				
									448	468	484	488	482	472	464	444	404							

IONOSPHERIC DATA STATION Okinawa

APR. 2016 f_oE (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							B					A	A	A	A	A	A		A	A				
								200	260	308	324								272					
2							B										R		A	A				
								184	272	316	344	356	356	372	352	352	308	276						
3							B								A	A	A		A	A				
								220	268	312	332	332	340	324					268					
4							B							B						A				
								188	256	312	320	336	352		364	336	308	264	196					
5							B							R						A				
								208	268	308	332	344	348	380		A	336	308	272	208				
6							A				A	A	A	A	A	A				A				
								216	284								348	324	276	208				
7							B				A	A	A	A	A					A				
								220	272	312							368	312	264					
8							B	A			A	A	A	A	A	A				A				
									284										268	208				
9							B							B					A					
								228	296	316	332	364	376		368	340	312		252					
10							B				A	A								A				
								224	280	312			368	384	364	364	308	268	212					
11							B				A	A	A	A						A				
								224	276						364	360	304	284						
12							A	A	A	A	A	A	R	R						A				
												368	384	368	348	324	284							
13							B				A	A	R							A				
								212	280		316			368	364	340	316	280	212					
14							A	A	A	A		R	A	R						A				
											336	360		404	356				276					
15							B				A	A	A	A	A	A	A	A	A	A				
								196	276	312														
16							B	A			A	A	A	A	A	A	A	A	A	A				
									288															
17							A						A	A	A	A	A	A	A	A				
								212	296	312	348	348												
18								A					A											
							168		280	320	368	376		356					280	220				
19							A				A	A	A	R	A	A				A				
								208	288	320				372					312	276				
20							B																	
								236	296	332	352	356	372		376	340	316	272	212					
21							A					A	A	A	A	A								
								216	288	316	340								312	280	212			
22							B				C		C	C	A	A								
								212	264	312		352							288	268	208			
23							A					A	A	A										
								212	288	312	336				356	336	308	272						
24								A			A	A	A	A	A	A								
							168	228											308	276	216			
25							A						R	A	A	A								
								228	288	312	332	372	372											
26							A								A									
								224							356	336	324	272	216					
27							A	U	A					U	R									
								236	292		344	360	352	376	360	344				272	216			
28													R											
							172	220	296	316	344	352	360	416	380	360	328	284	224					
29													R	R	A									
							168	216	292	324	356	376	396	388		360	324	288	216					
30							A				A	A	A		R									
								252	296	328				380	356	352	320	276						
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							4	25	26	20	17	14	12	13	14	17	20	25	16					
MED							168	216	284	312	336	356	364	380	364	348	312	276	212					
U Q							170	226	292	318	346	364	372	386	368	360	322	280	216					
L Q							168	210	272	312	332	348	352	370	356	338	308	270	208					

APR. 2016 f_oE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2016 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	E 13	BE 13	BE 13	B 18	E 13	BE 13	BE 13	B 22	G 25			J 36	A 41	J 46	A 59	J 56	A 41	J 32	A 29	J 23	J 18	J 18	J 20	E 13	BE 13
2	E 13	BE 13	BE 13	B 13	E 13	BE 13	BE 13	B 22	G 30			J 34	A 38	J 39	A 40	J 40	A 37	J 39	J 60	J 54	J 28	J 20	E 13	BE 13	
3	E 13	BE 13	B 18	E 13	BE 13	BE 13	B 14	G 32			J 36	A 40	J 38	A 38	J 38	A 40	J 38	A 23	G 24	J 32	J 20	J 21	J 20	J 20	
4	J 34	A 20	J 20	J 24	J 20	J 20	J 16	G 24	G 30		J 38	A 47	J 43	A 44	J 41	A 40	J 39	J 49	A 58	J 54	J 36	J 25	J 19	J 30	J 20
5	E 13	B 20	E 13	BE 13	BE 13	BE 13	B 14	G 25	G 33		J 38	A 37	J 38	A 41	J 42	A 39	J 41	A 44	J 47	J 50	J 32	J 28	J 21	J 18	
6	J 65	A 44	J 52	J 62	J 70	J 43	J 30	G 29	J 50	J 53	J 48	J 49	J 47	J 50	J 41	J 39	J 36	J 36	J 38	J 45	J 34	J 30	J 33	J 106	
7	J 47	J 35	J 38	J 41	J 20	J 14	J 20	G 36	J 44	J 38	J 38	J 37	J 40	J 40	J 40	J 38	J 37	J 38	J 49	J 45	J 96	J 46	J 31	J 26	
8	J 20	J 39	J 36	J 62	J 30	J 38	J 17	G 29	G 35	J 45	J 44	J 44	J 41	J 42	J 38	J 36	J 36	G 24	J 20	J 15	J 58	J 31	J 40		
9	J 37	J 28	J 36	J 29	J 20	J 24	J 14	G 37	G 42	J 41	J 41	J 40	J 44	J 44	J 40	J 34	J 51	J 37	J 34	J 35	J 98	J 83	J 35		
10	J 34	J 32	J 54	J 55	J 30	J 20	J 18	G 32	J 61	J 46	J 73	J 44	J 41	J 49	J 42	G 27	G 27	G 29	J 87	J 54	J 47	J 71	J 27		
11	J 19	J 29	J 19	J 17	J 22	J 16	J 14	G 28	J 47	J 76	J 58	J 52	J 42	J 44	J 48	J 40	J 26	J 32	J 34	J 34	J 50	J 74	J 19	J 28	
12	J 38	J 48	J 63	J 38	J 89	J 64	J 47	G 27	J 35	J 42	J 43	J 44	J 42	J 48	J 46	J 43	J 50	J 52	J 54	J 56	J 71	J 87	J 51	J 51	
13	J 20	J 19	J 47	J 17	J 15	J 19	J 16	G 32	J 35	J 43	J 45	J 38	J 30	J 40	J 38	J 37	G 37	G 37	G 42	J 47	J 48	J 37	J 42		
14	J 21	J 21	J 46	J 21	J 30	J 29	J 26	G 25	J 30	J 41	J 39	J 45	J 45	J 37	J 33	J 37	J 54	J 42	J 45	J 47	J 29	J 28			
15	J 22	J 18	J 45	J 26	J 42	J 17	J 14	G 32	J 58	J 72	J 73	J 74	J 88	J 100	J 78	J 73	J 54	J 52	J 104	J 115	J 96	J 49	J 48	J 50	
16	J 25	J 47	J 49	J 52	J 30	J 26	J 16	G 27	J 35	J 68	J 58	J 54	J 71	J 58	J 62	J 60	J 52	J 59	J 64	J 65	J 46	J 46	J 82	J 54	
17	J 60	J 49	J 27	J 19	J 31	J 13	J 19	G 28	J 38	J 44	J 40	J 39	J 53	J 46	J 73	J 58	J 42	J 40	J 44	J 35	J 45	J 45	J 32	J 15	
18	E 13	J 30	J 20	J 21	J 13	J 13	G 46	J 50	J 56	J 39	J 45	J 52	J 53	J 60	J 42	J 30	J 20	J 35	J 25	J 27	J 19	J 13			
19	E 13	J 14	J 13	J 19	J 18	J 19	J 18	G 26	J 30	J 34	J 36	J 38	J 40	J 44	J 41	J 41	J 45	J 46	J 47	J 46	J 48	J 44	J 38		
20	J 31	J 13	J 33	J 33	J 30	J 20	J 14	G 29	J 41	J 40	J 52	J 56	J 45	J 48	J 54	J 63	J 51	J 74	J 46	J 28	J 28	J 35	J 27	J 19	
21	J 48	J 32	J 20	J 21	J 34	J 21	J 32	G 34	J 43	J 55	J 47	J 43	J 44	J 49	J 46	J 41	J 36	J 35	J 34	J 45	J 74	J 64	J 42	J 35	
22	J 24	J 23	J 36	J 23	J 13	J 13	J 13	G 28	J 30	J 34	J 41	J 41	J 40	J 36	J 27	J 30	J 29	J 55	J 49	J 53	J 72	J 32			
23	J 65	J 18	J 19	J 37	J 16	J 13	J 21	G 36	J 40	J 50	J 54	J 48	J 70	J 66	J 46	J 44	J 43	J 38	J 32	J 45	J 16	J 21	J 46	J 47	
24	J 21	J 47	J 25	J 17	J 91	J 18	G 28	J 35	J 46	J 37	J 47	J 51	J 54	J 50	J 58	J 42	J 34	J 27	J 20	J 36	J 21	J 33	J 38		
25	J 35	J 24	J 25	J 18	J 18	J 18	J 20	G 31	J 40	J 56	J 54	J 41	J 38	J 118	J 61	J 53	J 61	J 79	J 93	J 107	J 76	J 64			
26	J 19	J 18	J 13	J 13	J 13	J 13	J 17	G 28	J 35	J 36	J 38	J 41	J 38	J 40	G 36	J 33	J 25	J 16	J 13	J 25	J 58	J 59			
27	J 73	J 13	J 13	J 13	J 13	J 13	J 19	G 28	J 36	J 43	J 39	J 41	J 39	J 44	J 43	J 32	J 26	J 26	J 25	J 28	J 63	J 42	J 32		
28	J 33	J 28	J 19	J 22	J 13	J 13	G 29	J 40	J 52	J 47	J 44	J 44	J 55	J 66	J 46	J 62	J 69	J 67	J 83	J 31	J 75	J 48	J 52		
29	J 50	J 32	J 21	J 17	J 19	J 17	J 22	G 28	J 34	J 36	J 42	J 47	J 46	J 46	J 44	J 39	J 39	J 34	J 50	J 34	J 21	J 19	J 19		
30	J 19	J 20	J 13	J 19	J 15	J 17	J 18	G 29	J 40	J 40	J 45	J 35	J 35	J 50	J 66	J 82	J 77	J 92	J 83	J 38	J 43	J 58	J 57	J 32	
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	29	29	30	30	30	30	30	30	30	30	30	30	
MED	J 24	J 24	J 23	J 21	J 20	J 17	J 16	J 28	J 35	J 42	J 43	J 41	J 42	J 46	J 44	J 40	J 38	J 38	J 41	J 42	J 36	J 46	J 35	J 32	
UQ	J 38	J 32	J 38	J 33	J 30	J 20	J 20	J 31	J 41	J 52	J 50	J 47	J 46	J 51	J 53	J 58	J 49	J 52	J 54	J 54	J 49	J 58	J 51	J 47	
LQ	E 19	BE 18	BE 18	BE 17	BE 13	BE 13	BE 14	G 26	J 30	J 36	J 38	J 38	J 38	J 40	J 40	J 39	J 34	J 30	J 27	J 34	J 25	J 25	J 27	J 20	

APR. 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2016 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	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	22	20	32	35	36	39	44	40	37	32	28	21	14	E B 13 13	E B 13 13	E B 13 13	E B 13 13	
2	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	22	30	33	G	37	38	40	39	40	37	39	58	50	24	E B 13 13	E B 13 13	E B 13 13	
3	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 14	G	31	G	35	40	38	37	38	39	35	22	23	22	17	17	E B 13 13	E B 13 13	
4	18	E B 13 13	E B 13 13	E B 16 16	E B 13 13	E B 17 17	E B 14 14	24	30	36	46	42	42	40	39	38	47	53	52	31	22	E B 13 13	20	E B 13 13	
5	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 14 14	24	32	36	36	37	G	41	41	38	40	41	44	42	29	26	20	E B 13 13	
6	21	E B 13 13	21	18	16	28	29	28	41	46	44	45	44	47	40	38	34	35	30	41	22	E B 13 13	E B 13 13	19	
7	E B 13 13	20	16	19	E B 13 13	E B 13 13	E B 13 13	35	40	36	37	36	38	40	38	38	35	34	40	28	22	E B 13 13	26	20	
8	E B 13 13	E B 13 13	23	13	E B 13 13	A A 38 14	E B 14 14	27	G	34	40	41	41	40	38	36	31	G	23	18	E B 13 13	E B 13 13	21		
9	17	E B 13 13	18	18	E B 13 13	E B 13 13	E B 14 14	G	G	35	41	40	G	39	44	39	33	35	31	28	30	22	32	E B 13 13	
10	E B 13 13	17	18	20	E B 13 13	E B 13 13	E B 14 14	30	51	44	64	44	41	49	41	G	G	G	28	56	E B 13 13	19	E B 13 13	E B 13 13	
11	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 14 14	26	34	49	46	43	42	44	46	40	23	31	32	28	45	18	E B 13 13	17	
12	21	E B 13 13	E B 13 13	14	19	22	24	25	32	40	41	41	42	47	45	42	44	47	42	46	31	22	20	24	
13	E B 13 13	E B 13 13	30	E B 13 13	E B 13 13	E B 13 13	E B 14 14	29	33	33	43	38	30	40	38	37	G	G	G	34	30	20	22	21	
14	E B 13 13	E B 13 13	E B 13 13	E B 13 13	22	24	23	24	29	35	38	G	45	G	G	35	32	36	53	39	20	30	20	21	
15	16	E B 13 13	16	20	20	E B 13 13	E B 14 14	30	52	67	65	68	83	96	62	48	42	37	78	28	20	28	27	23	
16	21	28	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	25	20	48	51	50	68	57	53	56	50	53	54	56	25	40	22	36	
17	19	24	23	E B 13 13	E B 13 13	E B 13 13	E B 13 13	17	28	37	39	39	39	52	46	64	44	37	31	30	27	22	21	E B 13 13	
18	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	G	39	40	38	38	G	44	50	43	44	32	20	16	18	E B 13 13	E B 13 13	E B 13 13	
19	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 16	26	30	33	36	38	39	G	41	41	40	44	38	44	30	32	21	20	
20	21	E B 13 13	E B 13 13	20	13	E B 13 13	E B 14 14	27	41	38	46	55	45	47	54	54	46	50	40	25	18	32	21	E B 13 13	
21	20	20	19	E B 13 13	E B 13 13	E B 13 13	E B 13 13	29	32	40	47	46	42	43	47	43	40	34	32	27	37	38	28	22	20
22	E B 13 13	18	17	E B 13 13	E B 13 13	E B 13 13	E B 13 13	26	30	33	C	39	C	C	38	34	26	29	28	30	20	20	19	17	
23	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	19	34	36	43	50	46	64	64	45	43	42	36	28	24	E B 13 13	E B 13 13	E B 13 13	
24	E B 13 13	E B 13 13	19	E B 13 13	E B 13 13	E B 13 13	E B 13 13	G	27	32	40	37	44	40	44	49	56	39	32	24	18	32	E B 13 13	E B 13 13	22
25	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	19	29	37	51	50	G	G	40	38	58	59	50	54	44	28	A A 107	22	21
26	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	17	26	33	35	36	40	38	39	G	G	36	32	24	E B 13 13	E B 13 13	18	17	E B 13 13
27	16	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	19	28	35	42	39	40	39	G	44	42	32	20	25	22	23	35	18	19
28	22	E B 13 13	E B 13 13	E B 13 19	E B 13 13	E B 13 13	E B 13 13	G	28	35	48	45	43	44	54	64	45	61	57	67	A A 83	28	20	18	19
29	E B 13 13	20	13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	21	28	32	35	41	46	46	46	44	38	38	32	36	28	E B 13 13	E B 13 13	E B 13 13	E B 13 13
30	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	18	28	39	38	44	U Y 35 35	U Y 35 35	50	62	59	58	40	23	31	23	20	22	22
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	29	29	30	30	30	30	30	30	30	30	30	30	30
MED	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	G	27	33	38	41	40	41	44	42	40	36	34	30	29	22	20	20	18
U Q	18	13	18	18	13	13	19	29	39	44	46	44	44	48	46	44	42	41	44	42	29	28	22	21	
L Q	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 13	E B 13 14	25	30	35	37	37	38	40	38	38	32	29	24	24	E B 13 13	E B 13 13	E B 13 13	E B 13 13	

APR. 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2016 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

$\frac{H}{D}$	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	13	13	13	13	13	13	13	14	14	15	20	24	24	22	23	21	18	14	12	13	13	13	13	13
2	13	13	13	13	13	13	13	14	16	16	20	24	24	30	19	31	20	14	15	13	13	13	13	13
3	13	13	13	13	13	13	14	14	14	20	24	24	25	23	30	21	18	13	12	13	13	13	13	13
4	13	13	13	13	13	13	14	14	14	20	21	22	25	38	22	22	19	15	14	14	13	13	13	13
5	13	13	13	13	13	13	14	15	14	16	30	21	24	24	20	20	20	16	14	14	14	13	13	13
6	13	13	13	13	13	13	14	14	16	18	20	22	24	21	22	25	16	15	14	14	13	13	13	13
7	13	13	13	13	13	13	13	14	14	18	21	22	24	23	20	21	17	14	14	12	13	13	13	13
8	13	13	13	13	13	13	14	14	14	20	22	26	29	26	30	25	20	16	14	14	13	13	13	13
9	13	13	13	13	13	13	14	14	16	20	23	23	37	37	25	21	16	14	14	13	13	13	13	13
10	13	13	13	13	13	13	14	14	18	18	21	22	29	30	22	21	21	17	14	13	13	13	13	13
11	13	13	13	13	13	13	14	14	14	16	23	24	35	32	26	24	16	14	17	14	13	13	13	13
12	13	13	13	13	13	13	14	14	16	18	22	32	30	30	21	21	17	17	14	14	13	13	13	13
13	13	13	13	13	13	13	14	14	14	17	20	28	28	21	21	21	16	16	14	14	13	13	13	13
14	13	13	13	13	13	13	14	14	14	21	22	26	31	26	21	20	17	14	14	14	13	13	13	13
15	13	13	13	13	13	13	14	14	16	15	21	22	27	30	24	26	20	15	14	14	13	13	13	13
16	13	13	13	13	13	13	13	14	15	18	24	26	31	32	22	25	20	17	14	14	13	13	13	13
17	13	13	13	13	13	13	14	15	14	20	22	23	23	30	24	21	19	16	13	13	13	13	13	13
18	13	13	13	13	13	13	14	14	14	18	32	30	38	29	22	21	20	15	13	13	13	13	13	13
19	13	13	13	13	13	13	14	14	16	20	20	22	26	32	32	34	20	14	14	14	13	13	13	13
20	13	13	13	13	13	13	14	14	21	21	20	24	24	30	25	21	19	14	15	13	13	13	13	13
21	13	13	13	13	13	13	14	14	14	17	21	22	23	24	21	22	18	16	13	14	13	13	13	13
22	13	13	13	13	13	13	13	14	16	18	C	22	C	C	23	24	20	14	13	13	13	13	13	13
23	13	13	13	13	13	13	14	15	15	20	22	26	32	31	24	24	20	14	14	14	13	13	13	13
24	13	13	13	13	13	13	14	14	15	18	20	22	29	29	22	22	20	16	14	14	13	13	13	13
25	13	13	13	13	13	13	14	14	14	20	21	23	25	32	25	22	20	19	14	14	13	13	13	13
26	13	13	13	13	13	13	14	14	16	22	20	27	31	30	30	20	21	15	14	14	13	13	13	13
27	13	13	13	13	13	13	14	15	16	18	29	30	26	29	29	26	20	16	13	14	13	13	13	13
28	13	13	13	13	13	13	14	14	18	20	25	25	29	31	22	26	20	17	15	14	13	13	13	13
29	13	13	13	13	13	13	14	13	14	20	21	21	25	30	24	24	20	16	14	14	13	13	13	13
30	13	13	13	13	13	13	14	14	15	24	24	30	33	29	22	23	24	20	14	14	13	13	13	13
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	29	29	30	30	30	30	30	30	30	30	30	30
MED	13	13	13	13	13	13	14	14	15	18	21	24	27	30	22	22	20	15	14	14	13	13	13	13
U Q	13	13	13	13	13	13	14	14	16	20	24	26	31	31	25	25	20	16	14	14	13	13	13	13
L Q	13	13	13	13	13	13	14	14	14	18	20	22	24	25	22	21	18	14	14	13	13	13	13	13

APR. 2016 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2016 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

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		301	320	298	327	340	333	317	375	355	335	333	294	292	304	319	332	329	327	339	346	347	337	288	298	
2		278	284	299	334	366	366	330	381	354	355	328	307	305	315	321	316	319	325	329	351	377	369	290	290	
3		296	297	327	337	265	270	356	358	317	314	359	331	266	317	331	341	310	315	330	363	374	288	273	276	
4		289	293	276	347	377	355	317	389	347	349	312	295	312	315	324	318	322	325	341	358	354	285	287	285	
5		281	300	301	333	382	332	314	365	345	347	308	291	301	315	308	304	318	336	349	349	359	311	276	286	
6		284	279	296	312	321	357	324	373	342	332	314	288	295	311	324	332	335	344	359	342	353	280	272	273	
7		281	291	309	353	343	316	331	380	345	315	311	319	321	308	305	318	320	338	360	361	359	304	283	280	
8		294	302	319	346	366		331	366	355	343	316	278	303	319	324	321	306	329	343	357	377	285	271	278	
9		276	282	296	319	374	391	333	369	366	336	305	309	304	302	312	323	327	341	341	353	367	302	289	301	
10		308	304	301	331	326	312	328	367	374	355	352	287	280	304	315	320	314	320	330	340	368	363	291	290	
11		275	281	276	337	332	316	344	383	362	342	308	285	306	305	310	311	318	332	334	354	359	299	279		
12		284	287	304	302	311	336	326	365	376	334	308	276	304	302	316	323	334	324	317	329	321	284	286	286	
13		291	277	314	347	352	323	331	372	391	323	277	320	326	277	322	319	315	321	320	352	368	280	281	274	
14		290	294	276	292	329	359	350	360	333	338	287	295	311	310	309	325	336	337	339	354	307	274	282	281	
15		291	287	316	355	292	324	321	324	335	345	303	305	319	313	320	331	339	324	334	341	357	316	274		
16		261		306	343	349	317	349	362	343	340	307	277	288	311	324	326	344	345	348	353	311	282	266	276	
17		286	290	311	367	350	323	358	353	340	324	286	297	315	321	317	316	302	309	337	361	321	275	274	281	
18		283	323	351	374	344	320	351	361	365	343	332	289	301	316	313	314	317	329	323	346	337	295	281	285	
19		297	299	328	374	311	297	347	354	367	346	318	290	303	318	325	304	315	336	341	352	317	305	287	283	
20		288	299	336	344	349	318	333	374	353	343	323	284	297	311	321	320	315	308	328	369	330	296	291	291	
21		308	297	336	365	304	306	355	372	360	337	322	297	303	300	312	315	323	332	328	346	351	304	284	291	
22		311	291	313	312	326	318	346	392	388	345		279			305	329	333	331	339	334	359	362	302	299	
23			275	286	347	337	311	372	358	357	307	296	267	275	292	309	328	348	330	328	342	333	314	285	301	
24		296	285	326	360	334	310	352	362	382	345	303	322	306	316	307	326	328	333	331	322	336	316	297	287	
25		310	295	300	302	310	325	357	345	359	343	339	276	293	305	310	316	303	300	311	329	338		290	285	
26		289	291	297	341	379	302	338	349	352	347	313	268	285	298	319	323	321	324	307	321	362	334	280	262	
27		294	299	321	358	316	317	341	351	328	340	310	286	275	293	309	327	337	330	318	305	324	324	300	283	
28		292	294	306	315	326	335	355	363	370	351	339	293	277	279	300	311	341	335	317		309	288	284	277	
29		295	322	329	359	319	304	329	354	358	357	332	305	283	305	317	305	305	307	321	339	344	304	294	285	
30		300	307	319	340	309	329	368	372	360	339	286	271	287	320	340	332	318	309	294	311	343	308	287	282	
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	30	30	30	29	30	30	30	30	29	30	29	29	30	30	30	30	30	29	30	29	30	28	
MED		291	294	308	342	333	320	340	365	356	342	312	290	301	310	316	320	320	329	330	346	349	304	284	285	
U Q		296	300	321	355	350	334	352	373	366	346	330	305	306	316	322	327	334	335	341	354	359	316	290	290	
L Q		284	286	298	327	316	312	329	358	345	335	304	279	286	302	309	316	315	321	321	336	330	285	279	279	

APR. 2016 M(3000)F2 (0.01)

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APR. 2016 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										L	U L	U L	A			L	L	L							
2										L	U L	U L	L	L	L	L	L	A							
3										L	L	L	L	L	L	L	L	L	L						
4										L	L	L	L	L	L	L	L	A	A						
5									U L	L	U L	U L	U L	L	L	L	L	L	A						
6											A	U L	A	L	L	L	L	L							
7										U L	L	L	L	L	L	L	L	L							
8										L	U L	L	L	L	L	L	L	U L	U L	L	L				
9										L	L	U L	L	L	L	A									
10											A	L	L	A	L	L	L	L	L	L					
11											A	L	L	L	A	L	U L	U L	L						
12										L	L	L	L	A	A	A	A	A							
13											L	U L	L	L	U L	L	L	L	L	L					
14										U L	L	L	A	L	L	L	L	L	L						
15											A	A	A	A	A	A	L	L	L						
16									L	L	A	A	A	A	A	A	A	A	A						
17											U L		A	A	A	L	L	L							
18										A	L	U L	L	L	A	L	L	U L	L	L	L				
19										L	L	U L	L	L	L	A	A	A	A						
20											L	A	A	A	A	A	A	A	A						
21										A	A	L	L	A	A	A	L	L	L	L	L				
22										L	U L	C	C	C	L	L	L	L	L	L					
23											A	A	A	A	A	A	A	A	L	L					
24										L	L	A	A	A	A	A	A	A	L	L					
25										L	A	A	U L	L	L	L	A	A	A	A					
26										L	L	U L	L	L	U R	A	L	L	L	L					
27										L	L	U L	L	L	U R	A	L	U L	L	L					
28										L	A	L	U L	A	A	A	A	A	A	A	A				
29										L	L	U L	L	A	A	A	L	L	L	L					
30											U L	U L	L	A	A	A	A	L	L						
31											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	8	14	23	22	16	20	17	16	7							
MED									U	L	U	L	U	L	L	L	L	L	U	L	L				
U Q										374	380	382	379	376	374	368	362	364	369						
L Q											U	L	U	L	L	L	L	L	L	L					
											368	356	367	370	362	362	357	355	363						

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APR. 2016 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										244	270	294	300	312	278	264	254	248							
2										252	276	308	288	286	270	276	268	264							
3										276	238	256	390	290	252	256	286	276	250						
4										254	302	320	280	296	276	260	270	266							
5										264	264	272	284	302	282	288	298	278	250						
6											278	332	332	290	274	250	246	242							
7										294	282	286	262	266	286	272	282	254							
8									216	260	272	L 330	308	280	256	256	294	260	246						
9									230	248	312	294	296	306	292	264	264	244							
10											A 280	L 334	344	310	284	272	280	262	258						
11											272	334	292	308	294	296	274	256							
12									220	230	296	290	306	308	286	272	252	264							
13										244	L 318	288	262	350	272	268	276	266	250						
14										254	L 288	296	300	280	290	274	256	252							
15										264	A 316	A 308	A 294	A 340	274	264	256	264							
16								232	276	262	298	308	344	298	274	274	256	234							
17											366	314	286	270	288	278	260	280							
18									244	266	276	328	306	296	292	286	276	258	244						
19									238	262	286	L 330	316	286	276	298	288	254							
20										272	294	346	326	308	284	274	282	280							
21									246	A 266	302	336	306	304	292	286	268	260	248						
22									222	242	C 328		C 310	C 266	254	248	236								
23											338	370	386	344	304	272	238	242	254						
24									232		360	296	306	292	314	278	272	252	242						
25									240	268	268	344	316	296	296	290	292	308	278						
26										250	260	292	394	350	328	290	270	268	252	254					
27								244	L 282		310	330	368	340	300	270	246	262	254						
28									232	258	270	L 348	372	366	320	292	254	252	288	A	A				
29								240	242	258	272	316	352	306	280	294	306	286							
30										286	384	326	338	284	256	266	280	284	L 296						
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	15	23	29	30	29	29	30	30	30	30	14						
MED								240	240	260	288	323	306	297	286	272	269	259	252						
U Q								244	250	266	311	334	344	311	292	286	280	266	258						
L Q								232	230	252	272	296	295	286	274	266	256	252	246						

APR. 2016 h'F2 (KM)

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APR. 2016 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	266	242	272	242	214	214	232	210	214	194	184 ^H	178	166	240 ^A	234	210	216	216	230	220	204	194	238	268	
2	288	300	280	240	200	210	238	202	212	198 ^H	186	188	192	210	218	236	234	^A	^A	232	198	192	270	298	
3	302	302	258	242	364 ^Q	346 ^Q	212	210	222	224	204	208	190	174 ^H	222	218	220	220	240	214	192	226	302	328	
4	300	268	264	228	186	220	250	204	202	212	266 ^{E A}	250 ^{E A}	236	214	212	242	^A	^A	242	218	196	246	276	290	
5	300	288	272	224	198	238	230	204	200	210	192	178	170	206	234	218	^A	^A	234	228	208	220	308 ^{E A}	292 ^Q	
6	294	316	290	218	212	244 ^{A E}	282 ^{A E}	218	232	256	256 ^{E A}	268 ^{E A}	238	^A	222	240	220	236	224	242 ^A	210	220	320	324 ^Q	
7	304	300	260	226	204	230	234	216	238	214	188 ^H	182 ^H	176 ^H	202	190	234	216	240	232	216	202	226	336 ^{E A}	326 ^{E A}	
8	300	286	260	214	200	^A	238	226	210	200	212	208	212	200	194	210	214	226	232	220	192	228	294	318 ^A	
9	306	302	274	232	196	190	220	212	212	202	210	192	182	210	286 ^{E A}	234	216	^A	228	218	204	230	322	282	
10	256	264	280	240	218	226 ^Q	256	222	222	238	^A	238	182	^A	254 ^{E A}	224	214	228	252	234	198	184	354 ^{E A}	300 ^Q	
11	302	294	264	212	198	222	228	210	230	258	^A	230	204	256	^A	230	206	236	234	218	212	238	282	300 ^Q	
12	330	282	288	256	260	242	238	218	208	208	200	186	280	^A	^A	252	^A	^A	242	252	248	266	296	302 ^A	
13	268	282	264	198	186	238	244	214	206	206	252 ^{E A}	192	184	250	220	228	196	216	234	226	204	284	310	324 ^A	
14	292	262	302	284	234	230	224	210	216	212	204	198	260	250	214	204	224	244	248	220	206	302	294	302	
15	278	276	228	202	252	244	244	242	266	^A	^A	^A	^A	^A	^A	^A	^A	^A	248	276	230	208	256	332	338 ^Q
16	322	298	272	238	208	254	242	214	206	^A	^A	^A	^A	^A	^A	^A	^A	^A	224	216	216	346	332	342 ^A	
17	282	296	268	214	218	232	214	230	230	246	218	198	^A	^A	^A	^A	240	234	242	222	220	326	374	306	
18	296	244	226	196	202	312	228	236	^A	228	218	202	246	^A	276	282	200	226	236	226	208	232	276	294	
19	282	268	236	202	182	252	232	224	218	200	206	192	194	188	224	250	282	^A	244	222	216	278	290	304	
20	290	282	238	232	208	222	232	214	226	220	^A	^A	270	^A	^A	^A	^A	^A	262	210	204	288	302	282	
21	282	274	232	202	280 ^{E A}	260 ^Q	226	224	^A	^A	^A	^A	242	242	^A	262	244	212	238	228	236	230	248	282	296
22	254	284	270	222	226	240	224	196	206	190	^H	214	^C	^C	200	204	188	214	230	230	218	216	290	286	
23	322	290	284	224	202	256 ^Q	206	220	238	272	^{E A}	300	^A	^A	^A	^A	^A	^A	236	238	226	204	204	302	284
24	290	304	256	210	210	276	240	224	218	232	178	264	200	250	^A	^A	242	218	220	232	234	224	266	302	
25	258	280	278	264	250	226	222	220	234	^A	^A	182	194	194	200	^A	^A	^A	^A	246	222	^A	276	308 ^A	
26	288	294	272	226	186	306	228	220	214	204	196	188	172	178	212	204	218	208	214	244	206	200	266	340 ^Q	
27	324	276	256	212	222	248	234	228	210	244	190	194	238	198	262	266	204	210	216	242	228	234	258	304	
28	312	286	270	250	206	220	220	218	214	^A	256	202	232	^A	^A	^A	^A	^A	^A	^A	248	254	312	310	
29	278	244	226	198	202	276	236	226	216	206	232	304	274	300	264	204	212	230	256	224	208	216	260	296	
30	272	268	246	214	218	226	218	210	220	204	236	178	200	^A	^A	^A	^A	^A	230	254	222	240	282	304	
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	29	30	30	28	25	21	27	25	17	20	21	20	19	28	29	30	29	30	30	
MED	291	283	266	224	208	238	232	218	216	211	199	193	192	206	218	224	214	227	234	226	208	229	285	302	
U Q	302	296	274	240	222	255	238	224	228	235	234	238	240	250	258	243	222	236	243	235	220	261	312	318	
L Q	278	268	256	212	200	224	224	210	210	203	191	188	183	196	212	210	209	216	229	219	204	218	276	294	

APR. 2016 h'F (KM)

IONOSPHERIC DATA STATION Okinawa

APR. 2016 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							B					A	A	A	A	A	A		A	A				
								114	112	108	112							108						
2							B												A	A				
								108	110	110	110	110	110	112	112	122	110	110						
3							B								A	A	A		A	A				
								110	108	108	108	108	108	106				116						
4							B							B						A				
								114	108	108	106	106	106		106	108	108	108	110					
5							B								A					A				
								108	108	108	108	108	108	108		108	108	110	110					
6							A			A	A	A	A	A	A		118	116	114	114				
								114	110															
7							B				A	A	A	A	A		106	106	110		A	A		
								114	106	106														
8							B			A	A	A	A	A	A		A	A			A			
								110	110										110	110				
9							B					E B	B					A		A				
								110	108	108	108	108	134		110	110	106		112					
10							B				A	A									A			
								110	108	108			108	110	108	108	110	108	108					
11							B			A	A	A	A	A	A		108	108	108		A	A		
								112	108															
12							A		A	A	A	A		108	108	108	108	110			A	A		
												A												
13							B			A											A			
								110	108		108			110	110	110	108	108	110					
14							A		A	A	A					A	A		A	A				
																		108						
15							B			A	A	A	A	A	A	A	A	A	A	A				
								110	108	110														
16							B		A		A	A	A	A	A	A	A	A	A	A				
									118															
17							A						A	A	A	A	A	A	A	A				
								110	108	108	110	106												
18								A					A		A	A	A				A			
							146		106	108	110	112		110				106	114					
19							A				A	A			A	A			A	A				
								106	108	108				112				108	108					
20							B								A						A			
								108	112	110	106	106	106		110	110	106	106	110					
21							A				A	A	A	A	A	A	A				A			
								112	116	116								108	110					
22							B				C	A	C	C	A	A					A			
								110	110	108								112	110	116				
23							A					A	A	A	A					A				
								116	108	108	108					114	110	110						
24								A			A	A	A	A	A	A					A			
							140	112										112	118	114				
25							A								A	A	A	A	A	A				
								110	106	106	106	106	106											
26							A		A	A	A	A	A								B			
								110							110	106	108	108	110					
27							A										A				A			
								110	110		110	110	110	108	106	112		112	112					
28																								
							134	110	110	110	108	108	108	110	106	110	116	108	112					
29								A			A				A						A			
							146	112	112			112	106	106		108	106	114	112					
30							A			A	A	A			A					A				
								124	118					110		106	108	108						
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							4	26	26	18	15	13	12	13	11	17	19	25	16					
MED							143	110	108	108	108	108	108	110	108	108	108	108	111					
U Q							146	112	110	110	110	110	109	110	110	111	110	110	113					
L Q							137	110	108	108	106	106	106	108	106	108	108	108	110					

APR. 2016 h'E (KM)

IONOSPHERIC DATA STATION Okinawa

APR. 2016 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	B	B	B	98	B	B	B	150	102	150	128	100	98	98	98	98	98	188	94	92	92	92	B	B	
2	B	B	B	B	B	B	B	144	164	152	G	148	128	164	168	188	152	124	110	110	108	108	B	B	
3	B	B	132	B	B	B	B	G	114	G	160	110	108	108	108	100	100	100	132	94	94	92	92	126	
4	118	100	102	100	104	100	100	140	134	116	110	114	122	144	130	136	120	114	112	110	108	106	106	102	
5	B	94	B	B	B	B	B	130	124	118	118	120	G	164	146	148	124	120	112	108	104	102	102	102	
6	120	98	102	108	100	96	96	120	114	110	110	110	108	102	188	154	148	124	114	110	110	108	110	110	
7	106	100	100	100	120	104	104	110	110	110	106	102	102	102	102	170	132	116	112	110	120	112	96	92	
8	92	116	102	118	100	100	104	112	G	104	106	106	106	104	108	102	104	G	116	108	114	122	106	104	
9	104	100	100	100	104	106	B	G	G	114	108	114	G	170	150	146	166	112	108	108	104	104	112	106	
10	106	102	102	102	102	112	144	124	108	108	106	106	120	140	148	G	104	G	114	104	110	106	112	104	
11	90	110	108	106	104	104	B	118	116	110	102	102	102	166	146	150	100	186	94	94	110	110	146	134	
12	106	106	106	102	108	102	100	102	120	104	104	102	166	138	132	130	124	G	G	G	110	110	122	104	104
13	104	104	96	94	104	152	132	122	114	114	106	106	102	164	186	166	G	G	G	108	106	106	102	98	
14	98	104	104	100	100	100	100	144	102	102	120	G	106	G	G	102	100	118	108	104	104	104	104	98	
15	90	90	118	106	102	122	B	114	114	110	110	110	110	110	110	108	120	136	108	116	114	100	100	106	
16	96	98	100	100	100	100	104	102	100	100	100	100	100	112	110	108	108	108	104	100	100	94	118	110	
17	108	100	94	96	104	B	B	164	156	134	120	136	128	100	104	100	98	98	96	94	112	112	110	118	134
18	B	104	102	102	B	B	G	114	118	116	128	G	112	106	106	102	102	96	96	96	92	88	90	B	
19	B	102	B	102	102	102	144	138	144	134	102	102	104	G	116	182	140	122	114	102	104	104	104	114	
20	108	B	108	98	98	102	B	136	122	124	120	118	118	114	138	130	128	116	116	110	92	104	102	92	
21	110	102	108	108	104	94	122	116	114	112	116	122	134	124	128	128	144	174	134	114	100	102	102	102	
22	102	102	102	102	B	B	B	116	124	152	C	112	C	C	100	98	98	152	116	108	104	104	104	104	
23	108	104	104	106	92	B	124	118	116	116	110	110	106	112	114	114	112	112	108	102	94	90	104	106	
24	94	106	94	92	100	88	G	134	110	106	104	104	100	100	100	122	118	118	110	110	104	104	106	106	
25	106	122	124	104	104	104	120	118	116	110	110	G	G	106	102	118	118	118	112	104	104	104	104	104	
26	104	104	B	B	B	B	B	148	118	112	108	104	106	106	106	G	G	134	128	114	112	B	102	114	104
27	104	B	B	B	B	B	B	130	120	116	112	112	112	108	G	112	108	100	96	120	106	106	104	102	102
28	102	102	102	100	B	B	G	122	118	110	108	108	192	142	134	140	124	118	116	116	108	136	116	108	
29	108	104	110	104	104	146	140	138	142	138	124	166	164	154	148	148	136	136	116	108	108	94	92	92	
30	92	102	B	100	124	104	128	134	114	116	116	108	108	126	120	112	116	112	112	108	104	106	106	106	
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	25	23	25	21	19	18	28	28	29	28	27	26	26	28	28	29	27	29	30	29	30	28	27	
MED	104	102	102	102	104	102	123	121	116	112	110	110	108	113	118	125	118	118	112	108	104	104	104	104	
U Q	108	104	108	105	104	106	140	137	123	119	119	114	120	144	146	148	133	128	116	110	110	108	111	108	
L Q	97	100	100	100	100	100	104	116	113	109	106	104	102	106	107	105	101	112	108	104	102	102	102	102	

APR. 2016 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 2016 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

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				F1					H1	L1	HL11	CL11	L1	L1	L2	L2	L2	L2	HL11	L3	L1	F1	F1		
2									H1	H1	H1		H1	C1	H1	HCL11	H1	H2	C2	C5	CL81	FF41	FF21		
3			F1							C1		H1	C1	C1	C1	L2	L2	L2	HL12	L3	F5	F3	F2	F2	
4	F3	F2	F1	F2	F1	F4	L1	H1	H1	C1	C1	C1	C1	H1	H1	H1	C4	CL41	C8	C8	F7	F2	F3	F2	
5		F1						H1	C1	C1	C1	C1		H1	HL11	H1	C2	C2	C3	CL91	F6	F8	F9	F1	
6	FF24	FQ41	FQ41	FF15	FQ41	FQ61	LQ41	CL22	C4	CL41	C2	C2	C2	L2	HC11	HL11	HL11	CL11	C3	C8	F3	F3	FQ31	FQ31	
7	FQ31	F9	F6	F3	F1	F1	L1	C3	C3	C1	C1	L1	L1	L1	L1	H1	H1	C2	C5	C6	FF24	F4	F3	FQ31	
8	F3	FF13	FF61	FF12	F4	F9	L1	C2		C1	C1	C1	C1	C1	C1	L1	L1	C1	C1	C6	F1	FF14	F3	FQ41	
9	F4	F7	F5	F4	F1	F3				C1	C2	C1		H1	H1	H1	H1	C3	C2	C8	F9	FQ51	FF24	FQ21	
10	FQ21	FQ21	F6	F4	F3	F1	H1	C1	C3	C2	C2	C1	C1	H1	H1		L1		C1	L8	FQ31	F3	FF15	FQ21	
11	F1	F1	F1	F1	F1	F1		C1	C1	C4	C3	L1	L1	L11	HL11	HL11	L1	HL11	L4	LC42	FF82	FQ31	F1	FFQ22	
12	FQ51	FQ21	F2	F2	F2	F5	L4	L2	C1	C2	C1	L1	L1	L1	L1	H1	C2	C3	C5	C8	FF13	FF13	FQ21	FQ41	
13	F1	F1	F3	F2	F1	F1	H1	C3	C2	C1	C1	C1	L1	HL11	HL11	HL11				CL81	F8	F4	F5	F3	
14	FQ21	F1	F2	F1	F3	F5	L3	HL21	L1	L1	C1		C1			L1	L1	C1	C8	L8	F4	F5	F5	F2	
15	F2	F2	FF14	F5	FF16	F2		C2	C6	CL51	CL31	CL21	CL31	CL51	CL52	C21	CL23	CL22	CL73	CLQ54	FF14	FF34	FF14	FF12	
16	F2	FF63	F3	FQ31	F1	F2	L1	L1	L1	L2	L2	L2	L2	CL11	C2	C2	CL21	C3	L6	L9	FQ41	F5	FFF12	FF82	
17	F2	F6	F3	F1	F2		H1	H2	H2	C1	H1	C1	L1	L2	L3	L2	L3	L3	L3	CL14	FF31	FF31	F3	F1	
18		F1	F3	F1			C3	C2	C2	C1	C1	C1	C1	C1	C2	L2	L2	L2	L2	L3	F2	F3	F1		
19		F1		F1	F1	F1	HL11	HL11	H1	H1	H1	L1	L1	L1	C1	HC11	H1	C2	C3	C9	FF72	FF31	FF31	FF15	
20	F4		F2	F3	F1	F1		H2	C3	H1	C1	C1	C1	C1	H1	C2	C3	C2	C4	C5	F3	FF44	F4	F2	
21	FF23	F3	F3	F1	F9	FF11	C5	CL21	CL21	CL31	CL21	CL11	HL11	CL21	CL11	CL11	HL11	H1	H2	C6	F9	F5	F3	F3	
22	F2	F1	F2	F2				C1	C1	C1		CL11			L1	L1	L1	HL11	CL31	C6	F3	FF32	F3	FF22	
23	FF22	F1	FQ11	F2	F1		C3	C2	C1	C2	C2	C2	CL2	C2	CL11	CL11	CL21	CL11	C4	L1	F1	F1	F2	F2	
24	FQ21	FF22	F3	F1	F1	F1		H1	C1	C2	C1	L2	L2	L2	L2	L1	CL11	CL11	CL1	C4	F4	F3	F2	F6	
25	F2	FF12	FF12	F1	F1	F1	C2	C2	C2	C2	C2			C1	L1	CL31	CL42	CL21	CL71	L4	FQ31	FQ51	FQ31	FQ41	
26	F1	F1					H1	C2	C1	C1	L1	L1	L1	C1			H1	C2	C2	C1		F4	FF13	FQ31	
27	FQ51						H1	C2	C1	C2	C1	C1	C1		C1	CL11	L1	L1	CL11	CL31	F5	FQ71	F3	F4	
28	F4	F2	FF21	F3			C1	C2	C2	C1	C1	HC11	H1	H1	H1	H1	CL41	C4	C4	C8	F8	FF13	FQ31	F3	
29	FQ21	F4	F1	F3	F1	F1	H2	HL11	HL11	HL11	HL11	CL11	HL11	H1	H1	HCL11	HL11	H1	H5	C6	FF21	F1	F1	F1	
30	F1	F2		F1	F1	F1	CL21	HL21	CL31	CL11	CL11	C1	C1	C1	CL21	C3	C4	C2	C2	C4	F9	FQ41	FQ51	FQ51	
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																									

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

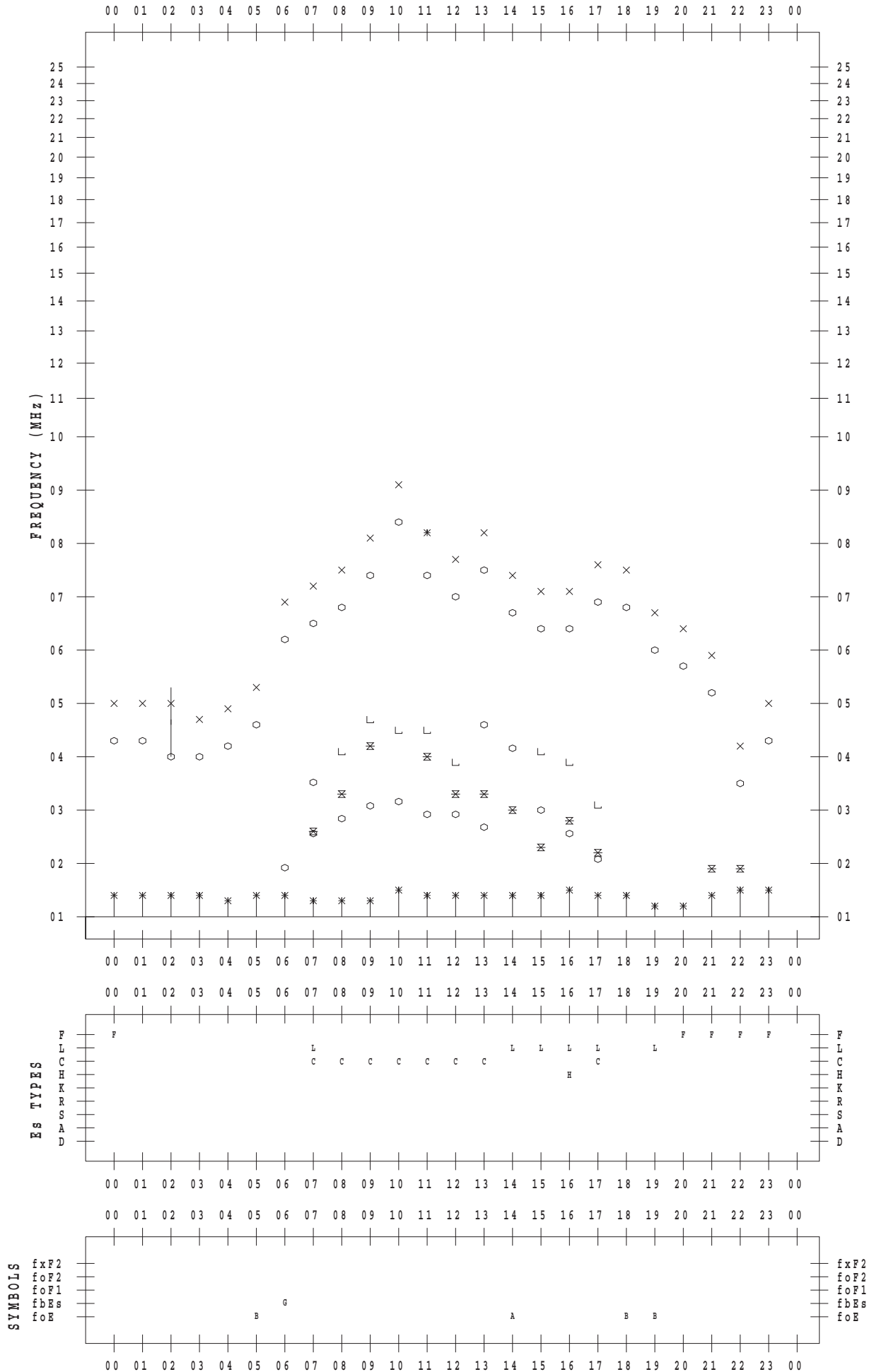
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 1

135 ° E MEAN TIME



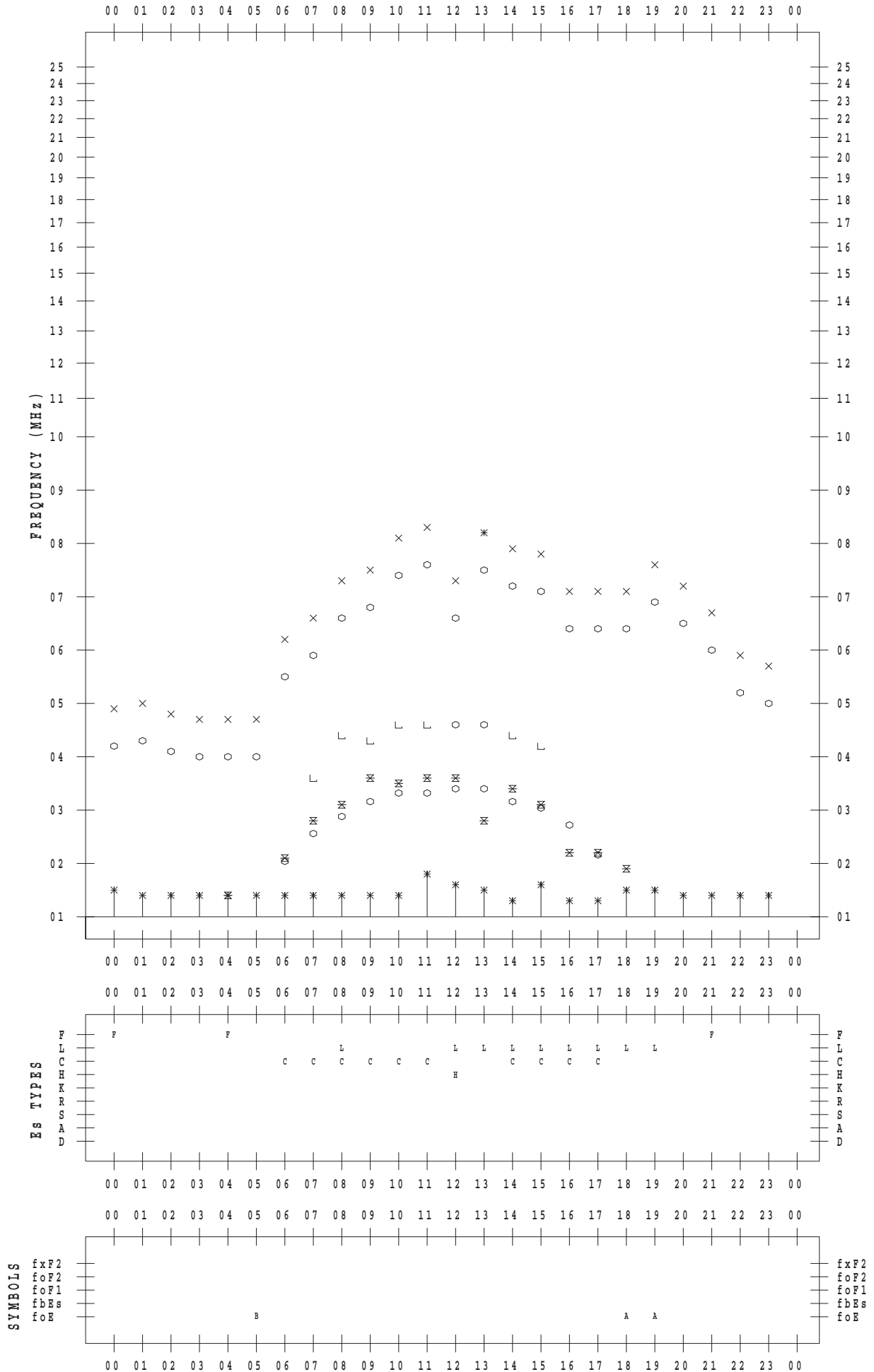
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 2

135 ° E MEAN TIME



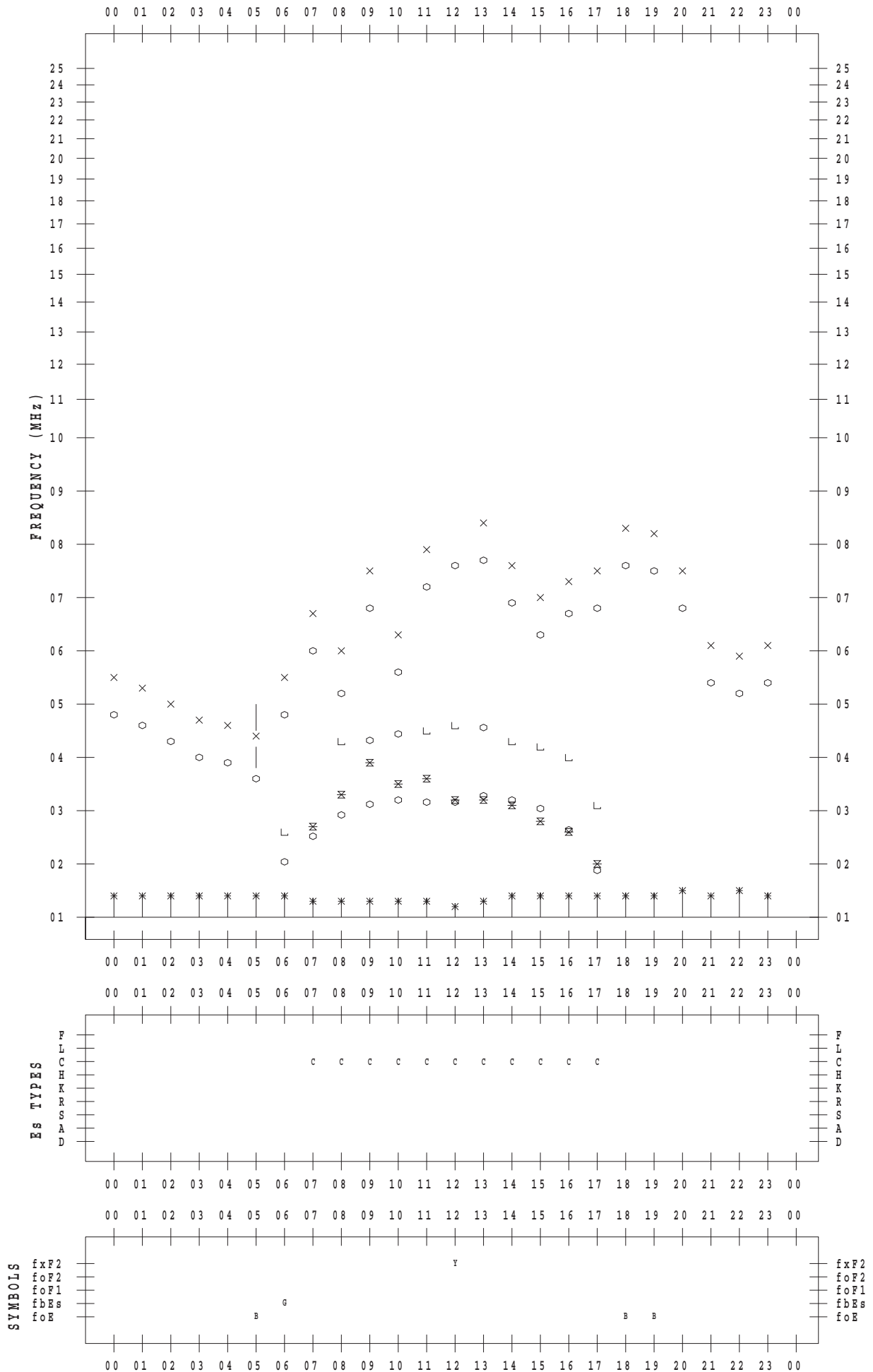
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 3

135 ° E MEAN TIME



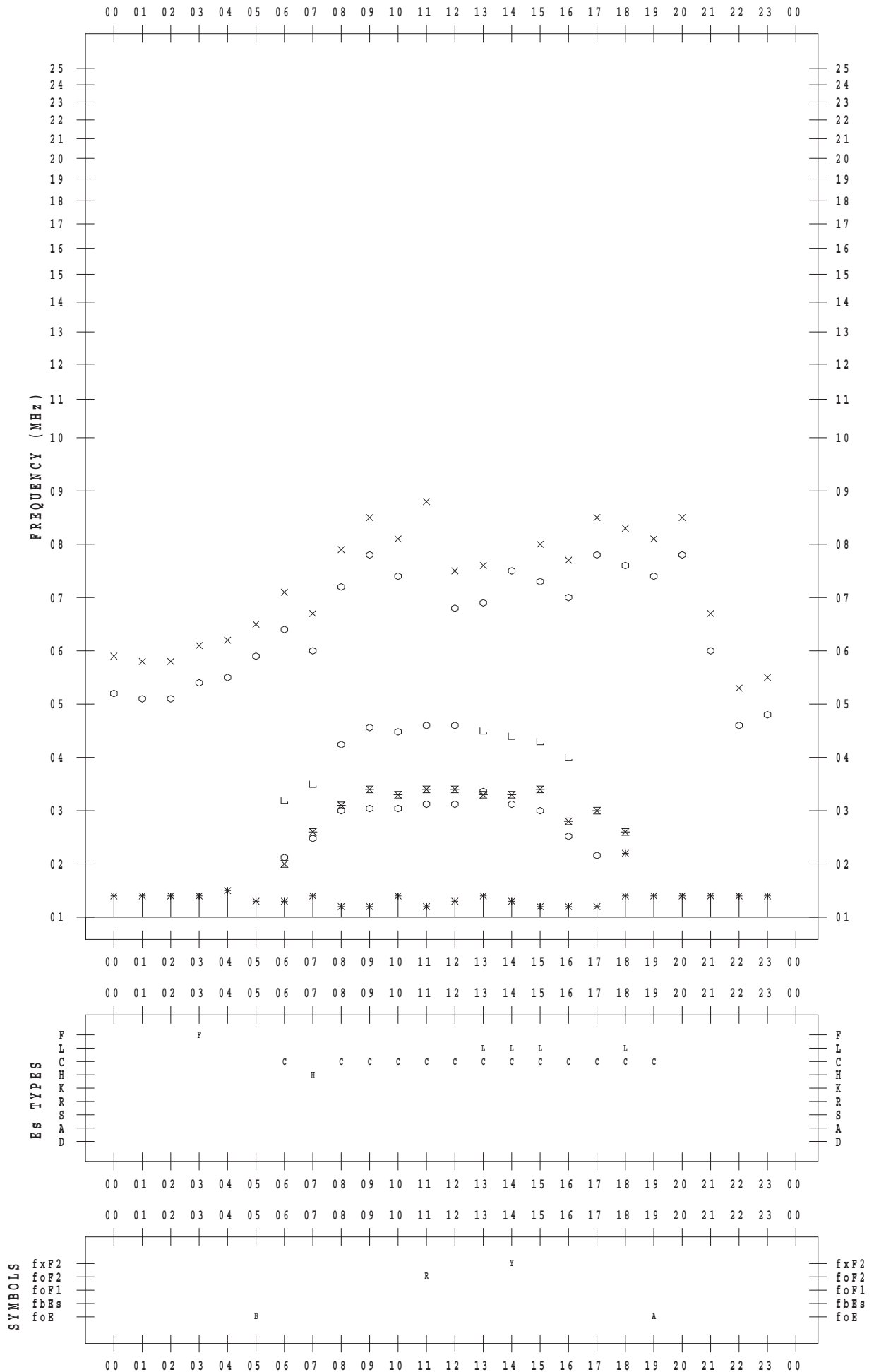
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 4

135 ° E MEAN TIME



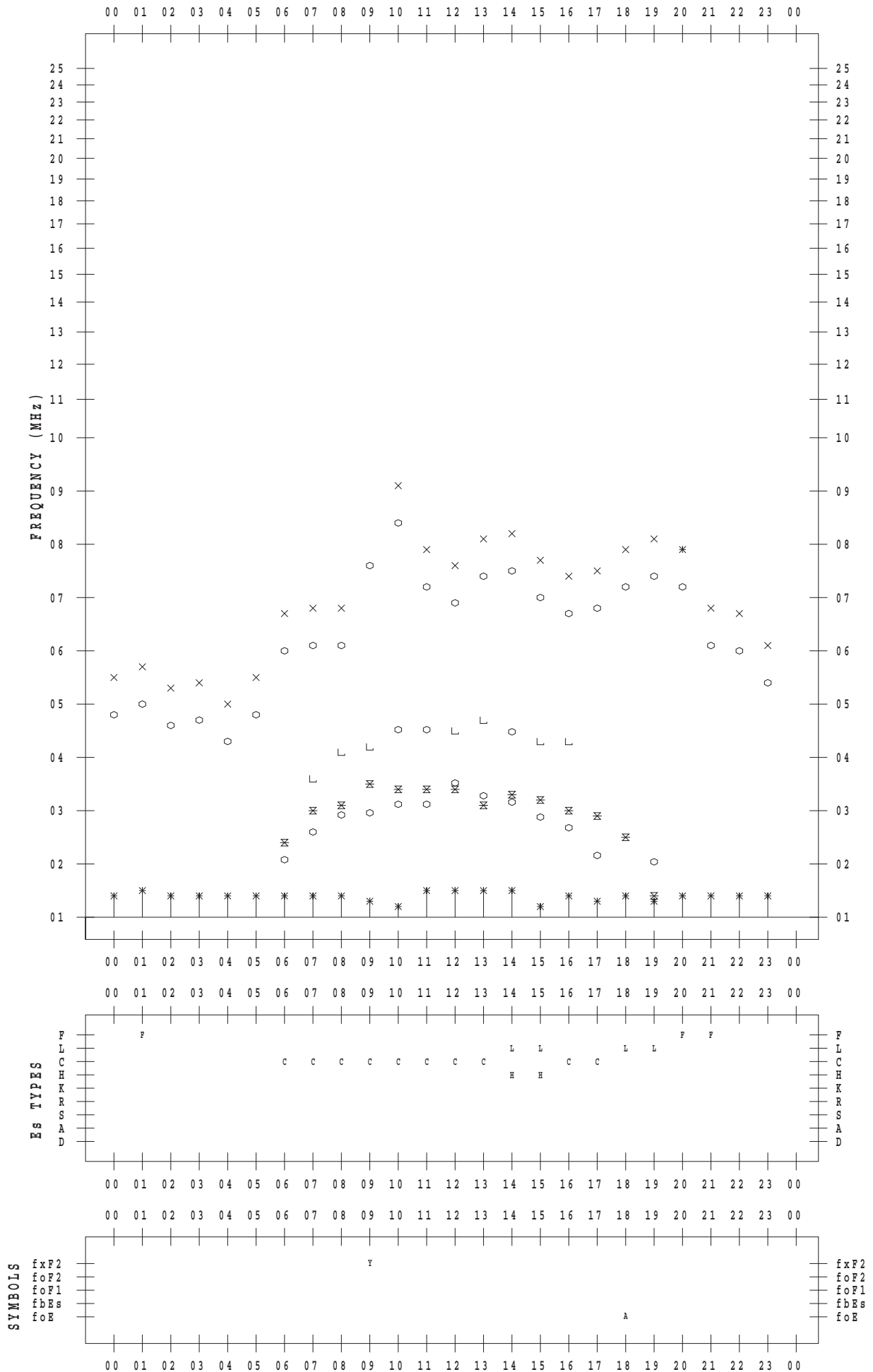
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 5

135 ° E MEAN TIME



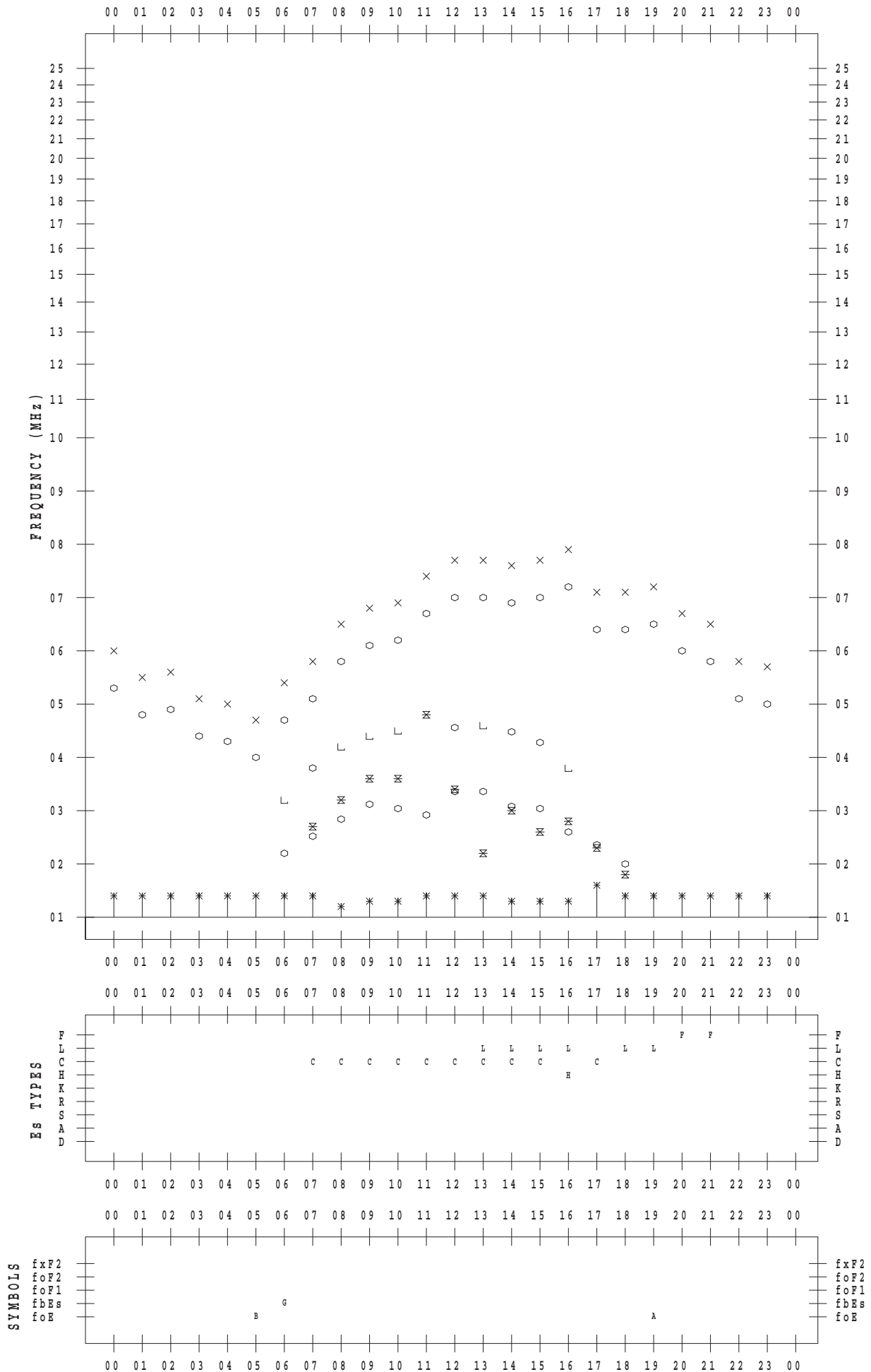
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 6

