F-766

IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 2012
VOL. 64 NO. 10

CONTENTS

≪Real Time Ionograms on the Web ・・・・・・・・・・・・・http://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 iono-spheric reflections
h'Es ***h'F***	Minimum virtual height on the ordinary wave for the ***Es*** and ***F*** layers, respectively

b. Descriptive Letters

The following descriptive letters are used in the tables.

A Impossible measurement because of the presence of a lower thin layer, for example *Es* (for *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 auto matic data processing system, but existence of film record.

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

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

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

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

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

d. Reliability of Automatic Scaling

The results of the comparison between automatically-scaled values and manually-scaled ones showed that hourly values of *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

fxI	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 replaced 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 atmospherics.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

V Forked trace which may influence the measurement.

W Measurement influenced or impossible because the echo lies outside the height range recorded.

X Measurement refers to the extraordinary component.

Y 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-sociated 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 (**CND**) 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. 2012

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	52	52	49	47	34	50	60	59	59	60	N	66	71	74	62	91	70	67	63	64		54	60	54
2	53	34	34	53	54	53	67	67	59	48	59	69	91	70	70	70	70	67	66	54	54	53	54	52
3	53	53	53	58	53	53	61	65	59	61	52	69	69	70	N	63	N	66	66	62	54	51	44	52
4	34	34	43	46	47	44	51	66	67	59	62	86	66	68	59	72	59	67	65	57	54	63	58	53
5	52	53	53	53	55	53	66	66	67	70	69	70	71	91	N	70	59	66	64	57	48	42	58	55
6		42	53	53	53	52	53	62	69	73	59	A	70	70	75	A	75	A	63	61	58	54	53	34
7	42	53	42	A	A	53	N	64	59	67	63	59	56	92	56	70	78	62	54	49	A	42	34	A
8	32	A	A	A	44	A	59	58	61	59	59	88	69	91	71	86	58	65	64	64	64	60	64	43
9	48	52	52	34	A	51	47	64	67	64	69	59	61	62	69	66	67	57	45	55	34	32	32	42
10	34	32	34	44	34	34	51	58	56	67	59	70	65	68	60	70	69	67	A	54	52	41	34	31
11	38	34	34	34	37	43	54	67	66	66	64	70	69	69	59	88	81	66	A	37	34	48	47	34
12	34	34	34	35	34	34	53	65	67	67		68	N	71	74	67	71	67	66	54	41	34	33	34
13	32	34	34	32	34	34	60	66	65	A	59		69	74	70	73	92	70	66	53	62	66	34	53
14		49	50	A	A	A	34	62	60	A	A	A	67	68	69	70	65	61	54	53	43	34	32	37
15	37	32	32	A	A	32	43	60	65	66	64	66	75	67	68	70	68	58	52	44	A	A	30	32
16	28	34	32	32	29	28	50	61	68	59	68	92	59	N		70	70	66		38	42	32	34	34
17	32	34	29	34	32	34	42	68	67	67	59	60	59	88	70	70	74	67	56	56	34	44	34	42
18	32	34	32	32	46	37	52	69	80	N	71	92	59	59	70	67	59	65	63	66	60	49	32	47
19	44	50	36	34	43	52	61	66	49	86	96	64	N	92	90	72	68	62	63	A	52	53	51	53
20	54	51	52	53	51	48	56	68		59	59	69	60	87		88	60	65	64	54	48	41	34	34
21		32	46	44	46	31	53	67	88	59	N	70	92		N	70	73	66	66	58	50	46	43	34
22	34	34	50	A	38	34	49	68	69	59	68	58	69	68	90	59	70	59	52	58	49	34	46	40
23	44	34	42	38	44	40	56	67	86	96	59	70	67	59	59	68	N	66	64	58	48	37	34	42
24	32	42	34	42	35	34	54	67	59	66	59	59	59		79	64	68	65	63	54	34	34	32	38
25	42	34	32	44	44	43	63	72	59	51	59		59	70	96	92	69	66	60	52	34	A	34	A
26	32	A	A	34	A	A	58	66	59	88		N	68	69	86	87	61	66	54	52	48	32	42	35
27	43	42	34	44	46	50	61	66	59	59	121		90	97	92	70	50	66	60	58	58	A	60	55
28	52	60	58		58	A	54	64	69	80	92		89	93	91	87	88	46	51	34	37	A	37	A
29	A	A	37	36	37	34	43	66	83	66	69	59	58	69	86	86	67	58	43	31	32	32	34	42
30	34	34	32	34	37	40	48	64	70	67		59	N	61	71	70	59	N	34	31	N	37	32	38
31	34	38	44	37	47	42	42	66	59	77	69	59	92	69	64	70	67	53	43	51	42	32	39	32
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	29	25	26	27	30	31	30	28	25	24	28	28	26	30	29	29	28	30	27	27	31	28
MED	37	34	37	38	44	42	54	66	66	66	63	68	68	70	70	70	68	66	63	54	48	42	34	41
U Q	48	50	50	46	47	51	60	67	69	68	69	70	71	87	86	86	72	66	64	58	54	53	51	52
L Q	32	34	34	34	35	34	49	64	59	59	59	59	59	68	64	70	60	61	53	51	37	34	34	34

HOURLY VALUES OF fEs AT Wakkanai

OCT. 2012

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	24	G	G	G	24	G	G	G	G	G	G	G	G	G	G	G	G	34	35	G		G	G	G
2	G	G	G	G	G	G	30	G	G	50	64	G	G	45	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	G	G	G	G	25	G	G
4	G	G	G	G	G	26	G	36	G	46	G	G	G	G	G	G	G	G	G	G	G	40	27	26
5	G	G	24	G	G	G	G	G	G	G	G	G	G	49	40	43	34	G	G	G	G	G	G	G
6		G	G	G	G	G	46	G	G	39	50	68	G	81	50	84	75	86	28	G	G	27	G	G
7	G	G	24	44	38	28	33	48	G	48	50	G	G	52	56	53	40	39	40	35	40	35	29	25
8	G	40	49	39	34	50	39	35	G	40	G	G	G	51	G	G	G	26	G	G	G	G	G	G
9	G	G	G	29	41	G	G	36	44	G	G	G	49	45	G	40	G	G	28	24	G	G	G	G
10	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	38	41	60	61	26	31	26	G	G
11	G	G	G	G	G	G	32	G	G	G	45	G	G	40	G	40	43	41	58	35	36	29	33	G
12	G	G	G	G	G	G	G	G	G	52		G	G	G	G	G	31	G	G	G	G	G	G	G
13	G	G	G	G	G	G	G	G	65	80	G		42	G	G	G	G	29	G	G	G	26	G	G
14		G	29	27	34	32	32	36	36	67	68	88	G	G	38	G	G	G	G	G	G	G	G	G
15	G	G	33	38	30	G	38	36	G	G	G	G	47	G	G	G	G	G	29	40	43	40	27	G
16	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	33	36	G	G	G	G	G	G	G	G	G	G	G	G	29	G	G
18	G	G	G	G	29	36	27	G	G	G	G	G	G	G	G	G	G	G	G	27	G	G	G	G
19	G	G	G	G	G	G	G	G	G	G	G	40	G	G	G	G	G	G	28	40	G	39	32	33
20	33	G	G	G	G	G	G	35		G	G	G	G	G		G	G	G	G	G	G	26	G	G
21		G	G	G	G	G	G	G	G	G	48	G	G		G	G	32	11	G	G	G	32	32	29
22	G	G	26	27	G	G	G	G	G	39	G	45	58	59	G	G	G	11	G	G	G	G	29	29
23	34	28	G	G	G	G	G	G	36	G	G	G	G	G	G	35	G	G	G	G	G	G	33	25
24	27	G	G	G	G	G	G	G	G	G	46	G	G		G	33	33	39	25	G	28	G	G	32
25	26	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	32	33	31
26	G	33	34	33	35	24	G	G	G	G		G	G	G	G	35	28	G	35	39	26	G	G	G
27	G	G	G	33	G	G	G	G	G	41	G		G	68	G	G	G	G	G	G	G	38	G	59
28	G	34	32		G	40	29	33	38	40	48		G	G	G	G	G	11	G	G	32	33	28	30
29	38	38	28	25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24	24
30	G	G	G	G	G	G	G	50	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G
31	G	G	G	G	G	G	G	48	48	G	G	G	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	28	31	31	30	31	31	31	31	30	31	28	27	31	29	29	31	31	31	30	31	30	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	G	G	24	27	24	G	29	35	G	40	45	G	G	45	G	35	31	26	28	24	G	32	28	26
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. 2012

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	15	15	14	15	15	14	22	14	15	20	20	23	17	20	17	16	14	14	14	15		15	15	15
2	15	14	14	15	14	14	14	14	16	18	18	17	17	16	14	14	14	17	14	15	15	15	15	15
3	15	15	14	14	15	15	20	14	15	15	18	17	20	16	14	14	15	20	14	15	14	15	15	14
4	14	15	14	14	14	14	20	14	14	15	15	17	16	15	14	14	14	17	15	15	14	14	17	15
5	14	15	15	15	14	16	14	14	14	14	15	18	18	14	15	14	14	14	15	14	15	26	15	15
6		15	14	15	14	14	20	14	14	14	15	17	15	18	15	14	14	15	15	14	16	15	15	14
7	15	15	14	14	14	15	14	14	14	14	15	15	18	17	17	14	14	14	14	14	14	15	14	18
8	14	14	14	14	14	15	14	14	14	14	15	15	20	16	15	14	14	17	14	14	15	14	15	14
9	17	15	15	15	14	14	18	14	14	14	17	17	15	14	14	14	14	17	15	14	14	15	18	15
10	15	15	14	15	16	15	18	14	14	15	15	15	17	15	29	14	14	14	18	15	15	15	14	15
11	14	16	16	15	17	14	14	14	14	15	18	17	17	16	15	14	14	14	14	14	14	15	14	14
12	15	14	14	15	15	14	18	14	14	16		17	14	14	14	14	14	15	14	15	14	15	15	20
13	15	15	15	15	14	15	15	14	15	15	17		18	18	16	15	14	15	15	14	15	16	15	14
14		15	14	14	15	14	14	14	15	16	15	15	20	24	14	14	23	15	14	15	15	15	15	14
15	16	15	15	15	14	15	15	14	14	15	33	38	17	18	18	14	14	16	14	14	14	14	14	20
16	18	14	18	15	17	16	18	15	15	15	16	17	16	16		14	14	21		14	15	15	15	15
17	18	15	15	14	15	14	18	14	14	14	16	18	20	18	16	14	22	14	17	14	14	14	14	15
18	14	15	18	14	14	14	14	24	14	15	20	14	21	20	15	14	14	14	14	16	15	15	15	15
19	15	16	14	15	15	14	17	15	15	14	15	15	17	18	18	15	14	15	14	14	15	14	14	14
20	14	14	15	15	14	14	17	14		15	15	17	18	14		15	22	15	15	17	15	15	15	16
21		17	21	15	14	15	17	14	14	15	15	16	16		15	15	14	15	17	15	14	14	15	14
22	14	16	14	16	15	15	17	18	15	15	15	18	15	14	15	14	14	14	15	14	15	15	15	14
23	14	15	14	14	18	18	17	14	15	15	15	15	16	47	14	14	17	18	17	15	15	15	15	15
24	15	14	14	15	14	14	17	14	14	14	14	17	15		14	14	14	14	14	15	14	16	15	14
25	14	16	14	14	14	15	16	14	14	15	15		15	17	16	14	20	14	15	14	23	14	14	15
26	16	15	15	15	14	14	15	14	15	17		18	18	17	14	14	14	15	14	14	14	14	14	15
27	14	14	15	14	15	14	15	15	15	15	15		15	14	15	15	21	14	15	14	15	14	15	14
28	16	14	14		16	14	14	14	14	14	15		14	17	14	16	14	14	14	15	15	14	15	15
29	14	14	14	16	14	15	15	23	14	15	15	15	15	15	15	14	20	15	14	15	15	15	14	14
30	16	15	16	15	15	14	15	14	15	15		17	15	15	14	14	20	14	16	15	15	15	15	14
31	15	15	14	15	15	14	14	17	14	14	15	18	16	15	14	14	20	14	17	14	14	15	15	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	28	31	31	30	31	31	31	31	30	31	28	27	31	29	29	31	31	31	30	31	30	31	31	31
MED	15	15	14	15	14	14	16	14	14	15	15	17	17	16	15	14	14	15	14	14	15	15	15	15
U Q	15	15	15	15	15	15	18	14	15	15	17	18	18	18	16	14	20	16	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

HOURLY VALUES OF foF2 AT Kokubunji

OCT. 2012

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

HOURLY VALUES OF fEs AT Kokubunji

OCT. 2012

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	35	G	G	G	G	G
2	G	G	G	G		G	G	G	G	G	G	51	49	55	50	G	103	28	35	29	G		G	G
3	G	G		G	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
4		G			G	26	G	G	G	G	G	G	59	G	G	G	G	G	G	45	G	G	G	G
5	G	G	G	G	G	G	G	G	G	50	G	G	G	G	G	G	G	G	27	28	G	G	G	
6	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		49	G
7	G	G		G	G	30	34	G	G	43	G	G	47	G	54	G	G	G	G	27		34		33
8	G		G		G	G	G	G	G	56	59	44	G	50	53	66	70	70	G	G	29	G	G	G
9	G	G		G	G	G	G	G	G	G	G	G	G	G	46	G	G	G	G	28	33	28		
10	29	G	G	G	G	G	G	G	G	G	C	C	C	C	C	45	44	36	41	G	26	G		34
11	25		G	G	G		G	G	G	G	G	G	G	G	G	G	45	G	28	27	G	G		G
12	G	G			G	G	G	G	G	G	G	G	G	G	G	G	34	40	45	47	G	28	G	G
13	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	G	G	G
14	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	30	G	33	G	24	24	
15		23	G		G	G	G	G	58	53	46	G	G	G	G	G	G	G	G	G	31			32
16							G	G	G	G	G	G	G	G	G	G	G	29	34		28	29	50	33
17	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	G	G	G	G	G	G	G	G	G		G	G		G
19	G	G			G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	44	35	29	G	G
20	31	G		G	G		G	G	G	G	G	127	G	G	G	G	G	G	29	28	31		26	
21					G			G	G	G	G	G	G	G	G	G	37	35	32	G			50	
22	G	G	G	G			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
23	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	42	23	G	G	G
24	G	G		G	G		G	G	G	G	G	G	52	50	G	G	34	G	G	52		43	G	G
25	G			G	G		G	G	G	G	G	G	G	59	G	G	G	G	G	G	G		34	29
26		31	G	G	G	G	G	G	G	G	G	G	G	63	G	G	G	G	G	G	G	G	G	32
27	31	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	51	G	G	G	G		G		G	
29	G	G	G			G	G	G	G	G	G	G	G	G	G	G	G	G	46	G	G	G	G	G
30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	43	39	29	27	G	G	G
31	G	G		G			G	G	G	G	G	G	G	G	G	38	G	G	G		G	G	26	31
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	26	19	22	22	22	29	31	31	31	30	30	30	30	30	31	31	31	31	27	28	23	25	24
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	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	32	29	27	28	25	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 Kokubunji

OCT. 2012

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	17	17	15	34	14	14	15	18	36	40	45	45	44	43	44	39	34	17	13	15	15	17	17	15
2	17	15	17	18		22	35	37	37	44	45	37	37	37	33	28	14	14	15	15	33		14	33
3	34	17		14	17	13	24	36	39	40	42	52	44	42	40	40	21	28	28	20	42	13	14	20
4		14			15	17	21	14	39	42	44	43	42	43	39	40	34	23	18	14	34	14	15	17
5	20	14	18	14	14	14	37	38	38	47	43	44	45	42	42	22	17	22	17	15	20	17	14	
6	18	15	23		18	14	22	17	38	43	42	44	43	40	43	42	20	21	17	17	18		14	15
7	17	15		21	17	13	14	14	15	43	43	43	43	43	33	54	28	18	20	14		18		15
8	14		17		14	14	21	35	37	21	36	40	45	40	38	34	23	14	14	14	13	18	15	14
9	17	17		15	15	15	31	14	37	43	43	45	47	42	33	37	34	20	14	14	14	14		
10	14	15	17	15	15	14	33	36	33	40	C	C	C	C	C	30	15	13	17	22	29	17		14
11	13		15	20	15		21	33	36	40	40	44	40	44	42	38	20	13	17	13	18	15		15
12	20	15			14	14	20	35	38	40	44	52	43	43	43	40	15	13	17	17	17	14	15	22
13	18	14	14	20		21	22	36	18	42	49	42	44	43	39	39	34	24	14	14	14	17	14	40
14	22	15	14	18		15	20	36	40	42	40	44	44	44	38	40	35	14	14	14	21	21	21	
15		17	14		17	15	40	18	18	35	40	42	40	43	40	38	36	22	14	14	17			14
16							30	18	40	43	43	44	39	40	42	36	39	13	14		14	17	17	14
17	15	18	18	24		20		39	38	42	42	42	44	51	40	37	34	23	15	18	18		21	20
18		17	20	15			23	33	40	39	42	44	43	40	42	39	15	20	15		20	14		14
19	15	14			14	15	20	36	39	40	42	42	40	49	40	38	39	20	13	21	17	14	15	21
20	14	34		17	15		22	34	35	40	42	42	42	40	43	42	33	38	42	17	20		17	
21					14			18	21	43	40	42	43	42	42	38	20	13	17	17			15	
22	14	17	15	33			21	34	18	40	39	50	42	43	40	34	18	21	14	17	14	14	15	
23	18	17	14	17	14	15	20	18	22	42	40	43	39	53	42	37	35	18	14	13	15	14	18	18
24	18	15		14	14		17	34	17	39	43	43	33	36	20	34	13	18	15	17		14	14	14
25	14			13	14		20	18	14	39	40	42	39	31	40	39	29	20	15	14	15		14	14
26		14	18	20	14	14	18	35	37	39	42	42	42	34	42	35	15	15	15	18	17	14	17	15
27	15	21	17	21	17	17	18	37	21	37	40	42	40	44	40	40	18	23	39	18	40	17	14	14
28	15	14	14	14	18	15	17	33	39	40	40	44	42	39	34	36	34	14	15		17		22	
29	14	15	14			21	17	30	37	41	37	43	42	38	36	35	33	17	25	14	21	20	20	15
30	21	14	14	21	17	15	15	21	35	34	39	42	38	39	37	17	34	15	15	14	14	17	17	20
31	14	15		15			14	30	39	39	40	42	42	40	37	18	36	36	34		18	15	14	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	25	26	19	22	22	22	29	31	31	31	30	30	30	30	30	31	31	31	31	27	28	23	25	24
MED	17	15	15	18	15	15	21	33	37	40	42	43	42	42	40	38	29	18	15	15	18	15	15	15
U Q	18	17	18	21	17	17	23	36	39	42	43	44	44	43	42	40	34	22	17	17	20	17	17	20
L Q	14	14	14	15	14	14	17	18	21	39	40	42	40	40	37	34	18	14	14	14	15	14	14	14

HOURLY VALUES OF foF2 AT Yamagawa

OCT. 2012

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

HOURLY VALUES OF fEs AT Yamagawa

OCT. 2012

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	46	51	G	G	G	G	G
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	46	30	G	G
3	G	G	G	G	G	G	G	48	G	G	G	G	G	G	G	G	42	38	48	27	G	G	G	G
4	G	G	G	G	G	G	G	G	G	46	G	G	G	G	44	G	G	37	37	28	G	G	G	G
5	G	G	G	G	G	G	G	30	G	G	48	G	48	49	46	48	45	38	42	21	39	G	36	34
6	G	G	G	G	28	G	G	52	37	44	G	G	G	G	G	G	40	42	38	G	26	G	G	G
7	32	G	G	40	26	G	G	G	G	G	G	43	G	53	G	40	G	G	G	G	32	36	36	28
8	G	G	G	G	G	G	G	G	38	G	G	G	G	G	52	58	48	G	G	G	G	24	G	G
9	G	G	G	G	G	G	G	33	G	G	G	G	44	54	G	G	37	G	G	30	40	G	28	31
10	G	G	G	G	G	G	G	G	G	46	52	G	G	G	G	73	61	53	G	59	45	34	31	32
11	G	G	30	G	G	G	G	G	G	G	G	G	G	56	G	G	G	52	40	53	44	G	G	G
12	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	61	54	65	55	G	35	49	27	G
13	G	G	G	G	G	G	G	33	G	G	G	G	G	G	G	G	G	33	G	G	G	36	40	28
14	29	G	G	G	G	G	G	G	G	45	G	G	G	G	G	G	G	G	G	G	G	G	G	32
15	29	28	26	26	G	G	G	G	G	42	52	43	48	G	G	G	G	G	30	34	52	G	B	28
16	G	G	29	35	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
17	43	G	G	G	G	B	G	G	G	43	G	G	G	G	G	G	G	G	G	G	28	G	G	G
18	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	34	G	34	G	G	G
19	G	G	G	G	G	G	G	G	36	G	G	43	G	G	G	G	G	G	G	G	G	G	G	G
20	G	G	G	G	G	G	G	G	39	43	45	G	G	G	G	52	G	G	58	G	G	G	G	G
21	G	G	G	G	G	B	G	G	38	46	G	G	G	G	G	52	83	G	G	70	28	34	G	G
22	G	G	G	G	G	G	G	34	35	41	G	G	G	G	G	G	42	G	G	G	G	G	G	G
23	G	G	G	G	G	G	G	G	35	41	49	G	G	50	G	41	G	32	G	G	59	24	33	G
24	G	G	G	G	G	G	G	G	G	G	47	G	60	G	59	42	53	77	58	37	G	G	G	G
25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	44	46	44	36	G	G	G	G	G
26	40	B	G	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
27	40	54	29	G	G	G	G	G	G	G	G	G	G	G	G	44	40	30	26	G	G	G	G	G
28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	49	55	40	G	G	G	G	G	30	G
29	G	G	G	G	11	G	G	G	G	G	43	48	G	G	41	G	G	G	G	G	G	G	G	G
30	G	G	G	G	G	G	G	32	G	G	46	G	48	G	G	47	36	33	26	30	G	G	G	G
31	G	G	G	G	G	B	G	G	G	G	G	46	45	46	46	42	36	G	G	G	G	24	30	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	30	31	31	31	26	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	42	43	G	G	G	41	47	42	38	38	29	35	24	28	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 Yamagawa

OCT. 2012

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	18	15	15	15	15	16	17	16	15	22	43	56	48	43	45	35	17	16	15	14	16	15	17	15
2	15	17	15	15	15	15	16	15	18	21	20	32	44	28	22	20	18	18	18	15	14	15	15	15
3	15	15	15	15	15	16	15	23	18	21	22	45	45	45	26	22	16	14	15	16	16	15	15	15
4	15	15	16	15	15	15	15	24	15	17	21	54	56	44	42	38	33	15	15	15	16	15	17	15
5	18	15	17	14	15	14	15	15	15	18	35	26	34	34	30	20	17	15	15	17	15	21	14	14
6	14	15	15	17	16	15	15	20	15	21	21	20	18	43	23	21	16	15	15	15	17	15	16	18
7	14	16	18	15	15	18	15	23	20	35	35	22	20	35	46	40	18	23	17	14	15	14	15	15
8	17	23	26	17	16	66	15	14	14	16	42	52	43	39	35	20	18	15	16	15	15	15	27	16
9	15	15	15	15	23	15	15	16	15	20	38	50	35	36	43	21	28	26	16	14	14	15	15	15
10	15	21	17	15	17	15	15	15	15	30	34	39	42	39	51	20	16	15	16	14	15	15	15	14
11	16	16	15	17	15	15	15	15	17	22	26	27	27	27	28	22	16	17	14	14	15	15	27	15
12	26	18	21	15	16	15	14	21	22	23	39	43	50	44	27	33	17	15	15	17	15	15	15	16
13	16	17	14	17	16	21	15	17	16	34	41	44	40	23	43	18	20	15	15	15	16	17	14	15
14	16	21	15	16	17	21	15	22	15	17	23	47	48	45	20	18	14	23	15	15	15	15	16	15
15	14	14	18	14	17	15	15	22	14	21	28	29	29	52	26	18	17	26	14	15	15	22	B	15
16	24	16	15	14	18	B	15	22	17	20	21	18	22	50	18	22	18	14	15	15	17	17	20	27
17	17	18	16	15	15	B	15	22	15	18	24	32	42	29	43	36	16	23	14	16	14	16	16	15
18	16	17	16	15	15	20	14	24	17	18	40	44	28	28	27	27	18	14	14	14	17	20	18	15
19	66	16	18	15	14	15	15	23	17	20	44	45	46	28	21	38	18	27	15	16	23	17	15	15
20	15	15	20	15	15	15	15	18	16	21	29	27	48	41	42	34	21	16	15	15	15	15	14	15
21	15	15	16	18	17	B	14	14	16	22	27	62	47	54	48	26	17	23	17	17	16	14	15	16
22	16	17	18	27	16	22	17	18	17	18	22	27	44	54	44	22	20	14	15	15	15	15	15	15
23	18	16	15	15	15	18	15	16	15	18	21	27	28	35	26	21	17	16	17	14	17	15	15	15
24	15	21	15	14	16	15	15	22	15	17	24	41	28	29	29	22	17	16	16	15	15	16	15	16
25	15	17	16	15	16	15	15	22	15	18	24	38	36	50	44	23	17	14	16	16	16	17	22	16
26	15	B	16	18	15	B	16	24	16	35	41	42	27	38	23	20	18	21	17	15	16	17	16	16
27	17	15	14	18	16	17	18	22	16	20	24	20	22	18	17	18	17	15	17	16	17	15	15	15
28	18	15	16	15	14	21	18	22	15	16	18	44	43	40	34	20	17	23	17	17	17	16	14	15
29	15	15	15	15	16	20	18	22	15	16	21	26	27	27	26	21	14	26	15	14	16	16	15	15
30	15	15	15	16	15	66	66	16	15	20	18	24	33	32	20	18	17	14	15	15	17	17	15	16
31	15	15	15	15	15	B	18	15	15	16	20	20	21	32	23	21	17	21	15	15	15	15	15	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	30	31	31	31	26	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31
MED	15	16	16	15	15	16	15	21	15	20	24	38	36	38	28	21	17	16	15	15	16	15	15	15
U Q	17	17	17	17	16	20	16	22	17	22	38	45	45	44	43	27	18	23	16	16	17	17	16	16
L Q	15	15	15	15	15	15	15	16	15	18	21	26	27	29	23	20	17	15	15	14	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

OCT. 2012

LAT. 26°41.0′N LON. 128°09.0′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	74	72	66	62	46	47	52	81	101	105	108	130	144	152	144	143	142	131	110	87	73	67	73	52
2	52	53	52	52	54	47	51	88	108	105	110	106	116	127	140	145	144	131	120	109	110	89	64	N
3	52	84	62	47	43	42	52	67	76	95	106	104	110	126	140	145	145	146	N	131	131	108	106	86
4	82	67	52	58	52	50	47	76	75	84	101	115	132	143	144	140	143	139	143	132	104	83	78	55
5	52	50	52	54	46	40	43	67	75	92	84	90	117	122	130	143	131	124	127	108	79	54	51	58
6	52	52	53	52	48	46	40	67	85	90	88	90	102	107	117	117	108	110	102	81	66	54	60	53
7	52	53	51	50	48	47	47	77	77	87	116	108	110	120	124	131	131	126	118	106	87	54	63	53
8	47	42	43	52	B	B		76	93	88	82	82	97	108	131	131	108	105	107	88	104	74	53	48
9	47	47	42	36	34	34	40	78	102	122	94	100	86	111	132	117	102	110	88	53	72	46	A	46
10	A	46	47	47	45	44	40	66	78	71	83	110	108	118	142	142	142	134	120	108	87	77	A	A
11		42	47	37	B	29	32	64	81	81	C 51	105	105	118	130	131	121	124	105	80	73	71	65	A
12	56	52	C	51	52	46	B	69	72	82	102	107	110	N	145	132	126	130	107	86	78	54	66	63
13	49	52	52	44	40	37	37	66	91	96	105	112	123	131	142	127	117	110	107	88	77	76	76	58
14	67	52	52	53	32	B	44	80	92	111	108	121	130	120	123	129	125	97	88	88	52	54	43	42
15	43	50	44	N	31	B	34	76	88	96	114	127	131	140	142	144	131	120	107	86	53	51	47	42
16	41	47		37	B	B		71	88	102	117	130	137	144	N	153	148	129	110	107	81	78	66	52
17	53	47	46	57		B		67	87	105	115	127	129	142	148	130	130	118	106	87	76	76	54	54
18	48	45	49	53	34	N	31	72	85	83	100	104	108	134	137	131	134	127	118	88	80	87	87	84
19	52	67	62	73	62	38	B	61	82	88	98	117	123	137	143	150	145	134	N	108	88	104	104	87
20	N	67	63	75	72	34	32	72	92	90	102	115	135	140	149	142	142	132	121	108	121	120	104	86
21	87	100	78	64	37	29	30	67	87	96	111	120	122	130	132	140	142	130	108	106	87	87	77	66
22	67	78	42	34	B	B	32	72	99	102	102	106	115	130	135	142	134	131	120	119	107	106	83	54
23	50	47	42	40	38	B	34	74	79	81	106	105	107	120	110	123	123	110	108	103	86	89	83	63
24	53	53	48	50	43	31	38	81	89	106	124	120	116	134	147	144	142	143	130	110	130	107	87	54
25	53	50	44	44	42	31	34	73	90	101	118	128	118	131	144	144	143	144	143	122	130	130	108	77
26	53	47	43	45	58	31	28	66	84	86	110	130	121	131	147	142	144	144	N	132	108	105	84	54
27	52	53	50	A	53	34	B	67	87	92	126	134	121	134	147	134	128	117	108	88	88	101	80	62
28	50	52	48	56	32	B		63	89	90	110	119	114	127	143	130	120	107	89	87	72	78	66	52
29	62	52	44	42	B	B	B	65	80	116	111	120	125	136	141	133	120	123	121	89	87	104	87	66
30	52	63	44	49	42	N	N	54	87	99	119	120	117	132	142	136	111	101	88	84	71	82	54	48
31	44	47	52	58	40	B		62	81	80	102	111	118	136	132	147	134	118	86	72	79	81	55	51
	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	29	29	25	19	21	31	31	31	31	31	31	30	30	31	31	31	28	31	31	31	29	28
MED	52	52	49	51	43	38	38	69	87	92	106	115	117	131	142	140	131	126	108	89	86	81	73	54
U Q	54	63	52	56	52	46	45	76	91	102	114	121	125	136	144	144	142	132	120	108	104	104	85	64
L Q	49	47	44	44	37	31	32	66	80	86	100	105	110	120	132	131	121	110	105	87	73	67	57	52

HOURLY VALUES OF fEs AT Okinawa

OCT. 2012

LAT. 26°41.0′N LON. 128°09.0′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	44	39	46	30	G	G	G	G
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	32	70	34	46	28	G
3	G	G	G	G	G	G	G	G	G	G	G	45	48	G	G	44	64	54	G	46	54	30	G	G
4	G	G	G	G	G	G	G	G	39	G	G	G	G	G	G	G	G	G	26	34	11	G	G	27
5	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
6	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	39	G	33	G	G	G	G
7	G	G	G	G	G	G	G	G	39	G	51	56	52	G	G	G	G	G	G	G	G	G	G	33
8	G	G	28	G	B	B	G	G	37	42	G	G	G	G	G	51	57	55	47	41	G	G	G	31
9	24	28	G	G	G	G	G	36	G	42	G	G	G	G	G	G	G	G	G	50	59	37	40	24
10	26	G	24	G	G	G	G	47	38	44	G	50	54	48	G	G	G	G	G	19	26	24	39	32
11	G	27	G	G	B	G	G	32	G	G	G	46	G	G	G	67	60	55	54	44	45	60	40	34
12	30	G	C	G	G	G	B	G	G	G	G	G	G	G	G	51	58	62	G	33	26	25	28	34
13	G	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	25	35	40	G	G	G
14	28	29	25	G	24	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
15	G	24	G	G	G	B	G	G	G	G	44	G	79	58	G	G	G	38	38	G	G	G	G	G
16	G	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	27	33	G	G	G
17	G	G	G	G	G	B	G	G	G	G	48	G	G	G	G	G	G	G	G	33	G	G	G	G
18	G	G	G	G	11	G	G	G	G	G	G	51	G	52	G	52	48	46	33	25	G	G	G	G
19	G	G	G	G	G	38	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	G	G
20	G	G	G	G	G	G	G	46	40	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
21	G	G	G	G	26	G	G	G	G	G	43	G	49	G	G	G	G	G	G	G	G	G	G	G
22	G	G	G	G	B	B	G	34	G	G	G	G	G	G	G	G	G	G	G	47	G	25	G	G
23	G	G	G	G	G	B	G	G	G	43	60	54	69	52	G	54	G	G	G	51	25	G	G	27
24	G	G	G	G	G	G	G	G	36	G	47	G	G	51	50	51	48	32	G	86	40	25	G	G
25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	G	44	40	29	G	G	G	G
26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
27	G	G	39	32	G	G	B	G	G	G	G	G	G	G	52	48	42	G	G	G	G	G	G	G
28	G	G	G	G	G	B	G	G	G	G	G	G	48	G	G	52	37	G	G	G	28	G	G	G
29	26	27	G	G	B	B	B	G	G	G	G	G	50	G	44	G	G	G	G	G	G	G	G	G
30	G	G	G	G	G	G	G	G	G	G	45	59	52	G	52	46	G	G	G	26	28	G	G	27
31	G	G	G	G	G	B	G	G	G	G	48	G	48	G	G	G	39	G	11	G	G	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	30	31	26	21	27	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	G	G	27	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	43	G	48	G	G	48	42	39	26	41	28	25	G	27
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

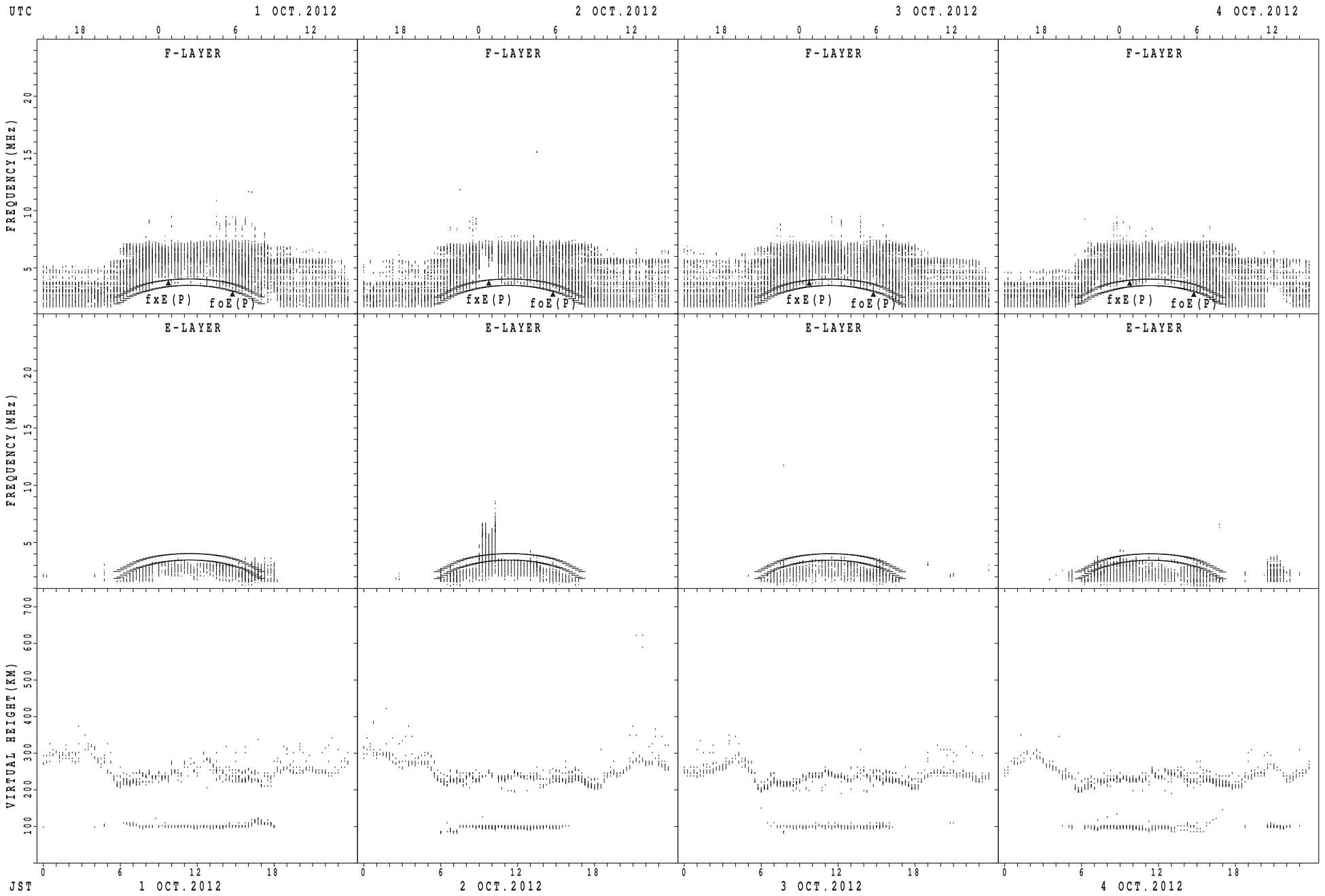
HOURLY VALUES OF fmin AT Okinawa

OCT. 2012

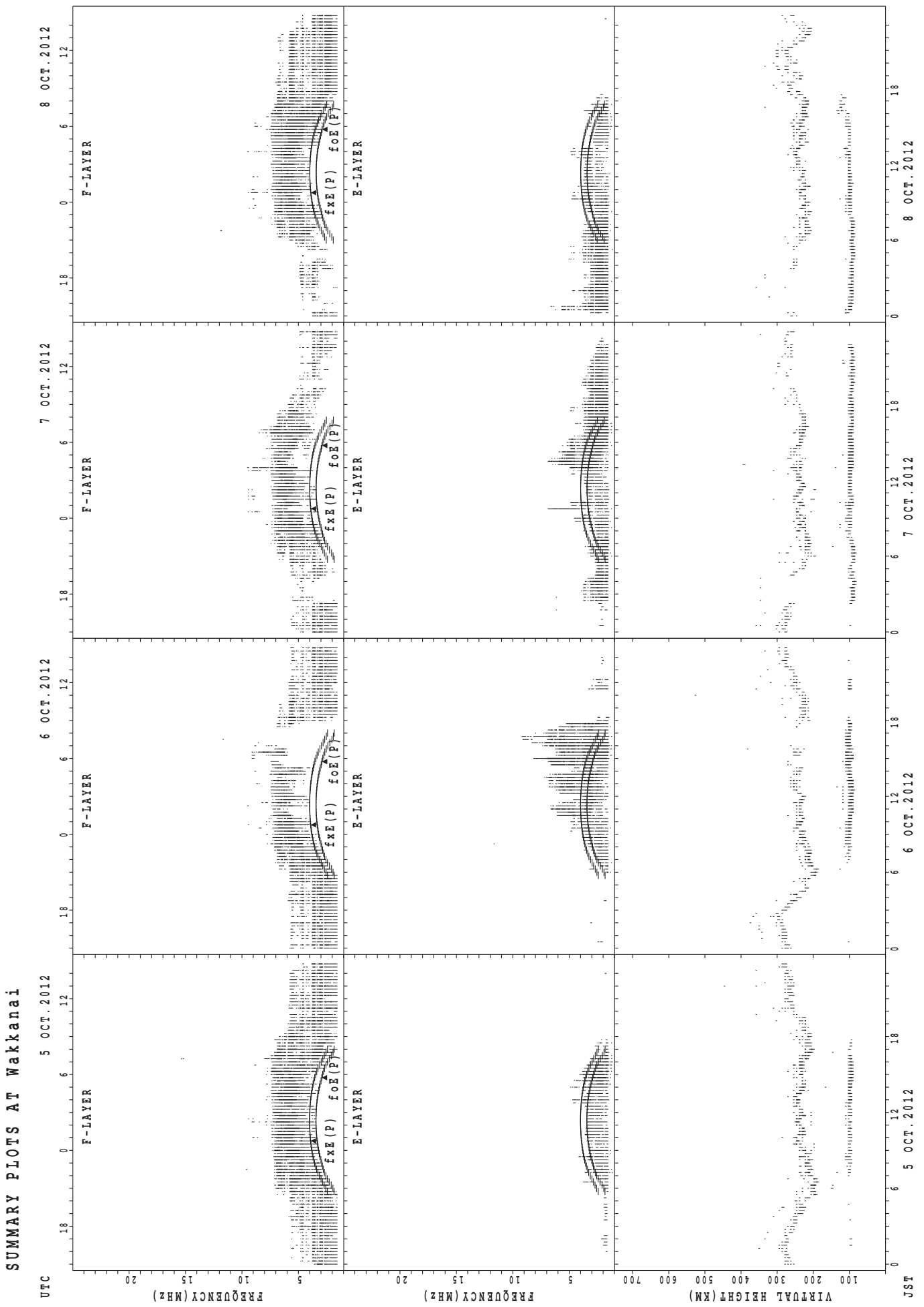
LAT. 26°41.0′N LON. 128°09.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

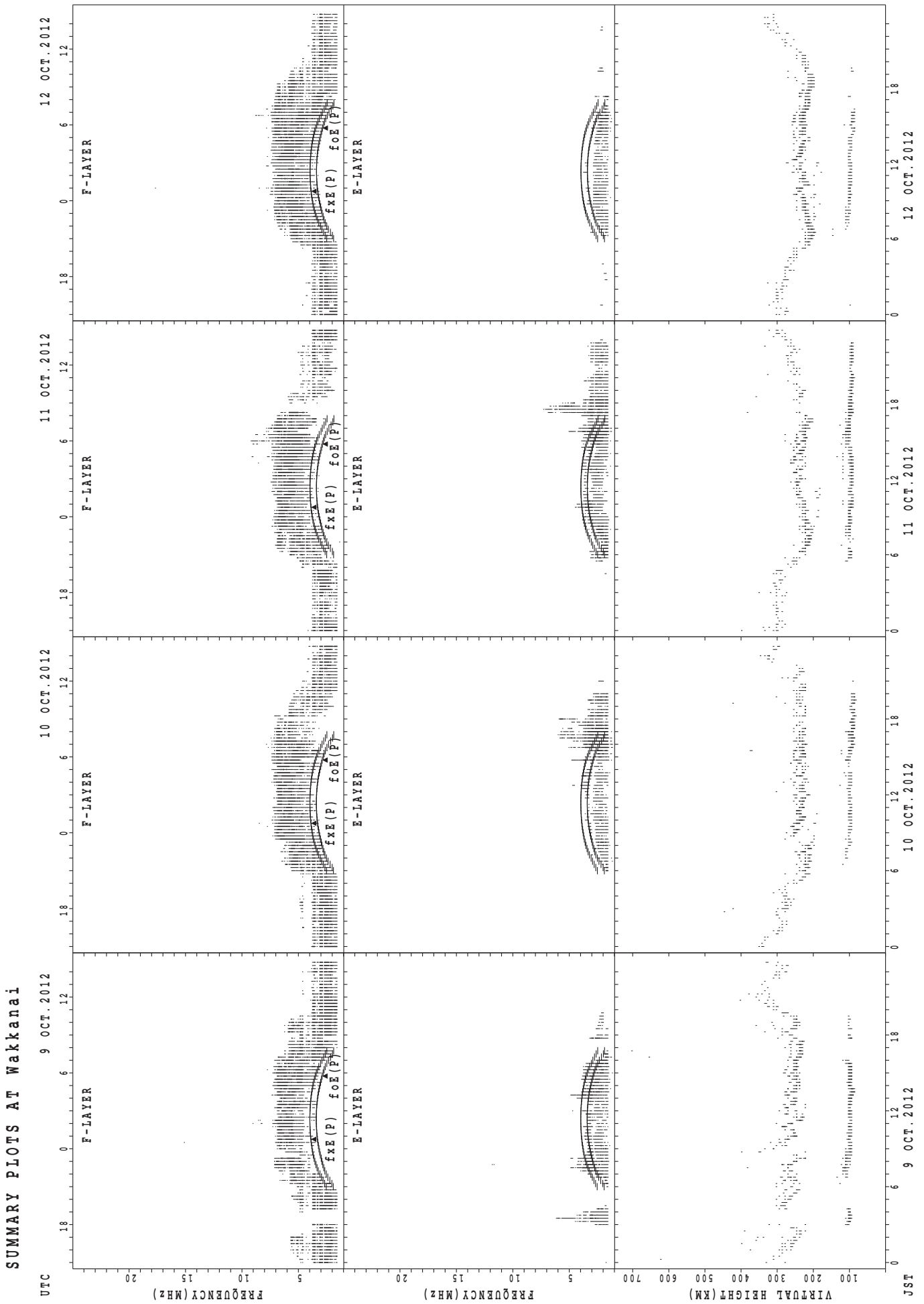
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	17	16	17	15	16	21	15	16	30	39	50	48	52	44	45	42	20	17	15	14	16	18	17	17
2	20	18	18	16	16	16	16	15	18	28	42	42	48	52	43	40	20	15	15	15	16	15	14	17
3	15	15	14	16	18	15	15	24	17	21	45	46	24	24	21	22	20	14	15	14	15	16	15	15
4	16	15	14	15	15	15	15	27	18	17	43	41	45	47	44	40	38	39	18	16	16	15	21	15
5	15	21	18	17	18	16	14	18	22	21	39	45	46	44	50	43	39	15	17	15	16	15	18	16
6	18	15	17	16	18	17	14	23	16	20	40	45	46	52	40	39	32	18	18	14	17	16	18	20
7	38	20	21	15	17	16	15	23	18	22	38	36	38	54	42	40	21	15	18	15	15	15	15	15
8	17	21	16	18	B	B	17	22	20	29	42	43	42	43	43	34	20	22	15	14	17	18	17	15
9	16	15	17	18	18	16	15	18	20	39	39	42	42	46	43	42	18	24	21	14	15	15	15	14
10	15	20	14	14	15	20	15	22	17	30	40	38	40	40	53	38	34	27	18	15	15	15	15	16
11	66	15	15	16	B	16	18	24	20	42	C 15	30	45	51	29	28	22	16	15	14	15	16	16	14
12	18	16	C	22	20	17	B	21	29	37	44	42	52	52	42	34	21	15	17	15	16	15	17	15
13	15	16	17	15	15	15	15	23	18	36	40	42	45	40	43	39	18	17	14	16	15	15	16	15
14	15	14	15	16	15	B	15	23	15	40	40	43	52	42	39	42	20	15	17	15	15	16	15	15
15	15	15	15	14	15	B	15	23	20	38	30	32	30	28	40	40	16	15	14	15	15	16	16	17
16	17	14	66	14	B	B	18	23	20	38	42	42	50	48	42	28	21	15	21	16	16	17	21	28
17	20	20	20	17	22	B	66	23	18	22	32	48	50	45	42	39	29	27	22	15	18	16	15	18
18	17	15	17	15	16	17	17	23	16	21	42	36	43	33	41	27	20	17	15	14	15	18	17	18
19	20	15	15	17	15	17	B	26	18	40	40	46	44	41	44	43	20	24	16	17	17	15	16	15
20	17	17	16	16	17	15	18	18	17	38	42	45	49	51	40	39	22	23	18	15	14	21	36	20
21	18	20	21	15	16	21	20	18	18	21	43	47	55	46	44	42	21	24	17	18	15	17	15	16
22	15	18	15	20	B	B	16	23	30	21	40	43	48	48	49	42	21	16	17	16	18	16	16	22
23	17	18	15	16	15	B	16	22	18	21	30	32	38	40	46	20	40	27	20	16	18	15	16	18
24	22	18	16	16	15	15	15	22	15	38	32	43	42	36	35	29	20	16	18	15	14	15	14	15
25	16	15	17	16	16	17	16	22	18	34	40	42	40	48	43	28	18	16	14	16	16	20	15	15
26	15	16	16	18	15	16	20	23	30	36	40	43	40	44	41	26	20	16	18	18	17	15	16	15
27	15	15	17	14	17	21	B	23	17	20	39	50	42	51	39	28	22	23	17	16	15	18	16	15
28	17	15	17	14	17	B	66	27	15	18	18	46	42	42	41	20	20	27	15	16	16	15	15	37
29	17	17	16	15	B	B	B	21	18	20	38	40	40	40	28	21	18	22	16	16	15	18	15	15
30	15	17	15	16	15	16	18	17	16	17	22	35	38	42	30	18	18	14	17	15	15	15	17	14
31	16	15	16	15	15	B	17	20	17	20	22	23	35	43	40	29	18	22	14	15	15	15	15	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	30	31	26	21	27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	17	16	16	16	16	16	16	23	18	28	40	42	43	44	42	38	20	17	17	15	15	16	16	15
U Q	18	18	17	17	17	17	18	23	20	38	42	45	48	48	44	40	22	24	18	16	16	17	17	18
L Q	15	15	15	15	15	15	15	20	17	21	32	38	40	40	40	28	20	15	15	15	15	15	15	15

SUMMARY PLOTS AT Wakkanai

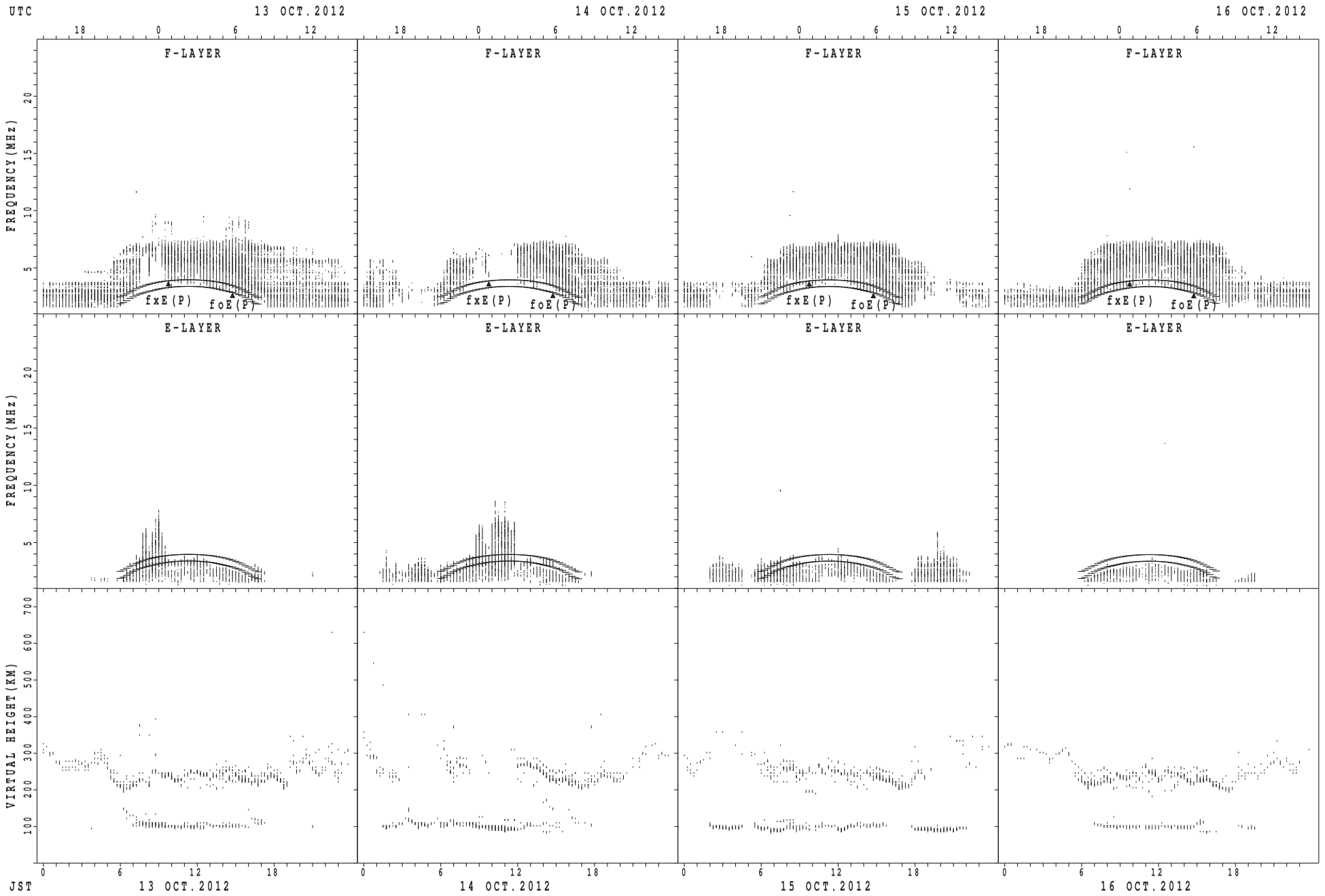


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
5 OCT.2012
6 OCT.2012
7 OCT.2012
8 OCT.2012
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

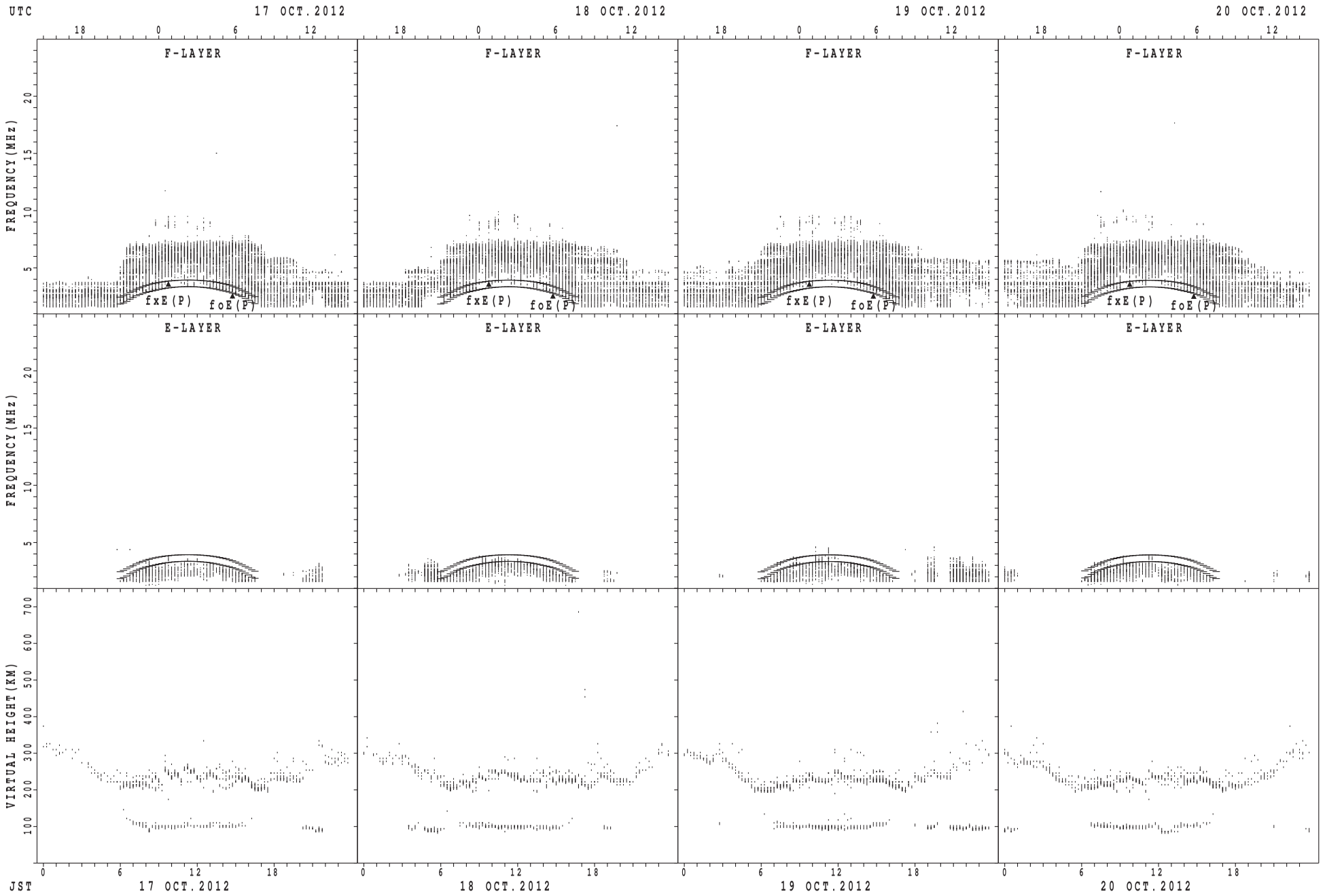

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 OCT.2012
10 OCT.2012
11 OCT.2012
12 OCT.2012
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

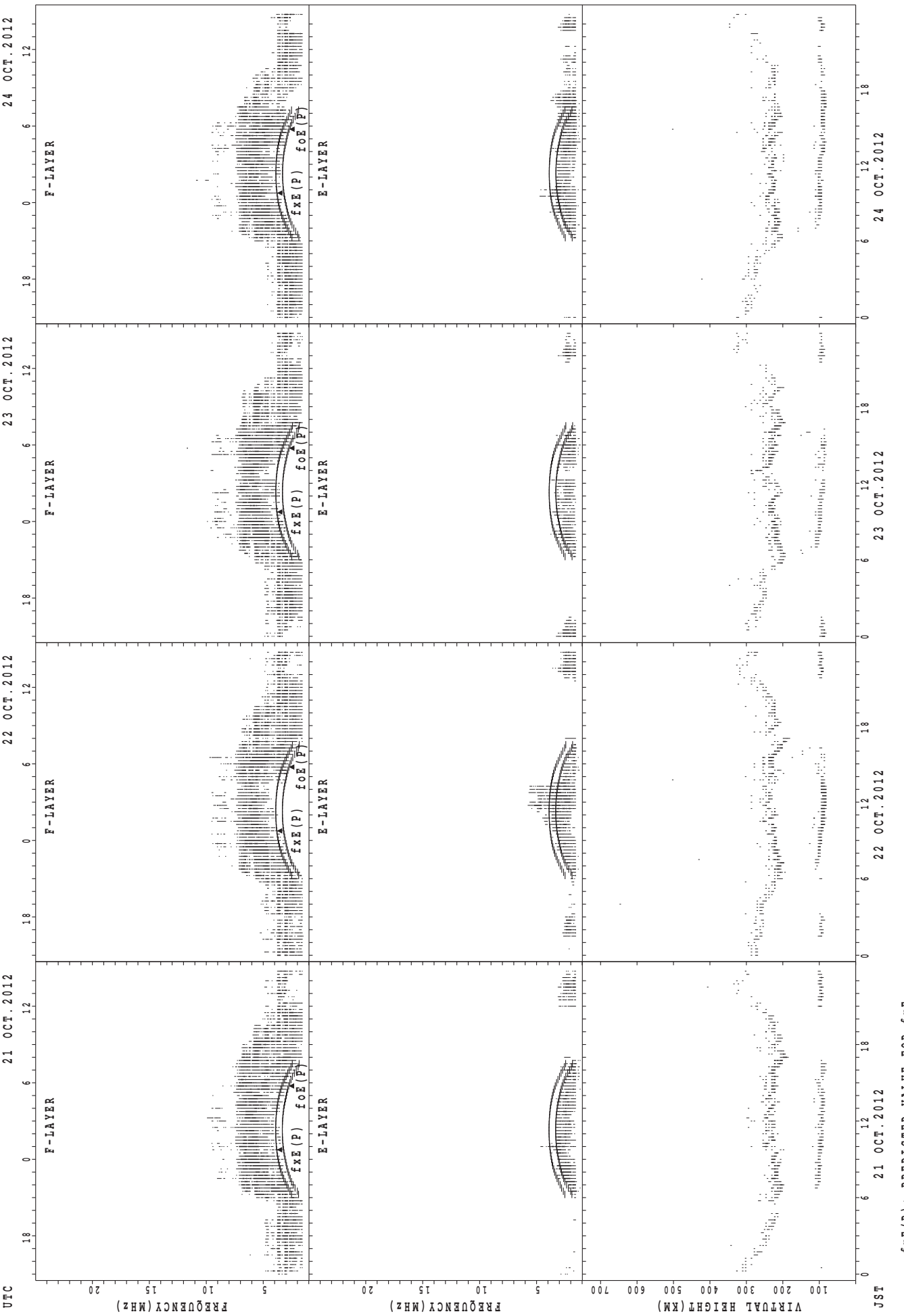


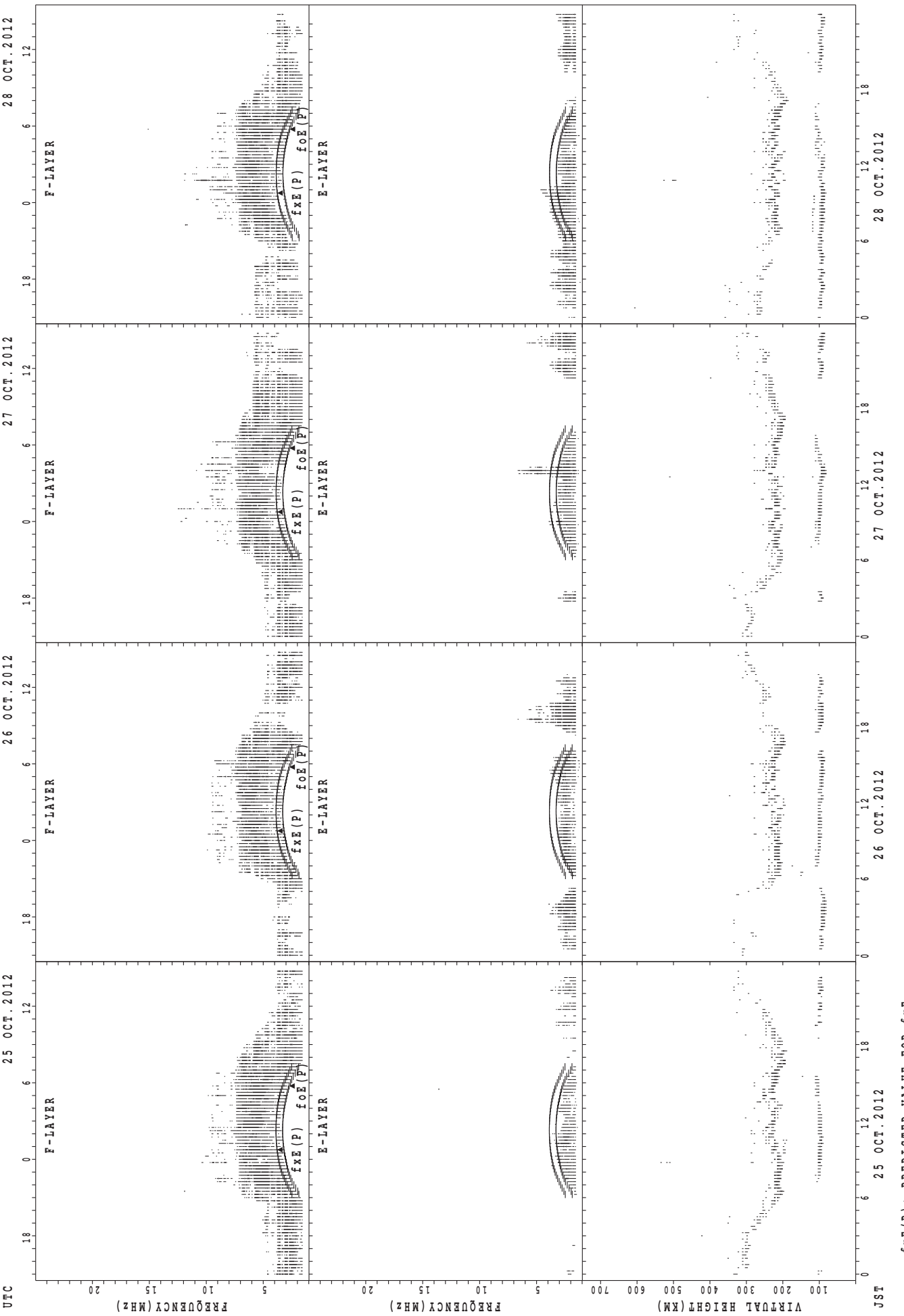
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

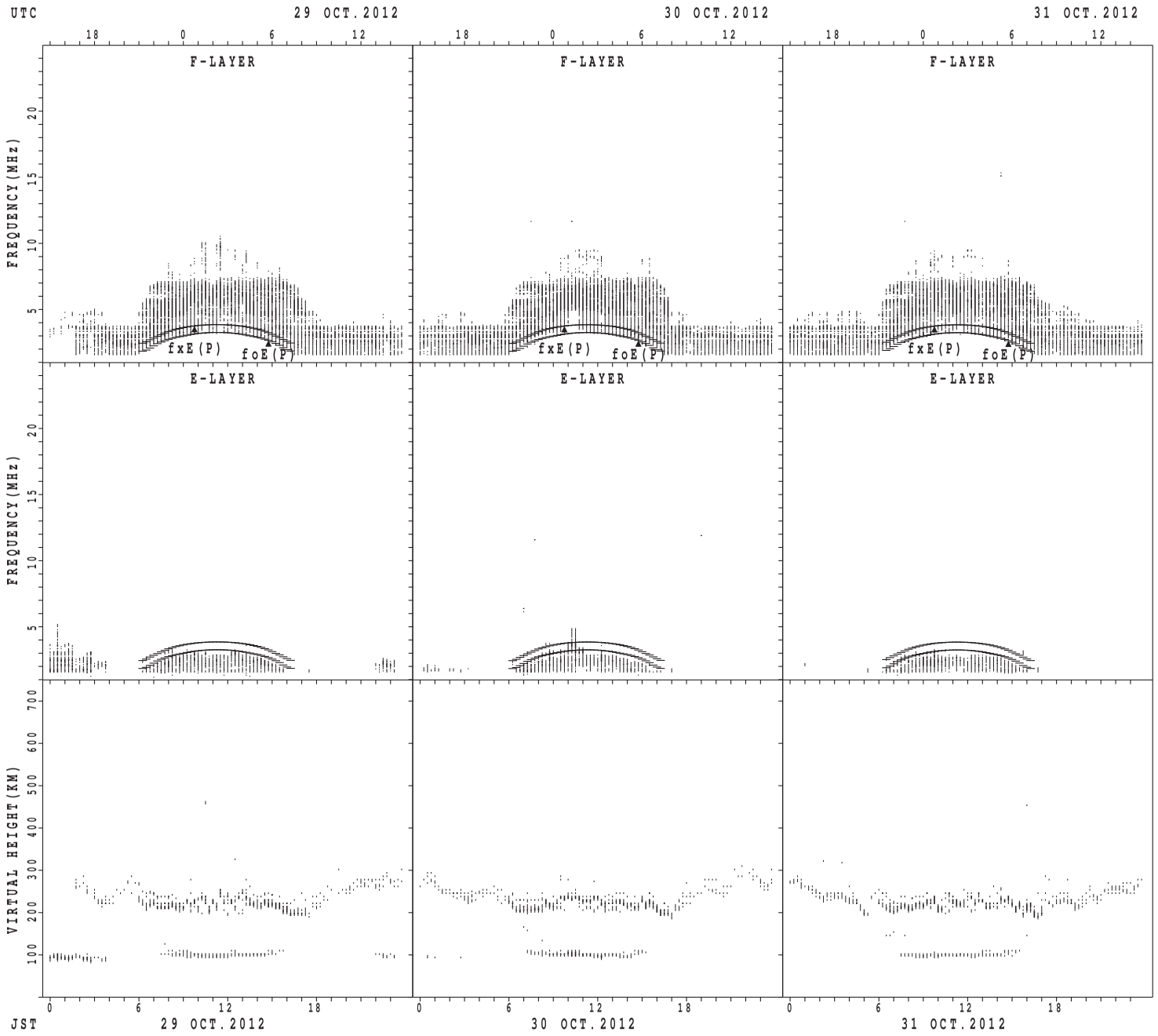


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
21 OCT.2012
22 OCT.2012
23 OCT.2012
24 OCT.2012
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

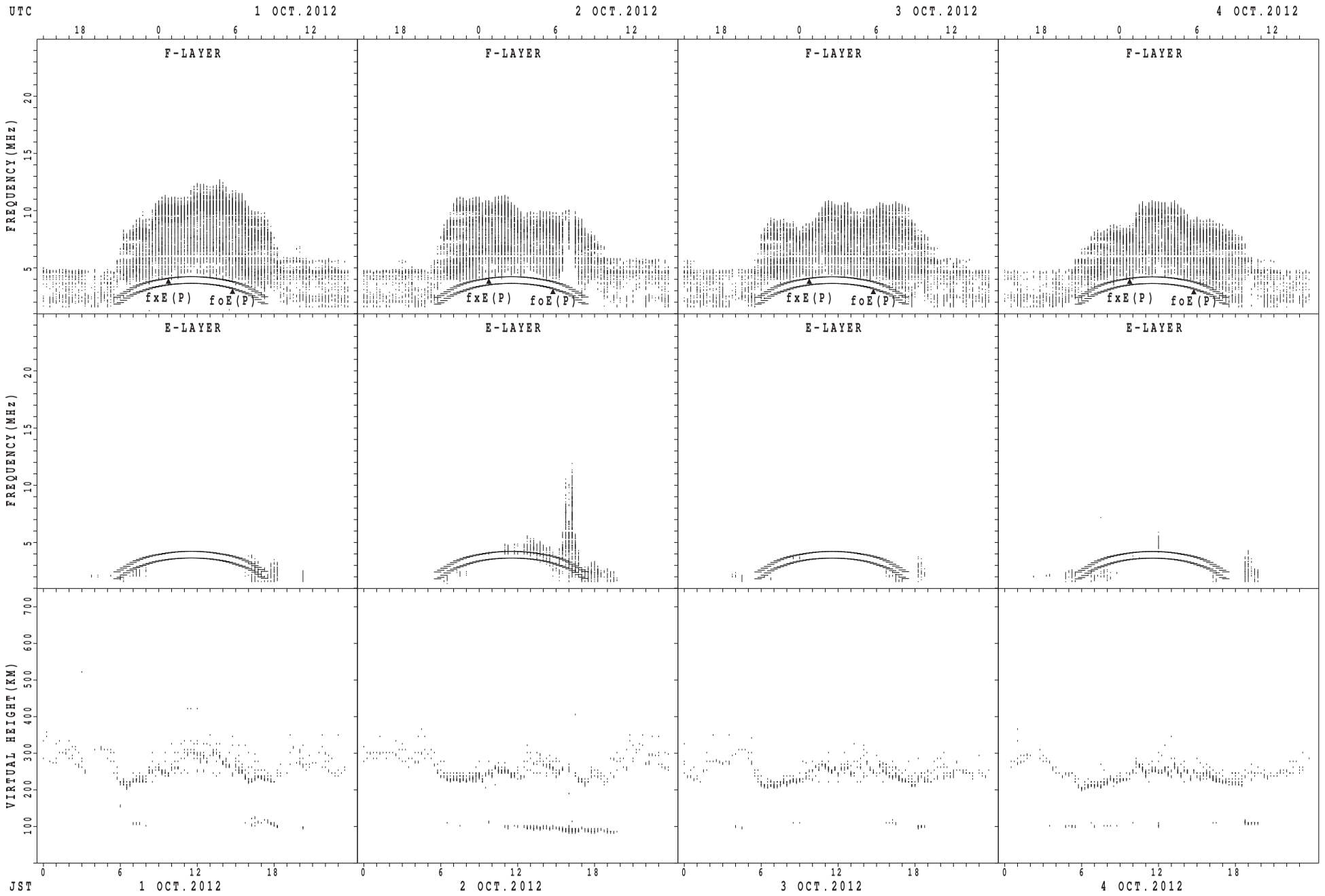

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 OCT.2012
26 OCT.2012
27 OCT.2012
28 OCT.2012
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



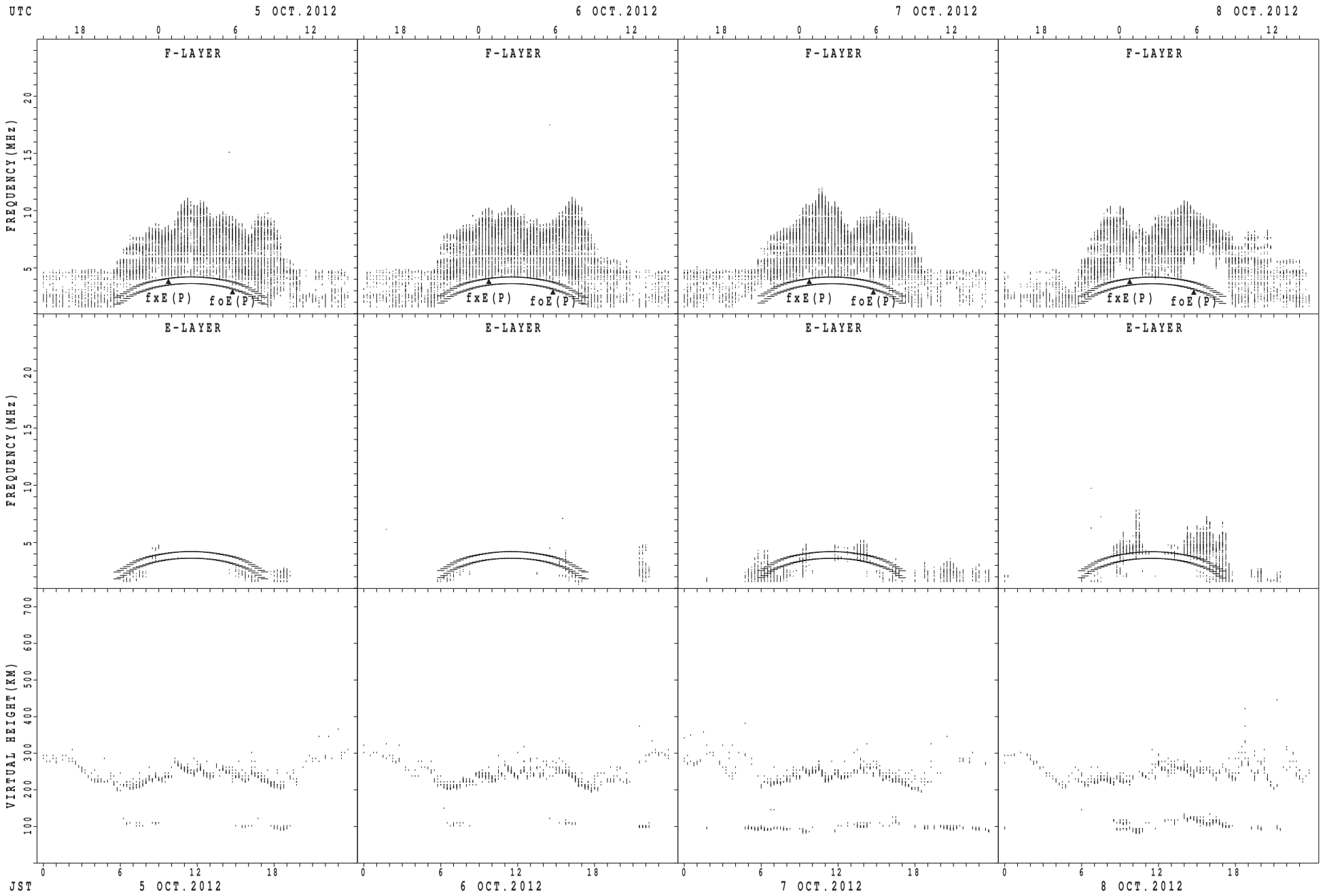
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



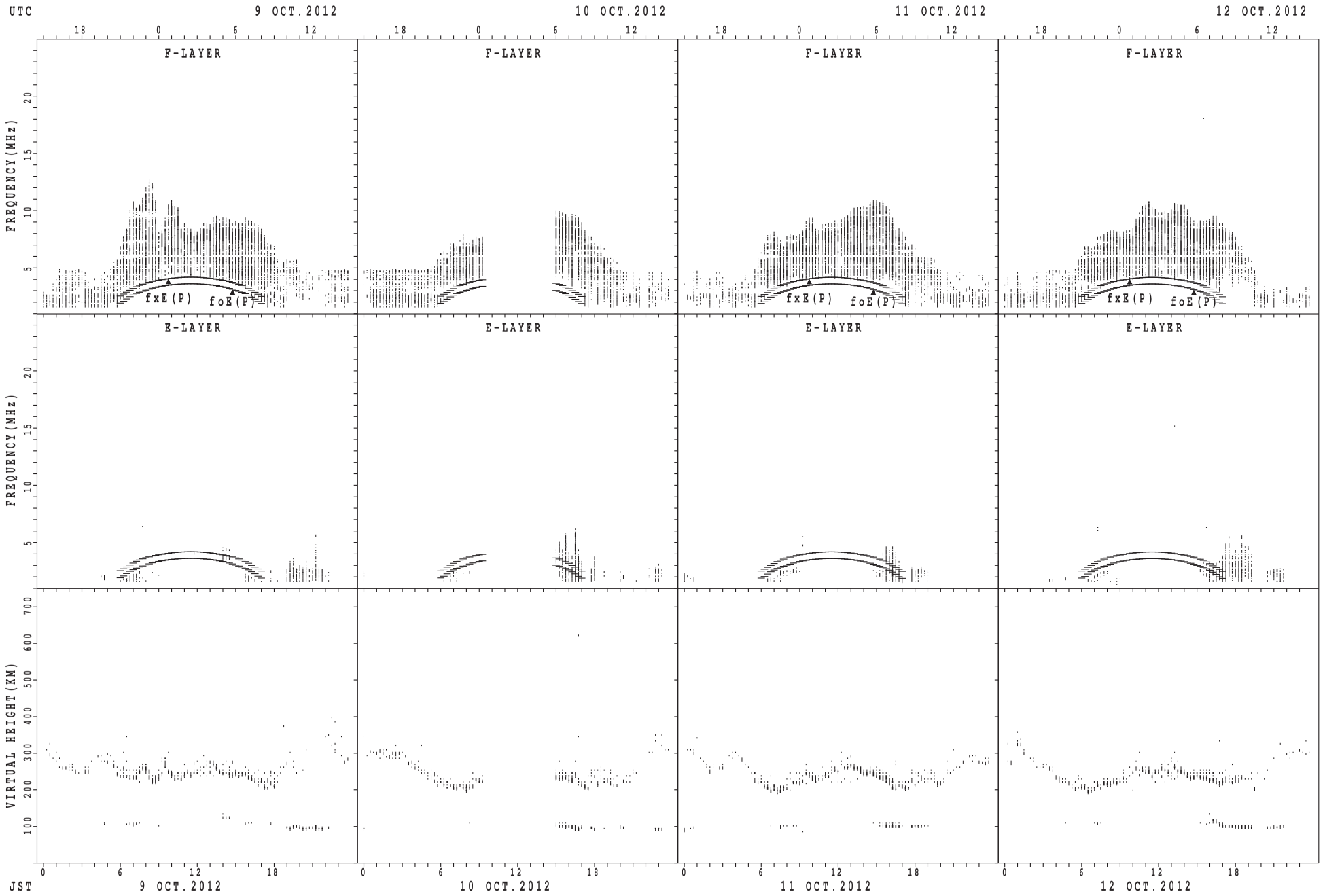
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



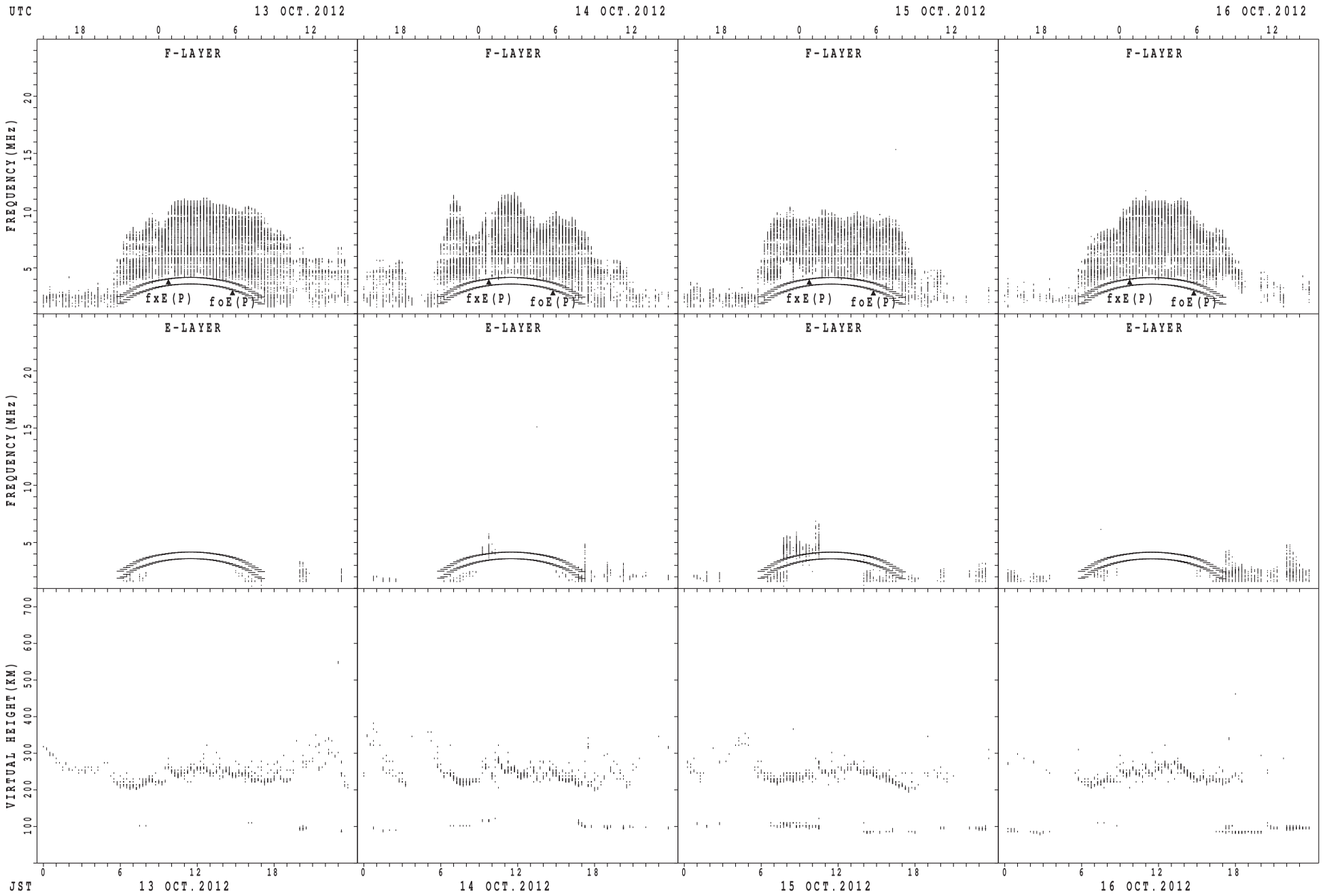
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



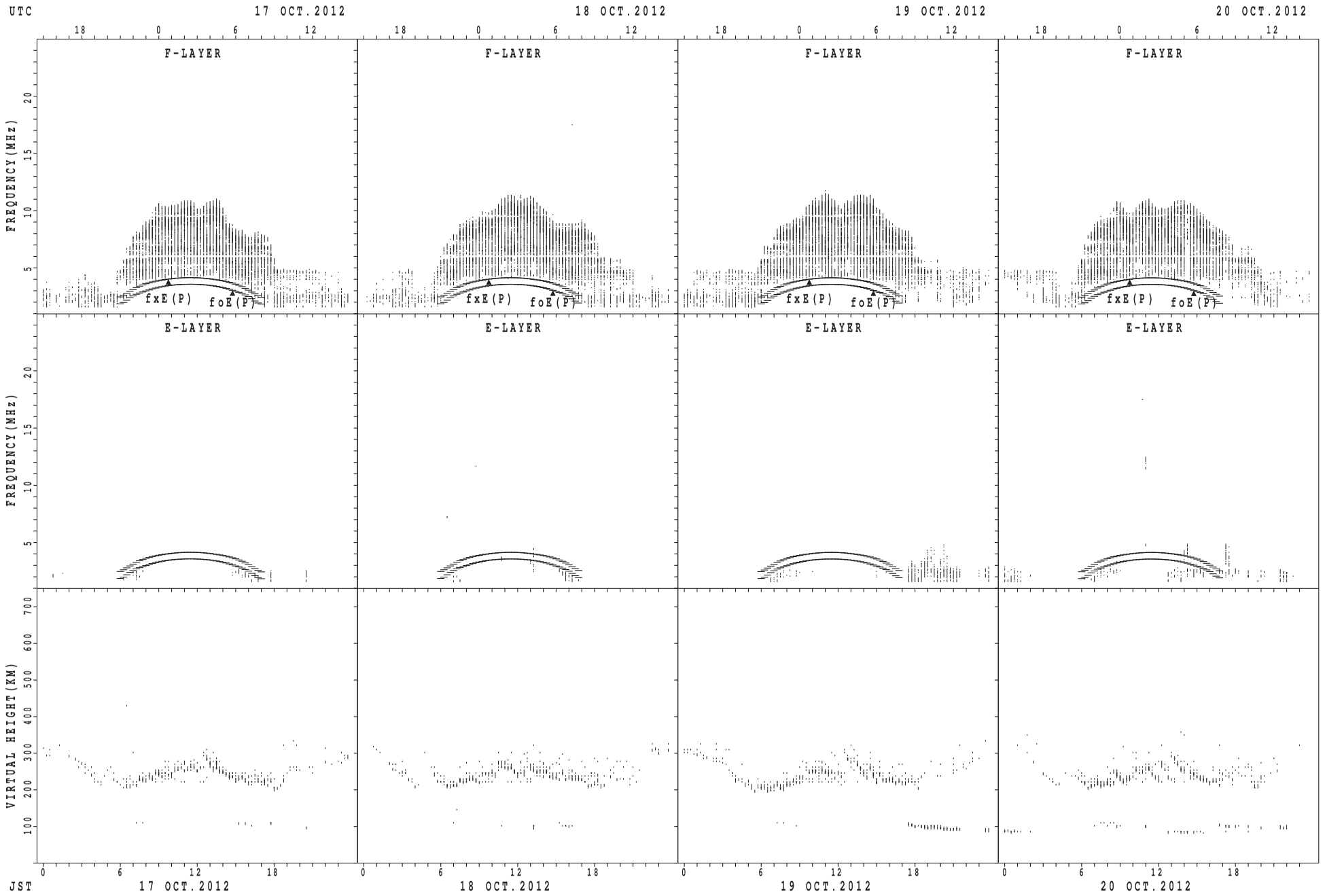
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



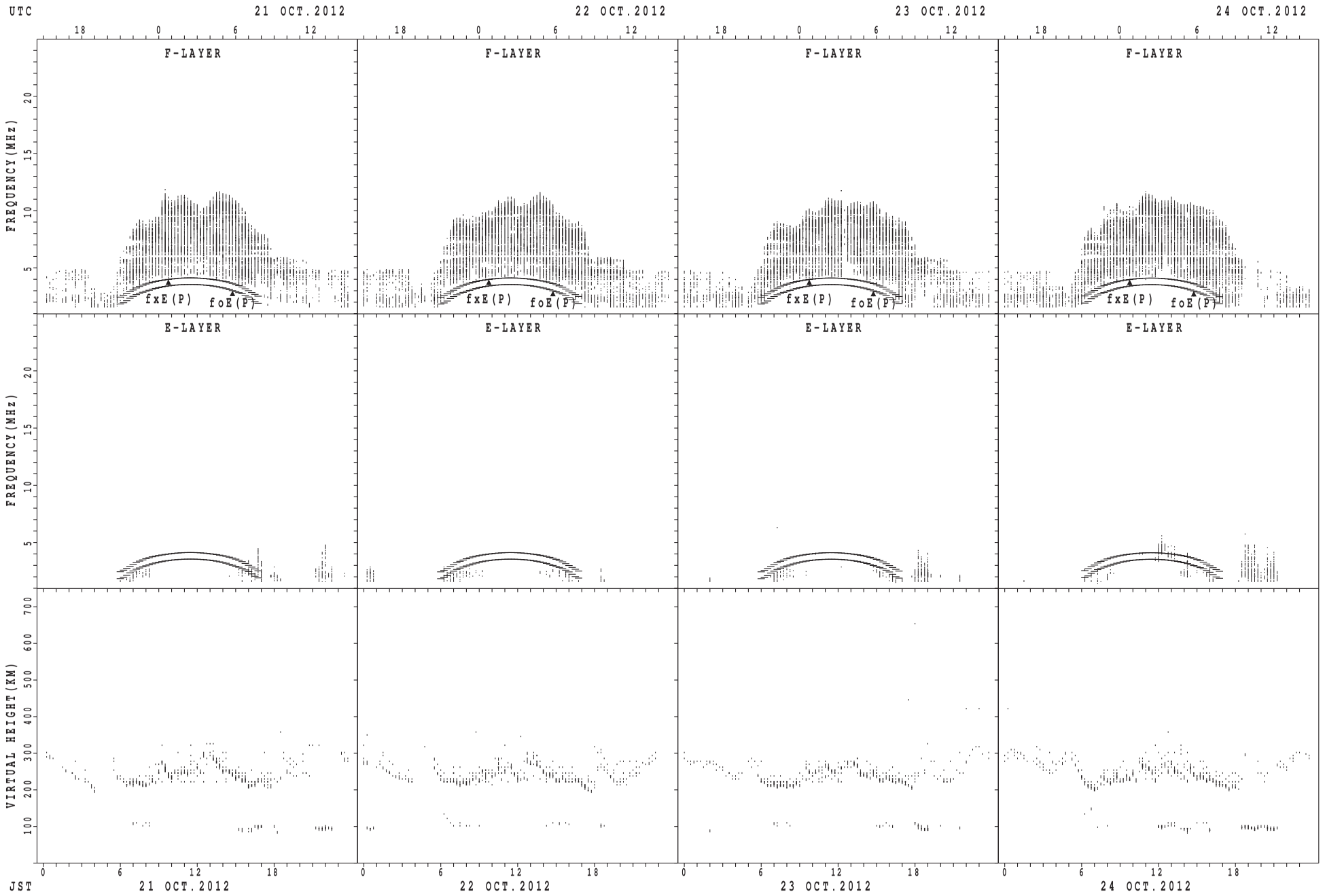
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



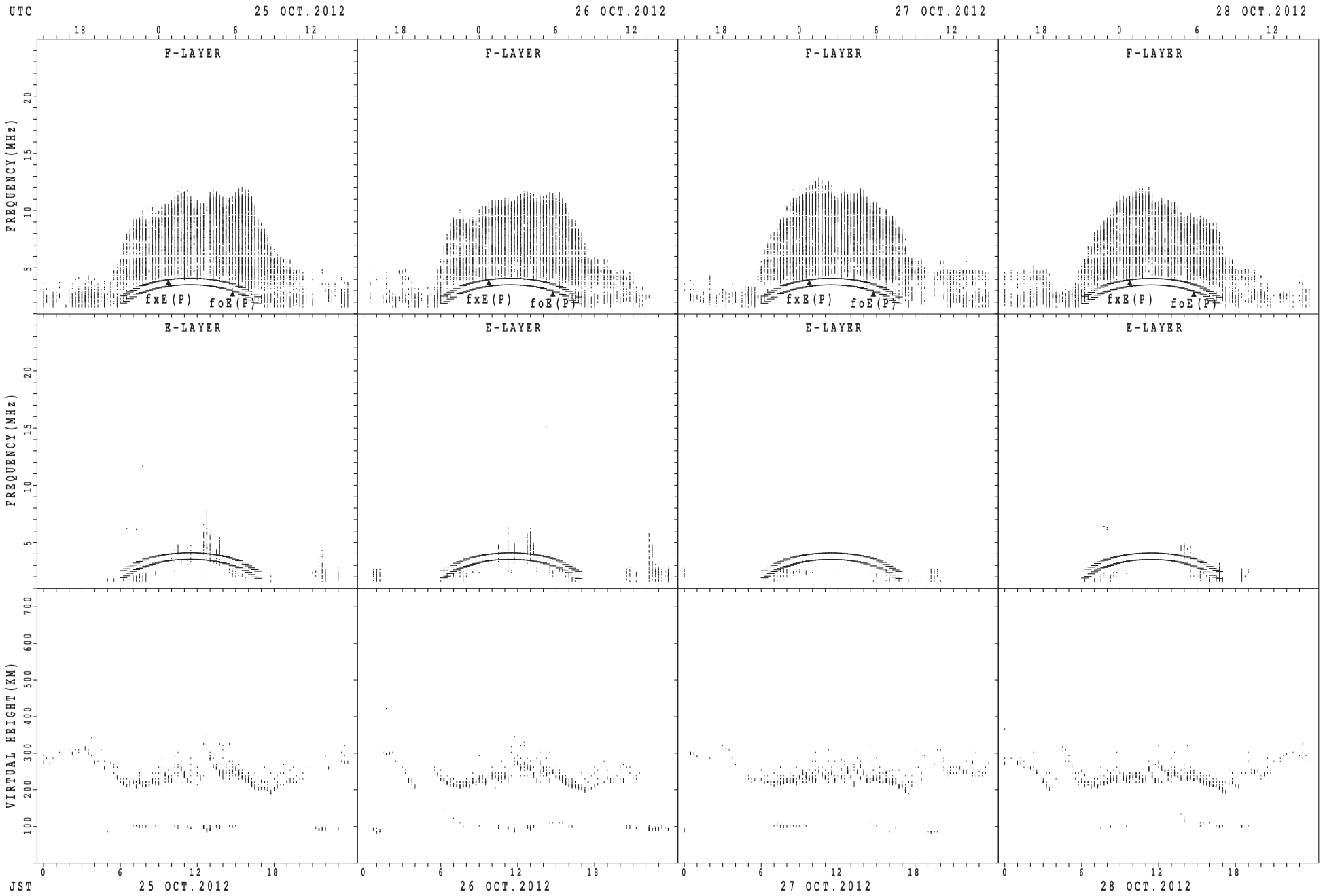
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



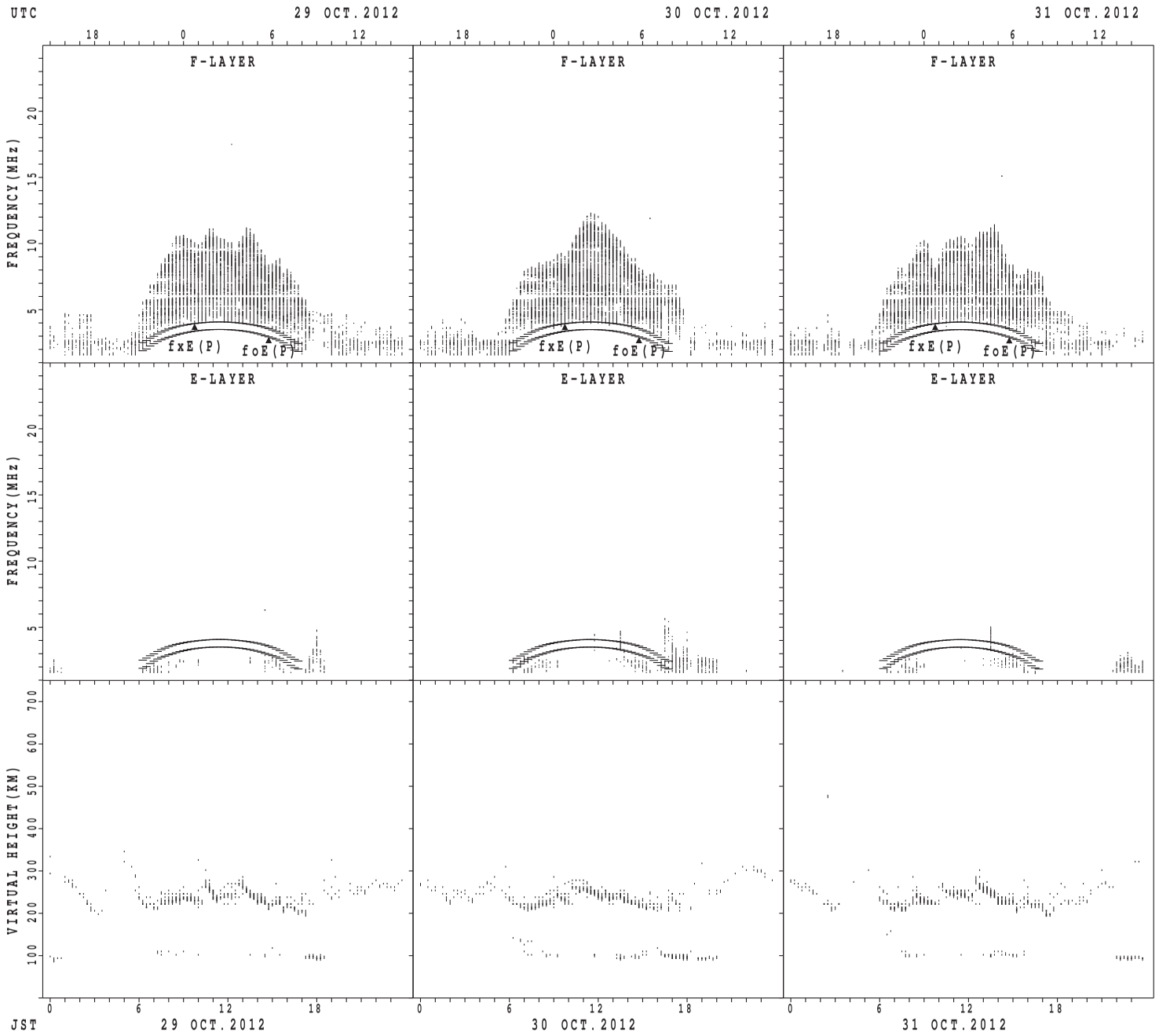
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



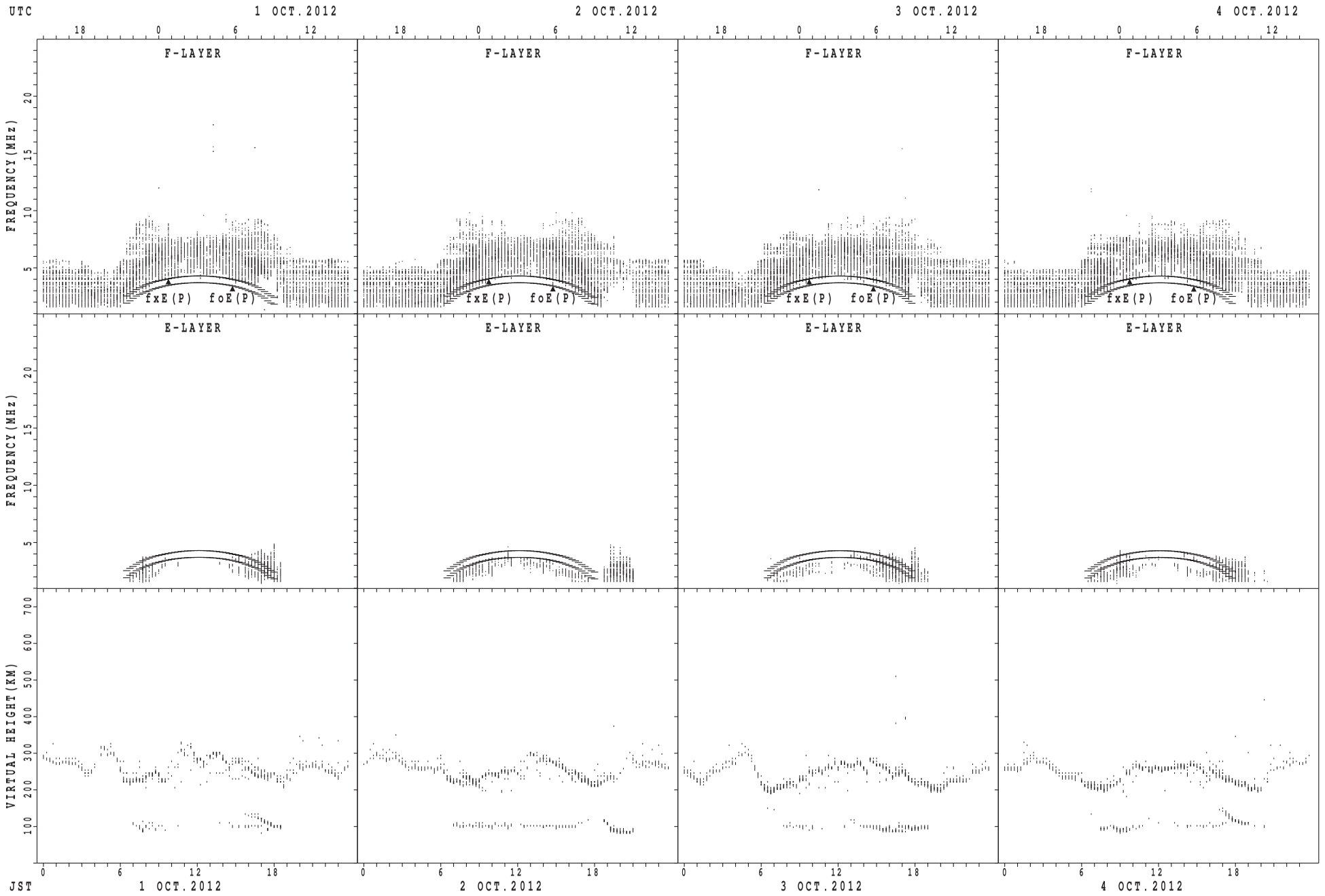
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



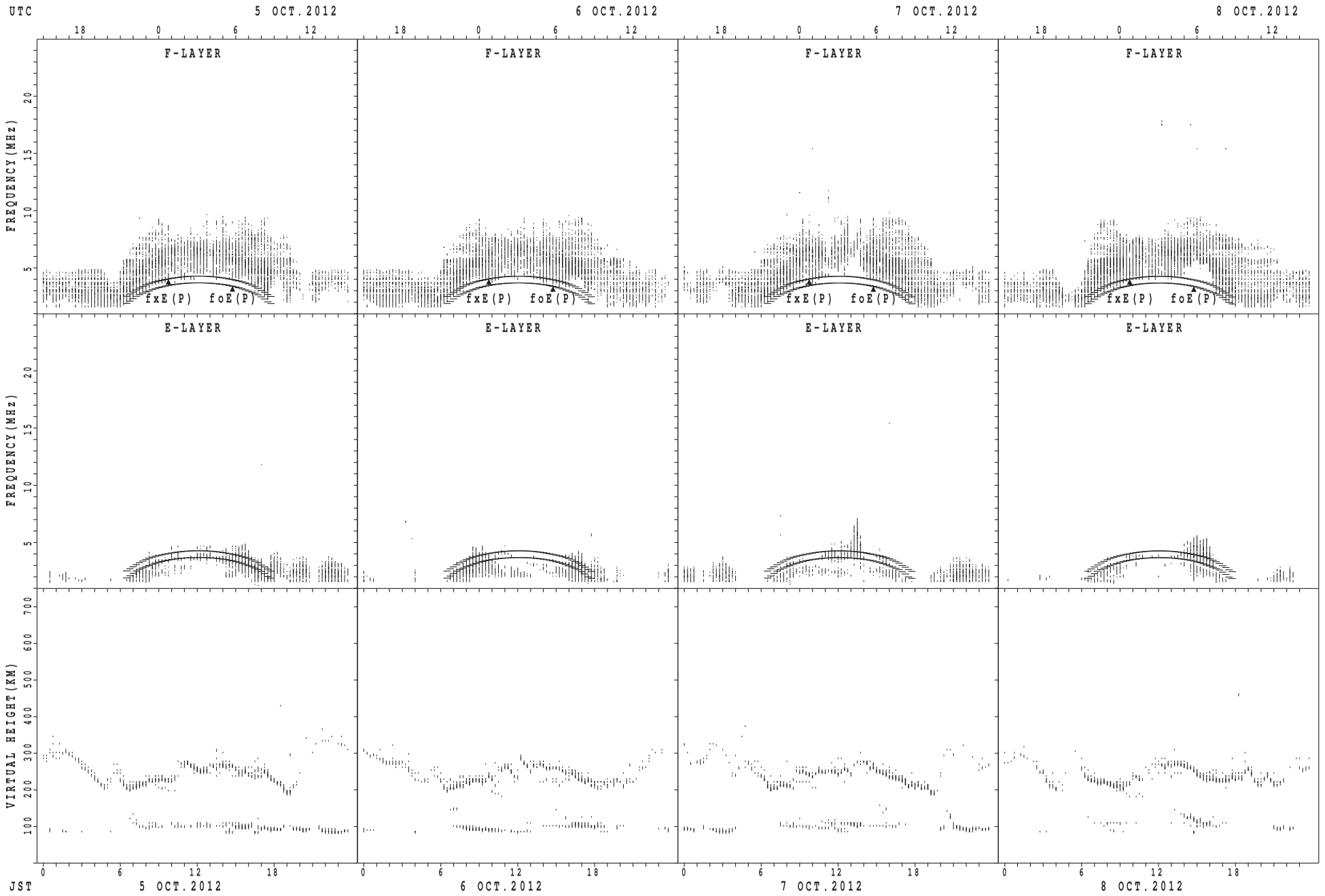
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



