F-781

IONOSPHERIC DATA IN JAPAN

FOR JANUARY 2014

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≪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

JAN. 2014

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

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

HOURLY VALUES OF fEs AT Wakkanai

JAN. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	30	26	33	46	29	52	54	29		G	G	33	G	G	G	G	G	G
2	G	38	33	G	G	G	G	G	36	34	28	31	32	29	26	24	11	11	28	G	30	G	G	G
3	39	33	G	G	32	39	34	28	23	40	28	29	30		27	25	G	G	G	G	G		G	
4	G	G	G	G	30	28	25	26	23	39	36	38	36	34	29	22	G	G	26	G	G	G	G	G
5	G	G	G	G	G	G	G	G		38	30	31	32	30	28	24	G	G	G	G	G	G	38	34
6	38	G	G	G	G	G	G	G	53	29	31	31	31	30	28	25	G	G	G	G	G	G	G	G
7	G	G	G	G	G		G	24	35	34	33	32	33	33	29	27	G	G	G	33	34	33	28	34
8	40	30	G	G	G	G	G	G	25	28	28	30	30	G	28	24	G	G	G	G	G	46	G	27
9	32	29	G	G	G	G	G	G	20	27	30	34	32	30	26	25	G	G	G	36	50	32	28	27
10	G	G	G	G	G	G	G	G	26	29	32	32	32	30	29	G	G	G	G	G			G	G
11	G	G	G	G	G	G	G	G	G	31	30	30	32	30	26	G	G	G	G	G	G	G	G	G
12	G	G	26	G	G	G	G	G	C	G	28	G	36	31	28	G	G	G	G	G	G	G	G	33
13	51	34	40	40	36	G	G	G	G	29	33	31	26	31		27	G	G	32	G	G	38	60	36
14	34	26	G	27	32	32	32	32	34	32	38	30	34	28	28	24	24	29	28	G	G	G	G	G
15	G	G	G	G	G	G	G	G	27	30	26	30	28	G	28	G	G	G	28	28	33	G	33	33
16	32	G	G	G	G	G	G	G	G	G	G	G	G	64	40	G	G	G	G	G	34	27	G	G
17	G	G	G	G	G	G	G	G	G	52	G	G	G	G	G	34	G	G	G	32	27	G	23	G
18	G	G	G	G	G	G	G	24	48	G	G	G	G	G	G	G	G	G	36	G	G	G	G	G
19	G	G	G	G	G	G	G	26	47	G	G	N	G	G	G	G	G	G	G	G	G	G	34	G
20	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28
21	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	27	27
22	G	25	28	26	G	G	G	G	G	G	G		G	G	G	G	G	G	39	39	40	58	33	27
23	G	G	23	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
24	G	G	27	G	G	G	G	25	G	G	G	G	G	G	G	G	44	G	G	C	G	G	G	G
25	G	G	G	G	G	G	G	G	G	G		G		G	G	G	G	G	G	G	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		33	G	G
27	G	G	G	G	23	G	G	30	G	G	G	G	38	G	41	36	G	G	G	G		G	32	G
28	G	28	G	33	25	G	28	27	G	35	G	G	G	G	G	G	G	G	G	G	G	G	G	G
29	G	G	G	G	G	G	25	26	G	G		G	38		47	35	41	29	29	G	G	G	G	G
30	G	G	G	G	G	G	G	26	G	G	G		G	G	G	G	G	11	G	G	27	G	G	G
31	G	G	G	G	G	G	G	G	G	G	G	G	G	39		G	G	28	G	27	33	28	24	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	31	31	29	30	29	28	30	29	28	31	31	31	31	30	28	29	31	30
MED	G	G	G	G	G	G	G	G	G	28	26	15	29	G	26	G	G	G	G	G	G	G	G	G
U Q	G	25	G	G	G	G	G	26	30	34	30	31	32	30	28	25	G	G	26	G	28	27	28	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 Wakkanai

JAN. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	17	14	17	18	16	15	15	17	14	14	15	15	15	14		14	16	14	14	14	18	18	14	14
2	15	18	14	15	15	16	21	15	14	14	14	17	20	18	15	14	17	15	14	15	15	14	15	15
3	14	14	16	14	14	14	14	15	14	16	15	17	20		18	15	18	15	15	14	14		14	
4	14	14	15	17	15	14	15	15	15	17	21	18	21	20	15	14	17	14	16	15	15	15	15	15
5	14	15	16	14	14	15	15	16		15	16	17	17	17	15	14	20	14	14	14	15	15	14	14
6	15	14	14	15	14	14	14	15	14	14	16	15	17	16	18	15	18	14	14	14	15	15	17	15
7	14	15	15	21	14		15	15	14	14	15	15	16	18	15	14	20	14	14	14	14	14	15	15
8	14	14	16	14	15	15	17	14	14	15	15	16	20	34	16	15	17	14	14	15	15	14	14	15
9	15	14	14	15	14	14	15	14	24	20	21	20	23	30	29	26	18	14	15	14	14	15	15	14
10	28	15	15	14	15	15	15	15	14	17	20	21	22	20	18	14	14	15	15	15			14	16
11	15	16	15	15	15	14	15	16	24	17	22	23	23	23	20	24	20	14	15	16	16	15	14	15
12	15	14	14	14	14	14	15	15	C	29	32	34	26	34	21	24	21	17	14	16	16	15	14	15
13	14	15	14	14	14	15	14	15	23	21	18	18	16	20		16	18	15	14	14	15	14	14	14
14	15	17	14	15	15	14	15	14	14	18	17	18	15	18	16	14	15	14	15	14	14	15	15	14
15	14	14	15	14	15	14	15	18	15	18	34	21	40	35	21	18	20	16	14	15	14	15	14	14
16	14	17	15	15	14	15	14	14	14	15	18	18	17	20	18	24	20	15	15	15	14	15	15	14
17	15	15	15	15	14	15	15	14	23	14	16	21	20	14	15	14	20	15	15	14	14	14	15	14
18	15	14	14	14	15	15	15	16	17	14	20	18	20	20	20	16	20	14	15	14	15	20	15	15
19	15	15	14	14	15	14	15	15	14	15	15	22	20	21	18	15	20	14	15	15	15	15	14	15
20	14	30	16	15	14	15	14	17	18	15	20	18	21	21	18	16	20	14	14	15	17	18	14	14
21	14	15	15	15	14	14	14	15	15		18	21	26	22	20	27	20	15	15	16	15	17	14	15
22	14	15	15	15	15	15	14	16	18	20	21		23	32	29	26	21	15	15	14	15	14	14	14
23	14	15	14	14	15	16	14	16	14	15	16	15	15	18	15	15	21	15	14	15	14	15	15	15
24	17	14	15	14	15	15	15	15	14	14	14	15	14	15	14	14	20	14	15	C	15	16	15	15
25	14	15	15	14	17	17	15	16	14	15		15		14	14	15	18	14	15	15	15	15	15	15
26	15	15	15	15	15	15	17	15	14	15	18	17	18	16	15	15	16	14	15	14		15	15	15
27	15	14	17	14	15	15	15	15	14	15	15	15	14	16	15	15	18	14	17	15		14	15	15
28	14	15	14	14	14	14	15	16	14	14	14	14	14	14	14	14	22	15	15	14	14	15	14	14
29	15	15	14	14	18	15	15	16	14	14		14	14		15	14	14	14	15	15	15	14	14	14
30	17	15	14	14	14	14	15	17	14	14	14		18	22	33	18	23	15	15	14	14	15	14	15
31	15	15	15	14	15	15	14	17	26	18	18	20	20	15		14	14	15	14	15	15	14	14	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	30	31	31	29	30	29	29	30	29	28	31	31	31	31	30	28	29	31	30
MED	15	15	15	14	15	15	15	15	14	15	17	18	20	20	17	15	20	14	15	15	15	15	14	15
U Q	15	15	15	15	15	15	15	16	17	17	20	20	21	22	20	18	20	15	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	15	14	14	15	15	16	16	15	14	17	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

JAN. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				30	N	N		54	69	75	85	96	88	85	87	84	69	54	46	A	N	A	A	27
2					N			52	105	108	103	88	84	89	97	85	76	63	55		34			
3	27	34		A	N	34		53	67	82	104	96	110	101	100	97	91	73		53				
4			N					51	61	78	97	106	87	94	93	87	69	67	48	N		N	39	
5					N	N	N	63	73	88	87	88	93	77	84	88	67	52	46					27
6	N	27		N	32			52	84	94	101	96	91	85	82	91	76	53		54	45	N	N	
7				N			N	53	66	90	97	96	75	91	85	78	69	51	31	N	32	A	A	A
8	A							58	60	80	90	112	96	107	102	88	78	63	53	44	28	32		
9	A		28			N	68	46	66	72	96	102	84	82	91	86	80	62	A	A		A	A	A
10				27	N		N	49	72	111	109	90	85	80	95	96	83	67	64	53			A	N
11					N	N	27	59	69	83	81	92	81	81	75	81	68	59	44		38	N		
12	N	N	21			27		58	81	81	80	83	73	74	85	74	69	60	52	54	44		N	
13		28		32	N			52	70	74	102	96	81	74	87	90	74	61	51	39	47			
14			34	N		N	44	62	85	90	118	110	100	80	85	91	72	63	64	44		N		
15	N	N	N			34		53	68	74	C	C	C	C	C	C	C	55	44			26	36	N
16	N	N			N	N	58	53	77	72	111	98	88	76	74	77	63	53	52	47	N			
17				N	N	N	N	49	59	85	83	78	81	69	66	68	57	47	42		A			
18	N	N		32	34			43	82	82	98	95	83	80	74	73	60	51		46	34			27
19	34	27				N		53	69	73	90	91	82	86	81	81	61	52	A	32	N		34	
20	30			N		28		59	70	76	90	106	77	81	86	82	81	66		A			N	27
21		31						48	62	72	104	101	100	110	104	84	66	53		N				
22		39	28	38	N	28	34	54	65	77	102	100	106	100	96	88	81	76	54	52	34			N
23		A	N	31				63	83	85	105	108	101	91	84	84	72	52	53	52	53	28	A	28
24			N	34	N	N		52	76	78	90	100	92	96	88	85	82	58	44	39	A	A	A	N
25	N	32	N					64	78	83	84	85	94	85	88	83	87	64		52	52	42		N
26	34	N		27	27	N		54	63	77	87	94	90	102	83	77	76	76	47		42	N	A	32
27	A	29	N	34	26	N	32	64	77	81	86	101	107	102	91	90	86	64	52	47				30
28	A	48		48	43	N	N	63	81	76	94	98	100	98	86	87	81	73	43	47	36			
29		N		32	N			57	81	88	102	110	100	90	100	90	76	81	44	35		A		
30	31	39	38	26	N	31	26	67	88	84	112	121	98	101	81	82	83	62	44	28			34	
31	28			36	N			54	99	82	100	106	102	87	85	82	76	64	53	36	28	28	21	
	00	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	10	5	13	5	6	7	31	31	31	30	30	30	30	30	30	30	31	23	19	14	5	5	7
MED	30	32	28	32	32	30	34	54	72	81	97	97	90	86	86	84	76	62	48	47	37	28	34	27
U Q	34	39	36	35	38	34	58	59	81	85	103	106	100	98	93	88	81	66	53	52	45	37	37	30
L Q	28	28	24	28	26	28	27	52	66	76	87	92	83	80	83	81	69	53	44	39	34	27	27	27

HOURLY VALUES OF fEs AT Kokubunji

JAN. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				G	G	G	G	G	24	26	G	G	G	G	G	27	G	G	24	35	G	30	39	G
2			G		G			G	G	G	27	48	G	G	G	G	24	G	G		G			
3	G	G		24	G	G		G	G	G	G	G	G	G	G	G	G	G		G				
4			G					G	G	G	G	G	G	G	27	26	G	G	G	G		G	G	
5					G	G	G	G	G	G	52	G	G	G	G	24	G	G	G	G	G			G
6	G	G		G	G			G	G	G	48	G	G	G	G	26	G	G		G	G	G	G	
7				G			G	G	25	28	G	G	G	G	G	G	G	G	G	G	26	43	66	37
8	29		G					31	27	30	G	G	G	G	G	G	G	G	G	G	G	G		
9	33		G			G	G	G	27	29	G	G	G	G	G	30	26	G	33	35		32	33	33
10			G	G	G		G	G	26	26	G	G	G	G	G	G	G	G	G	G			28	G
11					G	G	G	G	25	26	G	G	G	G	G	28	G	G	G		G	G		
12	G	G	G			G		G	24	27	G	G	G	G	G	26	G	G	26	G	G	G	G	
13		G		G	G			G	G	26	G	G	G	G	G	G	29	26	G	G	G		G	
14			G	G		G	G	G	24	28	G	G	G	27	26	26	G	G	G	G		G		
15	G	G	G			G	G	G	G	G	C	C	C	C	C	C	C	G	G			G	G	G
16	G	G			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		
17				G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		27			
18	G	G		G	G			34	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G
19	G	G				G		G	G	G	G	G	49	G	40	G	G	G	31	G	G		G	
20	G			G		G		G	G	G	40	G	G	G	G	G	G	G		29			G	G
21		G						G	G	G	G	G	G	G	G	G	G	G		G				
22		G	G	G	G	G	G	G	G	G	47	G	G	61	G	G	G	G	G	G	G			G
23		27	G	G				G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	23	G
24			G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	29	24	33	33	G
25	G	G	G					G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G
26	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G		G	29	34	25
27	30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G				G
28	35	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			
29		G	G	G	G			G	G	G	G	52	68	50	G	G	G	G	G	G		28		
30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			G	
31	G			G	G			G	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	16	17	16	19	19	18	14	31	31	31	30	30	30	30	30	30	30	31	26	26	20	17	18	14
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	15	G	G	G	G	G	G	G	24	26	G	G	G	G	G	24	G	G	G	G	G	29	33	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 Kokubunji

JAN. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				15	15	14	14	28	18	42	39	42	42	43	39	21	34	36	14	20	14	15	13	14
2			15		18			20	38	39	39	22	57	43	40	39	34	18	17		20			
3	21	20		18	17	18		21	37	39	40	42	43	39	40	37	30	17		40				
4			14					20	39	38	40	39	43	42	40	39	38	15	14	22		18	14	
5					14	21	21	42	39	40	35	43	42	42	40	18	38	17	18	20	20			17
6	14	14		14	18			21	39	38	21	42	43	45	40	39	39	18		20	39	21	14	
7				14			20	21	17	18	39	40	42	53	42	37	34	20	14	15	15	14	14	14
8	14		15					14	18	21	40	43	40	44	40	39	40	17	14	20	15	18		
9	20		18			13	20	21	17	20	39	42	42	43	42	41	39	18	15	13		14	15	14
10			22	17	17		14	22	18	40	42	42	42	40	38	40	37	14	17	17			14	20
11					22	14	15	39	42	41	42	42	43	42	38	39	39	38	18		17	18		
12	15	15	20			17		20	37	40	42	43	40	42	38	17	29	18	20	13	14	21	17	
13		18		14	15			22	33	21	40	42	44	42	40	40	15	14	14	14	15		14	
14			20	14		21	17	21	39	20	42	42	40	42	41	37	39	18	14	14		15		
15	18	14	20			17	18	20	39	38	C	C	C	C	C	C	C	20	14			17	17	15
16	20	14			18	22	14	18	39	17	43	43	40	40	40	21	39	40	17	14	15	21		
17				14	14	17	18	40	20	17	43	44	44	42	44	18	35	17	15		14			
18	20	17		15	18			14	41	39	20	43	44	38	42	17	29	18	15	15	21		20	14
19	20	17				14		21	18	15	20	41	42	53	31	22	29	18	17	21	17		17	
20	20			21		14		20	34	17	20	42	43	43	39	39	39	30		14			20	14
21		15						21	43	39	44	40	46	40	21	36	39	18		14				
22		18	14	18	14	15	21	20	30	20	43	40	43	39	43	42	36	18	18	17	20			21
23		17	18	14				18	15	15	39	42	42	39	40	40	39	18	15	21	22	17	15	14
24			15	13	17	18		20	14	20	40	42	39	40	42	17	38	21	17	13	17	14	14	20
25	21	15	15					20	18	17	39	46	46	43	38	17	14	22		17	17	14	17	14
26	14	20	21	15	20	15		20	38	43	39	40	55	43	40	39	34	20	14		15	18	15	15
27	15	14	14	15	14	18	17	24	42	21	39	49	42	43	43	42	15	22	15	17				15
28	13	14		15	17	14	18	20	13	15	40	44	39	40	39	40	33	21	15	14	14			
29		21	15	14	14			22	33	40	39	36	38	39	43	18	33	21	21	17		14		
30	15	14	14	21	15	18	20	34	13	22	40	42	45	45	37	39	35	21	15	14			14	
31	18			14	14			22	17	37	40	43	39	42	40	40	17	37	21	13	18	18	15	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	17	16	19	19	18	14	31	31	31	30	30	30	30	30	30	30	31	26	26	20	17	18	14
MED	18	15	15	15	17	17	18	21	33	22	40	42	42	42	40	39	35	18	15	16	17	17	15	14
U Q	20	18	20	17	18	18	20	22	39	39	42	43	44	43	42	40	39	21	17	20	20	18	17	17
L Q	14	14	14	14	14	14	15	20	18	18	39	41	40	40	39	21	30	18	14	14	15	14	14	14

HOURLY VALUES OF foF2 AT Yamagawa

JAN. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	29		34	B	28	54	59	80	84	64	86	58	88	86	96	N	54	52	51	36	26	34
2	37	42	53	56	B	B	B	34	84	91	91	96	69	69	90	94	92	78	A	A	45	36	18	B
3	B	31	32	B	N	29	49	43	54	77	96	69	95	79	90	86	91	82	57	46	B	B	B	B
4	34	B	34	B	34	N	N	41	71	76	85	69	89	79	112	80	95	78	52	53	48	36	34	
5	B	B			28	B	26	37	59	84	78	N	88	94	88	94	98	88	54	A	53	42	30	B
6		N	32	32	29	B	B	37	72	86	89	84	87	86	83	90	84	78	54	53	80	53	34	B
7	B	B	28	31	32	29		40	62	78	87	69	89	88	94	88	85	80	53	A	42	A	A	A
8	32	40	43	A	B	28	28	36	80	85	N	85	85	86	85	90	82	81	74	76	53		43	40
9	A	31	B	28	34	B	B	34	64	71	86	69	78	87	85	79	87	80	70	54	37		A	42
10	A	A	B	B	59		B	N	49	88	88	87	62	78	N	98	90	81	77	69	58	A	27	
11	B	B	B	B	B	B	B	40	55	70	86	79	79	92	84	81	83	86	76	34		42	34	B
12	B	34	34	59	28	B	B	32	88	80	77	85	79	86	84	86	N	87	78	69	79	52	52	43
13	B	B	34	29	28	B	B	37	62	69	86	79	95	77	84	89	87	77	54		44	B	43	42
14		28				B	B	37	76	77	87	69	69	94	86	93	91	76	49	43		B	B	36
15	B		34			B	B	37	67	76	78	79	79	84	78	78	74	58	55	42	40	42	41	34
16	B	32	34	28	B	B	B	59	80	93	87	59	88	78	77	80	83	76	54	64	N	32	N	B
17	B	B	B	28	32	B	B	37	51	75	78	86	78		78	76	75	52	48		A	34	28	
18		B	29	40	34	B	B	29	78	86	88	88	76	69	77	81	71	78	N	47	52	49	B	B
19	B				34	B	B	30	39	77	77	92	81	89	85	78	77	78	44	33	B	44	28	34
20	28	29	B	59	34	29	28	42	73	85	77	59	69	79	N	79	91	86	69	A		59		34
21	B	B	30	B	N	B	B	30	69	82	78	86	79	90	N	N	70	73	57	49	43	37	37	B
22	34	B	N	B	29	B		42	49	91	N	90	69	79	88	93	98	79	78	54	54	34	28	
23	34	37	37	30			B	34	78	80	77	94	64	89	A	87	92	87	68	54	73	53	37	28
24	36	B			32	28	B	69	77	92	84	88	96	N	N	N	90	88	73	43	37	42	37	28
25	32	28	29	28	28	B	28	42	76	85	86	88	69	N	79	79	90	90	77	70	49	53	43	28
26		32	32	34	34	34	28	43	68	78	78	87	87	94	85	85	87	88	72	53	52	42	36	34
27	34	B		38	34	28	28	43	76	89	91	86	69	96	92	91	91	92	74	55	52	44		29
28	B	34	32	A	41		32		82	81	86	87	84	66	78	87	78	87	73	53	49	37	34	35
29		30		31		B	29		86	80	84	79	79	90	95	94	91	88	78	52	43		29	34
30	B	29	29	29	34	29	34		89	85	91	89	69	69	73	87	86	87	78	47	53	53	44	32
31	43		28	59	B	28	30	69	86	88	88	69	92	91	87	90	77	74	67	52		B	37	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10	14	19	17	20	9	12	27	31	31	29	30	31	28	26	29	30	30	29	25	23	22	23	17
MED	34	32	32	31	34	29	28	37	72	81	86	85	79	86	85	87	87	80	68	53	51	42	34	34
U Q	36	34	34	48	34	29	31	43	80	86	88	88	88	90	88	90	91	87	75	54	53	52	41	38
L Q	32	29	29	28	29	28	28	34	59	77	78	69	69	78	79	80	82	78	54	46	43	36	28	30

HOURLY VALUES OF fEs AT Yamagawa

JAN. 2014

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

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

HOURLY VALUES OF fmin AT Yamagawa

JAN. 2014

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	21	71	18	B	66	18	15	18	40	40	43	45	40	20	20	24	29	17	18	17	20	17
2	18	17	71	17	B	B	B	18	27	18	35	40	58	26	42	17	16	15	16	17	21	20	20	B
3	B	18	20	B	21	18	20	15	28	21	36	36	42	52	48	20	20	22	16	20	B	B	B	B
4	18	B	20	B	15	20	66	18	21	18	41	41	44	36	24	18	17	23	16	21	16	17	17	21
5	B	B	66	18	15	B	20	18	28	32	30	39	49	47	21	18	14	16	17	15	16	17	20	B
6	66	15	18	17	17	B	B	20	36	20	42	48	22	21	22	18	17	16	16	17	17	21	18	B
7	B	B	16	18	18	17	66	17	28	16	18	27	28	50	27	18	18	14	15	15	15	17	17	17
8	21	66	20	17	B	20	21	17	24	20	20	29	27	46	35	21	20	27	17	16	17	66	21	18
9	16	17	B	18	14	B	B	66	26	17	20	23	28	28	56	35	18	16	16	18	21	20	17	21
10	18	15	B	B	18	66	B	21	28	20	28	43	50	44	22	20	17	15	16	18	18	66	16	66
11	B	B	B	B	B	B	B	18	16	20	26	39	27	27	21	20	18	26	17	20	66	18	15	B
12	B	17	66	18	18	B	B	17	27	17	23	30	29	30	26	20	16	22	17	17	17	16	18	20
13	B	B	18	17	18	B	B	24	23	20	24	27	29	29	56	20	29	30	20	66	26	B	20	21
14	18	18	66	66	66	B	B	18	23	18	21	40	58	52	44	18	28	16	16	18	15	B	B	16
15	B	66	17	24	66	B	B	17	24	18	38	39	53	44	44	39	18	23	16	15	17	15	17	17
16	B	17	17	16	B	B	B	18	15	18	28	28	28	42	27	26	17	22	16	17	16	18	17	B
17	B	B	B	20	18	B	B	16	18	16	18	21	44	71	24	21	16	18	15	71	16	15	20	66
18	66	B	17	17	16	B	B	17	26	18	21	40	56	22	24	20	17	26	17	17	18	17	B	B
19	B	66	66	71	20	B	B	18	27	33	40	42	35	45	45	35	21	18	16	18	B	17	17	17
20	17	17	B	17	16	20	18	17	24	32	16	34	50	56	18	24	20	22	15	17	17	15	71	18
21	B	B	17	B	17	B	B	17	27	18	23	32	44	46	41	20	18	26	20	16	15	18	18	B
22	20	B	16	B	17	B	66	17	15	17	18	27	29	27	22	20	18	17	15	17	18	16	18	66
23	16	18	26	16	18	66	B	17	27	32	20	21	29	20	26	18	15	14	17	16	15	15	23	18
24	16	B	20	66	17	18	B	16	15	17	18	21	26	27	21	18	17	14	17	15	18	15	17	16
25	20	16	18	20	18	B	20	17	23	17	18	21	41	23	23	18	16	14	14	16	18	17	16	20
26	20	18	18	17	15	17	17	16	23	15	16	18	21	28	28	27	20	15	16	16	17	17	17	18
27	17	B	16	16	17	18	18	16	20	18	18	43	43	46	39	21	20	16	17	15	16	16	66	18
28	B	18	21	16	20	66	18	18	17	17	21	15	22	38	45	26	18	27	17	15	20	15	18	18
29	21	18	71	16	18	B	18	16	17	18	21	21	27	28	38	20	17	26	17	15	18	27	20	15
30	B	21	18	17	18	18	21	18	28	17	21	41	44	44	37	20	39	18	16	18	17	16	16	18
31	17	27	15	17	B	17	15	18	27	18	20	21	44	42	52	26	18	21	17	15	17	B	17	66
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	19	26	25	26	13	15	31	31	31	31	31	31	31	31	31	31	31	31	31	29	27	28	23
MED	18	18	19	17	18	18	20	17	24	18	21	32	41	42	28	20	18	18	16	17	17	17	18	18
U Q	20	21	26	20	18	43	66	18	27	20	30	40	44	46	44	24	20	24	17	18	18	18	20	21
L Q	17	17	17	17	17	17	18	17	18	17	18	21	28	27	23	18	17	16	16	15	16	16	17	17

HOURLY VALUES OF foF2 AT Okinawa

JAN. 2014

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	B	B	B	B	B	B	B		78	84	110	101	102	82	109	133	132	130	88	78	83	N	53	B
2		B		61	B	B	B	37	88	107	110	92	131	69	130	119	127	104	88	66	82	A	66	
3	B	B	B	B	B	B	B	44	64	78	107	118	87	118	121	110	128	121	106	63	53			B
4	B	B	B	B	B	B	B	B	67	101	119	124	119	107	110	N	143	118	79	64	52	67		47
5		B		32		B	B	N	87	88	90	118	110	134	129	108	129	126	88	67	B	82	N	
6	B	B	B		B	B	B	B	74	97	105	106	56	108	59	87	105	89	66	N		54	A	B
7	B	B	B	B	B	B	B	B	76	78	88	107	106	107	109	108	116	91	72	B		54		B
8	B	B	B	B	B	B	B		88	107	116	88	130	109	N	133	130	129	89	N	86	65	52	A
9		B		B	B	B	B	36	52	74	103	108	104	101	102	112	106	101	88		A	74	54	
10		B	B		B	A	B	B	66	90	105	87	87	107	93	118	118	123	107	107	A	49	78	B
11	B	B	B	B	29	B	B	B	66	80	82	99	112	116	111	108	110	118	88	88		56	63	B
12	B	B	B	B	B	B	B	B	88	89	85	87	103	89	107	114	111	126	79	89	67	86	A	66
13	B	B	B		B	B	B		76	72	88	82	107	90	88	88	102	90	78		53	66	61	B
14	B			B	B	B	B	B	53	87	111	126	130	114	92	119	130	130	106		49	74	52	51
15	B	B			B	B	B	35	82	85	81	110	115	123	108	93	88	78	68	52	B	66	67	
16		B	B	B		B	B		83	93	86	129	107	108	118	108	108	108	88	72	80	78	66	B
17	B	B	B	B	B	B	B	B	73	82	84	104	102	128	122	103	83	78	58			54	B	
18	B	B	B		N	B	B	B	78	106	118	126	121	108	130	110	112	104		53	76		52	B
19	B	B	B		B	B	B	B	65	88	88	91	108	110	126	118	106	88	77	B	54	62	52	
20	B	B	B		B		B		82	107	93	106	109	N	128	132	130	129	108	79		68	63	
21	39	B	B	40	B	B	B		72	94	90	83	107	109	132	130	128	128	88	72	A	72	B	B
22			A	B	B	B	B	B	82	87	74	110	119	119	119	N	111	129	130				A	67
23	49			B	B	B	B		86	103	102	120	109	69	109	112	N	N	107	53			49	59
24		B	B	B		B	B		76	70	90	86	110	N	130	113	109	125	110	N		87	73	B
25	B		B	B	B	B	B		76	96	118	110	90	79	124	N	130	130	107	79	80		67	B
26	B		B	B	34	B	B		78	82	85	88	77	103	107	104	107	105	84	69	67		78	
27		B			B	B	B	42	77	81	103	98	106	113	N	130	N	129	108	N	86			B
28	B		B	B	N	B	B	B	78	88	93	103	103	115	102	106	88	97	86	53				
29	28	B	B	B	B	B	B		80	96	114	112	132	131	118	124	119	106	107	78	76			73
30			34		B	B	B	B	87	106	118	108	128	110	107	131	118	130	88	80	64			52
31	B		B	B		B	B	B	81	116	109	106	88	107	88	119	112	78	81	72		67	52	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	3		1	3	2			5	31	31	31	31	31	29	29	28	29	30	30	20	16	19	18	7
MED	39		34	40	32			37	78	88	102	106	107	108	110	112	112	118	88	72	72	67	62	59
U Q	49		17	61	34			43	82	101	110	112	119	115	125	121	128	129	107	79	81	74	67	67
L Q	28		17	32	29			35	72	82	88	91	102	102	104	108	106	97	79	63	53	56	52	51

HOURLY VALUES OF fEs AT Okinawa

JAN. 2014

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	B	B	B	B	B	B	B	G	G	27	G	G	G	G	G	G	G	G	11	G	G	G	G	B
2	G	B	G	G	B	B	B	G	G	28	G	G	G	G	G	37	G	G	G	G	G	24	G	G
3	B	B	B	B	B	B	B	G	G	29	G	G	G	G	G	G	G	32	34	G	G	G	G	B
4	B	B	B	B	B	B	B	B	G	29	G	G	G	G	48	46	58	G	G	G	G	G	G	G
5	G	B	G	G	G	B	B	G	G	G	G	G	G	G	42	G	26	G	32	26	B	G	G	G
6	B	B	B	G	B	B	B	B	G	26	G	G	G	G	G	G	28	50	33	G	G	G	26	B
7	B	B	B	B	B	B	B	B	G	28	G	58	G	G	G	50	70	37	G	B	G	G	G	B
8	B	B	B	B	B	B	B	G	G	48	56	G	76	G	46	G	G	G	G	G	G	G	G	24
9	G	B	G	B	B	B	B	G	G	28	G	G	G	62	G	48	G	24	G	G	29	G	G	G
10	G	B	B	G	B	26	B	B	G	G	45	G	48	G	G	G	G	39	36	G	36	G	G	B
11	B	B	B	B	G	B	B	B	G	28	G	G	G	53	47	G	G	G	G	G	G	G	G	B
12	B	B	B	B	B	B	B	B	G	29	G	52	52	50	G	G	35	G	G	G	G	G	34	G
13	B	B	B	G	B	B	B	G	G	G	G	62	G	G	G	G	G	G	G	G	G	G	G	B
14	B	G	G	B	B	B	B	B	G	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G
15	B	B	G	G	B	B	B	G	G	35	G	G	G	G	G	G	G	G	G	G	B	G	G	G
16	G	B	B	B	G	B	B	G	G	G	46	48	G	G	G	G	37	41	G	G	G	43	G	B
17	B	B	B	B	B	B	B	B	G	37	G	G	G	G	G	G	G	36	G	G	G	G	B	G
18	B	B	B	G	G	B	B	B	G	35	G	G	G	G	G	G	G	G	G	28	G	G	G	B
19	B	B	B	G	B	B	B	B	G	G	G	G	53	G	G	47	G	G	G	B	G	G	G	G
20	B	B	B	G	B	G	B	G	G	G	G	44	G	G	G	G	G	G	G	G	G	G	G	G
21	G	B	B	G	B	B	B	G	G	G	51	50	53	57	68	G	G	G	G	G	34	G	B	B
22	G	G	26	B	B	B	B	B	G	G	G	G	G	51	G	G	G	G	G	G	G	G	36	G
23	G	G	G	B	B	B	B	G	G	G	G	49	53	49	G	G	G	61	46	G	G	G	G	G
24	G	B	B	B	G	B	B	G	G	G	G	G	G	G	G	43	G	G	G	G	G	G	G	B
25	B	G	B	B	B	B	B	G	G	35	G	G	G	G	G	G	G	G	G	G	G	G	G	B
26	B	G	B	B	G	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
27	G	B	G	G	B	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	28	G	G	B
28	B	G	B	B	G	B	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
29	G	B	B	B	B	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
30	G	G	G	G	B	B	B	B	G	G	G	G	G	G	51	G	50	G	G	35	G	G	G	G
31	B	G	B	B	G	B	B	B	G	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	12	8	9	12	8	2		17	31	31	31	31	31	31	31	31	31	31	31	29	29	31	29	18
MED	G	G	G	G	G	14		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	G	G	26		G	G	29	G	G	G	G	G	G	G	24	G	G	G	G	G	G
L Q	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

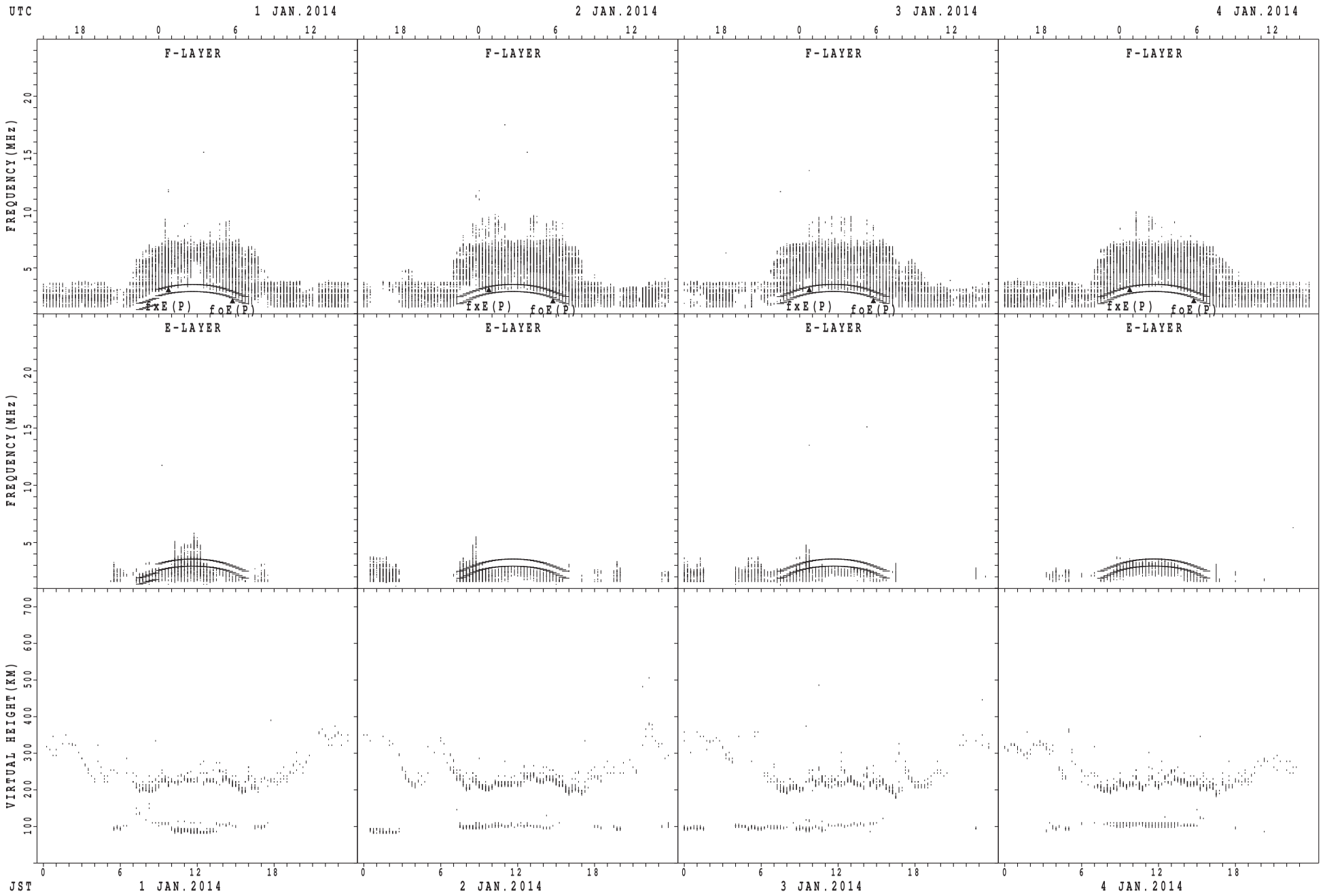
HOURLY VALUES OF fmin AT Okinawa

JAN. 2014

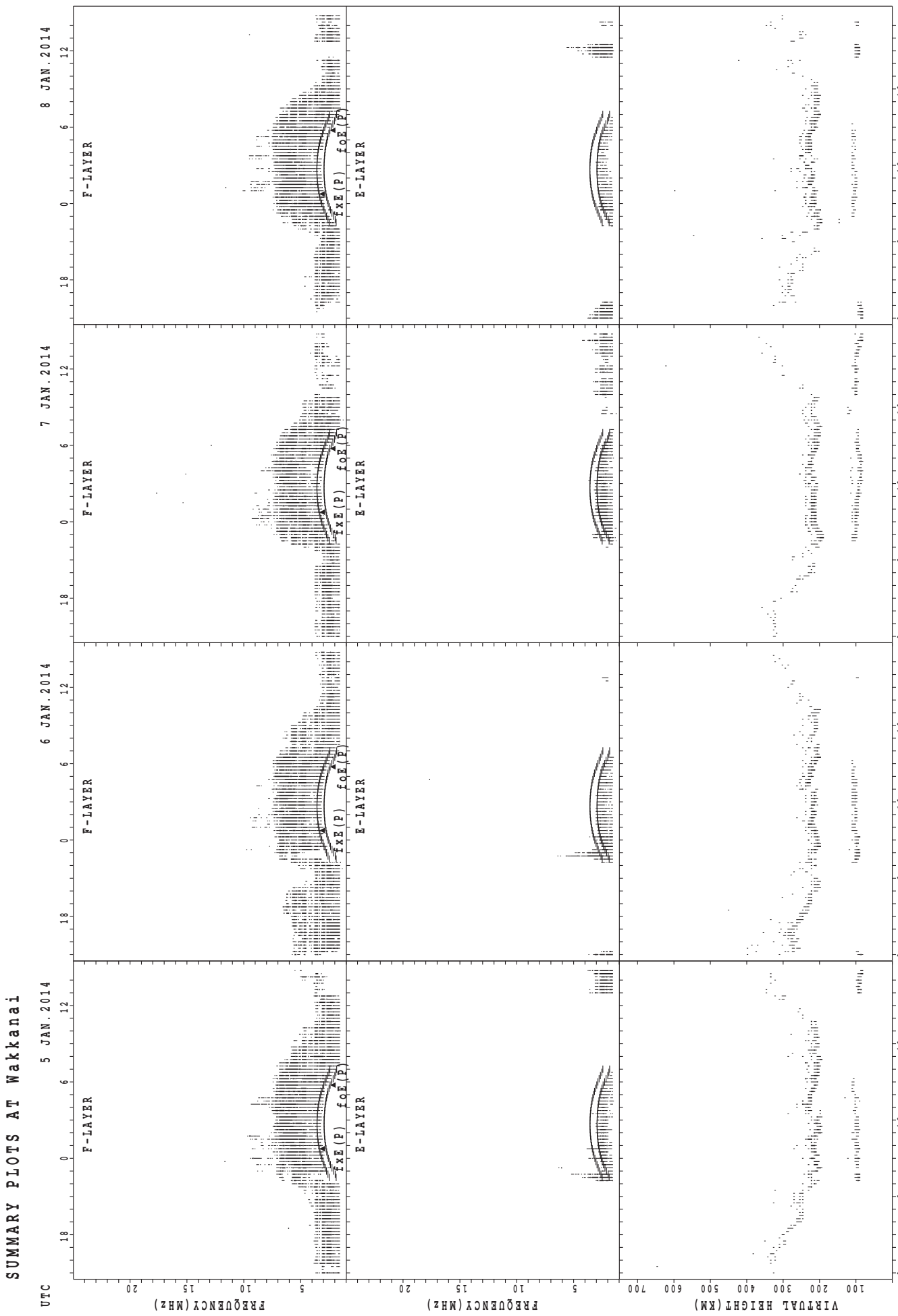
LAT. 26°41.0′N LON. 128°09.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

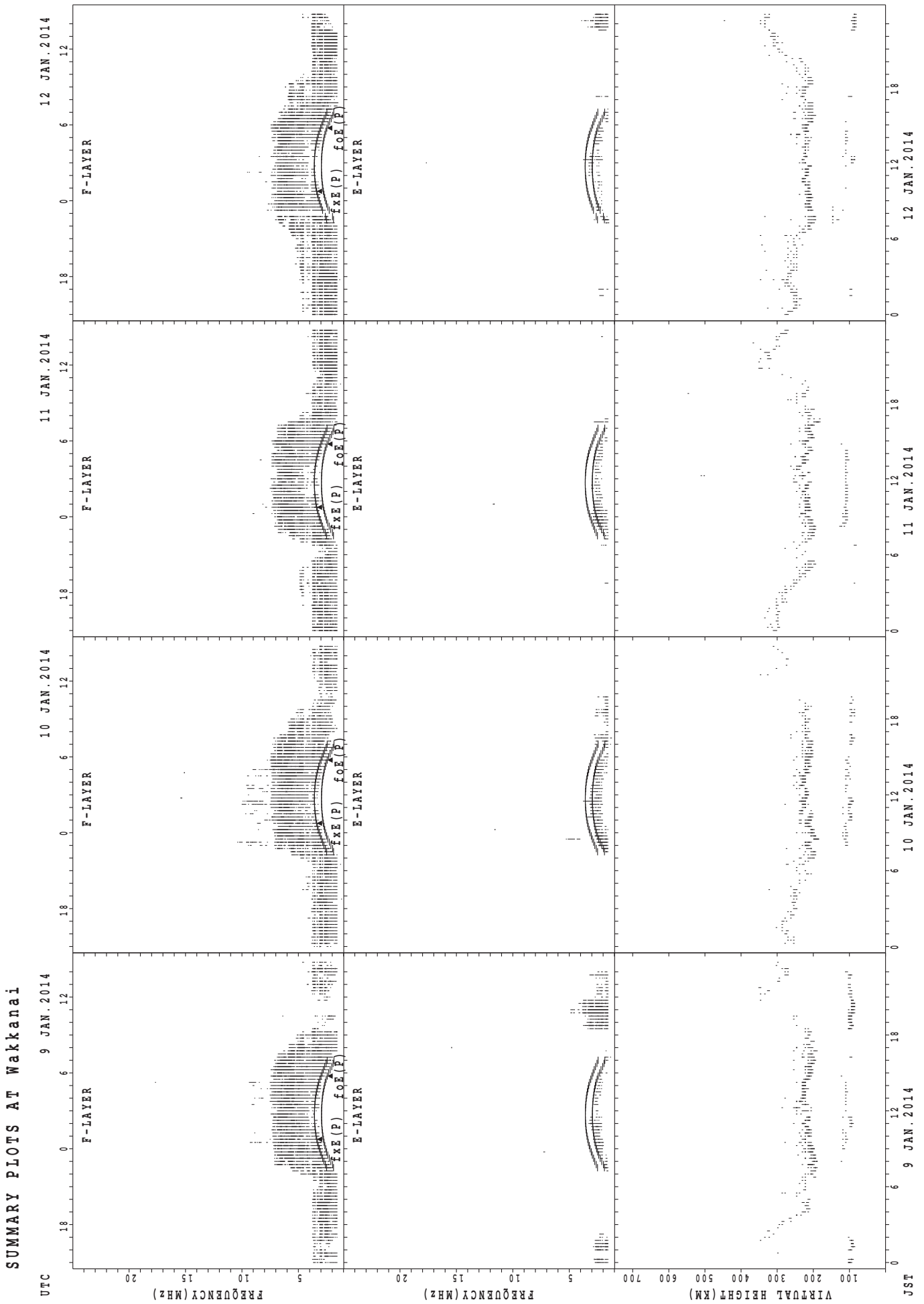
HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	B	B	22	29	34	40	43	48	50	46	43	39	38	20	36	22	17	21	B
2	81	B	71	50	B	B	B	21	29	18	42	44	56	52	43	45	40	27	20	20	44	14	21	52
3	B	B	B	B	B	B	B	21	34	20	43	42	52	55	52	44	35	15	16	24	42	66	66	B
4	B	B	B	B	B	B	B	B	36	21	43	46	48	45	32	29	22	35	21	43	42	44	81	32
5	21	B	66	17	66	B	B	20	41	42	42	58	43	53	29	42	39	28	14	16	B	21	17	66
6	B	B	B	66	B	B	B	B	41	40	43	42	49	46	46	44	38	21	26	20	18	21	17	B
7	B	B	B	B	B	B	B	B	30	20	42	35	52	58	47	29	21	21	40	B	66	20	66	B
8	B	B	B	B	B	B	B	17	41	23	27	46	38	62	32	46	42	28	34	42	44	39	20	17
9	22	B	17	B	B	B	B	28	42	18	40	44	46	40	45	40	42	27	21	46	15	52	20	21
10	20	B	B	71	B	15	B	B	38	40	30	43	52	46	50	45	44	18	17	73	16	32	44	B
11	B	B	B	B	22	B	B	B	27	39	39	44	48	35	29	41	39	33	21	33	91	20	40	B
12	B	B	B	B	B	B	B	B	15	22	40	39	36	40	49	42	18	27	23	20	44	17	20	45
13	B	B	B	66	B	B	B	66	29	39	42	39	43	46	54	42	39	28	23	71	20	18	45	B
14	B	66	66	B	B	B	B	B	28	18	44	48	50	47	49	42	40	39	38	44	40	22	21	23
15	B	B	66	71	B	B	B	20	39	39	38	52	50	51	45	43	39	29	21	43	B	46	27	66
16	71	B	B	B	20	B	B	66	27	17	30	34	55	43	50	43	23	17	18	17	16	15	48	B
17	B	B	B	B	B	B	B	B	28	20	41	46	50	50	43	44	21	28	17	45	21	42	B	66
18	B	B	B	21	20	B	B	B	38	20	42	44	52	43	48	39	40	27	53	15	21	81	44	B
19	B	B	B	66	B	B	B	B	32	38	43	45	52	52	52	33	40	32	32	B	42	21	18	66
20	B	B	B	66	B	66	B	66	28	18	41	47	59	50	46	42	40	30	32	42	42	20	40	66
21	21	B	B	32	B	B	B	20	29	39	34	39	40	36	32	44	40	26	20	16	66	44	B	B
22	16	81	18	B	B	B	B	B	33	20	42	52	55	41	45	42	42	36	20	18	91	81	18	20
23	47	71	44	B	B	B	B	20	29	36	40	38	38	54	68	47	52	18	18	40	20	74	18	16
24	41	B	B	B	66	B	B	71	29	42	42	46	51	50	45	22	40	29	22	40	101	18	17	B
25	B	66	B	B	B	B	B	66	28	22	20	46	56	48	43	40	18	27	34	43	18	45	20	B
26	B	71	B	B	17	B	B	20	28	20	42	39	53	54	51	27	18	39	27	21	50	66	21	66
27	66	B	71	66	B	B	B	17	28	20	54	45	46	48	45	46	39	39	21	21	17	101	81	B
28	B	66	B	B	14	B	B	B	17	39	42	54	51	52	54	49	44	41	42	20	66	46	66	21
29	18	B	B	B	B	B	B	66	30	21	44	50	59	52	45	47	39	32	40	42	50	66	66	42
30	71	71	18	66	B	B	B	B	29	36	44	44	50	53	39	43	40	18	38	15	20	N	42	22
31	B	66	B	B	20	B	B	B	42	40	42	44	52	54	49	50	43	30	23	22	91	36	43	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	12	8	9	12	8	2		17	31	31	31	31	31	31	31	31	31	31	31	29	29	30	29	18
MED	32	68	66	66	20	40		21	29	22	42	44	50	50	46	43	39	28	22	33	42	38	27	42
U Q	68	71	68	66	44	66		66	38	39	43	46	52	53	50	45	40	33	34	43	58	52	46	66
L Q	20	66	18	41	18	15		20	28	20	40	42	46	45	43	40	35	26	20	20	20	20	20	21

SUMMARY PLOTS AT Wakkanai

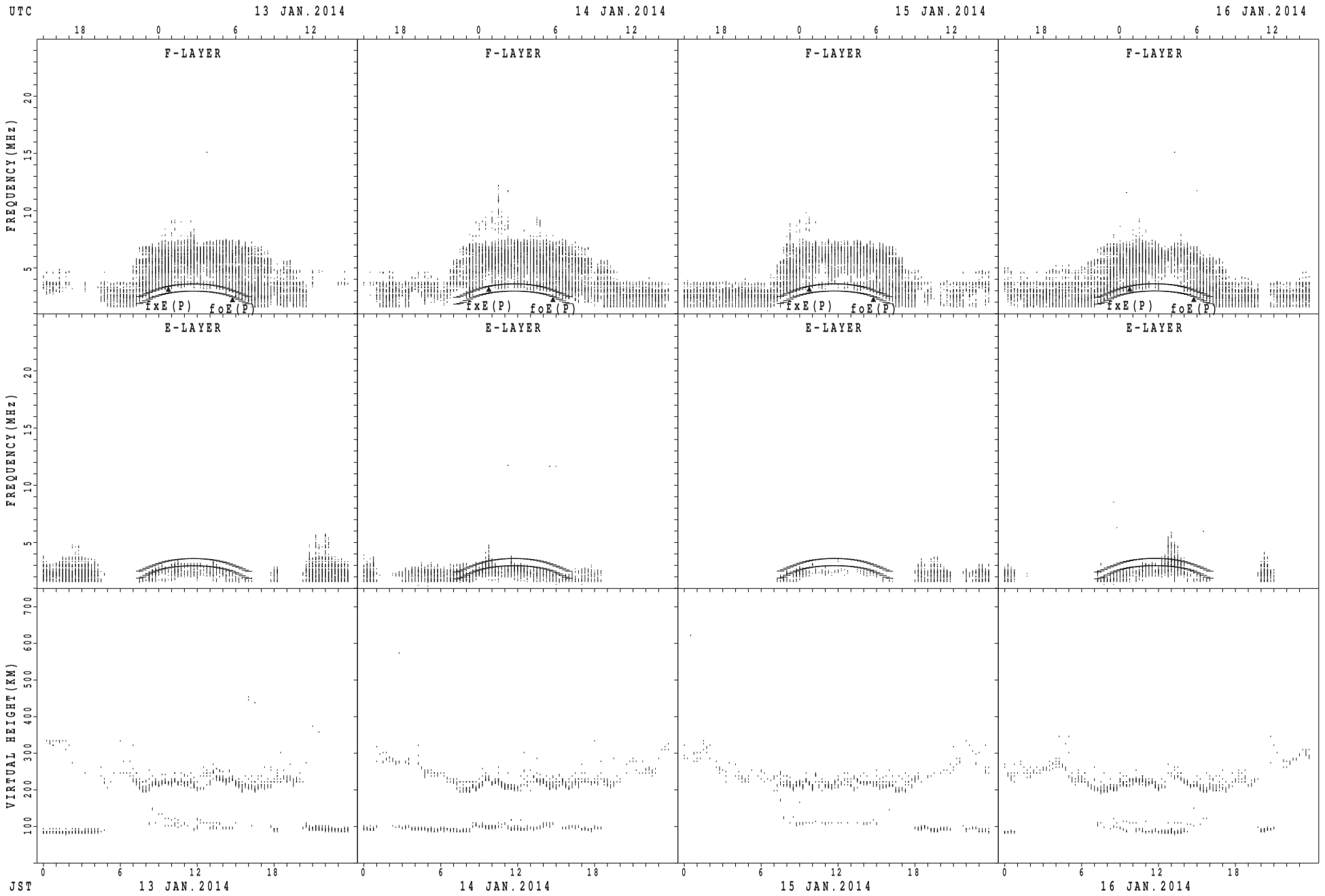


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

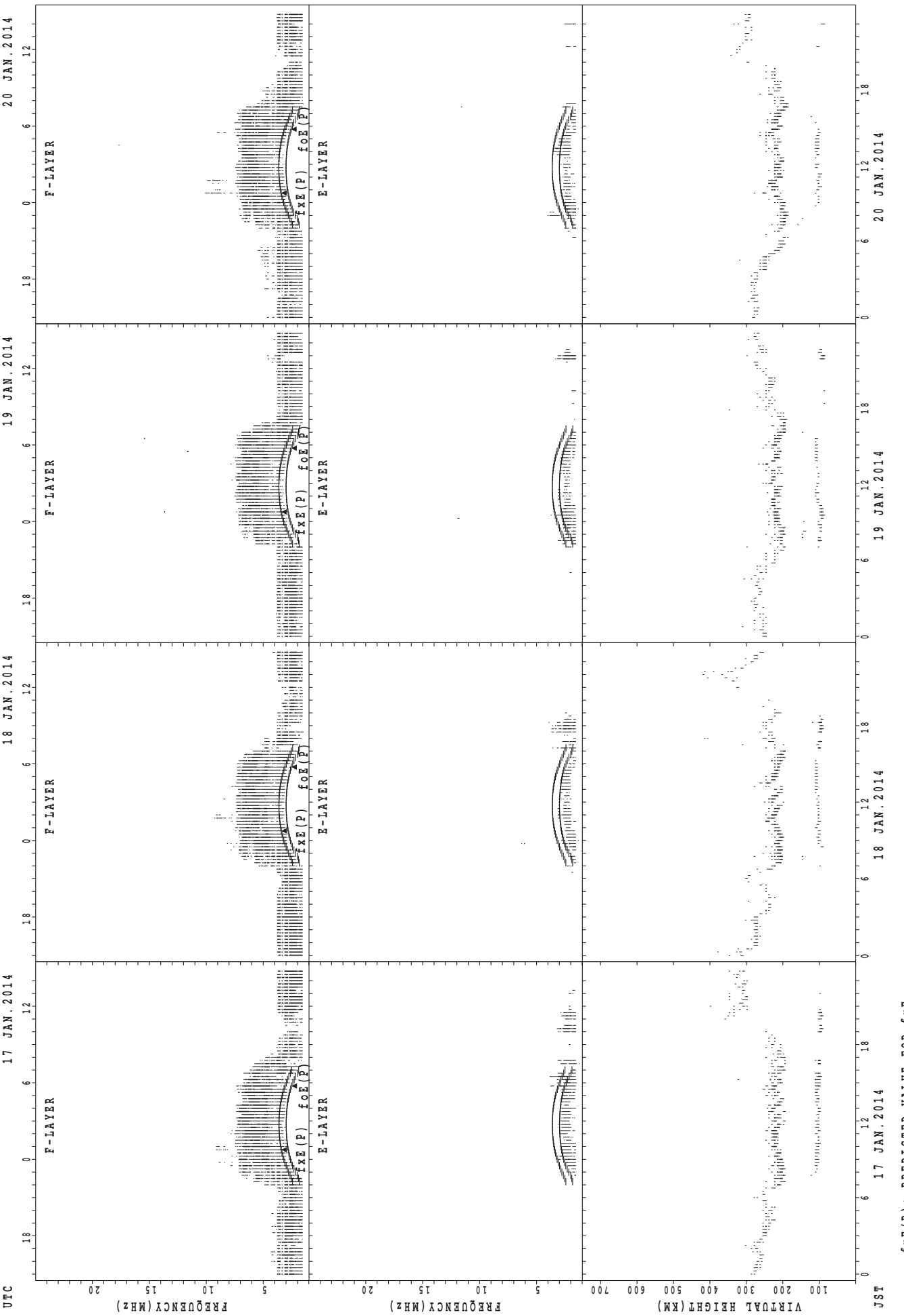

SUMMARY PLOTS AT Wakkanai
UTC
JST
5 JAN.2014
6 JAN.2014
7 JAN.2014
8 JAN.2014
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

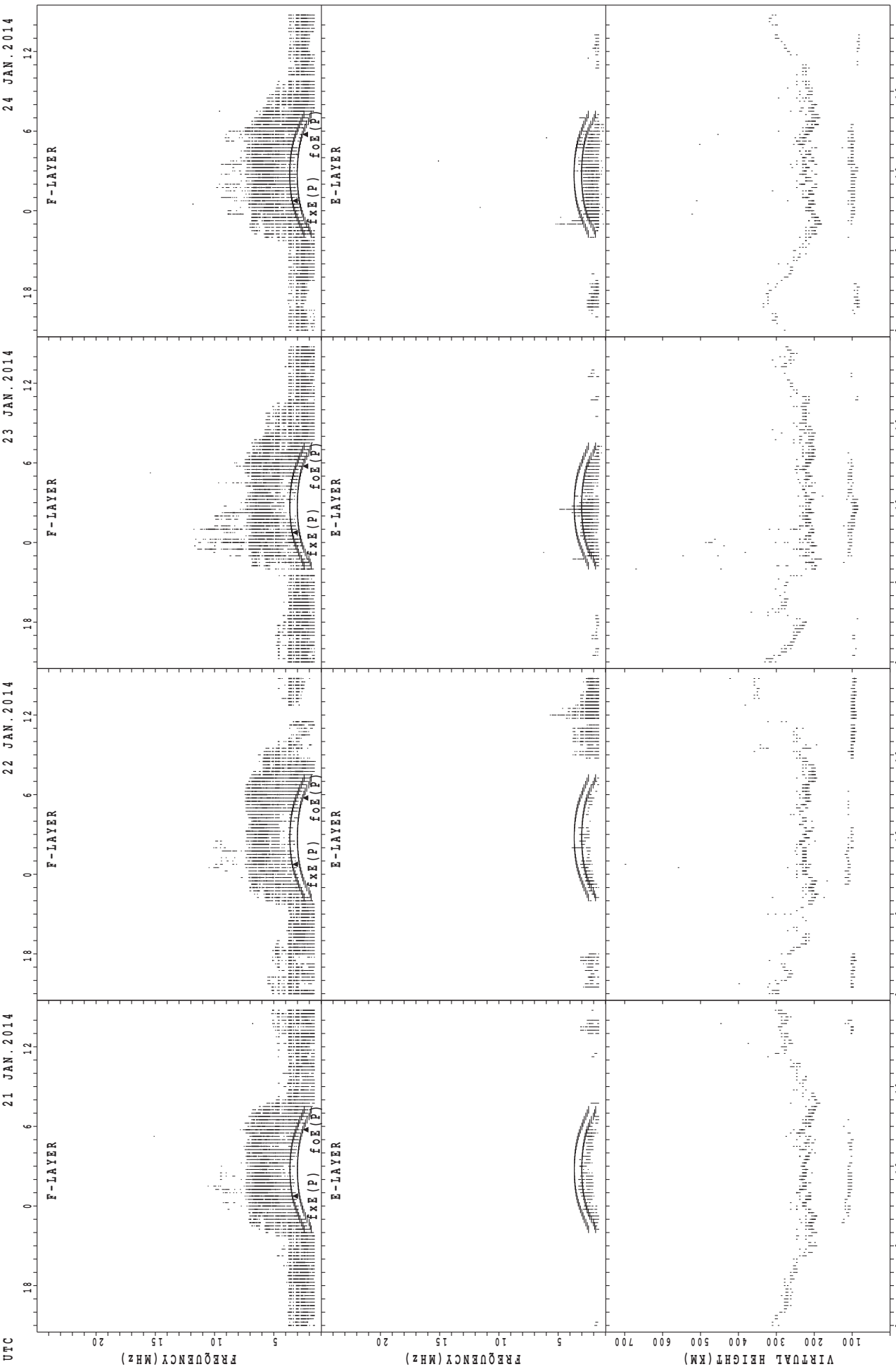

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 JAN.2014
10 JAN.2014
11 JAN.2014
12 JAN.2014
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

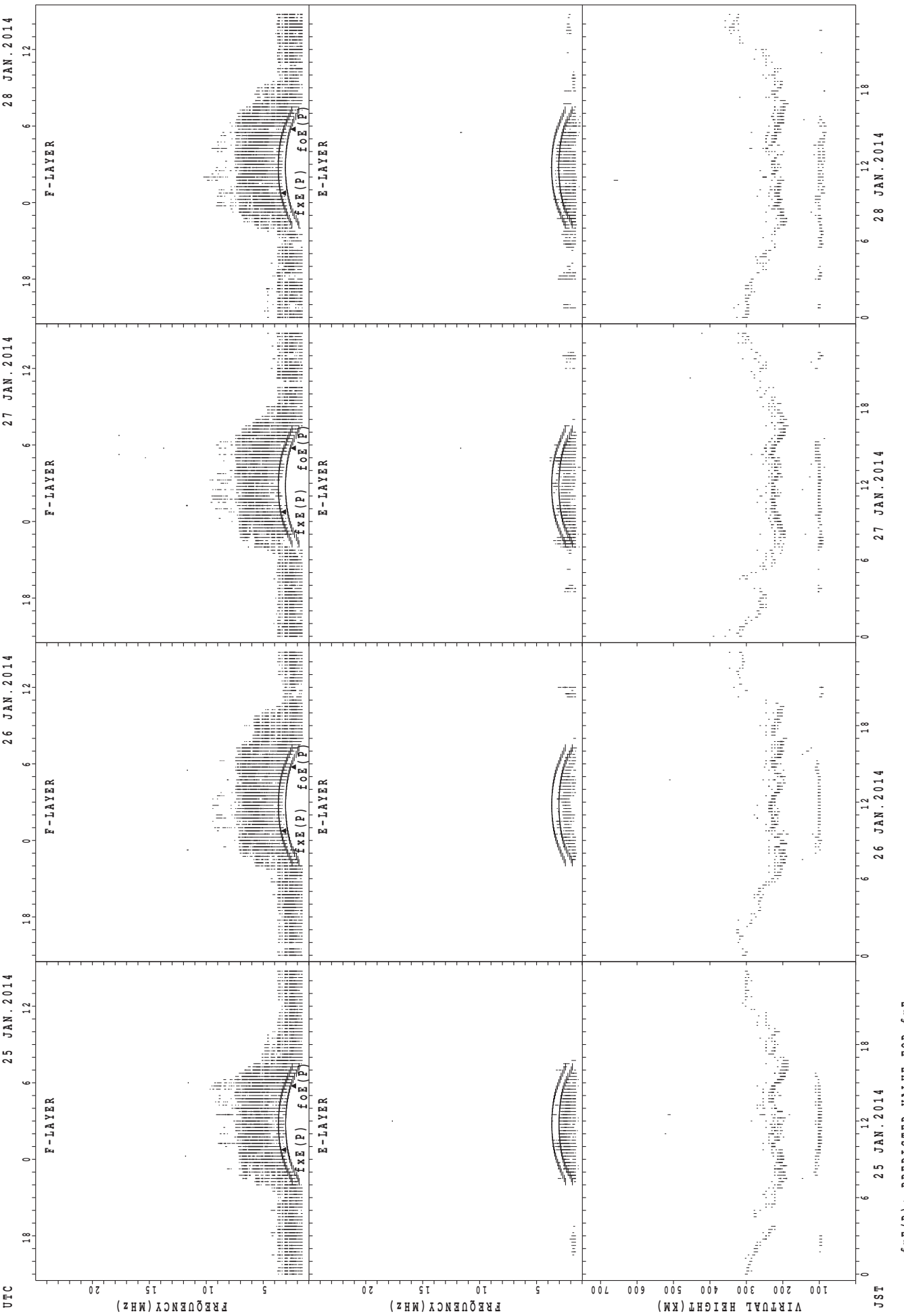
SUMMARY PLOTS AT Wakkanai



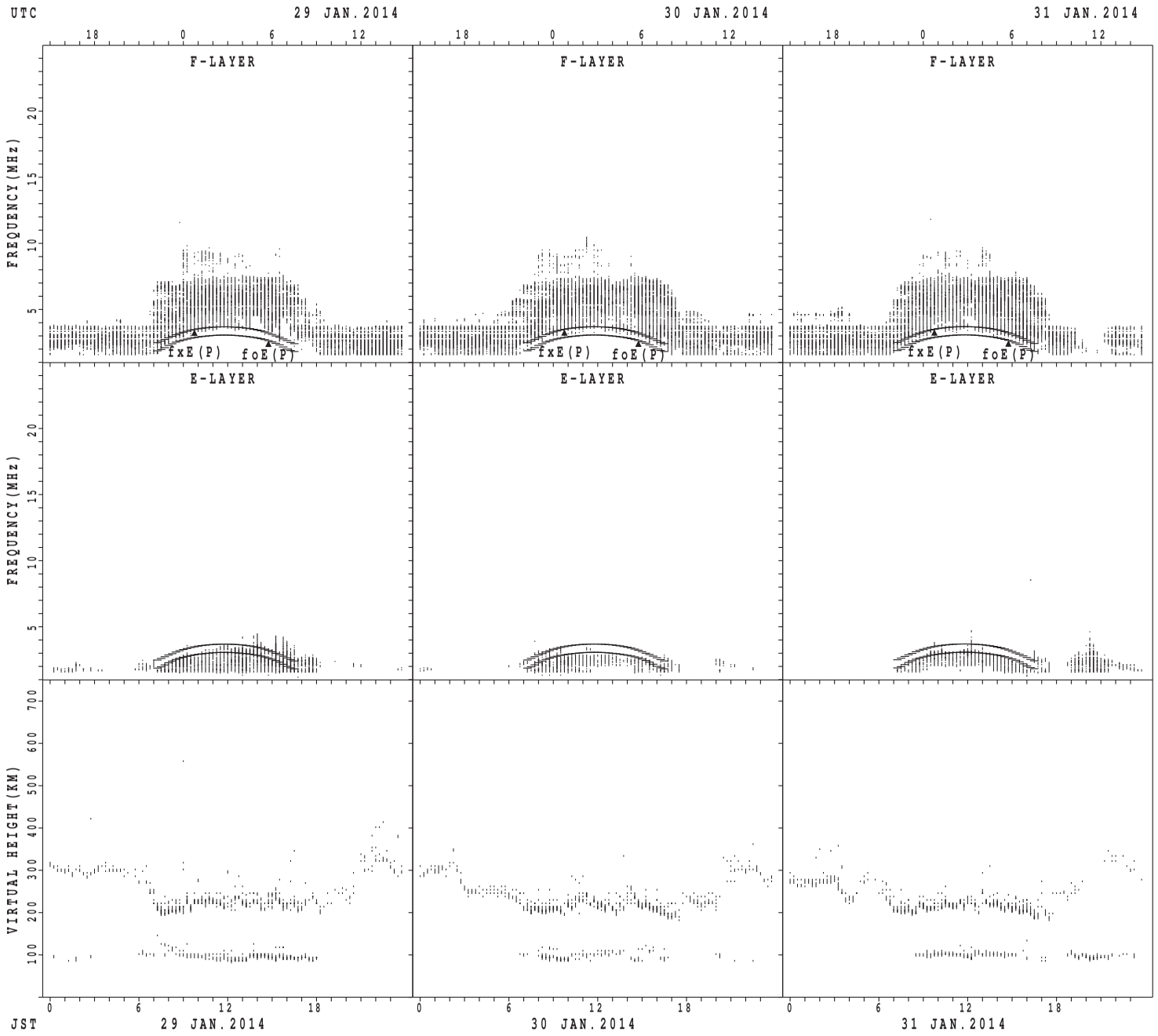
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
17 JAN.2014
18 JAN.2014
19 JAN.2014
20 JAN.2014
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
21 JAN.2014
22 JAN.2014
23 JAN.2014
24 JAN.2014
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

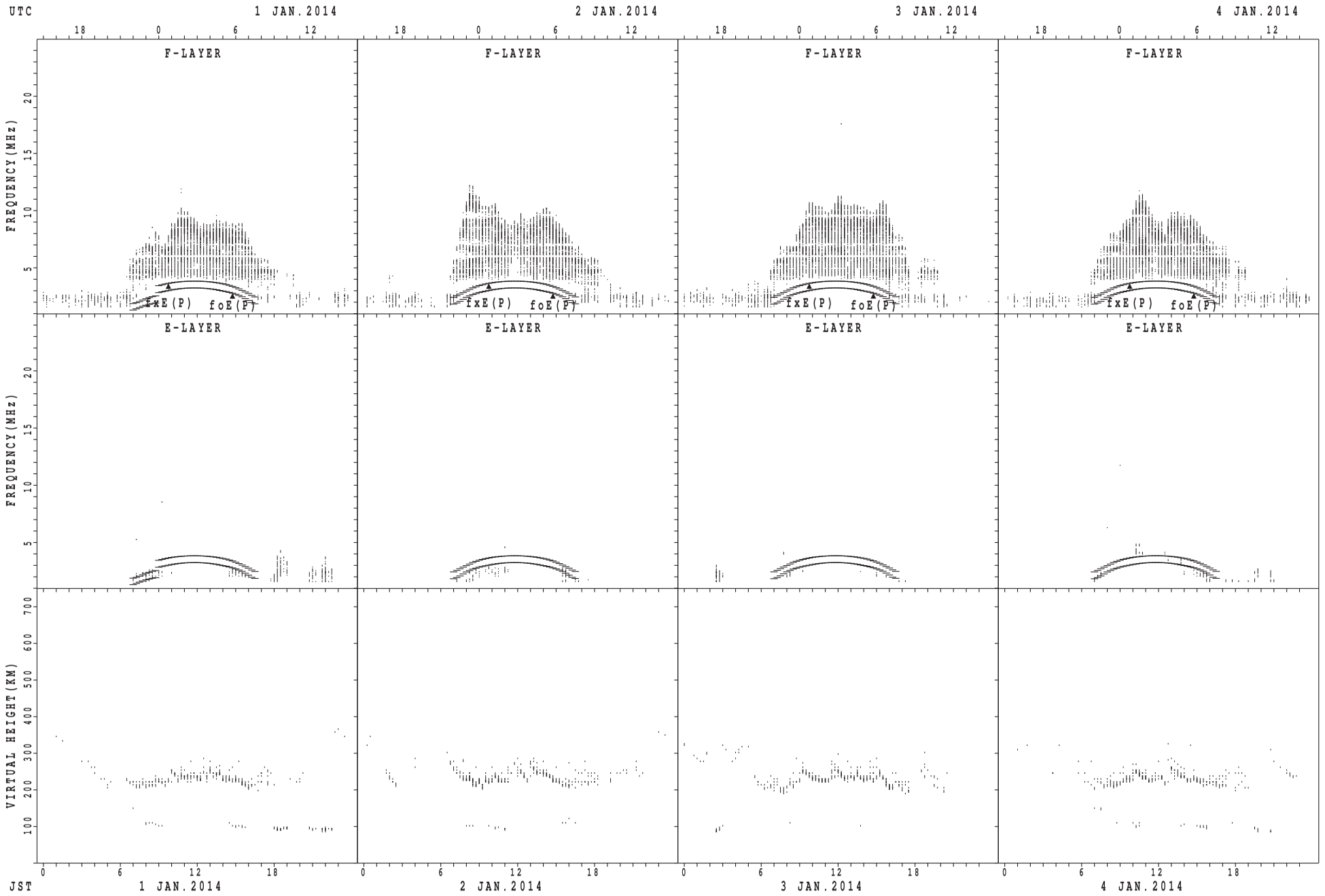

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 JAN.2014
26 JAN.2014
27 JAN.2014
28 JAN.2014
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



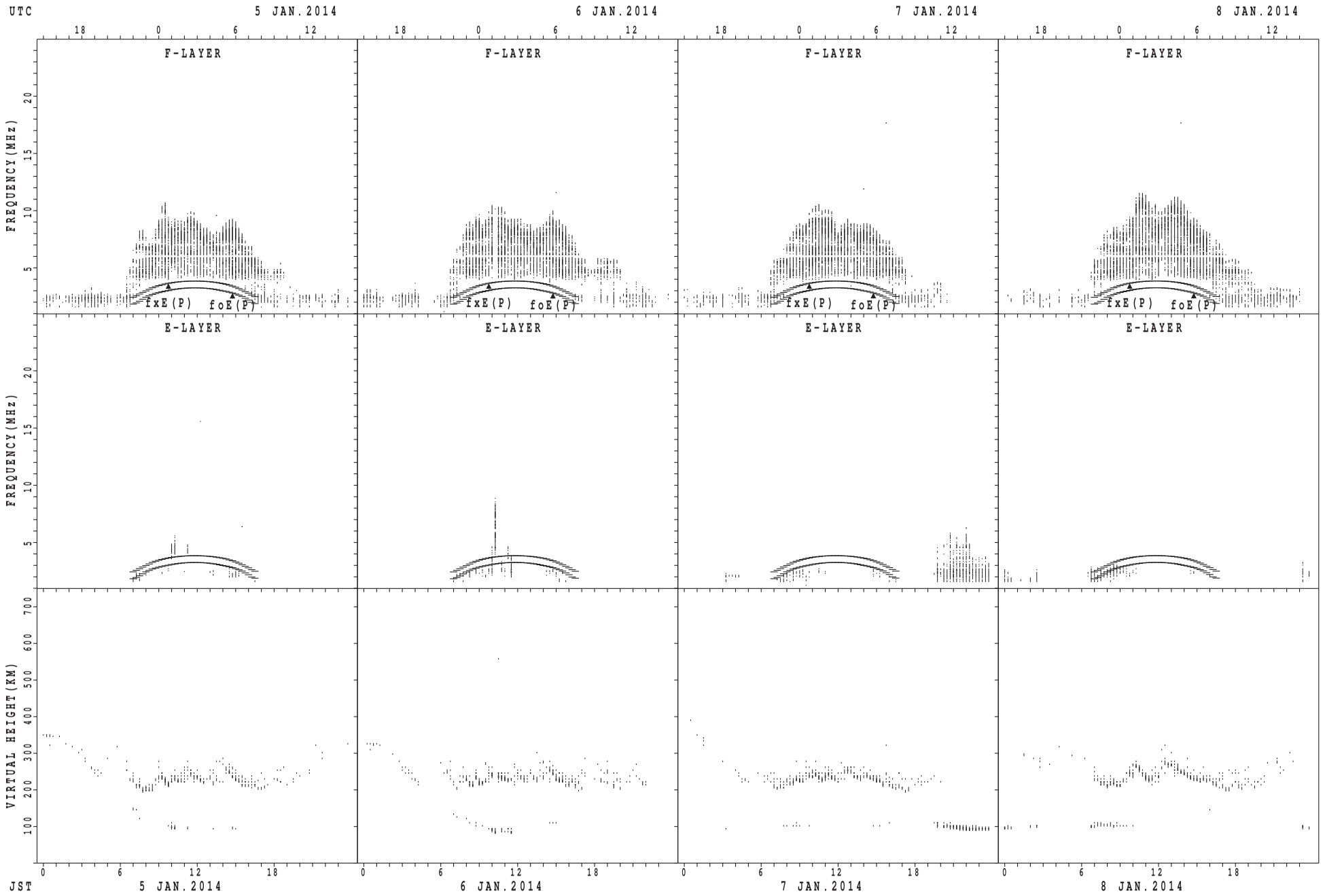
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



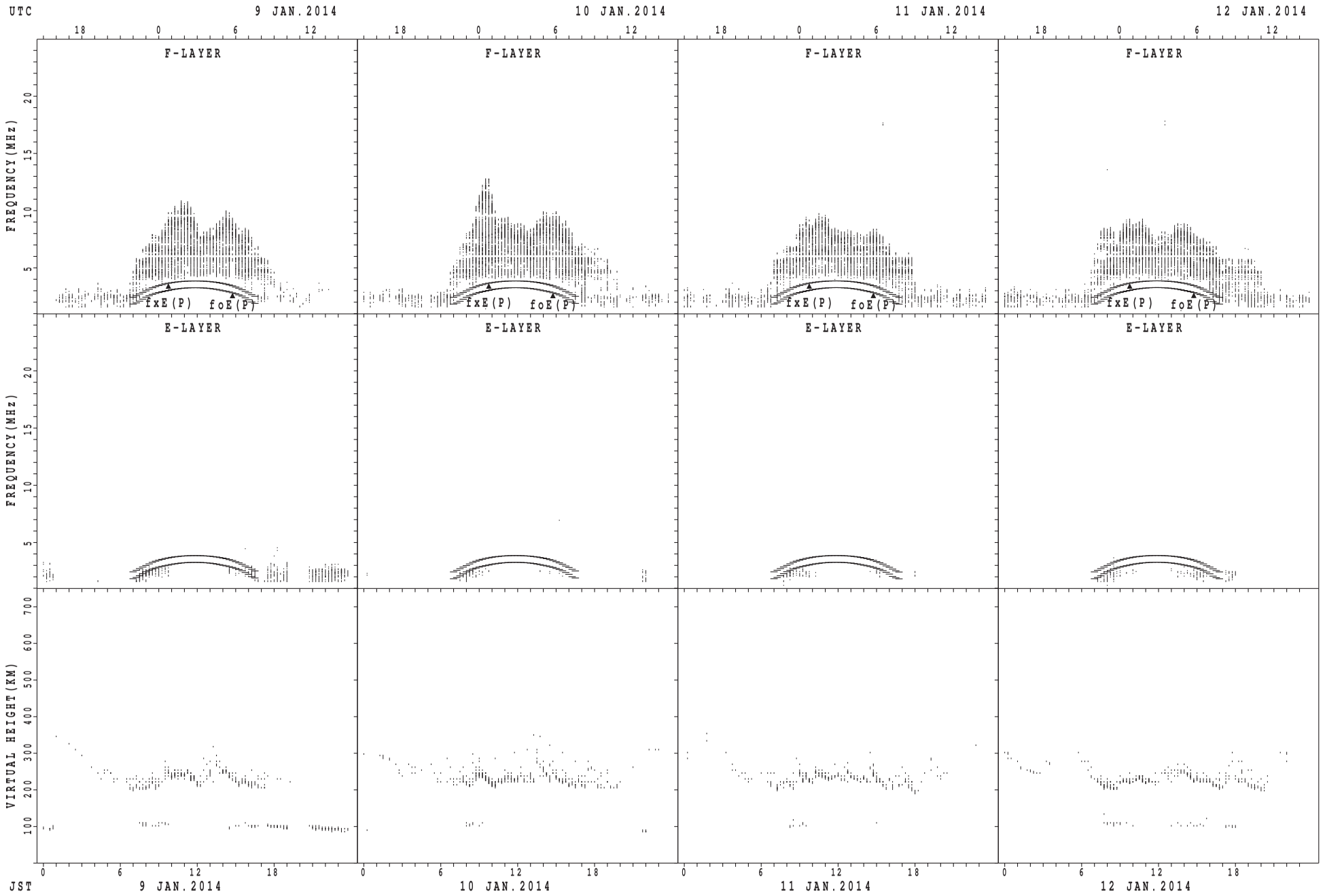
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



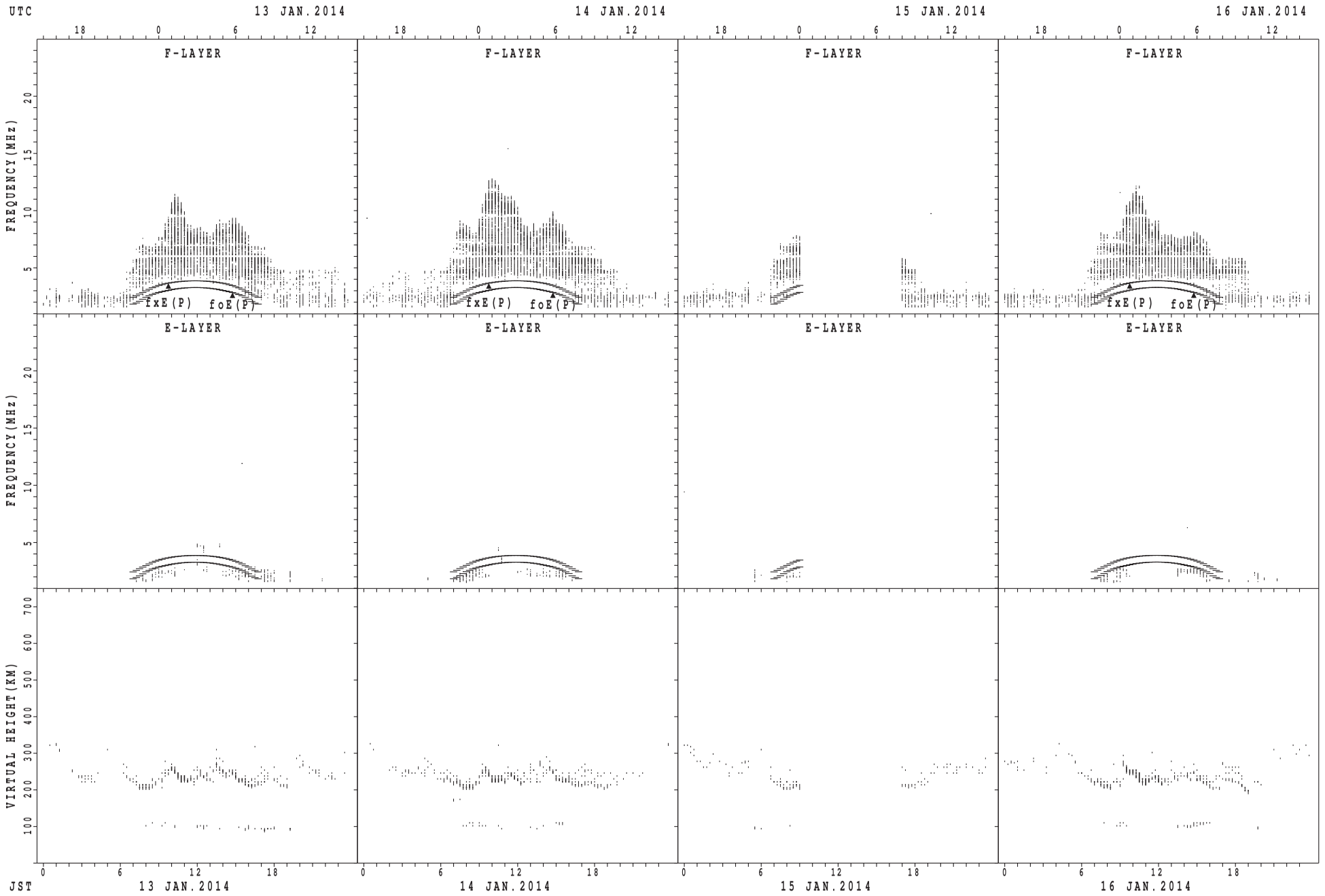
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



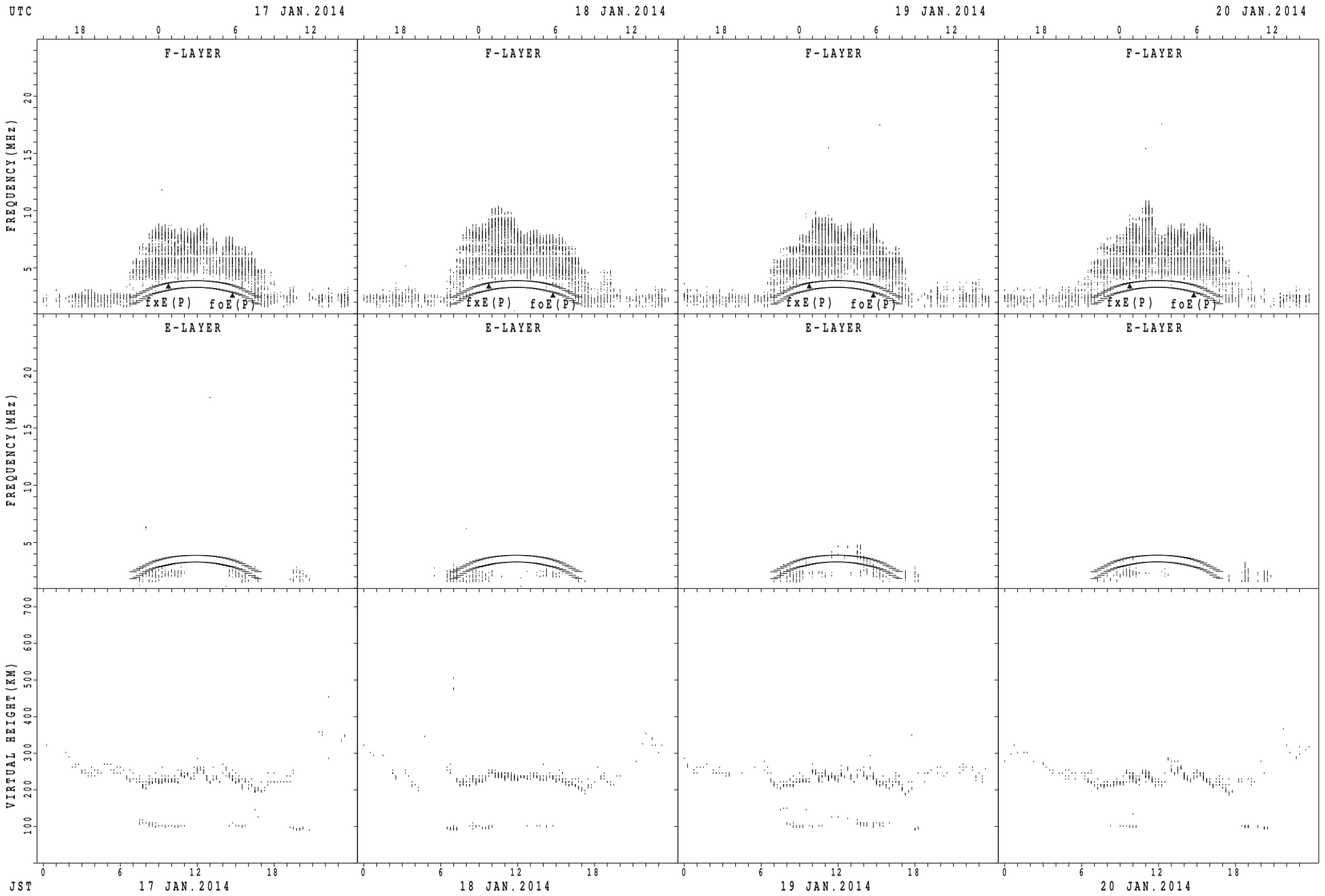
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



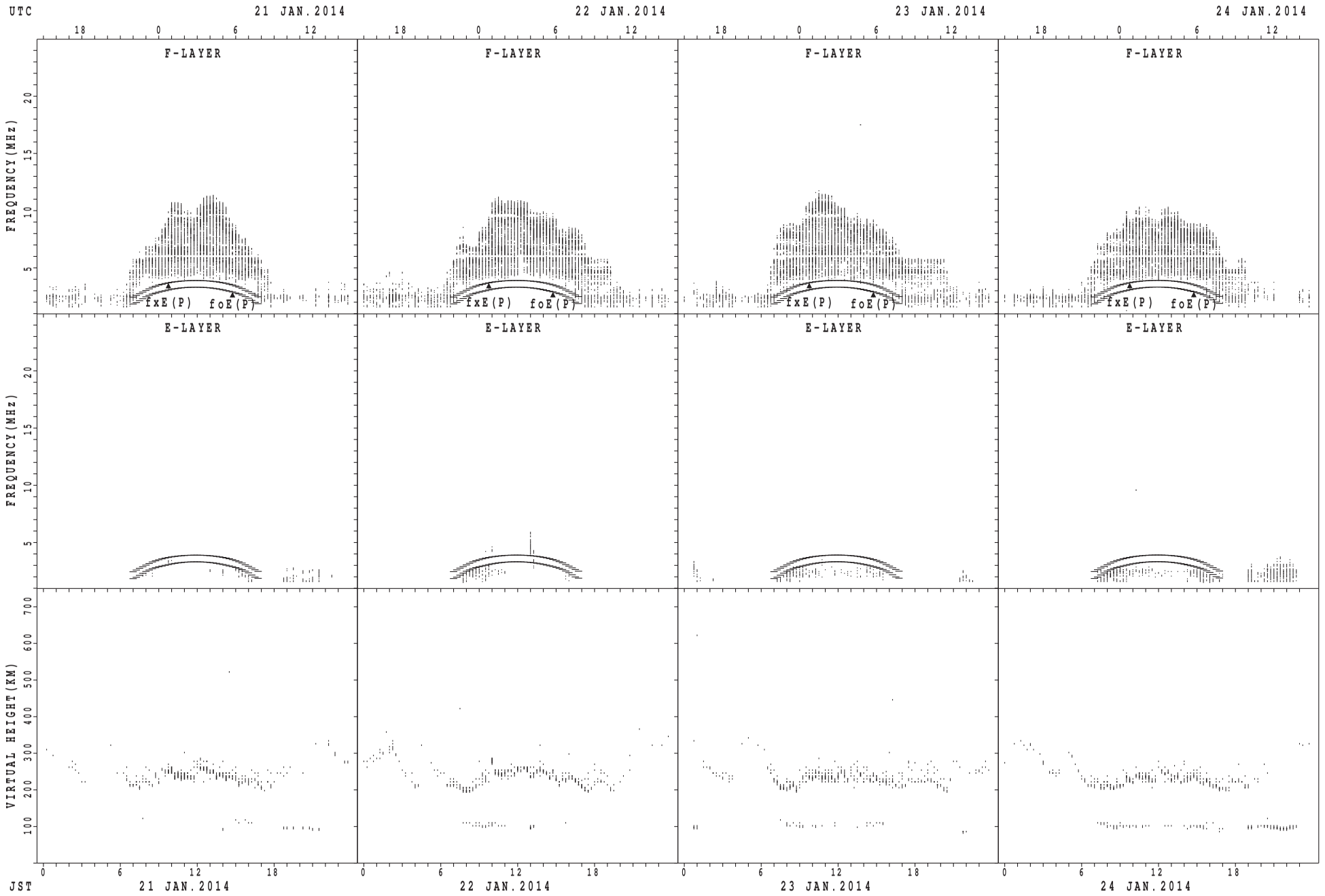
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



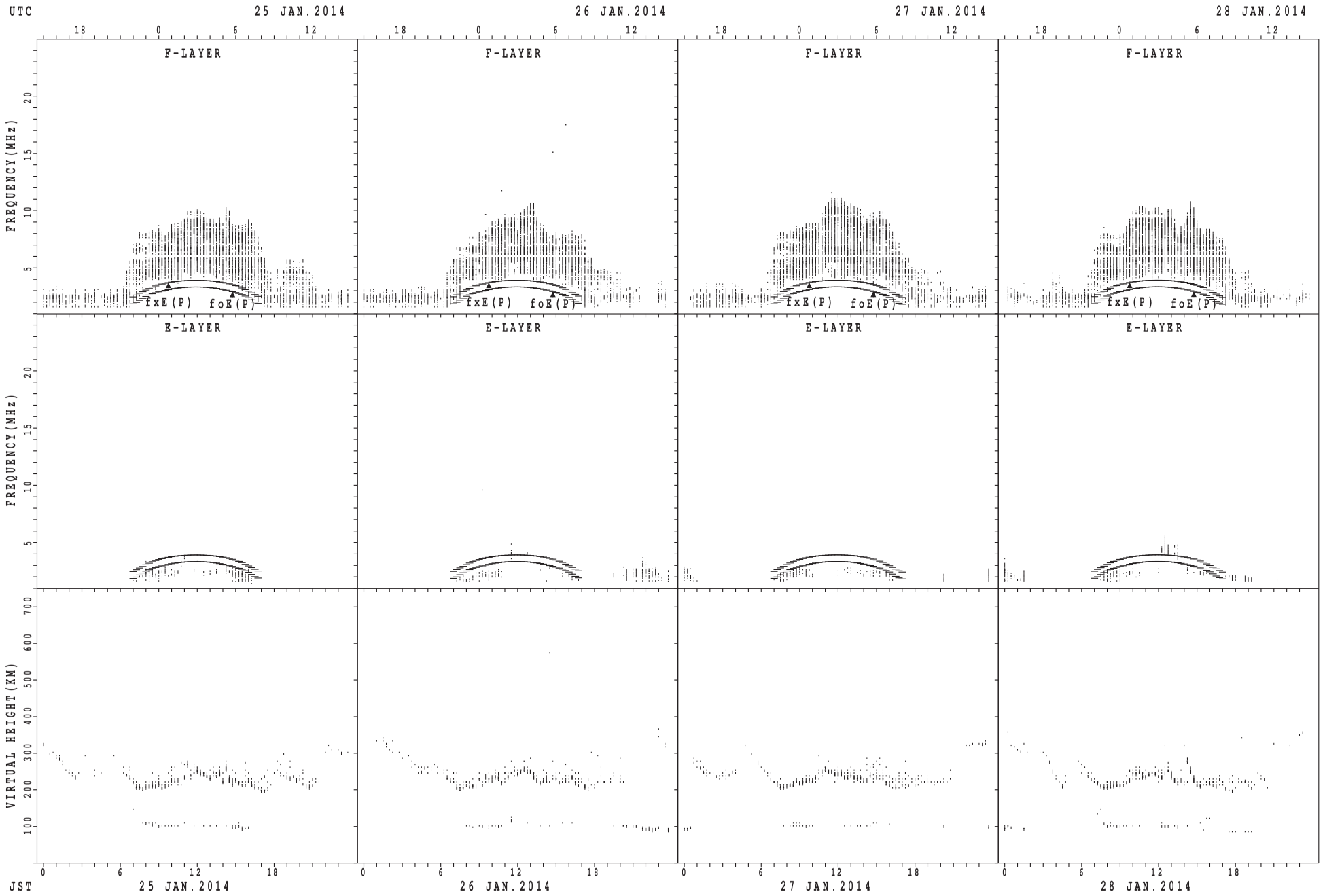
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



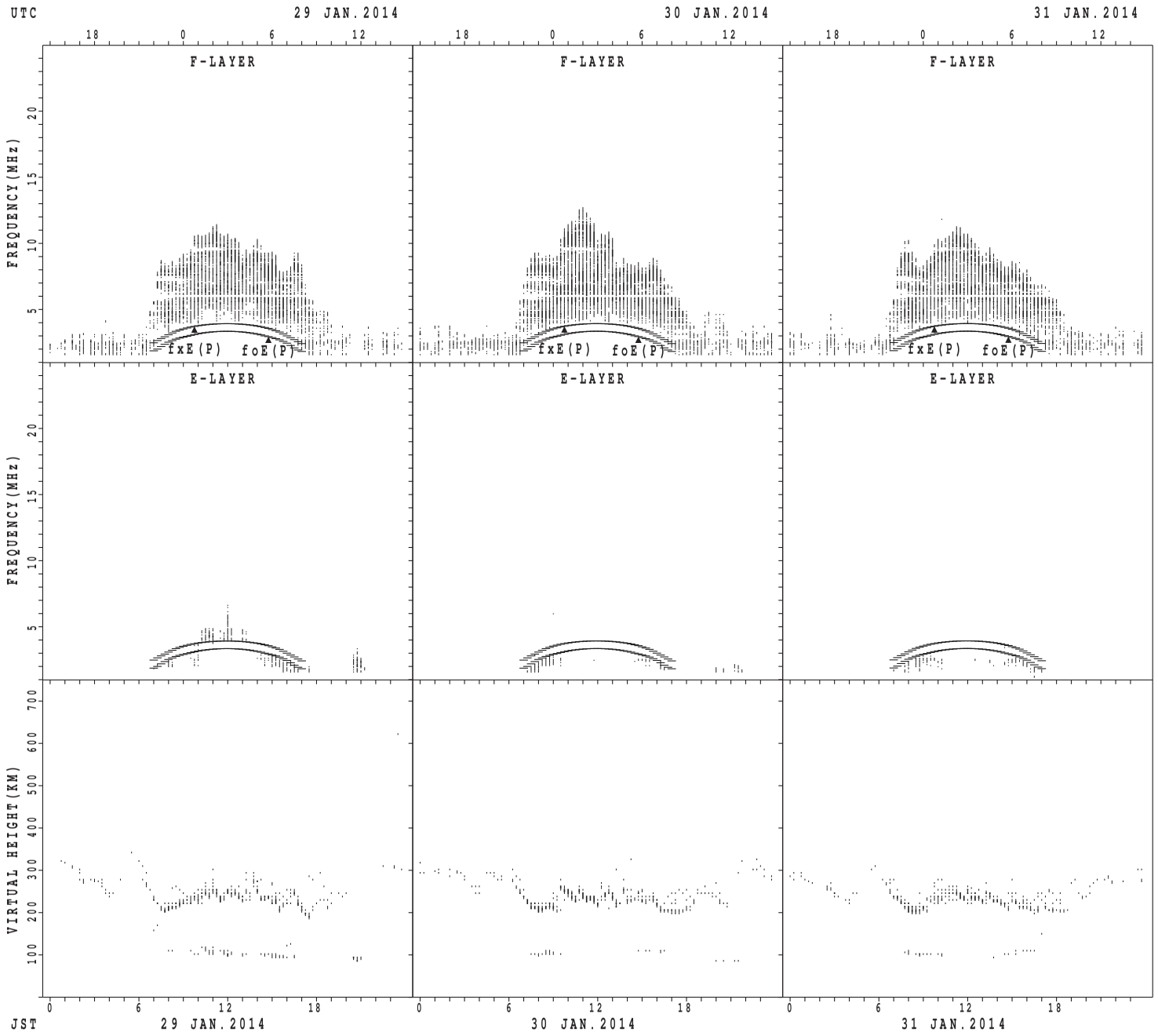
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



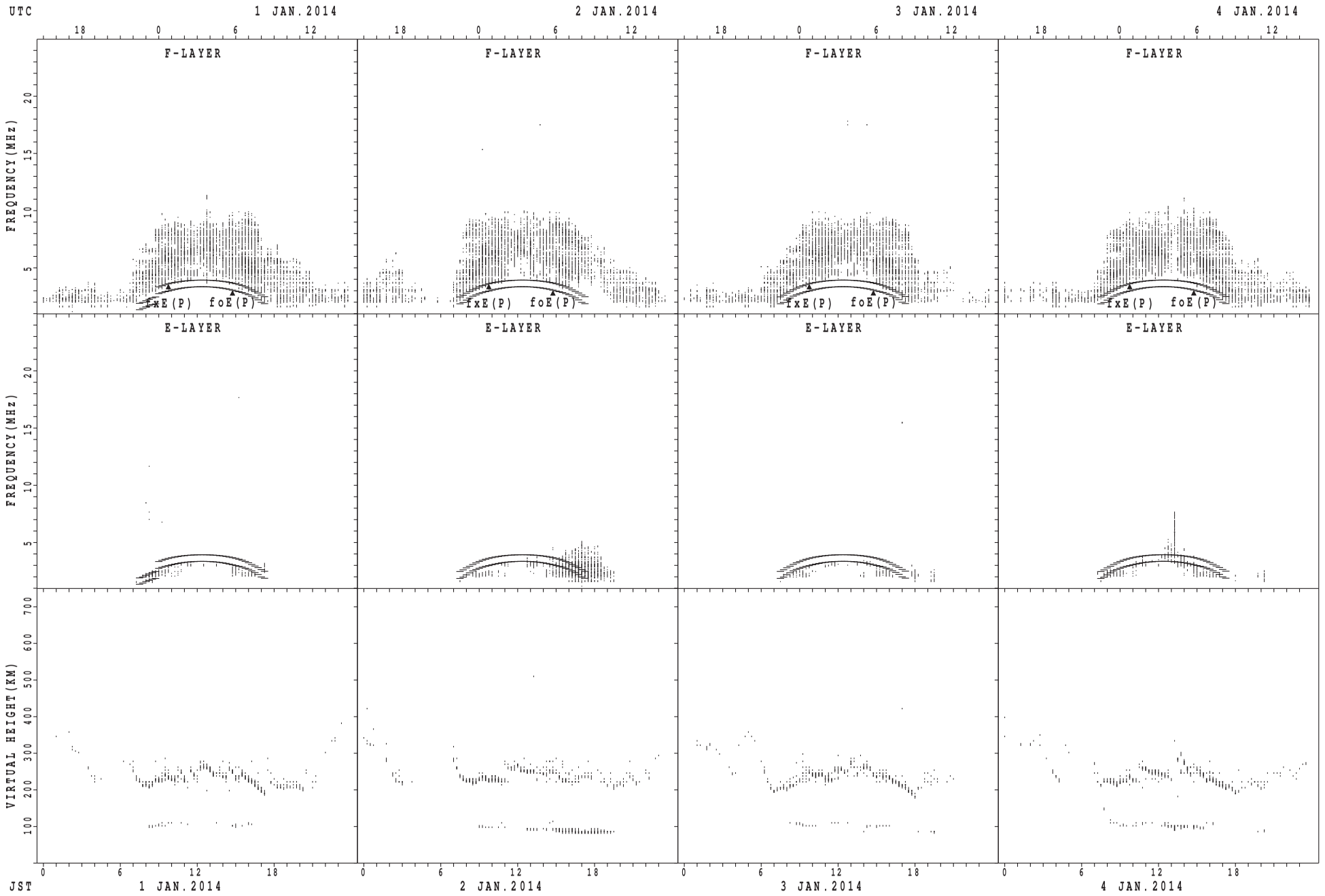
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