135 ° E MEAN TIME



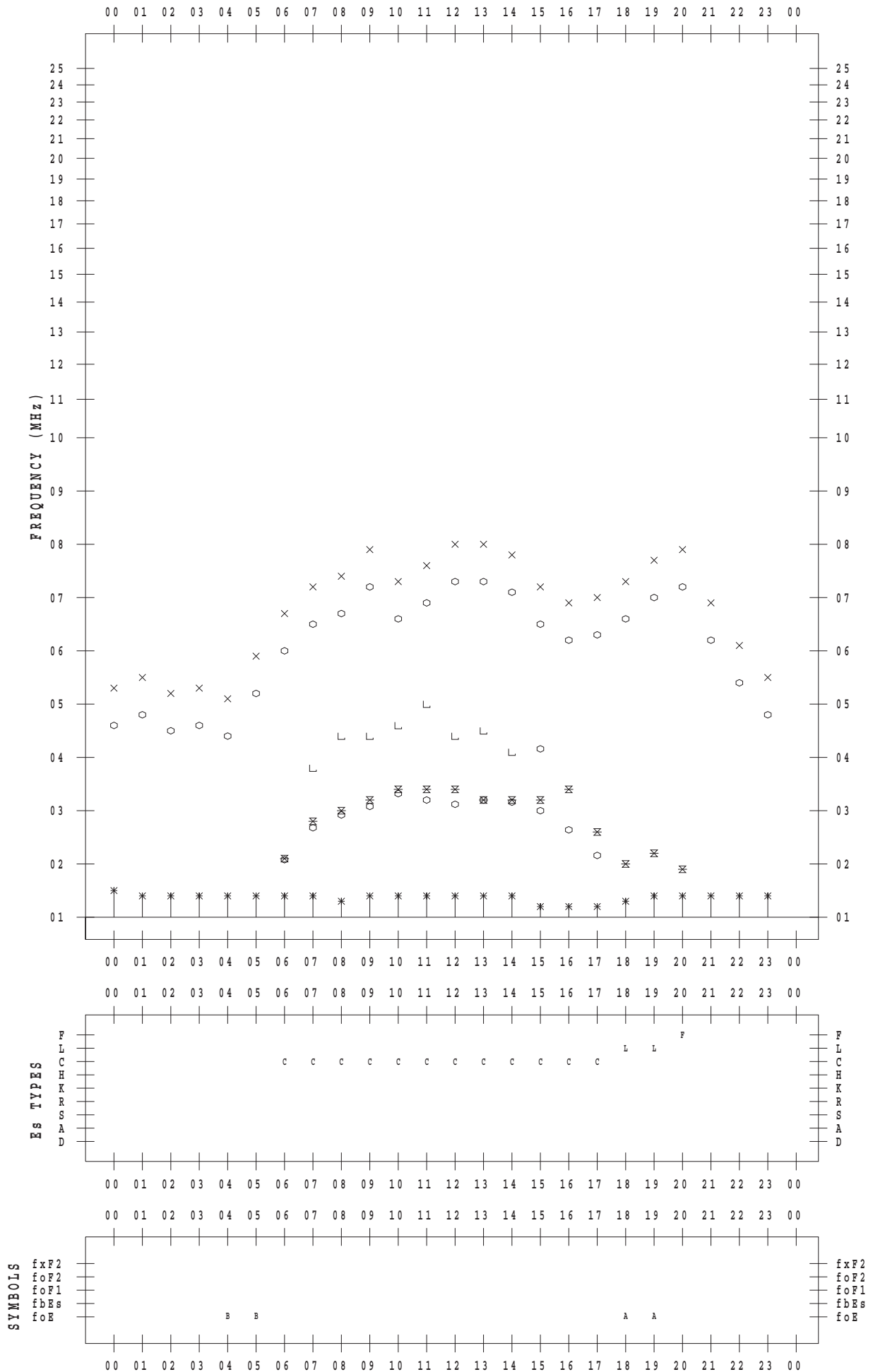
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 7

135 ° E MEAN TIME



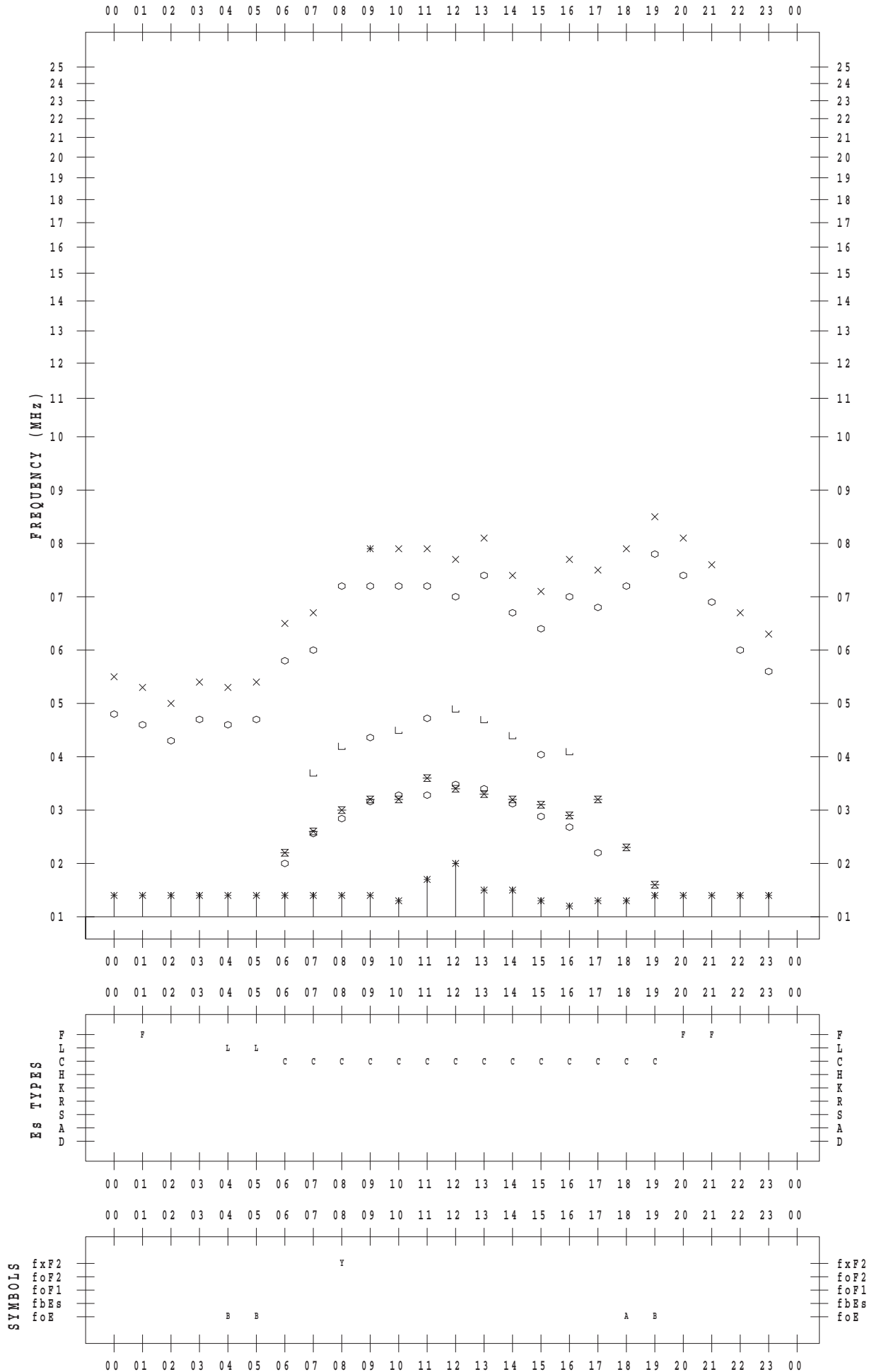
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 8

135 ° E MEAN TIME



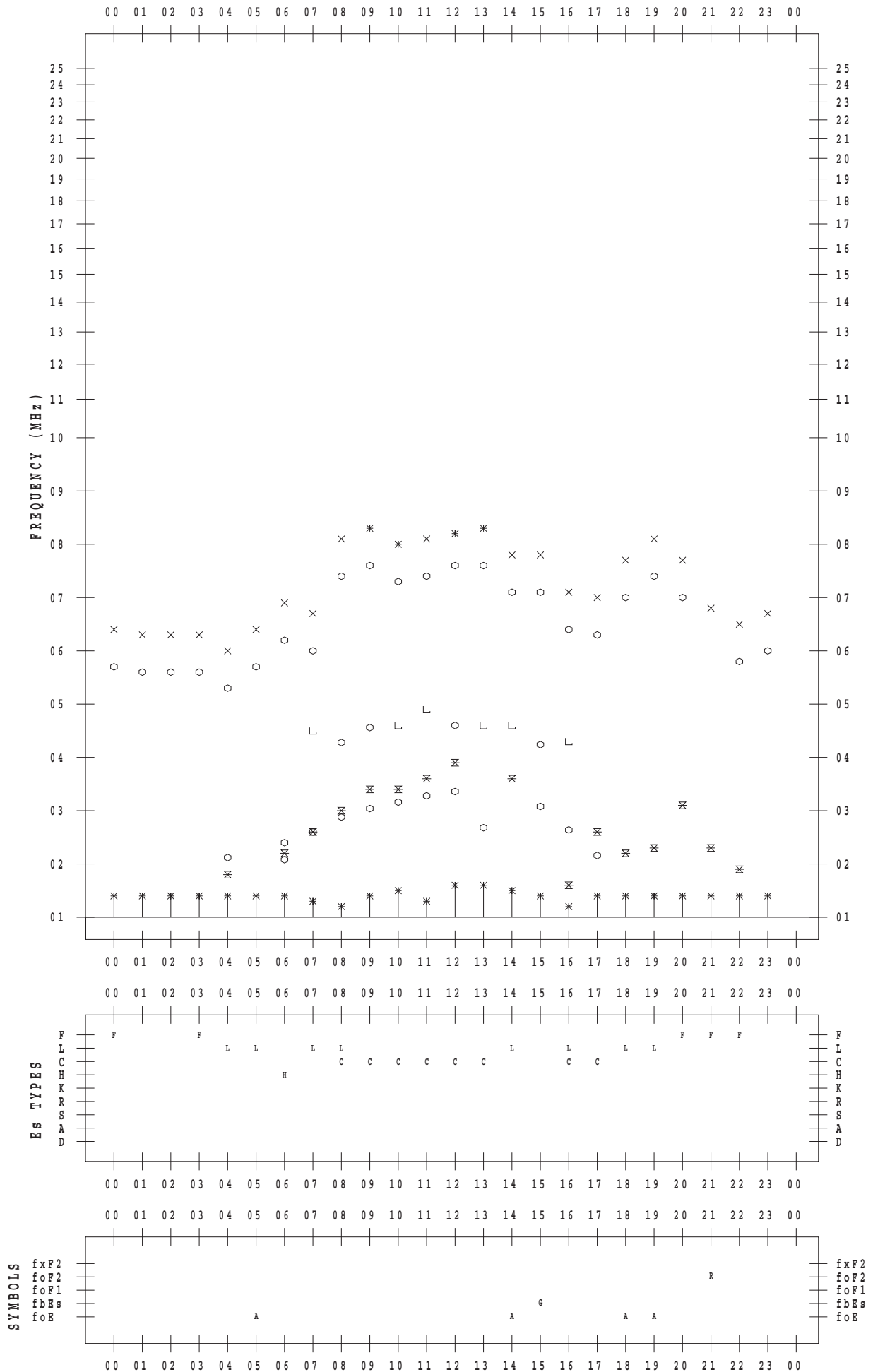
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 9

135 ° E MEAN TIME



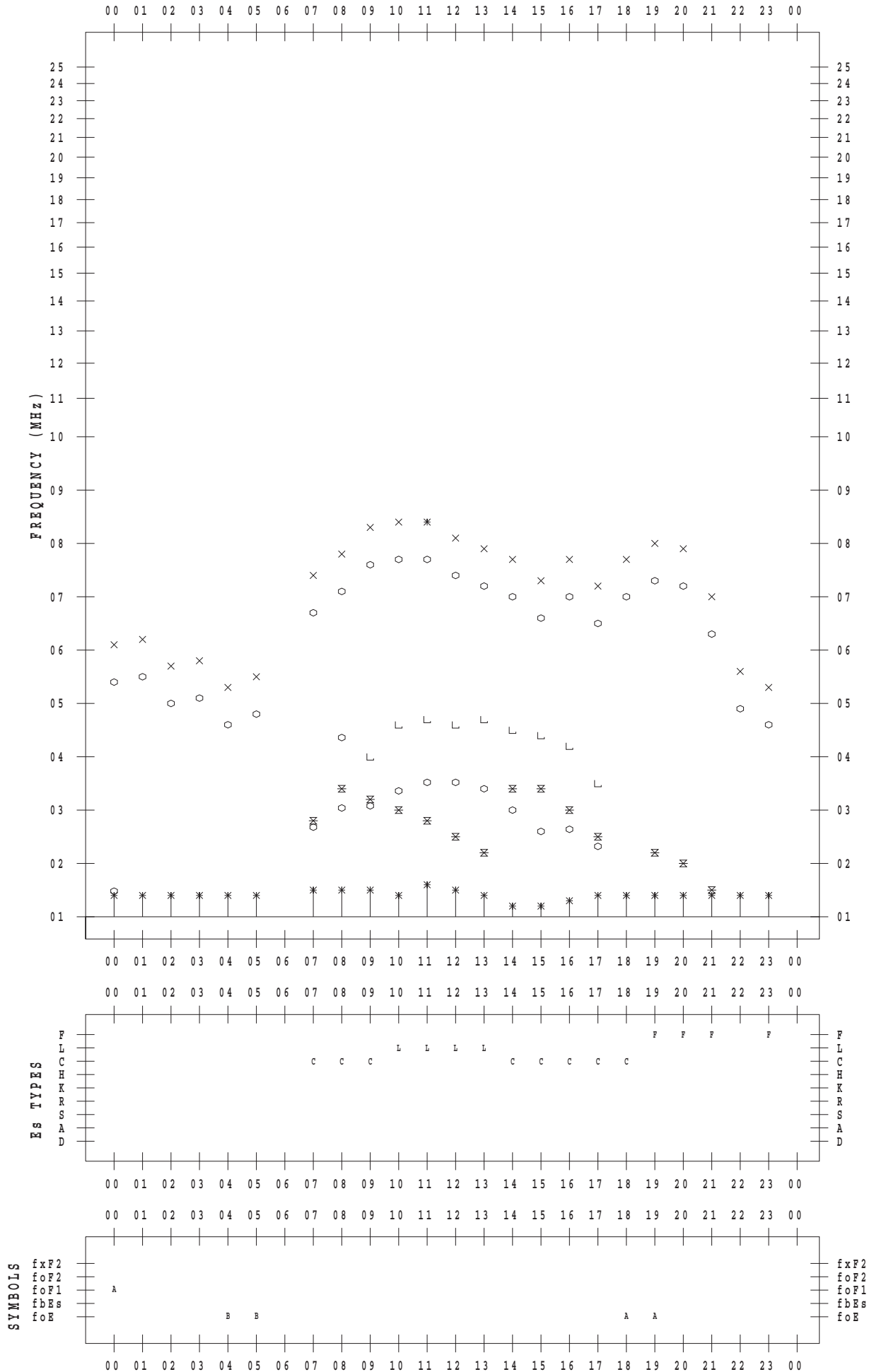
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 10

135 ° E MEAN TIME



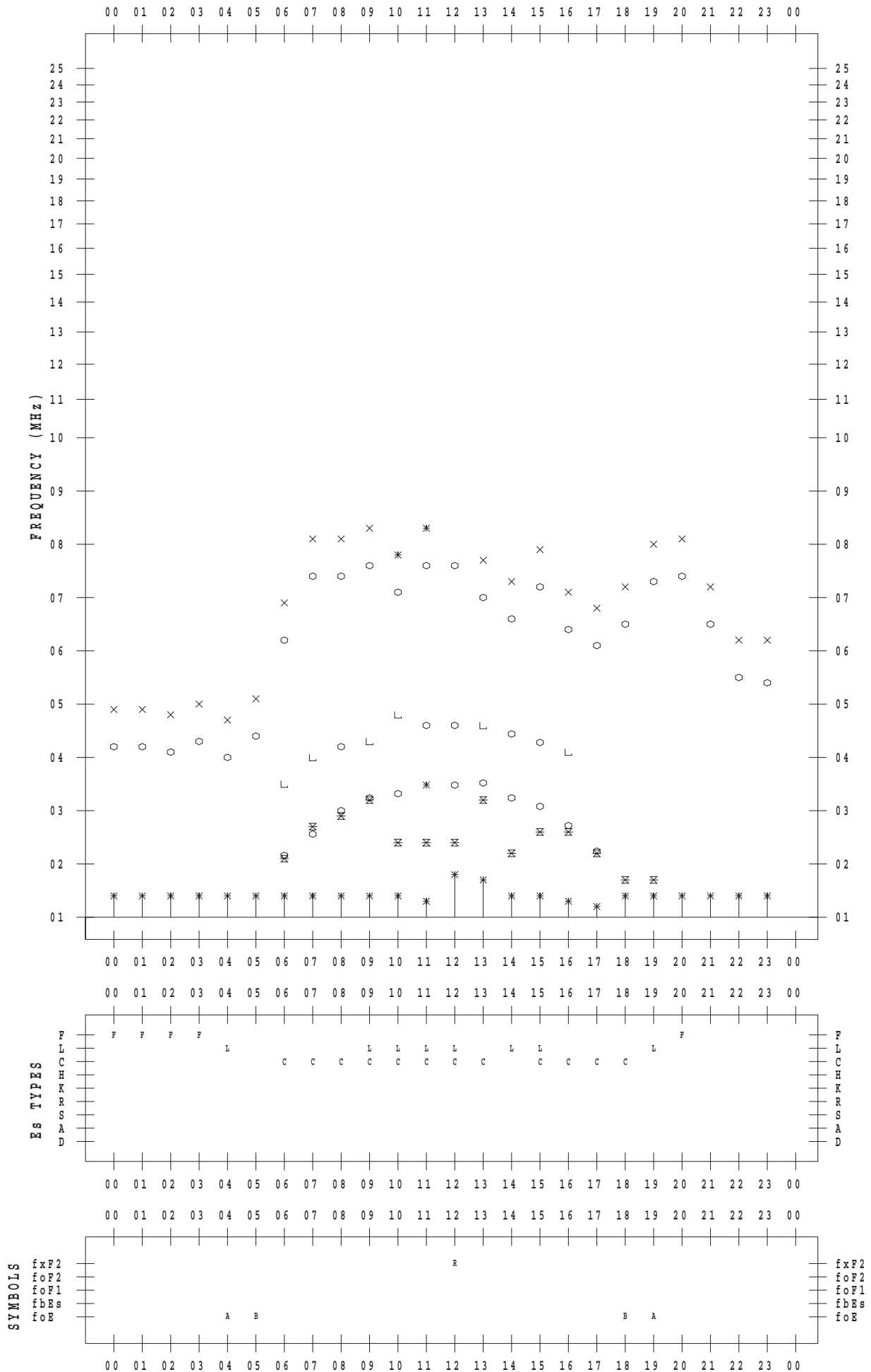
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 11

135 ° E MEAN TIME



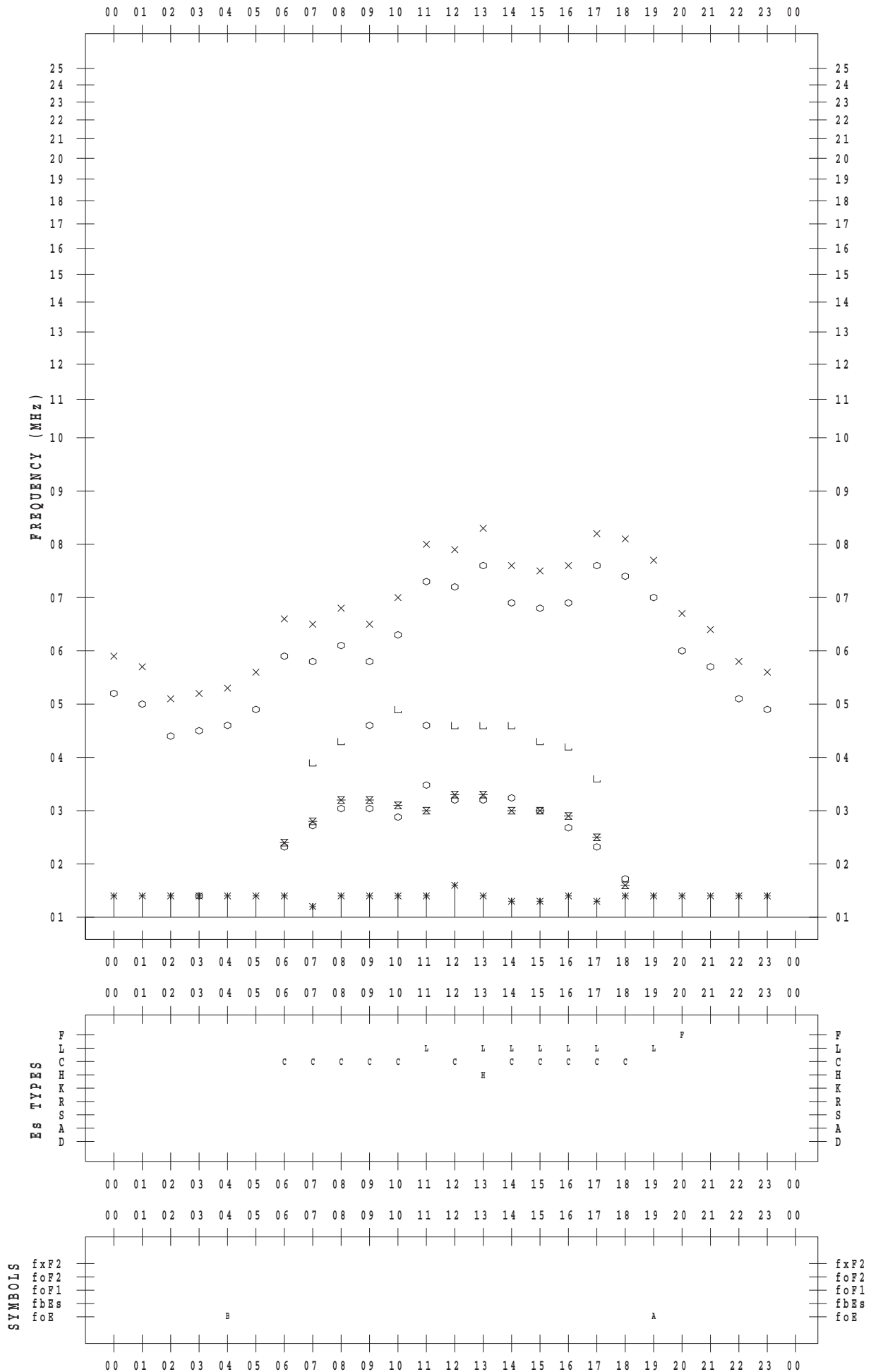
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 12

135 ° E MEAN TIME



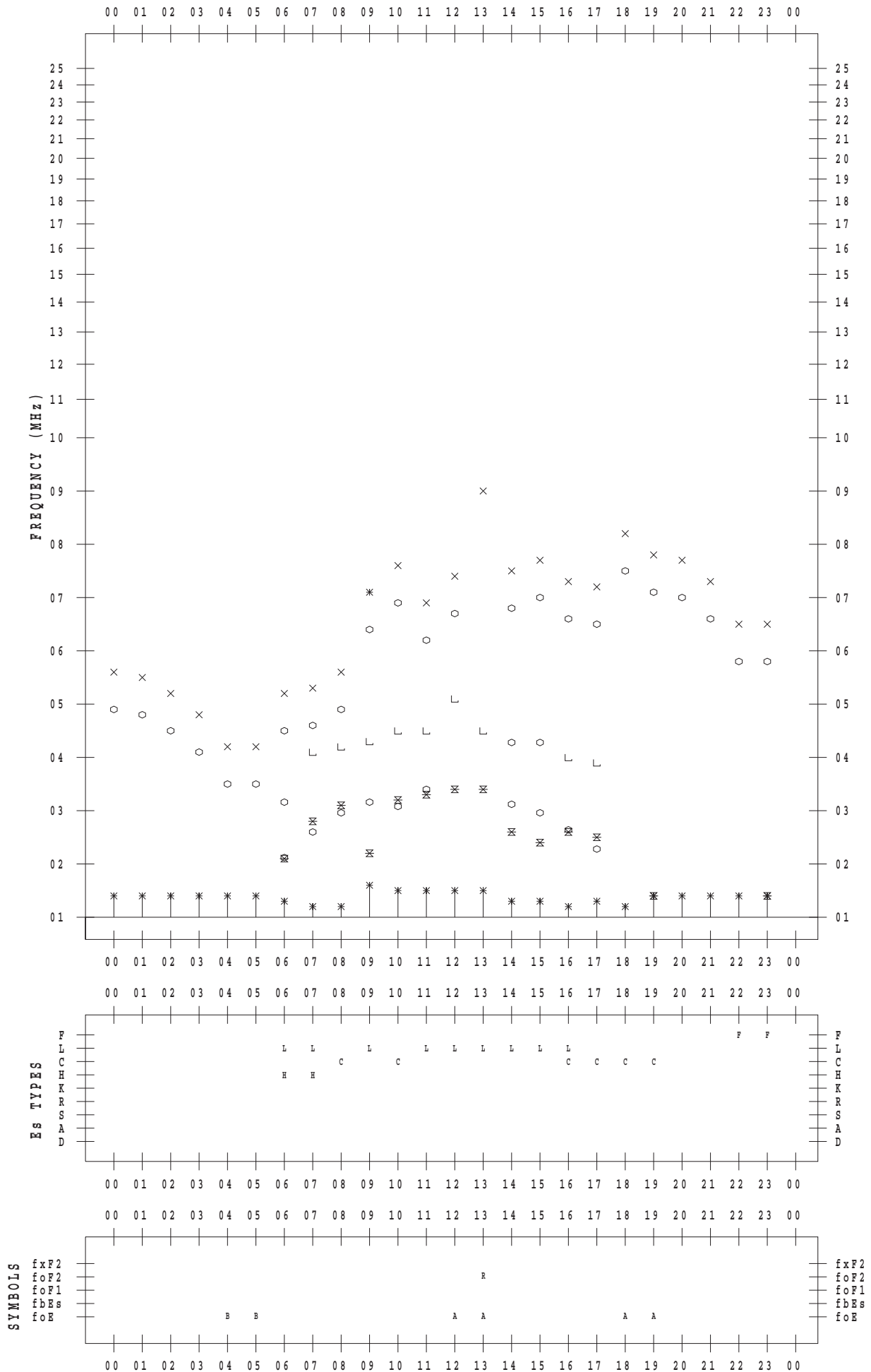
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 13

135 ° E MEAN TIME



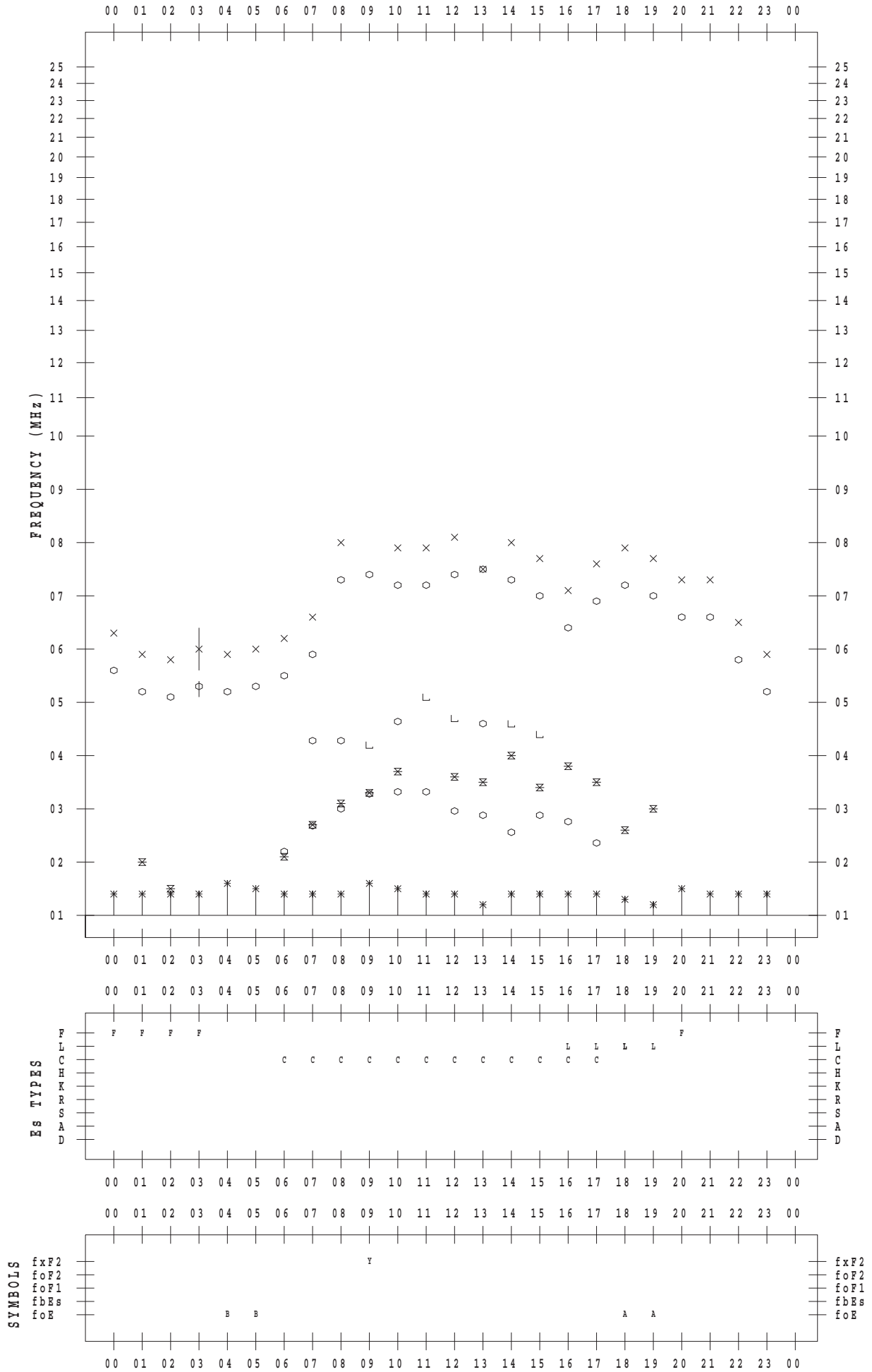
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 14

135 ° E MEAN TIME



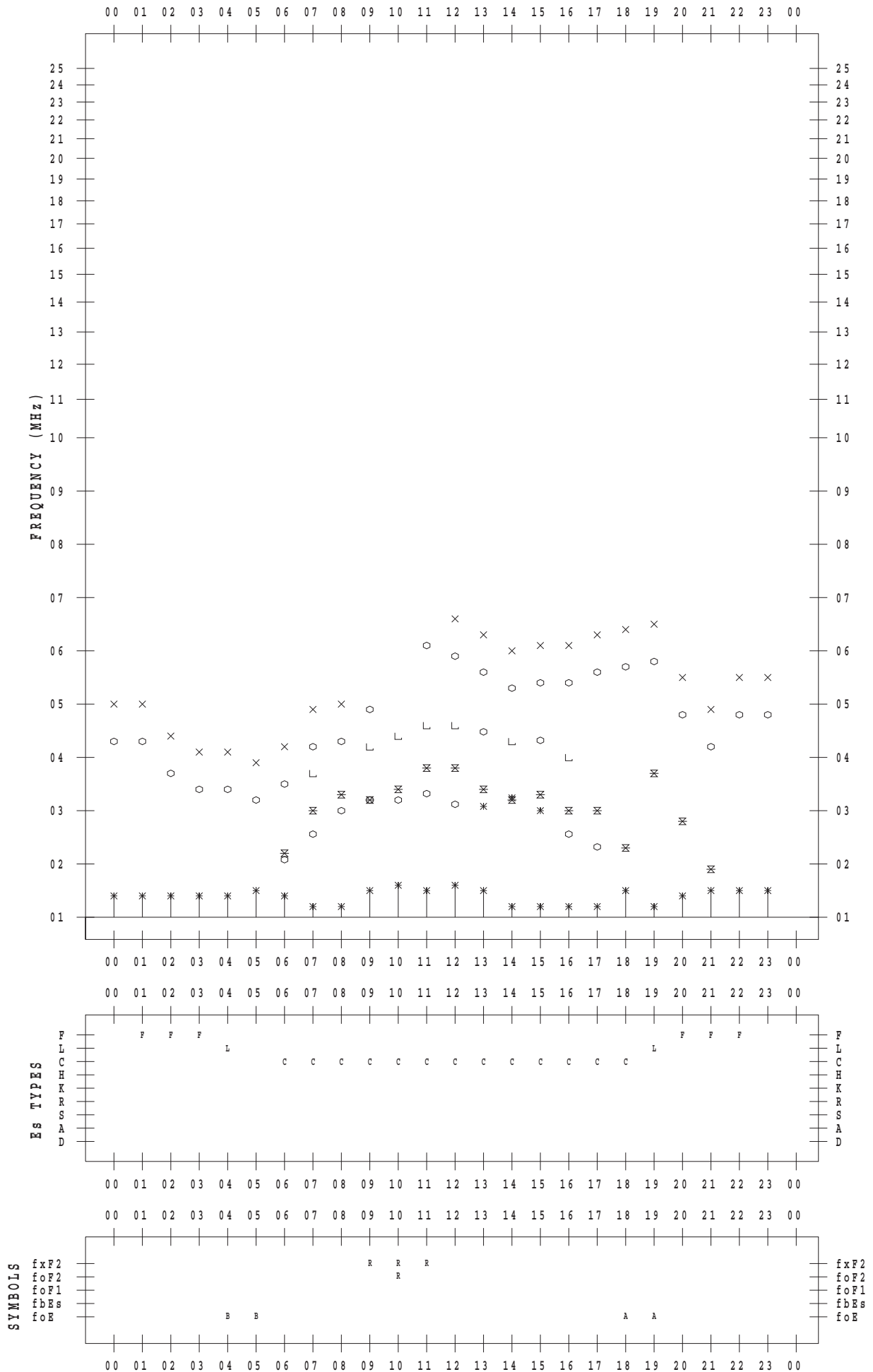
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 15

135 ° E MEAN TIME



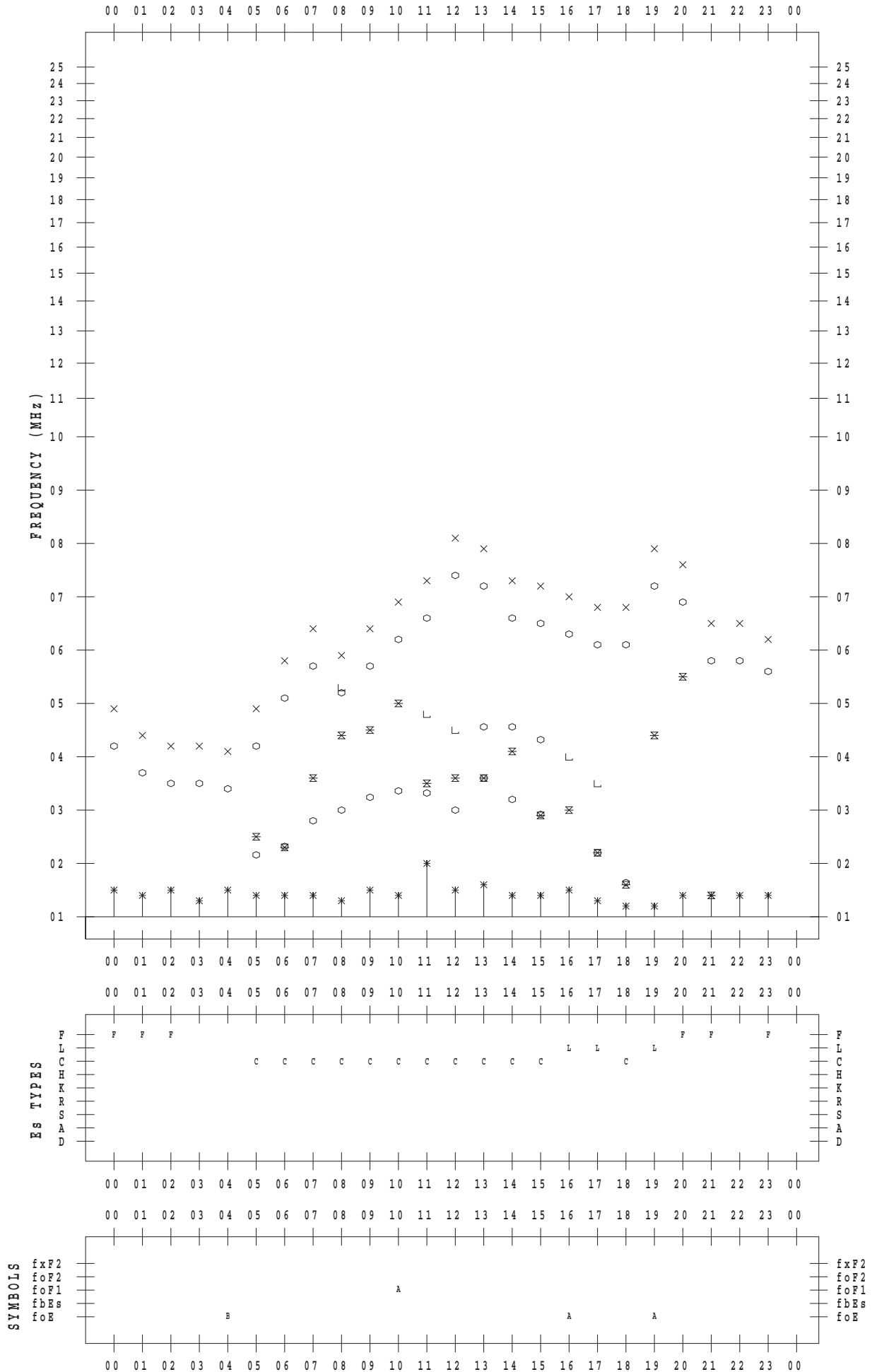
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 16

135 ° E MEAN TIME



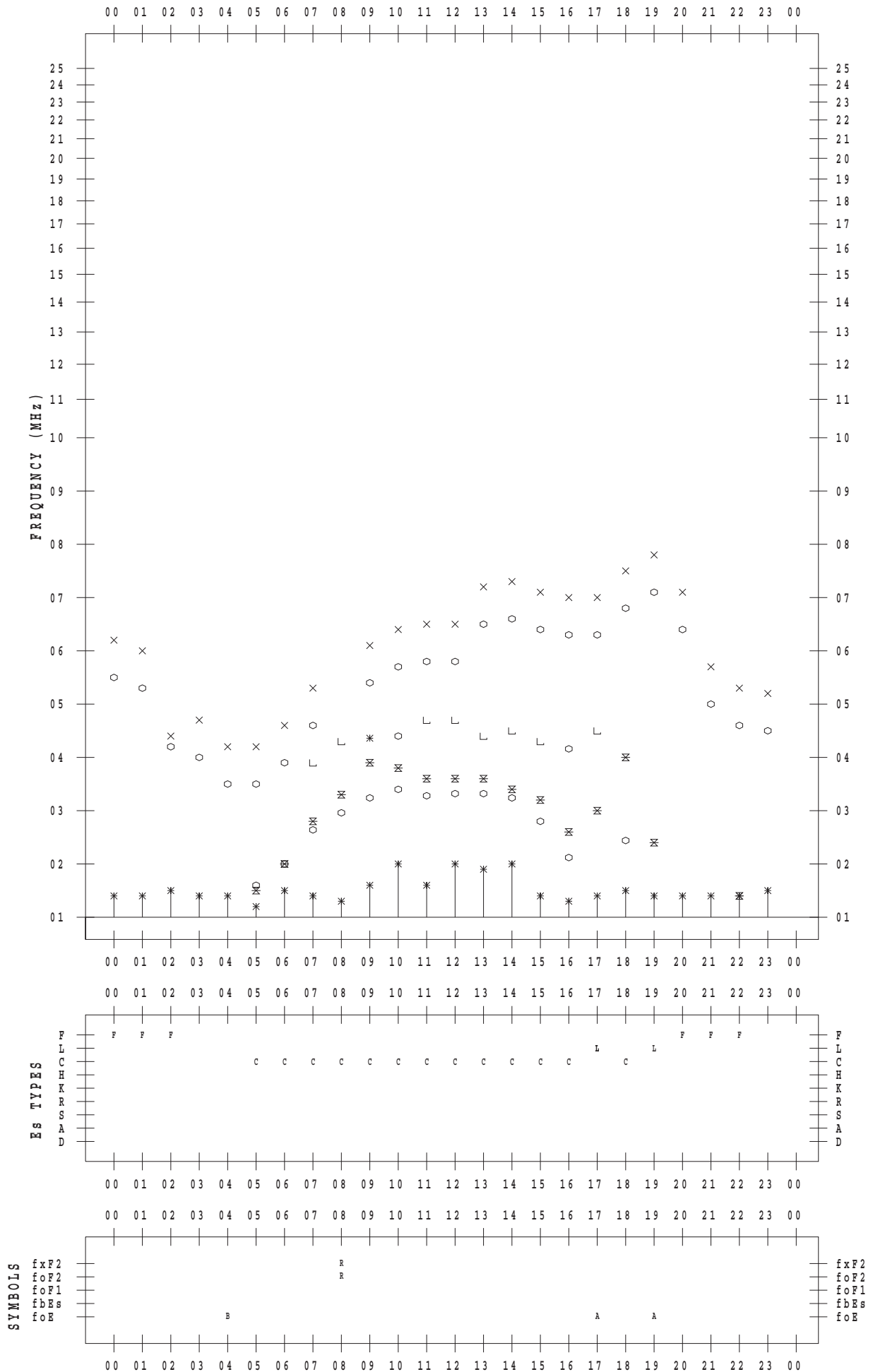
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 17

135 ° E MEAN TIME



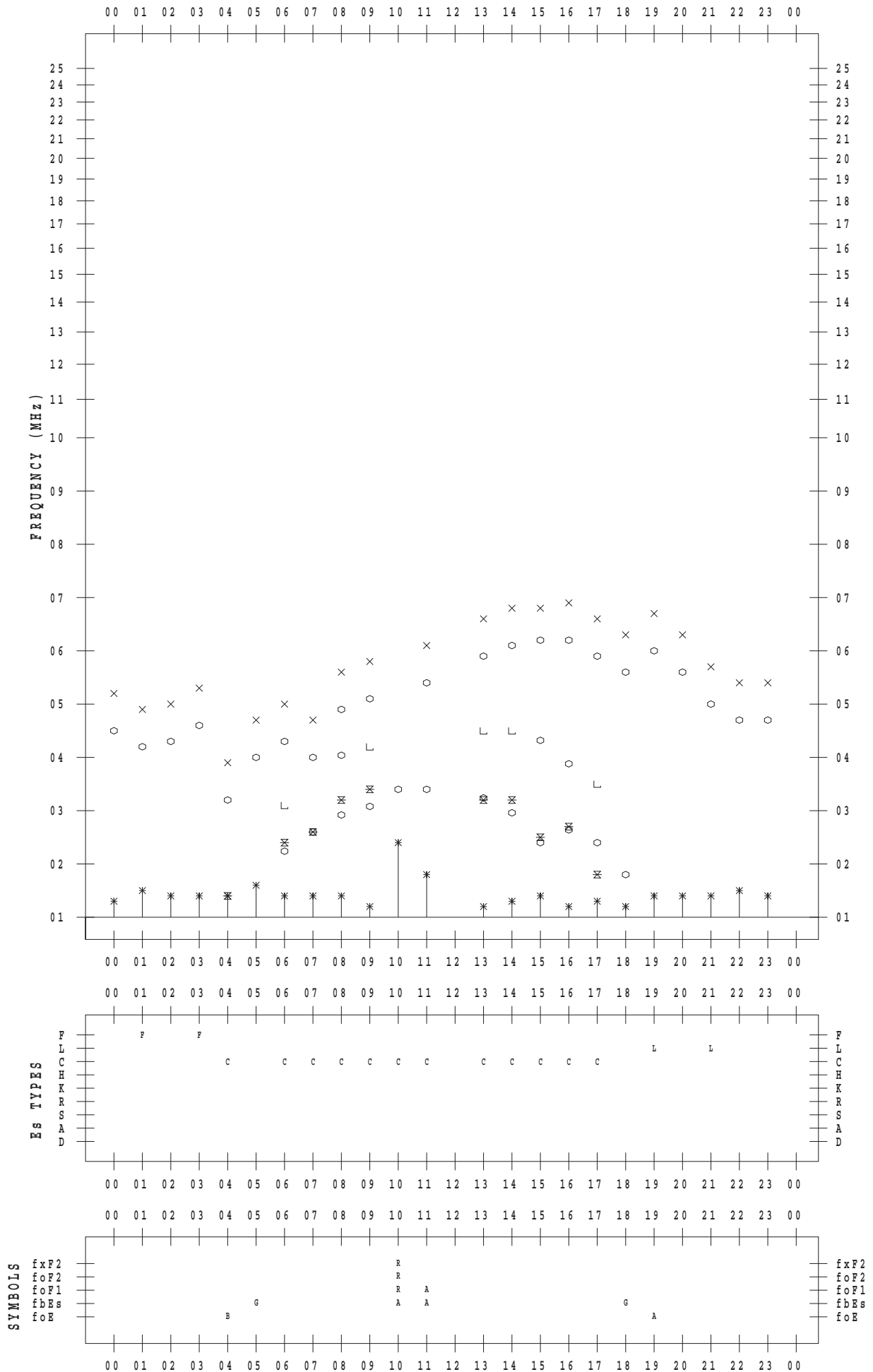
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 18

135 ° E MEAN TIME



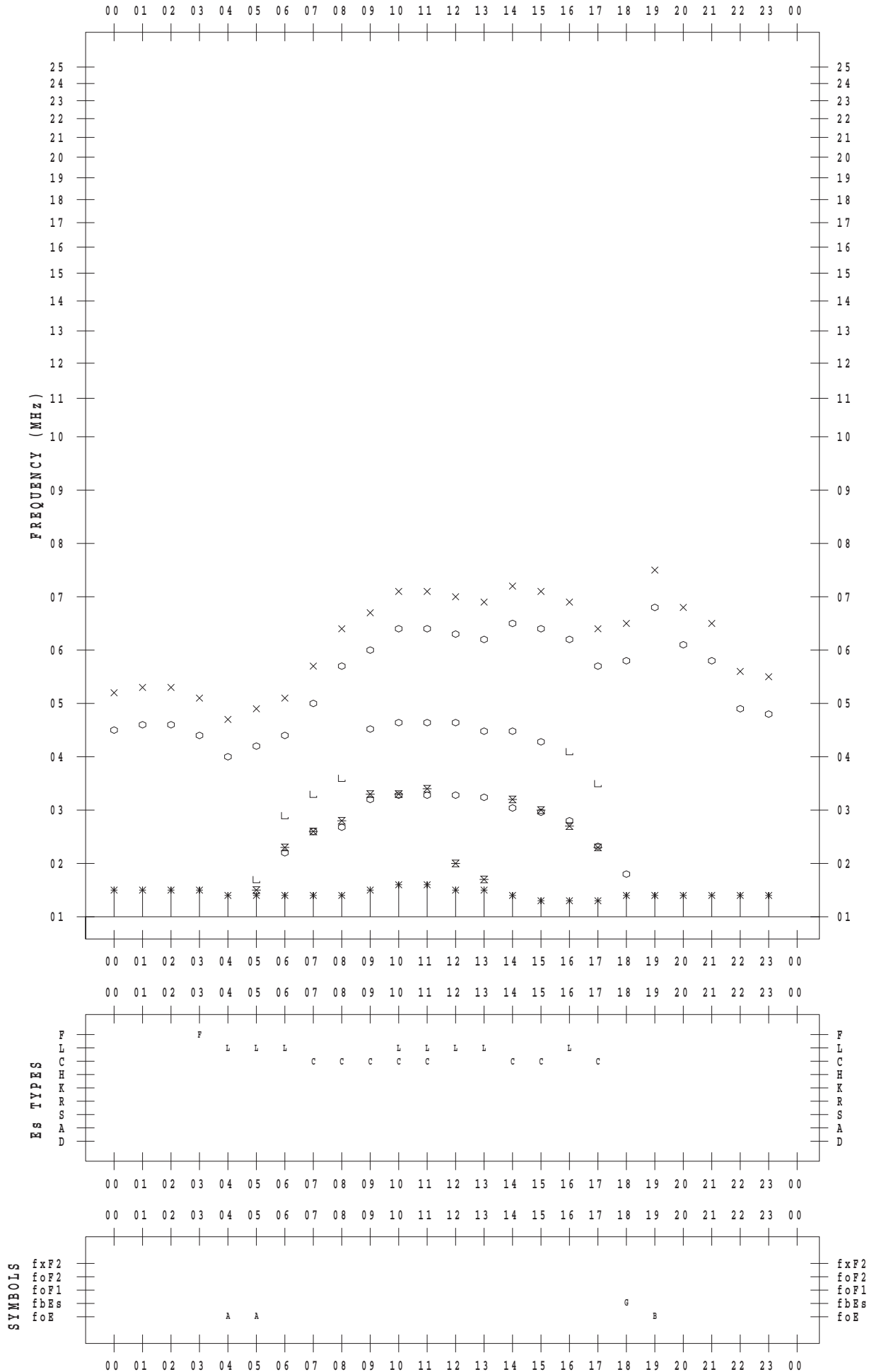
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 19

135 ° E MEAN TIME



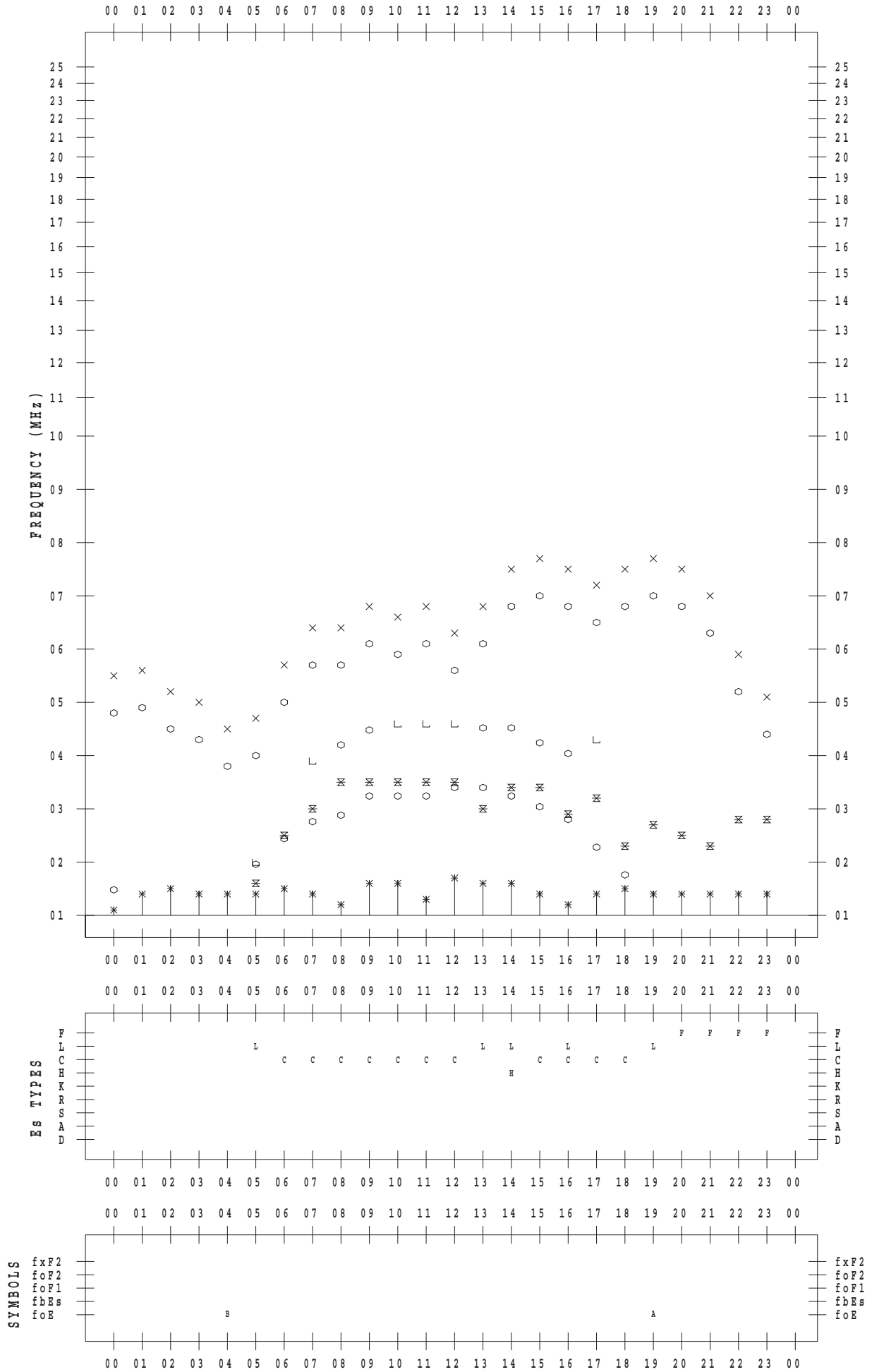
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 20

135 ° E MEAN TIME



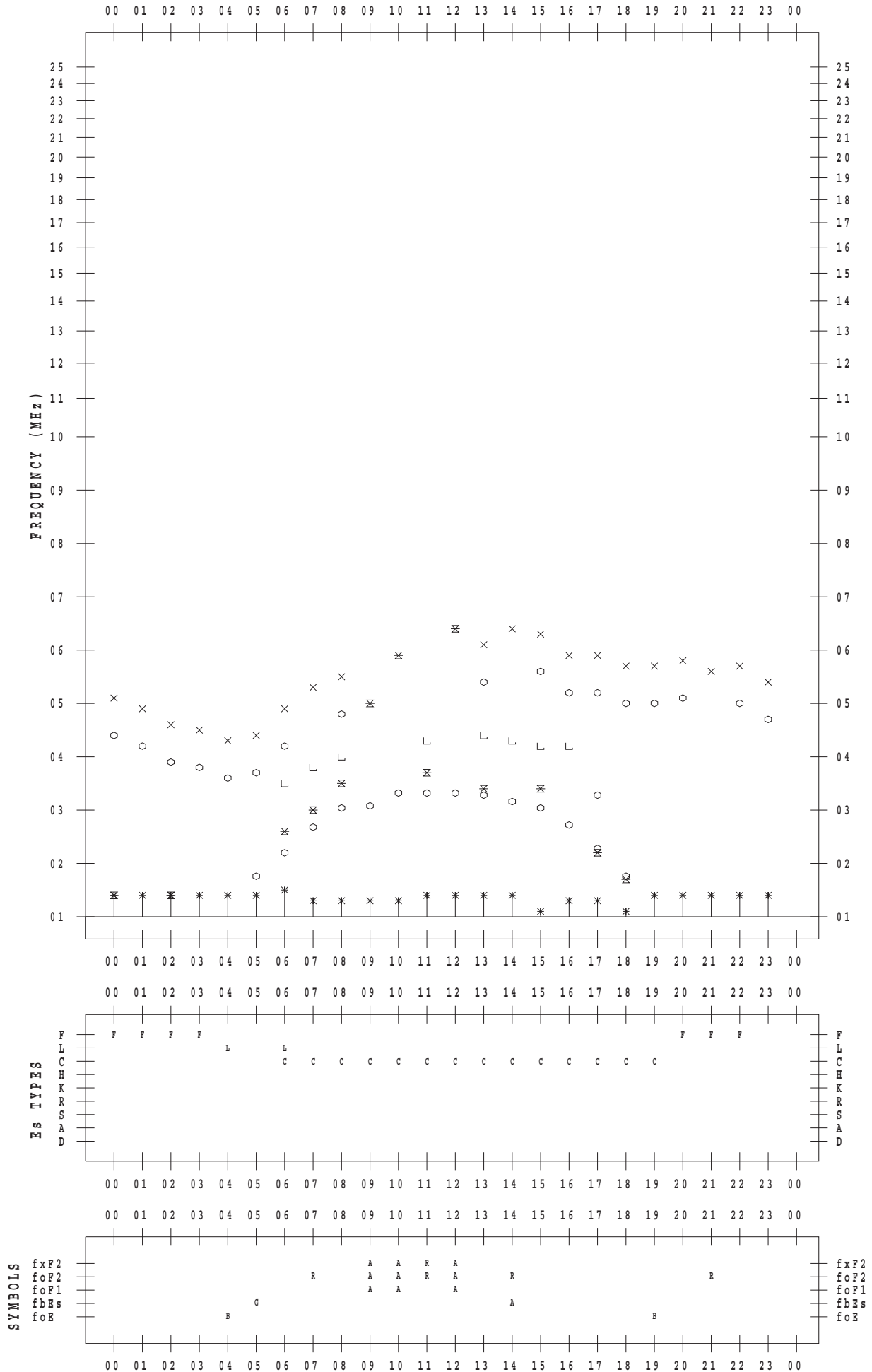
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 21

135 ° E MEAN TIME



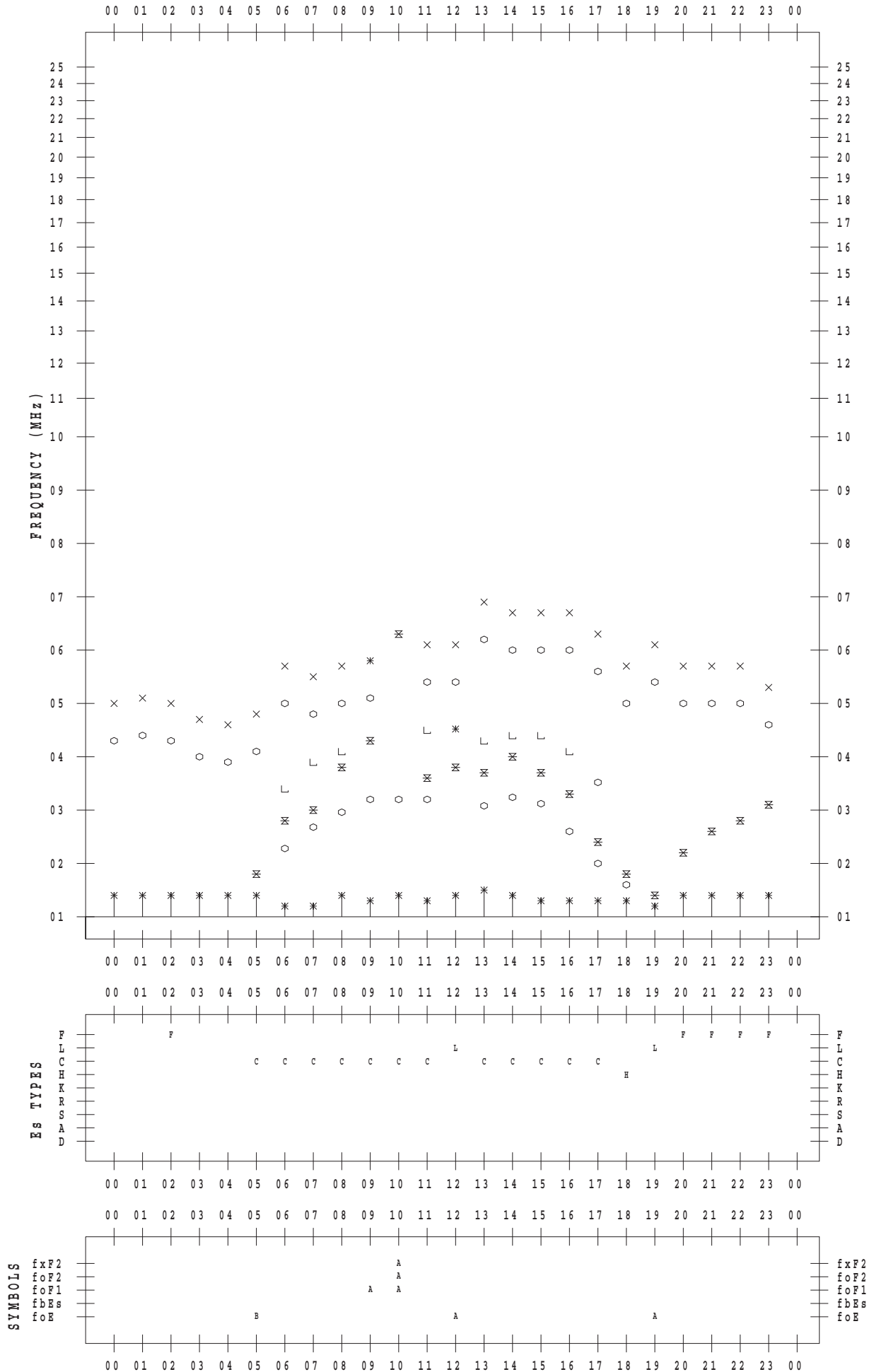
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 22

135 ° E MEAN TIME



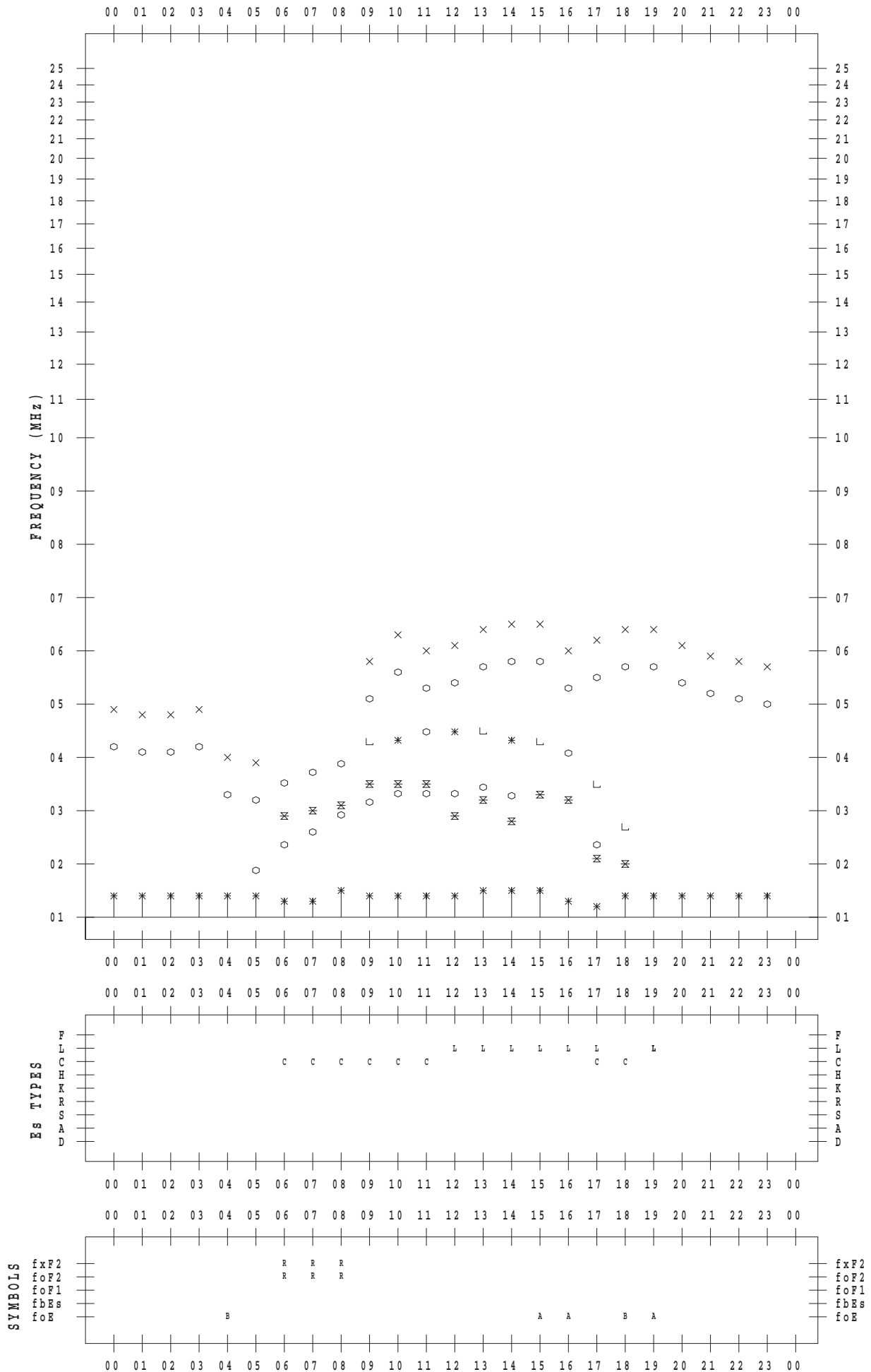
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 23

135 ° E MEAN TIME



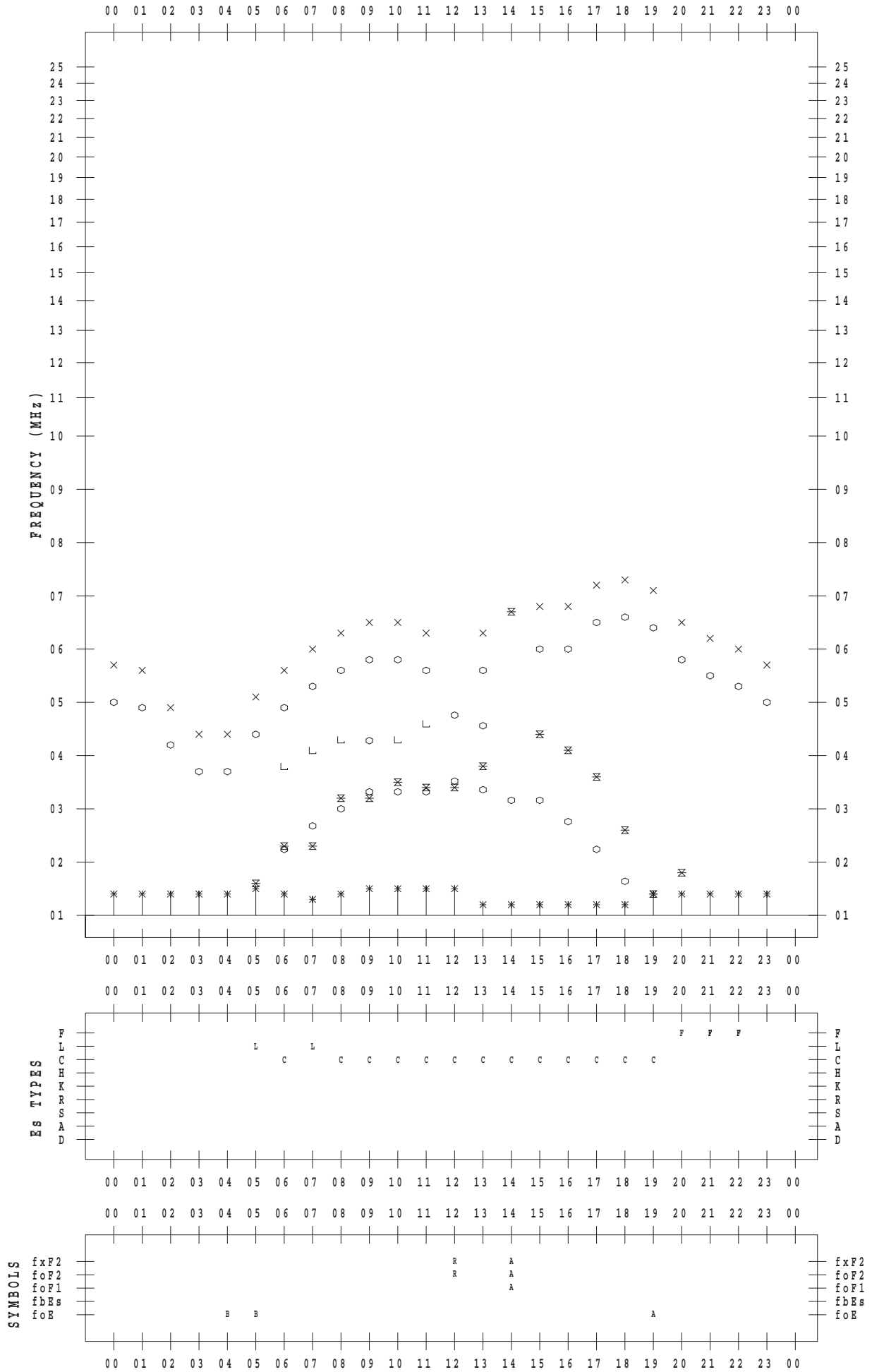
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 24

135 ° E MEAN TIME



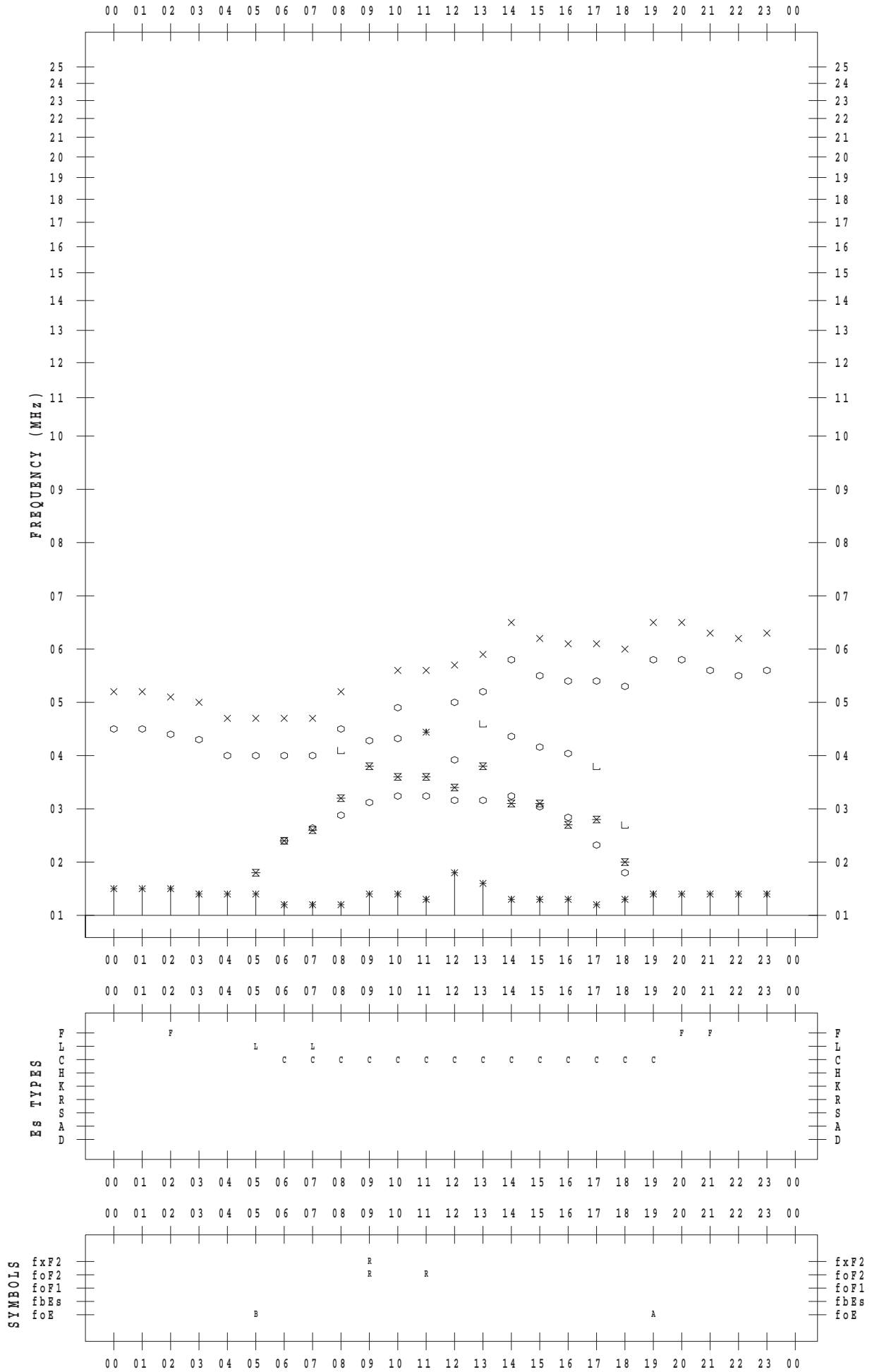
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 25

