

IONOSPHERIC DATA IN JAPAN

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



NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

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

National Institute of Information and Communications Technology, Japan.

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

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

IONOSPHERE

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

A1. Automatic Scaling

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

The published data consist of tabulations of hourly values of three factors ($foF2$, fEs , $fmin$) and monthly medians of two factors ($h'Es$, $h'F$), daily Summary Plots and monthly medians plot of $foF2$.

a. Characteristics of Ionosphere

$foF2$	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 ionospheric 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 $foF2$).
- 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 automatic 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 $foF2$, 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 fxE and foE 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
$foF2$ $foF1$ foE $foEs$	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

OCT. 2014

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	42	32	44	32	43	34	62	67	66	68	59	64	A	67	65	68	68	67	64	A	64	34	32	37
2	A	53	47	32	34	32	53	51	64	66	68	65	64	59	70	68	68	65	63	62	32	50	53	A
3	32	32	32	43	34	34	64	67	67	N	59	60	67	66	70	68	69	65	64	53	55	54		
4	35	34	34	34	34	34	64	64	59	69	59	67	68	71	64	67	59	65	65	64	63	53	34	35
5	32	34	53	53	56	53	66	N	67	59	N	69	68	68	N	69	68	66	64	58	54	52	37	34
6	49	32	A	34	53	53	63	59	59	59	N	66	59	68	68	91	59	65	62	56	62	54	53	52
7	34	34	34	34	56	46	65	67	67	38	59	69	93	N	68	68	59	67	66	A	N	53	53	34
8	34	34	34	37	34	37	62	69	59	59	69	70	69	70	69	66	69	66	63	63	53	52	34	42
9	33	53	35	34	34	34	62	66	59	69	46	59	62	69	59	69	59	70	66	54	54	53	58	32
10	36	37	34	52	57	52	28	67	67	66	N	59	49	N	N	70	69	69	64	60	30	53	32	
11	34	42	34	34	38	47	63	61	66	63	62	68	65	59	59	69	69	66	N	62	A	A	53	A
12	58	35	34	32	53	38	66	67	69	69	59	69	59	69	59	70	N	65	62	53	52	A	52	49
13	37	34	54	37	34	34	59	63	59	70	69	59	68	56	59	68	88	65	55	52	52	34	34	34
14	37	34	34	34	34	34	53	66	74	69	69	67	N	71	71	59	69	65	63	58	53	34	32	34
15	34	34	34	32	32	32	56	68	59	68	67	69	64	61	68	68	68	64	62	63	34	34	53	34
16	34		34	49	54	31	54	65	N	62	59	68	68	N	68	68	69	62	58	56	36	52		34
17	35	59	54	52	53	53	59	69	67	59	59	60	59	75	59	69	69	62	63	55	32	37	32	52
18	52	34	34	53	53	53	52	71	57	63	69	70	59	55	70	N	N	69	64	62	37	34	39	34
19	34	34	32	37	34	34	54	64	66	69	49	68	71	70	B	70	69	64	53	54	34	62	55	53
20	33	58	53	34	42	53	62	69	59	N	81	A	69	64	N	68	59	66	63	58	34	32	53	32
21	37	A	42	A	32	30	34	65	62	67	69	59	67	70	70	69	68	65	A	56	54	34	34	34
22	32	34	32	50	34	34	53	82	59	68	69	B	69	59	69	59	68	63	63	59	37	53	55	36
23	34	41	32	34		34	53	57	59	59	59	69	59	70	69	69	67	67	58	59	29	32	34	34
24	34	A	A	A	34	34	41	66	49	59	69	70	N	69	69	68	69	68		56	37	32	40	34
25	35	A	A	31	34	32	64	55	68	70	N	59	68	69	69	70	67	66	64	55	52	34	34	32
26	A	32	A	28	32	32	54	69	69	59	59	66	59	67	59	69	68	64	54	53	58	32	34	A
27	48	50	A	34	A	A	59	67	N	69	69	68	69	69	59	70	67	65	59	52	34	A	A	A
28	32	37	A	A	32	34	34	67	59	58	68	62	C	C	C	C	C	66	62	53	34	34		34
29	32	32	A	A	34	B	53	68	60	C	C	C	C	C	C	C	N	64	53	34	34	34	A	43
30	34	34	32	32	31	34	53	58	69	59	69	64	69	69	68	69	69	65	54	N	32	34	34	34
31	34	34	B	37	34	34	54	70	59	99	A	121	59	59	59	62	67	64	A	A	45	42	34	A
	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	27	23	27	29	29	31	30	29	28	25	28	26	26	25	28	27	31	27	27	29	28	26	24
MED	34	34	34	34	34	34	56	67	62	66	67	67	67	68	68	68	68	65	63	56	37	36	36	34
U Q	37	41	44	43	53	46	63	68	67	69	69	69	69	70	69	69	69	66	64	60	54	53	53	39
L Q	33	34	34	32	34	34	53	64	59	59	59	61	59	61	59	68	67	64	58	53	34	34	34	34

HOURLY VALUES OF fEs AT Wakkanai

OCT. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	33	G	36	31	27	G	G	33	G	G	44	G	46	58	66	G	G	G	G	38	34	29	27	30
2	33	G	G	G	G	G	G	35	G	G	G	G	G	G	G	G	G	G	32	G	G	28	G	28
3	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	34	G	G	G	G	G
4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
5	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	46	39	28	G	G	G	G	G	G
6	G	G	38	24	G	G	G	G	G	G	G	G	G	G	44	G	G	27	33	24	G	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	38	G	G	28	61	G	G	G	G
8	G	26	G	G	25	32	32	35	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
9	G	G	G	G	G	24	G	G	G	G	G	G	G	G	G	G	G	29	G	34	G	G	23	G
10	G	G	G	G	G	G	G	G	48	G	G	G	G	G	G	G	G	G	34	49	30	G	G	G
11	G	G	G	G	G	G	G	G	38	G	44	G	G	G	G	G	G	G	G	28	64	68	39	34
12	26	G	G	G	G	G	30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	38	34	33
13	28	24	G	G	G	G	G	34	G	G	G	G	G	G	G	G	G	G	G	G	G	28	G	G
14	G	G	G	G	G	G	G	34	38	40	G	G	G	G	G	G	G	G	G	G	G	G	G	G
15	G	G	G	G	G	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
16	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
17	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
18	G	G	G	G	G	G	G	37	G	G	G	G	G	G	G	G	G	G	32	G	G	G	G	G
19	G	27	G	G	G	G	G	35	45	56	55	G	G	G	B	G	G	G	G	G	G	26	27	G
20	G	G	29	G	G	G	G	G	G	G	G	96	62	39	G	37	46	33	G	32	28	33	35	32
21	29	33	G	33	G	G	29	35	40	G	G	G	G	G	G	G	G	38	34	27	G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	27	G	G
23	G	28	30	27	G	G	28	G	35	39	40	G	G	G	G	33	G	26	26	34	26	G	G	G
24	G	33	34	32	G	G	28	37	39	G	G	G	G	G	G	119	28	30	G	G	G	29	34	G
25	G	40	32	G	G	G	G	G	38	63	G	G	G	G	G	G	G	G	28	G	G	26	G	G
26	68	30	52	G	29	G	G	G	G	39	51	G	49	50	G	39	38	50	34	38	32	29	28	37
27	34	58	51	35	50	26	G	G	37	57	39	G	G	G	38	34	31	40	31	32	G	34	36	32
28	G	G	34	40	26	G	G	G	G	G	G	G	C	C	C	C	C	50	G	32	G	G	G	G
29	27	28	40	39	G	B	G	G	39	C	C	C	C	C	C	C	G	G	G	G	27	33	33	G
30	28	G	G	G	29	28	G	G	40	49	62	42	40	38	39	48	40	38	40	28	32	27	G	G
31	G	G	B	G	G	G	G	G	40	56	73	59	G	G	G	G	41	38	40	38	34	G	G	39
	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	31	31	30	31	31	30	31	31	31	30	30	29	29	29	28	29	30	31	31	31	31	31	31	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	28	27	32	24	G	G	G	34	38	39	39	G	G	G	G	33	G	32	32	32	27	28	27	30
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

OCT. 2014

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	15	15	14	17	14	14	15	18	20	23	24	54	26	24	21	15	21	15	15	14	15	15	15
2	15	24	17	15	14	18	27	20	17	21	21	21	18	14	17	20	18	22	15	17	15	15	17	16
3	15	17	15	15	17	15	21	15	21	23	23	22	22	45	17	15	27	15	16	15	16	16	23	66
4	15	15	15	14	21	14	22	15	17	17	15	23	22	24	20	16	14	21	17	16	15	15	15	16
5	17	15	15	20	15	15	22	15	17	20	15	26	27	21	17	15	15	16	20	22	17	15	15	15
6	18	16	14	15	15	14	21	14	16	17	21	22	21	22	20	16	14	16	15	15	15	16	15	15
7	15	15	15	14	15	14	22	14	16	18	21	22	22	18	18	16	15	20	15	14	15	14	15	15
8	14	18	15	15	15	15	14	15	15	45	20	20	18	17	15	14	15	17	15	15	20	14	15	15
9	15	15	15	15	18	15	21	15	18	44	20	45	23	22	16	15	14	14	15	15	28	14	16	15
10	30	15	15	14	21	15	20	14	16	20	24	20	21	20	17	17	14	17	14	14	15	15	15	21
11	15	15	23	15	15	15	18	14	15	16	17	20	21	20	17	15	14	16	18	17	15	14	15	14
12	15	15	15	15	14	14	14	14	15	17	21	42	20	20	17	15	22	15	18	15	17	15	14	14
13	17	15	14	16	15	15	16	14	15	17	18	43	44	21	17	15	23	15	14	20	15	15	15	17
14	20	15	15	15	15	16	20	15	14	17	20	21	20	18	18	15	14	16	15	14	15	15	15	15
15	17	15	15	21	15	18	20	17	33	42	53	44	52	26	20	16	23	15	15	15	15	15	18	18
16	16	71	15	15	15	15	18	18	15	15	15	15	27	44	14	18	15	15	15	17	17	18	17	14
17	15	14	15	15	15	16	18	18	14	17	18	17	21	18	17	14	15	15	15	15	14	15	15	15
18	15	15	15	20	15	15	18	14	15	15	21	24	18	20	17	15	17	16	15	15	15	15	14	23
19	17	18	14	18	17	15	17	14	16	16	20	24	17	17	B	46	24	16	15	17	15	15	15	14
20	15	16	14	22	15	15	17	14	17	15	18	17	20	18	15	15	14	14	17	15	18	16	14	17
21	15	15	20	14	18	15	14	15	21	17	18	16	18	33	17	16	23	14	14	15	16	17	15	15
22	16	14	21	16	15	18	18	24	17	20	22	B	54	45	15	14	23	17	15	14	15	15	15	15
23	26	14	14	17	17	16	15	14	14	15	21	21	20	20	17	15	14	17	15	16	18	17	15	15
24	15	14	14	15	20	16	16	15	15	20	28	22	44	22	14	17	15	14	21	23	15	17	15	15
25	17	14	15	16	20	14	21	50	24	20	29	26	44	44	15	16	15	15	17	15	15	15	15	15
26	15	14	15	15	15	15	16	14	17	20	20	23	20	17	15	14	15	14	15	15	15	14	15	15
27	14	14	15	15	15	15	20	15	15	32	30	28	20	21	14	14	15	14	15	15	15	15	14	14
28	17	17	15	15	18	18	17	15	14	18	18	18	C	C	C	C	C	14	15	15	27	15	66	16
29	15	15	15	15	15	B	17	14	14	C	C	C	C	C	C	C	24	15	15	15	15	16	17	16
30	14	15	15	20	14	15	16	14	14	18	17	33	15	18	15	14	14	14	14	17	15	18	18	15
31	15	15	B	15	20	16	15	24	15	17	28	23	18	18	15	17	14	14	15	15	14	16	15	14
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	31	31	30	31	31	30	31	31	31	30	30	29	29	29	28	29	30	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	18	15	16	18	20	22	21	20	17	15	15	15	15	15	15	15	15	15
U Q	17	16	15	16	18	16	21	15	17	20	23	26	27	25	17	16	22	17	16	17	17	16	16	16
L Q	15	15	15	15	15	15	16	14	15	17	18	20	19	18	15	15	14	14	15	15	15	15	15	15

HOURLY VALUES OF fof2 AT Kokubunji

OCT. 2014

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	52	53	44	46	46	47	74	94	111	111	102	110	101	96	95	96	94	91	91	84	66	52	54	52
2	52	52	46	43	44	42	74	78	88	97	86	102	95	97	97	95	91	98	96	62	58	53	55	52
3	51	47	46	46	48	47	71	101	94	85	90	96	110	104	102	102	100	96	86	80	55	54	54	52
4	49	47	44	47	44	41	62	94	104	95	98	102	111	108	108	110	106	107	90	67	67	54	51	52
5	52	52	54	54	52	47	75	83	90	91	108	101	110	111	114	115	105	91	72	57	54	54	62	52
6	52	58	51	51	53	57	86	99	110	96	106	117	116	110	116	120	111	105	77	67	67	66	52	51
7	53	53	53	53	52	53	78	112	115	111	110	121	108	112	116	120	114	107	88	52	52	55	62	54
8	52	53	52	52	52	51	72	102	101	101	107	116	105	104	112	115	104	94	77	69	72	54	52	50
9	54	52	54	42	39	40	67	103	92	103	114	122	112	110	117	111	110	98	78	54	52	54	54	53
10	52	53	53	52	46	37	N	88	121	124	130	117	112	112	120	114	106	97	80	55	48	44	47	48
11	52	53	44	42	42	39	64	86	107	97	101	111	117	117	112	116	105	90	67	67	72	64	66	62
12	58	51	54	48	57	57	80	97	106	101	115	118	122	120	127	124	110	98	75	54	54	64	54	52
13	51	54	54	52	44	43	61	90	99	98	102	116	117	112	112	115	106	84	68	66	59	53	48	51
14	47	48	48	47	44	45	66	84	103	91	108	130	121	120	117	112	114	102	72	52	53	45	43	48
15	47	46	45	47	44	42	65	73	93	90	98	145	134	124	120	111	110	98	N	55	54	44	47	47
16	47	46	42	49	47	28	54	81	93	111	104	112	111	104	101	100	101	84	55	A	A	A	45	44
17	45	47	46	44	39	34	61	79	102	88	93	107	102	95	94	106	108	101	72	49	48	43	46	41
18	44	47	47	45	34	37	54	78	86	101	118	112	115	117	111	104	100	96	82	66	54	52	54	54
19	52	A	49	51	51	44	69	101	111	118	128	127	118	118	117	106	100	96	69	52	54	51	A	52
20	47	44	48	46	35	30	54	96	106	112	115	108	118	116	114	111	99	91	67	63	54	47	44	47
21	47	48	A	44	39	47	67	98	105	111	104	116	115	111	102	104	104	84	66	64	53	47	47	44
22	44	43	37	43	39	41	52	90	122	116	111	124	124	130	118	107	91	87	55	A	54	54	52	49
23	46	44	44	39	38	42	64	101	117	116	122	120	116	114	115	110	100	85	68	55	47	47	48	46
24	43	46	43	38	39	41	61	101	122	111	120	118	114	125	124	107	92	87	72	55	63	54	54	54
25	44	43	43	39	39	44	67	124	132	132	134	136	136	127	130	124	108	97	72	54	51	54	51	55
26	48	49	45	36	31	32	61	100	112	117	116	128	117	135	134	118	102	81	67	66	58	52	52	54
27	47	46	46	44	43	39	58	98	126	131	136	132	128	130	120	104	103	84	61	54	62	A	54	53
28	52	49	42	34	39	39	62	100	114	120	113	126	121	116	115	106	101	92	67	54	52	52	52	54
29	51	46	43	69	38	42	52	88	117	128	121	123	116	125	125	124	110	94	57	54	52	49	53	52
30	54	N	39	32	37	36	59	89	98	112	117	121	115	118	A	106	91	86	A	A	A	53	49	A
31	43	39	38	34	39	39	59	96	100	108	108	116	115	117	125	121	108	91	72	54	54	51	49	50
	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	31	29	30	31	31	31	30	31	31	31	31	31	31	31	30	31	31	31	29	28	29	29	30	30
MED	51	48	46	46	43	42	64	96	106	111	110	117	115	116	116	111	104	94	72	55	54	53	52	52
U Q	52	52	51	51	47	47	71	101	115	116	118	124	118	120	120	116	108	98	79	66	60	54	54	53
L Q	47	46	43	42	39	39	59	86	98	97	102	111	111	110	111	106	100	87	67	54	52	48	48	48

HOURLY VALUES OF fEs AT Kokubunji

OCT. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	27	30	25	24	25	23
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
3	G	G	G	G	G	G	28	G	G	G	G	G	G	G	G	G	G	G	27	G	G	G	G	G
4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	46	G	29	28	G	G	G	G	G
5	G	G	G	G	G	G	G	G	G	G	G	G	G	50	47	G	39	40	41	G	G	G	G	G
6	G	G	G	G	G	G	29	G	G	G	G	G	G	G	50	G	G	G	G	28	G	27	G	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G	G	52	45	34	G	G	40	29	27	34	G
8	G	G	G	G	G	G	35	G	51	G	G	G	G	G	G	G	40	31	33	G	G	G	G	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	31	25	52	42	28	G	G
10	G	G	G	G	G	G	G	G	G	G	50	44	G	G	G	G	G	45	28	G	23	38	G	33
11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	27	24	G	G	G
12	28	G	G	G	G	G	G	G	61	G	G	G	46	G	G	G	G	G	G	G	G	28	31	24
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
14	G	G	G	G	G	G	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
15	G	G	G	24	G	G	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
16	G	G	G	G	G	G	28	G	G	G	G	G	G	G	G	48	34	28	34	46	42	48	27	29
17	G	G	G	G	G	24	29	G	G	G	G	G	G	G	G	G	G	G	29	29	25	25	G	G
18	G	26	G	G	G	G	G	G	G	G	G	G	G	G	47	G	G	61	26	G	29	34	36	G
19	G	26	G	G	G	G	G	G	45	G	G	G	G	G	G	G	G	G	25	G	G	46	53	48
20	23	G	G	G	G	G	G	G	G	G	50	G	G	G	G	G	G	G	33	82	51	34	35	51
21	28	23	41	G	G	G	28	G	45	G	44	43	G	G	68	G	G	G	G	G	G	23	23	23
22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	55	45	G	36	51	81	34	31	28	G
23	G	G	G	G	G	G	28	G	G	G	G	45	G	G	G	40	36	55	37	39	27	28	25	G
24	G	G	G	G	G	G	G	G	G	G	45	57	G	G	G	G	34	34	31	G	23	G	G	G
25	G	23	G	G	36	24	G	G	49	46	G	49	61	G	45	57	43	32	54	53	59	45	59	30
26	G	27	28	G	G	G	G	G	G	53	43	G	G	G	G	G	G	G	G	29	G	G	27	G
27	G	G	G	G	G	G	G	G	G	44	61	82	G	G	G	G	G	29	G	35	30	45	35	35
28	26	G	G	G	G	G	G	G	G	G	50	G	G	G	G	52	G	33	G	G	34	29	29	24
29	G	G	G	26	G	G	G	G	50	43	57	51	45	G	53	G	58	34	27	34	G	27	G	G
30	G	G	G	G	G	G	G	G	53	48	52	G	90	86	106	70	103	84	82	72	67	50	46	34
31	G	G	G	G	G	G	G	G	G	G	G	G	G	52	G	39	30	60	40	38	34	27	G	G
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	27	27	23	27	23	G
U Q	G	G	G	G	G	G	28	G	G	G	43	43	G	G	47	40	34	34	33	39	34	34	31	24
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 Kokubunji

OCT. 2014

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	13	14	13	14	13	14	21	18	20	22	39	40	44	42	40	38	18	15	14	15	13	13	14	15
2	13	13	14	14	13	14	22	14	17	25	40	42	42	39	24	18	14	13	13	14	13	15	14	13
3	14	13	14	13	13	14	14	15	20	39	40	44	42	39	39	20	20	14	13	20	13	14	13	14
4	14	14	14	13	13	15	14	13	18	20	38	40	39	18	17	13	13	13	13	14	14	13	14	14
5	13	14	14	13	13	13	22	13	17	36	40	39	40	36	21	22	15	13	13	15	14	13	14	13
6	13	13	13	13	13	13	13	13	15	20	37	44	39	39	22	14	14	14	14	13	14	15	14	13
7	14	14	13	13	13	13	20	15	20	39	42	38	39	14	15	14	13	13	13	13	14	13	13	13
8	13	13	13	14	13	13	13	14	20	23	40	39	40	40	21	17	13	14	13	13	14	15	13	13
9	13	14	13	14	13	13	21	14	18	21	38	43	40	40	22	17	18	13	17	13	13	13	15	13
10	14	13	14	13	13	14	14	13	15	36	30	23	40	39	20	20	13	13	14	13	13	13	14	13
11	13	14	13	13	13	13	20	13	18	20	39	39	40	39	37	20	13	23	13	13	13	18	14	14
12	14	14	15	15	14	13	18	14	17	22	21	18	17	40	14	13	20	17	14	13	13	13	13	13
13	14	14	13	13	13	13	18	13	15	21	23	21	40	18	20	17	13	20	18	13	13	13	13	13
14	14	13	14	13	13	14	13	13	14	20	39	42	39	39	36	17	14	17	14	14	15	13	14	13
15	13	14	14	14	13	14	13	20	36	39	40	42	42	38	38	20	13	20	14	14	13	13	14	14
16	13	14	14	13	14	14	14	15	14	20	38	42	38	38	20	15	13	15	13	14	17	14	15	14
17	14	14	13	17	13	14	14	14	14	38	17	39	38	22	41	17	13	17	13	13	15	15	14	13
18	13	14	13	13	13	13	18	13	14	39	39	39	39	17	18	13	13	14	17	14	14	13	13	15
19	14	13	13	14	14	13	17	13	14	21	18	40	40	38	63	42	14	20	14	13	14	13	13	13
20	15	13	14	13	14	14	17	13	15	20	21	21	21	40	14	15	13	17	13	13	13	14	15	13
21	13	14	13	13	13	17	20	18	22	20	21	23	21	17	14	14	18	20	14	14	13	13	14	14
22	14	17	17	15	13	13	15	18	15	20	21	78	43	40	15	13	14	13	13	13	15	13	13	14
23	14	13	14	14	15	13	13	13	14	17	40	22	21	39	20	14	13	13	13	13	14	13	13	14
24	13	14	13	13	14	14	17	13	13	21	31	30	22	17	14	13	14	13	14	13	15	13	14	13
25	14	14	14	13	13	13	17	43	40	37	39	28	24	20	15	13	13	13	13	13	14	13	13	14
26	13	14	13	13	13	14	18	13	13	14	18	40	24	20	17	17	14	15	13	14	13	14	15	14
27	13	14	14	13	13	13	17	14	15	31	34	35	41	44	21	14	14	14	17	13	13	13	13	13
28	14	14	13	15	14	13	17	13	15	18	21	34	50	46	17	13	13	13	13	13	13	13	14	13
29	14	13	13	14	15	13	18	13	14	18	33	33	31	40	18	15	14	14	14	14	13	14	18	18
30	14	14	14	17	14	14	17	14	15	39	22	44	30	22	21	17	13	13	13	14	13	14	13	15
31	14	14	13	14	13	15	15	13	18	18	42	38	21	22	18	13	13	13	15	13	13	13	14	17
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	14	14	13	13	13	13	17	13	15	21	38	39	39	39	20	15	13	14	13	13	13	13	14	13
U Q	14	14	14	14	14	14	18	15	18	36	40	42	40	40	24	18	14	17	14	14	14	14	14	14
L Q	13	13	13	13	13	13	14	13	14	20	21	30	24	20	17	13	13	13	13	13	13	13	13	13

HOURLY VALUES OF foF2 AT Yamagawa

OCT. 2014

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	54	62	42	48	42	47	58	86	96	94	93	100	91	97	98	97	98	97	89	86	74	52	59	52
2	52	53	50	48	47	47	54	84	90	97	94	98	97	97	93	95	96	N	89	86	44	52	53	52
3	52	52	46	47	45	47	53	85	107	96	88	93	97	113	111	101	113	111	79	86	78	74	52	52
4	52	52	47	44	43	38	44	78	90	99	96	96	98	115	98	114	98	110	90	85	54	52	53	44
5	52	51	52	54	51	42	44	66	88	96	92	94	111	98	99	97	107	91	88	74	51	A	51	54
6	54	52	52	53	51	51	54	88	97	93	98	N	C	C	C	C	C	114	87	83	72	67	53	54
7	52	53	53	52	50	46	52	88	109	C	C	C	C	C	C	C	C	118	112	86	74	54	67	54
8	54	54	50	52	47	44	51	96	102	102	111	111	122	116	104	128	104	101	92	74	64	54	52	54
9	51	52	52	40	33	34	44	86	87	99	110	114	118	114	116	N	118	110	89	71	54	54	52	52
10	50	54	64	54	30	N	36	78	102	111	126	117	109	113	140	127	116	107	88	67	52	52	52	51
11	54	54	51	38	34	34	38	72	94	107	110	107	111	126	134	110	111	107	88	72	67	72	67	52
12	53	51	48	45	41	42	51	82	91	110	118	112	130	112	156	161	148	123	111	79	76	87	87	79
13	77	76	43	52	43	34	43	74	88	73	98	100	116	111	132	129	116	106	88	77	66	52	54	51
14	50	47	46	43	43	41	48	71	86	96	111	115	79	136	143	138	117	114	90	71	51	51	50	50
15	47	47	45	44	44	42	50	67	77	85	108	148	129	116	129	116	115	110	90	71	64	55	52	54
16	52	53	53	50	42	30	37	77	90	98	96	101	116	112	114	118	114	A	72	55	50	50	44	48
17	47	50	47	43	37	32	40	76	90	95	100	94	115	116	117	133	130	108	87	74	54	54	52	53
18	52	54	54	48	36	34	40	66	88	98	111	110	114	112	122	111	106	98	95	77	53	52	51	53
19	27	48	52	47	43	42	51	81	109	115	116	127	126	136	B	128	117	116	111	76	82	77	52	50
20	48	47	47	46	42	34	40	81	106	96	101	115	110	123	130	134	116	104	90	77	43	53	53	52
21	52	48	42	40	36	38	44	88	N	121	105	110	112	112	117	116	104	94	83	75	67	54	51	48
22	48	46	44	43	44	34	40	72	120	111	112	B	117	116	121	117	101	88	85	76	73	74	51	45
23	44	44	41	37	37	38	43	91	109	117	118	114	127	114	147	150	143	118	86	77	67	55	50	52
24	53	48	44	37	A	34	36	85	112	98	111	112	114	133	109	112	114	98	90	78	78	77	67	46
25	42	40	40	38	36	41	45	94	115	109	112	122	108	123	133	134	118	111	94	85	43	54	54	A
26	52	53	44	36	32	B	40	88	108	107	118	120	115	112	142	138	117	108	87	78	84	77	54	52
27	53	47	50	46	40	38	40	82	123	130	139	137	128	144	148	138	129	117	N	77	84	74	52	53
28	54	46	37	32	34	36	44	84	108	111	112	117	112	114	113	128	118	104	86	77	74	67	53	52
29	54	46	44	42	41	38	46	86	106	111	112	119	116	115	129	134	117	111	95	74	67	66	52	54
30	52	38	34	36	32	34	40	78	97	96	113	114	111	130	124	111	102	96	81	76	73	67	54	51
31	43	38	37	38	40	37	41	74	95	95	120	118	114	112	130	145	N	111	94	83	84	67	52	48
	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	31	31	31	31	30	29	31	31	30	30	30	28	29	29	28	28	29	29	30	31	31	30	31	30
MED	52	51	47	44	42	38	44	82	97	98	111	113	114	114	123	128	116	108	88	77	67	55	52	52
U Q	53	53	52	48	44	42	51	86	108	111	113	117	117	123	133	134	118	111	90	79	74	72	54	53
L Q	48	47	43	38	36	34	40	74	90	96	98	100	109	112	112	111	105	99	86	74	53	52	52	50

HOURLY VALUES OF fEs AT Yamagawa

OCT. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	27	26	G	26	G	G	G	G	G	G	G	52	50	G	G	G	G	G	G	29	29	28	G	G
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	24	24	40	34	25
3	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	30	29	24	G	G	G
4	G	G	G	G	G	G	G	44	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
5	G	G	G	G	G	G	G	33	G	G	G	G	G	G	49	59	85	46	73	59	38	74	30	39
6	G	G	G	G	G	G	G	G	G	G	G	C	C	C	C	C	C	G	G	73	24	32	G	G
7	G	G	G	G	G	G	G	33	G	C	C	C	C	C	C	C	G	38	32	32	23	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	48	39	29	24	G	25	23	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G	44	G	G	G	36	39	45	32	46	33	G
10	G	G	G	40	G	G	G	33	G	41	G	G	G	G	G	45	37	33	25	G	G	24	G	G
11	28	29	G	G	G	G	G	32	40	G	G	G	G	G	G	G	G	G	G	G	G	27	26	G
12	24	G	G	G	G	G	G	35	G	57	52	G	G	G	G	G	G	G	24	24	G	G	G	G
13	G	G	G	G	G	G	G	32	G	G	G	G	G	G	G	G	G	32	29	34	G	G	G	G
14	G	G	G	G	G	G	G	G	G	G	G	52	G	G	G	G	36	G	26	G	G	G	30	25
15	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	61	G	G	G	G	G
16	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	57	55	91	31	G	G	36	30	G
17	G	G	G	G	G	G	G	G	G	43	49	G	44	G	G	G	G	34	34	26	29	35	24	G
18	G	G	G	G	G	G	G	31	41	43	49	52	G	47	46	42	52	43	41	26	40	G	G	24
19	39	40	G	G	G	G	G	29	38	44	G	G	G	G	B	G	G	33	36	33	28	33	34	29
20	G	G	G	G	G	G	G	G	54	56	54	54	53	64	G	G	G	44	55	58	56	G	30	49
21	46	40	33	G	G	G	G	33	44	45	G	G	G	64	45	65	51	76	48	43	G	G	G	G
22	32	G	G	24	G	G	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	34	G	G
23	28	G	G	27	G	G	G	29	G	G	G	G	G	G	43	41	39	33	G	G	G	26	G	G
24	G	G	G	G	27	24	G	33	39	43	45	G	G	55	78	48	40	51	32	25	G	31	23	G
25	G	G	G	G	G	G	G	G	45	58	49	48	76	61	46	G	37	44	45	30	G	36	36	92
26	36	G	G	G	G	B	G	G	36	40	52	G	G	G	G	G	G	G	G	G	G	G	G	G
27	27	G	G	G	G	G	G	G	41	45	G	G	G	46	44	G	G	G	G	34	28	33	43	41
28	30	28	G	G	G	G	G	33	35	45	G	G	G	G	G	G	G	G	28	28	31	33	34	33
29	G	G	G	G	G	G	G	G	G	42	48	46	47	90	G	46	76	74	45	47	32	G	G	G
30	G	G	G	G	G	G	G	48	35	G	50	G	G	43	G	52	46	34	28	26	35	34	34	32
31	32	36	G	28	G	G	G	G	G	G	G	G	47	48	56	42	36	34	28	28	39	28	28	G
	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	31	31	31	31	31	30	31	31	31	30	30	29	29	29	28	29	30	31	31	31	31	31	31	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	33	29	26	24	26	23	G
U Q	28	G	G	G	G	G	G	33	38	43	48	G	G	46	43	43	40	43	39	34	32	33	30	25
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 Yamagawa

OCT. 2014

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	15	15	15	14	16	37	16	27	20	36	46	34	37	29	26	41	34	17	20	14	15	15	41	20	
2	21	36	16	20	16	15	15	15	18	26	45	27	50	46	43	26	14	15	14	14	15	14	15	16	
3	18	16	15	15	17	15	18	16	18	27	40	43	49	55	49	26	34	14	14	15	15	16	16	16	
4	16	15	15	16	15	15	15	15	18	18	45	45	42	46	48	24	17	16	20	15	15	15	15	18	
5	17	15	15	15	14	15	15	18	15	17	14	46	44	26	36	23	18	15	18	15	14	16	14	14	
6	16	15	16	15	15	15	15	14	18	18	18	40	C	C	C	C	C		14	16	14	15	14	16	14
7	14	15	14	15	14	14	15	14	14	C	C	C	C	C	C	C		15	14	14	17	14	15	14	15
8	15	14	14	14	14	15	15	15	16	17	22	39	18	21	26	18	16	14	14	15	14	15	15	15	
9	15	15	15	15	16	15	14	14	18	21	27	48	23	28	23	20	21	14	14	14	14	14	14	14	14
10	15	15	15	14	14	17	14	15	15	16	20	29	27	24	21	24	16	14	15	15	15	14	15	15	
11	14	14	16	16	15	15	14	14	17	18	28	34	27	42	21	18	16	14	16	14	14	14	15	15	
12	14	17	16	16	15	15	15	15	14	20	23	17	39	28	28	22	14	14	15	15	15	15	18	18	
13	14	15	14	15	14	14	14	16	15	18	18	22	21	20	17	17	14	14	14	14	14	15	15	15	
14	15	15	15	15	14	14	14	24	14	17	20	24	24	20	27	18	18	15	15	15	15	15	15	15	
15	15	15	15	15	14	15	15	15	32	36	47	43	43	42	43	34	17	15	15	15	15	15	16	15	
16	15	15	15	15	14	15	15	15	14	14	15	38	39	27	26	16	16	15	15	17	14	15	14	15	
17	15	15	15	15	14	16	14	14	15	15	17	20	28	26	39	23	18	14	14	14	15	14	14	15	
18	16	15	15	15	14	15	15	15	14	18	35	23	34	23	21	18	18	16	14	15	15	15	15	15	
19	14	14	15	14	15	14	14	14	14	21	20	40	28	27	B	46	20	14	14	15	15	14	14	15	
20	15	15	14	15	14	15	14	14	15	20	22	21	26	30	38	22	18	14	14	14	14	16	16	14	
21	14	14	14	15	15	16	14	17	20	20	22	27	30	21	18	15	14	14	15	14	17	14	16	14	
22	14	14	15	15	14	17	14	20	14	17	17	B	46	20	38	18	15	14	15	15	15	14	15	16	
23	15	16	15	15	15	15	14	14	15	20	26	24	38	27	26	18	17	14	15	14	15	15	18	15	
24	18	17	15	16	14	15	15	18	17	18	17	22	29	26	27	22	18	14	14	15	15	14	15	15	
25	16	14	20	15	16	15	15	30	26	26	24	26	26	20	23	20	18	15	14	14	15	15	14	14	
26	14	15	15	15	16	B	14	17	15	17	17	24	39	15	15	15	17	21	14	17	15	15	15	17	
27	14	15	15	15	14	18	15	14	17	20	30	42	27	28	20	20	18	15	14	14	14	14	14	14	
28	14	14	16	15	17	15	14	14	14	18	22	21	56	42	36	36	17	23	14	14	14	14	15	14	
29	14	15	14	15	15	14	15	17	15	18	21	23	28	28	24	18	20	14	15	14	15	15	16	15	
30	14	14	16	16	18	18	15	23	15	23	20	46	27	24	27	21	16	14	15	15	14	14	14	14	
31	14	14	15	14	16	15	15	22	16	17	39	37	24	23	20	18	16	15	14	14	15	15	15	17	
	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	31	31	31	31	31	30	31	31	31	30	30	29	29	29	28	29	30	31	31	31	31	31	31	31	
MED	15	15	15	15	15	15	15	15	15	18	22	29	29	27	26	20	17	14	14	15	15	15	15	15	
U Q	16	15	15	15	16	15	15	18	18	21	30	41	40	29	37	24	18	15	15	15	15	15	16	16	
L Q	14	14	15	15	14	15	14	14	14	17	18	23	26	22	21	18	16	14	14	14	14	14	14	14	

HOURLY VALUES OF foF2 AT Okinawa

OCT. 2014

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	78	76	67	52	52	48	53	87	102	102	108	107	122	126	128	138	131	120	120	120	87	78	73	73
2	72	72	54			48	58	94	88	105	106	118	128	121	123	122	130	130	126	108	105	82	72	54
3	52	52	48	48	46	47	52	88	106	106	104	110	118	133	143	144	139	143	132	131	133	107	109	108
4	87	86	67	67	46	40	43	77	95	108	102	107	121	151	131	134	132	122	107	105	87	55	54	54
5	54	67	52	67	53	B	36	73	88	102	105	110	120	118	128	118	118	117	102	102	84	53	A	67
6	52	67	52	52	54	51	52	88	98	107	118	118	120	134	144	129	140	130	118	107	86	78	73	67
7	54	52	51	52	47	44	51	88	107	108	N	133	142	142	143	147	143	129	109	90	87	52	87	86
8	86	88	77	73	B	B	48	80	111	109	110	134	148	129	142	144	133	118	108	89	52	54	54	
9	52	72	67	41	B	B	34	82	98	106	118	118	108	130	142	144	135	130	118	86	77	79	60	54
10	53	N	78	67	29	B	32	80	88	108	120	121	107	N	139	148	136	130	111	86	77	73	80	72
11	59	72	67	47	B	B	59	73	92	104	111	118	92	143	N	143	131	140	89	87	88	86	86	54
12	52	49	46	43	35	34	37	72	88	106	N	127	145	N	139	144	139	148	131	102	107	110	118	108
13	107	107	88	87	64	48	51	79	90	102	108	108	118	140	143	146	136	142	120	105	108	105	105	84
14	73	73	52	50		47	52	59	88	98	117	131	134	144	146	149	139	137	130	89	105	99	73	54
15	54	52	48	48	44	B	42	84	72	97	121	141	131	118	132	134	131	118	108	100	73	72	72	52
16	54	53	52	50	44	B	31	77	107	88	100	107	118	132	143	143	120	116	86	86	78	77	66	49
17	52	52	54	32	40	29	69	76	88	90	110	110	110	131	143	139	144	136	110	119	88	78	83	74
18	66	67	62	37	36	29	34	67	97	109	105	108	95	132	130	118	116	110	108	A	54	49	64	60
19	51	50	52	56	B	42	44	74	105	116	129	131	130	130	99	139	143	148	139		109	N	76	52
20	52	47	57	47	45	B		82	108	96	101	116	113	110	142	144	118	120	117	79	54	86	66	62
21	54	52	45	34	B	33	B	78	115	128	111	113	110	118	134	132	117	107	89	85	N	72	67	B
22		50	B	46	37	B	B	67	118	87	107	B	131	131	133	118	132	118	89	87	88	105	72	49
23	46	42			B	B	B	86	110	118	133	118	133	139	139	139	146	139	132	89	108	105	87	72
24	74	66	52	44		B	B	80	126	108	116	128	118	131	143	143	134	140	118	108	88	109	82	53
25			B		B	B	42	89	131	131	121	121	136	134	139	143	141	144	131	110	104	87	87	86
26	N	53	52	A	B	B	34	84	102	106	110	134	131	142	147	146	146	143	113	108	108	108	104	87
27	N	66	52	52	42	B	40	82	131	132	139	132	131	143	139	145	143	134	132	108	108	132	96	84
28	72	52	47	47		B	53	86	106	130	132	109	108	99	133	134	143	119	107	107	87	86	88	67
29	51	33	47		40	B	41	83	108	107	120	118	118	109	142	143	131	118	118	107	89	105	88	74
30	N	46	B	30	29	B	34	80	97	98	132	131	130	133	119	133	119	128	109	108	87	86	76	72
31	53	46	46		48	B		75	106	105	118	117	117	130	133	147	139	139	129	110	117	108	77	54
	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	27	25	20	14	25	31	31	31	29	30	31	29	30	31	31	31	31	29	30	30	30	29
MED	54	53	52	48	44	44	43	80	102	106	111	118	120	131	139	143	135	130	117	105	88	86	76	67
U Q	72	72	67	54	50	48	52	86	108	109	120	131	131	139	143	144	141	140	129	108	107	105	87	79
L Q	52	50	48	43	38	34	35	75	90	102	106	110	113	123	132	134	131	118	108	88	84	73	72	54

HOURLY VALUES OF fEs AT Okinawa

OCT. 2014

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	26	G	G	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	68	59	32	25	G	G
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
3	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	47	40	40	G	28	28	G
4	G	G	G	G	G	G	G	36	G	52	52	G	G	G	G	G	G	G	40	32	30	G	G	G
5	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	52	42	G	28	G	G	56	58
6	34	27	26	G	G	G	G	G	40	44	G	G	G	86	80	G	G	G	G	28	G	G	G	26
7	27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	48	48	59	34	G	G	30	G	G
9	G	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	46	G	G	30	32	38	37	40
10	26	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	31	25	G	G	G	G
11	G	G	G	G	B	B	G	G	G	45	G	G	G	G	G	G	G	G	G	28	G	G	G	G
12	30	G	G	G	G	G	G	G	G	45	G	53	G	G	G	45	G	G	28	30	G	G	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	43	G	51	45	G	G	G	G	G
14	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	38	25	G	40	60	25
15	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	45	37	G	G	G	G	G	G
16	G	G	G	G	G	B	G	G	G	G	G	G	47	59	61	52	58	33	37	27	23	G	G	G
17	G	G	G	G	G	G	G	G	G	46	51	51	G	G	G	G	57	42	35	28	26	G	33	G
18	G	G	G	G	G	G	G	G	G	43	G	G	G	G	G	G	60	53	56	59	45	49	25	G
19	G	G	G	G	B	G	G	G	40	45	48	G	G	60	G	G	56	38	61	28	G	G	G	G
20	G	G	G	G	G	B	G	G	G	G	50	52	52	61	G	48	G	39	34	53	44	34	29	26
21	G	G	G	G	B	G	B	G	G	G	G	46	G	G	G	G	69	34	43	23	G	G	G	B
22	G	G	B	G	G	B	B	G	G	G	G	B	G	G	G	G	G	G	G	G	27	G	G	G
23	G	G	G	G	B	B	B	G	G	G	G	G	50	G	G	G	G	G	G	G	G	G	G	G
24	G	G	G	G	G	B	B	G	35	48	G	G	G	51	60	53	45	43	38	34	35	26	G	G
25	G	G	B	G	B	B	G	G	G	G	50	55	G	56	55	G	G	G	36	39	G	G	G	G
26	G	47	G	34	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
27	G	28	G	G	G	B	G	G	G	G	G	G	G	60	49	53	58	51	40	G	35	G	G	G
28	G	25	G	G	G	B	G	G	G	G	G	G	G	G	G	48	G	G	40	28	39	39	40	46
29	34	G	G	G	G	B	G	G	G	G	G	G	67	G	G	45	47	47	38	G	G	G	G	G
30	G	G	B	G	G	B	G	G	G	G	G	G	G	50	G	52	58	42	28	G	26	G	G	G
31	G	G	G	G	G	G	B	G	G	45	G	66	G	G	G	G	G	G	G	G	G	G	G	G
	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	31	31	28	31	24	15	26	31	31	31	31	30	31	31	31	31	31	31	31	30	31	31	31	30
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	34	26	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	43	G	G	G	G	G	45	52	43	40	32	30	28	25	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

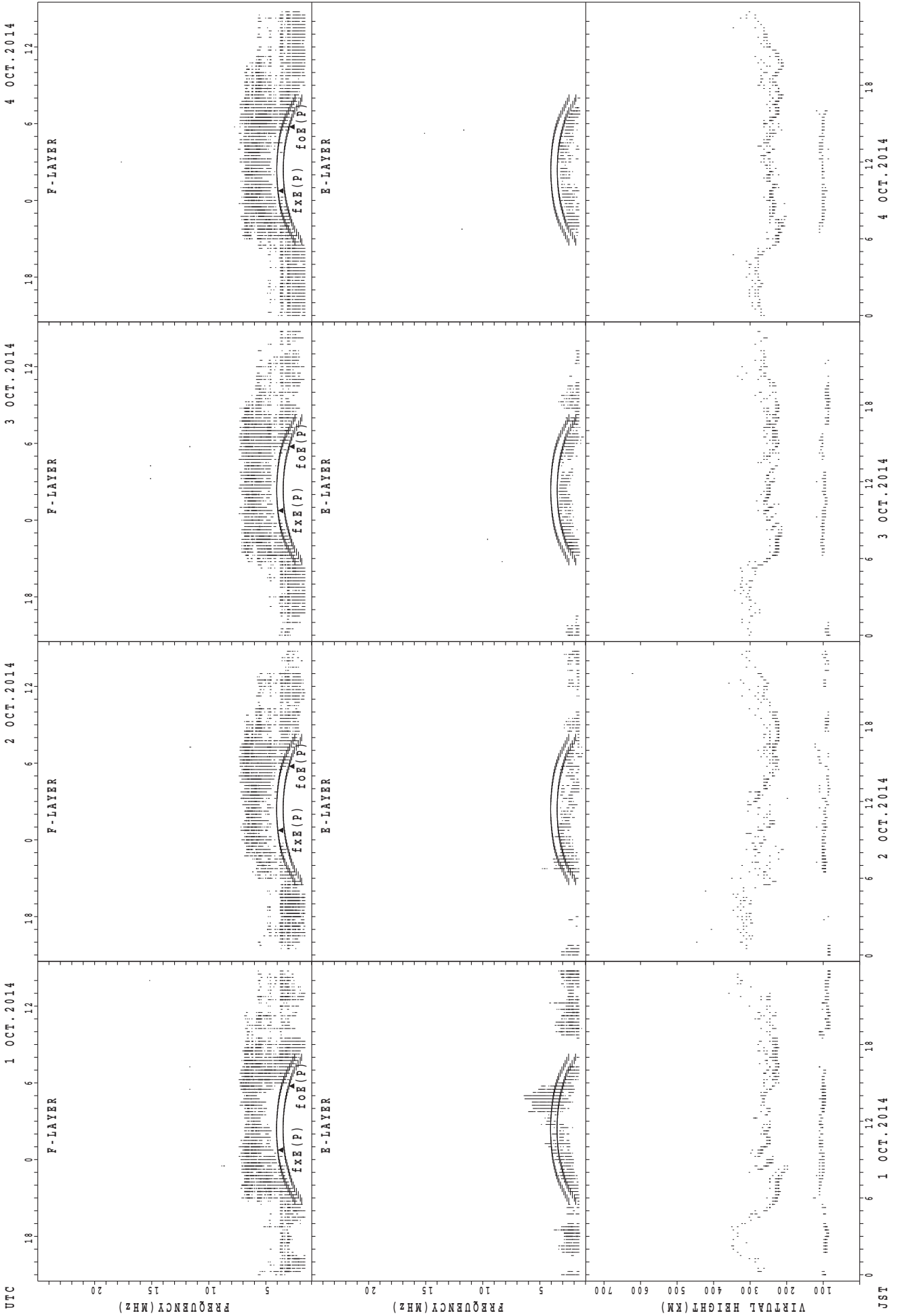
HOURLY VALUES OF fmin AT Okinawa

OCT. 2014

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

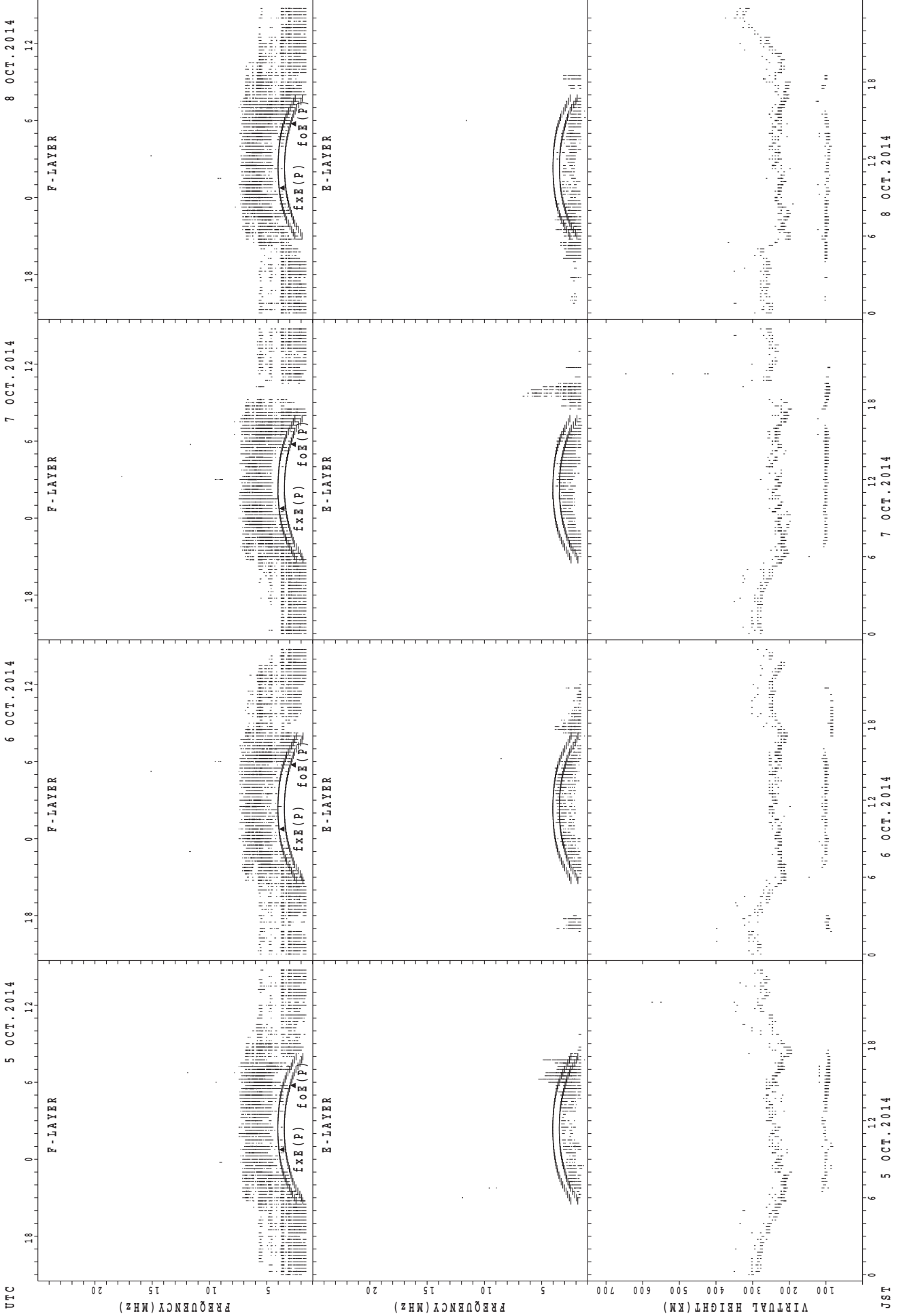
$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	17	20	18	14	15	18	20	29	20	42	52	53	63	52	58	42	38	17	15	14	14	15	21	41
2	20	21	20	81	20	21	18	26	34	42	50	61	54	48	45	54	43	29	20	15	18	15	14	15
3	21	17	18	16	18	16	15	28	38	45	44	47	52	63	59	22	42	16	18	15	17	15	15	17
4	16	17	18	20	18	18	15	20	20	40	42	42	55	47	48	45	42	16	17	15	15	16	20	16
5	17	16	16	16	15	B	18	24	18	39	43	50	49	49	42	44	33	21	15	17	16	16	14	15
6	15	14	16	17	15	16	16	26	35	41	23	48	53	40	39	42	40	28	18	14	20	15	21	15
7	15	20	16	18	16	16	16	24	17	41	43	43	47	51	44	42	21	29	20	15	18	17	21	21
8	18	17	16	16	15	17	15	28	36	38	44	48	54	46	47	40	33	21	15	18	28	15	39	17
9	22	17	15	15	B	B	18	24	40	30	45	70	61	43	43	42	40	17	20	14	14	15	17	15
10	15	15	15	15	15	B	20	27	18	40	29	43	64	53	42	39	21	17	15	15	16	15	15	21
11	18	41	18	36	B	B	17	26	33	32	44	43	47	53	40	43	33	29	15	16	15	17	15	15
12	15	15	18	15	18	15	15	27	20	30	44	36	50	53	40	30	38	15	14	15	15	17	17	17
13	27	21	16	17	21	28	16	27	35	40	43	42	49	55	53	23	20	16	16	15	21	17	17	18
14	16	16	20	18	66	18	15	24	18	41	42	50	46	57	23	20	16	14	15	14	21	16	15	15
15	16	18	20	29	20	B	40	28	40	42	53	63	59	54	46	42	27	17	18	15	21	30	15	18
16	18	23	17	18	16	B	18	24	17	38	50	46	44	52	40	36	30	21	14	17	15	15	20	15
17	15	15	16	16	16	20	16	24	18	38	38	42	48	50	55	44	39	20	16	17	15	16	16	18
18	17	15	15	18	17	16	66	16	17	39	43	43	47	46	43	42	30	21	18	21	15	15	15	16
19	17	18	17	15	B	17	17	16	18	32	33	48	50	35	100	59	28	18	16		14	18	22	40
20	39	42	22	23	16	B	66	26	17	39	38	36	40	38	44	32	21	15	14	15	15	15	15	18
21	39	15	27	20	B	66	B	28	40	39	42	29	66	49	42	40	21	14	14	16	16	16	18	B
22	66	21	B	20	20	B	B	26	20	39	46	B	64	21	44	39	38	29	21	15	18	20	18	26
23	38	15	66	66	B	B	B	23	17	40	42	46	39	52	44	39	38	28	16	15	21	36	20	18
24	15	16	17	16	66	B	B	26	20	20	33	42	52	40	36	30	21	21	15	15	18	18	26	20
25	18	66	B	66	B	B	17	42	40	40	39	38	54	39	39	42	39	33	15	16	17	17	15	15
26	17	17	28	20	B	B	18	18	20	40	27	50	54	44	42	42	39	29	18	21	17	20	16	16
27	20	15	44	18	20	B	14	23	34	40	46	62	53	40	34	29	35	18	15	26	15	18	15	18
28	16	15	16	17	66	B	18	22	20	39	44	47	72	49	46	42	40	27	15	15	15	15	17	14
29	15	16	16	17	17	B	16	28	18	40	46	43	43	53	45	24	23	21	15	42	17	20	15	15
30	16	15	B	15	20	B	15	24	18	40	42	59	45	42	42	38	20	18	16	16	16	15	18	15
31	15	32	16	28	18	66	B	23	34	39	48	40	43	43	43	40	36	16	18	18	17	17	18	15
	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	31	31	28	31	24	15	26	31	31	31	31	30	31	31	31	31	31	31	31	30	31	31	31	30
MED	17	17	17	18	18	18	17	26	20	40	43	46	52	49	43	40	33	20	16	15	16	16	17	16
U Q	20	21	20	20	20	21	18	27	35	40	46	50	55	53	46	42	39	28	18	17	18	18	20	18
L Q	15	15	16	16	16	16	15	23	18	38	39	42	47	42	40	32	21	16	15	15	15	15	15	15

SUMMARY PLOTS AT Wakkanai



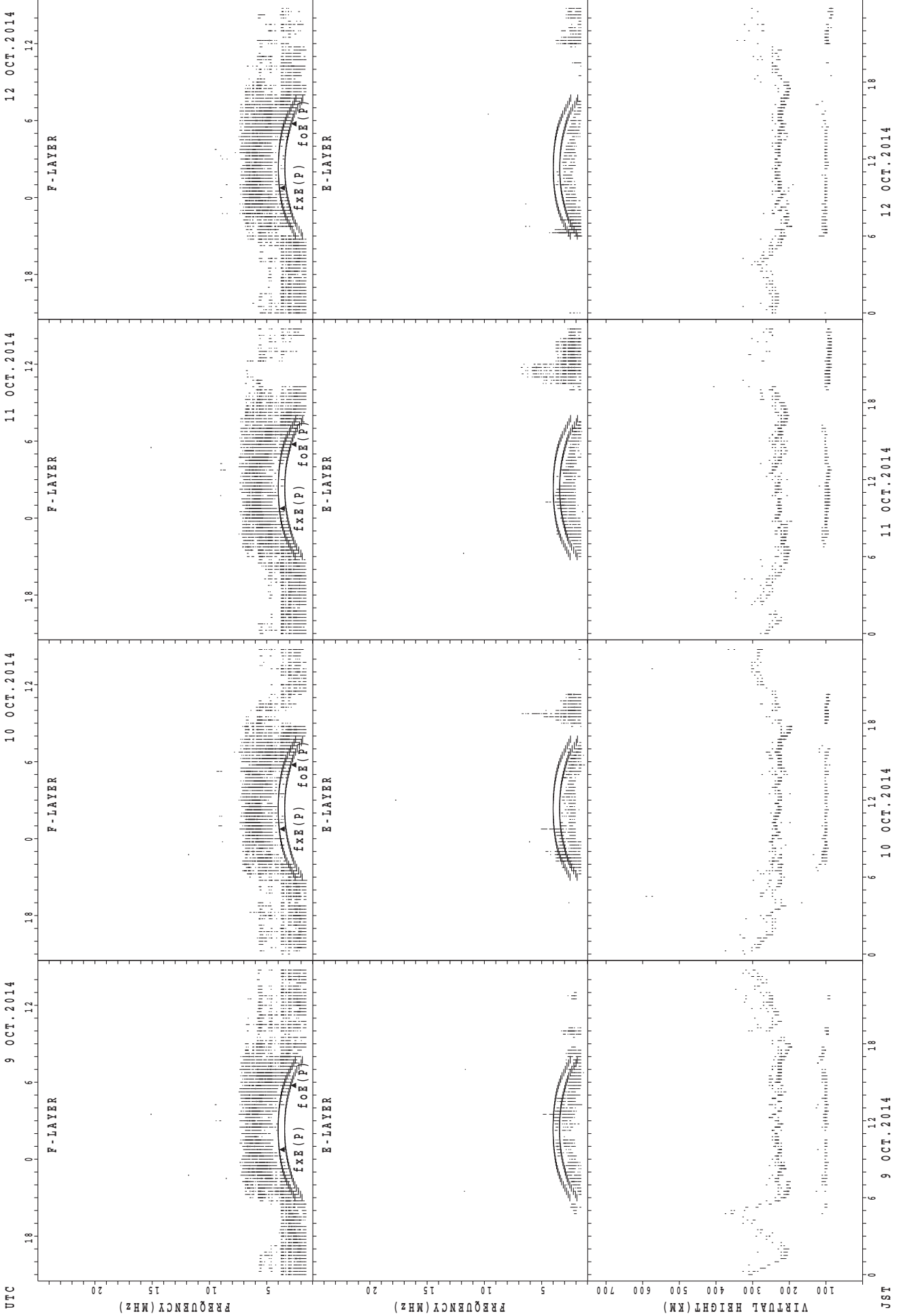
fxE(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



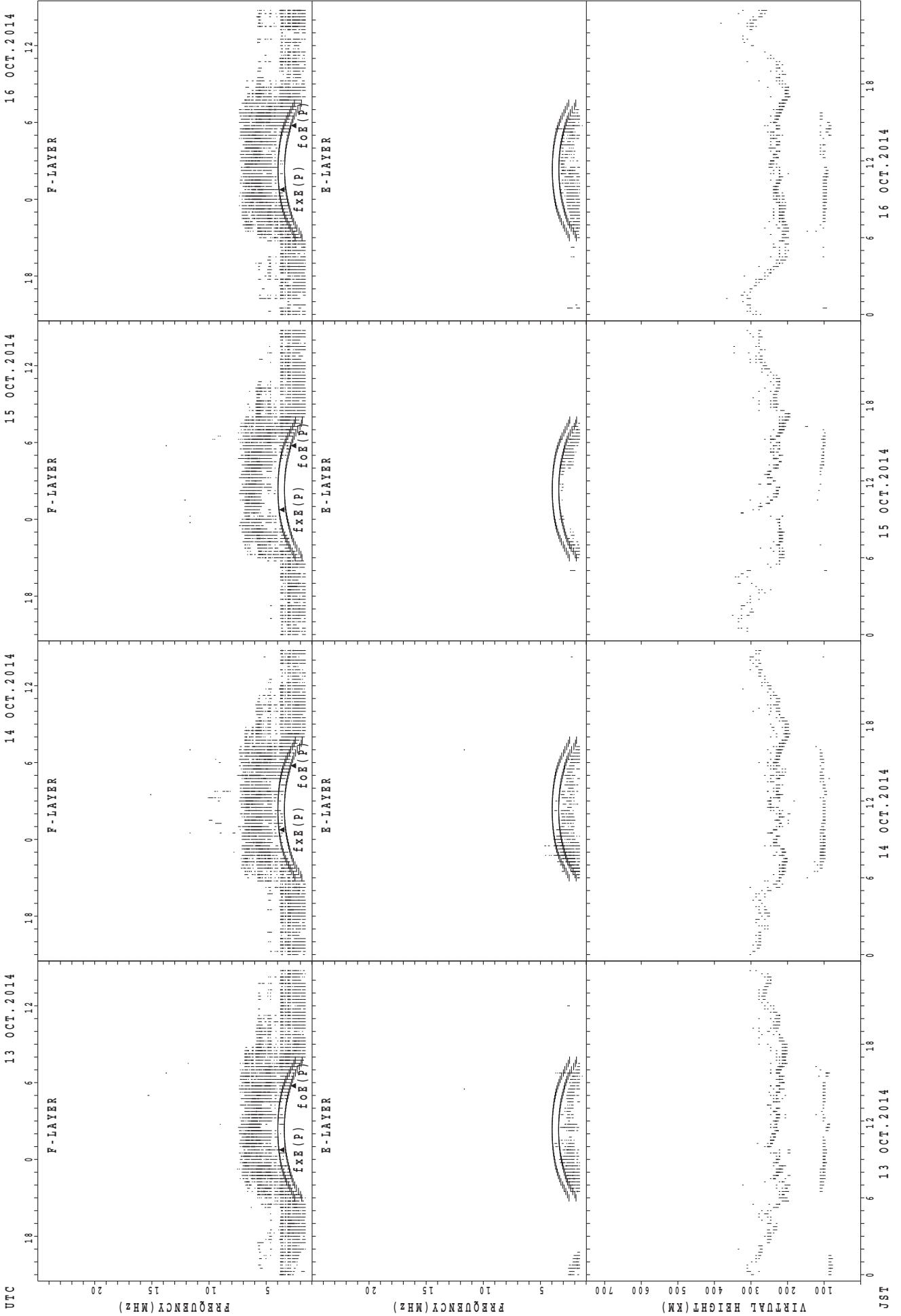
f_{xe}(P); PREDICTED VALUE FOR f_{xe}
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



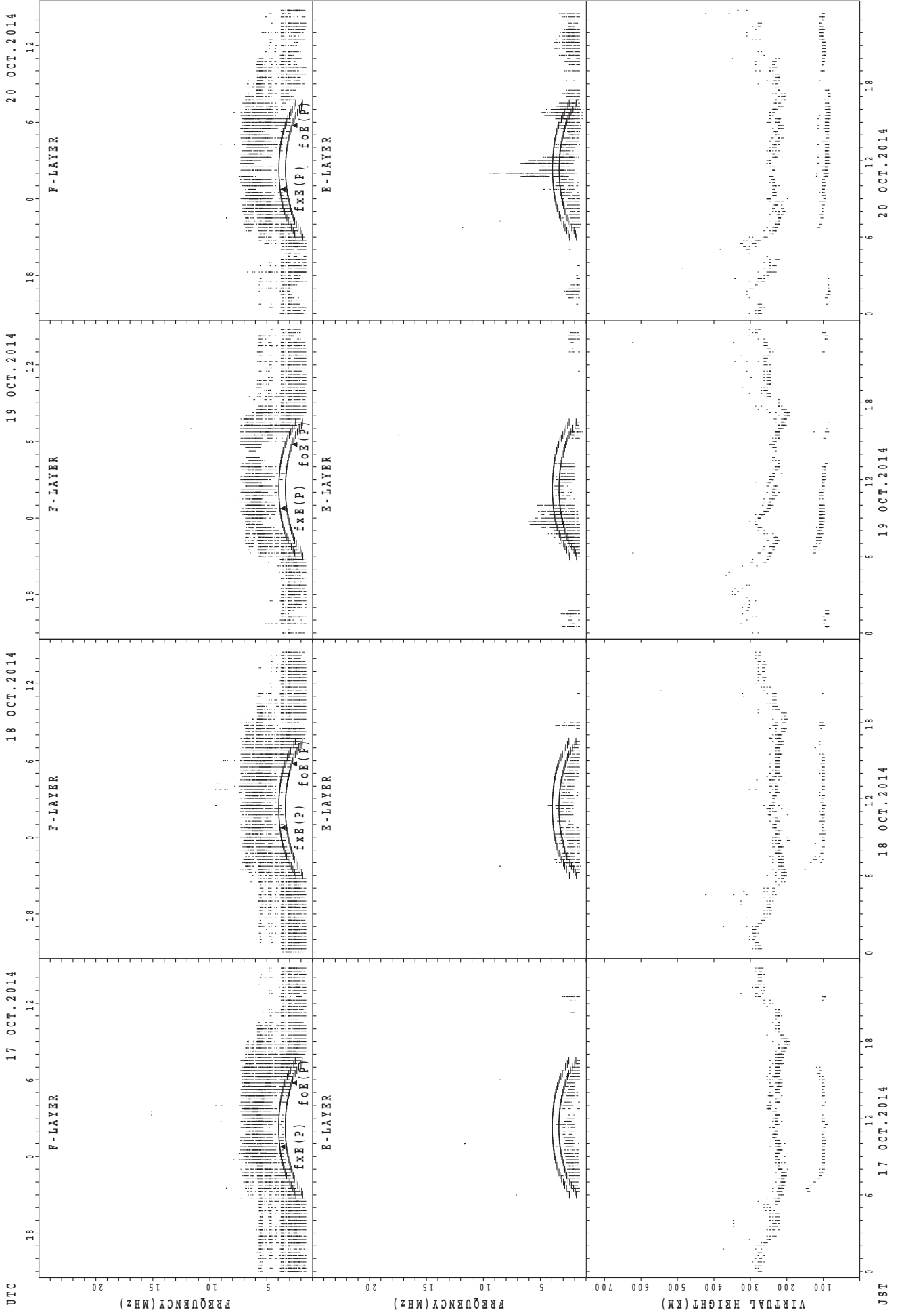
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



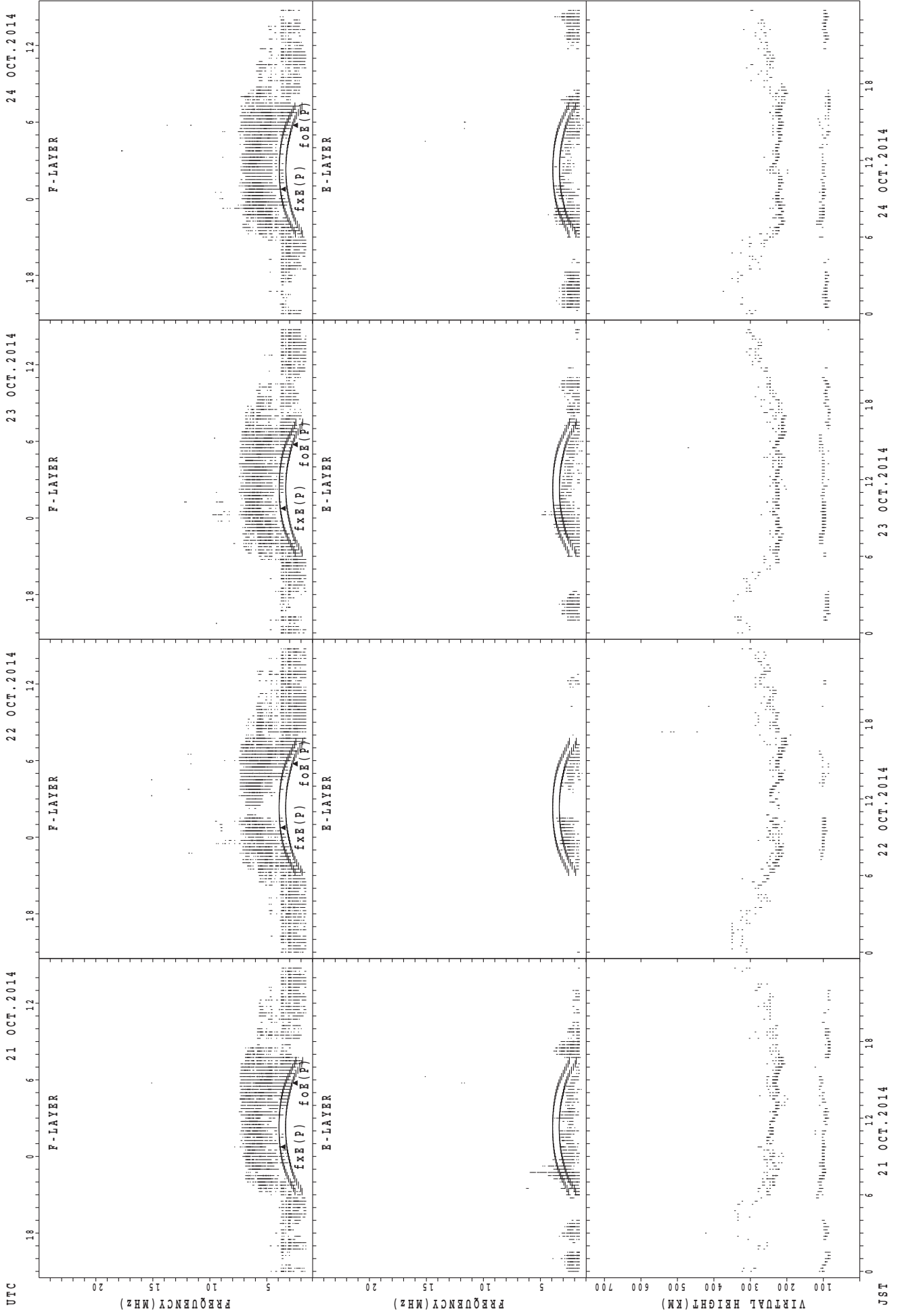
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



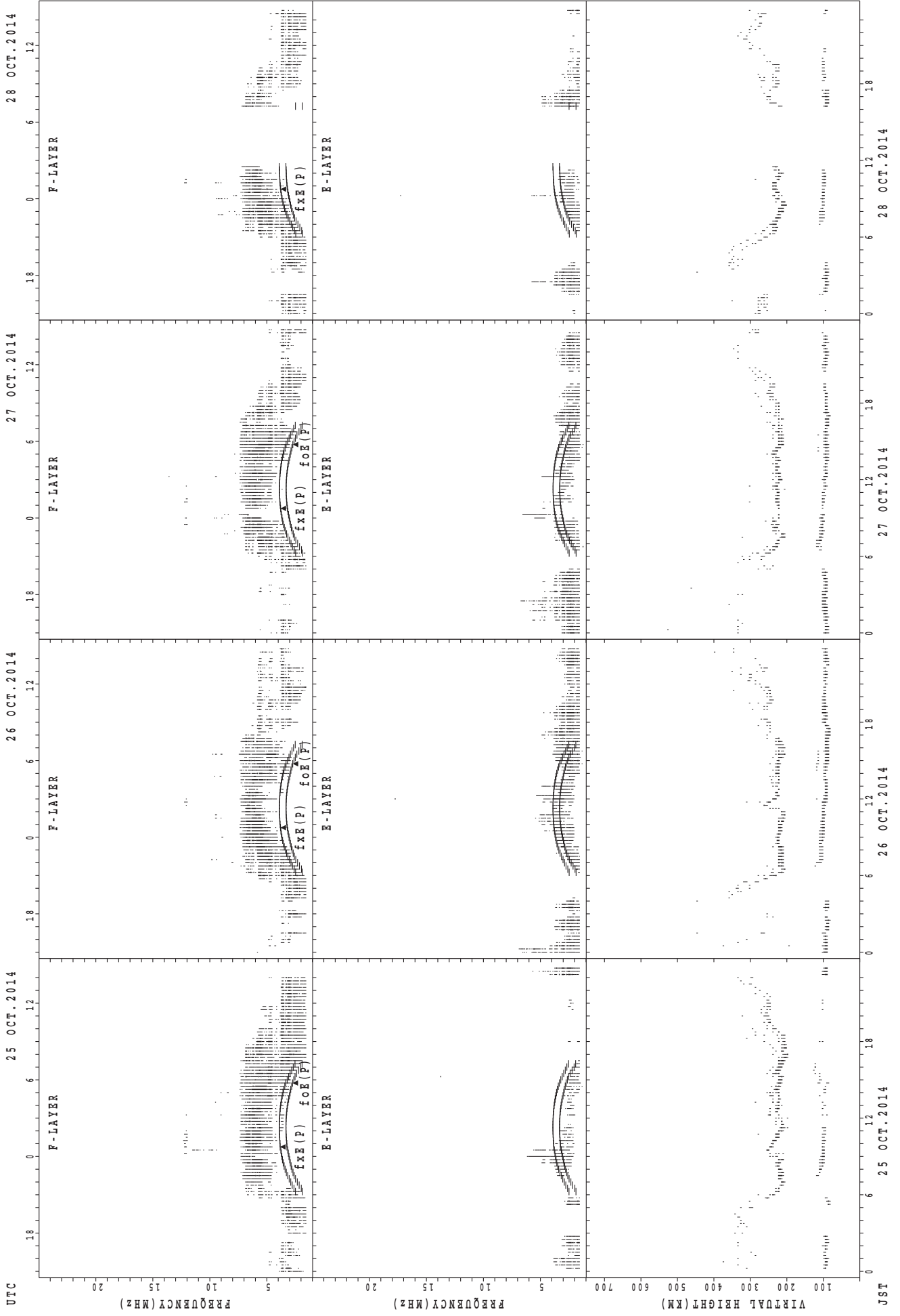
UTC
 17 OCT. 2014
 18 OCT. 2014
 19 OCT. 2014
 20 OCT. 2014
 F-LAYER
 Fx (MHz)
 Fx (P) (MHz)
 Virtual Height (KM)
 JST
 17 OCT. 2014
 18 OCT. 2014
 19 OCT. 2014
 20 OCT. 2014
 fxe (P); PREDICTED VALUE FOR fxe
 foE (P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



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

SUMMARY PLOTS AT Wakkanai



UTC

25 OCT. 2014

26 OCT. 2014

27 OCT. 2014

28 OCT. 2014

F-LAYER

E-LAYER

FREQUENCY (MHz)

VIRTUAL HEIGHT (KM)

JST

25 OCT. 2014

26 OCT. 2014

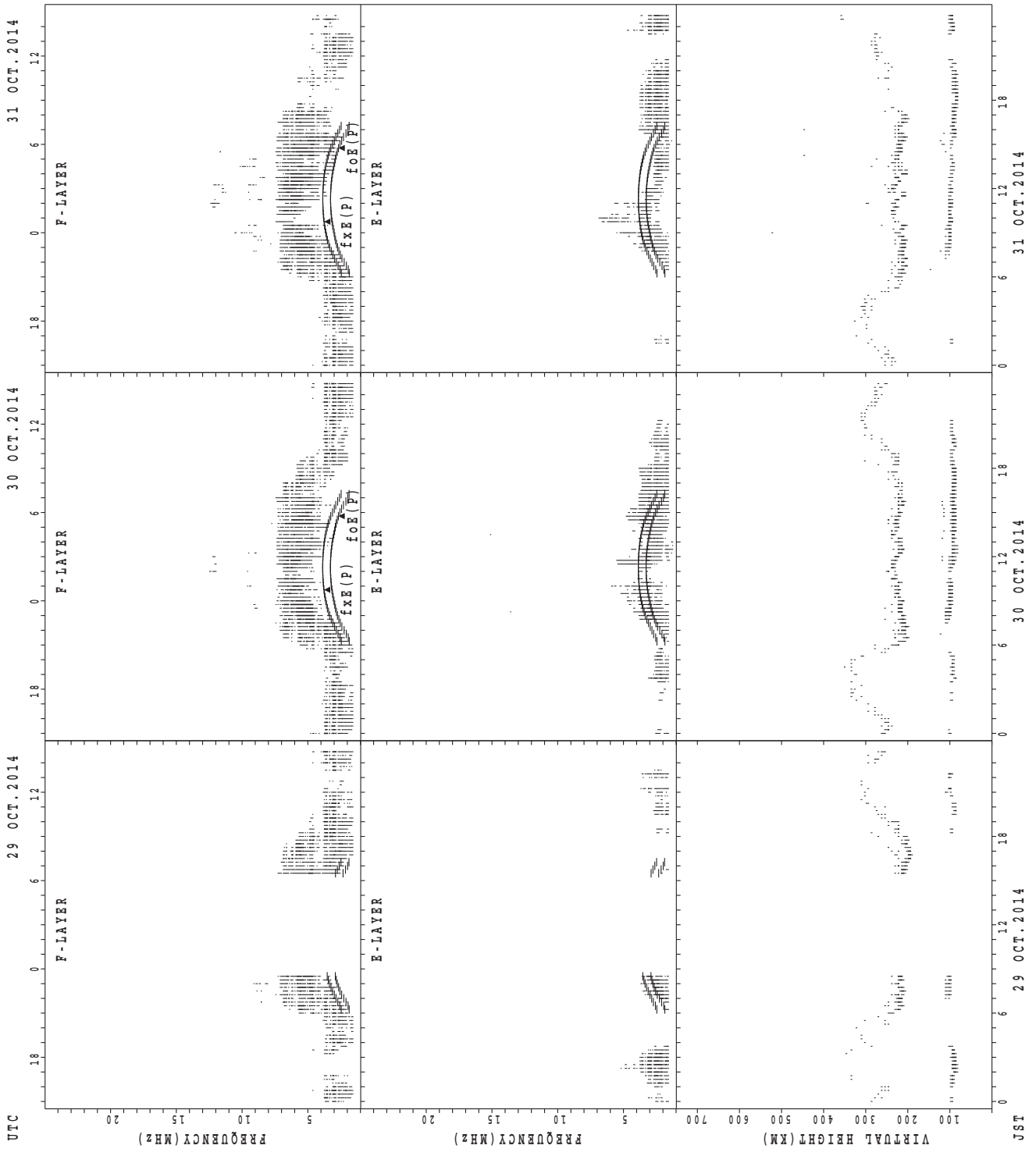
27 OCT. 2014

28 OCT. 2014

fxe(P); PREDICTED VALUE FOR fxe

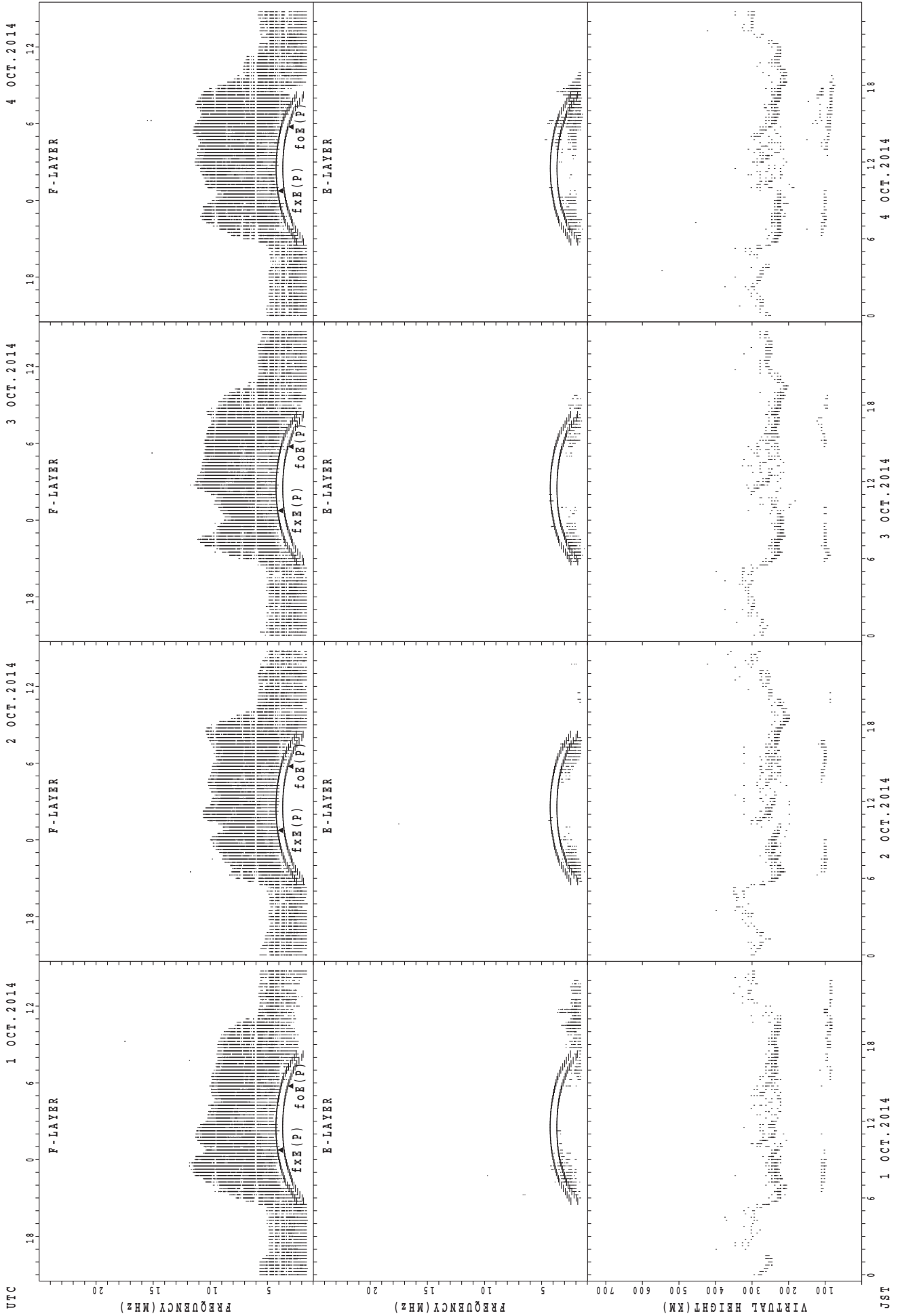
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



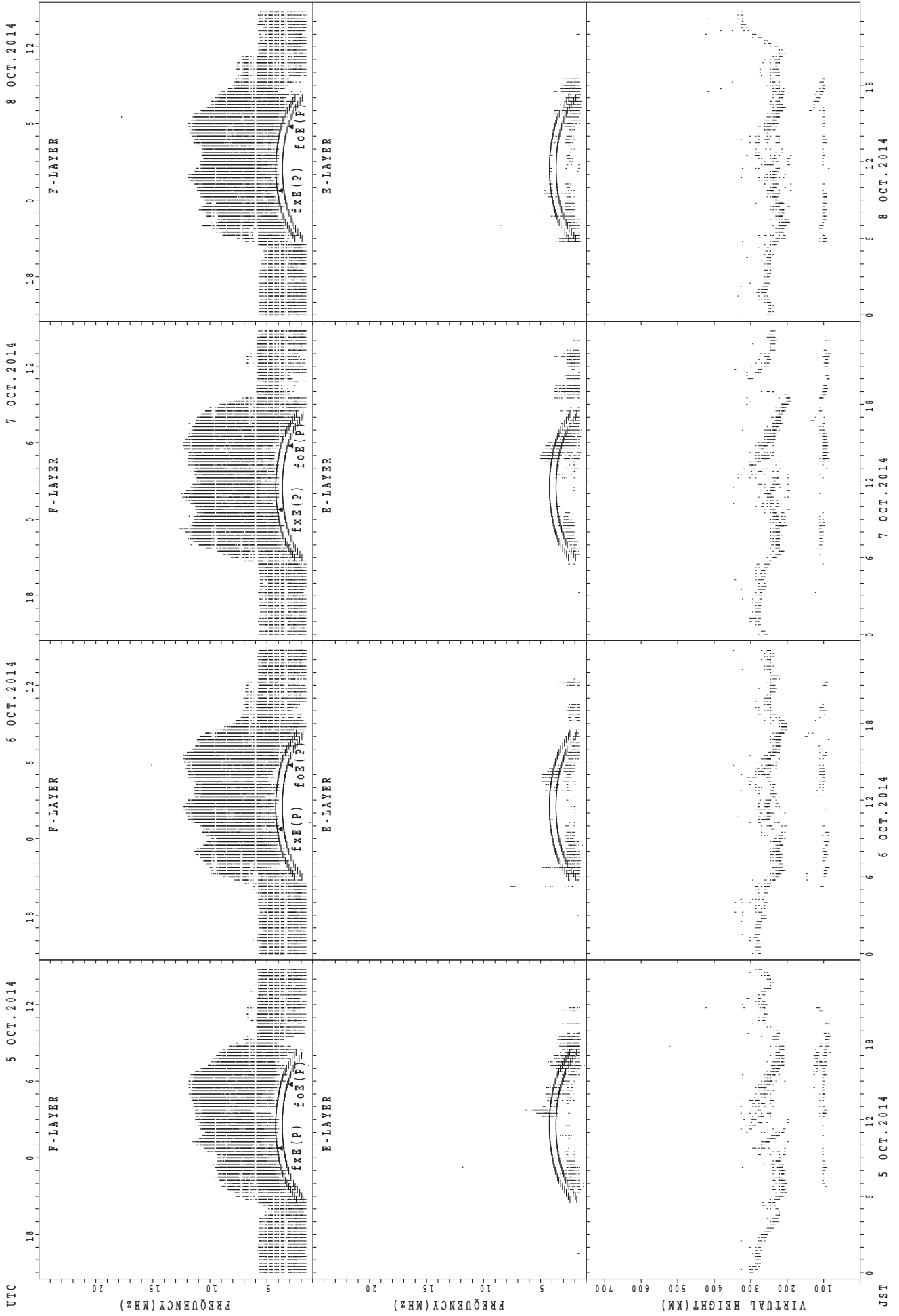
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Kokubunji



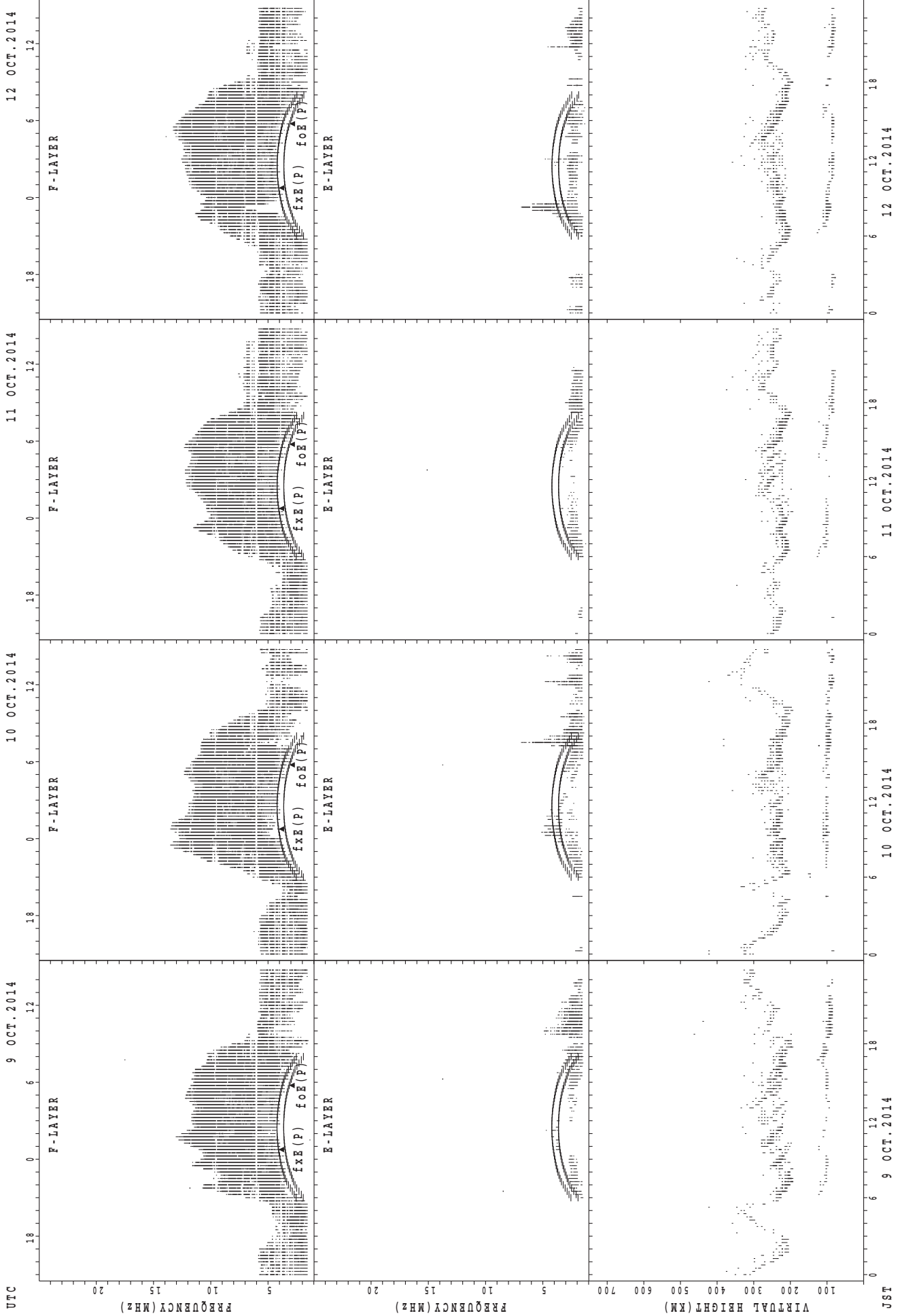
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



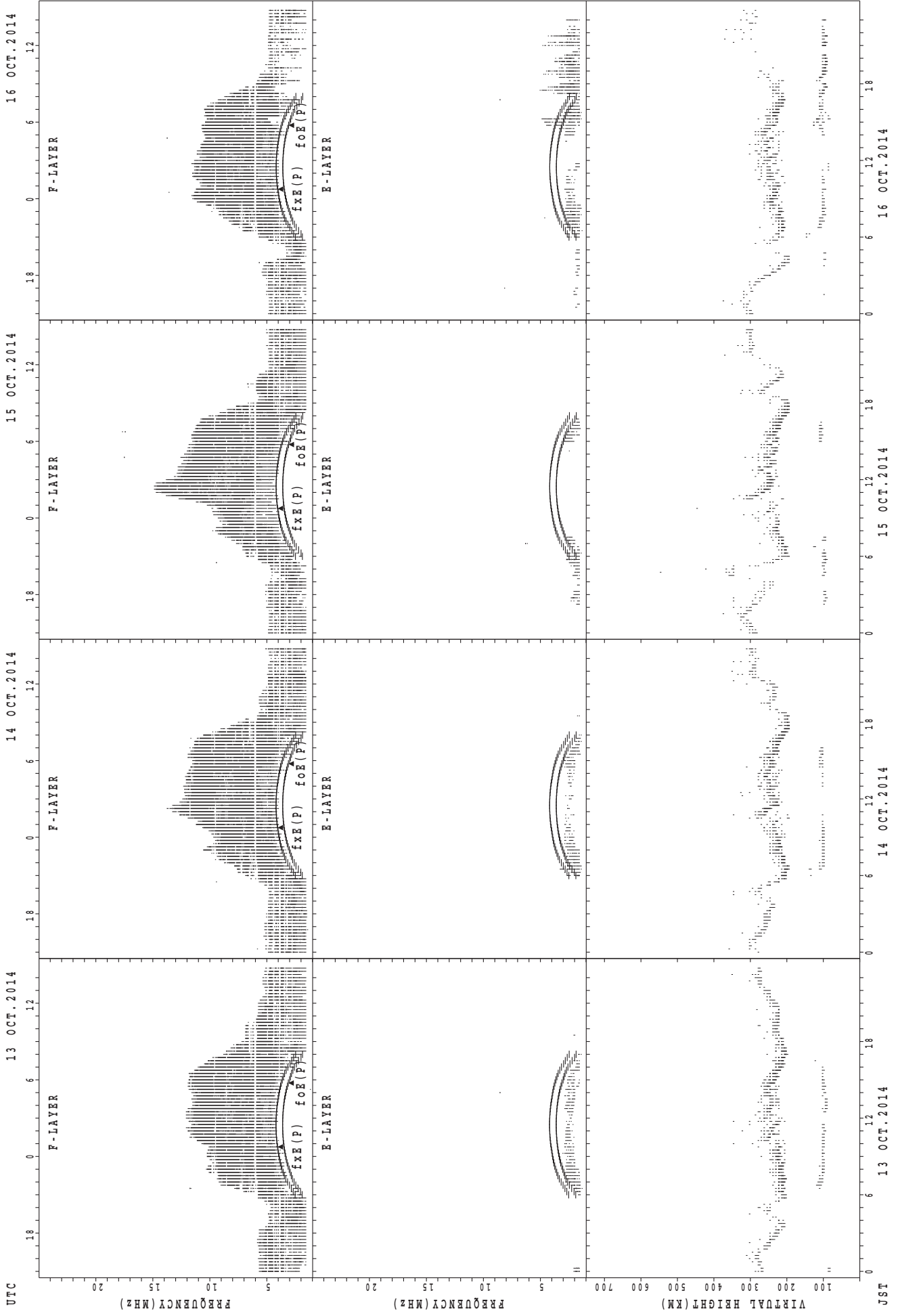
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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

SUMMARY PLOTS AT Kokubunji

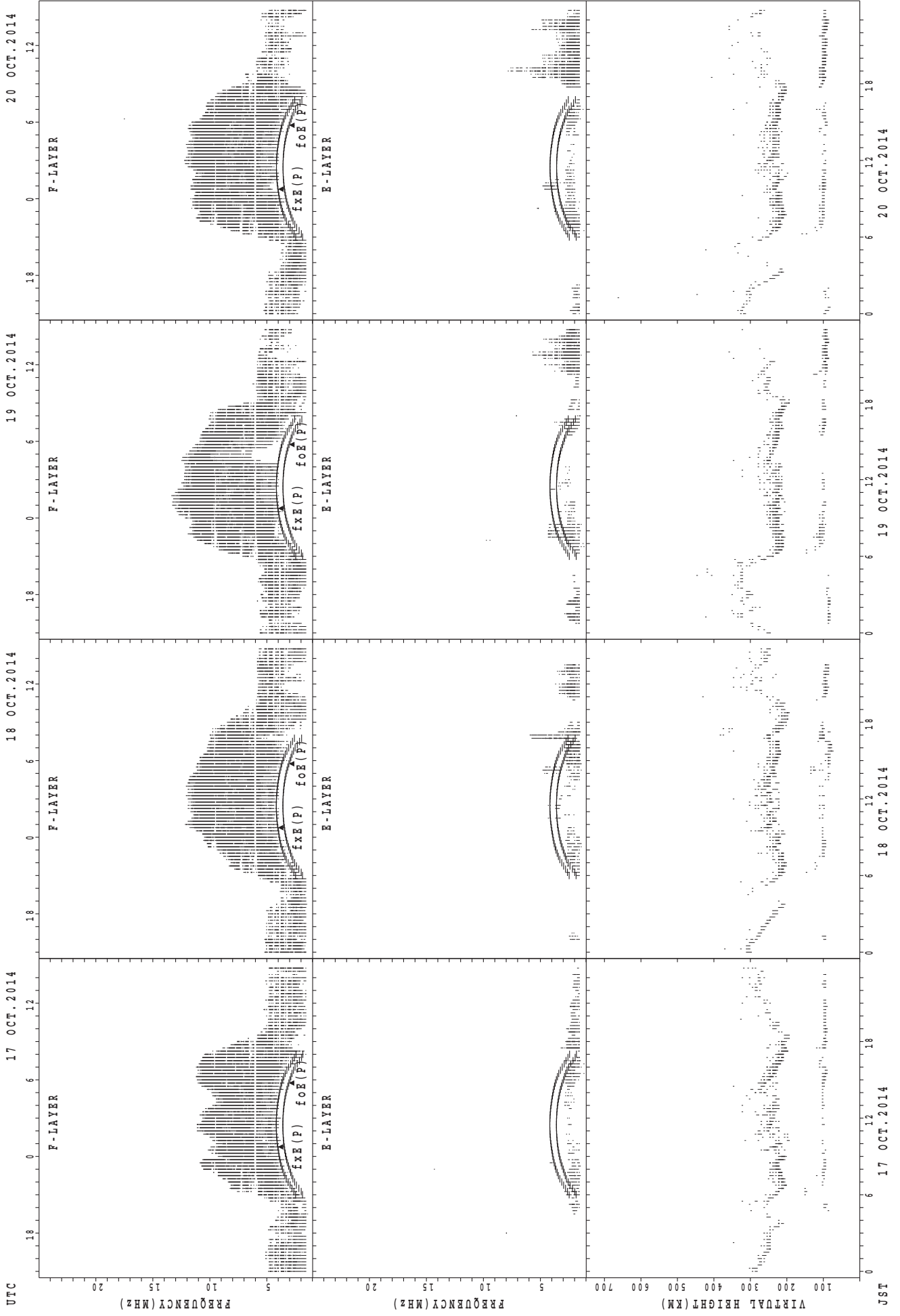


UTC
 13 OCT. 2014
 14 OCT. 2014
 15 OCT. 2014
 16 OCT. 2014

JST
 13 OCT. 2014
 14 OCT. 2014
 15 OCT. 2014
 16 OCT. 2014

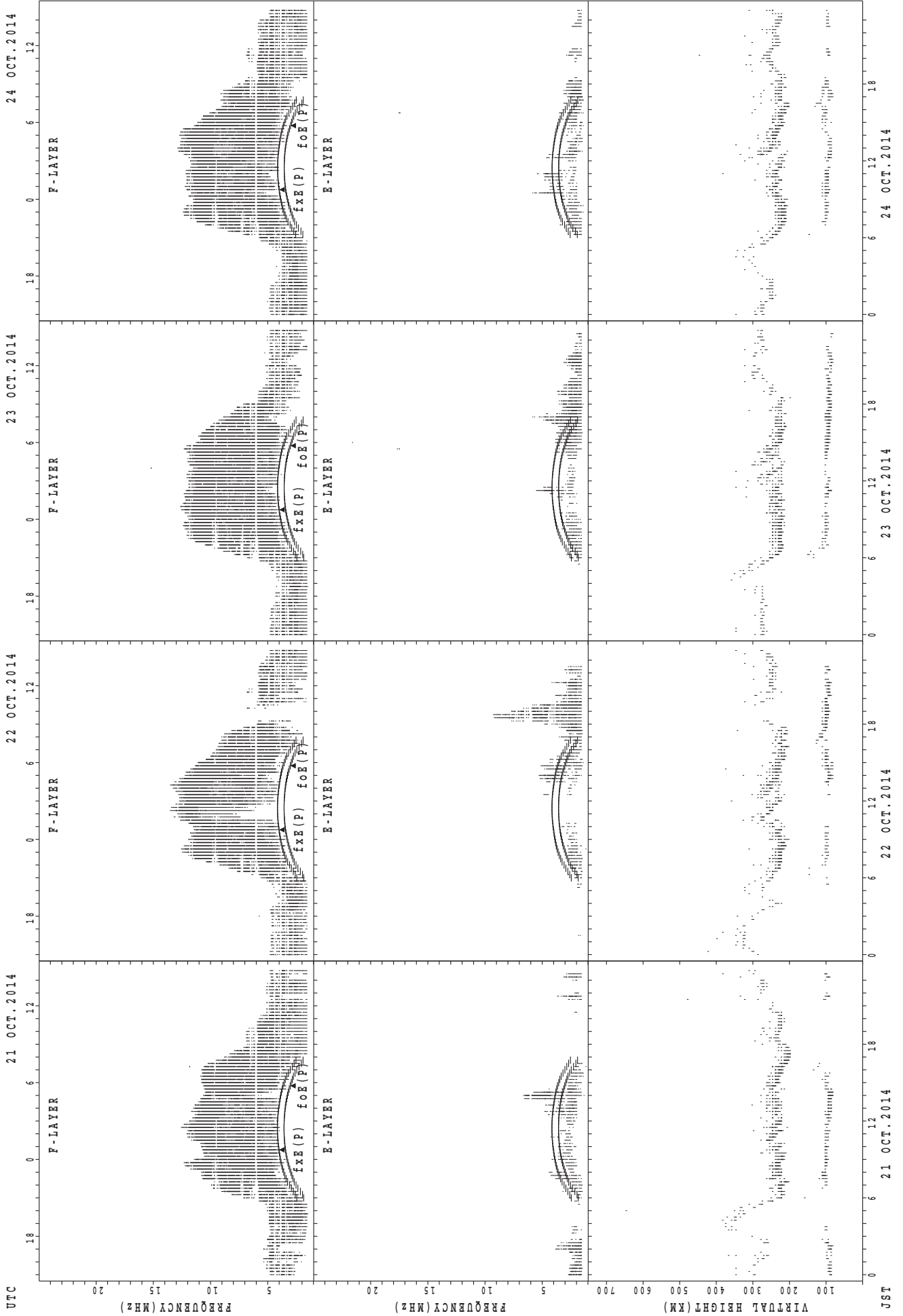
foF2(P); PREDICTED VALUE FOR foF2
 foE1(P); PREDICTED VALUE FOR foE1

SUMMARY PLOTS AT Kokubunji



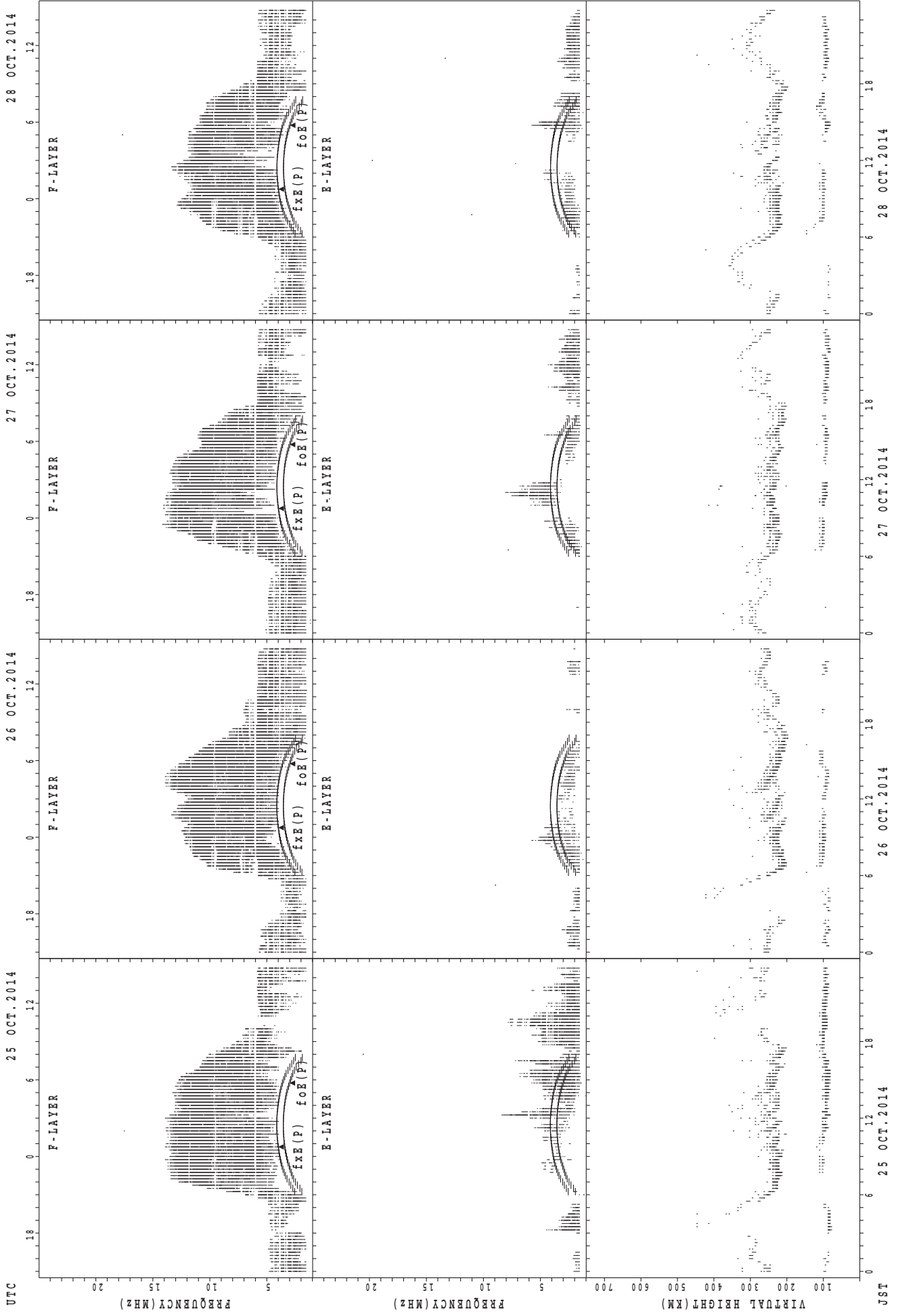
$f_{xe}(P)$; PREDICTED VALUE FOR f_{xe}
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