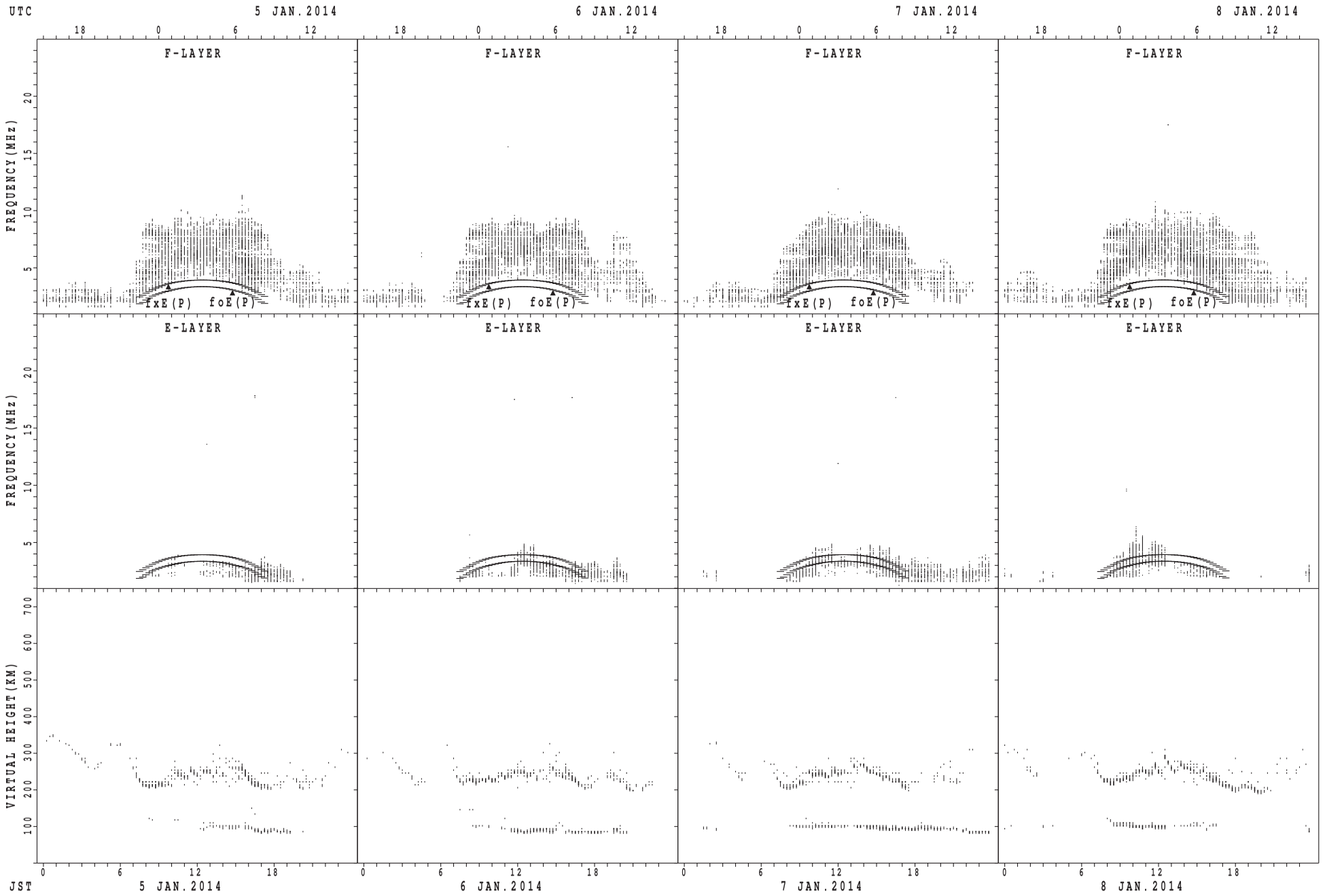
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



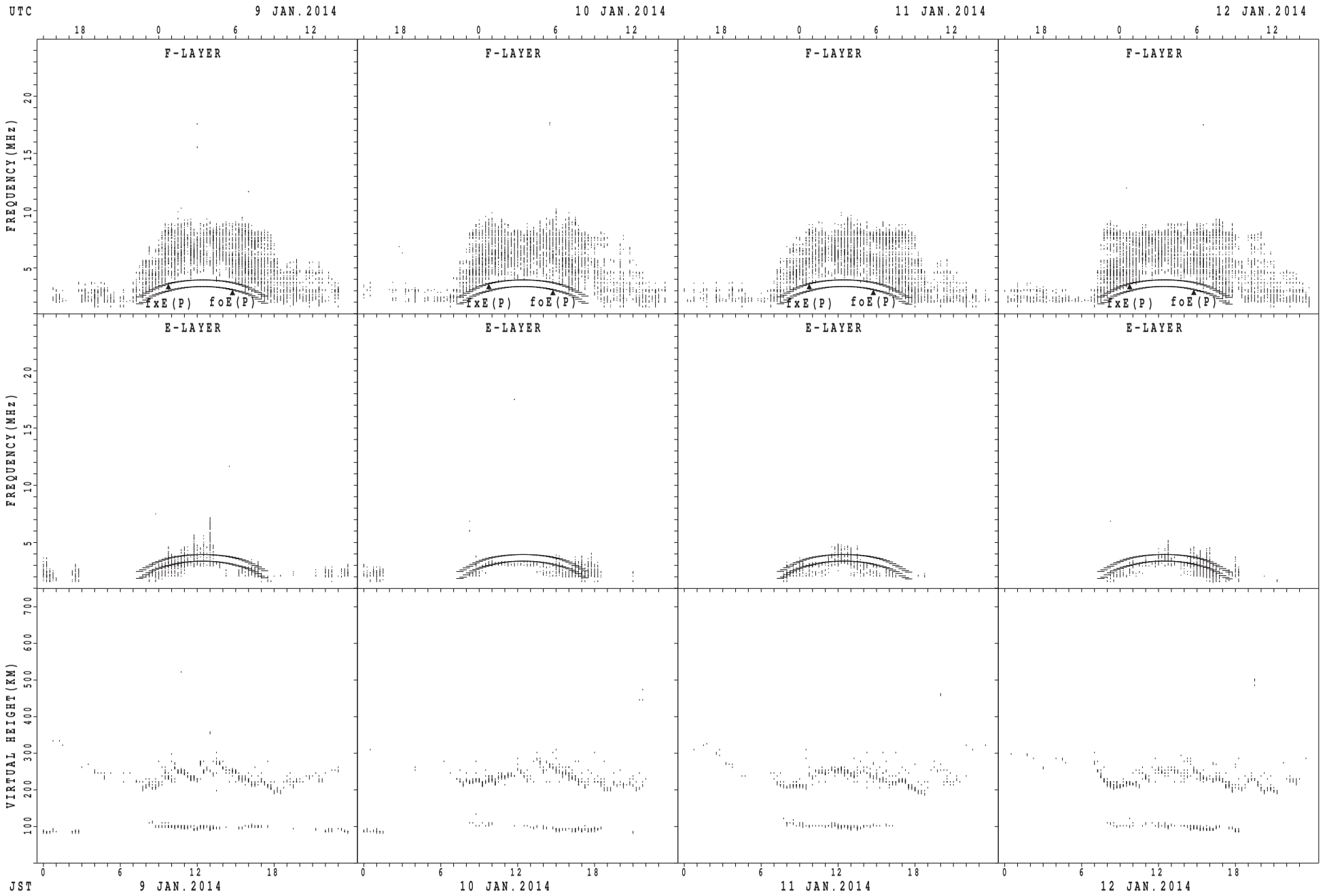
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



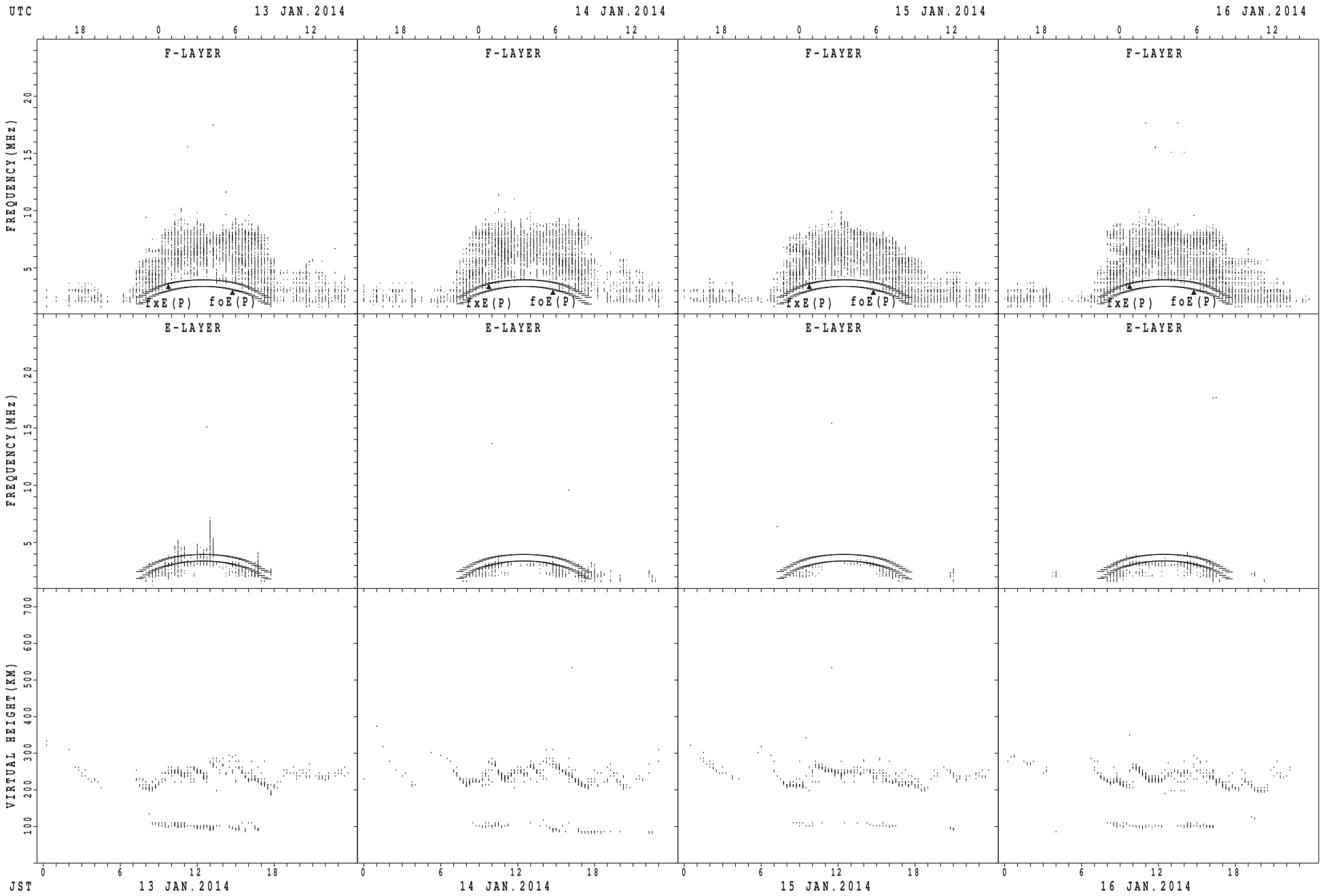
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



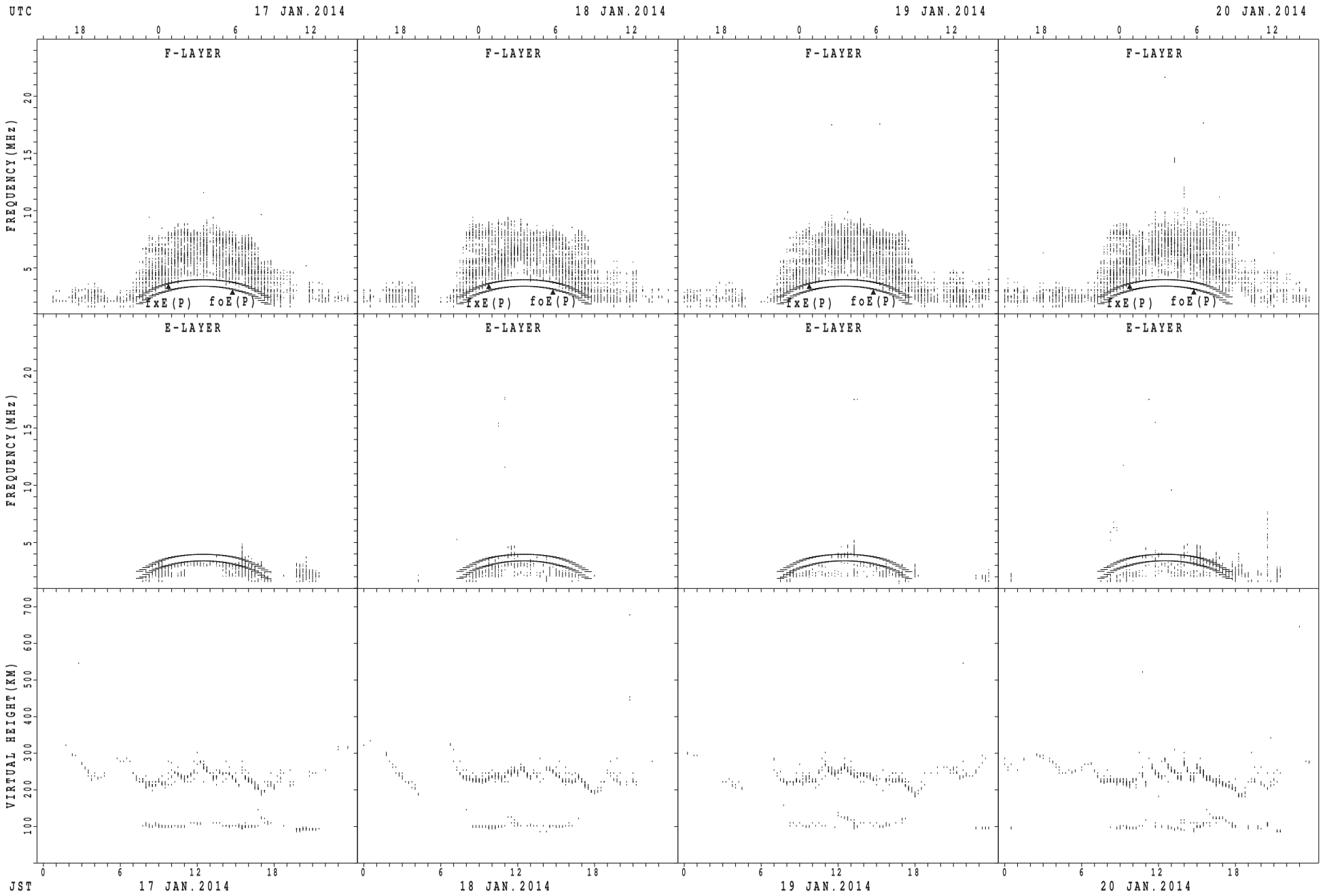
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



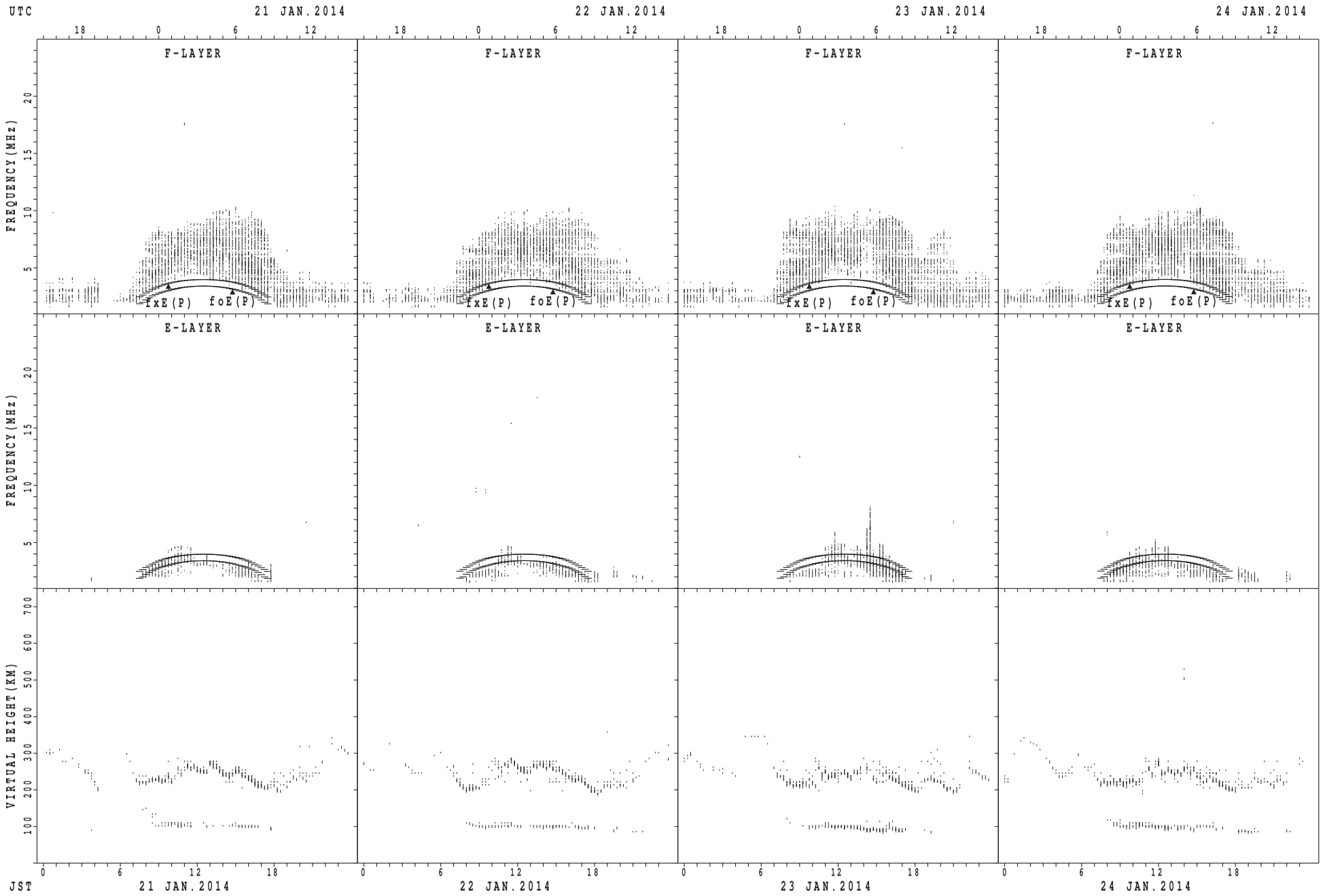
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



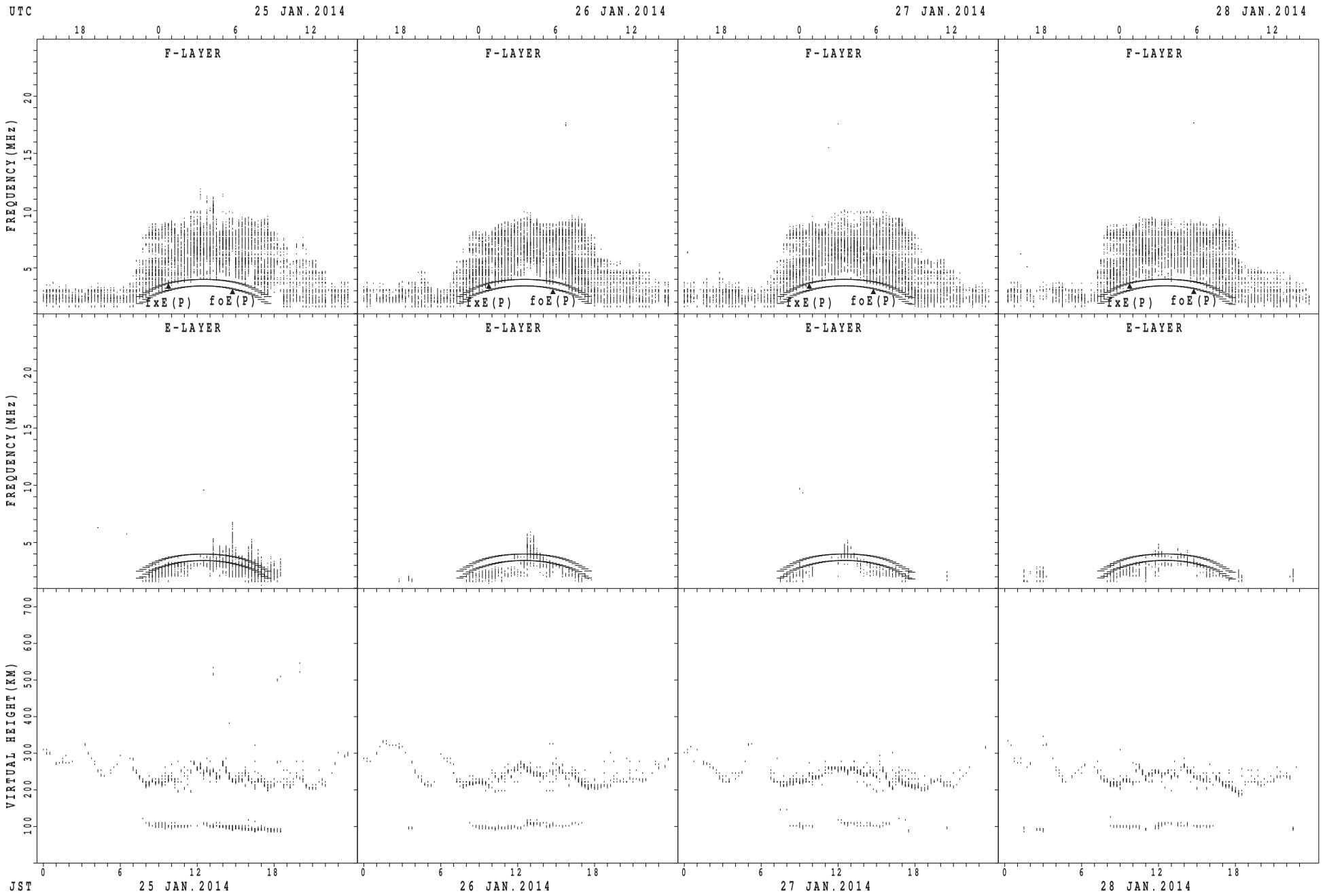
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



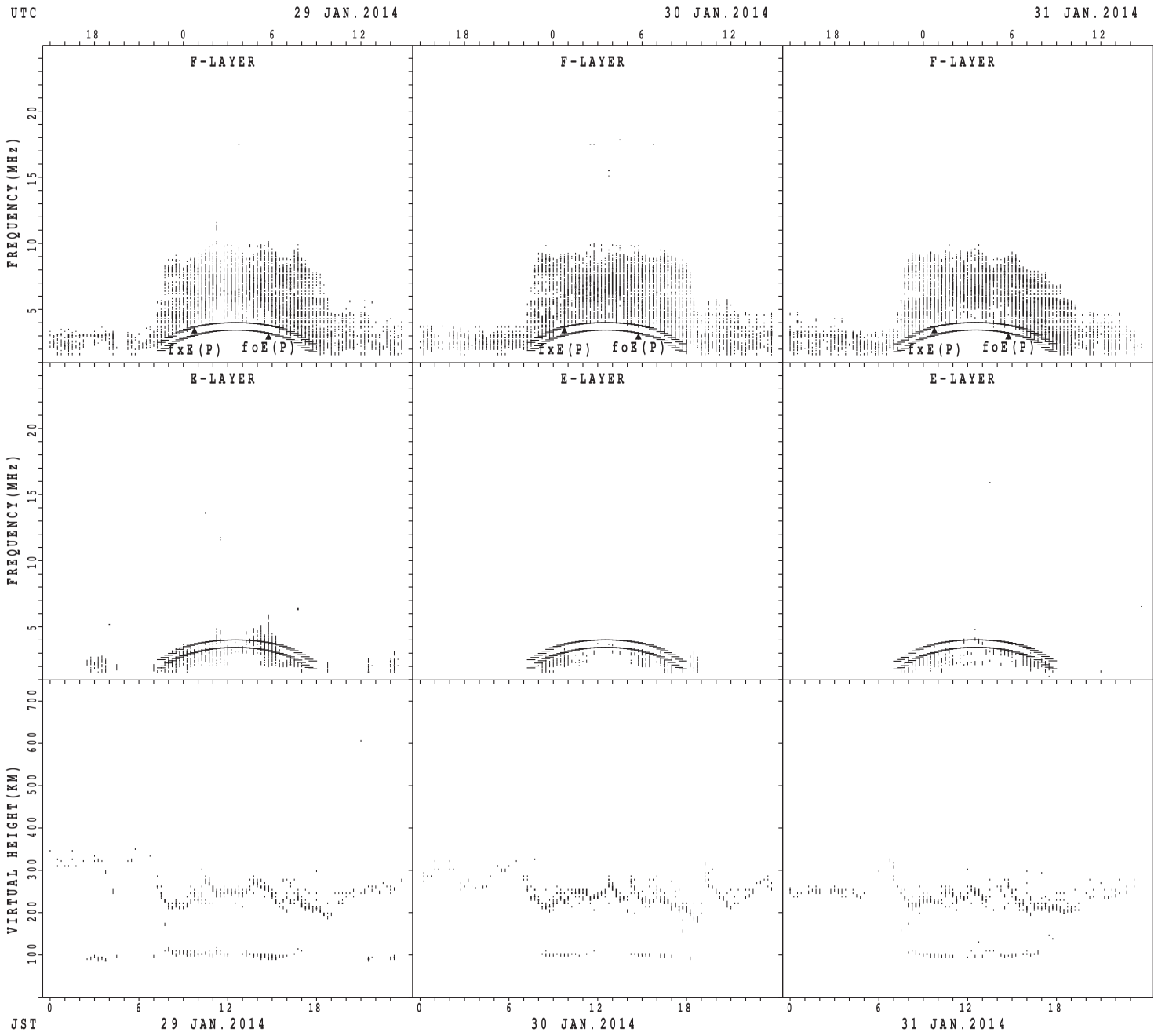
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



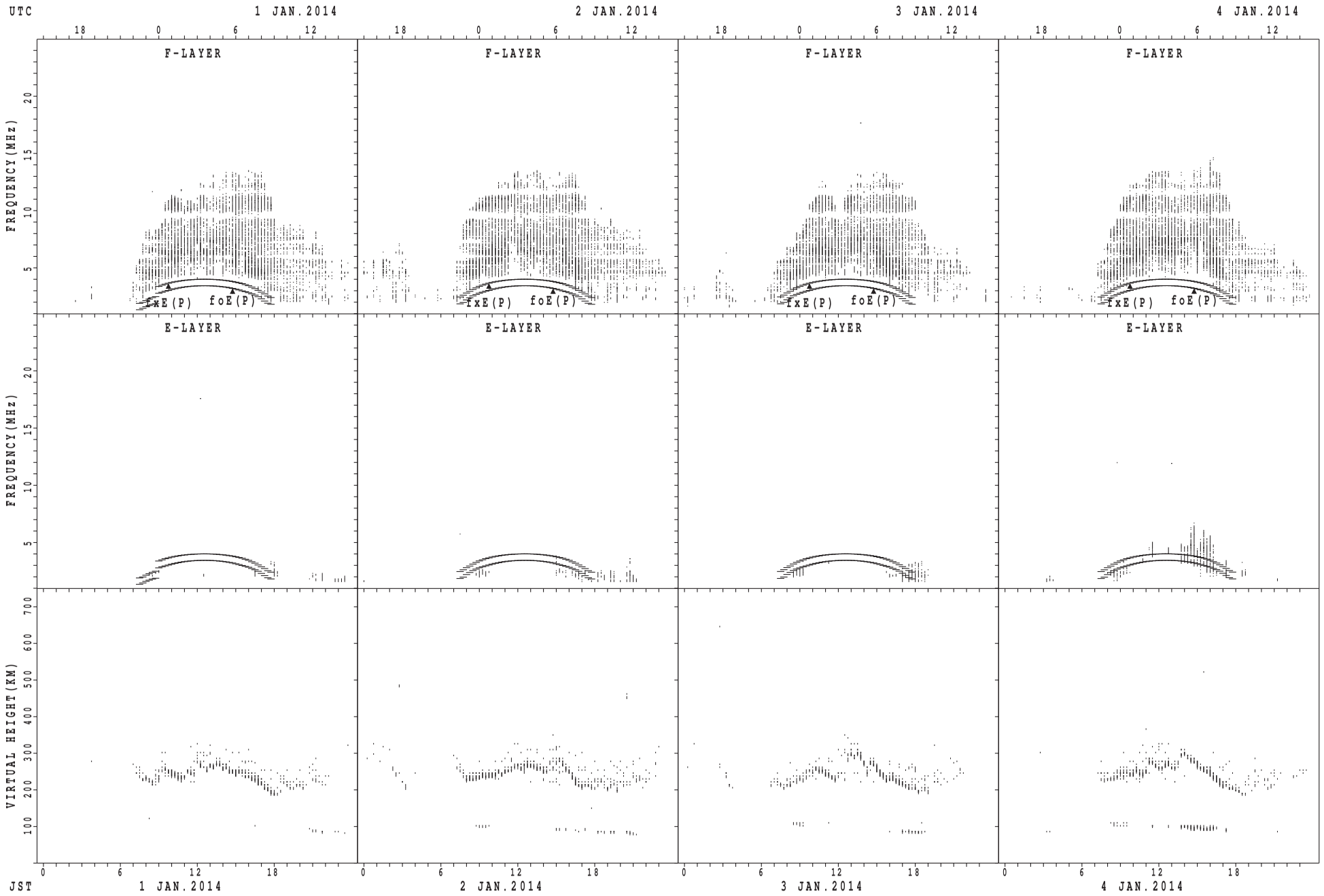
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



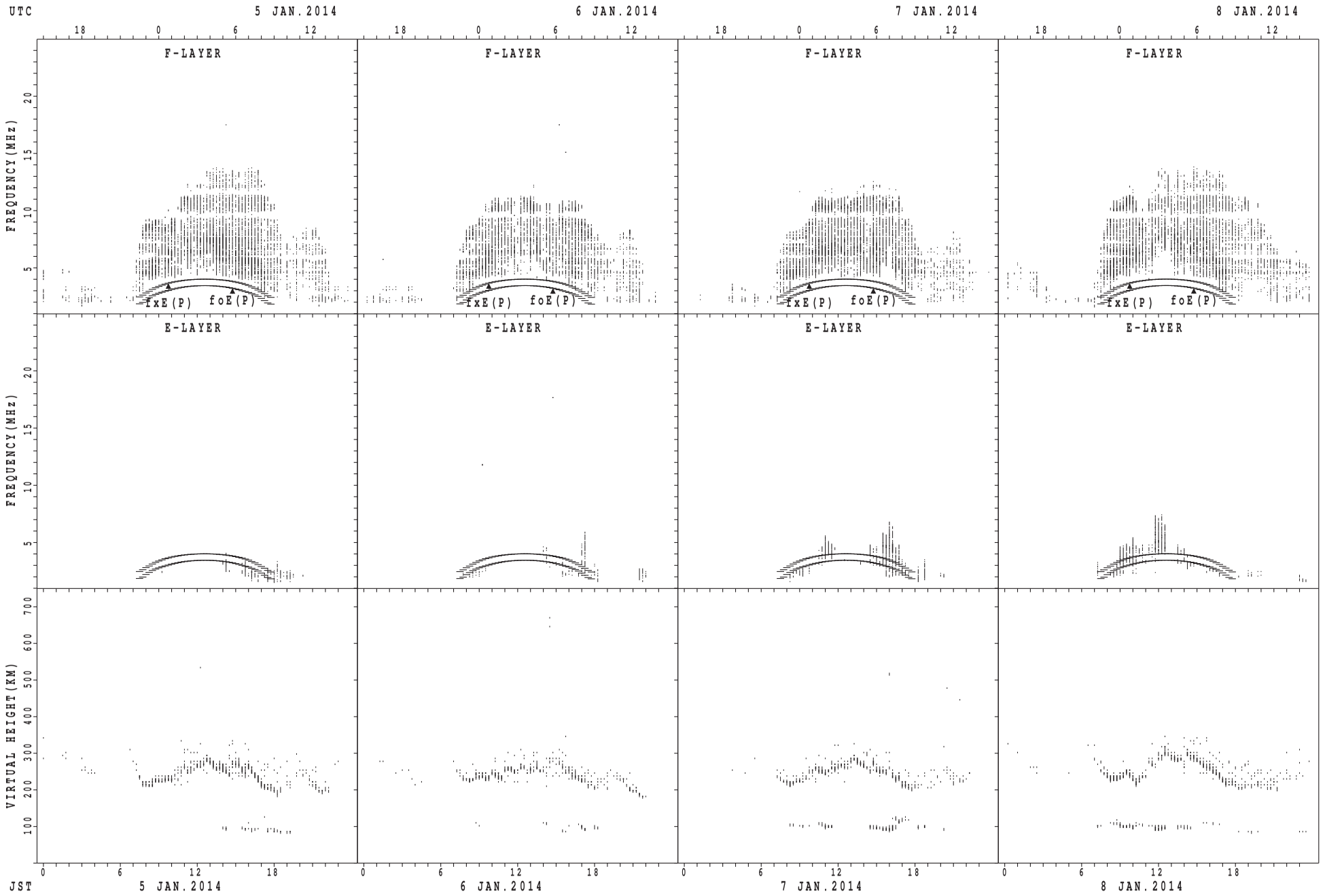
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



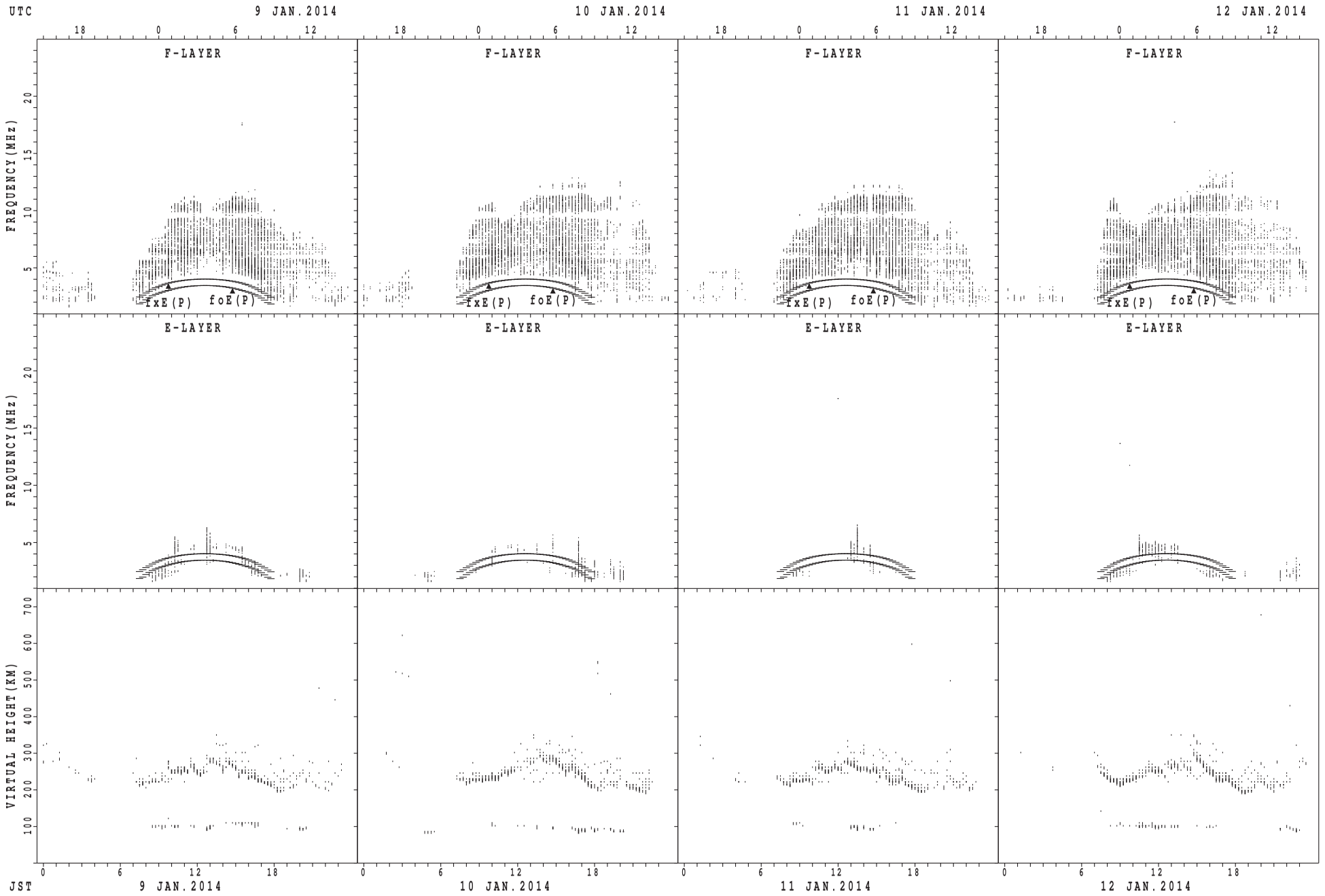
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



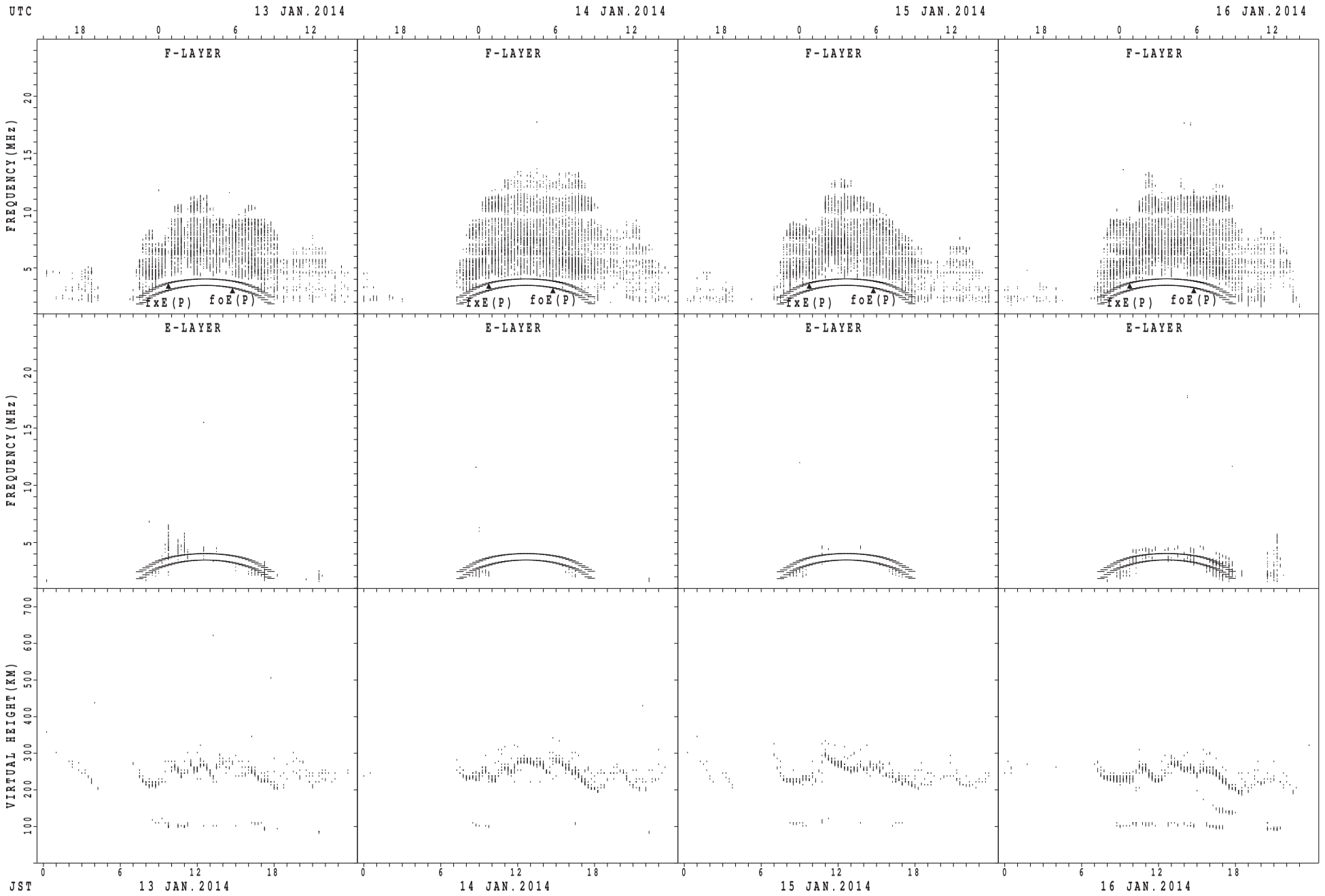
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



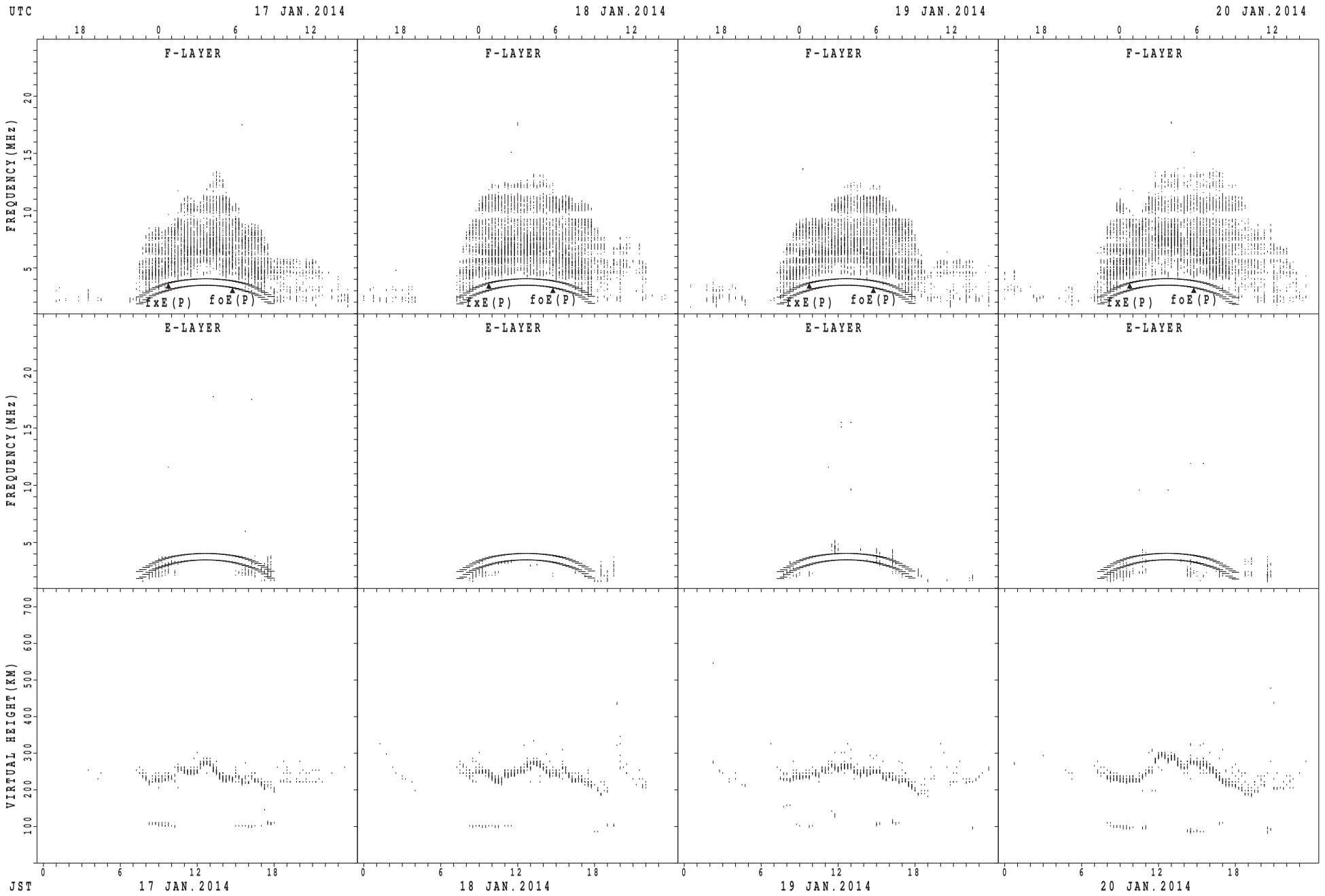
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



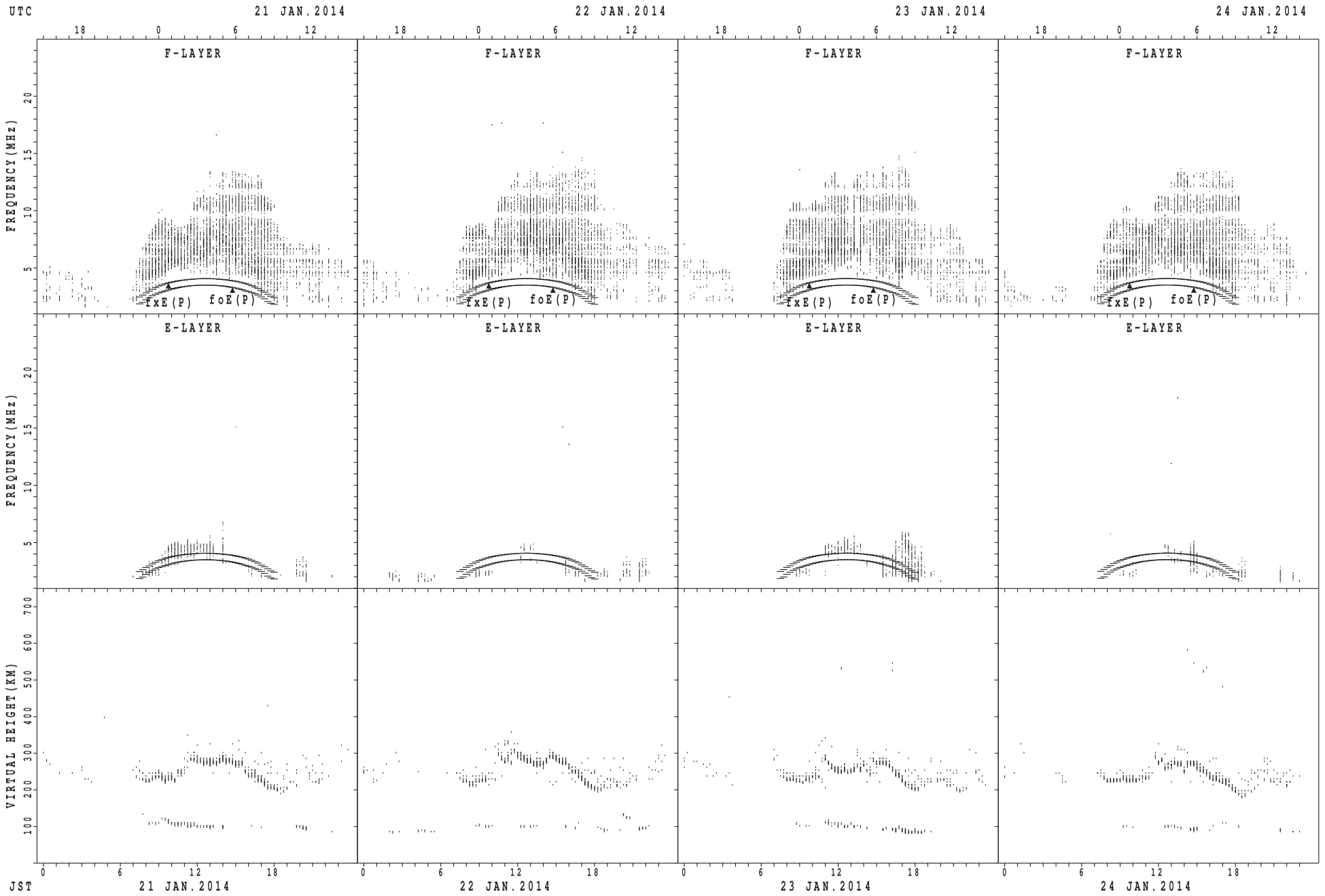
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



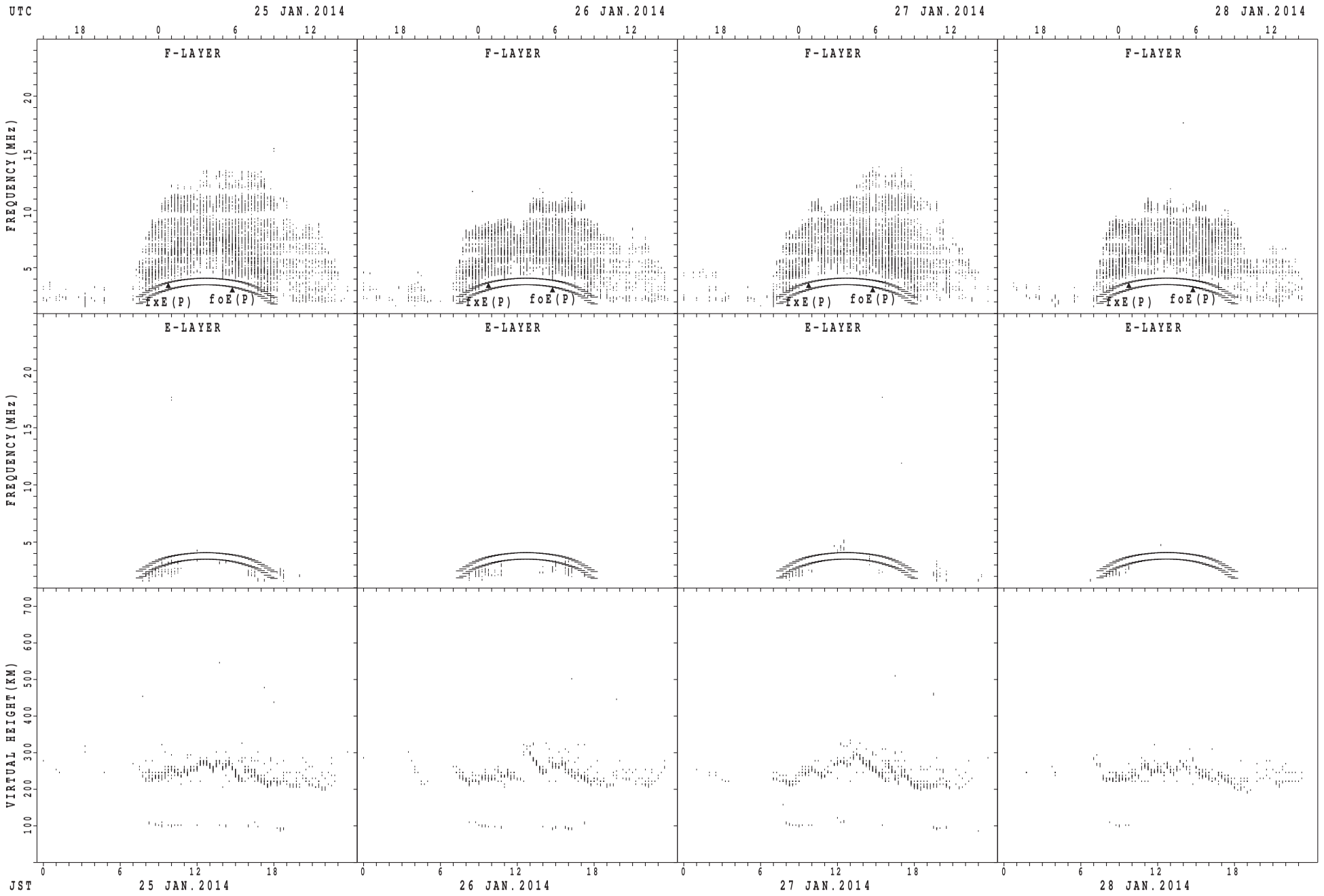
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



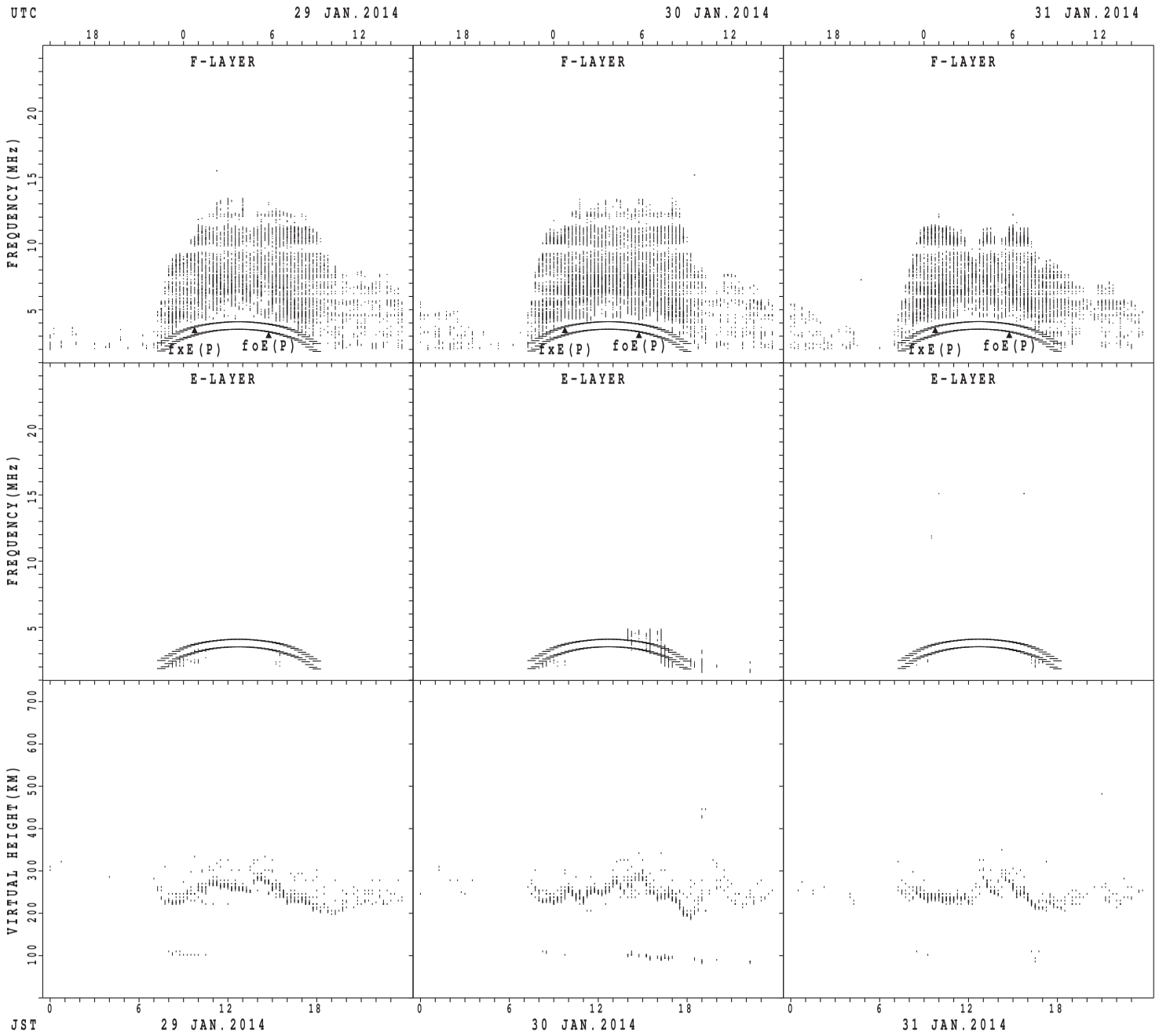
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h′F AND h′Es

JAN. 2014 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									28	29	29	29	30	29	28	30	15	1						
MED									217	222	226	222	230	240	238	227	230	260						
U Q									227	230	232	230	238	247	246	232	248	130						
L Q									214	214	222	217	222	230	224	222	224	130						

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	7	8	6	4	6	3	6	13	13	16	15	14	17	14	16	12	3	4	8	6	9	8	11	10
MED	89	96	93	98	100	95	97	105	123	116	107	113	107	105	107	111	97	96	97	99	97	97	99	94
U Q	95	103	97	101	105	95	105	114	144	134	115	113	113	113	111	113	161	98	101	105	100	99	103	99
L Q	87	92	87	92	95	95	97	99	101	103	103	103	101	101	101	105	93	93	95	97	95	95	93	91

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	24	29	30	30	23	30	30	30	25	7						
MED								254	229	234	238	237	240	247	250	238	234	238						
U Q								127	232	246	248	240	254	256	262	244	244	240						
L Q								127	216	225	232	230	230	238	236	232	228	228						

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	1		1				2	8	9	5	2	2	3	3	8	3	1	4	4	3	6	7	3
MED	97	103		105				101	111	107	105	103	118	103	111	107	107	95	100	99	105	99	95	97
U Q	98	51		52				105	119	109	113	107	133	105	111	111	123	47	104	101	109	99	97	97
L Q	96	51		52				97	108	107	98	99	103	99	107	105	97	47	97	98	95	95	91	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									14	27	31	31	15	15	30	31	30	26	7	1	3			
MED									231	228	236	240	250	254	262	246	241	229	232	284	250			
U Q									242	234	250	250	256	266	270	258	248	240	262	142	256			
L Q									224	222	228	234	246	252	246	238	230	222	228	142	236			

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	3	1		3					5	17	13	12	14	13	16	17	19	12	11	6	3	5	2	2
MED	91	89		95					121	105	107	105	103	103	103	101	103	93	93	90	93	95	93	92
U Q	97	44		103					154	107	107	109	107	111	105	105	107	110	95	95	95	96	95	95
L Q	89	44		93					109	105	102	105	101	95	99	96	97	89	87	89	89	90	91	89

MONTHLY MEDIANS OF h′F AND h′Es

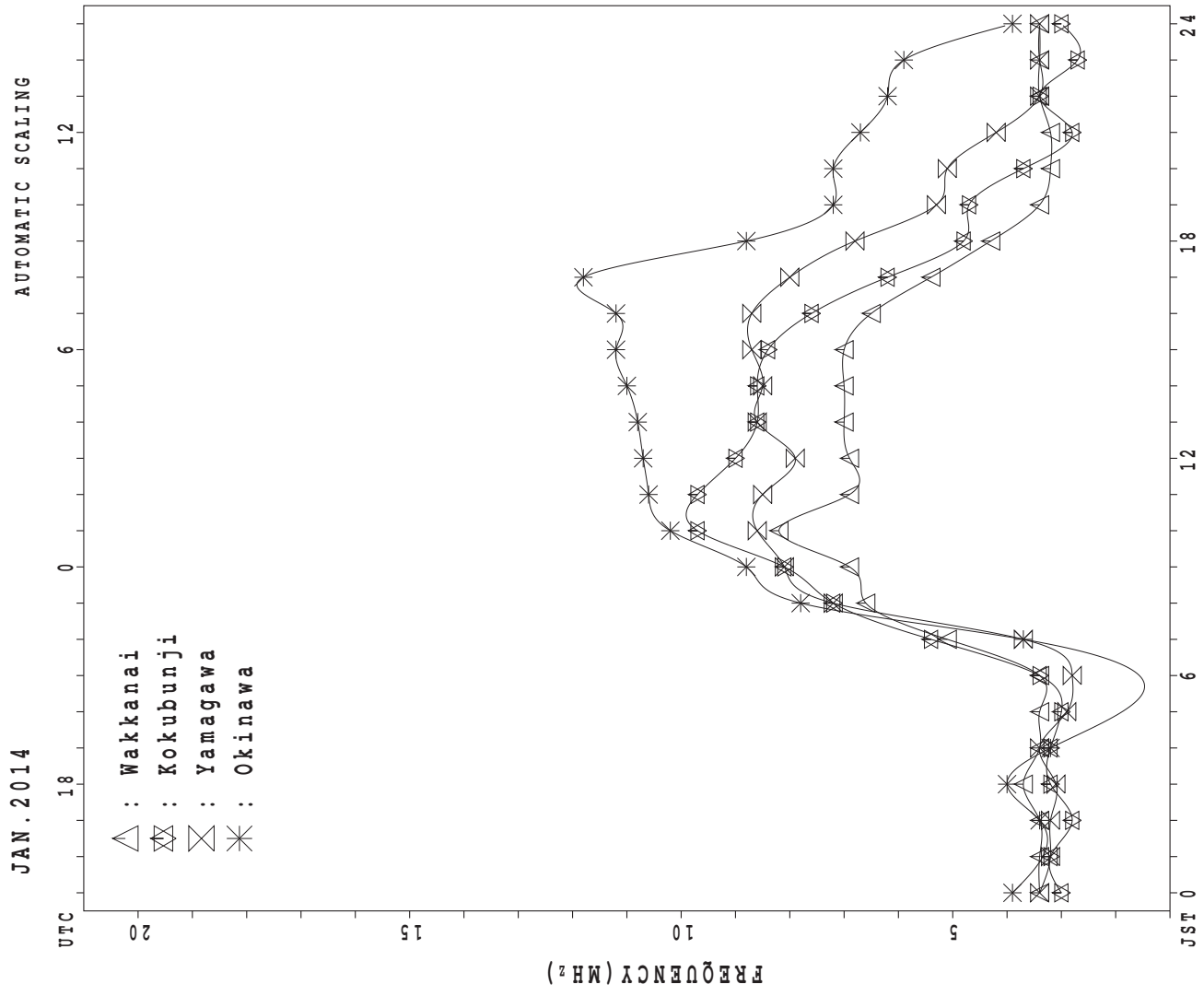
JAN.2014 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									25	29	31	31	15	15	21	31	31	31	27	10	6	11	6	1
MED									240	236	238	248	262	270	262	262	248	230	220	242	242	246	240	256
U Q									246	240	248	254	270	280	271	272	262	238	234	252	256	274	242	128
L Q									236	225	230	240	254	262	255	248	238	222	214	222	232	234	228	128

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			1			1				15	4	7	6	6	6	6	7	8	5	3	4	2	3	1
MED			91			87				107	110	103	104	102	99	99	99	105	91	89	96	89	97	89
U Q			45			43				109	112	113	105	105	103	109	105	132	96	107	101	95	183	44
L Q			45			43				105	104	101	99	99	97	97	95	94	89	87	93	83	95	44


MONTHLY MEDIANS PLOT OF foF2
JAN.2014
AUTOMATIC SCALING
: Wakkanai
: Kokubunji
: Yamagawa
: Okinawa
UTC
18
0
6
12
JST 0
6
12
18
24
5
10
15
20
FREQUENCY (MHz)

IONOSPHERIC DATA STATION Wakkanai

JAN. 2014 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 38	X 39	X 40	X 41	X 39	X 39	X 31												X 47	X 41	X 40	X 36	X 39	X 40
2	X 42	S	X 44	X 50	X 46	X 40												X 59	X 48	X 35	X 35	X 37	38	X 42
3	X 43	X 42	X 40	X 40	X 40	X 40	X 41											X 52	X 57	X 43	X 38	X 34	X 38	X 37
4	X 40	X 42	X 42	X 43	X 45	X 40	X 37											X 63	X 51	X 42	X 41	X 43	X 43	X 41
5	X 42	X 42	X 43	X 44	X 49	X 47	X 47											X 66	X 58	X 54	X 41	X 42	X 46	55
6	61	61	X 60	X 64	X 66	X 65	X 45											X 68	X 62	X 50	X 36	X 35	X 35	X 37
7	X 39	X 39	X 39	X 39	X 41	X 41	X 33											X 56	X 50	X 42	X 40	X 44	X 46	X 46
8	X 45	X 47	X 47	X 47	X 47	X 44	X 34	X 57										X 63	X 47	X 34	X 35	A	X 40	X 38
9	X 39	X 39	X 39	X 41	X 46	X 40	X 37											X 62	X 62	X 38	X 40	X 42	X 47	X 48
10	X 48	X 46	X 47	X 48	X 49	X 46	X 43											X 70	X 62	X 48	X 35	X 37	X 40	X 40
11	X 43	X 45	X 47	X 50	X 51	X 50	X 37												X 47	X 47	X 35	X 39	X 40	X 43
12	X 48	X 49	X 47	X 48	X 55	60	X 55		C										X 63	X 47	X 43	X 39	44	44
13	48	50	51	X 51	X 45	X 45	X 42											X 74	X 58	X 58	X 49	X 49	A	X 49
14	X 49	X 49	X 48	X 46	X 47	X 49	X 45												X 61	X 60	X 47	X 45	X 45	X 42
15	X 44	X 45	X 45	X 45	X 46	X 42	X 40											X 63	X 55	X 45	X 45	X 45	X 47	X 51
16	X 53	X 47	X 47	X 50	X 53	X 57	X 54											X 59	X 46	X 46	X 38	X 40	X 43	X 46
17	X 49	X 49	X 49	X 49	X 49	X 45	X 37											X 52	X 40	X 34	X 34	40	40	40
18	40	X 40	X 40	X 40	X 41	X 39	X 33											X 54	X 47	X 43	X 37	X 37	X 39	X 42
19	X 43	X 42	X 39	X 40	X 41	X 43	X 43											X 49	X 43	X 45	X 45	X 44	X 48	X 46
20	X 47	X 49	X 51	X 51	X 52	X 55	X 43												X 51	X 41	X 32	X 37	X 39	X 42
21	X 45	X 46	X 47	X 45	45	X 46	X 47											X 55	X 48	X 48	X 46	X 51	X 51	X 53
22	X 53	X 55	X 51	X 52	X 50	X 42	X 37												X 67	X 49	X 39	A	X 47	X 48
23	X 49	X 50	X 51	X 44	X 46	X 44	X 44			118	120	104							X 60	X 57	X 45	X 42	X 42	X 46
24	X 39	X 40	X 40	X 40	X 41	X 40	X 40												X 53	C	X 37	X 39	X 40	X 42
25	X 44	X 46	X 48	X 47	X 43	X 46	X 41												X 53	X 46	X 41	X 37	X 39	X 42
26	X 41	X 41	X 41	X 41	X 43	X 45	X 47												X 69	X 55	X 35	X 37	X 39	X 41
27	X 41	X 44	X 47	X 47	X 44	X 45	X 45												X 50	X 42	X 40	X 47	X 47	X 47
28	X 49	X 50	X 50	X 49	X 46	X 46	X 40												X 57	X 47	X 39	X 38	X 43	X 43
29	X 45	X 45	X 44	X 45	X 45	X 45	X 42												X 58	X 43	X 42	X 39	X 41	48
30	49	X 46	X 45	X 47	X 46	X 46	X 53												X 54	X 52	X 41	X 42	X 47	X 47
31	54	53	X 50	55	X 47	X 41	X 42												X 43	X 39	X 34	X 35	X 40	X 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	30	31	31	31	31	30	1		1	1	1						16	31	30	31	29	30	31
MED	X 45	X 46	X 47	X 47	X 46	X 45	X 42	X 57		118	120	104						X 60	X 53	X 46	X 40	X 39	X 42	X 43
U Q	X 49	X 49	X 49	X 50	X 49	X 46	X 45											X 64	X 60	X 49	X 42	X 44	X 46	X 47
L Q	X 41	X 42	X 41	X 41	X 43	X 41	X 37											X 54	X 47	X 42	X 35	X 37	X 39	X 41

JAN. 2014 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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

JAN. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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																								
2														L										
3									248		340													
4														L										
5									264			L		348										
6														L										
7													L											
8											L	L	L		L									
9													L											
10															L									
11									264					L	L									
12									C			L												
13												L												
14									264		L	L				248								
15								UL 220		296		L	UL 380											
16										L	L	L	L	A										
17									232	324	L	L	L	L	L									
18									244			L	L	L										
19									260			L	L	L	L									
20									240		L	L		L										
21											L	L	L	L	L									
22											L			L	L									
23									L			L	L	L										
24									256		L	UL 428	L	L	364		196							
25											L	L	L	L	L									
26									260		352	344	L	L	L									
27									264		L	L	L	L	L									
28												L	L	L										
29												L	L	L										
30											L	L	L	L	L									
31									272				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	12	2	2	2	1	1	1	1	1							
MED								UL 220	260	310	346	386	UL 380	348	364	248	196							
U Q									264															
L Q									246															

JAN. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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								172	188	272	296	A	A	296	268	R	B	B						
2							B	J R 172	240	264	272	304	312	288	276	236	B							
3								A	208	A	296	308	304	284	280	248	A							
4								A	A	A	A	A	A	A	A	220	184							
5								B	216	A	304	320	304	296	292	244	B							
6								B	A	272	292	316	316	304	292	256	B							
7								B	236	256	304	320	316	304	A	220	A							
8									A 196	252	292	320	316	324	288	240	192							
9								B	228	276	308	332	324	304	280	240	188							
10								B	236	284	308	340	332	308	280	224	A							
11								168	228	292	304	308	320	308	276	244	188	B						
12								J R 172	C	R 272	296	304	312	A	A	236	200	B						
13								B	204	248	292	308	308	308	292	228	A							
14								A	228	264	296	316	320	308	288	228	188	B						
15								B	220	252	288	312	320	324	300	240	192							
16								B	220	272	296	A	312	A	268	236	196							
17								B	196	268	292	312	320	300	284	U A 232	192							
18								B	180	228	R 288	300	300	300	280	232	A							
19								B	196	248	276	300	304	304	288	A 244	200							
20								184	200	260	284	308	312	312	U A 276	252	188	B						
21								B	236	U A 252	A	A	320	R 304	288	256	U R							
22								160	216	A	A	A	A	300	284	248	204	B						
23								B	216	268	296	320	328	312	292	244	172	B						
24								B	200	268	304	316	324	304	284	248	164	B						
25								B	H 240	264	320	324	324	312	288	252	184	B						
26								B	212	284	300	304	304	292	292	236	164	B						
27								A	188	280	300	316	316	320	304	A	188	A						
28								A	256	264	324	324	340	308	A	252	216	A						
29								176	260	280	308	328	324	A	A	A	A	B						
30								A	204	276	R 308	320	320	R 316	296	260	232	B						
31								180	208	280	A 316	320	340	328	308	256	224	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								8	28	27	28	26	28	27	26	28	20							
MED								172	216	268	296	316	318	304	288	242	190							
U Q								178	232	276	306	320	324	312	292	250	200							
L Q								170	200	256	292	308	312	300	280	234	186							

JAN. 2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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 13	E B 13	E B 14	E B 14	E B 14	J A 27	G	25	29	32	J A 45	J A 45	33	G	G 21	E B 16	J A 25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
2	E B 14	37	36	J A 21	E B 15	E B 14	E B 14	G	J A 28	28	G	G	G	G 28	G 23	G	E B 17	E B 15	J A 23	E B 15	J A 23	E B 15	E B 13	J A 22
3	J A 29	J A 28	E B 15	E B 15	J A 25	J A 29	J A 29	J A 20	22	32	33	31	G	G	G 22	G	J A 25	E B 16	J A 20	E B 15	E B 15	E B 15	E B 15	J A 26
4	E B 13	E B 13	J A 24	54	J A 23	J A 21	J A 16	J A 18	25	28	33	34	34	34	29	J A 60	G	E B 14	J A 20	E B 16	19	22	E B 11	E B 12
5	E B 12	E B 12	E B 12	E B 12	E B 12	E B 15	E B 15	E B 15	24	36	G 27	G 26	G 24	33	G	G	E B 11	E B 12	E B 15	E B 15	E B 15	E B 15	J A 31	J A 30
6	J A 30	E B 14	20	E B 14	J A 15	E B 14	E B 14	E B 14	J A 46	G 26	G	G	G	G	G	G	E B 14	E B 14	E B 14	E B 15	E B 16	E B 16	E B 13	E B 13
7	E B 14	E B 14	E B 15	E B 15	J A 18	E B 16	E B 15	J A 18	35	35	G 28	G 26	G 26	G 30	27	27	19	E B 15	J A 15	J A 26	33	J A 23	J A 19	J A 32
8	J A 35	J A 27	J A 16	E B 16	E B 14	E B 14	E B 14	J A 15	24	29	G 26	G	G	G	G	G	G	E B 15	E B 15	E B 15	19	J A 38	E B 15	J A 19
9	J A 24	J A 24	J A 21	E B 14	E B 14	J A 13	E B 14	E B 15	G 18	G 20	G	G 32	G	G	G	G 21	20	E B 15	J A 18	J A 31	J A 45	J A 24	J A 23	J A 19
10	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	25	G	G 30	G 30	G 27	G 24	G 22	G	22	J A 21	J A 21	J A 21	J A 19	E B 14	20	E B 14
11	E B 14	E B 14	E B 13	E B 13	E B 13	E B 14	E B 14	G	25	G 28	G	G	G	G	G 24	G	G	E B 13	E B 13	E B 13	E B 13	E B 12	E B 12	E B 12
12	E B 12	E B 12	E B J 17	A E 13	E B 13	E B 13	E B 16	G	C	G 24	G	34	38	33	28	G	G	J A 21	E B 12	E B 13	E B 13	E B 13	E B 13	J A 27
13	J A 44	J A 29	J A 33	J A 44	J A 36	J A 18	E B 15	E B 16	23	30	32	33	33	G 26	G 26	25	21	E B 15	J A 24	E B 12	E B 12	J A 29	J A 59	J A 31
14	J A 31	J A 27	22	J A 17	J A 24	J A 24	J A 26	J A 28	J A 27	J A 27	J A 41	G	G 31	G 25	G	25	J A 26	J A 25	J A 25	E B 13	E B 13	E B 13	E B 13	E B 13
15	E B 14	E B 14	J A 17	E B 14	E B 14	E B 14	E B 14	E B 14	25	28	34	G	34	G	G	G	G 17	E B 14	J A 19	J A 23	J A 26	E B 12	J A 26	J A 25
16	J A 25	J A 21	J A 18	E B 13	E B 13	E B 12	E B 12	J A 16	G 19	G 21	32	32	32	J A 58	J A 32	G	G 20	E B 16	E B 13	22	J A 28	J A 21	E B 14	J A 16
17	J A 16	E B 12	E B 12	E B 12	J A 15	E B 13	E B 12	E B 12	22	32	32	G	G	G	G	27	20	J A 13	J A 14	J A 26	J A 26	J A 17	J A 16	E B 14
18	E B 12	E B 12	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	23	29	32	33	32	32	G	G	20	J A 25	J A 31	E B 15	E B 15	19	19	E B 15
19	E B 13	E B 13	E B 13	J A 15	E B 15	J A 15	E B 15	J A 17	24	28	31	32	32	32	30	27	G	J A 20	E B 14	20	E B 13	J A 15	J A 25	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	E B J 19	20	30	31	G	33	33	32	G	G 17	J A 14	E B 14	E B 14	E B 14	E B 14	E B 14	J A 20
21	J A 17	E B 13	E B 13	E B 15	E B 15	E B 15	E B 15	E B 15	G	30	32	33	32	G 26	G 26	G 19	19	E B 14	E B 14	E B 14	J A 13	E B 14	J A 18	J A 20
22	J A 20	J A 17	J A 23	J A 19	E B 14	E B 14	E B 14	G	26	28	31	39	34	G	G	G	22	E B 15	J A 37	J A 37	J A 39	J A 52	J A 29	J A 19
23	19	20	J A 15	19	E B 11	E B 12	E B 12	E B 13	28	G	G	G 32	G 29	34	G 26	26	20	E B 11	20	20	20	20	22	J A 15
24	22	22	J A 18	J A 18	17	J A 12	20	J A 19	23	G 20	33	G	G 27	G	33	G 22	19	E B 14	J A 15	C	20	20	20	E B 15
25	E B 16	E B 15	20	20	19	E B 12	E B 12	E B 12	G 21	G	G 25	G 26	G 26	33	30	G	G	E B 13	E B 12	E B 12	E B 12	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 15	E B 15	23	G 23	33	32	33	33	G	G 23	22	E B 12	J A 15	E B 14	E B 14	J A 25	E B 14	E B 14
27	E B 14	E B 14	E B 14	E B 16	J A 15	E B 16	E B 15	J A 25	22	G 24	34	35	38	33	33	30	G 18	J A 22	E B 15	E B 15	E B 15	J A 20	J A 25	E B 14
28	E B 14	J A 25	18	J A 26	J A 15	E B 15	J A 18	17	G 20	30	G 27	34	G 34	34	31	G 21	G 18	J A 26	J A 20	27	20	J A 17	J A 17	J A 17
29	20	20	24	18	E B 14	E B 14	B J 17	A J 18	G	30	G 25	35	37	37	J A 39	25	41	J A 23	A J 23	A E 17	B J 13	A 16	18	E B 16
30	J A 17	J A 16	E B 14	E B 14	E B 14	E B 14	B J 15	A 18	26	G 26	34	G 20	G 30	G 30	31	30	G 19	J A 20	E B 14	E B 13	J A 21	A 16	22	J A 14
31	E B 14	E B 14	E B 16	E B 16	E B 16	E B 16	E B 14	G	26	31	33	34	34	34	G 23	28	24	J A 21	E B 15	J A 23	J A 31	A J 26	27	J A 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	30	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31
MED	E B 16	E B 14	16	E B 15	E B 14	E B 14	E B 15	G	24	28	31	G	G 34	G	G	G	G	E B 15	15	E B 15	16	16	18	J A 16
U Q	J A 22	J A 22	20	J A 18	J A 16	J A 15	J A 16	J A 18	26	30	33	34	34	33	30	26	21	J A 21	J A 20	J A 22	J A 23	J A 22	J A 23	J A 20
L Q	E B 14	E B 13	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	G 22	G 26	G	G 32	G 31	G	G 26	G	18	E B 14	E B 14	E B 14	E B 13	E B 14	E B 14	E B 14

JAN. 2014 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Wakkanai

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

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

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 13	E B 13	E B 14	E B 14	E B 14	E B 14	G		G 24	G 26	G 28	31	33	G 29	G	U G 21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
2	E B 14	U S 32	18	17	E B 15	E B 14	E B 14	G	G 16	G 16	G	G	G	G 17	G 18	G	E B 17	E B 15	E B 15	E B 15	E B 15	E B 15	E B 13	E B 13
3	E B 14	E B 17	E B 15	E B 15	E B 15	18	18	18	G 21	26	G 30	G 22	G	G	G 22	G	18	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 13
4	E B 13	E B 13	E B 13	E B 14	16	16	E B 12	E B 12	21	24	24	29	29	29	27	G 17	G	E B 14	17	E B 16	E B 12	E B 11	E B 11	E B 12
5	E B 12	E B 12	E B 12	E B 12	E B 12	E B 15	E B 15	E B 15	23	25	G 21	G 21	G 20	30	G	G	E B 11	E B 12	E B 15	E B 15	E B 15	E B 15	16	16
6	20	E B 14	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	31	G 19	G	G	G	G	G	G	E B 14	E B 14	E B 14	E B 15	E B 16	E B 16	E B 13	E B 13
7	E B 14	E B 14	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	G 18	G 18	G 18	G 18	G 18	G 22	22	23	17	E B 15	E B 15	21	22	22	E B 14	E B 13
8	29	18	E B 16	E B 16	E B 14	E B 14	E B 14	E B 14	23	27	G 24	G	G	G	G	G	G	E B 15	E B 15	E B 15	E B 15	A A 38	E B 15	E B 16
9	E B 16	E B 15	E B 13	E B 14	E B 14	E B 11	E B 14	E B 15	G 16	G 20	G	G 20	G	G	G	G 19	G 17	E B 15	E B 15	E B 14	18	18	E B 14	E B 15
10	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	G 15	G	G 15	G 21	G 21	G 20	G 20	G	20	E B 15	E B 16	E B 17	E B 15	E B 14	E B 14	E B 14
11	E B 14	E B 14	E B 13	E B 13	E B 13	E B 14	E B 14	G	G 22	G 22	G	G	G	G	G 22	G	G	E B 13	E B 13	E B 13	E B 13	E B 12	E B 12	E B 12
12	E B 12	E B 12	E B 11	E B 13	E B 13	E B 13	E B 16	G	C	G 20	G	33	G 26	28	28	G	G	16	E B 12	E B 13	E B 13	E B 13	E B 13	17
13	17	19	24	25	22	E B 15	E B 15	E B 16	22	27	30	32	32	G 24	G 22	G 23	17	E B 15	17	E B 12	E B 12	18	A A 59	20
14	19	E B 15	E B 12	14	16	16	E B 16	18	G 18	G 18	G 18	G	G 18	G 18	G	G 23	G 17	16	16	E B 13	E B 13	E B 13	E B 13	E B 13
15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	24	G 25	G 28	G	G 32	G	G	G	G	E B 14	E B 14	E B 14	E B 13	E B 12	E B 12	15
16	15	E B 12	E B 13	E B 13	E B 13	E B 12	E B 12	E B 12	G 12	G 12	30	30	G 24	40	G 22	G	G	E B 16	E B 13	E B 12	16	E B 12	E B 14	E B 14
17	E B 12	E B 12	E B 12	E B 12	E B 12	E B 13	E B 12	E B 12	20	27	32	G	G	G	G	25	G 17	E B 15	E B 15	17	E B 15	E B 16	E B 12	E B 14
18	E B 12	E B 12	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	20	28	29	31	31	30	G	G	18	17	17	E B 15	E B 15	E B 15	E B 15	E B 15
19	E B 13	E B 13	E B 13	E B 15	E B 15	E B 16	E B 15	E B 15	20	26	29	30	32	32	G 29	G 24	G	E B 14	E B 14	E B 15	E B 13	E B 13	20	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	G	G 20	29	29	G	33	33	28	G	G 15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 12
21	E B 13	E B 13	E B 13	E B 15	E B 15	E B 15	E B 15	E B 15	G	27	27	28	G 28	G 26	G 24	G 18	19	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15
22	E B 15	E B 16	E B 14	E B 14	E B 14	E B 14	E B 14	G	22	26	26	36	32	G	G	G	G 17	E B 15	16	16	E B 13	A A 52	17	E B 13
23	E B 12	E B 11	E B 11	E B 11	E B 11	E B 12	E B 12	E B 13	24	G	G	G 22	G 20	G 29	G 22	G 26	20	E B 11	E B 11	E B 13	E B 12	E B 12	E B 12	E B 12
24	E B 13	E B 12	E B 12	E B 13	E B 15	E B 15	E B 16	E B 15	22	G 18	31	G	G 17	G	G 28	G 17	17	E B 14	E B 15	C	E B 15	E B 15	E B 15	E B 15
25	E B 16	E B 15	E B 15	E B 15	E B 12	E B 12	E B 12	E B 12	G 16	G	G 16	G 16	G 16	32	30	G	G	E B 13	E B 12	E B 12	E B 12	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 15	E B 15	G 21	G 20	G 30	32	32	32	G	G 20	20	E B 12	E B 12	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	E B 16	E B 16	E B 16	E B 15	13	21	G 21	33	32	34	G 32	32	28	G	17	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14
28	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15	E B 14	15	G 16	28	G 21	33	G 33	33	31	G 21	G 16	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
29	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G 16	G	29	G 18	34	34	34	34	25	35	16	E B 13	E B 13	E B 13	E B 13	E B 16	E B 16
30	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	16	24	G 20	32	G 18	G 23	G 27	G 30	29	G 18	E B 14	E B 14	E B 13	E B 12	E B 12	E B 12	E B 12
31	E B 14	E B 14	E B 16	E B 16	E B 16	E B 16	E B 14	G	22	30	32	33	G 30	34	G 19	27	G 22	18	E B 15	16	16	E B 14	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	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	30	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	E B 15	21	G 26	G 29	G	G 32	G	G 30	G	G 18	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14
U Q	15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	22	27	G	32	G	32	G	G	G	16	16	15	15	16	15	15
L Q	E B 13	E B 13	E B 13	E B 14	E B 14	E B 14	E B 14	E B 14	G 18	G 20	G 24	G 22	G 23	G 28	G 22	G 23	17	E B 14	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13

JAN. 2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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

JAN. 2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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	311	302	298	285	294	341	373	327	356	335	350	R 342	354	352	U R 367	367	346	341	333	353	312	269	272	276
2	261	S	287	300	331	298	273	310	R	R	R	R	R	326	336	337	358	359	346	345	318	303	300	292
3	290	299	285	288	281	274	321	V 337	367	357	R	R	R	352	R 320	333	350	321	348	366	331	294	260	264
4	289	284	286	276	300	H 298	329	318	361	R	R	349	360	R	Y	351	333	352	329	350	307	302	306	303
5	298	263	279	287	320	303	304	329	356	364	R 352	U R 370	346	333	339	328	328	332	329	330	343	V 301	269	F 284
6	F 287	F 274	Z 285	309	313	319	349	342	365	370	352	J R 352	350	357	349	368	349	315	340	371	347	300	291	276
7	253	282	283	277	294	353	330	344	357	U R 369	R 347	341	U R 356	R 337	342	346	337	335	350	380	277	274	281	281
8	284	292	292	301	302	330	295	346	358	365	315	R	R	U Y 366	337	344	341	346	343	321	309	A	309	308
9	296	282	275	293	333	351	351	337	371	386	R	R 418	U R 366	343	R 340	356	331	338	292	356	291	271	276	298
10	S 302	298	292	303	302	317	329	356	364	R	R	U R 367	R 348	R	344	369	332	325	324	333	314	299	281	292
11	291	294	288	285	306	359	329	343	363	R 357	344	R	R 334	R	R 371	372	351	329	299	351	329	283	284	297
12	V 301	315	291	291	286	289	290	332	C	R	U R 360	R	R	357	334	346	335	302	332	333	333	303	F 300	F 304
13	280	F 281	305	R 331	323	355	299	311	353	U R 360	R 348	345	349	R 315	U R 346	R 350	341	347	320	324	340	266	A	305
14	302	296	302	312	294	316	312	339	R 377	R	R 354	R 356	343	R	R 358	343	335	322	339	333	322	299	310	301
15	294	297	294	308	313	329	328	326	R 353	R	R 369	U Y 375	R 368	356	350	341	323	332	344	351	325	312	296	291
16	310	310	311	299	279	303	316	336	372	R	R	R	386	332	344	353	332	354	316	344	325	313	304	283
17	280	297	297	297	297	309	328	355	365	356	R	R	348	363	345	342	332	351	336	343	307	279	F 287	F 282
18	F 281	298	287	290	V 291	321	306	347	359	U R 387	U R 372	R 353	R	333	R 366	354	357	311	336	371	332	286	265	277
19	316	320	338	330	315	305	306	349	361	R 357	368	357	R 351	355	363	365	370	336	333	309	327	310	294	307
20	301	295	288	295	309	323	382	340	377	359	U R 377	381	U R 372	351	337	351	357	342	346	375	304	272	283	291
21	281	286	290	290	F 307	313	345	325	378	342	R 336	U R 356	348	348	322	342	334	346	328	319	284	289	298	303
22	301	300	298	296	310	331	308	331	R 360	R	U R 361	U R 276	350	347	R 337	347	356	314	326	334	330	A	264	257
23	266	290	292	349	301	295	296	R 340	355	325	332	Y	Y	Y	352	357	352	352	321	333	345	316	316	R 284
24	298	298	298	302	294	298	319	352	391	R	R	R	R 344	R	U Y 361	R 335	352	328	342	C	333	312	297	290
25	289	290	296	299	289	303	339	332	366	367	R	346	R	Z 332	R 332	R 369	346	304	316	344	320	315	292	277
26	276	273	277	284	321	314	337	359	367	346	351	R	U R 352	R 358	350	325	341	310	324	338	324	278	273	274
27	278	291	303	304	281	303	324	343	358	360	351	352	R	345	R 350	344	350	331	338	322	308	312	298	295
28	282	274	277	286	302	302	330	330	351	R	R	U R 354	350	322	341	R	352	327	338	316	315	315	276	269
29	281	284	287	285	281	284	300	335	R 373	330	U R 359	U R 359	R 327	359	U R 347	292	356	318	340	318	333	292	V 257	F 264
30	F 278	281	282	303	300	305	312	347	R 381	366	349	R 360	U R 370	375	U R 358	352	339	340	300	317	359	302	297	301
31	290	300	305	305	320	298	316	339	U R 364	371	345	R 342	341	337	R	356	358	336	306	328	295	291	269	286
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	31	31	31	31	29	21	21	21	23	25	29	30	31	31	31	30	31	29	30	31
MED	289	293	291	297	302	309	321	339	364	360	R 351	R 354	350	348	345	348	346	332	333	336	324	299	289	290
U Q	301	298	298	304	313	329	330	346	372	368	U R 360	R 364	R 360	357	R 355	356	352	346	340	351	333	311	298	301
L Q	280	282	285	287	294	298	306	330	358	351	346	346	346	333	337	342	334	321	321	324	308	281	273	277

JAN. 2014 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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																								
2														L										
3									479		414													
4														L										
5									461			L		422										
6														L										
7													L											
8											L	L	L		L									
9													L											
10															L									
11									444					L	L									
12									C			L												
13												L												
14									420		L	L				494								
15								UL 407		442		L	UL 435											
16										L	L	L	L	A										
17									485	421	L	L	L	L	L									
18									471			L	L	L										
19									492			L	L	L	L									
20									492		L	L		L										
21											L	L	L	L	L									
22											L			L	L									
23									L			L	L	L										
24									398		L	UL 366	L	L	425		509							
25											L	L	L	L	L									
26									426		421	426	L	L	L									
27									458		L	L	L	L	L									
28												L	L	L										
29												L	L	L										
30											L	L	L	L	L									
31									436				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	12	2	2	2	1	1	1	1	1							
MED								UL 407	460	432	418	396	UL 435	422	425	494	509							
U Q									482															
L Q									431															

JAN. 2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2014 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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																								
2														262										
3									216		222													
4														238										
5									218			208		234										
6														246										
7													240											
8											272	222	234		234									
9													234											
10															234									
11									216					240	224									
12									C			224												
13												224												
14									222		222	220				220								
15								254		238		224	224											
16										224	224	224	216	244										
17									230	226	226	226	226	226	226									
18									226			226	232	232										
19									218			218	228	228	228									
20									198		216	214		214										
21											234	234	234	216	216									
22											218			218	244									
23									228			228	228	228										
24									200		212	216	222	222	224		212							
25											218	224	224	224	230									
26									216		228	228	228	226	226									
27									222		230	230	230	230	228									
28												250	244	244										
29												246	246	242										
30											242	242	218	214	234									
31									222				222	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								1	13	3	13	20	18	21	12	1	1							
MED								254	218	226	224	224	228	230	228	220	212							
U Q									224	238	232	229	234	241	234									
L Q									216	224	218	221	224	223	225									

JAN. 2014 h'F2 (KM)

IONOSPHERIC DATA STATION Wakkanai

JAN. 2014 h′F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	278	294	294	224	224	224	224	224	224	224	224	224	222	222	222	224	224	224	224	246	282	322	322
2	324	322	306	274	214	222	330	258	216	216	216	216	216	H 182	212	214	198	198	218	246	246	250	326	320
3	270	270	304	304	304	304	266	228	170	190	196	214	214	226	226	226	210	212	212	212	226	282	302	302
4	302	302	302	304	304	H 228	254	222	218	218	218	218	218	218	218	218	218	218	218	218	244	244	248	248
5	278	314	314	300	274	258	258	216	188	216	216	216	216	216	226	226	226	226	226	226	226	254	278	278
6	286	286	286	264	240	228	224	224	224	224	224	224	224	224	224	224	224	224	224	224	226	254	260	298
7	298	300	306	306	274	218	240	236	218	218	218	218	218	218	218	218	218	218	218	218	E A 366	342	328	328
8	E A 376	310	292	292	260	248	252	214	212	212	212	214	218	230	230	224	216	216	216	216	238	A	262	278
9	278	306	306	290	230	224	224	214	208	208	208	220	222	222	222	222	214	214	214	214	A 324	324	324	280
10	280	268	268	254	254	242	242	214	214	214	214	214	214	216	216	214	214	214	214	214	258	288	288	282
11	282	282	282	282	256	224	224	224	218	218	216	216	216	228	228	226	226	226	238	226	226	314	314	308
12	288	240	244	250	250	250	250	240	C	220	220	220	220	220	220	220	220	220	220	220	220	262	280	294
13	294	294	294	280	274	224	236	236	222	222	222	222	216	216	220	220	220	220	220	220	220	328	A	266
14	276	276	276	276	276	262	246	230	A 216	216	216	216	216	216	216	176	202	204	214	214	214	252	252	252
15	288	288	288	248	248	242	242	212	212	202	202	H 204	204	204	220	220	220	220	220	220	236	240	292	292
16	282	260	258	258	264	246	244	234	224	224	224	224	210	A	216	216	216	216	222	222	240	252	254	278
17	278	278	278	268	258	246	246	228	200	198	206	218	218	H 218	218	218	218	216	216	216	242	272	280	272
18	Q 300	298	278	278	242	242	268	256	188	192	192	226	220	220	220	220	222	222	222	222	226	282	320	300
19	252	252	254	254	254	254	238	212	180	208	206	206	206	208	212	218	208	208	248	248	248	248	264	264
20	264	264	266	266	266	226	214	214	188	194	208	208	208	208	210	210	210	210	210	210	250	288	288	288
21	288	288	276	276	242	242	216	214	214	218	218	218	218	202	202	208	208	208	226	228	242	262	262	262
22	286	286	286	284	230	238	256	222	222	222	224	224	224	218	H 218	218	208	208	212	212	220	A	356	348
23	284	284	262	242	268	268	268	224	224	224	224	224	224	224	224	224	216	216	216	216	216	230	262	262
24	262	262	274	284	284	278	270	224	224	224	H 210	200	200	200	198	198	186	188	192	C	210	238	260	278
25	292	292	280	262	250	250	230	222	206	206	H 206	206	206	206	206	214	210	210	218	218	222	262	272	286
26	284	286	298	296	266	266	240	228	208	208	204	204	220	220	220	220	220	212	214	212	216	278	298	298
27	298	298	268	268	276	276	230	220	174	206	218	218	218	218	218	218	214	212	220	228	254	254	262	286
28	288	288	286	286	264	260	256	222	214	214	214	214	214	214	214	216	216	216	216	216	216	228	298	300
29	298	298	298	300	300	300	276	234	216	216	216	216	216	230	230	230	230	220	220	220	220	328	Q 328	326
30	286	286	288	258	256	256	256	218	216	216	210	210	210	210	210	210	210	210	238	230	230	274	276	276
31	268	268	268	268	240	248	248	212	210	H 210	H 196	H 206	206	206	206	206	206	206	212	226	254	260	306	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	30	31	31	31	31	30	31	31	31	31	31	30	31	29	30	31
MED	285	286	286	276	258	246	246	224	214	216	216	216	216	218	218	218	216	216	218	220	228	262	284	286
U Q	294	298	298	292	274	260	256	230	218	220	218	220	220	222	222	222	220	220	222	226	246	285	314	302
L Q	278	270	268	262	242	228	230	214	206	208	206	210	210	208	212	214	210	210	214	216	220	251	262	276

JAN. 2014 h′F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2014 h′E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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								124	124	124	124	A		124	120	A	B	B						
2							B	B	118	118	118	118	118	118	118	118	B							
3									118	A	118	118	118	114	114	114								
4									A	A		A	A	A	A	A	E B 216							
5								B	E A 144	A	122	122	110	110	110	110	B							
6								B	A	120	120	116	116	116	116	116	B							
7								B	130	130	130	130	130	130	A	130	A							
8									A	132	122	114	114	114	114	114	E B 198							
9								B	142	124	124	124	124	128	120	120	E B 212							
10								B	146	132	130	130	130	114	114	114	A							
11								B 156	136	A 136	130	126	120	120	120	120	B 162	B						
12								B	C	146	124	124	124	A		124	E B 162	B						
13								B	138	134	114	110	110	110	110	110	A							
14									A	126	126	112	112	112	112	112	B 170	B						
15								B	118	118	118	118	118	116	116	116	140							
16								B	130	124	124		120	A	118	118	A 178							
17								B	114	114	114	114	114	114	114	114	136							
18								B	122	110	110	110	110	106	106	106								
19								B	122	122	122	122	122	122	122	122	138							
20								146	126	120	118	118	118	118	118	118	A 164	B						
21								B	128	122	A	A	122	124	124	122	172							
22								172	128	A				126	126	124	170	B						
23								B	110	110	110	110	110	110	114	114	114	B						
24								B	126	128	114	112	112	112	112	112	112	B						
25								B	146	112	116	116	116	116	116	116	116	B						
26								B	112	118	118	116	116	116	112	120	122	B						
27								A	122	122	122	120	114	116	116	116	132	A						
28								A	130	124	124	118	118	118	118	118	118	A						
29								E B 200	138	128	118	112	112		A	A	A	B						
30								A	112	112	112	112	112	112	110	110	120	B						
31								E B 198	108	108	A	112	112	112	112	112	A 154	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								6	26	27	27	26	28	27	27	28	21							
MED								U 150	126	122	120	117	116	116	116	116	U 143							
U Q								E B 198	136	128	124	122	120	120	118	120	B 171							
L Q								146	118	118	116	112	112	112	112	113	121							

JAN. 2014 h′E (KM)

IONOSPHERIC DATA STATION Wakkanai

JAN. 2014 h′Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	108	G	140	150	150	100	100	118	G	116	B	116	B	B	B	B	B	B
2	B	100	100	100	B	B	B	G	100	100	G	G	G	100	100	G	B	B	100	B	100	B	B	100
3	100	100	B	B	100	100	100	100	136	102	200	100	G	G	100	G	100	B	100	B	B	B	B	100
4	B	B	132	116	114	112	112	112	112	112	112	112	112	112	112	110	G	B	108	B	104	100	B	B
5	B	B	B	B	B	B	B	B	176	104	104	104	104	186	G	G	B	B	B	B	B	B	106	106
6	104	B	96	B	120	B	B	B	110	110	G	G	G	G	G	G	B	B	B	B	B	B	B	B
7	B	B	B	B	104	B	B	112	112	112	112	112	108	104	98	134	104	B	124	122	114	114	112	106
8	98	98	98	B	B	B	B	160	160	160	106	G	G	G	G	G	G	B	B	B	106	106	B	104
9	104	104	104	B	B	104	B	B	114	114	G	112	G	G	G	98	98	B	150	98	98	98	98	112
10	B	B	B	B	B	B	B	B	112	G	112	112	112	112	112	G	106	106	106	106	106	B	106	B
11	B	B	B	B	B	B	B	G	196	124	G	G	G	G	114	G	G	B	B	B	B	B	B	B
12	B	B	106	B	B	B	B	G	C	106	G	126	96	114	114	G	G	108	B	B	B	B	B	106
13	104	102	96	96	96	96	B	B	172	164	142	132	132	98	98	144	118	B	104	B	B	104	104	104
14	104	104	104	104	104	104	104	104	104	104	104	G	104	104	G	140	110	110	110	B	B	B	B	B
15	B	B	114	B	B	B	B	B	152	154	154	G	184	G	G	G	96	B	96	96	96	B	96	96
16	96	96	96	B	B	B	B	116	114	114	210	90	90	90	90	G	120	B	B	120	102	102	B	122
17	112	B	B	B	112	B	B	B	178	178	178	G	G	G	G	112	112	112	112	112	110	110	108	B
18	B	B	B	B	B	B	B	108	150	166	180	150	142	142	G	G	128	114	114	B	B	102	102	B
19	B	B	B	128	B	108	B	108	152	152	152	152	152	150	142	130	G	86	B	86	B	98	98	B
20	B	B	B	B	B	B	B	166	158	186	186	G	212	122	120	G	120	94	B	B	B	B	B	94
21	94	B	B	B	B	B	B	B	G	120	120	120	120	110	110	110	218	B	B	B	106	B	106	106
22	136	114	114	114	B	B	B	G	162	114	114	114	114	G	G	G	142	B	104	104	104	104	104	104
23	96	96	96	96	B	B	B	B	148	G	G	100	100	186	122	122	156	B	106	106	104	104	104	104
24	104	104	104	104	102	118	118	118	178	110	188	G	106	G	180	110	154	B	120	C	104	98	92	B
25	B	B	94	94	100	B	B	B	114	G	110	110	112	200	188	G	G	B	B	B	B	B	B	B
26	B	B	B	B	B	B	B	B	188	106	166	166	134	134	G	124	140	B	116	B	B	104	B	B
27	B	B	B	B	104	B	B	104	134	102	156	156	132	132	132	124	106	106	B	B	B	106	106	B
28	B	106	104	104	104	B	104	104	104	132	116	136	140	136	122	102	102	102	102	102	102	102	104	104
29	106	104	104	104	B	B	104	104	G	132	108	132	122	114	106	106	104	104	104	104	B	104	104	B
30	104	104	B	B	B	B	104	104	168	106	188	104	104	104	170	162	94	108	B	B	108	102	102	102
31	B	B	B	B	B	B	B	G	186	186	186	192	102	196	96	192	138	94	B	102	102	102	124	124
	00	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	13	16	11	11	7	8	14	28	28	25	22	24	22	20	17	21	13	17	12	16	18	18	17
MED	104	104	104	104	104	104	104	108	149	114	150	113	112	116	113	122	112	106	106	104	104	103	104	104
U Q	104	104	105	114	112	112	110	116	170	153	183	136	133	142	127	137	139	111	115	109	106	104	106	106
L Q	98	99	96	96	100	100	104	104	113	106	112	104	104	104	100	110	103	98	103	100	102	102	102	101