135 ° E MEAN TIME



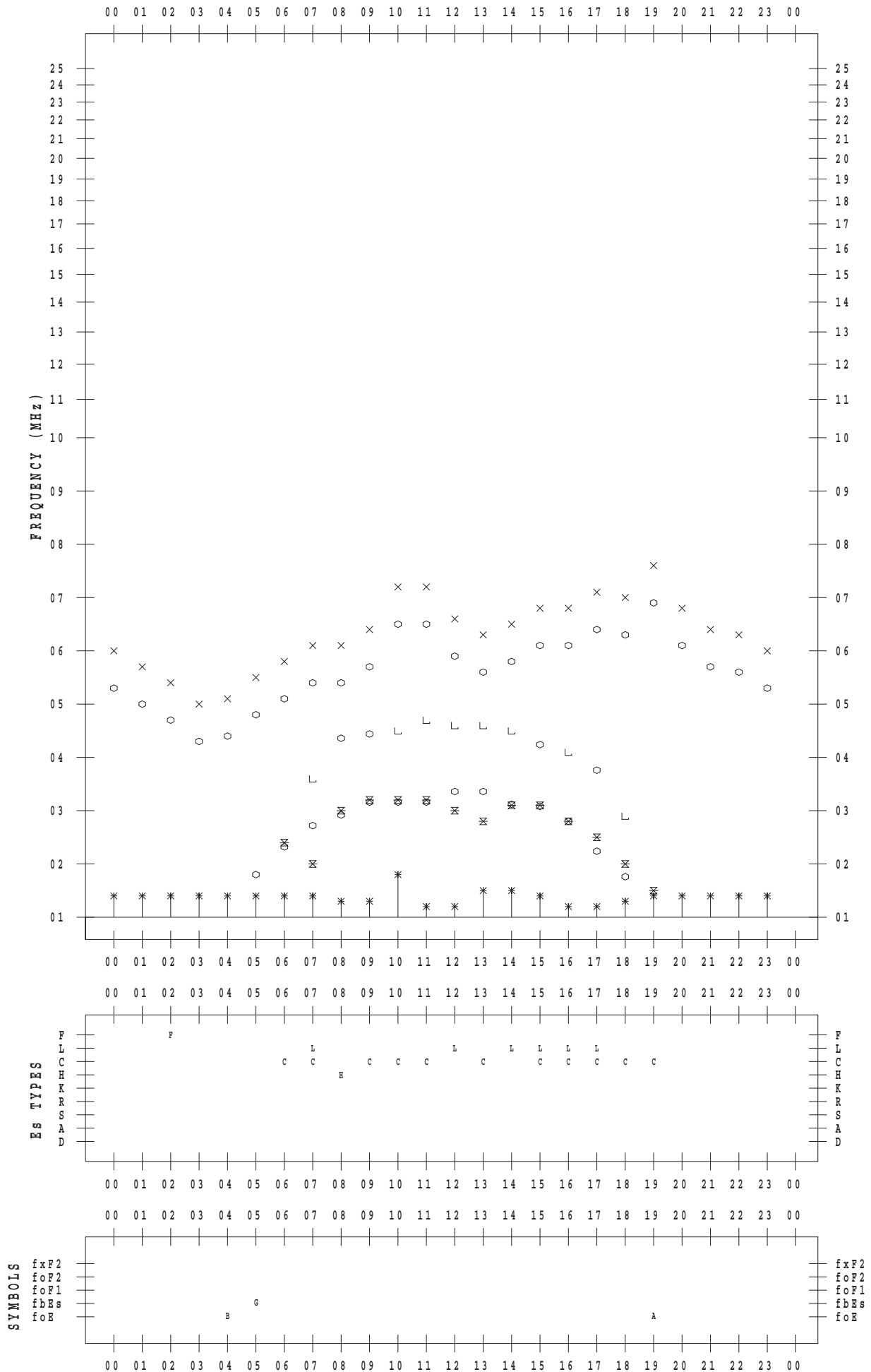
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 26

135 ° E MEAN TIME



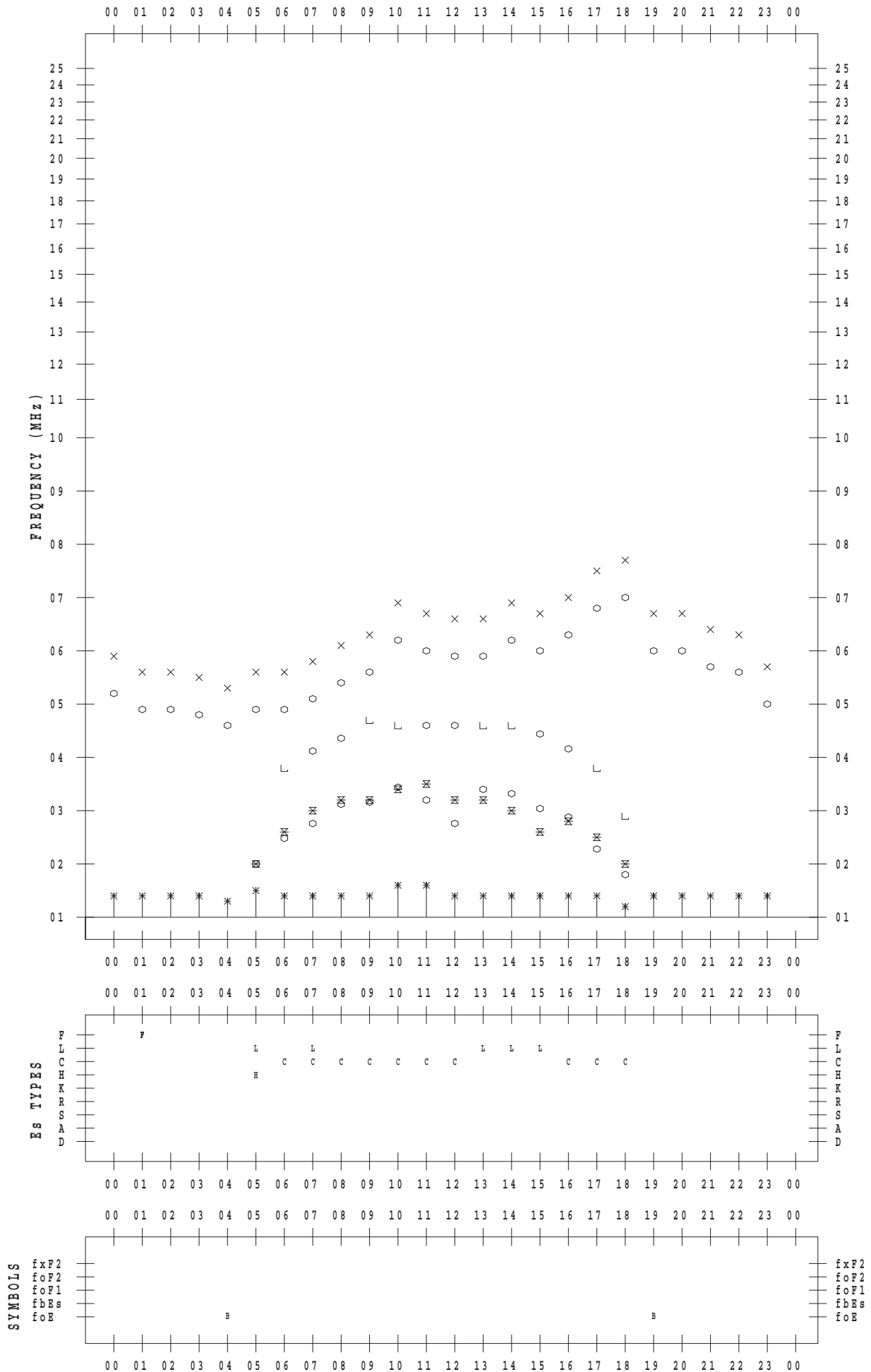
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 27

135 ° E MEAN TIME



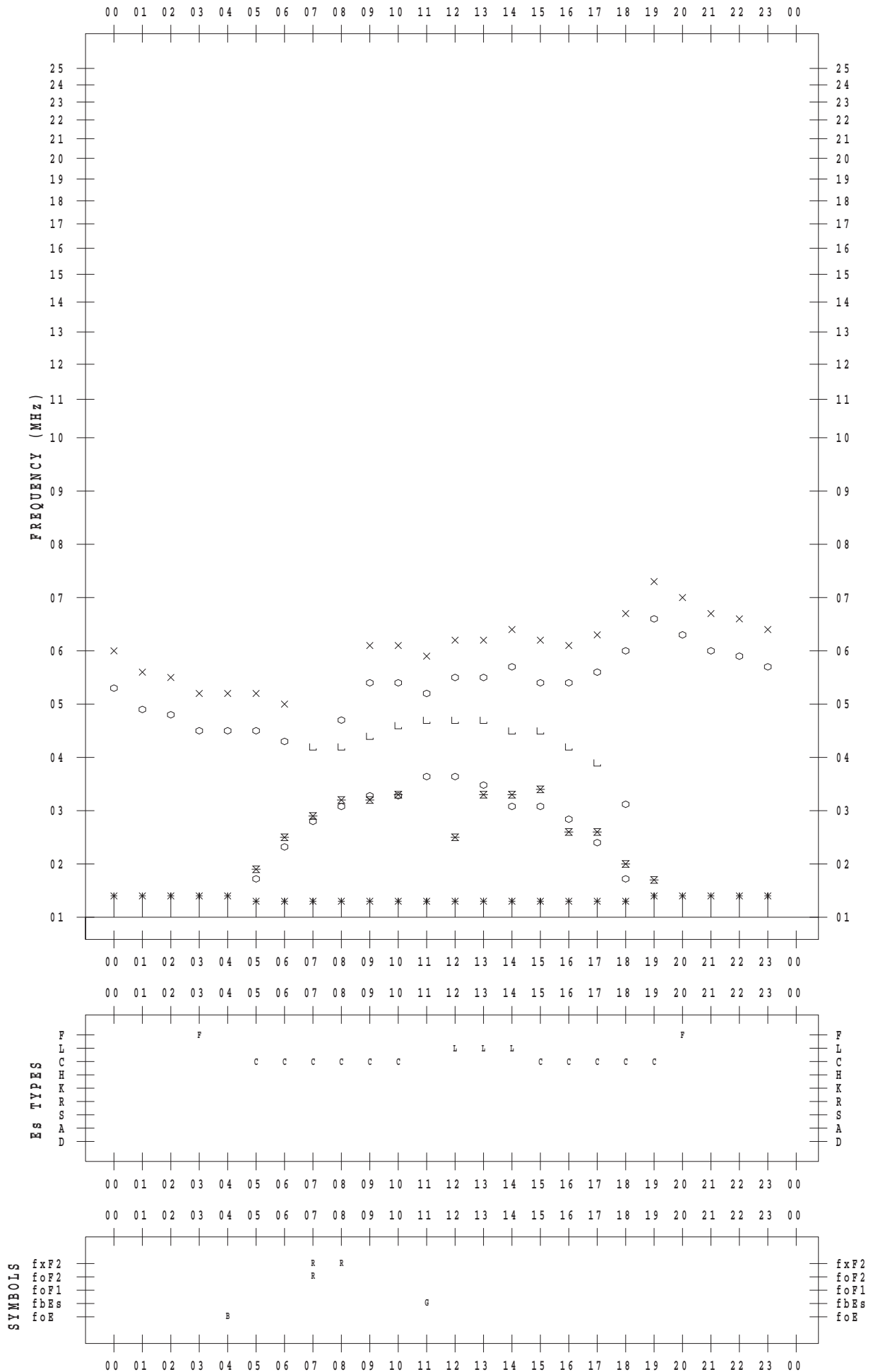
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 28

135 ° E MEAN TIME



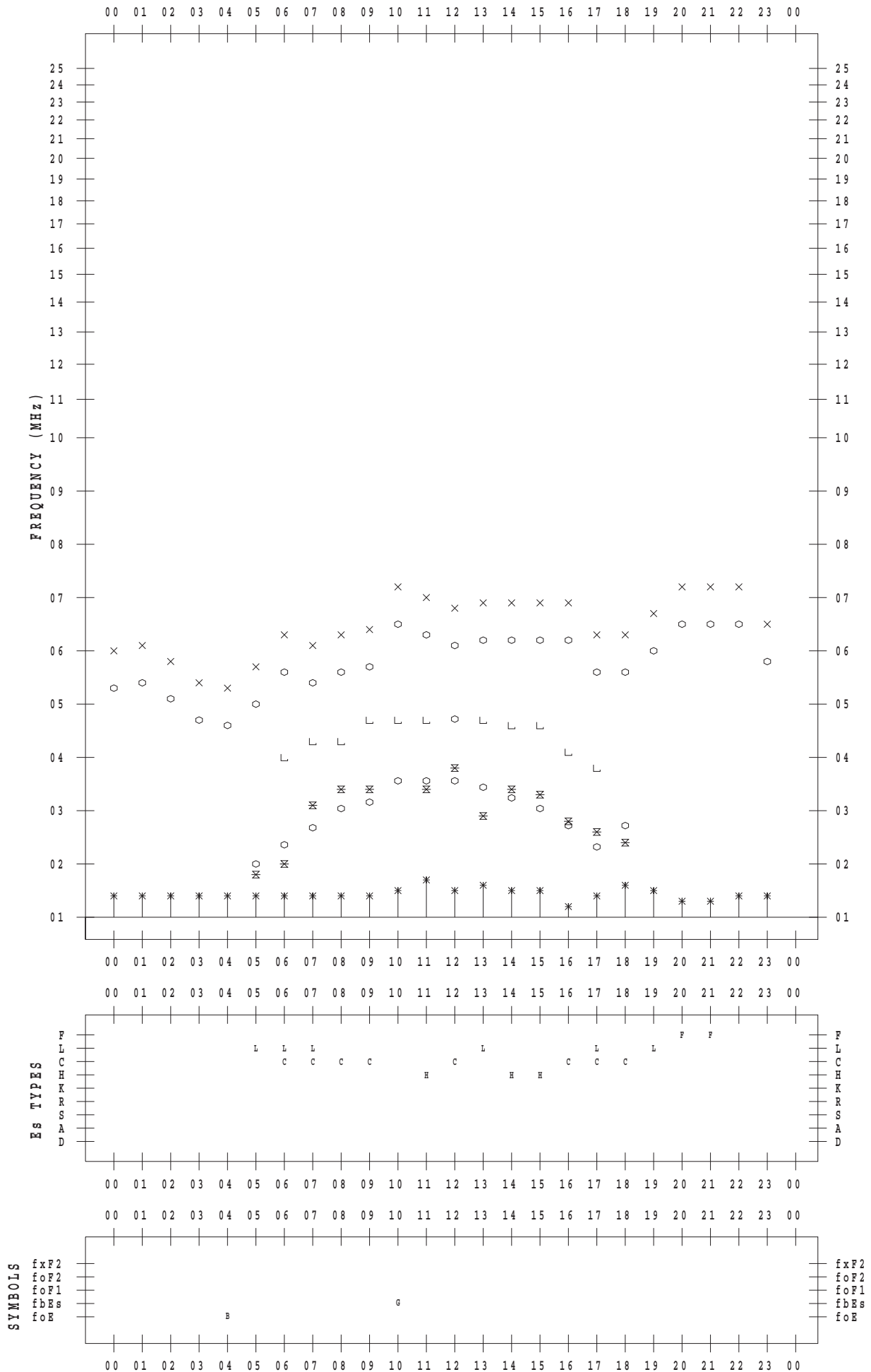
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 29

135 ° E MEAN TIME



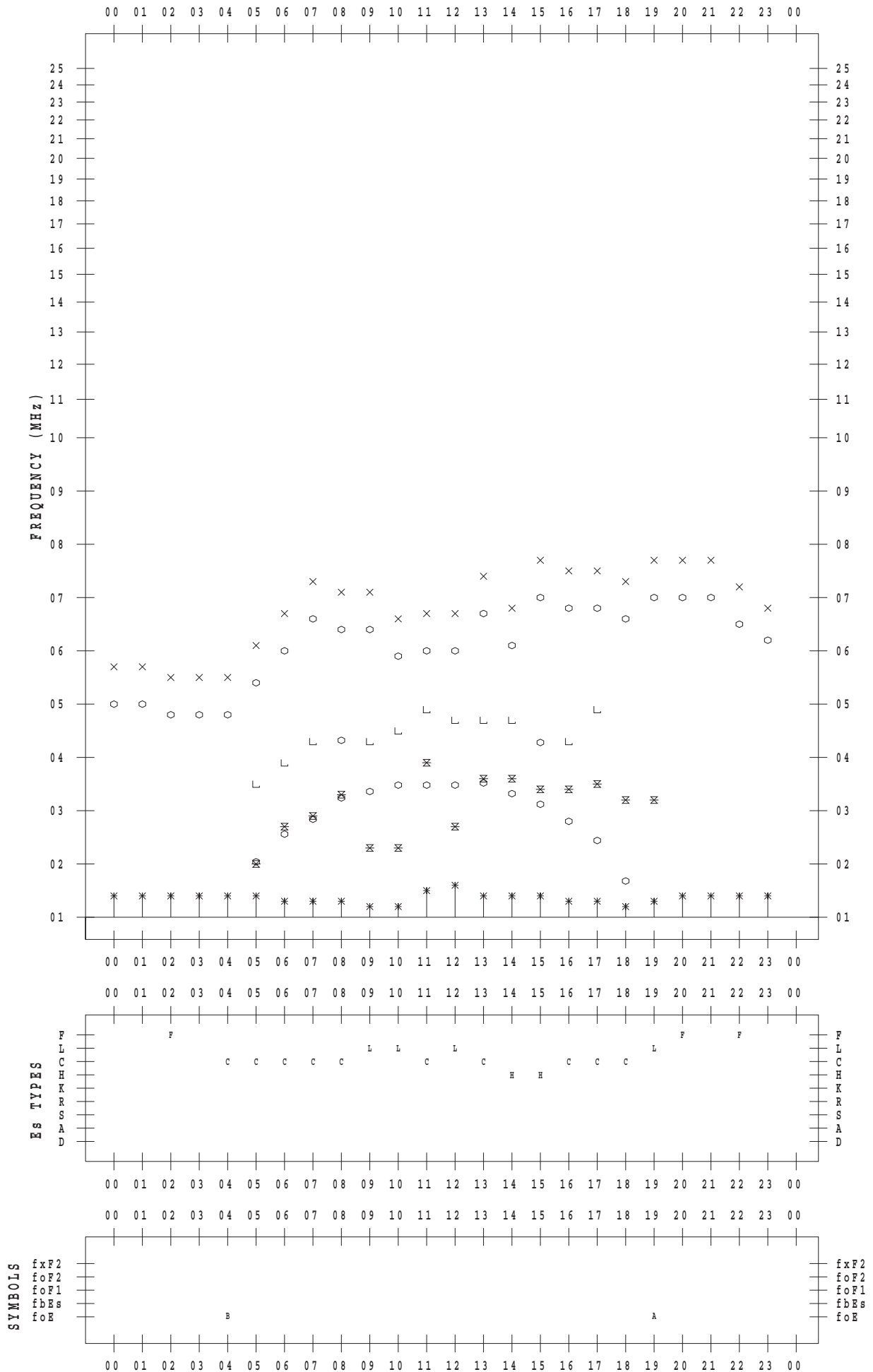
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016 / 4 / 30

135 ° E MEAN TIME



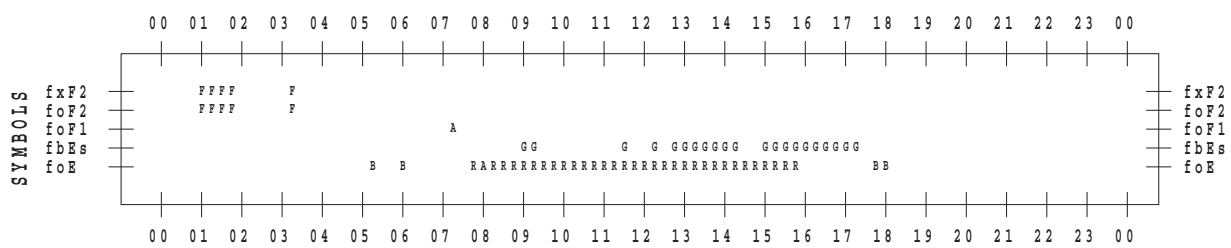
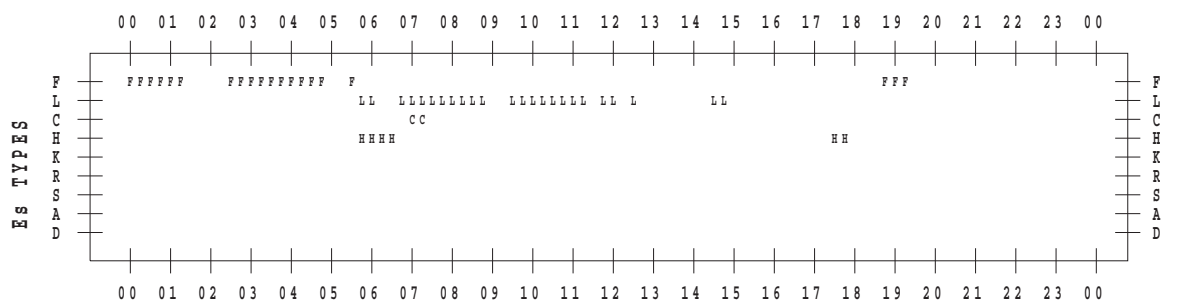
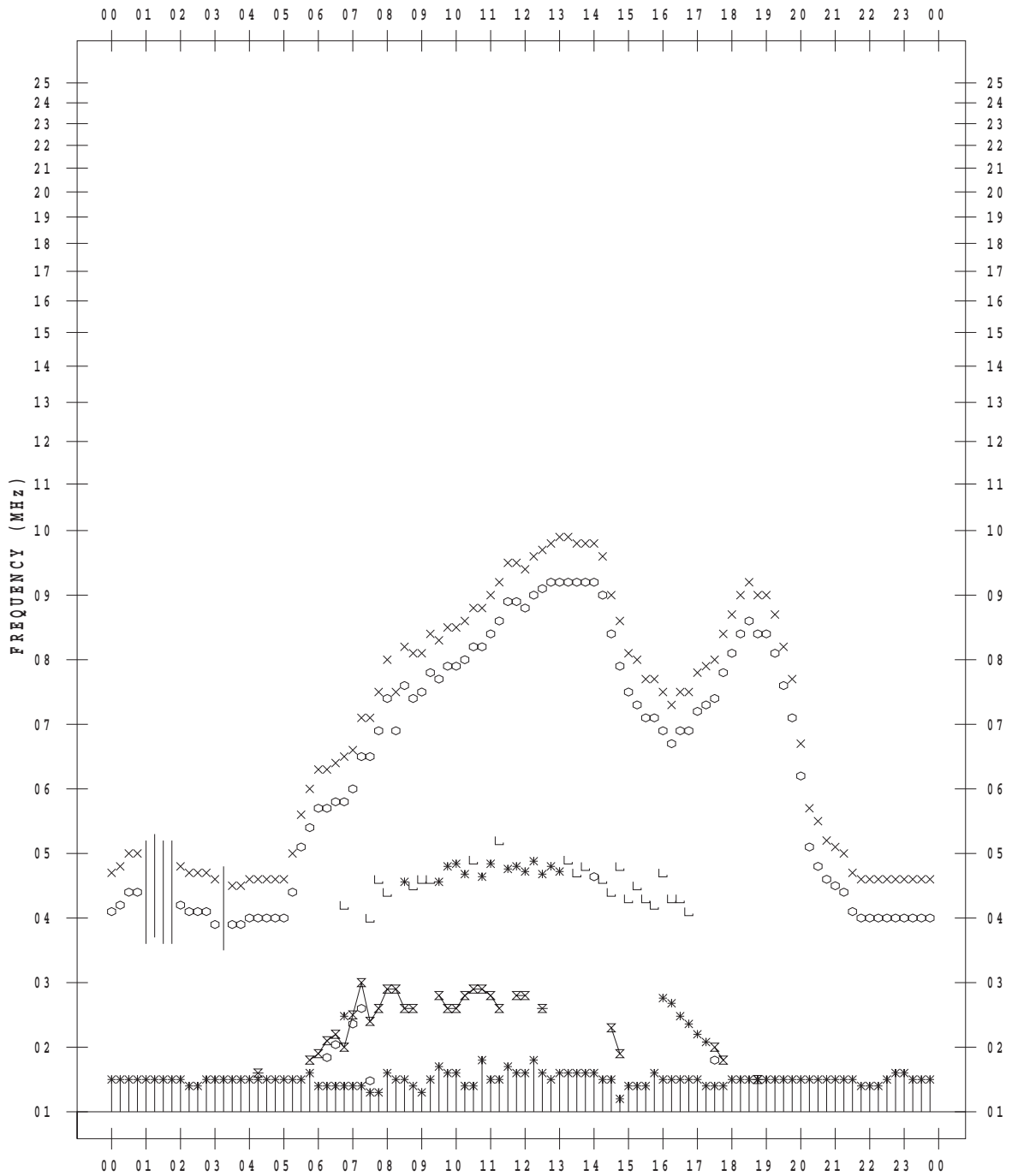
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 1

135 ° E MEAN TIME



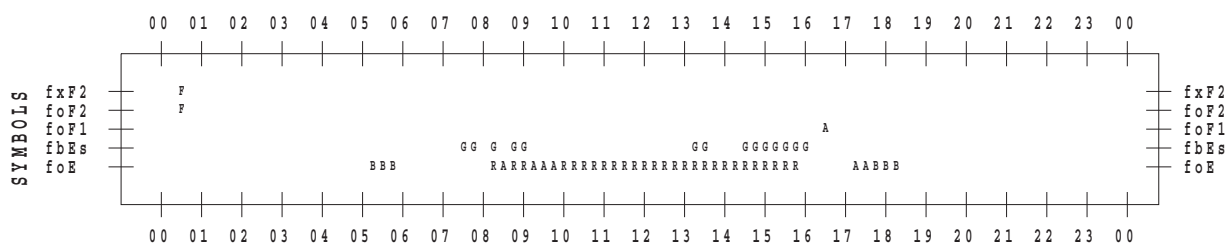
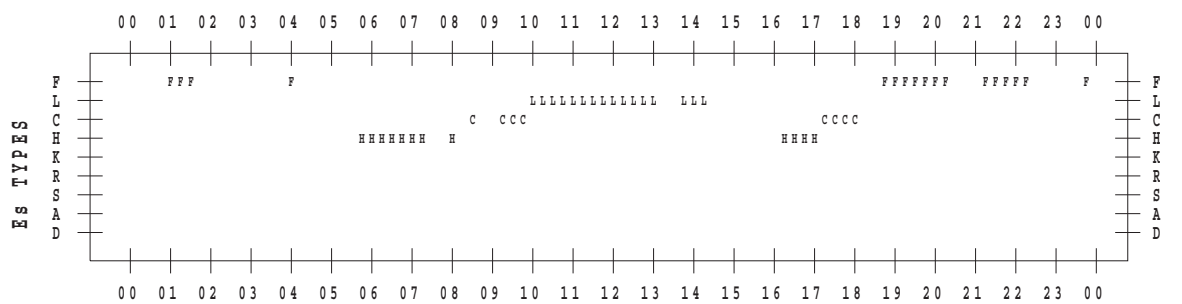
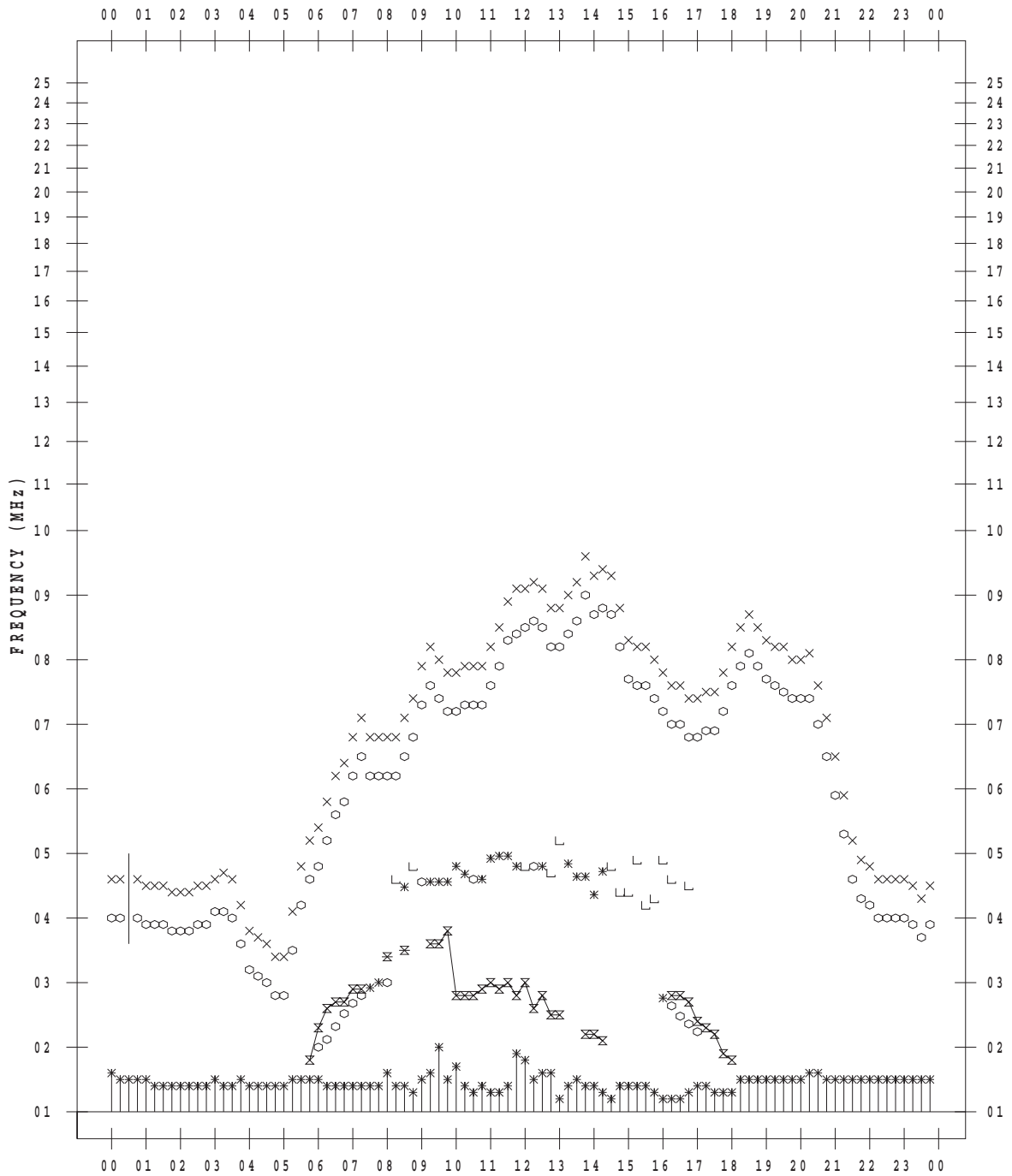
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 2

135 ° E MEAN TIME



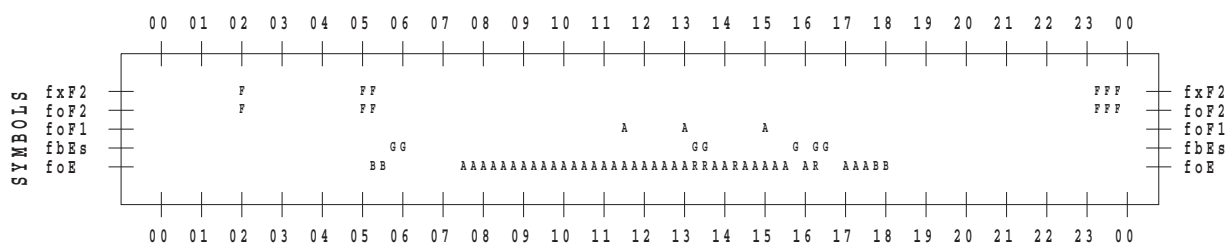
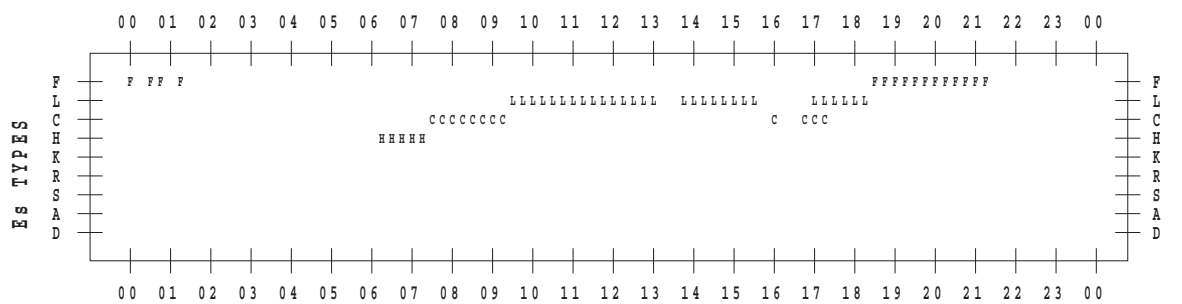
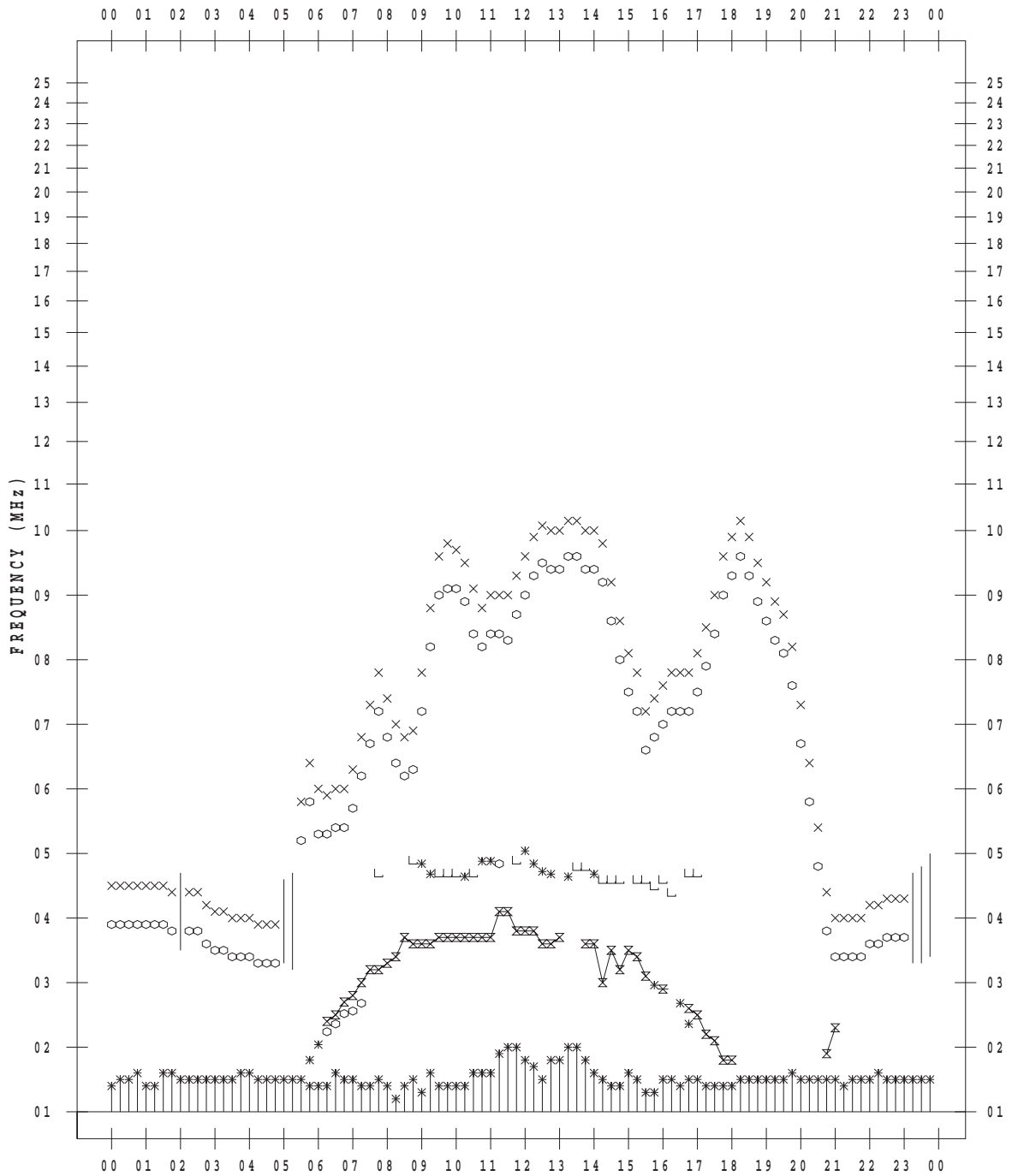
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 3

135 ° E MEAN TIME



f - PLOT DATA

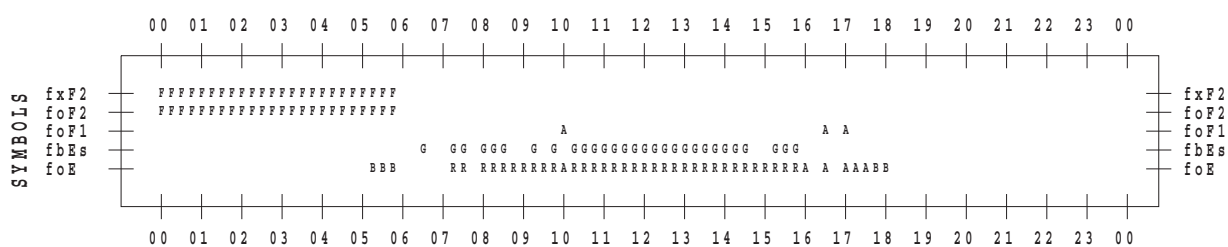
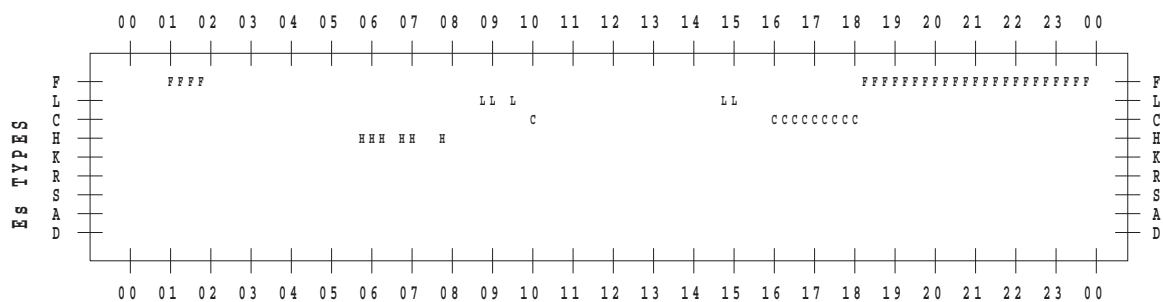
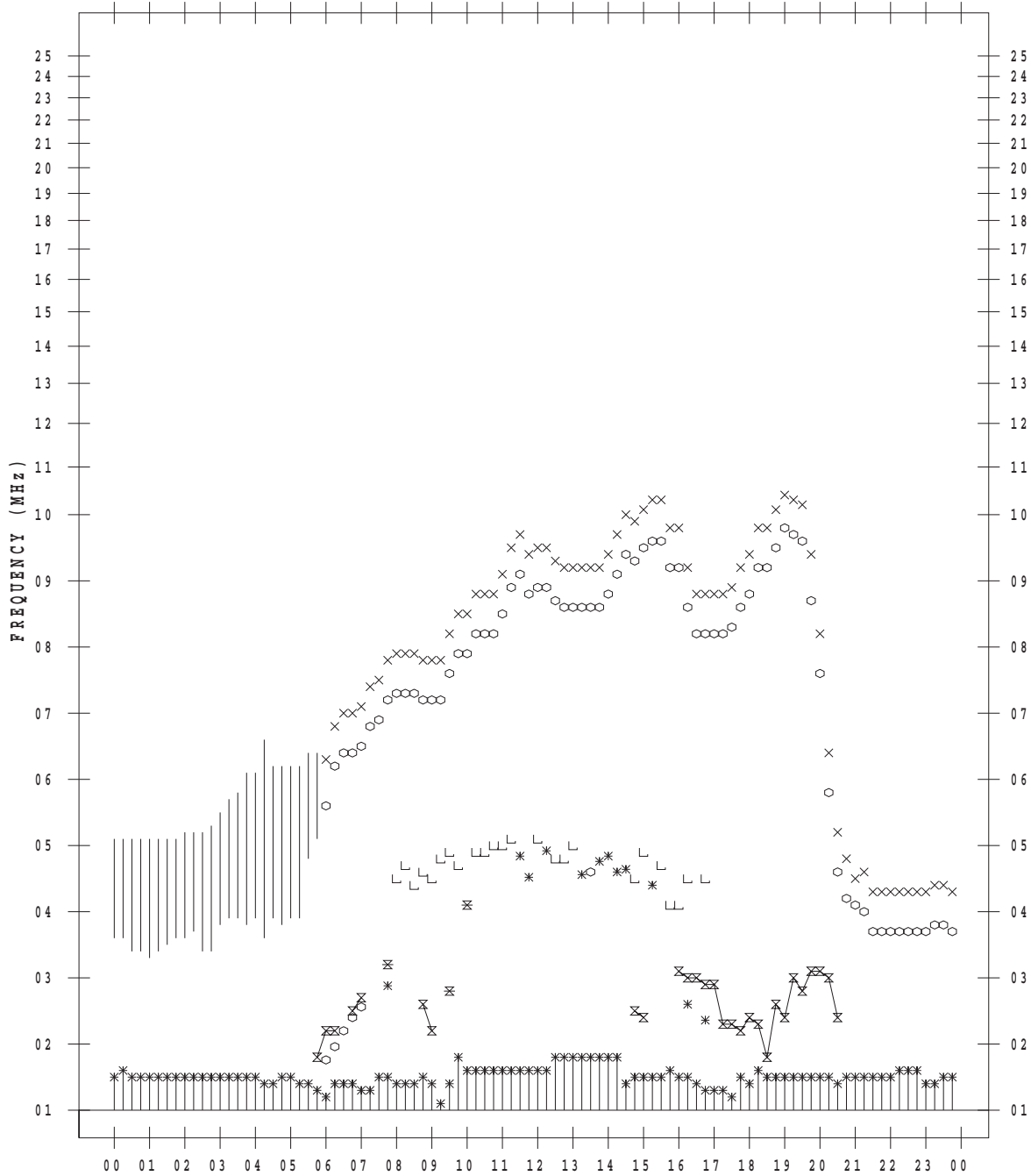
SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 4

135 ° E MEAN TIME

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



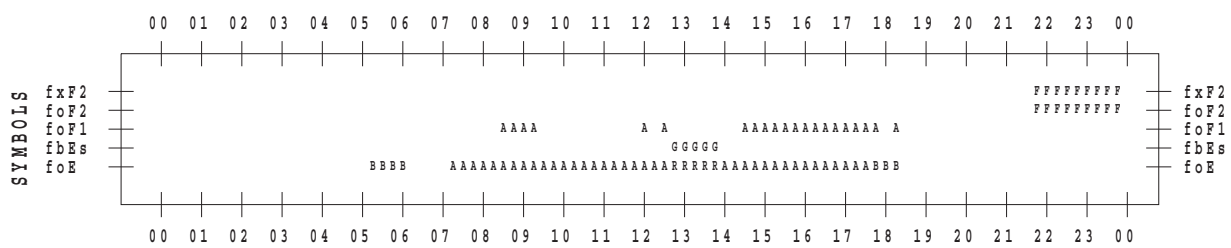
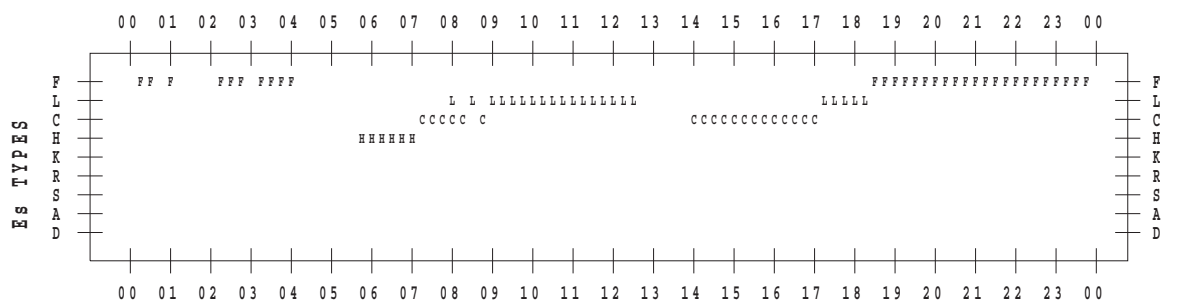
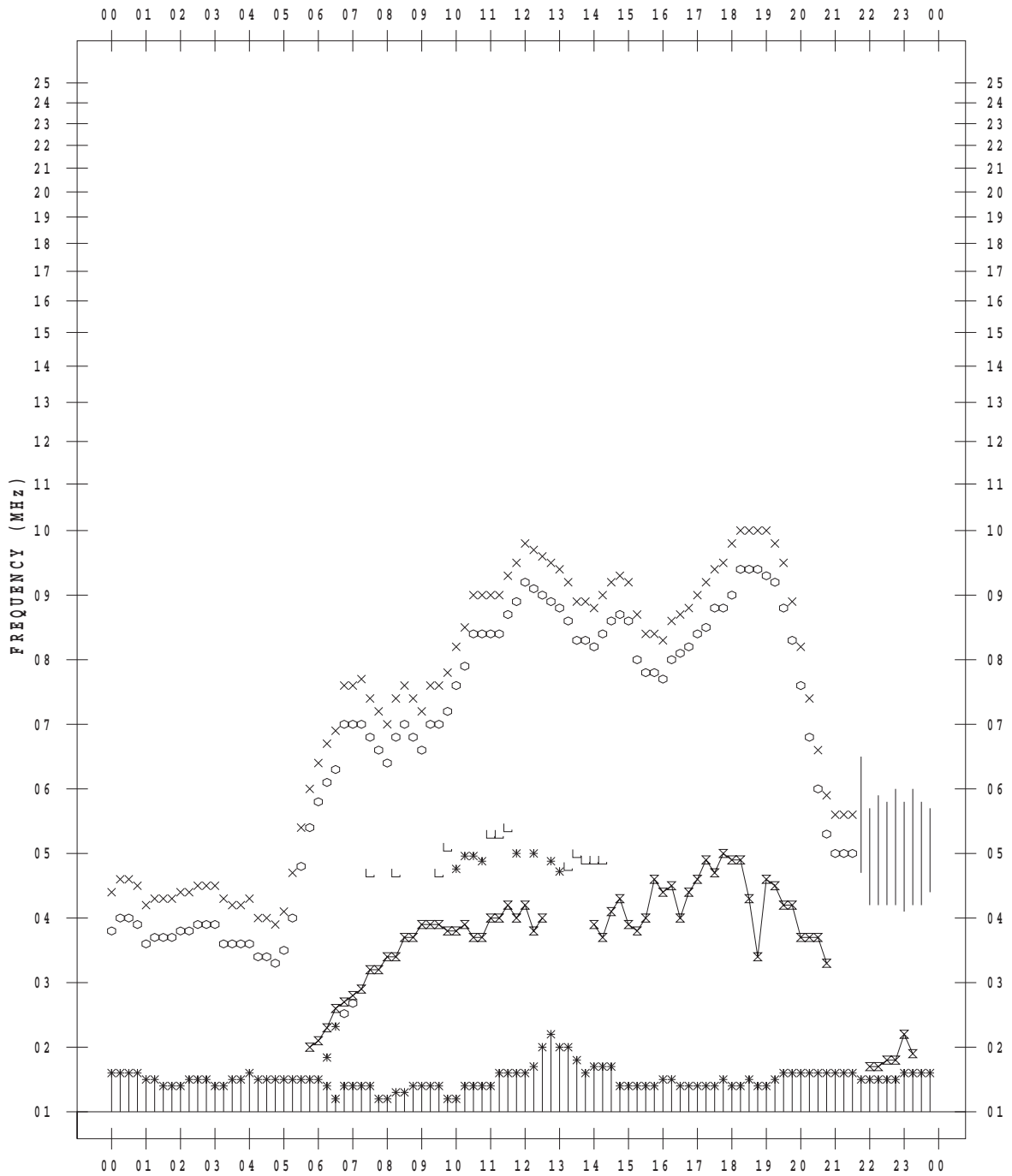
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 5

135 ° E MEAN TIME



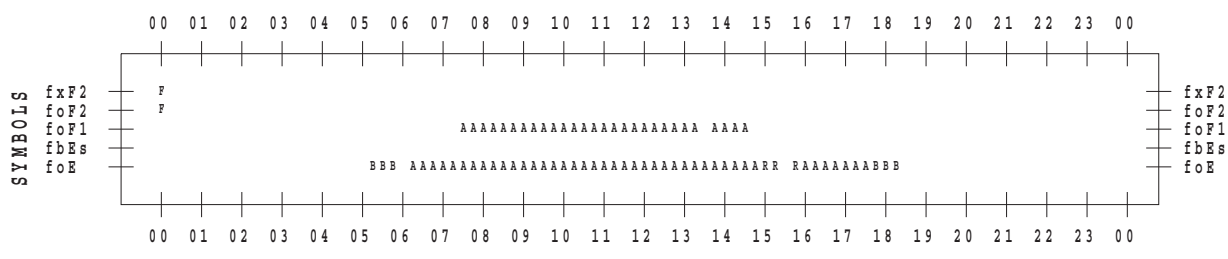
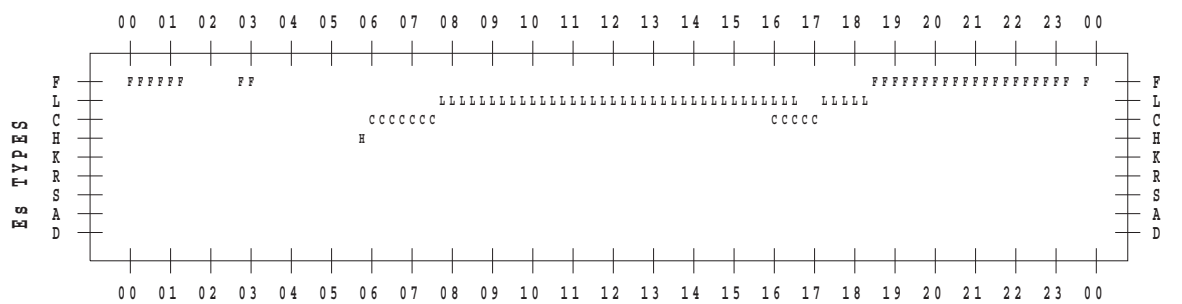
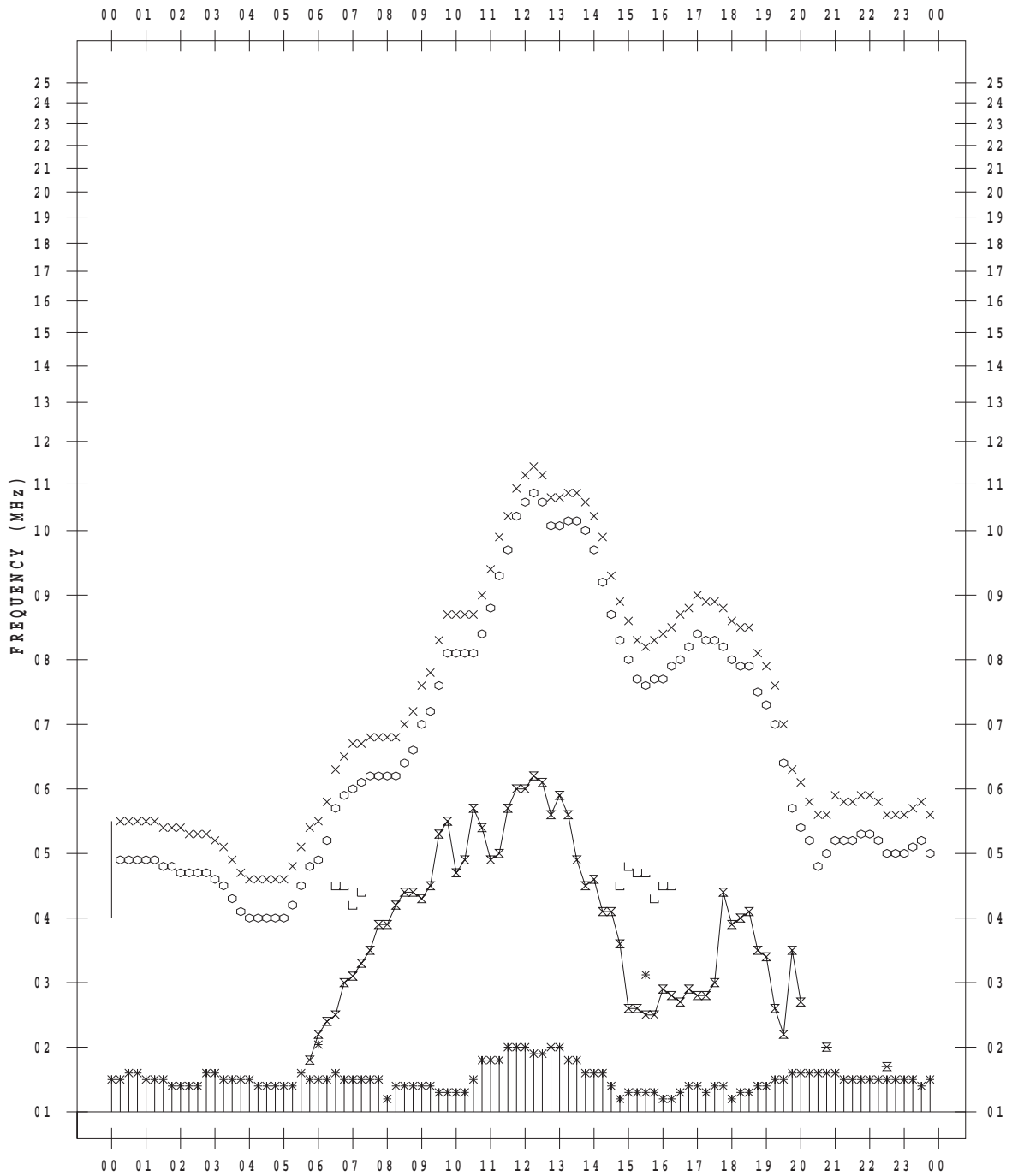
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 6

135 ° E MEAN TIME



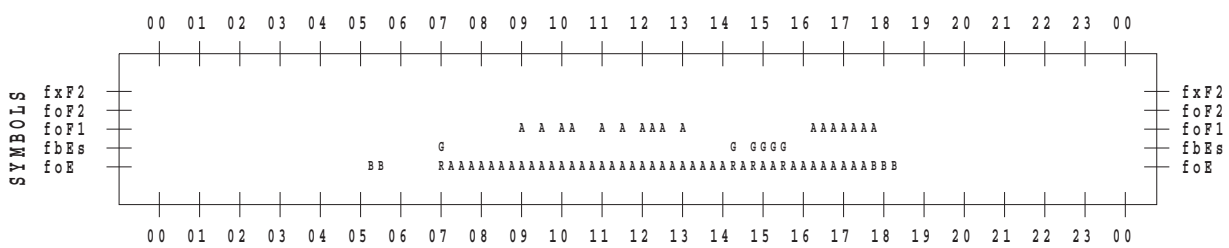
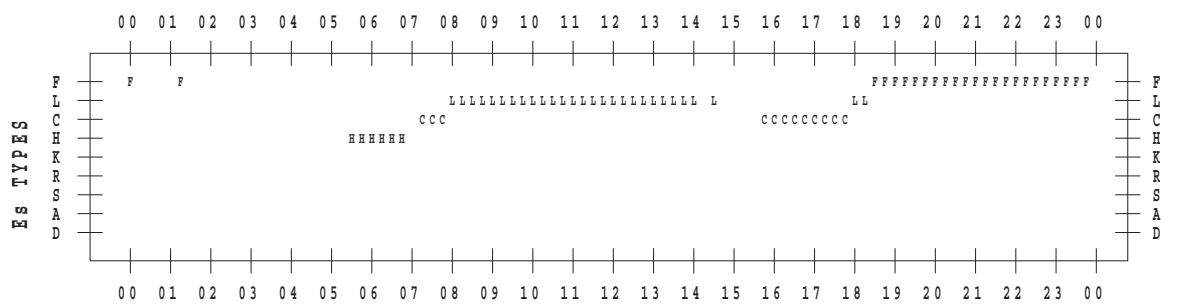
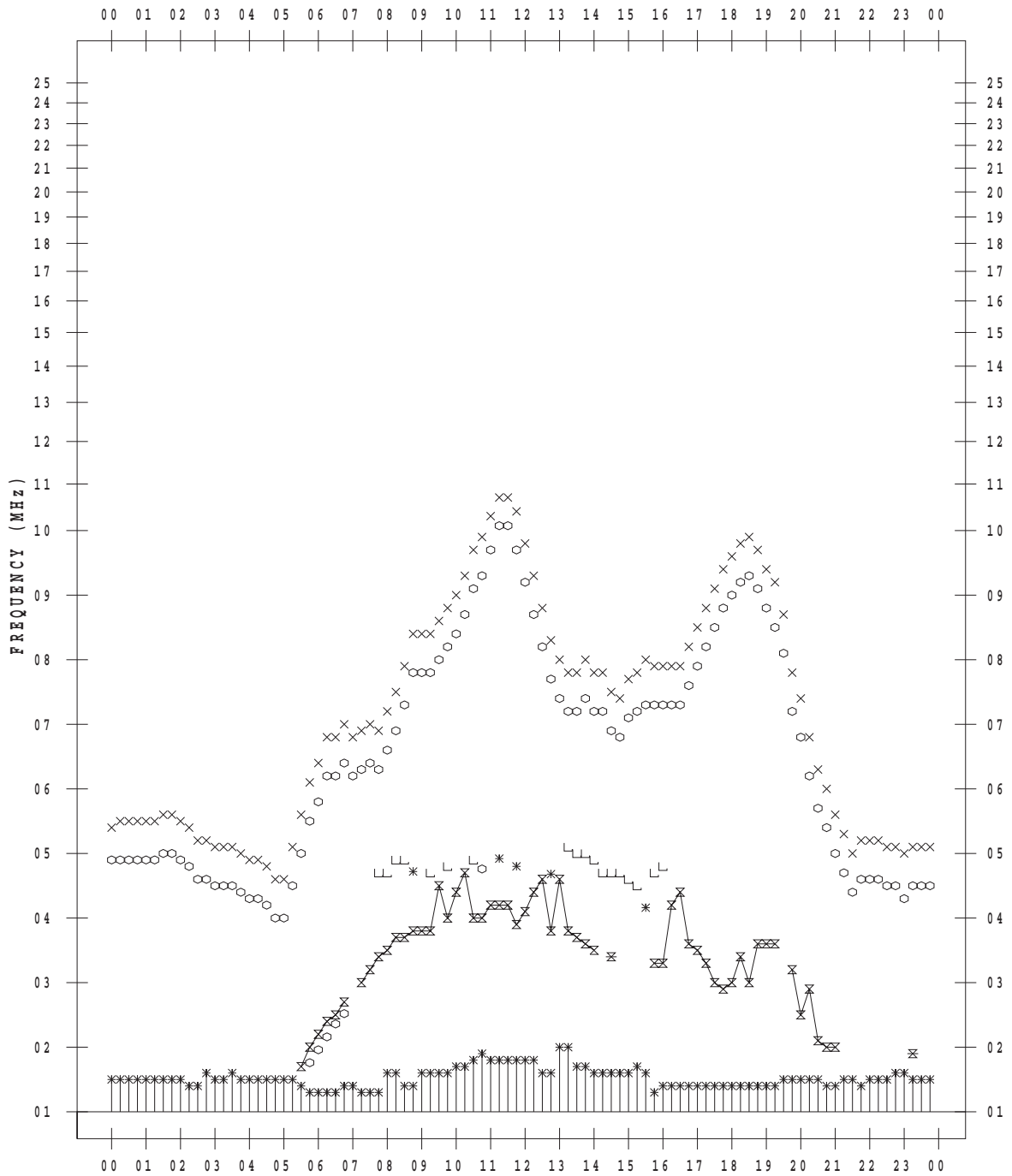
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 7

135 ° E MEAN TIME



f - PLOT DATA

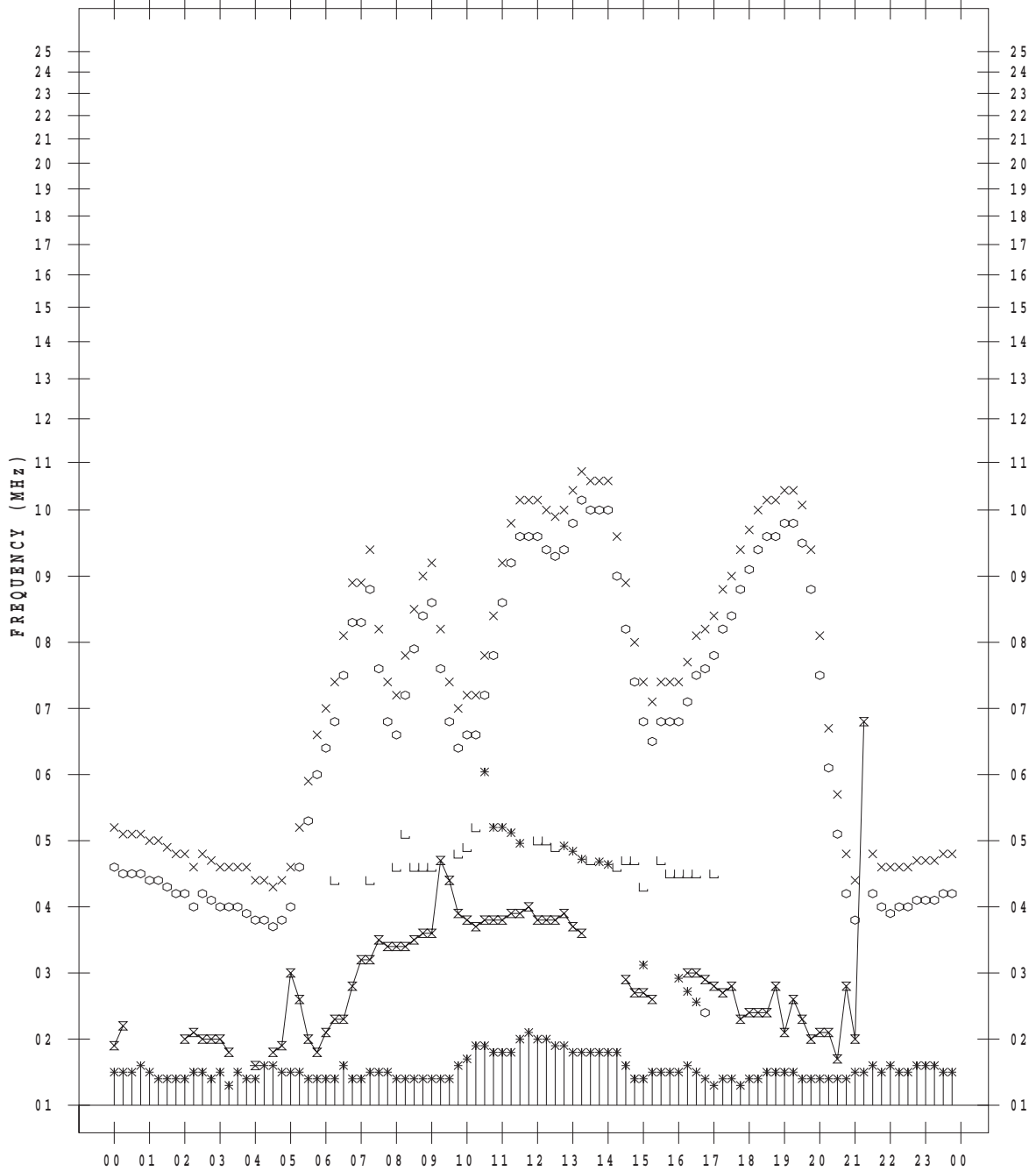
SCALER : I.NISHIMUTA

STATION : Kokubunji

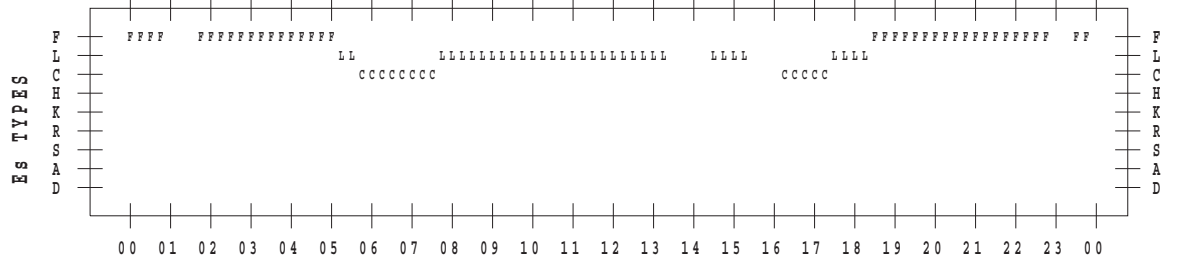
DATE : 2016 / 4 / 8

135 ° E MEAN TIME

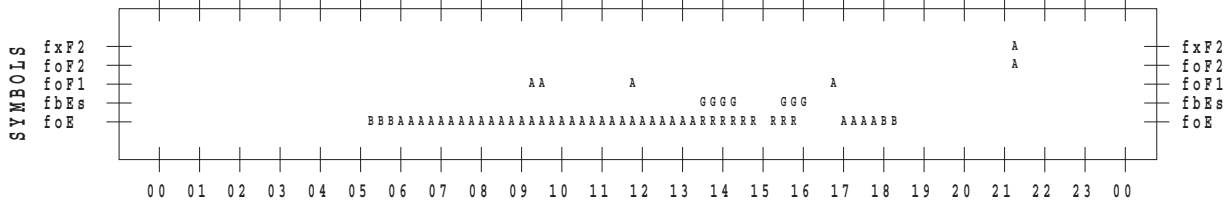
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 00