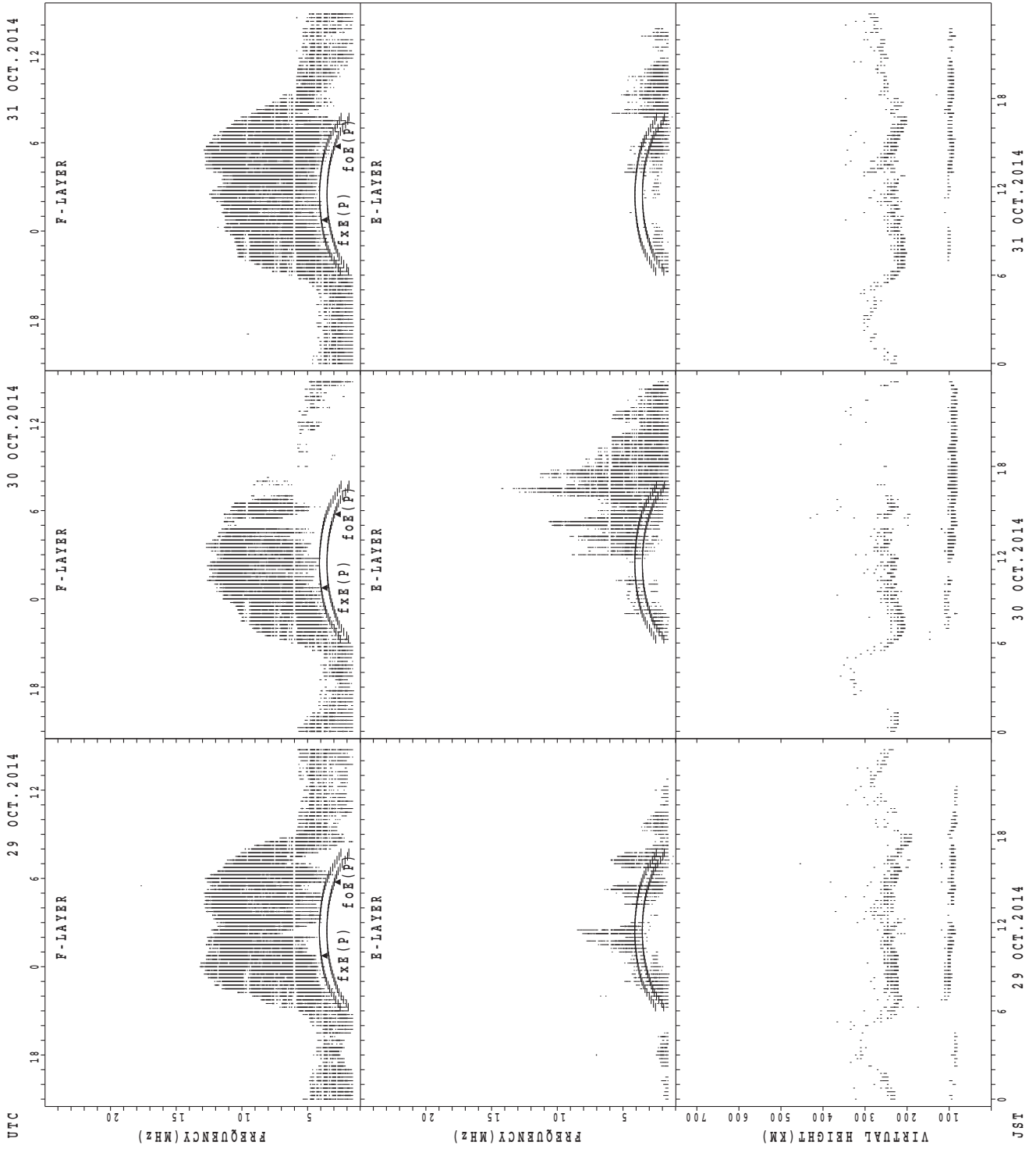
fxE(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



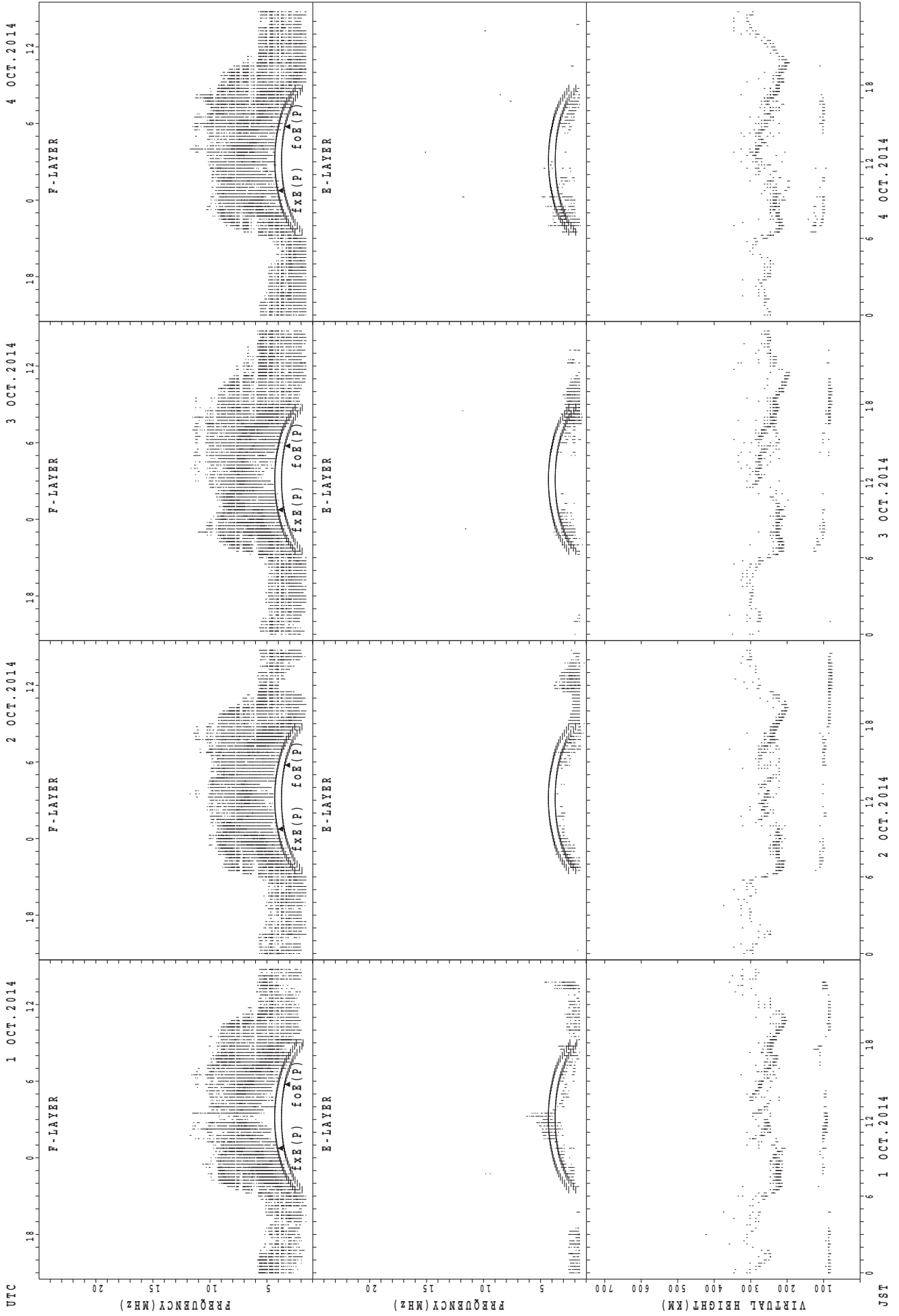
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Kokubunji



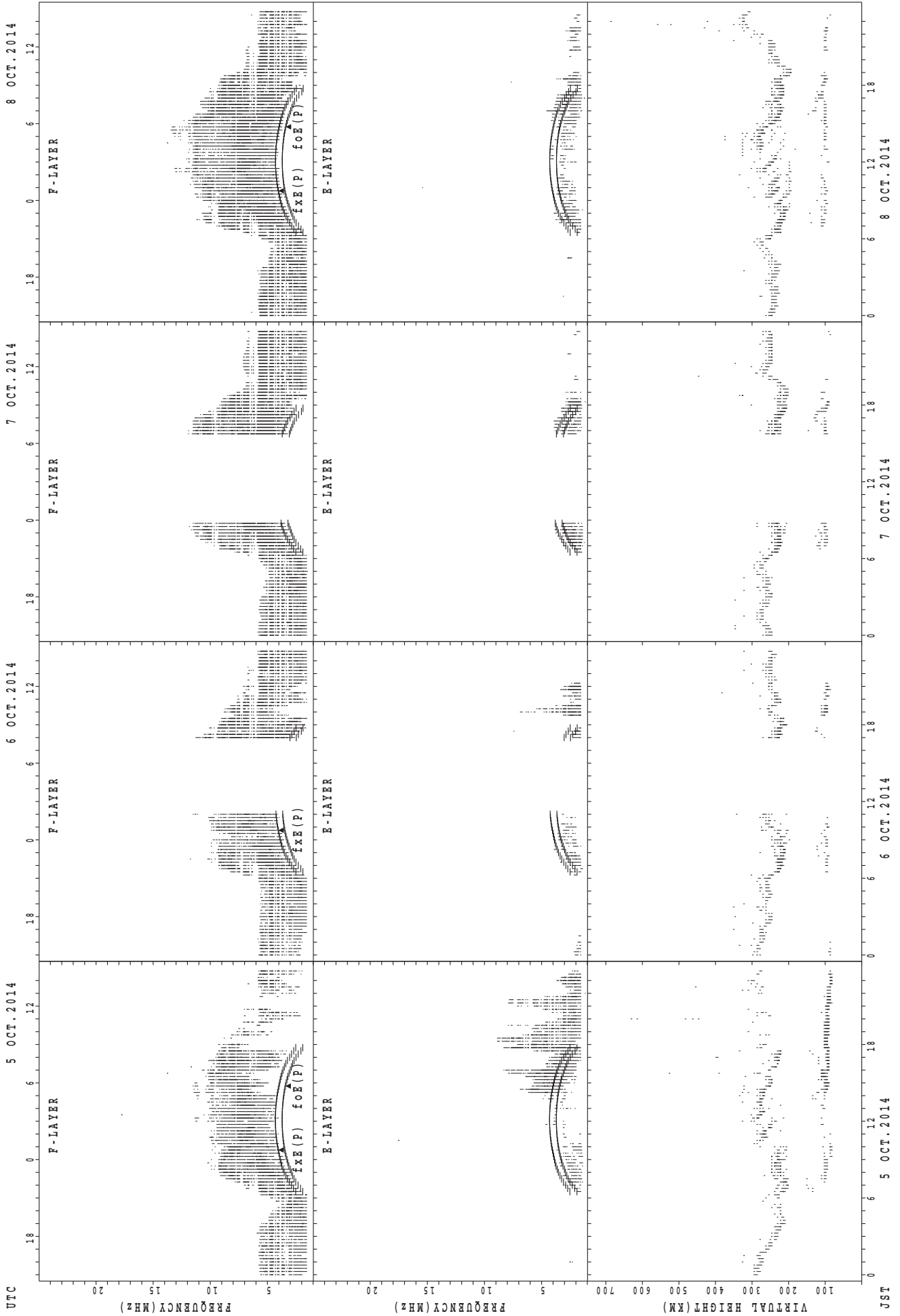
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



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

SUMMARY PLOTS AT Yamagawa



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

5 OCT. 2014

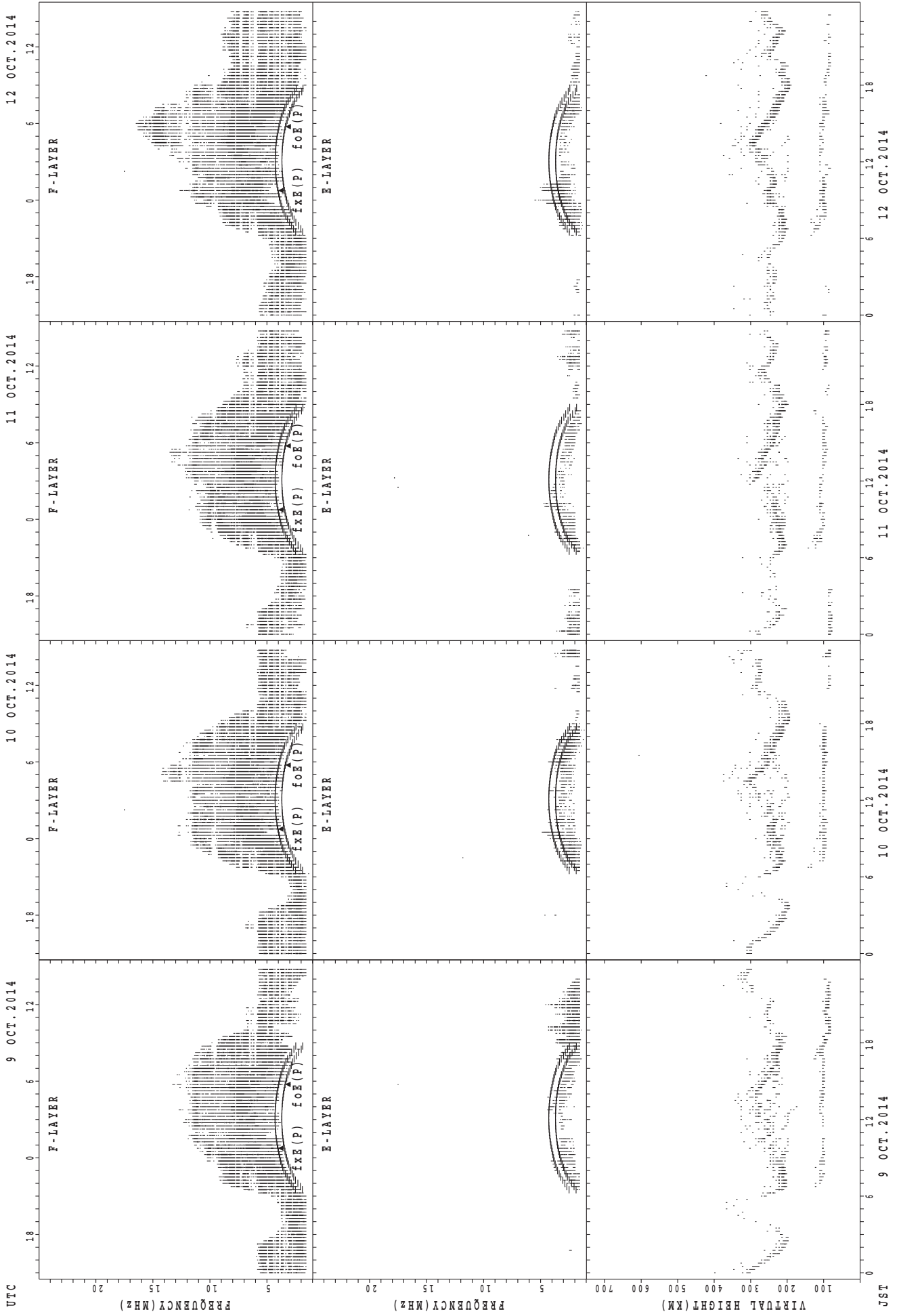
6 OCT. 2014

7 OCT. 2014

8 OCT. 2014

JST

SUMMARY PLOTS AT Yamagawa

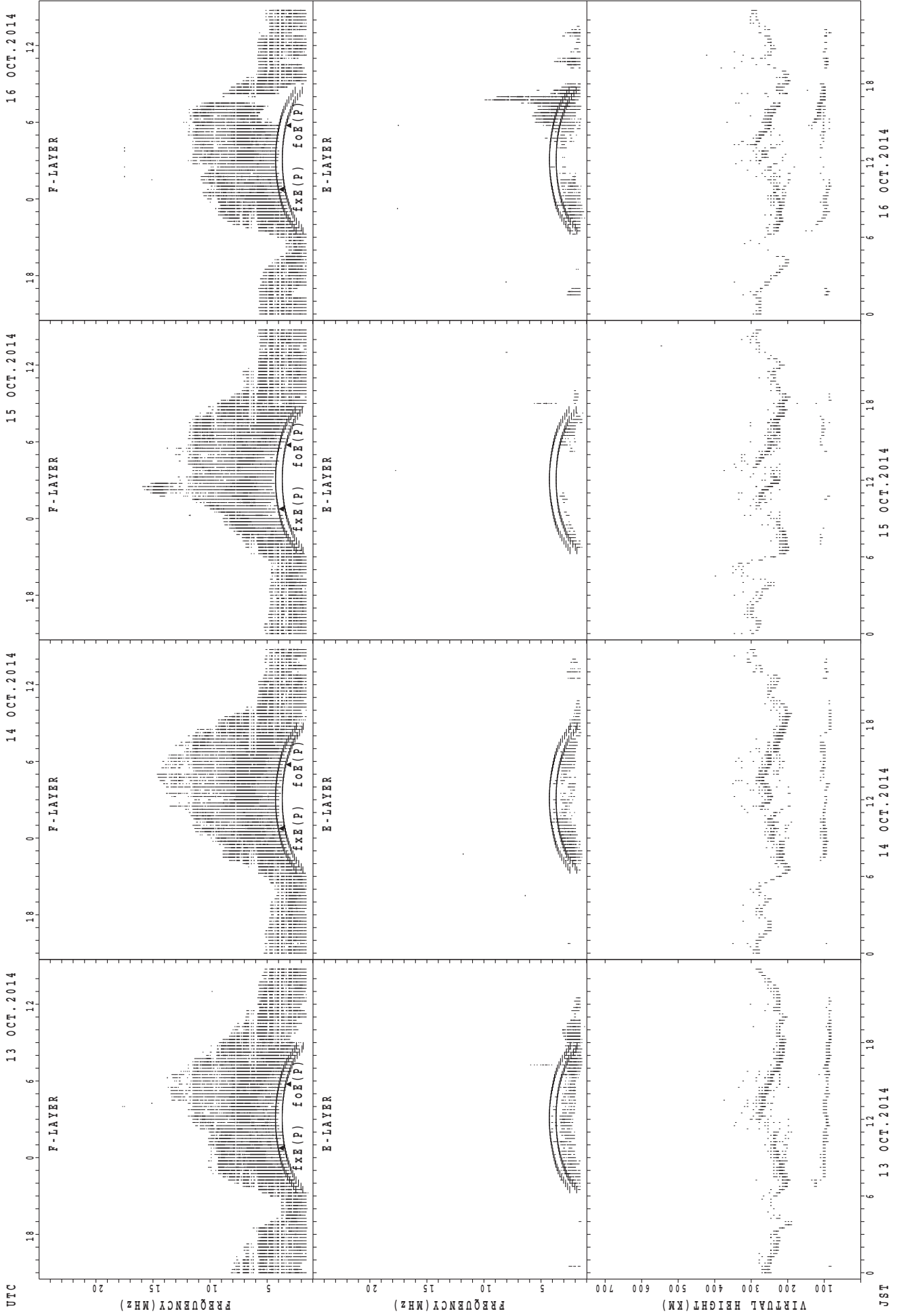


f_xE(P); PREDICTED VALUE FOR f_xE
foE(P); PREDICTED VALUE FOR foE

UTC

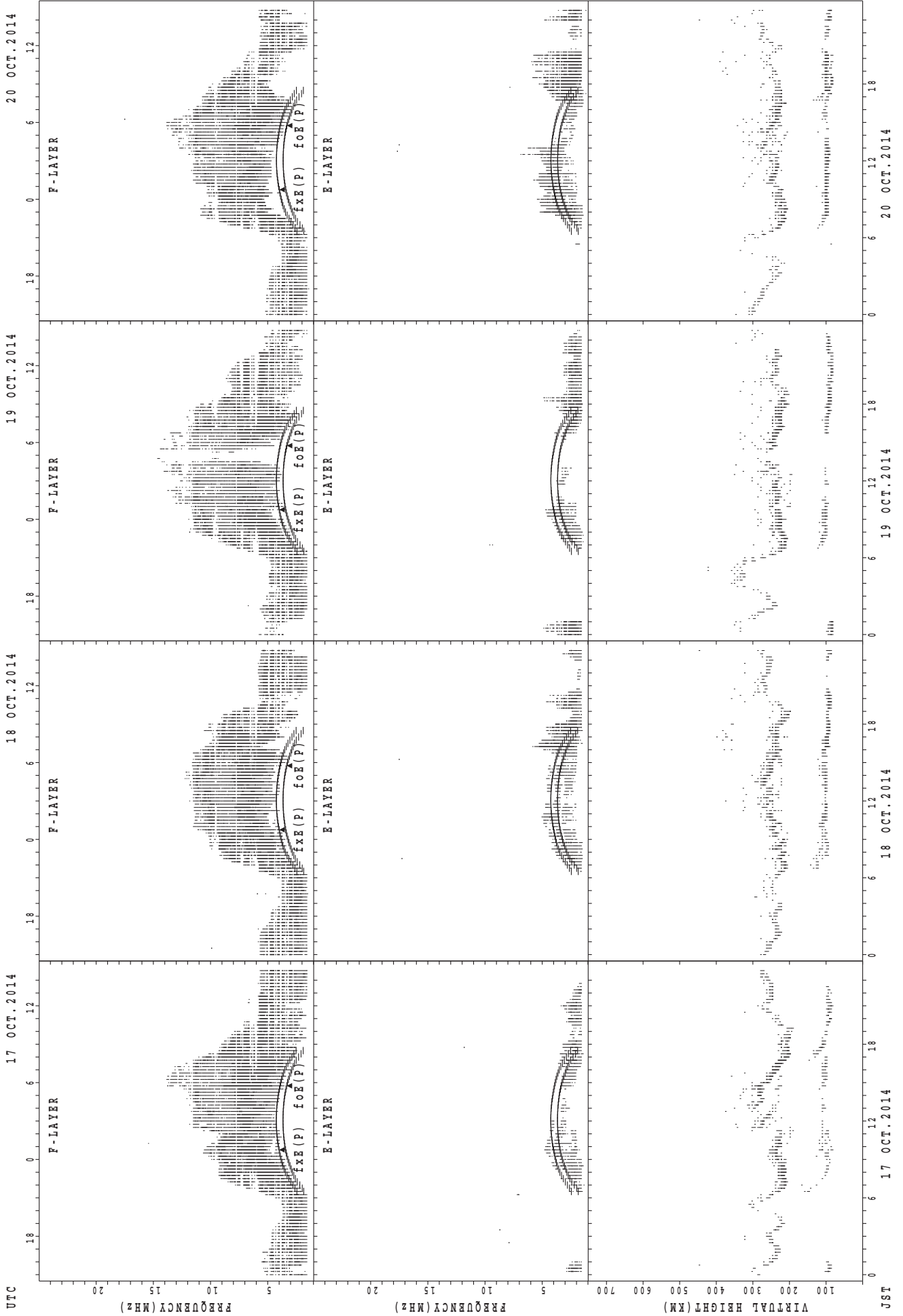
JST

SUMMARY PLOTS AT Yamagawa



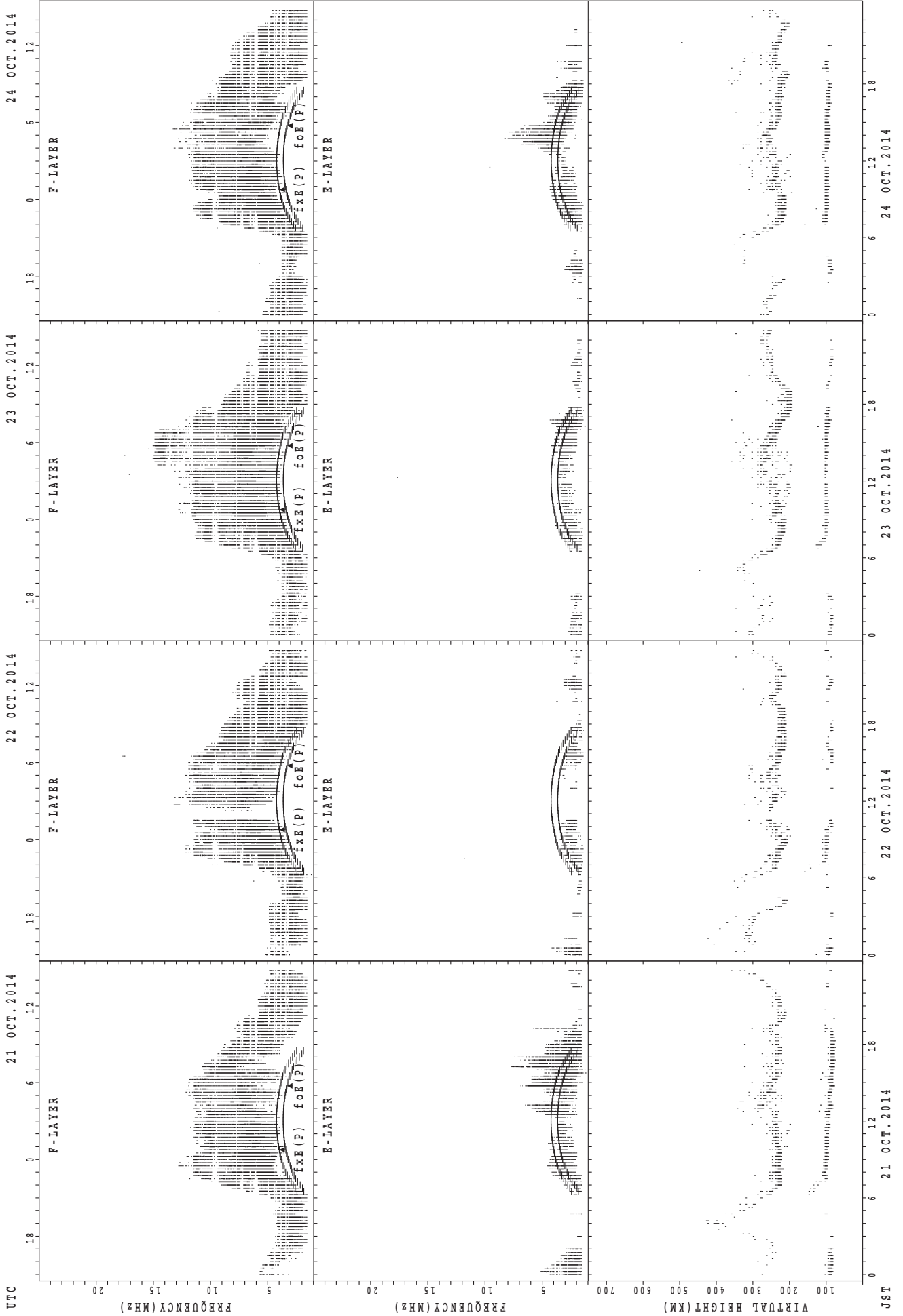
foE(P); PREDICTED VALUE FOR foE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



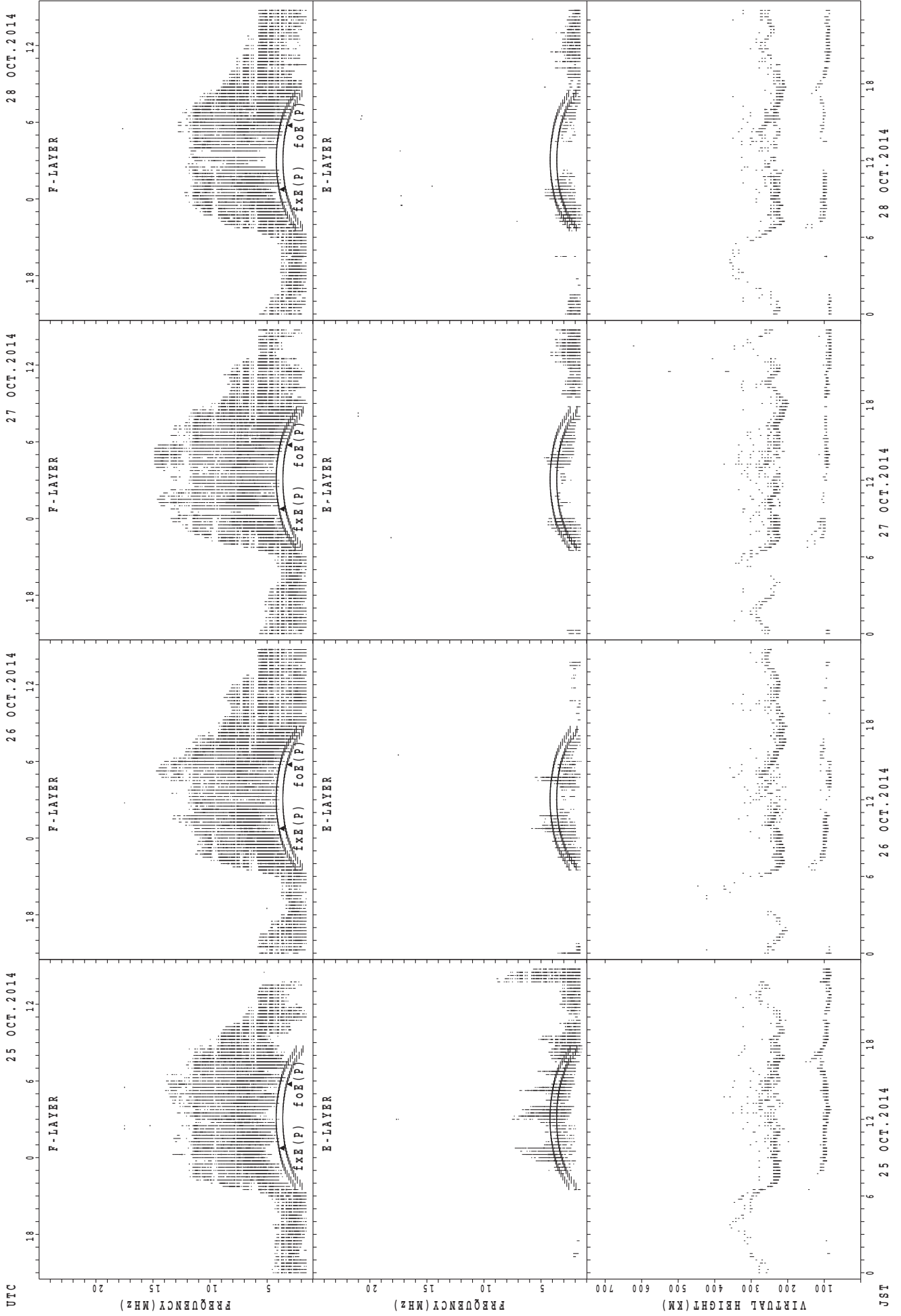
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



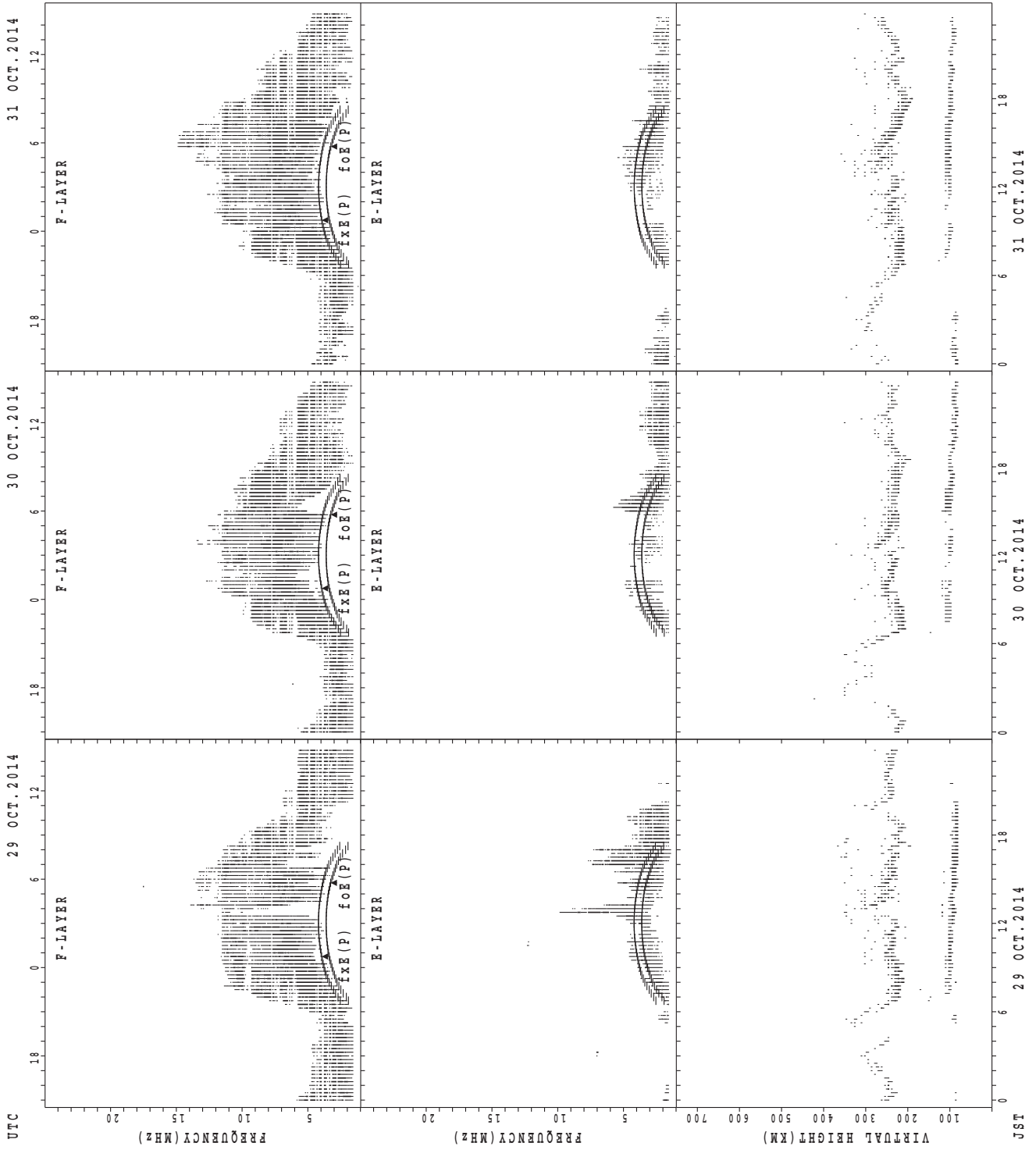
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



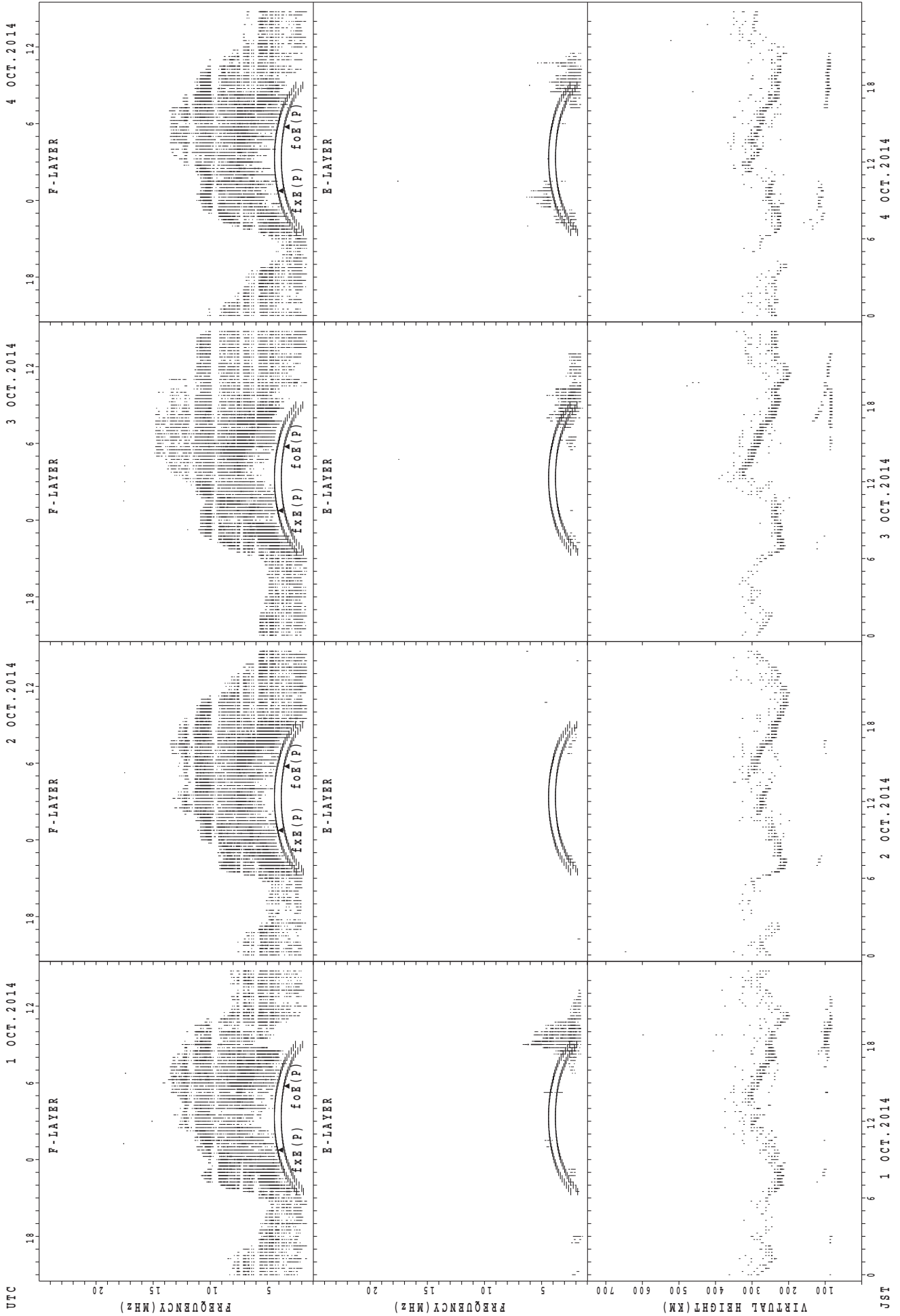
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



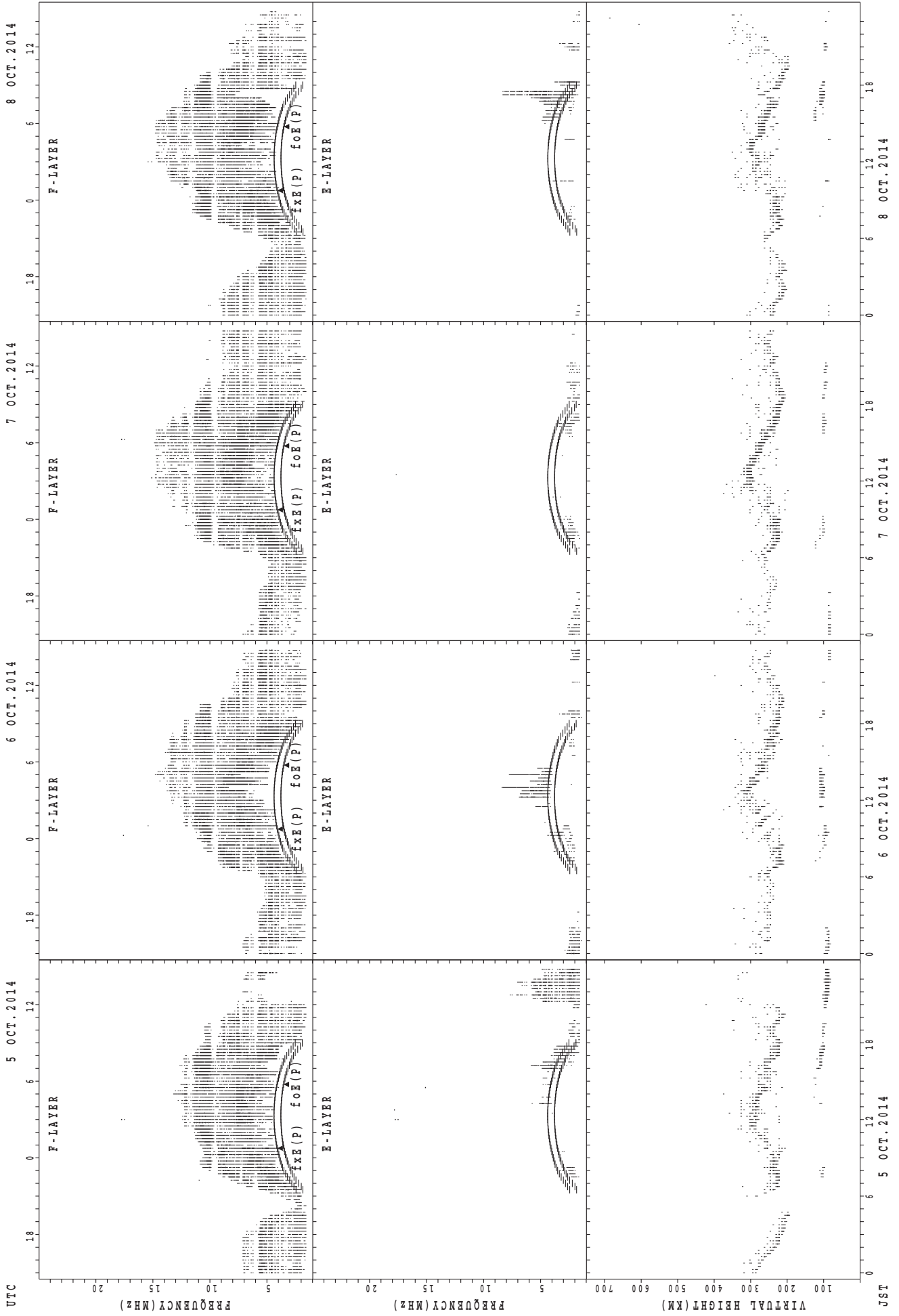
f_xE(P); PREDICTED VALUE FOR f_xE
f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



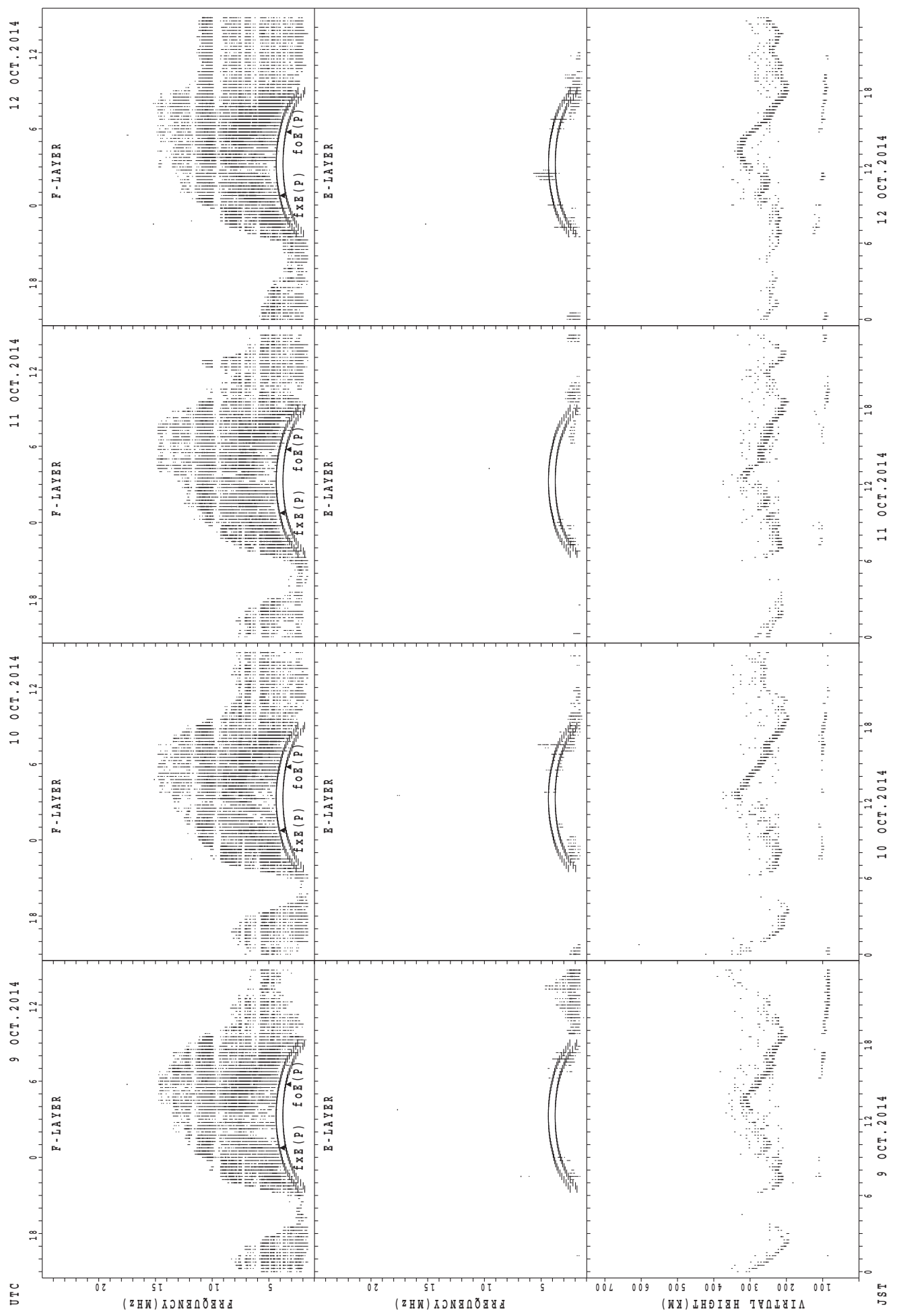
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



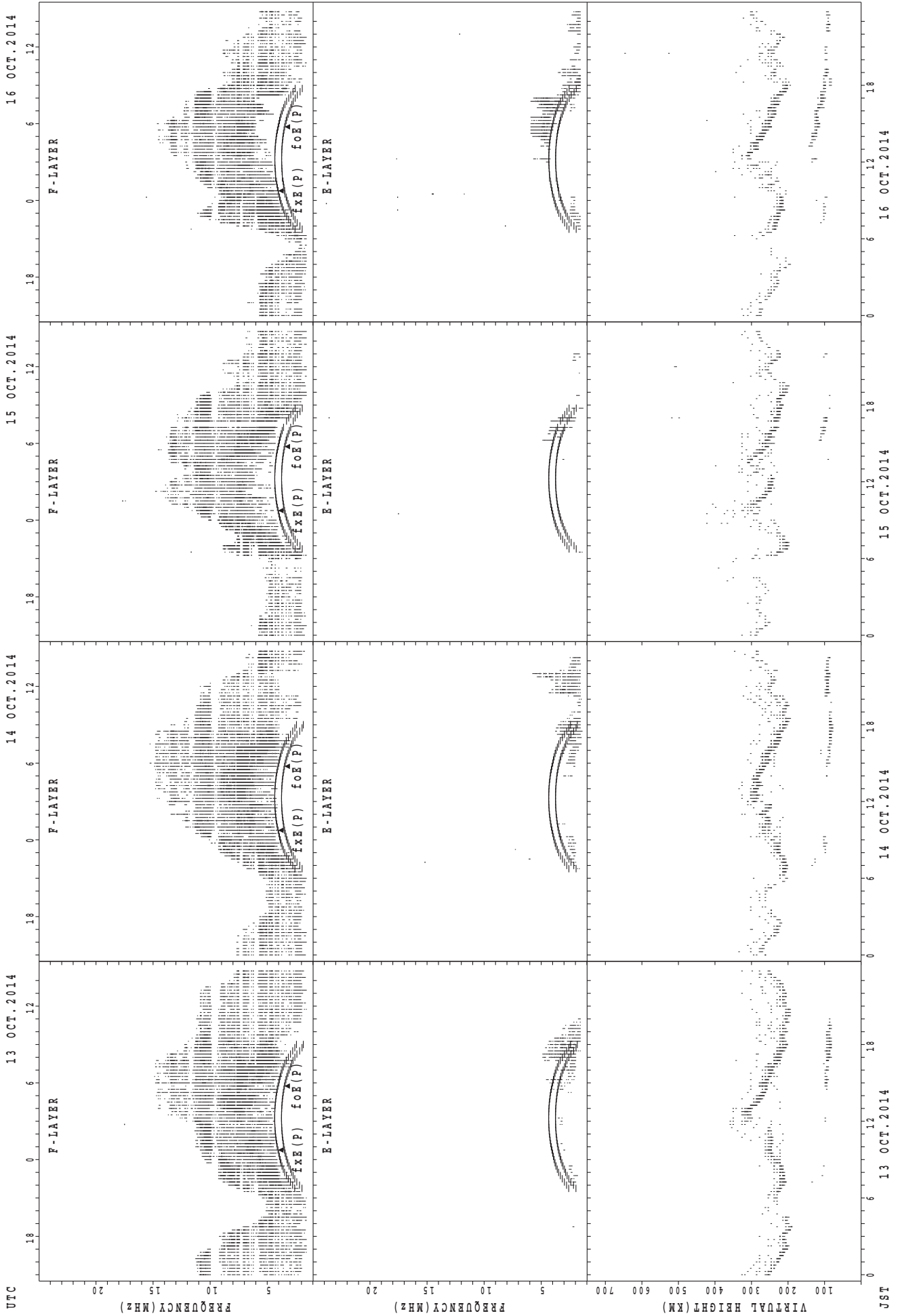
f_oF₂(P); PREDICTED VALUE FOR f_oF₂
f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



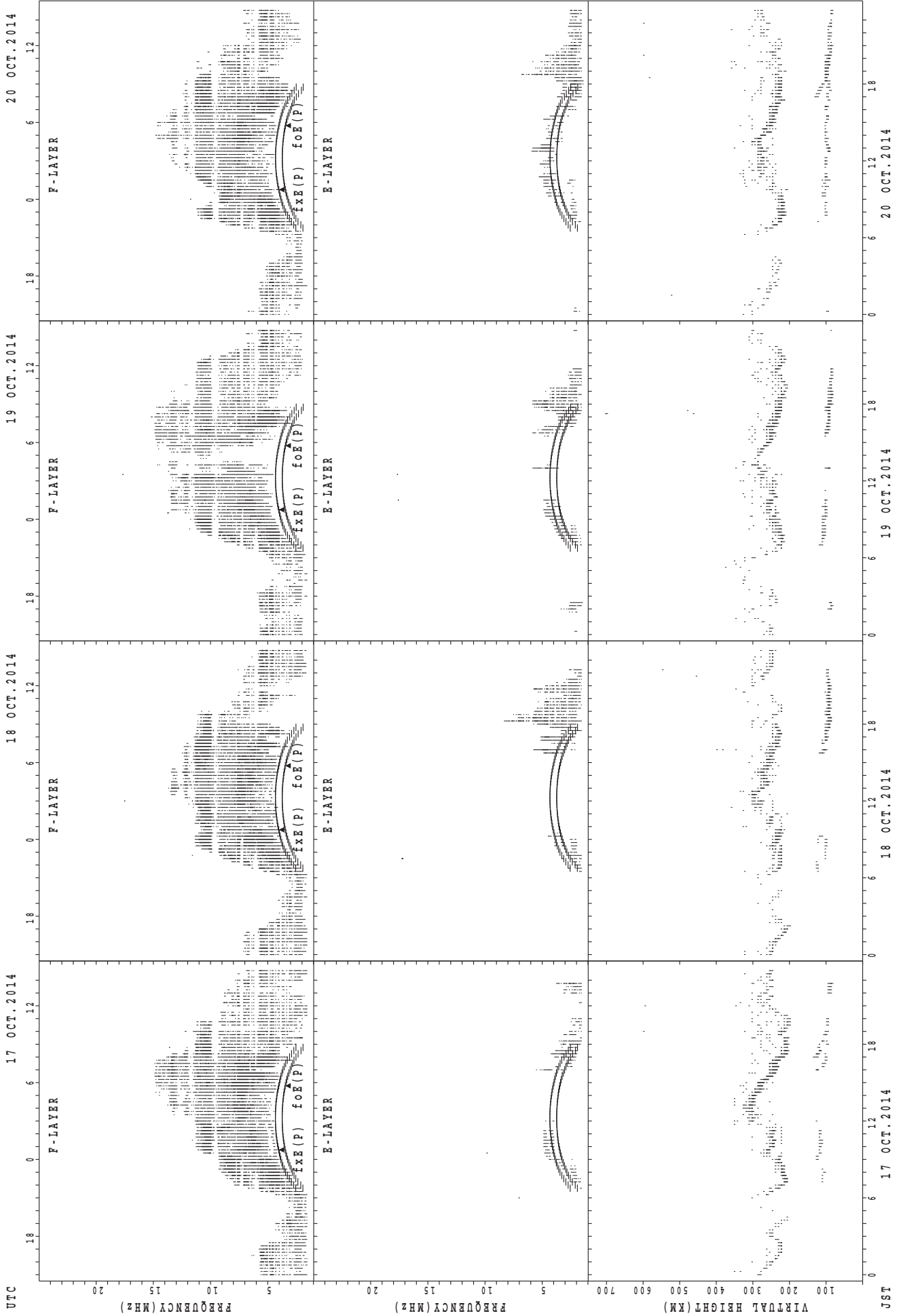
fxE(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



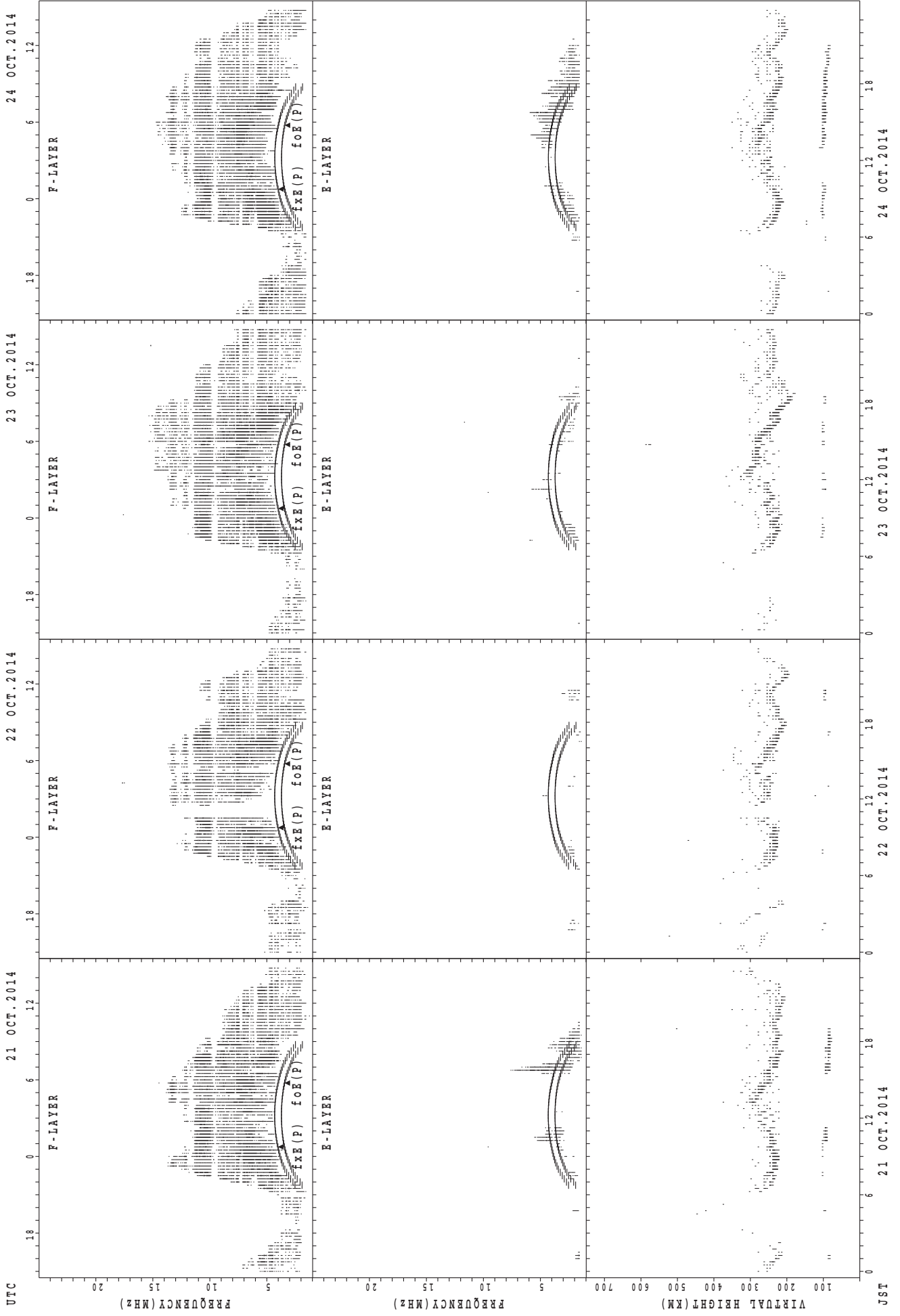
$f_{xE}(P)$; PREDICTED VALUE FOR f_{xE}
 $f_{oE}(P)$; PREDICTED VALUE FOR f_{oE}

SUMMARY PLOTS AT Okinawa



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

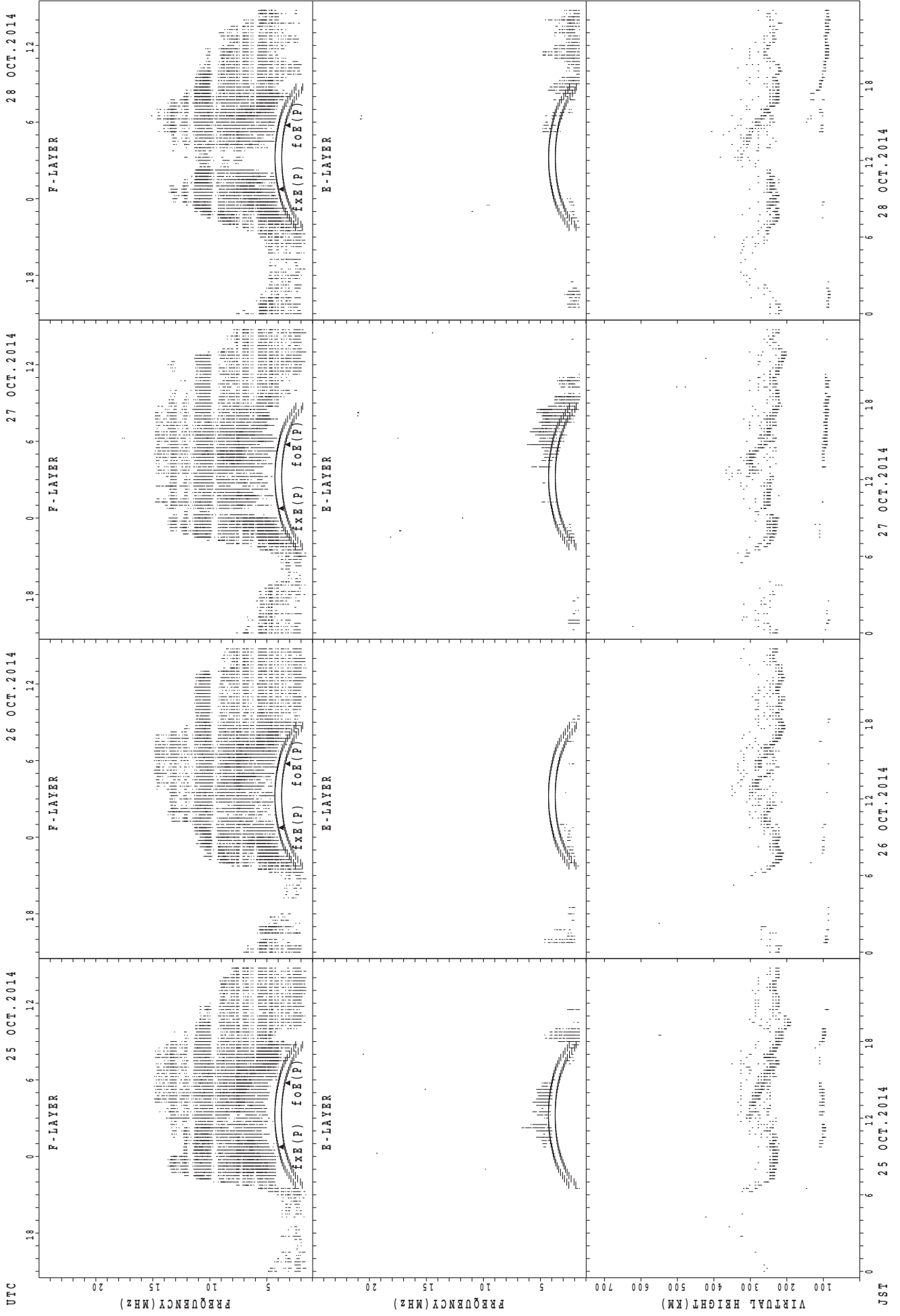
SUMMARY PLOTS AT Okinawa



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

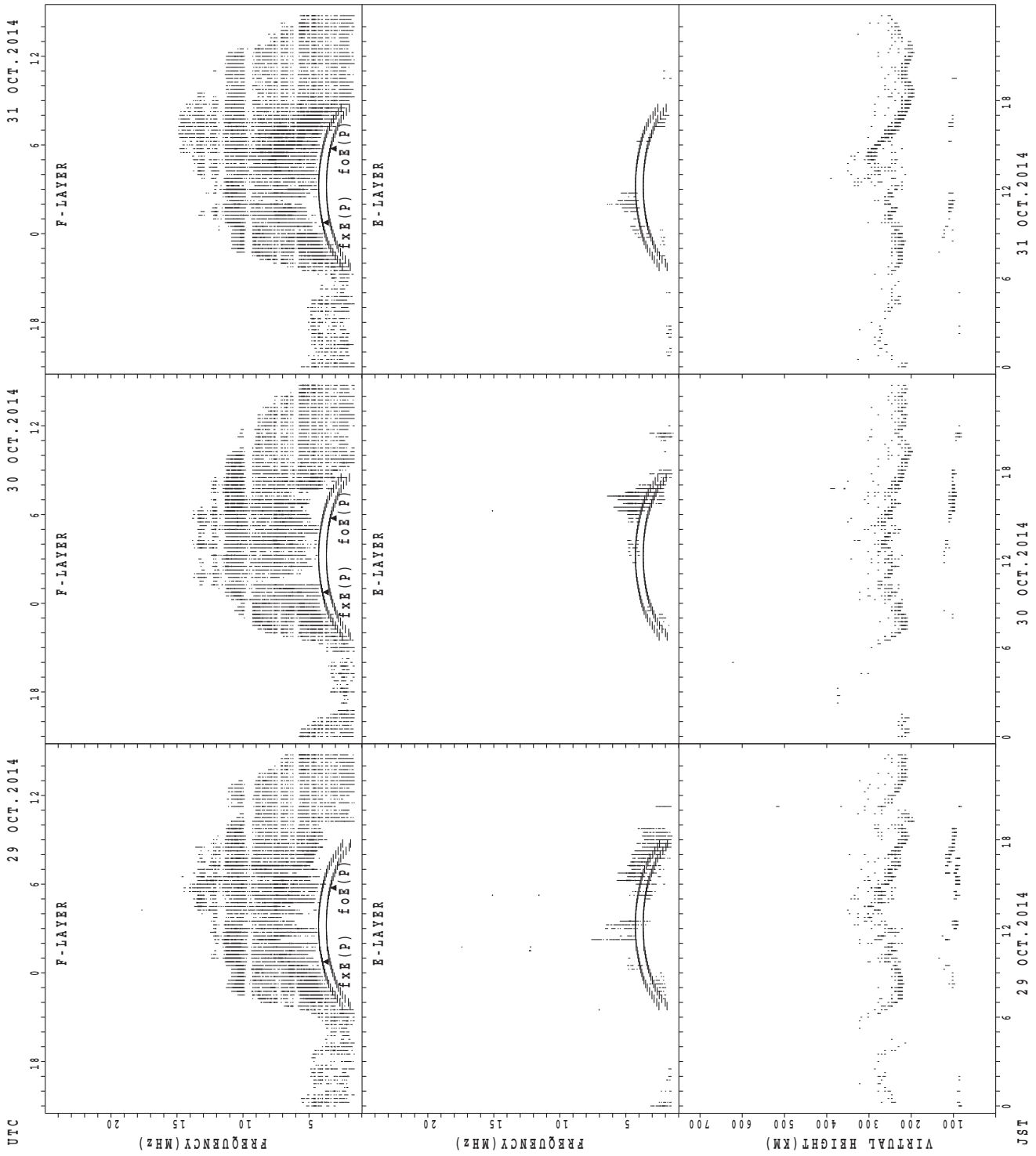
JST

SUMMARY PLOTS AT Okinawa



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

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

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							7	27	31	24	6	1	2	11	28	29	30	27	5	2				
MED							256	232	228	232	223	232	230	238	238	231	238	254	278					
U Q							280	240	240	239	238	116	238	230	249	246	238	240	279	294				
L Q							240	224	222	225	222	116	226	222	232	230	230	232	237	262				

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	10	10	10	8	6	5	5	9	12	8	8	3	4	4	4	7	7	13	13	14	9	12	10	10
MED	97	97	95	91	95	103	107	111	105	103	102	101	94	95	96	95	91	89	93	99	97	97	96	93
U Q	101	99	95	95	97	109	109	116	107	106	106	105	103	99	99	99	95	92	104	101	102	97	103	95
L Q	89	89	91	91	95	96	101	104	103	100	98	97	92	93	92	91	89	89	90	95	91	95	93	91

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							9	31	31	20					20	31	31	31	16	2				
MED							250	226	224	226					244	238	230	234	239	246				
U Q							262	232	230	230					254	246	240	242	246	248				
L Q							234	216	220	222					238	230	224	222	230	244				

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	4	5	2	2	1	2	9		7	5	8	8	4	3	9	9	10	16	20	16	17	18	16	11
MED	92	93	91	92	87	92	139		105	105	103	99	100	97	97	97	97	100	98	97	97	95	95	95
U Q	97	97	91	95	43	95	151		111	109	105	99	101	105	104	111	105	111	105	101	99	97	99	97
L Q	89	90	91	89	43	89	97		95	99	101	97	93	97	93	93	95	96	95	93	91	89	90	87

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	1							26	30	30	3				2	29	30	29	30	12	6	3	1	1
MED	314							237	223	230	248				249	250	238	232	232	246	281	292	264	296
U Q	157							240	230	236	248				254	254	242	246	242	255	306	350	132	148
L Q	157							228	218	226	238				244	246	230	222	228	236	272	274	132	148

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	6	2	5	1	1		14	11	13	10	6	6	10	8	10	13	19	23	22	17	18	16	10
MED	89	87	92	93	91	97		124	107	103	103	101	100	97	98	100	105	99	99	96	91	90	91	94
U Q	95	89	95	183	45	48		141	111	112	113	105	109	109	105	111	110	113	105	103	96	95	97	97
L Q	87	87	89	89	45	48		119	103	101	99	97	95	95	95	95	97	95	89	89	88	89	89	89

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

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	6	7	2				27	30	31	3					24	31	31	31	29	26	24	20	11
MED	276	277	240	251				246	228	234	248					259	246	232	228	238	255	259	261	282
U Q	300	282	248	264				256	234	246	254					272	254	242	238	248	264	275	276	296
L Q	272	248	238	238				236	224	230	248					254	240	226	220	231	240	249	240	258

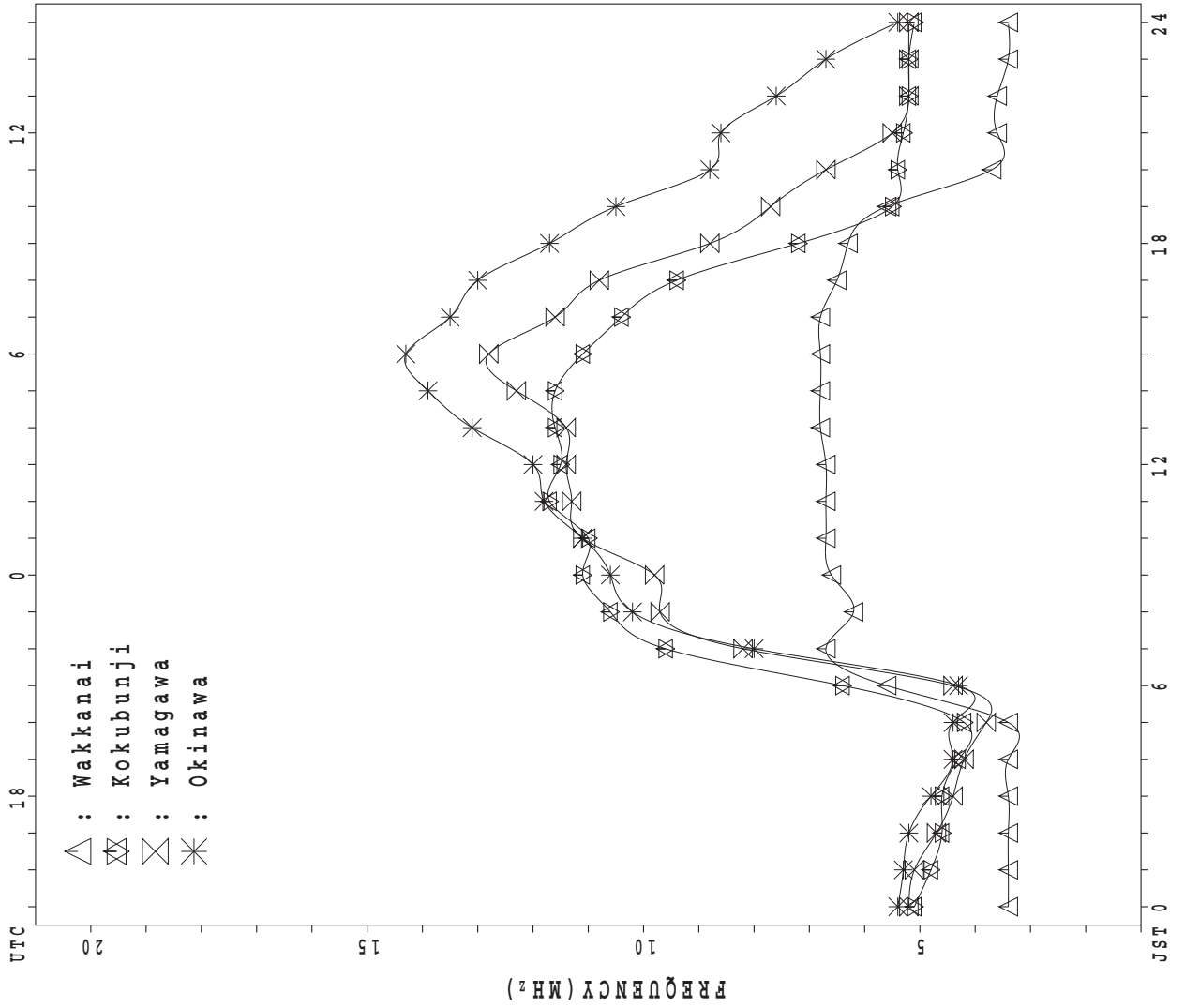
h'Es

	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	6	4	2	2				1	3	8	6	6	4	7	5	10	13	16	20	18	13	11	8	6
MED	90	90	93	88				125	107	115	107	105	102	103	103	104	103	101	96	96	95	93	92	89
U Q	95	93	95	89				62	115	121	115	107	121	107	117	119	118	109	103	101	97	95	93	91
L Q	87	89	91	87				62	105	108	105	99	99	95	100	97	96	93	90	93	90	89	90	87

MONTHLY MEDIANS PLOT OF fOF2

OCT. 2014

AUTOMATIC SCALING



UTC

18

0

6

12

18

24

UTC

18

0

6

12

18

24

FREQUENCY (MHz)

20

15

10

5

0

5

10

15

20

JST

0

6

12

18

24

IONOSPHERIC DATA STATION Wakkanai

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	X 58	X 57	X 55	X 52	X 57														X 80	X 79	X 73	X 63	X 59	X 58	
2	X 60	X 58	X 56	X 53	X 50	X 55													X 78	X 69	X 65	X 65	X 61	X 57	
3	X 57	X 54	X 53	X 47	X 54	X 55													X 82	X 72	X 66	X 65	X 63	X 60	
4	X 58	X 56	X 57	X 58	X 58	X 58													X 82	X 82	X 71	X 64	X 64	X 61	
5	X 61	X 61	X 62	X 61	X 62	X 62													X 77	X 70	X 66	X 65	X 64	X 64	
6	X 63	X 61	X 61	X 60	X 61	X 61													X 76	X 72	X 72	X 69	X 67	X 58	
7	X 55	X 55	X 55	X 55	X 59	X 59													X 79	X 69	X 70	X 69	X 66	X 62	
8	X 62	X 61	X 61	X 61	X 60	X 58													X 79	X 79	X 67	X 64	X 58	X 59	
9	X 64	X 65	X 55	X 50	X 49														X 75	X 72	X 69	X 67	X 65	X 64	
10	X 66	X 67	X 64	X 67	X 62	X 56													X 81	X 70	X 58	X 58	X 59	X 59	
11	X 61	X 57	X 54	X 58	X 58	X 57														X 78	X 76	X 73	X 73	X 67	
12	X 67	X 65	X 59	X 57	X 59														X 70	X 70	X 67	X 64	X 63	X 64	
13	X 58	X 60	X 58	X 58	X 55	X 55													X 72	X 66	X 64	X 59	X 60	X 59	
14	X 56	X 56	X 56	X 55	X 53	X 53													X 67	X 65	X 59	X 59	X 59	X 57	
15	X 55	X 54	X 52	X 49	X 46	X 48													X 73	X 69	X 59	X 59	X 60	X 59	
16	X 57	X 53	X 60	X 59	X 59													X 80	X 71	X 64	X 57	X 57	X 58	X 59	
17	X 58	X 64	X 59	X 60	X 59														X 79	X 70	X 63	X 58	X 58	X 57	
18	X 57	X 58	X 60	X 59	X 59	X 58													X 81	X 68	X 65	X 56	X 58	X 57	
19	X 57	X 57	X 54	X 51	X 51	X 48													X 65	X 71	X 71	X 69	X 67	X 63	
20	X 66	X 63	X 63	X 65	X 60	X 58													X 78	X 71	X 63	X 57	X 59	X 58	
21	X 58	X 55	X 55	X 47	X 47	X 47													X 68	X 65	X 60	X 59	X 55	X 53	
22	X 54	X 53	X 57	X 57	X 57													X 73	X 74	X 65	X 64	X 60	X 60	X 56	
23	X 52	X 53	X 53	X 53	X 53														X 73	X 65	X 55	X 54	X 54	X 54	
24	X 54	X 51	X 52	X 52	X 53														X 64	X 64	X 59	X 57	X 57	X 56	
25	X 53	X 53	X 51	X 49	X 49														X 73	X 61	X 58	X 55	X 51	X 55	
26	A 53	X 53	X 54	X 47	X 47	X 48													X 71	X 69	X 65	X 61	X 64	X 60	
27	X 58	X 56	X 56	X 57	X 57	X 52													X 68	X 63	X 52	X 50	X 49	X 54	
28	X 55	X 53	X 47	X 47	X 47								C	C	C	C	C	X 81	X 75	X 67	X 52	X 50	X 49	X 54	
29	X 53	X 51	A	X 48	X 47	X 47				C	C	C	C	C	C	C		X 79	X 61	X 54	X 50	X 50	X 48	X 51	
30	X 55	X 52	X 48	X 47	X 45	X 46													X 63	X 53	X 51	X 50	X 50	X 51	
31	X 52	X 49	X 47	X 47	X 47	X 51													X 66	X 59	X 57	X 52	X 51	X 49	
	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	31	30	31	31	21													4	30	31	31	31	31	31
MED	X 58	X 56	X 56	X 55	X 55	X 55													X 80	X 74	X 69	X 64	X 59	X 59	X 58
U Q	X 61	X 61	X 59	X 59	X 59	X 58													X 80	X 79	X 71	X 67	X 65	X 64	X 60
L Q	X 55	X 53	X 53	X 49	X 49	X 48													X 76	X 68	X 65	X 58	X 56	X 55	X 55

OCT.2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	51	50	48	45	50	48	69	74	87	78			71	74	76	79	76	78	74	72	66	56	51	52
2	52	51	48	46	42	48	53	56	65	70		70	72	76	76	78	77	75	70	62	58	58	54	50
3	50	47	46	48	47	48	69	74	75	75			75	75	75	76	78	76	75	65	59	58	56	53
4	51	49	50	51	51	51	67	70	74	85				78	92	98		84	75	75	64	57	57	54
5	54	54	55	54	55	55	73							96	96	102		97	82	70	63	59	58	57
6	56	54	54	53	54	54	70							90	90			90	69	65	65	62	60	51
7	48	48	48	48	52	52	73							96	95	96		101	89	72	62	63	62	59
8	55	54	54	54	53	51	67											91	86	72	72	60	57	51
9	57	58	48	43	42	40	60											92	90	68	65	62	60	58
10	58	60	57	60	56	49	60											89	100	74	64	50	50	54
11	53	52	47	49	50	48	66											93	85	74	71	69	66	60
12	59	58	53	50	52	53	69											94	86	63	63	60	57	56
13	52	53	51	51	48	48	57											90	77	65	60	55	50	53
14	48	48	48	47	46	46	63											78	90	77	61	58	52	50
15	49	46	44	44	40	41	56											88	88	69	66	62	52	52
16	50	46	53	52	52	44	51											75	85	73	64	57	50	51
17	51	57	53	53	52	51	63											81	92	79	89	72	63	57
18	50	50	52	52	50	51	57											91	91	88	75	62	58	51
19	50	50	48	44	44	42	54											93	77	71	58	64	64	60
20	59	56	56	58	53	51	60											85	85	88	77	71	64	56
21	51	48	48	40	40	40	48											85		72	61	58	52	48
22	47	46	50	50	50	48	54											94	81	66	67	58	57	53
23	45	46	46	46	46	46	58											89	95	85	75	66	58	47
24	47	44	45	45	46	44	54											88	85	90	78	57	57	52
25	46	46	44	42	42	40	66											74	88	76	66	54	51	48
26	A	46	47	40	40	42	65											93	72	64	63	57	52	56
27	50	49	49	50	50	43	57											96	91	75	61	56	46	43
28	48	46	40	40	40	41	54													74	68	60	45	43
29	46	44		41	40	40	55											91	72	54	46	43	43	41
30	48	45	41	40	38	39	53											96	88	72	56	46	44	43
31	45	42	40	40	40	44	52											102	101	70	59	52	50	45
	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	31	30	31	31	31	31	27	18	19	16	20	16	20	19	24	24	31	31	31	31	31	31	31
MED	50	49	48	48	48	48	60	76	86	91	102	100	96	92	89	94	90	77	67	62	57	52	52	51
U Q	53	54	53	52	52	51	67	80	92	102	111	118	118	98	95	96	92	86	72	64	60	58	56	53
L Q	48	46	46	43	42	42	54	74	75	76	87	90	86	83	80	85	83	72	61	58	50	50	48	48

OCT.2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									L	L	L	L		A	A	L									
2							L		U 668 440	L	L	L	L	L	L										
3									L	L	L	L	L	L	L										
4									L	L	L	L	L	L		L									
5									L	L	L	L	L	L	L										
6											L	L	L	L	L	L									
7										L	L	L	L	L											
8									L	L	L		L	L	L	L									
9											L														
10											L	L	L	L	L										
11								L		L	L	L				L	L								
12									L	L	L	L	L	L											
13									L	L	L	L	L	L	L										
14									L		L	L	L		L										
15																									
16								264		L		L	L	L	L	L	L	L							
17									L	L	L	L	L	L											
18										L	L	L	L		L										
19									L	A	L	L	L	L	L	B									
20										L	L	A													
21										L	L	L	L	L											
22									L		L	B		L											
23									L	L		L	L												
24										L	L	L													
25											L	L	L		L										
26														A											
27															L										
28													C	C	C	C	C								
29										C	C	C	C	C	C	C									
30												L													
31													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	2		2														
MED								264	554		480														
U Q																									
L Q																									

OCT.2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	A	280	312	328	U A	U A	A	U A	U A	A	256	196						
2							188	A	A	R	A	352	U R	352	328	324	304	260	A					
3							176	260	304	R	U R	A	U R	R	R	300	252		A					
4							192	252	292	328	344	344	332	340	316	280	236							
5							192	244	304	R	304	344	348	348	328	A	A	A	A					
6							204	248	292	328	U A	A	6	A	A	A	240							
7							176	244	284	316	348	R	A	A	A	A	240							B
8							A	264	288	312	336	348	336	332	324	276	232							B
9						B	188	A	R	U R	R	A	U A	A										A
10							168	232	276	292	U A	304	312	348	336	308	292	228						B
11							R	180	240	U A	A	A	256	320	308	300	280	A			B	B		
12						B	A	236	A	A	R	R	R	324	316	292	264	224						B
13							B	A	A	312	340	344	324	324	280	268	220							B
14							U A	176	232	A	A	R	332	328	320	292	268	212						A
15							R	152	252	300	U R	324	R	R	A	304	272	228						B
16						B	192	212	272	R	304	280	332	324	320	284	212							A
17						B	R	180	236	284	R	Y	R	324	320	304	268							B
18							R	176	224	264	296	A	A	324	316	308	248	200						B
19							A	248	280	312	332	U A	A	A	A	B	308	240						B
20							176	248	268	U A	288	A	A	A	A	292	260	A						A
21							A	A	A	312	320	332	A	312	292	256	204							A
22						A	172	240	272	316	316	B	R	316	292	260	204							B
23						B	A	A	A	A	A	332	316	316	300	256	212							
24						B	A	220	256	U A	296	336	332	332	320	308	256	A						A
25						B	A	B	336	328	A	320	320	300	296	260	220							B
26							B	244	280	U A	308	U A	A	A	A	308	264	A						A
27							U A	236	U A	U A	300	A	A	A	A	A	272	A						B
28						B	B	228	288	A	316	A	C	C	C	C	C							
29							B	232	A	C	C	C	C	C	C	C	U R							204
30							B	224	U A	A	A	A	A	316	A	A	A							B
31							B	232	U A	A	A	A	A	296	288	264	A							B
	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							16	25	24	23	19	17	18	22	23	24	21	1						
MED							178	240	282	312	332	332	328	320	304	268	228	196						
U Q							190	248	294	328	340	346	336	328	312	282	240							
L Q							176	232	270	300	316	322	320	316	292	260	212							

OCT.2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	34	E B 14	36	30	26	J A 15	19	G	34	37	42	40	46	J A 51	J A 59	J A 31	28	18	18	30	28	J A 26	J A 19	J A 25		
2	34	J A 16	19	19	E B 15	E B 15	G	34	32	32	35	29	G 27	G 23	G 24	G 20	22	J A 20	J A 26	20	19	J A 25	J A 21	J A 21		
3	J A 28	E B 26	E B 15	E B 14	E B 14	E B 14	G	G	G	G	34	34	32	G	G	G	17	26	25	31	27	20	14	22	E B 14	
4	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G	37	37	G	36	22	30	G	26	19	J A 18	22	18	19	18	14	E B 14	
5	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G	G	23	39	G	G	34	J A 38	J A 31	J A 31	19	26	24	14	14	14	E B 14	
6	E B 15	E B 15	J A 32	J A 17	E B 14	E B 14	G	G	G	26	38	36	38	38	37	J A 31	26	J A 19	J A 30	J A 26	21	20	20	14	E B 14	
7	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	20	26	31	34	G	34	39	36	33	30	J A 24	E B 12	28	J A 54	J A 23	E B 15	19	15	E B 15	
8	E B 14	J A 20	19	19	J A 19	J A 27	25	35	28	G	G	G	26	38	26	27	23	26	E B 15	J A 19	E B 14	E B 15	14	14	E B 14	
9	E B 14	E B 14	E B 14	E B 14	E B 15	J A 19	18	24	G	35	38	32	40	39	33	G	28	J A 22	23	30	16	15	16	15	E B 15	
10	E B 18	E B 17	E B 16	E B 16	E B 16	E B 13	G	27	41	37	37	36	G	E B 18	E B 22	G	19	16	26	42	J A 24	19	15	19	E B 19	
11	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	29	34	37	39	31	27	27	G	24	15	15	20	E B 63	J A 63	J A 53	J A 32	E B 32	
12	J A 21	E B 14	E B 14	E B 14	E B 14	E B 14	G	22	28	35	39	38	G	G	G	G	G	E B 15	18	18	E B 15	J A 39	J A 32	J A 28	E B 28	
13	J A 22	J A 20	20	J A 13	E B 14	E B 16	16	26	31	33	G	G	G	36	E S 15	22	G	15	15	13	13	13	13	13	E B 13	
14	E B 13	E B 13	J A 17	E B 13	E B 13	E B 13	G	J A 27	29	38	34	G	38	G	E B 12	G	G	18	15	15	15	14	14	14	E B 14	
15	E B 14	E B 11	E B 11	E B 14	20	J A 17	20	27	G	36	G	G	33	34	31	26	G	19	14	14	14	14	19	19	E B 15	
16	E B 14	E B 24	E B 14	E B 14	21	J A 16	G	32	30	29	34	32	G	G	G	G	G	14	14	14	16	22	14	14	E B 14	
17	E B 15	E B 13	E B 15	J A 17	E B 15	E B 15	G	G	31	29	30	Y	G	G	G	G	28	24	E B 16	E B 16	E B 16	J A 17	J A 21	E B 16	E B 16	
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	30	30	35	34	34	G	G	G	G	G	E B 24	J A 15	E B 25	E B 15	20	15	15	E B 15	
19	E B 12	J A 20	J A 20	E B 12	E B 12	E B 12	18	25	39	J A 48	J A 48	35	38	33	B	G	25	G	E B 22	E B 14	E B 14	J A 15	J A 15	J A 21	E B 21	
20	21	18	23	21	20	J A 23	G	G	G	32	31	94	62	38	33	34	J A 43	J A 29	24	25	J A 21	J A 26	J A 31	J A 28	E B 28	
21	J A 27	J A 30	J A 17	J A 26	E B 26	E B 14	22	27	J A 41	30	28	28	32	22	20	G	G	J A 31	J A 27	29	J A 18	J A 18	23	19	E B 19	
22	19	E B 15	E B 14	E B 15	20	20	21	20	G	G	30	G	G	G	G	G	19	18	G	E B 14	E B 14	J A 21	J A 19	J A 14	E B 14	
23	18	J A 26	J A 24	J A 21	E B 14	E B 15	J A 21	23	34	38	36	J A	G	G	G	G	G	19	25	27	28	26	20	14	E B 14	
24	19	J A 31	J A 31	J A 27	J A 19	E B 15	21	30	38	35	38	30	28	G	G	G	G	22	19	28	34	15	18	15	21	E B 26
25	J A 19	J A 32	J A 28	J A 14	E B 14	E B 22	28	E B 46	J A 38	J A 56	39	37	G	G	G	G	G	24	23	G	E B 14	E B 20	J A 14	J A 18	E B 15	
26	J A 64	J A 22	J A 47	J A 17	E B 24	E B 14	14	G	31	36	J A 42	40	40	50	25	31	31	56	32	32	26	24	30	31	J A 31	
27	J A 35	J A 53	J A 44	J A 34	J A 50	E B 25	14	26	J A 34	J A 49	39	36	33	35	30	25	J A 30	J A 32	J A 23	J A 25	E B 14	J A 27	J A 34	J A 27	E B 27	
28	23	19	J A 30	E B 15	J A 20	E B 14	E B 14	14	G	32	G	37	C	C	C	C	C	C	J A 48	J A 24	J A 25	J A 21	J A 16	J A 19	E B 14	
29	J A 23	J A 22	J A 38	J A 33	E B 14	E B 19	14	G	J A 31	C	C	C	C	C	C	C	C	G	E B 18	E B 14	J A 18	J A 16	J A 20	J A 27	E B 14	
30	J A 21	J A 24	J A 16	J A 20	J A 22	E B 20	15	24	34	J A 42	54	43	39	31	38	J A 41	J A 33	J A 30	J A 33	J A 20	J A 23	J A 21	J A 15	J A 15	E B 15	
31	J A 15	E B 14	J A 18	E B 14	E B 14	E B 14	18	G	34	J A 51	J A 67	58	34	33	26	G	G	J A 34	J A 31	J A 50	J A 34	J A 32	J A 19	J A 14	E B 35	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	E B 15	
CNT	31	31	31	31	31	31	31	31	31	30	30	29	29	29	28	29	30	31	31	31	31	31	31	31	31	E B 15
MED	18	17	17	E B 15	E B 15	E B 15	G	24	31	35	36	34	G	G	G	G	24	18	J A 20	J A 21	J A 19	J A 19	J A 18	J A 15	E B 15	
U Q	J A 23	J A 24	J A 28	J A 20	J A 20	J A 19	20	27	34	J A 38	39	38	38	36	32	J A 29	J A 28	J A 30	J A 27	J A 28	J A 23	J A 24	J A 23	J A 26	E B 26	
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 18	G	G	G	G	G	G	G	G	G	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14

OCT. 2014 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23															
1	23	E B	14	25	18	E B	E B	B	G	G	32	32	42	38	41	48	55	29	G	G	E B	17	21	17	16	16													
2	23	E B	E B	E B	E B	E B	E B	B	G	G	29	31	31	32	28	26	23	23	20	G	21	18	21	18	E B	14	19	17	17										
3	18	18	E B	E B	E B	E B	E B	B	G	G	G	G	G	G	G	G	G	G	G	G	15	25	20	21	22	16	14	20	E B	14									
4	E B	E B	E B	E B	E B	E B	E B	B	G	G	G	G	G	G	G	G	G	G	G	G	24	16	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	B	G	G	G	G	G	G	G	G	G	G	G	G	24	16	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	B	E B	E B	E B	E B	B	G	G	G	G	G	G	G	G	G	G	G	G	24	18	26	19	19	18	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	B	G	G	G	G	G	G	G	G	G	G	G	G	21	12	18	49	18	15	14	15	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	B	G	G	G	G	G	G	G	G	G	G	G	G	24	15	15	14	15	14	14	14	14	14	14	14	14	14					
9	E B	E B	E B	E B	E B	E B	E B	B	G	G	E B	U	Y	G	G	G	G	G	G	G	26	20	15	15	16	15	15	15	15	15	15	15	15	15					
10	E B	E B	E B	E B	E B	E B	E B	B	G	G	25	33	33	32	G	G	E B	G	G	E B	17	16	17	17	17	14	14	14	18	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	B	G	G	G	G	G	G	G	G	G	G	G	G	22	15	15	19	26	30	23	23	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	B	G	G	27	33	38	37	G	G	G	G	G	G	15	14	14	15	15	21	20	21	E B	E B	E B	E B	E B	E B	E B				
13	18	14	14	14	14	14	16	16	22	22	23	G	G	G	G	G	G	G	G	G	15	15	13	13	13	13	13	13	13	13	13	13	13	13	13	13			
14	E B	E B	E B	E B	E B	E B	E B	B	G	G	24	26	28	28	G	G	36	12	G	G	15	15	15	15	14	14	14	14	14	14	14	14	14	14	14	14			
15	E B	E B	E B	E B	E B	E B	E B	B	G	G	18	24	G	G	G	G	G	G	G	G	18	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14		
16	E B	E B	E B	E B	E B	E B	E B	B	G	G	25	28	28	33	30	G	G	G	G	G	21	23	14	14	14	16	15	14	14	14	14	14	14	14	14	14	14		
17	E B	E B	E B	E B	E B	E B	E B	B	G	G	29	28	30	G	G	G	G	G	G	G	20	26	21	16	16	16	16	16	16	16	16	16	16	16	16	16	16		
18	E B	E B	E B	E B	E B	E B	E B	B	G	G	27	29	30	30	33	G	G	G	G	G	20	15	20	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
19	E B	B	E B	E B	E B	E B	E B	B	G	G	16	20	32	40	41	35	33	30	B	G	23	19	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14		
20	E B	E B	E B	E B	E B	E B	E B	B	G	G	G	G	22	26	90	55	37	30	26	G	30	22	14	22	E B	14	21	16	14	E B	E B	E B	E B	E B	E B	E B			
21	16	17	E B	14	19	14	14	18	24	34	28	27	27	31	20	18	G	G	G	G	18	18	27	23	18	14	14	14	14	14	14	14	14	14	14	14	14		
22	E B	E B	E B	E B	E B	E B	E B	B	G	G	G	G	G	G	G	G	G	G	G	G	18	18	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
23	E B	E B	E B	B	E B	E B	E B	B	G	G	14	14	14	17	14	15	19	22	28	28	31	G	19	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
24	E B	14	17	21	17	17	15	17	24	30	32	30	29	26	G	G	G	G	G	G	22	19	23	21	15	18	15	14	14	14	14	14	14	14	14	14	14	14	
25	E B	14	31	17	E B	E B	E B	E B	E B	E B	46	36	51	36	30	G	G	24	20	G	G	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
26	A A	64	20	24	E B	E B	E B	E B	B	G	G	30	32	35	35	36	49	20	20	G	G	20	54	22	22	18	17	17	18	E B	E B	E B	E B	E B	E B	E B	E B		
27	18	18	38	21	24	14	14	22	28	42	38	36	30	34	28	24	23	21	21	24	E B	14	20	21	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		
28	E B	E B	B	E B	E B	E B	E B	E B	B	G	32	G	31	C	C	C	C	C	C	C	33	20	18	E B	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
29	E B	E B	E B	A A	E B	E B	E B	B	G	C	C	C	C	C	C	C	C	C	C	C	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
30	E B	E B	E B	E B	E B	E B	E B	B	G	G	19	14	14	14	16	18	15	23	27	37	42	40	38	29	31	36	31	28	32	18	18	18	17	E B	E B	E B	E B	E B	
31	E B	E B	E B	E B	E B	E B	E B	B	G	G	14	14	14	14	14	14	14	29	38	46	48	32	24	22	18	25	23	22	23	22	22	22	22	22	22	22	22	22	
	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	31	31	31	31	31	31	31	31	31	31	30	30	29	29	29	28	29	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
MED	E B	E B	E B	E B	E B	E B	E B	B	G	G	G	G	G	G	G	G	G	G	G	G	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
U Q	18	16	17	16	15	15	G	24	30	34	36	36	36	34	G	G	G	G	G	G	21	21	19	17	17	16	18	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	
L Q	E B	E B	E B	E B	E B	E B	E B	B	G	G	G	G	G	G	G	G	G	G	G	G	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14

OCT.2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	14	14	14	14	16	16	14	15	17	21	24	23	22	17	17	14	14	14	14	14	14	14
2	15	15	15	15	15	15	16	16	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14
3	15	15	15	14	14	14	15	16	22	16	18	15	22	16	15	13	15	13	14	14	14	14	14	14
4	14	14	14	14	14	14	14	14	14	15	15	14	14	14	14	14	14	14	14	14	14	14	14	14
5	14	14	14	14	14	14	15	15	15	20	16	22	22	19	14	14	14	15	15	14	16	14	14	14
6	15	15	14	14	14	14	14	14	16	14	19	19	21	16	15	14	14	15	14	15	14	14	14	14
7	14	14	14	14	14	14	14	14	14	13	19	16	21	16	16	16	16	12	13	15	15	15	15	15
8	14	14	14	14	15	14	15	16	14	16	15	16	16	16	16	12	16	15	15	14	15	14	14	14
9	14	14	14	14	15	14	15	14	15	15	21	20	20	16	14	14	14	14	14	15	16	15	15	15
10	18	17	16	16	16	13	13	13	13	13	17	18	18	18	18	16	16	16	16	14	14	14	14	14
11	14	14	14	14	14	14	14	15	15	15	15	17	20	20	14	15	15	15	15	14	14	14	14	14
12	13	14	14	14	14	14	14	14	15	14	17	22	15	16	16	14	15	15	15	14	15	14	14	15
13	14	14	14	14	14	16	16	16	16	16	18	18	8	16	15	15	15	15	15	13	13	13	13	13
14	13	13	13	13	13	13	13	13	13	13	15	15	16	16	12	12	12	12	15	15	15	14	14	14
15	14	11	11	14	14	14	14	17	17	19	22	20	28	16	17	15	15	14	14	14	14	14	16	15
16	14	14	14	14	14	15	14	14	15	15	14	15	14	14	15	14	15	14	14	14	16	15	14	14
17	15	13	15	14	15	15	16	14	14	13	14	13	14	14	16	16	16	16	16	16	16	16	16	16
18	16	16	16	16	16	16	16	17	14	13	18	18	18	18	18	18	15	15	15	15	15	15	15	15
19	12	12	12	12	12	12	12	12	12	12	12	17	17	15	B	19	15	14	14	14	14	14	14	14
20	15	15	15	14	15	14	14	14	15	14	16	17	15	15	15	15	15	14	14	15	14	15	14	14
21	14	14	14	14	14	14	14	15	15	15	15	14	17	15	14	15	15	14	15	14	15	14	14	14
22	14	15	14	15	15	14	14	15	15	18	15	B	29	17	14	14	14	14	14	14	14	14	14	14
23	14	15	14	14	14	15	15	14	15	15	20	20	16	15	18	14	14	15	14	14	14	14	14	14
24	14	14	14	15	14	15	14	16	15	15	27	20	21	18	14	11	14	14	15	18	15	15	15	15
25	14	14	14	14	14	14	19	46	24	21	19	22	22	17	15	16	14	14	14	14	14	14	14	14
26	14	14	13	13	13	14	14	14	14	18	18	18	18	16	16	13	14	14	14	14	14	14	14	14
27	14	16	16	14	14	14	14	15	15	15	30	29	21	C	C	C	C	C	14	17	15	15	14	14
28	15	14	14	15	14	14	14	14	14	17	15	15	C	C	C	C	C	14	17	15	15	14	14	14
29	14	14	14	15	14	14	14	14	14	C	C	C	C	C	C	C	14	14	14	14	14	15	15	14
30	14	14	13	15	15	14	15	15	15	18	16	30	13	14	14	14	14	15	14	14	15	15	15	15
31	137	14	14	14	14	14	14	13	13	14	28	22	15	15	14	14	14	14	15	14	14	14	14	14
	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	31	31	31	31	31	31	31	31	31	30	30	30	29	29	29	29	30	31	31	31	31	31	31	31
MED	14	14	14	14	14	14	14	14	15	15	17	18	18	16	15	14	15	14	14	14	14	14	14	14
U Q	15	15	14	15	15	14	15	16	15	16	19	21	21	17	16	16	15	15	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	15	15	15	15	14	14	14	14	14	14	14	14	14	14

OCT.2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	292	282	265	269	273	287	337	351	R	RU	R	Y	Y	336	341	337	331	342	330	315	325	311	294	287	256					
2	280	283	278	271	291	255	311	314	325	330	Y	338	U	RU	R	340	334	339	314	311	282	286	279	278						
3	287	278	284	271	276	273	320	356	R	Y	Y	R	R	R	R	R	R	R	348	343	310	295	298	298	284					
4	293	276	274	267	274	302	334	364	Y	R	Y	Y	Y	RU	R	R	R	RU	R	350	312	338	299	291	275	273				
5	276	281	279	291	304	299	357	Y	Y	Y	J	R	Y	Y	R	R	R	R	R	372	306	300	294	279	296	283				
6	270	273	277	277	291	294	343	R	Y	Y	Y	Y	R	R	R	Y	R	Y	R	340	334	313	307	304	308	312	297			
7	283	282	293	291	296	308	350	Y	R	R	R	R	R	RU	R	R	R	R	R	341	327	339	291	290	299	295	298			
8	293	295	293	291	296	303	344	RU	Y	R	R	Y	Y	Y	Y	Y	Y	R	R	348	323	315	316	307	297	277	259			
9	258	318	262	J	R	299	277	273	357	356	Y	Y	U	RU	R	R	R	Y	Y	332	338	337	295	309	306	279	281			
10	271	295	293	300	309	310	304	R	R	Y	R	Y	U	RU	R	R	Y	R	RU	R	351	358	324	334	299	284	285			
11	297	304	288	302	307	315	353	R	Y	R	Y	Y	Y	RU	RU	RU	R	R	R	343	R	311	311	296	279	299	290			
12	312	307	298	301	289	307	358	331	R	Y	R	Y	R	Y	RU	RU	RU	R	R	R	R	315	312	299	289	292	277			
13	288	279	289	314	300	298	337	333	Y	RU	R	Y	Y	Y	Y	Y	Y	R	R	359	357	317	314	321	320	302	307			
14	284	282	297	299	291	298	338	U	R	J	RU	R	Y	Y	R	R	R	Y	U	R	354	344	320	329	309	298	284			
15	289	284	285	286	282	280	326	U	R	Y	Y	Y	Y	Y	Y	Y	Y	R	R	381	367	Y	Y	352	313	320	308	286	280	285
16	288	277	279	301	329	322	353	364	Y	Y	R	Y	Y	Y	Y	Y	Y	Y	Y	356	316	301	306	283	300	278				
17	R	291	288	307	303	300	349	R	Y	Y	R	Y	Y	U	RU	R	R	RU	R	364	353	361	R	345	318	325	301	299	291	
18	289	287	281	293	300	304	345	364	RU	R	Y	Y	Y	Y	R	Y	R	R	R	R	R	358	304	319	302	298	296			
19	278	278	279	261	261	274	314	344	U	R	Y	U	RU	R	Y	B	U	R	R	338	351	299	293	292	286	294	287			
20	281	273	271	310	297	R	303	365	R	Y	Y	R	R	R	Y	R	R	R	R	367	314	304	298	289	273	269				
21	267	297	295	251	276	259	337	324	R	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	382	Y	Y	Y	362	311	313	292	304	287	279
22	R	264	261	276	291	270	310	357	R	R	Y	Y	R	B	Y	R	R	R	R	365	308	314	305	309	282	306	283			
23	276	268	277	280	280	292	307	R	R	R	Y	R	Y	Y	Y	Y	Y	Y	Y	R	R	332	313	312	300	289	286	284		
24	280	298	293	270	279	280	319	364	R	R	R	Y	R	R	R	R	R	R	R	R	R	R	R	305	305	303	306	303	303	
25	272	284	265	281	279	292	334	Y	Y	Y	RU	RU	U	Y	R	Y	Y	J	R	R	460	354	313	304	292	310	279	298		
26	A	283	316	278	267	274	313	R	R	R	RU	Y	U	R	Y	Y	Y	R	R	370	338	342	290	297	301	287	286	294		
27	267	270	268	264	283	310	296	Y	R	R	RU	R	R	R	R	R	R	R	R	339	315	370	327	305	309	283	274	286	274	
28	285	295	279	264	268	266	294	Y	R	R	R	R	R	C	C	C	C	C	C	C	C	C	330	314	322	282	286	292	285	
29	293	321	A	292	279	298	310	369	R	C	C	C	C	C	C	C	C	R	R	R	R	338	320	315	292	290	307	286		
30	301	299	276	271	286	283	337	383	R	Y	R	R	R	R	R	R	R	R	R	R	R	333	315	314	306	292	292	287		
31	317	292	275	278	298	313	348	R	R	R	R	R	R	R	Y	U	R	R	Y	345	350	338	329	305	318	288	297	286		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	28	31	30	31	31	30	31	19	7	9	5	11	13	14	10	11	12	26	31	31	31	31	31	31	31	31	31	31	31	
MED	284	283	279	281	289	296	337	357	347	351	358	355	344	348	351	341	344	340	314	311	301	291	292	285						
U Q	292	295	293	299	298	304	348	365	361	364	392	358	352	364	357	350	354	354	329	316	309	302	299	291						
L Q	276	278	275	271	277	274	311	343	331	340	345	338	334	343	337	338	338	332	312	304	292	286	284	278						