IONOSPHERIC DATA STATION Wakkanai

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

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

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

JAN. 2014 TYPES OF Es

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IONOSPHERIC DATA STATION Kokubunji

JAN. 2014 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 40	X 39	X 41	X 40	X 42	X 36	X 39												X 55	X 49	X 37	X 38	A	X 40
2	X 41	X 47	X 49	X 33	X 36	X 33	X 34												X 63	X 49	X 42	X 41	X 42	X 37
3	X 42	X 46	X 40	X 38	X 40	X 42	X 43												X 50	X 64	X 47	X 36	X 35	X 38
4	X 39	X 40	X 39	X 37	X 34	X 34	X 34												X 63	X 51	X 40	X 43	X 46	X 36
5	X 36	X 38	X 38	X 40	X 41	X 36	X 37												X 56	X 50	X 41	X 36	X 36	X 39
6	X 39	X 39	X 41	X 44	X 40	X 36	X 35												X 60	X 65	X 59	X 44	X 42	X 32
7	X 35	X 36	X 38	X 40	X 42	X 36	X 36												X 46	X 43	X 42	O X 43	A	A
8	X 40	X 41	X 42	X 40	X 37	X 37	X 36												X 63	X 53	X 41	X 40	X 37	X 38
9	X 41	X 38	X 39	X 39	X 42	X 40	X 34												X 50	X 46	X 35	X 41	X 43	X 44
10	X 46	X 45	X 46	X 44	X 44	X 42	X 36												X 74	X 64	X 47	X 40	X 38	X 41
11	X 41	X 40	X 40	X 41	X 42	X 37	X 35												X 50	X 40	X 44	X 36	X 37	X 39
12	X 41	X 43	X 42	X 37	X 37	X 39	X 37												X 66	X 70	X 53	X 36	X 39	X 36
13	X 37	X 39	X 42	X 40	X 38	X 34	X 40												X 64	X 52	X 52	X 56	X 56	X 52
14	X 42	X 46	X 48	X 49	X 48	X 53	X 54												X 72	X 58	X 50	X 45	X 40	X 39
15	X 39	X 44	X 42	X 42	X 44	X 41	X 38				C	C	C	C	C	C	C		X 52	X 43	X 43	X 46	X 46	X 41
16	X 41	X 42	X 38	X 39	X 38	X 39	X 44												X 64	X 54	X 33	X 34	X 34	X 36
17	X 38	X 37	X 38	X 39	X 38	X 36	X 37												X 48	X 41	X 36	X 34	X 36	X 36
18	X 36	X 39	X 40	X 38	X 41	X 31	X 30												X 44	X 52	X 41	X 36	X 36	X 38
19	X 42	X 40	X 39	X 38	X 36	X 35	X 34												A	X 41	X 43	X 44	X 44	X 46
20	X 36	X 40	X 41	X 43	X 43	X 43	X 44												X 46	X 48	X 39	X 34	X 37	X 39
21	X 42	X 41	X 42	X 44	X 38	X 35	X 38												X 43	X 42	X 45	X 40	33	X 43
22	X 47	X 49	X 47	53	X 41	X 42	X 45												X 62	X 64	X 42	X 36	X 36	X 40
23	X 42	X 45	X 48	X 44	X 36	X 36	X 36												X 63	X 64	X 66	X 44	X 47	X 46
24	X 40	X 38	X 40	X 41	X 42	X 40	X 44												X 58	X 52	X 44	X 40	X 38	X 39
25	X 40	X 42	X 46	X 38	X 42	X 36	X 41												X 50	X 59	X 61	X 47	X 36	X 38
26	X 39	X 40	X 40	X 40	X 42	X 42	X 42												X 58	X 56	X 49	X 38	X 41	X 42
27	X 41	X 45	X 46	X 44	X 42	X 39	X 40												X 58	X 54	X 49	X 37	X 36	X 40
28	X 41	X 43	X 41	X 42	X 48	X 37	X 41												X 50	X 54	X 44	X 37	X 37	X 40
29	X 42	X 45	X 44	X 45	X 44	X 40	X 40												X 57	X 48	X 43	X 41	X 40	X 44
30	X 46	X 46	X 45	X 43	X 42	X 42	X 45												X 55	X 51	X 53	X 42	X 43	X 44
31	X 46	X 47	X 48	X 50	X 42	X 40	X 41												X 62	X 43	X 43	X 42	X 44	X 45
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31												30	31	31	31	29	30
MED	X 41	X 41	X 41	X 40	X 42	X 37	X 38												X 58	X 52	X 43	X 40	X 38	X 40
U Q	X 42	X 45	X 46	X 44	X 42	X 41	X 42												X 63	X 58	X 49	X 43	X 43	X 43
L Q	X 39	X 39	X 40	X 39	X 38	X 36	X 36												X 50	X 46	X 41	X 36	X 36	X 38

IONOSPHERIC DATA STATION Kokubunji

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

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

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	34	33	35	34	36	30	33	56	73	74	86	97	88	84	87	84	74	57	49	43	31	32	A	34
2	35	41	43	27	30	27	28	55	104	108	102	90	90	91	98	87	76	64	57	43	36	35	36	31
3	36	40	34	32	34	36	37	54	66	84	103	97	110	101	99	98	92	74	44	58	41	30	29	32
4	33	34	33	31	28	28	28	52	68	79	97	106	87	94	92	87	71	68	56	44	34	37	40	30
5	30	32	32	34	35	29	31	61	72	92	87	88	93	80	83	88	67	54	49	44	34	30	30	33
6	33	33	35	38	34	30	29	56	85	96	102	96	91	84	84	92	76	60	54	58	53	38	36	26
7	29	30	32	34	36	30	30	53	68	87	98	96	82	90	85	78	70	58	40	37	36	37	A	A
8	34	35	36	34	31	30	30	56	77	79	96	110	96	107	102	88	78	65	57	47	35	34	31	32
9	35	32	33	33	36	34	28	47	64	73	95	104	86	82	92	88	80	63	44	40	29	35	36	38
10	40	39	40	38	38	36	30	53	77	112	112	92	87	82	96	95	83	69	68	58	41	34	32	35
11	35	34	34	35	36	31	29	54	68	83	85	92	80	80	76	81	68	60	44	34	38	30	31	33
12	35	36	36	30	31	32	31	58	82	80	86	84	74	79	85	74	71	60	60	64	47	30	33	30
13	31	33	36	34	32	30	34	57	70	74	104	97	82	76	87	90	74	64	57	46	46	50	50	46
14	36	40	42	43	42	47	48	68	84	92	124	109	99	84	86	91	75	66	66	51	44	39	34	33
15	33	38	36	36	38	35	32	56	69	75	C	C	C	C	C	C	C	55	46	36	37	39	40	35
16	35	35	32	33	32	33	38	60	76	78	113	97	88	76	74	77	63	54	58	48	27	28	28	30
17	32	30	32	33	32	30	31	52	71	84	83	79	82	70	70	68	60	47	42	35	30	28	30	30
18	30	33	34	32	35	25	24	55	81	84	97	95	83	80	75	73	66	53	38	46	35	30	29	32
19	36	34	32	32	30	29	28	54	68	74	90	93	84	86	80	80	61	58	A	35	37	38	38	40
20	30	34	35	36	37	37	38	59	73	76	91	105	79	85	85	83	81	66	40	42	32	28	31	33
21	36	35	36	37	32	29	32	55	69	73	104	99	98	110	104	84	68	54	37	36	39	32	S	36
22	40	43	40	F	34	35	39	60	71	78	104	104	107	98	96	90	80	76	56	58	36	30	30	34
23	36	39	42	38	30	30	30	64	83	90	105	111	100	90	90	86	73	59	57	58	60	38	41	40
24	34	32	33	35	36	33	38	58	75	78	91	99	91	96	88	84	80	58	52	46	38	34	32	33
25	34	36	40	32	36	30	35	65	76	84	85	91	96	92	88	84	88	65	43	53	55	40	30	32
26	33	34	34	34	35	36	36	62	68	78	88	94	92	103	83	78	78	76	52	50	43	32	35	36
27	35	39	40	38	36	33	34	64	78	82	86	100	107	102	91	93	85	65	52	48	43	31	30	33
28	36	37	35	36	42	31	35	63	76	74	95	98	99	97	86	88	80	73	44	48	37	30	31	33
29	36	39	38	39	38	33	34	65	82	88	103	109	103	91	98	91	76	81	51	41	37	35	34	38
30	40	40	38	37	36	36	39	68	90	84	111	122	102	100	82	80	84	64	49	45	47	36	37	38
31	40	41	42	44	36	34	35	62	98	80	98	105	104	88	86	83	77	65	56	37	36	36	38	38
	00	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	30	31	31	31	31	31	31	30	30	30	30	30	30	30	31	30	31	31	31	28	30
MED	35	35	35	34	35	31	32	57	75	80	97	97	91	89	86	85	76	64	52	46	37	34	32	33
U Q	36	39	40	37	36	35	36	62	82	87	104	105	99	97	92	90	80	66	57	51	43	37	36	36
L Q	33	33	33	33	32	30	30	54	69	76	88	93	84	82	83	80	70	58	44	40	35	30	30	32

JAN. 2014 foF2 (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

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										
2													L	L	L									
3													L	L		A								
4												A		L										
5											A		A		L									
6											L	L		L										
7											A	A	L	L										
8												L	L	L	A	A								
9											A	A	A	A		A								
10										L				L	L									
11									L			L	L	A										
12											A	L			L									
13											L	L	L	A	L									
14												L	L											
15											C	C	C	C	C	C	C							
16											L	A	L	A										
17												L	L											
18										L	L	A	L	A	A									
19											L	A	A	A	A									
20											A	L	L	L										
21											A	A	L	L	A									
22											U L 5 2 0	L		A	A									
23												L	L	L		L								
24										L		L	L	L	A	A								
25													L	L		L								
26												L	A	L	A									
27												L	L	L										
28											L	A	L	A										
29													A	A	A									
30											L	L		L		L								
31													L		A	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													
MED											U L 5 2 0													
U Q																								
L Q																								

JAN. 2014 foF1 (0.01MHz)

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

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

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	256	A	A	A	R	A	A	A	A	B						
2								B	U R 264	A	A	A	R	R	R	A	A	B						
3								B	R	A	A	A	R	R	A	A	A	B						
4								B	A	A	A	A	A	A	A	A	R	B						
5								B	R	A	A	A	A	A	A	R	U R 236	B						
6								B	A	A	A	A	A	A	A	R	R	B						
7								B	A	A	A	A	R	R	R	R	A	B						
8								B	A	A	A	R	R	R	A	A	R	B						
9								B	A	R	A	A	A	A	A	A	A	B						
10								B	U R 280	R	A	A	A	R	R	R	R	B						
11								B	252	A	R	A	R	A	A	A	R	B						
12								B	A	R	A	R	A	A	A	A	R	B						
13								B	R	R	A	R	A	A	R	R	A	B						
14								B	R	R	A	A	R	A	A	A	R	B						
15								B	U R 236	A	C	C	C	C	C	C	C	B						
16								B	U R 252	A	R	A	A	A	A	A	R	B						
17								B	R	R	A	A	R	R	A	R	U R 232	B						
18								B	R	R	R	A	R	A	A	A	R	B						
19								B	240	R	R	A	A	A	A	A	R	B						
20								B	U R 244	R	A	R	R	R	A	A	A	B						
21								U R 176	R	A	A	A	A	R	A	R	A	B						
22								B	A	A	A	A	A	A	A	R	R	B						
23								B	A	A	A	A	A	A	R	R	R	B						
24								B	A	R	A	R	A	A	A	A	R	B						
25								B	A	A	A	A	A	A	A	R	A	B						
26								B	U R 256	R	R	A	A	R	A	R	U R 252	B						
27								B	U R 256	A	A	R	A	A	R	R	U R 256	B						
28								U R 192	A	R	A	A	A	A	A	R	R	B						
29								B	R	R	A	A	A	A	A	A	R	B						
30								B	A	A	R	R	R	R	R	R	A	B						
31								B	R	R	A	A	A	A	A	R	U R 256	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								2	10								5							
MED								U R 184	U R 254								U R 252							
U Q									U R 256								U R 256							
L Q									U R 244								U R 234							

JAN. 2014 foE (0.01MHz)

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

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

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 15	E B 14	E B 15	E B 14	E B 14	22	30	41	40	42	G	41	41	31	25	E B 15	J A 30	J A 36	E B 14	J A 31	J A 39	J A 23
2	E B 14	E B 14	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	G	J A 39	J A 39	J A 44	G	G	G	40	26	E B 14	J A 39	J A 18	E B 14	E B 14	E B 14	E B 15
3	E B 14	E B 14	E B 14	J A 28	E B 15	E B 15	E B 15	E B 15	G	39	40	42	G	G	44	42	27	E B 13	E B 13	E B 14	E B 15	E B 14	E B 14	E B 14
4	E B 14	E B 14	E B 14	E B 14	E B 15	E B 14	E B 14	21	41	42	42	40	41	42	41	30	G	E B 15	J A 28	J A 25	E B 15	J A 25	E B 14	E B 15
5	E B 15	E B 14	E B 14	E B 15	E B 14	E B 15	E B 14	22	G	43	J A 49	J A 47	42	42	42	G 24	G	E B 14	E B 14	20	E B 15	E B 15	E B 15	E B 14
6	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	22	J A 36	J A 39	J A 48	J A 43	41	41	42	G	G	E B 16	E B 16	23	E B 15	E B 15	E B 14	E B 15
7	E B 14	E B 14	E B 15	J A 30	J A 22	E B 14	E B 14	E B 15	34	40	40	42	G	G	G	G	25	E B 15	E B 15	E B 15	J A 62	J A 50	J A 63	J A 39
8	J A 33	J A 28	J A 25	E B 14	E B 14	E B 14	E B 15	J A 32	J A 33	40	42	G	G	G	42	41	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	23
9	43	J A 22	E B 15	E B 15	J A 23	21	E B 15	E B 15	34	G	40	40	42	44	43	43	J A 41	E B 14	J A 40	J A 32	E B 15	J A 32	J A 35	J A 34
10	J A 19	J A 22	J A 20	E B 15	E B 15	E B 14	E B 15	E B 14	G	G	44	42	44	G	G	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	J A 23	20
11	E B 16	J A 22	E B 14	E B 14	E B 15	E B 15	E B 14	20	G	38	G	44	G	40	40	44	G	E B 16	E B 14	E B 14	E B 15	E B 14	E B 14	E B 14
12	E B 15	E B 15	E B 14	E B 14	E B 15	20	E B 15	E B 16	32	G	44	G	43	41	39	37	G	E B 14	J A 35	E B 16	E B 14	E B 14	E B 15	E B 15
13	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	39	G	J A 65	42	G	G	J A J 36	A J 27	A J 23	A J 18	A J 21	A 21	E B 15	E B 15
14	E B 14	E B 14	J A 23	E B 15	E B 14	22	E B 15	21	G	G	42	J A 42	G	41	40	G	G	E B 16	E B 15	E B 14	E B 16	E B 14	E B 14	E B 15
15	E B 15	E B 16	E B 14	E B 14	E B 15	J A 20	J A 20	E B 16	G	37	C	C	C	C	C	C	C	E B 18	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14
16	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14	E B 16	G	34	G	44	41	43	J A 39	28	G	E B 15	E B 14	E B 15	B J A 19	20	E B 15	E B 14
17	E B 14	E B 15	E B 14	E B 14	E B 15	E B 15	E B 14	E B 14	G	G	40	44	G	G	39	G	G	E B 15	21	E B 15	J A 30	J A 20	E B 15	E B 15
18	22	19	E B 16	E B 15	E B 14	E B 15	E B 16	J A 40	G	G	G	42	G	J A 40	44	36	G	E B 15	E B 14	E B 15	E B 14	E B 14	E B 15	E B 15
19	E B 14	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	22	30	G	G	43	42	48	J A 42	32	G	19	J A 32	J A 27	22	E B 15	E B 15	E B 15
20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	G	G	41	G	G	G	41	39	31	E B 14	E B 15	B J A 23	J A 20	E B 16	E B 14	E B 14
21	E B 15	19	E B 15	E B 15	E B 15	E B 16	E B 16	G	G	41	42	43	43	G	38	G 41	41	E B 15	E B 14	B J A 24	J A 31	J A 24	22	22
22	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15	34	36	J A 44	40	42	J A 55	42	G	G	E B 15	E B 14	E B 15	E B 15	E B 15	E B 14	E B 14
23	E B 15	J A 33	E B 15	E B 14	E B 15	E B 14	E B 14	E B 16	28	37	38	41	41	41	G	G	G	E B 15	E B 15	20	E B 15	22	22	E B 15
24	E B 15	E B 15	E B 16	21	E B 15	E B 15	E B 15	E B 15	J A 32	G	39	G	41	40	40	38	G	J A 20	20	J A 26	J A 24	J A 30	J A 35	E B 14
25	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	20	J A 36	40	41	J A 42	42	43	J A 42	G	J A J 29	A 24	E B 14	E B 14	E B 15	E B 15	E B 14	E B 14
26	E B 14	E B 15	E B 14	E B 14	E B 16	E B 16	E B 16	E B 18	G	G	G	42	44	G	40	G	G	E B 17	J A 20	J A 22	J A 18	J A 33	J A 32	J A 22
27	J A 24	21	E B 15	18	E B 15	E B 14	E B 14	22	G	36	40	G	41	42	G	G	G	20	J A 22	J A 30	E B 15	E B 15	E B 15	E B 15
28	J A 40	21	E B 15	E B 15	E B 15	E B 15	E B 15	G	30	G	40	43	41	44	40	G	G	E B 15	J A 18	J A 19	20	20	E B 15	E B 15
29	E B 15	E B 14	E B 15	E B 15	E B 14	E B 14	E B 15	22	G	G	42	J A 47	J A J 62	A J 46	A 40	39	G E 21	B 16	E B 15	E B 14	21	J A 36	E B 15	E B 15
30	20	E B 16	E B 16	E B 15	E B 15	20	E B 14	17	26	39	G	G	G	G	G	G	33	E B 15	E B 14	21	22	22	E B 16	E B 15
31	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 14	21	G	G	44	43	41	42	41	G	G	21	E B 14	E B 14	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	30	30	30	30	30	30	30	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 15	E B 18	G	36	40	42	41	41	40	G	G	E B 15	E B 15	18	E B 15	E B 15	E B 15	E B 15
U Q	16	J A 19	E B 15	15	E B 15	16	E B 15	22	32	39	42	43	42	42	42	38	26	17	J A 22	J A 23	J A 21	J A 24	J A 22	15
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	G	G	G 39	G 40	G	G	G 38	G	G	E B 15	E B 14	E B 15	E B 15	E B 15	E B 14	E B 14

JAN. 2014 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

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 15	E B 14	E B 15	E B 14	E B 14	20	28	35	37	40	G	38	35	28	23	E B 15	20	31	E B 14	19	A A 39	E B 15
2	E B 14	E B 14	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	G	34	34	37	G	G	G	34	23	E B 14	E B 16	E B 15	E B 14	E B 14	E B 14	E B 15
3	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	G	34	37	38	G	G	38	39	22	E B 13	E B 13	E B 14	E B 15	E B 14	E B 14	E B 14
4	E B 14	E B 14	E B 14	E B 14	E B 15	E B 14	E B 14	19	35	35	38	38	38	40	38	28	G	E B 15	19	16	E B 15	18	E B 14	E B 15
5	E B 15	E B 14	E B 14	E B 15	E B 14	E B 15	E B 14	20	G	39	40	38	40	41	40	G 21	G	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	E B 14
6	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	19	28	31	36	30	35	35	36	G	G	E B 16	E B 16	18	E B 15	E B 15	E B 14	E B 15
7	E B 14	E B 14	E B 15	16	E B 15	E B 14	E B 14	E B 15	29	35	36	37	G	G	G	G	22	E B 15	E B 15	E B 15	E B 15	17	A A 63	A A 39
8	21	19	19	E B 14	E B 14	E B 14	E B 15	22	27	36	35	G	G	G	37	36	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14
9	29	E B 15	E B 15	E B 15	18	E B 15	E B 15	E B 15	27	G	38	35	40	40	40	38	33	E B 14	18	26	E B 15	E B 15	20	23
10	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	G	G	37	37	41	G	G	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	17	E B 16
11	E B 16	E B 14	E B 14	E B 14	E B 15	E B 15	E B 14	18	G	35	G	38	G	37	38	38	G	E B 16	E B 14	E B 14	E B 15	E B 14	E B 14	E B 14
12	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	E B 16	26	G	40	G	40	37	34	32	G	E B 14	E B 17	E B 16	E B 14	E B 14	E B 15	E B 15
13	E B 15	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	36	39	G	G	23	21	17	E B 15	E B 14	E B 15	E B 15	E B 15
14	E B 14	E B 14	B 19	E B 15	E B 14	E B 15	E B 15	20	G	G	38	34	G	37	37	G	G	E B 16	E B 15	E B 14	E B 16	E B 14	E B 14	E B 15
15	E B 15	E B 16	E B 14	E B 14	E B 15	E B 16	E B 15	E B 16	G	35	C	C	C	C	C	C	C	E B 18	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14
16	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14	E B 16	G	32	G	37	34	37	34	27	G	E B 15	E B 14	E B 15	E B 17	E B 15	E B 15	E B 14
17	E B 14	E B 15	E B 14	E B 14	E B 15	E B 15	E B 14	E B 14	G	G	35	38	G	G	36	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
18	E B 16	E B 14	E B 16	E B 15	E B 14	E B 15	E B 16	29	G	G	G	38	G	37	37	32	G	E B 15	E B 14	E B 15	E B 14	E B 14	E B 15	E B 15
19	E B 14	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	E B 20	28	G	G	40	40	43	38	31	G	18	A A 32	E B 15	E B 15	E B 15	E B 15	E B 15
20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	G	G	40	G	G	G	38	34	29	E B 14	E B 15	20	E B 16	E B 16	E B 14	E B 14
21	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	16	G	G	36	38	40	40	G	33	G	35	E B 15	E B 14	20	20	20	17	E B 15
22	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15	26	32	37	36	40	40	39	G	G	E B 15	E B 14	E B 15	E B 15	E B 15	E B 14	E B 14
23	E B 15	E B 16	E B 15	E B 14	E B 15	E B 14	E B 14	E B 16	27	33	36	38	37	37	G	G	G	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15
24	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	25	G	36	G	38	36	37	36	G	17	E B 15	E B 18	E B 15	E B 20	22	E B 14
25	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 18	26	30	36	38	37	33	36	G	24	20	E B 14	E B 14	E B 15	E B 15	E B 14	E B 14
26	E B 14	E B 15	E B 14	E B 14	E B 16	E B 16	E B 16	E B 18	G	G	G	38	43	G	37	G	G	E B 17	E B 15	17	E B 15	16	24	E B 14
27	20	E B 15	E B 15	E B 16	E B 15	E B 14	E B 14	20	G	32	36	G	38	37	G	G	G	19	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15
28	18	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	26	G	36	39	37	38	32	G	G	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15
29	E B 15	E B 14	E B 15	E B 15	E B 14	E B 14	E B 15	30	G	G	39	42	47	41	37	36	G E 20	E B 16	E B 15	E B 14	E B 15	20	E B 15	E B 15
30	E B 15	E B 16	E B 16	E B 15	E B 15	E B 14	E B 14	17	24	33	G	G	G	G	G	G	29	E B 15	E B 14	E B 15	E B 16	E B 15	E B 16	E B 15
31	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 14	19	G	G	38	39	39	39	38	G	G	20	E B 14	E B 14	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	30	30	30	30	30	30	30	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 15	E B 18	G	31	36	38	37	37	36	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
U Q	15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 20	27	35	38	38	40	39	38	34	23	17	16	16	E B 15	16	16	E B 15
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	G	G	G 35	G 30	G	G	G 32	G	G	E B 15	E B 14	E B 15	E B 15	E B 14	E B 14	E B 14

JAN. 2014 fbEs (0.1MHz)

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

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

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

IONOSPHERIC DATA STATION Kokubunji

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

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

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	289	291	305	308	323	357	342	368	377	375	342	332	348	335	338	343	353	339	339	333	344	307	A	267
2	291	308	334	296	313	296	278	329	341	362	344	337	329	323	327	331	348	324	333	351	332	308	319	279
3	284	301	284	305	311	292	352	383	353	329	348	337	332	324	320	322	361	362	307	343	378	327	298	286
4	281	287	294	293	313	304	340	353	363	345	332	353	326	334	330	345	348	344	333	360	308	301	330	294
5	283	280	289	285	326	317	313	358	390	340	350	336	353	338	322	356	351	326	331	352	342	293	289	274
6	294	296	294	313	349	323	318	355	369	354	350	345	347	338	322	339	356	334	313	340	362	340	343	292
7	272	283	282	300	344	335	342	367	351	354	346	334	336	346	336	348	361	347	340	330	345	299	A	A
8	282	287	309	292	298	300	313	357	373	348	322	348	314	314	327	330	335	335	333	336	336	304	295	308
9	323	287	292	307	325	324	351	364	362	341	345	338	373	343	328	351	355	338	344	328	301	286	317	313
10	288	299	304	317	320	292	330	347	353	342	368	345	331	334	323	330	348	328	347	338	329	308	289	307
11	302	291	289	304	333	343	326	352	361	345	326	355	348	349	343	355	350	323	385	316	332	312	310	269
12	298	305	327	305	283	313	336	337	366	350	357	355	330	318	339	344	337	324	338	347	353	293	306	294
13	279	289	324	336	333	300	325	338	376	335	336	355	336	343	333	344	356	329	325	335	302	314	320	337
14	298	301	319	321	324	299	323	345	371	322	345	326	337	323	314	340	352	334	342	333	323	321	315	307
15	301	302	299	313	313	306	312	352	349	343	C	C	C	C	C	C	C	338	345	326	330	302	308	323
16	310	324	305	322	298	319	336	354	372	312	343	357	358	342	340	346	369	328	338	372	351	301	306	301
17	287	311	322	328	336	323	338	349	344	370	363	342	336	374	328	361	366	340	355	332	335	305	287	
18	309	304	317	330	371	283	307	351	358	345	341	354	355	335	331	349	360	348	322	360	337	310	289	295
19	309	309	319	322	323	325	310	363	379	363	344	357	338	367	349	375	348	377	A	335	309	320	295	339
20	306	300	303	320	318	329	325	360	361	360	362	354	341	340	363	320	362	367	341	330	317	299	293	302
21	294	300	322	343	312	292	322	365	370	337	348	341	320	326	325	342	359	362	348	339	318	291	S	316
22	304	288	280	F	364	304	326	362	388	329	331	325	321	334	321	342	319	352	320	350	330	285	280	281
23	275	303	315	332	306	295	289	347	367	318	342	339	333	337	346	354	337	328	320	329	361	307	326	308
24	295	294	296	316	324	299	338	347	370	362	339	356	324	334	326	343	351	348	318	360	317	321	297	302
25	288	287	316	290	320	306	311	359	361	365	341	323	343	332	321	340	345	349	315	323	342	353	307	301
26	305	277	297	299	327	321	333	363	370	352	341	339	340	346	351	342	327	348	312	328	357	316	291	273
27	314	312	326	334	300	303	317	348	359	360	342	334	338	335	320	325	354	346	338	339	341	307	307	298
28	286	286	303	308	345	331	300	353	378	359	343	345	343	348	318	359	343	357	322	355	336	300	305	274
29	266	284	311	311	322	286	290	337	366	355	339	324	330	324	337	327	324	354	327	345	333	302	289	286
30	303	290	306	308	326	327	302	332	370	342	340	343	318	356	334	343	359	338	335	305	328	322	303	298
31	311	299	317	318	324	291	299	341	378	350	348	339	340	331	348	340	348	338	344	322	332	319	298	297
	00	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	30	31	31	31	31	31	31	30	30	30	30	30	30	30	31	30	31	31	31	28	29
MED	294	296	305	312	323	306	323	353	367	348	343	342	336	335	329	343	351	339	334	336	333	307	304	298
U Q	305	303	319	322	333	324	336	362	373	360	348	354	343	343	339	349	359	349	342	350	344	319	312	308
L Q	284	287	294	304	313	296	310	347	359	340	340	336	330	331	322	339	345	329	322	329	323	300	292	284

JAN. 2014 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

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

JAN. 2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2014 h′F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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											268			264										
2													254	276	260									
3													266	248		242								
4												242		272										
5											230		238		286									
6											252	240		254										
7											248	246	236	260										
8												244	250	276	250	236								
9											248	246	222	256		228								
10										250				256	276									
11									228			246	246	242										
12											236	236			260									
13											264	242	256	238	258									
14												238	238											
15											C	C	C	C	C	C	C							
16											252	224	236	238										
17												248	260											
18										242	252	238	242	238	234									
19											262	242	236	238	244									
20											238	242	236	262										
21											256	240	270	254	242									
22											278	252		240	254									
23												242	252	256		244								
24										234		242	256	238	232	236								
25													254	242		248								
26												258	248	250	226									
27												258	246	244										
28											262	242	246	240										
29													254	234	258									
30											256	252		244		246								
31													256		234	250								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	3	15	22	23	25	14	8								
MED									228	242	252	242	248	248	252	243								
U Q										250	262	246	256	258	260	247								
L Q										234	248	240	238	239	234	236								

JAN. 2014 h′F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2014 h′F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 290	E B 288	E B 280	E B 270	E B 236	210	228	218	210	218	216	220	222	204	226	230	208	218	210	E A 254	212	E A 286	A	E B 336
2	E B 322	E B 294	E B 230	E B 270	E B 254	E B 284	E B 312	E B 254	228	218	216	220	200	210	208	222	210	214	212	212	222	E B 236	E B 232	E B 316
3	E B 300	E B 268	E B 272	E B 288	E B 278	E B 298	206	206	202	214	228	226	218	198	222	A	212	202	210	218	204	228	E B 280	E B 298
4	E B 306	E B 284	E B 292	E B 288	226	E B 272	E B 230	206	208	212	218	A	216	216	E A 244	226	214	214	208	208	224	E A 272	E B 248	E B 236
5	E B 306	E B 314	E B 308	E B 296	E B 238	E B 264	E B 268	222	200	218	A	216	A	218	212	230	210	204	224	212	214	E B 234	E B 290	E B 316
6	E B 304	E B 304	E B 292	E B 248	216	E B 242	E B 250	214	228	218	218	200	222	210	220	E A 230	212	202	214	218	202	222	212	E B 280
7	E B 330	E B 324	E B 306	E A 274	E B 242	216	224	210	204	228	A	A	206	208	226	224	212	206	210	E B 210	218	E A 300	A	A
8	E A 320	E A 314	E A 288	E B 262	E B 262	E B 284	232	228	212	218	218	216	208	208	A	A	220	214	212	E B 206	212	E B 266	E B 254	E B 256
9	E A 314	E A 318	E B 304	E B 276	E A 250	E B 234	212	206	206	212	A	A	A	A	E A 246	A	218	210	208	E A 262	220	E B 300	E A 296	E A 294
10	E B 284	E B 290	E B 270	E B 234	E B 242	E B 264	216	214	218	222	216	218	224	204	216	226	214	210	214	212	206	E B 258	E A 286	E B 282
11	E B 276	E B 278	E B 312	E B 260	E B 240	216	E B 234	216	188	230	216	212	214	A	228	222	214	210	196	E B 226	230	E B 244	E B 282	E B 298
12	E B 292	E B 260	E B 244	E B 240	E B 248	E B 280	E B 258	228	210	210	A	202	208	208	212	230	222	206	226	210	202	E B 268	E B 276	E B 280
13	E B 310	E B 306	E B 246	222	216	E B 268	E B 250	222	206	208	222	210	208	A	198	224	214	218	224	208	E B 264	E B 242	E B 236	222
14	E B 248	E B 278	E A 254	E B 240	E B 226	E B 232	228	216	206	212	228	190	204	212	210	230	222	212	E B 212	208	210	E B 230	E B 224	E B 272
15	E B 292	E B 270	E B 256	E B 250	E B 232	E B 252	E B 272	216	198	214	C	C	C	C	C	C	C	212	212	212	E B 236	E B 240	E B 244	E B 236
16	E B 248	E B 248	E B 242	E B 246	E B 260	E B 274	E B 244	214	210	212	204	A	192	A	228	E A 230	208	222	216	196	202	E B 268	E B 272	E B 288
17	E B 282	E B 278	E B 276	E B 242	E B 236	E B 238	E B 232	208	208	218	222	196	196	218	204	218	202	198	214	212	E B 230	E B 270	E B 282	E B 276
18	E B 300	E B 276	E B 260	E B 228	208	E B 300	E B 294	E A 248	216	196	214	A	206	A	A	224	218	202	202	220	216	E B 242	E B 292	E B 302
19	E B 268	E B 236	E B 240	E B 236	E B 230	E B 250	E B 252	216	210	222	216	A	A	A	A	220	208	204	A	224	E B 234	E B 234	E B 248	224
20	E B 260	E B 292	E B 292	E B 258	E B 238	E B 226	E B 226	210	212	218	A	196	208	206	232	222	220	208	202	224	E B 236	E B 256	E B 302	E B 282
21	E B 282	E B 280	E B 260	220	E B 248	E B 290	216	212	210	220	A	A	210	208	A	220	220	206	210	E A 236	E A 248	E A 294	E A 330	E B 280
22	E B 262	E B 280	E B 296	E B 248	208	E B 266	E B 230	214	198	206	216	188	E A 250	A	A	226	224	210	204	212	206	E B 264	E B 324	E B 314
23	E B 316	E B 280	E B 256	226	E B 238	E B 308	E B 290	222	206	206	224	208	208	208	218	208	214	210	218	216	210	E B 244	E B 244	E B 236
24	E B 244	E B 286	E B 300	E B 272	E B 232	E B 260	E B 230	210	204	204	222	202	196	200	A	A	216	202	210	208	218	E A 248	E A 300	E B 282
25	E B 304	E B 280	E B 238	E B 230	E B 238	E B 256	E B 252	214	208	210	212	206	206	200	218	204	220	202	208	222	222	208	E B 254	E B 286
26	E B 274	E B 306	E B 288	E B 280	E B 244	E B 236	E B 240	218	210	214	222	216	A	202	A	222	218	220	204	220	216	E A 236	E A 324	E B 324
27	E A 290	E B 260	E B 234	E B 230	E B 234	E B 288	E B 240	222	208	216	220	206	208	202	218	224	214	210	214	214	214	E B 234	E B 286	E B 306
28	E A 310	E B 292	E B 292	E B 288	228	228	E B 246	224	206	208	208	A	210	A	204	206	218	212	192	216	220	E B 274	E B 266	E B 328
29	E B 328	E B 296	E B 272	E B 268	E B 236	E B 300	E B 296	230	210	222	226	230	A	A	A	216	216	214	206	212	226	E A 272	E B 270	E B 292
30	E B 288	E B 284	E B 284	E B 268	E B 240	E B 264	E B 266	232	208	216	204	218	208	198	214	212	222	198	204	E B 238	230	224	E B 272	E B 284
31	E B 266	E B 260	E B 250	E B 236	220	E B 280	E B 278	234	212	204	220	234	222	226	A	196	212	212	204	224	E B 228	E B 250	E B 254	E B 266
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	24	22	25	21	21	26	30	31	30	31	31	31	29	30
MED	E B 292	E B 284	E B 272	E B 250	E B 238	E B 264	E B 240	216	208	214	218	211	208	208	217	222	214	210	210	213	215	E B 248	E B 272	E B 283
U Q	E B 310	E B 296	E B 292	E B 272	E B 244	E B 284	E B 266	224	210	218	222	218	217	211	227	226	220	214	214	E 224	E B 230	E B 270	E 291	E B 302
L Q	E B 274	E B 276	E B 250	236	228	236	228	212	206	210	216	202	206	202	211	218	212	204	204	210	210	234	E B 248	E B 272

JAN. 2014 h′F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2014 h′E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	118	A	A	118	124	A	A	A	A	B						
2								B	114	114	A	A	112	126	124	A	114	B						
3								B	120	A	120	A	122	122	A	A	A	B						
4								B	114	118	122	A	A	A	A	A	112	B						
5								B	122	A	A	A	A	A	A	116	116	B						
6								B	124	A	A	A	A	A	A	116	118	B						
7								B	120	116	A	A	112	122	122	120	120	B						
8								B	A	A	A	118	118	122	A	A	126	B						
9								B	120	120	A	A	A	A	A	A	A	B						
10								B	122	124	A	A	A	124	126	118	118	B						
11								B	124	116	114	120	122	124	A	116	118	B						
12								B	116	120	A	124	A	A	A	A	116	B						
13								B	120	120	A	120	A	A	112	116	A	B						
14								B	116	114	A	A	116	A	A	116	114	B						
15								B	114	114	C	C	C	C	C	C	C	B						
16								B	118	112	112	A	A	A	A	A	114	B						
17								B	118	114	116	114	114	116	124	110	110	B						
18								B	110	110	110	A	114	A	A	114	120	B						
19								B	116	112	112	114	114	112	A	A	112	B						
20								B	114	116	110	116	116	112	A	A	120	B						
21								122	122	118	114	114	A	114	A	116	116	B						
22								B	118	116	116	114	A	A	114	114	118	B						
23								B	116	A	A	A	A	A	112	114	116	B						
24								B	A	120	A	116	116	A	A	A	114	B						
25								B	A	A	A	A	A	A	A	116	A	B						
26								B	114	110	112	A	122	128	120	118	122	B						
27								B	118	A	A	120	A	A	116	116	118	B						
28								128	112	112	A	A	A	A	A	116	116	B						
29								B	118	118	116	A	A	A	A	A	116	B						
30								B	A	A	120	118	124	120	124	122	A	B						
31								B	120	110	A	A	A	A	116	116	116	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								2	27	22	13	13	14	12	11	18	24							
MED								125	118	116	114	118	116	122	120	116	116							
U Q									120	118	118	120	122	124	124	116	118							
L Q									114	112	112	114	114	115	114	116	114							

JAN. 2014 h′E (KM)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 2014 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	B	B	146	156	108	106	120	G	108	102	108	102	B	102	100	B	100	96	96
2	B	B	B	B	B	B	B	B	G	120	104	98	G	G	G	104	120	B	98	98	B	B	B	B
3	B	B	B	100	B	B	B	B	G	108	112	108	G	G	100	106	108	B	B	B	B	B	B	B
4	B	B	B	B	B	B	B	146	120	118	112	106	108	104	104	102	G	B	106	98	B	92	B	B
5	B	B	B	B	B	B	B	144	G	106	102	98	102	102	108	98	G	B	B	88	B	B	B	B
6	B	B	B	B	B	B	B	136	128	106	94	92	94	104	100	G	G	B	B	92	B	B	B	B
7	B	B	B	100	98	B	B	B	120	116	106	106	G	G	G	G	128	B	B	B	112	104	98	98
8	98	104	104	B	B	B	B	106	108	108	108	G	G	G	108	106	G	B	B	B	B	B	B	106
9	100	96	B	B	98	96	B	B	116	G	106	106	100	102	102	100	106	B	104	102	B	106	98	98
10	90	94	94	B	B	B	B	B	G	G	106	106	106	G	G	G	G	B	B	B	B	B	90	94
11	B	96	B	B	B	B	B	146	G	120	G	124	G	114	110	128	G	B	B	B	B	B	B	B
12	B	B	B	B	B	94	B	B	128	G	108	G	106	106	106	104	G	B	102	B	B	B	B	B
13	B	B	B	B	B	B	B	B	G	G	106	G	100	104	G	G	96	98	98	98	98	98	B	B
14	B	B	92	B	B	94	B	162	G	G	104	102	G	102	102	G	G	B	B	B	B	B	B	B
15	B	B	B	B	B	100	94	B	G	118	C	C	C	C	C	C	C	B	B	B	B	B	B	B
16	B	B	B	B	B	B	B	B	G	110	G	100	98	108	106	102	G	B	B	B	98	96	B	B
17	B	B	B	B	B	B	B	B	G	G	128	118	G	G	122	G	G	B	106	B	96	96	B	B
18	92	92	B	B	B	B	B	100	G	G	G	106	G	106	106	120	G	B	B	B	B	B	B	B
19	B	B	B	B	B	B	B	160	146	G	G	118	122	120	106	108	G	140	98	102	98	B	B	B
20	B	B	B	B	B	B	B	B	G	G	130	G	G	G	110	110	122	B	B	104	104	B	B	B
21	B	92	B	B	B	B	B	G	G	120	118	116	104	G	96	G	122	B	B	94	96	96	94	96
22	B	B	B	B	B	B	B	B	128	118	114	110	104	104	122	G	G	B	B	B	B	B	B	B
23	B	100	B	B	B	B	B	B	118	108	108	102	108	108	G	G	G	B	B	110	B	110	90	B
24	B	B	B	96	B	B	B	B	108	G	106	G	116	106	106	106	G	96	96	94	100	100	100	B
25	B	B	B	B	B	B	B	130	108	104	108	104	106	104	104	G	102	98	B	B	B	B	B	B
26	B	B	B	B	B	B	B	B	G	G	G	102	124	G	126	G	G	B	96	102	104	98	92	92
27	96	100	B	98	B	B	B	158	G	106	104	G	106	104	G	G	G	148	110	110	B	B	B	B
28	102	102	B	B	B	B	B	G	128	G	106	106	104	102	104	G	G	B	90	90	94	92	B	B
29	B	B	B	B	B	B	B	156	G	G	120	106	106	106	104	102	96	B	B	B	96	96	B	B
30	94	B	B	B	B	102	B	B	108	106	G	G	G	G	G	G	110	B	B	98	94	90	B	B
31	B	B	B	B	B	B	B	154	G	G	108	110	110	104	124	G	G	144	B	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	7	9	3	4	2	5	1	13	14	17	24	23	19	20	23	15	11	6	12	16	12	14	8	7
MED	96	96	94	99	98	96	94	146	120	108	107	106	106	104	106	106	108	119	100	98	98	97	95	96
U Q	100	101	104	100		101		157	128	118	112	110	108	107	110	108	122	144	105	102	102	100	98	98
L Q	92	93	92	97		94		133	108	106	106	102	102	104	102	102	102	98	97	94	96	96	91	94

IONOSPHERIC DATA STATION Kokubunji

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

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

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

JAN. 2014 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JAN. 2014 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 33	X 34	X 38	X 39	X 39	X 33	X 34												X 74	X 68	X 58	X 50	X 46	X 43
2	X 46	X 51	X 60	X 58	X 41	O X 33	X 28												X 83	X 72	X 60	X 59	X 49	X 40
3	O X 36	X 37	X 38	X 38	X 34	X 38	X 42												X 68	X 58	X 58	X 54	X 39	X 39
4	X 40	X 42	X 42	X 42	X 41	X 35	X 32												X 65	X 59	X 57	X 49	X 50	X 42
5	X 37	X 39	X 40	X 40	X 38	X 37	X 36												X 71	X 58	X 60	X 51	X 40	X 38
6	X 39	X 38	X 39	X 40	X 39	X 24	X 30												X 62	X 76	X 87	X 72	X 46	X 31
7	X 32	X 35	X 39	X 40	X 42	X 38	X 35												X 58	X 53	X 58	X 56	X 49	A
8	X 47	X 48	X 49	X 41	X 36	X 36	X 36												X 89	X 88	X 65	X 53	X 54	X 46
9	X 39	X 38	X 38	X 39	X 40	X 36	X 34												X 76	X 65	X 59	X 57	X 55	X 48
10	X 45	O X 42	X 45	X 44	X 46	X 39	X 38												X 90	X 86	X 84	X 79	X 51	X 42
11	X 41	X 40	X 40	X 41	X 43	X 37	X 33	X 46											X 82	X 54	X 68	X 54	X 41	X 39
12	X 40	X 40	X 42	X 40	X 36	X 34	X 33												X 88	X 87	X 98	X 69	X 66	X 51
13	X 41	X 38	X 41	X 45	X 37	X 30	X 32												X 66	X 64	X 62	X 65	X 55	X 48
14	X 41	X 40	X 43	X 42	X 37	X 40	X 42												X 83	X 72	X 81	X 58	X 49	X 47
15	X 43	X 43	X 45	X 40	X 40	X 36	X 37												X 69	X 49	X 48	X 55	X 51	X 48
16	X 39	X 40	X 40	X 39	X 34	X 32	X 33													X 74	X 63	X 42	X 38	O X 34
17	X 35	X 34	X 36	X 39	X 39	X 32	X 34												X 56	X 58	X 46	X 45	X 38	X 39
18	X 37	X 39	X 42	X 46	X 37	X 28	X 29												X 63	X 56	X 64	X 60	X 36	X 40
19	X 38	X 38	X 38	X 43	X 39	O X 32	X 28												X 57	X 46	O X 46	X 54	X 49	X 44
20	X 44	X 42	X 38	X 41	X 43	X 40	X 40												O X 103	X 64	X 69	X 56	X 46	X 44
21	X 45	X 44	X 45	X 45	X 46	X 30	X 31												X 69	X 51	X 52	X 52	X 44	X 40
22	X 43	X 38	X 40	X 42	X 38	X 36	X 36												X 93	X 79	X 71	X 54	X 49	X 49
23	X 48	X 46	X 45	X 45	X 38	X 37	X 35												X 80	X 81	X 94	X 69	X 50	X 50
24	X 44	X 34	X 36	X 38	X 43	X 36	X 38												X 78	X 61		X 58	X 46	X 41
25	X 40	X 41	X 39	X 39	X 43	X 39	X 38												X 89	X 80	X 77	X 72	X 55	X 43
26	X 45	X 41	X 40	X 41	X 47	X 43	X 37												X 79	X 68	X 64	X 58	X 52	X 48
27	X 46	X 46	X 46	X 47	X 42	X 40	X 42												X 83	X 62	X 64	X 55	X 44	X 40
28	X 41	X 43	X 42	X 42	X 46	X 43	X 40												X 79	X 58	X 57	X 51	X 48	X 42
29	X 42	X 41	X 42	X 43	X 46	X 40	X 40												X 84	X 60	X 58	X 64	X 59	X 53
30	X 48	X 46	X 45	X 42	X 42	X 40	X 43													X 56	X 68	X 64	X 52	X 50
31	X 55	X 53	X 49	X 46	X 44	X 38	X 38												X 75	X 62	X 52	X 52	X 52	X 48
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	1											29	31	30	31	31	30
MED	X 41	X 40	X 41	X 41	X 40	X 36	X 36	X 46											X 78	X 62	X 62	X 56	X 49	X 43
U Q	X 45	X 43	X 45	X 44	X 43	X 39	X 38												X 84	X 74	X 69	X 64	X 52	X 48
L Q	X 39	X 38	X 39	X 40	X 38	X 33	X 33												X 67	X 58	X 58	X 52	X 44	X 40

JAN. 2014 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	27	28	32	33	33	27	28	43	72	83	94	94	U R 104	R	101	R 102	R 104	75	68	62	52	44	40	37
2	40	45	54	52	35	27	22	38	87	R 98	U R 101	96	R	116	100	100	89	80	77	66	54	53	43	34
3	30	31	32	32	28	32	36	43	65	78	U R 104	U R 110	R 104	U R 101	104	R 97	R 104	91	62	52	52	48	33	33
4	34	36	36	36	35	29	26	40	74	83	95	R 118	U R 115	U R 89	110	101	96	80	59	53	51	43	44	36
5	31	33	34	34	32	31	30	42	91	86	92	R 101	R 101	101	94	101	112	91	65	52	54	45	34	32
6	33	32	33	34	33	18	24	39	73	88	92	95	98	92	83	90	94	82	56	70	81	R 66	40	25
7	26	29	33	34	36	32	29	40	68	78	94	R 101	96	R 94	101	94	86	80	52	47	52	50	43	A
8	41	42	43	35	30	30	30	42	81	91	R 88	R 96	U R 110	R	J R 110	R	U R 110	94	83	82	59	47	48	40
9	34	32	32	33	34	30	28	36	62	69	88	J R 112	87	89	92	R 98	88	82	70	59	53	51	49	42
10	39	36	39	38	40	33	32	40	72	101	101	93	R	86	95	104	99	R 89	84	80	78	73	45	36
11	35	34	34	35	37	31	27	40	66	73	87	R 100	R 101	96	92	88	84	88	76	48	62	48	35	33
12	34	34	36	34	30	28	27	38	88	82	78	87	88	93	86	92	88	94	82	81	92	63	60	45
13	35	32	35	39	31	24	26	38	67	69	92	101	104	81	84	91	88	80	60	58	56	59	49	42
14	35	34	37	36	31	34	36	42	72	84	U R 98	R 116	R	110	90	R 97	R 99	86	77	66	75	52	43	41
15	37	37	39	34	34	30	31	40	75	76	87	R 95	U R 104	R 90	85	79	75	64	63	43	42	49	45	42
16	33	34	34	33	28	26	27	39	79	91	92	J R 118	96	84	80	80	84	76	61	68	57	36	32	28
17	29	28	30	33	33	26	28	39	70	75	82	89	86	100	81	76	75	53	50	52	40	39	32	33
18	31	33	36	40	31	22	23	35	78	89	94	101	100	90	82	81	71	80	57	50	58	54	U R 30	34
19	32	32	32	R 37	33	26	22	34	70	78	80	90	93	101	92	79	78	78	51	40	U R 40	48	43	38
20	38	36	R 32	35	37	34	34	42	72	86	78	R 80	U R 97	148	U R 143	R	R 116	J R 110	U R 97	58	63	50	40	38
21	39	38	39	39	40	24	25	38	67	84	79	91	U R 98	R	J R 118	J R 121	J R 119	92	63	45	46	46	38	34
22	37	32	34	36	32	30	30	43	70	74	89	U R 110	R	R	R 110	U R 110	U R 107	R 107	87	73	65	48	43	43
23	42	40	39	39	32	31	29	39	85	86	92	J R 122	R	R	U R 107	R 100	103	96	74	75	88	63	44	44
24	38	28	30	32	37	30	32	42	76	R 88	84	94	116	R	U R 112	R	R 99	90	72	54	58	52	40	35
25	34	35	33	33	37	33	32	42	76	90	92	96	R	R 118	U R 127	U R 107	U R 104	U R 110	83	74	71	66	49	37
26	39	35	34	35	41	37	31	43	69	80	78	88	94	98	88	86	91	91	73	62	58	52	46	42
27	40	40	40	41	36	34	36	48	78	86	92	92	U R 104	J R 110	U R 110	U R 110	99	94	77	56	58	49	38	34
28	35	37	36	36	40	37	34	40	83	82	86	100	102	92	95	89	83	88	73	52	51	45	42	36
29	36	35	36	37	40	34	34	40	86	82	96	J R 114	J R 107	U R 108	U R 105	R 102	90	92	78	54	U R 52	58	53	47
30	42	40	39	36	36	34	37	42	U R 97	93	101	J R 114	R	J R 116	U R 104	R 94	95	92	86	H 50	62	58	46	44
31	49	47	43	40	38	32	32	40	87	96	89	J R 108	98	93	R 90	94	76	74	69	56	46	46	46	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	31	31	31	31	24	25	31	28	31	31	31	31	31	31	31	30
MED	35	34	35	35	34	30	30	40	74	84	92	R 100	100	96	95	96	94	88	72	56	57	50	43	37
U Q	39	37	39	38	37	33	32	42	83	89	94	J R 110	U R 104	R 109	R 110	R 102	R 104	92	78	68	63	58	46	42
L Q	33	32	33	34	32	27	27	39	70	78	86	93	96	90	88	88	84	80	61	52	52	46	38	34

JAN. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										320	L	L	L	L	L	L	L							
2									248		L	L	L	L	L	L								
3									276		L	L	L	L	L	L	L	220						
4									256		L	L	L	L	L	L	L							
5									264	L	L	L	L	L	L	L								
6									256		L	L	L	L	L	L	L							
7									L 260	L 328	L	L	L	L	L	L	A							
8									228	L	L	L	L	L	L	L	L							
9									236	324	L	L	L	A	U L 484	L	L	236						
10								L		L	L	L	L	L	L	L	L							
11									252		L	L	L	L	L	L	L							
12									232	308	L	L	L	L	L	L								
13										U L 344	L	U L 456	L	A	U L 508	L	L							
14										L	L	L	L	L	L	L	L	L						
15									244	L	L	L	L	L	L	L		216						
16										L	L	U L 484	L	U L 476	L	L	L							
17									L 276	332	L	L	L	L	L	L								
18									240	L	L	L	L	U L 484	L	L								
19									252	308	L	L	L	L	L	L	L							
20									236	L	L	L	U L 500	L	L	L	L							
21										L	L	U L 500	L	L	L	L	L	232						
22											L	L	L	L	L	L	L							
23										316	L	L	L	L	L	L	L	U L 252						
24										L	L	L	U L 548	L	U L 484	L	L	240						
25									236	L	L	L	L	L	U L 492	L		U L 264						
26									U L 260	L		L	L	L	L		L	248						
27									252		L	L	L	L	L	U L 468	L	264						
28										L		L	L	L	L	L	L	244						
29									264		L	L	L	L	L	L	L							
30										L	L	L	L	L	L	L								
31									264	L	L	L	U L 468	L	L	L	L	268						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									20	8		3	3	2	4	1		11						
MED									252	322		U L 484	U L 500	U L 480	U L 488	U L 468		244						
U Q									262	L 330		U L 500	U L 548		U L 500			264						
L Q									238	312		U L 456	U L 468		U L 484			232						

JAN. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

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	236	280	328	R 344	R	R 352	R 340	308	264	180						
2								B	204	284	312	R 332	B	A	332	312	A	A						
3								B	224	300	316	R 340	U R 368	R	A	320	R 272	U R 192						
4								B	228	280	312	328	U R 388	A	A	324	280	208						
5								B	232	U R 304	340	R 360	U R 364	U R 372	364	R 324	268	A						
6								B	216	R 296	R 328	R 360	A	A	R 364	336	284	A						
7								B	R 200	288	308	324	U A 344	U R 360	A	A	A	A						
8								B	196	U A 284	U A 324	A	A	B	R 356	R 328	284	R 180						
9								A	216	284	U R 336	A	A	A	R 328	324	A	A						
10								B	216	292	U A 336	A	R 348	U R 352	R 336	312	288	A						
11									228	U A 304	R 336	U A 348	U A 336	A	R 352	R 324	R 284	220						
12								B	216	284	316	U A 336	U A 332	U A 340	R 344	A	A	196						
13								B	200	288	332	U A 328	A	A	R 332	324	280	220						
14								B	228	300	U A 320	340	U R 360	348	R 352	324	284	220						
15								B	216	R 288	304	324	U R 356	U R 356	U R 360	328	280	204						
16								B	216	280	300	U A 316	U A 304	U A 304	U A 304	U A 292	A	A 200	B					
17								B	216	288	320	R 344	R 348	R 364	R 344	336	288	216						
18								B	200	A	A	R 348	R 352	A	R 332	R 308	280	216						
19								J R 144	204	R 280	R 308	R 316	U R 348	U R 364	U R 348	R 328	288	A 216						
20								B	R 200	R 272	320	344	R 352	R	A U 336	U A 312	300	228						
21								J R 160	228	A 304	324	U A 332	R 340	A	340	328	A	216						
22								B	216	268	R 312	U A 332	U A 320	A	A	316	288	A						
23								B	220	264	304	U A 332	A	A	A	312	A 284	A						
24								B	220	U A 276	U A 320	A	A	R 344	328	316	288	200						
25								B	220	292	328	336	360	A 352	A 336	A	A	A						
26								B	224	272	320	R 336	356	352	A 340	U A 300	284	216						
27								B	200	304	324	344	356	364	U A 340	320	288	236						
28								B	244	300	R 332	352	364	R 364	A	U A 284	304	228						
29								A	A 240	320	R 348	368	R 372	U A 372	A	A	296	236						
30								A	220	280	328	360	368	U R 348	R 340	U A 304	A	228	208					
31								B	228	304	336	368	R 376	368	R	336	296	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								2	31	30	30	27	23	18	23	27	23	22	1					
MED								J R 152	216	288	322	340	R 356	354	R 340	320	284	216	208					
U Q									228	300	332	348	R 364	U R 364	R 352	328	288	228						
L Q									204	280	312	332	U A 344	U 348	332	U A 312	280	200						

JAN. 2014 foE (0.01MHz)

IONOSPHERIC DATA STATION Yamagawa

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

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

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	E B 16	28	G	G 24	G	G	G	G	G	G	20	23	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	E B 16	23	G	G 26	G 24	E B 49	J A 41	G 28	J A 34	J A 38	J A 50	J A 44	J A 26	J A 20	E B 16	E B 16	E B 16
3	E B 21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	31	33	G	39	G	36	G	G	G	E B 16	J A 19	18	18	E B 16	E B 16
4	E B 16	23	E B 16	E B 16	E B 16	E B 16	E B 16	J A 16	27	G	33	38	42	J A 44	J A 40	G 27	G 22	G	E B 16	22	E B 16	17	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	E B 16	26	G 24	G 36	G 26	G 29	G 27	G 28	G 26	29	J A 32	J A 26	J A 26	19	E B 16	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	G	G 25	39	43	48	G 35	G 33	33	J A 28	J A 30	J A 25	J A 32	21	E B 16	E B 16
7	E B 16	E B 16	E B 16	18	E B 16	E B 16	E B 16	E B 16	G	31	G 36	39	37	G	G 34	G 33	J A 41	J A 26	J A 33	J A 32	J A 28	J A 22	J A 26	J A 35
8	J A 29	E B 16	J A 20	J A 21	E B 19	E B 16	E B 16	E B 16	23	33	J A 48	43	J A 44	E B 39	G 25	G	G 25	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
9	J A 34	J A 19	25	J A 19	E B 16	E B 16	E B 17	J A 20	24	32	J A 40	J A 45	J A 51	J A 67	G 26	G 26	J A 30	24	J A 18	22	J A 25	J A 21	J A 26	J A 25
10	J A 31	J A 33	J A 23	18	E B 16	E B 16	E B 16	E B 16	23	32	J A 41	35	G	G 34	G 31	J A 37	32	J A 41	J A 28	E B 16	E B 16	J A 24	E B 16	20
11	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	J A 28	J A 33	G	36	J A 44	J A 44	G	G	G	G	E B 16	E B 16	E B 18	E B 16	E B 16	E B 16
12	E B 16	E B 16	J A 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	31	35	38	45	38	39	34	J A 41	26	J A 36	J A 18	E B 16	E B 16	E B 16	E B 16
13	E B 16	E B 16	E B 16	E B 16	E B 16	18	E B 16	18	22	G	37	J A 42	J A 47	J A 68	G 33	40	G 22	25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
14	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	35	G	G	G	G	35	G 22	J A 27	J A 32	J A 24	25	19	J A 24	20
15	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	G	G	G	38	38	G	G 32	G 25	G	E B 16	E B 16	E B 16	J A 23	J A 16	E B 16
16	E B 16	E B 16	E B 16	19	J A 21	E B 16	E B 16	E B 16	G	30	35	37	34	32	33	33	30	23	J A 17	J A 18	20	E B 16	E B 16	27
17	E B 16	E B 16	18	E B 16	E B 16	E B 16	E B 16	E B 18	26	32	36	G	G	38	G	36	33	25	J A 17	24	J A 35	J A 27	18	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	E B 16	23	33	38	40	40	G	G 27	34	30	23	E B 16	E B 17	E B 16	E B 16	E B 16	E B 16
19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 19	E B 16	G	23	30	G	G	42	42	G	G	G 27	26	21	E B 16	E B 16	E B 16	E B 16	J A 16
20	J A 19	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	30	35	40	G	26	42	J A 44	36	29	J A 30	J A 26	J A 19	J A 17	22	E B 16
21	E B 17	E B 16	22	18	21	E B 18	E B 16	E B 16	27	32	40	40	G	34	G	G 30	28	25	E B 16	E B 16	18	E B 16	E B 16	E B 16
22	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G 26	38	40	34	34	37	G 26	J A 24	J A 20	E B 16	J A 20	J A 19	19	E B 16
23	E B 16	E B 16	E B 16	22	E B 16	E B 16	E B 16	E B 16	G	G	G	40	J A 44	J A 38	35	37	36	J A 26	J A 19	J A 18	17	J A 19	E B 16	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	E B 16	G	31	38	40	J A 40	G 34	G	G 19	G	22	J A 21	J A 20	E B 16	J A 28	19
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	35	G 34	G 33	39	38	J A 43	J A 42	J A 36	J A 40	J A 16	E B 16	E B 16	18	E B 16
26	E B 16	E B 16	E B 16	J A 17	18	E B 16	E B 16	E B 16	G	G 22	34	G 29	40	J A 55	40	33	G	24	21	E B 16	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	32	G	G	38	41	36	G	G	25	18	E B 16	E B 16	J A 19	20	E B 16
28	E B 20	18	J A 28	J A 27	19	17	18	E B 16	G	G 26	37	39	J A 46	39	40	34	G 27	24	J A 20	E B 16	J A 16	E B 16	E B 16	J A 20
29	E B 16	E B 16	18	J A 21	J A 21	22	20	J A 17	26	J A 32	40	42	G	G	J A 42	J A 42	G	25	E B 16	E B 16	E B 16	E B 16	E B 16	J A 32
30	J A 17	E B 16	E B 16	E B 16	E B 16	E B 16	19	17	G	G	36	38	39	38	36	34	26	24	24	18	E B 16	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	E B 16	25	33	36	41	40	39	G	G 33	G 25	25	E B 16	20	20	J A 21	E B 16	E B 20
	00	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	30	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	E B 16	23	30	35	38	40	38	G	33	G	25	J A 20	18	16	E B 16	E B 16	E B 16
U Q	18	16	16	18	16	E B 16	16	16	25	32	37	40	J A 44	J A 41	36	36	33	J A 26	J A 28	J A 22	J A 20	J A 19	18	20
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	G	G	G	G 33	G 33	G 26	G 23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

JAN. 2014 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

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

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

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	E B 16	G 24	G	G 24	G	G	G	G	G	G	U Y 20	20	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	E B 16	23	G	G 26	G 24	E B 49	38	G 28	33	29	37	37	23	17	E B 16	E B 16	E B 16
3	E B 21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	31	U Y 33	G	U Y 39	G	U Y 36	G	G	G	E B 16	18	U Y 18	U Y 18	E B 16	E B 16
4	E B 16	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	G	33	38	42	38	39	G 27	G 22	G	E B 16	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	E B 16	26	G 24	36	G 26	G 29	G 27	G 28	G 26	29	29	20	20	E B 16	E B 16	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	G	G 25	38	38	45	G 35	G 33	30	27	26	20	22	E B 16	E B 16	E B 16
7	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	31	36	39	U Y 37	G	U Y 34	33	39	23	21	24	26	20	20	A A 35
8	20	E B 16	E B 16	20	E B 19	E B 16	E B 16	E B 16	23	31	43	40	44	E B 39	G 25	G	G 25	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
9	24	E B 16	20	17	E B 16	E B 16	E B 16	E B 16	24	32	34	38	41	52	G 26	G 26	30	22	E B 16	E B 16	E B 16	E B 16	20	E B 16
10	23	29	20	U Y 18	E B 16	E B 16	E B 16	E B 16	23	32	39	U Y 35	G	U Y 34	G 31	37	29	31	23	E B 16	E B 16	21	E B 16	E B 16
11	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	32	G	36	43	40	G	G	G	G	E B 16	E B 16	E B 18	E B 16	E B 16	E B 16
12	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	31	35	U Y 38	44	U Y 38	37	34	40	22	28	E B 16	E B 16	E B 16	E B 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	E B 16	22	G	37	37	38	62	U Y 33	36	G 22	23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
14	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	35	G	G	G	G	U Y 35	G 22	24	24	20	18	E B 16	21	E B 16
15	U Y 18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	G	G	G	U Y 38	U Y 38	G	G 32	G 25	G	E B 16	E B 16	E B 16	19	E B 16	E B 16
16	E B 16	E B 16	E B 16	E B 16	19	E B 16	E B 16	E B 16	G	30	35	36	U Y 34	U Y 32	U Y 33	U Y 33	30	23	E B 16	16	E B 16	E B 16	E B 16	24
17	E B 16	E B 16	16	E B 16	E B 16	E B 16	E B 16	E B 16	G 21	32	36	G	G	U Y 38	G	36	32	24	E B 16	20	28	20	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	E B 16	23	31	37	40	40	G	G 27	U Y 34	30	23	E B 16	E B 17	E B 16	E B 16	E B 16	E B 16
19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 19	E B 16	G	23	30	G	G	42	U Y 42	G	G	G 27	25	E B 16	E B 16	E B 16	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	E B 16	23	30	35	40	G	G 26	U Y 42	40	36	28	29	26	18	E B 16	E B 16	E B 16
21	E B 17	E B 16	E B 16	E B 16	E B 16	E B 18	E B 16	E B 16	26	32	38	38	G	U Y 34	G	G 30	28	22	E B 16	E B 16	E B 16	E B 16	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 16	E B 16	G	G	G 26	38	38	U Y 34	U Y 34	35	G 26	23	E B 16	E B 16	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	E B 16	G	G	G	39	43	36	U Y 35	35	34	22	17	E B 16	E B 16	E B 16	E B 16	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	E B 16	G	29	35	37	39	G 34	G	G 19	G	22	18	18		E B 16	19	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	E B 16	G	G	G U Y 33	34	G 33	37	37	33	42	23	27	E B 16	E B 16	E B 16	E B 16	E B 16
26	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G 22	U Y 34	G 29	U Y 40	48	39	U Y 33	G	23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	31	G	G	U Y 38	40	U Y 36	G	G	25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
28	E B 20	E B 16	E B 16	21	E B 16	E B 16	E B 16	E B 16	G	G 26	36	39	43	38	39	U Y 34	G 27	24	19	E B 16	16	E B 16	E B 16	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	E B 16	26	G 31	36	40	G	G	41	38	G	25	E B 16	E B 16	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	16	G	G	36	38	U Y 39	U Y 38	U Y 36	34	U Y 26	24	E B 16	E B 16	E B 16	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	E B 16	25	33	36	41	U Y 40	39	G	G 33	G 25	25	E B 16	E B 16	E B 16	20	E B 16	E B 20
	00	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	30	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	E B 16	G	G	35	37	38	38	G	33	G	23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	16	E B 16	E B 16	16	E B 16	E B 16	E B 16	E B 16	24	31	36	39	42	39	36	35	30	25	21	20	17	16	16	E B 16
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	31	G	G	G	G	G 33	G 33	G 26	G 22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

IONOSPHERIC DATA STATION Yamagawa

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

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

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	16	19	22	30	24	25	21	20	16	16	16	16	16	16	16
2	16	16	16	16	16	16	16	16	15	16	16	17	49	22	20	17	16	15	16	16	16	16	16	16
3	21	16	16	16	16	16	16	16	16	16	21	23	24	26	16	20	20	16	16	16	16	16	16	16
4	16	20	16	16	16	16	16	16	16	18	20	24	29	26	21	20	18	16	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	19	20	21	23	21	20	17	16	16	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	16	20	20	19	19	22	16	16	16	16	16	16	16	16	16
7	16	16	16	16	16	16	16	16	16	16	16	20	16	29	21	20	19	16	16	16	16	16	16	16
8	16	16	16	16	19	16	16	16	16	19	17	28	21	39	20	20	17	16	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	16	16	18	20	28	21	20	17	16	16	16	16	16	16	16
10	16	16	16	16	16	16	16	16	16	20	20	21	24	22	21	20	16	16	16	16	16	16	16	16
11	16	16	16	16	16	16	16	16	16	16	16	21	19	21	20	17	20	20	16	16	18	16	16	16
12	16	16	16	16	16	16	16	16	16	16	18	20	24	22	20	16	16	16	16	16	16	16	16	16
13	16	16	16	16	16	16	16	16	16	19	20	20	21	24	24	18	16	16	16	16	16	16	16	16
14	16	16	16	16	16	16	16	16	16	16	17	20	20	25	20	19	16	16	16	16	16	16	16	16
15	16	16	16	16	16	16	16	16	16	16	17	21	30	25	25	20	16	16	16	16	16	16	16	16
16	16	16	16	16	16	16	16	16	16	17	17	16	16	21	16	16	16	16	16	16	16	16	16	16
17	16	16	16	16	16	16	16	16	16	16	16	20	22	23	21	20	16	16	16	16	16	16	16	16
18	16	16	16	16	16	16	16	16	16	16	16	22	20	20	18	20	16	16	16	17	16	16	16	16
19	16	16	16	16	16	19	16	16	16	16	16	18	20	20	21	16	16	16	16	16	16	16	16	16
20	16	16	16	16	16	16	16	16	16	16	16	20	22	20	16	16	19	16	16	16	16	16	16	16
21	17	16	16	16	16	18	16	16	16	17	20	20	20	24	18	18	16	16	16	16	16	16	16	16
22	16	16	16	16	16	16	16	16	16	16	16	16	17	21	18	20	16	16	16	16	16	16	16	16
23	16	16	16	16	16	16	16	16	16	16	18	17	18	18	20	16	16	16	16	16	16	16	16	16
24	16	16	16	16	16	16	16	16	16	16	16	16	22	24	18	16	16	16	16	16		16	16	16
25	16	16	16	16	16	16	16	16	16	16	16	16	23	21	20	16	16	16	16	16	16	16	16	16
26	16	16	16	16	16	16	16	16	16	16	16	17	20	21	20	22	18	16	16	16	16	16	16	16
27	16	16	16	16	16	16	16	16	16	16	16	20	20	16	17	20	17	16	16	16	16	16	16	16
28	20	16	16	16	16	16	16	16	16	16	20	16	16	21	29	21	20	18	16	16	16	16	16	16
29	16	16	16	16	16	16	16	16	16	16	16	19	20	22	20	16	16	16	16	16	16	16	16	16
30	16	16	16	16	16	16	16	16	16	16	16	22	E S 36	27	24	19	21	16	16	16	16	16	16	16
31	16	16	16	16	16	16	16	16	16	16	18	18	20	21	24	21	16	16	16	16	16	16	16	20
	00	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	30	31	31	31
MED	16	16	16	16	16	16	16	16	16	16	17	20	20	22	20	19	16	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	16	20	21	24	25	21	20	18	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	16	16	17	20	21	18	16	16	16	16	16	16	16	16	16

JAN. 2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	308	297	291	305	350	307	318	331	374	358	356	356	U R 329	R	339	R 331	R 342	370	335	335	363	316	268	258
2	271	281	314	340	322	299	277	310	353	R 360	U R 362	330	R	323	324	325	331	329	342	352	337	341	329	291
3	299	293	293	310	343	280	316	377	367	331	U R 348	U R 350	R 325	U R 330	328	R 334	R 356	361	350	328	347	359	305	268
4	276	291	286	306	355	312	315	330	359	350	356	R 330	U R 346	U R 337	322	347	348	350	348	335	347	317	320	319
5	283	283	294	310	318	293	290	315	377	376	340	R 347	R 341	334	336	318	340	348	348	318	348	334	323	289
6	306	291	306	334	371	400	301	325	351	364	369	358	332	358	328	322	347	359	324	325	351	R 338	358	293
7	270	280	287	304	335	327	327	329	381	354	354	R 360	336	R 326	331	335	342	359	343	315	327	345	303	A
8	279	296	334	327	321	304	305	323	364	358	R 342	R 350	U R 326	R	J R	R	U R 337	347	330	341	352	289	320	300
9	326	282	304	329	332	352	347	322	353	342	336	R	323	338	337	R 351	356	339	336	328	333	319	318	312
10	314	283	296	319	335	298	316	320	352	372	369	351	R	321	332	325	350	R 359	318	326	316	352	322	287
11	294	294	299	326	330	358	326	334	369	365	345	R 349	R 348	351	334	340	333	345	364	290	329	339	320	294
12	290	308	300	321	320	311	291	313	379	378	365	361	341	340	335	335	327	357	348	315	363	360	336	309
13	297	291	318	348	364	296	313	331	363	340	344	357	350	333	331	314	336	339	345	317	314	329	324	312
14	347	269	320	334	354	296	314	325	356	352	U R 338	R 354	R	323	331	R 332	R 341	358	327	316	350	324	323	300
15	285	300	319	338	356	300	303	326	366	360	339	R 362	U R 351	R 342	330	332	337	336	341	338	308	335	337	325
16	307	303	320	327	332	299	312	320	365	385	340	J R	358	333	333	333	341	367	340	342	357	328	348	306
17	306	294	304	322	349	328	319	327	379	372	349	350	328	361	340	361	356	378	345	344	345	324	326	292
18	296	291	312	355	406	297	289	313	353	356	348	332	347	350	331	349	349	361	354	319	335	343	U R 326	331
19	297	310	312	R 384	371	367	281	327	363	356	383	339	336	354	350	333	336	360	366	311	U R 339	307	339	316
20	322	322	R 315	310	324	327	333	324	361	372	366	R 376	U R 370	328	U R 316	R	R 354	J R	U R 380	311	339	335	327	285
21	290	296	305	323	375	282	312	328	356	378	379	327	U R 350	R	J R	J R	J R	358	349	330	317	316	276	290
22	310	319	289	307	336	301	305	336	383	341	329	U R 321	R	R	R 336	U R 329	U R 338	R 349	347	323	338	332	290	295
23	296	310	329	332	351	280	288	329	368	358	330	J R	R	R	U R 325	R 326	330	353	338	305	340	362	298	327
24	346	292	295	304	334	326	317	330	370	R 379	374	324	338	R	R	R	R 343	344	332	344	337	339	333	310
25	300	312	317	288	322	310	309	318	364	364	358	333	R	R 343	R	U R 339	U R 354	U R 337	329	336	320	346	342	289
26	298	298	283	295	324	370	306	331	343	372	338	336	329	343	344	321	329	347	333	328	324	333	321	317
27	288	301	308	342	343	287	302	336	357	363	359	330	U R 343	J R	U R 330	U R 307	344	355	331	335	335	343	334	295
28	287	321	306	289	333	334	316	313	368	359	336	R 358	348	341	340	341	337	354	356	320	337	321	334	287
29	273	298	289	289	323	288	278	306	371	343	337	J R	R	U R 327	U R 332	R 341	325	347	338	321	U R 309	296	307	300
30	305	295	292	302	309	297	294	303	U R 356	356	342	R	R	R	U R 328	R 332	325	335	359	H 277	308	329	318	304
31	318	323	317	322	333	299	288	310	361	363	349	J R	332	353	R 325	346	326	339	344	357	313	320	330	308
	00	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	25	23	23	27	27	30	30	31	31	31	31	31	30
MED	297	296	305	322	335	301	309	325	364	360	348	350	341	338	331	333	340	352	343	326	337	333	323	300
U Q	308	308	317	334	354	327	316	330	370	372	362	358	R 348	350	336	341	348	359	349	336	347	343	334	312
L Q	287	291	293	305	324	296	291	315	356	354	339	331	329	328	328	325	333	344	333	316	320	320	318	290

JAN. 2014 M(3000)F2 (0.01)

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

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

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										418	L	L	L	L	L	L	L							
2									484		L	L	L	L	L	L								
3									428		L	L	L	L	L	L	L	419						
4									A		L	L	L	L	L	L	L							
5									465	L	L	L	L	L	L	L								
6									505		L	L	L	L	L	L	L							
7									406 L	418 L	L	L	L	L	L	L	A							
8									A	L	L	L	L	L	L	L	L							
9									A	457	L	L	L	A	U L 373	L	L	A						
10								L		L	L	L	L	L	L	L	L							
11									461		L	L	L	L	L	L	L							
12									A	A	L	L	L	L	L	L								
13										U L 431	L	U L 412	L	A	U L 367	L	L							
14										L	L	L	L	L	L	L	L	L						
15									453	L	L	L	L	L	L	L		458						
16										L	L	U L 372	L	U L 399	L	L	L							
17									395 L	458	L	L	L	L	L	L								
18									487	L	L	L	L	U L 392	L 356	L								
19									482	486	L	L	L	L	L	L	L							
20									464	L	L	L	U L 394	L	L	L	L							
21										L	L	U L 383	L	L	L	L	L	A						
22											L	L	L	L	L	L	L							
23										445	L	L	L	L	L	L	L	U L 417						
24										L	L	L	U L 356	L	U L 374	L	L	417						
25									479	L	L	L	L	L	U L 376	L		U L 418						
26									U L 418	L		L	L	L	L		L	465						
27									499		L	L	L	L	L	U L 391	L	463						
28										L		L	L	L	L	L	L	480						
29									483		L	L	L	L	L	L	L							
30										L	L	L	L	L	L	L								
31									489	L	L	L	U L 420	L	L	L	L	465						
	00	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	7		3	3	2	5	1		9						
MED									472	445		U L 383	U L 394	U L 396	U L 373	U L 391		458						
U Q									486	458		U L 412	U L 420		U L 375			465						
L Q									440 L	418		U L 372	U L 356		L 362			U L 418						

JAN. 2014 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Yamagawa

JAN. 2014 h′F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	230	226	240	252	238	232	224							
2									222		228	228	266	252	246	248								
3									202		242	232	252	270	262	236	234	208						
4									220		226	260	244	228	276	258	232							
5									214	216	238	238	240	246	244	260								
6									224		224	234	248	240	258	246	244							
7									204	218	240	238	242	276	266	246	230							
8									222	226	232	248	250	258	264	248	238							
9									210	212	240	244	234	254	260	246	224	224						
10								268		226	226	234	254	234	258	254	244							
11									208		236	244	256	240	252	244	216							
12									214	210	218	232	260	256	248	250								
13										218	252	240	248	270	268	272	230							
14										226	256	226	248	268	252	266	242	210						
15									210	214	254	254	244	252	254	242		210						
16										218	266	234	224	246	250	254	238							
17									210	220	238	232	272	242	244	226								
18									232	222	236	238	242	234	262	242								
19									218	220	220	268	246	244	242	230	230							
20									222	226	224	220	238	252	268	262	228							
21										228	220	262	252	276	242	250	230	208						
22											252	270	260	250	264	254	238							
23										212	220	250	242	232	270	222	236	212						
24										222	222	268	270	248	256	238	240	212						
25									214	222	230	244	258	244	268	222		222						
26									214	220		234	258	250	236		236	214						
27									214		234	250	256	256	242	240	214	216						
28										220		230	248	236	268	232	224	216						
29									216		232	256	252	244	270	238	238							
30										218	236	248	236	258	244	232								
31									218	226	226	242	242	234	262	248	208	210						
	00	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	20	23	29	31	31	31	31	30	23	12						
MED								268	214	220	232	240	248	250	258	246	232	212						
U Q									221	226	240	250	256	256	266	254	238	216						
L Q									210	218	225	232	242	240	244	236	224	210						

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JAN. 2014 h′F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ 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	312	302	278	218	276	270	252	212	220	226	220	214	204	216	A 214	230	196	206	204	202	200	278	328
2	318	304	254	212	222	284	348	280	166	228	224	210	260	214	216	214	218	232	230	210	208	222	246	246
3	342	300	300	270	220	322	258	196	H 194	222	222	214	232	A 204	224	220	228	A 224	182	220	222	216	256	332
4	328	326	304	276	228	276	226	244	A	218	220	H 172	224	216	218	210	226	210	188	216	202	236	236	236
5	290	312	296	270	248	294	294	258	182	212	212	214	216	228	210	H 208	228	204	188	222	202	216	226	272
6	280	288	280	242	208	216	296	252	154	222	222	214	204	230	228	202	232	212	212	234	216	194	208	222
7	334	344	312	274	240	236	252	242	200	200	226	224	210	206	218	218	A	210	208	238	246	216	264	A
8	306	286	242	252	278	252	264	260	A	220	226	230	A 252	240	214	216	228	210	196	204	188	214	238	244
9	268	310	296	246	240	222	230	208	A	190	210	232	208	A	208	222	222	A	192	214	212	222	228	232
10	278	360	294	254	250	270	264	210	226	226	224	208	208	202	228	228	228	216	210	198	206	208	212	288
11	296	296	300	266	246	216	246	224	188	210	212	208	238	216	204	204	206	224	198	184	230	206	224	292
12	296	276	284	244	258	252	306	270	A	A	214	216	242	202	212	224	230	224	200	216	200	192	228	218
13	286	310	278	232	214	318	266	248	204	198	228	196	212	A	208	224	224	216	210	236	232	230	224	234
14	222	334	260	230	204	282	270	250	214	218	196	192	214	214	230	210	222	A	214	224	212	200	242	270
15	304	282	250	232	214	276	286	254	190	H 208	212	216	224	220	218	214	220	190	206	198	234	236	224	230
16	246	268	252	236	254	288	286	252	222	214	204	204	202	198	H 198	218	226	212	202	214	190	228	224	330
17	278	308	298	256	224	234	256	242	198	194	214	214	224	240	206	218	226	190	206	224	224	240	238	288
18	294	308	266	226	198	336	328	270	162	226	222	222	204	202	202	234	222	222	190	246	210	216	248	254
19	292	268	278	214	202	208	322	252	158	170	218	206	228	E A 254	210	212	214	224	184	220	236	240	230	254
20	254	248	274	276	254	234	236	252	180	220	214	210	182	212	H 172	216	A 234	214	200	220	210	212	242	290
21	278	284	256	250	212	336	278	236	216	230	212	194	224	212	214	208	210	A	200	204	234	232	274	302
22	262	248	316	278	224	266	276	240	200	202	H 198	208	212	194	196	224	224	224	192	210	210	224	252	288
23	270	272	242	238	226	322	324	258	216	182	202	216	220	206	220	206	228	230	196	224	216	190	258	228
24	222	282	308	282	238	240	254	238	214	210	210	188	186	184	182	214	208	218	196	200		206	218	264
25	286	262	252	306	254	236	260	256	168	218	202	202	184	H 214	204	210	232	226	204	212	226	200	212	274
26	270	284	302	292	244	204	272	244	214	188	206	198	A 218	A	212	218	212	184	204	204	220	214	222	248
27	286	264	252	220	224	298	266	222	148	222	216	208	198	208	218	194	218	180	204	202	218	202	230	282
28	318	260	252	312	250	218	242	258	220	208	216	214	222	200	218	204	196	186	196	204	208	218	226	262
29	318	296	302	302	254	304	314	280	178	214	222	216	214	214	210	228	202	218	208	190	230	226	246	244
30	262	282	286	246	234	268	282	280	222	200	220	H 222	204	H 190	204	H 204	228	210	204	188	244	208	228	260
31	246	244	238	240	232	232	266	276	166	H 200	212	214	204	208	218	228	204	188	206	202	236	244	236	260
	00	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	27	30	31	31	31	28	31	30	30	28	31	31	30	31	31	30
MED	286	286	280	252	232	268	270	252	198	213	214	214	214	209	212	215	224	213	202	212	216	216	230	261
U Q	304	310	300	276	250	294	294	258	214	220	222	216	224	216	218	222	228	224	206	222	230	228	246	288
L Q	268	268	252	236	218	234	256	240	168	200	210	204	204	202	204	208	214	200	196	202	208	206	224	244

JAN. 2014 h′F (KM)

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JAN. 2014 h′E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	124	106	108	106	110	106	108	102	108	124						
2								B	112	100	114	108	B	A	108	108	A	A						
3								B	112	108	104	108	104	106	A	102	104	120						
4								B	114	104	102	104	104	106	A	110	110	120						
5								B	112	118	112	110	108	108	104	108	104	A						
6								B	118	102	108	114	A	A	108	108	108	A						
7								B	106	100	98	102	102	104	A	A	A	A						
8								B	108	104	100	A	A	B	108	106	108	108						
9								A	106	102	98	A	A	A	116	116	A	A						
10								B	106	104	102	102	106	108	106	108	108	A						
11									106	104	102	108	102	A	100	102	104	162						
12								B	110	102	102	104	102	102	102	A	A	114						
13								B	110	108	110	104	A	A	108	112	108	112						
14								B	108	102	104	104	102	106	106	112	108	A						
15								B	116	102	102	102	112	106	108	104	110	110						
16								B	112	102	100	98	96	102	100	98	A	100	B					
17								B	118	118	118	100	104	104	102	104	102	120						
18								B	104	A	A	104	102	102	104	102	102	110						
19								B	110	102	102	102	98	98	104	100	110	110						
20								B	98	98	94	98	98	100	104	104	106	108						
21								B	112	102	102	102	102	A	100	116	A	116						
22								B	108	100	106	102	102	A	A	116	116	A						
23								B	116	100	100	98	A	A	A	108	108	A						
24								B	110	110	110	A	A	106	100	100	100	108						
25								B	108	104	A	114	114	100	100	A	A	A						
26								B	108	106	106	110	108	102	100	104	102	106						
27								B	104	102	96	98	96	96	98	102	102	110						
28								B	110	116	122	114	102	102	A	100	118	106						
29								A	110	114	114	100	98	100	A	A	96	106						
30								A	106	100	100	100	A	104	104	100	A	114	A					
31								B	108	100	104	112	108	110	100	122	108	110						
	00	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	29	28	23	22	24	27	23	21						
MED									110	102	102	104	102	104	104	104	108	110						
U Q									112	106	109	108	108	106	108	110	108	118						
L Q									106	102	100	101	102	102	100	102	102	108						

JAN. 2014 h′E (KM)

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JAN. 2014 h′Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	B	B	B	104	G	100	G	G	G	G	G	G	160	86	B	B	B	B	B
2	B	B	B	B	B	B	B	B	152	G	98	96	B	92	92	92	90	86	86	86	86	B	B	B
3	B	B	B	B	B	B	B	B	184	194	118	G	166	G	104	G	G	G	B	88	88	86	B	B
4	B	92	B	B	B	B	B	160	142	G	118	108	214	102	100	98	96	G	B	88	B	90	B	B
5	B	B	B	B	B	B	B	B	170	102	122	96	96	98	96	96	154	88	90	88	88	B	B	B
6	B	B	B	B	B	B	B	B	146	G	100	134	88	88	90	92	90	90	86	88	92	84	B	B
7	B	B	B	94	B	B	B	B	G	192	108	102	106	G	102	98	94	94	94	94	94	94	92	86
8	88	B	108	100	B	B	B	B	116	106	102	102	100	B	100	G	98	G	B	B	B	B	B	B
9	88	88	90	90	B	B	88	88	170	160	104	98	98	96	96	96	98	100	100	98	98	96	90	92
10	90	90	88	92	B	B	B	B	154	146	108	108	G	98	98	92	94	90	90	B	B	86	B	88
11	B	B	B	B	B	B	B	B	106	108	G	116	102	98	G	G	G	G	B	B	B	B	B	B
12	B	B	98	B	B	B	B	B	210	150	112	104	102	102	106	96	94	98	90	92	B	B	B	B
13	B	B	B	B	B	90	B	90	130	G	114	104	100	96	98	94	94	100	B	B	B	B	B	B
14	B	B	B	B	B	B	B	B	G	G	110	G	G	G	G	92	92	88	86	88	86	86	86	86
15	84	B	B	B	B	B	B	B	176	G	G	G	116	114	G	100	100	G	B	B	B	92	94	B
16	B	B	B	92	88	B	B	B	G	118	102	104	102	102	104	104	100	206	152	130	108	B	B	88
17	B	B	96	B	B	B	B	104	102	180	180	G	G	152	G	194	156	118	110	98	94	92	94	B
18	B	B	B	B	B	B	B	B	146	100	96	132	114	G	90	176	212	200	B	B	B	B	B	B
19	B	B	B	B	B	B	B	G	154	164	G	G	130	116	G	G	106	110	88	B	B	B	B	96
20	98	98	B	B	B	B	B	B	170	210	190	118	G	92	110	102	132	122	100	98	92	86	92	B
21	B	B	94	94	92	B	B	B	142	116	106	106	G	104	G	100	100	100	B	B	102	B	B	B
22	98	B	B	B	B	B	B	B	G	G	98	108	102	100	98	98	98	96	94	B	92	88	88	B
23	B	B	B	84	B	B	B	B	G	G	G	102	100	100	94	92	108	88	90	90	90	92	B	B
24	B	B	B	B	B	B	B	B	G	116	108	106	100	98	G	94	G	140	90	88	B	88	90	
25	B	B	B	B	B	B	B	B	G	G	112	100	102	108	102	98	94	94	92	96	96	B	92	B
26	B	B	B	98	98	B	B	B	G	98	190	96	130	110	110	104	G	172	84	B	B	B	B	B
27	B	B	B	B	B	B	B	B	144	184	G	G	122	108	110	G	G	172	98	B	B	96	96	B
28	B	88	96	90	90	94	92	B	G	100	186	112	106	110	104	100	102	178	110	B	88	B	B	118
29	B	B	98	92	94	94	94	90	172	104	102	116	G	G	100	94	G	200	B	B	B	B	B	92
30	96	B	B	B	B	B	94	92	G	G	188	150	124	112	116	100	100	170	156	96	B	B	B	B
31	B	B	B	B	B	B	B	B	170	186	188	146	164	142	G	98	100	182	B	88	86	94	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	7	5	8	10	5	3	4	6	21	20	26	24	23	24	22	25	24	26	21	17	16	14	10	9
MED	90	90	96	92	92	94	93	91	152	132	109	106	102	102	100	98	99	105	90	90	92	91	92	90
U Q	98	95	98	94	96	94	94	104	170	182	122	116	124	110	104	100	104	172	100	97	95	94	94	94
L Q	88	88	92	90	89	90	90	90	136	105	102	102	100	98	96	94	94	94	87	88	88	86	88	87

IONOSPHERIC DATA STATION Yamagawa

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L 1		L 1							H 1	F 1					
2									H 1		L 1	L 1		L 1	L 1	LC 11	L 1	L 2	F 2	F 2	F 1			
3									H 1	H 1	C 1		H 1		CL 11					F 3	F 1	F 1		
4		F 1						H 1	H 1		C 1	C 1	H 1	C 1	L 1	L 1	L 1			F 1		F 1		
5									H 1	L 1	CL 11	L 1	L 1	L 1	L 1	L 1	HL 11	L 3	F 2	F 2	F 1			
6									HL 11		L 1	HL 11	L 1	L 1	L 2	L 1	L 1	C 2	F 3	F 2	FF 22	F 1		
7				F 1						H 1	C 1	C 1	CL 11		L 1	L 1	L 2	L 2	FQ 31	FQ 21	F 4	F 5	F 2	F 2
8	F 1		F 1	F 3					C 1	C 1	C 2	C 1	L 1		L 1		L 1							
9	FQ 31	FQ 11	F 1	F 1			F 1	L 1	H 1	H 1	C 1	L 2	L 1	L 1	L 1	L 1	L 1	L 2	F 1	F 1	F 1	F 1	F 2	F 2
10	F 4	FQ 21	F 1	F 1					H 1	H 1	C 1	C 1		L 1	L 1	L 1	L 1	L 2	F 2			F 2		F 1
11									CH 11	C 1		CL 11	C 2	L 1										
12			F 1						H 1	H 1	C 1	C 1	C 1	C 1	C 1	L 1	L 2	L 1	F 5	F 1				
13						F 1		L 1	H 1		CL 11	C 1	L 1	L 2	L 1	L 1	L 1	L 1						
14											CL 11					L 1	L 1	L 2	F 2	F 2	F 2	F 1	F 1	F 1
15	F 1								H 1				C 1	C 1		L 1	L 1					F 3	F 1	
16				F 1	F 2					C 1	C 1	C 1	C 1	C 1	C 1	C 1	L 2	H 1	H 1	F 1	F 1			F 2
17			F 1					L 1	L 1	HL 11	HL 11			H 1		HC 11	H 1	C 1	F 1	F 1	F 4	F 2	F 1	
18									H 1	L 2	L 1	H 1	C 1		L 1	H 1	H 1	H 1						
19									H 1	H 1			H 1	C 1			L 1	C 2	F 1					F 1
20	F 1	F 1							H 1	H 1	H 1	C 1		L 1	CL 11	CL 11	HL 11	C 1	F 2	F 2	F 2	F 1	F 1	
21			F 1	F 1	F 1				H 1	C 1	C 1	C 1		L 1		L 1	L 1	L 1			F 1			
22	F 1										L 1	C 1	C 1	L 1	L 1	L 1	L 1	L 1	F 1		F 2	F 2	F 1	
23				F 1								C 1	L 1	L 1	L 2	L 2	CL 22	L 2	F 1	F 1	F 1	F 1		
24										CL 11	CL 11	CL 11	L 1	L 1		L 1		HL 12	F 1	F 4			F 2	F 1
25											CL 11	L 1	L 1	C 1	C 1	L 1	L 2	LQ 21	F 4	F 1	F 1		F 1	
26				F 1	F 1					L 1	HL 11	L 1	HL 11	C 1	C 1	C 1		HL 11	FF 11					
27									H 1	H 1			C 1	C 1	C 1			H 1	F 1			F 1	F 1	
28		F 1	F 2	F 2	F 2	F 1	F 1			L 1	HL 11	CL 11	CL 11	C 1	L 1	C 1	L 1	H 1	F 1		F 1			FF 12
29			F 1	F 4	F 2	F 1	F 1	L 2	H 1	L 1	L 1	C 1			L 1	L 2		HH 11						F 2
30	F 1						F 1	L 1			H 1	H 1	C 1	C 1	C 1	C 1	L 1	HL 11	HL 11	F 1				
31									H 2	H 1	HL 11	HL 11	HL 11	HL 11		L 1	L 1	H 1		F 1	F 1	F 1		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

JAN. 2014 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2014 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 34	O X 33	X 32	X 35	X 35	O X 31	X 32												X 109	X 105	X 101	X 92	X 73	X 58
2	X 64	X 67	X 69	X 70	X 42	X 38	X 33												X 110	X 102	X 100	X 94	X 75	X 68
3	X 50	X 44	X 47	X 49	X 31	O X 30	X 35												X 128	X 78	X 74	X 68	X 60	X 46
4	X 44	O X 42	O X 42	X 42	O X 42	X 35	X 36	X 45											X 108	X 77	X 78	X 75	X 65	X 56
5	X 52	X 50	X 51	X 48	X 43	X 35	X 35												X 114	X 80	X 89	X 104	X 72	X 44
6	X 44	X 44	X 46	X 38	X 38	R	X 26	X 45											X 88	X 78	X 98	X 86	X 46	X 40
7	X 32	X 32	X 33	X 37	X 39	X 34	X 33													X 70	X 72	X 84	X 70	X 53
8	X 54	X 56	X 52	X 45	X 40	X 36	X 35												X 140	X 123	X 100	X 87	X 72	X 69
9	X 60	X 58	X 53	X 51	X 43	O X 29	X 28												X 112	X 90	X 92	X 88	X 70	X 48
10	X 47	X 43	X 45	X 47	X 46	A	O X 33												X 130	X 132	X 141	X 139	X 98	X 49
11	X 40	X 42	X 48	X 52	X 54	O X 29	X 29													X 107	X 95	X 95	X 81	X 48
12	X 40	O X 41	X 42	X 38	X 40	O X 24	X 28													X 126	X 135	X 130	X 110	X 76
13	X 55	X 52	X 52	X 52	X 52	X 28	X 30	X 42												X 68	X 78	X 83	X 74	X 58
14	X 52	X 42	X 41	X 42	X 33	O X 28	O X 30													X 95	X 98	X 107	X 81	X 62
15	X 54	X 50	X 55	X 41	X 30	O X 31	X 33													X 66	X 64	X 77	X 76	X 55
16	X 47	X 46	X 45	X 43	X 36	X 28	O X 28													X 86	X 94	X 90	X 76	X 36
17	X 36	X 36	X 35	X 42	X 40	X 31	X 31													X 69	X 68	X 69	X 53	X 50
18	X 43	X 38	X 44	X 47	X 37	O X 30	X 26												X 103	X 71	X 81	X 85	X 68	X 46
19	X 42	O X 42	O X 42	X 44	X 42	X 26	X 28													X 58	X 66	X 70	X 66	X 61
20	X 56	X 48	X 41	X 42	X 38	X 39	X 35													X 118	X 96	X 86	X 74	X 55
21	X 55	X 55	X 51	X 48	X 35	X 29	X 28													X 84	X 75	X 84	X 71	X 64
22	X 66	X 62	X 57	X 53	X 49	X 42	X 39												X 148	X 126	X 121	X 100	X 86	X 82
23	X 79	X 67	X 66	X 59	X 36	X 35	X 34													X 108	X 110	X 103	X 69	X 68
24	X 57	X 38	X 35	X 38	X 46	X 33	X 28												X 140	X 100	X 98	X 108	X 88	X 54
25	X 48	X 46	X 36	X 37	X 39	X 37	X 36													X 126	X 103	X 104	X 82	X 59
26	X 52	X 49	X 40	X 40	X 47	X 38	X 33													X 91	X 85	X 94	X 86	X 60
27	X 56	X 55	X 51	X 48	X 34	X 36	X 36												O X 153	X 139	X 114	O X 100	X 74	X 61
28	X 55	X 48	X 42	X 42	X 46	O X 38	X 34													X 70	X 68	X 77	X 72	X 58
29	X 50	X 46	X 43	X 40	X 40	X 40	X 38													X 102	X 91	X 99	X 93	X 84
30	X 62	X 56	X 52	X 48	X 41	X 35	X 38													X 96	X 83	X 94	X 80	X 70
31	X 61	X 55	X 48	X 44	X 48	X 33	X 35													X 82	X 74	X 74	X 72	X 68
	00	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	29	31	3											13	31	31	31	31	31
MED	X 52	X 46	X 45	X 44	X 40	X 33	X 33	X 45											X 114	X 91	X 92	X 90	X 74	X 58
U Q	X 56	X 55	X 52	X 48	X 46	X 36	X 35	X 45											X 140	X 108	X 100	X 100	X 81	X 68
L Q	X 44	X 42	X 41	X 40	X 36	X 29	X 28	X 42											X 108	X 77	X 75	X 83	X 70	X 49

JAN. 2014 fxI (0.1MHz)

IONOSPHERIC DATA STATION Okinawa

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

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

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

JAN. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

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	U L 512	L	L	L	L							
2											L	L	L	U L 540	L	L	L							
3												L	L	U L 576	L	L	L							
4											L	L	L	L	L 548	L								
5										L	L	L	L	U L 584	L	L	L							
6										L	L	L	L	L	L	L								
7											L		L	L	L	L	A							
8										L	A	L	L	L	L	L	L							
9											L	L	L	A	L	L	L							
10									L	L	L	L	L	L	L	L								
11									268			L	U L 500	L	L	L	L	L						
12										L	L	L	L	U L 528	L	L	L							
13											L	A	L	L	L	L	L							
14											U L 496	L	L	U L 576	U L 544	U L 544	L							
15										U L 372	L	U L 516	L	L	L	L								
16									L	L	L	U L 500	L	L	L	L	L							
17									L	L	L	L	L	L	L	L								
18									L	L	L	U L 492	L	L	L 520	L	L							
19										L	L	L	L	U L 512	U L 540	L	L							
20										L	L	U L 512	L	U L 528	L	L	L	L						
21										L	L	L	U L 512	L	U L 532	L	L							
22										L	L	U L 504	L	L	L	L	L	L						
23										L	L	U L 540	L	L	L	L	L							
24											L	U L 532	U L 532	L	L	L	L							
25										L	L	U L 500	L	U L 508	L	L	L							
26									264	L	L	L	U L 484	U L 532	L	L	L	L						
27									R 288			L	L	L	L	L	L	L						
28										L	L	L	L	L	U L 528	L	L							
29											L	L	U L 564	L	L	U L 556	L							
30										L	L	L	L	L	L	L								
31											L	L	U L 528	U L 576	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									3	1	1	8	7	10	6	2								
MED									268	U L 372	U L 496	U L 508	U L 512	U L 536	U L 536	U L 550								
U Q									R 288			U L 524	U L 532	U L 576	L 544									
L Q									264			U L 500	U L 500	U L 528	L 528									