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



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



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

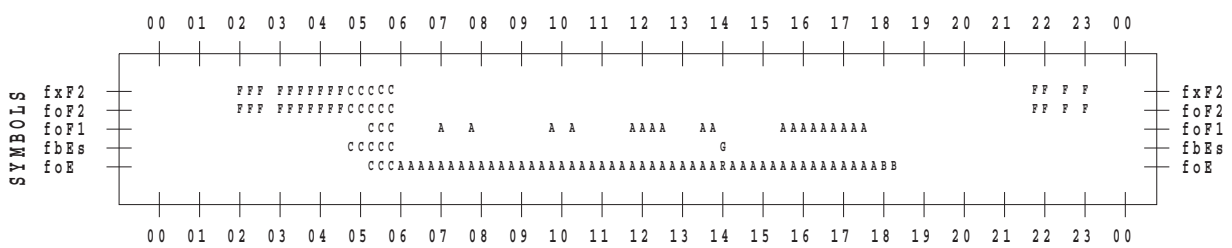
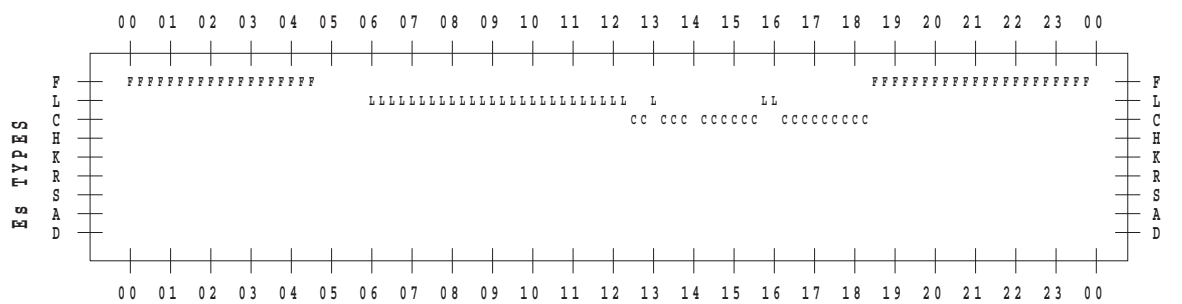
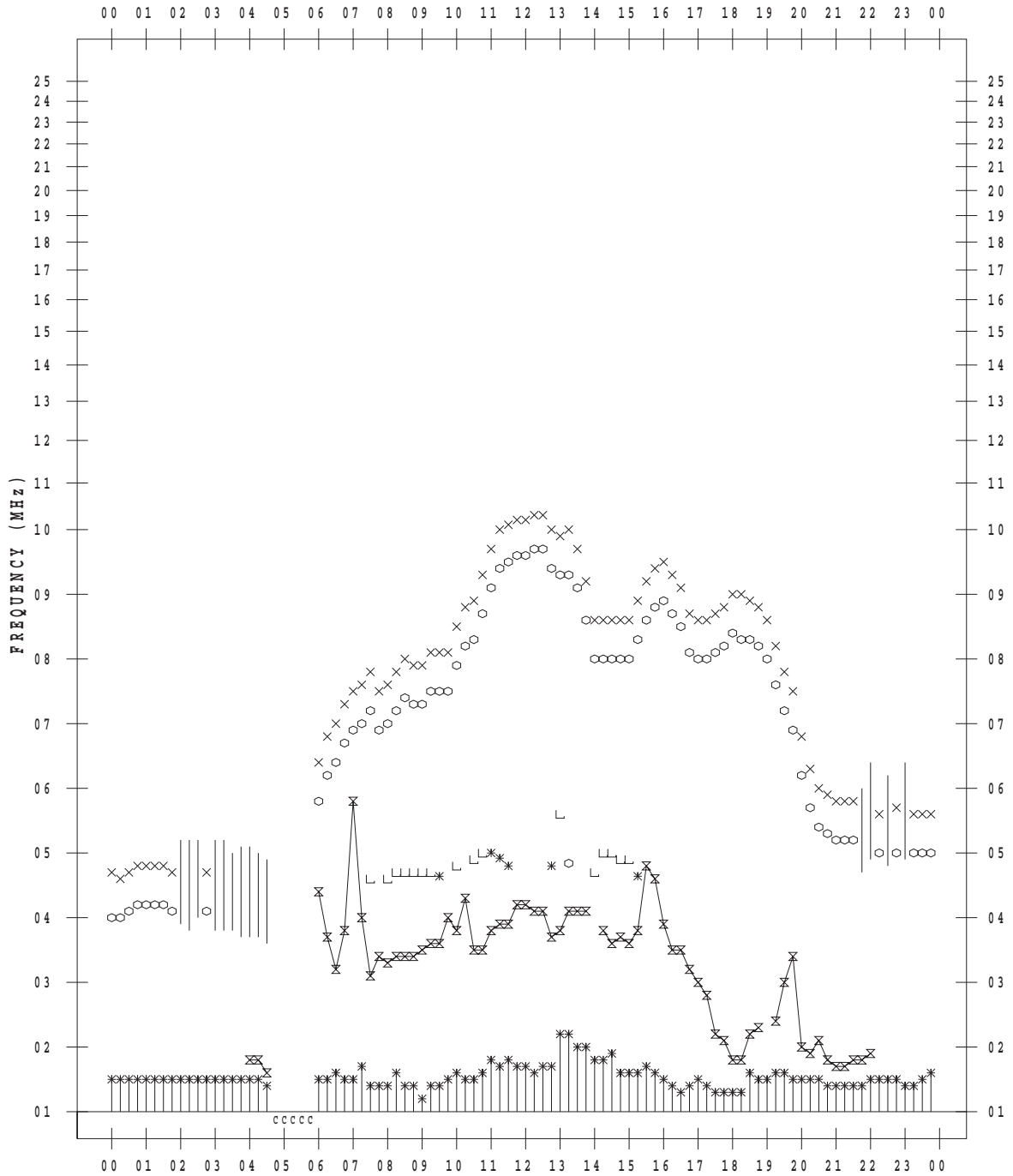
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 9

135 ° E MEAN TIME



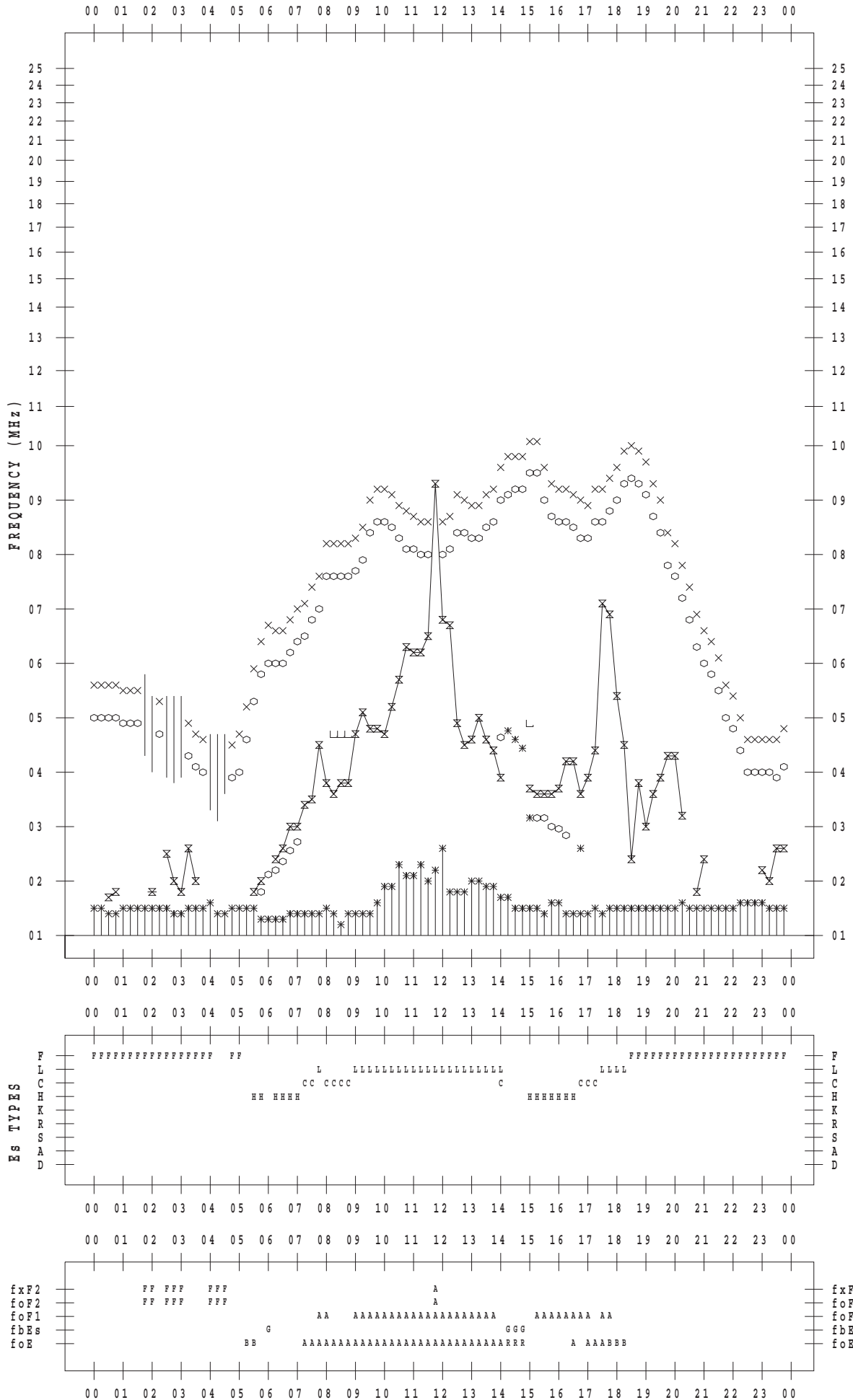
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 10

135 ° E MEAN TIME



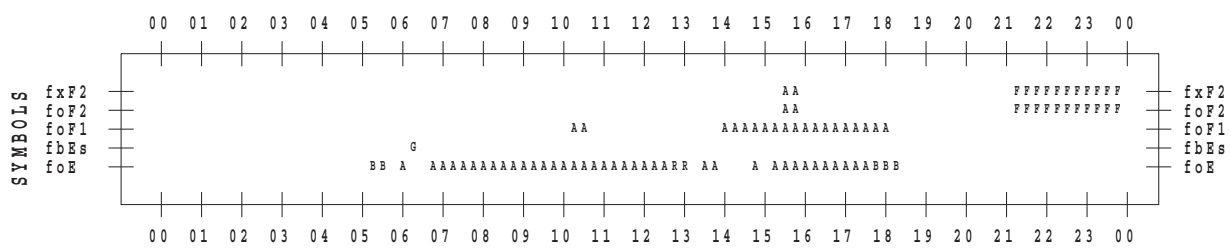
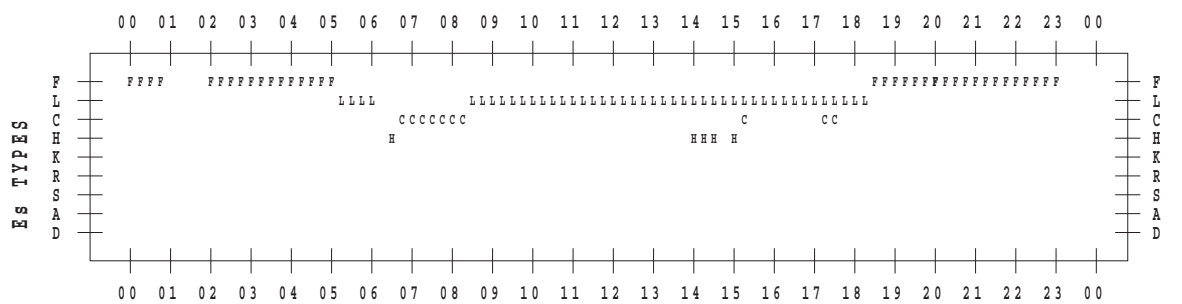
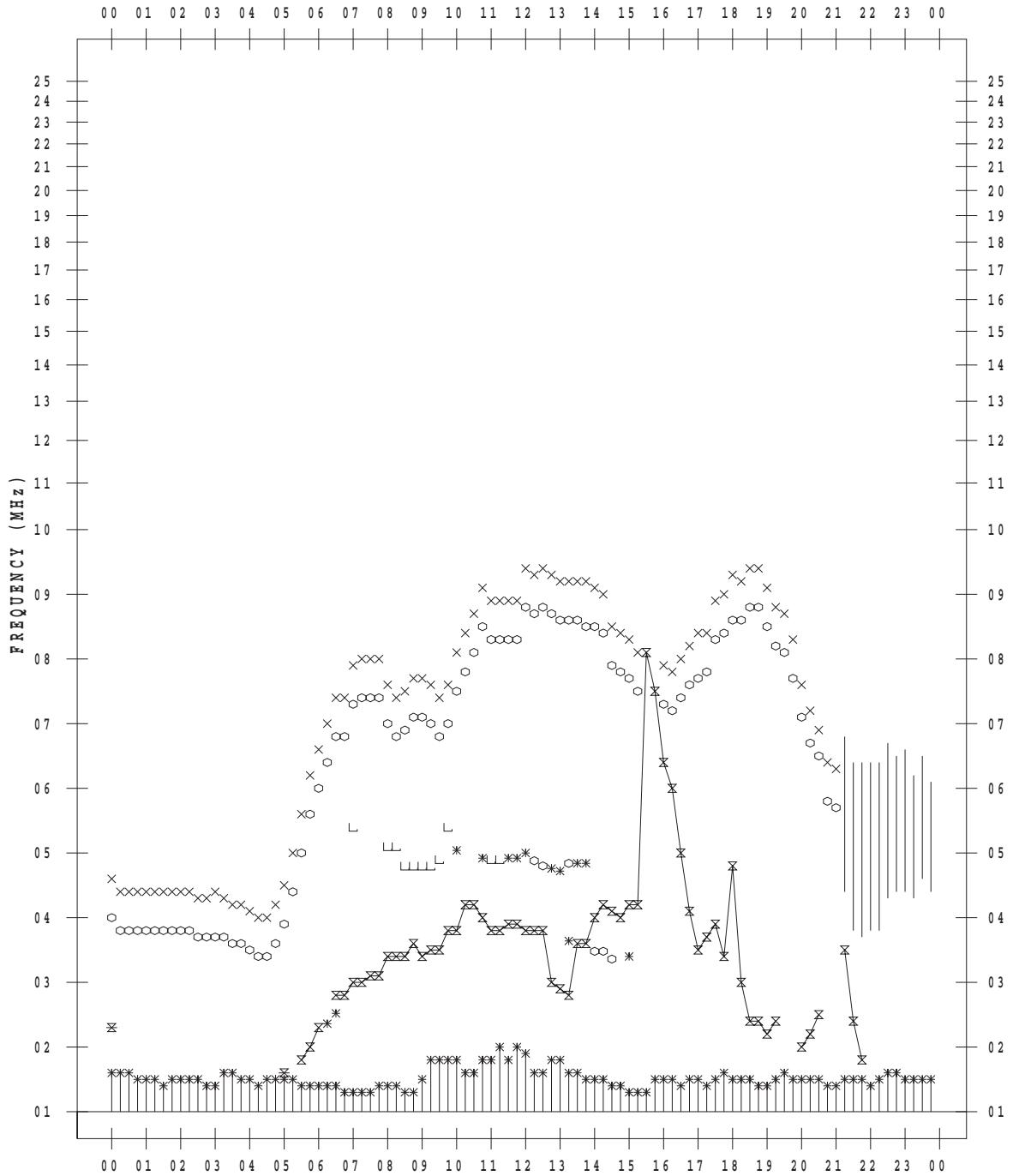
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 11

135 ° E MEAN TIME



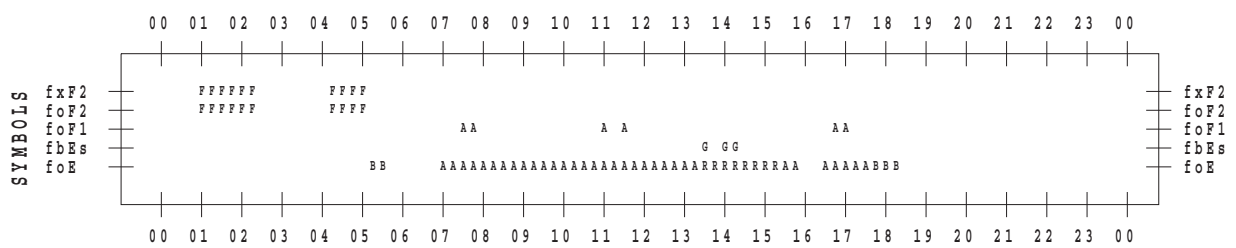
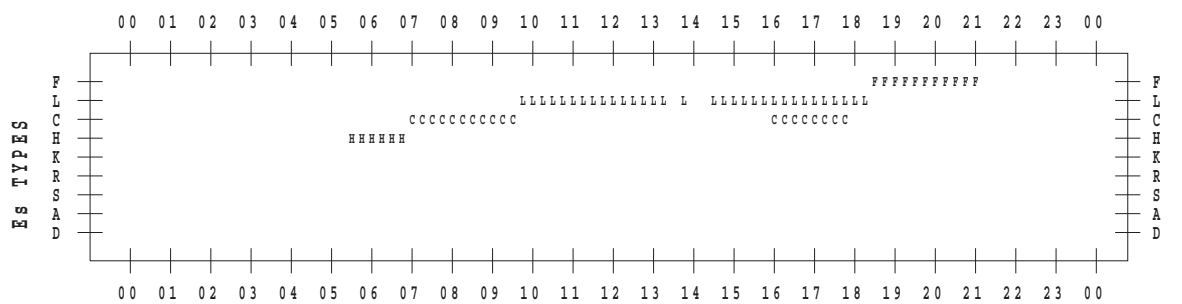
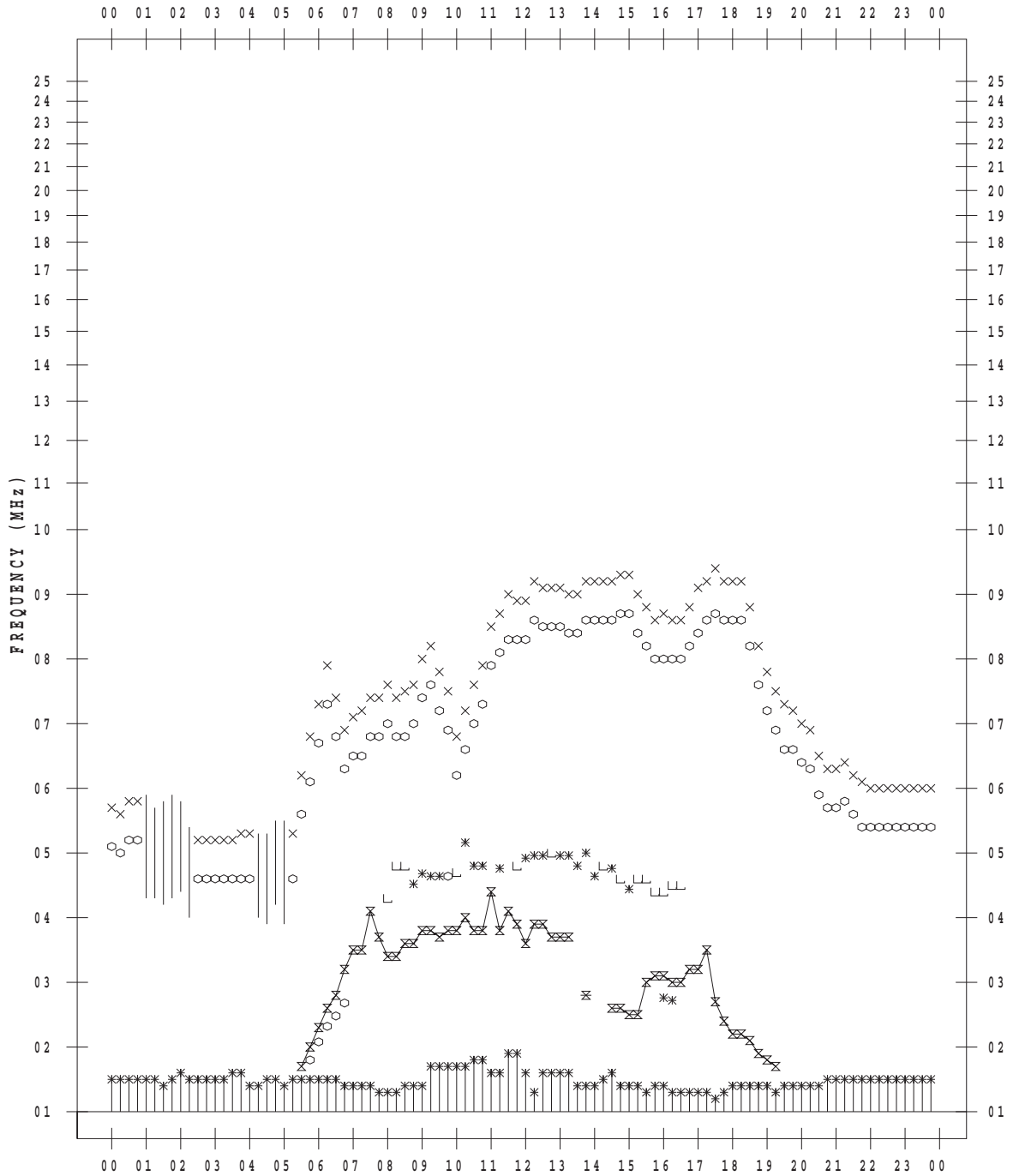
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 12

135 ° E MEAN TIME



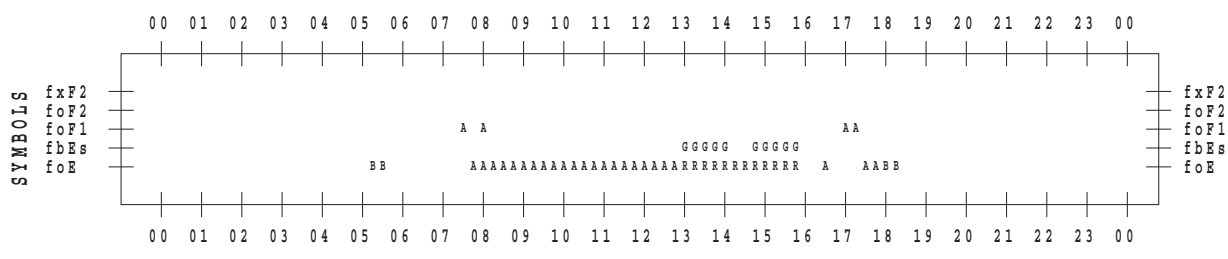
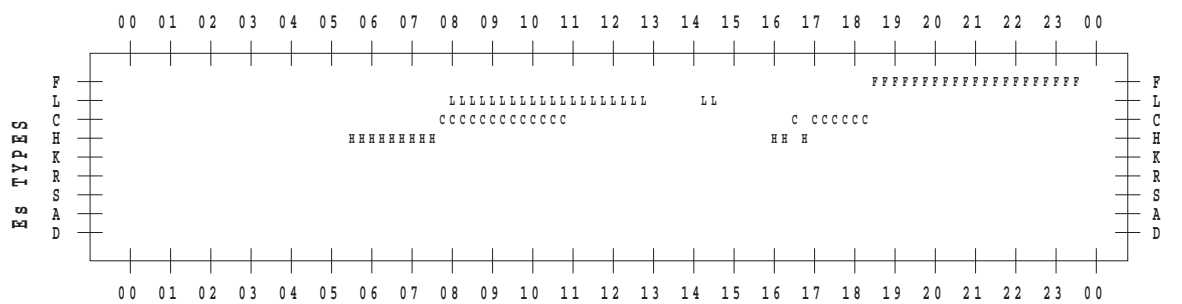
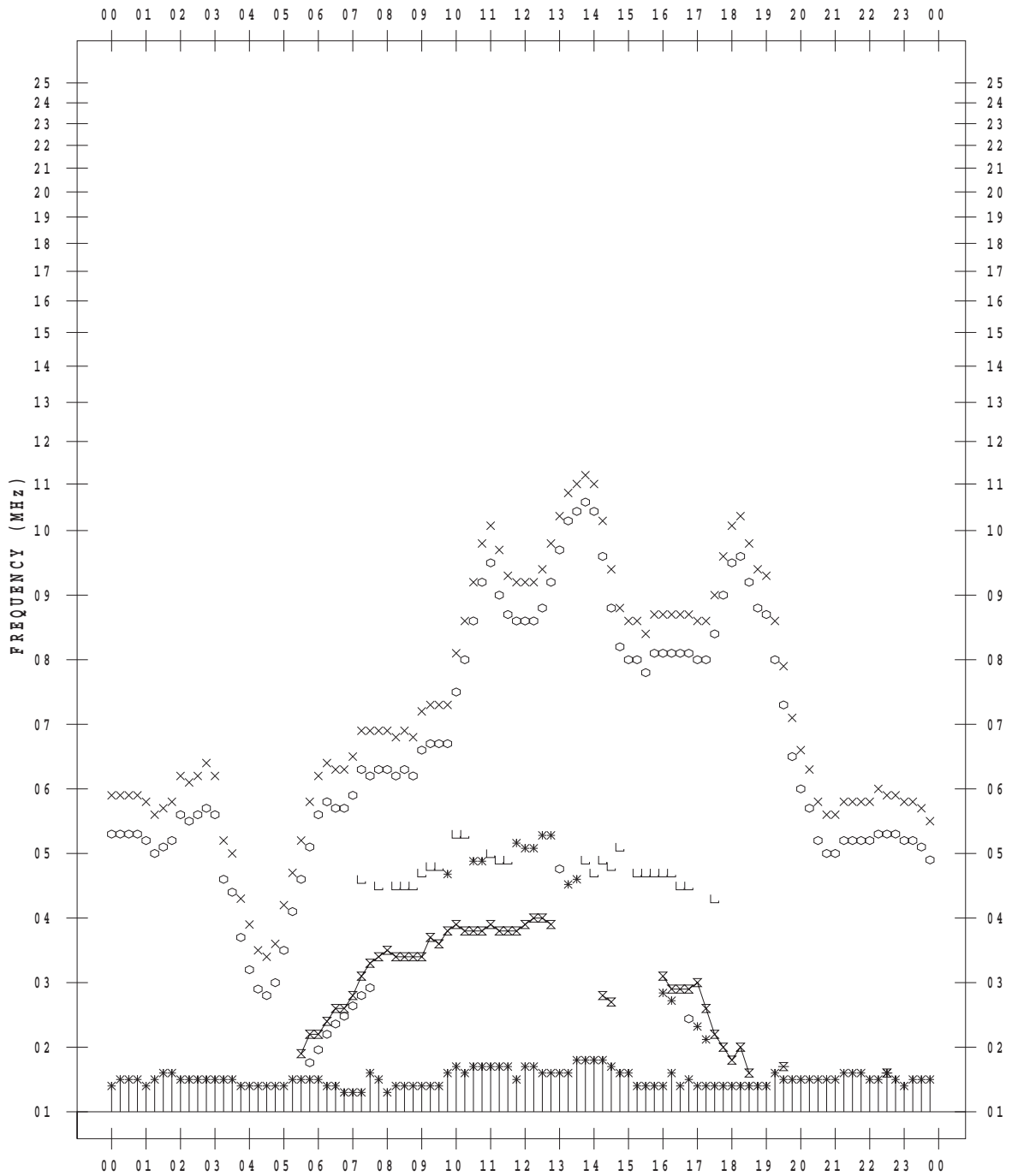
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 13

135 ° E MEAN TIME



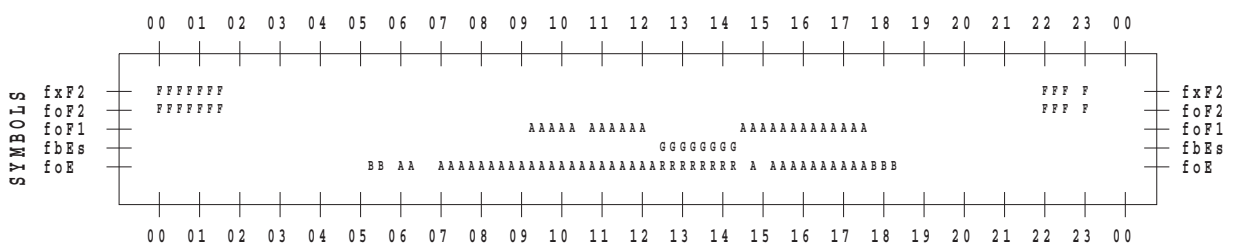
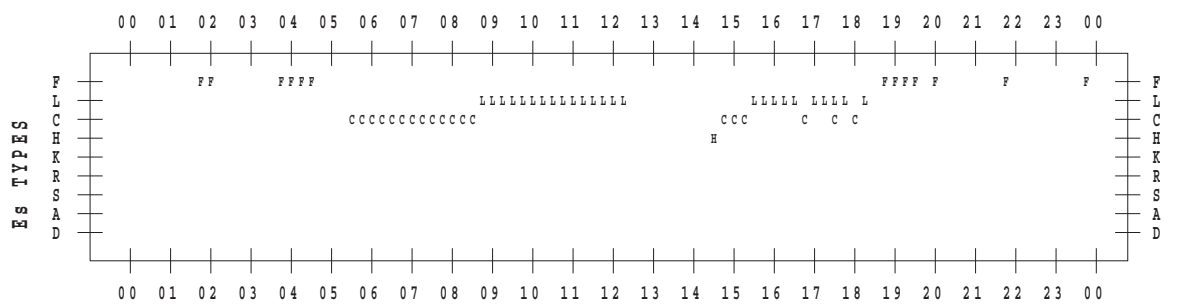
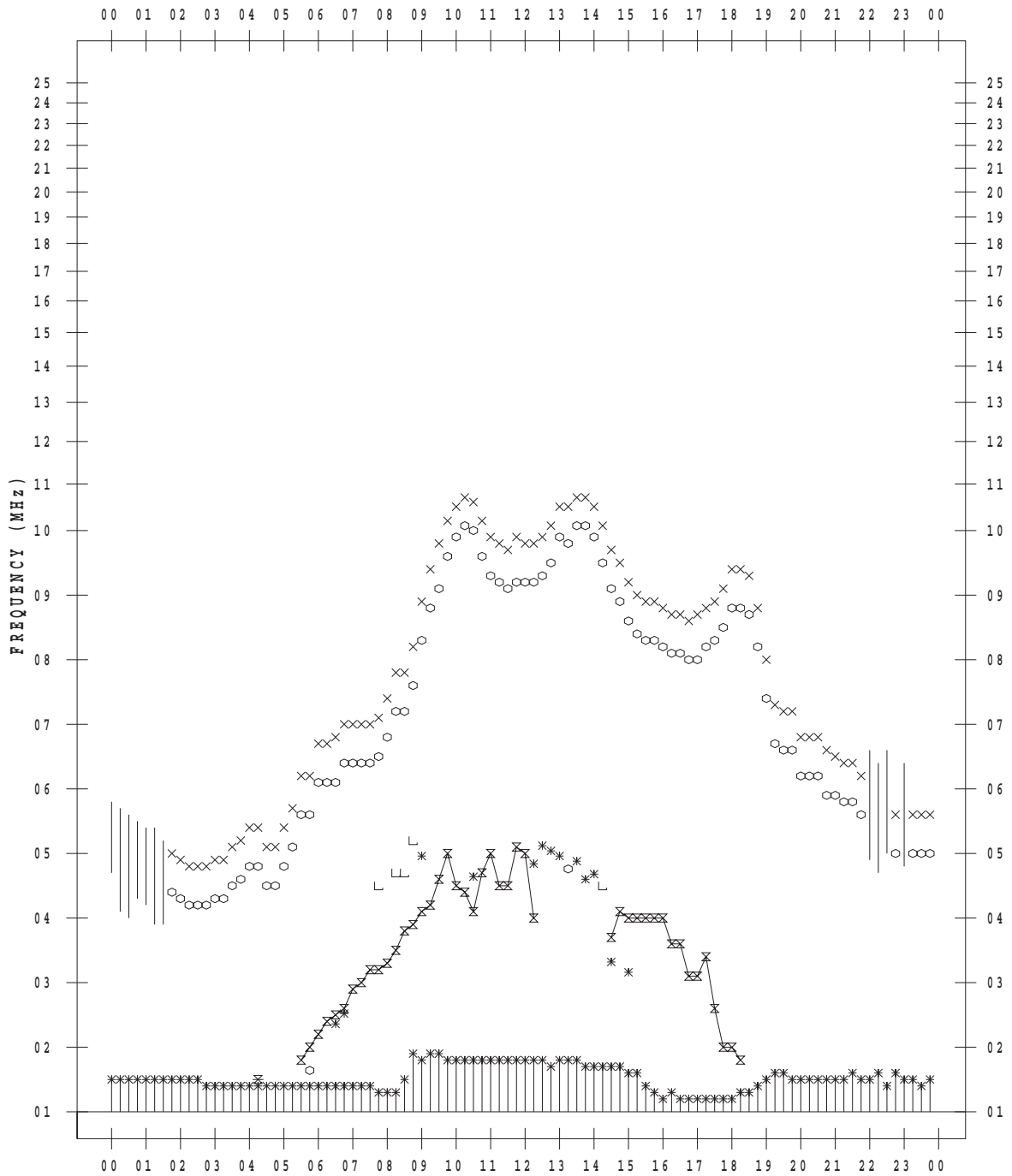
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 14

135 ° E MEAN TIME



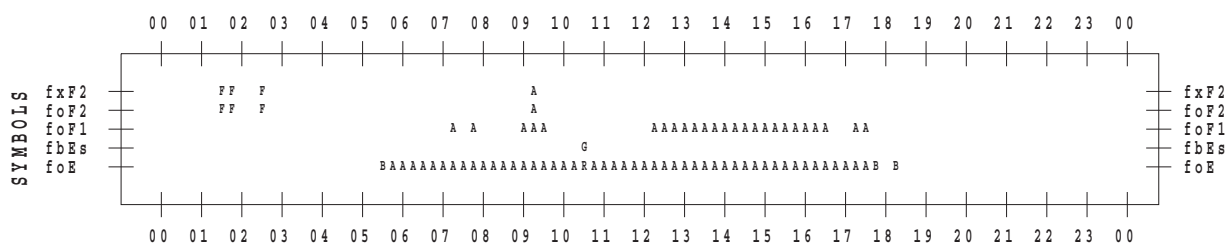
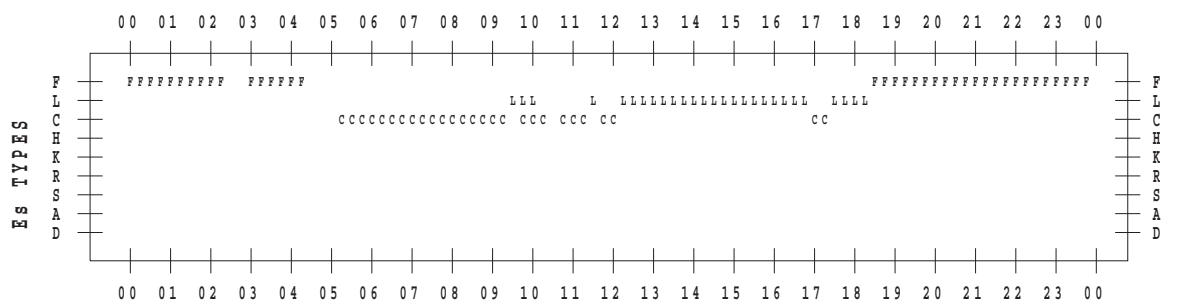
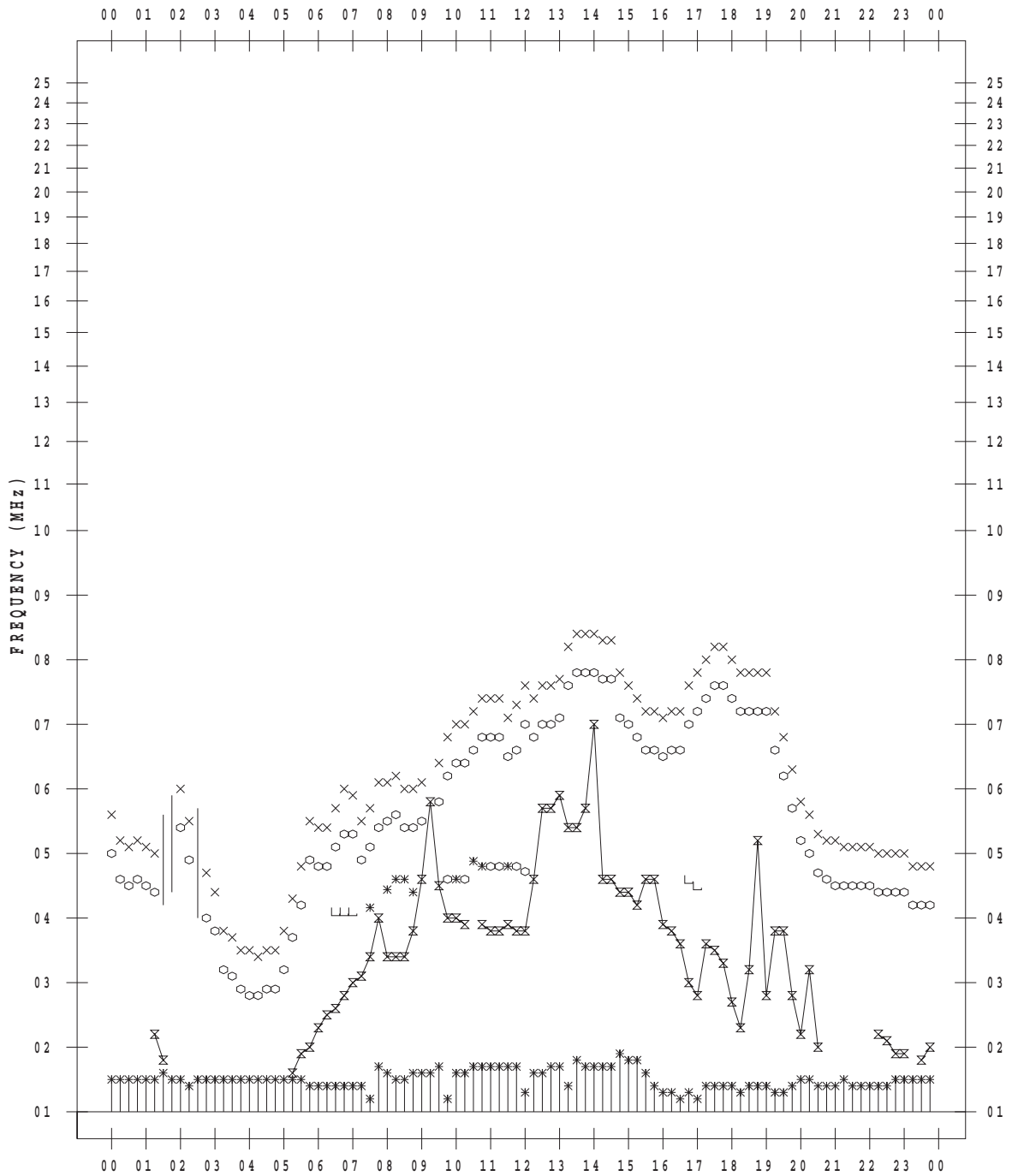
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 15

135 ° E MEAN TIME



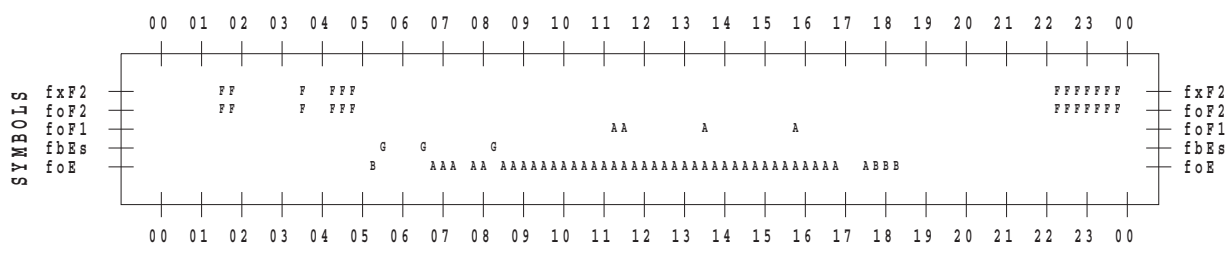
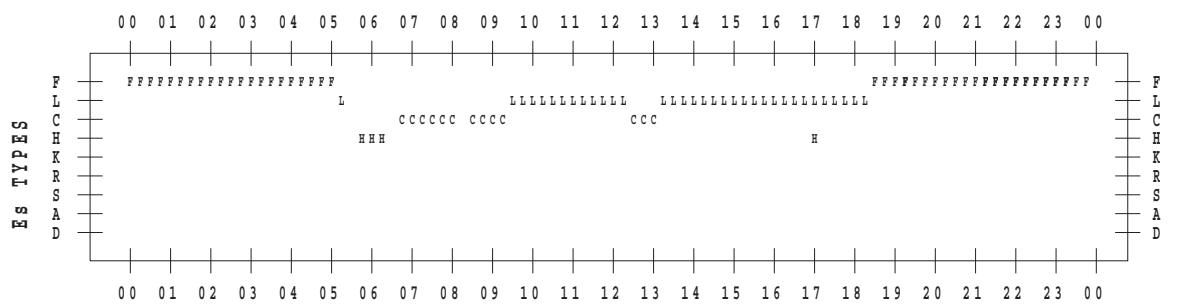
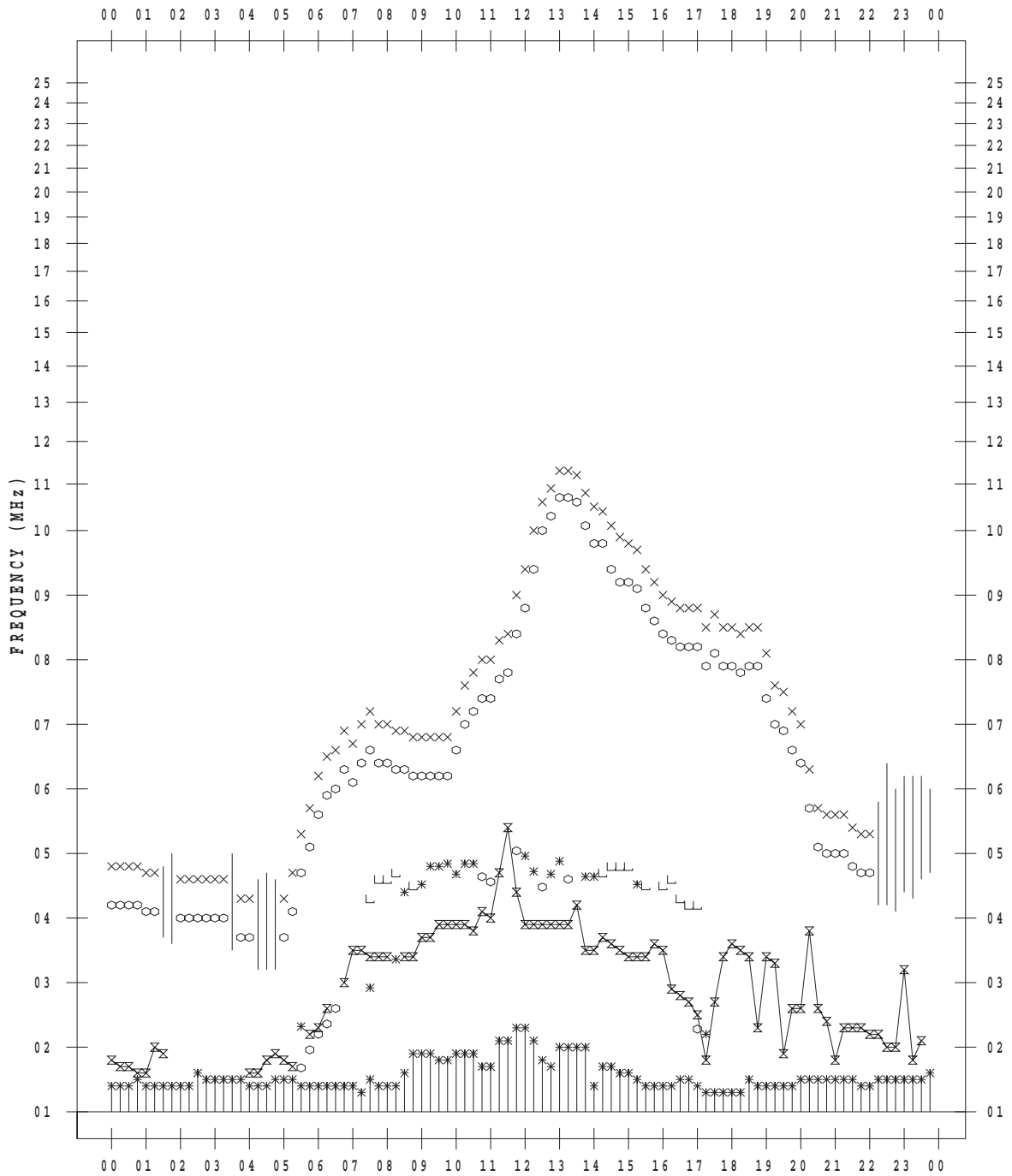
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 16

135 ° E MEAN TIME



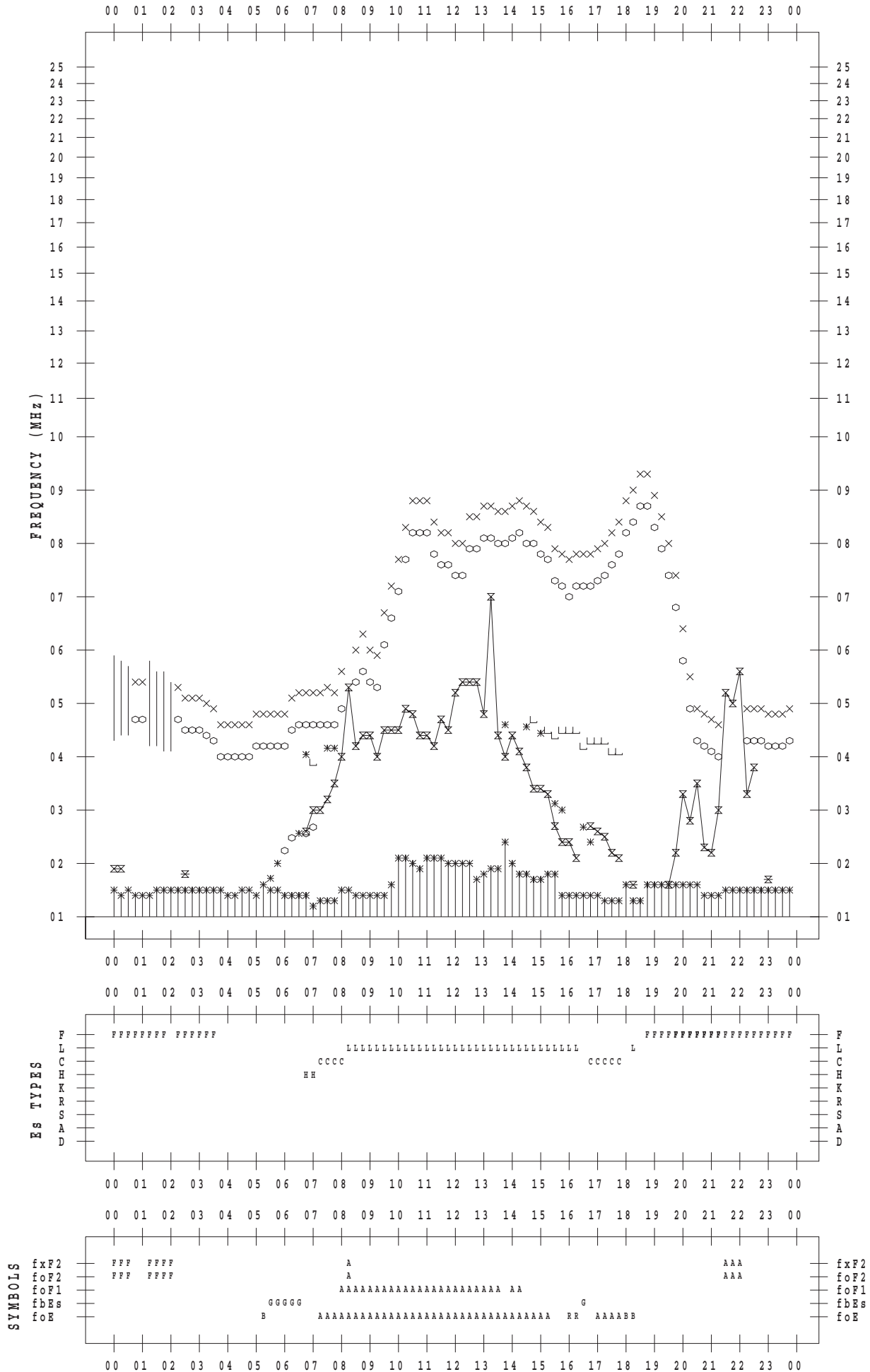
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 17

135 ° E MEAN TIME



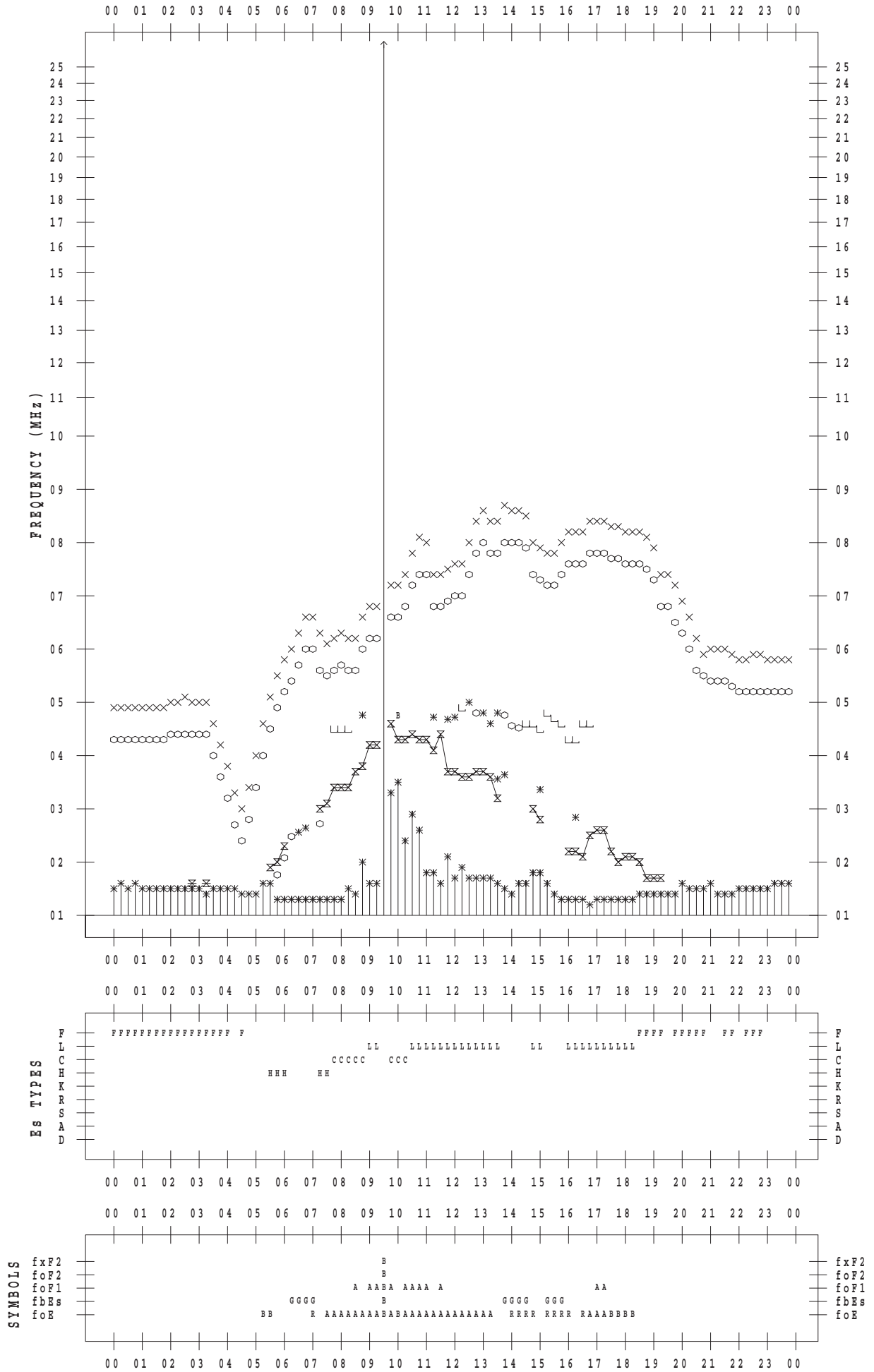
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 18

135 ° E MEAN TIME



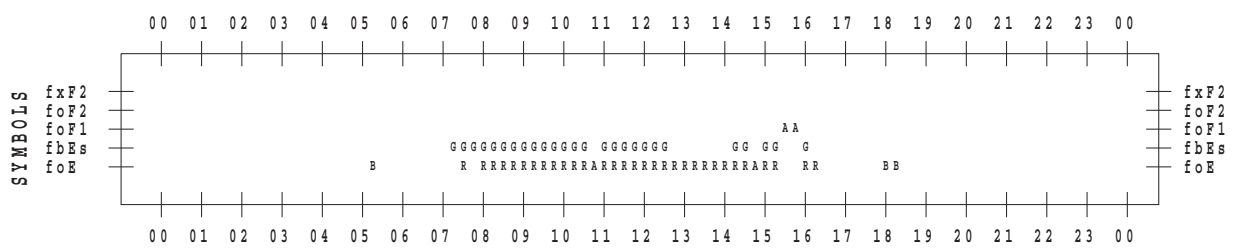
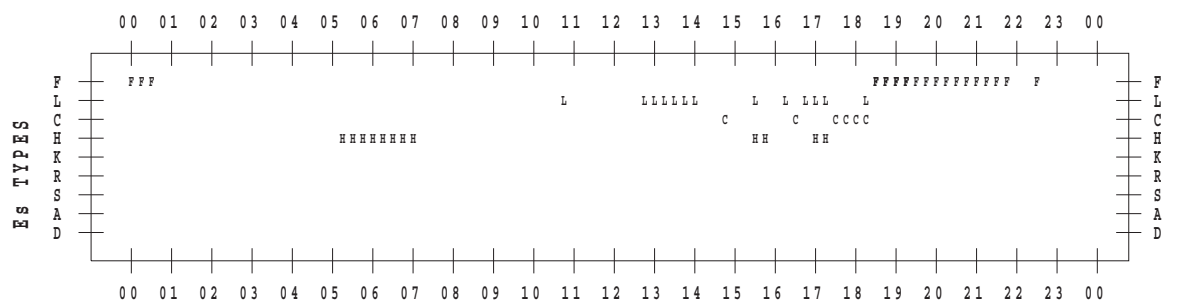
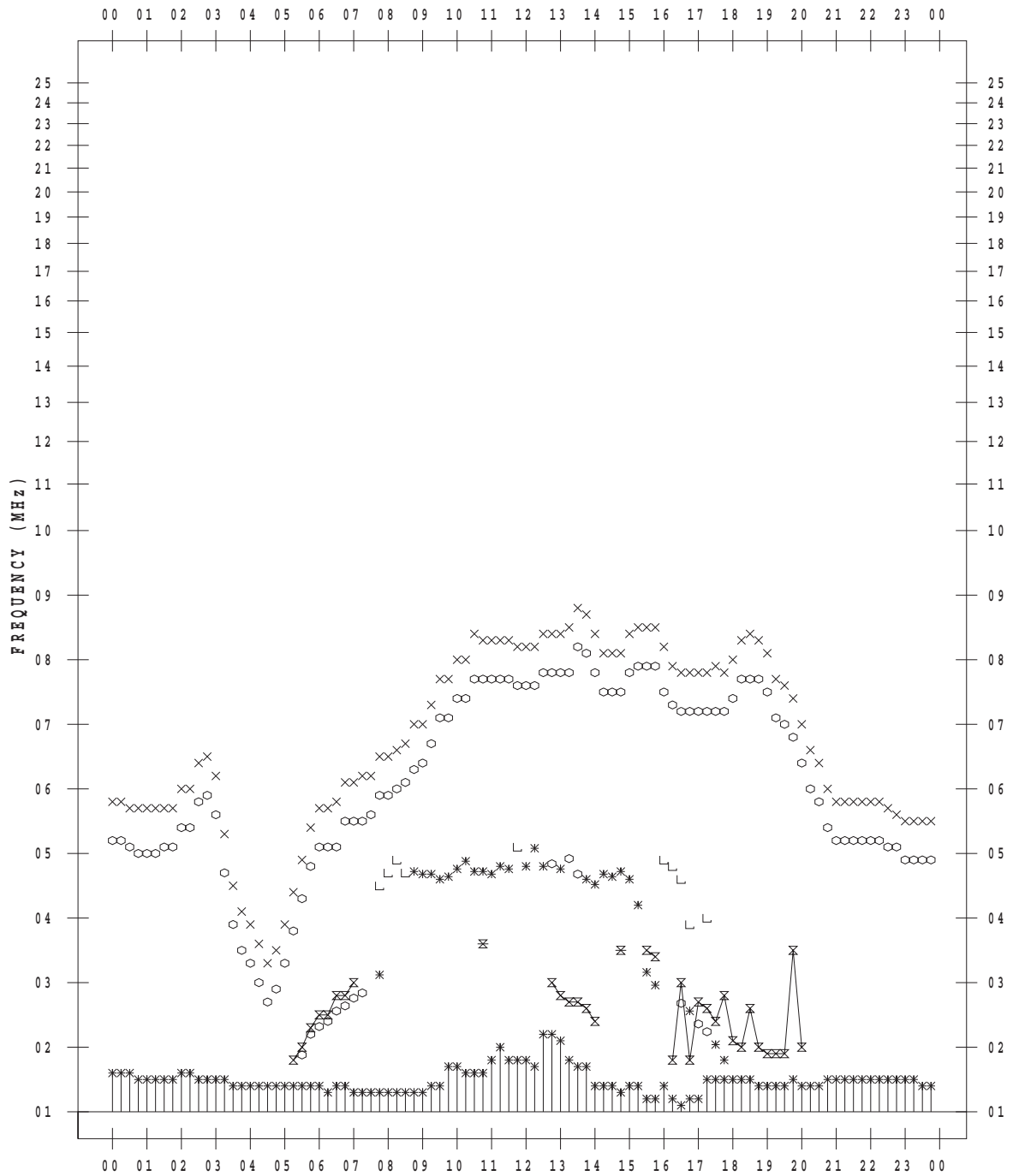
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 19

135 ° E MEAN TIME



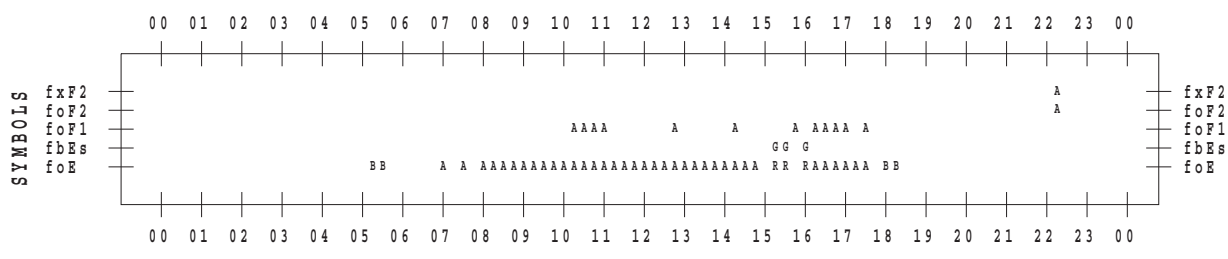
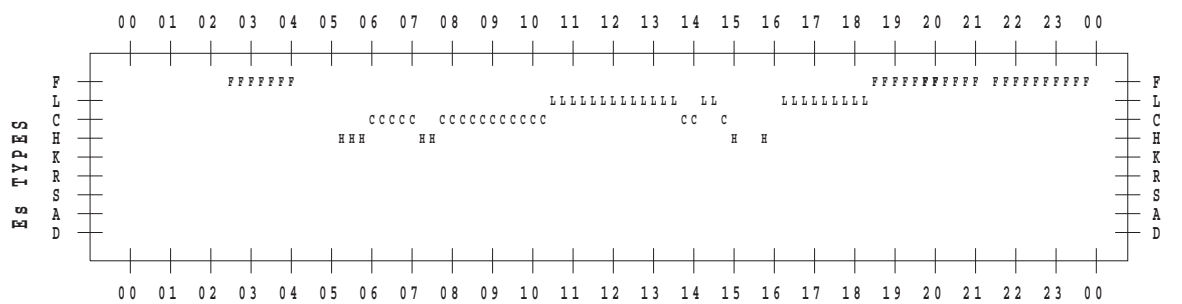
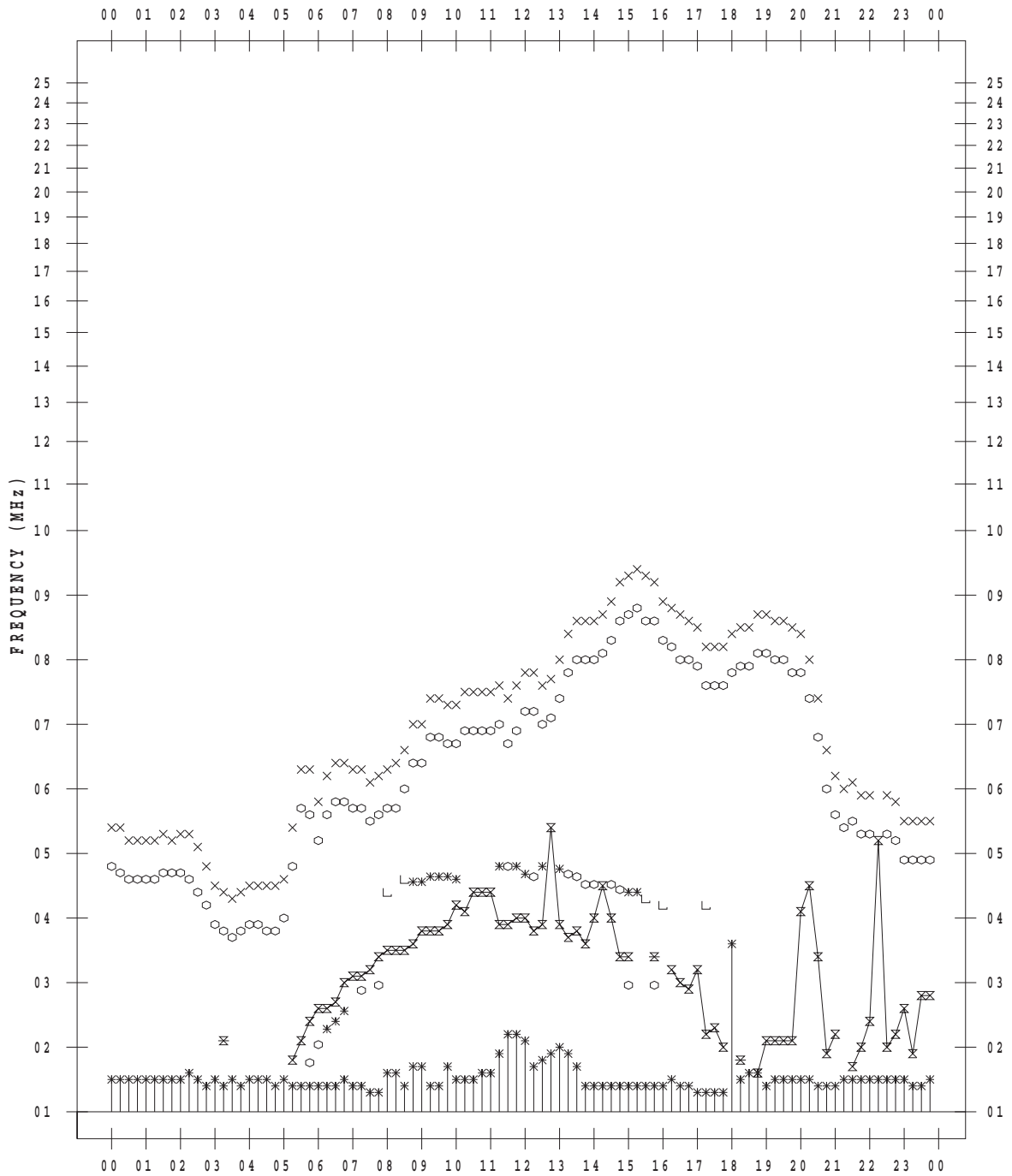
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 20

135 ° E MEAN TIME



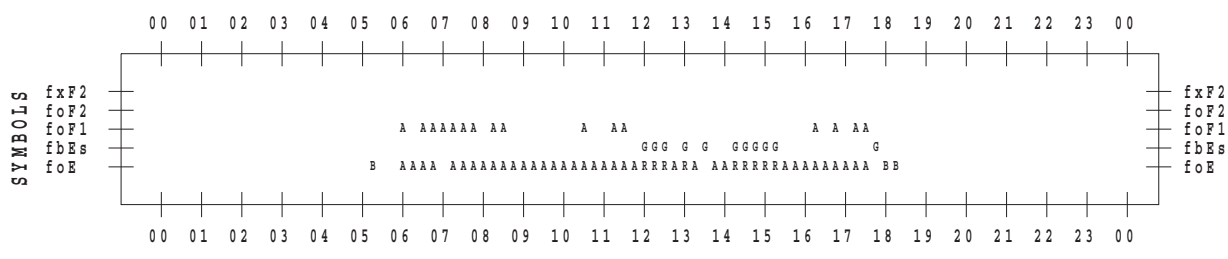
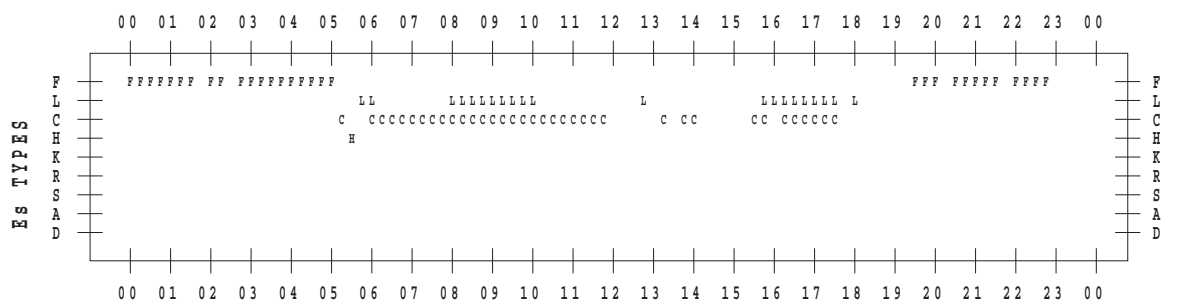
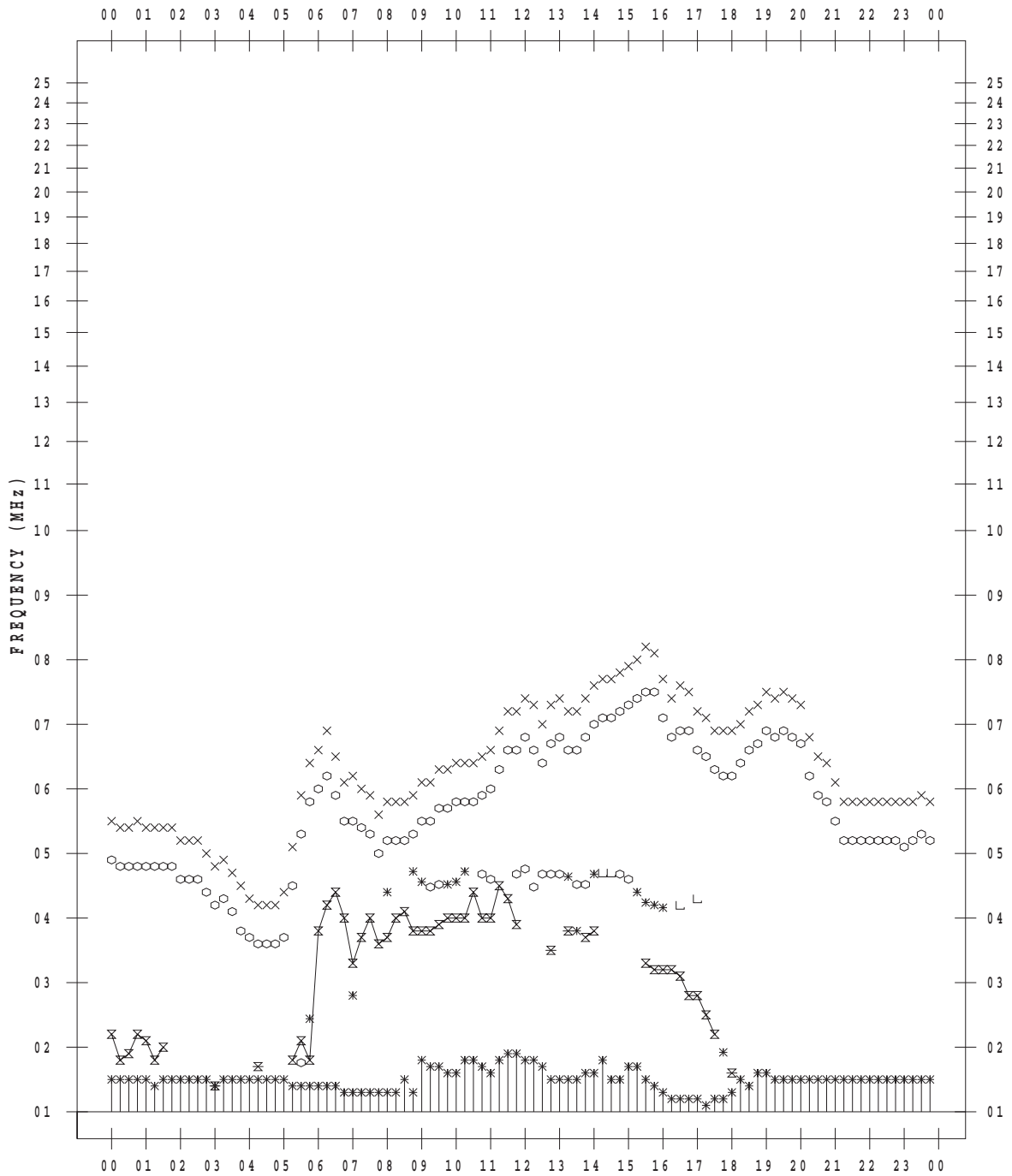
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 21