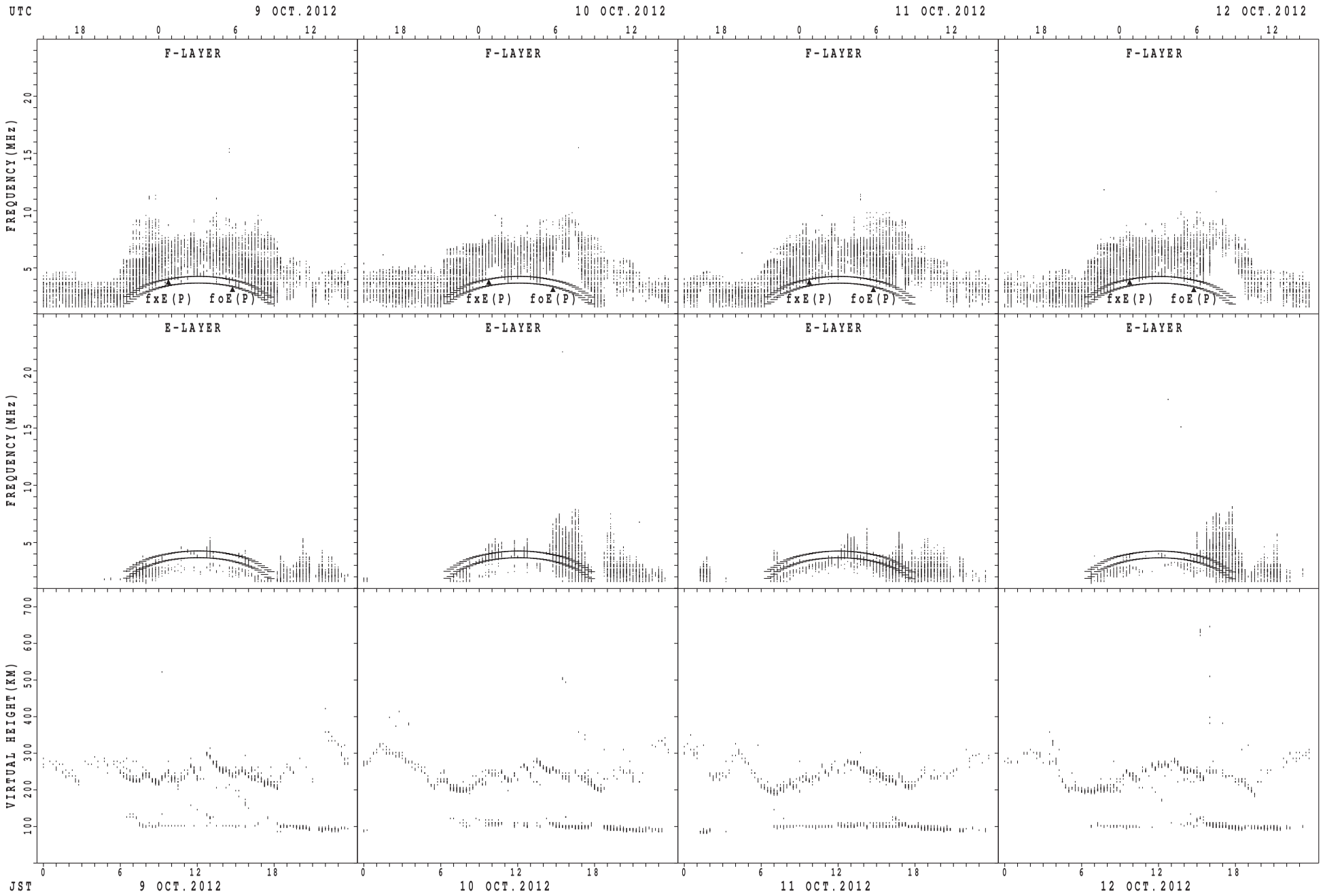
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



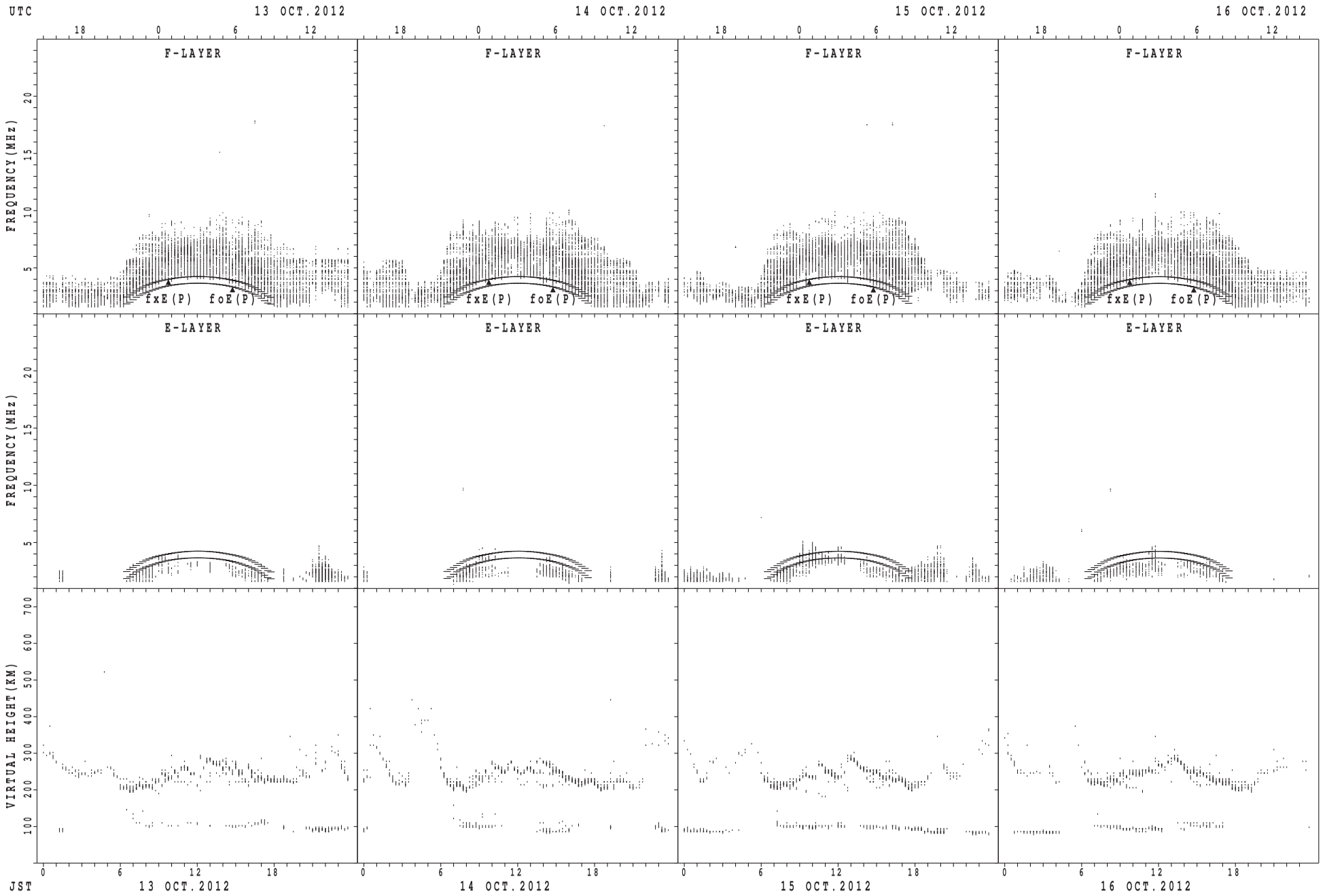
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



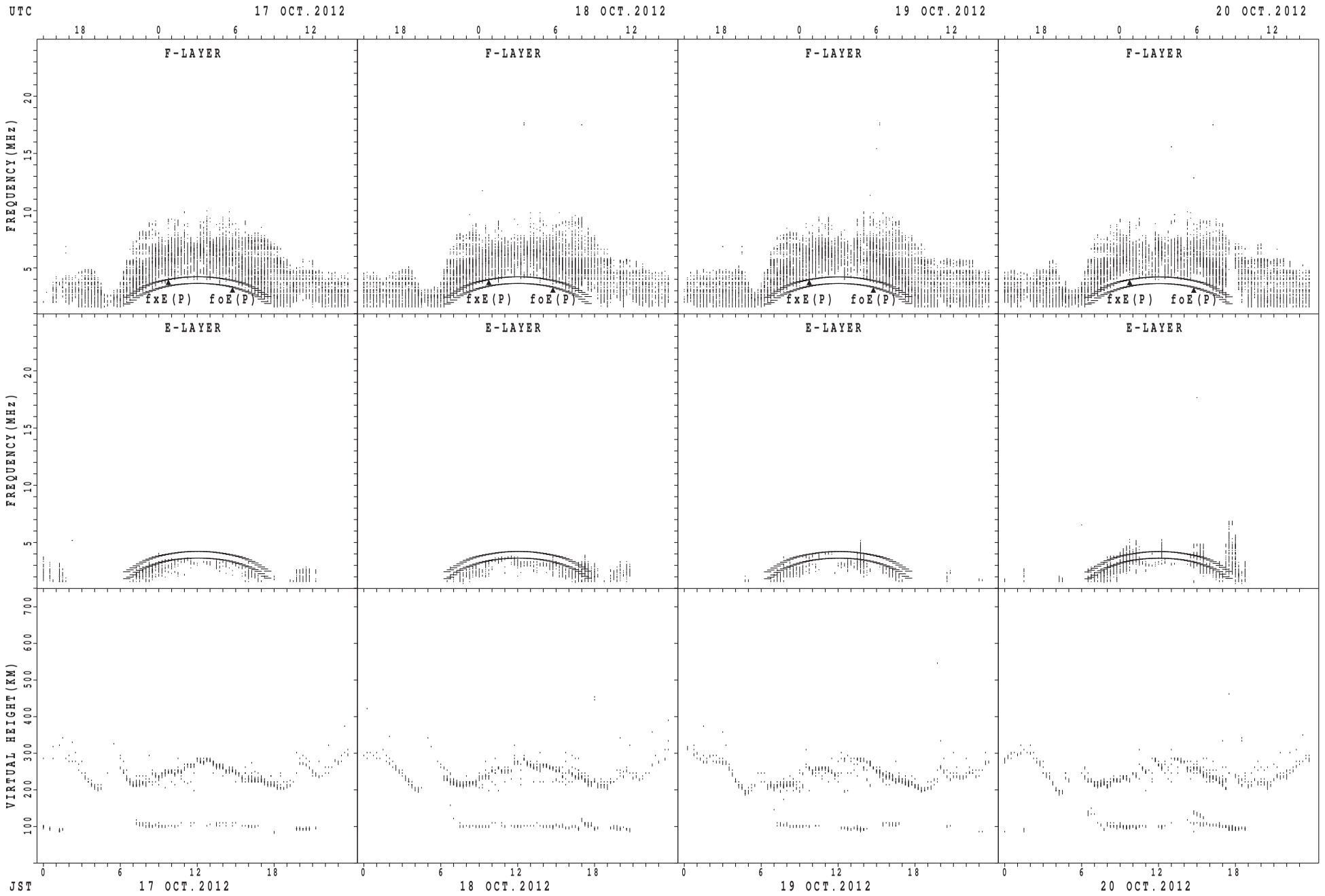
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



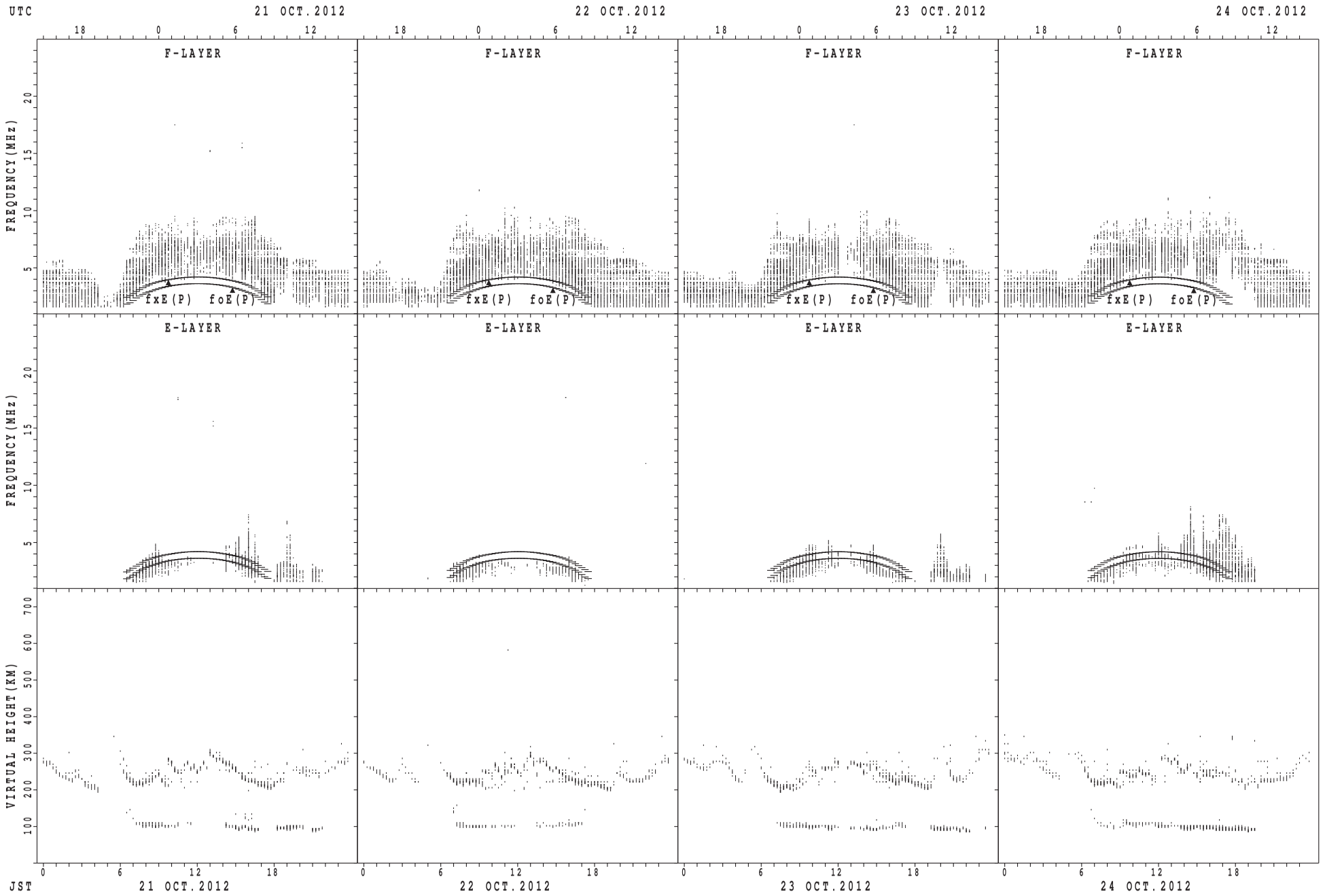
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



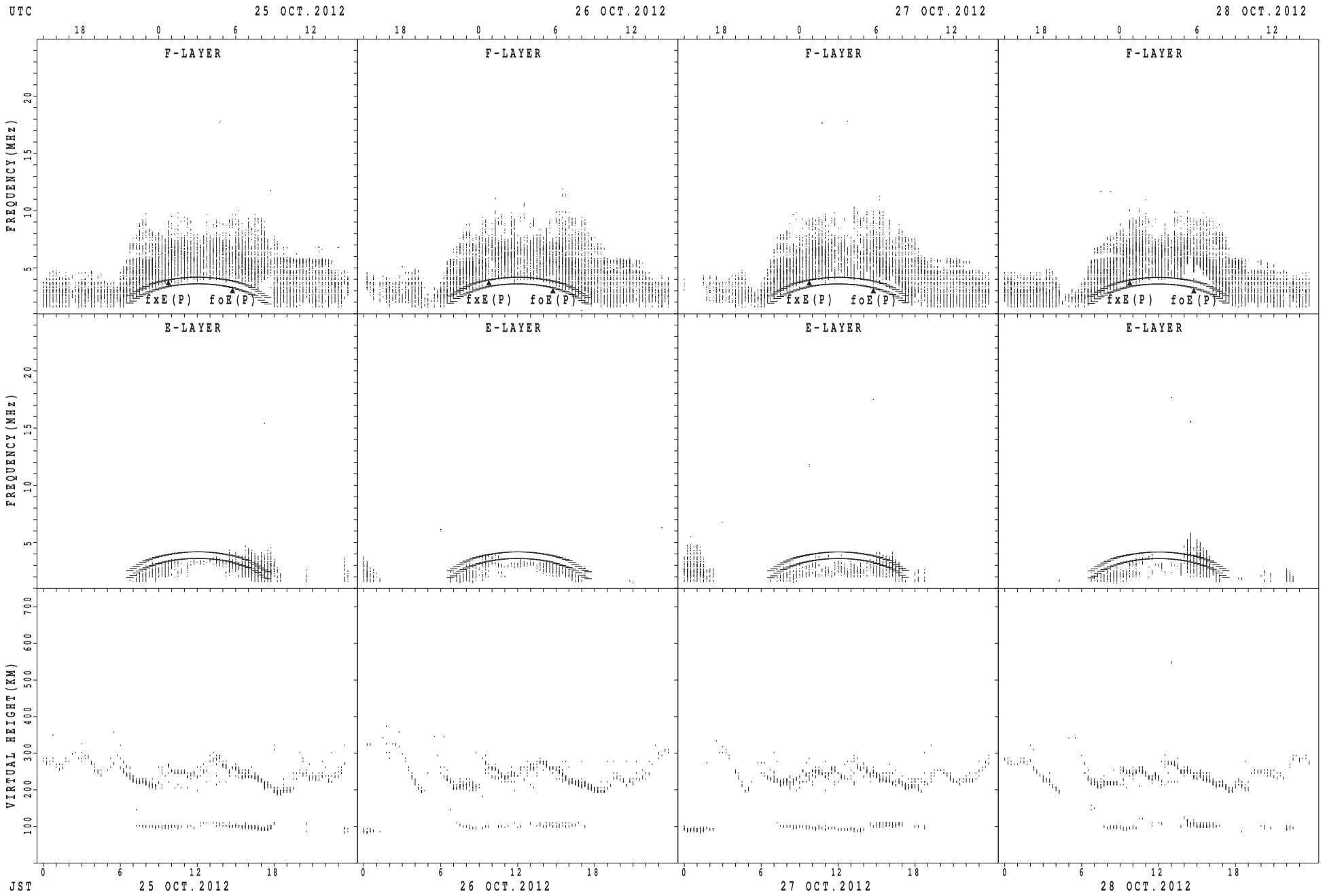
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

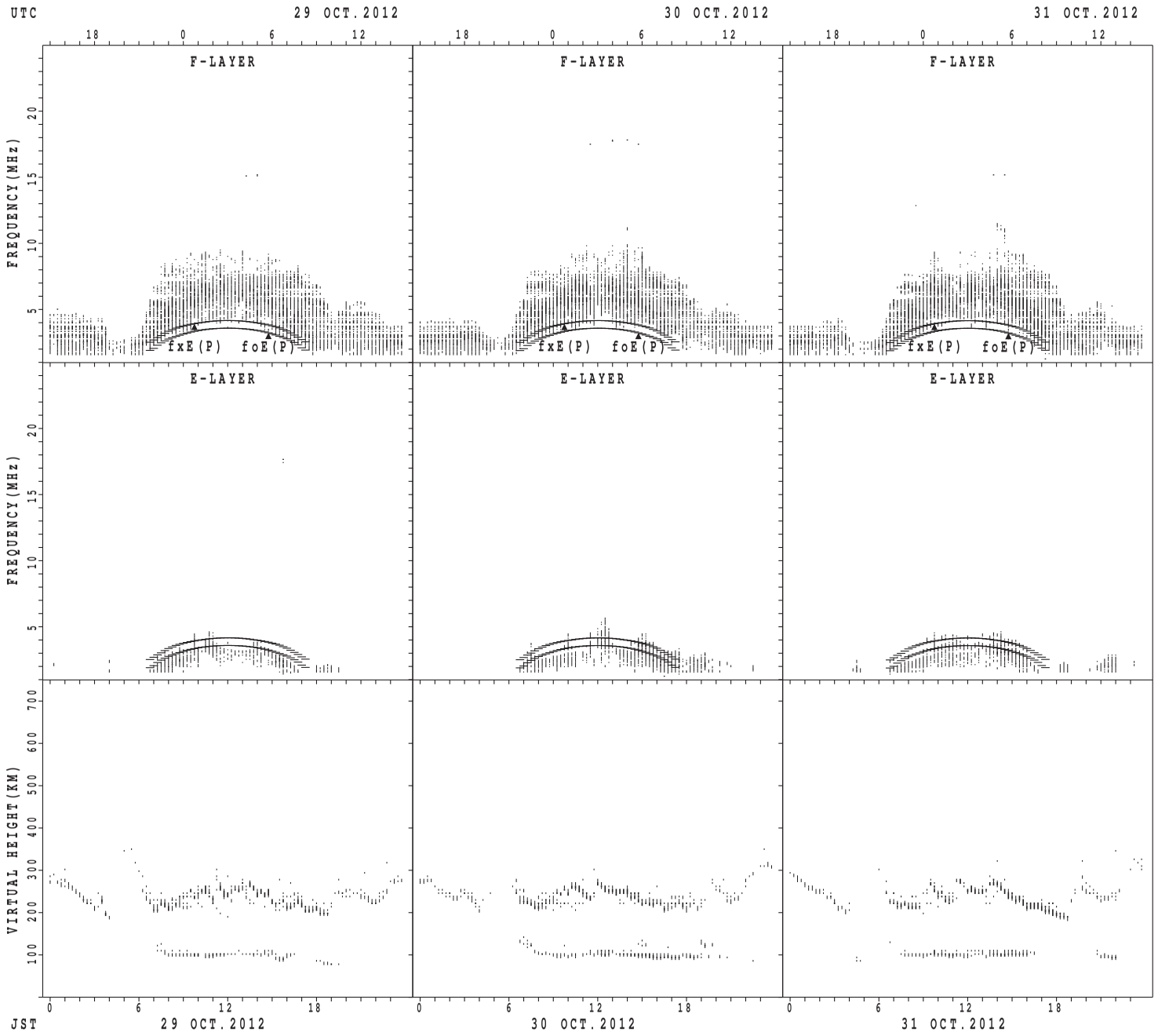


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

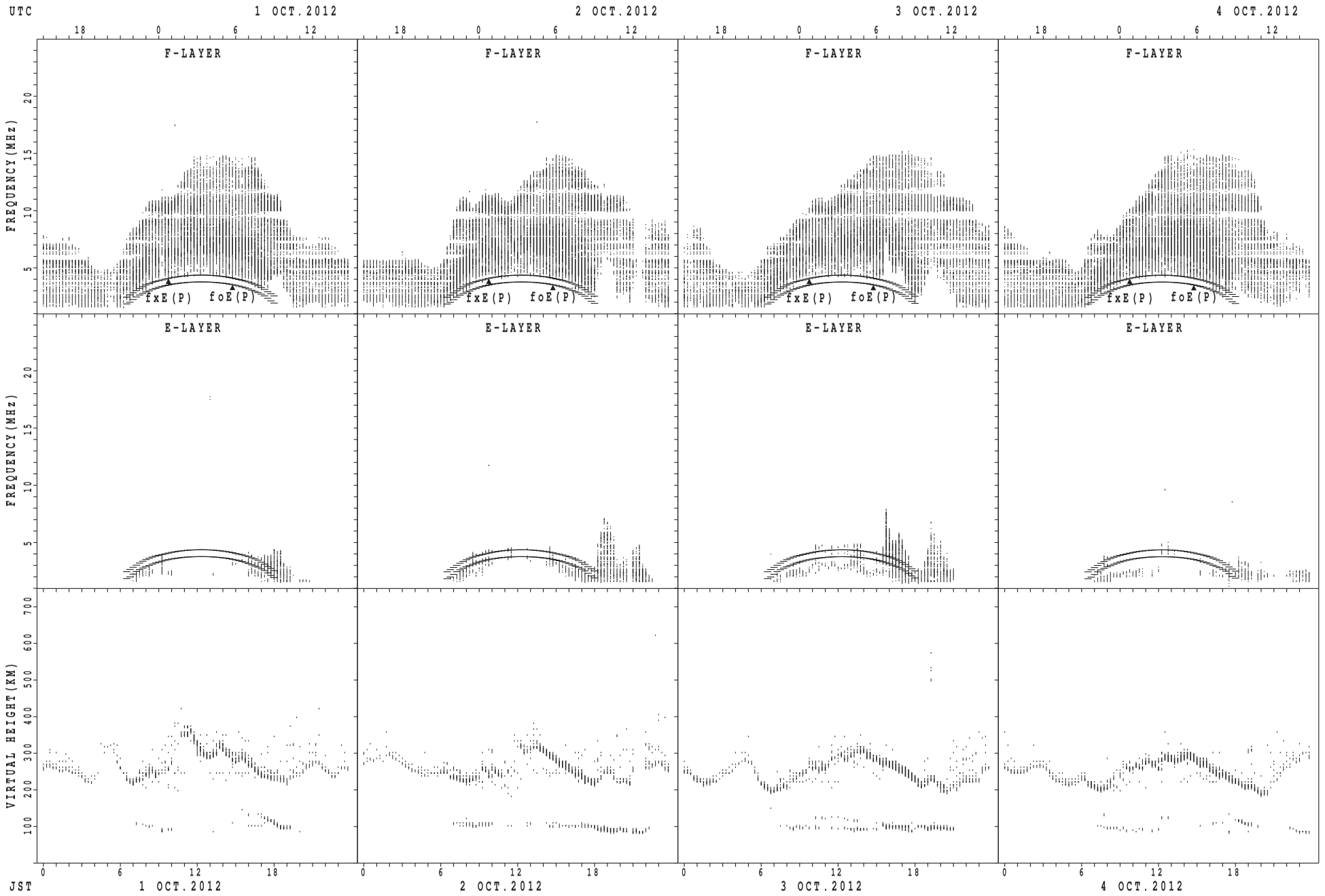


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

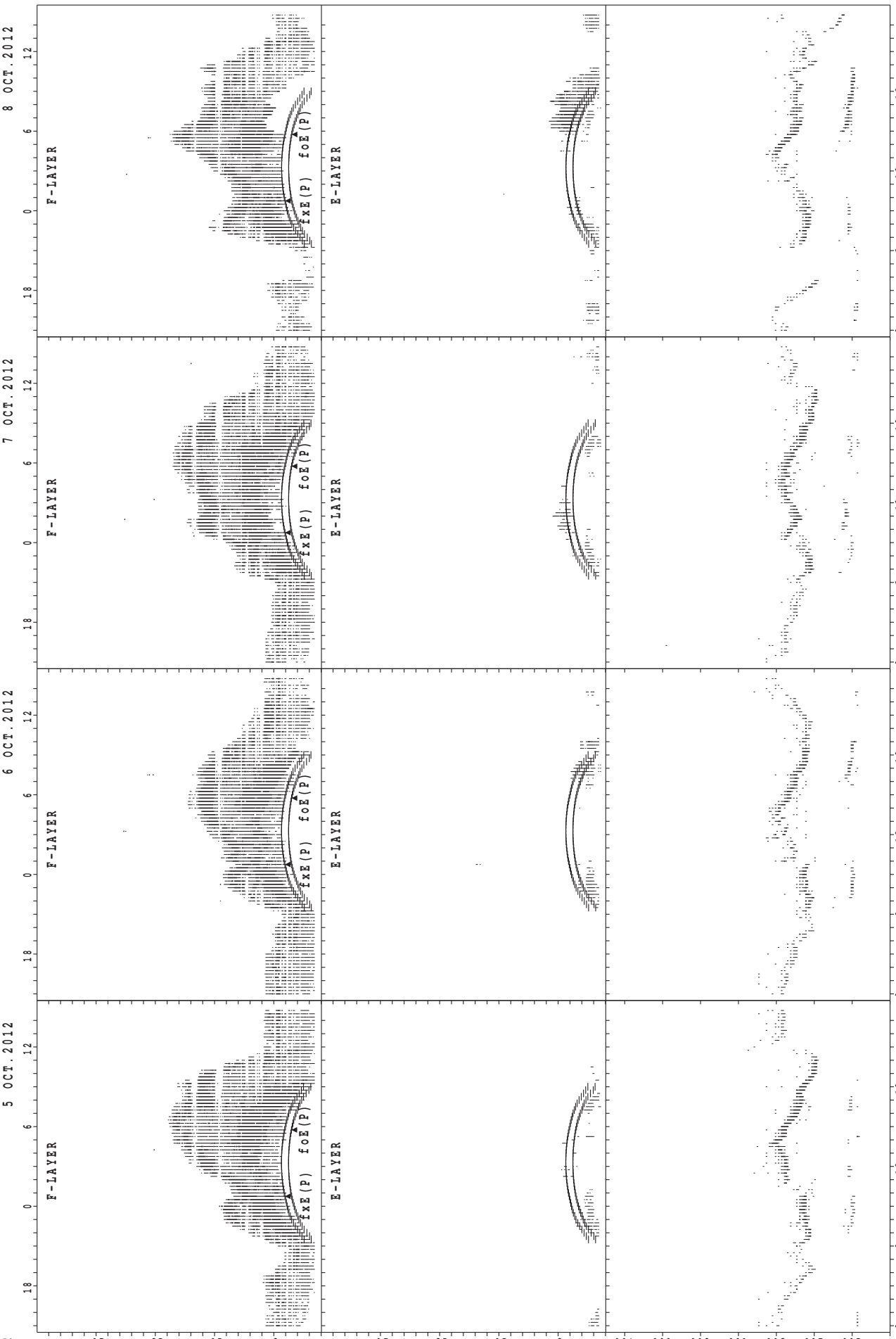


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

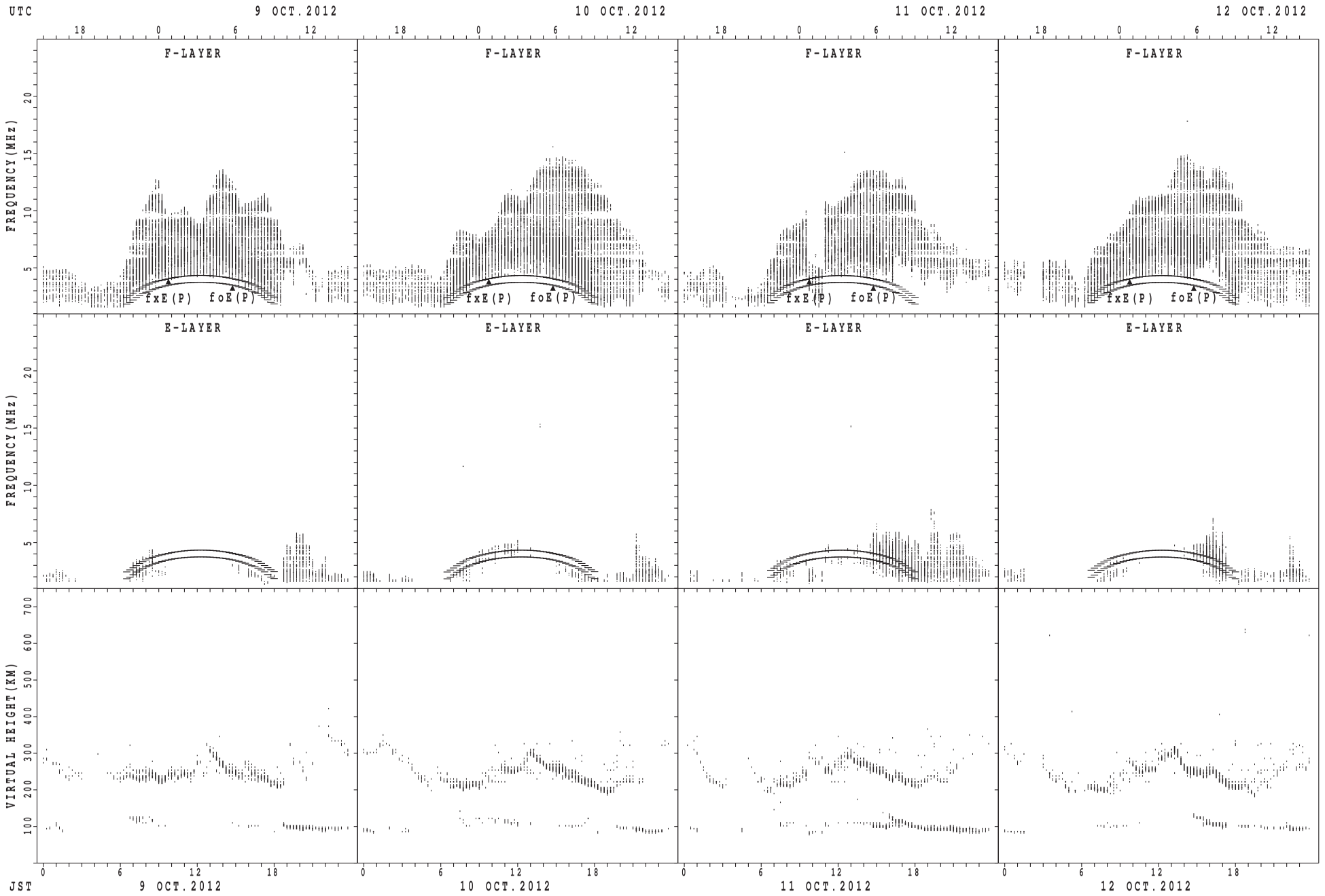
SUMMARY PLOTS AT Okinawa



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

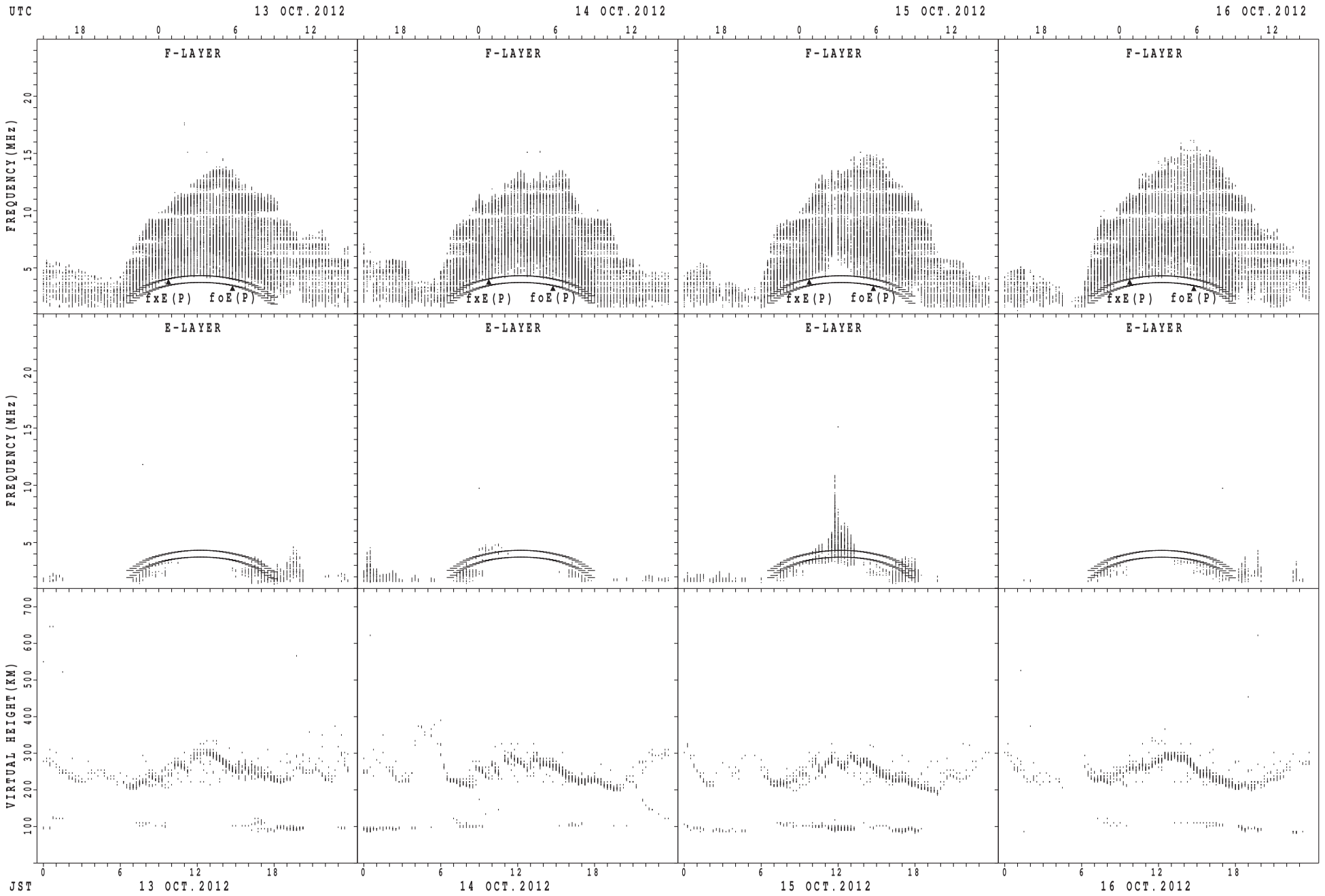

SUMMARY PLOTS AT Okinawa
UTC
JST
5 OCT.2012
6 OCT.2012
7 OCT.2012
8 OCT.2012
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



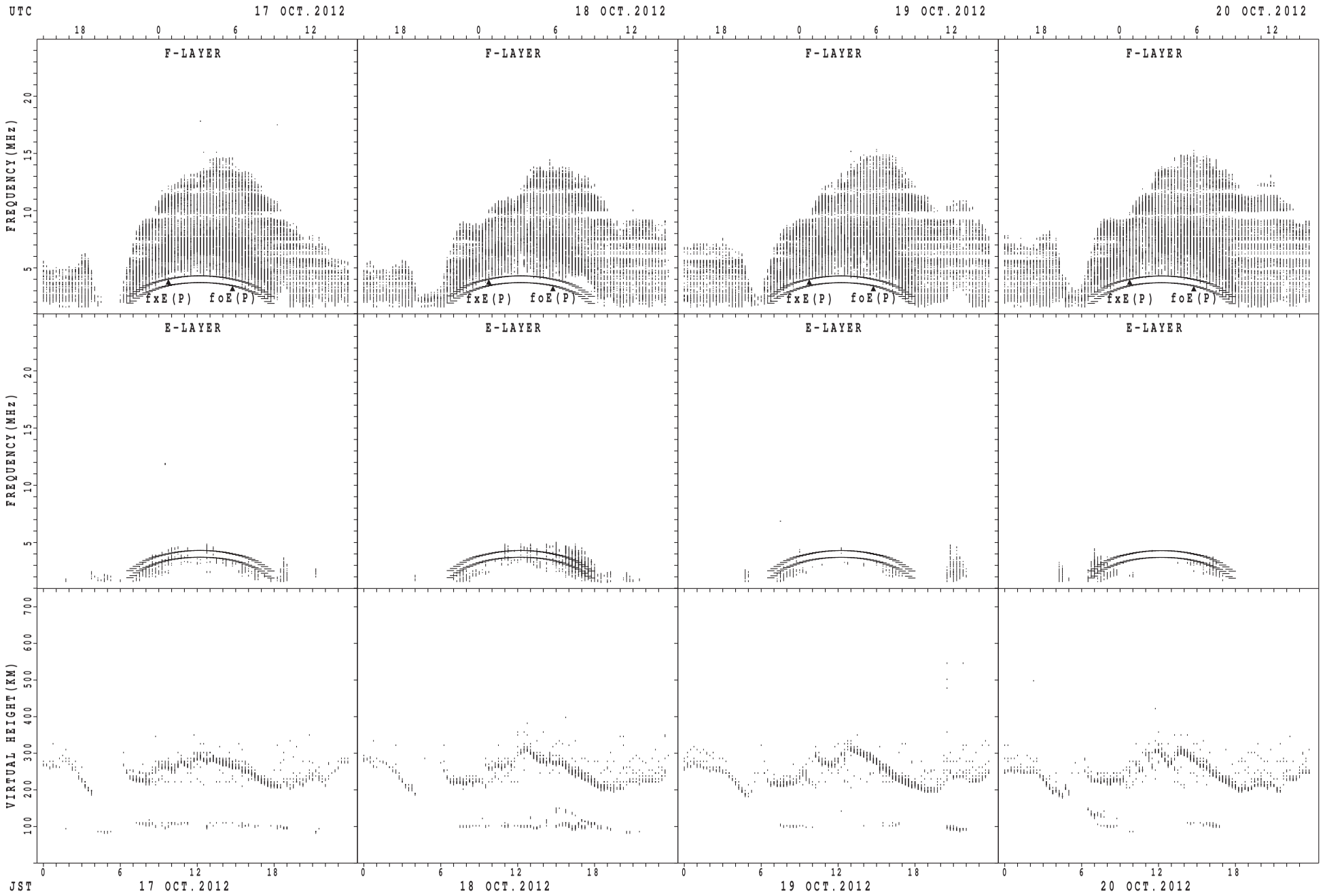
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



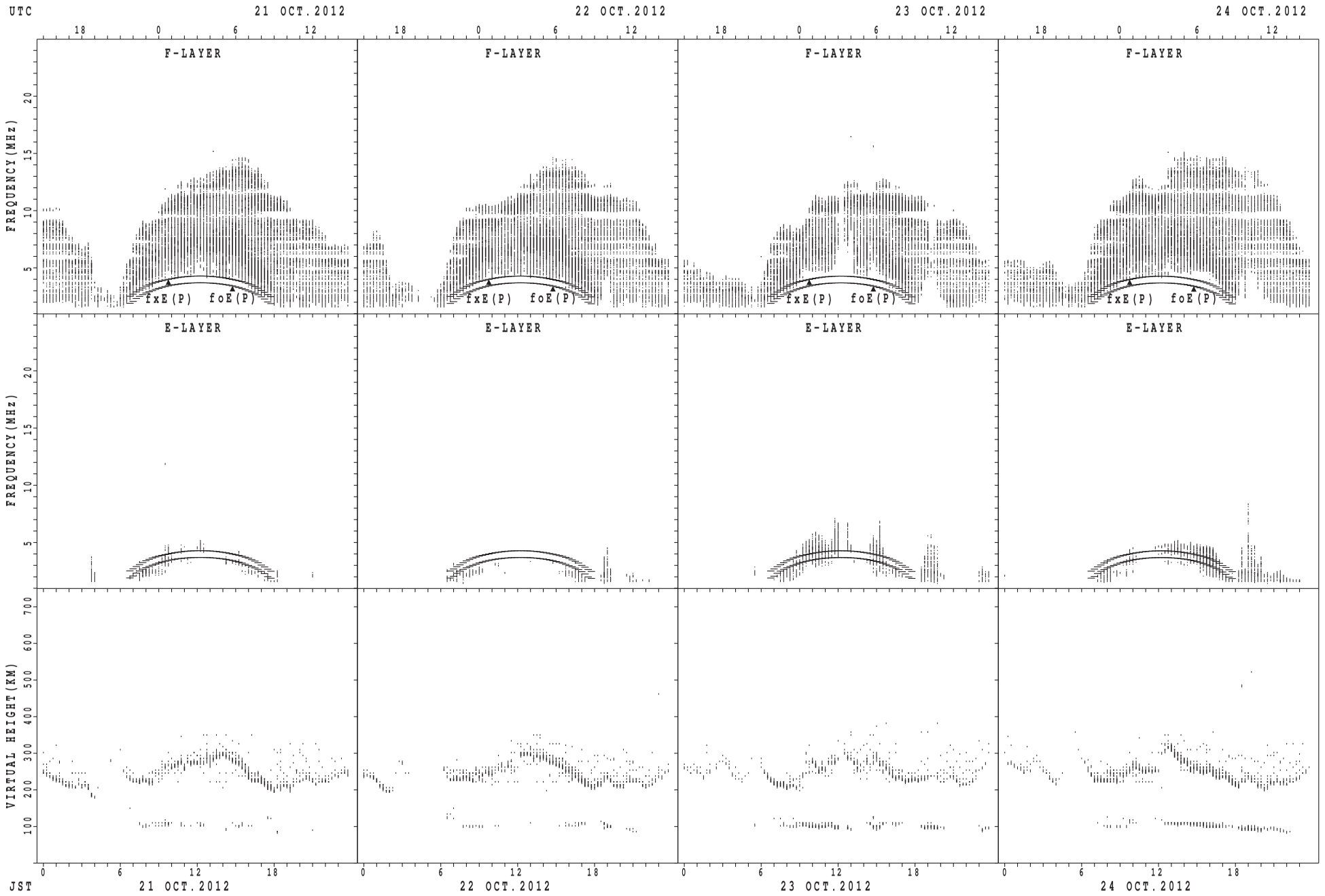
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



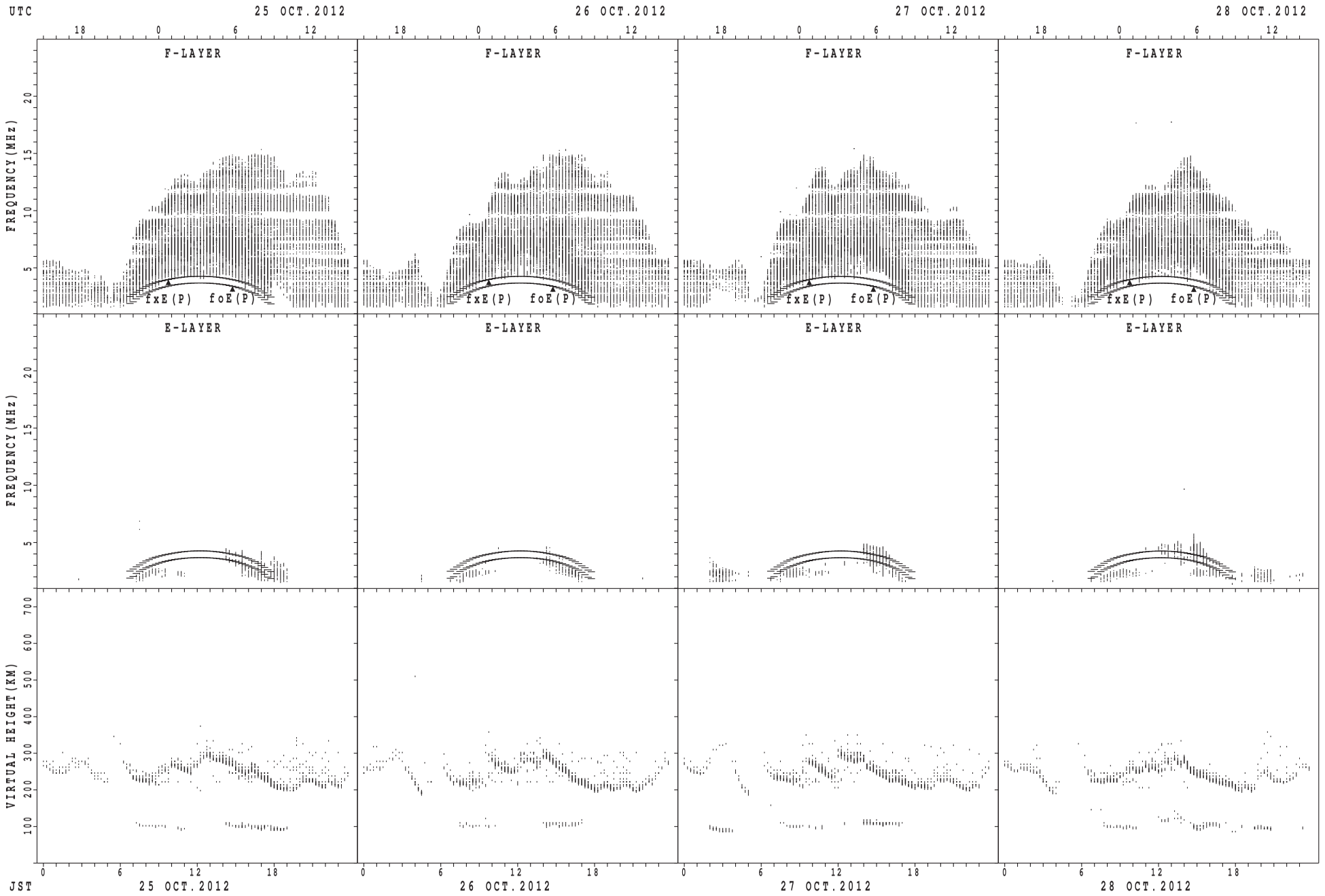
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



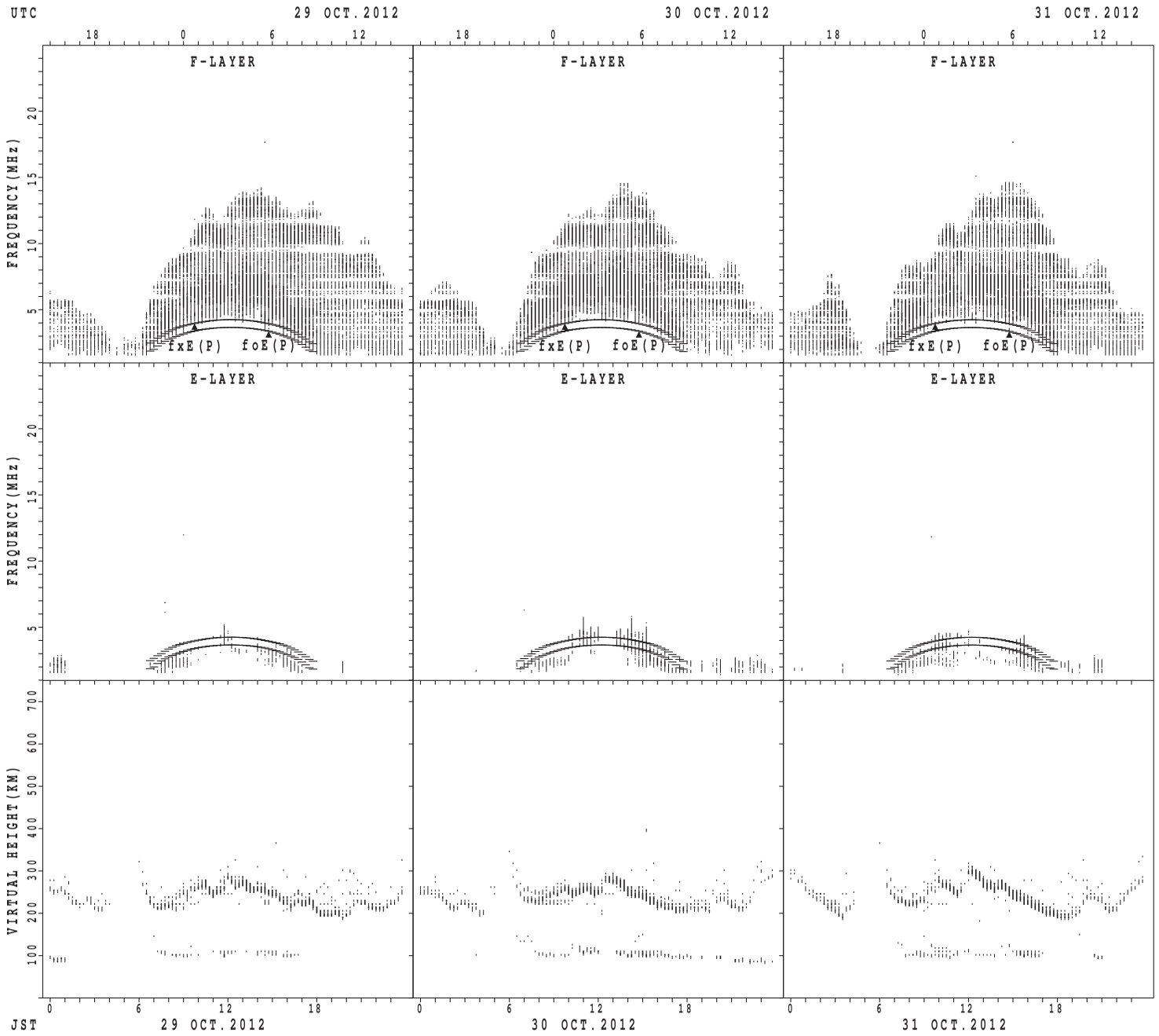
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h′F AND h′Es

OCT.2012 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	26	29	28	14	8	12	21	28	30	31	18	6	2	1			
MED							246	230	222	229	230	227	238	248	246	246	234	242	258	299	314			
U Q							123	232	236	238	234	231	238	255	254	252	240	246	264	320	157			
L Q							123	224	219	222	224	224	231	237	236	238	224	234	256	278	157			

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	5	9	9	8	7	9	11	7	11	8	4	4	9	4	9	9	8	10	8	7	15	11	11
MED	94	97	97	95	99	95	95	109	103	103	99	96	99	99	136	97	95	105	101	98	95	97	97	97
U Q	99	97	102	103	101	103	100	159	113	105	103	97	104	103	169	105	100	112	105	100	103	105	103	99
L Q	91	94	95	95	92	93	93	95	103	99	95	93	92	93	102	93	90	98	97	95	93	95	95	93

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	31	31	31	9			11	30	31	29	29	9	4				
MED							242	228	230	238	242			266	254	242	238	238	248	272				
U Q							246	232	240	248	247			286	258	254	248	246	266	295				
L Q							232	222	220	230	236			254	246	238	230	230	236	260				

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	2			1	2	1		1	4	2	3	4	5	5	3	7	8	13	13	10	7	7	7
MED	92	101			101	102	97		105	107	98	103	104	99	119	107	105	101	101	99	97	97	99	95
U Q	95	113			50	107	48		52	112	105	113	106	109	128	117	109	104	104	100	99	101	103	97
L Q	91	89			50	97	48		52	100	91	103	103	96	100	103	93	98	93	95	97	95	97	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								22	30	29	21				17	31	31	30	28	11	2	1		
MED								230	228	238	246				262	254	240	232	235	242	244	288		
U Q								236	232	246	254				272	262	248	244	246	256	252	144		
L Q								220	222	231	242				252	242	230	230	230	232	236	144		

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	2	4	3	2			7	7	10	8	5	6	6	8	14	16	15	14	10	13	9	9	7
MED	94	94	90	89	93			139	105	103	106	103	105	105	107	105	105	103	98	103	97	95	93	93
U Q	95	95	94	89	97			145	107	105	111	174	105	109	128	121	109	107	103	111	97	98	96	99
L Q	91	93	88	87	89			125	103	101	102	101	105	103	106	103	99	97	95	101	94	92	92	87

MONTHLY MEDIANS OF h′F AND h′Es

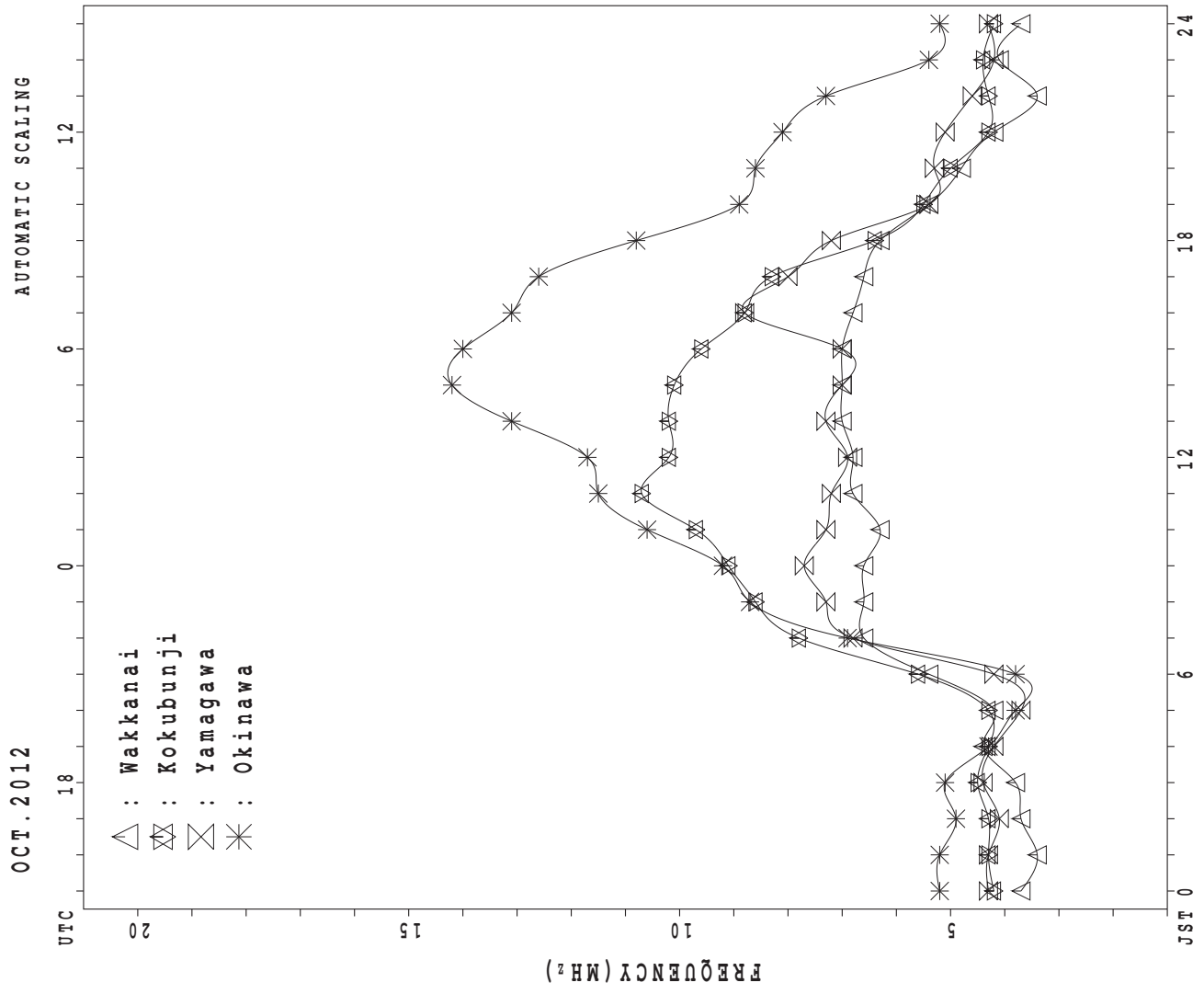
OCT.2012 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	5	4	1	2	1			21	30	30	24				9	31	31	31	31	30	22	18	15	5
MED	296	256	230	246	222			240	229	242	262				278	260	246	230	224	234	244	258	256	274
U Q	309	314	115	254	111			249	238	248	271				279	272	254	236	232	244	258	278	272	297
L Q	283	243	115	238	111			228	222	230	253				259	246	232	222	214	222	222	240	240	266

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	6	4	1	2	1		5	6	4	8	7	10	5	4	11	10	12	9	19	12	10	5	9
MED	95	95	95	91	140	185		151	126	112	114	109	111	113	109	105	110	105	103	97	97	95	93	91
U Q	114	107	96	45	183	92		154	133	117	121	115	121	113	112	125	113	111	111	101	100	95	98	101
L Q	91	95	93	45	97	92		125	119	111	106	105	109	96	105	105	105	101	95	95	96	93	90	90


MONTHLY MEDIANS PLOT OF foF2
OCT.2012
AUTOMATIC SCALING
: Wakkanai
: Kokubunji
: Yamagawa
: Okinawa
FREQUENCY(MHz)
UTC
JST
0
6
12
18
24
5
10
15
20

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 fxI (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

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	X 58	X 58	X 56	X 53	X 55	X 57													X 71	X 79	X 72	X 70	X 67	X 60
2	X 58	X 59	X 61	X 59	X 59	X 59													X 79	X 71	X 68	X 68	X 67	X 67
3	X 69	X 68	X 67	X 66	X 63	X 64													X 76	X 69	X 68	X 66	X 62	X 58
4	X 52	X 51	X 51	X 53	X 53	X 53													X 73	X 67	X 67	X 68	X 66	X 60
5	X 56	X 56	X 59	X 59	X 59	X 58													X 73	X 64	X 61	X 61	X 62	X 59
6	X 60	X 60	X 60	X 60	X 61	X 57													X 73	X 71	X 64	X 63	X 59	X 59
7	X 60	X 58	X 57	X 58	X 57	X 57													X 63	X 55	X 54	X 52	X 52	X 52
8	X 52	X 50	X 49	X 49	X 50	X 49													X 77	X 73	X 72	X 69	X 71	X 52
9	X 55	60	61	54	56	60													62	65	58	X 47	X 47	X 47
10	X 43	X 46	55	56	53	58													X 77	X 63	X 57	X 49	X 43	X 43
11	X 46	X 46	X 46	X 45	X 45	X 48													X 65	X 58	X 54	X 53	X 51	X 46
12	X 47	X 47	X 47	X 47	X 46	X 46													X 77	X 63	X 54	X 47	X 47	X 45
13	X 47	X 47	X 47	X 49	X 49	55													X 93	X 65	X 70	X 73	X 65	X 62
14	X 57	X 60	X 56	X 38	X 39	X 39	X 45												X 62	X 60	X 53	X 47	X 43	X 45
15	X 46	X 41	X 40	X 40	X 40	X 38													X 59	X 50	A	X 42	X 42	X 39
16	X 38	X 38	X 38	X 37	X 36	X 35													X 55	X 52	X 47	X 46	X 47	X 42
17	X 42	X 43	X 43	X 43	X 44	X 42												X 75	X 65	X 63	X 54	X 49	X 49	X 46
18	X 46	X 46	X 46	X 47	55	X 52													X 69	X 75	X 67	X 55	X 53	X 52
19	X 52	X 54	X 54	X 54	X 55	X 56													X 69	X 69	X 62	X 61	X 58	X 57
20	X 57	X 57	X 57	X 57	X 59	X 54													X 73	X 62	X 55	X 51	X 49	X 49
21	X 50	X 51	X 52	X 52	X 52	X 44													X 73	X 64	X 57	X 53	X 53	X 52
22	X 53	X 54	X 55	X 55	X 55	X 50													X 75	X 65	X 56	X 51	X 51	X 51
23	X 53	X 53	X 52	X 52	X 52	X 51													X 73	X 73	X 55	X 50	X 49	X 49
24	X 49	X 50	X 49	X 49	X 48	X 48												X 80	X 69	X 61	X 49	X 48	X 47	X 47
25	X 49	X 49	X 50	X 52	X 53	X 50												X 83	X 69	X 60	X 49	X 46	X 45	X 45
26	X 46	X 47	X 47	X 47	X 45	X 44												X 75	X 61	X 59	X 56	X 50	X 48	X 49
27	X 49	X 49	X 49	X 52	X 54	X 55												X 77	X 69	X 66	X 67	X 65	X 65	X 65
28	X 65	X 64	X 61	X 61	X 59	X 51	X 57											X 69	X 57	X 54	X 48	X 44	X 47	X 47
29	X 49	X 49	X 53	X 53	X 47	X 42												X 63	X 51	X 45	X 46	X 47	X 51	X 51
30	X 47	X 50	X 49	X 49	X 48	X 47												X 59	X 51	X 45	X 47	X 45	X 46	X 49
31	X 49	X 49	X 52	X 53	X 54	X 50												X 60	X 56	X 57	X 49	X 47	X 48	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	31	31	31	31	31	31	2											9	31	31	30	31	31	31
MED	X 50	X 50	X 52	X 52	X 53	X 51	X 51											X 75	X 69	X 63	X 56	X 51	X 51	X 49
U Q	X 57	X 58	X 57	X 56	X 56	X 57												X 78	X 73	X 69	X 67	X 63	X 62	X 58
L Q	X 47	X 47	X 47	X 47	X 47	X 46												X 62	X 62	X 58	X 53	X 47	X 47	X 46

OCT. 2012 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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

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	51	51	49	46	48	50	64	J R 81	U R 103	99	103	Y	U R 82	101	Y	R 100	U R 87	U R 80	64	72	64	63	60	R 53
2	51	52	54	52	52	52	70	U Y 77	U Y 96	U R 102	U Y 105	R 95	96	R 86	81	78	77	R 85	73	64	61	61	60	60
3	62	61	60	60	56	57	66	J R 86	U Y 78	U Y 81	U Y 83	Y	U R 91	R 90	R 92	91	R 82	76	69	63	60	58	55	51
4	45	44	44	46	46	46	59	68	J R 85	88	98	85	Y	J R 85	J R 85	79	83	76	66	60	60	61	59	53
5	49	49	53	R 53	53	51	69	72	75	R 76	R 98	U R 98	U R 83	92	U R 84	78	R 89	75	66	57	54	55	55	R 52
6	53	53	53	53	54	50	58	69	U R 75	J R 87	96	R	R 89	J R 88	R 87	U R 92	89	A	66	64	57	56	52	52
7	R 53	51	50	51	50	50	60	69	J R 87	U R 78	U R 86	R 103	R 92	J R 93	R 82	J R 81	81	70	56	48	47	45	45	45
8	45	43	42	42	43	42	57	71	J R 81	J Y 81	92	R 89	R 82	92	U Y 83	R 85	83	71	70	66	R 65	63	64	45
9	49	F 48	F 49	40	F 45	47	47	61	R 77	67	76	R 88	66	68	72	72	67	56	47	R 50	F 42	40	40	40
10	36	39	40	40	40	40	51	57	58	R 72	J Y 81	75	70	V 74	U R 75	76	R 78	76	70	56	50	42	36	36
11	39	39	39	38	38	41	51	73	71	71	70	77	U R 76	82	R 89	88	80	67	58	R 52	47	46	44	R 38
12	40	40	40	40	39	39	56	63	74	R 74	J R 88	76	R 83	U R 84	82	R 78	R 83	76	70	56	47	40	40	38
13	40	40	40	V 42	42	42	58	72	Y	R 88	R 98	J R 89	92	R 90	R 88	R 90	90	86	86	58	63	66	58	55
14	50	J R 53	49	31	32	32	38	H 60	59	62	62	A	71	74	75	72	72	60	55	53	46	40	36	38
15	39	34	33	32	32	31	42	58	65	65	66	72	80	76	72	75	71	58	52	43	A	35	35	32
16	31	31	31	30	29	28	49	59	R 76	U R 82	J R 85	J R 91	U Y 81	85	U R 83	R 78	R 77	66	48	45	40	39	40	36
17	35	36	36	36	37	35	48	68	72	U R 79	U R 89	Y	R 94	88	80	79	R 84	67	58	56	47	42	42	39
18	39	39	39	40	F 41	45	52	69	85	R 92	U Y 98	Y	R 99	U R 95	J R 86	J R 81	82	J R 83	62	68	59	48	46	45
19	46	48	48	48	49	50	61	74	U R 86	93	U R 102	92	U R 95	92	R 90	89	J R 87	72	62	62	55	54	52	51
20	51	50	50	50	52	47	55	76	R 92	U R 92	U R 101	R 98	J R 94	U R 91	R 88	88	88	74	67	55	48	45	42	42
21	43	44	45	45	45	37	51	73	J R 89	U R 93	R 98	J R 96	R 98	98	94	U R 83	92	74	66	57	50	R 46	46	45
22	46	47	49	48	48	43	55	75	R 88	U R 88	R 96	J R 95	J R 93	92	R 91	94	R 85	62	68	58	49	44	44	44
23	46	46	45	45	45	44	54	72	R 92	R 100	R 99	U R 78	U Y 76	U Y 100	U R 95	U R 85	U R 92	75	66	66	R 48	43	42	42
24	42	43	42	42	41	41	54	U R 81	U R 100	U R 104	U R 101	Y	96	98	96	92	86	73	62	54	42	42	41	40
25	42	42	43	45	46	43	63	J R 90	U R 95	Y	Y	U R 99	U R 94	R 83	98	R 95	92	76	62	53	42	39	38	38
26	39	40	40	40	38	36	51	U R 77	U R 102	R 94	J R 109	U Y 98	Y	U Y 81	92	Y	85	69	54	52	49	43	42	42
27	42	42	42	45	47	48	55	75	J Y 90	R 124	J R 122	J R 108	R 102	104	100	U R 94	R 81	70	62	59	61	58	58	58
28	58	57	54	54	52	44	50	70	J R 94	U Y 102	U R 102	U R 104	U Y 102	93	92	87	87	62	50	48	41	38	40	40
29	42	42	46	R 46	41	35	44	R 74	84	J R 87	Y	J R 93	R 92	R 93	J R 87	R 87	R 78	61	44	38	39	40	44	44
30	40	41	42	42	41	40	47	70	75	R 76	U R 98	U R 99	U R 101	U R 85	79	R 84	U R 84	52	44	39	40	38	39	43
31	42	42	45	46	48	43	44	69	U R 78	R 82	92	R 100	99	89	J R 81	U R 84	76	53	50	50	42	40	41	42
	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	30	30	29	24	29	31	30	30	31	30	31	31	30	31	31	31
MED	43	43	45	45	45	43	54	72	R 84	R 87	R 98	R 94	R 92	90	R 86	84	83	72	62	56	48	44	44	43
U Q	50	50	49	48	49	48	59	R 75	U R 92	R 93	U R 101	U R 98	96	93	92	R 90	87	76	67	62	59	56	55	51
L Q	40	40	40	40	40	39	49	68	75	76	86	86	82	84	81	78	78	62	54	50	42	40	40	39

OCT. 2012 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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

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									L	L	L	L		L	L									
2									L	L	A	L	L	L										
3										L	L	L	L	L	L	L								
4										L	L	L	A428	UL444	L									
5										L	UL472	L	L	L	L									
6										L	L					A		A						
7									L		L	L	L	A										
8									L	L	UL432	L	L	A	L									
9									UL432	L432	UL444	444		L	L	L								
10									L	L	UL412	L	L		L		L							
11								L	L	L	L	L	L		L	L								
12								L	UL360	L	UL456	L	L	L	L									
13									A	A	496	L	L	L	L	L								
14									L	A	A	A	UL468	L	L									
15								L	L	L424	L	UL440	UL448	L	L	UL320								
16									L	L	L	L	L	L	L	L								
17										L	UL452	L	L	L	L									
18									L	L	L	L	L		L									
19								L		L	L		L											
20										L	L	L	L	L	L									
21										L	L				L									
22									L	L	L	L				L								
23										L	L	L	L	UL488	L									
24								280	L		L	L	L	L		L320								
25										L	L	L	L	L	L									
26								260			L		L											
27								280		L	L	L												
28										L	L	UL440	L	L			216							
29												L	L	L		L								
30											L	L	L			UL304								
31								252		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								4	2	2	7	3	3	2		3	1							
MED								270	UL396	L428	UL452	UL440	UL448	UL466		UL320	216							
U Q								280			472	444	UL468			UL320								
L Q								256			UL432	UL440	A428			UL304								

OCT. 2012 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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

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							200	264	304	U A 320	348	A	U R 352	336	320	292	248	A						
2							A	248	292	312	U A 320	336	A	A	316	280	232	176						
3							200	244	288	320	U A 336	A 332	R 344	332	304	280	224	184						
4							H 188	A	292	U A 304	A	U A 316	328	324	304	288	236	A						
5							204	240	292	308	328	332	336	A	A	A	224	A						
6							192	240	288	308	A	A	A	A	A	288	A	A						
7							A	244	280	300	312	U A 312	A	A	A	A	A	A						
8							A	228	280	304	A	A	A	312	300	268	224	A				J K 128		
9							A	216	272	288	300	304	U A 304	A	A	A	A	A						J K 128
10							180	236	264	292	312	320	316	308	300	272	A	B						
11							A	232	A	A	A	A	A	324	296	272	A	B						
12							176	224	288	300	316	320	324	316	300	272	224	B						
13							180	236	276	304	304	U A 300	U A 316	316	292	264	212	B						
14								212	264	A 296	A	A	344	316	300	292	212	R 144						
15							A	A	U A 244	288	308	340	A	A	300	276	220	B						
16							R 176	228	276	316	324	336	344	332	284	276	216	B						
17							172	A 236	284	308	316	340	336	328	304	264	228							
18							A	240	292	A	A	A	A	328	312	268	220	B						
19							168	236	280	304	A	A	336	328	312	292	220	B						
20							176	240	288	316	336	340	344	336	312	276	196	B						
21							180	240	304	328	340	348	340	332	316	272	216	B						
22							176	236	300	312	340	A	A	A	296	264	184	B						
23							B	224	284	316	324	336	348	U R 364	308	268	204	B						
24							B	220	288	308	A	348	336	324	308	264	A							
25							B	232	260	U A 272	328	336	332	316	296	252	200							
26							U R 152	192	272	300	312	324	336	328	296	248	A							
27							B	224	272	A	R 308	324	324	A	296	256	176							
28								A	A 268	288	A	320	328	312	300	260	A							
29							J R 168	224	268	300	312	316	320	304	284	244	184							
30							J R 164	H 220	252	292	308	U A 304	324	312	280	232	192							
31							160	196	240	284	312	312	308	304	288	240	196							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							18	28	30	28	22	23	23	23	27	28	23	3				1		1
MED							176	234	280	304	316	324	336	324	300	270	216	176				J K 128		J K 128
U Q							188	240	288	312	328	336	344	332	308	278	224	184						
L Q							R 168	224	268	294	312	316	324	312	296	262	196	R 144						

OCT. 2012 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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

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	23	E B 14	E B 14	E B 14	23	E B 14	G	G	G	35	G	36	G 32	G 32	G 32	G 28	27	J A 49	J A E B 28 15		J A 17	19	E B 15	E B 15
2	E B 14	E B 14	E B 13	J A 15	20	19	J A 23	28	32	42	J A 56	37	37	37	G	G 25	25	G	E B 15	E B 13	E B 13	18	E B 13	E B 13
3	E B 11	E B 11	E B 11	J A 15	J A 15	J A 16	G	28	32	36	36	37	G	G	G	G	G 22	G	E B 14	E B 14	E B 14	J A 15	E B 21	E B 15
4	E B 14	E B 14	20	J A 18	E B 15	J A 21	G 17	J A 28	G 27	39	38	36	38	G 27	E B 15	G 20	26	20	E B 14	E B 14	E B 14	J A 34	J A 19	24
5	E B 14	20	J A 15	21	20	20	G	29	32	34	36	36	35	J A 41	J A 41	J A 36	33	J A 19	J A 19	E B 11	E B 11	E B 11	E B 11	E B 11
6	E B 15	E B 15	E B 15	E B 15	20	E B 14	G	27	33	38	J A 43	J A 61	41	J A 77	J A 43	J A 77	J A 67	91	J A 21	E B 13	E B 13	J A 20	E B 13	J A 17
7	E B 15	J A 15	J A 15	J A 41	J A 29	J A 24	J A 27	26	31	40	J A 43	36	J A 37	54	J A 51	J A 50	41	42	54	J A 29	J A 32	35	27	J A 20
8	E B 15	J A 51	J A 51	J A 32	38	J A 44	J A 31	J A 27	32	38	39	37	38	J A 44	32	G	28	J A 20	E B 12	E B 12	E B 12	J K 13	J A 12	E B 12
9	J A 13	J A 18	J A 13	J A 24	J A 36	E B 14	20	28	38	35	38	36	50	J A 39	J A 30	J A 33	38	J A 30	J A 21	J A 20	E B 12	E B 12	E B 12	J K 13
10	E B 14	J A 12	E B 14	J A 11	J A 14	E B 14	G	25	29	33	32	35	35	38	37	31	J A 35	J A 75	J A 56	J A 20	J A 25	J A 16	E B 15	E B 15
11	E B 14	E B 17	E B 13	20	E B 12	E B 13	J A 28	G 20	27	J A 30	J A 37	35	33	34	34	34	J A 39	J A 35	J A 60	J A 28	35	J A 21	J A 28	J A 15
12	E B 14	J A 14	E B 14	J A 15	J A 15	E B 15	G	25	33	33	36	35	36	35	G	G 23	J A 25	19	E B 14	J A 16	J A 14	E B 14	J A 15	E B 14
13	E B 15	E B 15	E B 15	18	J A 17	J A 15	G	28	68	J A 74	35	40	40	G	34	32	24	J A 23	E B 12	E B 13	E B 12	J A 19	J A 15	J A 19
14	J A 13	E B 14	J A 21	J A 21	J A 30	J A 27	33	26	33	J A 59	J A 61	J A 81	40	39	38	G	G	G	E B 12	E B 12	E B 12	E B 12	E B 12	E B 12
15	E B 14	E B 14	J A 25	J A 31	J A 23	J A 20	J A 29	J A 29	27	34	G 21	G 30	J A 40	34	G	E B 15	G	E B 14	J A 22	J A 31	J A 46	J A 31	J A 19	22
16	E B 12	E B 12	E B 12	E B 12	E B 13	E B 13	G	G	G 26	G 26	G	G	G 22	35	G	G	G 20	J A 17	J A 17	26	E B 14	E B 14	E B 14	E B 14
17	E B 12	E B 12	E B 12	E B 12	E B 12	E B 12	G	26	31	G	G	39	36	36	G	G	G	E B 16	E B 16	E B 12	20	J A 23	J A 20	E B 11
18	E B 15	E B 15	E B 15	E B 15	J A 25	J A 32	21	G	G	34	35	37	37	G 30	G	E B 15	G	E B 15	E B 13	J A 23	E B 12	E B 12	E B 12	E B 13
19	E B 13	E B 13	E B 13	J A 15	E B 12	E B 12	G	G	G	34	34	J A 34	G 32	G 32	G 29	G	G	J A 18	J A 19	J A 38	E B 12	J A 32	36	J A 28
20	J A 26	J A 21	E B 12	E B 16	E B 14	E B 14	G	26	G 26	G 28	G	G	G 24	G 24	G	G	24	E B 14	E B 13	E B 12	E B 12	E B 20	J A 16	E B 15
21	J A 23	E B 16	E B 15	18	18	18	G	26	G 25	G 30	J A 41	G 25	G 28	G 26	G 26	G 23	J A 26	17	J A 17	J A 16	E B 13	J A 25	J A 25	J A 25
22	J A 19	J A 19	J A 19	J A 27	J A 16	J A 15	J A 18	26	33	34	35	37	J A 48	J A 56	G 24	G 20	21	18	E B 13	E B 12	E B 12	E B 12	J A 25	J A 25
23	J A 27	J A 18	E B 12	J A 12	E B 12	E B 16	E B 15	27	33	G 27	35	37	37	G 25	G 30	J A 28	24	J A 17	J A 18	E B 14	E B 14	E B 14	J A 27	J A 19
24	J A 21	E B 12	E B 12	E B 12	E B 12	E B 15	E B 16	27	30	33	J A 42	37	G	36	G 25	G 26	J A 24	J A 32	J A 27	J A 24	J A 23	J A 11	E B 12	J A 26
25	J A 19	18	E B 14	19	E B 14	E B 14	E B 14	G	28	32	G 32	36	G	G	G	G	G	J A 18	E B 13	19	J A 14	J A 25	J A 27	J A 27
26	18	J A 27	J A 27	J A 27	J A 27	J A 22	G	26	31	G 28	G	G	37	G 28	31	J A 27	J A 27	17	J A 29	J A 48	J A 22	J A 20	J A 19	E B 14
27	22	E B 14	E B 14	J A 26	E B 14	E B 14	E B 14	26	28	34	32	G 27	G	J A 59	E B 12	G	20	E B 11	E B 12	E B 14	E B 14	36	J A 21	J A 59
28	J A 22	J A 26	J A 26	J A 26	J A 22	J A 42	J A 22	25	30	J A 32	J A 40	G	G 26	G 18	G	G 22	22	E B 14	E B 14	E B 19	J A 25	J A 25	J A 23	J A 24
29	J A 31	J A 40	J A 25	J A 20	J A 15	E B 12	G	G	G	G	G	35	36	G	G	G 22	J A 17	J A 18	J A 18	19	E B 12	J A 17	J A 17	J A 19
30	J A 13	J A 15	J A 15	J A 14	E B 14	E B 14	G	G 18	30	32	38	36	G 31	G	G 23	26	G	E B 14	E B 16	J A 19	J A 18	E B 12	E B 12	E B 12
31	E B 13	J A 16	E B 14	J A 15	J A 18	E B 14	G	24	28	30	33	33	32	32	G	25	G	E B 13	J A 18	E B 16	E B 15	E B 15	E B 15	E B 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	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 15	E B 15	E B 14	J A 18	16	E B 15	G	26	30	34	35	36	36	34	G	G	24	18	17	16	E B 14	J A 18	J A 16	15
U Q	J A 21	J A 18	J A 19	J A 24	J A 23	J A 20	J A 21	27	32	36	J A 39	37	38	J A 39	32	J A 28	27	J A 23	J A 21	J A 23	J A 20	J A 25	J A 23	J A 24
L Q	E B 13	E B 14	E B 13	E B 15	E B 14	E B 14	G	G	G	G 30	G	G 33	G	G 32	G 30	G 23	G	E B 16	E B 13	E B 13	E B 12	E B 13	E B 13	E B 13

OCT. 2012 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G	32	G	34	G 28	G 27	G 27	G 24	G 25	21	E B 12	E B 15	E B 15	E B 15	E B 15	E B 15
2	E B 14	E B 14	E B 13	E B 13	E B 13	E B 13	19	G 22	30	39	53	35	34	34	G	G 22	24	G	E B 15	E B 13	E B 13	E B 13	E B 13	E B 13
3	E B 11	E B 11	E B 11	11	11	11	G	26	G	G 31	G 32	G 32	G	G	G	G	G 19	G	E B 14	E B 14	E B 14	E B 14	E B 21	E B 15
4	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	G 15	24	G 24	34	33	33	35	G 23	E B 15	G 19	25	18	E B 14	E B 14	E B 14	18	17	E B 14
5	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	26	G 29	G 31	G 30	34	G 33	33	32	31	G 19	18	12	E B 11	E B 11	E B 11	E B 11	E B 11
6	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	G	25	G 29	32	35	44	41	40	33	71	50	A A 91	18	E B 13	E B 13	E B 13	E B 13	E B 13
7	E B 15	E B 15	E B 16	39	25	18	18	25	30	36	37	36	35	43	42	29	20	20	20	20	22	22	22	E B 15
8	E B 15	E B 15	20	18	18	18	19	G 19	G 27	31	33	35	35	39	31	G	25	17	E B 12	E B 12	E B 12	K 13	E B 12	E B 12
9	12	E B 12	E B 12	E B 13	27	E B 14	18	24	G 26	31	34	34	42	33	29	29	22	17	16	E B 12	E B 12	E B 12	E B 12	K 13
10	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 23	G 26	31	32	34	34	34	34	29	22	16	51	17	17	E B 15	E B 15	E B 15
11	E B 14	E B 17	E B 13	E B 12	E B 12	E B 13	19	G 17	23	25	30	30	31	G 27	32	32	31	30	18	18	22	20	17	11
12	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	G	23	31	31	34	34	34	34	G	G 20	G 19	E B 13	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14
13	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	24	54	49	33	34	38	G	34	30	24	21	E B 12	E B 13	E B 12	E B 12	E B 14	E B 14
14	E B 14	E B 14	E B 14	E B 14	15	19	20	22	30	52	57	A A 81	38	36	35	G	G	G	E B 12	E B 12	E B 12	E B 12	E B 12	E B 12
15	E B 14	E B 14	17	18	17	E B 12	24	24	27	32	G 20	G 24	30	33	G	E B 15	G	E B 14	19	22	A A 46	22	E B 14	E B 14
16	E B 12	E B 12	E B 12	E B 12	E B 13	E B 13	G	G	G 14	G 20	G	G	G 20	34	G	G	G 18	E B 12	E B 12	16	E B 14	E B 14	E B 14	E B 14
17	E B 12	E B 12	E B 12	E B 12	E B 12	E B 12	G	24	G 27	G	G	36	36	35	G	G	G	E B 16	E B 16	E B 12	E B 11	15	E B 11	E B 11
18	E B 15	E B 15	E B 15	E B 15	E B 15	18	18	G	G	32	33	34	34	G 26	G	E B 15	G	E B 15	E B 13	17	E B 12	E B 12	E B 12	E B 13
19	E B 13	E B 13	E B 13	E B 12	E B 12	E B 12	G	G	G	32	32	32	G 30	G 24	G 23	G	G	E B 14	E B 13	17	E B 12	19	19	E B 12
20	16	E B 12	E B 12	E B 16	E B 14	E B 14	G	G 14	G 17	G 16	G	G	G 16	G 16	G	G	22	E B 14	E B 13	E B 12	E B 12	E B 12	E B 12	E B 15
21	17	E B 16	E B 15	E B 15	E B 14	E B 14	G	25	G 20	G 24	G 24	G 22	G 22	G 22	G 22	G 20	G 17	17	E B 13	E B 12	E B 13	15	16	16
22	E B 12	E B 12	E B 12	E B 12	E B 13	E B 12	G	26	32	32	G 29	32	40	40	G 21	G 18	20	E B 15	E B 13	E B 12	E B 12	E B 12	E B 12	E B 12
23	17	17	E B 12	E B 12	E B 12	E B 12	E B 15	24	G 27	G 27	34	36	36	G 25	G 27	G 22	22	17	16	E B 14	E B 14	E B 14	16	16
24	16	E B 12	E B 12	E B 12	E B 12	E B 15	E B 16	23	G 28	31	32	36	G	G 26	G 21	G 20	20	20	18	17	17	E B 12	E B 12	16
25	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 26	G 27	G 27	35	G	G	G	G	G	E B 16	E B 13	E B 13	E B 13	E B 14	15	E B 15
26	E B 15	15	16	16	20	E B 12	G	23	G 25	G 24	G	G	36	G 23	G 21	G 20	19	E B 13	E B 13	19	E B 14	16	15	E B 14
27	E B 14	E B 14	E B 14	16	E B 14	E B 14	E B 14	G 22	G 27	28	G 27	G 24	G	42	E B 12	G	G 18	E B 11	E B 12	E B 14	E B 14	30	17	30
28	16	16	16	18	17	19	18	21	G 27	G 26	27	G	G 22	G 18	G	G 18	17	E B 14	E B 14	15	15	16	16	17
29	22	21	17	13	12	E B 12	G	G	G	G	G	34	34	G	G	G 19	G	E B 14	E B 14	E B 12	E B 12	E B 12	E B 12	E B 12
30	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 14	28	G 29	36	34	G 28	G	G 22	24	G	E B 14	E B 16	E B 16	E B 11	E B 12	E B 12	E B 12
31	E B 13	E B 14	E B 14	E B 14	E B 14	E B 14	G	20	26	30	33	32	32	32	G	24	G	E B 13	18	E B 16	E B 15	E B 15	E B 15	E B 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	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 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G 27	31	32	34	34	G	G	G	G 24	G	E B 14	E B 14	E B 13	E B 14	E B 14	E B 14
U Q	15	15	15	15	15	15	18	24	G	32	34	35	36	34	31	24	G	18	16	17	15	16	16	15
L Q	E B 14	E B 13	E B 12	E B 12	E B 13	E B 12	G	G 22	G 26	G 27	G 30	G	G 30	G 26	G 23	G 20	G 19	E B 14	E B 13	E B 12	E B 12	E B 12	E B 12	E B 12

OCT. 2012 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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

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	14	14	14	14	14	14	14	14	14	19	18	21	18	18	18	15	13	12	12	15	15	15	15	15
2	14	14	13	13	13	13	13	13	15	15	16	15	15	14	14	15	15	15	15	13	13	13	13	13
3	11	11	11	11	11	11	13	13	10	15	15	15	15	14	14	14	14	14	14	14	14	14	21	15
4	14	14	14	14	15	15	12	12	12	14	14	13	13	13	15	11	14	14	14	14	14	14	14	14
5	14	14	14	14	14	14	14	13	13	14	13	15	15	15	15	14	14	14	12	11	11	11	11	11
6	15	15	15	15	15	14	14	14	12	16	16	14	14	14	14	14	14	14	13	13	13	13	13	13
7	15	15	16	13	13	13	13	13	13	14	14	13	15	15	15	15	15	15	15	15	15	15	15	15
8	15	15	15	15	14	14	13	13	13	11	14	13	13	14	12	11	12	11	12	12	12	12	12	12
9	12	12	12	13	12	14	14	14	14	14	11	10	10	10	10	13	12	12	12	12	12	12	12	12
10	14	14	14	14	14	14	14	14	15	15	14	14	14	16	19	17	14	14	14	14	15	15	15	15
11	14	17	13	12	12	13	12	11	11	11	13	13	18	17	14	14	14	11	11	11	11	11	11	11
12	14	14	14	14	15	15	15	15	15	15	14	14	10	10	13	12	12	13	14	14	14	14	14	14
13	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	12	12	12	13	12	12	14	14
14	14	14	14	14	14	14	14	14	14	14	15	15	17	17	17	17	16	9	12	12	12	12	12	12
15	14	14	14	14	13	12	12	14	14	14	14	16	15	20	16	15	15	14	12	14	14	14	14	14
16	12	12	12	12	13	13	13	12	13	15	15	15	15	15	8	8	10	12	12	14	14	14	14	14
17	12	12	12	12	12	12	13	13	14	14	14	14	14	14	14	13	17	16	16	12	11	11	11	11
18	15	15	15	15	15	15	15	12	14	14	14	14	14	17	16	15	15	15	13	12	12	12	12	13
19	13	13	13	12	12	12	13	13	13	15	15	14	16	15	14	14	14	14	13	13	12	12	12	12
20	12	12	12	16	14	14	14	15	12	12	12	14	14	14	14	14	14	14	13	12	12	12	12	15
21	16	16	15	15	14	14	14	14	14	14	14	14	14	14	12	12	12	12	13	12	13	12	12	12
22	12	12	12	12	13	12	12	13	12	11	11	18	15	15	16	16	15	15	13	12	12	12	12	12
23	12	12	12	12	12	12	15	13	13	13	11	11	11	11	11	12	12	15	14	14	14	14	14	14
24	12	12	12	12	12	15	16	16	10	10	10	10	10	10	10	11	11	11	13	12	12	12	12	12
25	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	16	13	13	13	14	14	15
26	15	15	15	15	14	12	11	11	13	12	12	11	12	16	15	13	13	13	13	14	14	14	14	14
27	14	14	14	14	14	14	14	12	12	12	9	8	13	12	12	12	12	11	12	14	14	14	14	14
28	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	14	14	12	12	12	17
29	14	15	12	12	12	12	12	12	12	14	14	14	14	14	14	14	14	14	14	12	12	12	12	12
30	14	14	14	14	14	14	14	14	13	13	12	15	14	14	14	14	14	14	16	16	11	12	12	12
31	13	14	14	14	14	14	14	14	14	14	14	14	11	11	12	11	11	13	13	16	15	15	15	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	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	14	14	14	14	14	13	13	14	14	14	14	14	14	14	14	14	13	13	13	12	13	14
U Q	14	15	14	14	14	14	14	14	14	15	14	15	15	15	15	15	14	14	14	14	14	14	14	15
L Q	12	12	12	12	12	12	13	13	12	13	12	13	13	13	12	12	12	12	12	12	12	12	12	12

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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

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	284	284	283	280	273	294	322	R	U R 344	338	318	Y	U R 323	306	Y	R 325	U R 329	U R 351	288	289	295	296	302	R 295
2	279	277	276	281	282	288	341	U Y 379	U Y 355	U R 337	U Y 348	R 333	352	R 331	330	344	335	R 337	333	302	309	289	291	293
3	298	302	297	297	275	300	353	R	U Y 394	U Y 358	U Y 358	Y	U R 360	R 347	R 326	328	R 329	354	327	298	311	312	314	324
4	301	294	286	291	304	304	355	357	R	365	360	332	Y	J R 333	R	330	341	347	339	312	310	314	325	308
5	292	290	280	R 292	309	331	353	357	366	R 367	R 347	U R 341	U R 330	339	U R 356	338	R 355	333	345	326	295	300	301	R 303
6	291	292	290	288	310	297	359	344	U R 360	R	342	R	R 337	R	R 325	U R 333	342	A	331	328	317	312	300	295
7	R 277	289	291	292	294	328	378	346	R	U R 363	U R 357	R 349	R 347	R	R 333	J R 334	348	347	339	320	314	307	307	304
8	302	306	307	307	309	316	341	353	R	Y	358	R 343	R 350	330	U Y 352	R 342	349	338	295	304	R 306	286	322	306
9	261	F 300	F 327	279	F 291	279	288	320	R 360	308	346	R 340	320	334	323	323	339	330	284	R 318	F 281	267	267	288
10	269	276	287	296	285	299	368	359	352	R 363	Y	369	365	V 328	U R 366	354	R 347	354	327	309	322	321	321	306
11	292	298	293	300	297	290	349	368	377	366	353	347	U R 365	325	R 350	353	347	345	335	R 311	318	299	306	R 293
12	292	292	292	292	298	316	376	350	358	R 369	R	348	R U 327	R U 342	327	R 350	R 351	349	354	329	327	298	301	289
13	273	303	303	V 292	293	293	352	351	Y	R 362	R 366	R	335	R 329	R 319	R 336	325	330	309	291	286	295	260	291
14	268	R	318	303	263	264	302	H 308	346	333	A 331	A	327	338	353	344	350	337	328	324	322	297	281	292
15	295	306	301	303	303	290	329	333	344	345	333	335	341	347	338	345	338	347	327	341	A	300	298	296
16	297	297	301	299	308	309	349	359	R 366	U R 358	R	R	U Y 373	332	U R 341	R 351	R 368	350	306	315	324	297	308	309
17	285	295	291	298	327	325	350	351	365	U R 380	U R 364	Y	R 371	341	333	339	R 351	344	308	315	313	307	299	287
18	292	309	306	304	F 316	320	350	366	356	R 356	U Y 342	Y	R U 350	R 340	R	R	J R 340	338	312	321	329	307	280	282
19	295	287	285	283	309	316	348	342	U R 363	344	U R 348	353	U R 354	333	R 324	329	R	356	319	321	321	317	293	282
20	291	291	291	300	331	325	332	360	R 350	U R 373	U R 361	R 316	R	U R 323	R 334	322	345	345	331	325	310	317	300	300
21	292	287	304	307	333	318	340	360	R	U R 373	R 353	R	R 347	322	330	U R 344	347	352	331	323	306	R 303	284	287
22	302	296	292	294	301	314	334	376	R 371	U R 391	R 348	R	R	332	R 332	339	R 368	305	322	329	304	305	306	297
23	289	295	298	299	299	302	348	349	R 369	R 354	R U 357	U R 373	U Y 367	U Y 343	U R 344	U R 338	U R 332	338	302	329	R 324	293	279	279
24	279	281	288	291	297	302	337	U R 352	U R 362	U R 336	U R 365	Y	339	330	339	339	322	322	323	335	309	303	293	269
25	284	284	278	276	300	321	334	R	U R 363	Y	Y	U R 345	U R 365	R 342	336	R 346	353	347	332	330	327	297	298	298
26	288	292	292	292	311	329	322	U R 371	U R 356	R 361	R	U Y 346	Y	U Y 362	353	Y	340	333	327	321	321	305	293	293
27	293	305	305	289	276	309	344	349	Y	R 351	J R 351	R	R 333	342	350	U R 339	R 347	335	317	319	311	315	314	297
28	297	306	294	292	304	291	316	354	R	U Y 358	U R 346	U R 362	U Y 357	338	350	343	349	354	329	323	315	291	299	297
29	289	289	303	R 321	327	300	310	R 366	345	R	Y	R	R 342	R	R	R 339	R 358	328	323	310	303	298	289	292
30	307	315	315	329	309	318	340	372	353	R 369	U R 351	U R 363	U R 357	U R 343	344	R 361	U R 370	331	321	291	312	299	290	306
31	300	303	330	316	300	350	338	360	U R 392	R 374	375	R 377	334	342	R	U R 352	360	323	339	339	323	321	309	302
	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	30	31	31	31	31	31	28	24	27	25	18	27	28	26	29	30	30	31	31	30	31	31	31
MED	292	294	293	294	301	309	341	356	360	R 361	R 351	R 346	R 347	336	337	339	347	341	327	321	312	300	299	295
U Q	297	303	304	303	309	320	352	363	R 366	U R 369	U R 359	U R 362	U R 360	342	350	R 346	R 351	349	332	328	322	312	307	303
L Q	284	289	288	291	293	294	332	349	352	345	346	R 340	R 334	330	R 330	334	339	333	312	310	306	297	290	289

OCT. 2012 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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									L	L	L	L		L	L									
2									L	L	A	L	L	L										
3										L	L	L	L	L	L	L								
4										L	L	L	A400	UL386	L									
5										L	UL384	L	L	L	L	L								
6										L	L					A		A						
7									L		L	L	L	A										
8									L	L	UL399	L	L	A	L									
9									UL354	L360	UL356	354		L	L	L								
10									L	L	UL407	L	L		L		L							
11								L	L	L	L	L	L		L	L								
12								L	UL430	L	UL371	L	L	L	L									
13									A	A	353	L	L	L	L	L								
14									L	A	A	A	UL369	L	L									
15								L	L	L405	L	U390	UL383	L	L	UL415								
16									L	L	L	L	L	L	L	L								
17										L	UL392	L	L	L	L									
18									L	L	L	L	L		L									
19								L		L	L		L											
20										L	L	L	L	L	L									
21										L	L				L									
22									L	L	L	L				L								
23										L	L	L	L	UL376	L									
24								457	L		L	L	L	L		L383								
25										L	L	L	L	L	L									
26								425			L		L											
27								394		L	L	L												
28										L	L	UL383	L	L			381							
29												L	L	L		L								
30											L	L	L			UL402								
31								473		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								4	2	2	7	3	3	2		3	1							
MED								441	UL392	L382	UL384	UL383	UL383	UL381		UL402	381							
U Q								465			UL399	UL390	A400			UL415								
L Q								410			356	354	UL369			L383								

OCT. 2012 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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

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									250	250	274	274		272	270									
2									244	242	242	242	242	242										
3										252	252	252	246	248	248	242								
4										224	226	238	238	242	242									
5										240	240	240	240	244	240	240								
6										240	240					266		A						
7									252		242	242	242	242										
8									240	226	226	230	230	244	244									
9									258	312	256	264		264	264	264								
10									234	248	240	240	244		244		242							
11								220	220	222	222	230	232		232	232								
12								222	226	226	236	236	262	252	256									
13									232	232	232	232	236	236	236	244								
14									264	298 A	A	A	272	272	268									
15								252	252	252	252	252	252	252	252	252								
16									250	250	250	256	236	246	246	246								
17										230	230	248	248	248	248									
18									238	238	244	244	244		244									
19								228		228	228		242											
20										238	238	238	238	238	238									
21										236	240				240									
22									226	226	226	226				256								
23										232	232	230	230	250	250									
24								230	230		230	230	230	236		236								
25										224	224	228	228	228	242									
26								224			234		234											
27								230		230	234	234												
28										246	244	228	228	230			222							
29												222	228	236		236								
30											234	234	234			234								
31								218		218	216	216	232	232										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								8	15	26	29	26	25	21	19	12	2							
MED								226	240	237	236	237	238	244	244	243	232							
U Q								230	252	248	243	244	244	251	252	254								
L Q								221	230	226	229	230	231	236	240	236								

OCT. 2012 h′F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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	278	284	284	284	284	270	226	226	226	226	H 208	208	218	218	218	220	232	232	232	258	258	258	258	258
2	284	292	292	282	282	282	234	232	232	232	A	206	198	198	208	220	220	220	216	244	244	264	264	264
3	242	242	246	254	276	276	220	220	220	218	214	206	206	206	206	206	214	216	216	232	236	236	236	236
4	240	274	274	274	270	234	198	202	202	206	206	H 192	194	194	H 194	202	222	222	222	230	242	250	248	248
5	268	268	268	268	254	254	214	214	214	214	214	214	214	228	228	228	228	226	226	226	246	256	256	256
6	274	274	280	280	254	230	206	206	210	210	A	234	234	234	234	A	234	A	232	232	232	236	256	264
7	270	270	270	E A 324	A 292	244	218	218	218	224	230	224	218	A	238	238	238	Q 230	230	238	250	260	260	260
8	260	260	A 326	292	268	260	218	218	218	218	216	202	202	A	208	228	228	228	262	244	246	272	242	236
9	274	274	264	264	312	276	276	270	246	246	A 248	A 240	A 252	A 242	242	A 242	242	242	258	256	268	316	316	300
10	304	304	290	292	288	274	236	224	224	224	194	206	210	212	226	226	226	226	A 276	248	248	248	242	302
11	288	288	288	288	288	282	234	230	222	202	202	202	200	204	222	222	222	222	228	228	254	254	254	254
12	276	284	284	282	270	250	222	222	214	H 190	184	202	H 202	222	222	222	224	224	208	210	214	244	252	298
13	292	280	274	274	274	274	220	220	A	A	186	216	216	216	216	234	234	234	234	232	248	248	254	248
14	298	254	246	246	A 380	362	282	244	A 252	A	A	A	248	A 220	240	236	236	220	220	220	220	254	294	294
15	280	272	272	298	E A 324	296	266	230	230	218	210	184	196	208	208	208	216	214	222	234	A	E A 348	286	286
16	286	286	286	286	284	280	242	232	232	218	218	212	224	206	206	218	218	218	218	238	238	274	274	274
17	290	290	290	284	254	234	226	222	222	222	188	200	H 200	200	204	216	224	218	222	222	222	240	258	264
18	286	286	286	286	280	262	212	212	212	212	204	204	206	206	206	214	232	232	230	230	230	234	252	272
19	298	298	290	290	272	234	212	212	212	212	212	212	212	212	212	228	228	224	224	224	224	248	268	282
20	282	282	266	266	240	232	222	212	212	208	208	208	208	208	214	220	220	210	210	210	232	236	270	288
21	306	306	268	268	246	220	220	220	220	220	214	216	216	224	224	224	224	212	212	212	216	270	280	284
22	284	284	276	276	276	240	226	220	220	H 198	198	206	236	236	234	234	214	208	214	216	216	248	270	276
23	276	276	276	266	266	262	224	224	224	224	204	206	H 206	206	H 206	212	224	224	230	230	230	234	272	286
24	294	294	272	272	272	268	224	198	212	212	220	220	212	212	222	222	222	222	230	230	230	246	268	306
25	294	294	294	294	268	254	238	226	214	214	208	204	190	198	198	210	212	212	212	222	222	246	248	274
26	276	276	276	276	260	260	232	214	214	214	214	214	214	228	228	228	228	226	226	238	238	238	270	274
27	286	286	288	294	264	216	214	214	214	H 212	210	210	210	234	234	234	222	212	212	230	230	278	268	300
28	276	274	274	274	248	256	242	214	214	214	214	214	214	200	224	224	228	196	212	226	226	270	274	282
29	A 310	314	280	270	240	240	240	232	228	220	220	220	214	214	214	214	214	212	212	224	236	256	256	256
30	274	274	270	264	250	250	238	218	216	216	220	220	220	220	220	220	218	206	212	220	242	252	278	278
31	278	276	250	250	242	188	218	196	202	H 194	202	208	208	208	210	212	212	212	218	218	226	226	250	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	31	31	31	31	31	31	31	31	30	29	28	30	31	29	31	30	31	30	31	31	30	31	31	31
MED	282	282	276	276	270	256	224	220	218	214	210	208	212	212	218	222	224	221	222	230	234	249	260	274
U Q	292	290	288	288	284	274	238	226	224	221	215	216	218	223	228	228	228	226	230	238	246	264	272	286
L Q	274	274	270	268	254	234	218	214	214	211	203	204	202	206	208	214	218	212	212	222	226	240	252	256

OCT. 2012 h′F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 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