JAN. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

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	U R 232	R	R	R	R	B	B	B	R	U R 220						
2								B	R	R	R	R	B	B	B	A	R 276	244						
3								A	R 252	R	B	B	B	B	B	B	R	A						
4						K 184			252	U R 288	A	R	B	B	A	A	A	U R 232						
5								B	R 256	B	B	B	B	B	A	R	R 288	252						
6									224	R	R	B	B	B	A	A	288	A						
7								B	R 240	R	R 292	A	A	B	A	A	A	244	A					
8								B	A	A	A	A	A	A	A	R 344	U R 324	A						
9								B	R	R 288	A	A	A	A	A	A	A	A						
10								B	B	R	A	A	A	A	A	A	R 308	A						
11								B	R 248	292	U R 316	B	R	A	A	R 344	300	B	B					
12								B	236	300	336	A	A	A	R	B	A	220	B					
13									216	R 288	U A 324	A	B	R	B	A	R 304	U R 244	A					
14								B	R 236	R 284	U R 332	R	R	B	B	R 344	316	B	B					
15								B	B	300	R 316	A	B	B	R	A	R 304	236	B					
16								B	240	288	U R 296	U R 308	A	B	A	R	A	244	A					
17								B	232	A	A	U R 352	R	B	R	R	A 300	236	A					
18								B	R 228	A	A	A	A	R 360	R	U R 328	R 312	228						
19							J K 136	B	204	R 268	R	B	A	R	R	A	R	R	B					
20								B	208	288	R	A	B	R	R	A	R	U R 256	B					
21								B	244	R 292	U A 328	A	A	A	A	R	R 292	A 216	B					
22								B	U R 216	U R 284	U R 312	R 308	A	A	A	R	284	J R 192						
23								B	220	R 292	R	A	A	A	A	R	308	A	A					
24								B	U R 216	R	336	R 352	A	A	R	A	308	252						
25								B	236	U R 296	A	R	A	R	R	B	292	244	A 156					
26								B	224	R 280	U R 292	R	R	R	R	A	A	R	B					
27								B	220	R 284	R	B	B	R	B	B	R	252						
28								B	248	R	B	R 344	B	B	R	356	R	A	B					
29								B	U R 232	R 288	U R 340	A	R	R	R	R 328	R	256	B					
30								B	224	R 272	B	U R 356	B	B	A	A	A	A	A					
31								B	U R 236	U R 284	B	B	B	B	B	B	328	R 268	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						1	1		26	19	12	6		1		6	17	19	1					
MED						K 184	J K 136		232	R 288	U R 320	R 348		R 360		R 344	304	244	A 156					
U Q									R 240	R 292	334	U R 352				344	R 310	252						
L Q									220	R 284	U R 304	R 308				R 328	290	228						

JAN. 2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

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 12	E B 11	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 26	G 32	G 27	G 33	E B 38	E B 38	E B 41	G 25	G	E B 14	E B 14	E B 15	23	19	19
2	18	E B 15	E B 15	E B 17	E B 16	E B 17	E B 16	E B 16	G	G	G	G	E B 46	E B 40	E B 40	J A 41	39	27	J A 19	25	24	24	E B 13	E B 13
3	E B 17	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	22	G	G	E B 40	E B 40	E B 42	E B 42	E B 42	E B 38	G 22	J A 24	32	30	20	E B 10	E B 11	E B 12
4	E B 12	E B 17	E B 17	19	18	K 18	E B 14	E B 14	G 22	G 22	42	G 34	46	E B 43	J A 42	47	J A 52	G 20	17	E B 12	E B 14	J A 15	30	E B 16
5	E B 13	E B 12	E B 12	E B 16	E B 16	E B 16	E B 17	E B 16	G	E B 39	E B 38	E B 40	E B 42	E B 43	42	G	G 24	26	J A 28	J A 28	27	17	E B 12	E B 12
6	E B 12	E B 12	E B 12	E B 12	E B 12	E B 15	E B 15	E B 16	25	G	G	E B 37	E B 40	E B 45	46	40	G J 20	A 48	J A 30	24	E B 16	E B 15	E B 14	E B 15
7	E B 15	E B 16	E B 17	E B 16	E B 14	E B 14	E B 14	E B 16	G	G	34	J A 50	51	E B 38	J A 44	J A 44	J A 64	J A 36	J A 21	20	24	J A 18	E B 17	E B 17
8	E B 17	E B 14	E B 14	E B 14	E B 13	E B 13	E B 16	E B 15	24	J A 41	J A 48	J A 48	J A 68	52	45	G 26	G	25	25	30	30	E B 12	E B 18	22
9	20	E B 15	E B 15	E B 15	J A 18	E B 15	E B 15	E B 15	G 17	G	J A 40	J A 42	J A 46	J A 58	47	46	35	23	J A 25	28	J A 22	E B 14	E B 14	E B 14
10	E B 14	E B 14	E B 14	E B 14	27	33	23	E B 15	E B 21	G 26	36	J A 40	J A 52	38	43	J A 45	G 24	43	J A 36	J A 32	J A 32	E B 15	E B 15	E B 15
11	E B 14	E B 14	E B 13	E B 13	E B 13	E B 13	E B 14	E B 15	G 22	G	G	E B 38	G 33	51	48	G 32	G	E B 24	E B 16	E B 16	E B 14	E B 14	E B 14	E B 15
12	E B 15	E B 14	24	E B 15	E B 16	E B 15	E B 15	E B 15	G	G	37	50	50	49	G 31	G 29	30	G	E B 16	J A 19	J A 16	17	J A 28	J A 32
13	E B 14	17	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	26	32	40	J A 56	E B 39	G 31	E B 36	36	G 28	G	J A 21	E B 14	E B 15	E B 15	20	E B 15
14	E B 15	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	G	G	34	G 34	G 34	E B 40	E B 40	G	G	E B 24	E B 15	20	19	E B 11	20	E B 11
15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 22	G	G	42	E B 41	E B 42	G	36	G 28	G	E B 14	J A 16	20	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	18	E B 14	G	G	38	40	46	42	43	44	40	34	25	E B 13	J A 15	J A 42	E B 12	E B 12
17	E B 11	E B 12	E B 12	22	E B 12	E B 12	E B 12	E B 12	G J 21	A 32	38	G	G E 35	B 42	G 34	G 29	35	28	J A 22	E B 14	E B 14	E B 14	E B 14	E B 14
18	E B 12	E B 12	E B 12	E B 12	E B 13	E B 16	E B 16	E B 14	G	35	35	35	35	G 33	G 32	35	G	28	24	J A 20	J A 20	30	E B 12	E B 12
19	E B 21	E B 15	E B 15	E B 14	E B 14	E B 14	J K 14	J A 13	27	G	G	E B 41	48	45	G	45	37	G 22	E B 18	E B 14	J A 18	17	19	19
20	E B 14	25	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	25	G	G	42	E B 40	G 26	G	36	G 24	G	E B 18	E B 14	E B 15	J A 21	E B 12	E B 12
21	E B 14	E B 14	E B 16	E B 15	E B 15	E B 14	E B 14	J A 15	27	G 27	J A 47	51	J A 47	J A 58	J A 62	G 27	G 26	26	18	J A 16	31	E B 17	20	J A 18
22	E B 13	E B 14	23	22	22	22	E B 13	E B 14	24	G	G	38	38	50	35	G 31	G 26	G	25	26	J A 23	E B 14	J A 37	19
23	E B 16	E B 16	E B 16	E B 13	E B 12	E B 12	E B 14	E B 14	G	G	G	44	52	50	44	G 27	G J 27	A 61	J A 52	J A 29	20	E B 10	E B 12	E B 12
24	E B 12	E B 12	E B 13	E B 12	E B 15	E B 15	E B 15	E B 13	G	G	G 32	G	44	43	G 33	G 44	G 25	28	19	E B 13	E B 16	E B 15	22	22
25	E B 13	E B 13	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	24	G 26	36	G 35	36	G 33	G E 27	B 38	G 25	G	20	23	23	E B 14	E B 14	E B 15
26	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	25	G	32	G 24	G 27	35	44	36	35	G 26	E B 18	E B 20	E B 16	E B 16	E B 14	E B 14
27	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15	25	G	G	E B 40	44	42	E B 39	34	26	30	20	25	J A 23	J A 19	18	19
28	18	E B 14	18	23	23	17	18	E B 15	G 20	G 24	E B 40	G	44	E B 38	G	G	G 29	26	E B 17	E B 14	E B 17	E B 15	E B 15	E B 17
29	E B 16	E B 16	E B 16	E B 16	E B 15	18	E B 15	E B 15	G	G	G J 28	A 43	G 34	G 34	G 34	G	G	G	22	22	22	17	E B 14	E B 17
30	E B 14	E B 13	23	E B 12	E B 14	E B 14	E B 14	J A 13	G	G	E B 40	G	E B 43	E B 44	J A 44	44	J A 42	26	18	J A 28	J A 23	E B 13	J A 16	E B 14
31	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15	26	34	E B 41	E B 41	E B 40	E B 42	E B 41	E B 41	G	G 23	E B 19	E B 19	27	18	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	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 15	E B 15	E B 15	G	G	E G 35	39	42	41	40	35	G	G	20	20	20	E B 15	E B 14	E B 15
U Q	E B 16	E B 16	16	16	16	16	E B 16	E B 15	25	G	40	J A 42	46	45	44	44	35	28	J A 25	26	23	18	19	18
L Q	E B 13	E B 13	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G	G	G 36	G 38	G	G	G 25	25	E B 18	E B 14	E B 16	E B 14	E B 14	E B 13

JAN. 2014 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

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 12	E B 11	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	U G 25	U G 32	U G 25	U G 33	E B 38	E B 38	E B 41	G 25	G	E B 14	E B 14	E B 15	22	15	16
2	16	E B 15	E B 15	E B 17	E B 16	E B 17	E B 16	E B 16	G	G	G	G	E B 46	E B 40	E B 40	37	37	26	E B 14	E B 16	17	17	E B 13	E B 13
3	E B 17	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	E B 15	G	G	E B 40	E B 40	E B 42	E B 42	E B 42	E B 38	U G 22	22	22	20	18	E B 10	E B 11	E B 12
4	E B 12	E B 17	E B 17	E B 17	E B 17	K 18	E B 14	E B 14	G 18	G 20	40	U G 32	E B 42	E B 43	41	41	39	G 19	17	E B 12	E B 14	E B 16	25	E B 16
5	E B 13	E B 12	E B 12	E B 16	E B 16	E B 16	E B 17	E B 16	G	E B 39	E B 38	E B 40	E B 42	E B 43	38	G	G 22	G 23	21	20	20	E B 12	E B 12	E B 12
6	E B 12	E B 12	E B 12	E B 12	E B 12	E B 15	E B 15	E B 16	24	G	G	E B 37	E B 40	E B 45	32	33	G 18	24	23	E B 15	E B 16	E B 15	E B 14	E B 15
7	E B 15	E B 16	E B 17	E B 16	E B 14	E B 14	E B 14	E B 16	G	G	33	46	44	E B 38	42	40	55	29	20	E B 17	E B 16	E B 18	E B 17	E B 17
8	E B 17	E B 14	E B 14	E B 14	E B 13	E B 13	E B 16	E B 15	21	35	47	41	44	44	43	G 26	G	22	20	21	20	E B 12	E B 18	20
9	E B 15	E B 15	E B 15	E B 15	15	E B 15	E B 15	E B 15	U G 17	G	34	38	38	53	38	38	32	22	18	17	17	E B 14	E B 14	E B 14
10	E B 14	E B 14	E B 14	E B 14	17	A A 33	21	E B 15	E B 21	U G 26	34	36	37	U Y 36	38	38	G 22	25	27	24	24	E B 15	E B 15	E B 15
11	E B 14	E B 14	E B 13	E B 13	E B 13	E B 13	E B 14	E B 15	G 21	G	G	E B 38	U G 33	38	39	G 31	G	E B 24	E B 16	E B 16	E B 14	E B 14	E B 14	E B 15
12	E B 15	E B 14	E B 14	E B 15	E B 16	E B 15	E B 15	E B 15	G	G	36	37	39	39	U G 31	U G 28	27	G	E B 16	E B 16	E B 14	E B 14	17	28
13	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	24	G 28	37	42	E B 39	U G 31	E B 36	35	G 24	G	16	E B 14	E B 15	E B 15	E B 15	E B 15
14	E B 15	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	G	G	34	U G 34	U G 32	E B 40	E B 40	G	G	E B 24	E B 15	17	12	E B 11	11	E B 11
15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 22	G	G	36	E B 41	E B 42	G	U Y 35	G 27	G	E B 14	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	16	E B 14	G	G	38	38	44	40	41	42	37	33	24	E B 13	E B 13	26	E B 12	E B 12
17	E B 11	E B 12	E B 12	16	E B 12	E B 12	E B 12	E B 12	G 16	27	U Y 35	G	U G 34	E B 42	U G 33	U G 28	30	26	16	E B 14	E B 14	E B 14	E B 14	E B 14
18	E B 12	E B 12	E B 12	E B 12	E B 13	E B 16	E B 16	E B 14	G	28	U Y 32	U Y 34	U Y 34	G 32	U Y 32	G 32	G	25	20	20	20	22	E B 12	E B 12
19	E B 21	E B 15	E B 15	E B 14	E B 14	E B 14	K 14	E B 16	25	G	G	E B 41	46	43	G	41	34	U G 22	E B 18	E B 14	E B 14	E B 14	16	E B 14
20	E B 14	18	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	G	G	38	E B 40	U G 26	G	28	U G 22	G	E B 18	E B 14	E B 15	18	E B 12	E B 12
21	E B 14	E B 14	E B 16	E B 15	E B 15	E B 14	E B 14	E B 15	26	G 25	35	38	39	39	39	U G 27	G 25	25	15	11	20	E B 17	18	E B 16
22	E B 13	E B 14	E B 16	18	18	18	E B 13	E B 14	G 21	G	G	36	U Y 35	35	U Y 34	G 30	G 24	G	22	20	20	E B 14	20	E B 16
23	E B 16	E B 16	E B 16	E B 13	E B 12	E B 12	E B 14	E B 14	G	G	G	41	42	42	41	U G 26	G 23	23	30	18	E B 14	E B 10	E B 12	E B 12
24	E B 12	E B 12	E B 13	E B 12	E B 15	E B 15	E B 15	E B 13	G	G	G 16	G	35	38	U G 33	38	G 22	26	18	E B 13	E B 16	E B 15	E B 15	16
25	E B 13	E B 13	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G 23	G 23	33	U Y 32	36	U G 33	U G 26	E B 38	G 23	G	18	19	E B 14	E B 14	E B 14	E B 15
26	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	24	G	U Y 30	U G 24	G 26	U Y 34	42	U G 33	34	U G 26	E B 18	E B 20	E B 16	E B 16	E B 14	E B 14
27	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15	23	G	G	E B 40	42	40	E B 39	U Y 34	24	28	17	16	19	18	16	17
28	17	E B 14	E B 15	16	E B 15	E B 16	18	E B 15	G 18	G 20	E B 40	G	43	E B 38	G	G	U G 28	24	E B 17	E B 14	E B 17	E B 15	E B 15	E B 17
29	E B 16	E B 16	E B 16	E B 16	E B 15	18	E B 15	E B 15	G	G	G 24	37	U G 32	U G 33	U G 34	G	G	G	19	18	18	15	E B 14	E B 17
30	E B 14	E B 13	E B 12	E B 12	E B 14	E B 14	E B 14	E B 14	G	G	E B 40	G	E B 43	E B 44	41	40	40	U Y 25	18	25	19	E B 13	E B 14	E B 14
31	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15	U Y 26	U Y 34	E B 41	E B 41	E B 40	E B 42	E B 41	E B 41	G	G 20	E B 19	E B 19	25	16	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	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 15	E B 15	E B 15	G	G	E G 33	E G 37	38	38	E G 38	E G 34	G 28	25	18	E B 16	E B 16	E B 15	E B 14	E B 15
U Q	E B 15	E B 15	E B 16	E B 16	E B 15	16	E B 16	E B 15	G	G	E B 38	40	42	42	41	38	32	G	20	20	19	17	16	16
L Q	E B 13	E B 13	E B 13	E B 14	E B 14	E B 14	E B 14	E B 14	G 21	G 28	G	G	U G 35	U G 36	G	G 31	G 23	23	E B 16	E B 14	E B 14	E B 14	E B 13	E B 13

JAN. 2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

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	12	11	14	14	14	14	14	14	17	16	25	22	24	38	38	41	21	19	14	14	15	15	15	16
2	15	15	15	17	16	17	16	16	16	17	18	20	46	40	40	20	16	17	14	16	12	13	13	13
3	17	16	16	16	15	16	16	15	15	16	40	40	42	42	42	38	19	17	16	17	10	10	11	12
4	12	17	17	17	17	14	14	14	14	14	20	25	42	43	25	26	22	18	12	12	14	16	15	16
5	13	12	12	16	16	16	17	16	16	39	38	40	42	43	24	22	16	14	14	13	12	12	12	12
6	12	12	12	12	12	15	15	16	16	16	17	37	40	45	31	24	18	17	13	15	16	15	14	15
7	15	16	17	16	14	14	14	16	15	16	16	30	30	38	30	28	20	18	16	17	16	18	17	17
8	17	14	14	14	13	13	16	15	18	17	18	19	24	30	26	19	20	20	16	11	12	12	18	15
9	15	15	15	15	14	15	15	15	14	14	14	22	24	24	28	28	24	20	16	14	14	14	14	14
10	14	14	14	14	14	15	15	15	21	24	24	24	27	27	28	23	20	17	16	18	14	15	15	15
11	14	14	13	13	13	13	14	15	19	19	22	38	29	27	26	26	25	24	16	16	14	14	14	15
12	15	14	14	15	16	15	15	15	15	15	15	26	30	30	30	24	20	16	16	16	14	14	14	14
13	14	14	14	14	15	15	15	15	15	15	15	21	39	25	36	20	20	17	14	14	15	15	15	15
14	15	16	16	16	15	15	15	15	16	17	19	19	28	40	40	22	21	24	15	12	11	11	11	11
15	14	14	14	14	14	14	14	14	22	22	21	23	41	42	29	25	24	12	14	14	14	14	14	14
16	14	14	14	14	14	14	14	14	14	14	17	20	22	28	24	31	19	18	15	13	13	12	12	12
17	11	12	12	12	12	12	12	12	12	13	21	23	25	42	24	20	20	14	15	14	14	14	14	14
18	12	12	12	12	13	16	16	14	14	14	18	18	33	24	24	24	22	19	15	12	12	12	12	12
19	21	15	15	14	14	14	14	16	15	14	18	41	34	27	20	29	24	15	18	14	14	14	14	14
20	14	14	13	13	13	13	13	13	13	13	16	15	40	24	28	21	19	19	18	14	15	10	12	12
21	14	14	16	15	15	14	14	15	15	15	22	30	30	36	25	19	19	19	13	11	11	17	16	16
22	13	14	16	16	14	14	13	14	14	14	19	20	23	25	26	22	22	17	16	14	14	14	16	16
23	16	16	16	13	12	12	14	14	14	14	22	22	23	34	30	18	16	16	14	14	14	10	12	12
24	12	12	13	12	15	15	15	13	17	17	18	18	22	26	29	22	15	15	12	13	16	15	15	15
25	13	13	14	14	14	14	14	14	13	15	17	22	26	24	22	38	18	16	14	14	14	14	14	15
26	15	15	15	15	15	15	15	15	15	18	19	18	19	20	19	22	20	20	18	20	16	16	14	14
27	14	14	14	14	14	15	15	15	18	17	17	40	38	25	39	24	19	18	15	16	16	12	12	12
28	14	14	15	15	15	16	17	15	15	16	40	22	40	38	32	27	20	22	17	14	17	15	15	17
29	16	16	16	16	15	15	15	15	16	16	16	31	31	29	29	21	21	20	18	14	14	14	14	17
30	14	13	12	12	14	14	14	14	14	15	40	28	43	44	36	30	28	20	14	16	13	13	14	14
31	14	14	14	14	14	15	15	15	13	17	41	41	40	42	41	41	22	15	19	19	14	14	14	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	14	14	14	14	14	15	15	15	15	16	19	23	30	30	29	24	20	18	15	14	14	14	14	14
U Q	15	15	16	16	15	15	15	15	16	17	22	31	40	42	36	28	22	20	16	16	15	15	15	15
L Q	13	13	13	13	14	14	14	14	14	14	17	20	24	25	25	21	19	16	14	13	13	12	12	12

IONOSPHERIC DATA STATION Okinawa

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

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

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	297	300	289	R 307	332	346	322	309	349	328	338	327	311	R	R 332	323	329	334	R 335	R 335	337	305	306	R
2	291	R	293	R	R 325	287	299	R	354	345	356	332	U Y 325	R	318	R 303	332	323	301	324	329	329	316	305
3	297	R	R 296	322	392	261	307	R 349	362	337	323	336	R 300	296	319	R	R	318	334	335	335	323	328	J R 203
4	271	U R 298	295	295	U R 302	278	325	R	328	R	340	315	324	J R 331	U R 324	U R 335	U R 337	R 337	336	345	341	347	325	325
5	295	R 303	299	306	332	286	286	R 308	353	345	341	R 312	311	R	R	U R 316	324	332	335	337	R 311	346	368	317
6	304	301	299	R 345	R 362	R	304	R 294	356	351	345	326	330	311	U R 330	295	314	330	348	323	343	378	347	R
7	284	286	299	329	322	301	318	308	347	344	R 323	333	316	310	322	320	315	354	320	331	314	315	347	291
8	295	310	333	292	296	345	298	303	351	345	362	R 317	R	U R 316	U R 315	R	J R 316	326	331	R 338	349	R 320	323	309
9	R 298	R 298	R	R	345	369	341	323	352	334	U R 342	346	342	R 310	310	319	313	320	314	U R 330	324	323	362	327
10	293	287	300	321	315	A	302	R	356	R	353	341	312	301	295	305	R 309	318	R 338	330	R	R	346	303
11	R 293	U R 277	289	295	334	U R 362	314	321	357	350	328	337	321	327	325	320	331	324	331	R 315	326	352	336	296
12	R 317	319	318	325	342	U R 332	278	297	358	363	362	335	326	321	309	310	318	R	R	U R 352	R	R 335	R 319	315
13	R 314	282	302	324	R	R	345	315	361	353	329	327	325	R 342	311	311	R 307	321	341	320	310	341	340	320
14	329	305	309	356	351	299	305	303	347	330	352	R 320	R	J R 376	U R 336	309	318	323	337	327	322	R 337	343	314
15	277	R 296	343	360	423	299	R 273	305	367	352	336	299	U R 322	R 317	R 304	309	323	333	334	343	305	323	346	348
16	320	302	303	326	347	346	305	311	350	362	331	330	323	316	318	309	321	U R 345	337	325	328	R 338	342	298
17	290	290	290	R 274	336	362	333	303	R 349	356	341	336	R 319	R 324	R 335	R 322	332	344	328	R 333	330	324	330	316
18	311	270	326	326	414	331	303	R 290	333	331	R	338	R 324	313	R 318	319	330	332	357	375	312	338	343	R
19	297	U R 296	R 353	342	343	438	R 318	321	353	364	347	338	324	R 325	324	327	330	341	354	299	301	330	332	R
20	315	R 309	303	298	323	329	346	305	349	365	378	R	U Y 320	U Y 306	R	U Y 316	U R 325	324	327	357	328	351	351	311
21	292	308	337	337	411	286	303	323	342	R 350	355	328	315	327	U R 324	307	311	324	329	329	299	310	R	287
22	299	R 317	295	305	307	322	315	R 305	353	327	324	R 307	U R 325	R	U R 315	U R 307	U R 331	R 345	332	322	335	R 330	320	308
23	307	319	326	R 306	R 358	300	289	R 309	347	340	328	311	R	R 330	U R 334	U R 334	R	U R 350	U R 339	R	R	348	318	325
24	336	325	298	290	325	384	307	309	356	U R 376	361	347	301	R 310	U R 321	U R 341	U R 351	U R 348	J R 348	328	303	R 317	341	317
25	316	R 316	332	291	324	332	331	322	R 332	336	R 333	R 338	R	R	R	U Y 356	R 321	R 331	317	330	313	330	337	303
26	305	307	293	294	R 332	357	315	316	355	351	348	342	337	306	327	309	323	316	330	318	308	327	346	322
27	307	J R 305	R 333	357	343	281	297	R 340	350	327	330	335	311	R 309	322	U R 337	R	R	U R 343	R	332	325	320	299
28	309	325	324	320	324	R 343	324	296	354	353	350	325	333	326	316	324	331	339	348	340	318	334	329	329
29	275	R 274	R 289	278	300	303	280	R 302	339	334	318	309	R 324	315	301	303	321	318	326	330	R	317	308	326
30	323	295	311	322	348	312	286	R 273	341	347	R 326	332	331	R 307	R 312	R 308	309	321	324	326	291	325	344	326
31	308	313	R 323	R 318	R 345	314	303	297	320	351	U R 345	339	R 344	310	U R 316	R 317	345	327	333	333	328	310	314	321
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	29	30	29	30	28	31	28	31	29	30	30	27	26	28	29	28	29	30	29	27	30	30	27
MED	299	302	302	320	335	326	305	308	351	347	341	332	324	316	318	316	323	330	334	330	324	330	336	315
U Q	314	312	326	328	348	346	322	318	356	353	352	338	326	R 326	R U 324	324	331	340	339	338	332	338	346	325
L Q	293	292	295	295	324	299	298	302	347	335	329	320	315	310	314	308	316	322	328	324	310	323	320	303

JAN. 2014 M(3000)F2 (0.01)

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

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

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	U L 365	L	L	L	L							
2											L	L	L	U L 345	L	L	L							
3												L	L	U L 347	L	L	L							
4											L	L	L	L	L 365	L								
5										L	L	L	L	U L 332	L	L	L							
6										L	L	L	L	L	L	L								
7											L		L	L	L	L	A							
8										L	A	L	L	L	L	L	L							
9											L	L	L	A	L	L	L							
10									L	L	L	L	L	L	L	L								
11									430			L	U L 395	L	L	L	L	L						
12										L	L	L	L	U L 374	L	L	L							
13											L	A	L	L	L	L	L							
14											U L 398	L	L	U L 343	U L 361	U L 361	L							
15										U L 382	L	U L 372	L	L	L	L								
16									L	L	L	U L 384	L	L	L	L	L							
17									L	L	L	L	L	L	L	L								
18									L	L	L	U L 378	L	L	L 359	L	L							
19										L	L	L	L	U L 365	U L 386	L	L							
20										L	L	U L 388	L	U L 376	L	L	L	L						
21										L	L	L	U L 379	L	U L 365	L	L							
22										L	L	U L 395	L	L	L	L	L	L						
23										L	L	U L 368	L	L	L	L	L							
24											L	U L 374	U L 374	L	L	L	L							
25										L	L	U L 400	L	U L 395	L	L	L							
26									418	L	L	L	U L 415	U L 365	L	L	L	L						
27									R 441			L	L	L	L	L	L	L						
28										L	L	L	L	L	U L 354	L	L							
29											L	L	U L 356	L	L	U L 351	L							
30										L	L	L	L	L	L	L								
31											L	L	U L 371	U L 351	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									3	1	1	8	7	10	6	2								
MED									430	U L 382	U L 398	U L 381	U L 374	U L 358	U L 363	U L 356								
U Q									R 441			U L 392	U L 395	U L 374	U L 365									
L Q									418			U L 373	U L 365	U L 345	L 359									

JAN. 2014 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Okinawa

JAN. 2014 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	280	280	272	262	260							
2											240	246	268	268	268	268	262							
3												260	258	290	284	268	238							
4											238	252	258	262	290	284								
5										238	238	258	260	274	274	274	274							
6										248	248	250	250	270	284	284								
7											276		276	276	276	270	270							
8										246	238	238	288	298	298	298	280							
9											248	248	248	278	278	278	258							
10									222	230	232	238	244	272	288	288								
11									230			250	256	276	276	276	242	242						
12										224	224	252	260	264	278	280	258							
13											268	260	260	258	268	268	268							
14											236	258	272	272	272	278	278							
15										236	238	296	276	262	262	262								
16									244	236	236	252	244	268	268	268	266							
17									250	244	244	248	254	270	252	252								
18									260	260	246	246	246	262	262	262	256							
19										250	250	252	260	260	260	260	256							
20										244	236	242	276	284	280	280	270	232						
21										232	232	244	256	260	282	282	260							
22										246	248	266	282	282	282	284	274	248						
23										232	234	278	266	262	262	272	272							
24											240	240	264	264	264	264	256							
25										230	250	250	250	260	260	260	266							
26									232	232	234	238	238	298	242	258	258	248						
27									238			238	270	272	272	266	270	260						
28										246	246	256	256	256	270	270	254							
29											258	266	266	266	282	278	240							
30										242	254	242	252	268	268	272								
31											256	240	240	296	266	266	244							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									7	19	28	30	31	31	31	31	25	5						
MED									238	242	242	250	260	270	272	270	260	248						
U Q									250	246	250	258	270	278	282	280	270	254						
L Q									230	232	236	242	250	262	264	264	256	237						

JAN. 2014 h'F2 (KM)

IONOSPHERIC DATA STATION Okinawa

JAN. 2014 h′F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	314	346	338	306	246	E B 306	260	266	238	234	234	232	206	206	B 220	B 246	220	220	208	208	208	212	212	260
2	282	282	282	226	226	240	314	308	234	234	234	234	B 256	B 226	228	228	234	224	222	222	220	220	220	220
3	250	310	310	246	222	E B 432	290	236	226	226	236	236	210	230	B 258	B 258	228	228	222	218	218	220	222	268
4	306	B 320	320	316	312	348	234	252	252	252	248	230	E A 244	240	242	242	242	232	220	214	216	216	244	244
5	264	284	284	274	256	278	316	312	222	E B 222	B 222	220	220	220	232	232	232	226	216	216	230	224	216	272
6	278	278	274	252	206	204	338	294	242	242	242	228	228	E B 252	208	230	234	234	224	224	224	200	182	226
7	322	334	334	298	254	254	262	262	224	224	224	244	234	234	234	E A 246	A	226	214	214	216	216	216	244
8	292	274	260	260	276	260	296	296	250	E A 242	A	214	A 258	A 258	A 240	240	242	238	220	220	216	216	220	242
9	252	264	264	240	240	240	258	256	220	220	230	230	A 242	A	A 228	A 250	250	234	226	220	220	220	214	214
10	244	274	276	272	256	A	A 334	244	230	230	230	A 232	232	222	222	222	228	234	230	226	226	220	200	220
11	292	306	298	266	242	238	292	266	E A 230	230	230	230	222	A 248	248	210	210	210	210	210	210	210	210	238
12	292	292	288	254	254	310	342	298	236	236	236	A 232	A 232	230	Y 230	230	230	230	224	212	224	212	212	234
13	258	270	270	266	208	342	288	278	234	232	A 234	A	224	228	B 228	228	228	228	224	224	230	224	224	234
14	234	260	310	240	240	290	290	290	244	244	226	226	226	224	224	224	234	234	218	218	230	216	212	224
15	276	276	240	240	178	310	310	304	218	218	218	212	E B 254	E B 254	Y 224	224	224	224	220	220	220	230	226	226
16	228	242	242	242	242	242	324	278	234	234	228	226	226	H 218	230	A 234	234	234	218	218	218	220	218	230
17	278	292	292	272	244	244	256	258	H 218	218	Y 218	218	Y 236	Y 242	Y 242	226	226	226	222	222	222	222	228	232
18	248	300	300	234	188	290	324	306	248	248	Y 248	216	220	220	220	220	232	232	226	218	258	242	242	242
19	318	270	270	248	234	198	376	272	244	244	Y 216	B 228	E A 256	A 230	230	A 230	230	230	214	206	242	226	224	224
20	270	270	270	272	268	248	248	254	244	240	240	218	222	204	216	216	216	218	218	204	204	204	204	224
21	262	262	254	252	186	294	294	266	238	238	238	230	A 228	228	A 228	Y 238	236	236	212	212	214	214	218	262
22	262	240	246	246	248	248	248	250	240	230	214	214	234	234	234	214	232	234	222	222	222	222	232	244
23	244	244	242	242	232	320	320	288	242	230	228	228	A 244	226	226	214	214	222	220	220	220	216	216	226
24	226	228	276	276	258	216	B 306	262	232	232	232	206	206	206	Y 234	234	234	234	204	204	212	214	214	222
25	272	264	238	298	268	260	260	260	244	244	244	206	206	214	214	224	214	216	216	216	216	216	216	216
26	270	270	294	298	260	232	268	268	206	206	Y 224	Y 206	Y 214	214	222	222	222	228	228	226	226	228	218	218
27	250	250	250	236	236	344	312	242	180	218	246	B 228	A 232	232	232	Y 236	224	224	216	216	216	214	214	248
28	268	268	262	278	272	248	248	278	234	234	234	230	B 236	234	220	236	Y 232	232	220	208	220	222	222	222
29	294	296	282	318	286	286	312	296	240	236	238	228	220	220	220	220	220	226	226	206	206	212	218	218
30	246	282	282	246	236	258	294	294	238	240	238	232	B 248	226	226	226	226	226	204	220	254	246	236	236
31	246	246	246	252	246	266	268	276	244	244	236	236	208	212	212	232	232	232	218	218	218	224	224	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	31	31	31	31	31	30	31	31	31	31	30	30	31	30	31	31	30	31	31	31	31	31	31	31
MED	268	274	276	254	244	258	294	272	236	234	234	228	227	226	228	229	230	228	220	218	220	220	218	232
U Q	292	292	294	276	258	306	316	294	244	242	238	232	A 242	234	234	236	234	234	224	220	226	224	224	244
L Q	248	262	254	242	232	242	260	258	226	226	226	218	220	220	220	222	224	224	216	212	216	214	214	222

JAN. 2014 h′F (KM)

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JAN. 2014 h′E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	156	A	A	A	A	B	B	B	A	120						
2								B	164	114	112	110	B	B	B		110	110						
3									110	110	B	B	B	B	B	B	A	A						
4						K 204			A 140	120	A	A	B	B				122						
5								B	112	B	B	B	B	B	A	116	116	116						
6									116	116	116	B	B	B	A		116	A						
7								B	116	116	114	A	A	B	A	A	A	114						
8								B	A	A	A	A	A	A	A	114	114							
9								B	A	110	A	A	A	A	A	A	A	A						
10								B	B	A 118	A	A	A	A	A	A	118							
11								B	A	118	118	B	A	A	A	118	118	B	B					
12								B	118	114	112	A	A	A	A	A		112	B					
13									112	112	112	A	B	A	B	A	112	112	A					
14								B	116	116	116	A	A	B	B	116	116	B	B					
15								B	B	118	118	A	B	B	118		118	118	B					
16								B	118	118	118	118		B	A	A	A	118	A					
17								B	118	A		118	A	B	A	A	A	118						
18								B	112	A	A	A		112	A	112	112	112						
19							B	B	112	112	112	B	A	112	112	A	112	A	B					
20								B	112	112	104	A	B	104	104	A	A	110	B					
21								B	110	124	124			A		A	120	A	B					
22								B	120	120	110	110		A		A	110	110						
23								B	110	110	110	A		A		A	110	A						
24								B	128	102	118	114	A		A		114	114						
25								B	120	120	A	A		A	A	B	120	120						
26								B	132	110	110	A	108	108	A	A	A	A	B					
27								B	116	110	110	B	B	110	B		110	110						
28								B	124	114	B	114	B	B	114	114	A		B					
29								B	114	114	114	A	A	A	A	112	112	112	B					
30								B	118	118	B	118	B	B	A	A	A		A					
31								B	118	118	B	B	B	B	B	B	118	116	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						1			26	26	18	7	1	5	4	7	19	18						
MED						K 204			117	115	113	114	108	110	113	114	114	114						
U Q									120	118	118	118		112	116	116	118	118						
L Q									112	112	110	110		106	108	112	112	112						

JAN. 2014 h′E (KM)

IONOSPHERIC DATA STATION Okinawa

JAN. 2014 h′Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	B	G	104	112	112	112	B	B	B	112	G	B	B	B	102	102	94
2	92	B	B	B	B	B	B	B	G	G	G	G	B	B	B	92	188	188	108	108	98	96	B	B
3	B	B	B	B	B	B	B	96	G	G	B	B	B	B	B	B	96	96	94	94	94	B	B	B
4	B	B	B	94	94	K 202	B	B	122	112	112	112	112	B	110	110	108	112	112	B	B	108	108	B
5	B	B	B	B	B	B	B	B	G	B	B	B	B	B	102	G	102	148	100	100	100	100	B	B
6	B	B	B	B	B	B	B	B	144	G	G	B	B	B	110	110	108	108	108	108	B	B	B	B
7	B	B	B	B	B	B	B	B	G	G	124	112	112	B	112	106	102	118	116	114	114	100	B	B
8	B	B	B	B	B	B	B	B	120	112	110	110	102	102	102	102	G	118	98	98	98	B	B	98
9	96	B	B	B	96	B	B	B	112	G	114	114	114	108	108	108	108	108	108	104	104	B	B	B
10	B	B	B	B	102	92	92	B	B	108	108	108	108	108	108	108	108	104	104	104	96	B	B	B
11	B	B	B	B	B	B	B	B	126	G	G	B	122	112	112	112	G	B	B	B	B	B	B	B
12	B	B	100	B	B	B	B	B	G	G	122	118	114	114	114	108	108	G	B	126	118	118	112	98
13	B	94	B	B	B	B	B	B	144	142	126	118	B	110	B	108	108	G	108	B	B	B	102	B
14	B	B	B	B	B	B	B	B	G	G	114	114	114	B	B	G	G	B	B	86	84	B	84	B
15	B	B	B	B	B	B	B	B	B	G	G	114	B	B	G	114	114	G	B	108	108	B	B	B
16	B	B	B	B	B	B	98	B	G	G	102	104	104	104	104	188	182	154	152	B	94	94	B	B
17	B	B	B	94	B	B	B	B	110	110	110	G	110	B	110	110	176	170	116	B	B	B	B	B
18	B	B	B	B	B	B	B	B	G	110	110	110	110	110	112	112	G	144	134	102	102	102	B	B
19	B	B	B	B	B	B	B	160	160	G	G	B	136	136	G	118	118	116	B	B	104	104	104	104
20	B	96	B	B	B	B	B	B	160	G	G	110	B	104	G	96	108	G	B	B	B	108	B	B
21	B	B	B	B	B	B	B	126	138	120	120	116	116	108	108	108	108	142	124	124	110	B	100	100
22	B	B	100	100	100	98	B	B	190	G	G	114	114	106	106	106	106	G	106	104	148	B	102	102
23	B	B	B	B	B	B	B	B	G	G	G	112	112	112	112	98	98	98	98	98	98	B	B	B
24	B	B	B	B	B	B	B	B	G	G	98	G	98	98	98	98	98	224	100	B	B	B	100	100
25	B	B	B	B	B	B	B	B	166	110	110	110	110	110	108	B	108	G	178	86	104	B	B	B
26	B	B	B	B	B	B	B	B	190	G	114	100	100	106	150	100	100	112	B	B	B	B	B	B
27	B	B	B	B	B	B	B	B	156	G	G	B	132	128	B	128	120	202	160	104	104	104	104	100
28	100	B	100	100	100	100	94	B	122	112	B	G	112	B	G	G	112	112	B	B	B	B	B	B
29	B	B	B	B	B	96	B	B	G	G	96	108	108	108	108	G	G	G	98	96	96	96	B	B
30	B	B	110	B	B	B	B	100	G	G	B	G	B	B	104	104	104	104	104	102	98	B	98	B
31	B	B	B	B	B	B	B	B	188	184	B	B	B	B	B	B	G	100	B	B	98	94	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	3	2	4	4	5	5	3	4	16	11	17	19	22	18	20	23	25	21	21	19	21	13	11	8
MED	96	95	100	97	100	98	94	113	144	112	112	112	112	108	108	108	108	116	108	104	100	102	102	100
U Q	100		105	100	101	151	98	143	163	120	117	114	114	112	112	112	113	151	120	108	106	106	104	101
L Q	92		100	94	95	94	92	98	122	110	109	110	108	106	105	102	103	106	100	98	97	96	100	98

IONOSPHERIC DATA STATION Okinawa

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

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

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

JAN. 2014 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

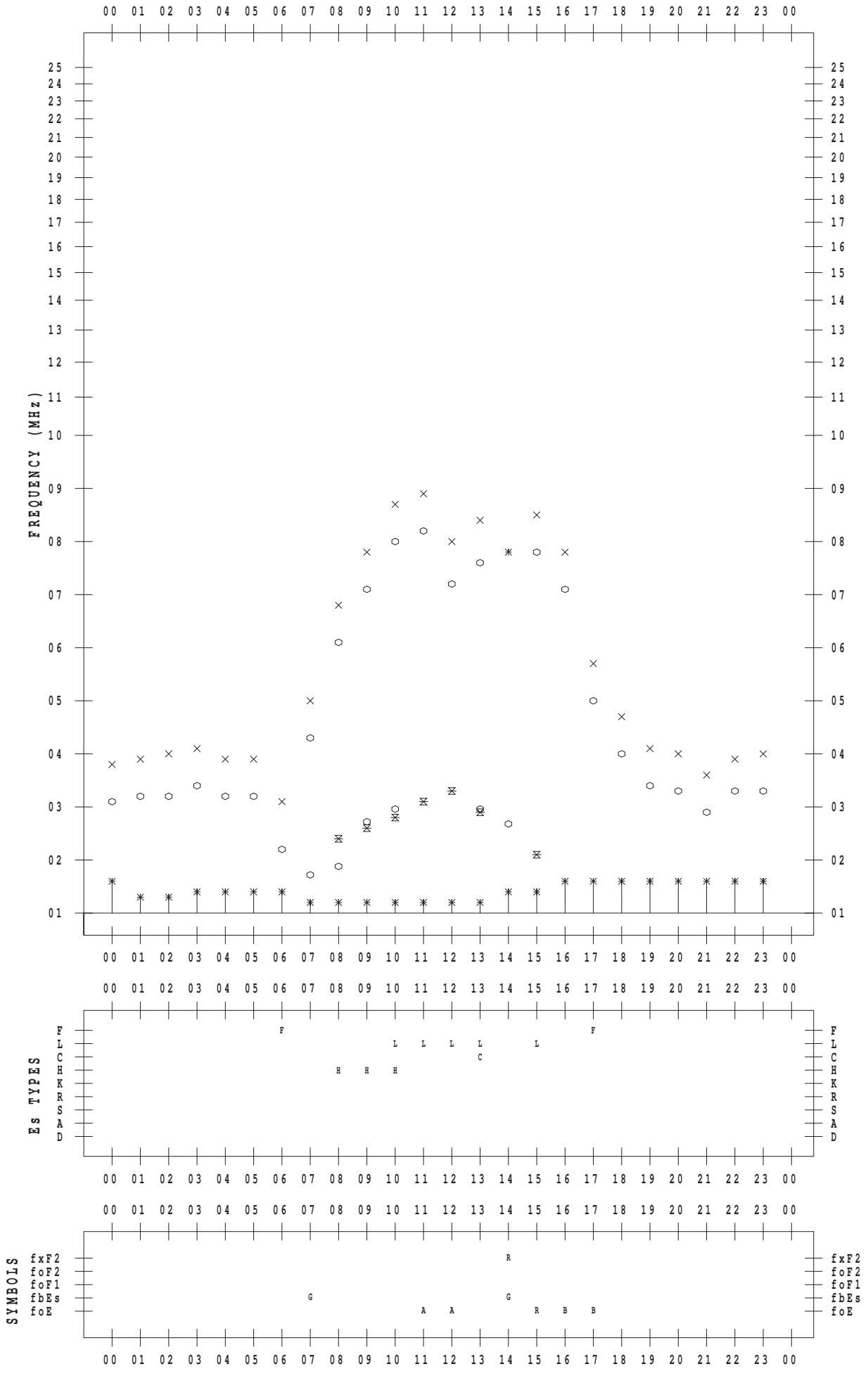
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/ 1

135 °E MEAN TIME



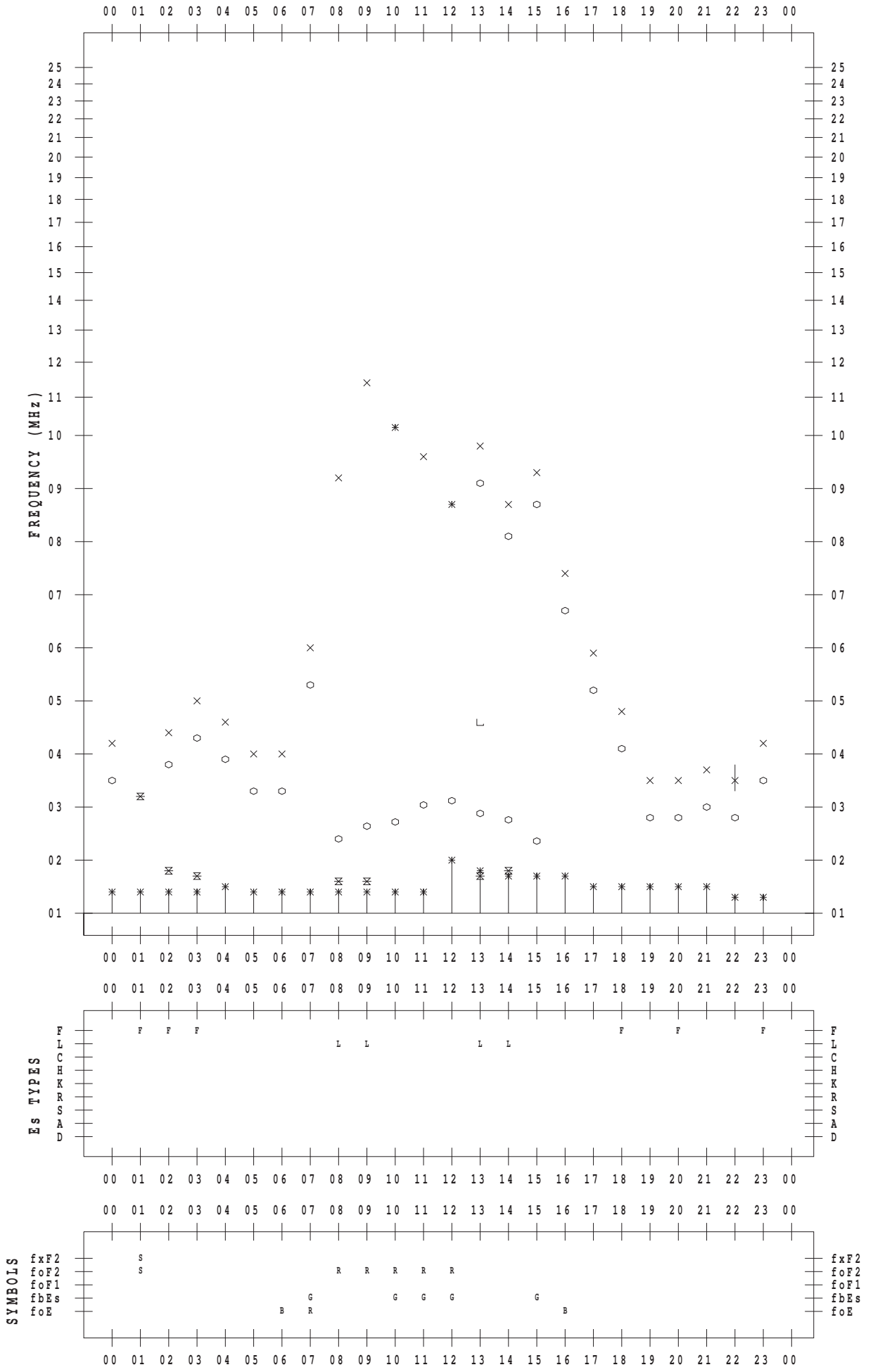
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/ 2

135 °E MEAN TIME



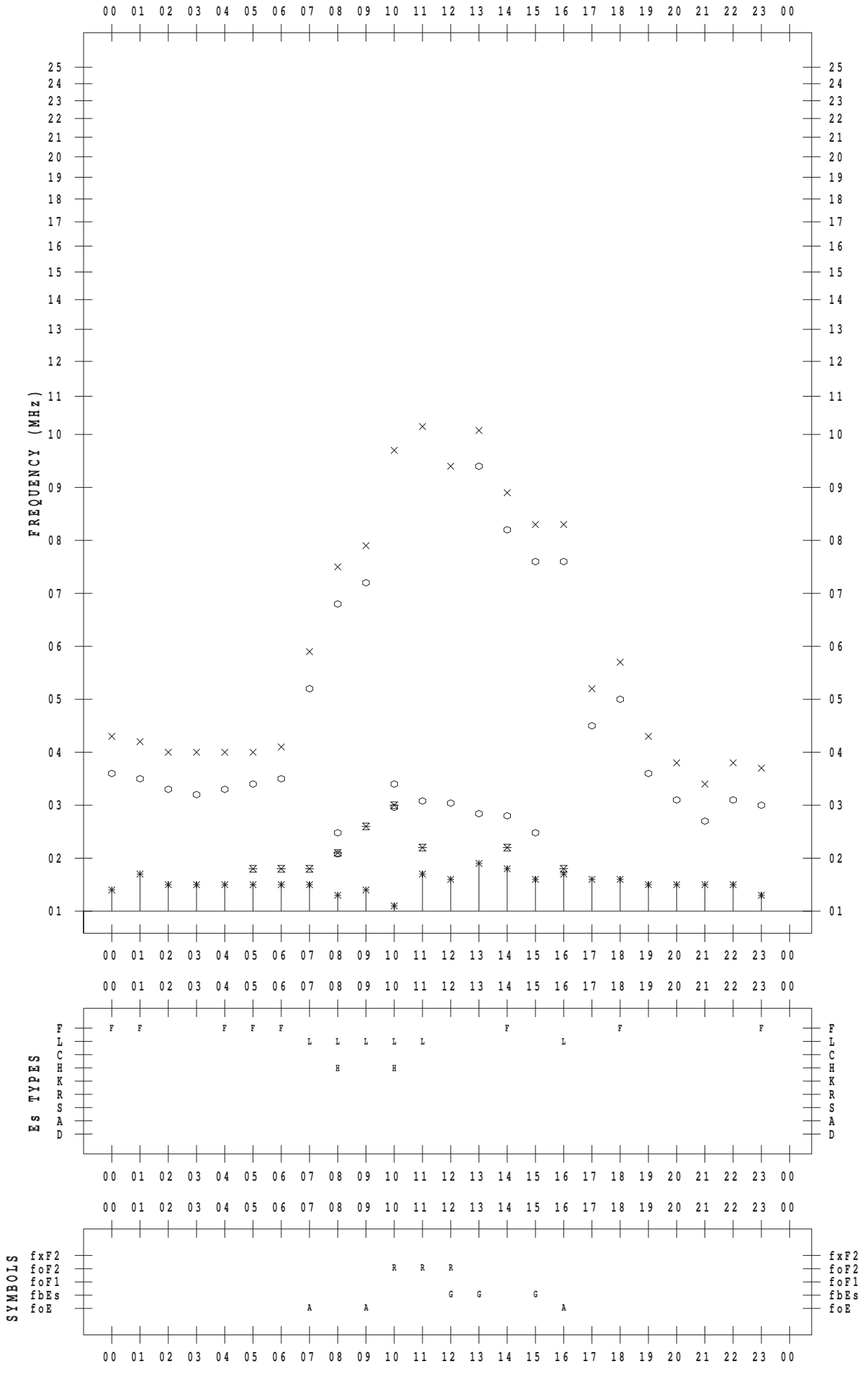
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/ 3

135 °E MEAN TIME



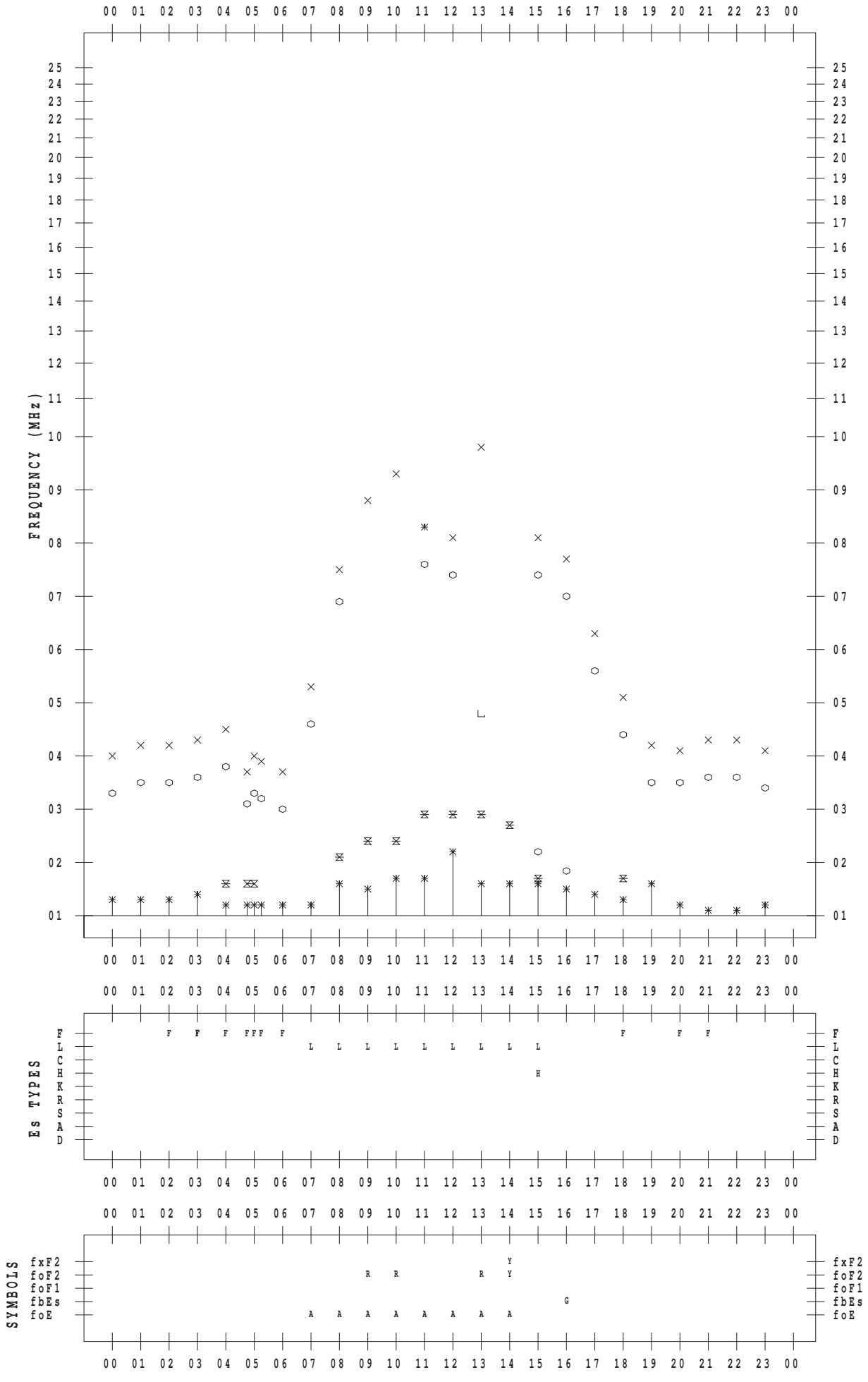
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/ 4

135 °E MEAN TIME



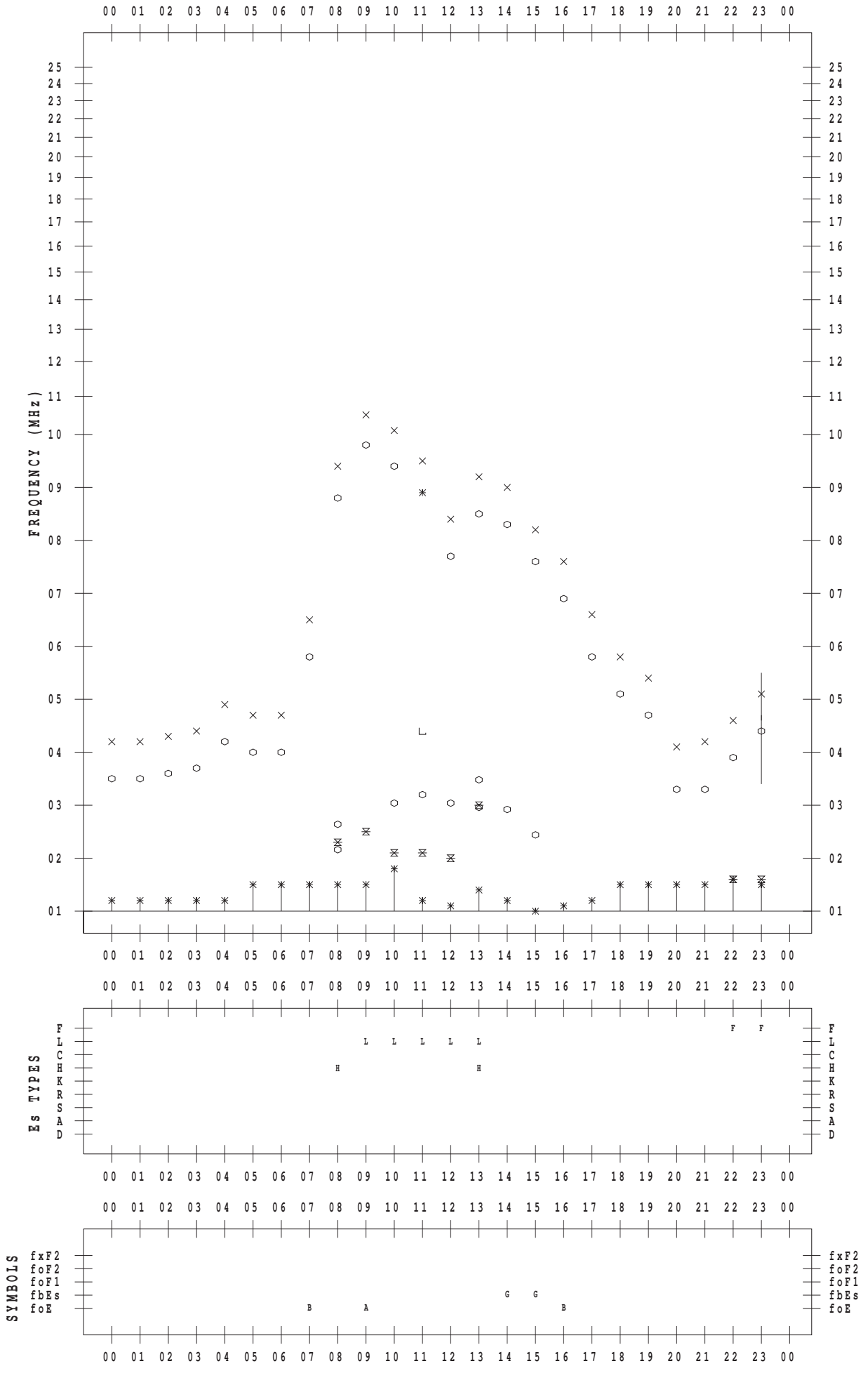
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/ 5

135 °E MEAN TIME



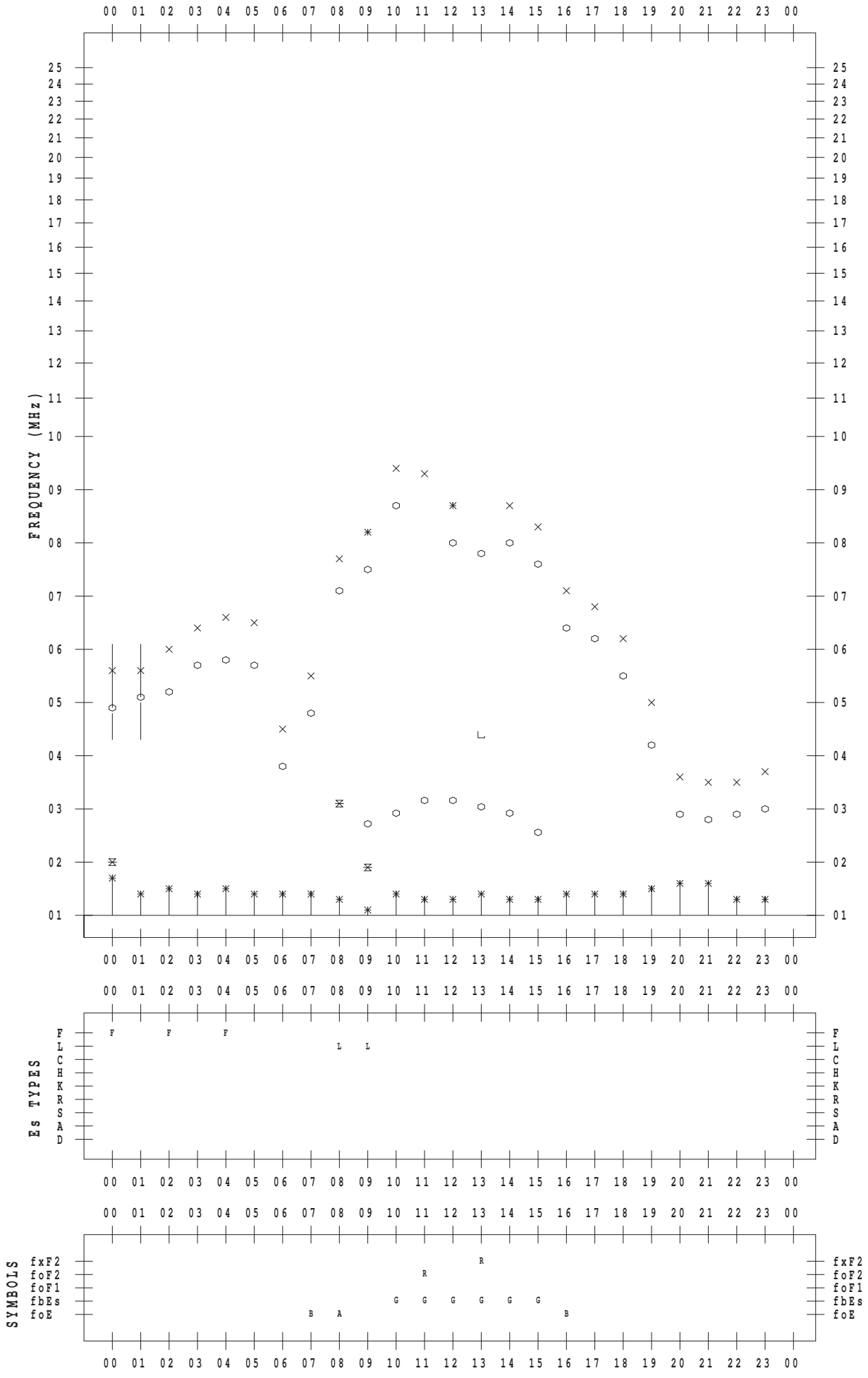
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/ 6

135 °E MEAN TIME



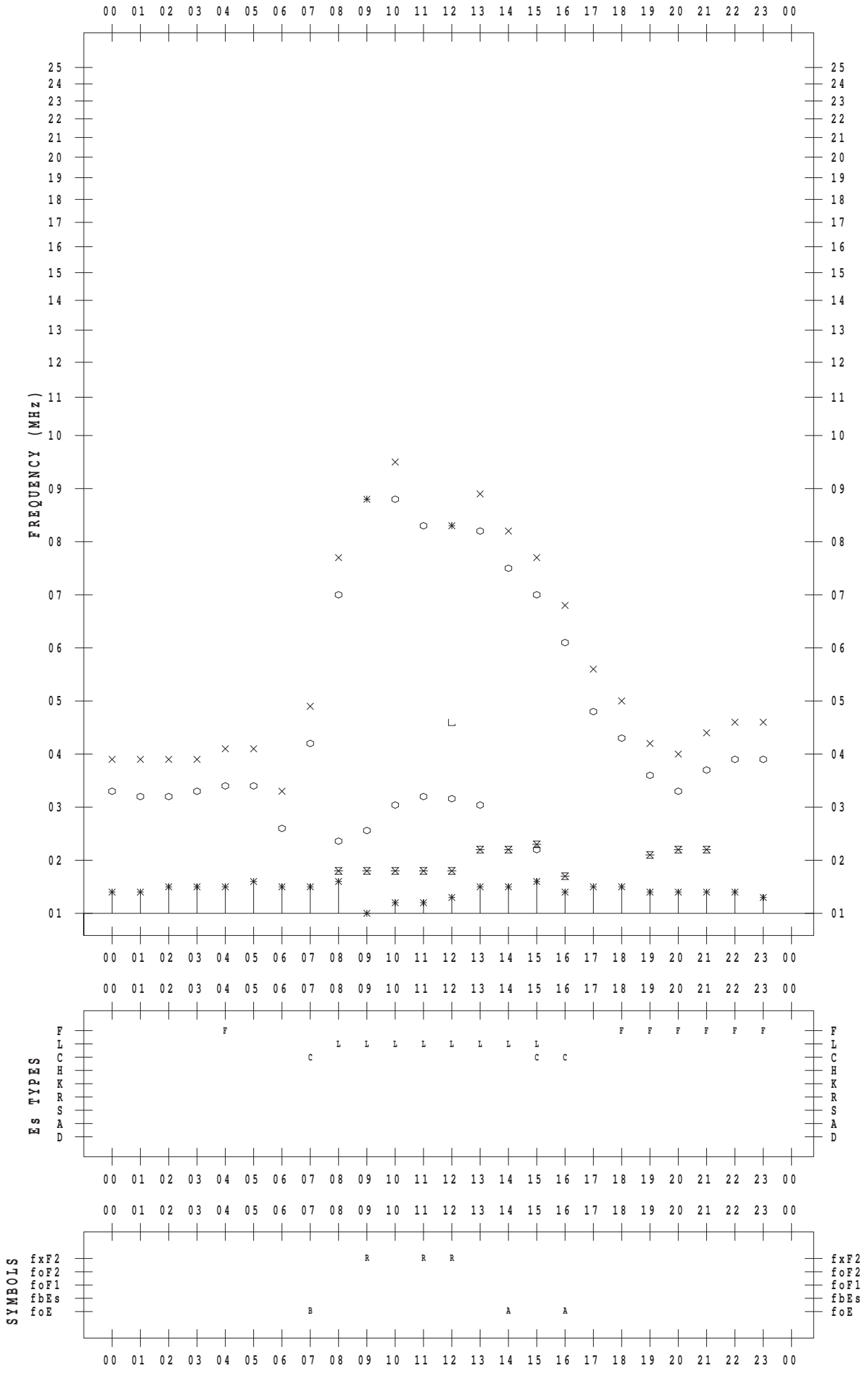
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/ 7

135 °E MEAN TIME



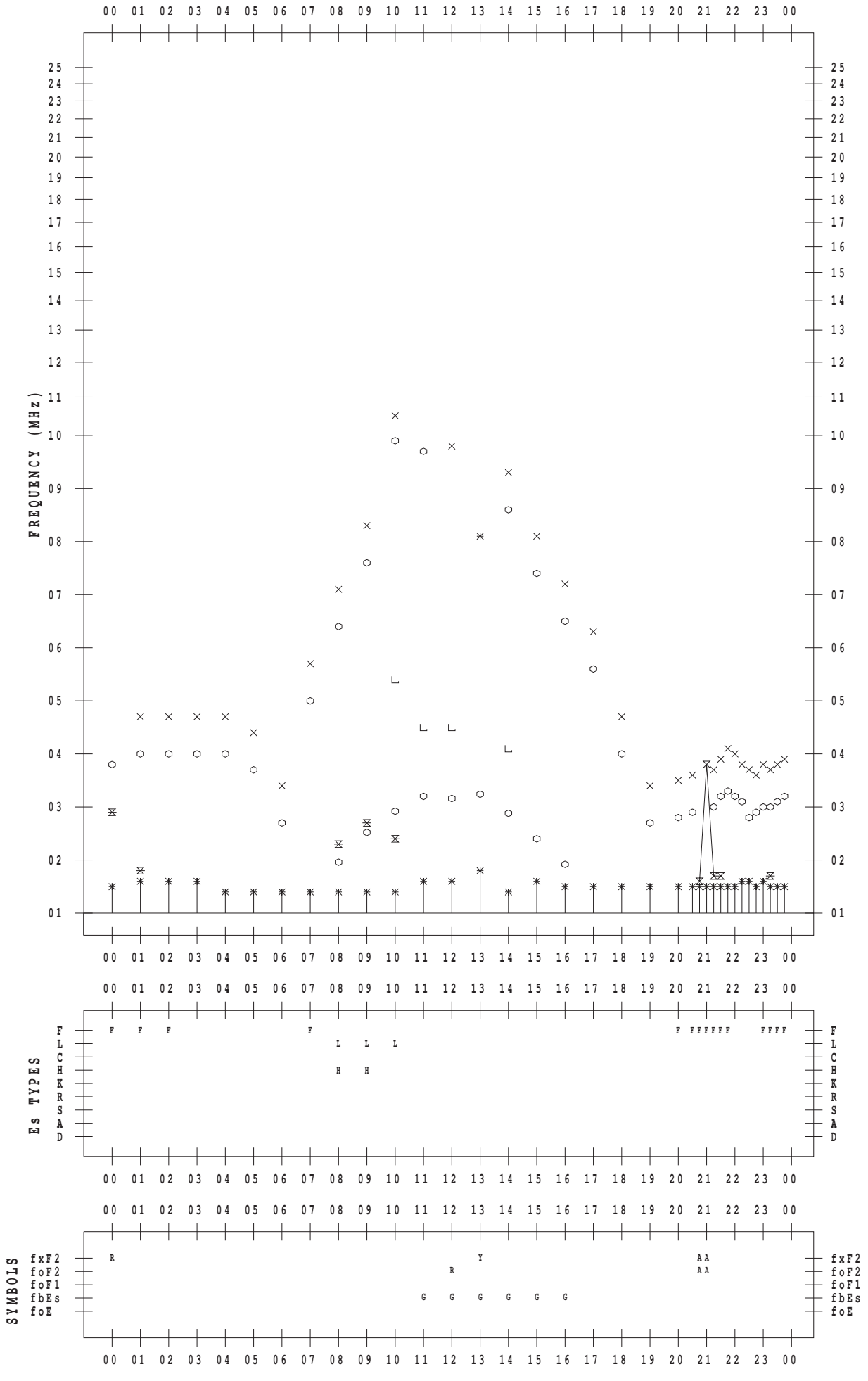
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/ 8

135 °E MEAN TIME



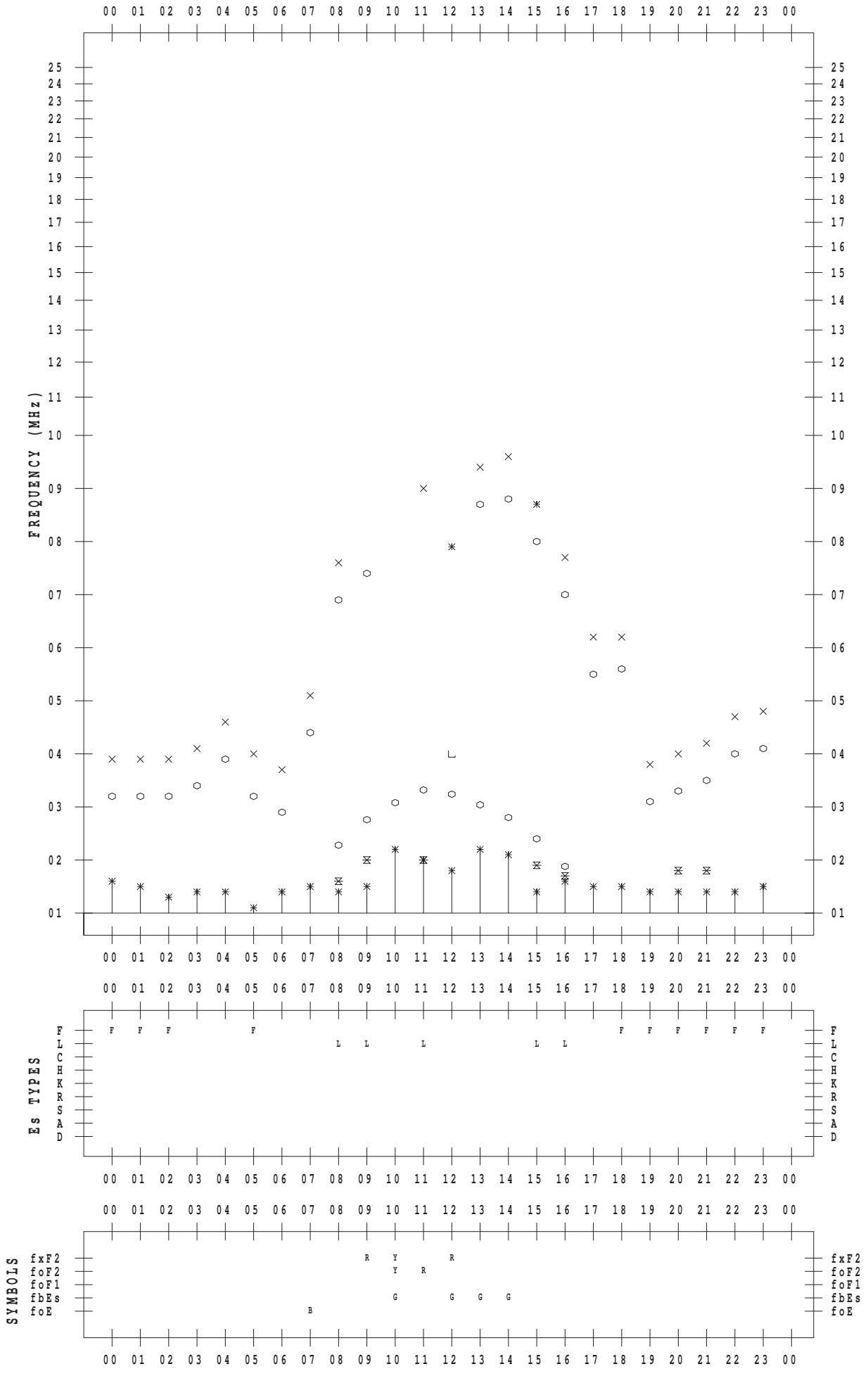
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/ 9

135 °E MEAN TIME



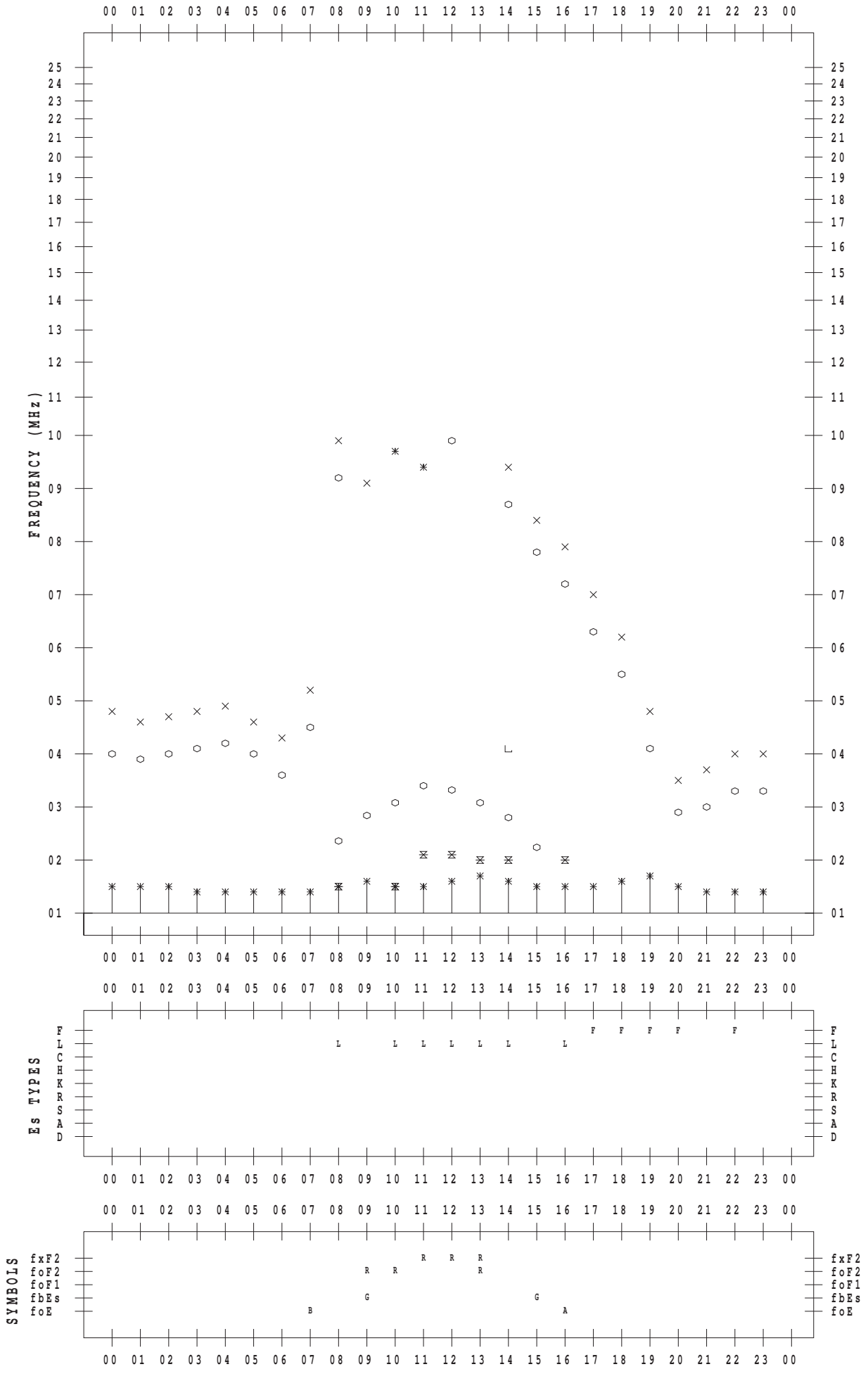
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/10

135 °E MEAN TIME



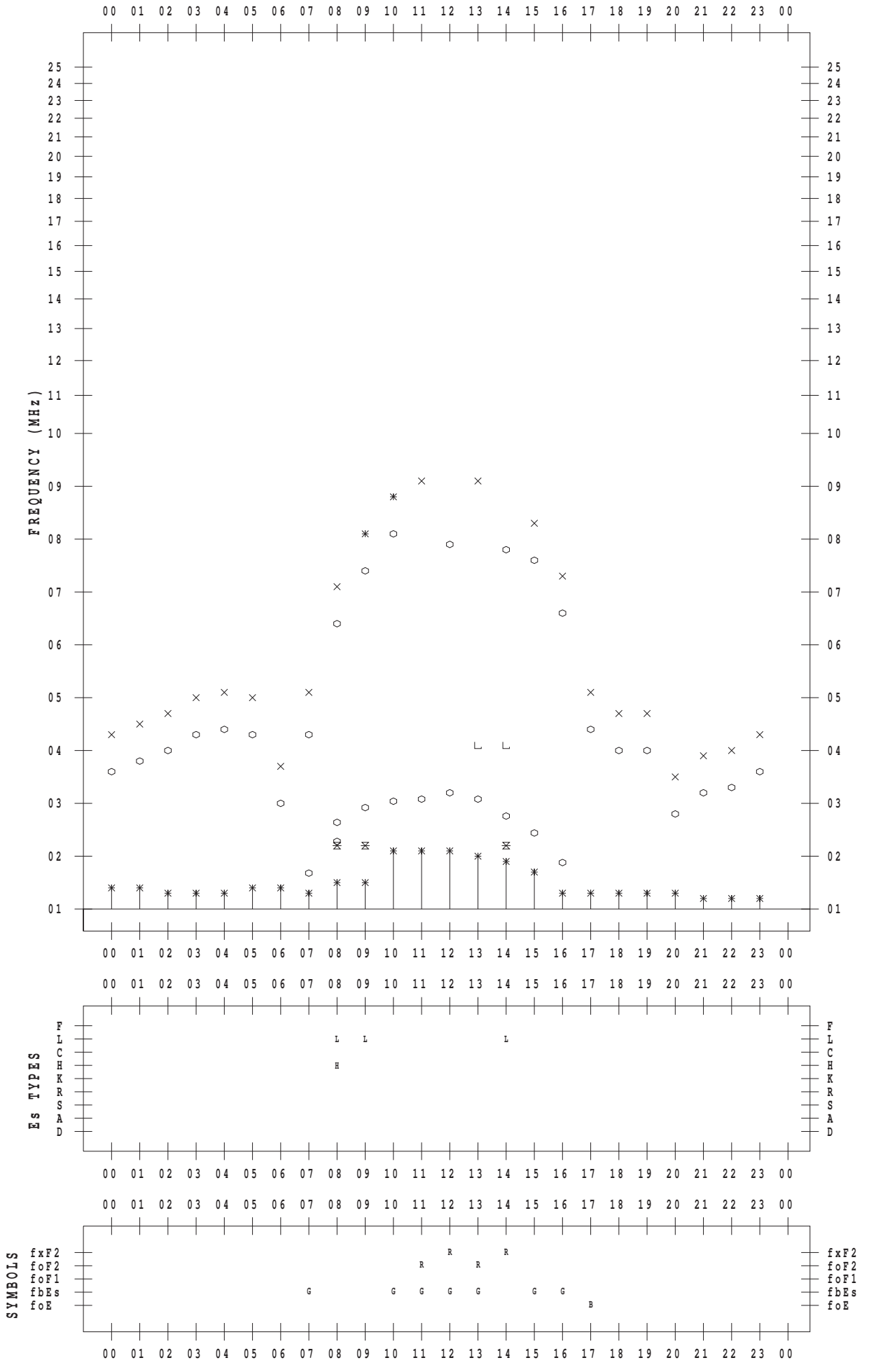
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/11

135 °E MEAN TIME



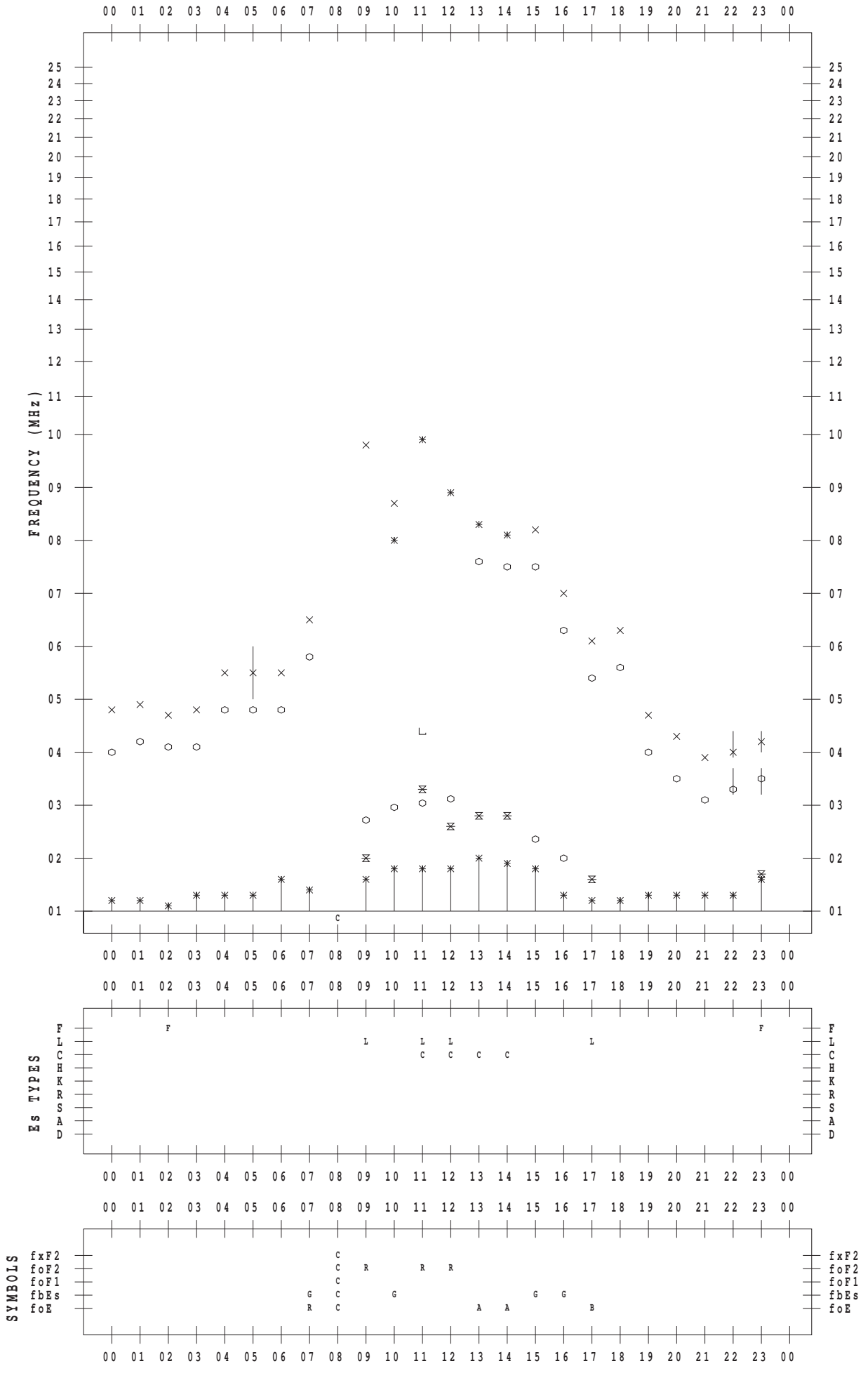
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/12

135 °E MEAN TIME



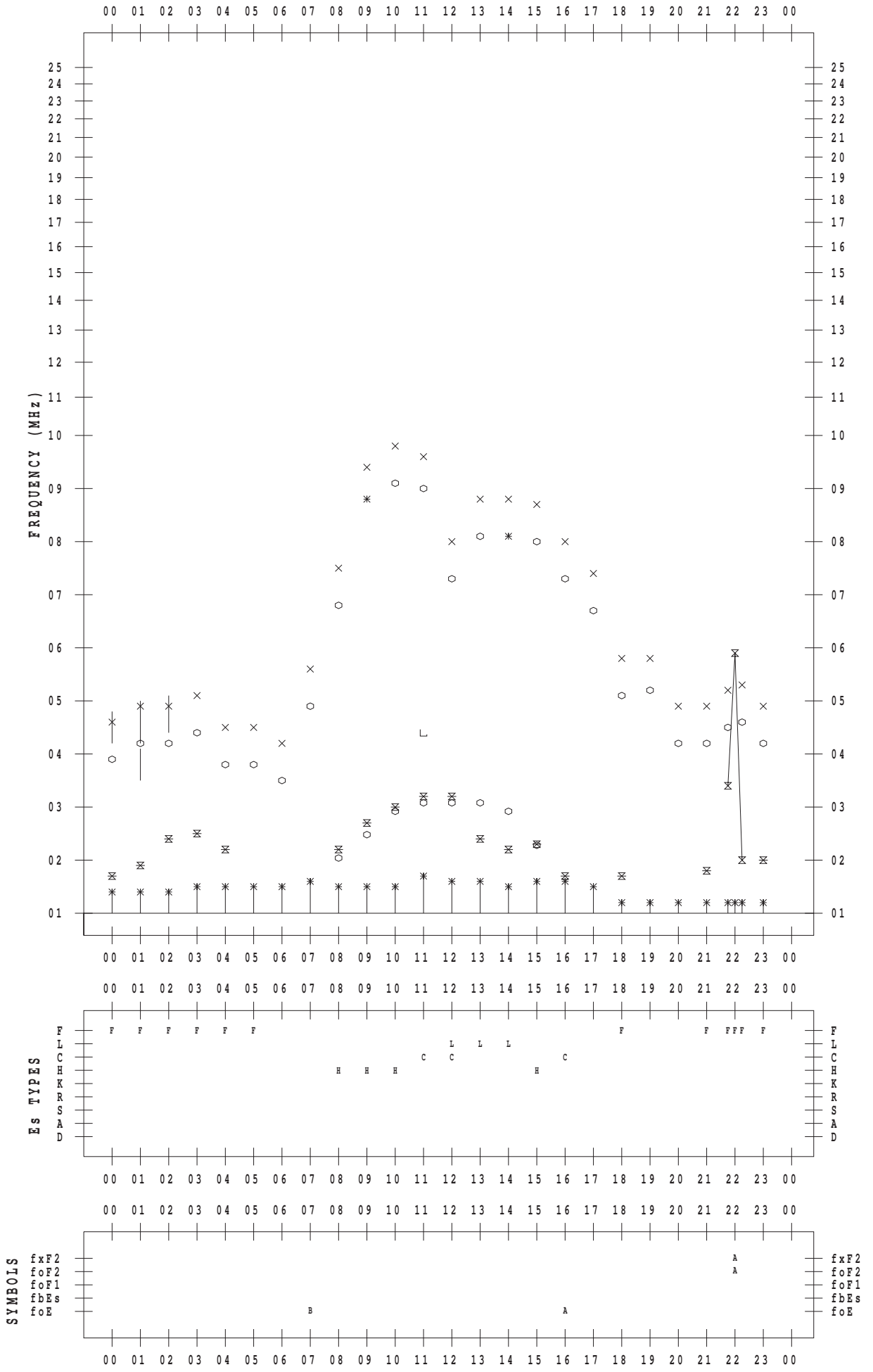
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/13

135 °E MEAN TIME



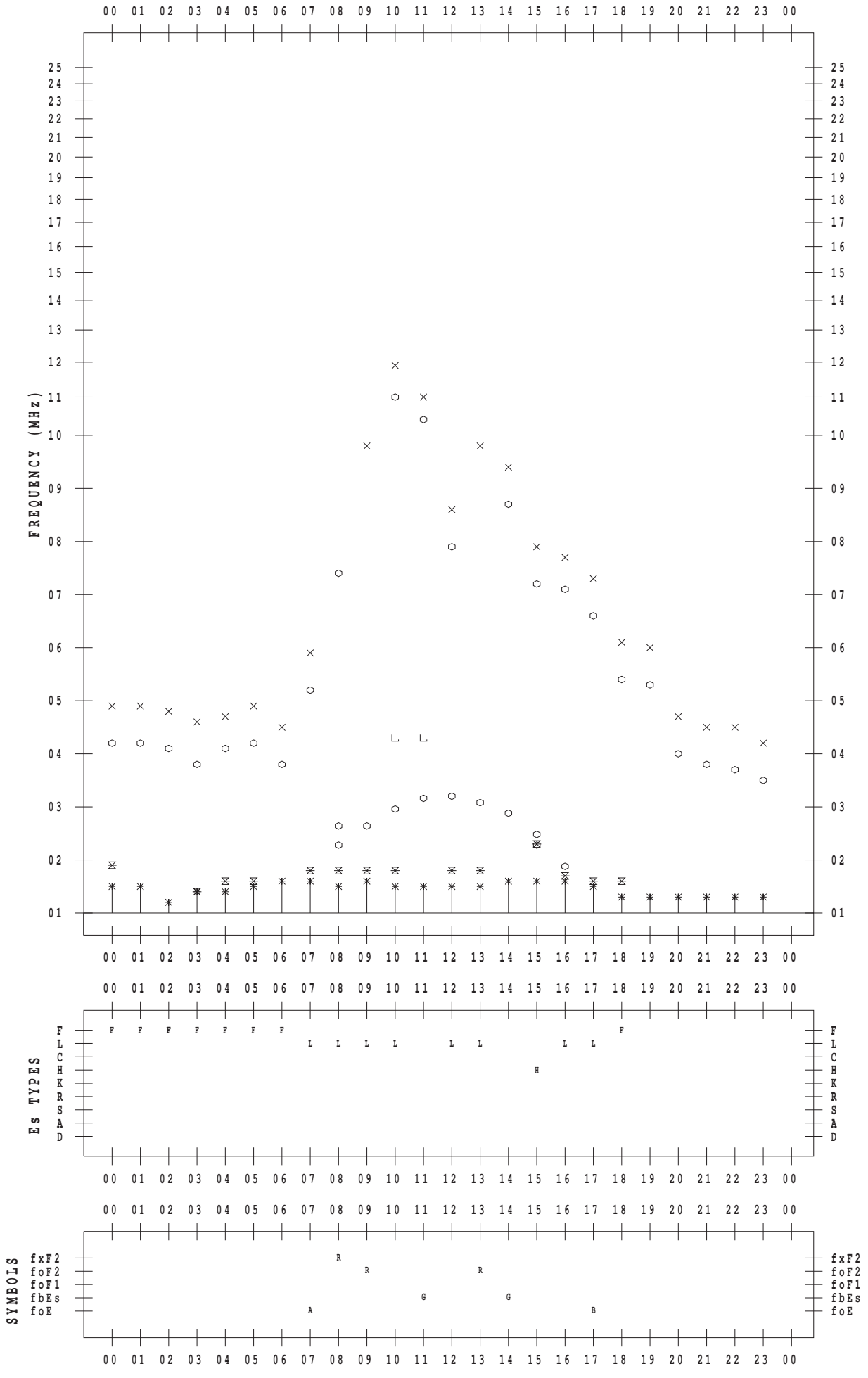
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/14

135 °E MEAN TIME



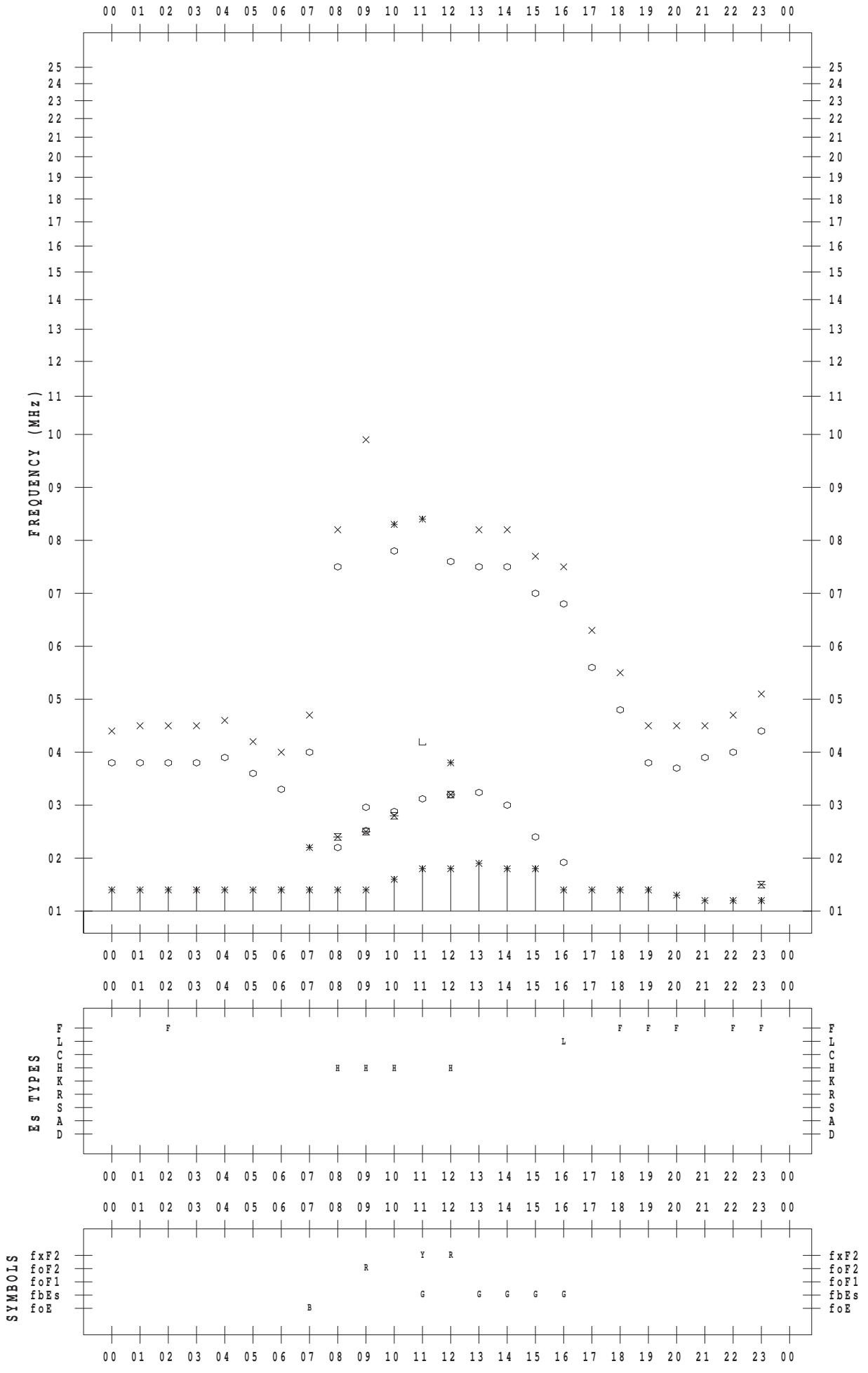
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/15

135 °E MEAN TIME



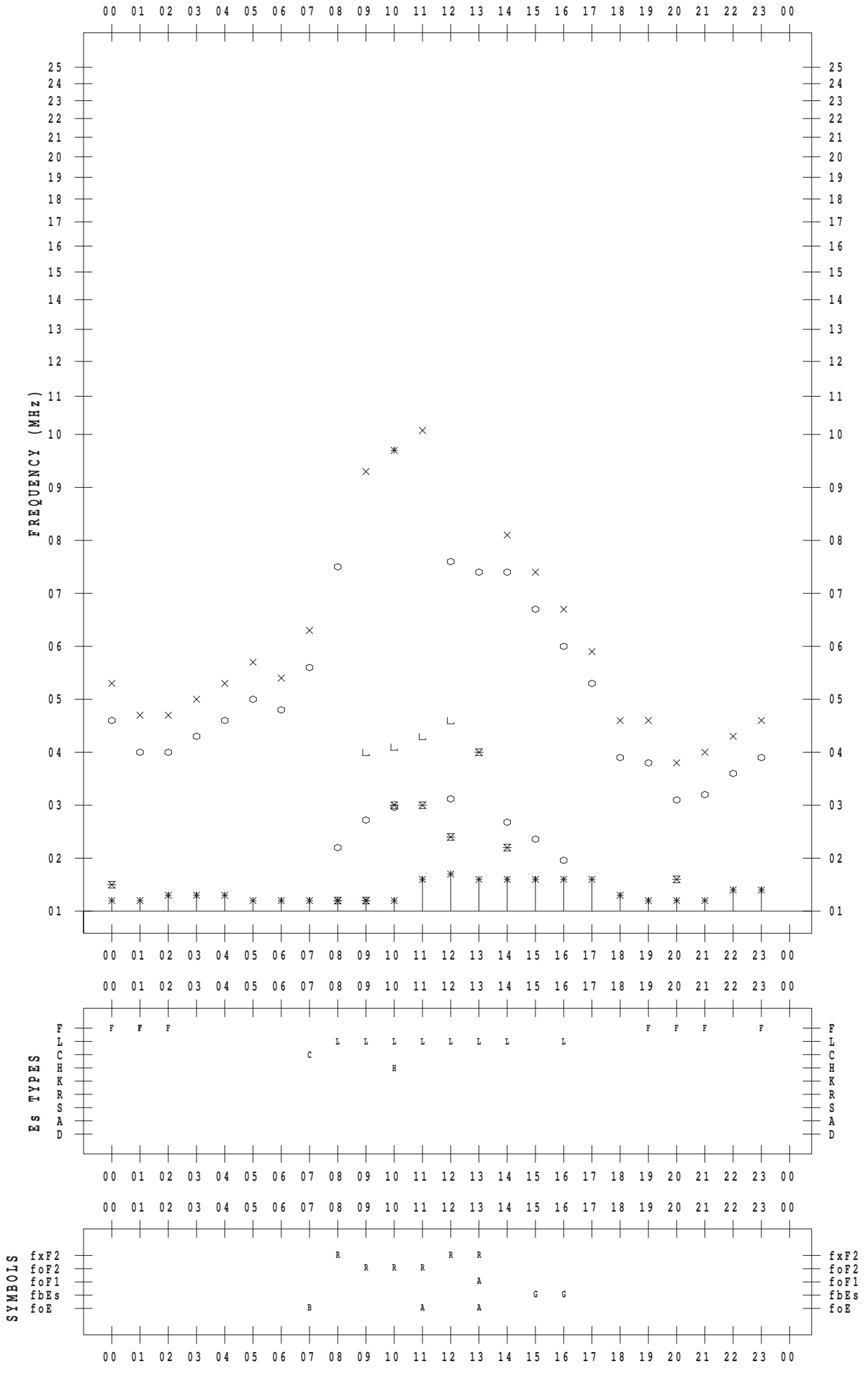
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/16