135 ° E MEAN TIME



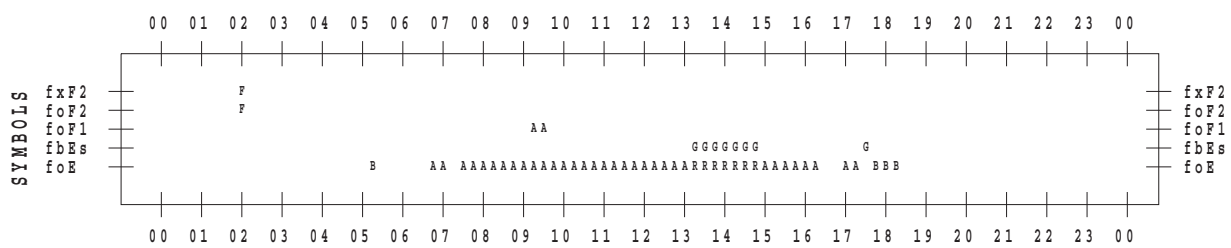
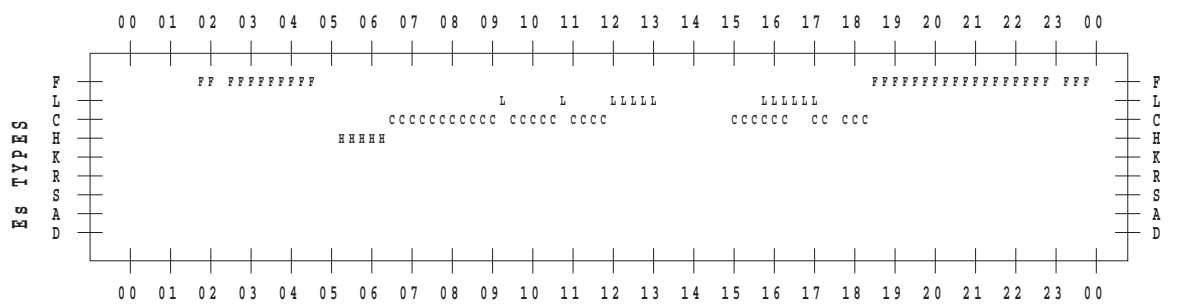
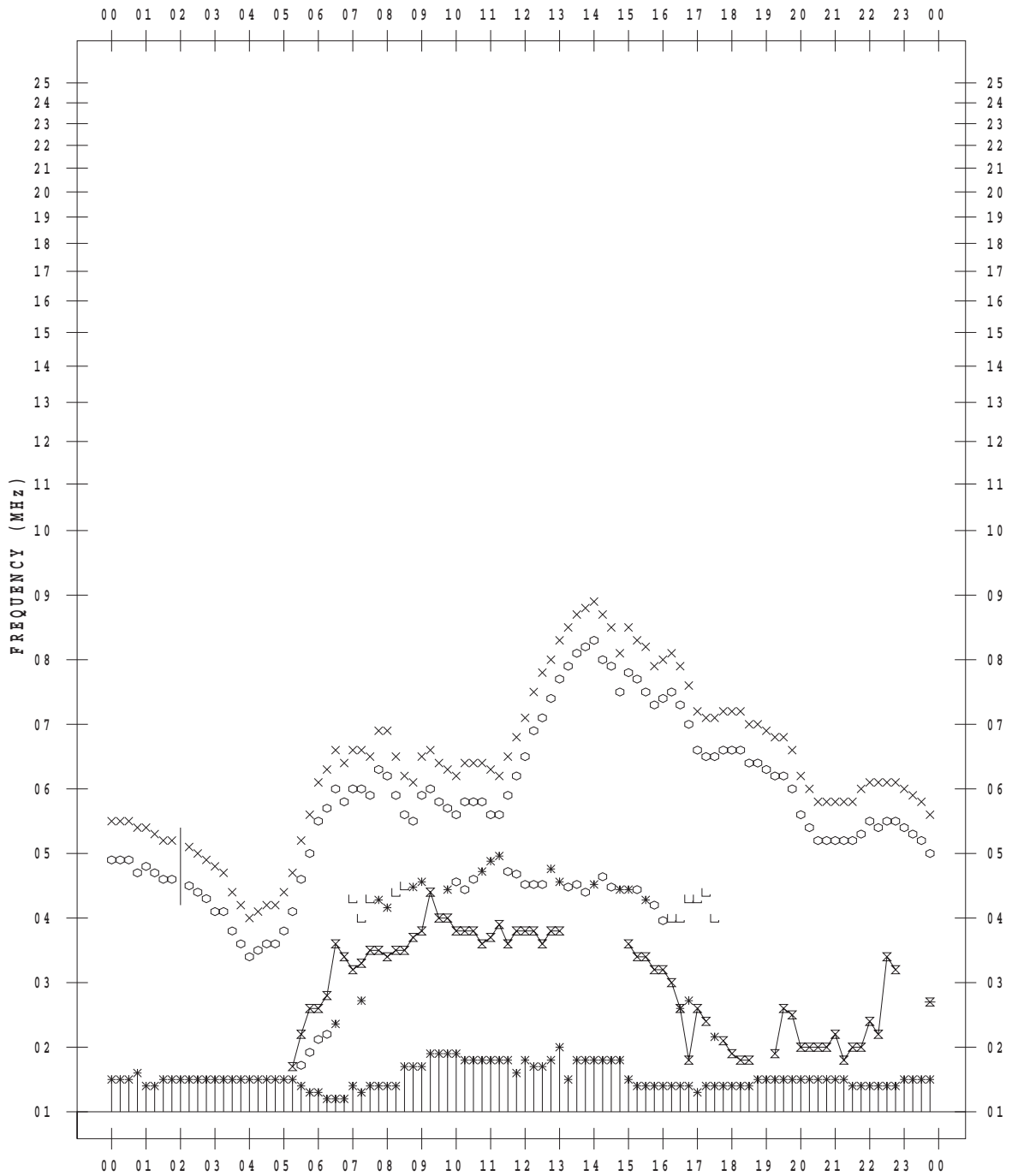
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 22

135 ° E MEAN TIME



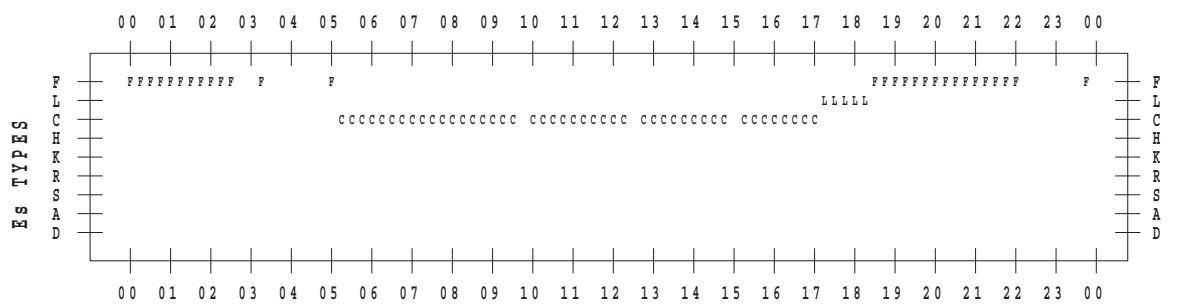
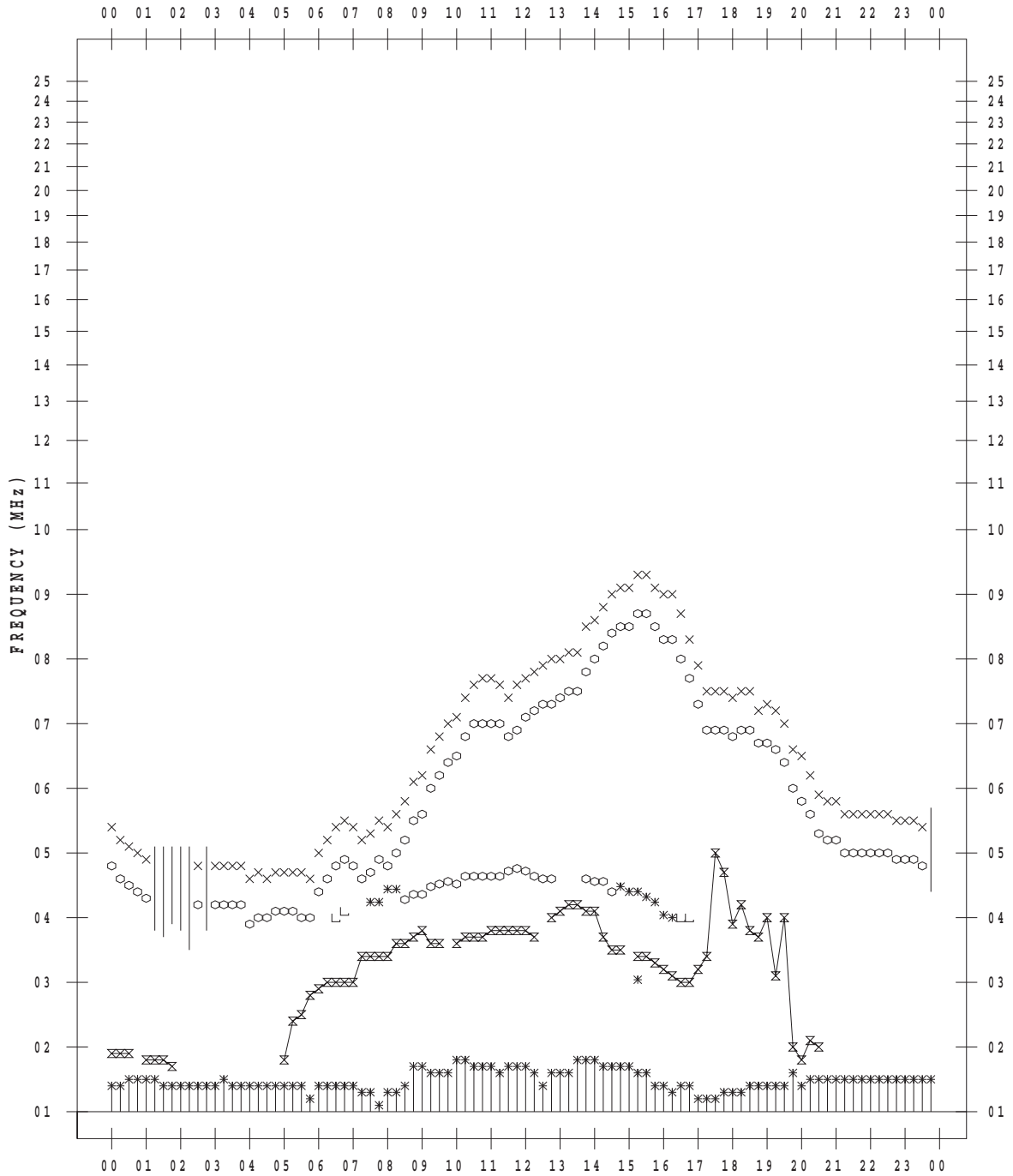
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 23

135 ° E MEAN TIME



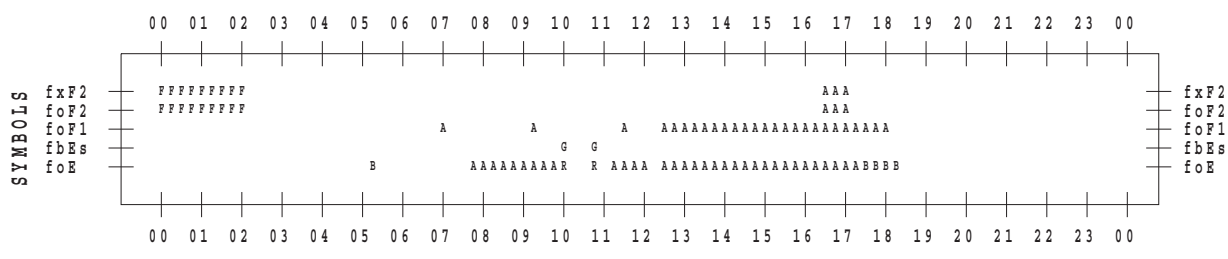
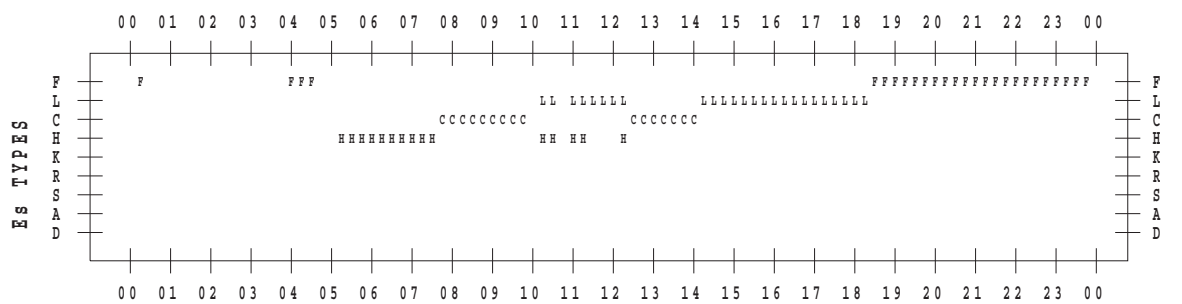
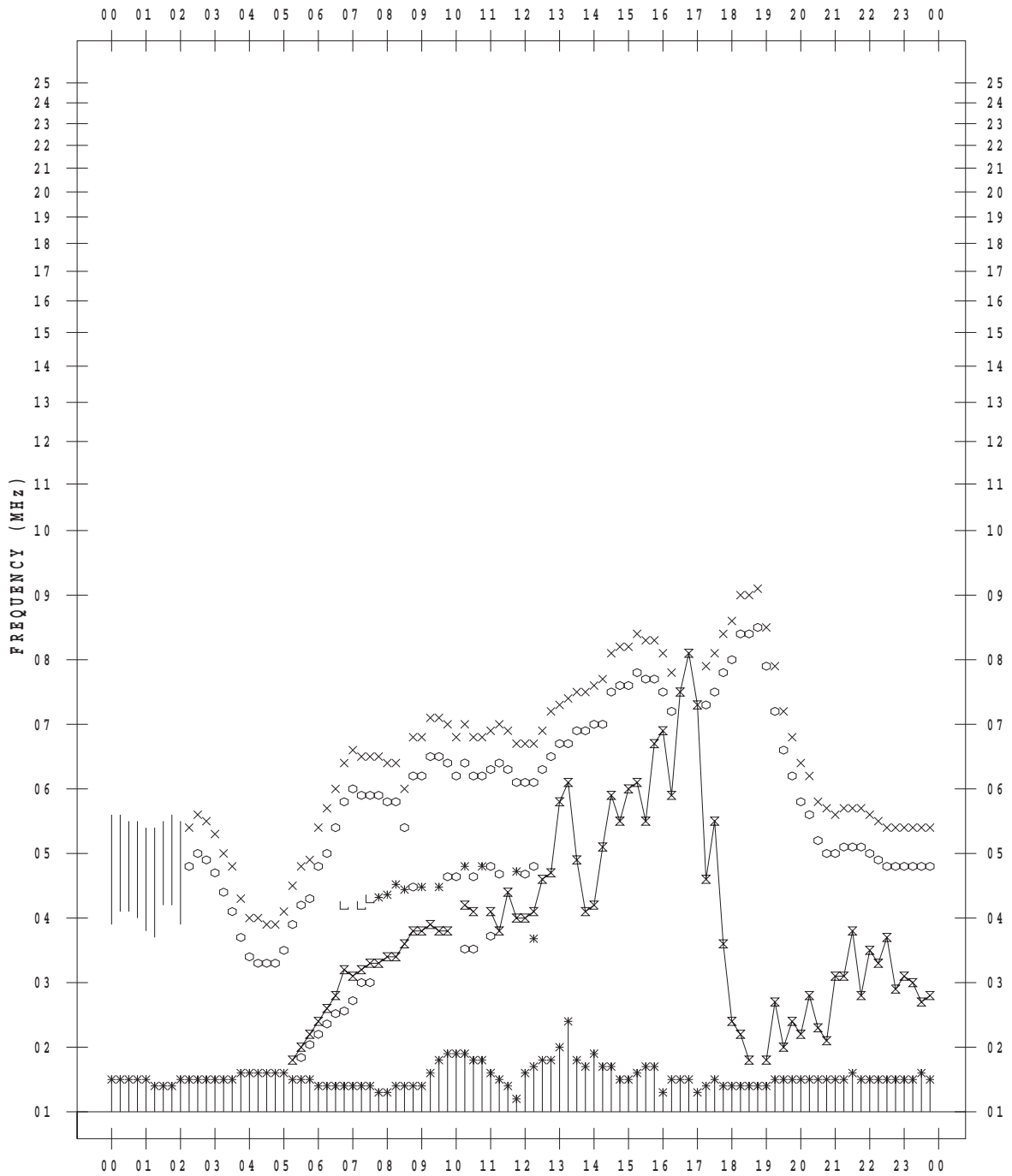
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 24

135 ° E MEAN TIME



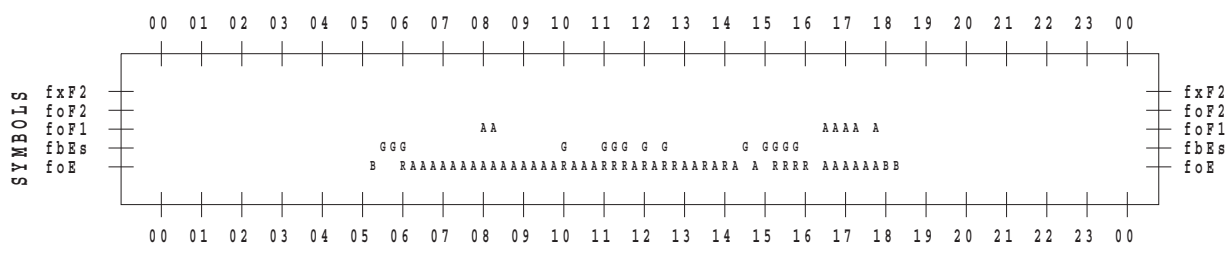
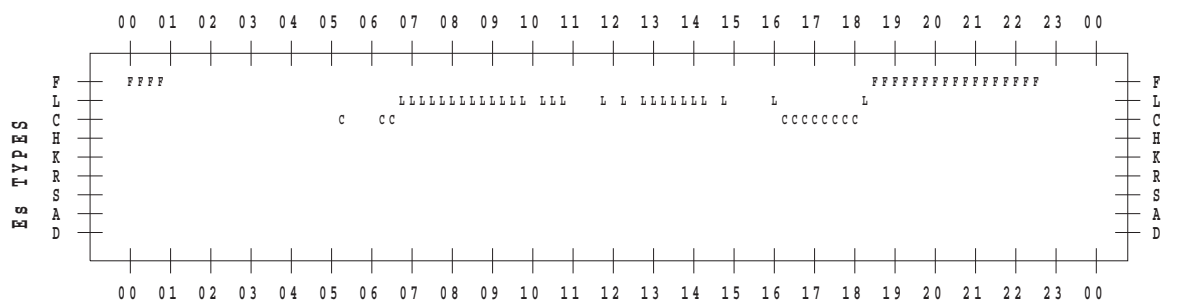
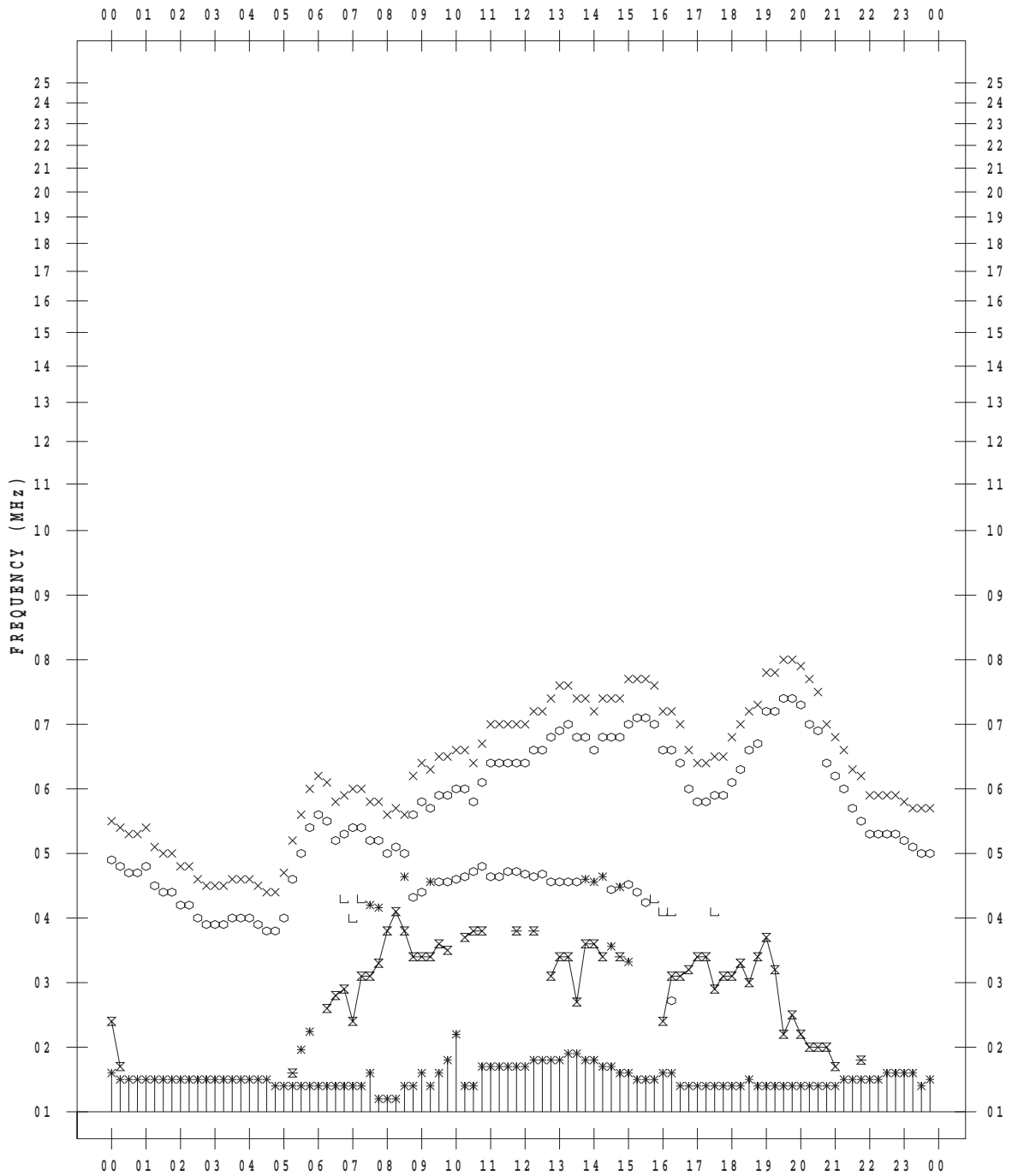
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 25

135 ° E MEAN TIME



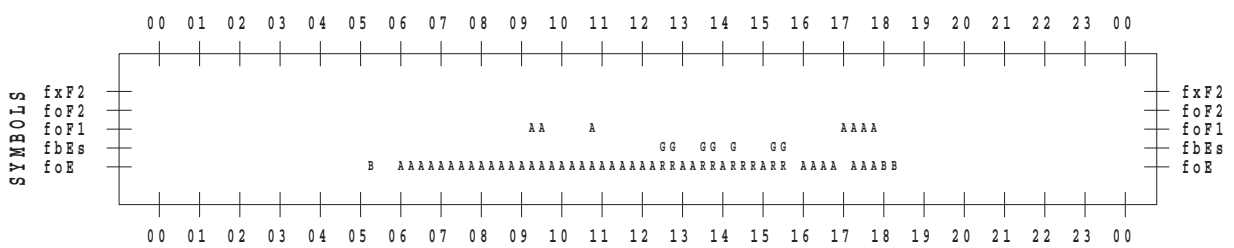
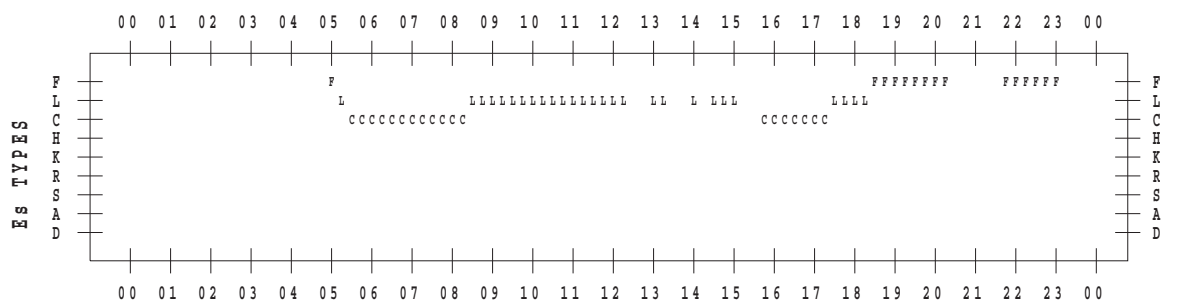
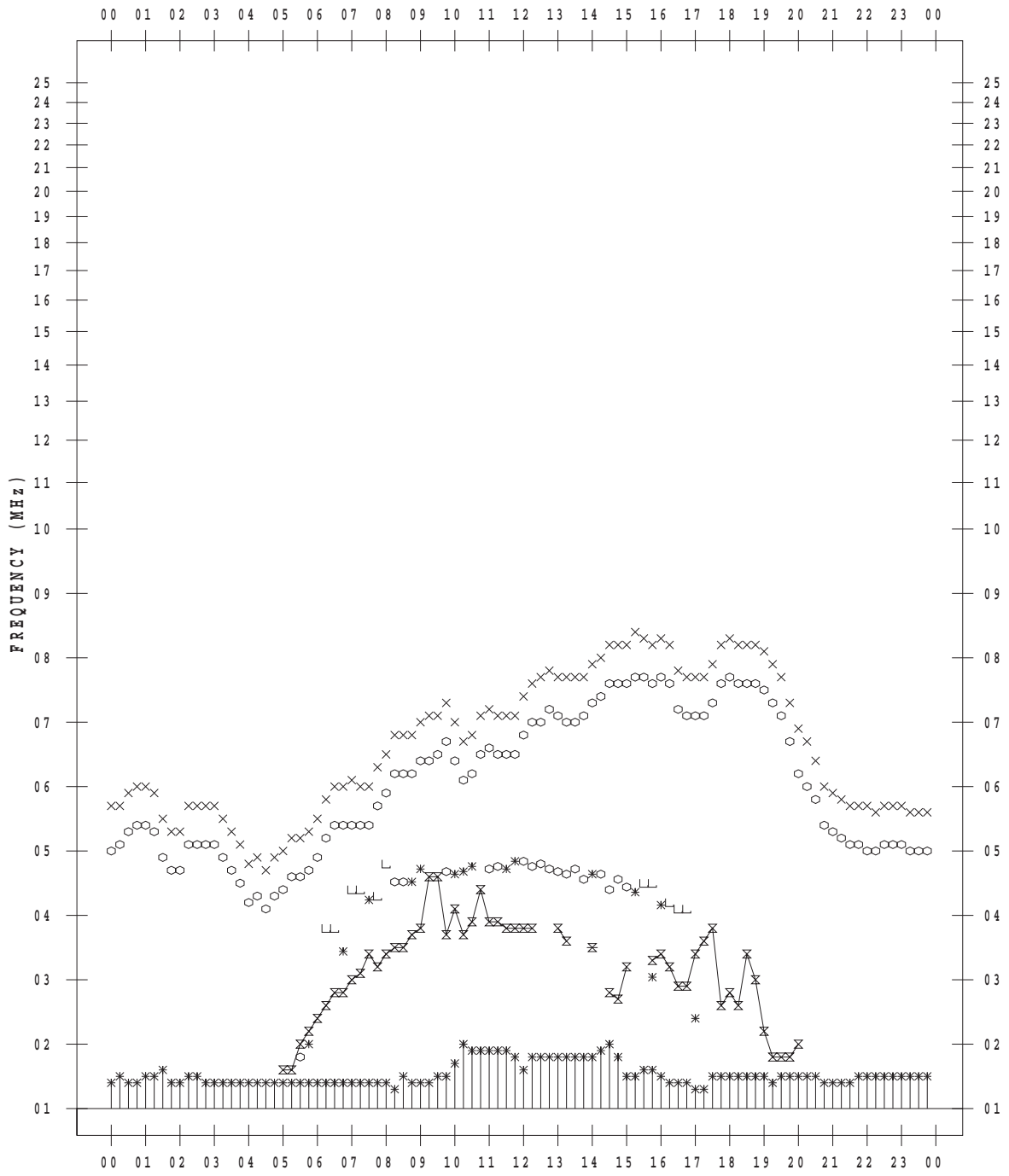
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 26

135 ° E MEAN TIME



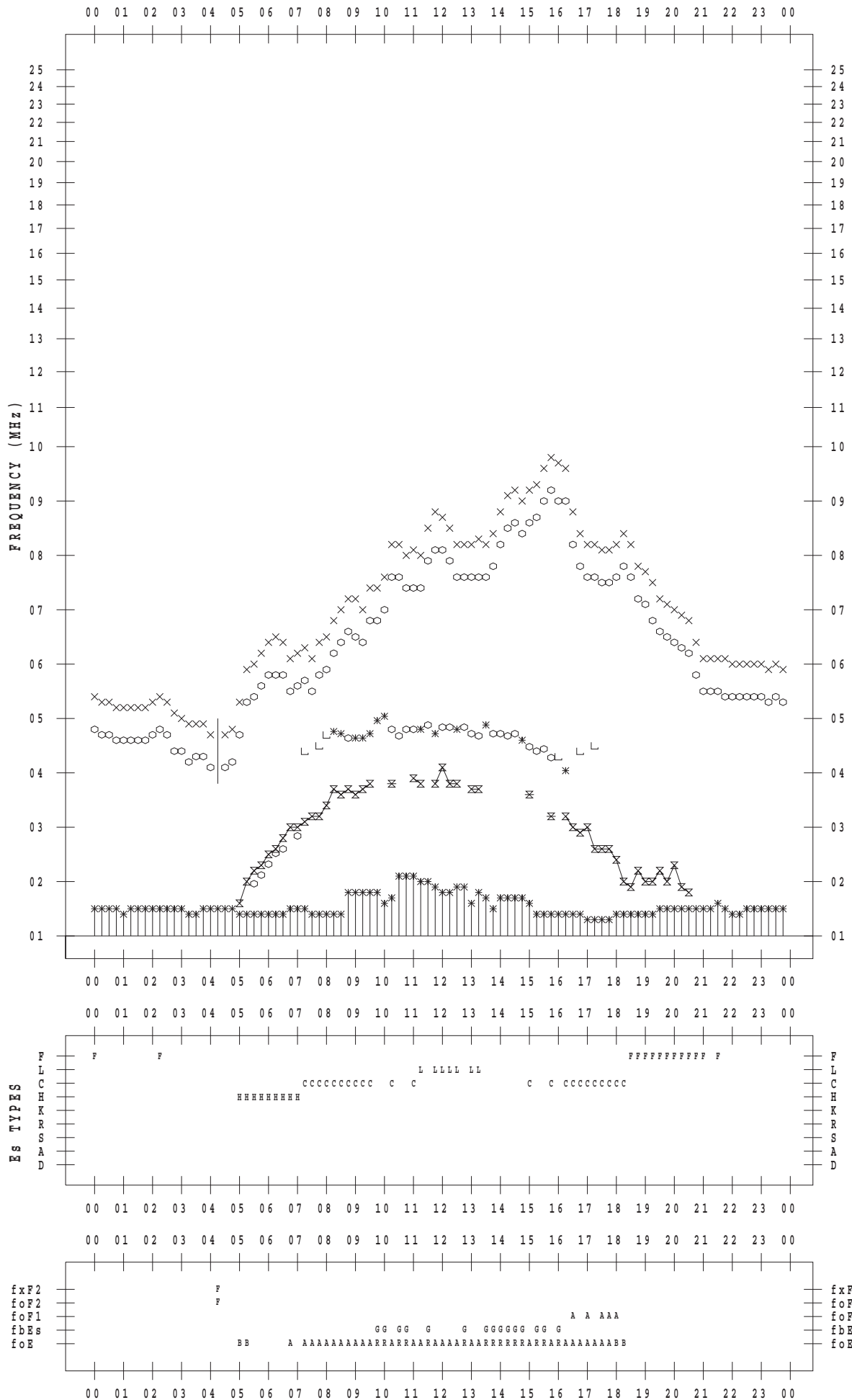
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 27

135 ° E MEAN TIME



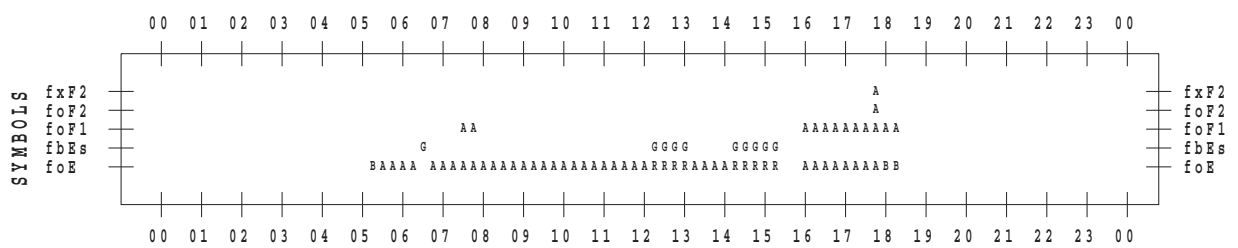
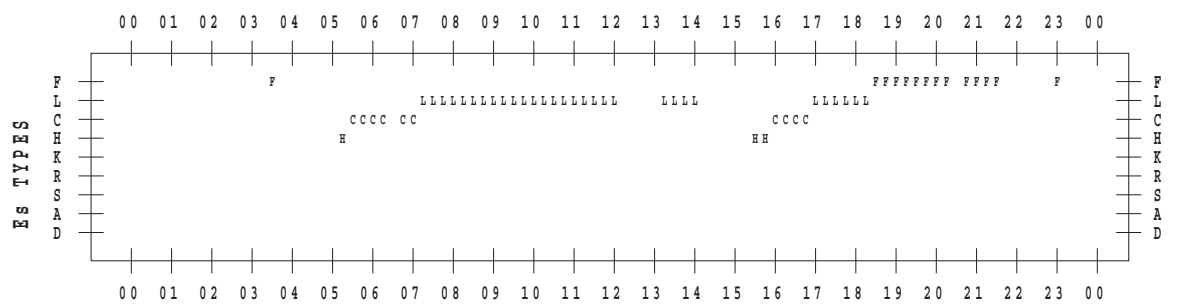
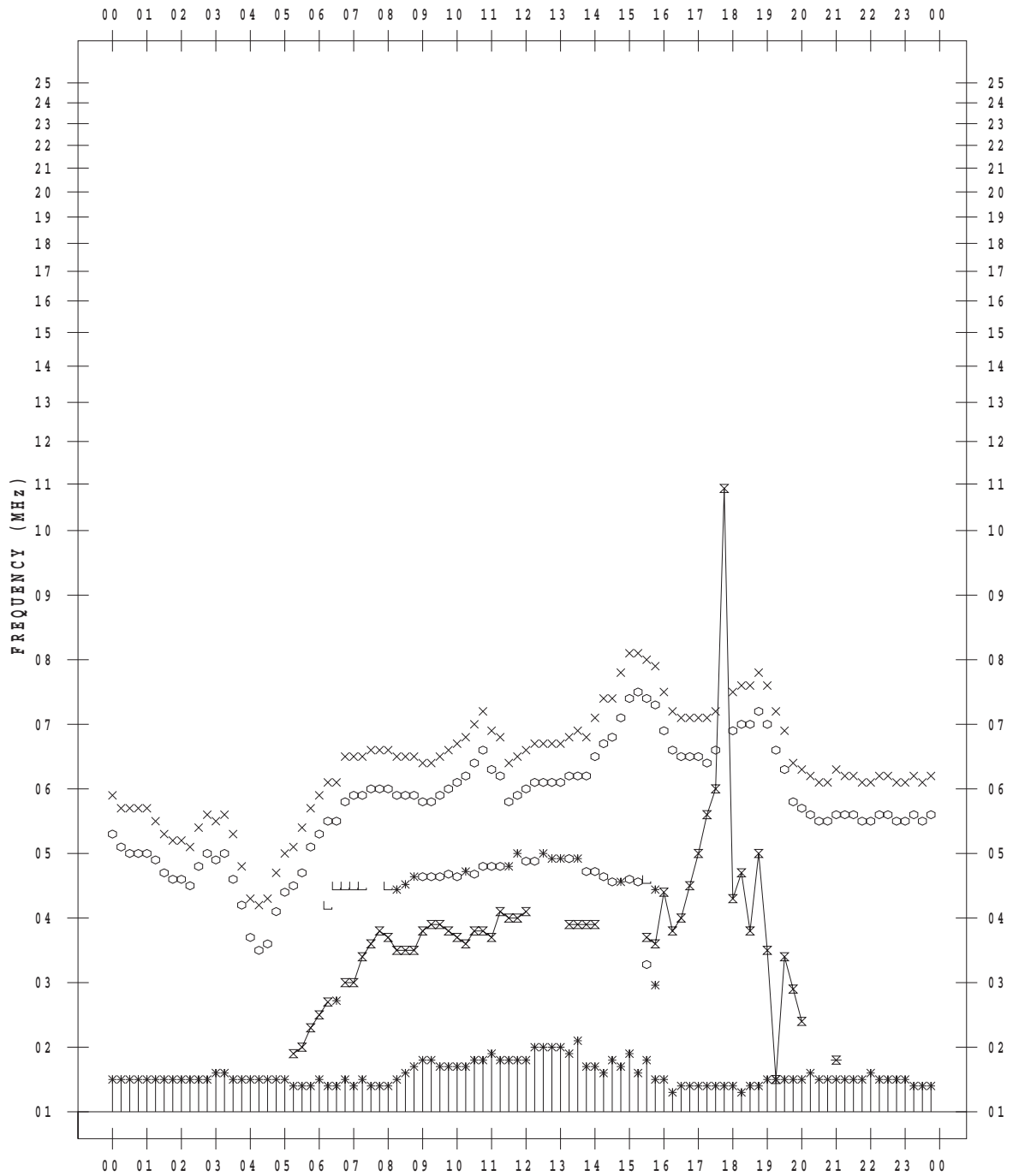
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 28

135 ° E MEAN TIME



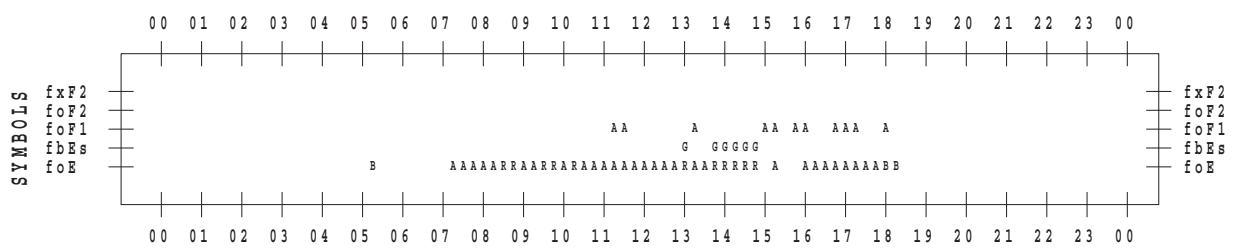
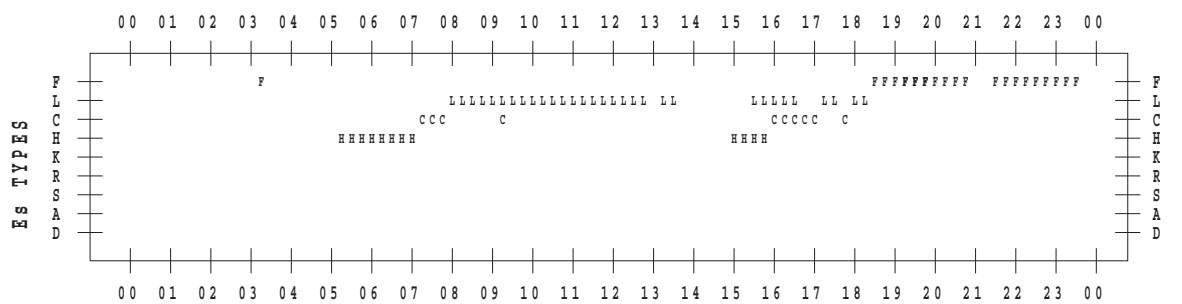
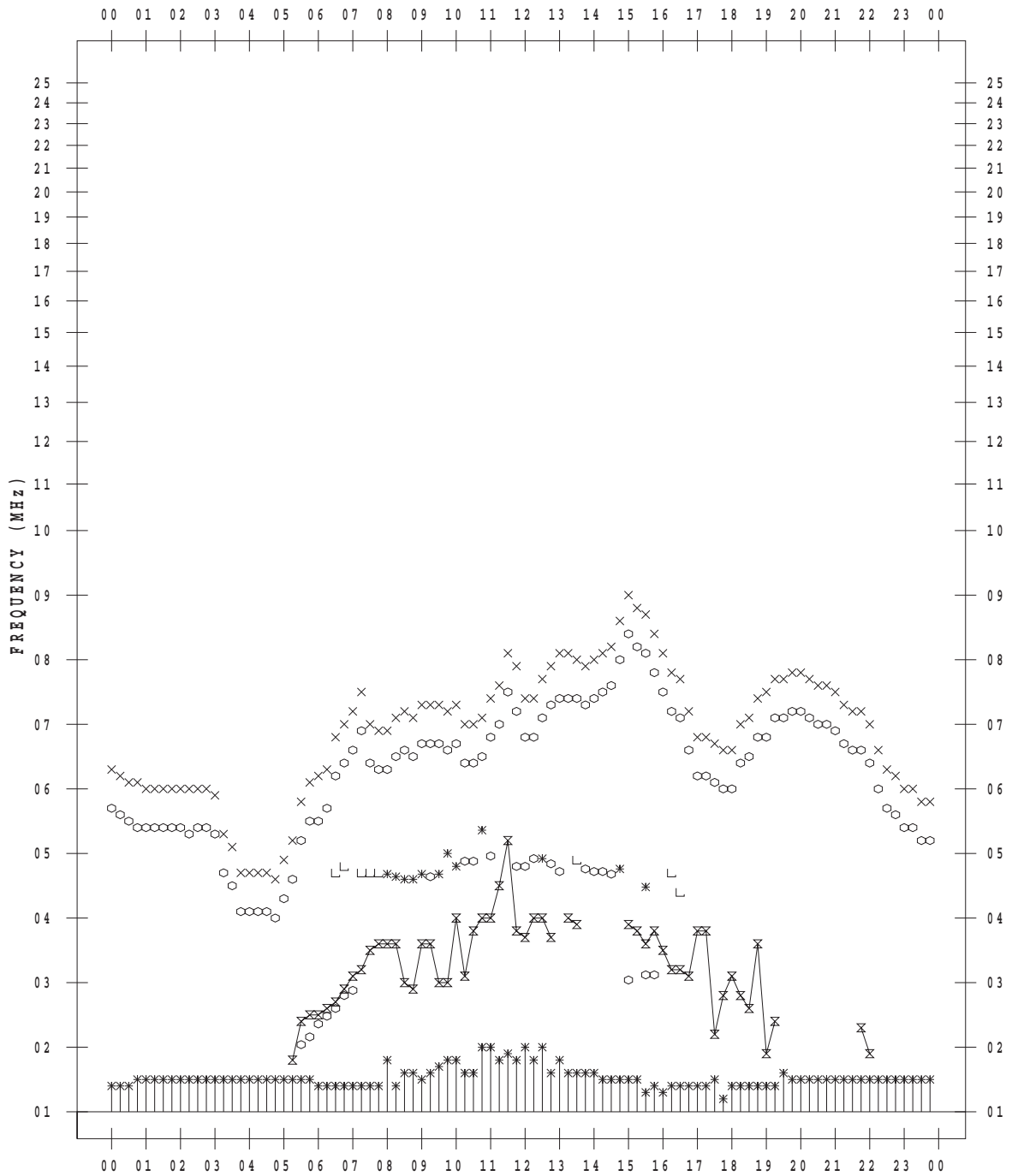
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 29

135 ° E MEAN TIME



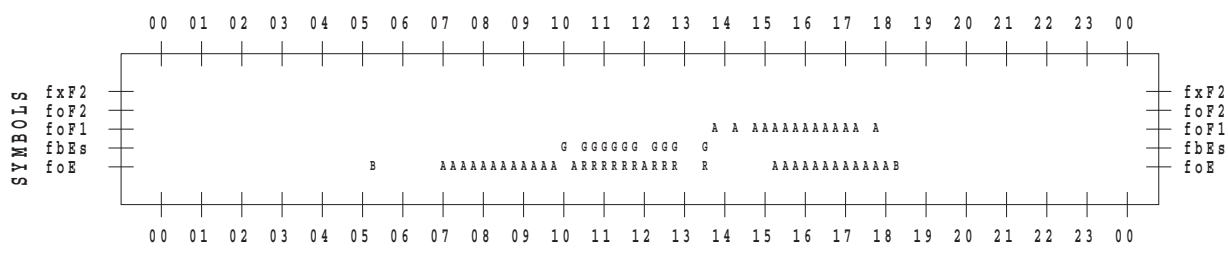
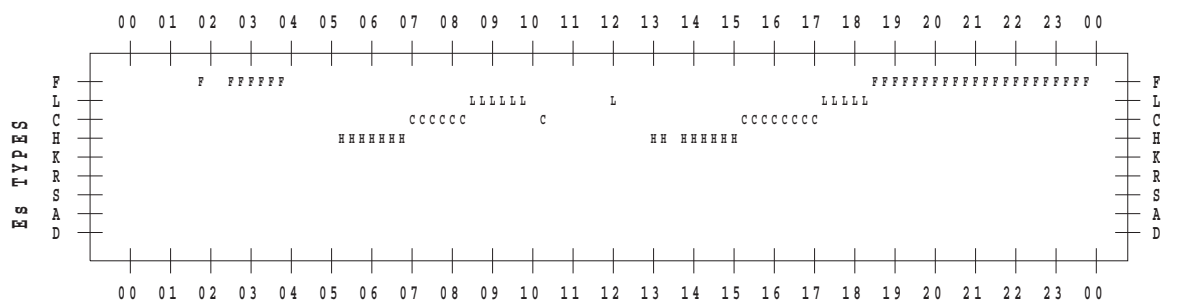
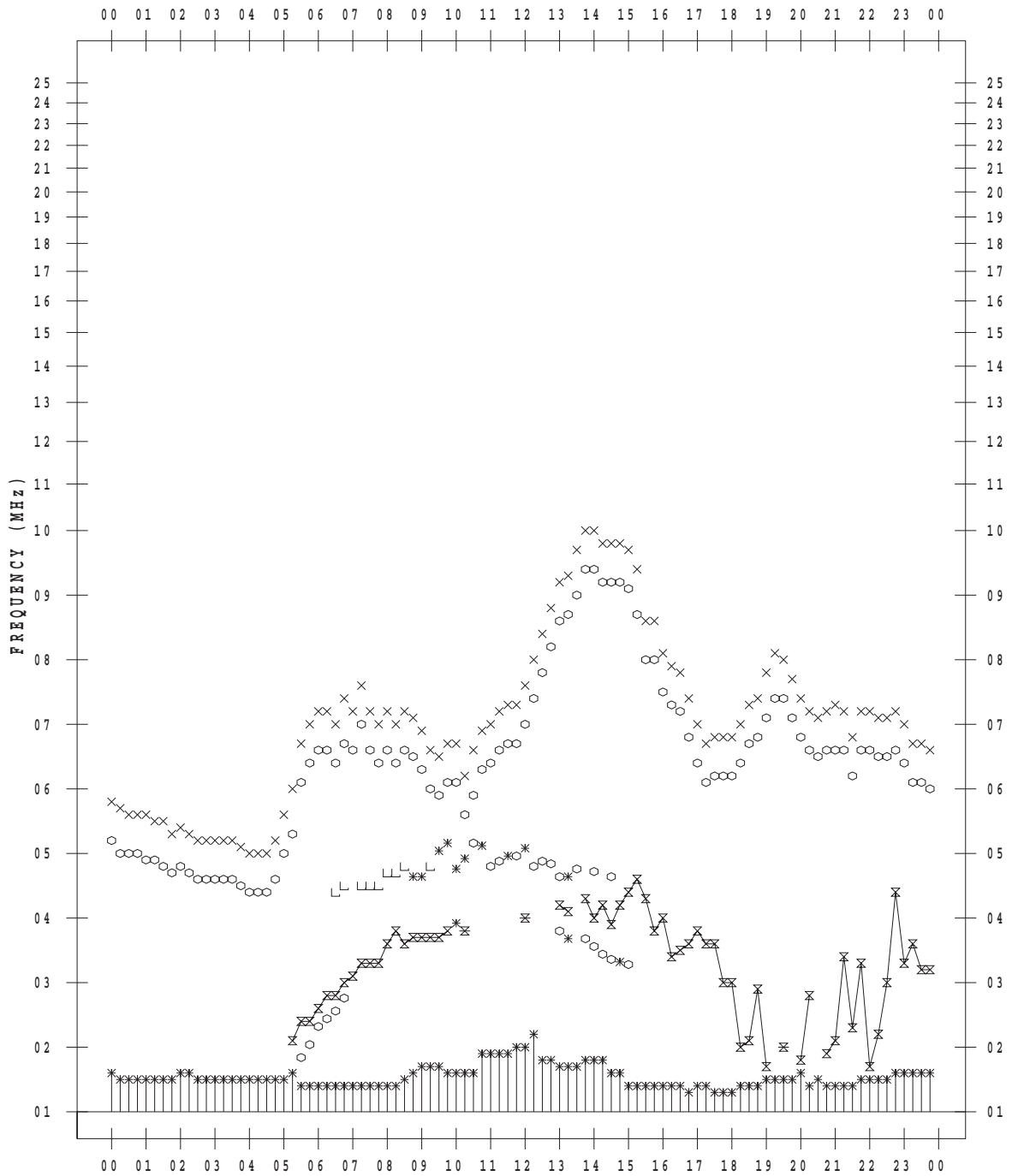
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016 / 4 / 30

135 ° E MEAN TIME



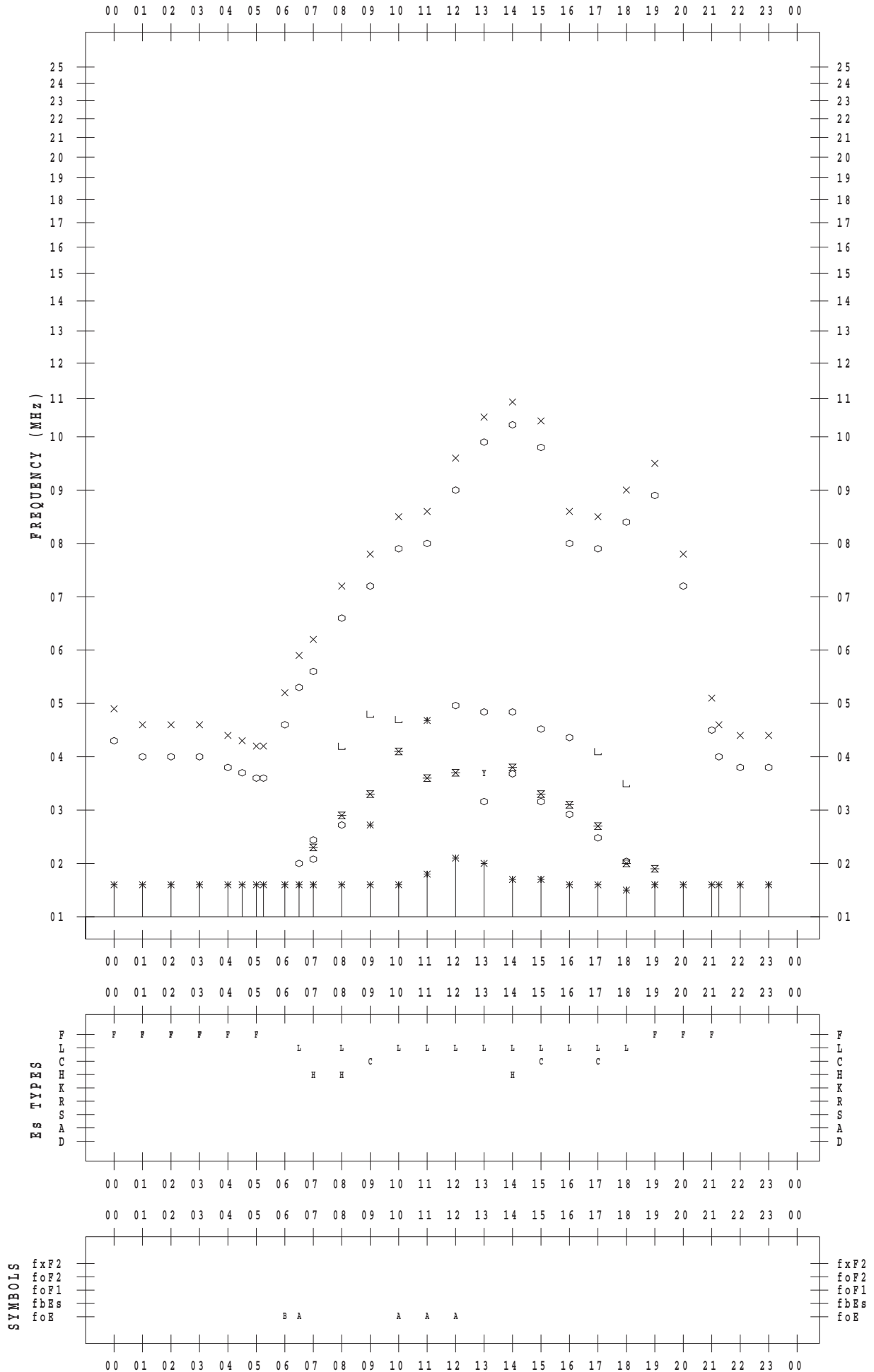
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 1

135 ° E MEAN TIME



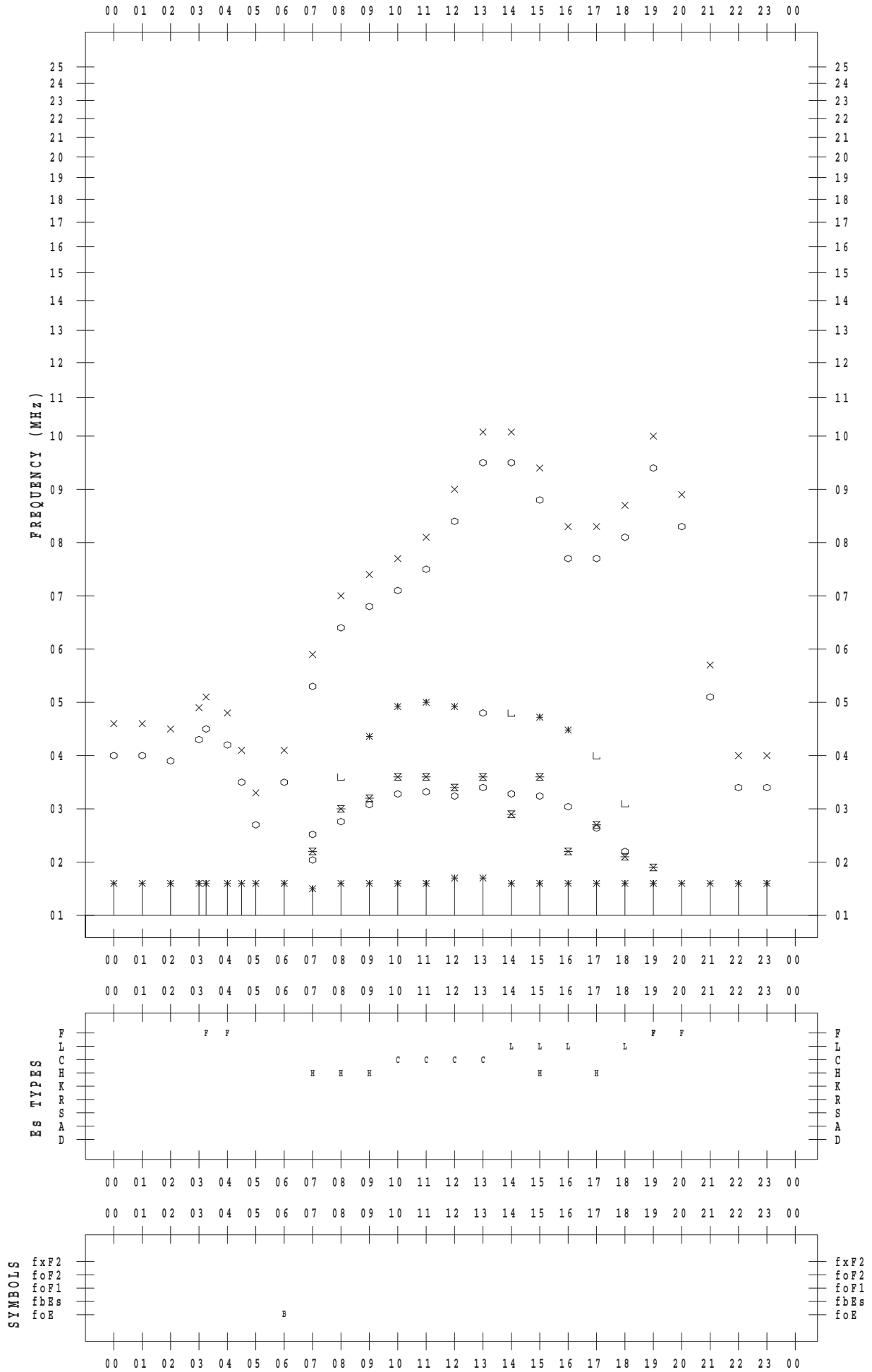
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 2

135 ° E MEAN TIME



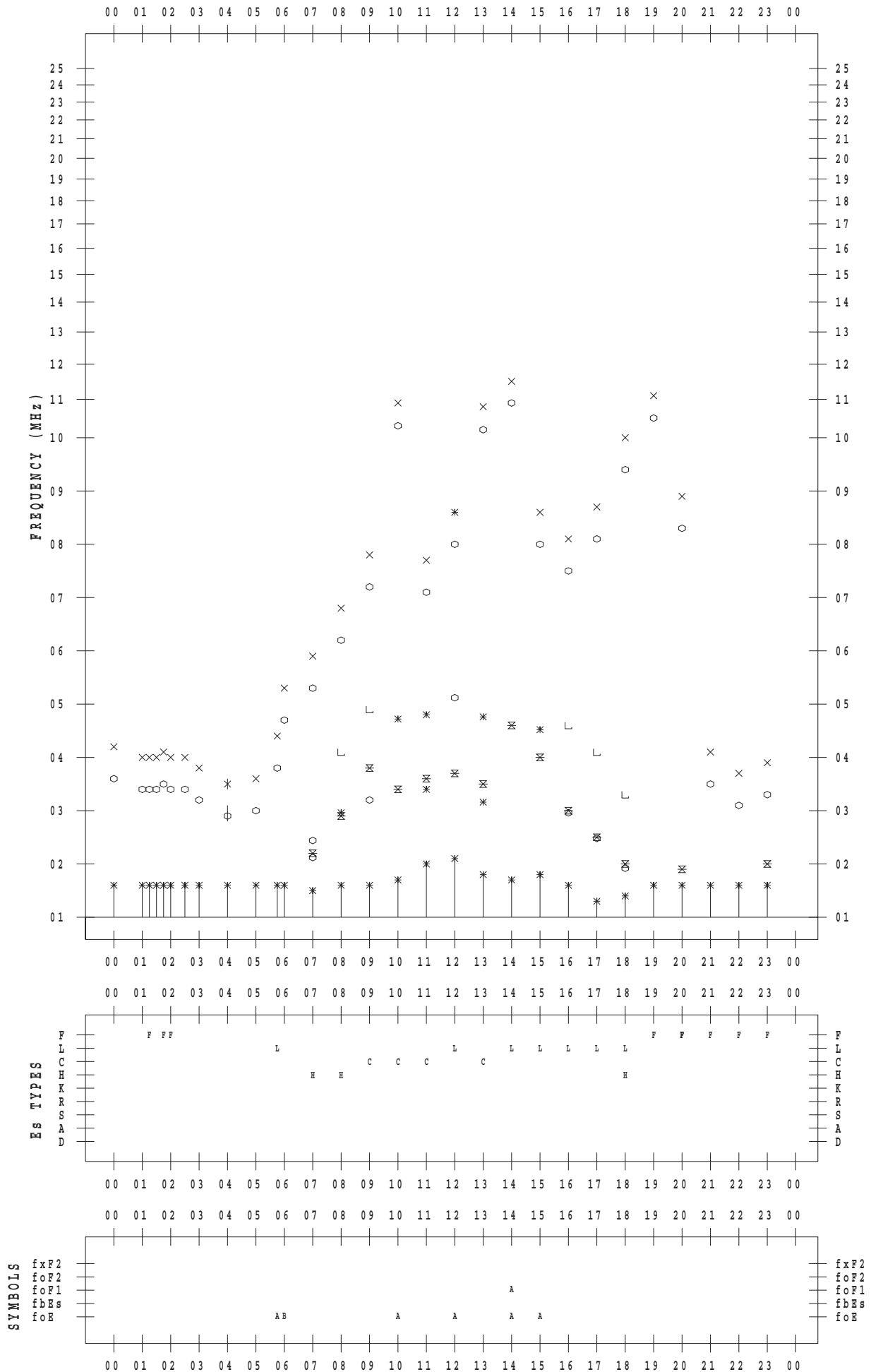
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 3

135 ° E MEAN TIME



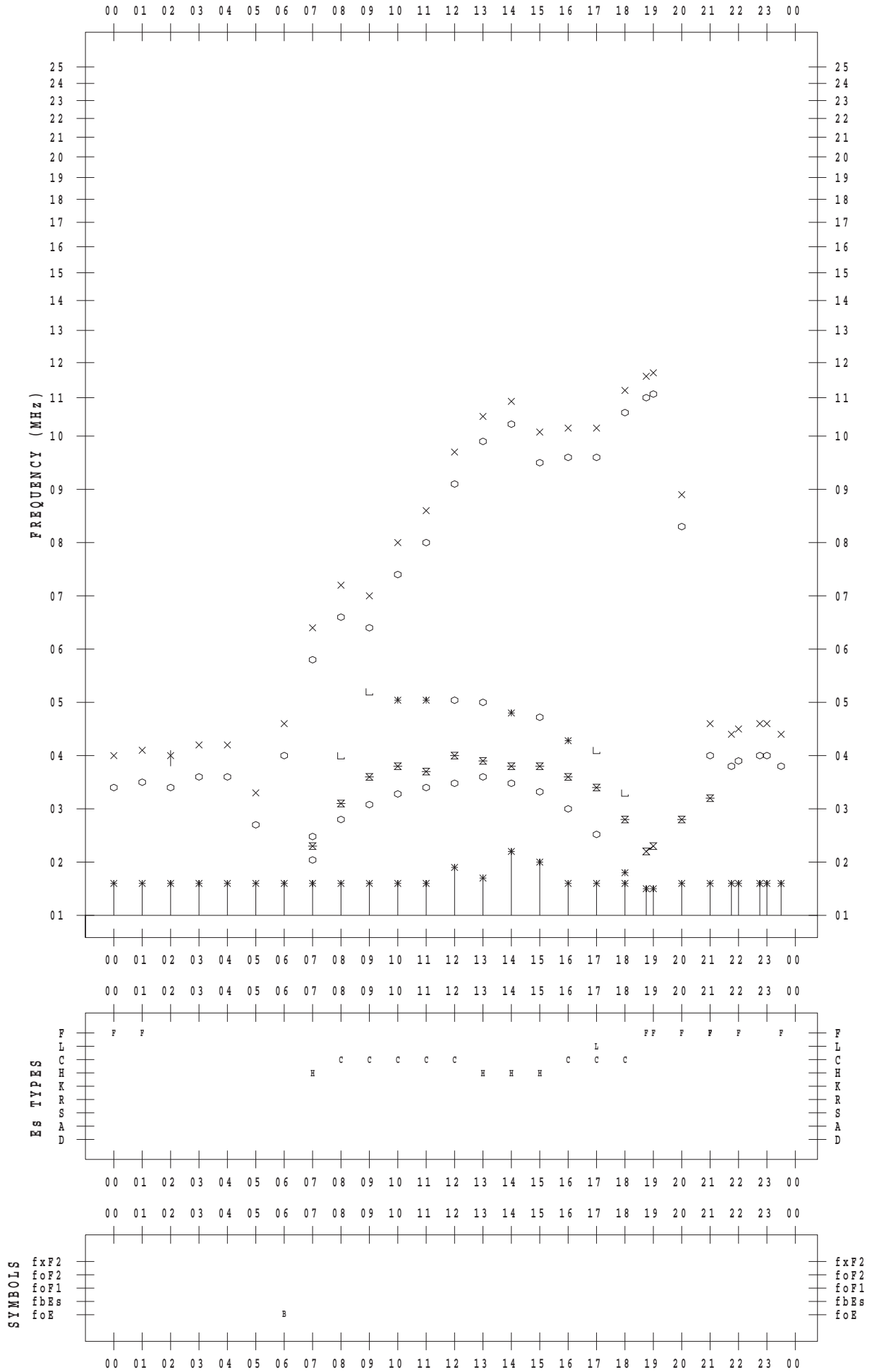
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 4

135 ° E MEAN TIME



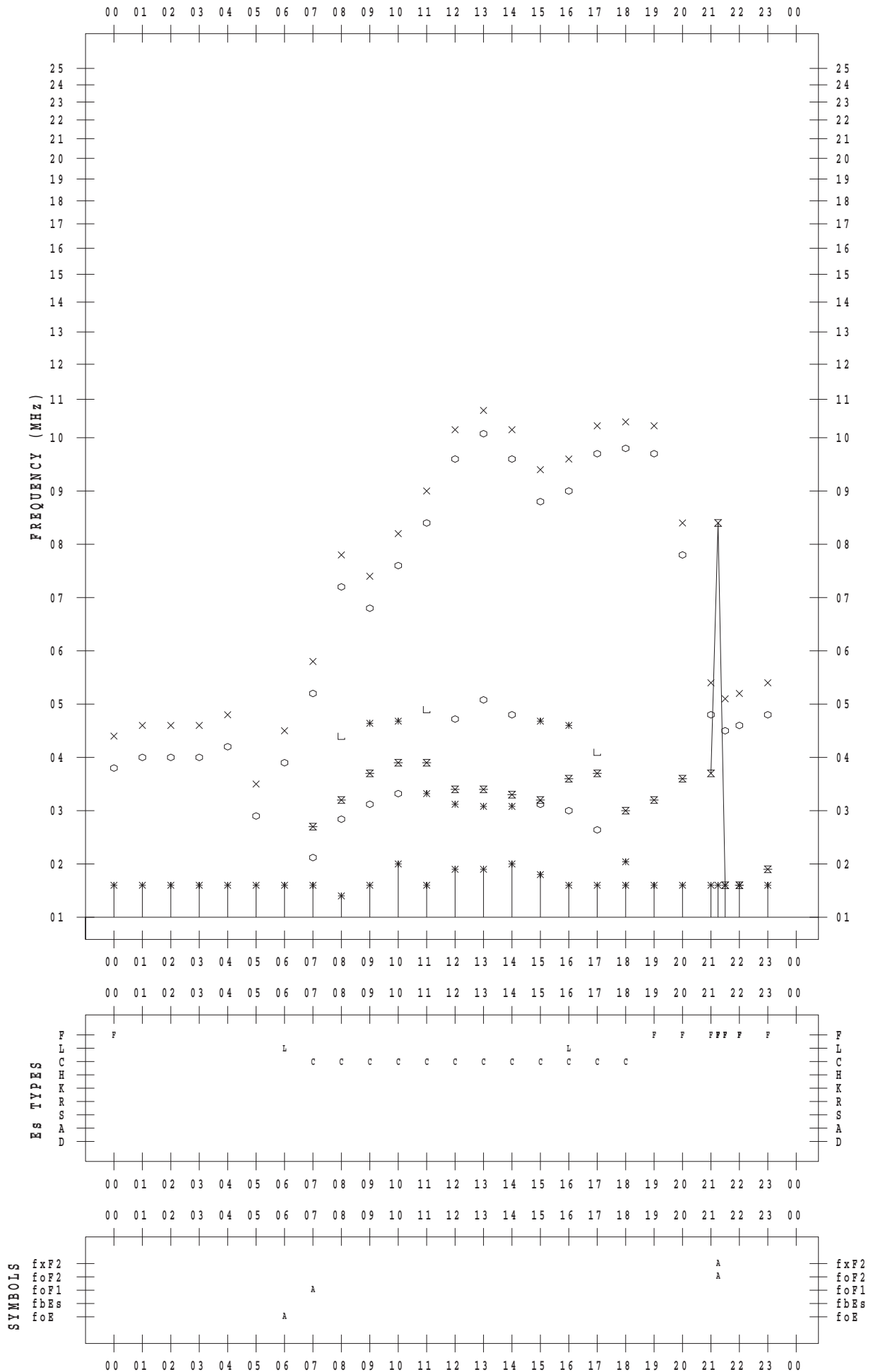
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 5