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							110	110	110	110	110	A	116	120	120	120	120	A						
2							A	114	118	112	110	110			110	112	112	142						
3							144	108	108	108	108	108	108	108	108	108	128	E 234 B						
4							H 130	A	130	120	A	114	114	120	120	120	120							
5							144	118	118	118	114	114	114			A	118	A						
6							148	120	118	114		A				114	A							
7							A	106	106	106	106	106		A	A									
8								118	118	112			112	112	112	112	112	A				B		
9							A	116	116	116	116	112	112	A			A	A						B
10							158	126	116	116	112	112	112	112	112	112	A	B						
11							A	118	A	A	A	A	A	118	118	118	A	B						
12							162	130	122	120	112	112	112	112	110	110	A 128	B						
13							142	142	128	112	112	112	112	112	112	112	136	B						
14								112	112	112		A	112	112	112	112	112	114						
15							A	A	114	114	114	124	A		124	124	124	B						
16							110	110	126	124	110	108	110	110	110	110	A 118	B						
17							156	A	114	114	106	106	106	106	106	106	110							
18								110	110	A				110	110	110	110	B						
19							142	142	124	120			120	120	120	120	120	B						
20							174	132	128	120	110	110	106	106	106	106	106	B						
21							180	124	124	126	126	112	112	112	112	112	116	B						
22							E B 186	106	116	116	116	A	A	A	116	116	116	B						
23							B	116	116	116	116	114	114	114	114	114	B 122	A						
24							B	122	122	118	A	118	114	114	114	114	A							
25							B	120	120	114	118	116	110	108	108	108	118							
26							164	142	134	126	126	114	114	114	114	120	A							
27							B	120	120	A	120	120	114	A	114	114	114							
28									A	118	A	108	108	108	108	122	A							
29							B	122	122	118	112	110	110	110	110	114	144							
30							B	136	130	120	114	114	126	120	120	120	132							
31							E B 184	120	A 120	120	120	120	116	116	116	116	138							
	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	27	29	28	22	23	24	23	27	28	23	3						
MED							148	120	118	116	113	112	112	112	112	114	118	U 128						
U Q							169	126	124	120	116	114	114	116	116	119	128	E 234 B						
L Q							142	112	115	113	110	110	110	110	110	111	112	114						

OCT. 2012 h′E (KM)

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	100	B	B	B	100	B	G	G	G	112	G	112	112	112	112	112	128	126	124	B	98	96	B	B
2	B	B	B	96	96	96	88	190	146	108	108	108	108	108	G	108	198	G	B	B	B	98	B	B
3	B	B	B	106	106	104	G	154	148	128	118	112	G	G	G	G	112	G	B	B	B	112	B	B
4	B	B	112	112	B	106	106	106	106	106	106	106	170	100	B	100	188	152	B	B	B	114	114	112
5	B	100	100	100	100	100	G	144	138	124	118	118	118	114	114	106	106	106	106	B	B	B	B	B
6	B	B	B	B	106	B	G	148	128	118	114	112	110	106	106	106	106	106	106	B	B	106	B	106
7	B	106	106	106	104	104	104	162	142	128	116	116	114	114	114	114	112	112	112	104	104	104	104	104
8	B	104	102	102	94	94	94	94	124	122	112	112	112	112	182	G	160	132	B	B	B	B	156	B
9	130	136	136	118	102	B	126	126	122	122	122	122	112	106	106	106	106	94	106	106	B	B	B	B
10	B	106	B	106	94	B	G	152	152	138	138	138	138	128	128	128	100	100	100	100	100	100	B	B
11	B	B	B	96	B	B	96	96	96	98	98	98	98	98	128	126	114	106	114	106	104	100	100	100
12	B	110	B	106	106	B	G	134	182	180	180	184	184	192	G	98	98	102	B	102	102	B	102	B
13	B	B	B	100	100	100	G	130	116	114	114	114	114	G	208	224	154	114	B	B	B	106	150	104
14	158	B	104	104	104	104	116	116	116	110	106	98	224	114	170	G	G	G	B	B	B	B	B	B
15	B	B	104	104	104	106	104	104	116	116	98	102	102	102	G	B	G	B	102	102	102	102	102	102
16	B	B	B	B	B	B	G	G	102	102	G	G	102	186	G	G	88	88	88	110	B	B	B	B
17	B	B	B	B	B	B	G	166	166	G	G	204	182	194	G	G	G	B	B	B	98	98	98	B
18	B	B	B	B	100	98	98	G	G	98	102	102	102	102	G	B	G	B	B	102	B	B	B	B
19	B	B	B	116	B	B	G	G	G	116	114	110	110	110	110	G	G	116	116	102	B	102	102	102
20	94	94	B	B	B	B	G	100	100	102	G	G	102	98	G	G	148	B	B	B	B	108	108	B
21	100	B	B	100	96	96	G	210	112	112	104	104	98	98	98	98	98	98	98	98	B	98	98	98
22	102	102	102	102	102	102	102	186	194	186	102	102	92	92	92	92	144	104	B	B	B	B	104	104
23	106	106	B	106	B	106	B	150	150	108	112	138	204	92	140	96	134	102	98	B	B	B	98	98
24	98	B	B	B	B	B	B	162	160	126	114	206	G	90	90	90	90	90	94	94	96	110	B	98
25	102	102	B	102	B	B	B	G	118	118	116	180	G	G	G	G	G	108	B	108	122	100	100	100
26	116	106	106	106	104	104	G	174	160	100	G	G	202	96	96	96	96	122	98	98	100	106	106	B
27	106	B	B	106	B	B	B	200	138	122	108	108	G	106	B	G	126	B	B	B	B	110	110	110
28	100	100	100	100	106	104	104	104	140	90	90	G	90	90	G	104	110	B	B	110	110	110	96	96
29	94	96	96	96	96	B	G	G	G	G	G	200	200	G	G	108	100	100	100	98	B	112	112	116
30	104	104	104	104	B	B	G	104	156	142	120	120	112	G	104	202	G	B	B	116	96	B	B	B
31	B	96	B	96	96	B	G	162	176	176	150	152	192	200	G	214	G	B	94	B	B	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	14	15	12	24	20	15	11	25	27	29	25	27	27	26	17	20	23	20	16	16	12	20	18	15
MED	102	104	104	104	101	104	104	148	138	116	114	112	112	106	112	106	112	106	101	102	101	105	103	102
U Q	106	106	106	106	104	104	106	164	156	127	118	138	182	114	134	120	144	115	109	107	104	110	110	106
L Q	100	100	101	100	96	98	96	105	116	107	105	106	102	98	101	98	100	100	98	99	98	100	100	98

IONOSPHERIC DATA STATION Wakkanai

OCT. 2012 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2				F2					C1		C1	L1	L1	L1	L2	CL11	C2	F2		F1	F1		
2				F1	F1	F1	L2	HL11	HL11	C1	C2	C1	C1	L2		L2	HL12					F1		
3				F1	F1	F1		H1	H1	C1	C1	C1					L2					F1		
4			F1	F1		F2	L1	L2	L2	CL21	C1	CL12	HL12	L2		L2	H1	H1				F3	F1	F2
5		F1	F2	F1	F1	F1		H1	C1	C1	C1	C1	C1	C2	C2	L3	L2	L2	F1					
6					F1			H1	CL11	C2	C2	C2	C2	C2	C2	CL32	CL32	L5	F2			F1		F1
7		F1	F1	F4	F3	F1	C2	HL12	C1	C2	C2	C1	C2	L2	LQ21	LQ21	LQ21	LQ21	FQ31	FQ31	F3	F3	F3	F1
8		FQ21	FQ41	F3	F2	F4	LQ21	LH21	HL11	C2	C2	C2	C2	C2	H1		C2	C2				K1	F1	
9	F1	F1	F1	F3	F4		CL11	C1	C1	C1	C2	C1	C2	C2	C2	C3	C2	L2	F3	F1				K1
10		F1		F1	F1			H1	H1	H1	H1	HL11	R1	R1	R1	C1	L3	LQ31	F3	F2	F2	F2		
11				F1			L2	L1	L1	L1	L2	L2	L2	LH21	CL12	CL31	C4	F2	F2	F2	F4	F3	F2	F1
12		F1		F1	F1			C1	H1	H1	H1	H1	H1	H1		L2	L2	L2		F1	F1		F1	
13				F1	F1	F1		CL21	CL21	C2	C1	C2	C2		H1	H1	HL11	L3				F1	F1	F1
14	F1		F2	F2	F3	F3	F2	C2	C2	C2	CL22	L3	HL11	CL21	HL11									
15			F2	F4	F5	F1	L1	L3	CL12	CL21	L1	L1	L2	L1					F3	F5	F5	F3	F2	F1
16									L1	L1			L1	HL11			L1	L1	FF11	FF11				
17								HL11	FL31			H1	H1	H1							F1	F1	F1	
18					F1	F3	LQ11			L1	CL21	CL21	L2	L1						F1				
19				F1						C1	C1	L2	L2	L2	L2			L2	F1	F3		FQ21	F2	F2
20	F2	F1						L2	L2	L2			L1	L1			H1					F1	F1	
21	F1			F1	F1	F1		HL11	L1	L1	L2	L1	L1	L1	L1	L1	L2	L1	F1	F1		F2	F2	F2
22	F1	F1	FQ11	FQ11	F1	FF11	L1	H1	HL11	HL11	L2	L2	L2	L2	L1	L1	HL11	L1					F1	F2
23	F3	F2		F1		F1		H1	H1	L1	C1	HL11	HL11	L1	HL12	L2	HL22	L1	F1				F2	F1
24	F1							H1	H1	CL11	C2	H1		L2	L2	L2	LQ21	FQ21	F2	F2	F2	F1		F2
25	F1	F1		F1					C1	C1	L1	HL11						L1		F1	F1	F2	F2	F1
26	F1	F2	F2	F2	FQ21	FQ11		HL11	HL11	L1			HL11	L1	L2	L2	L2	L1	F2	FQ21	FQ11	F3	F1	
27	F1			F2				HL11	H1	L2	L1	L1		L2			H1					F3	F1	F3
28	F4	F2	F2	F3	FQ21	FQ21	F2	L2	CL13	L2	L2		L1	L1		L1	L2			F1	F1	FQ21	FQ11	F2
29	F2	F2	F2	F1	F1							H1	H1			L1	L1	F1	F1	F1		F1	F1	FF11
30	F1	F1	F1	F1				L1	H1	C1	C2	C2	L1		L1	H1				F1	F1			
31		F1		F1	F1			H1	HH11	HL11	HL21	HL11	H1	H1		H1			F1					
	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. 2012 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 60	X 57	X 58	X 58	X 52	X 54													X 80	X 69	X 72	X 68	X 69	X 64
2	X 59	X 60	X 59	X 60	X 58	X 60													X 86	X 71	X 67	X 67	X 68	X 67
3	X 65	X 59	X 55	X 56	X 53	X 54													X 94	X 81	X 72	X 66	X 64	X 60
4	X 53	X 51	X 52	X 50	X 51	X 52													X 85	X 72	X 64	X 60	X 57	X 55
5	X 53	X 52	X 53	X 54	X 54	X 50													X 95	X 64	X 52	X 53	X 56	X 56
6	X 54	X 54	X 55	X 55	X 52	X 52													X 78	X 67	X 66	X 52	X 54	X 54
7	X 57	X 57	X 56	X 56	X 54	X 54													X 76	X 55	X 49	X 51	X 51	X 53
8	X 50	X 49	X 50	X 50	X 52	X 40													X 78	X 85	X 79	X 65	X 64	X 64
9	X 49	X 51	X 52	X 51	X 47	X 54													X 73	X 65	X 57	X 50	65	66
10	62	60	57	X 52	X 55	X 51					C	C	C	C	C				X 77	X 71	X 57	X 51	X 48	X 48
11	X 49	X 49	X 50	X 47	X 45	X 46													X 71	X 64	X 52	X 50	X 49	X 50
12	X 48	X 47	X 47	X 49	X 51	X 50													X 81	X 64	X 47	X 40	X 42	X 44
13	X 44	X 45	X 47	X 46	X 45	X 45													X 87	X 85	X 74	X 69	X 68	X 74
14	X 47	X 60	X 60	X 61	X 44	X 44													X 68	X 63	X 64	X 44	X 41	X 41
15	X 46	X 46	X 38	X 39	X 38	39													X 55	X 52	X 53	X 45	X 39	X 43
16	X 45	X 42	X 45	X 46	X 42	X 40												X 87	X 62	X 47	X 50	X 48	A	X 47
17	X 45	X 44	X 46	X 47	X 46	X 37													X 65	X 55	X 55	X 52	X 50	X 49
18	X 49	X 49	X 51	X 52	X 46	X 41													X 83	X 63	X 62	X 52	X 46	X 49
19	X 49	X 50	X 52	X 51	X 52	X 50													X 73	X 62	X 58	X 56	X 55	X 56
20	X 54	X 53	X 54	X 55	X 50	X 43													X 72	X 73	X 53	X 51	X 49	X 49
21	X 51	X 51	X 53	X 52	X 40	X 34													X 68	X 66	X 62	X 58	X 54	X 55
22	X 56	X 55	X 59	X 54	X 42	X 44													X 61	X 70	X 62	X 56	X 51	X 50
23	X 51	X 52	X 51	X 50	X 46														X 77	X 67	X 66	X 54	X 50	X 51
24	X 51	X 50	X 51	X 50	X 47	X 47													X 72	X 60	X 58	X 50	X 48	X 46
25	X 46	X 47	X 46	X 46	X 46	X 46													X 69	X 62	X 54	X 49	X 50	X 49
26	X 49	X 49	X 49	X 52	X 43	X 42													X 64	X 60	X 55	X 49	X 43	X 44
27	X 46	X 47	X 46	X 44	X 46	X 45													X 64	X 59	X 60	X 59	X 60	X 54
28	X 51	X 52	X 54	X 55	X 40	X 42													X 56	X 53	X 52	X 47	X 45	X 48
29	X 48	X 50	X 52	X 50	X 34	X 35												X 67	X 51	X 50	X 48	X 48	X 49	X 47
30	X 46	X 46	X 46	X 46	X 42	X 40													X 48	X 46	X 43	X 42	X 43	X 43
31	X 45	X 45	X 50	X 42	X 37	X 36												X 78	X 55	X 50	X 44	X 41	X 40	X 40
	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												3	31	31	31	31	30	31
MED	X 49	X 50	X 52	X 51	X 46	X 45												X 78	X 72	X 64	X 57	X 51	X 50	X 50
U Q	X 54	X 54	X 55	X 55	X 52	X 51												X 87	X 80	X 70	X 64	X 58	X 57	X 56
L Q	X 46	X 47	X 47	X 47	X 42	X 40												X 67	X 64	X 55	X 52	X 48	X 46	X 47

OCT. 2012 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	53	51	52	52	46	48	74	85	91	107	107	109	121	118	122	114	100	94	74	63	66	62	63	58
2	53	54	53	54	52	54	74	102	106	109	104	110	98	96	96	94	98	88	80	65	61	61	62	61
3	59	53	49	50	47	48	76	90	88	80	87	104	101	98	96	100	101	102	88	74	66	60	58	54
4	47	45	46	44	45	46	62	78	82	84	87	102	105	104	97	90	89	84	79	66	58	54	51	48
5	47	46	47	48	48	44	58	73	76	84	82	106	101	94	96	90	80	93	89	58	46	47	50	50
6	48	48	49	49	46	45	67	76	84	92	96	96	94	89	85	91	105	99	72	60	59	46	48	48
7	51	51	50	50	48	48	62	75	83	90	101	110	100	84	91	97	93	91	70	49	43	45	45	46
8	44	43	43	44	46	34	54	78	97	101	82	78	92	96	104	94	90	80	72	79	73	59	58	57
9	43	45	46	45	41	48	69	101	118	84	106	86	81	86	91	87	89	83	67	59	51	44	F	F
10	F	F	F	46	49	45	58	69	71	73	C	C	C	C	C	96	92	87	71	65	50	44	41	42
11	43	43	44	41	39	40	64	78	74	76	92	84	85	97	99	105	98	78	65	58	46	44	42	43
12	42	41	41	43	45	44	59	66	78	79	83	100	95	99	100	88	89	87	75	58	41	34	36	38
13	38	39	40	39	39	39	62	82	87	87	100	107	107	106	101	98	101	94	81	79	68	63	62	68
14	41	54	54	55	38	37	71	110	78	81	96	108	108	92	85	95	87	80	62	57	58	38	35	35
15	40	40	32	33	32	F	58	92	96	88	90	97	90	91	93	87	92	79	49	46	47	38	32	37
16	39	36	39	40	36	34	55	72	81	93	106	110	104	103	107	86	78	80	56	41	44	42	A	41
17	39	38	40	41	40	31	51	74	88	102	102	104	99	104	99	80	72	77	58	49	49	46	44	43
18	43	43	45	46	40	35	58	77	89	93	96	106	108	108	97	87	85	89	77	57	56	46	40	42
19	43	44	46	45	46	44	59	74	86	90	104	112	101	106	110	97	88	82	67	56	52	50	49	49
20	48	47	48	49	44	37	61	84	92	103	94	105	97	101	105	98	88	79	66	67	47	45	42	43
21	45	45	47	46	34	28	53	81	85	94	105	110	102	105	112	105	87	78	62	60	55	52	48	49
22	50	49	53	48	36	38	58	90	90	92	97	105	100	104	110	96	88	84	55	63	56	50	45	44
23	45	45	45	44	40	36	58	86	83	86	95	104	105	103	101	101	93	88	70	61	60	50	44	44
24	44	44	45	44	41	40	62	76	93	96	97	113	103	108	102	100	98	88	66	54	52	44	42	40
25	40	40	40	40	40	40	63	88	91	96	104	116	104	112	108	113	114	86	63	56	48	43	44	43
26	42	42	42	46	37	36	57	90	92	97	106	108	109	113	109	113	96	78	58	54	49	43	37	38
27	40	41	40	38	40	39	54	78	99	109	118	120	113	112	114	103	92	83	58	53	54	53	54	48
28	45	46	48	49	34	36	51	77	93	112	114	116	107	102	92	92	87	67	50	47	46	41	38	41
29	42	44	46	44	28	29	45	72	94	103	96	107	98	102	96	82	77	62	45	44	42	42	43	41
30	40	40	40	40	36	34	48	76	81	84	92	114	117	102	90	76	70	70	42	40	37	36	37	37
31	39	39	44	36	31	30	45	69	81	99	87	99	96	105	104	81	77	72	49	44	38	35	33	34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	31	31	30	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	29	30
MED	43	44	46	45	40	39	58	78	88	92	96	106	101	102	100	95	89	83	66	58	51	45	44	43
U Q	47	47	48	49	46	45	63	88	93	101	104	110	107	106	107	100	98	88	74	63	58	52	50	49
L Q	40	41	41	41	36	35	54	74	81	84	92	102	97	96	96	87	87	78	58	49	46	42	39	41

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 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

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										L	L	L	L	L	L	L								
2										L		A	A	L	L	A	A							
3											A	L	L				A							
4											L	A	A		L		L							
5									A	A	A	U L 484	L	L	L	A								
6										L	A	L	L	L	L									
7											U L 492	A	A	A	A									
8								L	A	A	A	A	L	A	A	A	A	A						
9									A	L	A	L	L	L	A	L								
10											C	C	C	C	C									
11											L	L	L	L	L	L								
12										L	L	U L 512	L		L									
13										L	L	L	L	L	L	L								
14											A	L	L	L	L	L								
15											L	L	L	L	A	A								
16										L	L	L	L	L	L									
17										L	L	L	L	L	L	L								
18											L	L		L										
19										A	L	L	L	L	L									
20											L	L	L	L	A	A								
21												L	L	L	L	A								
22											L	L	L	L	L									
23											L	L		L		L	L							
24											L	L		L	L									
25											L	L	L	L	A									
26											L	A	L	A	L									
27										L		A	L		L									
28										L	L	L	L	L	A	A								
29									L		L	420	L	L	L									
30										L	L	L	L	L	L	A								
31										L	L	L	A	L	A	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											1	3												
MED											U L 492	U L 484												
U Q												U L 512												
L Q												420												

OCT. 2012 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 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

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	R	R	R	R	R	R	R	R	R	A	A						
2							B	R	R	A	R	A	A	A	A	A	A	UR 204						
3							B	R	R	A	A	R	R	A	R	R	A	R						
4							B	R	A	A	A	A	A	R	A	R	R	R						
5							B	R	A	A	A	A	R	R	A	A	R	UR 180						
6							B	260	A	A	A	R	R	R	R	A	A	B						
7							A	A	A	A	A	A	A	A	A	A	A	B						
8							B	R	A	A	A	A	R	A	A	A	A	B						
9							B	256	A	A	A	R	R	R	A	R	R	B						
10							B	UR 256	A	R	C	C	C	C	C	A	A	A						
11							B	UR 236	A	A	R	R	R	R	R	R	A	B						
12							B	R	R	A	A	R	R	R	R	R	A	B						
13							B	A	A	R	R	R	R	R	R	R	R	B						
14							B	R	R	R	A	A	A	A	R	R	R	B						
15							B	R	A	A	A	R	R	A	A	A	R	B						
16							B	R	R	R	R	R	R	R	R	R	R							
17							B	A	R	R	R	R	R	R	R	R	A	B						
18							B	R	R	A	A	A	A	A	A	R	R	B						
19							B	R	R	A	A	A	R	R	R	R	R	B						
20							B	A	A	A	R	R	R	R	A	A	R	B						
21							B	UR 276	R	A	R	A	R	R	R	A	A	B						
22							B	260	R	A	A	R	R	R	R	R	R	B						
23						B	UR 180	UR 256	A	A	A	A	A	R	R	A	A	B						
24							B	228	A	R	A	R	A	A	A	R	A	B						
25							B	248	A	R	A	A	A	A	A	R	R	B						
26							B	244	A	A	R	A	A	A	R	A	A	B						
27							B	R	A	A	A	A	R	R	R	R	UA 220	B						
28							B	232	A	A	R	R	R	R	A	A	UR 236	B						
29							B	228	A	R	R	R	A	A	R	R	UR 232							
30							B	UA 216	A	A	R	R	A	A	A	A	A	B						
31							B	220	A	R	R	R	A	A	A	A	UR 208							
	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	14									4	2						
MED							UR 180	246									UR 226	UR 192						
UQ								256									UR 234							
LQ								228									U 214							

OCT. 2012 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 14	E B 15	E B 15	19	20	21	23	G	G	G	G	G	G	G	G	G	35	27	J A 36	E B 15	20	20	E B 15	E B 15
2	E B 15	E B 15	18	E B 15	E B 15	E B 14	E B 14	G	G 28	40	G	J A 47	J A 43	J A 50	J A 44	37	106	J A 33	J A 38	J A 31	20	22	E B 15	E B 14
3	E B 15	E B 15	E B 14	E B 14	J A 23	22	E B 15	G	G	42	43	G	G	41	G	G 32	30	G	J A 26	E B 15	E B 16	E B 14	E B 14	E B 14
4	E B 14	E B 15	E B 16	E B 15	20	J A 23	20	G 22	38	38	41	43	J A 56	G	40	G	G	G	E B 14	J A 39	J A 20	E B 15	E B 15	E B 15
5	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	G	40	J A 45	42	38	G	G	38	36	G	G	J A 23	J A 30	E B 15	E B 15	E B 14	E B 15
6	E B 14	E B 15	E B 14	E B 14	E B 14	E B 14	22	32	38	40	42	G	G	G	G	39	32	20	E B 14	E B 15	E B 15	E B 15	J A 48	E B 14
7	20	E B 15	19	22	22	J A 31	J A 46	30	37	44	43	41	J A 45	41	J A 48	42	34	19	J A 22	J A 23	J A 28	J A 31	J A 24	J A 30
8	J A 24	20	18	E B 15	E B 14	E B 14	20	G	38	J A 54	J A 57	J A 48	G	43	J A 49	J A 61	J A 65	J A 66	A E B 15	20	J A 29	24	20	E B 14
9	E B 14	E B 14	E B 15	19	E B 15	20	18	33	38	36	42	G	G	G	41	G	G	19	J A 23	J A 23	J A 30	J A 27	J A 19	E B 15
10	J A 26	E B 15	E B 14	E B 14	E B 14	E B 15	E B 16	G	37	G	C	C	C	C	C	J A 41	J A 40	J A 35	J A 40	23	J A 24	22	E B 15	J A 32
11	J A 23	22	E B 15	E B 15	E B 14	E B 16	E B 16	G	33	39	G	G	G	G	G	G	J A 40	J A 25	J A 25	J A 30	E B 15	E B 15	E B 15	E B 14
12	18	E B 15	19	20	20	E B 16	E B 16	G	G	40	40	G	G	G	G	G	34	J A 37	J A 44	A E B J A 47	14	27	21	E B 15
13	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	20	29	40	G	G	G	G	G	G	G	G	20	E B 14	E B 14	J A 34	E B 14	E B 15	E B 14
14	J A 16	22	22	20	20	E B 15	E B 16	G	G	G	J A 48	41	41	42	G	G	G	J A 26	J A 18	J A 31	22	J A 19	J A 20	E B 15
15	20	J A 17	20	E B 14	E B 14	E B 15	E B 15	G	J A 54	J A 49	J A 43	G	G	42	41	J A 37	G	J A 22	21	21	J A 31	E B 16	21	J A 31
16	J A 25	J A 22	J A 24	23	22	E B 14	E B 16	G	G	G	G	G	G	G	G	G	G	J A 27	J A 34	J A 28	J A 25	J A 29	J A 52	J A 30
17	J A 21	J A 20	22	20	E B 15	E B 15	E B 15	30	G	G	G	G	G	G	G	G	J A 36	22	E B 14	E B 14	J A 17	E B 14	E B 15	E B 15
18	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	22	G	G	40	42	41	40	38	39	G	G	E B 16	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15
19	E B 15	E B 16	E B 15	E B 15	E B 15	E B 14	E B 16	G	G	38	41	44	G	G	G	G	G	E B 15	J A 27	J A 40	J A 41	J A 34	J A 21	J A 42
20	J A 27	J A 24	J A 19	E B 15	E B 15	E B 15	E B 15	34	36	38	G	G	G	G 26	44	37	G	J A 40	38	J A 31	J A 30	E B 15	J A 24	J A 23
21	E B 14	E B 15	E B 14	E B 15	E B 15	E B 15	18	G	G	44	G	48	G	G	G 30	36	J A 33	J A 33	J A 27	20	20	J A 23	J A 52	E B 15
22	E B 14	J A 19	E B 14	E B 14	E B 15	E B 14	20	G	G 25	38	39	G	G	G	G 29	G	G	E B 15	E B 14	J A 20	E B 15	21	20	E B 14
23	E B 15	E B 15	21	E B 14	E B 14	E B 15	G	G	36	39	43	42	41	G	G	34	23	J A 21	J A 23	J A 42	23	E B 15	22	E B 13
24	E B 15	E B 15	19	E B 14	E B 15	E B 14	E B 16	29	37	G	42	G	J A 47	44	44	G	G	J A E B 33 15	E B 15	J A 48	J A 20	J A 39	E B 15	E B 15
25	E B 15	E B 15	E B 14	E B 14	19	19	20	30	38	G	J A 41	42	39	J A 56	J A 42	G 26	G	E B 15	E B 15	E B 16	E B 15	J A 20	J A 31	J A 28
26	E B 14	J A 33	E B 15	E B 15	21	E B 15	19	30	35	38	G	42	42	J A 61	G	34	25	E B 16	E B 15	E B 15	J A 21	E B 14	J A 22	J A 31
27	J A 28	22	E B 16	E B 15	E B 14	E B 15	E B 16	G 23	31	37	40	40	G	G	G	G	27	J A 21	J A 21	J A 28	J A 21	E B 15	18	E B 15
28	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	34	40	39	G	G	G	G	50	36	G	22	E B 15	J A 23	E B 14	E B 16	E B 15	20
29	22	22	E B 14	E B 14	E B 15	E B 15	E B 15	27	33	G	G	G	36	39	G	G	G	E B 16	J A 47	E B 15	E B 14	E B 14	E B 15	E B 15
30	E B 14	J A 16	E B 15	E B 15	E B 15	E B 15	E B 14	32	36	36	G	G	43	36	35	36	J A 44	J A 42	J A 48	J A 31	J A 25	E B 16	19	E B 15
31	E B 15	E B 15	J A 32	20	22	E B 15	E B 14	31	33	G 26	G	G	39	38	37	J A 41	G	E B 14	E B 14	E B 13	E B 15	E B 15	J A 22	J A 33
	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	30	30	30	31	31	31	31	31	31	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	G	35	38	40	G	G	G	G	G	23	21	J A 22	J A 23	20	E B 16	19	E B 15
U Q	J A 21	20	19	19	20	16	20	30	38	40	42	42	41	41	41	37	J A 34	J A 27	J A 34	J A 31	J A 25	J A 23	J A 22	J A 28
L Q	E B 14	E B 15	E B 15	E B 14	E B 14	E B 14	E B 15	G	G	G	G	G	G	G	G	G	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14

OCT. 2012 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	22	G	G	G	G	G	G	G	G	G	32	24	22	E B 15	E B 15	E B 15	E B 15	E B 15
2	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	G	G 27	37	G	45	40	46	42	36	66	G 16	30	20	E B 15	17	E B 15	E B 14
3	E B 15	E B 15	E B 14	E B 14	E B 16	E B 15	E B 15	G	G	38	39	G	G	39	G	G 31	28	G	20	E B 15	E B 16	E B 14	E B 14	E B 14
4	E B 14	E B 15	E B 16	E B 15	E B 15	17	20	G 20	33	35	39	41	54	G	38	G	G	G	E B 14	34	E B 15	E B 15	E B 15	E B 15
5	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	G	34	43	40	35	G	G	37	34	G	G	17	18	E B 15	E B 15	E B 14	E B 15
6	E B 14	E B 15	E B 14	E B 14	E B 14	E B 14	20	28	33	36	40	G	G	G	G	36	29	18	E B 14	E B 15	E B 15	E B 15	E B 14	E B 14
7	E B 15	E B 15	E B 15	E B 15	E B 16	18	34	28	34	41	39	37	40	40	46	37	30	18	17	18	E B 15	25	17	24
8	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	20	G	34	48	42	41	G	41	45	56	58	62	E B 15	E B 16	17	20	16	E B 14
9	E B 14	E B 14	E B 15	E B 16	E B 15	E B 15	17	28	34	29	39	G	G	G	38	G	G	18	17	19	20	19	E B 15	E B 15
10	20	E B 15	E B 14	E B 14	E B 14	E B 15	E B 16	G	31	G	C	C	C	C	C	37	37	30	34	20	17	17	E B 15	18
11	18	16	E B 15	E B 15	E B 14	E B 16	E B 16	G	28	34	G	G	G	G	G	G	33	18	19	16	E B 15	E B 15	E B 15	E B 14
12	E B 15	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	36	37	G	G	G	G	G	32	32	33	33	E B 14	E B 15	E B 15	E B 15
13	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	18	27	36	G	G	G	G	G	G	G	G	18	E B 14	E B 14	20	E B 14	E B 15	E B 14
14	E B 15	E B 15	E B 15	18	E B 15	E B 15	E B 16	G	G	G	41	38	35	37	G	G	G	21	E B 15	24	E B 15	E B 14	16	E B 15
15	E B 15	E B 16	E B 15	E B 14	E B 14	E B 15	E B 15	G	48	38	40	G	G	38	38	32	G	20	19	E B 15	22	E B 16	E B 15	25
16	E B 15	17	18	19	17	E B 14	E B 16	G	G	G	G	G	G	G	G	G	G	21	28	26	19	18	A A 52	25
17	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	26	G	G	G	G	G	G	G	G	27	18	E B 14	E B 14	E B 15	E B 14	E B 15	E B 15
18	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	19	G	G	36	37	38	37	36	37	G	G	E B 16	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15
19	E B 15	E B 16	E B 15	E B 15	E B 15	E B 14	E B 16	G	G	36	37	40	G	G	G	G	G	E B 15	24	33	18	E B 15	E B 15	18
20	23	18	16	E B 15	E B 15	E B 15	E B 15	30	30	32	G	G	G	G 25	41	34	G	35	31	26	20	E B 15	18	17
21	E B 14	E B 15	E B 14	E B 15	E B 15	E B 15	18	G	G	39	G	40	G	G	G 26	32	31	28	20	E B 15	E B 15	18	35	E B 15
22	E B 14	E B 15	E B 14	E B 14	E B 15	E B 14	19	G	G 25	32	37	G	G	G	G 28	G	G	E B 15	E B 14	E B 14	E B 15	E B 15	E B 16	E B 14
23	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	G	G	32	37	38	39	38	G	G	31	21	17	19	33	18	E B 15	E B 15	E B 13
24	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 16	26	33	G	40	G	43	42	40	G	26	E B 15	E B 15	38	17	30	E B 15	E B 15
25	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	18	27	34	G	36	37	38	41	40	G 24	G	E B 15	E B 15	E B 16	E B 15	16	27	25
26	E B 14	19	E B 15	E B 15	E B 15	E B 15	18	27	33	34	G	38	40	43	G	33	23	E B 16	E B 15	E B 15	16	E B 14	E B 16	21
27	23	E B 15	E B 16	E B 15	E B 14	E B 15	E B 16	G 19	28	35	37	38	G	G	G	G	26	20	18	21	E B 15	E B 15	E B 15	E B 15
28	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	28	36	36	G	G	G	G	47	34	G	20	E B 15	E B 15	E B 14	E B 16	E B 15	E B 16
29	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	26	29	G	G	G	34	35	G	G	G	E B 16	32	E B 15	E B 14	E B 14	E B 15	E B 15
30	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	28	32	34	G	G	38	35	32	30	23	33	28	20	E B 15	E B 16	E B 15	E B 15
31	E B 15	E B 15	18	E B 15	E B 15	E B 15	E B 14	26	30	G 24	G	G	37	36	35	32	G	E B 14	E B 14	E B 13	E B 15	E B 15	17	19
	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	30	30	30	31	31	31	31	31	31	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	G	30	34	37	G	G	G	G	G	21	18	17	16	E B 15	E B 15	E B 15	E B 15
U Q	15	15	E B 15	E B 15	E B 15	E B 15	18	27	34	37	39	38	38	38	38	34	30	21	24	24	17	17	16	18
L Q	E B 14	E B 15	E B 15	E B 14	E B 14	E B 14	E B 15	G	G	G	G	G	G	G	G	G	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14

OCT. 2012 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 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

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	14	15	15	15	15	15	15	15	15	18	16	18	18	18	15	16	12	14	14	15	15	15	15	15
2	15	15	15	15	15	14	14	14	14	14	18	17	22	24	18	15	14	14	15	14	15	15	15	14
3	15	15	14	14	16	15	15	15	14	16	16	21	20	20	20	13	12	15	14	15	16	14	14	14
4	14	15	16	15	15	15	14	14	14	14	15	22	22	20	20	19	16	13	14	15	15	15	15	15
5	15	15	15	14	15	15	16	14	15	19	20	19	20	22	17	17	13	14	15	15	15	15	14	15
6	14	15	14	14	14	14	14	14	19	18	19	21	20	22	18	17	13	13	14	15	15	15	14	14
7	15	15	15	15	16	15	13	14	14	13	14	17	15	16	20	20	14	13	15	13	15	14	14	15
8	15	15	15	15	14	14	14	15	13	17	17	16	15	17	17	19	14	15	15	16	14	15	15	14
9	14	14	15	16	15	15	14	16	14	13	18	23	17	19	18	16	14	14	14	15	14	14	15	15
10	15	15	14	14	14	15	16	15	14	19	C	C	C	C	C	22	14	14	14	14	14	16	15	15
11	14	16	15	15	14	16	16	14	14	15	22	20	20	20	20	17	14	14	14	14	15	15	15	14
12	15	15	16	16	16	16	16	16	15	16	18	18	20	21	23	18	14	14	14	14	14	15	15	15
13	15	15	15	15	14	15	15	14	14	17	18	24	23	21	23	18	14	13	14	14	14	14	15	14
14	15	15	15	14	15	15	16	12	12	14	15	19	17	18	17	16	15	14	15	15	15	14	15	15
15	15	16	15	14	14	15	15	14	14	21	16	22	20	15	13	12	12	14	14	15	15	16	15	15
16	15	15	15	15	15	14	16	14	14	14	18	18	20	20	19	14	14	15	14	14	14	14	14	15
17	15	15	15	15	15	15	15	14	16	16	15	20	20	20	20	18	15	14	14	14	14	14	15	15
18	15	15	15	15	15	14	15	14	14	12	16	16	15	15	16	14	13	16	15	14	14	14	14	15
19	15	16	15	15	15	14	16	15	15	14	18	18	16	18	17	14	16	15	15	15	15	15	14	14
20	14	14	15	15	15	15	15	13	14	16	16	18	19	16	14	14	14	15	12	13	15	15	14	15
21	14	15	14	15	15	15	15	15	14	17	15	16	22	20	14	15	12	14	14	15	15	15	15	15
22	14	15	14	14	15	14	14	14	14	14	14	18	15	19	14	13	14	15	14	14	15	15	16	14
23	15	15	15	14	14	15	14	14	14	14	14	16	15	20	18	15	13	15	13	13	16	15	15	13
24	15	15	15	14	15	14	16	13	13	14	16	18	18	18	17	17	15	15	15	14	14	14	15	15
25	15	15	14	14	15	14	15	14	15	14	15	19	15	18	22	15	16	15	15	16	15	15	15	14
26	14	16	15	15	15	15	14	14	14	14	16	18	16	15	17	15	13	16	15	15	15	14	16	15
27	14	15	16	15	14	15	16	14	14	14	18	15	17	15	17	15	14	14	16	15	15	15	15	15
28	15	15	15	15	14	15	16	14	18	14	16	18	21	19	20	17	14	15	15	15	14	16	15	16
29	15	15	14	14	15	15	15	14	14	14	16	18	17	16	12	17	14	16	15	15	14	14	15	15
30	14	15	15	15	15	15	14	13	14	13	16	16	17	16	16	14	14	15	14	15	15	16	15	15
31	15	15	14	15	15	15	14	13	12	14	20	18	16	16	16	10	12	14	14	13	15	15	16	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	30	30	30	30	30	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	14	14	14	16	18	18	18	17	16	14	14	14	15	15	15	15	15
U Q	15	15	15	15	15	15	16	15	15	17	18	20	20	20	20	17	14	15	15	15	15	15	15	15
L Q	14	15	14	14	14	14	14	14	14	14	15	17	16	16	16	14	13	14	14	14	14	14	14	14

OCT. 2012 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	279	286	284	311	275	284	341	343	329	323	309	290	290	280	296	304	313	319	320	279	292	279	302	299
2	283	281	279	292	287	288	330	338	335	341	318	328	321	311	314	321	328	350	328	320	291	286	297	288
3	304	305	291	295	294	287	364	371	359	348	332	331	317	316	299	309	321	336	334	336	310	315	315	312
4	299	300	291	301	313	326	386	372	355	364	327	326	323	316	326	325	339	338	336	333	307	312	305	304
5	296	299	296	310	332	325	363	369	359	361	333	330	325	327	327	334	327	346	349	328	314	307	290	295
6	289	290	290	297	314	301	360	373	361	350	337	326	327	327	318	318	335	347	342	326	331	314	285	290
7	300	293	287	312	297	286	365	367	361	327	331	353	342	311	324	332	343	352	352	324	307	306	301	309
8	293	284	303	324	350	329	352	363	366	358	340	342	330	316	333	336	345	336	300	303	301	359	288	327
9	286	304	312	319	298	308	326	345	332	345	348	338	317	328	328	334	341	349	344	301	306	269	F	F
10	F	F	F	287	303	321	367	398	381	352	C	C	C	C	C	352	350	354	331	327	320	312	293	282
11	295	292	322	315	297	313	353	392	347	349	364	348	334	325	332	340	366	362	345	331	324	307	301	305
12	296	289	301	317	333	355	381	368	368	356	319	336	330	314	336	333	341	351	345	352	308	292	308	295
13	282	308	312	328	314	306	363	379	344	346	332	325	313	322	318	320	329	328	314	319	310	277	281	302
14	287	284	307	338	268	269	318	357	369	314	319	337	346	331	323	346	346	346	347	310	338	324	297	280
15	296	325	301	300	277	F	341	358	358	349	332	334	320	318	336	337	344	360	353	311	337	333	299	281
16	305	311	309	309	311	312	351	358	359	332	329	331	322	305	332	340	342	352	345	305	307	302	A	293
17	289	286	293	300	338	325	360	333	341	346	321	320	305	316	335	337	337	339	349	299	297	298	293	293
18	287	285	304	323	355	308	350	359	345	332	328	321	309	321	328	323	328	337	340	309	315	316	288	287
19	289	289	298	299	332	331	367	357	349	332	332	327	326	305	317	323	337	332	356	299	305	299	301	287
20	291	292	299	324	339	317	352	355	355	356	327	323	310	306	318	331	331	333	319	329	324	300	295	290
21	289	300	318	337	365	315	344	362	346	324	340	326	319	304	320	330	345	336	322	305	305	295	287	281
22	296	301	319	326	336	294	337	358	351	329	329	324	319	306	323	322	332	346	294	311	319	309	295	297
23	306	302	305	317	316	301	347	369	370	325	338	321	317	312	316	333	333	340	330	303	322	301	284	276
24	284	292	296	310	300	292	354	386	348	343	327	324	309	318	312	319	333	340	338	308	320	305	288	291
25	301	305	285	278	306	306	348	363	352	328	327	337	311	314	315	319	342	339	330	318	314	312	304	278
26	300	302	292	310	339	293	339	363	365	344	329	320	311	317	324	334	348	349	327	322	328	327	292	283
27	293	297	297	289	320	327	335	356	341	331	327	326	320	311	329	330	342	361	322	304	313	313	310	319
28	303	296	318	343	306	317	341	363	343	344	339	324	321	323	329	341	358	361	344	306	315	307	305	301
29	286	311	332	378	296	282	341	356	347	348	335	354	328	329	339	339	348	346	323	320	316	315	305	316
30	305	314	319	327	320	316	337	367	361	342	323	328	342	336	349	349	347	344	322	310	319	301	302	306
31	306	314	339	344	318	311	342	365	343	358	322	336	325	340	363	353	355	368	333	323	341	320	315	305
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	31	31	30	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	29	30
MED	294	298	301	312	314	310	350	363	352	344	329	328	320	316	325	333	341	346	334	311	314	307	297	294
U Q	300	305	312	326	333	321	363	369	361	350	335	336	327	325	332	339	346	352	345	326	322	315	304	305
L Q	287	289	292	300	297	293	341	357	344	331	327	324	313	311	318	322	332	337	322	305	307	299	289	287

OCT. 2012 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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										L	L	L	L	L	L	L								
2										L		A	A	L	L	A	A							
3											A	L	L				A							
4											L	A	A		L		L							
5									A	A	A	U L 385	L	L	L	A								
6										L	A	L	L	L	L									
7											U L 387	A	A	A	A									
8								L	A	A	A	A	L	A	A	A	A	A						
9									A	L	A	L	L	L	A	L								
10											C	C	C	C	C									
11											L	L	L	L	L	L								
12										L	L	U L 370	L		L									
13										L	L	L	L	L	L	L								
14											A	L	L	L	L	L								
15											L	L	L	L	A	A								
16										L	L	L	L	L	L									
17										L	L	L	L	L	L	L								
18											L	L		L										
19										A	L	L	L	L	L									
20											L	L	L	L	A	A								
21												L	L	L	L	A								
22											L	L	L	L	L									
23											L	L		L		L	L							
24											L	L		L	L									
25											L	L	L	L	A									
26											L	A	L	A	L									
27										L		A	L		L									
28										L	L	L	L	L	A	A								
29									L		L	440	L	L	L									
30										L	L	L	L	L	L	A								
31										L	L	L	A	L	A	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											1	3												
MED											U L 387	U L 385												
U Q												440												
L Q												U L 370												

OCT. 2012 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 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

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										254	262	292	300	290	284	278								
2										242		254	244	290	280	252	E A 252							
3											252	272	254				244							
4											256	248	252		256		248							
5									228	236	248	260	260	244	266	242								
6										240	232	266	242	262	258									
7											250	234	248	240	254									
8								234	234	228	228	238	272	268	262	242	244	E A 252						
9									264	240	248	250	248	274	250	250								
10											C	C	C	C	C									
11											234	246	258	268	254	246								
12										232	254	248	248		254									
13										236	262	250	258	262	262	252								
14											246	248	254	262	260	256								
15											246	250	252	260	252	242								
16										260	260	262	266	254	260									
17										254	258	264	262	270	256	240								
18											256	272		266										
19										232	262	258	258	282	262									
20											248	274	246	298	250	240								
21												260	266	300	262	240								
22											248	260	246	282	256									
23											254	278		278		254	244							
24											246	270		272	270									
25											256	246	254	290	246									
26											252	242	276	266	262									
27										242		240	258		244									
28										252	246	242	268	252	240	238								
29									246		248	244	252	270	248									
30										250	250	264	252	244	238	224								
31										240	248	252	240	258	236	228								
	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	4	15	27	30	27	26	27	16	5	1						
MED								234	240	240	250	253	254	268	256	242	244	E A 252						
U Q									255	252	256	264	262	282	262	252	250							
L Q									231	236	246	246	248	260	250	240	244							

OCT. 2012 h′F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 h′F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 282	E B 262	E B 276	E B 252	E B 298	E B 286	218	222	220	200	190	206	214	214	226	222	222	230	216	E B 232	E B 260	E B 258	E B 256	E B 234
2	E B 266	E B 284	E B 284	E B 270	E B 264	E B 276	234	220	214	194	232	A	A	E A 248	230	A	A	218	E A 224	218	E B 236	E A 264	E B 266	E B 260
3	E B 244	220	E B 260	E B 268	E B 270	E B 286	210	208	212	230	A	210	198	220	230	224	A	224	212	216	226	226	E B 232	E B 234
4	E B 242	E B 264	E B 274	E B 274	E B 238	E A 234	202	212	220	218	194	A	A	230	212	234	210	222	214	226	224	E B 226	E B 238	E B 244
5	E B 272	E B 270	E B 270	E B 246	220	216	196	208	A	A	A	188	190	200	196	A	222	232	208	200	216	E B 270	E B 288	E B 278
6	E B 280	E B 280	E B 278	E B 266	230	E B 242	210	206	204	194	A	202	182	200	196	232	240	214	202	214	220	210	E B 268	E B 290
7	E B 276	E B 264	E B 276	E B 254	232	E A 278	206	220	218	228	204	A	A	A	A	E A 258	222	222	202	204	230	E A 296	E A 266	E A 268
8	E B 272	E B 282	E B 278	E B 244	222	202	218	196	A	A	A	A	220	A	A	A	A	A	226	E B 268	E A 248	210	E A 250	E B 228
9	E B 246	E B 278	E B 256	234	E B 260	E B 262	232	232	A	216	A	194	202	206	A	198	234	218	208	E A 262	238	E A 286	E B 324	E B 286
10	E A 280	E B 294	E B 280	E B 284	E B 258	230	212	208	204	218	C	C	C	C	C	228	228	214	216	220	212	230	E B 258	E A 302
11	E A 294	E A 298	E B 250	E B 250	E B 276	E B 248	214	202	200	216	190	188	190	190	196	204	218	206	208	212	210	E B 242	E B 252	E B 268
12	E B 268	E B 300	E B 268	E B 250	234	212	206	202	214	198	194	188	194	214	206	222	228	212	216	222	E B 202	E B 244	E B 282	E B 280
13	E B 290	E B 272	E B 254	E B 242	232	E B 252	206	210	216	184	198	176	180	192	198	198	230	222	224	220	E A 262	E B 264	E B 262	E B 266
14	204	E B 290	234	220	E B 344	E B 350	252	234	218	212	A	194	202	192	196	212	224	218	204	E A 250	220	218	E A 278	E B 306
15	E B 272	232	E B 264	E B 252	E B 308	E B 308	224	226	228	224	208	200	204	198	A	A	216	212	196	224	E A 238	222	E B 260	E A 344
16	E B 248	E A 260	E A 262	E A 256	234	E B 246	218	212	206	202	198	196	196	198	196	220	220	212	214	E A 266	E A 256	E A 260	A	E A 314
17	E B 290	E B 292	E B 280	E B 256	226	212	212	200	218	206	202	204	200	214	200	202	218	218	198	216	E B 244	E B 240	E B 246	E B 260
18	E B 272	E B 284	E B 264	E B 232	208	E B 252	216	212	218	220	202	204	224	216	220	226	228	222	210	208	E B 222	218	E B 262	E B 290
19	E B 288	E B 284	E B 278	E B 264	220	212	206	202	204	A	212	224	212	204	198	216	220	214	208	E A 274	E A 230	E B 246	E B 248	E A 274
20	E A 298	E A 286	E A 282	232	212	228	216	210	212	230	206	208	190	226	A	A	222	210	230	E A 236	206	E B 246	E A 290	E A 296
21	E B 288	E B 272	234	218	200	E B 276	224	218	214	214	224	210	210	210	212	A	210	214	210	240	224	E A 252	E A 334	E B 294
22	E B 268	E B 260	E B 246	228	216	E B 282	226	222	218	212	206	204	208	222	208	218	218	214	198	E B 242	210	228	E B 254	E B 286
23	E B 272	E B 262	E B 258	E B 246	220	E B 258	224	216	206	212	208	228	224	212	230	212	210	220	204	E A 262	E A 224	E A 222	E B 244	E B 284
24	E B 276	E B 280	E B 276	E B 254	E B 248	E B 272	232	204	216	218	210	206	218	228	210	228	228	210	202	E A 292	220	E A 292	E B 248	E B 282
25	E B 266	E B 266	E B 284	E B 292	E B 266	E B 250	214	224	210	218	202	198	198	206	A	230	226	204	E B 196	212	222	E A 256	E A 282	E A 302
26	E B 268	E A 278	E B 286	E B 248	206	E B 268	228	214	216	210	202	A	212	A	212	226	214	204	206	E B 218	230	232	E B 262	E A 342
27	E A 318	E B 272	E B 266	E B 284	E B 254	218	224	216	220	200	216	A	208	228	206	224	218	210	204	E B 242	E B 256	E B 240	E B 240	E B 236
28	E B 260	E B 266	E B 252	216	202	E B 268	216	210	216	220	208	188	206	204	A	A	212	198	206	E B 240	226	E B 252	E B 270	E B 278
29	E B 276	E B 272	E B 242	204	224	E B 310	232	214	214	216	202	194	198	202	204	206	216	200	E A 284	230	E B 246	E B 242	E B 256	E B 254
30	E B 258	E B 252	218	E B 234	228	E B 246	226	214	214	210	188	208	212	208	206	A	206	224	228	E A 268	E B 238	E B 262	E B 284	E B 284
31	E B 268	E B 250	E A 238	208	E B 232	E B 256	232	214	212	202	196	198	A	200	A	A	218	210	202	212	218	E B 240	E A 254	E A 302
	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	28	28	24	24	26	27	22	22	28	30	31	31	31	31	30	31
MED	E B 272	E B 272	E B 266	E B 250	U 220	E B 252	218	212	214	213	202	201	203	207	206	222	220	214	208	217	219	E 242	E B 261	E B 282
U Q	E B 282	E B 284	E B 278	E B 264	E B 260	E B 276	226	220	218	218	208	207	212	220	212	228	227	222	216	E A 250	E 238	E A 260	E 278	E A 296
L Q	E B 266	E B 262	E 252	232	220	230	210	208	211	202	197	194	196	200	198	212	216	210	202	216	220	226	E B 250	E B 260

OCT. 2012 h′F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 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

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	112	112	120	124	124	126	118	118	126	122	114						
2							B	112	122	A	124	A	A	A	A	A	A	126						
3							B	112	118	114	116	122	122	124	116	114	120	118						
4							B	118	A	116	118	118	A	124	122	120	120	122						
5							B	116	112	A	A	A	122	114	A	A	114	110						
6							B	116	112	118	122	124	124	126	122	122	A	B						
7							A	120	A	118	118	A	A	A	A	118	114	B						
8							B	120	122	122	A	A	116	A	130	122	A	B						
9							B	112	118	A	118	118	130	118	118	118	118	B						
10							B	118	120	120	C	C	C	C	C	A	A	A						
11							B	120	A	A	122	126	122	126	126	118	A	B						
12							B	116	116	A	A	122	124	118	124	118	120	B						
13							B	112	116	120	124	118	118	118	120	120	120	B						
14							B	114	114	114	124	124	124	124	124	120	120	B						
15							B	114	A	A	A	110	122	112	112	A	112	B						
16							B	118	114	114	120	122	120	124	126	118	120							
17							B	120	120	118	118	118	120	122	124	114	A	B						
18							B	122	114	114	A	A	A	A	A	114	112	B						
19							B	116	116	A	A	A	124	122	120	118	118	B						
20							B	114	A	A	122	122	128	110	A	A	110	B						
21							B	118	114	A	112	A	122	130	116	A	A	B						
22							B	116	122	A	A	116	118	116	122	118	116	B						
23						B	128	122	A	A	A	A	A	120	118	A	A	B						
24							B	114	120	116	114	122	A	A	A	116	A	B						
25							B	116	116	116	A	A	A	A	A	116	116	B						
26							B	116	122	A	114	A	A	A	116	A	A	B						
27							B	120	A	A	A	A	116	116	116	116	118	B						
28							B	114	112	A	114	114	118	120	122	122	118	B						
29							B	110	A	112	116	118	A	A	118	118	120							
30							B	116	114	A	118	120	A	A	A	A	A	B						
31							B	120	A	116	122	124	A	A	A	A	114							
	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	31	22	16	20	19	19	20	21	21	20	5						
MED							128	116	116	116	118	122	122	120	120	118	118	118						
U Q								120	120	119	122	124	124	124	124	120	120	124						
L Q								114	114	114	116	118	118	117	117	116	114	112						

OCT. 2012 h′E (KM)

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 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	102	98	100	152	G	G	G	G	G	G	G	G	G	126	114	108	B	104	96	B	B
2	B	B	128	B	B	B	B	G	100	106	G	104	106	104	102	102	90	96	94	96	88	88	B	B
3	B	B	B	B	94	96	B	G	G	112	118	G	G	116	G	106	118	G	106	B	B	B	B	B
4	B	B	B	B	104	102	132	102	104	124	120	120	104	G	124	G	G	G	B	114	112	B	B	B
5	B	B	B	B	B	B	B	G	126	108	110	106	G	G	102	104	G	G	98	98	B	B	B	B
6	B	B	B	B	B	B	154	152	122	122	116	G	G	G	G	118	108	106	B	B	B	B	104	B
7	98	B	94	96	96	94	98	126	96	118	114	110	104	104	104	128	126	118	96	96	102	100	98	92
8	92	96	96	B	B	B	142	G	116	114	100	108	G	106	124	122	108	102	B	100	100	94	102	B
9	B	B	B	116	B	110	142	148	126	106	122	G	G	G	118	G	G	138	108	98	100	96	94	B
10	94	B	B	B	B	B	B	G	122	G	C	C	C	C	C	108	104	102	96	102	102	100	B	96
11	92	92	B	B	B	B	B	G	100	102	G	G	G	G	G	G	102	102	102	102	B	B	B	B
12	98	B	110	96	96	B	B	G	G	102	108	G	G	G	G	G	118	104	102	100	B	102	102	B
13	B	B	B	B	B	B	136	138	116	G	G	G	G	G	G	G	G	130	B	B	98	B	B	B
14	96	96	96	96	94	B	B	G	G	G	128	134	124	122	G	G	G	108	108	102	102	98	98	B
15	100	108	108	B	B	B	B	G	106	104	104	G	G	118	102	100	G	92	88	98	94	B	94	96
16	98	92	90	88	88	B	B	G	G	G	G	G	G	G	G	G	G	88	104	86	86	100	98	104
17	102	102	102	100	B	B	B	124	G	G	G	G	G	G	G	G	102	116	B	B	102	B	B	B
18	B	B	B	B	B	B	156	G	G	118	108	106	104	102	106	G	G	B	B	B	B	B	B	B
19	B	B	B	B	B	B	B	G	G	98	102	102	G	G	G	G	G	B	102	102	96	96	94	94
20	94	90	90	B	B	B	B	128	104	102	G	G	G	92	92	90	G	102	102	92	96	B	98	96
21	B	B	B	B	B	B	142	G	G	104	G	110	G	G	94	94	94	98	92	88	88	100	98	B
22	B	98	B	B	B	B	134	G	106	102	106	G	G	G	106	G	G	B	B	100	B	102	102	B
23	B	B	94	B	B	B	G	G	106	102	106	104	106	G	G	102	104	104	104	98	100	B	98	B
24	B	B	88	B	B	B	B	142	122	G	120	G	102	104	100	G	96	B	B	102	96	92	B	B
25	B	B	B	B	94	88	90	146	128	G	104	102	100	96	100	104	G	B	B	B	B	100	98	98
26	B	94	B	B	92	B	148	154	120	106	G	100	98	100	G	102	106	B	B	B	102	B	96	98
27	92	96	B	B	B	B	B	104	100	102	102	106	G	G	G	G	122	100	94	86	84	B	82	B
28	B	B	B	B	B	B	B	144	126	104	G	G	G	G	122	124	G	102	B	106	B	B	B	102
29	100	94	B	B	B	B	B	152	106	G	G	G	106	106	G	G	G	B	100	B	B	B	B	B
30	B	100	B	B	B	B	B	130	126	104	G	G	106	106	102	106	110	106	98	94	94	B	96	B
31	B	B	96	92	90	B	B	152	106	104	G	G	108	108	106	102	G	B	B	B	B	B	102	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	12	12	12	8	10	6	12	15	22	22	17	13	12	14	16	16	16	20	19	21	20	14	18	10
MED	97	96	96	96	94	98	142	142	111	104	108	106	105	105	103	104	107	103	102	98	99	99	98	97
U Q	99	99	105	101	96	102	150	152	122	112	119	110	106	108	112	113	118	111	104	102	102	100	102	100
L Q	93	93	92	94	92	94	133	126	104	102	104	103	103	102	101	102	102	101	96	95	94	96	96	96

OCT. 2012 h'Es (KM)

IONOSPHERIC DATA STATION Kokubunji

OCT. 2012 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				F1	F1	F1	H1										C2	C2	F4		F1	F1		
2			F1						L2	L2		L2	L2	L2	L2	L2	L3	L2	F3	F2	F3	F1		
3					F2	F2				C2	C2			C2		L2	C1		F1					
4					F1	F2	H1	L2	L2	C2	C2	C2	L2		C1					F6	F2			
5									C2	L2	L2	L2			L2	L2			F3	F2				
6							H2	H2	C2	C2	C2					C1	L2	L1					F2	
7	F1		F1	F1	F1	F3	L3	C2 L2	L2	C2 L2	C2 L2	L2	L2	L2	L2	C1	C1	C2	F2	F2	F1	F3	F1	F2
8	F2	F1	F1				H1		C1	C2 L2	L2	L2		L2	C2	C2	L4	L4		F1	F2	F2	F1	
9				F1		F2	H2	H2	C2	L2	C1				C1			H1	F2	F3	F2	F2	F2	
10	F3								C2							L2	L2	L3	F3	F2	F2	F1		F3
11	F3	F2							L2	L2							L2	L2	F2	F3				
12	F1		F1	F2	F1					L2	L2						C1	L3	F3	F2		F2	F1	
13							H1	C2	C2									C1			F2			
14	F1	F2	F2	F2	F1						C1	C1	C1	C1				L2	F2	F2	F1	F3	F2	
15	F2	F2	F2						L3	L2	L2			C2	C2	L1		L1	F1	F1	F2		F1	F3
16	F2	F2	F2	F1	F1													L2	F2 F3	F3	F3	F2	F3	F4
17	F1	F2	F1	F1				C1									L2	C1			F1			
18							H2			C2	L2	L2	L1	L2	L2									
19										L2	L2	L2							F3	F3	F2	F2	F2	F2
20	F2	F2	F1					C2	L2	L2				L1	L2	L2		L2	F1	F1	F2		F2	F2
21							H2			L2		L2			L2	L2	L2	L3	F2	F1	F1	F1	F2	
22		F1					H2		L1	L2	L2				L2					F1		F1	F1	
23			F2						L1	L2	L1	L2	L1			L1	L2	L1	F2	F3	F2		F2	
24			F1					H2	C2		C2		L2	L2	L2		L2			F3	F5	F4		
25					F1	F2	L1	H1	C2 L2		L2	L2	L1	L2	L2	L1						F2	F3	F2
26		F2			F1		H2	H1	C1	L2		L2	L2	L2		L2	L2				F1		F1	F2
27	F2	F1						L1	L2	L2	L2	L2					C2 L2	L2	F2	F2	F2		F1	
28								H1	C1	L2					C1	C1		L2		L2				F1
29	F1	F2						H2	L1				L2	L2					F2					
30		F2						C2	C2	L2			L2	L2	L2	L1	L2	L3	F2	F2	F2		F1	
31			F1	F1	F1			H2	L2	L1			L1	L1	L1	L2							F2	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. 2012 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 61	X 60	X 59	X 59	X 50	X 52														X 78	X 72	X 70	X 70	X 62
2	X 59	X 59	X 57	X 59	X 56	X 56														X 93	X 73	X 69	X 69	X 70
3	X 70	X 66	X 56	X 52	X 50	X 51														X 116	X 84	X 69	X 63	X 61
4	X 60	X 57	X 53	X 53	X 53	X 53														X 86	X 61	X 54	X 54	X 53
5	X 53	X 52	X 51	X 51	X 53	X 45														X 88	X 54	X 51	X 54	X 55
6	X 54	X 55	X 54	X 54	X 50	X 46													X 96	X 76	X 66	X 58	X 54	X 54
7	X 56	X 56	X 54	X 55	X 51	X 51													X 92	X 80	X 49	X 52	X 53	X 53
8	X 50	X 49	X 48	X 51	X 48	X 34													X 93	X 88	X 86	X 77	X 54	X 55
9	X 51	X 50	X 50	X 41	X 42	X 43													X 88	X 65	X 63	X 50	X 52	X 56
10	X 58	X 54	X 55	X 55	X 55	X 56													X 94	X 77	X 66	X 63	X 44	X 44
11	X 45	X 46	X 49	X 46	X 42	X 43													X 78	X 72	X 63	X 56	X 52	X 51
12	X 51	X 50	X 47	X 48	X 48	X 50													X 92	X 73	X 52	X 49	X 47	X 48
13	X 47	X 48	X 46	X 46	X 44	X 42													X 98	X 93	X 76	X 70	X 69	X 70
14	X 63	X 57	X 66	X 59	X 42	X 42													X 92	X 76	X 64	X 55	X 42	X 43
15	X 46	X 52	X 41	X 41	X 37	X 36													X 82	X 57	X 58	X 53	X 45	X 44
16	X 46	X 48	X 46	X 44	X 41	X 31													X 82	X 65	X 54	X 52	X 52	X 51
17	X 48	X 48	X 48	X 51	X 50	X 32													X 84	X 62	X 57	X 59	X 51	X 48
18	X 49	X 48	X 49	X 52	X 46	X 36													X 96	X 74	X 65	X 64	X 58	X 53
19	X 50	X 51	X 52	X 52	X 55	X 41													X 93	X 68	X 66	X 69	X 62	X 57
20	X 52	X 50	X 49	X 53	X 56	X 35													X 88	X 77	X 80	X 72	X 65	X 56
21	X 58	X 58	X 55	X 55	X 45	X 30													X 85	X 69	X 66	X 65	X 56	X 55
22	X 54	X 58	X 53	X 46	X 43	X 37													X 96	X 73	X 73	X 70	X 58	X 50
23	X 50	X 48	X 46	X 46	X 49	X 39													X 97	X 85	X 70	X 76	X 59	X 53
24	X 54	X 52	X 52	X 51	X 49	X 46												X 116	O X 106	X 87	X 80	X 76	X 62	X 52
25	X 51	X 52	X 48	X 49	X 50	X 44													O X 104	X 83	X 78	X 76	X 72	X 55
26	X 51	X 48	X 46	X 48	X 52	X 36													X 98	X 72	X 75	X 64	X 54	X 47
27	X 47	X 49	X 46	X 47	X 52	X 38													X 88	X 64	X 66	X 69	X 62	X 53
28	X 50	X 48	X 50	X 50	X 46	X 33													X 70	X 56	X 58	X 58	X 50	X 48
29	X 50	X 50	X 51	X 46	X 34	X 32	X 36												X 79	X 60	X 60	X 60	X 52	X 46
30	X 45	X 46	X 46	X 45	X 40	X 32	X 35												X 74	X 54	X 56	X 54	X 44	X 43
31	X 43	X 44	X 45	X 46	X 32	X 29	X 34												X 72	X 49	X 54	X 58	X 45	X 41
	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	3											1	26	31	31	31	31	31
MED	X 51	X 50	X 50	X 51	X 49	X 41	X 35											X 116	X 92	X 74	X 66	X 63	X 54	X 53
U Q	X 56	X 56	X 54	X 53	X 52	X 46	X 36												X 96	X 85	X 73	X 70	X 62	X 55
L Q	X 48	X 48	X 46	X 46	X 42	X 34	X 34												X 82	X 65	X 58	X 54	X 51	X 48

OCT. 2012 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	55	54	53	53	44	46	54	83	98	J R 107	94	R	R	R	R	U R 114	U R 116	R 104	94	72	66	64	64	56
2	53	53	51	53	50	50	56	86	R 113	R 102	101	R 102	96	U R 104	U R 103	J R 111	110	99	86	87	67	63	63	64
3	64	60	50	46	44	45	61	68	83	86	R 90	R 94	U R 96	U R 104	110	R 114	U R 110	U R 117	115	110	78	63	57	55
4	54	51	47	47	47	47	52	81	72	73	86	R 98	U R 110	J R 114	U R 114	J R 112	R 96	R 98	98	80	55	48	48	47
5	47	46	45	45	47	39	43	69	80	90	75	U R 89	U R 107	R 96	U R 104	U R 103	94	94	115	82	48	45	48	49
6	48	49	48	48	44	40	48	71	83	90	85	90	90	R 96	96	95	96	99	90	70	60	52	48	48
7	50	50	48	49	45	45	53	70	75	92	95	U R 95	U R 110	U R 96	96	U R 110	U R 107	U R 100	86	74	43	46	47	47
8	44	43	42	45	42	28	36	80	R 99	85	80	80	R 90	95	U R 110	J R 112	94	85	87	82	80	71	48	49
9	45	44	44	37	36	37	47	88	R 113	U R 103	R 93	83	R 83	98	U R 110	94	94	92	82	59	57	44	46	50
10	52	48	49	F 48	49	50	46	68	69	73	81	96	J R 90	U R 88	U R 110	U R 118	102	90	88	71	60	57	38	38
11	39	40	43	40	36	37	43	66	73	81	R 80	88	90	96	117	U R 118	R 110	96	72	66	57	50	46	45
12	45	44	42	42	42	44	40	62	73	80	88	91	J R 98	R	J R 110	112	96	95	86	67	46	43	41	42
13	41	42	40	40	38	36	42	65	79	86	96	U R 104	R 96	R 110	R 114	R	96	95	92	87	70	64	63	64
14	57	51	60	53	36	V 36	48	78	78	94	96	U R 103	U R 110	101	U R 96	R 112	R 106	84	86	70	58	49	36	37
15	40	46	35	35	31	30	41	80	85	88	94	U R 110	96	U R 110	U R 116	U R 115	97	96	76	51	52	47	39	38
16	40	42	40	38	35	25	34	72	83	94	U R 102	U R 108	R	U R 108	R	U R 110	96	83	76	59	48	46	46	45
17	42	42	42	45	44	26	35	68	86	95	U R 108	R 103	R	R	U R 116	R 101	86	84	78	56	51	52	45	42
18	43	42	43	46	40	30	37	76	82	88	96	96	96	J R 112	R 112	R 110	96	R 104	R 90	68	59	58	52	47
19	44	45	46	46	49	35	34	65	83	81	96	U R 110	R 104	U R 104	J R 112	J R 112	110	90	87	62	60	63	56	51
20	46	44	43	47	50	29	36	74	83	91	96	U R 90	U R 106	U R 110	R	U R 110	U R 96	92	82	71	74	66	59	50
21	52	52	49	49	39	24	34	72	87	U R 95	110	R	U R 98	U R 104	J R 115	J R 118	R 101	U R 86	79	63	60	59	50	49
22	48	52	47	40	37	31	37	81	88	85	R 94	U R 98	U R 101	J R 107	U R 112	R	R 104	91	90	67	67	64	52	44
23	44	42	40	40	43	33	40	80	78	84	R	U R 96	U R 108	U R 105	U R 108	R	101	96	91	R 79	64	70	53	47
24	48	46	46	45	43	40	45	78	91	95	R 103	U R 105	U R 98	U R 110	R	R	112	U R 110	100	81	74	70	56	46
25	45	46	42	43	44	38	45	79	R 94	93	U R 110	J R 112	R	U R 110	R	R	U R 112	R 123	98	77	72	70	66	49
26	45	42	40	42	46	30	37	68	87	86	110	U R 110	R	U R 110	R 132	138	R 118	R 105	92	66	69	58	48	41
27	41	43	40	41	46	32	34	68	89	U R 96	J R 112	U R 110	R	R	R	R	R 101	R 99	82	58	60	63	56	47
28	44	42	44	44	40	27	33	68	81	92	J R 110	R 118	R	U R 110	U R 110	R 105	R 99	86	64	50	52	52	44	42
29	44	44	45	40	28	26	30	64	80	94	U R 105	U R 95	102	U R 104	R	96	78	80	73	54	54	54	46	40
30	39	40	40	39	34	26	29	61	78	81	R 94	J R 112	U R 118	J R 113	U R 118	94	78	71	68	48	50	48	38	37
31	37	38	39	40	26	23	28	62	74	77	R 98	U R 90	U R 110	R 100	R 115	R 110	R 90	82	66	43	48	52	39	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
CNT	31	31	31	31	31	31	31	31	31	31	30	29	24	27	24	25	31	31	31	31	31	31	31	31
MED	45	44	44	45	43	35	40	71	83	90	96	U R 98	R 98	U R 104	U R 111	R 111	99	95	86	68	60	57	48	47
U Q	50	50	48	47	46	40	47	80	88	R 94	R 103	U R 109	U R 108	U R 110	R 115	U R 114	R 110	R 99	92	79	67	64	56	49
L Q	42	42	40	40	36	28	34	68	78	84	90	90	96	R 98	U R 109	104	96	86	78	59	52	48	45	42

OCT. 2012 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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

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								L	L	L	L	L	L	L	L	L	L							
2									L	L	L	L	L 476	U L 604	L	L	L	L						
3									L	L	L	L	L	U L 516	L	L	L	L						
4									L	L	L	L	U L 504	U L 528	L	L	L							
5									L	L	L	U L 512	U L 492	L	L	L	L	L						
6									L	L	L	L 480	U L 484	L	L	L	L							
7								240	L	L	L	L	L	A	L	L	L	308						
8									L	L	L	L	L	L	L	A	A	260						
9									L	L	L		L	L	440	420								
10									L 364	L 408	A	L	L	L	L	A	A							
11								240	L 368	L	L	L	L	L	L	L	L							
12								L 236	L	L	L	L	L	L	U L 492	L	A	A						
13									L	L	L	L	L	L	U L 468	U L 504	L							
14									L	L	L	U L 504	L	L	L	L	L							
15									L	L	L	L	L	U L 580	L	L	U L 396							
16									L	L	L	U L 516	L	L	U L 504	L	L							
17									L	L	L	L	L	L	L	L	L							
18										L	L	L	L	L	L	L	L							
19									L	L	L	L	L	L	L	L	364							
20										L	L	U L 496	U L 540	L	L	L	L							
21									L	L	L	L	L	U L 596	L	L								
22									L	L	L	L	L	U L 576	L	L								
23									L	U L 428	L	L	L	A	L	L	U L 348							
24										L	L	L	L	U L 536		L	L							
25										L	L	L	L	L	L	L	L							
26								220	L	L	L	L	L	L	L	L	L							
27									L	L	L	L	L	L	L	L	L							
28										L	L	U L 492	U L 464	U L 544	L	A								
29										L	L	L	L	L	L	L	L							
30										L	L	U L 484	L	L	L	L	L							
31									L	L	L	L	L	L	L	U L 420	L	220						
	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	2	2		7	6	8	4	3	3	3						
MED								238	L 366	L 418		U L 496	U L 488	U L 560	U L 480	U L 420	U L 364	260						
U Q								240				U L 512	U L 504	U L 588	U L 498	U L 504	U L 396	308						
L Q								228				L 484	L 476	U L 532	454	420	U L 348	220						

OCT. 2012 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 228	296	332	344	U R 348	U R 360		B	B	340	304	248	B						
2								B 224	292	A 324	A 348	A 364	U R 364	J R 320	U A 340	R 320	300	244	B						
3								B 212	272	R 316	348	R 360	U A 364	368	356	320	U A 280	U A 216	A						
4								B 232	284	A	A 340	A 364	U A 360	U R 360	U R 360	A 340	300	248	B						
5								A 200	284	A 316	U R 348	R 352	A 356	U R 348	A 328	U A 312	U A 268	U A 164	A						
6								A 224	U A 264	A	332	U R 348	U R 352	360	352	324	288	U A 228							
7								A 216	288	320	332	U A 376	U A 348	U A 360	348	356	292	228							
8								A 204	A 268	U A 300	U R 344	U R 348	R 352	364	352	320	280	216							
9								B 216	A 280	324	U R 348	364	368	372	R 332	320	288	216							
10								A 220	268	312	336	U R 348	A 360	U R 360	B	320	268	184							
11								B 208	284	A	352	360	380	360	U A 344	336	276	A 212							
12								B 208	U A 256	U A 292	U R 344	R 360	U R 372	U A 388	356	R 316	288	A 216							
13								B 220	272	320	U A 324	396	U A 324	U A 324	R	U A 304	272	224							
14								B A 208	272	344	356	U R 352	R	R	344	R 324	284	204							
15								B A 212	280	A 304	U A 304	U A 312	A 336	A	U A 316	316	R 284	208							
16								A 216	284	320	R 336	R 336	A	U R 344	R 360	R 348	R 296	216							
17								B 216	U A 284	A 316	336	U A 348	U R 360	364	U A 336	U A 312	U A 260	220							
18								B 208	292	R 312	A 332	A 340	A	U R 364	A	U A 328	284	216							
19								B 204	U A 252	312	360	U A 388	A 392	A	U R 364	R 340	296	216							
20								B 204	U A 280	U A 308	U A 324	U R 360	U R 376	U R 372	U R 364	A 356	296	232							
21								B 236	284	U A 336	U A 324	U R 380	B	R	U A 328	U A 312	A	204							
22								B 208	U A 264	U A 312	U R 344	R 364	U R 360	B	344	R 332	288	236							
23								B 212	U A 252	U A 316	U A 340	U A 332	R 364	A	A	A	288	U A 192							
24								B 200	288	316	A 352	R 364	R 368	U A 368	A 320	U A 296	A								
25								B 200	256	A 292	A 320	R 328	A	U A 332	U A 320	U A 284	A	A							
26								B 192	280	R 296	U A 300	R 344	U A 336	U A 332	R 344	A 324	276	196							
27								B 216	R 268	R 324	A	R 344	R 360	A	R 340	316	264	B							
28								B 220	284	304	348	356	364	R 356	352	316	A 276	200							
29								196	A 268	A 300	A 316	A	364	364	344	R	264	204							
30								176	260	312	328	336	336	332	R 336	332	U A 180	A							
31								B	260	304	320	A 324	A 332	332	A	U A 296	U A 244	192							
	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	28	30	30	26	23	25	29	28	27							
MED								212	280	314	338	R 352	360	U 360	344	320	284	216							
U Q								220	284	320	348	364	R 364	U 364	R 354	334	290	228							
L Q								204	U A 264	A 304	U A 324	344	A 352	332	A 334	U A 314	270	204							

OCT. 2012 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	32	G 21	G 26	G	G	E B 40	E B 42	38	35	J A 39	J A 44	J A 20	18	E B 16	19	E B 16
2	E B 16	18	E B 16	E B 16	E B 16	E B 16	18	G	G	35	38	39	G	G	36	G	G	G	20	J A 26	J A 47	J A 30	E B 16	E B 16	
3	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	G	G	36	G	38	40	38	37	34	J A 32	J A 42	J A 26	E B 16	19	E B 16	E B 16
4	E B 16	E B 16	E B 16	E B 16	E B 16	18	E B 16	G	30	J A 39	39	39	J A 40	G	G	37	34	30	J A 32	J A 28	J A 16	E B 16	24	E B 16
5	J A 18	22	J A 19	21	E B 16	18	J A 23	25	33	36	41	38	42	42	41	J A 42	J A 38	J A 32	J A 36	J A 28	J A 37	J A 24	J A 33	J A 30
6	J A 20	18	E B 16	E B 16	J A 22	J A 23	20	27	J A 31	J A 38	37	G 25	G 29	39	38	36	34	J A 36	J A 33	J A 18	J A 26	18	18	J A 20
7	J A 27	J A 22	J A 30	J A 34	J A 20	20	18	24	33	36	34	43	41	J A 49	40	40	33	29	19	J A 22	J A 29	J A 34	J A 32	J A 29
8	J A 22	J A 22	J A 17	J A 17	J A 18	E B 16	21	23	31	33	G 21	G 22	G 22	40	44	J A 51	J A 42	G	E B 16	E B 16	E B 16	J A 22	J A 20	J A 16
9	22	17	E B 16	E B 16	E B 16	21	19	26	34	36	G	46	43	J A 50	G	39	36	24	18	J A 25	J A 36	20	J A 26	J A 25
10	21	E B 16	E B 16	19	E B 16	E B 16	J A 22	24	29	38	J A 45	38	42	G	E B 44	J A 66	J A 54	J A 53	22	J A 87	J A 50	J A 34	J A 26	J A 26
11	E B 16	J A 18	J A 27	19	J A 27	E B 16	E B 16	24	32	29	38	38	40	J A 49	39	36	35	J A 47	J A 40	J A 53	J A 42	J A 23	J A 19	J A 23
12	J A 18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 21	28	33	38	40	42	40	38	J A 60	J A 48	J A 60	J A 48	J A 34	J A 33	J A 51	J A 26	J A 27
13	E B 16	20	20	E B 16	E B 16	E B 16	E B 16	25	30	34	34	G 33	G 34	G 34	G	33	G	26	21	J A 18	J A 18	J A 31	J A 36	J A 22
14	J A 27	20	E B 16	E B 16	E B 16	18	E B 16	23	29	39	38	G 26	G	G	G 28	34	29	22	E B 16	E B 16	E B 16	18	E B 16	J A 36
15	J A 26	J A 21	J A 20	J A 20	19	E B 16	E B 16	23	31	J A 38	J A 46	35	41	32	34	G 22	34	G 19	J A 24	J A 35	J A 47	28	J A 24	J A 26
16	J A 24	J A 22	J A 24	J A 31	J A 24	J A 19	19	24	G 27	34	G 33	34	42	G	G 26	G	G	G	J A 17	E B 16	19	J A 16	E B 16	E B 19
17	J A 43	J A 18	E B 16	E B 16	E B 16	E B 16	E B 16	G 20	30	36	37	37	G 22	G 34	35	33	28	24	J A 18	J A 17	J A 22	J A 19	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	E B 16	24	G	33	37	38	40	G	34	37	G 26	28	J A 28	J A 23	J A 29	J A 26	20	E B 16
19	E B 16	E B 16	20	E B 16	E B 16	E B 16	E B 16	23	29	G	42	42	43	37	J A 36	G 24	35	G	E B 16	E B 16	18	J A 23	18	20
20	20	E B 16	J A 26	E B 16	E B 16	E B 16	20	26	32	36	J A 43	G	J A 40	G	G 22	J A 45	33	J A 27	J A 52	E B 16	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	J A 33	J A 41	G 35	G 29	E B 43	G	35	J A 46	J A 81	24	20	J A 66	J A 29	J A 32	19	E B 16
22	E B 16	J A 20	E B 16	J A 29	E B 16	J A 16	E B 18	26	30	34	G	39	G	E B 41	G	G	36	28	E B 16	21	E B 16	E B 16	E B 16	E B 16
23	J A 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	29	41	J A 42	35	G 34	50	36	34	G 24	25	J A 20	20	J A 60	J A 18	J A 27	18
24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	G	35	41	40	61	39	J A 52	J A 39	J A 50	J A 72	J A 52	J A 33	E B 16	E B 16	20	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	28	31	36	G	37	37	35	38	J A 41	J A 38	J A 42	E B 16	J A 16	E B 16	E B 16	E B 16
26	J A 46	J A 24	18	E B 16	E B 16	19	E B 16	22	G	31	34	G	35	35	G	34	G 24	23	18	E B 16	19	18	E B 16	20
27	J A 39	J A 64	J A 27	J A 23	J A 18	E B 16	E B 16	G	G	34	33	G 31	G 34	40	G 32	37	34	23	J A 20	E B 18	E B 16	E B 16	E B 16	E B 16
28	E B 16	E B 16	E B 16	E B 16	E B 16	19	E B 16	G	G 22	G 25	G 27	37	38	G	42	J A 48	33	G	J A 16	21	J A 18	J A 20	J A 25	E B 16
29	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	30	34	35	J A 42	39	G 22	42	39	28	J A 21	J A 22	J A 17	18	21	E B 16	E B 16
30	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	28	32	40	35	50	39	G 33	40	J A 30	J A 26	J A 26	J A 25	18	J A 17	20	20
31	18	E B 16	J A 20	18	J A 25	18	E B 16	21	30	33	36	40	38	39	J A 40	34	28	21	E B 16	E B 16	18	J A 18	J A 26	E B 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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	30	34	37	37	38	36	36	37	34	26	J A 21	J A 21	J A 18	J A 19	19	E B 16
U Q	J A 22	J A 20	J A 20	J A 19	J A 18	18	18	25	31	36	40	39	42	40	40	J A 40	J A 36	J A 32	J A 36	J A 28	J A 33	J A 26	J A 26	J A 23
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	32	34	G	G	G	G	G 34	G 28	G 21	E B 18	E B 16	E B 16	E B 16	E B 16	E B 16

OCT. 2012 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	32	G 21	G 26	G	G	E B 40	E B 42	37	35	38	42	E B 16	E B 16	E B 16	E B 16	E B 16
2	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	35	U Y 38	39	G	G	U Y 36	G	G	G	20	23	32	20	E B 16	E B 16
3	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	G	G	U Y 36	G	U Y 38	40	38	36	32	31	28	19	E B 16	E B 16	E B 16	E B 16
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	30	37	39	39	39	G	G	37	34	30	28	20	E B 16	E B 16	E B 16	E B 16
5	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	30	35	41	38	42	41	38	40	35	30	33	E B 16	24	E B 16	25	26
6	17	E B 16	E B 16	E B 16	20	E B 16	E B 16	25	30	36	37	G 25	G 29	39	38	35	33	30	19	E B 16	E B 16	E B 16	E B 16	E B 16
7	21	E B 16	E B 16	30	E B 16	E B 16	E B 16	24	32	36	U Y 34	42	41	48	40	39	U Y 33	29	18	E B 16	E B 16	20	22	18
8	E B 16	20	E B 16	E B 16	E B 16	E B 16	E B 16	23	31	33	G 21	G 22	G 22	40	44	50	40	G	E B 16	E B 16	E B 16	16	E B 16	E B 16
9	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	32	36	G	U Y 46	42	49	G	39	36	U Y 24	E B 16	22	34	E B 16	16	21
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	29	36	43	38	41	G	E B 44	65	48	28	E B 16	20	22	21	16	21
11	E B 16	E B 16	16	E B 16	E B 16	E B 16	E B 16	24	32	U Y 29	38	38	40	46	37	36	32	28	23	24	28	E B 16	19	20
12	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 21	28	33	38	40	42	40	38	42	46	57	48	E B 16	E B 16	20	16	E B 16
13	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	30	34	U Y 34	G 33	G 34	G 34	G	33	G	24	E B 16	E B 16	E B 16	28	24	16
14	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	28	38	38	G 26	G	G	G 28	34	29	U Y 22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
15	20	20	16	16	E B 16	E B 16	E B 16	23	29	36	43	U Y 35	40	U Y 32	U Y 34	G 22	31	G 19	22	30	30	E C 23	22	21
16	20	E B 16	21	22	19	E B 16	E B 16	23	G 27	34	U Y 33	U Y 34	40	G	G 26	G	G	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 19
17	16	17	E B 16	E B 16	E B 16	E B 16	E B 16	G 20	29	36	37	U Y 37	G 22	G 34	U Y 35	33	28	23	E B 16	E B 16	20	E B 16	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	E B 16	24	G	U Y 33	36	37	40	G	U Y 34	36	G 26	24	21	E B 15	19	20	E B 16	E B 16
19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	29	G	U Y 42	42	U Y 43	U Y 37	G 36	G 24	35	G	E B 16	E B 16	18	E B 16	E B 16	E B 16
20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	32	36	38	G	39	G	G 22	44	32	26	39	E B 16	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	31	36	G 35	G 29	E B 43	G	U Y 35	46	46	24	18	24	E B 16	20	E B 16	E B 16
22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 18	26	30	34	G	39	G	E B 41	G	G	32	G 24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	29	36	41	U Y 35	G 34	U Y 50	U Y 36	U Y 34	G 24	23	19	E B 16	52	E B 16	24	E B 16
24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	G	34	38	40	58	38	49	36	29	68	48	29	E B 16	E B 16	E B 16	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	21	28	U Y 31	36	G	37	37	U Y 35	36	30	32	20	E B 16	E B 16	E B 16	E B 16	E B 16
26	35	20	E B 16	E B 16	E B 16	E B 16	E B 16	22	G	U Y 31	U Y 34	G	U Y 35	U Y 35	G	34	G 24	20	U Y 18	E B 16	E B 16	17	E B 16	E B 16
27	E B 16	32	19	E B 16	E B 16	E B 16	E B 16	G	G	U Y 34	U Y 33	G 31	G 34	38	G 32	36	32	22	18	E B 16	E B 16	E B 16	E B 16	E B 16
28	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G 22	G 25	G 27	U Y 37	U Y 38	G	U Y 42	46	32	G	E B 16	16	E B 17	E B 16	E B 18	E B 16
29	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	30	32	35	38	39	G 22	36	34	27	21	E B 16	17	E B 16	E B 16	E B 16	E B 16
30	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	28	32	37	U Y 35	U Y 50	36	G 33	37	27	24	E B 16	19	17	E B 16	E B 16	E B 16
31	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	29	33	36	38	38	38	36	31	28	21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	29	34	36	37	38	36	G	36	32	24	18	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	16	16	16	E B 16	E B 16	E B 16	E B 16	24	30	36	38	39	41	40	38	39	35	30	23	20	20	20	16	16
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	32	U Y 34	G	G	G	G 35	G 33	G 27	23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

OCT. 2012 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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

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	16	16	16	16	16	16	16	16	16	18	20	27	24	40	42	16	16	14	16	16	16	16	16	16
2	16	16	16	16	16	16	16	16	17	16	20	28	26	20	20	17	17	16	16	16	16	16	16	16
3	16	16	16	16	16	16	16	16	16	17	19	22	22	27	20	16	16	13	15	16	16	16	16	16
4	16	16	16	16	16	16	16	16	16	16	16	24	22	17	25	17	22	16	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	18	17	16	20	20	18	16	16	16	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	17	20	20	20	18	18	18	16	16	16	16	16	16	16	16
7	16	16	16	16	16	16	16	16	16	17	20	20	18	16	15	17	16	16	16	16	16	16	16	16
8	16	16	16	16	16	16	16	16	16	16	20	19	18	16	17	20	20	16	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	16	22	20	22	22	17	16	20	16	16	16	16	16	16	16
10	16	16	16	16	16	16	16	16	16	16	21	24	24	21	44	16	16	16	16	16	16	16	16	16
11	16	16	16	16	16	16	16	16	16	21	17	24	26	24	26	16	16	16	16	16	16	16	16	16
12	16	16	16	16	16	16	16	16	18	16	17	19	20	26	21	20	16	16	16	16	16	16	16	16
13	16	16	16	16	16	16	16	16	16	16	17	26	23	24	16	17	19	16	16	16	16	16	16	16
14	16	16	16	16	16	16	16	16	16	16	18	18	30	22	19	16	16	16	16	16	16	16	16	16
15	16	16	16	16	16	16	16	16	16	16	20	18	25	20	18	16	17	16	16	16	16	E C 23	16	16
16	16	16	16	16	16	16	16	16	16	16	17	15	19	29	18	19	16	16	16	16	16	16	16	19
17	16	16	16	16	16	16	16	16	16	15	20	20	21	24	16	24	16	16	16	16	16	16	16	16
18	16	16	16	16	16	16	16	16	16	19	25	21	20	28	20	23	17	16	16	15	16	16	16	16
19	16	16	16	16	16	16	16	16	16	18	21	21	20	25	17	18	20	16	16	16	16	16	16	16
20	16	16	16	16	16	16	16	16	16	16	20	24	26	27	17	21	20	16	15	16	16	16	16	16
21	16	16	16	16	16	16	16	16	16	18	26	21	43	26	22	23	16	16	16	16	16	16	16	16
22	16	16	16	16	16	16	18	16	16	18	20	22	25	41	18	19	17	16	16	16	16	16	16	16
23	16	16	16	16	16	16	16	16	16	18	18	20	28	30	26	20	16	16	16	16	16	16	16	16
24	16	16	16	16	16	16	16	16	16	16	19	17	24	22	21	21	17	16	16	16	16	16	16	16
25	16	16	16	16	16	16	16	16	16	16	20	18	26	26	24	20	16	16	16	16	16	16	16	16
26	16	16	16	16	16	16	16	16	16	16	19	20	20	26	21	20	17	16	16	16	16	16	16	16
27	16	16	16	16	16	16	16	16	16	17	19	17	21	17	16	19	16	16	16	16	16	16	16	16
28	16	16	16	16	16	16	16	16	16	16	19	17	21	17	24	20	17	16	16	16	16	16	16	16
29	16	16	16	16	16	16	16	16	16	16	17	25	21	20	20	17	16	16	16	16	16	16	16	16
30	16	16	16	16	16	16	16	16	16	16	16	23	16	18	18	20	16	16	15	16	16	16	16	16
31	16	16	16	16	16	16	16	16	16	16	16	16	19	22	16	17	16	16	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	16	16	16	19	20	22	22	19	18	16	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	18	20	24	25	26	22	20	17	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	16	17	18	20	20	17	16	16	16	16	16	16	16	16	16

OCT. 2012 fmin (0.1MHz)

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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	284	304	299	307	278	289	312	351	355	J R	314	R	R	R	R	R	U R 317	R 321	332	309	301	293	299	311
2	288	286	283	300	304	301	312	344	R 357	R 336	346	R 335	321	U R 308	U R 326	J R	322	345	343	331	315	307	293	294
3	314	340	312	310	298	292	361	378	364	356	R 338	R 340	U R 342	U R 332	312	R 320	U R 335	U R 341	352	352	335	308	303	306
4	312	316	295	299	324	330	350	383	380	373	349	R 344	R	J R	R 294	J R	R 336	R 352	352	362	344	295	296	299
5	302	292	292	314	342	347	341	372	363	360	347	U R 332	U R 330	R 343	U R 319	U R 328	328	329	352	385	306	284	282	290
6	292	297	298	307	311	318	339	369	359	372	366	329	311	R 325	334	333	343	356	349	338	345	326	295	289
7	295	305	287	308	302	301	333	371	372	345	360	R	U R 329	U R 342	335	U R 331	U R 335	U R 364	338	363	306	300	300	313
8	305	303	307	329	380	298	320	370	R 379	R 379	352	338	R 328	341	U R 325	J R	345	335	325	314	332	356	289	307
9	298	301	327	312	306	317	326	346	R 348	U R 373	R 358	358	R 367	322	U R 340	344	332	345	353	293	299	295	268	286
10	302	285	292	F 295	297	340	327	391	383	361	351	368	J R	U R 343	U R 343	U R 343	354	337	359	338	312	331	287	287
11	287	299	339	328	294	303	354	383	366	355	R 356	354	327	340	336	U R 330	R 338	359	357	344	340	302	298	299
12	302	302	290	307	296	368	391	372	371	345	352	327	J R	R	J R	334	334	351	364	365	310	306	297	294
13	286	306	318	329	324	300	370	370	361	338	331	U R 333	R 335	R 319	R 315	R	348	348	330	335	302	281	302	288
14	321	280	332	357	253	V 262	311	383	359	348	338	U R 350	U R 354	R 331	U R 334	R 336	R 351	353	357	355	329	353	273	279
15	288	339	318	311	310	298	325	361	365	359	345	R	349	R	U R 340	U R 335	355	366	349	338	318	333	310	294
16	298	332	333	342	360	285	305	356	354	342	U R 340	U R 325	R	U R 328	R	U R 335	353	348	347	358	302	309	314	307
17	303	300	304	328	369	310	316	351	341	353	U R 337	R 323	R	R	U R 326	R 333	337	342	342	325	293	316	314	299
18	291	295	301	331	369	287	313	364	355	347	332	321	342	J R	R 330	R 318	340	R 335	R 342	337	300	306	297	293
19	285	296	294	301	348	379	311	354	364	338	346	U R 327	R 317	U R 314	R	R	335	357	343	330	302	313	301	305
20	301	284	292	321	380	365	321	371	362	348	345	U R 342	U R 340	U R 315	R	U R 326	U R 353	336	332	313	313	306	308	296
21	296	320	333	341	374	306	301	358	358	U R 353	326	R	U R 342	U R 314	R	J R	R 337	U R 333	330	298	301	320	304	294
22	307	324	345	314	352	287	306	368	361	345	R 327	U R 327	U R 331	J R	R	R	R 333	337	331	352	307	309	318	299
23	298	314	302	301	349	292	315	377	366	344	R	U R 352	U R 328	U R 323	U R 313	R	332	324	331	R 341	300	321	325	284
24	285	293	290	306	327	276	304	350	337	346	R 351	U R 331	U R 319	U R 313	R	R	325	U R 331	345	333	312	310	321	283
25	294	309	294	295	318	300	307	355	R 368	323	U R 334	R	R	U R 301	R	R	U R 332	R 346	360	330	299	320	314	301
26	291	298	298	298	367	290	312	358	365	318	345	U R 342	313	U R 335	R 313	331	R 344	R 334	355	314	309	324	321	289
27	286	307	300	291	322	382	296	341	354	U R 339	J R 292	U R 343	R	R	R	R	R 346	R 345	349	316	306	341	329	307
28	296	302	307	341	386	293	312	358	361	331	J R	R 359	R	U R 320	U R 343	R 340	R 349	353	329	305	308	318	293	295
29	309	308	336	353	380	281	297	358	356	343	U R 340	U R 364	338	U R 334	R	370	357	356	356	304	308	329	338	301
30	305	316	332	319	363	302	307	346	363	344	R 338	J R	U R 319	R	U R 333	357	349	345	348	342	306	317	304	293
31	294	318	329	362	373	326	299	349	378	333	R 356	U R 321	U R 329	R 332	R 331	R 351	R 355	368	366	302	306	324	325	291
	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	29	25	22	22	20	19	31	31	31	31	31	31	31	31
MED	296	303	302	312	327	301	313	361	362	346	345	U R 338	R 330	U R 326	U R 330	R 334	338	345	348	335	307	313	302	294
U Q	303	316	329	329	369	326	333	372	366	356	352	R 351	R 342	R 335	U R 336	343	349	353	355	352	315	324	314	301
L Q	288	296	294	301	304	290	307	351	356	339	336	U R 327	321	U R 315	R 317	U R 330	333	R 335	332	314	302	306	295	289

OCT. 2012 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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

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								L	L	L	L	L	L	L	L	L	L							
2									L	L	L	L	L 426	U L 355	L	L	L	L						
3									L	L	L	L	L	U L 375	L	L	L	L						
4									L	L	L	L	U L 391	U L 362	L	L	L							
5									L	L	L	U L 383	U L 385	L	L	L	L	L						
6									L	L	L	L 417	U L 395	L	L	L	L							
7								494	L	L	L	L	L	A	L	L	L	419						
8									L	L	L	L	L	L	L	A	A	408						
9									L	L	L		L	L	413	449								
10									L 426	L 425	A	L	L	L	L	A	A							
11								501	L 440	L	L	L	L	L	L	L	L							
12								L 420	L	L	L	L	L	L	U L 377	L	A	A						
13									L	L	L	L	L	L	U L 390	U L 372	L							
14									L	L	L	U L 392	L	L	L	L	L							
15									L	L	L	L	L	U L 343	L	L	U L 395							
16									L	L	L	U L 386	L	L	U L 353	L	L							
17									L	L	L	L	L	L	L	L	L							
18										L	L	L	L	L	L	L	L							
19									L	L	L	L	L	L	L	L	430							
20										L	L	U L 404	U L 371	L	L	L	L							
21									L	L	L	L	L	U L 352	L	L								
22									L	L	L	L	L	U L 348	L	L								
23									L	U L 429	L	L	L	A	L	L	U L 411							
24										L	L	L	L	U L 374		L	L							
25										L	L	L	L	L	L	L	L							
26								491	L	L	L	L	L	L	L	L	L							
27									L	L	L	L	L	L	L	L	L							
28										L	L	U L 367	U L 408	U L 372	L	A								
29										L	L	L	L	L	L	L	L							
30										L	L	U L 379	L	L	L	L	L							
31									L	L	L	L	L	L	L	U L 401	L	415						
	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	2	2		7	6	8	4	3	3	3						
MED								492	L 433	L 427		U L 386	U L 393	U L 358	U L 384	U L 401	U L 411	415						
U Q								498				L 404	L 408	U L 373	402	449	430	419						
L Q								456				U L 379	U L 385	U L 350	U L 365	U L 372	U L 395	408						

OCT. 2012 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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

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								224	236	242	250	300	284	294	286	276	260							
2									234	226	244	252	244	300	290	270	244	224						
3									224	230	246	260	262	264	260	270	250	250						
4									218	228	264	264	260	260	262	266	260							
5									218	226	226	270	252	266	266	256	240	250						
6									222	222	228	260	236	266	270	260	246							
7								202	212	248	238	242	242	240	278	252	240	226						
8									216	214	238	266	268	268	264	240	228	220						
9									246	218	230		232	292	246	238								
10									200	220	238	234	228	244	260	250	228							
11								190	208	228	236	246	252	272	250	246	226							
12								192	208	222	232	252	268	268	248	240	240	234						
13									210	228	236	264	262	284	258	262	262							
14									198	232	262	246	250	260	278	252	230							
15									214	230	238	250	234	286	256	248	234							
16									232	244	244	252	270	274	258	244	230							
17									234	240	248	258	286	282	262	250	234							
18										234	252	252	274	266	266	252	250							
19									210	228	252	260	244	274	284	252	234							
20										222	246	250	268	288	280	262	238							
21									224	244	272	268	250	304	280	252								
22									228	226	230	246	248	294	274	262								
23									210	226	254	256	274	256	252	260	228							
24										252	240	242	292	280		244	234							
25										222	254	248	240	282	268	260	240							
26								204	216	206	258	234	240	264	274	258	222							
27									228	222	252	240	246	250	262	238	226							
28										250	244	242	230	270	250	234								
29										242	246	222	244	258	242	224	214							
30										228	246	242	268	254	244	220	220							
31									212	236	238	228	252	250	266	234	212	208						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								5	24	31	31	30	31	31	30	31	27	7						
MED								202	217	228	244	251	252	268	263	252	234	226						
U Q								214	228	240	252	260	268	284	274	260	244	250						
L Q								191	210	222	238	242	242	260	256	240	228	220						

OCT. 2012 h′F2 (KM)

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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 \ 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	276	264	264	252	246	288	252	220	206	H 206	H 196	H 188	212	H 204	242	226	228	234	236	228	258	264	250	228
2	264	284	280	266	256	254	262	218	218	206	202	190	192	206	H 192	226	228	228	212	228	236	274	258	264
3	246	216	232	254	266	290	216	194	208	H 188	224	208	206	196	192	196	216	244	210	208	198	214	216	246
4	252	248	272	272	244	228	224	206	202	196	H 190	H 180	206	194	H 174	230	230	232	214	200	196	244	266	266
5	272	280	280	256	224	206	224	206	214	208	210	194	210	204	210	A 234	224	232	218	190	212	282	320	312
6	290	278	268	256	222	210	220	206	204	198	196	176	198	H 200	224	222	226	226	206	206	210	216	258	286
7	296	264	284	282	226	256	236	170	208	222	206	222	A 234	A	H 218	252	232	222	206	204	230	290	288	252
8	256	284	272	236	198	258	252	222	216	198	182	196	184	232	254	A	A	A 226	226	252	208	210	H 224	256
9	256	252	234	220	260	246	246	222	234	216	220	232	A	E A 278	208	194	234	220	210	260	274	210	334	300
10	260	290	288	278	248	222	220	200	190	192	A	208	A 204	H 212	E B 254	A	A	218	204	204	238	222	232	320
11	290	282	236	228	284	258	204	160	176	196	210	196	206	252	H 214	218	222	222	202	222	228	230	268	282
12	272	262	288	268	266	192	194	A	196	190	180	208	204	236	224	A 238	A	A	214	196	212	262	260	276
13	282	266	240	232	228	246	204	198	204	188	192	214	210	H 198	178	214	214	232	222	222	234	272	248	278
14	222	306	238	216	350	362	260	200	200	214	H 190	214	228	H 224	H 208	212	216	214	218	204	218	202	308	296
15	314	242	226	268	246	286	238	206	212	200	220	184	H 206	220	226	206	212	220	202	230	272	234	258	302
16	298	236	238	254	212	282	262	216	210	H 198	204	190	H 192	206	206	214	216	216	200	202	236	244	250	270
17	272	270	272	238	200	236	252	210	212	212	H 200	208	202	200	204	H 188	218	224	210	206	264	234	234	266
18	286	278	264	236	194	288	230	216	212	206	H 192	H 180	208	184	194	226	224	234	210	198	234	230	232	270
19	294	280	272	266	216	188	216	200	H 184	194	240	236	216	190	H 182	206	210	220	206	202	240	228	228	230
20	262	282	284	240	196	204	240	210	208	210	194	192	192	192	H 208	246	222	216	222	204	214	208	230	262
21	272	246	222	222	202	264	260	216	218	222	210	210	224	204	208	A	222	212	210	226	238	242	238	266
22	260	242	218	244	214	300	264	226	220	208	208	214	204	194	208	206	226	214	214	200	236	214	222	258
23	272	254	248	270	226	244	254	210	206	192	202	194	H 174	A	Y 226	218	206	226	214	200	A	226	230	274
24	280	266	272	254	232	288	260	214	218	208	216	212	A 258	194	246	212	214	244	226	210	218	218	224	264
25	270	254	272	278	246	250	254	224	216	200	214	210	198	H 190	206	216	226	220	196	196	236	222	228	230
26	332	278	284	284	212	244	242	170	202	194	H 174	194	196	214	208	206	216	208	198	196	224	214	224	274
27	296	308	274	290	244	188	240	222	216	208	212	194	214	H 184	212	216	222	216	204	212	250	218	220	232
28	264	262	260	222	198	296	264	216	216	206	200	198	206	216	238	A	226	212	200	192	240	234	250	272
29	264	258	234	206	180	338	272	206	210	210	212	204	H 200	200	210	226	204	214	206	198	236	236	214	264
30	264	252	234	236	200	256	278	224	210	200	220	H 174	A	184	218	A 228	212	212	200	210	250	220	250	284
31	284	256	242	218	196	262	272	220	210	198	212	200	186	224	216	216	220	226	194	202	246	222	228	276
	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	31	31	30	31	29	29	31	27	28	30	31	31	30	31	31	31
MED	272	264	264	254	226	256	246	210	210	200	205	198	206	202	209	216	222	221	210	204	236	228	238	270
U Q	290	280	274	268	246	288	260	220	216	208	212	210	211	218	224	226	226	228	214	222	240	244	258	282
L Q	262	252	236	232	200	228	224	200	204	196	194	190	197	194	206	206	215	216	202	200	218	216	228	258

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	108	102	102	106	106	102	B	B	100	100	104	B					
2							B	104	102	100	96	104	104	98	100	98	98	108	B					
3							B	108	100	98	100	98	98	102	102	104	A	104	A					
4							B	108	104	A	94	100	102	96	104	102	106	106	B					
5							A	108	106	108	96	96	92	100	108	102	102	B	A					
6							A	116	A	96	A	100	102	104	102	102	102	104						
7							A	120	104	102	102	106	104	104	102	104	102	104						
8							A	106	108	106	104	104	104	104	104	100	104	104						
9							B	108	96	96	102	106	108	102	100	100	104	104						
10							A	118	100	96	98	102	102	100	B	98	98	100						
11							B	A	A	A	110	110	110	102	102	100	102	108						
12							B	124	102	100	98	98	92	114	100	104	104	106						
13							B	116	98	100	98	A	104	100	94	100	104	108						
14							B	110	98	98	96	102	110	94	106	106	106	106						
15							B	106	100	96	100	100	102	A	98	100	104	110						
16							A	102	110	108	106	102	A	110	106	102	102	102						
17							B	118	108	94	98	102	104	106	106	104	102	116						
18							B	120	100	98	102	100	96	102	100	104	104	110						
19							B	112	102	100	100	100	100	A	100	112	104	104						
20							B	110	94	92	100	100	106	106	104	106	106	A						
21							B	106	102	102	102	106	B	100	96	102	A	102						
22							B	108	102	98	96	98	100	B	100	104	106	106						
23							B	110	100	98	98	98	102	A	A	A	110	106						
24							B	114	98	98	98	96	102	102	102	102	A							
25							B	106	100	98	94	92	100	100	102	100	100	A						
26							B	106	98	96	96	94	98	102	102	102	106	108						
27							B	104	100	98	A	108	106	A	104	102	104	B						
28							B	144	112	110	108	96	102	100	102	102	102	126						
29								116	98	98	96	A	104	102	102	102	102	102						
30								126	100	100	98	102	100	100	102	106	B	A						
31								B	100	98	98	96	98	98	94	102	102	162						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								29	29	29	29	29	29	25	28	30	27	25						
MED								110	100	98	98	100	102	102	102	102	104	106						
U Q								117	103	101	102	104	104	104	104	104	104	108						
L Q								106	99	97	96	98	100	100	100	100	102	104						