135 °E MEAN TIME



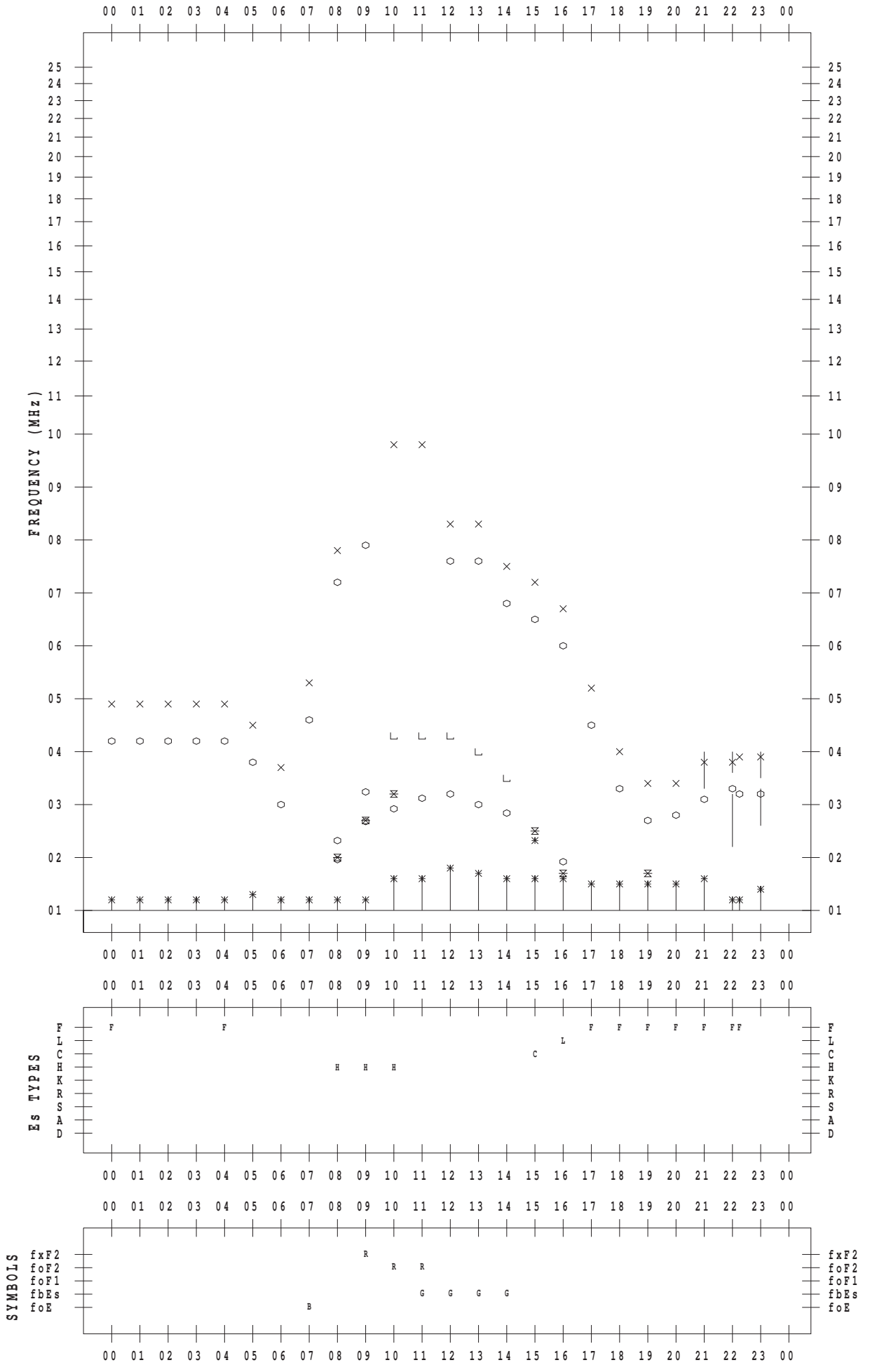
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/17

135 °E MEAN TIME



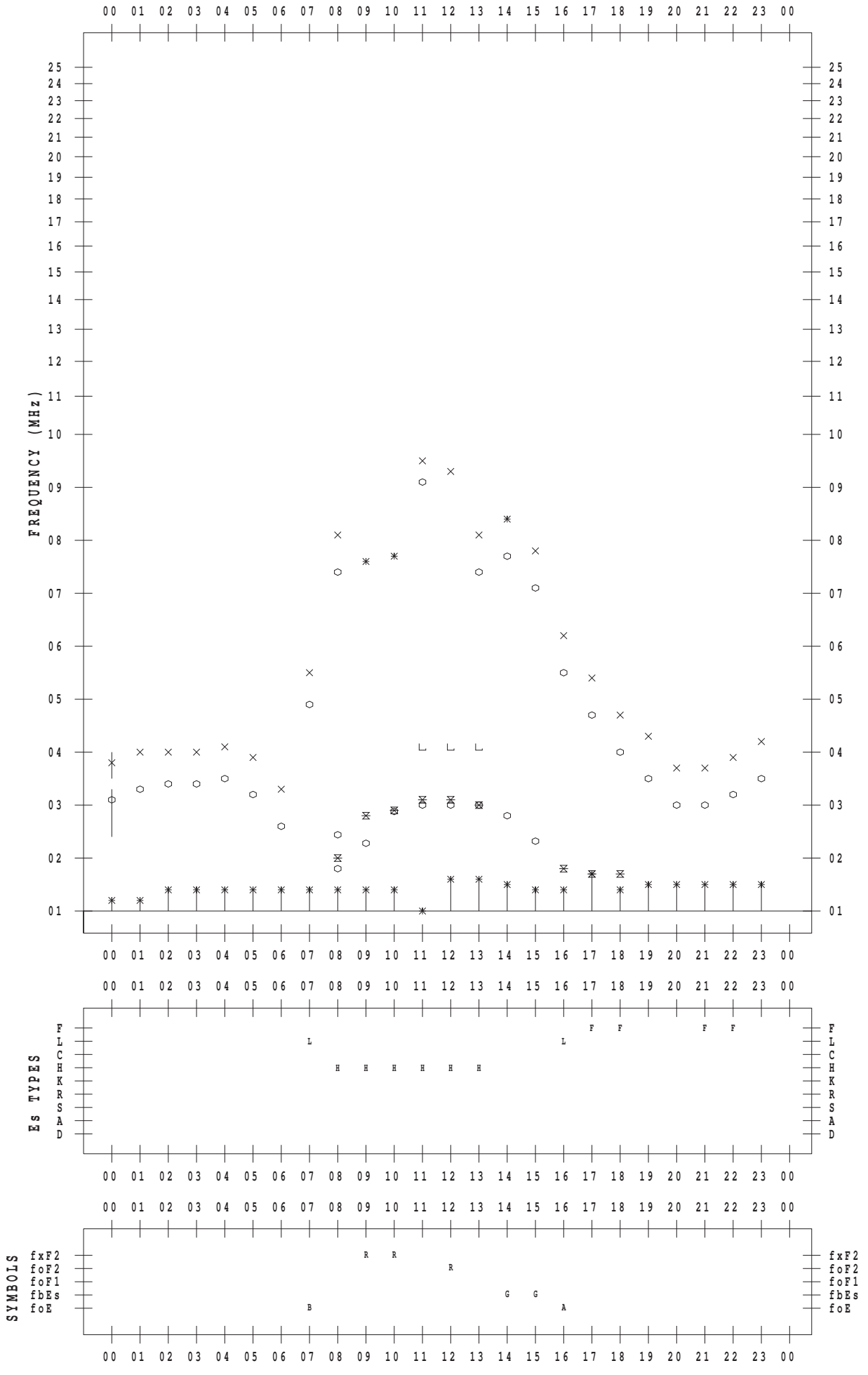
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/18

135 °E MEAN TIME



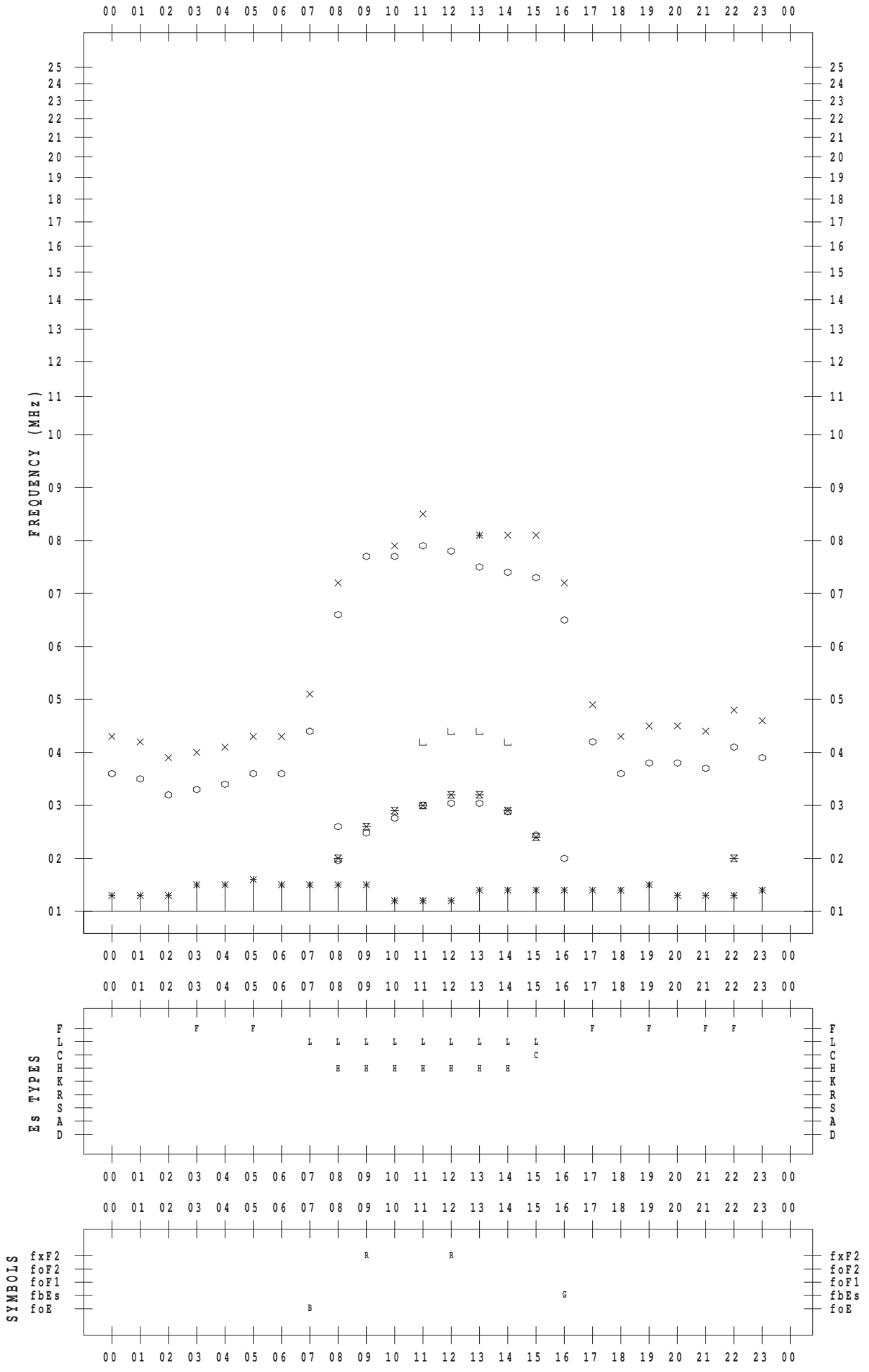
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/19

135 °E MEAN TIME



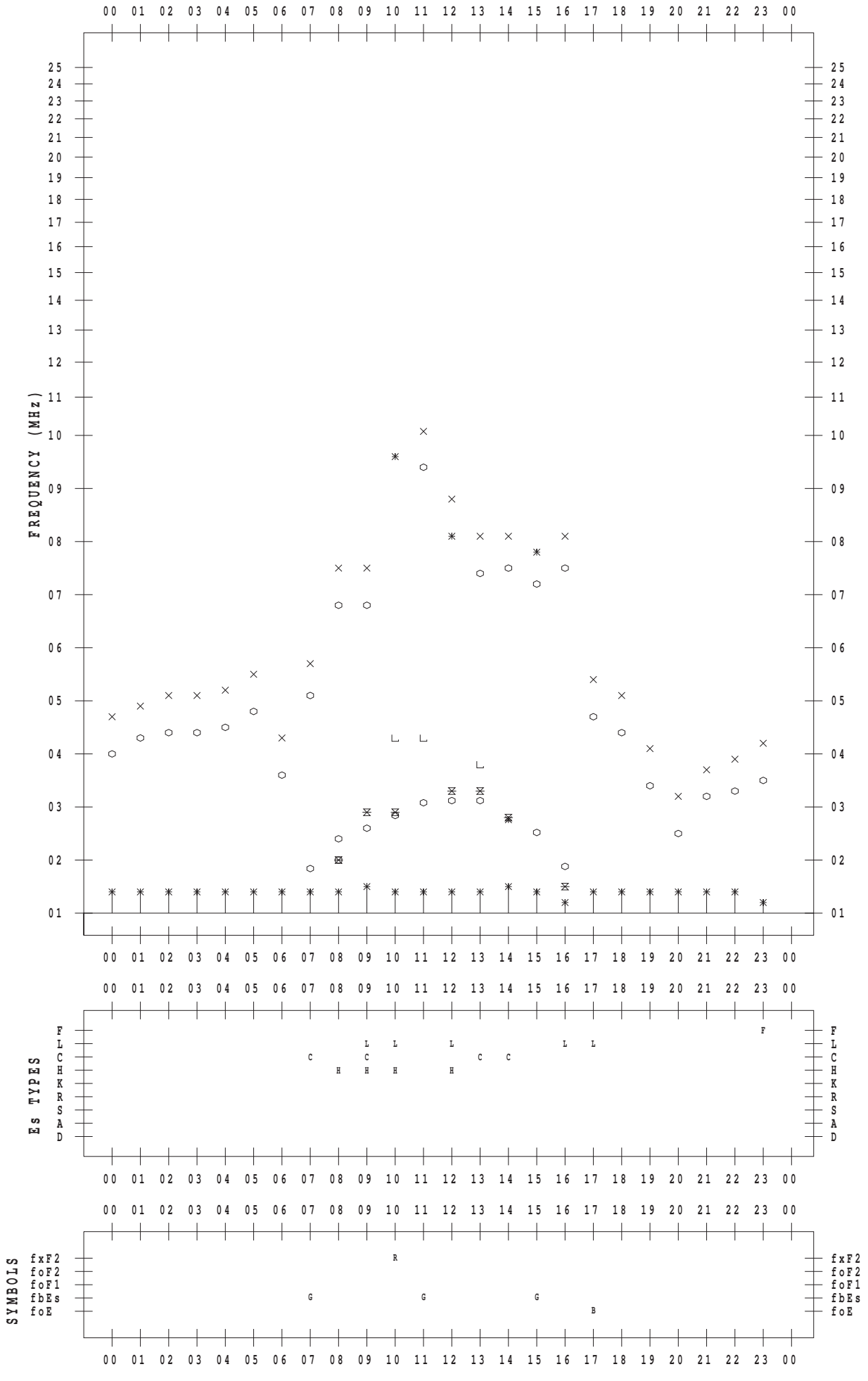
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/20

135 °E MEAN TIME



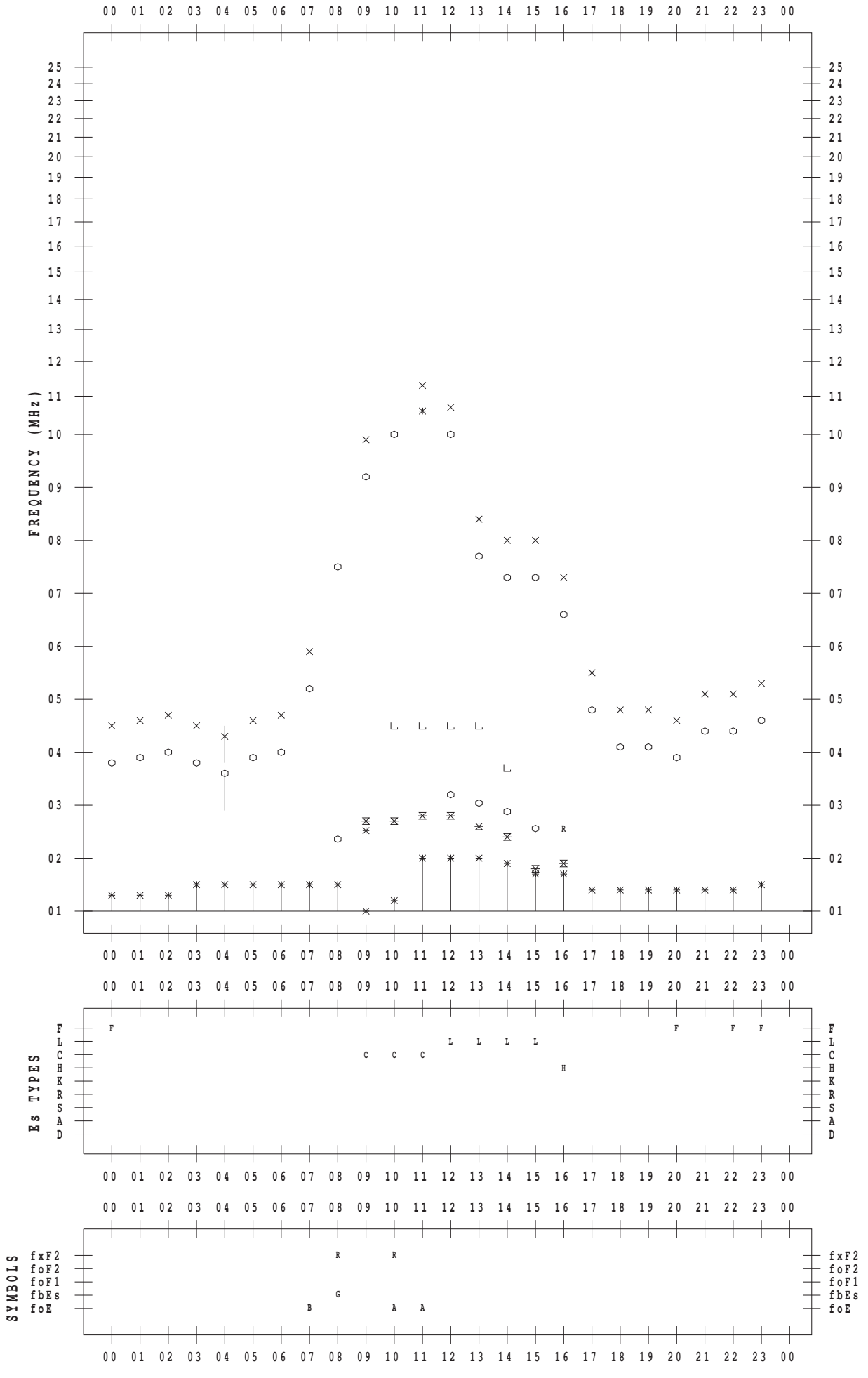
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/21

135 °E MEAN TIME



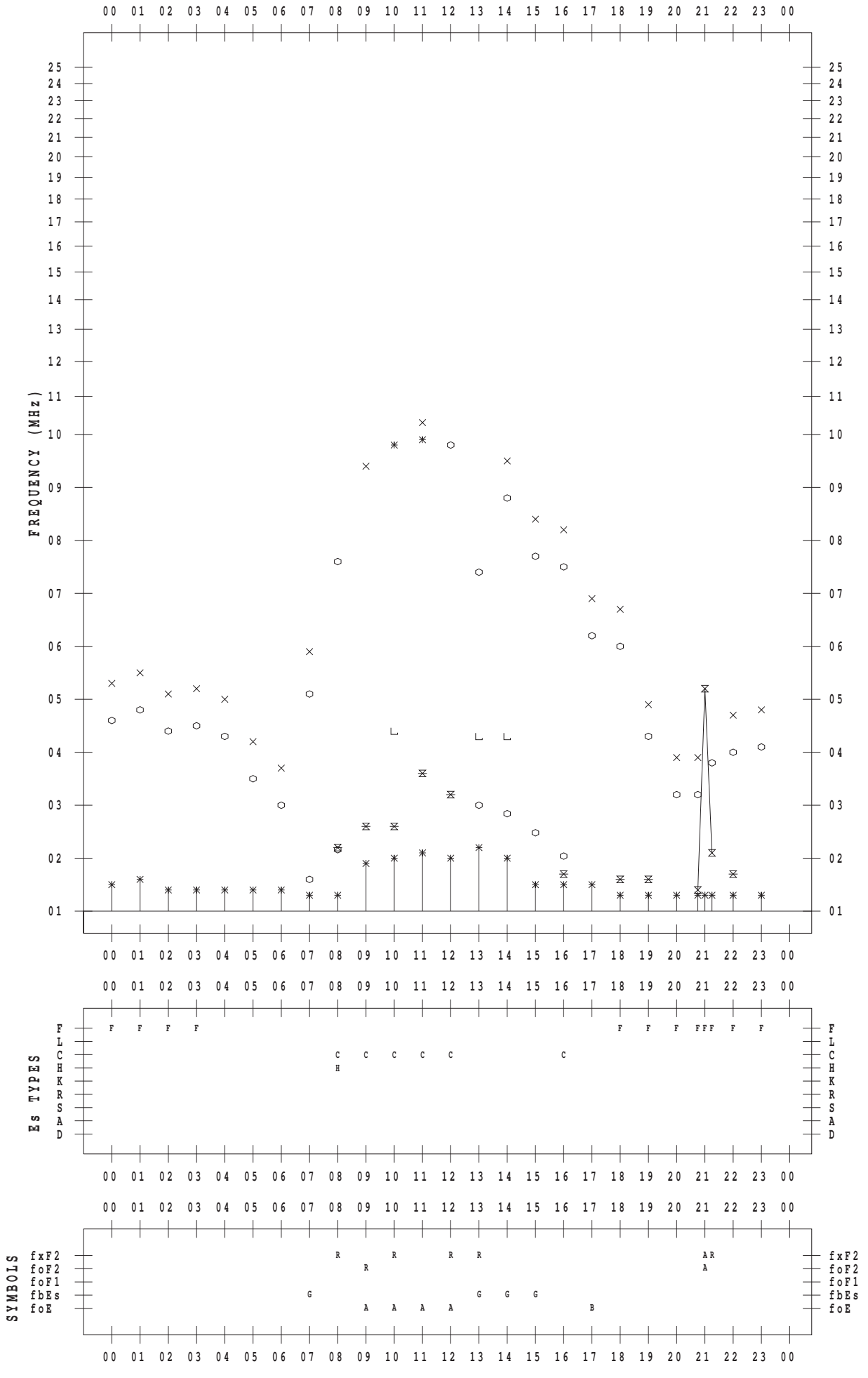
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/22

135 °E MEAN TIME



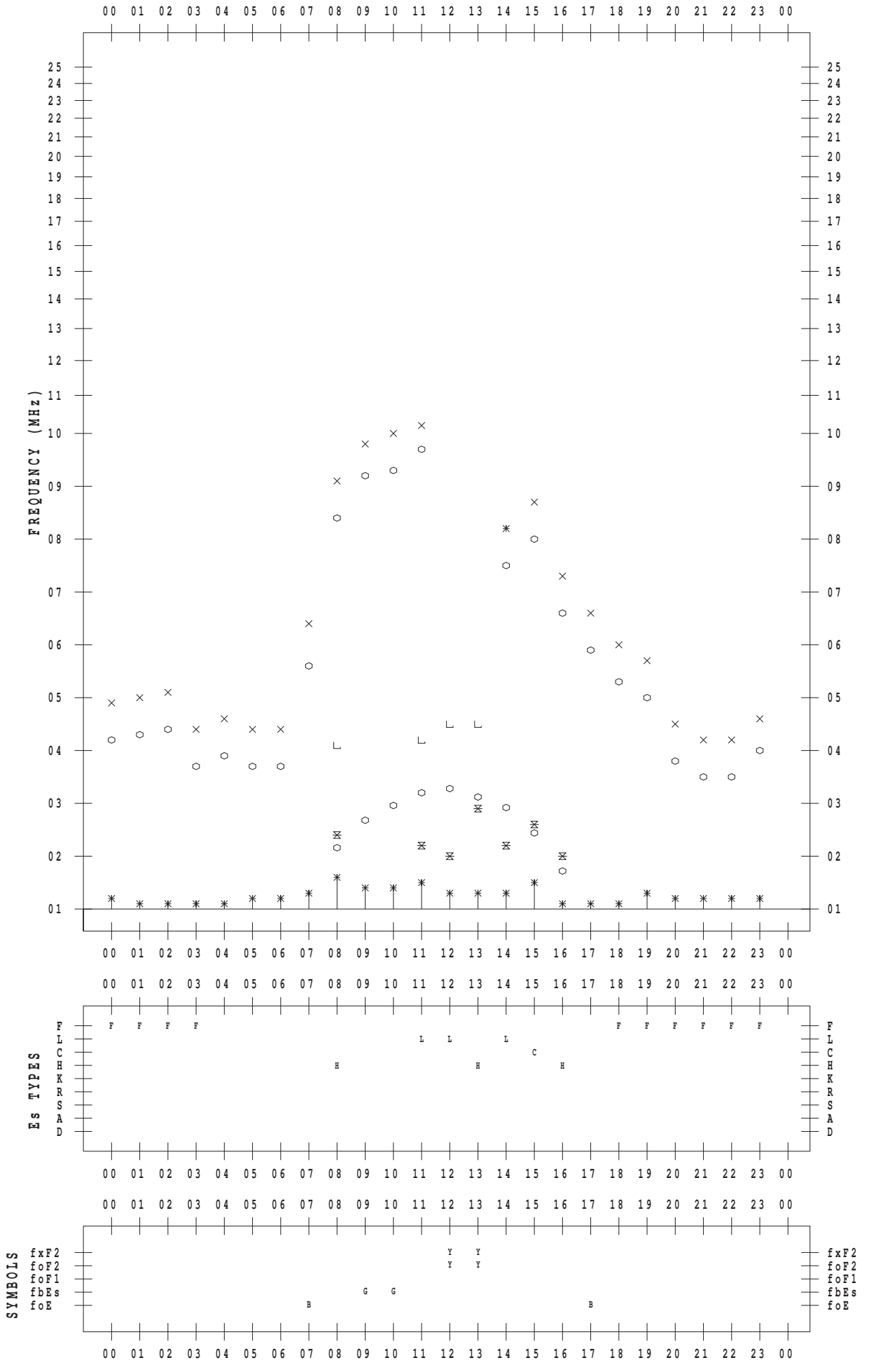
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/23

135 °E MEAN TIME



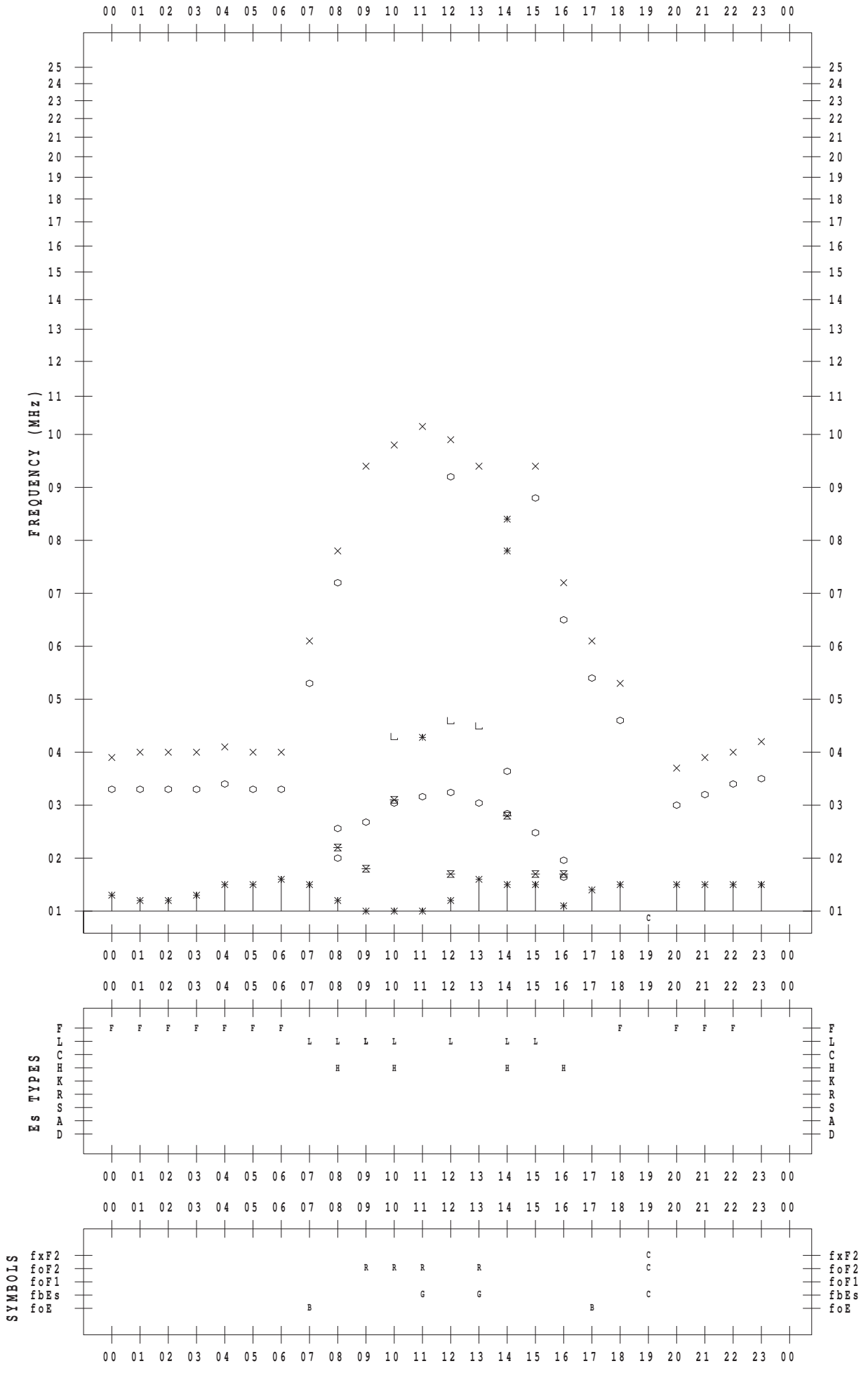
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/24

135 °E MEAN TIME



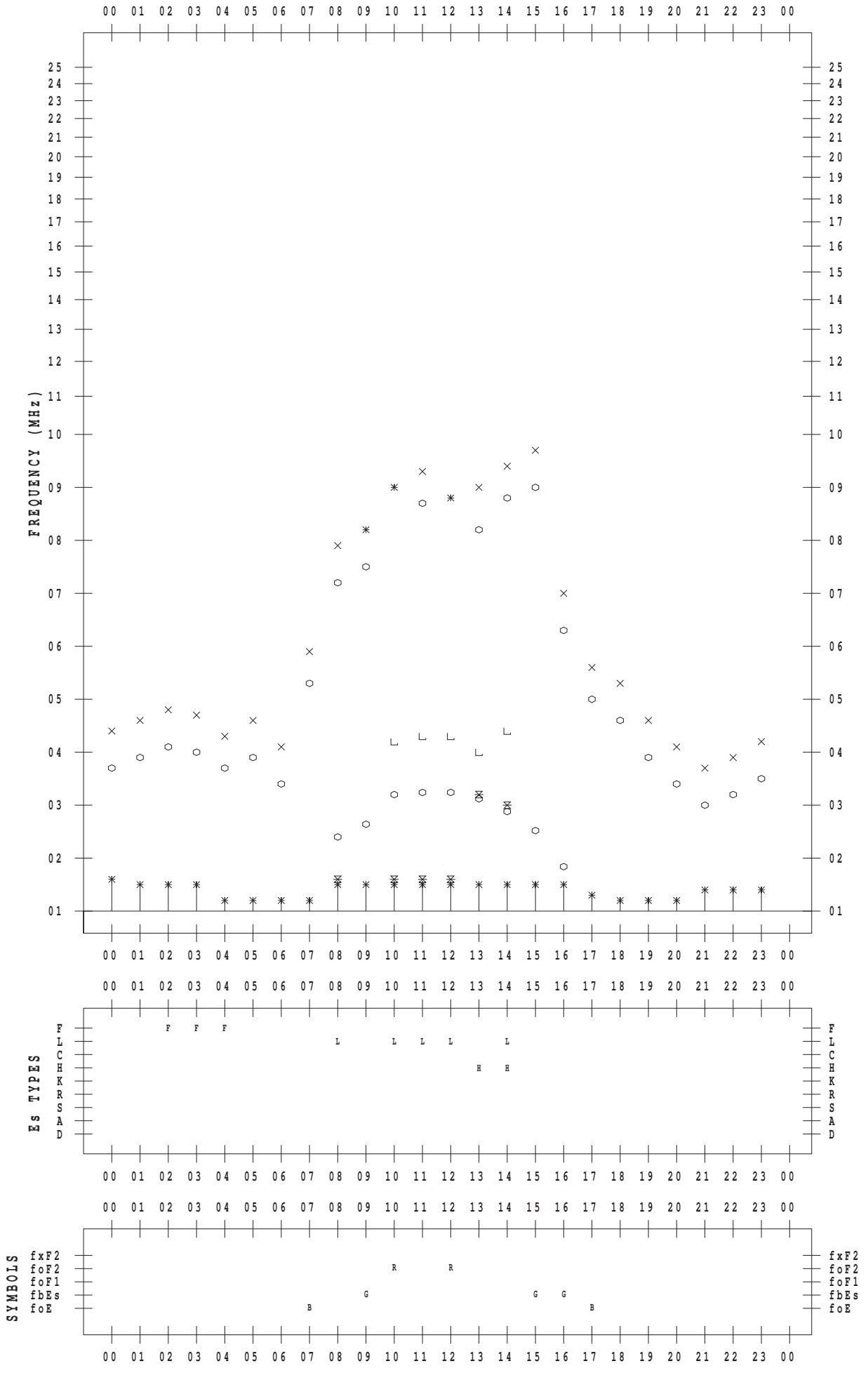
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/25

135 °E MEAN TIME



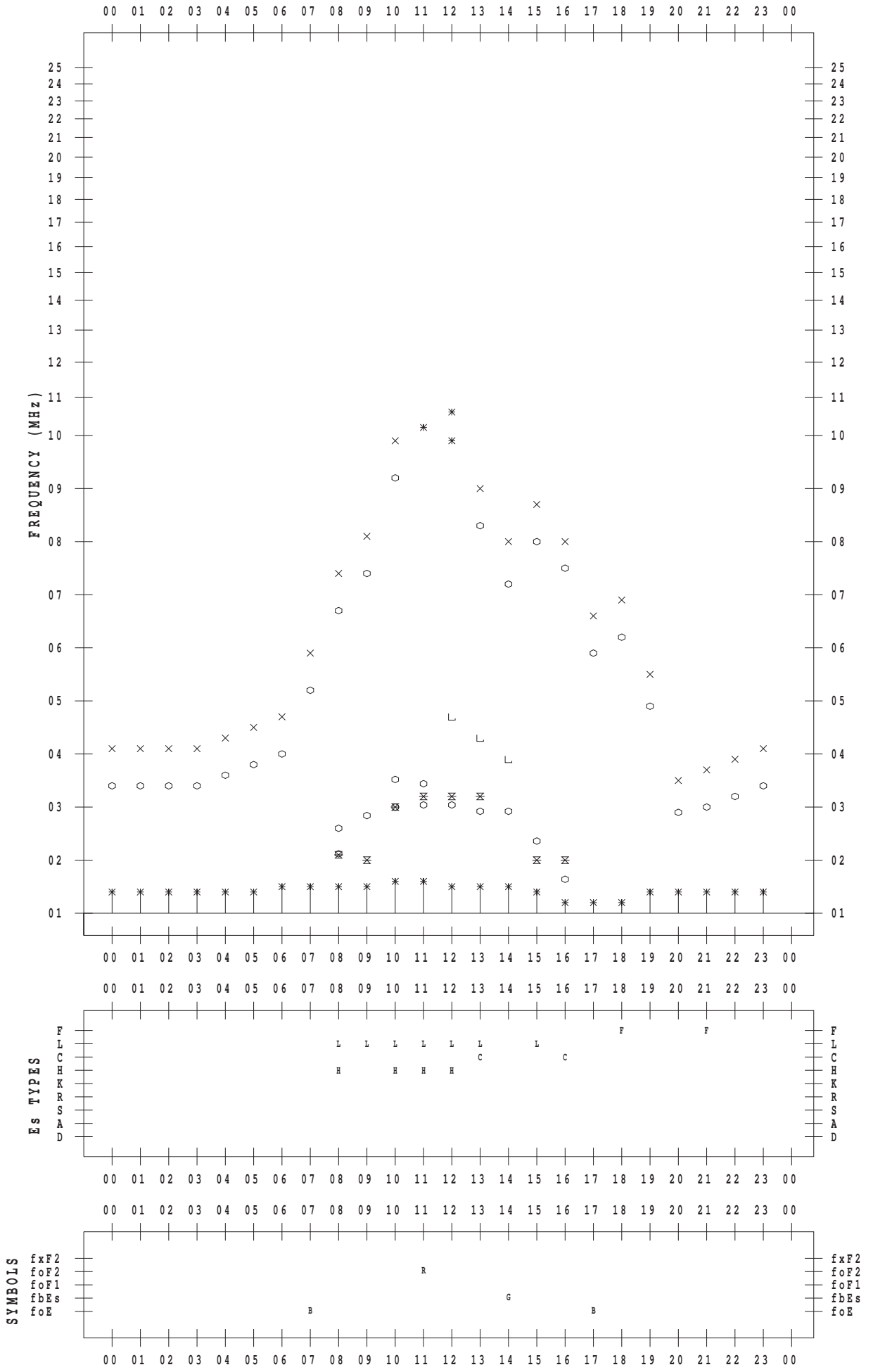
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/26

135 °E MEAN TIME



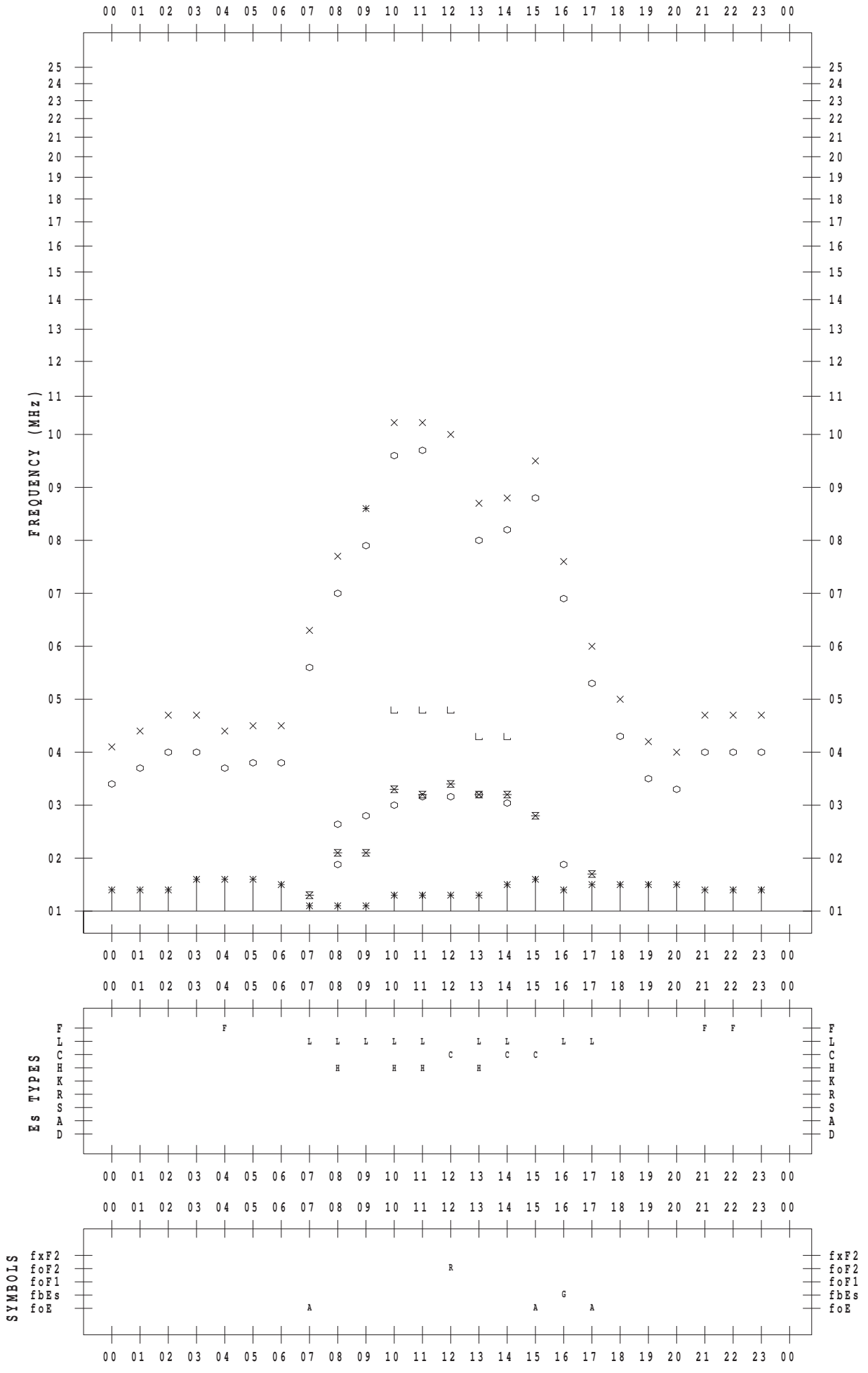
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/27

135 °E MEAN TIME



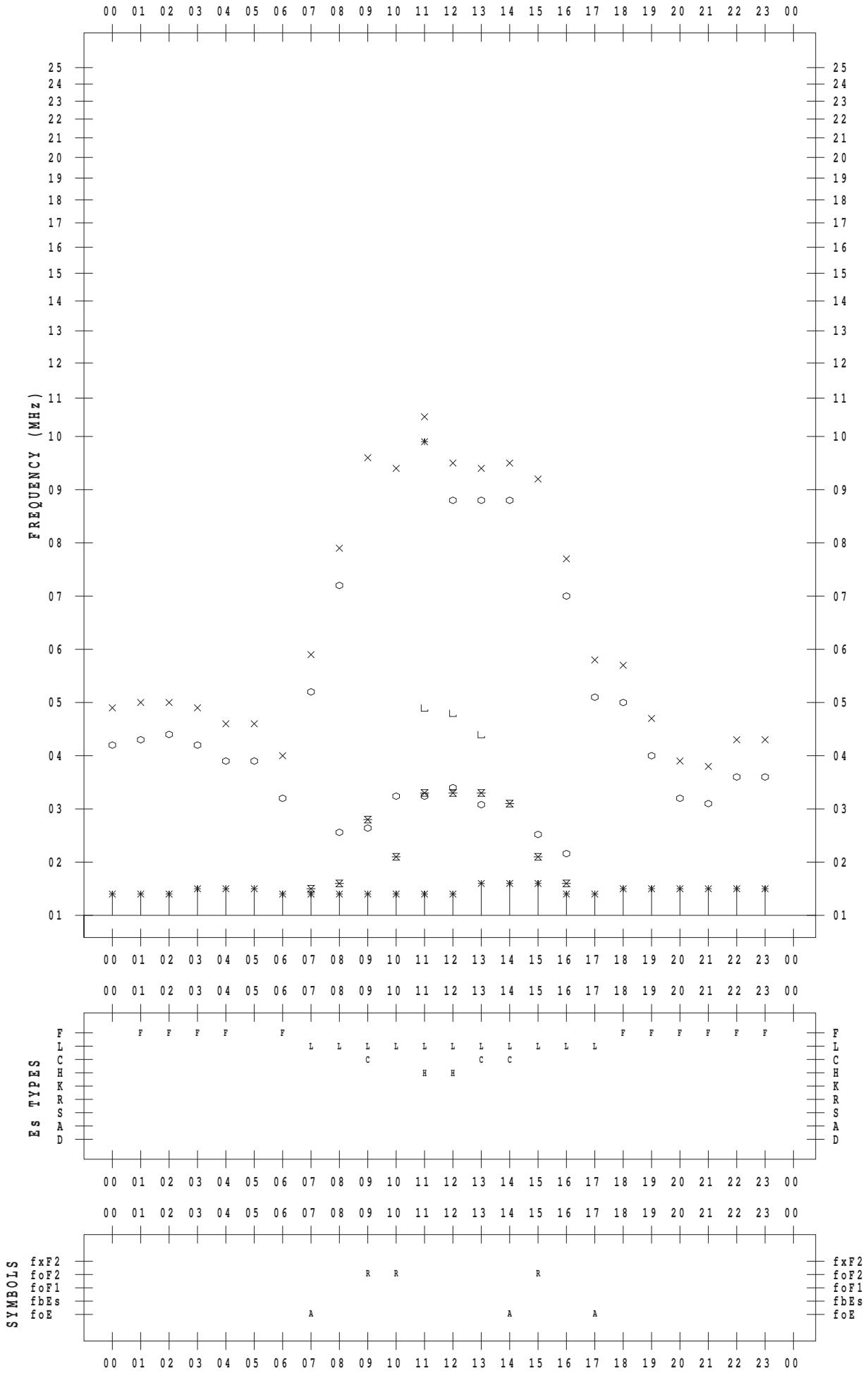
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/28

135 °E MEAN TIME



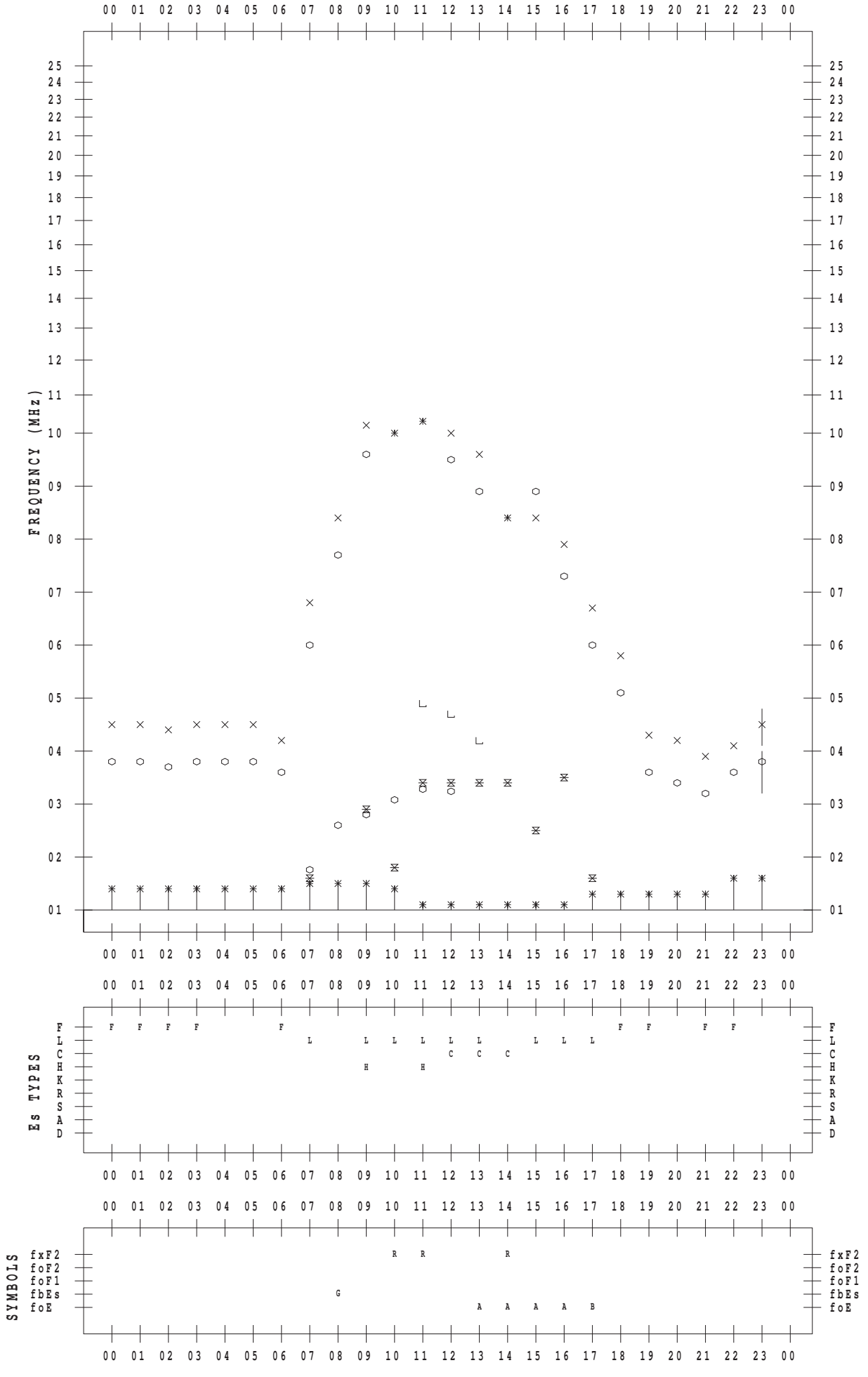
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/29

135 °E MEAN TIME



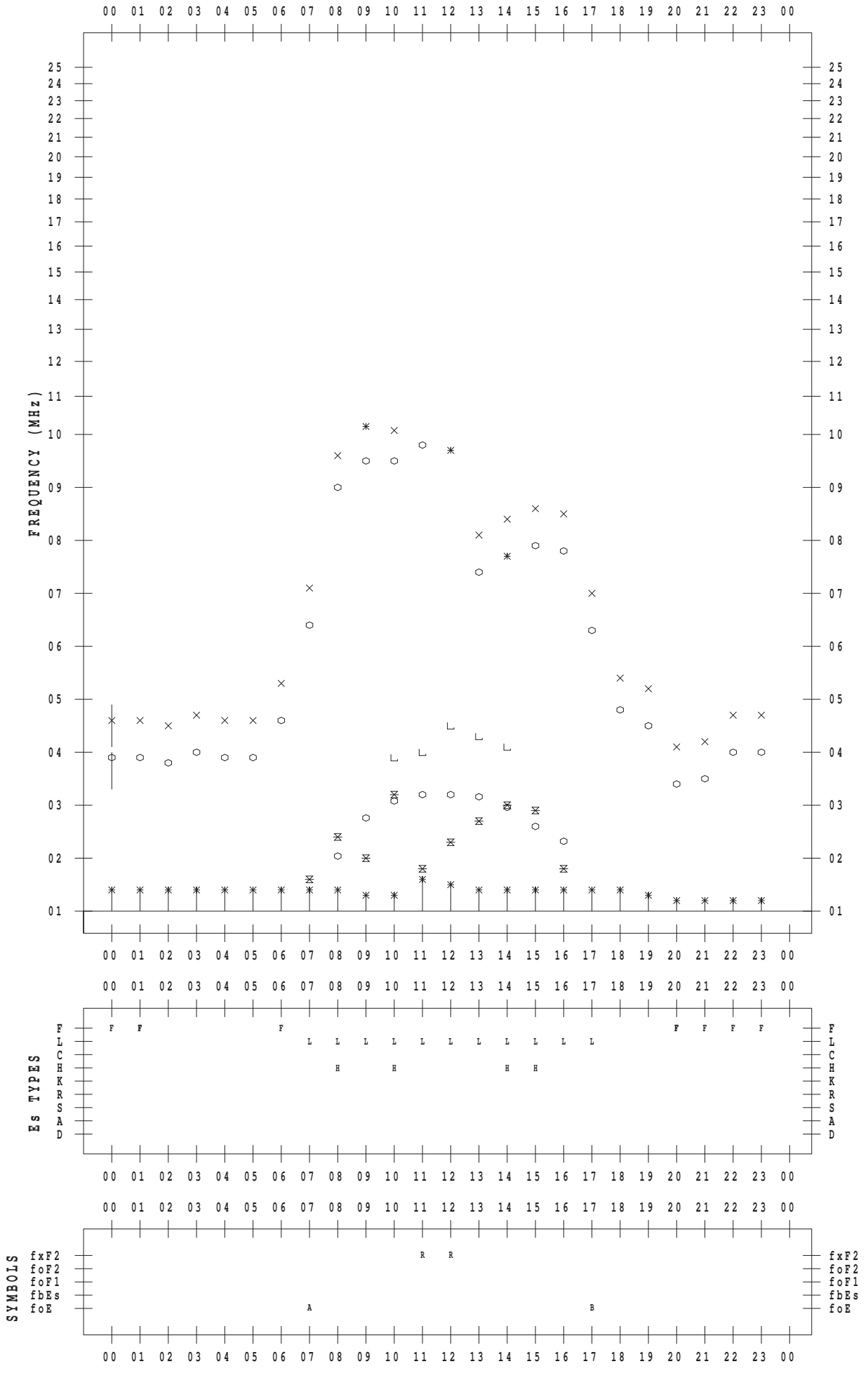
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/30

135 °E MEAN TIME



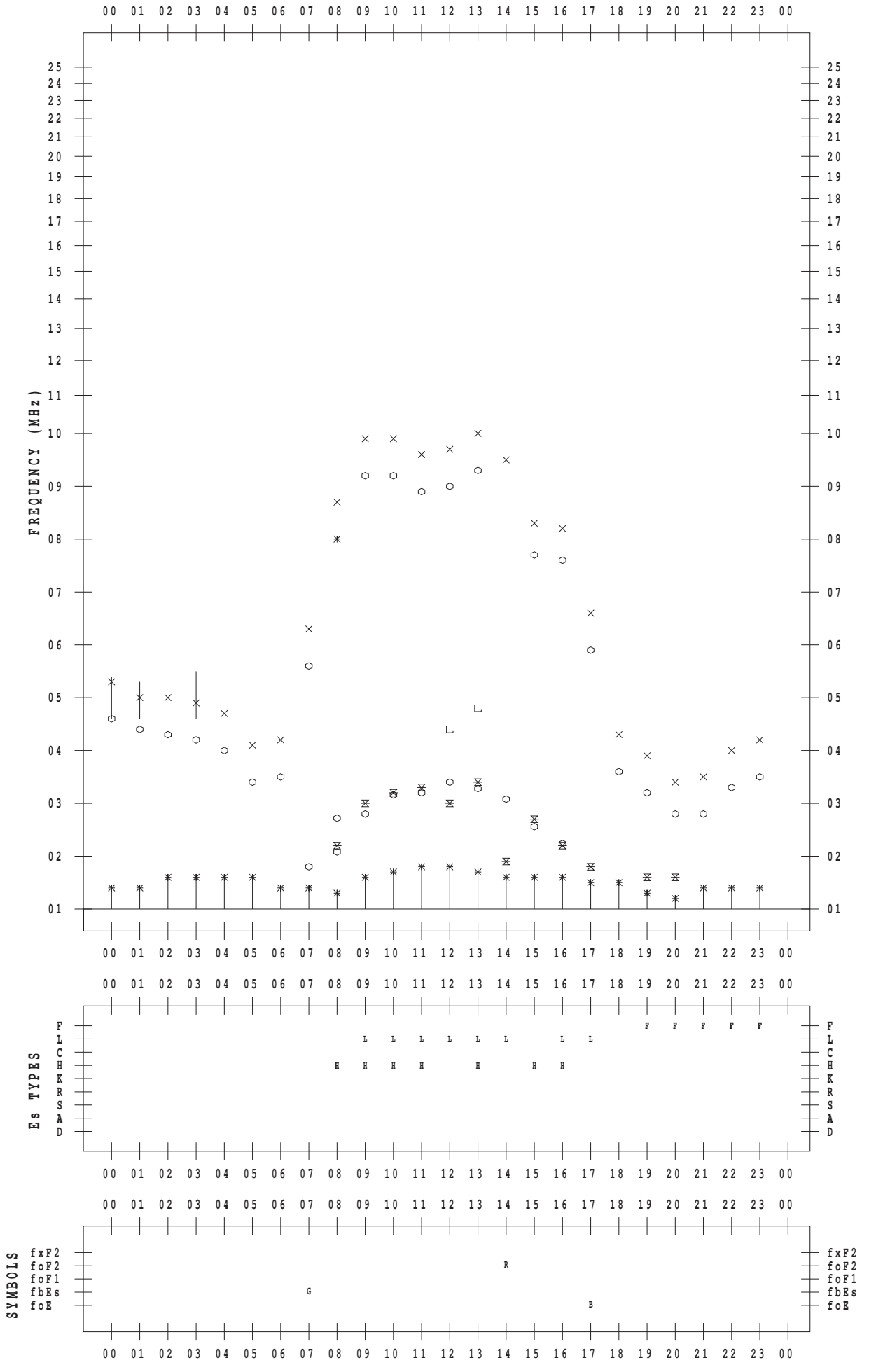
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014/ 1/31

135 °E MEAN TIME



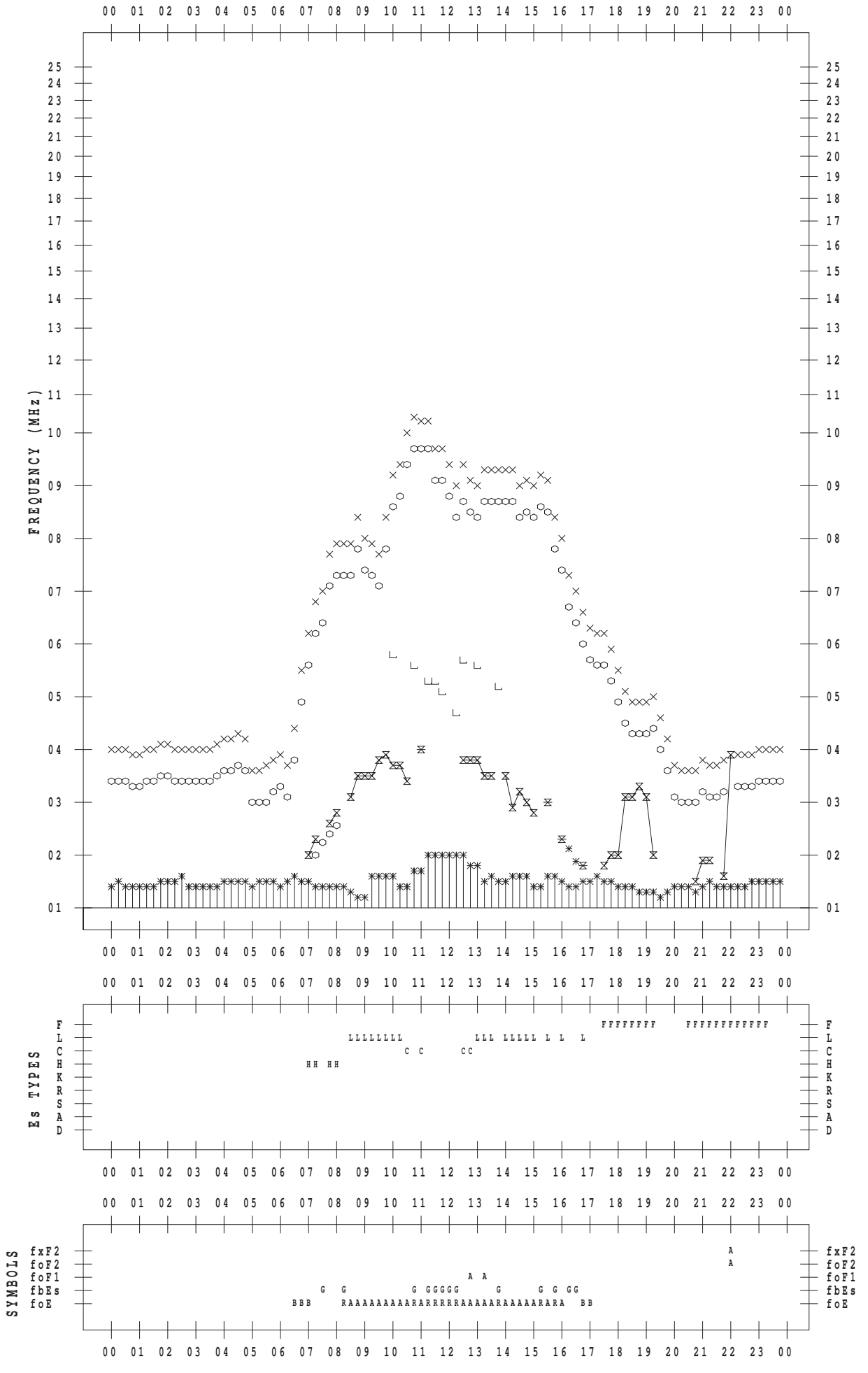
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/ 1

135 °E MEAN TIME



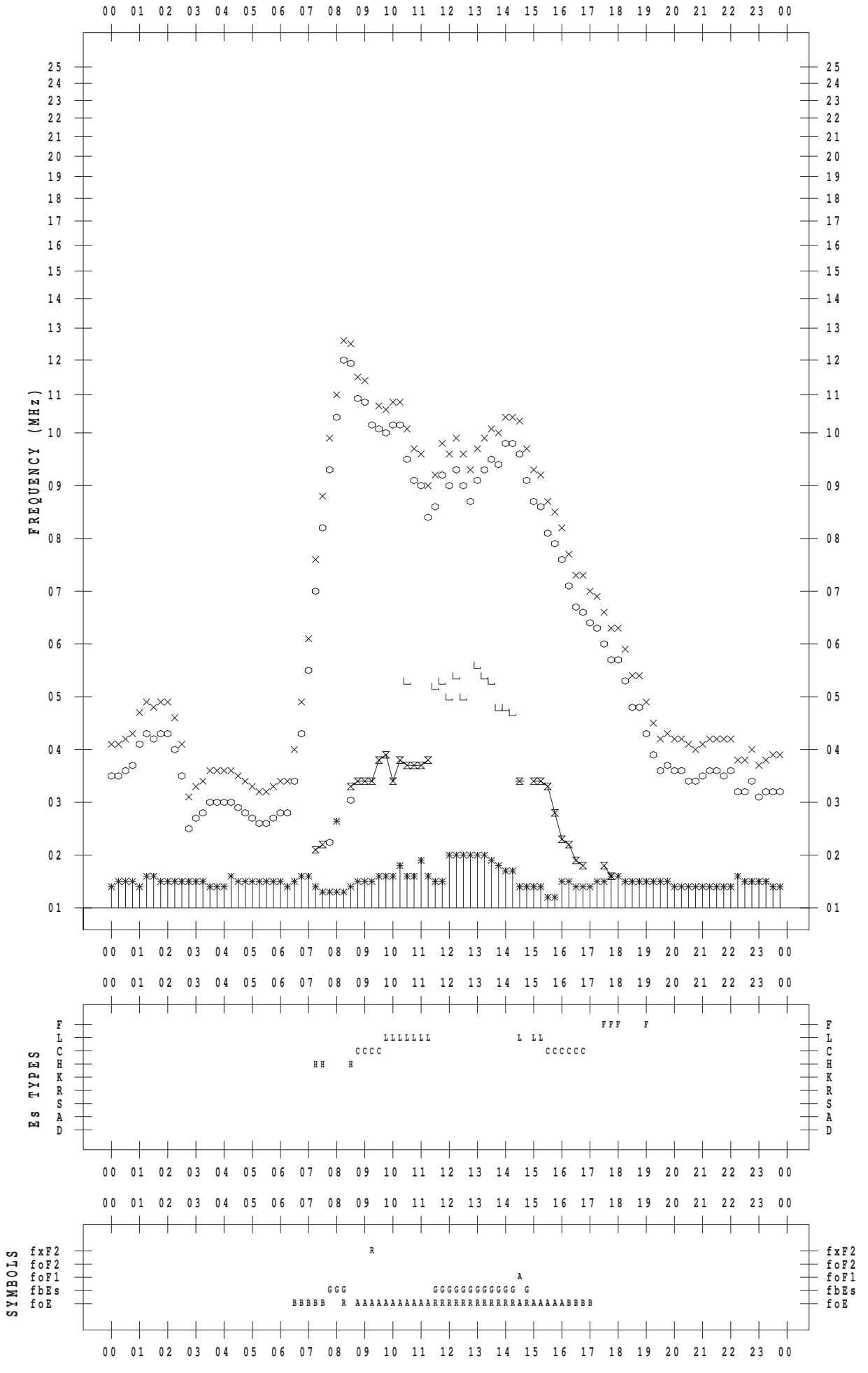
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/ 2

135 °E MEAN TIME



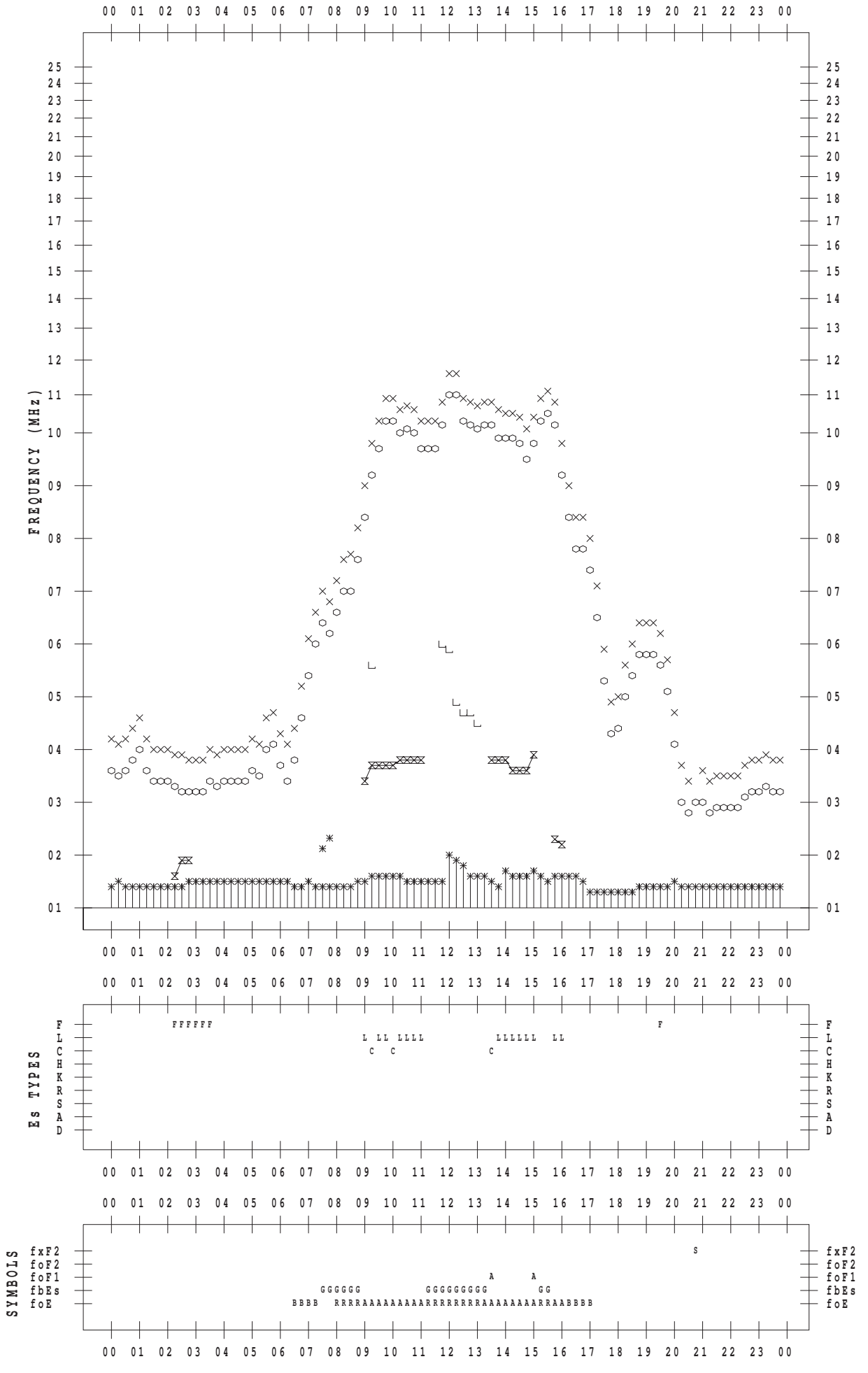
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/ 3

135 °E MEAN TIME



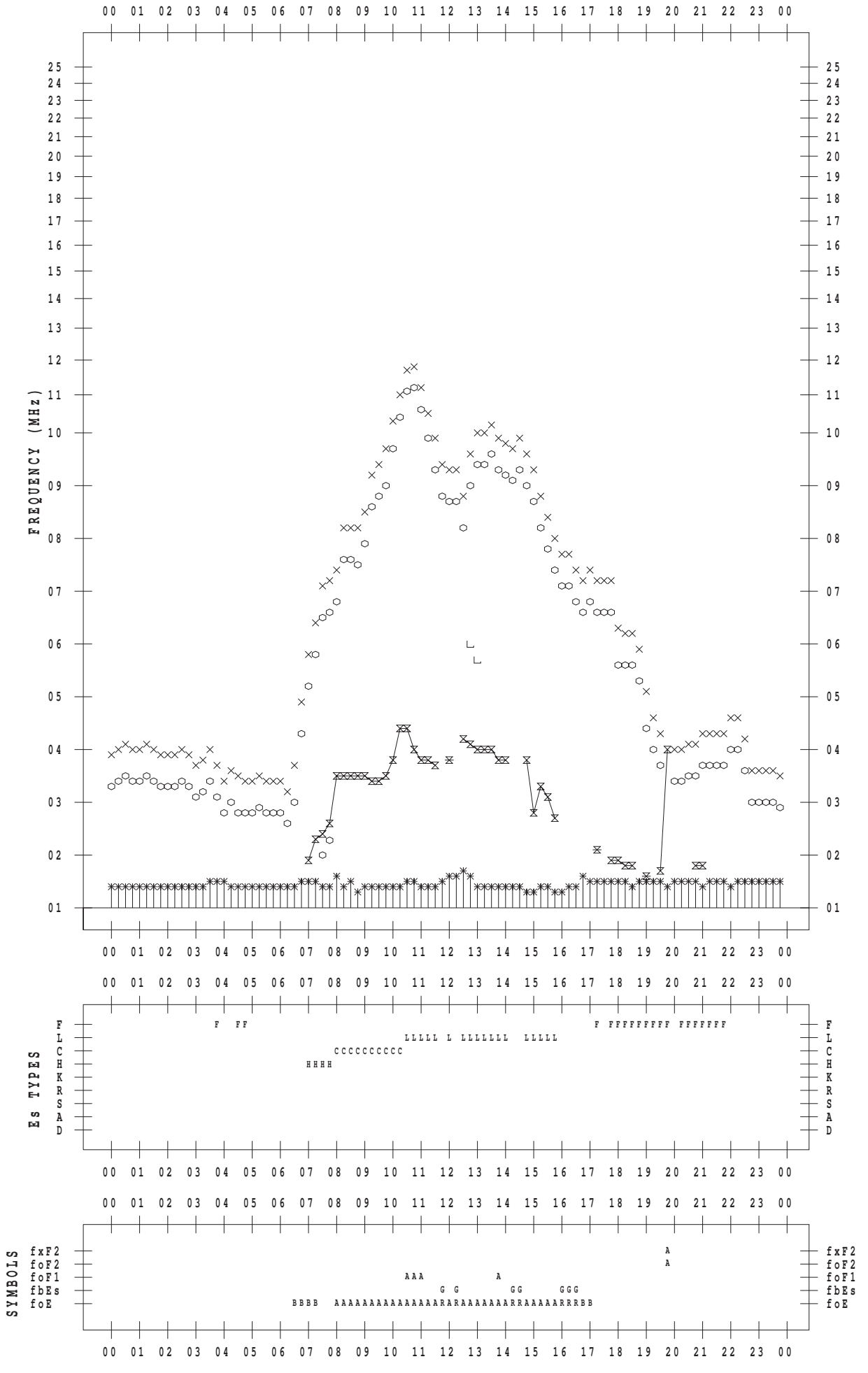
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/ 4

135 °E MEAN TIME



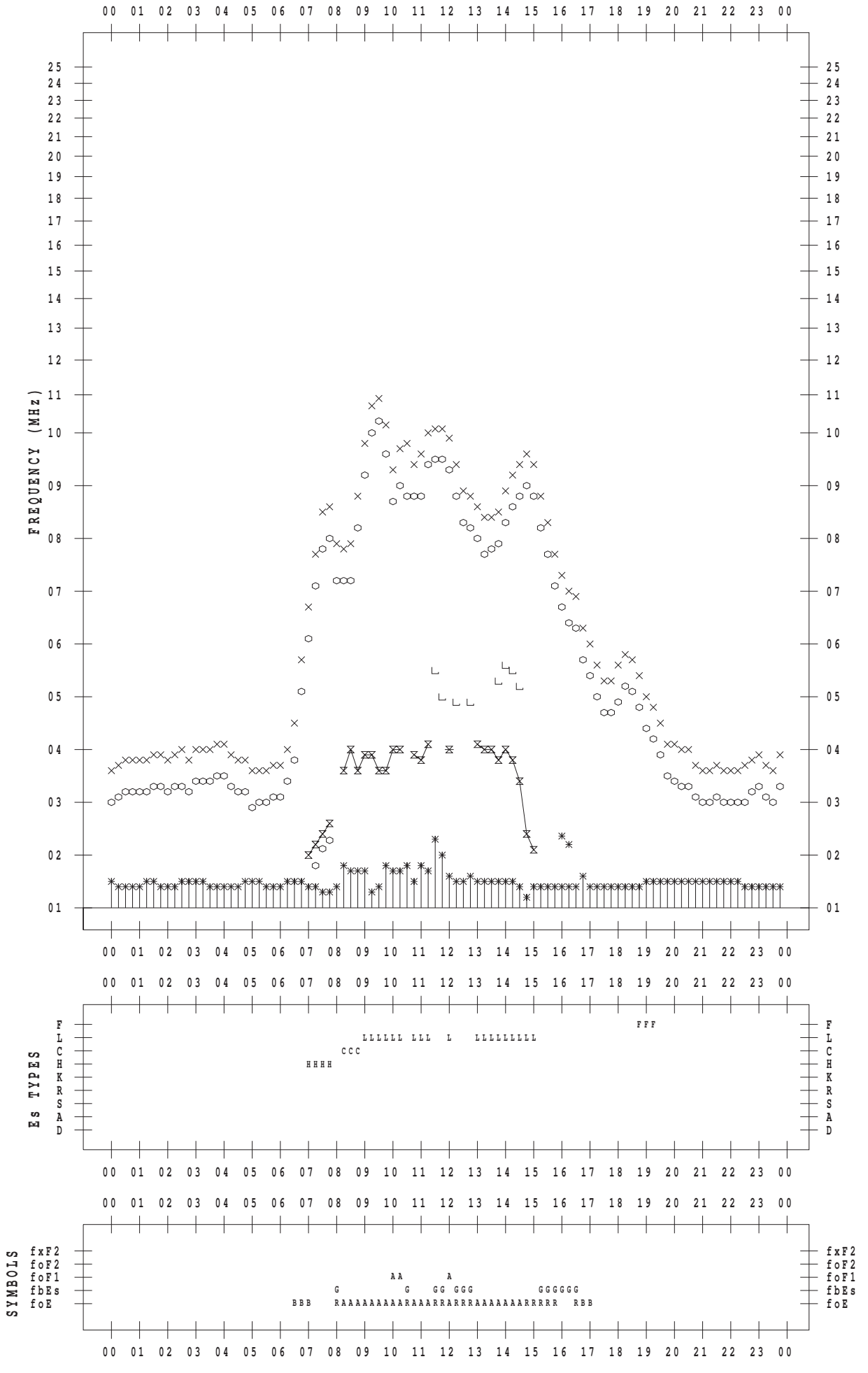
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/ 5

135 °E MEAN TIME



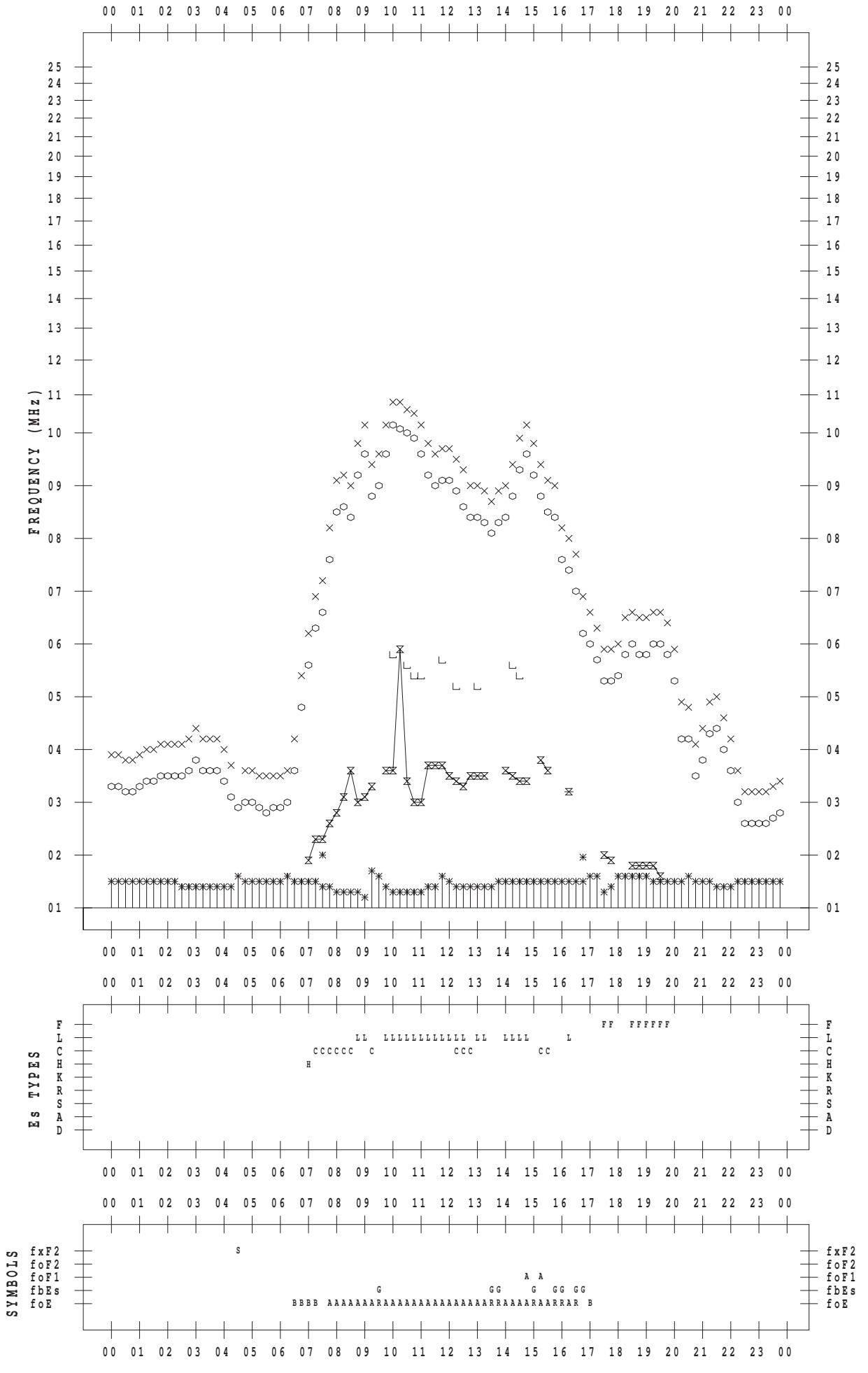
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/ 6

135 °E MEAN TIME



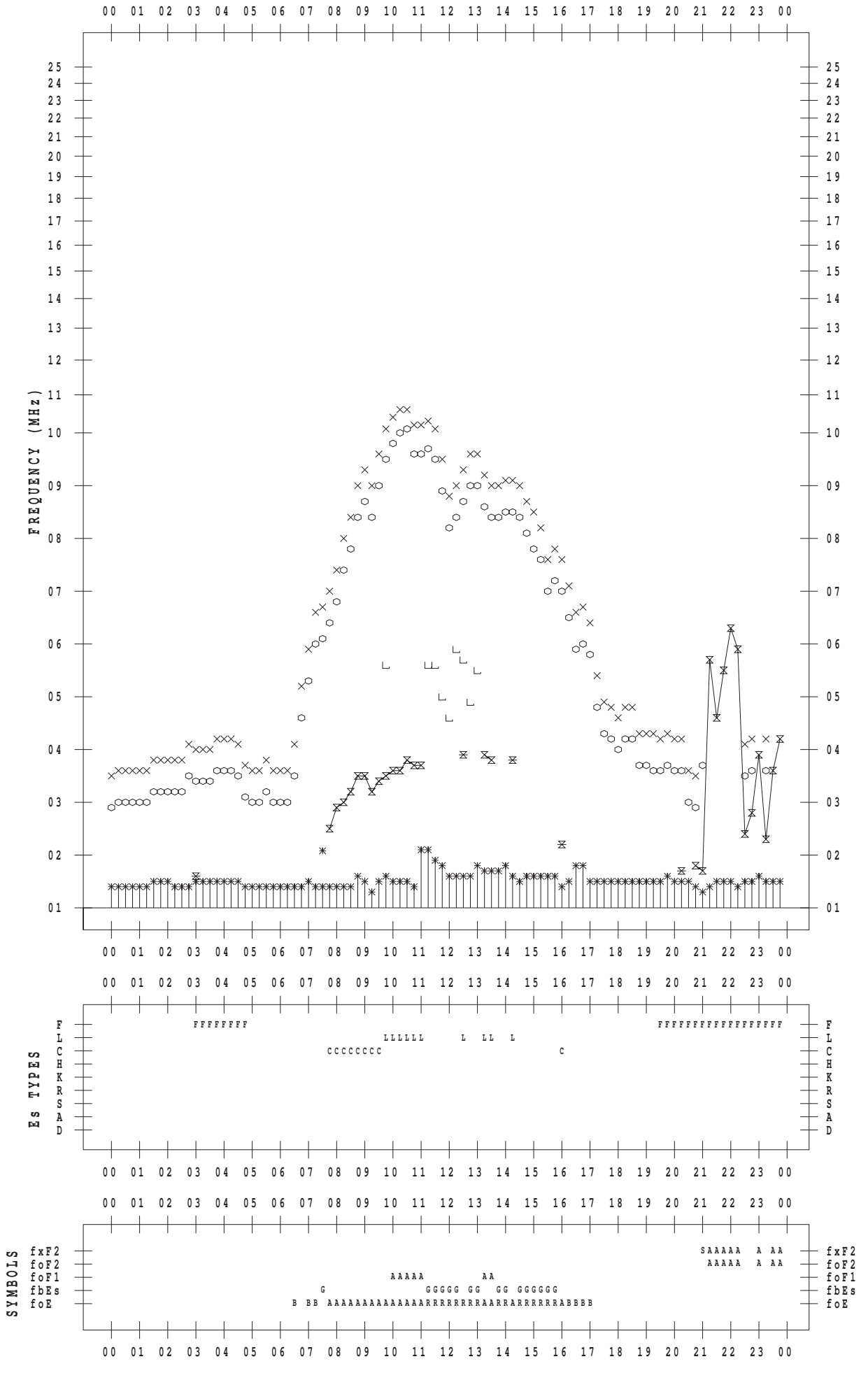
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/ 7

135 °E MEAN TIME



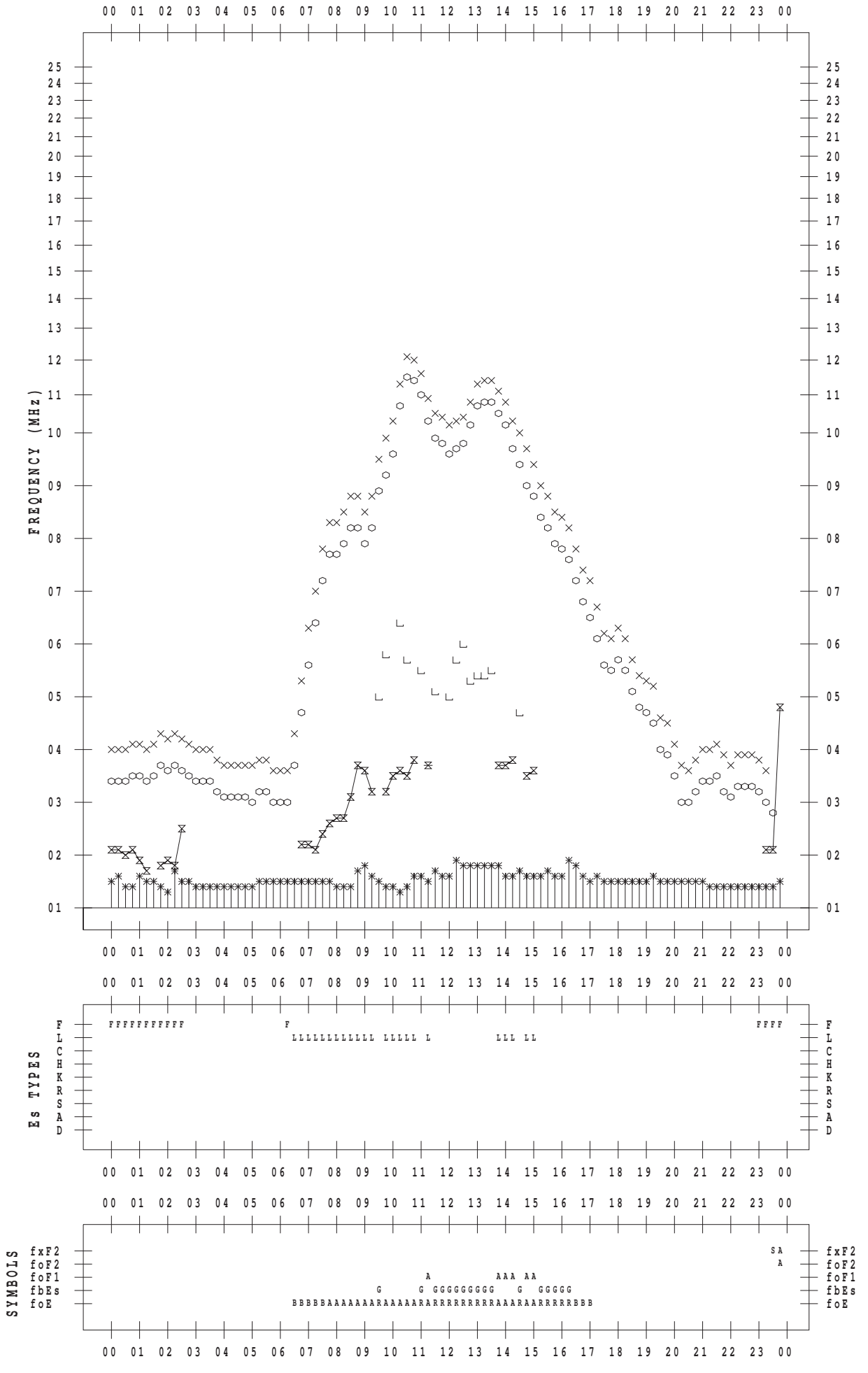
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/ 8

135 °E MEAN TIME



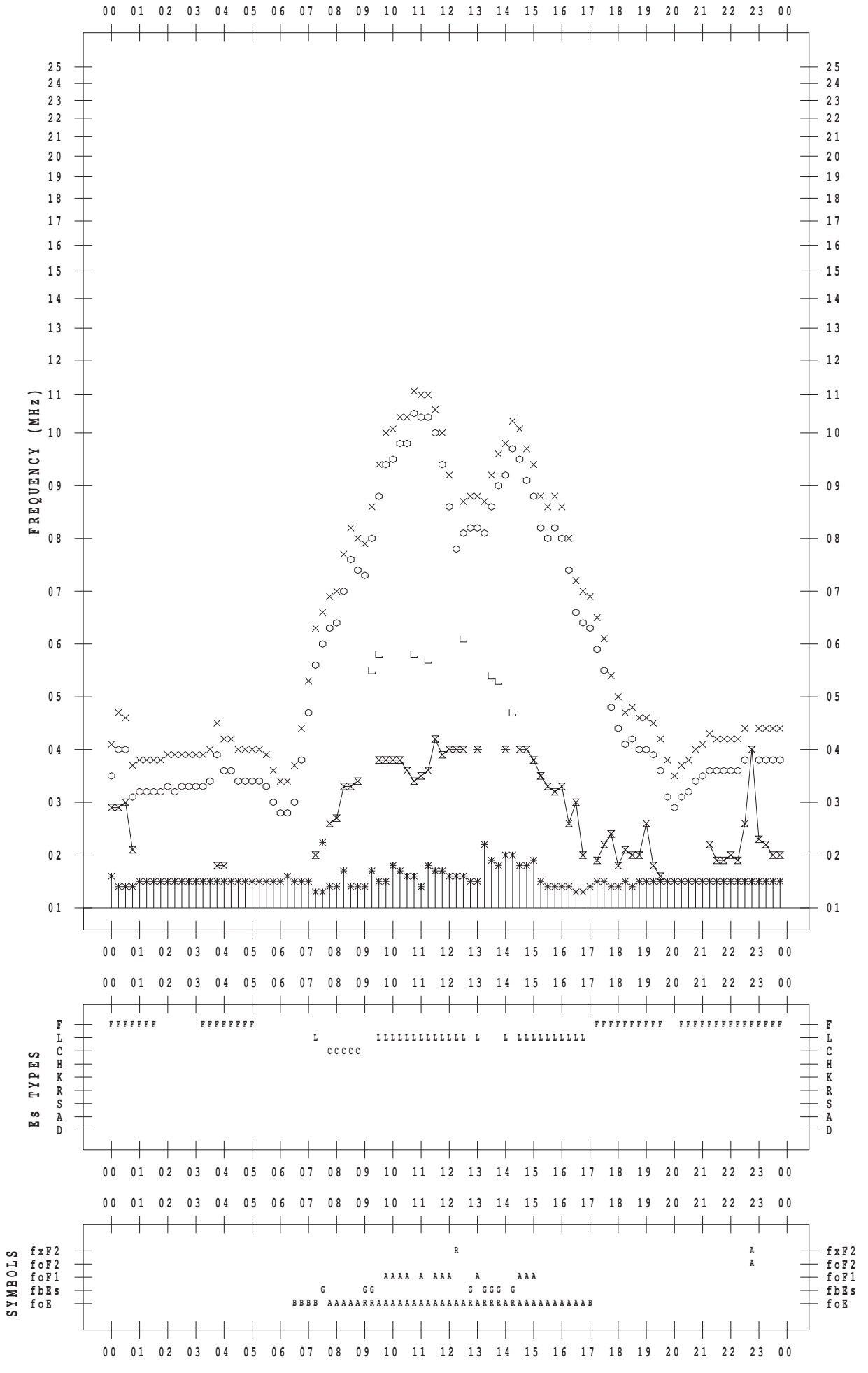
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/ 9

135 °E MEAN TIME



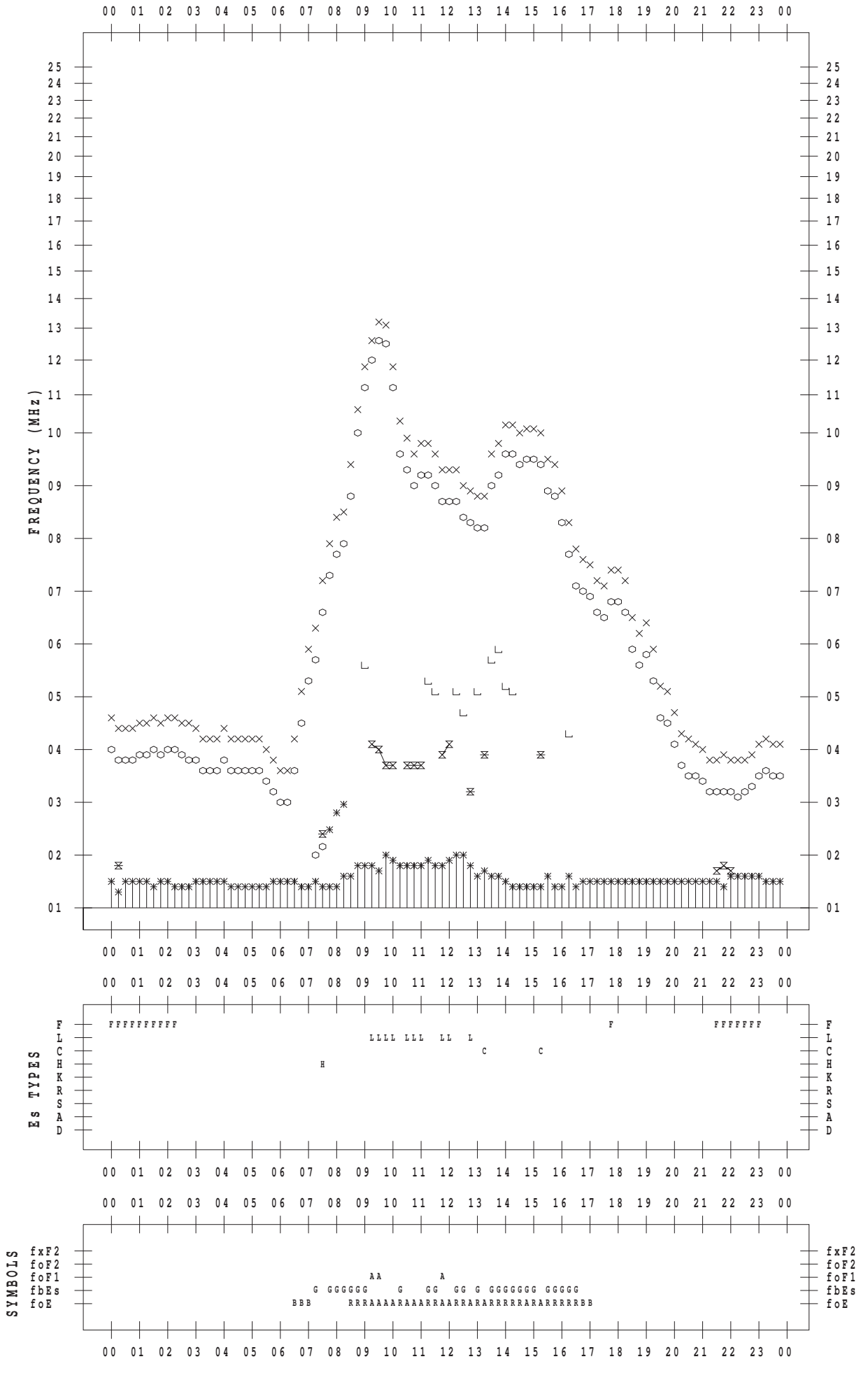
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/10

135 °E MEAN TIME



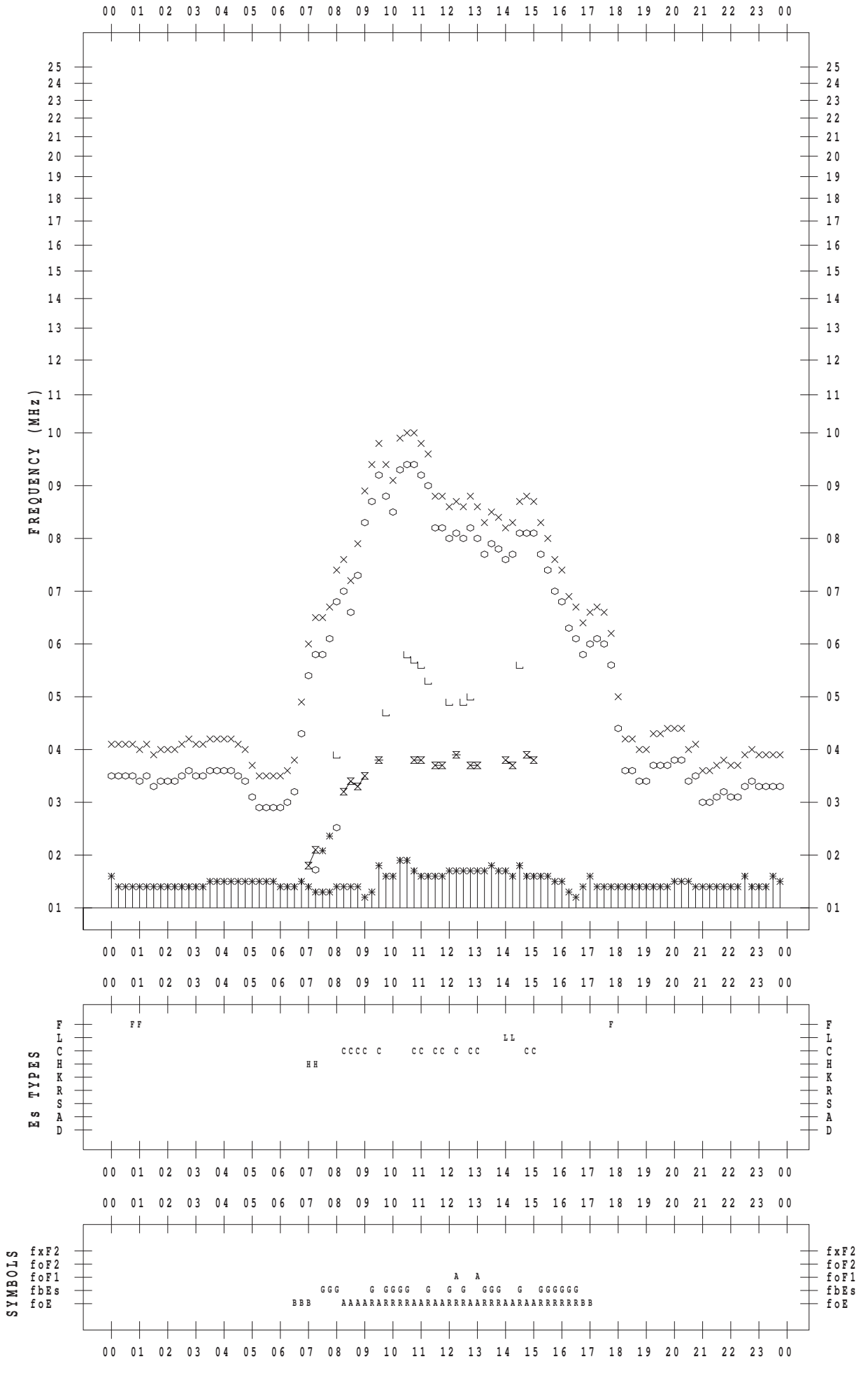
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/11

135 °E MEAN TIME



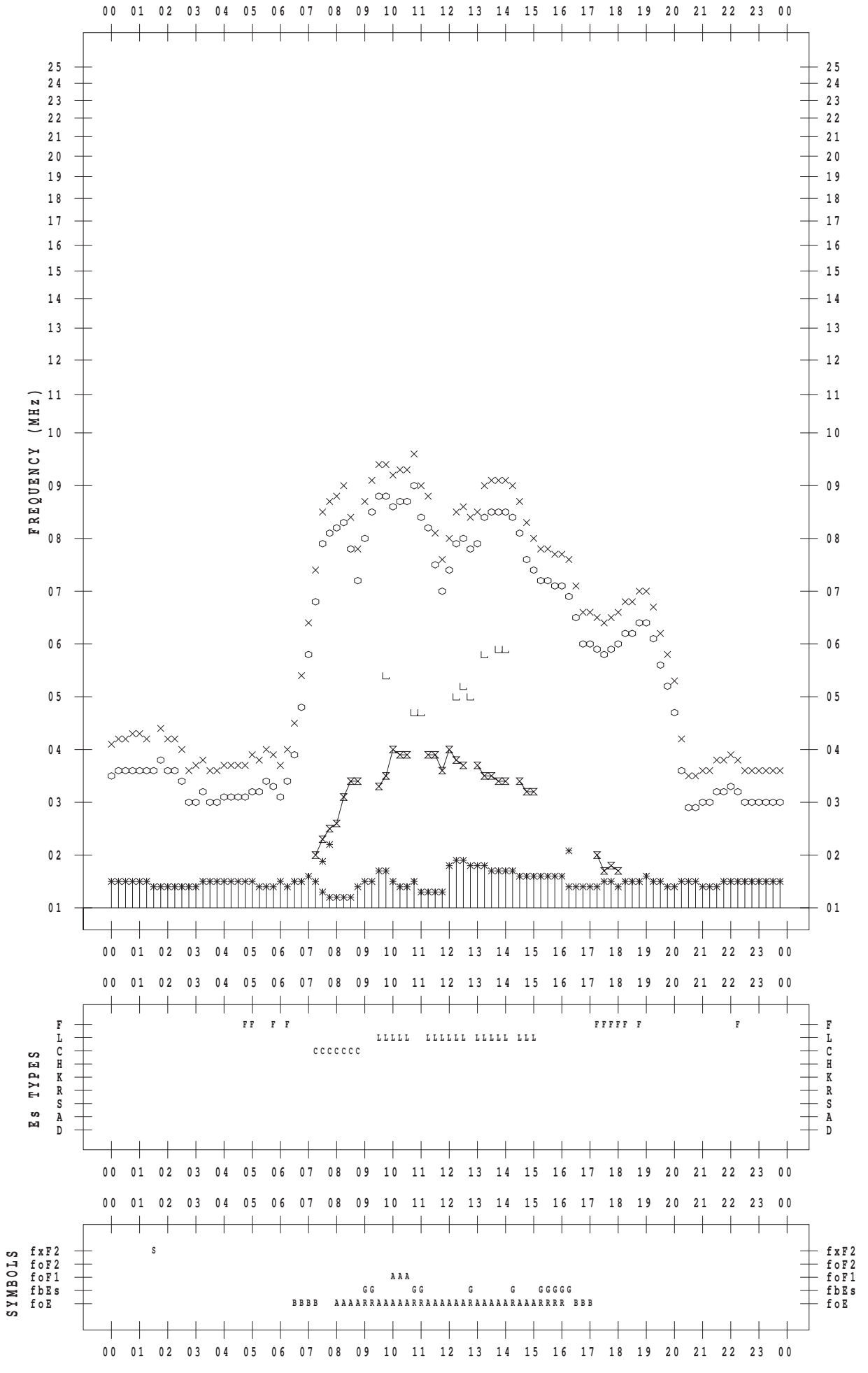
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/12

