F-794

IONOSPHERIC DATA IN JAPAN

FOR FEBRUARY 2015
VOL. 67 NO. 2

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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

FEB. 2015

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	52	51	54	52	52	55	52	62	67	92	89	79	95	92	91	92	70	64	60	67	53	48	47	48
2	47	46	47	50	52	54	58	63	88	121	118	120	92			91	92	70	66	64	42	37	47	48
3	39	50	47	40	47	32	37	65	66	90		121	95	96		94	70	67	58	42	34	34	34	37
4	34	36	42	37	40	43	29	59	67	90	92	118	92	91	91	91	74	68	64	60	37	34	42	32
5	32	34	32	42	42	42	34	65	71	92			92	74	91	79	72	68	57	22	38	38	32	A
6	41	42	40	40	37	43	39	65	92	89	92	110	92	94	92	91	80	66	58	48	43	36	32	36
7	34	32	36	38	36	36	38	66	87	91	96	91	59	96	95	90	69	70	58	33	A	47	42	37
8	38	40	38	32	34	36	29	52	71	89	118	122	121	95	91	90	81	68	67	64	55	40	48	37
9	42	47	40	43	44	34	48	66	112	96	111	96	118	91	91	90	86	70	60	47	34	36	34	38
10	37	34	36	32	38	37	32	66	87	111	92	92	66	94	91	94	91	70	64	54	45	45	34	47
11	34	47	52	54	54	36	46	67	96	59	104	123		118	92	96	96	71	54	49	44	43	42	A
12	44	46	51	47	43	34	A	67	90		119	96		98	93	96	86	70	65	63	54	49	50	51
13	50	52	54	34	47	52	55	67	82	90	119	105	110	94	94	95	92	71	64	53	43	42	36	42
14	34	40	43	44	43	42	38	66	64	93	91	91	112	101	91	91	91	67	63	54	44	42	N	34
15	42	42	44	46	43	42	37	64	70	90	N	92	96	94	91	91	91	69	53	47	44	42	34	43
16	34	34	37	48	51	42	47	66	87	74	N	106	96	96	92	91	91	72	64	53	34	34	44	34
17	44	42	47	46	53	55	53	62	84	96	96	103	93	91	91	94	91	68	64	67	54	53	54	52
18	52	48	46	44	37	37	51	54	66	62	67	71	56	74	68	69	70	66	63	53	A	48	37	44
19	51	53	52	52	54	53	54	63	85	86	90	70	N	97	N	91	83	70	60	54	50	40	53	A
20	34	54	54	39	53	54	43	64	93	90	94	94	59	70	59	93	N	70	64	A	52	50	37	26
21	41	37	49	50	45	38	52	67	92	N	96	91	93	95	94	94	93	70	56	55	58	54	N	54
22	60	54	64	63	65	62	66	N	88	90	96	104	114	91	91	91	86	66	58	53	48	A	49	47
23	46	46	48	47	45	36	52	66	92	82		92		94	92	92	95	70	63	54	54	50	53	53
24	53	53	43	43	37	34	58	73	89	90	122	120	122	96	92	91	93	88	58	50	43	42	37	42
25	46	37	43	37	34	29	34	63	65	87	92	59	N	91	91	88	83	67	55	60	53	47	45	47
26	37	37	37	44	44	N	51	67	92	87	69	120	96	96	91	88	72	71	62	55	46	38	40	34
27	37	42	42	42	42	38	44	66	91	88	91	103	93	93	91	88	88	74	68	54	54	48	43	44
28	37	47	44	42	46	46	49	67	83	86		92	96	94	91	89	72	70	66	61	51	50	37	44
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	27	27	27	28	26	22	27	23	27	25	28	27	28	28	27	26	27	26	25
MED	41	44	44	44	44	42	47	66	87	90	95	96	95	94	91	91	86	70	62	54	46	42	42	43
U Q	46	49	50	47	51	52	52	67	91	92	111	118	110	96	92	93	91	70	64	60	53	48	47	47
L Q	35	37	40	39	39	36	37	63	70	87	91	91	92	91	91	90	72	67	58	49	43	38	36	36

HOURLY VALUES OF fEs AT Wakkanai

FEB. 2015

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	25	G	G	G	26	G	48	52	G	G	G	54	G	48	36	G	G	G	G	G	28	32	29
2	G	25	G	G	G	G	G	32	N	G	G	G	G			G	G	29	28	G	30	G	G	G
3	G	G	G	G	G	G	G	G	33	G		G	G	G		G	G	G	G	G	G	G	G	G
4	27	23	G	G	G	25	G	G	48	G	53	G	G	G	G	G	G	26	29	21	G	27	G	G
5	G	G	G	G	G	G	G	G	33	G			G	G	39	G	32	30	G	26	25	34	33	34
6	26	G	26	G	G	G	G	G	32	G	G	G	G	G	G	34	G	G	G	G	G	G	29	24
7	G	G	G	G	24	G	G	G	G	G	G	G	G	G	38	36	G	G	32	59	36	25	G	G
8	G	29	26	G	G	G	G	27	34	82	G	G	G	G	G	36	G	G	G	G	25	G	G	G
9	G	G	G	G	G	G	G	G	33	37	G	G	G	G	40	38	42	34	45	25	G	29	28	G
10	G	G	G	G	G	G	G	G	54	G	G	40	G	G	43	40	G	G	30	27	34	26	26	33
11	32	G	30	G	G	G	G	G	32	G	56	G		G	G	44	39	35	52	40	28	G	32	39
12	27	G	29	G	27	G	40	31	G		G	G		G	G	G	G	G	G	G	G	G	33	28
13	G	G	G	G	G	G	G	G	34	G	39	G	G	G	G	G	32	G	G	26	25	G	G	G
14	G	G	G	G	G	G	G	44	34	38	G	G	G	G	G	35	G	G	G	G	G	G	G	G
15	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G	36	G	G	G	G	G	G	G	G
16	G	G	G	G	G	G	G	40	36	38	G	G	G	G	G	G	G	29	27	40	G	24	G	G
17	G	G	G	G	G	G	11	28	G	G	G	G	G	G	G	38	32	43	26	28	38	28	34	27
18	G	G	G	G	G	G	23	29	34	G	39	G	G	G	38	40	38	26	45	79	64	30	G	G
19	G	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	39	36	G	G	G	26	24	33
20	G	33	28	28	G	G	G	39	36	G	40	G	45	41	41	40	34	G	33	54	35	G	29	30
21	G	G	G	G	G	G	G	29	38	63	G	G	G	G	G	40	38	38	G	G	G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	32	34	39	39	G
23	23	G	G	G	G	G	G	31	48	G		G		G	G	G	35	G	27	26	G	G	G	G
24	27	29	33	30	24	G	24	G	G	G	G	62	G	G	G	G	G	G	11	G	G	24	G	24
25	25	26	G	G	G	G	G	G	34	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	26	G	29	G	G
27	G	G	G	G	G	G	G	32	G	G	G	N	G	G	G	G	G	G	G	28	33	29	32	28
28	29	26	24	G	G	G	G	49	36	G		50	G	G	G	38	G	G	G	G	G	G	G	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	27	27	24	26	25	27	26	28	28	28	28	28	28	28	28	28
MED	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G	18	G	G	G	23	G	12	G	G
U Q	24	24	12	G	G	G	G	31	36	G	G	G	G	G	38	38	33	29	28	28	31	28	30	28
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

FEB. 2015

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

HOURLY VALUES OF foF2 AT Kokubunji

FEB. 2015

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	38	36	38	39	39	42	44	60	71	80	104	115	111	101	104	100	97	77	58	67	73	52	45	39
2	38	38	41	39	39	39	42	76	90	97	121	124	120	113	118	127	109	81	77	67	61	43	43	46
3	44	47	42	41	44	32	36	67	88	100	115	117	127	127	124	115	104	78	59	63	47	30	36	37
4	37	38	38	38	39	31	38	67	82	100	108	104	121	116	106	104	102	88	73	67	54	42	47	39
5	36	36	38	36	38	32	32	67	89	90	107	108	102	102	103	106	102	82	72	54	49	46	38	39
6	36	34	28	34	34	36	38	76	85	105	131	118	121	125	115	111	108	91	67	51	53	54	42	37
7	38	39	36	38	32	36	39	78	90	98	117	118	115	110	100	96	91	75	52	54	52	53	44	34
8	A N	31	36	36	36	37	42	62	81	101	120	128	127	128	114	102	97	76	55	63	63	52	44	A
9	43	44	44	43	36	46	77	92	115	112	124	122	122	117	105	95	76	71	52	47	44	39	34
10	38	34	38		36	35	38	74	96	110	121	122	96	104	115	112	108	86	66	49	42	43	37	39
11	43	44	45	46	45	42	41	76	93	111	128	124	124	127	124	128	115	88	72	54	47	44	44	37
12	38	39	44	45	36	A	36	74	108	110	107	111	112	106	102	102	102	82	67	66	53	47	44	45
13	42	44	46	43	42	43	46	81	108	114	112	115	104	105	106	96	102	88	67	51	54	48	47	44
14	42	43	44	44	42	36	39	66	88	91	101	96	102	102	102	100	91	76	67	61	48	38	A	38
15	41	42	44	43	45		42	67	90	97	106	104	105	111	108	98	92	80	66	49	47	46	44	44
16	45	42	43	44	39	32	36	66	97	99	110	115	116	108	104	101	92	77	69	54	52	46	37	39
17	38	N	42	42	41	37	34	61	82	96	117	122	116	106	101	108	98	91	77	74	54	52	51	44
18	47	44	42	39	37	32	44	75	75	103	112	125	120	126	105	92	92	84	73	61	52	50	A	A
19	45	47	48	51	49	42	47	76	89	101	104	115	111	106	107	95	107	81	61	49	51	46	42	43
20	47	46	46	46	46	38	44	62	75	102	100	100	112	115	117	101	91	77	69	64	61	52	39	42
21	44	45	48	44	42	37	48	66	84	106	111	108	111	107	107	107	102	91	67	51	53	51	49	42
22	43	40	47	47	44	44	44	73	96	88	90	106	112	120	115	104	92	82	68	53	49	47	46	46
23	36	43	45	44	39	34	39	72	82	88	97	107	122	134	128	110	95	86	72	67	61	54	54	53
24	53	54	53	47	44	47	63	85	101	97	106	120	131	126	115	121	120	100	67	53	54	52	52	44
25	48	52	52	48	30	32	37	80	95	104	110	120	110	105	98	98	97	84	69	49	54	52	46	42
26	44	42	44	45	38	37	45	75	96	116	115	116	125	122	115	108	98	86	68	54	52	52	46	38
27	38	38	39	39	38	31	39	80	90	100	106	97	112	112	114	107	92	80	68	53	52	51	42	38
28	39	36	43	43	43	36	45	73	88	94	100	100	101	111	111	99	87	85	75	52	A	49	47	A
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	28	27	28	26	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	26	25
MED	42	42	44	43	39	36	42	74	90	100	110	115	114	112	110	104	98	82	68	54	52	48	44	39
U Q	44	44	45	45	43	39	44	76	95	105	116	121	121	123	115	109	103	87	72	63	54	52	47	44
L Q	38	38	38	39	37	32	38	66	83	96	105	106	110	106	104	99	92	77	66	51	49	45	42	38

HOURLY VALUES OF fEs AT Kokubunji

FEB. 2015

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	G	G	G	G	G	G	50	47	G	G	35	G	G	G	25	G	G	G
2	G	G	G	G	G	G	G	N	G	G	G	G	G	G	G	G	42	29	25	23	G	50	G	G
3	G	G	G	G	G	G	G	G	G	G	G	G	G	G	49	50	36	28	G	G	G	G	G	G
4	G	G	G	G	23	G	G	47	34	G	G	G	G	G	52	61	G	34	32	25	G	G	55	28
5	G	G	G	G	G	G	G	30	G	G	G	G	G	G	42	39	33	G	G	G	G	G	G	G
6	G	G	G	G	G	G	G	G	35	46	47	G	46	G	G	42	G	G	G	37	G	34	G	G
7	G	G	G	G	G	G	G	30	G	G	44	G	45	G	G	G	35	G	G	34	24	26	G	G
8	29	24	G	G	G	G	G	47	G	G	G	48	50	G	G	48	37	G	G	G	28	24	G	41
9	G	G	G	G	G	G	G	G	G	G	G	G	G	47	44	42	G	G	G	G	G	G	G	G
10	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	26	G	G	G
11	29	G	G	23	27	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
12	G	G	30	36	26	29	23	G	G	G	G	G	47	G	G	G	G	G	G	G	33	G	G	G
13	26	G	G	G	G	G	G	29	G	G	G	G	G	G	G	G	40	G	G	G	G	G	G	24
14	30	24	G	G	G	G	G	G	49	G	G	G	G	G	G	G	G	G	G	G	26	G	28	G
15	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
16	G	G	G	G	11	G	G	29	G	G	G	G	G	G	G	G	36	G	32	G	24	32	39	24
17	26	G	G	G	G	G	G	36	G	G	G	G	G	G	G	G	G	G	36	G	G	G	G	G
18	G	G	G	G	G	G	G	48	G	G	44	G	G	48	43	G	G	G	G	G	23	G	34	33
19	G	30	G	G	G	G	G	G	G	G	G	57	G	45	43	G	G	G	11	G	G	G	G	G
20	G	G	25	29	G	G	G	G	G	G	G	G	G	G	G	43	G	45	57	G	G	G	G	G
21	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24	26
22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	33	27	G	G	G	G	G
23	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24	27
24	G	G	G	G	G	G	G	G	G	G	G	G	G	45	42	41	G	G	G	G	G	G	G	G
25	33	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	29	22	29	26	23
26	G	G	G	G	G	G	G	G	G	G	46	47	47	50	G	49	36	G	G	26	G	G	G	G
27	G	24	G	27	25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	G	G	G
28	G	G	G	G	G	G	G	47	G	G	G	G	G	G	G	G	G	G	35	34	49	G	G	33
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	27	28	27	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	G	30	G	G	G	G	G	G	21	41	35	G	26	24	24	G	12	24
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

FEB. 2015

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

HOURLY VALUES OF foF2 AT Yamagawa

FEB. 2015

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	38	34	59	34	34	36	36	47	64	82	90	101	112	109	107	109	104	91	86	84	84	67	52	42
2	36	34	34	37	36	36	37	52	80	100	110	103	107	111	130	109	110	100	88	78	77	52	N	47
3	A	47	43	44	46	34	32	47	88	89	114	113	96	139	114	111	111	111	88	71	82	51	A	A
4	37	34	36	40	40	32	32	53	75	86	102	102	114	116	116	116	112	108	97	88	85	77	52	53
5	34	37	38	40	44	30	31	51	84	93	107	90	106	112	101	59	114	103	86	83	78	54	52	52
6	54	32		32	34	31	30	47	90	95	112	115	113	136	117	112	118	116	84	55	67	67	52	37
7	34	34	32	34	29	B	32	49	82	97	111	98	111	106	108	98	111	108	86	74	77	73	54	37
8	34	34	A	34	37	30	32	51	78	97	109	116	129	141	116	114	110	110	78	54	72	61	44	41
9	40	34		42	48	41	42	52	90	111	110	110	116	111	111	115	111	113	86	79	52	53	50	43
10	38	34	32	38	37	32	32	53	85	95	112	118	97	80	111	99	111	95	87	78	52	52	50	43
11	45	43	A	43	44	40	29	51	88	87	110	99	102	79	135	153	146	108	97	86	75	73	67	45
12	44	34	43	50	43	B	30	47	88	90	100	100	114	108	97	116	110	110	86	74	72	67	51	53
13	47	44	A	43	43	38	42	52	88	108	96	108	97	96	112	111	110	108	88	72	67	54	54	51
14	43	40	38	38	38	34	36	50	72	83	98	96	96	90	105	107	107	90	88	77	51	53	47	43
15	B	44	43	44	46	34	34	51	81	88	92	110	97	92	108	108	102	87	86	77	46	50	52	45
16	34	42	34	43	40	29	31	48	81	96	95	113	110	111	98	107	98	87	80	74	54	53	44	40
17	36	37	37	40	42	40	B	47	76	85	108	119	98	101	N	108	101	102	88	85	76	73	52	48
18	46	42	40	42	43	32	34	63	73	93	113	112	115	111	112	97	97	91	84	76	71	55	34	34
19	A	40	42	42	40	34	34	54	80	88	97	111	103	98	111	97	114	103	74	54	68	52	43	42
20	41	42	42	38	50	32	31	50	77	92	C	C	114	98	89	111	111	101	90	82	52	53	44	40
21	37	42	44	42	43	43	31	51	60	93	98	106	107	111	107	110	110	113	N	83	51	54	50	38
22	37	37	32	42	43	42	37	50	79	86	96	90	111	116	111	117	110	108	94	82	52	50	52	52
23	50	43	44	50	44	A	34	52	72	85	96	97	104	148	147	114	110	106	97	87	67	54	52	50
24		51	52	44	41	44	53	77	77	96	111	106	117	116	113	112	110	110	86	77	73	67	54	48
25	47	47	49	48	37	B	29	54	87	97	102	117	105	112	113	113	111	91	88	54	52	54	48	45
26	42	43	42	45	34	37	41	54	87	102	118	109	108	117	112	144	111	117	118	87	78	83	62	37
27	34	33	37	A	34	34	28	62	80	88	95	112	111	100	133	112	101	96	86	74	54	52	53	50
28	47	44	43	44	47	43	38	N	81	92	110	108	114	90	110	119	111	92	92	72	52	51	53	43
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	28	23	27	28	24	27	27	28	28	27	27	28	28	27	28	28	28	27	28	28	28	26	27
MED	39	40	42	42	42	34	32	51	80	92	107	108	109	111	111	111	110	104	87	77	68	54	52	43
U Q	45	43	43	44	44	40	37	53	87	96	111	113	114	116	116	114	111	110	90	83	76	67	53	50
L Q	36	34	36	38	37	32	31	49	76	87	96	100	102	98	107	107	108	93	86	73	52	52	48	40

HOURLY VALUES OF fEs AT Yamagawa

FEB. 2015

LAT. 31°12.0'N LON. 130°37.0'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	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	46	43	34	G	G	G	G	G	G
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	G	G	G	28	G	G	34
3	46	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	40	G	G	26	G	27	32	33
4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	40	G	G	G	G	G	G	G
5	33	G	27	G	G	G	G	G	G	G	G	44	G	G	G	44	41	44	39	G	32	G	G	G
6	G	G	G	G	G	G	G	G	G	G	46	58	44	G	G	45	G	G	G	G	G	G	G	G
7	G	G	G	G	G	B	G	G	G	G	G	G	56	46	50	46	59	47	26	26	23	28	29	26
8	G	G	28	G	G	G	G	G	G	G	G	G	G	G	G	59	43	36	26	G	G	G	G	G
9	G	25	G	G	G	G	G	G	G	G	G	G	G	G	G	43	39	G	G	G	G	G	G	G
10	G	G	G	G	G	G	G	G	G	G	G	G	G	51	G	47	50	40	G	32	33	G	G	G
11	G	G	41	33	G	G	G	G	G	G	44	G	G	G	G	G	G	40	37	34	G	28	34	28
12	G	G	G	G	G	B	G	G	36	G	42	42	G	G	G	G	38	G	G	G	29	27	G	35
13	G	G	36	G	G	G	G	G	G	G	G	G	G	G	G	41	G	36	27	33	G	G	G	G
14	G	G	G	G	G	G	G	G	G	G	G	G	G	46	G	G	40	36	29	G	G	G	28	G
15	B	G	G	25	G	G	G	G	G	G	N	G	56	G	G	G	G	G	G	G	G	G	G	27
16	G	29	G	G	11	G	G	G	G	G	G	G	G	G	G	G	41	36	50	40	28	G	G	G
17	G	G	G	G	G	G	B	G	G	G	G	G	G	G	G	44	G	35	G	G	G	G	G	G
18	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	G	41	27	G	G	G	28
19	46	28	28	24	G	G	G	G	46	G	G	G	G	48	G	42	39	G	G	G	G	G	G	G
20	G	G	G	G	G	G	G	G	G	G	C	C	46	G	G	G	G	G	G	G	G	G	G	G
21	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	11	G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	45	G	40	G	30	38	31	G	G	G
23	G	G	G	G	G	27	G	G	G	G	G	G	G	G	G	G	38	G	G	26	G	G	G	G
24	G	G	G	G	G	G	G	G	G	G	G	G	47	46	G	51	40	G	G	G	G	G	G	G
25	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	G
26	G	G	G	G	G	G	G	G	G	G	G	52	53	G	44	G	G	G	G	G	G	G	G	G
27	G	G	G	31	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	33	G	G	G
28	G	G	G	G	24	26	G	G	G	G	G	G	46	G	G	G	G	39	29	G	G	G	G	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	28	28	28	25	27	28	28	28	26	27	28	28	28	28	28	28	28	28	28	28	28	28
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	39	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	G	G	22	G	G	44	40	36	28	26	25	G	G	13
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

FEB. 2015

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	16	18	18	17	17	16	16	16	15	16	21	35	28	28	27	22	17	15	17	15	14	15	17	14
2	15	16	17	15	16	15	15	16	26	15	18	39	38	28	23	32	22	16	17	15	15	15	16	15
3	15	16	15	15	15	15	15	17	16	30	34	38	31	29	28	28	24	15	17	15	15	16	16	15
4	18	15	16	15	15	15	18	16	27	17	20	39	48	28	29	24	20	28	17	15	15	15	16	20
5	14	18	15	18	16	15	18	17	27	18	35	33	29	27	26	23	20	16	15	15	14	17	17	15
6	17	20	26	20	17	18	17	17	16	17	20	24	30	30	27	26	30	28	16	15	15	15	15	15
7	18	18	17	16	20	B	17	17	17	20	21	37	34	34	33	24	22	16	17	14	16	14	15	15
8	17	17	15	18	16	15	20	17	15	17	21	27	39	49	48	29	22	20	17	17	18	15	15	16
9	16	16	17	15	21	16	18	18	18	21	21	39	22	34	32	23	21	26	20	15	18	15	16	15
10	15	17	17	17	15	17	16	17	16	35	48	40	49	39	35	27	22	21	20	16	15	16	17	15
11	16	17	14	16	15	18	21	20	28	21	29	30	29	28	28	22	18	18	15	15	16	16	16	16
12	16	16	16	16	15	B	17	18	17	21	18	32	23	48	22	22	14	27	18	15	15	17	36	17
13	26	20	17	17	18	17	16	18	15	15	22	36	34	41	36	24	18	15	17	15	15	15	15	16
14	15	15	15	18	15	16	16	18	16	14	20	22	32	29	28	23	18	20	14	18	17	15	15	16
15	B	16	16	16	15	17	15	17	15	17	22	23	24	29	28	23	20	15	17	16	18	17	18	16
16	16	16	17	17	15	16	17	18	14	17	26	23	29	38	23	34	18	20	15	15	15	16	15	15
17	16	16	15	16	17	15	B	17	14	17	20	22	23	22	27	20	20	18	18	14	15	15	16	15
18	16	15	15	15	15	20	15	18	27	17	35	40	38	48	26	21	20	15	17	16	15	15	20	15
19	15	14	15	15	14	18	17	18	17	22	23	22	23	30	28	22	20	27	18	15	15	14	18	16
20	14	15	15	18	16	17	15	18	16	17	C	C	32	28	29	27	17	16	18	15	14	14	15	15
21	15	15	17	16	14	17	15	18	16	17	35	40	30	28	36	26	14	26	18	15	16	16	15	16
22	16	18	15	16	15	16	16	17	15	18	22	24	28	29	26	23	22	16	16	16	15	17	18	15
23	15	16	15	15	15	14	15	18	17	20	22	29	23	47	28	26	18	14	20	15	15	15	15	18
24	20	15	16	15	20	20	17	18	15	18	35	21	35	34	26	32	17	26	20	16	16	15	16	15
25	15	15	15	15	15	B	18	20	15	18	22	39	34	49	28	35	18	17	20	15	16	16	14	15
26	16	17	17	18	16	20	17	20	16	17	21	32	24	24	27	21	20	17	20	15	16	15	15	15
27	16	18	15	15	14	17	18	20	28	18	34	27	38	38	28	23	20	16	21	14	14	16	18	15
28	20	16	15	17	15	16	15	20	15	20	21	29	38	49	41	29	23	26	15	15	17	15	15	15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	28	28	28	25	27	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28	28	28
MED	16	16	16	16	15	16	17	18	16	18	22	32	30	30	28	24	20	18	17	15	15	15	16	15
U Q	17	17	17	17	16	17	18	18	17	20	34	39	36	40	30	27	22	26	19	15	16	16	17	16
L Q	15	15	15	15	15	15	15	17	15	17	21	24	26	28	26	22	18	16	16	15	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

FEB. 2015

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

DAY \ HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	52		B		23		38	43	78	85	89	116	116	115	109	118	111	122	109	108	108	101	73	54
2	52	48		32	34	B		46	75	109	128	117	115	132	143	142	133	117	118	110	87	84	53	52
3	52	A	52	B	54	37	B	43	88	105	110	130	132	144	152	133	132	132	119	121	109	108	54	52
4	53		B	26	50	B	B	47	85	94	108	114	114	132	131	130	142	133	129	107	109	109	106	84
5	67			47	47		B	44	86	106	112	100	106	127	144	93	131	146	126	107	109	108	88	80
6	52		38	B	41	B	B		98	103	118	130	109	113	134	130	135	N	124	99	88	108	87	52
7	B	43		B	B	N		49	86	107	112	116	108	108	108	128	130	133	126	95	107	106	86	52
8		42	A	B	51		B	47	84	104	123	130	130	139	146	134	132	141	121	87	54	87	67	52
9		B	B		44		B	53	84	116	128	118	93	133	131	131	134	107	131	109	113	109	72	52
10	54		36	B	44	B	B	44	80	100	125	122	102	108	126	127	131	130	119	109	88	108	72	67
11	66			50	60	50	B		86	104	114	131	113	118	134	147	129	142	134	99	73	110	87	66
12	67	53	54	65	43	29	B	45	88	88	105	N	108	93	119	120	131	132	111	89	100	74	67	67
13	52	51	47		44	B	B	53	88	114	106	109	117	105	128	131	128	129	114	107	99	109	89	N
14	67	52	44		40			52	81	84	87	107	92	114	107	107	110	118	111	88	80	82	67	54
15	B	62	51	54	52	N	B	47	80	93	106	111	122	118	110	127	118	110	108	108	84	73	66	52
16	52	51	A	39	40	B	B	47	81	114	107	112	120	108	108	118	113	108	87	88	86	78	72	50
17	46	42	39	44	51	34	B	43	71	86	119	131	128	118	121	127	132	120	120	N	109	111	87	68
18	53	51	42	47	41	B	B	52	82	98	127	118	121	105	109	108	103	106	105	88	80	52	B	
19	B		40	34	30	B	B	51	67	97	107	118	110	113	118	107	117	108	98	82	N	81	67	48
20	50	B	B	44	48	46	B	44	76	101	111	105	112	126	118	131	130	128	121	104	88	73	52	52
21	B	41	44	47		B	N	47	88	88	105	117	113	118	131	111	132	133	132	109	93	88	67	53
22	43	36	36			38	B	51	80	85	88	108	125	133	134	146	131	132	129	107	106	86	102	85
23	76	54	58	53	54	N	N	54	76	91	87	107	119	133	136	131	130	133	94	108	86	79	76	54
24	52	53	54	B	41	52		72	81	98	108	118	108	130	131	130	130	119	107	104	87	78	74	
25	48		49	47	32	B	B	51	78	102	108	114	93	118	123	131	130	130	119	84	107	88	87	53
26	50			51		36	34	53	86	105	114	130	118	129	143	143	N	146	129	108	109	91	87	67
27	48	44	47		42		35	53	78	86	104	118	121	116	108	130	121	126	126	108	87	72	72	52
28	52	53	B	47	48	A	B	52	88	101	107	120	126	111	120	139	134	108	104	88	75	75	80	72
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	16	16	16	24	8	3	26	28	28	28	27	28	28	28	28	27	27	28	27	27	28	27	25
MED	52	51	46	47	44	38	35	48	82	100	108	117	114	118	127	130	130	129	119	107	88	88	73	53
U Q	54	53	51	50	50	48	38	52	86	105	116	122	121	131	134	132	132	133	126	108	108	108	87	67
L Q	50	42	39	41	40	35	34	45	78	89	105	111	108	112	114	119	121	117	108	88	86	78	67	52

HOURLY VALUES OF fEs AT Okinawa

FEB. 2015

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
2	G	G	G	G	G	B	G	G	G	G	G	G	G	G	56	G	43	35	G	30	G	G	G	G
3	G	32	G	B	G	G	B	G	G	G	G	G	G	G	G	G	G	39	G	26	G	G	G	G
4	G	G	B	G	G	B	B	G	G	G	G	G	G	G	67	47	41	34	29	50	G	G	G	G
5	G	G	G	G	G	G	B	G	G	G	G	49	G	G	58	51	44	G	35	32	39	G	G	G
6	G	G	G	B	G	B	B	G	G	G	48	52	G	G	G	G	G	36	G	11	G	G	G	G
7	B	G	G	B	B	G	G	G	G	G	G	G	56	53	49	47	47	44	35	36	32	23	G	G
8	G	G	30	B	G	G	B	G	G	G	G	51	G	G	G	G	47	36	G	G	G	G	G	G
9	G	B	B	G	G	G	B	G	G	G	G	G	G	67	50	50	G	37	G	G	G	G	G	G
10	G	G	G	B	G	B	B	G	G	G	G	G	G	G	52	46	49	49	36	39	29	G	G	G
11	G	G	G	G	G	26	B	G	G	G	G	G	52	50	66	45	56	57	48	46	36	G	G	G
12	G	G	G	G	G	G	B	G	G	G	G	50	48	G	51	46	G	G	G	25	36	G	G	G
13	G	26	G	G	G	B	B	G	G	G	46	G	G	G	G	G	G	G	G	G	G	G	G	G
14	G	G	G	G	G	G	G	G	N	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
15	B	G	G	G	G	G	B	G	G	G	49	G	G	59	G	G	G	G	G	G	G	G	G	G
16	G	G	26	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	33	G	G	G	G	G
17	G	G	G	G	G	G	B	G	G	G	G	G	G	51	G	G	G	37	G	G	G	G	G	G
18	G	G	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	B	G
19	B	G	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
20	G	B	B	G	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
21	B	G	G	G	G	B	G	G	G	G	G	G	G	G	48	G	G	G	G	11	48	G	G	G
22	G	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	38	G	G	G	G	G	G
23	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	43	G	G	G	G	G	G	G
24	G	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
25	G	G	G	G	G	B	B	G	G	G	G	G	G	G	G	G	49	36	G	G	G	29	26	G
26	26	G	G	G	G	G	G	G	G	G	G	G	G	52	G	G	G	44	38	G	G	26	19	G
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	G	G	G	G
28	G	G	B	G	G	24	B	G	G	G	G	G	G	G	G	G	G	G	G	G	34	G	41	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	26	23	22	27	18	9	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	49	23	43	37	15	26	15	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

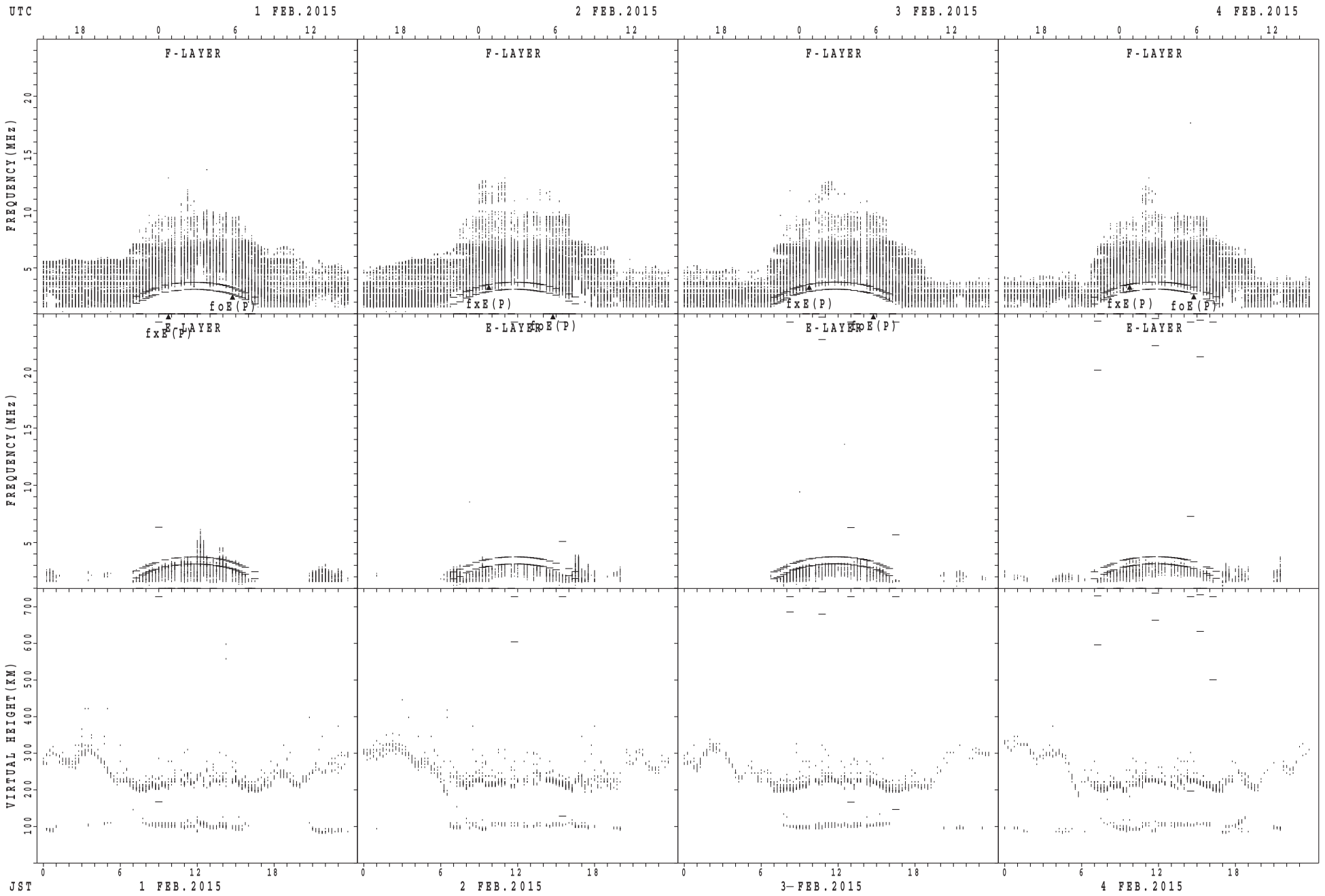
HOURLY VALUES OF fmin AT Okinawa

FEB. 2015

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

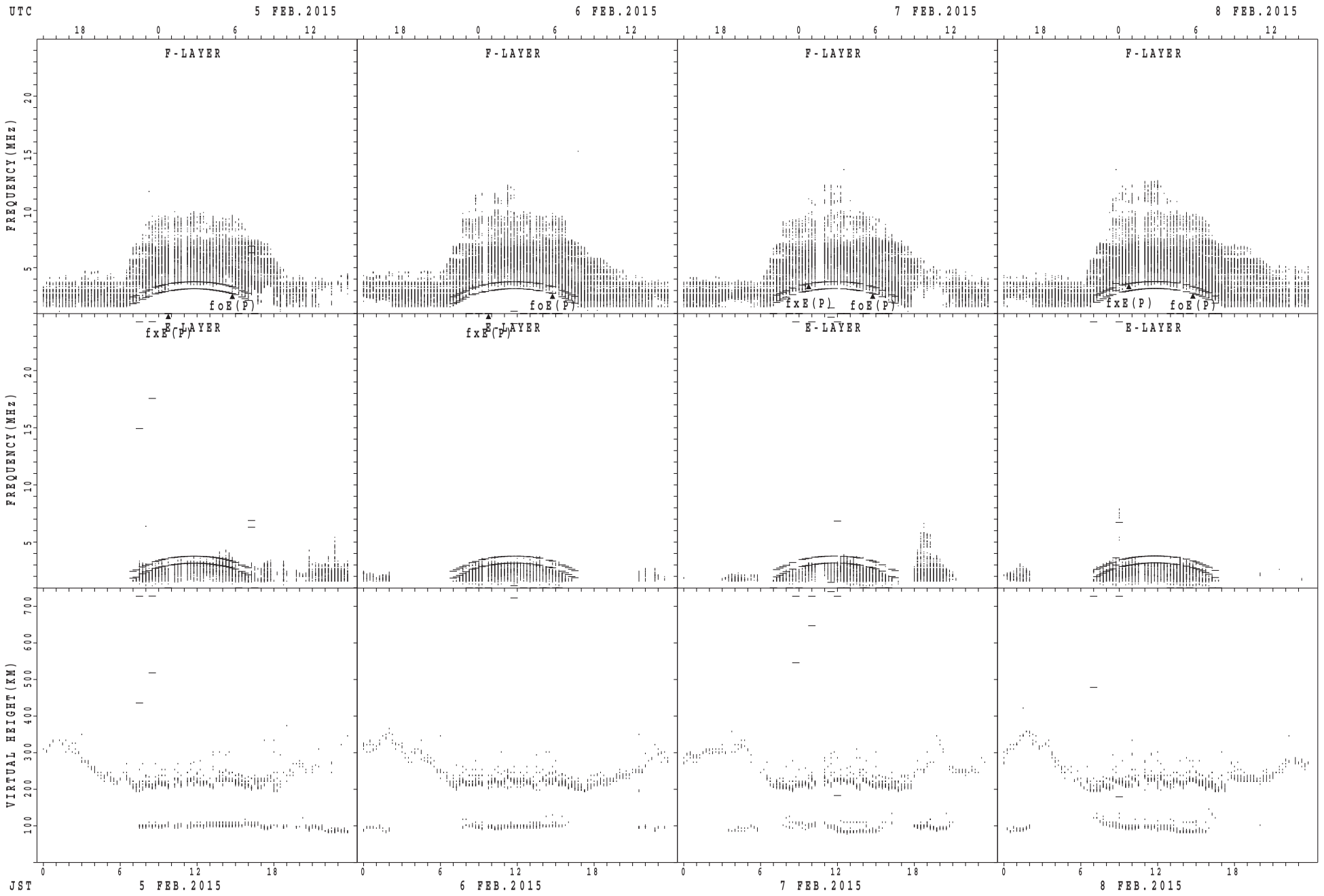
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	21	21	B	16	18	66	18	17	30	20	21	42	49	44	40	39	40	15	42	20	18	17	18	17
2	17	17	24	17	18	B	20	17	15	18	39	44	45	50	38	42	28	18	26	15	17	17	20	18
3	15	15	18	B	17	16	B	20	32	39	40	42	43	43	43	40	39	18	21	16	40	16	38	21
4	17	24	B	18	17	B	B	18	29	40	40	44	54	46	40	39	41	16	14	15	23	20	15	20
5	20	66	20	21	17	24	B	20	28	36	39	42	52	53	39	35	20	17	14	15	14	16	40	38
6	38	66	18	B	21	B	B	66	32	20	41	36	47	58	43	43	39	21	32	15	20	18	17	15
7	B	16	66	B	B	20	66	18	38	40	42	43	39	40	42	40	29	18	15	18	16	15	15	16
8	71	18	16	B	26	66	B	17	30	35	42	43	48	57	43	43	35	40	23	24	18	21	16	16
9	66	B	B	18	20	66	B	15	28	18	40	44	62	39	39	38	38	18	27	20	44	40	22	16
10	17	66	18	B	17	B	B	30	33	43	42	44	58	52	42	29	30	21	15	17	17	16	20	42
11	16	23	20	66	16	18	B	20	29	39	42	52	42	42	38	33	22	21	15	17	15	16	21	15
12	20	21	20	18	15	18	B	18	27	36	41	40	40	21	20	18	14	29	14	17	17	20	20	22
13	18	17	17	21	15	B	B	20	26	17	42	42	48	44	43	42	40	18	21	16	18	20	17	17
14	16	18	17	66	20	66	71	20	18	40	42	44	52	43	45	32	41	20	23	32	42	23	20	40
15	B	18	23	17	16	66	B	18	32	20	23	44	43	40	44	28	43	18	23	18	38	20	18	16
16	15	20	21	66	17	B	B	17	28	18	39	43	46	44	45	42	39	20	17	20	20	17	17	15
17	16	20	21	20	16	18	B	18	36	20	26	43	45	42	45	43	44	22	22	15	17	20	17	16
18	17	20	18	17	20	B	B	20	28	30	42	43	43	45	52	43	43	36	22	18	21	20	B	66
19	B	16	17	17	17	B	B	21	30	21	42	44	50	44	44	43	40	20	22	18	42	17	18	22
20	17	B	B	20	43	22	B	20	29	20	43	42	48	48	44	43	23	20	26	18	17	17	17	15
21	B	17	20	17	30	B	20	18	28	32	40	45	44	52	44	43	40	20	21	20	17	17	17	17
22	18	17	20	66	66	17	B	18	29	38	42	44	47	44	43	43	36	17	39	15	18	18	21	23
23	22	21	18	20	17	17	66	21	27	39	43	44	50	45	47	44	36	18	24	17	20	20	18	18
24	30	16	17	B	20	20	18	18	15	39	42	44	46	48	45	40	42	15	26	20	33	15	17	66
25	21	21	16	20	16	B	B	20	28	20	42	43	45	44	45	43	33	20	29	18	24	18	15	16
26	15	20	24	16	27	18	17	20	27	40	43	49	47	38	46	45	21	18	20	20	20	15	15	15
27	18	17	16	17	16	66	17	21	28	38	42	49	44	53	45	43	38	20	16	15	18	18	41	18
28	40	18	B	17	21	17	B	20	30	40	42	46	52	50	54	42	38	39	23	17	16	41	17	23
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	26	23	22	27	18	9	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28
MED	18	19	18	18	17	20	20	20	28	36	42	44	47	44	44	42	38	20	22	18	18	18	18	18
U Q	21	21	21	21	21	66	66	20	30	39	42	44	50	50	45	43	40	21	26	20	23	20	20	22
L Q	16	17	17	17	16	18	17	18	27	20	40	42	44	42	41	38	29	18	16	15	17	16	17	16