OCT. 2014 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									L	L	L	L		A	A	L									
2							L		U L 314 376	L	U L 360	L	L	L	L										
3									L	L	L	L	L	L	L										
4									L	L	L	L	L	L		L									
5									L	L	L	L	L	L	L										
6											L	L	L	L	L	L									
7										L	L	L	L	L											
8									L	L	L		L	L	L	L									
9											L														
10											L	L	L	L	L										
11								L		L	L	L				L	L								
12									L	L	L	L	L	L											
13									L	L	L	L	L	L	L										
14									L		L	L	L		L										
15																									
16								388		L		L	L	L	L	L	L	L							
17									L	L	L	L	L	L											
18										L	L	L	L			L									
19									L	A	L	L	L	L	L	B									
20										L	L	A													
21										L	L	L	L	L											
22									L		L	B		L											
23									L	L		L	L												
24										L	L	L													
25											L	L	L		L										
26														A											
27																L									
28													C	C	C	C	C								
29										C	C	C	C	C	C	C									
30												L													
31													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	2		1														
MED								388	345		U L 360														
U Q																									
L Q																									

OCT.2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									310	246	258	258		258	258	258								
2							304		290	272	248	248	260	260	254									
3										252	246	246	246	246	254									
4									248	250	238	254	266	242		264								
5									236	240	254 ^L	254	254	266	266									
6											236	248	248	240	250	246								
7										232	232	246	238	258										
8									230	236	224		236	250	248	248								
9											248													
10											248	236	236	236	236									
11								228		228	228	230			230	234								
12									232	238	238	242	242	238										
13									226	222	234	234	234	234	234									
14									222		222	222	234		234									
15																								
16								234		238		232	246	246	244	244	224							
17									224	234	230	230	230	240										
18										240	240	240	240		240									
19										260	274	258	250	250	226									
20											254	244	302 ^{E A}											
21										246	246	246	246	236										
22									226		242		236											
23									234	230	238	238	238											
24										238	226	248												
25											254	224	232		244									
26													232											
27														240										
28													C	C	C	C	C							
29											C	C	C	C	C	C								
30																								
31												252												
													250											
	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	12	18	23	22	19	17	14	6	1							
MED							304	231	233	239	240	245	242	240	244	247	224							
U Q									254	250	248	250	250	254	254	258								
L Q									226	234	232	234	236	236	236	244								

OCT. 2014 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2014 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	298	280	322 ^A	302	302	268	236	236	222	222	262 ^{E A}	230	230			230	230	230	230	230	230	236	244	296
2	310	310	310	310	310	310	236	238	236	236	220	220	220	220	220	228	234	224	226	228	256	256	270	282
3	280	286	276	298	294	284	248	230	220	202	226	218	232	216	216	226	230	226	226	228	242	252	254	246
4	260	274	274	278	278	260	228	218	212	218	208	216	242	214	218	218	226	218	220	222	216	238	252	262
5	286	286	264	262	252	236	224	222	202	208	208	194	208	222	232	238	224	208	218	242	246	276	258	258
6	276	276	294	294	258	244	222	228	228	226	212	206	220	220	214	224	230	218	228	248	248	248	230	230
7	260	276	276	276	272	254	228	228	228	202	206	200	212	198	210	226	234	218	208	332 ^A	258	246	242	242
8	248	262	256	256	254	268	212	218	206	206	214	214	194	202	208	224	218	208	200	216	224	258	282	322
9	304	232	210	256	294	320	220	216	216	214	214	236	222	226	226	230	226	220	204	246	234	244	252	262
10	294	284	250	248	248	248	228	228	228	228	228	228	228	220	220	220	220	220	220	220	226	240	268	274
11	274	236	244	244	244	236	206	206	206	206	206	206	206	240	220	208	222	214	220	246	260	290	254	254
12	256	246	246	246	266	242	226	218	206	220	216	194	194	210	210	214	216	208	208	228	228	264	268	276
13	268	268	268	268	252	252	230	220	208	208	198	198	198	198	200	200	214	214	214	220	220	228	246	246
14	266	266	266	266	266	266	240	222	216	216	216	208	190	206	206	218	218	218	218	218	220	242	258	274
15	274	306	306	272	288	288	236	236	226	226	268 ^Y	240	240	236	230	230	224	206	232	232	232	254	270	266
16	270	300	294	256	228	206	212	182	212	210	226	204	200	200	212	220	228	200	210	218	234	276	280	282 ^Q
17	264	268	264	240	236	240	224	220	202	208	202	214	214	214	218	218	218	218	218	214	220	220	234	254
18	266	266	274	260	256	248	230	230	230	218	218	218	218	218	218	218	218	218	218	218	218	252	252	252
19	296	296	296	306	306	306	278	236	236		236	232	216	226		226	220	200	208	256	246	252	244	260
20	268	262	272	256	244	294	274	236	224	208	208		248	240	236	240	238	214	226	236	218	262	288	262
21	296	264	274	362	324	306	244	244	236	212	206	206	206	206	240	234	218	218	232	232	240	240	252	262
22	294	316	304	276	248	256	260	236	220	226	210		228	218	218	228	216	192	232	232	242	256	250	258
23	280	292	290	290	300	250	230	234	216	206	210	206	210	218	218	230	220	210	220	234	234	260	286	274
24	280	280	298	296	272	280	246	222	216	212	212	194	236	236	220	220	220	220	210	246	240	250	254	260
25	278	310 ^A	298	320	298	318	234	212	222	214	220	214	192	224	224	224	220	204	204	230	248	248	266	288
26		294 ^A	264	236	346	320	246	224	224	224	224	224	224		224 ^A	224	224	244	244	244	244	268	268	268
27	300	300		300	284	274	274	244	234	234	234	230	224	228	216 ^H	216	216	208	220	242	242	298	298	298
28	258	258	302	104	330	328	274	244	230	230	238	226		C	C	C		C		232	230	226	240	264
29	260	248		342	292	266	266	228	230		C	C	C	C	C			222	194	206	224	246	268	304
30	254	256	266	302	302	302	236	224	224	222	222	224	226	220	220	220	220	214	236	224	254	270	280	266
31	242	242	280	288	290	246	232	230	222	222	230	236	224	218	224	224	216	202	224	252	248	262	262	298
	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	31	29	31	31	31	31	31	31	29	30	28	29	27	27	29	30	31	31	31	31	31	31	31
MED	274	276	274	276	278	266	234	228	222	216	216	215	220	218	218	224	220	214	220	230	240	254	258	266
U Q	294	294	297	300	300	302	246	236	228	225	226	227	228	226	224	229	226	220	228	244	246	264	280	282
L Q	260	262	264	256	252	248	226	220	212	208	208	206	206	210	214	218	218	208	210	222	226	244	252	258

OCT. 2014 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT.2014 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	A	116	116	116	116	116		116	116	A	116	124						
2							136	A	A	124		114	106	104	104	108	122	A						
3							110	114	114	114	106	A	108	112	112	112	120	A						
4							142	120	116	102	108	108	108	104	106	112	118	A						
5							150	122	104	104	104	110	110	104	A	A	A	A						
6							150	118	118	116	104	A	A	A	A	A	114	A						
7							A	114	114	112	108	A	A	A	A	A	A	A	B					
8							A	116	116	114	110	112	112	112	112	112	118	B						
9						B	174	A	116	116	112	A	108	108	108	108	106	A						
10						E	190	B	114	114	114	114	114	110	110	112	114	B						
11							114	114	114	A		106	114	112	112	114	A	B	B					
12						B	A	124	A	122	114	114	114	112	112	116	116	B						
13							B	A		112	112	112	112	110	110	110	110	B						
14							142	124	A		124	118	114	114	114	114	114	A						
15							128	128	124	120	120	104	A	A	122	122	124	B						
16						B	140	120	116	A	118	112	116	116	114	114	114							
17						B	E	B	190	130	118	A	118	118	110	110	110	B						
18							164	128	114	106	A		106	106	104	104	104	B						
19							A	116	112	112	112	112	A	A	B	112	130	B						
20							162	138	116	116	A	A	A	A	108	118	A	A						
21							A	A	A	130	112	112	A	112	112	112	116	A						
22						A	A	126	116	116	116	B	116	110	110	110	130							
23						B	A	A	A	A	A	120	104	108	108	116	128	B						
24						B	A	114	112	112	112	112	112	112	112	112	A	A						
25						B	A	B	118	116	A	110	110	110	110	110	124	B						
26							B	120	120	120	112	A	A	A	A	112	112	A	A					
27							B	112	112	112	A	A	A	A	A	114	A	B						
28						B	B	112	112	A	112	A	C	C	C	C	C	C						
29							B	112	A	C	C	C	C	C	C	C	142							
30							B	122	116	A	A	A	A	112	A	A	A	B						
31							B	114	114	A	A	A	A	114	114	114	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							14	25	24	22	20	18	18	22	24	24	21	1						
MED							144	118	116	115	112	112	112	111	111	112	118	124						
U Q							164	124	116	116	115	114	114	112	112	114	126							
L Q							136	114	114	112	109	110	108	108	109	110	114							

OCT.2014 h'E (KM)

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IONOSPHERIC DATA STATION Wakkanai

OCT.2014 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'E KSWEPT 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	112	B	102	102	102	102	126	G	126	126	126	126	120	112	112	112	154	96	112	112	100	100	100	100
2	96	96	96	96	B	B	G	106	104	104	102	102	102	98	98	100	106	94	96	96	106	104	98	98
3	98	98	B	B	B	B	G	G	104	102	118	102	98	G	G	100	144	100	100	100	100	B	100	B
4	B	B	B	B	B	B	G	G	G	192	198	G	110	98	100	G	162	96	96	96	96	96	96	B
5	B	B	B	B	B	B	G	G	G	156	G	G	92	182	G	G	116	102	102	102	90	90	90	B
6	B	B	106	104	B	B	152	G	104	198	120	120	116	112	112	110	162	94	94	94	94	102	B	B
7	B	B	B	B	B	B	144	124	134	134	G	112	112	112	114	110	110	B	110	110	100	B	92	B
8	B	104	108	124	118	106	106	106	106	G	G	102	180	94	100	100	146	B	114	B	B	B	B	B
9	B	B	B	B	B	112	178	110	G	134	120	110	112	112	116	G	162	120	114	104	B	B	102	B
10	B	B	B	B	B	B	G	G	118	114	114	114	114	G	G	B	114	104	B	104	104	104	104	104
11	B	B	B	B	B	B	G	G	104	186	106	104	104	104	104	G	106	B	B	106	102	102	102	102
12	96	B	B	B	B	B	116	116	114	202	190	190	G	128	G	G	G	B	104	94	B	106	106	100
13	92	92	90	90	B	B	B	108	108	108	G	G	G	196	S	106	G	B	B	B	B	B	B	B
14	B	B	106	B	B	B	G	112	112	112	112	G	180	G	B	G	G	94	B	B	B	B	B	B
15	B	B	B	B	96	96	156	156	G	130	G	G	116	112	114	110	108	B	B	B	B	100	100	B
16	B	100	B	B	100	110	G	168	162	106	108	108	G	G	106	102	G	B	B	B	B	96	B	B
17	B	B	B	100	B	B	G	G	138	114	102	G	G	104	G	130	128	B	B	B	104	104	B	B
18	B	B	B	B	B	B	G	134	134	124	104	104	G	G	G	G	116	B	116	B	106	B	B	B
19	B	102	102	B	B	B	130	130	128	114	114	114	114	96	B	96	104	B	B	96	96	B	110	106
20	106	100	98	98	98	108	G	G	110	102	102	100	98	98	98	98	98	98	100	106	106	106	114	114
21	108	96	102	96	104	B	110	116	104	114	108	108	98	98	104	G	G	96	96	96	96	96	96	96
22	96	B	B	B	96	96	96	112	110	104	104	G	G	98	98	G	G	B	B	112	112	100	B	B
23	100	100	100	100	B	B	100	112	104	104	104	G	98	G	G	G	96	96	100	100	104	98	B	98
24	98	98	100	100	100	B	112	120	106	106	106	106	106	G	96	96	96	96	B	B	B	100	100	100
25	102	100	100	B	B	100	100	B	112	106	106	106	G	100	100	G	G	B	B	112	B	106	108	114
26	102	98	98	98	98	B	B	G	112	112	112	112	106	96	96	96	94	94	94	94	94	94	94	94
27	94	94	94	94	94	98	B	116	116	116	114	108	106	102	102	102	102	102	102	104	B	104	104	104
28	104	104	104	B	104	B	B	B	G	106	G	102	C	C	C	C	C	104	104	104	108	108	104	B
29	104	104	104	104	B	98	B	G	108	C	C	C	C	C	C	C	100	B	104	104	96	112	112	B
30	108	108	108	102	102	102	B	182	112	106	106	106	106	100	100	100	100	100	100	100	100	100	B	B
31	100	B	100	B	B	B	100	G	110	110	110	104	104	104	104	104	102	104	96	96	96	104	B	96
	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	16	18	14	12	11	14	19	25	28	25	23	20	20	20	20	23	17	22	22	21	22	19	14
MED	100	100	101	100	100	102	114	116	112	113	108	108	106	103	103	102	106	96	101	100	100	102	102	100
U Q	105	103	104	102	103	108	144	134	121	128	116	114	115	112	112	110	144	102	110	104	105	104	106	104
L Q	96	97	98	96	97	98	100	112	105	106	104	104	103	98	99	99	100	95	96	96	96	100	98	98

OCT.2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

D	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	F4		F3	F3	F2	L1	CL11		C1	C1	C1	C1	C1	C2	C2	C2	HL11	L1	F1	FF11	F3	FF21	F1	F2	
2	F2	F1	F1	F1				L2	L1	L1	L1	L1	L1	L1	L1	L1	L1	L2	F2	F2	F1	F2	F2	F4	
3	F3	F1							L2	L1	L1	L2	L2			L1	H1	L2	F3	F2	F1	F1	F1		
4										H1	HL11		CL11	L1	LL11		HL11	L2	F1	F1	F1	F1	F1		
5								H1			L1	H1			C2	L3	L3	L1	F1	F1	F1	F1			
6			F2	F1			L1		L1	HL11	C1	C1	C2	C1	C3	L2	HL11	L1	F2	F2	F1	F1			
7							C1	C1	H1	C1		C1	C1	C1	C2	C2	L1		F3	F5	F2		F1		
8		F1	F1	F1	F2	F6	L3	C4	C2			L2	HL11	L2	L2	L2	H1		F1						
9						C2	H1	C2		H1	CL11	C1	C1	C1	CL21	CL21		HL11	CL21	F1	F2			F1	
10								C1	C2	C1	C1	C1				L1	L2		F3	F2	F2	F2	F1	F2	
11									C1	HL11	L1	L2	L1	L1	L1		L1			F2	F3	F2	F2	F2	
12	F1						C2	L1	L1	HL11	HL11	HL11		L1					F1	F1		F2	F2	F2	
13	F2	F2	F1	F1				C1	C1	L1				H1		L1									
14			F1					C1	C1	C1	L1		H1					L1							
15					F1	F2	H1	H1		C1				L1	L1	L1	L1					F1	F1		
16		F1			F1	L1		H1	HL11	L1	CL11	L1			L1	L1						F1			
17			F1						H1	L1				L1		HL11	C1				F1	F1			
18								C1	C1	C1	C1	C1					C2		F2		F1				
19		F1	F1				C1	C2	C2	C1	CL11	CL11	C1	L1		L1	L1			F1	F1		F2	F3	
20	F1	F1	F2	F1	F1	F1				CL11	CL11	L2	L2	L2	L2	L2	L3	L3	F1	F3	F1	F2	F2	F1	
21	F2	F2	F1	F3	F1		C5	C2	C2	L1	L1	L1	L2	L1	L1			L3	F2	F1	F1	F1	F1	F1	
22	F1				F1	L1	L1	L1	L1	L1	L1				L1	L1				F1	F1	F2			
23	F1	F2	F5	F2			L2	L1	L1	L2	L2		L1				L2	L2	F2	F2	F1	F2		F1	
24	F1	F2	FQ21	F2	F1		C2	C2	C2	C1	L1	L1	L1		L1	L1	L2	LQ11				L1	FQ11	FQ31	
25	F1	F4	F3			L2	L1		C1	C2	C1	L1		L1	L1				F1			F1	F1	F1	
26	F4	F3	F4	F2	F1				C1	C1	C1	C1	L2	L2	L1	L2	L2	L3	F3	F2	F2	F2	F2	F3	
27	F3	F2	F3	F3	F3	F1		C1	C3	C1	C1	L1	L2	L2	L2	L2	L2	L4	F3	F2		F2	F2	F2	
28	F1	F1	F4		F1					C1		C1						F2	FQ11	FQ11	FF11	F1	F1		
29	F1	F1	F3	F3		F1			C2								L1		F1	F1	F2	FF11	FF21		
30	F2	F1	F1	F1	F1	F2		H1	C1	C1	C2	C1	CL21	L2	L2	L2	L3	L4	F4	F2	F2	F2			
31	F1		F2			L1			C2	C2	C2	C1	L1	L1	L1	L1	L2	L2	F2	F2	F2	F2	F1	F2	
	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																									

OCT.2014 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	X 62	X 60	X 52	X 54	X 53	X 55													X 98	X 90	X 72	X 61	X 61	X 60	
2	X 59	X 58	X 53	X 52	X 53	X 53													102	X 75	X 63	X 62	X 60	X 58	
3	X 58	X 55	X 54	X 54	X 54	X 54													X 99	X 86	X 67	X 63	X 64	X 60	
4	X 57	X 52	X 52	X 53	X 51	X 51													X 96	X 76	X 73	X 62	X 58	X 61	
5	X 62	X 62	X 62	X 62	X 60	X 53													X 81	X 66	X 70	X 68	X 68	X 64	
6	X 65	X 64	X 63	X 63	X 63	X 65													X 84	X 74	X 74	X 72	X 64	X 65	
7	X 60	X 59	X 59	X 60	X 59	X 60														X 65	X 66	X 70	X 69	X 66	
8	X 62	X 61	X 60	X 60	X 59	X 57														X 78	X 77	X 62	X 61	X 60	
9	X 61	X 66	X 60	X 47	X 46	X 47													X 85	X 70	X 68	X 61	X 64	X 61	
10	X 60	X 64	X 67	X 63	X 52	X 42														X 63	X 54	X 56	X 55	X 58	
11	X 60	X 59	X 52	X 49	X 48	X 46													X 76	X 75	X 77	X 76	X 74	X 69	
12	X 63	X 62	X 65	X 57	X 61	X 66													X 82	X 66	X 69	X 70	X 67	X 65	
13	X 64	X 60	X 62	X 60	X 51	X 51													X 76	X 71	X 68	X 60	X 56	X 58	
14	X 54	X 56	X 56	X 55	X 52	X 52													X 78	X 58	X 60	X 51	X 54	X 54	
15	X 56	X 55	X 56	X 55	X 50	X 48													X 69	X 67	X 64	X 50	X 53	X 54	
16	X 54	X 53	X 53	X 56	X 53	X 36													X 66	X 56	X 53	X 52	X 52	X 52	
17	X 52	X 53	X 53	X 52	X 45	X 43													X 79	X 58	X 55	X 54	X 53	X 54	
18	X 53	X 54	X 52	X 52	X 42	X 43													X 90	X 72	X 62	X 64	X 65	X 61	
19	X 59	X 56	X 57	X 58	X 58	X 56													X 74	X 66	X 66	X 66	X 59	X 58	
20	X 55	X 55	X 54	X 53	X 41	X 42													X 74	X 69	X 63	X 55	X 55	X 58	
21	X 54	X 56	X 55	X 51	X 51	X 53													X 72	X 71	X 60	X 54	X 54	X 52	
22	X 51	X 50	X 49	X 50	X 46	X 46													X 69	X 72	X 67	X 69	X 65	X 56	
23	X 52	X 50	X 50	X 47	X 46	X 48													X 76	X 60	X 54	X 56	X 56	X 54	
24	X 52	X 52	X 49	X 46	X 46	X 47													X 79	X 68	X 70	X 68	X 64	X 61	
25	X 51	X 51	X 51	X 47	X 49	X 50													X 80	X 72	X 58	X 60	X 63	X 59	
26	X 60	X 56	X 56	X 42	X 42	X 41													X 73	X 73	X 67	X 63	X 62	X 61	
27	X 55	X 54	X 52	X 52	X 50	X 47													X 67	X 67	X 69	X 61	X 61	X 62	
28	X 60	X 56	X 48	X 47	X 47	X 47													X 73	X 67	X 60	X 59	X 60	X 61	
29	X 58	X 52	X 50	X 48	X 47	X 49												X 115	X 102	X 67	X 61	X 58	X 57	X 59	X 60
30	X 60	X 54	X 46	X 45	X 45	X 44													X 68	X 60	X 59	X 59	X 57	X 55	
31	X 49	X 47	X 46	X 46	X 47	X 46													X 76	X 65	X 60	X 58	X 57	X 56	
	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	31	31	31	31	31	31											1	1	28	31	31	31	31	31	
MED	X 58	X 56	X 53	X 52	X 50	X 48											X 115	X 102	X 76	X 68	X 66	X 61	X 60	X 60	
U Q	X 60	X 60	X 59	X 57	X 53	X 53													X 83	X 73	X 69	X 66	X 64	X 61	
L Q	X 54	X 53	X 51	X 47	X 46	X 46													X 72	X 65	X 60	X 56	X 56	X 56	

OCT.2014 f_{XI} (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

OCT.2014 f_oF₂ (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	56	54	46	48	47	49	74	95	110	112	102	109	101	97	93	96	93	91	92	84	66	55	55	54
2	53	52	47	46	47	47	74	77	88	96	86	102	95	97	97	94	92	98	95	69	57	56	54	52
3	52	49	48	48	48	48	71	100	93	84	91	96	109	104	100	102	98	95	93	80	60	57	57	53
4	51	46	46	47	45	45	68	94	104	95	98	102	110	107	108	109	106	106	90	70	66	56	52	55
5	56	56	56	56	54	47	75	84	90	91	109	102	109	111	114	114	104	91	75	60	64	62	62	58
6	59	58	57	57	56	59	86	100	110	96	106	118	116	109	116	120	112	105	78	68	68	66	58	58
7	54	53	53	54	53	54	78	106	118	110	109	121	109	112	115	119	113	108	88	58	60	64	63	60
8	56	54	54	54	53	51	72	102	102	100	107	116	105	104	112	115	104	93	77	72	71	56	55	54
9	55	60	53	41	40	41	68	103	94	105	114	121	112	109	117	113	110	98	78	64	62	55	58	55
10	54	58	61	53	46	36	63	90	120	123	131	117	112	111	120	112	106	96	82	57	48	50	49	52
11	54	53	46	43	42	40	62	85	107	97	99	110	118	116	112	116	104	89	70	69	70	70	68	63
12	57	56	59	51	55	60	81	96	105	100	114	119	121	119	128	124	110	99	76	60	63	64	61	59
13	58	54	56	54	45	45	62	90	98	98	104	117	117	112	112	114	105	84	70	65	62	54	50	52
14	48	50	50	49	46	46	65	84	101	93	107	130	121	119	117	112	112	102	72	52	54	45	48	48
15	49	48	50	49	44	42	64	72	94	90	99	145	134	124	119	111	109	98	63	61	58	44	47	47
16	47	47	47	50	47	30	52	77	88	111	104	111	110	104	100	100	100	84	60	50	47	46	46	46
17	46	47	47	46	38	37	61	80	102	92	94	107	102	93	94	107	107	102	73	52	49	48	47	48
18	47	48	46	46	36	37	60	80	91	101	118	112	115	118	111	106	99	96	84	65	56	58	59	55
19	53	50	51	52	52	50	70	100	114	118	130	127	118	118	117	106	100	96	67	60	60	59	53	52
20	49	49	47	47	35	36	56	95	106	112	113	108	119	116	113	111	99	94	68	63	57	49	49	52
21	48	50	50	45	45	47	68	95	104	113	104	117	114	112	102	104	103	84	66	65	54	48	48	46
22	45	44	43	44	40	40	56	89	121	116	110	131	124	130	118	106	92	88	63	66	61	63	58	50
23	46	44	44	40	40	42	64	100	116	114	122	120	115	113	114	109	100	85	70	54	48	50	50	47
24	46	46	43	40	40	41	61	102	120	112	119	120	113	124	124	107	93	88	73	62	64	62	58	55
25	45	45	45	41	43	44	67	124	133	133	134	136	135	128	129	123	107	98	74	66	52	54	56	53
26	54	50	50	36	36	35	60	98	112	118	115	128	118	134	134	118	102	81	66	67	61	57	56	55
27	49	48	46	46	44	41	57	98	126	133	137	134	129	130	120	104	103	84	61	61	63	55	55	56
28	54	50	42	41	41	41	62	99	114	120	113	128	120	115	115	106	100	92	67	61	54	53	54	55
29	52	46	44	42	40	43	59	90	117	129	122	122	116	125	125	124	109	96	60	55	52	51	53	54
30	54	48	40	39	39	38	60	88	98	112	117	121	116	118	110	107	90	86	62	54	53	54	50	49
31	43	41	40	40	41	40	62	95	99	108	109	116	114	116	125	120	108	91	70	59	54	52	50	50
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	52	50	47	46	44	42	64	95	105	110	109	118	115	115	115	111	104	94	72	62	60	55	54	53
U Q	54	54	53	51	47	47	71	100	116	116	118	127	119	119	120	116	108	98	78	67	63	59	58	55
L Q	47	47	45	41	40	40	60	85	98	96	104	110	110	109	110	106	99	88	66	58	54	50	50	50

OCT.2014 f_oF₂ (0.1MHz)

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

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

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

OCT.2014 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							U R	R	A	A	A	R	R	A	A	A	R	A						
2							U R	U R	R	A	R	A	R	A	A	A	A	A						
3							U R	U R	R	A	A	R	A	A	A	A	A	R	A					
4							B	U R	R	A	A	A	A	A	A	A	A	A						
5							U R	U R	R	A	A	R	A	A	A	A	A	A						
6							A	268	324	A	A	A	A	A	A	A	A	U R	260	200				
7							184	U R	A	A	A	A	A	A	A	A	A	A	A	B				
8							B	U R	A	A	A	A	A	A	A	344	R	U A	A	B				
9							U R	R	R	R	A	A	A	R	R	R	A	A	B					
10							B	U R	U A	A	A	A	A	A	R	A	R	A	B					
11							176	U R	R	R	A	R	A	A	A	A	A	A	172					
12							B	U R	A	A	A	A	A	A	A	A	A	A	B					
13							B	R	A	A	R	A	A	R	A	R	U R	R	B					
14							U A	A	A	A	A	A	A	A	A	U R	U R	U R	B					
15							B	U R	A	A	R	A	A	A	A	R	A	A	B					
16							B	244	A	A	A	A	A	U A	A	A	A	A	B					
17							B	248	R	A	A	A	A	A	A	A	A	U A	B					
18							B	U R	R	A	A	A	U R	A	A	A	A	A	B					
19							B	A	A	A	A	A	A	A	R	R	R	A	B					
20							B	U R	A	A	A	A	A	A	A	U R	U R	U R	B					
21							172	252	A	A	A	A	A	A	A	A	U R	U R	B					
22							B	248	A	A	A	B	A	A	A	A	A	A	B					
23							B	256	A	A	R	A	A	R	R	A	A	A	B					
24							B	256	A	A	A	A	A	A	A	A	A	A	B					
25							B	A	A	A	A	A	A	A	A	A	A	A	B					
26							B	U R	A	A	A	A	A	A	R	R	U R	U R	B					
27							B	A	A	A	A	A	A	A	A	A	A	A	B					
28							B	252	A	R	A	A	A	A	A	A	A	A	B					
29							B	R	A	A	A	A	A	A	A	A	A							
30							B	U R	A	A	A	R	A	A	A	A	A	A	B					
31							B	U R	R	A	A	A	A	A	A	A	U R	U R	B					
								252										232						
CNT							9	23	2					1	2	2	9	2						
MED							U R	U R	316					U R	334	310	U R	U R	186					
U Q							U R	U R									U R	U R						
L Q							174	252									U R	U R						

OCT.2014 foE (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

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

OCT.2014 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E 15	B 14	E 15	B 15	E 15	B 15	G	G	34	36	39	G 34	G	40	38	37	G 22	22	23	22	22	20	17	E 15
2	E 16	B 15	E 15	B 15	E 14	B 15	G	G	G 24	38	G	40	G	37	38	35	30	20	E 14	B 15	E 14	B 15	E 15	B 16
3	E 15	B 15	E 15	B 15	E 14	B 15	14	25	35	38	32	40	41	38	38	35	G	22	16	E 15	B 15	E 14	B 14	E 14
4	E 16	B 15	E 15	B 14	E 15	B 15	20	G	G	37	39	41	39	39	36	38	31	23	18	E 16	B 14	E 15	B 14	E 15
5	E 15	B 14	E 14	B 14	E 14	B 15	G	G	34	38	G	38	38	41	39	32	35	31	32	17	E 15	B 15	E 15	B 15
6	E 15	B 15	E 15	B 16	E 16	B 15	22	29	35	36	39	40	40	39	42	32	G	23	E 16	B 17	E 16	B 16	E 15	B 14
7	E 16	B 15	E 14	B 15	E 15	B 16	19	G	34	37	40	38	39	37	43	36	26	20	E 16	B 20	20	16	22	E 15
8	E 15	B 15	E 15	B 15	E 15	B 15	24	G	34	34	36	37	36	36	38	G	31	23	25	E 15	B 16	E 14	B 15	E 14
9	E 15	B 16	E 15	B 15	E 15	B 14	G	G	G	G	39	42	38	G	G	34	30	20	18	27	20	18	E 15	B 15
10	E 15	B 14	E 16	B 16	E 14	B 14	19	G	32	37	36	36	40	39	26	31	21	19	19	E 15	B 15	E 15	B 15	E 20
11	E 15	B 16	E 16	B 15	E 14	B 14	19	G	G	G	40	G	39	37	36	33	25	G	19	18	17	17	E 15	B 16
12	E 20	B 15	E 17	B 17	E 15	B 15	17	G	56	37	36	38	38	38	34	34	25	E 15	B 14	E 15	B 15	17	20	E 19
13	E 16	B 14	E 15	B 15	E 15	B 15	18	G	33	35	31	38	39	28	36	G	G	14	16	E 15	B 15	E 15	B 15	E 15
14	E 15	B 14	E 15	B 14	E 15	B 15	20	29	32	34	37	38	36	37	35	G	G	18	15	E 15	B 14	E 14	B 14	E 15
15	E 16	B 17	E 15	B 16	E 15	B 15	18	G	35	35	G	39	36	38	36	G	24	E 16	B 16	E 15	B 15	E 15	B 14	E 15
16	E 15	B 16	E 15	B 15	E 15	B 15	19	27	34	38	38	38	36	38	35	39	29	27	26	30	20	20	E 15	B 15
17	E 16	B 15	E 15	B 14	E 15	B 15	22	28	22	36	36	35	36	36	40	34	27	E 15	B 16	18	16	16	E 15	B 14
18	E 16	B 15	E 15	B 15	E 14	B 15	18	G	23	37	40	36	37	G	39	33	27	30	18	E 15	B 16	22	22	E 14
19	E 15	B 16	E 16	B 16	E 16	B 15	17	28	35	34	37	38	37	35	G	G	29	17	E 16	B 16	15	21	22	30
20	E 15	B 15	E 15	B 16	E 16	B 15	18	G	32	35	38	38	37	37	36	26	G	E 15	B 24	27	20	17	17	23
21	19	16	16	E 16	B 15	B 15	20	28	38	34	36	36	35	35	55	G	G	E 15	B 15	E 15	B 15	14	15	E 15
22	E 15	B 15	E 14	B 16	E 15	B 16	17	27	33	35	39	E 68	41	41	45	36	26	26	24	62	16	18	E 15	B 15
23	E 15	B 15	E 15	B 15	E 15	B 14	20	29	31	35	G	39	38	G	G	28	32	27	35	23	24	17	E 15	B 15
24	E 14	B 15	E 15	B 14	E 14	B 14	16	28	32	35	38	38	38	38	33	32	26	27	20	14	E 15	B 15	E 15	B 15
25	E 16	B 15	E 15	B 15	E 23	B 14	17	40	41	39	38	39	38	36	36	38	32	22	44	30	30	17	22	20
26	E 15	B 15	E 19	B 15	E 15	B 15	16	G	34	42	37	38	37	37	28	G	G	E 15	B 15	17	E 14	B 16	E 15	B 15
27	E 14	B 15	E 15	B 16	E 14	B 15	17	26	33	37	44	53	38	39	36	31	26	20	18	27	21	30	25	21
28	E 16	B 15	E 15	B 15	E 15	B 15	16	27	34	G	35	40	42	39	36	42	29	20	E 15	B 15	22	19	17	E 15
29	E 15	B 15	E 15	B 15	E 15	B 15	16	G	33	36	44	40	39	40	38	30	51	25	E 16	24	E 15	B 17	E 16	B 15
30	E 15	B 15	E 15	B 15	E 15	B 15	15	G	34	39	39	G	39	48	83	41	56	56	45	24	43	30	22	25
31	E 16	B 15	E 15	B 16	E 15	B 14	15	G	G	33	37	38	34	37	35	31	19	G	30	22	20	19	E 15	B 14
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E 15	B 15	E 15	B 15	E 15	B 15	17	G	33	36	37	38	38	37	36	32	26	20	18	17	E 16	B 16	E 15	B 15
U Q	E 16	B 15	E 15	B 16	E 15	B 15	19	28	34	37	39	40	39	39	39	36	30	26	23	24	20	18	17	16
L Q	E 15	B 15	E 15	B 15	E 14	B 15	16	G	G	31	34	36	37	36	36	35	G	G	E 16	B 15	E 15	B 15	E 15	B 15

OCT.2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	14	15	15	15	15	14	16	17	16	15	18	20	18	16	15	14	14	15	14	15	15	15	15
2	16	15	15	15	14	15	14	14	14	16	17	16	20	18	20	15	13	14	14	15	14	15	15	16
3	15	15	15	15	14	15	14	14	15	14	18	16	20	17	17	15	12	13	15	15	15	14	14	14
4	16	15	15	14	15	15	14	14	15	18	18	16	19	18	18	14	14	13	15	16	14	15	14	15
5	15	14	14	14	14	15	15	14	14	15	14	20	18	16	16	15	12	14	15	14	15	15	15	15
6	15	15	15	16	16	15	14	14	15	15	17	18	20	19	18	15	15	17	16	16	16	16	15	14
7	16	15	14	15	15	16	14	15	18	22	16	18	15	15	16	13	15	16	16	16	16	15	16	15
8	15	15	15	15	15	15	15	15	15	18	19	20	14	18	13	11	14	14	14	15	16	14	15	14
9	15	16	15	15	15	14	15	15	16	17	19	22	22	20	18	14	14	14	14	15	16	15	15	15
10	15	14	16	16	14	14	15	13	14	15	19	16	17	18	16	14	13	13	15	15	15	15	15	15
11	15	16	16	15	14	14	14	15	15	14	16	17	20	20	17	14	14	14	14	15	15	15	15	16
12	15	14	14	14	15	15	14	15	16	16	18	14	15	16	14	14	13	15	14	15	15	15	15	14
13	16	14	15	15	15	15	15	15	14	18	18	18	20	16	18	14	14	14	16	15	15	15	15	15
14	15	14	15	14	15	15	13	14	14	18	13	16	19	17	17	16	15	13	15	15	14	14	14	15
15	16	17	15	16	15	16	14	18	20	19	17	15	15	19	15	15	13	16	16	15	15	15	14	15
16	15	16	15	15	15	15	15	15	16	16	16	14	12	14	13	14	14	13	14	14	14	14	15	15
17	16	15	15	14	15	15	15	16	13	14	16	15	22	19	16	14	13	15	16	15	16	16	15	14
18	16	15	15	15	14	15	16	14	14	13	14	15	19	17	16	14	14	14	14	15	16	14	14	14
19	15	16	16	16	16	15	15	17	14	17	16	18	18	16	37	20	16	14	16	16	15	16	15	16
20	15	15	15	16	16	15	14	13	14	16	18	18	19	16	15	16	15	15	13	15	16	16	16	14
21	15	14	16	16	15	15	14	12	16	18	16	16	17	14	16	14	14	15	15	15	14	15	15	15
22	15	15	14	16	15	16	16	15	14	16	19	^E ₆₈ ^B	24	17	16	14	13	14	13	14	16	14	15	15
23	15	15	15	15	15	14	15	15	14	16	17	15	19	18	18	14	14	14	15	15	14	15	15	15
24	14	15	15	14	14	14	16	15	16	16	18	17	18	14	14	14	13	15	14	14	15	15	15	15
25	16	15	15	15	16	14	14	19	26	19	20	20	24	17	14	13	14	14	13	14	15	16	15	14
26	15	15	15	15	15	15	16	15	13	14	19	20	16	17	16	13	14	15	15	14	14	16	15	15
27	14	15	15	16	14	15	15	13	15	16	24	24	17	15	16	16	14	14	14	14	15	14	14	14
28	16	15	15	15	15	15	15	15	14	14	16	22	20	21	17	14	15	15	15	15	14	14	14	15
29	15	15	15	16	15	15	16	14	15	14	13	21	27	17	14	15	15	15	16	16	15	14	16	15
30	15	15	15	15	15	15	15	15	14	19	16	22	15	14	21	16	14	15	14	14	15	15	15	16
31	16	15	15	16	15	14	15	16	16	16	21	17	14	19	14	14	14	15	15	14	14	15	14	14
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	15	15	16	17	18	19	17	16	14	14	14	15	15	15	15	15	15
U Q	16	15	15	16	15	15	15	15	16	18	19	20	20	18	18	15	14	15	15	15	16	15	15	15
L Q	15	15	15	15	14	15	14	14	14	15	16	16	16	16	16	15	14	13	14	14	14	14	14	14

OCT.2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

$\begin{matrix} H \\ D \end{matrix}$	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	279	305	267	278	279	276	327	326	335	332	314	317	312	310	314	317	323	324	314	333	323	293	279	284
2	282	290	281	275	262	268	342	337	343	349	315	331	316	309	324	324	316	326	339	322	293	295	291	280
3	279	283	280	275	275	276	339	347	357	358	319	306	318	306	307	311	316	312	324	336	308	292	296	299
4	295	290	283	290	283	284	340	350	348	360	316	314	317	302	304	310	315	332	329	302	315	297	273	274
5	277	289	284	299	313	306	357	338	335	325	320	299	306	302	309	314	329	323	320	287	298	292	309	295
6	279	283	287	277	288	287	343	347	349	328	309	304	313	304	299	313	323	343	318	306	298	305	297	304
7	290	282	284	289	286	293	338	346	339	333	315	325	302	295	303	319	325	334	358	298	285	301	309	307
8	306	301	287	298	293	298	333	354	336	339	322	333	313	299	308	320	336	324	317	304	327	295	279	261
9	266	294	352	307	273	269	331	371	328	333	307	333	311	300	314	308	328	327	330	304	303	288	283	268
10	264	290	314	330	348	284	337	324	326	326	325	317	305	307	311	322	326	339	331	332	294	278	272	292
11	313	326	314	305	299	306	350	360	340	343	326	310	316	315	311	325	334	347	304	291	298	294	300	309
12	293	286	312	303	288	313	341	353	360	323	328	315	316	308	313	322	333	333	343	290	303	314	301	293
13	297	285	312	322	306	299	350	361	357	343	315	322	316	321	317	330	342	345	328	324	316	313	293	285
14	281	289	300	300	300	296	368	353	364	343	328	322	319	316	313	315	332	344	331	292	314	312	283	293
15	289	270	280	287	294	267	354	348	345	312	278	310	321	309	310	318	323	349	331	301	329	291	288	288
16	295	282	290	324	381	298	351	350	338	341	331	318	323	312	319	326	345	346	328	310	291	285	280	282
17	290	305	313	313	291	301	333	354	352	345	338	332	315	320	313	319	333	349	351	302	297	292	287	291
18	279	298	320	316	284	299	344	347	339	328	330	315	311	316	322	325	334	331	337	322	291	292	293	302
19	289	274	288	282	260	262	321	347	337	328	326	333	317	313	327	328	339	334	340	290	298	301	286	279
20	281	279	287	335	297	276	304	342	345	348	336	320	318	315	319	332	327	336	331	304	310	261	278	285
21	267	277	298	266	256	264	316	357	332	337	325	327	313	320	324	321	342	338	303	323	313	285	290	289
22	282	267	269	286	297	288	315	323	341	331	323	322	305	312	319	331	328	334	303	297	295	311	306	301
23	290	286	297	287	269	290	336	341	342	334	331	315	304	295	309	324	336	341	341	313	291	291	294	298
24	288	298	317	278	284	276	312	343	351	323	331	321	305	316	322	323	338	321	320	298	299	317	305	329
25	303	284	281	254	266	272	314	344	342	334	320	315	312	302	314	318	317	329	317	320	279	288	294	296
26	300	288	324	302	255	270	323	359	350	335	317	325	302	309	318	326	337	321	307	306	310	305	295	319
27	290	277	280	280	288	288	319	326	323	332	324	321	308	315	319	306	327	321	296	295	311	289	283	294
28	299	318	280	270	269	271	320	341	330	343	319	309	311	303	308	310	319	327	320	306	299	274	280	300
29	308	301	272	279	285	275	331	335	338	332	331	323	304	309	314	325	321	340	335	301	289	295	295	300
30	318	330	282	265	266	276	334	361	344	336	324	322	305	317	320	326	323	327	345	312	299	308	307	306
31	321	292	291	288	298	298	345	361	355	343	335	324	329	311	318	325	337	326	329	305	297	308	299	292
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	290	289	287	288	286	284	336	347	342	334	324	321	313	309	314	322	328	333	329	304	299	294	293	293
U Q	299	298	312	305	297	298	344	354	350	343	330	325	317	315	319	325	336	341	337	320	311	305	299	301
L Q	279	282	281	278	269	272	321	341	336	328	316	315	305	303	309	315	323	326	317	298	294	289	283	285

OCT.2014 M(3000)F2 (0.01)

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IONOSPHERIC DATA STATION Kokubunji

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

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

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

OCT.2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1										256	268	266	256		280	272									
2									252	244		258	252	274	270										
3									228	250	276	276	262		278										
4									244	236	274	286	282	286	298	252									
5										280		296	300	276	254										
6											258	266	268	274	278	274									
7									240	238	260	258	256	272	270	268									
8									236	238	252	254	284	278	254										
9									240	274	250	274	266	274	240	242									
10										254	246	250	288	278	262										
11											266	262	262	278											
12									230	248	250	258	264	270	248										
13									242	260	268	268	268	260											
14									250	252	268	250		270	268										
15										266	282	246	256	244											
16									246		274	264	270	264	238	232									
17										230	268	256		270	252										
18									242	228	264	260	266	268	242	250									
19										238	238	258													
20										252	256	260													
21										246	252	238	254	246											
22										244	262	258		274											
23										256				262											
24										238	254	254	268												
25								238	234		250	256	284		290										
26									230		252		284												
27									238	250	248														
28													274	266											
29											244		268												
30										240			240	E A 292	232	E A 240	E A 252								
31											260	260	282	266											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								1	5	15	25	27	22	23	23	16	3	1							
MED								238	242	238	254	258	259	270	270	254	240	E A 252							
U Q									248	244	263	266	268	282	278	268	242								
L Q									237	230	247	252	254	264	266	249	232								

OCT. 2014 h'F2 (KM)

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IONOSPHERIC DATA STATION Kokubunji

OCT.2014 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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	224	210	224	206	200	210	204	220	218	222	228	228	232	224	216	E A	E A	E B
2	E B	E B	E B	E B	E B	E B	E B	234	222	220	200	200	186	194	200	216	220	232	232	214	204	E B	E B	E B	E B
3	E B	E B	E B	E B	E B	E B	E B	236	228	218	198	194	186	190	204	216	218	232	232	222	214	212	E B	E B	E B
4	E B	E B	E B	E B	E B	E B	E B	232	222	208	202	188	220	202	218	218	A	228	226	208	206	222	220	E B	E B
5	E B	E B	E B	E B	E B	E B	E B	218	206	216	210	196	208	196	230	A	210	228	214	216	228	254	260	258	240
6	E B	E B	E B	E B	E B	E B	E B	226	212	222	206	198	204	198	208	228	226	226	212	200	226	E B	E B	E B	E B
7	E B	E B	E B	E B	E B	E B	E B	230	226	212	202	196	198	194	200	E A	236	220	226	220	206	218	E A	E A	E A
8	E B	E B	E B	E B	E B	E B	E B	212	208	202	196	182	192	188	192	220	212	222	214	218	224	220	E B	E B	E B
9	E B	E B	E B	E B	E B	E B	E B	232	206	204	194	202	204	204	206	210	A	A	220	206	250	236	236	278	296
10	E B	E B	E B	E B	E B	E B	E B	220	218	220	214	210	194	206	204	214	222	230	212	200	196	E B	E B	E B	E B
11	E B	E B	E B	E B	E B	E B	E B	218	214	222	214	196	192	192	216	216	224	222	204	228	252	E A	E A	E A	E B
12	E B	E B	E B	E B	E B	E B	E B	208	214	218	A	202	196	194	196	210	A	224	212	200	210	E B	E B	E B	E B
13	E B	E B	E B	E B	E B	E B	E B	204	212	212	196	192	196	196	196	208	206	216	206	208	224	218	222	E B	E B
14	E B	E B	E B	E B	E B	E B	E B	204	210	208	200	198	188	188	216	214	218	230	212	198	202	226	226	280	280
15	E B	E B	E B	E B	E B	E B	E B	204	214	228	224	194	220	A	A	A	220	222	210	196	256	214	E B	E B	E B
16	E B	E B	E B	E B	E B	E B	E B	210	214	218	212	220	204	216	222	214	A	A	210	216	256	E A	E A	E A	E B
17	E B	E B	E B	E B	E B	E B	E B	252	228	212	218	214	204	196	184	220	A	A	232	214	200	222	E A	E A	E B
18	E B	E B	E B	E B	E B	E B	E B	204	256	218	206	194	A	214	202	214	208	A	A	218	226	208	204	E A	E A
19	E B	E B	E B	E B	E B	E B	E B	236	216	216	220	198	196	206	214	232	226	216	218	196	244	E A	E A	E A	E A
20	E B	E B	E B	E B	E B	E B	E B	248	220	210	218	206	196	202	222	222	228	222	218	206	246	E A	E A	E A	E A
21	E A	E A	E A	E A	E B	E B	E B	226	220	220	222	206	190	204	212	A	232	222	202	206	E B	210	E B	E B	E B
22	E B	E B	E B	E B	E B	E B	E B	246	230	220	210	212	E B	224	220	232	226	214	218	212	392	242	242	234	234
23	E B	E B	E B	E B	E B	E B	E B	250	222	220	214	204	212	216	210	212	228	226	218	214	238	E A	E A	E B	E B
24	E B	E B	E B	E B	E B	E B	E B	226	218	200	208	196	218	206	234	220	216	222	210	216	244	E B	E B	E B	E B
25	E B	E B	E B	E B	E B	E B	E B	A	A	A	218	212	206	212	216	216	230	212	216	250	232	E A	E A	E A	E A
26	E B	E B	E B	E B	E B	E B	E B	A	A	A	212	198	206	208	228	220	212	204	212	248	E A	E A	E A	E A	E A
27	E B	E B	E B	E B	E B	E B	E B	252	228	224	A	A	A	212	230	224	220	224	214	202	278	E A	E A	E A	E A
28	E B	E B	E B	E B	E B	E B	E B	248	216	222	222	218	220	228	222	208	230	226	220	206	224	E A	E A	E A	E A
29	E B	E B	E B	E B	E B	E B	E B	232	216	220	220	222	A	214	A	A	A	A	A	E A	E A	E A	E A	E A	E A
30	E B	E B	E B	E B	E B	E B	E B	234	208	218	220	A	226	214	A	A	A	A	A	E A	E A	E A	E A	E A	E A
31	E B	E B	E B	E B	E B	E B	E B	226	214	212	218	208	200	216	214	218	228	214	204	212	226	E A	E A	E B	E B
	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	31	31	31	31	31	31	31	30	30	27	29	28	30	28	25	24	28	30	31	31	31	31	31	31	31
MED	E B	E B	E B	E B	E B	E B	E B	224	214	218	212	202	198	204	213	217	222	223	214	207	215	E A	E A	E B	E B
U Q	E B	E B	E B	E B	E B	E B	E B	246	222	220	218	211	207	214	220	226	227	228	220	216	248	254	266	274	284
L Q	E B	E B	E B	E B	E B	E B	E B	218	210	212	200	196	195	194	205	214	220	217	210	200	216	220	E B	E B	E B

OCT.2014 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

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OCT.2014 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							128	122	114	A	A	118	118	A	A	A	112	A						
2							124	114	118	118	118	A	118	A	A	A	114	A						
3							120	120	A	A	122	A	A	A	A	A	116	114						
4							B	114	114	110	110	110	A	A	112	114	110	116						
5							122	112	110	112	114	A	114	A	A	A	116	116						
6							A	128	114	112	114	110	114	A	A	A	116	132						
7							132	120	110	A	A	A	A	A	A	A	A	122	B					
8							B	116	A	A	A	A	A	A	116	112	116	120	B					
9							116	120	114	110	110	116	112	110	110	A	112	B						
10							B	112	118	A	A	A	A	120	116	110	110	A	B					
11							116	116	116	116	A	116	A	A	114	114	A	112						
12							B	116	A	A	A	A	A	A	A	A	A	B						
13							B	118	114	A	114	110	A	110	110	114	110	B						
14							122	112	A	A	A	A	A	A	A	112	114	B						
15							B	114	124	120	124	A	A	A	A	118	A	B						
16							B	114	C	A	A	A	A	A	112	110	108	B						
17							B	118	114	116	114	A	A	A	A	A	116	B						
18							B	120	112	110	A	A	A	112	116	116	106	B						
19							B	116	116	108	A	A	A	A	124	124	A	B						
20							B	112	112	A	A	A	A	A	110	116	116	B						
21							130	112	A	A	A	A	A	A	A	108	114	B						
22							B	110	110	A	A	B	A	A	A	A	A	B						
23							B	116	112	112	116	A	A	118	118	A	A	B						
24							B	116	A	A	A	A	A	A	A	114	A	B						
25							B	126	116	A	A	A	A	A	A	A	A	B						
26							B	116	A	A	A	A	A	A	116	112	118	B						
27							B	A	A	A	A	A	A	A	A	A	A	B						
28							B	118	116	114	A	A	A	A	116	A	118	B						
29							B	120	A	A	A	A	A	A	A	A	A							
30							B	124	112	A	A	118	A	A	A	A	A	B						
31							B	118	116	A	A	A	A	A	A	A	126	B						
	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							9	30	22	12	10	7	5	5	13	14	19	7						
MED							122	116	114	112	114	116	114	112	116	114	114	116						
U Q							129	120	116	116	118	118	118	119	116	116	116	122						
L Q							118	114	112	110	114	110	113	110	111	112	110	114						

OCT.2014 h'E (KM)

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OCT.2014 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	B	B	G	G	114	108	106	108	G	108	106	106	92	92	92	88	84	98	94	90
2	B	B	B	B	B	98	G	G	100	116	G	104	G	104	106	106	120	104	B	94	90	B	B	96	
3	B	B	B	B	B	B	106	104	106	106	104	106	108	102	102	104	G	118	100	100	100	B	B	B	
4	B	B	B	B	B	B	148	G	G	124	118	112	106	104	114	130	126	126	88	82	B	B	B	B	
5	B	B	94	B	B	B	G	G	126	124	G	108	110	104	104	102	122	130	114	92	B	B	98	B	
6	B	B	B	98	B	B	140	150	142	120	126	116	114	102	104	102	G	142	96	104	B	102	104	B	
7	B	B	B	B	116	124	170	G	118	108	106	108	106	106	100	96	106	116	B	100	94	96	92	94	
8	B	B	B	94	B	B	100	G	102	102	98	106	104	100	156	G	124	124	104	B	B	B	88	B	
9	100	B	B	B	B	B	G	G	G	G	116	114	112	G	G	104	126	114	108	94	96	92	96	96	
10	B	B	B	B	B	B	144	G	126	106	106	102	106	114	96	114	106	96	98	96	98	92	96	92	
11	94	94	90	B	B	B	160	G	G	G	104	G	106	106	116	114	108	B	94	90	86	88	100	98	
12	92	94	88	86	86	B	134	G	100	100	100	98	92	100	92	92	102	B	B	100	100	88	86	86	
13	90	90	B	B	B	B	144	G	118	108	106	122	106	98	118	G	G	B	100	96	94	94	B	B	
14	B	B	B	B	B	B	132	128	108	106	104	100	100	102	104	G	G	108	92	B	B	B	B	B	
15	B	106	96	96	B	102	102	G	114	126	G	100	104	104	108	G	106	B	90	B	B	B	B	B	
16	B	96	100	100	102	100	134	164	112	102	104	98	102	98	126	118	112	108	100	98	94	98	104	102	
17	B	B	B	B	B	94	154	150	100	118	126	106	104	104	102	102	120	B	100	100	98	98	96	100	
18	B	102	B	B	B	B	138	G	102	114	94	102	100	G	122	114	110	104	106	B	108	100	96	B	
19	B	90	90	98	94	B	150	126	114	112	104	96	98	104	G	G	104	106	100	B	96	100	98	98	
20	98	90	B	B	B	B	152	G	112	104	104	98	102	108	118	90	G	B	108	100	102	100	100	94	
21	96	94	94	110	112	B	154	146	102	100	104	102	102	92	88	G	G	B	B	B	B	B	108	106	
22	102	B	B	106	B	96	150	140	122	106	102	B	106	96	98	98	104	118	108	100	102	98	98	B	
23	B	B	B	B	B	B	146	144	112	114	G	102	100	G	102	102	96	96	94	90	94	94	92	94	
24	B	B	B	B	B	B	138	106	104	108	104	104	104	96	108	116	104	120	108	B	104	B	B	98	
25	92	90	B	90	84	92	148	110	108	106	108	102	100	98	96	92	96	96	104	102	98	98	96	96	
26	B	96	94	B	94	94	B	G	104	102	102	102	100	96	92	G	G	B	B	104	B	B	98	98	
27	B	B	98	B	B	B	154	106	106	104	104	102	106	100	102	102	96	100	98	98	96	96	90	90	
28	94	94	94	94	94	B	150	142	126	G	104	104	108	96	116	94	128	110	B	104	94	94	94	94	
29	96	96	98	88	92	90	B	G	106	100	102	102	94	98	98	98	98	96	102	90	90	88	94	B	
30	B	B	B	B	B	B	162	G	118	106	108	G	98	96	92	94	94	94	92	92	92	96	94	92	
31	100	B	B	B	B	B	B	G	G	G	106	106	108	104	102	102	102	102	104	98	96	100	100	112	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	11	13	11	11	9	9	23	13	27	28	27	28	29	28	29	24	24	23	25	24	23	21	24	20	
MED	96	94	94	96	94	96	148	140	112	106	104	103	104	102	104	102	106	108	100	98	96	96	96	96	
U Q	100	96	98	100	107	101	154	148	118	114	108	108	106	104	115	110	120	118	105	100	100	99	99	98	
L Q	92	90	90	90	89	93	134	118	104	104	104	102	100	98	98	97	100	96	94	92	94	93	94	93	

OCT.2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									C 1	L 2	L 1	L 2		L 2	L 2	L 2	L 2	L 2	F 2	F 3	F 2	F 2	F 2	F 1	
2					F 1				L 2	CL 11		L 2		L 1	L 1	L 1	C 1	L 2		F 1	F 1			F 1	
3						L 1	L 1	L 1	L 1	L 1	L 1	L 1	L 2	L 2	L 2	L 2		C 2	F 2	F 1	F 1				
4					H 2				C 1	C 1	C 1	L 1	L 1	CL 11	CL 12	CL 13	CL 22	CL 22	F 3	F 1					
5		F 1							C 1	C 1	L 2	C 1	L 2	L 1	L 1	L 1	CL 22	CL 32	FF 33	F 2			F 1		
6			F 1			HL 22	HL 22	HL 22	CL 21	CL 22	C 2	C 2	L 2	L 2	L 2	L 1		H 2	L 1	F 2		F 1	F 1		
7				F 1	F 1	H 1		C 1	L 1	L 2	L 2	L 2	L 2	L 2	L 2	L 2	L 2	C 1		F 3	F 3	F 3	F 3	F 2	
8			F 1			L 3		L 2	L 1	L 2	L 2	L 1	L 2	HL 12			C 1	C 2	L 4				F 1		
9	F 2										C 1	C 1	C 1			L 1	C 1	C 3	F 3	F 3	F 3	F 3	F 2	F 2	
10						H 1		C 2	L 2	L 2	L 1	L 1	C 2	L 1	C 2	L 1	L 2	L 2	L 2	F 2	F 2	F 2	F 2	F 2	
11	F 2	F 2	F 2			H 1					L 1		L 1	L 2	C 1	C 1	L 1		F 3	F 2	F 2	F 2	F 1	F 1	
12	F 2	F 1	F 2	F 2	F 1	H 1		L 3	L 2	L 2	L 2	L 2	L 2	L 2	L 2	L 2	L 1		F 1	F 2	F 2	F 4	F 3		
13	F 2	F 1				H 2		C 2	L 1	L 1	L 1	L 1	L 1	L 1	L 1				F 1	F 2	F 1				
14						C 2	C 2	L 1	L 2	L 1	L 2	L 1	L 1	L 2				L 2	F 1						
15		F 2	F 2	F 2		F 2	L 3		CL 11	L 1		L 1	L 1	L 1	L 2		L 2		F 1						
16		F 1	F 1	F 1	F 1	F 1	H 2	H 1	C 1	L 1	L 2	L 2	L 1	L 1	C 1	C 2	C 2	L 2	F 3	F 3	F 3	F 3	F 3	F 2	
17					F 2	H 3	F 1	L 2	CL 22	C 1	L 2	L 2	L 2	L 1	L 2	L 2	CL 22		F 1	F 4	F 2	F 2	F 2	F 1	
18		F 2				H 3		L 2	C 1	L 2	L 2	L 1		CL 11	CL 11	CL 11	L 2	L 2	F 3		F 2	F 4	F 6		
19		F 2	F 2	F 2	F 1	H 1	C 1	C 1	C 1	L 2	L 1	L 2	L 2	L 2			L 2	L 2	F 3		F 1	F 3	F 3	F 5	
20	F 3	F 1				H 2		C 1	L 1	L 2	L 1	L 1	L 1	L 1	C 1	L 2			F 5	F 3	F 4	F 3	F 3	F 4	
21	F 4	F 2	F 2	F 1	F 1	H 2	H 1	L 2	L 2	L 2	L 1	L 2	L 2	L 4									F 3	F 2	
22	F 2			F 1		F 1	HL 11	H 2	C 1	L 2	L 1		L 1	L 1	L 2	L 2	L 2	C 2	F 4	F 5	F 2	F 3	F 2		
23						H 3	H 2	C 1	C 1		L 1	L 1		L 1	L 2	L 3	L 3	L 4	F 6	F 3	F 2	F 2	F 2	F 2	
24							H 1	L 2	L 2	L 2	L 2	L 2	L 1	L 2	L 1	L 1	C 3	CL 32	F 3		F 2			F 2	
25	F 3	F 2		F 2	F 4	F 2	H 1	C 2	C 1	L 1	L 1	L 2	L 2	L 2	L 2	L 2	L 3	L 3	F 6	F 3	F 4	F 2	F 3	F 2	
26		F 2	F 3		F 3	F 1			L 2	L 3	L 2	L 2	CL 12	L 2	L 2					F 2			F 2	F 1	
27			F 1				H 2	L 2	L 2	L 2	L 2	L 2	L 1	L 1	L 2	L 2	L 2	L 2	F 1	F 3	F 4	F 4	F 3	F 3	
28	F 2	F 2	F 2	F 2	F 2		H 1	H 2	C 1		L 1	L 2	L 2	L 1	C 1	L 3	C 2	L 3		F 1	F 3	F 7	F 2	F 1	
29	F 2	F 2	F 1	F 3	F 1	F 1			L 2	L 1	L 2	L 2	L 2	L 2	L 2	L 2	L 3	L 4	F 2	F 4	F 2	F 2	F 2		
30						H 1		C 2	L 2	L 2		L 2	L 2	L 3	L 3	L 4	L 3	L 4	F 4	F 3	F 3	F 4	F 3	F 4	
31	F 1								L 2	L 1	L 2	L 1	L 2	L 2	L 2	L 2	L 1	L 3	F 3	F 3	F 2	F 1	F 2	F 1	
	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																									

OCT.2014 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

LAT.31°12.0'N LON.130°37.0'E KSWEPT 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 66	X 68	X 55	X 56	X 55	X 54														X 108	X 82	X 68	X 62	X 65	
2	X 62	X 63	X 56	X 56	X 55	X 54														X 96	X 76	X 67	X 62	X 58	
3	X 58	X 58	X 54	X 55	X 54	X 54														X 113	X 94	X 83	X 72	X 68	
4	X 61	X 58	X 53	X 53	X 50	X 46														X 94	X 74	X 64	X 63	X 63	
5	X 63	X 63	X 64	X 62	X 58	X 48													X 98	X 81	X 74	A	X 68	X 70	
6	X 68	X 68	X 65	X 60	X 59	X 59							C	C	C	C	C		X 102	X 90	X 78	X 73	X 68	X 69	
7	X 64	X 60	X 59	X 58	X 55	X 53				C	C	C	C	C	C	C			X 98	X 80	X 70	X 75	X 74	X 70	
8	X 68	X 66	X 63	X 59	X 53	X 50														X 103	X 81	X 70	X 69	X 64	X 63
9	X 62	X 64	X 64	X 46	X 40	X 42														X 105	X 78	X 70	X 68	X 62	X 61
10	X 62	X 65	X 71	X 61	X 37	X 32														X 100	X 76	X 60	X 64	X 64	X 63
11	X 67	X 67	X 56	X 46	X 42	X 40														X 94	X 78	X 76	X 79	X 75	X 65
12	X 61	X 59	X 55	X 52	X 47	X 48														X 124	X 115	X 105	X 110	X 107	X 94
13	X 92	X 92	X 80	X 65	X 49	X 41														X 99	X 83	X 72	X 67	X 64	X 57
14	X 56	X 53	X 52	X 49	X 50	X 48														X 106	X 76	X 64	X 63	X 55	X 55
15	X 55	X 54	X 52	X 51	X 50	X 49														X 102	X 78	X 72	X 68	X 60	X 60
16	X 61	X 59	X 59	X 58	X 48	X 36														X 79	X 60	X 64	X 64	X 58	X 54
17	X 54	X 57	X 53	X 48	X 46	X 40														X 96	X 82	X 72	X 70	X 65	X 60
18	X 60	X 61	X 56	X 49	X 42	X 41														X 108	X 84	X 63	X 64	X 63	X 60
19	X 58	X 54	X 59	X 53	X 51	X 50														X 118	X 95	X 91	X 83	X 65	X 56
20	X 54	X 54	X 53	X 51	X 48	X 42														X 102	X 85	X 77	X 61	X 60	X 58
21	X 60	X 54	X 48	X 46	X 44	X 45														X 89	X 81	X 74	X 62	X 57	X 54
22	X 54	X 51	X 51	X 52	X 50	X 42														X 92	X 82	X 80	X 81	X 63	X 52
23	X 50	X 50	X 48	X 45	X 45	X 46														X 112	X 92	X 76	X 72	X 64	X 59
24	X 58	X 55	X 52	X 43	X 40	X 41														X 104	X 89	X 86	X 84	X 72	X 53
25	X 49	X 46	X 47	X 46	X 46	X 48														X 114	X 93	X 75	X 68	X 68	X 66
26	X 63	X 60	X 50	X 43	X 38	X 41														X 98	X 86	X 92	X 84	X 67	X 64
27	X 61	X 54	X 55	X 52	X 45	X 44														X 114	X 98	X 92	X 84	X 64	X 64
28	X 60	X 51	X 44	X 43	X 42	X 43														X 98	X 85	X 80	X 72	X 68	X 61
29	X 62	X 52	X 50	X 48	X 46	X 46														X 108	X 82	X 72	X 72	X 66	X 61
30	X 58	X 46	X 40	X 42	X 43	X 43	X 46													X 96	X 82	X 80	X 76	X 69	X 56
31	X 48	X 45	X 44	X 45	X 46	X 44	X 47													X 113	X 92	X 92	X 82	X 65	X 54
	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	31	31	31	31	31	31	2													27	31	31	30	31	31
MED	X 61	X 58	X 54	X 51	X 47	X 45	X 46													X 102	X 84	X 76	X 71	X 64	X 61
U Q	X 63	X 63	X 59	X 56	X 51	X 49														X 108	X 93	X 82	X 81	X 68	X 65
L Q	X 56	X 53	X 50	X 46	X 43	X 41														X 98	X 81	X 72	X 67	X 62	X 56

OCT.2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

LAT. 31°12.0'N LON. 130°37.0'E KSWEPT 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	60	62	49	50	49	48	58	92	101	105	99	116	110	110	115	114	110	102	109	102	76	62	56	58
2	56	57	50	50	49	48	57	84	90	99	96	108	115	111	102	103	109	113	114	90	70	61	56	52
3	52	52	48	49	48	48	55	86	106	99	90	95	116	121	123	117	118	116	111	107	88	77	66	62
4	55	52	47	47	44	40	47	80	97	105	97	104	110	118	114	116	108	113	103	88	68	58	57	57
5	57	57	58	56	52	42	45	71	92	100	93	110	112	116	116	111	108	102	92	75	68	A	62	64
6	62	62	59	54	53	53	61	97	98	101	102	114	C	C	C	C	C	108	96	84	72	67	62	63
7	58	54	53	52	49	47	58	95	111	C	C	C	C	C	C	C	118	110	92	74	64	69	68	64
8	62	60	57	53	47	44	52	93	103	103	112	118	130	128	131	128	104	102	97	75	64	63	58	57
9	56	58	58	40	34	36	43	86	86	100	111	118	119	124	126	129	118	110	99	72	64	62	56	55
10	56	59	64	55	31	26	37	81	103	118	126	119	118	129	141	129	122	110	94	70	54	58	58	57
11	61	61	50	40	36	34	40	73	94	107	110	107	116	130	135	124	112	106	88	72	70	73	69	59
12	55	53	49	46	41	42	50	82	91	110	124	113	130	143	158	165	149	128	118	109	99	104	101	88
13	86	86	74	59	43	35	42	75	95	100	101	102	116	128	136	134	124	106	93	77	66	61	58	51
14	50	47	46	43	44	42	49	71	86	100	112	116	134	136	143	138	129	115	100	69	58	57	49	49
15	49	48	46	45	44	43	50	66	77	86	110	153	137	118	129	120	116	110	96	72	66	62	54	54
16	55	53	53	52	42	30	37	76	94	100	100	106	116	116	126	120	115	92	73	54	58	58	52	48
17	48	51	47	42	40	34	40	75	90	96	100	99	118	117	122	137	131	108	90	76	66	64	59	54
18	54	55	50	43	36	35	40	68	90	99	113	110	116	118	122	116	106	98	102	78	57	58	57	54
19	52	48	53	47	45	44	50	83	109	118	127	134	127	140	144	138	127	118	112	89	86	77	59	50
20	48	48	47	45	42	36	39	82	107	96	102	116	115	124	130	135	117	105	96	79	70	55	54	52
21	54	48	42	40	38	39	43	89	121	121	108	113	114	114	124	118	104	93	83	75	68	56	51	48
22	48	45	45	46	44	36	40	72	120	112	110	R	132	118	124	118	103	92	86	76	74	75	57	46
23	44	44	42	39	39	40	43	91	109	120	122	118	128	138	149	150	143	122	106	86	70	66	58	53
24	52	49	46	37	34	35	37	84	114	99	113	118	120	128	129	124	111	106	98	83	80	78	66	47
25	43	40	41	40	40	42	45	100	120	130	125	125	124	130	134	138	126	111	108	86	69	62	62	60
26	57	54	44	37	32	35	40	88	108	107	125	125	120	134	141	138	120	108	92	80	86	78	61	58
27	55	48	49	46	39	38	41	85	126	132	139	138	130	144	147	138	130	118	106	92	86	78	58	58
28	54	45	38	37	36	37	44	84	109	119	114	118	122	120	120	128	121	107	92	79	74	66	62	55
29	56	46	44	42	40	40	46	86	107	110	118	120	116	132	132	134	122	112	102	76	66	66	60	55
30	52	40	34	36	37	37	40	78	96	98	124	126	116	130	126	112	102	100	90	76	74	70	63	50
31	42	39	38	39	40	38	41	76	98	96	120	118	116	122	134	146	136	126	106	86	86	76	59	48
	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	31	31	31	31	31	31	31	31	31	30	30	29	29	29	29	29	30	31	31	31	31	30	31	31
MED	55	52	48	45	41	39	43	83	101	102	112	116	118	124	129	128	118	108	97	78	70	65	58	55
U Q	57	57	53	50	45	43	50	88	109	112	122	120	128	131	138	138	126	113	106	86	76	75	62	58
L Q	50	47	44	40	37	35	40	75	92	99	101	109	116	118	122	118	109	102	92	75	66	61	56	50

OCT. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	U L	L	L	L	L	L	L							
2									L	L	L	L	L	L	L	L	L	L						
3									L	L	L	L	L	L	L	L	L	L						
4									L	L	U L	L	L	L	L	L	L							
5									L	L	L	L	L	L	L	A								
6								L	L	L	L	U L	C	C	C	C	C							
7									L	C	C	C	C	C	C	C	L							
8									L	L	L	L	L	L	L	L								
9											L	L	L	L	L	L	L	L						
10									L	L	L	L	L	L	L	L	L							
11										L	L	L	L	L	L	L	L	L						
12									L	L	L	L	L	L	L	L	L	L						
13										L	L	U L	L	L	L	L	L	L						
14								240		U L	L	U L	L	L	L	L	L	L						
15									L	L	L	L	L	L	L	L	L	L						
16								236	L	L	L	U L	L	L	U L	L	A	A						
17										L	L	L	L	L	L	L	L	L						
18								232		L	L	L	L	L	U L	L	L	L						
19										L	L	L	L	L	L	L	L							
20								224			L	L	L	L	L	L	L							
21									L	L	L	L	L	L	L	L	L							
22									L	L	L		L	L	L	L	L							
23										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							
26										L	L	L	L	L	L	L	L							
27										L	L	L	L	L	L	L	L							
28										L	L	L		L	L	L	L							
29										L	L	L	L	L	L	L	L	A						
30								232		L	L	L	L	L	L	A	L	L						
31								232		L	L	U 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								6		1	2	6				2								
MED								232		U L	U L	U L			U L									
U Q								236			500													
L Q								232			488													

OCT.2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	244	308	U A	U A	A	A	A	A	340	316	260	U R					
2							A	248	308	U A	348	R	A	R	R	380	364	304	252	A				
3							B	260	312	A	352	U R	R	R	R	368	344	320	256	A				
4							B	256	300	336	368	R	R	U R	372	372	364	340	292	232	B			
5							B	212	300	332	U R	U R	364	U A	368	372	A	A	A					
6							B	228	292	332	352	R	R	C	C	C	C	C	248					
7							B	208	292	A	C	C	C	C	C	C	C	292	232					
8							B	232	300	340	368	376	376	368	372	340	296	228						
9							B	232	304	332	352	B	368	364	336	336	308	228						
10							B	228	292	336	336	364	R	U R	364	348	336	272	220					
11							A	216	284	324	352	360	U A	364	364	344	328	280	204					
12							B	216	292	332	A	U R	364	368	364	364	332	304	220					
13							B	204	276	324	340	356	364	360	340	328	292	232						
14							B	220	288	316	328	356	356	348	360	332	276	216						
15							A	232	292	328	A	A	B	376	364	340	300	212						
16							B	212	280	320	340	U A	336	376	372	356	336	292	U A					
17							B	228	288	324	348	U A	360	368	372	R	348	300	224					
18							B	200	288	316	344	R	348	U A	332	336	332	288	A					
19							B	224	280	324	340	U A	A	U R	364	B	R	R	316	236				
20							B	208	272	308	332	A	A	A	A	364	344	288	224					
21							B	212	292	328	A	A	A	A	A	A	A	A	A					
22							A	220	280	316	348	B	B	R	376	364	332	288	224					
23							B	224	280	316	348	364	R	A	A	A	A	A	A					
24							A	212	260	300	A	A	R	364	A	A	A	A	A					
25							B	R	328	U A	U A	A	A	A	A	360	336	316	224					
26							B	220	288	A	A	368	376	372	372	U A	324	284	192					
27							B	232	296	336	376	A	372	A	A	336	292	216						
28							B	212	284	U A	U A	344	B	A	348	328	288	212						
29							A	232	292	324	340	A	R	A	A	A	A	A	A					
30								200	284	320	344	B	364	372	364	332	U A	292	A					
31								196	280	316	B	R	360	348	344	328	U A	308	256					
	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	31	29	24	18	17	18	22	23	25	23	1					
MED								220	292	324	346	360	368	366	362	336	292	224	U R	176				
U Q								232	300	336	354	U R	364	372	372	364	340	304	232					
L Q								212	280	316	U A	A	364	364	348	332	288	216						

OCT.2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A	J A	J A	J A	21	20	E B	25	32	35	38	J A	56	37	33	G	G	30	21	J A	J A	J A	J A	J A
2	J A	E B	E B	E B	E B	E B	E B	J A	27	34	G	G	35	G	G	G	30	34	G	J A	J A	J A	J A	J A
3	J A	J A	J A	J A	E B	E B	E B	E B	27	33	G	G	G	G	25	25	23	34	30	J A	J A	J A	J A	J A
4	E B	E B	E B	E B	E B	E B	E B	J A	J A	J A	G	26	42	38	G	G	G	25	E B	E B	E B	E B	E B	
5	E B	J A	J A	E B	E B	E B	E B	E B	26	32	36	38	38	41	40	43	52	79	40	66	107	53	76	28
6	J A	J A	J A	E B	E B	E B	E B	20	25	32	36	30	G	C	C	C	C	C	G	J A	J A	J A	J A	J A
7	E B	E B	E B	E B	E B	E B	J A	J A	C	C	C	C	C	C	C	C	C	33	31	J A	J A	J A	E B	E B
8	18	E B	E B	E B	17	18	20	26	34	36	G	22	26	27	39	36	39	31	J A	J A	E B	J A	J A	
9	21	18	J A	E B	E B	E B	E B	26	32	34	G	E B	38	25	37	G	G	29	32	46	28	42	27	18
10	E B	J A	J A	E B	E B	E B	E B	25	32	37	38	G	24	35	34	28	38	30	31	22	22	18	J A	E B
11	J A	J A	J A	J A	E B	J A	43	26	32	34	41	40	38	29	30	G	G	G	23	17	17	20	21	28
12	J A	J A	J A	J A	E B	E B	E B	29	45	52	48	34	22	G	G	G	G	22	23	J A	J A	J A	J A	J A
13	J A	J A	J A	J A	E B	E B	E B	26	32	27	31	31	41	26	34	25	33	28	25	27	16	16	18	16
14	E B	E B	E B	E B	E B	E B	E B	24	26	34	36	38	29	30	38	G	G	29	27	23	23	19	20	24
15	18	E B	E B	E B	E B	E B	E B	G	31	34	32	34	E B	40	G	G	22	G	J A	J A	J A	J A	J A	E B
16	E B	J A	J A	J A	18	18	16	23	30	33	28	35	41	38	21	51	50	85	24	16	31	17	24	19
17	19	J A	E B	E B	E B	E B	E B	24	31	36	42	40	39	22	G	G	36	G	J A	J A	J A	J A	J A	J A
18	E B	E B	E B	E B	E B	E B	E B	24	33	38	42	44	41	40	40	35	50	45	47	20	38	20	20	17
19	J A	J A	J A	E B	E B	E B	E B	G	32	36	39	39	39	G	E B	G	32	27	32	30	25	27	31	26
20	J A	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	G	G	G	J A	J A	J A	J A	J A	J A
21	J A	J A	J A	J A	E B	E B	E B	26	36	38	37	43	36	57	40	69	68	73	44	46	19	16	16	16
22	J A	18	J A	J A	J A	J A	J A	G	26	30	20	37	76	44	38	24	24	30	24	18	19	18	28	21
23	J A	J A	J A	J A	J A	18	21	24	30	33	G	G	26	42	37	35	32	31	17	22	22	20	21	21
24	21	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	40	G	J A	J A	J A	J A	J A	J A	J A	E B	J A	J A	J A
25	20	J A	J A	J A	J A	E B	E B	G	39	56	47	44	72	55	41	38	37	38	39	25	24	29	30	96
26	J A	J A	E B	E B	E B	18	20	24	30	J A	J A	G	33	39	J A	J A	35	30	J A	52	21	23	16	22
27	J A	E B	18	21	E B	E B	E B	26	36	38	36	36	33	45	44	35	25	23	J A	J A	J A	J A	J A	J A
28	J A	J A	J A	J A	E B	E B	E B	26	32	J A	J A	G	E B	49	38	25	18	30	24	J A	J A	J A	J A	J A
29	J A	J A	E B	E B	E B	J A	J A	J A	43	35	40	39	40	110	40	41	72	72	39	42	28	19	21	16
30	E B	E B	E B	E B	E B	E B	E B	22	32	36	43	E B	44	42	38	29	45	40	28	31	22	33	30	28
31	J A	J A	J A	J A	J A	19	17	22	29	33	38	G	G	G	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
	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	31	31	31	31	31	31	31	31	31	30	30	30	29	29	29	29	30	31	31	31	31	31	31	31
MED	J A	J A	19	18	17	E B	E B	16	25	32	36	38	36	38	38	G	35	32	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	26	34	37	41	43	42	42	40	38	37	38	32	28	28	29	28	26
L Q	E B	E B	E B	E B	E B	E B	E B	24	31	34	G	G	G	G	G	G	G	G	J A	J A	J A	18	19	18

OCT.2014 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	18	18	20	18	E	B	E	B	E	B	E	B	U	Y		U	Y	U	Y	G	G									
2	18	E	B	E	B	E	B	E	B	E	B	E	B	U	Y	U	Y	G	G	G	30	31								
3	18	17	16	16	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	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	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	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	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	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	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	E	B				
11	16	21	17	17	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B				
12	17	16	16	16	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	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	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	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	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	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	E	B				
19	25	30	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			
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	E	B	E	B		
21	22	24	17	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		
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	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	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	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	E	B	E	B		
26	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	E	B	E	B	
27	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	E	B	E	B	
28	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	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	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	E	B	E	B	E	B
31	20	20	16	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	E	B
	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	31	31	31	31	31	31	31	31	31	30	30	30	29	29	29	29	30	31	31	31	31	31	31	31	31					
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	E	B	E	B	E	B
UQ	18	16	16	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	E	B
LQ	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B

OCT.2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

$\begin{matrix} H \\ D \end{matrix}$	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	16	16	16	16	16	16	16	16	19	20	20	29	30	29	18	19	20	18	16	16	16	16	16	16	12
2	16	18	16	16	16	16	16	16	17	21	28	22	34	28	30	20	16	16	11	16	16	15	16	16	16
3	16	16	16	16	16	16	16	17	16	20	21	20	21	21	19	16	17	14	15	16	16	16	16	16	16
4	16	16	16	16	16	16	16	16	16	17	28	20	22	25	21	16	16	16	17	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	16	16	16	24	21	26	20	20	16	16	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	20	18	22	C	C	C	C	C		12	16	16	16	16	16	16
7	16	16	16	16	16	16	16	14	16	C	C	C	C	C	C	C		16	16	16	16	16	16	16	16
8	16	16	16	16	16	16	16	16	16	18	21	20	18	20	19	16	16	16	16	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	18	18	20	44	21	19	20	19	21	16	15	15	16	16	16	16	16
10	16	16	16	16	16	16	16	16	16	16	18	21	21	20	20	19	16	15	14	16	16	16	16	16	16
11	16	16	16	16	16	16	16	14	16	16	22	25	24	22	20	19	16	16	16	16	16	16	16	16	16
12	16	16	16	16	16	16	16	16	16	16	18	18	16	24	21	16	16	16	16	16	16	16	16	16	16
13	16	16	16	16	16	15	16	16	16	16	18	20	20	19	16	16	16	14	12	16	16	16	16	16	16
14	16	16	16	16	16	16	16	16	16	16	20	20	19	20	20	18	17	16	16	16	16	16	16	16	16
15	16	16	16	16	16	16	16	16	20	25	26	26	40	32	26	17	18	14	16	16	16	16	16	16	16
16	16	16	14	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
17	16	16	16	16	16	16	16	16	16	16	16	20	17	16	19	18	17	16	13	16	16	16	16	16	16
18	16	16	16	16	16	16	16	16	14	17	22	20	18	20	19	16	18	16	16	16	16	16	16	16	16
19	16	16	16	16	16	16	16	16	16	20	20	25	26	24	62	37	20	16	13	16	16	16	16	16	16
20	16	16	16	16	16	16	16	14	16	19	17	20	22	26	21	19	19	14	13	16	16	16	16	16	16
21	16	16	16	16	16	16	16	16	20	18	18	22	25	19	19	16	13	15	16	16	16	16	16	16	16
22	16	16	16	16	16	16	16	16	16	16	16	76	44	17	16	16	16	16	16	16	16	16	16	16	16
23	16	16	16	16	16	16	16	16	16	16	18	20	20	20	20	17	16	15	16	16	16	16	16	16	16
24	16	16	16	16	16	16	16	16	16	16	18	21	24	24	20	20	16	16	14	16	16	16	16	16	16
25	16	16	16	16	16	16	16	23	22	22	20	21	22	21	24	21	19	16	16	16	16	16	16	16	16
26	16	16	16	16	16	16	16	16	16	16	16	20	20	16	16	16	16	16	16	16	16	16	16	16	17
27	16	16	16	16	16	16	16	14	16	16	24	30	21	25	21	20	20	16	16	16	16	16	16	16	16
28	16	16	16	16	16	16	16	15	16	16	20	21	49	32	18	16	16	16	16	16	16	16	16	16	16
29	16	16	16	16	16	16	16	16	16	16	20	20	23	29	21	17	18	14	16	16	16	16	16	16	16
30	16	16	16	16	16	16	16	16	16	21	20	44	22	20	18	19	16	16	16	16	16	16	16	16	16
31	16	16	16	16	16	16	16	16	16	16	38	20	20	21	17	16	16	16	14	16	16	16	16	16	16
	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	31	31	31	31	31	31	31	31	31	30	30	30	29	29	29	29	30	31	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	16	16	16	20	20	22	21	20	17	16	16	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	20	21	25	24	25	21	19	18	16	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	16	18	20	20	20	18	16	16	15	14	16	16	16	16	16	16

OCT.2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

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		294	321	288	278	283	288	303	343	347	346	R	312	323	313	302	306	317	316	314	326	340	322	301	283	290					
2		283	300	287	276	270	286	322	370	354	343	320	U	R	317	314	306	306	313	322	338	350	311	296	298	278					
3		292	296	280	280	278	282	310	349	360	365	335	311	309	R	320	R	308	312	323	320	318	R	340	286	296	308				
4		304	304	294	308	311	286	313	358	346	344	330	R	309	R	318	R	308	312	R	314	324	330	328	299	306	272	279			
5		291	294	311	316	340	336	310	342	334	344	311	U	R	R	320	R	310	R	C	C	C	C	R	296	A	299	290			
6		291	293	296	300	292	297	316	351	344	355	325	U	R	C	C	C	C	C	C	C	C	C	325	323	322	309	299	302	307	
7		308	287	295	308	303	292	319	347	350		C	C	C	C	C	C	C	C	C	C	C	321	338	331	321	289	295	305	304	
8		316	316	312	309	321	302	311	352	368	322	324	316	U	R	U	R	306	R	321	314	332	336	331	300	306	300	273			
9		275	299	344	337	291	268	302	363	353	332	313	318	312	302	301	311	U	R	324	325	328	313	297	309	286	270				
10		277	289	330	356	358	276	296	350	335	333	335	322	U	R	293	302	U	R	325	336	346	341	285	289	296	296				
11		306	345	359	311	317	321	322	358	344	346	334	316	306	312	317	320	U	R	321	330	332	305	291	303	323	304				
12		303	305	312	324	306	321	332	359	345	331	339	316	U	R	292	308	316	R	321	323	293	H	270	266	302	332	318			
13		303	R	300	H	301	345	313	323	362	361	354	345	311	308	311	315	R	R	321	325	333	347	329	309	320	306	296			
14		293	296	321	307	314	293	344	351	361	333	330	319	R	R	R	R	R	R	R	R	R	R	324	336	335	323	292	311	291	289
15		287	293	286	293	302	271	323	365	331	312	296	315	320	300	309	322	R	328	337	343	319	306	302	290	284					
16		295	294	305	327	350	301	316	357	363	341	326	318	313	305	316	325	R	339	352	345	301	301	294	300	290					
17		292	318	337	315	329	293	316	355	368	345	353	305	317	302	309	317	R	335	342	338	312	286	299	304	303					
18		301	320	334	323	314	313	317	349	330	335	337	326	316	313	317	320	U	R	333	324	338	343	282	291	307	310				
19		306	286	320	305	268	264	295	335	339	340	326	R	323	U	R	314	R	315	R	R	R	327	331	305	294	316	315	281		
20		285	295	299	320	307	269	295	351	366	345	317	326	309	305	306	323	R	330	331	330	323	305	299	291	280					
21		315	318	306	291	253	271	293	338	351	349	333	327	U	R	326	307	313	330	333	328	320	311	331	309	311	296				
22		290	283	274	289	340	273	287	314	358	338	319	R	322	310	314	321	R	320	331	324	316	302	333	328	311					
23		288	310	300	287	270	271	296	348	358	331	335	317	U	R	U	R	300	306	U	R	R	295	295	289	302	307	297			
24		303	307	311	317	295	271	287	342	361	354	329	321	307	307	321	321	U	R	323	320	320	309	303	319	341	327				
25		300	294	284	269	266	275	289	342	350	336	R	J	R	J	U	R	304	302	301	311	312	316	323	328	304	299	310	280		
26		306	315	312	321	266	267	310	356	360	347	331	330	U	R	311	300	307	R	310	319	322	316	302	302	317	310	301			
27		304	286	291	300	302	275	283	332	329	340	329	323	R	305	300	301	U	R	300	309	320	310	265	R	307	309	297	300		
28		327	300	296	271	267	270	296	355	340	335	333	311	R	313	304	307	U	R	308	323	318	323	313	300	292	317	296			
29		319	313	302	282	301	277	302	344	359	339	330	322	U	R	304	302	R	308	314	R	327	320	330	313	296	314	310	313		
30		339	331	279	274	289	272	307	360	359	330	327	U	R	312	321	320	U	R	322	319	326	337	315	310	310	332	333			
31		317	299	292	296	308	303	312	346	364	333	338	338	U	R	319	308	307	U	R	319	R	329	326	313	312	322	329	306		
		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		31	31	31	31	31	31	31	31	31	30	30	29	27	29	29	28	29	31	31	31	31	31	30	31	31					
MED		301	300	300	305	302	282	310	351	353	340	330	318	312	305	308	316	321	327	330	315	301	302	305	296						
U Q		306	315	312	317	317	301	317	358	361	346	335	323	317	310	314	321	326	332	337	328	309	311	315	307						
L Q		291	294	291	287	278	271	296	343	344	333	320	316	309	R	301	306	312	R	315	322	323	309	292	299	296	284				

OCT.2014 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	U L 411	L 418	L	L	L	L	L							
2									L	L	L	L	L	L	L	L	L	L						
3									L	L	L	L	L	L	L	L	L	L						
4									L	L	U L 402	L	L	L	L	L	L							
5									L	L	L	L	L	L	L	A								
6								L	L	L	L	U L 376	C	C	C	C	C							
7									L	C	C	C	C	C	C	C	L							
8									L	L	L	L	L	L	L	L								
9											L	L	L	L	L	L	L	L						
10									L	L	L	L	L	L	L	L	L							
11										L	L	L	L	L	L	L	L	L	505					
12									L	L	L	L	L	L	L	L	L	L	496					
13										L	L	U L 401	L	L	L	L	L	L						
14								A	U	L	L	U L 406	L	L	L	L	L	L						
15									L	L	L	L	L	L	L	L	L	L	479					
16							480		L	L	L	U L 412	L	L	U L 370	L	A	A						
17										L	L	L	L	L	L	L	L	L						
18								A		L	L	L	L	L	U L 368	L	L	L						
19										L	L	L	L	L	L	L	L							
20								A			L	L	L	L	L	L	L							
21									L	L	L	L	L	L	L	L	L							
22									L	L	L		L	L	L	L	L							
23										L	L	L	L	L	L	L	L	L	494					
24									L	L	L	L	L	L	L	L	L	L						
25										L	L	L	L	L	L	L	L							
26										L	L	L	L	L	L	L	L							
27										L	L	L	L	L	L	L	L							
28										L	L	L		L	L	L	L							
29										L	L	L	L	L	L	L	L	A						
30								482			L	L	L	L	L	L	A	L	466					
31								496			L	L	U L 393	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			1	2	6			2			5					
MED								482			U L 395	U L 406	U L 404			U L 369			494					
U Q								496				412							500					
L Q								480				U L 393							472					

OCT.2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT.2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									224	234	234 ^H	246	252	262	290	270	248								
2									226	220	242	254	260	266	240	280	266	242							
3									228	218	226	234	284	280	276	280	266	240							
4									232	234	236	258	286	282	280	262	244								
5									232	230	240	266	284	284	272	244									
6								220	214	228	246	258	C	C	C	C	C								
7									232	C	C	C	C	C	C	C	234								
8									216	226	228	234 ^H	244	274	280	248									
9											244	242	254	276	276	260	242	230							
10									228	230	238	250	274	288	282	254	244								
11										226	234	242	292	270	260	238	236	218							
12									216	240	236	240	270	284	278	256	232	214							
13										228	236	230	282	266	262	246	224								
14								204		242	242	236	246	262	262	250	234								
15									210	234	282	268	224	292	268	244	226	216							
16									222	222	228	230	238	276	282	270	250	236	276						
17										234	230	226	274	292	282	260	234								
18									210		218	240	252	260	258	258	248	226							
19										226	248	248	236	244		250									
20									224		230	242	252	278	264	244									
21										232	226	230	242	244	284	272	254								
22										230	216	240		240	254	256	236								
23											250	228	234	256	270	264	254	228	208						
24										220	216	246	236	226	274	268	240	230							
25											230	232	224	234	274	264	258								
26											226	248	230	252	258	264	244								
27											234	240	232	240	270	264	240								
28											238	240	246		266	276	254								
29											228	252	234	274	288	254	248	238							
30										208	220	250	238	242	256	244	228	240	218						
31											212	218	240	232	228	278	256	254	222						
	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								7	15	28	30	29	28	29	28	29	20	9							
MED								212	226	228	240	240	253	274	266	250	235	218							
U Q								222	232	234	244	249	274	283	276	257	243	241							
L Q								208	216	223	232	234	241	264	261	244	229	215							

OCT.2014 h'F2 (KM)

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OCT. 2014 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	282	250	274	296	258	260	258	214	H	H	200	198	A	206	224	H	202	218	230	240	218	206	238	276	284	
2	286	264	248	294	302	284	256	212	220	208	206	188	A	222	220	216	224	238	224	200	222	266	270	286		
3	286	264	280	288	290	284	248	210	214	216	206	200	194	202	H	224	232	232	228	212	194	230	240	242		
4	244	254	260	242	234	272	258	214	220	210	192	212	H	212	188	234	218	222	242	220	212	202	234	272	296	
5	280	268	252	226	208	214	226	204	H	H	192	188	H	H	H	A	236	230	260	254	270	A	272	282		
6	266	262	262	244	258	250	254	216	210	200	198	188	H	C	C	C	C	C	226	208	240	220	230	242	242	
7	244	256	262	246	246	252	258	224	212	C	C	C	C	C	C	C	C	224	224	208	204	230	252	242	242	
8	242	232	230	234	222	248	248	220	212	H	204	200	200	186	H	206	224	218	222	216	194	226	236	264	310	
9	296	248	206	206	252	334	260	206	208	208	198	224	192	176	H	226	224	230	204	238	238	244	264	306		
10	296	272	228	208	198	296	274	216	214	214	206	186	H	206	202	202	216	226	218	202	198	224	264	266	268	
11	272	228	204	244	224	226	238	208	216	H	206	218	188	190	186	200	218	208	158	204	218	246	254	230	236	
12	244	244	238	230	240	238	210	210	212	212	212	204	198	192	200	236	220	144	192	204	222	234	214	242		
13	246	244	226	226	188	236	232	204	212	204	208	190	186	186	194	198	H	224	216	208	214	200	216	222	248	
14	276	270	240	262	250	276	218	A	218	198	196	178	186	196	228	212	H	220	218	202	196	232	228	266	286	
15	286	268	286	264	232	320	234	202	210	220	226	240	220	224	236	226	218	158	212	216	232	212	258	284		
16	270	270	266	228	194	228	248	172	218	210	200	194	214	236	220	244	A	A	202	198	264	236	256	282		
17	276	246	224	246	212	256	254	212	214	212	220	194	178	208	228	228	234	206	210	192	230	264	246	250		
18	260	242	228	232	212	236	226	A	212	206	218	212	246	200	212	224	226	232	218	198	256	258	254	246		
19	270	312	246	252	332	324	266	212	218	214	202	202	H	194	196	264	238	226	226	204	202	248	232	224	278	
20	284	278	258	226	212	296	284	A	214	216	218	232	A	208	244	210	224	228	226	220	226	230	222	274	300	
21	264	246	222	282	366	300	270	224	226	216	208	208	H	186	232	214	230	226	224	224	240	214	220	234	264	
22	286	282	298	270	208	268	288	238	228	206	210	268	232	200	H	228	216	216	212	212	244	222	210	238		
23	270	252	256	242	288	316	280	232	218	212	216	202	H	H	204	196	202	214	224	156	198	192	228	246	248	254
24	254	256	242	240	290	318	298	230	218	210	204	210	204	228	234	220	226	214	214	202	234	232	218	212		
25	252	262	284	296	326	292	286	232	226	220	204	186	H	H	222	220	212	228	216	230	204	212	256	266	316	
26	252	222	200	230	330	348	268	214	214	212	212	208	206	206	214	236	216	216	212	218	226	220	232	256		
27	250	260	270	232	220	302	294	236	226	222	220	224	210	214	H	222	216	226	212	202	230	238	222	278	292	
28	230	222	248	322	332	324	268	222	226	218	202	H	H	234	232	226	236	234	216	214	218	240	258	236	244	
29	244	238	258	294	244	282	268	222	214	220	214	208	200	H	A	222	228	A	234	208	222	260	232	238	236	
30	218	216	260	322	270	310	274	174	214	A	240	236	210	210	220	A	220	182	208	210	234	240	234	232		
31	250	260	278	284	268	254	226	160	218	202	218	206	H	214	200	228	220	222	210	192	214	232	220	224	254	
	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	31	31	31	31	31	31	31	28	31	29	30	30	28	29	29	27	28	30	31	31	31	30	31	31		
MED	266	256	252	244	246	282	258	214	214	212	207	203	204	202	220	224	224	218	210	212	230	234	246	256		
U Q	282	268	266	284	290	310	274	223	218	216	218	212	211	223	228	228	226	230	220	218	240	252	266	286		
L Q	246	244	228	230	212	250	238	207	212	206	200	190	191	194	202	216	220	212	204	200	222	222	232	242		

OCT. 2014 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

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OCT.2014 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'E KSWEEP 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	110	102	102	102	A	A	A	A	106	108	108	B						
2							A	106	104	104	106	A	104	104	106	106	104	104	A						
3							B	114	102	100	100	94	94	104	104	104	102	116	A						
4							B	110	102	100	104	102	100	100	100	98	102	104	B						
5							B	104	118	100	100	100	100	102		A	A	A	A						
6							B	114	114	108	106	104		C	C	C	C	C	104						
7							B	118	106		C	C	C	C	C	C	C	A	102						
8							B	110	102	110	98	104	102	102	102	100	100	104							
9							B	110	106	104	102		100	106	100	100	102	102							
10							B	108	106	98	98	108		A	A	108	116	102	112						
11							A	110	108	100	104	102	102	110	104	96	96	96							
12							B	104	104	108		108	106	106	104	106	106	100							
13							B	120	108	108	108	110	108	104	104	104	104	108							
14							B	108	110	108	104	102	104	110	106	100	100	106							
15							A	112	108	108		A	A	B	116	106	106	104	106						
16							B	124	104	102	102	100	102	102	102	100	100	106	A						
17							B	112	98	96	100	104	104	104	104	106	104		A						
18							B	118	98	100	100	100	100	100	114	108	106		A						
19							B	110	96	102	98		A	A	100	B	E	A	116	110	118				
20							B	128	98	100	100	98		A	A	108	114	114	114						
21							B	110	104	98		A	A	A	A	108		A	A	A					
22							A	108	98	98	104		B	B	106	102	102	116	112						
23							B	116	98	96	100	100	104		A	A	A	A	A						
24							A	106	102	98		A	A		A	A	A	A	A						
25							B	118	106	104	98		A	A	A	114	114	106	134						
26							B	116		A	A		96	110	106	102	102	102	110						
27							B	126	104	102	100		A	106		A	108	108	E	A	154				
28							B	A	98	98	98	98		B	A	108	102	106	110						
29							A	126	102	100	98	98		A	A	A	A	A	A						
30								122	104	104	98		B	A	110	110	112	110	A						
31								120	104	98		B	100	98	102	102	102	102	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								30	30	29	24	19	18	19	22	24	24	22							
MED								112	104	100	100	100	102	104	104	104	104	106							
U Q								118	106	104	104	104	104	106	108	108	107	112							
L Q								110	102	98	98	98	100	102	102	101	102	104							

OCT.2014 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

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OCT.2014 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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		86	86	86	84	88	86	B	196	136	116	102	96	92	94	92	94	94	130	110	106	86	86	84	104	
2		86	B	B	B	B	B	154	126	116	G	G	96	G	G	G	96	106	G	88	86	84	84	82	82	
3		82	82	82	90	B	B	B	128	114	G	G	G	G	90	90	88	156	118	84	84	84	106	90	94	
4		B	B	B	B	B	B	140	122	126	148	G	96	110	134	G	G	G	156	B	B	B	B	B	90	
5		B	104	90	B	B	B	B	134	192	160	126	126	108	108	128	96	108	92	100	106	110	92	92	86	
6		88	86	88	B	B	B	98	136	126	120	92	96	C	C	C	C	C	G	86	98	100	94	98	98	
7		B	B	B	B	98	B	94	114	114	C	C	C	C	C	C	C	138	116	112	104	114	B	110	B	
8		92	B	B	B	100	108	90	148	124	184	G	92	92	92	178	148	124	112	106	102	100	98	96	96	
9		90	90	90	B	B	B	B	166	116	126	G	B	116	94	104	G	G	110	98	86	98	90	88	92	
10		B	112	90	B	B	B	B	136	132	116	106	98	98	98	100	96	102	98	106	94	96	86	B	96	
11		84	106	102	86	92	B	144	116	110	142	108	112	112	100	96	G	G	132	122	92	110	98	104	94	
12		94	84	110	86	B	B	B	112	94	112	98	92	92	G	G	90	90	110	92	90	88	100	88	102	
13		86	86	86	90	B	B	B	122	120	100	98	96	94	94	92	92	92	90	112	88	88	86	88	B	
14		B	B	B	B	B	B	B	144	96	106	104	114	96	92	186	G	106	92	84	84	84	102	94	94	
15		96	B	B	B	B	B	100	G	112	116	98	96	B	G	G	90	G	90	88	88	88	84	92	B	
16		B	100	92	94	92	92	B	154	152	138	88	114	158	164	90	122	114	104	102	B	96	96	86	90	
17		86	90	B	B	B	B	B	172	148	124	106	104	182	90	G	156	G	132	108	100	90	88	90	100	
18		B	B	B	B	B	B	B	124	114	114	110	106	104	104	104	114	106	98	96	94	92	98	96	90	
19		90	88	90	B	B	B	B	G	106	106	106	104	100	G	B	G	98	98	92	92	90	88	94	94	
20		94	B	B	B	92	90	90	126	100	100	100	98	96	96	96	98	102	114	104	100	100	102	98	94	
21		92	88	90	84	B	112	B	120	106	102	100	100	98	92	94	88	84	84	82	102	80	B	B	96	
22		124	96	92	84	96	94	94	144	160	92	88	G	G	86	88	86	100	90	86	86	98	90	98	90	
23		92	90	88	88	90	96	130	158	120	126	G	G	96	102	100	100	98	96	100	94	92	88	84	86	
24		92	86	88	90	90	90	100	144	100	100	96	96	G	98	96	98	96	94	92	94	B	92	92	92	
25		94	92	92	96	104	B	158	G	106	100	104	98	98	90	96	98	118	120	98	94	118	90	90	92	
26		88	90	B	94	B	94	138	134	172	98	96	G	96	88	88	88	180	110	92	86	102	94	94	96	
27		90	B	94	90	B	B	B	156	136	122	110	104	100	98	92	90	92	96	174	86	92	92	90	88	88
28		86	84	92	92	B	B	B	124	130	100	104	G	B	104	92	88	156	160	110	98	92	92	92	92	
29		88	88	B	90	B	90	90	176	88	112	98	100	96	92	92	88	88	88	88	86	86	86	90	B	
30		B	B	B	B	B	B	B	148	138	122	114	B	G	112	96	96	110	104	96	96	96	90	90	88	88
31		86	90	90	88	92	92	96	152	176	134	B	G	102	104	100	106	104	98	98	98	94	94	92	92	
		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	21	19	16	11	11	16	28	31	28	23	22	23	25	23	24	25	29	30	29	28	28	28	27	
MED		90	90	90	90	92	92	100	136	120	115	102	98	98	94	96	96	104	104	97	94	92	91	92	92	
U Q		92	94	92	91	98	96	142	150	136	126	106	104	110	103	100	103	116	119	106	99	99	97	95	96	
L Q		86	86	88	86	90	90	94	124	106	101	98	96	96	92	92	89	96	93	88	87	88	88	88	90	