135 °E MEAN TIME



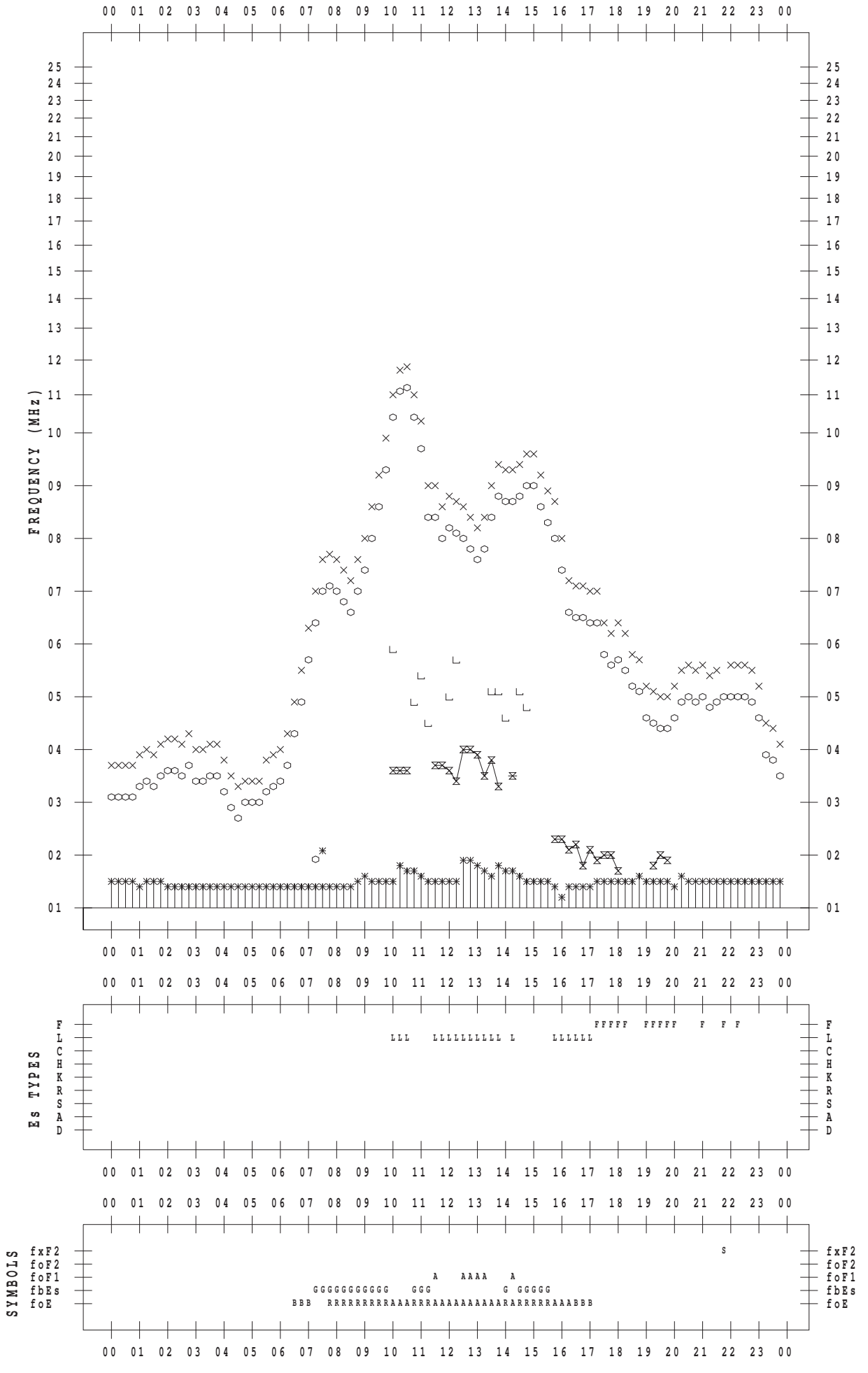
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/13

135 °E MEAN TIME



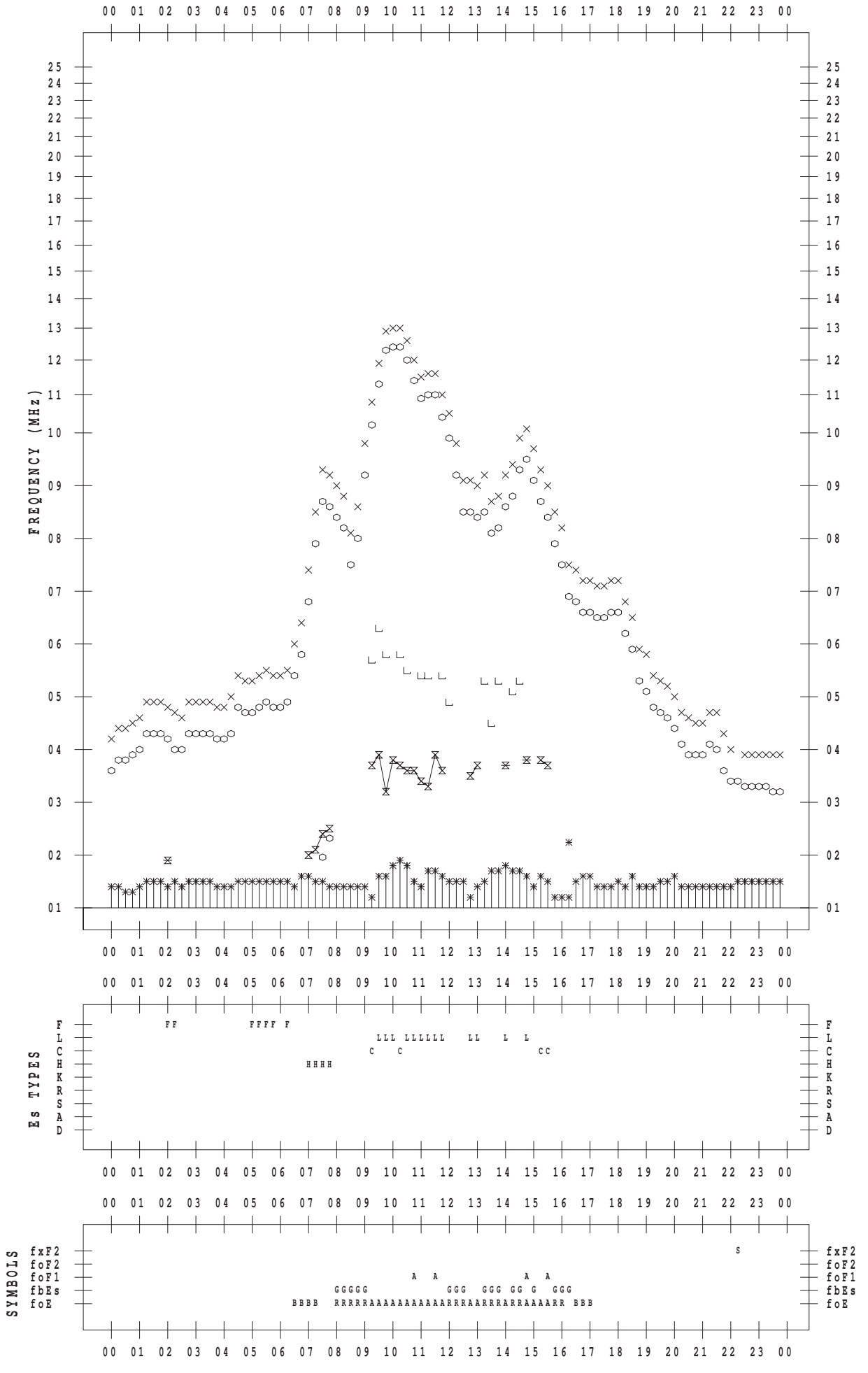
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/14

135 °E MEAN TIME



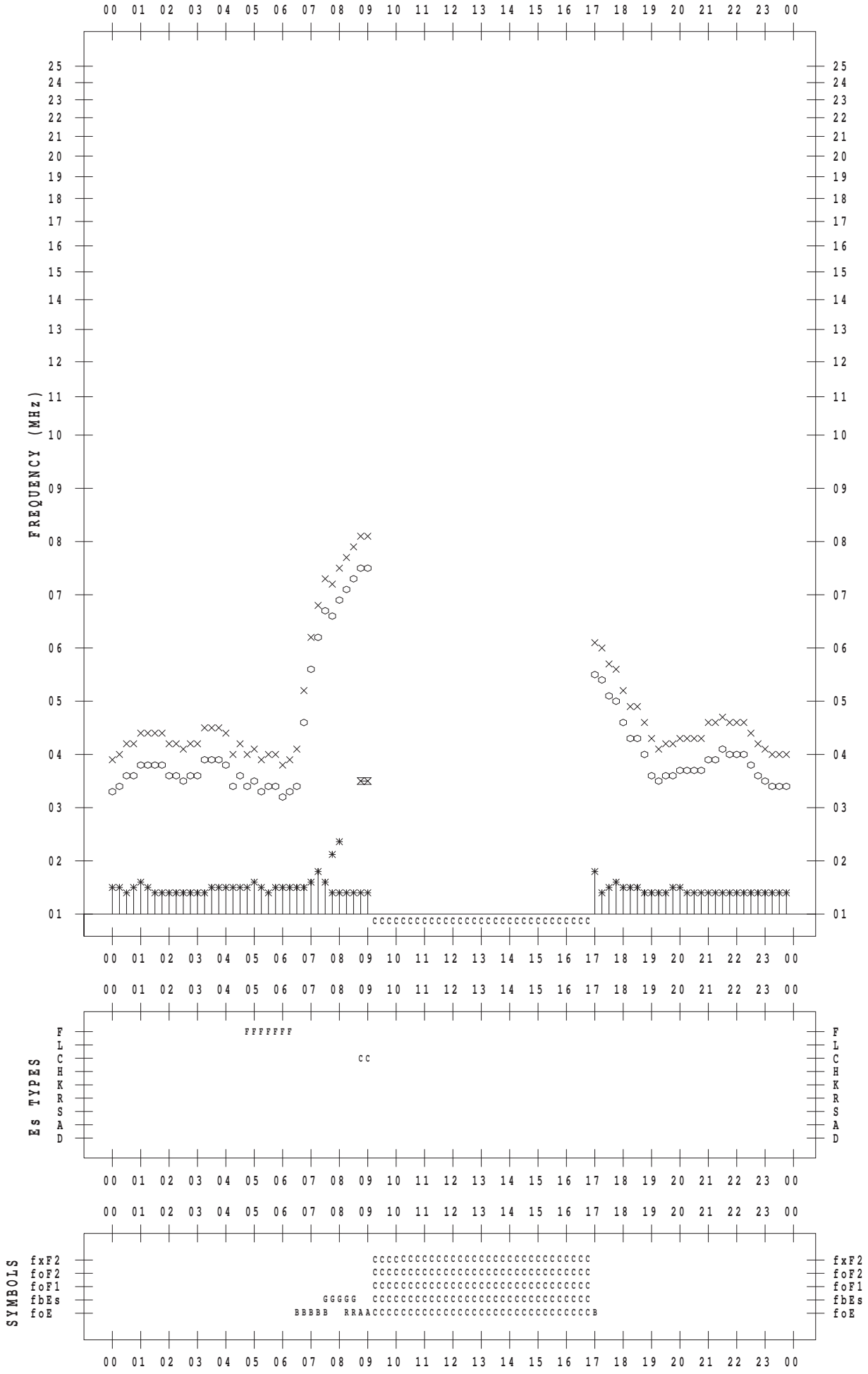
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/15

135 °E MEAN TIME



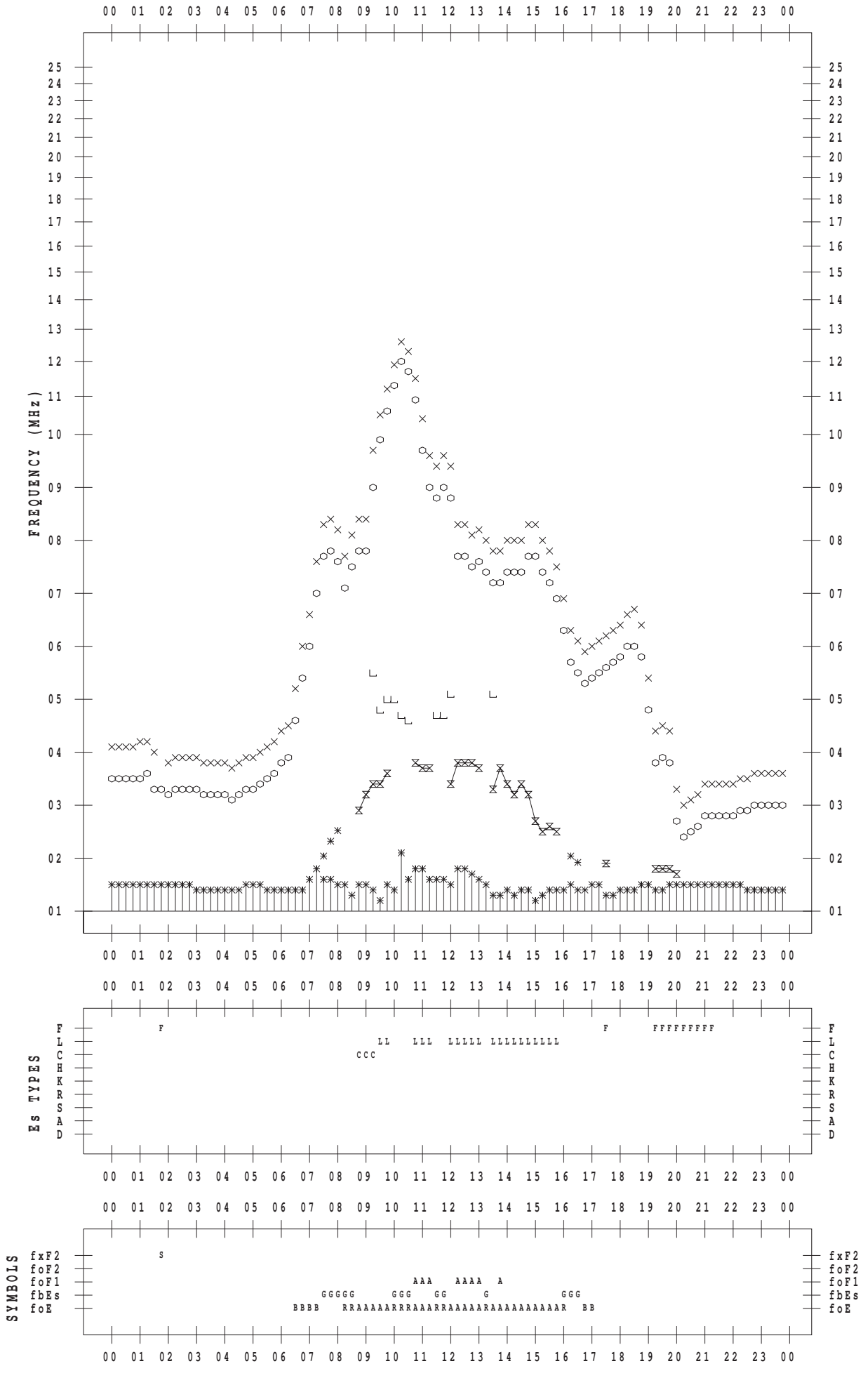
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/16

135 °E MEAN TIME



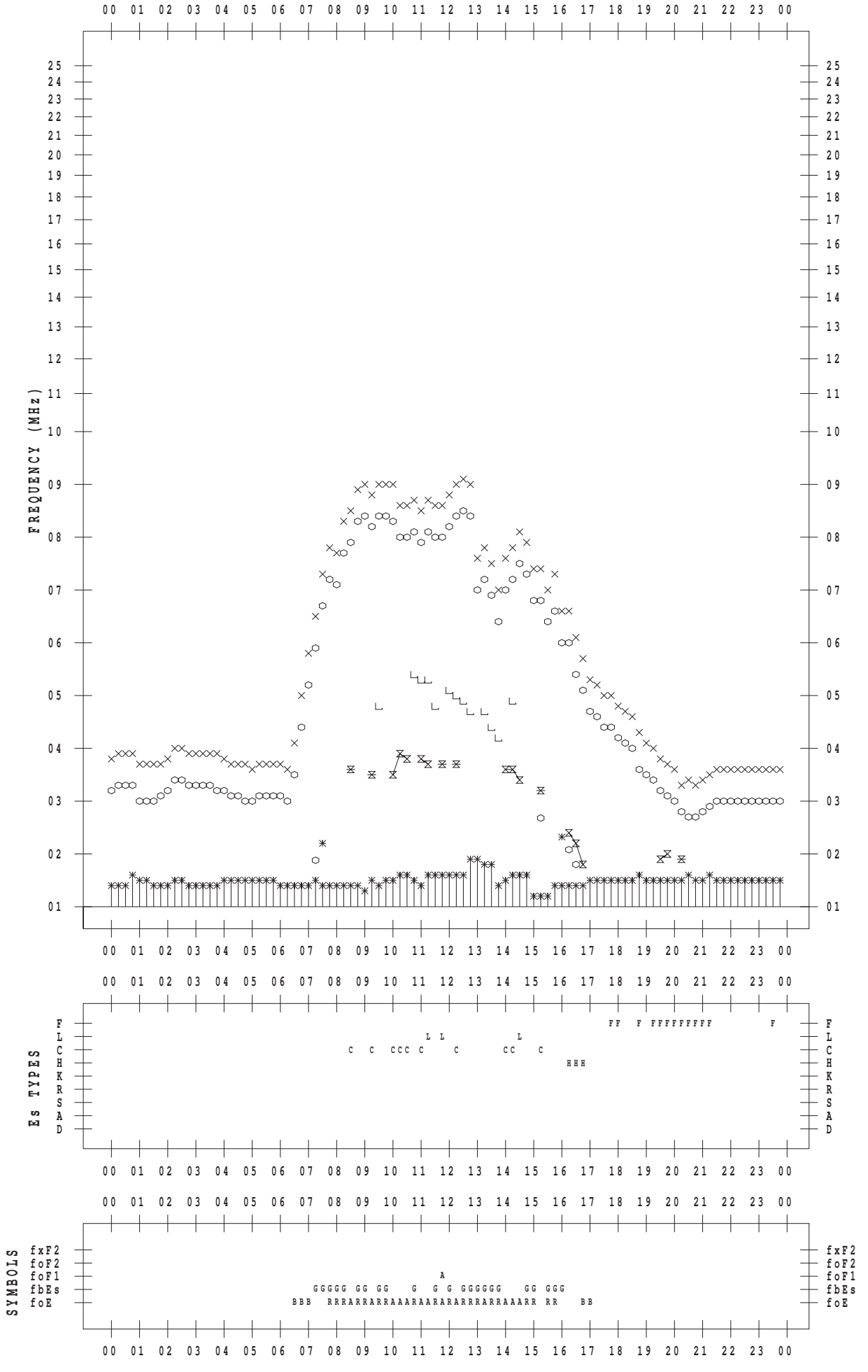
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/17

135 °E MEAN TIME



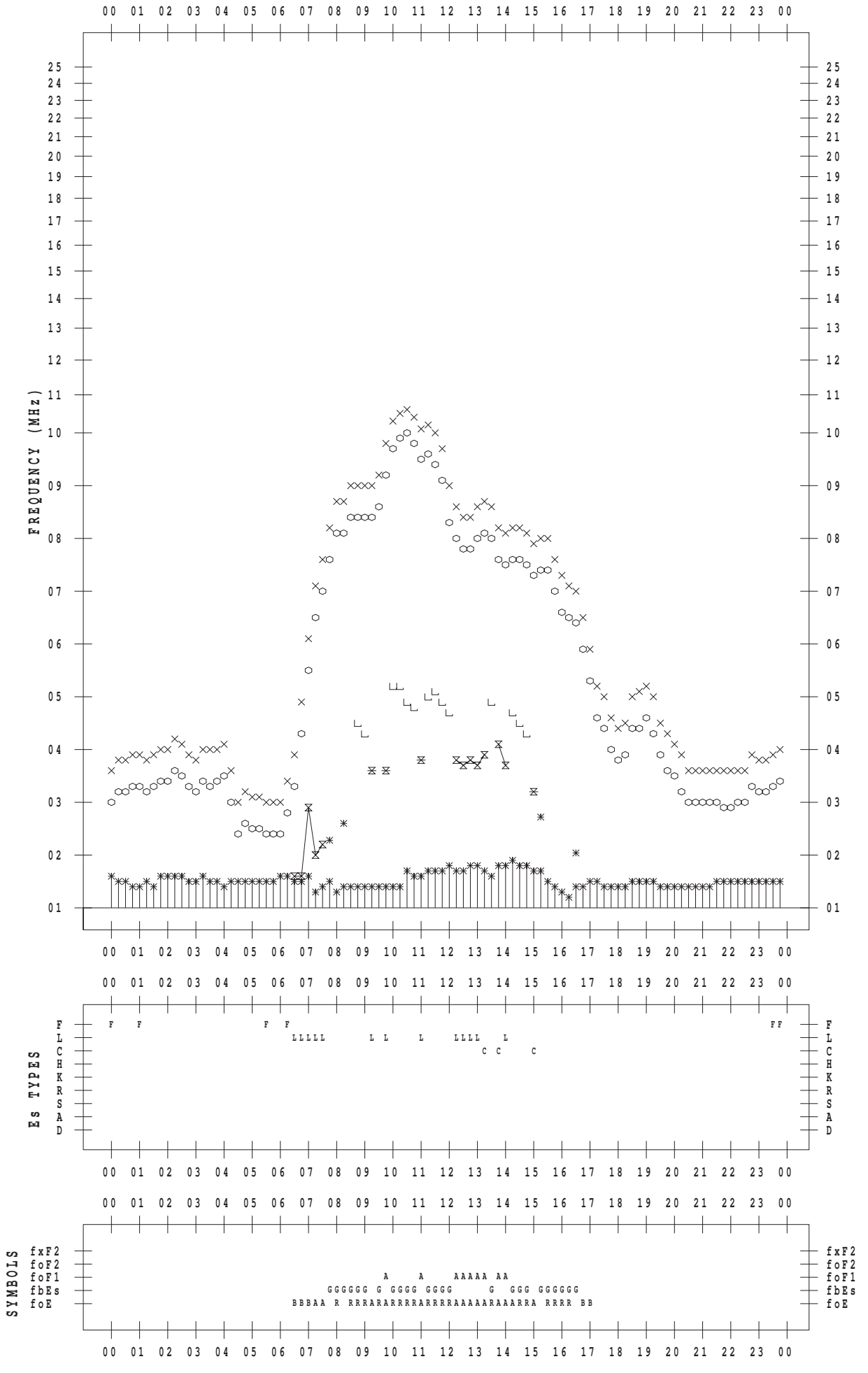
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/18

135 °E MEAN TIME



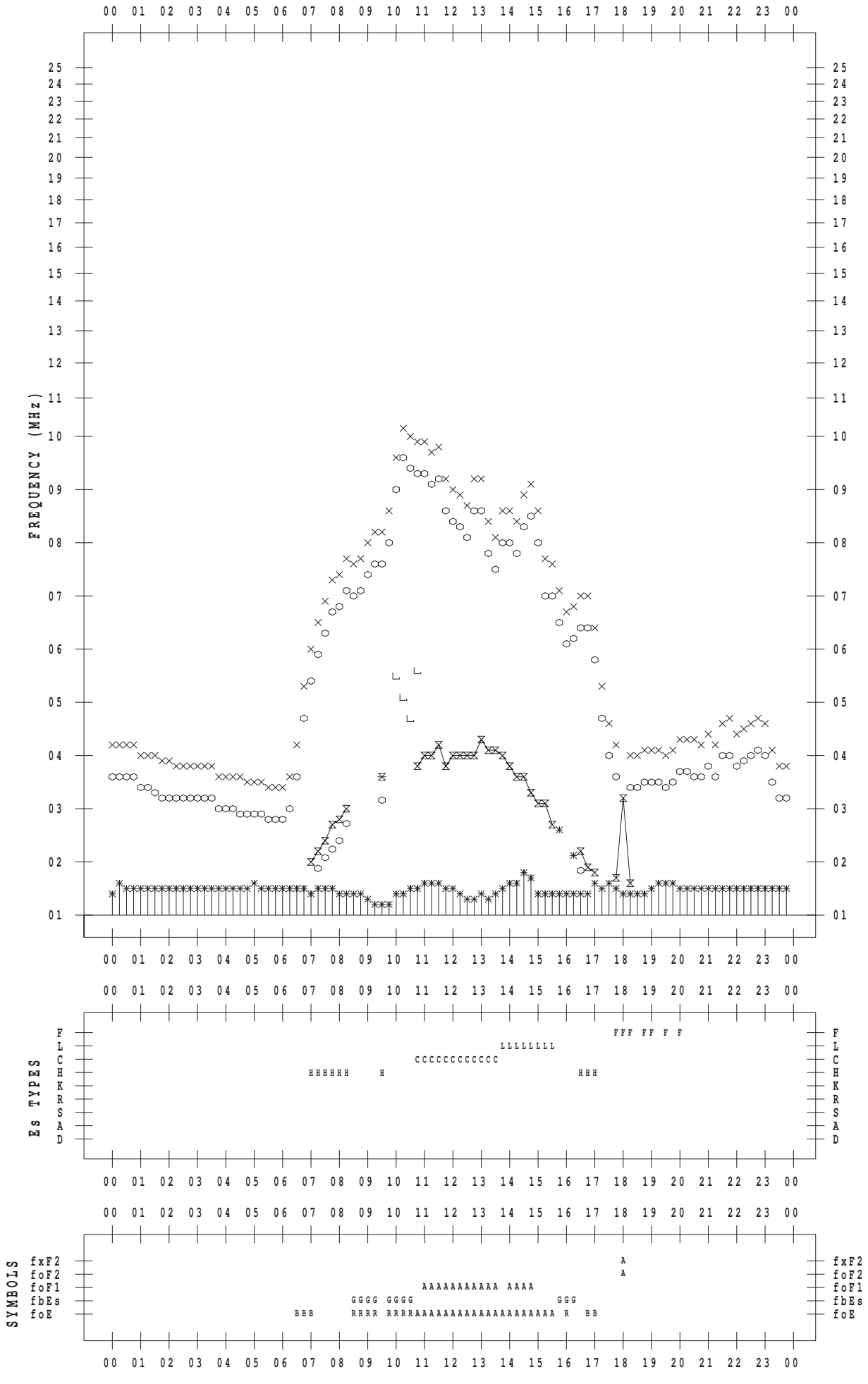
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/19

135 °E MEAN TIME



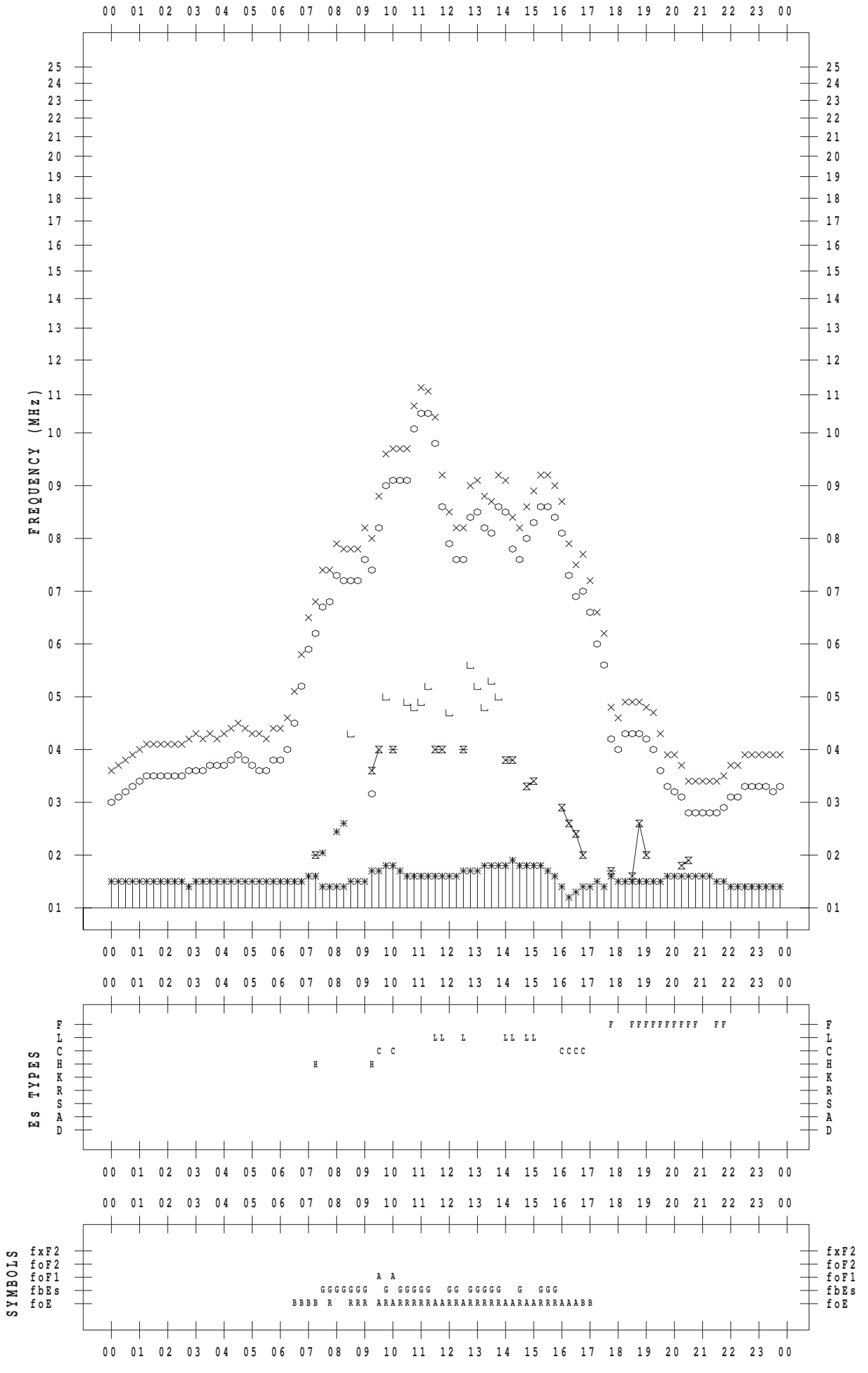
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/20

135 °E MEAN TIME



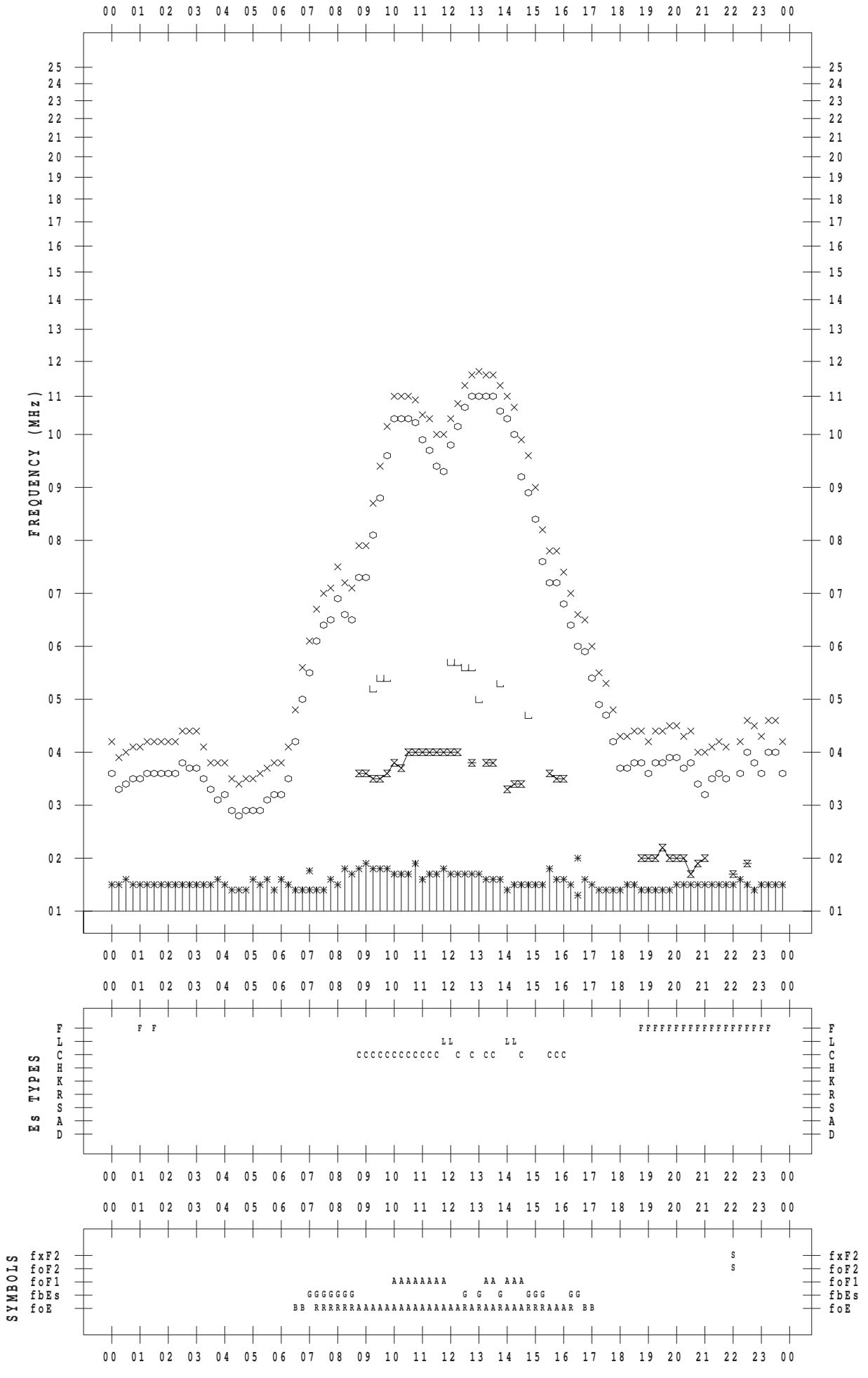
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/21

135 °E MEAN TIME



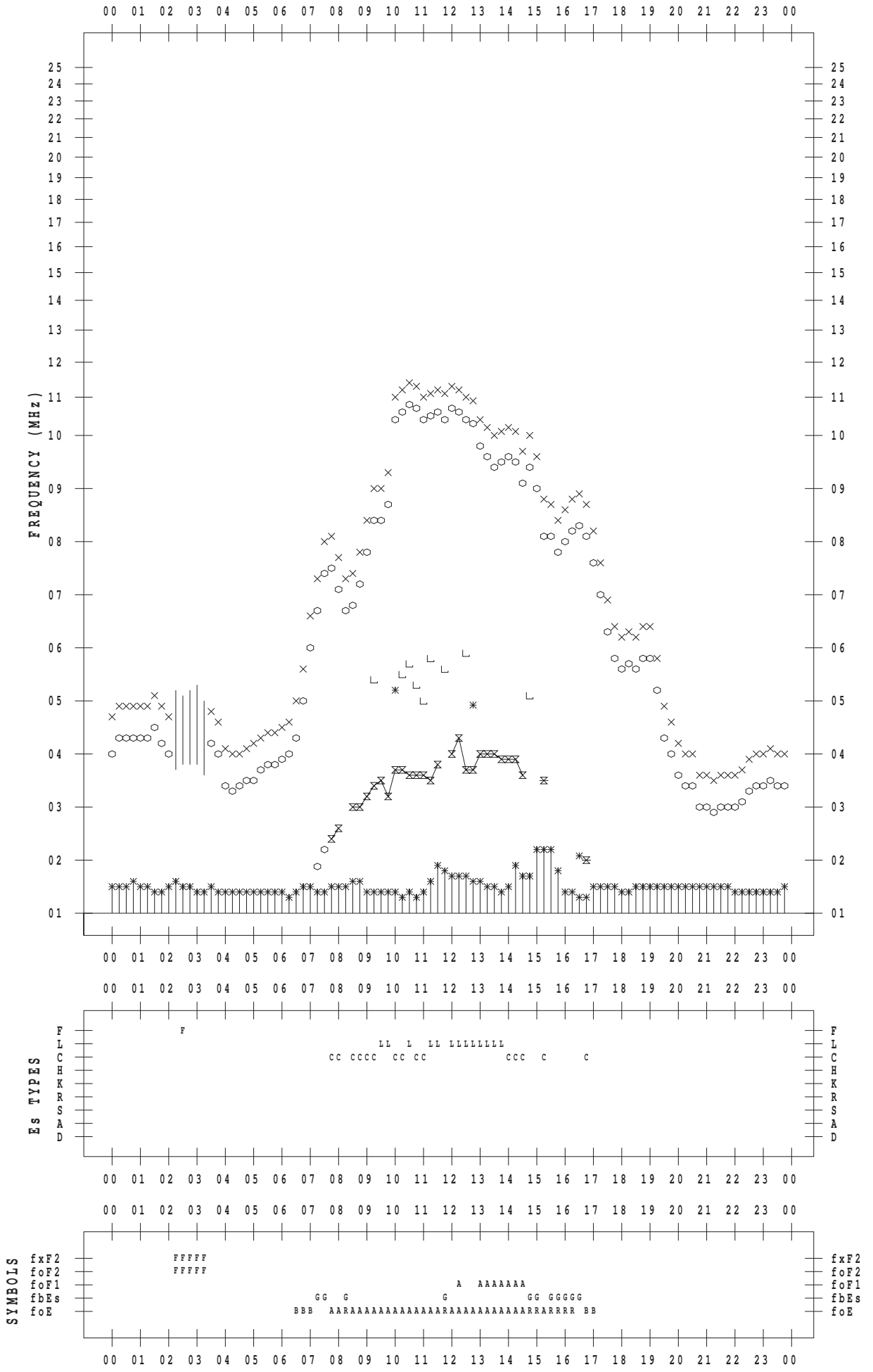
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/22

135 °E MEAN TIME



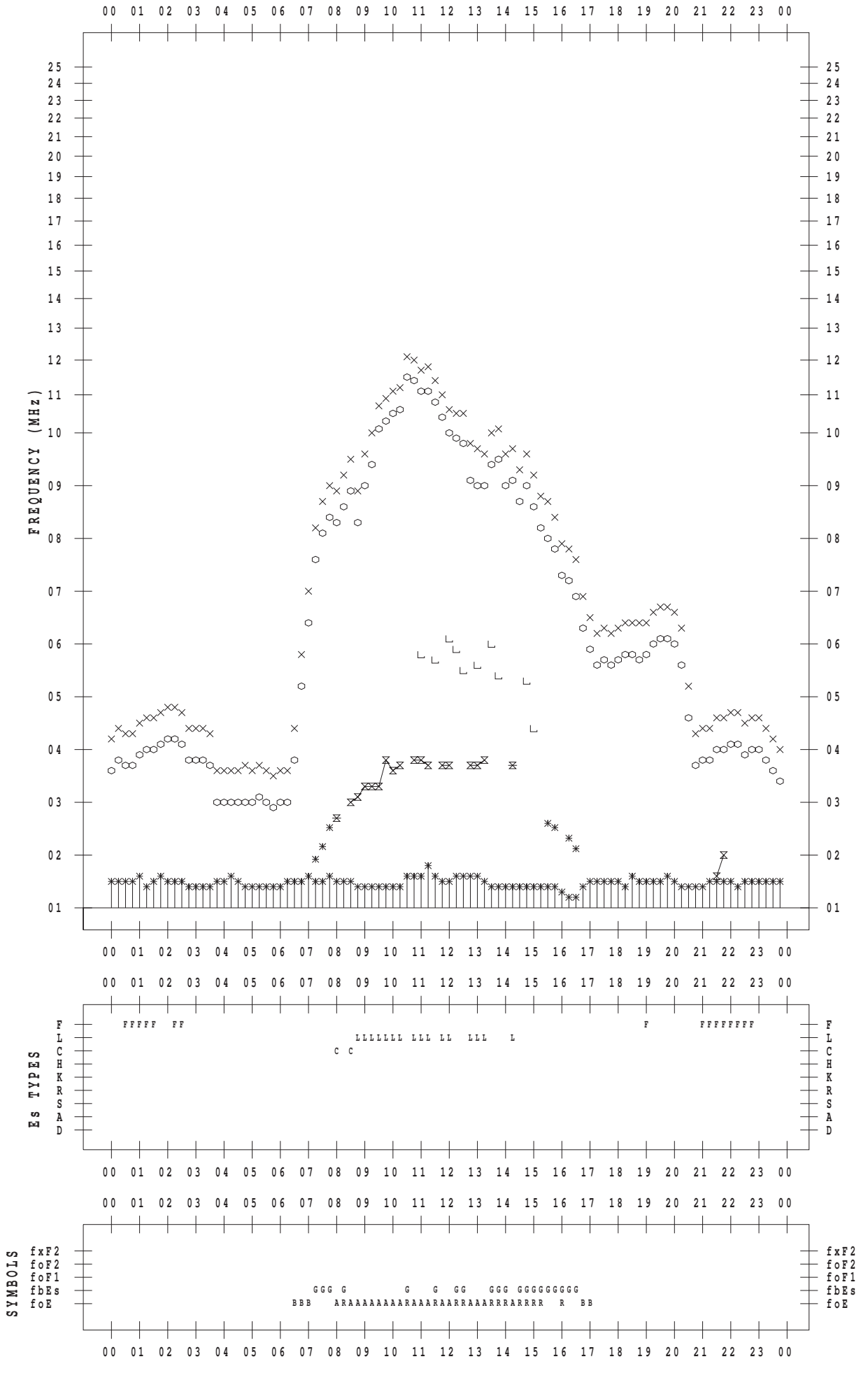
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/23

135 °E MEAN TIME



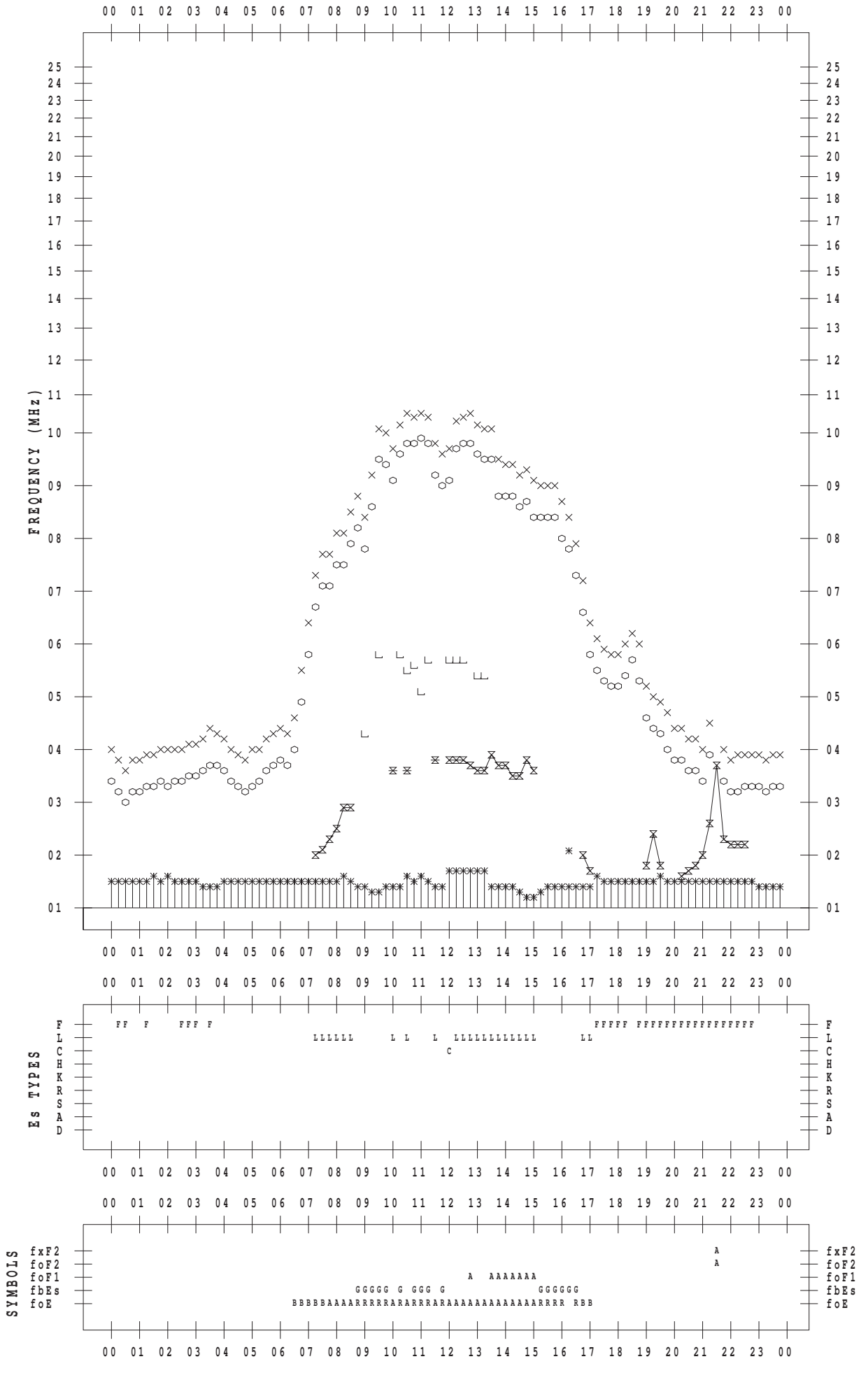
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/24

135 °E MEAN TIME

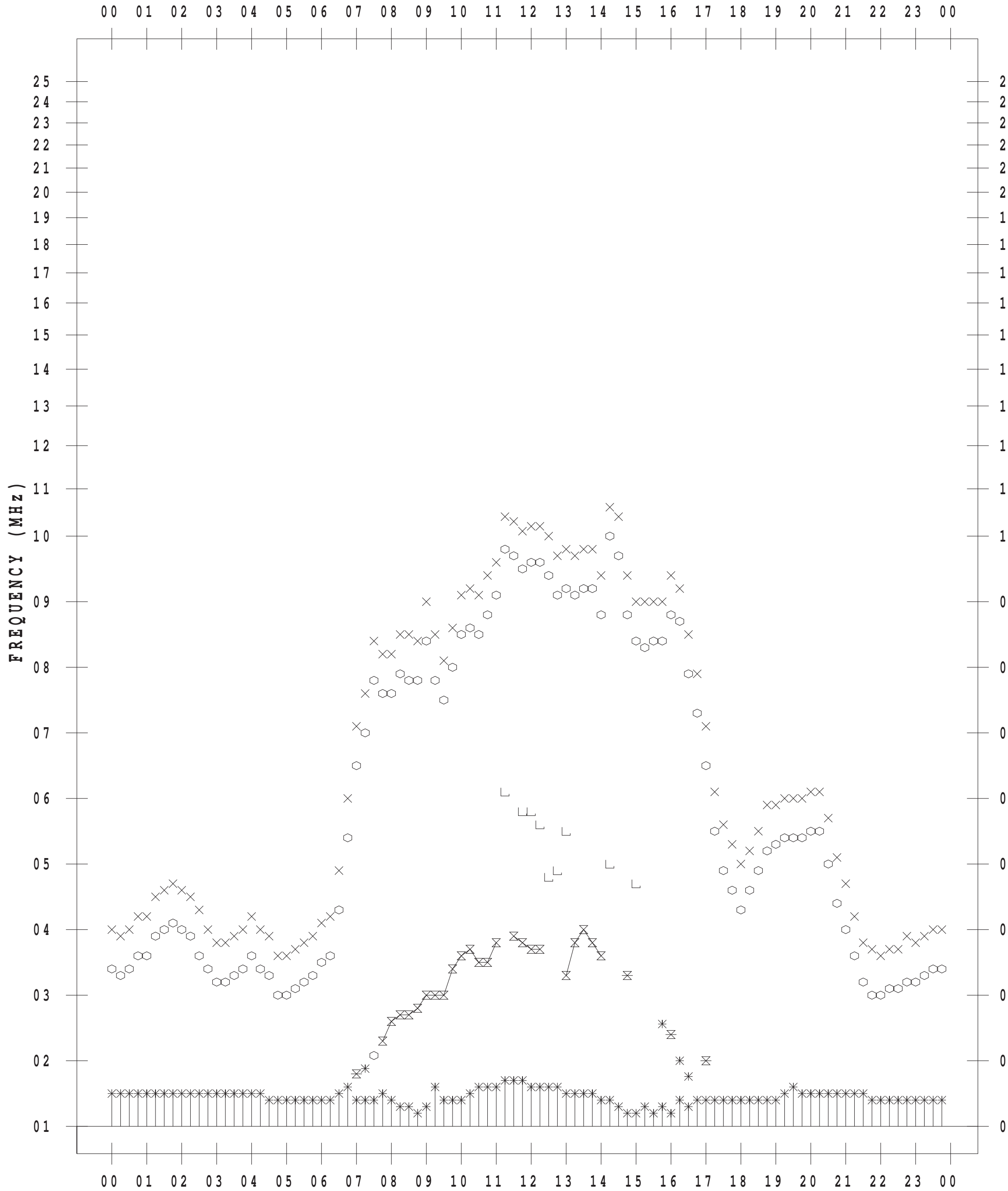


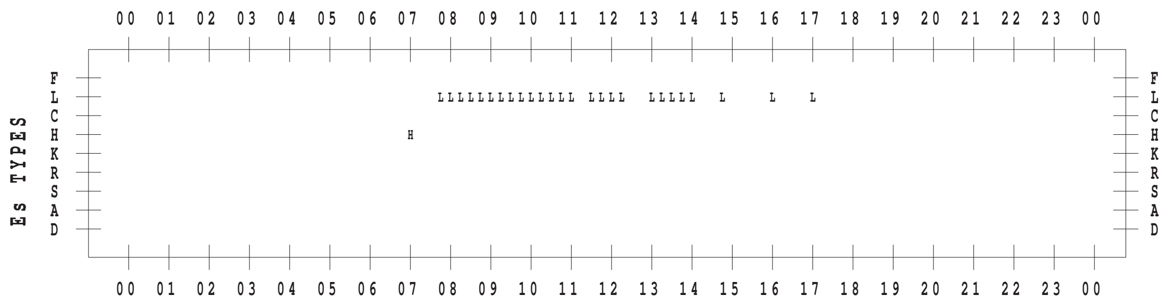
f-PLOT DATA

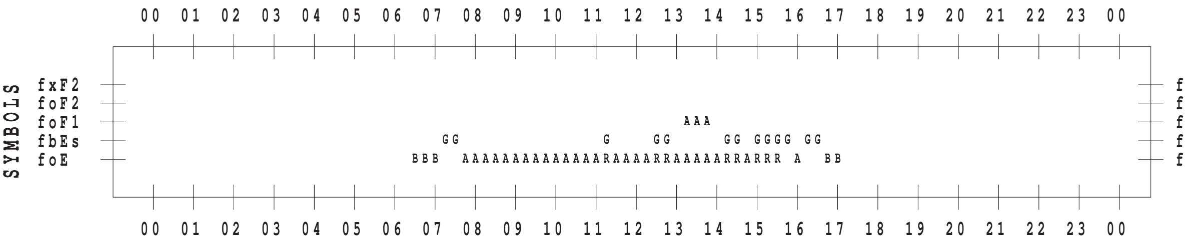
SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2014/ 1/25

135 °E MEAN TIME







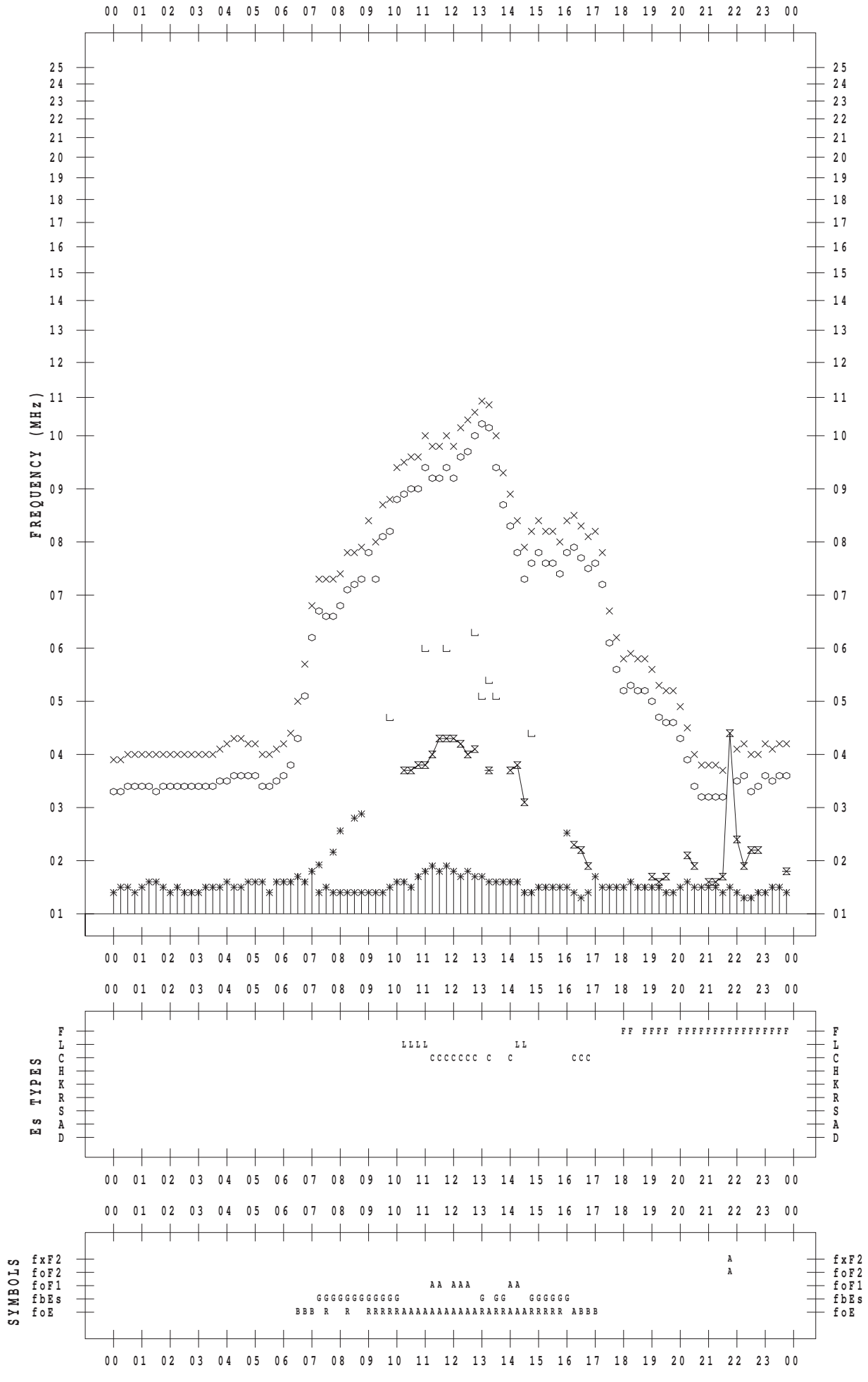
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/26

135 °E MEAN TIME



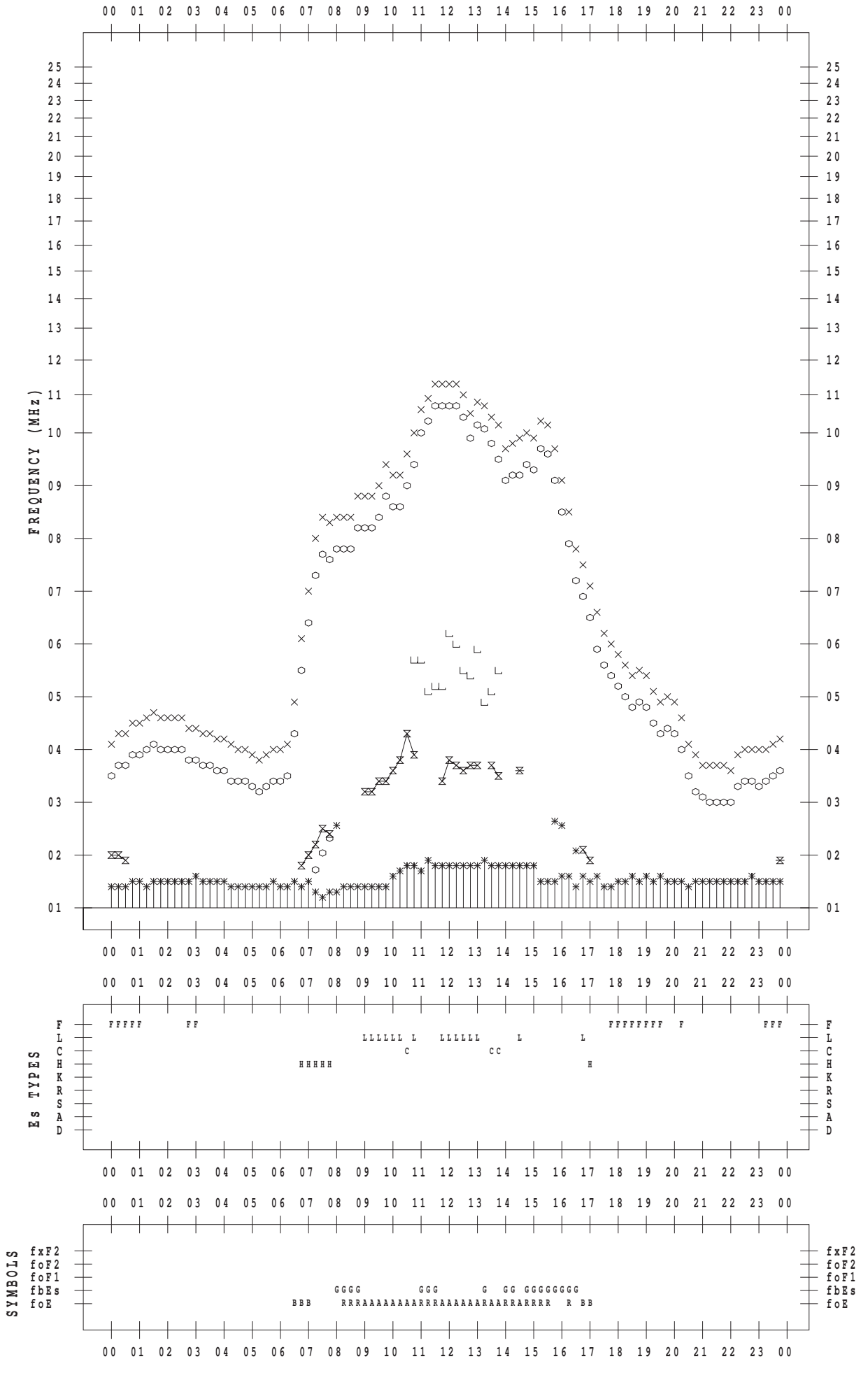
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/27

135 °E MEAN TIME



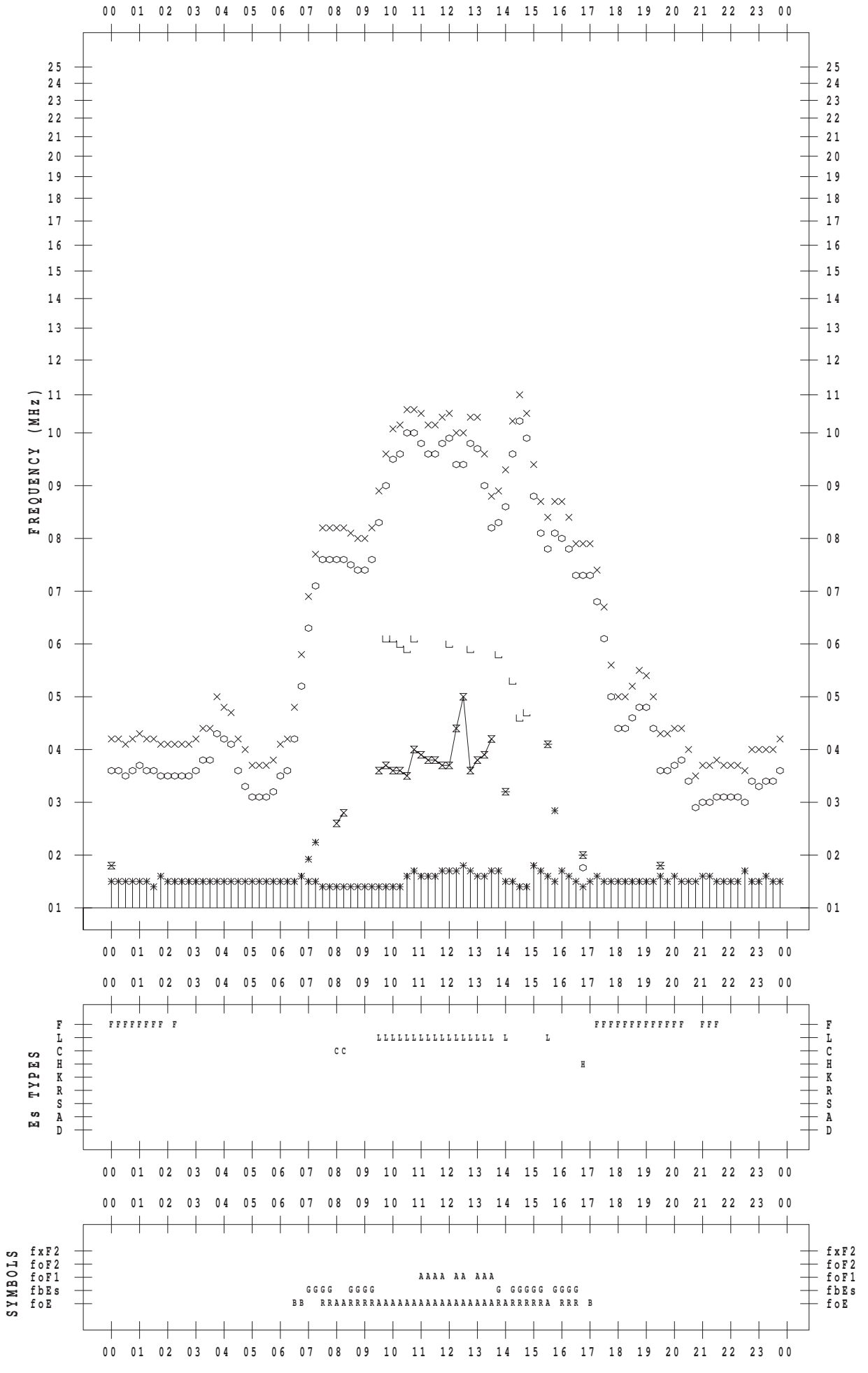
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/28

135 °E MEAN TIME



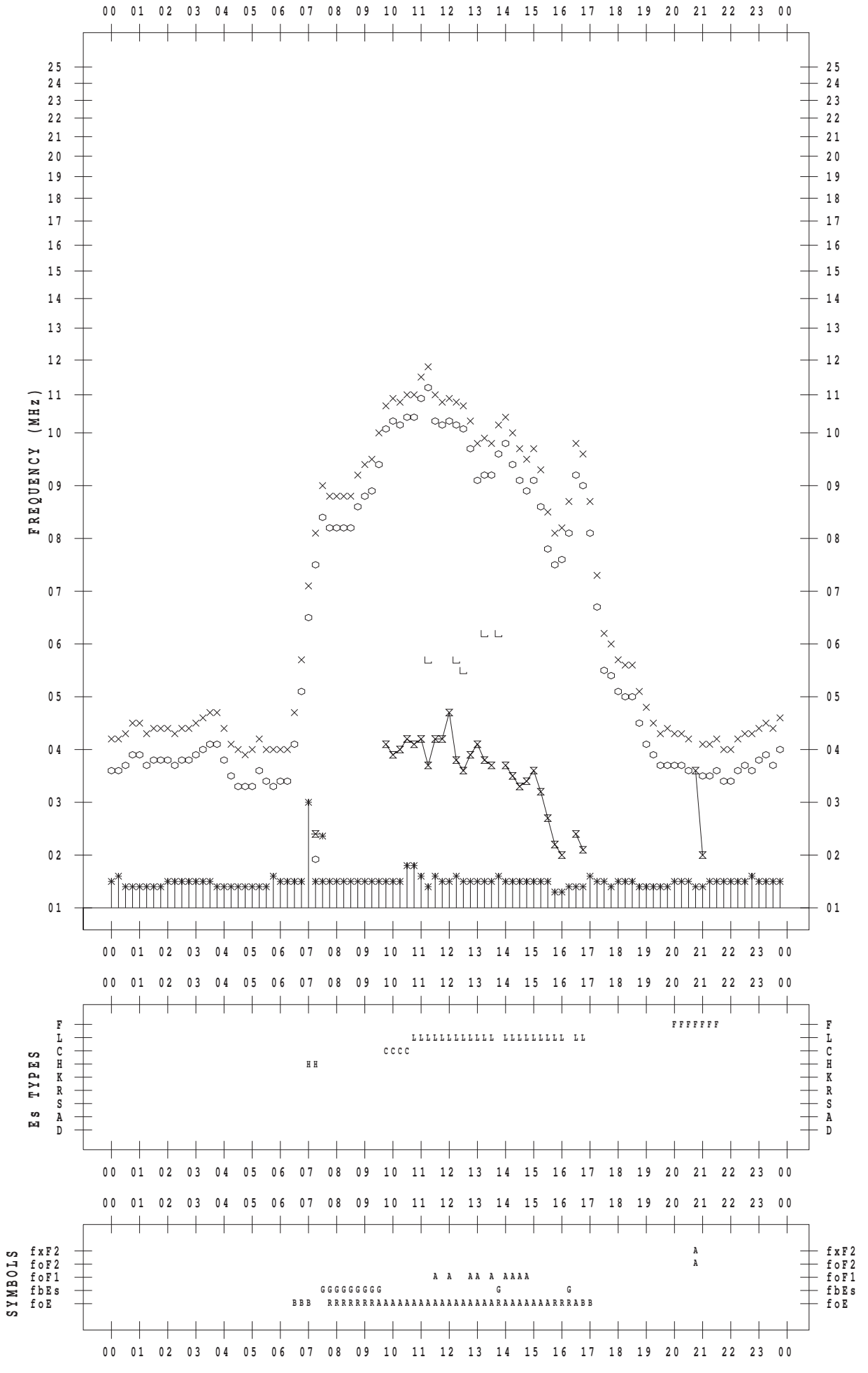
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/29

135 °E MEAN TIME



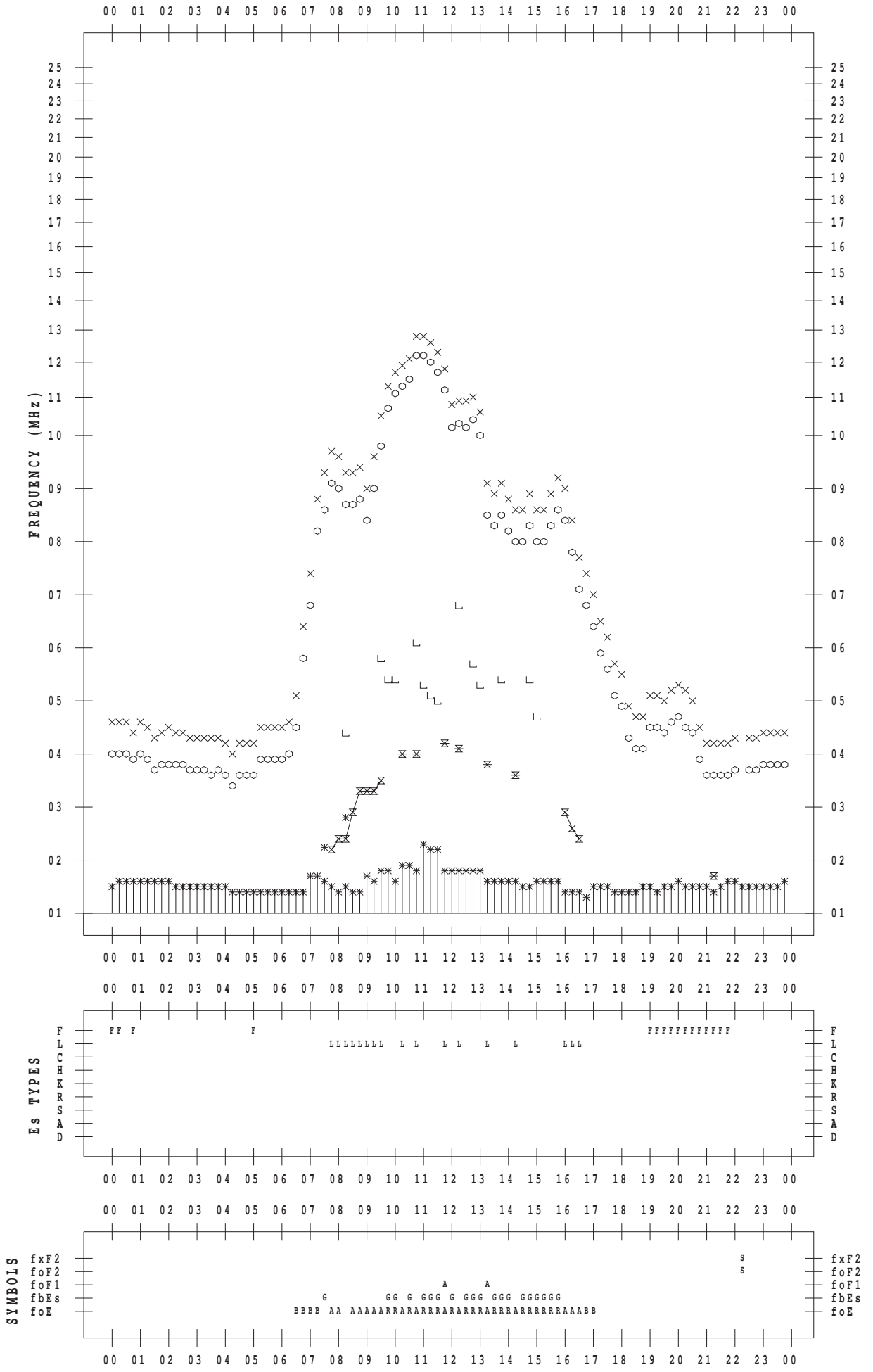
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/30

135 °E MEAN TIME



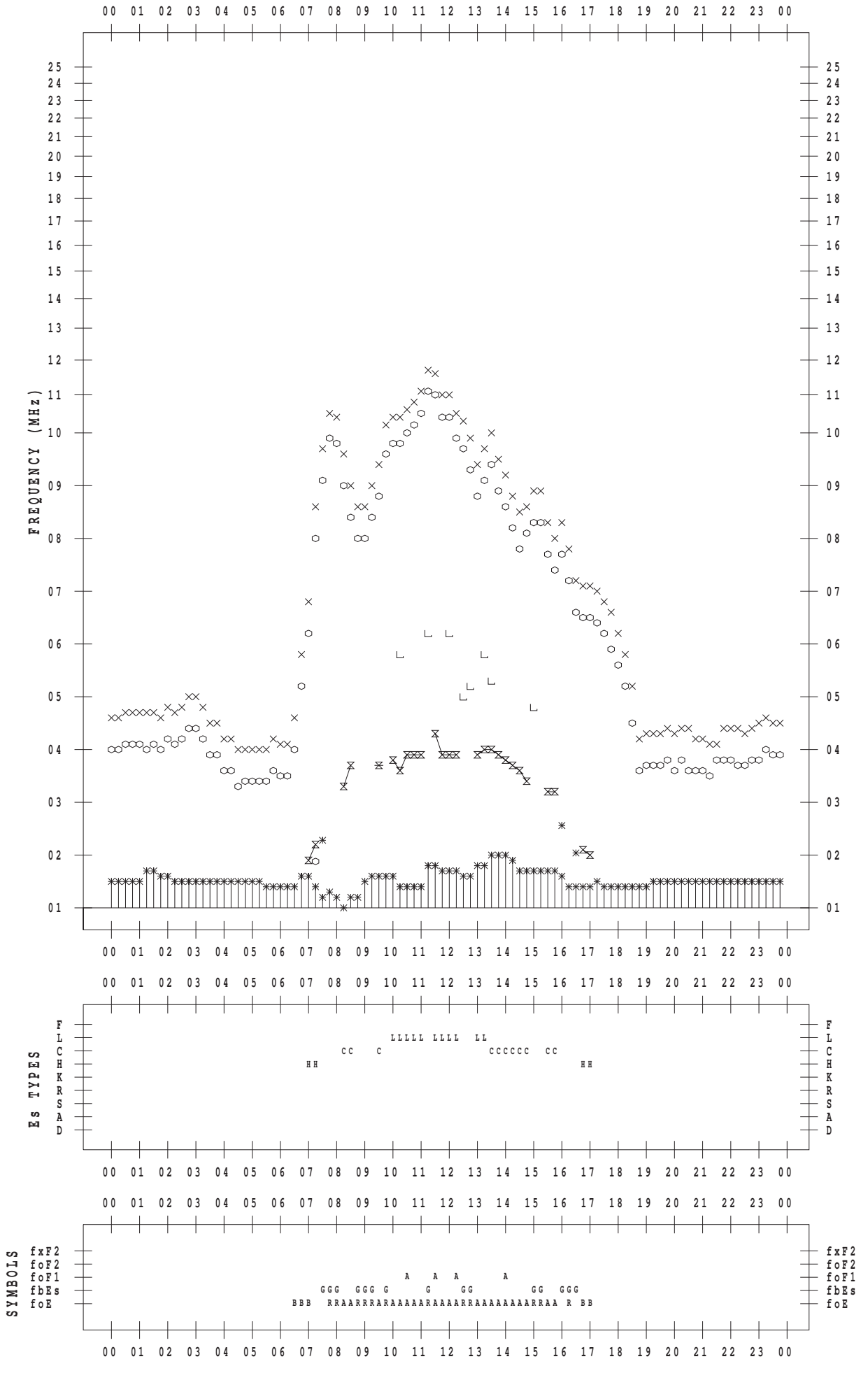
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 1/31

135 °E MEAN TIME



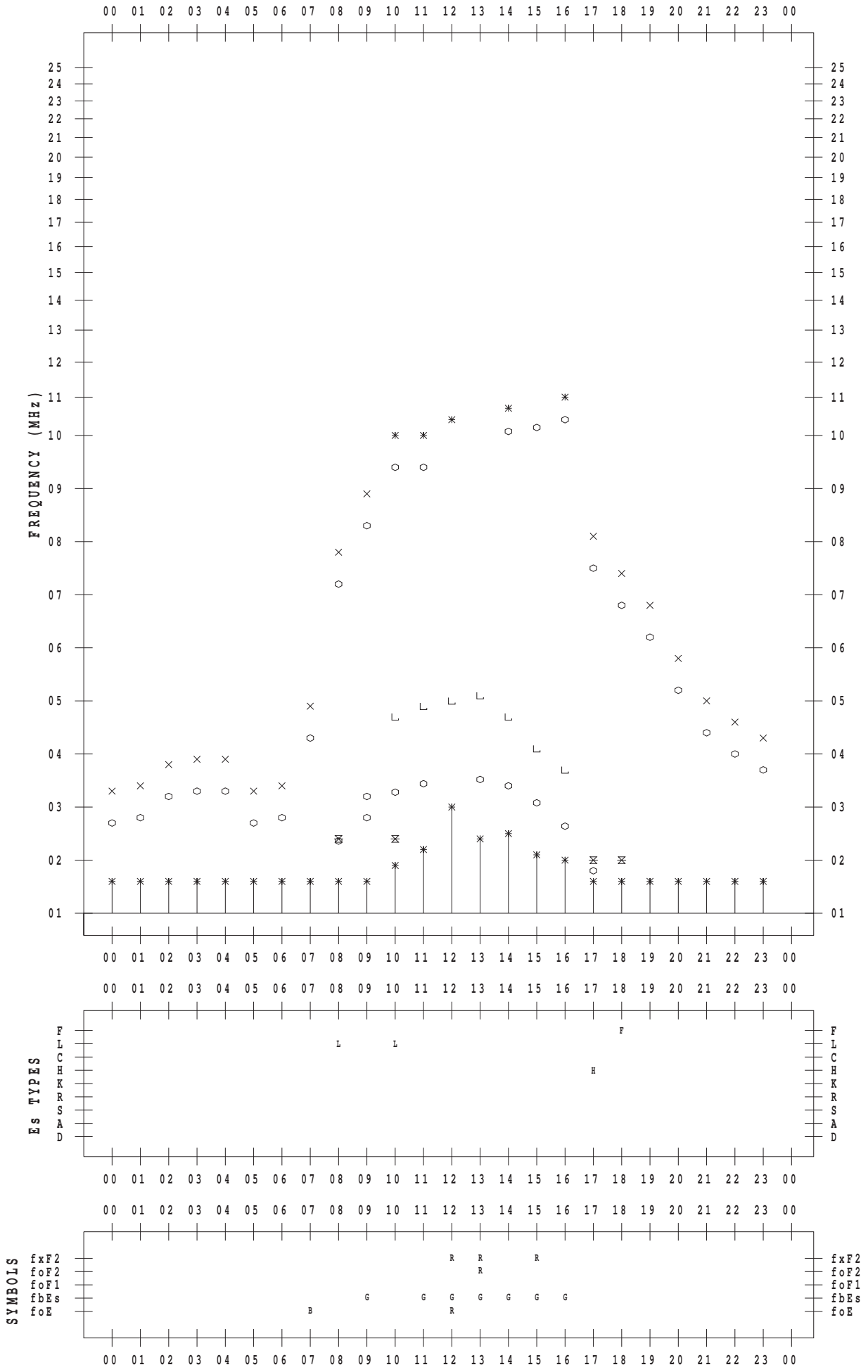
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/ 1

135 °E MEAN TIME



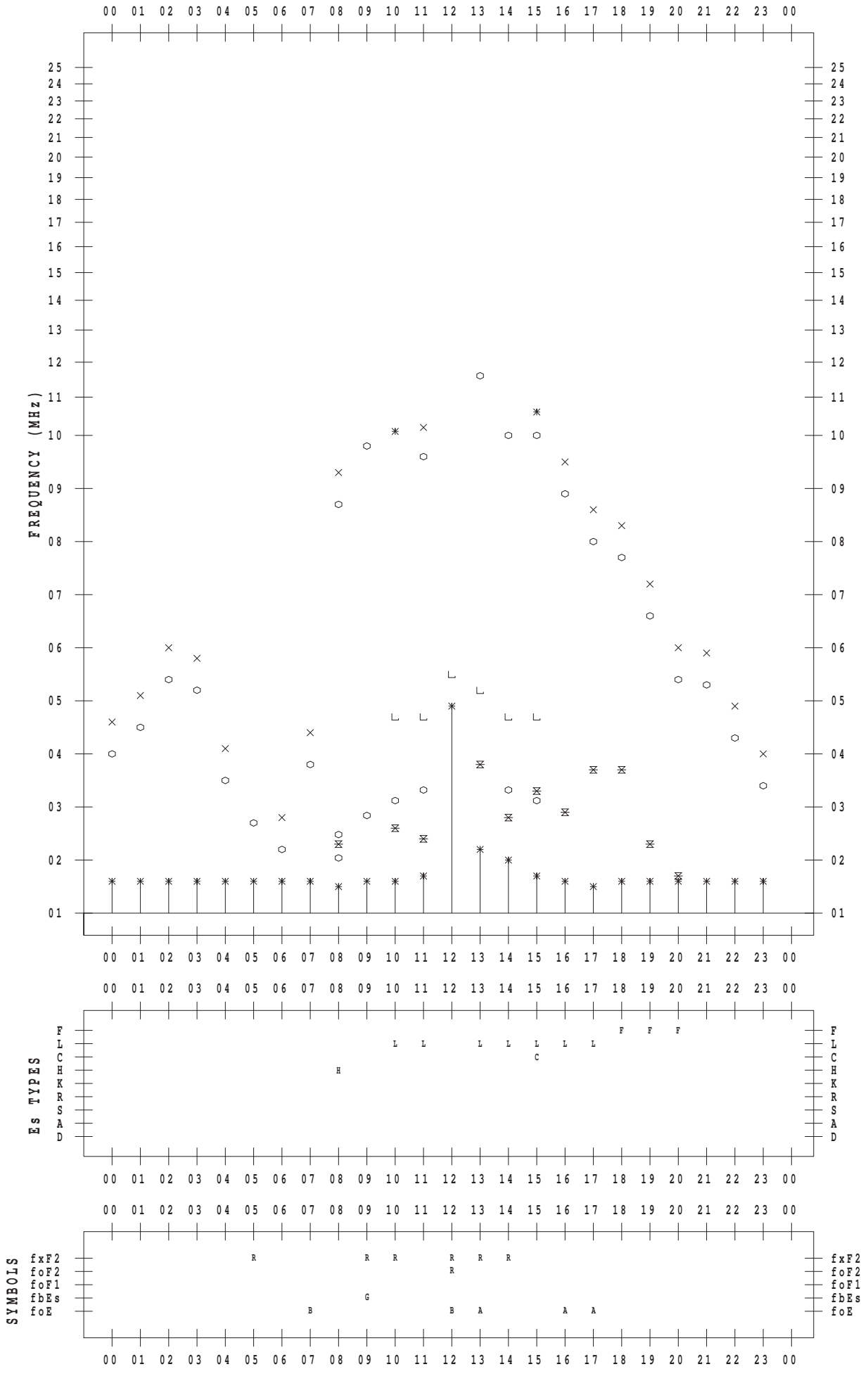
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/ 2

135 °E MEAN TIME



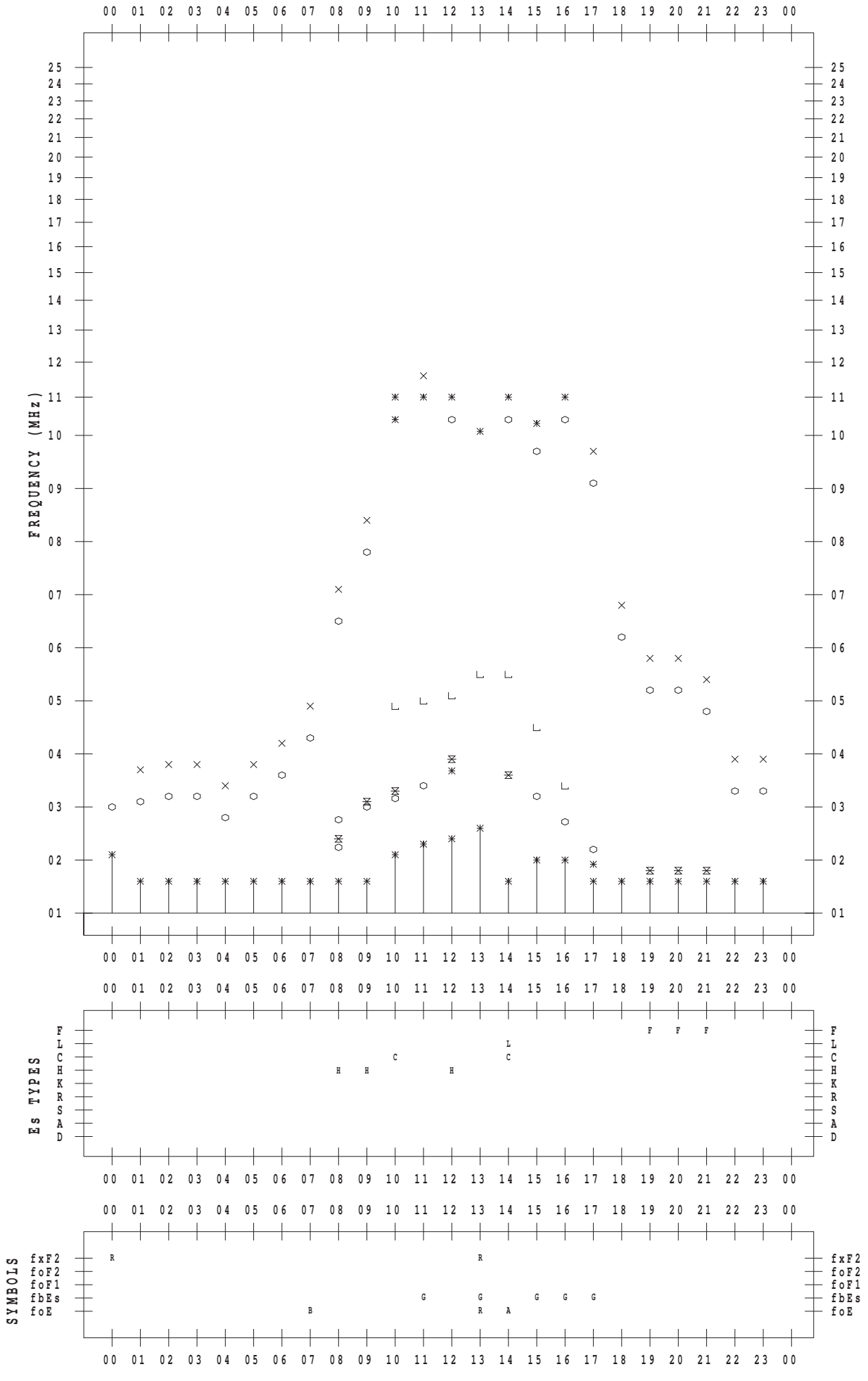
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/ 3

135 °E MEAN TIME



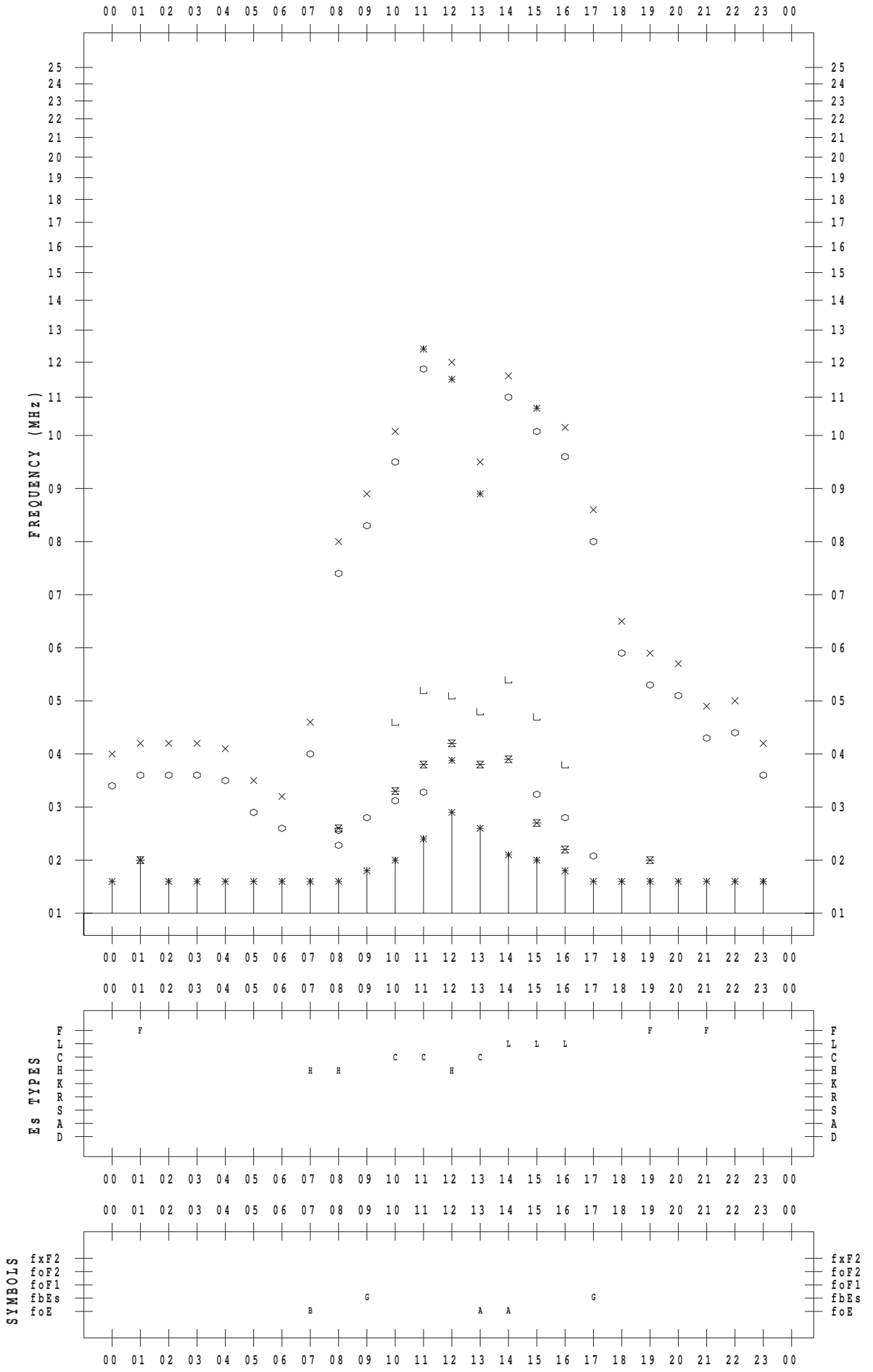
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/ 4

135 °E MEAN TIME



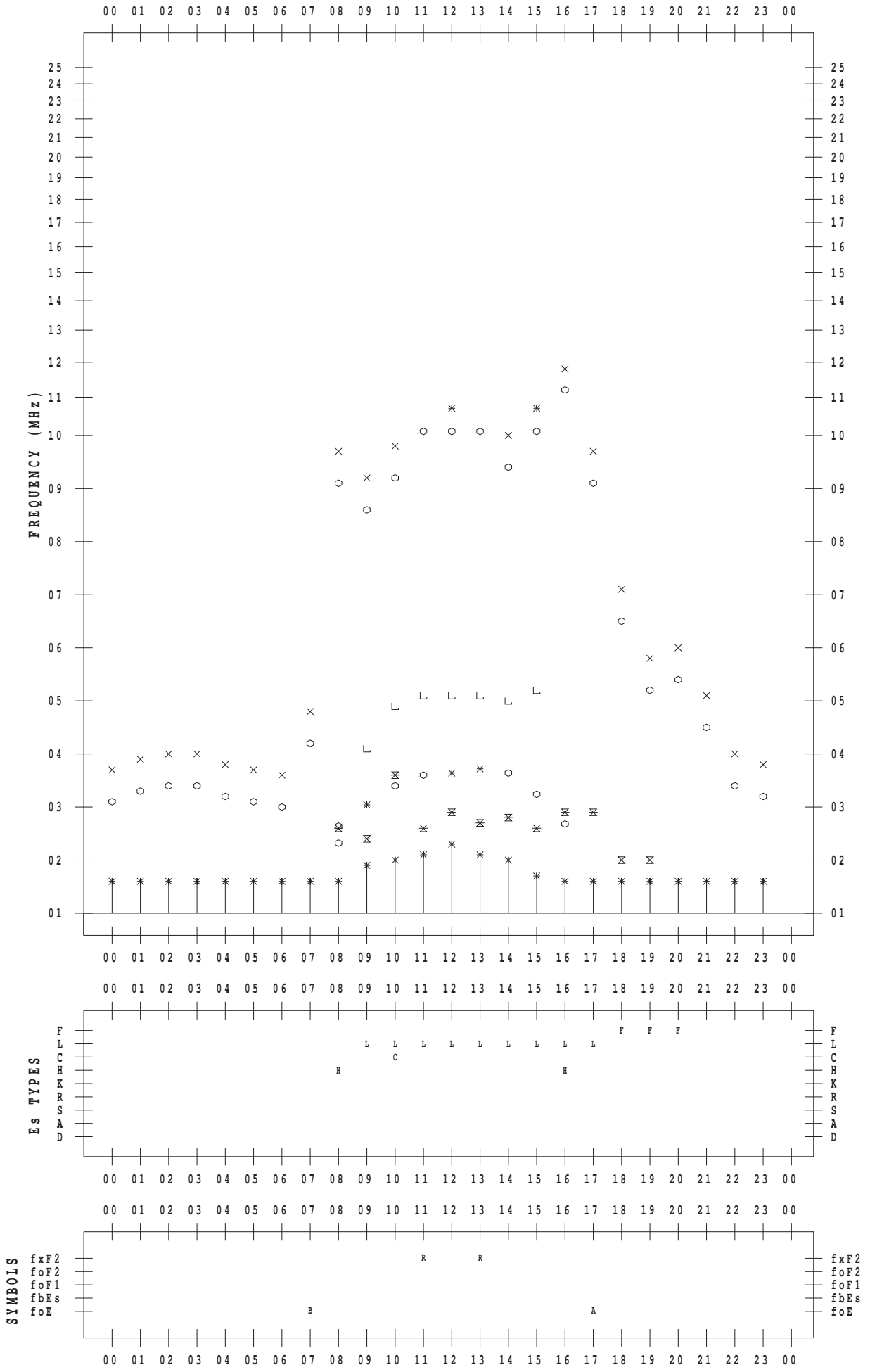
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/ 5

135 °E MEAN TIME



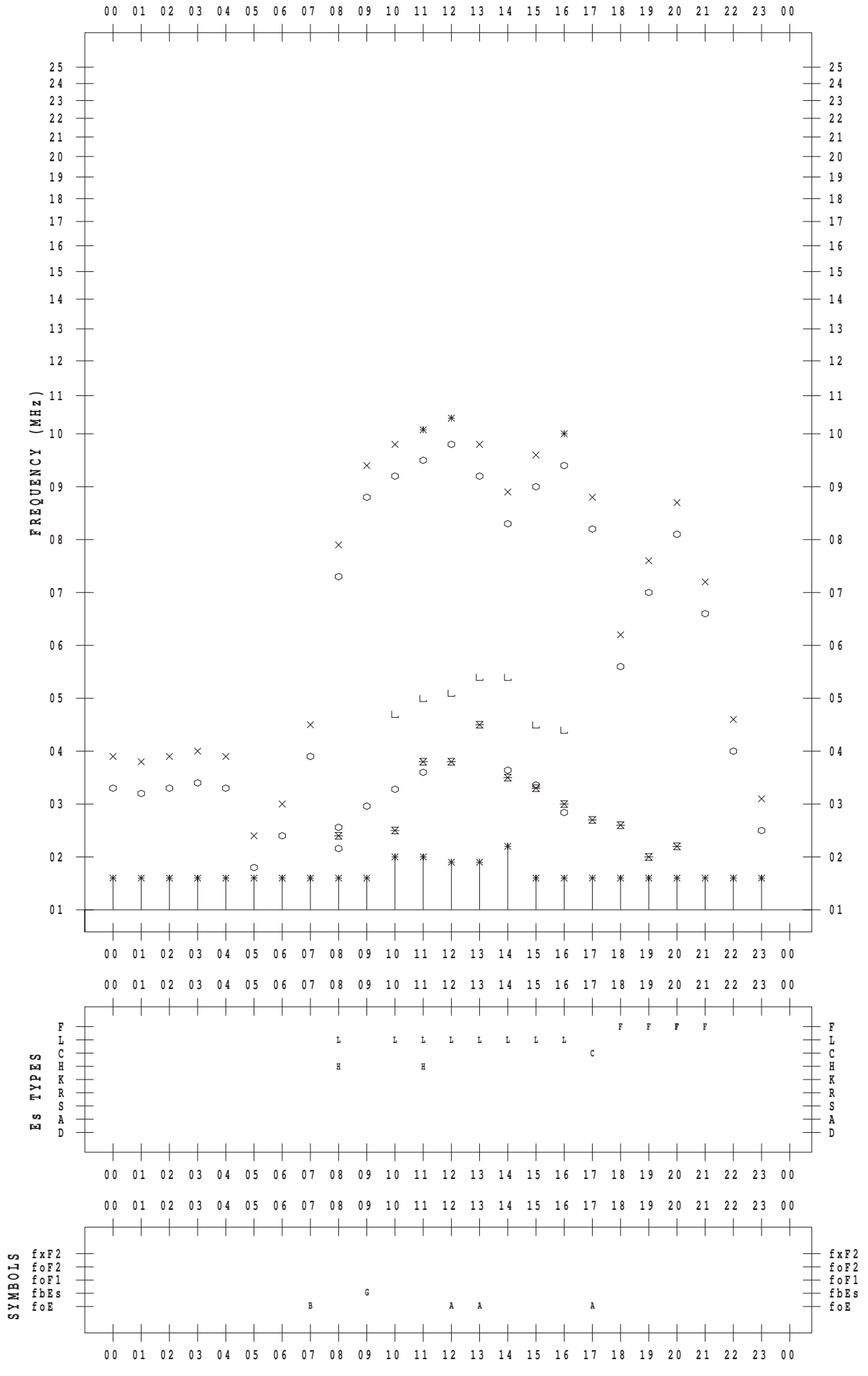
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/ 6

135 °E MEAN TIME



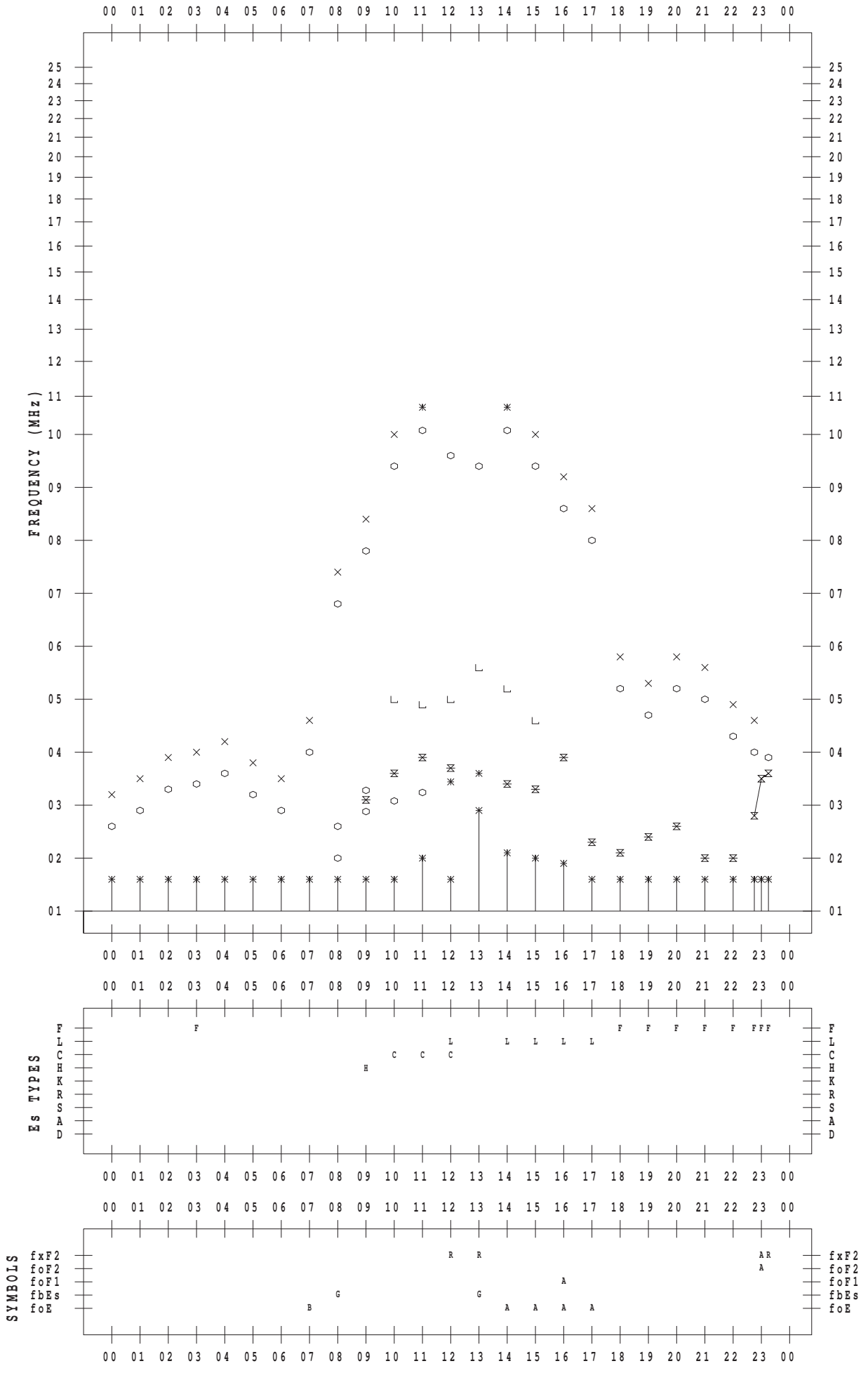
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/ 7