135 ° E MEAN TIME



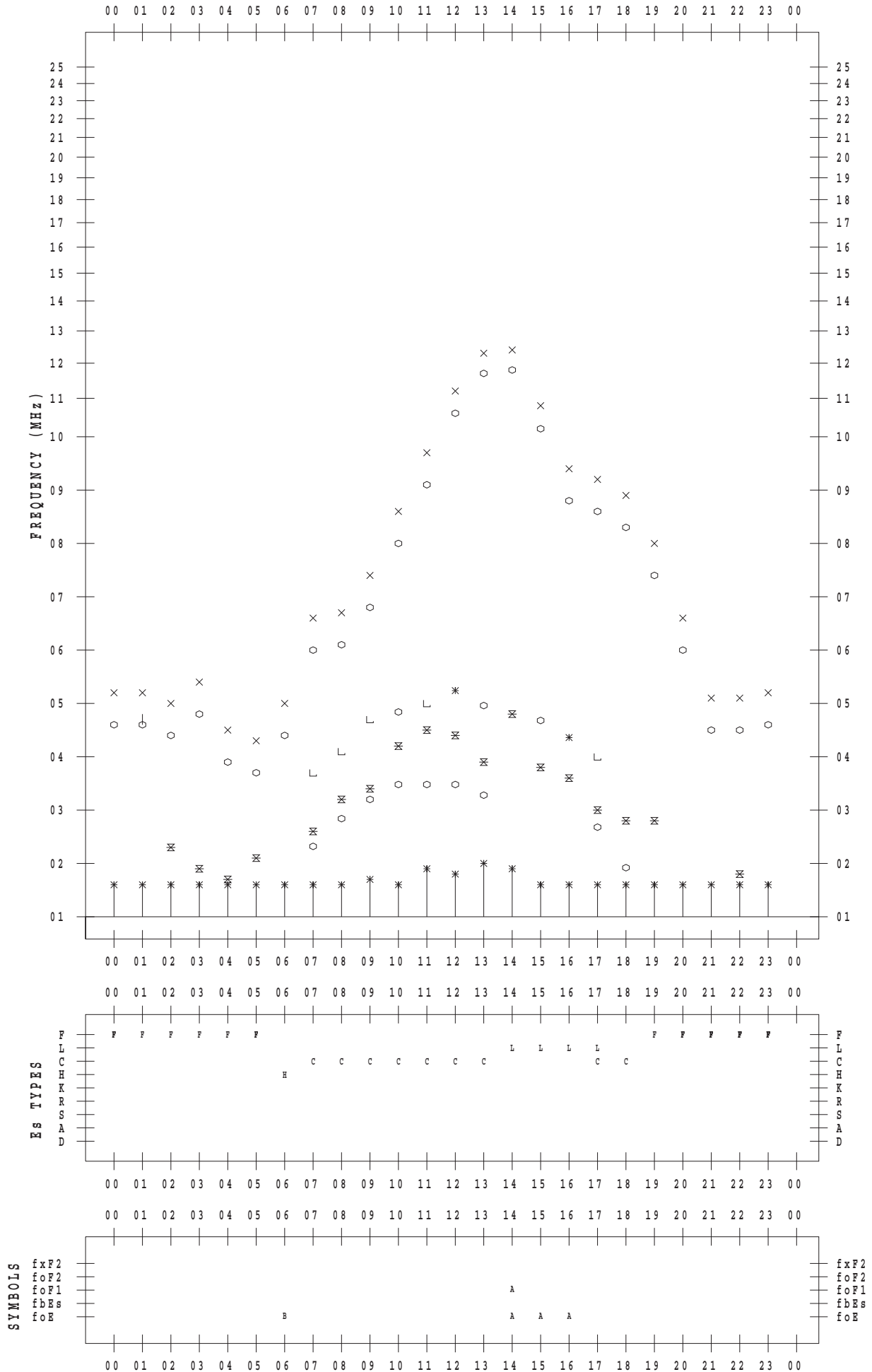
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 6

135 ° E MEAN TIME



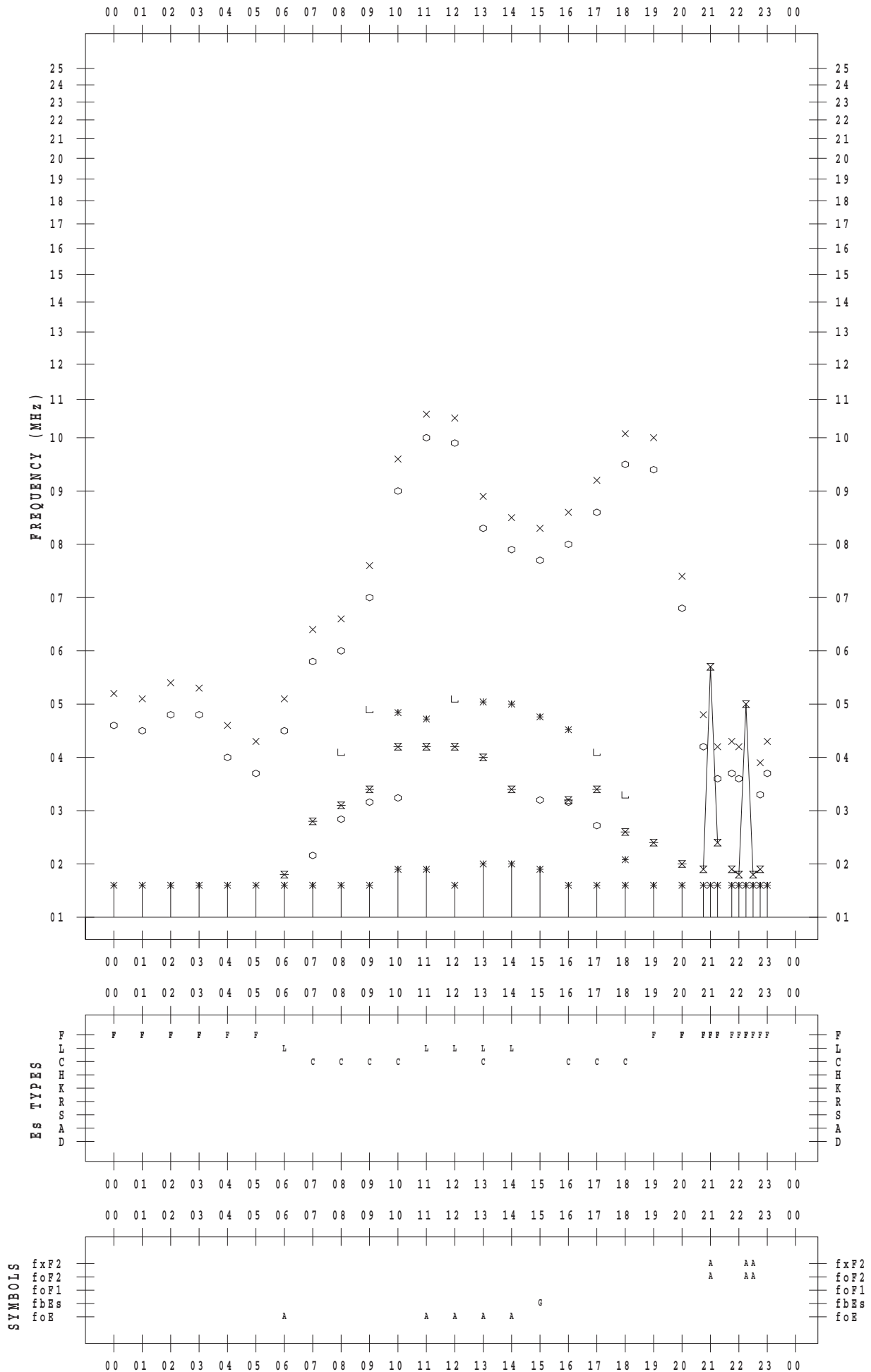
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 7

135 ° E MEAN TIME



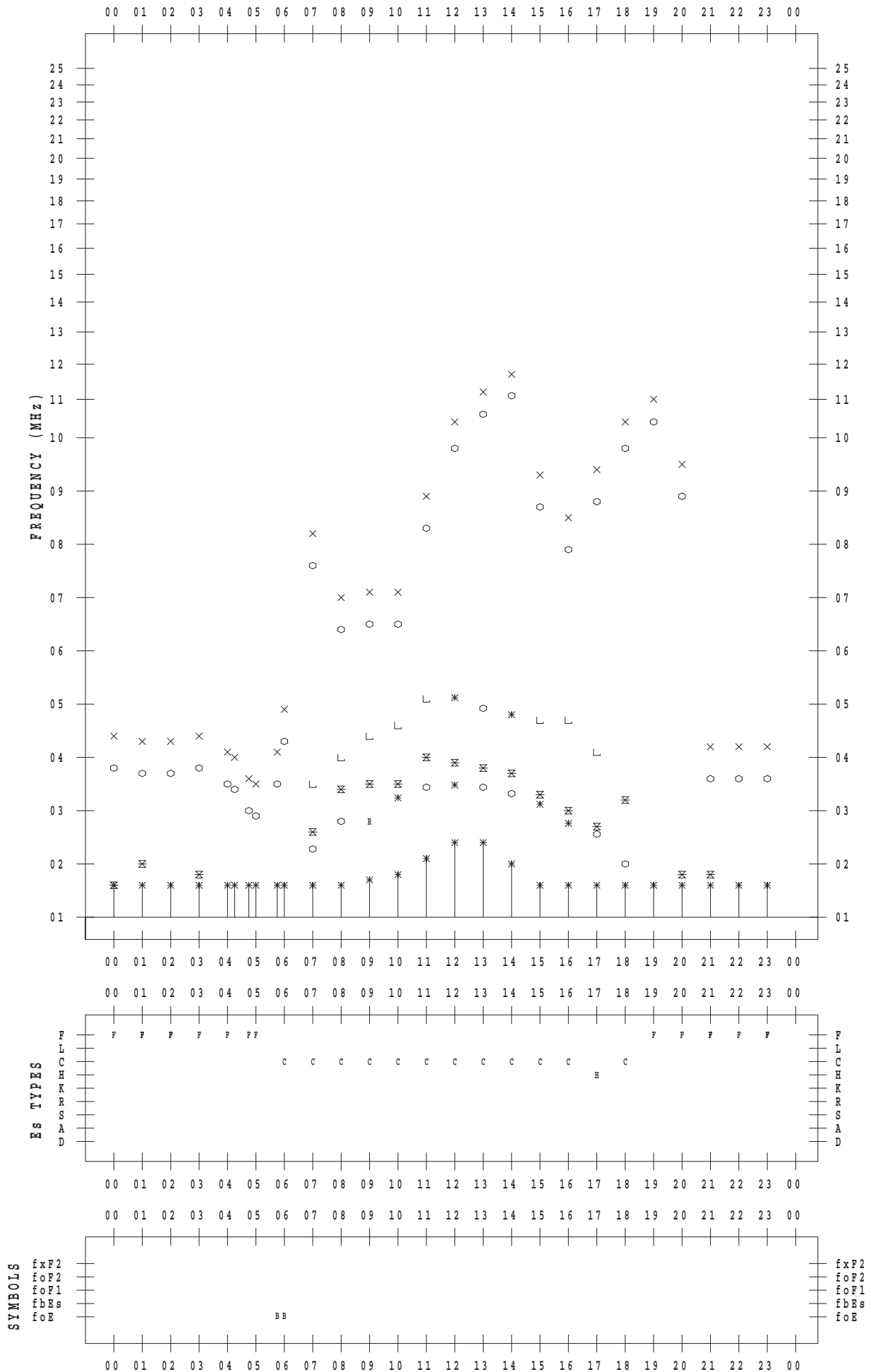
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 8

135 ° E MEAN TIME



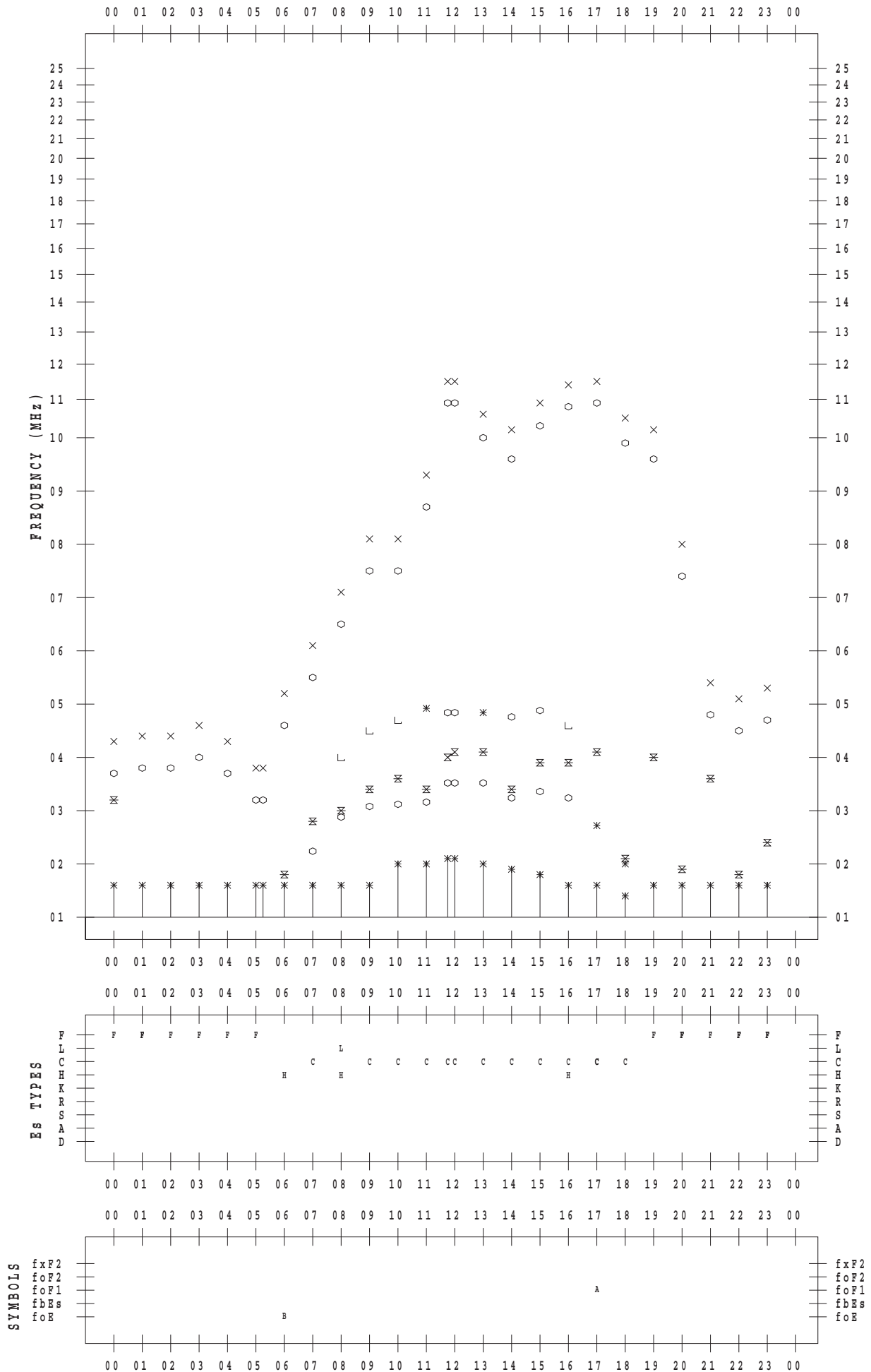
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 9

135 ° E MEAN TIME



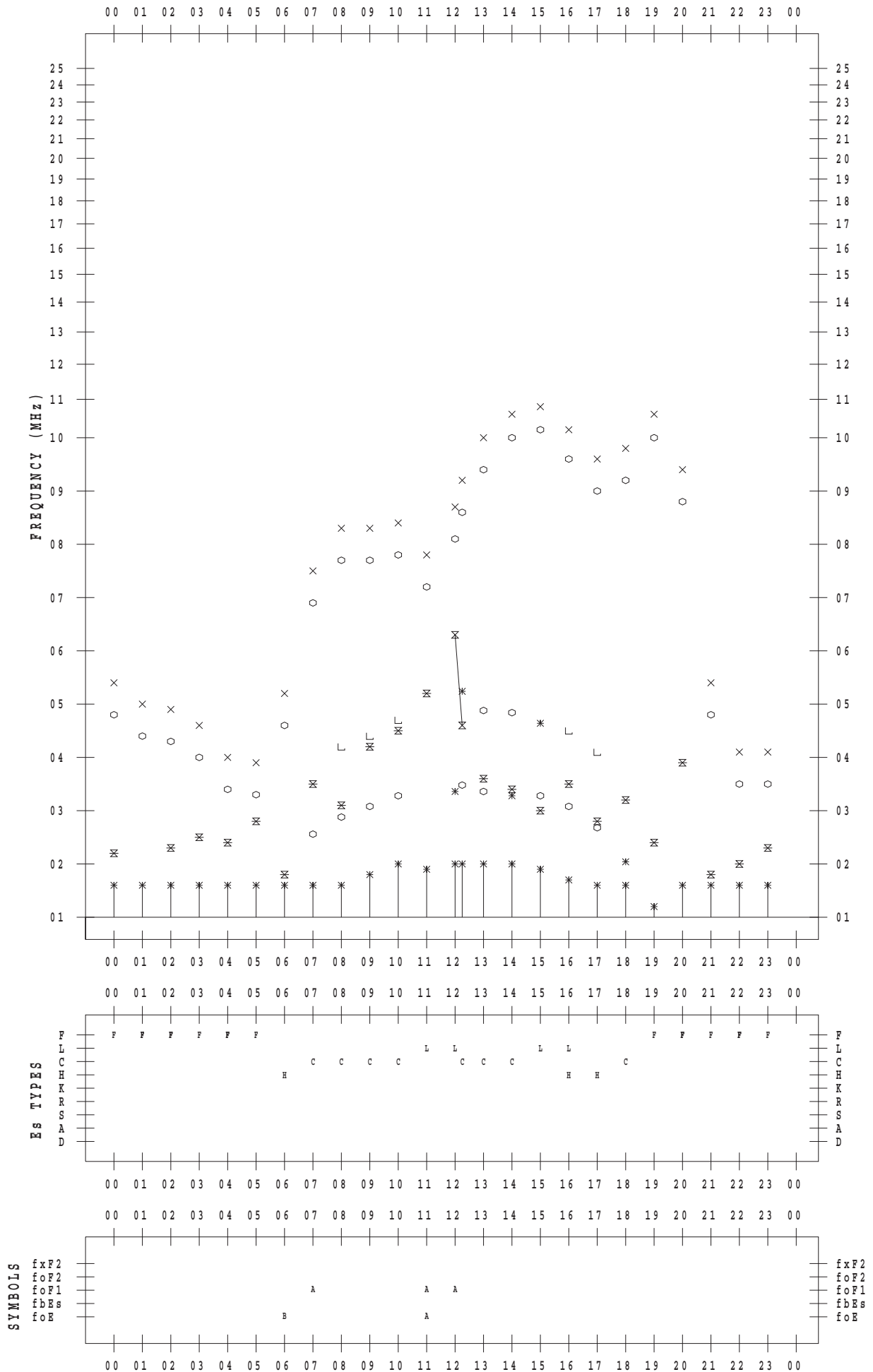
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 10

135 ° E MEAN TIME



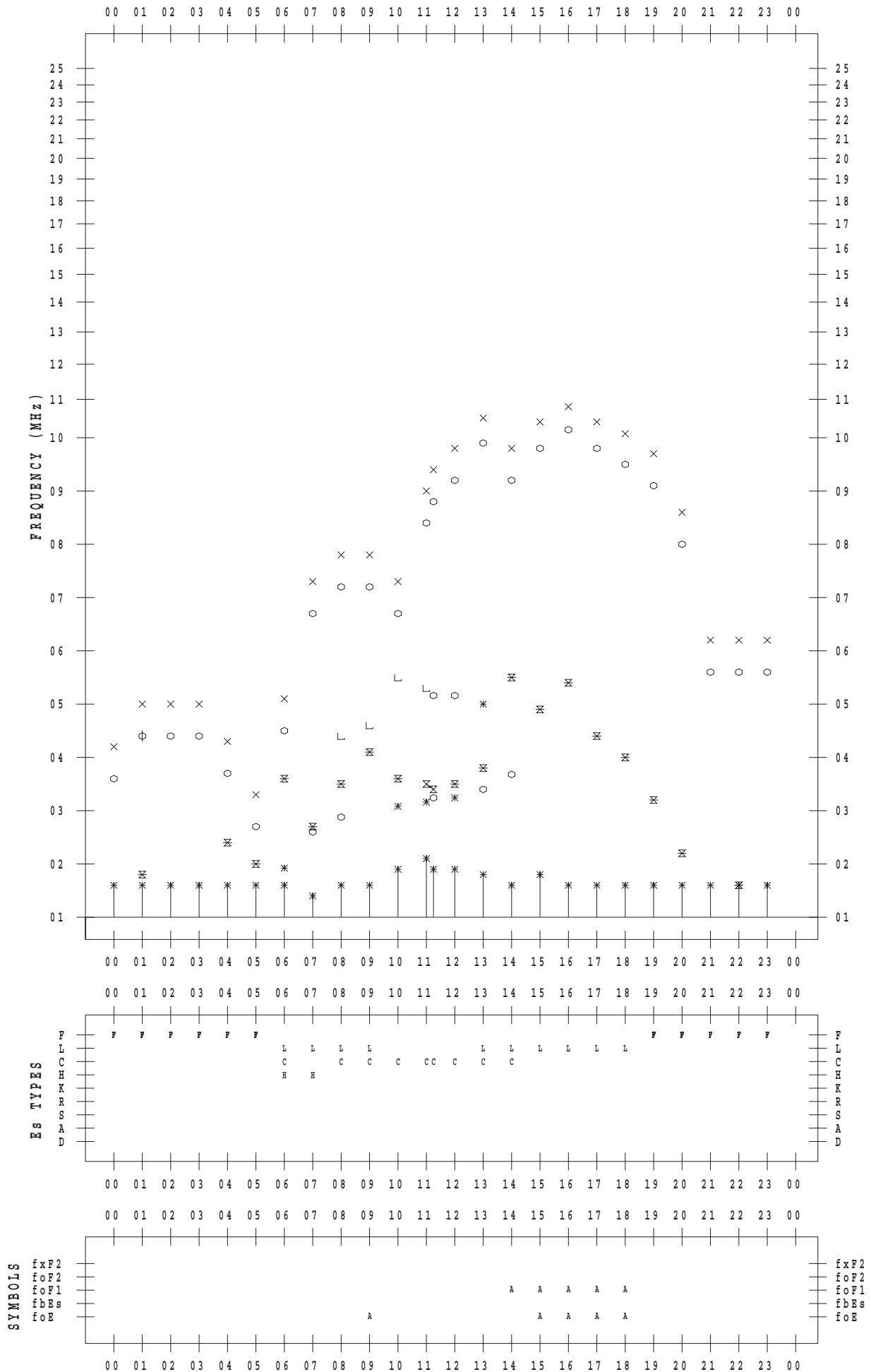
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 11

135 ° E MEAN TIME



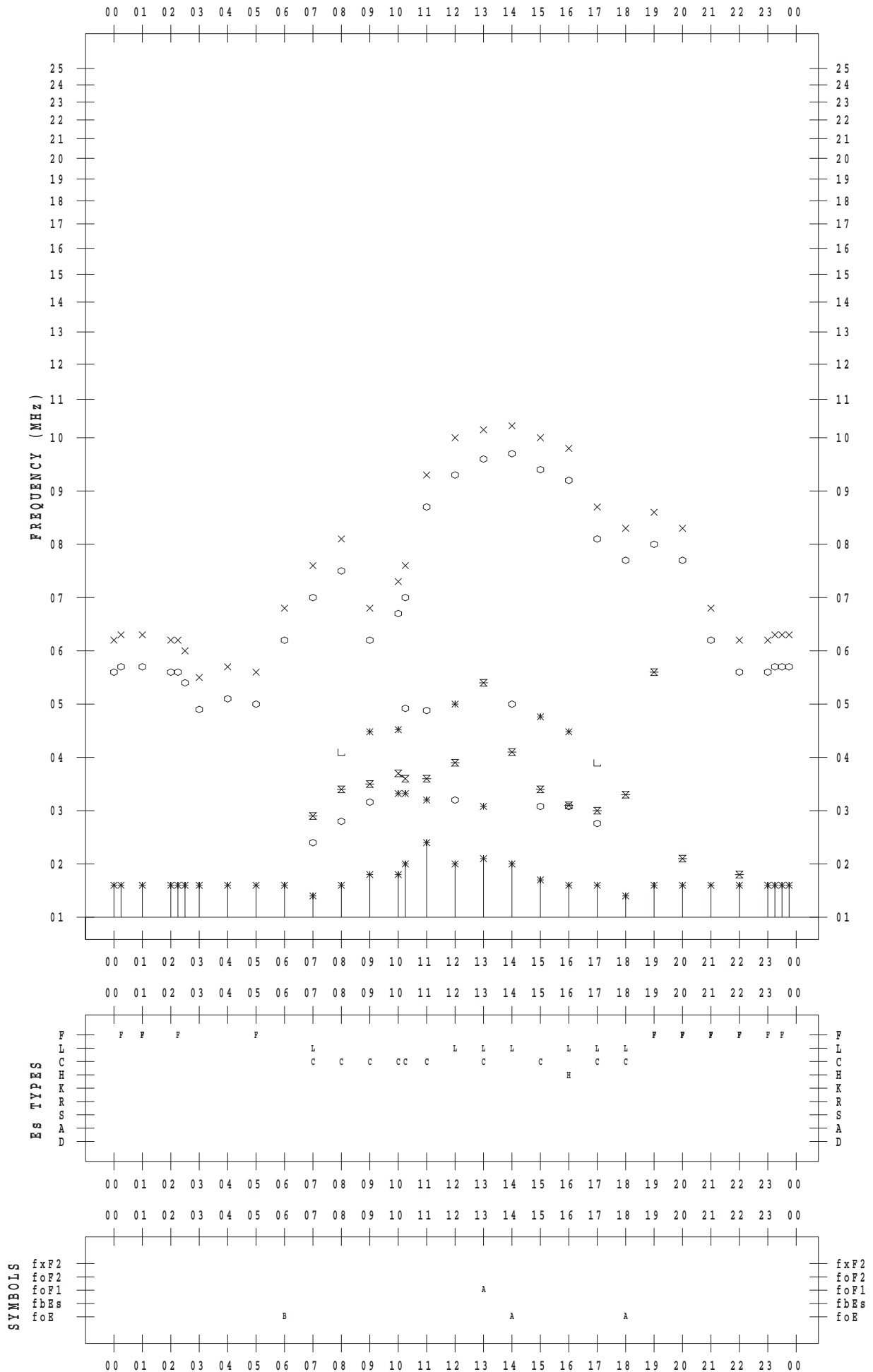
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 12

135 ° E MEAN TIME



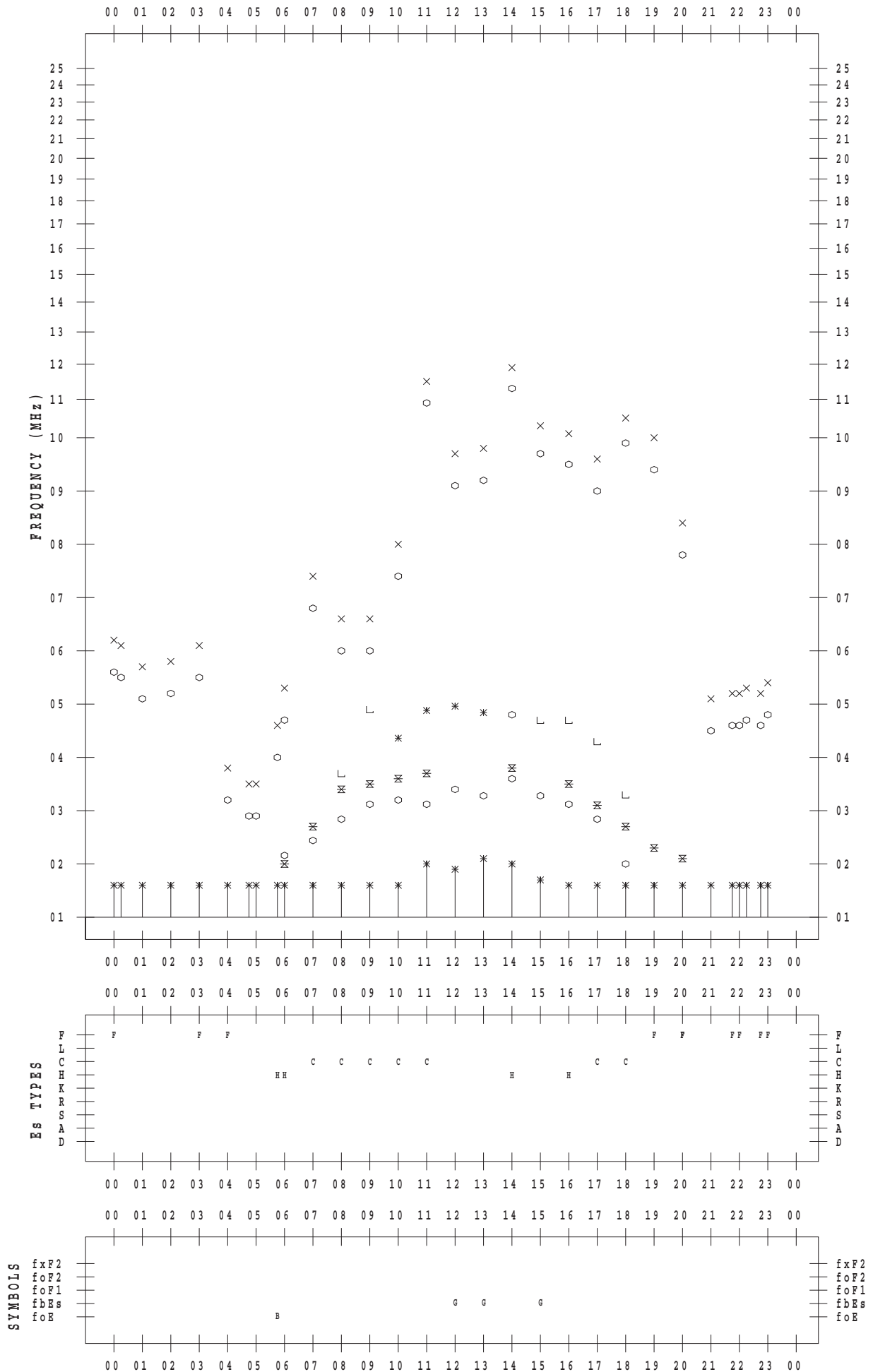
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 13

135 ° E MEAN TIME



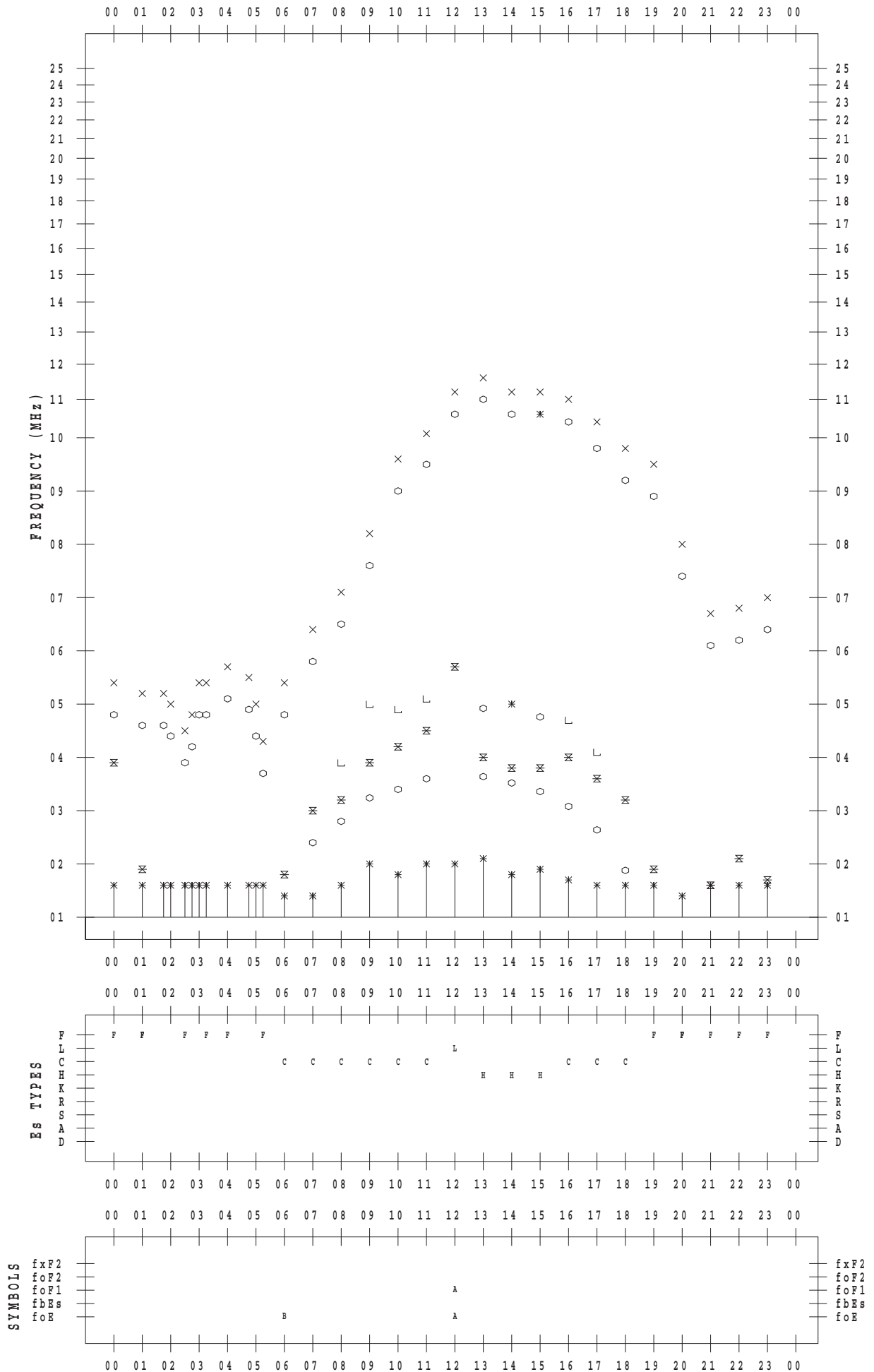
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 14

135 ° E MEAN TIME



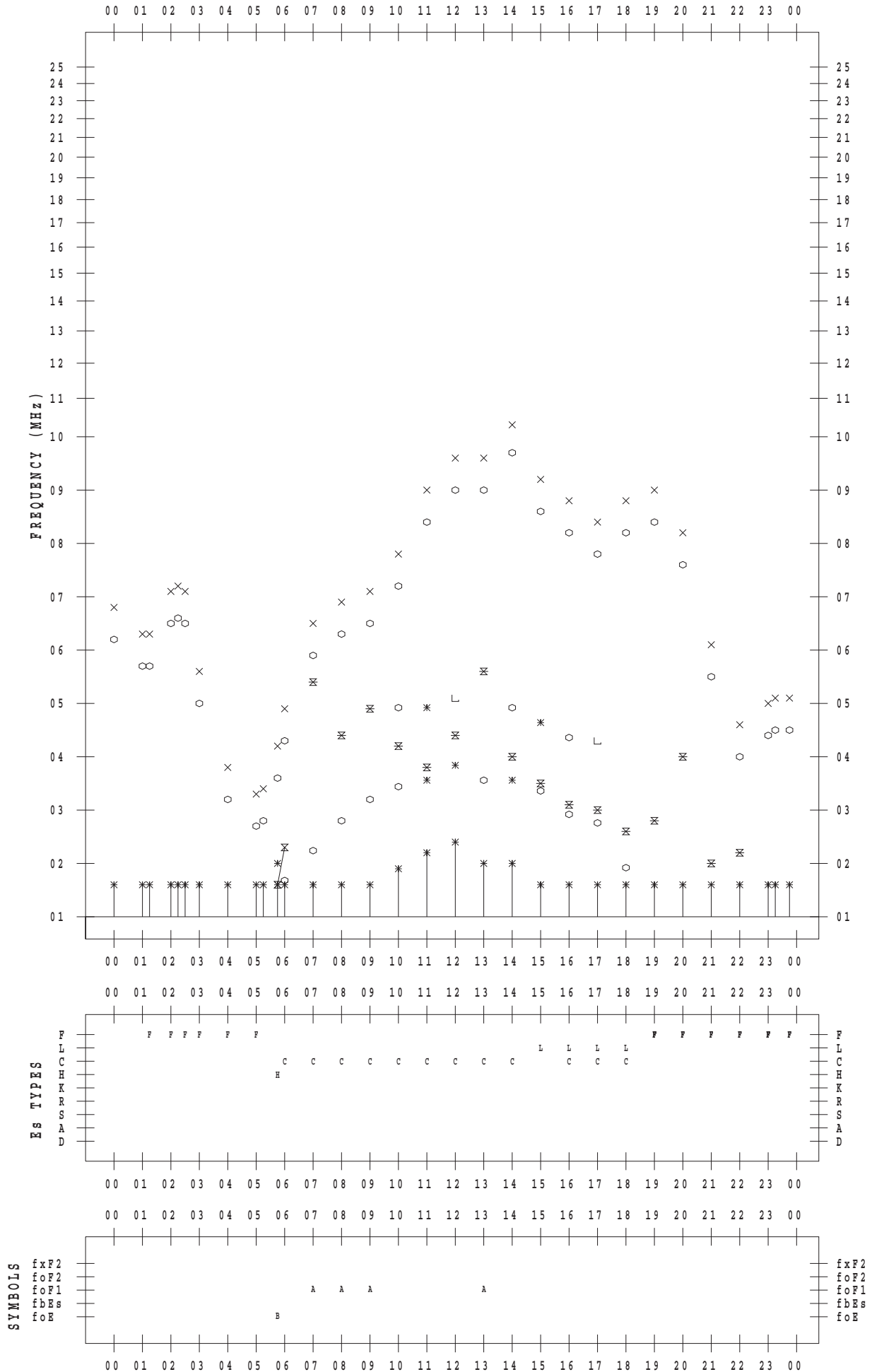
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 15

135 ° E MEAN TIME



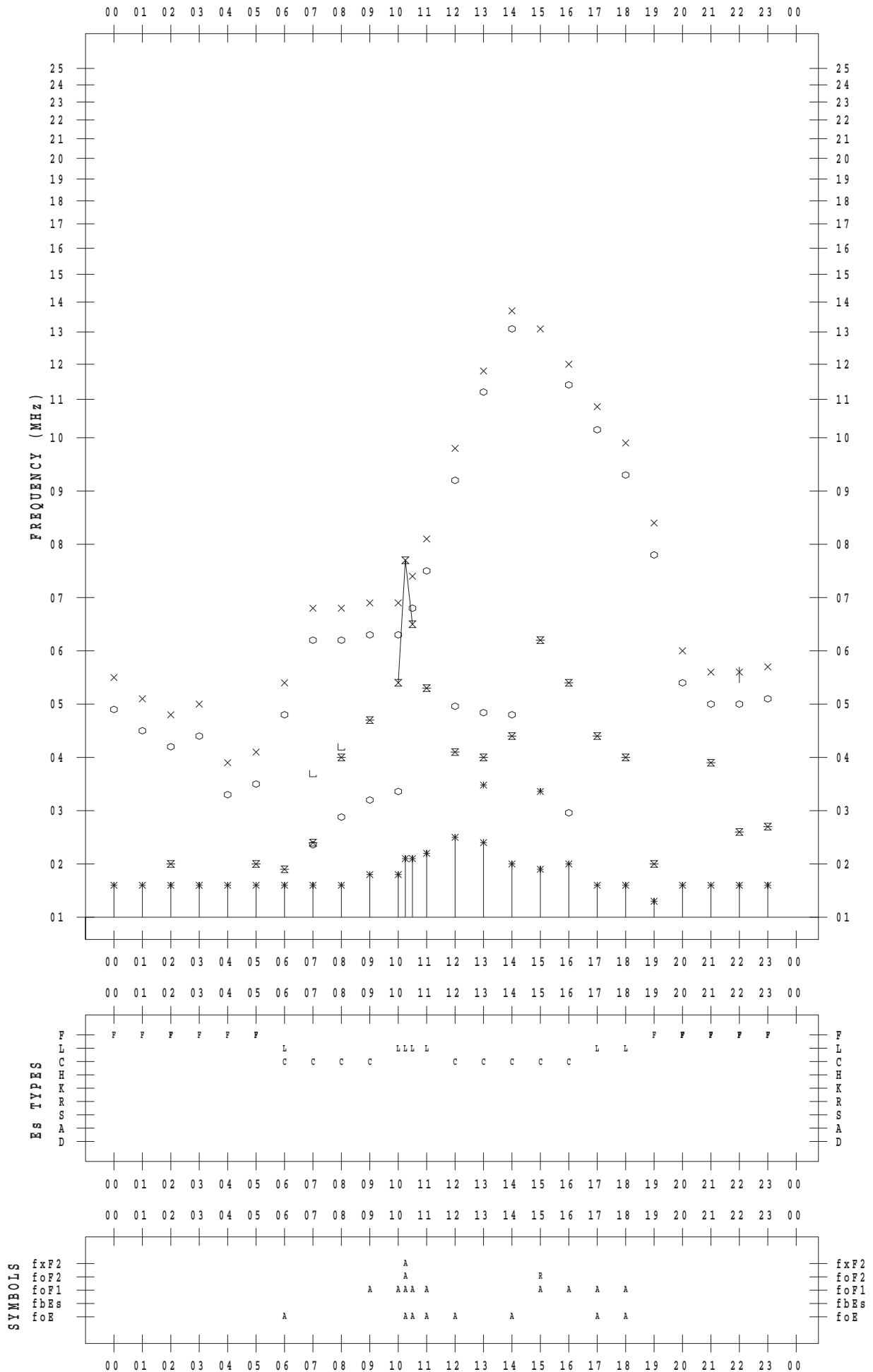
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 16

135 ° E MEAN TIME



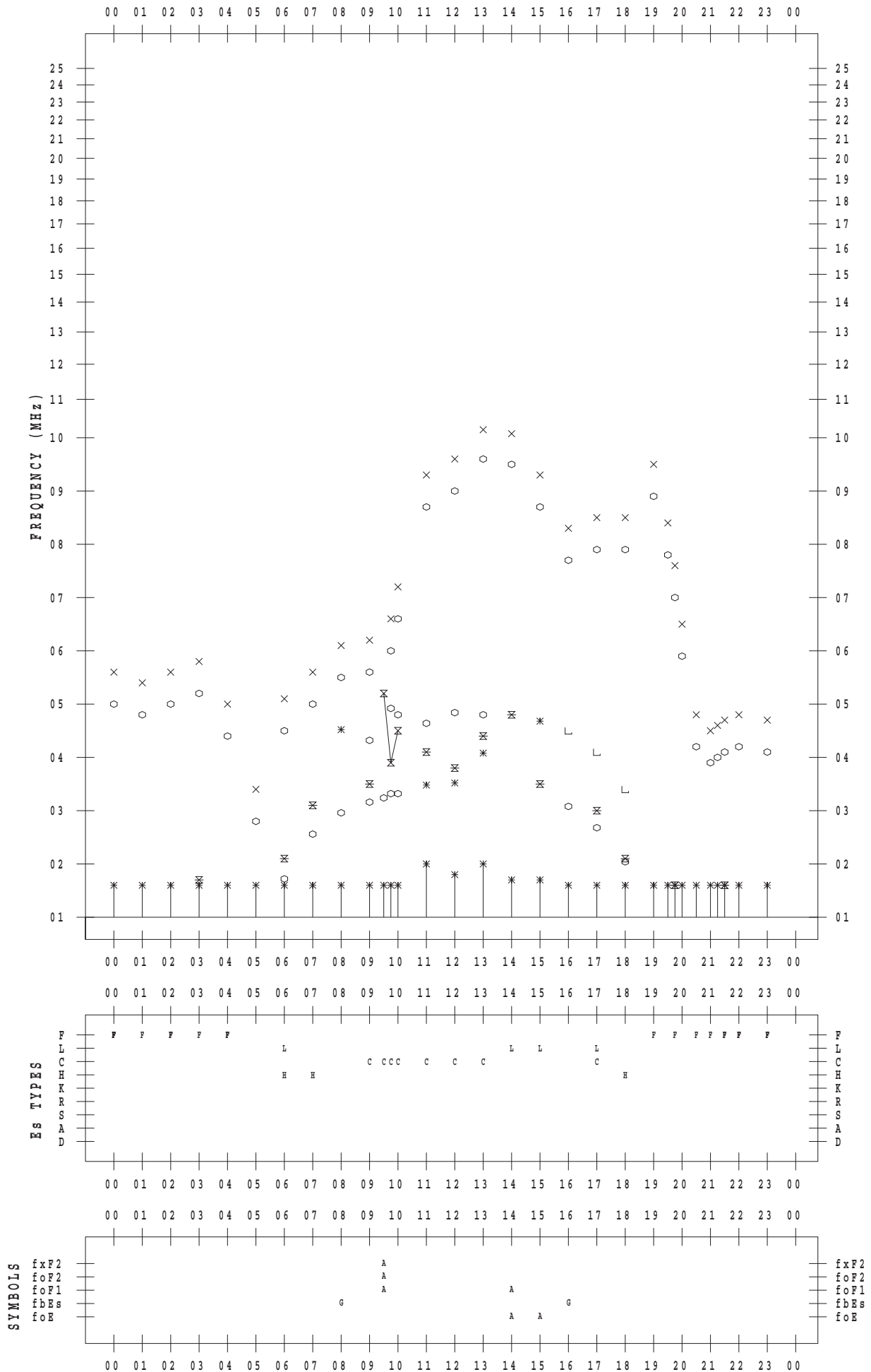
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 17

135 ° E MEAN TIME



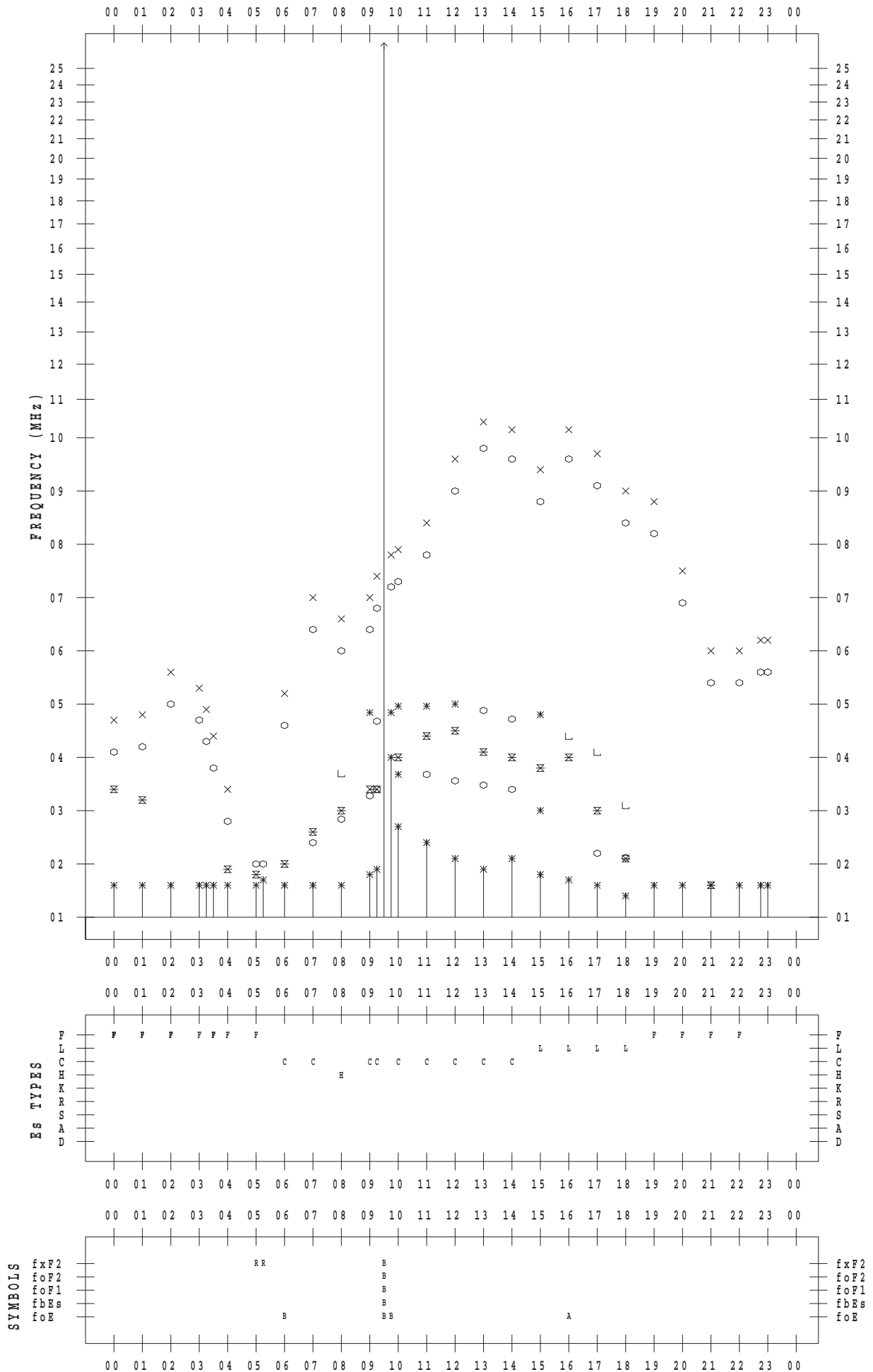
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 18

135 ° E MEAN TIME



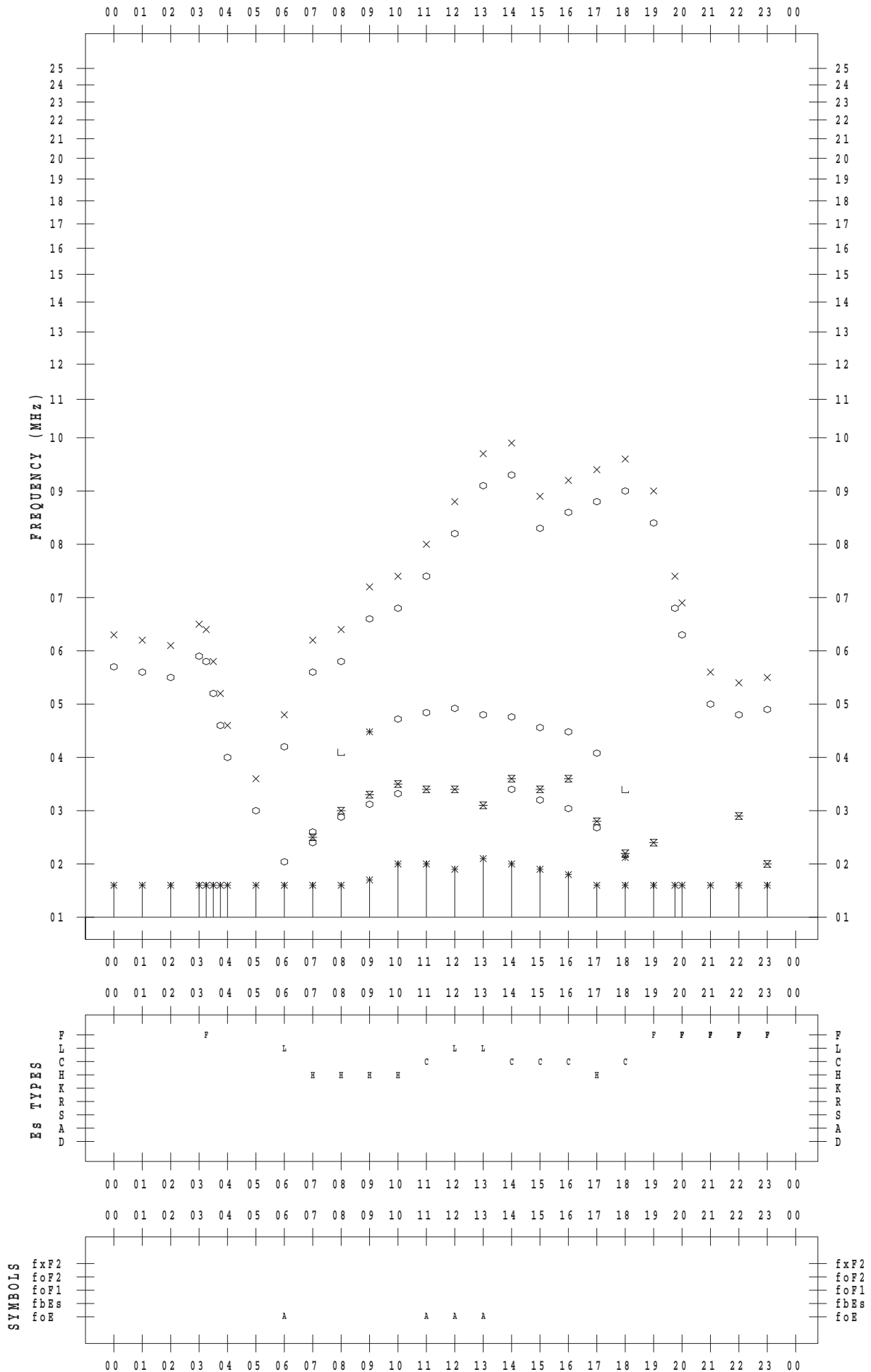
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 19

135 ° E MEAN TIME



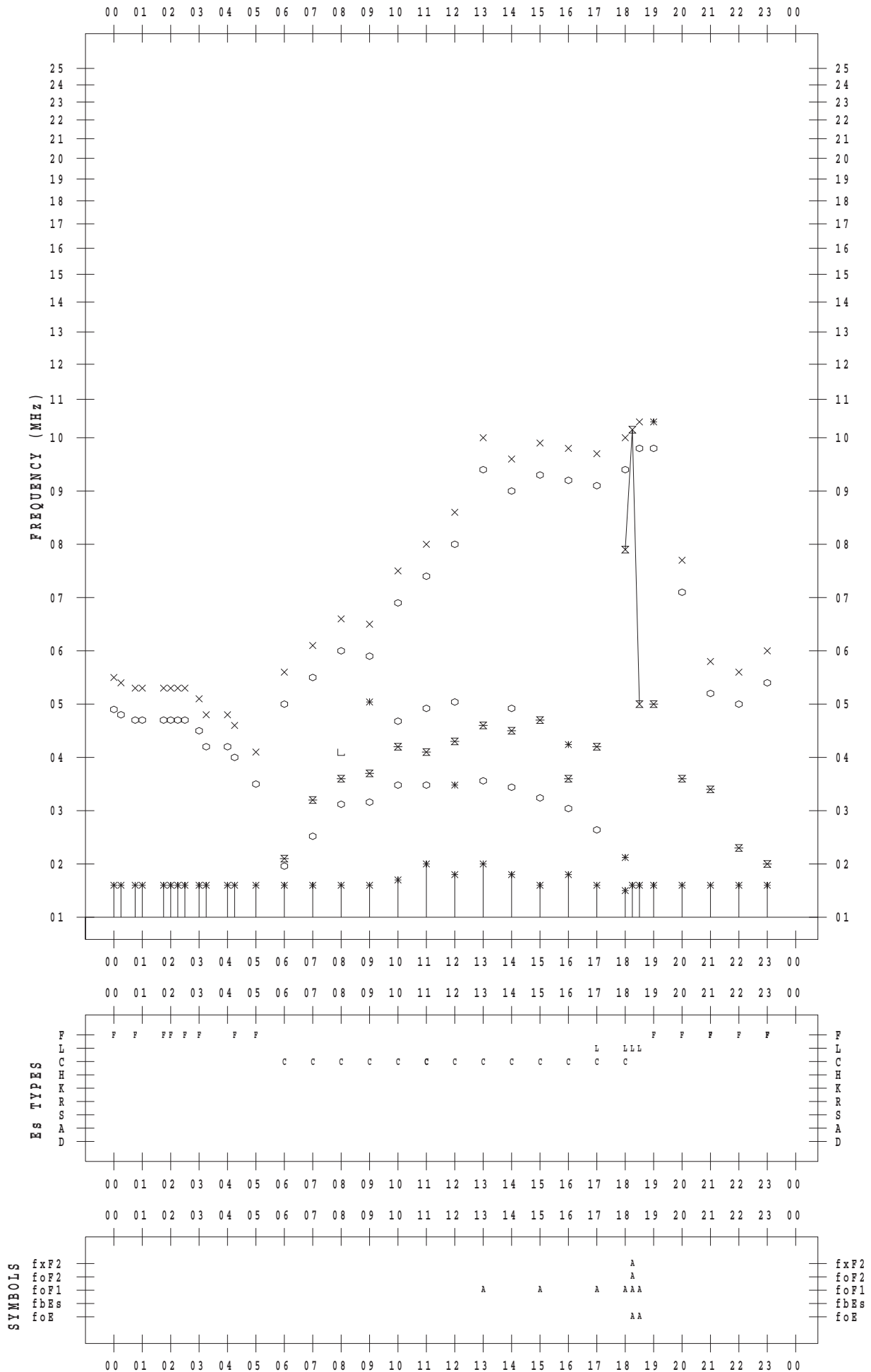
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 20

135 ° E MEAN TIME



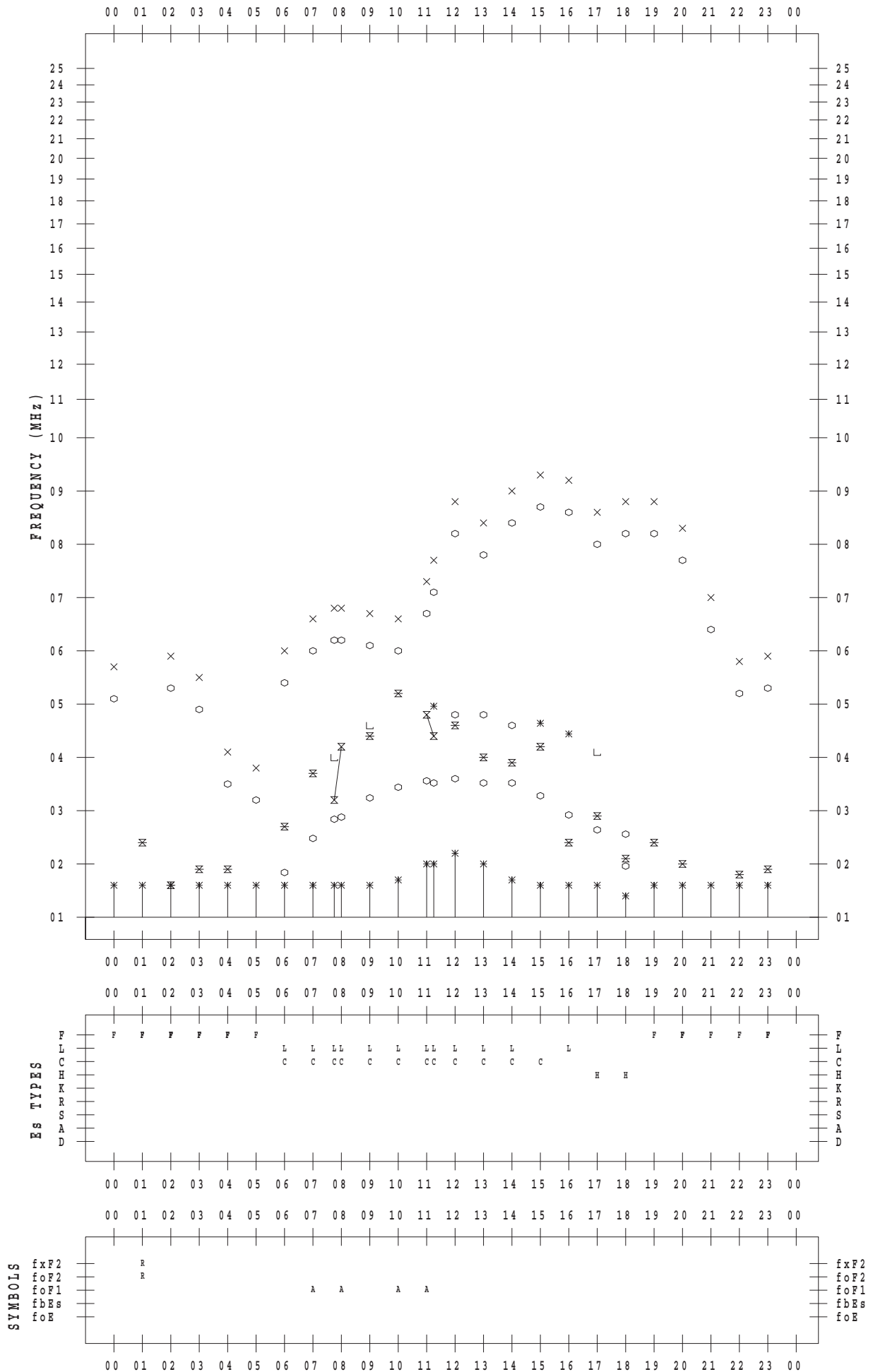
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 21

135 ° E MEAN TIME



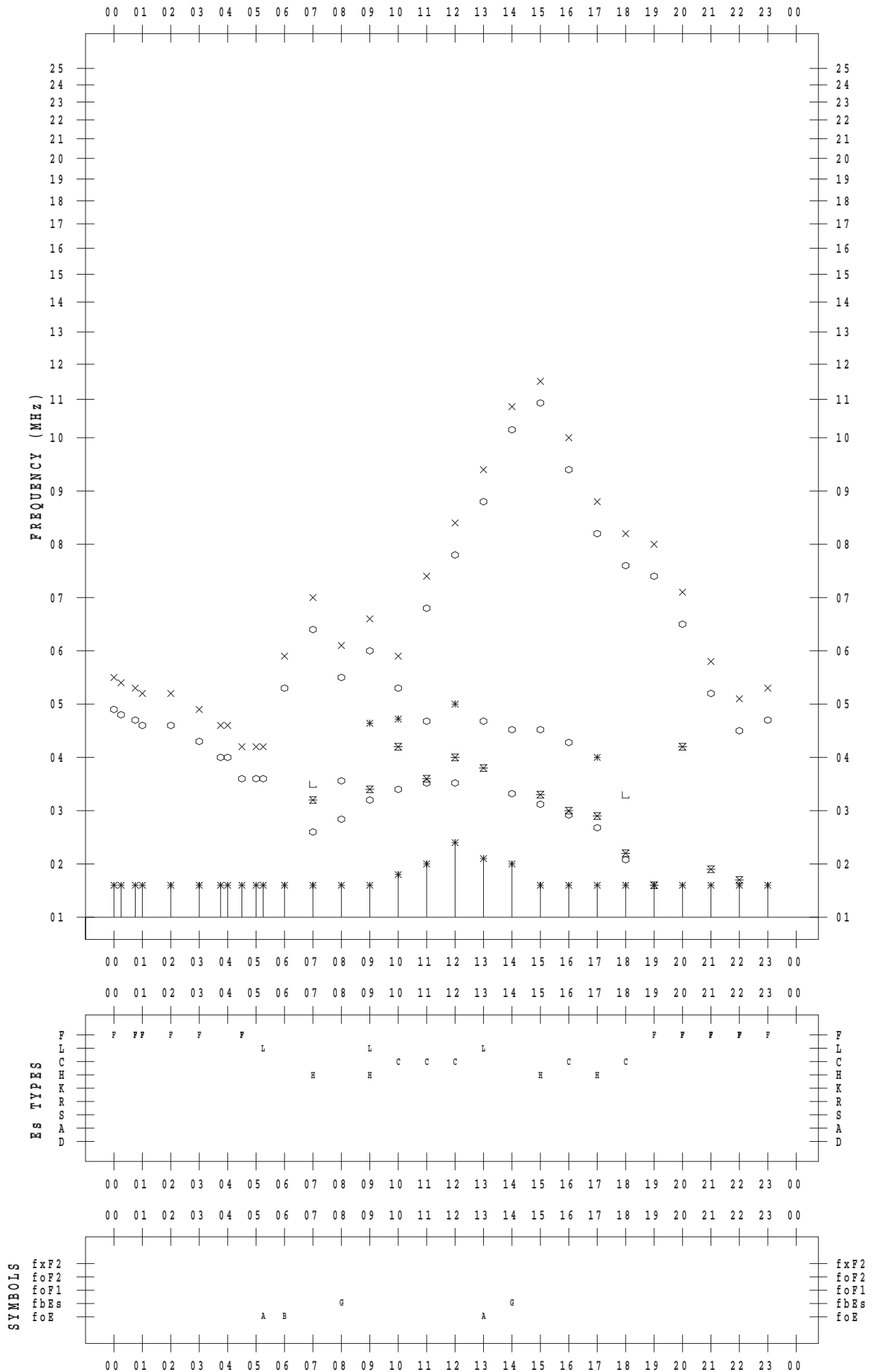
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 22

135 ° E MEAN TIME



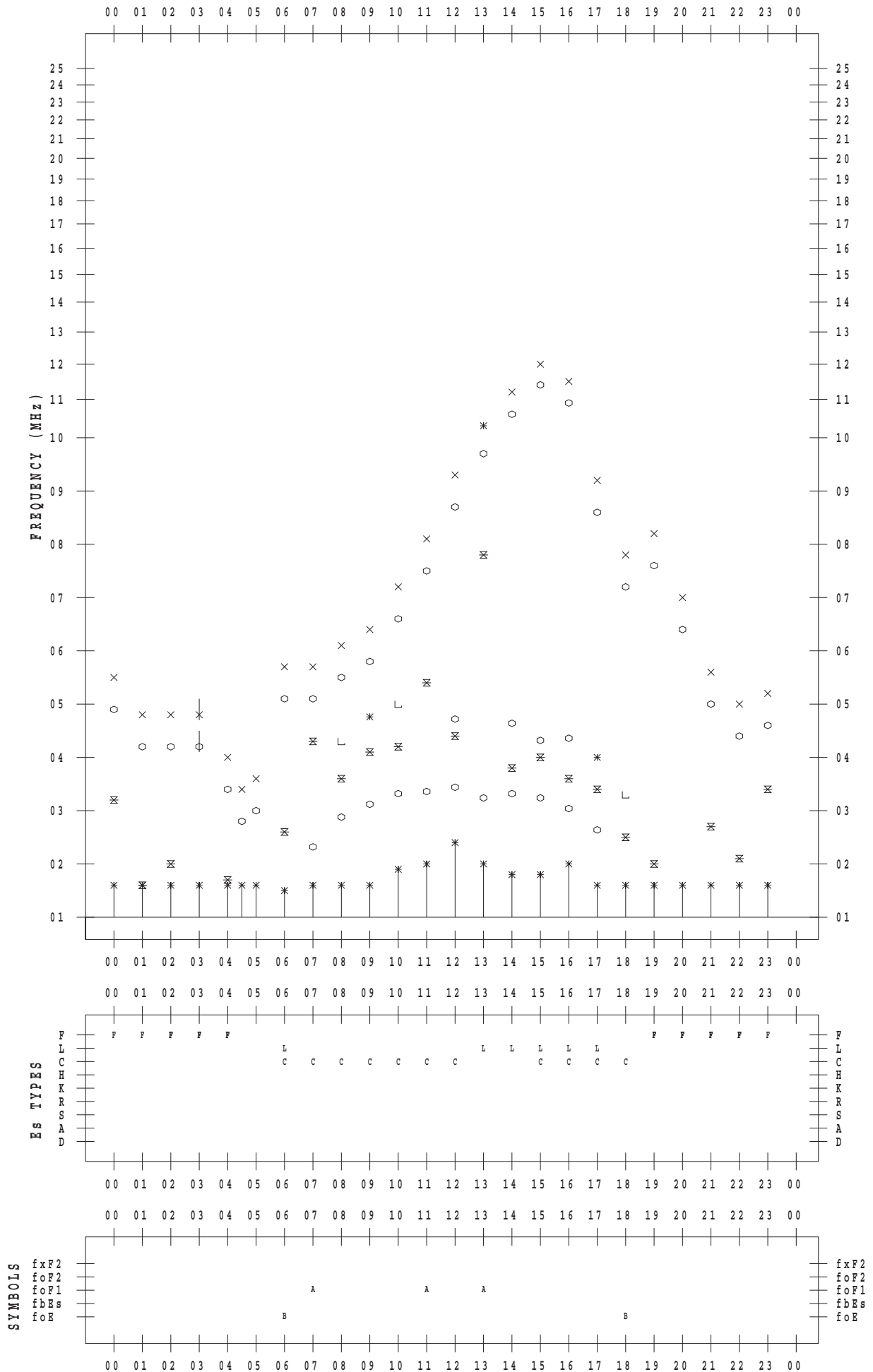
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 23