OCT.2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

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	F	F	F	FF	F		HL	H	C	C	L	L	L	LL	L	L	CL	CL	FF	FF	F	FFF	FF	
2	F						H	C	C			L				L	CL		L	F	F	F	F	F	
3	F	FF	F	F				C	C					L	L	L	HL	CL	L	F	F	FF	F	F	
4							H	C	C			L	C	H				H						F	
5		F	F					H	HL	HL	CL	CL	C	CL	CC	L	CL	L	F	FF	FF	F	F	F	
6	F	F	F				LH	HL	CL	CL	L	L							FF	F	F	FQ	F	F	
7				F			LC	CL	CL								HL	C	FFF	FF	FF		F		
8	F			F	F	LC	HL	C	HL			L	L	L	HL	H	C	C	F	F		F	FF	F	
9	F	F	F				HL	C	C				CL	L	C			C	F	F	FF	F	F	F	
10		FF	FF				H	HL	C	C	L	L	L	L	L	L	C	LC	F	F	F	F		F	
11	F	FF	FF	FF	F		H	C	C	H	C	C	C	L	L			H	FF	FF	FF	FF	FF	FF	
12	F	F	FF	F			C	LC	CL	L	L	L				L	L	C	FF	F	F	FF	FF	FF	
13	F	1	F	F			C	CL	L	L	L	L	L	L	L	L	L	L	FF	F	F	F	F		
14							H	L	CL	CL	C	L	L	L	HL		L	LH	F	F	F	F	F	F	
15	F						L		CL	CL	L	L				L	L	F	F	F	F	F	F		
16		F	F	F	F	FF		HL	HL	HL	L	CL	HL	HL	L	CL	C	C	FF		F	F	F	F	
17	FF	F					H	H	CL	CL	CL	HL	L		H		HL	F	FF	FF	FF	F	F	F	
18							C	C	C	C	C	C	C	C	CL	CL	C	L	F	F	F	F	F	F	
19	F	F	F					C	C	C	L	L	L				L	L	FQ	F	F	F	FF	F	
20	F			F	F	LC	CC	CL	C	CL	C	L	L	L	L	L	L	CL	FF	FFF	FF	F	F	F	
21	F	F	F	F	FF		C	C	C	L	L	L	L	L	L	L	LL	LQ	FQ	FF	FF			F	
22	FF	F	F	F	FF	F	L	HL	H	L	L			L	L	L	LL	L	F	F	FF	F	F	F	
23	F	F	F	FQ	F	F	C	H	C	C			L	L	L	L	L	L	F	F	F	F	F	F	
24	F	F	F	F	F	F	L	H	C	C	L	L	L	L	L	L	L	L	F	F		F	F	F	
25	F	F	F	F	F		H		C	C	C	L	L	L	L	L	C	CL	F	F	FFF	FQ	F	F	
26	F	F		FF		F	HL	H	HC	L	L		L	L	L	LC	H	LH	F	F	F	F	F	F	
27	F		F	F			H	HL	C	C	C	L	L	L	L	L	L	HL	F	F	F	F	F	F	
28	F	F	F	F			CH	C	C	C	C			L	L	L	HL	HL	FF	F	F	F	F	F	
29	F	F		F	F	L	HL	LC	C	C	C	L	L	L	L	LQ	L	F	F	F	F	F	F		
30							H	H	C	C		CL	L	L	L	CL	CL	L	F	F	F	F	F	F	
31	FQ	F	F	F	F	F	H	H	H			C	C	C	C	C	C	L	F	F	F	F	F	F	
	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																									

OCT. 2014 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 89	X 86	X 79	X 67	X 58	X 56														X 126	X 110	X 93	X 92	X 90
2	X 92	X 81	X 73	X 59	X 56	X 55														X 128	X 117	X 94	X 83	X 68
3	X 66	X 66	X 56	X 55	X 54	X 54														0 168	X 169	X 143	X 137	X 130
4	X 120	X 101	X 82	X 74	X 54	X 46														X 113	X 106	X 83	X 79	X 74
5	X 75	X 78	X 77	X 72	X 59	X 38														X 110	X 100	X 84	X 74	X 75
6	X 76	X 75	X 69	X 63	X 58	X 57														X 126	X 104	X 86	X 83	X 79
7	X 74	X 67	X 64	X 61	X 54	X 51														X 121	X 126	X 120	X 114	X 111
8	X 111	X 106	X 96	X 84	X 60	X 50														X 110	X 86	X 87	X 85	X 85
9	X 88	X 97	X 74	X 48	X 35	X 37														X 109	X 88	X 90	X 77	X 73
10	X 77	X 87	X 86	X 72	X 36	X 29														X 97	X 96	X 93	X 90	X 86
11	X 83	X 82	X 74	X 53	X 41	X 35														X 116	X 108	X 114	X 108	X 73
12	X 65	X 60	X 56	X 49	X 40	X 42														X 143	X 138	X 142	X 145	X 129
13	X 124	X 126	X 106	X 100	X 70	X 56														X 124	X 127	X 124	X 120	X 97
14	X 93	X 86	X 80	X 66	X 54	X 55														X 141	X 122	X 122	X 100	X 77
15	X 68	X 69	X 55	X 55	X 51	X 58	80	90	83											X 110	X 86	X 95	X 78	X 73
16	X 70	X 71	X 67	X 57	X 49	X 36														X 97	X 104	X 107	X 85	X 65
17	X 64	X 65	X 63	X 50	X 46	X 36														X 129	X 115	X 96	X 97	X 82
18	X 76	X 77	X 68	X 45	X 44	X 38														X 111	X 82	X 84	X 81	X 72
19	X 66	X 59	X 63	X 63	X 50	X 48														X 160	X 146	X 139	X 98	X 77
20	X 76	X 64	X 64	X 56	X 51	X 38														X 124	X 118	X 99	X 80	X 73
21	X 78	X 70	X 52	X 42	X 40	X 43														X 99	X 97	X 93	X 76	X 55
22	X 57	X 57	X 50	X 53	X 44	X 39														X 104	X 118	X 118	X 79	X 56
23	X 52	X 47	X 45	X 39	X 39	X 41														X 143	X 130	X 121	X 103	X 87
24	X 82	X 73	X 63	X 50	X 40	X 39														X 144	X 137	X 131	X 98	X 69
25	X 53	X 45	X 44	X 44	X 42	X 44														X 147	X 128	X 123	X 118	X 101
26	X 84	X 67	X 60	X 47	X 40	X 42	X 45													X 143	X 144	X 143	X 115	X 102
27	X 86	X 71	X 68	X 60	X 48	X 42														X 162	X 158	X 160	X 117	X 98
28	X 82	X 63	X 55	X 53	X 52	X 55														X 118	X 116	X 105	X 95	X 77
29	X 60	X 51	X 54	X 50	X 46	X 41														X 130	X 131	X 125	X 114	X 86
30	X 68	X 52	X 36	X 38	X 39	X 40														X 126	X 116	X 107	X 94	X 81
31	X 60	X 52	X 52	X 52	X 54	X 46														X 154	X 156	X 132	X 93	X 78
	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	31	31	31	31	31	31	2	1	1											31	31	31	31	31
MED	X 76	X 70	X 64	X 55	X 49	X 42	62	90	83											X 126	X 117	X 107	X 94	X 78
U Q	X 86	X 82	X 74	X 63	X 54	X 54														X 143	X 131	X 125	X 114	X 90
L Q	X 66	X 60	X 55	X 49	X 40	X 38														X 110	X 104	X 93	X 81	X 73

OCT.2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	83	80	73	61	52	50	55	93	102	102	110	119	128	128	135	140	136	128	125	120	104	87	86	84
2	86	75	67	53	50	49	56	94	93	104	107	121	132	124	126	126	132	130	128	122	111	88	77	62
3	60	60	50	49	48	48	56	88	106	106	103	111	125	146	156	158	160	160	155	162	163	137	131	124
4	114	95	76	68	48	40	43	77	98	110	109	112	129	134	138	135	133	123	115	107	100	77	73	68
5	69	72	71	66	53	32	37	73	97	104	106	115	124	128	133	126	122	118	103	104	94	78	68	69
6	70	69	63	57	52	51	52	91	99	109	120	124	134	150	160	148	144	134	132	120	98	80	77	73
7	68	61	58	55	48	45	51	95	108	116	130	137	160	167	159	160	149	130	122	115	120	114	108	105
8	105	100	90	78	54	44	50	82	115	111	122	141	153	159	160	159	141	121	119	104	80	81	79	79
9	79	91	68	42	29	31	36	83	99	109	121	132	138	144	157	156	144	135	125	103	82	84	71	67
10	71	81	80	66	30	23	32	81	96	116	121	127	138	158	170	161	154	143	120	91	90	87	84	80
11	77	76	68	47	35	29	34	73	93	105	117	123	125	152	163	156	159	152	132	110	102	108	102	67
12	59	54	50	43	34	36	39	74	92	106	132	131	150	171		172	166	164	152	137	132	136	139	123
13	118	120	100	94	64	50	53	80	92	102	109	112	122	146	158	152	151	146	127	118	121	118	114	91
14	87	80	74	60	48	49	52	69	90	98	123	134	143	154	168		164	155	145	135	116	116	94	71
15	62	63	49	49	45	52		82	76	98	124	151	144	124	142	143	136	125	118	104	80	89	72	67
16	64	65	61	51	43	30	33	74	108	90	100	112	123	140	149	144	128	117	90	91	98	101	79	59
17	58	59	57	44	40	30	34	76	88	91	110	113	120	136	150	160	151	144	128	123	109	90	91	76
18	70	71	62	39	38	32	34	69	97	114	110	111	121	141	134	128	123	114	113	105	76	78	75	66
19	60	53	57	57	44	42	46	75	105	118	136	139	136	146	157	164	158	173	152	154	140	133	92	71
20	70	58	58	50	45	32	35	83	108	96	100	121	134	137	154	154	134	126	131	118	112	93	74	67
21	72	64	46	36	34	37	40	79	129	130	119	117	125	129	143	142	129	110	108	93	91	87	70	49
22	51	51	44	47	38	33	34	70	123	120	114		141	136	134	138	135	124	103	98	112	112	73	50
23	46	41	39	33	33	35	36	86	112	119	136	130	140	156	168	170	168	171	152	137	124	115	97	81
24	76	67	57	44	34	33	33	80	126	107	116	128	132	144	151	149	140	144	138	138	131	125	92	63
25	47	39	38	38	36	38	42	96	135	134	129	133	142	152	165	158	154	156	153	141	122	117	112	95
26	78	61	54	41	34	36	39	90	101	106	124	140	140	156	159	168	162	160	138	137	138	137	109	96
27	80	65	62	54	42	36	39	82	131	133	149	147	142	157	174	166	167	165	164	156	152	154	111	92
28	76	57	49	47	46	49	52	85	109	132	132	118	127	133	143	150	149	130	122	112	110	99	89	70
29	54	45	48	44	40	35	40	83	110	107	120	123	125	138	147	149	137	138	135	124	125	119	108	80
30	62	46	30	32	33	34	36	80	96	99	124	136	131	140	135	138	127	128	124	120	110	101	88	75
31	54	46	46	46	48	40	35	74	106	105	124	126	120	138	152	159	160	161	158	148	150	126	87	72
	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	31	31	31	31	31	31	30	31	31	31	31	30	31	31	30	30	31	31	31	31	31	31	31	31
MED	70	64	58	49	43	36	39	81	102	107	120	125	132	144	153	153	144	135	128	120	111	101	88	72
U Q	79	76	68	57	48	48	51	86	110	116	124	134	141	154	160	160	159	156	145	137	125	119	108	84
L Q	60	54	49	43	34	32	35	74	96	102	110	117	125	136	142	142	134	125	119	104	98	87	75	67

OCT.2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	U L	U L	L	L	L	L							
2										L	L	L	L	L	L	L	L							
3											L	U L	L	L	L	L	L							
4										L	L	L	L	U L	U L	L	L	L						
5											L	L	L	L	L	L								
6											L	L	L	L	A	A	L	L	L					
7										L	L	L	L	L	L	L	L	L						
8										L	L	L	L	L	L	L	L	L						
9											L	L	L	L	L	L	L							
10											L	L	L	L	L	L	L	L						
11										L	L	L	L	U L	L	L	L	L						
12											L	L	L	L	L	L	L	L						
13											L	L	L	L	L	L	L	L						
14											L	L	L	L	U L	L	L	L		A				
15											L	L	L	L	L	L	L	L						
16											L	L	L	U L	L	A	A							
17										L	L	L	L	L	U L	L	L							
18										L	L	L	L	U L	L	L	A							
19										L	L	L	L	L	B	B								
20										L	L	L	L	L	L	L								
21										L	L	L	L	L	L	L	A							
22											L	B	B	L	L	L								
23											L	L	L	U L	L	L	L							
24									L	L	L	L	L	L	L	L								
25											L	L	L	L	L	L								
26											L	L	L	L	L	L	L							
27											L	L	L	L	L									
28										L	L	L	B	B	L	L	L							
29											L	L	L	L	L	L	L							
30											L	L	L	L	L	L								
31											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												2	4	5	2									
MED												U L	U L	U L	U L									
U Q												508	558	528	552									
L Q													U L	U L										
													592	610										
													U L	U L										
													538	498										

OCT.2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	236	300	332	U R	B	B	B	B	348	340	276	A					
2							B	232	U A	304	344	B	B	B	U R	B	U R	A						
3							B	244	312	348	U R	U R	B	B	R	U R	B	U A	A					
4							B	232	304	U R	U R	R	B	B	R	R	A	260	A					
5							B	240	288	348	U R	B	B	R	A	U R	360	316	256	A				
6							B	216	276	320	A	R	A	A	A	B	B	248	B					
7							B	240	A	A	A	A	A	A	A	R	A	256	A					
8							B	216	288	336	348	U R	B	B	U R	356	312	248	A					
9							B	216	304	320	364	R	B	B	B	B	A	A	A					
10							B	204	280	324	308	A	A	A	A	A	A	A	A					
11							B	212	U A	268	316	340	R	A	B	R	R	288	232	A				
12							B	216	264	A	A	A	B	B	R	A	A	A	A					
13							B	208	292	R	352	B	R	B	R	A	A	A	A					
14							B	180	280	304	340	U R	332	360	B	A	340	A	A	A				
15							B	228	B	B	B	B	B	B	B	B	A	A	A					
16							B	224	268	316	320	U R	A	R	B	B	348	308	240	A				
17							B	176	288	328	356	U R	B	B	B	B	320	256	A					
18							B	A	272	308	B	B	B	A	R	340	296	A	A					
19							B	A	272	312	A	A	B	A	B	B	A	A	A					
20							B	216	A	U R	328	R	A	A	A	A	R	228	A					
21							B	196	U R	U R	328	A	A	R	U R	344	336	A	A					
22							B	212	272	324	R	B	B	R	B	B	320	240	B					
23							B	208	284	348	R	A	A	A	B	A	A	236	A					
24							B	184	U A	296	A	A	A	A	A	A	A	A	A					
25							B	B	B	A	A	A	A	A	A	344	324	248	R	A				
26								220	272	R	A	R	R	R	B	364	A	224	A					
27							B	224	292	332	A	B	B	A	A	A	A	A	A					
28							B	220	272	324	U R	B	B	B	A	356	308	240	A					
29							B	204	304	348	U R	B	A	B	A	A	A	A	A					
30							B	212	276	B	R	B	B	R	B	R	A	A	A					
31							B	188	268	316	B	A	B	B	B	U A	A	A	B					
																320								
CNT								28	27	23	13	5	1	1	6	15	11	17						
MED								216	280	328	U R	U R	360	360	376	U R	348	312	248					
U Q								226	296	344	U R	368	378		U R	372	360	320	258					
L Q								206	272	316	U	U R	330	344		340	340	304	238					

OCT.2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 21	J A 19	J A 18	E B 20	E B 13	E B 13	E B 13	27	G	41	42	E B 44	E B 46	E B 45	E B 44	G	G	35	J A 64	J A 55	J A 34	J A 23	J A 20	J A 19
2	J A 22	E B 18	E B 14	E B 14	E B 13	E B 13	E B 13	26	33	G	42	E B 42	E B 44	E B 44	E B	E B 40	E B 26	G 20	20	18	E B 13	E B 13	E B 13	E B 16
3	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	28	G	G	27	E B 28	E B 44	E B 47	E B 26	E B 32	E B 40	40	J A 34	J A 39	J A 20	J A 23	J A 23	J A 18
4	E B 18	E B 20	E B 13	E B 13	E B 13	E B 13	E B 13	30	37	J A 53	J A 51	E B 28	E B 45	E B 43	E B	E B	34	J A 23	J A 33	J A 28	J A 24	J A 20	E B 13	E B 13
5	E B 13	E B 13	E B 19	E B 13	E B 13	E B 13	E B 14	G	32	G	E B 41	E B 47	E B 44	E B 47	E B 42	E B 43	E B 44	J A 37	J A 22	J A 23	J A 20	J A 19	J A 53	J A 54
6	J A 38	J A 23	J A 22	E B 19	E B 13	E B 13	E B 13	25	34	36	39	43	48	80	J A 74	E B 37	E B 35	28	E B 19	28	E B 13	E B 21	E B 13	E B 21
7	J A 22	J A 22	J A 20	E B 18	E B 19	E B 13	E B 14	22	33	37	41	40	41	40	44	35	35	28	19	23	J A 18	J A 26	J A 22	J A 19
8	J A 16	E B 20	E B 13	E B 13	E B 13	E B 13	E B 14	24	G	G	G	E B 28	E B 41	E B 42	E B 23	E B 42	42	J A 54	J A 28	J A 13	J A 17	J A 25	J A 13	J A 22
9	J A 20	J A 16	E B 13	E B 13	E B 13	E B 13	E B 14	25	31	38	G	E B 48	E B 43	E B 42	E B 42	E B	J A 40	J A 30	J A 29	J A 26	J A 27	J A 36	J A 34	J A 37
10	J A 21	E B 18	E B 13	E B 13	E B 16	E B 13	E B 13	24	32	36	38	40	J A 40	J A 42	J A 40	J A 38	J A 33	J A 31	J A 30	J A 22	J A 20	J A 20	J A 13	J A 20
11	J A 22	E B 19	E B 21	E B 18	E B 13	E B 13	E B 13	23	32	40	G	G	E B 42	E B 43	E B	G	G	25	J A 20	J A 26	J A 22	E B 13	E B 13	E B 18
12	J A 30	E B 13	E B 16	E B 13	E B 13	E B 13	E B 14	27	31	40	39	46	40	42	E B 43	E B 43	E B	25	J A 21	J A 25	J A 19	J A 21	E B 13	E B 17
13	E B 18	E B 13	E B 13	E B 13	E B 14	E B 13	E B 14	25	34	G	G	E B 41	E B 36	E B 41	E B 30	E B 44	36	J A 47	J A 42	J A 32	J A 20	E B 13	E B 13	E B 13
14	E B 13	E B 13	E B 14	E B 13	E B 13	E B 13	E B 14	23	24	36	38	E B 40	E B 38	E B 36	E B 33	E B 33	J A 29	J A 35	J A 22	J A 25	J A 38	E B 66	E B 22	E B 22
15	E B 13	E B 18	E B 18	J A 17	E B 13	E B 13	E B 13	G	E B 40	E B 41	E B 42	E B 46	E B 45	E B 42	E B 42	E B 40	38	J A 30	J A 19	J A 20	J A 21	J A 20	J A 19	E B 13
16	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	35	36	37	46	46	E B 54	E B 55	E B 46	52	28	32	J A 20	J A 18	J A 20	J A 17
17	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	24	32	39	44	45	44	40	E B 42	E B 41	E B 50	36	29	31	J A 22	J A 19	J A 30	E B 22
18	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	23	32	37	41	41	41	44	E B	G	J A 54	J A 46	J A 50	J A 55	J A 46	J A 46	J A 23	J A 18
19	E B 18	E B 13	E B 31	E B 28	E B 13	E B 13	E B 14	23	34	38	41	45	42	54	E B 96	E B 53	J A 57	J A 32	J A 67	J A 45	J A 24	J A 16	J A 19	E B 18
20	J A 22	J A 24	J A 17	E B 13	E B 13	E B 13	E B 13	G	30	26	44	46	47	58	J A 41	J A 48	E B	32	J A 28	J A 53	J A 41	J A 29	J A 29	J A 28
21	J A 22	J A 21	J A 20	J A 20	E B 18	E B 18	E B 14	22	G	G	30	39	47	34	G	30	G	J A 69	J A 33	J A 42	J A 18	E B 13	E B 13	E B 13
22	E B 13	E B 13	E B 29	J A 20	E B 18	E B 13	E B 13	G	G	G	100	48	34	43	E B 38	E B 38	E B	22	17	22	J A 30	J A 18	E B 18	E B 13
23	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 15	23	G	G	G	46	44	44	E B 42	E B 36	E B 35	J A 20	J A 21	J A 16	J A 21	J A 20	E B 13	E B 17
24	E B 13	E B 13	E B 17	E B 13	E B 16	E B 16	E B 18	25	30	38	43	E B	48	46	E B 54	E B 47	E B 40	41	32	30	J A 32	J A 30	E B 22	E B 13
25	E B 13	E B 18	E B 13	E B 13	E B 13	E B 14	E B 14	32	38	39	44	49	48	48	48	42	E B	G	J A 31	J A 37	J A 13	J A 20	E B 13	E B 18
26	E B 13	E B 45	E B 32	J A 30	E B 21	E B 13	E B 14	26	31	28	G	42	31	32	32	E B 42	E B 26	32	J A 19	J A 16	E B 13	E B 13	E B 13	E B 13
27	J A 19	J A 22	J A 17	J A 20	E B 18	E B 13	E B 13	G	G	40	46	E B 45	E B 42	E B 53	E B 43	E B 46	E B 53	J A 44	J A 33	J A 27	J A 33	J A 20	J A 13	E B 20
28	J A 19	J A 22	J A 18	J A 19	E B 19	E B 13	E B 13	G	G	34	46	E B 42	E B 63	E B 46	E B 42	E B 42	E B 35	J A 30	J A 33	J A 23	J A 35	J A 36	J A 37	E B 45
29	J A 28	J A 20	J A 22	E B 13	E B 13	E B 13	E B 13	22	G	40	45	E B 43	E B 66	E B 47	E B 42	E B 44	E B 44	J A 42	J A 33	J A 17	J A 22	E B 13	E B 13	E B 13
30	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	E B 40	E B 40	E B 45	E B 44	E B 44	E B 44	E B 42	E B 45	J A 51	J A 36	J A 27	J A 16	J A 30	J A 19	E B 13	E B 13
31	E B 13	E B 20	E B 20	E B 18	E B 13	E B 21	E B 13	21	G	38	46	J A 71	E B 43	E B 42	E B 40	E B 38	E B 32	E B 22	E B 13	E B 13	J A 20	E B 13	E B 13	E B 13
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	18	18	17	E B 13	E B 13	E B 13	E B 13	23	30	36	40	42	43	43	42	39	35	31	J A 29	J A 25	J A 21	J A 20	E B 13	E B 18
UQ	J A 22	J A 20	J A 20	J A 19	E B 14	E B 13	E B 14	25	33	40	44	46	46	47	43	44	44	J A 40	J A 33	J A 32	J A 30	J A 25	J A 23	J A 21
LQ	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	G	G	G	G	G	G	G	G	J A 18	E B 19	E B 16	E B 13	E B 13

OCT.2014 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	G 27		G 39		E 42	B 44	E 46	B 45	E 44	G	G		35	57	38	21	E 13	B 13	E 13	B 13
2		E 18	B 13	E 14	B 14	E 13	B 13	E 13	G 25	32	G 42	E 42	B 44	E 44	G	E 40	B 26	U 18	G 20	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	
3	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	G 26		G 27	E 28	B 44	E 46	U 26	G 29	E 40	G 39	G 32	E 36	18	E 13	B 20	E 13	B 13	E 13	B 13	
4	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	G 28	32	41	E 43	B 28	E 45	E 43	G	G	33	G 20	G 32	E 24	18	E 13	B 13	E 13	B 13	E 13	B 13
5	E 13	B 13	E 13	B 13	E 13	B 13	E 14		G 32		G 41	E 43	B 44	E 44	41	E 43	41	35	20	18	E 13	B 13	E 47	B 37				
6	E 13	B 19	E 13	B 13	E 13	B 13	E 13	G 25	32	36	38	42	46	77	72	E 37	B 35	E 27	E 19	E 22	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 17
7	18	17	E 13	B 13	E 13	B 13	E 14	G 19	32	36	41	40	41	40	44	U 35	G 35	28	18	E 13	B 13	E 18	B 18	E 18	B 18			
8	E 13	B 13	E 13	B 13	E 13	B 13	E 14	G 24		G	G	E 28	B 41	E 42	B 23	G 41	39	46	26	E 13	B 13	E 24	B 13	E 13	B 13	E 13	B 13	
9	E 13	B 13	E 13	B 13	E 13	B 13	E 14	G 25	31	37		E 48	B 43	E 42	B 42	G	39	28	14	E 18	23	E 30	B 28	E 31				
10	E 17	B 13	E 13	B 13	E 13	B 13	E 13	G 24	31	36	38	40	40	42	38	37	33	26	19	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	
11	E 13	B 13	E 13	B 13	E 13	B 13	E 13	G 23	31	37		G	E 42	B 43	G	U 27	G		25	19	20	17	E 13	B 13	E 13	B 13	E 13	B 13
12	E 17	B 13	E 13	B 13	E 13	B 13	E 14	G 24	30	37	39	43	40	42	G	38		24	20	22	16	19	E 13	B 13	E 13	B 14		
13	E 13	B 13	E 13	B 13	E 14	B 13	E 14	G 24	31		E 41	U 36	E 41	B 30	U 39	G 32	30	29	19	18	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13
14	E 13	B 13	E 14	B 13	E 13	B 13	E 14	G 23	21	36	38		G	E 40	B 38	E 36	33	26	31	21	20	28	40	19				
15	E 13	B 13	E 13	B 13	E 13	B 13	E 13	G 40	E 41	E 42	E 46	E 45	E 42	E 42	E 40		38	28	16	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	
16	E 13	B 13	E 13	B 13	E 13	B 13	E 13	G 35	U 36	Y 37	46	45	51	52		43	40	24	30	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	
17	E 13	B 13	E 13	B 13	E 13	B 13	E 13	G 24	31	38	43	43	42	E 40	E 42	B 41	44	32	26	20	E 13	B 13	E 23	B 13	E 13	B 13	E 13	B 13
18	E 13	B 13	E 13	B 13	E 13	B 13	E 14	G 23	30	36	41	41	41	43	G	G	51	34	48	31	36	36	E 13	B 13	E 13	B 13	E 13	B 13
19	E 13	B 13	E 29	B 13	E 13	B 13	E 14	G 22	33	38	40	45	42	E 51	E 96	E 53		42	30	31	30	21	E 13	B 13	E 13	B 17		
20	18	23	16	E 13	B 13	E 13	B 13	G 30	U 26	G 42	43	43	54	41	44		G	31	26	20	30	21	20	22				
21	20	18	18	16	E 13	B 13	E 14	G 22	G 29	39	42	U 34	U 30	U 27	U 24	G 41	28	31	16	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	
22	E 13	B 13	E 13	B 13	E 13	B 13	E 13	G 100	G 48	E 34	E 43	U 38	E 38			G	18	17	13	20	16	E 13	B 13	E 13	B 13	E 13	B 13	
23	E 13	B 13	E 13	B 13	E 13	B 13	E 13	G 23		G	G	45	42	42	E 42	35	32	20	18	13	13	17	E 13	B 13	E 13	B 13	E 13	B 13
24	E 13	B 13	E 13	B 13	E 13	B 13	E 13	G 24	30	36	39		G	46	43	52	45	37	38	31	25	26	25	20	E 13	B 13	E 13	B 13
25	E 13	B 13	E 13	B 13	E 13	B 14	E 14	G 32	38	39	43	47	44	46	47	40		G		27	19	E 13	B 13	E 13	B 13	E 13	B 13	
26	E 13	20	21	26	E 13	B 13	E 13	G 24	U 31	U 28	40	U 31	U 32	U 32	U 42	G 25	32		G	18	13	E 13	B 13	E 13	B 13	E 13	B 13	
27	E 13	20	16	E 13	B 13	E 13	B 13	G 40	G 43	E 45	E 42	E 52	41	44	44	50	41	31	22	22	E 13	B 13	E 13	B 13	E 13	B 17		
28	E 13	16	E 13	B 13	E 13	B 13	E 13	G 34	44	E 42	E 63	E 46	41	41	41	34	28	32	19	31	30	30	24					
29	24	18	E 13	B 13	E 13	B 13	E 13	G 22	G 37	44	43	41	47	41	36	41	40	29	14	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	
30	E 13	B 13	E 13	B 13	E 13	B 13	E 14	G 40	G 40	E 45	44	43	42	E 44	42	44	42	31	21	E 13	B 22	E 13	B 13	E 13	B 13	E 13	B 13	
31	E 13	B 13	E 13	B 13	E 13	B 16	E 13	G 21	G 38	44	50	E 43	41	E 40	37	30	22	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 23	G 30	E 36	40	U 40	E 42	E 42	E 41	G 37	34	28	26	19	16	E 13	B 13	E 13	B 13	E 13	B 13	
U Q	13	16	13	13	E 13	B 13	E 14	G 24	G 32	E 38	42	E 45	E 45	E 46	E 43	41	41	35	31	22	21	19	20	17				
L Q	E 13	B 13	E 13	B 13	E 13	B 13	E 13	G	G	G	G	G	G	41	41	G	G	G	G	E 13	B 13	E 13	B 13	E 13	B 13	E 13	B 13	

OCT.2014 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

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

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	13	13	13	13	13	13	13	14	19	22	24	44	46	45	44	22	19	16	14	13	13	13	13	13
2	13	13	14	14	13	13	13	16	20	24	42	42	44	44	32	40	23	14	14	13	13	13	13	13
3	13	13	13	13	13	13	13	14	19	22	23	22	44	42	22	22	40	16	14	13	13	13	13	13
4	13	13	13	13	13	13	13	14	15	19	20	20	45	43	24	22	18	15	14	13	13	13	13	13
5	13	13	13	13	13	13	14	14	14	23	41	43	22	40	20	20	17	20	14	14	13	13	13	13
6	13	13	13	13	13	13	13	14	20	21	21	28	22	23	24	37	35	20	19	13	13	13	13	13
7	13	13	13	13	13	13	14	14	14	21	24	29	30	33	26	22	20	15	14	13	13	13	13	13
8	13	13	13	13	13	13	14	14	15	20	21	21	41	42	20	30	21	15	14	13	13	13	13	13
9	13	13	13	13	13	13	14	15	18	23	25	48	43	42	42	24	32	16	14	13	13	13	13	13
10	13	13	13	13	13	13	13	14	16	15	20	23	34	30	34	22	17	16	14	13	13	13	13	13
11	13	13	13	13	13	13	13	14	19	20	27	31	30	43	24	20	17	15	13	13	13	13	13	13
12	13	13	13	13	13	13	14	14	16	20	22	32	40	42	30	24	20	14	14	14	13	13	13	14
13	13	13	13	13	14	13	14	16	18	22	24	41	31	41	24	21	17	15	14	14	13	13	13	13
14	13	13	14	13	13	13	14	14	17	19	23	25	26	40	21	20	13	15	14	13	13	13	13	13
15	13	13	13	13	13	13	13	15	40	41	42	46	45	42	42	40	22	14	14	13	13	13	13	13
16	13	13	13	13	13	13	13	14	14	18	20	33	21	42	41	24	21	14	13	13	13	13	13	13
17	13	13	13	13	13	13	13	14	15	17	19	21	39	40	42	41	20	20	15	14	13	13	13	13
18	13	13	13	13	13	13	14	14	16	18	41	41	41	32	29	24	21	21	14	15	14	13	13	13
19	13	13	13	13	13	13	14	14	14	25	31	37	42	36	96	53	24	17	14	13	13	13	13	14
20	13	13	14	13	13	13	13	20	17	20	22	36	36	39	32	29	19	14	14	13	13	13	13	13
21	13	13	13	13	13	13	14	14	21	19	22	29	31	26	21	18	16	14	13	13	13	13	13	13
22	13	13	13	13	13	13	13	14	17	21	22	100	48	20	43	38	23	14	17	13	13	14	13	13
23	13	13	13	13	13	13	13	14	17	20	31	32	34	30	42	21	20	16	14	13	13	13	13	13
24	13	13	13	13	13	13	13	14	20	16	32	31	39	39	30	24	20	20	14	13	13	13	14	13
25	13	13	13	13	13	14	14	32	38	30	22	36	38	39	36	31	21	19	14	13	13	13	13	13
26	13	13	13	13	13	13	13	14	16	22	21	26	21	22	42	18	14	18	13	13	13	13	13	13
27	13	14	13	13	13	13	13	14	15	20	34	45	42	38	31	27	25	18	14	13	13	13	13	13
28	13	13	13	13	13	13	13	16	17	22	29	42	63	46	33	25	20	17	14	13	13	13	13	13
29	13	13	13	13	13	13	13	16	16	21	24	43	24	47	30	19	21	15	14	14	13	13	13	13
30	13	13	13	13	13	13	14	15	17	40	21	45	40	21	42	23	20	18	14	13	13	13	13	13
31	13	13	13	13	13	13	13	14	17	20	40	38	43	38	40	24	19	16	13	13	13	13	13	13
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	13	13	13	13	13	13	13	14	17	21	24	36	39	40	32	24	20	16	14	13	13	13	13	13
U Q	13	13	13	13	13	13	14	15	19	22	31	43	43	42	42	30	22	18	14	13	13	13	13	13
L Q	13	13	13	13	13	13	13	14	15	19	21	28	30	32	24	21	18	15	14	13	13	13	13	13

OCT. 2014 fmin (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	285	312	302	294	289	292	301	344	349	326	310	303	299	294	293	301	304	311	318	333	317	280	275	278	
2	281	298	314	265	272	285	299	369	365	330	314	300	308	298	295	302	308	321	324	322	317	297	296	296	
3	286	300	277	283	272	280	295	345	364	346	337	296	281	293	304	315	316 ^R	315 ^R	333 ^{RU}	333 ^R	336 ^R	303	296	305	
4	298	307	307	302	334	286	300	338	344	323	320	288	297	296	297	301	304	311	323	302	308	276	265 ^R	282	
5	279	295	323	340	342	297	300	345	337	332	303	302	303	302	305	300	303	316	314	309	316	274	288	287	
6	293	308	314	309	304	315	312	359	341	325	311	307	295	306 ^{RU}	314 ^R	310 ^R	309 ^R	321	320	311	299	294	282	295	
7	297 ^R	307	308	316	314	304	299	346	338	326	318	297	299	314 ^{RU}	329 ^{RU}	324 ^{RU}	326 ^{RU}	318	321	300	286	286 ^J	294 ^R	295 ^R	
8	285 ^R	329	320	325	326	323	316	352	351	334	304	300	316 ^J	316 ^R	330	316	317	314	335	330	288	292	269	255	
9	293 ^F	300	355	354	320	268	277	345	351	307	318	306	301	292	300	310	307	317	326	300	301	301	284	268	
10	276	290	345	365	349	298	295	343	332	320	315	301	285	303 ^U	312 ^{RU}	324 ^R	312 ^R	332	330	323	286	274	304	295	
11	306	320	343	356	315	305	301	349	357	325	318	310	299	305 ^U	317 ^R	330 ^Y	328	328	336	288	295	296	324	303	
12	307	332	328	327	316	314	319	349	344	313	324	309	302	312 ^U			336 ^{RU}			322	312	321	316	331	319
13	309	337	345	334	344	297	308	356	356	337	329	313	291	307 ^J	318 ^{RU}	318 ^{RU}	320	326 ^Y	335 ^{RU}	317 ^R	338	318	313	308	
14	281	300	320	309	296	308	317	356	350	325	324	318	301	326 ^{RU}	326 ^{RU}		332 ^Y	325 ^{RU}	349 ^{RJ}	332	312	305	304	282	
15	283	313	286	300	297	270		366 ^F	305 ^F	283	297	321 ^R	322	291	303	312	321	320	321	328	291	306	310	279	
16	297	307	325	314	345	331	296	344	369	352	317	307	299	306	321 ^R	317 ^R	318	337	322	305	283	303	299	293	
17	289	318	347 ^J	298 ^R	344	316	301	367	357	337	331	317	297	297	303	323	330 ^R	335	322	331	305	299	304	305	
18	312	326	370	314	318	318	299	350	343	352	317	307	303	315	308	309	319	320	321	337	287	278	296	307	
19	307	294	307	319	278	278	285	326	327	324	324	319	305	301 ^U	322 ^{RU}	324 ^{RU}	326 ^{RU}	321	356 ^{RJ}	346 ^{RU}	316 ^{RU}	327	313	273	
20	271	301	312	321	332	279	287	339	360	353	315	305	306 ^R	307 ^R	325 ^U	320 ^{RU}	314	310	322	320	304 ^J	305	285	302 ^R	
21	310	334	326	294	254	255	289	323	341	343	336	314	309	298	312 ^R	317	319	329	324	309	317	311	318	282	
22	285	307	284	304	349	266	283	311	344		313		314	305	302	308	319	326	308	301	291	327	330	287	
23	296	320	321	296	273	266	291	336	350	329	329	310	291	317	322 ^U	322 ^{RU}	338 ^{RU}	327 ^{RU}	330 ^R	305	302	301	301	300	
24	309	310	311	346	314	267	278	327	354	343	322	320	311	301	307	314	305	317	319	318	309	328	333	353	
25	296 ^J	302 ^R	280	279	270	285	278	332	349	347	329	309	300	313 ^R	312 ^{RU}	316 ^{RU}	309	314 ^R	334 ^{RU}	320 ^{RU}	309	307	292	322	
26	322	308	308	317	268	265	295	361	347	334	335	322	294	307 ^R	311 ^R	309 ^R	324 ^{RU}	308 ^{RU}	314 ^{RU}	321 ^{RU}	308	328	323	304	
27	327	287	301	312	321	287	286	319	345	334	329	324	299	304 ^U		324 ^R	319 ^{RU}	324 ^{RU}	321	315	321	337	315	302	
28	331	295	298	274	263	269	289	331	327	336	339	314	288	287	290	305	315	309	308	307	287	310	325	320	
29	322	316	306	289	318	280	296	347	350	335	325	309	306	300	301	311	314	312	321	321	280 ^J	302	309	327	
30	340	339	253	256	280	281	292	350	352	329	317	332	315	309	304	311	308	316	321	319	287 ^R	314	330	326	
31	335	289	300	307	327	322	302	346	357	339	331	331	313	301	298	323	330		339 ^{RU}	334 ^{RU}	321	323	311	294	
	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	31	31	31	31	31	31	30	31	31	30	31	30	31	31	29	29	31	29	31	31	31	31	31	31	
MED	297	307	312	309	315	286	296	345	349	333	320	309	301	304	308	315	318	320	322	319	305	303	304	296	
U Q	310	320	326	325	332	308	301	352	356	339	329	318	308	309	320	322	326	326	333	330	317	316	318	307	
L Q	285	300	301	294	278	270	289	336	341	325	315	303	297	298	302	309	309	314	321	307	288	294	292	282	

OCT. 2014 M(3000)F2 (0.01)

IONOSPHERIC DATA STATION Okinawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	U L	U L	L	L	L	L							
2									L	L	L	L	U L	L	L	L	L							
3									L	L	L	U L	L	L	L	L	L							
4									L	L	L	L	U L	U L	L	L	L							
5									L	L	L	L	L	L	L	L								
6									L	L	L	L	L	A	A	L	L	L						
7									L	L	L	L	L	L	L	L	L							
8									L	L	L	L	L	L	L	L	L							
9									L	L	L	U L	L	L	L	L								
10									L	L	L	L	L	L	L	L	L							
11									L	L	L	L	U L	L	L	L	L							
12									L	L	L	L	L	L	L	L	L							
13									L	L	L	L	L	L	L	L	L							
14									L	L	L	L	L	U L	L	L	L			A				
15									L	L	L	L	L	L	L	L	L	L						
16									L	L	L	L	U L	L	L	A	A							
17									L	L	L	L	L	U L	L	L								
18									L	L	L	L	U L	L	L	L	A							
19									L	L	L	L	L	L	B	B								
20									L	L	L	L	L	L	L	L								
21									L	L	L	L	L	L	L	L	A							
22									L	L	L	B	B	L	L	L								
23									L	L	L	L	U L	L	L	L	L							
24									L	L	L	L	L	L	L	L								
25									L	L	L	L	L	L	L	L								
26									L	L	L	L	L	L	L	L	L							
27									L	L	L	L	L	L	L									
28									L	L	L	B	B	L	L	L	L							
29									L	L	L	L	L	L	L	L	L							
30									L	L	L	L	L	L	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												2	4	5	2									
MED												U L	U L	U L	U L									
U Q												404	368	370	353									
L Q												U L	U L	U L										
												379	376											
												U L	U L											
												356	344											

OCT.2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1									228	246	248	262	296	286	310	294	278								
2									230	256	244	286	278	262	308	294	280								
3										238	240	246	^L 254	324	304	286	280								
4									238	264	256	^L 310	312	286	294	280	270								
5										242	246	274	288	290	278										
6										258	278	286	310	302	284	268	264	242							
7									232	232	256	256	304	306	290	272	252								
8									240	234	242	262	260	302	280	272	256								
9										^L 232	260	292	264	312	310	282									
10											248	292	328	326	302	274	252								
11										250	272	256	278	312	270	272	250								
12										272	272	264	304	328	326	286	248								
13											254	250	320	310	280	266	252								
14										246	266	274	300	288	286	266	256		212						
15											^L 300	266	246	276	294	266	244	232							
16											264	262	^L 276	290		256	240								
17										234	252	262	308	310	300	276									
18										240		242	284	278	278	260	246								
19										262	252	252	246	288	288	260									
20										228	246	280	268	282	274	258									
21										242	246	260	262	294	282	254	236								
22											240	286	244	252	288	268									
23											260	252	290	296	288	286	258								
24									234	230	254	268	260	292	278	260									
25											244	262	308	296	280	270									
26											258	258	280	290	254	282	262								
27											258	256	244	304	300										
28										242	250	250	260	246	312	288	260								
29											274	254	248	302	284	268	252								
30											270	252	264	274	284	268									
31												260	246	292	298	284	252								
	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	19	29	31	31	31	30	29	21	2	1						
MED									233	242	254	262	278	292	288	272	252	237	212						
U Q									238	256	265	274	304	306	300	283	263								
L Q									230	234	246	254	260	286	280	266	249								

OCT. 2014 h'F2 (KM)

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IONOSPHERIC DATA STATION Okinawa

OCT. 2014 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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	272	242	246	262	222	254	258	220	208	208	206	208	214 ^B	232	234	232	228	236	248	240	204	222	242	272	
2	250	266	228	264	296	268	282	218	218	212	204	198	194	220	220	212	224	244	238	216	204	208	218	256	
3	276	256	248	282	288	280	266	220	228	214	214	200	202	248	236 ^Y	218	236	250	234	234	206	194	230	230	
4	236	230	228	230	200	270	270	224	220	218	214	208	206	192	226 ^Y	224	218	236	232	228	222	214	262	280	
5	286	264	234	222	202	216	276	230	226	214	212	208	214	228	224	240	238	230	222	240	212	232	310 ^{A E}	308 ^A	
6	270	256	252	242	240	244	248	220	220	208	202	204	208	^A	^A	^H	214	218	226	226	222	212	224	248	256
7	250	250	246	240	226	244	258	236	216	202	208	196	182	176 ^H	248	224	232	230	218	212	220	240	238	248	
8	238	230	206	220	206	232	256	222	216	212	208	198	192	206	210	230	234	234	224	212	194	266	264	308	
9	292 ^Q	238 ^Q	206	192	222	338 ^E	296	224	226	208	222	240	198 ^B	200	232	222	242	240	222	212	218	246	264 ^A	332 ^A	
10	296	258	218	210	202	274 ^E	286	226	220	224	206	200	192 ^H	214	224	220	222	232	210	198	198	256	256	256	
11	244	232	210	212	230	214	252	216	222	210	212	224	210	206	228	230	218	234	214	216	232	250	212	214	
12	252	226	236	226	238	242	216	220	218	212	226	218	204	204	216	226	226	228	200	212	218	238	228	226	
13	250	228	206	210	198	214	228	220	216	222	212	214	202	198	216	220	216	226	206	208	204	212	206	220	
14	262	262	226	230	260	254	200	210	220	216	206	192	190	202	210	206	224	226	^A	210	210	244	242	268	
15	286	252	272	258	246	288	252 ^Q	204	220	230	254	258	228 ^B	224 ^B	220 ^B	238 ^B	236	220	218	210	224	254	218	262	
16	272	268	236	224	196	218	276	238	226	220	212	206	232 ^{A E}	260 ^A	276	^A	^A	226	204	238	226	232	216	264	
17	282	246	220	242	218	238	266	222	220	222	230	218	196 ^H	196 ^H	242	242	244	224	208	214	198	250	256	242	
18	250	242	208	220	244	214	262	224	224	228	210	204	190	238	224	230	^A	230	236	210	226	282	260	244	
19	242	262	280 ^A	234	290	288	288	226	220	220	210	228	208	252	^B	^B	240	234	222	212	218	224	222	268	
20	270	274	248	222	214	256	306	240	220	204	222	218	212	256	224	242	238	230	224	214	224	224	262	258	
21	256	228	226	272	370	380	290	242	236	226	220	222	222	208	210	234	^A	226	226	232	216	212	218	268	
22	292	252	300	268	196	254	310	250	236	232	230	^Y	^B	208	228	236	240	224	204	222	236	220	200	232	
23	270	228	228	248	290	332	308	242	224	224	220	216	222	198	228	204	240	230	204	200	210	224	234	234	
24	238	228	218	208	234	304	320	242	224	216	212	210	224	212	258	246	232	238	218	220	230	228	208	208	
25	246	250	274	298	342	270	294	256	238	232	220	224	232	232	242	228	236	250	220	204	200	222	232	222	
26	220	226	248	260 ^A	304	332	280	232	224	218	220	214	212	212	232 ^{E B}	228	230	220	216	214	210	222	218	238	
27	228	262	244	232	202	284	306	254	238	232	230	236	214	244	220 ^H	240	248	232	218	224	228	216	206	240	
28	218	214	244	288	298	284	246	240	234	232	232	216	^B	^B	220	240	244	230	218	218	244	248	236	226	
29	244	248	254	270	222	252	288	238	230	232	228	222	210	242	236	234	240	236	216	206	214	242	220	218	
30	218	214	276 ^E	348 ^E	298	290	278	232	218	226	222	238	230	222	226	242	232	234	216	208	216	218	224	220	
31	214	234	262	256	236	226	220	230	232	224	240	244	212	206	218	218	230	220	208	200	214	204	204	232	
CNT	31	31	31	31	31	31	31	31	31	31	31	30	29	29	29	29	28	31	30	31	31	31	31	31	
MED	250	246	236	240	234	256	276	226	222	220	214	215	210	212	225	230	233	230	218	214	216	224	230	243	
U Q	272	258	252	264	290	288	290	240	228	226	226	224	218	235	235	239	240	236	224	222	224	246	256	268	
L Q	238	228	220	222	206	238	252	220	220	212	210	204	197	203	220	220	225	226	210	210	206	218	218	226	

OCT. 2014 h'F (KM)

IONOSPHERIC DATA STATION Okinawa

OCT.2014 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							B	112	112	110	106	B	B	B	B	106	106	110	A						
2							B	116	112	110	B	B	B	B	110	B	A	108	A						
3							B	112	110	110	108	108	B	B	A	108	B	A	A						
4							B	110	110	110	108	A	B	B	110	112	A	112	A						
5							B	112	108	108	B	B	A	A	108	108	108	112	A						
6							B	122	108	110	A	A	A	A	A	B	B	110	B						
7							B	130	A	A	A	A	A	A	A	A	A	A	128	A					
8							B	112	110	110	108	108	B	B	110	114	110	110	A						
9							B	120	112	112	112	B	B	B	B	110	A	A	A						
10							B	118	110	108	106	A	A	A	A	A	A	A	A						
11							B	116	116	112	112	112	A	B	112	A	110	110	A						
12							B	114	110	A	A	A	B	B	110	A	110	A	A						
13							B	126	112	112	112	B	A	B	112	A	A	A	A						
14							B	116	116	108	A	106	108	B	A	114	112	A	A						
15							B	112	B	B	B	B	B	B	B	B	A	A	A						
16							B	112	108	106	106	A	A	B	B	112	112	112	A						
17							B	118	110	106	106	A	B	B	B	112	A	A	A						
18							B	A	110	106	B	B	B	A	108	110	110	A	A						
19							B	A	110	110	A	A	B	A	B	B	A	A	A						
20							B	132	A	A	A	A	A	A	A	A	104	104	A						
21							B	120	110	114	A	A	A	A	112	108	A	A	A						
22							B	116	110	110	108	B	B	A	B	B	110	110	B						
23							B	110	110	110	112	A	A	A	B	A	A	A	A						
24							B	112	112	A	A	112	A	A	A	A	A	A	A						
25							B	B	B	A	A	A	A	A	A	118	118	116	A						
26							B	130	118	A	A	A	A	A	B	118	112	112	A						
27							B	114	110	110	A	B	B	A	A	A	A	A	A						
28							B	132	108	108	110	B	B	B	120	110	110	110	A						
29							B	128	110	110	108	B	A	B	A	A	A	A	A						
30							B	130	108	B	108	B	B	B	108	108	A	A	A						
31							B	128	108	108	B	A	B	B	B	110	A	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								28	27	23	15	5	1	1	10	15	14	15							
MED								116	110	110	108	108	108	108	110	110	110	110							
U Q								127	112	110	112	112			112	114	112	112							
L Q								112	110	108	106	107			110	108	110	110							

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OCT.2014 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'E KSWEPT 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	94	94	94	90	B	B	B	148	G	118	110	B	B	B	B	G	G	124	110	106	104	90	92	92
2	92	88	B	B	B	B	B	142	112	G	B	B	B	B	G	B	102	96	136	98	B	B	B	92
3	B	B	B	B	B	B	B	148	G	G	96	96	B	192	94	94	B	124	116	104	104	98	90	90
4	94	90	B	B	B	B	B	130	126	116	116	98	B	B	G	G	104	100	100	98	98	98	B	B
5	B	B	98	B	B	B	B	G	168	G	B	128	118	140	142	126	116	112	108	106	102	102	98	96
6	96	94	96	96	B	B	B	146	110	114	98	112	114	110	110	B	B	164	B	106	B	108	B	94
7	90	94	92	92	92	B	B	114	114	108	110	106	110	112	112	106	106	134	102	102	98	96	92	92
8	90	90	B	B	B	B	B	152	G	G	G	94	B	B	94	134	120	112	110	B	106	102	B	100
9	98	96	B	B	B	B	B	182	188	112	G	B	B	B	B	G	106	104	104	96	98	94	94	92
10	92	98	B	B	108	B	B	148	134	118	108	108	106	106	106	106	106	108	100	98	96	94	B	92
11	114	88	88	88	B	B	B	140	118	112	G	G	110	B	G	G	102	136	98	92	92	B	B	102
12	98	B	92	B	B	B	B	118	116	112	114	108	B	B	G	G	106	100	96	96	96	94	B	98
13	98	B	B	B	B	B	B	130	128	G	G	B	100	B	102	100	98	96	96	94	94	B	B	B
14	B	B	B	B	B	B	B	134	102	104	104	G	G	B	98	116	112	94	90	90	102	100	96	96
15	B	98	94	94	B	B	B	G	B	B	B	B	B	B	B	B	108	102	96	90	102	156	100	B
16	B	B	B	B	B	B	B	G	G	122	116	118	136	156	130	122	124	112	108	102	102	102	102	98
17	B	B	B	B	B	B	B	168	136	122	114	114	126	B	B	B	126	130	122	104	100	100	98	96
18	B	B	B	B	B	B	B	122	120	116	B	B	B	112	G	G	112	106	100	100	100	98	98	98
19	98	B	94	94	B	B	B	118	108	104	104	104	B	102	B	B	102	100	100	94	94	94	94	92
20	98	96	102	B	B	B	B	G	114	100	106	104	104	104	106	106	G	120	116	106	100	94	94	94
21	108	106	100	100	98	98	B	116	G	104	104	100	100	98	98	98	96	94	92	92	B	B	B	B
22	B	B	98	102	96	B	B	G	G	G	G	B	B	92	B	B	G	90	B	114	100	98	92	B
23	B	B	B	B	B	B	B	96	146	G	G	G	104	102	106	B	106	106	102	100	98	92	90	96
24	B	B	96	B	96	96	96	142	110	104	104	G	108	108	106	104	104	102	102	98	94	94	94	B
25	B	94	B	B	B	B	B	B	B	120	108	106	108	108	108	112	G	G	110	104	B	98	B	98
26	B	96	94	94	100	B	96	132	166	104	98	98	96	94	B	94	112	G	90	90	B	B	B	B
27	94	94	94	92	92	B	B	G	G	114	114	B	B	B	104	104	102	100	100	96	96	96	100	96
28	96	94	92	96	B	B	B	G	G	136	126	B	B	B	114	142	146	138	114	104	98	98	98	92
29	90	90	94	B	B	B	B	206	G	132	128	B	102	B	100	98	120	116	106	98	94	B	B	B
30	B	B	B	B	B	B	B	G	G	B	128	B	120	116	B	108	108	106	104	104	96	94	B	B
31	B	94	92	92	B	B	B	G	142	G	120	112	112	B	122	B	112	114	108	B	102	B	B	B
	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	18	17	12	7	3	3	22	17	22	21	17	16	18	16	21	23	29	28	29	26	24	15	21
MED	96	94	94	94	96	96	96	142	118	114	110	106	108	108	106	106	108	106	102	98	98	98	94	96
U Q	98	96	97	96	100	98	96	148	135	120	115	112	116	116	111	114	116	122	110	104	102	100	98	98
L Q	92	90	92	92	92	92	96	130	111	104	104	99	102	104	99	101	104	100	97	95	96	94	92	92

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NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

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	F1	F1	F2					H1		C1	C1							CL11	CL72	FF22	FF13	F2	F1	F1
2	F1	F1							H1	C1								L1	L1	HL11	F1				F1
3									H1			L1	L1		H1	L1	L1		CL12	CL35	FF24	F1	F3	F2	F1
4	F1	F1							H1	C1	C1	C1	L1					L1	L1	L5	F5	F4	F1		
5			F1						H1			C1	C1	CL11	H1	HL11	CL11	C1	C1	C1	F2	F1	F1	F7	F5
6	F2	F3	F2	F1					H1	C1	CL11	L1	CL11	CL11	CL21	CL21			H1		F3		F1		F2
7	F4	F1	F2	F2	F1				C1	CL11	CL11	C1	C1	C1	C1	L1	L1	L1	HL11	L1	F3	F1	F2	F1	F1
8	F1	F1							H1				L1			L1	H1	C1	C5	C2		F1	F6		F2
9	F1	F1							H1	H1	C1							C1	LC21	L1	F3	F7	F6	F4	F5
10	F2	F1			F1				H1	H1	C1	C1	C1	C1	C1	C1	C1	C1	C1	L1	F1	F1	F1		F1
11	FF11	F1	F1	F1					H1	C1	C1			C1			L1		H1	L1	F3	F2			F1
12	F3		F1						CH11	C1	C1	C1	C1				L1		L1	L1	F2	F1	F2		F1
13	F1								H1	C1				L1		L1	L1	L1	L2	L4	F3	F1			
14									H1	L1	C1	C1				L1	CL11	CL11	L2	L3	F2	F1	F4	F3	F4
15		F1	F1	F1														C1	CL11	L1	F1	F1	F1	F1	
16											CL11	C1	C1	HL11	H1	H2	C1	C2	C2	CL21	F2	F1	F1	F1	F2
17									HC11	H1	C1	C1	CL11	C1				CL11	HC11	CC21	F4	F1	F1	F4	F2
18									C1	C1	C1				C1			C2	C3	L2	F3	F6	F4	F2	F1
19	F1		F3	F1					C1	C1	C1	C1	L1				L1	L1	L5	F4	F3	F1	F1	F1	F1
20	F1	F1	F1						CL11	L1	CL11	C1	C1	L1	C1	C1			CL11	CL11	F4	F4	F2	F3	F2
21	FF11	FF12	F2	F1	F1				C1		L1	L1	L1	L1	L1	L1	L2	L2	LC21	L4	F2				
22			F1	F1	F1										L1				L1		FF11	F3	F1	F1	
23								L1	H1				L1	L1	L1		L1	L1	L1	L2	F1	F1	F1		F1
24			F1		F1	F1	L2	H1	C1	L1	L1			C1	C1	C1	C1	C1	L1	L2	F3	F2	F1		
25		F1									C1	C1	C1	C1	C1	C1				C3	F3		F1		F1
26		F2	F1	F1	F1		L1	H1	HL11	L1	L1	L1	L1	L1	L1		L1	CL11		L1	F1				
27	F2	F2	F1	F1	F1					C1	C1				L1	L1	L2	L2	L2	L4	F2	F2	F1		F1
28	F1	F2	F1	F1						H1	CL11					C1	HL11	HL11	H1	C3	F1	F4	F3	F3	F4
29	F5	F3	F2						H1		H1	C1		L1		L1	L2	CL12	CL21	C2	F1	F1			
30											C1	C1	C1				C1	C2	C1	L1	F1	F3	F1		
31		F1	F1	F1		F1			H1		C1	C1	C1				C1	C1	C1	C1		F3			
		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

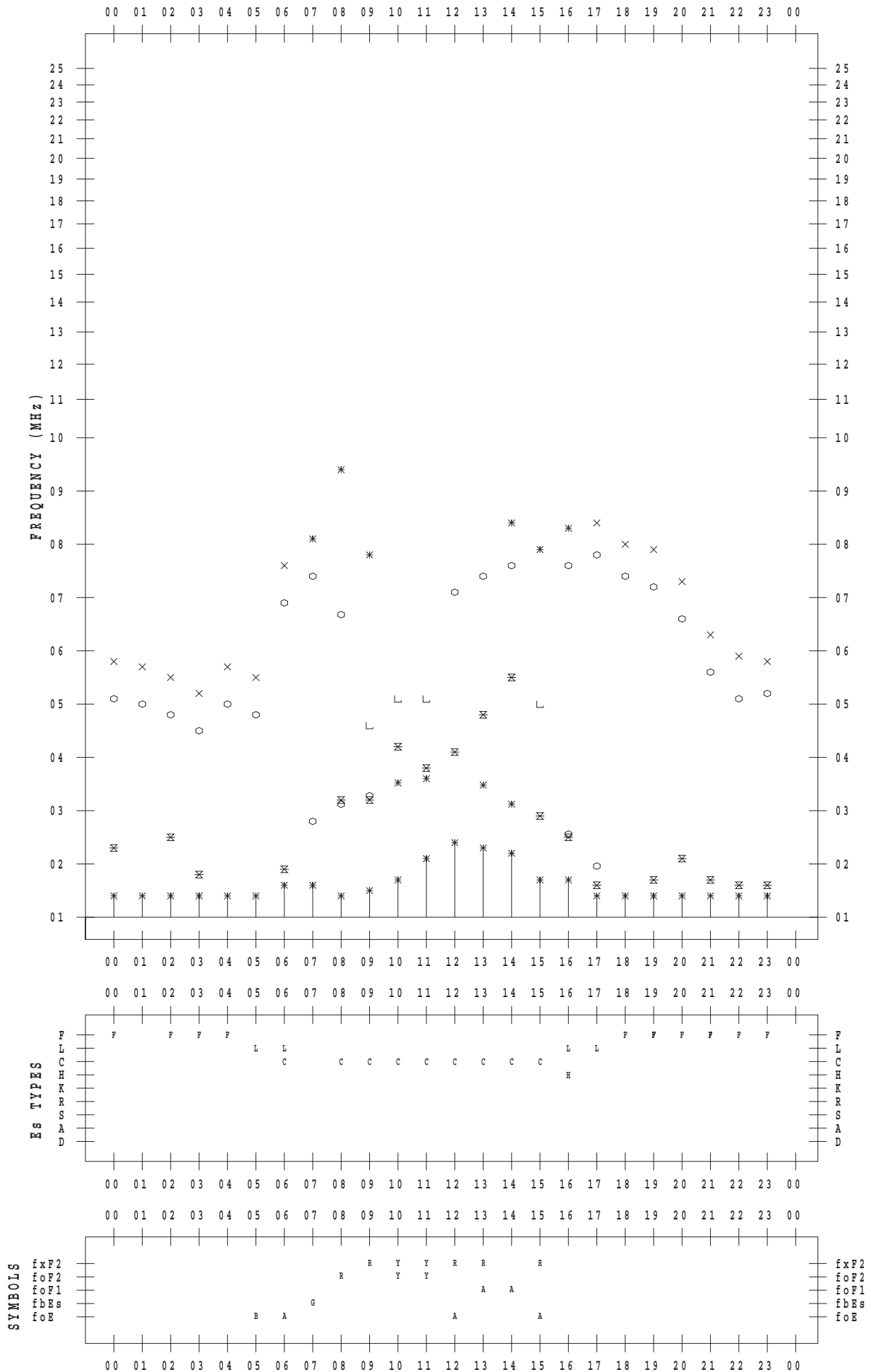
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/ 1

135 ° E MEAN TIME



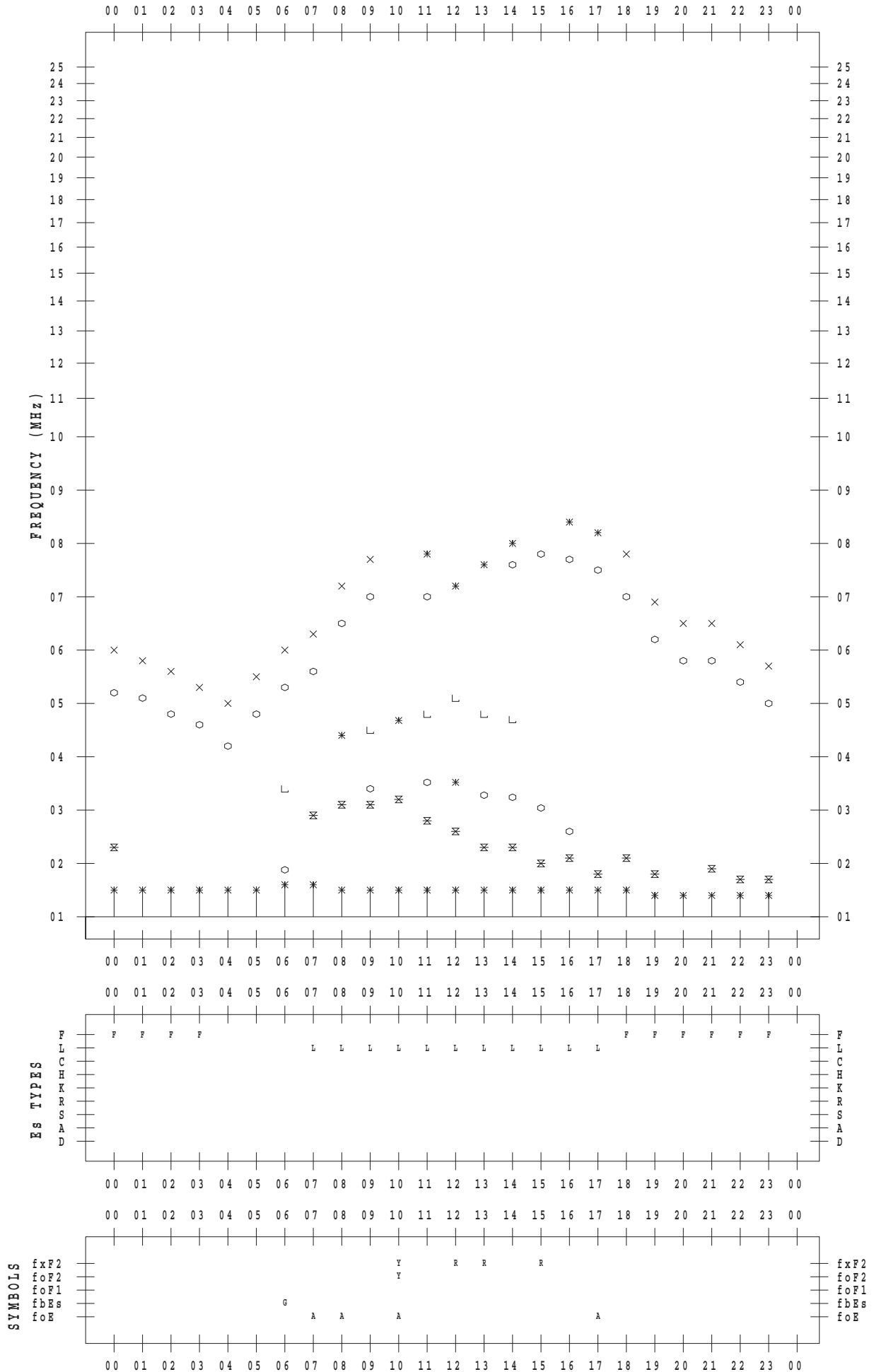
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/ 2

135 ° E MEAN TIME



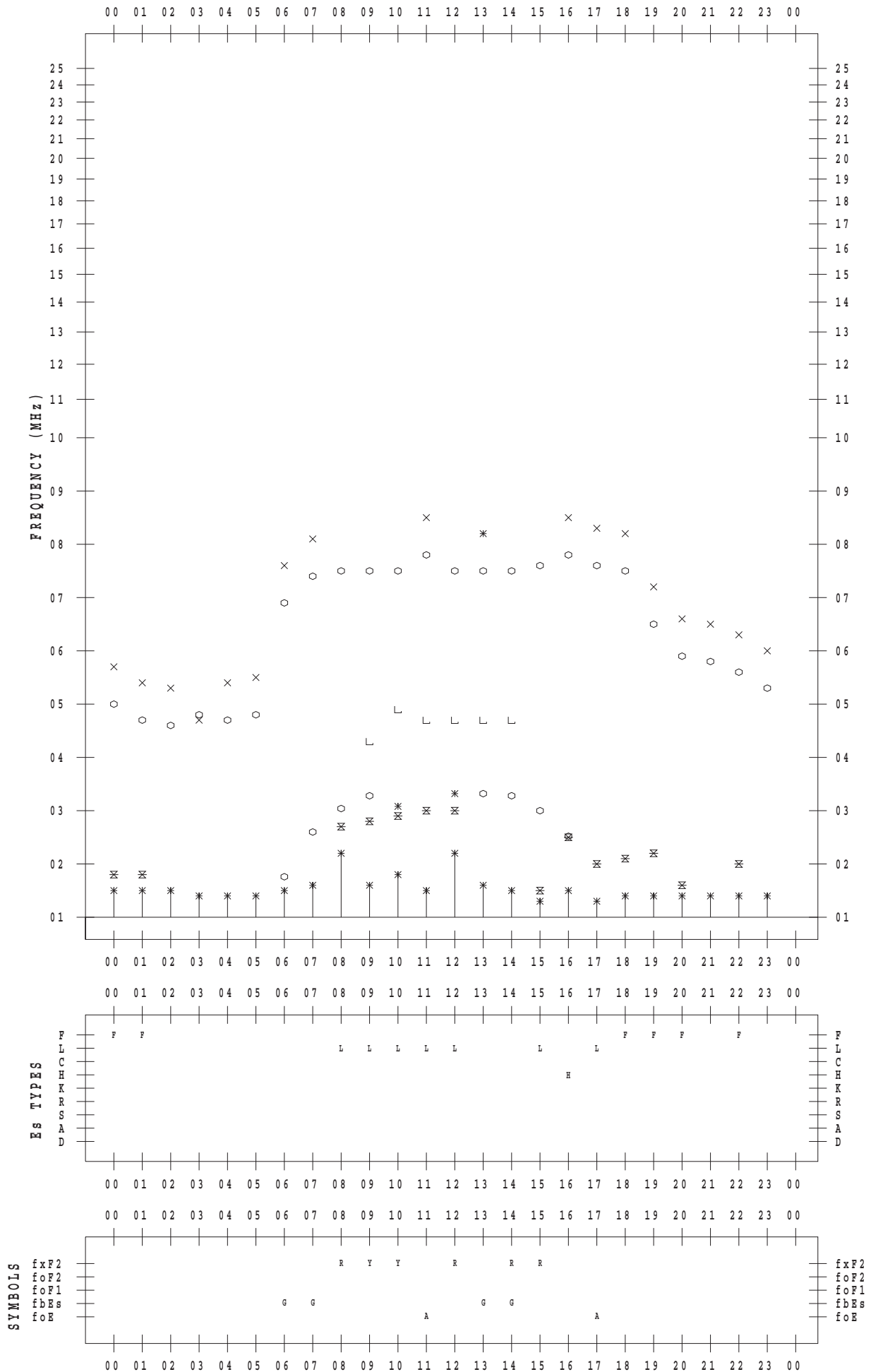
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/ 3

135 ° E MEAN TIME



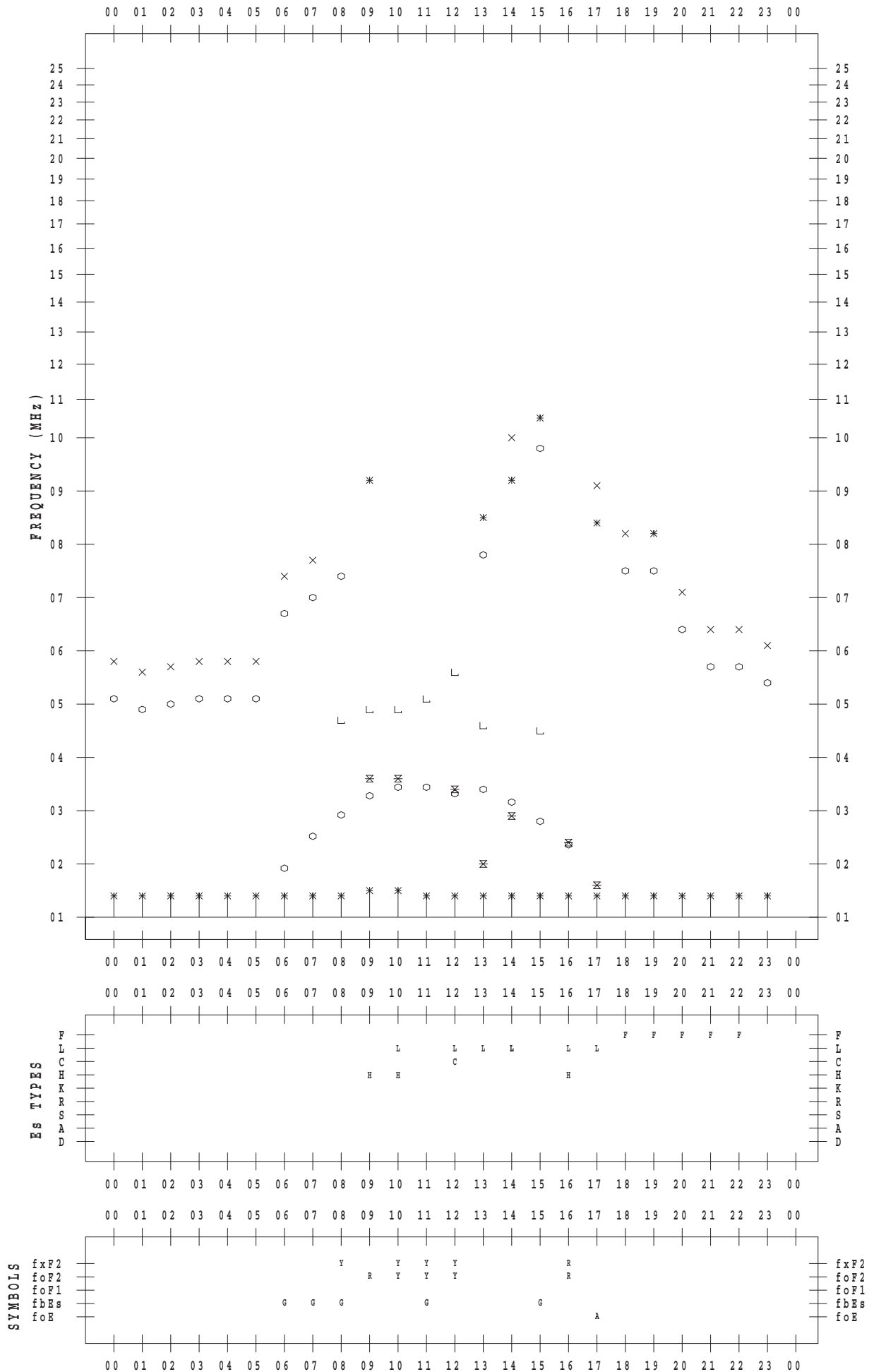
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/ 4

135 ° E MEAN TIME



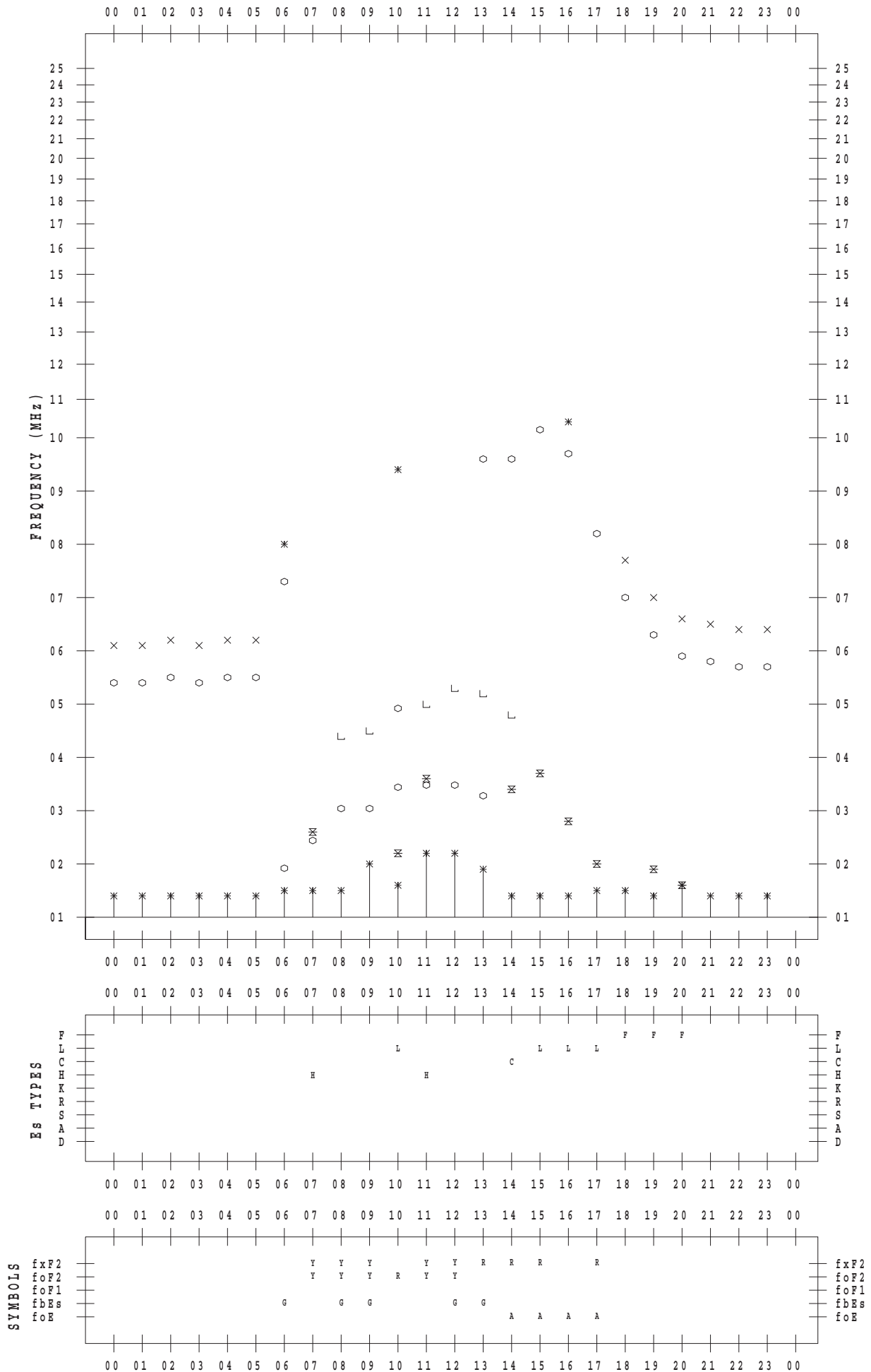
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/ 5

135 ° E MEAN TIME



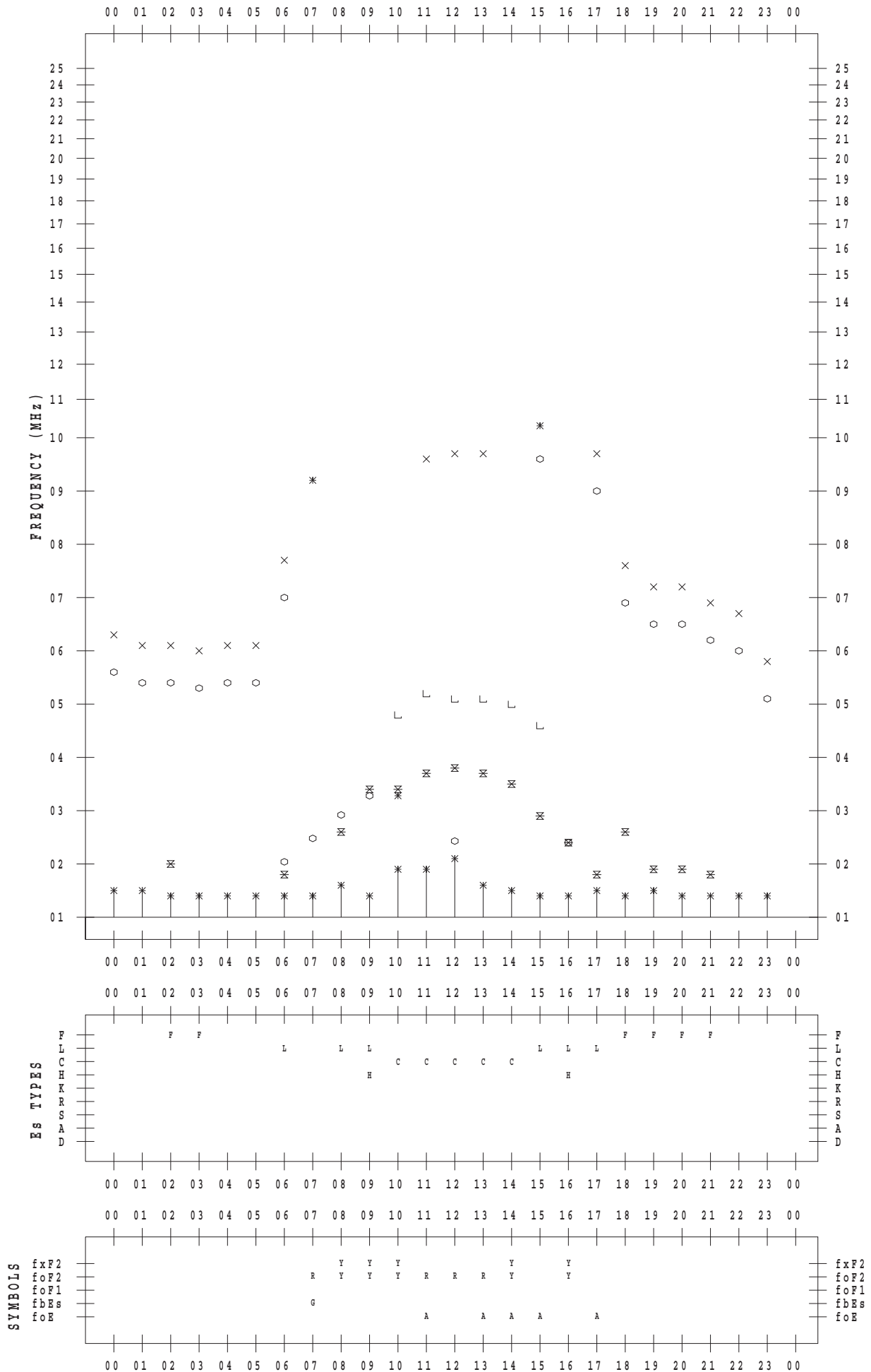
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/ 6

135 ° E MEAN TIME



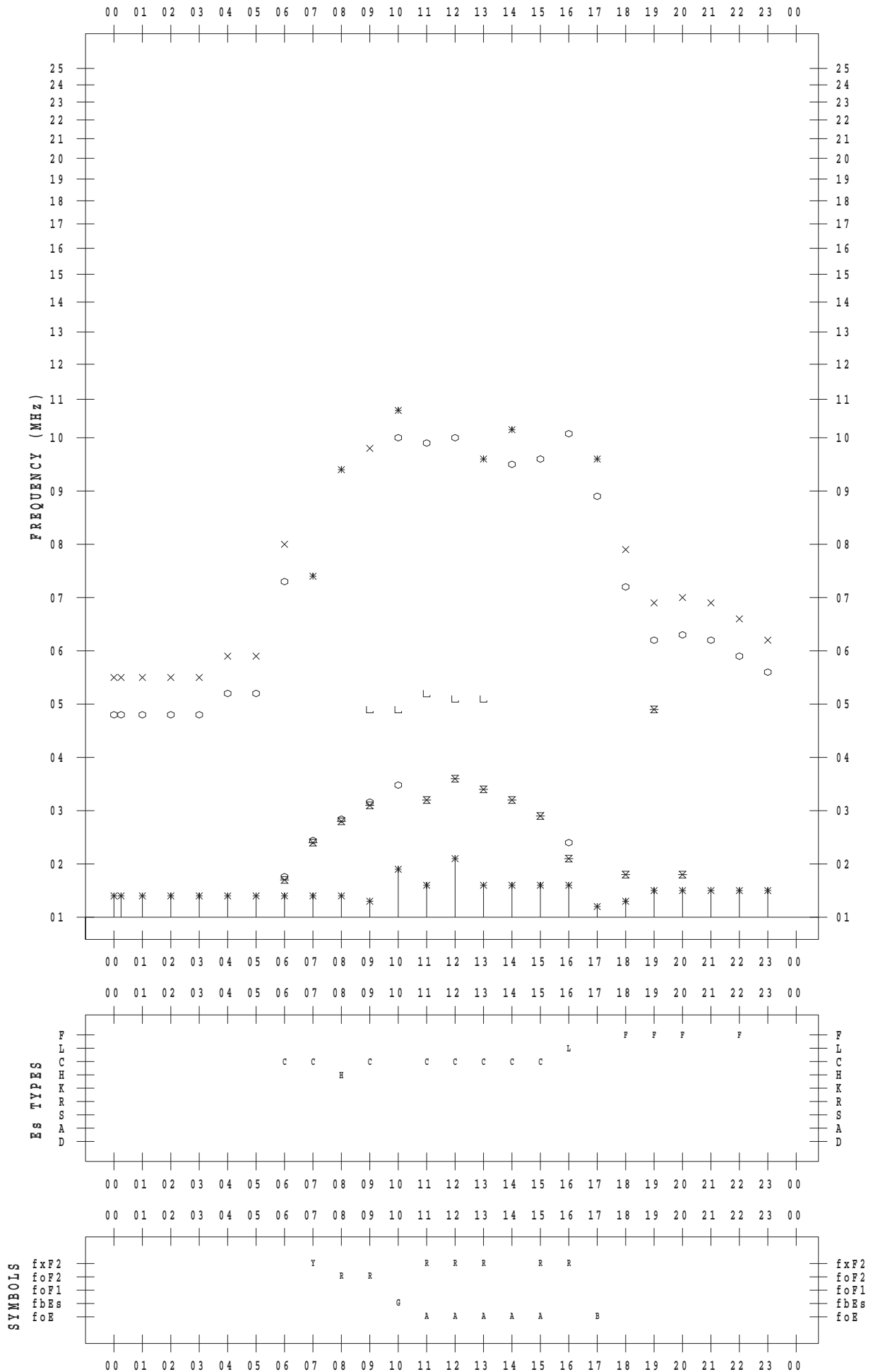
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/ 7

135 ° E MEAN TIME



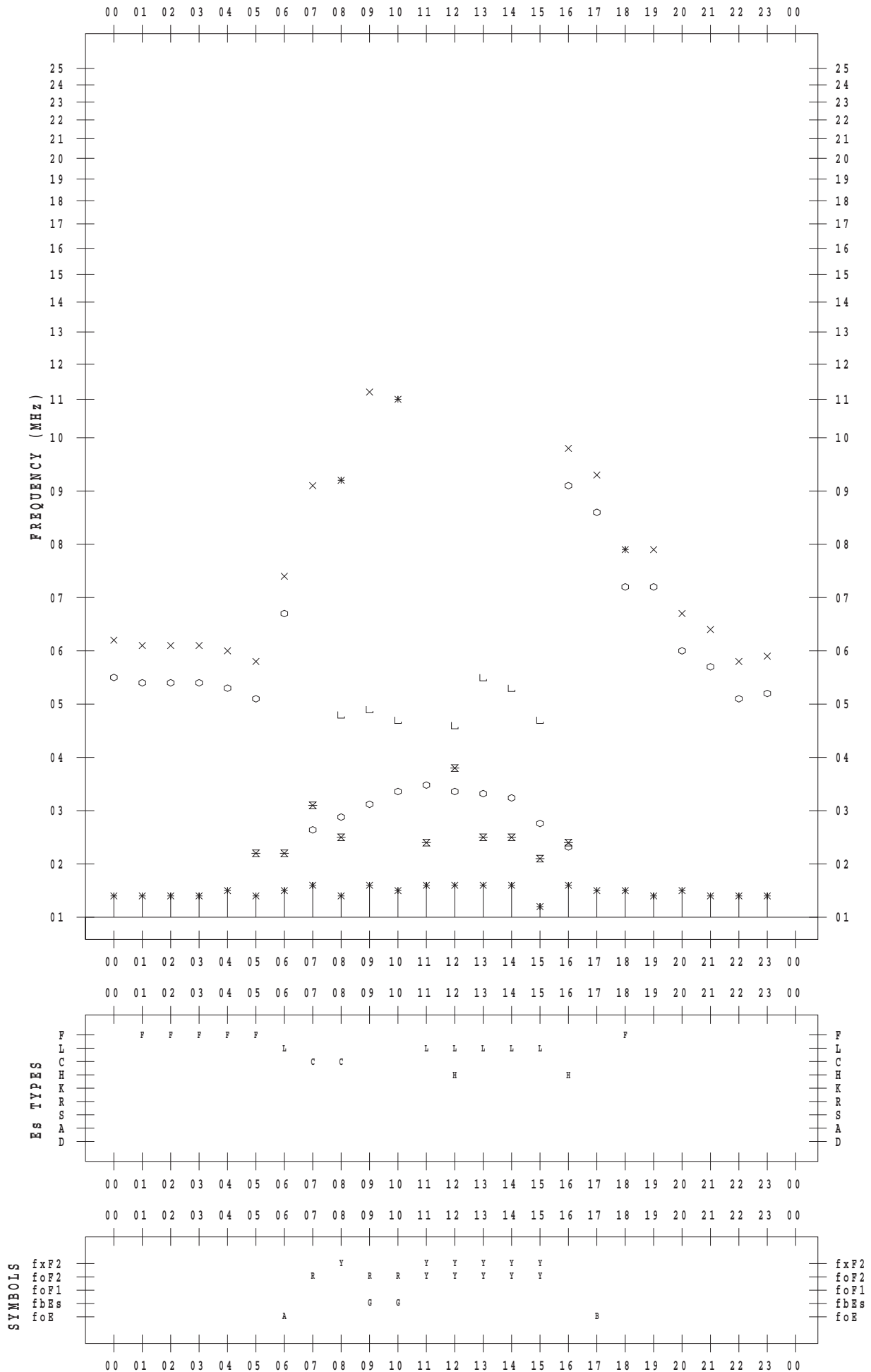
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/ 8

135 ° E MEAN TIME



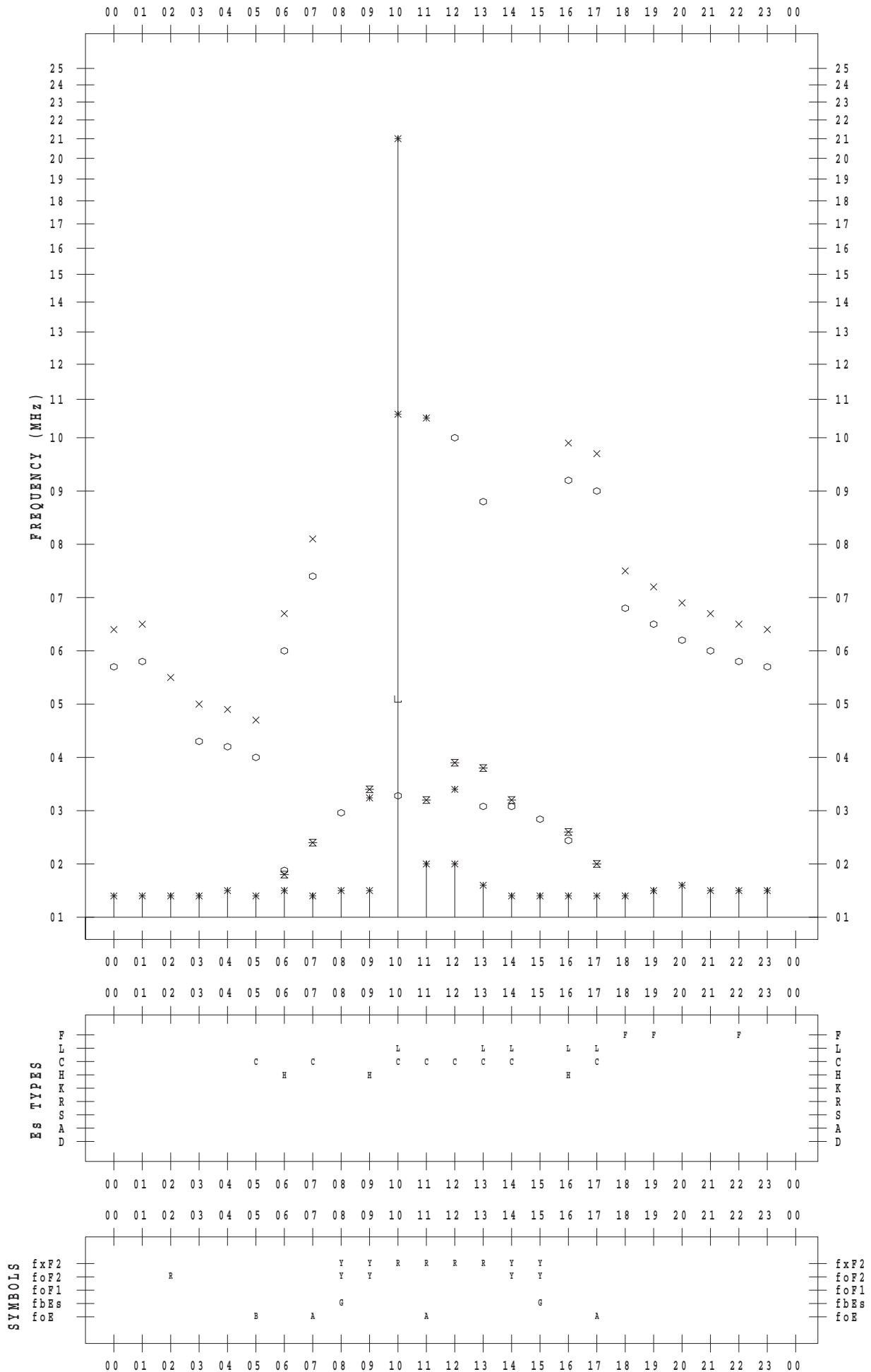
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/9

135 ° E MEAN TIME



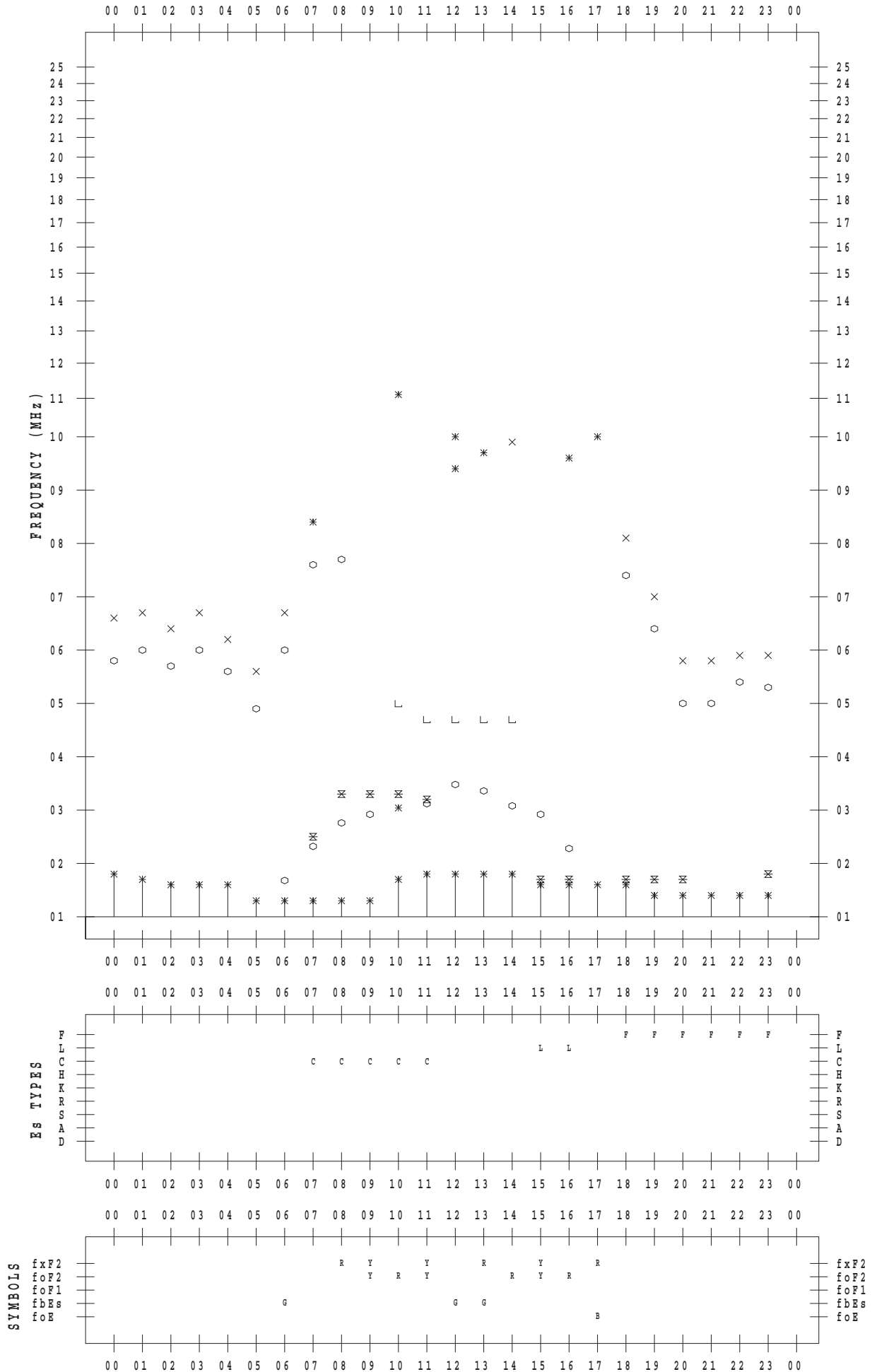
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/10

135 ° E MEAN TIME



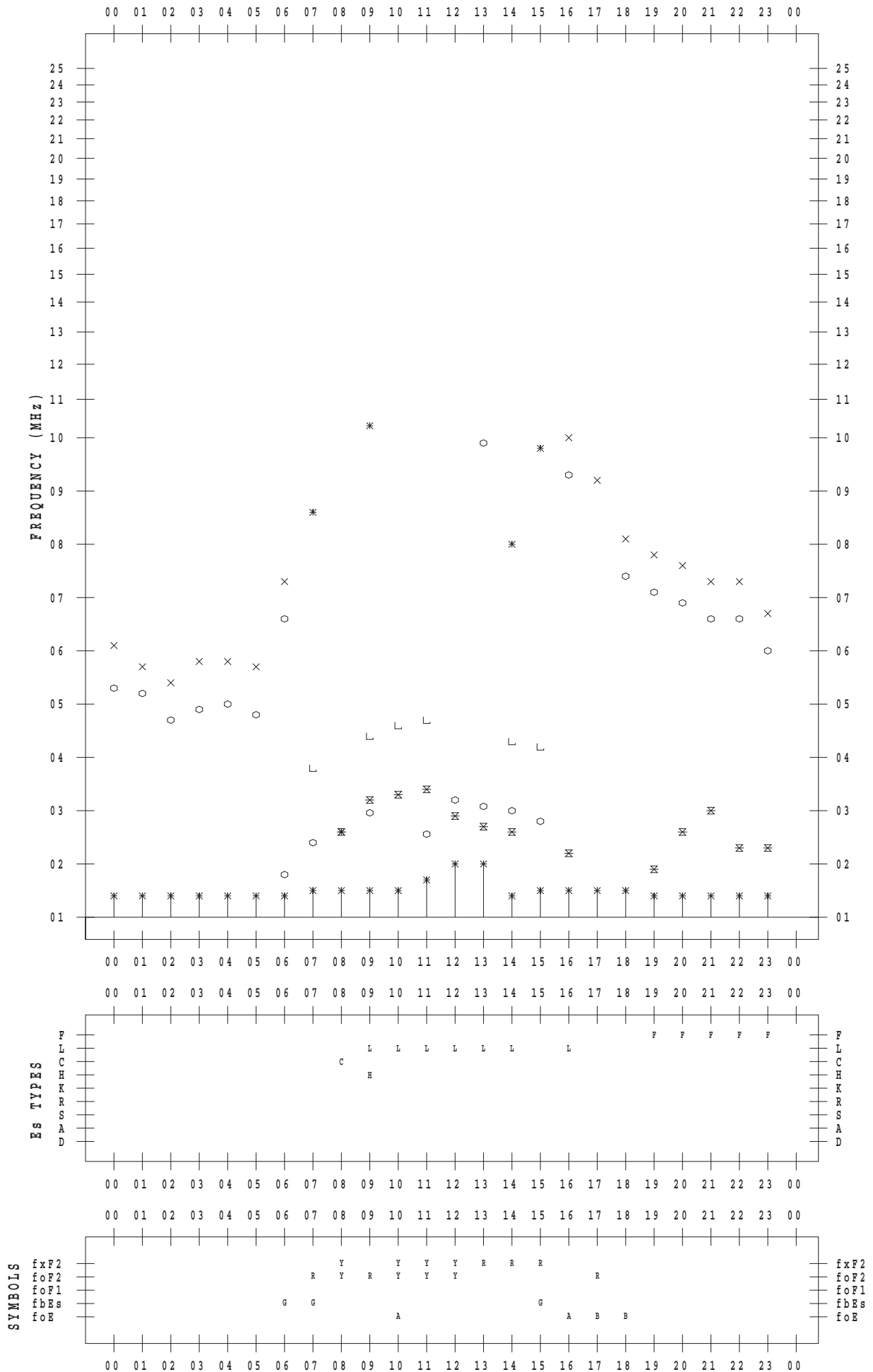
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/11

135 ° E MEAN TIME



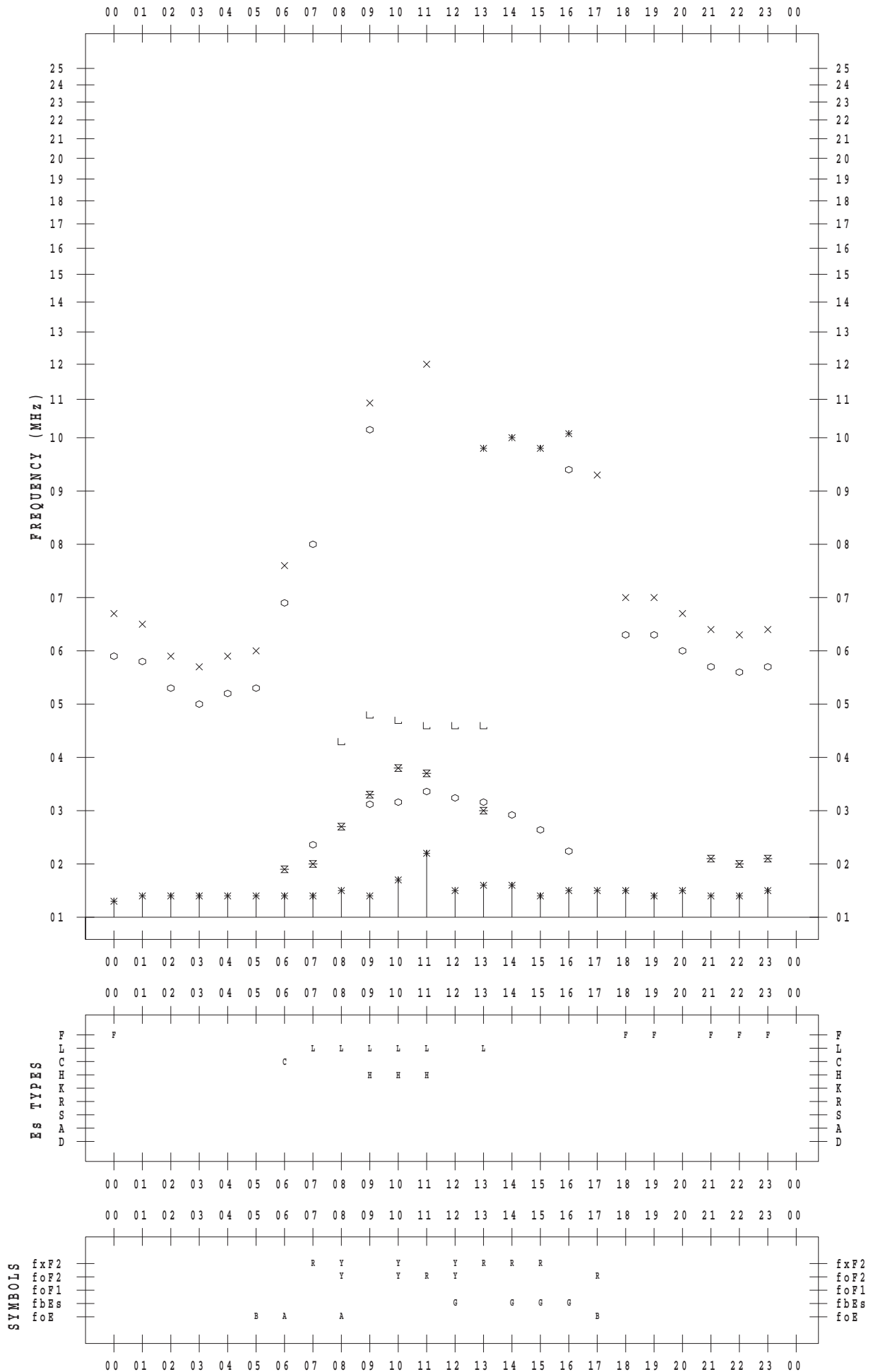
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/12