SUMMARY PLOTS AT Wakkanai



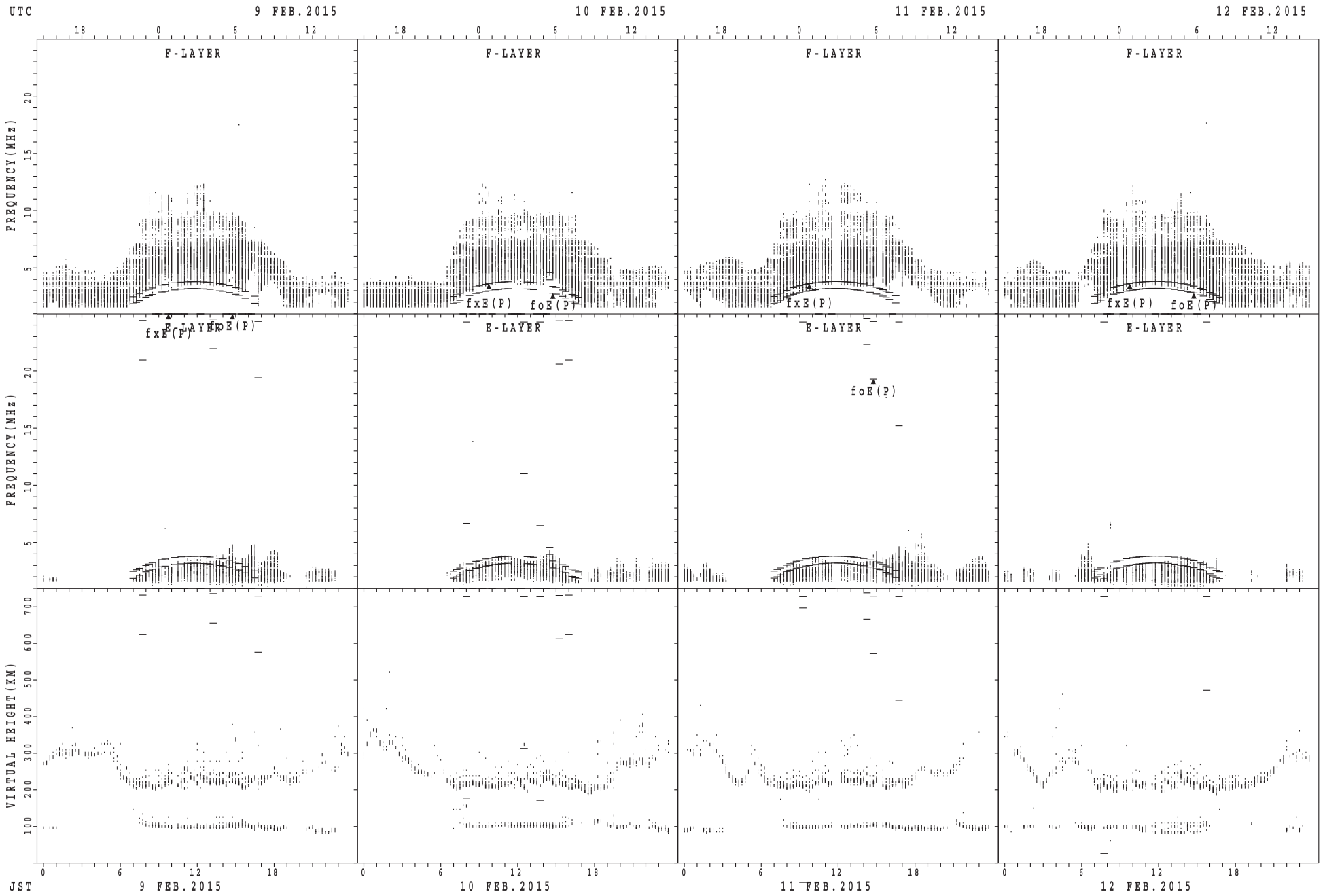
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



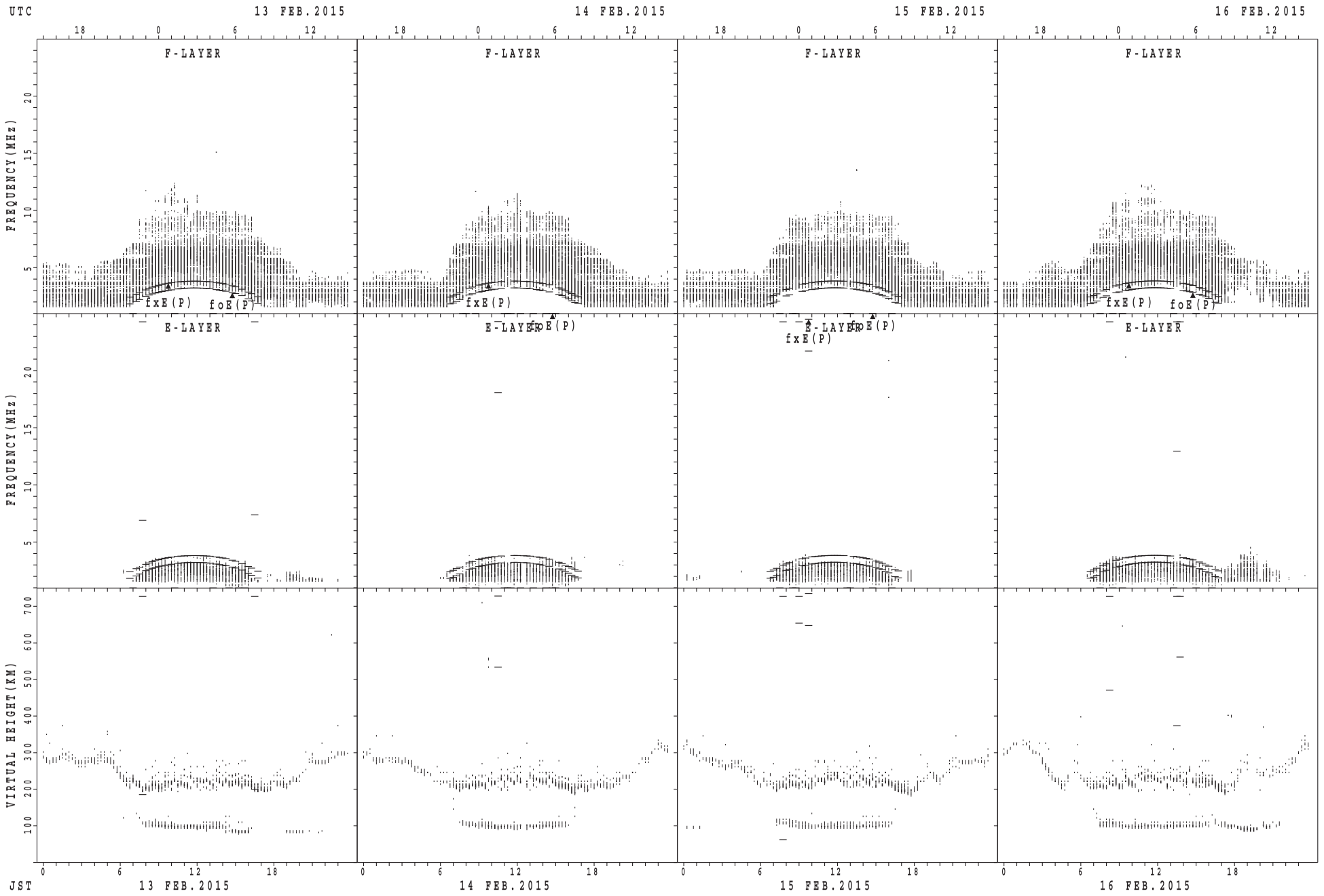
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



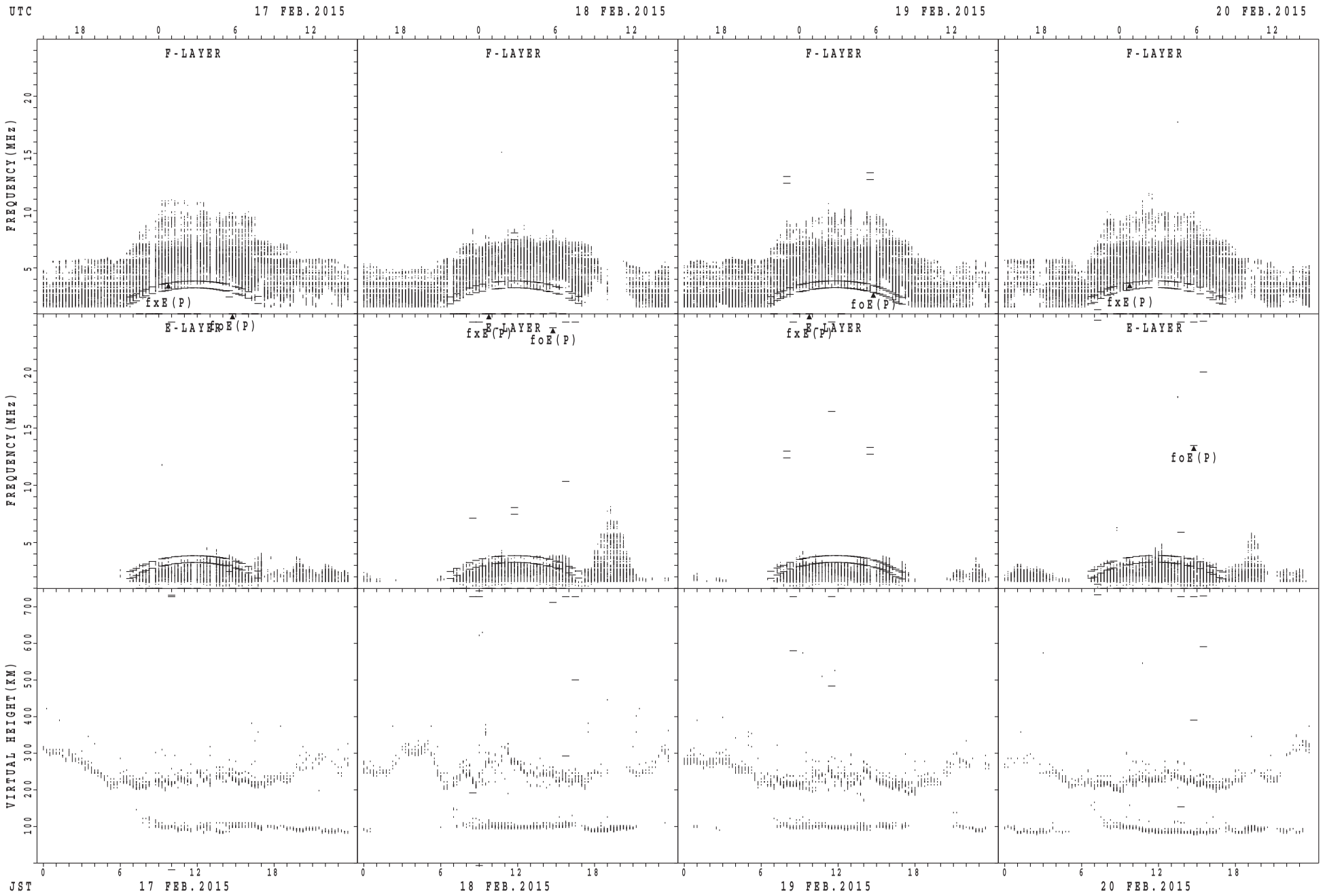
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

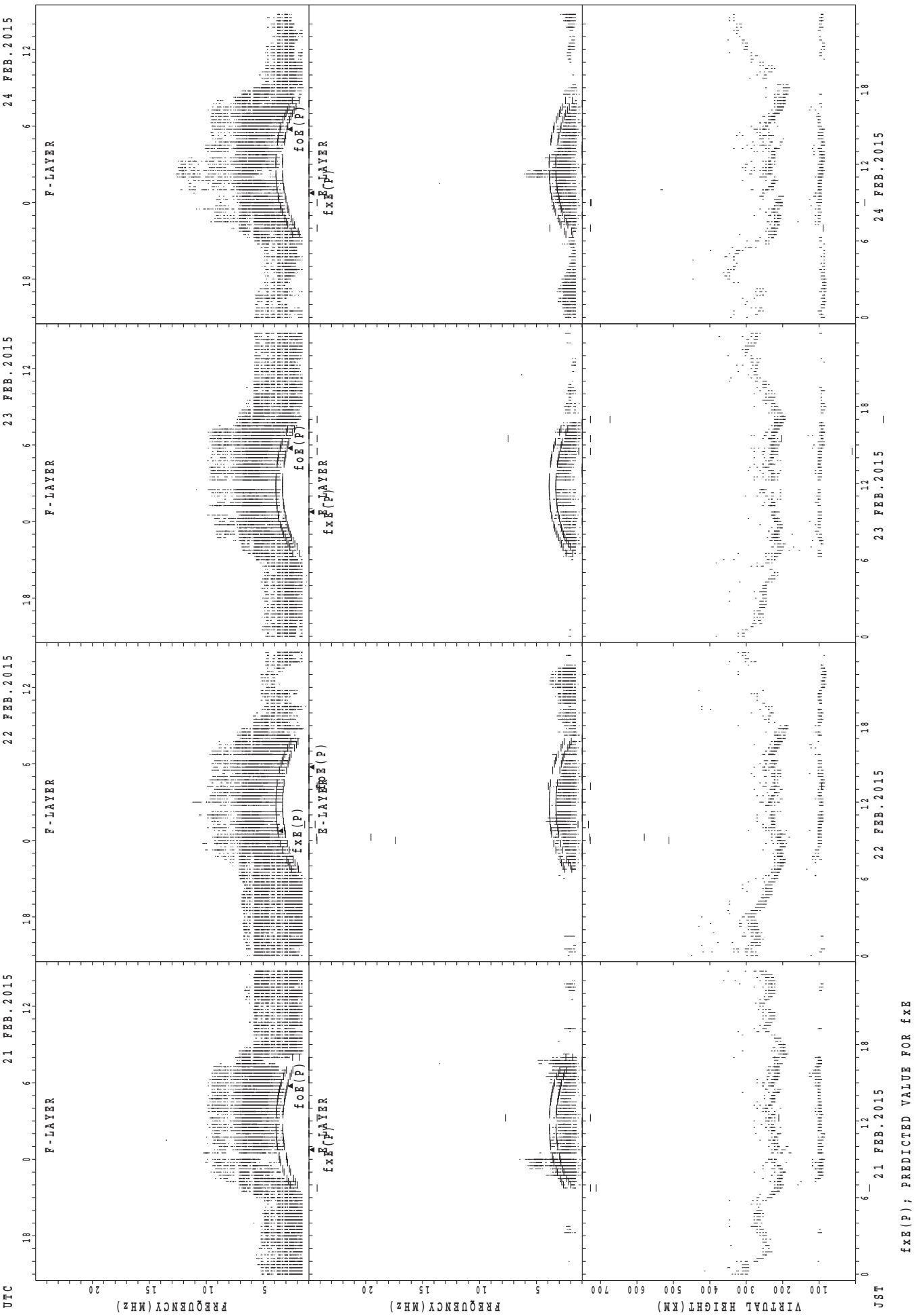


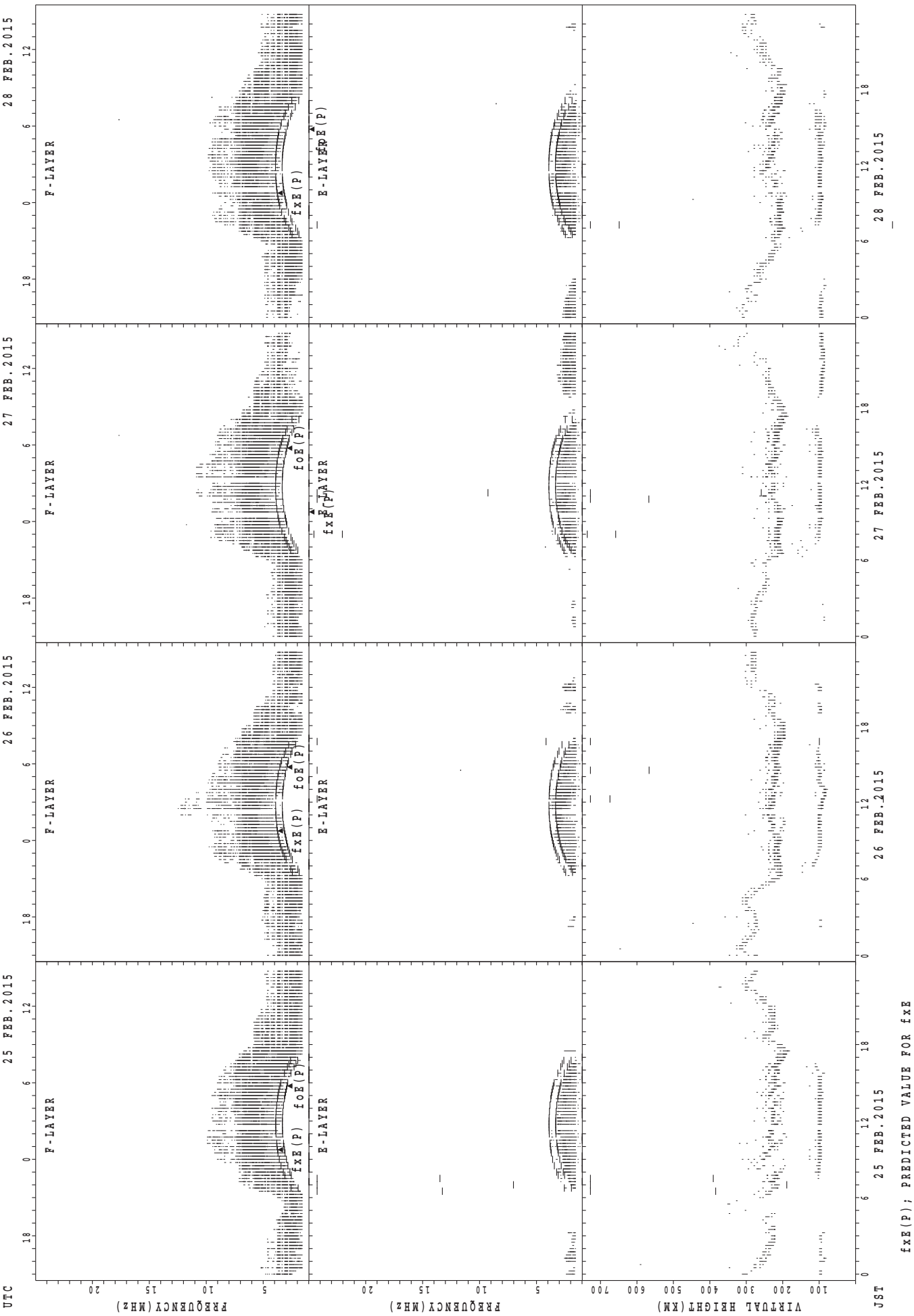
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

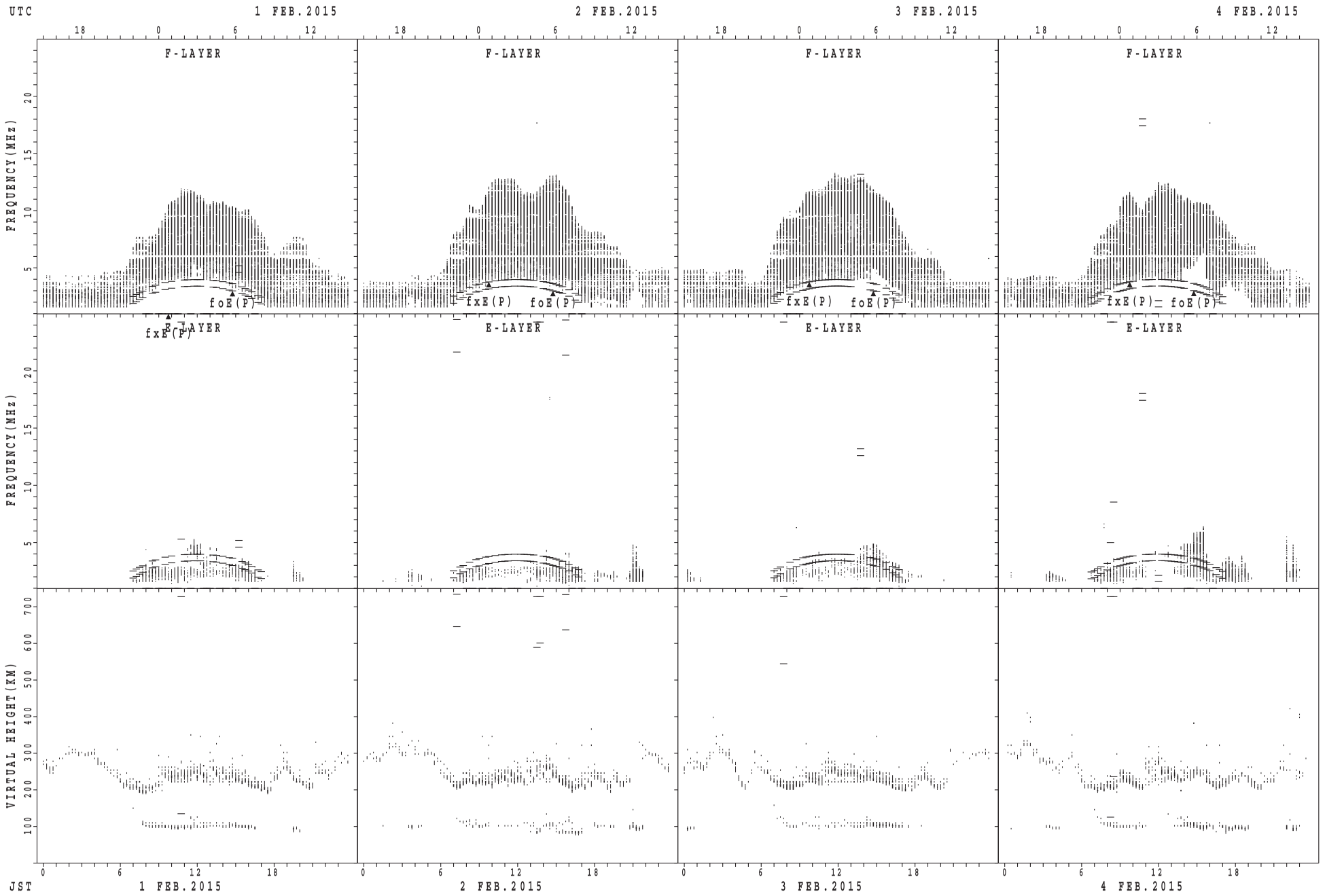


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
21 FEB.2015
22 FEB.2015
23 FEB.2015
24 FEB.2015
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

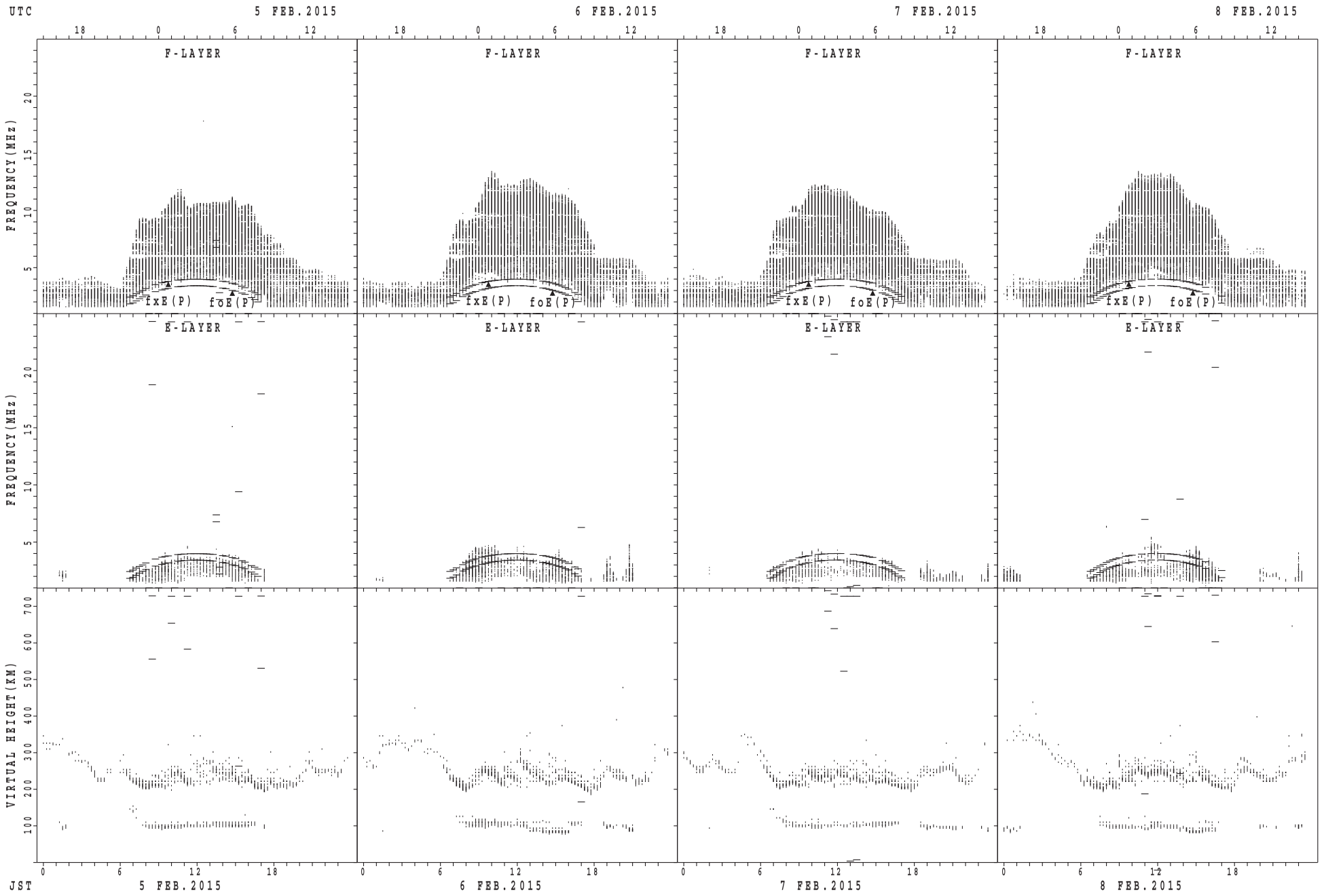

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 FEB.2015
26 FEB.2015
27 FEB.2015
28 FEB.2015
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



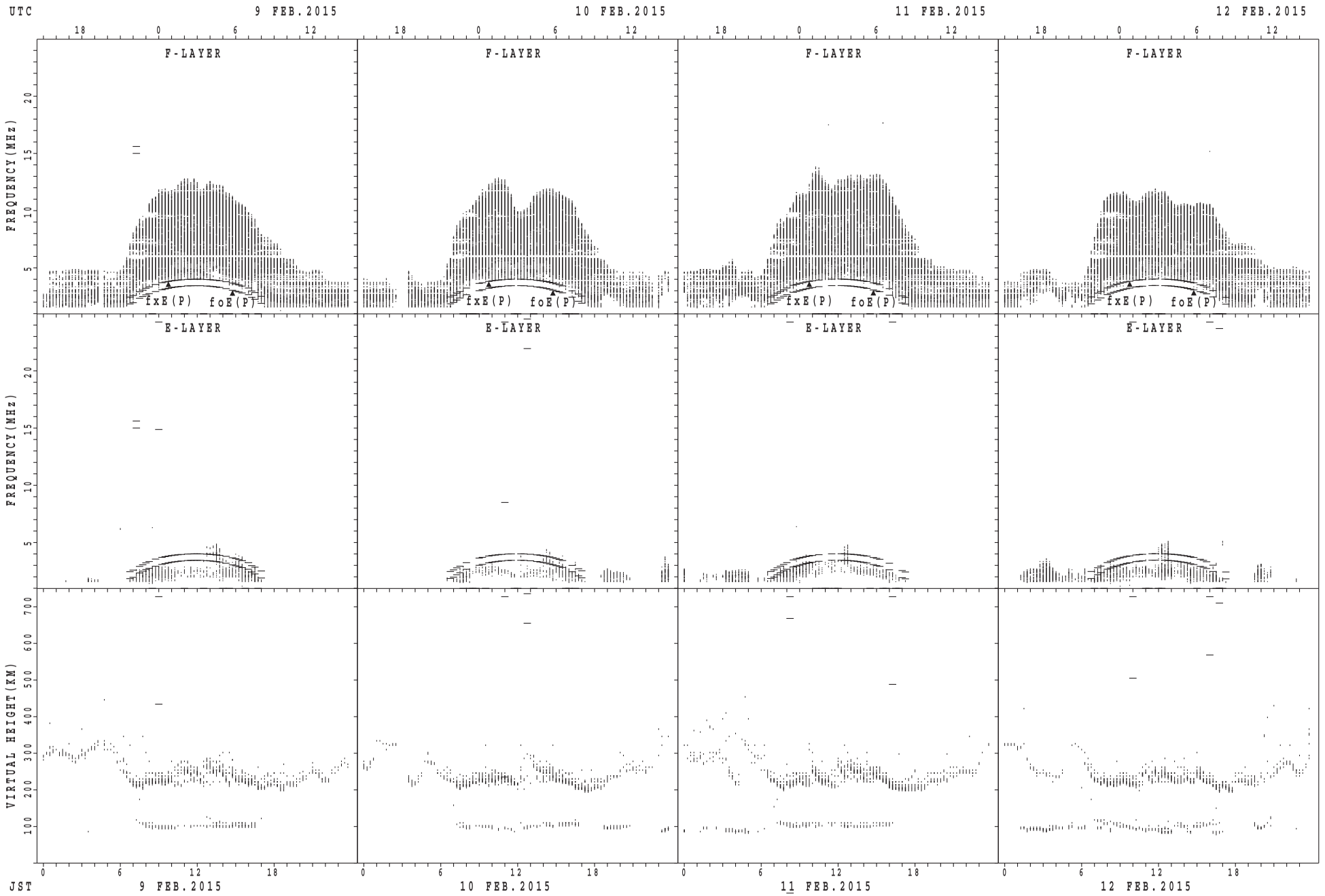
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



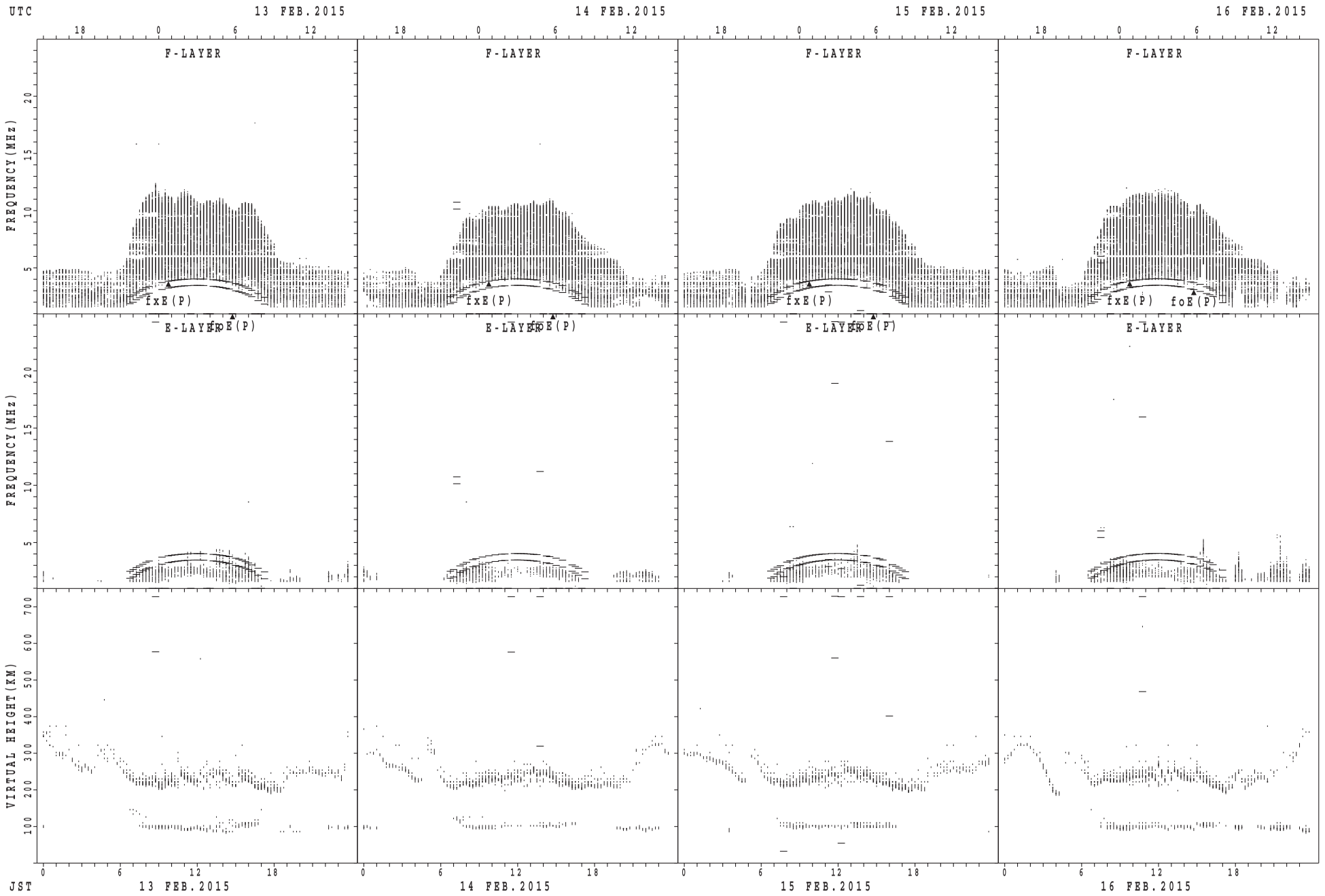
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



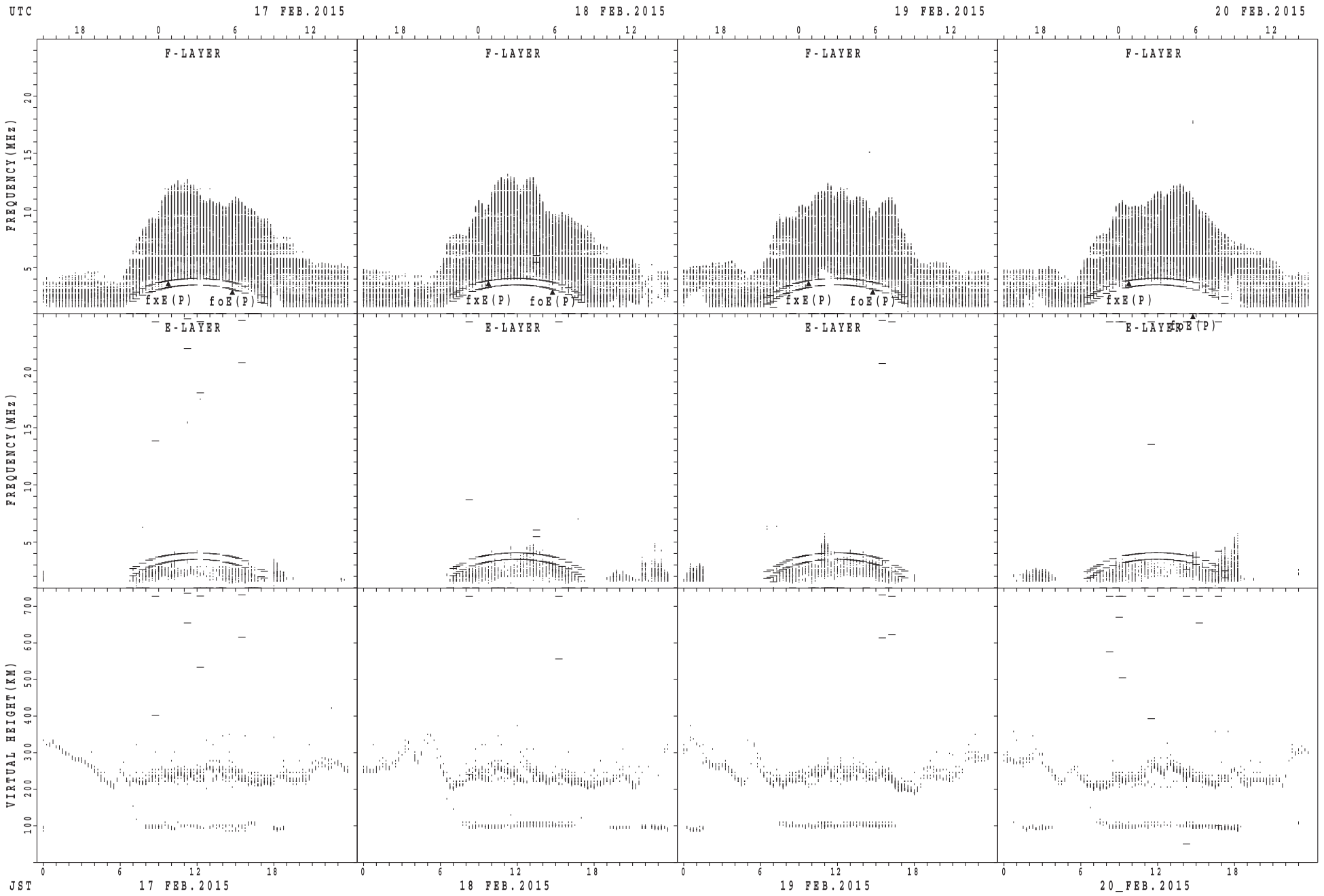
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



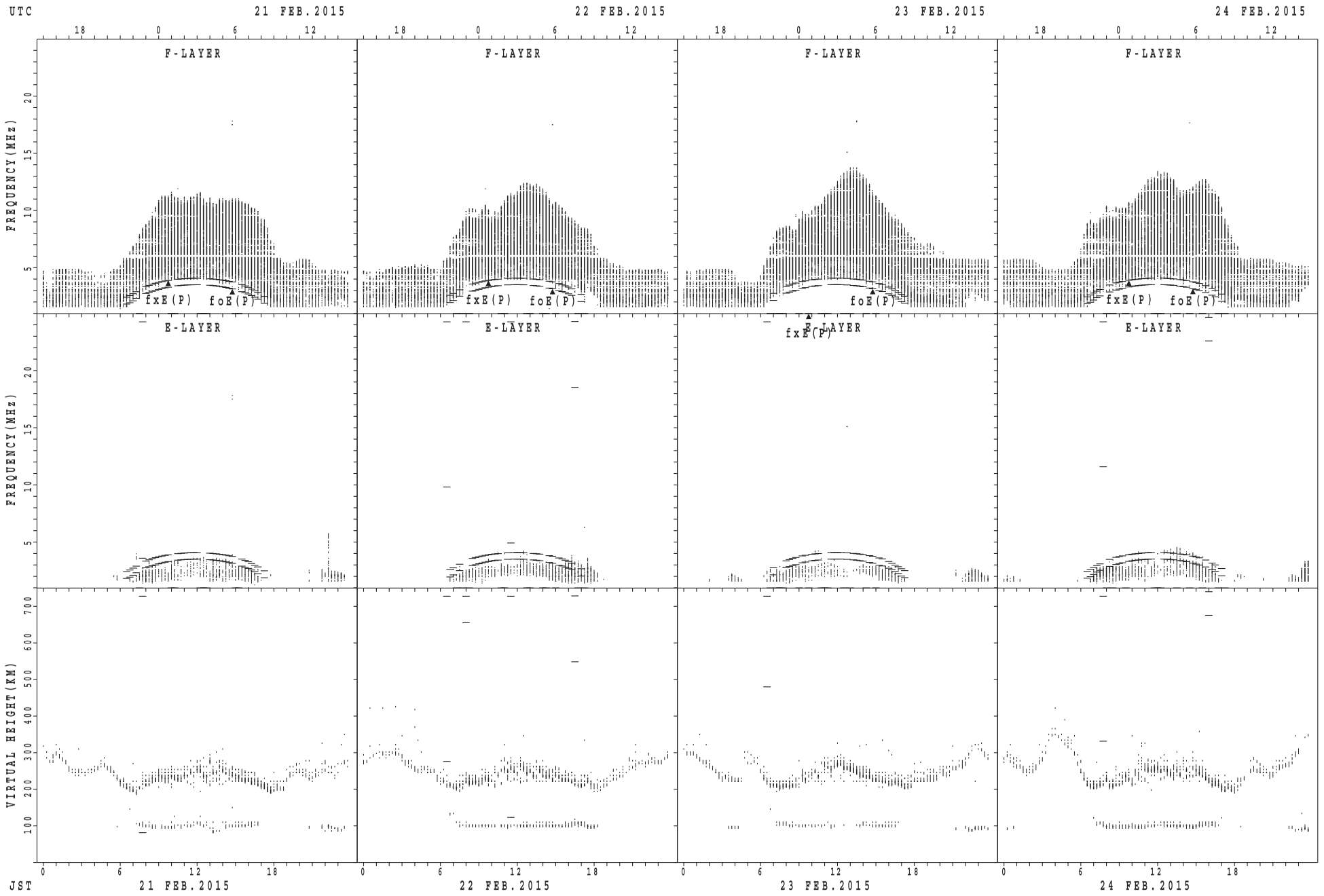
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