135 °E MEAN TIME



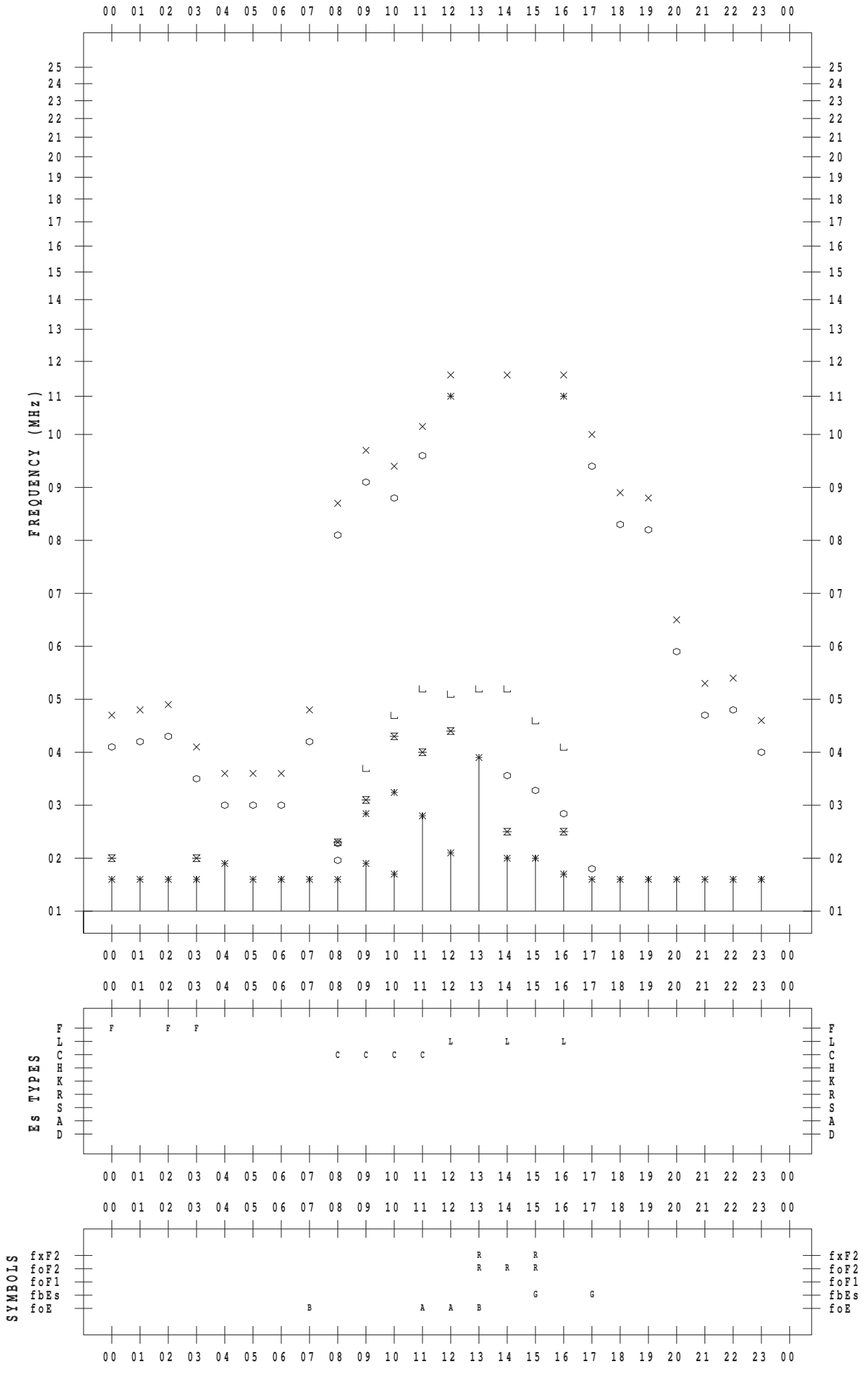
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/ 8

135 °E MEAN TIME



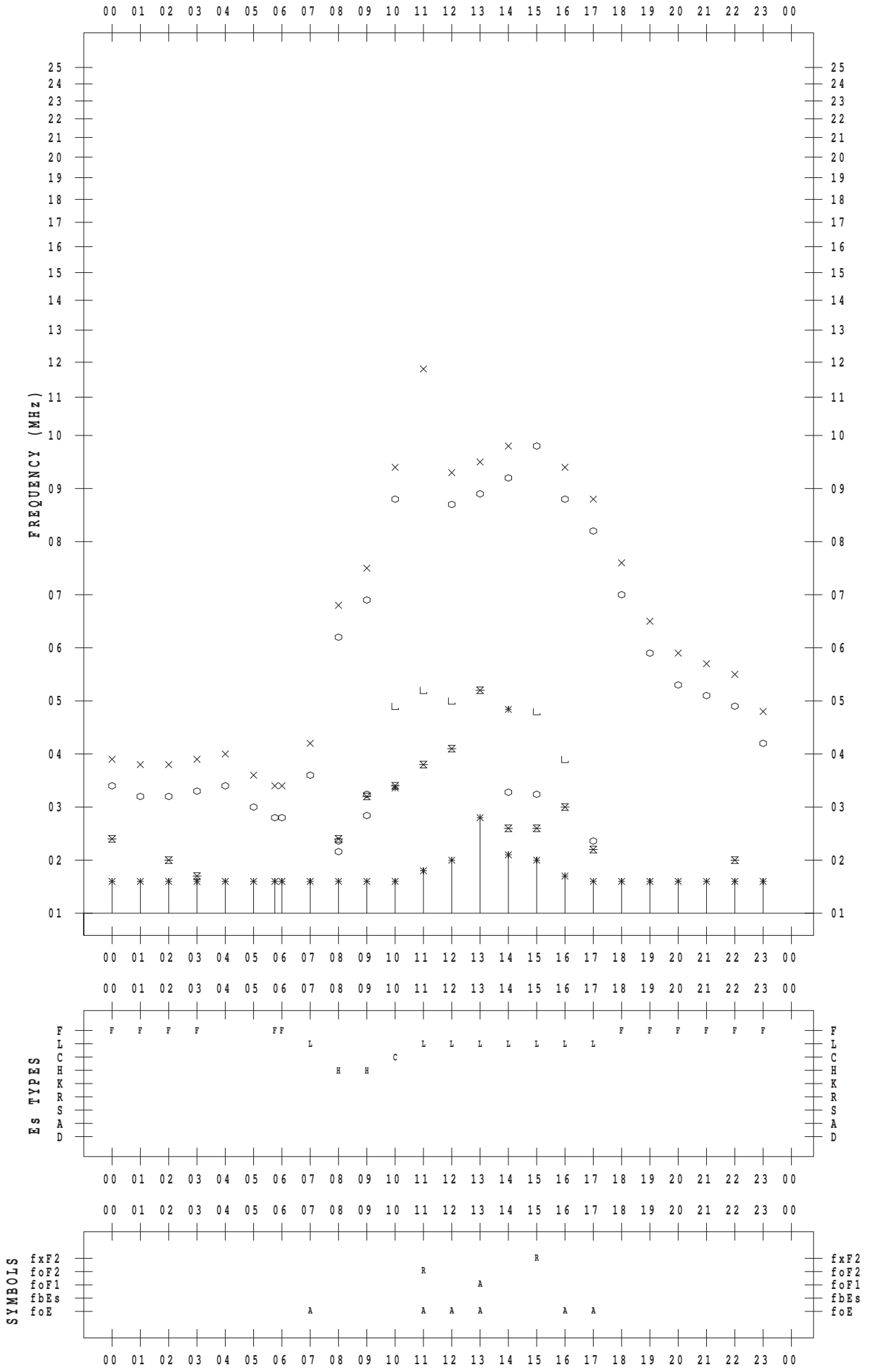
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/ 9

135 °E MEAN TIME



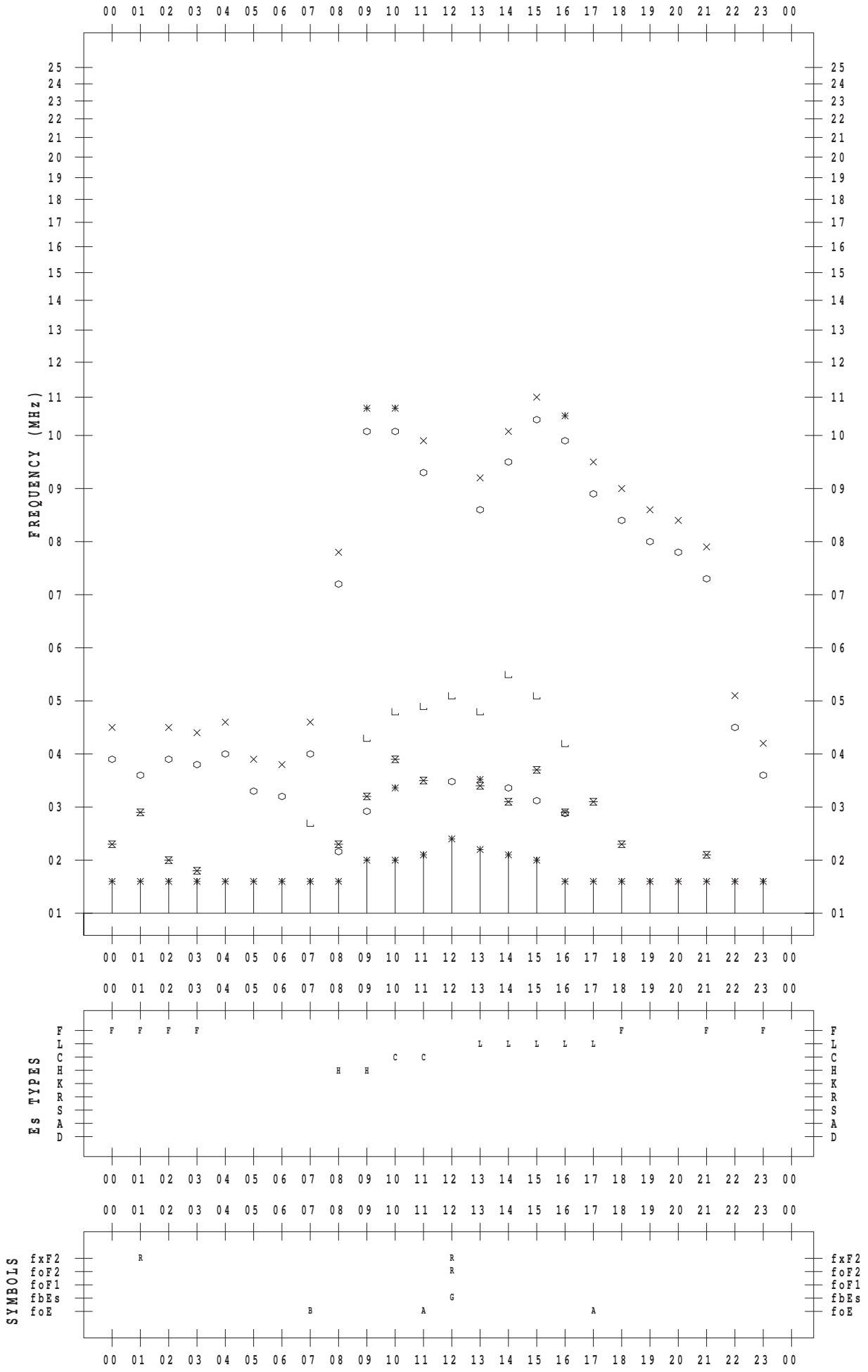
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/10

135 °E MEAN TIME



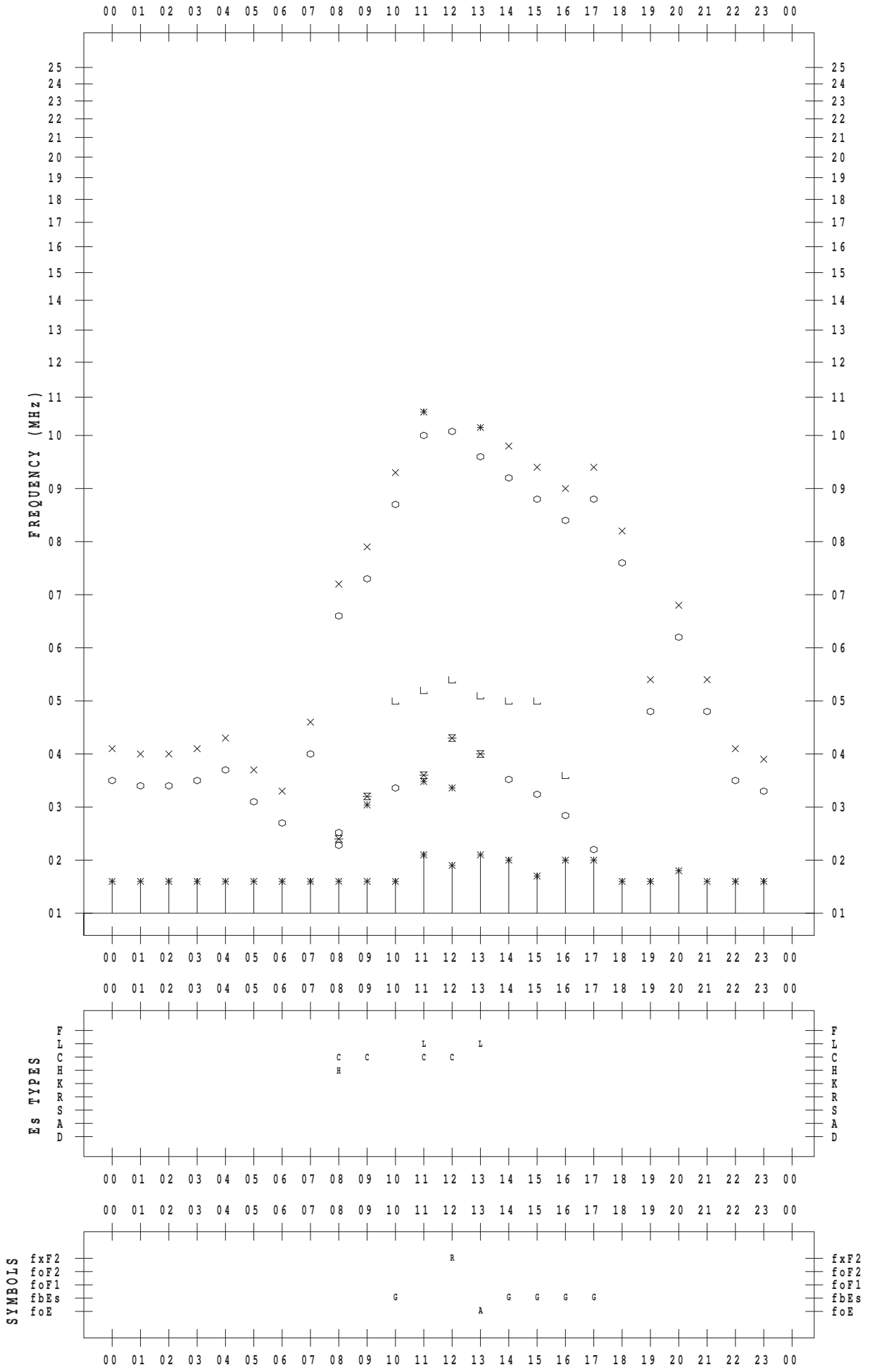
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/11

135 °E MEAN TIME



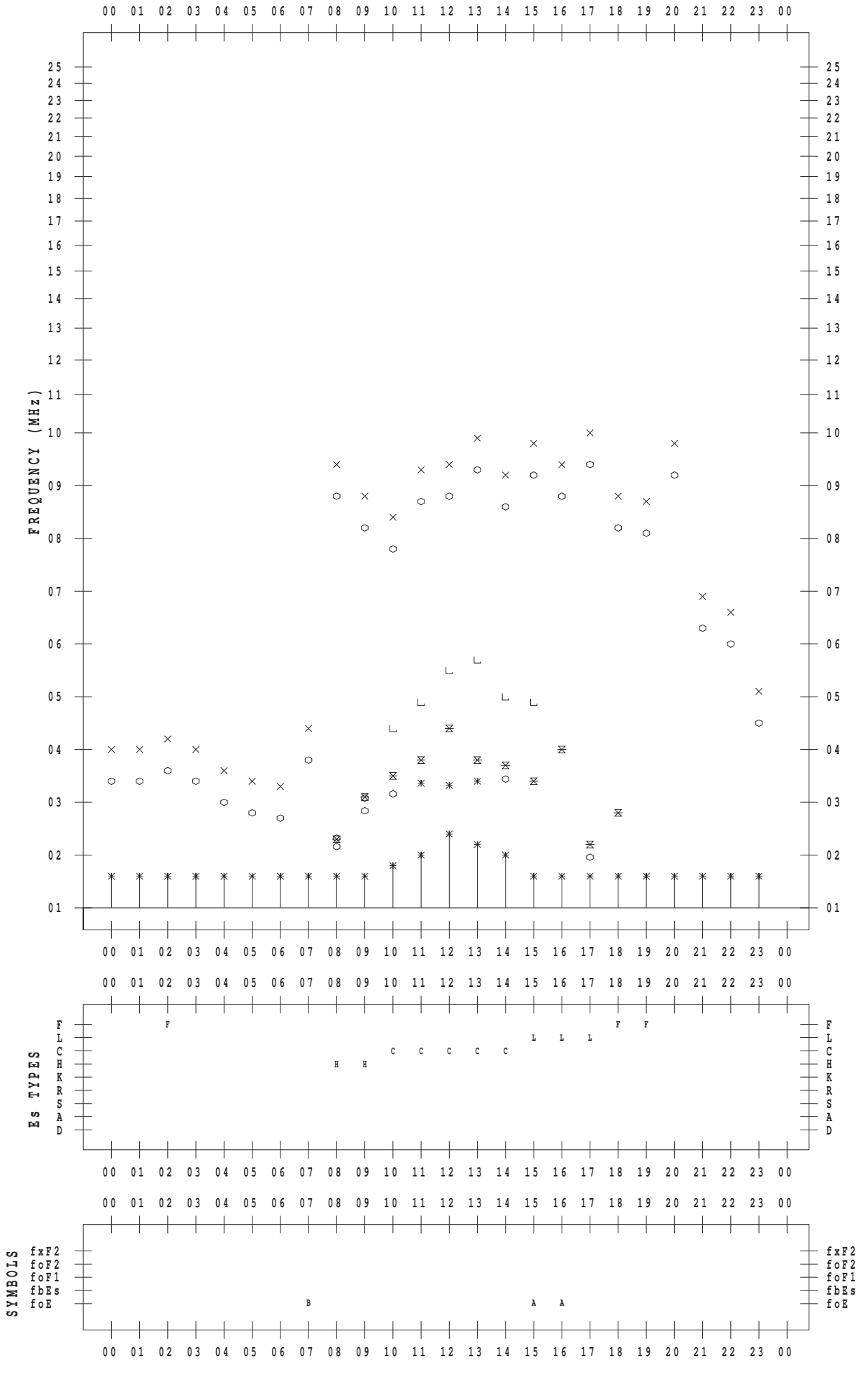
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/12

135 °E MEAN TIME



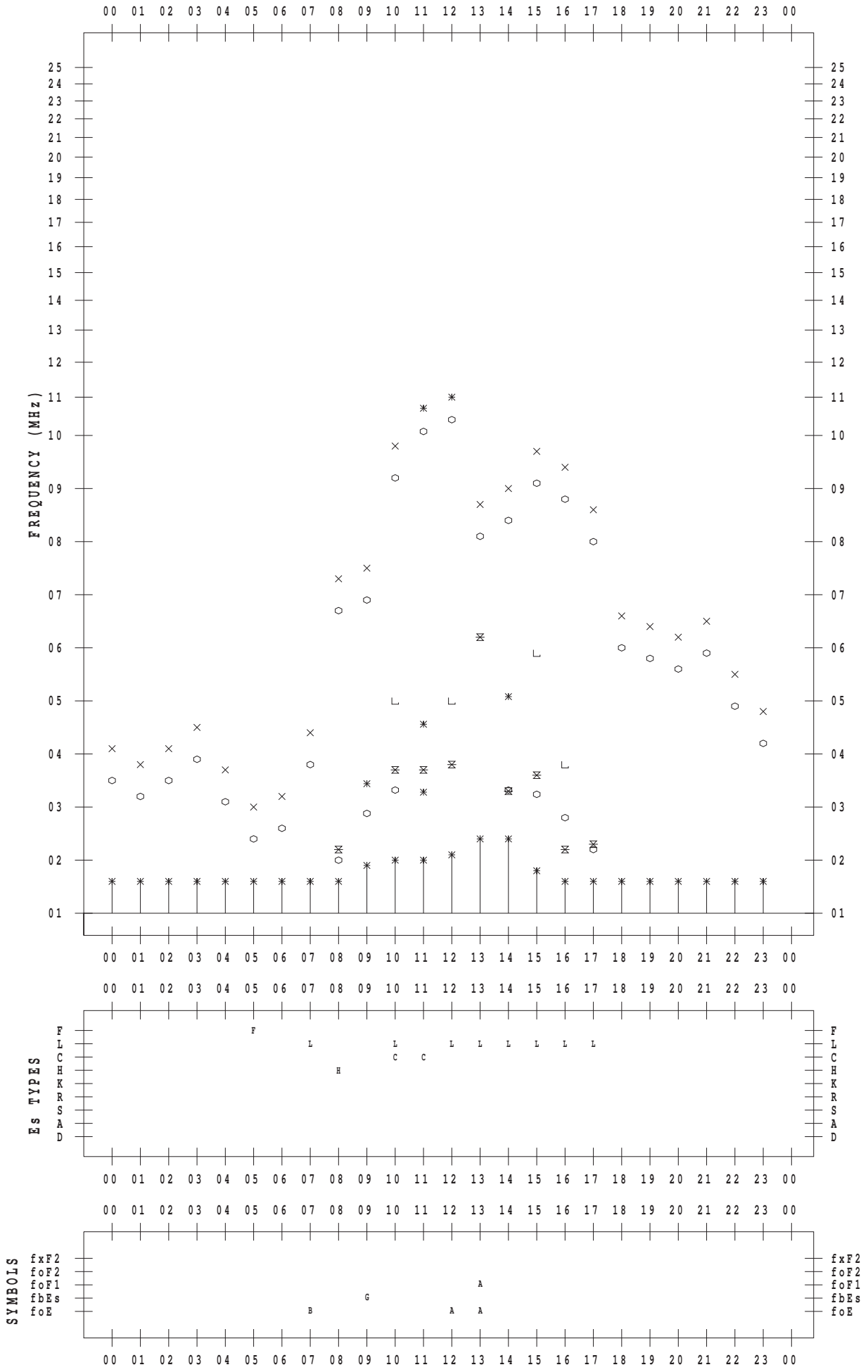
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/13

135 °E MEAN TIME



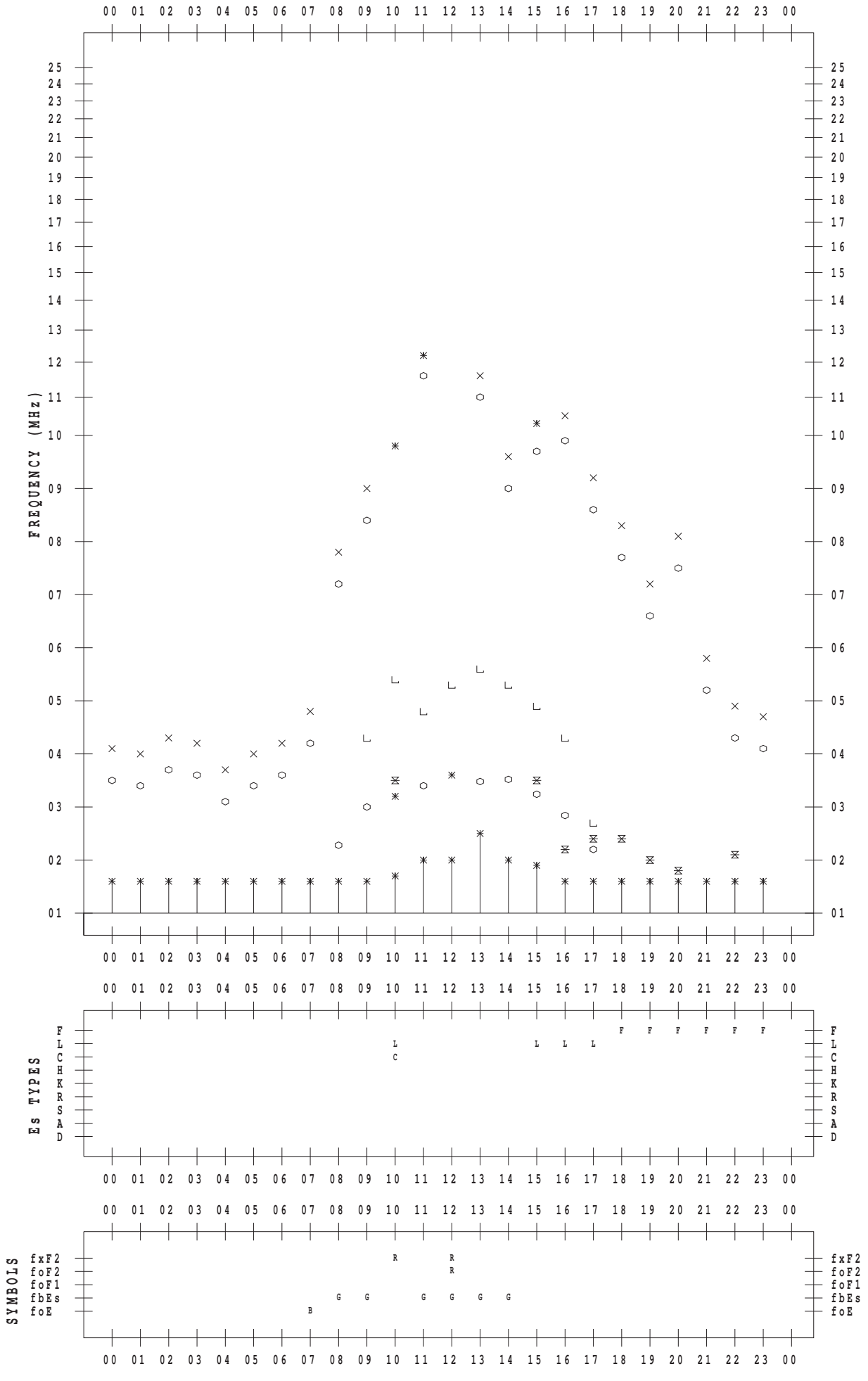
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/14

135 °E MEAN TIME



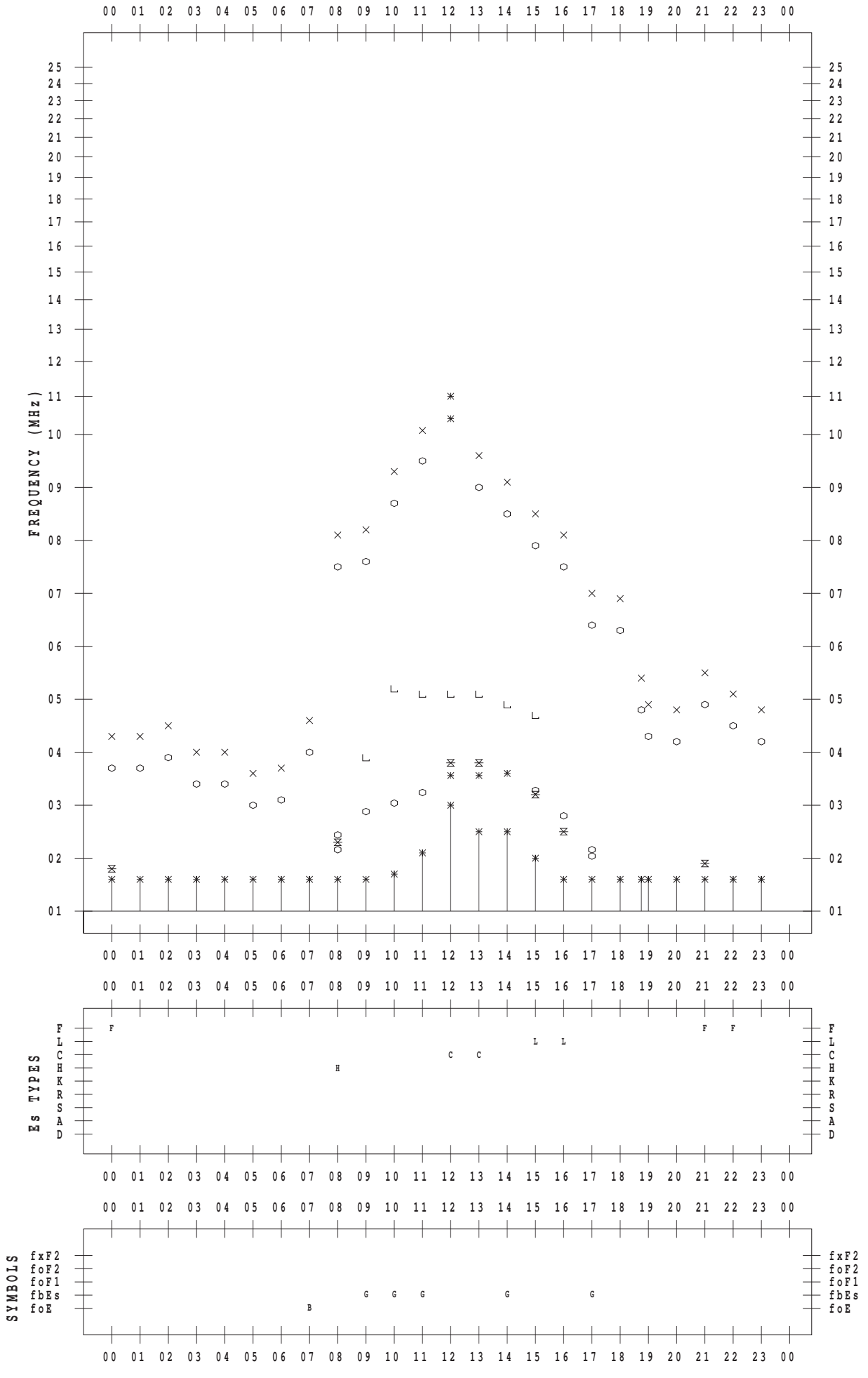
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/15

135 °E MEAN TIME



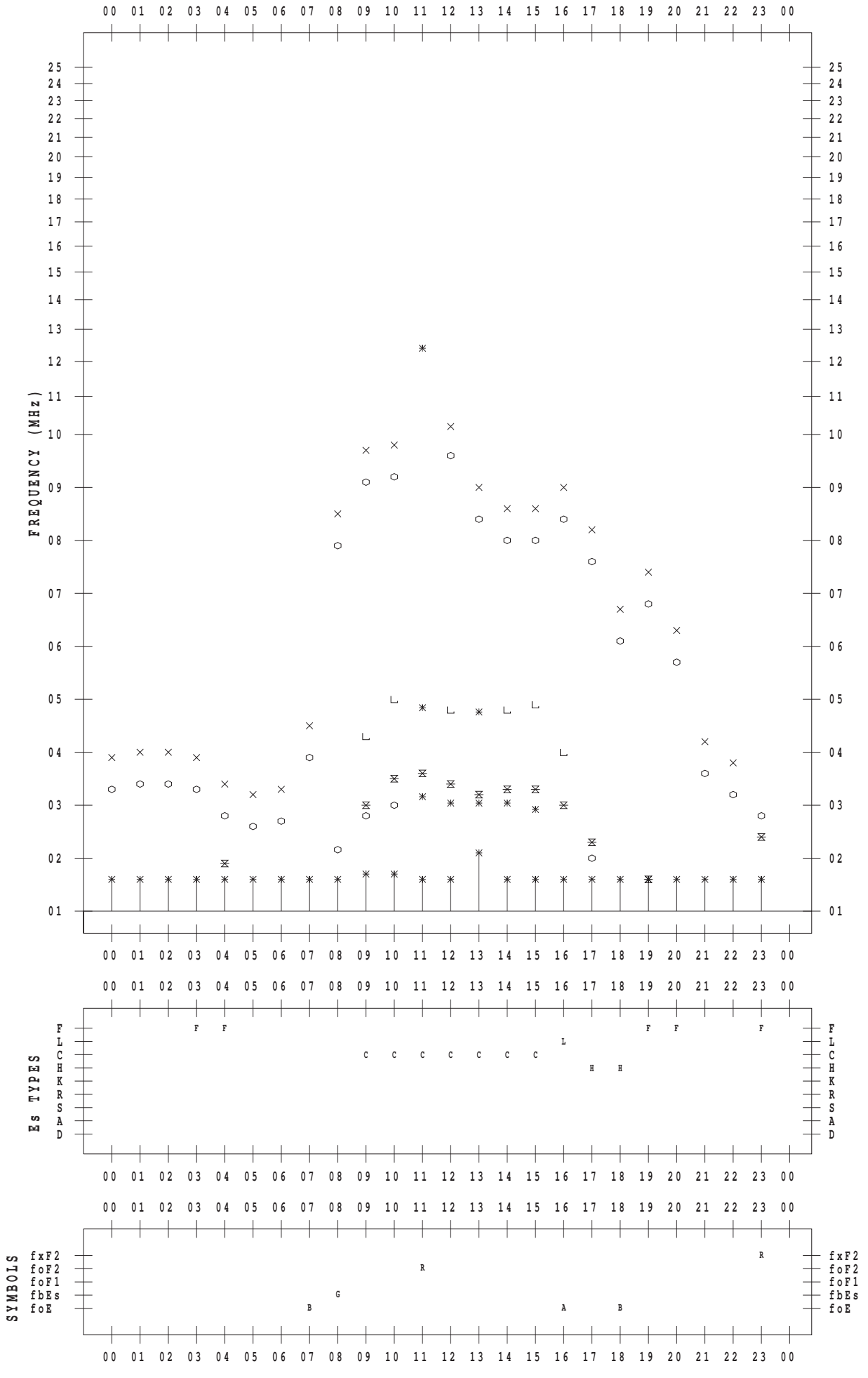
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/16

135 °E MEAN TIME



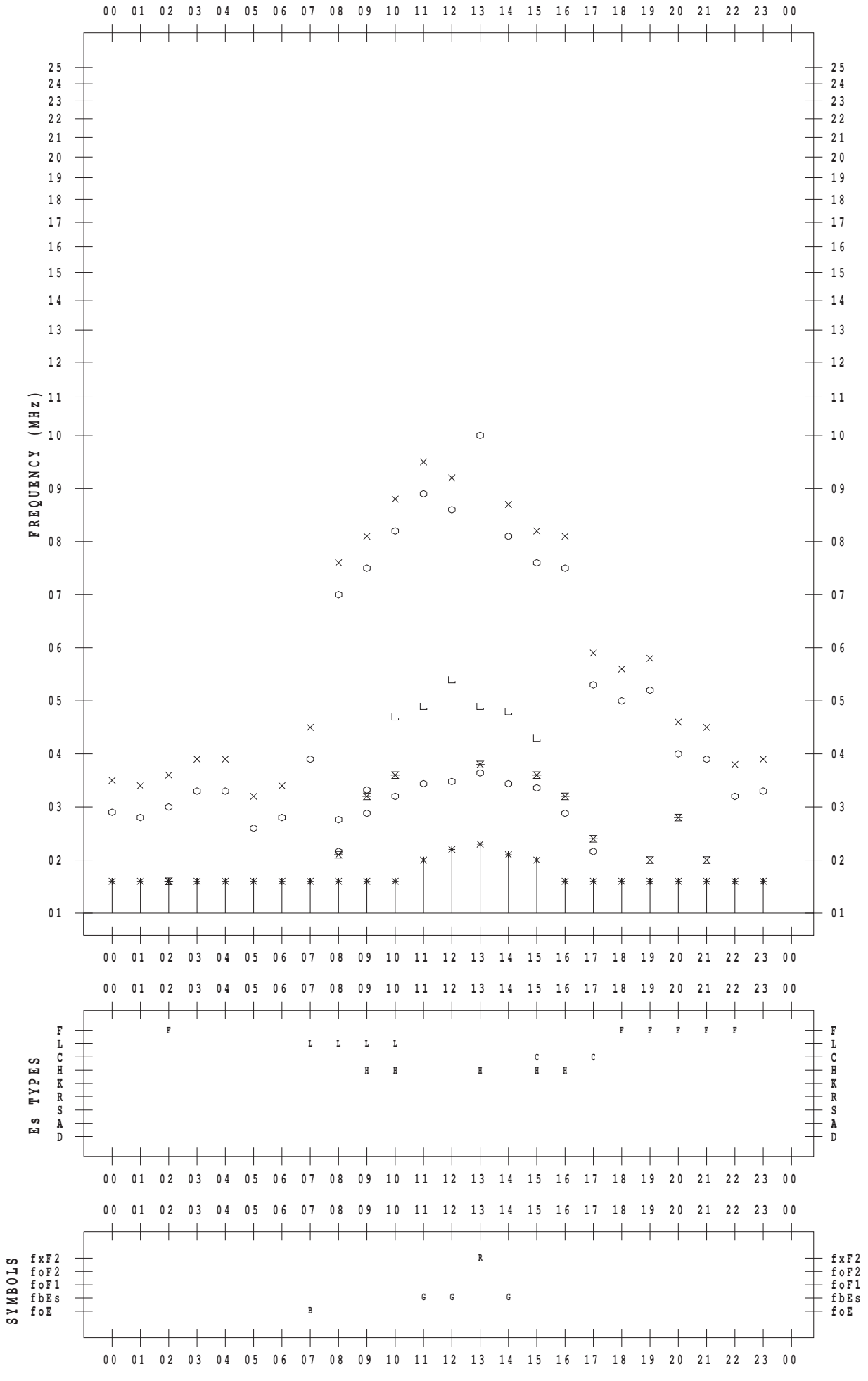
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/17

135 °E MEAN TIME



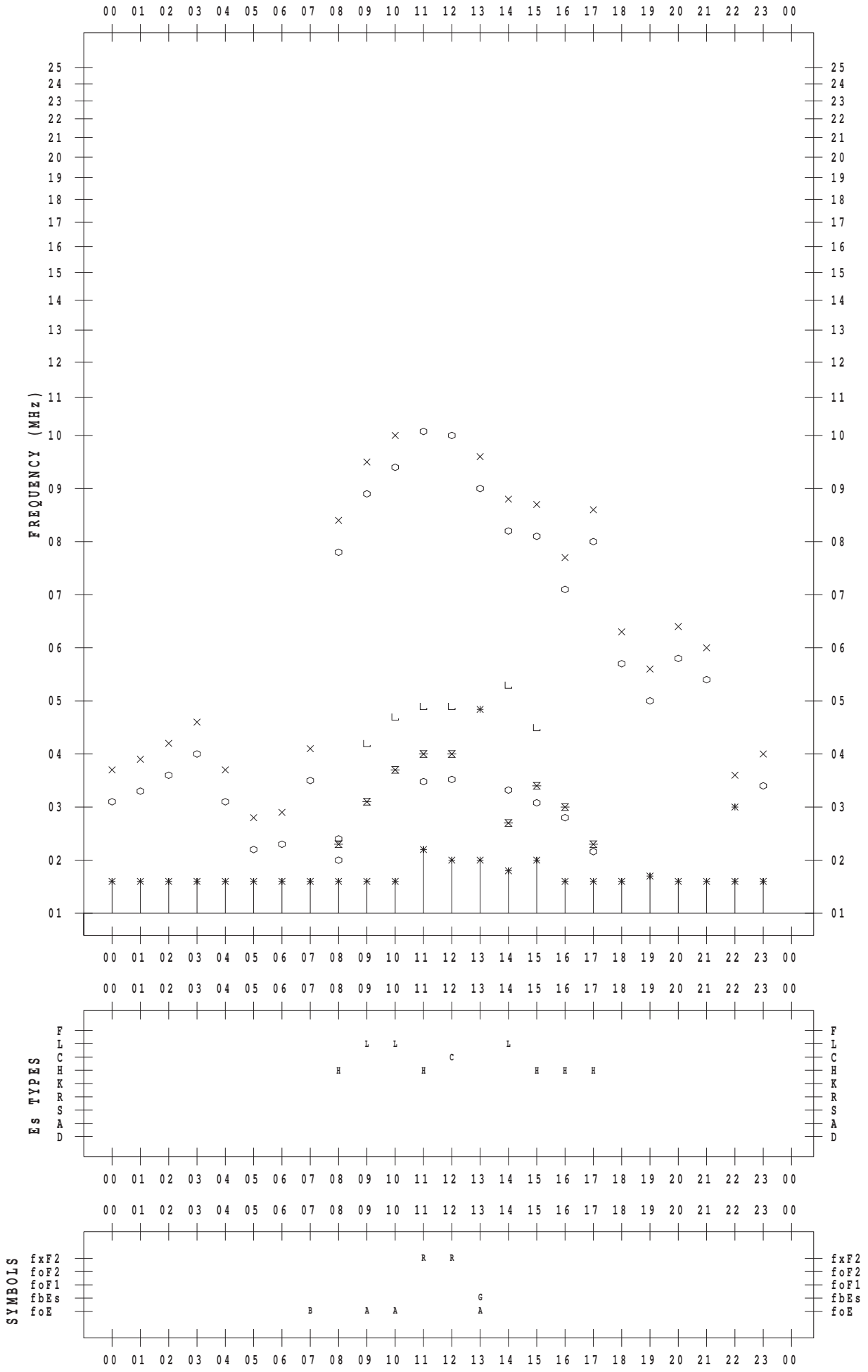
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/18

135 °E MEAN TIME



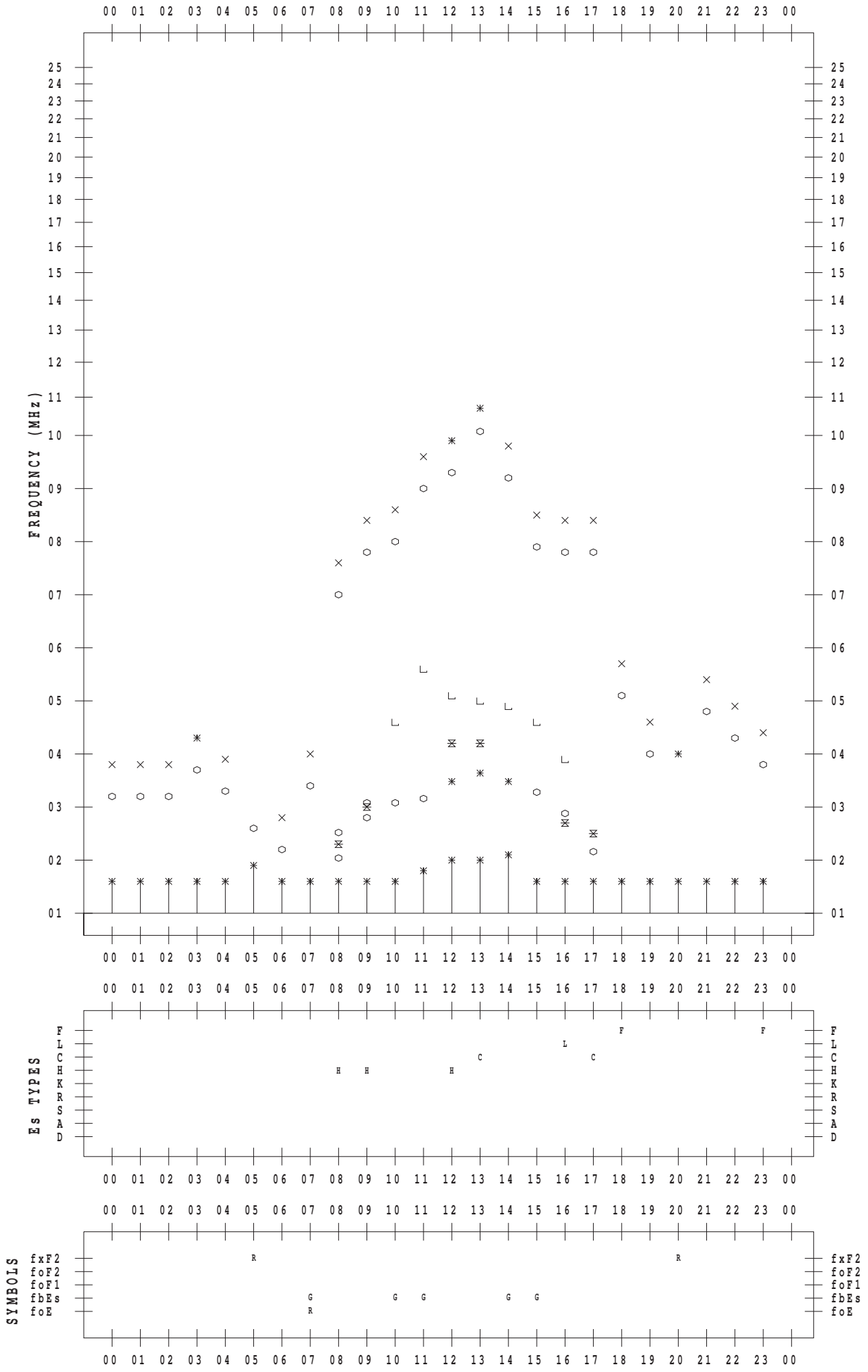
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/19

135 °E MEAN TIME



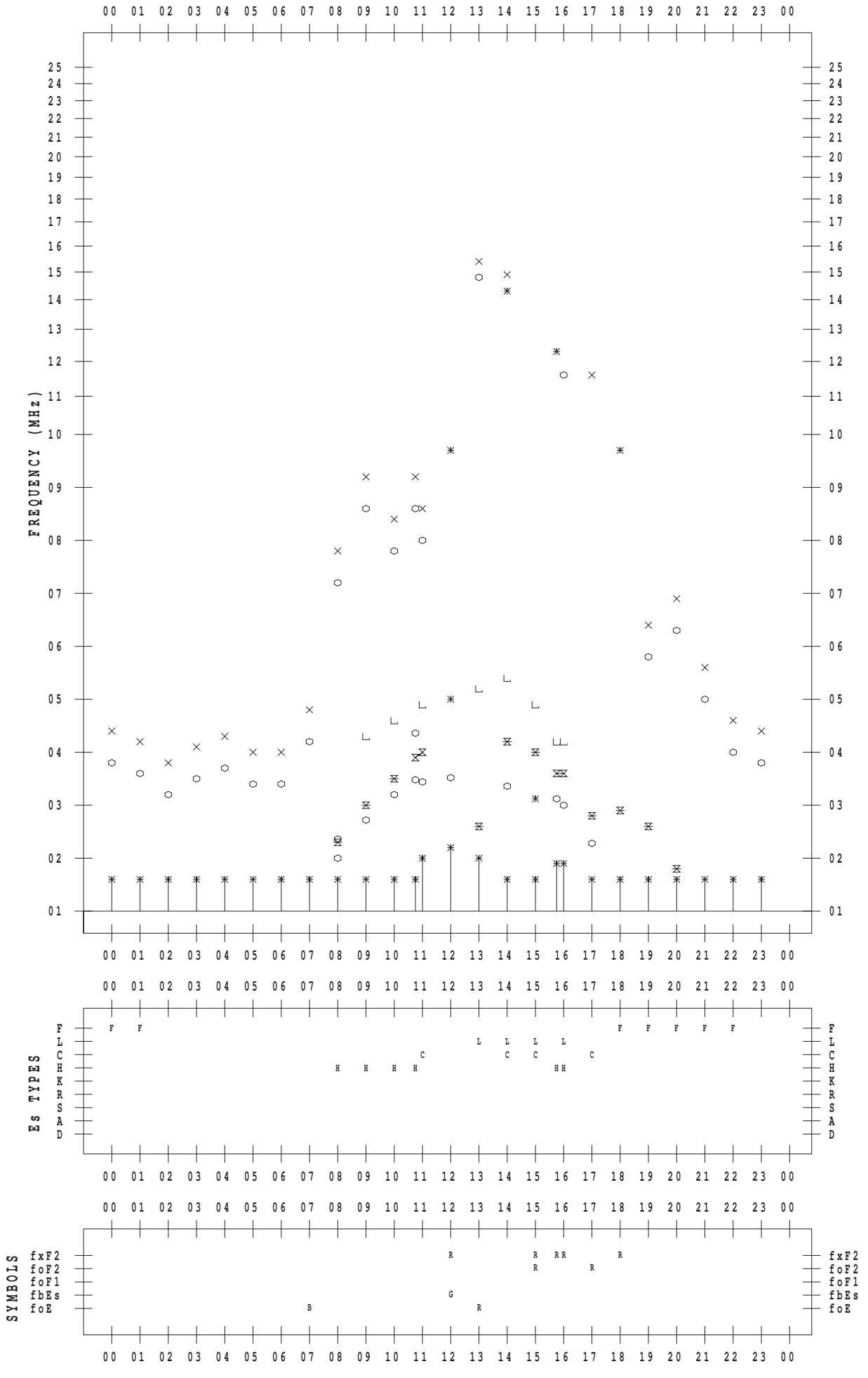
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/20

135 °E MEAN TIME



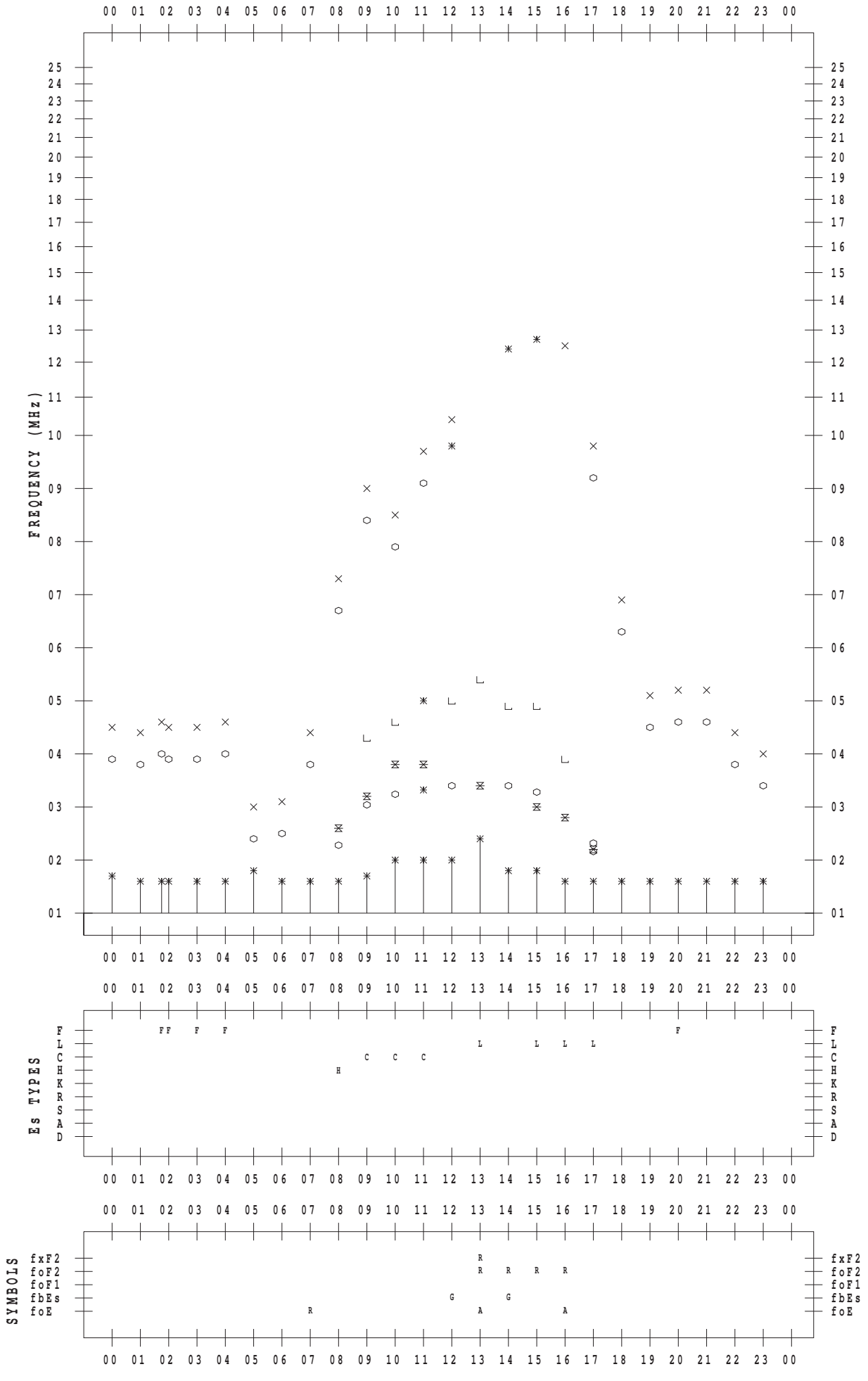
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/21

135 °E MEAN TIME



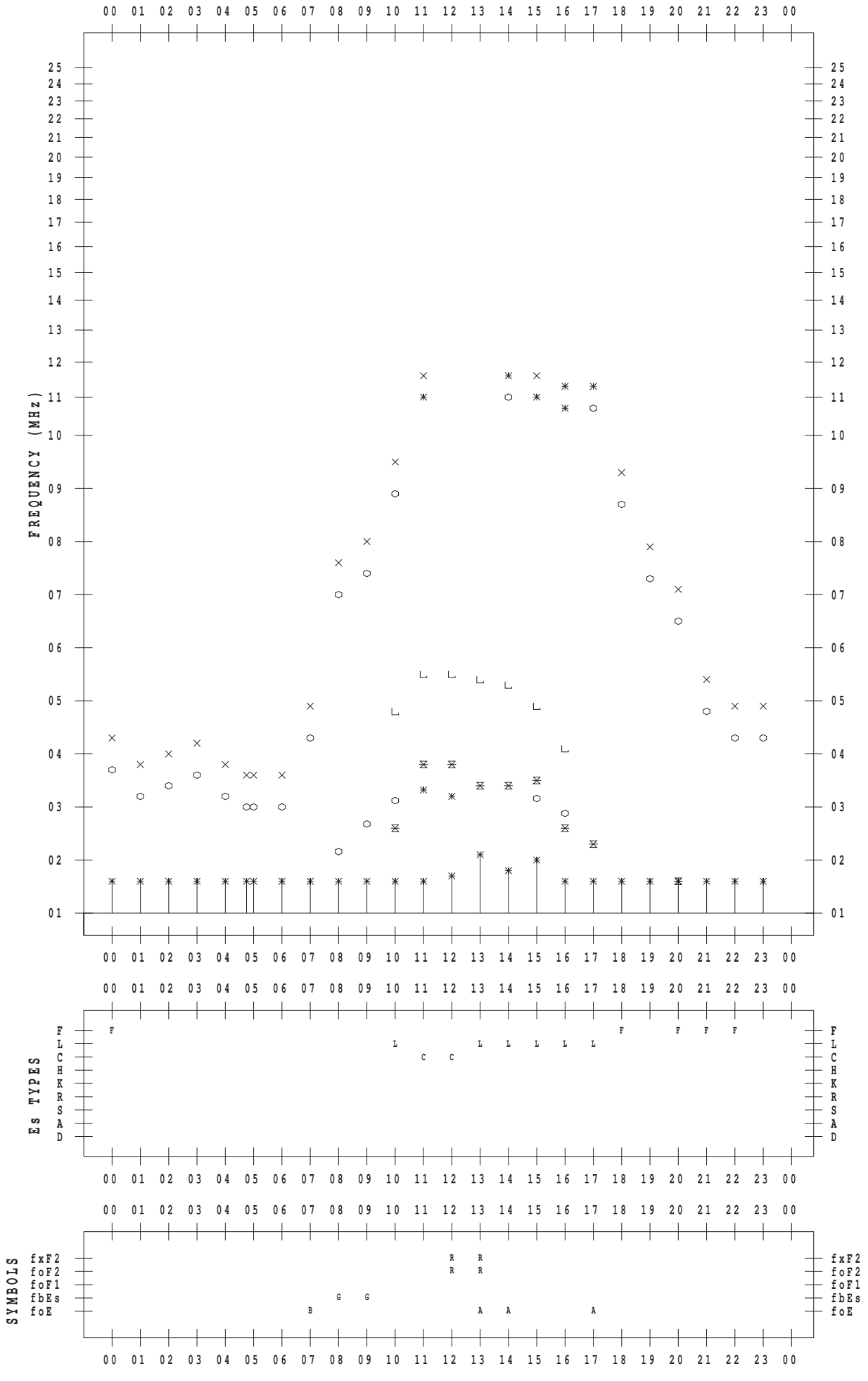
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/22

135 °E MEAN TIME



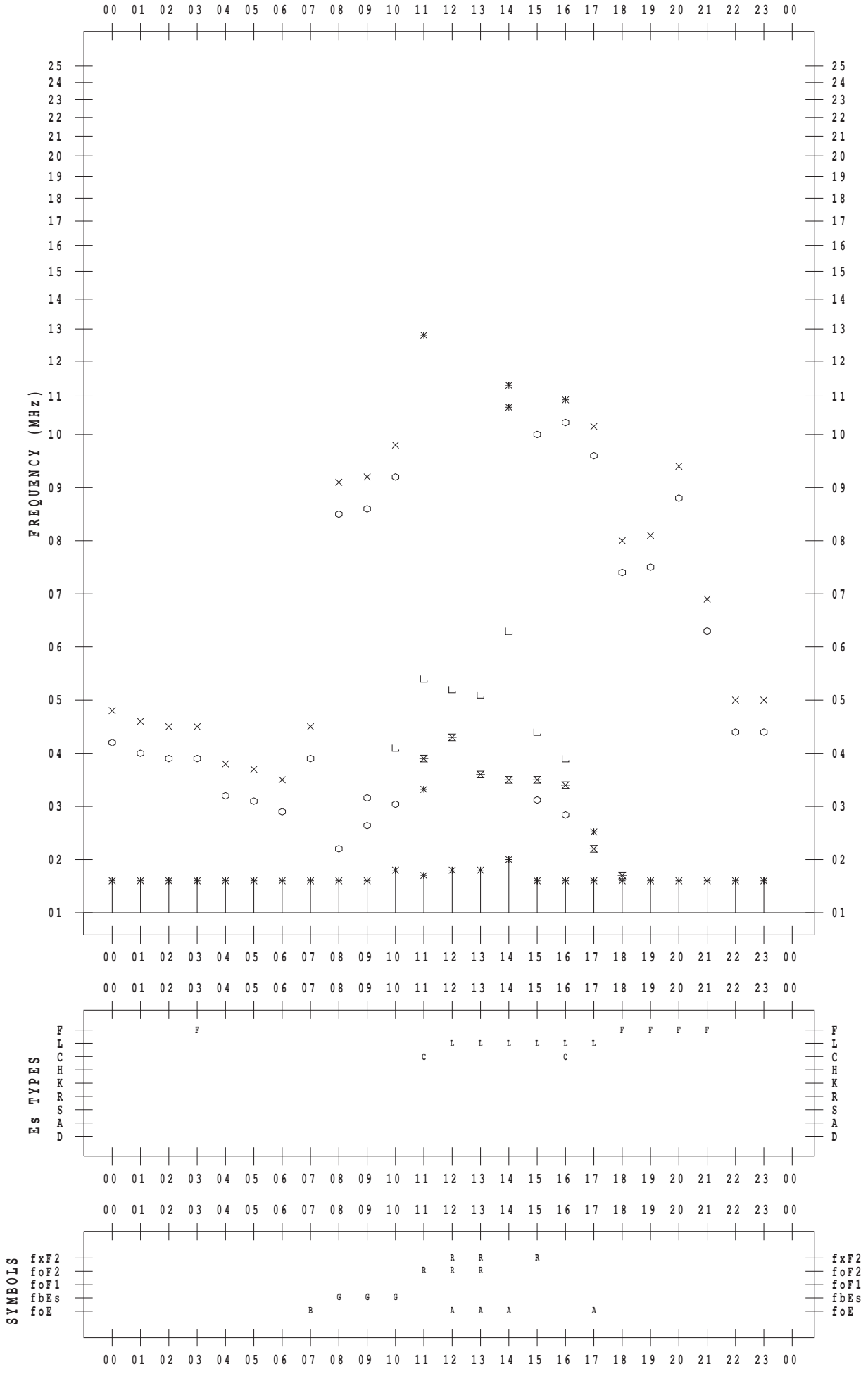
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/23

135 °E MEAN TIME



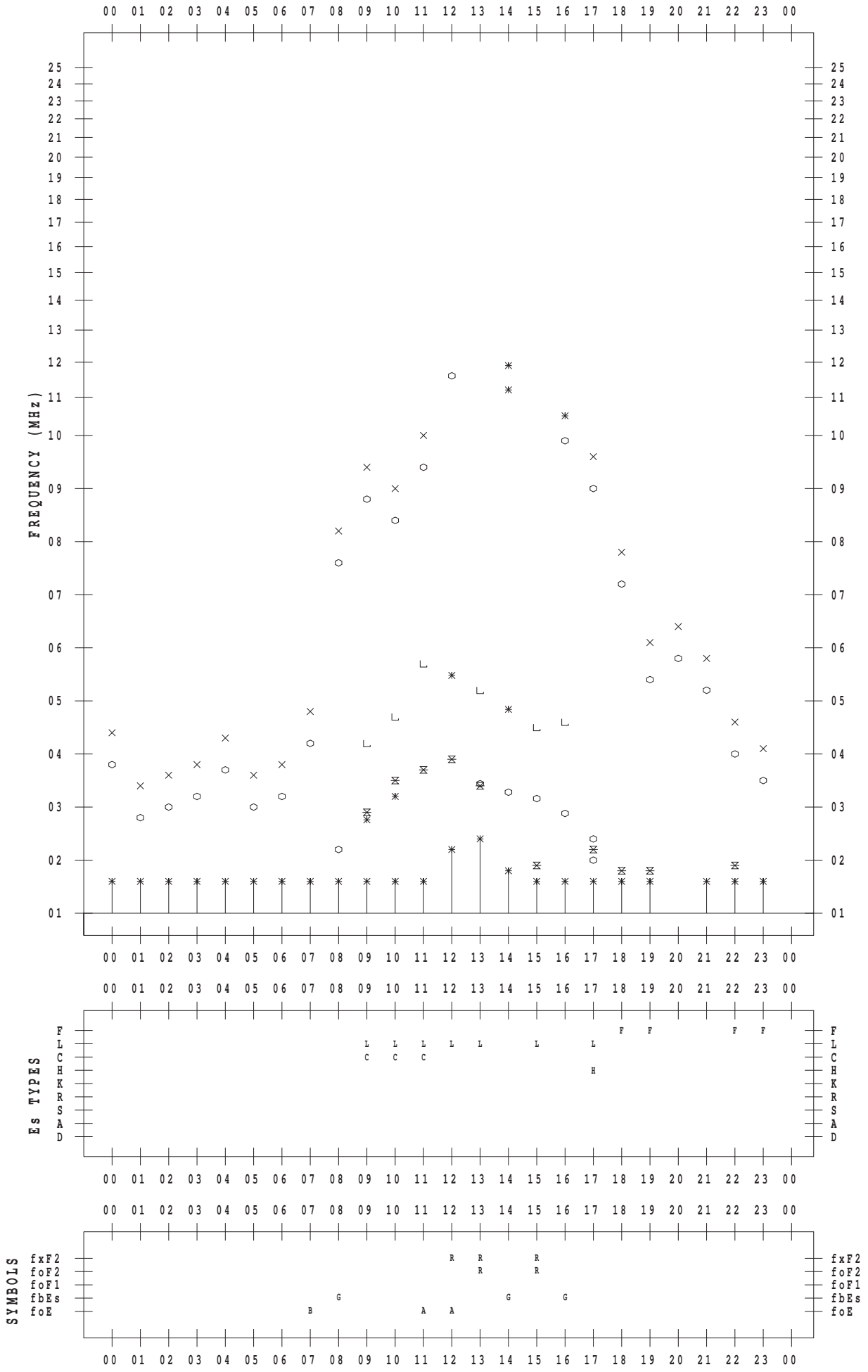
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/24

135 °E MEAN TIME



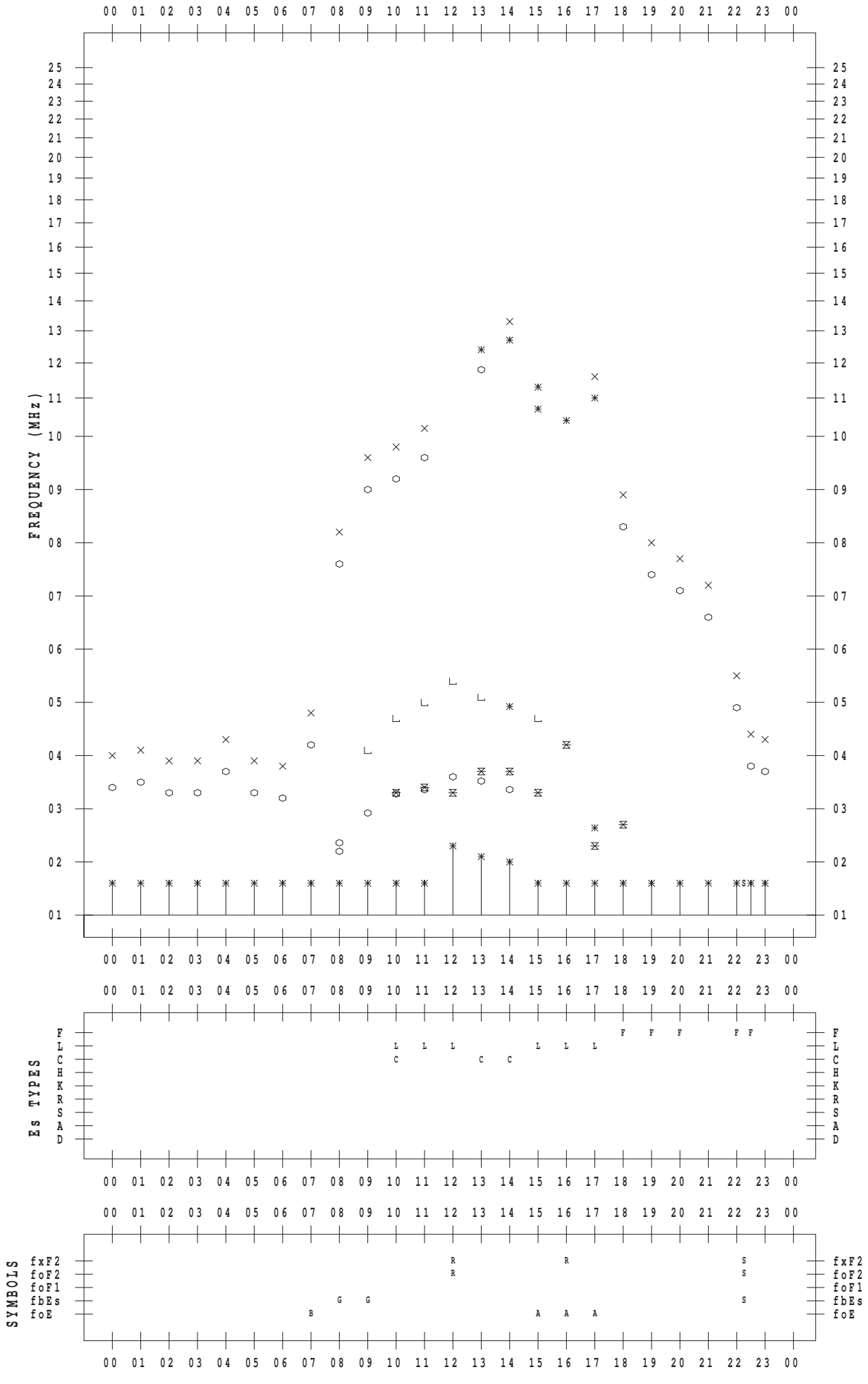
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/25

135 °E MEAN TIME



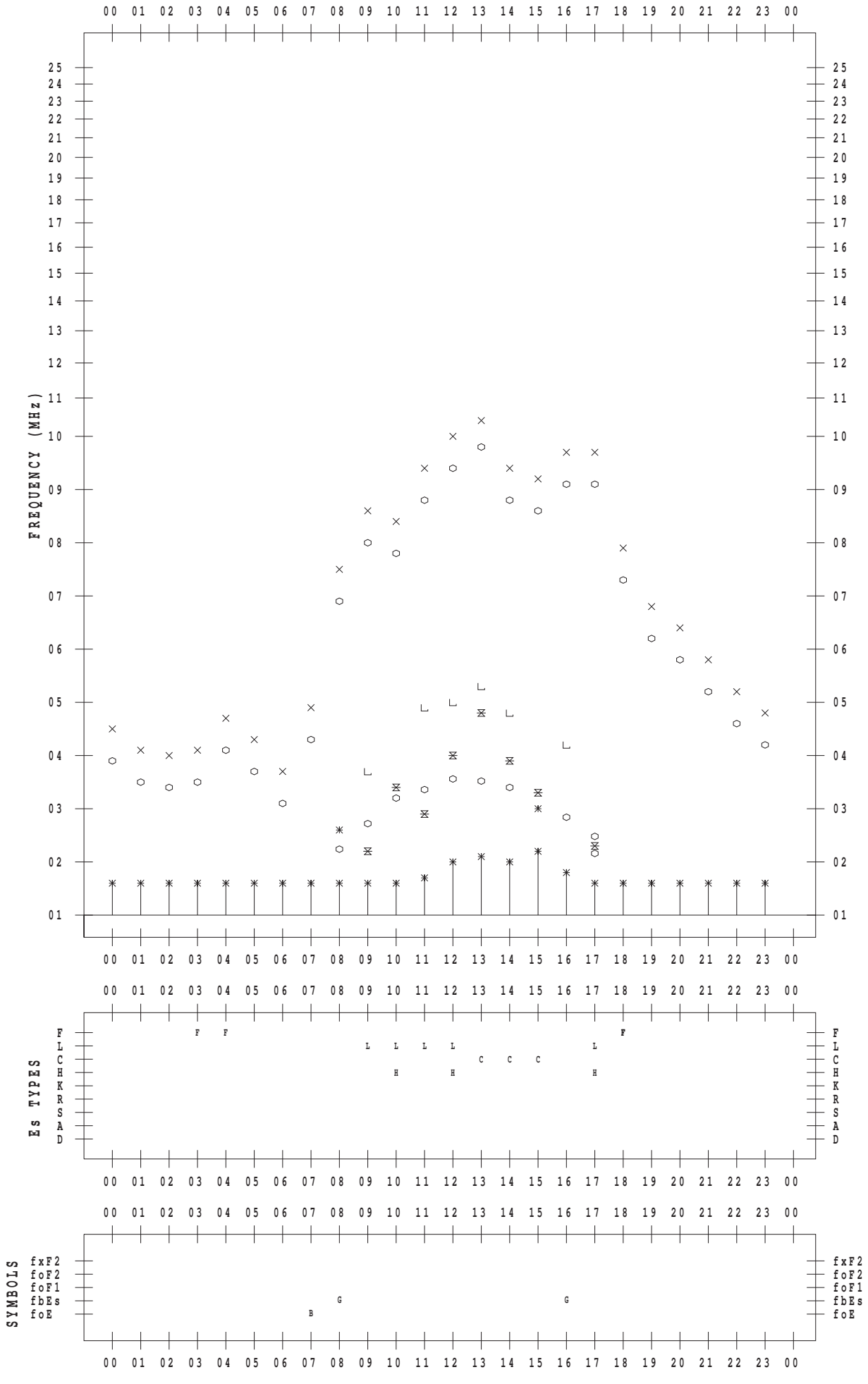
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/26

135 °E MEAN TIME



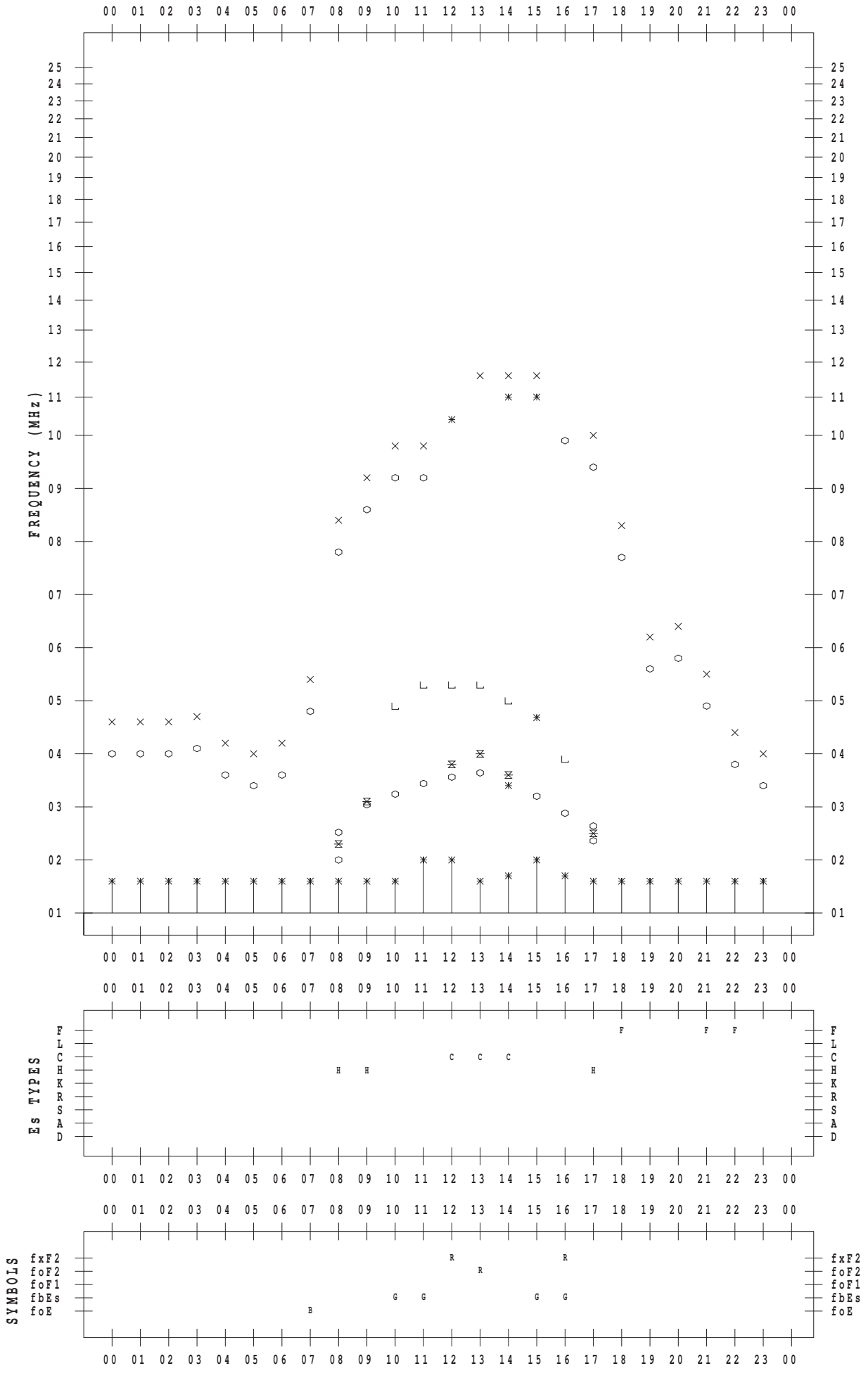
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/27

135 °E MEAN TIME



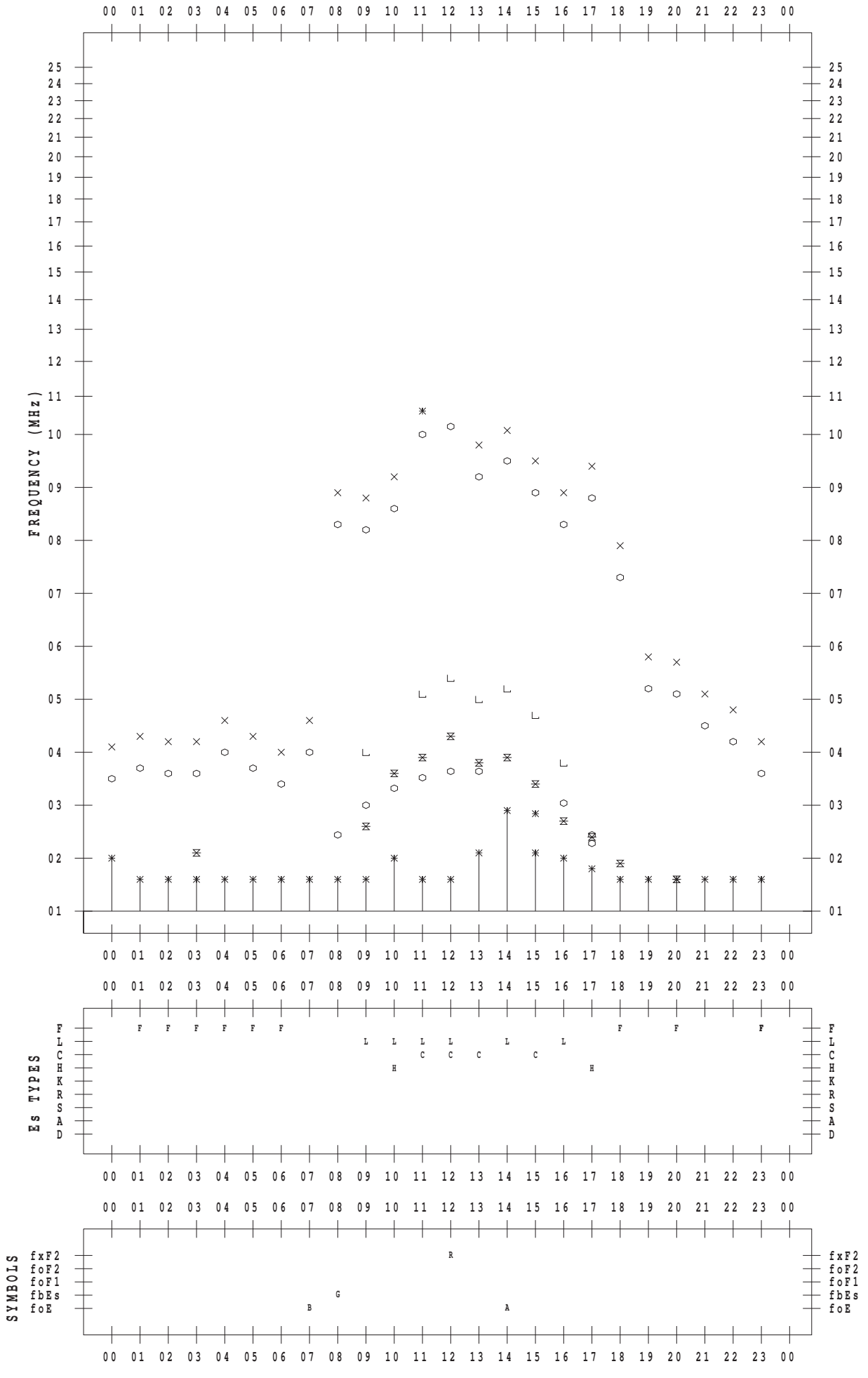
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/28

135 °E MEAN TIME



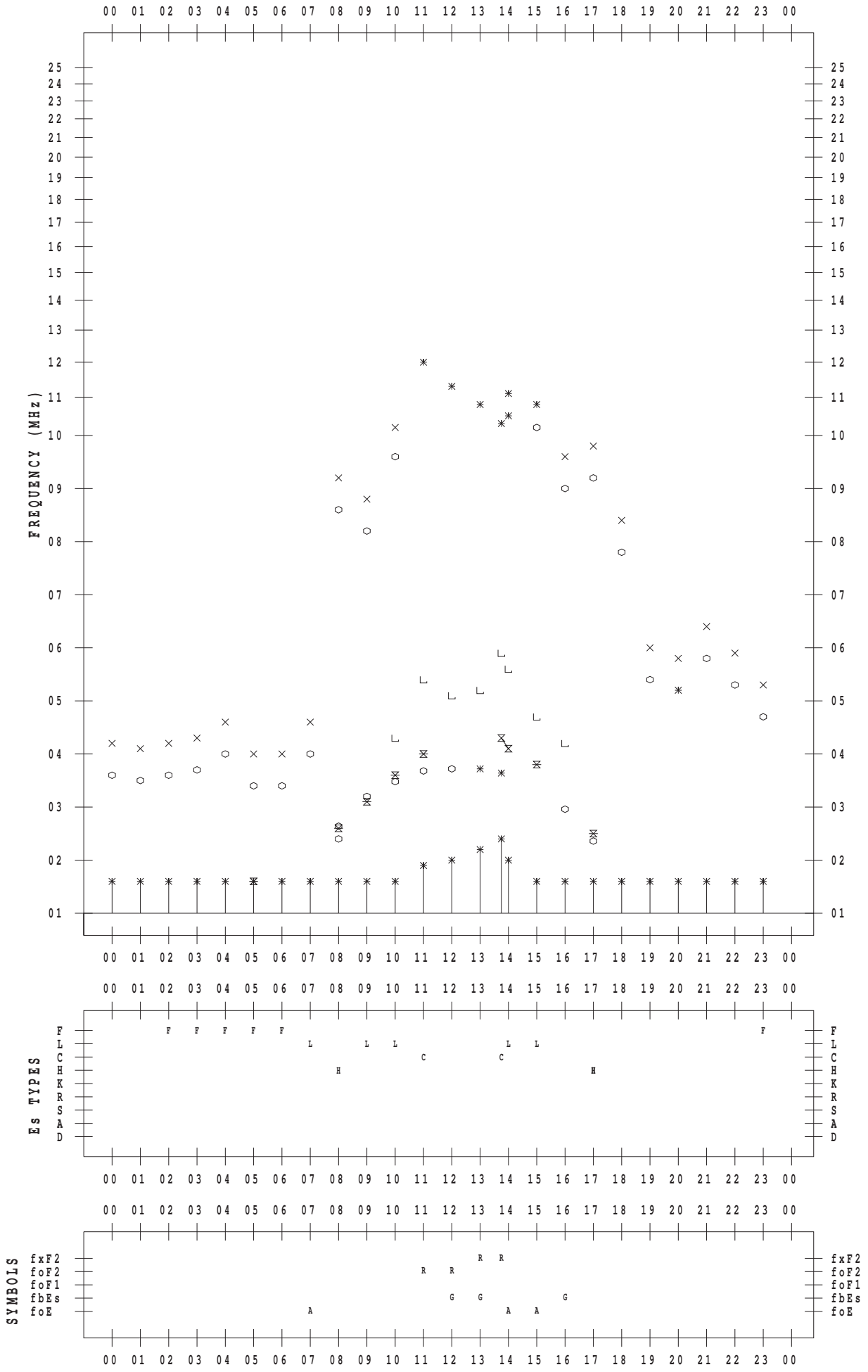
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/29

135 °E MEAN TIME



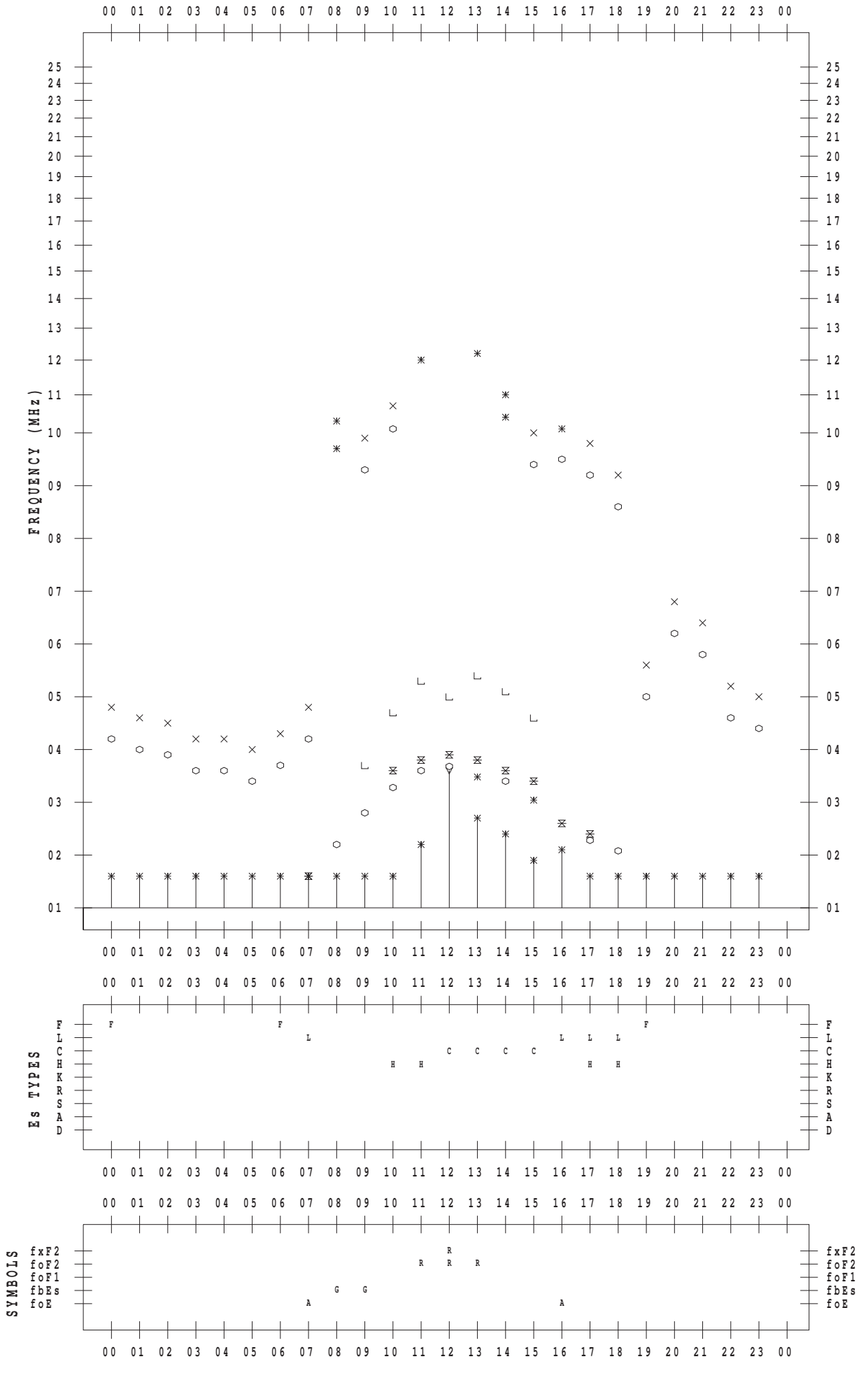
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/30

135 °E MEAN TIME



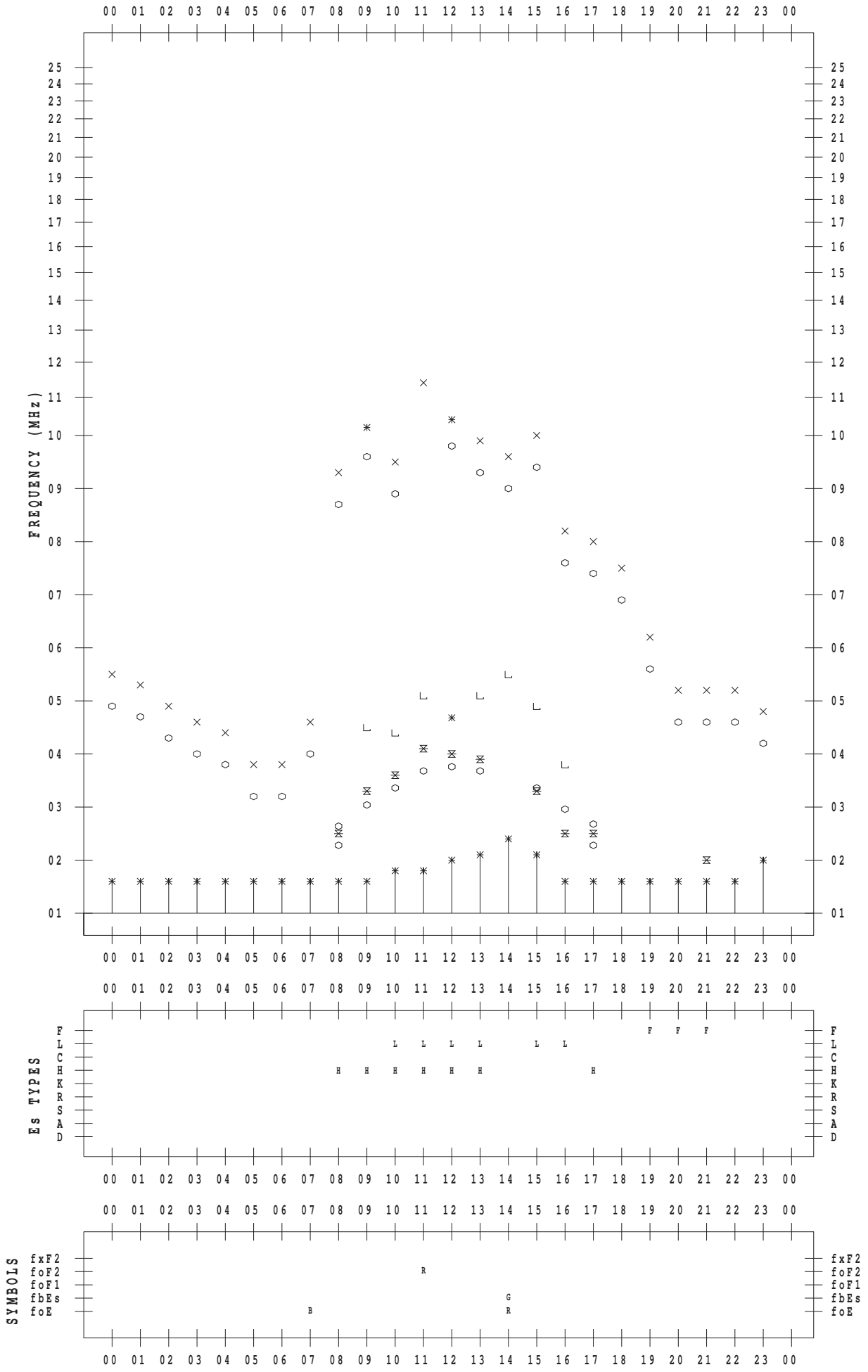
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014/ 1/31

135 °E MEAN TIME



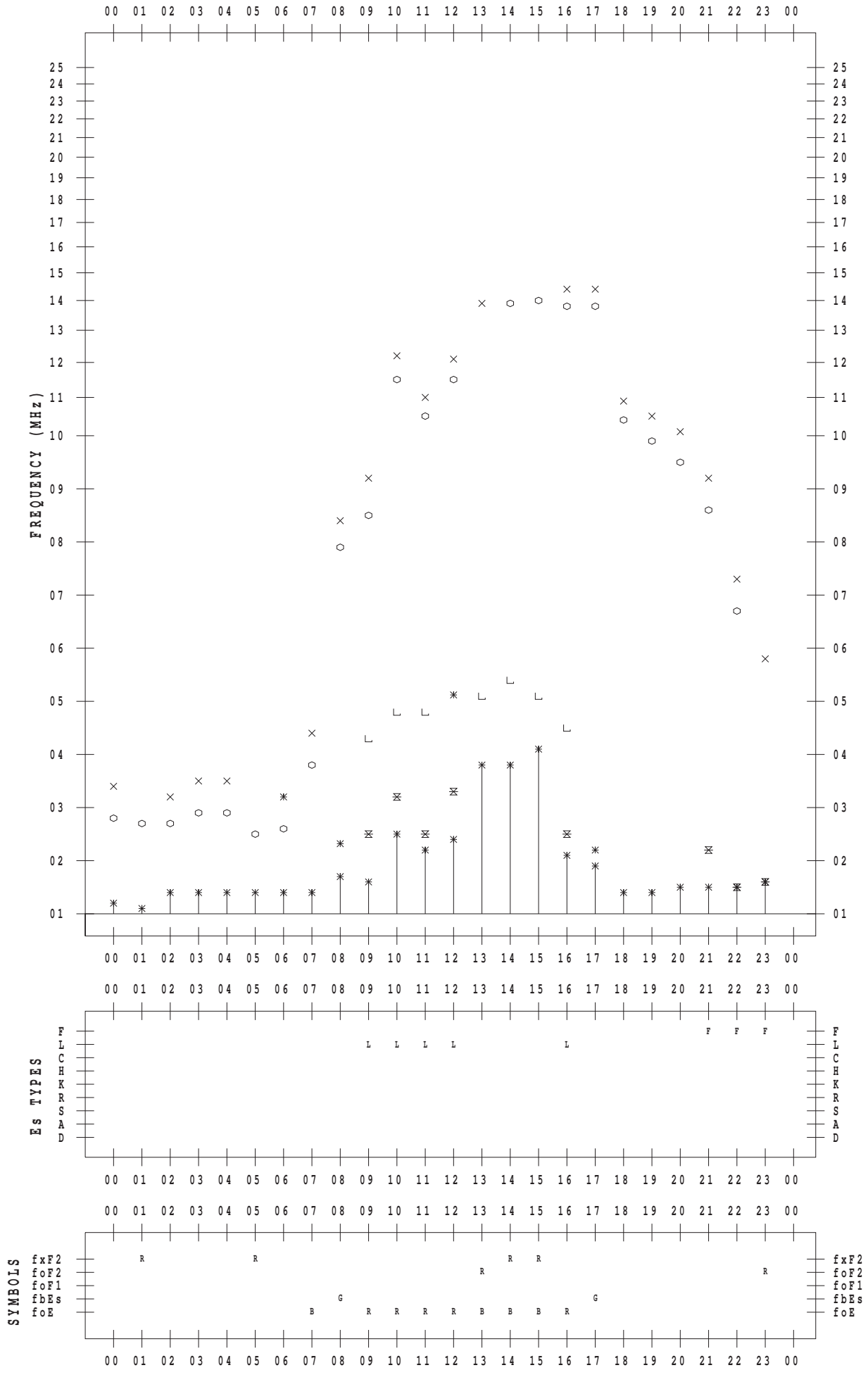
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/ 1

135 °E MEAN TIME



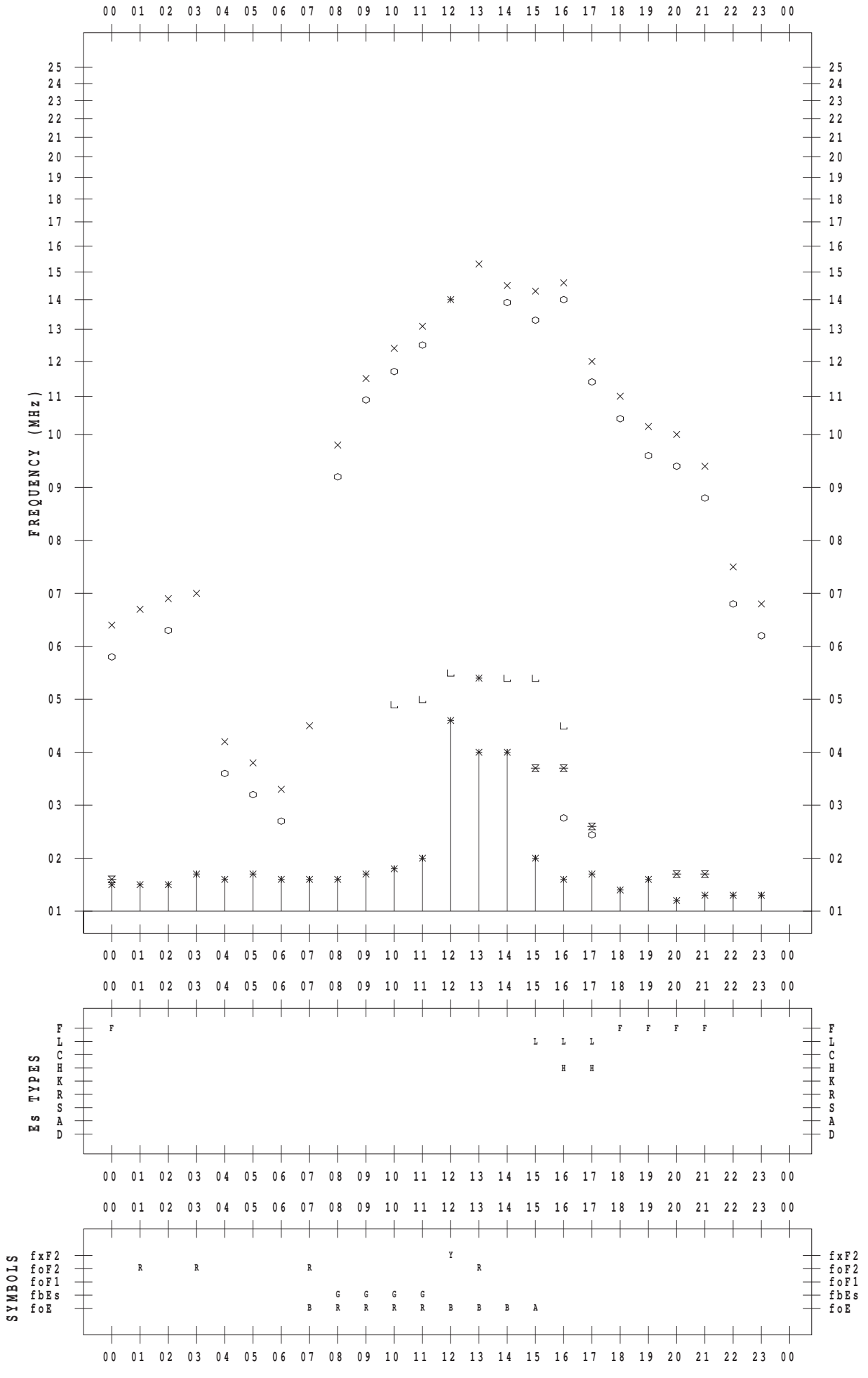
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/ 2

135 °E MEAN TIME



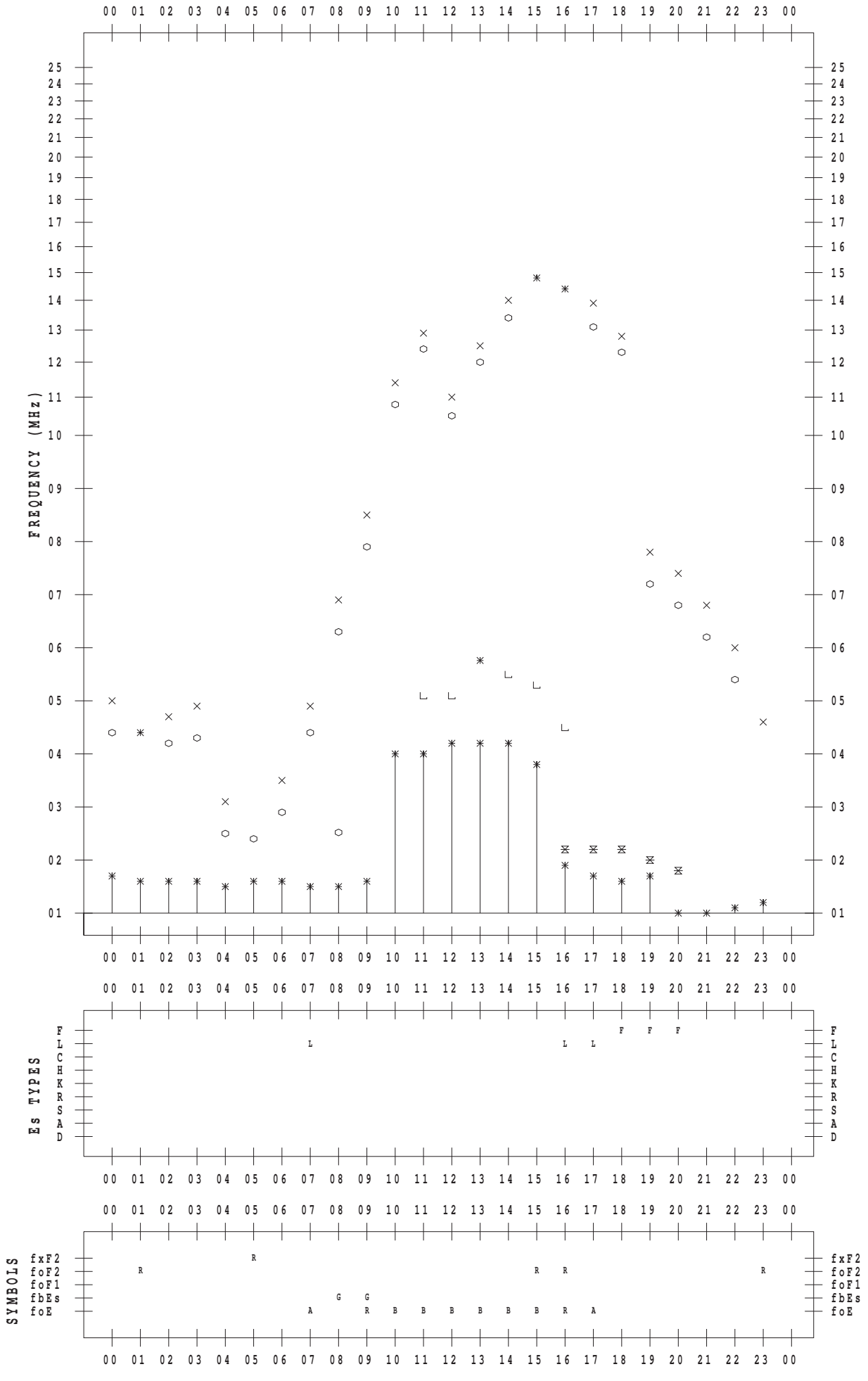
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/ 3