135 ° E MEAN TIME



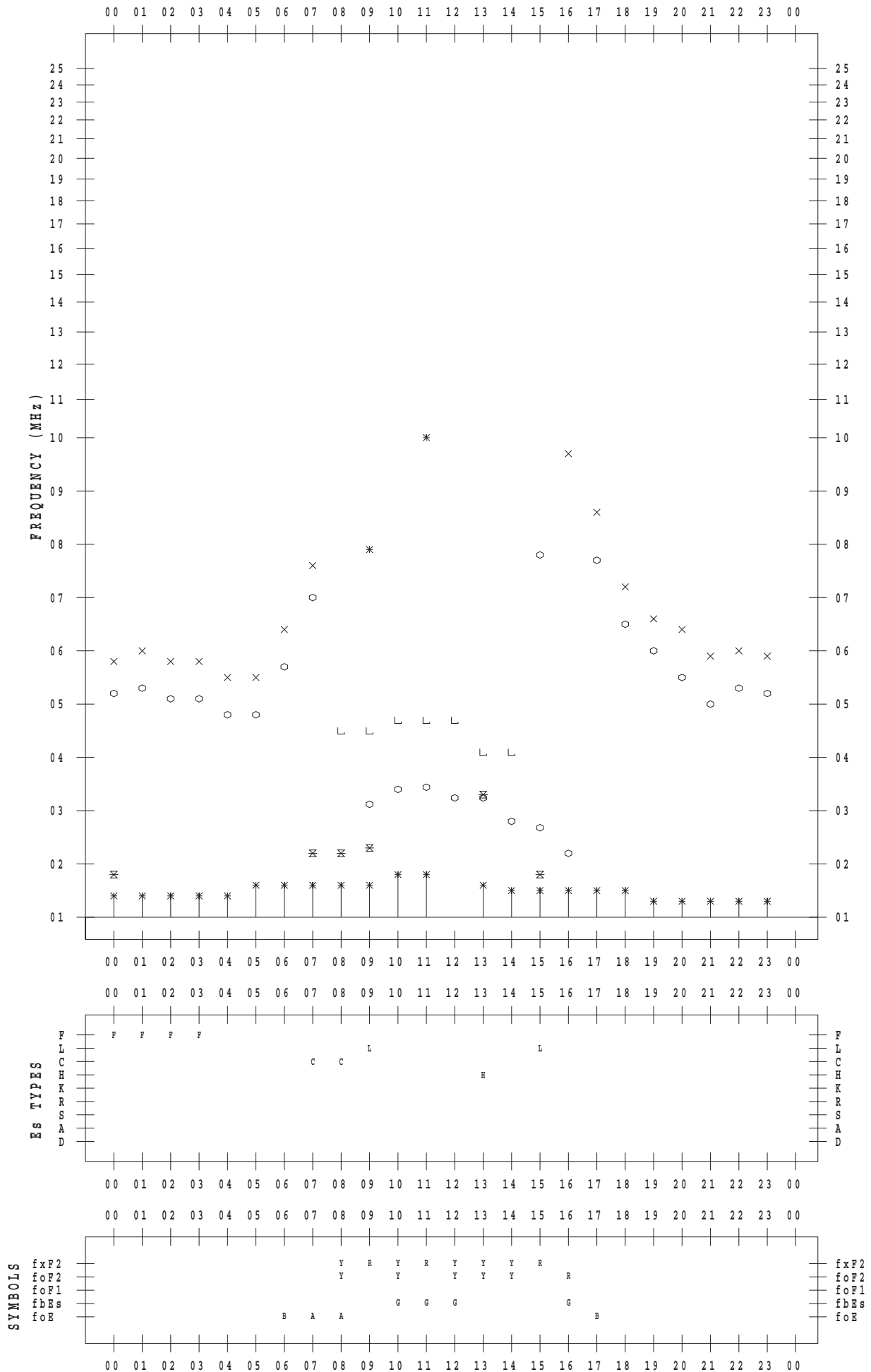
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/13

135 ° E MEAN TIME



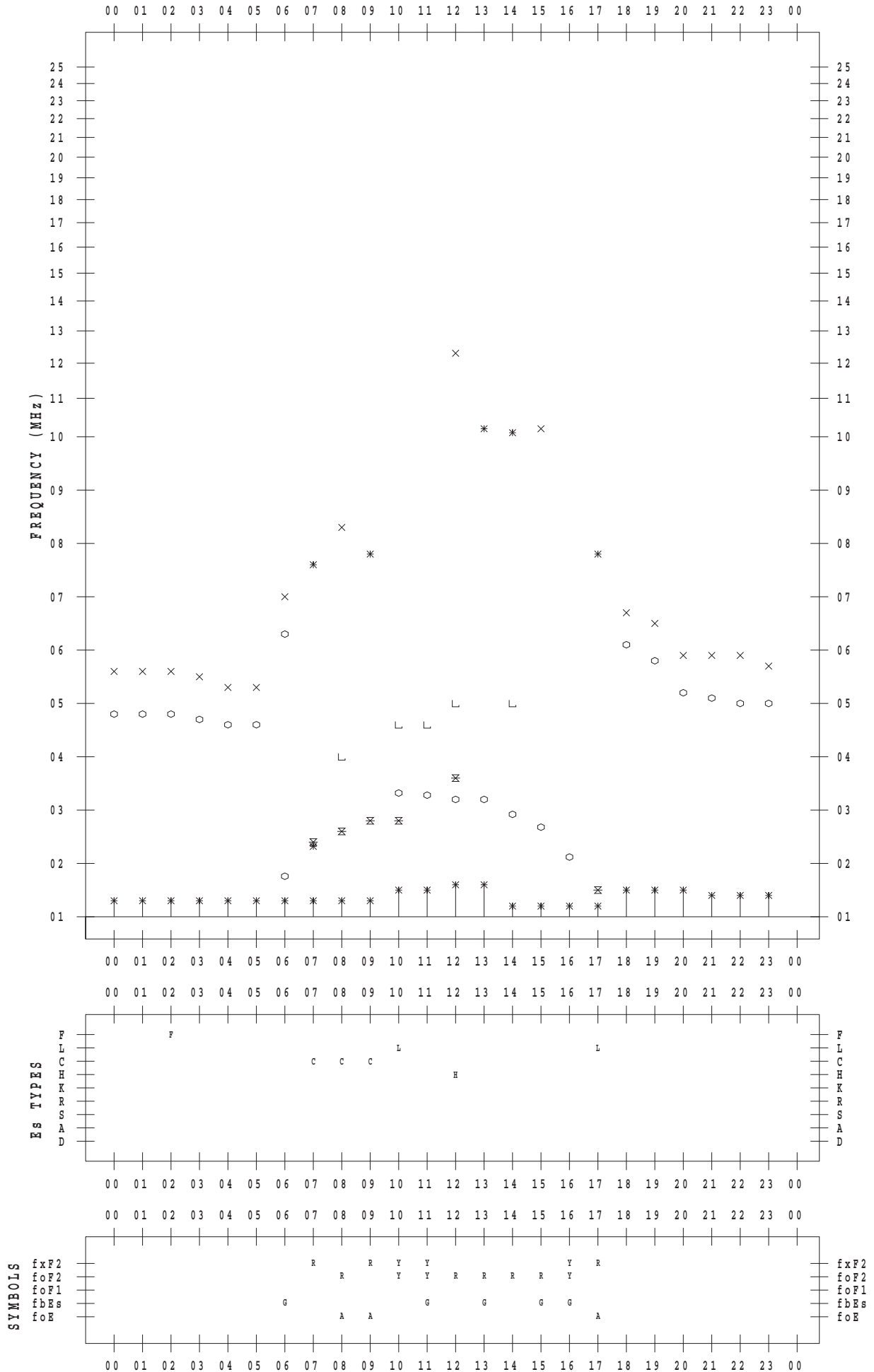
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/14

135 ° E MEAN TIME



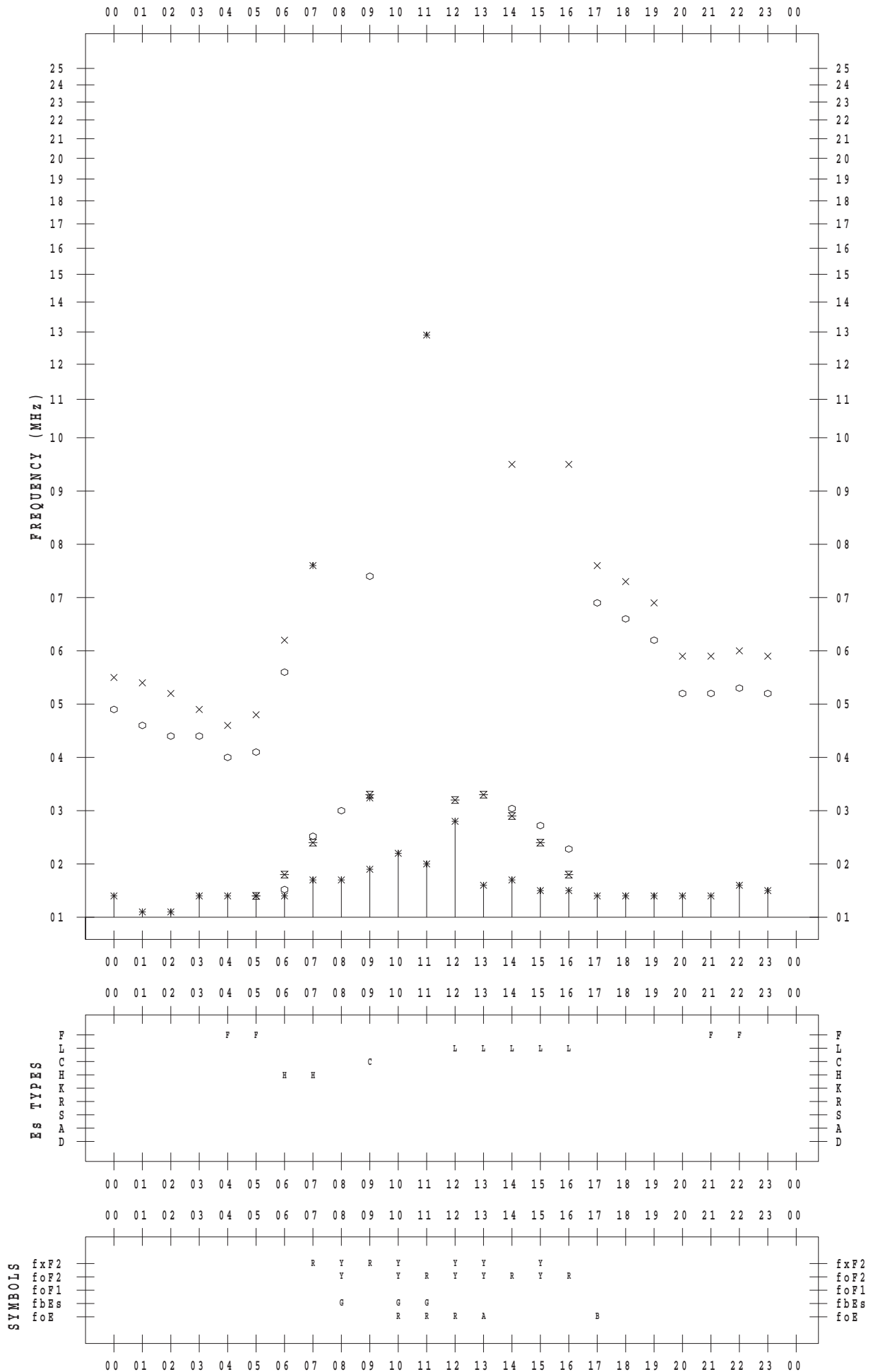
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/15

135 ° E MEAN TIME



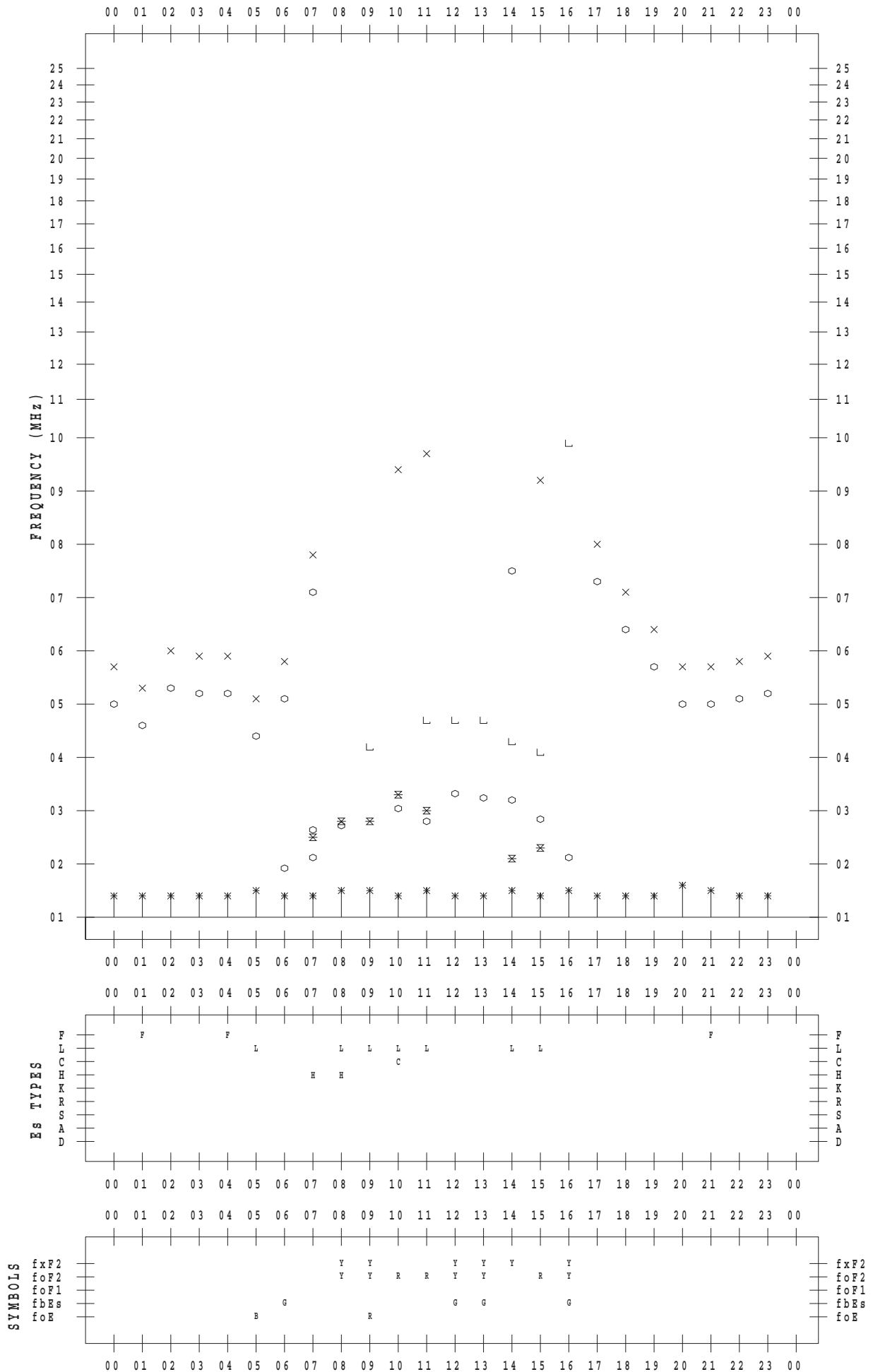
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/16

135 ° E MEAN TIME



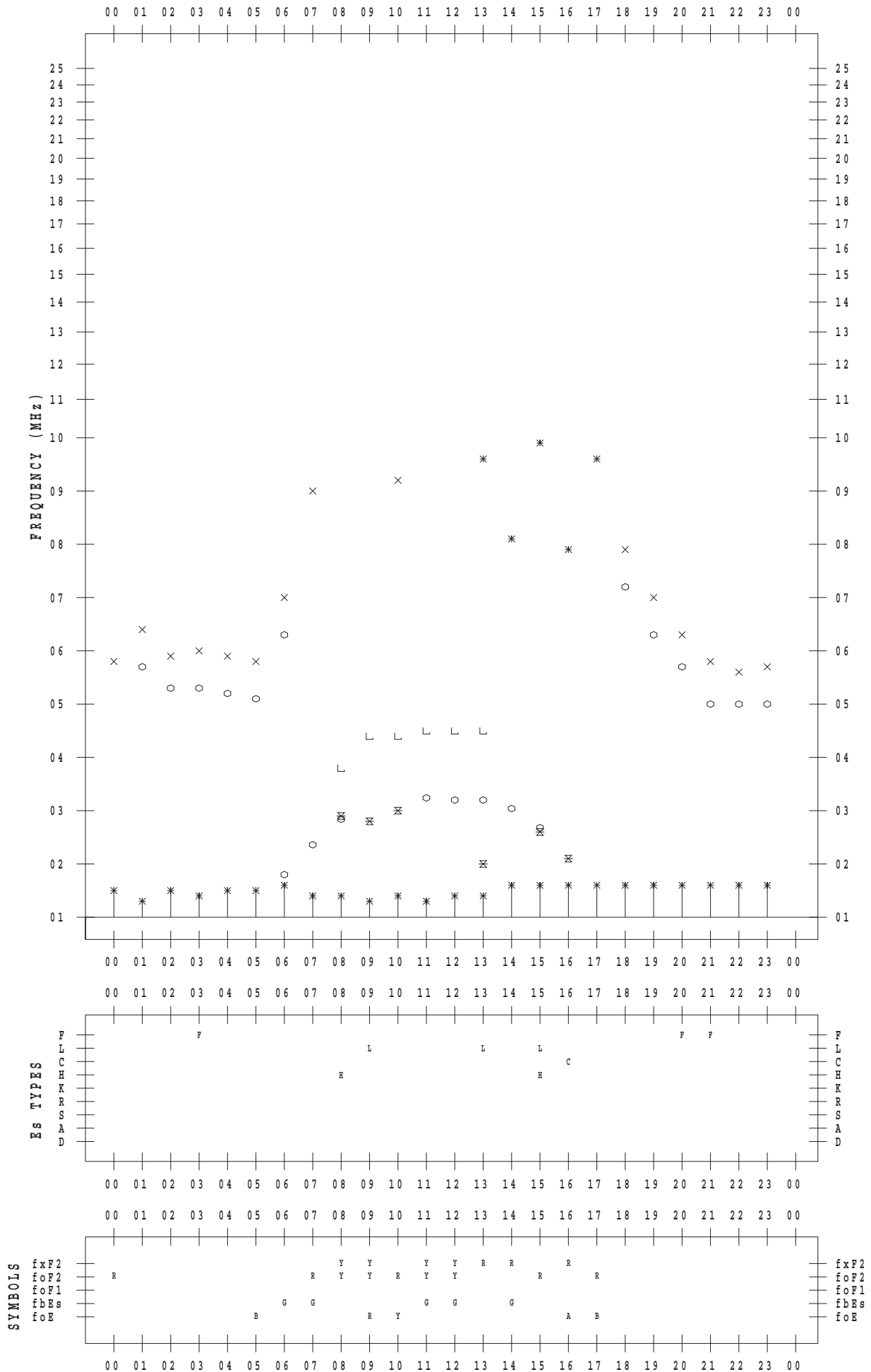
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/17

135 ° E MEAN TIME



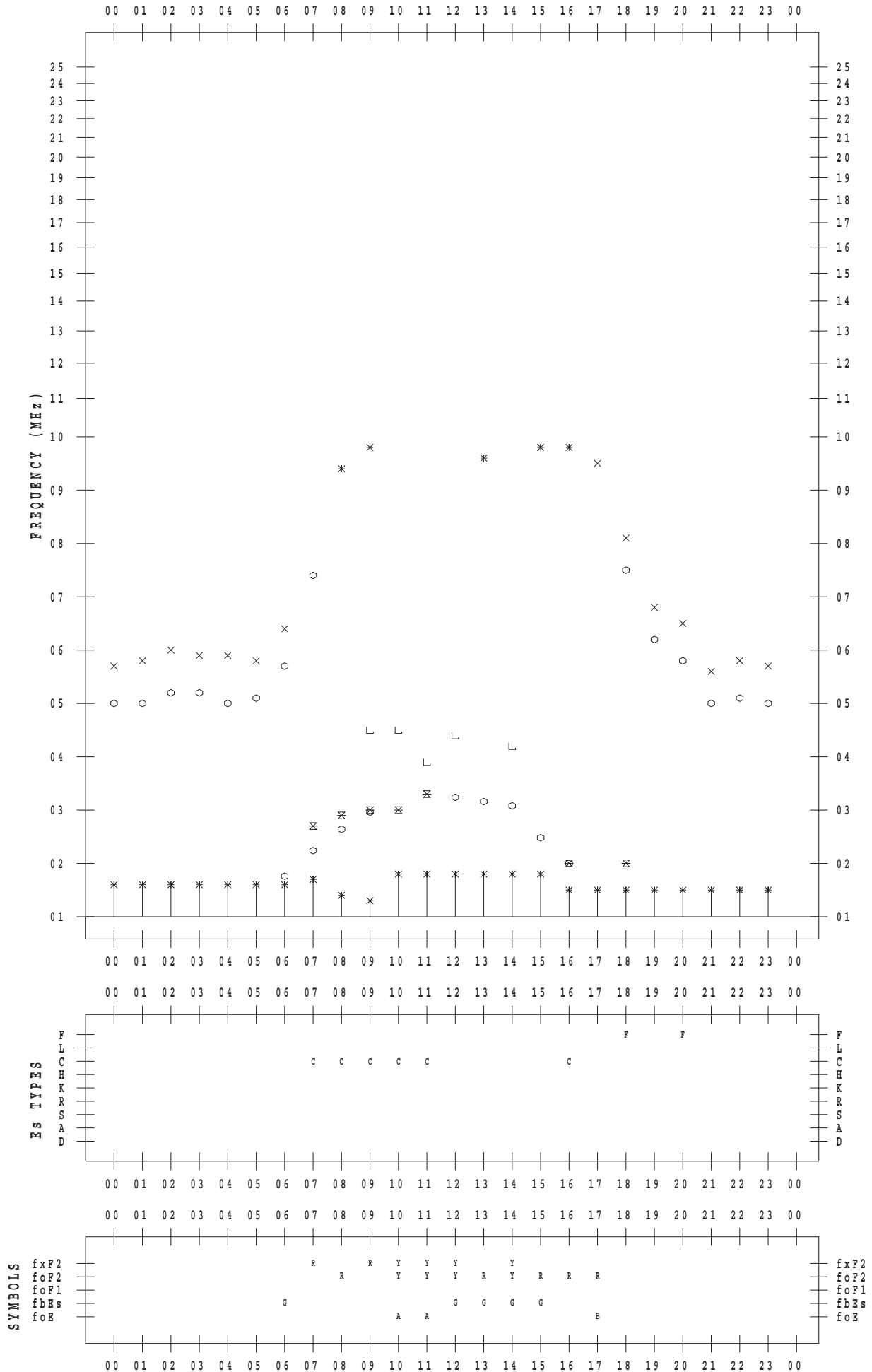
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/18

135 ° E MEAN TIME



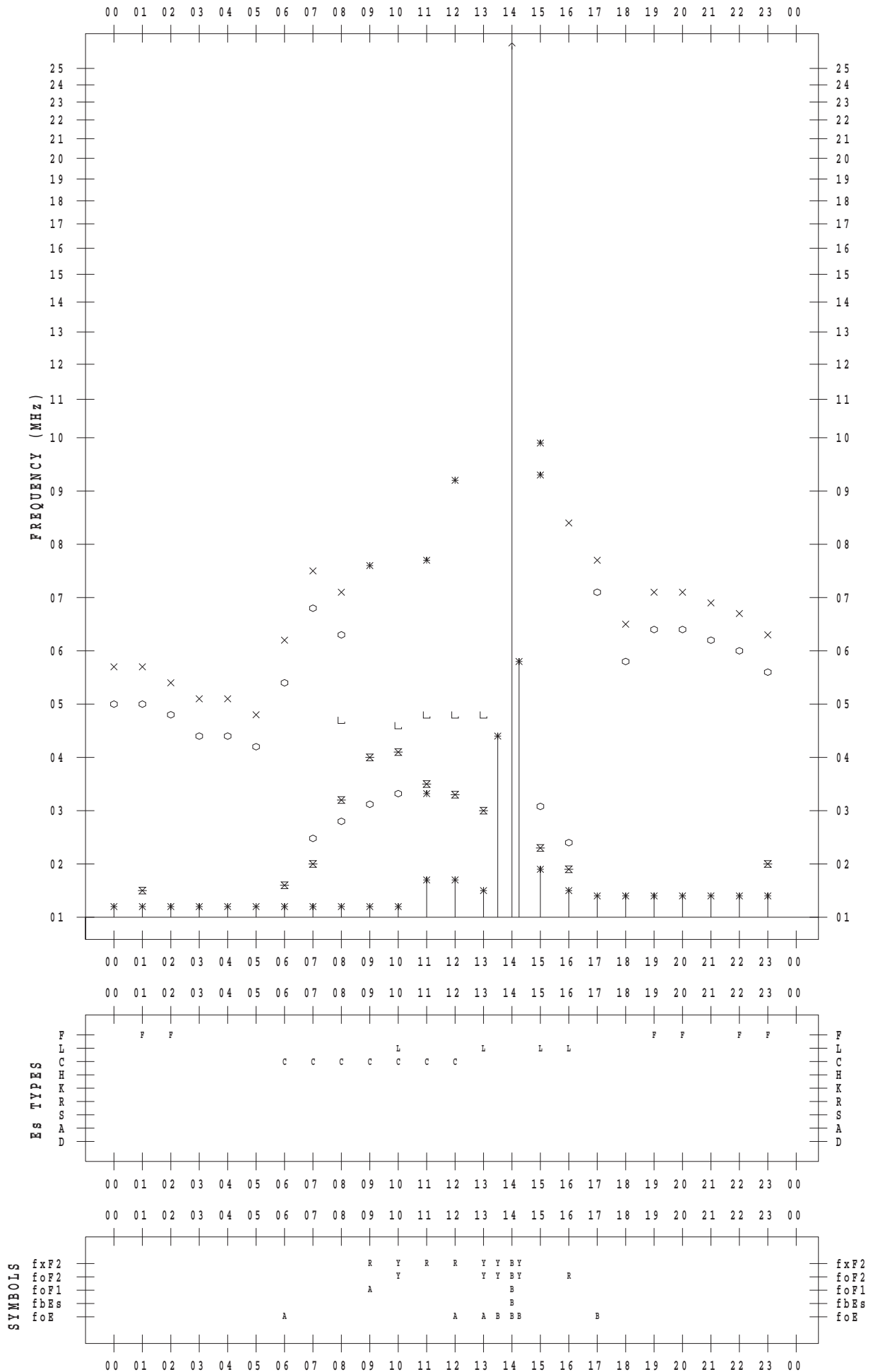
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/19

135 ° E MEAN TIME



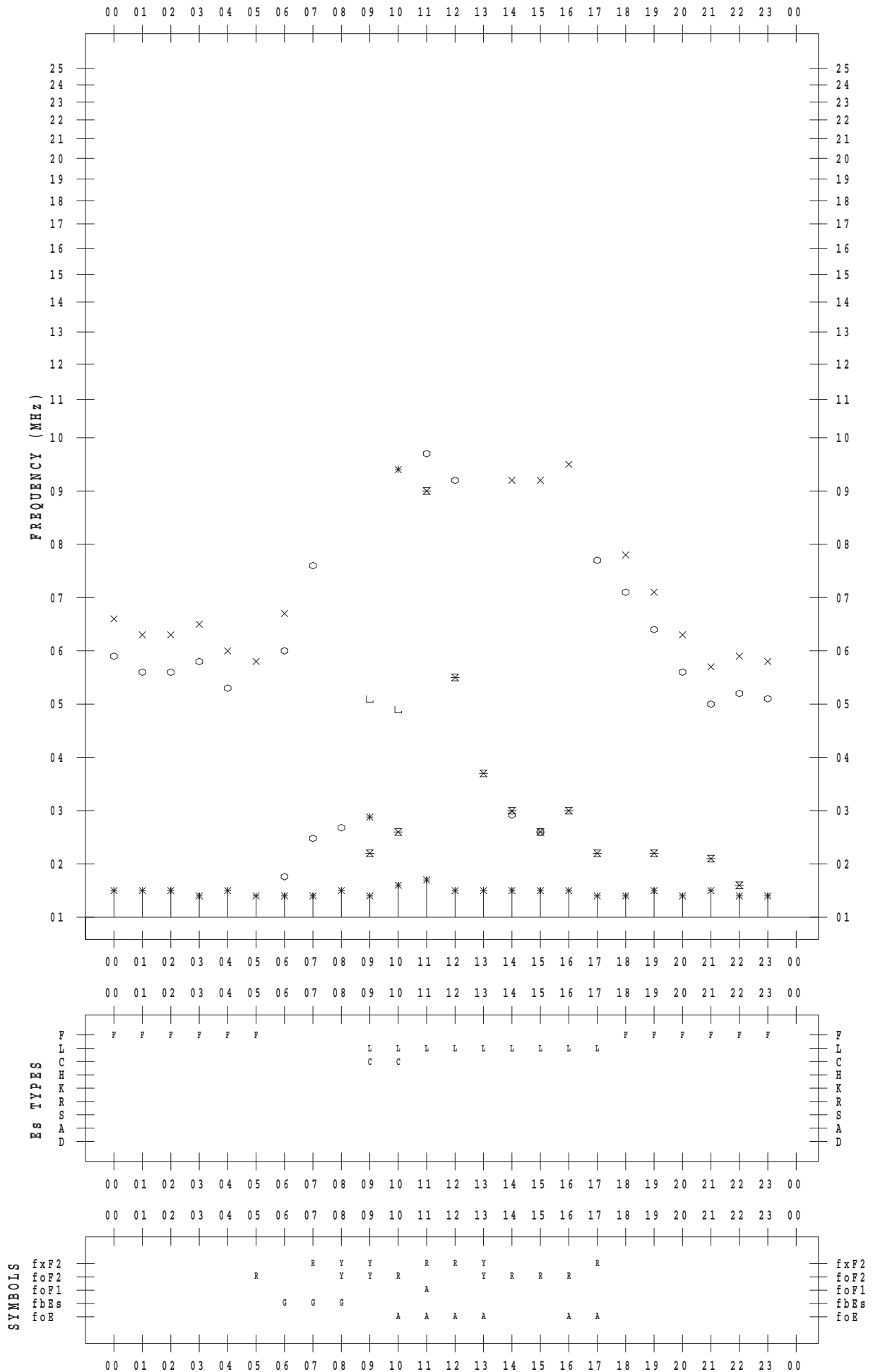
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/20

135 ° E MEAN TIME



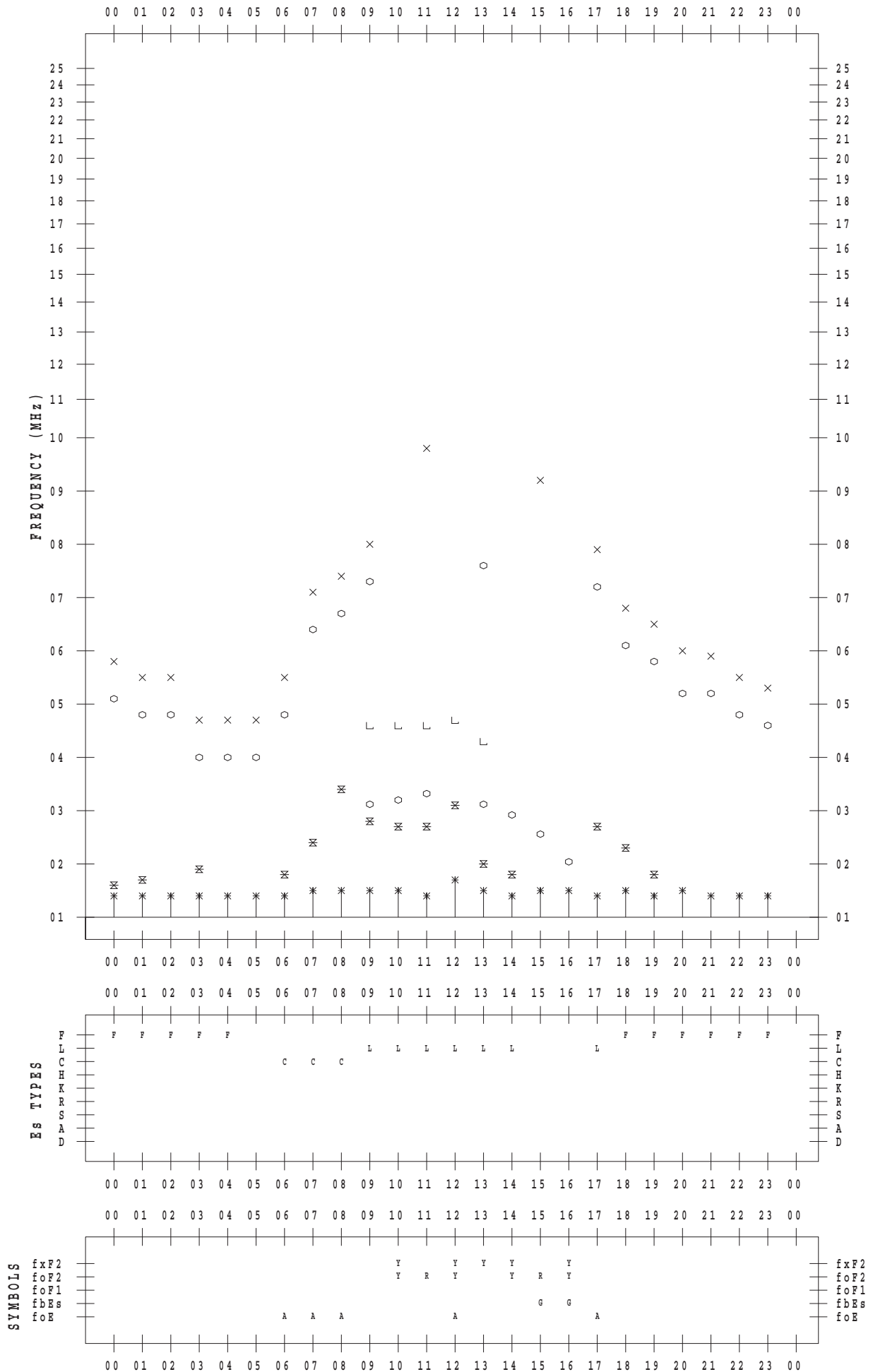
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/21

135 ° E MEAN TIME



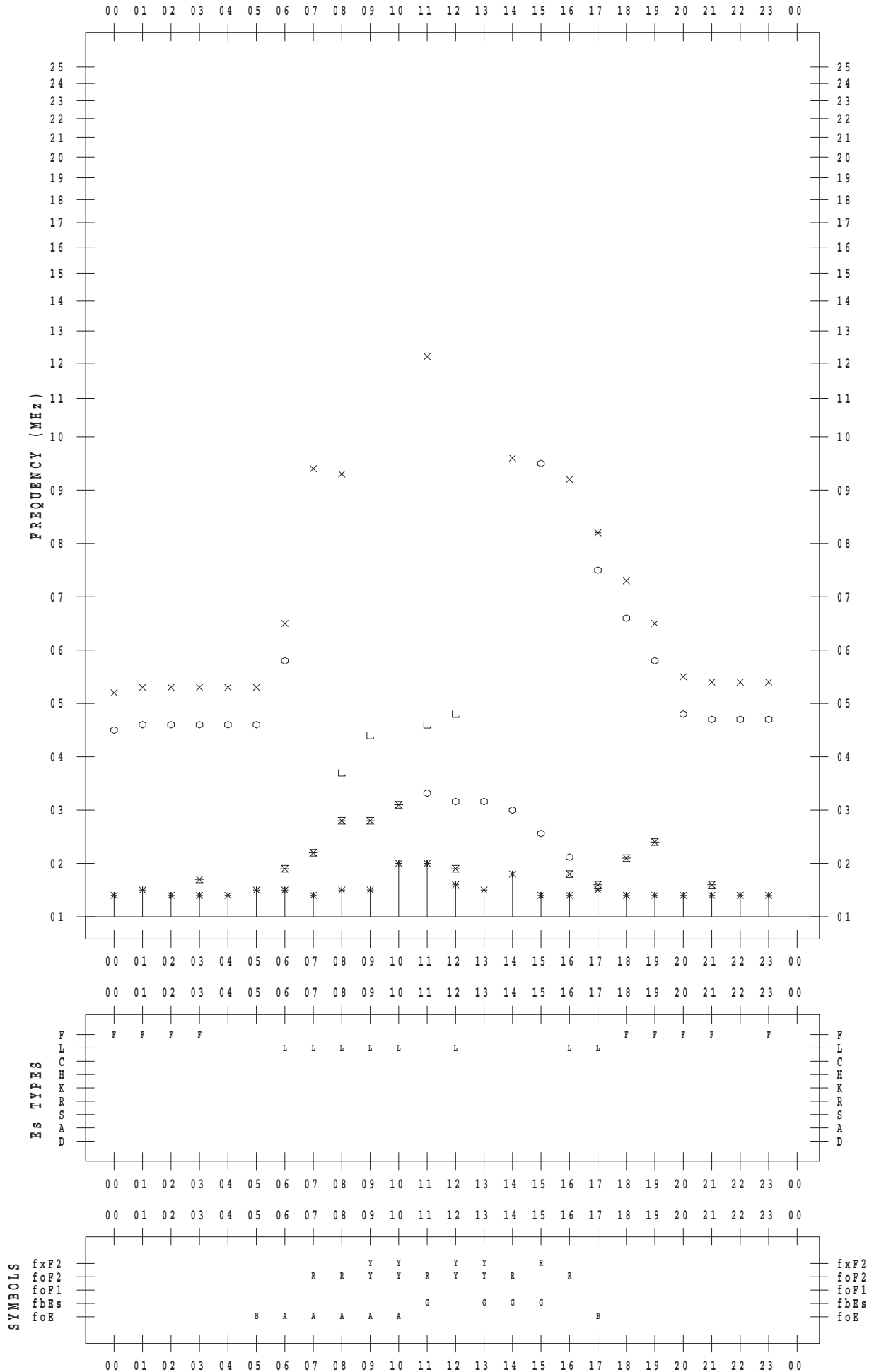
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/23

135 ° E MEAN TIME



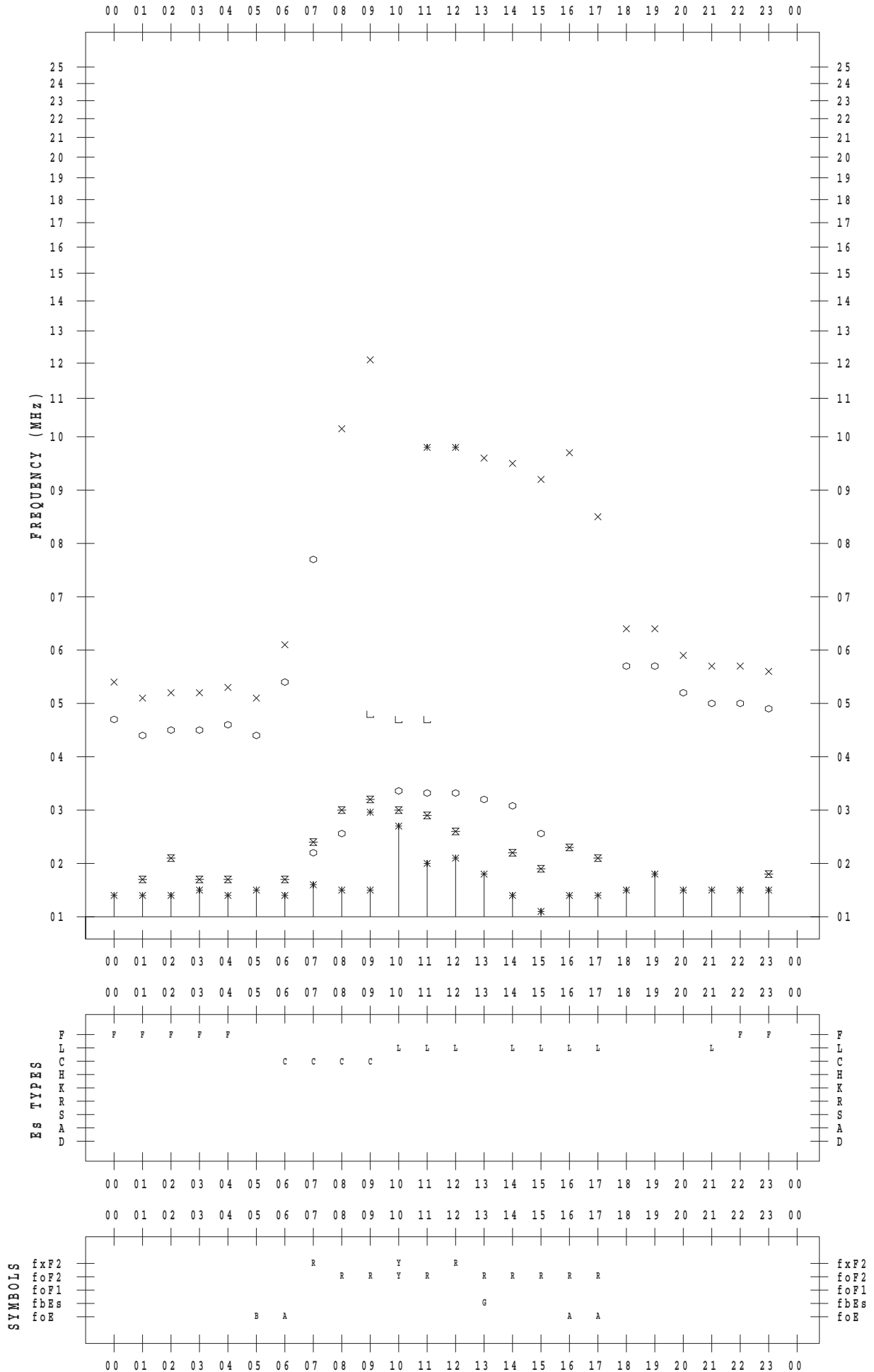
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/24

135 ° E MEAN TIME



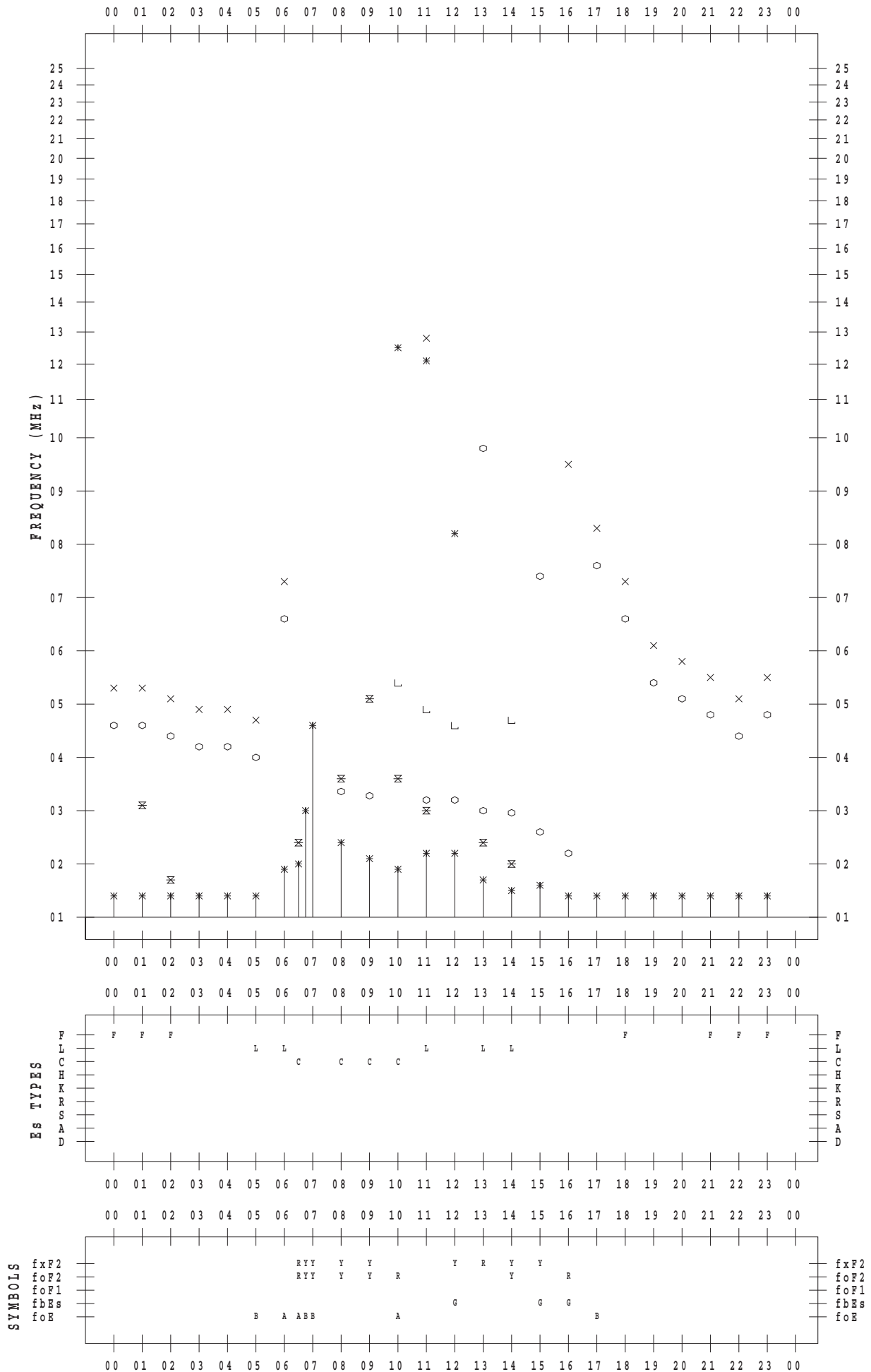
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/25

135 ° E MEAN TIME



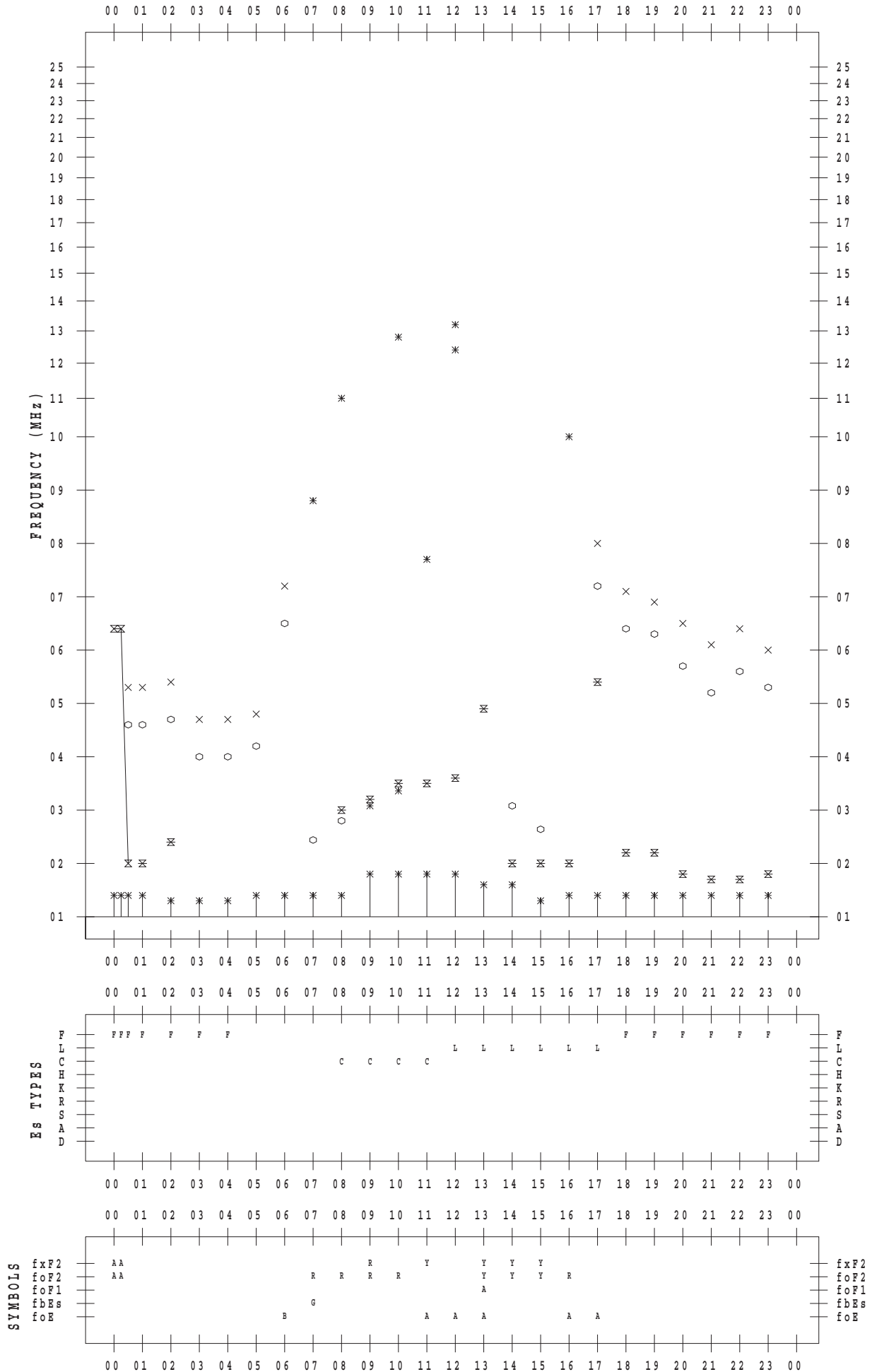
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/26

135 ° E MEAN TIME



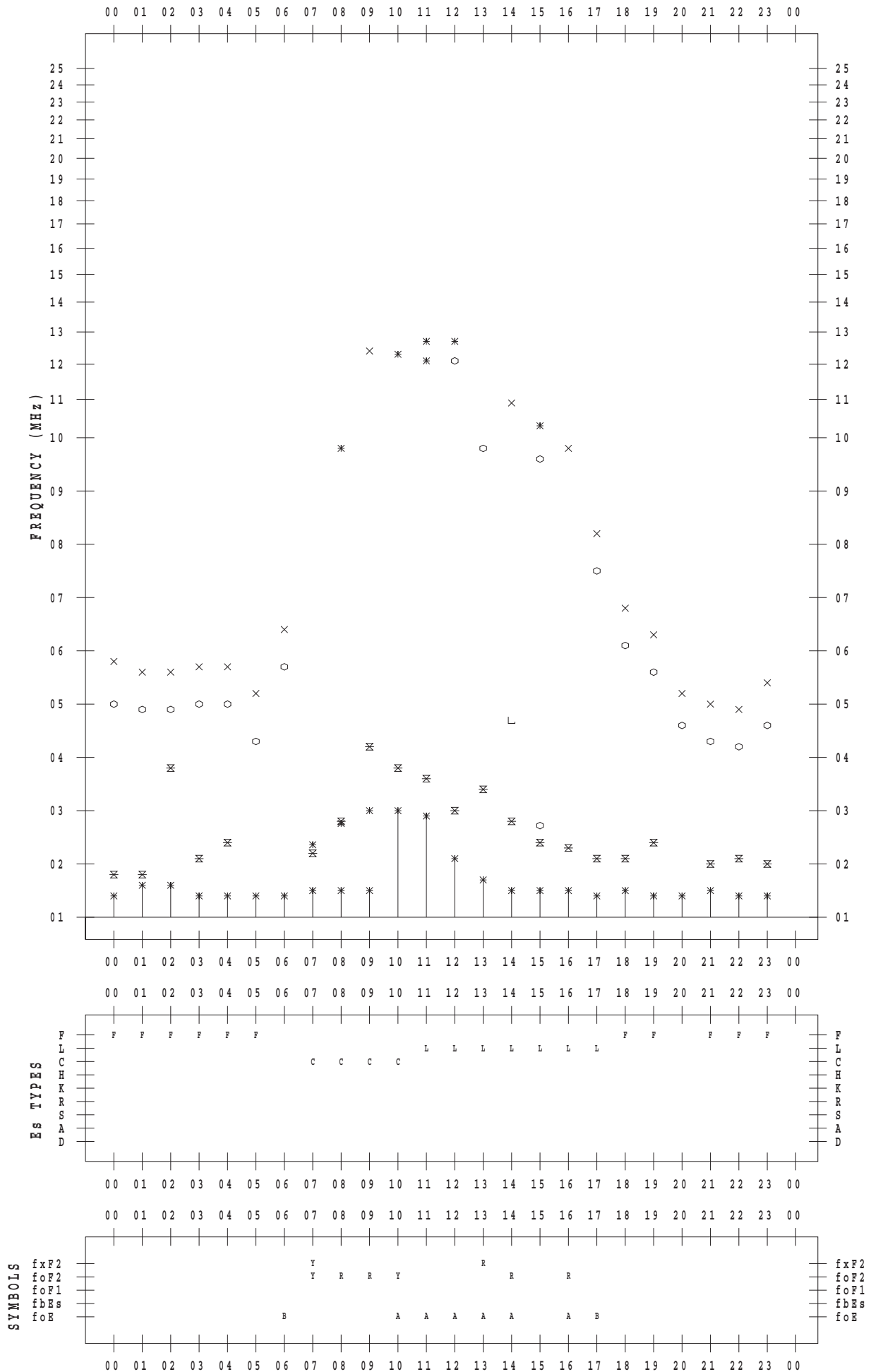
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/27

135 ° E MEAN TIME



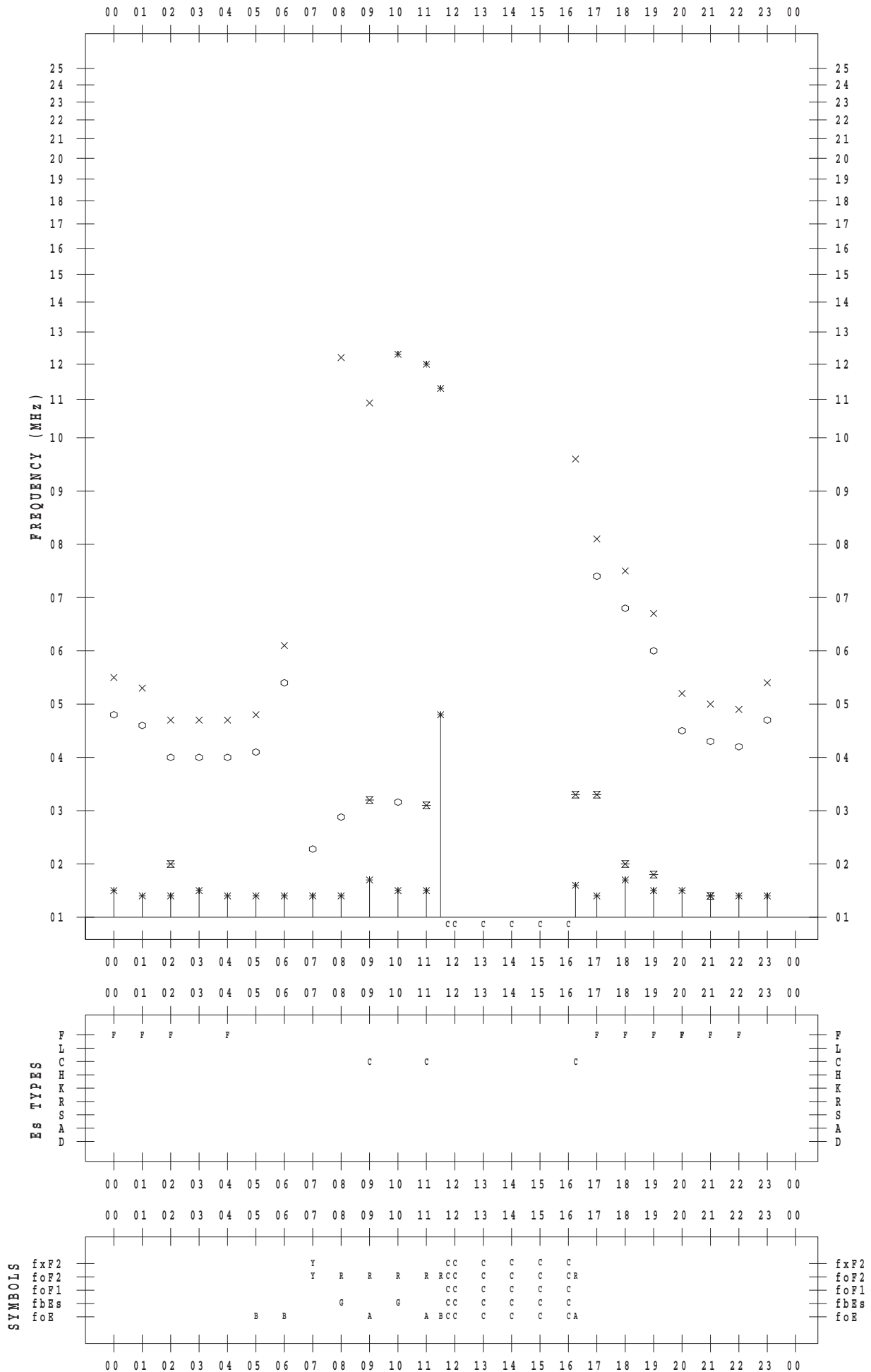
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/28

135 ° E MEAN TIME



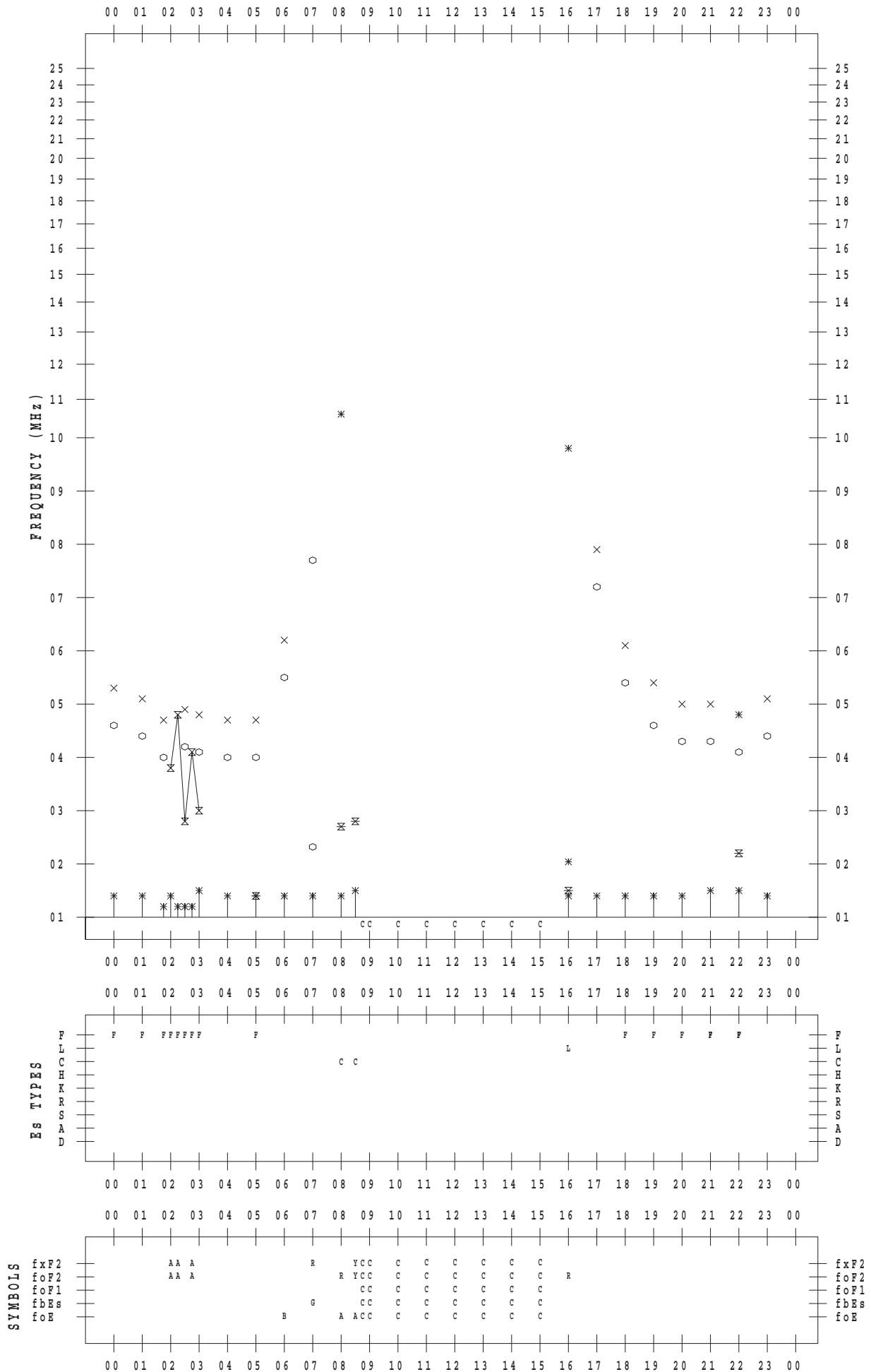
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/29

135 ° E MEAN TIME



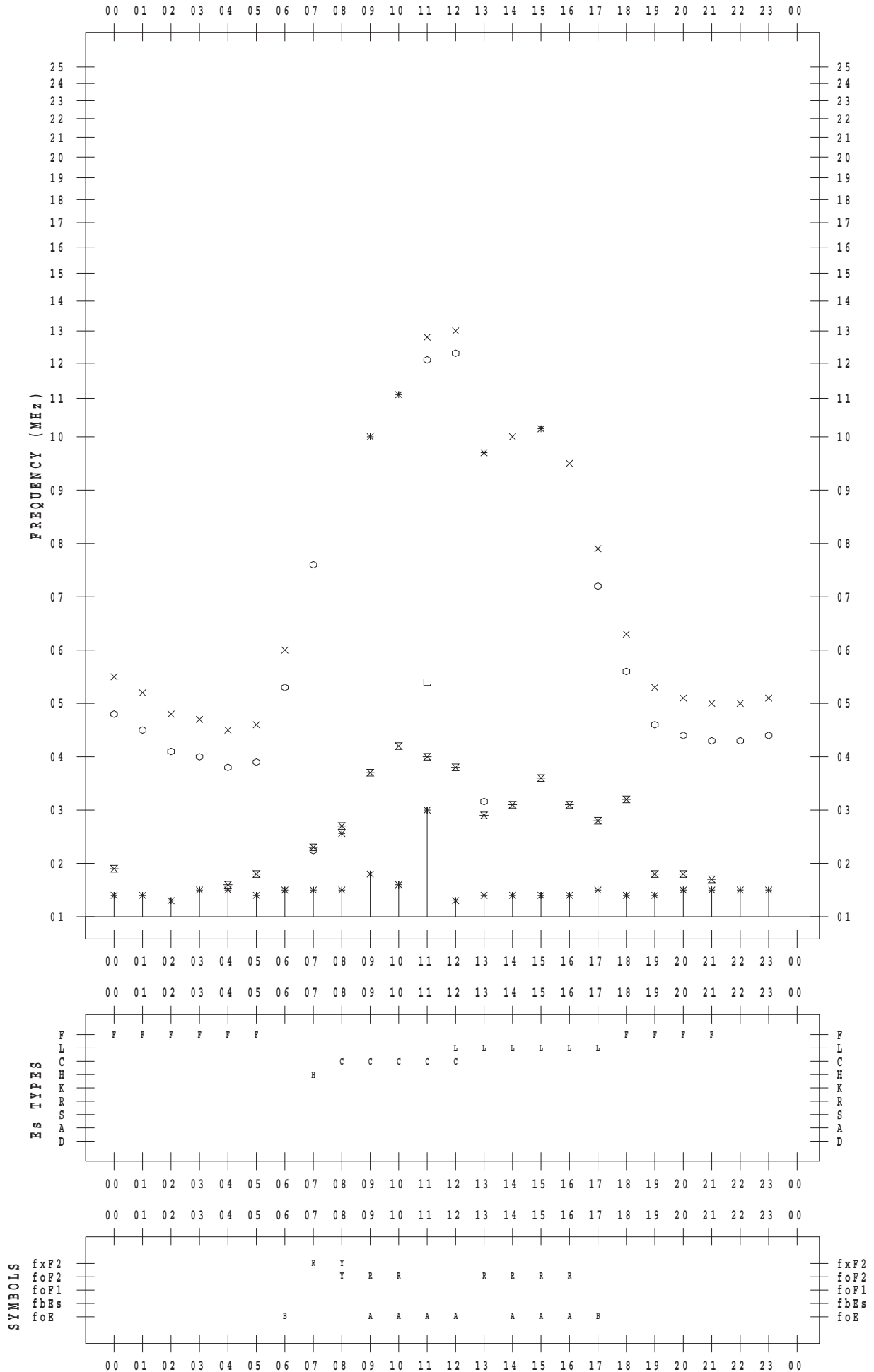
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/30

135 ° E MEAN TIME



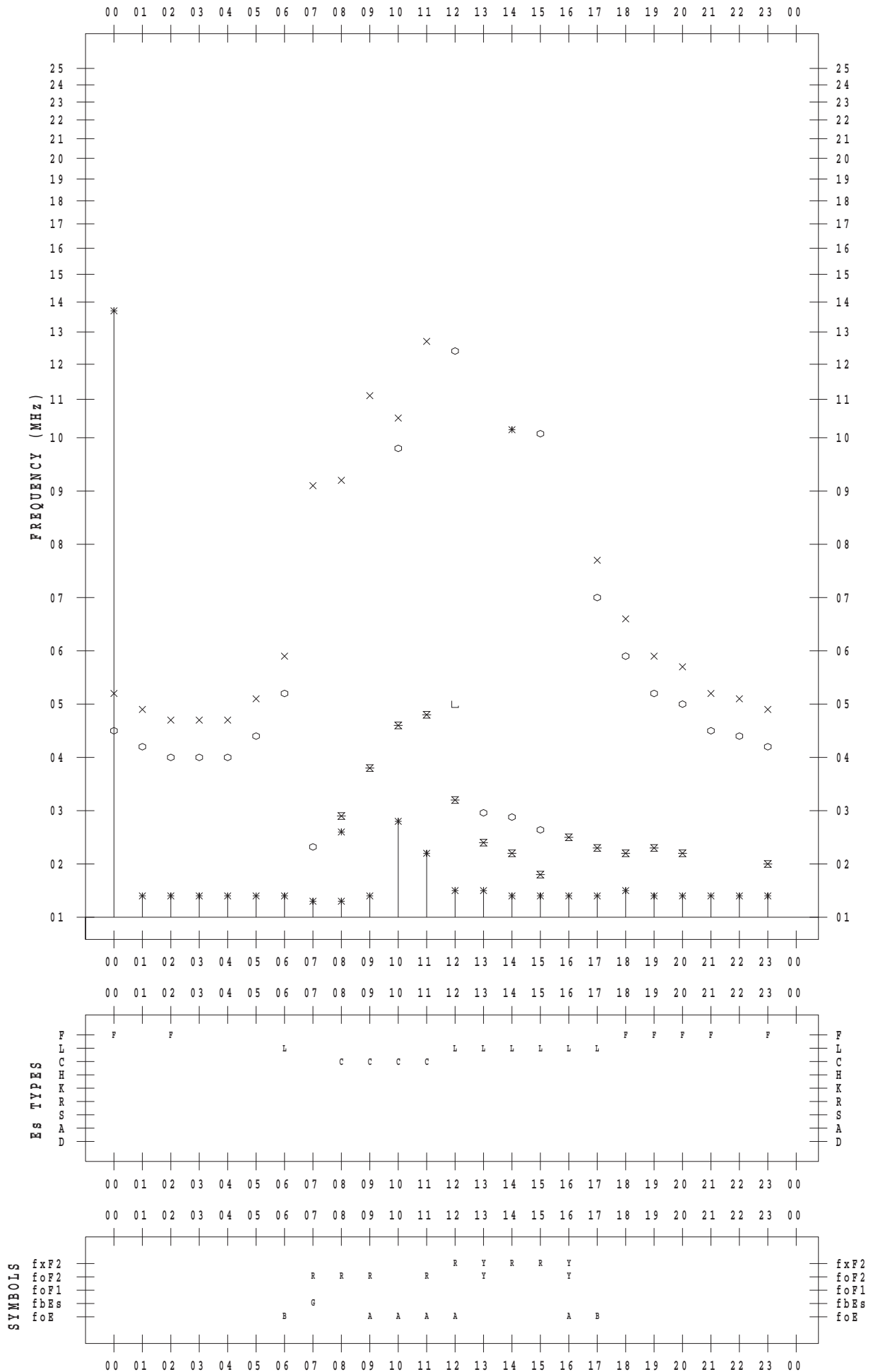
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SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/10/31

135 ° E MEAN TIME



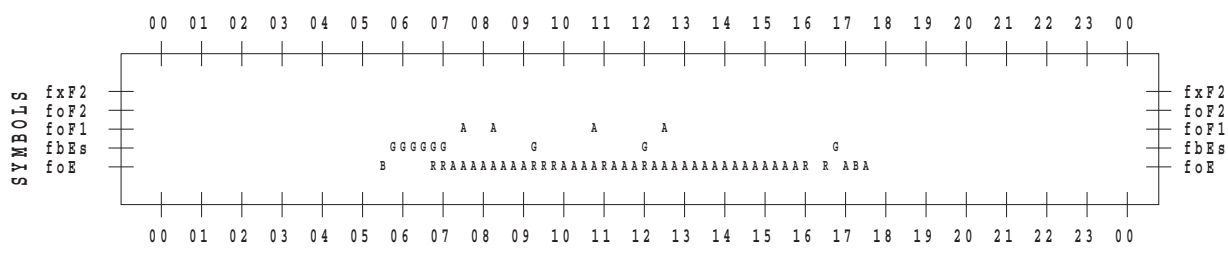
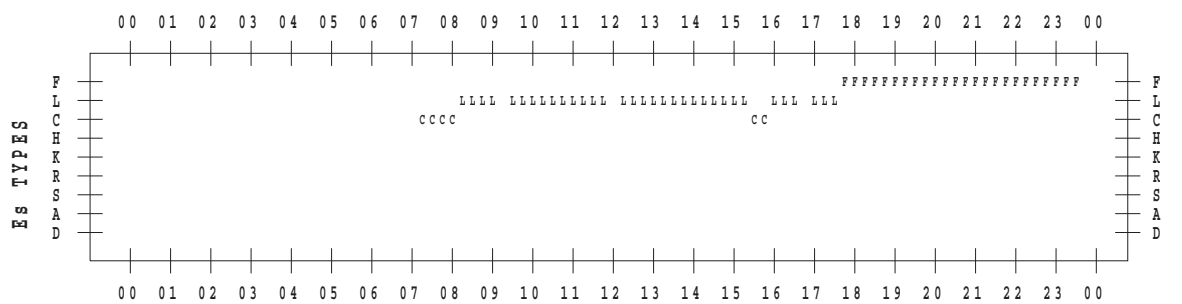
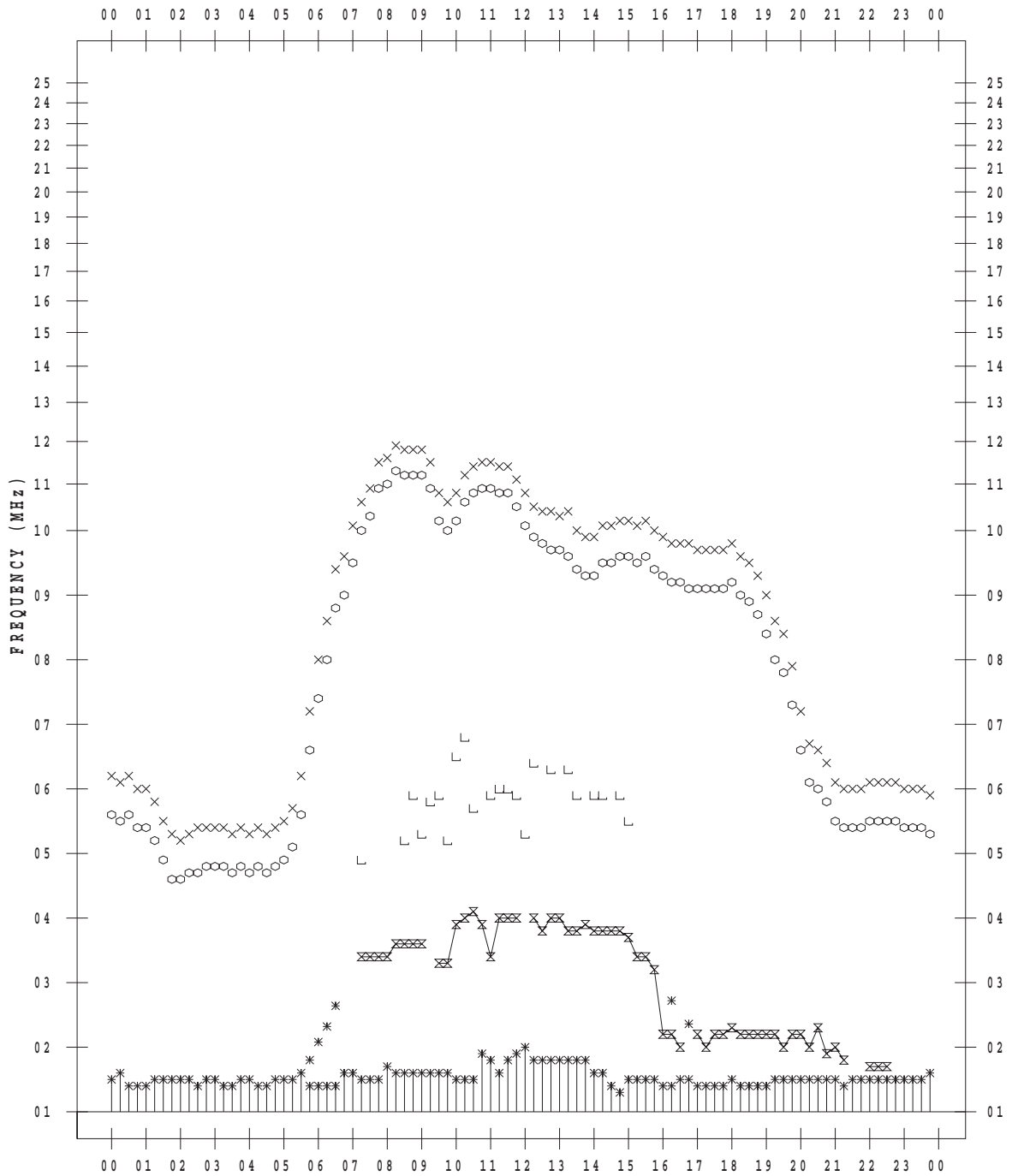
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/ 1

135 ° E MEAN TIME



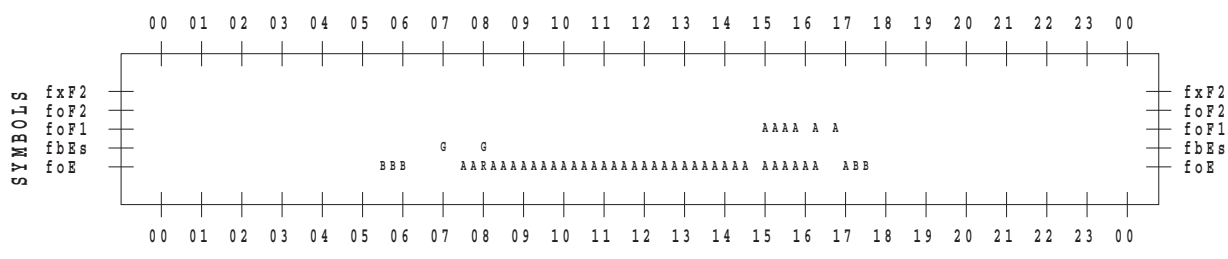
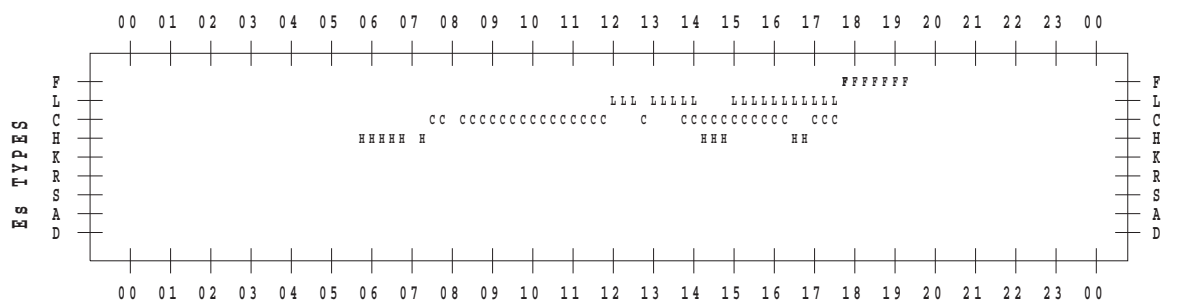
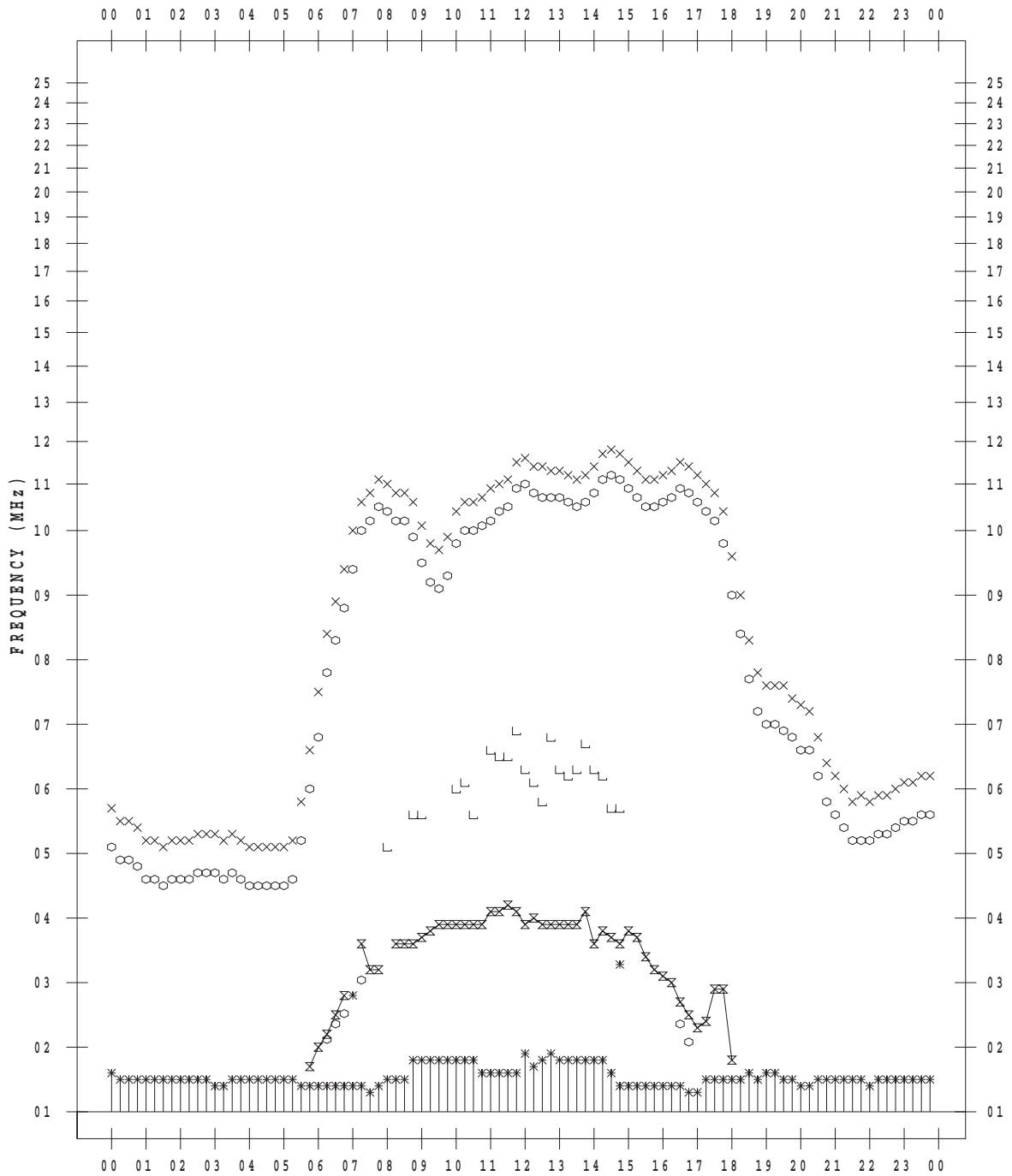
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/ 4

135 ° E MEAN TIME



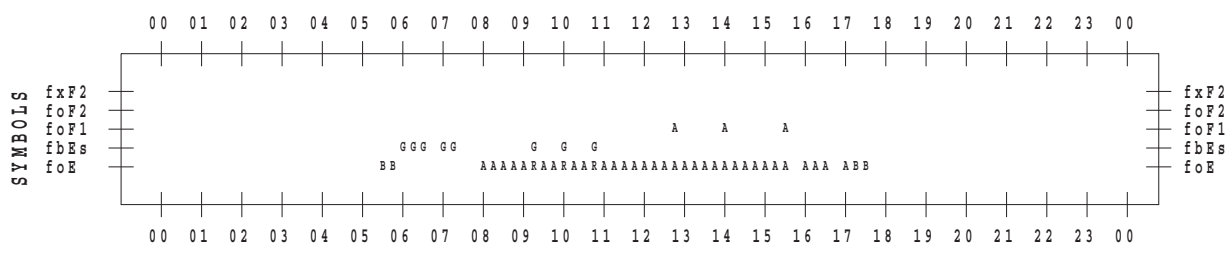
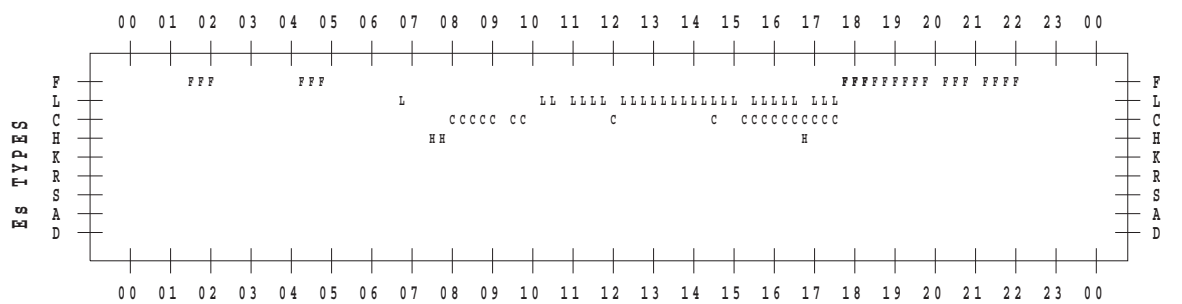
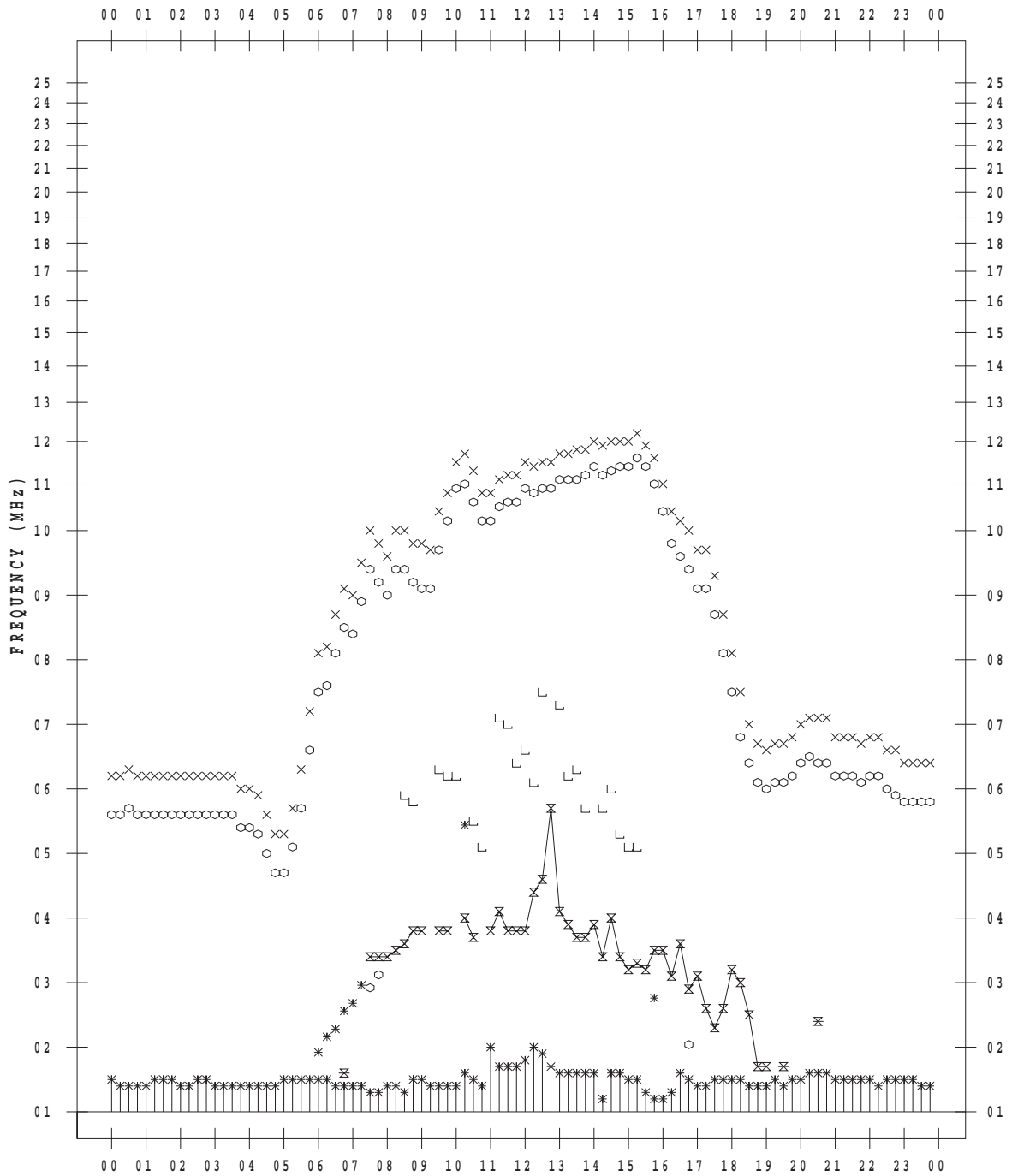
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/ 5

135 ° E MEAN TIME



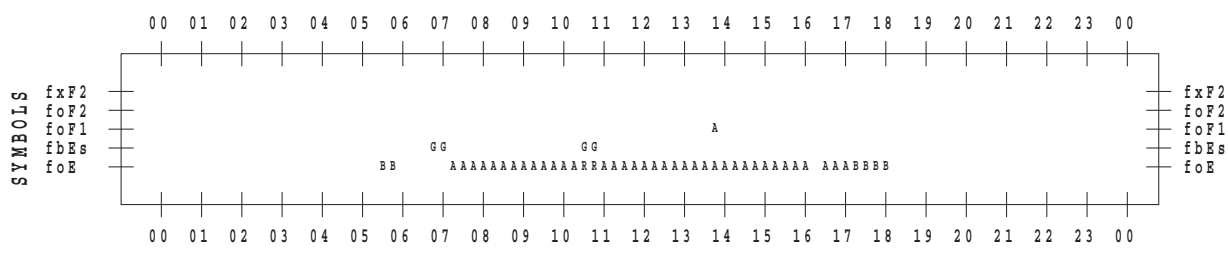
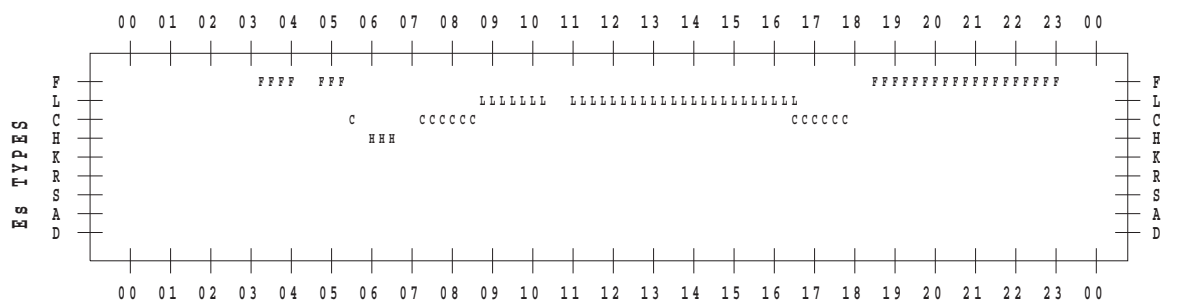
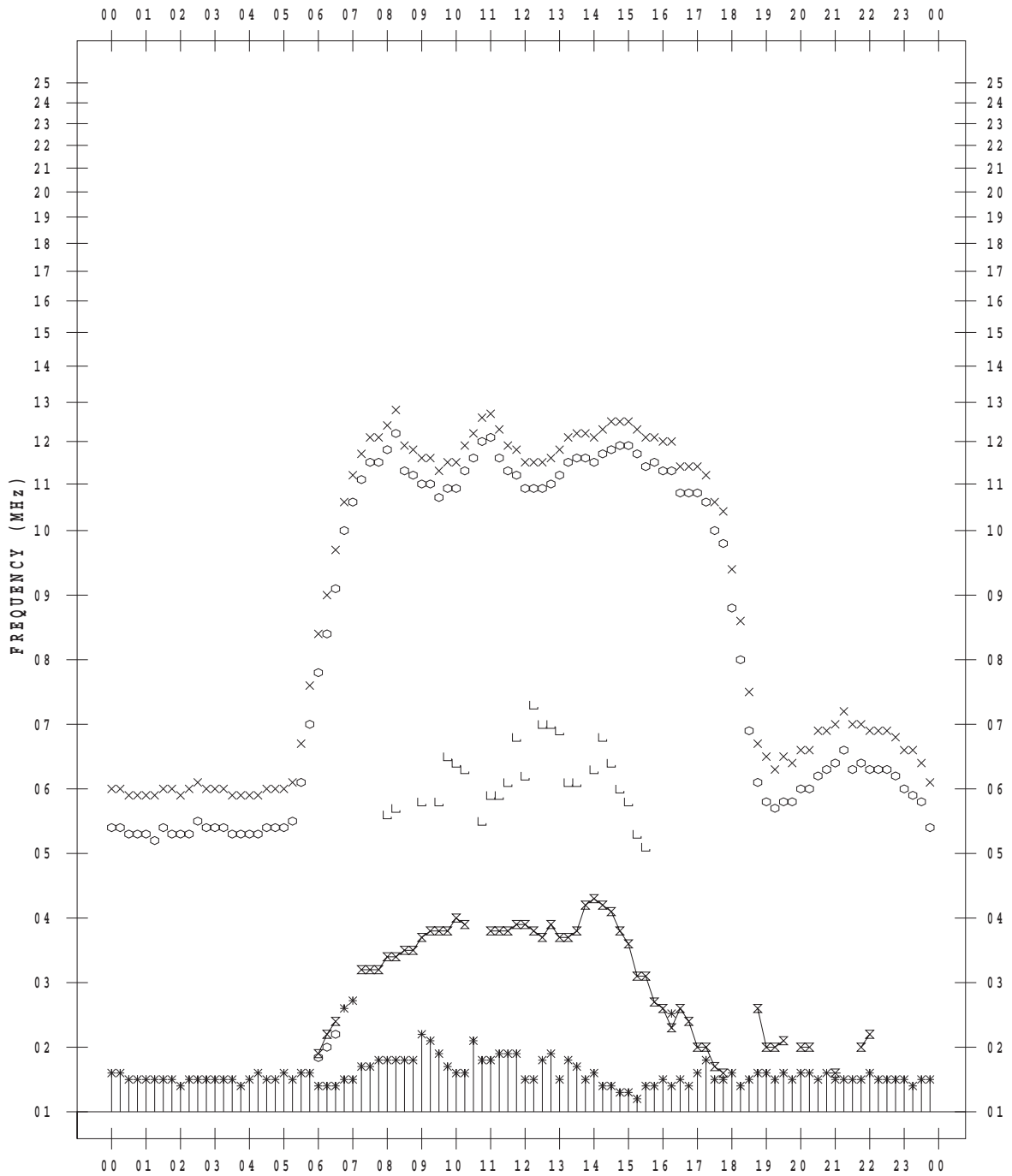
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/ 7

135 ° E MEAN TIME



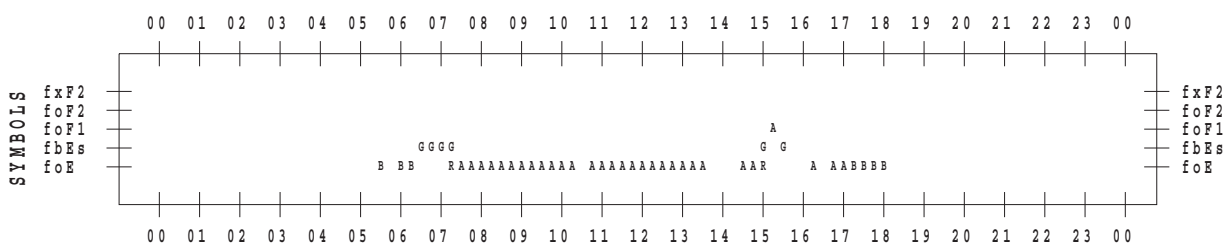
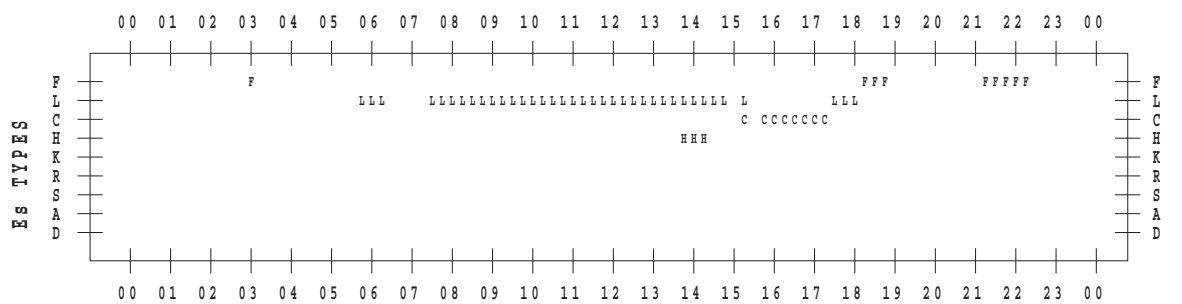
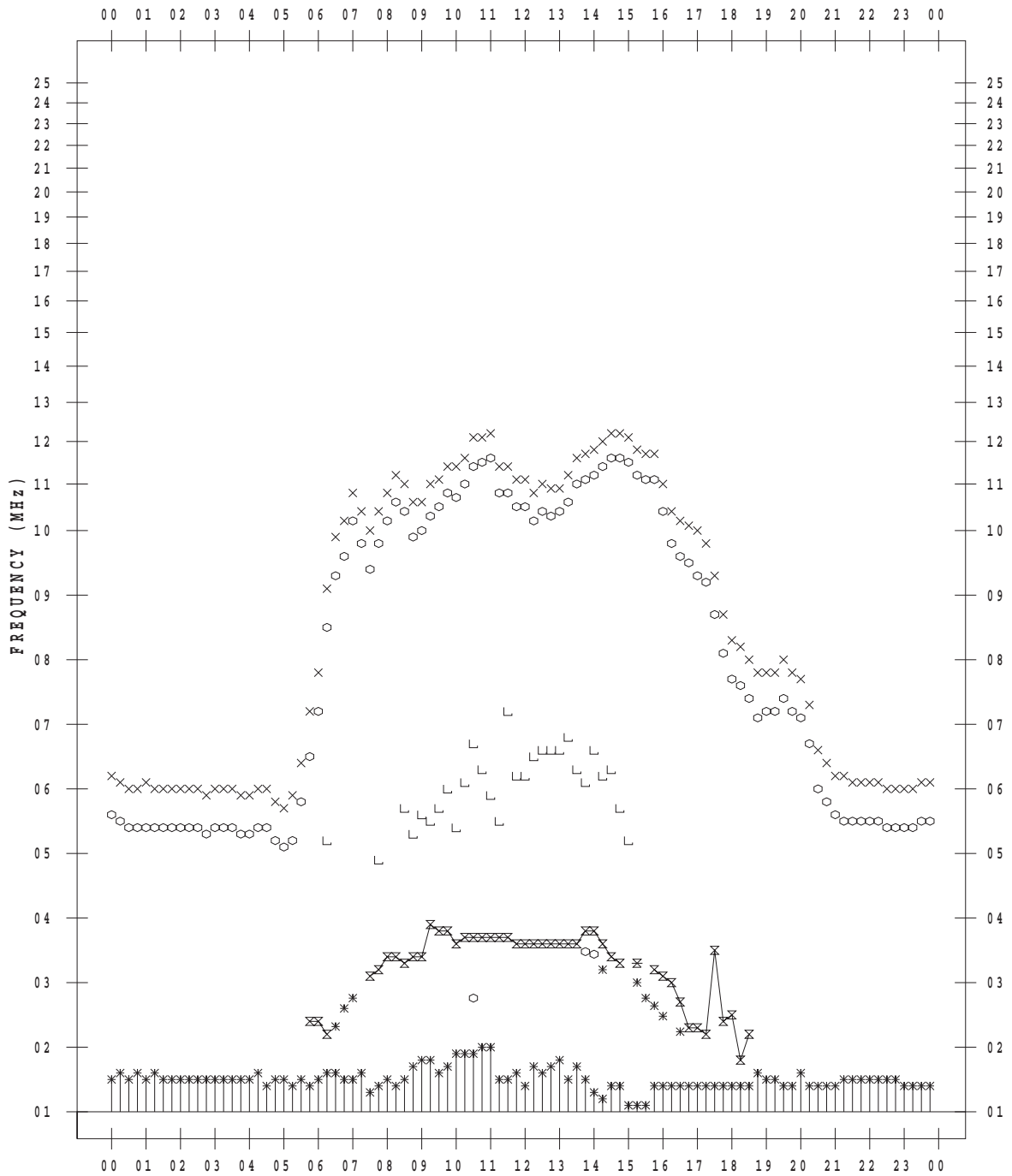
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/ 8

135 ° E MEAN TIME



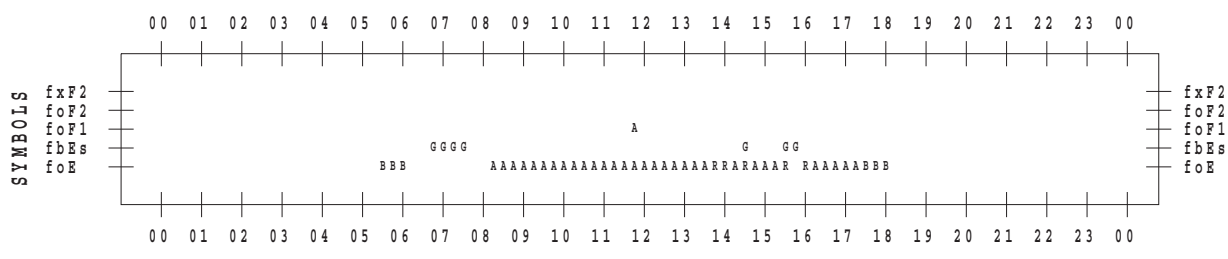
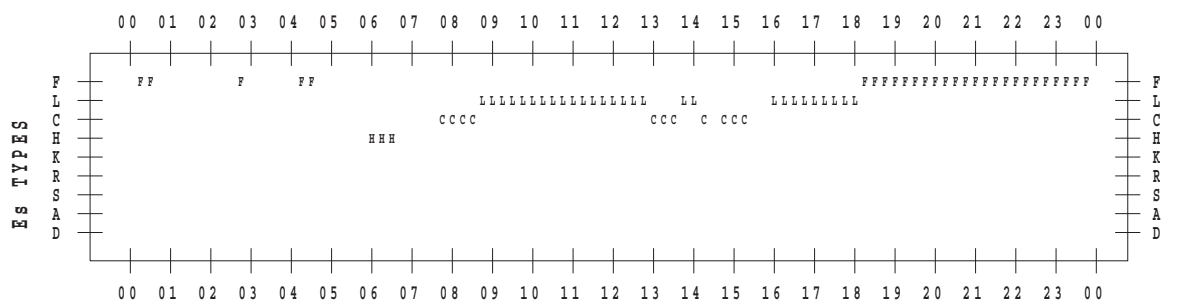
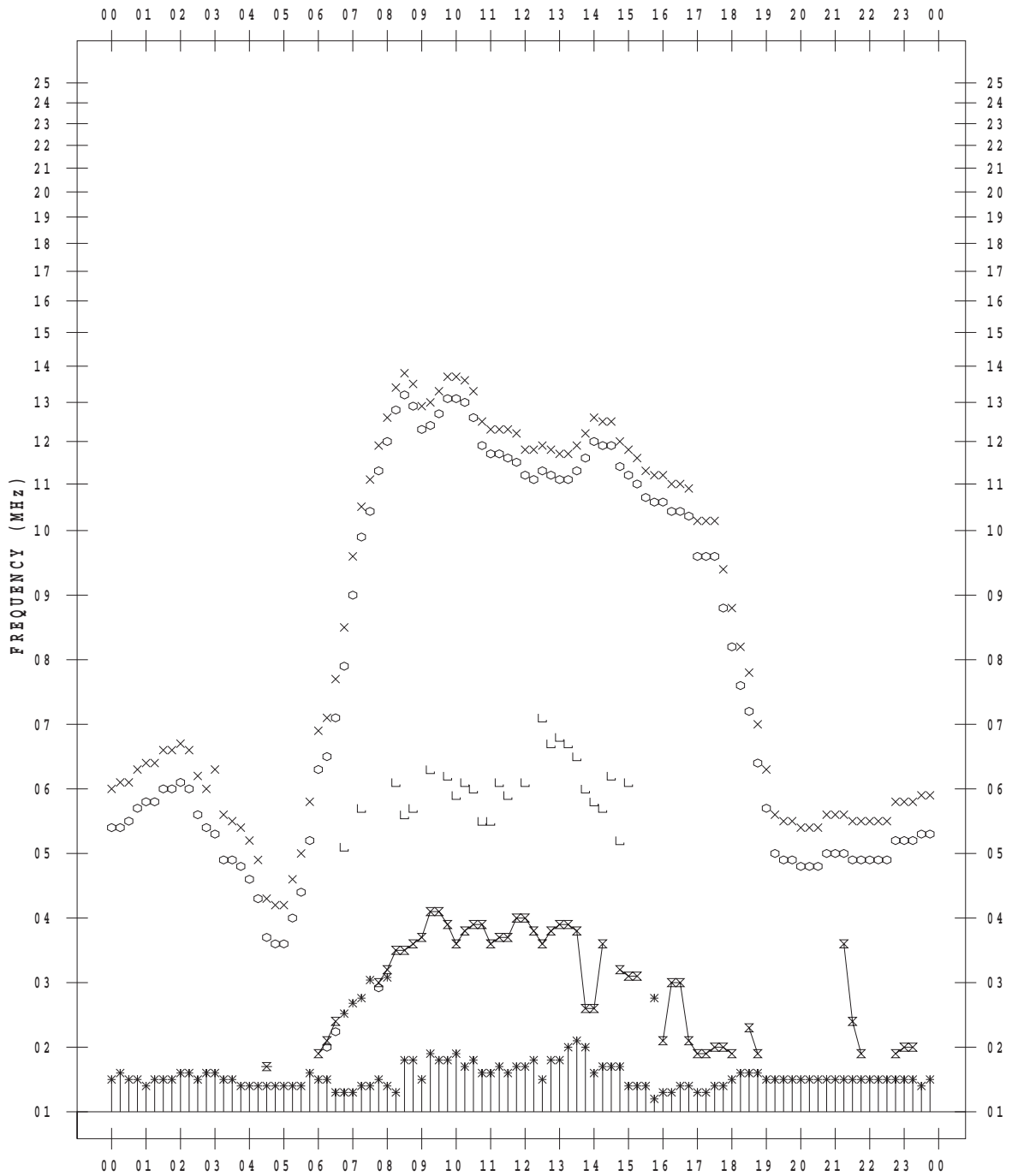
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/10