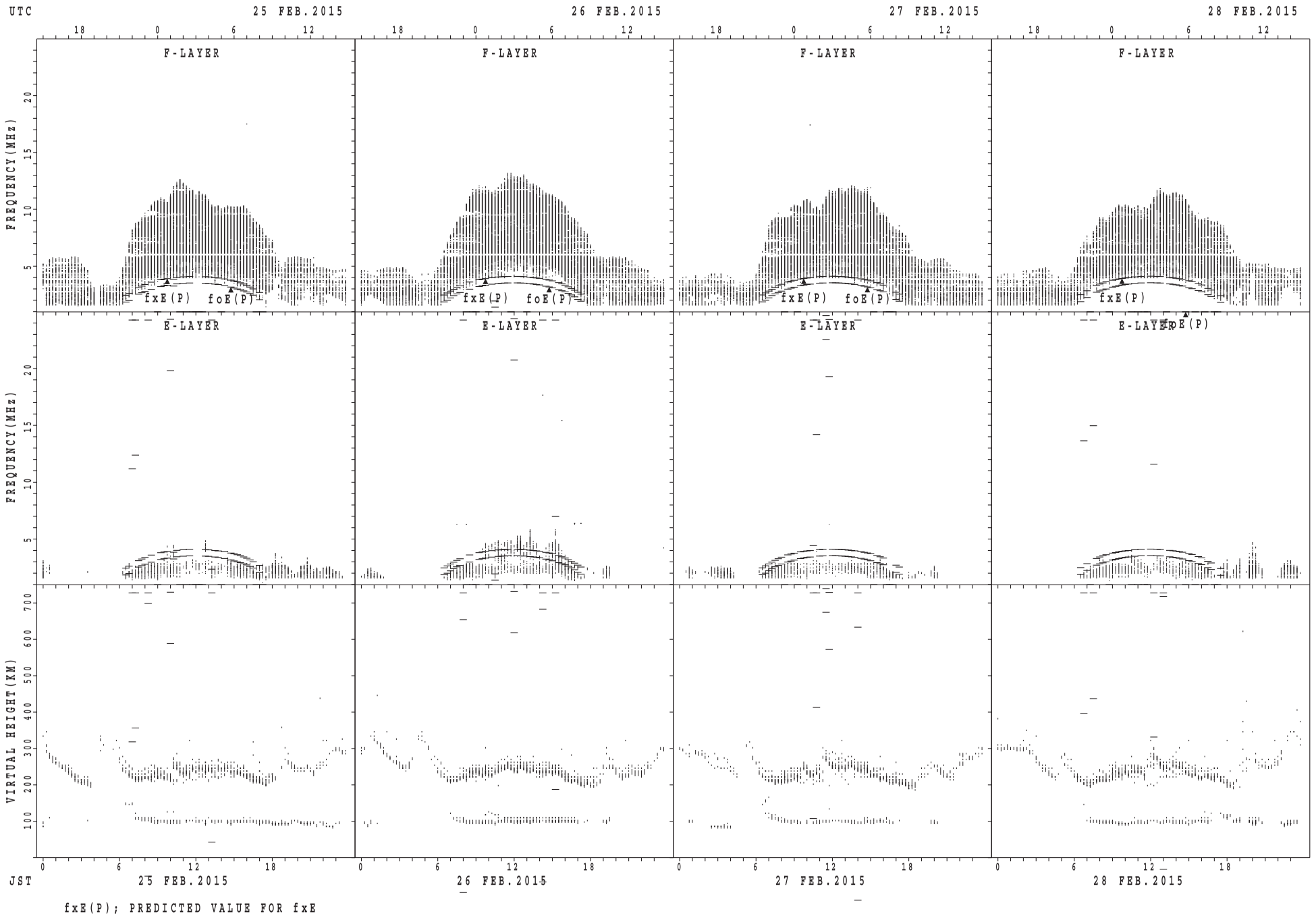
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



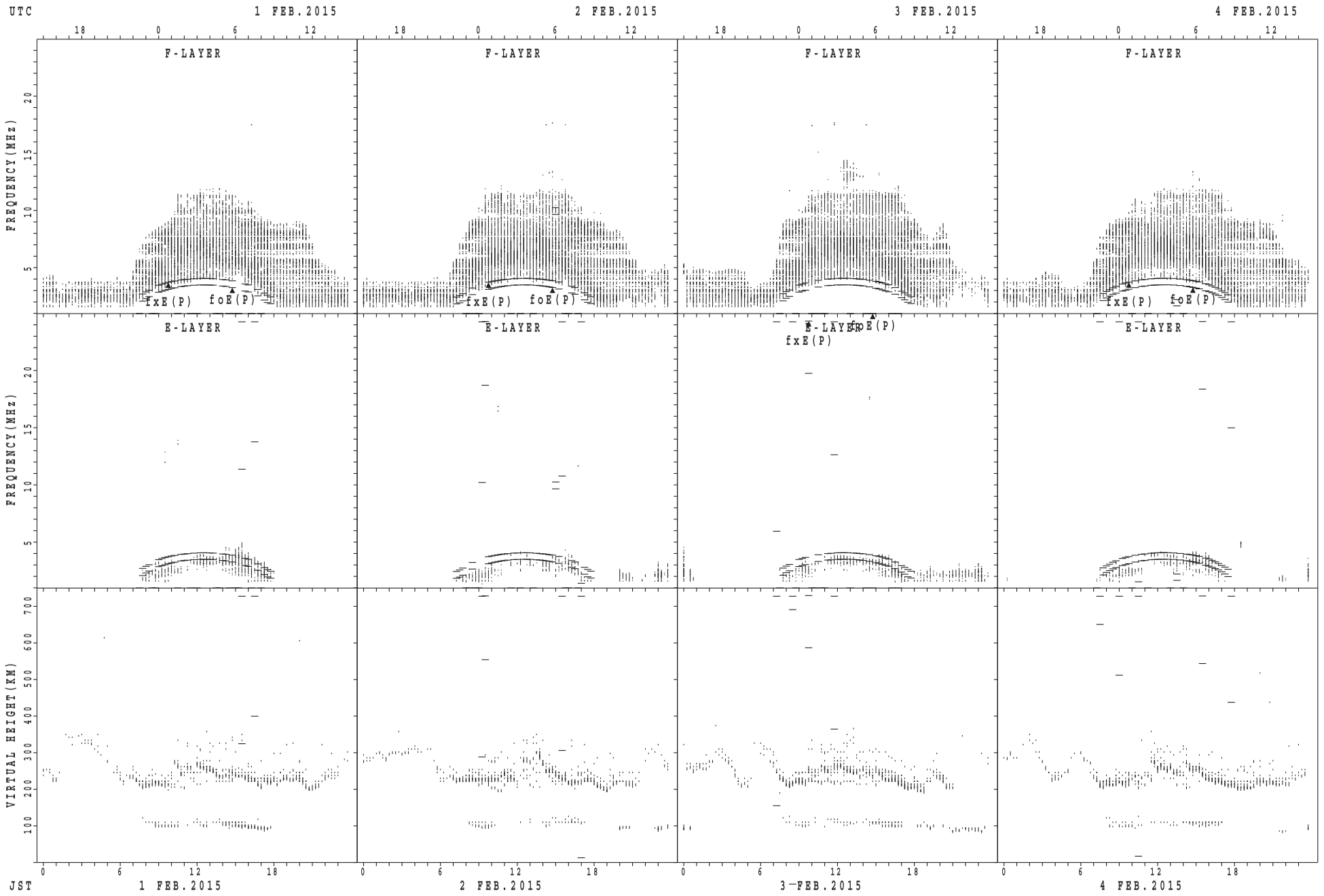
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



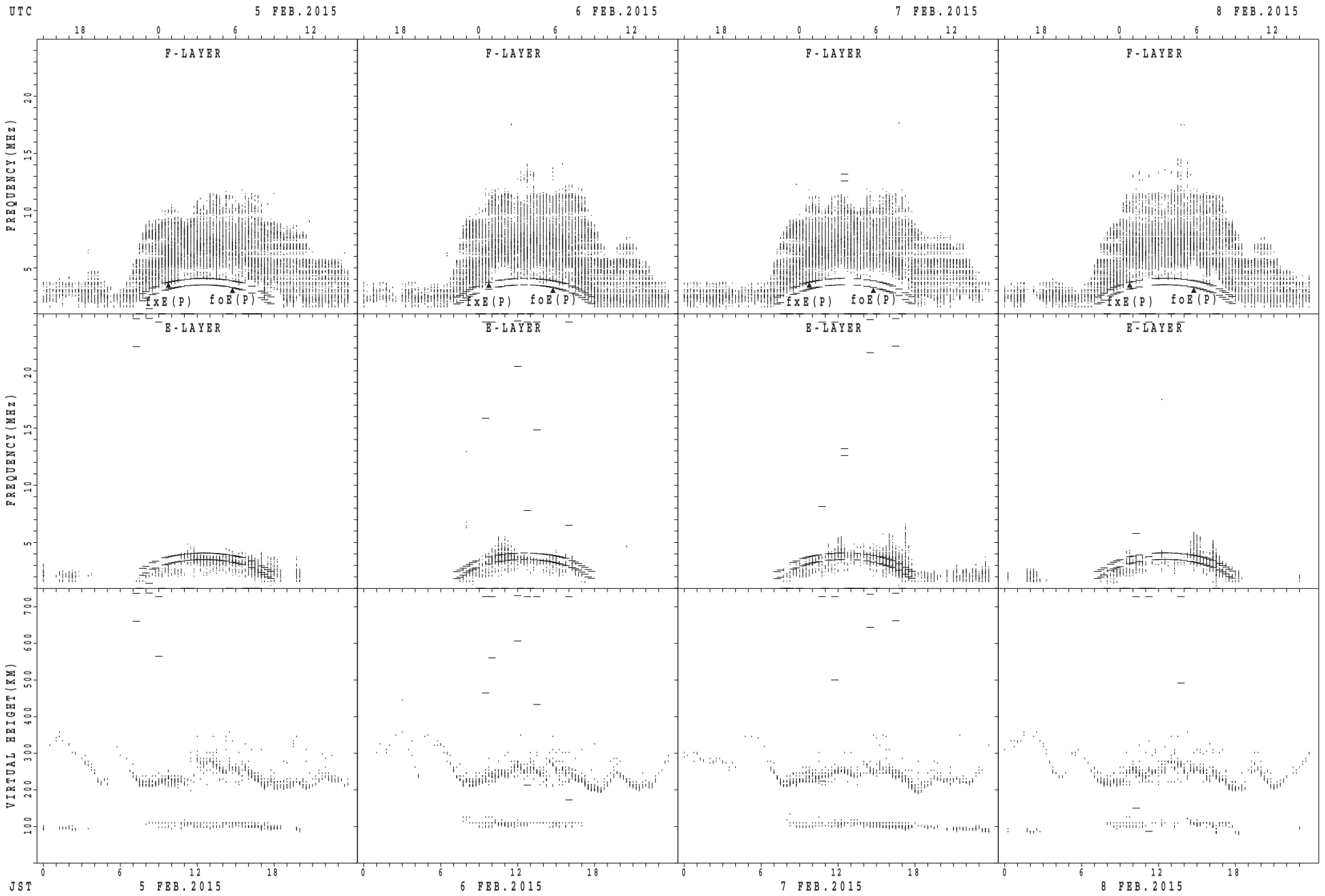
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

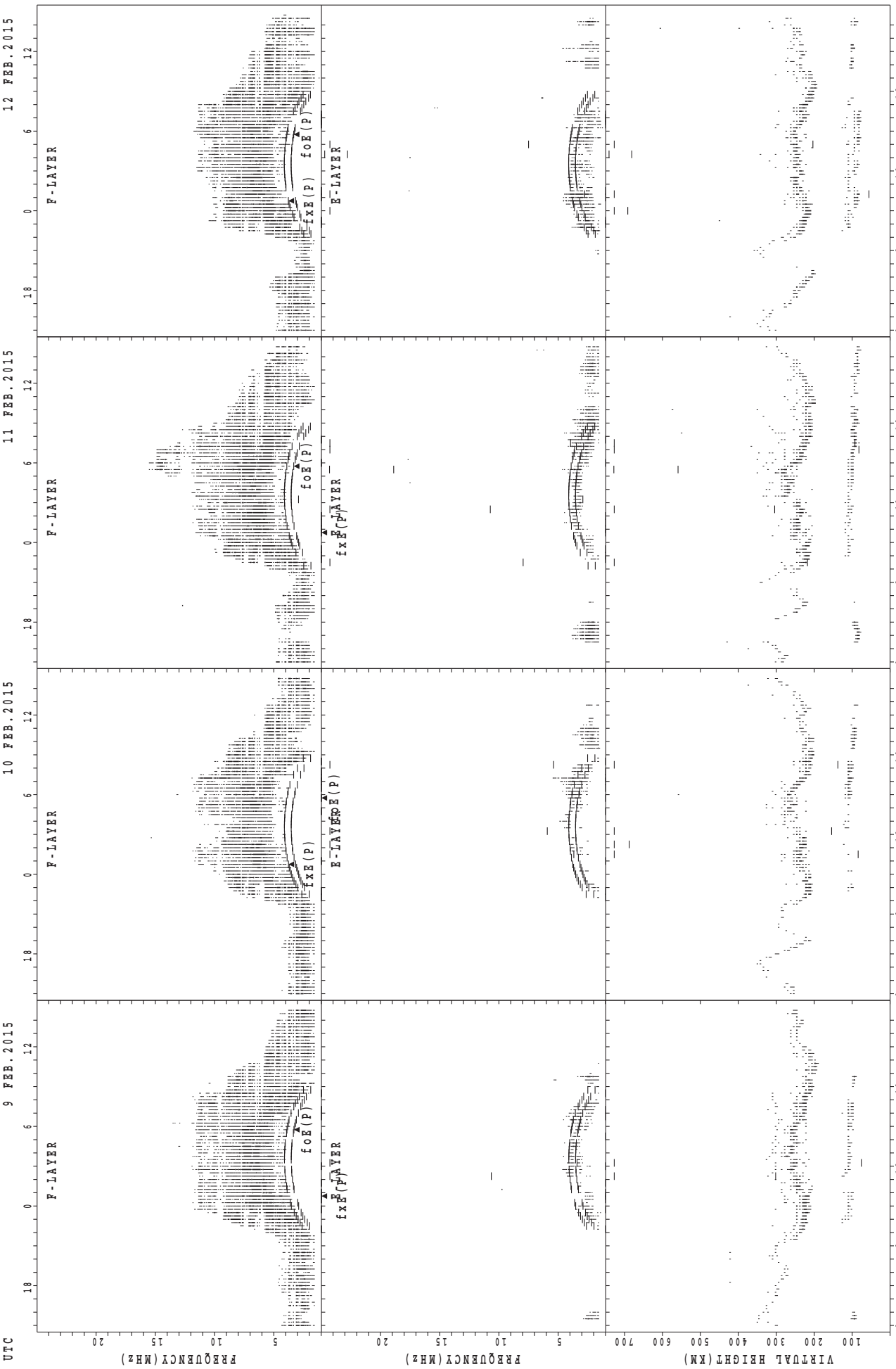


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

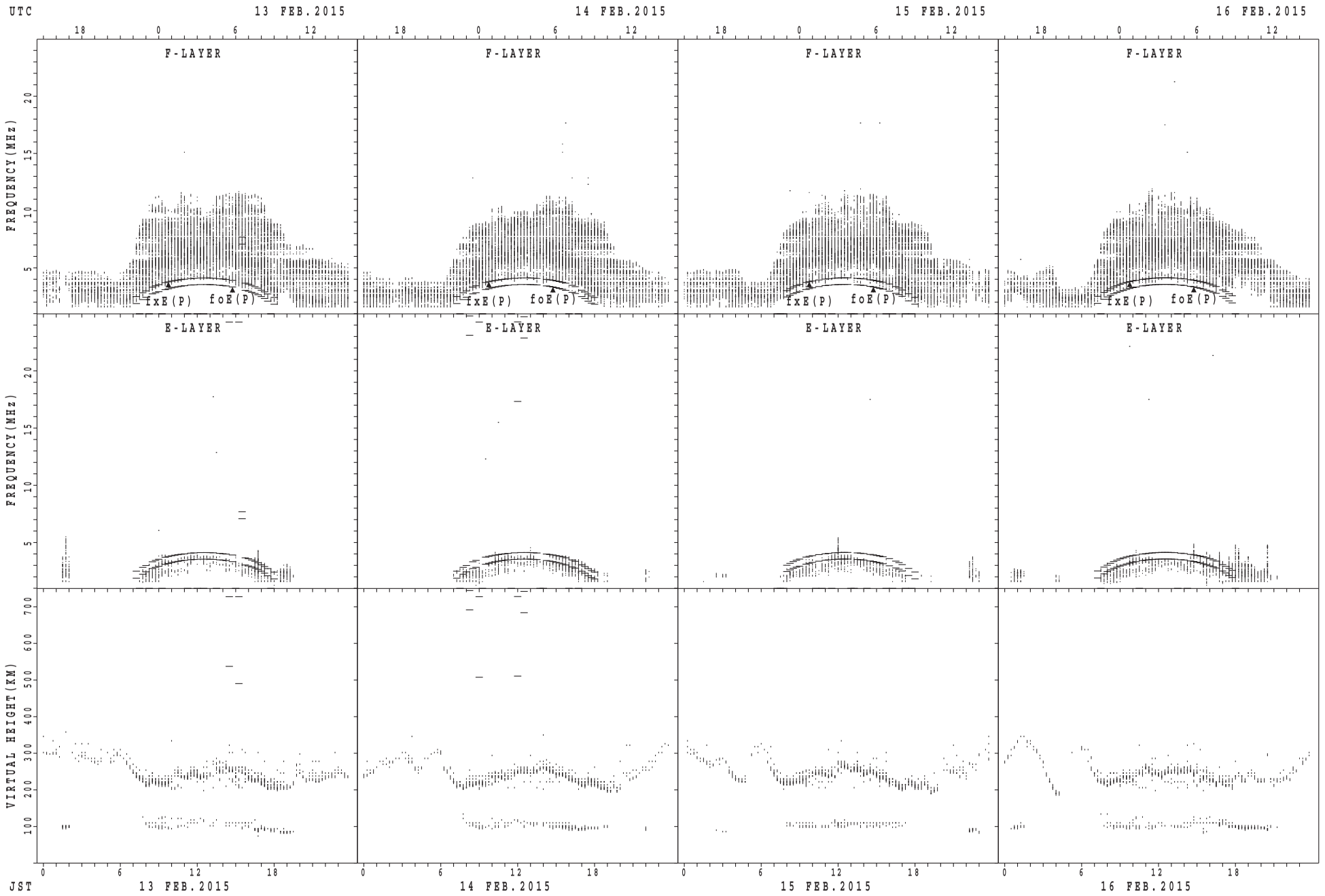
SUMMARY PLOTS AT Yamagawa



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

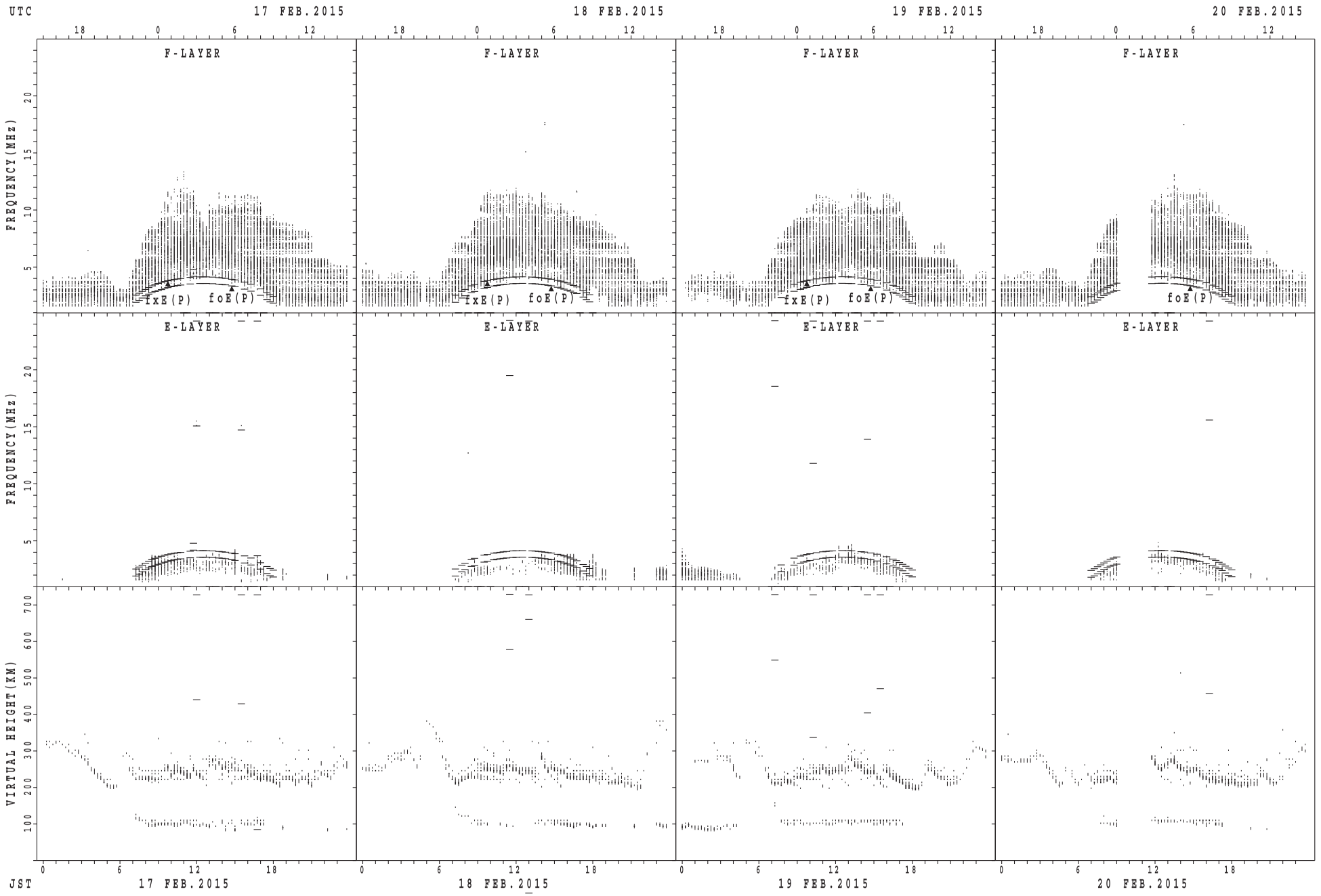

SUMMARY PLOTS AT Yamagawa
UTC
JST
9 FEB.2015
10 FEB.2015
11 FEB.2015
12 FEB.2015
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



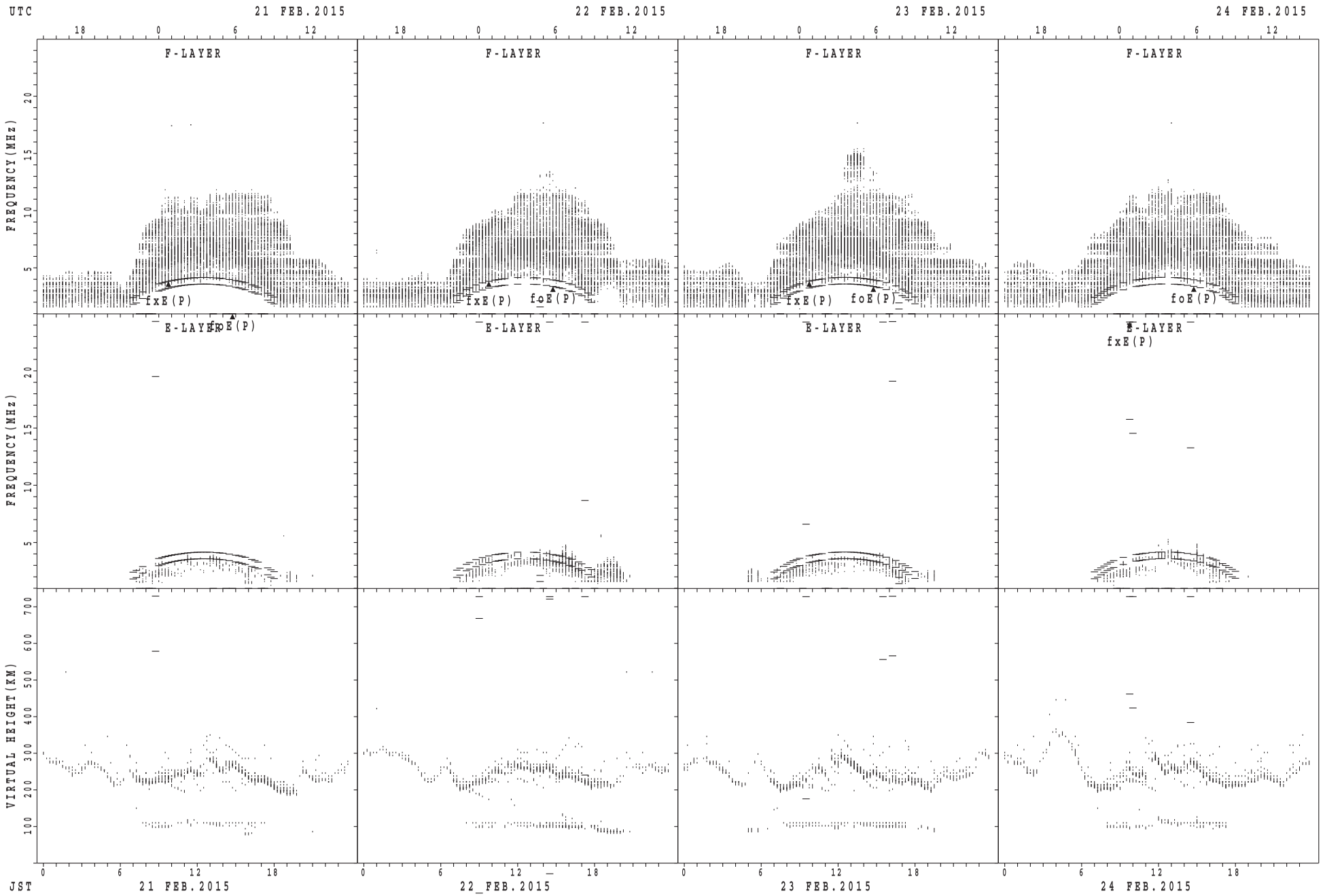
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

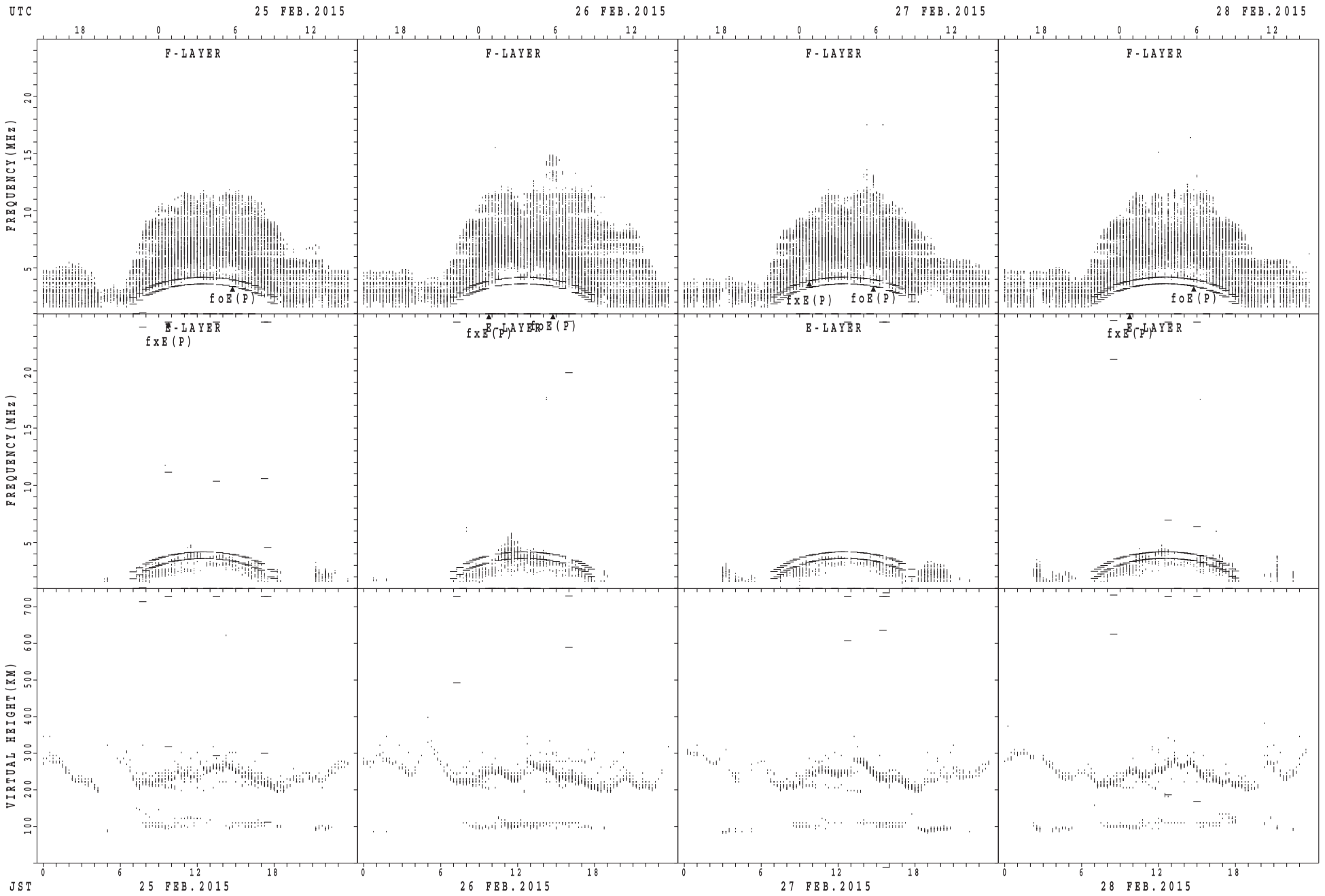


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

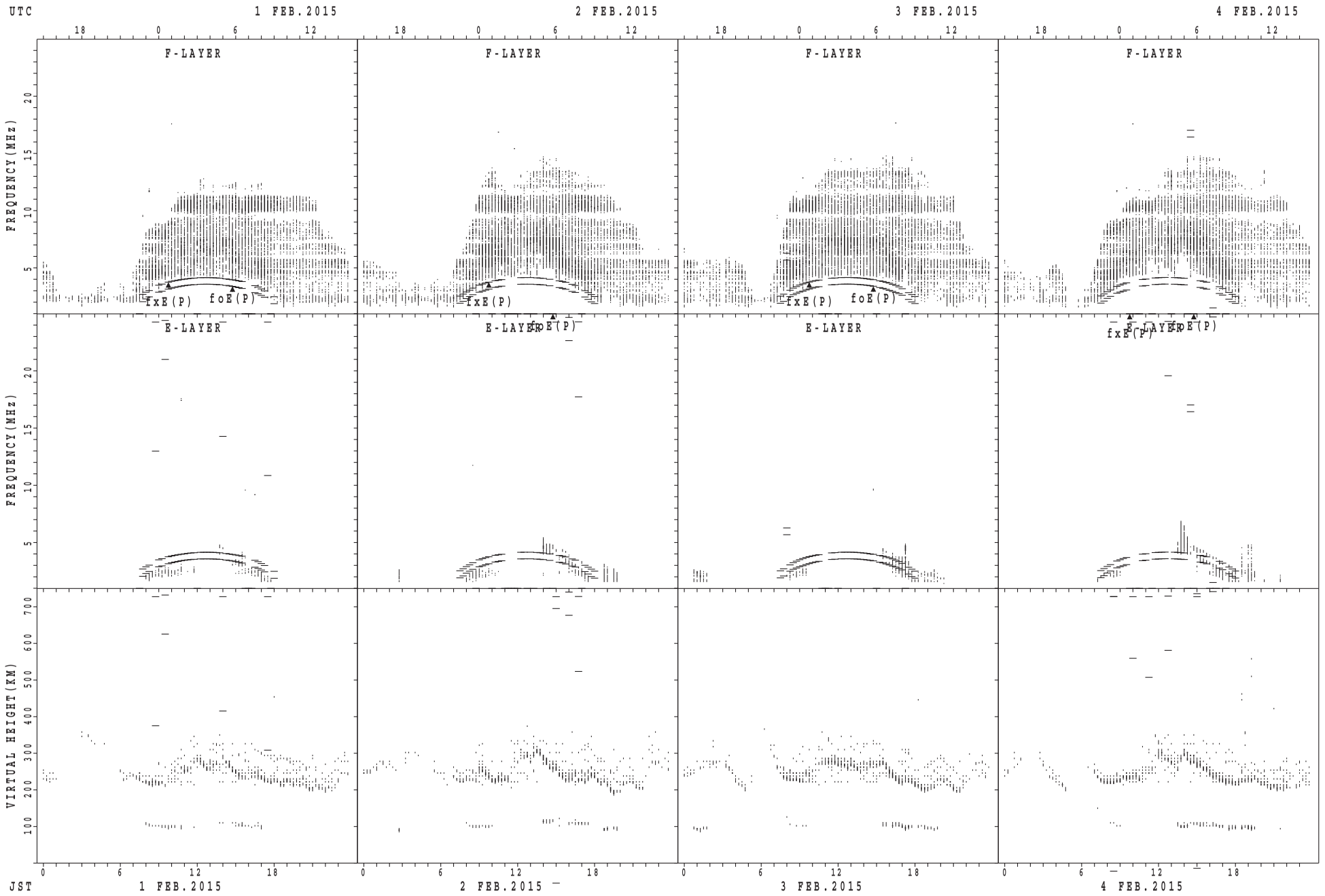
SUMMARY PLOTS AT Yamagawa



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

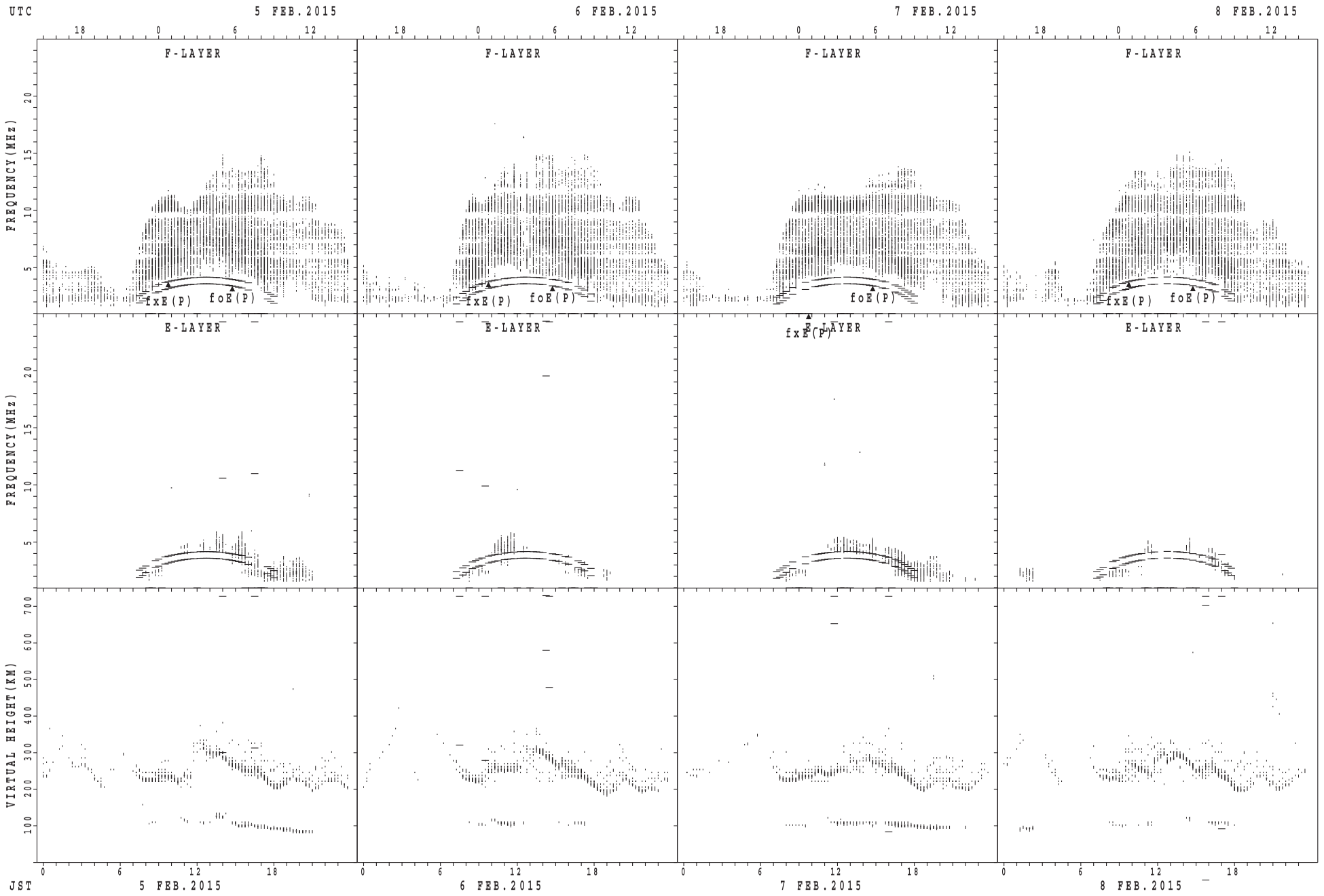

SUMMARY PLOTS AT Yamagawa
UTC
25 FEB.2015
26 FEB.2015
27 FEB.2015
28 FEB.2015
F-LAYER
foE(P)
fxE(P)
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