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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	B	B	B	B	B	B	B	138	118	92	98	G	G	B	B	146	130	116	100	88	88	B	88	B
2	B	88	B	B	B	B	90	G	G	108	104	102	G	G	110	G	G	G	154	104	88	90	B	B
3	B	B	B	B	B	B	B	138	G	G	148	G	126	116	114	110	100	100	96	96	B	98	B	B
4	B	B	B	B	B	102	B	G	178	88	120	114	110	G	G	170	174	138	116	110	106	B	96	B
5	94	90	90	90	B	92	118	118	118	112	106	108	102	102	100	98	98	96	92	102	92	92	88	86
6	88	88	B	B	84	88	96	146	96	94	92	90	88	168	154	138	112	100	98	102	98	98	96	92
7	90	92	92	88	92	94	94	156	118	120	142	112	104	104	114	158	160	206	96	86	94	110	92	104
8	98	90	92	88	90	B	90	126	104	106	92	94	90	144	126	112	112	G	B	B	B	94	94	96
9	96	92	B	B	B	120	134	126	126	140	G	190	142	122	G	196	150	228	114	100	96	96	94	92
10	90	B	B	92	B	B	98	136	128	114	108	114	112	G	B	104	100	98	106	96	94	92	92	88
11	B	90	90	90	100	B	B	144	194	104	166	148	130	102	102	144	124	106	100	96	94	96	94	90
12	90	B	B	B	B	B	B	106	104	104	172	184	170	182	172	118	106	102	98	100	96	94	96	110
13	B	96	94	B	B	B	B	134	120	142	118	112	108	114	G	112	G	114	88	102	86	90	90	92
14	90	94	B	B	B	110	B	158	178	128	132	96	G	G	92	90	90	126	B	B	B	98	B	100
15	90	106	88	88	92	B	B	132	130	100	96	100	100	104	102	92	114	94	90	88	86	94	86	82
16	86	84	84	86	86	88	90	134	100	132	96	88	92	G	94	G	G	G	100	B	96	86	B	B
17	98	92	B	B	B	B	B	106	116	108	104	106	96	108	110	110	100	160	84	84	92	94	B	B
18	B	B	B	B	B	B	B	158	G	116	106	102	102	G	102	106	96	114	94	98	94	92	88	B
19	B	B	90	B	B	B	B	146	104	G	162	148	138	92	90	90	212	G	B	B	102	106	92	86
20	84	B	122	B	B	B	146	134	106	102	100	G	102	G	88	130	132	98	96	B	B	B	B	B
21	B	B	B	B	B	B	B	G	106	104	108	102	B	G	106	98	94	130	96	94	98	90	94	B
22	B	92	B	108	B	86	B	140	160	100	G	146	G	B	G	G	116	160	B	108	B	B	B	B
23	88	B	B	B	B	B	B	G	106	102	98	100	98	94	94	92	98	102	112	104	92	94	90	94
24	B	B	B	B	B	B	B	140	G	116	108	108	102	108	96	100	98	94	94	92	B	B	92	B
25	B	B	B	B	B	B	B	156	122	110	100	G	102	106	102	102	100	96	108	B	92	B	B	B
26	90	90	92	B	B	86	B	160	G	112	104	G	104	106	G	110	100	100	98	B	82	90	B	108
27	94	90	92	94	94	B	B	G	G	194	96	96	92	94	92	110	104	104	102	100	B	B	B	B
28	B	B	B	B	B	94	B	G	98	98	96	126	118	G	122	102	100	G	88	86	100	98	94	B
29	B	B	B	B	B	B	B	158	108	108	102	98	186	96	114	108	92	92	86	80	80	90	B	B
30	B	B	B	B	B	B	B	128	138	148	110	128	104	110	102	124	96	94	96	128	96	94	92	92
31	94	B	90	90	90	90	B	134	134	126	108	98	102	104	104	102	102	206	B	B	98	94	94	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	15	12	10	8	11	9	25	25	29	29	26	26	20	24	28	28	26	26	23	24	24	20	15
MED	90	90	91	90	91	92	96	138	118	108	106	107	103	106	102	110	101	103	97	98	94	94	92	92
U Q	94	92	92	92	93	102	126	151	132	123	119	126	118	115	114	127	120	130	102	102	97	97	94	100
L Q	89	90	90	88	88	88	90	130	105	102	98	98	100	102	95	101	98	98	94	88	90	91	90	88

OCT. 2012 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2012 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								H 1	CL 11	L 1	L 1					HL 11	H 1	CL 21	C 4	F 1	F 1		F 1	
2		F 1					L 1			C 1	C 1	C 1			C 1				H 1	F 3	F 6	FQ 21		
3								H 2			H 1		H 1	C 1	C 1	CL 11	CL 21	CL 22	L 4	F 3		F 1		
4						F 1			HL 11	L 2	C 1	C 1	C 1			H 1	H 1	H 2	C 5	F 4	F 1		F 1	
5	F 1	F 1	F 2	F 1		F 1	L 1	C 1	CL 11	CL 11	C 1	C 1	C 1	C 1	CL 11	CL 21	C 3	CL 31	L 6	FF 31	F 3	FQ 11	F 3	F 5
6	F 2	F 1			F 2	F 2	L 1	HL 21	LH 11	C 2	LH 21	L 1	L 1	HL 11	HL 11	H 1	C 1	C 2	F 3	FF 11	FF 11	F 1	F 1	F 2
7	FQ 21	F 1	F 2	F 4	F 2	F 1	L 1	HL 11	C 1	C 1	HL 11	CL 11	CL 11	CL 11	CL 11	HL 11	H 1	H 1	F 2	F 2	F 2	FF 31	F 3	FF 13
8	F 1	F 1	F 1	F 1	F 1		L 2	CL 21	CL 11	CL 11	L 1	L 1	L 1	HL 11	CL 11	C 2	C 1					F 1	FQ 11	F 1
9	F 1	F 1				F 1	H 1	C 1	C 1	H 1		HL 11	HL 11	C 1		H 1	H 1	H 1	FF 11	FF 61	F 5	F 1	F 3	F 2
10	F 2			F 1			L 1	H 1	H 1	C 1	C 1	C 1	C 1			C 2	C 3	C 3	F 1	F 4	F 3	F 3	F 2	F 4
11		F 2	F 2	F 2	F 1			HL 12	HL 12	L 1	HL 11	HL 11	CC 11	C 1	C 1	HC 11	C 1	C 3	F 3	FQ 31	F 4	F 2	F 2	F 3
12	F 1							L 1	C 1	C 1	H 1	H 1	H 1	HL 11	H 1	C 1	C 3	C 4	F 6	F 1	F 2	FQ 21	F 3	F 1
13		F 1	F 1					CC 11	C 1	HC 11	C 1	C 1	C 1	C 1		C 1		C 2	F 1	FF 31	F 1	F 3	FQ 31	F 3
14	F 3	F 1				F 1		H 1	H 1	H 1	H 1	L 1			L 1	L 2	L 1	C 1				F 1		F 2
15	F 3	FF 44	F 3	F 2	F 1			H 1	H 1	C 2	C 1	C 1	C 1	L 1	C 1	L 1	CL 21	L 2	F 2	F 5	F 4	F 1	F 2	F 2
16	FF 11	F 2	F 3	F 2	F 2	F 1	L 1	H 1	L 1	HL 11	L 1	L 1	L 1		L 1				F 1		F 1	F 1		
17	FF 21	F 1						L 1	CL 11	C 1	C 1	CL 11	L 1	L 1	CL 11	C 1	CL 11	HL 11	F 1	F 1	F 4	F 1		
18								HL 11		C 1	C 1	C 1	C 1		C 1	C 1	L 1	CL 42	F 3	F 1	F 3	F 2	F 1	
19			F 1					H 1	C 1		H 1	H 1	HL 11	L 1	L 1	L 1	H 1				F 1	F 1	F 1	F 2
20	F 1		F 1				C 1	C 1	C 2	C 2	C 1		L 1		L 1	C 1	C 1	LC 22	F 3					
21									CH 11	C 1	C 1	L 1			C 1	CH 11	LL 31	H 1	F 1	F 3	F 2	F 2	F 1	
22		F 2		F 1		F 1		HL 21	HC 11	C 1		H 1					C 1	H 1		F 1				
23	F 1								C 1	C 2	C 2	C 1	L 1	L 1	L 1	L 1	L 1	C 2	F 1	F 1	F 4	F 2	F 3	F 1
24								H 2		C 1	C 1	C 1	C 1	C 1	C 2	C 1	LQ 21	L 3	FQ 41	F 5			F 1	
25								H 1	C 1	CL 11	C 1		C 1	C 1	C 1	C 1	C 2	L 3	FQ 31		F 1			
26	F 2	F 2	F 1			F 1		H 1		C 1	C 1		C 1	C 1		C 1	L 1	L 1	F 1		F 1	F 1		F 1
27	F 2	F 3	F 2	F 1	F 1					H 1	L 1	L 1	L 1	L 1	L 1	C 1	C 2	C 2	F 1	F 1				
28						F 1			L 1	L 1	L 1	C 1	C 1		C 1	C 2	C 2		F 1	F 1	F 1	F 1	F 3	
29								H 1	C 1	C 1	C 1	C 1	HL 11	L 1	C 1	C 1	L 1	L 1	F 1	F 3	F 1	F 1		
30								C 2	H 1	H 1	C 1	C 1	C 1	C 1	L 1	CL 22	C 2	L 3	FQ 11	FF 21	F 1	F 1	F 1	F 1
31	F 1		F 2	F 1	F 2	F 1		C 1	H 1	C 1	C 1	C 2	C 1	C 1	C 1	C 1	C 2	H 1			F 1	F 1	F 3	
	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. 2012 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 90	X 80	X 80	X 70	X 52	X 52	X 61													X 99	X 82	X 79	X 80	X 69
2	X 64	X 60	X 62	X 60	X 61	X 54	X 58													X 130	X 134	X 124	113	X 101
3	106	X 94	X 70	X 54	X 49	X 49	X 60													X 168	X 157	X 132	X 126	X 102
4	X 96	X 79	X 71	X 64	X 64	X 55	X 54													X 150	X 112	X 89	X 88	X 79
5	X 68	X 57	X 59	X 61	X 56	X 45	X 49													X 124	X 90	X 63	X 64	X 66
6	X 62	X 60	X 60	X 60	X 55	X 52	X 46													X 87	X 82	X 72	X 67	X 61
7	X 63	X 61	X 60	X 57	X 56	X 54	X 54													X 116	X 104	X 74	X 70	X 60
8	X 54	X 48	X 49	X 58	X 33	X 30	X 37													X 106	X 110	X 80	X 64	X 55
9	X 53	X 53	X 51	X 44	X 40	X 41	X 46													X 68	X 77	X 52	X 48	X 54
10	X 56	X 53	X 54	X 54	X 55	X 51	X 46													X 124	X 104	X 88	X 63	X 51
11	X 48	X 48	X 56	X 44	X 35	X 38	X 38													X 90	X 87	X 85	X 72	X 62
12	X 63	X 63	C	X 58	X 58	X 52	X 33													X 103	X 102	X 79	X 79	X 72
13	X 64	X 58	X 55	X 51	X 46	X 45	X 44													X 99	X 82	X 84	X 82	X 67
14	X 75	X 58	X 65	X 59	X 41	X 44	X 50													X 100	X 64	X 62	X 50	X 49
15	X 49	X 56	X 50	X 40	X 41	X 37	X 42													X 100	X 68	X 60	X 52	X 48
16	X 46	X 52	X 48	X 43	X 39	X 28	X 36													X 114	X 97	X 89	X 79	X 70
17	X 63	X 54	X 53	X 65	X 38	X 30	X 37													X 102	X 95	X 85	X 75	X 62
18	X 58	X 54	X 54	X 59	X 40	X 33	X 38													X 111	X 108	X 114	X 118	X 104
19	94	X 80	X 79	92	X 70	X 46	X 36													X 123	X 114	X 117	X 117	X 106
20	X 94	X 87	X 79	X 87	X 79	X 38	X 38													X 134	X 144	X 143	X 114	X 104
21	X 110	X 109	X 84	X 72	X 41	X 34	X 38													X 120	X 113	X 102	X 89	X 75
22	X 74	X 85	X 46	X 42	X 38	X 35	X 41													X 138	X 132	X 125	X 97	X 70
23	X 63	X 53	X 48	X 46	X 45	X 38	X 42													X 112	X 107	X 106	X 93	X 72
24	X 66	X 61	X 54	X 56	X 49	X 40	X 44													X 166	X 155	X 136	X 100	X 75
25	X 61	X 58	X 51	X 51	X 48	X 39	X 44													X 154	X 154	X 158	X 130	X 94
26	X 65	X 54	X 49	X 52	X 66	X 37	X 36													X 150	O X 136	X 130	X 97	X 70
27	X 69	X 63	X 56	X 54	X 59	X 41	X 36													X 109	X 102	X 110	X 88	X 71
28	X 64	X 58	X 56	X 62	X 40	X 31	X 35												X 106	X 99	X 94	X 88	X 74	X 64
29	X 67	X 66	X 51	X 48	X 33	X 33	X 34												X 142	X 132	X 111	X 113	X 99	X 75
30	X 70	X 72	X 73	X 63	X 48	X 32	X 32												X 96	X 93	X 88	X 92	X 69	X 57
31	X 54	X 55	X 60	80	48	X 27	X 30												X 101	X 103	X 93	X 91	X 61	X 57
	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	31	31												4	31	31	31	31	31
MED	X 64	X 58	X 56	X 58	X 48	X 39	X 41												X 104	X 112	X 104	X 89	X 80	X 70
U Q	X 74	X 72	X 65	X 63	X 56	X 49	X 46												X 124	X 132	X 114	X 117	X 99	X 75
L Q	X 58	X 54	X 51	X 51	X 40	X 33	X 36												X 98	X 100	X 88	X 79	X 67	X 60

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT. 2012 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 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

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									L	L	L	L	L	L	L	L	L							
2									L		L	L	L	L	L	L	L							
3									L	L	U L 488	U L 508	L	U L 528	L	L	A	A						
4										L	U L 484	U L 500	L	U L 528	L	L	L	L						
5									L	L	L	U L 520	U L 516	L	L 536	L 504	L	L						
6									L	L	L	U L 488	U L 512	U L 548	L	L	L							
7									L	L	L	L	L	L	L	L	L	L						
8									L	L	L	L	L	L	U L 500	L	A							
9										L	L	L	L	L	L	L		L						
10										L		L	L	L	L	L	L							
11										L		L	L	L	L	L		A						
12										U L 444	L	L	L	U L 520	436	L	A	L						
13										L	L	U L 516	L	L	L	L	L							
14									L	L	L	L	U L 540	L	L 584	U L 512	L							
15									L	L	L	L	L	L	L	L	L							
16									L	L	L	U L 524	L 548	U L 616	L 564	L	L							
17										L	L	U L 524	L	U L 568	U L 552	L	L							
18									L	L	L	L	L	U L 592	L	L	L							
19										L	L	L	L	L	L 568	U L 512	L							
20										L	L	L	U L 600	L	U L 580	L	L							
21										L	L	U L 520	L	L	L	L								
22									L	L	L	L	L	L	U L 560	L	L							
23									L	L	L	L	A	L	L	L	L							
24										L	L	L	L	U L 564	L	L	L							
25										L	L	L	L	U L 564	U L 548	L	L							
26										L	L	U L 492	L	L	L	L	L							
27								232		L	L	U L 504	L	L	L	L	L							
28									L	L	L	U L 520	U L 448	L	U L 532	L	L							
29										L	L	L	U L 564	528	L	L	L							
30										L	U L 504	L	L	L	L	L	L							
31										L	U L 508	U L 484	L	L	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1		1	4	12	7	10	11	3								
MED								232		U L 444	U L 496	U L 512	U L 540	U L 556	U L 552	U L 512								
U Q											U L 506	U L 520	U L 564	U L 568	L 568	U L 512								
L Q											U L 486	U L 496	U L 512	U L 528	U L 532	L 504								

OCT. 2012 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 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

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								240	304	328	R	B	B	U R 404	U R 384	344	320	248	A					
2								200	A	A	A	A	A	A	R 416	U R 380	316	256	A					
3								228	284	316	356	R 372	R 376	U R 368	U A 356	U A 328	296	232	A					
4								228	272	312	U R 344	U R 344	A	U R 364	B	U R 360	308	248	A					
5								208	272	300	R 324	U R 332	A	A	A	340	R 300	240	A					
6								240	276	R 312	360	B	R 360	U R 380	U R 380	328	296	240	A					
7								224	268	312	356	352	R 352	B	R	R 340	312	236	B					
8								208	A	A	A	R	356	R	356	328	292	236	A					
9								224	276	316	352	U R 368	U R 380	U R 384	U R 368	B	284	232	A					
10								220	276	316	U R 336	348	U R 368	352	B	U A 328	R 288	252	A					
11								A 204	280	328	A	A	A	A	A 360	A	A	236	A					
12								204	272	324	R 356	B	B	U R 380	356	336	300	A	A					
13								220	284	292	R 340	R	R	U R 372	U R 364	340	304	A 228	A					
14								216	A	324	R 368	U R 380	B	U R 356	356	340	296	236	B					
15								200	U A 264	U A 292	A	A	A	A	360	340	280	A	A					
16								A	U A 240	A	U R 352	U R 364	364	376	364	348	308	236	A					
17								212	284	U A 324	U A 344	A	A	A	A	A	A	A	A					
18								204	288	312	352	A	A	A	376	356	A	248	A					
19								200	296	356	U R 360	U R 372	U R 376	U R 376	R	356	308	236	B					
20								188	284	316	348	U R 372	B	U R 380	U R 352	352	A	228	B					
21								212	292	348	A	A	A	U A 380	A	A	A	220	A					
22								200	276	324	R 364	U R 364	U R 376	R 376	U R 372	344	296	240	B					
23								208	280	U A 328	A	A	A	A	U R 376	A	U A 308	232	A					
24								208	284	316	U A 340	U A 360	376	U A 376	A	A	A	A	A					
25								200	264	308	R 336	U R 368	B	A	U A 352	A	A	A	A					
26								212	280	328	332	A 340	B	A	A	A	288	224	A					
27								176	272	300	336	352	R	U R 376	A	336	U A 292	216	B					
28								216	252	308	R 332	R 352	364	R 364	360	U A 328	A	A						
29								200	264	308	336	340	A	A	A	328	288	208						
30								172	256	316	336	344	A	352	U A 328	328	272	A						
31								196	252	308	320	340	U A 336	360	352	308	268	200						
	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	28	28	24	19	12	19	20	23	23	24						
MED								208	276	316	344	U R 352	R 366	U R 376	360	340	296	236						
U Q								220	284	324	R 356	U R 368	U R 376	U R 380	U R 374	348	308	240						
L Q								200	266	308	336	344	358	364	356	328	288	228						

OCT. 2012 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	36	G 26	E B 42	E B 42	G	G 28	38	37	32	J A 40	J A 28	J A 16	E B 14	E B 14	E B 14
2	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	22	30	36	40	40	41	38	43	G	34	30	J A 33	J A 67	J A 32	J A 40	J A 24	18
3	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 22	36	40	44	42	42	41	39	J A 58	J A 48	19	J A 41	J A 50	J A 28	18	E B 14
4	18	18	E B 14	E B 14	E B 14	E B 14	E B 14	G	32	35	G 27	G	45	46	E B 38	G	32	29	J A 28	J A 28	J A 20	J A 20	J A 17	J A 29
5	J A 22	J A 20	E B 14	E B 14	E B 14	E B 14	E B 14	24	30	33	37	40	41	41	41	G	G	G 24	18	J A 18	E B 14	E B 14	E B 14	E B 14
6	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G 19	30	34	G 31	E B 40	G	G 31	G	35	34	32	20	J A 28	J A 19	E B 14	19	J A 21
7	21	E B 14	E B 14	J A 17	E B 14	E B 14	18	G	33	34	45	49	45	45	42	41	35	G	E B 17	J A 18	E B 14	J A 20	J A 21	J A 34
8	J A 20	J A 23	J A 23	J A 19	J A 20	J A 15	J A 19	24	J A 30	J A 36	39	40	G	G	41	44	J A 50	J A 48	J A 41	J A 38	J A 19	E B 14	19	J A 24
9	J A 21	J A 22	J A 20	J A 18	E B 14	E B 14	E B 14	28	32	38	G	G	G 26	G 28	G	E B 38	G	G 18	19	J A 46	J A 52	J A 32	J A 39	J A 18
10	J A 21	21	J A 21	20	E B 14	E B 14	J A 18	G	31	38	41	44	J A 48	J A 42	E B 42	35	G	G	J A 19	J A 16	J A 20	23	J A 35	J A 28
11	J A 19	J A 22	20	19	J A 20	20	18	25	32	35	J A 22	42	43	J A 42	41	J A 71	J A 56	J A 49	J A 49	J A 40	J A 45	68	J A 45	J A 42
12	J A 28	J A 25	C	J A 22	E B 14	17	E B 14	22	G	36	G	E B 41	E B 44	44	41	45	J A 53	J A 58	J A 22	J A 29	J A 21	23	J A 38	J A 34
13	J A 18	J A 18	E B 14	E B 14	E B 14	E B 14	19	G	31	33	G 34	G 33	G 34	G	G	G	G	29	J A 21	J A 30	J A 34	E B 14	J A 16	J A 20
14	J A 22	J A 27	J A 20	19	J A 18	18	J A 17	G	29	40	42	G	E B 43	G	G	G	G	G	E B 14	J A 14	18	E B 14	J A 16	J A 15
15	20	J A 18	20	J A 18	J A 16	J A 14	J A 16	24	29	33	38	J A 43	J A 85	J A 59	G	G	G	J A 31	J A 37	J A 15	E B 14	E B 14	E B 14	E B 14
16	E B 14	18	19	18	E B 14	E B 14	E B 14	24	30	33	G	G	G	G	G	G	G	G	J A 44	J A 35	J A 32	E B 14	E B 14	J A 30
17	E B 17	E B 18	J A 20	E B 14	J A 19	J A 19	J A 21	G	G	36	41	45	41	41	40	36	34	26	J A 22	J A 31	E B 14	J A 21	19	17
18	J A 16	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	24	30	34	G	J A 44	40	J A 49	42	46	J A 41	J A 41	J A 28	J A 20	J A 20	J A 17	18	19
19	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	24	32	39	42	43	44	G	33	G 32	G 27	G	E B 14	18	E B 14	J A 40	J A 23	E B 14
20	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	J A 40	33	35	G 24	G 24	E B 43	G	G	G	J A 32	G	E B 14	E B 14	E B 14	18	18	E B 14
21	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	25	G	G	J A 41	J A 42	J A 48	43	44	43	34	26	J A 20	E B 14	E B 14	J A 24	18	E B 14
22	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	26	G	G	G	G	G	41	G	37	G	29	E B 14	J A 43	J A 17	J A 20	J A 19	J A 16
23	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	37	J A 54	J A 50	J A 63	56	G	J A 48	G	26	18	J A 53	J A 24	20	21	J A 26
24	J A 22	J A 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	29	34	41	42	43	46	J A 44	J A 48	J A 43	J A 27	19	J A 94	J A 39	J A 19	J A 16	18
25	E B 14	E B 14	E B 14	18	E B 14	E B 14	E B 14	22	G	G	G	G 24	E B 41	J A 38	40	38	J A 31	J A 39	J A 33	J A 23	E B 14	J A 16	E B 14	E B 14
26	E B 14	E B 14	E B 14	J A 18	E B 14	E B 14	E B 14	G	G	G	40	39	E B 41	40	J A 40	35	G	G	J A 21	J A 18	E B 14	17	J A 16	E B 14
27	E B 14	18	J A 38	J A 36	J A 25	J A 19	E B 14	20	G	G	G	G	G	G	J A 47	41	35	G	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14
28	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	J A 18	G	G 22	G	G	41	43	J A 41	J A 40	J A 46	J A 31	24	J A 17	E B 14	J A 23	18	18	J A 22
29	J A 19	J A 26	E B 14	E B 14	E B 14	E B 14	E B 14	G	29	34	37	39	43	J A 40	37	35	G	24	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14
30	E B 14	E B 14	E B 14	17	E B 14	E B 14	E B 14	24	28	34	39	J A 56	J A 46	37	J A 45	J A 42	J A 29	26	J A 19	J A 25	J A 22	20	J A 34	J A 24
31	J A 20	E B 14	E B 14	E B 14	18	19	E B 14	G	G	33	41	J A 40	J A 43	G	G	35	32	22	E B 14	E B 14	20	J A 21	E B 14	E 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	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	20	29	34	37	40	42	40	40	36	32	26	J A 19	J A 25	J A 19	19	18	18
U Q	J A 20	J A 20	J A 20	J A 18	J A 14	14	J A 17	24	31	36	41	43	J A 44	43	42	43	J A 35	J A 32	J A 28	J A 38	J A 24	J A 23	J A 21	J A 24
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G 33	G	G	G 40	G	G	G	G	G	E B 17	E B 15	E B 14	E B 14	E B 14	E B 14

OCT. 2012 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	35	U G 26	E B 42	E B 42	G	G 25	38	37	31	37	21	E B 14	E B 14	E B 14	E B 14
2	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	22	29	36	40	40	41	U Y 38	43	G	34	30	24	56	20	25	18	E B 14
3	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 20	36	39	44	42	41	40	39	56	47	19	32	27	19	E B 14	E B 14
4	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	32	34	G 25	G	44	44	E B 38	G	32	29	25	23	E B 14	E B 14	E B 14	23
5	21	18	E B 14	E B 14	E B 14	E B 14	E B 14	23	30	33	37	40	41	41	40	G	G	G 22	18	E B 14	E B 14	E B 14	E B 14	E B 14
6	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G 18	30	33	G 25	E B 40	G	G 27	G	35	33	30	18	22	E B 14	E B 14	E B 14	17
7	20	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	32	34	44	48	44	44	42	41	35	G	E B 17	E B 14	E B 14	E B 14	E B 14	19
8	E B 14	19	19	15	E B 14	E B 14	E B 14	23	29	35	38	40	G	G	39	43	43	41	39	34	E B 14	E B 14	E B 14	24
9	E B 14	20	20	E B 14	E B 14	E B 14	E B 14	G 21	31	35	G	G	G 25	G 26	G	E B 38	G	G 14	18	42	47	26	32	16
10	18	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	30	36	41	43	44	40	E B 42	34	G	G	18	E B 14	16	E B 14	25	22
11	E B 14	18	E B 14	E B 14	E B 14	E B 14	E B 14	25	30	35	20	42	40	40	40	42	39	38	41	30	26	30	29	21
12	24	23	C	E B 14	E B 14	E B 14	E B 14	22	G	35	G	E B 41	E B 44	43	40	44	42	31	16	24	E B 14	18	E B 14	21
13	E B 14	18	E B 14	E B 14	E B 14	E B 14	E B 14	G	30	32	G 32	U G 33	U G 34	G	G	G	G	29	18	26	28	E B 14	E B 14	E B 14
14	16	16	16	E B 14	E B 14	E B 14	E B 14	G	28	39	41	G	E B 43	G	G	G	G	G	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14
15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	23	28	32	38	40	44	45	G	G	G	26	27	E B 14	E B 14	E B 14	E B 14	E B 14
16	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	23	29	32	G	G	G	G	G	G	G	G	21	E B 14	19	E B 14	E B 14	22
17	E B 17	E B 18	E B 14	E B 14	16	E B 14	E B 14	G	G	35	40	43	41	41	39	36	31	26	21	20	E B 14	E B 14	E B 14	E B 14
18	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	23	30	34	G	41	40	44	42	45	39	35	24	17	E B 14	E B 14	E B 14	E B 14
19	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	23	32	39	42	42	44	G	32	G 30	G 24	G	E B 14	E B 14	E B 14	25	22	E B 14
20	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	28	32	35	G 21	G 22	E B 43	G	G	G	31	G	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14
21	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	24	G	G	40	42	48	42	41	40	33	26	17	E B 14	E B 14	E B 14	E B 14	E B 14
22	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	24	G	G	G	G	G	41	G	37	G	28	E B 14	42	E B 14	18	E B 14	E B 14
23	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	35	42	41	61	51	G	44	G	26	16	30	E B 14	E B 14	E B 14	E B 14
24	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	29	34	40	41	42	44	43	40	38	24	16	30	22	18	E B 14	E B 14
25	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	22	G	G	G	G 23	E B 41	38	40	38	31	31	28	21	E B 14	E B 14	E B 14	E B 14
26	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G	40	39	E B 41	40	38	35	G	G	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14
27	E B 14	E B 14	E B 14	24	20	16	E B 14	20	G	G	G	G	G	G	41	40	34	G	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14
28	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 21	G	G	40	40	40	39	44	30	24	E B 14	E B 14	19	E B 14	E B 14	E B 14
29	17	18	E B 14	E B 14	E B 14	E B 14	E B 14	G	28	33	37	39	43	39	35	35	G	23	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14
30	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	23	28	33	38	47	45	37	42	36	28	26	14	22	19	E B 14	E B 14	18
31	E B 14	E B 14	E B 14	E B 14	E B 14	E B 13	E B 14	G	G	33	39	38	40	G	G	34	30	22	E B 14	E B 14	E B 14	20	E B 14	E 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	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	28	34	37	40	41	40	38	36	31	26	18	20	E B 14	E B 14	E B 14	E B 14
U Q	14	18	E B 14	E B 14	E B 14	E B 14	E B 14	23	30	35	40	42	44	42	41	40	35	30	24	30	19	18	14	18
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G 32	G	G	G 40	G	G	G	G	G	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14

OCT. 2012 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	14	14	14	14	14	14	14	14	21	24	21	42	42	28	21	22	16	15	14	14	14	14	14	14
2	14	14	14	14	14	14	14	14	20	21	24	32	31	28	22	24	18	14	14	14	14	14	14	14
3	14	14	14	14	14	14	14	14	17	16	25	28	24	24	20	19	18	14	14	14	14	14	14	14
4	14	14	14	14	14	14	14	14	15	16	20	18	21	20	38	26	22	19	17	14	14	14	14	14
5	14	14	14	14	14	14	14	14	13	20	21	21	22	31	34	22	15	15	14	14	14	14	14	14
6	14	14	14	14	14	14	14	14	14	19	21	40	28	22	25	18	13	14	14	14	14	14	14	14
7	16	14	14	14	14	14	14	14	15	22	22	23	21	41	18	22	16	16	17	14	14	14	14	14
8	14	14	14	14	14	14	14	14	20	23	29	20	30	32	24	23	19	18	14	14	14	14	14	14
9	14	14	14	14	14	14	14	14	16	20	24	32	24	22	29	38	20	13	14	14	14	14	14	14
10	14	14	14	14	14	14	14	14	14	21	21	23	25	23	42	21	17	14	14	14	14	14	14	14
11	14	14	14	14	14	14	14	14	14	15	14	23	22	27	25	22	20	14	14	14	14	14	14	14
12	14	14	C	14	14	14	14	14	19	21	24	41	44	26	24	20	20	16	14	14	14	14	14	14
13	14	14	14	14	14	14	14	14	14	16	22	31	32	30	24	19	15	14	13	14	14	14	14	14
14	14	14	14	14	14	14	14	14	14	21	18	17	43	24	24	18	20	14	14	14	14	14	14	14
15	14	14	14	14	14	14	14	14	17	21	22	31	21	22	23	21	15	14	13	14	14	14	14	14
16	14	14	14	14	14	14	14	14	18	21	22	24	24	24	23	21	20	14	14	14	14	14	14	14
17	17	18	14	14	14	14	14	14	16	20	22	23	23	22	26	26	20	20	14	14	14	14	14	14
18	14	14	14	14	14	14	14	17	15	15	24	25	32	30	22	23	19	14	14	14	14	14	14	14
19	14	14	14	14	14	14	14	15	18	22	20	23	29	32	29	24	19	14	14	14	14	14	14	14
20	14	14	14	14	14	14	14	14	16	16	19	21	43	32	26	24	21	15	14	14	14	14	14	14
21	14	14	14	14	14	14	14	15	18	21	24	32	38	30	33	22	17	18	14	14	14	14	14	14
22	14	14	14	14	14	14	14	14	20	21	22	22	22	30	27	24	20	14	14	14	14	14	14	14
23	14	14	14	14	14	14	14	14	16	20	23	22	29	41	26	21	21	17	14	14	14	14	14	14
24	14	14	14	14	14	14	14	14	15	16	16	25	24	24	22	22	17	15	14	14	14	14	14	14
25	14	14	14	14	14	14	14	14	14	18	24	21	41	22	26	21	18	15	14	14	14	14	14	14
26	14	14	14	14	14	14	14	14	16	22	21	24	41	32	22	22	21	14	14	14	14	14	14	14
27	14	14	14	14	14	14	14	14	16	16	17	20	29	22	26	20	20	14	15	14	14	14	14	14
28	14	14	14	14	14	14	14	14	14	16	18	21	22	22	24	17	20	17	14	14	14	14	14	14
29	14	14	14	14	14	14	14	14	14	19	21	20	36	31	22	18	16	14	14	14	14	14	14	14
30	14	14	14	14	14	14	14	14	16	15	20	25	38	24	21	18	15	14	14	14	14	14	14	14
31	14	14	14	14	14	13	14	14	15	16	20	20	22	22	21	20	15	14	14	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	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	14	14	14	14	14	14	14	14	16	20	21	23	29	26	24	22	19	14	14	14	14	14	14	14
U Q	14	14	14	14	14	14	14	14	18	21	24	31	38	31	26	23	20	16	14	14	14	14	14	14
L Q	14	14	14	14	14	14	14	14	14	16	20	21	22	22	22	20	16	14	14	14	14	14	14	14

OCT. 2012 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	278	294	296	309	293	282	308	357	343	313	281	278	R 292	U R 299	U R 287	U R 296	R 299	308	304	295	279	282	296	295
2	280	285	282	299	312	307	316	341	354	318	329	311	288	291	R 302	315	R 324	337	323	313	304	U R 280	F 297	270
3	F 326	316	328	323	302	305	347	369	354	341	329	321	298	296	U R 299	308	U R 316	U R 324	R	R 340	R 342	306	303	293
4	282	301	288	302	321	345	327	375	360	339	321	315	309	U R 313	U Y 324	Y	U R 333	U R 323	U R 346	347	331	294	285	284
5	271	297	301	315	362	317	329	359	370	373	338	306	315	306	314	316	323	320	335	329	323	260	283	284
6	291	304	305	313	318	325	330	367	361	366	324	330	306	303	306	314	322	331	333	338	330	315	302	291
7	293	301	293	303	302	316	310	364	355	312	332	329	311	314	307	314	327	331	355	333	326	269	289	315
8	303	303	323	368	353	306	296	361	378	370	353	320	306	299	321	334	321	328	322	303	357	333	294	284
9	304	312	346	337	284	335	328	332	334	369	333	339	320	305	325	329	315	324	338	290	328	304	J R 265	267
10	290	283	277	297	319	340	326	366	382	357	328	329	327	305	326	321	328	331	332	318	293	R 316	305	280
11	270	302	337	377	306	294	348	356	369	332	290	335	309	307	321	328	336	346	355	326	329	R 297	273	279
12	296	300	C	306	357	398	376	379	350	344	329	323	310	302	U R 338	R 329	327	346	344	326	281	305	280	284
13	293	309	313	344	320	324	328	355	344	339	318	314	298	302	R 320	307	311	324	332	319	284	285	326	285
14	319	282	315	334	280	265	287	349	332	334	319	318	314	308	314	324	340	346	337	339	323	317	264	295
15	283	317	357	315	334	317	315	365	361	330	315	315	322	R 304	315	327	327	327	340	336	298	317	319	278
16	291	328	326	333	349	284	287	351	360	336	321	318	307	Y	U R 316	U R 327	326	330	338	328	296	301	284	267
17	298	302	310	349	361	289	293	344	347	323	328	320	R 304	306	309	R 305	312	322	320	304	289	304	292	295
18	291	298	309	348	391	304	305	355	359	343	322	310	292	300	305	304	319	322	327	316	283	R 294	295	311
19	F 318	293	294	307	333	V 381	F 287	351	355	340	309	316	303	293	U R 308	J R 313	326	320	330	313	303	296	308	306
20	290	283	303	331	371	H 333	298	348	363	345	312	300	299	R 300	301	R 319	320	321	326	308	320	334	313	296
21	301	326	348	326	V 358	315	291	344	362	327	320	312	305	R 294	299	307	320	321	307	311	R 287	312	306	313
22	307	356	391	332	297	274	297	345	356	338	327	312	295	297	R 301	302	R 314	317	307	319	312	302	309	305
23	309	322	319	298	325	305	313	373	357	339	326	318	307	308	300	302	317	318	312	308	284	303	308	280
24	278	306	294	317	357	272	295	344	333	331	321	323	286	297	312	316	313	318	R 328	R 326	U R 324	R 307	303	288
25	299	306	308	300	329	320	287	341	345	329	316	321	301	300	308	R 313	R 317	R 329	R 338	R 307	U R 306	R	R 300	293
26	273	299	286	310	346	348	279	344	352	332	314	328	300	302	301	R 324	R 329	J R 332	326	R 322	U R 316	311	294	284
27	286	306	283	284	328	408	291	338	356	317	319	340	299	303	R 317	316	310	321	317	301	299	J R 320	340	284
28	296	313	305	352	375	286	301	351	361	340	332	326	315	302	318	324	325	326	328	318	R 260	310	324	293
29	316	331	325	363	339	279	295	363	340	342	324	333	313	R 323	316	328	314	314	330	338	R 303	309	341	316
30	285	302	335	334	353	319	290	327	344	337	340	328	320	313	331	322	330	R 326	326	319	280	330	295	280
31	282	305	316	F 343	F 357	299	286	348	355	337	324	336	306	328	318	339	344	350	343	285	293	320	321	290
	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	31	31	31	31	31	31	31	31	30	31	30	31	31	30	31	31	30	31	31
MED	291	303	310	323	333	315	301	351	355	338	324	320	306	302	314	316	322	324	330	319	303	306	300	288
U Q	303	313	326	343	357	333	327	364	361	343	329	329	313	307	320	327	327	331	338	329	324	316	309	295
L Q	282	298	294	306	312	289	291	344	345	330	318	314	299	299	302	308	315	321	323	308	287	296	289	280

OCT. 2012 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 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

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									L	L	L	L	L	L	L	L	L							
2									L		L	L	L	L	L	L	L							
3									L	L	U L 388	U L 387	L	U L 366	L	L	A	A						
4										L	U L 398	U L 397	L	U L 378	L	L	L	L						
5									L	L	L	U L 377	U L 375	L	L	L 346	L 367	L						
6									L	L	L	U L 399	U L 381	U L 351	L	L	L							
7									L	L	L	L	L	L	L	L	L	L						
8									L	L	L	L	L	L	U L 355	L	A							
9										L	L	L	L	L	L	L		L						
10										L		L	L	L	L	L	L							
11										L		L	L	L	L	L		A						
12										U L 408	L	L	L	U L 364	396	L	A	L						
13										L	L	U L 377	L	L	L	L	L							
14									L	L	L	L	U L 379	L	L 367	U L 377	L							
15									L	L	L	L	L	L	L	L	L							
16									L	L	L	U L 385	L 368	U L 315	L 349	L	L							
17										L	L	U L 373	L	U L 360	U L 365	L	L							
18									L	L	L	L	L	U L 340	L	L	L							
19										L	L	L	L	L	L 355	U L 357	L							
20										L	L	L	U L 348	L	U L 348	L	L							
21										L	L	U L 380	L	L	L	L								
22									L	L	L	L	L	L	U L 360	L	L							
23									L	L	L	L	A	L	L	L	L							
24										L	L	L	L	U L 349	L	L	L							
25										L	L	L	L	U L 351	U L 364	L	L							
26										L	L	U L 386	L	L	L	L	L							
27								457		L	L	U L 378	L	L	L	L	L							
28									L	L	L	U L 373	U L 429	L	U L 362	L	L							
29										L	L	L	U L 360	365	L	L	L							
30										L	U L 374	L	L	L	L	L	L							
31										L	U L 365	U L 380	L	L	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1		1	4	12	7	10	11	3								
MED								457		U L 408	U L 381	U L 380	U L 375	U L 356	U L 360	U L 367								
U Q											U L 393	U L 386	U L 381	U L 365	L 365	U L 377								
L Q											U L 370	U L 377	U L 360	U L 349	L 349	U L 357								

OCT. 2012 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 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

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									244	248	282	356	326	296	316	284	278							
2									228		264	270	314	314	308	280	256							
3									218	248	262	260	296	302	306	286	270	252						
4										242	268	276	258	286	292	280	260	246						
5									226	230	242	274	278	292	290	274	252	238						
6									226	230	280	262	284	298	300	272	254							
7									226	236	266	240	264	278	274	276	250	234						
8									222	228	234	254	280	306	286	248	236							
9										224	246	246	280	312	272	246		234						
10										210		262	256	304	276	260	240							
11										224		254	282	294	274	256		232						
12										248	274	260	290	294	258	246	254	226						
13										236	254	260	298	304	280	256	252							
14									218	262	278	288	282	274	274	260	234							
15									226	246	272	272	272	296	282	256	236							
16									228	254	270	260	284	294	290	254	242							
17										270	262	274	290	286	274	264	254							
18									222	224	264	274	304	306	282	276	260							
19										236	284	276	288	314	300	276	248							
20										234	252L	302	308	276	304	278	254							
21										258	268	262	276	278	302	282								
22									242	244	246	258	286L	300	294	274	256							
23									210	216	282	260	284	286	268	292	252							
24										246	274	254	264	312	284	266	258							
25										246	272	260	272	296	282	264	252							
26										232	290	260	260	290	296	272	244							
27								232		234	278	246	300	294	284	254	232							
28									236	240	264	268	256	266	280	246	232							
29										254	268	246	290	272	260	250	228							
30										254	250	256	252	278	250	244	220							
31										236	280	254	300	270	266	242	226							
	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	14	30	29	31	31	31	31	31	28	7						
MED								232	226	238	268	260	284	294	282	264	252	234						
U Q									228	248	278	274	296	304	296	276	255	246						
L Q									222	230	258	254	272	278	274	254	236	232						

OCT. 2012 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 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	252	252	252	234	224	294	264	218	204	214	206	198	H 186	246	240	232	240	242	230	212	242	262	252	240
2	256	274	278	268	250	234	248	234	214	218	204	208	204	200	256	246	230	236	222	246	222	252	258	Q 270
3	Q 254	222	220	240	248	268	216	200	202	214	212	208	224	198	202	236	A	A	228	220	206	206	222	222
4	262	246	258	260	224	214	228	208	206	196	180	206	214	204	180	234	222	236	222	210	188	216	260	276
5	286	284	268	242	208	220	240	214	218	214	206	192	214	212	202	200	224	226	230	200	192	260	276	276
6	276	266	258	248	232	194	214	214	210	206	194	194	188	218	244	226	222	232	220	218	216	224	238	276
7	292	268	268	250	240	230	234	210	212	212	A 248	A	A 224	A 246	252	246	246	224	216	212	196	234	246	258
8	262	290	264	220	182	274	278	228	214	206	198	192	190	222	A 232	A	A	232	242	256	204	224	214	300
9	264	264	226	226	264	234	222	234	226	228	220	228	218	H 224	244	E B 230	230	226	218	E A 288	A 268	E A 252	E A 406	314
10	284	292	306	266	244	204	228	212	214	E A 212	222	216	230	228	E B 234	212	228	224	214	192	214	224	220	A 312
11	302	282	224	208	250	264	206	190	214	186	272	216	208	H 210	218	A 252	230	A	212	218	208	246	A 256	A 288
12	288	270	C	258	218	200	188	204	200	200	184	224	224	A 218	228	E A 242	A	A	208	208	202	238	258	262
13	266	260	232	220	230	226	206	210	220	208	200	188	210	212	210	232	228	242	228	226	A 256	248	228	276
14	246	256	250	222	290	334	294	226	208	226	228	210	218	208	224	216	220	226	230	210	196	214	258	272
15	292	246	208	248	236	256	250	214	210	204	196	208	220	208	216	220	214	232	218	200	204	232	224	272
16	290	254	216	212	214	316	280	228	220	194	202	A 208	186	180	208	212	222	222	210	202	204	222	244	264
17	262	262	254	224	200	266	280	232	216	216	220	202	214	192	204	212	224	224	216	208	212	230	214	254
18	276	260	256	222	186	244	238	220	216	198	212	210	208	212	234	252	246	238	218	208	208	220	224	216
19	Q 256	262	246	242	218	180	272	218	216	216	216	220	246	204	210	210	224	226	214	198	202	232	232	220
20	246	246	246	226	190	192	244	224	222	212	206	H 200	212	222	204	240	226	230	210	202	218	212	228	234
21	248	226	208	208	174	254	258	224	226	224	220	210	A	206	208	230	234	222	196	208	224	224	222	236
22	238	224	194	244	226	298	274	232	228	232	218	210	218	200	222	212	220	226	210	236	208	222	208	226
23	258	244	246	268	228	232	254	220	210	198	222	220	A	A	220	238	222	230	230	220	218	234	216	236
24	276	254	248	246	216	264	284	226	222	212	218	222	210	214	236	226	238	236	216	224	210	216	218	234
25	262	236	248	260	232	210	282	236	222	214	214	210	208	202	228	244	H 214	236	212	200	212	224	208	208
26	238	252	274	266	216	212	286	220	216	H 184	224	206	216	210	212	198	226	220	200	214	202	202	214	238
27	266	242	266	306	244	188	272	176	228	212	212	210	H 204	H 210	232	236	222	220	208	208	226	220	200	204
28	260	246	250	226	190	288	280	222	220	220	212	206	190	234	220	244	226	220	204	206	240	222	220	256
29	254	248	216	210	206	312	288	218	220	212	226	230	228	210	182	234	212	224	208	196	194	224	212	222
30	248	238	212	218	196	232	298	234	220	226	218	A	A	H 170	A	222	212	216	204	216	224	218	208	268
31	278	252	Q 230	Q 202	Q 208	248	318	240	226	208	214	194	206	H 178	226	216	214	208	198	188	240	228	202	248
	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	31	31	31	31	31	31	29	28	30	30	30	28	28	31	31	31	31	31	31
MED	262	254	248	240	224	234	258	220	216	212	214	208	213	210	220	230	224	226	216	209	210	224	223	256
U Q	278	266	258	258	240	268	280	228	222	216	220	216	219	218	234	240	230	234	222	220	224	234	252	276
L Q	254	246	224	220	206	212	228	212	210	204	204	201	205	202	208	216	221	223	208	202	202	220	214	234

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 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

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								116	110	110	A	B	B	112	112	112	110	110	A					
2								110	A	A	A	A	A	A	110	110	110	110	A					
3								116	112	110	110	110	110	A	A	110	110	110	A					
4								114	110	110	112	108	A	108	B	108	108	116	A					
5								116	110	106	106	108	A	A	A	112	110	108	A					
6								136	114	A	116	B	114	114	114	110	110	110	A					
7								118	112	112	108	108	108	B	A	110	110	110	B					
8								114	A	A	A	A	114	114	112	110	110	110	A					
9								114	112	110	110	114	114	114	114	B	110	110	A					
10								120	110	110	108	108	108	108	B	108	108	110	A					
11								116	118	110	A	A	A	A	112	A	A	112	A					
12								116	110	110	114	B	B	114	110	110	110	A	A					
13								112	112	110	112	A	A	112	112	110	110	110	A					
14								124	A	108	108	108	B	108	110	110	110	110	B					
15								110	110	110	110	A	A	A	110	108	108	A	A					
16								A	108	A	110	110	110	110	110	110	110	110	A					
17								114	110	110	110	A	A	A	A	A	A	A	A					
18								126	112	108	108	A	A	A	108	110	A	110	A					
19								126	114	110	112	108	108	116	118	118	112	110	B					
20								112	112	110	110	108	B	114	114	114	A	114	B					
21								110	110	110	A	A	A	110	A	A	A	110	A					
22								118	108	108	108	108	108	112	112	114	110	110	B					
23								120	110	110	A	A	A	A	110	A	110	110	A					
24								120	110	110	110	110	108	110	A	A	A	A	A					
25								A	108	108	110	110	B	A	110	A	A	A	A					
26								138	110	108	108	108	B	A	A	A	114	114	A					
27								118	110	108	108	108	114	114	A	112	112	112	B					
28								136	110	108	108	108	108	116	116	114	A	A						
29								118	112	110	110	110	A	A	A	110	110	110						
30								130	114	110	108	110	A	108	108	110	108	A						
31								134	108	108	108	108	108	108	108	108	108	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	28	27	25	19	13	19	20	23	23	23						
MED								118	110	110	110	108	108	112	111	110	110	110						
U Q								125	112	110	110	110	114	114	113	112	110	110						
L Q								114	110	108	108	108	108	108	110	110	110	110						

OCT. 2012 h′E (KM)

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	124	96	B	B	G	96	160	128	128	114	100	92	B	B	B
2	B	B	B	B	B	B	B	156	118	106	108	108	112	108	186	G	170	162	100	96	100	96	98	98
3	B	B	B	B	B	B	B	G	104	158	132	118	122	122	118	110	106	106	114	104	100	100	104	B
4	100	104	B	B	B	B	B	G	132	150	94	G	128	128	B	G	180	168	124	110	104	104	98	94
5	94	92	B	B	B	B	B	132	118	118	118	116	108	106	112	G	G	106	156	102	B	B	B	B
6	B	B	B	B	B	B	B	108	150	146	100	B	G	94	G	140	122	110	108	106	106	B	94	94
7	92	B	B	98	B	B	98	G	130	150	122	116	116	176	198	204	196	G	B	96	B	114	98	98
8	102	96	94	94	100	96	96	138	110	108	114	114	G	G	146	120	116	114	106	106	102	B	94	144
9	132	110	98	98	B	B	B	116	120	124	G	G	102	102	G	B	G	92	122	110	106	100	98	98
10	96	96	98	98	B	B	96	G	124	116	118	114	110	108	B	108	G	G	114	110	100	96	96	94
11	96	96	94	90	94	94	98	146	180	184	94	108	114	110	162	106	126	120	106	100	100	100	96	94
12	94	94	C	94	B	94	B	212	G	180	G	B	B	174	148	122	114	108	118	102	102	102	104	98
13	96	124	B	B	B	B	98	G	166	110	110	110	110	G	G	G	G	112	108	102	100	B	100	100
14	100	100	100	100	100	106	108	G	108	170	150	G	B	G	G	G	G	G	B	108	108	B	164	138
15	110	98	98	98	98	98	104	152	112	106	104	106	102	102	G	G	G	96	96	96	B	B	B	B
16	B	98	90	94	B	B	B	130	136	108	G	G	G	G	G	G	G	G	118	104	96	B	B	96
17	B	B	98	B	92	90	94	G	G	110	110	110	108	106	108	108	108	104	106	102	B	106	92	90
18	102	B	B	B	B	B	B	148	174	124	G	106	106	104	192	142	110	124	112	98	98	94	94	94
19	B	B	B	B	B	B	B	202	174	168	162	160	158	G	106	108	108	G	B	94	B	102	96	B
20	B	B	B	B	B	B	B	132	128	118	96	96	B	G	G	G	110	G	B	B	B	100	100	B
21	B	B	B	B	B	B	B	150	G	G	114	106	108	112	112	106	106	152	112	B	B	92	92	B
22	B	B	B	B	B	B	B	146	G	G	G	G	G	130	G	178	G	216	B	104	102	96	92	92
23	B	B	B	B	B	B	B	G	G	112	108	108	102	102	G	110	G	226	112	108	104	102	98	106
24	96	98	B	B	B	B	B	G	122	122	114	114	112	110	108	110	106	102	106	98	98	98	92	92
25	B	B	B	98	B	B	B	180	G	G	G	100	B	120	114	178	106	102	100	100	B	98	B	B
26	B	B	B	90	B	B	B	G	G	G	170	114	B	114	112	108	G	G	110	104	B	94	94	B
27	B	94	102	100	96	98	B	164	G	G	G	G	G	G	116	110	108	G	B	B	B	B	B	B
28	B	B	B	B	B	B	100	G	104	G	G	120	120	120	118	108	106	106	92	B	102	102	100	94
29	96	94	B	B	B	B	B	G	126	112	120	110	110	116	108	194	G	152	B	B	B	B	B	B
30	B	B	B	108	B	B	B	136	150	146	126	112	110	126	106	106	108	210	100	100	100	100	100	96
31	98	B	B	B	94	94	B	G	G	138	114	114	112	G	G	112	108	162	B	B	138	102	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	15	14	9	13	7	8	9	17	21	25	23	22	20	22	19	22	20	23	23	25	20	21	23	19
MED	96	97	98	98	96	95	98	146	126	124	114	111	110	111	114	110	109	114	110	102	101	100	98	96
U Q	102	100	99	99	100	98	102	160	150	150	122	114	115	122	148	142	124	162	114	106	104	102	100	98
L Q	96	94	94	94	94	94	96	132	115	111	104	108	108	106	108	108	107	106	106	99	100	96	94	94

OCT. 2012 h'Es (KM)

IONOSPHERIC DATA STATION Okinawa

OCT. 2012 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										C 1	L 1				L 1	H 1	C 1	C 1	C 3	F 4	F 2			
2								HL 11	C 1	C 1	C 1	C 1	C 1	C 1	H 1		H 1	H 1	L 3	F 7	F 3	F 4	FQ 21	F 1
3									L 1	HL 11	HL 11	CL 11	CL 11	CL 11	CL 11	CL 11	C 4	CL 22	CL 11	F 6	F 6	F 2	F 1	
4	F 1	F 1							HL 11	HL 11	L 1		CL 11	C 1			H 1	H 1	C 1	FF 31	F 2	F 1	F 1	F 2
5	F 2	F 1						H 1	C 1	C 1	C 1	CL 11	C 1	C 1	C 1			C 1	H 1	F 1				
6								L 1	HL 11	HL 11	L 1			L 1		HL 11	HL 11	CL 11	C 1	F 3	FF 11		F 1	F 2
7	F 1			F 1			F 1		H 1	H 1	C 1	C 1	C 1	H 1	HL 11	H 1	HL 11			F 1		F 1	F 1	F 2
8	F 1	F 2	F 2	F 1	F 1	F 1	F 1	H 1	C 1	C 1	C 1	C 1			H 1	C 1	C 1	C 1	L 3	F 6	F 1		F 1	F 3
9	FF 11	FF 21	F 2	F 1				C 2	C 1	C 1			L 1	L 1				L 1	CL 11	F 8	F 4	F 7	F 5	F 2
10	F 6	F 2	F 3	F 2			F 1		C 1	C 1	C 1	C 1	C 1	C 1		C 1			CL 11	FF 11	F 1	F 1	F 3	F 6
11	F 1	F 2	F 2	F 2	F 1	F 1	F 1	H 1	HC 11	H 1	L 1	C 1	C 1	C 1	HL 11	L 1	CL 12	C 2	L 2	F 5	F 5	F 3	F 2	F 2
12	F 2	F 1		F 1		F 1		H 1		H 1				HL 11	H 1	C 1	C 2	C 3	C 1	F 5	F 3	F 2	FQ 11	FQ 31
13	F 1	FF 11					F 1		H 1	C 1	C 1	C 1	C 1					CL 11	CL 11	F 2	F 3		F 1	F 1
14	F 4	F 3	F 2	F 1	F 3	F 1	F 1		C 1	H 1	H 1									FF 11	F 1		F 1	F 1
15	F 1	F 3	F 2	F 2	F 2	F 1	F 1	H 1	C 1	C 1	C 1	C 1	L 2	L 2				L 2	L 4	F 1				
16		F 1	F 1	F 1				HC 11	H 1	C 1									CL 11	F 1	F 1			F 1
17			F 2		F 1	F 2	F 1			C 1	C 1	C 1	C 1	C 1	C 1	C 1	C 1	C 1	C 1	F 3		F 1	F 1	F 1
18	F 1							H 1	H 1	C 1		C 1	C 1	LC 11	HL 11	HL 11	C 1	CL 21	C 4	F 3	F 1	F 2	F 1	F 1
19								H 1	H 1	H 1	HL 11	H 1	H 1		L 1	L 1	L 1			F 1		F 4	F 2	
20								H 3	C 1	CL 11	L 1	L 1					C 1					F 1	F 1	
21								H 1			C 1	C 1	C 1	C 1	C 1	CL 11	CL 11	HL 11	CL 11			F 2	F 1	
22								H 2						H 1		H 1		H 1		F 1	F 1	F 2	F 1	F 1
23										C 1	C 2	L 1	L 2	L 1		C 1		H 1	C 1	F 3	F 2	F 1	F 1	F 1
24	F 1	F 1							C 1	C 1	C 1	C 1	C 1	C 1	C 1	C 1	C 2	C 1	C 1	F 4	F 3	F 1	F 2	F 2
25				F 1				HL 11				L 1		C 1	C 1	HC 11	C 1	L 3	L 2	F 1		F 1		
26				F 1							HC 11	C 1		C 1	C 1	C 1			CL 11	F 1		F 1	F 1	
27		F 1	F 1	F 2	FQ 11	F 1		H 1							C 1	C 1	C 1							
28							C 1		L 1			C 1	C 1	C 1	C 1	CL 11	C 1	C 1	F 1		F 3	F 1	F 1	F 2
29	F 2	FQ 21							C 1	C 1	C 1	C 1	C 1	C 1	C 1	H 1		H 1						
30				F 1				H 1	H 1	H 1	C 1	C 2	C 1	C 1	C 1	CH 11	L 1	HC 11	F 1	F 2	F 1	F 1	F 2	F 4
31	F 1				F 1	F 1				H 1	C 1	C 1	C 1			C 1	C 1	HC 11			F 1	F 2		
	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. 2012 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

KEY OF f-PLOT	
	SPREAD
	foF2, foF1, foE
	fxF2
	DOUBTFUL foF2, foF1, foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

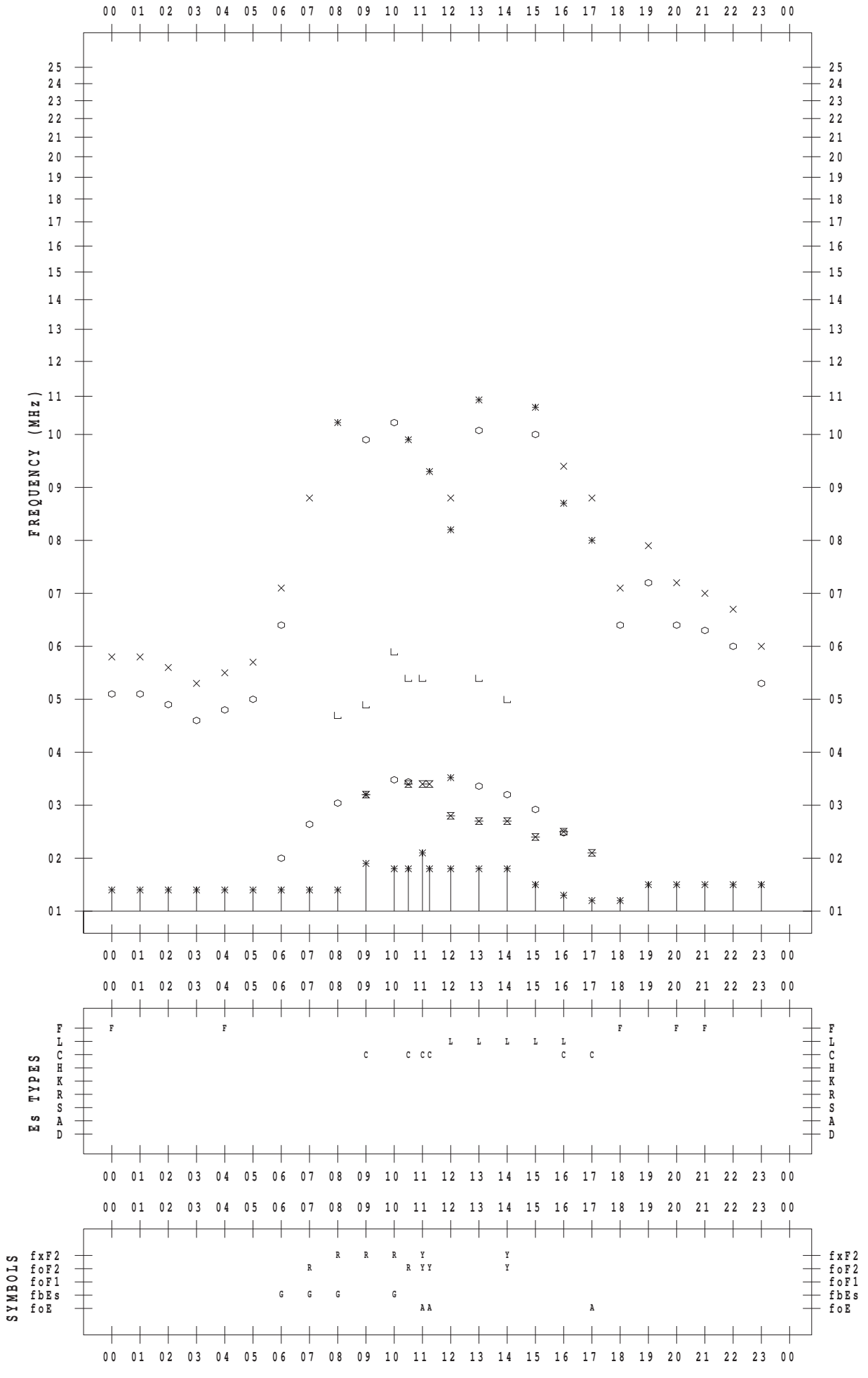
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/ 1

135 °E MEAN TIME



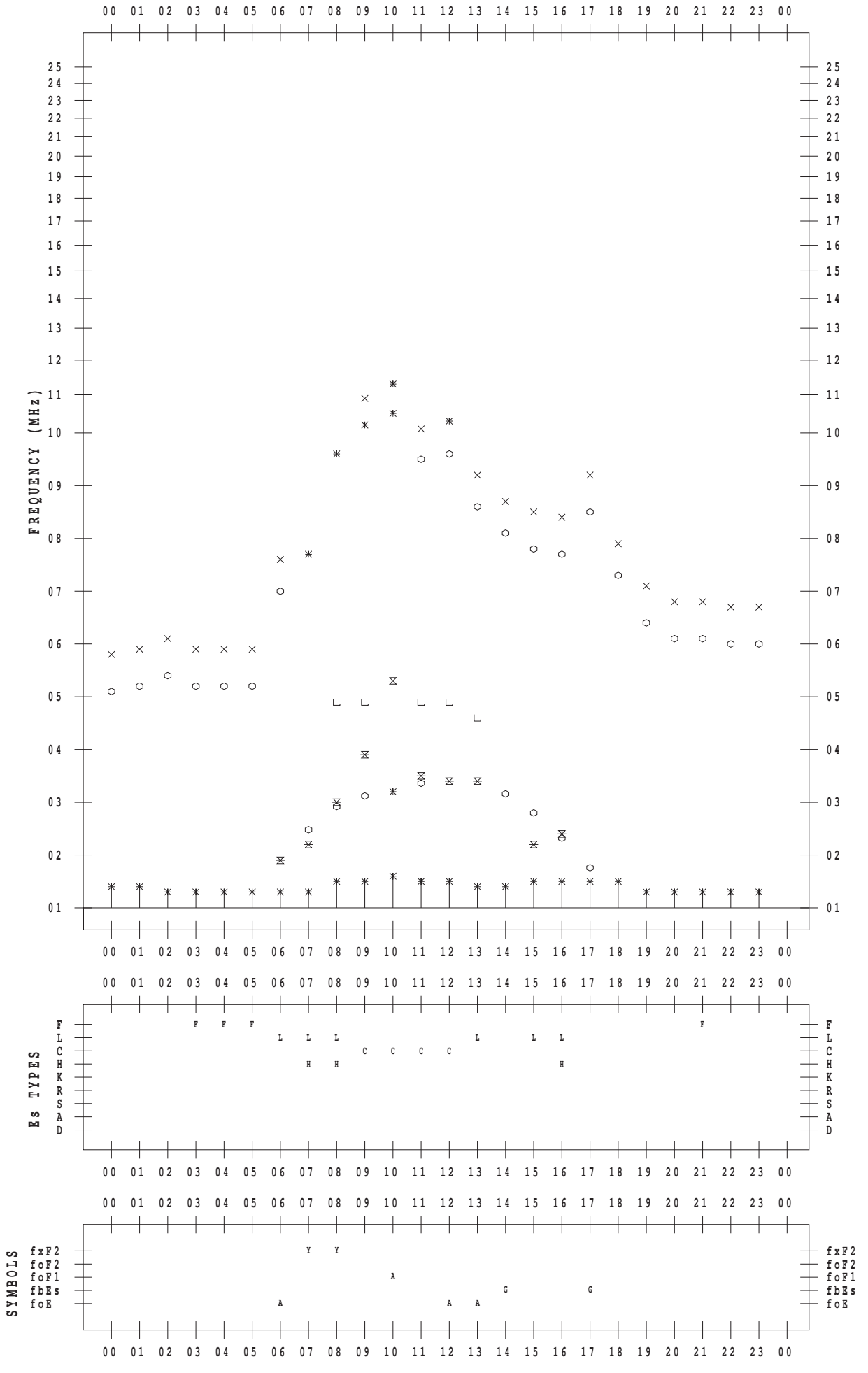
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/ 2

135 °E MEAN TIME



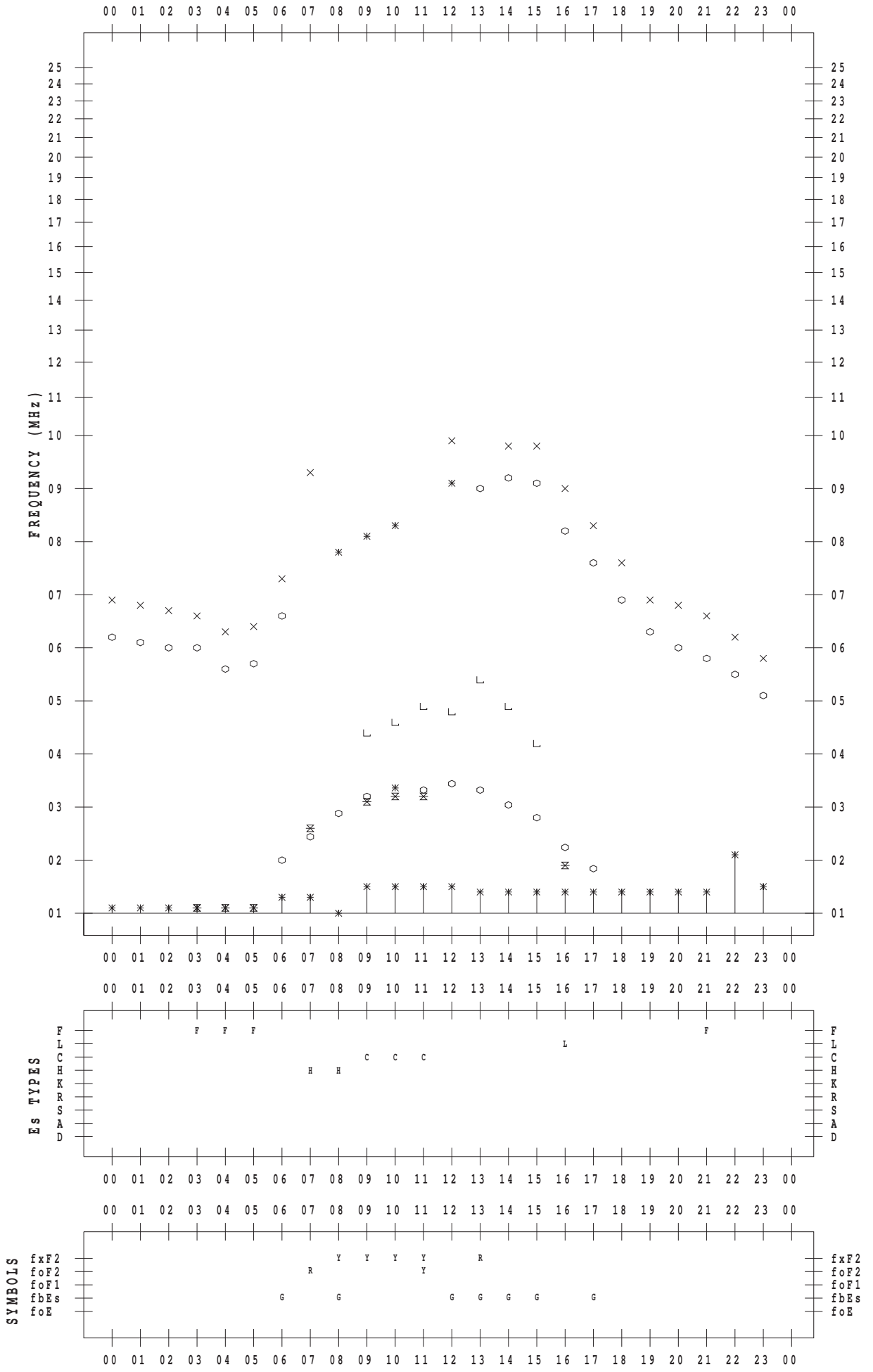
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/ 3

135 °E MEAN TIME



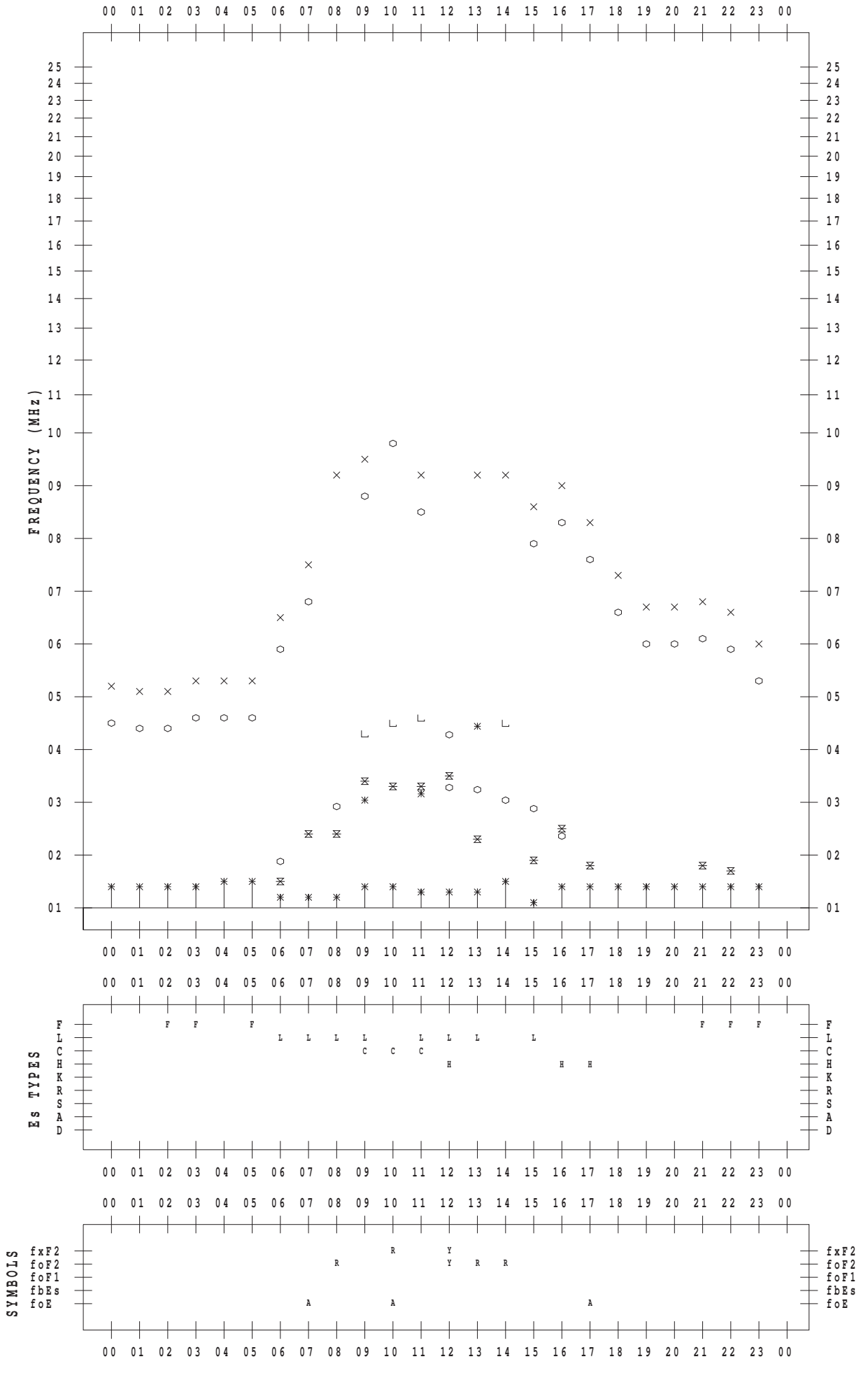
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/ 4

135 °E MEAN TIME



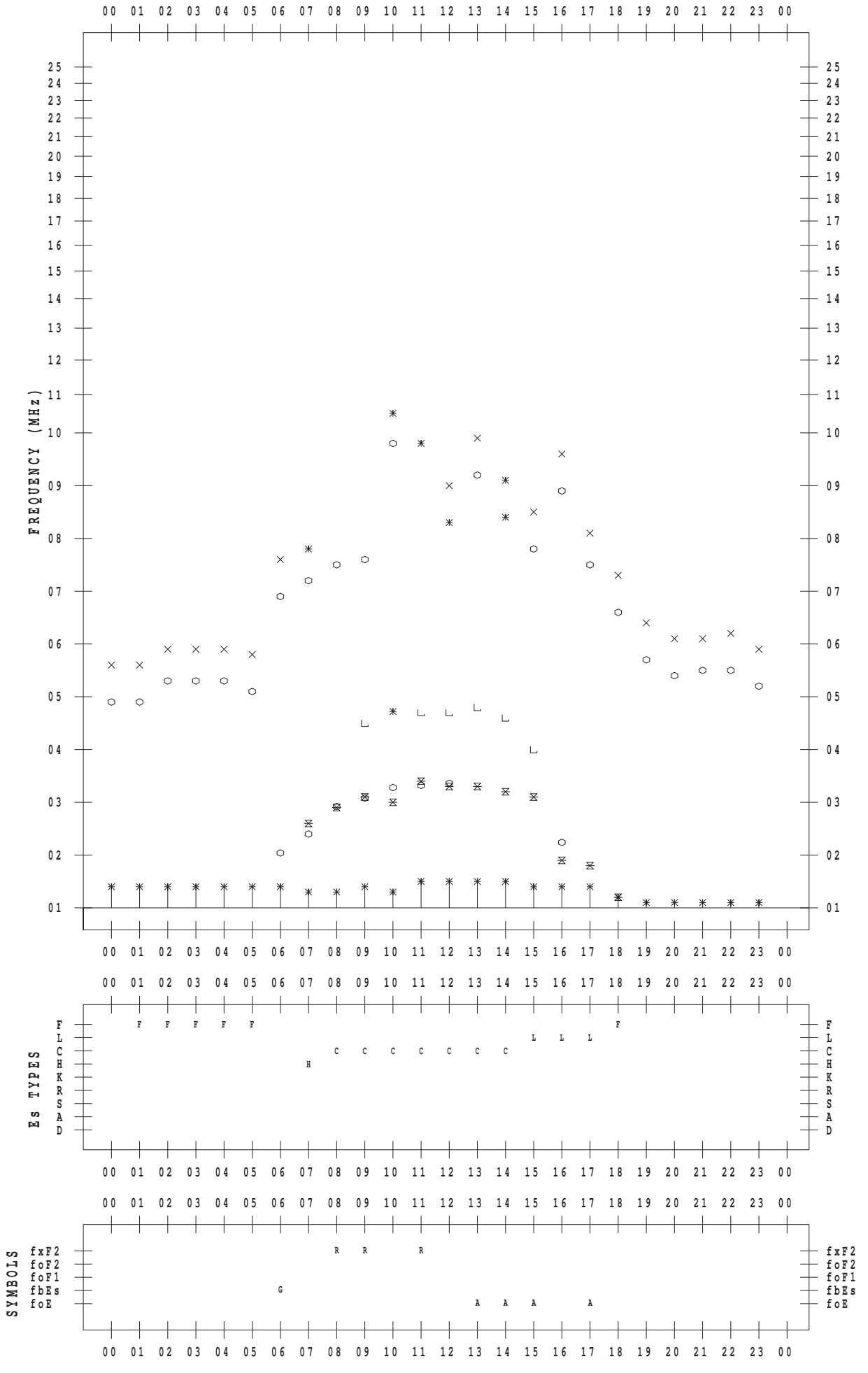
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/ 5

135 °E MEAN TIME



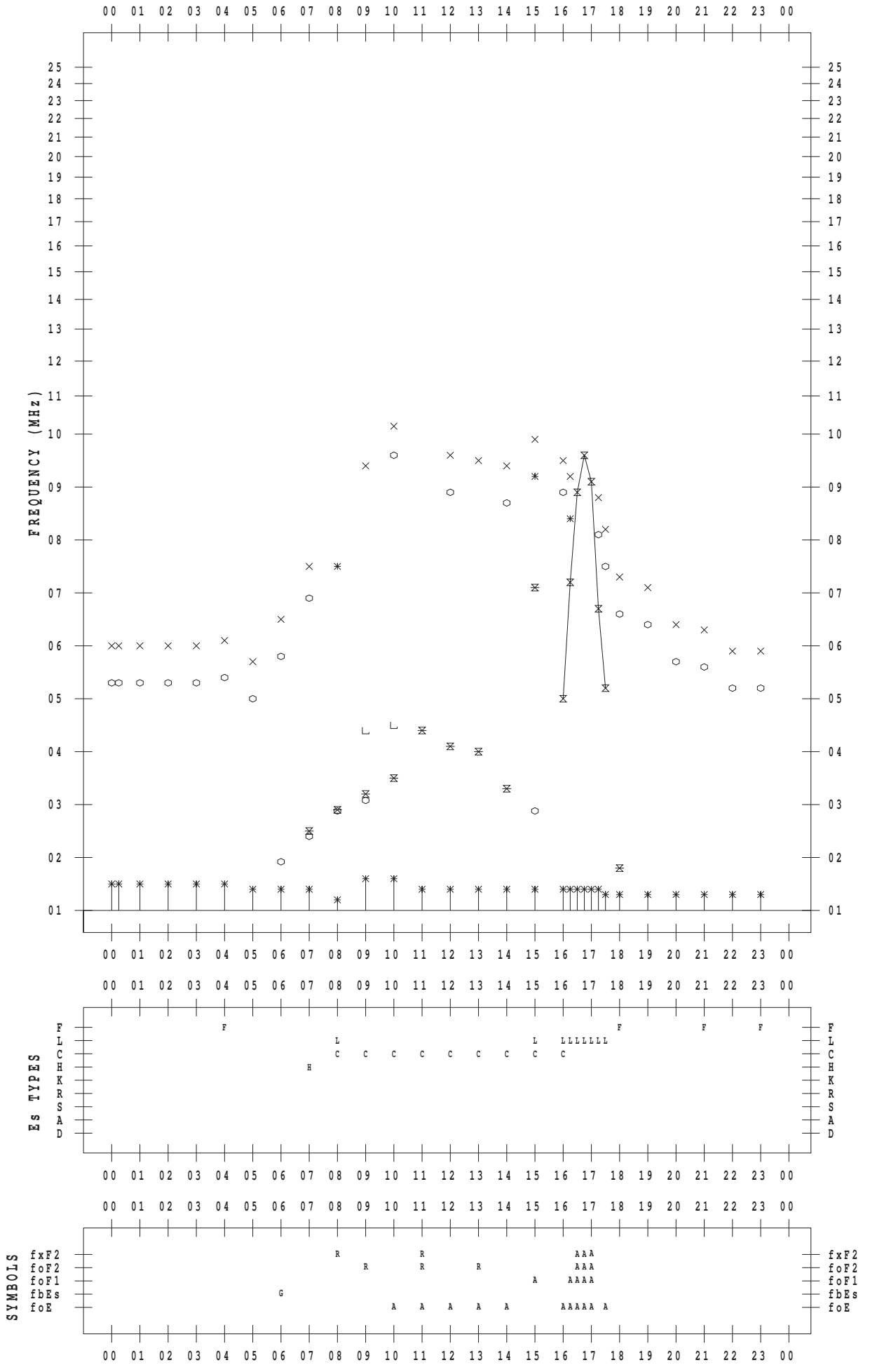
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/ 6

135 °E MEAN TIME



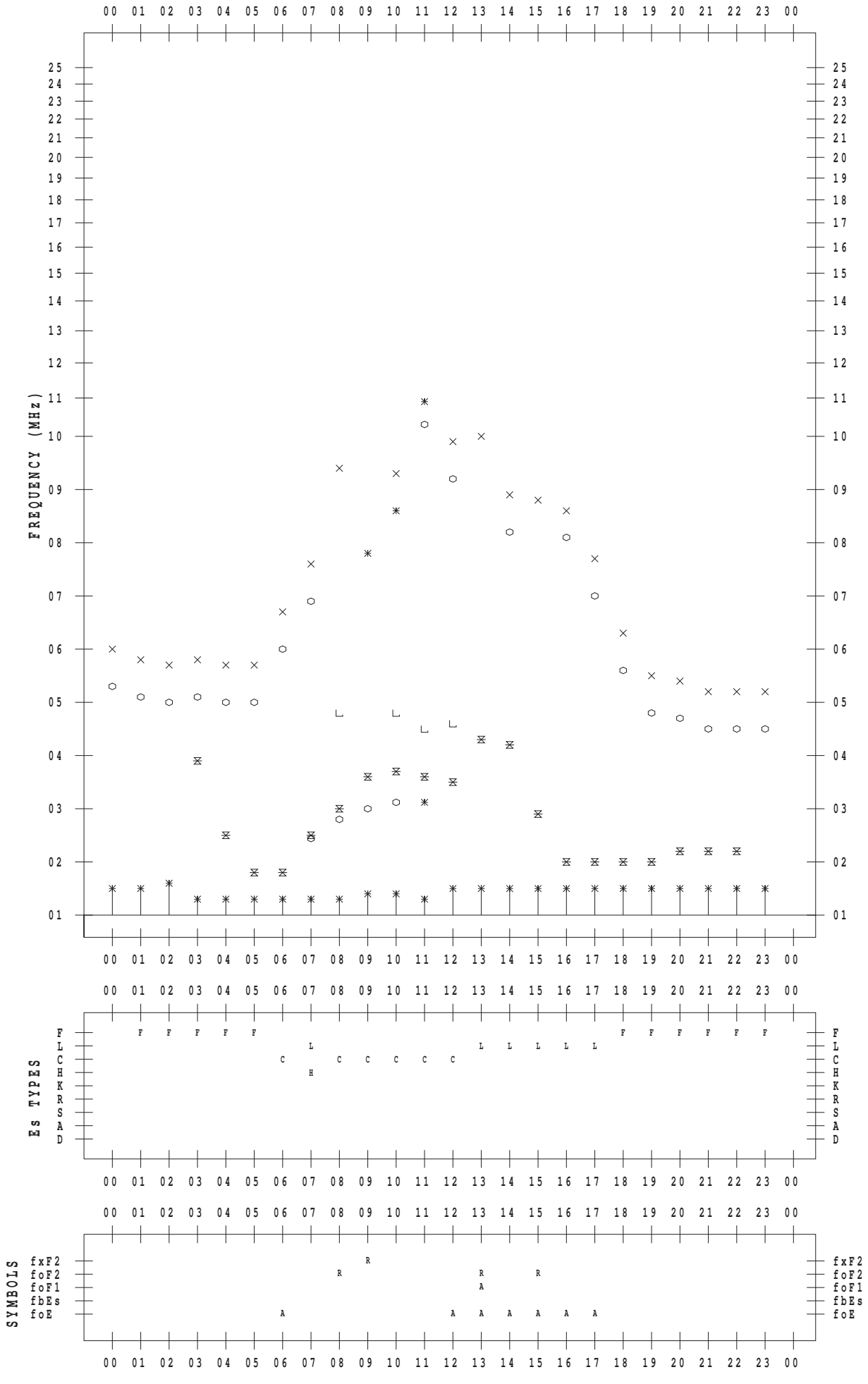
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/ 7

135 °E MEAN TIME



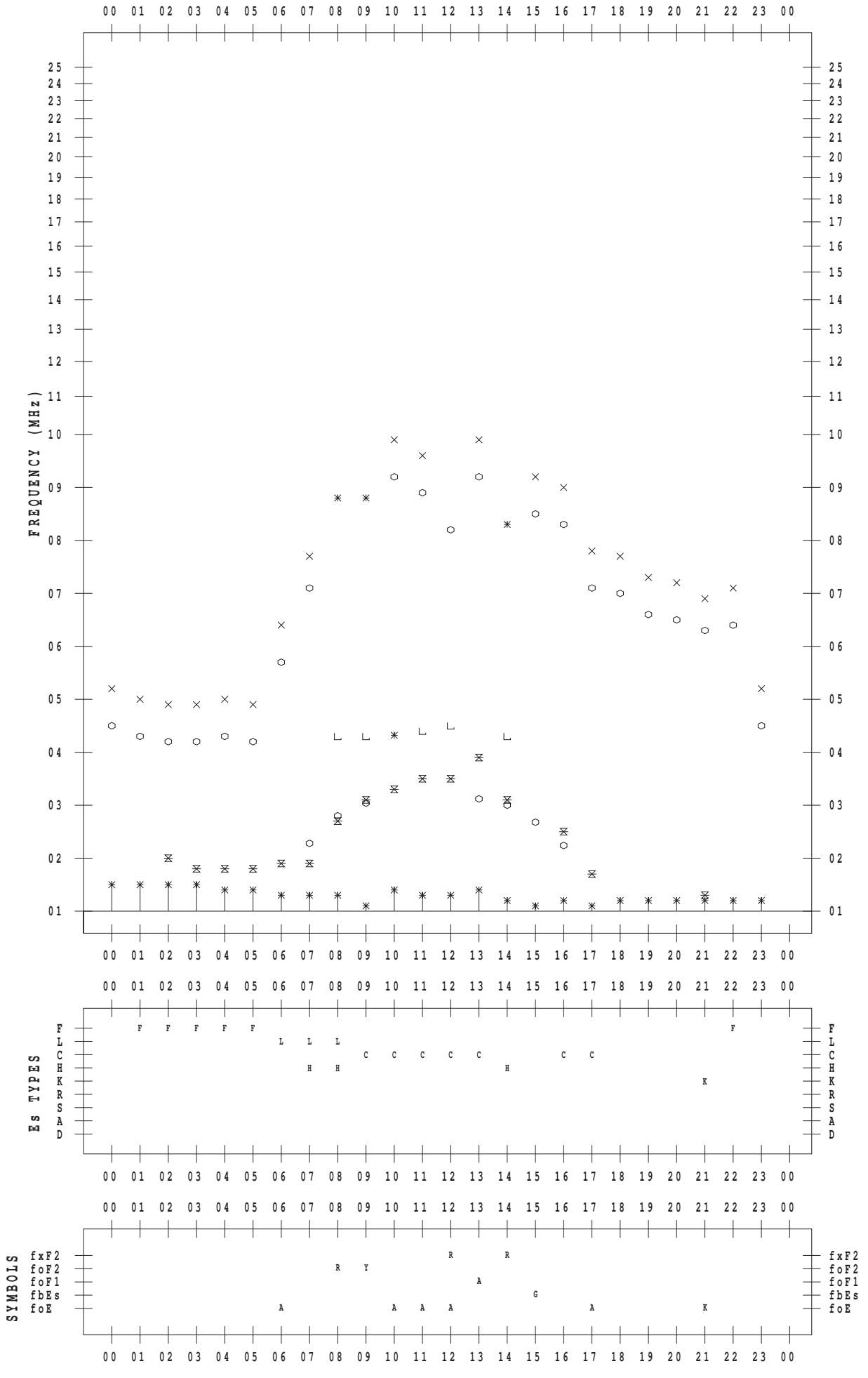
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/ 8

135 °E MEAN TIME



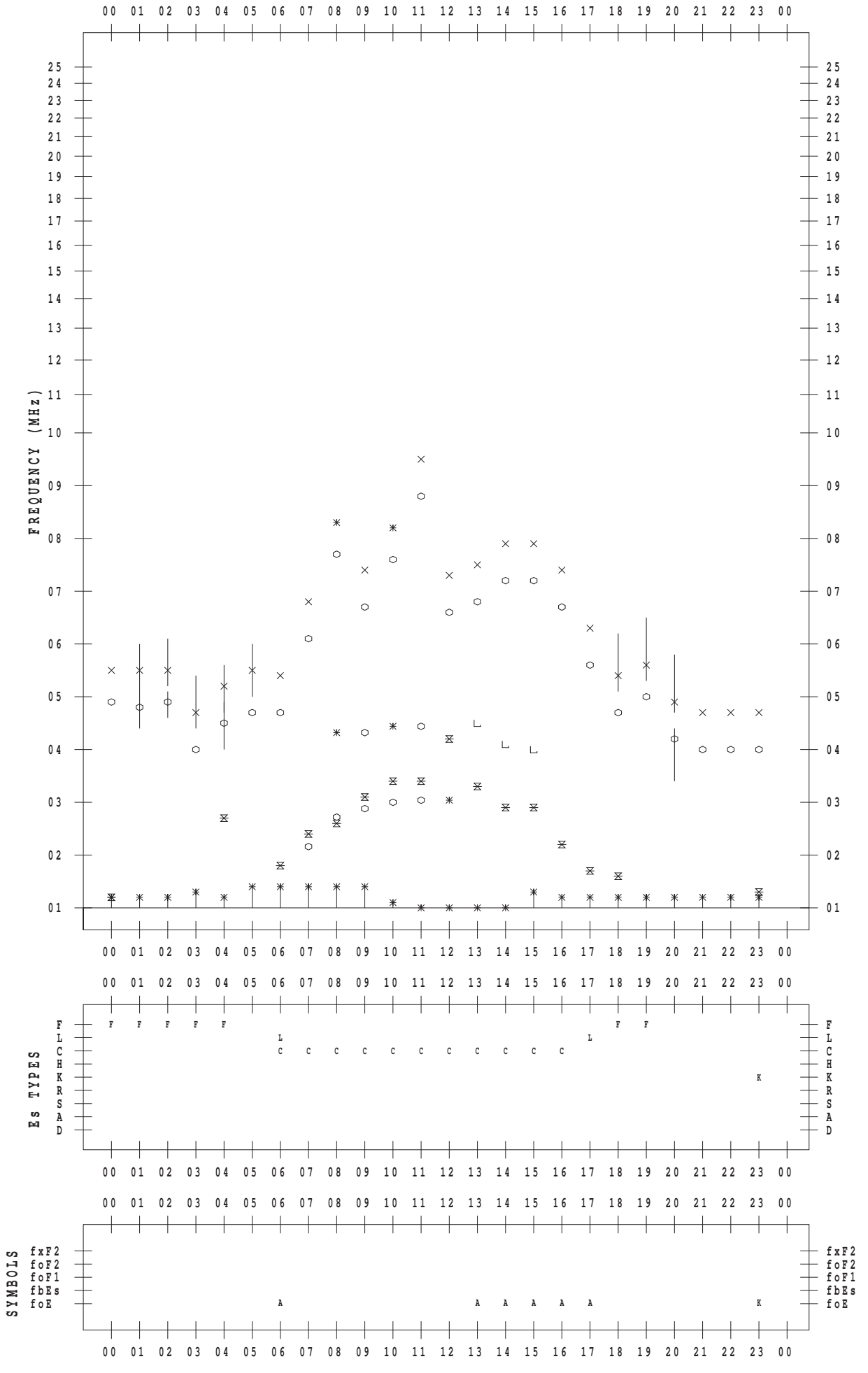
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/ 9

135 °E MEAN TIME



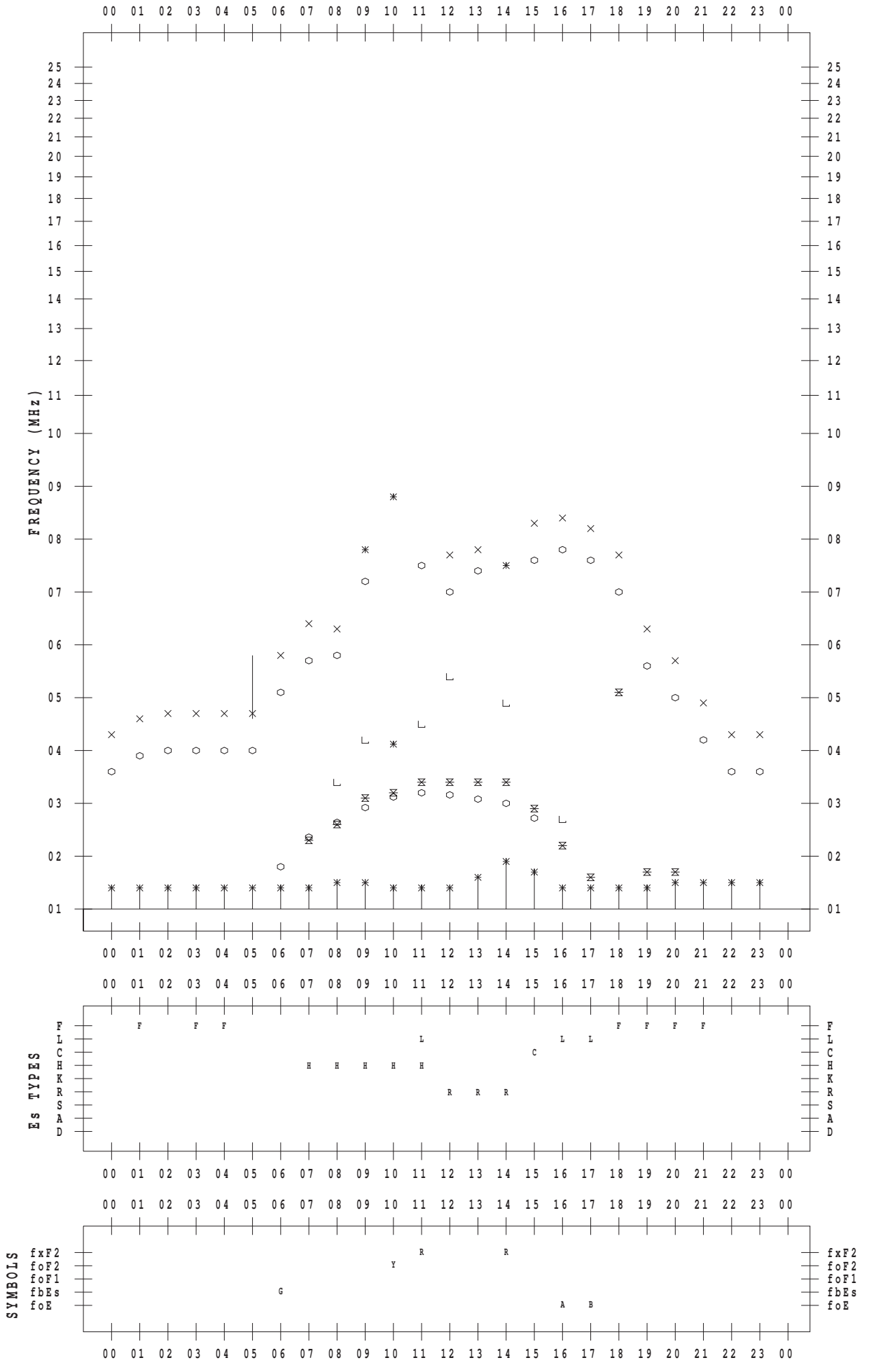
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/10

135 °E MEAN TIME



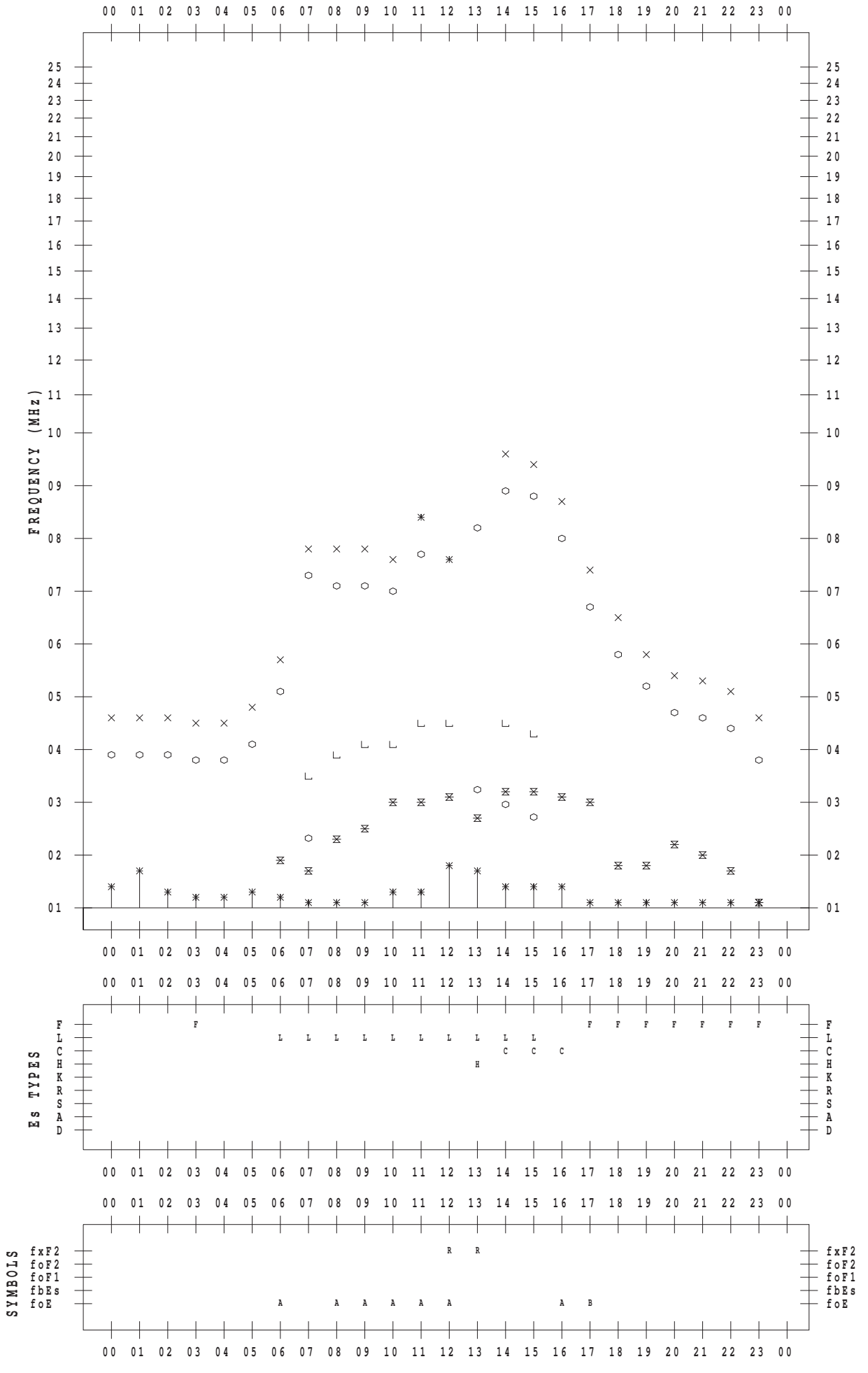
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/11

135 °E MEAN TIME



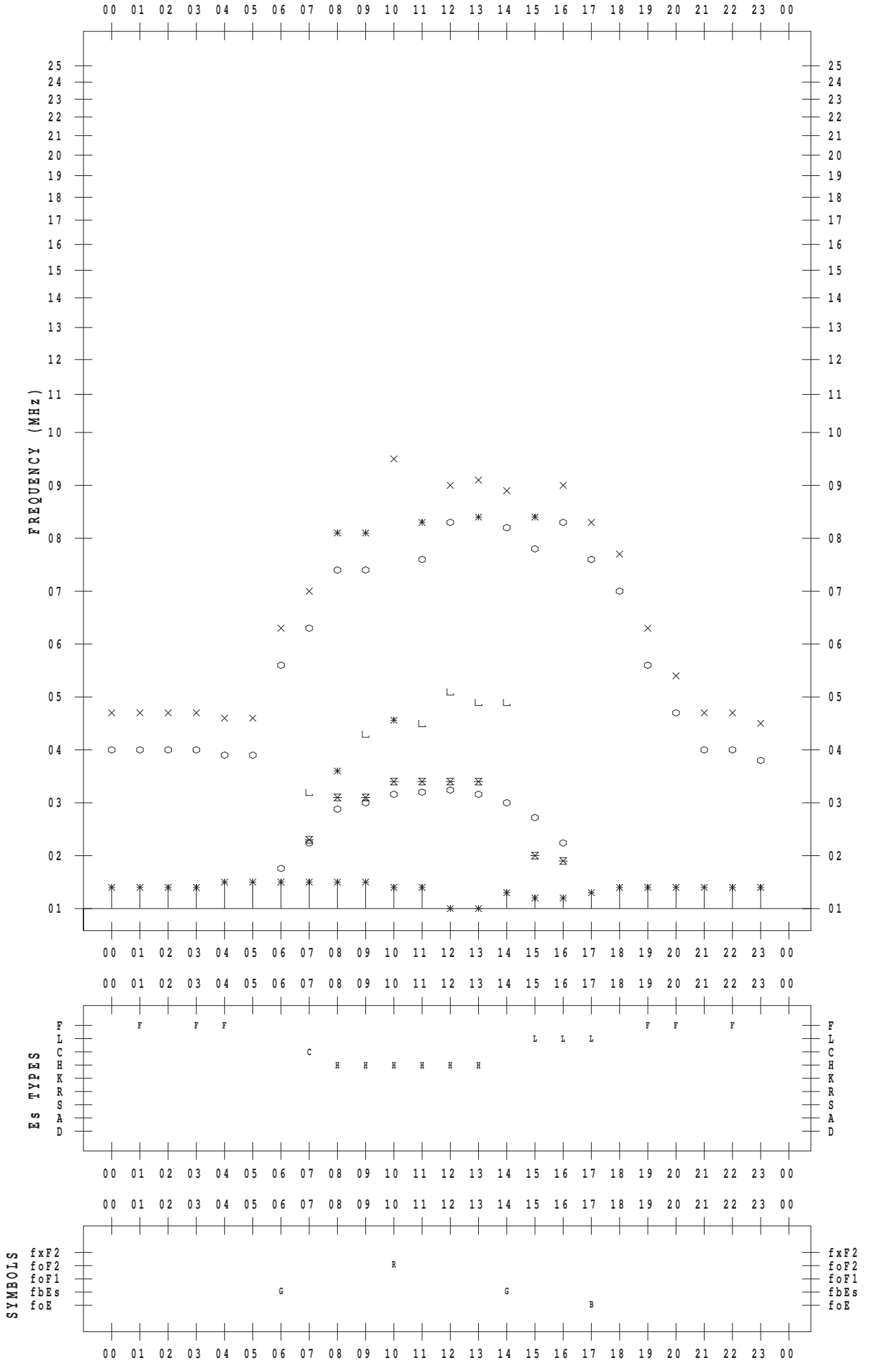
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/12