135 ° E MEAN TIME



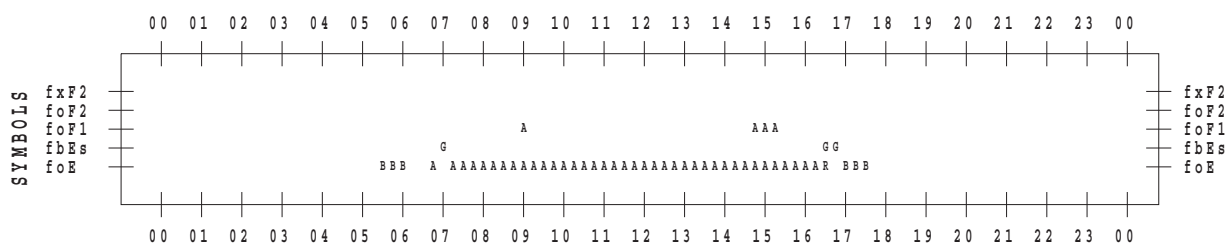
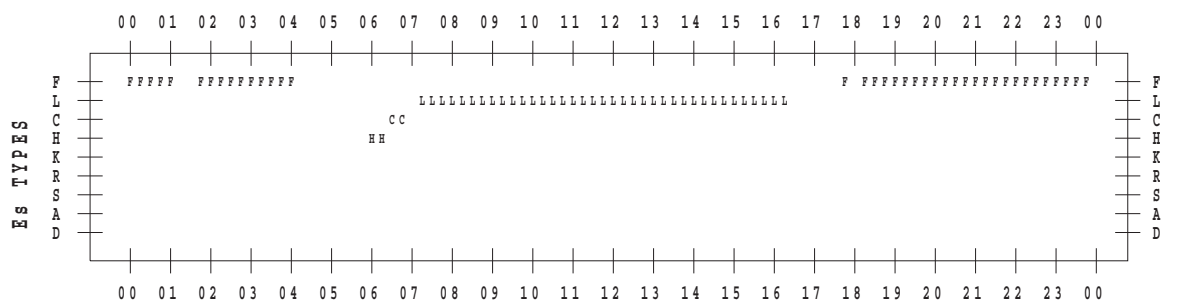
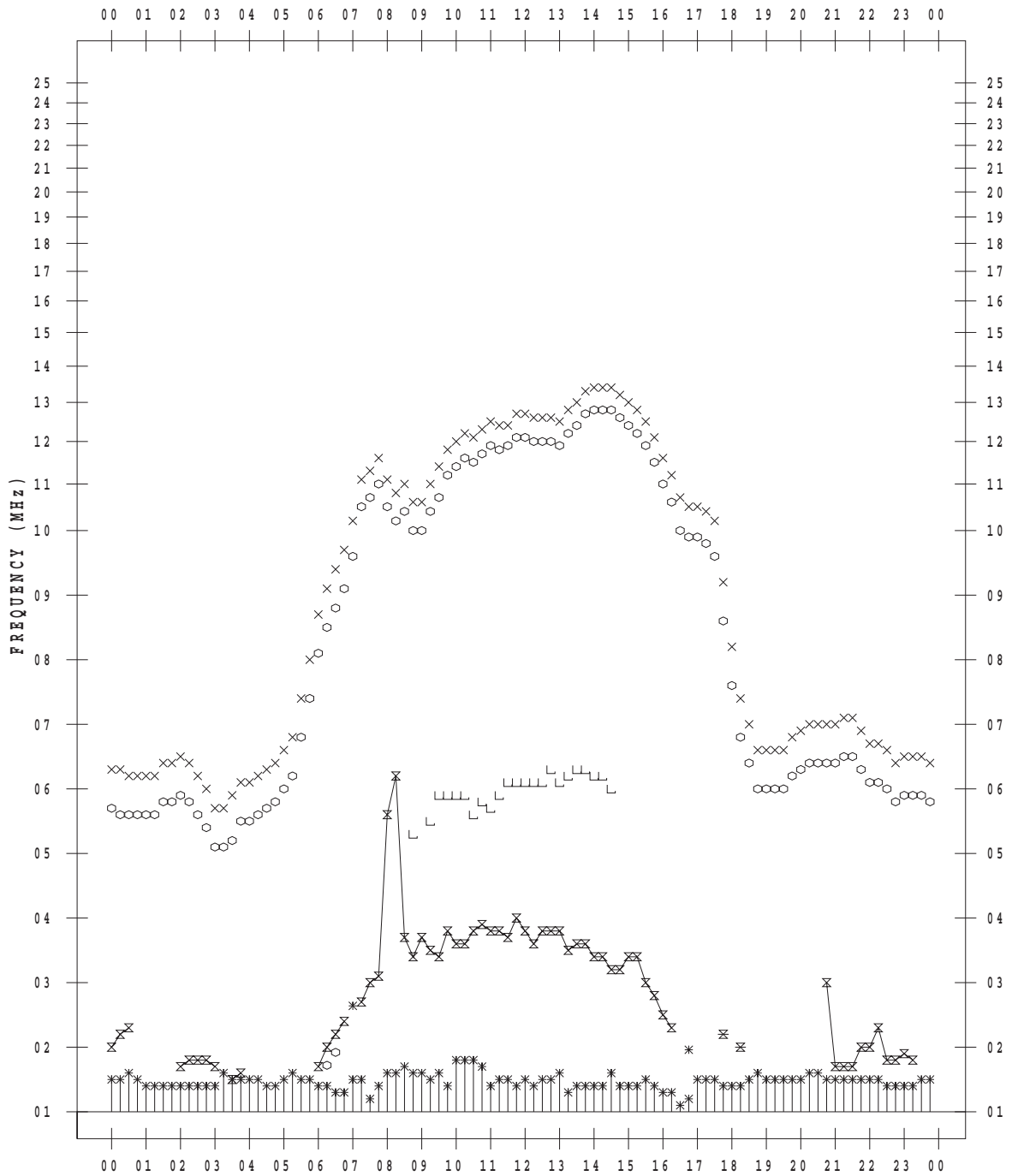
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/12

135 ° E MEAN TIME



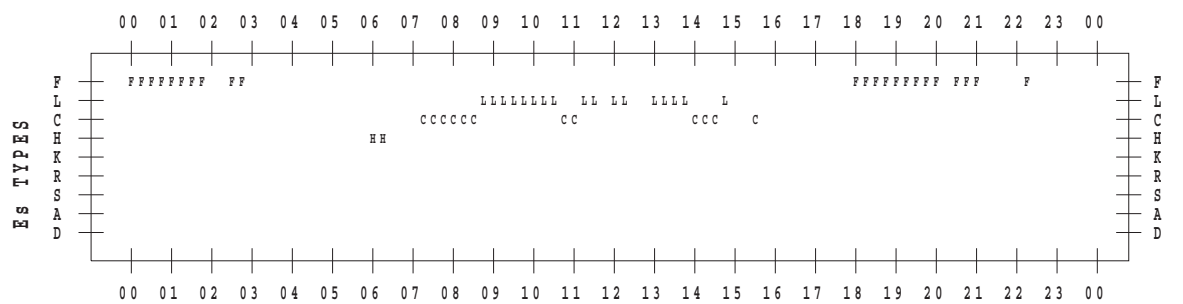
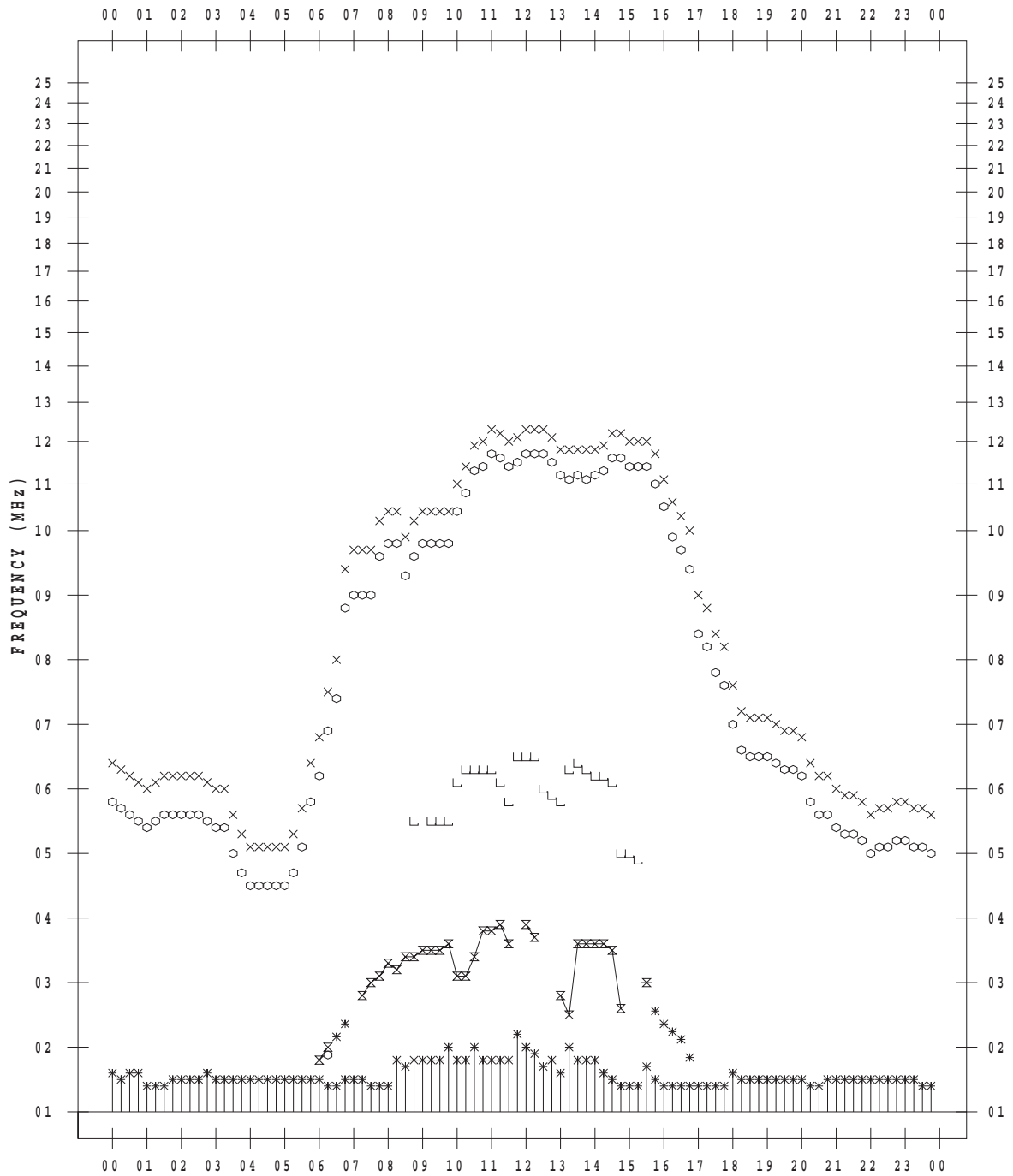
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/13

135 ° E MEAN TIME



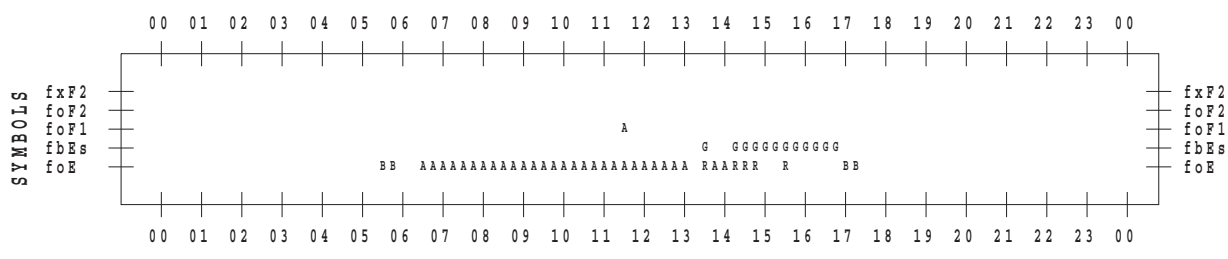
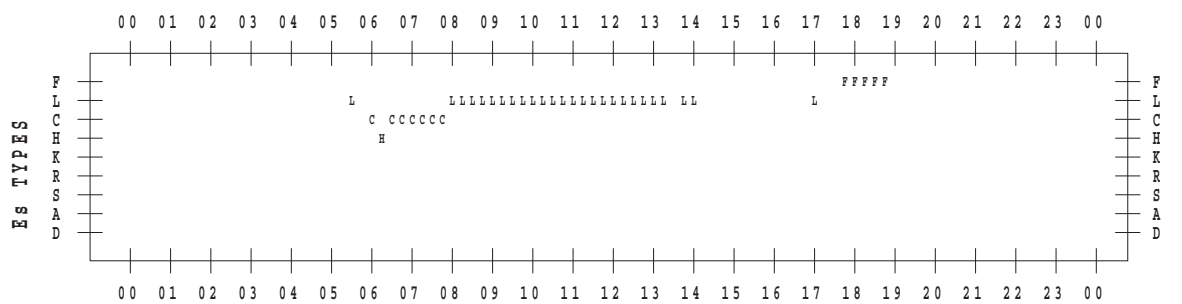
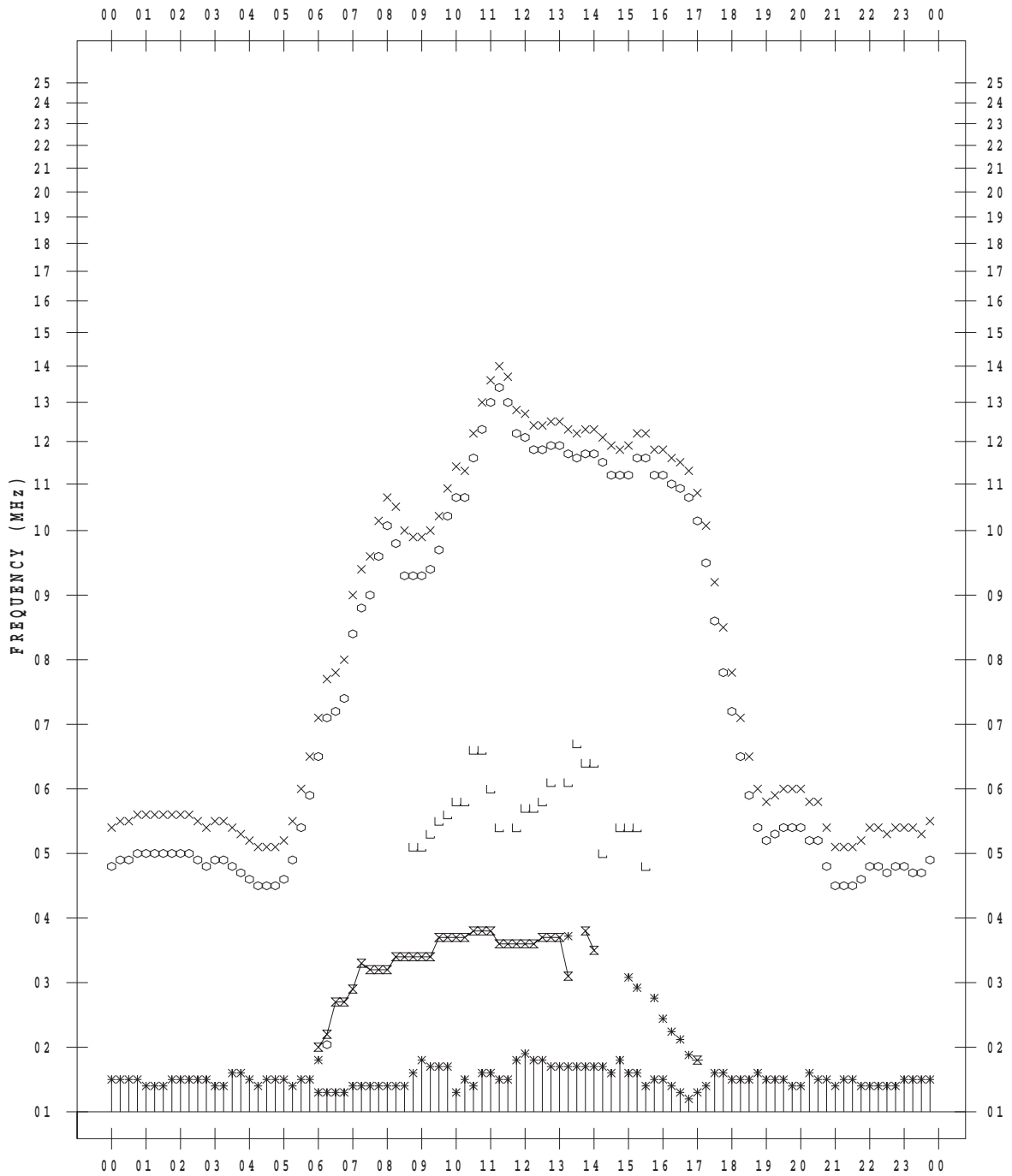
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/14

135 ° E MEAN TIME



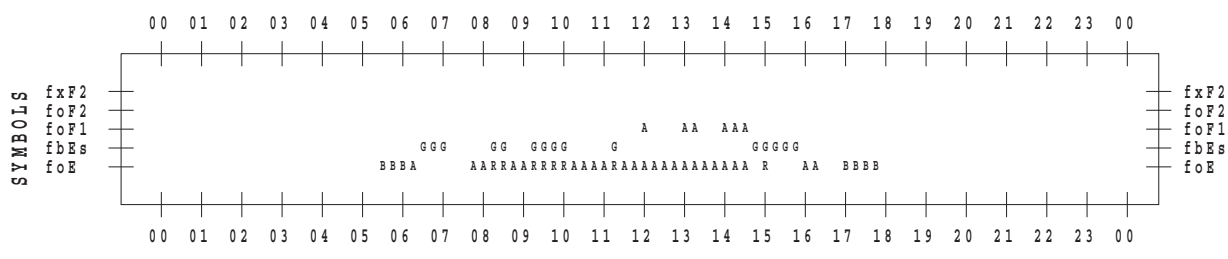
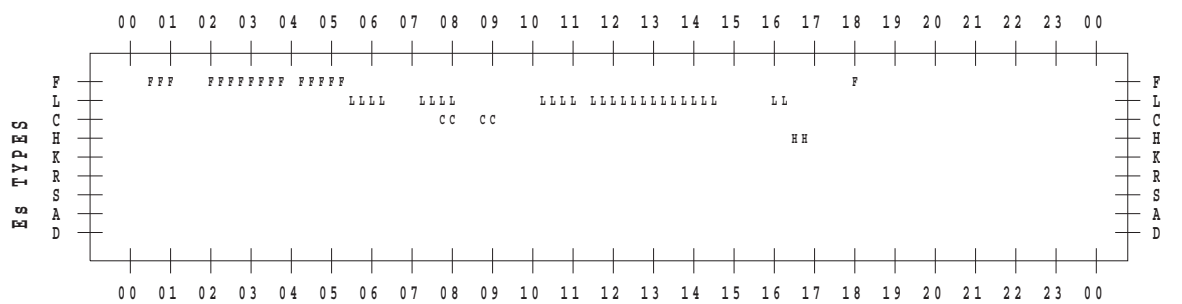
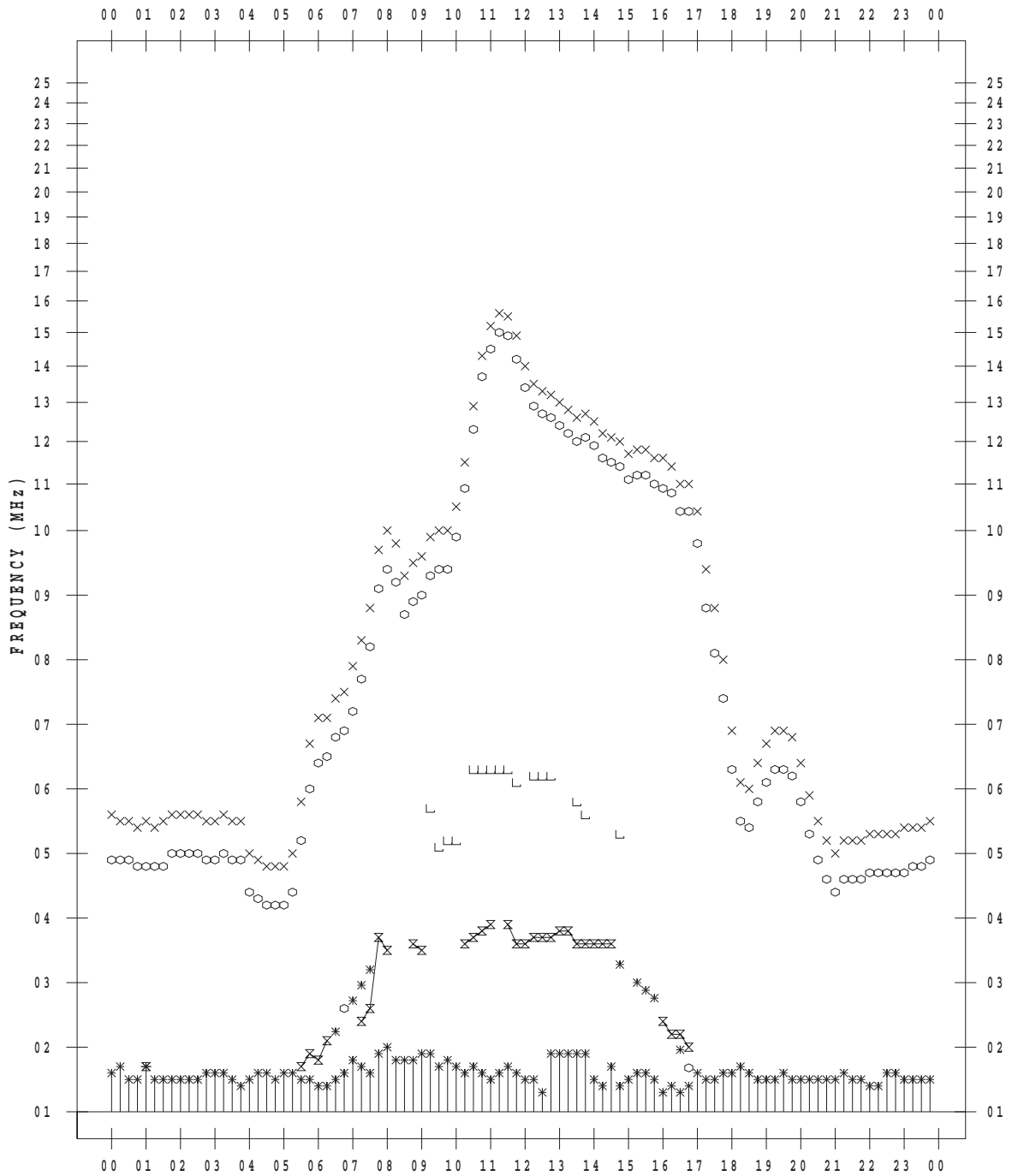
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/15

135 ° E MEAN TIME



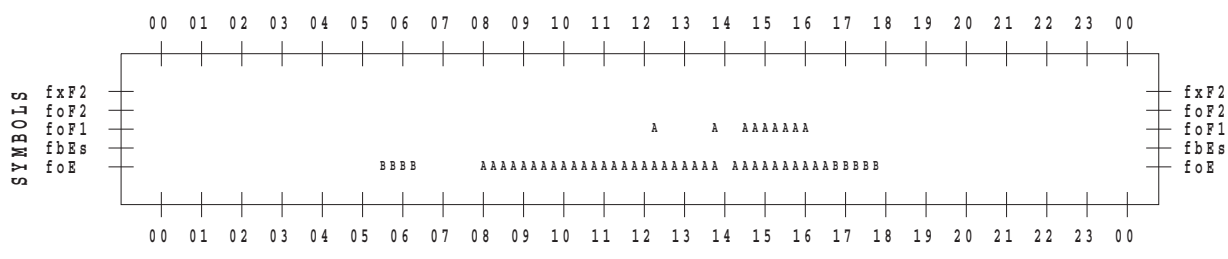
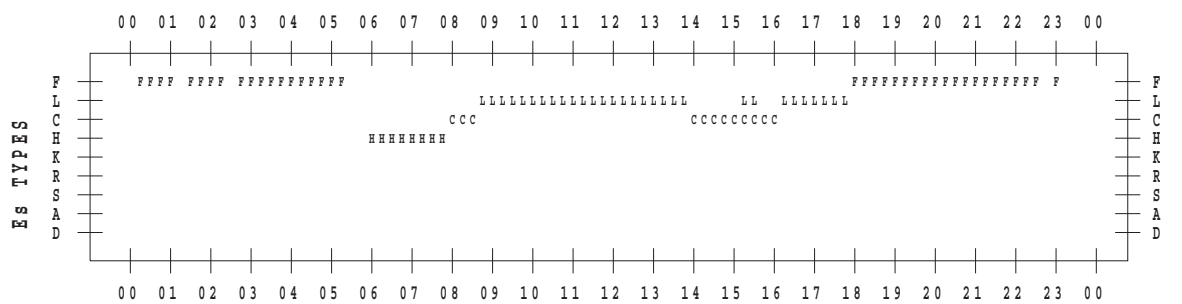
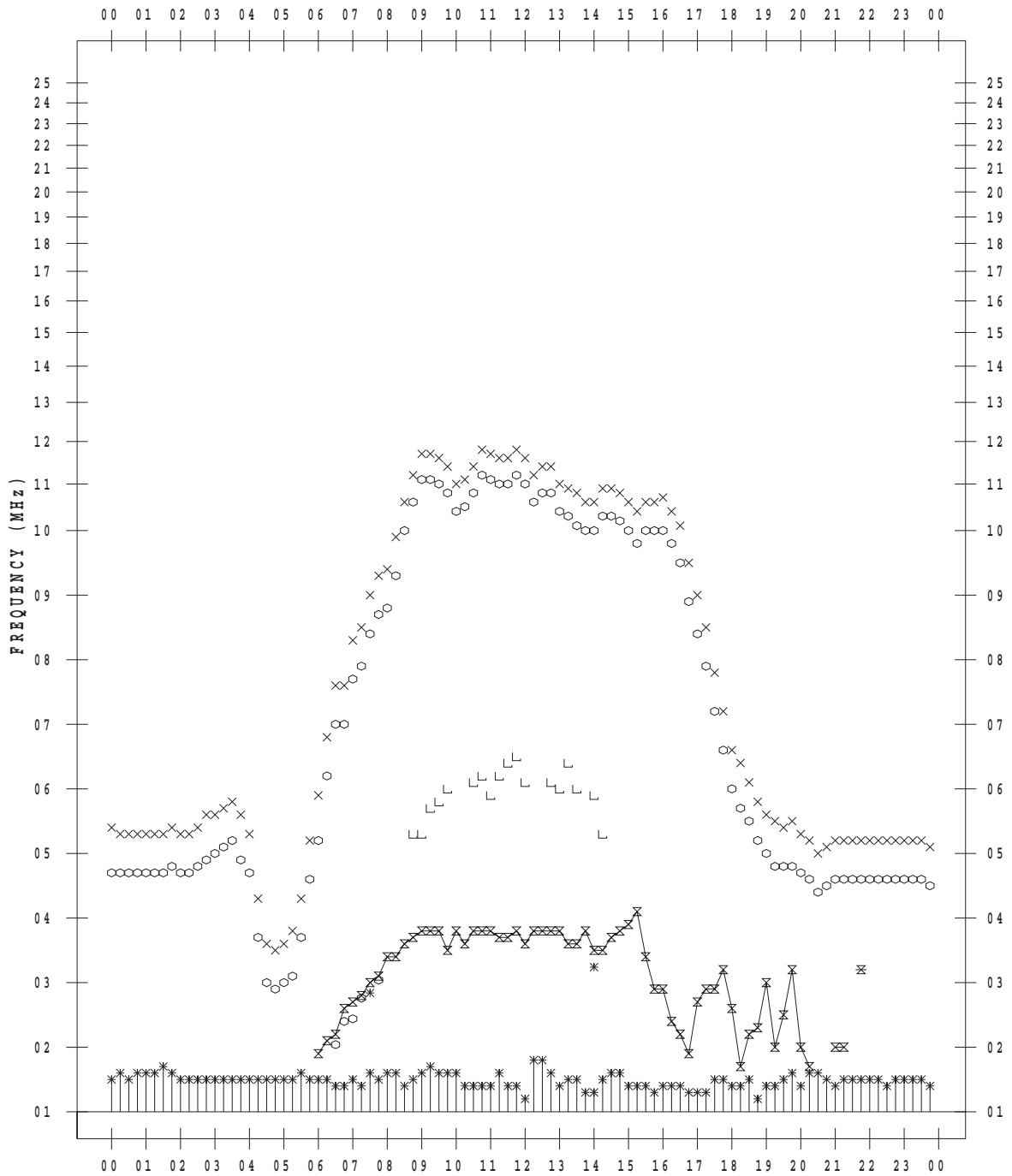
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/16

135 ° E MEAN TIME



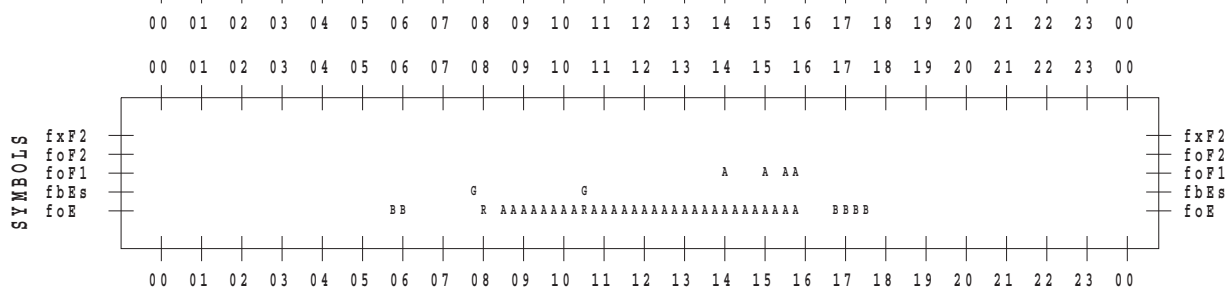
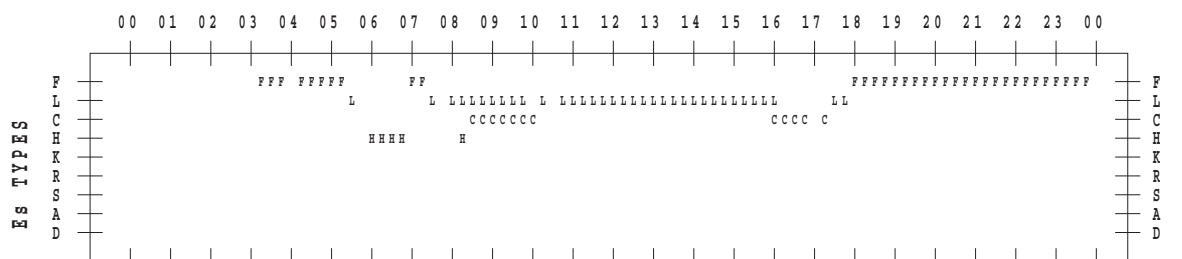
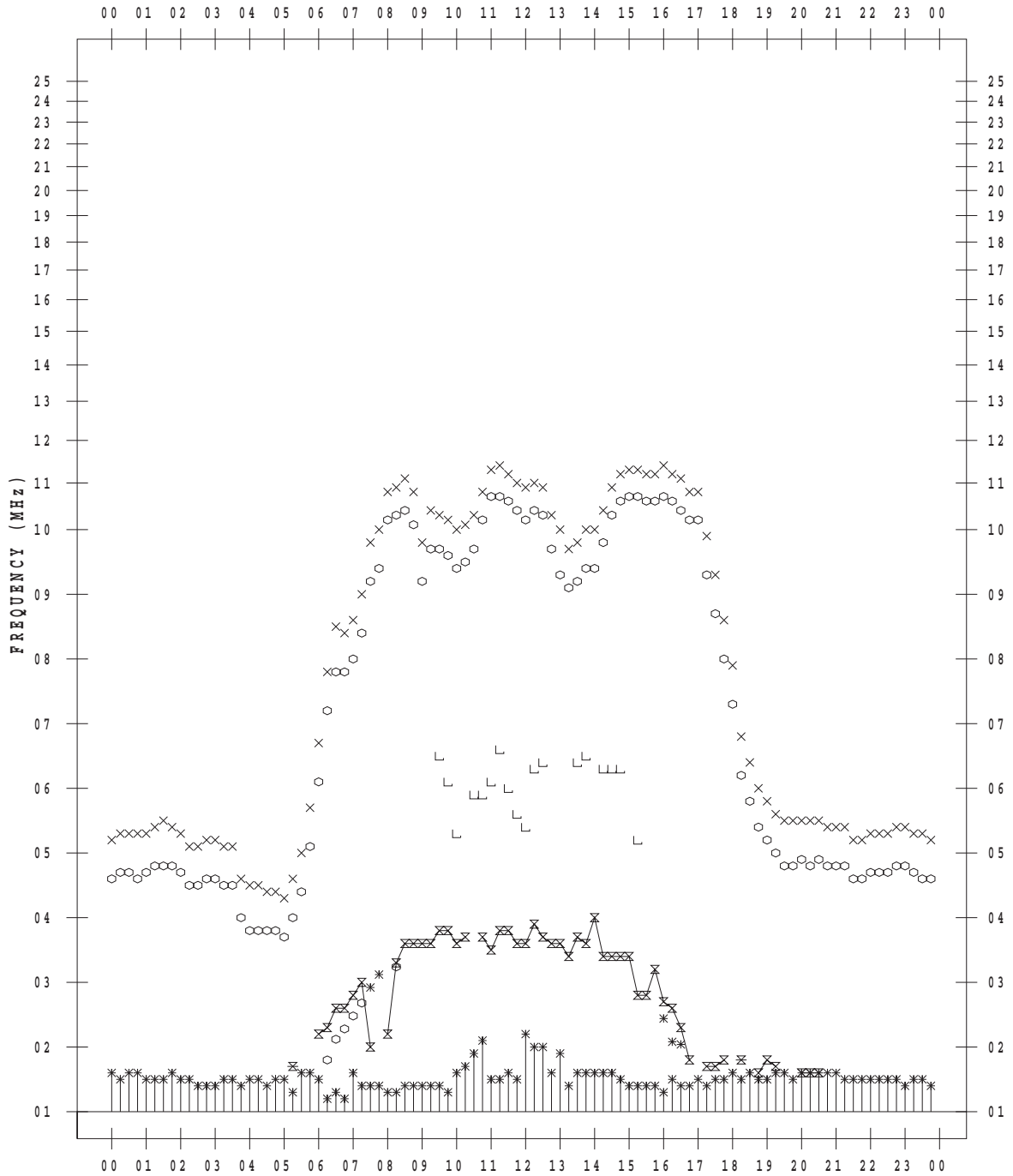
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/17

135 ° E MEAN TIME



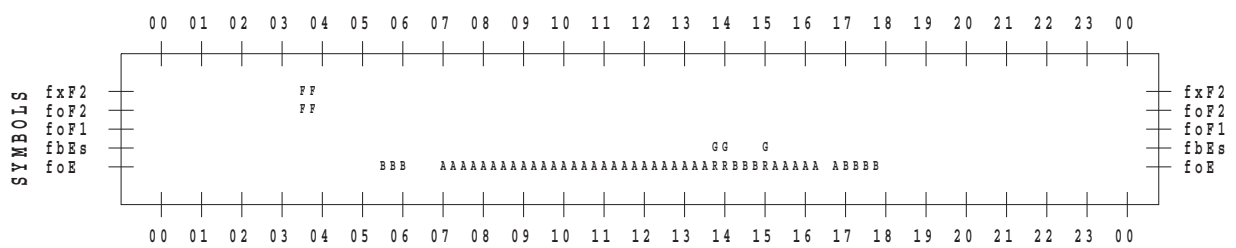
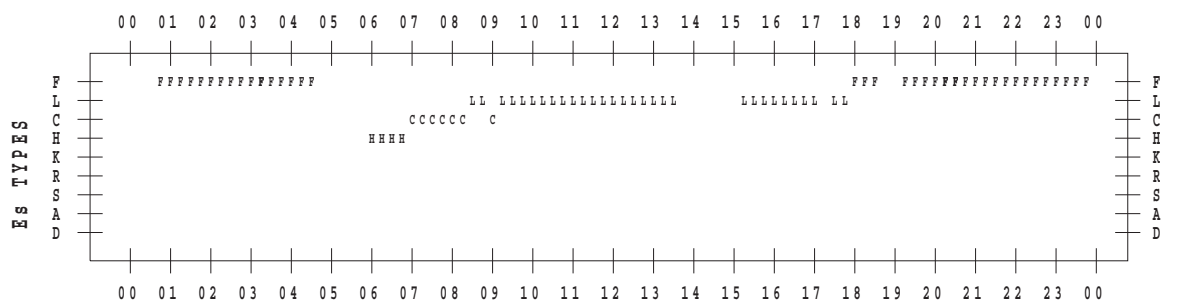
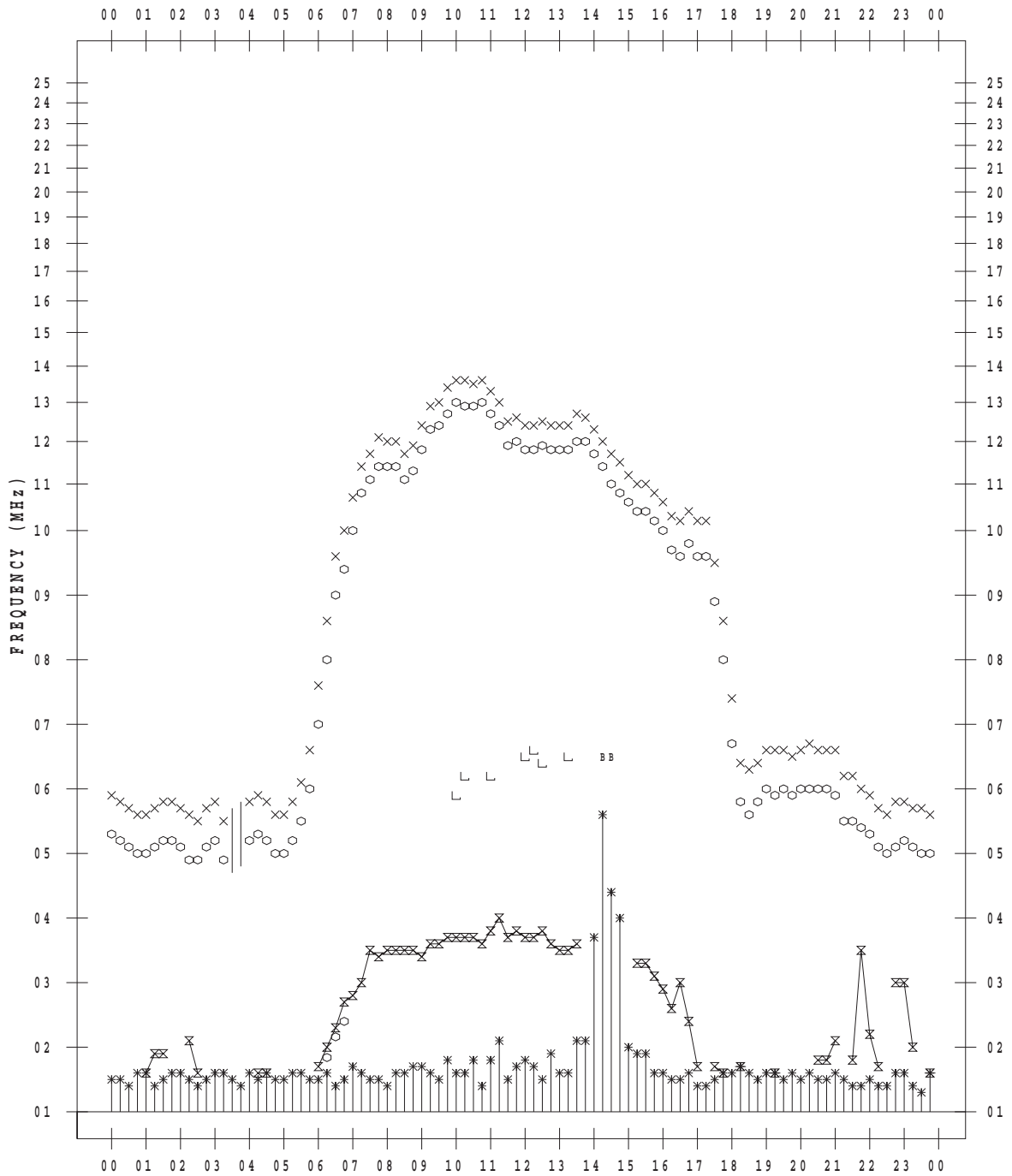
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/19

135 ° E MEAN TIME



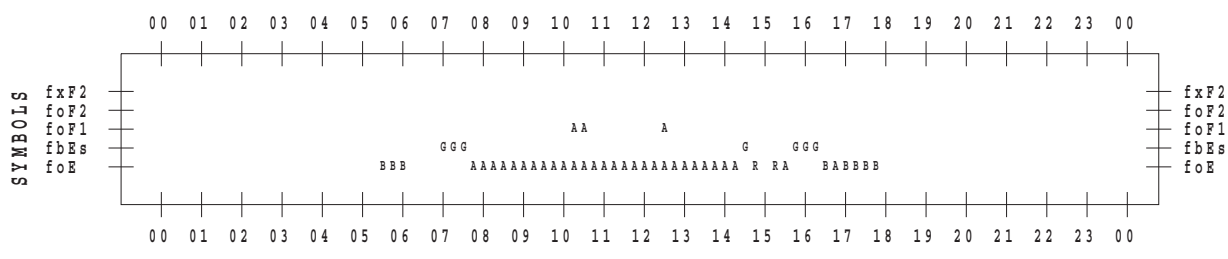
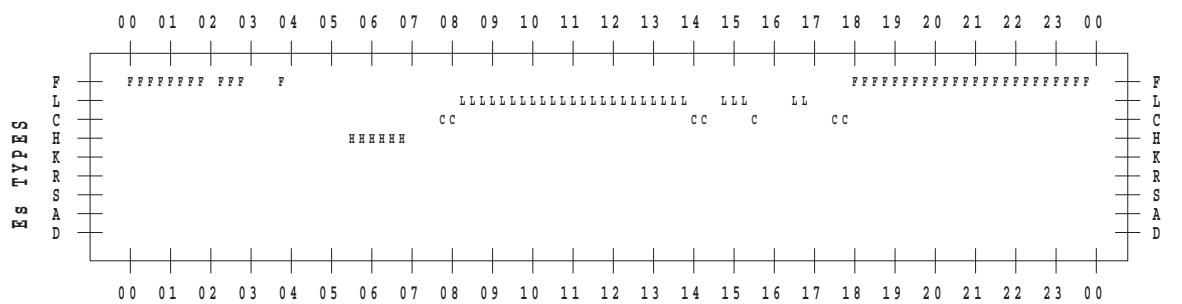
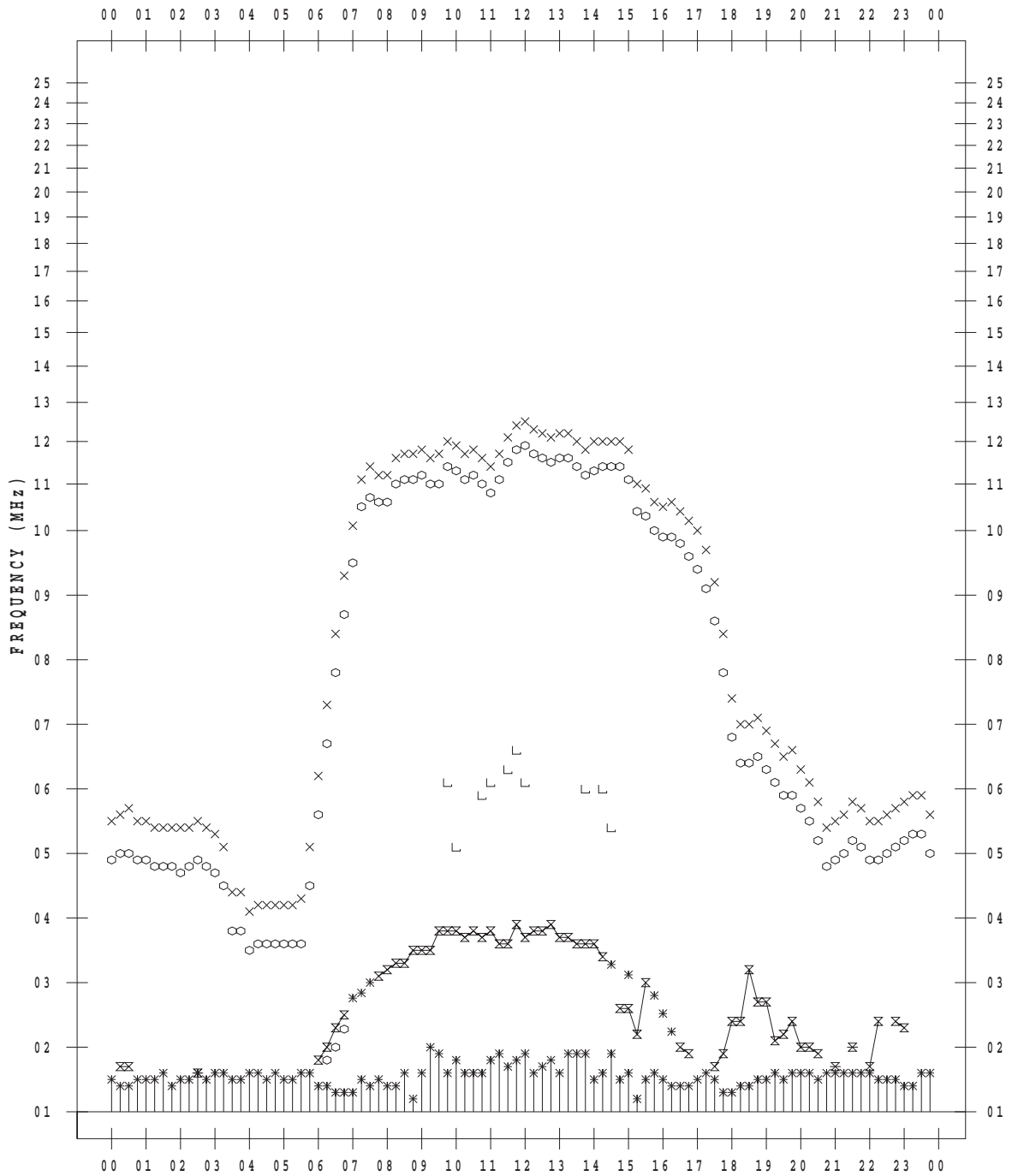
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/20

135 ° E MEAN TIME



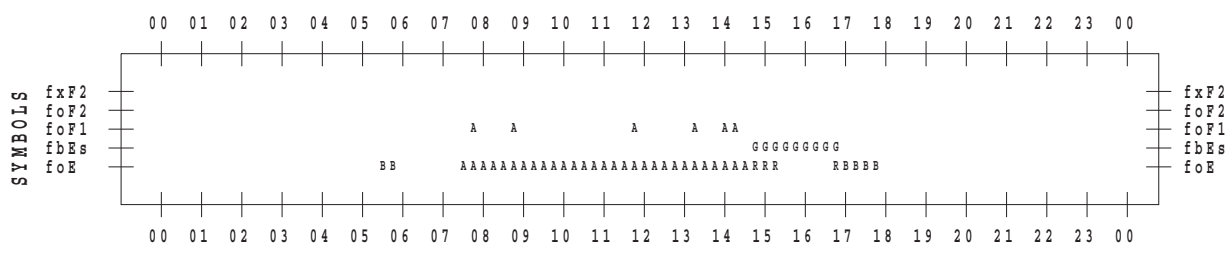
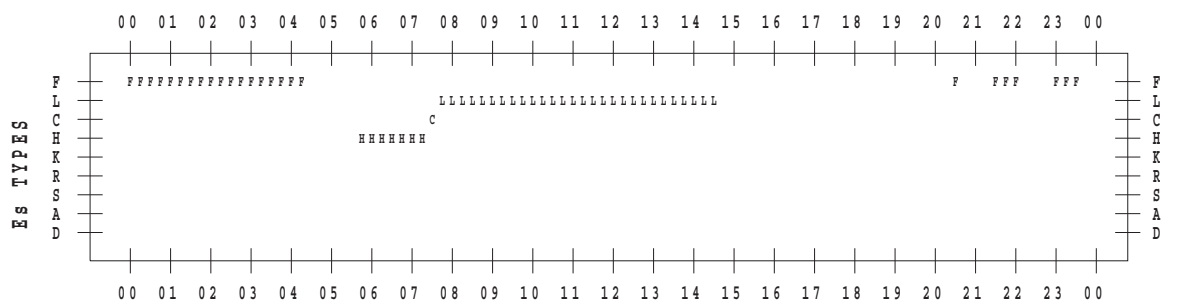
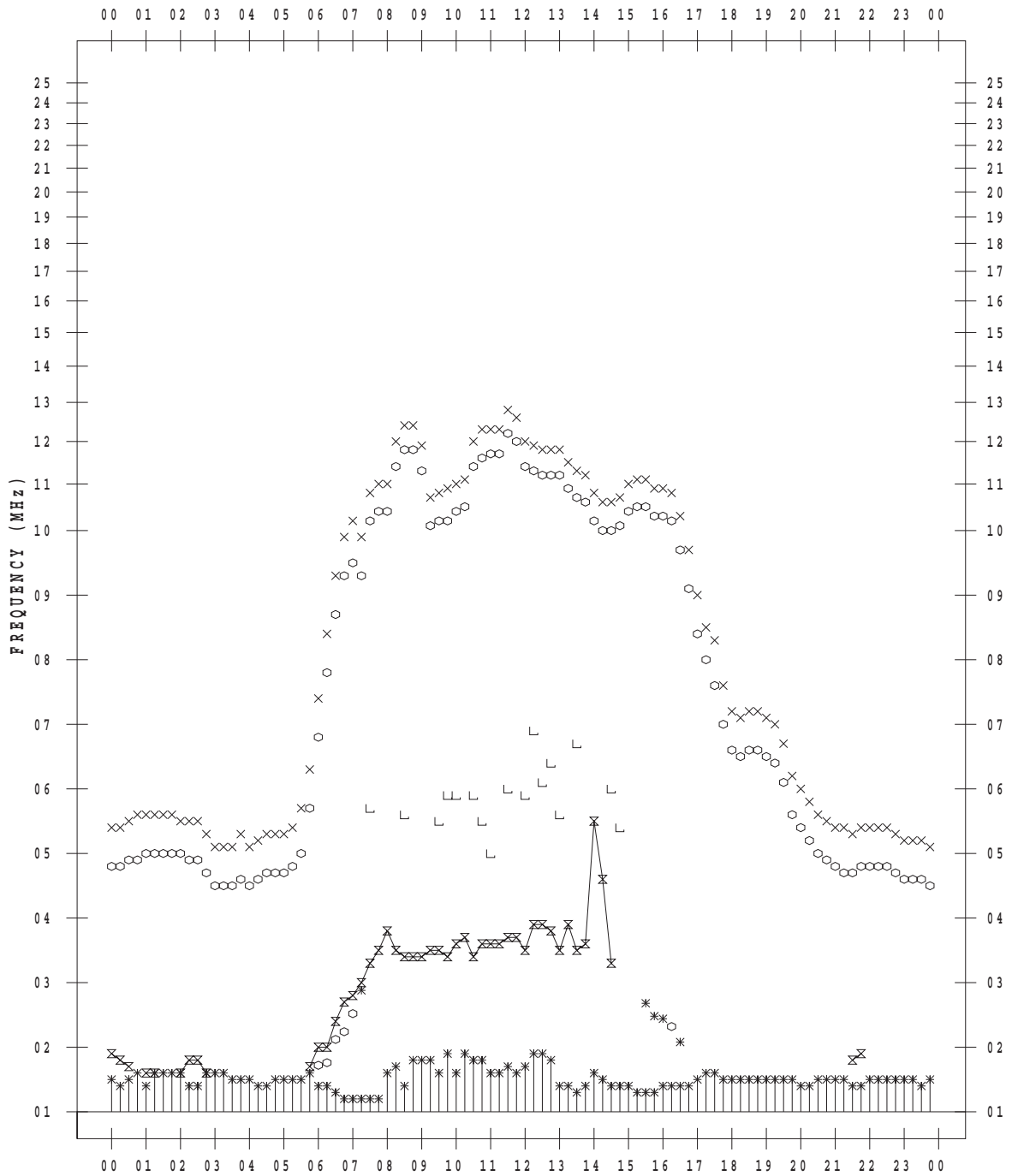
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/21

135 ° E MEAN TIME



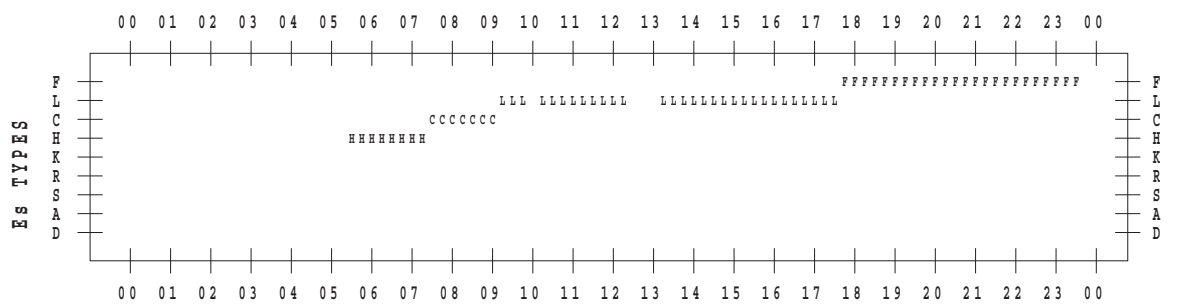
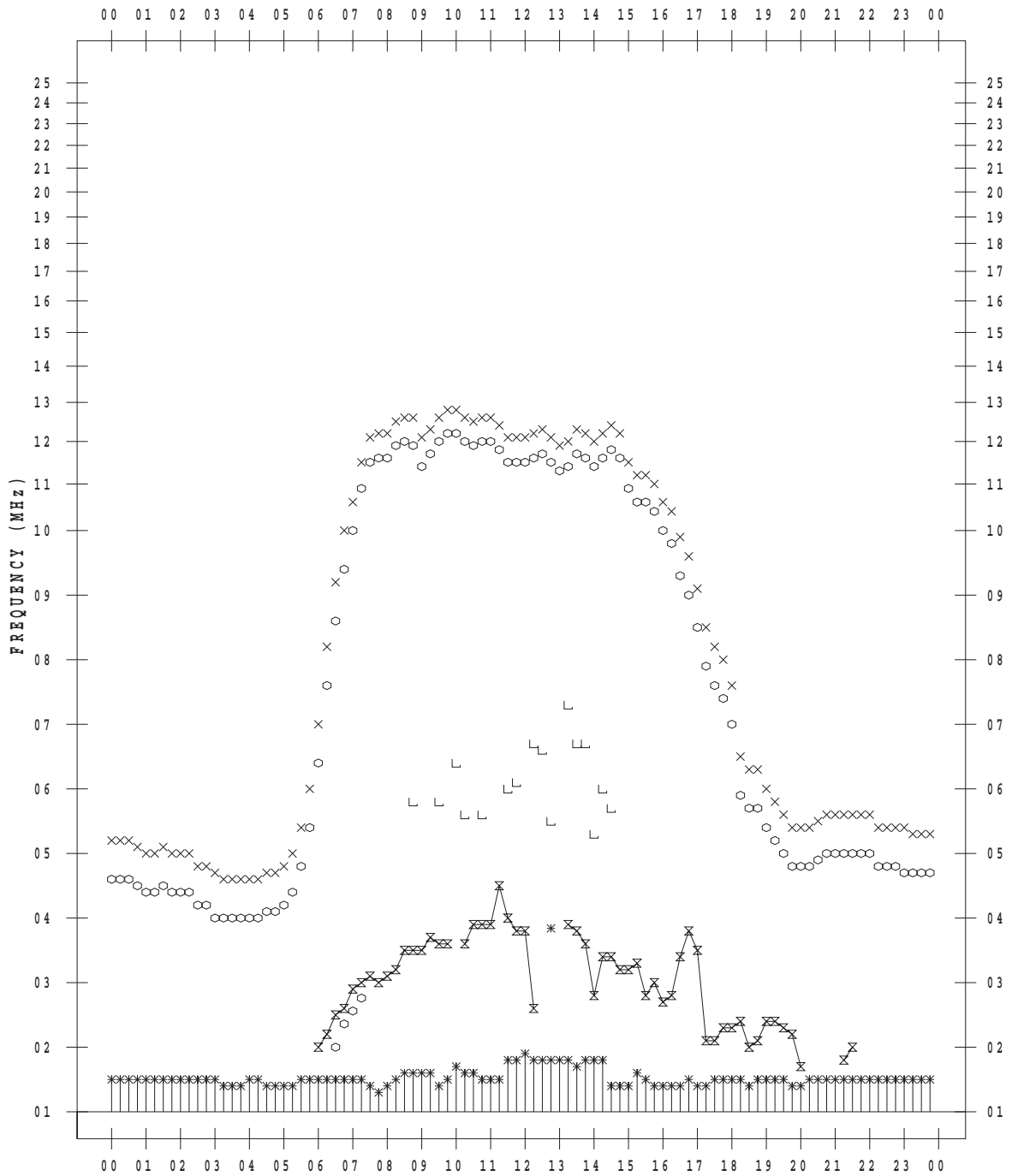
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/23

135 ° E MEAN TIME



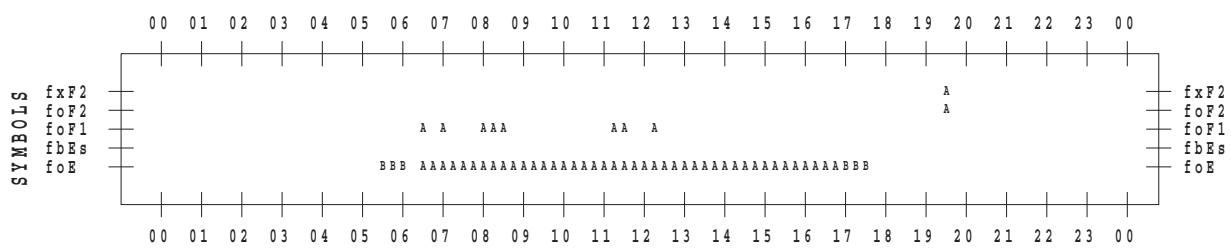
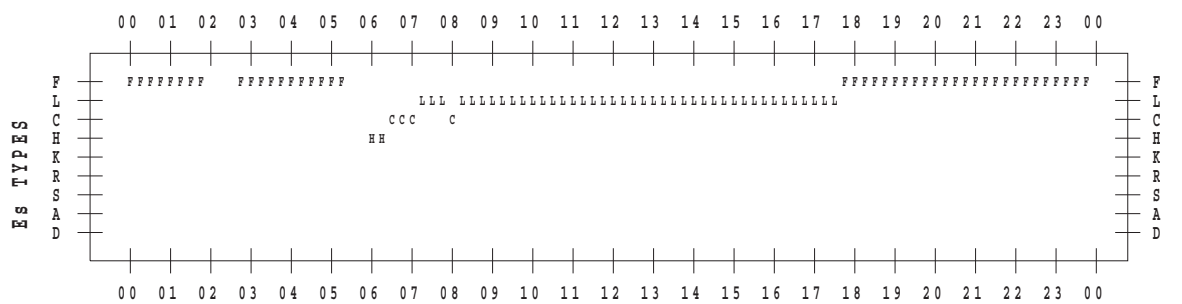
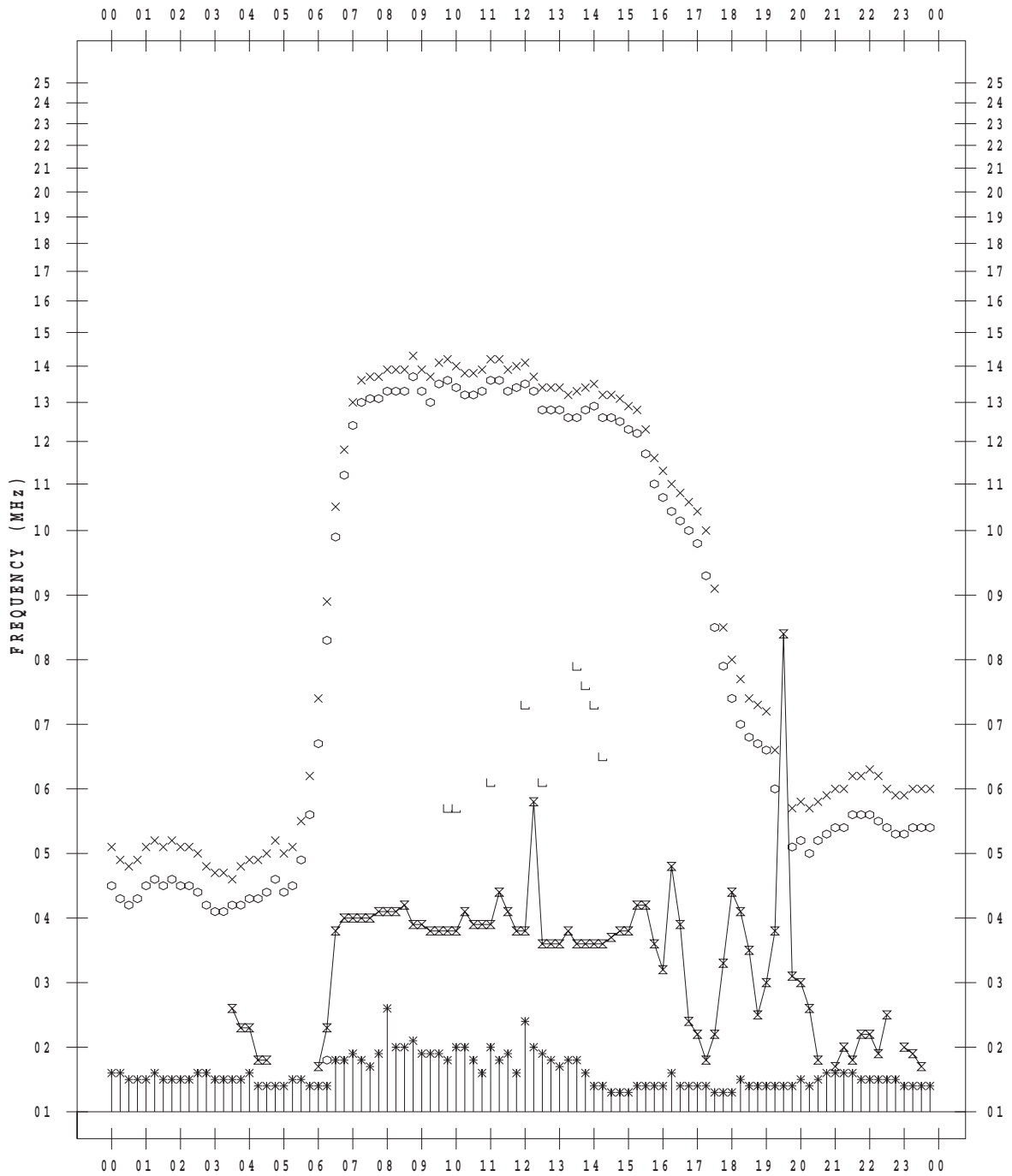
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/25

135 ° E MEAN TIME



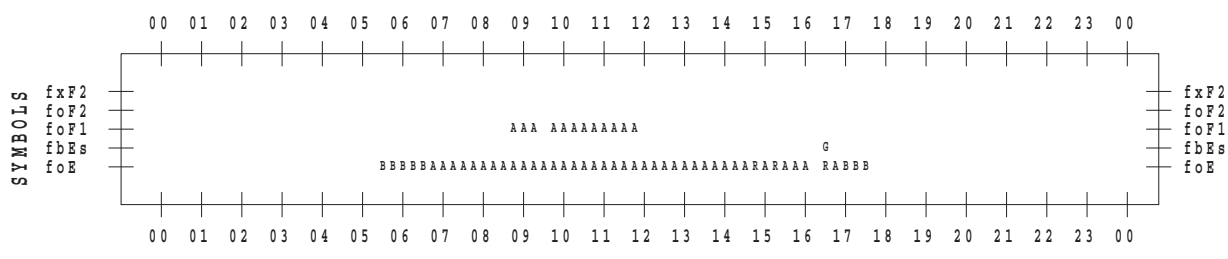
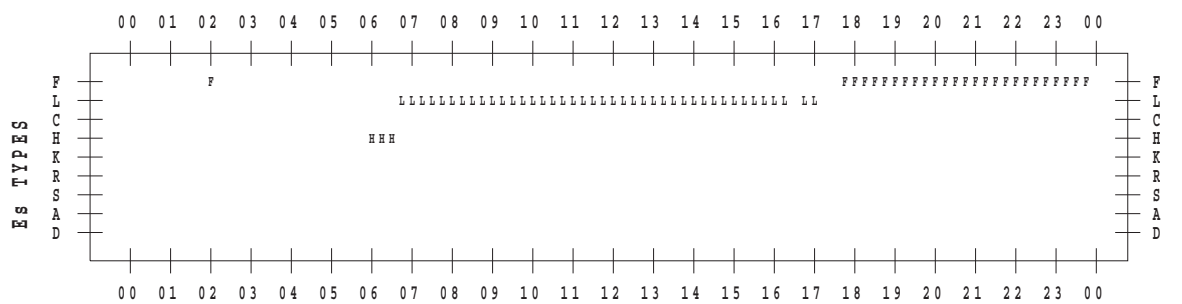
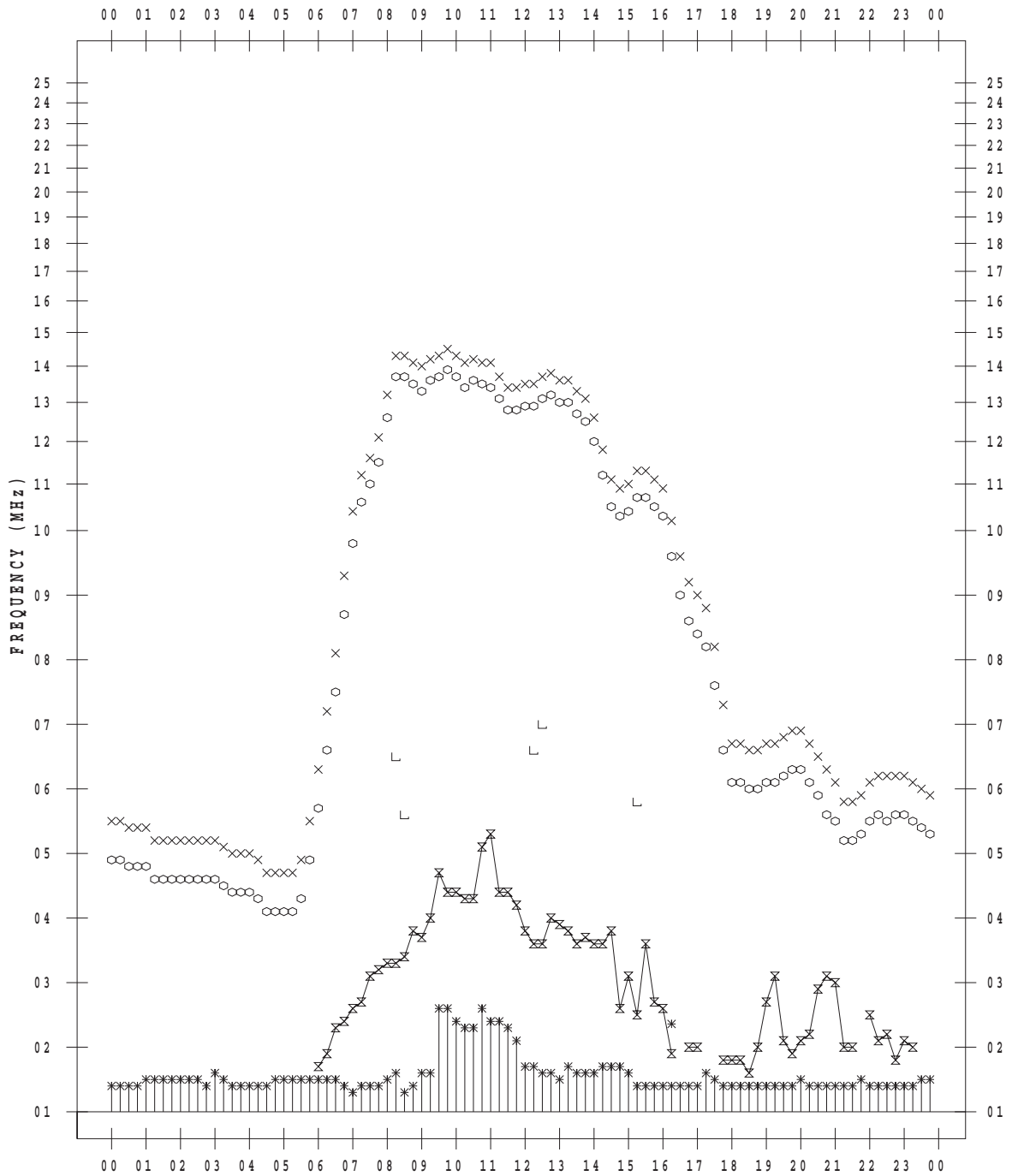
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/27

135 ° E MEAN TIME



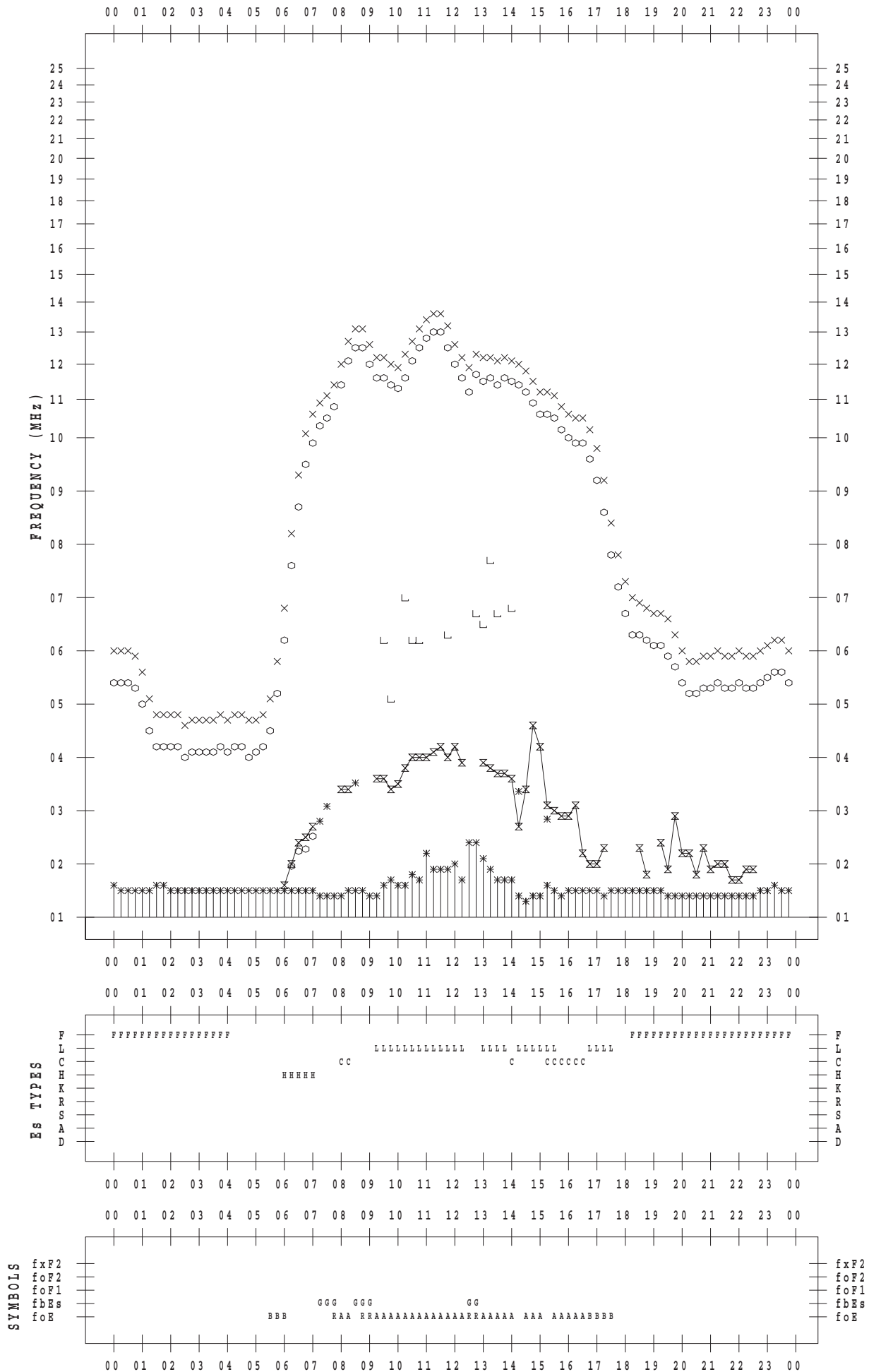
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/28

135 ° E MEAN TIME



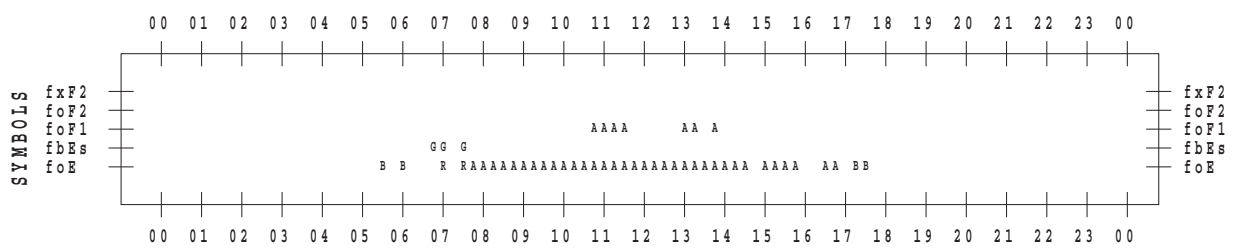
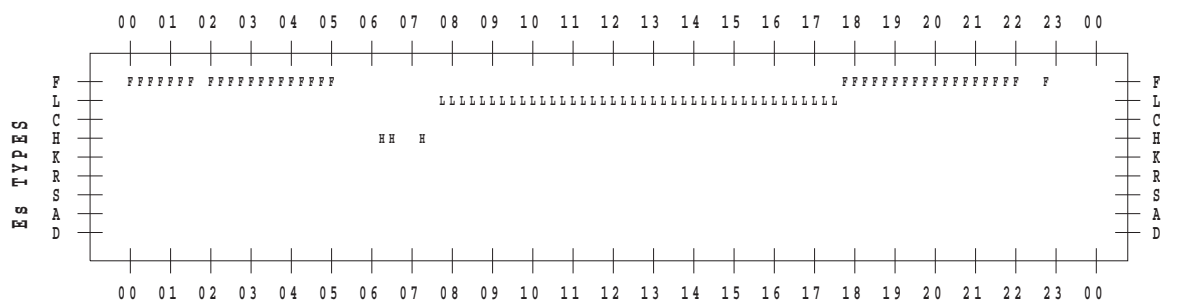
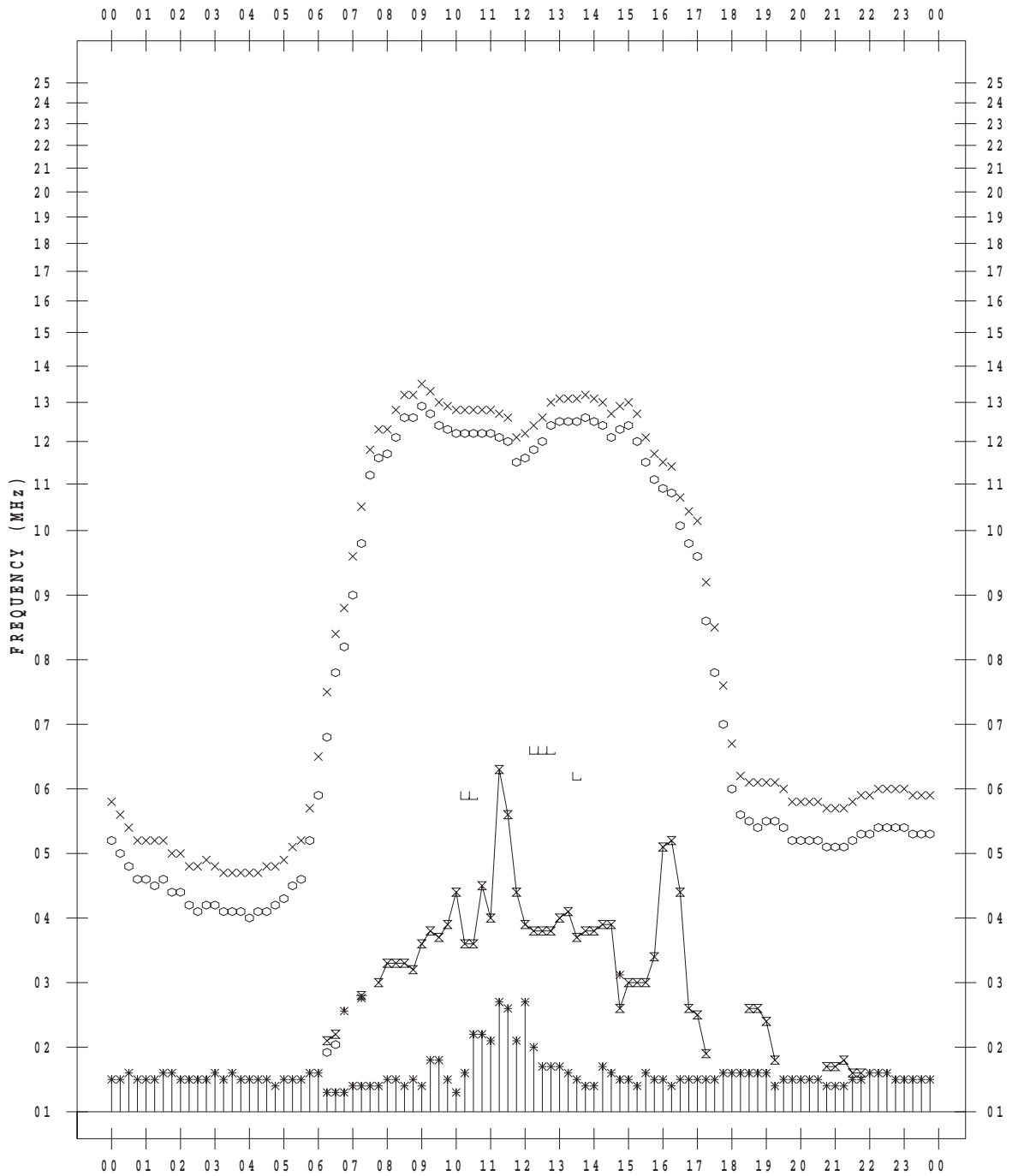
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/29

135 ° E MEAN TIME



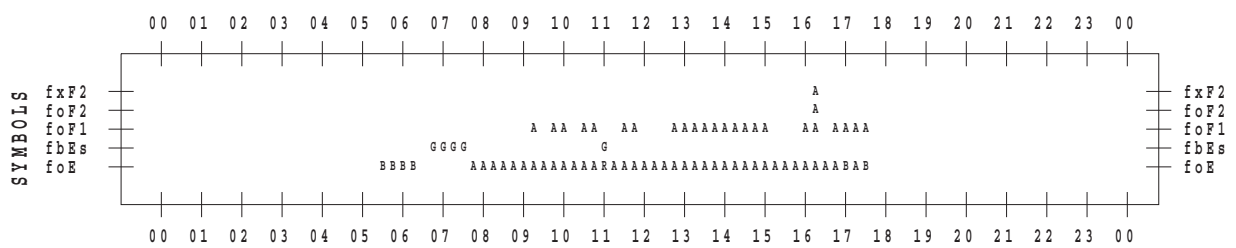
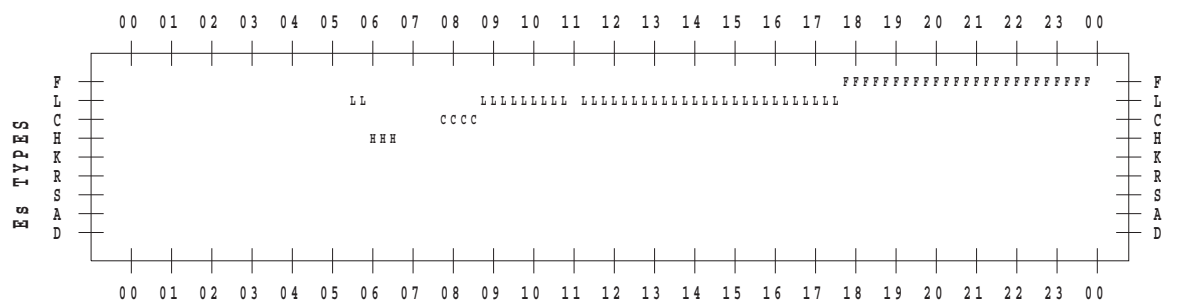
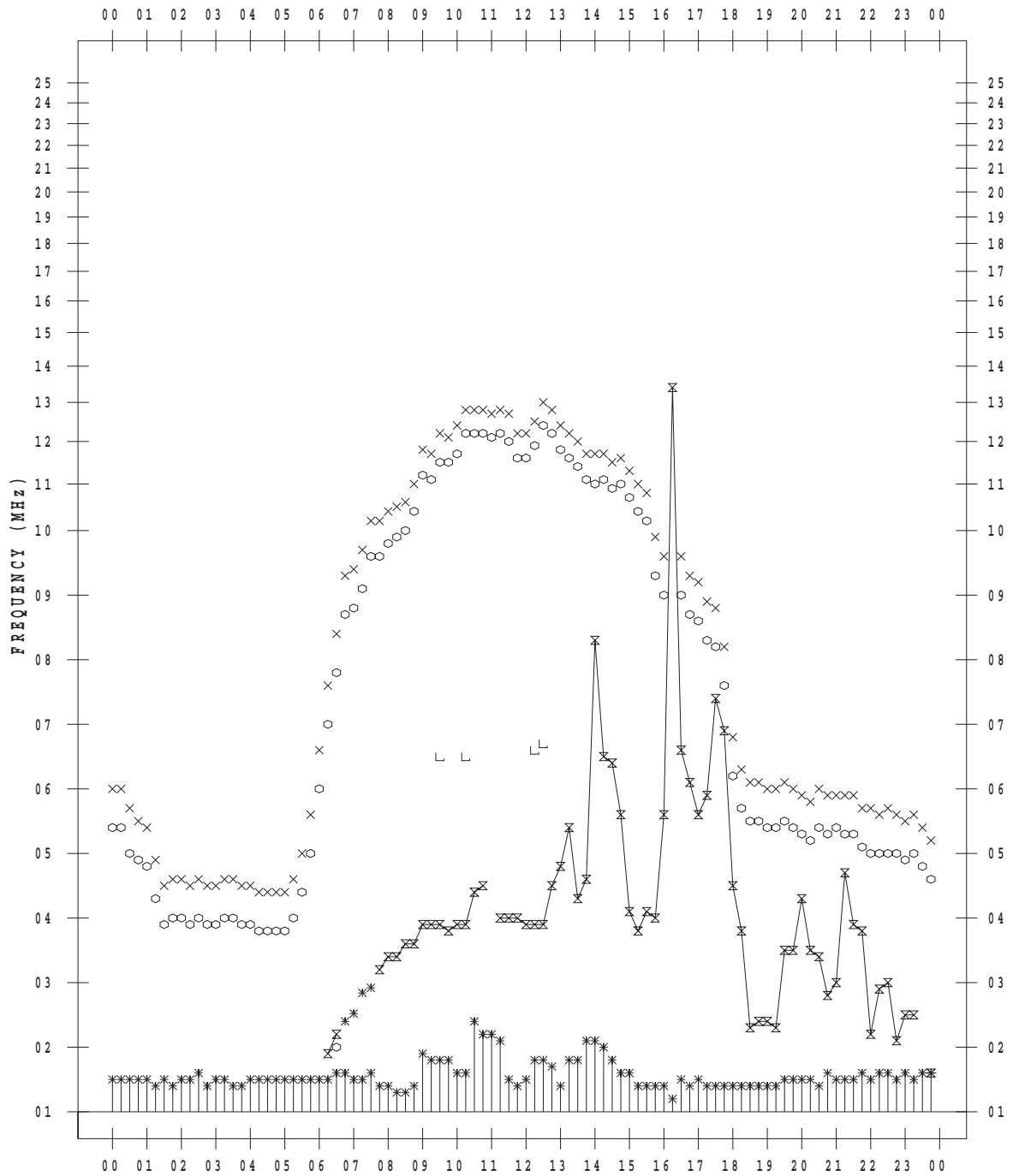
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/30

135 ° E MEAN TIME



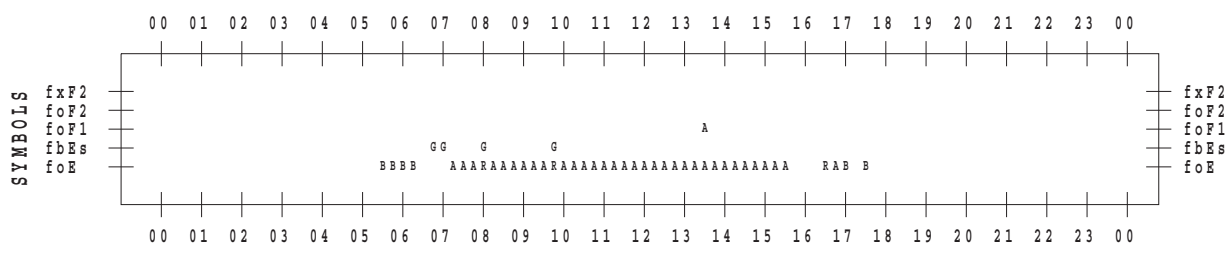
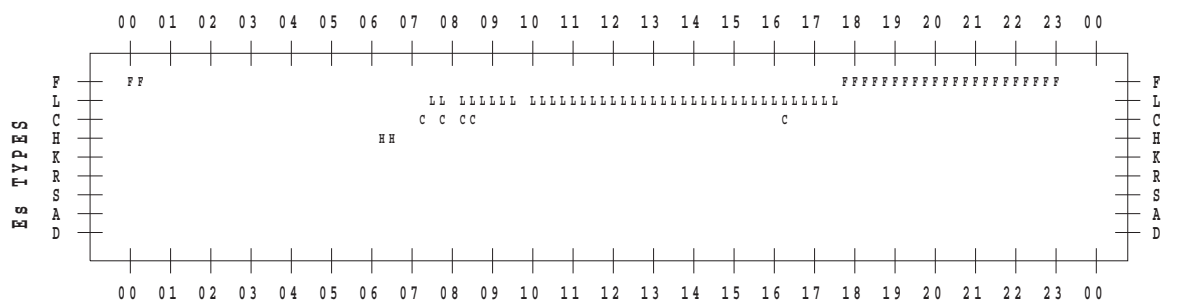
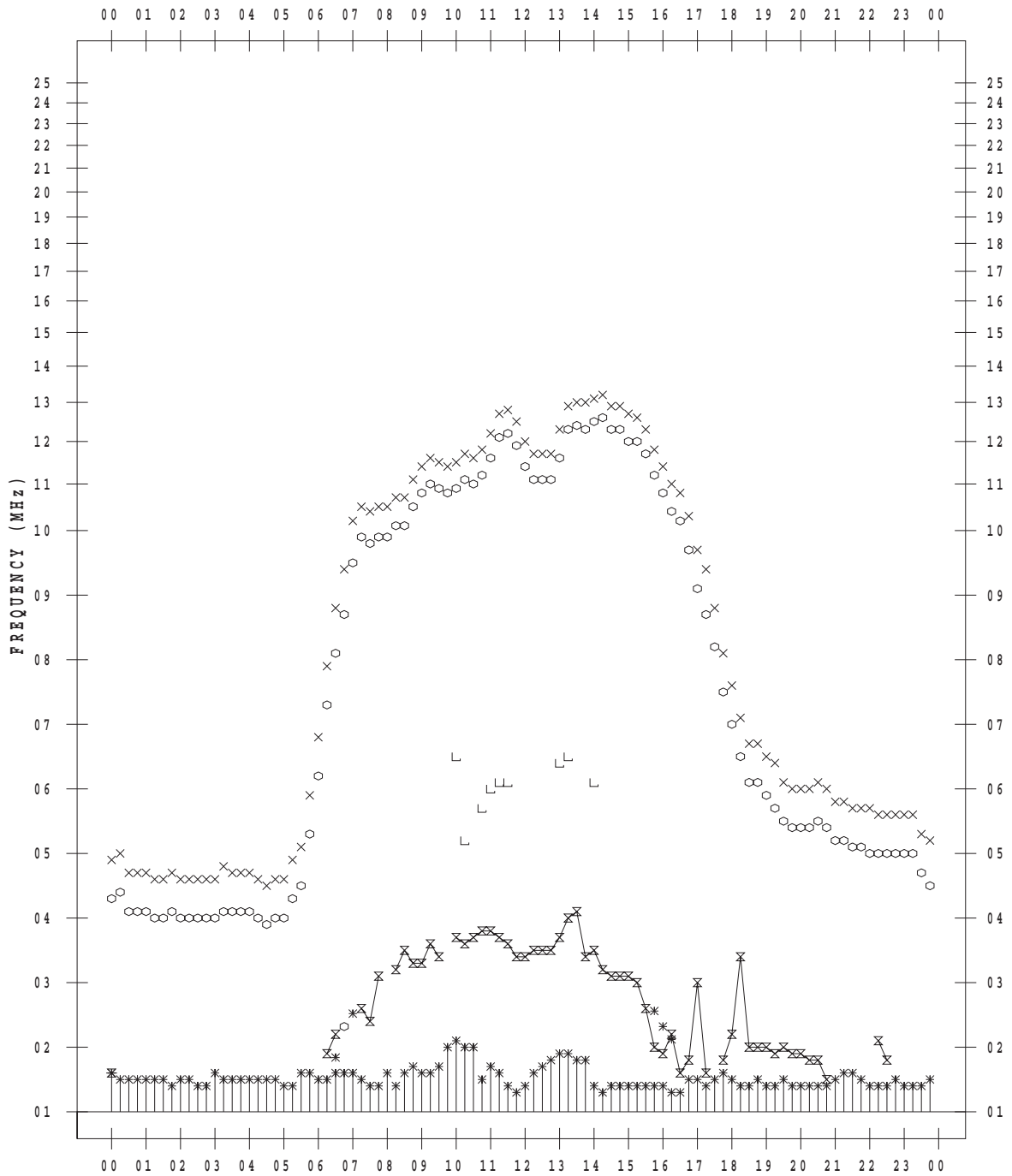
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/10/31

135 ° E MEAN TIME



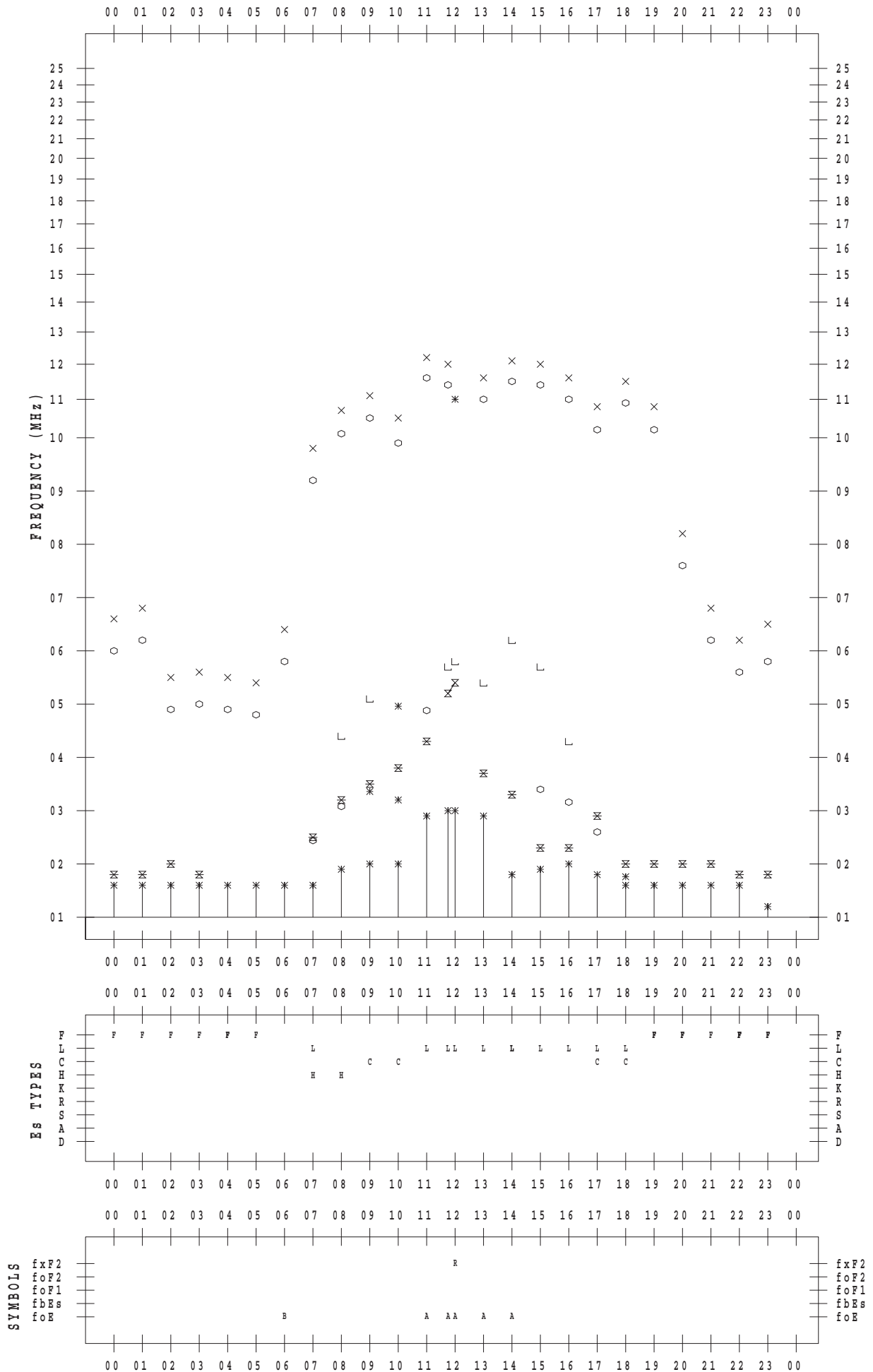
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/ 1

135 ° E MEAN TIME



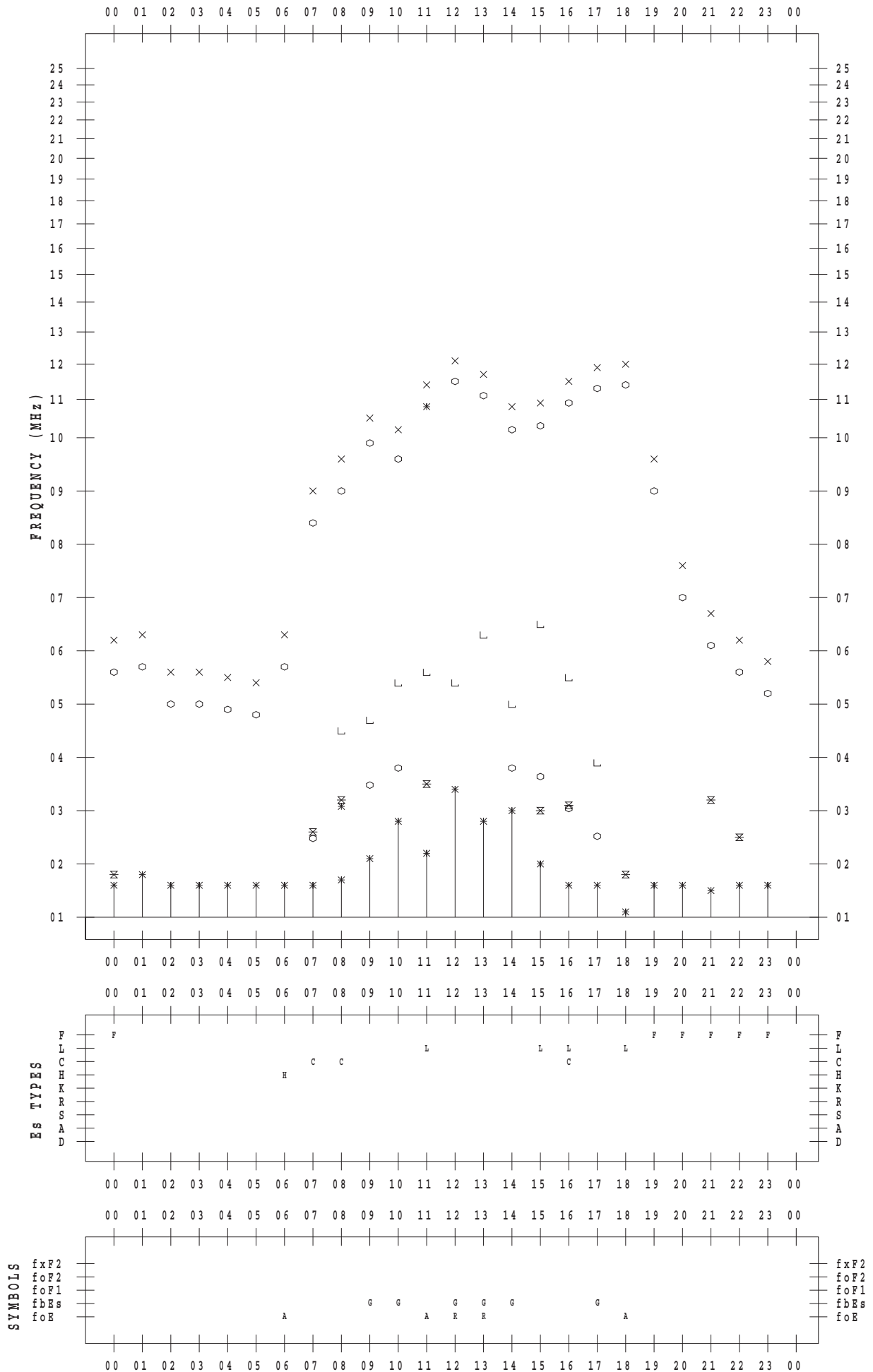
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/ 2

135 ° E MEAN TIME



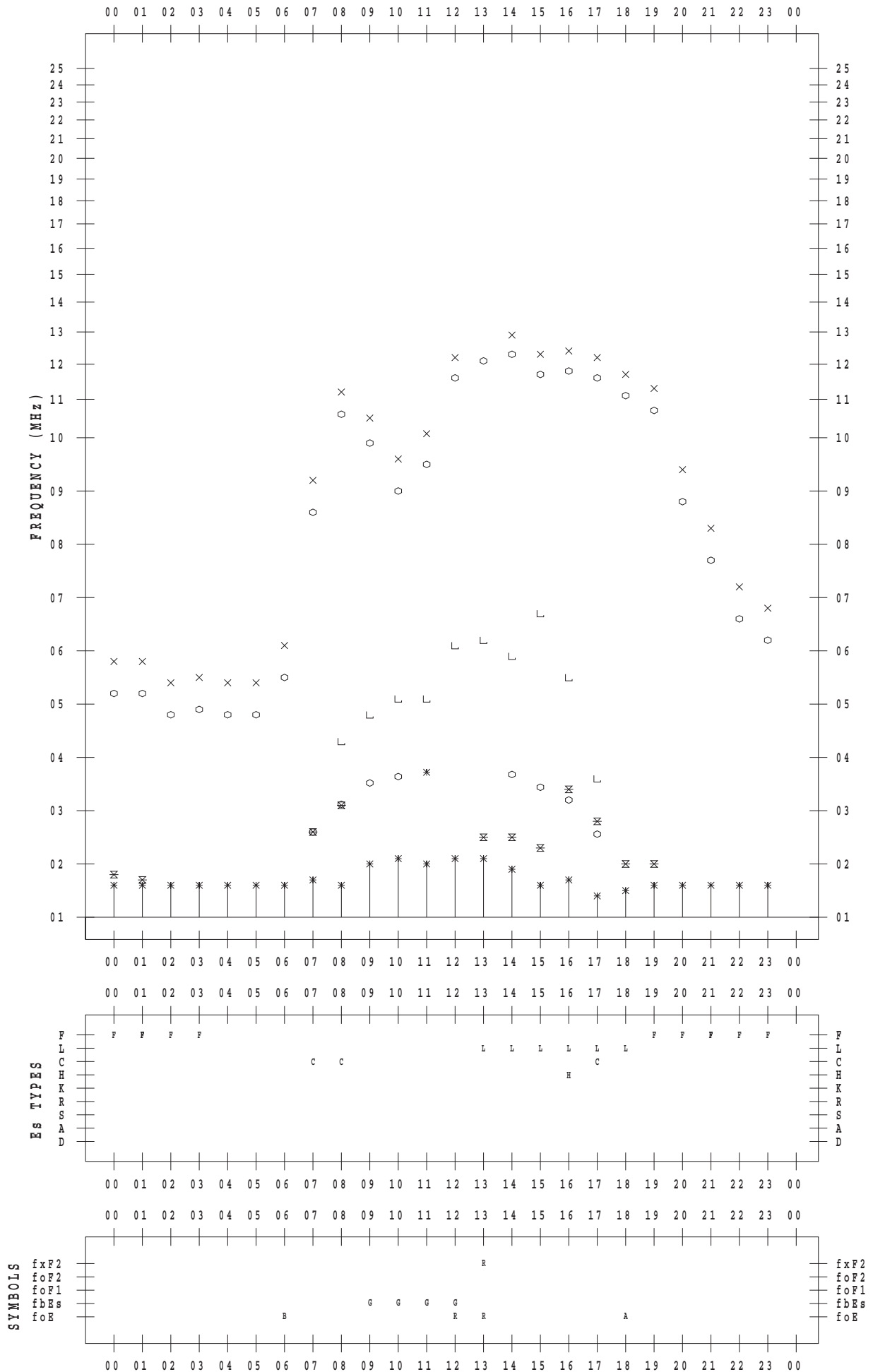
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/ 3