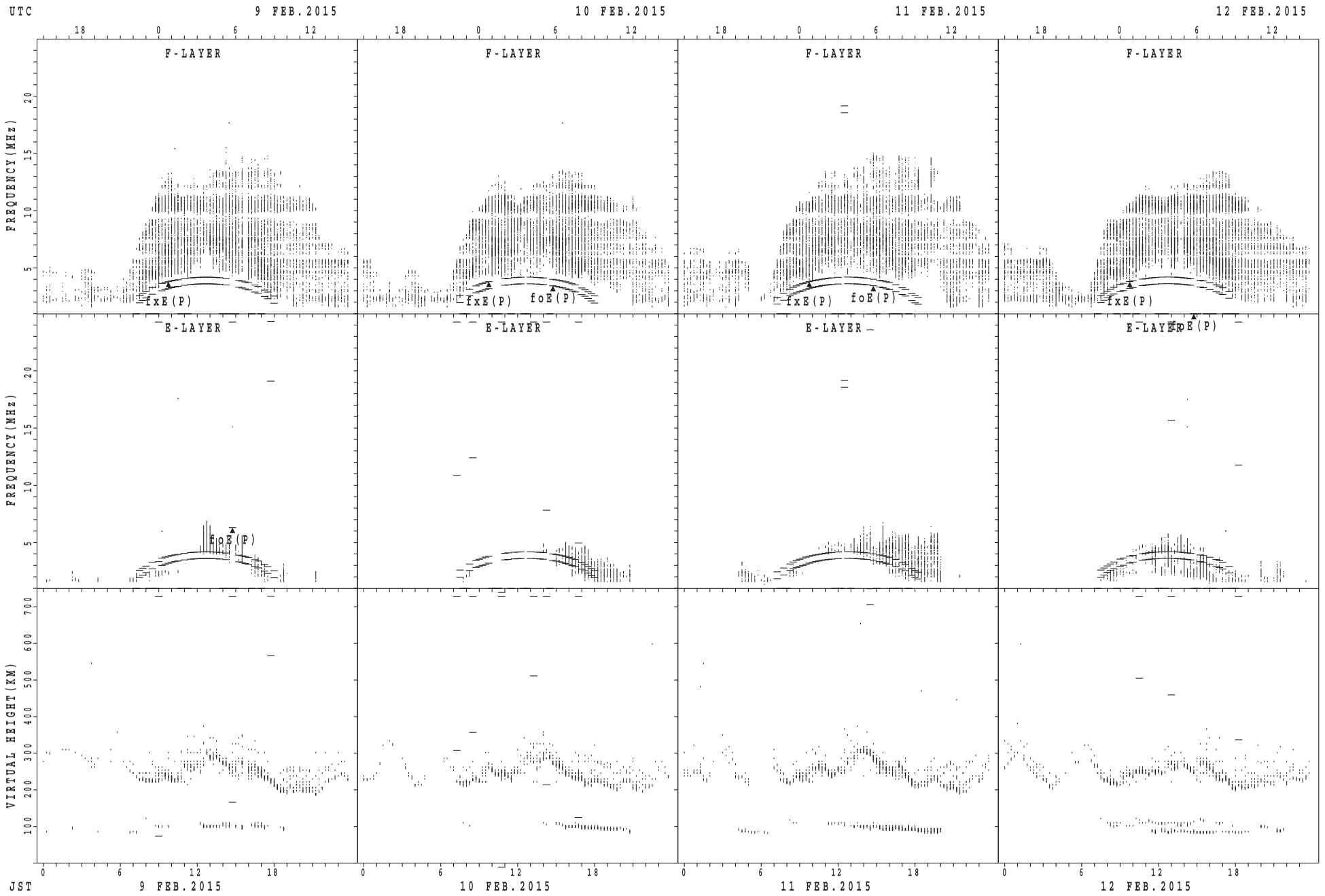
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



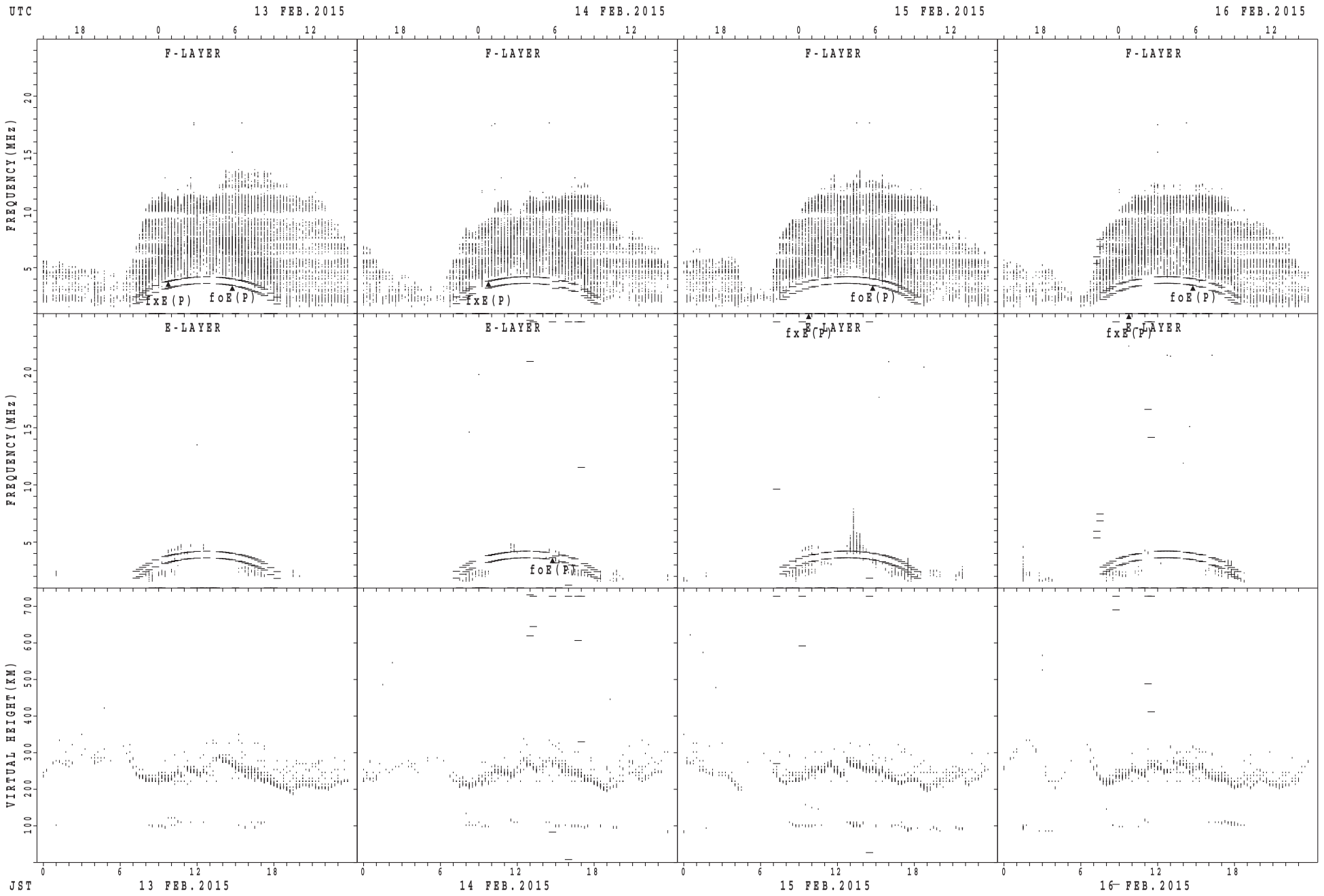
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



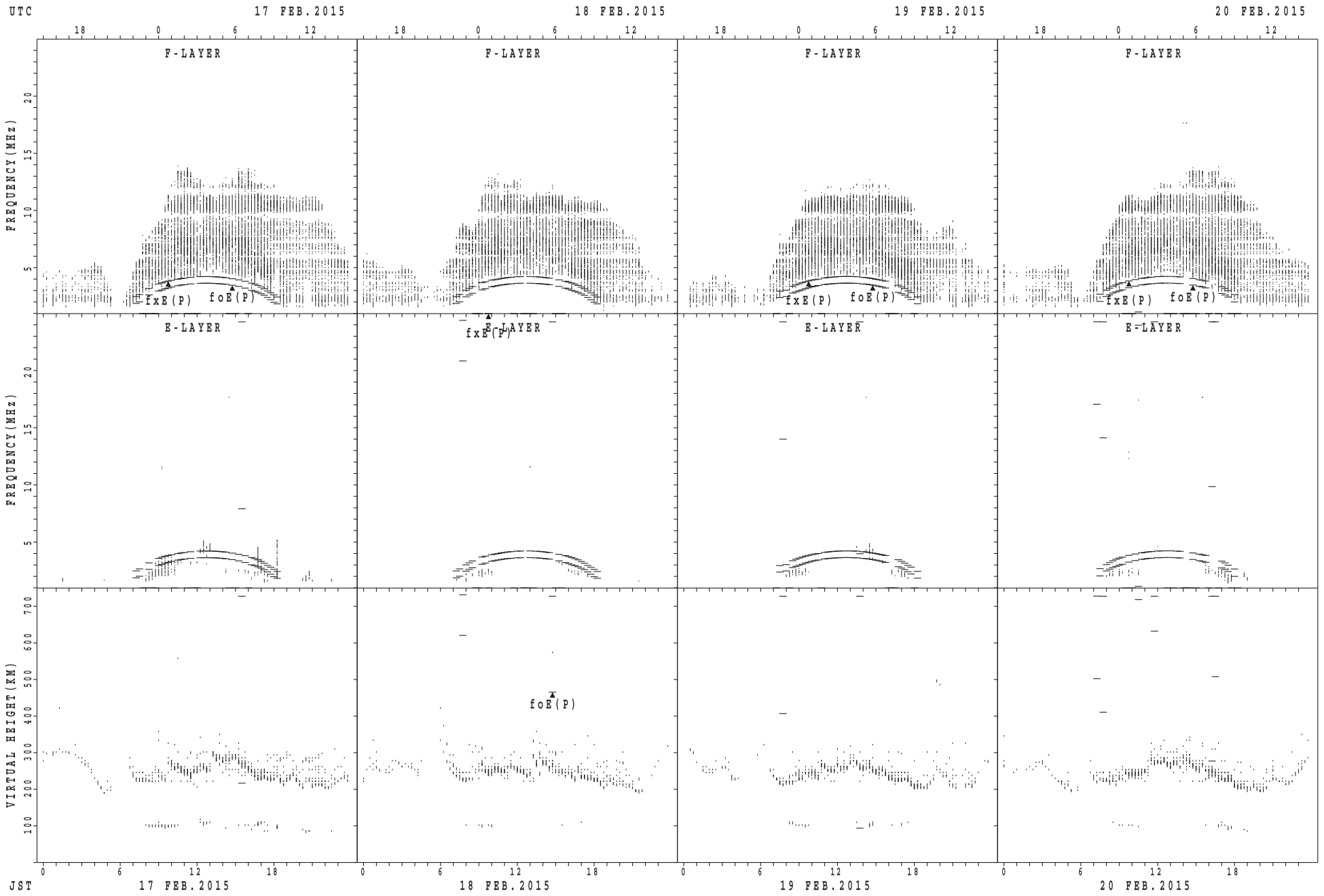
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



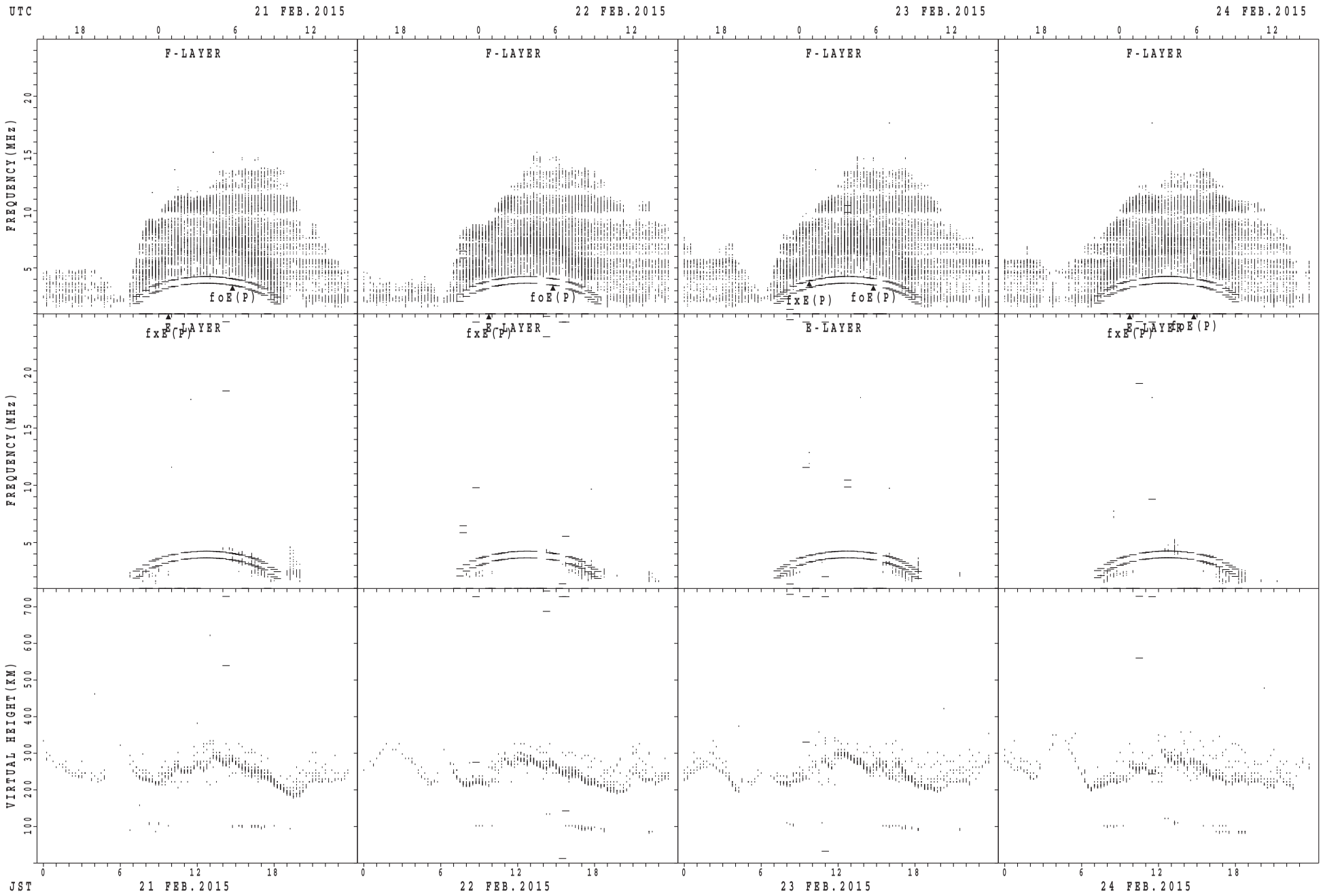
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



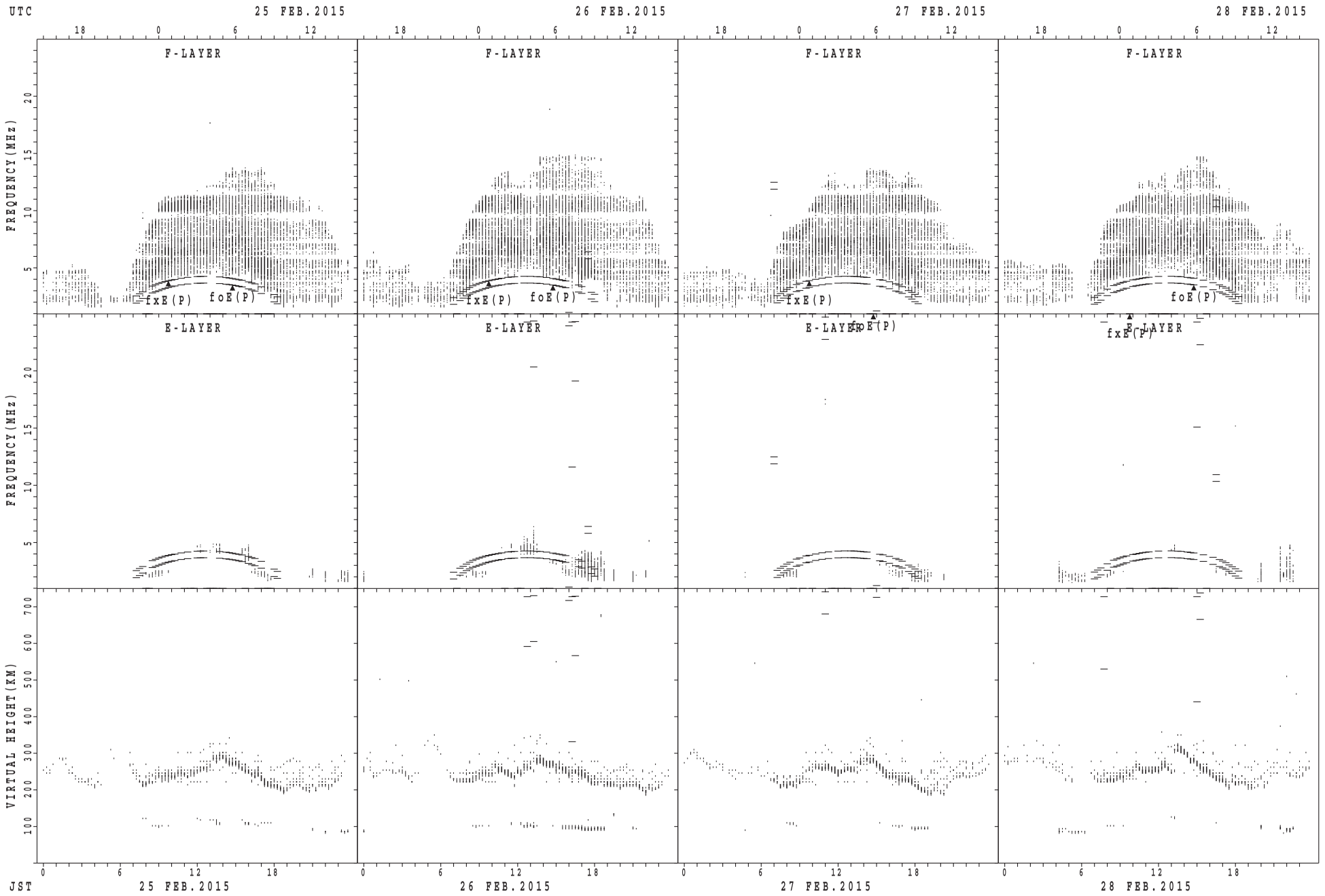
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

FEB.2015 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	14	27	27	24	15	12	19	26	28	27	23	1	1			1	
MED							284	237	218	220	227	226	228	230	231	229	222	228	254	290			306	
U Q							142	240	222	224	240	234	230	238	238	234	228	238	127	145			153	
L Q							142	230	214	214	221	222	223	222	226	222	222	224	127	145			153	

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	9	7	2	3	2	3	13	19	5	5	3	2	1	7	14	10	10	12	14	12	14	12	11
MED	96	95	91	89	91	101	99	143	113	105	171	107	104	87	103	103	103	102	98	97	95	97	90	93
U Q	98	100	99	89	99	113	101	161	155	121	183	183	121	43	113	107	105	105	102	99	100	101	98	95
L Q	92	90	89	89	89	89	97	137	105	99	102	107	87	43	103	101	89	97	91	95	93	95	89	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								22	28	28	20	2		4	23	28	28	25	6		1			
MED								237	223	230	236	236		247	242	238	225	230	254		258			
U Q								242	230	238	239	240		251	246	246	230	236	258		129			
L Q								230	217	224	227	232		242	238	230	222	224	240		129			

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	6	4	2	4	4	2	1	9	3	1	4	3	6	6	7	9	9	5	8	8	11	6	7	9
MED	91	95	97	94	93	94	97	155	131	111	114	105	113	106	107	103	105	103	99	99	97	98	97	95
U Q	97	98	97	96	97	99	48	161	183	55	137	107	113	113	113	103	107	105	104	104	101	101	101	99
L Q	91	91	97	91	89	89	48	146	107	55	109	105	109	105	105	93	102	91	96	97	97	95	93	93

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	28	27	27	6			5	28	28	28	27	14	9	3		
MED								222	237	230	240	242			256	249	235	226	236	249	264	248		
U Q								111	240	238	244	246			270	254	240	233	248	258	286	250		
L Q								111	228	226	230	242			244	245	230	223	230	230	248	246		

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	3	5	4	1	2			2		3	4	7	5	3	13	17	11	10	10	8	4	5	7
MED	97	97	89	91	95	93			145		109	109	107	109	105	107	103	99	97	97	95	94	95	91
U Q	97	99	100	91	47	95			179		113	111	115	113	107	110	110	107	105	99	99	101	96	97
L Q	95	93	88	89	47	91			111		101	109	107	107	105	105	98	97	95	89	93	91	91	89

MONTHLY MEDIANS OF h'F AND h'Es

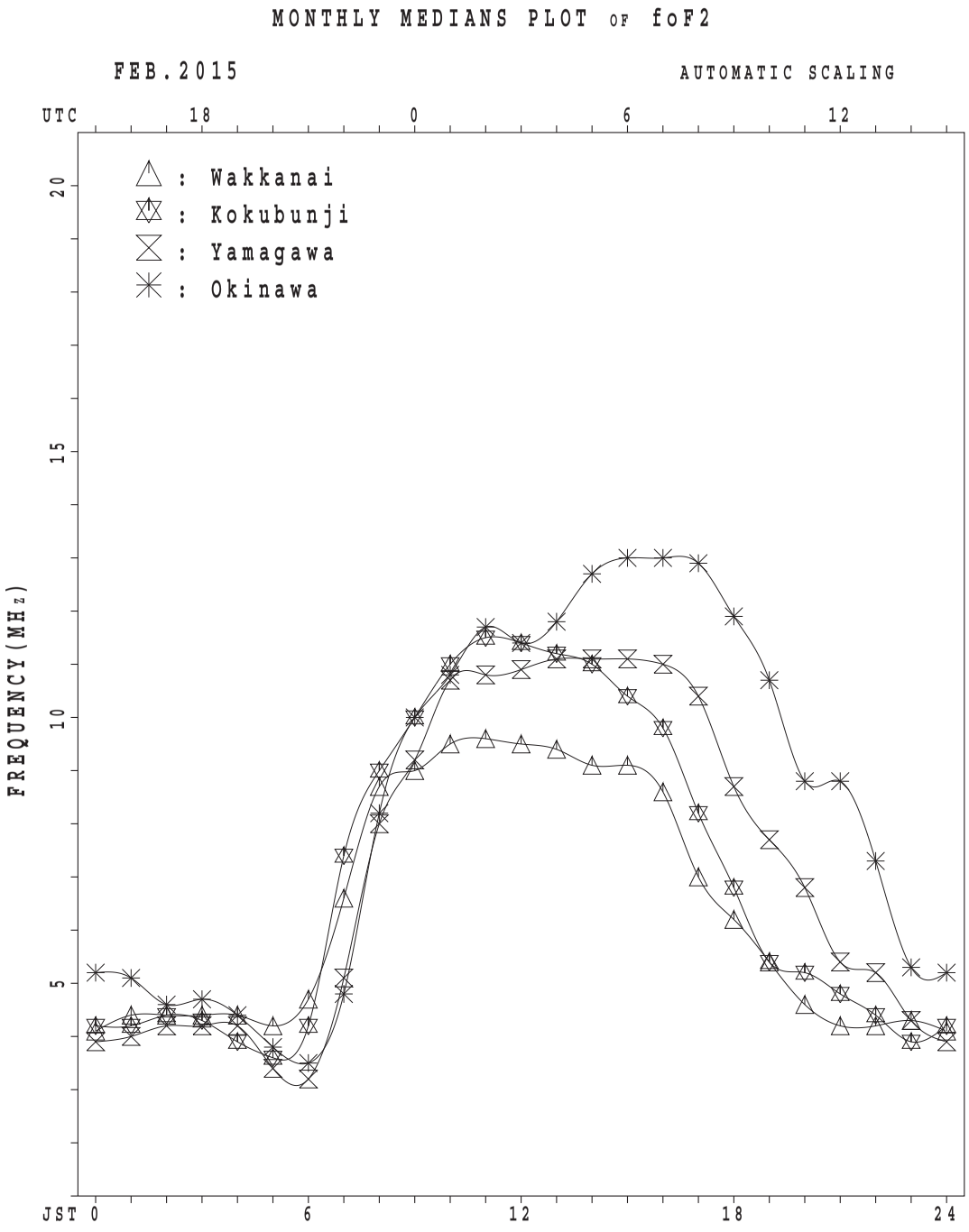
FEB.2015 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	2							1	26	28	28	4				23	28	28	28	27	25	19	12	5
MED	267							240	237	238	246	249				262	246	238	222	234	242	242	248	256
U Q	268							120	246	247	255	260				272	254	241	239	248	259	268	258	257
L Q	266							120	230	230	238	239				254	242	230	214	224	232	228	228	250

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	2	2			2					3	4	3	6	9	6	9	13	7	9	7	3	3	
MED	89	99	97			89					125	113	111	107	111	110	107	103	97	97	97	95	95	
U Q	44	103	103			89					155	118	111	111	114	113	112	111	103	97	103	99	95	
L Q	44	95	91			89					119	111	109	105	103	105	103	98	95	91	93	95	89	


MONTHLY MEDIANS PLOT OF foF2
FEB.2015
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
⛛ : Kokubunji
⧖ : Yamagawa
✳ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 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	58	X 57	61	60	60	62	X 56												X 65	X 72	X 64	X 52	X 53	56
2	54	56	56	58	64	X 61	X 66												X 76	X 75	X 47	X 51	X 54	X 52
3	X 53	X 54	X 51	54	X 51	X 49	X 47											X 78	X 68	X 48	X 40	X 41	X 42	X 46
4	X 46	X 45	X 47	X 46	X 47	X 50	X 41												X 71	X 66	X 47	X 46	X 47	X 45
5	X 46	X 45	X 46	X 47	X 48	X 48	X 39												X 64	X 48	X 47	X 47	X 47	X 46
6	X 48	X 48	X 46	X 47	X 47	X 48	X 46												X 64	X 59	X 51	X 48	X 43	X 43
7	X 43	X 43	X 43	X 43	X 44	X 44	X 44												X 65	X 57	X 53	X 54	X 48	X 46
8	X 47	X 46	X 46	X 46	X 46	X 46	X 42												X 72	X 71	X 63	X 56	X 54	X 54
9	X 54	X 54	X 53	X 51	X 50	X 50	X 54												X 67	X 56	X 46	X 46	X 46	X 44
10	X 45	44	X 43	X 44	X 46	X 43	X 40												X 71	X 63	X 51	X 51	52	52
11	X 57	X 54	X 57	X 59	X 60	54												X 91	X 62	X 54	X 50	X 50	X 47	X 46
12	X 48	X 51	59	X 51	X 49	X 50	X 52												X 79	X 68	X 62	X 57	X 56	X 56
13	X 56	X 57	X 57	X 56	X 56	X 57	X 60												X 71	X 59	X 50	X 50	X 50	X 48
14	X 49	X 49	X 49	X 49	X 49	X 48													X 70	X 63	X 50	X 47	X 48	X 47
15	X 50	X 50	X 50	X 50	X 51	X 50	X 48												X 61	X 56	X 52	X 50	X 49	X 50
16	X 50	X 50	X 51	X 55	X 57	X 48	54												X 72	X 59	X 59	X 52	X 50	X 50
17	54	55	X 54	X 59	X 59	X 60	X 59												X 75	X 75	X 62	X 58	X 59	X 58
18	X 58	X 55	X 52	X 52	X 51	X 51	X 58												X 70	X 58	X 57	X 54	X 49	X 49
19	56	X 56	X 57	X 57	X 60	60	X 57										X 89		X 65	X 61	X 54	X 53	X 57	X 57
20	X 57	X 59	X 59	X 58	X 60	X 61	X 50												X 72	X 61	X 61	X 57	X 50	X 52
21	X 53	X 57	X 56	X 54	58	57	57												X 63	X 62	X 64	X 62	67	65
22	67	68	68	68	71	70													X 64	X 58	X 54	X 52	X 53	X 52
23	X 52	X 52	X 52	X 52	X 52	52													X 69	X 67	X 61	X 63	X 61	X 61
24	X 60	X 60	X 59	X 52	X 54	X 54													X 65	X 56	X 50	X 51	X 48	X 49
25	X 51	X 53	X 50	X 44	X 37	X 34													X 61	X 66	X 61	X 53	X 50	X 51
26	X 51	X 52	X 52	X 53	X 51	X 52													X 69	X 64	X 52	X 44	X 46	X 46
27	X 46	X 48	X 49	X 48	X 47	X 45													X 72	X 67	X 60	X 54	X 51	X 51
28	X 50	X 51	X 51	X 51	X 51	X 52													X 75	X 67	X 56	X 54	X 53	X 55
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	19										1	2	28	28	28	28	28	28
MED	X 52	X 52	X 52	X 52	X 51	X 50	X 52										X 89	X 84	X 69	X 62	X 54	X 52	X 50	X 50
U Q	X 56	X 56	X 57	X 56	58	57	X 57												X 72	X 67	X 61	X 54	X 54	X 54
L Q	X 48	X 48	X 49	X 48	X 48	X 48	X 44												X 64	X 58	X 50	X 49	X 48	X 46

FEB.2015 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB. 2015 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 46	50	F 50	F 48	F 50	F 51	46	67	U R 83	93	R 105	U R 102	101	J R 95	94	98	78	70	59	66	56	46	46	46
2	44	F 44	F 45	F 49	F 53	54	58	59	88	121	117	120	R 97	J R 93	112	104	96	82	66	66	42	44	48	46
3	46	47	45	44	44	42	40	62	R 82	U R 90	J R 112	123	112	106	R 101	102	84	71	60	40	33	35	35	40
4	39	38	41	39	40	43	33	57	74	J R 91	96	R 116	R 105	R 92	96	R 100	89	74	63	60	40	40	40	39
5	39	38	40	40	41	41	34	64	J R 83	J R 96	J R 95	U Y 98	J R 94	93	93	R 91	83	76	56	42	40	40	40	37
6	41	41	39	40	40	42	39	64	R 98	Y	J R 109	115	J R 113	99	92	93	81	68	58	51	44	41	36	36
7	36	36	38	37	36	37	37	64	91	92	J R 105	J R 119	J R 119	R 104	96	91	76	72	58	49	43	46	42	39
8	40	40	40	40	40	40	35	60	U R 78	R 111	120	125	126	J R 114	100	100	88	71	69	64	56	46	48	46
9	46	47	46	44	43	43	47	69	U R 99	R 104	116	R 107	118	R 106	U R 97	97	J R 85	74	60	48	39	39	39	38
10	38	F 36	36	37	38	35	32	66	94	112	U R 110	J R 107	U R 108	R 103	R 103	100	93	87	64	55	44	44	44	44
11	44	46	50	51	51	44	44	68	94	U R 95		118	118	118	R 107	106	98	Y 84	56	47	44	43	40	40
12	41	44	48	45	V 41	43	43	73	96	103	120	J R 113	R 93	H 102	R 102	103	88	79	71	60	53	49	49	50
13	50	50	50	48	48	49	53	U R 78	96	R 105	117	110	111	R 105	R 102	101	95	81	64	53	44	43	R 43	42
14	42	42	42	42	42	41	40	64	85	92	R 92	109	110	102	96	92	91	74	63	56	43	40	40	40
15	43	43	43	43	44	44	41	63	R 77	92	93	99	J R 106	R 98	93	96	96	83	54	48	46	43	42	43
16	43	43	44	48	50	41	45	71	86	U R 88	U R 99	R 117	113	R 100	V 99	90	94	86	65	53	52	46	44	44
17	45	F 49	48	52	52	53	52	68	R 85	R 97	110	110	112	98	98	R 106	103	84	69	68	56	52	53	51
18	51	48	45	45	44	44	51	54	70	R 66	73	R 76	J R 87	76	74	75	70	76	63	52	50	47	43	43
19	47	49	50	50	53	F 50	50	66	86	Z 86	R 89	J R 92	102	98	93	96	82	82	58	52	47	46	50	50
20	50	52	52	52	54	54	42	62	99	89	U R 96	J R 109	R 98	Y	U Y 100	92	86	77	65	53	53	50	44	46
21	46	48	48	47	42	40	43	73	R 92	104	100	J R 103	R 101	R 105	99	98	93	78	57	55	58	55	F 58	52
22	51	52	54	F 56	F 60	F 60	64	88	91	R 96	U R 100	R 104	J R 115	Z 104	94	94	94	R 80	57	51	47	45	46	44
23	44	44	45	45	45	39	49	62	88	J R 91	R 94	R 100	J R 107	101	97	97	98	79	62	60	54	56	54	54
24	52	52	52	45	47	47	58	77	R 98	J R 90	R 120	122	123	100	97	R 112	J R 110	89	58	49	43	44	41	42
25	44	45	43	38	30	27	34	60	H 68	87	R 92	R 102	98	R 92	92	88	R 82	75	54	59	52	46	43	44
26	44	45	47	47	44	45	49	71	93	U R 87	U R 95	R 120	116	R 109	R 96	R 90	R 85	80	62	57	45	38	39	39
27	39	42	41	41	41	39	45	73	R 89	88	89	R 104	98	R 104	95	R 92	89	78	65	60	53	48	44	44
28	44	44	44	44	44	45	47	72	93	86	86	91	J R 108	97	92	J R 90	R 81	77	68	61	50	49	46	48
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	27	27	28	28	27	28	28	28	28	28	28	28	28	28	28
MED	44	44	45	45	44	43	44	66	88	R 92	R 100	R 109	108	R 101	96	96	88	78	62	54	46	46	44	44
U Q	46	48	49	48	50	48	50	72	94	103	112	118	114	R 105	R 100	100	94	82	65	60	53	48	47	46
L Q	41	42	42	40	41	40	40	62	R 83	88	93	R 102	R 100	R 97	94	92	82	74	58	50	43	42	40	40

FEB. 2015 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 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									264	L			L											
2										L	L	L	L											
3												L	L											
4												L												
5												L												
6											L		L	L	L									
7											L	L			L									
8									284	348	L	L	L		L									
9												L			L									
10										336			L		L	L								
11														L										
12										L	L	L	L			L								
13										L	L	L	L	L	L									
14											L	L	L	L	L	L								
15								220					U L 424	L	L									
16										L	L	L	L	L	L									
17									L 300			L	L	L	L	L								
18									312	U L 400	L	U L 500	L	L	L	L								
19										L	L	L	L	L	L	L								
20										L 364		L	L	L	L	L	L							
21								220			L		L	L	L									
22										L	L	L	L	L	L									
23								228	292	L		L	L	L	L	L								
24											L	L	L	L	L	L								
25										L	L	L	L	L	L	L								
26										L	L	L	L	L	L									
27										L	L	L	L	L	L	L	300							
28										L	L	L	L	L	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	5	4		1	1				1							
MED								220	292	356		U L 500	U L 424				300							
U Q								228	306	L 382														
L Q								220	274	342														

FEB.2015 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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								180	232	284	304	328	332	328	304	280	208	B						
2								188	232	296	324	324	324	324	292	264	212	A						
3								192	252	296	320	328	332	336	316	268	A							
4								B 256	292	320	332	336	332	316	280		A	A						
5								180	244	288	312	336	336	336	316	280	A	A						
6								184	236	288	312	332	340	332	312	268	212	B						
7								176	244	280	332	340	348	328	304	264	232	A						
8								200	256	296	316	316	336	316	316	284	232	B						
9								188	244	R 288	308	332	332	332	320	A	A	A						
10								212	224	304	340	348	348	348	A	A	216	A						
11							B	204	240	284		332	R 344	324	316	U A 268	A							
12								A 248	300	320	336	336	336	332	312	276	216	A						
13								180	260	296	320	320	320	312	308	288	212	B						
14							B	K 200	A 232	284	308	328	336	332	316	280	232	B						
15								168	240	296	316	320	336	332	316	284	224	B						
16							B	212	260	292	U A 308	U A 316	340	332	304	284	220	A						
17								188	260	296	312	324	332	316	304	U A 268	A 212	A						
18								A 256	300	316		A	R 328	332	304	264	U A 224	A						
19								184	252	284	312	328	328	324	304	280		A						
20								176	240	284	316	324	336	336	324	A	232	196						
21							B	168	260	A	324	332	336	324	308	288	U A 240	176						
22							B	U S 204	248	288	324	328	336	336	308	280	244	176						
23							B	176	256	292	320	332	344	340	328	288	236	164						
24							B	204	232	300	U A 300	328	340	328	304	272	240	A						
25							J B 132	192	264	280	312	328	336	328	316	288	236	184						
26							B	192	256	292	308	324	A	332	316	292	248	184						
27							J B 144	184	260	296	312	328	336	332	316	284	248	196						
28							J B 168	H 228	272	304	316	344	348	344	328	296	244	164						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	25	28	27	27	27	27	28	27	25	22	8						
MED							J B 144	188	250	292	316	328	336	332	316	280	232	180						
U Q							J B 168	202	258	296	320	332	340	334	316	286	240	190						
L Q							J B 132	180	240	284	312	324	332	326	304	268	216	170						

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 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	J A 17	J A 19	E B 14	E B 14	J A 15	J A 18	E B 14	G	25	G	34	34	J A 55	35	40	G 27	G 20	E B 15	E B 15	E B 14	E B 14	J A 21	J A 26	J A 23
2	J A 19	J A 18	E B 10	E B 10	E B 12	E B 12	J A 13	F 30	G	G 25	G 27	G	G	34	G 25	G 23	G	J A 21	J A 21	E B 12	J A 21	E B 12	E B 12	E B 12
3	E B 14	E B 14	E B 12	E B 12	E B 12	E B 12	E B 12	G	G	G 27	34	34	G	G	34	32	22	E B 11	E B 12	E B 12	J A 15	E B 12	J A 15	E B 12
4	J A 20	J A 17	E B 14	E B 14	24	J A 19	J A 15	J A 21	G	31	36	36	G 27	G	32	G	22	J A 18	J A 21	20	E B 14	J A 18	E B 14	J A 15
5	E B 14	E B 14	E B 12	E B 12	E B 12	E B 12	E B 12	G	J A 24	31	G	G	G	G 31	34	G	24	J A 29	18	J A 18	22	J A 31	J A 24	J A 27
6	J A 18	J A 18	J A 21	E B 13	E S 13	E B 13	E B 13	G	G 22	G 25	G 30	G 23	G	G	E B 11	G	G	J A 18	E B 14	E B 14	E B 14	B J 23	J A 23	24
7	J A 16	J A 12	E B 14	J A 16	J A 16	J A 16	J A 17	G	26	G	G 25	G	G 26	G 26	G 23	G 24	G	18	J A 24	J A 67	J A 29	J A 16	J A 14	J A 15
8	J A 16	J A 21	J A 20	E B 10	E B 10	E B 10	E B 13	G 17	28	32	G 26	G 26	G 24	G 23	G 23	G 23	24	E B 10	B J A 17	20	J A 17	18	E B 15	B J A 11
9	22	22	18	E B 14	E B 14	E B 14	E B 14	G	G	30	34	35	35	35	35	33	J A 34	41	J A 37	J A 17	18	J A 22	J A 22	21
10	E B 13	J A 14	E B 13	E B 13	E B 13	18	E B 13	J A 25	26	32	35	40	40	G	37	J A 33	24	16	J A 26	J A 17	J A 26	J A 20	J A 20	J A 29
11	J A 28	29	J A 25	J A 22	19	E B 12	E B 12	G	26	G 26	36	36	36	36	33	35	40	40	J A 45	J A 37	J A 23	J A 20	J A 26	J A 41
12	J A 19	E B 12	J A 20	E B 12	J A 20	E B 13	B J A 32	J A 24	G 25	G 23	G 23	G 23	G 19	G 19	34	30	25	J A 19	J A 29	E B 10	E B 10	E B 12	B J A 24	J A 23
13	E B 14	E B 14	E B 14	E B 13	E B 13	E B 13	E B 13	G	G 25	G 25	32	G 26	G 31	G 30	G 27	G 24	J A 26	E B 14	J A 17	J A 19	J A 19	J A 15	20	20
14	20	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	G	27	31	34	36	G 33	G 19	G	G	G 19	J A 19	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13
15	E B 16	22	J A 15	E B 16	E B 16	21	E B 14	21	27	33	33	34	38	G 28	G	G	24	E B 16	E B 16	16	E B 16	E B 16	E B 16	E B 16
16	E B 16	E B 14	E B 11	E B 11	E B 16	E B 15	E B 15	G	G 24	33	33	34	G	34	33	30	25	20	J A 27	38	J A 22	J A 19	E B 12	E B 12
17	E B 12	E B 12	E B 12	E B 12	E B 12	E B 12	E B 12	22	27	G	34	36	36	37	35	30	26	J A 40	J A 19	J A 20	J A 31	J A 19	J A 31	J A 19
18	J A 19	18	E B 14	E B 14	E B 14	E B 14	J A 15	21	26	G 26	34	37	34	G 32	G 30	34	J A 29	18	J A 37	J A 67	J A 57	J A 25	13	E B 14
19	E B 14	J A 18	19	19	E B 12	E B 12	E B 12	22	G 23	32	G 29	G	G 29	G 28	36	30	J A 31	J A 27	J A 27	E B 14	E B 14	26	22	J A 30
20	J A 20	J A 25	J A 24	31	J A 16	18	18	22	27	32	36	35	J A 37	37	J A 33	40	J A 27	G 18	J A 25	J A 51	J A 30	J A 18	J A 20	J A 26
21	22	J A 15	18	22	E B 14	E B 14	E B 14	22	J A 29	J A 58	38	37	37	G 28	32	32	31	J A 32	E B 15	B J A 14	E B 15	B J A 14	E B 14	21
22	J A 15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 13	G	28	32	36	36	G 33	G 29	G 25	G	26	G	J A 19	J A 25	J A 31	J A 31	J A 34	E B 13
23	J A 20	J A 13	J A 13	E B 12	E B 12	E B 12	J A 15	22	27	30	35	G	G	G 26	G	G 26	J A 29	19	J A 21	J A 21	J A 16	J A 16	J A 16	J A 16
24	J A 21	J A 21	J A 24	J A 22	J A 19	22	J A 17	G 17	26	32	34	J A 52	G 32	G 28	G 22	G 22	G 22	J A 19	J A 19	J A 11	J A 15	J A 15	J A 15	J A 19
25	J A 19	J A 19	J A 15	J A 15	E B 13	E B 13	G	20	28	32	G	37	G	G	G	33	G	G	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13
26	E B 15	E B 15	E B 15	B J A 16	E B 15	E B 15	E B 15	23	28	32	33	35	J A 35	35	G	G 18	G	19	E B 14	B J A 19	J A 16	J A 21	J A 12	E B 12
27	E B 14	19	E B 14	19	E B 14	B J A 17	G	G	30	33	33	36	G	G	G	G	26	J A 18	J A 20	J A 20	J A 25	J A 20	28	J A 21
28	J A 21	J A 19	J A 17	20	E B 14	E B 14	G	G 17	29	G 29	37	37	37	G 25	G	G 20	G 14	G	E B 13	E B 13	E B 13	E B 13	E B 13	B J A 14
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	J A 18	18	E B 14	E B 14	E B 14	E B 14	E B 14	G	26	31	34	35	G	G	G	G	24	18	J A 19	J A 18	J A 16	J A 18	J A 16	J A 18
U Q	J A 20	J A 19	J A 18	18	16	16	J A 15	22	28	32	35	36	36	34	34	32	J A 26	J A 20	J A 26	J A 20	J A 24	J A 21	J A 24	J A 23
L Q	E B 14	E B 14	E B 14	E B 12	E B 12	E B 12	E B 13	G	G	G 28	G	G	G 32	G 28	G 28	G 25	G	G	E B 15	E B 14	E B 14	E B 14	E B 14	E B 13