135 °E MEAN TIME



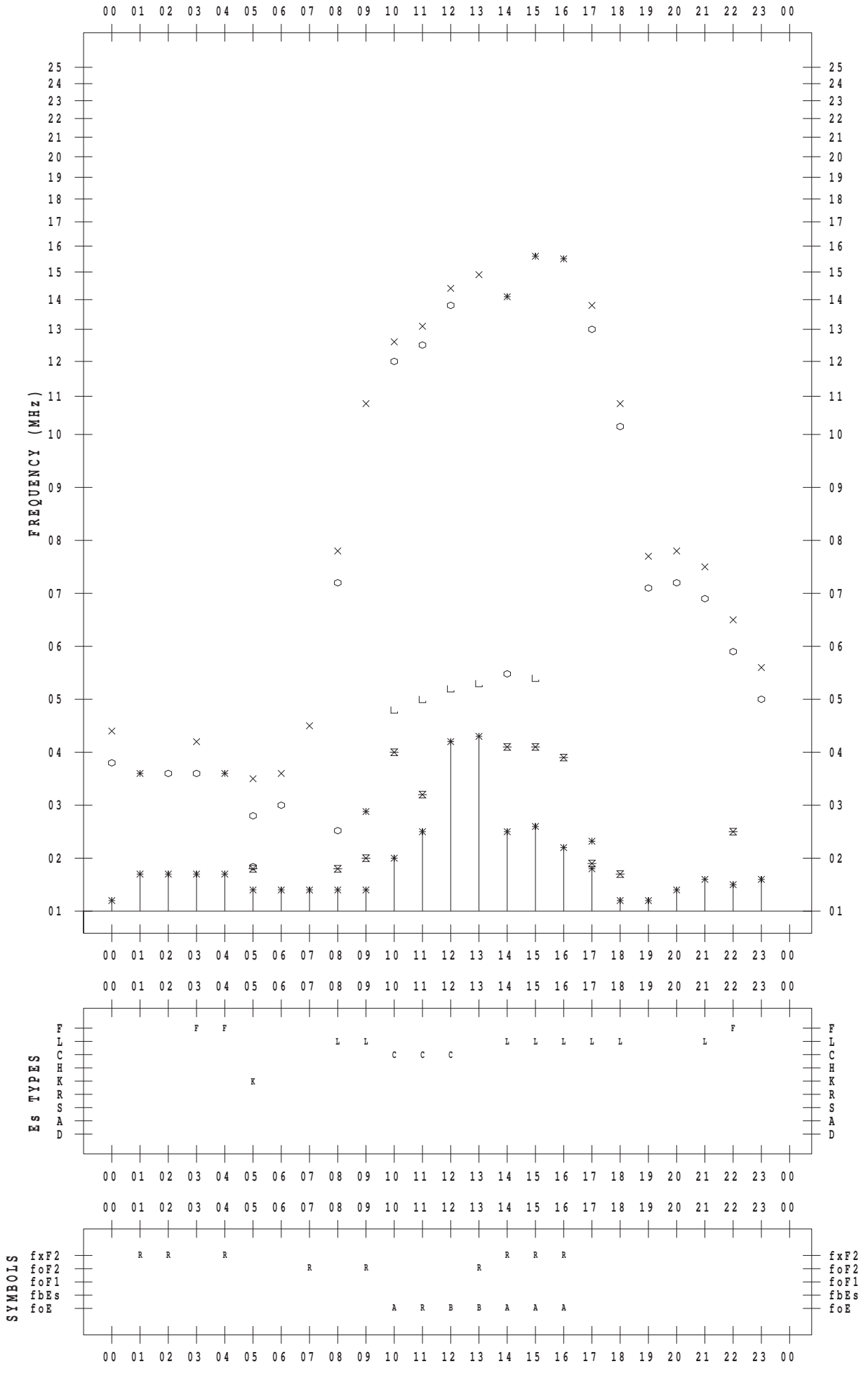
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/ 4

135 °E MEAN TIME



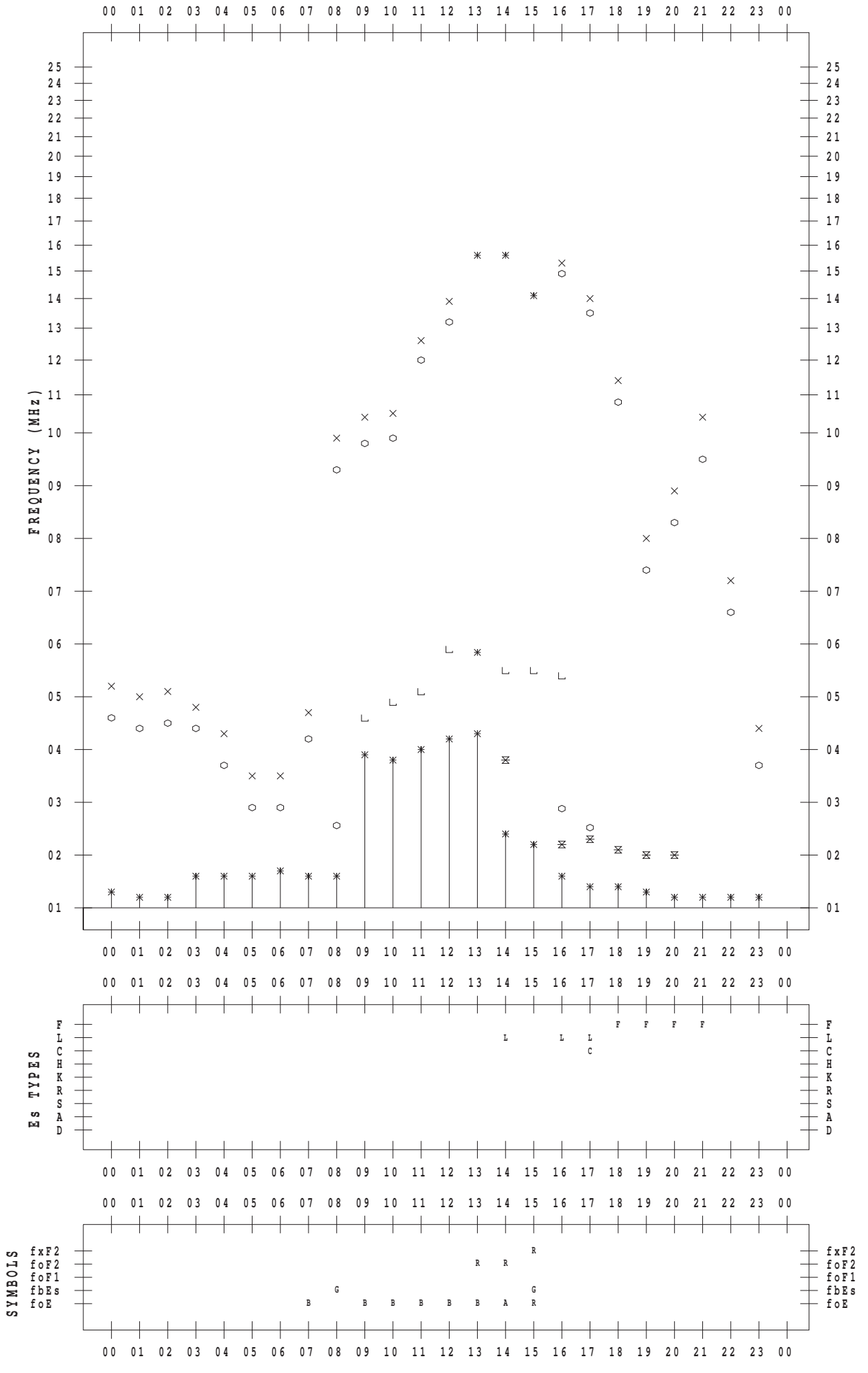
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/ 5

135 °E MEAN TIME



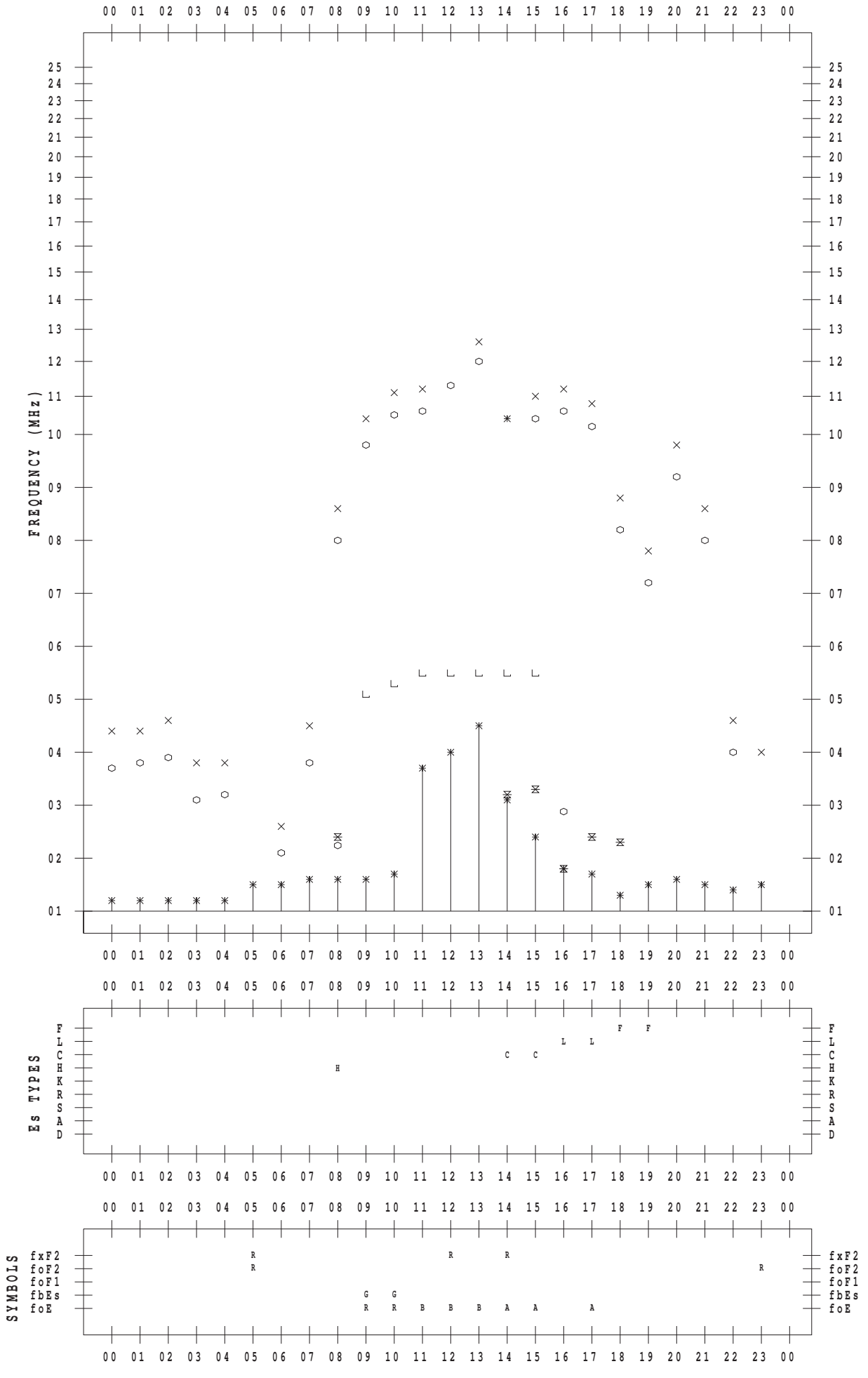
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/ 6

135 °E MEAN TIME



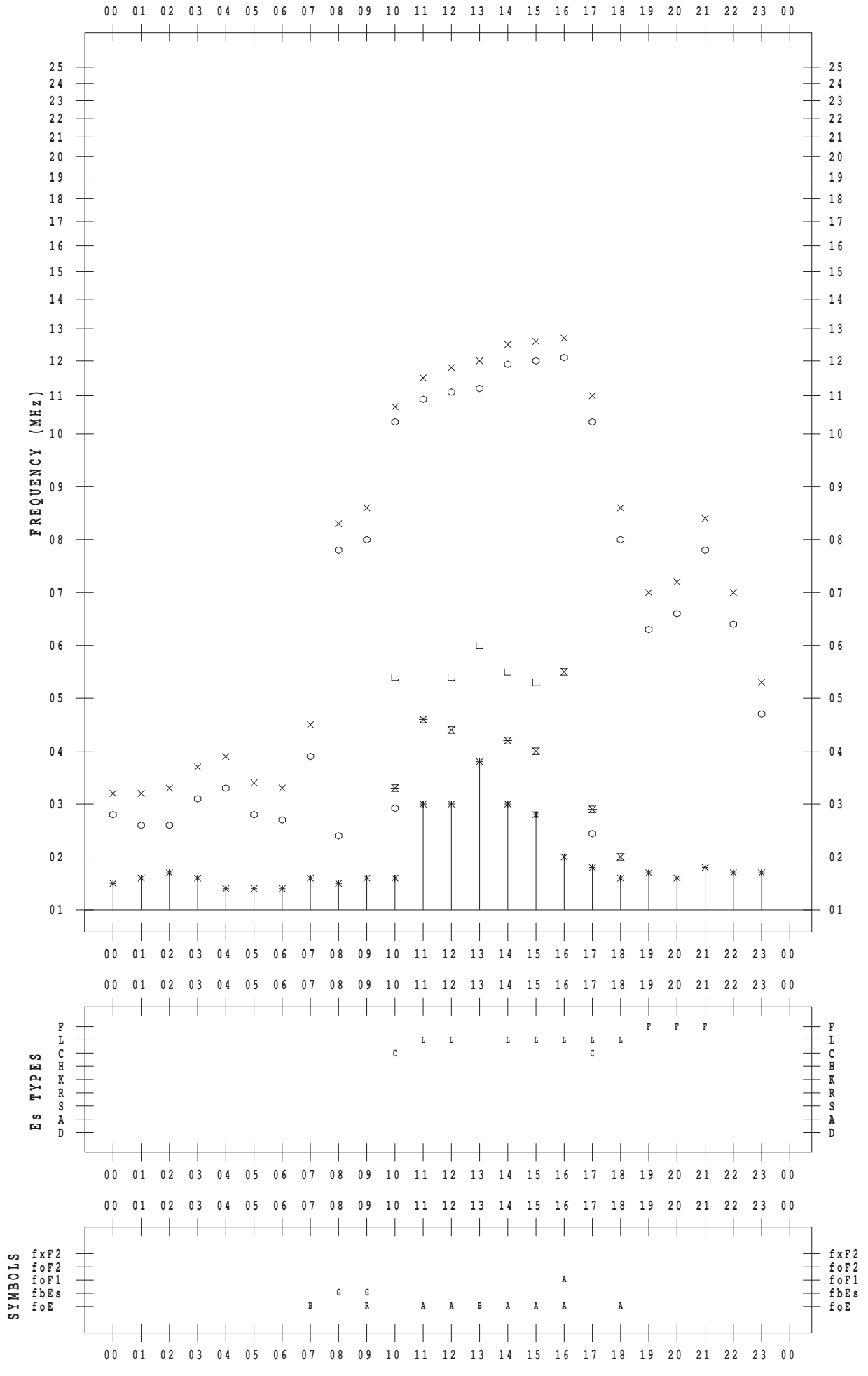
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/ 7

135 °E MEAN TIME



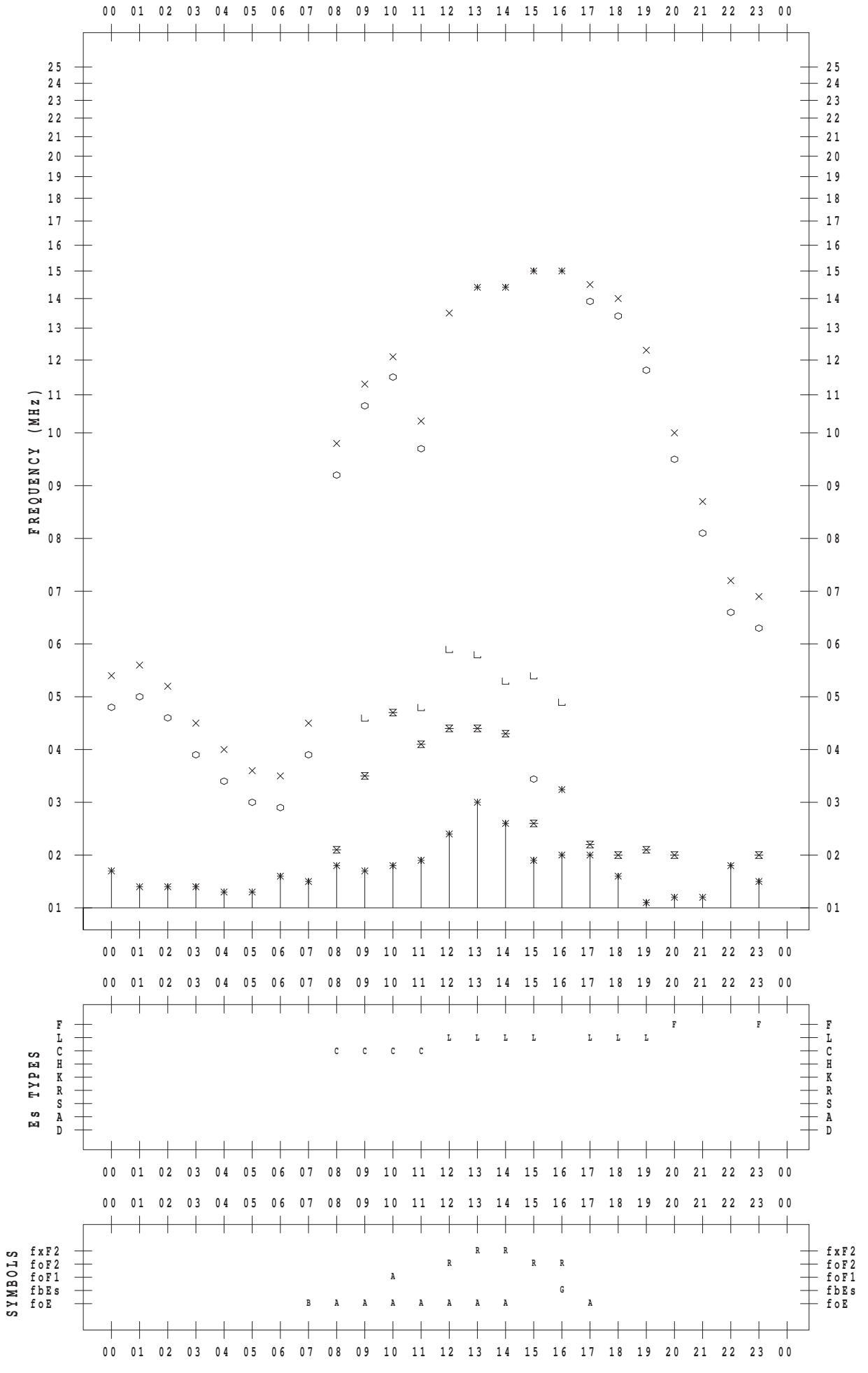
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/ 8

135 °E MEAN TIME



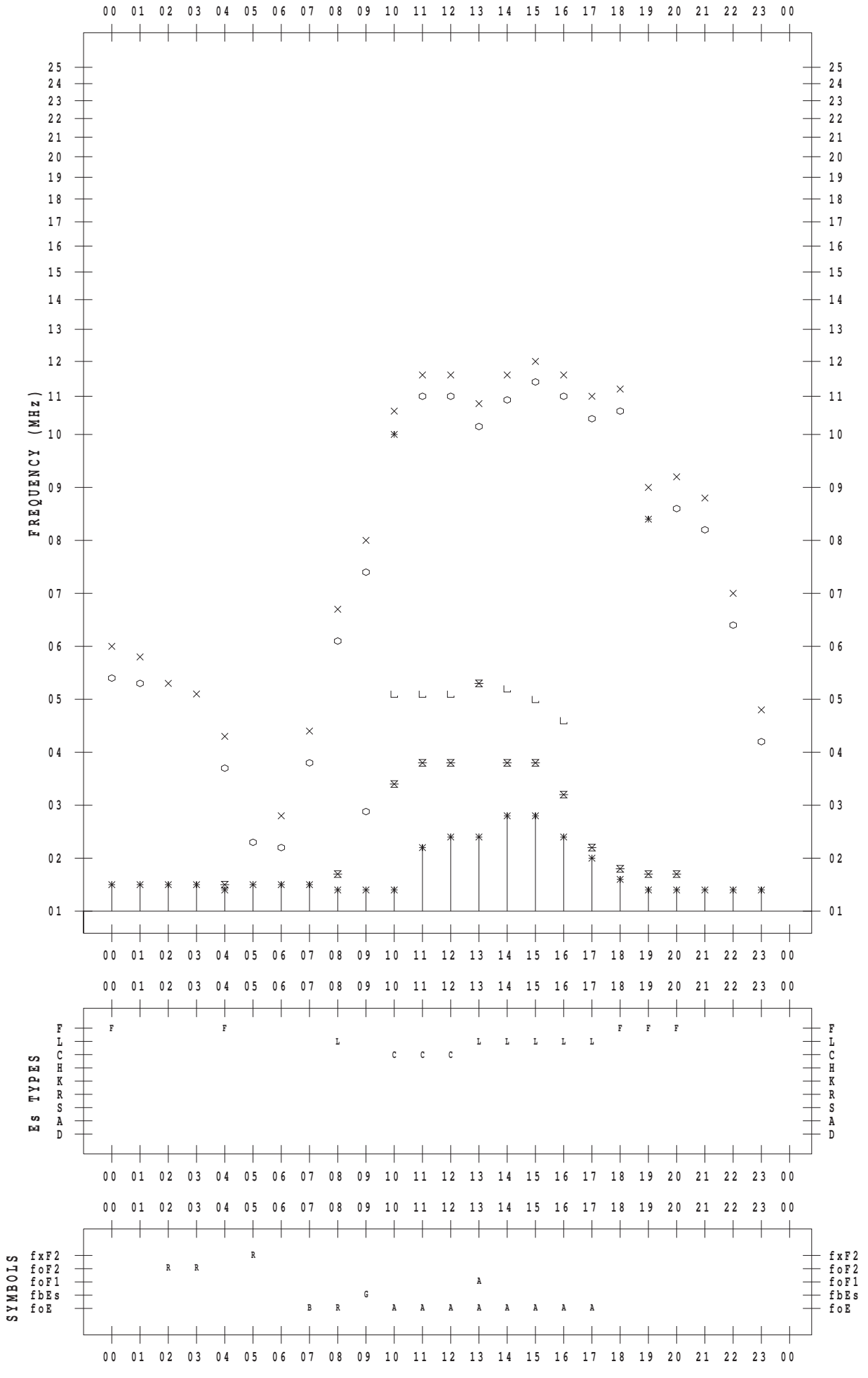
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/ 9

135 °E MEAN TIME



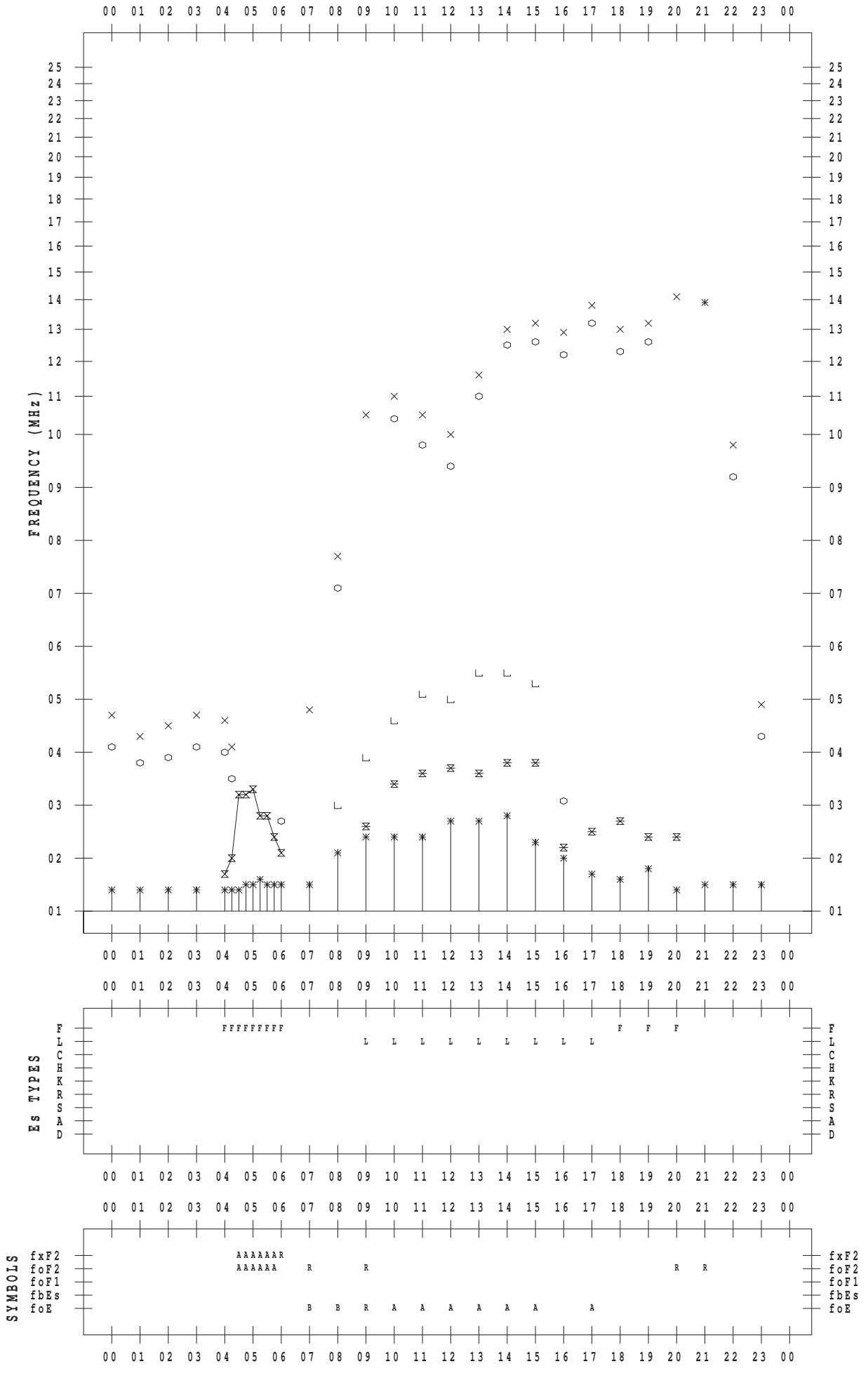
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/10

135 °E MEAN TIME



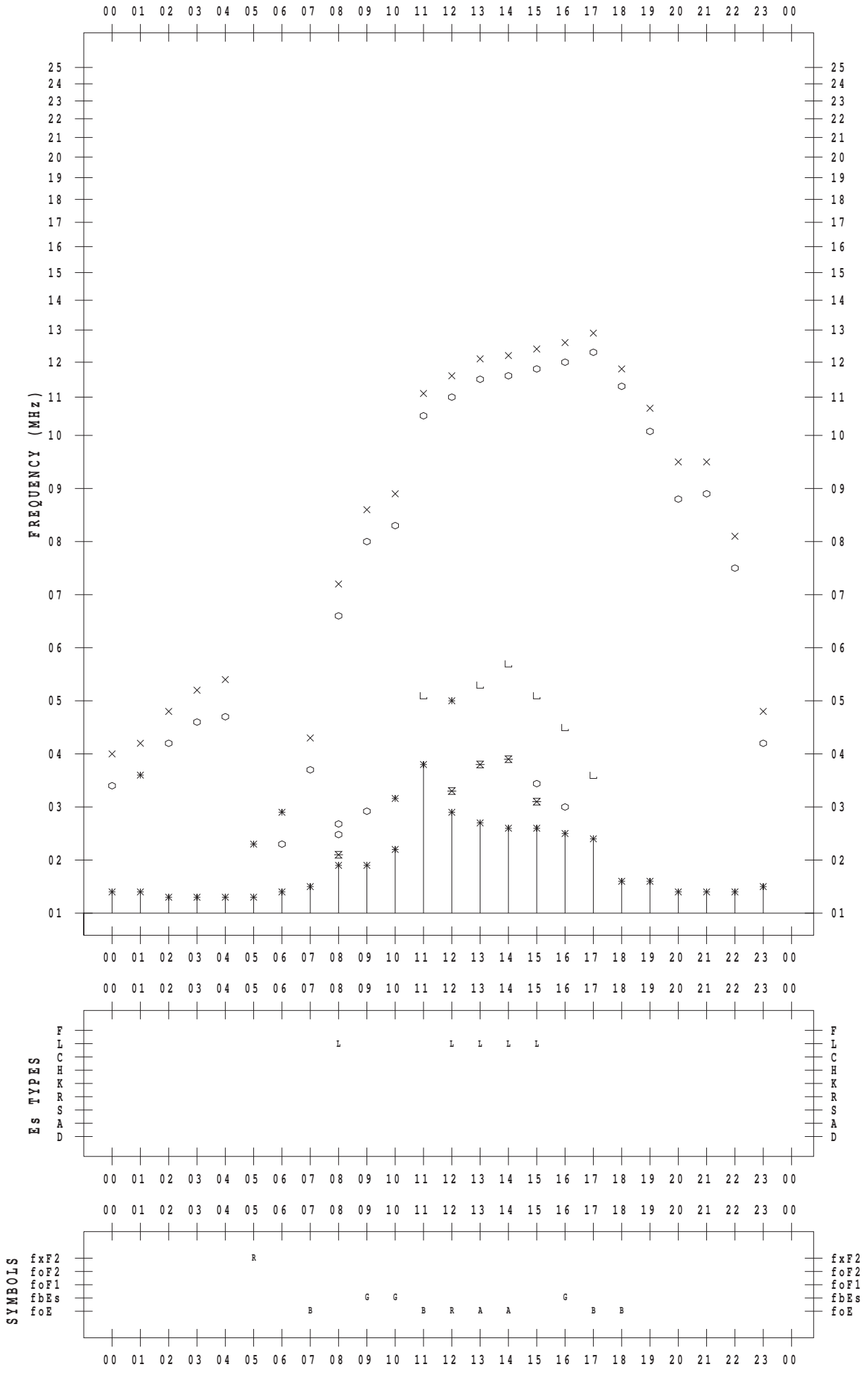
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/11

135 °E MEAN TIME



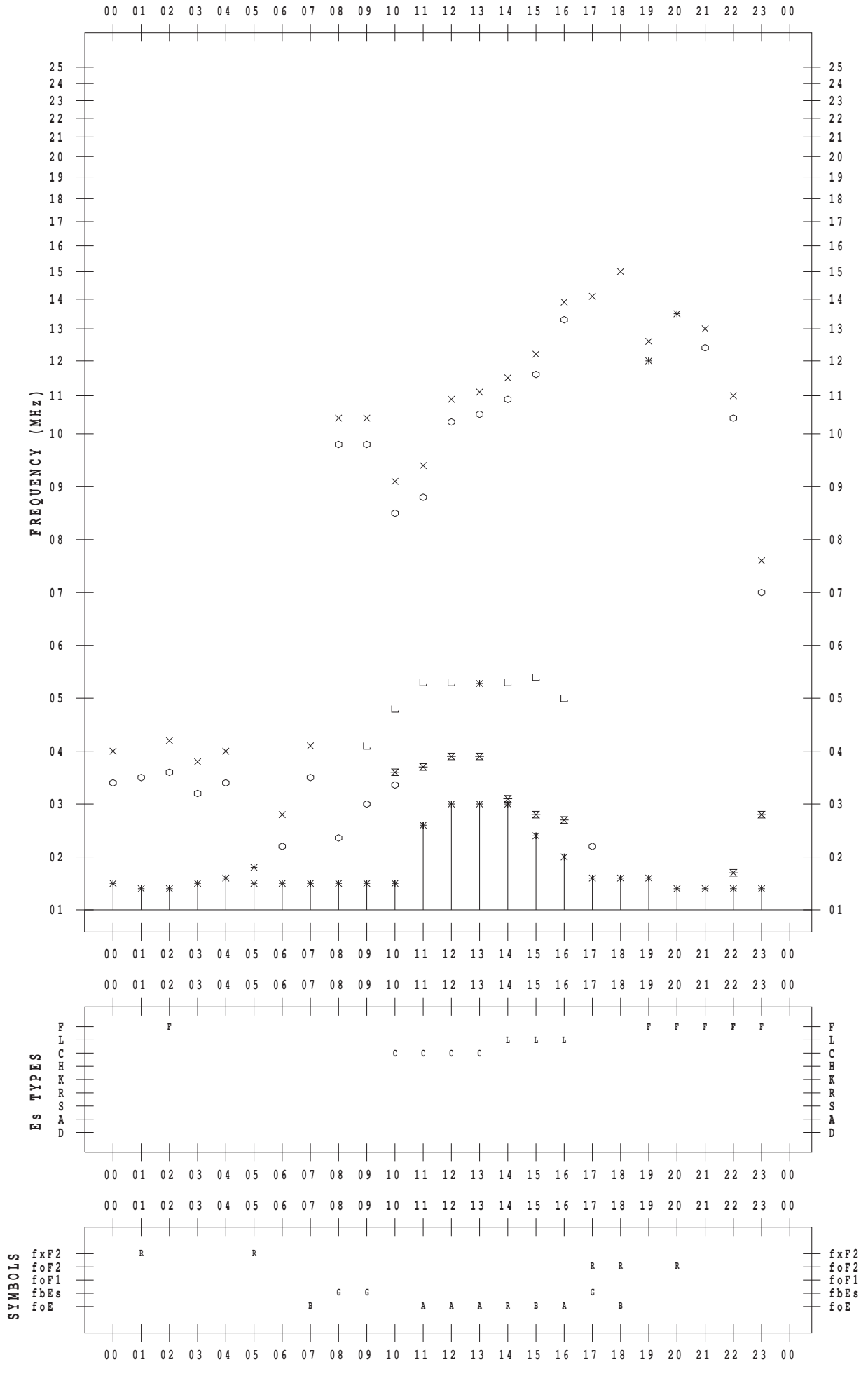
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/12

135 °E MEAN TIME



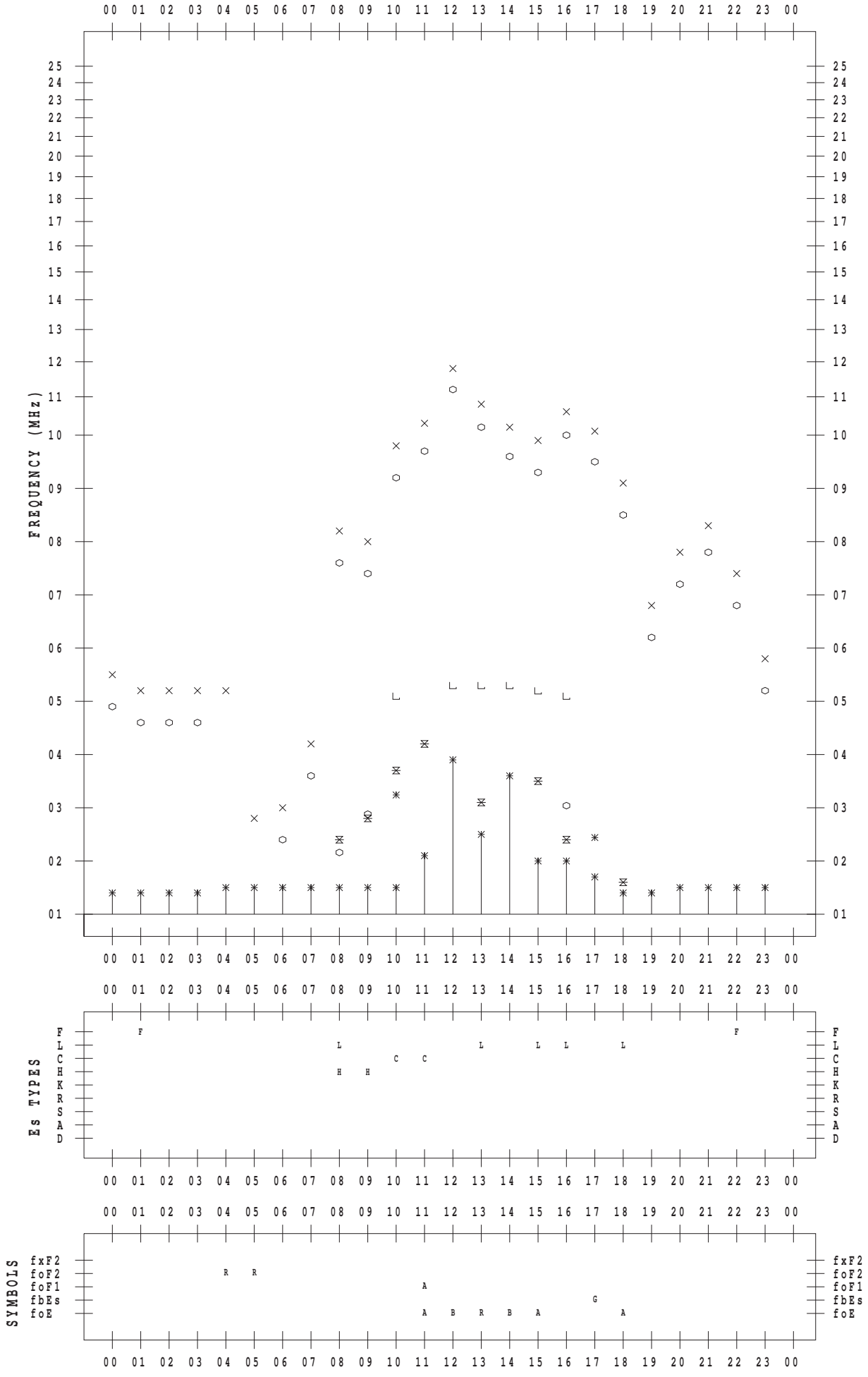
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/13

135 °E MEAN TIME



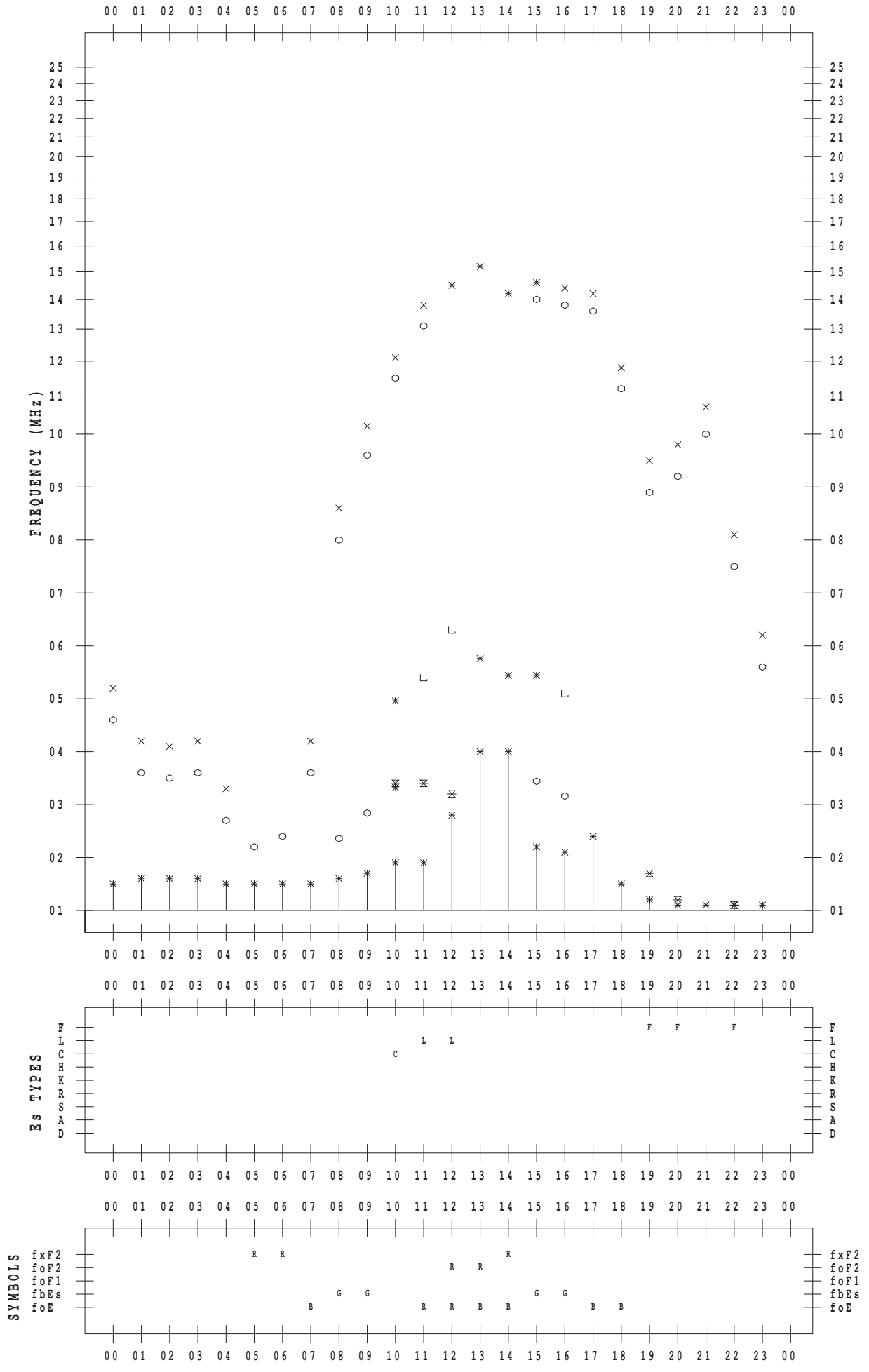
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/14

135 °E MEAN TIME



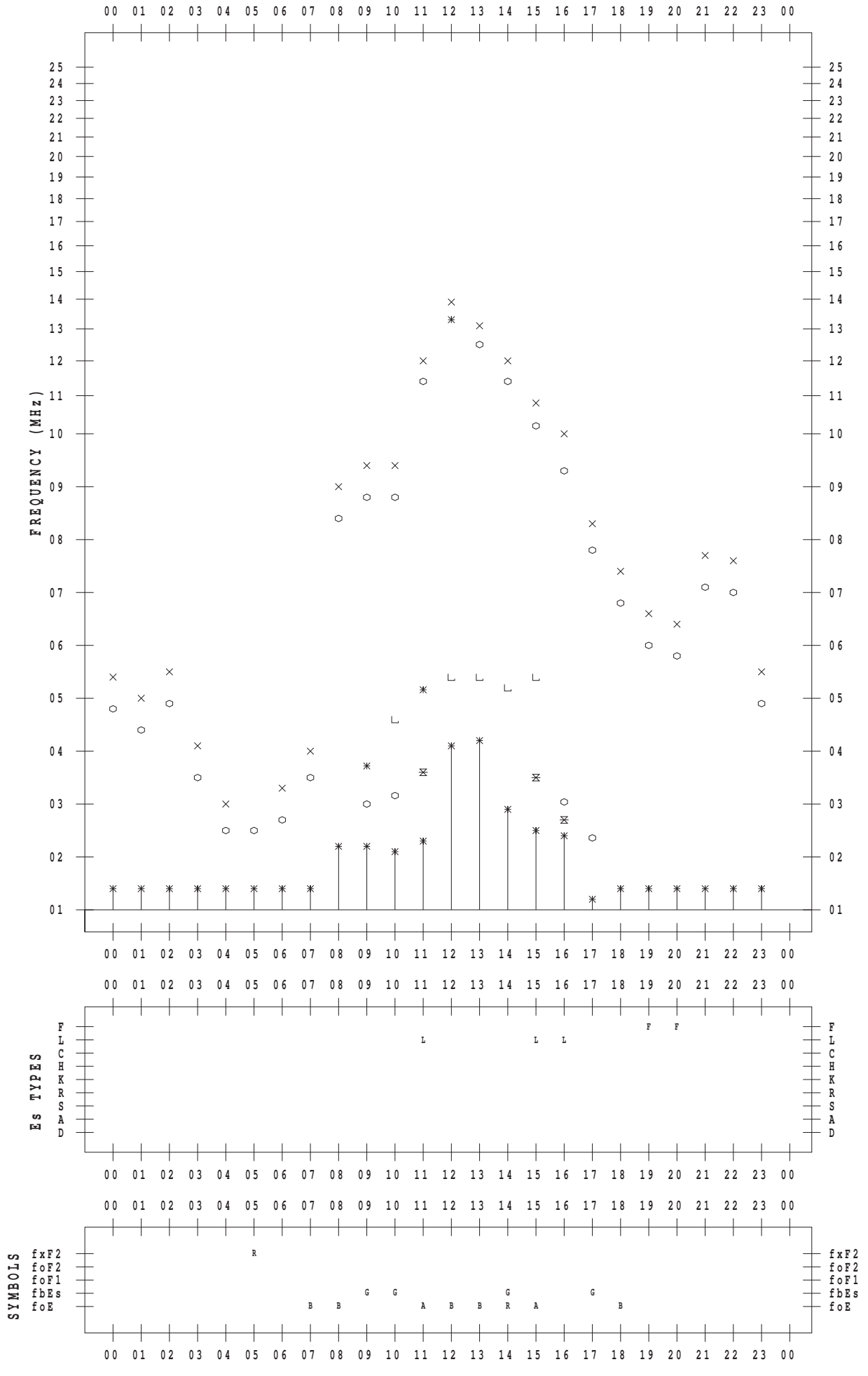
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/15

135 °E MEAN TIME



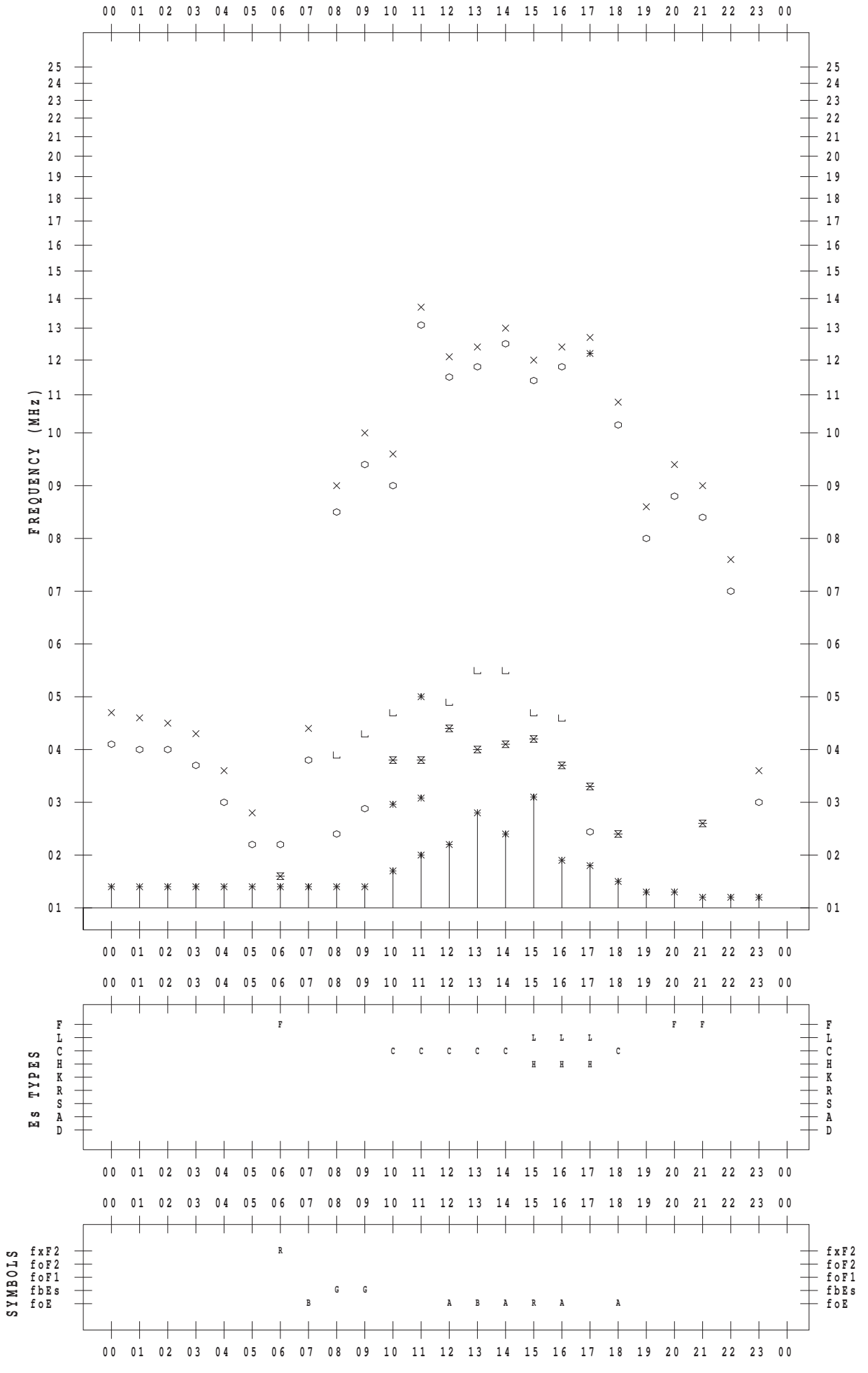
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/16

135 °E MEAN TIME



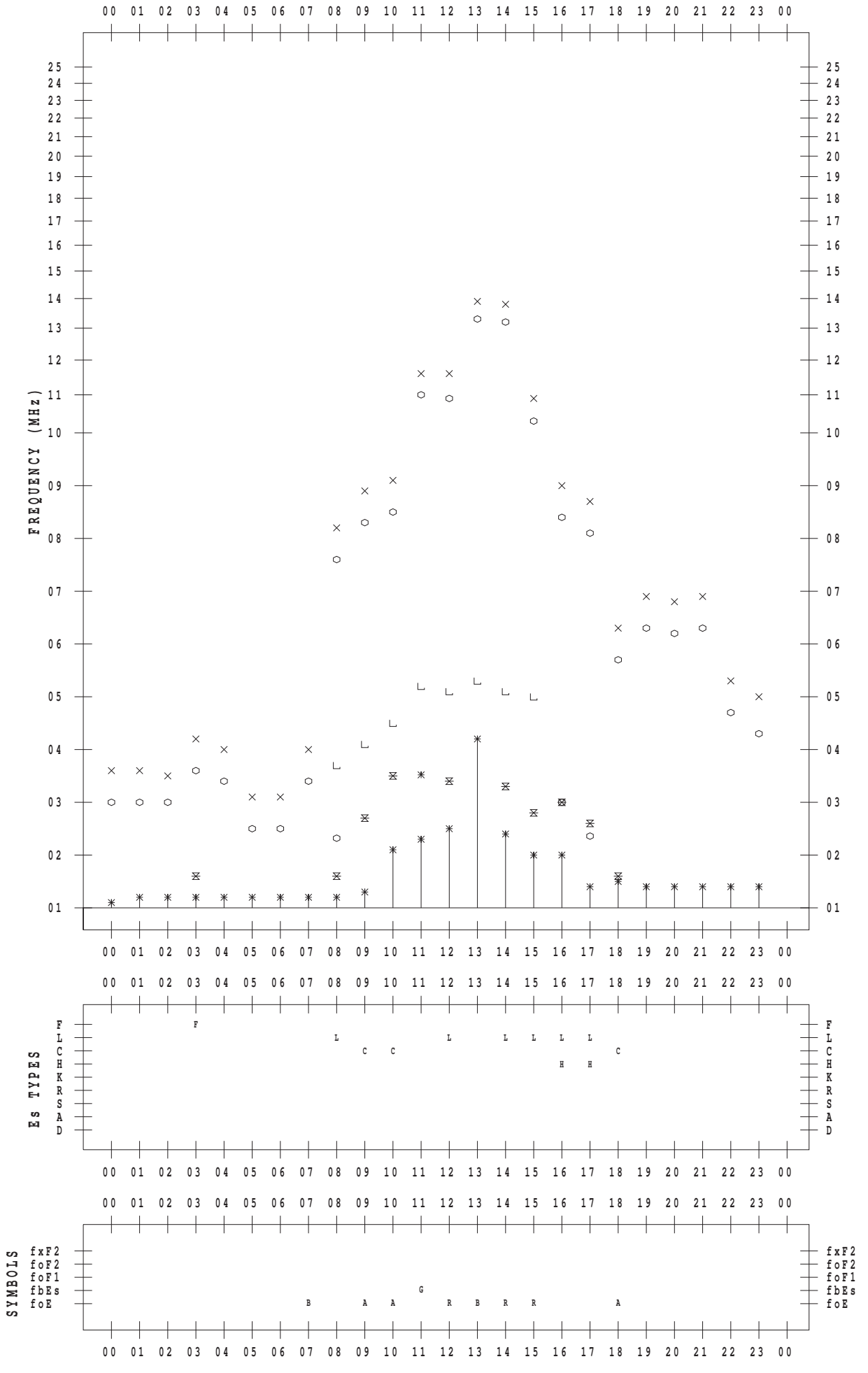
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/17

135 °E MEAN TIME



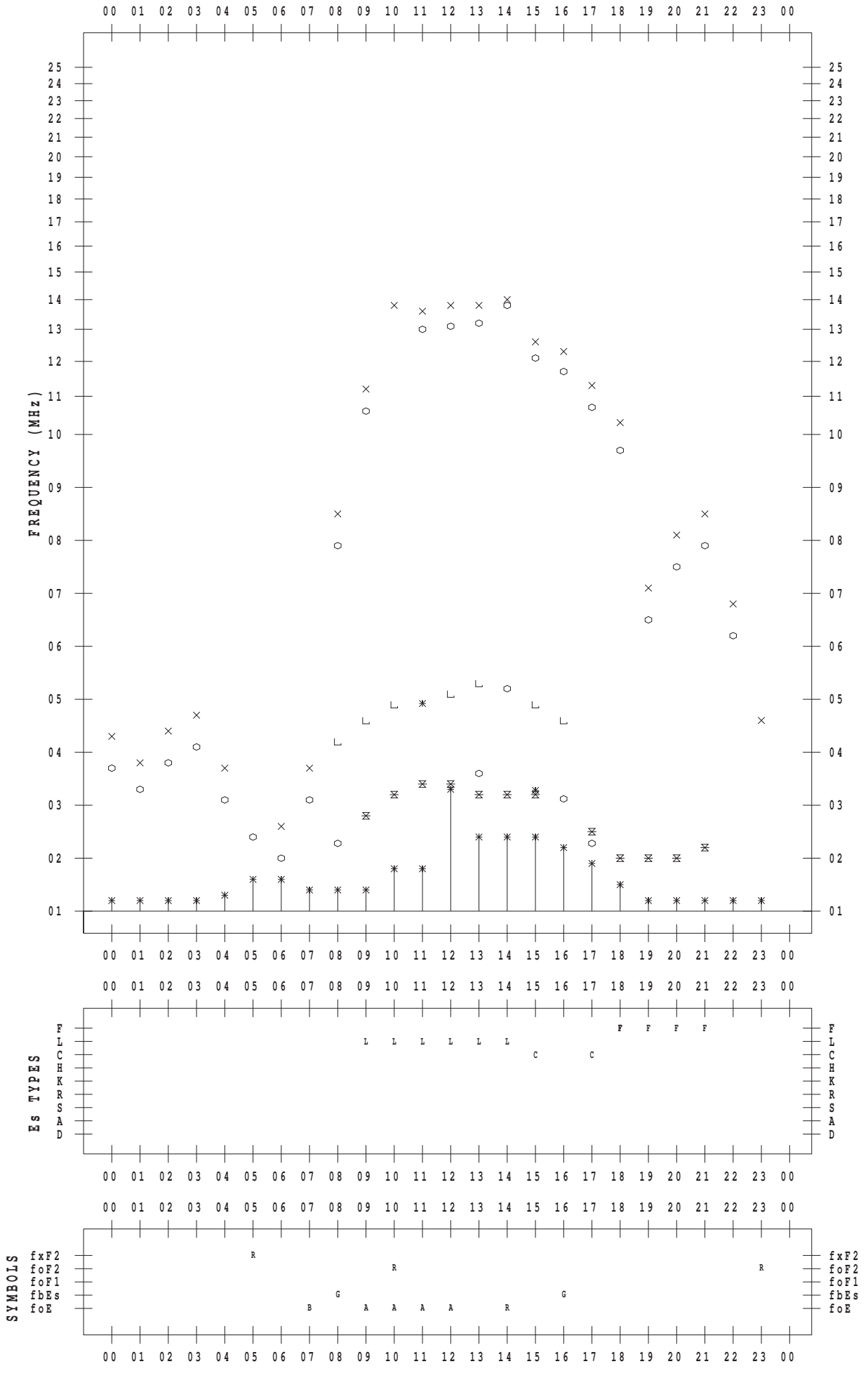
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/18

135 °E MEAN TIME



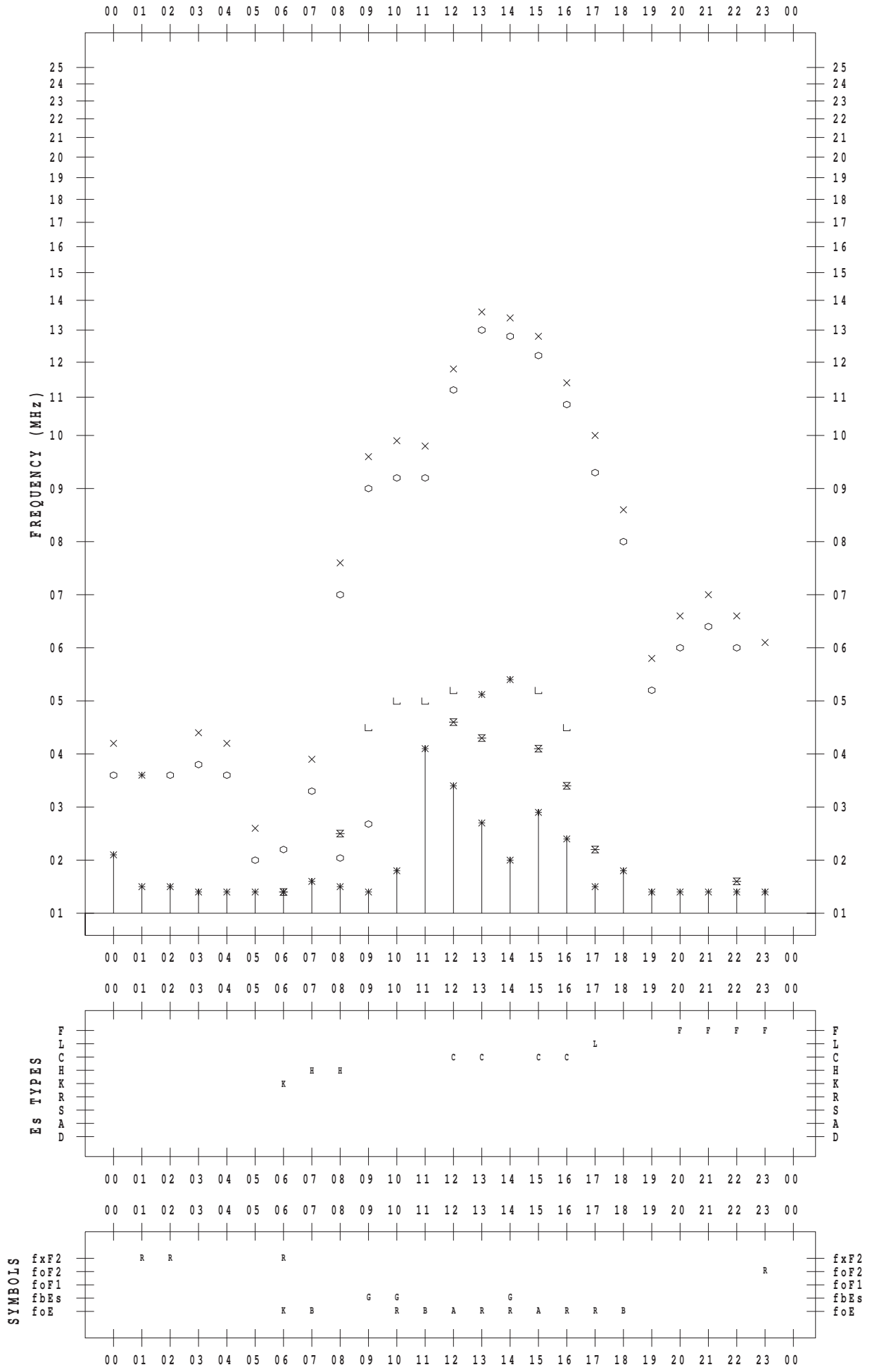
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/19

135 °E MEAN TIME



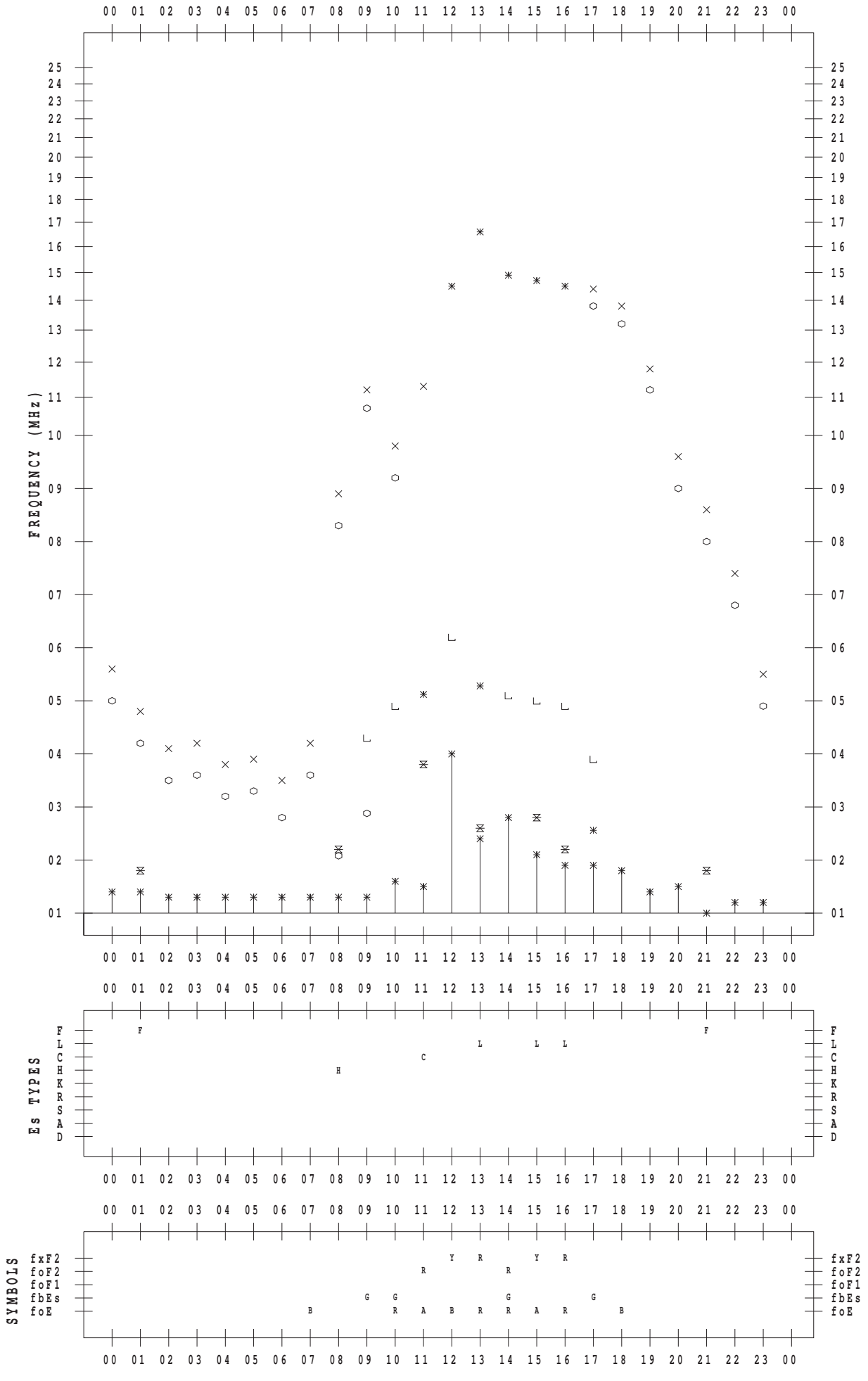
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/20

135 °E MEAN TIME



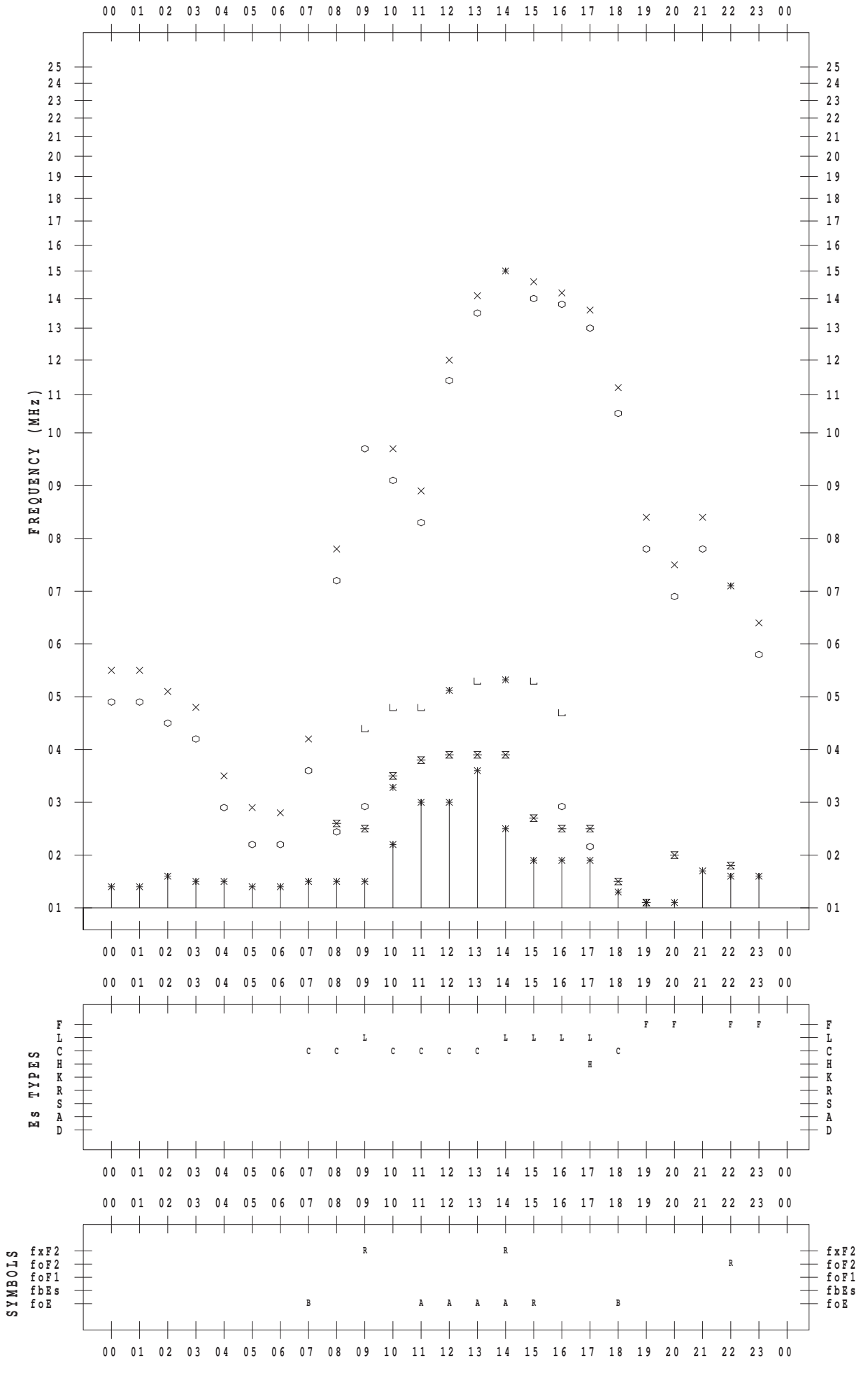
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/21

135 °E MEAN TIME



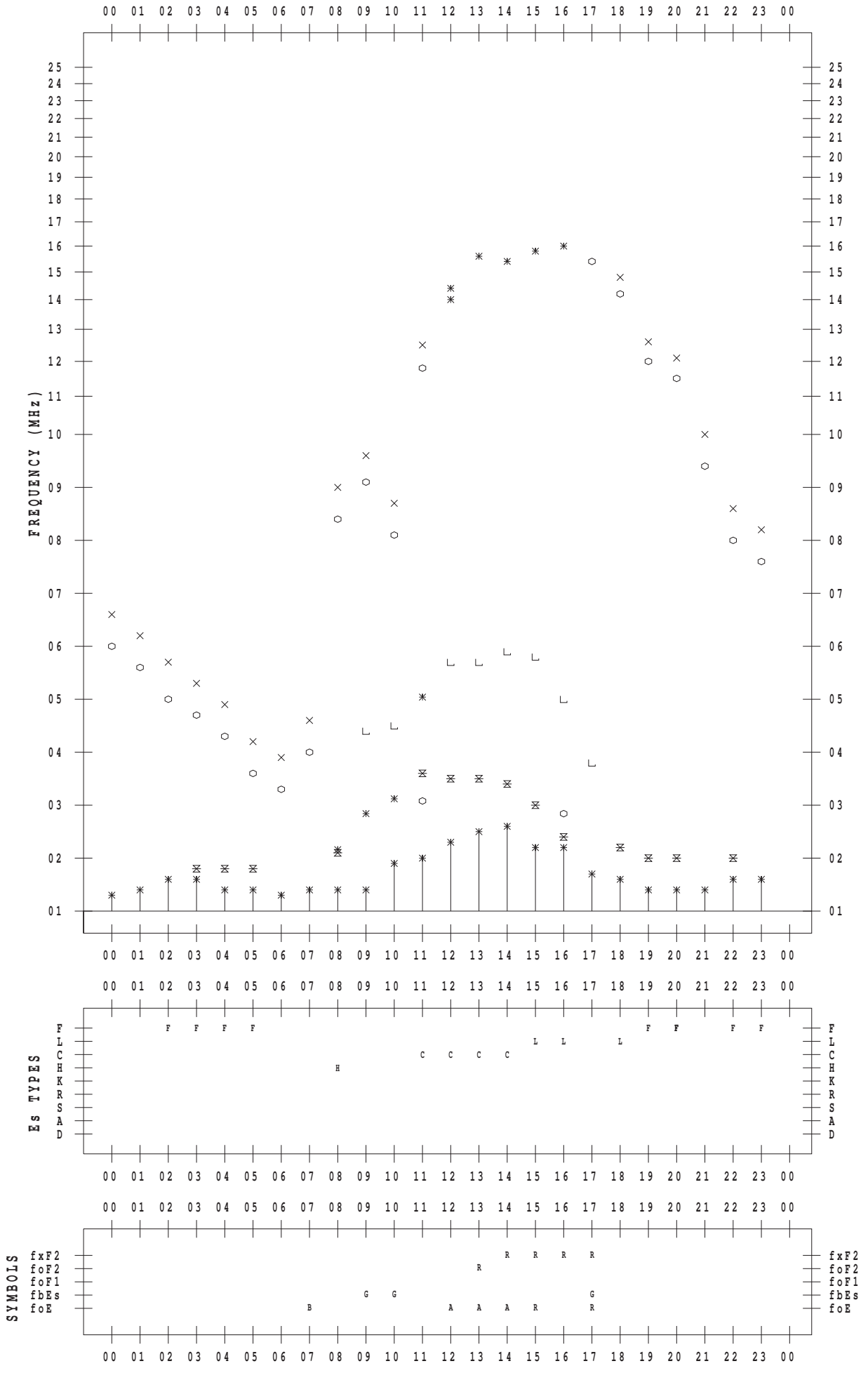
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/22

135 °E MEAN TIME



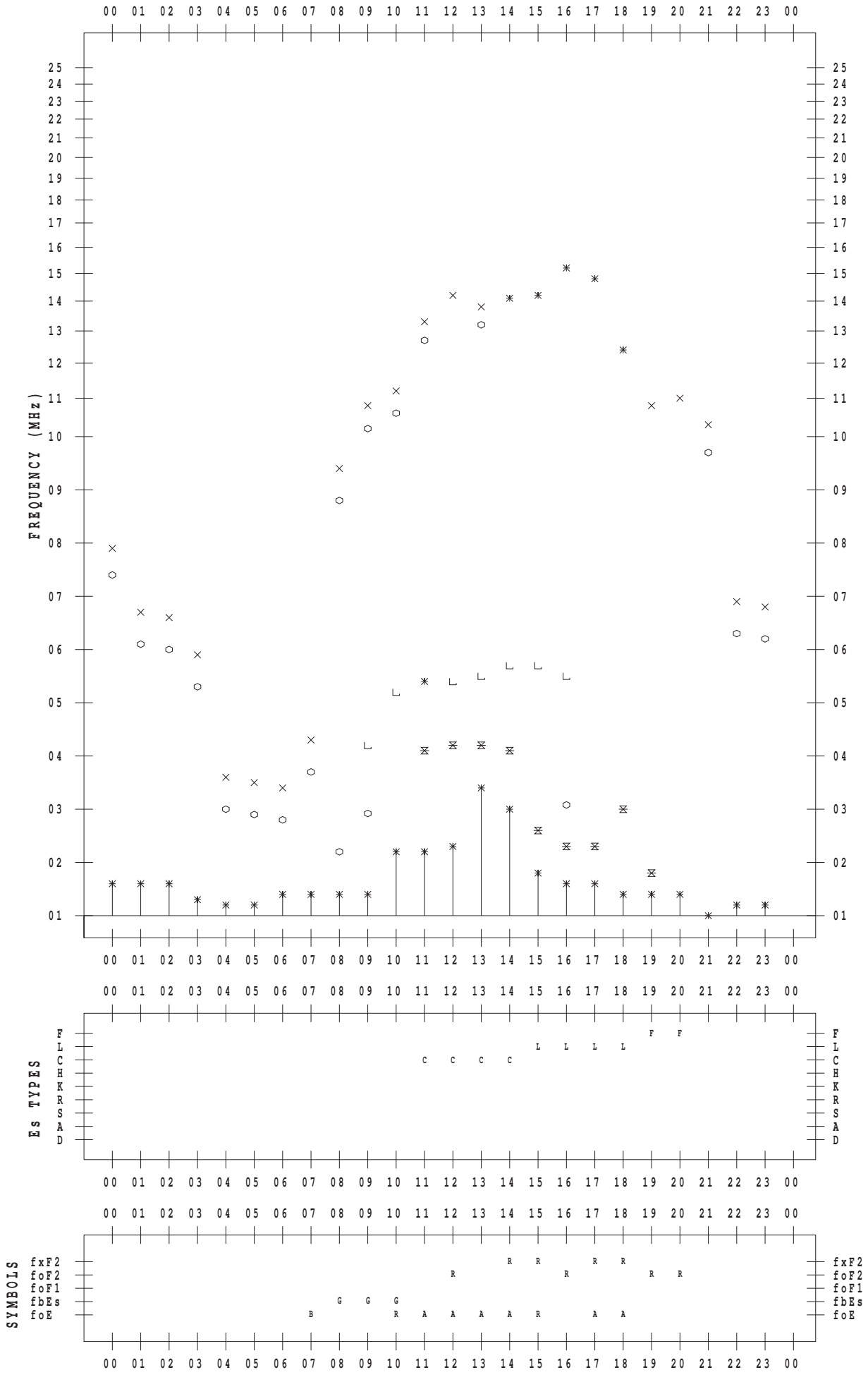
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/23

135 °E MEAN TIME



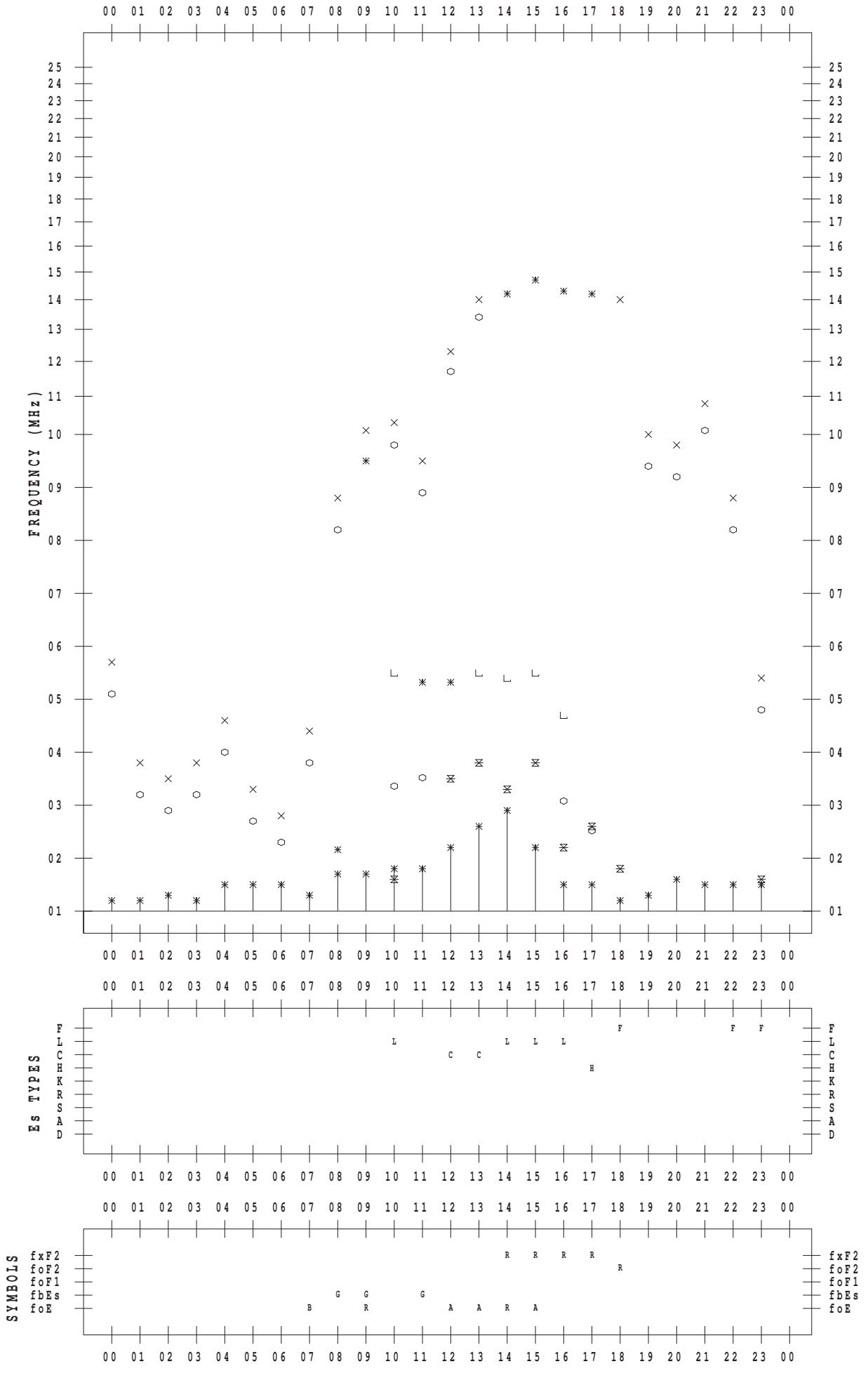
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/24

135 °E MEAN TIME



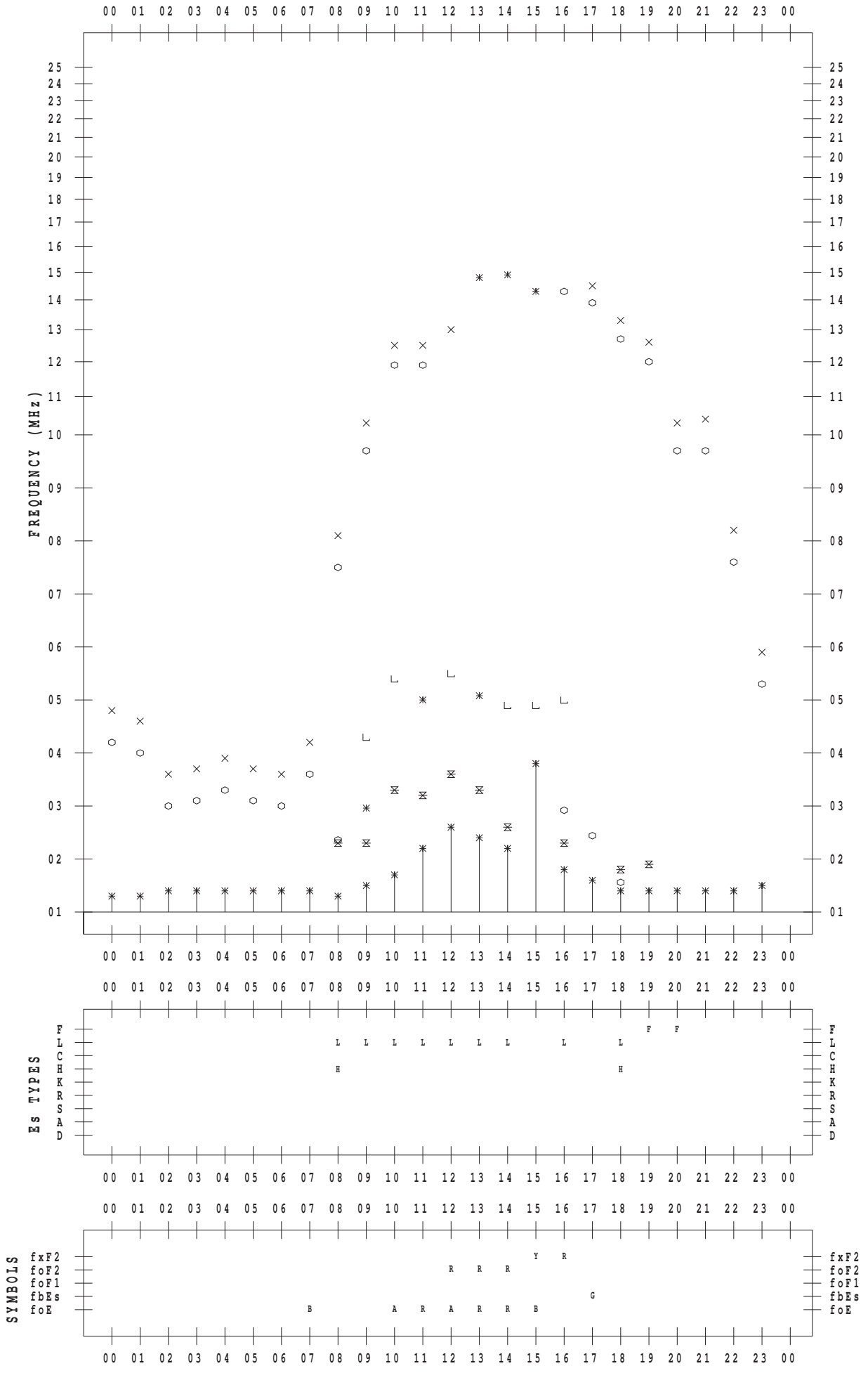
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/25

135 °E MEAN TIME



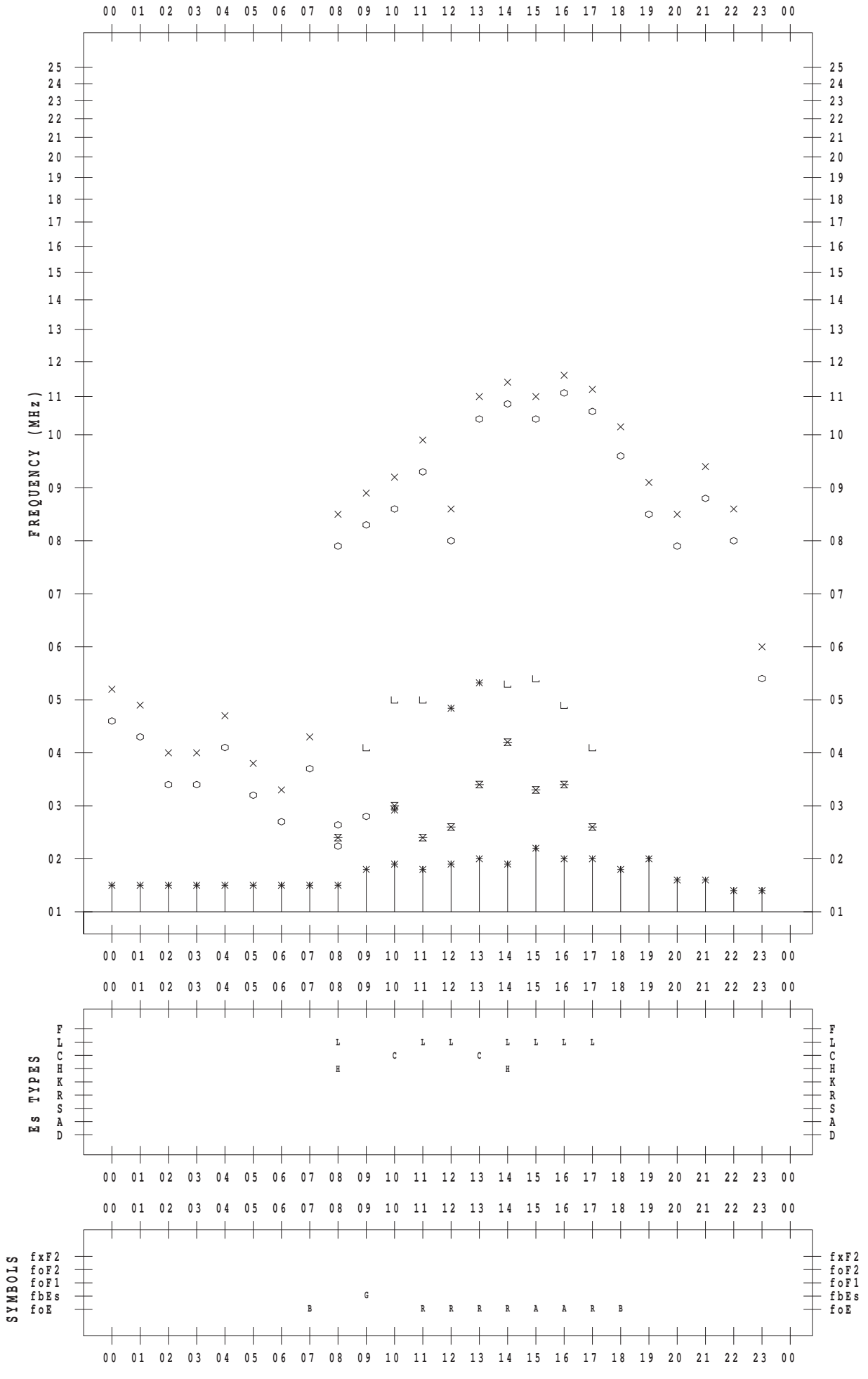
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/26

135 °E MEAN TIME



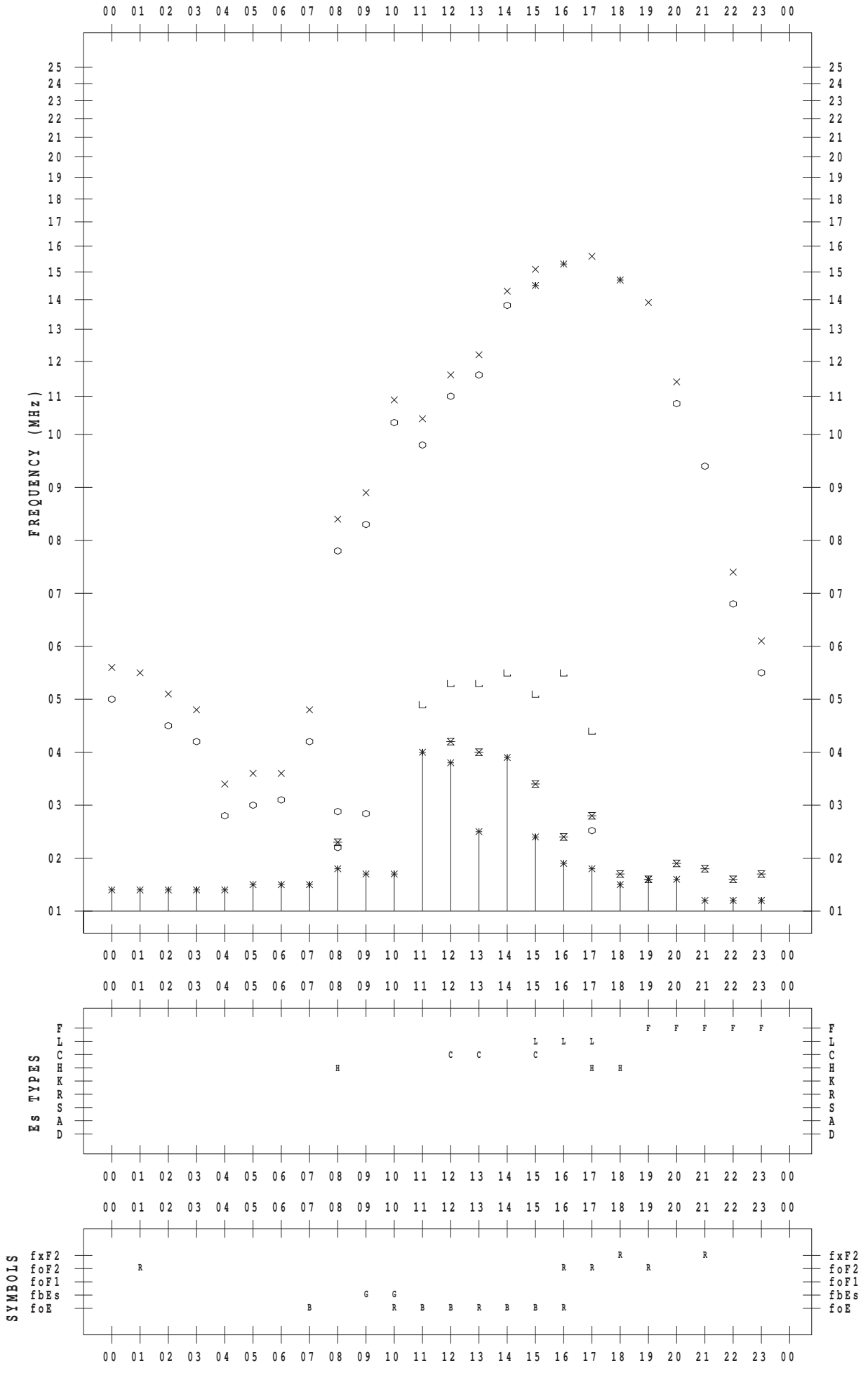
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/27

135 °E MEAN TIME



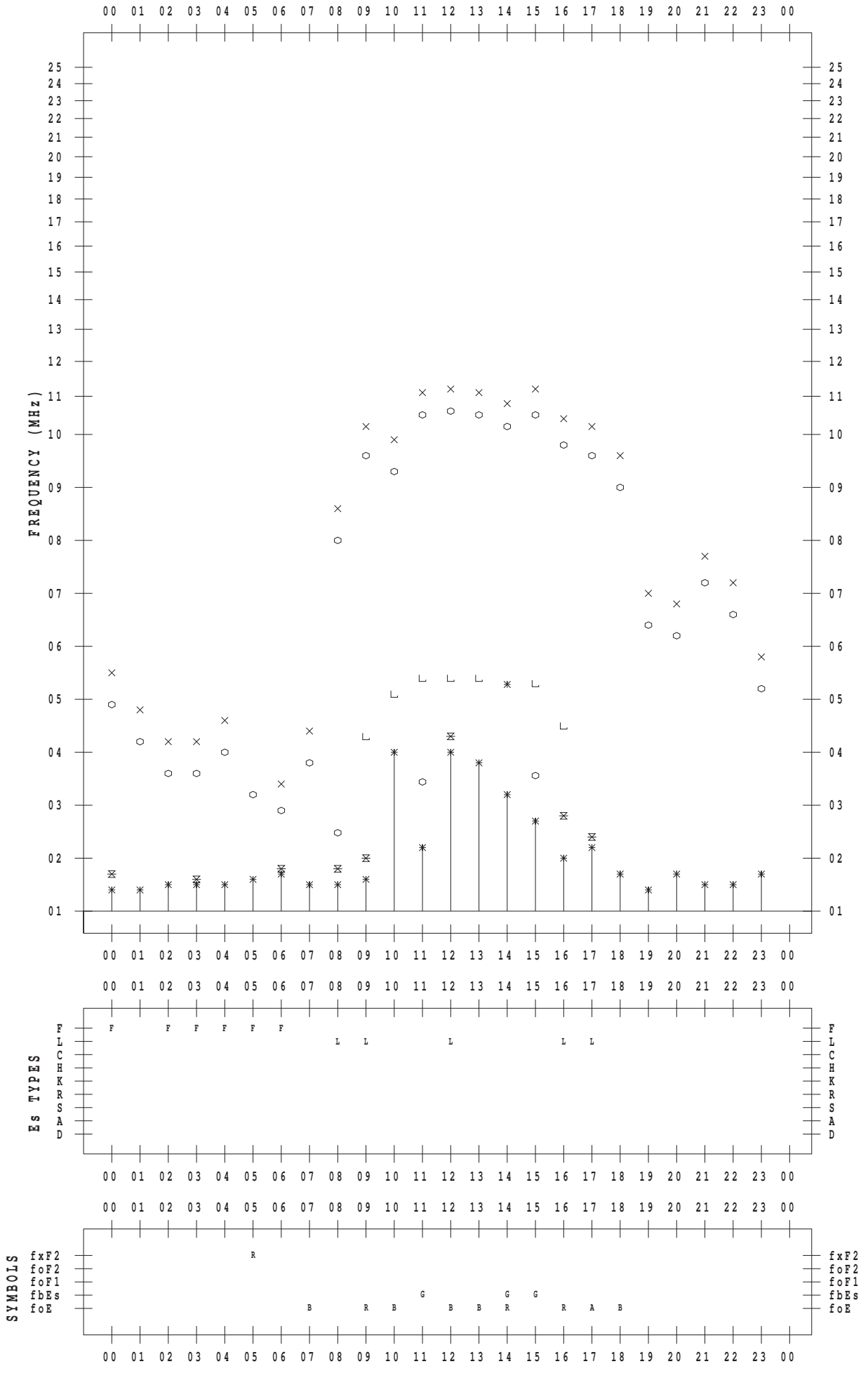
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/28

135 °E MEAN TIME



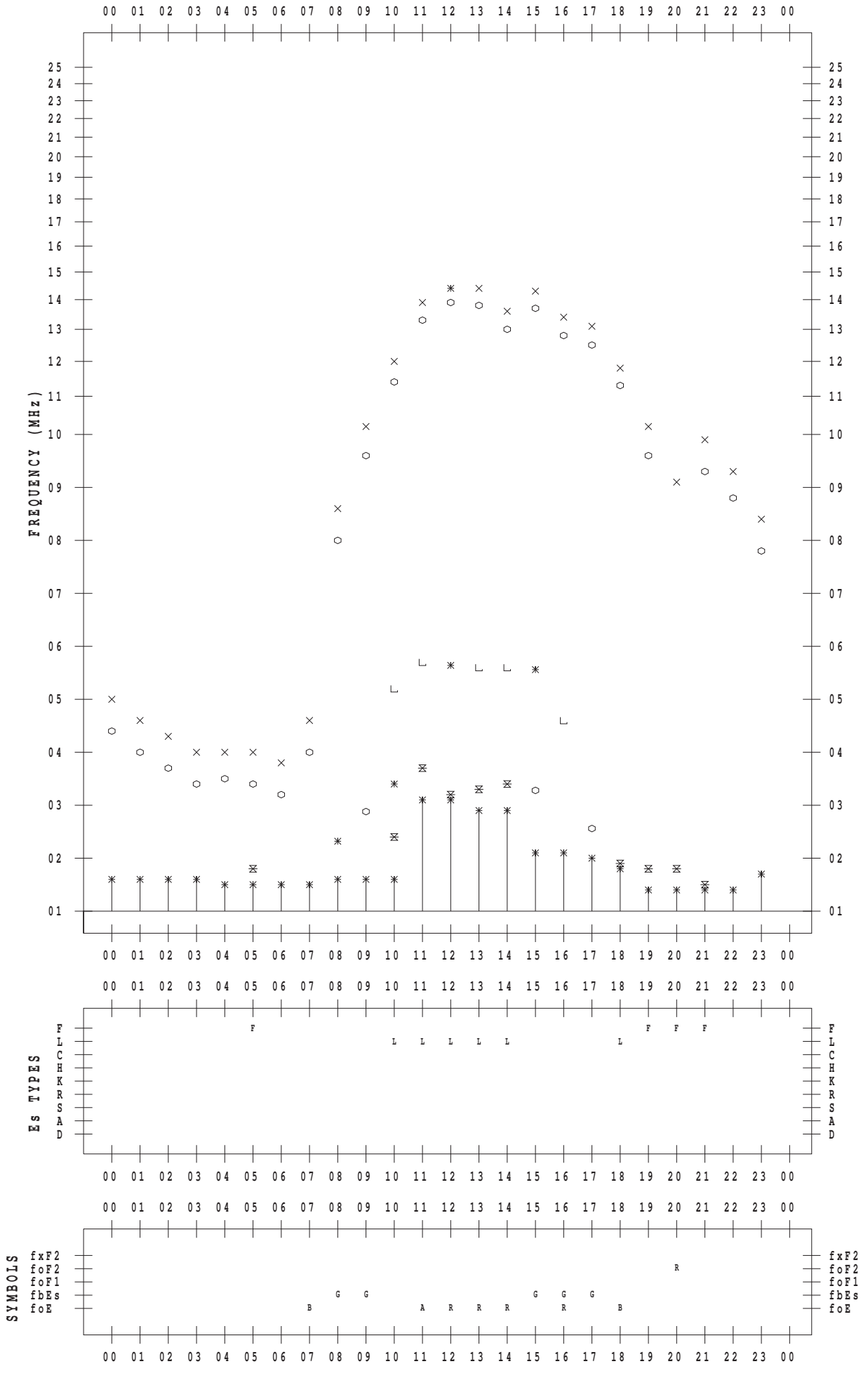
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/29

135 °E MEAN TIME



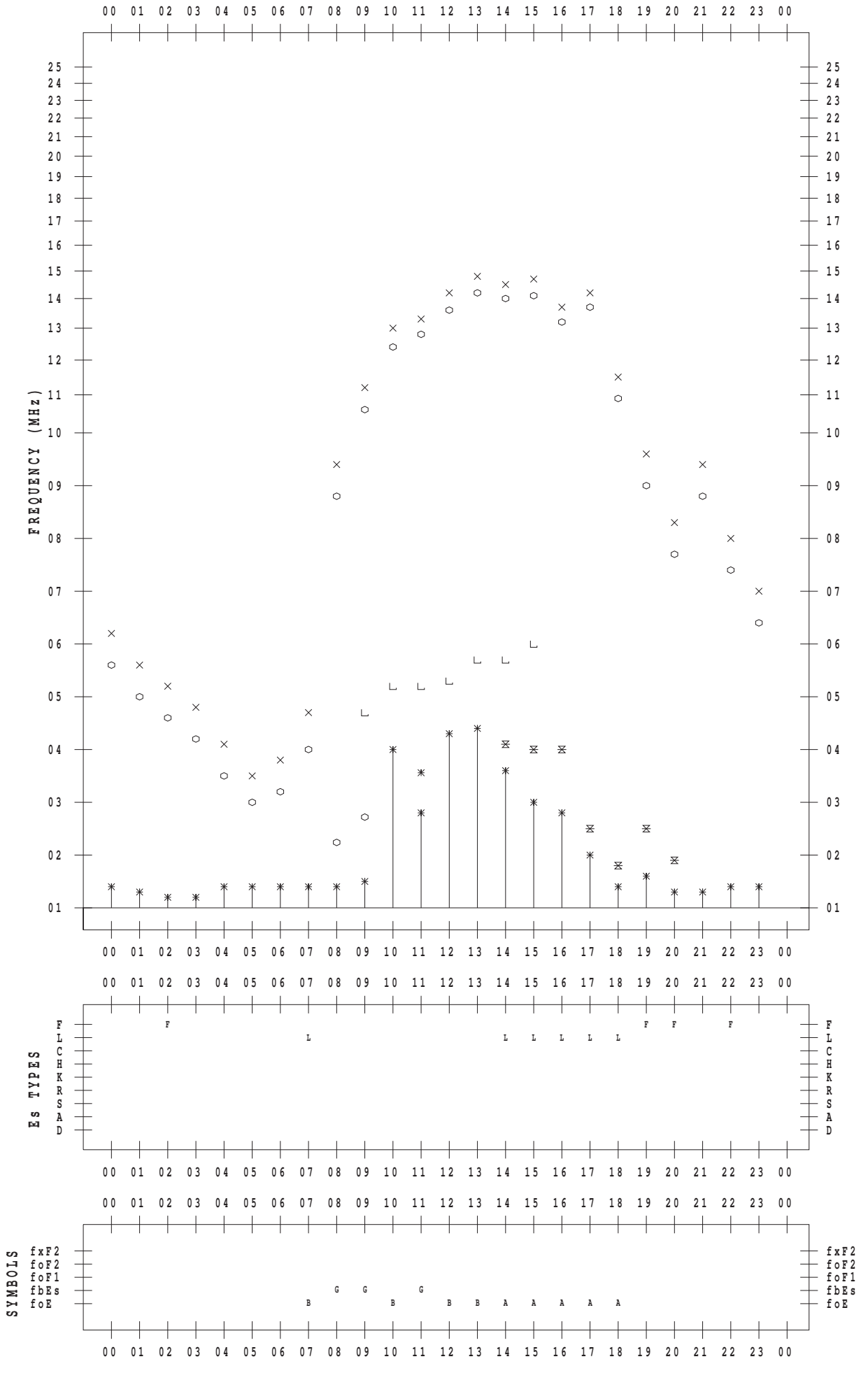
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 1/31

135 °E MEAN TIME