135 ° E MEAN TIME



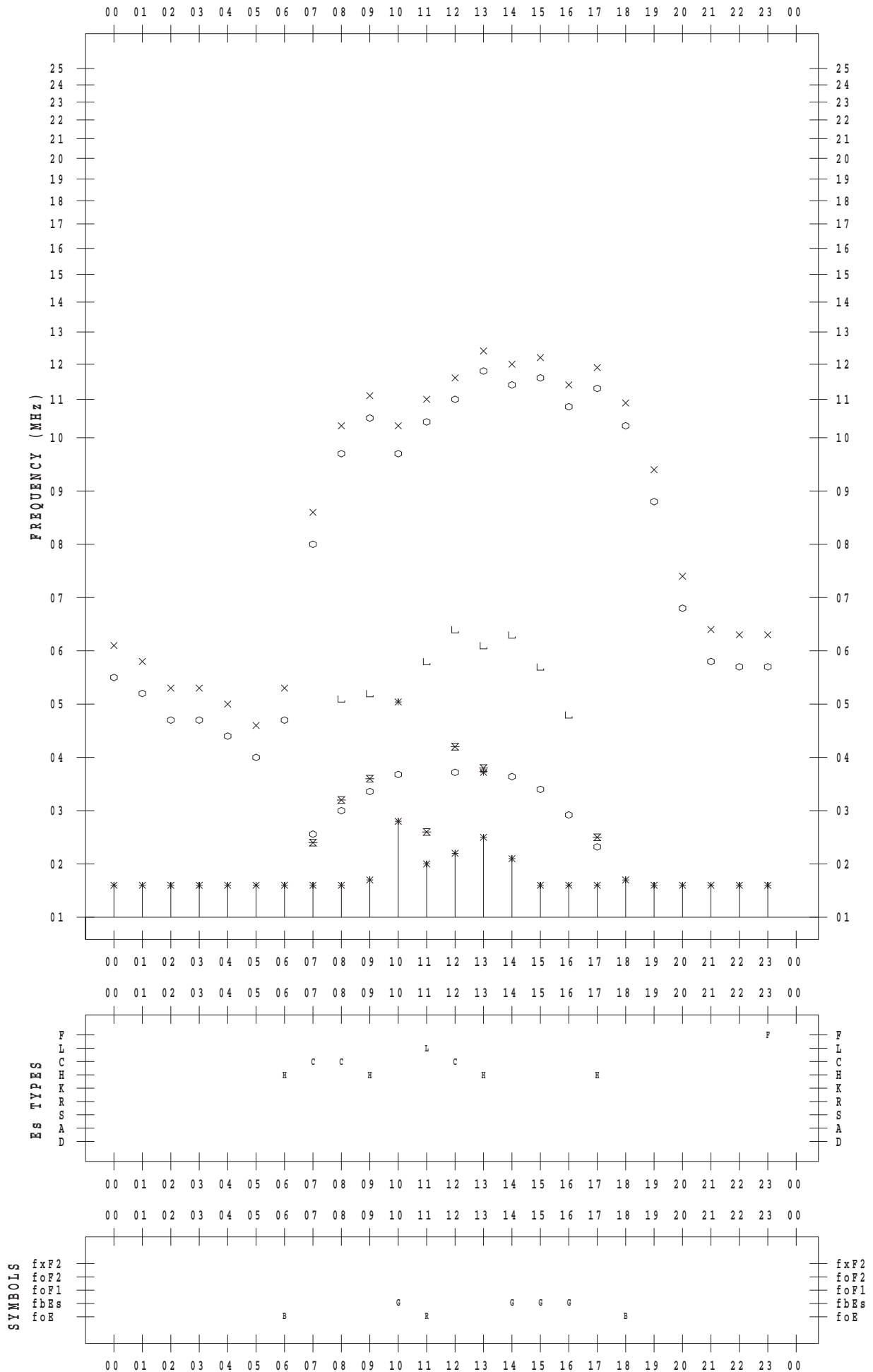
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/ 4

135 ° E MEAN TIME



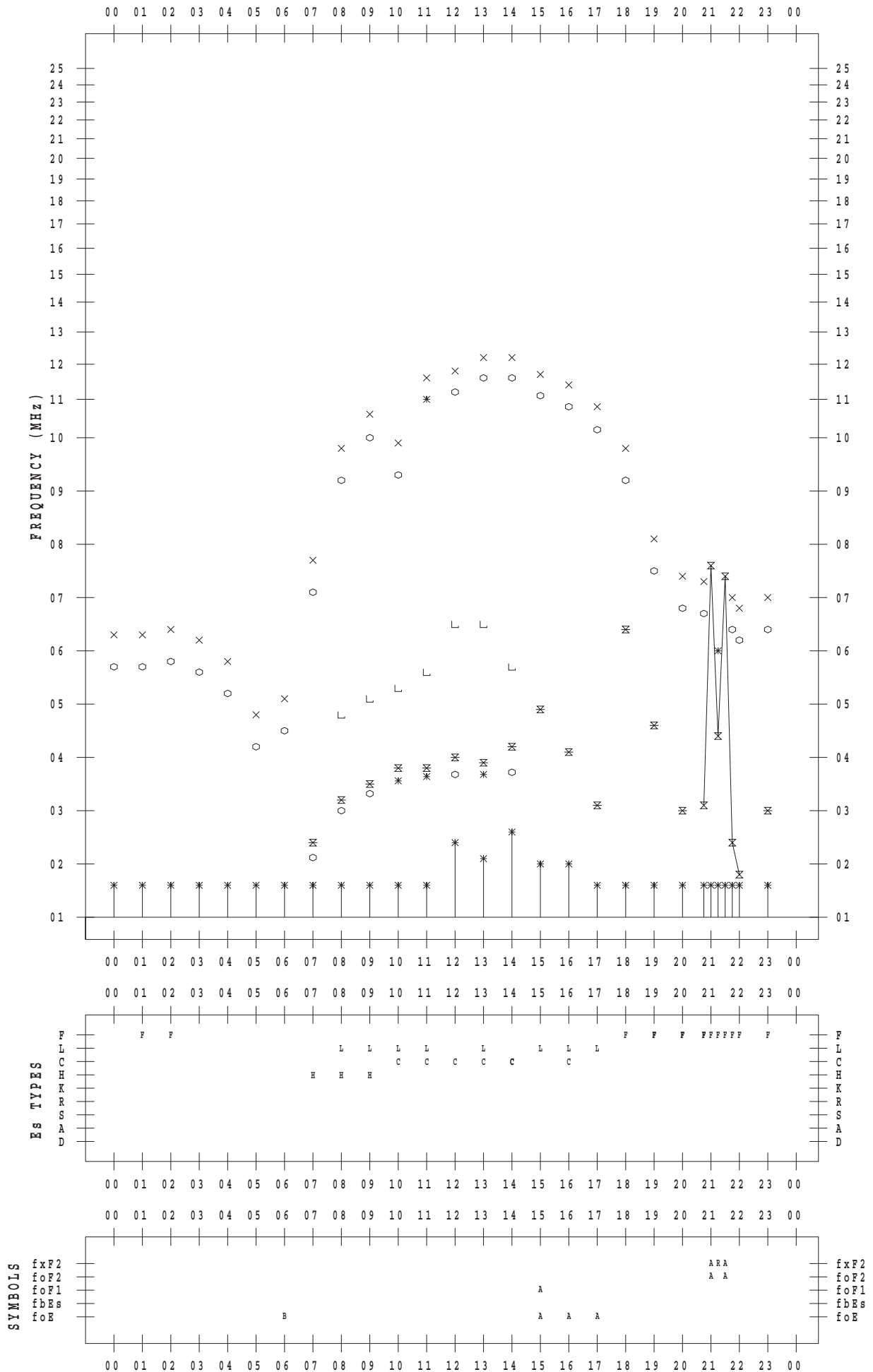
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/ 5

135 ° E MEAN TIME



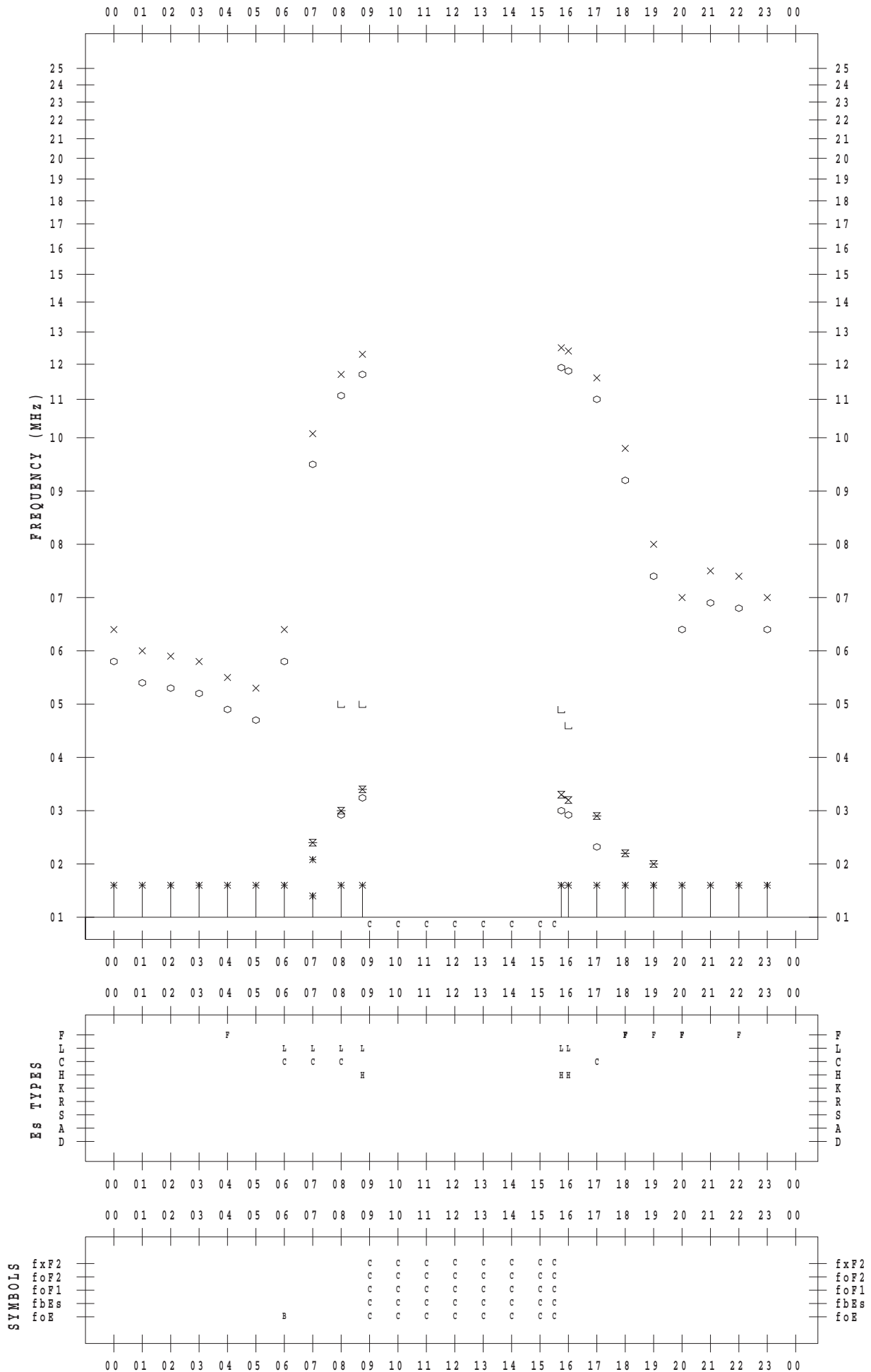
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/ 7

135 ° E MEAN TIME



Es TYPES

SYMBOLS

fxF2
foF2
foF1
fbEs
foE

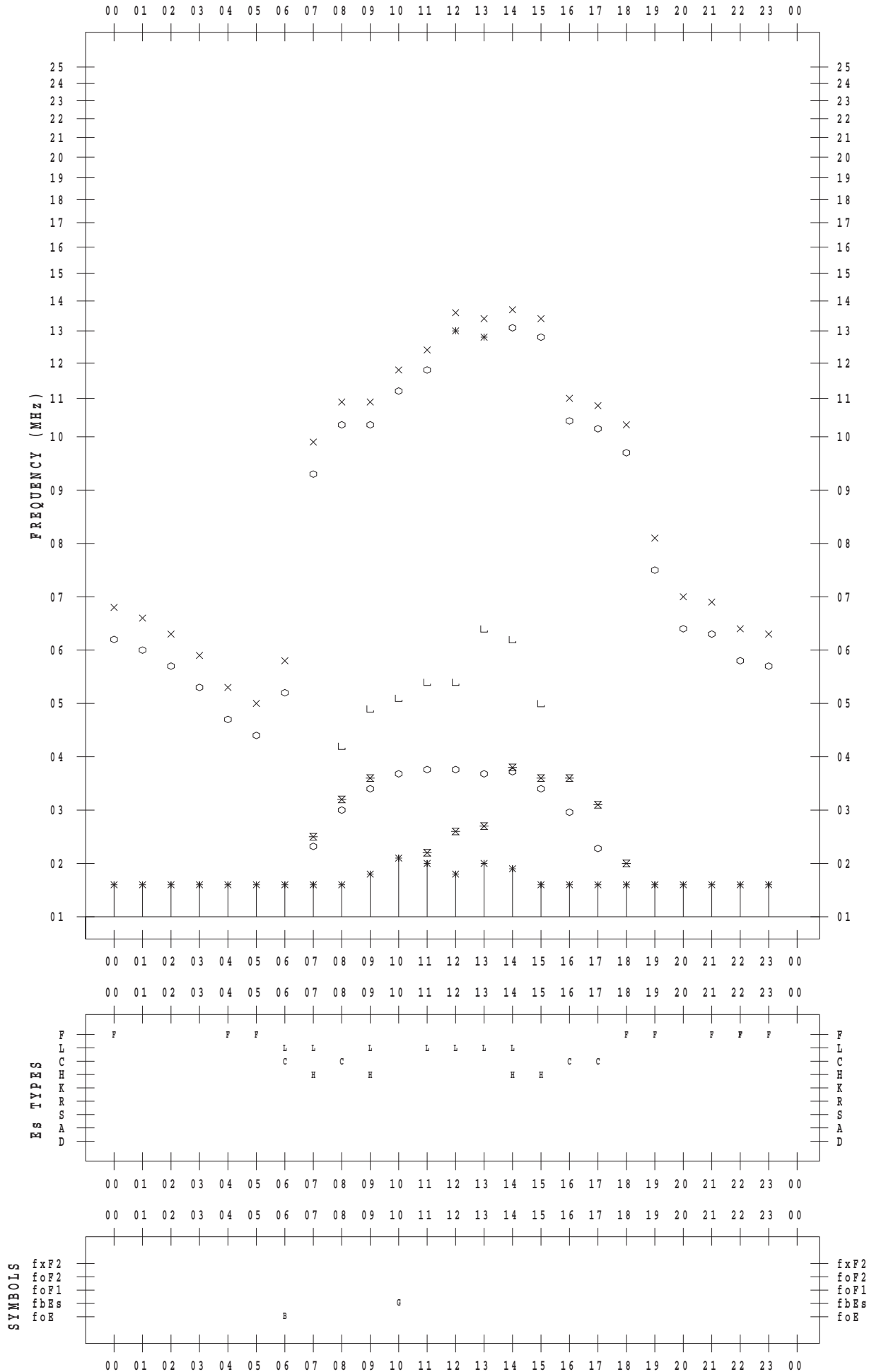
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/ 8

135 ° E MEAN TIME



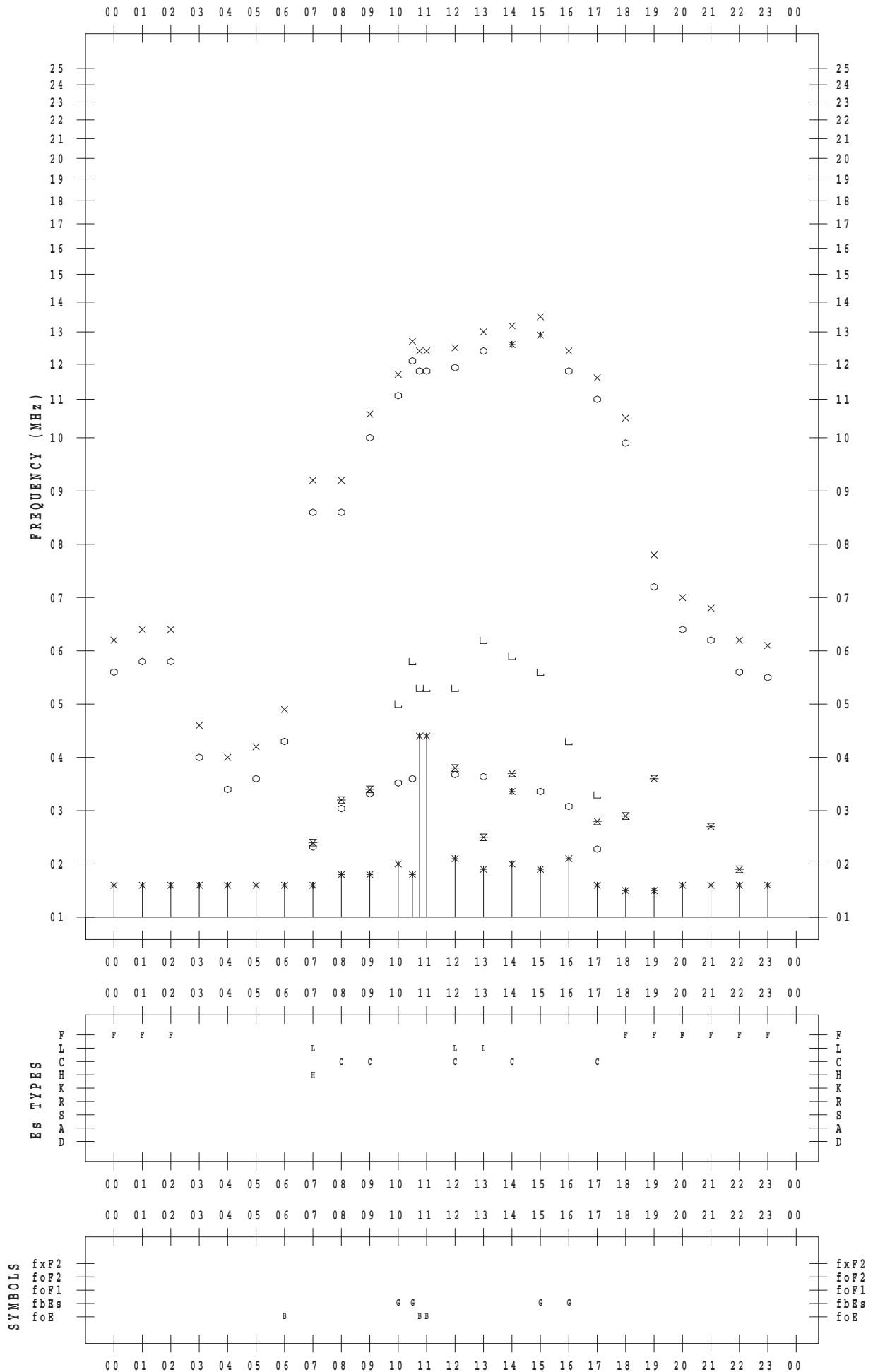
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/ 9

135 ° E MEAN TIME



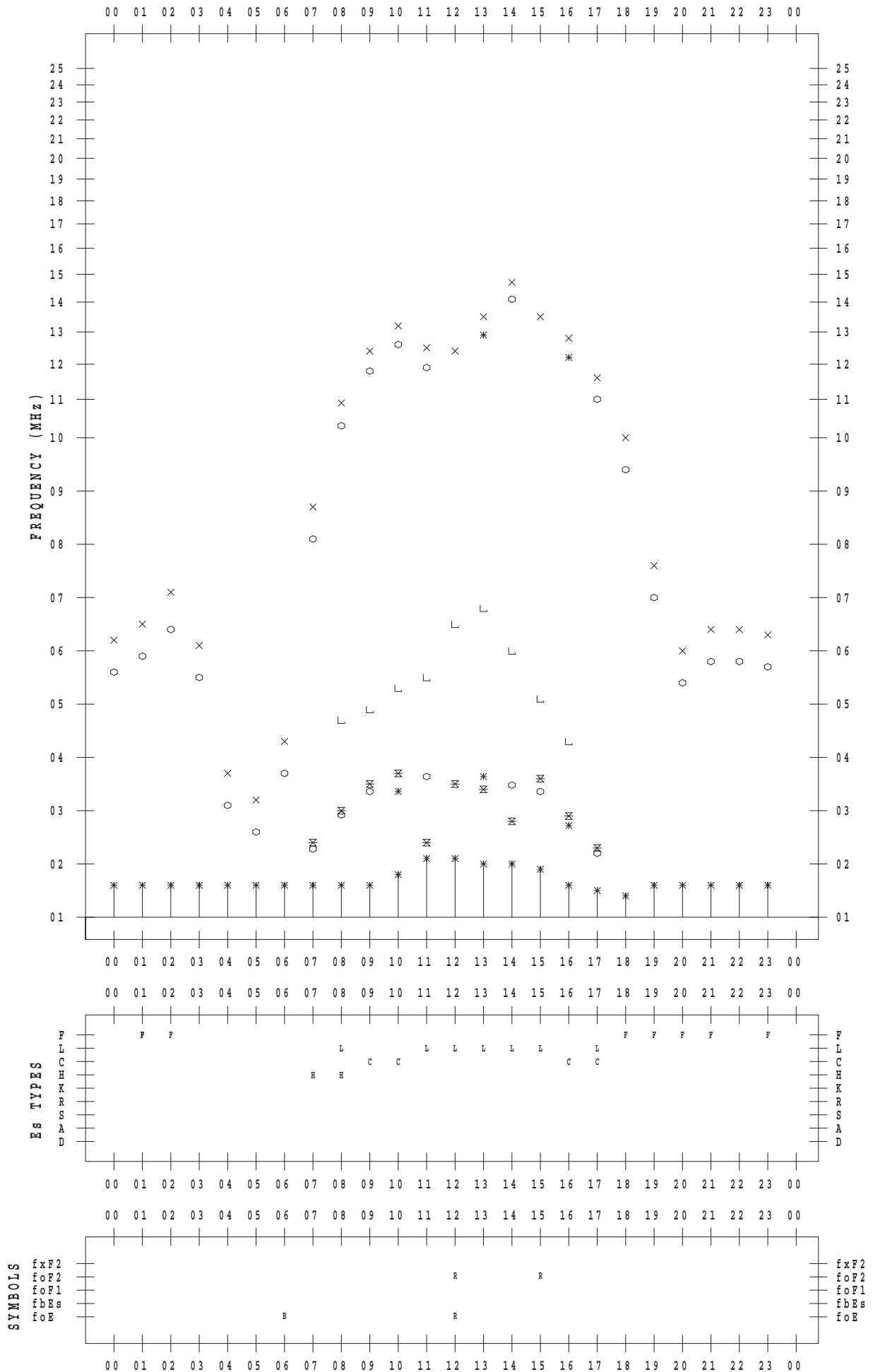
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/10

135 ° E MEAN TIME



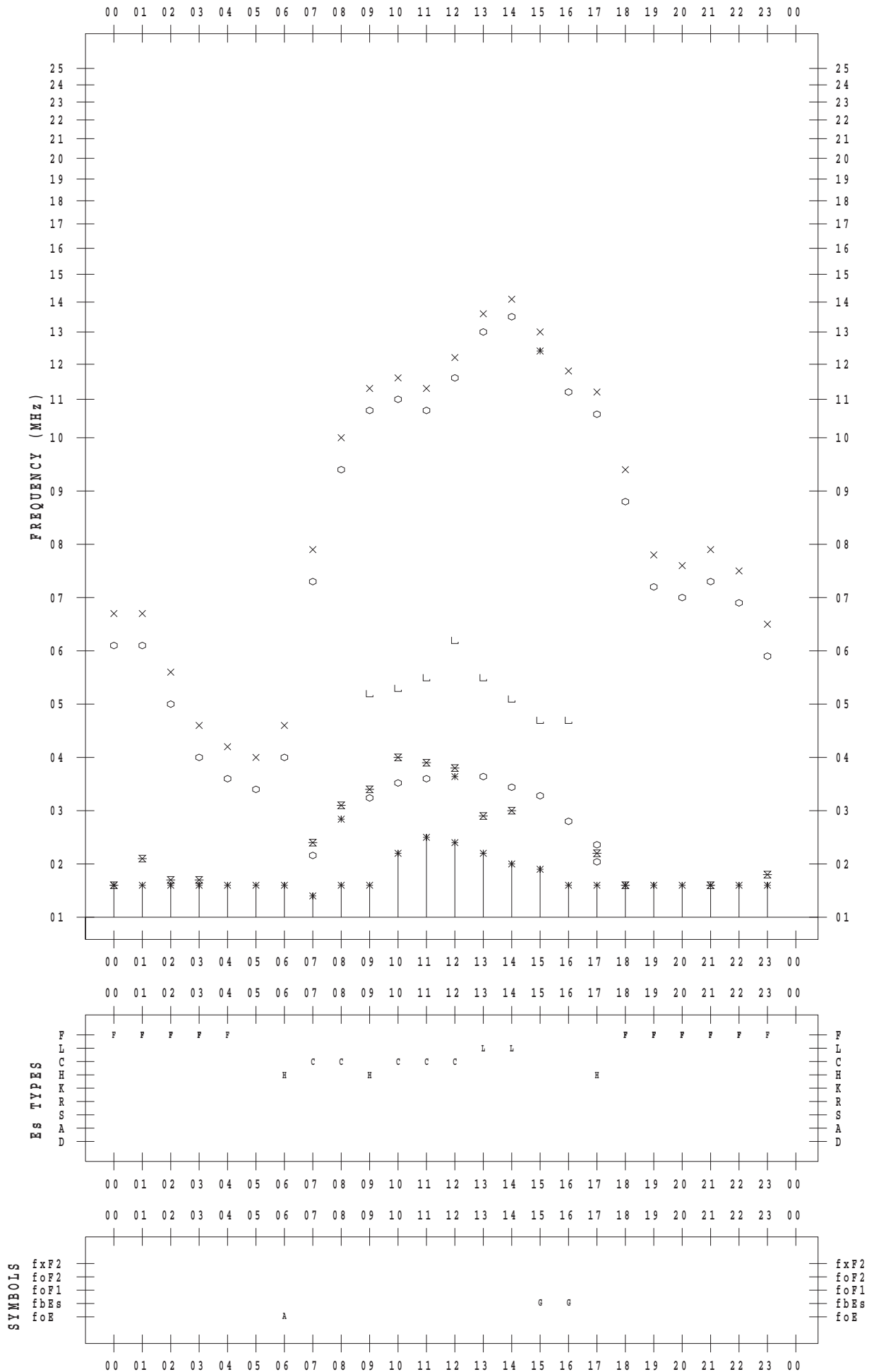
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/11

135 ° E MEAN TIME



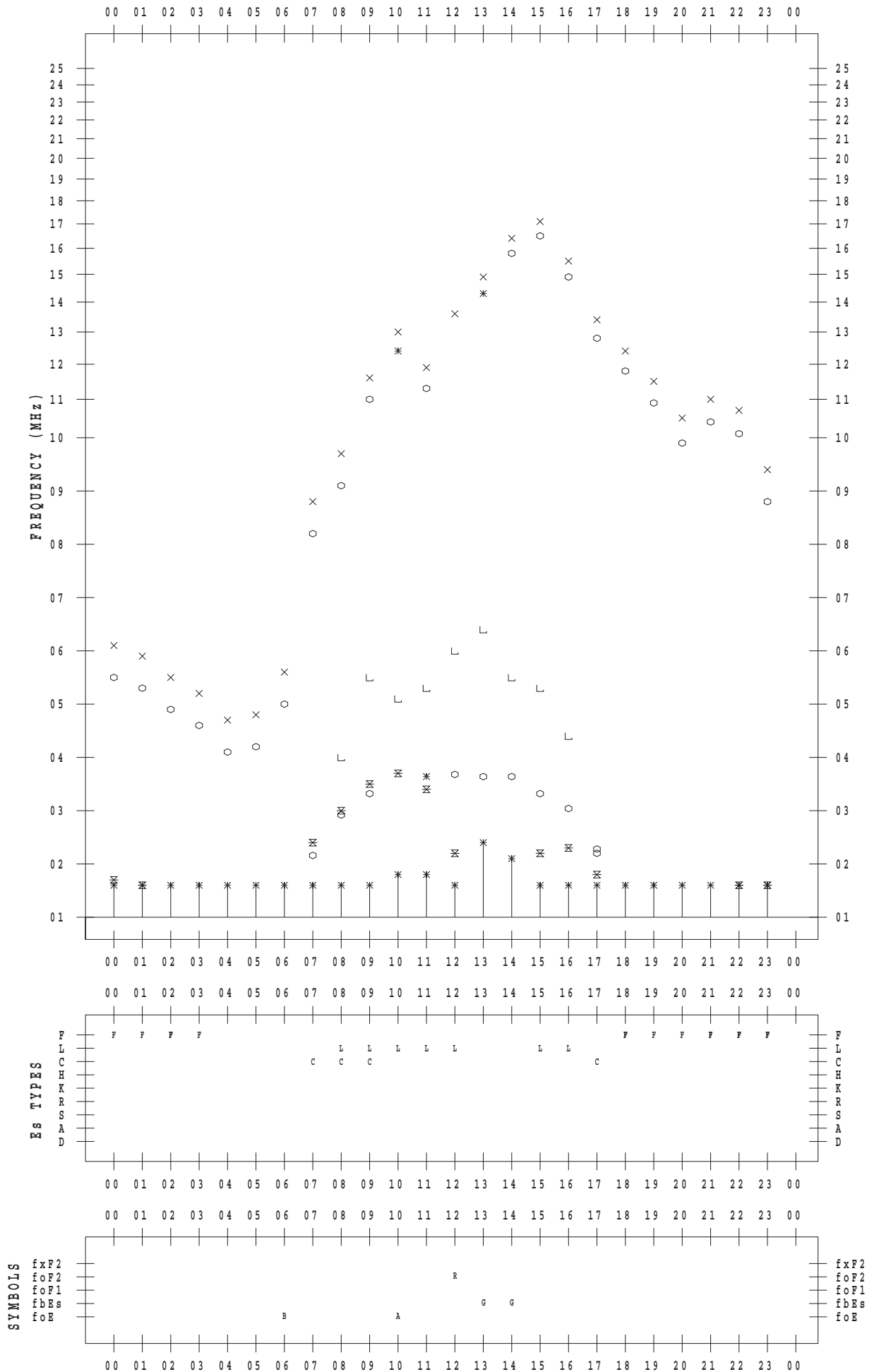
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/12

135 ° E MEAN TIME



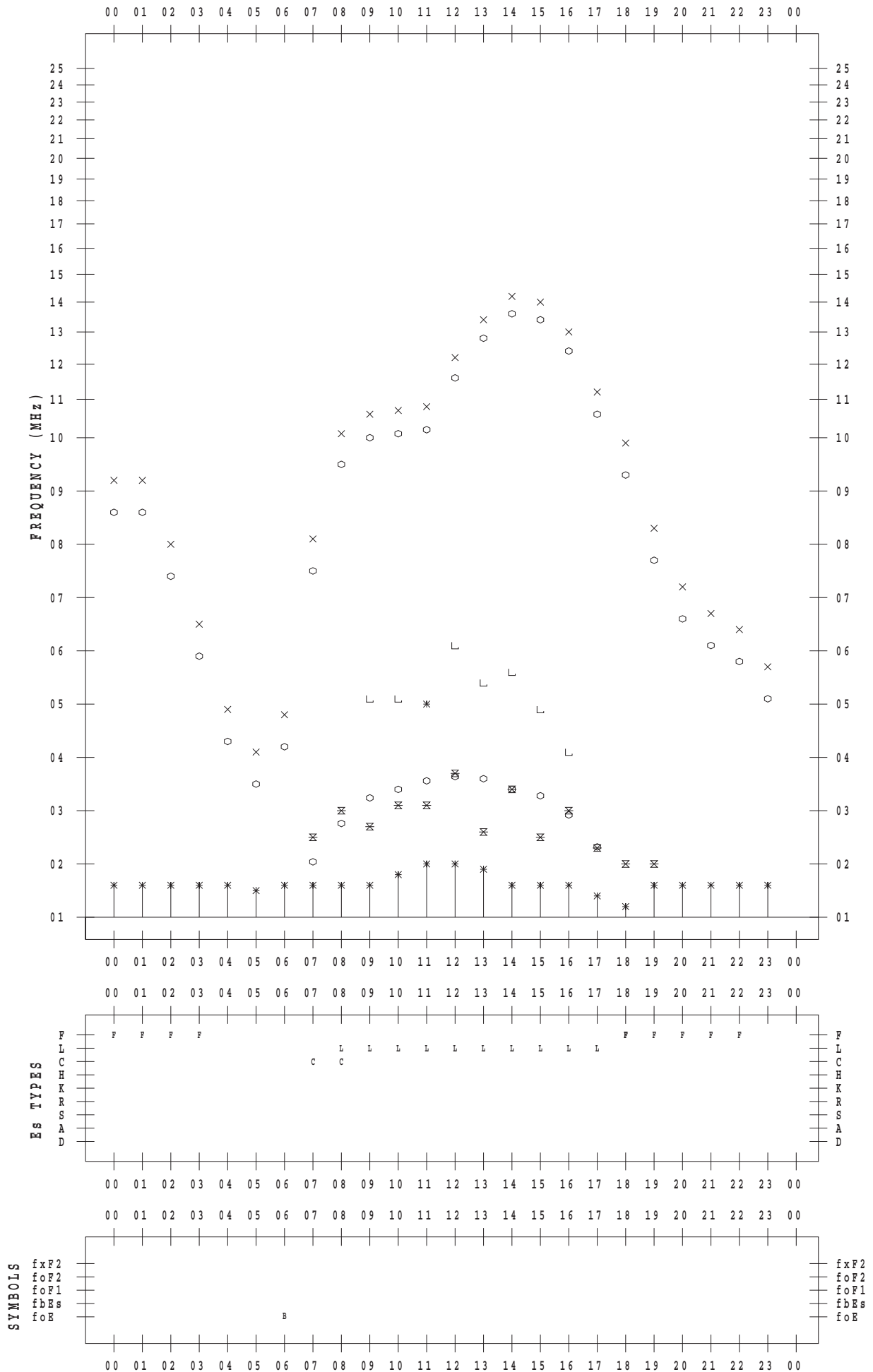
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/13

135 ° E MEAN TIME



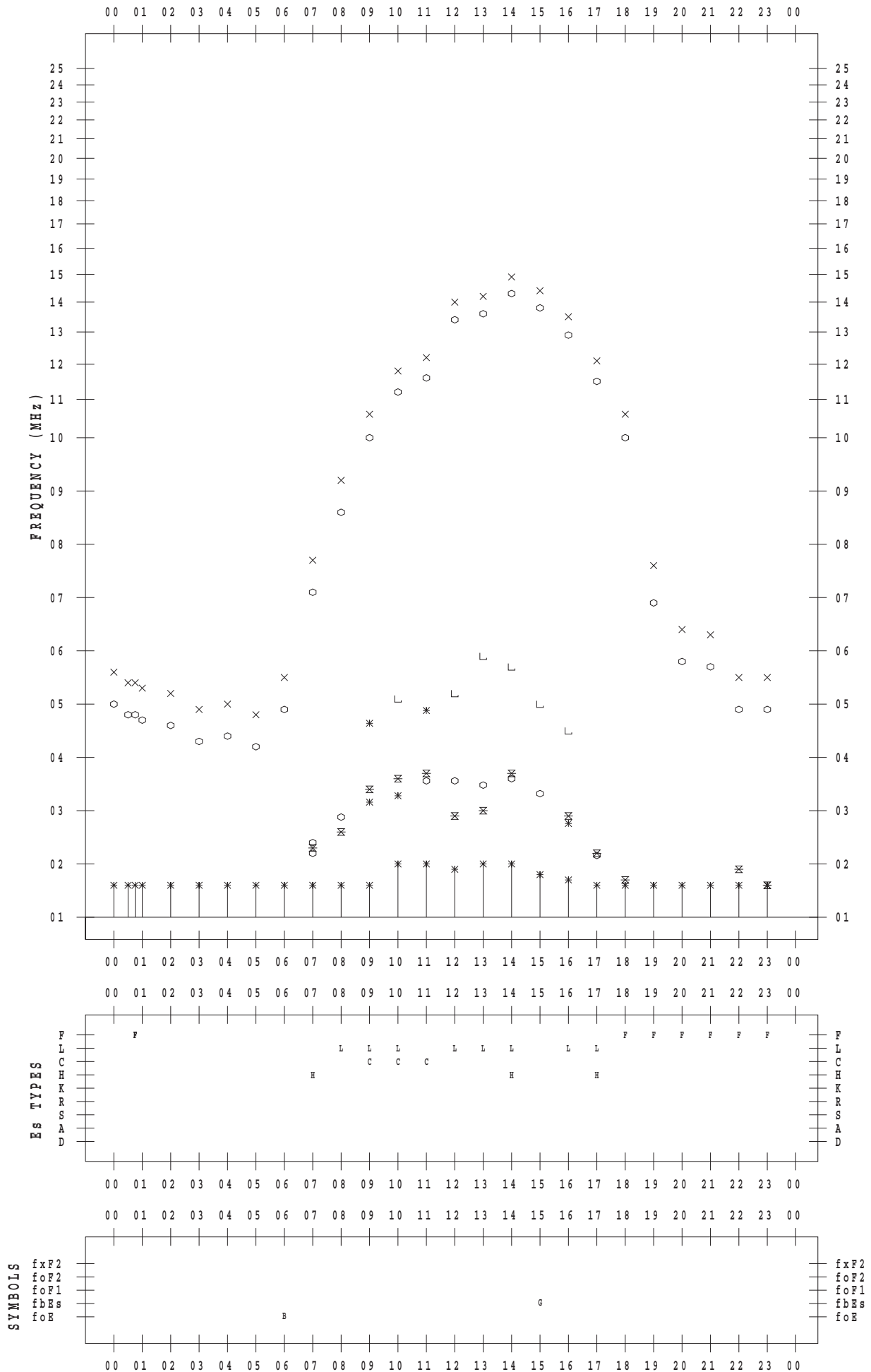
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/14

135 ° E MEAN TIME



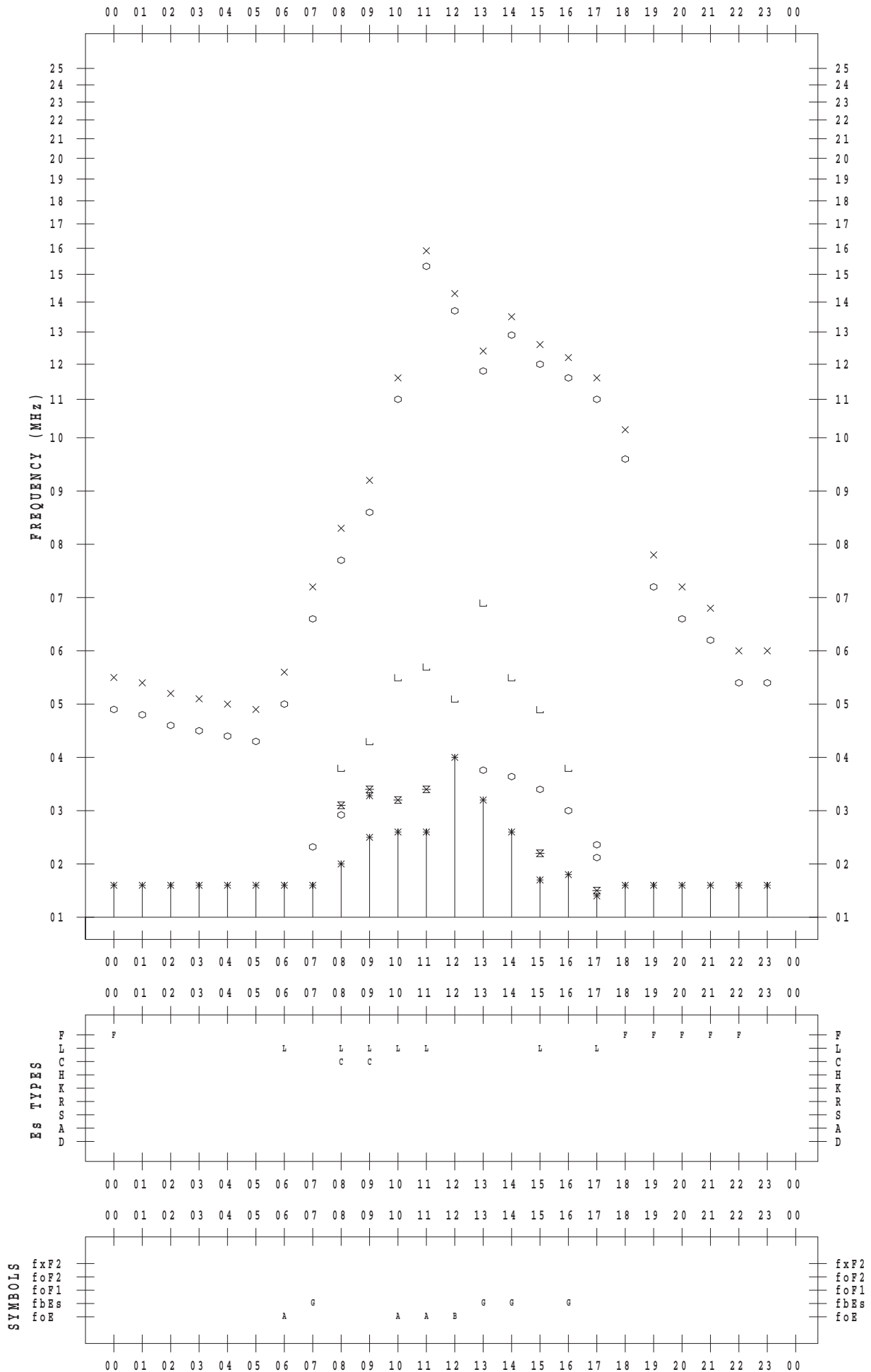
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/15

135 ° E MEAN TIME



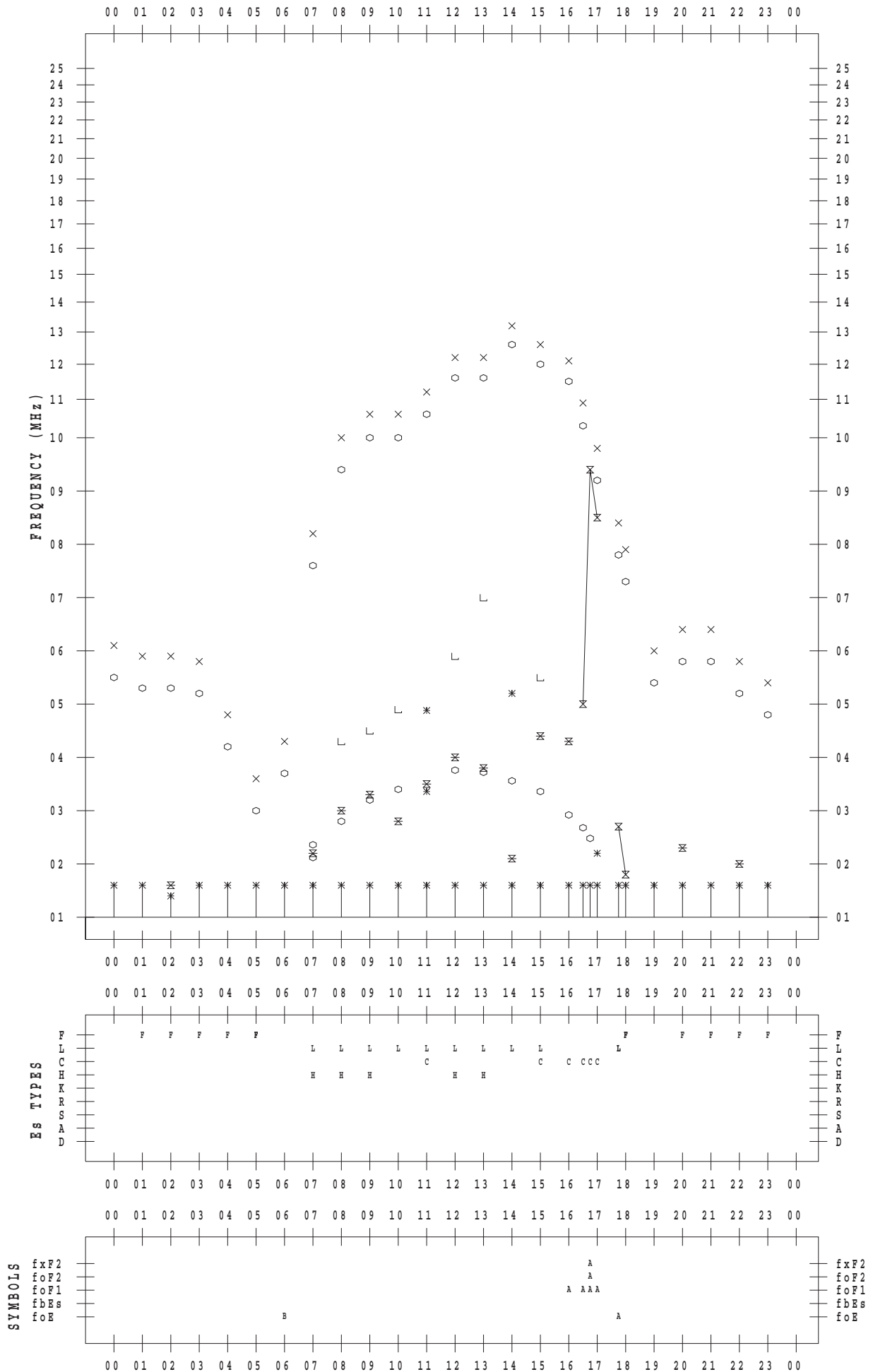
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/16

135 ° E MEAN TIME



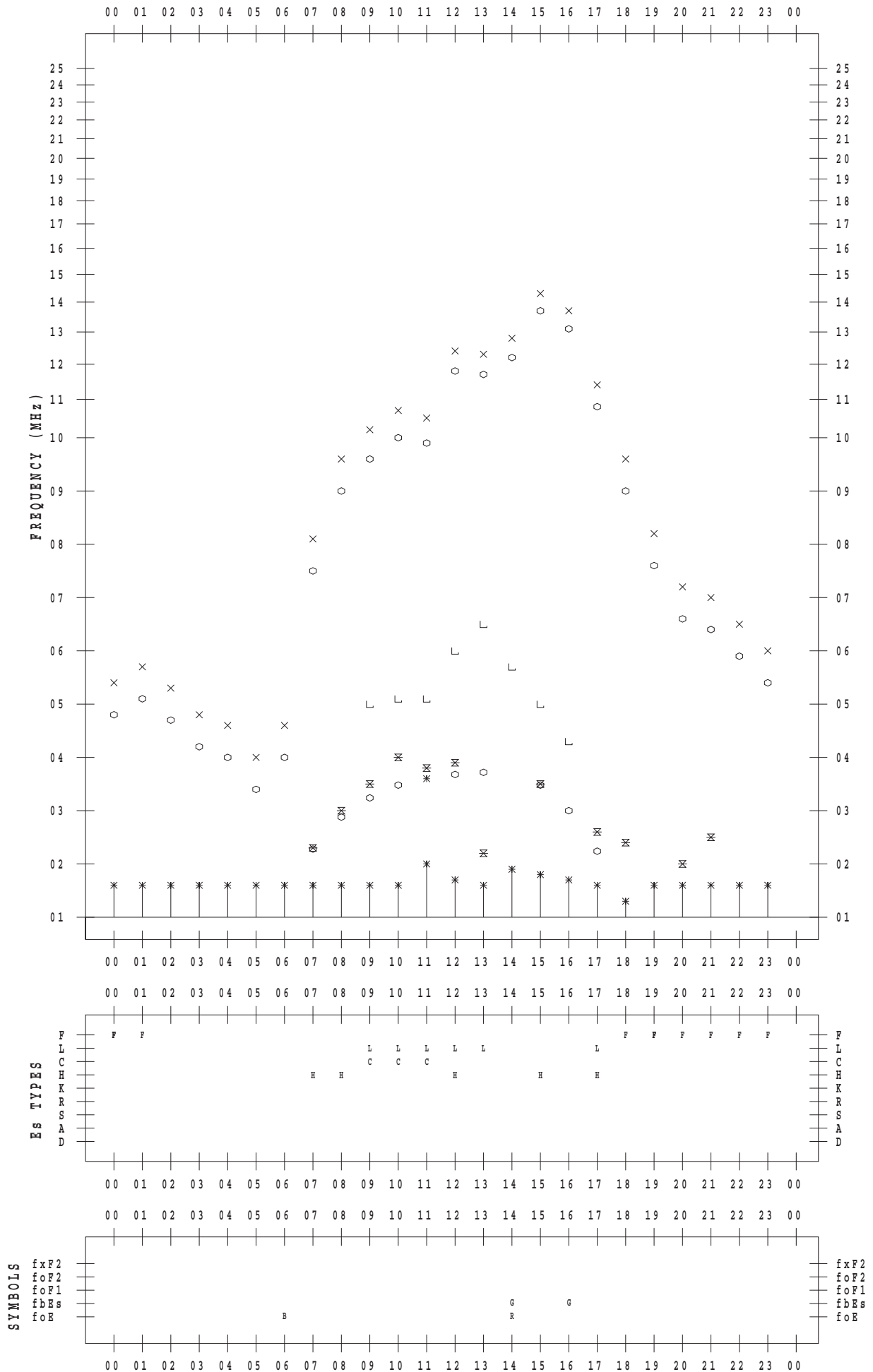
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/17

135 ° E MEAN TIME



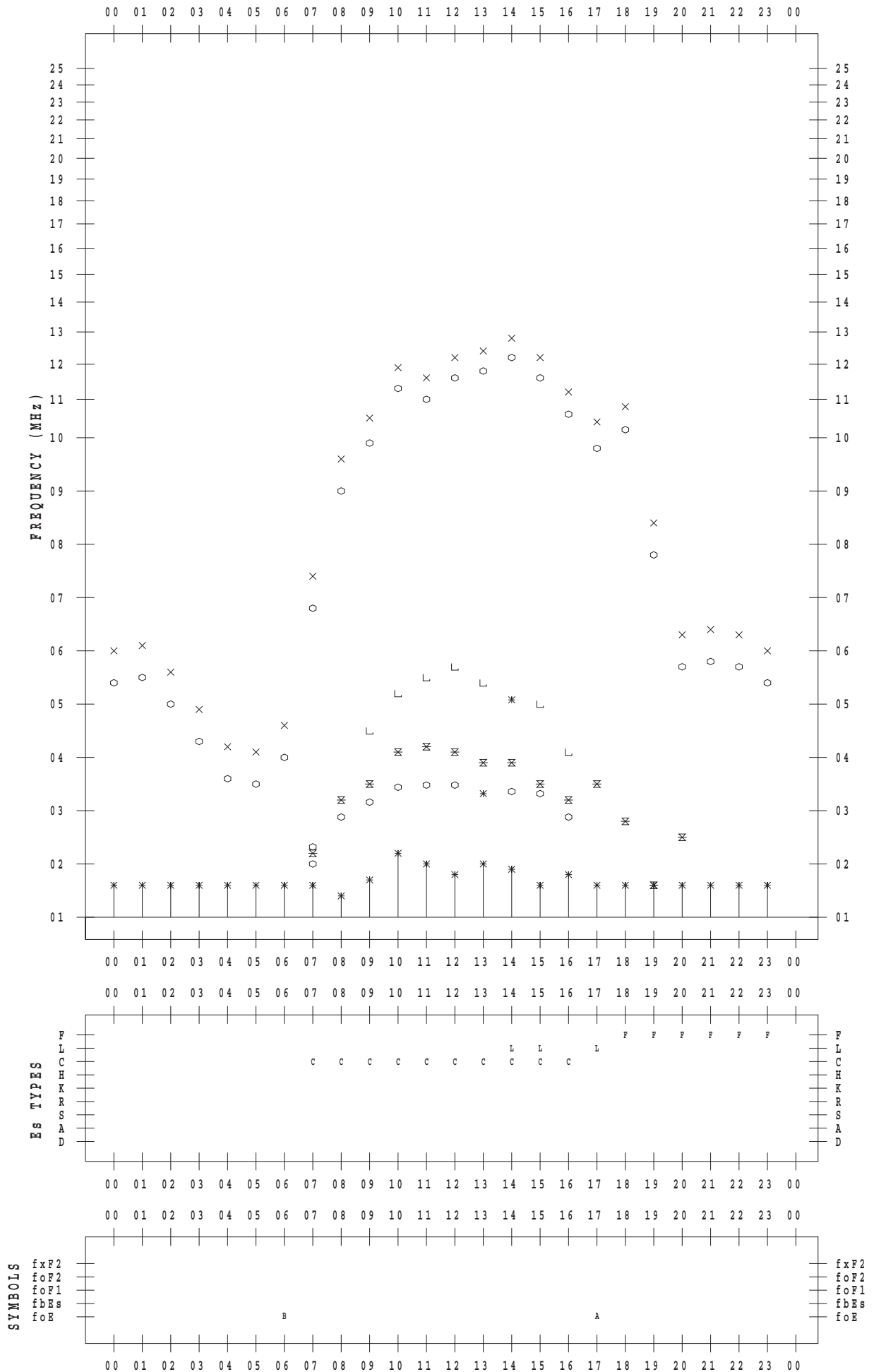
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/18

135 ° E MEAN TIME



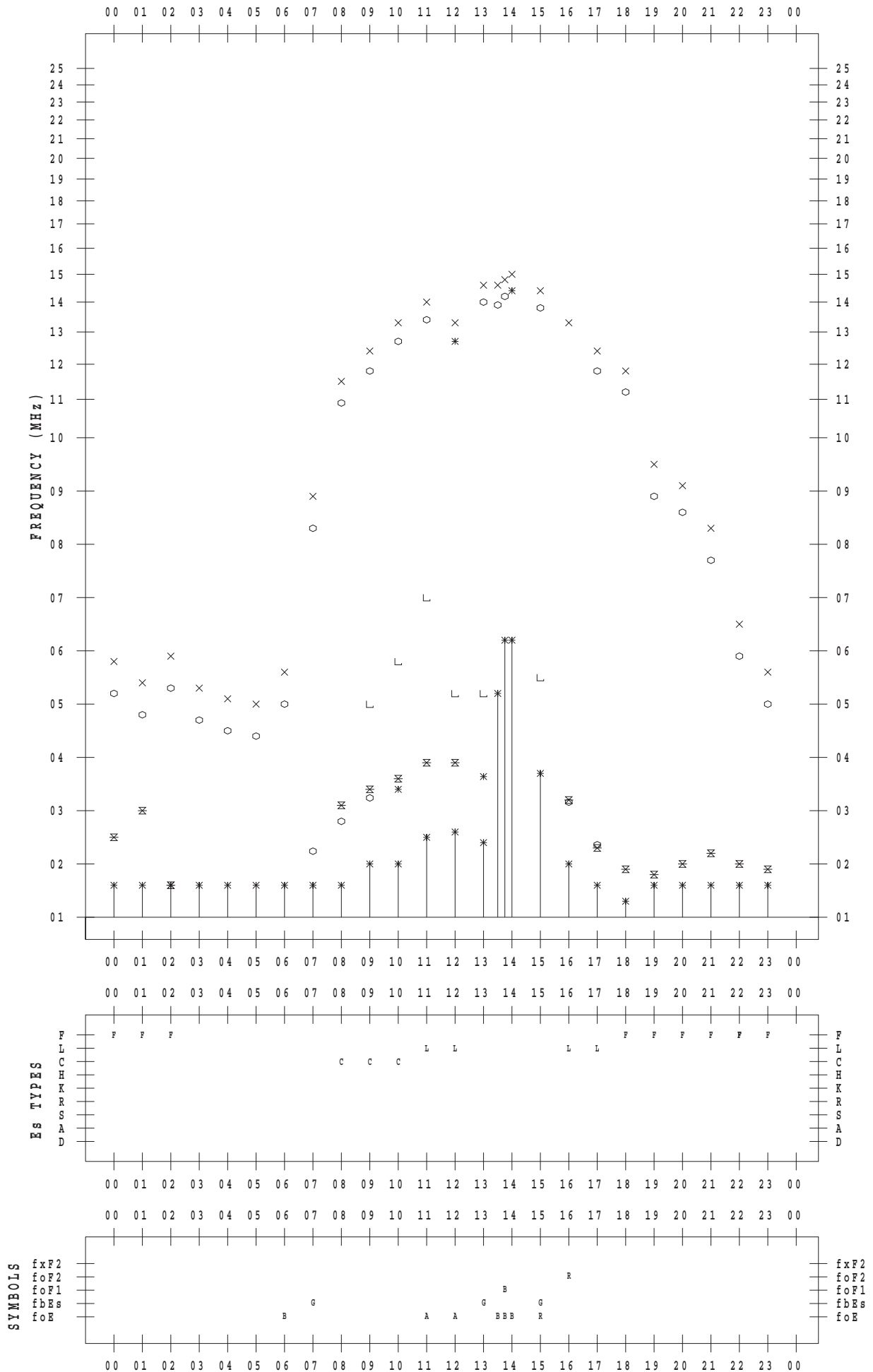
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/19

135 ° E MEAN TIME



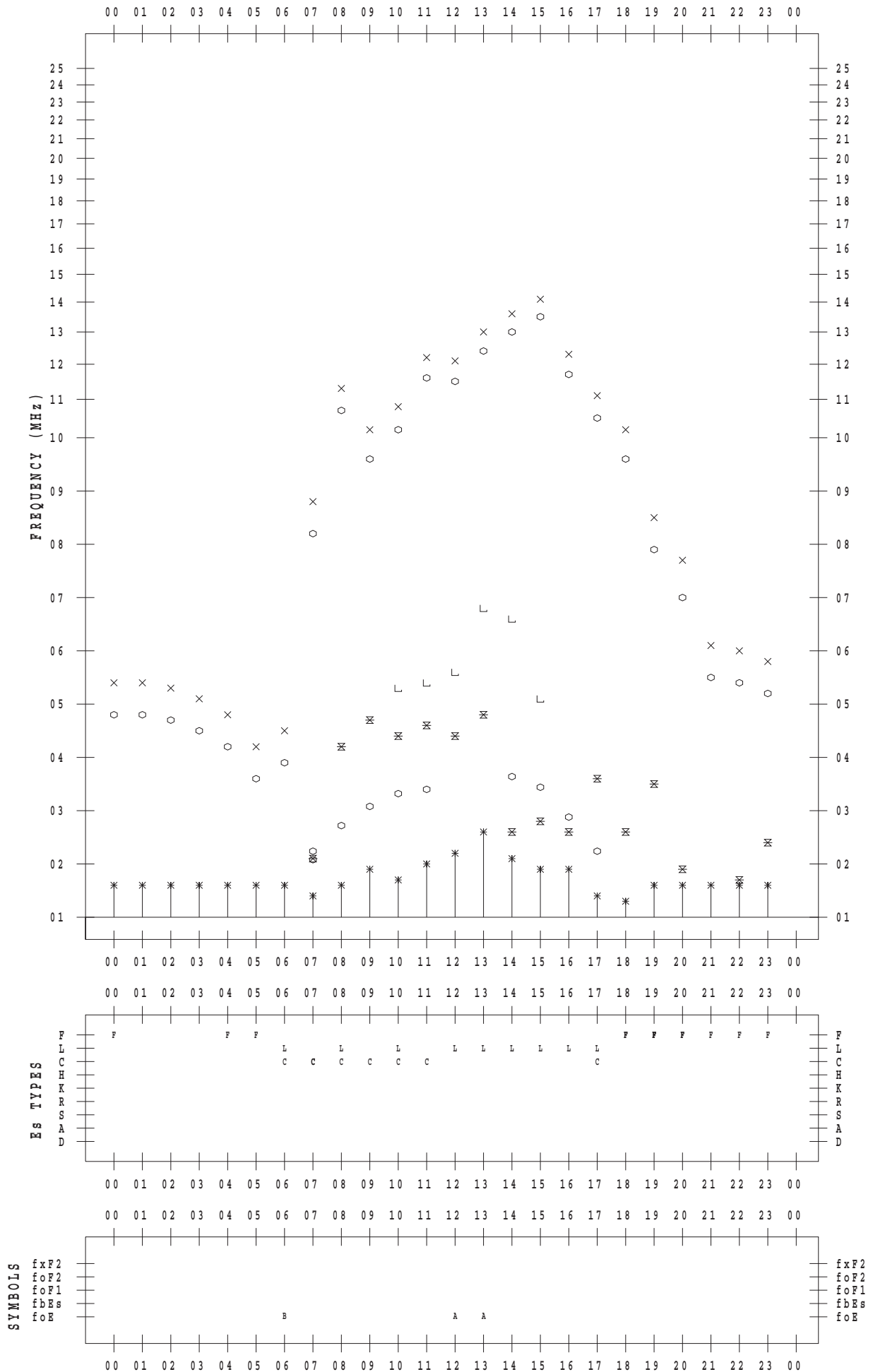
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/20

135 ° E MEAN TIME



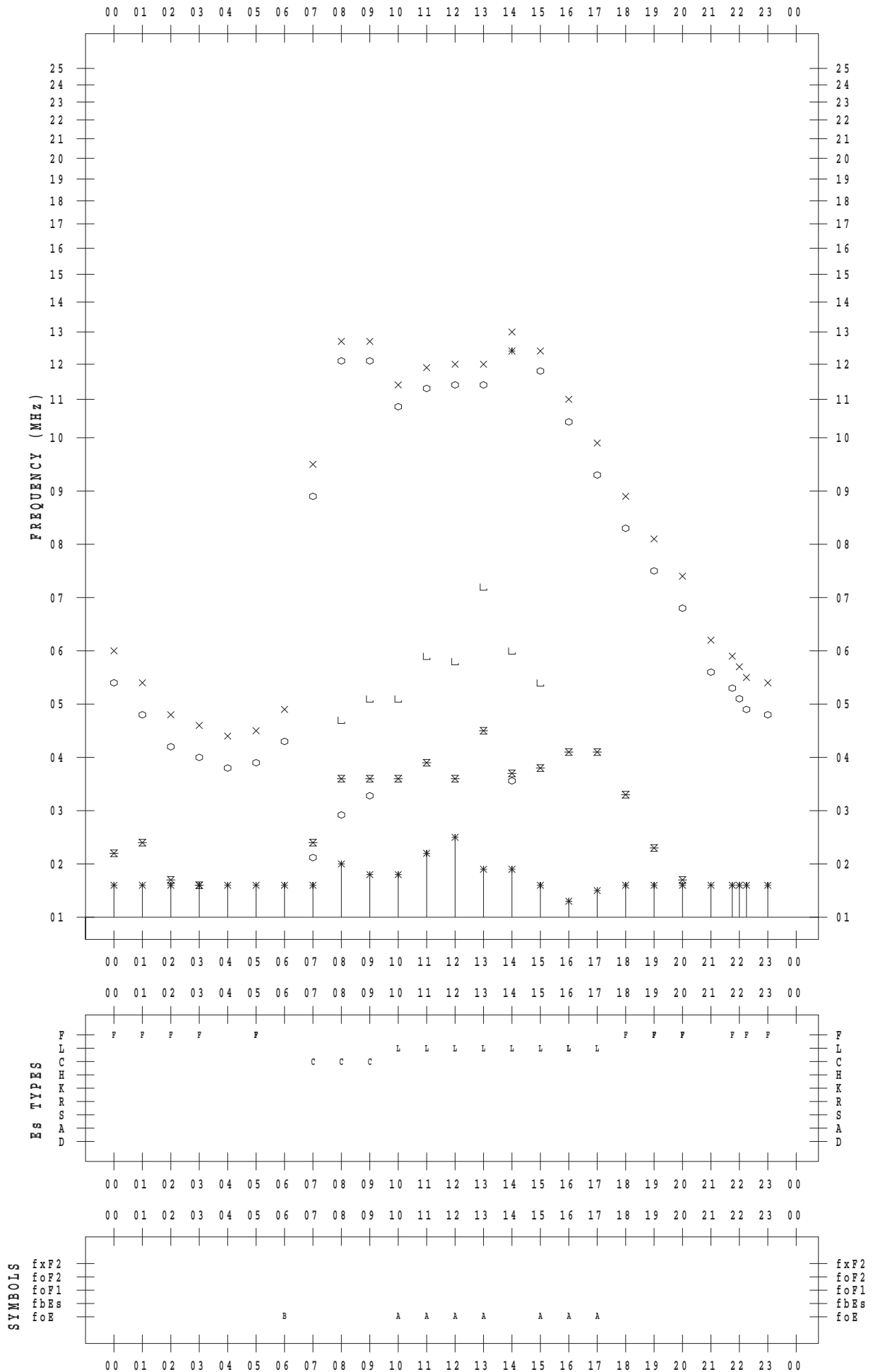
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/21

135 ° E MEAN TIME



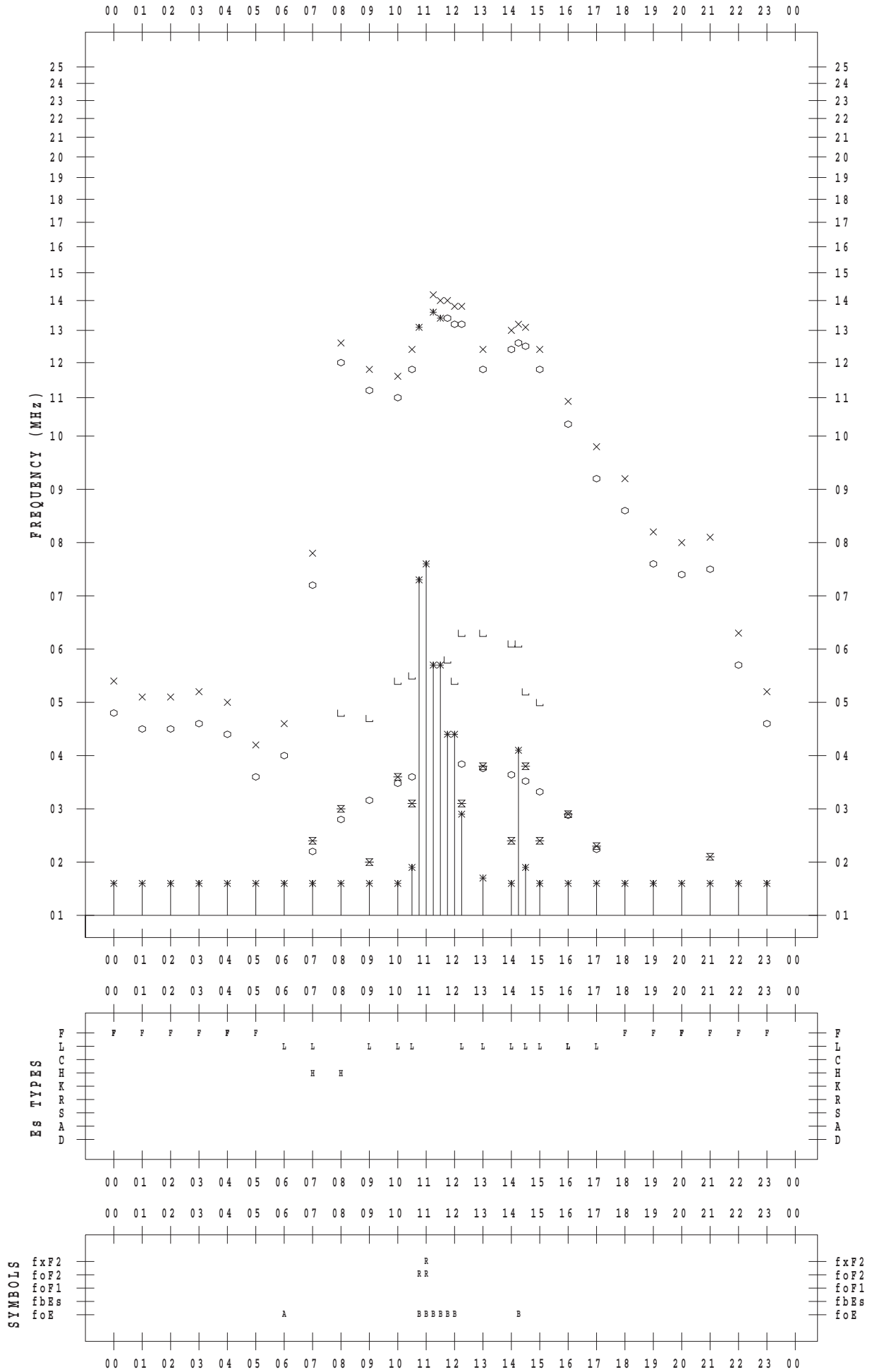
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/22

135 ° E MEAN TIME



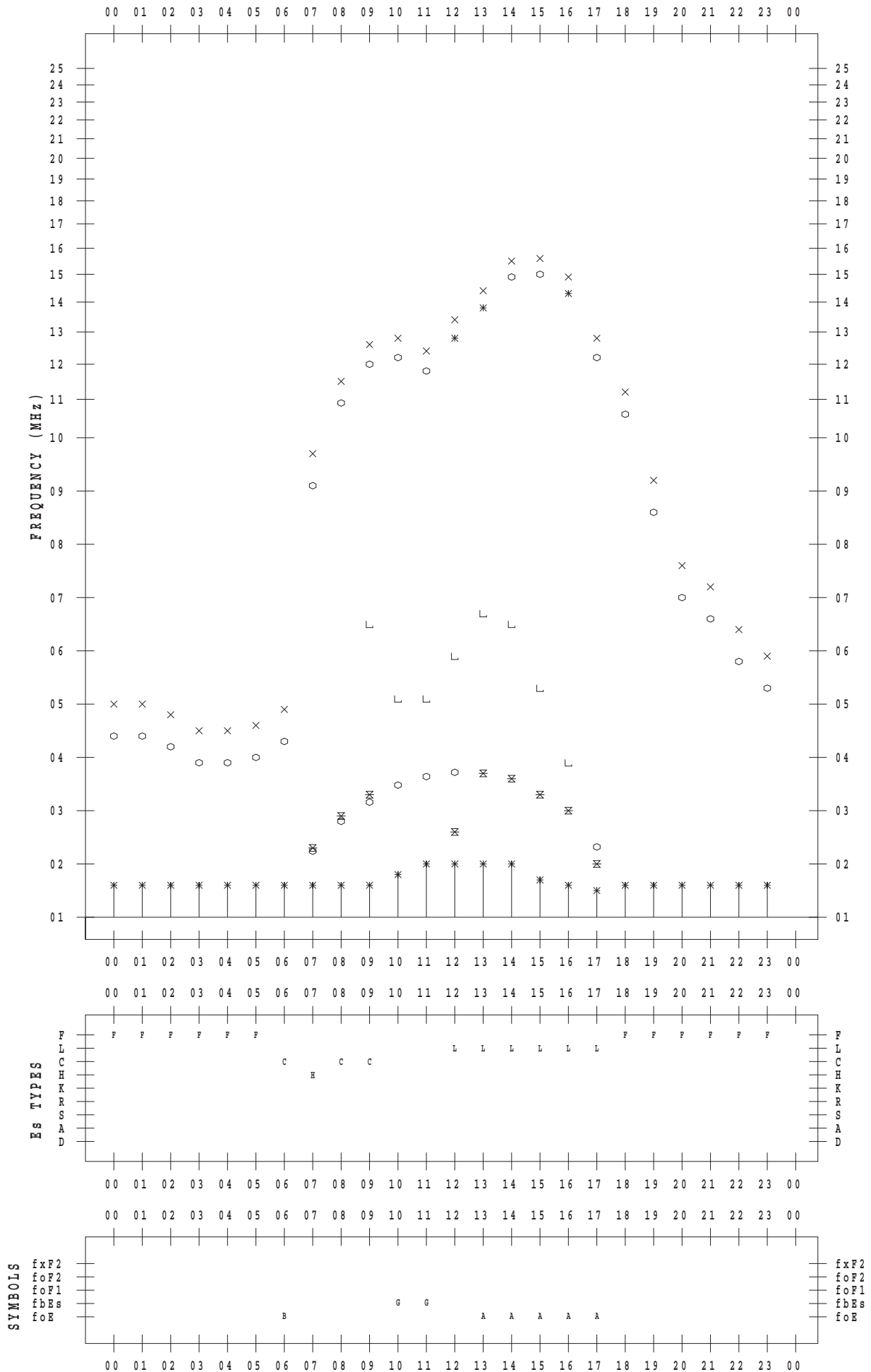
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/23

135 ° E MEAN TIME



Es TYPES

SYMBOLS

fxF2
foF2
foF1
fbEs
foE

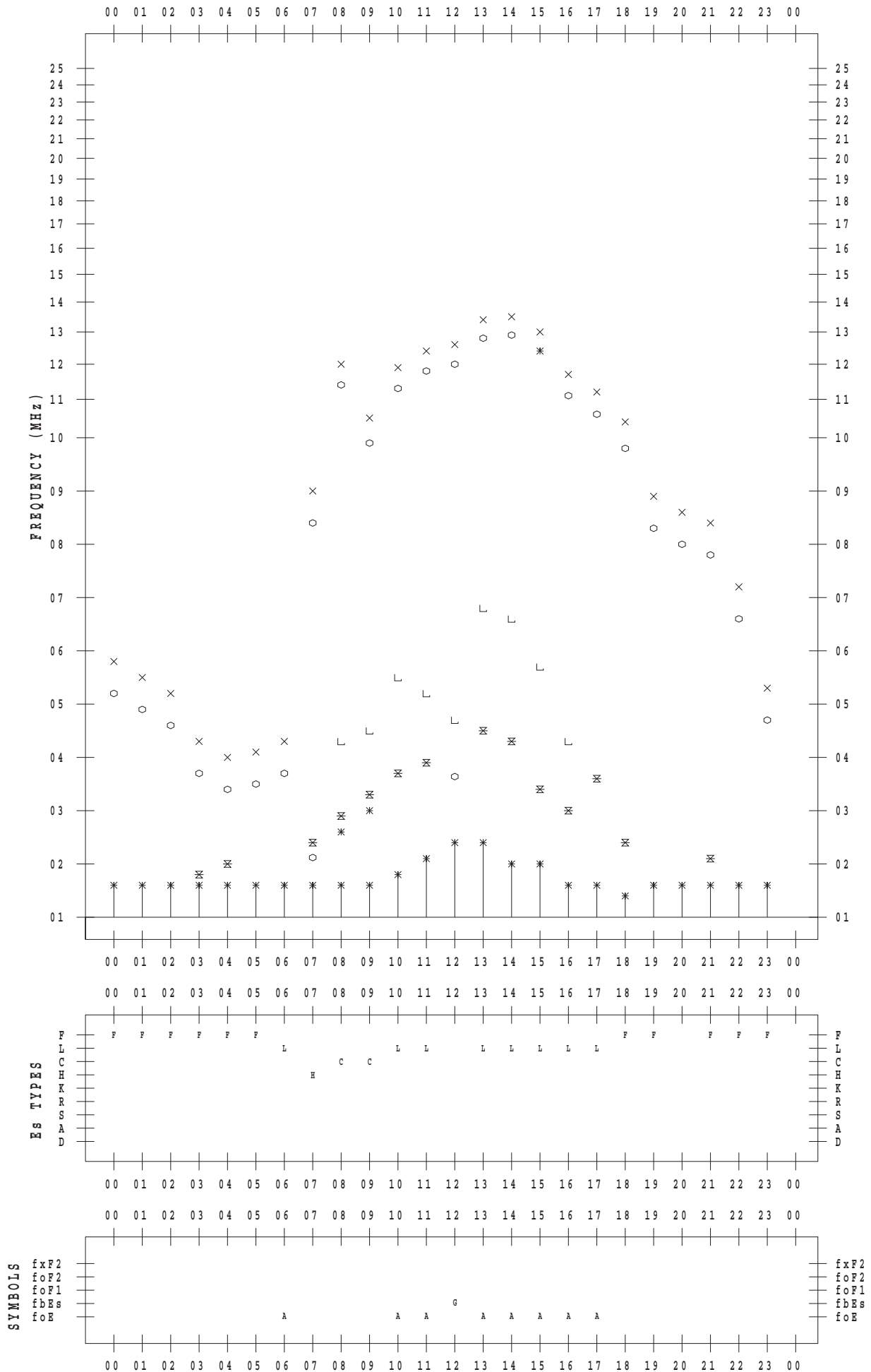
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/24

135 ° E MEAN TIME



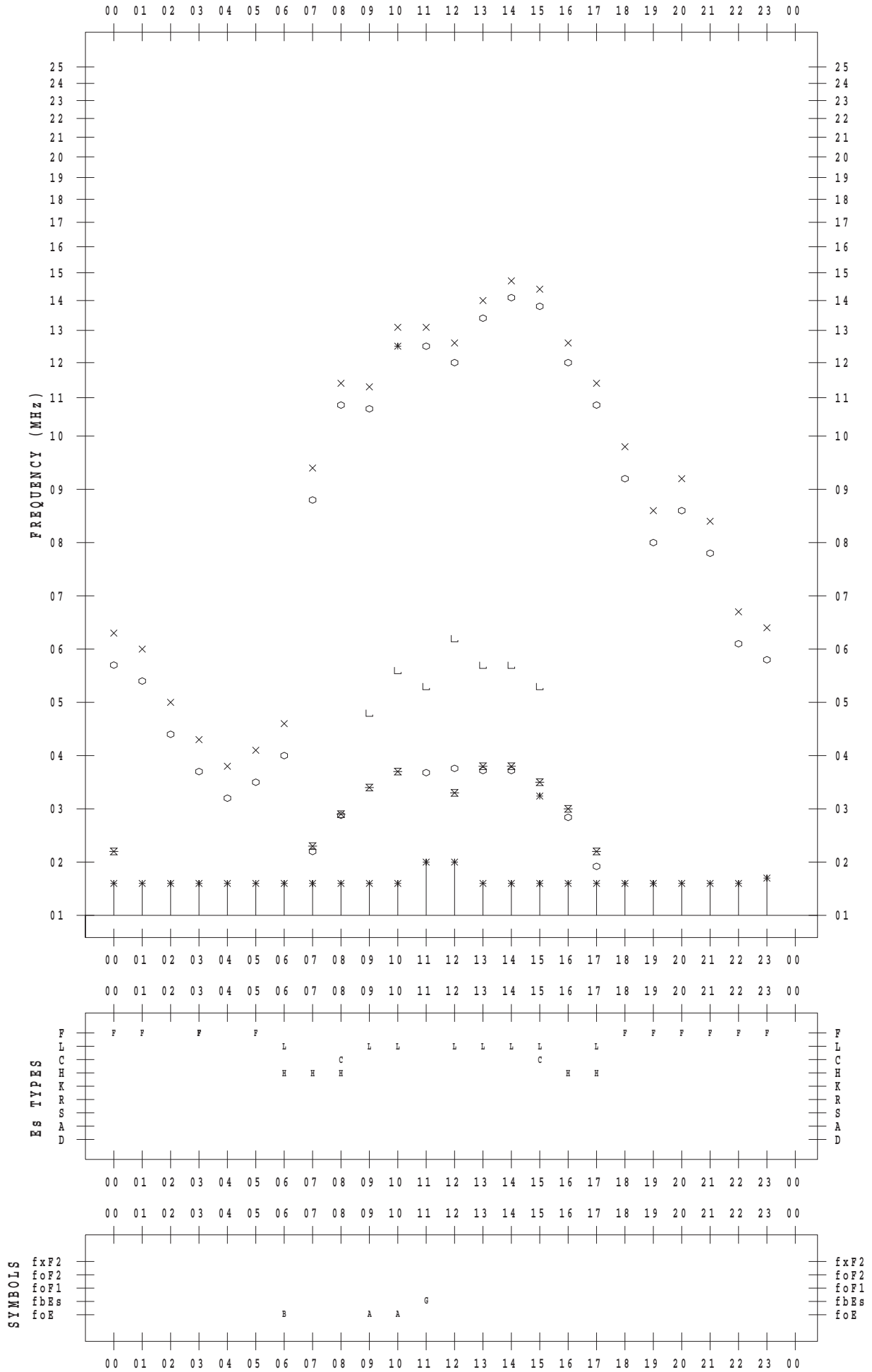
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/26

135 ° E MEAN TIME



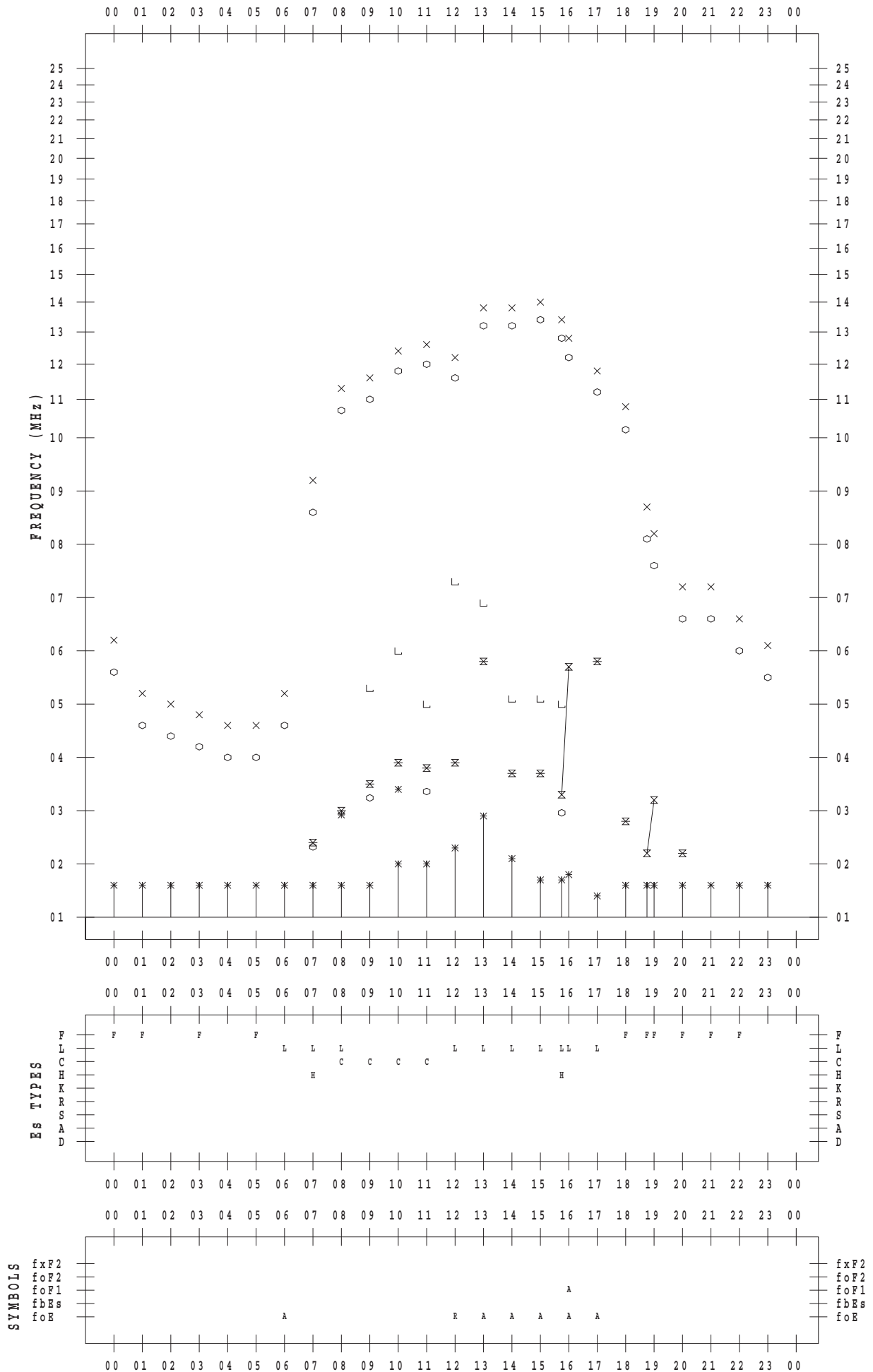
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/29

135 ° E MEAN TIME



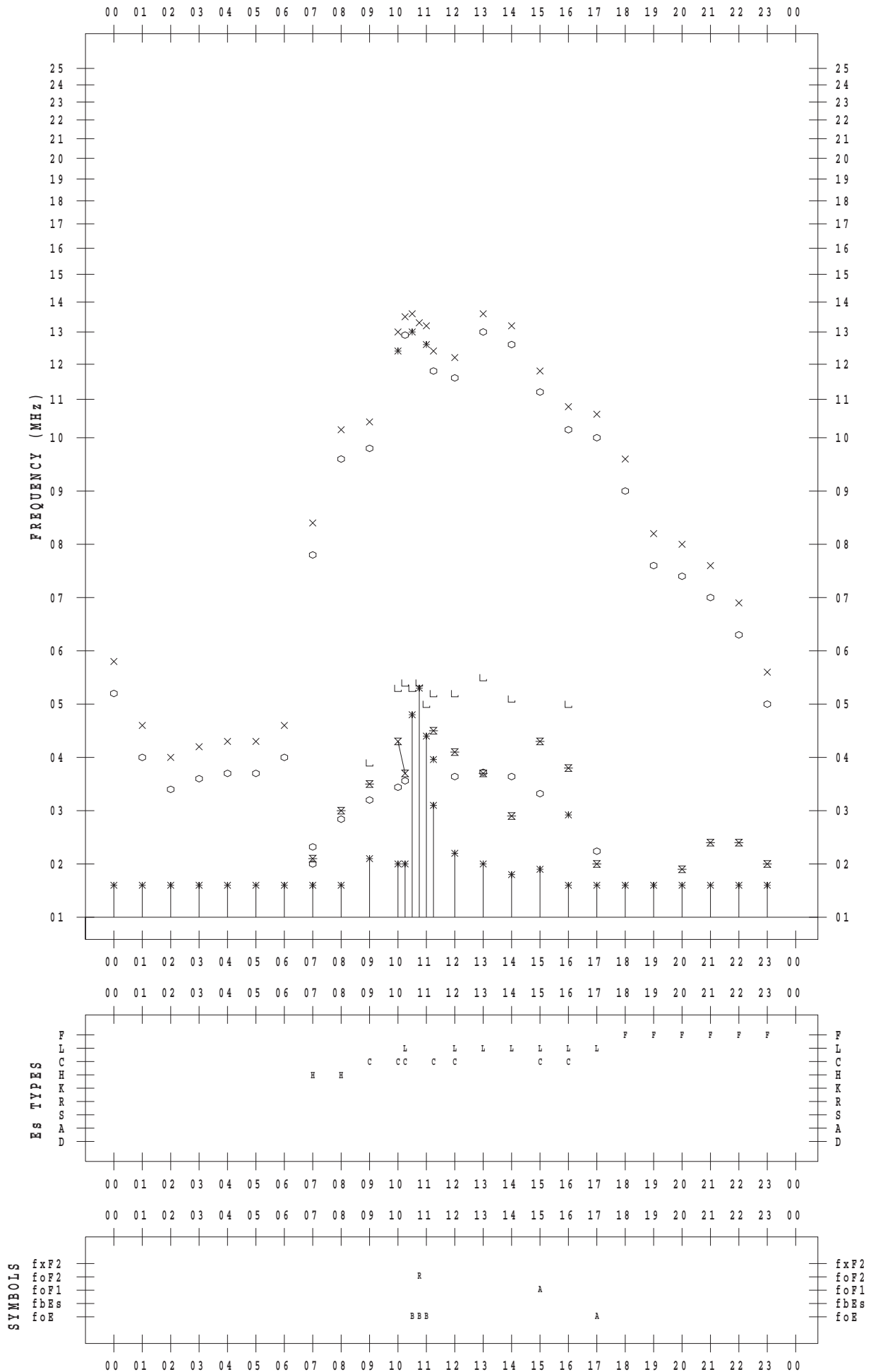
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/30

135 ° E MEAN TIME



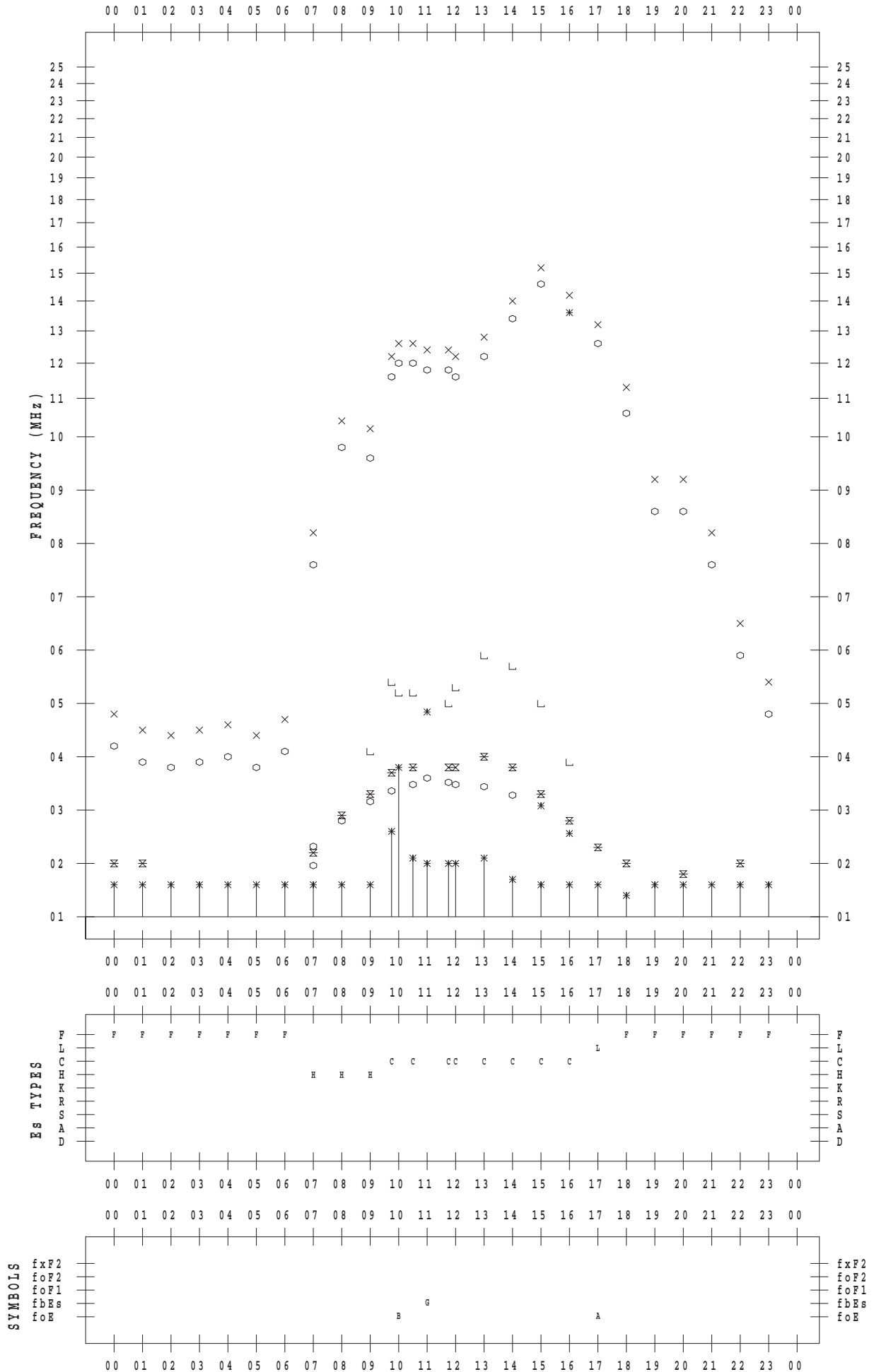
f - PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/10/31

135 ° E MEAN TIME



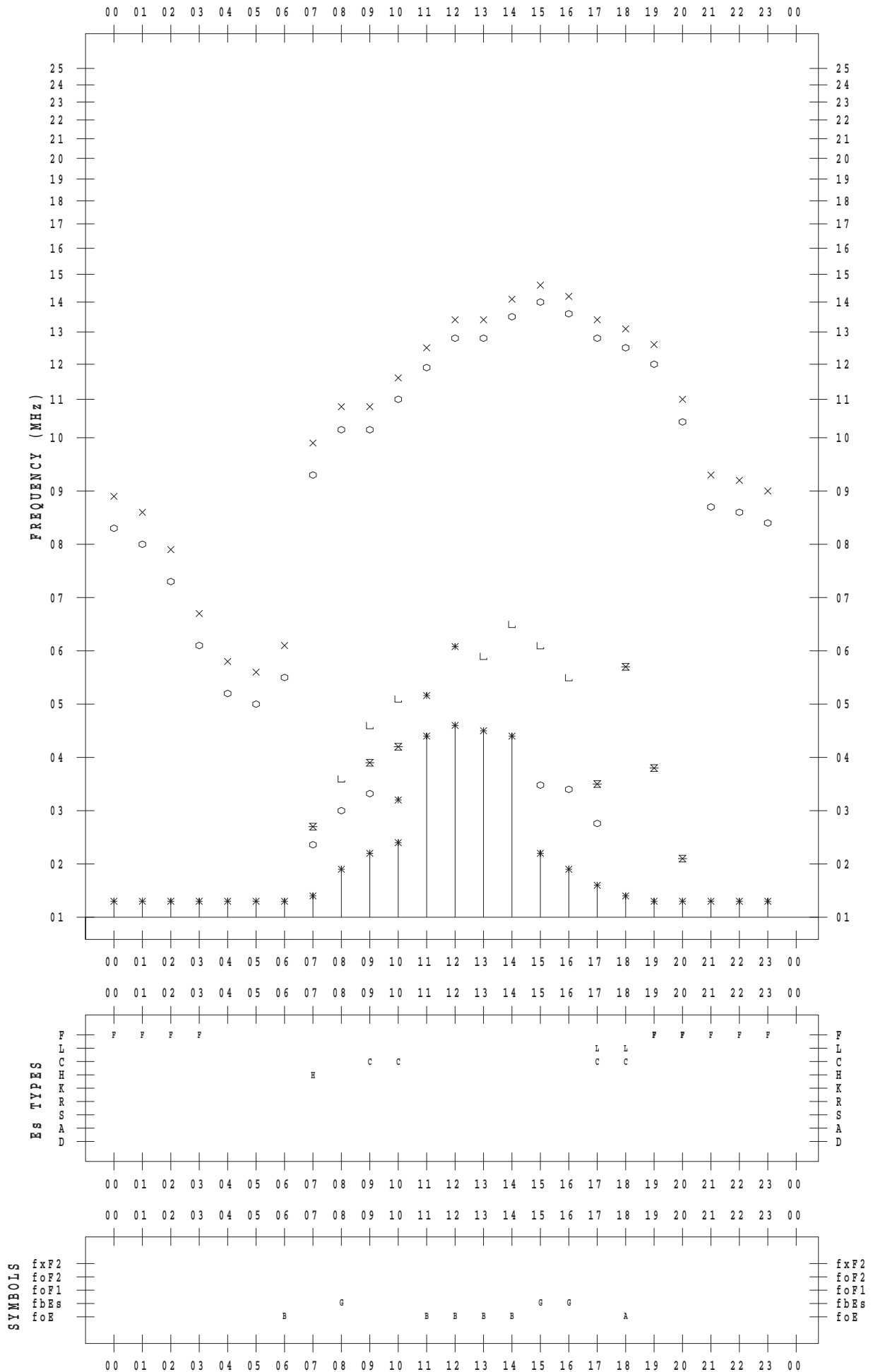
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/ 1

135 ° E MEAN TIME



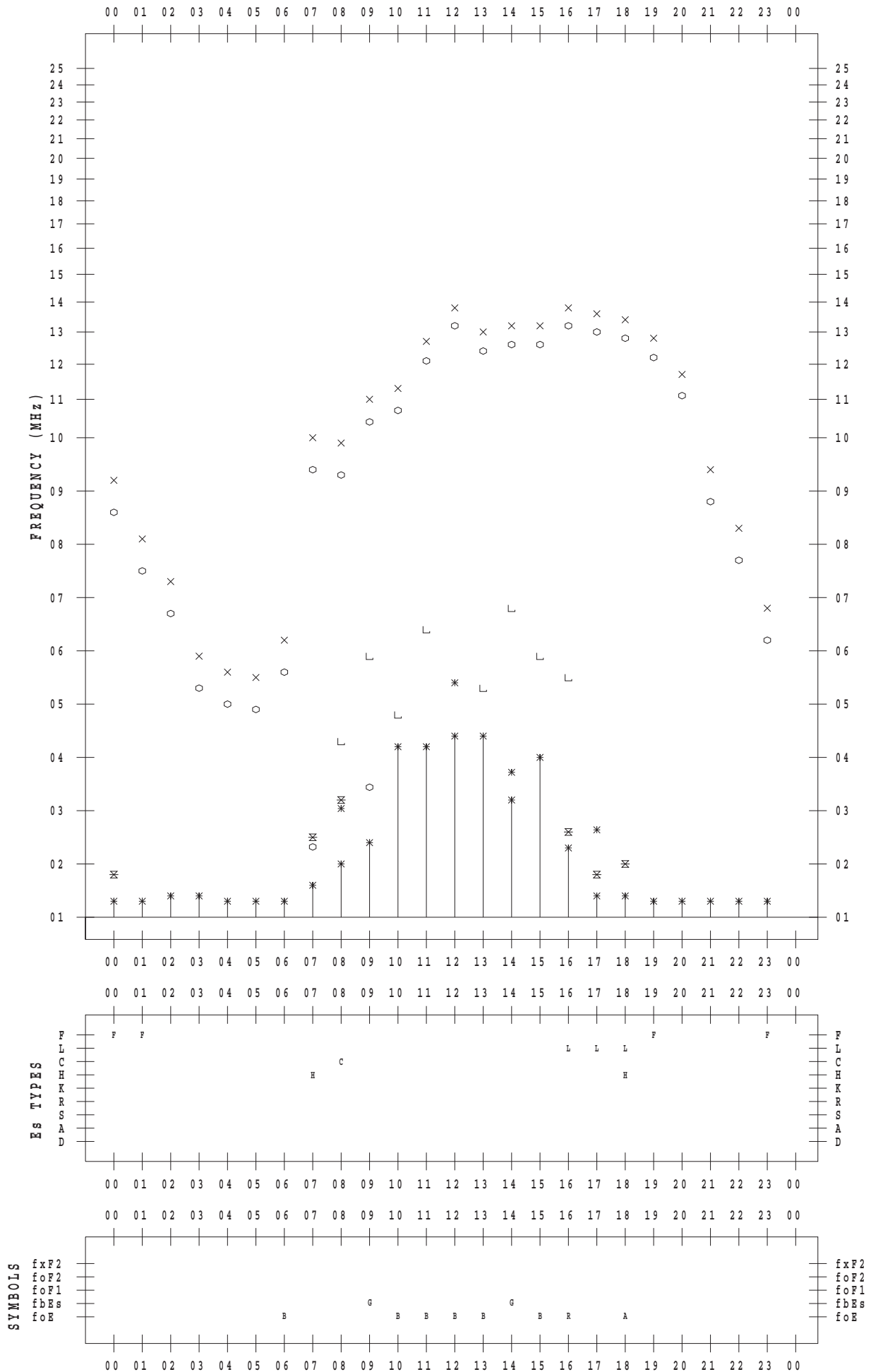
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/ 2

135 ° E MEAN TIME



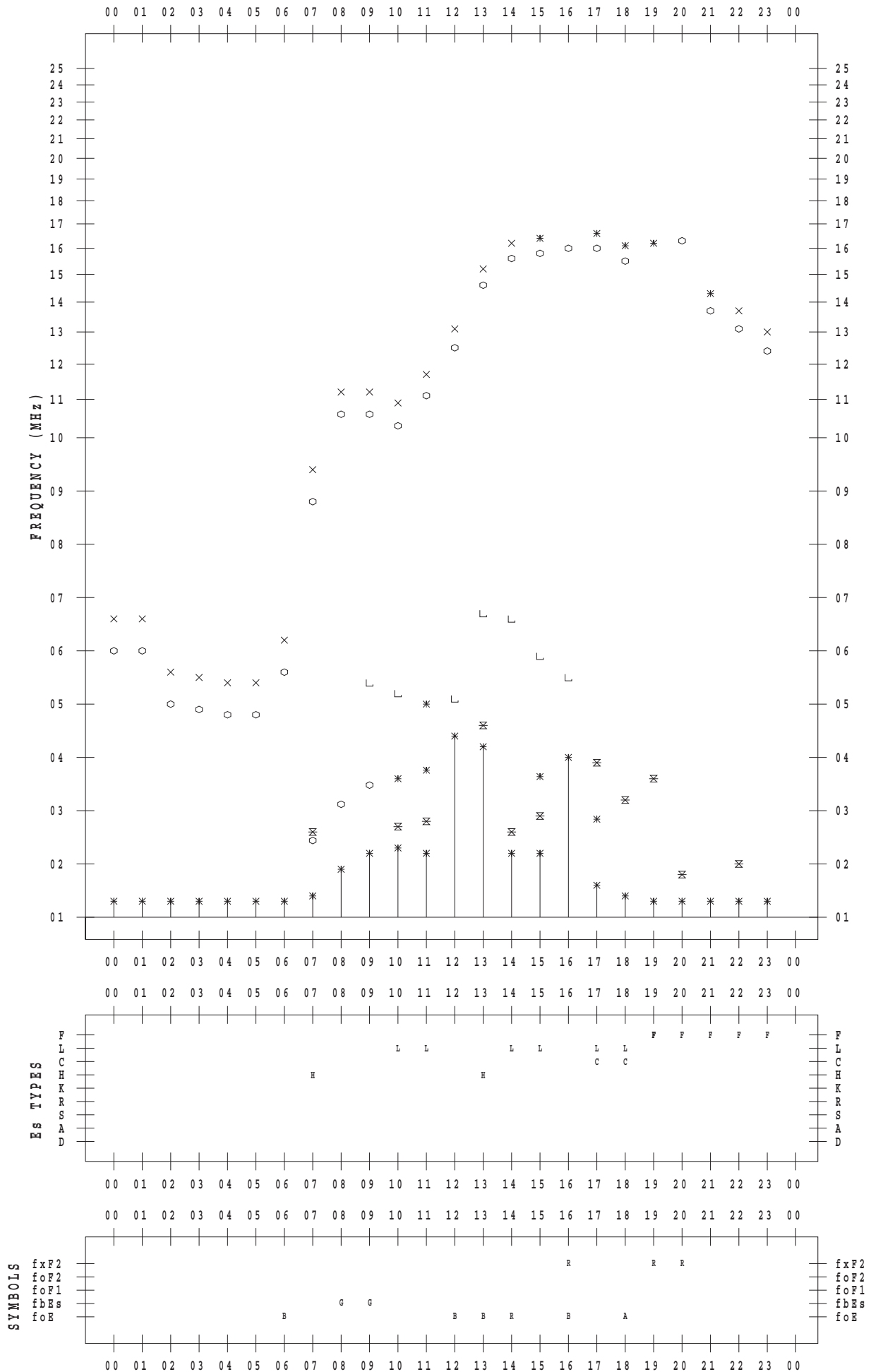
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/ 3