FEB.2015 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 14	E B 14	E B 14	E B 14	E B 11	E B 11	E B 14	G	24	G	G 26	G 32	G 33	34	34	G 22	G 18	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14
2	E B 16	E B 14	E B 10	E B 10	E B 12	E B 12	12	G 16	G	G 15	G 15	G	G	34	G 22	G 22	G	19	19	E B 12	19	E B 12	E B 12	E B 12
3	E B 14	E B 14	E B 12	E B 12	E B 12	E B 12	E B 12	G	G	G 19	G 32	G 32	G	G	32	30	20	E B 11	E B 12	E B 12	E B 12	E B 12	E B 12	E B 12
4	E B 16	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	16	G	30	33	G 33	G 22	G	G 29	G	22	15	16	E B 14	E B 14	15	E B 14	E B 14
5	E B 14	E B 14	E B 12	E B 12	E B 12	E B 12	E B 12	G	G 13	29	G	G	G	G 26	32	G	21	19	E B 11	16	E B 14	E B 14	E B 14	16
6	E B 13	E B 13	E B 13	E B 13	E S 13	E B 13	E B 13	G	G 15	G 15	G 15	G 16	G	G	E B 11	G	G	E B 11	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14
7	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	25	G	G 20	G	G 20	G 20	G 18	G 18	G	16	16	16	16	11	11	11
8	11	11	11	E B 10	E B 10	E B 10	E B 13	G 13	27	31	G 22	G 22	G 20	G 20	G 21	G 21	G 22	E B 10	E B 11	E B 15	E B 15	E B 15	E B 15	E B 15
9	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	30	G 31	G 32	G 32	G 32	G 31	30	21	20	30	E B 10	E B 10	E B 10	17	11
10	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G 16	26	G 30	G 33	35	35	G	31	27	24	14	14	E B 12	E B 16	E B 16	E B 16	E B 16
11	16	E B 18	E B 18	E B 15	E B 15	E B 12	E B 12	G	G 24	G 20	34		G 34	G 33	33	28	25	25	25	25	18	E B 14	E B 14	E B 15
12	15	E B 12	15	E B 12	15	E B 13	23	20	G 20	G 20	G 19	G 19	G 17	G 17	34	29	23	17	12	E B 10	E B 10	E B 12	E B 12	E B 12
13	E B 14	E B 14	E B 14	E B 13	E B 13	E B 13	E B 13	G	G 20	G 20	G 20	G 19	G 17	G 16	G 16	G 16	G 17	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14
14	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	G	26	29	34	35	G 30	G 16	G	G	G 16	E B 17	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13
15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 14	E B 14	18	27	G 28	32	34	34	G 20	G	G	G 22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
16	E B 16	E B 14	E B 11	E B 11	E B 16	E B 15	E B 15	G	G 12	G 18	32	32	G	G 33	32	29	G 22	18	16	20	19	17	E B 12	E B 12
17	E B 12	E B 12	E B 12	E B 12	E B 12	E B 12	E B 12	20	G 24	G	33	34	34	34	34	28	24	25	E B 14	E B 13	26	16	16	16
18	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	20	G 25	G 19	G 28	30	34	G 25	G 24	G 26	26	17	34	17	27	19	E B 14	E B 14
19	E B 14	E B 14	E B 14	E B 14	E B 12	E B 12	E B 12	21	G 20	29	G 24	G	G 23	G 21	34	30	28	18	E B 13	E B 14	E B 14	E B 14	E B 14	17
20	14	19	E B 14	E B 14	E B 12	E B 12	E B 12	21	25	30	32	33	G 25	35	G 23	26	G 20	G 15	15	38	18	E B 12	18	18
21	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	18	G 18	29	36	35	35	G 25	31	31	G 22	E B 14	E B 15	E B 14	E B 15	E B 14	E B 14	E B 13
22	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 13	G	27	31	35	35	G 26	G 25	G 23	G	G 24	G	15	15	15	19	19	E B 13
23	E B 13	E B 13	E B 13	E B 12	E B 12	E B 12	E B 12	20	G 25	G 28	33	G	G	G 22	G	G 18	G 17	G	16	E B 13	E B 13	E B 13	E B 13	E B 13
24	E B 12	16	E B 12	E B 12	E B 12	E B 12	E B 12	G 13	25	G 29	31	G 25	G 25	G 25	G 18	G 18	G 18	17	E B 14	E B 12	E B 12	E B 12	E B 12	E B 13
25	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	20	G 20	31	G	36	G	G	G	32	G	G	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13
26	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	21	26	G 29	G 30	G 28	29	G 23	G	G 16	G	G 17	E B 14	16	E B 12	17	E B 12	E B 12
27	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	29	31	32	35	G	G	G	G	26	G	E B 12	16	17	17	19	17
28	18	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 13	G 27	G 19	35	35	36	G 21	G	G 18	G 13	G	E B 13	E B 13	E B 13	E B 13	E B 13	E B 12
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 14	E B 14	E B 14	E B 14	E B 14	E B 13	E B 13	G	G 25	G 29	G 32	G	G	G 26	G	G	G 22	G	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14
U Q	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	20	G	G	33	34	G	G	32	28	G	18	16	16	16	16	16	16
L Q	E B 14	E B 14	E B 12	E B 12	E B 12	E B 12	E B 12	G	G 20	G 20	G 24	G 31	G 25	G 21	G 23	G 22	G 20	E B 15	E B 13	E B 13	E B 13	E B 12	E B 12	E B 12

FEB.2015 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB. 2015 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

FEB. 2015 fmin (0.1MHz)

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 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	F 298	273	F 295	F 298	F 284	F 300	332	352	U R 362	337	R 336	U R 345	334	R	332	331	339	309	299	311	327	294	293	295
2	281	F 285	F 280	F 259	F 276	272	295	327	343	327	338	339	R 353	J R 314	320	338	344	321	315	317	287	274	275	287
3	287	290	285	275	310	301	326	356	R 354	U R 331	R	320	318	331	R 342	342	338	316	347	340	310	288	295	268
4	280	274	280	292	283	296	311	356	358	R	337	R 348	R 342	R 343	321	R 342	332	323	328	333	332	292	304	275
5	283	278	267	311	309	312	310	353	R	R	R	U Y 360	R	312	332	R 339	341	330	345	313	313	307	308	312
6	273	273	267	272	273	292	315	337	R 362	Y	R	326	J R 318	332	334	341	347	340	326	339	321	318	309	294
7	295	295	285	291	295	291	291	332	360	355	R	R	R	R 352	358	330	367	327	316	323	302	300	321	293
8	287	287	272	272	284	284	326	324	U R 360	R 339	331	328	327	R	307	335	327	321	309	314	317	305	295	296
9	294	287	280	280	284	264	306	331	U R 370	R 359	335	R 324	311	R 324	U R 338	340	R	328	323	339	303	306	306	313
10	294	F 280	280	293	313	308	295	346	343	341	U R 335	J R 335	U R 340	R 337	R 330	325	327	348	340	351	324	296	293	293
11	273	258	264	300	311	279	324	337	352	U R 368		331	315	315	R 345	343	370	Y 341	443	314	302	307	280	281
12	278	279	298	322	V 286	284	290	353	374	351	344	R	R 350	H 302	R 355	352	358	325	327	333	331	310	276	279
13	281	281	279	284	282	277	316	U R 348	361	R 353	334	337	332	R 338	R 341	335	345	342	332	335	306	296	R 297	284
14	282	290	290	290	307	304	302	346	371	366	R 367	331	340	346	338	347	353	333	333	341	320	310	301	280
15	280	281	282	291	286	291	306	340	R 363	350	345	332	R	R 336	352	327	348	330	325	305	319	298	300	291
16	282	265	271	305	314	313	319	339	334	U R 367	U R 368	R 336	338	R 346	V 325	337	328	337	317	313	316	313	301	272
17	278	F 266	274	294	302	325	320	327	R 340	R 350	340	332	325	316	329	R 336	344	330	303	324	308	297	293	297
18	295	297	293	288	296	273	307	344	339	R 338	326	R 308	R	335	342	337	325	326	333	290	296	300	300	280
19	278	286	279	277	290	F 307	305	336	359	Z 348	R 335	R	333	333	321	336	349	349	318	322	315	290	296	294
20	289	288	284	297	306	326	334	342	344	330	U R 342	R	R 340	Y	U Y 357	333	332	330	323	321	321	328	285	278
21	273	288	291	294	300	296	318	355	R 345	355	330	R	R 338	R 326	338	342	340	348	324	306	320	283	F 307	297
22	276	278	273	F 278	F 307	F 304	310	368	340	R 355	U R 342	R 334	R	Z 332	323	327	335	R 356	310	315	303	298	302	290
23	284	297	293	307	305	337	311	352	360	R	R 347	R 320	R	318	330	331	335	331	313	307	290	280	277	275
24	281	279	294	268	274	276	318	337	R 333	J R 290	R 340	327	326	328	314	R 319	J R 337	345	348	316	305	282	275	268
25	287	294	304	324	327	273	310	322	H 307	327	R 348	R 332	346	R 349	350	346	R 348	346	321	318	327	313	292	281
26	281	274	279	282	283	284	336	357	359	U R 348	U R 351	R 331	335	R 331	R 351	R 339	R 347	351	332	324	312	292	280	294
27	296	287	311	311	311	304	304	343	R 372	354	351	R 346	331	R 340	345	336	352	348	307	332	324	317	299	292
28	288	285	287	294	313	312	312	350	368	349	356	325	R	334	328	J R 328	R 353	349	320	329	302	289	290	280
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	27	24	23	23	21	25	28	28	27	28	28	28	28	28	28	28
MED	282	283	281	292	298	296	311	344	359	350	340	332	334	332	336	336	344	332	324	322	314	298	296	288
U Q	288	288	292	299	310	308	320	352	R 362	R 355	R 348	337	R 340	R 339	345	342	349	347	332	333	321	308	302	294
L Q	279	276	276	279	284	282	306	336	343	338	335	326	326	321	326	331	335	326	316	314	303	291	288	280

FEB.2015 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 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									464	L			L											
2										L	L	L	L											
3												L	L											
4												L												
5												L												
6											L		L	L	L									
7											L	L			L									
8									430	400	L	L	L		L									
9												L			L									
10										497			L		L	L								
11														L										
12										L	L	L	L			L								
13										L	L	L	L	L	L									
14											L	L	L	L	L	L								
15								447					U L 408	L	L									
16										L	L	L	L	L	L									
17									L 452			L	L	L	L	L								
18									392	U L 356	L	U L 338	L	L	L	L								
19										L	L	L	L	L	L	L								
20										L 413		L	L	L	L	L	L							
21								498			L		L	L	L									
22										L	L	L	L	L	L									
23								476	425	L		L	L	L	L	L								
24											L	L	L	L	L	L								
25										L	L	L	L	L	L	L								
26										L	L	L	L	L	L									
27										L	L	L	L	L	L	L	386							
28										L	L	L	L	L	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	5	4		1	1				1							
MED								476	430	406		U L 338	U L 408				386							
U Q								498	458	455														
L Q								447	408	378														

FEB.2015 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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									210	208			224											
2										258	226	226	226											
3												226	226											
4												248												
5												246												
6											240		240	228	228									
7											228	228			228									
8									220	220	224	230	230		230									
9												256			238									
10										238			238		238	230								
11														252										
12										232	232	230	222			222								
13										226	226	226	226	226	226									
14											228	228	232	238	236	232								
15								226					230	230	230									
16										220	220	230	230	230	230									
17									220			232	252	246	246	240								
18									240	240	254	294	284	270	268	248								
19										226	234	234	234	236	250	240								
20										220		232	232	236	236	232	232							
21								224			224		226	234	234									
22										234	232	232	232	232	232									
23								224	224	224		266 L	252	252	240	240								
24											238	246	246	244	244	244								
25										254	248	248	248	246	246	246								
26										224	224	240	240	240	240									
27										224	224	252	246	246	230	230	230							
28										224	224	238 L	238	238	238	238								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	5	16	17	22	23	18	21	12	2							
MED								224	220	225	228	233	232	238	236	239	231							
U Q								226	232	236	236	248	246	246	242	242								
L Q								224	215	222	224	230	226	232	230	231								

FEB.2015 h'F2 (KM)

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IONOSPHERIC DATA STATION Wakkanai

FEB.2015 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	270	270	274	274	274	236	218	190	190	206	208	208	208	218	220	220	220	228	228	226	226	226	232
2	276	276	294	294	288	288	258	226	208	H 208	208	208	208	220	220	220	218	218	218	218	218	260	260	260
3	266	266	294	294	246	246	238	218	218	218	218	218	218	218	218	218	212	212	212	212	212	266	266	280
4	304	304	304	298	298	276	226	212	212	210	208	216	216	216	216	224	224	222	224	224	224	256	256	272
5	302	302	286	286	264	244	238	218	218	E Y 218	218	218	218	218	218	218	218	216	216	244	244	244	244	244
6	294	294	328	320	288	288	248	220	220	220	220	220	220	220	H 218	218	218	218	218	218	224	230	230	250
7	258	268	278	278	278	278	266	232	218	218	218	218	218	218	216	216	214	214	214	214	264	256	256	256
8	258	268	312	312	286	254	236	220	218	216	216	216	216	216	216	216	216	216	226	226	226	226	250	250
9	234	274	274	288	288	294	246	232	232	230	230	230	230	230	230	230	230	230	230	230	230	238	242	242
10	284	Q 354	338	288	260	248	248	236	232	150	216	216	216	218	218	218	218	218	218	218	236	250	252	258
11	246	264	280	280	256	248	248	230	230	230		230	224	224	224	224	224	224	224	242	242	242	270	306
12	308	308	274	212	232	268	A 286	230	216	216	216	216	216	216	216	216	214	214	214	214	216	246	280	282
13	284	284	284	284	284	284	244	234	228	218	218	218	218	218	218	218	218	218	218	218	218	260	262	266
14	280	280	280	282	264	244	236	230	222	222	222	222	222	218	218	218	218	218	214	214	216	216	256	302
15	296	296	288	280	280	258	222	222	222	222	222	222	214	214	214	214	214	214	214	226	226	240	250	260
16	284	296	296	274	228	228	228	218	218	218	218	H 208	212	212	212	212	212	212	212	248	244	244	244	290
17	294	294	294	294	262	224	224	224	224	224	224	H 198	200	200	200	204	212	212	212	212	248	248	260	260
18	260	254	254	300	300	300	232	226	226	226	226	222	228	228	228	228	228	228	238	238	256	256	256	278
19	268	268	268	268	268	268	234	226	226	228	228	226	226	222	H 202	206	206	206	206	220	220	238	258	266
20	266	266	266	266	254	234	234	234	234	188	198	H 200	200	H 200	206	206	206	206	208	A 290	264	244	256	262
21	290	290	262	262	262	262	258	182	192	210	210	210	210	210	212	218	218	218	218	222	222	240	240	240
22	266	266	266	274	272	258	236	218	218	H 204	196	198	198	198	202	212	220	212	212	212	222	246	260	262
23	282	282	278	268	254	224	224	196	196	196	212	212	212	212	212	212	212	212	212	212	240	260	266	266
24	276	276	276	298	304	304	252	234	234	230	230	230	222	222	222	222	222	220	210	232	234	260	272	284
25	284	278	258	238	238	252	252	240	226	208	208	208	208	208	208	208	212	212	212	216	216	220	250	270
26	260	286	286	282	282	282	234	224	224	224	222	H 194	204	204	204	210	216	214	214	214	214	256	262	266
27	266	268	268	268	258	258	254	228	226	224	218	H 188	188	196	218	216	216	212	212	212	212	212	250	280
28	272	272	272	266	266	236	236	210	210	210	H 198	H 194	194	210	210	210	210	210	210	210	218	220	234	254
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	276	277	279	281	267	258	237	225	221	218	218	216	216	216	216	217	217	215	214	218	225	244	256	264
U Q	287	294	294	294	285	280	250	231	226	224	222	221	219	219	218	219	219	218	218	229	241	256	261	279
L Q	266	268	269	268	257	245	234	218	217	209	208	H 208	208	209	211	212	212	212	212	214	218	234	247	255

FEB.2015 h'F (KM)

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 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								144	118	114	114	114	114	114	114	114	114	B						
2								B 194	124	120	118	118	118	118	118	124	124							
3								E B 176	122	120	118	118	118	118	118	118								
4								B	108	108	108	108	108	108	110	110	A							
5								162	128	124	124	124	118	118	118	116		A						
6								152	128	128	126	112	112	112	112	112	112	B						
7								124	124	124	124	124	124	116	116	116	116							
8								E A 164	162	130	110	108	108	108	108	108	108	B						
9								132	132	128	124	124	120	120	120	120								
10								B 152	108	108	108	108	108	108	108	A	108	A						
11							B	146	134	128		114	114	114	114	114	A							
12								A	124	118	118	118	114	114	114	114	114	A						
13								122	122	122	122	120	120	118	120	120	120	B						
14							B	142	A	124	124	114	132	108	108	110	124	B						
15								122	124	120	120	120	120	120	120	120	120	B						
16							B	120	122	112	112	112	112	112	112	112	112	A						
17								124	124	124	120	112	108	108	108	108	104	A						
18									112	116	116		116	116	116	116	116							
19								116	122	122	122	122	122	116	118	118								
20								124	122	118	118	118	118	118	118		118	114						
21							B	116	114	A	114	114	112	112	112	112	112	E B 152						
22							B	118	118	116	116	116	112	112	112	112	112	124						
23							B	124	124	124	110	108	108	108	108	108	108	142						
24							B	126	126	118	118	118	118	118	112	112	118	A						
25							B	118	132	122	118	118	118	118	118	118	116	142						
26							B	110	110	110	110	110		110	108	108	108	E A 182						
27							B	130	110	110	110	110	110	110	110	108	108	E B 148						
28							B	120	120	120	120	120	112	110	110	110	110	112						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								25	27	27	27	27	27	28	28	26	22	8						
MED								124	122	120	118	116	114	114	113	113	113	U 128						
U Q								149	126	124	122	120	118	118	118	118	118	E B 150						
L Q								120	118	116	112	112	112	110	110	110	108	119						

FEB.2015 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 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	104	104	B	B	112	112	B	G	152	G	122	128	128	128	110	110	110	B	B	B	B	102	102	102
2	100	100	B	B	B	B	100	96	G	96	96	G	G	186	104	104	G	104	104	B	104	B	B	B
3	B	B	B	B	B	B	B	G	G	104	180	180	G	G	120	120	120	B	B	B	106	B	106	B
4	98	98	B	B	98	98	98	98	G	194	186	166	112	G	118	G	118	108	108	106	B	106	B	106
5	B	B	B	B	B	B	B	G	106	186	G	G	G	108	120	G	120	118	112	106	106	106	106	106
6	90	90	90	B	S	B	B	G	98	98	98	98	G	G	B	G	G	98	B	B	B	98	98	98
7	98	98	B	98	98	98	98	G	174	G	112	G	98	94	94	94	G	102	102	100	100	104	104	104
8	104	104	104	B	B	B	B	114	206	206	106	106	106	104	98	98	152	B	98	98	108	108	B	108
9	108	108	108	B	B	B	B	G	G	164	164	164	144	144	142	130	112	112	112	112	112	112	100	100
10	B	108	B	B	B	108	B	94	162	124	124	124	124	G	124	122	142	118	118	118	118	118	110	110
11	98	98	98	98	98	B	B	G	168	112		176	166	152	150	124	114	114	114	110	102	122	114	114
12	114	B	112	B	102	B	102	100	100	100	100	98	98	98	196	150	150	98	100	B	B	B	100	100
13	B	B	B	B	B	B	B	G	114	114	112	112	112	112	112	106	100	B	100	100	92	92	92	92
14	92	B	B	B	B	B	B	G	192	190	194	200	102	102	G	G	102	102	B	B	B	B	B	B
15	B	100	100	B	B	100	B	184	174	168	188	188	188	106	G	G	184	B	B	92	B	B	B	B
16	B	B	B	B	B	B	B	G	104	112	112	112	G	112	112	174	140	116	116	104	104	104	B	B
17	B	B	B	B	B	B	B	180	164	G	186	192	154	124	124	124	172	110	110	110	104	104	102	102
18	100	100	B	B	B	B	102	150	150	118	118	118	204	114	112	112	112	112	102	102	102	102	102	B
19	B	116	116	116	B	B	B	214	118	126	108	G	108	108	176	186	110	110	110	B	B	110	110	110
20	122	94	94	94	128	100	100	154	154	174	174	174	96	180	96	96	96	96	96	96	96	96	96	96
21	98	98	98	98	B	B	B	138	112	96	194	194	190	110	158	152	130	122	B	116	B	110	B	110
22	126	B	B	B	B	B	B	G	214	202	186	186	102	98	98	G	114	G	114	114	114	104	100	B
23	112	92	92	B	B	B	98	160	164	172	170	G	G	106	G	106	106	106	106	106	106	106	98	98
24	104	104	104	104	104	104	104	104	148	148	120	112	112	106	106	106	106	106	136	106	106	106	106	106
25	106	104	104	104	B	B	G	144	116	182	G	190	G	G	G	190	G	G	B	B	B	B	B	B
26	B	B	B	104	B	B	B	152	152	146	130	120	108	100	G	100	G	158	B	110	110	110	110	B
27	B	104	B	104	B	102	G	G	144	144	144	162	G	G	G	G	166	94	94	94	94	94	94	94
28	118	112	104	102	B	B	G	102	180	106	178	178	178	98	G	98	98	G	B	B	B	B	B	98
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	19	13	10	7	8	8	16	24	25	25	23	20	22	20	21	23	20	19	19	18	21	19	19
MED	104	100	104	103	102	101	100	141	152	144	130	164	112	108	115	112	114	109	108	106	105	106	102	102
U Q	112	104	106	104	112	106	102	157	171	178	183	186	160	124	133	140	142	115	114	110	108	110	106	108
L Q	98	98	96	98	98	99	98	101	115	109	112	112	104	102	105	102	106	102	100	100	102	102	98	98

IONOSPHERIC DATA STATION Wakkanai

FEB.2015 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	F1	F1			F1	F2			H1		C1	CL11	CL21	CL21	CL21	L2	L2					F2	F2	FQ11
2	F1	F1					F1	CQ11		L1	L1			H1	L1	L1		L2	F1		F3			
3										LF12	HL11	HL11			C1	C1	C2				F1		F1	
4	F1	F1			F1	F1	F1	L1		HL11	HL11	HL11	L1		H1		C1	L2	F1	F1		F3		F1
5									L2	HL12				L1	CL11		C2	L3	FF11	F1	F2	F2	F5	F4
6	F2	F1	F1						LF12	L2	L2	L1						L1				F1	F1	F1
7	F1	F1		F1	F2	F1	F1		HL11		L1		L2	L2	L2	L2		L1	F2	FFQ21	FQ21	F1	F1	F1
8	FF11	F2	F2					L2	HL11	HL11	L1	L1	L1	L1	L3	F2	H1		F1	F1	FF11	F1		F1
9	F1	F1	F1							HL12	HL12	HL12	HL12	HL12	HL12	CL12	C4	C4	F5	F1	F1	F1	F2	F1
10		F1				F1		L1	HL11	HL11	H1	H1	C1		C2	C2	H1	C1	F3	F3	F2	F1	F1	F2
11	FQ21	FF11	FQ21	F1	FF11				H1	L1		HL11	H1	H1	H1	C2	L4	F3	FF31	F3	F3	F1	F2	F2
12	FQ21		F2		F2		F5	C3	L2	L2	L1	L2	L2	L2	HL11	HL12	HL12	L1	FF11				F2	F2
13									L1	L1	L2	L1	L1	L1	L2	L2	L2		F1	F1	F2	F2	F1	F1
14	F1								HL12	HL12	HL12	HL12	L1	L1			L2	L1						
15		F1	F1			F1		H1	HL12	H1	H1	HL11	HL11	L1			H1			F1				
16									L1	L1	C1	C2		C1	C1	H1	C1	C3	F3	F4	FF21	F1		
17								H1	H1		H1	HL11	HL11	C1	CL22	C2	HL13	L4	F1	F3	F5	F3	F2	F2
18	F2	F1					F1	CL21	HL11	L1	C1	C2	HL11	L2	L1	C2	C2	L1	F5	FF41	F3	F3	F1	
19		F2	F1	F1				H1	L2	C1	L1		L1	L1	HL12	HL12	CL23	L3	F1			FF11	F2	F4
20	FF21	F4	F2	F2	FF11	F1	F1	H1	H1	H1	HL12	HL12	L2	HL12	L2	L2	LH21	L1	F3	F3	F2	F1	F2	F2
21	F1	F1	F1	F1				H1	L2	L2	HL11	HL11	HL11	L1	HL11	HL22	CL52	L2		F1		F1		F1
22	FF11								H1	H1	HL11	HL11	L1	L1	L1		C1		FF21	F3	F2	F3	F3	
23	FF11	F1	F1				C1	HL22	HL12	HL11	H1			L2		L2	L2	L1	F3	F1	F1	F1	F1	F1
24	F2	FF21	FQ21	F3	F3	F2	L1	L1	H1	H1	C2	L1	L2	L2	L1	L2	L2	L1	FF11	F1	F1	F2	F1	F2
25	F2	F2	F1	F2				H1	L1	H1		HL11				HL11								
26				FF11				HL11	H1	H1	C1	L1	L2	L2		L2		L1		F2	F1	F3	F1	
27		F2		F1		F1			H1	H1	H1	H1					H1	L1	F1	F2	F3	F3	F4	F2
28	F3	F2	F2	F2				L1	HL11	L1	HL11	HL11	HL11	L1		L2	L2							F1
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB.2015 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB.2015 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 45	X 43	X 44	X 46	X 45	X 46	X 49												X 66	X 76	X 80	X 57	X 52	X 46
2	X 42	X 44	X 46	X 45	X 44	X 46	X 48												X 84	X 76	X 66	X 50	X 50	X 53
3	X 51	X 51	X 48	X 48	X 51	X 39	X 43												X 66	X 70	X 55	X 42	X 42	X 42
4	X 44	X 44	X 44	X 46	X 44	X 43	X 46												X 80	X 73	X 61	X 55	X 52	X 46
5	X 42	X 42	X 43	X 44	X 45	X 40	X 38												X 78	X 68	X 56	X 51	X 48	X 46
6	X 42	X 40	X 40	X 40	X 40	X 41	X 43												X 72	X 63	X 64	X 60	X 48	X 42
7	X 45	X 46	X 43	X 44	X 40	X 42	X 46												X 64	X 60	X 60	X 60	X 53	X 40
8	X 40	X 42	X 43	X 45	X 44	X 44	X 46												X 63	X 69	X 70	X 59	X 51	X 52
9	X 49	X 50	X 52	X 52	X 50	X 50	X 52												X 78	X 64	X 52	X 51	X 45	X 42
10	X 46	X 41	X 43	X 44	X 42	X 42	X 43												X 73	X 57	X 48	X 48	X 47	X 46
11	X 48	X 48	53	56	54	50	X 45												X 78	X 60	X 54	X 52	X 51	X 45
12	X 46	X 46	X 51	X 51	X 42	X 41	X 43												X 74	X 72	X 60	X 53	X 52	X 52
13	X 49	X 50	X 51	X 52	X 47	X 49	X 51												X 73	X 57	X 56	X 56	X 52	X 51
14	X 48	X 49	X 50	X 50	X 48	X 44	X 46												X 74	X 69	X 56	X 44	X 44	X 46
15	X 47	X 48	X 50	X 50	X 52	X 44	X 48												X 72	X 56	X 54	X 53	X 51	X 52
16	X 51	X 48	X 49	X 51	X 45	X 40	X 44												X 77	X 66	X 60	X 52	X 46	X 44
17	X 46	X 46	X 48	X 47	X 49	X 45	X 41												X 83	X 79	X 67	X 59	X 58	X 56
18	X 52	X 51	X 49	X 47	X 46	X 46	X 55												X 79	X 72	X 63	X 62	X 44	X 48
19	X 51	X 52	X 55	X 56	X 56	X 46	X 54												X 68	X 56	X 57	X 53	X 49	X 51
20	X 52	X 53	X 52	X 52	X 52	X 46	X 50												X 77	X 70	X 67	X 58	X 48	X 49
21	X 50	X 50	X 53	X 52	X 48	X 47	X 56												X 74	X 57	X 60	X 59	X 54	X 50
22	X 50	X 48	X 52	56	57	58	X 52												X 75	X 60	X 56	X 52	X 51	X 51
23	X 48	X 50	X 51	X 51	X 45	X 42	X 45												X 79	X 74	X 68	X 62	X 63	X 60
24	X 60	X 61	X 60	X 55	X 53	X 55	X 70												X 75	X 60	X 64	X 60	X 58	X 56
25	X 55	X 60	X 62	X 56	X 36	X 38	X 43												X 76	X 57	X 62	X 60	X 52	X 50
26	X 50	X 48	X 51	X 51	X 46	X 47	X 52												X 76	X 63	X 65	X 58	X 53	X 45
27	X 45	X 45	X 46	X 46	X 45	X 39	X 46												X 75	X 59	X 59	X 57	X 48	X 47
28	X 46	X 47	X 47	X 49	X 49	X 44	X 52												X 80	X 59	X 56	X 56	X 53	X 50
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28												28	28	28	28	28	28
MED	X 48	X 48	X 50	X 50	X 46	X 44	X 46												X 75	X 64	X 60	X 56	X 51	X 48
U Q	X 50	X 50	X 52	X 52	X 50	X 46	X 52												X 78	X 71	X 64	X 59	X 52	X 52
L Q	X 45	X 44	X 45	X 46	X 44	X 42	X 44												X 72	X 59	X 56	X 52	X 48	X 46

FEB.2015 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 2015 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	39	37	38	40	39	40	43	65	70	81	102	114	110	101	103	98	95	76	60	70	74	51	46	40
2	38	38	39	39	38	40	42	76	92	96		123	120	112	120	126	109	82	78	69	60	44	43	46
3	45	45	42	42	45	32	36	69	94	99	114	117	128	127	123	110	103	78	60	64	49	36	36	36
4	38	38	38	40	38	37	40	65	82	100	108	104	120	115	105	103	101	87	74	67	55	48	46	40
5	36	36	37	38	39	34	32	69	90	91	107	108	102	102	103	105	102	82	72	61	50	45	42	40
6	36	33	34	34	34	35	37	76	83	103	130	118	119	123	117	111	107	91	65	57	58	54	42	36
7	39	40	37	38	34	36	40	79	91	96	116	118	114	110	99	96	92	75	58	54	54	54	47	34
8	34	36	37	39	38	38	42	68	82	100	120	129	127	129	113	102	97	75	57	63	64	53	45	46
9	43	44	46	46	44	44	46	77	94	114	113	124	122	122	118	105	95	77	72	58	46	45	39	36
10	40	35	37	42	36	36	37	73	95	110	120	124	97	104	115	114	107	86	67	50	42	42	41	40
11	42	42	F	F	F	F	39	74	95	110	130	122	124	128	124	128	114	90	72	54	48	46	45	39
12	40	40	45	45	36	35	37	74	109	110	106	112	112	105	103	102	102	82	68	66	54	47	46	46
13	43	44	44	46	41	43	45	82	108	115	108	114	105	104	106	96	102	88	67	51	50	50	46	46
14	42	42	44	44	42	38	40	65	93	92	100	97	102	102	102	100	92	74	68	63	49	38	38	40
15	41	42	44	44	46	38	42	69	90	97	105	103	104	111	107	97	92	80	66	50	48	46	45	46
16	45	42	42	44	39	34	38	64	96	99	110	113	115	110	104	101	93	77	70	59	54	45	40	38
17	40	40	42	41	43	38	35	62	82	95	118	121	114	106	101	107	98	90	77	73	62	53	52	50
18	46	45	43	40	40	40	49	75	74	106	112	126	121	128	104	92	93	83	73	65	57	56	37	42
19	45	46	49	50	50	40	48	75	91	100	103	114	113	106	106	94	107	81	61	50	51	46	43	45
20	46	47	46	46	46	40	44	69	76	101	100	101	112	115	117	101	91	77	70	64	61	52	42	43
21	44	44	47	46	42	41	50	65	84	106	110	108	111	106	106	106	101	92	68	50	54	53	48	44
22	44	42	46	F	F	F	46	72	95	94	92	106	113	120	114	104	92	81	69	54	50	46	45	45
23	42	44	45	45	39	36	39	73	83	90	96	108	122	133	128	109	94	86	73	68	62	56	57	54
24	54	55	54	49	47	49	64	86	98	98	102	120	131	127	114	120	119	99	69	54	58	54	52	50
25	49	54	56	50	30	32	37	78	94	103	111	120	109	105	97	98	97	83	70	50	56	54	46	44
26	44	42	45	45	40	41	46	74	95	115	114	118	125	122	114	108	98	85	70	57	59	52	46	39
27	39	39	40	40	38	33	40	79	89	99	104	97	112	112	114	107	93	81	69	53	53	51	42	41
28	40	41	41	43	43	37	46	72	88	93	100	98	101	112	111	100	88	85	74	52	50	50	46	44
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	27	26	26	26	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	42	42	43	44	40	38	41	73	91	100	108	114	114	112	109	104	98	82	69	58	54	50	45	42
U Q	44	44	46	46	43	40	46	76	95	106	114	120	122	122	116	108	102	86	72	64	58	53	46	46
L Q	39	38	38	40	38	35	38	68	83	96	102	107	110	106	104	99	93	78	66	52	50	46	42	40

IONOSPHERIC DATA STATION Kokubunji

FEB.2015 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										
3													L	L										
4										L		L	L			A								
5											L	A	L	L	L									
6											L			L										
7											L	L	L											
8										L		L	L			L								
9												L	L	L	A									
10														L										
11											L	L	L	L										
12												L		L	L	L								
13											L	L		L	L									
14												L	L											
15											L		L	L	L	L								
16													L	L		L								
17													L	L		L								
18										L	L	L	L	L	L									
19											L	L	L	L	L									
20										L	L	L	L	L	L									
21										L	L	L	L	L	L									
22											A	L	L	L	L									
23										L	L	L	L	L	L									
24												L	L		L	L								
25												L	L	L	L									
26										L	L	L	L	L	A									
27											L	L	L	L	L									
28										L	L	L	L	L	L									
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB.2015 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 2015 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	276	R	A	A	A	A	R	A	A	B						
2								B	U R 272	U R 320		A	R	R	R	R	A	B						
3								172	U R 272	R	A	A	A	R	A	A	A	B						
4								168	U R 284	U R 320	R	U R 356	R	R	A	A	A	B						
5								B	268	U R 324	A	A	A	U A 376	A	A	U R 276	B						
6								180	U R 288	A	A	R	A	R	U R 352	A	A	B						
7								180	A	A	A	A	A	R	R	A	A	B						
8								172	U R 280	A	A	A	A	A	R	A	A	U R 176						
9								176	U R 284	R	A	A	R	A	A	A	R	B						
10								B	U R 272	A	R	A	A	A	A	A	A	B						
11								B	U R 284	A	U R 368	A	A	U R 380	U R 356	A	U R 268	B						
12								200	U R 296	R	A	R	A	R	R	R	U R 272	U R 188						
13								B	A	A	R	A	A	A	A	A	A	180						
14								184	U R 296	A	U R 360	A	R	R	R	U R 312	R 256	B						
15								188	U R 280	A	R	A	A	A	A	R	U R 260	B						
16								B	A	A	A	A	R	R	R	U R 312	A	U R 184						
17								184	U A 280	R	R	A	R	R	R	R	U R 284	B						
18								B	U R 280	R	A	A	A	A	A	A	R	180						
19								U R 204	U R 272	R	R	A	A	A	A	A	U R 268	U R 196						
20								180	R	A	A	A	A	A	A	A	U R 272	B						
21								U R 216	R	U R 324	A	A	A	R	A	A	A	U R 188						
22								184	U R 276	R	A	A	R	A	R	A	U A 260	B						
23								192	R 280	R	A	A	A	A	R	A	A	U R 196						
24								U R 208	A	U A 316	A	A	R	A	A	A	R	U R 188						
25								208	276	A	A	A	A	R	R	A	A	U R 204						
26								208	U R 296	R	A	A	A	A	A	A	A	B						
27								216	U R 288	R	A	R	R	R	R	R	R	U R 204						
28								212	U R 292	A	R	R	A	R	R	A	A	U R 176						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								20	22	5	2	1		2	2	2	9	12						
MED								186	U R 280	U R 320	U R 364	U R 356		U 378	U R 354	U R 312	U R 268	U R 188						
U Q								208	U R 288	U R 324							U R 274	U R 196						
L Q								180	U R 276	U 318							U R 260	180						

FEB. 2015 foE (0.01MHz)