135 °E MEAN TIME



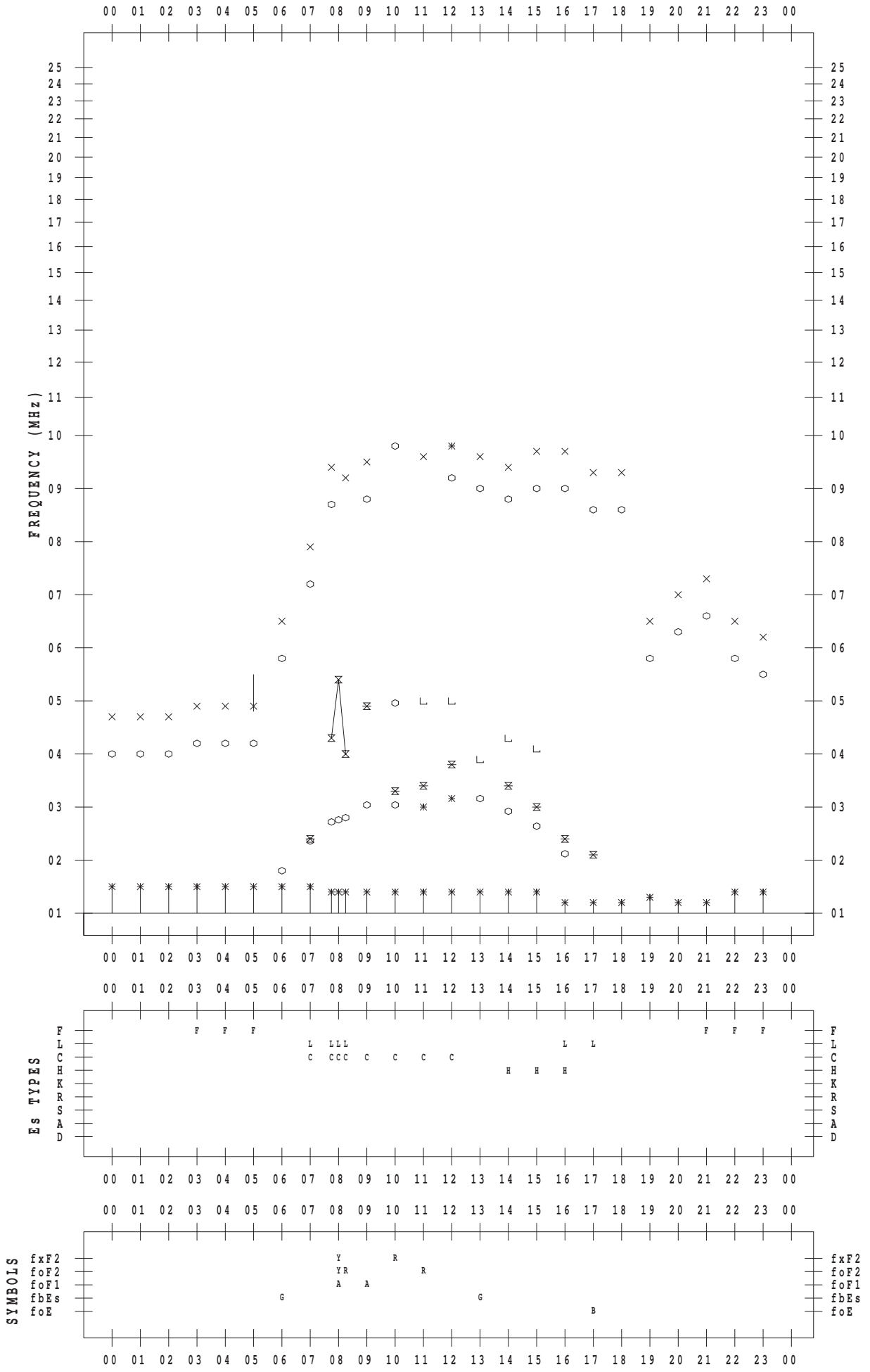
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/13

135 °E MEAN TIME



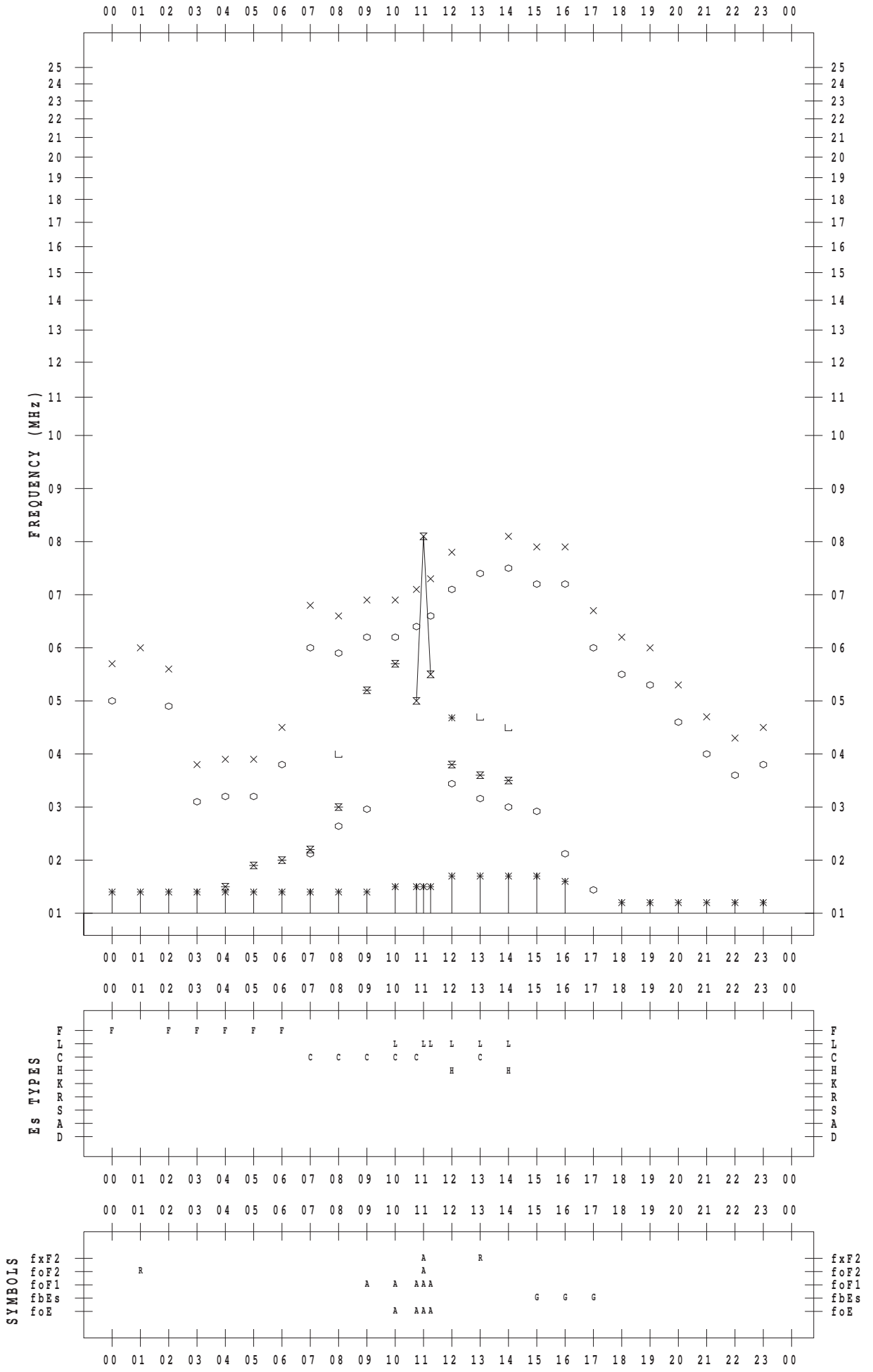
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/14

135 °E MEAN TIME



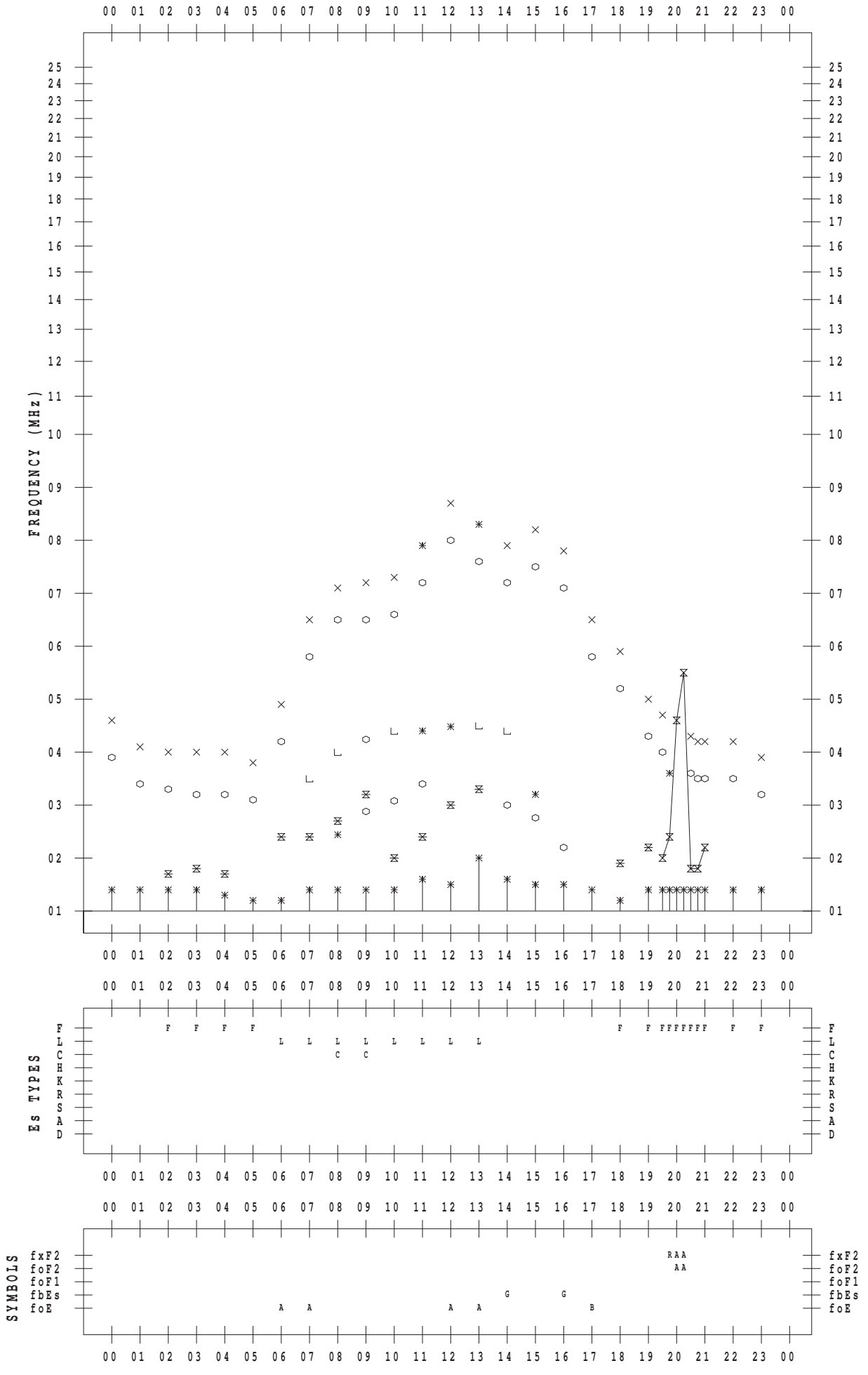
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/15

135 °E MEAN TIME



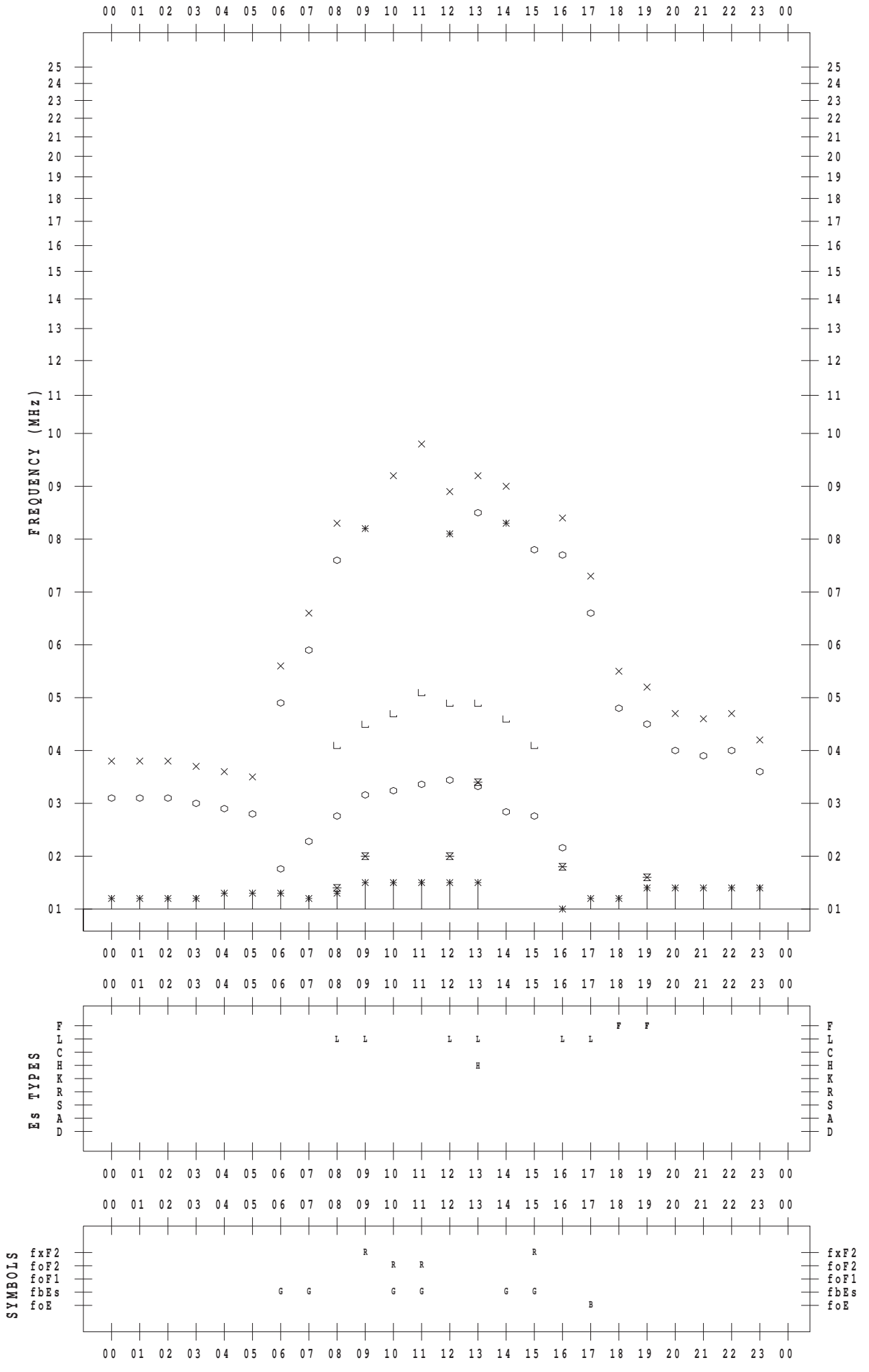
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/16

135 °E MEAN TIME



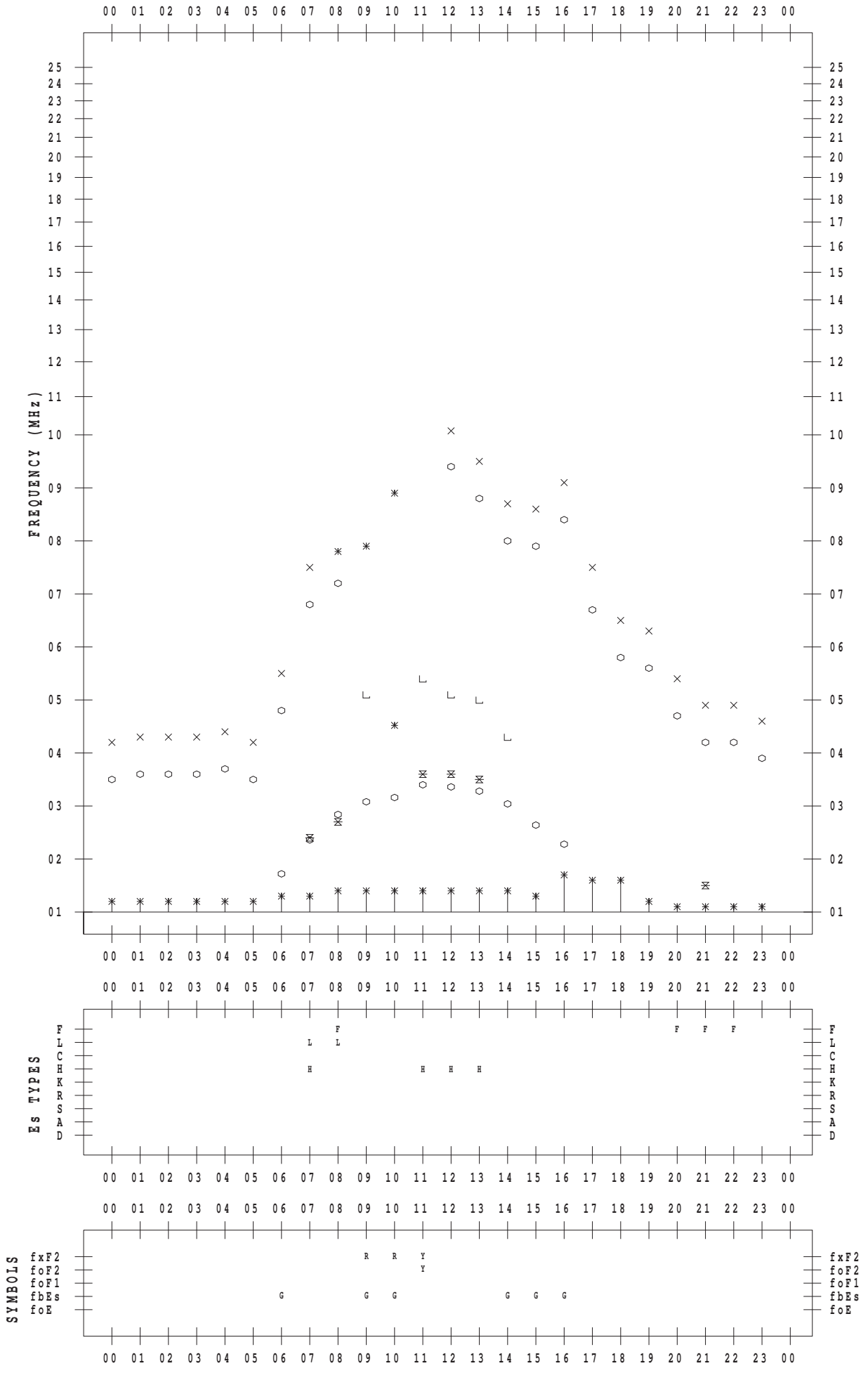
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/17

135 °E MEAN TIME



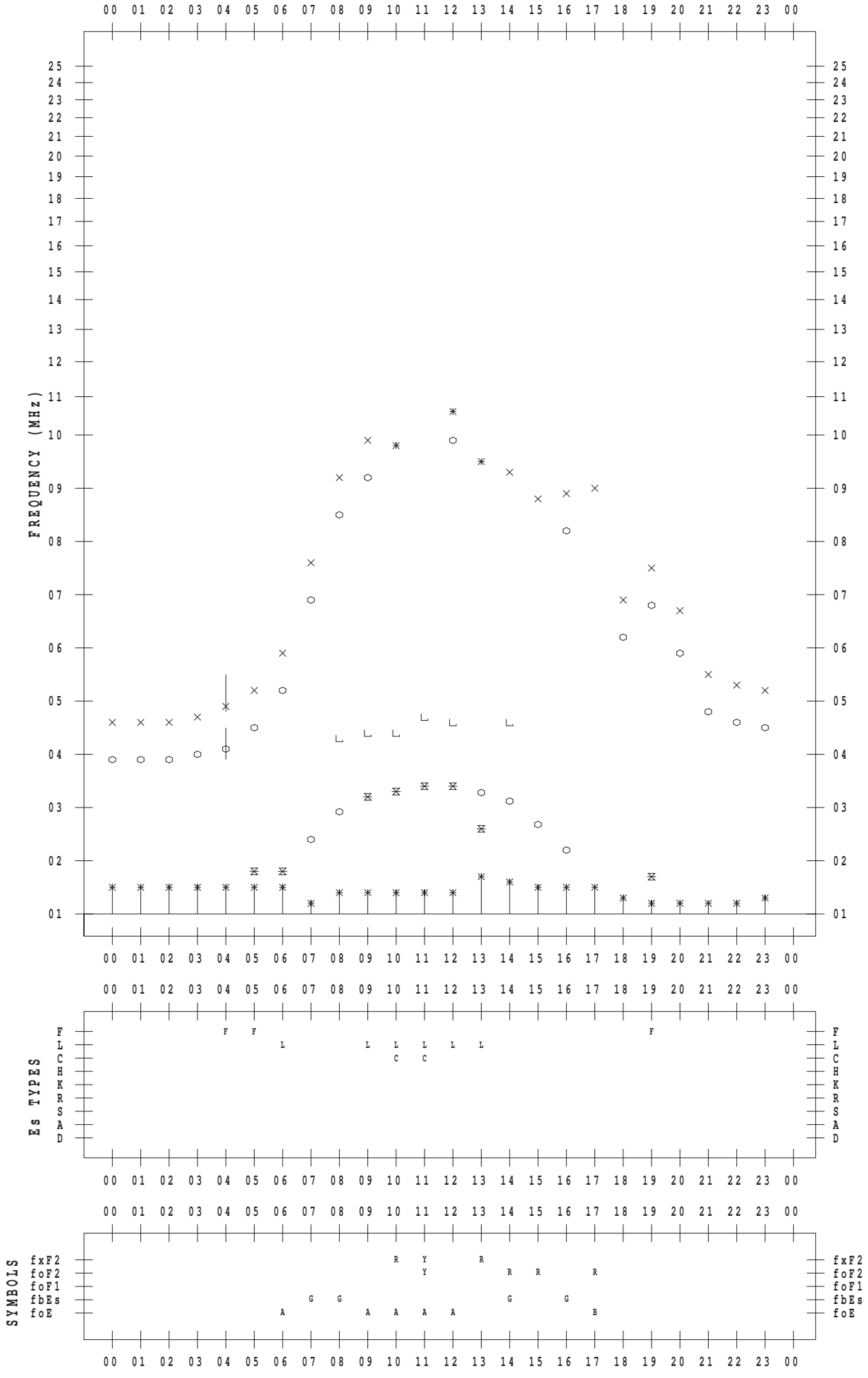
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/18

135 °E MEAN TIME



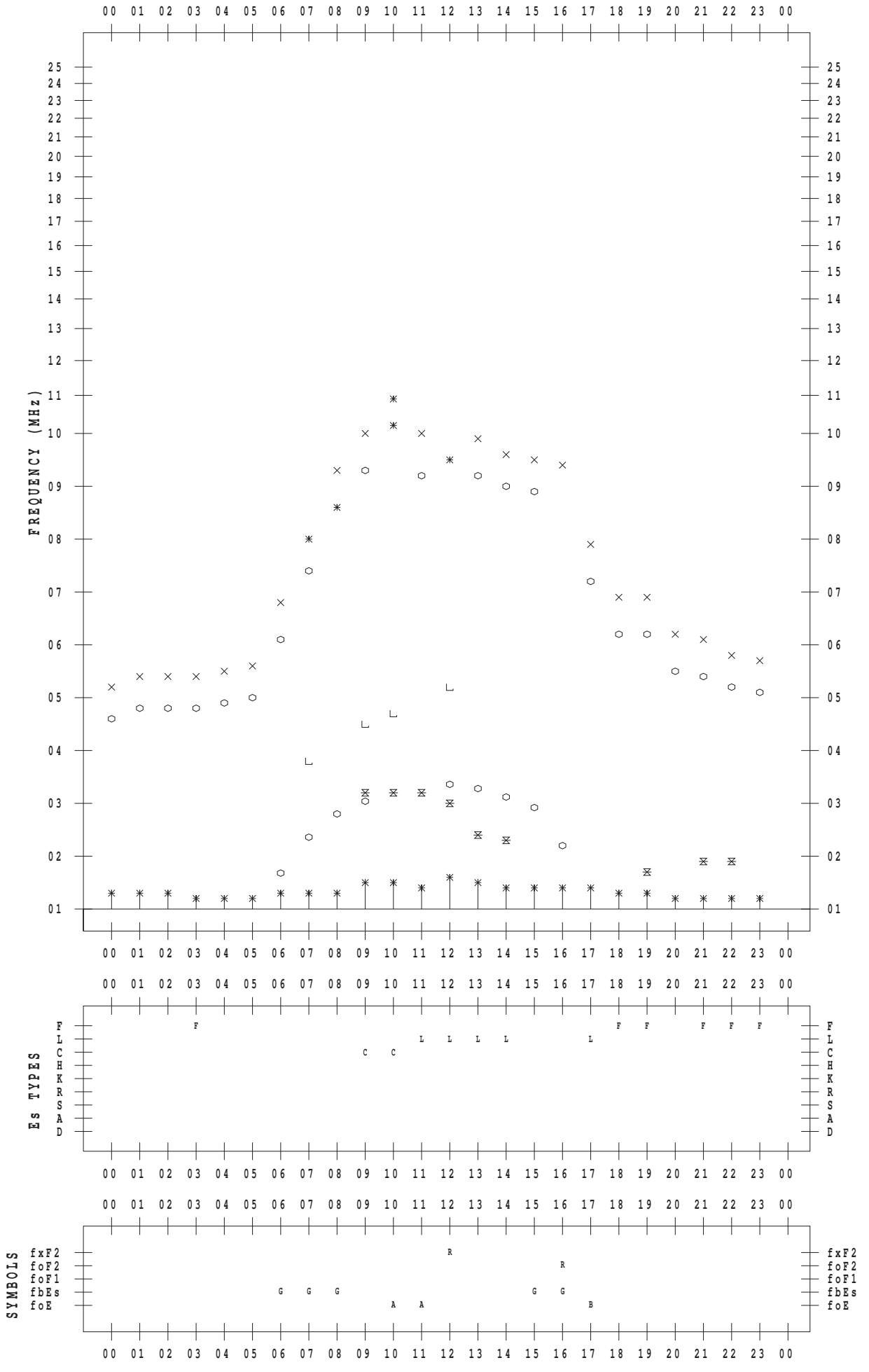
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/19

135 °E MEAN TIME



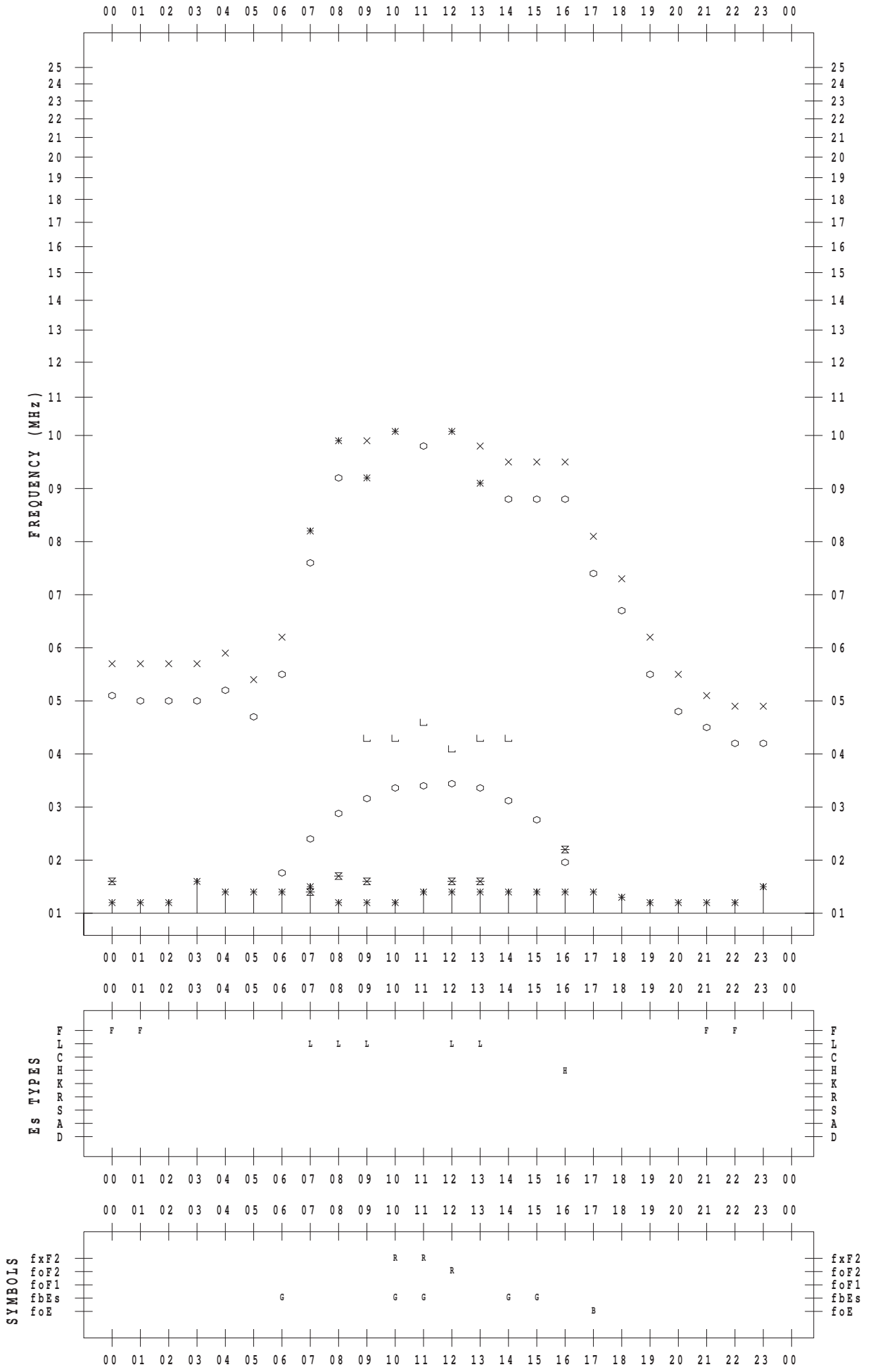
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/20

135 °E MEAN TIME



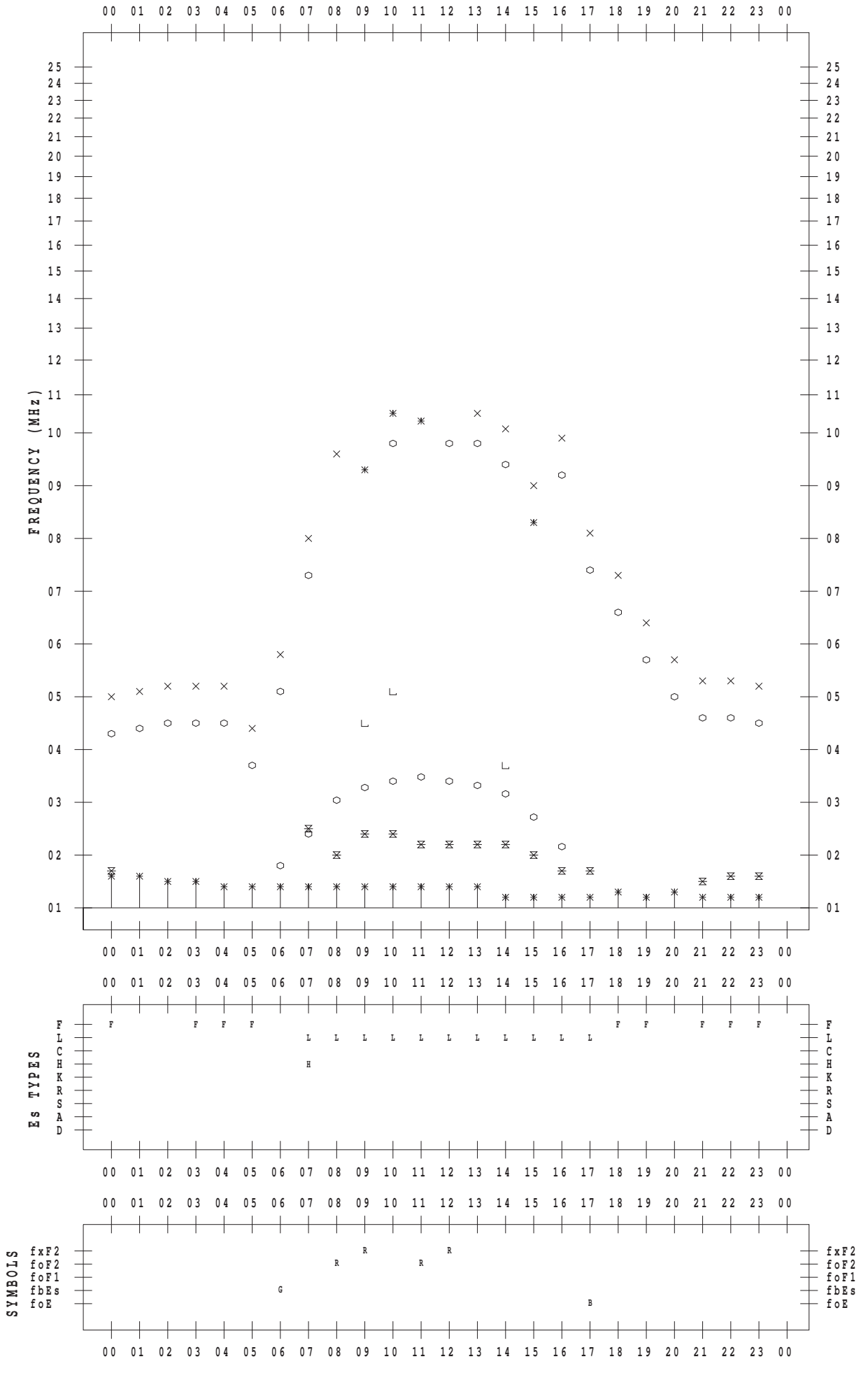
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/21

135 °E MEAN TIME



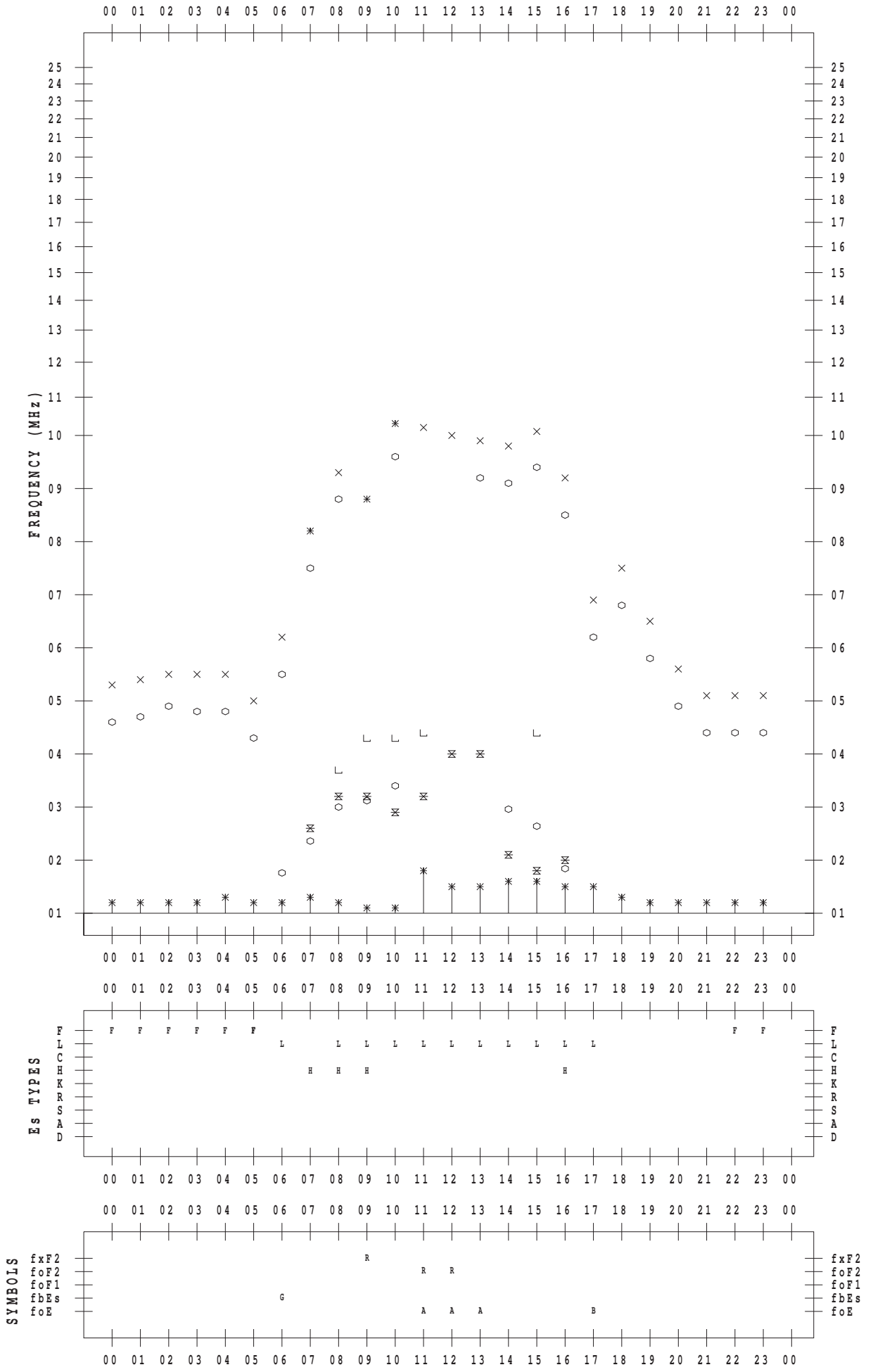
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/22

135 °E MEAN TIME



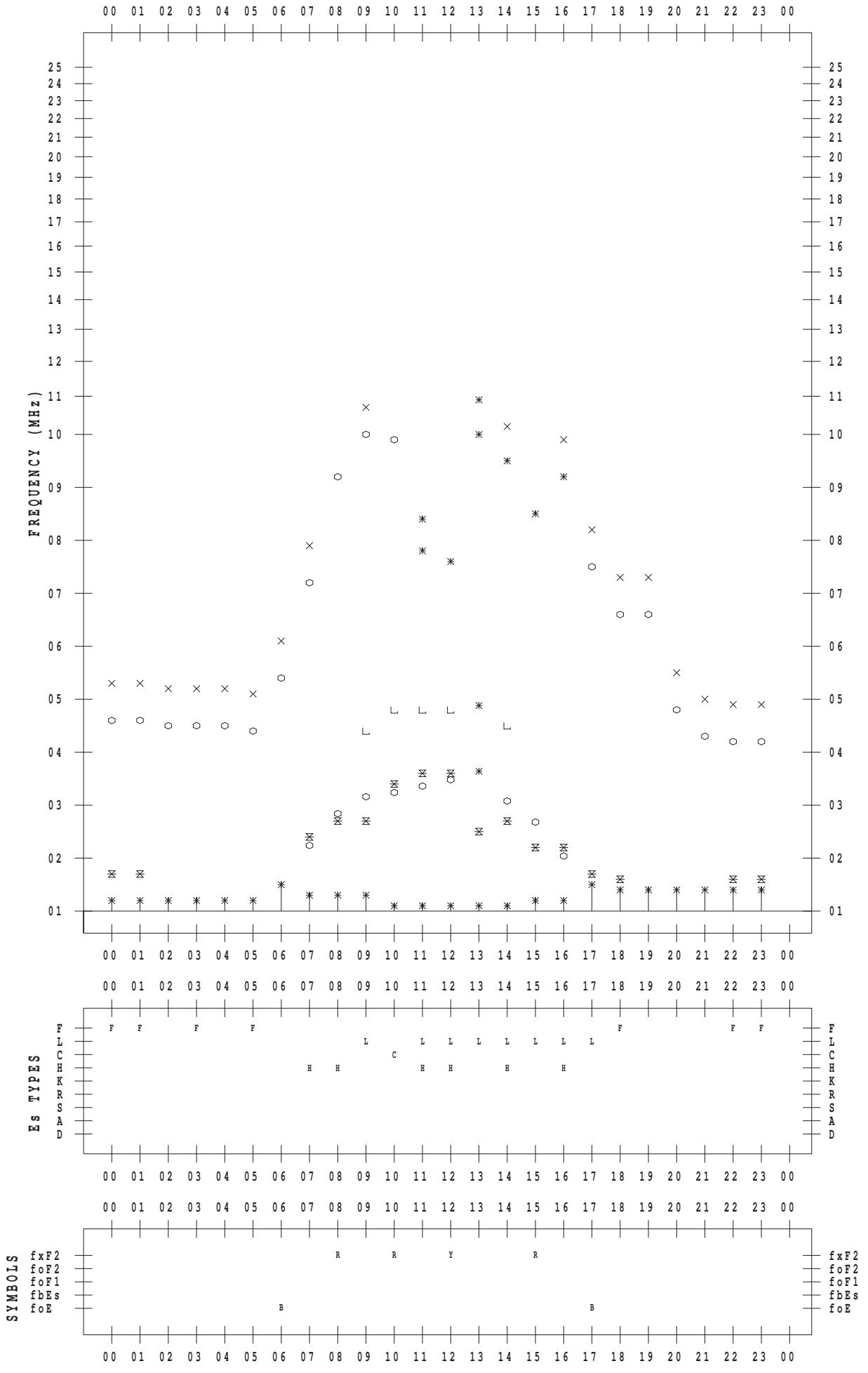
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/23

135 °E MEAN TIME



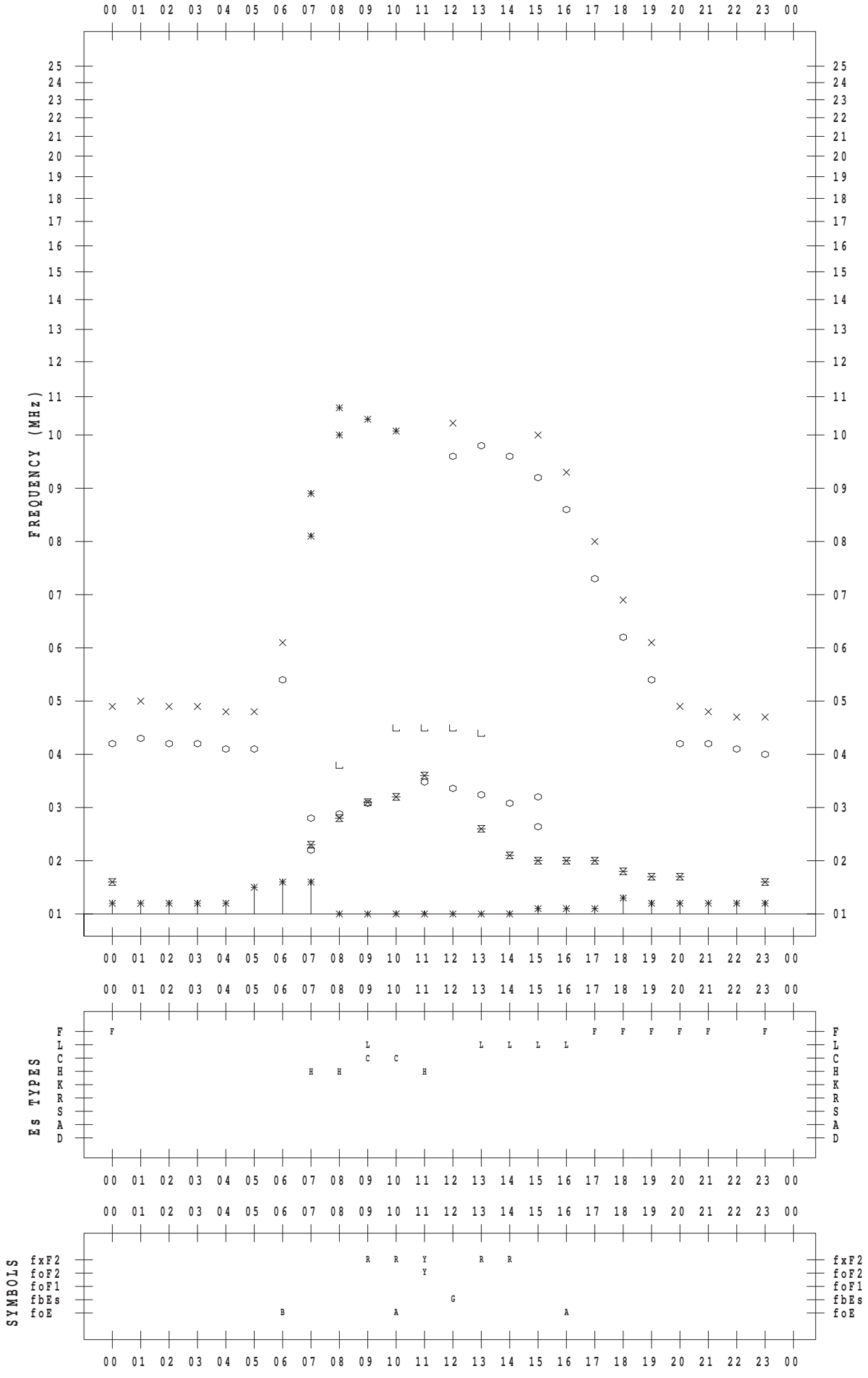
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/24

135 °E MEAN TIME



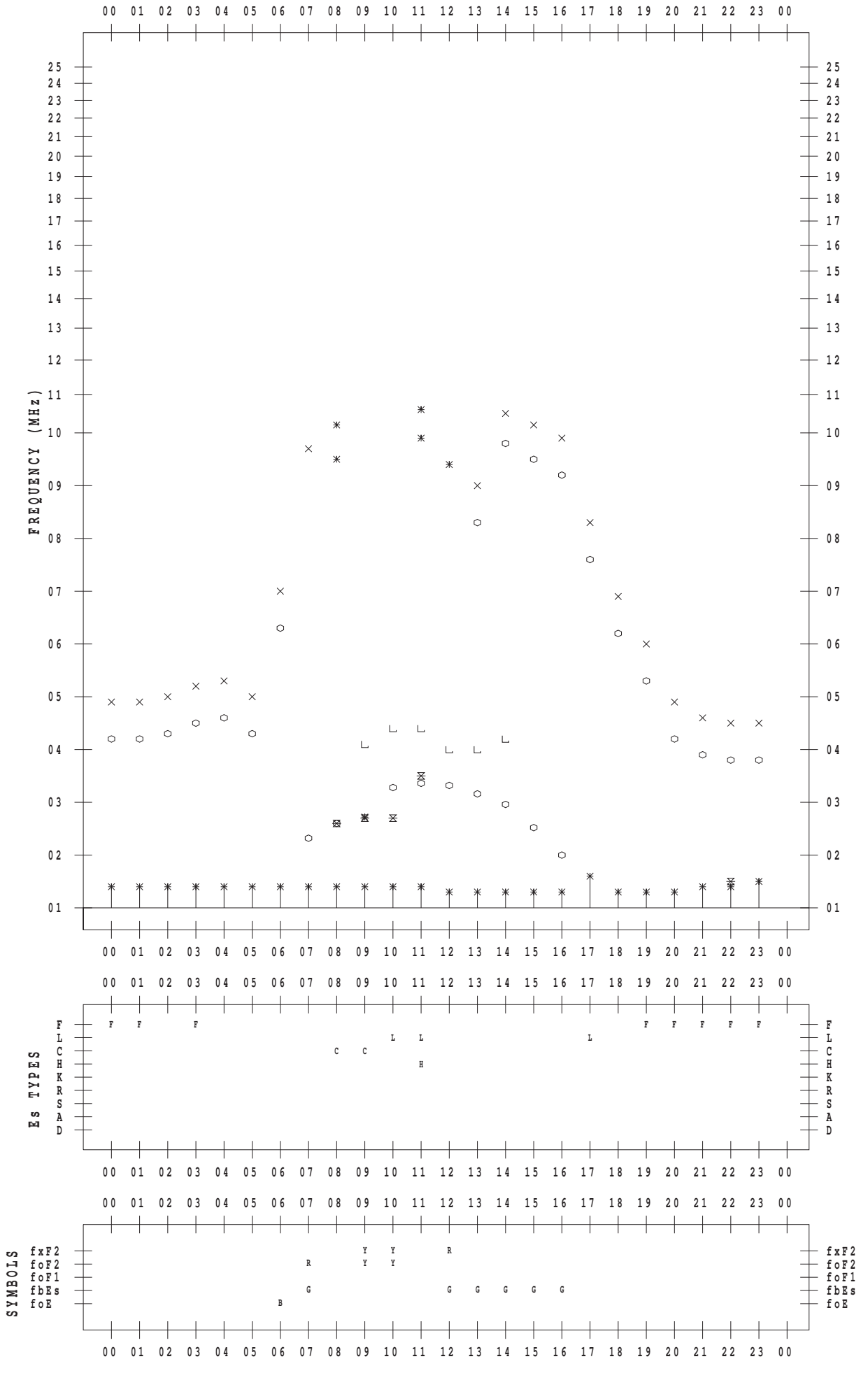
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/25

135 °E MEAN TIME



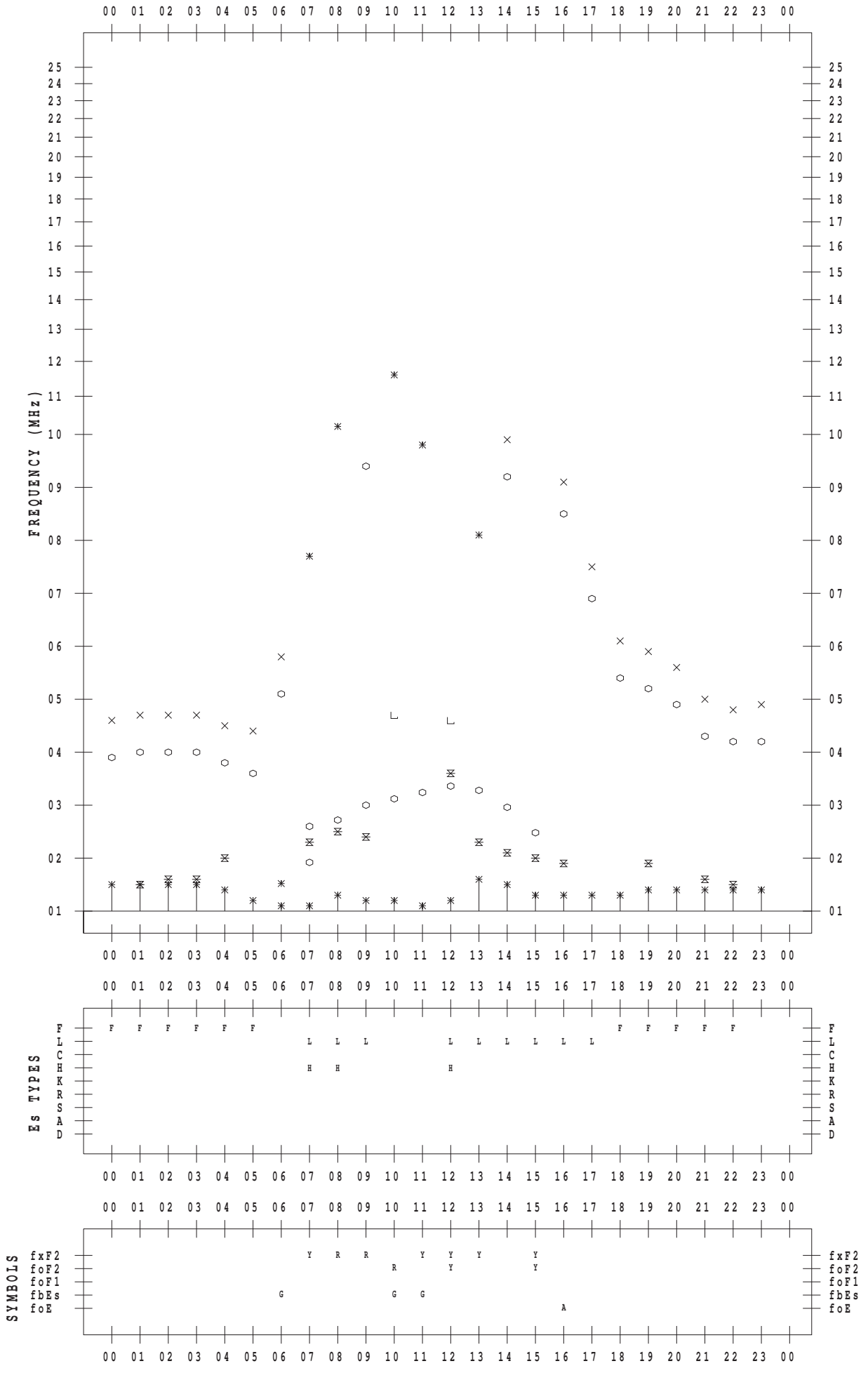
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/26

135 °E MEAN TIME



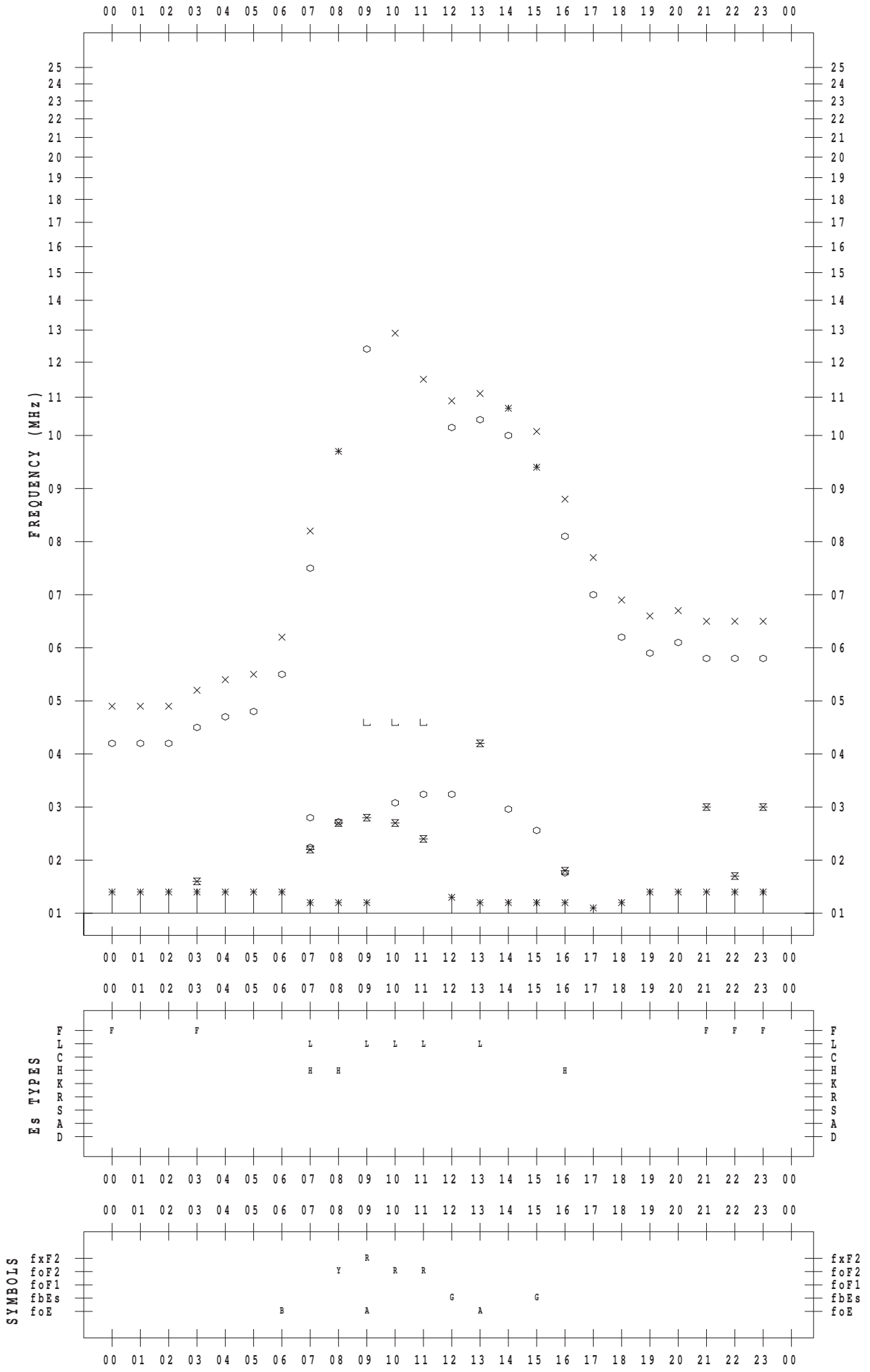
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/27

135 °E MEAN TIME



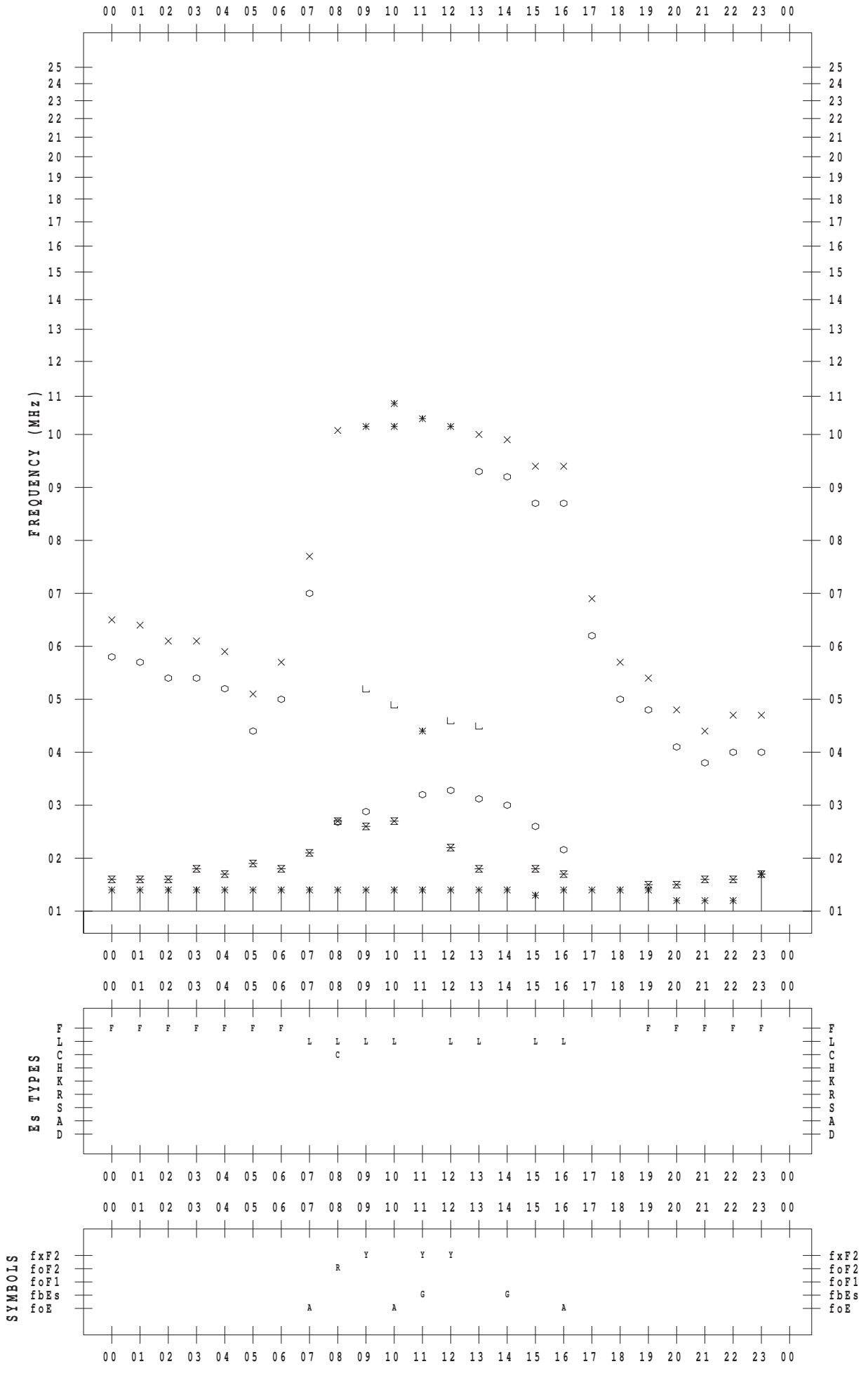
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/28

135 °E MEAN TIME



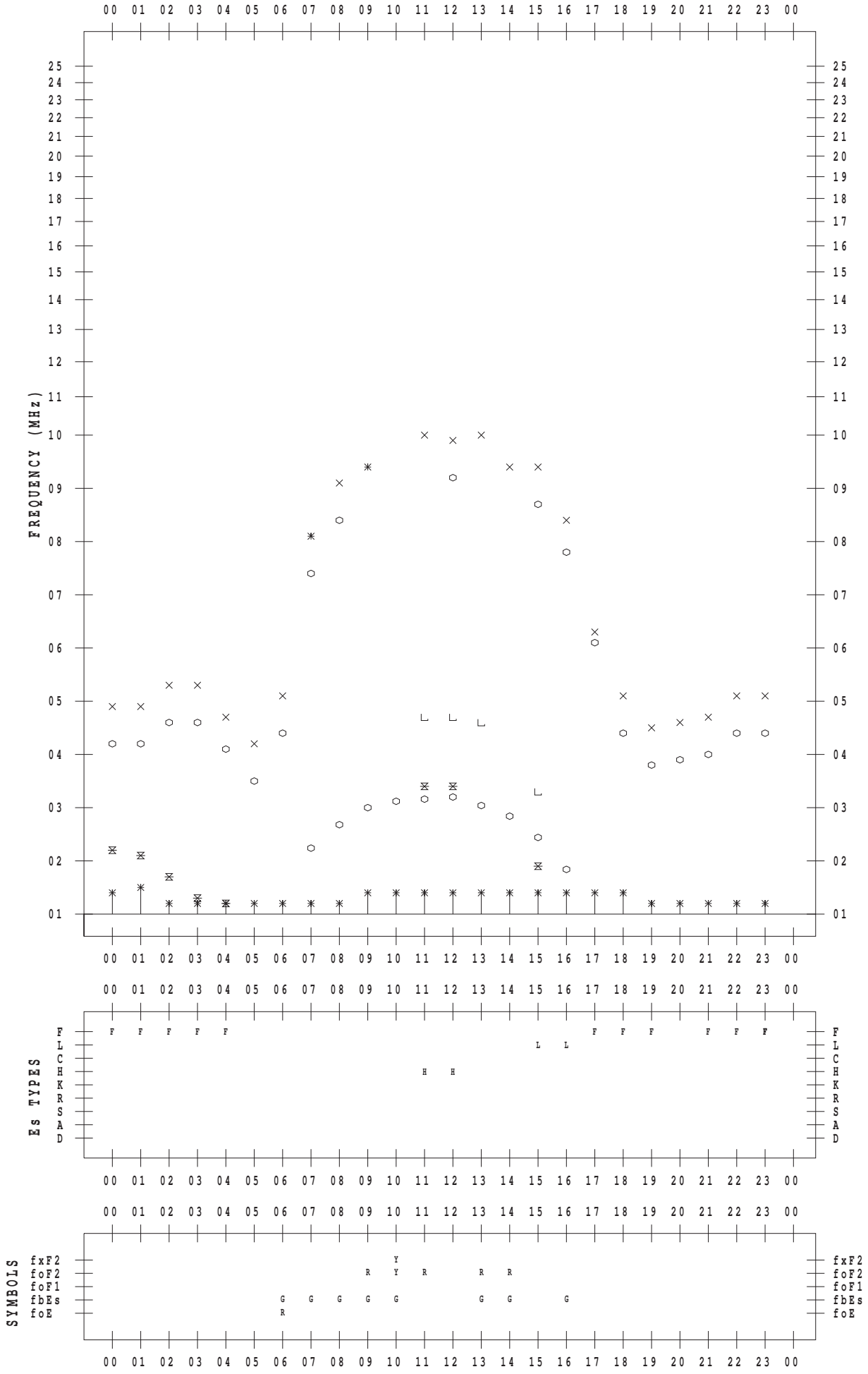
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/29

135 °E MEAN TIME



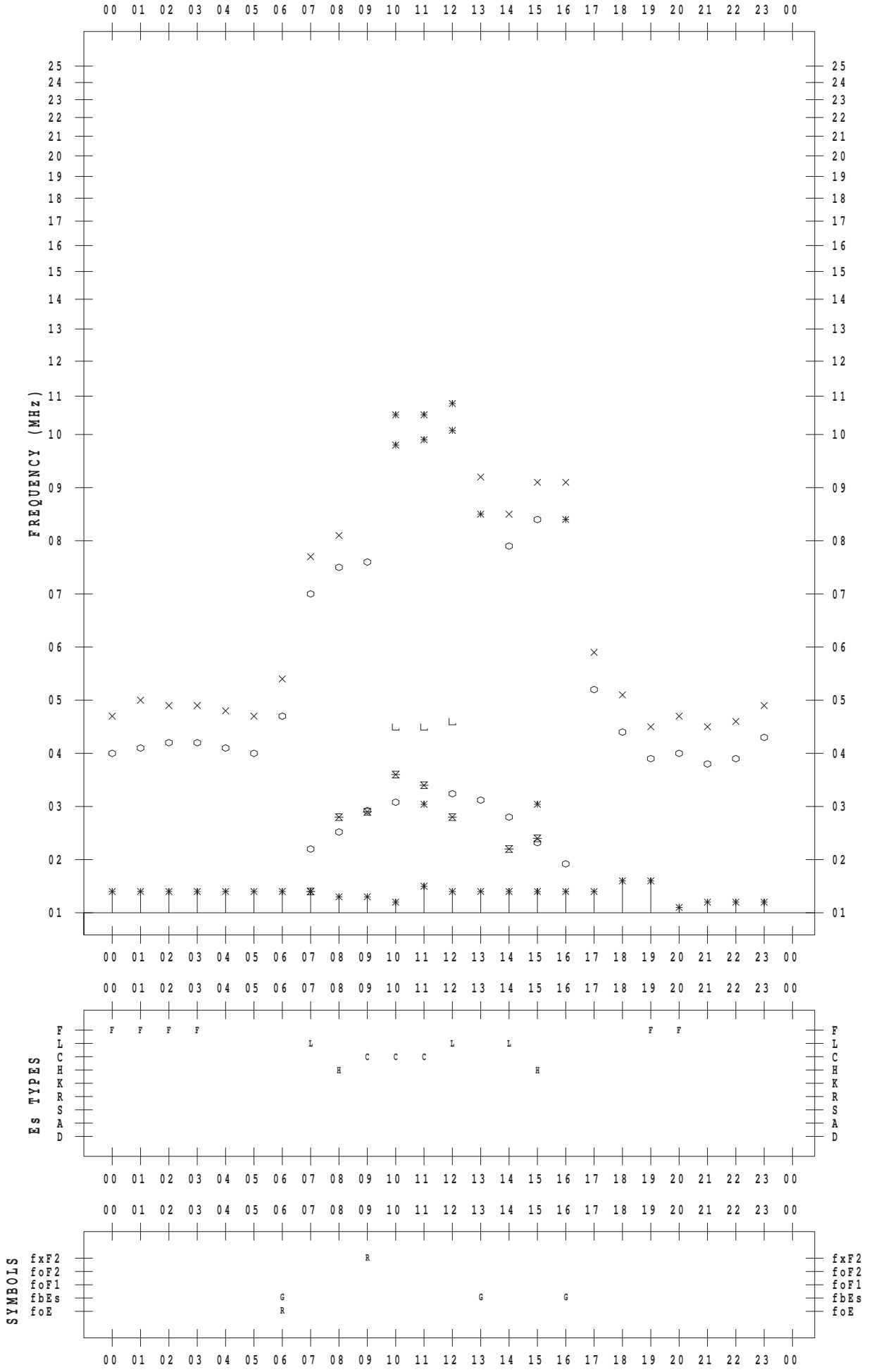
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/30

135 °E MEAN TIME



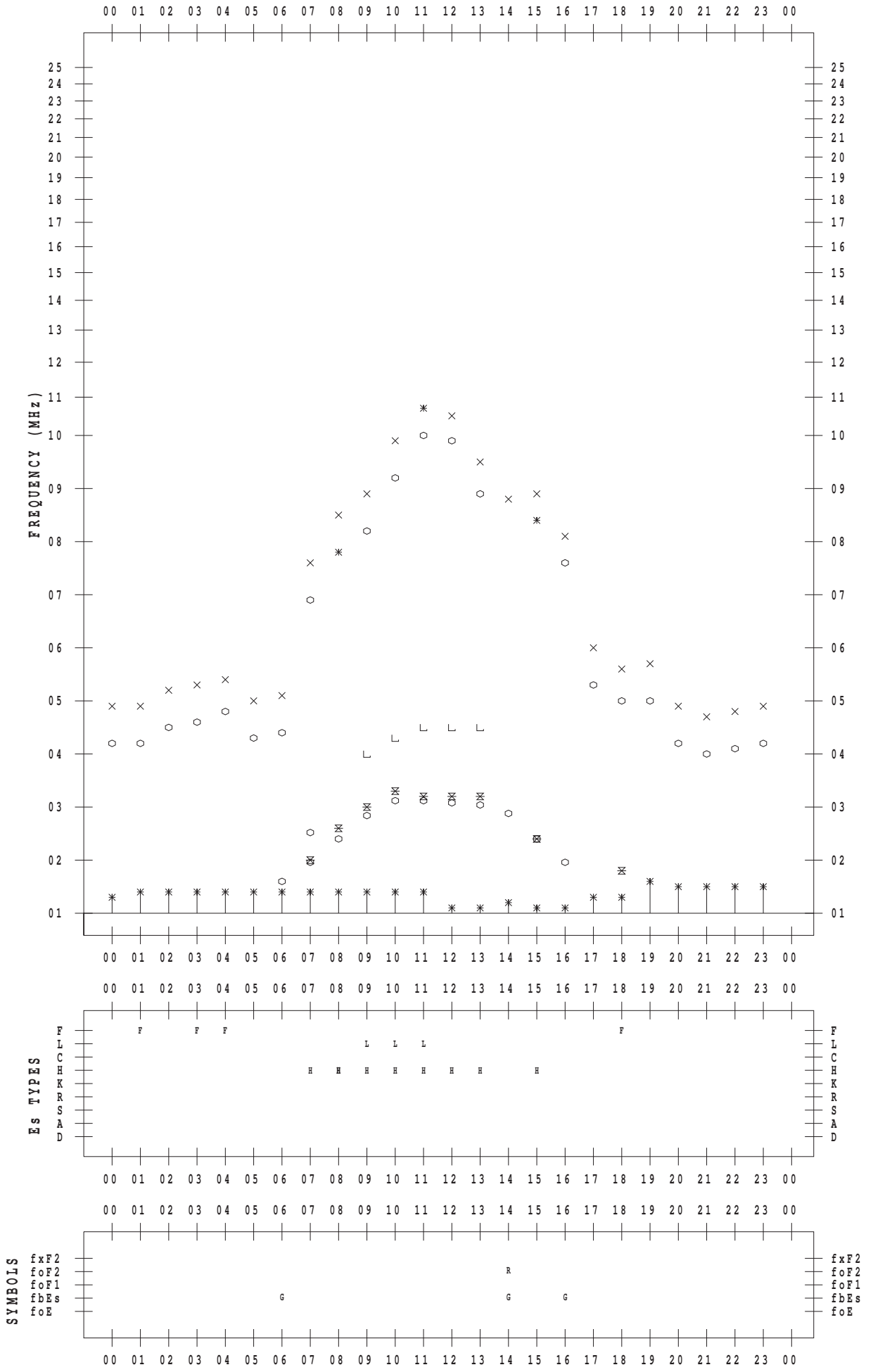
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2012/10/31

135 °E MEAN TIME



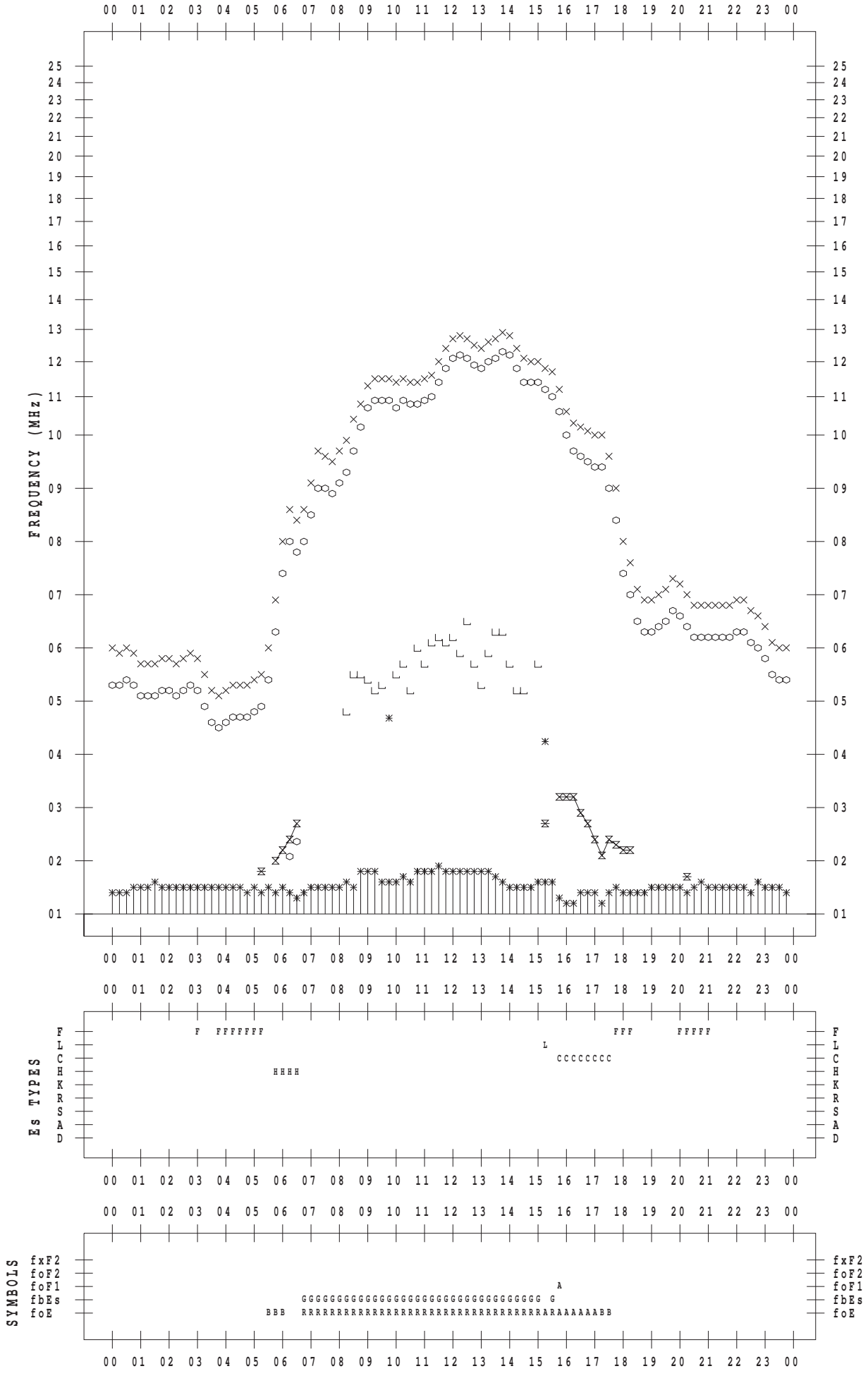
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/ 1

135 °E MEAN TIME



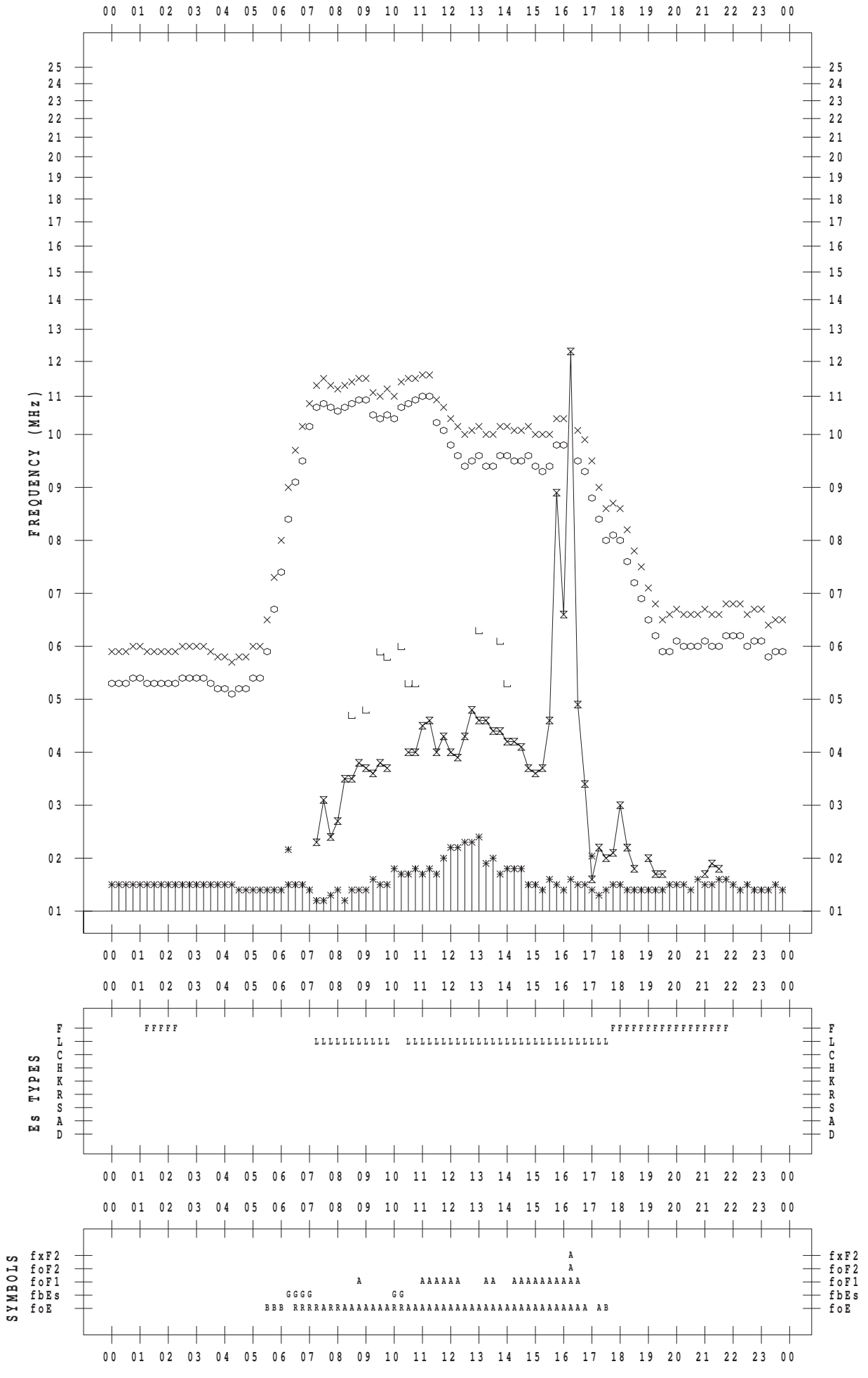
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/ 2

135 °E MEAN TIME



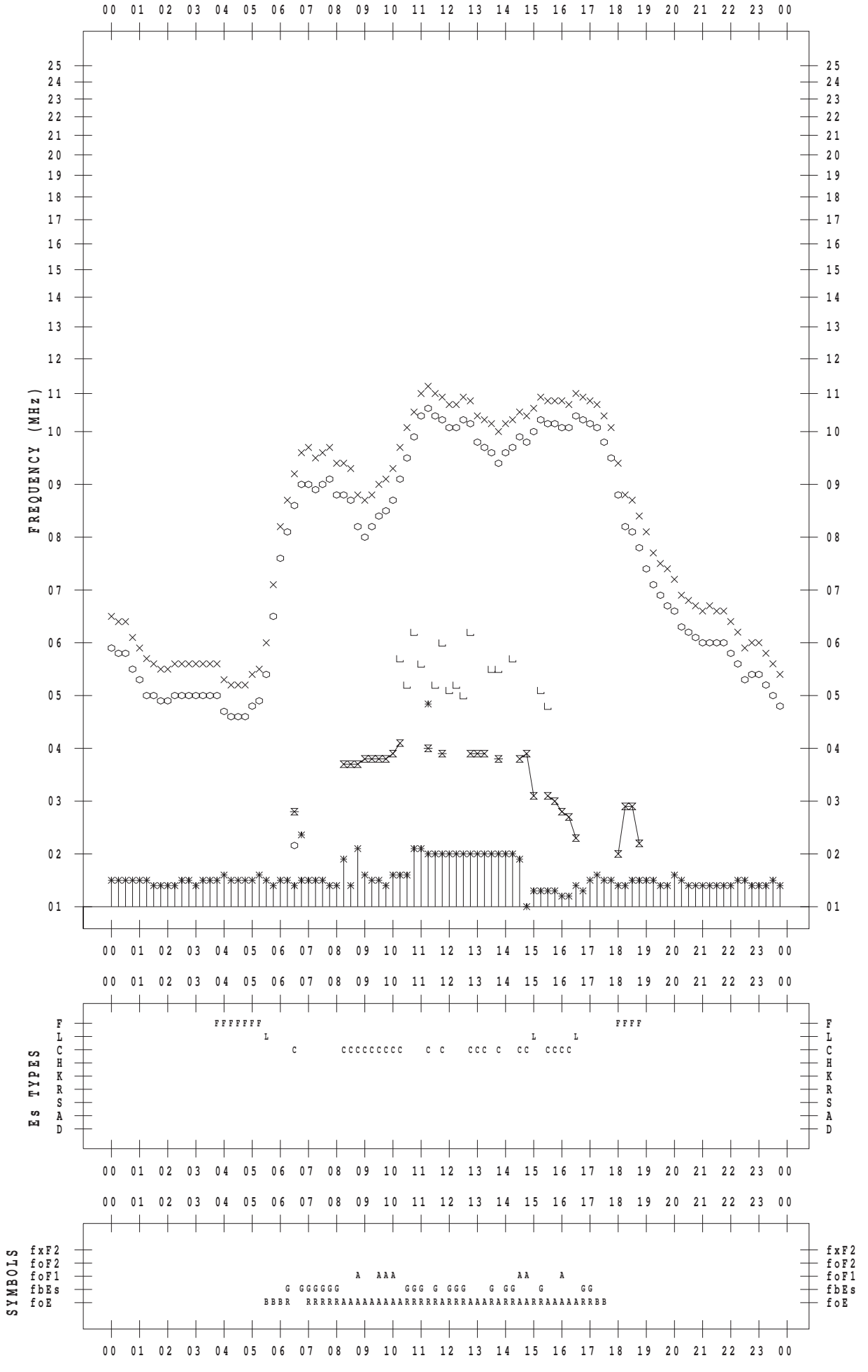
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/ 3

135 °E MEAN TIME



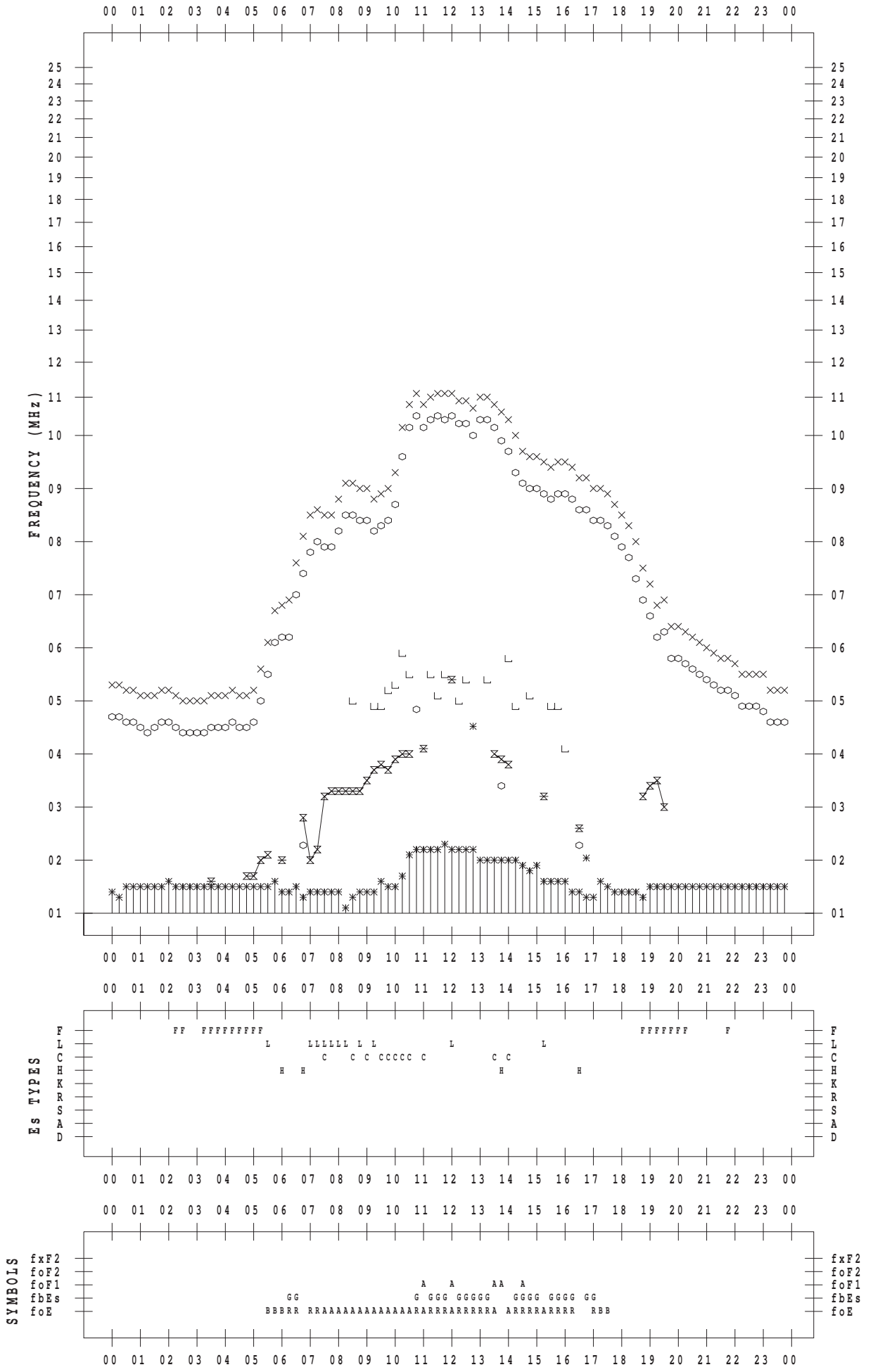
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/ 4

135 °E MEAN TIME



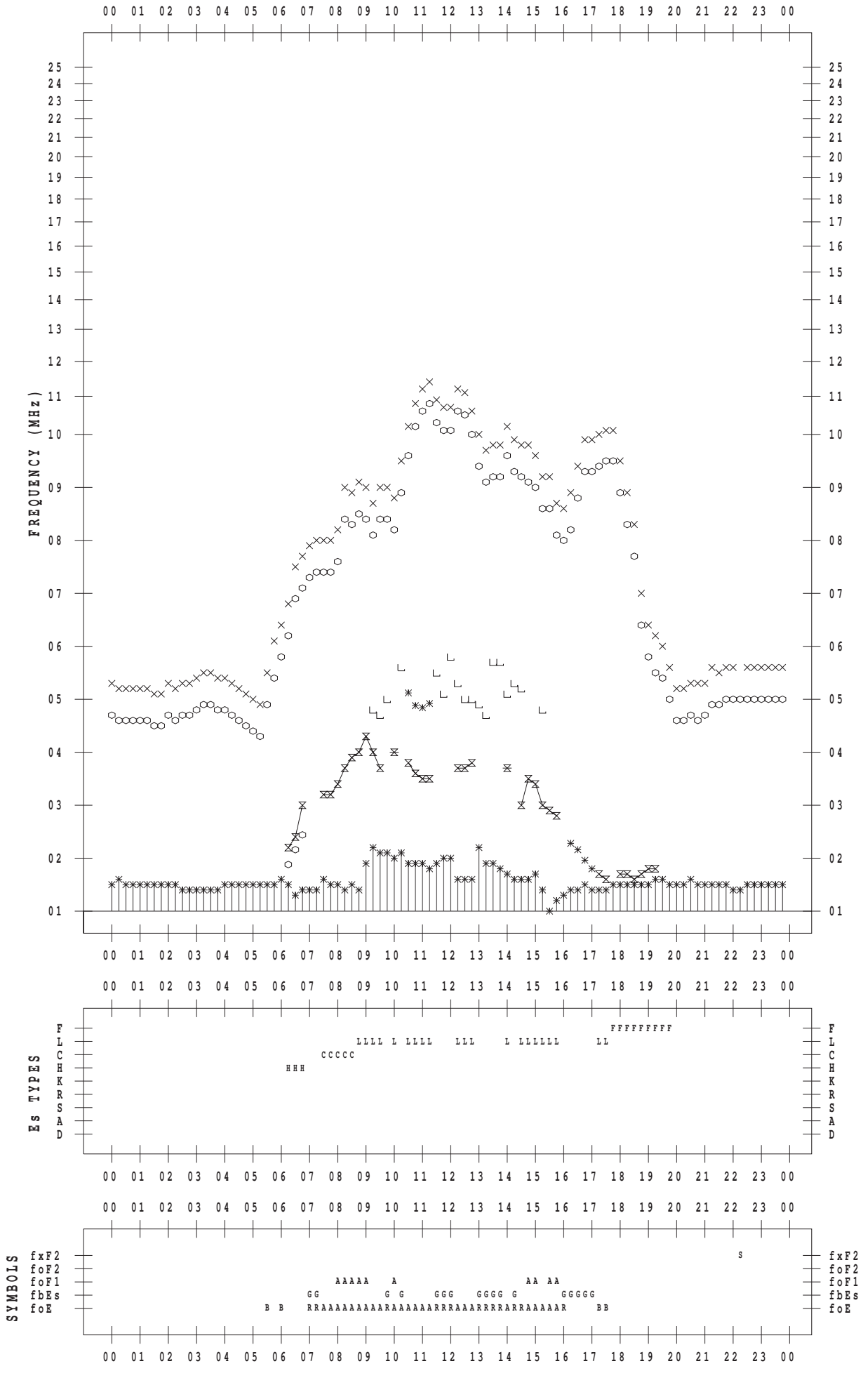
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/ 5

135 °E MEAN TIME



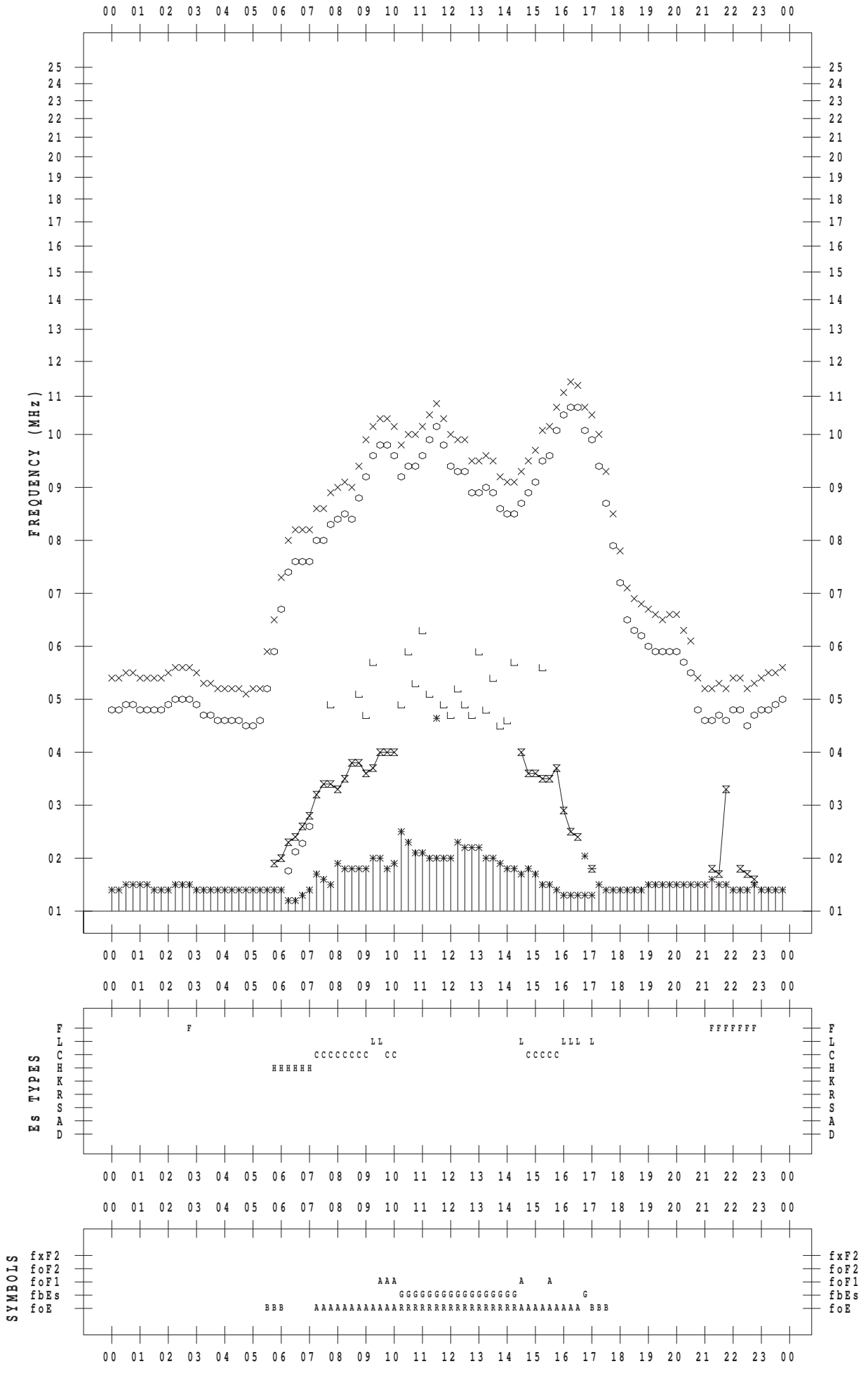
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/ 6

135 °E MEAN TIME



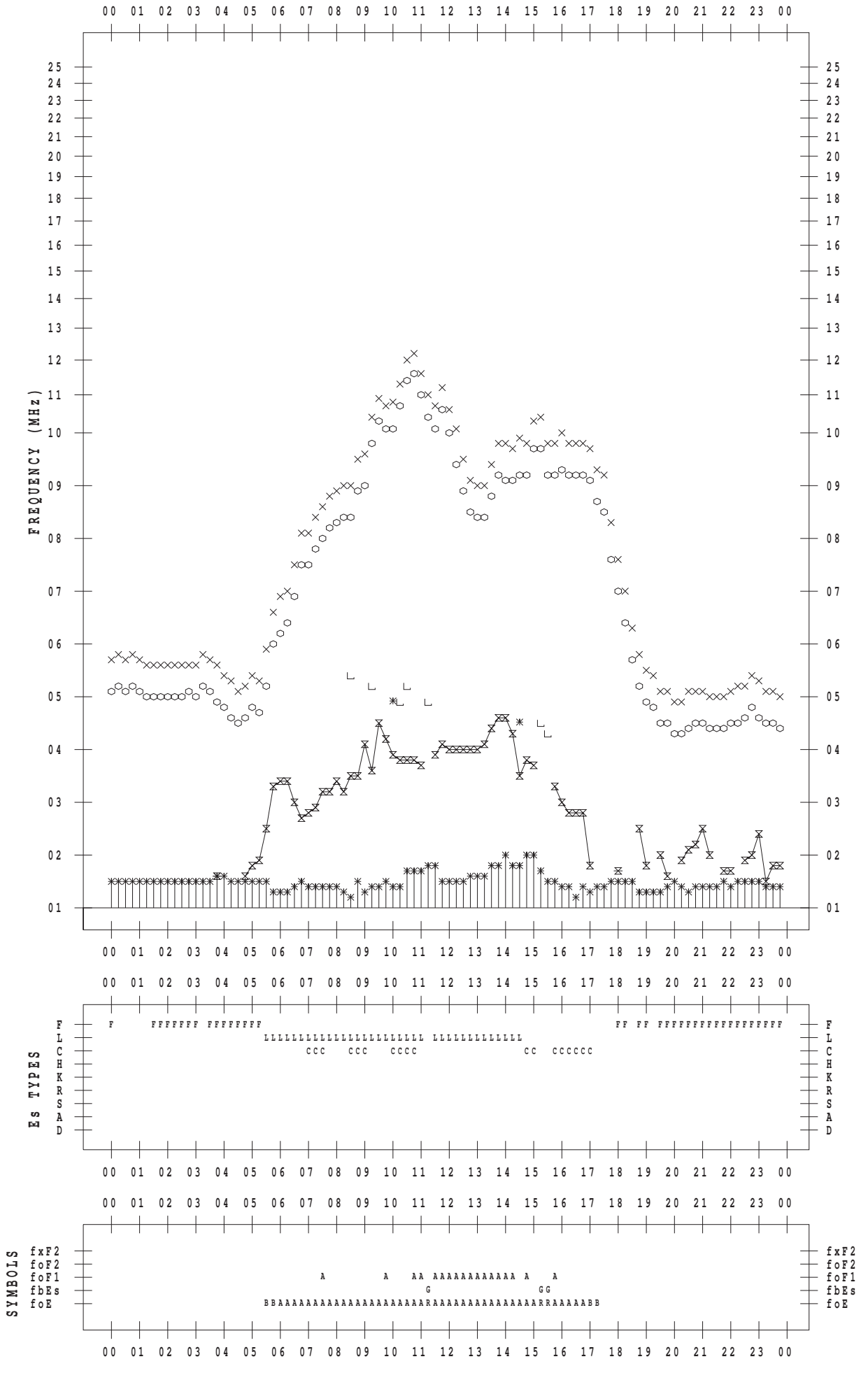
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/ 7

135 °E MEAN TIME



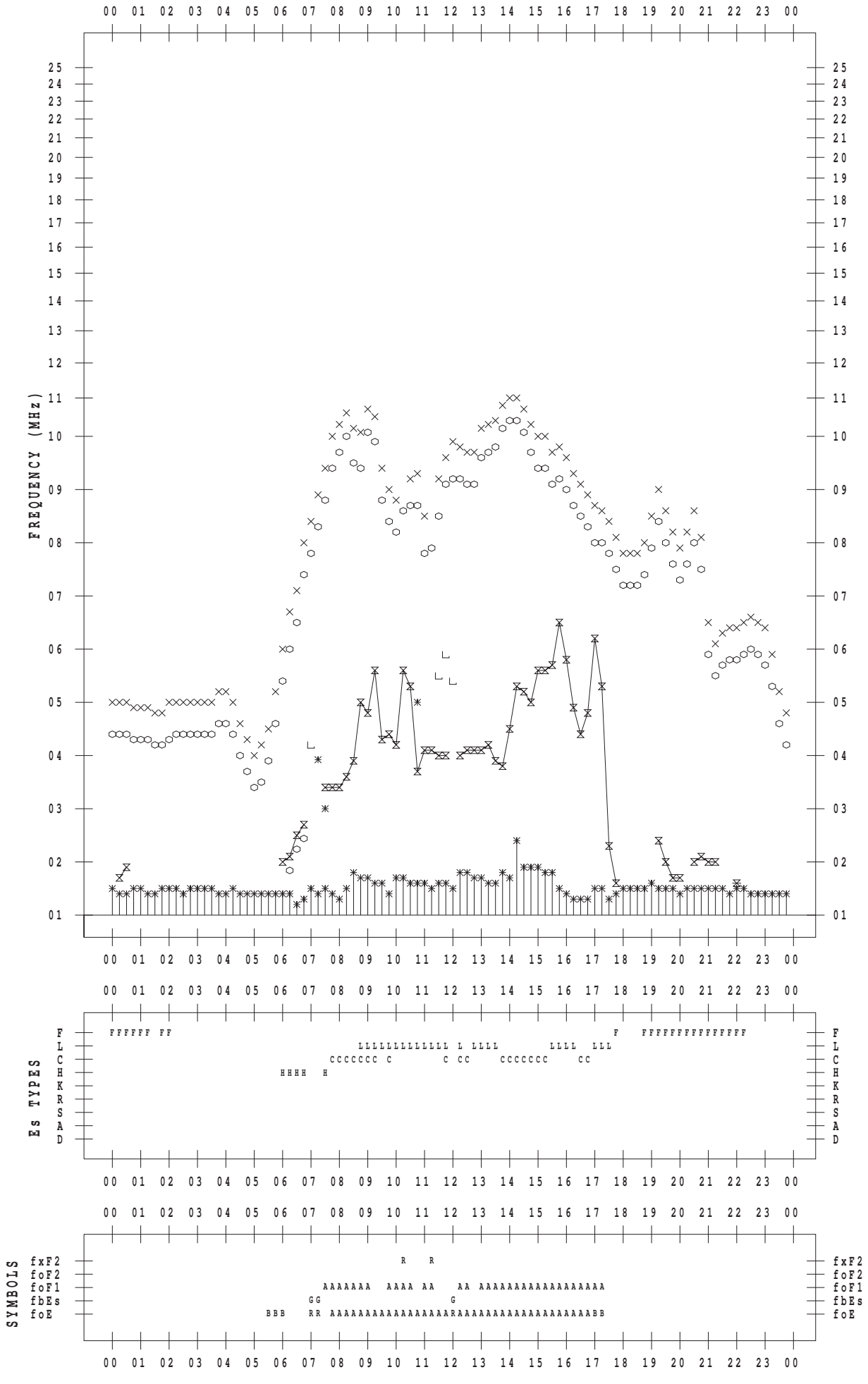
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/ 8

135 °E MEAN TIME



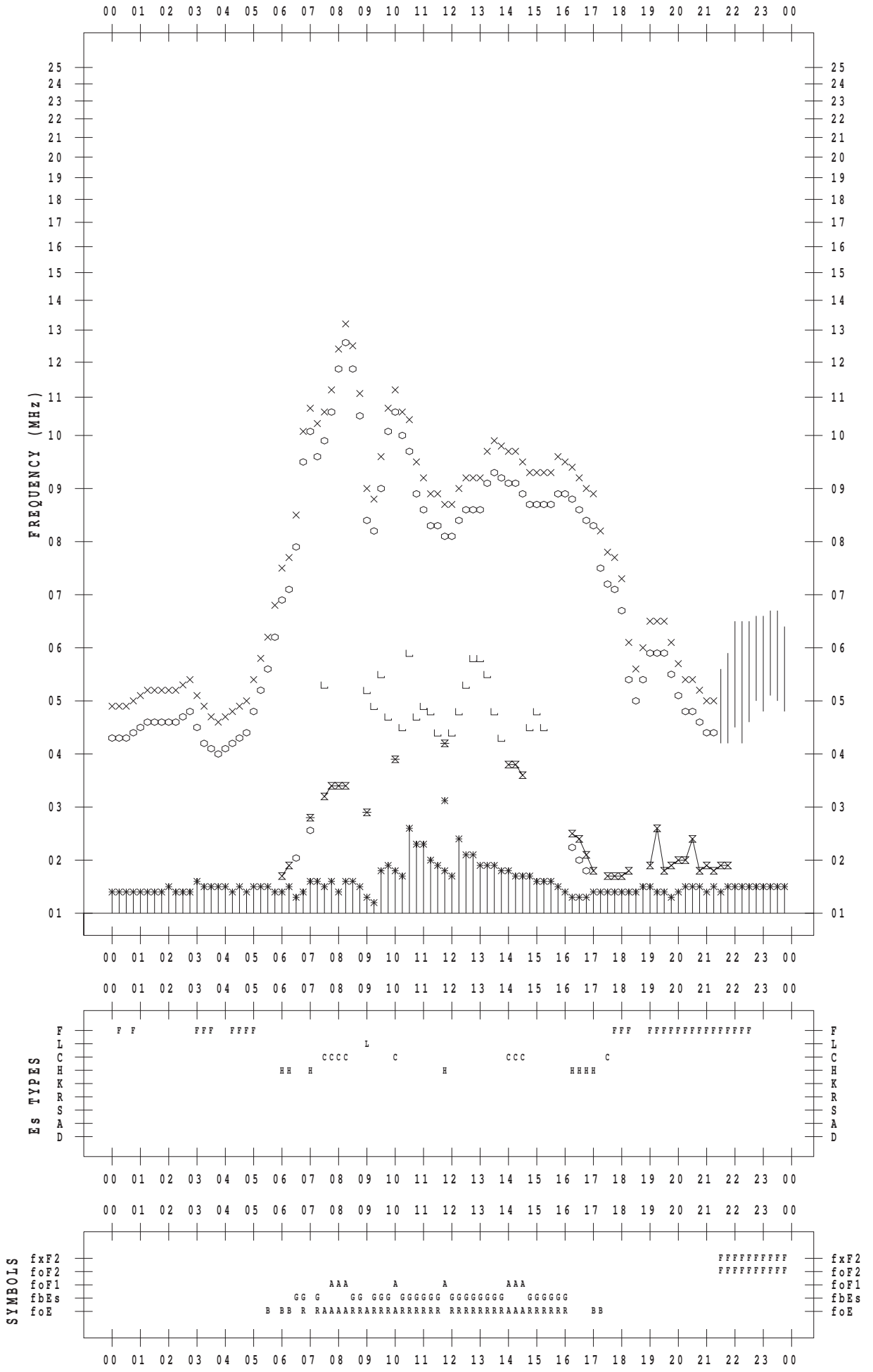
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/ 9