135 ° E MEAN TIME



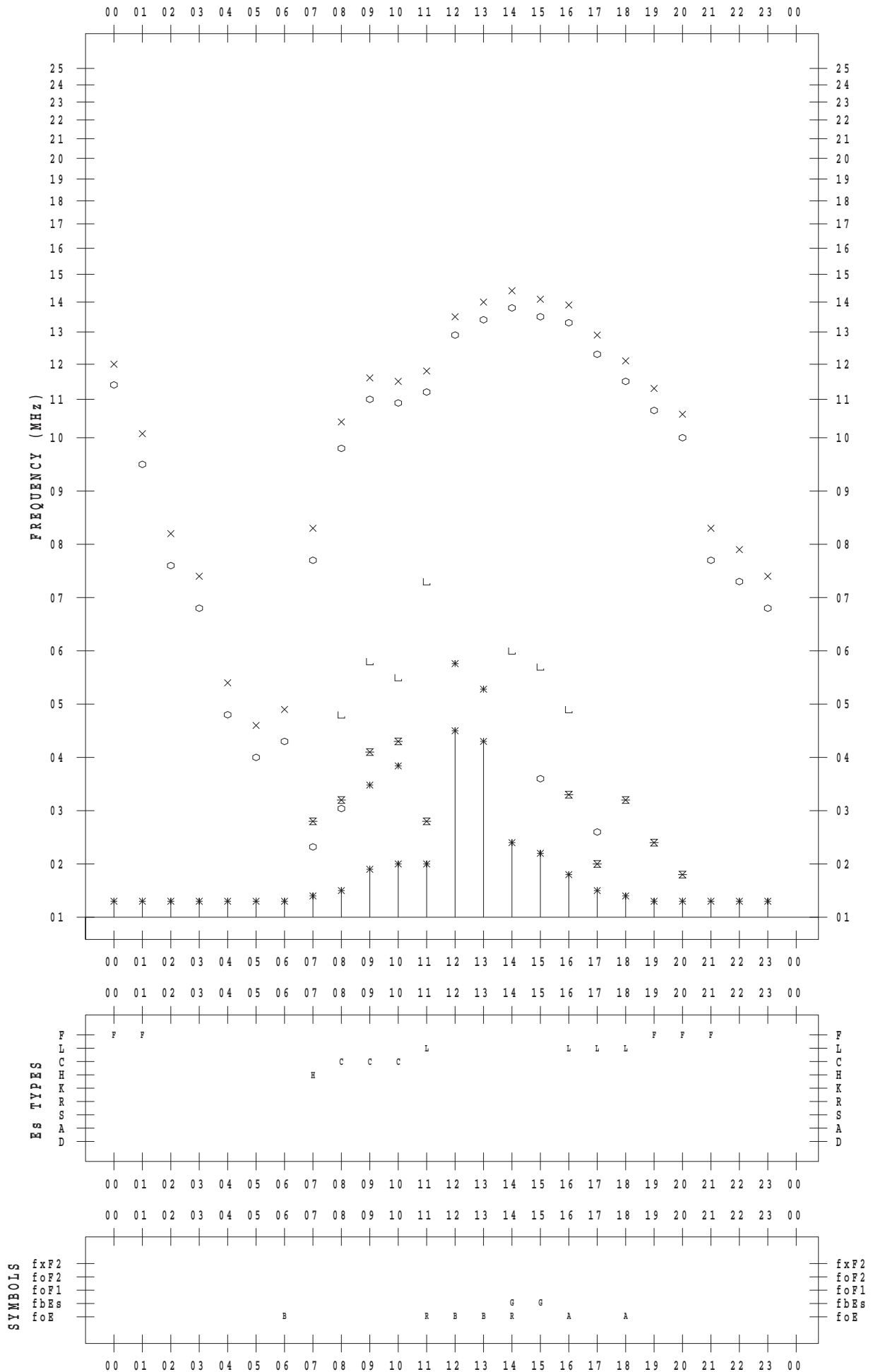
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/ 4

135 ° E MEAN TIME



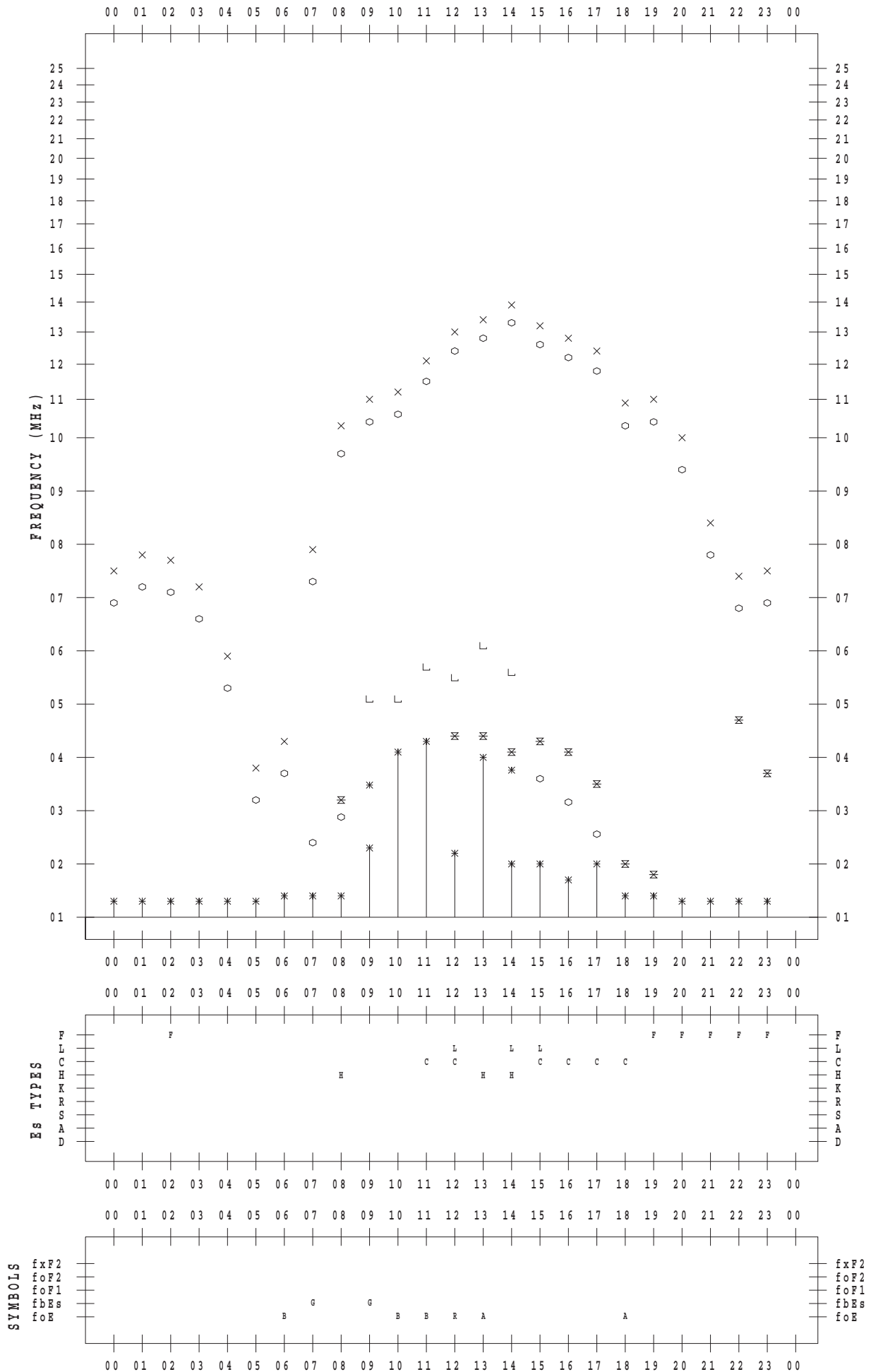
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/ 5

135 ° E MEAN TIME



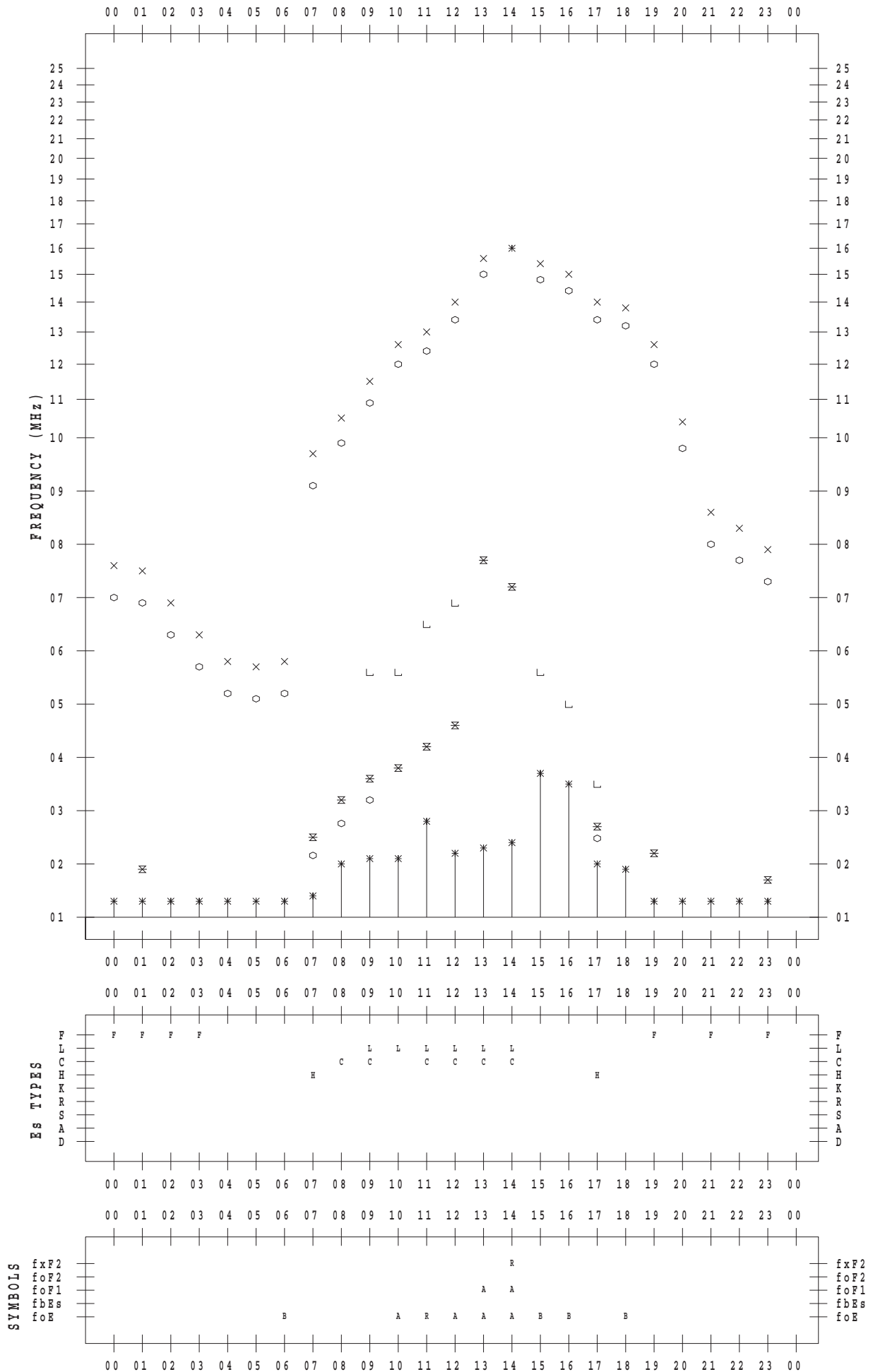
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/ 6

135 °E MEAN TIME



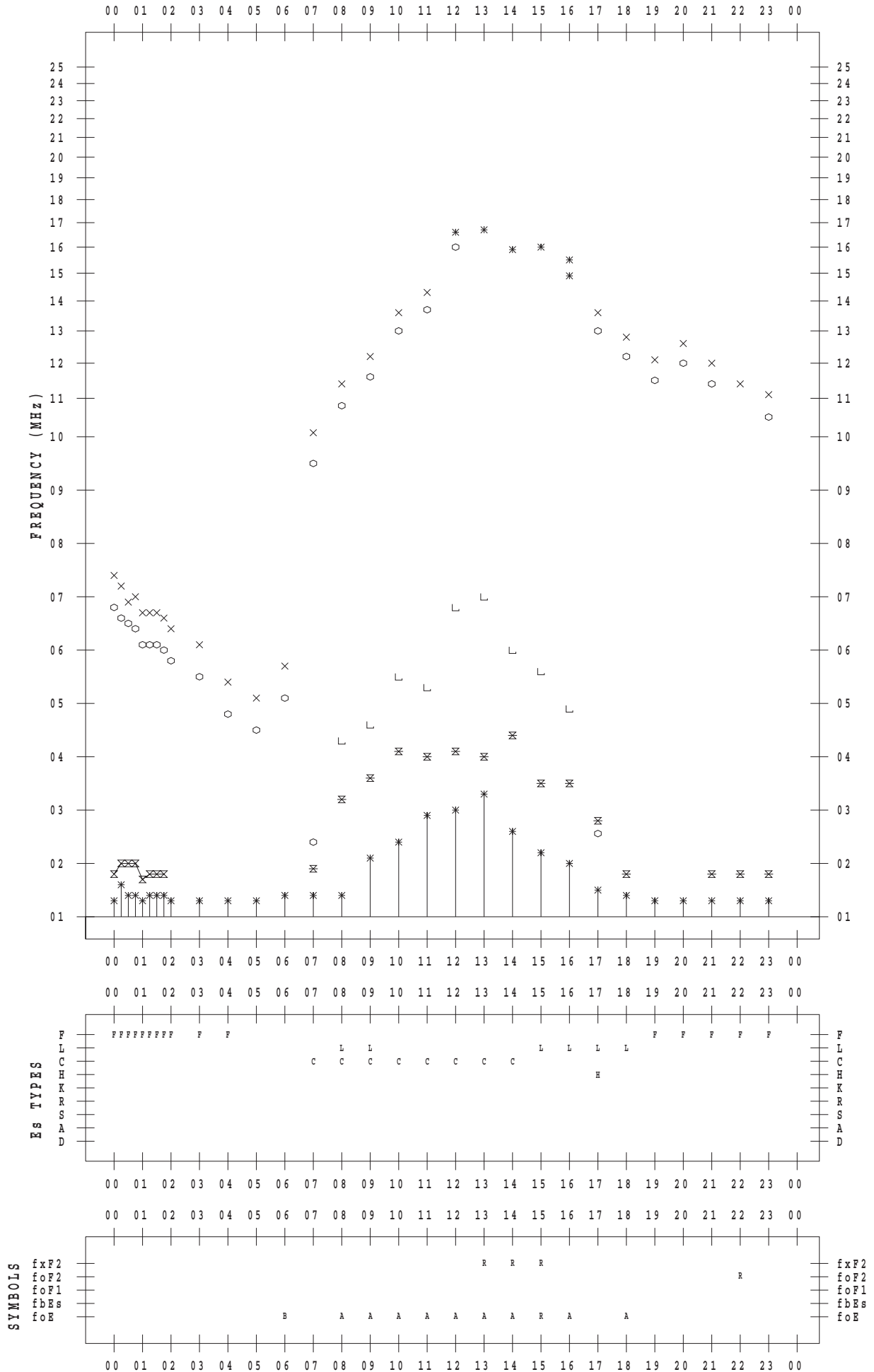
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/ 7

135 ° E MEAN TIME



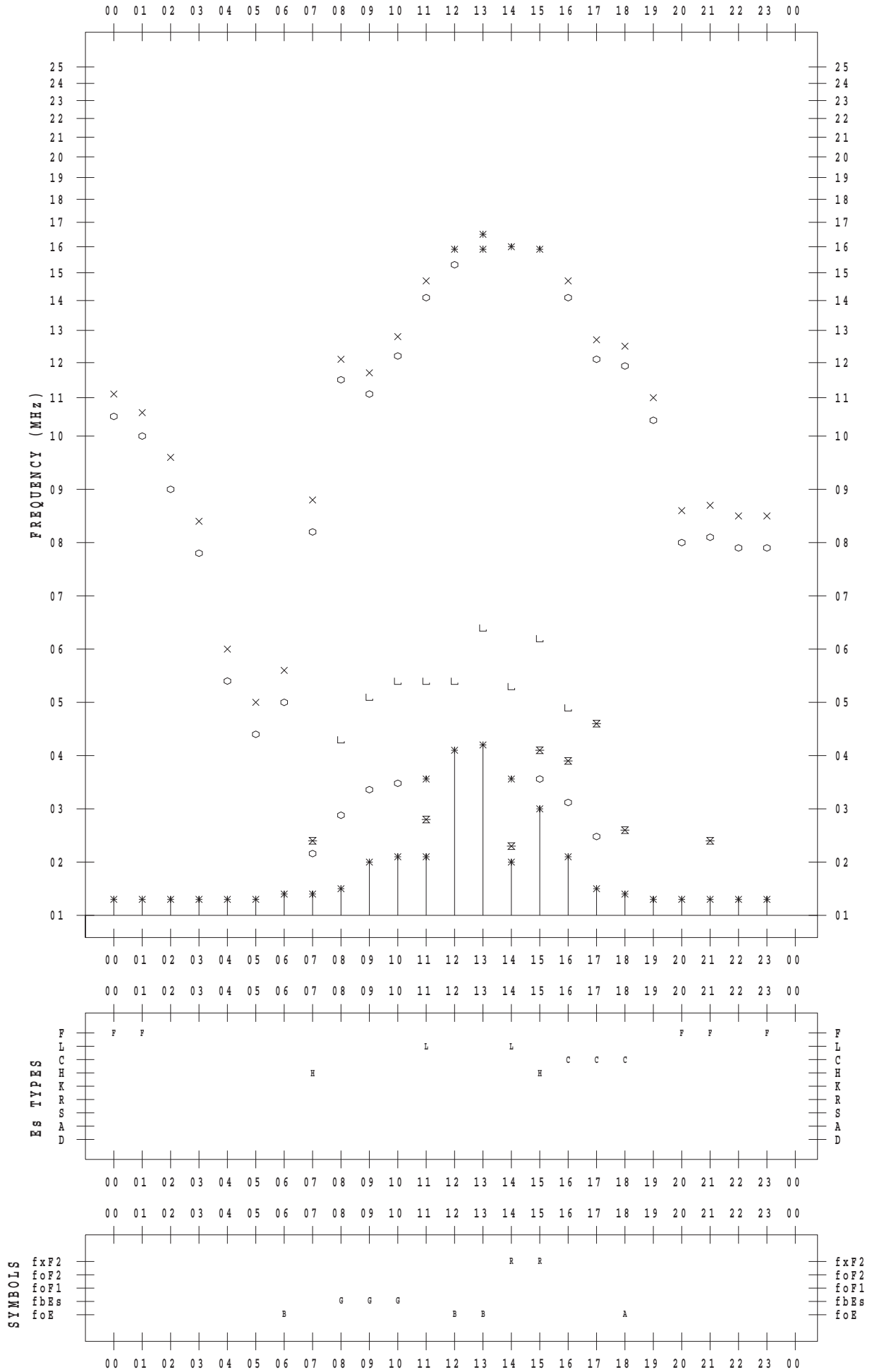
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/ 8

135 ° E MEAN TIME



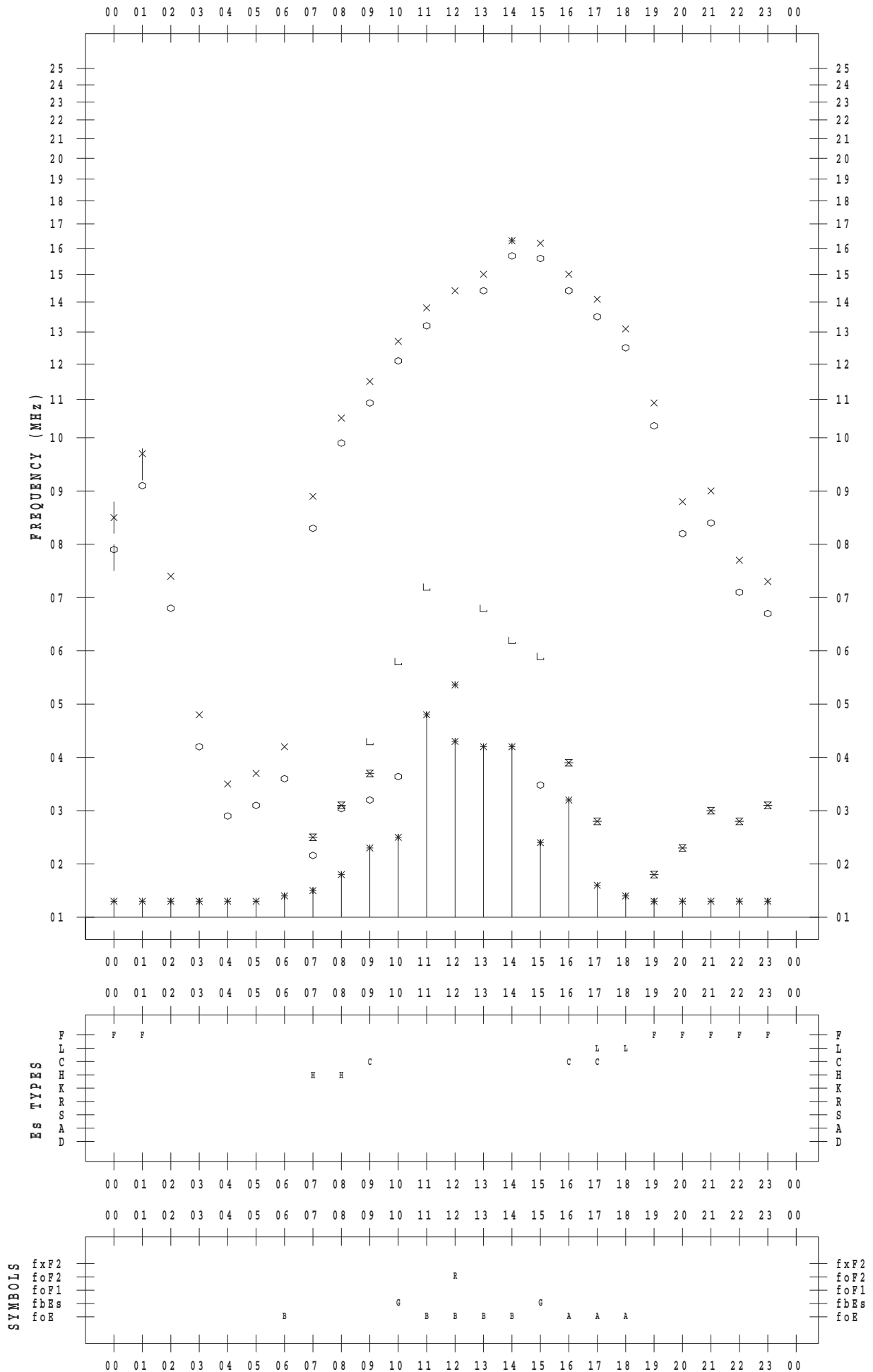
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/ 9

135 ° E MEAN TIME



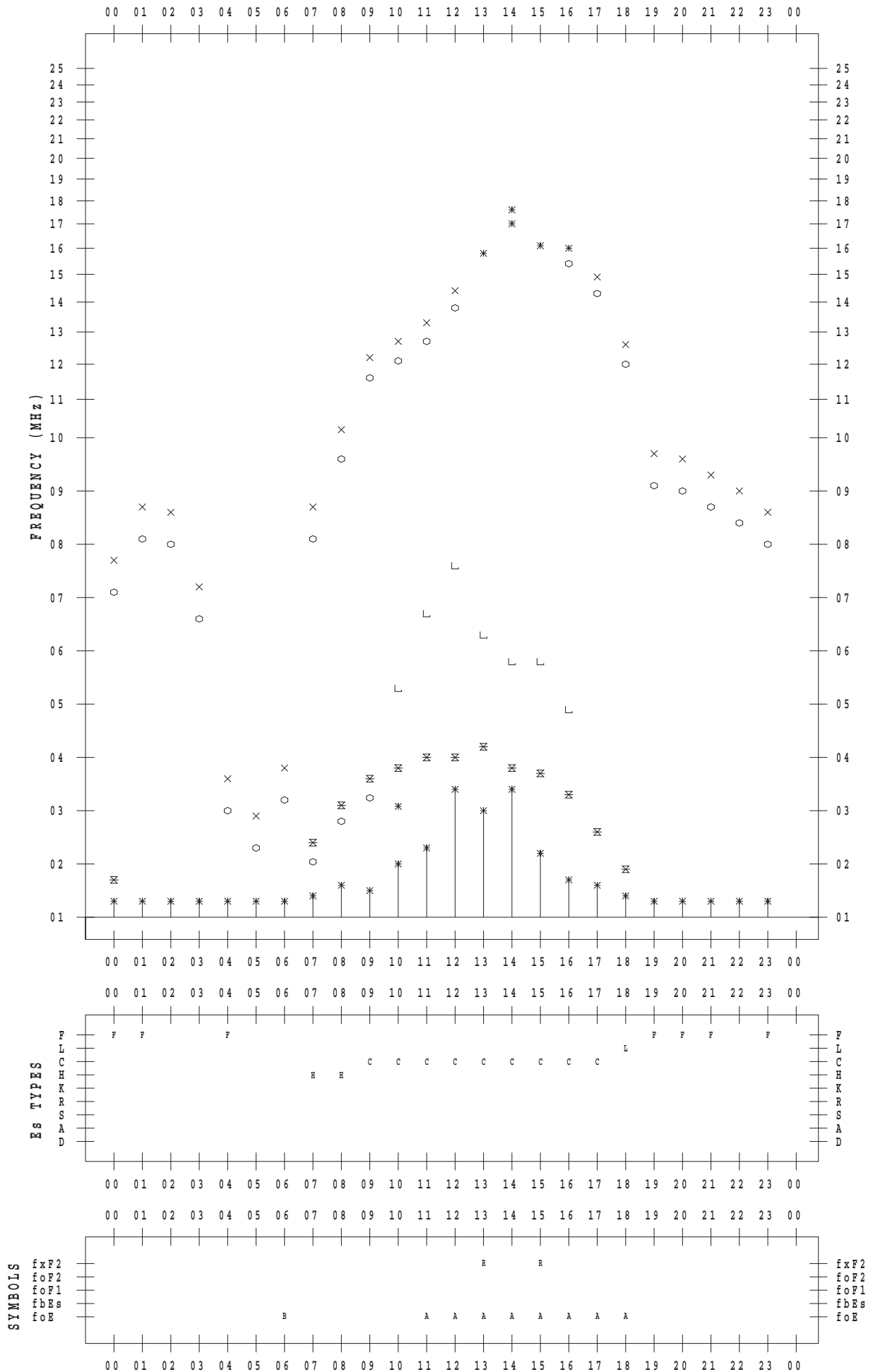
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/10

135 ° E MEAN TIME



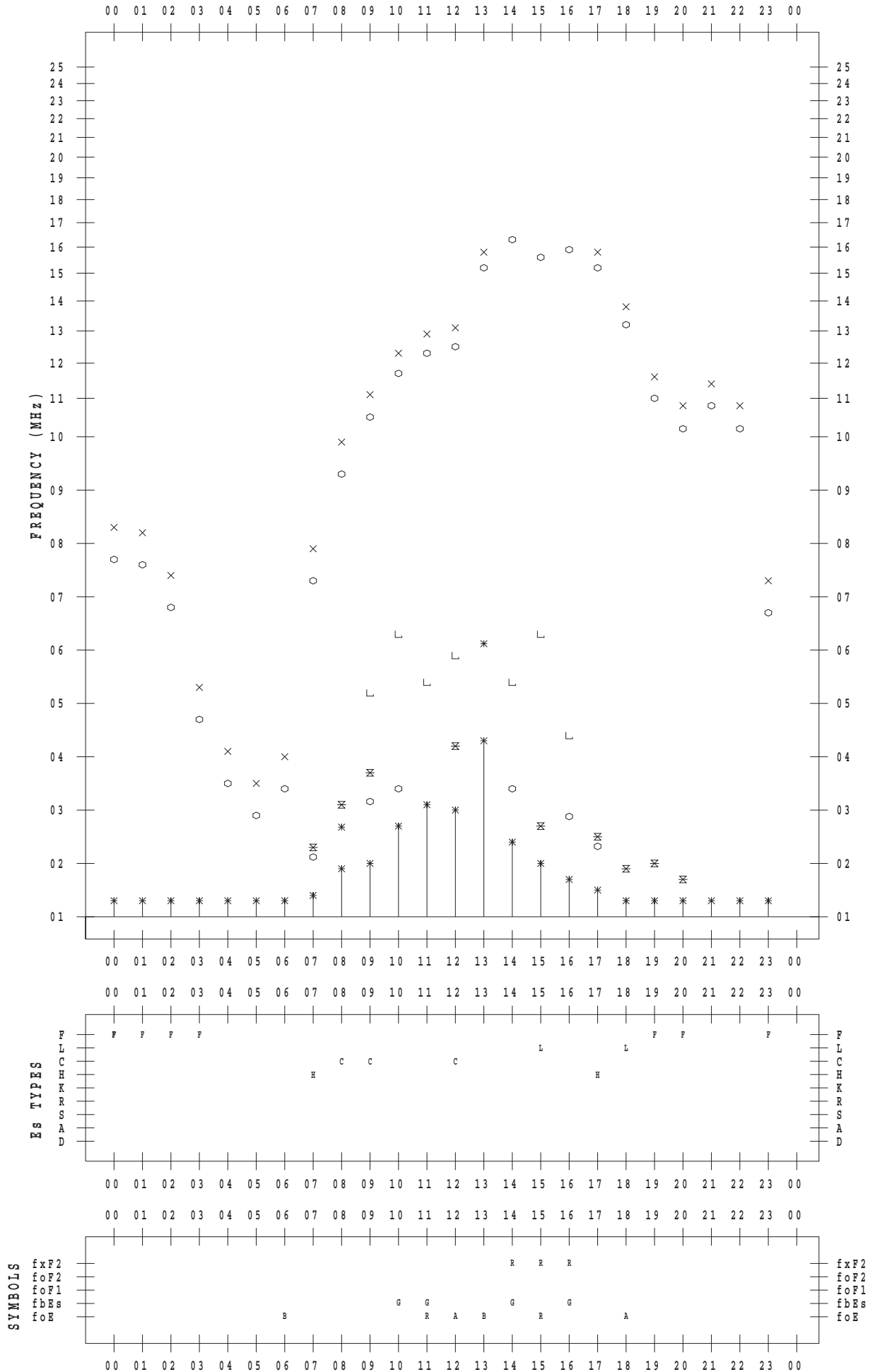
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/11

135 °E MEAN TIME



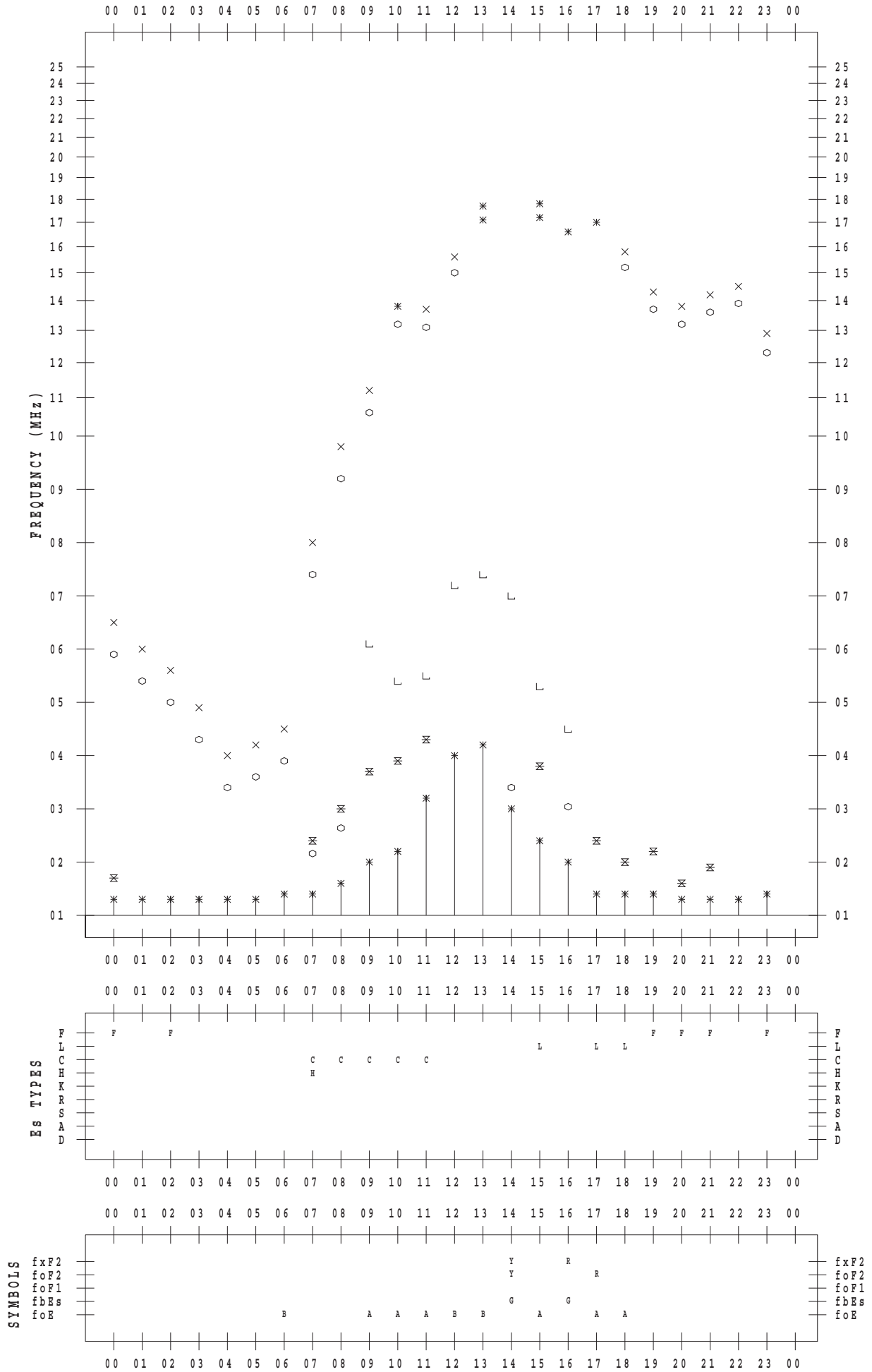
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/12

135 ° E MEAN TIME



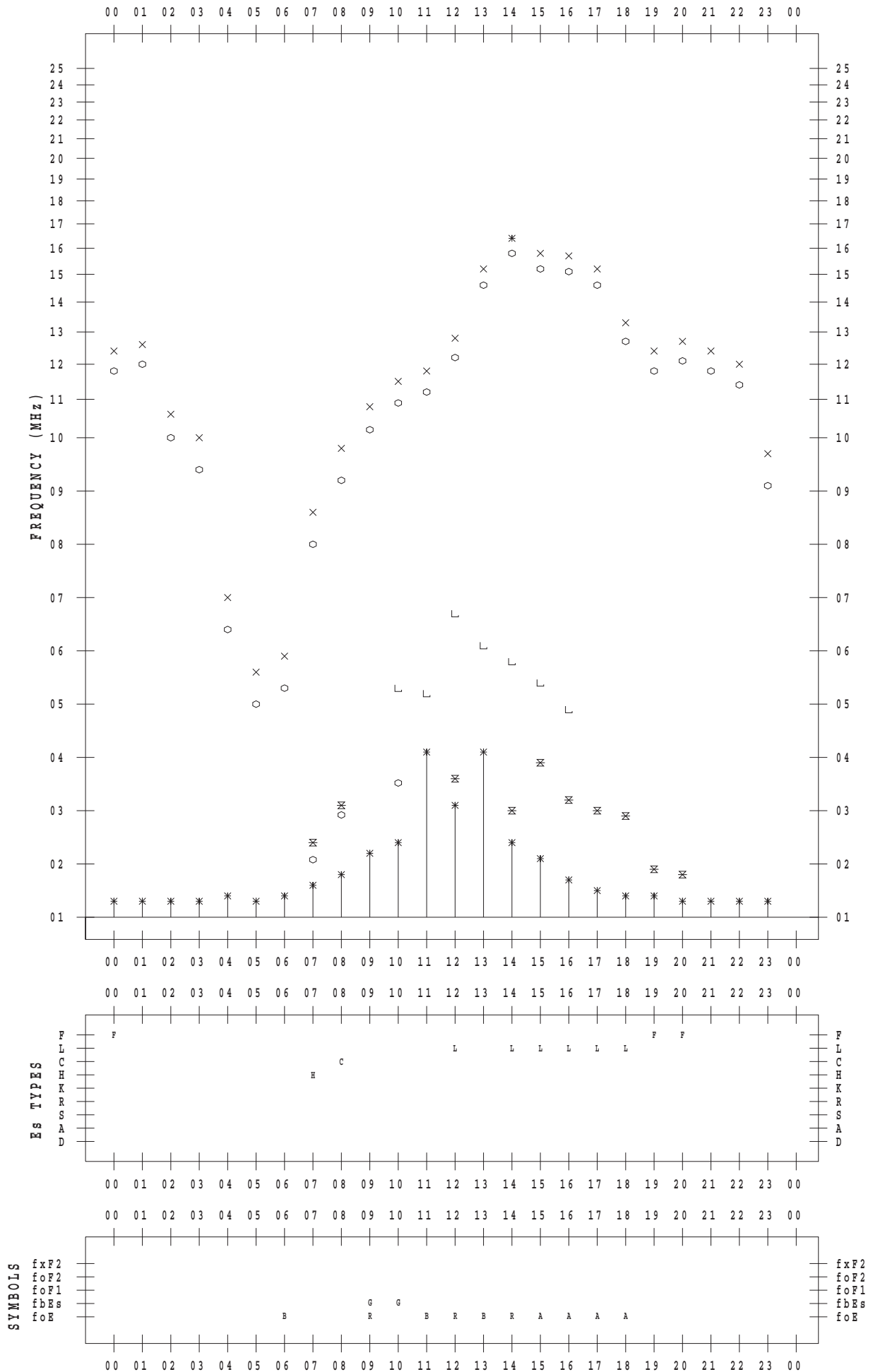
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/13

135 ° E MEAN TIME



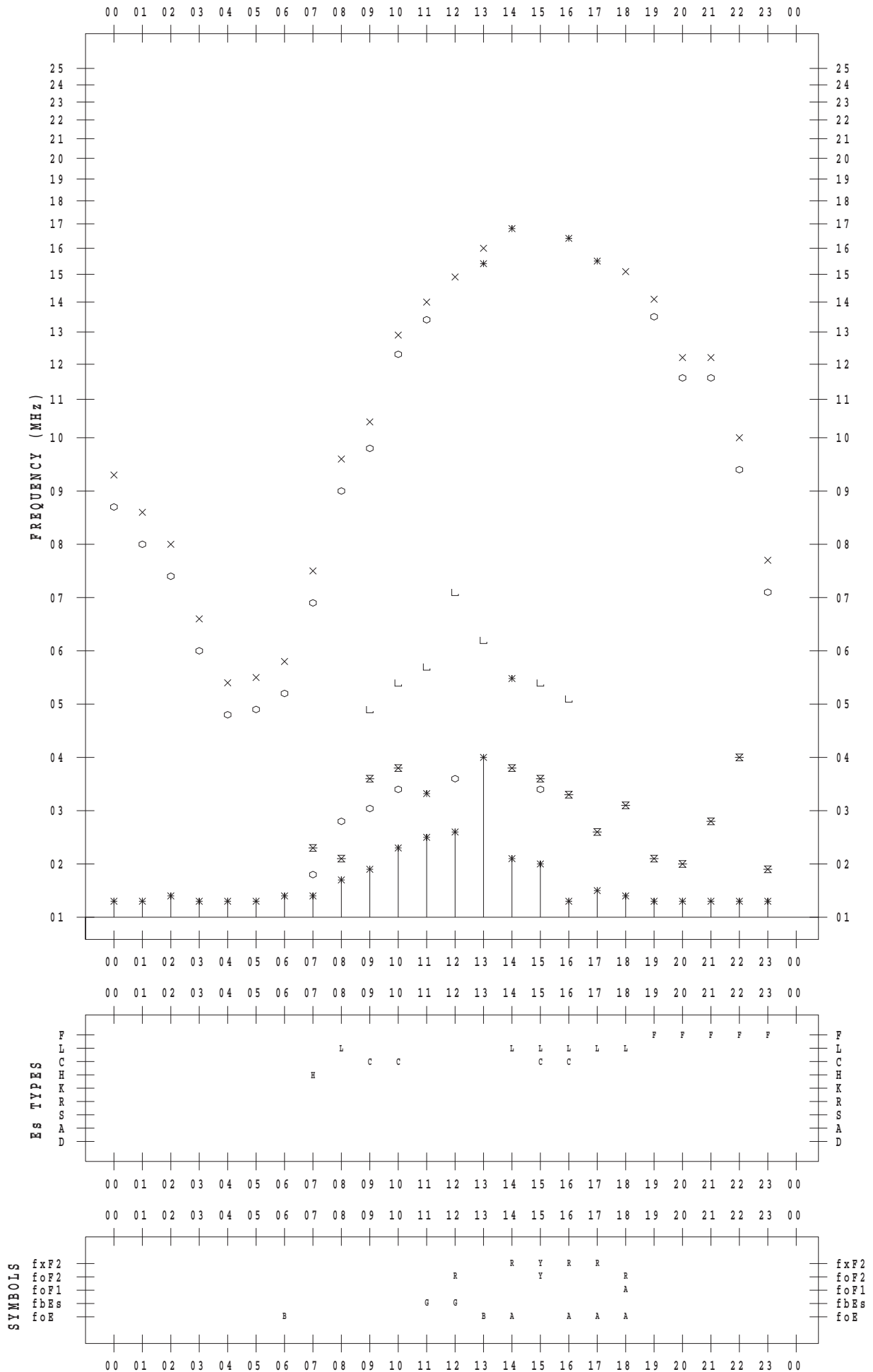
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/14

135 ° E MEAN TIME



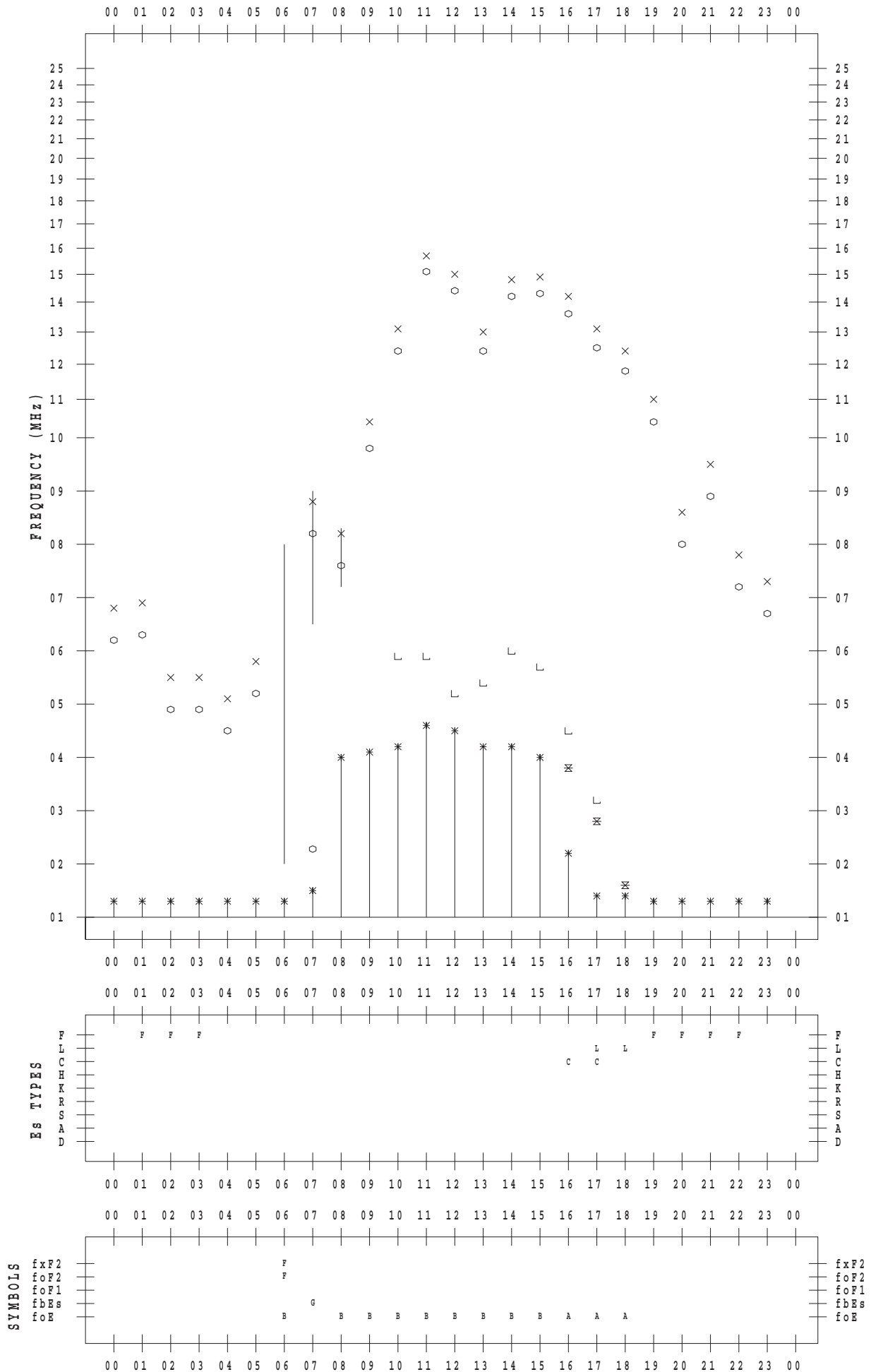
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/15

135 ° E MEAN TIME



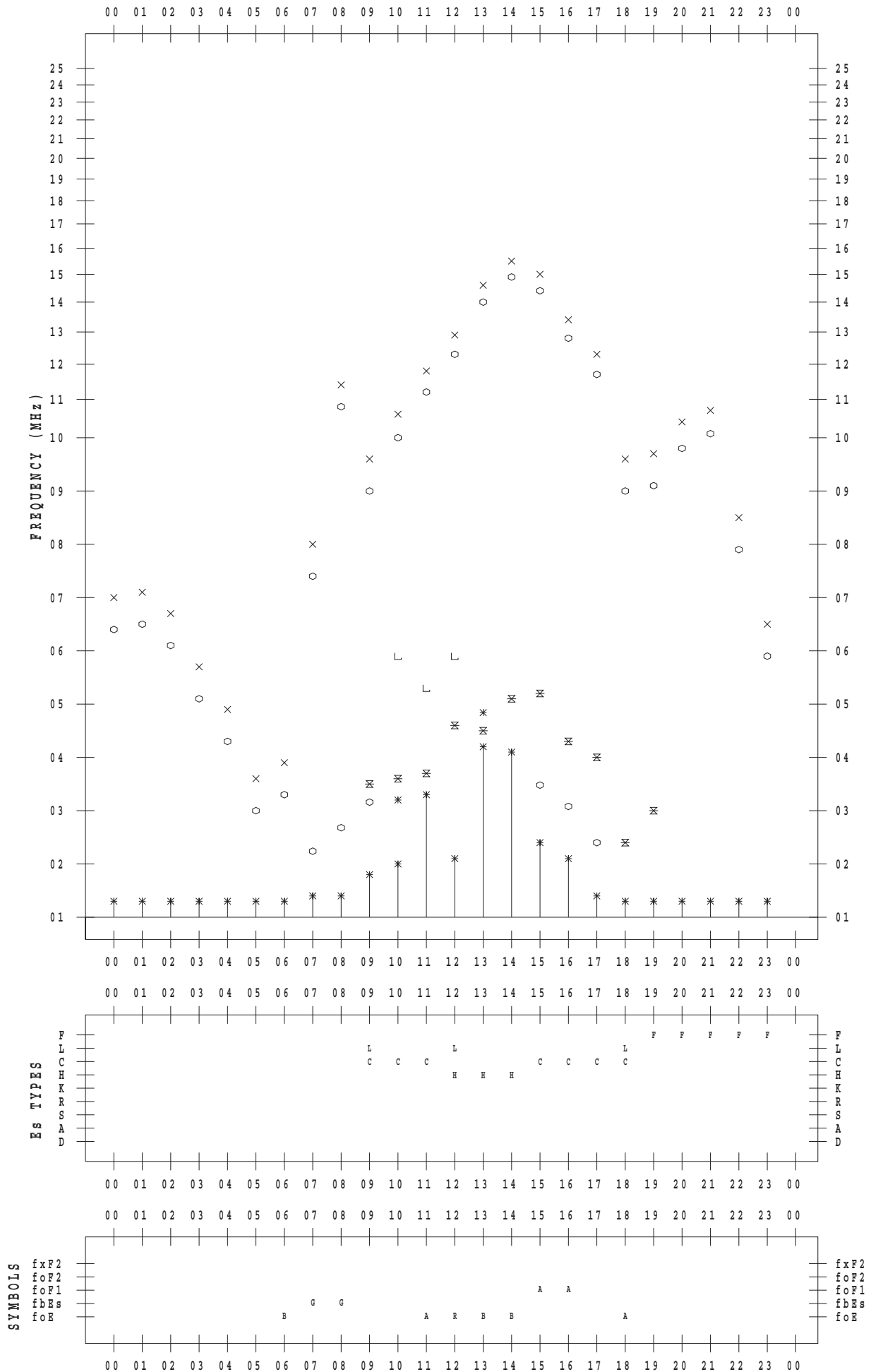
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/16

135 ° E MEAN TIME



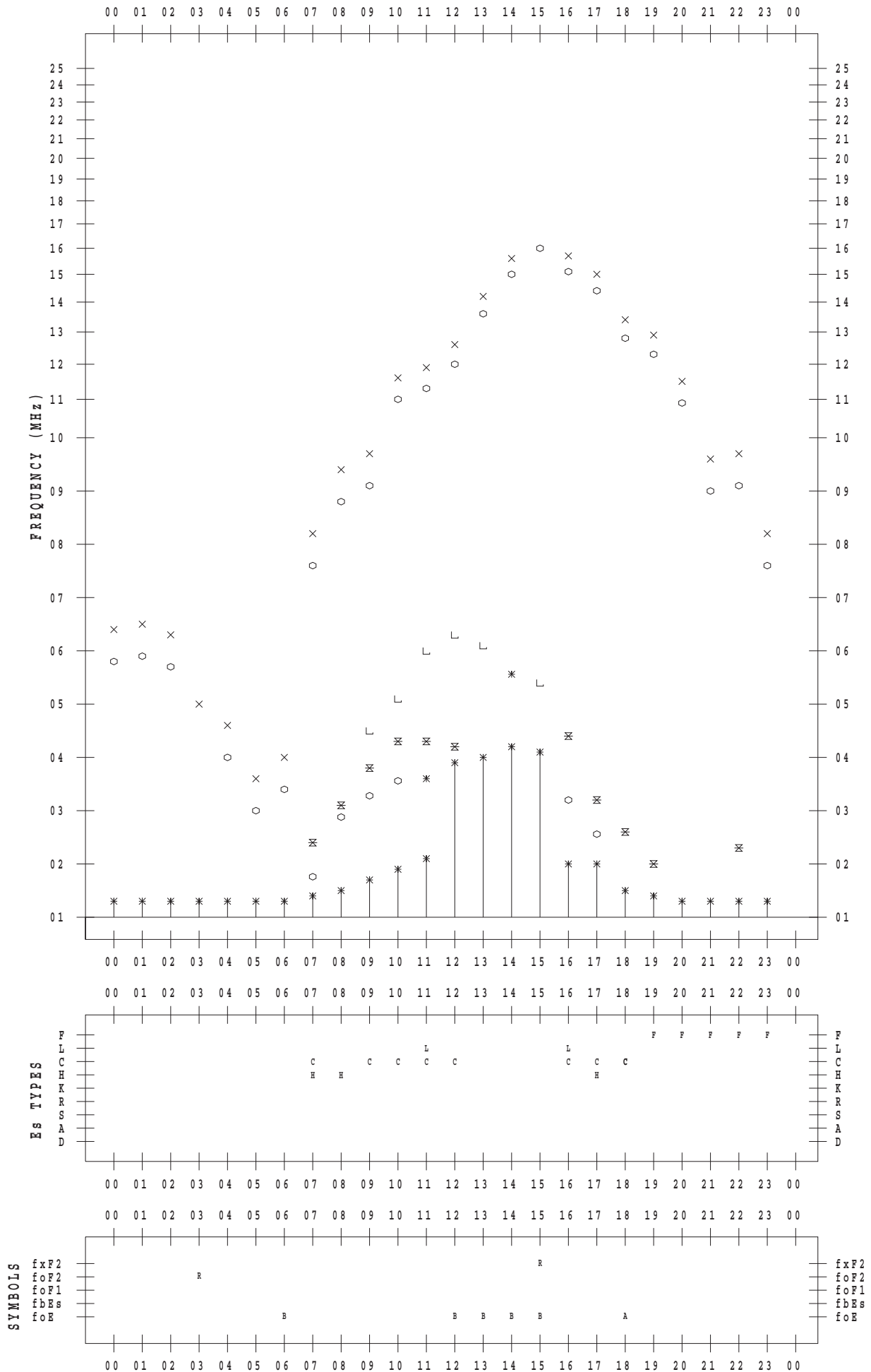
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/17

135 ° E MEAN TIME



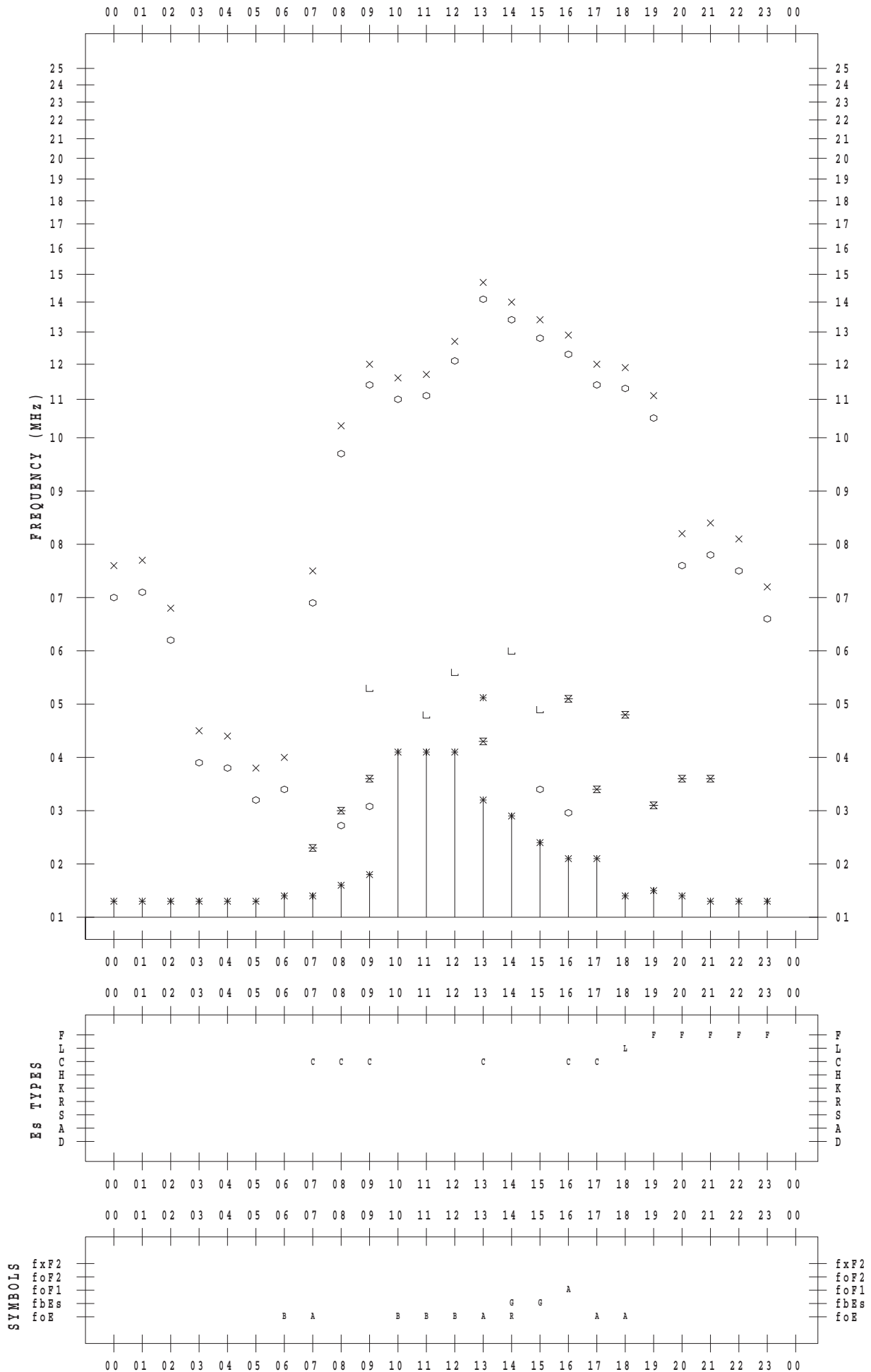
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/18

135 ° E MEAN TIME



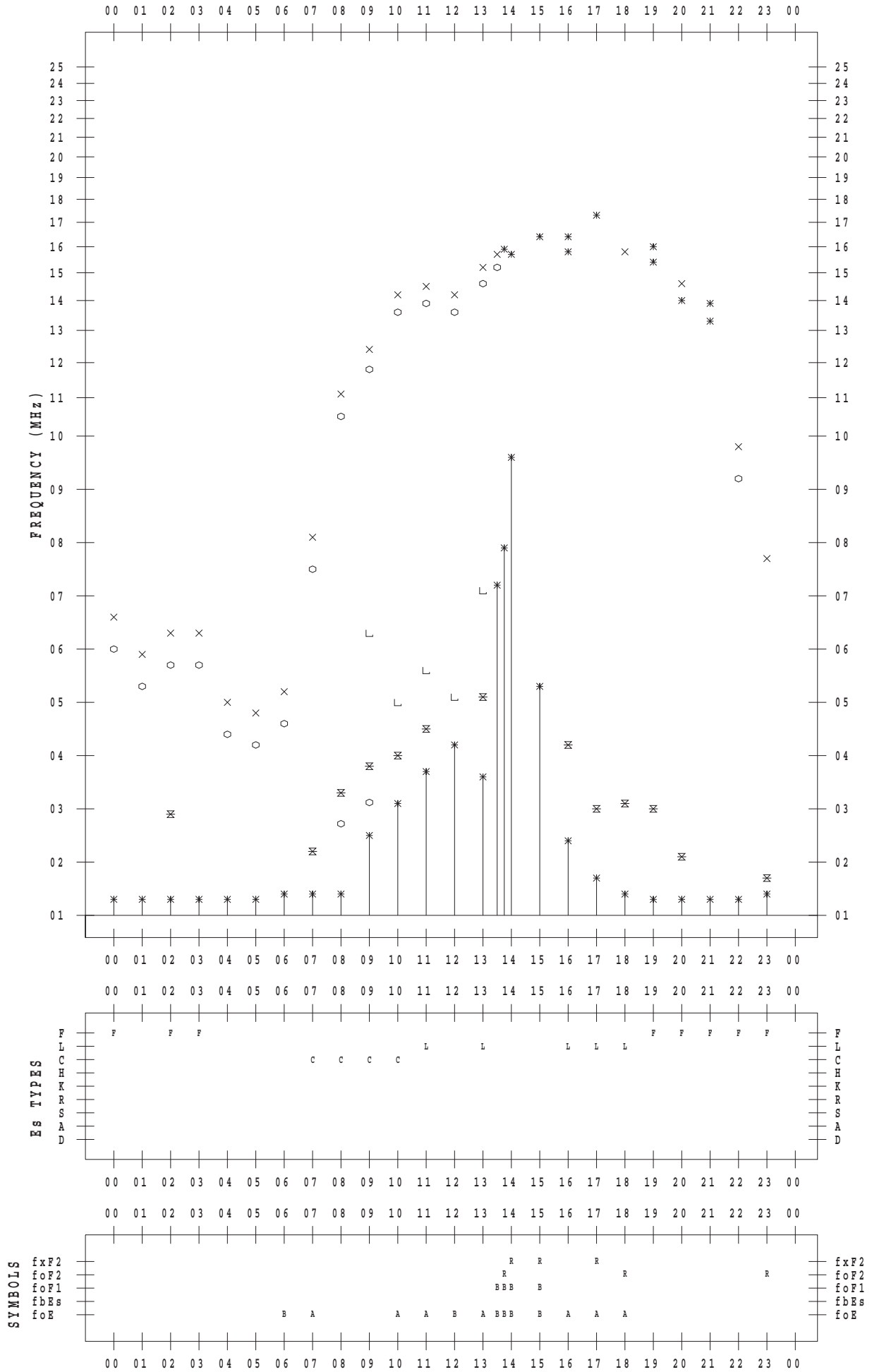
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/19

135 ° E MEAN TIME



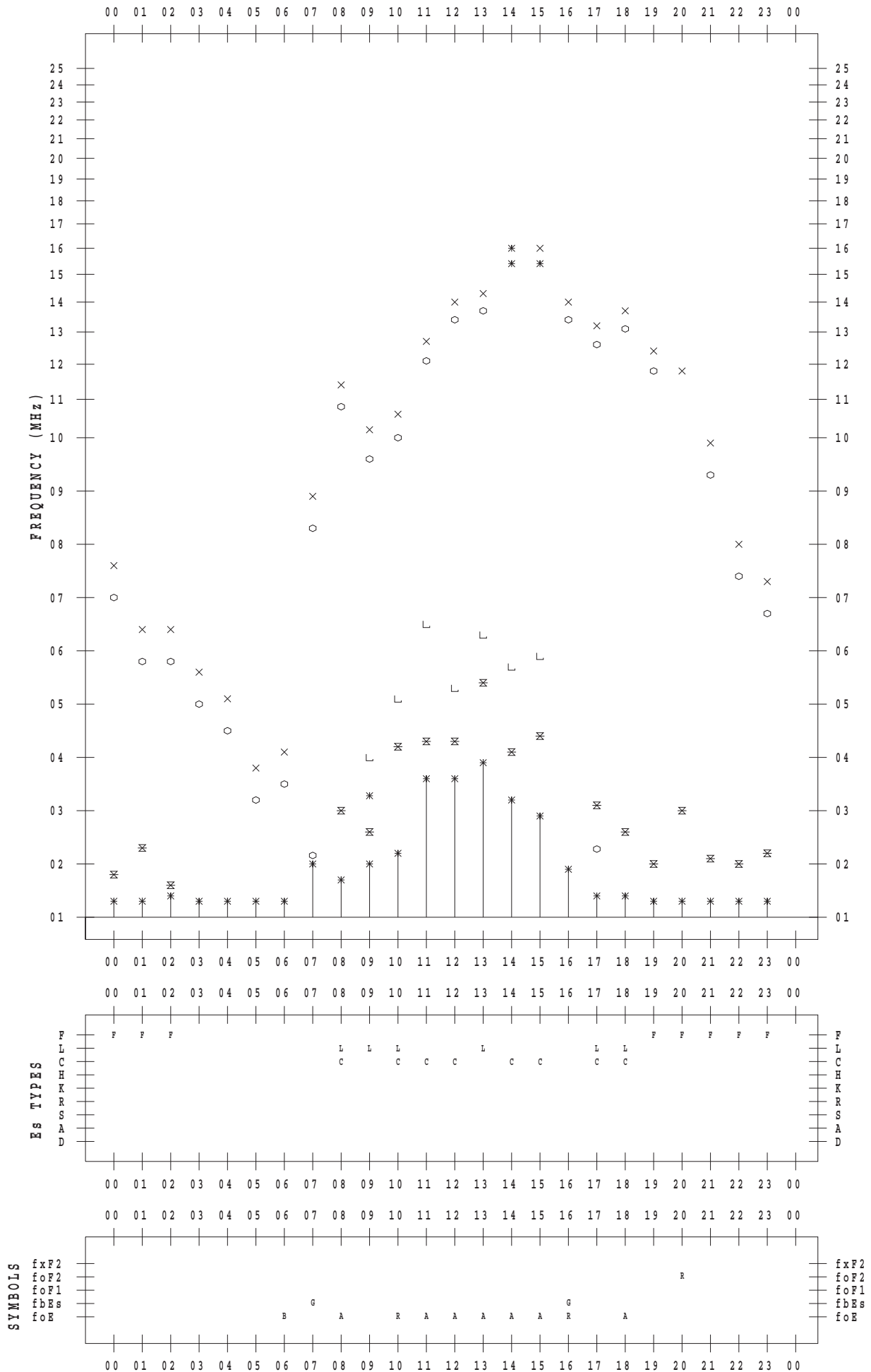
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/20

135 ° E MEAN TIME



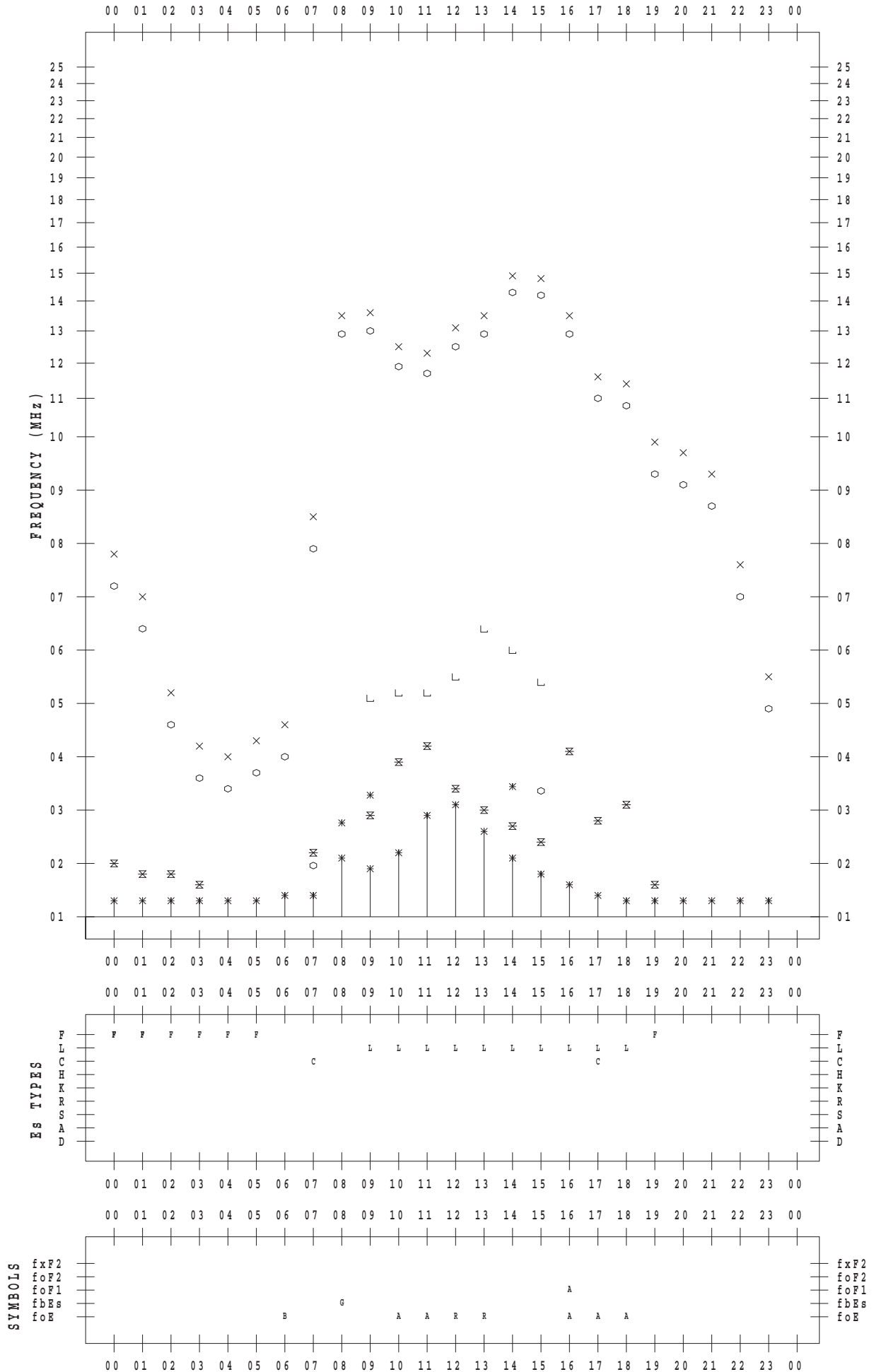
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/21

135 ° E MEAN TIME



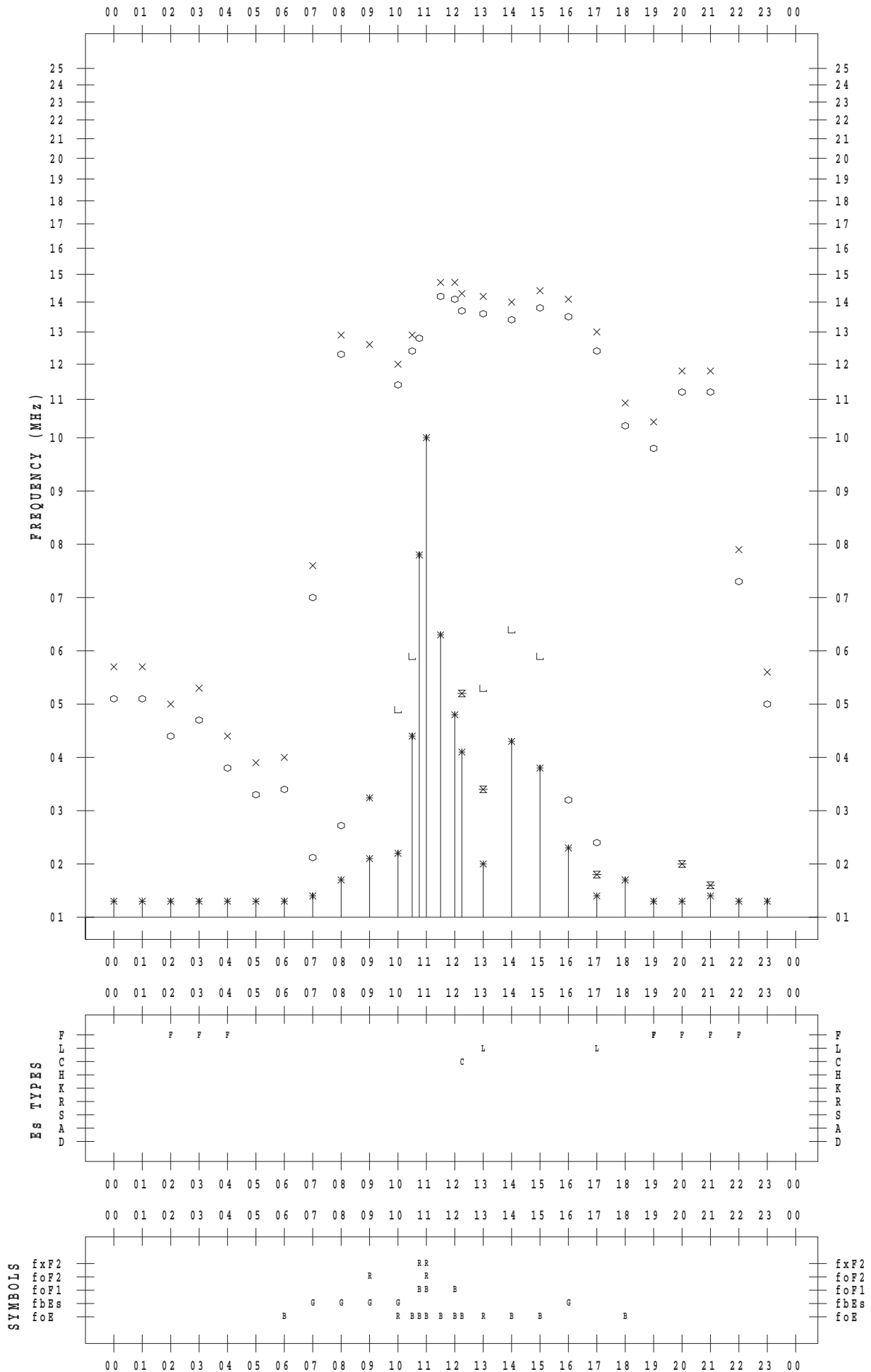
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/22

135 °E MEAN TIME



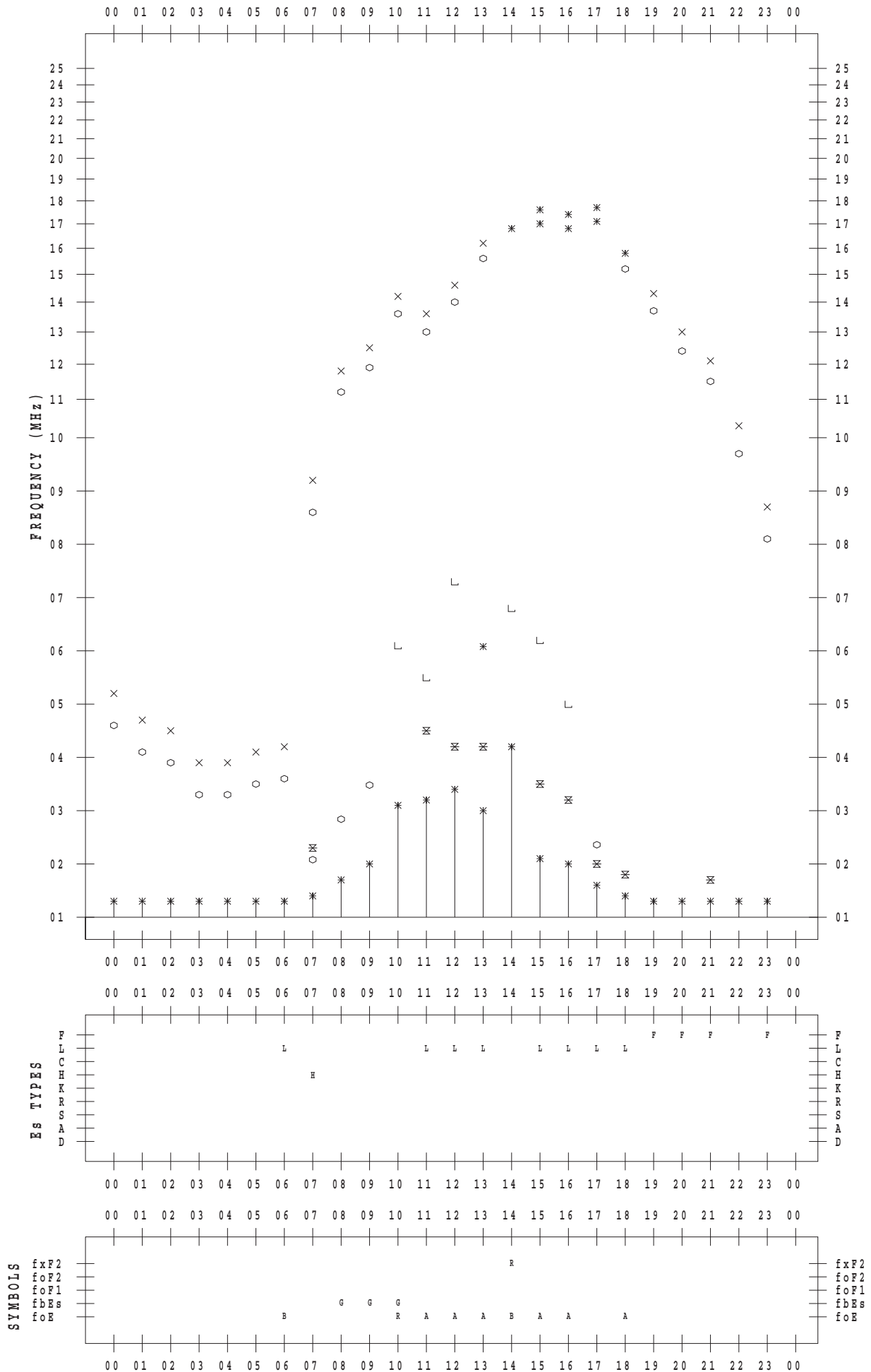
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/23

135 ° E MEAN TIME



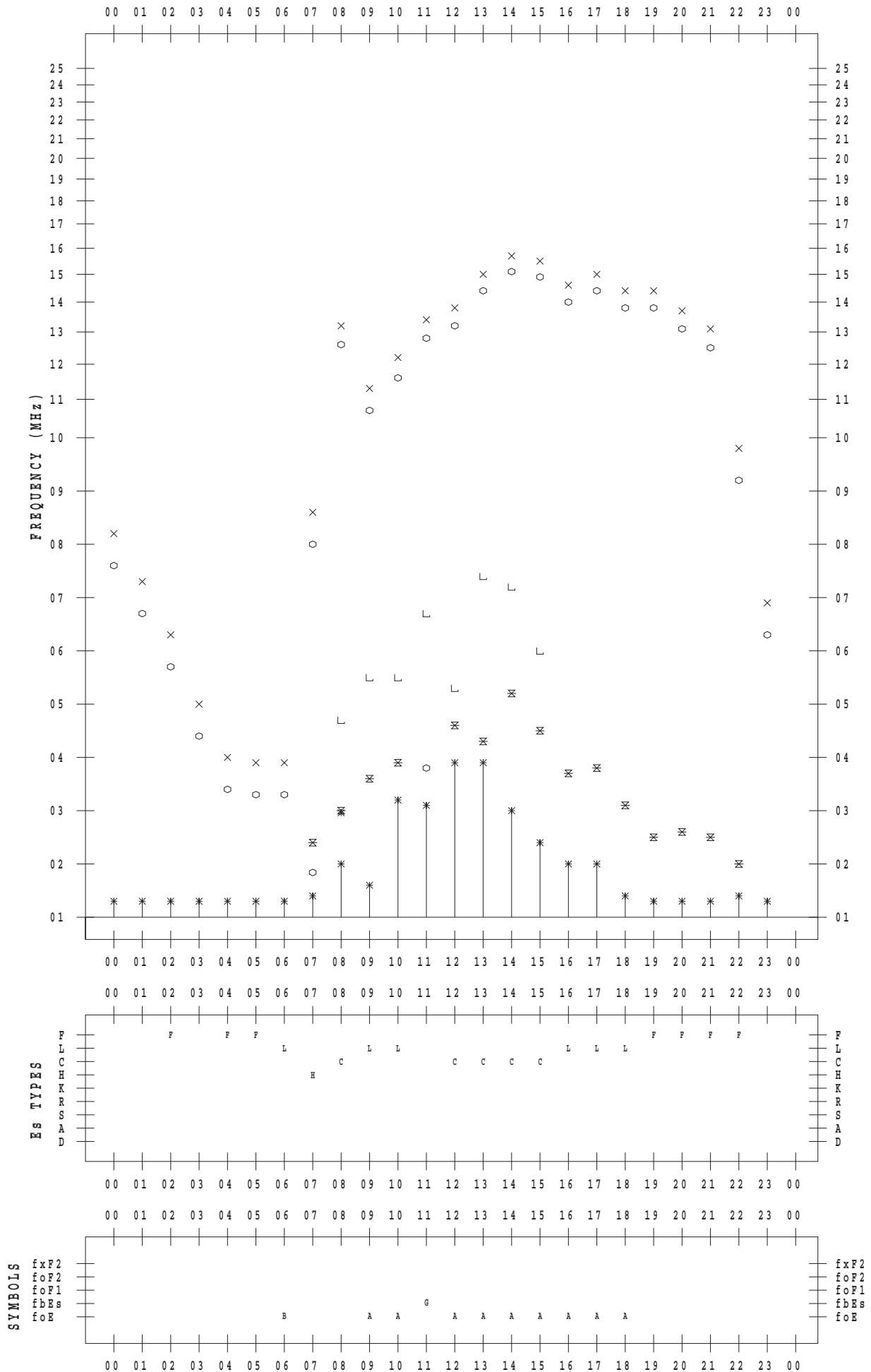
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/24

135 °E MEAN TIME



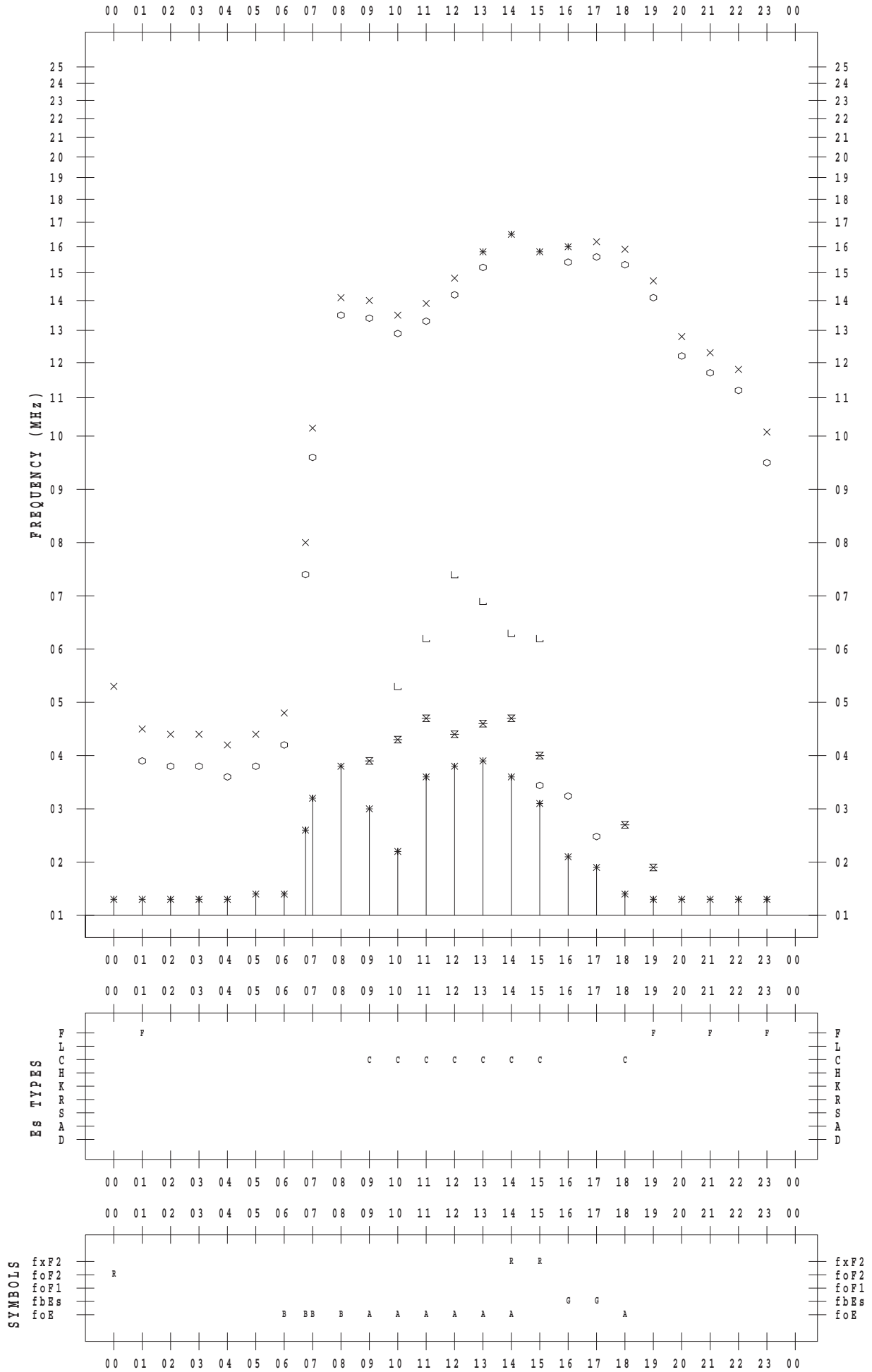
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/25

135 ° E MEAN TIME



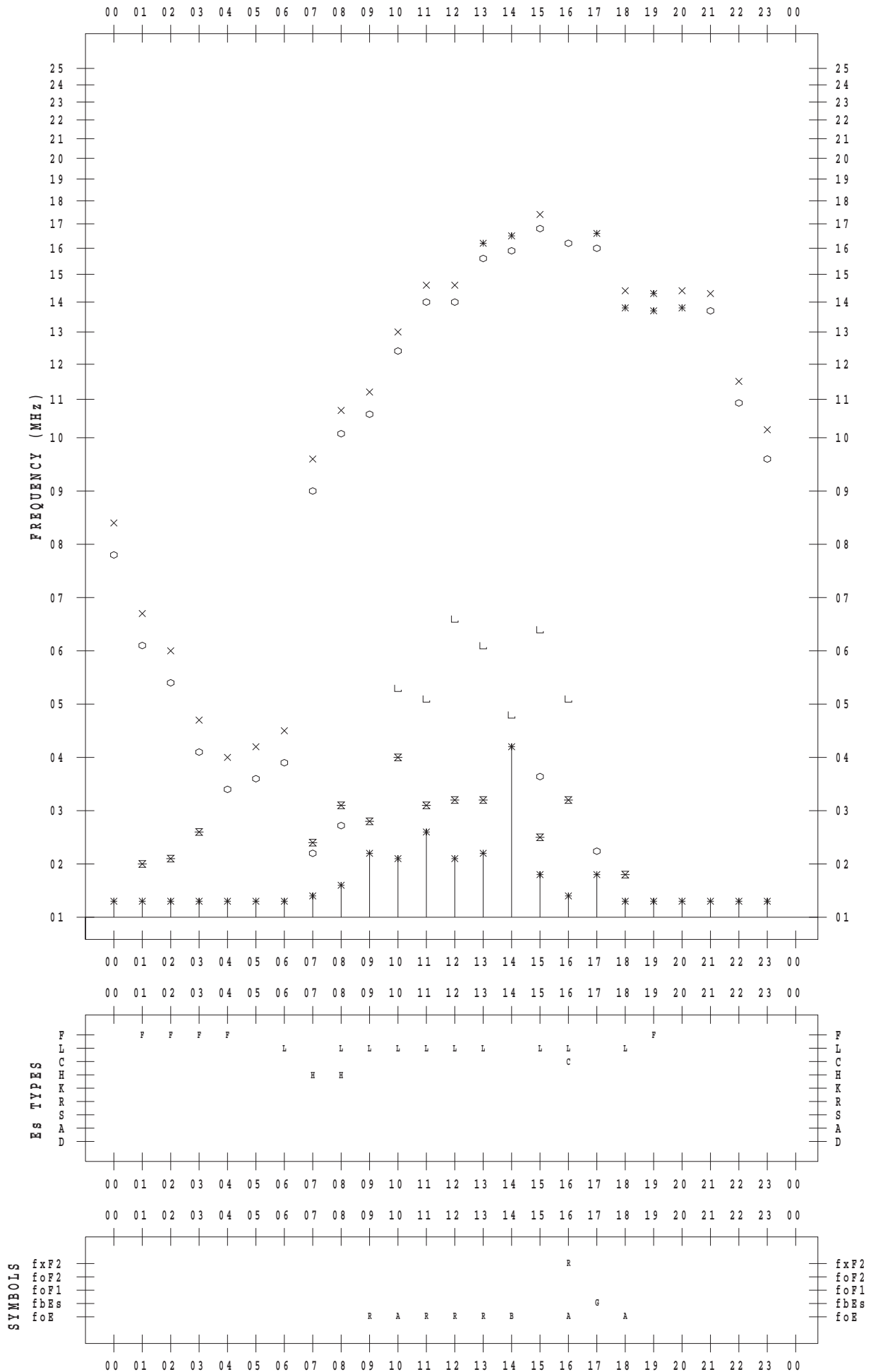
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/26

135 ° E MEAN TIME



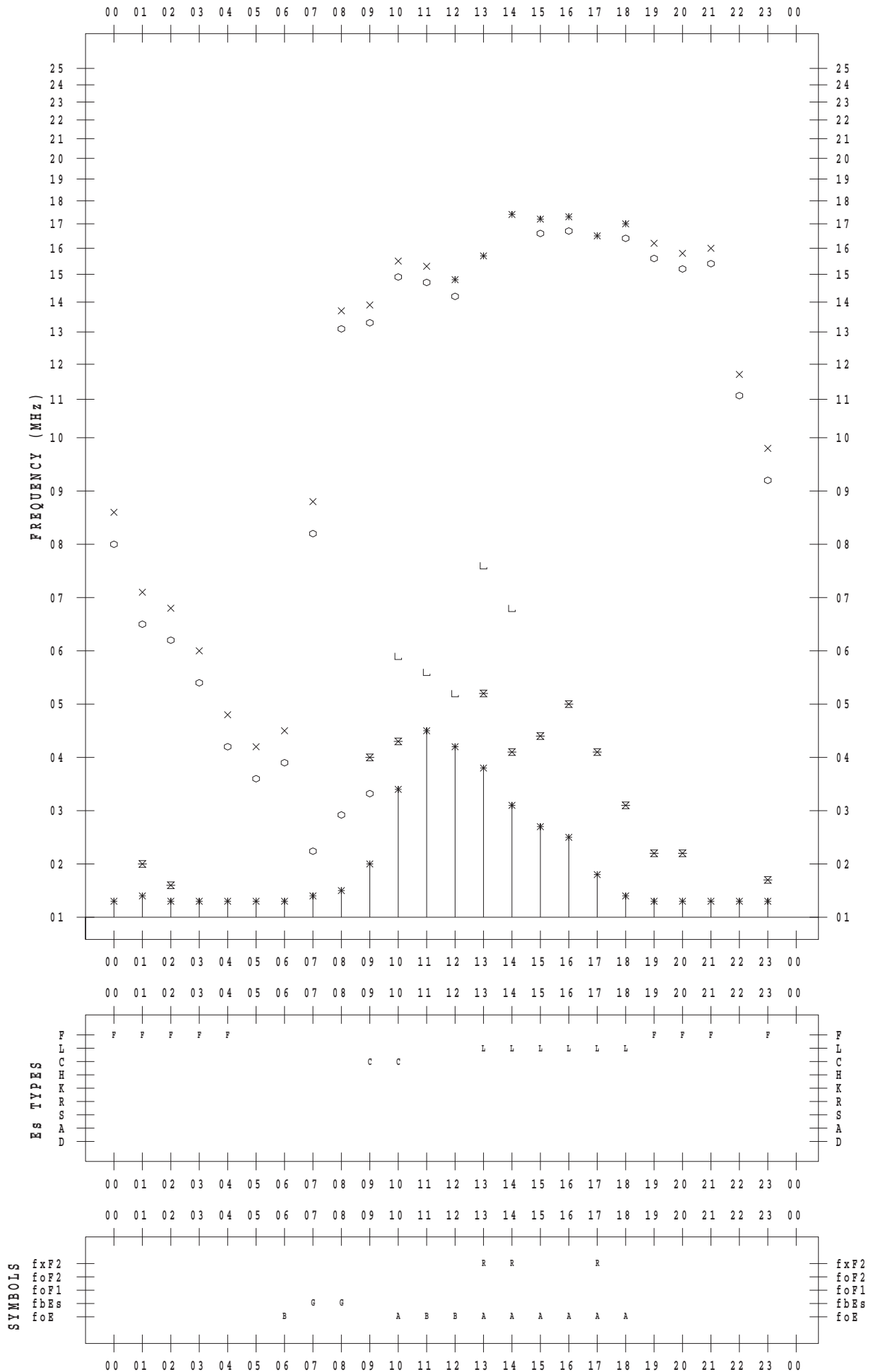
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/27

135 ° E MEAN TIME



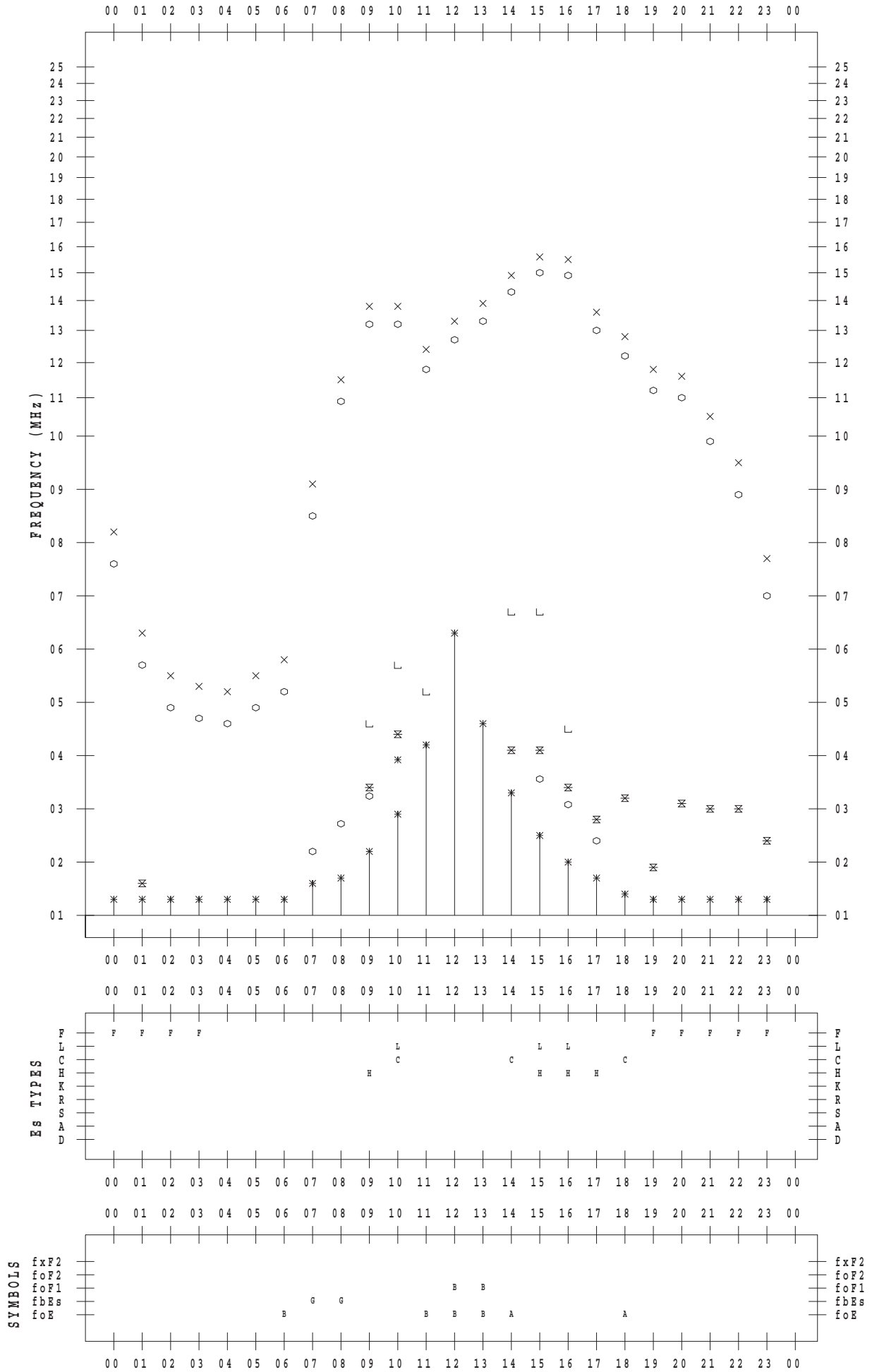
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/28

135 ° E MEAN TIME



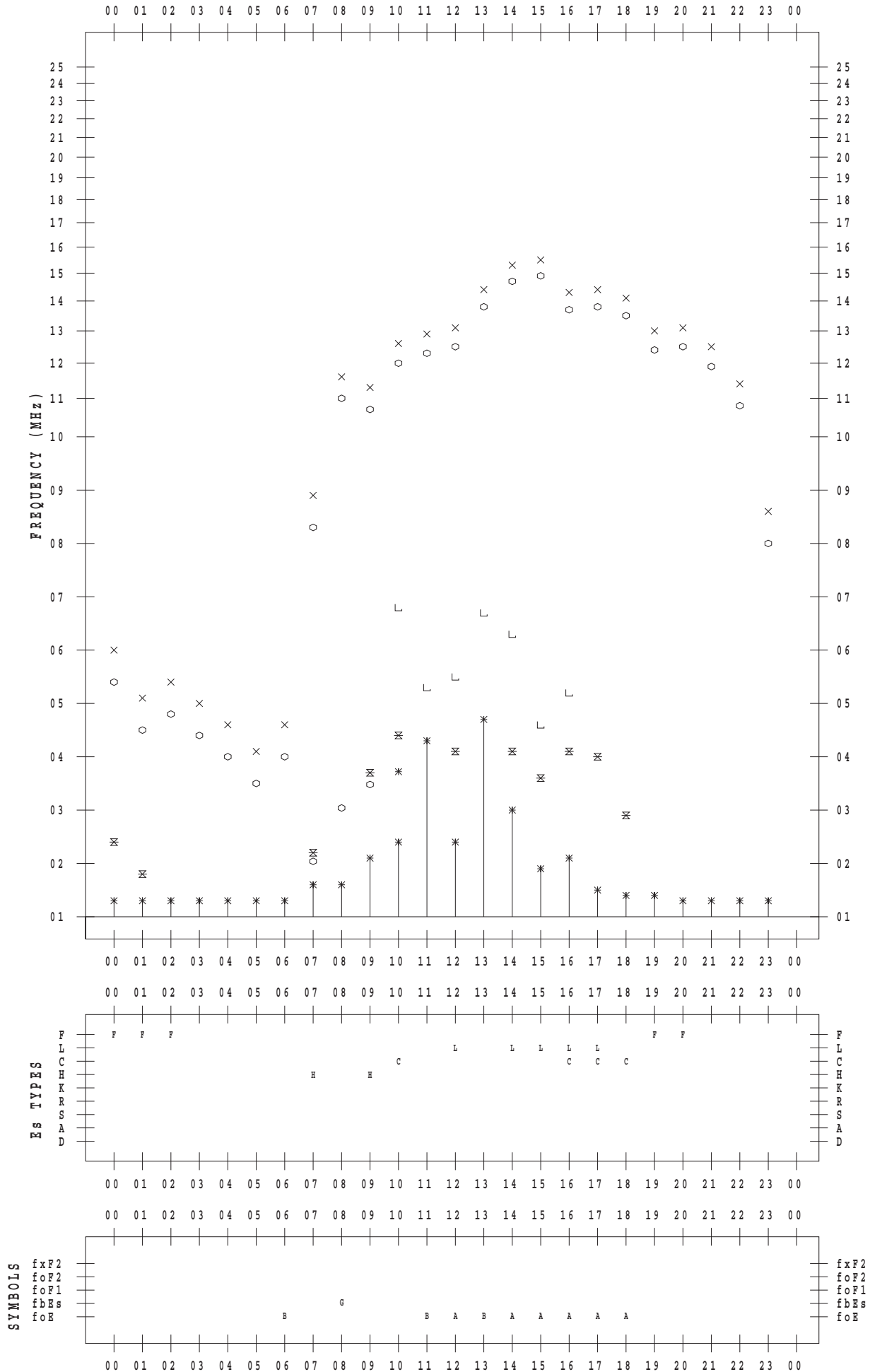
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/29

135 ° E MEAN TIME



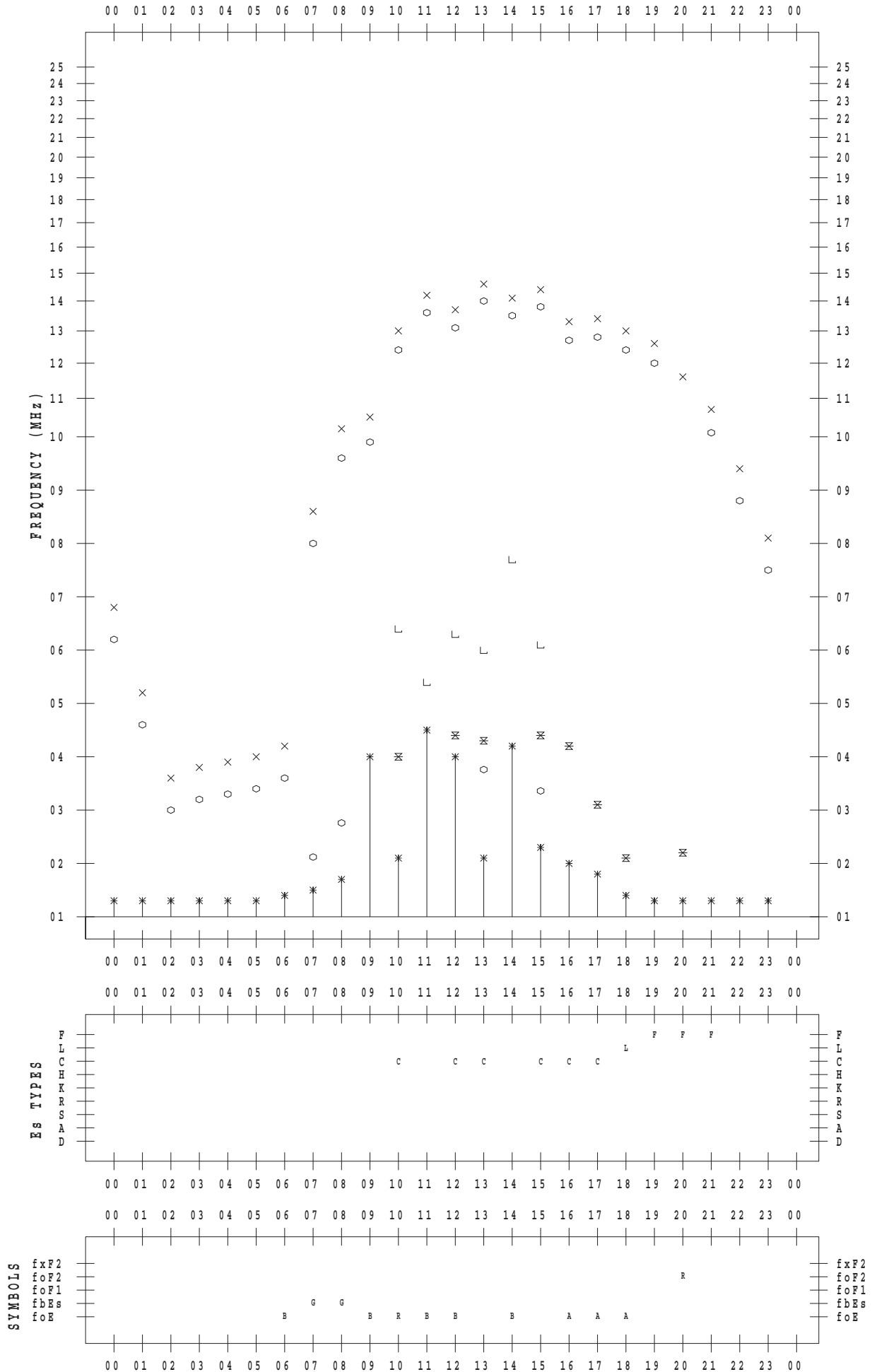
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/30

135 ° E MEAN TIME



f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/10/31

135 ° E MEAN TIME