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FEB.2015 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 16	E B 15	J A 19	E B 15	E B 14	E B 14	E B 15	20		G	G	41	J A 37	44	40	G	34	J A 33	E B 15	E B 16	E B 15	J A 20	20	22	20
2	E B 15	E B 15	19	E B 15	J A 20	E B 15	E B 15	E B 16	G	G		39	G	G	G	G 22	36	J A 23	J A 21	J A 18	E B 15	J A 47	J A 21	E B 15
3	E B 14	E B 15	21	E B 15	E B 14	E B 14	E B 15	22	G	G	40	40	42	G	42	J A 45	30	21	23	20	E B 15	E B 15	E B 14	E B 14
4	J A 23	E B 15	E B 15	E B 16	J A 20	20	E B 15	22	G	G	G	G	G	G	J A 48	59	28	J A 30	J A 29	J A 20	E B 14	E B 15	J A 53	J A 30
5	E B 14	J A 24	E B 14	E B 15	E B 14	E B 14	E B 15	24	G	G	38	40	J A 41	J A 40	38	J A 36	G 24	E B 16	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15
6	E B 15	21	21	E B 15	E B 14	E B 14	E B 16	22	G	J A 42	J A 44	G	J A 43	G 32	J A 35	J A 41	31	22	E B 14	J A 33	20	J A 36	22	E B 15
7	E B 16	E B 15	J A 28	E B 15	E B 14	E B 15	E B 16	24	30	36	39	40	40	G	G	32	28	J A 24	E B 15	J A 40	J A 20	J A 21	E B 15	E B 14
8	J A 30	J A 24	E B 14	E B 13	E B 14	E B 15	E B 15	22	G	34	39	41	44	40	G J 26	A 44	J A 33	G	E B 15	19	J A 23	J A 18	21	J A 38
9	E B 16	E B 15	E B 15	E B 15	20	E B 15	E B 14	22	G	G	J A 37	39	G	42	38	36	G 25	19	E B 14	E B 15	E B 14	E B 14	E B 15	E B 15
10	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	22	E B 15	G	40	G 31	42	40	41	38	36	30	20	E B 14	J A 24	J A 20	19	E B 15	E B 14
11	J A 25	E B 14	20	22	J A 24	J A 25	20	24	G	38	G	39	42	G	G	36	G	E B 14	E B 16	E B 14	E B 15	E B 14	E B 14	E B 14
12	E B 15	19	J A 28	J A 33	J A 23	J A 27	J A 24	22	G	G	40	J G 34	J A 44	G 29	G	G	G	J A 24	E B 16	E B 15	J A 29	J A 21	E B 15	20
13	J A 25	E B 14	21	E B 15	E B 14	E B 14	E B 15	22	31	35	G	39	41	39	40	36	J A 35	20	22	21	22	E B 15	J A 26	J A 22
14	J A 25	J A 19	E B 15	E B 15	E B 15	E B 15	E B 14	24	G	36	G 24	38	G	G	G 31	G 28	G	E B 17	E B 14	E B 16	J A 22	J A 18	J A 22	22
15	J A 27	E B 15	E B 14	18	E B 15	E B 15	E B 15	G	G	38	G	40	J A 40	40	J A 38	G 26	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
16	E B 16	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	22	29	38	40	40	G	G 27	G	G	J A 33	G	J A 26	21	J A 20	J A 27	J A 41	J A 24
17	J A 23	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	23	G 22	G 25	G 26	39	G	G	G	G 22	G	E B 16	J A 30	21	E B 14	E B 15	E B 15	20
18	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15	23	G	G	40	40	39	J A 44	J A 42	38	G 24	G	E B 14	21	J A 20	20	J A 30	J A 28
19	20	J A 27	E B 15	E B 14	E B 15	E B 14	E B 14	G	G	G	G J 31	J A 56	J A 41	J A 41	J A 39	J A 37	G 24	G	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15
20	E B 15	22	J A 21	J A 26	21	E B 14	E B 14	23	G	J A 39	40	42	40	42	39	J A 39	G 25	J A 40	J A E 53	B 15	E B 15	E B 15	E B 14	E B 15
21	E B 15	E B 15	E B 14	E B 16	E B 15	21	22	G	G 24	G 27	40	41	40	G	38	34	29	G	E B 15	E B 16	E B 14	20	J A 19	J A 26
22	J A 20	E B 14	E B 15	E B 15	E B 13	E B 14	E B 15	24	G	G 27	40	39	G 33	38	G	37	34	J A 32	J A 22	20	E B 14	E B 14	E B 15	E B 14
23	E B 16	E B 15	19	E B 15	22	19	E B 15	25	G	G	J A 41	39	J A 40	40	G	40	32	G	E B 15	E B 15	E B 16	E B 15	22	J A 21
24	19	18	E B 15	E B 15	E B 13	E B 14	E B 15	G	33	G	40	45	G 33	J A 41	J A 39	J A 36	G	G	21	20	20	E B 15	18	22
25	J A 29	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	25	31	40	41	38	40	G	G 28	37	31	J A 25	J A 24	J A 24	21	J A 23	J A 20	22
26	20	21	E B 16	E B 14	E B 14	E B 15	E B 15	24	G	G	39	J A 44	J A 45	J A 45	42	J A 42	J A 35	22	E B 14	J A 20	E B 15	E B 14	E B 14	18
27	E B 15	J A 19	J A 18	J A 23	J A 23	J A 23	E B 15	26	G	G 25	40	G	G	G 30	G 29	G	G	G	E B 15	21	J A 24	E B 15	E B 15	E B 15
28	E B 15	E B 15	E B 15	E B 14	20	E B 15	J A 16	26	G 26	37	G 28	G 31	40	G 32	G 30	37	J A 35	G	J A 30	J A 28	J A 48	J A 26	22	J A 30
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	G	G	39	39	40	G	G	36	28	G	E B 16	20	18	E B 15	16	19
U Q	J A 23	J A 19	20	16	J A 20	15	16	24	G	38	40	40	42	J A 40	39	J A 38	J A 33	J A 22	J A 22	J A 21	J A 20	20	J A 22	J A 22
L Q	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	E B 15	21	G	G	G	G 38	G	G	G	G	G	G	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15

FEB.2015 foEs (0.1MHz)

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FEB.2015 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 15	E B 15	E B 15	E B 14	E B 14	E B 15	18	G	G	36	34	40	38	G	32	27	E B 15	E B 16	E B 15	17	E B 15	16	E B 16
2	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	G	G		38	G	G	G	G 20	32	20	16	E B 15	E B 15	E B 16	E B 15	E B 15
3	E B 14	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	19	G	G	37	38	39	G	40	38	28	20	E B 15	E B 16	E B 15	E B 15	E B 14	E B 14
4	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	19	G	G	G	G	G	G	42	54	27	22	20	E B 16	E B 14	E B 15	E B 14	E B 16
5	E B 14	E B 15	E B 14	E B 15	E B 14	E B 14	E B 15	21	G	G	36	38	38	38	36	32	G 24	E B 16	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15
6	E B 15	E B 16	E B 14	E B 15	E B 14	E B 14	E B 16	20	G	37	36	G	38	G 29	G 28	32	29	19	E B 14	28	E B 15	18	E B 15	E B 15
7	E B 16	E B 15	E B 16	E B 15	E B 14	E B 15	E B 16	23	28	33	36	38	38	G	G	32	28	E B 17	E B 15	20	E B 15	E B 16	E B 15	E B 14
8	E B 14	E B 16	E B 14	E B 13	E B 14	E B 15	E B 15	20	G	32	34	39	42	38	G 23	39	29	G	E B 15	E B 15	19	16	E B 15	20
9	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	22	G	G	35	36	G	40	37	34	G 24	18	E B 14	E B 15	E B 14	E B 14	E B 15	E B 15
10	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	G	36	G 29	38	38	38	36	34	29	19	E B 14	19	17	E B 15	E B 15	E B 14
11	17	E B 14	E B 15	E B 16	16	18	E B 16	22	G	34	G	36	38	G	G	34	G	E B 14	E B 16	E B 14	E B 15	E B 14	E B 14	E B 14
12	E B 15	E B 15	16	20	16	E B 14	E B 14	21	G	G	37	G 28	38	G 25	G	G	G	G 16	E B 16	E B 15	21	E B 15	E B 15	E B 15
13	E B 15	E B 14	E B 15	E B 15	E B 14	E B 14	E B 15	22	30	32	G	38	38	36	36	33	29	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
14	17	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14	21	G	33	G 22	37	G	G	G 30	G 26	G	E B 17	E B 14	E B 16	E B 16	E B 15	E B 15	E B 15
15	E B 15	E B 15	E B 14	E B 16	E B 15	E B 15	E B 15	G	G	33	G	38	37	37	36	G 26	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
16	E B 16	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	22	27	34	37	37	G	G 24	G	G	29	G	23	E B 15	E B 16	18	16	E B 15
17	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	21	G 20	G 21	G 23	38	G	G	G	G 20	G	E B 16	25	E B 15	E B 14	E B 15	E B 15	E B 14
18	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15	22	G	G	36	38	35	38	37	34	G 23	G	E B 14	E B 16	E B 15	E B 15	20	22
19	E B 16	E B 15	E B 15	E B 14	E B 15	E B 14	E B 14	G	G	G	G 30	37	36	38	35	31	G 22	G	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15
20	E B 15	E B 16	E B 16	E B 15	E B 15	E B 14	E B 14	22	G	31	38	37	38	38	34	34	G 24	23	41	E B 15	E B 15	E B 15	E B 14	E B 15
21	E B 15	E B 15	E B 14	E B 16	E B 15	E B 15	E B 16	G	G 22	G 25	36	38	38	G	36	32	27	G	E B 15	E B 16	E B 14	E B 15	E B 15	16
22	E B 15	E B 14	E B 15	E B 15	E B 13	E B 14	E B 15	22	G	G 26	36	38	G 31	38	G	32	32	20	18	E B 15	E B 14	E B 14	E B 15	E B 14
23	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	G	G	36	36	38	37	G	34	29	G	E B 15	E B 15	E B 16	E B 15	E B 15	18
24	E B 15	E B 15	E B 15	E B 15	E B 13	E B 14	E B 15	G	29	G	36	38	G 31	38	35	34	G	G	E B 14	E B 16	E B 15	E B 15	E B 15	E B 15
25	21	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	24	30	33	36	36	36	G	G 27	33	30	G 18	18	20	E B 15	20	16	E B 14
26	E B 15	E B 15	E B 16	E B 14	E B 14	E B 15	E B 15	23	G	G	38	38	38	38	38	34	29	21	E B 14	E B 15	E B 15	E B 14	E B 14	E B 15
27	E B 15	E B 15	E B 16	19	E B 15	E B 14	E B 15	24	G	G 25	38	G	G	G 29	G 28	G	G	G	E B 15	E B 16	20	E B 15	E B 15	E B 15
28	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	24	G 26	34	G 28	G 29	39	G 31	G 28	32	29	G	19	E B 14	32	E B 16	E B 15	E B 15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	21	G	G	36	38	38	G	G	32	27	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
U Q	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	G	33	36	38	38	38	36	34	29	20	17	16	16	16	15	15
L Q	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	E B 15	18	G	G	G	G 36	G	G	G	G	G	E B 17	E B 14	E B 15	E B 15	E B 15	E B 15	E B 14

FEB.2015 fbEs (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

FEB.2015 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	16	15	14	15	14	14	15	14	15	13	13	15	15	17	20	13	13	15	16	15	14	15	15	16
2	15	15	16	15	15	15	15	16	14	16		18	16	15	14	13	12	14	15	15	15	16	15	15
3	14	15	15	15	14	14	15	13	15	14	17	16	16	16	18	16	14	14	15	16	15	15	14	14
4	15	15	15	16	15	15	15	14	14	14	16	16	16	20	18	17	14	15	15	16	14	15	14	16
5	14	15	14	15	14	14	15	15	14	14	12	14	16	18	14	14	14	16	14	15	15	15	15	15
6	15	16	14	15	14	14	16	12	16	14	14	15	13	15	13	13	13	14	14	15	16	15	15	15
7	16	15	16	15	14	15	16	13	14	14	14	14	18	17	18	16	14	15	15	15	15	16	15	14
8	14	16	14	13	14	15	15	14	14	13	13	16	20	14	14	14	13	15	15	15	14	16	15	14
9	16	15	15	15	15	15	14	14	14	13	14	16	16	15	14	14	14	16	14	15	14	14	15	15
10	16	15	15	14	15	15	15	15	12	16	17	19	16	16	16	13	13	14	14	15	15	15	15	14
11	15	14	15	16	15	15	16	15	14	16	16	14	18	18	18	17	14	14	16	14	15	14	14	14
12	15	15	14	14	15	14	14	14	15	14	16	17	16	15	19	14	15	15	16	15	15	15	15	15
13	15	14	15	15	14	14	15	15	13	14	15	16	22	19	14	12	14	15	15	15	15	15	15	15
14	15	16	15	15	15	15	14	13	14	16	14	16	15	16	18	16	14	17	14	16	16	15	15	15
15	15	15	14	16	15	15	15	15	14	14	17	17	21	15	19	13	14	15	15	15	15	15	15	15
16	16	15	14	15	15	15	15	15	13	14	13	16	16	17	14	14	14	14	15	15	16	14	15	15
17	15	15	15	15	15	15	16	15	14	14	14	18	17	14	17	13	14	16	15	14	14	15	15	14
18	15	15	15	14	15	14	15	15	14	14	14	16	16	17	16	14	14	13	14	16	15	15	14	15
19	16	15	15	14	15	14	14	14	14	14	12	13	15	18	16	15	13	14	14	15	15	15	15	15
20	15	16	16	15	15	14	14	14	14	12	13	14	17	17	19	14	14	14	14	15	15	15	14	15
21	15	15	14	16	15	15	16	15	13	19	14	15	18	14	14	13	14	14	15	16	14	15	15	15
22	16	14	15	15	13	14	15	14	14	12	14	14	14	17	16	15	13	14	14	15	14	14	15	14
23	16	15	15	15	15	15	15	14	14	14	15	17	20	18	21	18	15	14	15	15	16	15	15	15
24	15	15	15	15	13	14	15	14	14	15	15	14	16	15	13	13	12	14	14	16	15	15	15	15
25	15	15	15	14	15	15	15	16	14	15	13	20	16	15	12	12	13	13	14	15	16	14	15	14
26	15	15	16	14	14	15	15	14	14	14	15	17	17	16	16	14	14	12	14	15	15	14	14	15
27	15	15	16	14	15	14	15	14	16	16	16	17	14	18	18	15	14	15	15	16	15	15	15	15
28	15	15	15	14	14	15	15	14	15	14	10	17	15	16	14	14	13	13	14	14	15	16	15	15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	15	15	15	15	15	15	15	14	14	14	14	16	16	16	16	14	14	14	15	15	15	15	15	15
U Q	16	15	15	15	15	15	15	15	14	15	16	17	18	18	18	15	14	15	15	16	15	15	15	15
L Q	15	15	14	14	14	14	15	14	14	14	13	14	16	15	14	13	13	14	14	15	14	15	15	14

IONOSPHERIC DATA STATION Kokubunji

FEB. 2015 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	309	304	295	294	301	305	344	352	362	328	346	324	322	313	328	334	340	341	299	301	333	296	302	279
2	288	298	276	285	283	294	299	359	336	341		319	313	305	294	326	333	322	310	323	330	287	269	295
3	300	311	286	284	311	321	313	343	354	328	329	310	313	311	317	317	335	332	317	317	344	301	298	291
4	283	299	263	289	311	291	333	359	351	344	360	319	323	323	320	323	336	332	319	323	323	287	305	311
5	276	276	288	305	324	313	305	347	372	342	332	344	324	313	317	324	335	346	331	324	317	311	318	310
6	307	306	277	282	276	296	308	347	350	324	335	321	303	316	302	313	320	336	335	317	329	335	326	293
7	290	320	293	318	288	281	309	355	355	338	335	328	327	315	323	323	338	333	315	316	293	294	317	301
8	281	284	271	280	283	305	318	348	349	323	318	314	311	307	317	315	334	335	298	308	317	327	300	286
9	285	276	295	280	269	273	294	351	333	339	323	317	324	311	311	318	329	325	320	319	316	305	347	319
10	301	273	284	266	348	309	308	351	357	330	337	334	314	302	311	315	329	336	325	328	301	305	311	288
11	286	305	F	F	F	F	301	343	337	339	328	321	311	314	310	318	334	330	326	311	311	309	306	283
12	275	277	308	336	343	279	300	337	355	348	333	330	331	339	325	324	340	341	316	324	320	313	294	303
13	272	278	291	299	285	288	314	347	352	358	345	339	327	324	338	320	340	347	346	303	309	305	320	320
14	281	281	289	318	328	288	331	357	359	345	351	334	334	327	325	338	341	339	323	324	329	285	297	285
15	282	292	293	300	325	277	309	346	353	330	335	325	329	320	332	344	357	341	324	302	300	310	303	296
16	291	276	279	309	387	274	308	345	350	337	331	326	326	320	331	338	334	348	319	339	322	320	289	273
17	280	277	297	300	318	340	320	334	340	314	327	330	326	317	321	322	315	321	310	316	293	286	291	294
18	307	307	303	283	304	275	297	363	334	337	310	320	317	328	345	334	335	338	327	313	305	346	312	289
19	279	293	301	297	335	283	313	335	342	334	325	325	311	317	333	314	340	349	329	299	314	307	285	286
20	288	294	291	296	325	305	344	366	345	349	342	328	335	320	330	328	345	339	320	319	327	325	294	271
21	280	287	315	306	306	320	348	351	343	331	343	324	321	325	320	321	335	338	324	310	303	317	300	304
22	280	283	286	F	F	F	318	358	352	352	332	319	311	319	326	334	341	339	332	316	301	298	302	301
23	286	284	313	320	346	300	334	355	363	329	322	313	309	325	327	328	331	334	312	309	298	290	289	278
24	287	296	305	277	258	266	324	360	352	333	319	310	314	315	305	311	331	335	322	285	313	309	288	273
25	280	296	320	356	329	304	311	357	343	335	301	336	330	334	333	337	346	353	349	290	312	318	300	286
26	286	272	295	311	290	279	316	351	339	340	342	320	323	330	320	329	338	355	329	305	321	316	316	298
27	288	296	297	326	329	297	318	365	356	345	349	325	330	317	330	340	340	342	344	312	308	333	297	302
28	294	284	291	307	340	303	340	375	360	347	339	341	308	328	321	335	329	328	348	303	300	296	301	278
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	27	26	26	26	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	286	290	293	300	314	295	314	351	352	338	333	324	322	318	322	324	335	338	324	314	314	308	300	292
U Q	290	298	301	311	329	305	328	358	356	344	342	330	327	325	330	334	340	342	330	321	322	318	312	302
L Q	280	278	286	284	288	279	308	346	342	330	325	319	312	314	317	318	332	332	316	304	302	296	294	284

IONOSPHERIC DATA STATION Kokubunji

FEB.2015 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										
3													L	L										
4										L		L	L			A								
5											L	A	L	L	L									
6											L			L										
7											L	L	L											
8										L		L	L			L								
9												L	L	L	A									
10														L										
11											L	L	L	L										
12												L		L	L	L								
13											L	L		L	L									
14												L	L											
15											L		L	L	L	L								
16													L	L		L								
17													L	L		L								
18										L	L	L	L	L	L									
19											L	L	L	L	L									
20										L	L	L	L	L	L									
21										L	L	L	L	L	L									
22											A	L	L	L	L									
23										L	L	L	L	L	L									
24												L	L		L	L								
25												L	L	L	L									
26										L	L	L	L	L	A									
27											L	L	L	L	L									
28										L	L	L	L	L	L									
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB.2015 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Kokubunji

FEB.2015 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												260			258									
2												254		264										
3													262	264										
4										254		276	280			238								
5											258	234	270	276	266									
6											250			256										
7											250	254	256											
8										272		256	256			290								
9												270	260	282	252									
10														292										
11											258	232	276	270										
12												254		242	266	256								
13											248	246		250	248									
14												240	246											
15											250		246	262	246	234								
16													272	258		256								
17													256	270		260								
18										264	278	252	242	260	252									
19											250	254	268	252	254									
20										250	250	252	264	268	254									
21										246	240	248	268	276	254									
22											230	264	260	260	248									
23										264	264	276	268	262	250									
24												276	262		280	272								
25												242	254	254	258									
26										248	242	252	246	252	244									
27											248	244	258	258	244									
28										244	244	244	266	256	264									
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										8	15	22	22	22	17	7								
MED										252	250	253	261	261	254	256								
U Q										264	258	260	268	270	261	272								
L Q										247	244	244	256	256	248	238								

IONOSPHERIC DATA STATION Kokubunji

FEB.2015 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 264	E B 254	E B 288	E B 284	E B 278	E B 248	220	210	196	210	226	222	228	214	216	222	218	198	222	E B 250	220	204	228	E B 262
2	E B 276	E B 276	E B 296	E B 298	E B 298	E B 280	E B 246	214	220	218		196	222	216	234	240	214	214	214	208	212	E B 218	E B 282	E B 276
3	E B 248	E B 264	E B 264	E B 298	E B 250	208	E B 256	218	210	212	216	216	216	214	220	224	218	206	204	224	204	E B 254	E B 272	E B 272
4	E B 278	E B 276	E B 310	E B 270	E B 252	E B 276	224	206	214	190	222	206	210	232	228	A	222	210	218	216	208	220	E B 246	E B 232
5	E B 286	E B 312	E B 290	E B 274	E B 234	E B 232	E B 244	218	210	212	200	A	212	206	218	224	226	206	208	206	E B 206	E B 256	E B 242	E B 232
6	E B 254	E B 248	E B 294	E B 314	E B 290	E B 294	E B 278	220	204	212	208	208	212	204	210	206	224	210	200	E A 250	228	224	E B 214	E B 274
7	E B 280	E B 248	E B 260	E B 242	230	E B 302	E B 270	222	212	210	210	214	210	208	208	216	222	210	202	E A 236	E B 244	E B 250	210	226
8	E B 302	E B 312	E B 322	E B 320	E B 276	E B 254	224	216	206	208	220	200	210	222	212	216	224	212	212	E B 244	E A 234	206	232	E A 292
9	E B 284	E B 288	E B 280	E B 272	E B 300	E B 300	E B 242	222	220	220	218	208	224	216	A	232	222	210	214	E B 206	E B 214	E B 244	226	E B 246
10	E B 256	E B 300	E B 310	E B 270	214	E B 260	230	220	214	220	216	220	206	198	222	224	224	204	200	208	226	E B 252	E B 248	E B 274
11	E A 296	E B 274	E B 274	E B 274	210	E A 282	E B 254	220	216	216	212	200	202	206	218	212	214	206	200	208	216	E B 230	E B 240	E B 250
12	E B 306	E B 306	E B 262	E A 238	220	E B 264	E B 284	228	216	218	218	202	214	208	208	200	220	212	214	214	E A 218	E B 232	E B 260	E B 238
13	E B 310	E B 286	E B 282	E B 254	E B 244	E B 276	E B 264	224	216	212	204	200	216	202	210	214	224	206	196	226	E B 238	E B 254	E B 238	E B 238
14	E A 300	E B 276	E B 252	E B 242	222	E B 298	228	206	220	216	216	198	214	218	222	216	216	208	206	208	196	222	E B 274	E B 308
15	E B 292	E B 284	E B 276	E B 266	E B 240	224	E B 246	224	216	216	216	206	200	214	208	208	218	206	206	212	E B 232	E B 248	E B 246	E B 266
16	E B 270	E B 310	E B 304	E B 254	190	E B 260	E B 248	218	228	220	216	216	214	204	226	210	208	206	216	204	218	232	E A 258	E B 288
17	E B 316	E B 308	E B 282	E B 270	E B 246	210	230	216	218	214	226	216	218	204	232	210	220	216	212	224	216	E B 238	E B 252	E B 262
18	E B 248	E B 246	E B 252	E B 278	E B 276	E B 330	E B 258	208	220	228	228	216	200	208	216	224	224	216	206	210	230	208	E A 248	E A 302
19	E B 292	E B 292	E B 264	E B 256	E B 228	212	E B 248	210	212	220	200	200	214	202	202	214	228	204	196	224	222	222	E B 264	E B 274
20	E B 280	E B 268	E B 266	E B 270	232	216	224	208	208	202	204	196	200	206	220	206	216	210	E A 240	212	220	218	214	E B 292
21	E B 290	E B 280	E B 248	E B 234	E B 246	E B 252	216	202	210	198	200	206	200	208	208	222	220	206	196	212	E B 244	230	E B 246	E A 246
22	E B 264	E B 272	E B 290	E B 284	E B 252	E B 242	214	208	194	220	A	192	222	208	202	220	224	210	196	206	228	E B 246	E B 258	E B 270
23	E B 288	E B 278	E B 258	218	216	E B 260	E B 240	210	210	204	206	216	212	222	208	220	214	212	218	222	E B 236	E B 246	E B 262	E A 300
24	E B 270	E B 260	E B 242	E B 272	E B 340	E B 318	E B 246	214	216	208	212	216	200	230	220	216	228	200	192	222	E B 246	E B 238	E B 252	E B 284
25	E A 306	E B 260	E B 230	208	208	E B 258	E B 260	224	218	210	214	198	202	208	212	218	222	210	206	E A 264	E B 232	E A 230	E A 242	E B 268
26	E B 278	E B 302	E B 276	E B 248	E B 254	E B 300	E B 234	216	220	212	212	190	210	202	A	218	218	214	202	214	E B 232	E B 218	222	E B 252
27	E B 282	E B 276	E B 276	E A 250	224	E B 270	E B 254	218	210	218	204	196	190	208	204	228	216	212	196	208	E A 242	218	E B 248	E B 262
28	E B 280	E B 292	E B 292	E B 260	E B 232	E B 250	220	204	212	202	208	200	200	206	216	226	224	224	206	198	E A 306	E B 250	E B 252	E B 292
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	26	27	28	28	26	27	28	28	28	28	28	28	28	28
MED	E B 281	E B 277	E B 276	E B 270	E B 242	E B 260	E B 245	216	214	212	213	206	211	208	216	218	221	210	206	210	217	E B 231	E B 247	E B 269
U Q	E B 294	E B 296	E B 291	E B 276	E B 265	E B 288	E B 255	220	218	218	218	216	215	215	220	224	224	212	214	E 224	E B 235	E B 247	E B 258	E B 286
L Q	E B 270	E B 266	E B 261	E 249	223	245	226	209	210	209	206	198	201	205	208	212	217	206	200	208	216	219	235	E B 248

FEB.2015 h'F (KM)

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IONOSPHERIC DATA STATION Kokubunji

FEB.2015 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	112	A	A	114	112	114	A	A	B						
2								B	118	116		114	118	114	114	116	110	B						
3								118	112	114	114	114	114	114	118	A	A	B						
4								116	116	110	110	110	118	118	A	A	A	B						
5								B	114	114	114	116	114	114	A	A	114	B						
6								114	120	120	120	112	A	112	114	A	A	B						
7								120	120	110	106	108	A	116	112	A	A	B						
8								122	116	114	114	112	118	112	114	A	A	116						
9								114	114	108	A	A	112	118	114	A	120	B						
10								B	112	A	116	A	116	114	114	A	A	B						
11								B	114	A	112	A	A	114	112	A	114	B						
12								120	118	110	110	114	A	110	110	110	116	126						
13								B	108	112	112	A	A	A	114	114	A	116						
14								116	116	108	110	116	118	112	120	118	112	B						
15								118	110	108	116	A	118	116	A	122	112	B						
16								B	110	118	A	A	114	118	114	114	A	116						
17								120	114	116	112	A	116	110	112	110	110	B						
18								B	110	110	118	A	A	A	A	A	118	118						
19								114	112	112	116	A	A	A	A	A	116	116						
20								116	110	A	A	A	A	A	A	A	122	B						
21								116	124	116	122	116	A	110	110	A	A	116						
22								116	112	116	A	A	116	A	116	A	116	B						
23								112	110	110	A	A	A	A	112	A	A	114						
24								126	118	112	A	A	116	A	A	A	116	116						
25								116	116	110	108	110	112	114	114	112	110	112						
26								116	110	112	114	A	A	A	A	A	A	B						
27								114	114	114	114	114	114	118	116	116	116	116						
28								116	114	A	116	112	A	116	116	A	A	116						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								20	28	24	20	13	16	20	20	9	15	12						
MED								116	114	112	114	114	116	114	114	114	116	116						
U Q								119	117	115	116	115	118	116	115	117	116	116						
L Q								115	111	110	111	111	114	112	112	111	112	116						

FEB.2015 h'E (KM)

IONOSPHERIC DATA STATION Kokubunji

FEB.2015 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	116	B	B	B	B	158	G	G	102	100	114	122	G	106	98	B	B	B	90	92	92	90
2	B	B	104	B	104	B	B	B	G	G		120	G	G	G	94	116	92	108	106	B	106	112	B
3	B	B	98	B	B	B	B	154	G	G	126	126	126	G	126	106	106	104	104	102	B	B	B	B
4	124	B	B	B	100	100	B	150	G	G	G	G	G	G	106	102	106	106	100	100	B	B	98	100
5	B	132	B	B	B	B	B	138	G	G	120	118	118	122	108	106	104	B	B	B	B	B	B	B
6	B	104	94	B	B	B	B	140	G	116	122	G	106	96	92	92	92	110	B	100	102	96	92	B
7	B	B	98	B	B	B	B	144	114	114	114	118	106	G	G	108	104	90	B	100	96	96	B	B
8	96	96	B	B	B	B	B	150	G	114	120	122	114	122	96	92	104	G	B	114	102	98	104	104
9	B	B	B	B	94	B	B	168	G	G	106	106	G	120	112	106	106	122	B	B	B	B	B	B
10	B	B	B	B	B	B	100	B	G	106	104	102	112	116	116	104	106	110	B	102	102	102	B	B
11	92	B	96	98	88	90	94	152	G	104	G	104	108	G	G	108	G	B	B	B	B	B	B	B
12	B	108	100	94	94	100	102	178	G	G	118	98	98	92	G	G	G	92	B	B	102	122	B	92
13	102	B	102	B	B	B	B	138	128	110	G	100	102	100	116	116	106	148	90	90	94	B	100	100
14	102	94	B	B	B	B	B	158	G	118	100	120	G	G	106	106	G	B	B	B	102	96	96	94
15	100	B	B	92	B	B	B	G	G	118	G	106	120	122	108	102	G	B	B	B	B	B	B	B
16	B	B	B	B	B	B	B	134	118	118	106	104	G	96	G	G	104	G	100	100	102	102	98	98
17	92	B	B	B	B	B	B	152	100	100	96	106	G	G	G	88	G	B	96	96	B	B	B	114
18	B	B	B	B	B	B	B	146	G	G	120	110	106	108	106	106	106	G	B	102	100	100	100	94
19	102	94	B	B	B	B	B	G	G	G	106	102	106	104	104	104	104	G	B	B	B	B	B	B
20	B	108	98	98	98	B	B	148	G	106	106	98	104	104	104	104	106	100	100	B	B	B	B	B
21	B	B	B	B	B	104	104	G	102	100	114	112	106	G	116	104	104	G	B	B	B	94	96	100
22	94	B	B	B	B	B	B	132	G	104	104	104	104	104	G	104	122	108	104	104	B	B	B	B
23	B	B	98	B	98	98	B	148	G	G	108	108	104	104	G	108	108	G	B	B	B	B	94	94
24	98	100	B	B	B	B	B	G	118	G	102	102	106	106	106	100	G	G	104	104	102	B	102	96
25	92	B	B	B	B	B	B	142	148	128	116	116	116	G	102	116	124	102	102	98	102	100	100	92
26	98	98	B	B	B	B	B	150	G	G	118	110	106	106	106	106	106	106	B	104	B	B	B	92
27	B	108	98	92	92	96	B	164	G	102	116	G	G	106	104	G	G	G	B	104	104	B	B	B
28	B	B	B	B	94	B	108	152	104	104	100	102	106	110	104	108	106	G	116	104	104	116	98	98
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	12	10	11	5	9	6	5	22	8	16	23	25	21	19	19	25	21	13	11	17	14	13	14	15
MED	98	102	98	94	94	99	102	150	116	108	108	106	106	106	106	106	106	106	102	102	102	100	98	96
U Q	102	108	102	98	99	100	106	154	123	117	118	117	114	120	112	107	106	110	104	104	102	104	100	100
L Q	93	96	98	92	93	96	97	142	103	104	104	102	105	104	104	102	104	96	100	100	100	96	96	92

IONOSPHERIC DATA STATION Kokubunji

FEB. 2015 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			F2					H1			L2	L2	CL11	CL11		L2	L2				F2	F1	F1	F1
2			F1		F2							C1				L2	CL22	L2	F1	F1		F2	F1	
3			F1					H2			C1	C1	C1		C1	L3	L2	L3	F1	F1				
4	F2				F1	F1		H1							L1	L3	L2	L3	F2	F2			F3	F1
5		F1						H3			C1	C1	C1	C1	L1	L2	L2							
6		F1	F1					H1		C1	C1		L2	L2	L2	L2	L2	L2		F3	F1	F3	F1	
7			F1					H2	C1	C1	C2	C2	L2			L1	L1	L1		F3	F2	F3		
8	F2	F2						H2		C1	CL21	CL11	C2	CL21	L2	L3	L2			F1	F3	F1	F2	F4
9					F2			H1			L1	L2		C1	C1	L1	L1	C2						
10							F1			L1	L1	L1	C1	C1	C1	L1	L2	L2		F3	F2	F1		
11	F3		F1	F1	F3	F2	F1	H2		L2		L1	L1			L1								
12		F1	F2	F6	F2	F2	F2	H2			C2	L2	L1	L2				L1			F4	F1		F1
13	F2		F1					H2	C1	C1		L2	L1	L2	CL22	CL22	L3	H2	F1	F1	F2		F1	F1
14	F3	F2						H2		C1	L2	C1			L2	L2					F3	F1	F3	F2
15	F1			F1						C1		L1	C1	C1	L1	L1								
16								H2	C1	C1	L2	L2		L2			L2		F3	F1	F2	F2	F3	F2
17	F2							H2	L2	L2	L2	L2				L2			F3	F2				F1
18								H2			CL12	L2	L1	L1	L2	L2	L2			F1	F2	F1	F7	F4
19	F1	F2									L2	L2	L2	L1	L1	L2	L2							
20		F1	F1	F2	F2			H2		L1	L1	L2	L2	L1	L1	L2	L2	L2	F4					
21						F1	F2		L2	L2	CL12	C2	L2		CL11	L2	L1					F1	F2	F2
22	F2							H2		L2	L2	L1	L2	L2		L2	C2	L2	F3	F1				
23			F1		F2	F1		H2			L1	L1	L2	L2		L1	L1						F2	F4
24	F2	F1							CL12		L1	L2	L2	L2	L2	L2			F1	F1	F1		F1	F2
25	F4							H2	H1	C1	C1	C2	C2		L2	C1	C2	L3	F4	F5	F2	F5	F3	F2
26	F1	F2						H1			C1	L1	L1	L2	L2	L1	L2	L2		F2				F2
27		F2	F2	F4	F2	F1		H2		L2	C1			L1	L1					F1	F3			
28					F1		F2	H1	L1	L2	L1	L2	L2	L1	L1	L1	L2		F2	F1	F4	F1	F1	F2
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB. 2015 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2015 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 46	X 41	X 40	X 42	X 41	X 44	X 44												X 95	X 94	X 102	X 79	X 58	X 48
2	X 44	X 43	X 42	X 42	X 42	X 42	X 43												X 106	X 90	X 86	X 66	X 51	X 54
3	X 56	X 52	X 51	X 52	X 53	X 41	X 40												X 102	X 83	X 90	X 68	X 49	X 47
4	X 44	X 43	X 42	X 45	X 47	X 39	X 38												X 116	X 114	X 103	X 92	X 65	X 58
5	X 48	X 45	X 46	X 46	X 50	X 37	X 38												X 100	X 92	X 92	X 70	X 66	X 63
6	X 42	X 39	X 38	X 38	X 39	X 38	X 39												X 92	X 71	X 75	X 76	X 58	X 42
7	X 40	X 41	X 40	X 40	X 38	X 39	X 39												X 104	X 84	X 85	X 80	X 68	X 48
8	X 40	X 40	X 40	X 42	X 43	X 38	X 38												X 89	X 70	X 79	X 70	X 51	X 47
9	X 46	X 46	X 46	X 48	X 48	X 47	X 47												X 111	X 92	X 72	X 59	X 55	X 49
10	X 47	X 42	X 41	X 44	X 44	X 38	X 38													X 92	X 68	X 70	X 56	X 48
11	X 49	X 48	X 46	X 48	X 53	X 44	X 38													X 106	X 86	X 80	X 72	X 59
12	X 52	X 50	X 51	X 56	X 50	X 36	X 37													X 82	X 79	X 72	X 62	X 59
13	X 53	X 52	X 51	X 49	X 49	X 49	X 48													X 79	X 73	X 71	X 63	X 57
14	X 50	X 46	X 45	X 46	X 45	X 42	X 43													X 84	X 64	X 59	X 53	X 49
15	X 48	X 51	X 50	X 51	X 52	X 41	X 41													X 86	X 59	X 62	X 57	X 51
16	X 51	X 48	X 47	X 51	X 47	X 35	X 37													X 80	X 71	X 59	X 51	X 45
17	X 44	X 43	X 44	X 46	X 48	X 44	X 33													X 94	X 88	X 80	X 67	X 54
18	X 52	X 48	X 45	X 48	X 48	X 43	X 46													X 87	X 76	X 66	X 42	X 40
19	X 43	X 46	X 48	X 48	X 46	X 40	X 43													X 67	X 73	X 64	X 48	X 47
20	X 48	X 48	X 48	X 48	X 51	X 42	X 38				C	C								X 88	X 69	X 63	X 51	X 47
21	X 47	X 48	X 49	X 48	X 47	X 48	X 38													X 91	X 64	X 67	X 55	X 46
22	X 44	X 43	X 44	X 46	X 48	X 48	X 44													X 92	X 61	X 60	X 60	X 62
23	X 56	X 49	X 50	X 54	X 52	X 40	X 40													X 98	X 74	X 69	X 64	X 57
24	X 56	X 57	X 58	X 51	X 48	X 52	X 60													X 84	X 81	X 78	X 63	X 56
25	X 52	X 54	X 57	X 54	X 46	X 37	X 37													X 72	X 69	X 72	X 57	X 53
26	X 52	X 49	X 50	X 51	X 45	X 44	X 46													X 119	X 99	X 92	X 68	X 44
27	X 42	X 43	X 44	X 45	X 45	X 41	X 40													X 81	X 68	X 61	X 59	X 55
28	X 53	X 50	X 51	X 51	X 53	X 48	X 45													X 78	X 62	X 66	X 60	X 50
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28												9	28	28	28	28	28
MED	X 48	X 47	X 46	X 48	X 48	X 42	X 40												X 102	X 86	X 74	X 70	X 58	X 50
U Q	X 52	X 50	X 50	X 51	X 50	X 44	X 44												X 108	X 92	X 86	X 77	X 64	X 56
L Q	X 44	X 43	X 43	X 45	X 45	X 38	X 38												X 94	X 80	X 68	X 64	X 52	X 47

FEB.2015 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2015 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	40	35	34	36	35	38	38	48	73	83	92	109	116	116	115	110	104	92	89	88	U R 96	71	52	42
2	38	37	36	36	36	36	37	52	79	100	121	120	116	R 116	U R 141	134	114	100	100	84	80	60	45	48
3	50	46	45	46	47	35	34	48	88	97	112	J R 128	136	R 140	130	130	U R 128	116	96	77	84	62	43	41
4	38	37	36	39	41	33	32	52	80	92	103	104	118	130	128	R 130	120	118	R 110	103	97	86	59	52
5	42	39	40	40	44	31	32	50	84	92	R 106	90	107	117	U R 110	U R 112	117	109	94	86	86	64	60	57
6	36	33	32	32	33	32	33	49	93	100	118	118	136	140	J R 130	J R 130	J R 128	116	86	65	69	70	52	36
7	34	35	34	34	32	33	33	52	83	98	112	109	111	107	109	109	116	114	98	78	79	74	62	42
8	34	34	34	36	37	32	32	52	77	102	130	J R 130	R 134	142	U R 142	J R 130	116	R 110	83	64	73	64	45	41
9	40	40	40	42	42	41	41	56	91	114	118	118	R 120	130	130	U R 138	R 120	116	105	86	66	53	49	43
10	41	36	35	38	38	32	32	55	85	97	116	R 120	R 103	U R 108	116	J R 130	J R 126	R 108	94	86	62	64	50	42
11	43	42	40	42	47	38	32	51	88	93	113	118	110	J R 128	136	154	146	122	116	100	80	74	66	53
12	46	44	45	50	44	30	31	48	96	95	102	113	113	110	110	118	110	110	93	76	73	66	56	53
13	47	46	45	43	43	43	42	60	94	109	97	110	108	101	112	115	114	109	96	73	67	65	57	51
14	44	40	39	40	39	36	37	56	72	88	98	95	100	100	R 107	R 108	107	94	94	78	58	53	47	43
15	42	45	44	45	46	35	35	52	80	92	100	111	102	114	118	116	103	87	87	R 80	53	56	51	45
16	45	42	41	45	41	29	31	50	81	96	97	114	115	R 112	107	108	98	87	80	74	65	53	45	39
17	38	37	38	40	42	38	27	45	75	85	116	130	R 110	107	110	108	112	104	94	88	82	74	61	48
18	46	42	39	42	42	37	40	64	74	100	116	116	R 122	115	R 113	R 106	103	91	90	81	70	60	36	34
19	39	40	42	42	40	34	37	56	79	92	102	115	110	110	R 120	109	113	102	74	61	67	58	42	41
20	42	42	42	42	45	36	32	50	77	92	C	C	113	116	J R 126	J R 124	113	102	90	82	63	57	45	41
21	41	42	43	42	41	42	32	51	84	97	107	107	109	112	114	J R 125	118	114	105	85	58	61	49	40
22	38	37	38	40	42	42	38	56	80	86	96	100	118	R 131	R 130	129	113	107	100	86	55	54	54	56
23	50	43	44	48	46	34	34	58	72	85	96	98	118	150	144	U R 130	116	108	108	92	68	64	58	51
24	50	51	52	45	42	46	54	76	78	96	111	108	U R 129	R 132	119	130	120	107	87	78	75	72	57	50
25	46	48	51	48	40	31	31	54	88	103	104	118	109	111	116	118	114	104	89	66	63	66	51	47
26	46	43	44	45	39	38	40	60	87	104	R 122	J R 131	R 110	R 126	U R 134	R 144	U R 130	122	118	113	93	86	62	38
27	36	37	38	39	39	35	34	62	79	90	100	114	111	110	132	R 124	105	102	85	75	62	55	53	49
28	47	44	45	45	47	42	39	62	82	94	109	109	115	115	U R 126	131	111	91	86	72	56	60	54	44
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28	28	28
MED	42	41	40	42	42	36	34	52	80	96	107	114	113	116	120	124	114	108	94	80	68	64	52	44
U Q	46	44	44	45	44	38	38	57	88	100	116	R 118	118	130	R 130	R 130	R 120	114	100	86	80	70	58	50
L Q	38	37	37	39	39	32	32	50	78	92	100	108	110	110	112	111	110	101	87	74	62	58	46	41