135 °E MEAN TIME



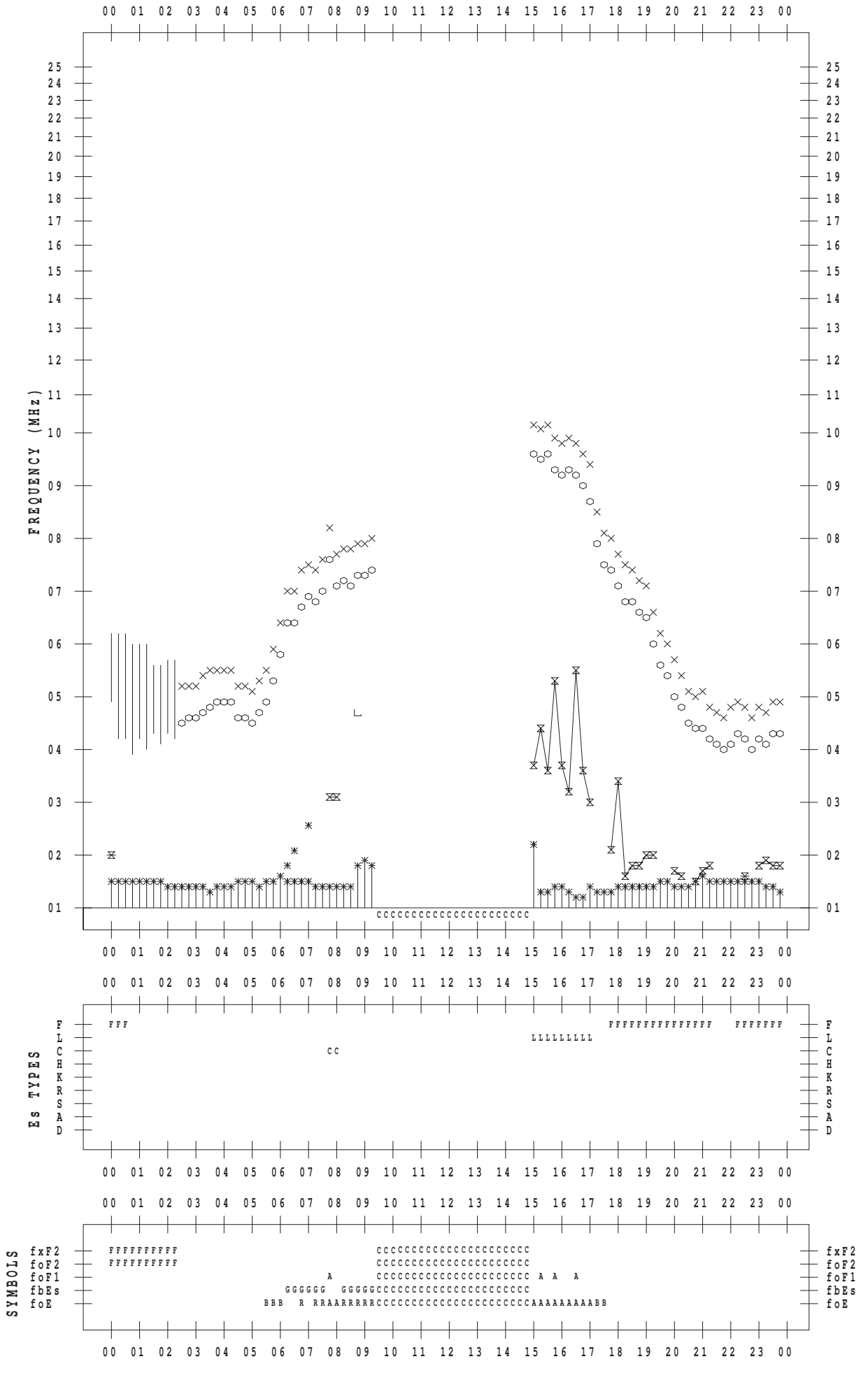
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/10

135 °E MEAN TIME



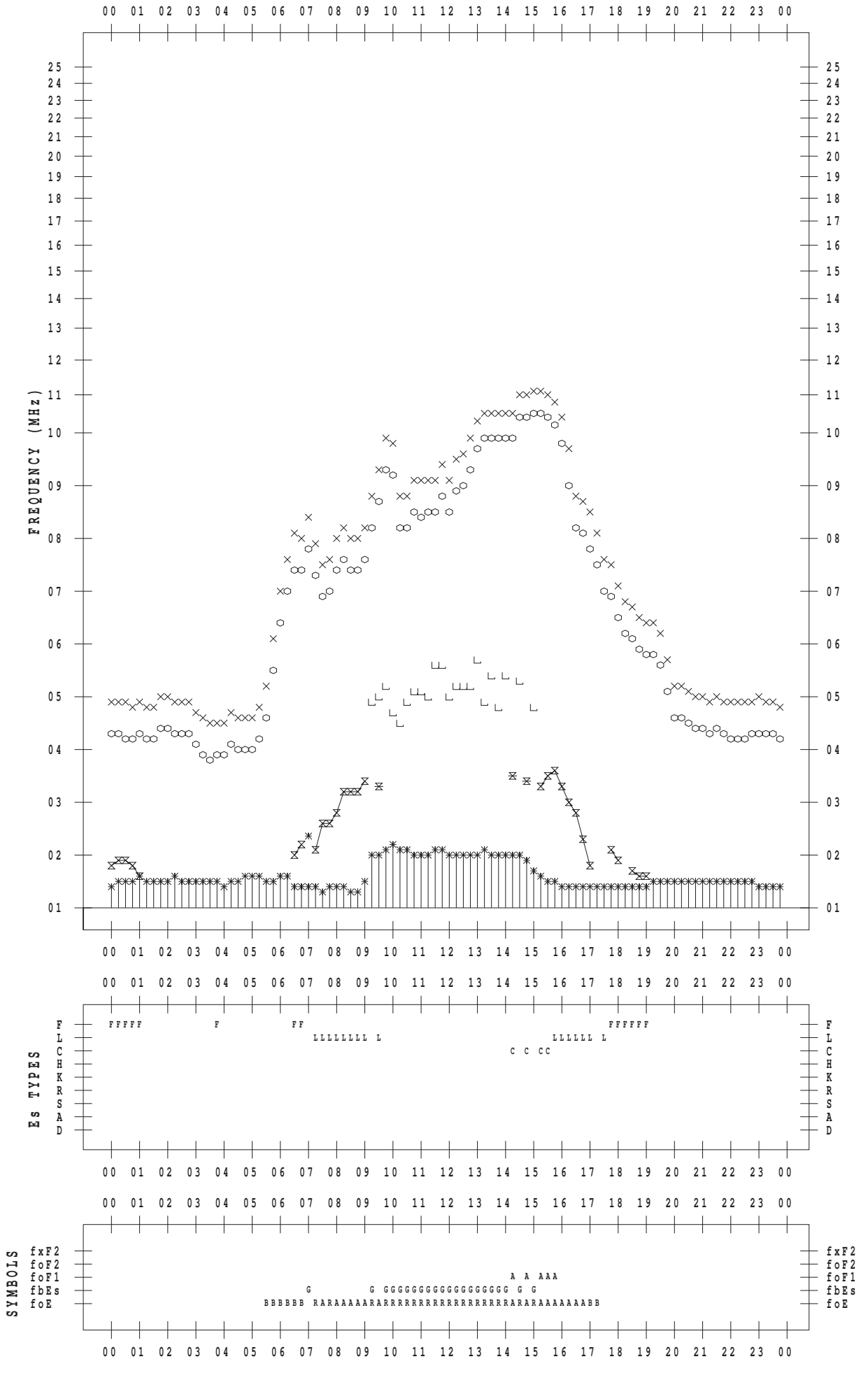
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/11

135 °E MEAN TIME



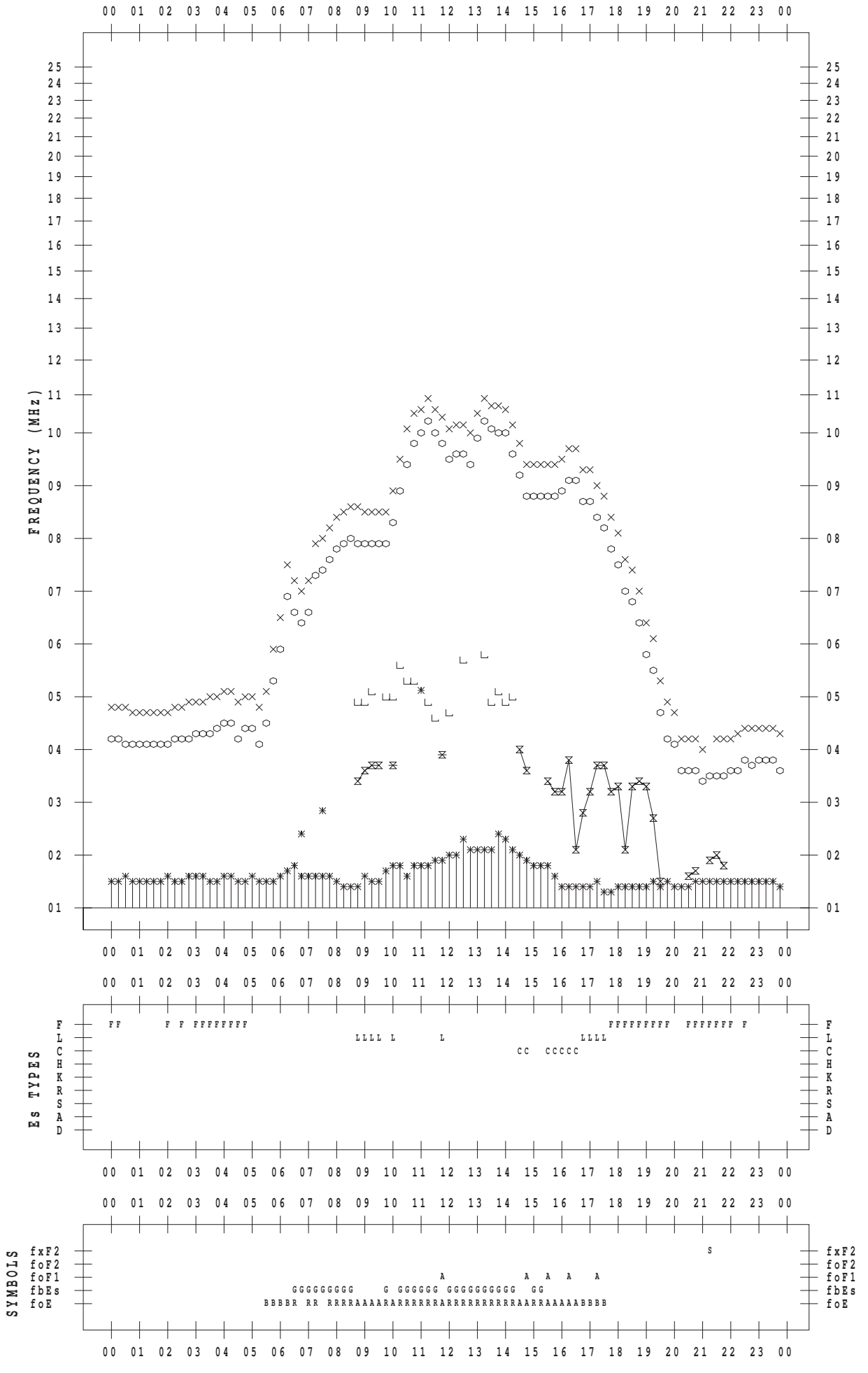
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/12

135 °E MEAN TIME



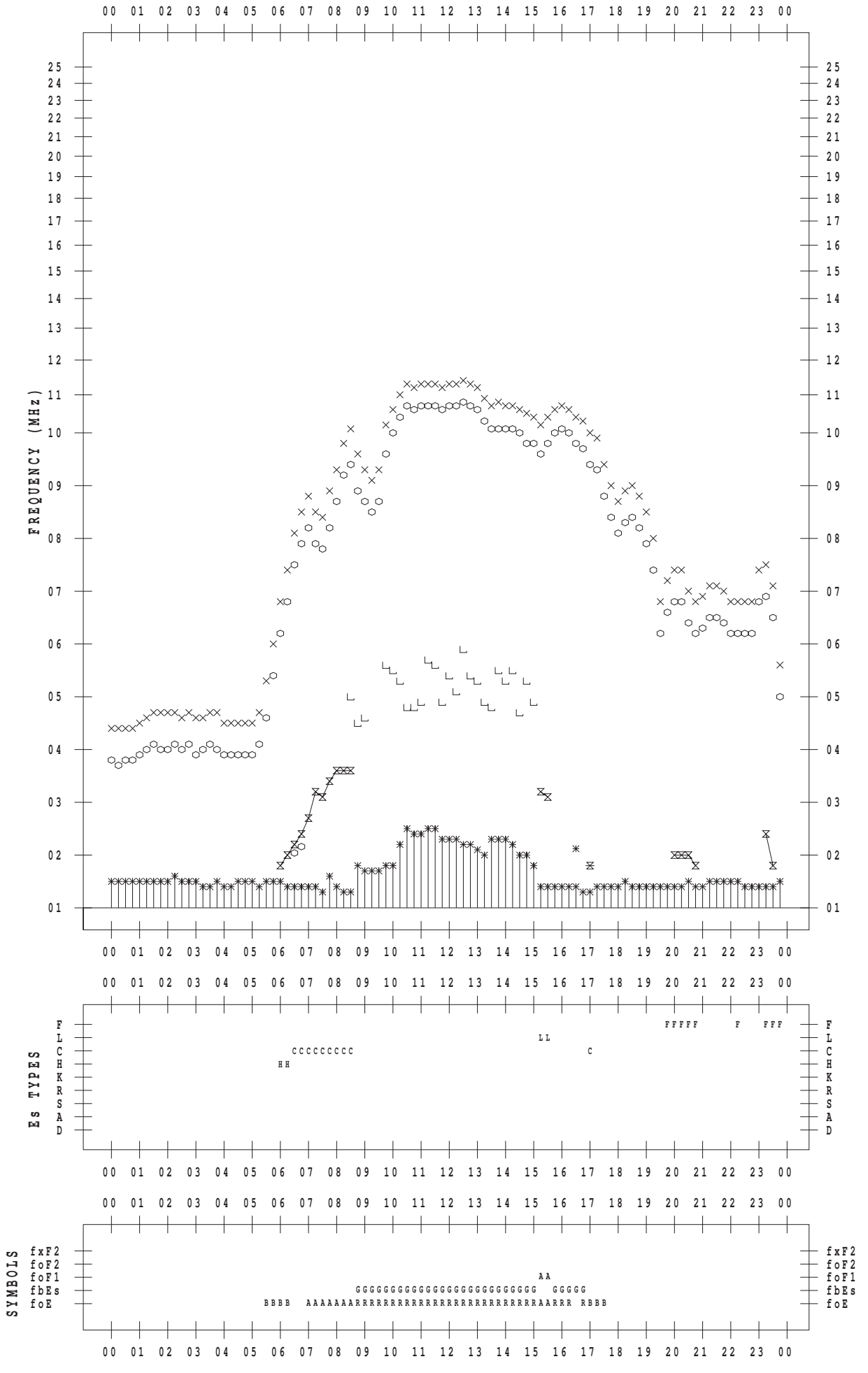
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/13

135 °E MEAN TIME



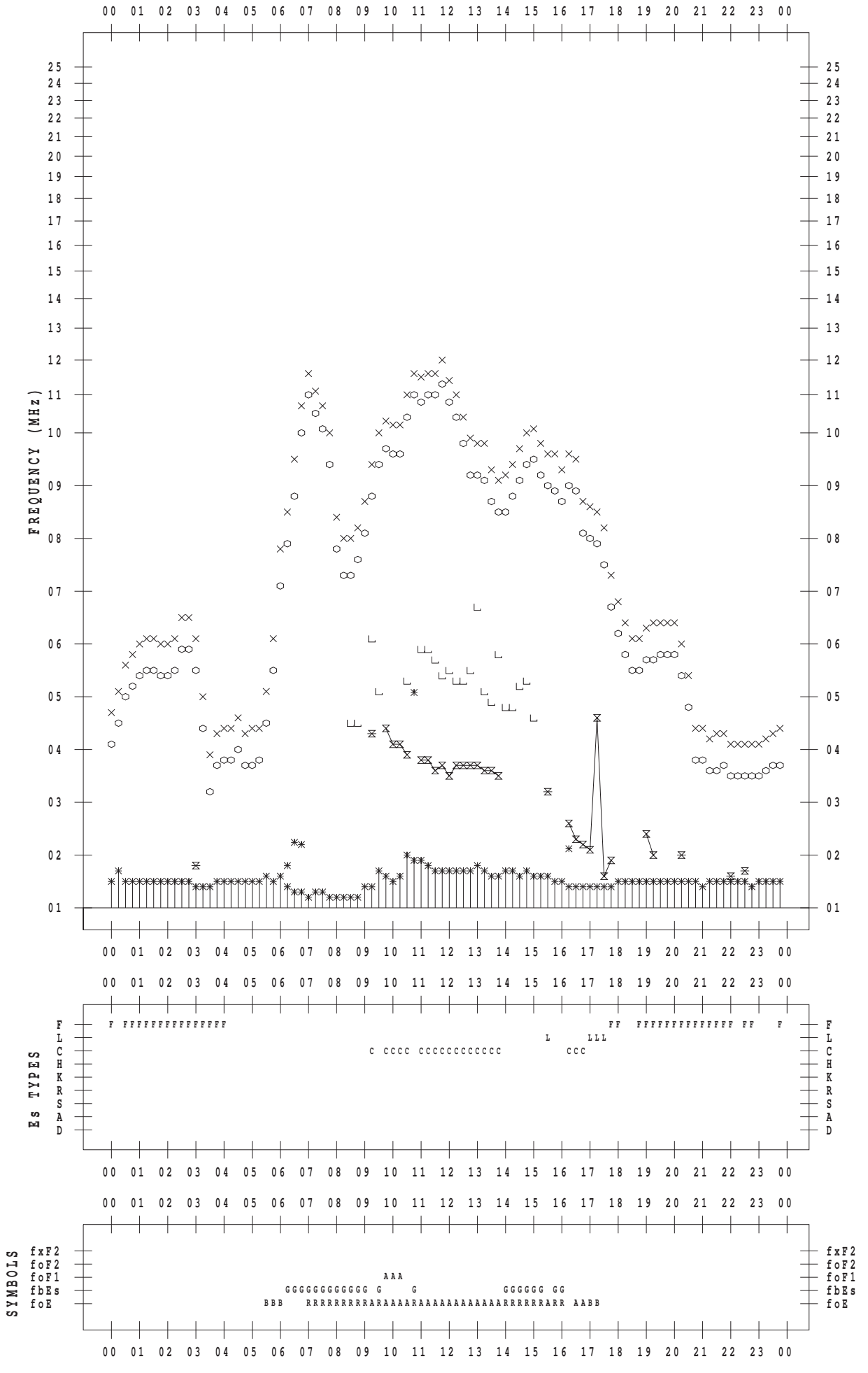
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/14

135 °E MEAN TIME



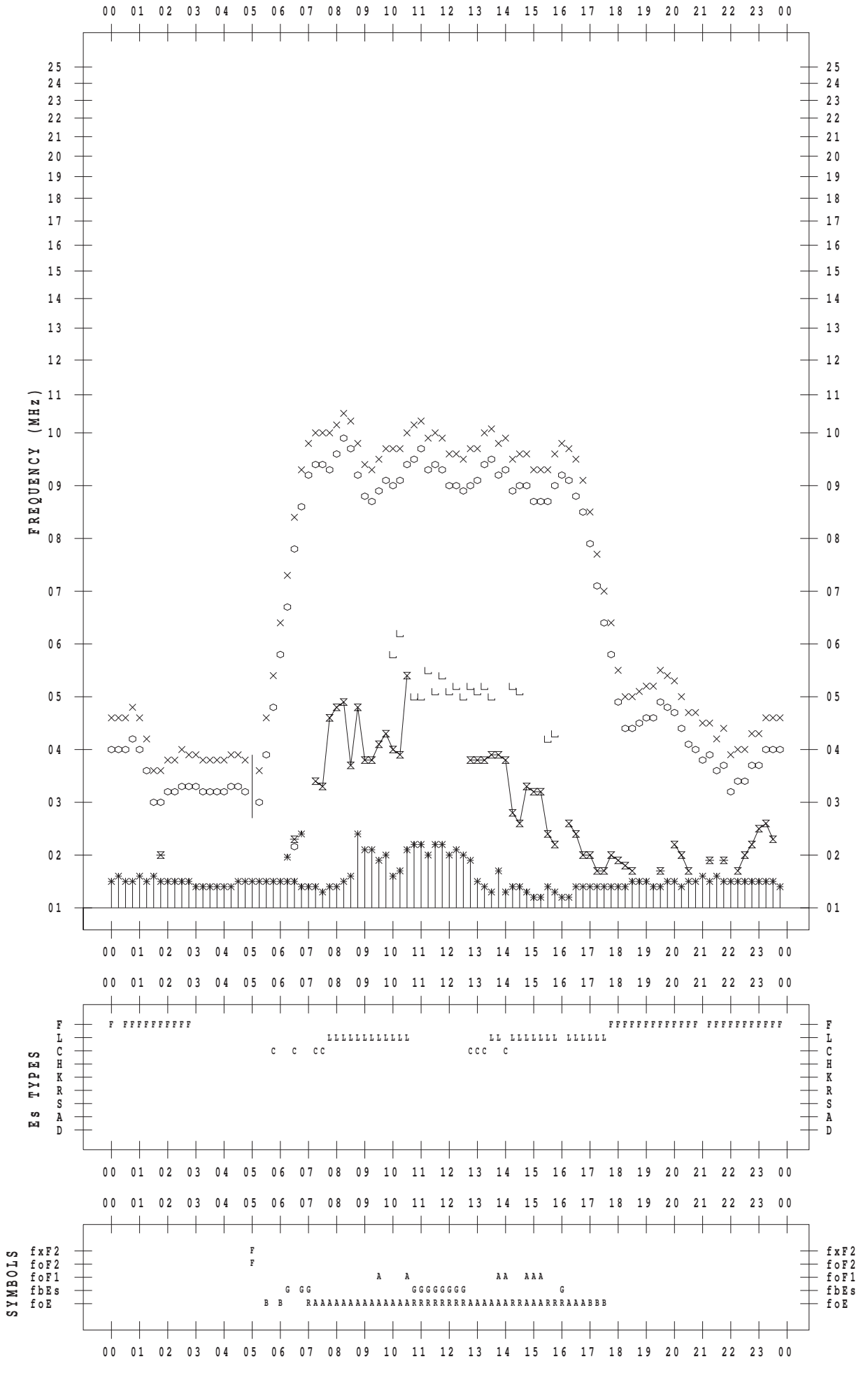
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/15

135 °E MEAN TIME

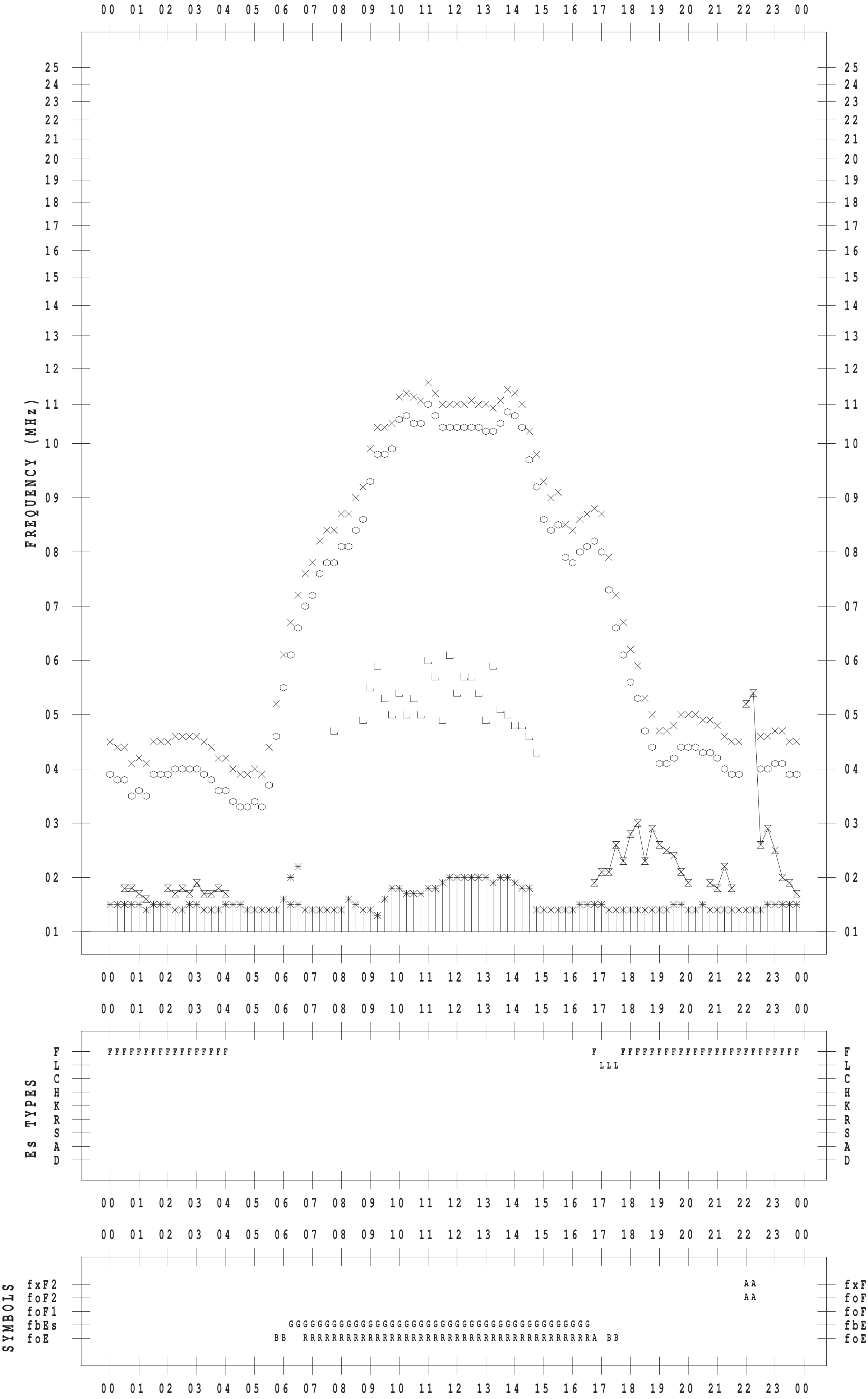


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2012/10/16

135 °E MEAN TIME



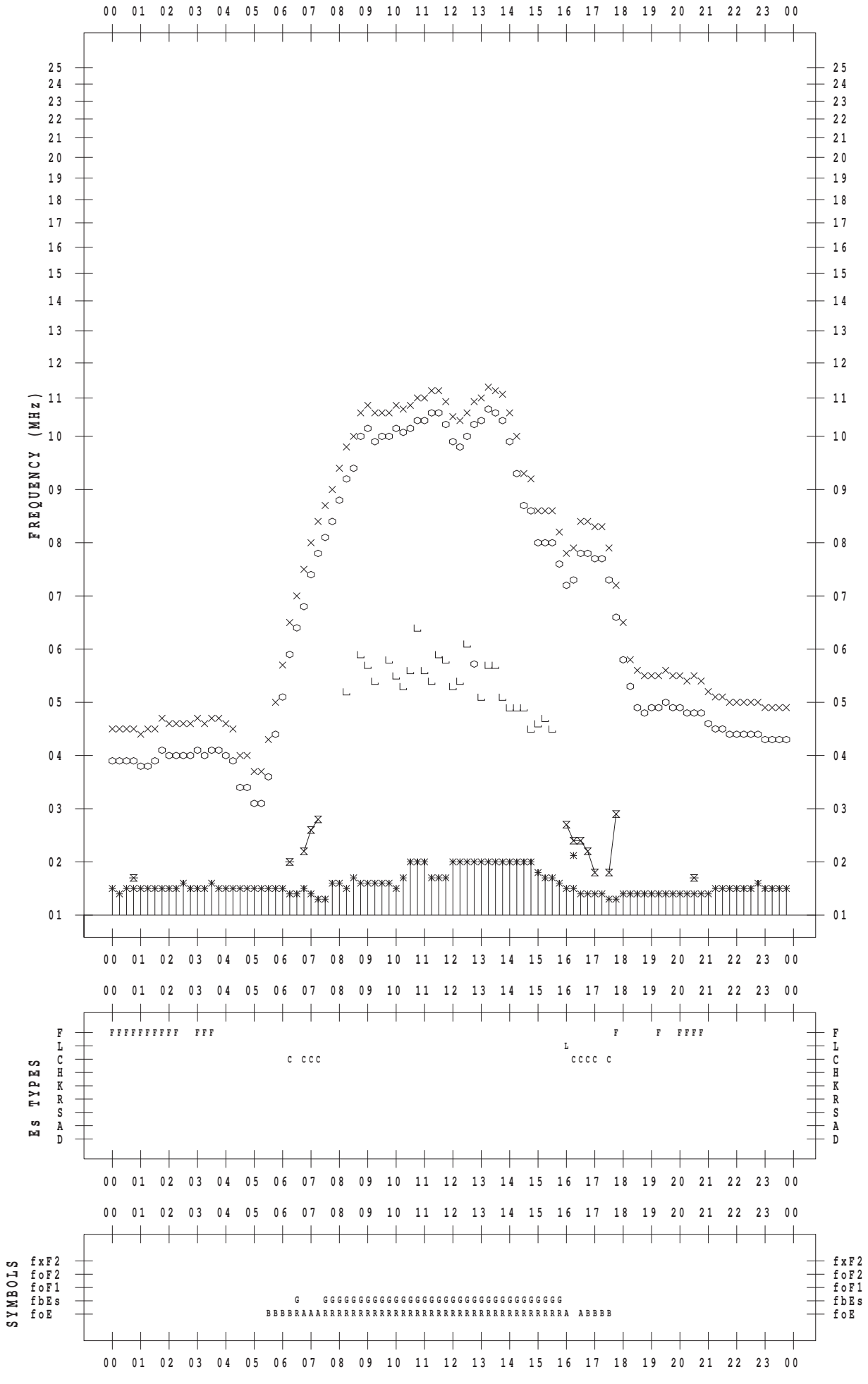
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/17

135 °E MEAN TIME



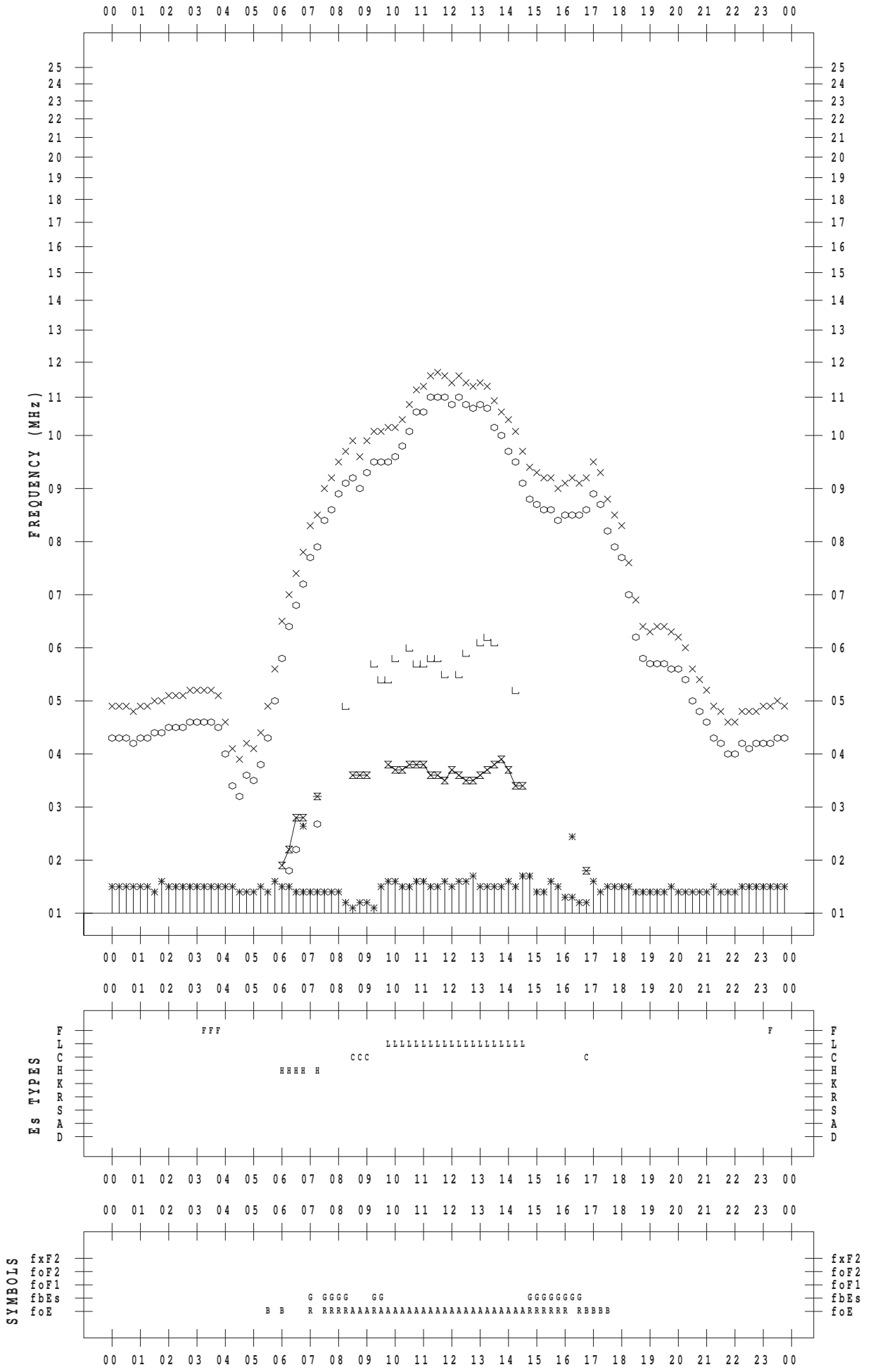
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/18

135 °E MEAN TIME



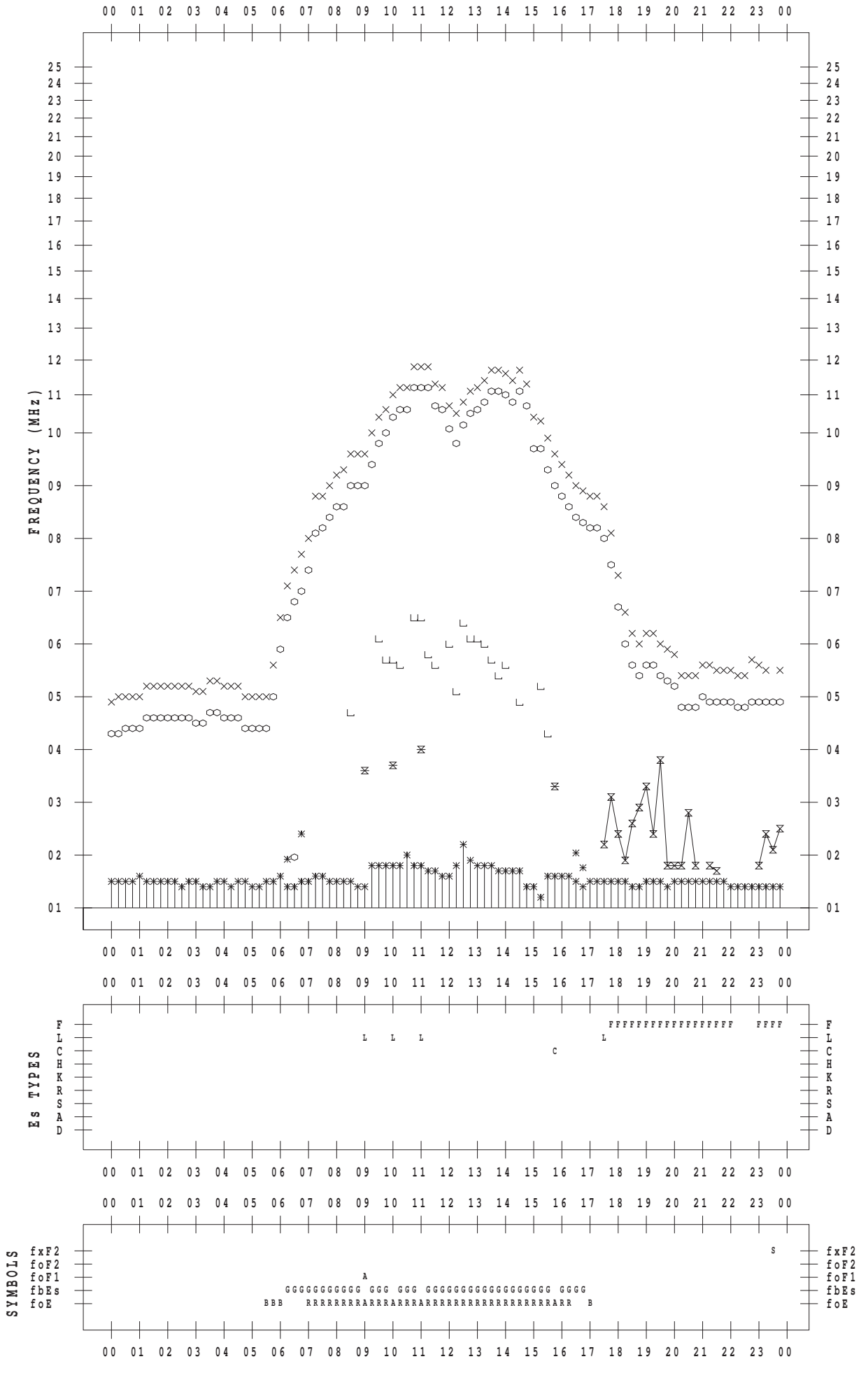
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/19

135 °E MEAN TIME



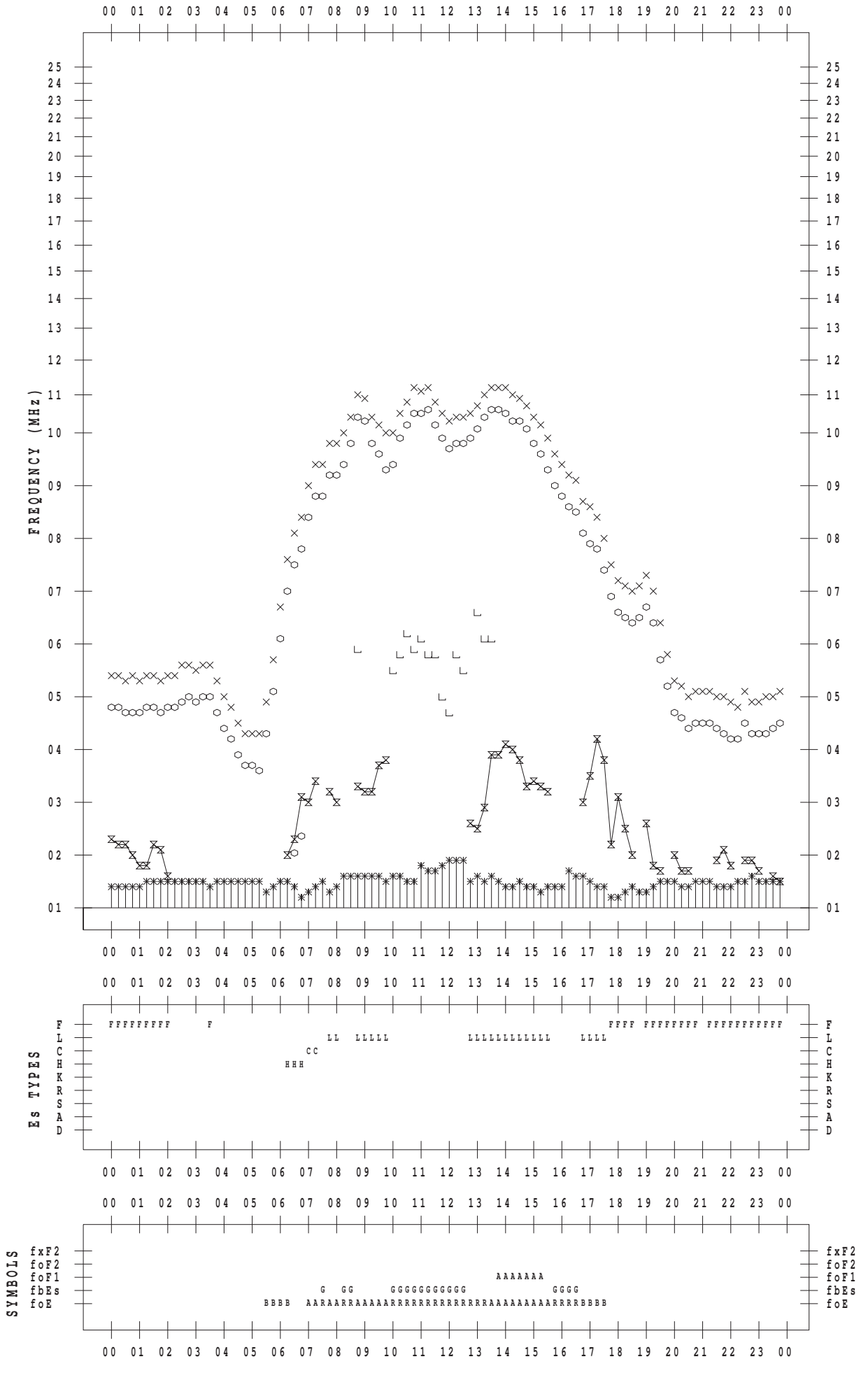
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/20

135 °E MEAN TIME



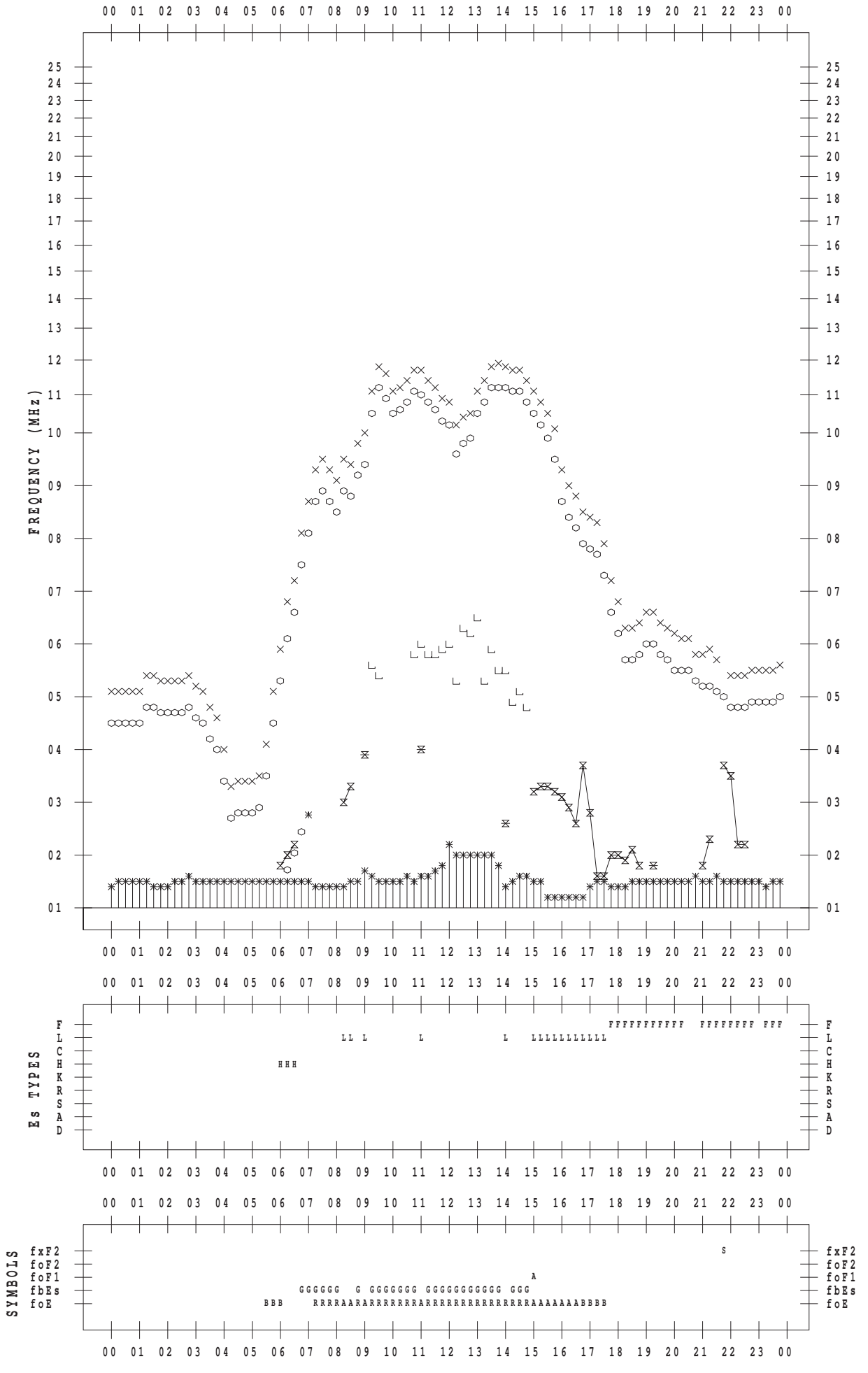
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/21

135 °E MEAN TIME



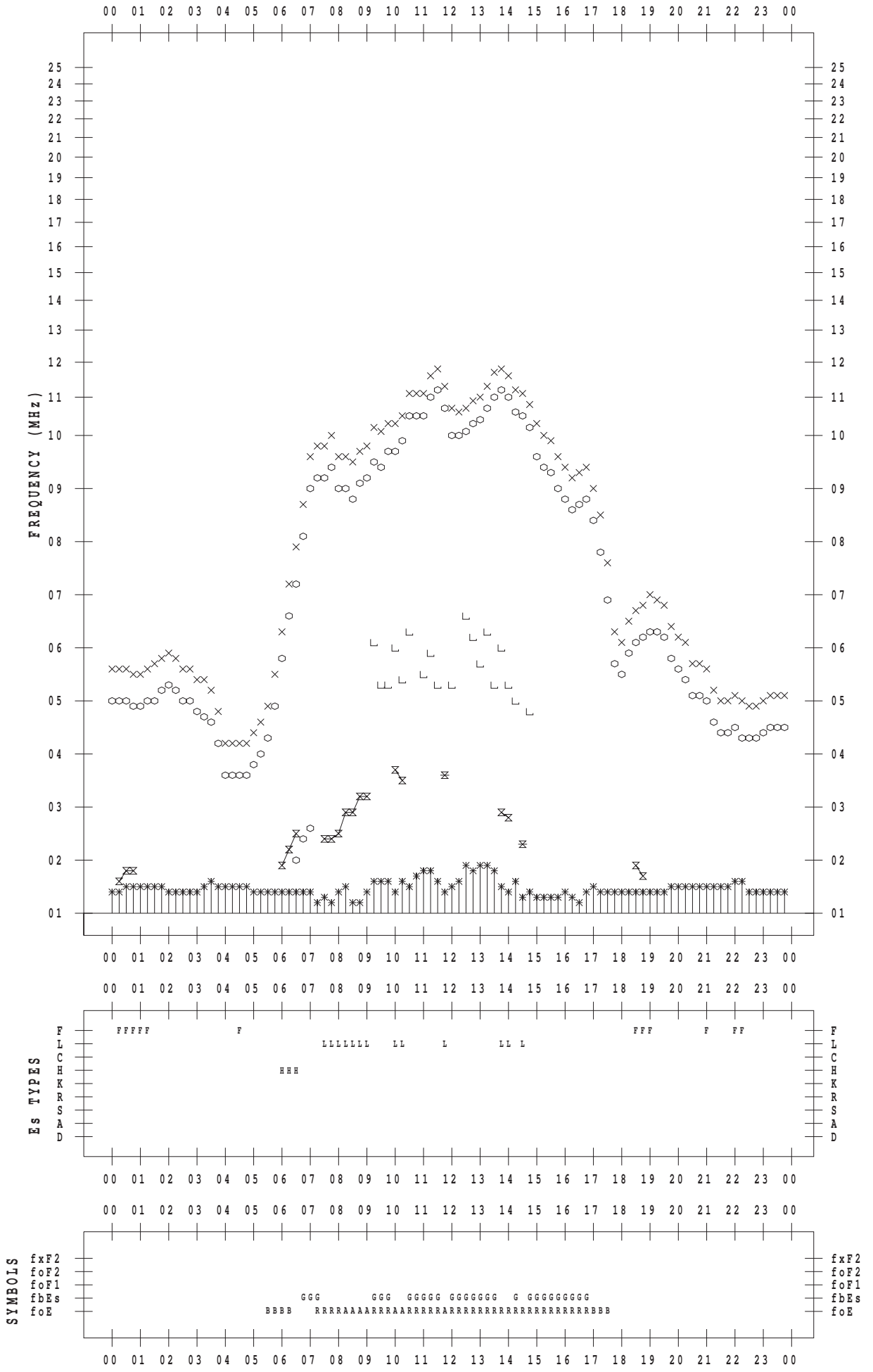
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/22

135 °E MEAN TIME



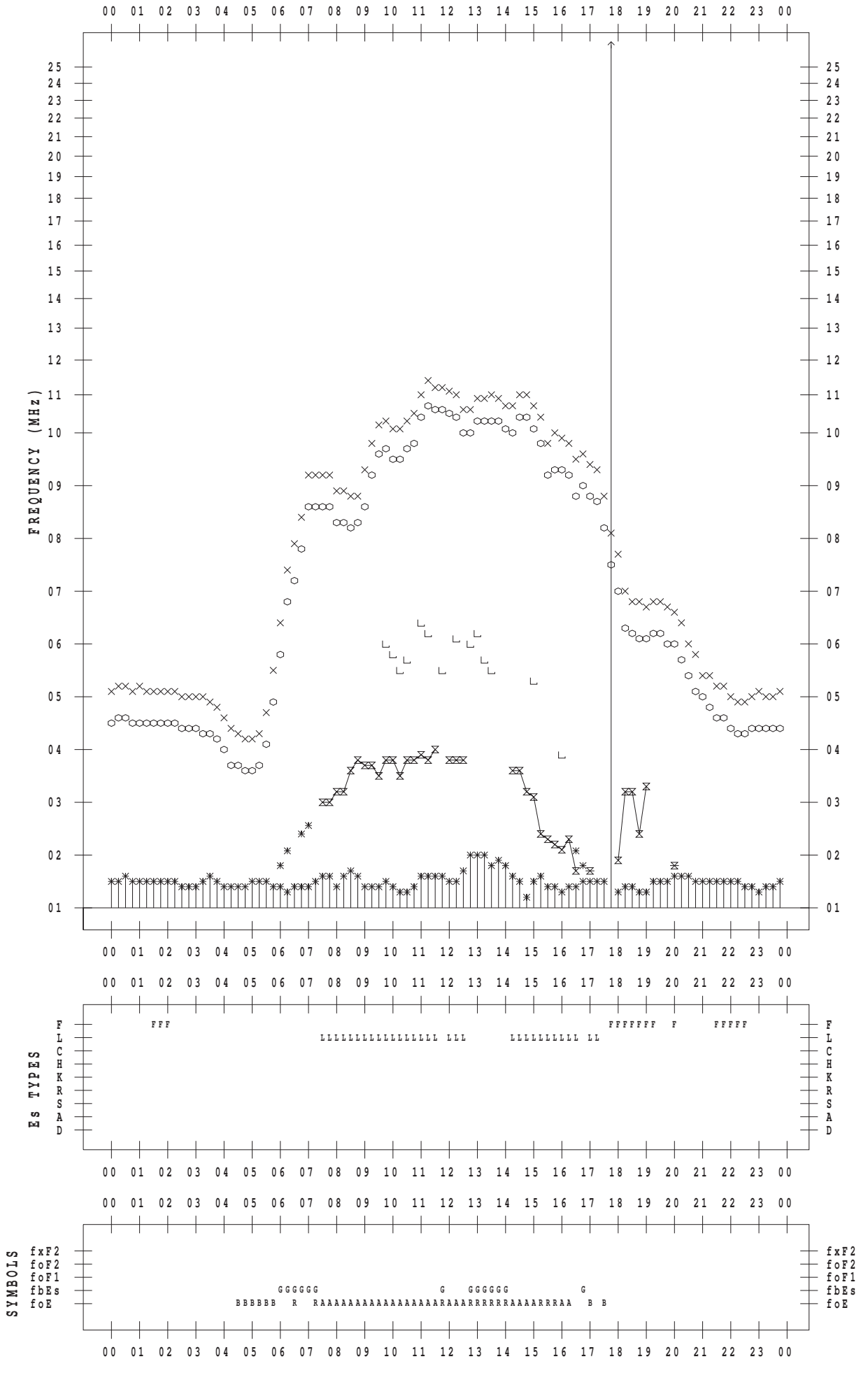
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/23

135 °E MEAN TIME



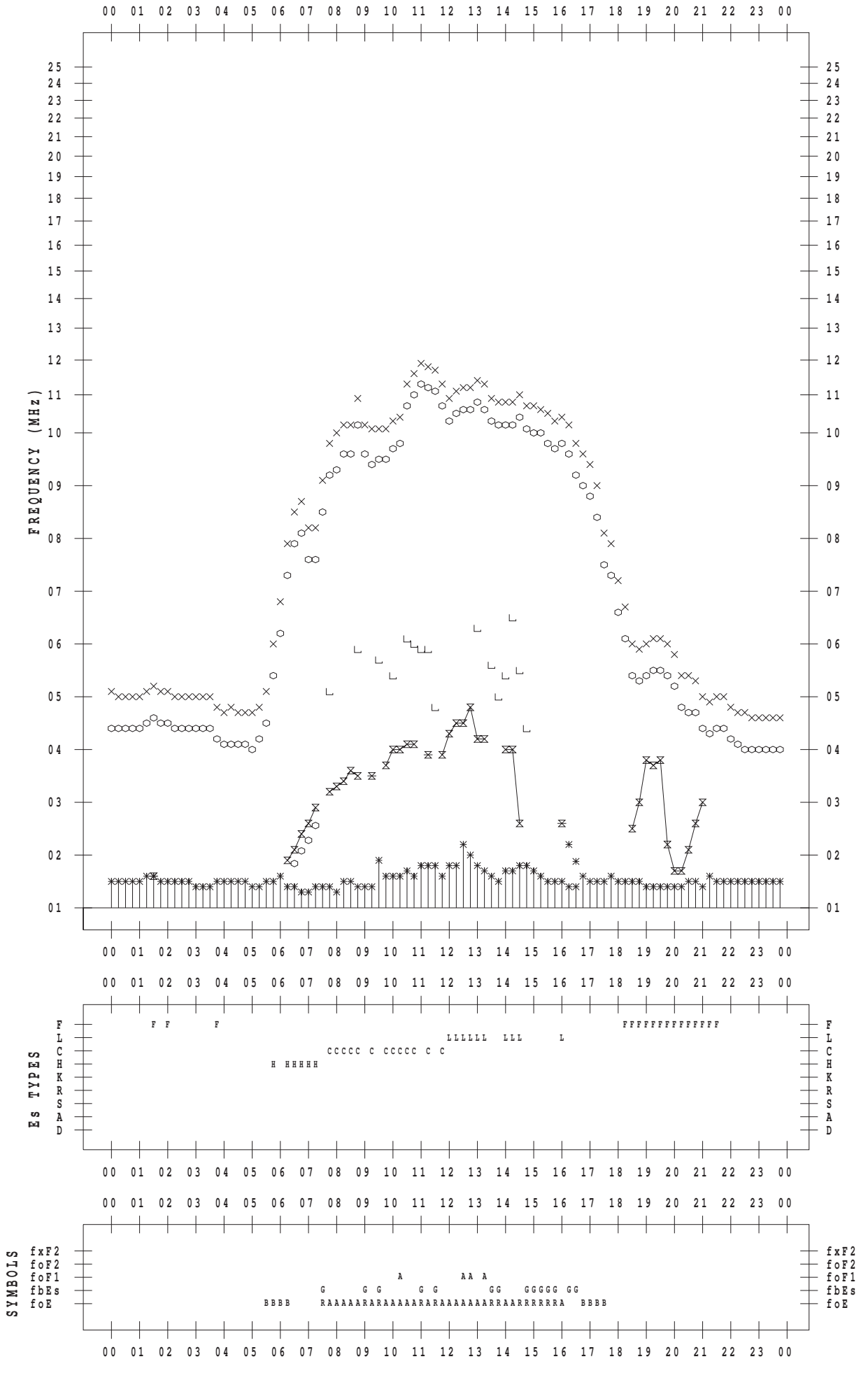
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/24

135 °E MEAN TIME



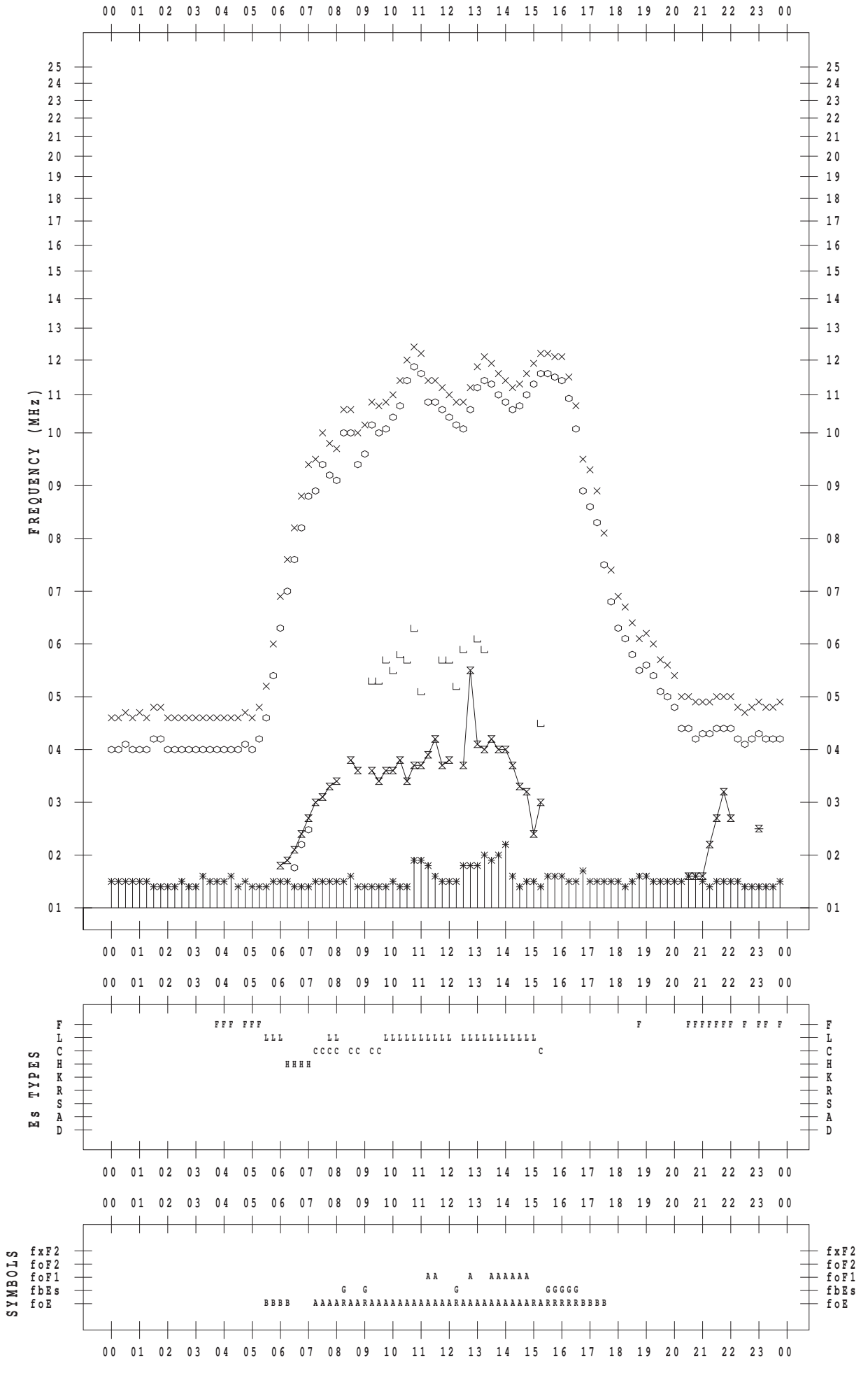
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/25

135 °E MEAN TIME



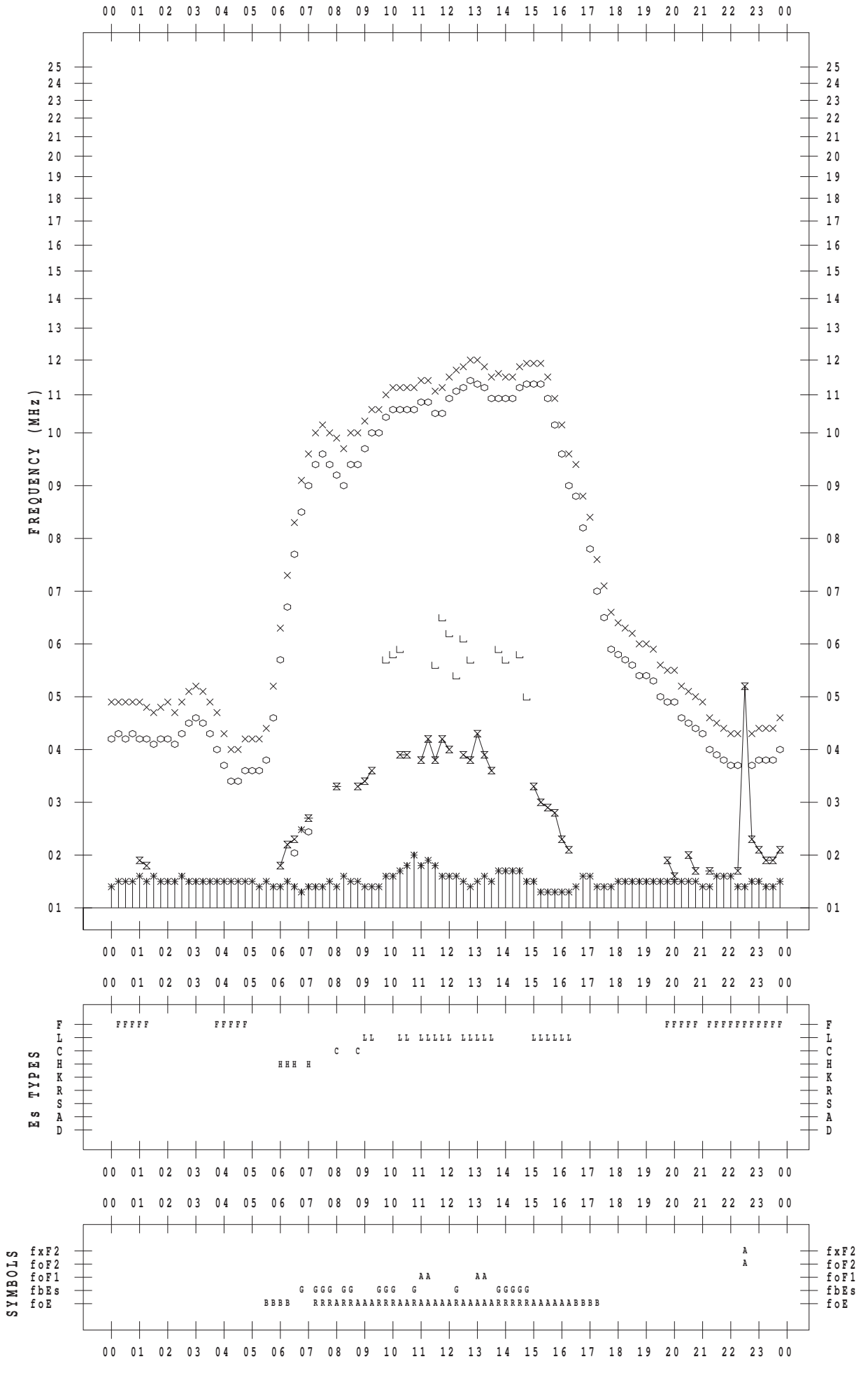
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/26

135 °E MEAN TIME



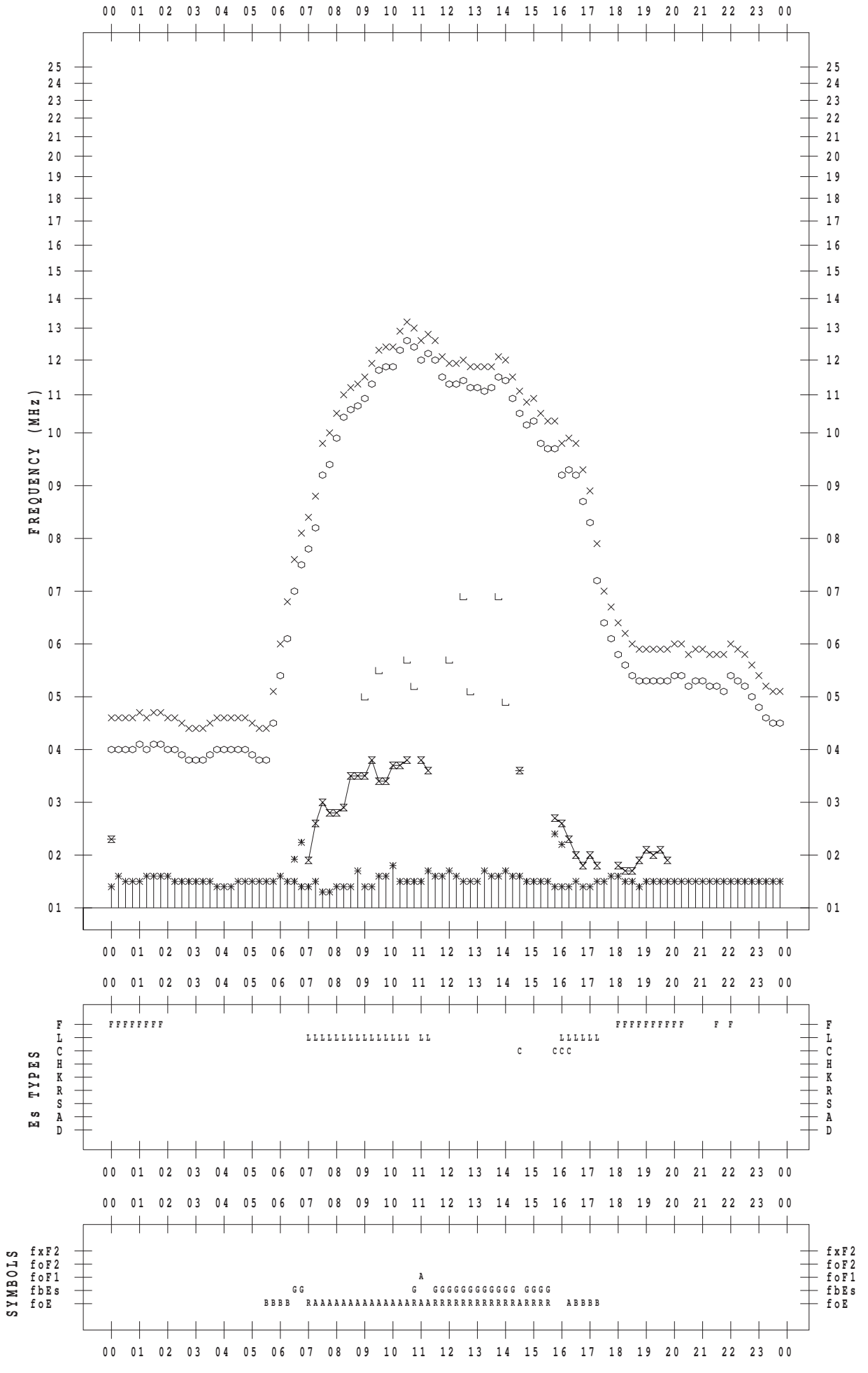
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/27

135 °E MEAN TIME



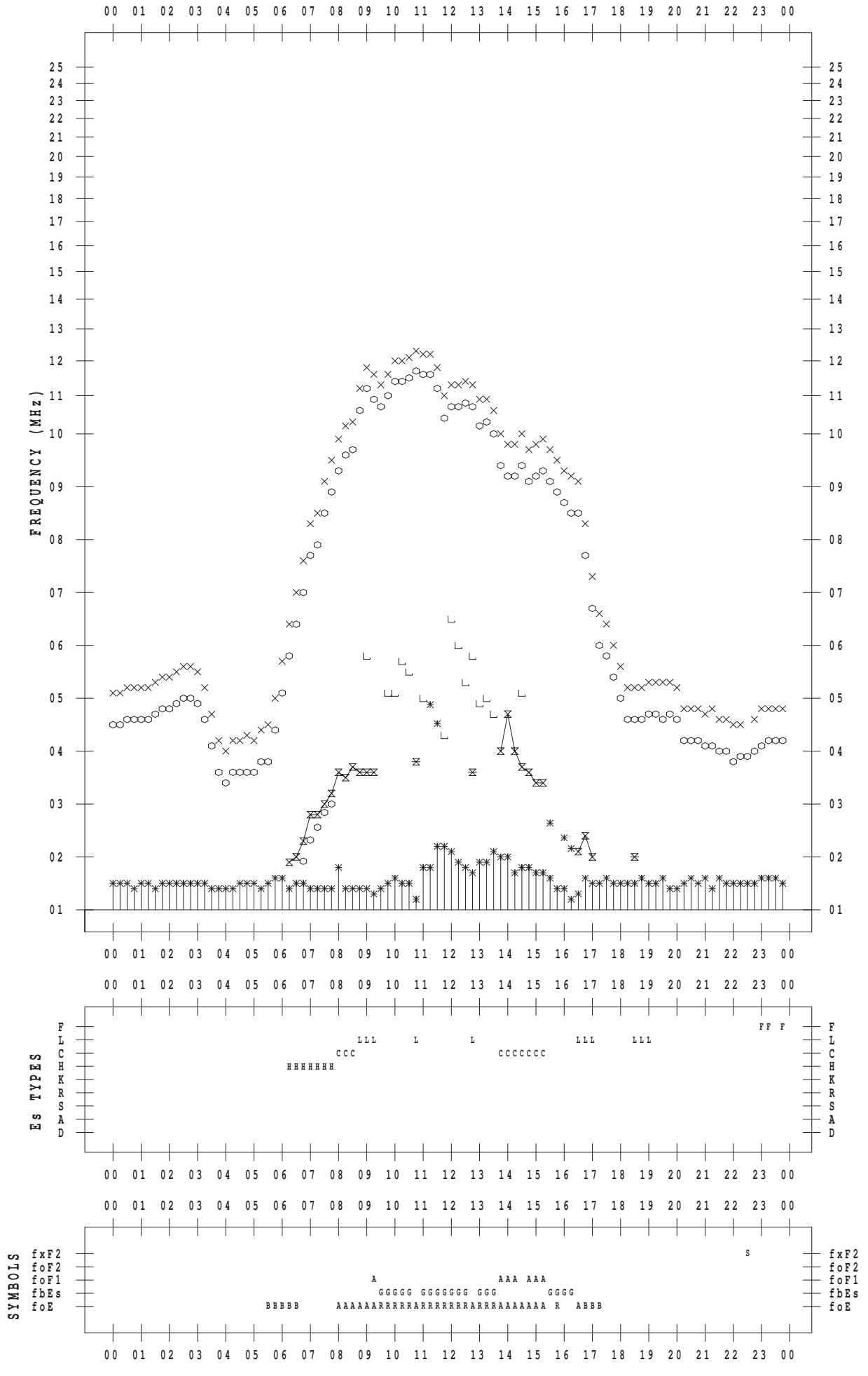
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/28

135 °E MEAN TIME



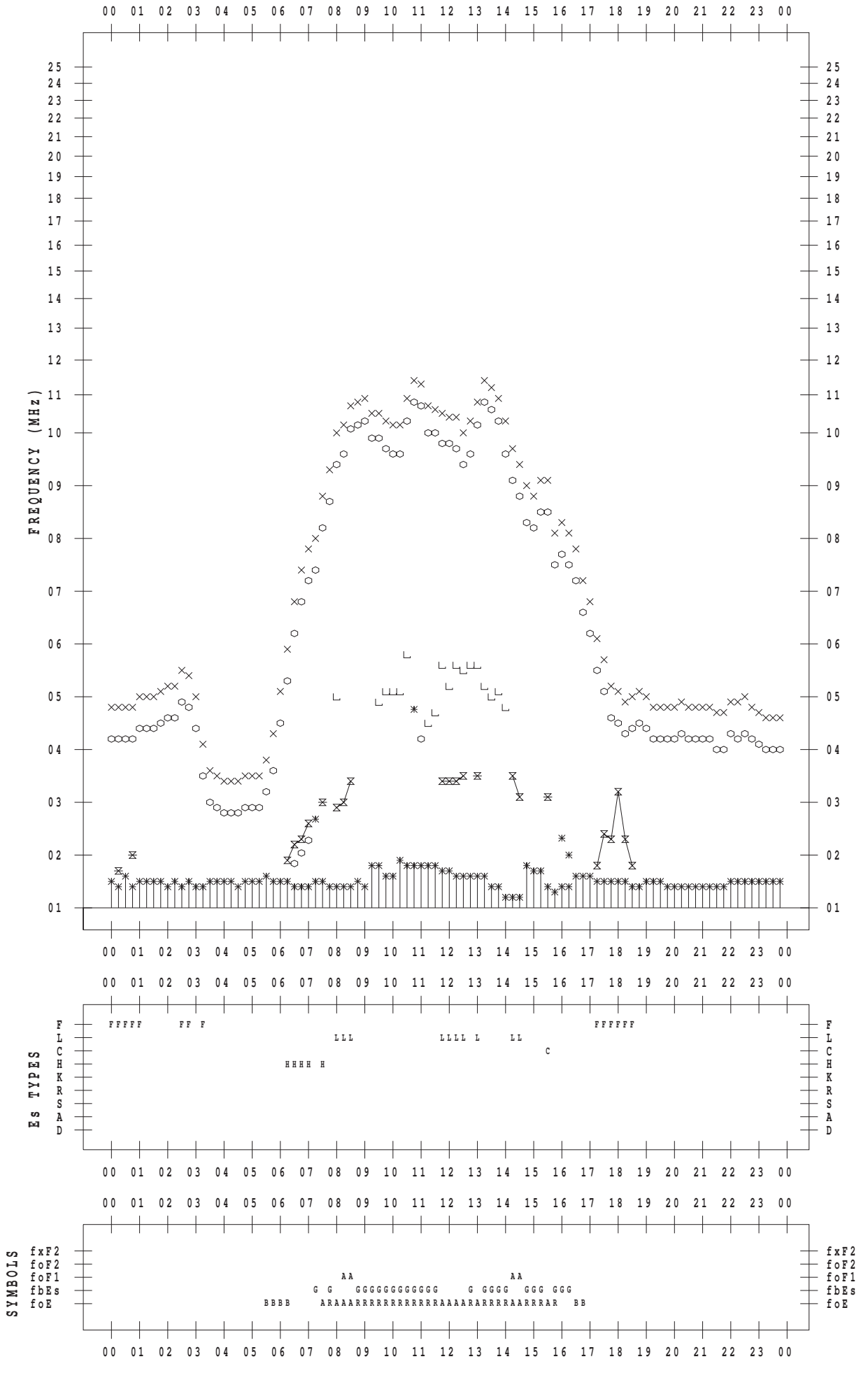
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/29

135 °E MEAN TIME



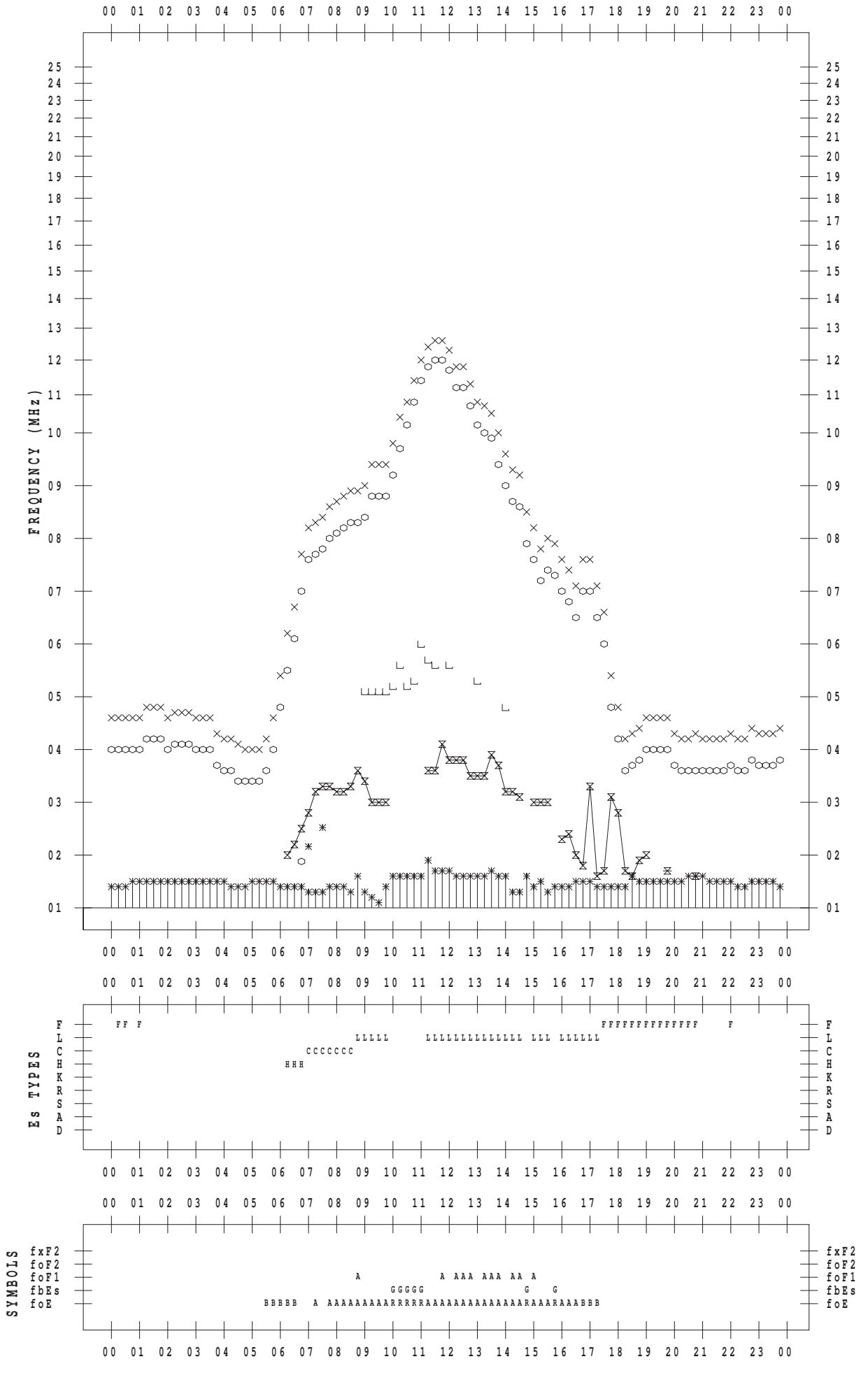
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/30

135 °E MEAN TIME



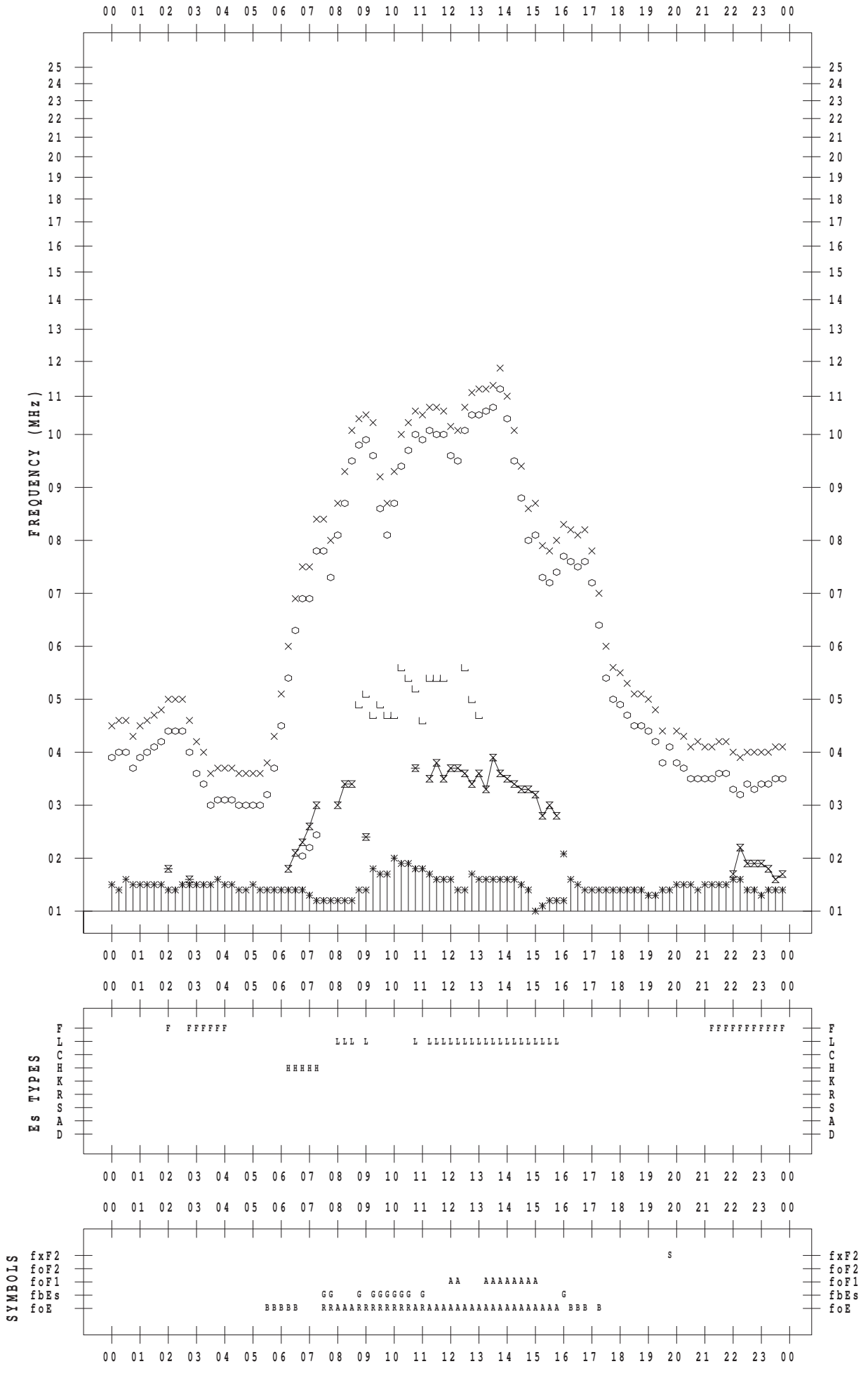
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/10/31

135 °E MEAN TIME



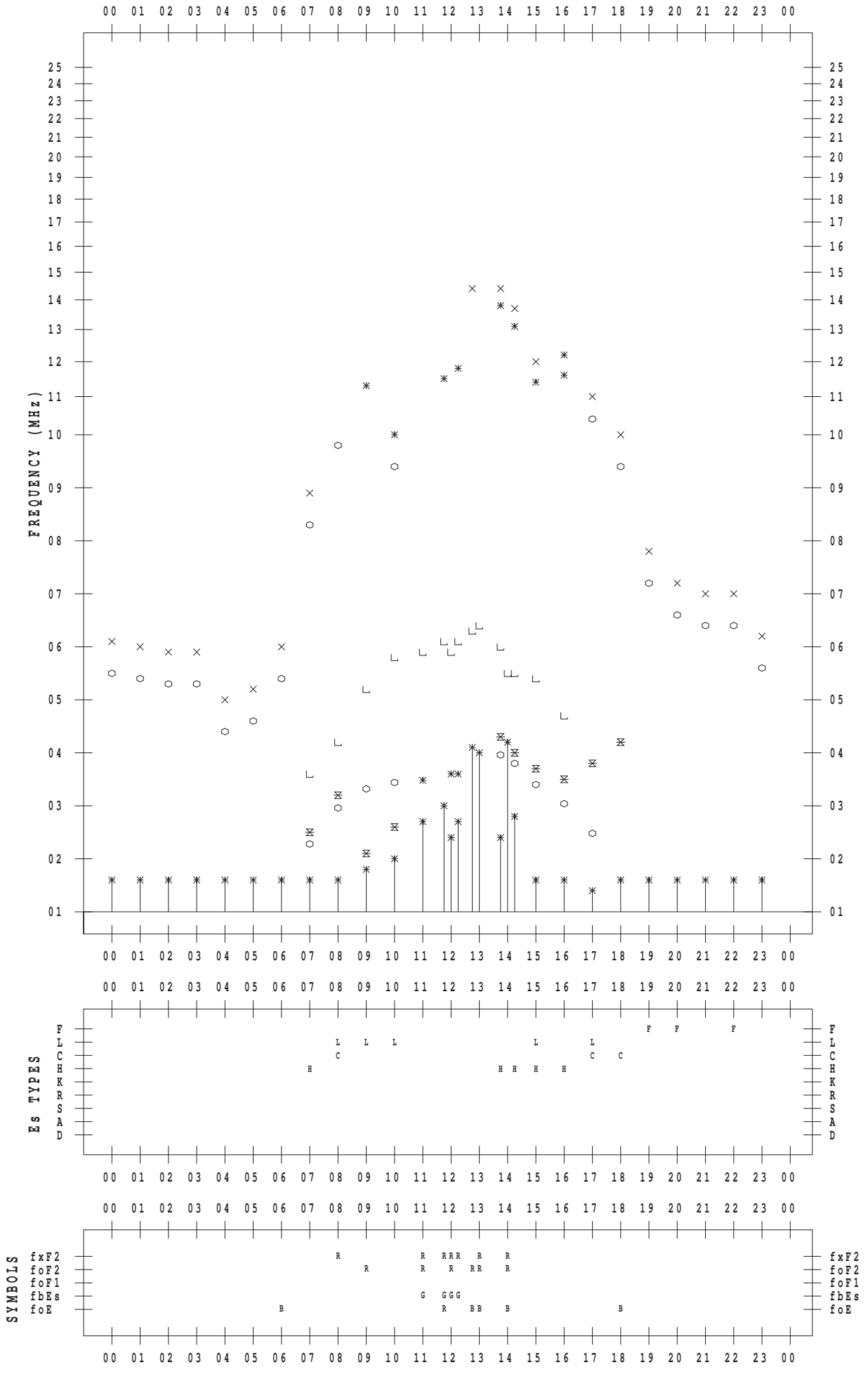
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/ 1

135 °E MEAN TIME



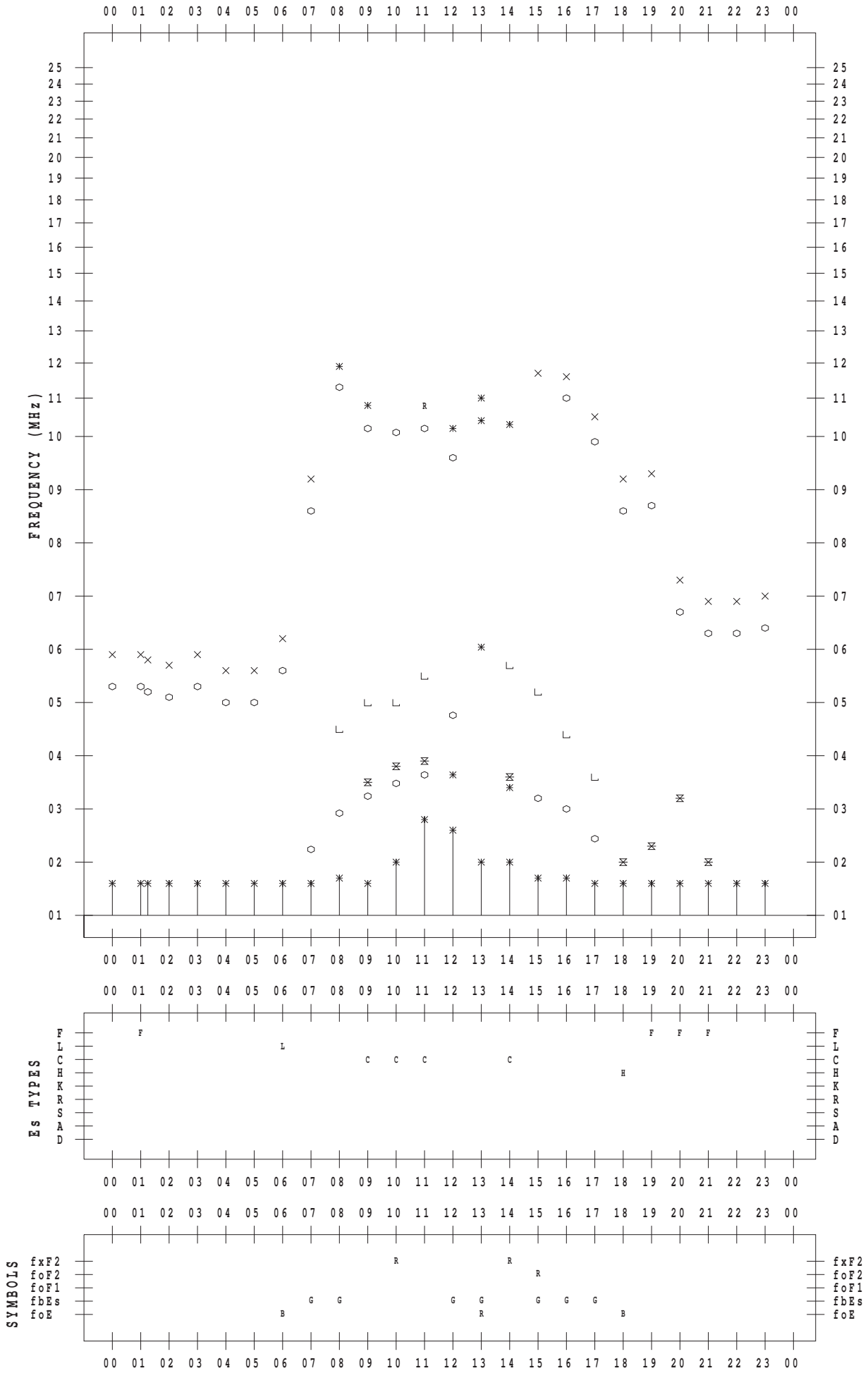
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/ 2

135 °E MEAN TIME



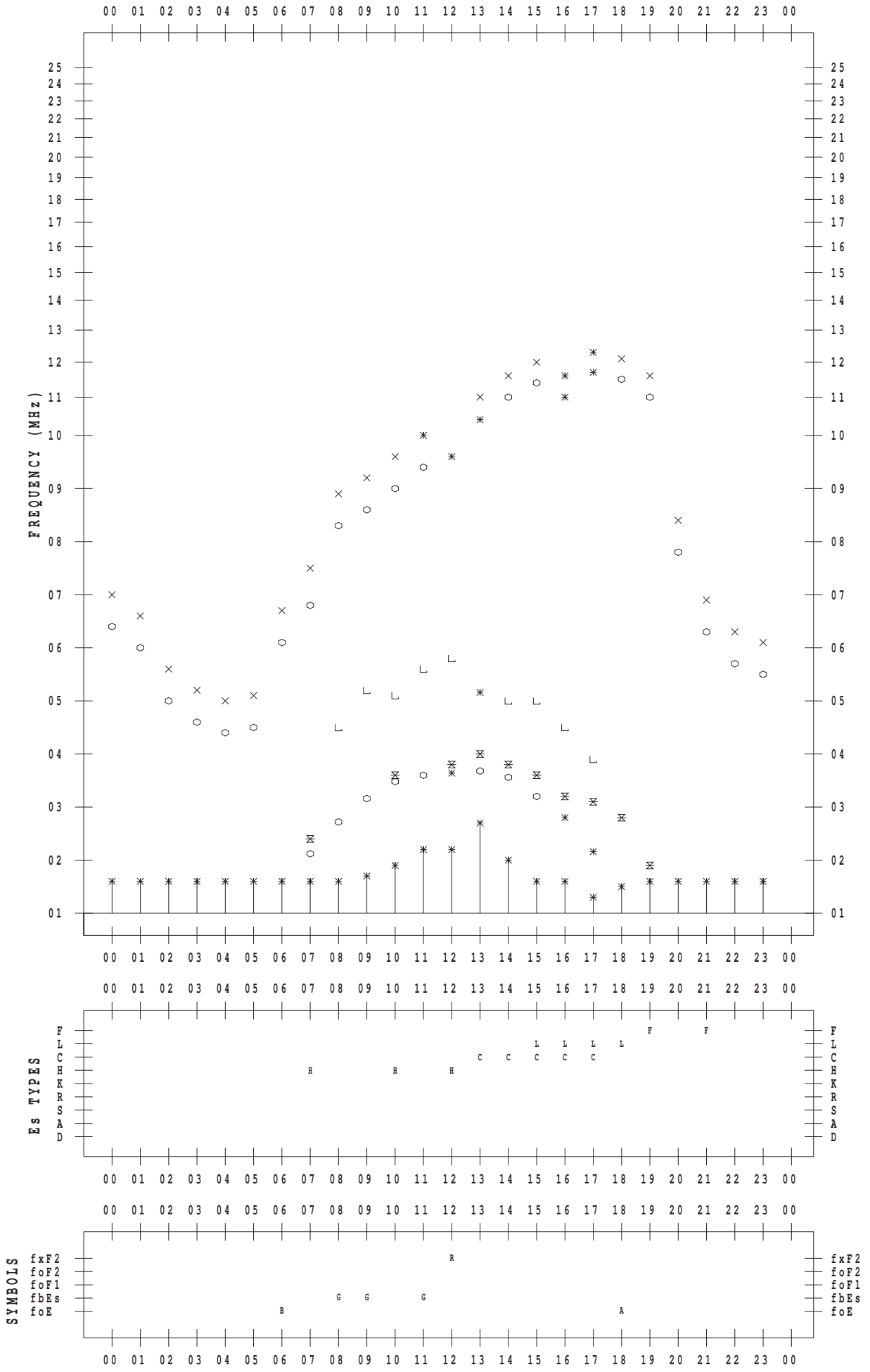
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/ 3

135 °E MEAN TIME



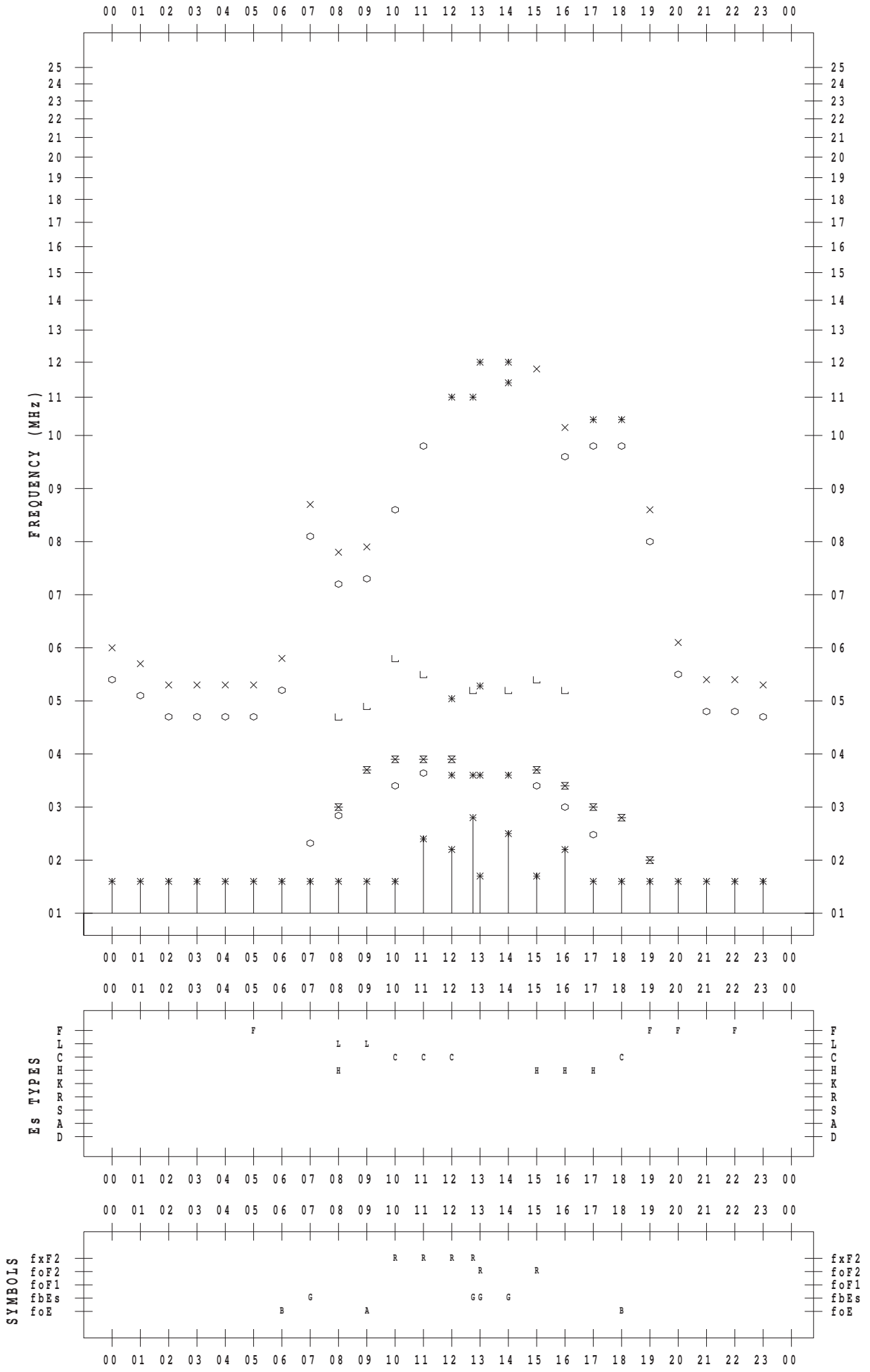
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/ 4

135 °E MEAN TIME



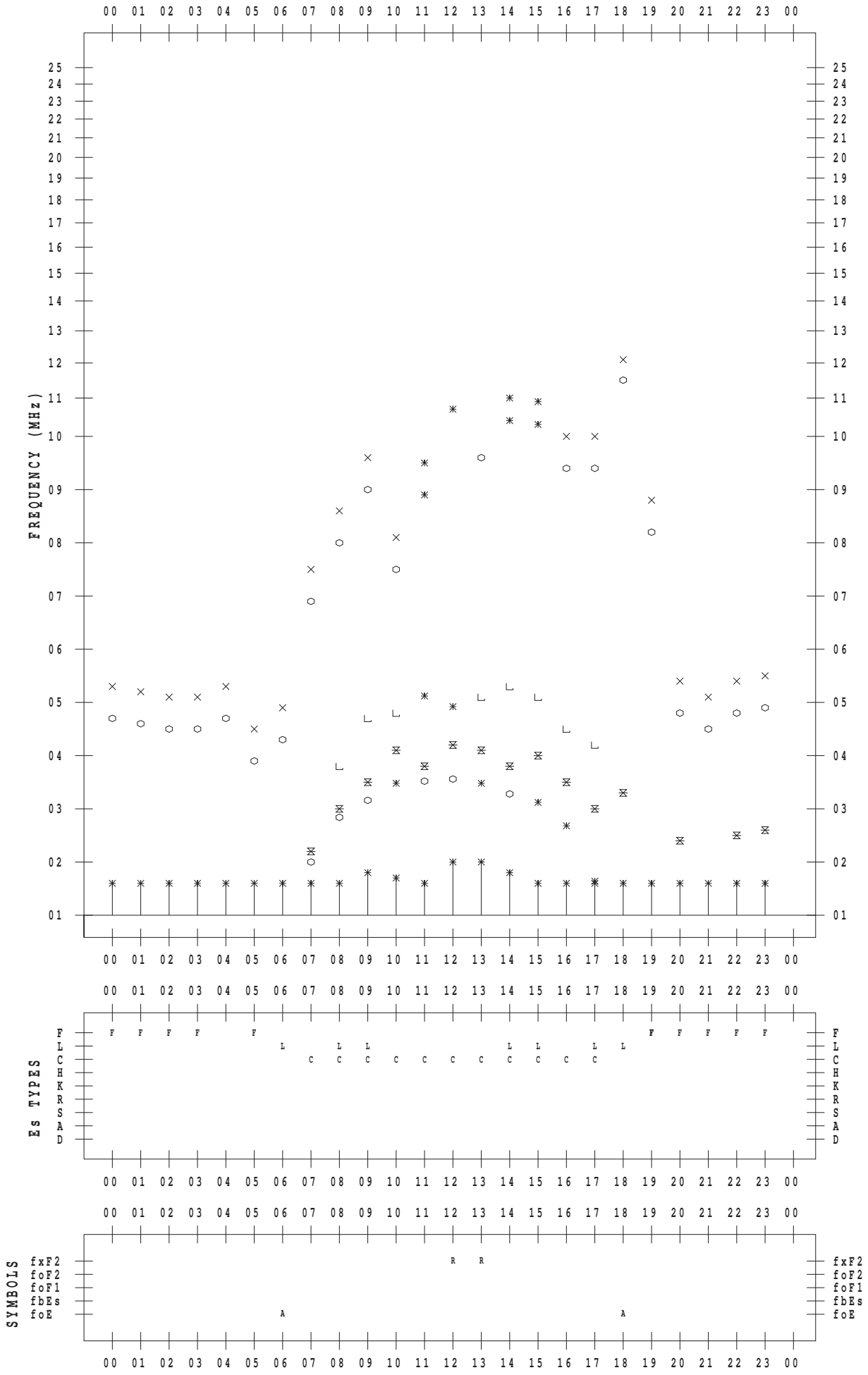
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/ 5

135 °E MEAN TIME



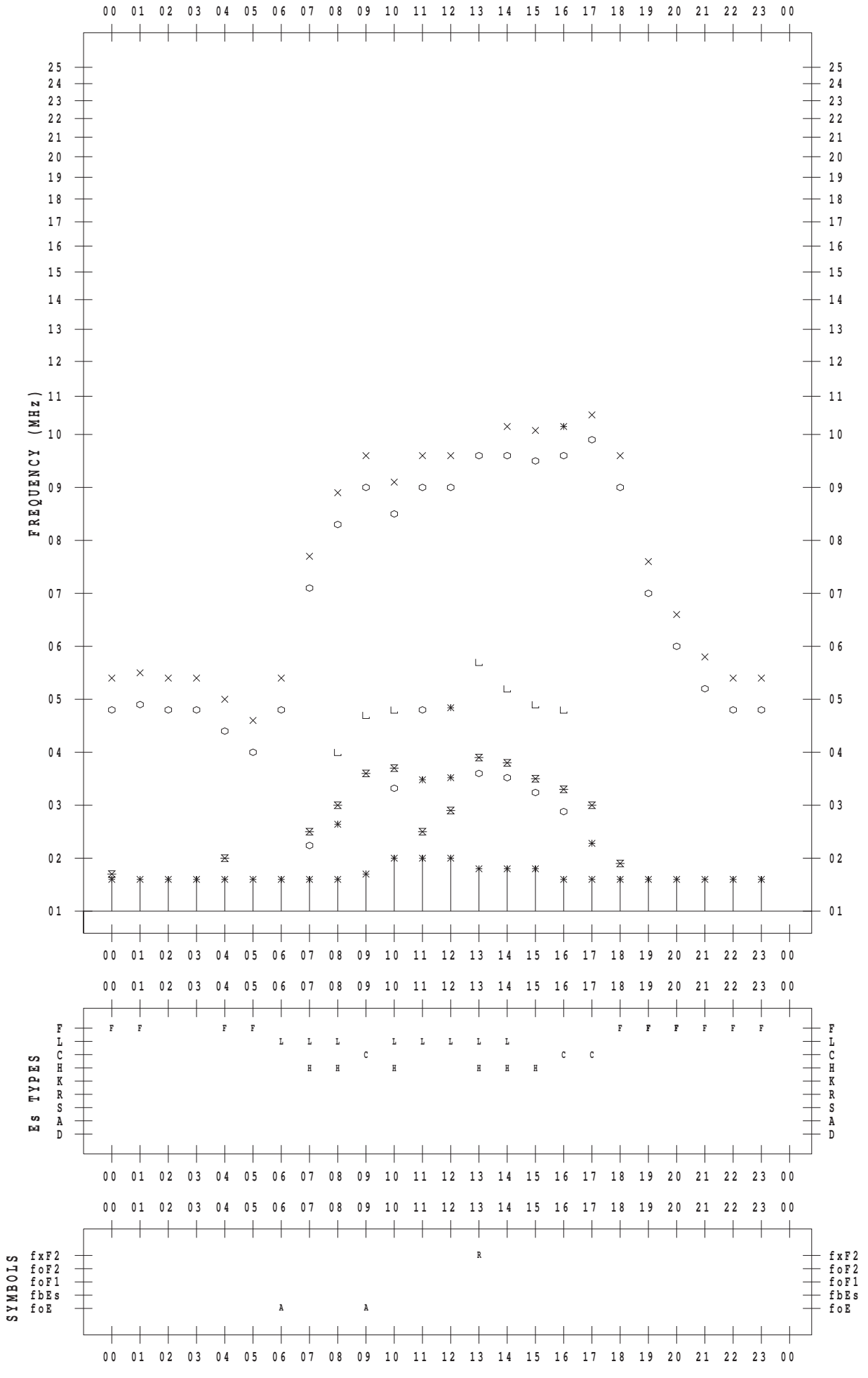
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/ 6