135 ° E MEAN TIME



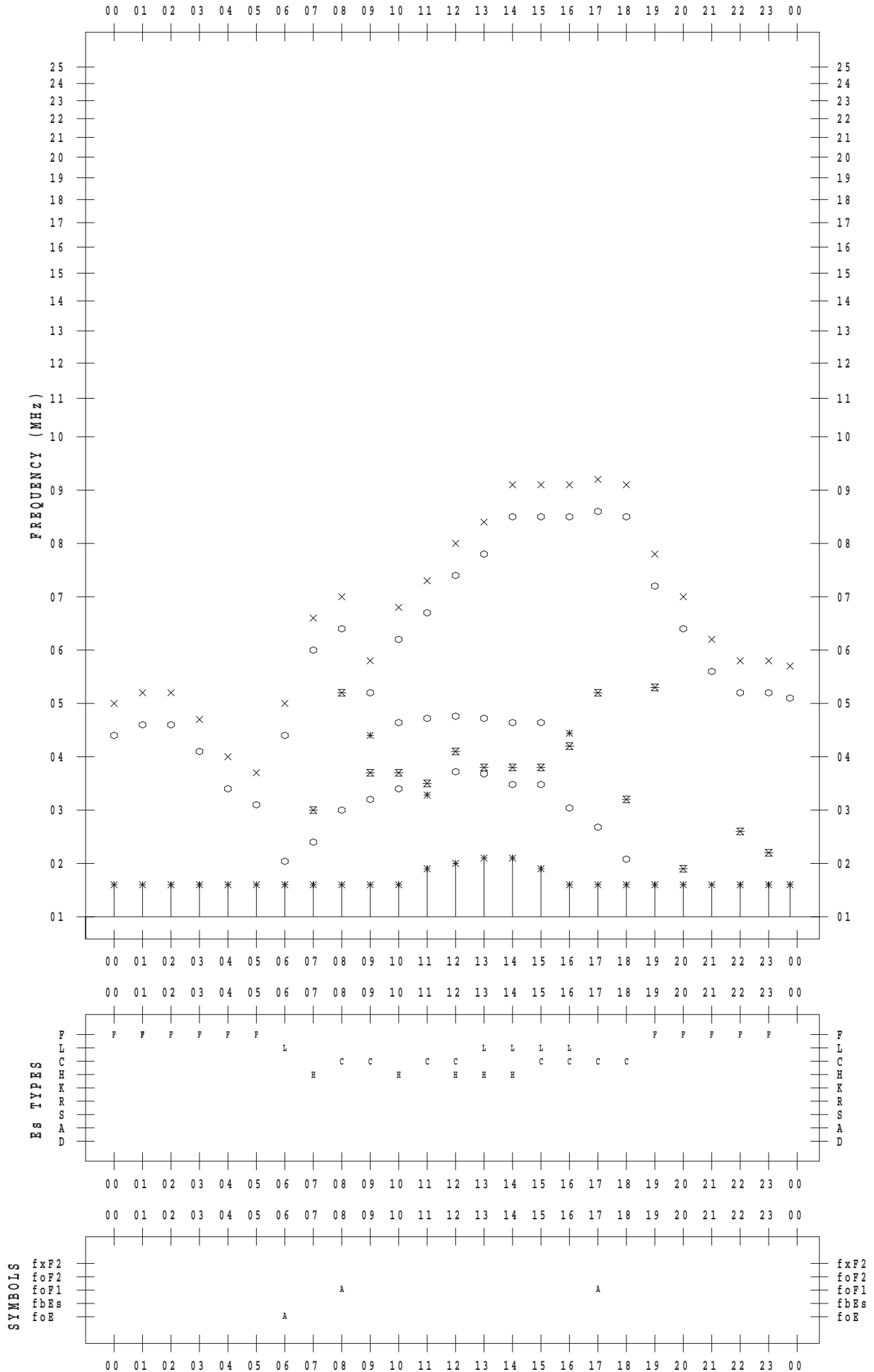
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 24

135 ° E MEAN TIME



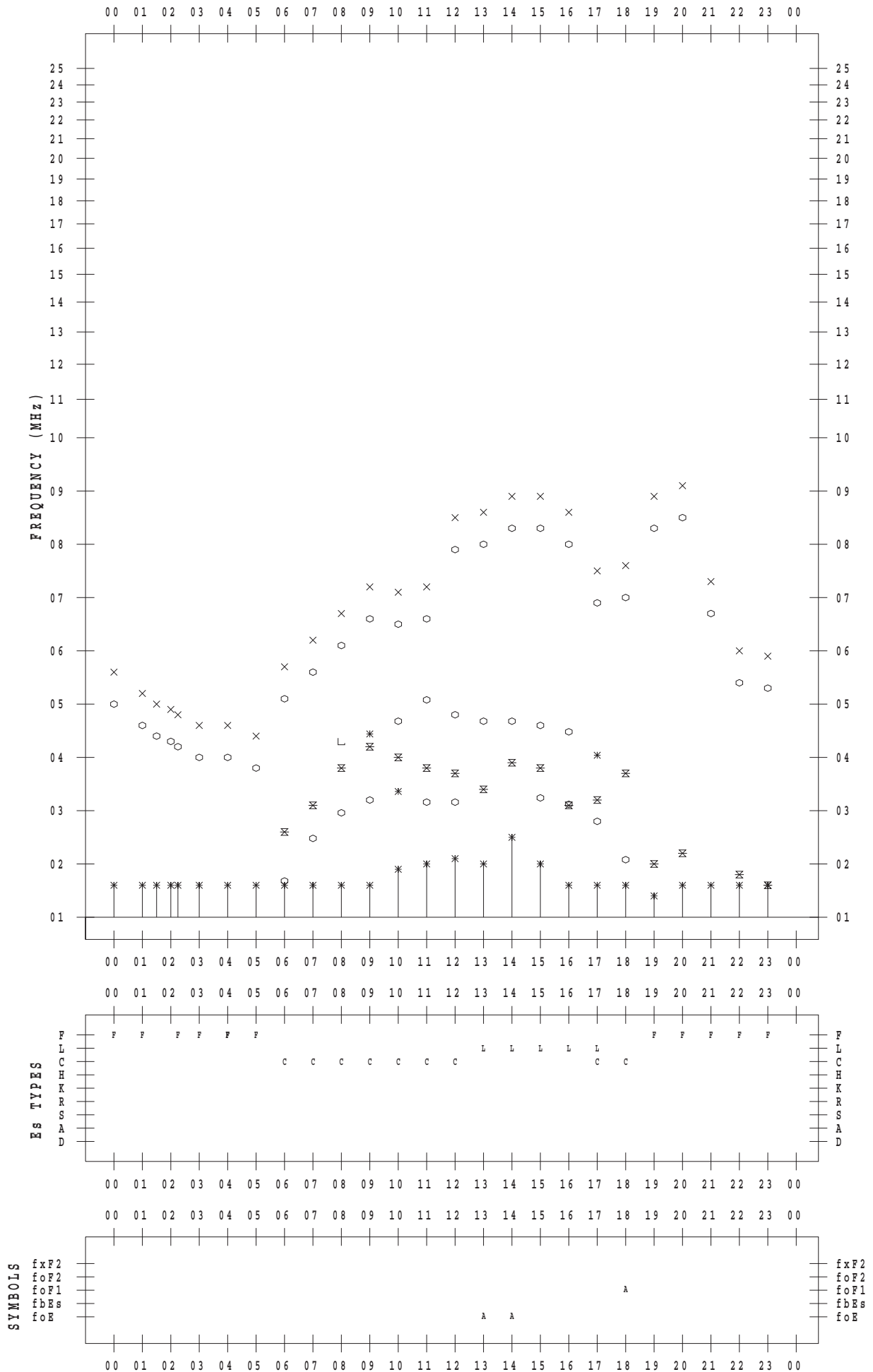
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 25

135 ° E MEAN TIME



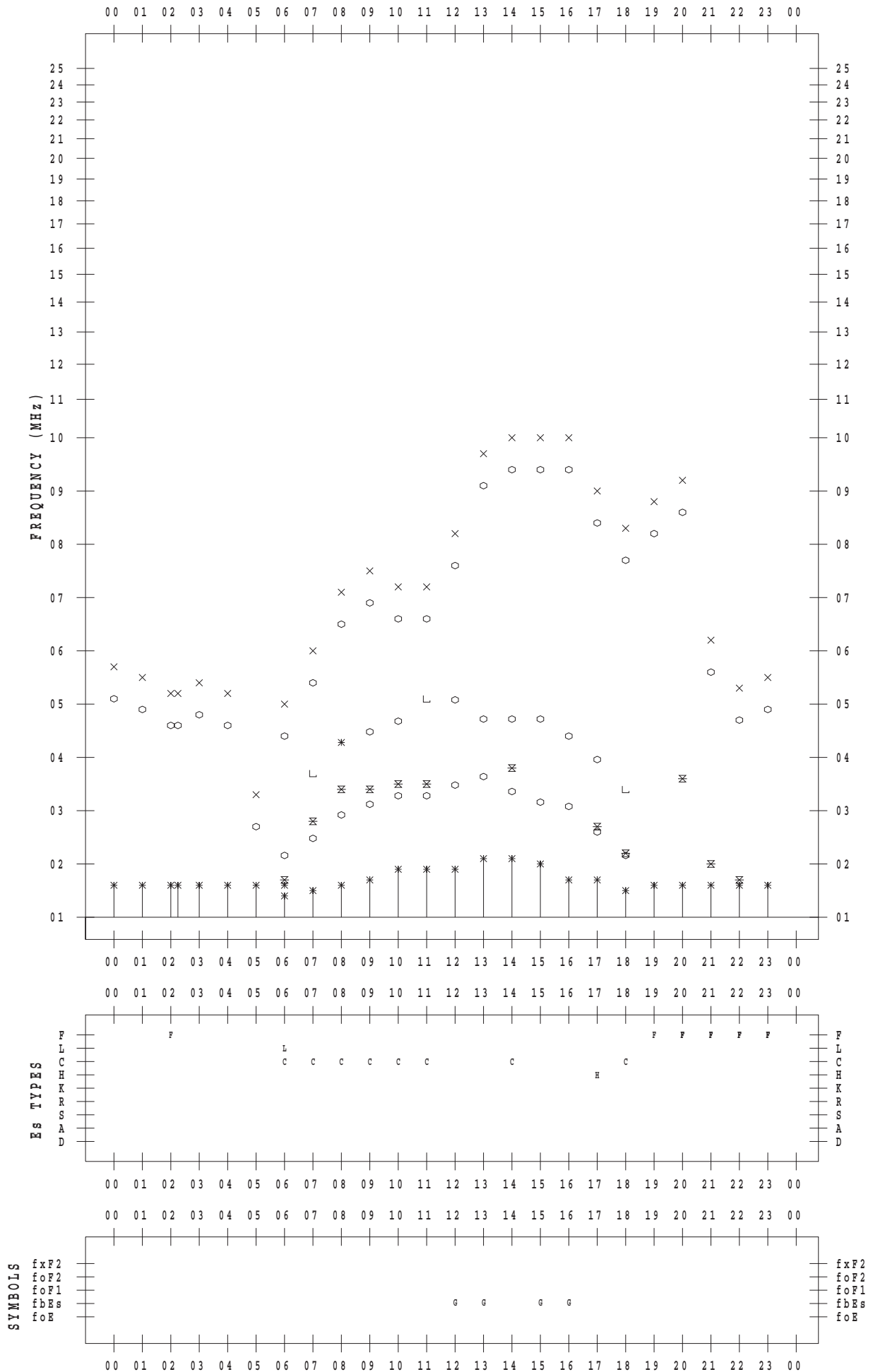
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 26

135 ° E MEAN TIME



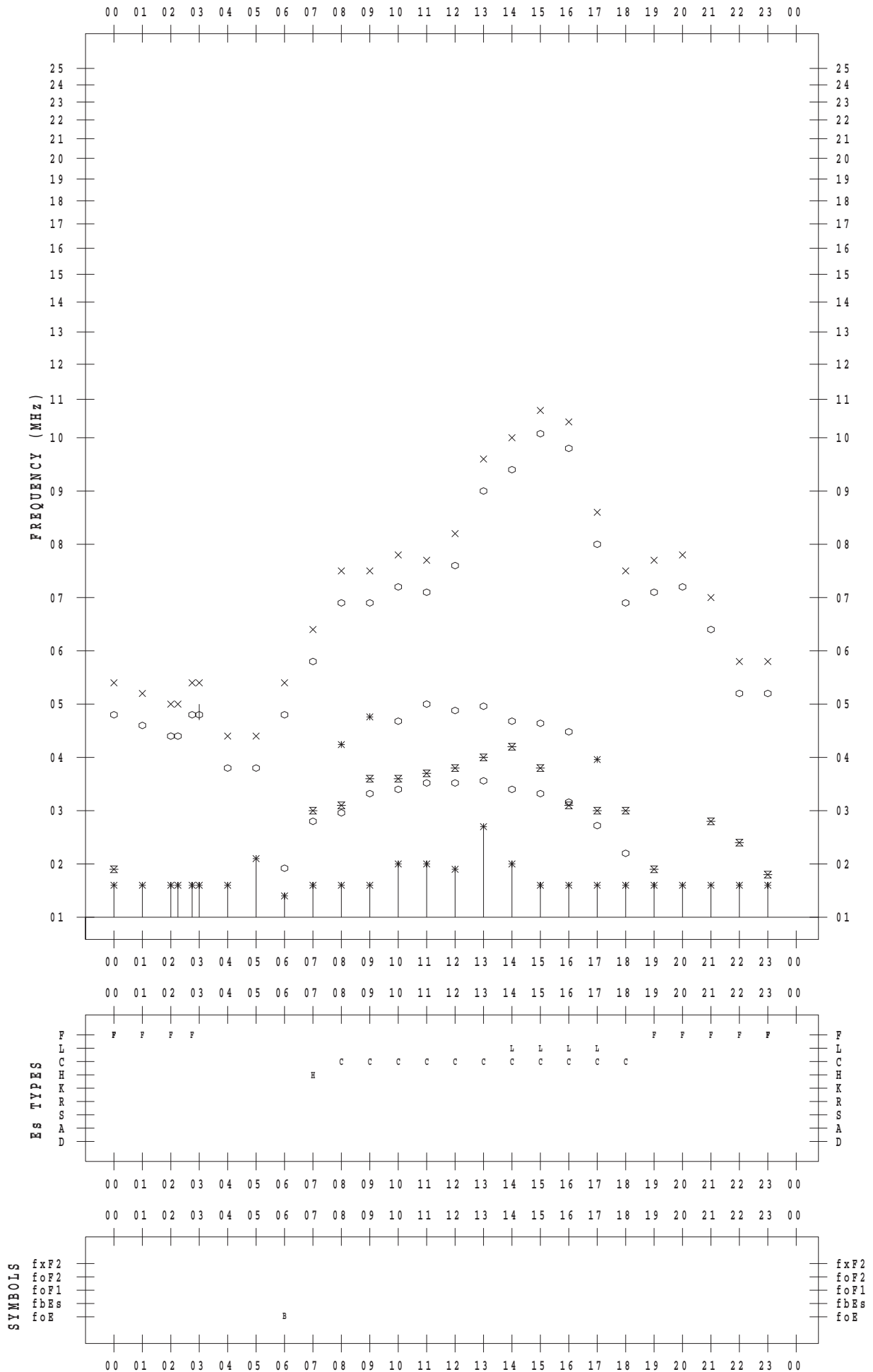
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 27

135 ° E MEAN TIME



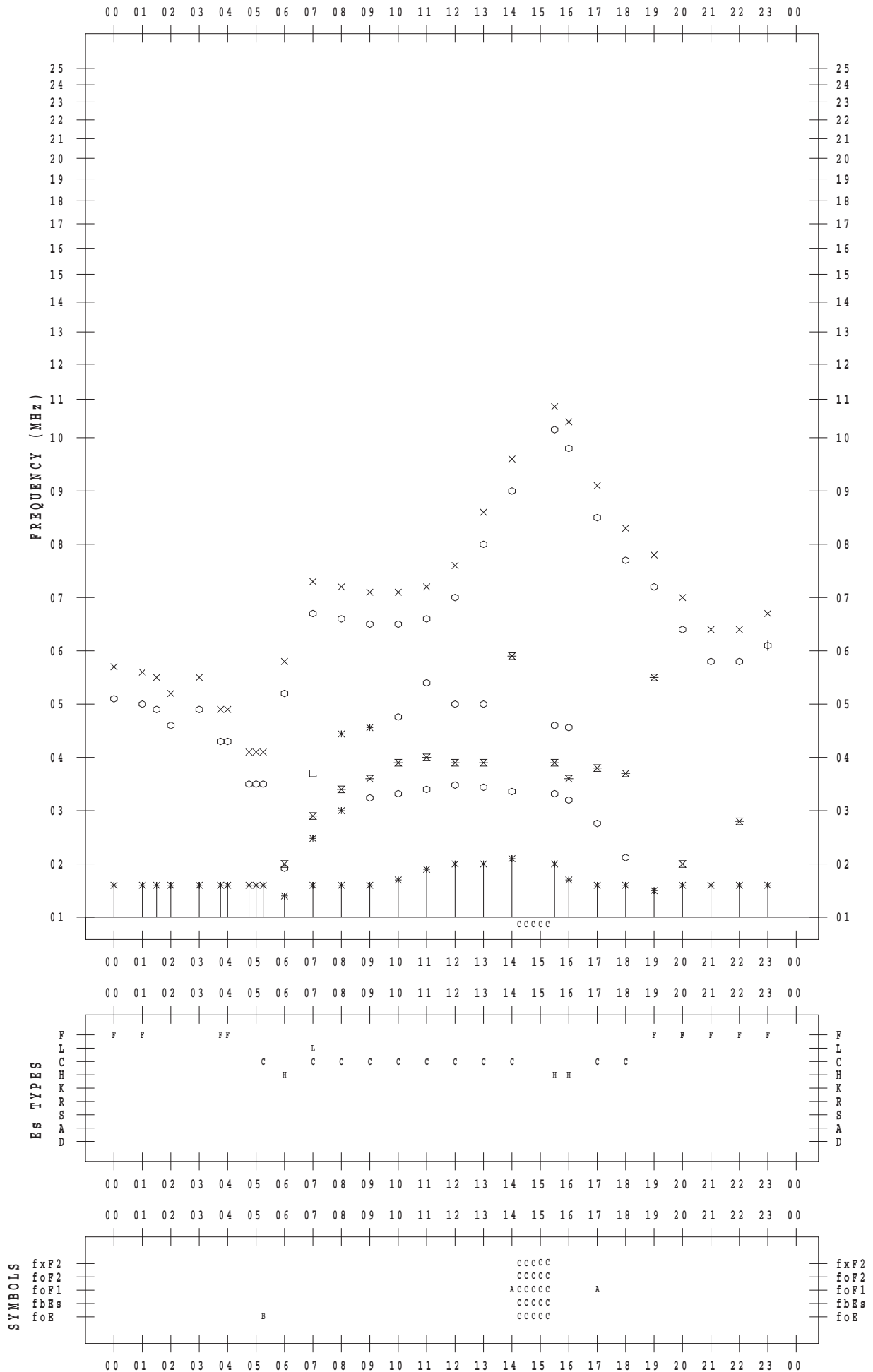
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 28

135 ° E MEAN TIME



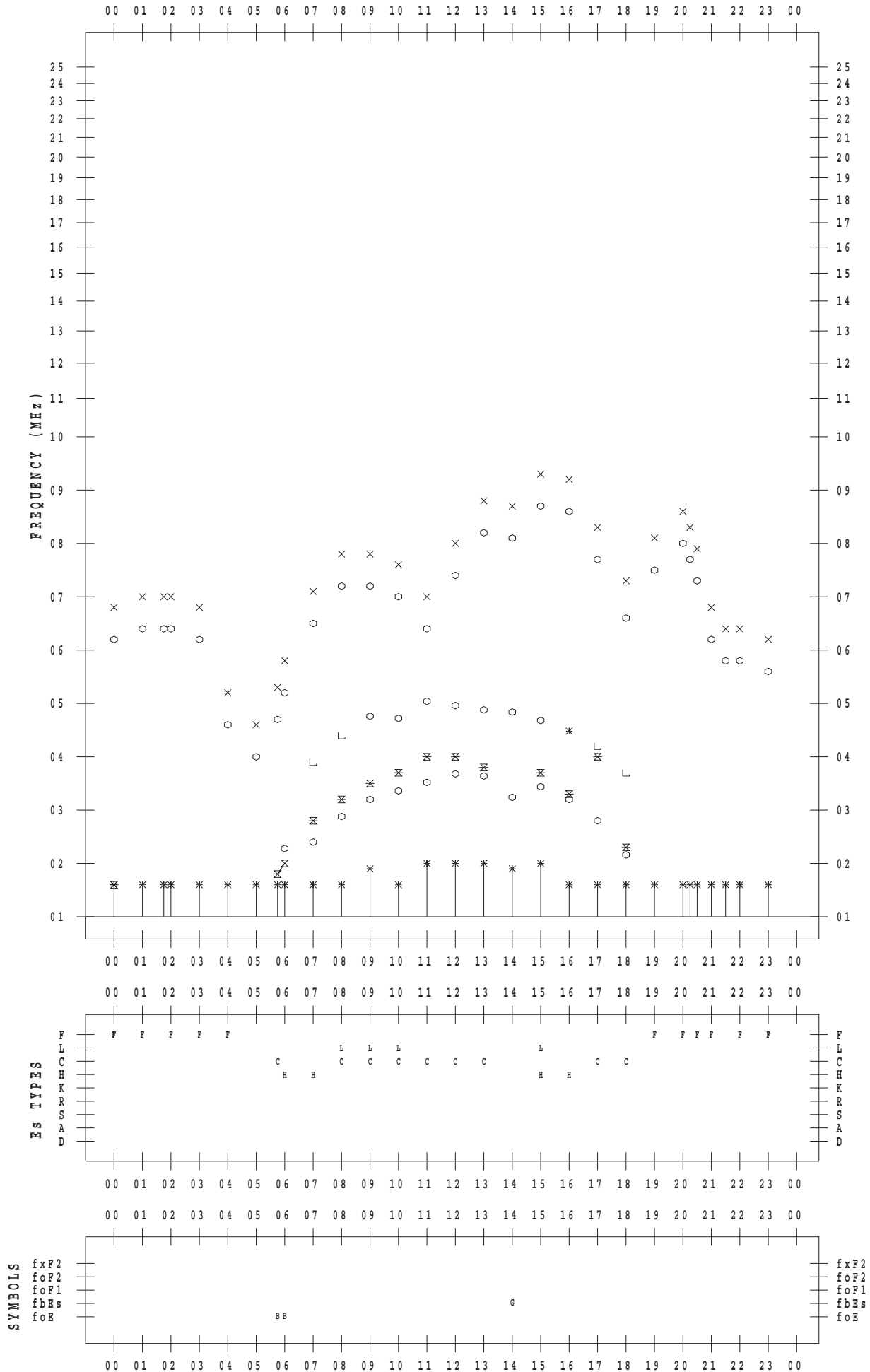
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 29

135 ° E MEAN TIME



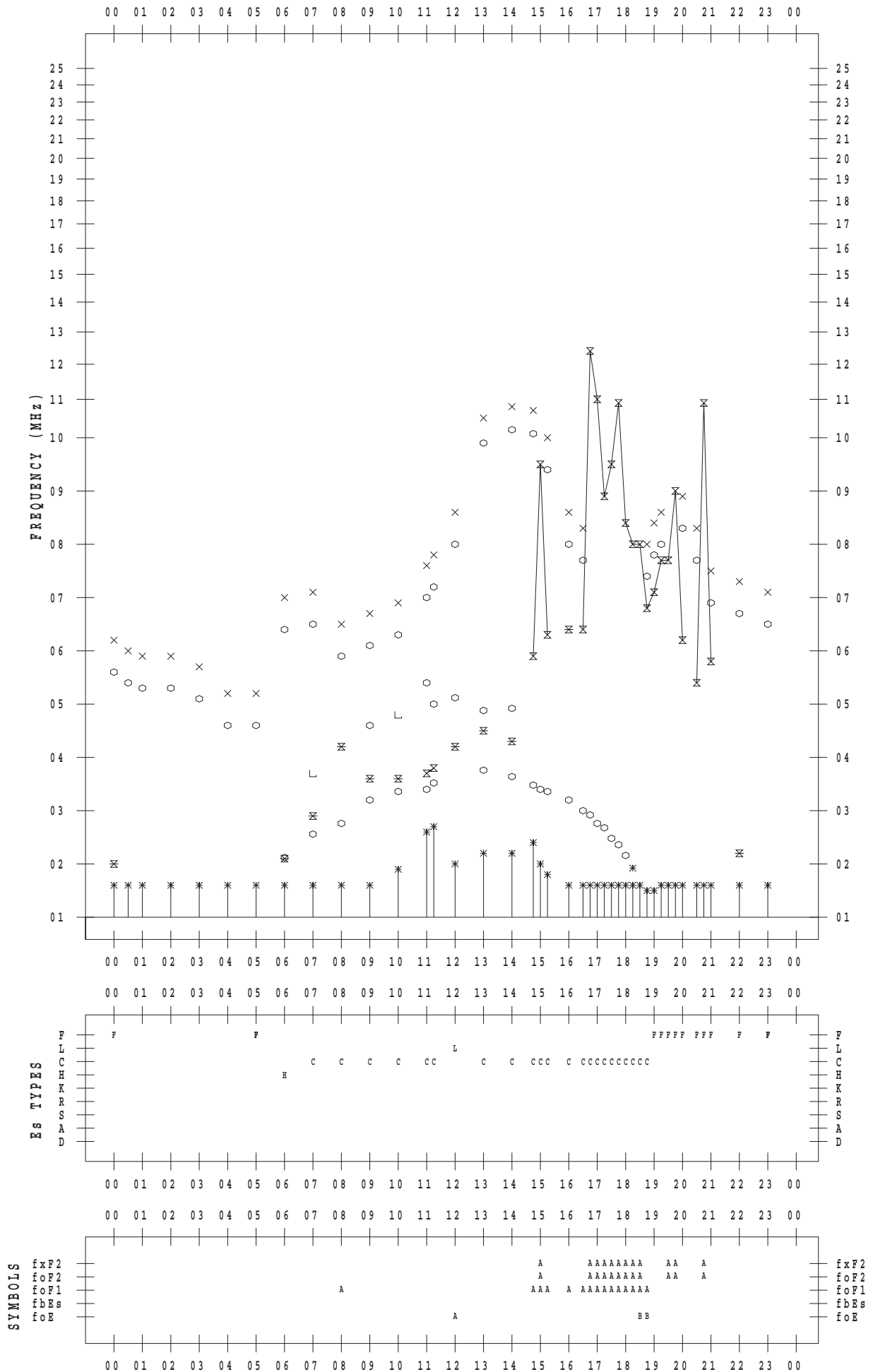
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SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016 / 4 / 30

135 ° E MEAN TIME



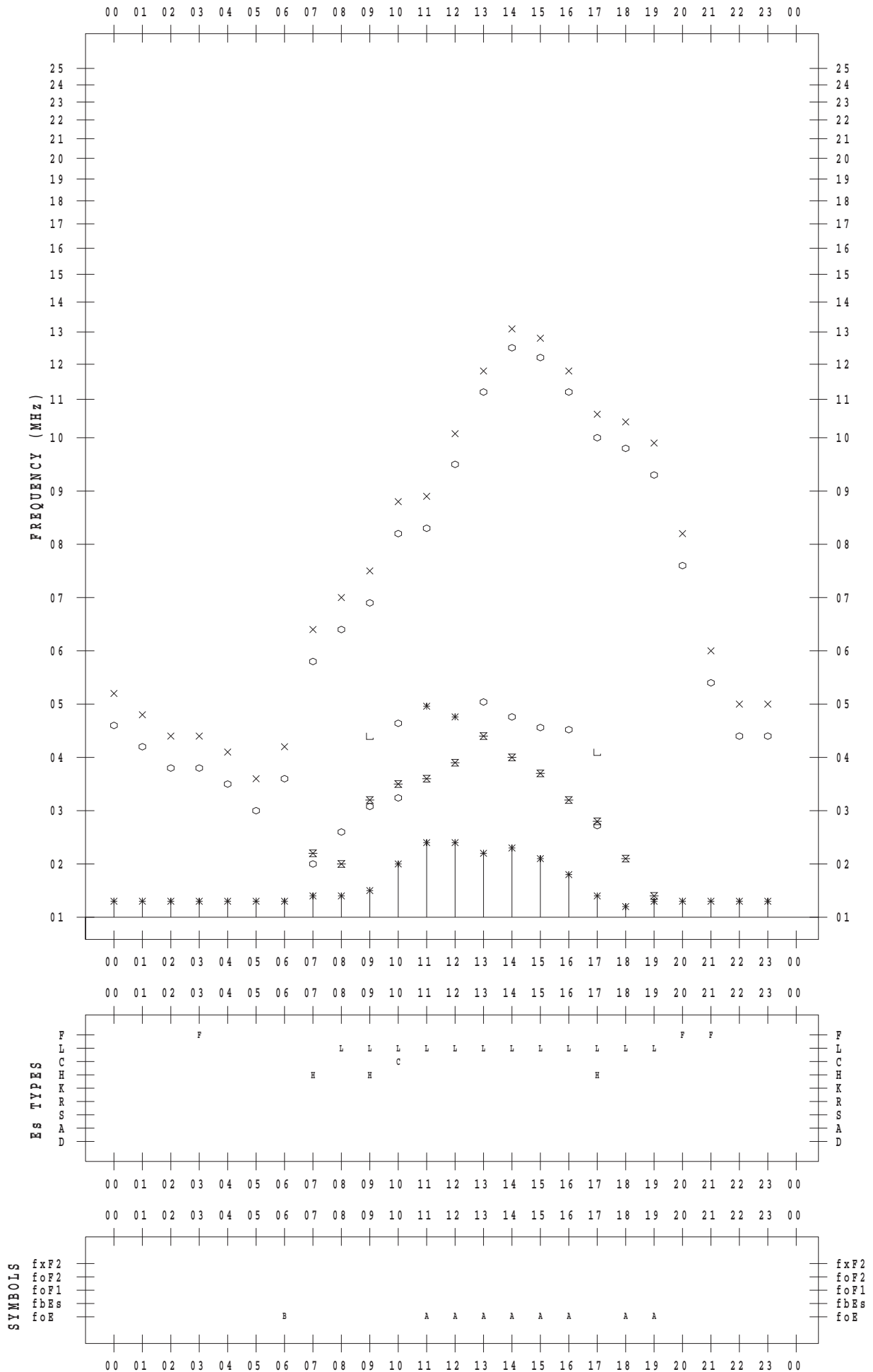
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 1

135 ° E MEAN TIME



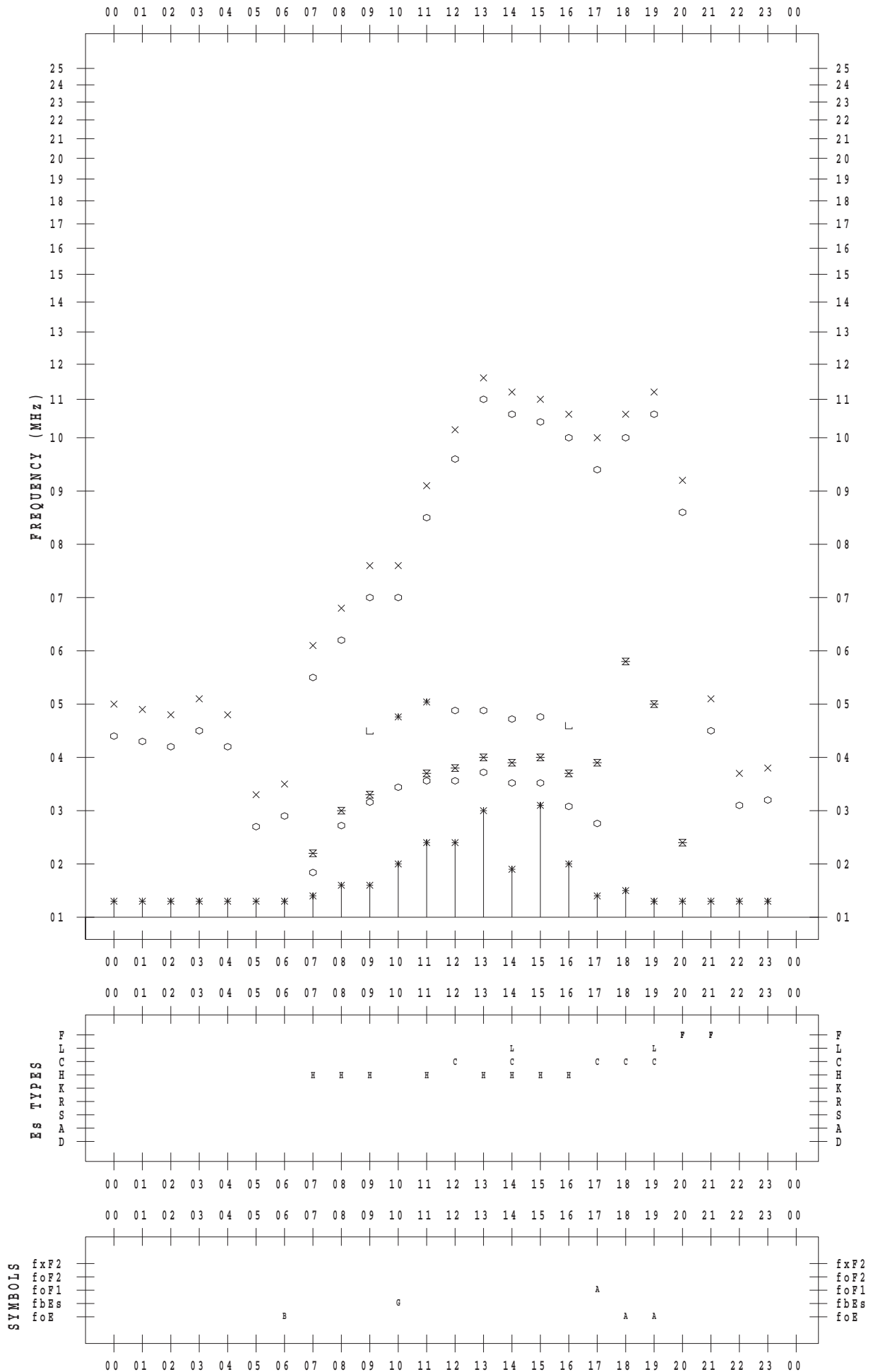
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 2

135 ° E MEAN TIME



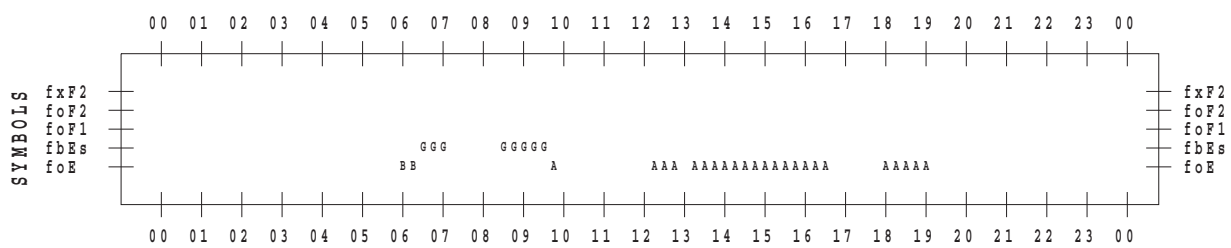
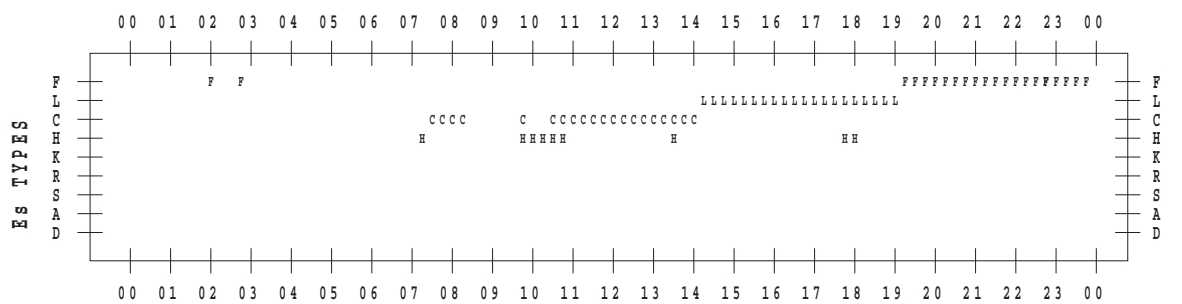
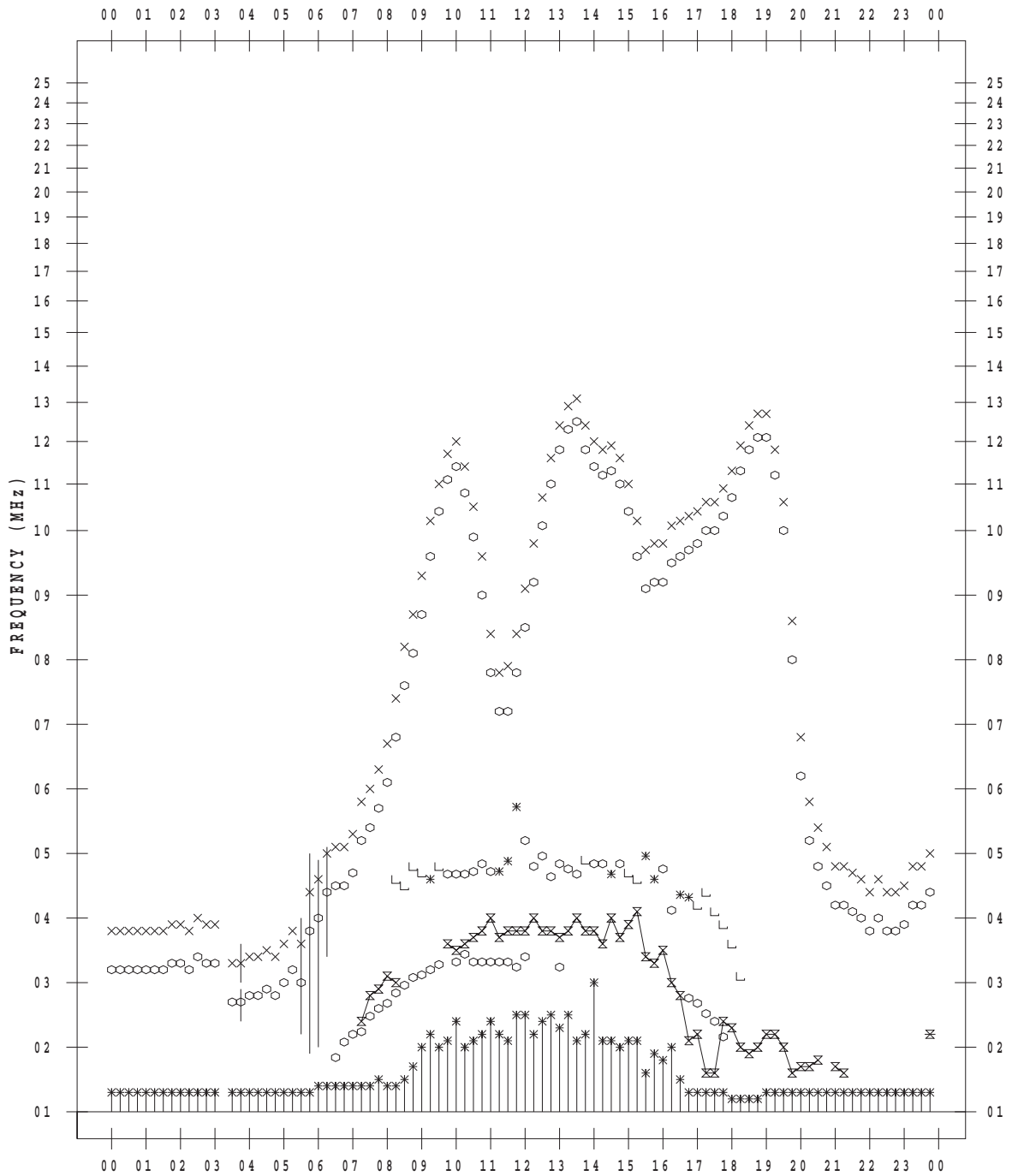
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 3

135 ° E MEAN TIME



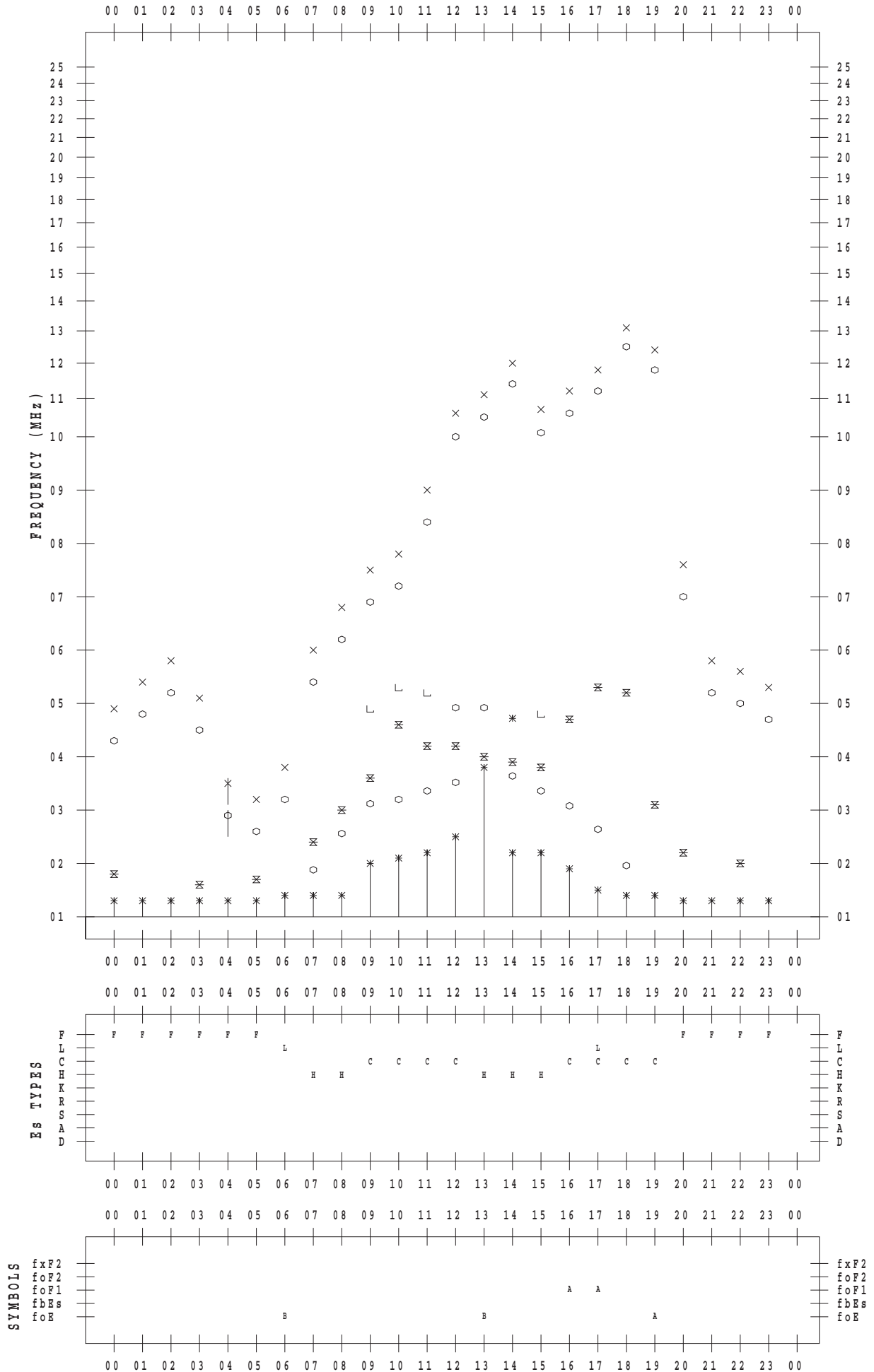
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 4

135 ° E MEAN TIME



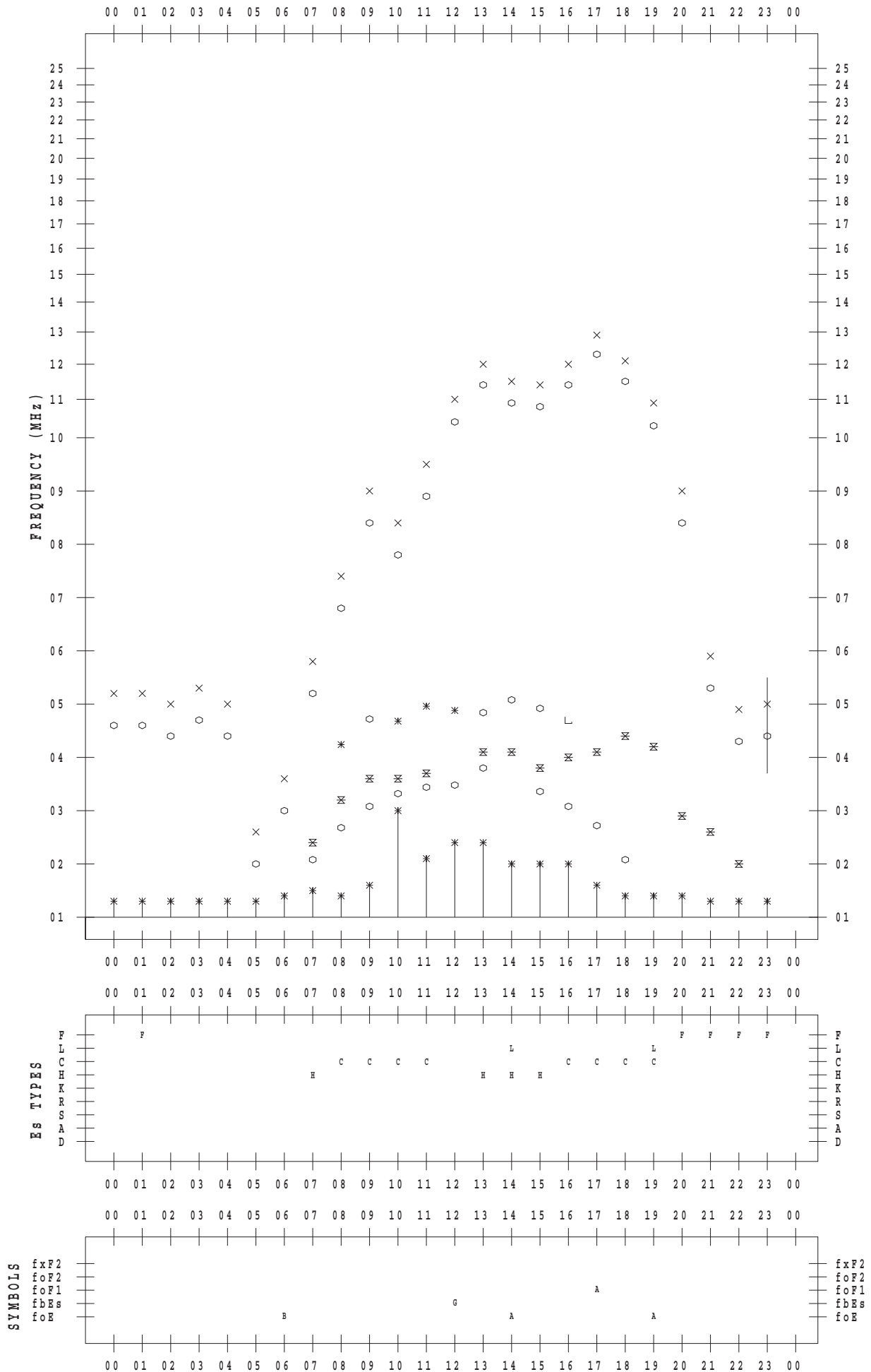
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 5

135 ° E MEAN TIME



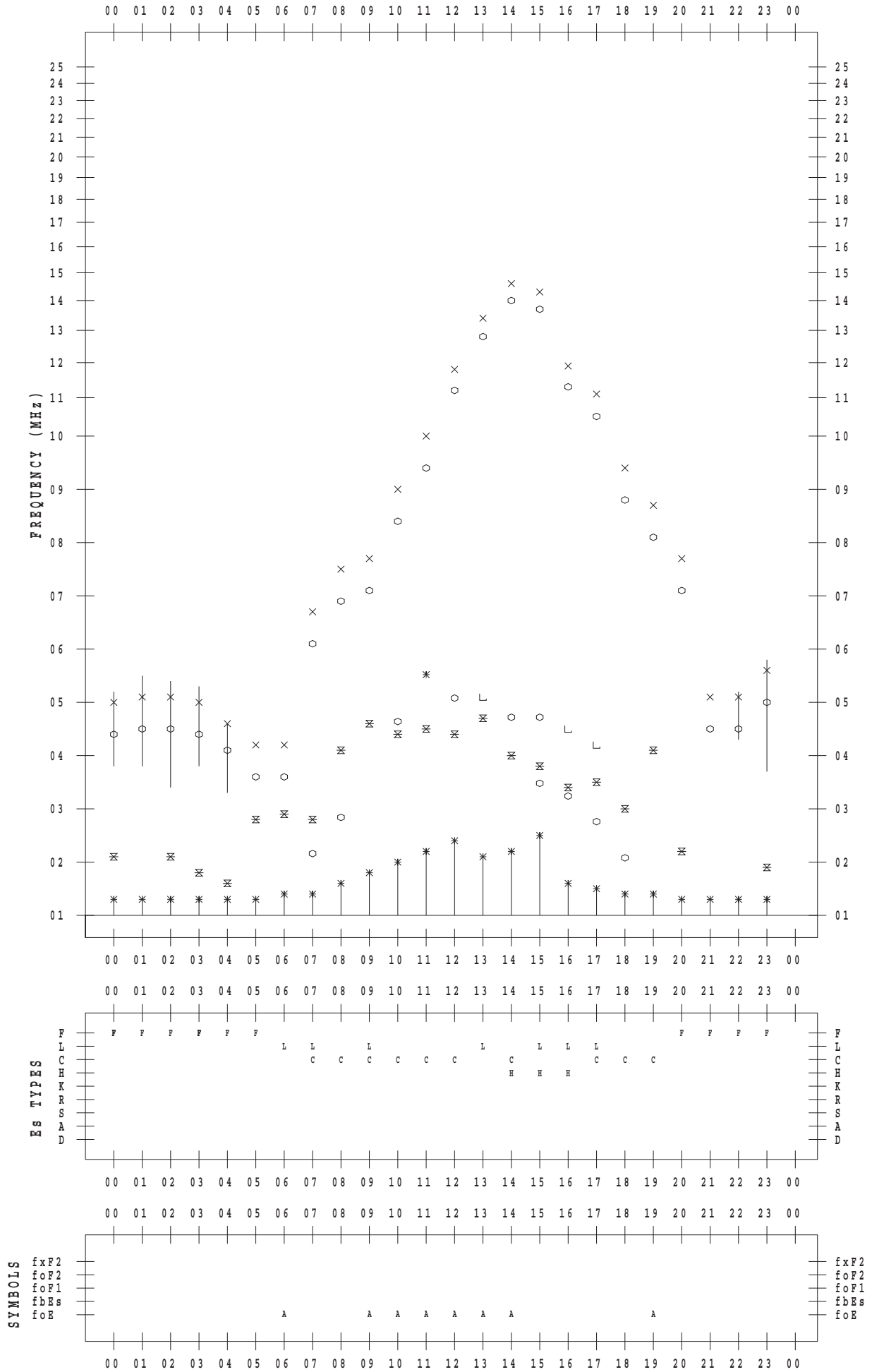
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 6

135 ° E MEAN TIME



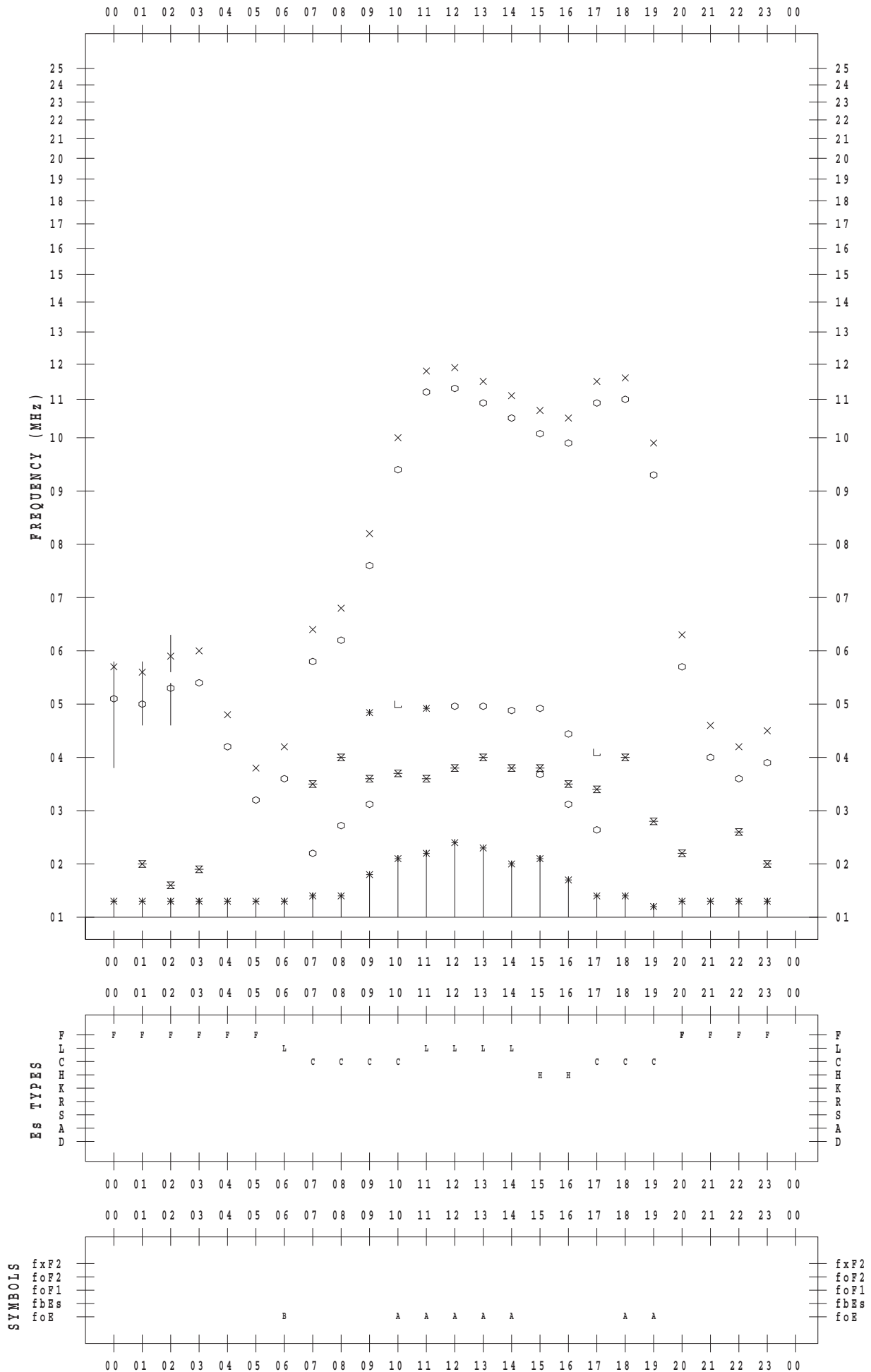
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 7

135 ° E MEAN TIME



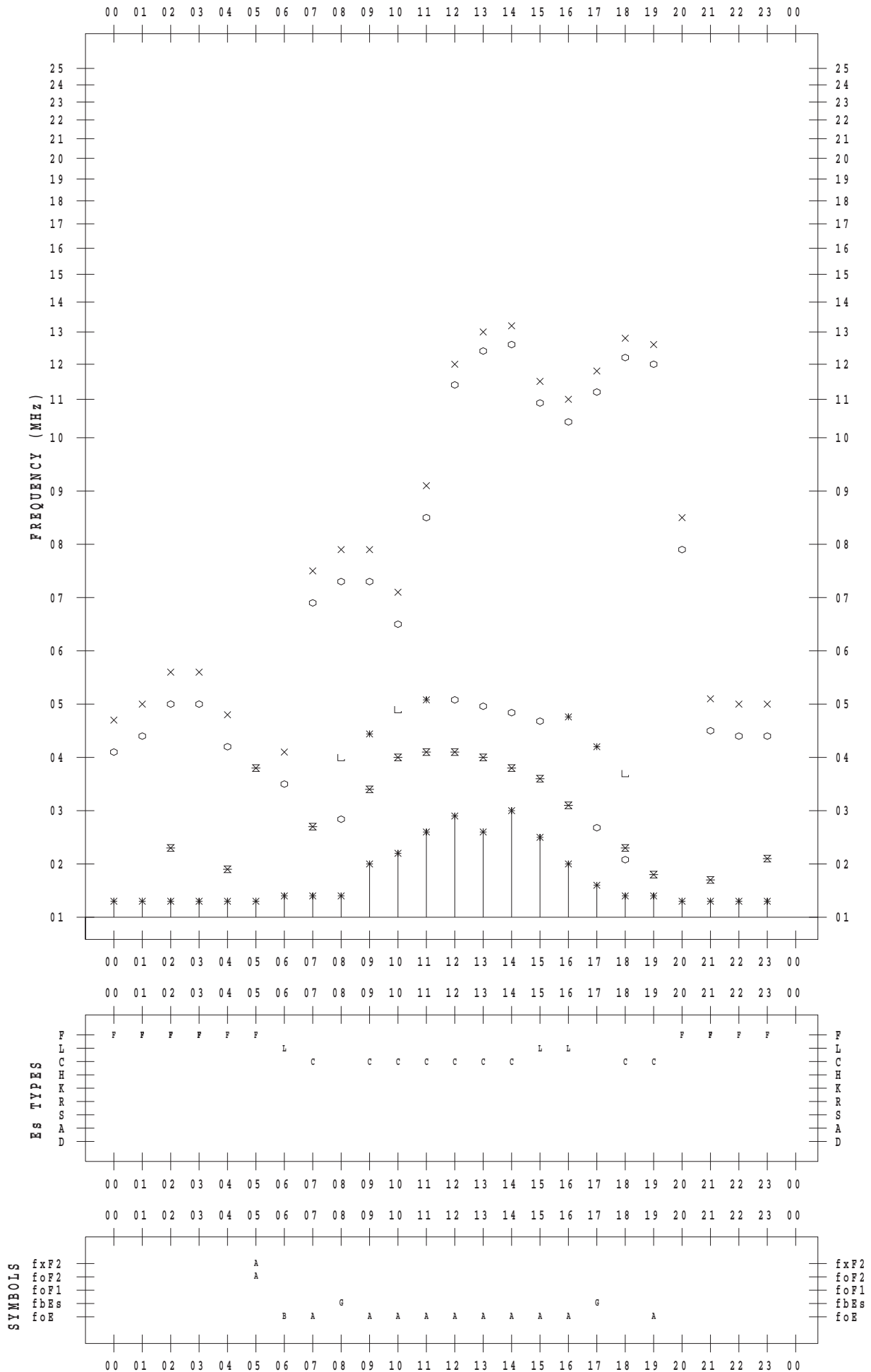
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 8

135 ° E MEAN TIME



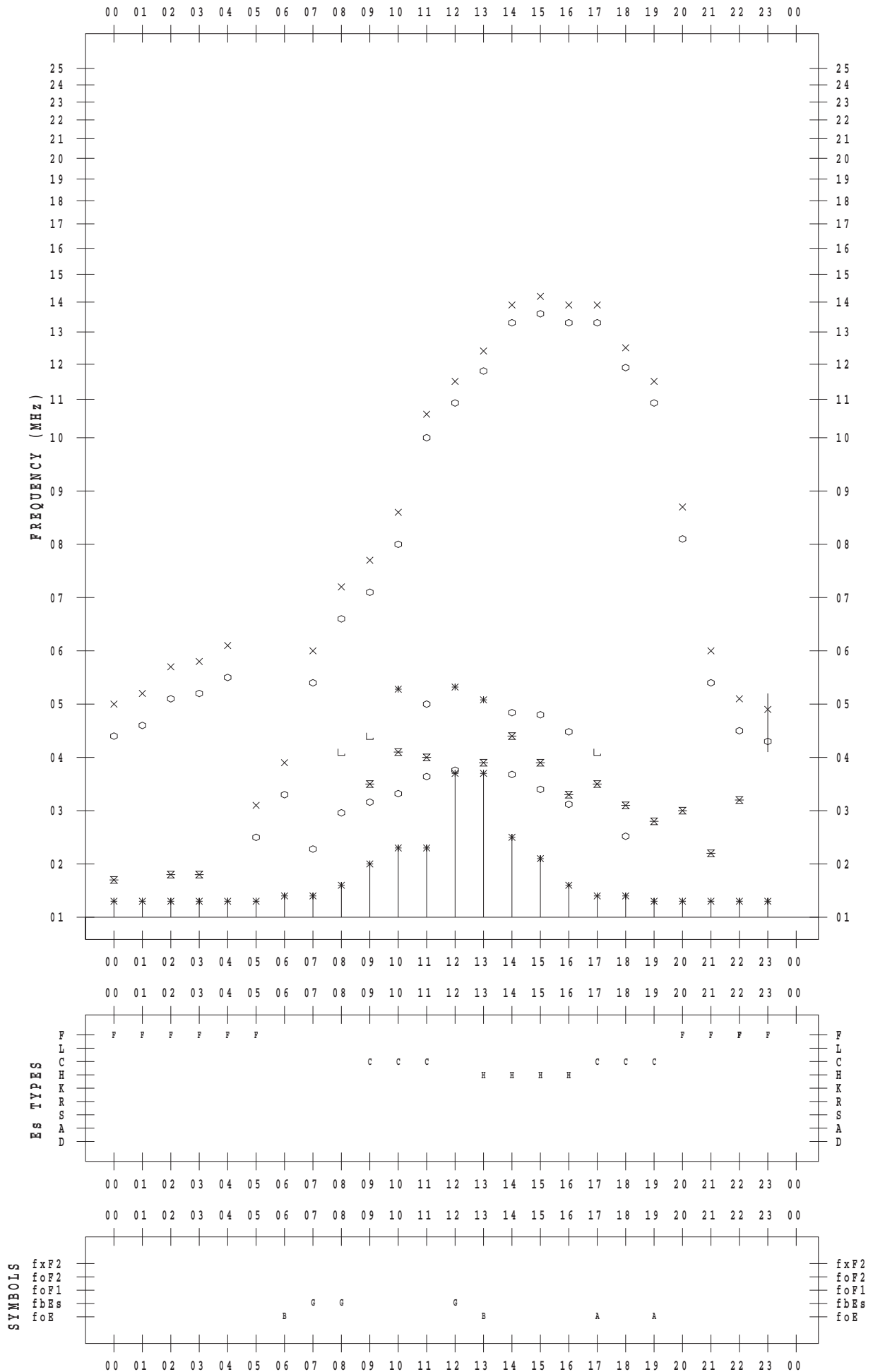
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 9

135 ° E MEAN TIME



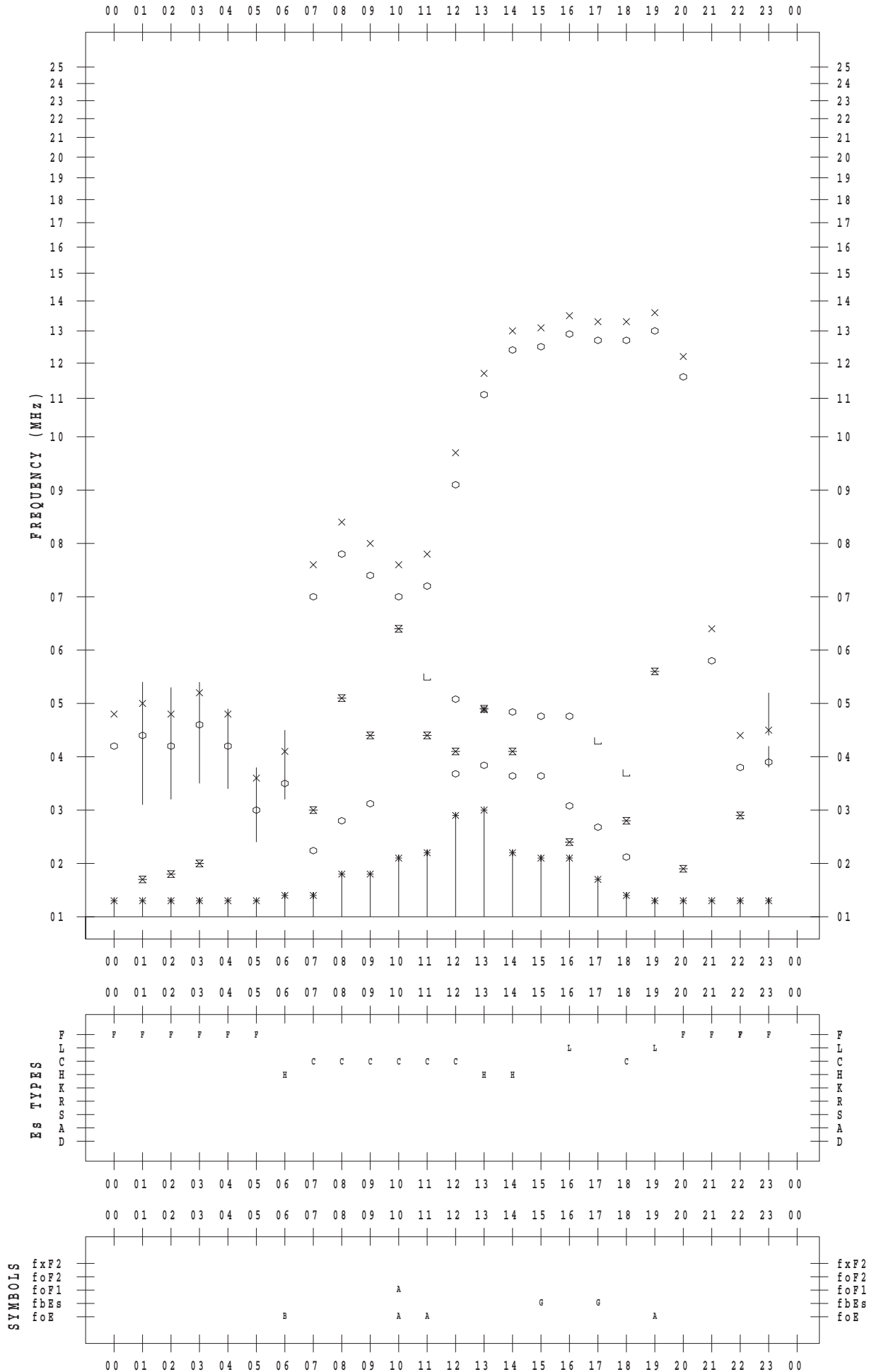
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 10

135 ° E MEAN TIME



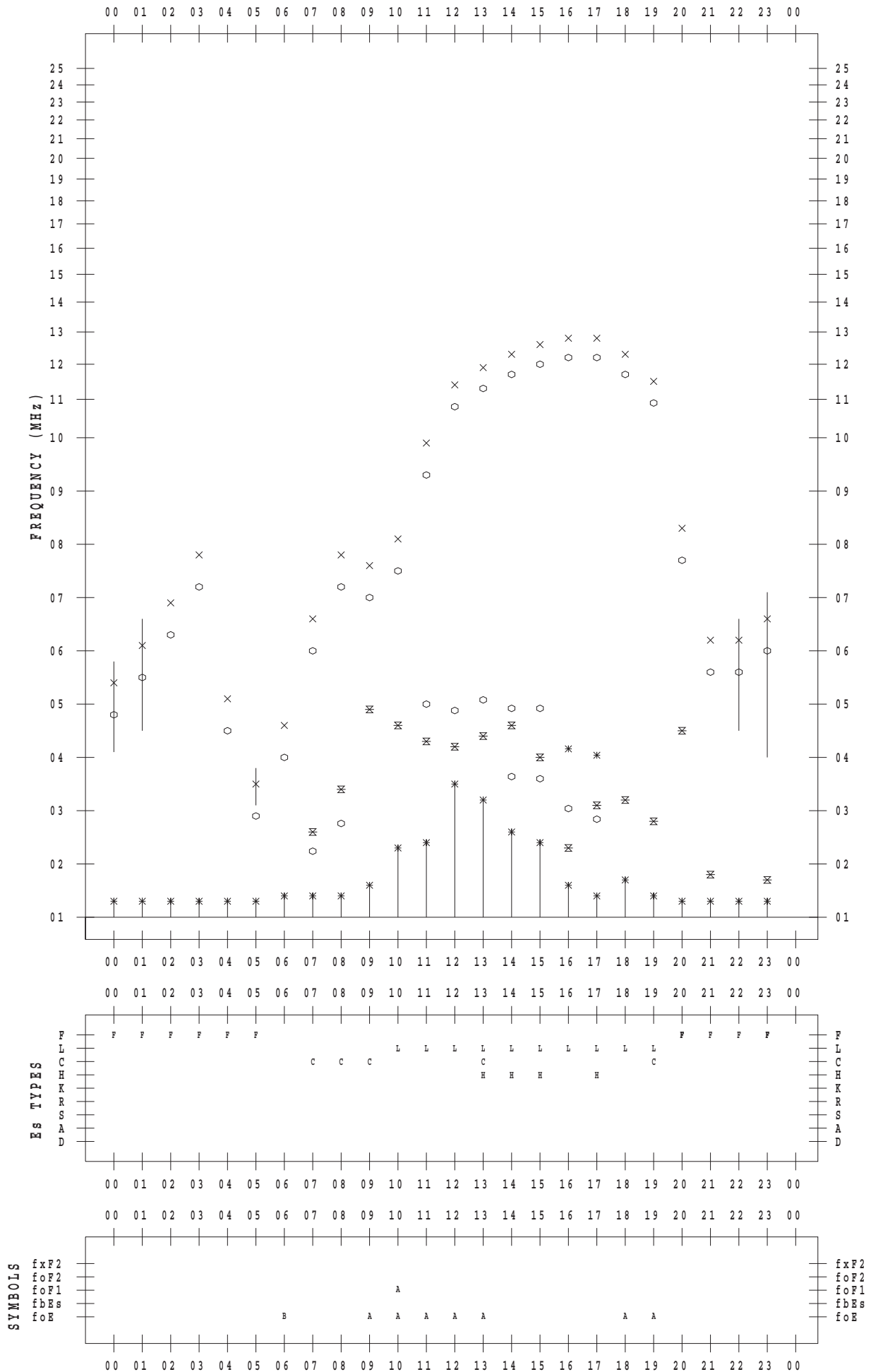
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 11