FEB.2015 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2015 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L	L								
2										L	L	L	L	L	U L 500	L	L							
3											L	L	L	L	L	L	L							
4									260	L	L	L	L	L	L	L	L							
5									260	L	L	L	L	L	L	L	L							
6									L		L	L	L	L	L	L	L							
7									268	L	L	L	L	L	L	L	L							
8									268	L	L	L	L	L	L	L								
9										L	L	L	L	L	L	L	L							
10											L	L	L	L	L	L	L							
11										L	L	L	L	L	L	L	L	L						
12									260	L	L	L	L	L	U L 472	U L 424	L							
13									252	L	L	L	L	L	L	L	L	260						
14									264	L	L	L	L	L	L	L	L							
15									260	L	L	L	L	L	L	L	L							
16									264	L	L	L	L	L	L	L	L	L						
17								172	256	L	L	L	L	U L 492	L	L	L							
18								180	256	L	L	L	L	L	U L 576	L	L	296						
19								196	268	L	L	L	L	L	L	L	L							
20								184	L	L	C	C	L	L	L	L	L	L	184					
21								180		L	L	U L 484	L	L	L	L	L	L						
22								U L 188	L	L	L	U L 488	L	L	L	L	L	L						
23								188			L	L	L	L	L	L	L	L	192					
24								U Y 184	260	L	L	L	U L 512	L	L	L	L	L						
25									296	L	L	L	U L 496	L	L	L	L	L	R 192					
26								192		L	L	L	L	L	L	L	L							
27								180			L	L	L	L	U L 528	L	L	L	192					
28								192		L	L	L	L	L	L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								11	14			2	2	1	4	1		2	4					
MED								184	260			U L 486	U L 504	U L 492	U L 514	U L 424		278	192					
U Q								192	268						U L 552				192					
L Q								180	260						U L 486				188					

FEB.2015 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2015 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	244	280	328	324	364	368	364	UA 336	A	A						
2								B	228	280	324	UR 352	R 376	364	360	332	304	252						
3								B	232	300	332	360	A 364	UA 364	368	UA 328	UA 280	UA 228						
4								B	248	300	332	364	R 372	368	368	UA 340	UA 292	232						
5								B	220	296	R 328	348	A 380	UA 380	UA 372	UA 344	A	A						
6								B	248	316	A 344	UA 368	UA 344	UA 360	A	344	R	244						
7								B	UA 216	300	348	R 360	372	A 376	A 368	344	UA 308	A						
8								B	236	308	340	360	R 368	UA 356	356	340	UA 308	A						
9								B	248	308	332	352	372	364	UA 360	UA 328	320	248						
10								B	228	324	332	364	B	376	364	A 356	UA 324	UA 228	A					
11								B	240	320	A 336	A 336	UA 364	UA 344	UA 340	344	308	A	A					
12								B	252	A 312	332	360	368	R 360	352	336	A 300	A	A					
13								A	UA 228	304	332	352	A 372	364	R 360	A 336	308	A 248	A					
14								168	224	300	332	UA 340	A 360	UA 360	UA 324	336	A	A	A					
15								B	228	296	332	336	A 356	UA 352	A 352	340	304	240	B					
16								B	216	272	A 340	UA 344	364	R 360	348	340	300	UA 244	A					
17								A	228	A 296	340	360	372	348	352	A	288	UA 212	B					
18								B	236	292	304	R 304	348	R 368	364	332	A	244	A					
19								B	240	292	344	344	A 360	UA 348	UA 340	UA 316	A	240	B					
20								B	224	A 284	C	C	A 360	UA 368	UA 364	UA 332	UA 292	A	B					
21								B	244	UA 248	328	A 340	352	A 364	R 348	UA 320	UA 292	236	B					
22								B	244	292	R 336	344	388	364	UA 328	UA 304	304	256	A					
23								B	244	304	336	344	352	UR 336	UA 340	A	312	248	B					
24								B	236	308	336	348	R 352	360	R 356	336	UA 288	A	B					
25								B	A 224	300	336	356	368	364	356	328	A 300	UA 236	B					
26								B	244	296	336	UA 352	UA 352	UA 348	A 344	344	320	256	188					
27								B	260	304	340	356	360	UA 364	360	344	312	252	B					
28								164	260	300	324	UA 376	380	A 368	368	356	320	256	A 176					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	28	28	27	27	27	28	27	26	22	19	2					
MED								166	236	300	332	352	364	364	356	336	304	244	182					
U Q									244	306	340	360	372	368	364	344	312	252						
L Q									228	292	332	344	356	UA 358	UA 348	UA 332	UA 292	UA 236						

FEB.2015 foE (0.01MHz)

IONOSPHERIC DATA STATION Yamagawa

FEB. 2015 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	G	G	36	34	40	39	40	39	J A 37	J A 27	J A 21	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	24	G	G	40	41	G	39	38	34	27	E B 16	E B 16	J A 22	21	J A 19	J A 30
3	J A 44	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	32	35	38	40	38	38	35	34	25	J A 20	J A 21	J A 22	J A 22	J A 31	J A 28
4	J A 16	E B 16	E B 16	E B 16	J A 18	E B 16	E B 16	E B 16	G	G	G	41	40	40	40	J A 38	33	G	E B 16	E B 16	E B 16	J A 17	20	E B 16
5	J A 28	J A 20	J A 23	E B 16	J A 20	E B 16	E B 16	E B 16	24	G	G 24	42	44	41	41	J A 38	J A 36	J A 37	J A 35	18	J A 31	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	G	G 25	40	J A 54	39	39	37	39	G	G	E B 16	E B 16	E B 16	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	24	G	38	39	J A 50	45	J A 44	J A 43	J A 54	J A 44	J A 22	J A 20	J A 17	J A 21	J A 23	J A 21
8	18	E B 16	J A 24	20	E B 16	E B 16	E B 16	E B 16	26	32	38	38	38	G	39	J A 53	36	29	J A 20	18	E B 16	E B 16	E B 16	J A 19
9	E B 16	J A 21	E B 18	E B 16	E B 16	E B 16	E B 16	E B 18	26	G	G	G	42	41	41	37	36	G	J A 20	J A 18	E B 19	E B 16	E B 16	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	28	G	G 27	40	39	47	41	J A 44	J A 46	J A 33	J A 19	J A 26	J A 27	J A 17	E B 16	E B 16
11	E B 16	E B 16	J A 39	J A 28	E B 16	E B 16	E B 16	E B 16	26	G	37	39	40	38	38	38	J A 33	J A 36	J A 33	J A 28	J A 24	J A 25	J A 32	J A 26
12	E B 16	E B 16	E B 16	E B 16	J A 13	18	21	E B 16	J A 33	33	42	42	41	40	38	37	35	27	17	E B 16	J A 24	J A 21	J A 20	J A 32
13	E B 16	23	J A 42	E B 16	E B 16	E B 16	E B 16	19	24	34	36	39	41	39	38	35	G	J A 32	J A 22	J A 28	18	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	G	24	32	35	36	39	41	36	G 34	J A 33	J A 29	J A 24	J A 19	E B 16	E B 16	J A 22	E B 16
15	E B 16	E B 16	18	J A 18	E B 16	E B 16	E B 16	E B 17	G	32	36	39	J A 50	40	38	G 29	G	G	E B 18	E B 16	J A 19	J A 20	J A 16	J A 22
16	17	J A 27	E B 16	E B 16	E B 16	J A 16	E B 16	E B 16	23	30	38	38	G	38	G	42	34	31	J A 43	J A 35	J A 21	E B 16	E B 16	E B 16
17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	J A 21	24	32	37	39	40	39	G 25	J A 38	G	28	E B 17	J A 18	J A 20	E B 16	E B 16	E B 16
18	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	G	G	G	G 27	G	39	37	J A 34	J A 27	J A 36	J A 21	E B 16	E B 16	E B 16	J A 25
19	J A 44	J A 26	J A 26	J A 20	J A 18	18	E B 16	E B 16	26	G	36	G	40	41	37	34	J A 32	G	E B 18	E B 16	E B 16	E B 16	E B 16	E B 16
20	18	E B 16	E B 16	E B 16	E B 16	J A 16	E B 16	E B 16	25	34	C	C	40	40	40	36	32	24	E B 16	E B 16	20	20	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	28	G 26	38	38	40	37	34	32	G 22	E B 17	E B 16	E B 16	E B 18	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	25	G 25	38	G	40	38	38	36	38	J A 26	J A 25	J A 35	J A 28	E B 16	18	E B 16
23	E B 16	E B 16	E B 16	E B 16	18	J A 20	20	E B 16	26	32	35	37	39	38	38	35	J A 32	G	E B 16	J A 21	E B 16	E B 16	E B 16	E B 16
24	E B 16	E B 16	22	E B 16	E B 16	E B 16	E B 16	E B 16	26	32	37	39	44	J A 45	G	J A 44	34	26	E B 19	22	E B 16	E B 16	E B 16	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 16	21	19	E B 19	25	32	36	38	43	39	41	35	32	26	E B 16	E B 16	E B 16	E B 16	J A 24	J A 18
26	20	J A 17	19	20	E B 16	E B 16	E B 16	E B 16	26	G	36	J A 45	J A 48	41	39	G	G	G 23	G 18	J A 17	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	J A 30	30	J A 21	J A 20	22	E B 16	28	32	36	39	40	38	G	G	G	G	E B 17	J A 29	J A 29	J A 18	19	E B 16
28	E B 20	E B 16	18	J A 22	J A 19	J A 22	E B 16	18	G	G	G 26	42	46	38	40	38	34	32	22	E B 16	E B 16	E B 16	E B 16	E B 16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28	28	28
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	25	G	36	39	40	39	38	37	34	26	19	18	17	E B 16	E B 16	E B 16
U Q	18	J A 16	J A 20	17	J A 16	17	16	17	26	32	37	40	42	41	40	J A 38	36	J A 30	J A 22	J A 22	J A 22	J A 19	J A 20	J A 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 24	G	G	G 37	39	38	37	35	G 32	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16

FEB. 2015 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB. 2015 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	G	36	34	38	38	38	36	34	26	17	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	24	G	G	40	41	G	39	36	34	U Y 27	E B 16	E B 16	20	E B 16	E B 16	20
3	28	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	31	34	38	40	38	38	35	29	24	16	E B 16	E B 16	20	23	25
4	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	41	U Y 40	39	39	35	32	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
5	20	17	18	E B 16	E B 16	E B 16	E B 16	E B 16	24	G	G 24	42	39	39	39	36	32	30	19	E B 16	17	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	G	G 24	37	40	38	39	37	38	G	G	E B 16	E B 16	E B 16	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	23	G	36	38	45	44	43	38	36	27	18	E B 16	E B 16	18	19	E B 16
8	E B 16	E B 16	20	E B 16	E B 16	E B 16	E B 16	E B 16	26	32	36	U Y 38	U Y 38	G	38	52	36	28	19	E B 16	E B 16	E B 16	E B 16	E B 16
9	E B 16	E B 16	E B 18	E B 16	E B 16	E B 16	E B 16	E B 18	26	G	G	G	42	40	40	36	35	G	20	E B 16	E B 19	E B 16	E B 16	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	27	G	G 27	39	U Y 39	44	39	41	40	32	18	20	21	E B 16	E B 16	E B 16
11	E B 16	E B 16	32	20	E B 16	E B 16	E B 16	E B 16	25	G	36	38	38	38	37	37	31	27	24	19	E B 16	18	24	23
12	E B 16	E B 16	E B 16	E B 16	E B 12	17	E B 16	E B 16	G 23	32	39	40	40	U Y 40	37	36	34	26	U Y 17	E B 16	21	18	18	21
13	E B 16	19	20	E B 16	E B 16	E B 16	E B 16	E B 16	24	33	35	38	40	38	37	34	G	G 25	19	24	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	G	24	31	34	U Y 36	38	39	36	G 34	32	27	21	18	E B 16	E B 16	20	E B 16
15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	G	32	36	36	44	38	37	G 29	G	G	E B 18	E B 16	16	E B 16	E B 16	20
16	E B 16	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	30	36	37	G	38	G	34	33	26	20	34	16	E B 16	E B 16	E B 16
17	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	30	36	38	39	38	G 25	36	G	28	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	G	G	G	G 27	G	38	36	31	25	32	16	E B 16	E B 16	E B 16	E B 16
19	28	E B 16	19	16	E B 16	E B 16	E B 16	E B 16	26	G	36	G	37	38	36	34	31	G	E B 18	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	C	C	38	38	38	35	30	U Y 24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	U Y 28	G 26	37	38	39	37	34	30	G 22	E B 17	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	25	G 25	38	G	U Y 40	38	37	35	36	G 25	20	27	19	E B 16	16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	18	E B 16	E B 16	26	32	35	37	39	38	38	35	G 31	G	E B 16	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 20	E B 16	E B 16	25	32	37	38	43	40	G	43	G 28	25	E B 19	E B 16	E B 16	E B 16	E B 16	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16	E B 19	25	32	35	38	42	38	40	35	32	26	E B 16	E B 16	E B 16	E B 16	19	E B 16
26	E B 16	16	E B 16	16	E B 16	E B 16	E B 16	E B 16	U Y 26	G	36	40	42	38	36	G	G	G 23	G 18	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	29	E B 16	E B 16	E B 16	E B 16	27	32	35	38	39	37	G	G	G	G	E B 17	25	22	E B 16	E B 16	E B 16
28	E B 20	E B 16	E B 16	E B 16	E B 16	19	E B 16	18	G	G	G 26	39	44	38	40	37	34	31	22	E B 16	E B 16	E B 16	E B 16	E B 16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28	28	28
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	24	G	35	38	39	38	38	36	32	25	18	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	E B 16	16	16	16	E B 16	E B 16	E B 16	E B 16	26	32	36	39	42	39	39	36	34	27	20	17	16	16	16	16
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 23	G	G	G 36	38	38	36	34	G	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

FEB. 2015 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2015 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	16	20	19	20	24	19	16	16	16	16	16	16	16	16
2	16	16	16	16	16	16	16	16	16	16	16	26	28	24	21	20	20	16	16	16	16	16	16	16
3	16	16	16	16	16	16	16	16	16	16	16	20	20	29	19	20	20	16	16	16	16	16	16	16
4	16	16	16	16	16	16	16	16	20	20	19	26	30	28	20	20	20	16	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	19	19	18	19	20	25	17	22	16	15	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	16	20	17	22	20	20	21	21	16	16	16	16	16	16	16
7	16	16	16	16	16	16	16	16	16	16	18	21	21	27	24	21	20	15	16	16	16	16	16	16
8	16	16	16	16	16	16	16	16	16	16	20	22	22	24	22	26	17	18	16	16	16	16	16	16
9	16	16	18	16	16	16	16	18	16	17	20	23	20	26	26	23	20	16	16	16	19	16	16	16
10	16	16	16	16	16	16	16	17	14	24	20	24	37	20	22	22	18	19	16	16	16	16	16	16
11	16	16	16	16	16	16	16	16	16	22	27	18	29	27	22	22	19	16	16	16	16	16	16	16
12	16	16	16	16	12	16	16	16	16	17	16	20	20	20	16	16	12	15	16	16	16	16	16	16
13	16	19	16	16	16	16	16	16	16	16	20	20	24	24	19	21	20	16	16	16	16	16	16	16
14	16	16	16	16	16	16	16	16	16	14	16	21	24	26	27	20	16	16	16	16	16	16	16	16
15	16	16	16	16	16	16	16	17	16	18	20	20	23	23	25	23	16	16	18	16	16	16	16	16
16	16	16	16	16	16	16	16	16	14	13	18	21	26	20	23	16	17	14	16	16	16	16	16	16
17	16	16	16	16	16	16	16	16	16	16	20	20	21	24	18	16	16	16	17	16	16	16	16	16
18	16	16	16	16	16	16	16	16	16	16	18	20	19	20	20	18	18	16	16	16	16	16	16	16
19	16	16	16	16	16	16	16	16	16	16	20	19	20	27	20	16	20	16	18	16	16	16	16	16
20	16	16	16	16	16	16	16	16	14	14	C	C	28	21	20	24	19	15	16	16	16	16	16	16
21	16	16	16	16	16	16	16	16	16	16	18	20	20	21	20	18	14	16	17	16	16	16	16	16
22	16	16	16	16	16	16	16	16	14	16	19	20	20	20	21	20	19	15	14	16	16	16	16	16
23	16	16	16	16	16	16	16	16	16	19	20	19	21	27	20	24	19	15	16	16	16	16	16	16
24	16	16	16	16	16	20	16	16	16	16	23	20	21	20	21	20	15	16	19	16	16	16	16	16
25	16	16	16	16	16	16	16	19	16	16	18	23	21	25	28	20	19	16	16	16	16	16	16	16
26	16	16	16	16	16	16	16	16	16	16	20	26	23	22	16	16	16	16	14	16	16	16	16	16
27	16	16	16	16	16	16	16	16	19	16	19	20	20	28	26	21	20	17	17	14	16	16	16	16
28	20	16	16	16	16	16	16	15	16	20	17	24	19	20	20	22	20	20	16	16	16	16	16	16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28	28	28
MED	16	16	16	16	16	16	16	16	16	16	19	20	21	24	21	20	19	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	18	20	23	24	26	24	22	20	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	16	18	20	20	20	20	18	16	16	16	16	16	16	16	16

FEB.2015 fmin (0.1MHz)

IONOSPHERIC DATA STATION Yamagawa

FEB.2015 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	318	344	283	279	292	304	347	335	363	347	314	314	321	324	319	321	320	323	326	310	U R 330	323	298	307
2	303	296	306	292	286	291	329	335	337	338	336	335	302	R 317	U R 309	319	313	316	319	321	329	323	283	288
3	313	313	299	287	321	365	290	308	364	340	325	R	315	R 311	306	305	U R 313	332	339	315	323	H 319	292	302
4	298	300	278	308	338	289	302	343	358	363	331	326	324	319	302	R 314	330	322	R 320	321	328	331	325	317
5	303	276	289	305	338	367	308	327	359	350	R 354	332	310	308	U R 328	U R 335	330	331	348	326	322	319	315	323
6	330	302	292	282	319	277	287	320	358	334	340	337	312	306	R	R	R	329	333	305	313	337	338	314
7	297	304	304	300	305	278	286	326	349	352	344	336	327	325	310	309	320	333	320	305	310	314	344	307
8	278	278	270	288	330	291	293	322	344	322	329	R	R 305	302	U R 299	R	315	R 328	333	294	318	332	313	297
9	282	281	292	293	297	275	282	321	335	336	332	329	R 331	R 313	313	U R 307	R 327	316	311	342	315	317	313	329
10	315	287	281	302	358	301	303	323	356	337	343	R 353	R 323	U R 316	326	R	R 351	R 318	329	340	307	327	309	293
11	295	286	279	286	334	317	285	320	347	333	336	355	324	R	303	315	312	335	332	317	319	307	318	307
12	273	280	303	335	388	284	276	314	362	360	329	333	329	324	324	326	323	345	345	322	310	318	318	317
13	288	294	284	297	302	296	287	322	361	362	339	344	347	316	319	318	328	336	331	319	304	314	318	314
14	327	304	304	297	317	295	298	345	361	356	353	347	334	318	R 317	R 325	330	335	336	353	302	305	309	287
15	283	292	309	304	342	286	285	326	358	344	337	346	319	333	334	342	343	327	333	R 339	301	307	320	292
16	299	286	274	309	382	309	290	328	358	354	351	326	338	R 327	324	337	339	341	329	323	326	331	319	300
17	286	285	289	302	335	370	302	324	346	311	343	341	R 341	311	313	310	315	331	328	314	305	310	311	283
18	312	317	305	309	313	262	285	348	346	320	331	321	R 327	322	R 322	R 330	334	334	329	324	330	366	306	270
19	272	309	325	311	320	284	303	352	352	344	332	340	323	312	R 337	329	333	347	343	296	319	344	301	286
20	292	300	305	300	339	321	358	337	345	359	C	C	326	312	R	R	324	327	336	332	314	343	305	289
21	290	297	322	319	313	333	352	322	345	342	340	330	328	311	303	J R 347	337	328	341	350	294	328	321	310
22	291	294	292	294	306	338	303	338	359	349	333	317	320	R 321	R 308	325	321	325	336	345	293	293	297	314
23	310	297	306	322	341	319	316	353	366	345	328	313	306	319	327	U R 322	320	312	325	341	302	314	306	273
24	295	301	317	283	265	274	303	367	349	333	342	299	U R 313	R 315	307	313	323	328	325	310	307	327	310	293
25	290	295	329	347	375	291	306	335	349	344	331	333	320	316	313	327	333	343	350	322	307	329	318	312
26	300	293	301	321	318	287	304	348	341	335	R 340	R	R 324	R 314	U R 321	R 324	U R 327	338	320	301	306	328	342	322
27	287	299	305	324	340	320	307	351	367	360	344	338	342	310	320	R 342	330	349	348	314	316	309	320	310
28	298	293	290	296	324	336	319	351	350	345	343	337	333	309	U R 307	330	327	328	340	325	282	300	318	297
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	27	24	28	27	26	24	27	28	28	28	28	28	28	28
MED	296	296	300	301	322	296	302	332	354	344	337	334	324	316	315	324	327	330	332	322	312	321	314	304
U Q	306	302	306	310	340	320	308	346	360	353	343	340	330	321	324	R 330	333	336	340	336	320	330	320	314
L Q	288	286	286	292	310	285	287	322	346	336	331	326	317	311	307	314	320	326	326	312	304	312	306	290

FEB.2015 M(3000)F2 (0.01)

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FEB.2015 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L	L								
2										L	L	L	L	L	U L 359	L	L							
3											L	L	L	L	L	L	L							
4									440	L	L	L	L	L	L	L	L							
5									453	L	L	L	L	L	L	L	L							
6									L		L	L	L	L	L	L	L							
7									503	L	L	L	L	L	L	L	L							
8									494	L	L	L	L	L	L	L								
9										L	L	L	L	L	L	L	L							
10											L	L	L	L	L	L	L							
11										L	L	L	L	L	L	L	L	L						
12									395	L	L	L	L	L	U L 402	U L 425	L							
13									523	L	L	L	L	L	L	L	L	487						
14									482	L	L	L	L	L	L	L	L							
15									444	L	L	L	L	L	L	L	L							
16									486	L	L	L	L	L	L	L	L	L						
17								475	487	L	L	L	L	U L 414	L	L	L							
18								462	458	L	L	L	L	L	U L 360	L	L	407						
19								480	474	L	L	L	L	L	L	L	L							
20								485	L	L	C	C	L	L	L	L	L	L	460					
21								470		L	L	U L 397	L	L	L	L	L	L						
22								U L 376	L	L	L	U L 385	L	L	L	L	L	L						
23								498			L	L	L	L	L	L	L	L	441					
24								U Y 461	464	L	L	L	U L 388	L	L	L	L	L						
25									430	L	L	L	U L 409	L	L	L	L	L	R 455					
26								487		L	L	L	L	L	L	L	L							
27								521			L	L	L	L	U L 364	L	L	L	538					
28								479		L	L	L	L	L	L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								11	14			2	2	1	4	1		2	4					
MED								479	469			U L 391	U L 398	U L 414	U L 362	U L 425		447	458					
U Q								487	487						U L 383				499					
L Q								U 462	444						U L 360				448					

FEB.2015 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Yamagawa

FEB.2015 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										216	234	240	268	256	236	242								
2										230	224	242	252	276	266	242	216							
3											242	256	264	252	252	252	224							
4									214	224	230	242	260	260	254	254	226							
5									216	226	228	218	284	282	248	254	246							
6									226		236	244	266	262	240	254	246							
7									214	230	242	240	246	242	278	248	250							
8									216	248	258	236	262	276	248	262								
9										228	228	246	256	264	262	252	228							
10											236	232	242	260	266	268	234							
11										216	242	236	242	268	270	250	232	210						
12									222	216	222	248	236	244	246	252	228							
13									214	220	224	234	238	242	256	238	234	218						
14									208	220	238	230	252	246	262	244	230							
15									216	236	240	240	256	252	240	238	220							
16									214	224	228	260	240	244	248	248	226	216						
17								238	224	218	234	236	236	264	254	264	246							
18								222	220	258	248	240	248	242	280	248	230	222						
19								214	218	230	240	252	246	256	256	240	244							
20								220	222	222	C	C	262	268	252	244	224	216	216					
21								238		236	232	236	242	284	254	260	234	224						
22								224	208	220	248	242	266	256	256	244	240	220						
23								218			262	246	276	268	234	242	236	220	220					
24								210	204	242	244	232	272	260	268	266	230	216						
25									216	230	230	240	232	254	256	246	240	222	202					
26								222		236	248	236	226	270	258	238	236							
27								218			242	252	240	246	268	236	234	220	198					
28								222		228	248	236	254	266	266	252	240							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								11	17	23	27	27	28	28	28	28	26	11	4					
MED								222	216	228	238	240	252	260	256	248	234	220	209					
U Q								224	221	236	244	246	263	268	266	254	240	222	218					
L Q								218	214	220	230	236	241	249	248	242	228	216	200					

FEB.2015 h'F2 (KM)

IONOSPHERIC DATA STATION Yamagawa

FEB.2015 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	236	216	314	312	298	260	226	232	208	208	206	H 144	216	214	220	218	224	206	220	226	224	200	216	230
2	266	276	276	280	302	286	222	230	224	210	200	208	H 206	H 210	220	212	216	216	216	192	218	206	272	288
3	278	246	258	282	234	202	290	262	212	218	218	222	220	218	210	212	212	212	206	202	226	200	276	292
4	266	276	322	266	226	240	268	232	206	218	198	214	234	H 228	210	210	224	216	208	202	212	214	210	228
5	254	326	298	274	242	208	270	236	190	214	212	206	188	200	224	216	226	216	206	206	206	210	230	222
6	220	282	300	322	250	308	296	254	220	220	220	214	202	214	212	208	220	222	202	210	236	208	208	228
7	276	280	268	262	244	316	308	246	130	H 214	220	212	230	220	226	220	226	226	196	202	222	218	208	228
8	278	314	354	302	238	262	280	234	172	216	212	218	212	212	218	248	220	226	202	214	236	204	224	244
9	284	300	298	284	266	286	280	236	224	212	210	212	220	212	218	218	224	218	206	198	198	220	240	226
10	248	278	314	280	210	274	262	238	214	212	222	220	210	216	208	230	232	212	204	200	216	224	226	250
11	274	282	372	316	232	226	310	240	216	214	216	212	H 200	204	H 196	H 204	216	A	202	212	202	212	226	256
12	296	308	258	236	206	310	322	252	A	214	208	202	206	230	186	200	214	216	206	204	230	228	236	256
13	276	288	300	278	264	272	286	246	144	214	202	210	210	198	212	212	224	166	206	198	242	226	228	238
14	228	252	254	266	248	266	278	220	168	216	210	210	202	208	200	204	226	212	216	198	200	228	252	282
15	314	280	256	266	228	222	296	240	184	H 208	210	206	216	200	210	210	210	202	206	204	222	246	230	272
16	268	312	316	256	188	252	282	238	140	H 170	210	198	198	H 198	210	214	210	A	204	232	208	210	226	258
17	292	302	290	276	234	196	244	180	166	198	214	212	210	186	214	220	214	220	216	218	212	202	230	248
18	246	238	252	268	270	356	304	164	196	228	218	208	224	208	202	216	224	216	224	212	212	200	212	304
19	350	258	256	270	246	246	274	144	176	202	218	202	200	208	206	208	200	216	200	228	224	208	218	282
20	270	258	258	270	222	228	202	168	H 138	214	C	C	190	216	H 214	206	204	212	166	208	208	212	220	260
21	288	264	244	246	260	228	206	172	220	H 182	214	190	194	198	218	200	H 214	222	206	188	228	226	222	234
22	272	282	290	280	256	216	244	E B 234	200	188	220	190	232	204	206	222	230	218	212	206	212	256	248	248
23	250	262	266	244	210	242	260	144	202	212	204	200	202	204	226	208	200	216	170	200	220	228	230	292
24	278	264	240	276	346	332	250	E B 160	188	204	220	210	200	224	206	244	226	214	212	216	234	222	222	250
25	258	272	236	218	206	286	264	226	176	208	206	H 202	204	196	216	222	212	212	B 166	204	214	220	216	254
26	262	268	266	256	240	296	264	150	218	214	204	216	204	182	182	222	208	220	204	194	218	212	208	210
27	296	278	264	290	220	266	258	144	204	218	212	202	208	200	190	226	208	218	132	214	224	240	228	236
28	276	284	282	272	246	230	234	168	212	212	206	216	210	H 184	H 218	216	216	216	210	198	226	250	226	264
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	27	28	27	27	28	28	28	28	28	26	28	28	28	28	28	28
MED	273	278	272	273	241	261	269	232	200	213	212	210	207	208	211	215	216	216	206	204	219	216	226	250
U Q	281	286	300	281	258	286	288	239	214	215	218	214	216	215	218	221	224	218	211	213	226	227	230	268
L Q	256	263	257	264	224	228	247	168	172	208	206	202	201	199	206	208	211	212	202	199	212	208	217	232

FEB.2015 h'F (KM)

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IONOSPHERIC DATA STATION Yamagawa

FEB.2015 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	106	102	98	102	98	100	98	100	A	A						
2								B	106	100	100	106	112	104	100	104	102	108						
3								B	112	102	100	102	102	102	100	100	108	106						
4								B	110	98	98	110	108	104	104	104	104	106						
5								B	108	104	108	102	100	100	106	100	102	A						
6								B	108	110	100	100	96	96	98	102	106	106						
7								B	110	102	100	102	102	102	102	104	104	A						
8								B	108	110	102	102	100	100	102	106	100	106						
9								B	110	104	98	100	104	102	104	102	A	108						
10								B	A	108	104	98	B	100	100	104	102	102	A					
11								B	106	104	114	102	108	102	102	102	A	A	A					
12								B	102	104	108	104	106	104	104	104	A	A	A					
13								A	114	114	118	100	100	106	102	102	98	A	A					
14								E B 180	106	96	94	96	100	102	102	A	A	A	A					
15								B	100	100	100	96	100	100	100	104	104	104	B					
16								B	96	96	98	98	100	96	102	102	102	108	A					
17								A	100	116	104	104	102	102	102	A	102	102	B					
18								B	106	98	100	98	102	100	100	98	A	104	A					
19								B	104	104	102	102	102	104	102	100	102	104	B					
20								B	100	100	C	C	108	98	104	104	102	A	B					
21								B	A	102	110	108	104	104	104	100	104	A	B					
22								B	108	108	100	100	A	A	100	100	A	114	A					
23								B	104	104	102	98	98	104	98	A	A	104	B					
24								B	104	98	102	98	98	98	106	106	104	A	B					
25								B	104	100	98	100	106	106	106	102	102	106	B					
26								B	102	98	98	102	98	98	98	100	102	112	112					
27								B	108	96	102	106	102	110	110	108	104	102	B					
28								E B 180	102	98	98	96	104	106	104	104	102	106	116					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	26	28	27	27	26	27	28	25	20	18	2					
MED								E B 180	106	102	100	102	102	102	102	102	102	106	114					
U Q									108	104	104	102	104	104	104	104	104	108						
L Q									102	98	98	98	100	100	100	100	102	104						

FEB.2015 h'E (KM)

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IONOSPHERIC DATA STATION Yamagawa

FEB.2015 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	G	186	142	120	114	114	102	98	94	94	B	B	B	B	B
2	B	B	B	B	B	B	B	B	180	G	G	192	186	G	198	120	114	210	B	B	94	94	90	90
3	92	B	B	B	B	B	B	B	174	212	184	150	112	118	142	106	104	110	102	100	100	88	92	90
4	94	B	B	B	114	B	B	B	G	G	G	160	120	116	112	110	102	G	B	B	B	90	84	B
5	96	106	92	B	98	B	B	B	160	G	98	106	108	108	110	110	102	98	96	102	92	B	B	B
6	B	B	B	B	B	B	B	B	G	100	108	108	106	108	112	106	G	G	B	B	B	B	B	B
7	B	B	B	B	B	B	B	B	116	G	148	120	102	102	104	106	102	100	102	98	98	94	92	94
8	96	B	88	90	B	B	B	B	168	164	116	122	128	G	134	106	106	106	86	86	B	B	B	90
9	B	94	B	B	B	B	B	B	180	G	G	G	112	106	108	106	118	G	98	98	B	B	B	B
10	B	B	B	B	B	B	B	B	106	G	98	120	124	110	116	108	106	106	100	100	94	96	B	B
11	B	B	86	92	B	B	B	B	166	G	114	104	114	104	102	192	98	96	88	88	104	90	88	88
12	B	B	B	B	92	90	92	B	110	118	110	110	110	110	114	88	114	108	100	B	104	104	92	102
13	B	84	100	B	B	B	B	96	122	122	118	112	112	118	114	112	G	92	92	86	90	B	B	B
14	B	B	B	B	B	B	B	G	130	172	112	112	114	106	106	98	96	94	98	98	B	B	94	B
15	B	B	84	88	B	B	B	B	G	184	174	108	106	108	108	98	G	G	B	B	92	110	84	86
16	84	96	B	B	B	88	B	B	130	136	112	114	G	180	G	126	114	110	100	98	96	B	B	B
17	B	B	B	B	B	B	B	116	122	120	182	182	160	92	92	88	G	102	B	92	106	B	B	B
18	86	B	B	B	B	B	B	B	162	G	G	G	98	G	118	114	98	98	94	94	B	B	B	100
19	92	110	88	88	90	90	B	B	172	G	184	G	114	104	110	106	106	G	B	B	B	B	B	B
20	106	B	B	B	B	92	B	B	122	110	C	C	110	112	112	112	106	98	B	B	90	88	B	B
21	B	B	B	B	B	B	B	B	164	112	100	116	116	112	110	108	110	104	B	B	B	88	B	B
22	B	B	B	B	B	B	B	B	158	100	166	G	164	166	102	102	118	98	98	88	88	B	86	B
23	B	B	B	B	94	90	90	B	170	170	132	114	106	106	106	100	100	G	B	94	B	B	B	B
24	B	B	94	B	B	B	B	B	182	188	150	136	114	108	G	112	104	102	B	98	B	B	B	B
25	B	B	B	B	B	90	92	B	120	144	124	138	116	118	112	118	124	108	B	B	B	B	92	108
26	98	86	88	90	B	B	B	B	162	G	120	106	102	104	106	G	G	96	96	98	B	B	B	B
27	B	B	120	86	88	90	92	B	188	176	140	120	116	126	G	G	G	G	B	90	92	92	86	B
28	B	B	98	94	92	92	B	156	G	G	88	108	116	124	176	114	158	114	112	B	B	B	B	B
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	6	10	7	7	8	4	3	23	16	23	23	27	25	25	26	22	21	16	17	14	11	11	9
MED	94	95	90	90	92	90	92	116	162	140	120	116	114	110	112	107	106	102	98	98	94	92	90	90
U Q	97	106	98	92	98	91	92	156	172	174	166	138	120	118	115	112	114	108	100	98	100	96	92	101
L Q	89	86	88	88	90	90	91	96	122	115	110	108	108	106	106	102	102	97	94	89	92	88	86	89

IONOSPHERIC DATA STATION Yamagawa

FEB.2015 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

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	C 1	C 1	C 1	C 1	L 3	L 1	F 1					
2									H 1			H 1	H 1		H 1	C 1	C 1	HC 11			F 1	F 1	F 1	FQ 21
3	F 4								H 1	H 1	H 1	HL 11	C 1	C 1	H 1	C 1	C 1	C 1	F 1	F 1	F 1	F 2	F 1	FQ 41
4	F 1				FF 11							H 1	C 1	C 1	C 1	C 1	C 2					F 1	F 1	
5	F 2	FF 11	FQ 11		F 1				H 1		L 1	C 1	C 1	C 1	C 1	C 1	C 1	L 2	F 1	F 1	F 2			
6										L 1	C 2	C 1	C 1	C 1	C 1	C 1								
7									C 1		H 1	C 1	C 2	C 1	C 2	C 1	C 2	LQ 21	FQ 11	F 1	F 1	F 2	F 2	FQ 11
8	F 1		F 4	F 1					H 1	HL 11	C 1	C 1	C 1		H 1	C 2	C 2	C 2	F 2	F 1				F 1
9		F 2							H 1				CL 11	C 1	C 1	C 1	CL 11		F 2	F 1				
10									L 1		L 1	C 1	C 1	C 1	C 1	C 2	C 2	C 1	L 1	F 3	F 3	F 1		
11			F 4	F 2					H 1		C 1	C 1	C 1	C 1	C 1	H 1	L 1	L 2	L 3	FQ 31	F 2	F 2	F 2	F 2
12					FF 11	F 1	F 1		C 1	C 1	CL 11	CL 11	CL 11	CL 11	CL 11	L 1	CL 12	CL 11	L 1		F 2	F 2	F 2	FF 11
13		F 1	F 2					L 1	CL 11	CL 11	CL 11	C 1	C 1	C 1	CL 11	C 1		LH 21	L 2	F 2	F 1			
14									H 2	H 1	C 1	C 1	C 1	C 1	C 1	L 1	L 2	L 2	L 2	F 1			F 2	
15			F 1	F 2						H 1	H 1	C 1	C 2	C 1	C 1	L 1					F 1	F 1	F 1	F 2
16	F 1	F 1				F 1			H 1	H 1	C 1	C 1		H 1		CL 11	C 1	CL 11	L 1	F 5	F 1			
17								C 1	C 1	CL 11	HL 11	HL 11	HL 11	L 1	L 1	L 3		C 3		F 2	F 1			
18	F 1								H 1				L 1		C 1	C 1	L 2	L 1	L 2	F 2				FQ 11
19	FQ 21	FF 11	FF 21	FF 21	FF 11	F 1			H 1		H 1		C 1	C 1	C 1	C 1	C 1							
20	F 1					F 1			C 1	C 1			C 1	C 1	CL 11	C 1	C 1	L 1			F 1	F 1		
21									HL 11	C 1	L 1	CL 11	C 1	C 1	C 1	C 1	CL 11	L 1				F 1		
22									HL 11	L 1	H 1		HC 11	HC 11	C 1	C 1	CL 11	L 2	LQ 21	F 4	F 3		F 1	
23					F 1	F 2	F 1		H 1	H 1	H 1	C 1	C 1	C 1	C 1	L 1	L 2			F 1				
24			F 1						H 1	H 1	H 1	H 1	C 1	C 1		CL 21	CL 11	L 1		F 1				
25						F 2	F 1		C 1	H 1	C 1	H 1	C 1	C 1	C 1	C 1	C 1	CL 11					F 2	F 1
26	F 1	F 1	F 1	F 1					H 1		C 1	C 1	C 1	C 1	C 1			L 1	L 1	F 1				
27			F 1	F 5	F 1	F 1	F 1		H 1	H 1	HL 11	CL 11	CL 11	C 1						F 2	F 2	F 1	F 1	
28			F 1	F 1	F 1	F 1		H 1			L 1	C 1	CL 11	CL 11	HL 11	C 1	H 1	C 1	C 1					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB.2015 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.2015 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