135 °E MEAN TIME



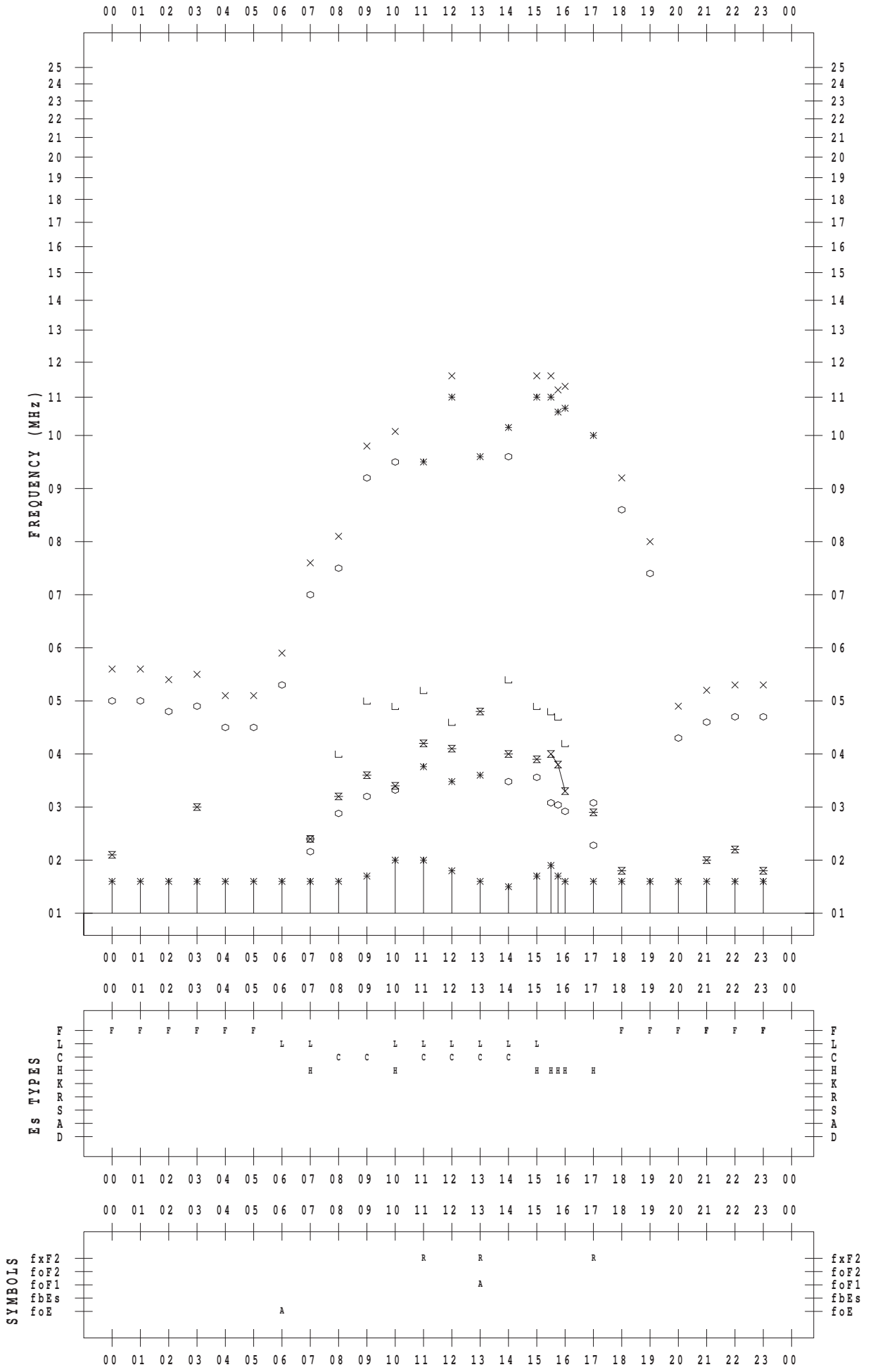
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/ 7

135 °E MEAN TIME



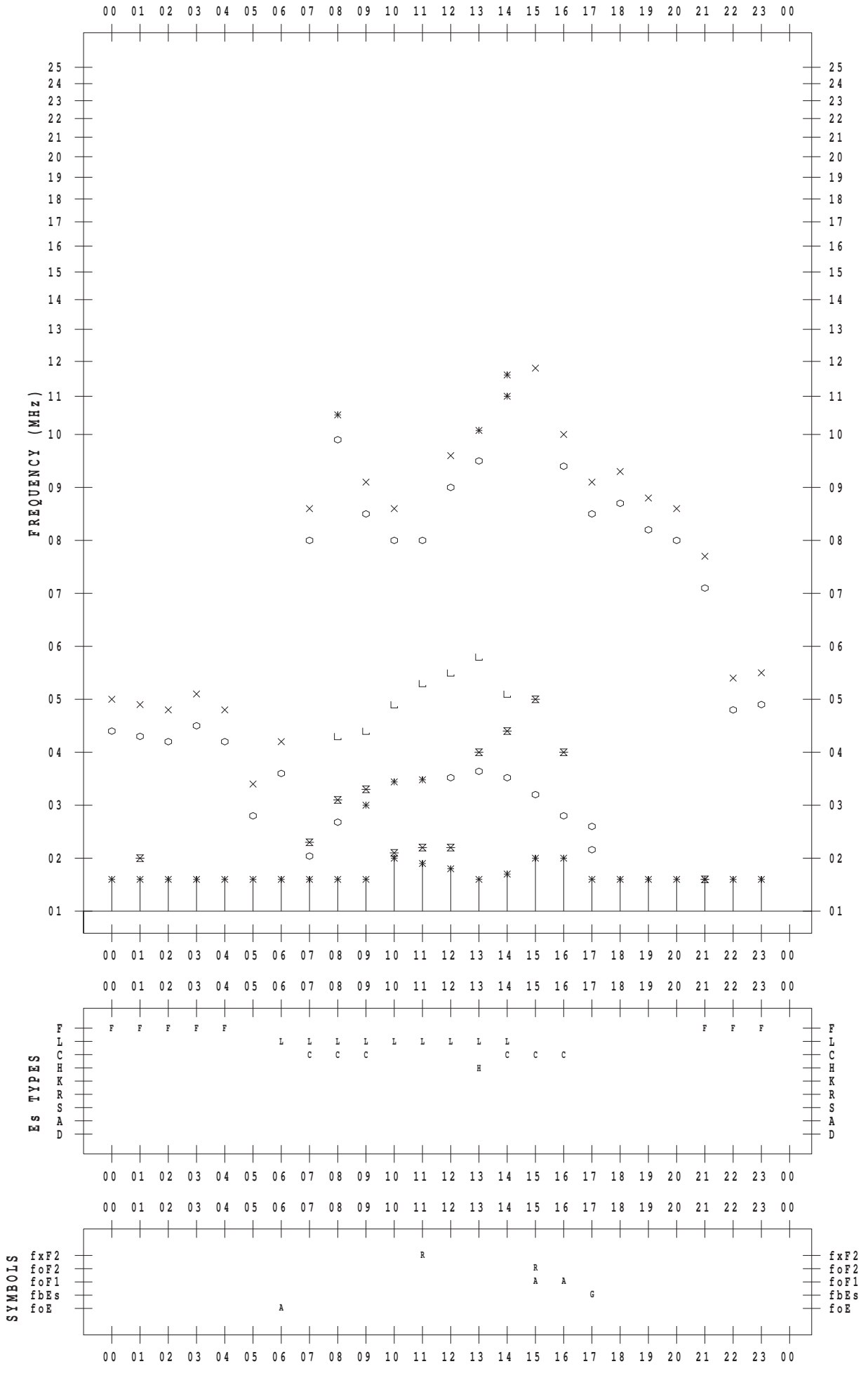
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/ 8

135 °E MEAN TIME



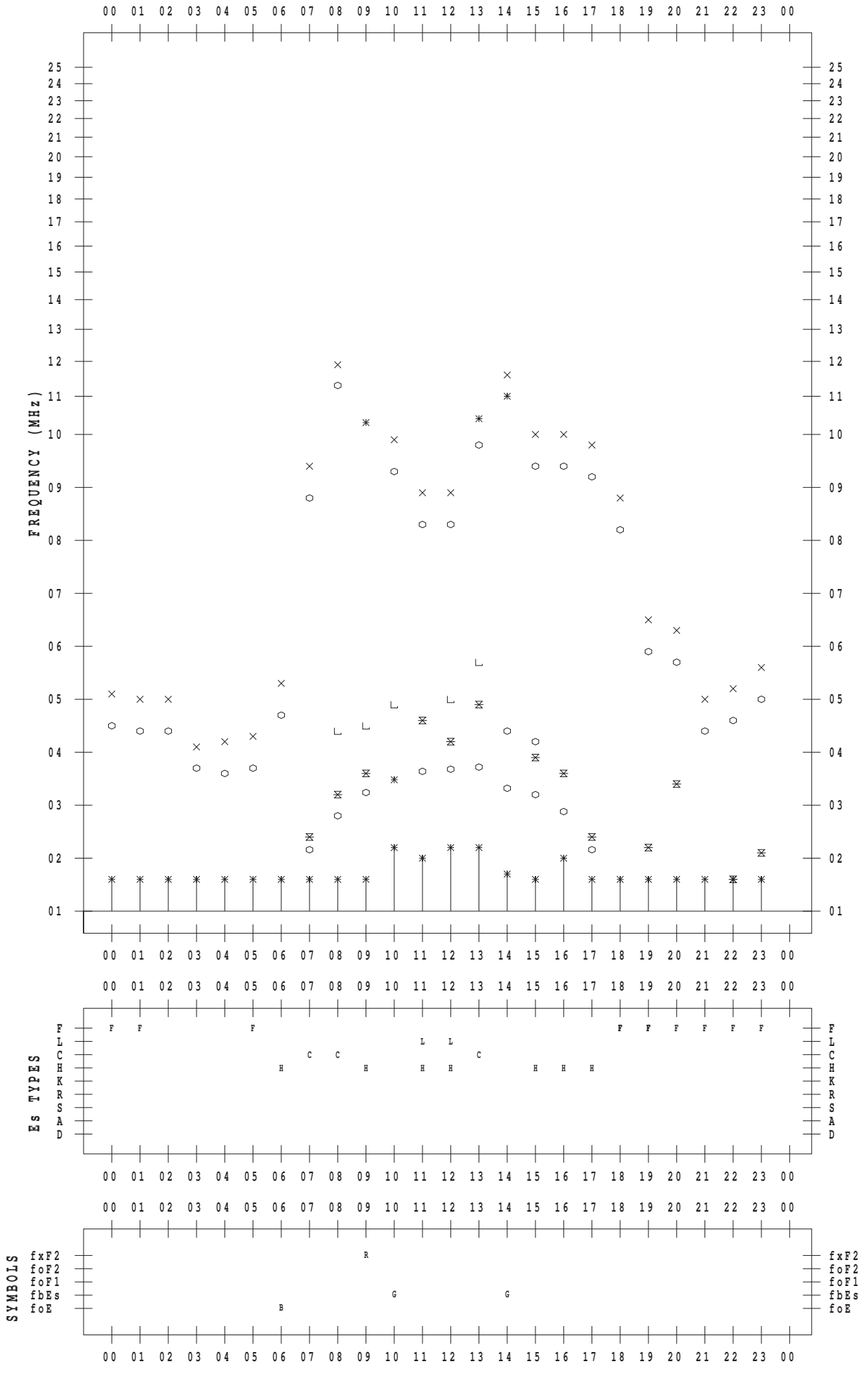
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/ 9

135 °E MEAN TIME



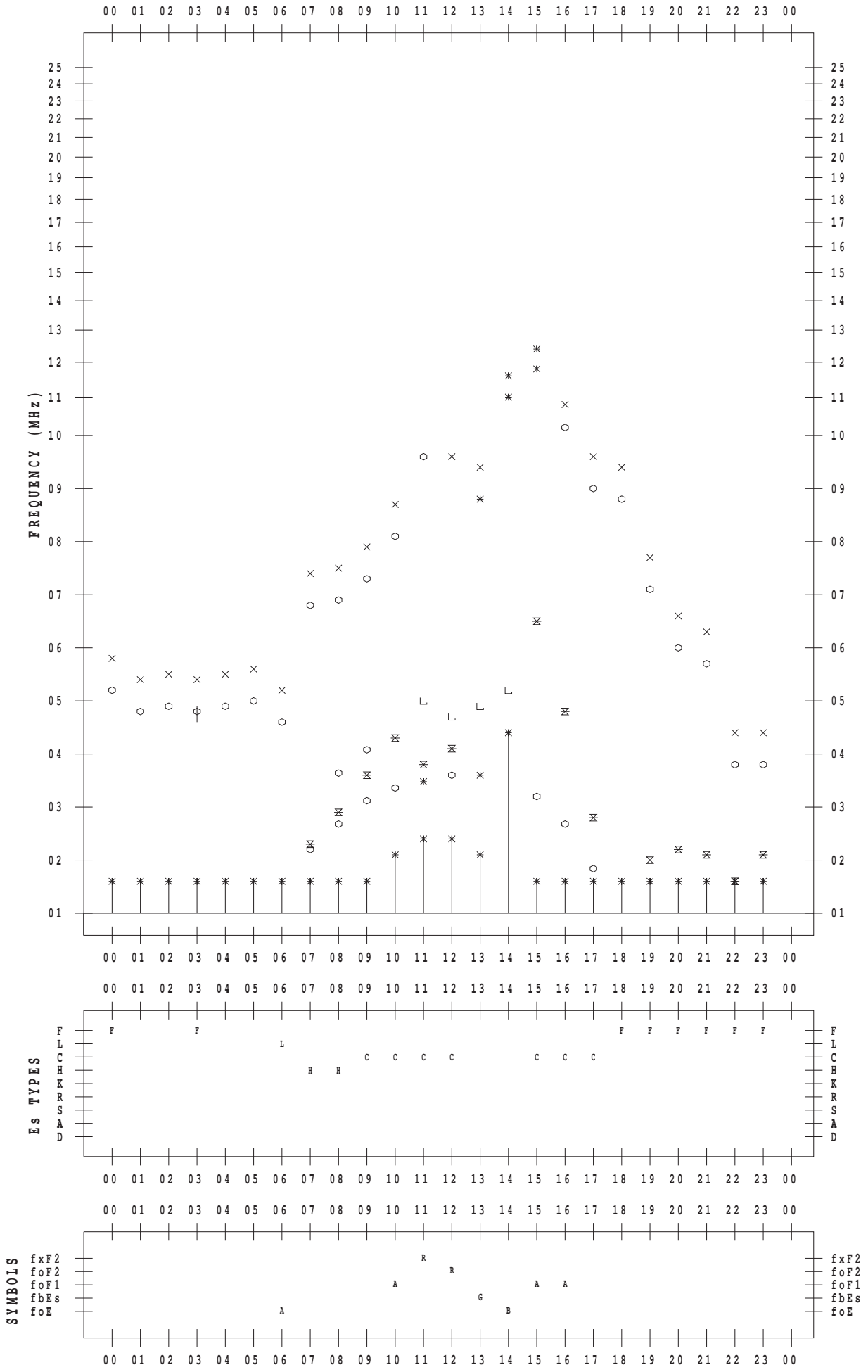
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/10

135 °E MEAN TIME



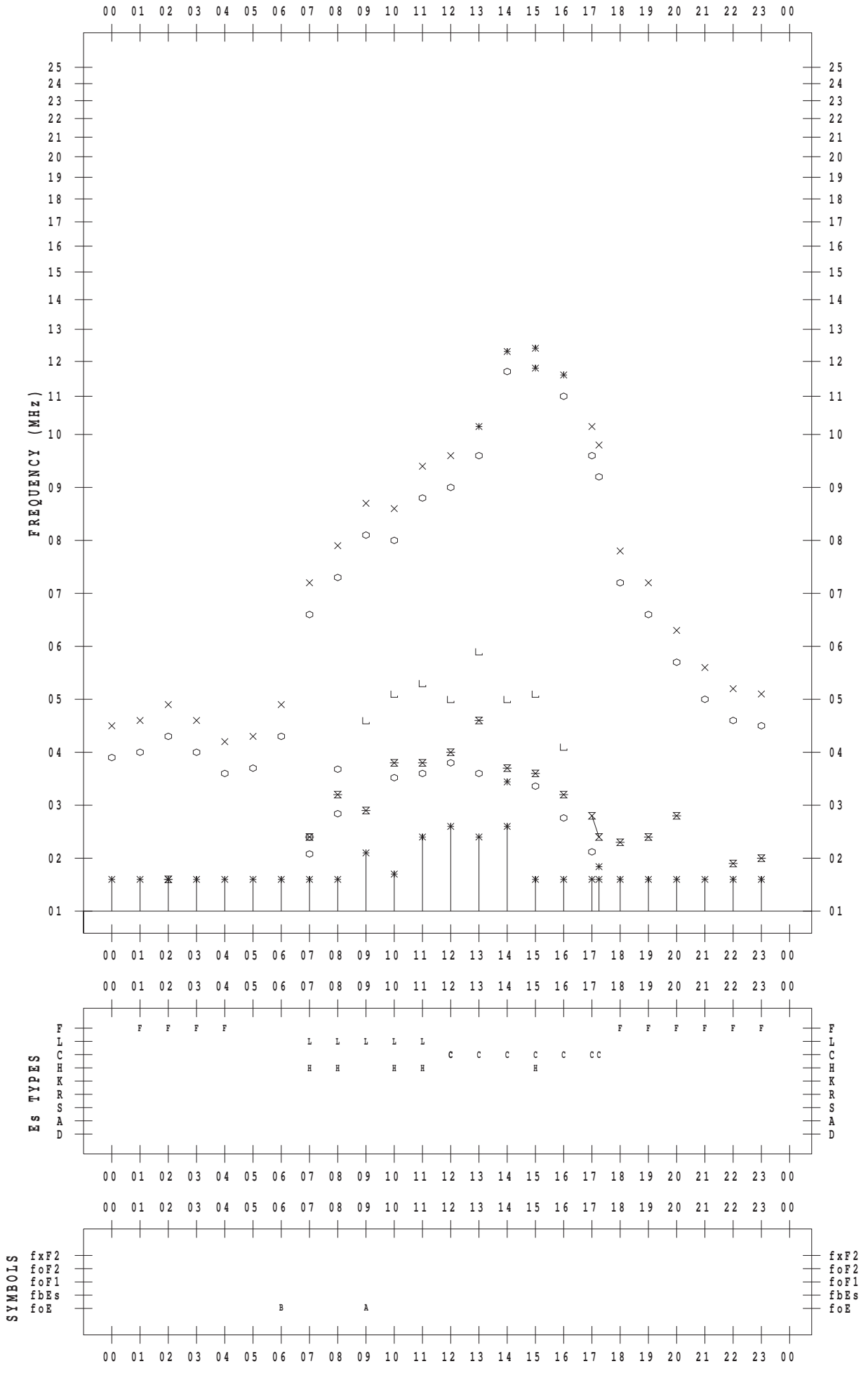
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/11

135 °E MEAN TIME



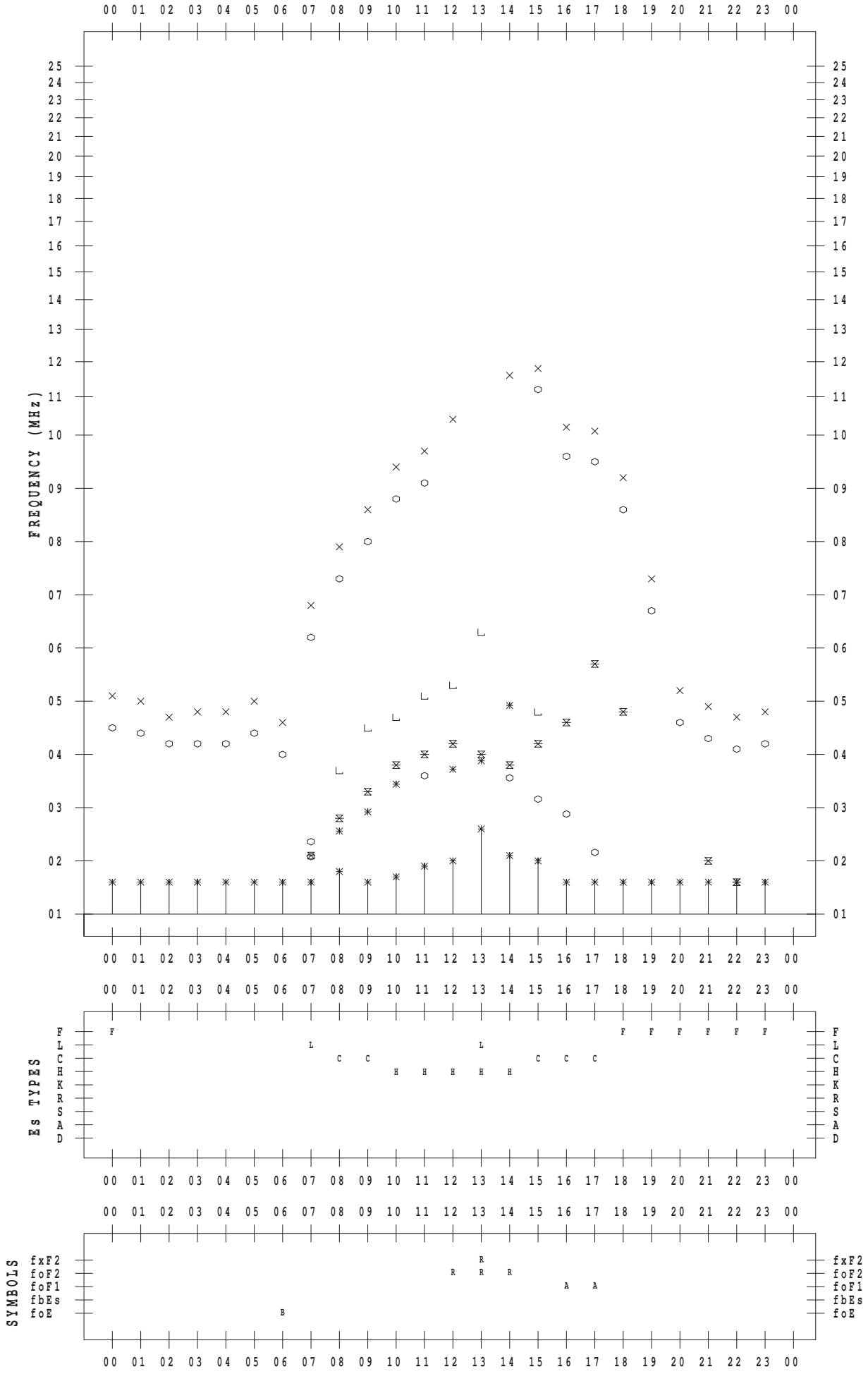
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/12

135 °E MEAN TIME



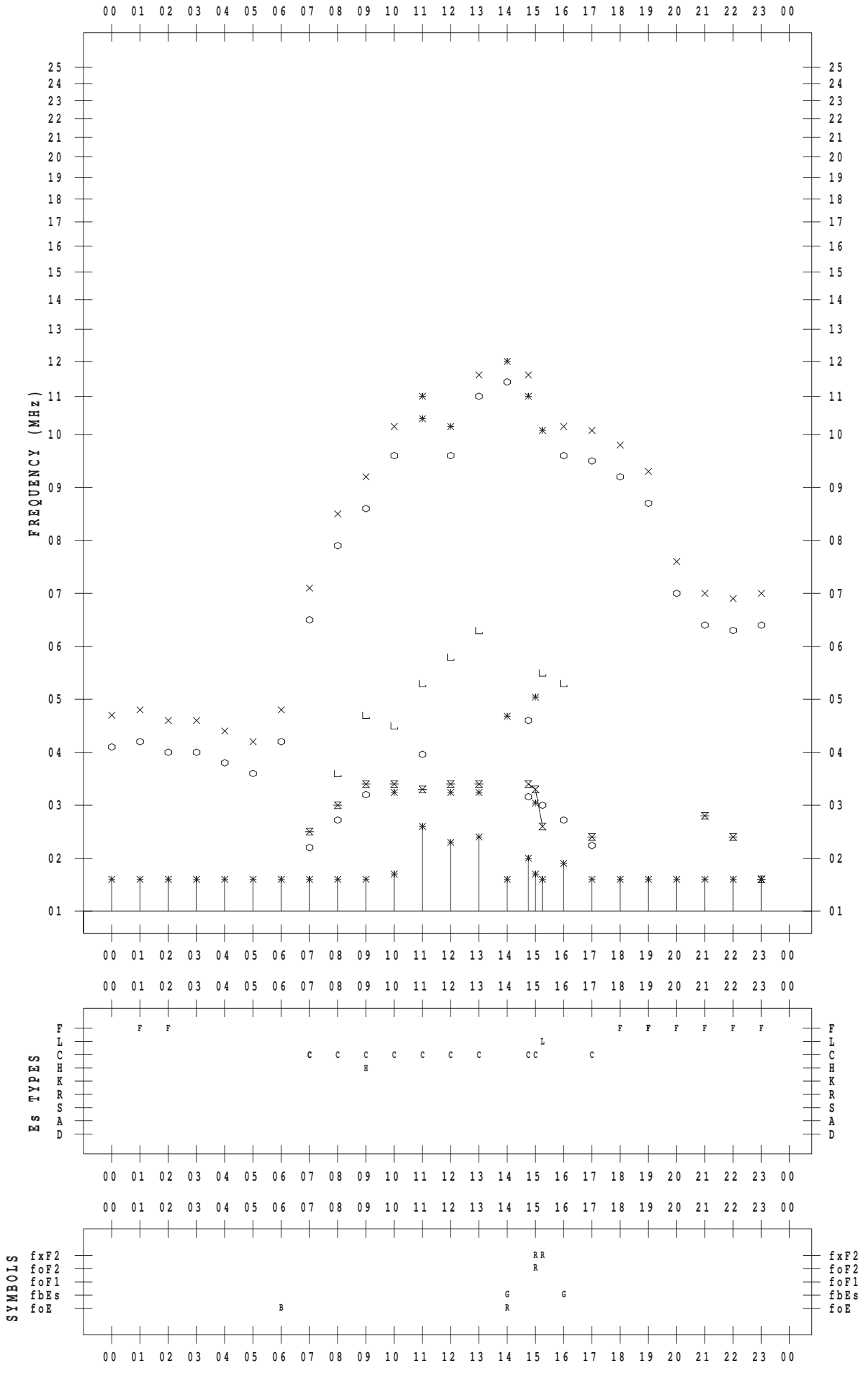
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/13

135 °E MEAN TIME



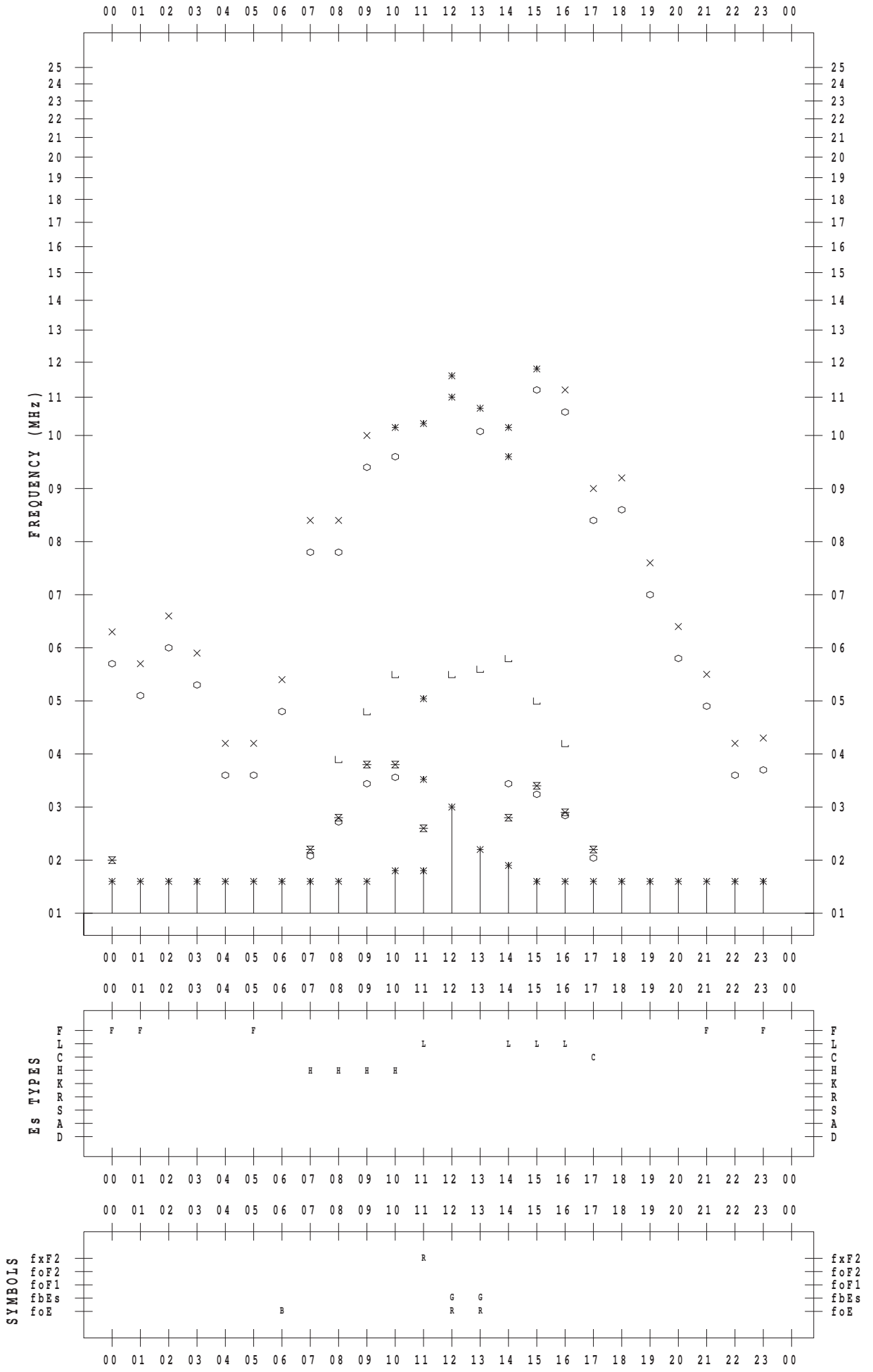
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/14

135 °E MEAN TIME



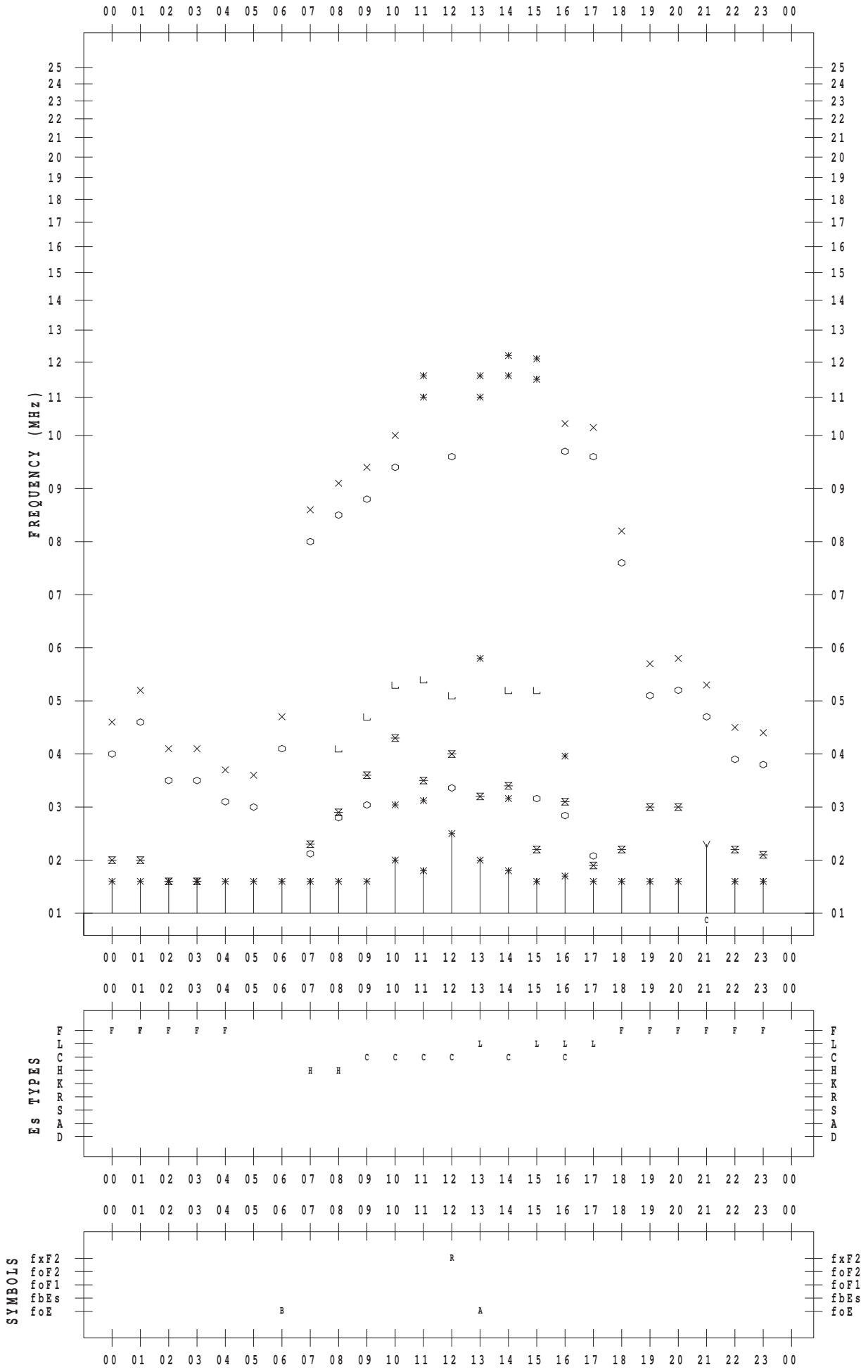
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/15

135 °E MEAN TIME



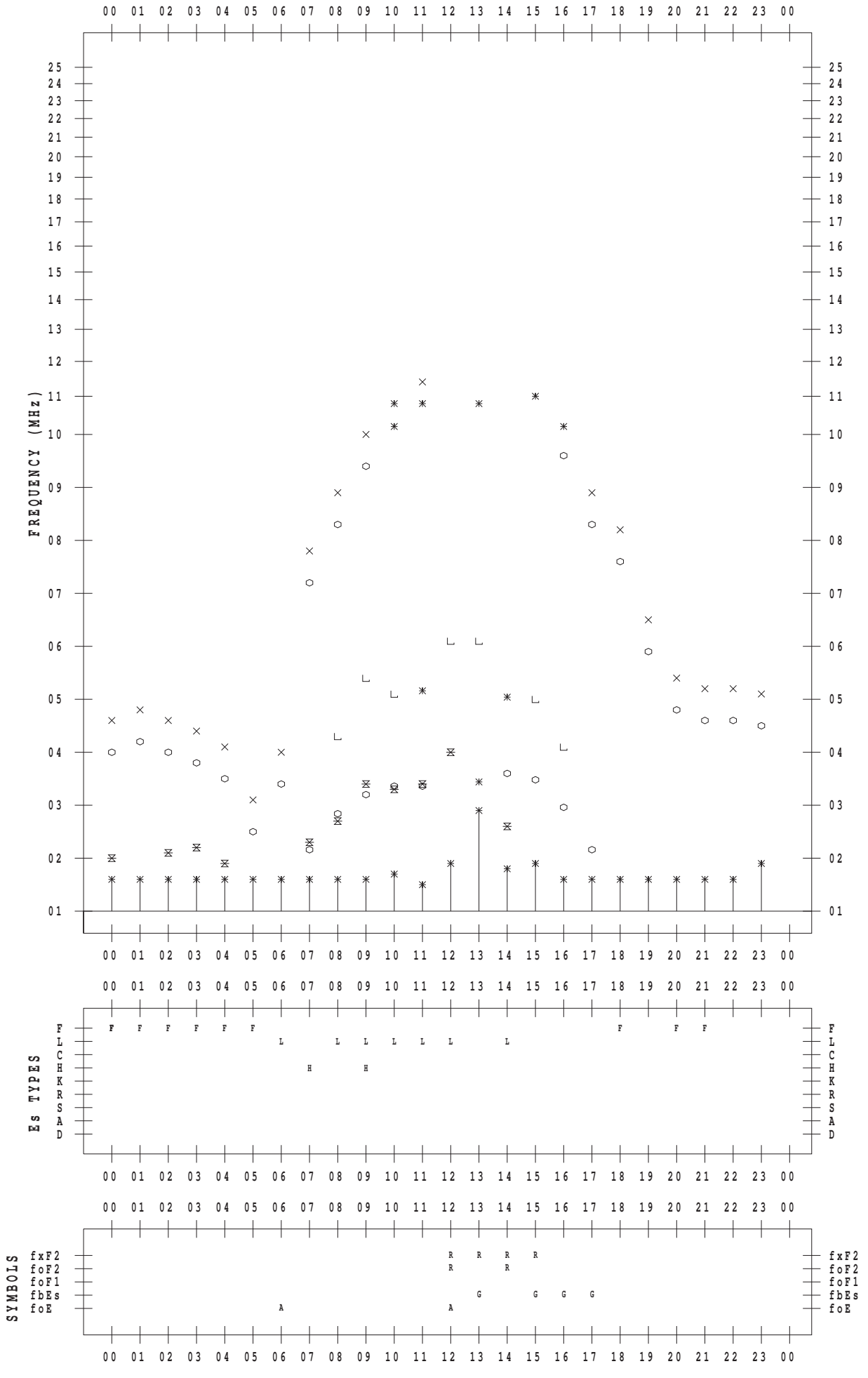
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/16

135 °E MEAN TIME



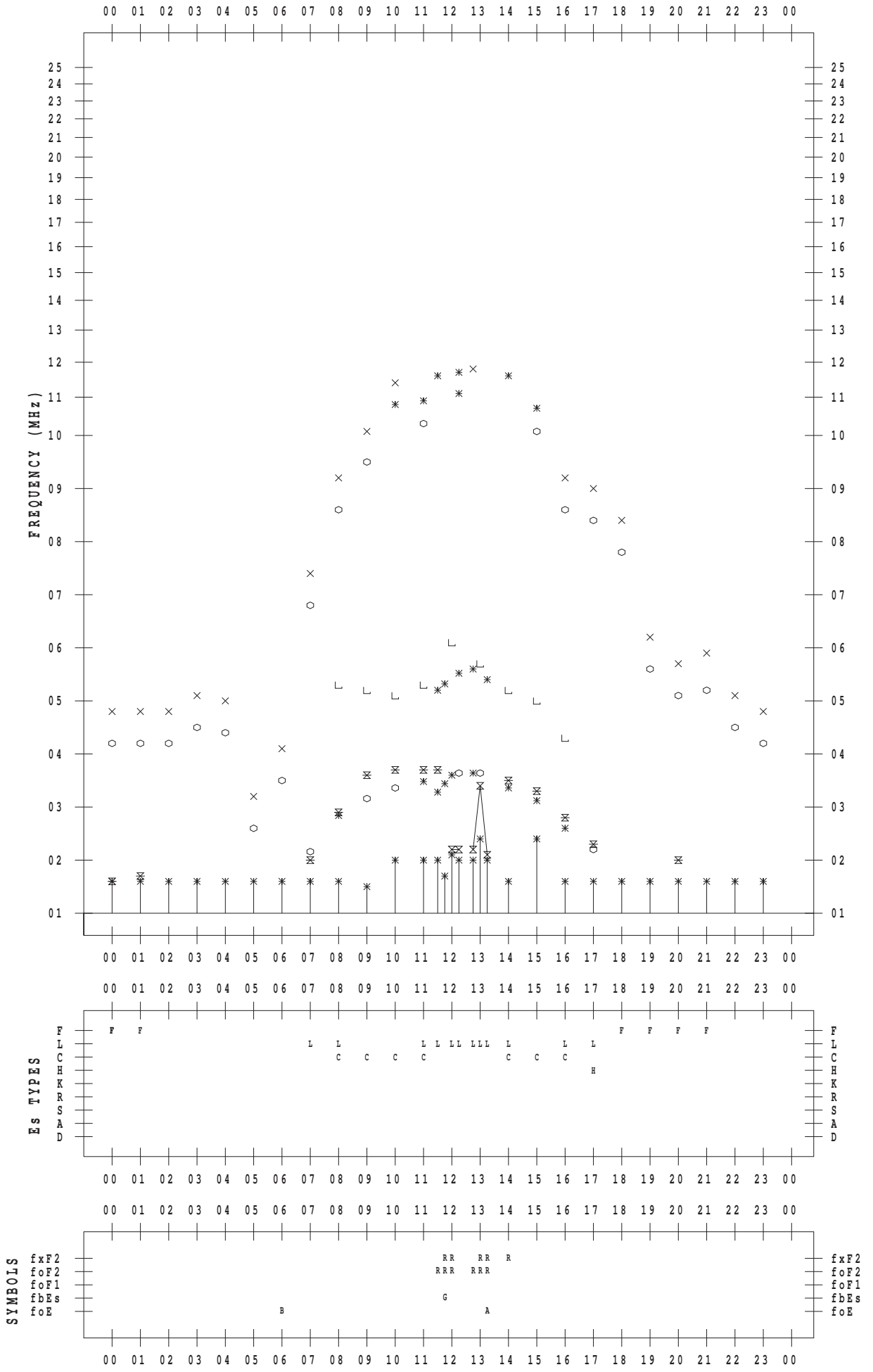
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/17

135 °E MEAN TIME



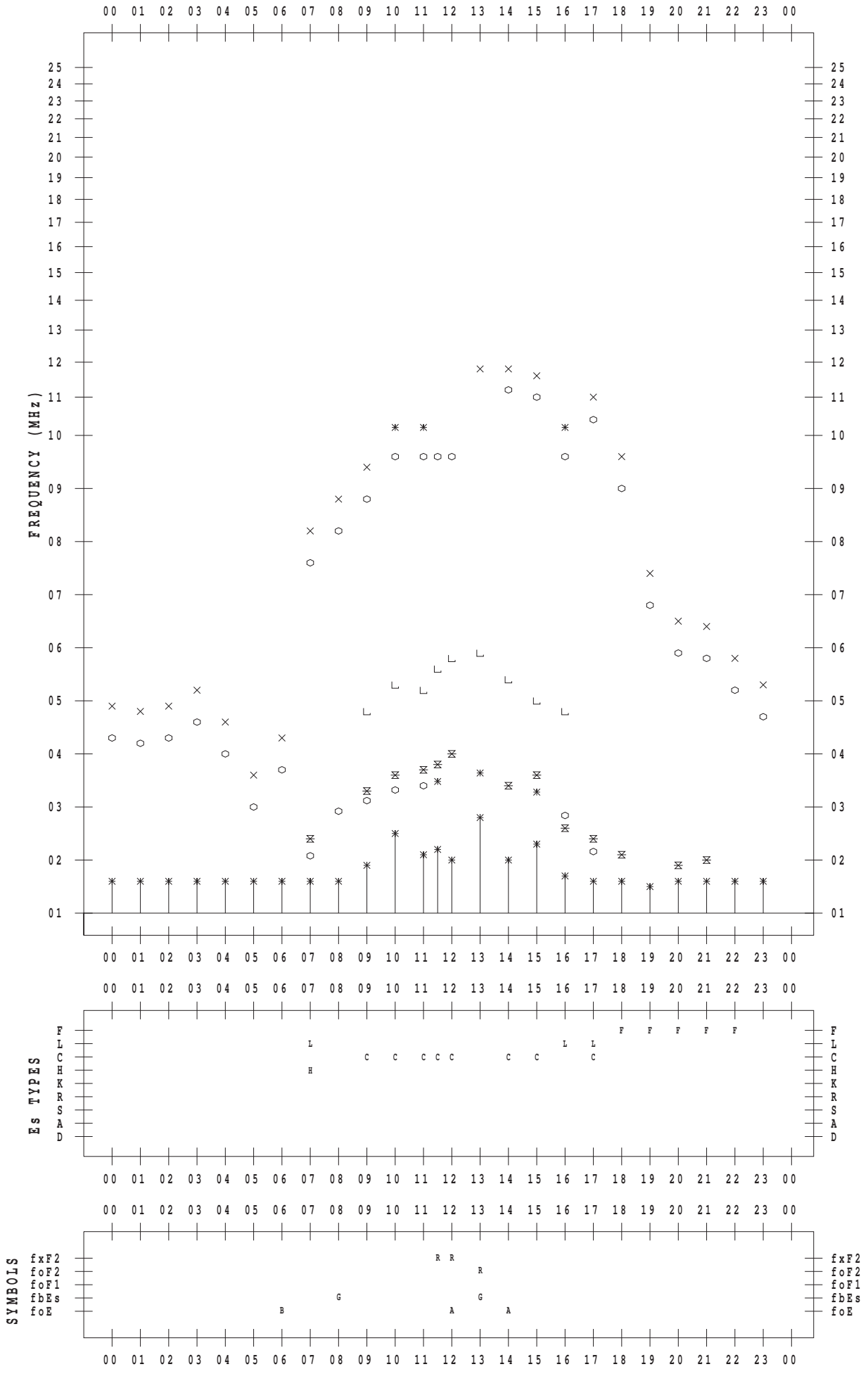
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/18

135 °E MEAN TIME



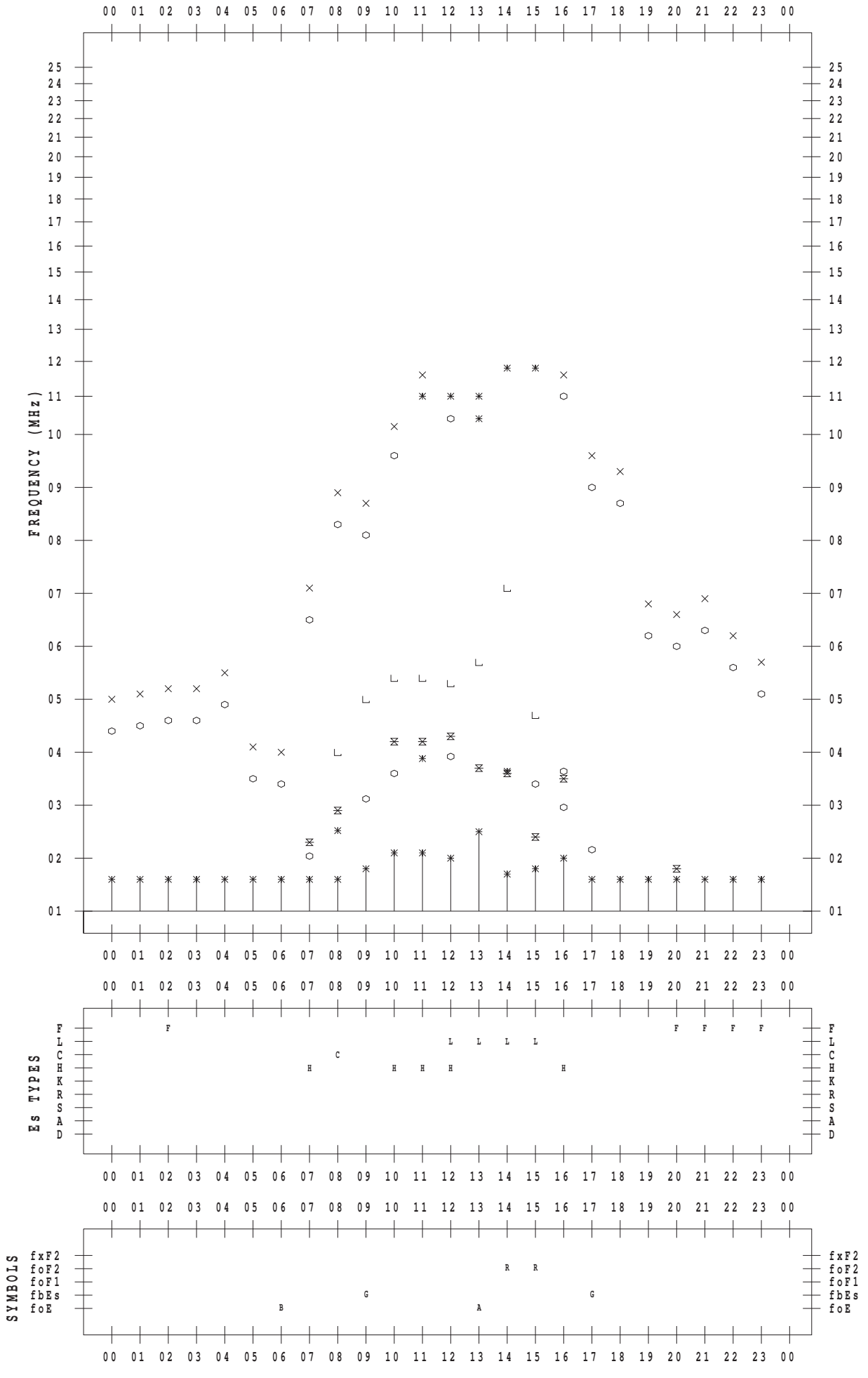
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/19

135 °E MEAN TIME



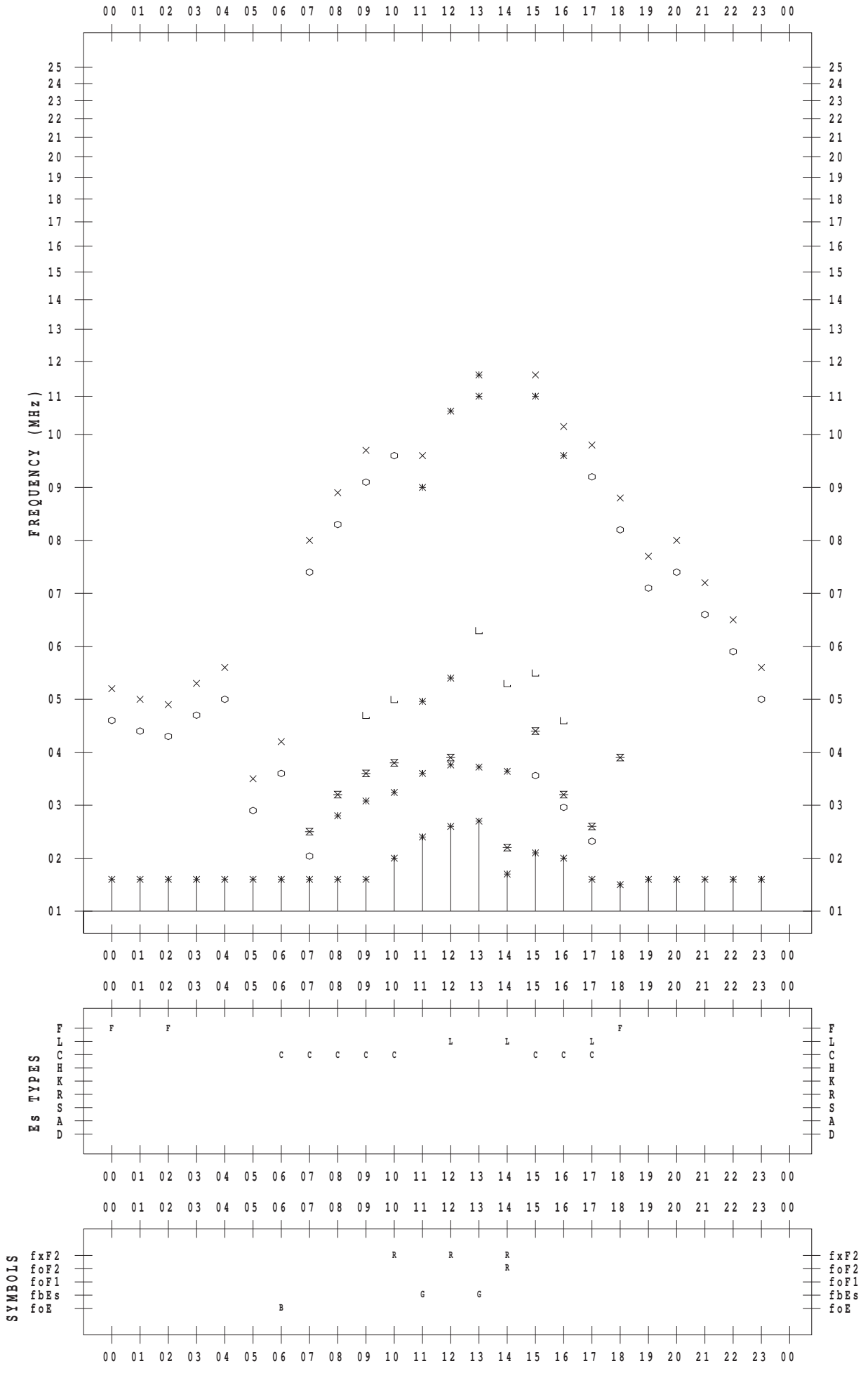
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/20

135 °E MEAN TIME



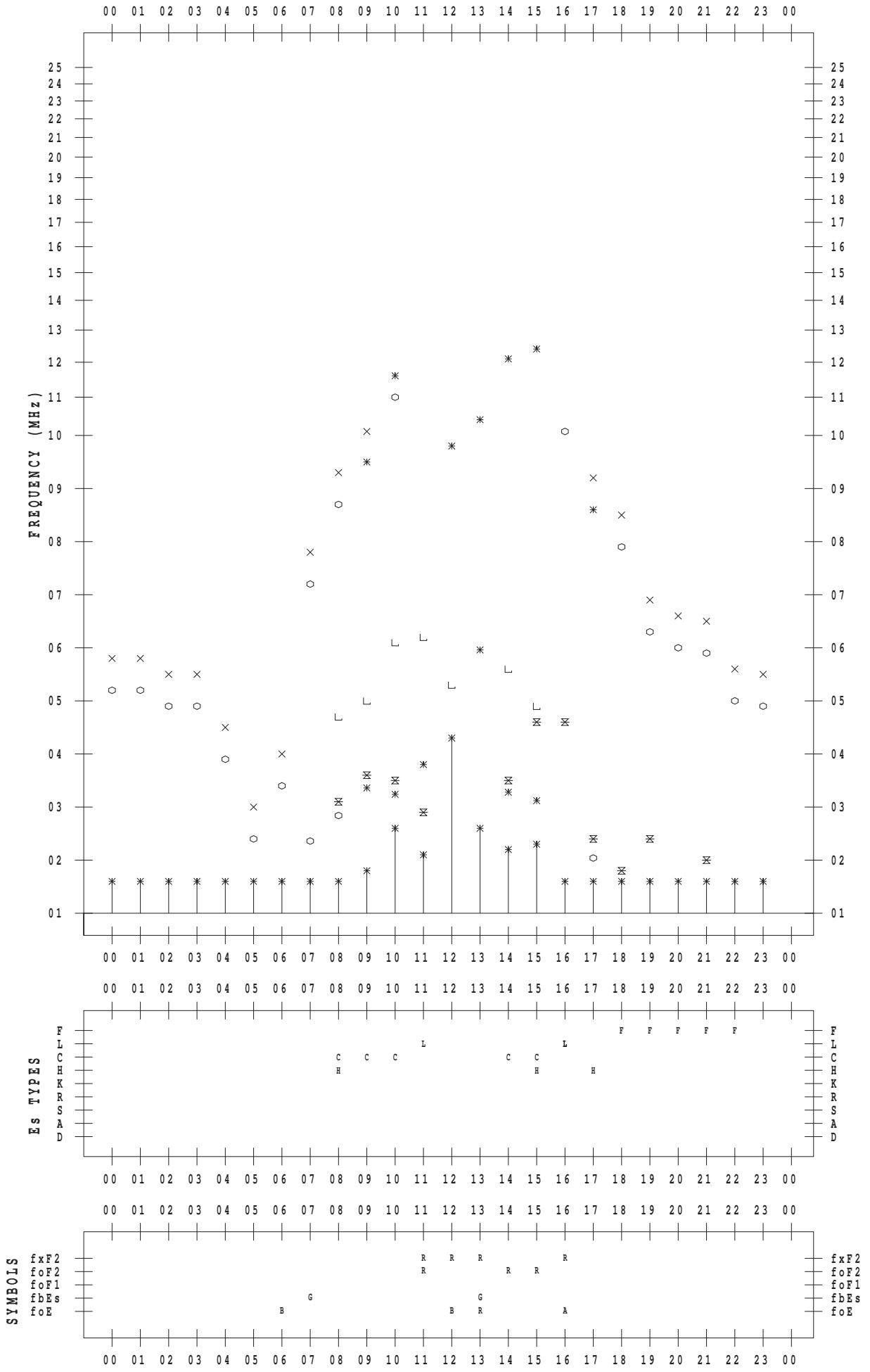
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/21

135 °E MEAN TIME



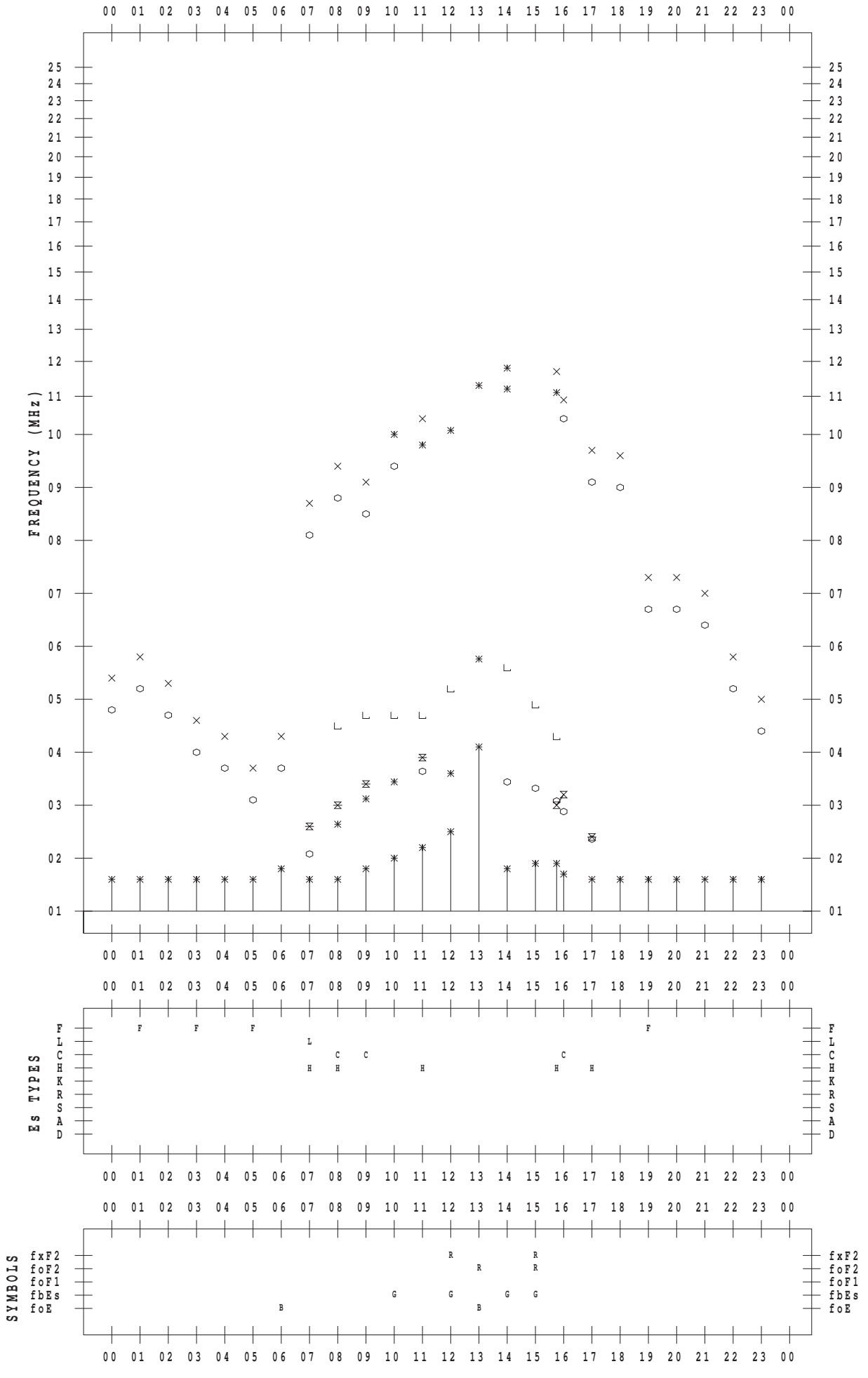
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/22

135 °E MEAN TIME



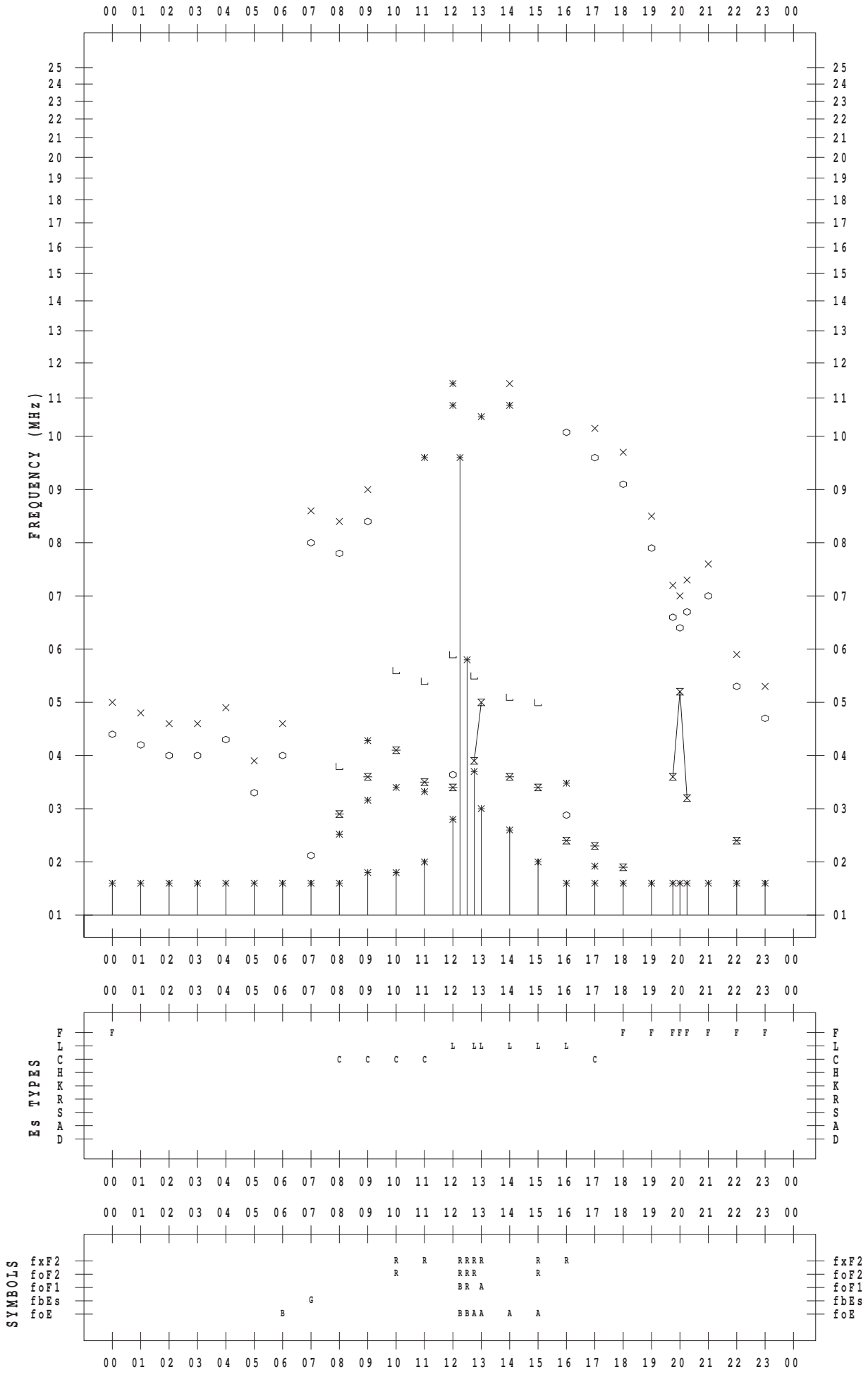
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/23

135 °E MEAN TIME



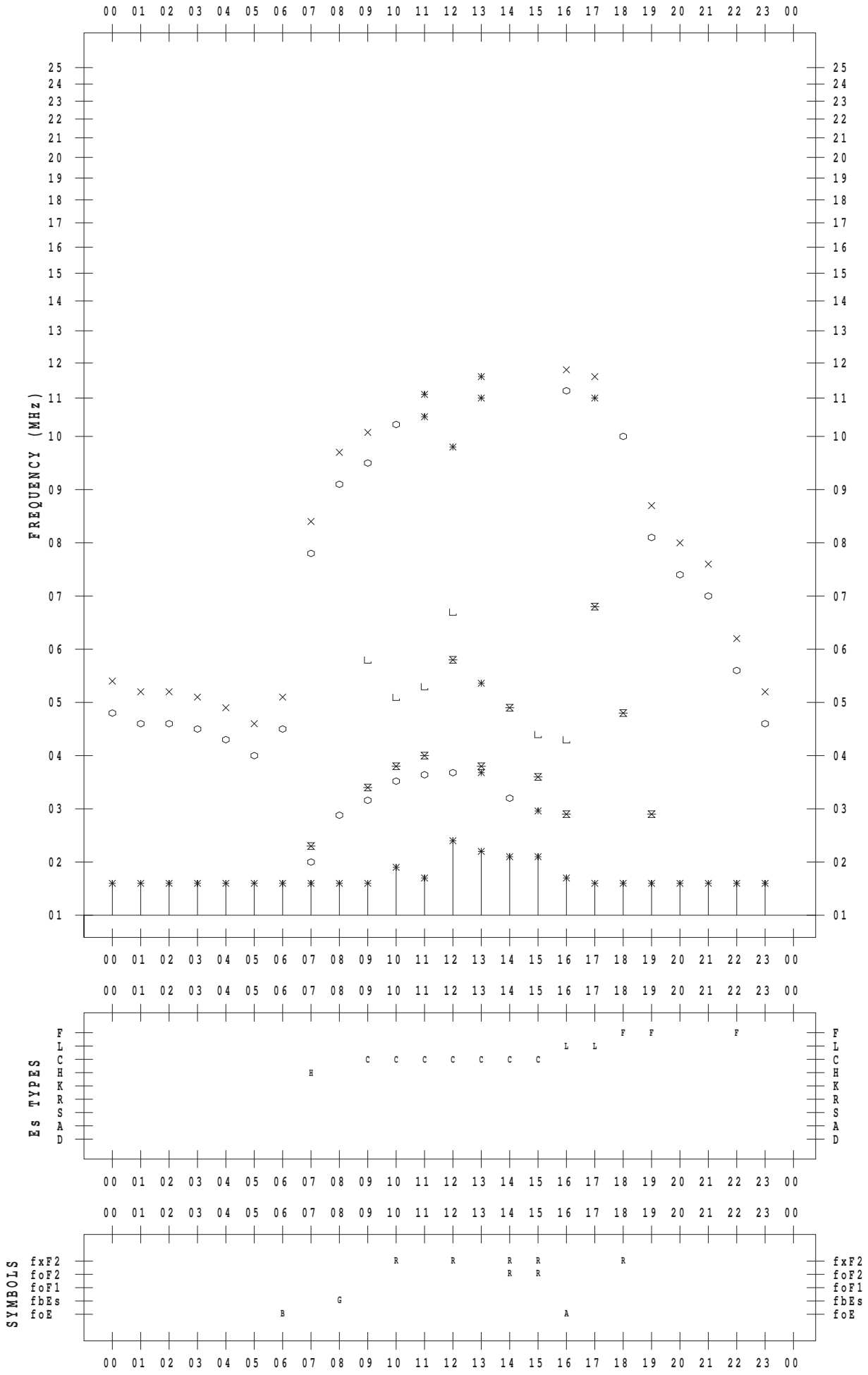
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/24

135 °E MEAN TIME



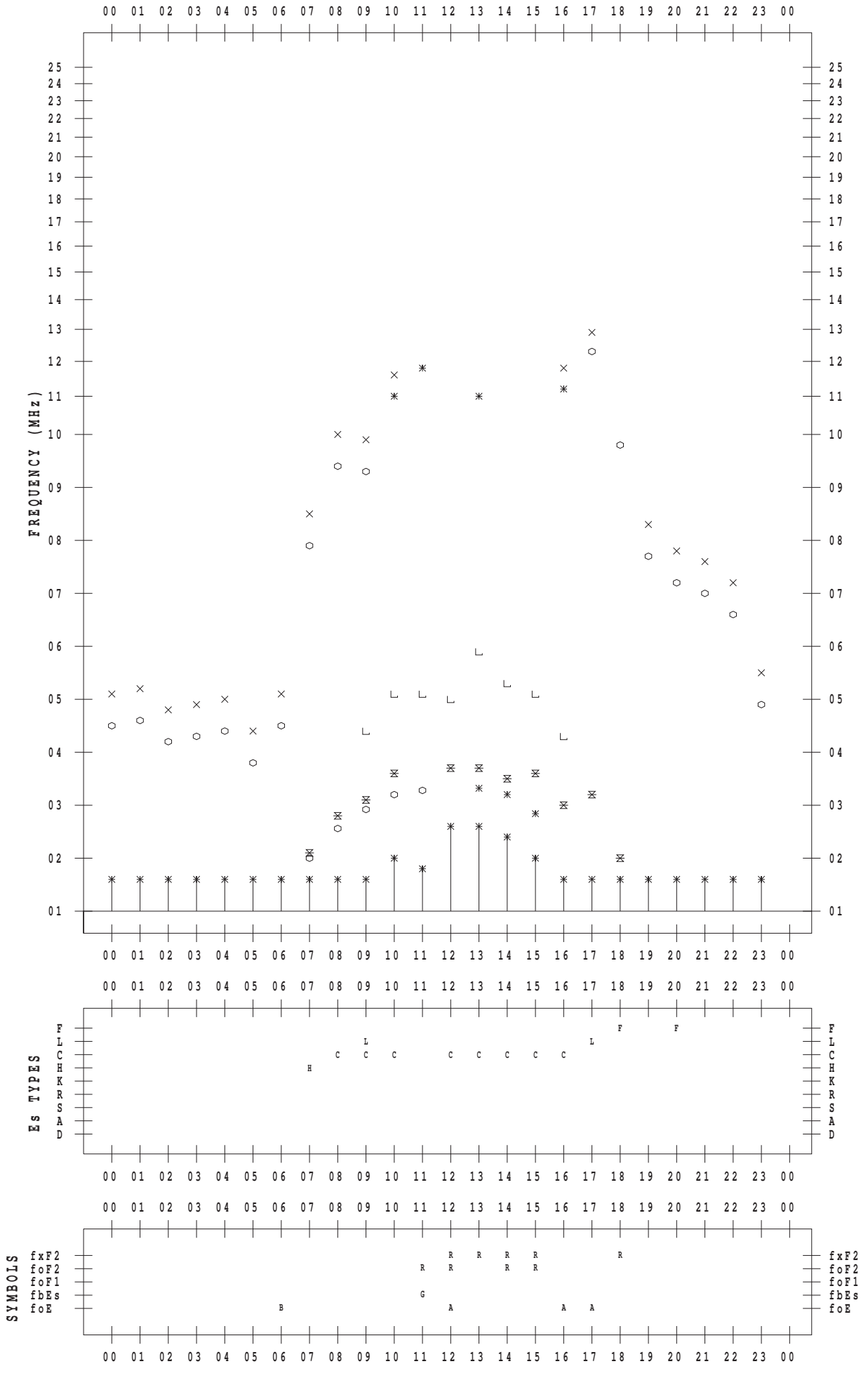
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/25

135 °E MEAN TIME



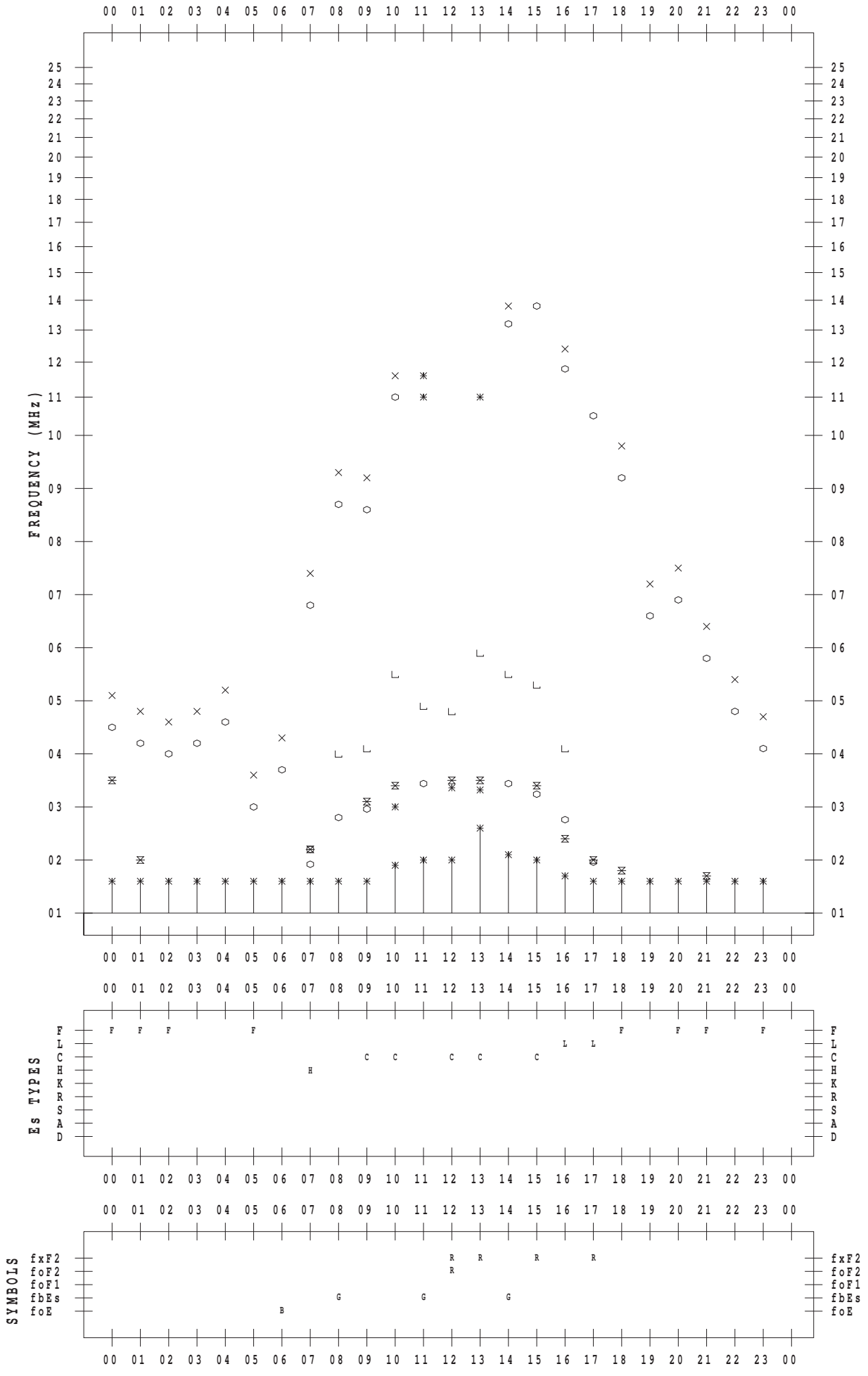
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/26

135 °E MEAN TIME



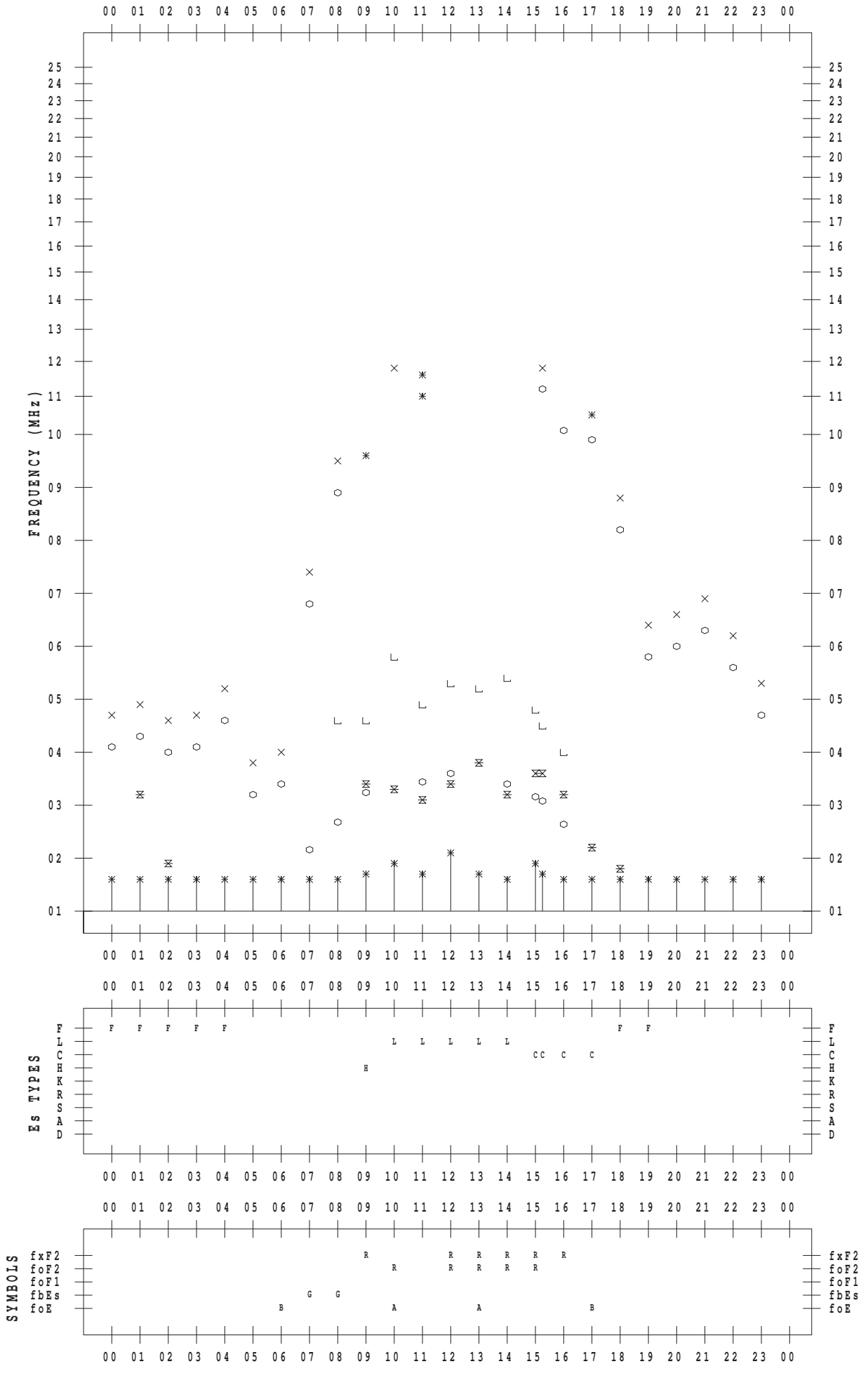
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/27

135 °E MEAN TIME



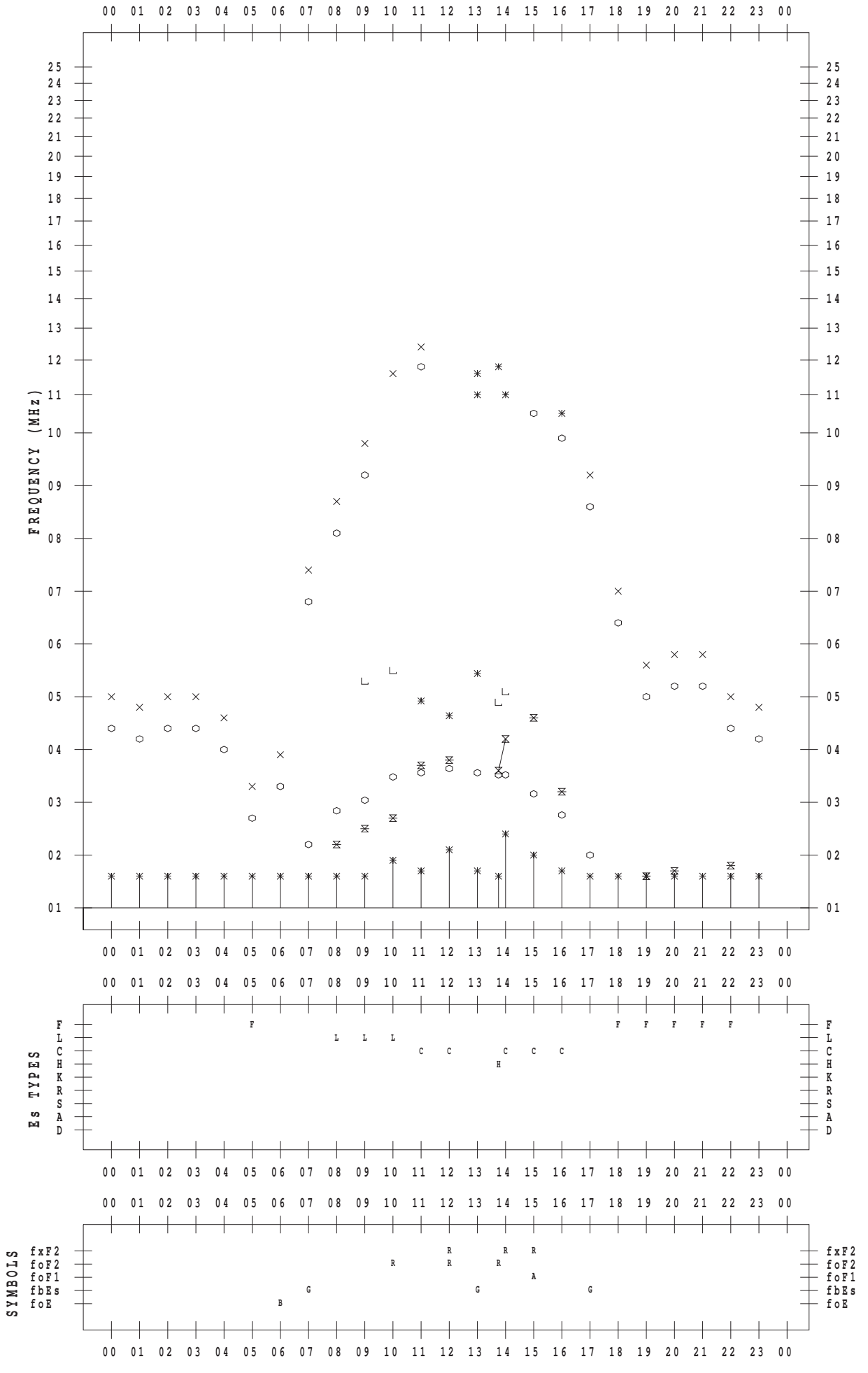
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/28

135 °E MEAN TIME



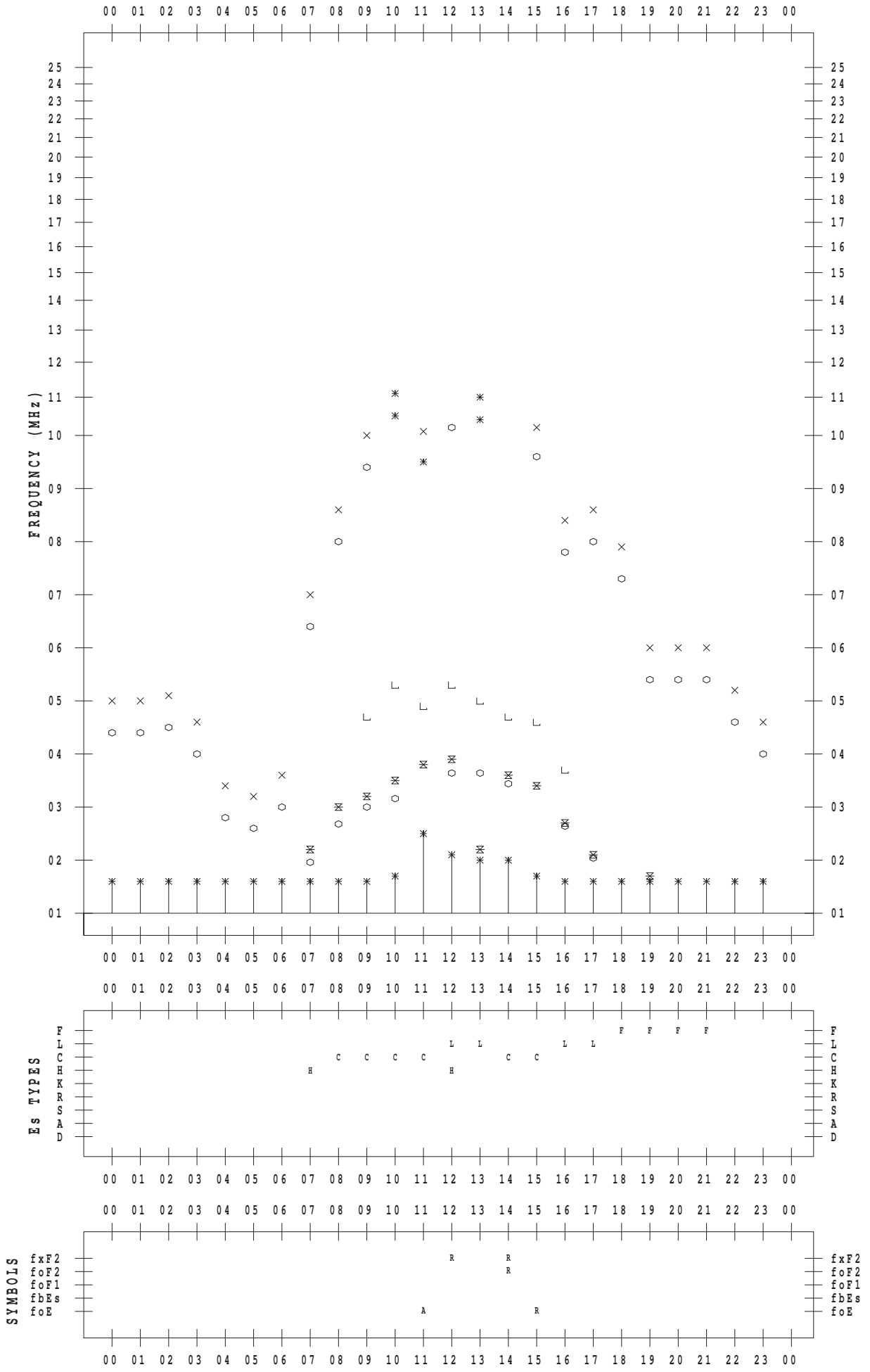
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/29

135 °E MEAN TIME



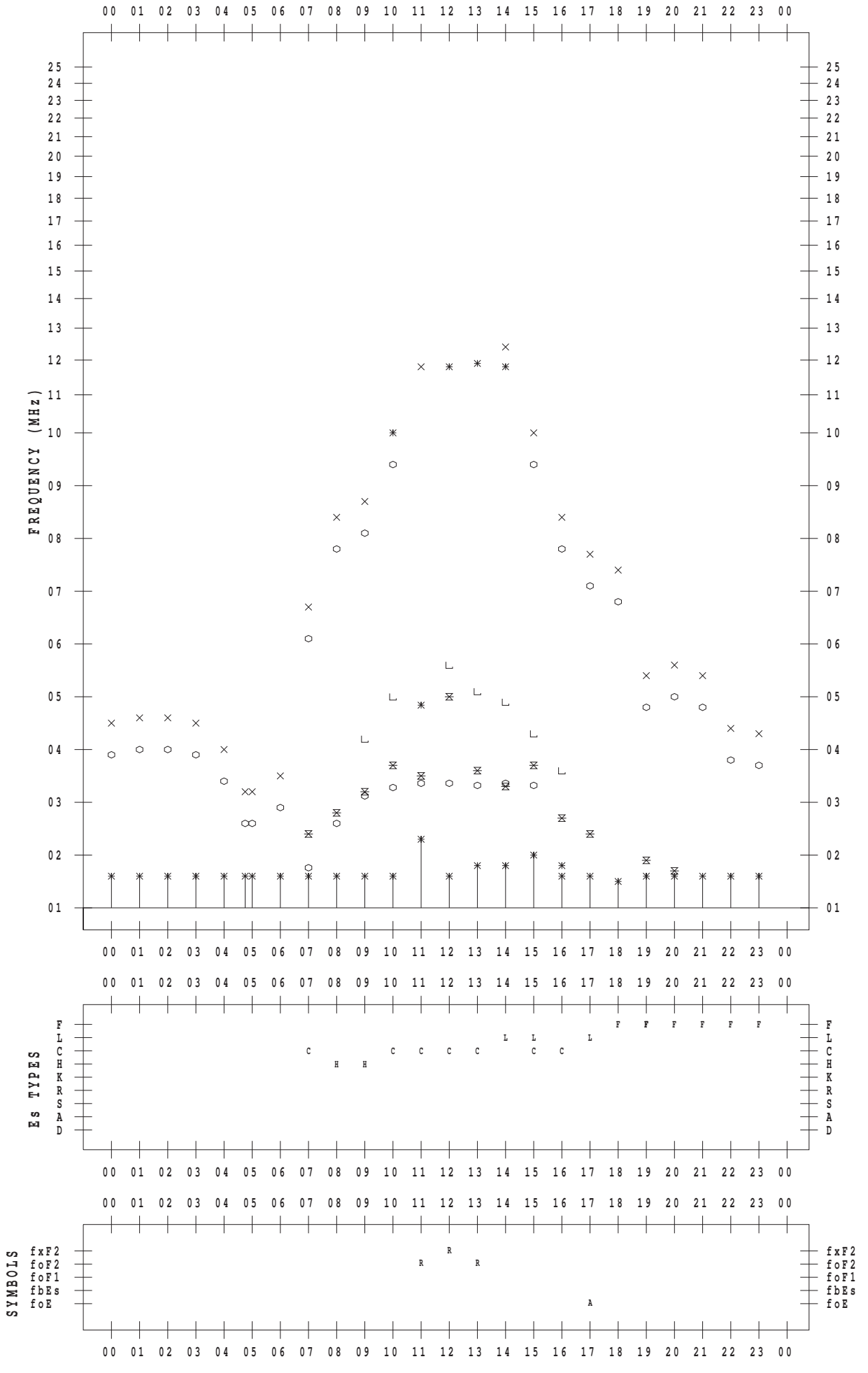
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/30

135 °E MEAN TIME



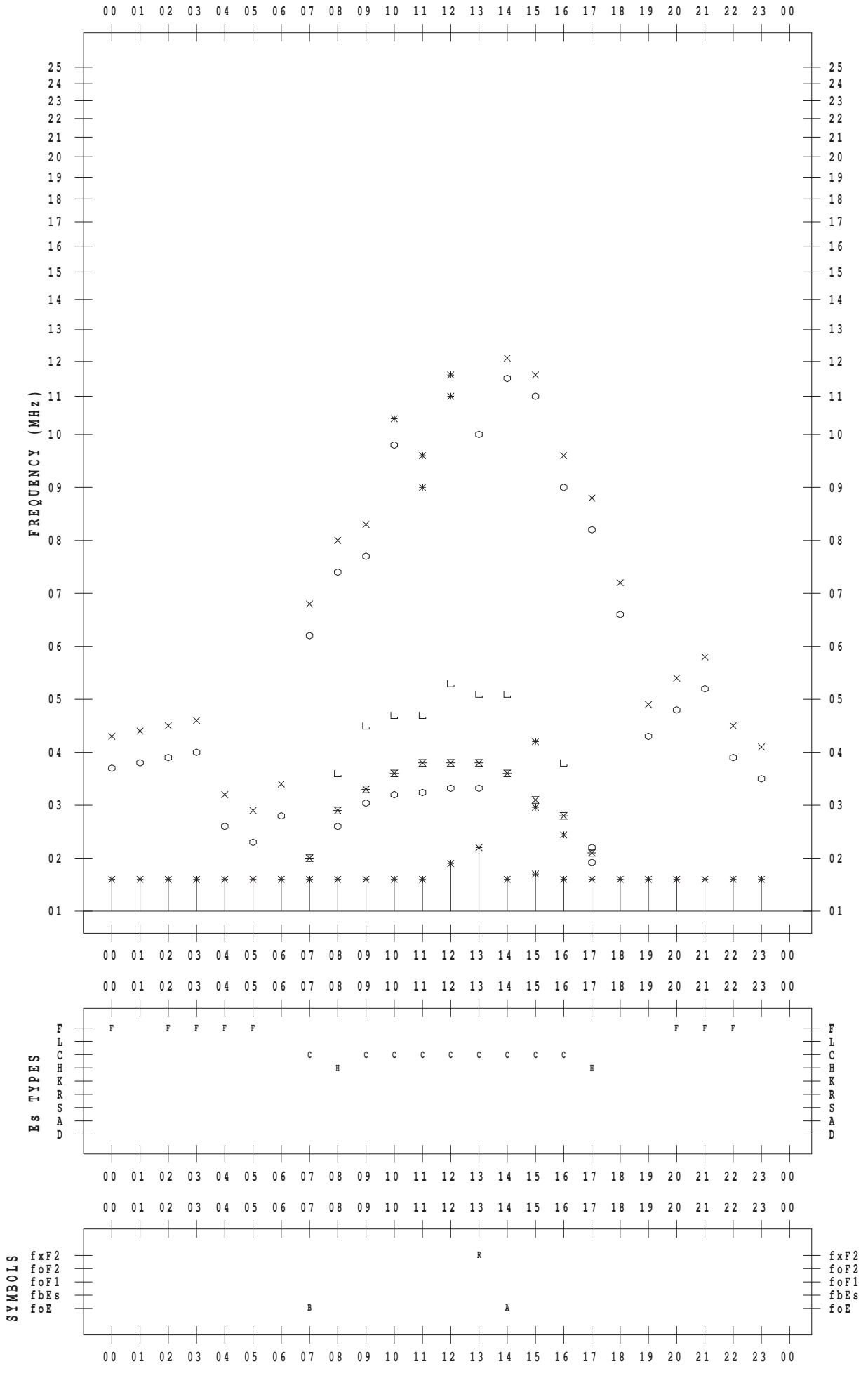
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2012/10/31

135 °E MEAN TIME



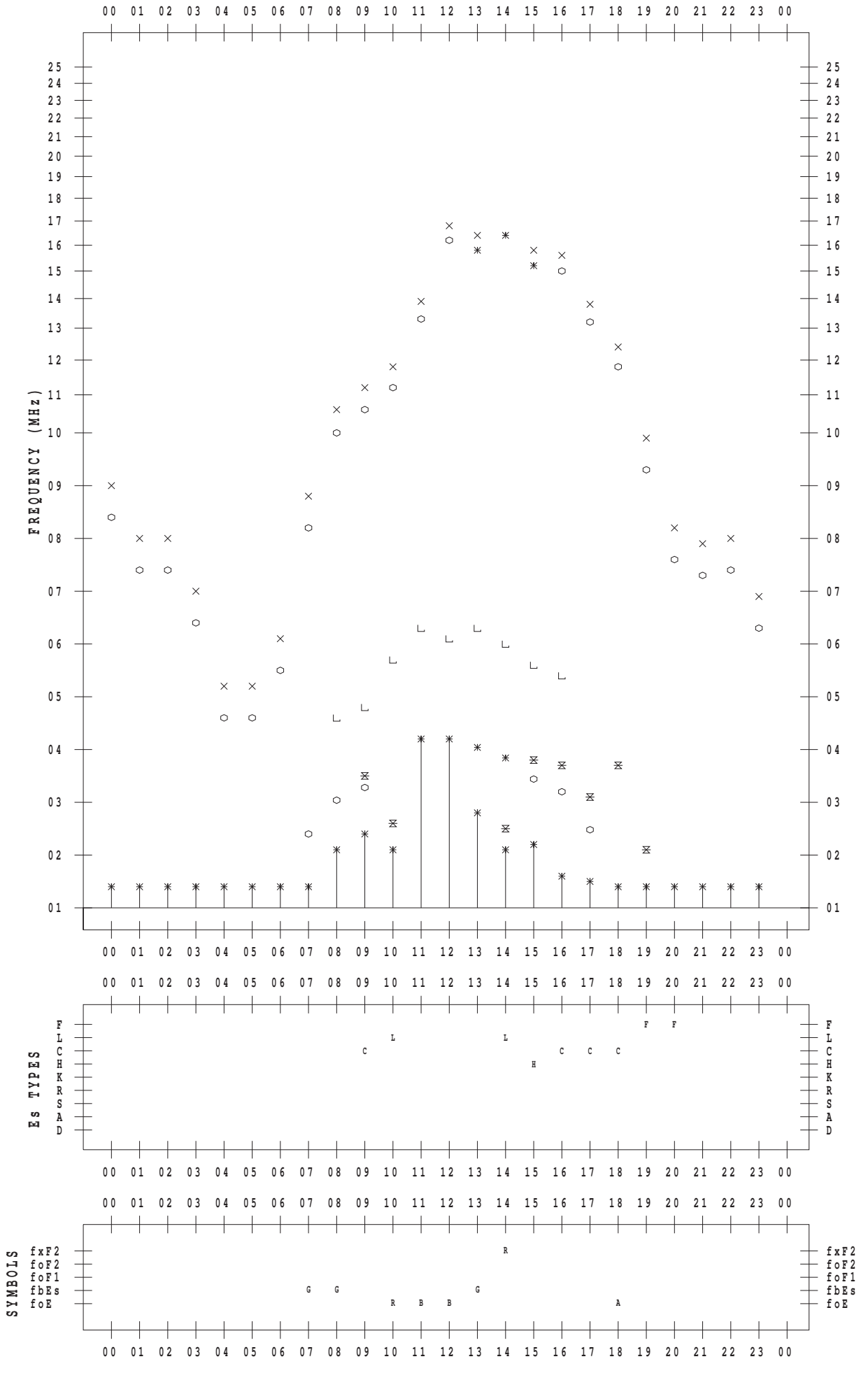
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/ 1

135 °E MEAN TIME



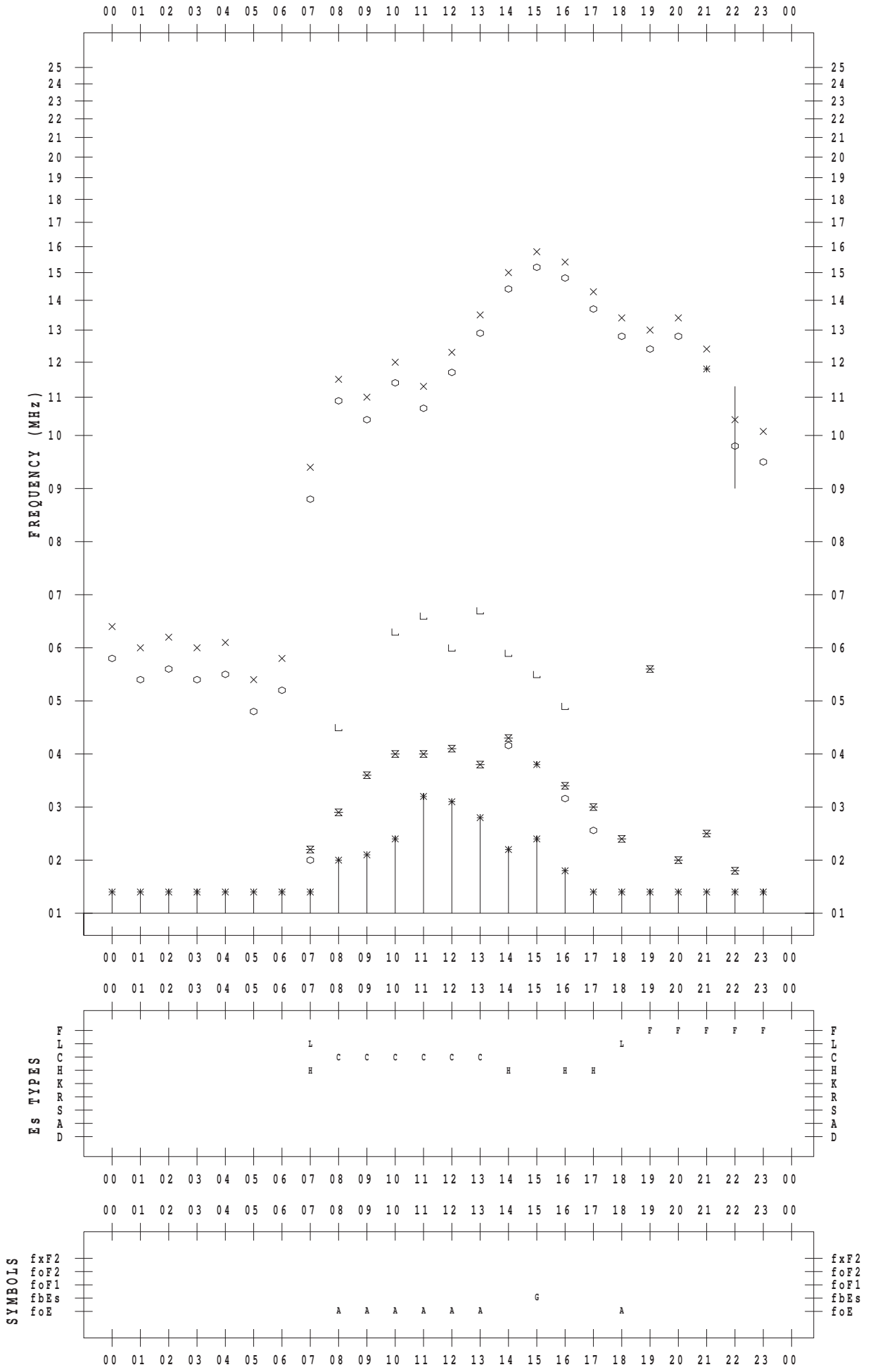
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/ 2