135 ° E MEAN TIME



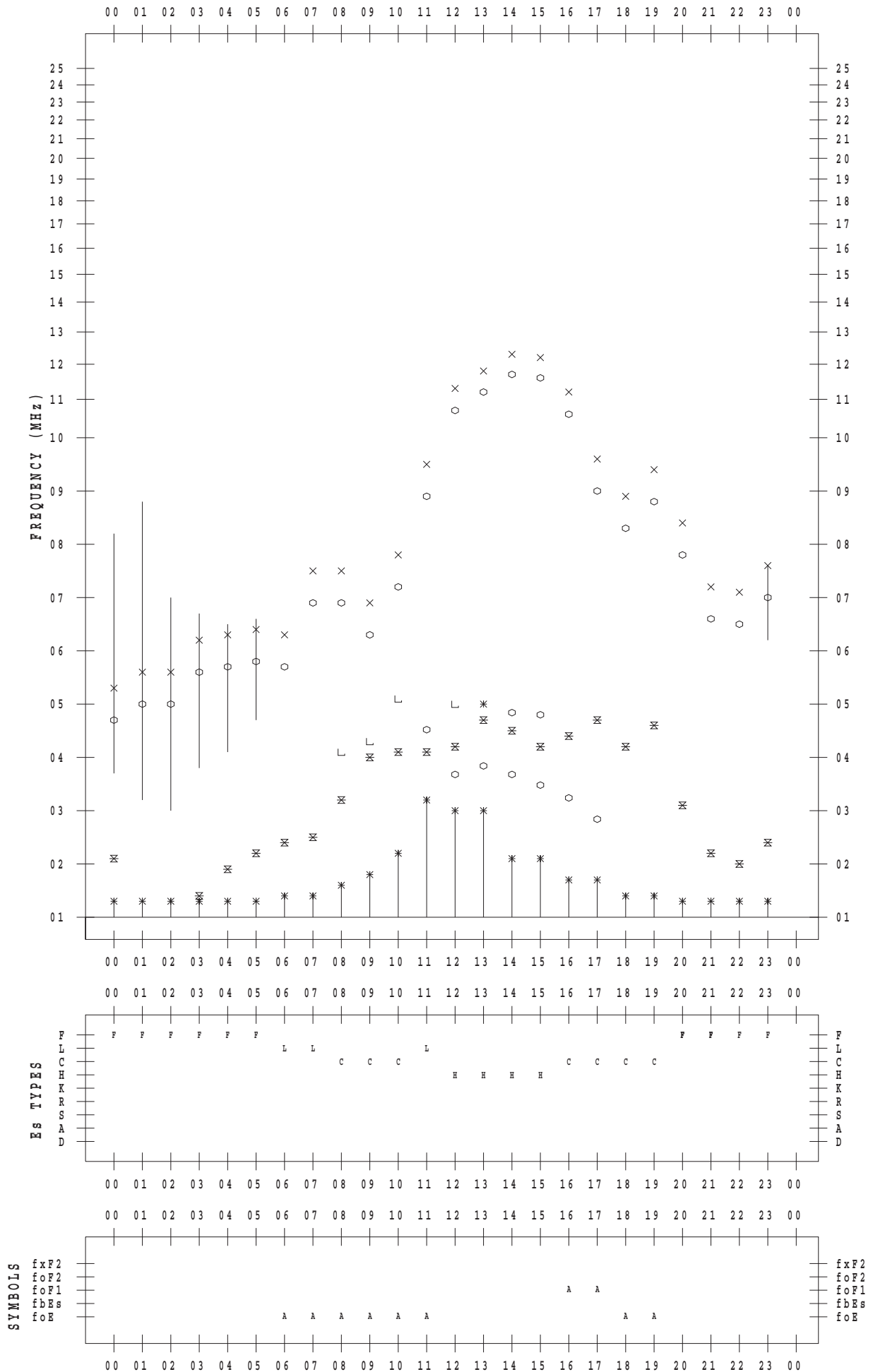
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 12

135 ° E MEAN TIME



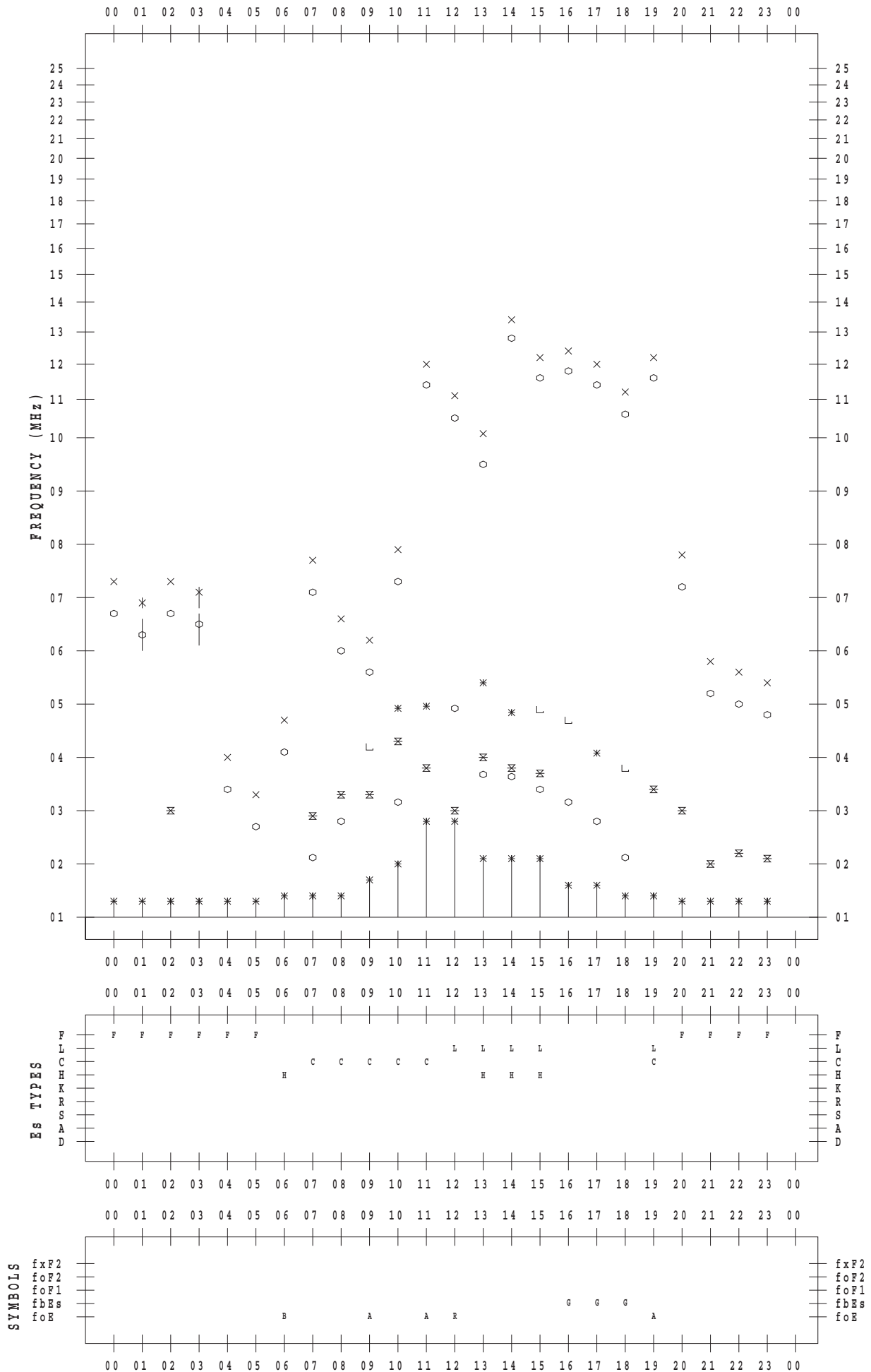
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 13

135 ° E MEAN TIME



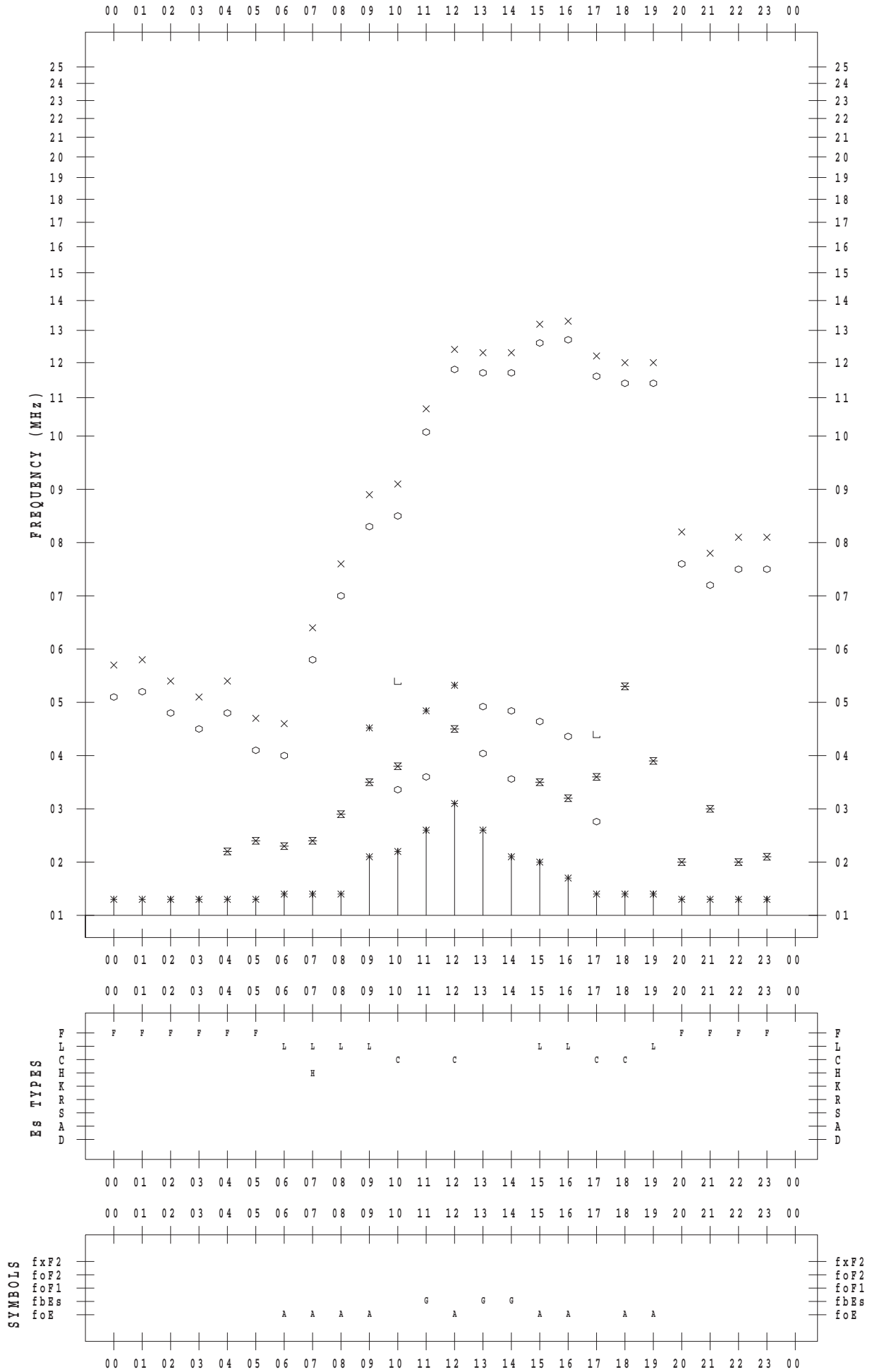
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 14

135 ° E MEAN TIME



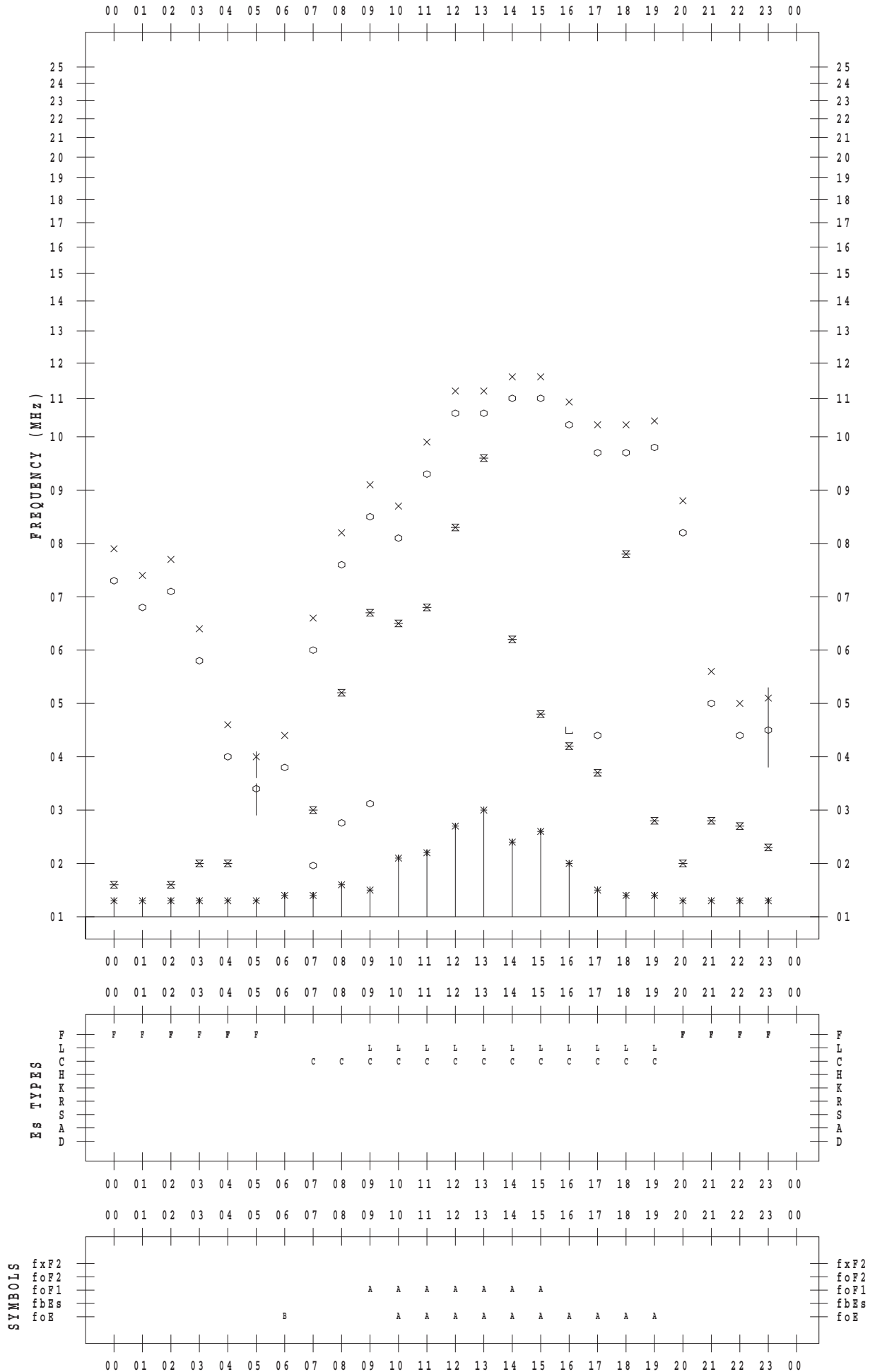
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 15

135 ° E MEAN TIME



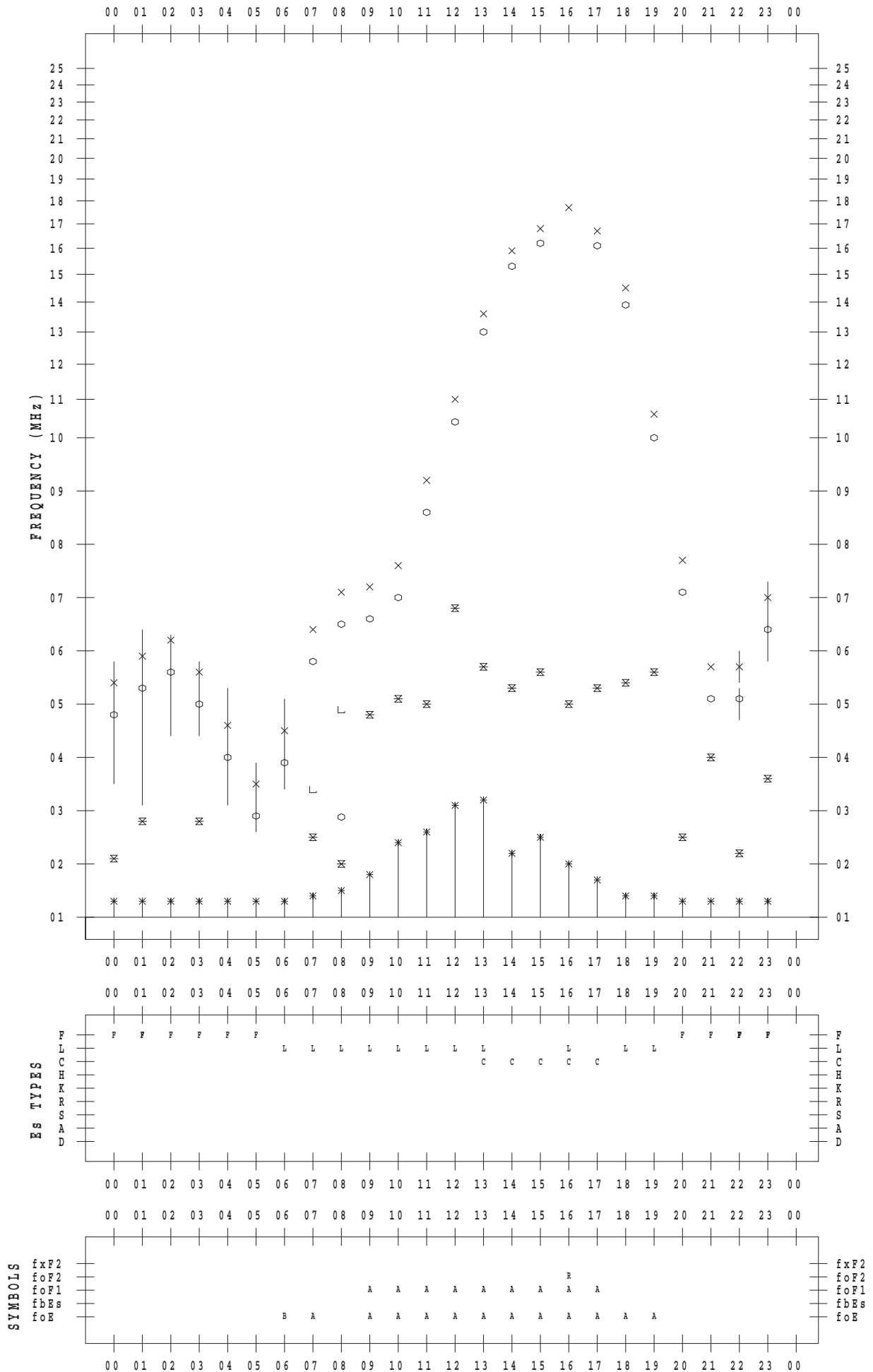
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 16

135 ° E MEAN TIME



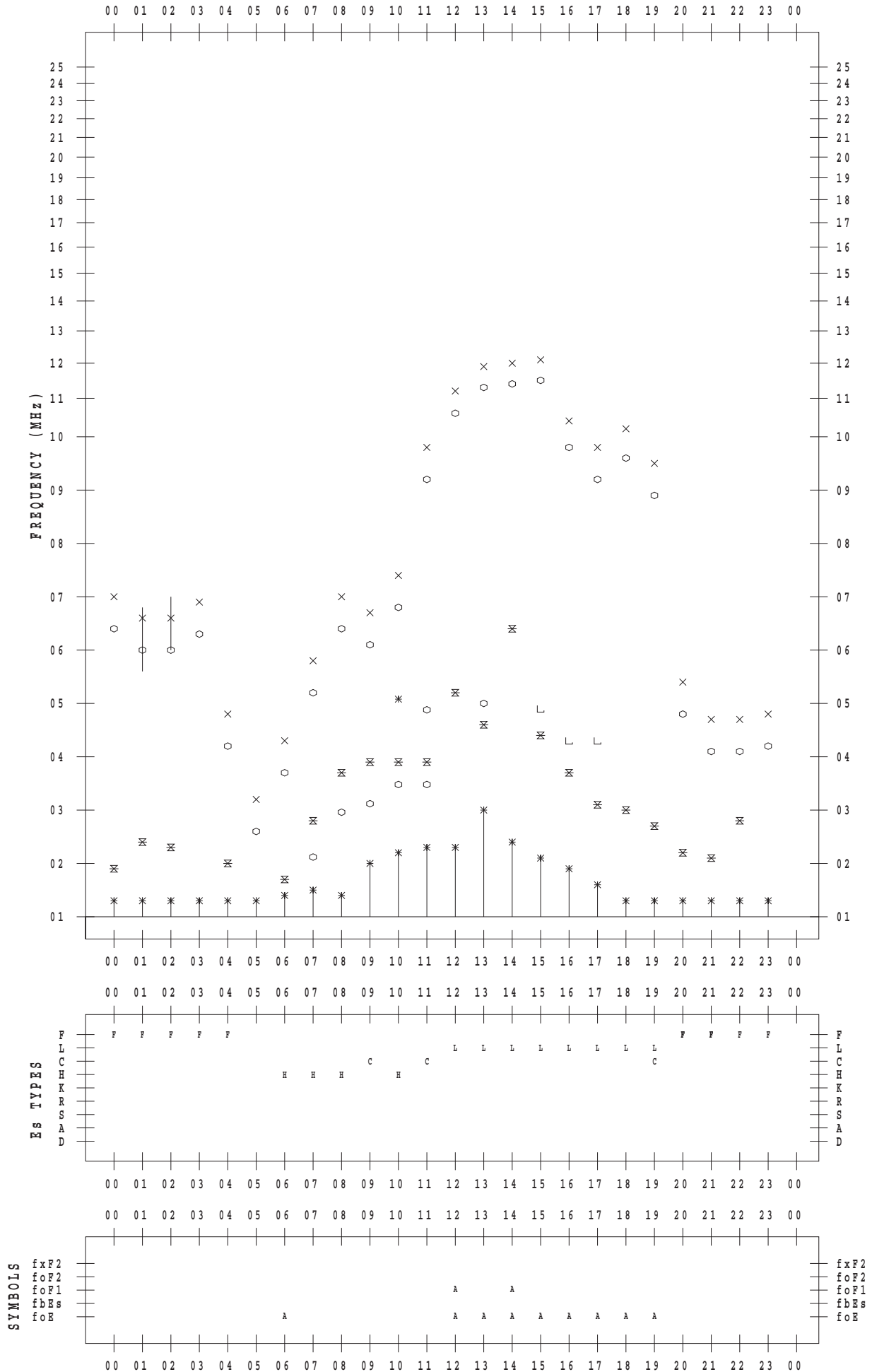
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 17

135 ° E MEAN TIME



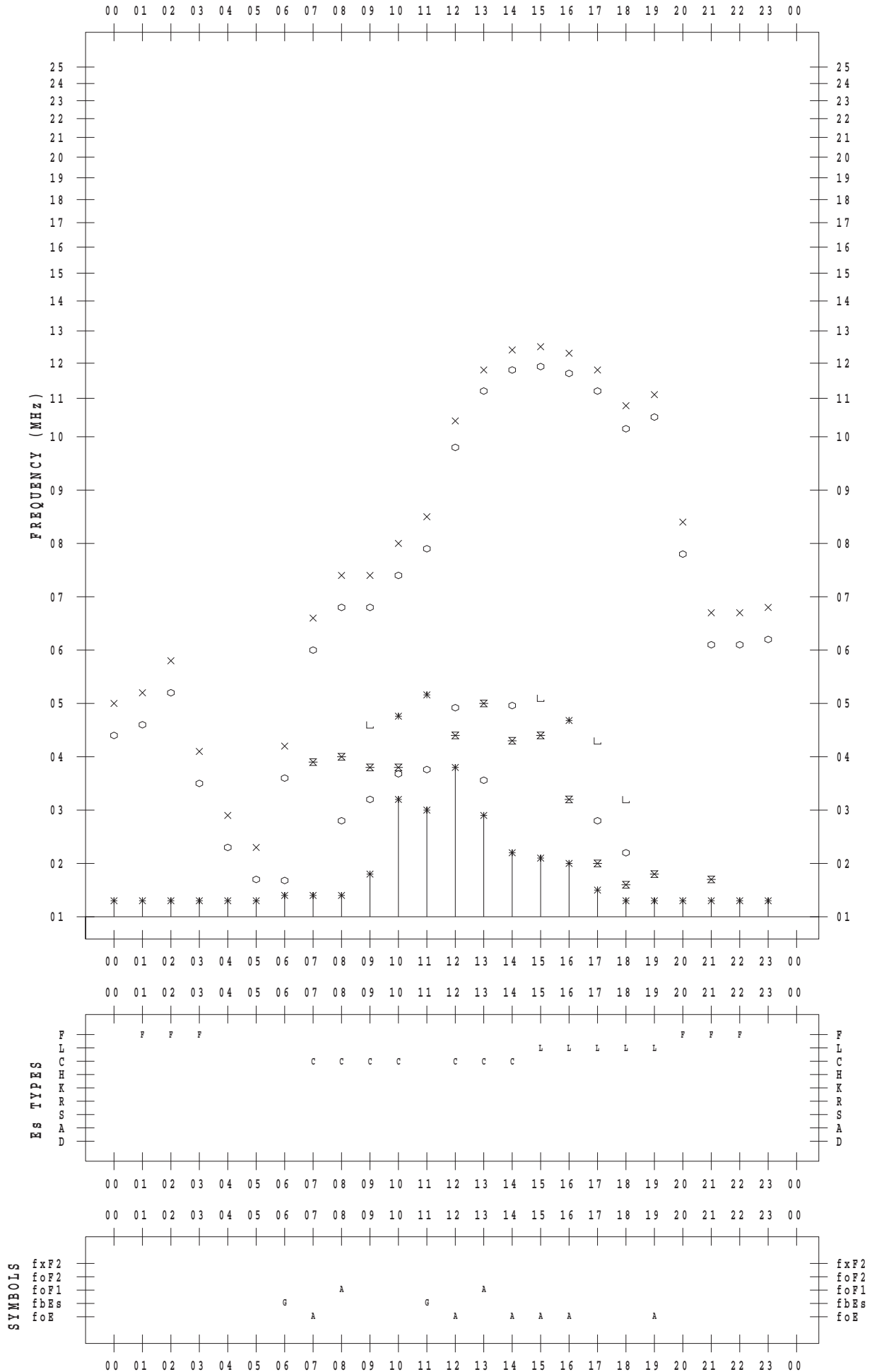
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 18

135 ° E MEAN TIME



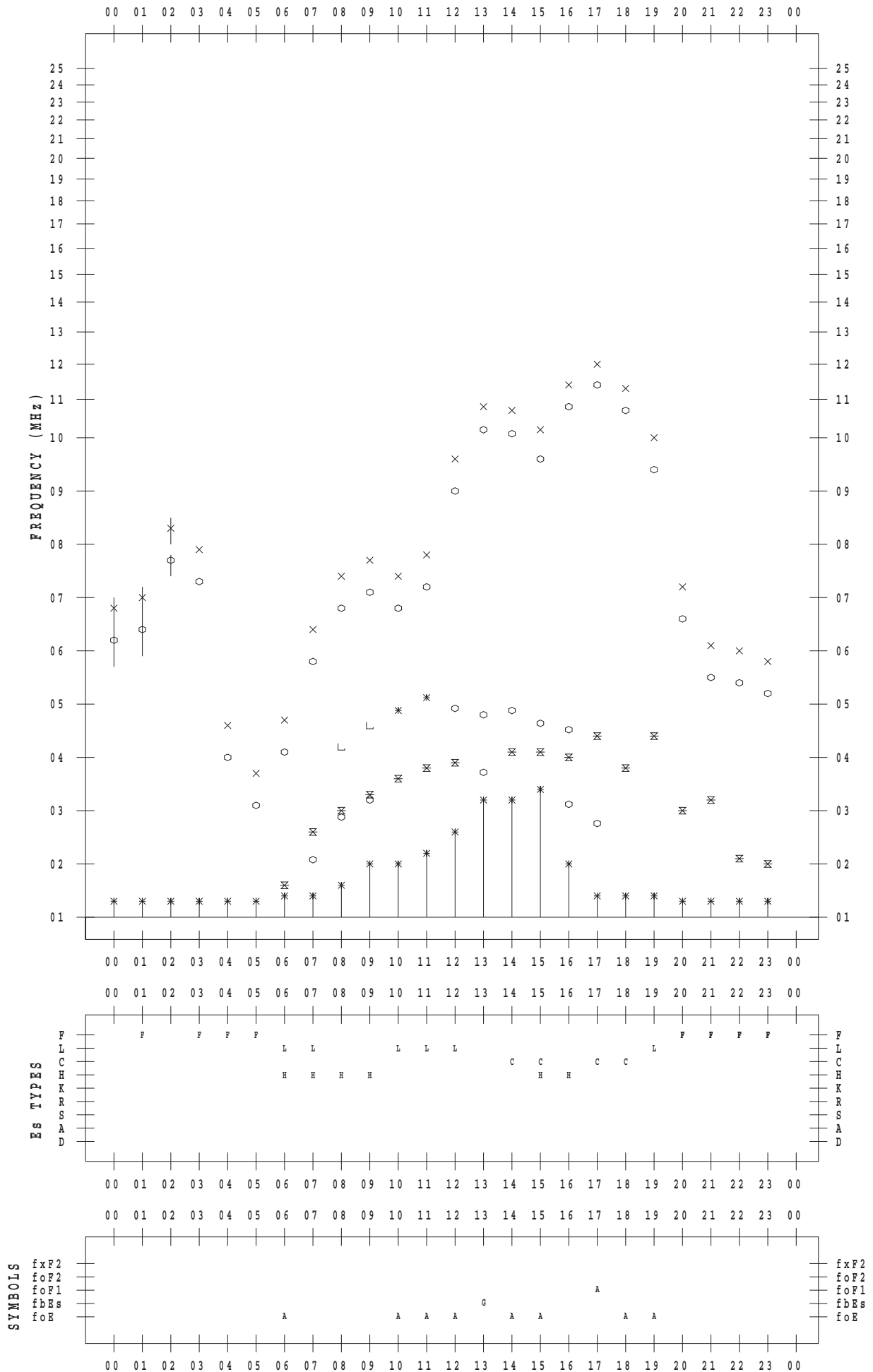
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 19

135 ° E MEAN TIME



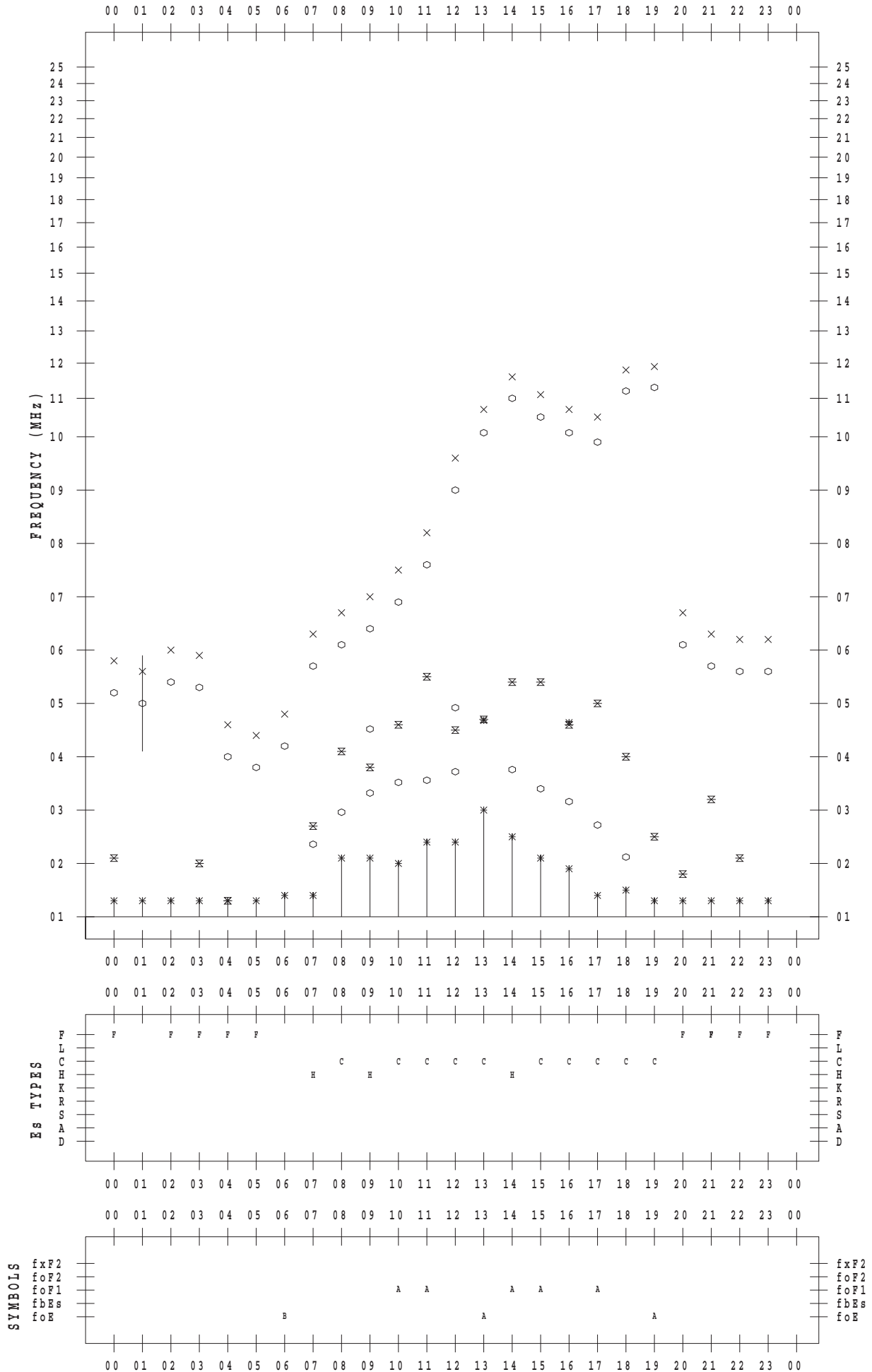
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 20

135 ° E MEAN TIME



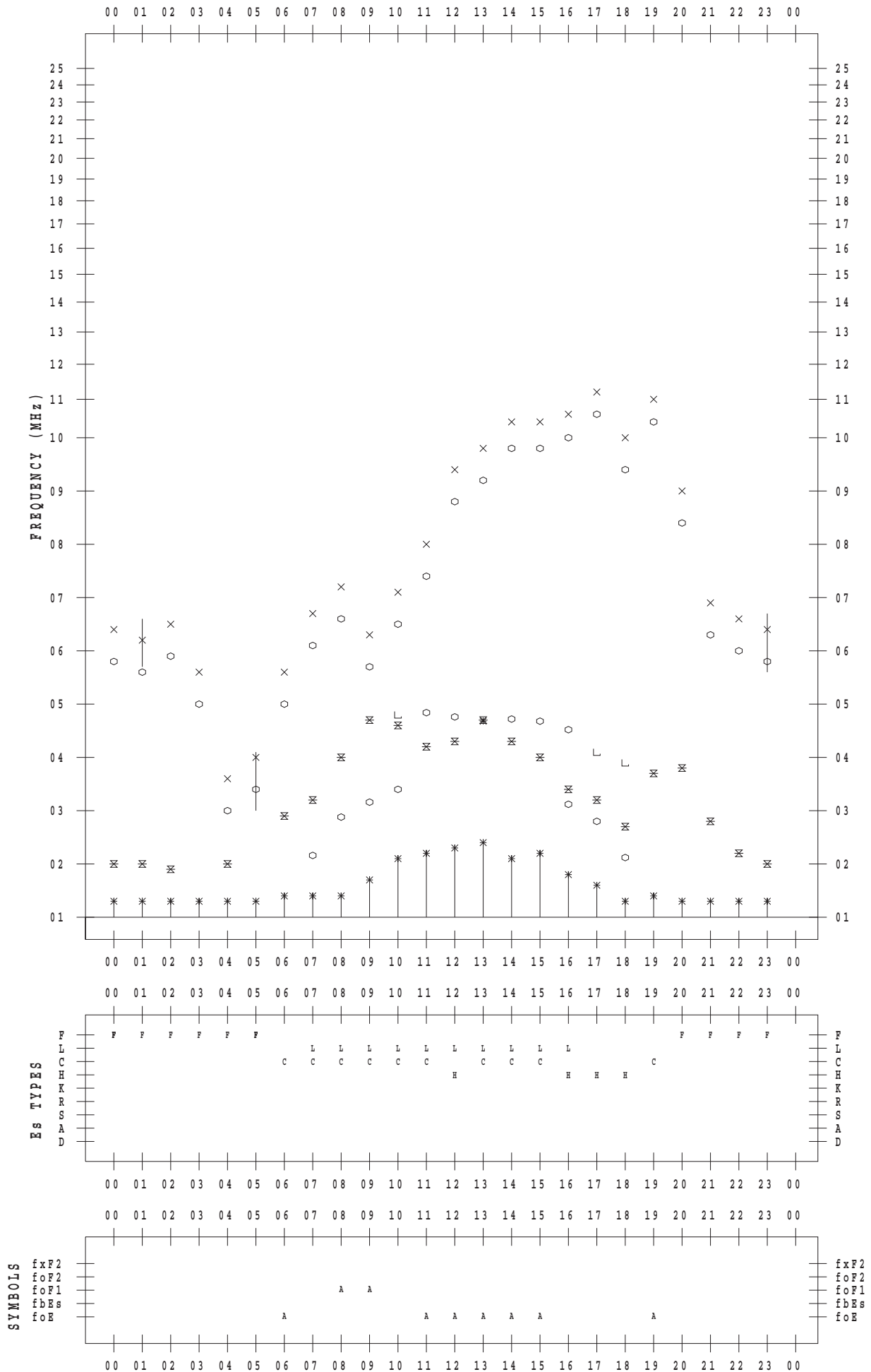
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 21

135 ° E MEAN TIME



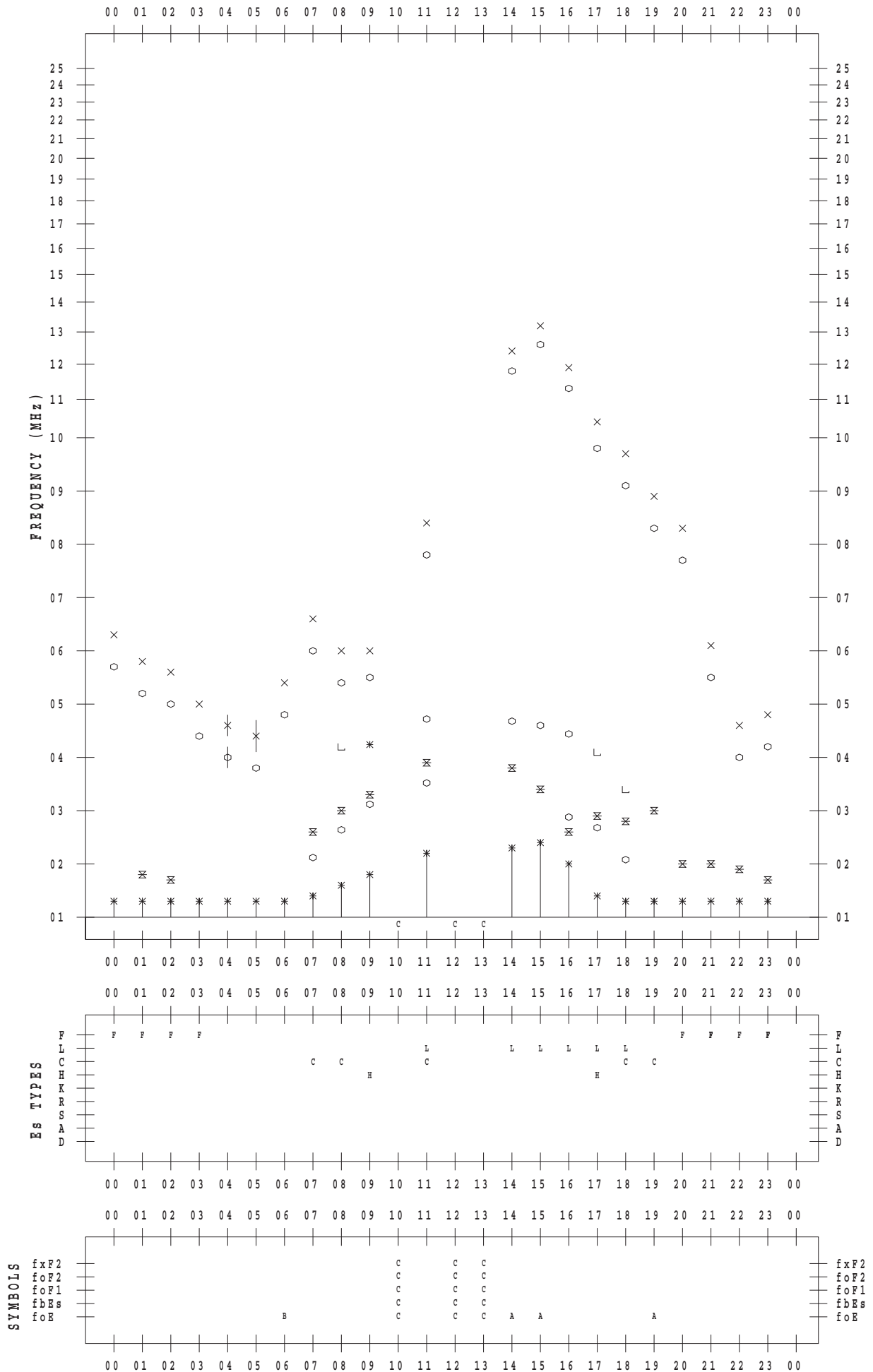
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 22

135 ° E MEAN TIME



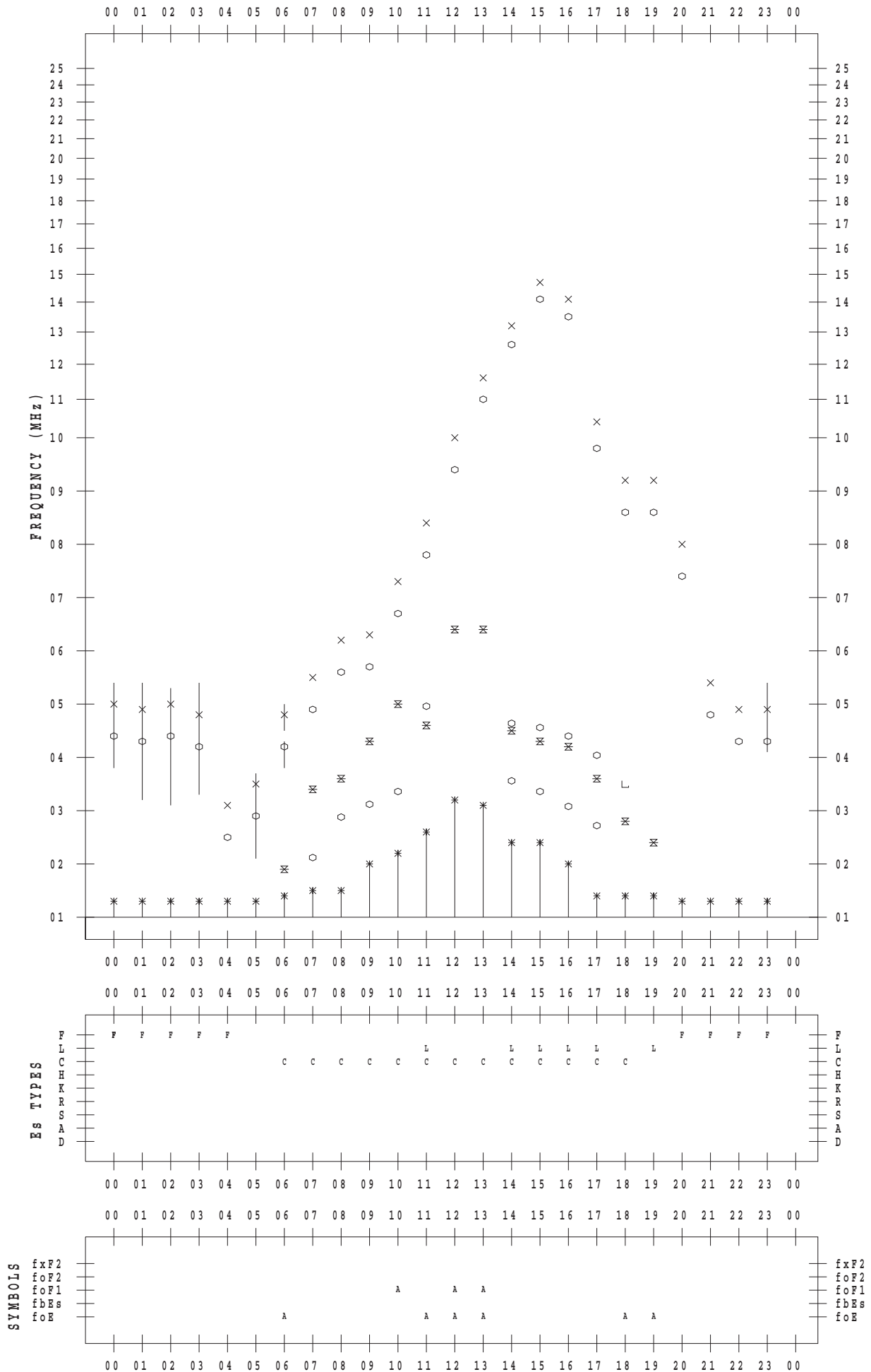
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 23

135 ° E MEAN TIME



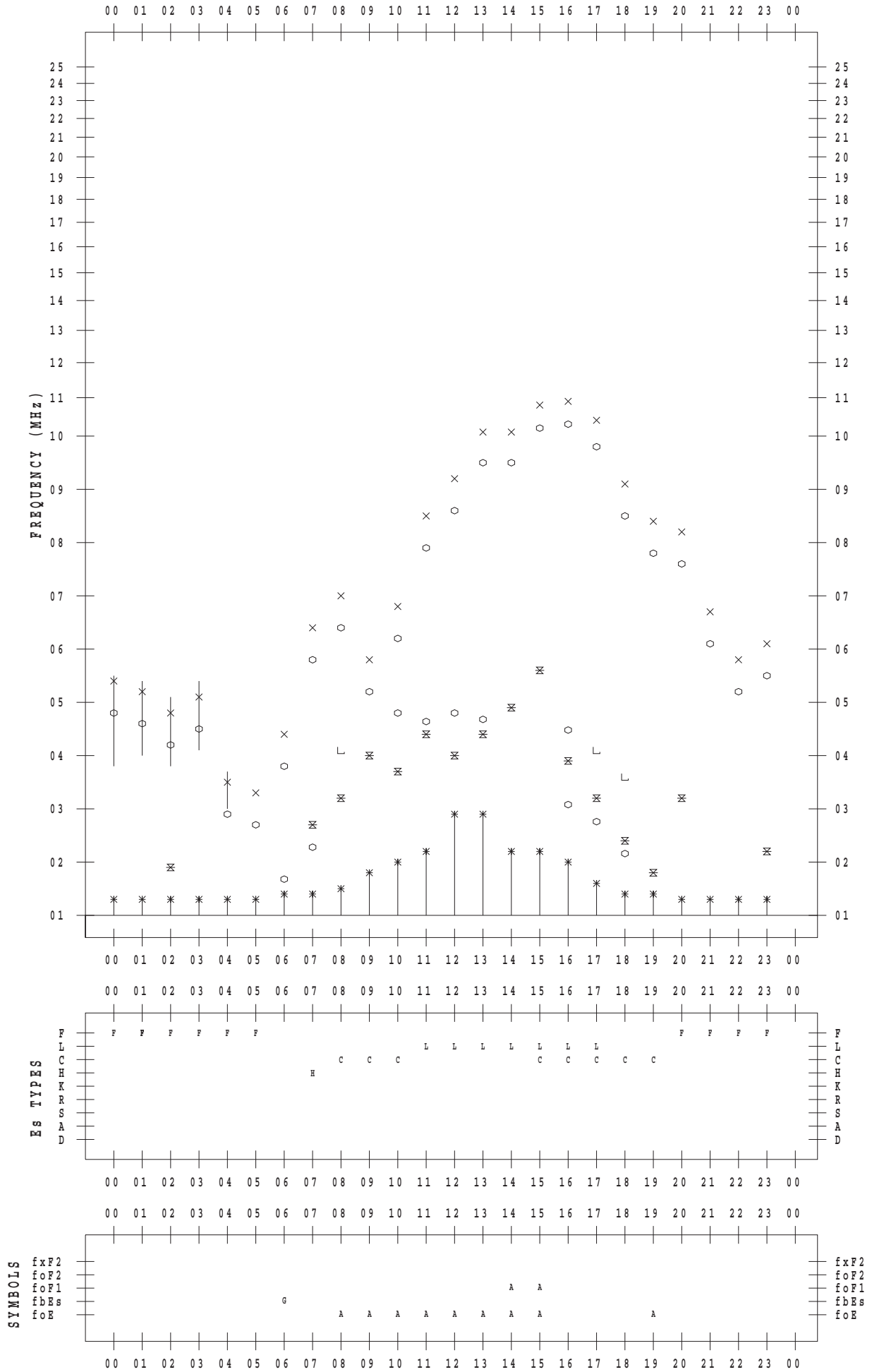
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 24

135 ° E MEAN TIME



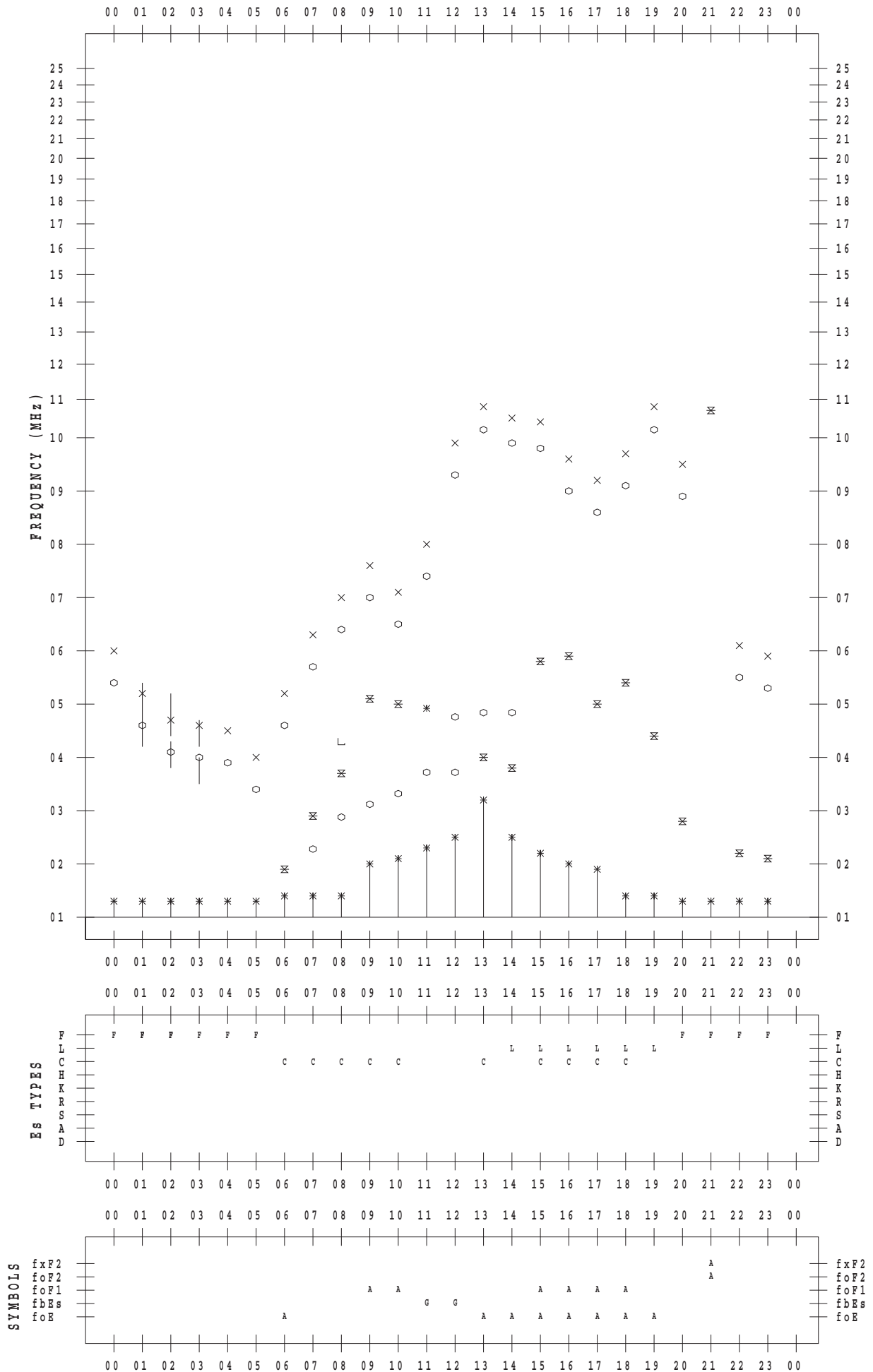
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 25

135 ° E MEAN TIME



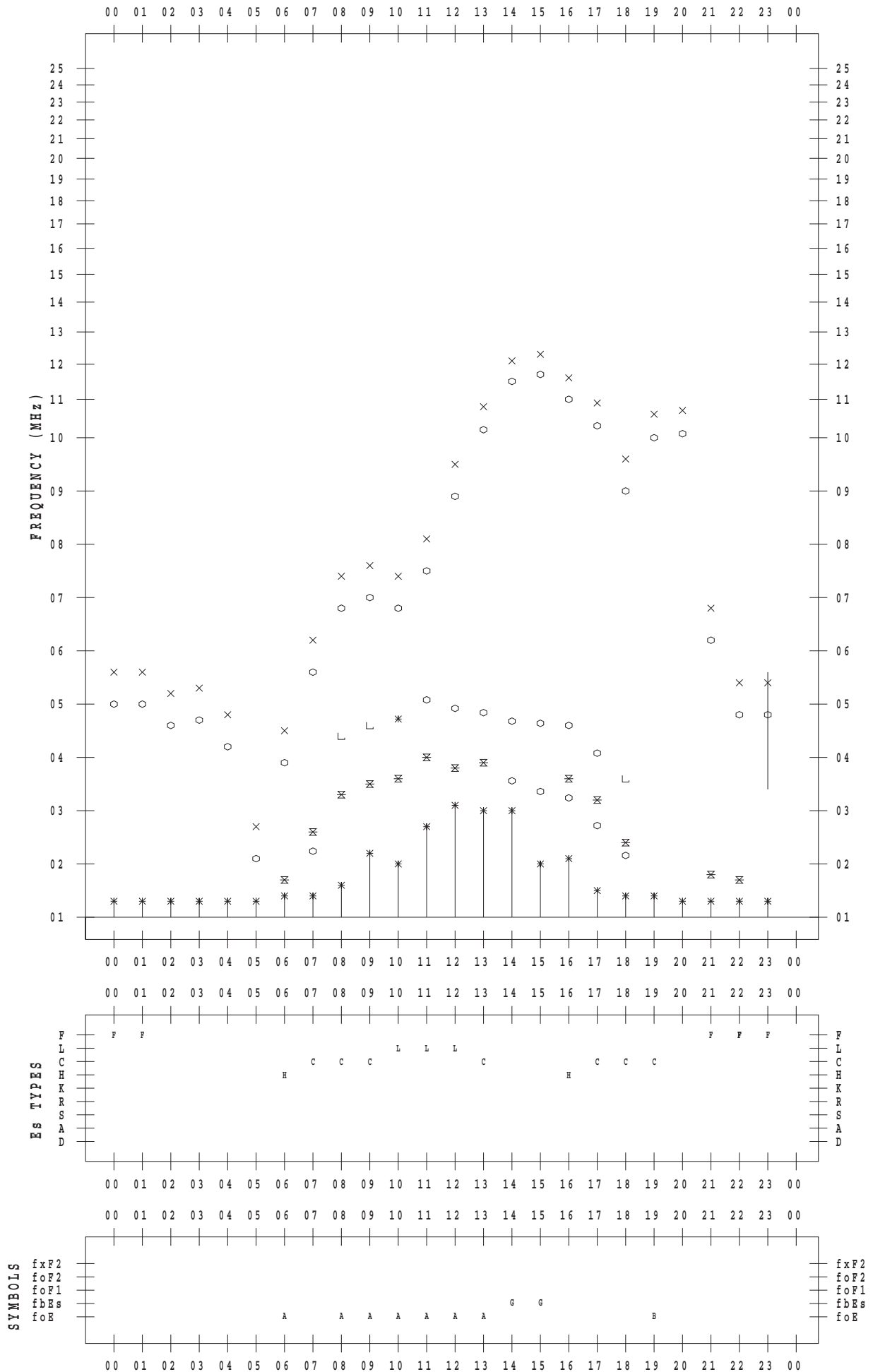
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 26

135 ° E MEAN TIME



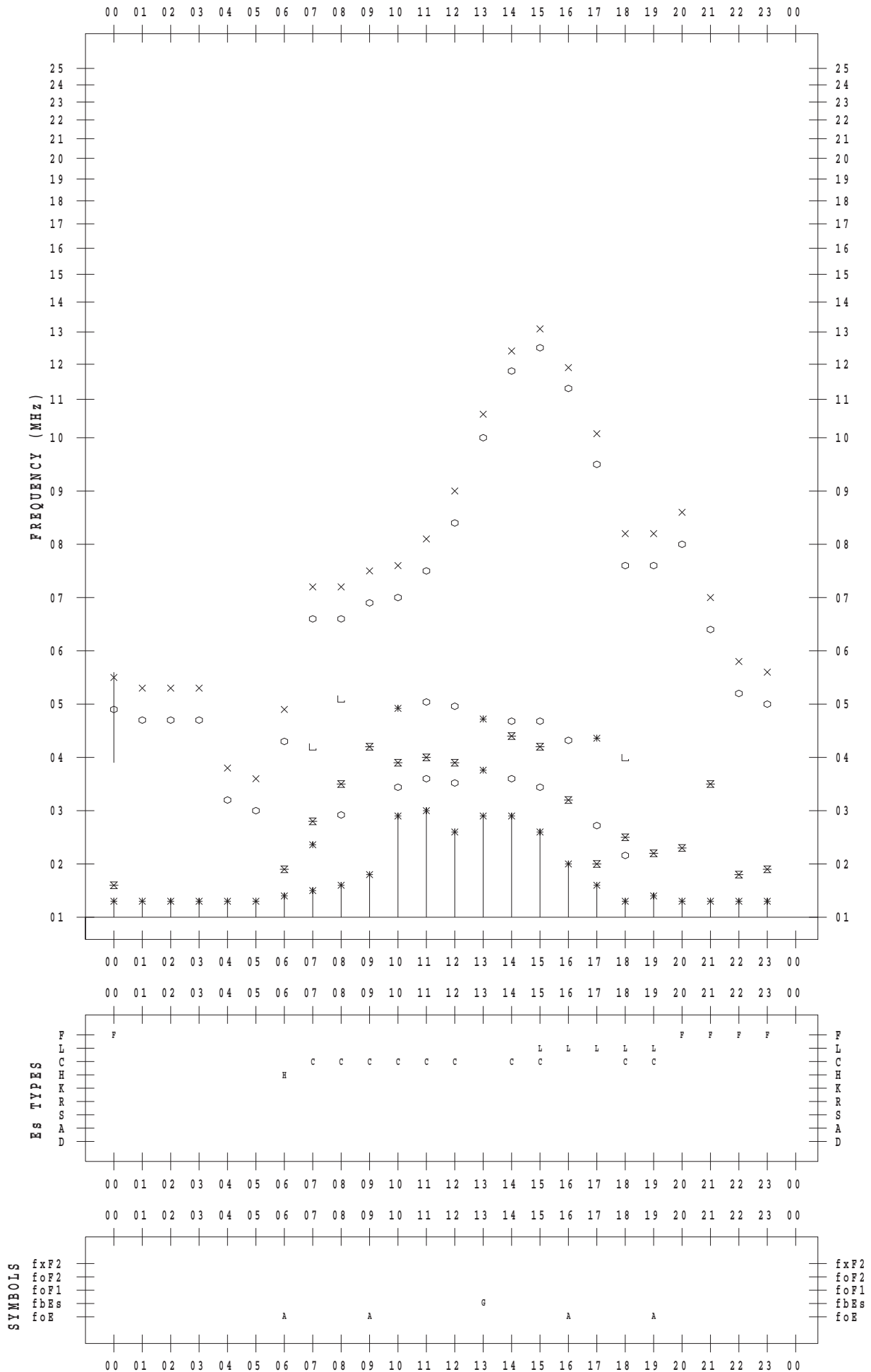
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 27

135 ° E MEAN TIME



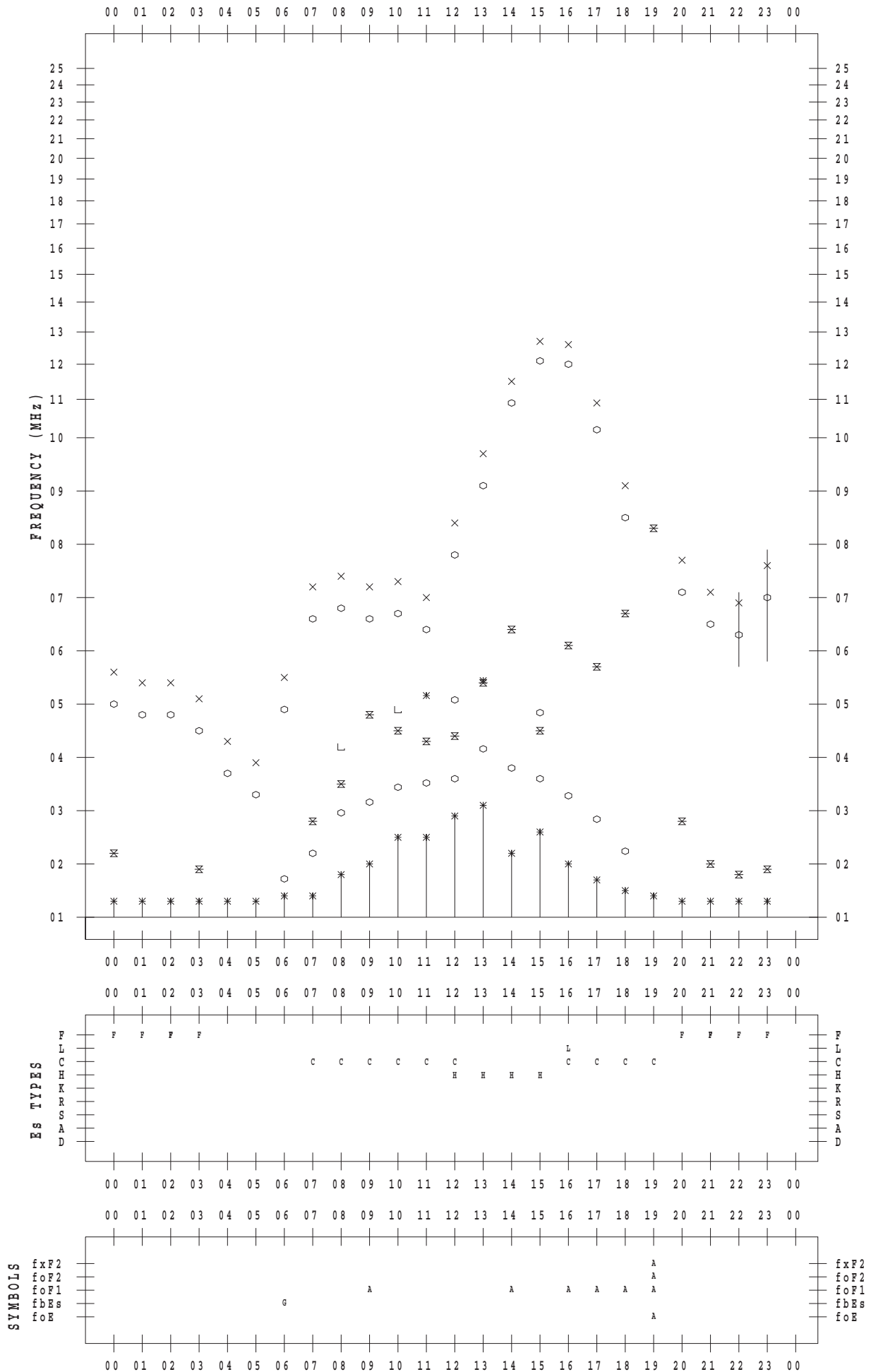
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 28

135 ° E MEAN TIME



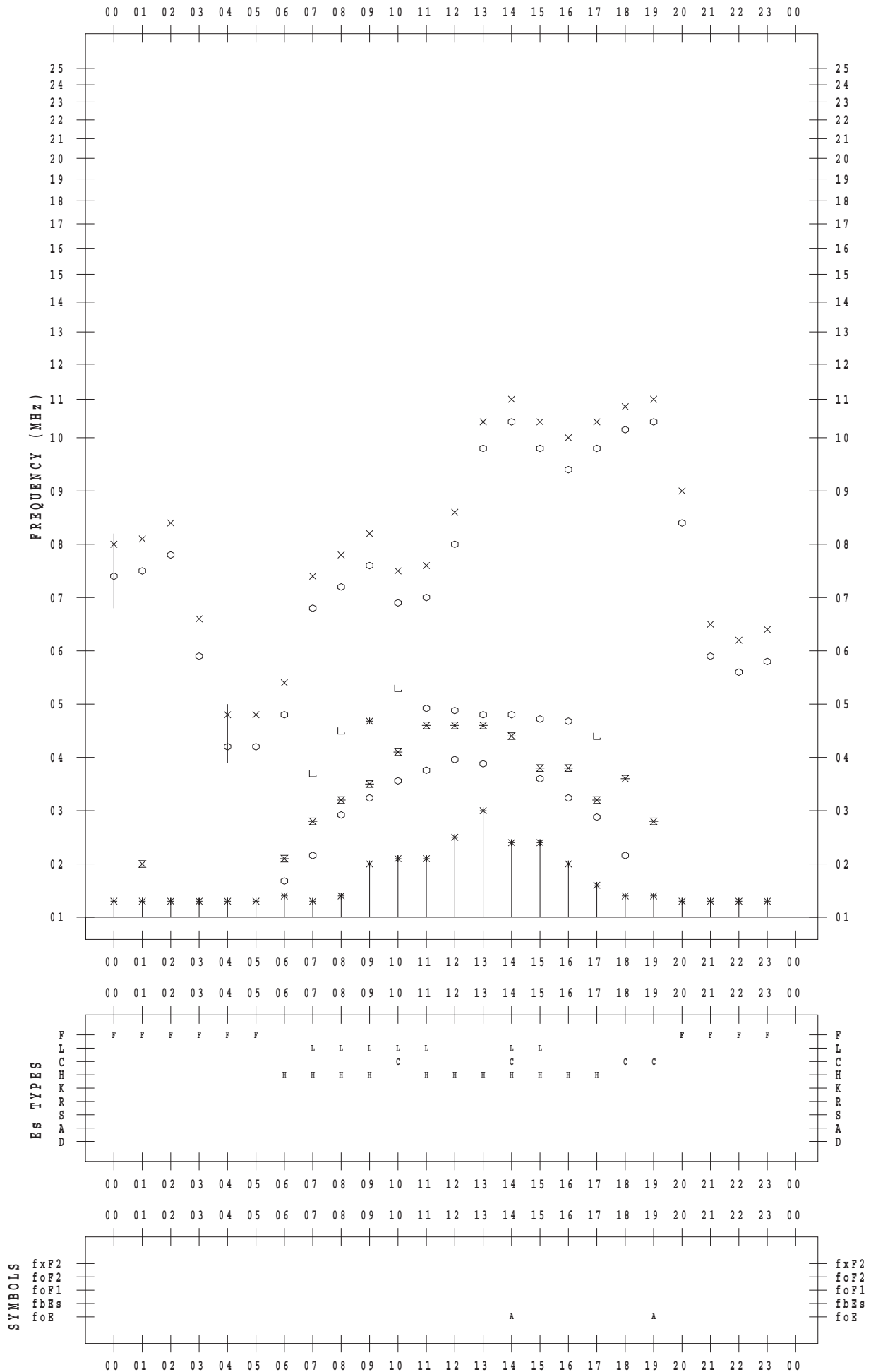
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 29

135 ° E MEAN TIME



f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016 / 4 / 30

135 ° E MEAN TIME