135 °E MEAN TIME



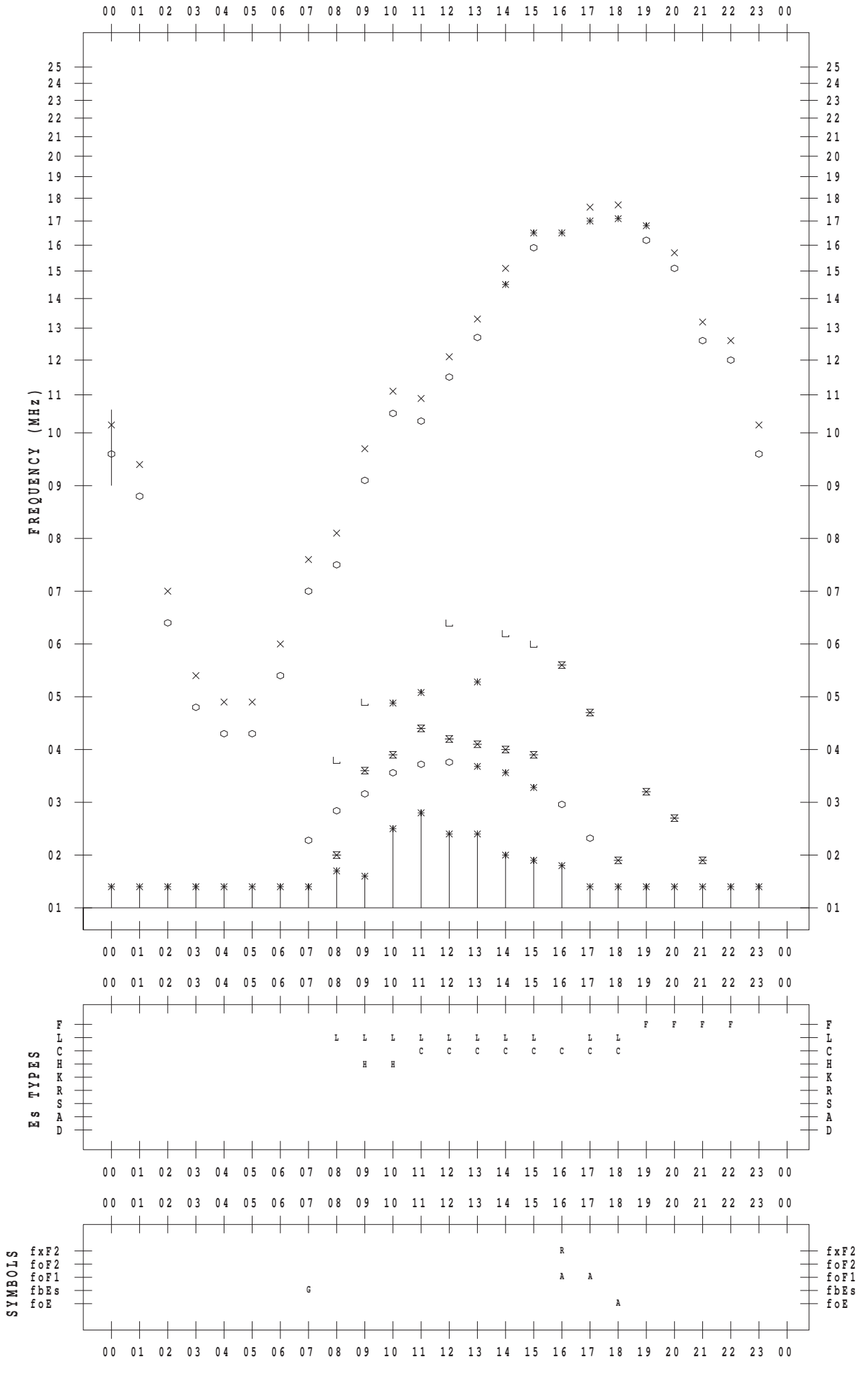
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/ 3

135 °E MEAN TIME



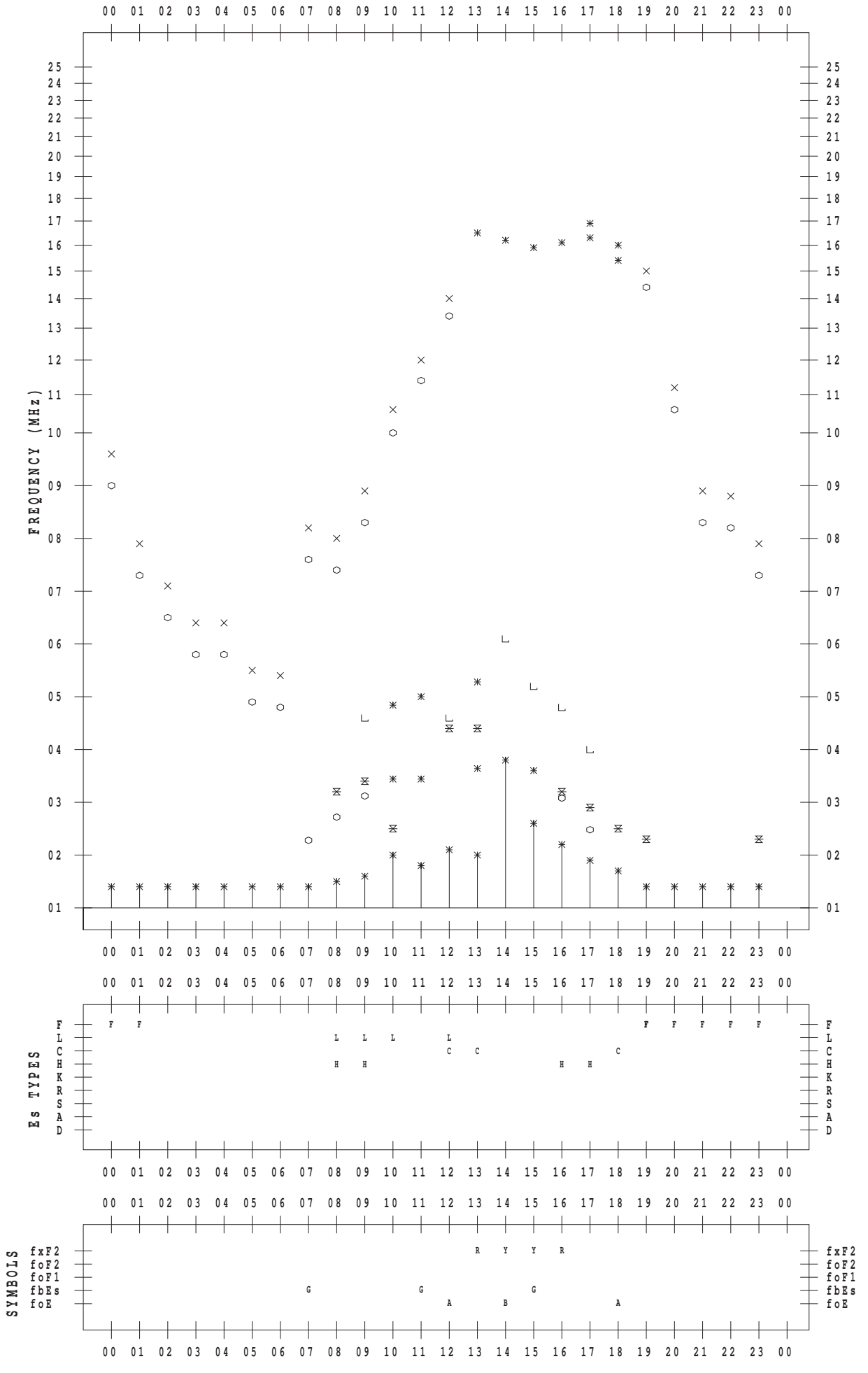
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/ 4

135 °E MEAN TIME



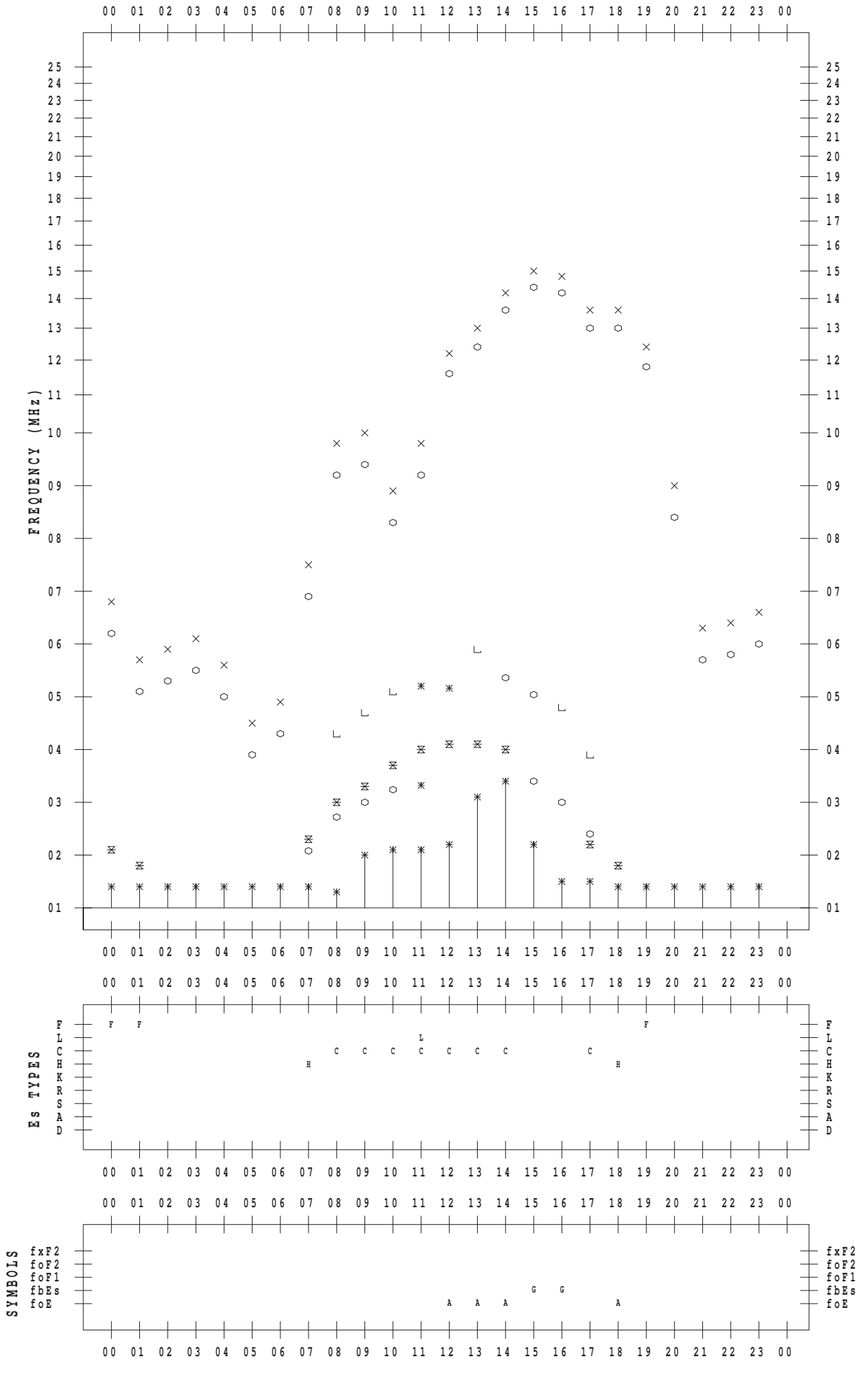
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/ 5

135 °E MEAN TIME



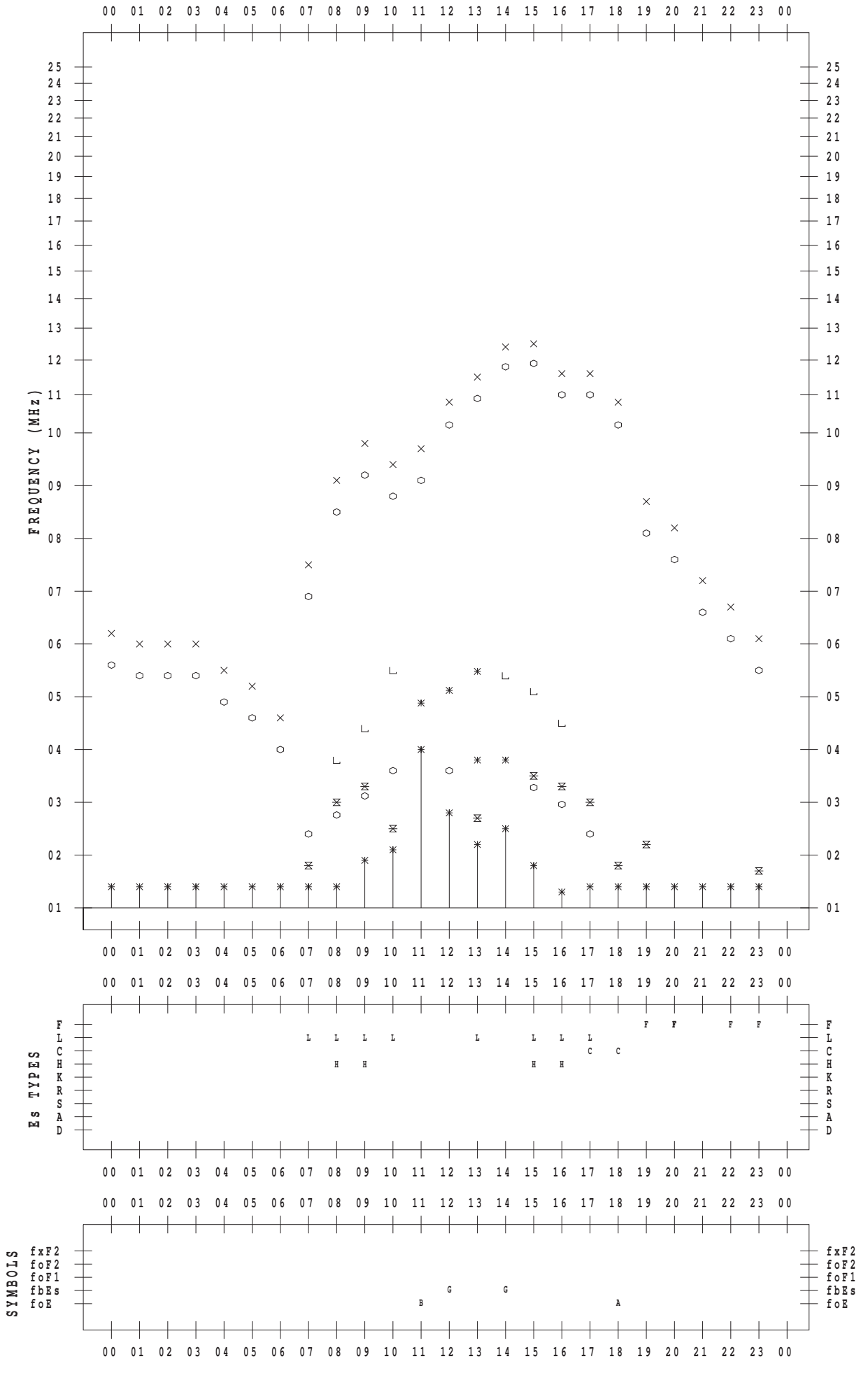
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/ 6

135 °E MEAN TIME



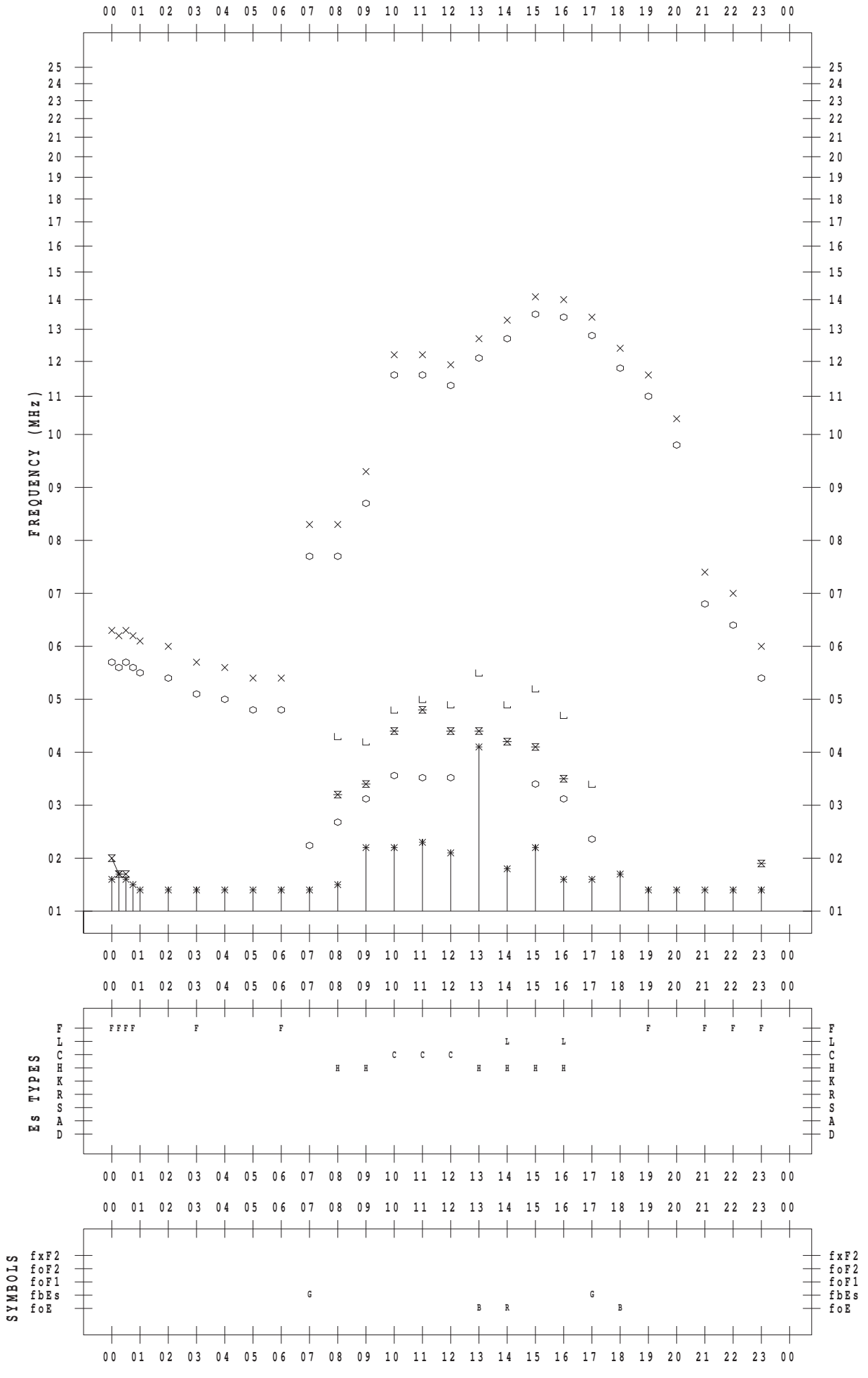
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/ 7

135 °E MEAN TIME



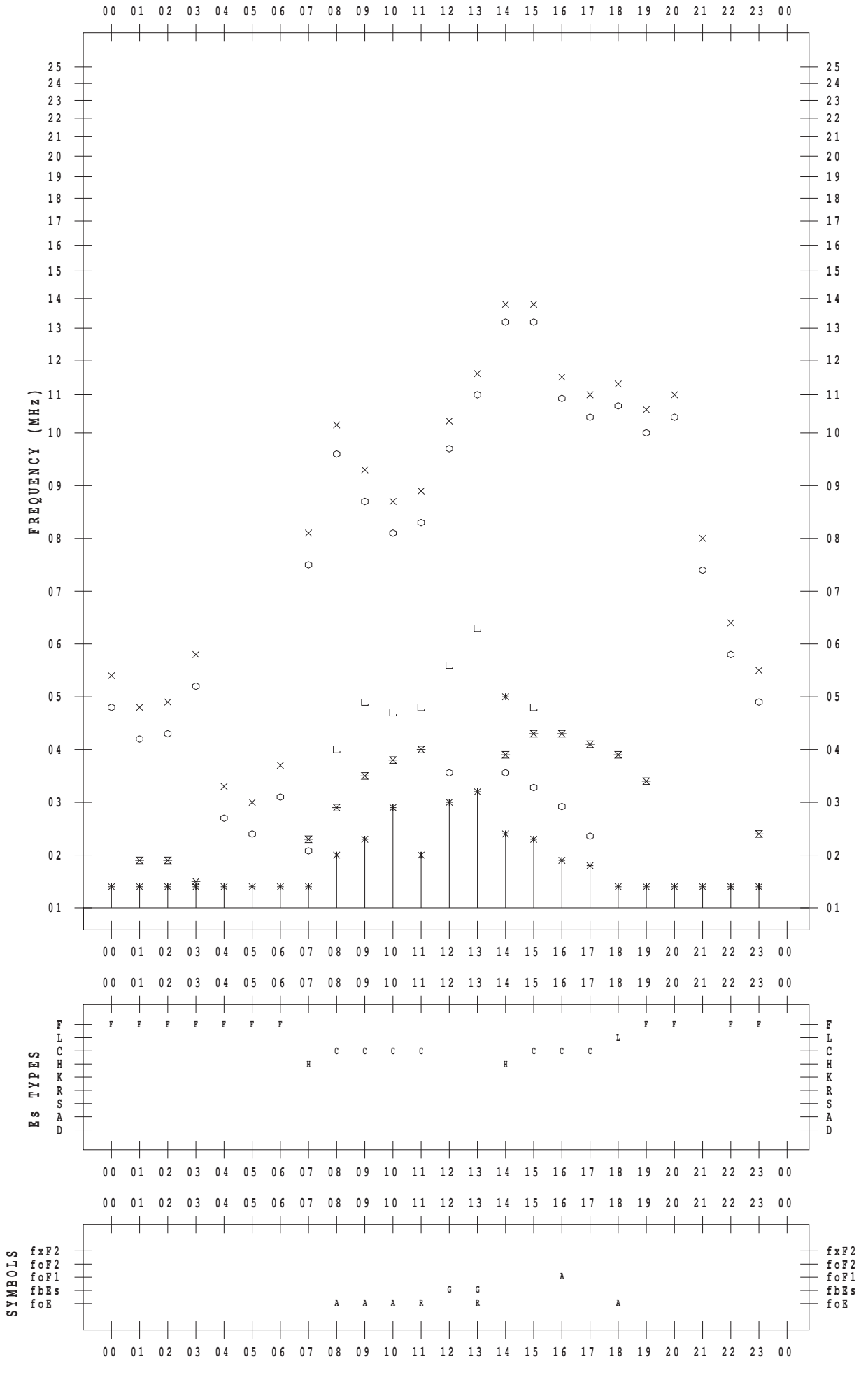
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/ 8

135 °E MEAN TIME



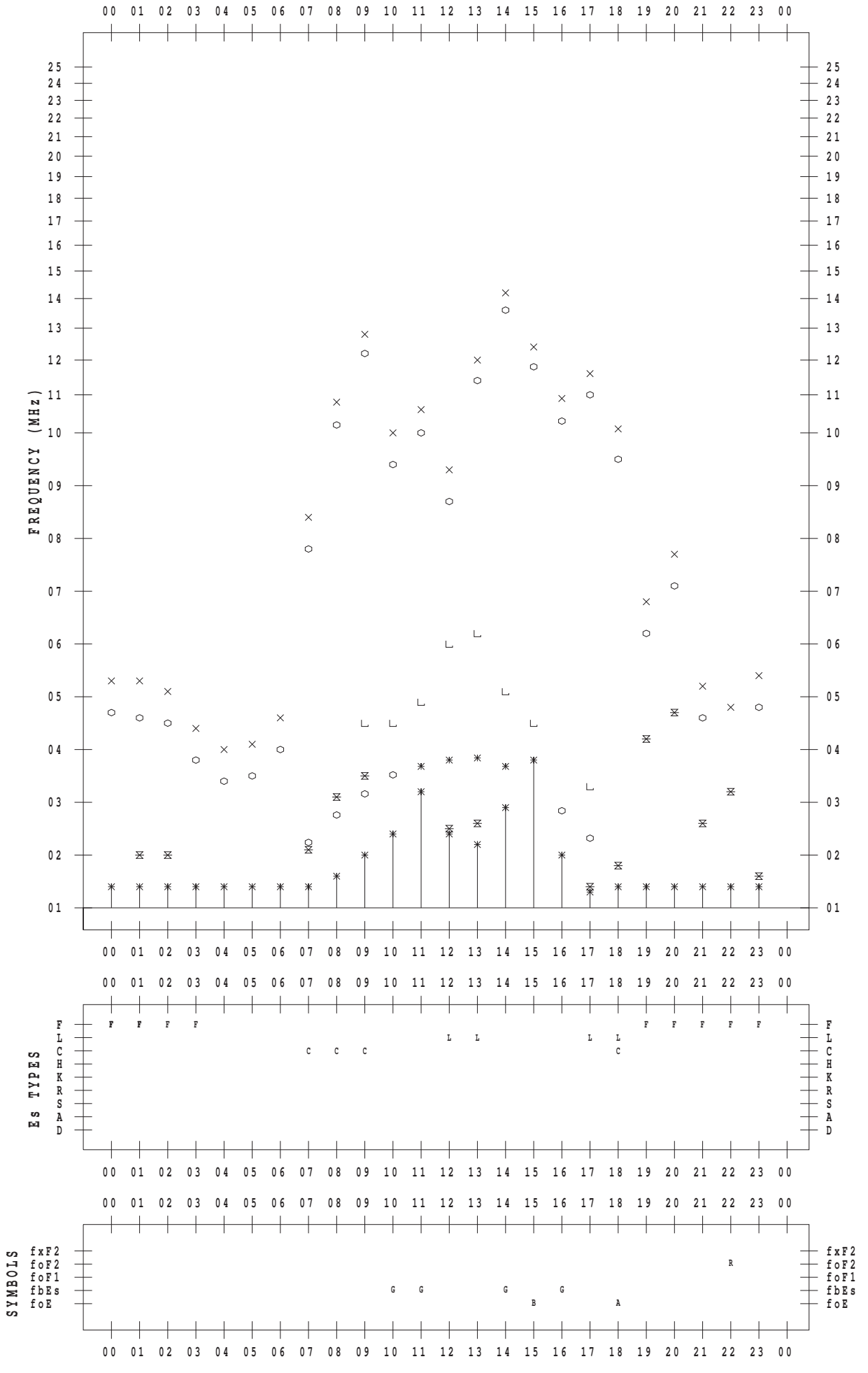
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/ 9

135 °E MEAN TIME



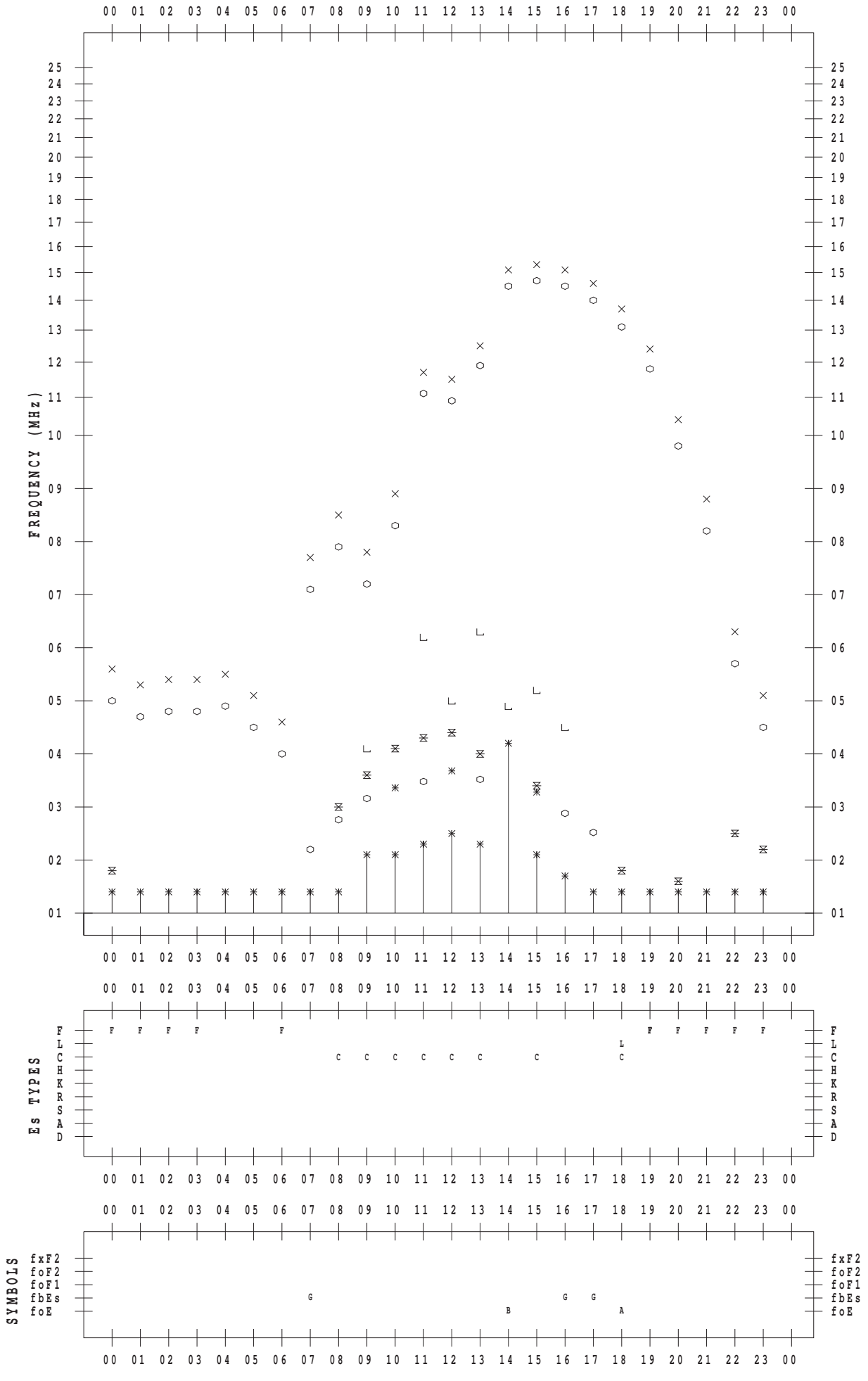
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/10

135 °E MEAN TIME



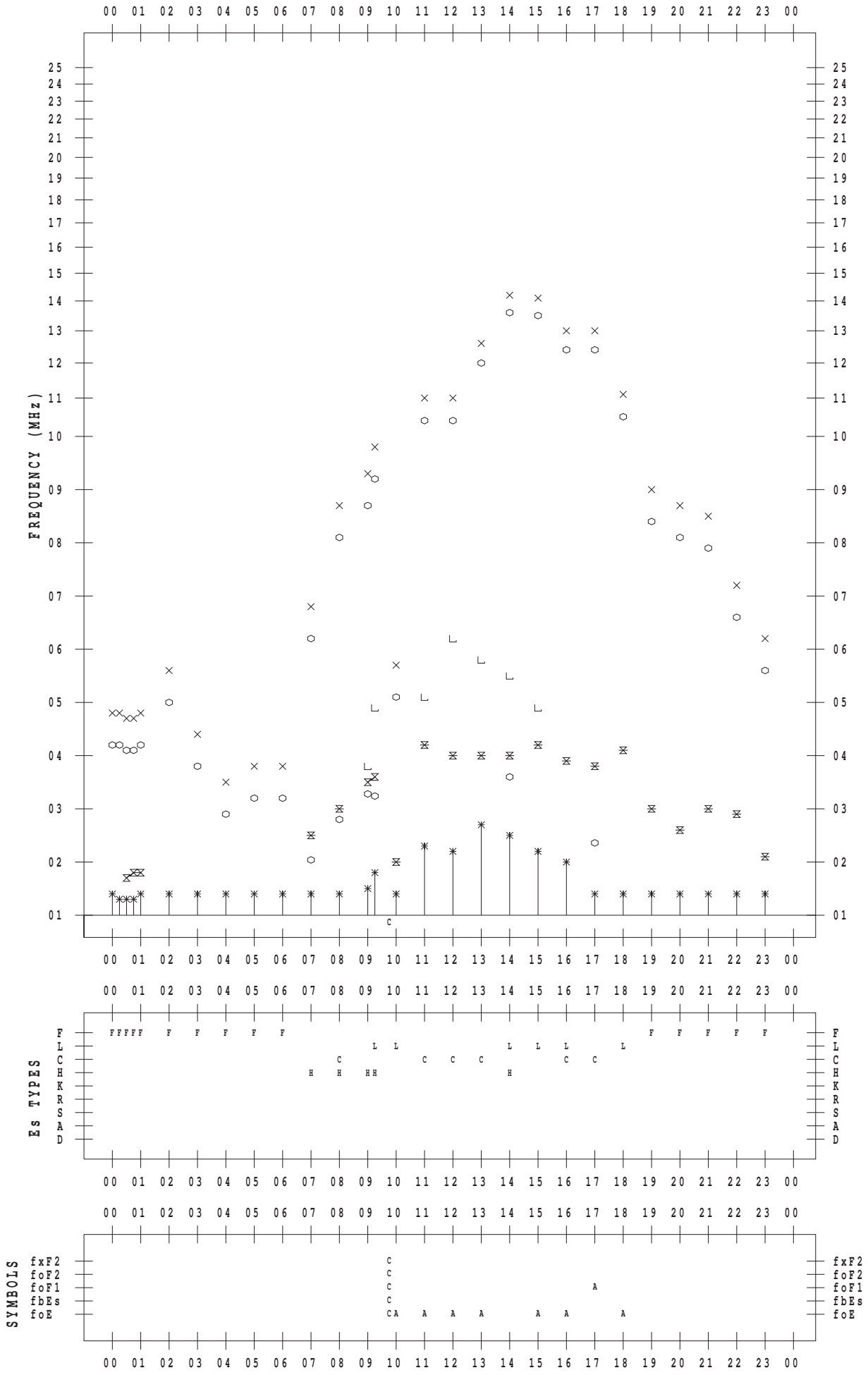
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/11

135 °E MEAN TIME



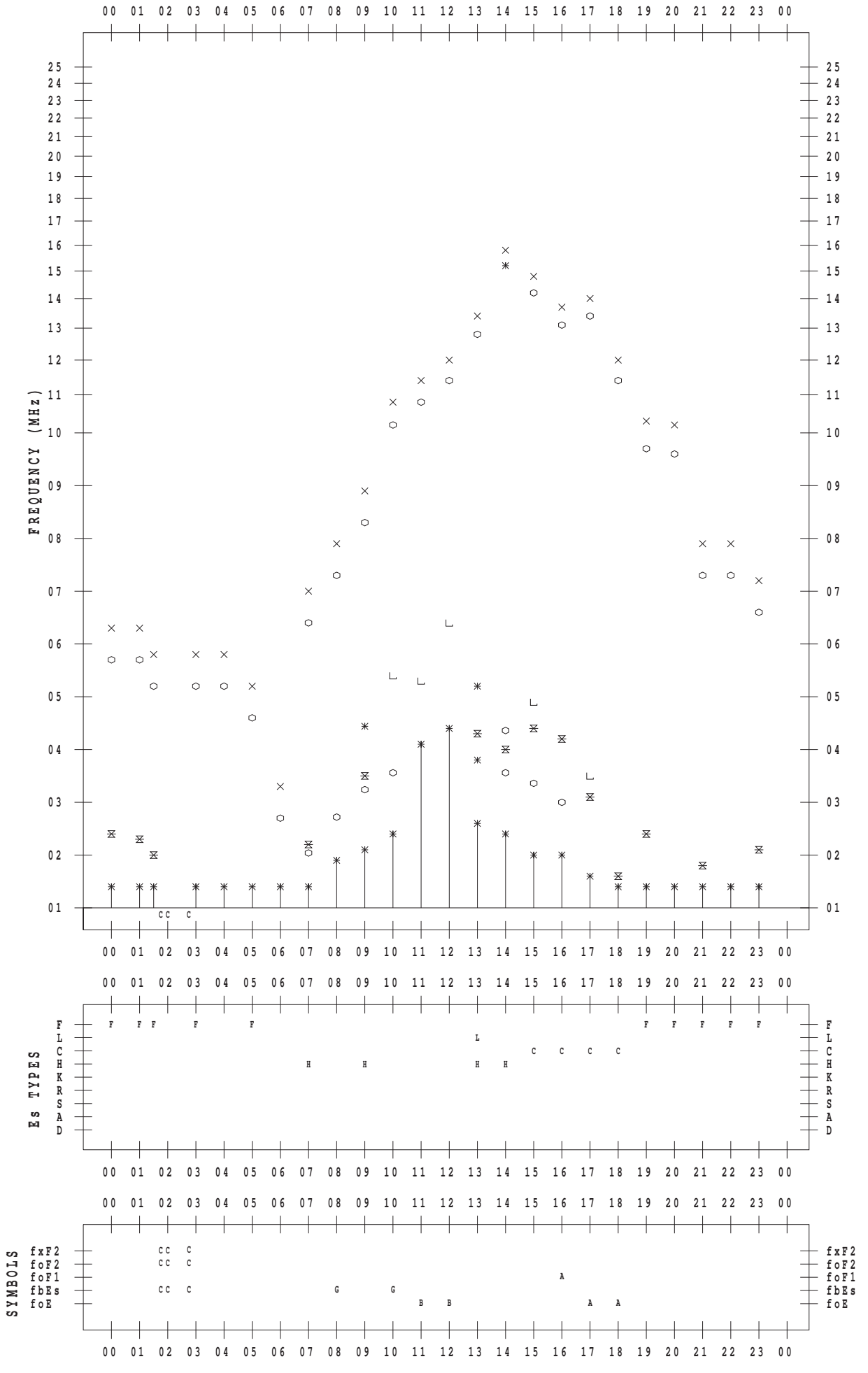
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/12

135 °E MEAN TIME



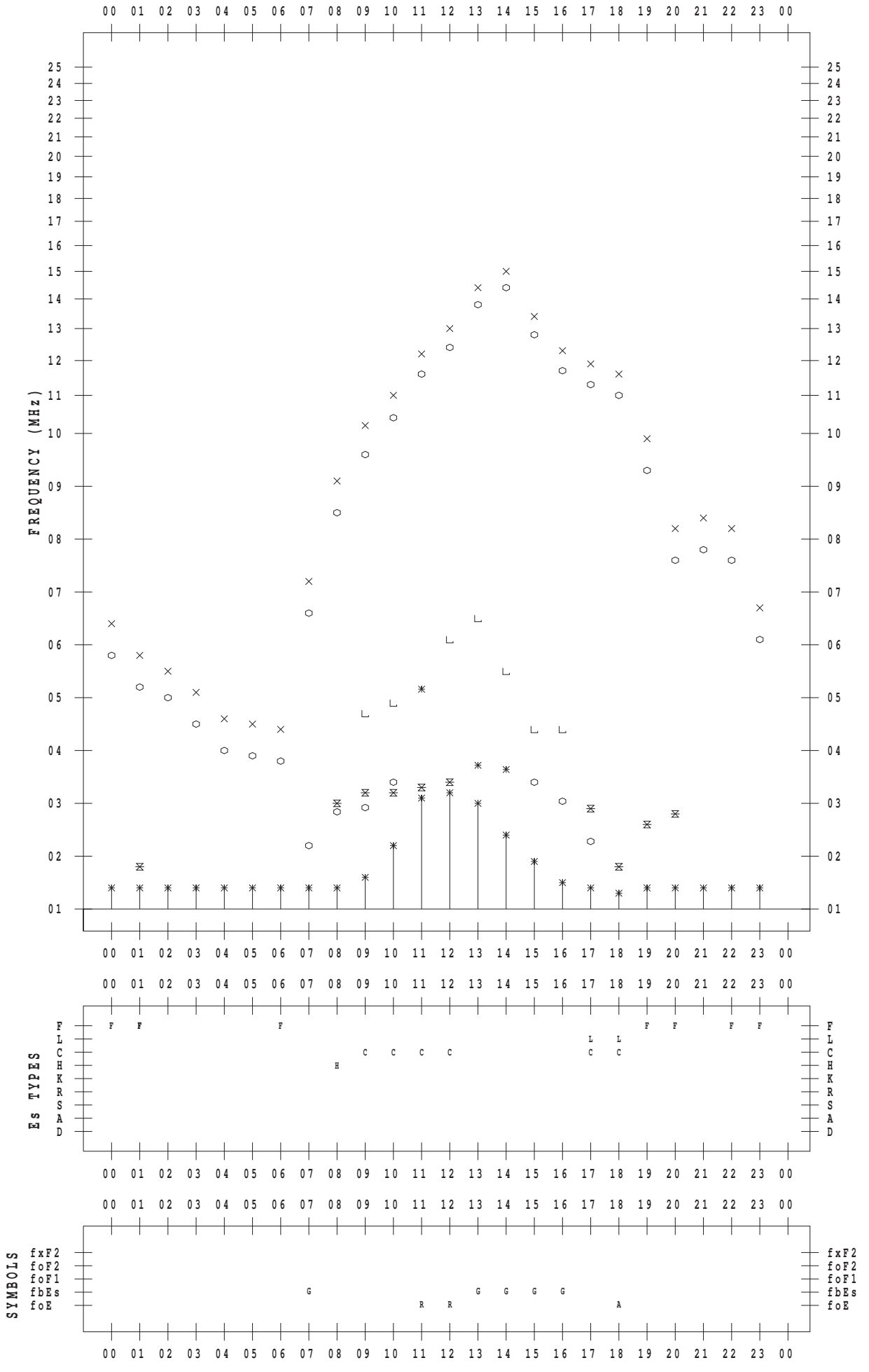
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/13

135 °E MEAN TIME



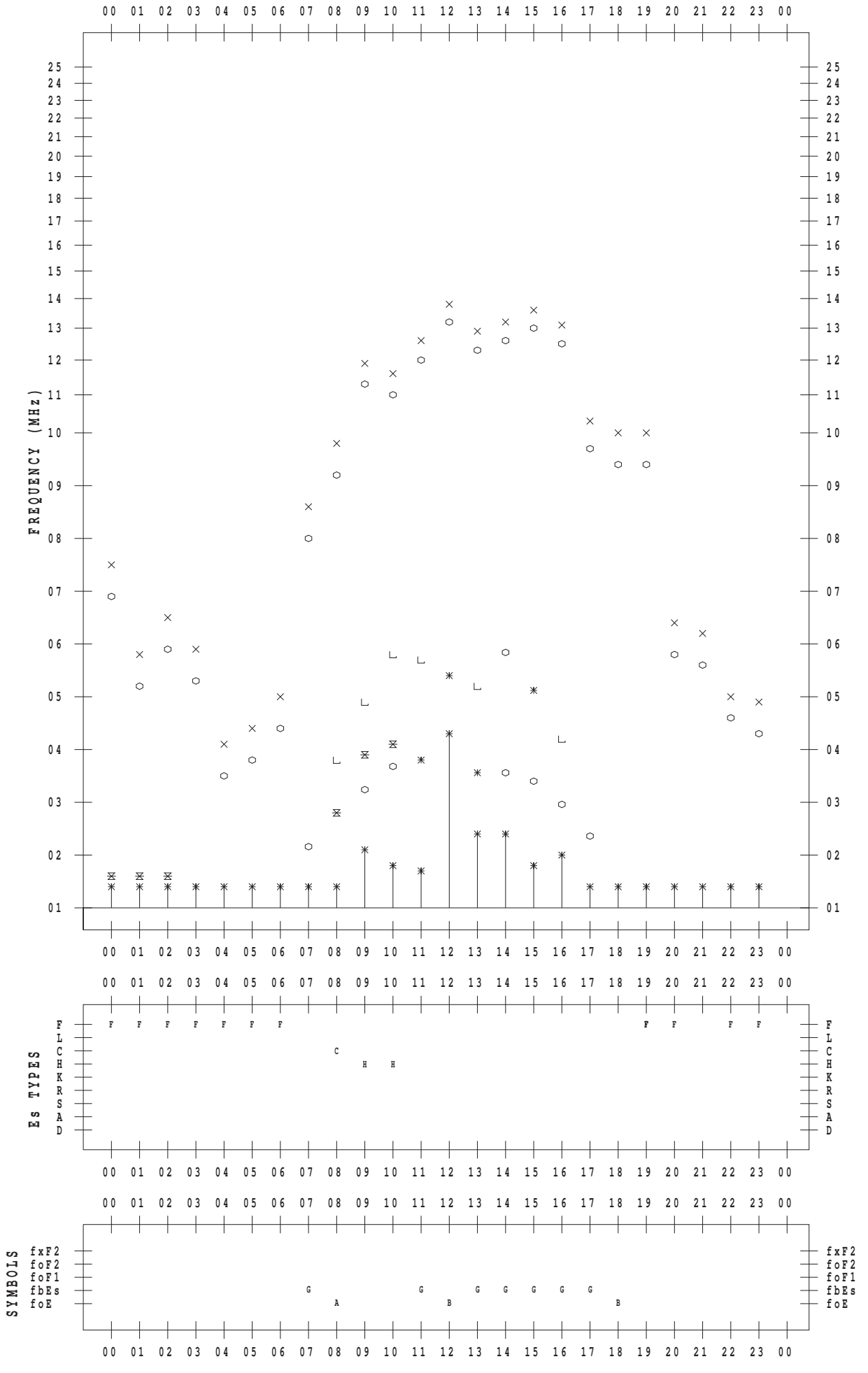
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/14

135 °E MEAN TIME



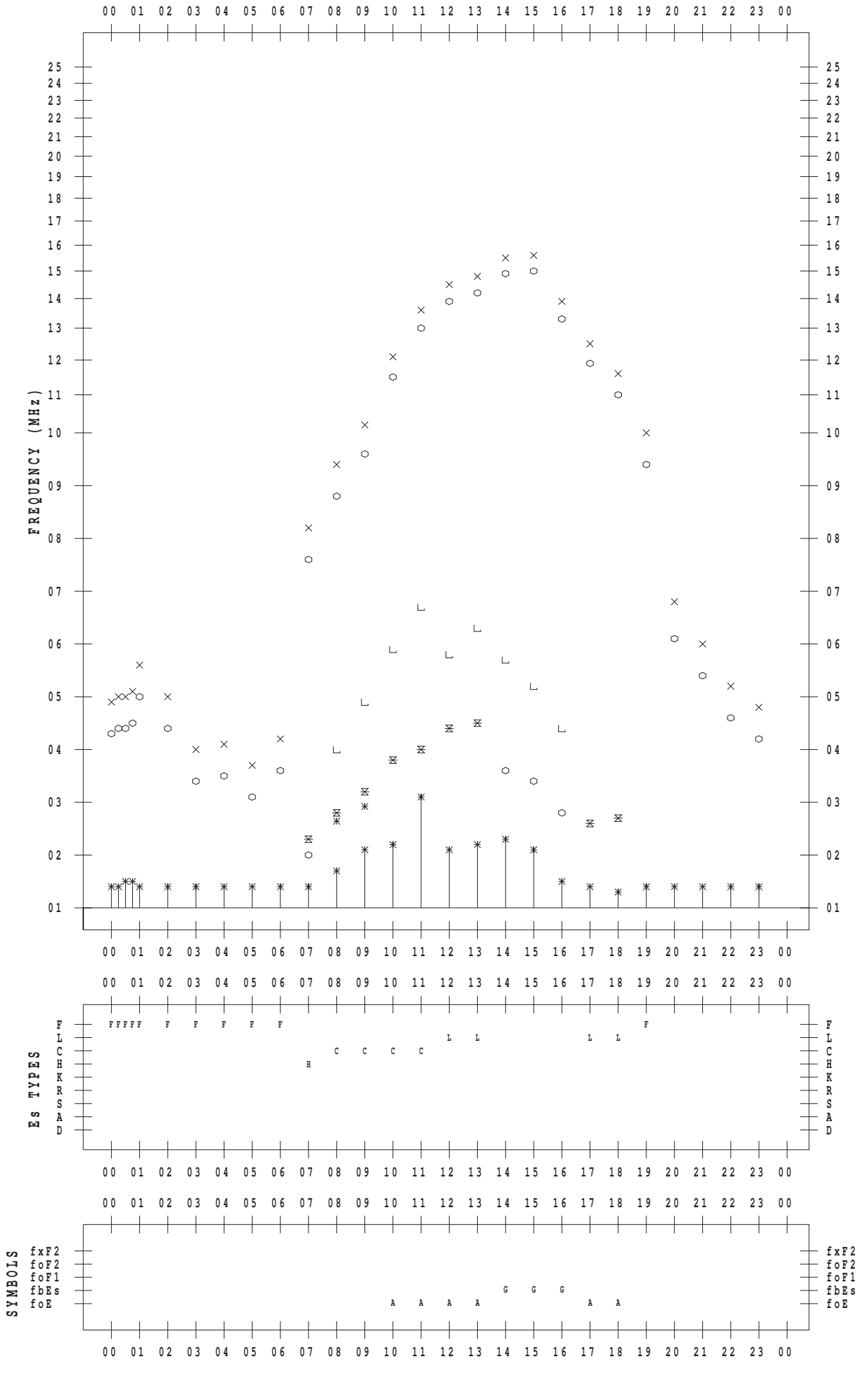
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/15

135 °E MEAN TIME



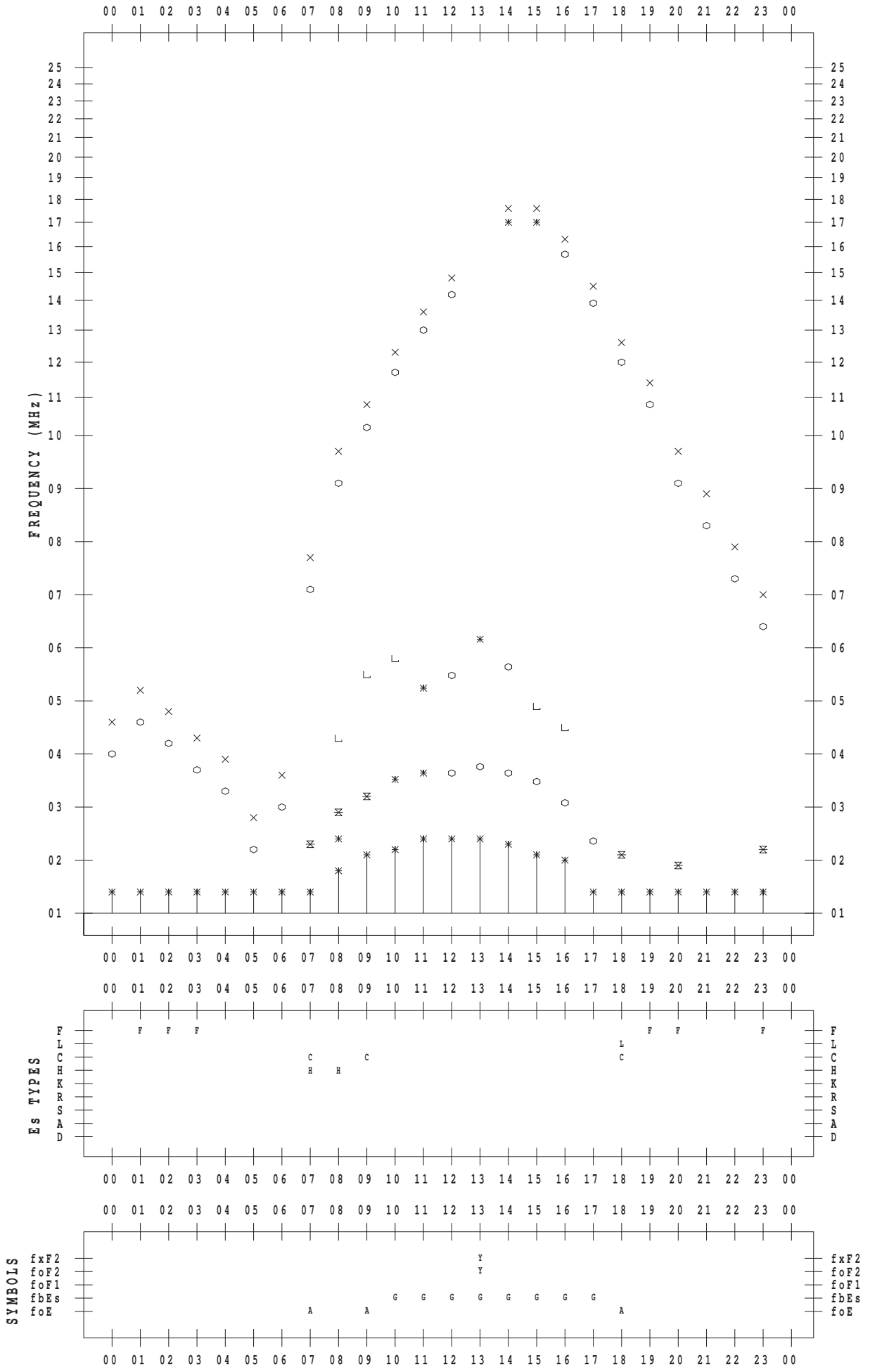
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/16

135 °E MEAN TIME



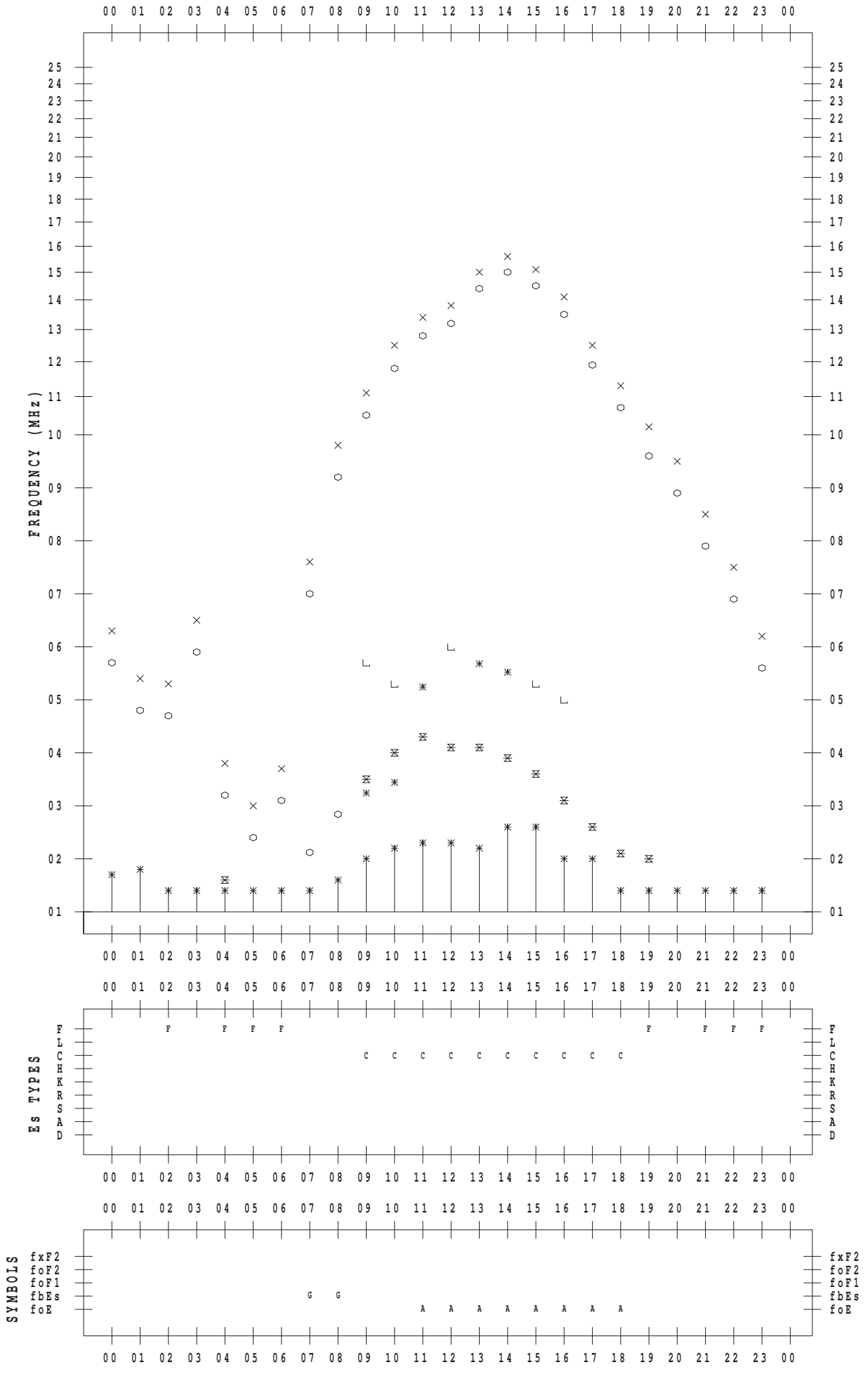
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/17

135 °E MEAN TIME



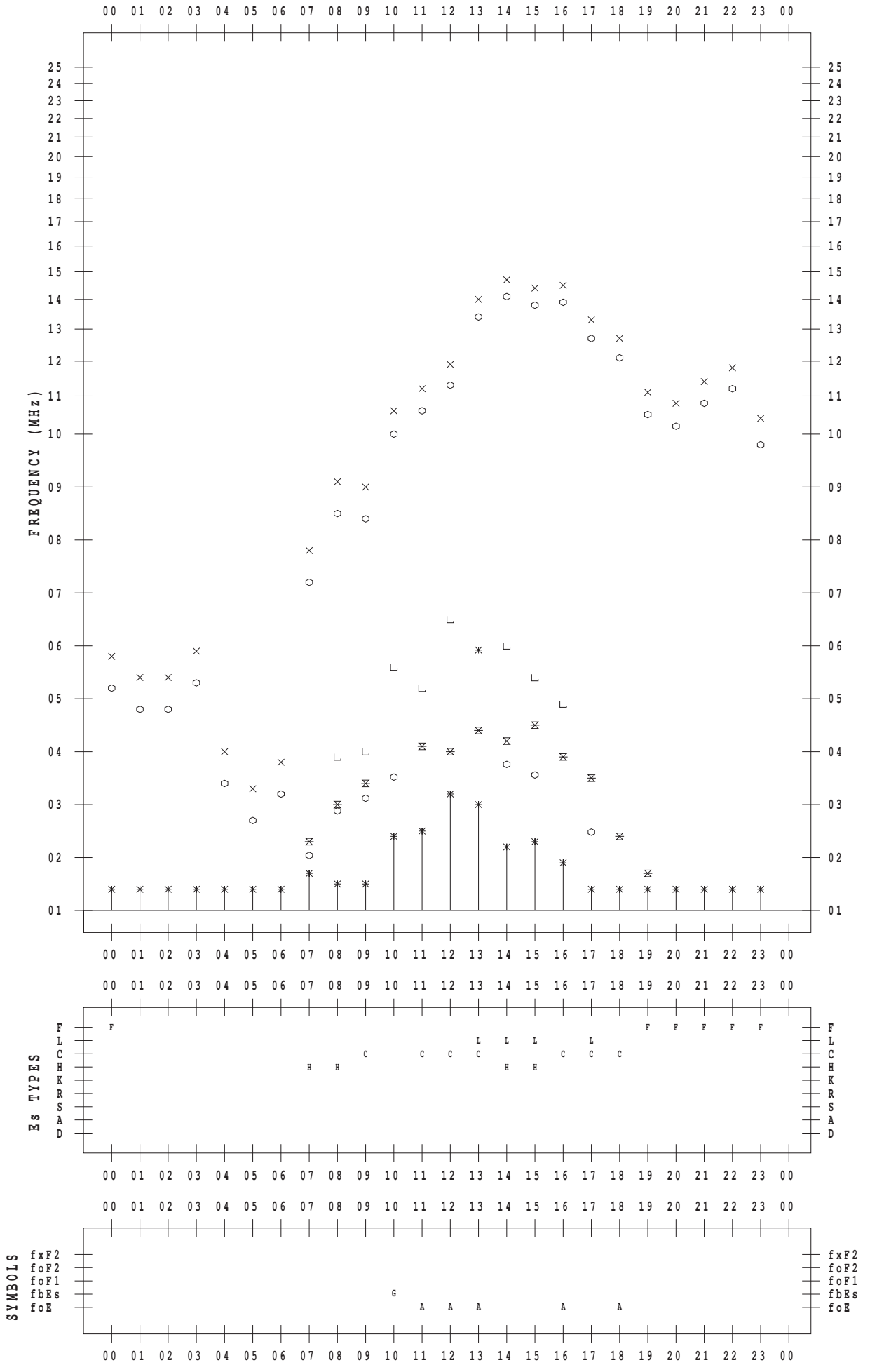
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/18

135 °E MEAN TIME



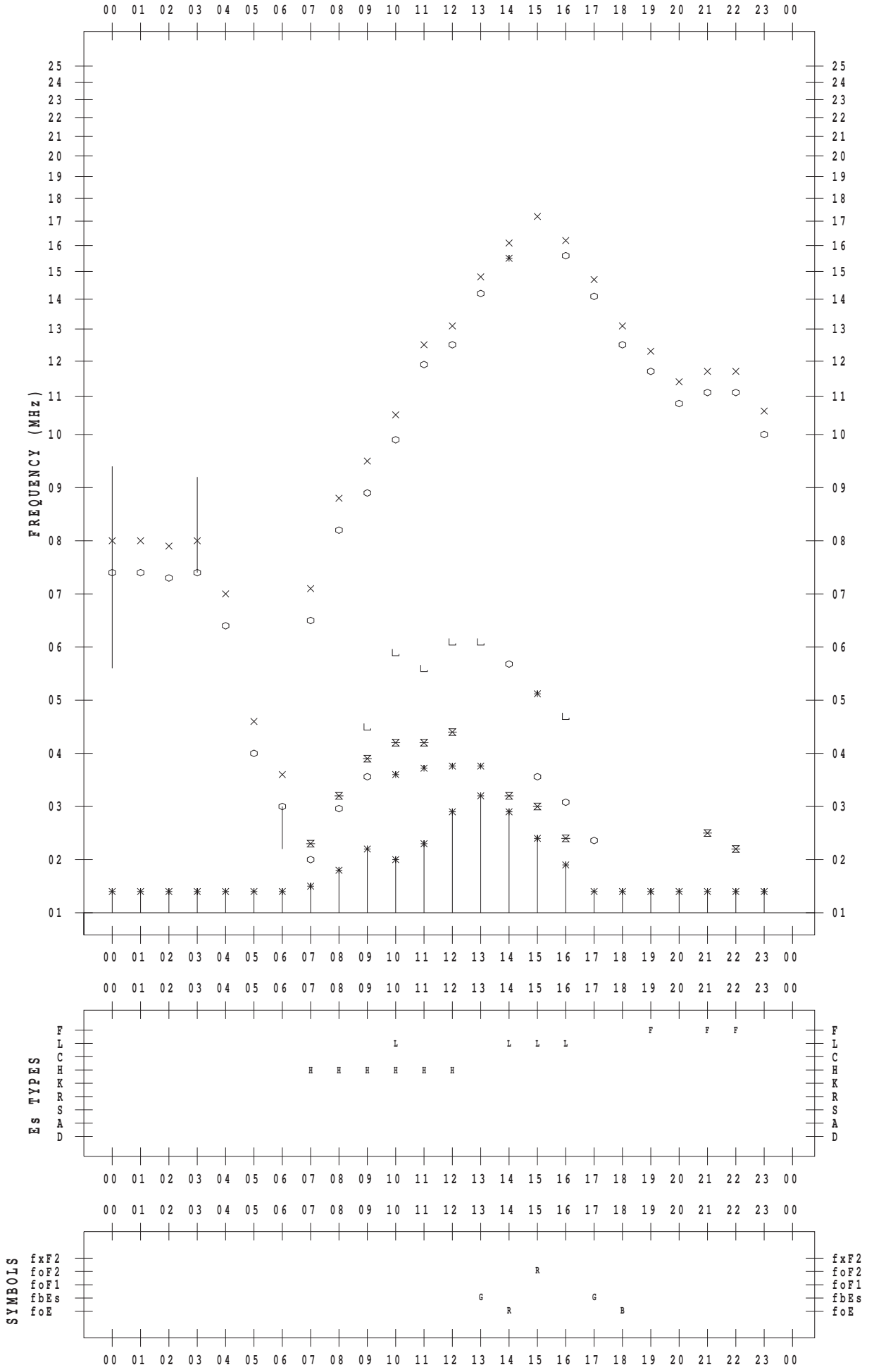
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/19

135 °E MEAN TIME



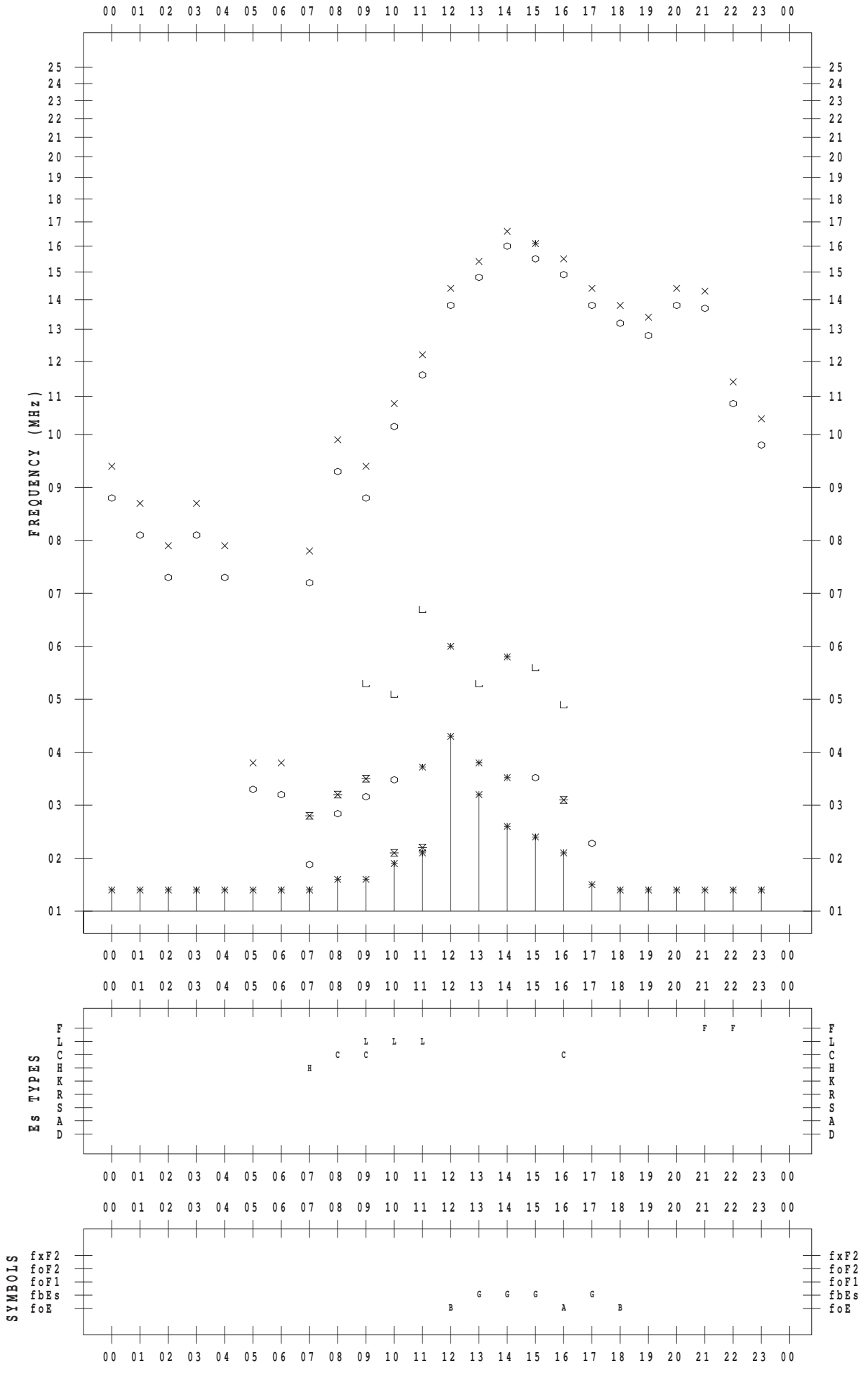
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/20

135 °E MEAN TIME



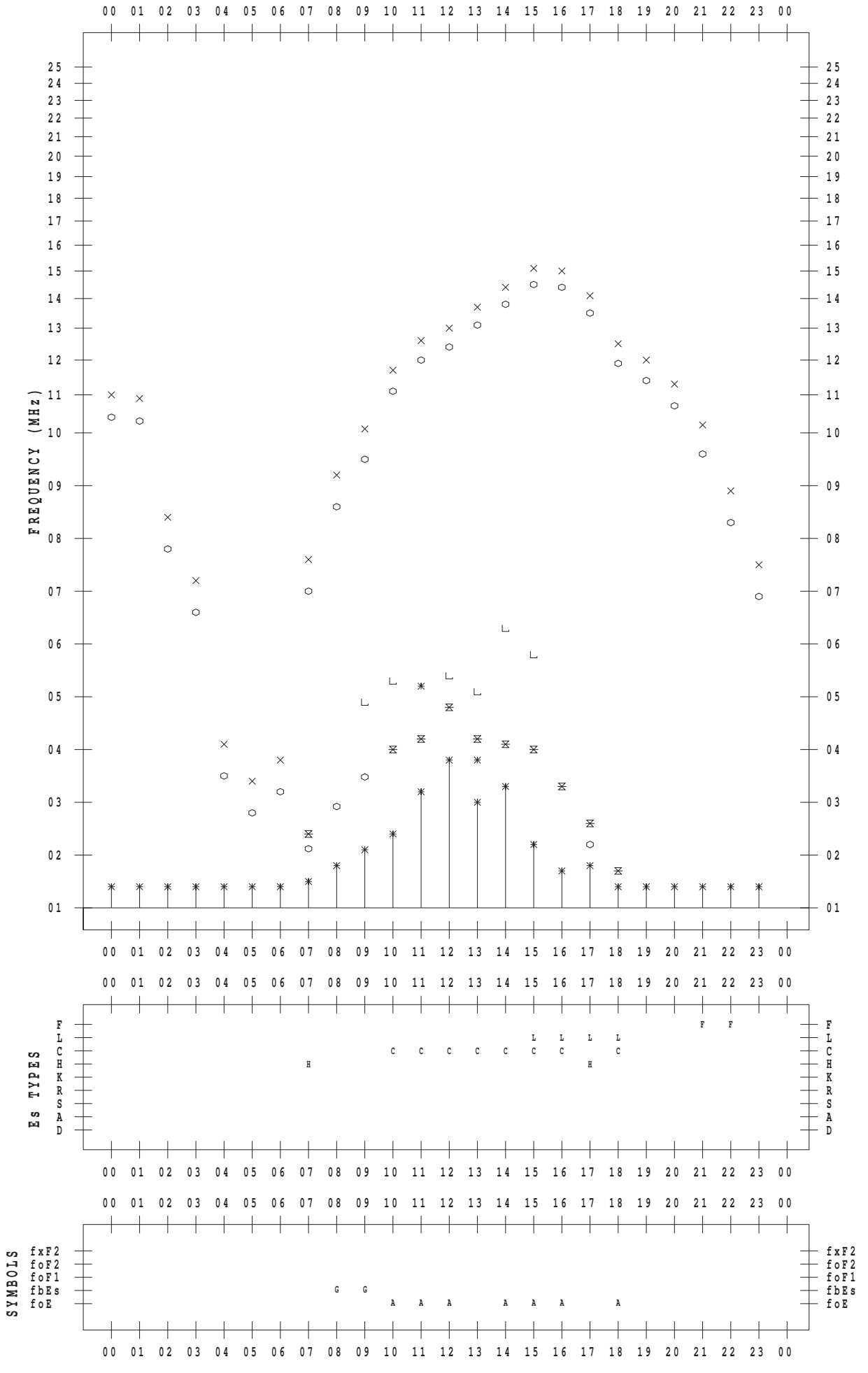
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/21

135 °E MEAN TIME



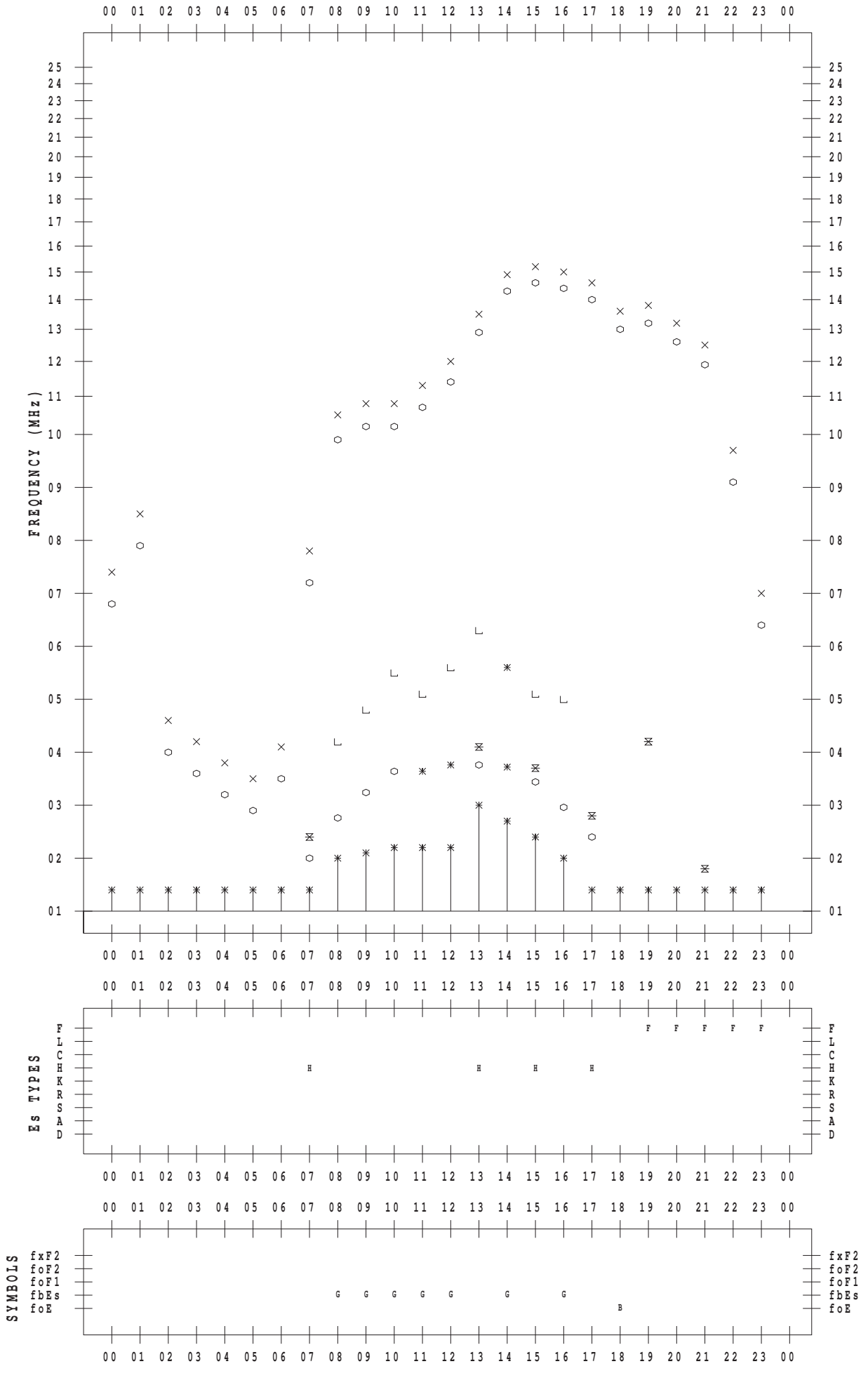
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/22

135 °E MEAN TIME



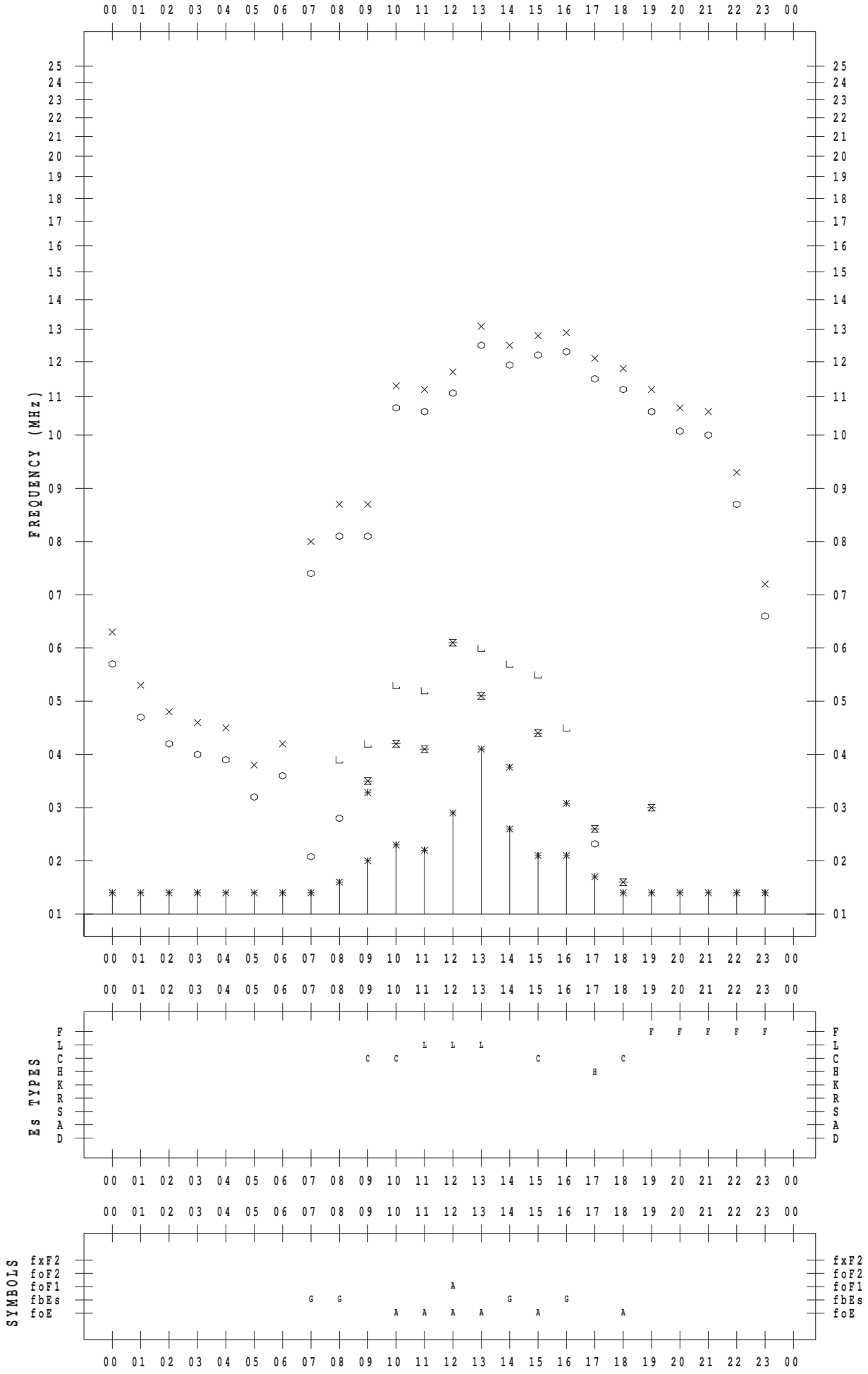
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/23

135 °E MEAN TIME



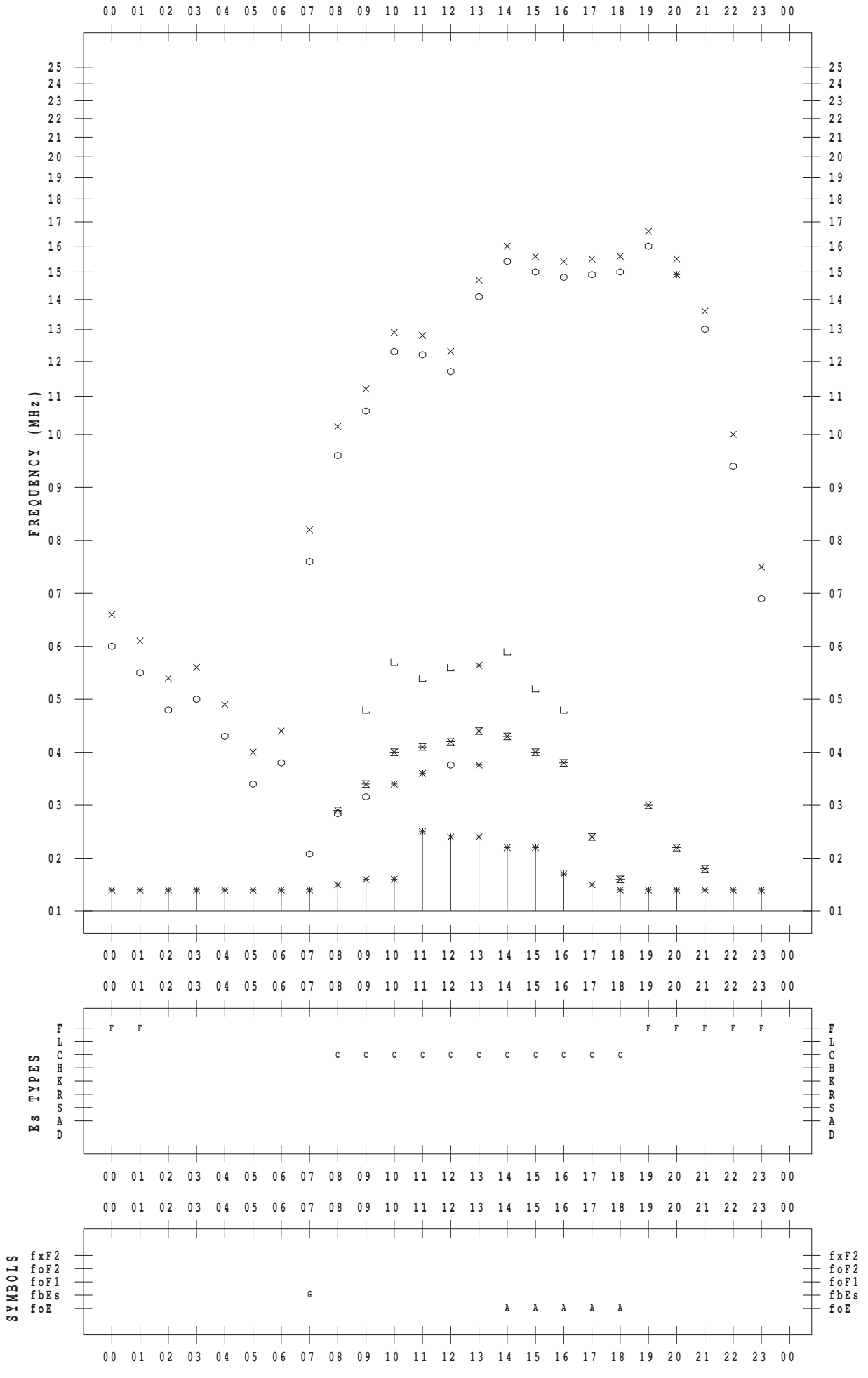
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/24

135 °E MEAN TIME



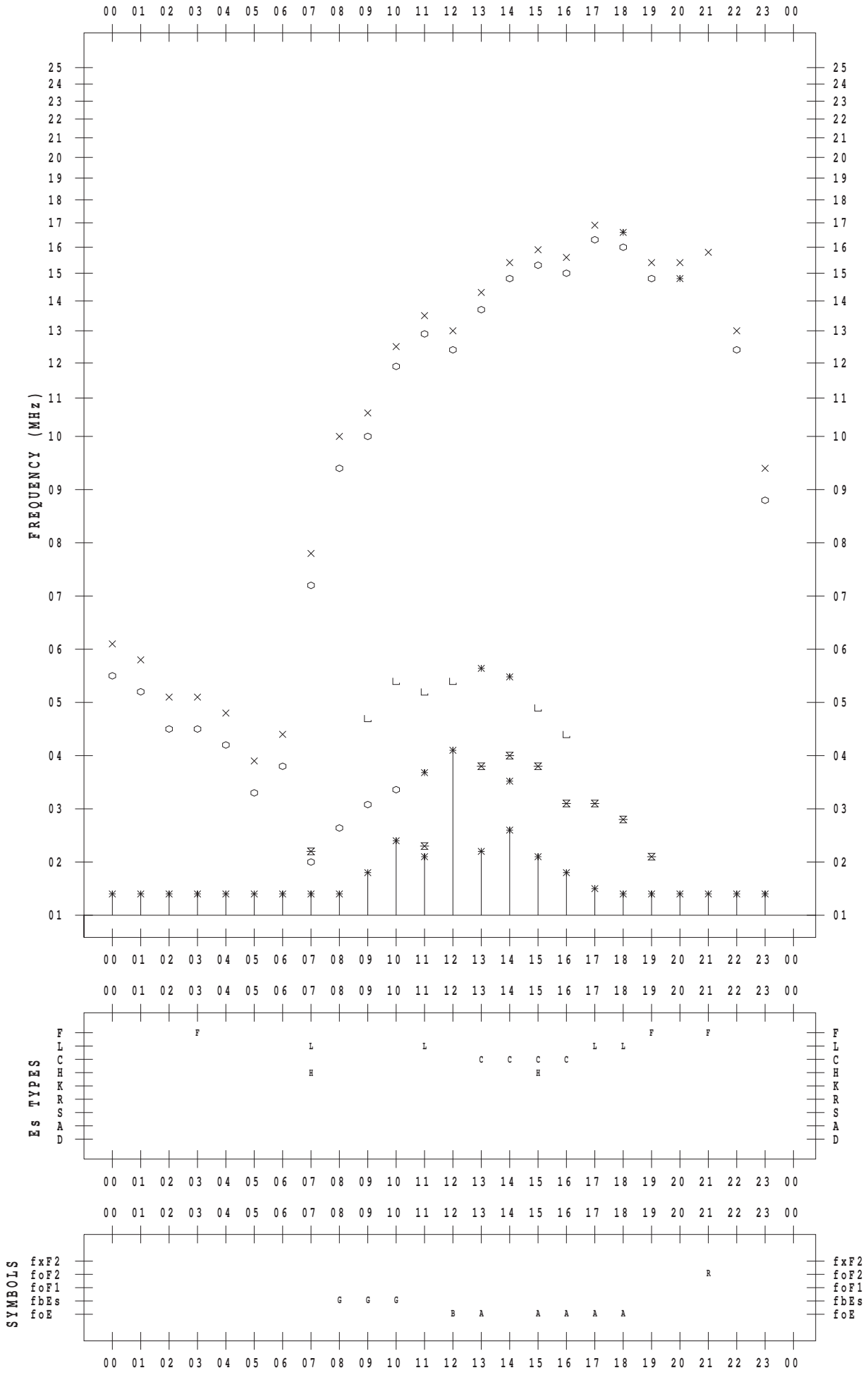
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/25

135 °E MEAN TIME



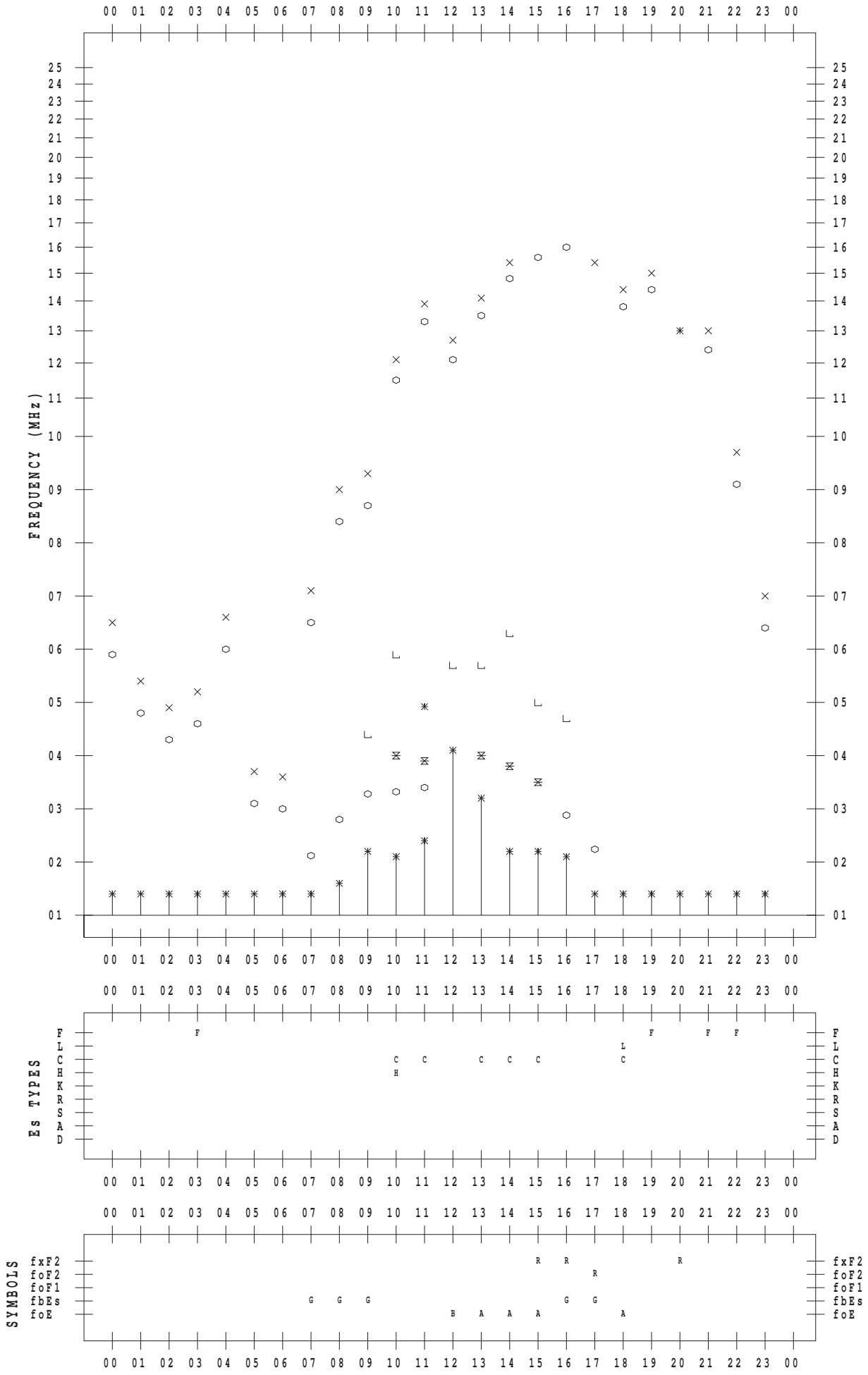
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/26

135 °E MEAN TIME



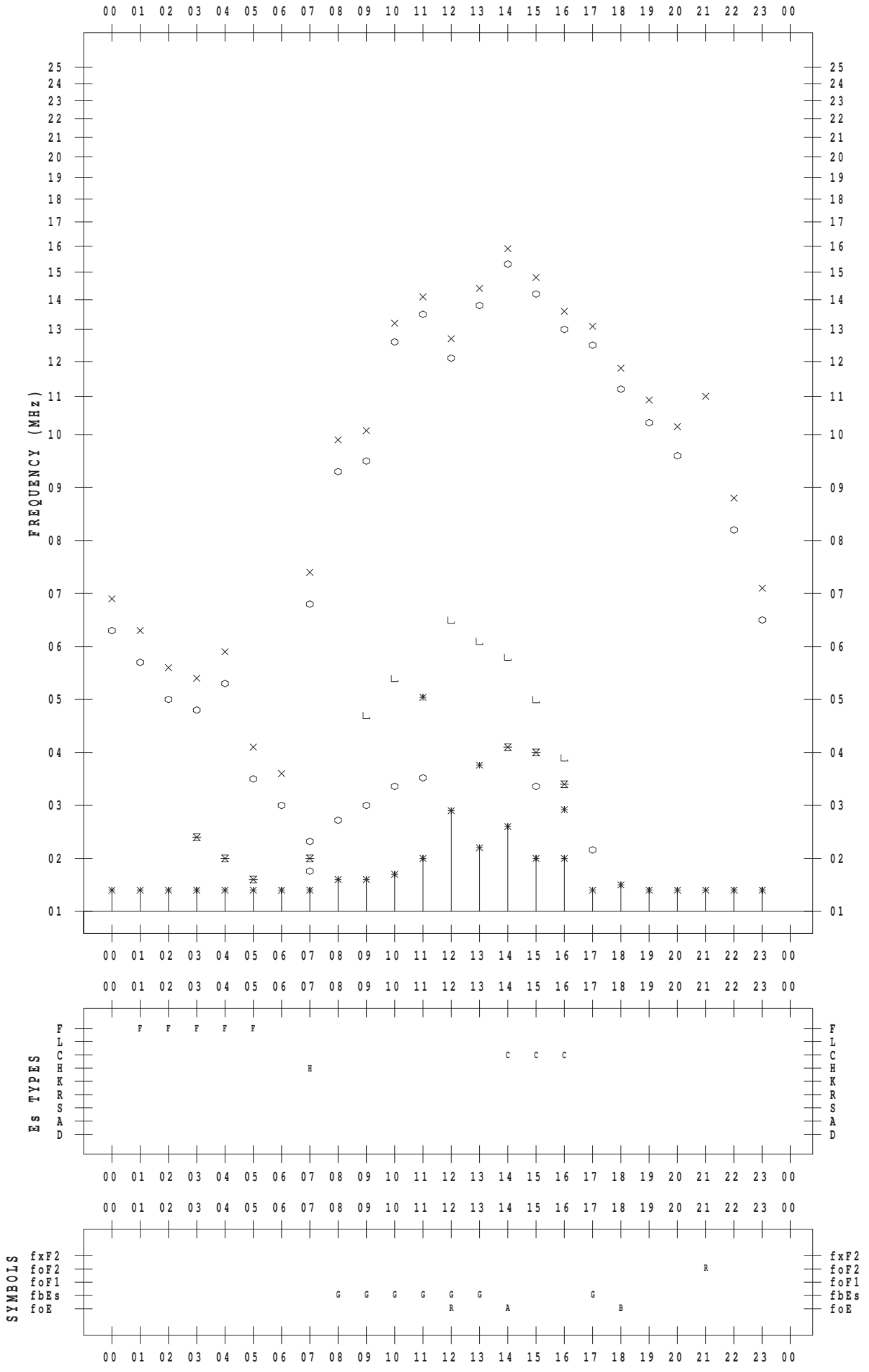
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/27

135 °E MEAN TIME



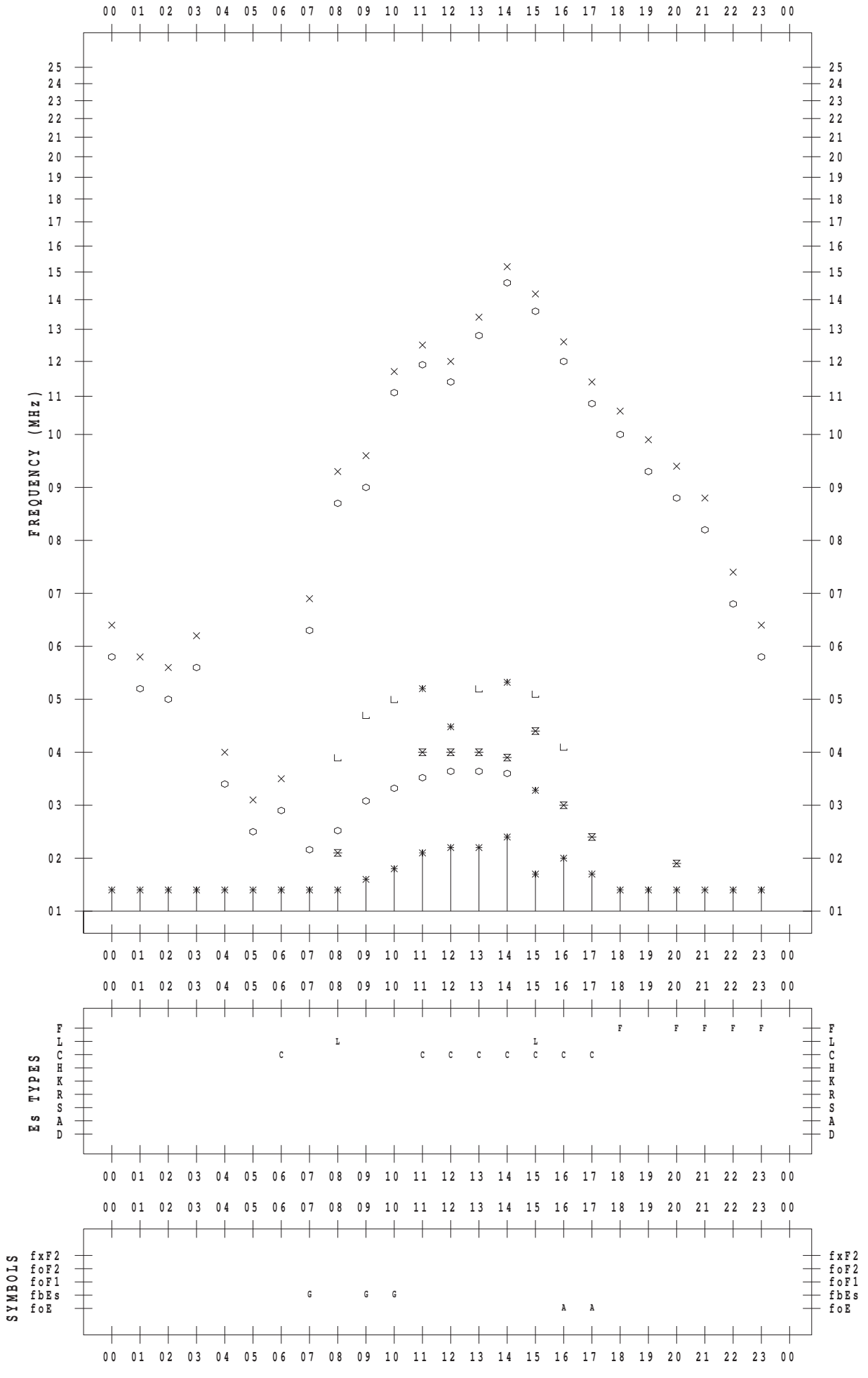
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/28

135 °E MEAN TIME



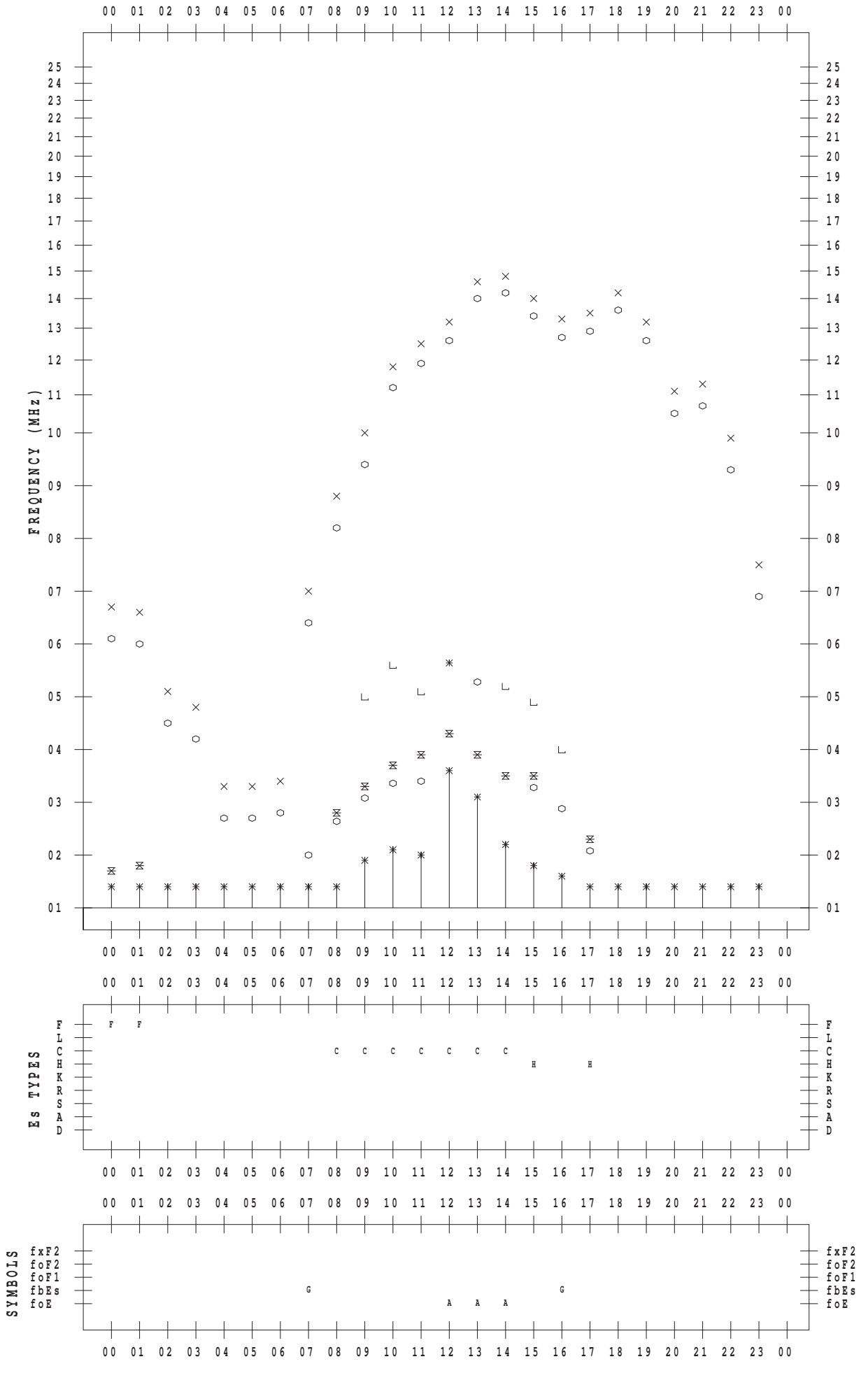
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/29

135 °E MEAN TIME



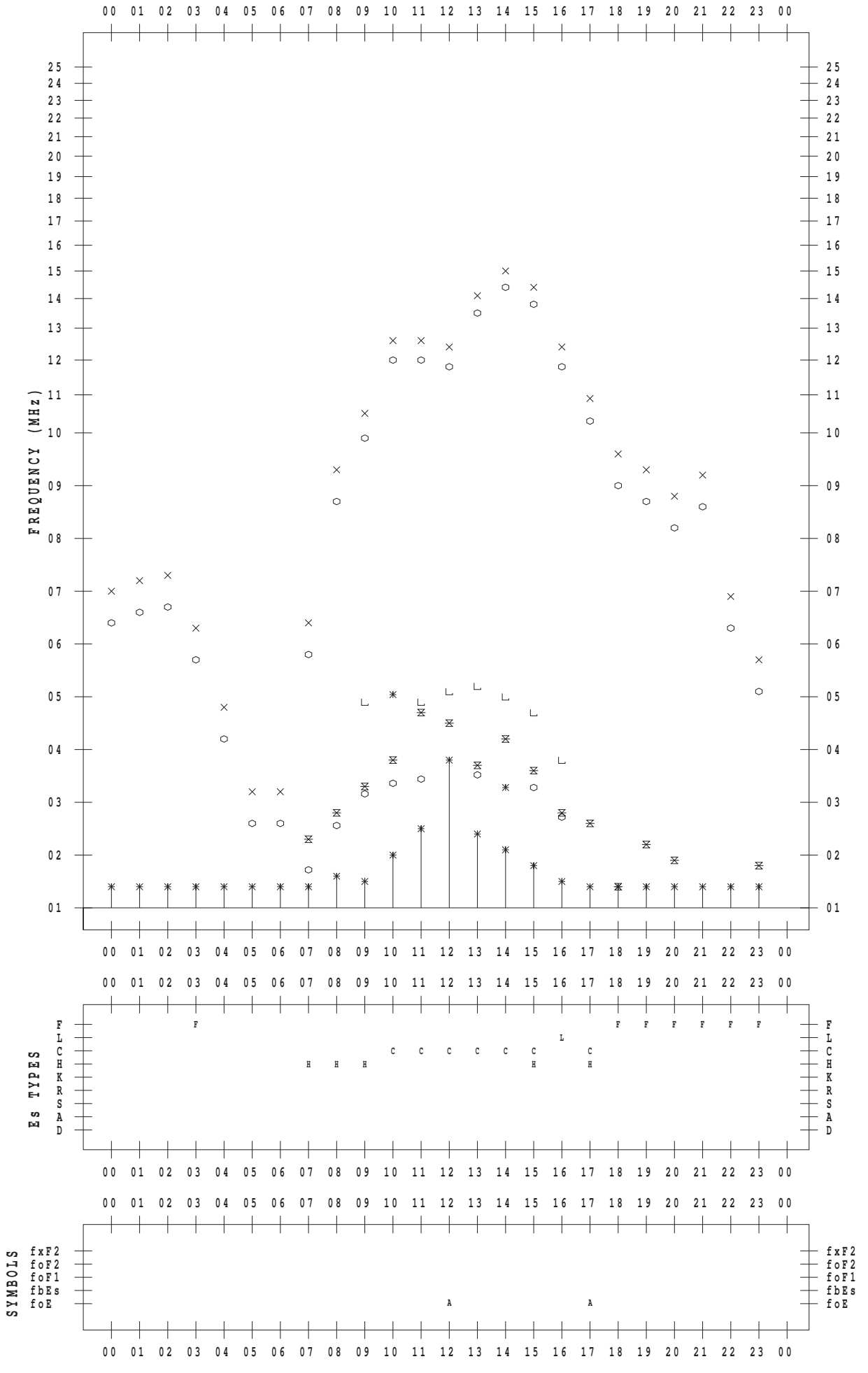
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2012/10/31

135 °E MEAN TIME