FEB.2015 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

FEB. 2015 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	54	37	31	F 30	Z 33	35	37	44	78	85	100	117	122	125	124	124	118	125	127	134	140	120	94	74
2	64	52	47	R 36	36	U R 36	38	44	73	115	138	118	126	141	R 157	R 153	142	R 130	R 133	138	109	92	64	64
3	64	56	54	53	53	36	29	42	94	106	115	137	R 148	R 152	U R 148	R 148	156	J R 145	U R 148	140	R 138	R 126	76	64
4	54	46	38	R 42	49	22	29	49	85	95	109	113	125	138	146	R 155	R 155	R 154	R 145	R 150	U R 162	U R 157	R 119	86
5	71	52	48	46	48	H 32	29	45	86	105	118	100	106	131	147	146	144	154	141	R 147	D R 150	R 122	R 101	87
6	53	42	36	V 38	40	31	31	46	98	104	R 119	138	U R 138	U R 144	U R 166	U R 159	U R 160	U R 158	U R 158	130	118	R 130	101	63
7	53	42	34	32	30	30	31	46	86	108	112	116	116	114	119	131	132	142	R 146	138	127	120	91	59
8	48	44	U R 42	46	52	33	29	47	84	105	134	137	137	151	U R 160	U R 153	R 151	R 153	137	108	98	94	69	56
9	49	46	44	47	44	38	40	55	85	118	130	123	126	138	R 146	J R 147	R 152	R 157	R 160	U R 147	U R 146	R 122	80	69
10	64	45	36	42	45	30	28	47	80	100	126	125	110	122	133	139	137	134	134	130	114	117	87	70
11	68	73	56	R 54	61	50	30	46	85	104	116	139	R 130	133	R 146	U R 159	D R 156	U R 154	J R 160	U R 161	R 141	R 134	112	90
12	J R 77	68	66	71	43	33	31	46	89	91	105	119	116	120	128	122	136	137	123	R 120	107	91	81	73
13	62	56	52	47	45	42	41	56	98	110	109	117	118	113	132	140	136	142	144	J R 146	R 136	136	118	R 96
14	72	58	45	43	40	36	36	54	82	85	92	108	94	110	108	114	118	122	120	105	87	83	75	67
15	60	65	60	59	54	32	35	F 51	80	93	112	117	127	R 125	132	130	126	119	127	117	105	90	81	66
16	60	51	46	50	41	28	28	46	83	97	110	112	130	117	122	120	116	112	101	98	94	88	74	54
17	46	44	42	45	51	34	26	44	72	88	127	R 142	130	121	131	136	141	134	132	135	R 141	130	109	80
18	59	52	43	47	41	37	46	64	83	102	128	F 124	130	110	120	118	108	106	106	100	89	78	56	42
19	R 37	39	40	R 38	31	32	32	51	72	97	111	118	118	117	125	120	118	110	99	85	92	92	74	53
20	52	48	47	45	48	46	25	45	77	101	111	105	118	127	J R 130	142	141	136	129	113	R 104	76	66	58
21	50	46	45	47	45	36	31	48	88	92	106	R 120	116	R 123	135	146	R 149	R 149	R 151	J R 148	116	99	72	56
22	46	39	36	37	38	37	28	51	82	85	94	114	132	R 152	156	U R 161	J R 152	J R 148	R 150	144	121	J R 107	113	98
23	83	69	67	68	58	41	29	50	76	86	96	113	127	152	154	R 148	R 144	R 149	J R 144	131	108	93	84	68
24	64	67	65	52	48	56	68	74	81	98	117	122	120	134	136	139	136	121	110	110	108	85	77	52
25	52	44	49	47	37	29	28	51	78	104	110	116	118	119	133	U R 141	R 142	R 147	136	R 133	136	122	R 103	70
26	64	61	51	52	40	36	38	57	86	109	120	136	122	131	R 152	162	U R 164	U R 162	U R 161	U R 157	U R 148	U R 146	115	72
27	50	46	47	46	42	38	38	57	78	86	104	124	125	122	U R 126	150	136	130	136	128	114	84	73	63
28	56	53	50	50	50	46	36	54	89	102	109	128	128	130	R 149	R 156	145	124	107	104	93	87	91	81
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	58	50	46	46	44	36	31	48	83	100	112	118	125	126	134	144	142	140	136	132	115	103	82	68
U Q	64	57	52	51	50	38	38	54	86	105	120	126	130	138	R 148	R 153	R 152	R 151	R 147	R 145	R 139	R 124	102	77
L Q	51	44	41	42	40	32	29	46	78	92	108	115	118	120	127	130	134	124	125	112	104	89	74	58

FEB. 2015 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.2015 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	L	L	L	L							
2										L	L	L	L	L	L	L	L							
3											L	L	L	L	L	L	L							
4											L	L	U 576 L	L	L	L	L							
5									L		L	L	L	U 572 L	L	L	L	L						
6											L	L	L	L	L	L	L							
7											L	L	L	L	L	L								
8											L	L	L	L	U 560 L	L	L							
9											L	L	L	L	L	L	L	L						
10											L	L	L	L	L	L								
11										L	L	L	U 540 L	L	L	L		L						
12											L	L	L	L	L		L							
13											L	L	U 484 L	L	L	L	L							
14											L	L	L	U 552 L	L	U 544 L	L	L						
15											L	L	L	U 516 L	U 500 L	L	L							
16										L	L	L	L	L	L	L	L							
17										L	L	L	L	L	L	L	L							
18											L	L	L	L	L	L	L							
19									276	L	L	L	L	L	L	L	L	L						
20										L	L	L	L	L	L	L	L							
21										L	L	L	L	L	L	L	L	L						
22											L	L	L	L	L	U 496 L	L	L						
23										L	L	L	L	L	U 512 L	L	L	L						
24											L	L	L	L	L	L	L		220					
25									L	L	L	L	L	L	L	L		L						
26										L	L	L	U 524 L	U 496 L	U 568 L	L	L	L						
27										L	L	L	L	U 516 L	L	L	L	L						
28										L	L	L	L	L	U 556 L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1				4	5	5	2			1					
MED									276				U 532 L	U 516 L	U 556 L	U 520 L			220					
U Q													U 558 L	U 562 L	U 564 L									
L Q													U 504 L	U 506 L	U 506 L									

FEB.2015 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.2015 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'E kSWEEP 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	292	320	332	A	U R 372	A	A	R 312	252	180					
2								B	232	288	324	R 348	U R 388	B	U R 368	352	316	A	188					
3								B	236	R 284	320	B	R	B	B	U A 324	A	A	A					
4								152	240	288	R	U R 380	B	B	A	U A 336	288	A	A					
5								B	232	304	336	B	B	A	R 392	A	A	U A 244	A					
6								B	248	304	348	372	A	U R 396	R 384	R 372	R 304	A	B					
7								B	248	296	R	U R 376	384	A	A	U A 352	328	A	A					
8								B	240	292	352	364	A	R	U R 400	A	R 320	A	A					
9								B	240	304	332	B	B	A	A	A	A	A	A					
10								B	256	U R 304	U R 344	B	B	B	R 380	U A 344	A	A	A					
11								A	248	A	A	A	A	A	A	A	A	A	A					
12								B	236	316	340	364	A	A	A	A	U R 352	A	A					
13								B	248	304	R 320	R 356	U R 384	A	B	U A	328	260	196					
14								B	240	284	R	352	A	R	R	A	A	264	A					
15								A	248	320	356	U A 360	U R 372	U R 360	A	A	316	268	184					
16								B	216	288	320	R	B	B	R 392	R 356	312	288	A					
17								B	232	A	A	U R 360	R 376	A	R 372	R 344	R 304	U A 244	A					
18								B	244	272	R	R	R	U R 352	R	U R 324	R	276	A					
19								B	228	R 296	328	332	B	R 372	A	336	U R 292	264	B					
20								B	228	284	344	A	U R 372	A	372	340	320	264	200					
21								A	236	288	R	336	U R 364	B	A	A	U A 264	A	A					
22								156	248	288	R	B	R	B	B	B	A	A	A					
23								B	240	308	344	B	B	B	R 356	U R 324	A	A	B					
24								B	220	R	U R 328	R	B	A	B	340	A	A	B					
25								B	252	312	344	U R 332	A	A	A	352	U A 324	U A 268	196					
26								176	248	292	332	340	U R 372	R 360	A	A	A	A	A					
27								B	252	304	340	B	368	B	U R 384	R 356	324	272	A					
28								B	248	R 304	U R 352	R 356	R	B	R 424	364	R 348	268	220					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	28	25	20	16	9	6	11	16	17	13	7					
MED								156	240	296	338	356	U R 372	U R 366	R 384	344	316	264	196					
U Q								176	248	304	344	364	U R 384	U R 372	R 392	R 354	326	270	200					
L Q								152	234	288	326	338	U R 370	R 360	R 372	U 336	R 304	256	184					

FEB.2015 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB. 2015 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	18	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	G	J A 42	G	42	37	G	G 22	J A 29	J A 19	J A 20	E B 13	E B 13	E B 13
2	E B 13	E B 13	E B 13	J A 17	E B 13	19	E B 13	E B 14	G	G	G	G	G	E B 42	49	40	37	30	G	J A 24	J A 21	E B 13	E B 13	E B 13
3	E B 13	J A 34	19	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	E B 40	43	E B 43	E B 40	43	J A 36	J A 32	J A 23	J A 22	J A 21	18	J A 21	E B 13
4	E B 13	J A 21	J A 18	E B 13	E B 13	E B 13	E B 13	G	G	G	G	43	E B 45	E B 45	J A 62	41	36	28	J A 23	J A 45	J A 19	J A 17	E B 13	E B 13
5	E B 13	E B 13	19	20	E B 13	20	J A 16	E B 14	26	32	G	44	E B 43	J A 45	52	J A 46	J A 41	J A 29	J A 30	J A 49	J A 38	J A 21	19	E B 13
6	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	43	J A 51	J A 48	G	G	G	36	32	E B 20	J A 19	E B 13	E B 13	18	18
7	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	G	49	J A 47	44	J A 44	J A 41	J A 37	J A 28	J A 31	J A 30	J A 17	20	20
8	18	22	J A 32	J A 18	E B 13	E B 13	E B 13	E B 14	G	G	G	J A 48	43	G	45	42	40	32	23	23	E B 13	E B 13	E B 13	E B 13
9	J A 15	18	E B 13	E B 13	21	E B 13	J A 17	J A 17	G	G	G	E B 41	46	J A 61	50	J A 44	36	J A 34	19	J A 17	J A 19	E B 13	E B 13	18
10	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	46	44	E B 42	46	42	J A 44	J A 42	J A 29	J A 35	J A 27	J A 22	E B 13	E B 13
11	E B 13	E B 13	E B 13	E B 13	J A 20	J A 29	J A 21	20	G	35	39	44	46	J A 47	J A 60	J A 42	J A 57	57	J A 48	J A 48	J A 50	J A 19	E B 13	E B 13
12	E B 13	E B 13	E B 13	18	E B 13	E B 13	E B 13	E B 14	G	G	41	44	48	J A 47	J A 46	43	G 27	29	J A 26	J A 20	J A 30	J A 21	J A 21	21
13	J A 17	J A 33	E B 13	E B 13	J A 16	19	J A 16	E B 14	G	32	40	42	G	43	E B 41	37	G 25	28	G	20	J A 19	20	E B 13	E B 13
14	E B 13	18	20	J A 16	20	E B 13	E B 13	E B 14	26	G 22	G 26	37	J A 44	J A 42	44	40	35	J A 27	18	J A 23	J A 24	E B 13	E B 13	E B 13
15	22	20	J A 19	E B 13	E B 13	E B 13	E B 13	19	G	37	42	41	G	J A 57	J A 46	42	G 27	G 24	J A 24	J A 22	J A 29	E B 13	E B 13	E B 13
16	E B 13	E B 13	J A 26	J A 17	J A 15	E B 13	E B 13	E B 14	G	G	G	J A 45	E B 43	E B 42	42	G	G	G	26	J A 17	E B 13	E B 13	J A 20	E B 13
17	E B 13	18	18	E B 13	E B 13	E B 13	E B 13	E B 14	G	J A 33	J A 37	G	G	J A 44	G 29	G	G 22	J A 31	20	E B 13	E B 13	19	E B 13	E B 13
18	E B 13	18	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G 27	G 27	G 31	G 26	G	34	G	G	19	E B 13	E B 13	E B 13	E B 13	E B 13
19	E B 14	18	18	E B 13	18	E B 13	E B 13	E B 14	G	G	G	G	E B 42	42	41	G	34	G 23	E B 22	E B 13	E B 13	E B 13	E B 13	E B 13
20	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	E B 17	G	G	38	36	44	43	G 32	G	G	G	J A 21	J A 22	E B 13	E B 13	E B 13	E B 13
21	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	21	28	G	G	G	40	E B 40	41	41	J A 37	34	20	J A 18	20	E B 13	E B 13	19
22	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	E B 41	G	E B 42	E B 40	E B 41	37	J A 34	J A 28	J A 17	20	E B 13	J A 19	J A 19
23	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 17	26	G	G	E B 44	E B 41	E B 41	42	37	J A 37	33	E B 20	E B 13	J A 19	J A 19	J A 18	E B 13
24	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 16	27	G	G	G 31	E B 42	44	E B 42	G	35	J A 28	E B 17	J A 20	19	18	E B 13	E B 13
25	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 18	G	33	38	G	43	J A 46	J A 41	G	J A 43	31	G	E B 13	E B 13	J A 26	J A 20	J A 19
26	J A 21	E B 13	E B 13	E B 13	19	E B 13	E B 13	G	G	G	38	G	41	J A 46	44	40	37	J A 38	J A 32	J A 20	E B 13	J A 20	20	18
27	E B 13	E B 13	E B 13	E B 13	E B 13	J A 22	E B 13	E B 15	G	G	G	E B 41	40	E B 43	G	G	G	G	J A 26	J A 22	E B 13	E B 13	E B 17	E B 13
28	18	E B 13	E B 13	E B 13	J A 20	J A 21	J A 23	E B 19	G	G	G	G	G	47	G	G	G	G	G	E B 13	J A 28	J A 18	J A 43	E B 13
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	E G 40	42	43	42	39	36	30	22	J A 20	J A 19	15	E B 13	E B 13
U Q	14	18	18	13	16	13	J A 13	G	G	G	38	44	44	J A 46	46	42	J A 37	J A 34	J A 27	J A 23	J A 26	J A 19	J A 20	18
L Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	G	G	42	G 40	G	G	G	19	E B 17	E B 13	E B 13	E B 13	E B 13

FEB. 2015 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB. 2015 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'E kSWEEP 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 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	G	42	G	41	36	G	G 19	G 16	E B 14	E B 13	E B 13	E B 13	E B 13
2	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	G	G	E B 42	49	38	35	29	G	22	E B 13	E B 13	E B 13	E B 13
3	E B 13	20	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	E B 40	42	E B 43	E B 40	41	33	31	19	19	17	E B 13	20	E B 13
4	E B 13	18	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	43	E B 45	E B 45	60	41	36	28	21	22	18	E B 13	E B 13	E B 13
5	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	26	32	G	42	E B 43	44	50	43	39	G 20	20	21	32	20	E B 13	E B 13
6	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	40	43	44	G	G	G	36	30	E B 20	E B 13	E B 13	E B 13	E B 13	E B 13
7	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	G	48	46	43	40	39	35	27	26	28	E B 13	E B 13	E B 13
8	E B 13	E B 13	26	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	40	42	G	43	42	39	30	20	20	E B 13	E B 13	E B 13	E B 13
9	E B 13	E B 13	E B 13	E B 13	19	E B 13	E B 13	E B 14	G	G	G	E B 41	46	59	44	41	35	29	U Y 19	E B 13	16	E B 13	E B 13	E B 13
10	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	44	43	E B 42	45	40	40	38	27	30	22	17	E B 13	E B 13
11	E B 13	E B 13	E B 13	E B 13	E B 13	22	20	17	G	32	38	42	45	44	44	41	42	35	32	30	20	E B 13	E B 13	E B 13
12	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	41	42	46	43	44	41	G 20	28	21	19	23	19	17	15
13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	32	39	41	G	42	E B 41	U Y 37	G 22	28	G	E B 13	E B 13	E B 13	E B 13	E B 13
14	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	26	G 19	U G 26	U Y 37	42	40	42	40	34	G 22	18	20	20	E B 13	E B 13	E B 13
15	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	17	G	37	41	40	G	44	41	40	G 24	G 21	G 14	18	23	E B 13	E B 13	E B 13
16	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	44	E B 43	E B 42	42	G	G	G	23	E B 14	E B 13	E B 13	E B 13	E B 13
17	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	30	36	G	G	44	G 25	G	G 20	30	20	E B 13	E B 13	E B 13	E B 13	E B 13
18	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	U G 27	U G 27	U G 31	G 26	G	U Y 34	G	G	19	E B 13	E B 13	E B 13	E B 13	E B 13
19	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	G	E B 42	42	41	G	33	G 22	E B 22	E B 13	E B 13	E B 13	E B 13	E B 13
20	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	E B 17	G	G	38	U Y 36	44	42	G 27	G	G	G	G 18	20	E B 13	E B 13	E B 13	E B 13
21	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	18	27	G	G	G	40	E B 40	40	40	37	30	20	17	E B 13	E B 13	E B 13	E B 13
22	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	E B 41	G	E B 42	E B 40	E B 41	36	30	22	E B 13	E B 13	E B 13	E B 13	18
23	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 17	26	G	G	E B 44	E B 41	E B 41	42	U Y 37	36	30	E B 20	E B 13	E B 13	18	15	E B 13
24	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 16	27	G	G	U G 31	E B 42	43	E B 42	G	35	28	E B 17	E B 13	E B 13	E B 13	E B 13	E B 13
25	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 18	G	32	38	G	42	42	41	G	42	30	G	E B 13	E B 13	20	20	18
26	20	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	38	G	41	43	42	38	33	30	30	E B 13	E B 13	18	E B 13	E B 13
27	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 15	G	G	G	E B 41	40	E B 43	G	G	G	G	24	18	E B 13	E B 13	E B 17	E B 13
28	E B 13	E B 13	E B 13	E B 13	E B 13	17	20	E B 19	G	G	G	G	G	47	G	G	G	G	G	E B 13	25	E B 13	34	E B 13
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	E G 40	42	42	42	38	34	28	20	16	E B 13	E B 13	E B 13	E B 13
U Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	38	42	44	44	44	41	36	30	22	20	20	13	13	E B 13
L Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	G	G	G	42	G 40	G	G	G	G	E B 13	E B 13	E B 13	E B 13	E B 13

FEB. 2015 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.2015 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'E KSWEEP 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	13	13	13	13	13	13	14	14	20	20	19	21	25	30	20	18	14	14	14	13	13	13	13
2	13	13	13	13	13	13	13	14	14	15	15	21	22	42	20	21	20	17	14	14	13	13	13	13
3	13	13	13	13	13	13	13	14	14	21	19	40	21	43	40	22	21	16	14	13	13	13	13	13
4	13	13	13	13	13	13	13	14	16	18	24	25	45	45	25	22	21	16	14	13	14	13	13	13
5	13	13	13	13	13	13	13	14	17	19	22	38	43	22	31	22	19	15	14	13	13	13	13	13
6	13	13	13	13	13	13	13	14	14	16	22	24	39	31	26	24	19	17	20	13	13	13	13	13
7	13	13	13	13	13	13	13	14	14	18	27	31	30	40	38	24	21	18	14	13	13	13	13	13
8	13	13	13	13	13	13	13	14	16	16	23	22	38	30	20	37	20	23	14	13	13	13	13	13
9	13	13	13	13	13	13	13	14	14	17	28	41	42	40	36	32	22	16	14	13	13	13	13	13
10	13	13	13	13	13	13	13	14	15	22	24	43	40	42	32	22	20	20	14	13	13	13	13	13
11	13	13	13	13	13	13	14	14	20	20	32	40	33	29	32	26	21	20	14	13	13	13	13	13
12	13	13	13	13	13	13	13	14	14	16	20	28	24	20	20	17	14	14	14	13	13	13	13	13
13	13	13	13	13	13	13	13	14	14	14	21	21	24	39	41	23	20	15	14	13	13	13	13	13
14	13	13	13	13	13	13	13	14	14	14	22	22	22	21	32	26	22	19	14	13	13	13	13	13
15	13	13	13	13	13	13	13	14	20	18	20	21	24	21	23	20	21	18	14	13	13	13	13	13
16	13	13	13	13	13	13	13	14	14	14	20	21	43	42	30	24	21	18	14	14	13	13	13	13
17	13	13	13	13	13	13	13	14	14	18	21	21	22	27	22	24	16	18	14	13	13	13	13	13
18	13	13	13	13	13	13	13	14	14	16	21	24	24	24	32	22	22	20	14	13	13	13	13	13
19	14	13	13	13	13	13	13	14	18	20	22	24	42	32	23	23	20	16	22	13	13	13	13	13
20	13	13	13	13	13	13	14	17	15	16	22	32	24	32	23	32	18	16	14	14	13	13	13	13
21	14	13	13	13	13	13	13	14	15	19	22	23	24	40	34	22	20	18	15	13	13	13	13	13
22	13	13	13	13	13	13	13	14	15	20	21	41	24	42	40	41	18	17	14	13	13	13	13	13
23	13	13	13	13	13	13	13	17	17	21	24	44	41	41	28	22	30	14	20	13	13	13	13	13
24	13	13	13	13	13	13	13	16	15	19	22	22	42	40	42	22	24	14	17	13	13	13	13	13
25	13	13	13	13	13	13	13	18	16	19	22	21	40	26	24	28	24	18	14	13	13	13	13	13
26	13	13	13	13	13	13	13	14	16	16	21	22	24	24	22	21	20	17	17	13	13	13	13	13
27	13	13	13	13	13	13	13	15	15	23	25	41	24	43	28	25	21	17	14	13	13	13	17	13
28	13	13	13	13	13	13	13	19	18	22	22	24	24	42	24	25	24	21	17	13	13	13	13	13
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	13	13	13	13	13	13	13	14	15	18	22	24	24	36	29	23	20	17	14	13	13	13	13	13
U Q	13	13	13	13	13	13	13	14	16	20	24	39	40	42	33	26	22	18	14	13	13	13	13	13
L Q	13	13	13	13	13	13	13	14	14	16	21	22	24	26	23	22	20	16	14	13	13	13	13	13

IONOSPHERIC DATA STATION Okinawa

FEB.2015 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	335	342	285	F 280	Z 291	290	335	318	348	350	325	324	304	300	292	316	301	315	312	319	317	321	297	292
2	296	300	313	R 322	294	U R 303	333	328	323	323	349	316	292	300	R 318	R 322	303	R 301	R 310	336	304	328	276	292
3	323	308	306	297	343	339	276	302	344	335	309	305	R 321	R 313	U R 307	R 306	325	J R 315	U R 321	320	R 312	R 337	298	298
4	316	299	276	R 315	369	389	290	325	360	345	338	315	298	305	302	R 311	R 321	R 313	R 320	R 322	U R 335	U R 335	R 327	313
5	296	261	289	304	347	H 304	297	313	347	347	345	325	288	294	305	311	306	320	336	R 326	D R 345	R 336	R 324	330
6	317	292	281	V 256	317	283	288	315	347	338	R 319	319	U R 316	U R 304	U R 311	U R 327	U R 322	U R 334	U R 343	329	302	R 338	322	329
7	302	329	329	299	311	287	279	318	340	339	332	338	322	306	296	304	299	317	R 335	330	323	324	332	305
8	296	275	U R 267	286	338	300	298	318	337	308	316	326	299	305	U R 318	U R 321	R 303	R 321	329	308	300	342	329	305
9	294	280	276	295	311	292	291	313	338	326	346	313	307	302	R 312	J R 302	R 319	R 337	R 348	U R 340	U R 331	R 343	309	301
10	330	295	281	310	356	308	311	320	335	334	337	341	313	304	300	314	315	314	312	328	332	340	319	316
11	304	315	288	R 282	331	373	304	311	358	336	321	339	R 327	294	R 307	R	R	R	R	U R 330	R 335	R 334	315	312
12	R	261	296	316	344	321	284	318	360	337	334	339	331	320	315	305	318	322	312	R 298	310	315	319	327
13	302	281	297	286	303	307	275	317	354	338	332	325	333	306	311	317	310	321	334	J R 330	R 336	330	331	R 316
14	322	305	301	298	322	303	316	341	374	352	343	340	322	318	309	311	315	327	329	328	304	302	311	303
15	287	297	301	317	361	306	280	F 330	345	337	328	323	337	R 321	327	323	321	306	324	322	307	302	316	317
16	283	276	273	310	343	317	293	322	359	347	332	322	328	307	317	312	324	321	326	322	315	313	318	309
17	293	287	294	308	344	361	315	332	342	312	321	R 333	314	296	303	299	312	307	308	307	R 334	321	308	295
18	292	313	314	319	330	267	272	325	339	287	328	F 315	319	298	308	317	318	320	318	319	324	335	291	290
19	R 305	306	317	R 326	346	296	304	343	355	336	331	337	324	310	314	325	321	327	318	310	315	319	311	286
20	303	312	311	303	330	366	305	334	340	342	343	323	314	312	J R 315	313	316	322	337	315	R 315	312	312	285
21	275	307	316	324	352	342	282	316	357	333	326	R 333	317	R 300	309	315	R 321	R 326	R 346	J R 350	325	303	311	313
22	297	292	297	302	318	362	298	330	363	353	318	312	309	R 315	327	U R 329	J R 313	J R 329	R 328	328	319	J R 289	321	326
23	312	290	278	302	377	354	347	337	367	335	311	311	302	318	321	R 311	R 310	R 317	J R 325	327	323	306	305	293
24	286	290	328	299	248	265	313	340	332	320	328	323	296	314	305	305	308	317	310	310	322	317	318	304
25	312	297	321	349	352	289	300	325	336	338	334	329	317	306	310	U R 324	R 328	R 331	R 329	R 324	322	325	R 319	R 316
26	295	318	299	320	328	279	303	336	338	330	329	340	327	303	R 319	328	U R 326	U R 339	U R 338	U R 338	U R 342	U R 338	313	323
27	272	292	314	312	325	322	326	346	358	338	323	329	337	316	U R 317	322	318	322	343	319	309	293	308	308
28	298	292	297	301	313	342	310	328	356	343	320	336	319	290	R 308	R 319	326	329	317	316	305	293	317	310
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	27	27	28	28	28	28	28
MED	298	296	297	304	330	306	299	325	347	337	328	325	317	306	310	315	318	321	326	323	320	322	316	308
U Q	312	308	314	316	346	342	312	333	358	342	336	336	326	314	317	R 322	R 321	R 327	R 336	R 330	R 332	R 336	320	316
L Q	293	288	283	298	315	291	286	318	338	332	321	318	306	300	306	311	310	315	317	318	310	309	308	296

FEB.2015 M(3000)F2 (0.01)

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FEB.2015 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	L	L	L	L							
2										L	L	L	L	L	L	L	L							
3											L	L	L	L	L	L	L							
4											L	L	U L 357	L	L	L	L							
5									L		L	L	L	U L 349	L	L	L	L						
6											L	L	L	L	L	L	L							
7											L	L	L	L	L	L								
8											L	L	L	L	U L 371	L	L							
9											L	L	L	L	L	L	L	L						
10											L	L	L	L	L	L								
11										L	L	L	U L 374	L	L	L		L						
12											L	L	L	L	L		L							
13											L	L	U L 401	L	L	L	L							
14											L	L	L	U L 363	L	U L 354	L	L						
15											L	L	L	U L 368	U L 384	L	L							
16										L	L	L	L	L	L	L	L							
17										L	L	L	L	L	L	L	L							
18											L	L	L	L	L	L	L							
19									405	L	L	L	L	L	L	L	L	L						
20										L	L	L	L	L	L	L	L							
21										L	L	L	L	L	L	L	L	L						
22											L	L	L	L	L	U L 368	L	L						
23										L	L	L	L	L	U L 367	L	L	L						
24											L	L	L	L	L	L	L		396					
25									L	L	L	L	L	L	L	L		L						
26										L	L	L	U L 389	U L 408	U L 349	L	L	L						
27										L	L	L	L	U L 381	L	L	L	L						
28										L	L	L	L	L	U L 349	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1				4	5	5	2			1					
MED									405				U L 382	U L 368	U L 367	U L 361			396					
U Q													U L 395	U L 394	U L 378									
L Q													U L 366	U L 356	U L 349									

FEB.2015 M(3000)F1 (0.01)

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FEB.2015 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											258	258	290	274	296	254	274							
2										270	232	234	282L	282	288	264	242							
3											258	278	278	278	272	276	250							
4											244	256	300	286	302	274	252							
5									230		240	244	282L	306	294	268	256	246						
6											252	256	270	288	306	274	264							
7											246	250	266	274L	276	282								
8											276	254	300	290	290	254	270							
9											236	276	272	296	276	256	270	248						
10											260	250	256	284	294	276								
11										246	244	264	258	274	312	286		262						
12											242	250	256	280	278		266							
13											238	256	248	246	286	266	254							
14											254	250	262	274	270	274	252	242						
15											262	258	252	270	258	256	246							
16										244	260	242	264	248	276	272	246							
17										246	272	252	258	256	288	294	262							
18											252	256	260	248	280	256	250							
19									222	238	254	268	274	276	262	250	232	226						
20										242	246	256	284	264	282	264	252							
21										228	248	258	276	288	284	280	260	244						
22											264	290	292	290	270	266	248	236						
23										252	266	286	302	292	266	266	244	260						
24											270	266	256	288	278	264	252		228					
25									224	252	244	246	260	264	296	278		236						
26										254	254	248	252	266	276	264	250	246						
27										230	268	270	246	258	272	272	238	232						
28										244	262	254	256	254	304	274	248							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									3	12	28	28	28	28	28	27	24	11	1					
MED									224	245	254	256	265	275	281	268	252	244	228					
U Q									230	252	262	265	282	288	294	276	261	248						
L Q									222	240	244	250	256	264	274	264	247	236						

FEB.2015 h'F2 (KM)

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FEB. 2015 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	228	216	278	334	312	276	242	240	222	220	214	210	212	226	216	220	220	236	226	222	212	202	196	216
2	240	252	260	260	276	278	232	240	232	224	218	202	204	204	264	226	218	234	240	214	198	220	216	266
3	240	256	256	262	226	196	314	286	236	226	220	214	222	222	220	220	218	220	216	204	212	206	208	230
4	236	262	302	264	218	200	296	250	222	226	218	220	218	B 236	E A 286	A 238	232	224	220	226	218	208	208	208
5	226	282	274	256	228	212	252	252	178	224	220	206	206	220	E A 272	A 234	230	234	212	212	226	198	224	220
6	202	274	292	334	232	262	302	276	232	224	220	216	206	224	210	218	226	234	212	188	210	214	194	198
7	220	234	228	252	238	288	312	262	228	232	220	222	236	228	216	218	238	236	216	202	210	212	200	218
8	250	296	E A 352	298	224	242	262	262	236	224	220	212	212	216	222	226	228	236	206	200	234	210	210	234
9	262	286	294	280	262	258	278	246	228	226	216	214	236	A	238	220	224	230	216	190	196	194	216	230
10	228	234	314	270	212	240	258	242	220	226	220	228	214	208	214	218	238	234	220	214	204	208	208	224
11	236	242	226	290	236	206	E A 296	264	224	216	202	214	212	218	232	236	246	236	212	206	204	204	196	226
12	256	290	250	226	208	240	272	266	228	216	214	228	236	H 206	224	230	236	228	204	204	222	218	216	226
13	234	266	256	280	268	274	290	262	232	220	216	212	198	206	202	232	220	230	216	202	210	210	204	218
14	224	224	236	254	244	258	254	226	218	224	214	216	212	208	224	210	216	226	220	198	208	238	224	242
15	262	260	230	238	210	240	280	246	220	226	228	216	224	A 230	206	212	214	218	226	204	208	218	212	224
16	258	292	308	254	200	236	288	258	218	218	214	226	E B 220	B 230	216	216	212	230	208	212	230	208	208	226
17	266	290	286	266	230	190	254	242	226	214	204	224	202	226	244	228	222	228	232	224	218	208	206	226
18	222	254	242	258	240	346	320	244	226	236	226	226	Y 230	206	216	E Y 234	E Y 228	228	228	212	216	202	192	254
19	286	264	238	252	216	280	258	236	208	220	228	220	208	218	216	206	216	216	208	204	238	212	204	222
20	260	246	246	260	224	202	208	232	226	206	220	218	226	218	212	202	210	230	214	200	196	228	214	246
21	278	258	236	232	226	216	274	254	232	216	216	204	200	212	204	218	222	230	222	194	184	224	230	226
22	246	264	290	278	254	210	256	248	218	214	198	208	204	B 222	228	B 228	220	224	220	202	190	242	222	220
23	224	246	258	244	204	220	224	230	218	220	216	B 234	196	198	222	218	218	226	220	204	198	220	220	240
24	272	252	234	260	338	300	242	212	220	220	222	226	212	200	244	218	218	226	196	216	224	210	212	242
25	248	256	242	220	204	284	260	248	214	214	216	220	218	214	228	218	252	224	216	200	212	200	210	232
26	254	232	246	246	226	310	274	232	226	218	210	206	200	200	208	220	220	226	222	214	206	216	192	208
27	252	278	252	252	220	226	228	228	214	214	220	212	208	206	198	198	220	220	216	194	194	226	232	236
28	264	272	272	272	248	222	232	228	226	220	222	216	208	A 240	244	242	238	224	218	208	222	234	244	232
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28
MED	247	259	255	260	227	240	260	246	225	220	218	216	212	218	218	220	220	228	216	204	210	211	210	226
U Q	261	276	288	275	246	277	289	260	228	225	220	223	221	226	235	229	231	234	221	213	220	220	218	235
L Q	228	246	240	252	217	214	247	234	218	216	214	212	205	206	213	218	218	224	212	200	201	207	204	220

FEB. 2015 h'F (KM)

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FEB.2015 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 110	110	106	106		A 106		A	A	108	108	168					
2								B 112	108	108	108	108		B 106		108	110	A	172					
3								B 116	110	106	B	108		B	B	108	A	A	A					
4								B 112	110	110	110		B	B	A	110	110	A	A					
5								B 110	110	110	B	B	A	110	A		A	112	A					
6								B 112	110	110	110	A	110	112	110	108	A	B						
7								B 112	110	110	110	110	A	A	110	110	A	A						
8								B 114	110	110	108	A	108	A	A	108	A	A						
9								B 110	110	110	B	B	A	A	A		A	A	A					
10								B 110	108	108	B	B	B	108	108		A	A	A					
11								A 118	A	A	A	A	A	A	A	A	A	A	A					
12								B 114	108	108	108	A	A	A	A	112	A	A						
13								B 108	106	108	108	108	K	B	A	108	108	136						
14								B 126	106	A	106	A	106	112	A	A	112	A						
15								A 112	110	110	108	108	108	A	A	114	114	126						
16								B 110	108	106	A	B	B	112	110	110	110	A						
17								B 110	A	A	110	110	A	110	110	110	110	A						
18								B 110	110	A	A	A	110	118	106	106	112	A						
19								B 112	110	108	108	B	108	A	108	108	114	B						
20								B 110	108	108	A	108	A	114	114	108	108	E A 154						
21								A 112	110	106	106	110	B	A	A	106	A	A						
22								B 110	110	110	B	108	B	B	B	A	A	A						
23								B 108	108	108	B	B	B	108	108	A	A	B						
24								B 108	108	110	A	B	A	B	108	A	A	B						
25								B 110	110	110	106	A	A	A	112	112	112	114						
26								152	112	106	108	106	108	108	A	A	A	A	A					
27								B 108	108	106	B	106	B	112	110	110	110	A						
28								B 110	110	106	106	106	B	108	112	112	112	124						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	28	26	24	16	12	8	12	16	18	13	7					
MED								152	110	110	108	108	108	108	111	110	110	112	131					
U Q									112	110	110	109	109	109	112	110	110	112	168					
L Q									110	108	107	106	108	107	108	108	108	109	124					

FEB.2015 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.2015 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'E KSWEEP 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	94	B	B	B	B	B	B	B	G	G	G	G	122	G	112	110	G	100	100	98	98	B	B	B
2	B	B	B	98	B	98	B	B	G	G	G	G	G	B	114	118	114	110	G	102	98	B	B	B
3	B	98	100	B	B	B	B	B	G	G	G	B	140	B	B	120	108	106	104	102	96	94	94	B
4	B	102	102	B	B	B	B	G	G	G	G	170	B	B	106	106	108	104	102	102	98	98	B	B
5	B	B	94	94	B	94	96	B	158	142	G	114	B	112	122	110	110	102	98	96	94	92	92	B
6	B	B	B	B	B	B	B	B	G	G	118	116	116	G	G	G	112	116	B	102	B	B	94	94
7	B	B	B	B	B	B	B	B	G	G	G	G	112	110	110	110	110	106	106	102	102	100	100	100
8	100	98	96	98	B	B	B	B	G	G	G	108	116	G	140	128	110	110	108	90	B	B	B	B
9	94	94	B	B	94	B	100	92	G	G	G	B	118	106	106	106	106	106	104	102	102	B	B	96
10	B	B	B	B	B	B	B	B	G	G	G	118	120	B	112	110	106	106	106	102	100	94	B	B
11	B	B	B	B	110	90	92	90	G	110	118	114	108	108	106	104	100	102	96	98	98	98	B	B
12	B	B	B	94	B	B	B	B	G	G	110	110	110	114	112	120	90	106	114	90	106	102	96	94
13	92	102	B	B	102	94	94	B	G	146	120	114	G	116	B	112	100	176	G	94	94	112	B	B
14	B	94	94	94	92	B	B	B	170	102	102	132	114	112	114	104	104	100	100	104	98	B	B	B
15	92	100	100	B	B	B	B	180	G	168	148	112	G	112	110	108	104	102	102	98	94	B	B	B
16	B	B	98	94	92	B	B	B	G	G	G	114	B	B	148	G	G	G	108	108	B	B	106	B
17	B	90	90	B	B	B	B	B	G	106	106	G	G	108	98	G	98	108	92	B	B	92	B	B
18	B	92	B	B	B	B	B	B	G	G	104	104	104	100	G	110	G	G	104	B	B	B	B	B
19	B	122	118	B	92	B	B	B	G	G	G	G	B	110	110	G	108	104	B	B	B	B	B	B
20	B	B	B	B	B	B	B	B	G	G	176	114	112	112	104	G	G	G	100	96	B	B	B	B
21	B	B	B	B	B	B	B	96	154	G	G	G	116	B	110	106	106	104	104	98	96	B	B	92
22	B	B	B	B	B	B	B	G	G	G	G	B	G	B	B	B	110	102	100	96	94	B	94	92
23	B	B	B	B	B	B	B	B	168	G	G	B	B	B	110	108	106	100	B	B	96	96	96	B
24	B	B	B	B	B	B	B	B	168	G	G	100	B	120	B	G	110	106	B	92	92	92	B	B
25	B	B	B	B	B	B	B	B	G	142	124	G	118	116	116	G	110	110	G	B	B	100	96	96
26	96	B	B	B	102	B	B	G	G	G	116	G	114	110	110	108	102	102	98	104	B	100	96	96
27	B	B	B	B	B	98	B	B	G	G	G	B	118	B	G	G	G	G	98	98	B	B	B	B
28	92	B	B	B	110	94	90	B	G	G	G	G	G	126	G	G	G	G	G	B	104	104	98	B
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	10	9	6	8	6	5	4	5	7	11	14	16	16	20	18	22	23	20	22	18	14	11	8
MED	94	98	98	94	98	94	94	94	168	142	118	114	116	112	110	110	107	106	102	98	98	98	96	95
U Q	96	102	101	98	106	98	98	138	169	146	124	116	118	115	114	112	110	108	105	102	100	100	98	96
L Q	92	94	94	94	92	94	91	91	156	106	106	110	112	109	108	106	104	102	99	96	94	94	94	93

IONOSPHERIC DATA STATION Okinawa

FEB. 2015 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F1												C1		C1	C1		L1	L1	F1	F1			
2				F1		F1									C1	C1	C1	C1		F2	F1			
3		FQ31	F1										H1			C1	C1	C1	LQ11	F2	F1	F1	F1	
4		F1	F1									H1			C1	C1	C1	C1	L1	F3	F1	F1		
5			F1	F1		F1	F1		H1	H1		C1		C1	C1	C1	C1	L1	L2	F4	F4	F2	F1	
6											C1	C1	C1				C1	C1		F1			F1	F1
7													C1	C1	C1	C1	C1	C1	C2	F2	F3	F1	F1	FF11
8	F1	F1	F3	F1								C1	C1		HL11	CL11	C1	C1	C1	F1				
9	F1	F1			F1		F1	L2					C1	C1	C1	C1	C1	C2	L1	F1	F1			F1
10												C1	C1		C1	C1	C2	C1	C2	F4	F4	F2		
11					F1	F2	FQ21	L1		C1	C1	C1	C1	C1	C1	L1	L3	L2	L2	F3	F3	F1		
12				F1							C1	C1	CL11	CL11	CL11	CL11	L1	CL11	CL11	F1	F2	F2	F1	F1
13	F1	F2			F1	F1	F1			H1	CL11	CL11		C1		C1	L1	H1		F1	F1	F1		
14		F1	F1	F1	F1				HL11	L1	L1	HL11	C1	C1	C1	C1	C1	C1	L1	F1	F1			
15	F2	F1	F1					H1		H1	H1	C1		C1	C1	C1	L1	L1	L1	F2	F2			
16			F1	F2	F1							CL11			H1				C1	F1			F1	
17		F1	F1							C1	C1			C1	L1		L1	C1	L1			F1		
18		F1									L1	L1	L1	L1		C1			L1					
19		F1	F1		F1									C1	C1		C1	L1						
20											H1	C1	C1	C1	L1				L1	F2				
21								L1	H1				C1		C1	C1	C1	L1	L1	F1	F1			F1
22																	C1	L1	L2	F1	F1		F1	F2
23									H1						C1	C1	C1	L1			F1	F1	F1	
24									H1			L1		C1			C1	CL11		F1	F1	F1		
25										H1	C1		C1	C1	C1		C1	C1				F1	F2	F3
26	F2				F1						C1		C1	C1	C1	C1	L1	L2	L3	F1		F3	F1	F1
27						F1							C1						L2	F2				
28	F1				F1	F2	F2							C1							F2	F1	F4	
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB. 2015 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

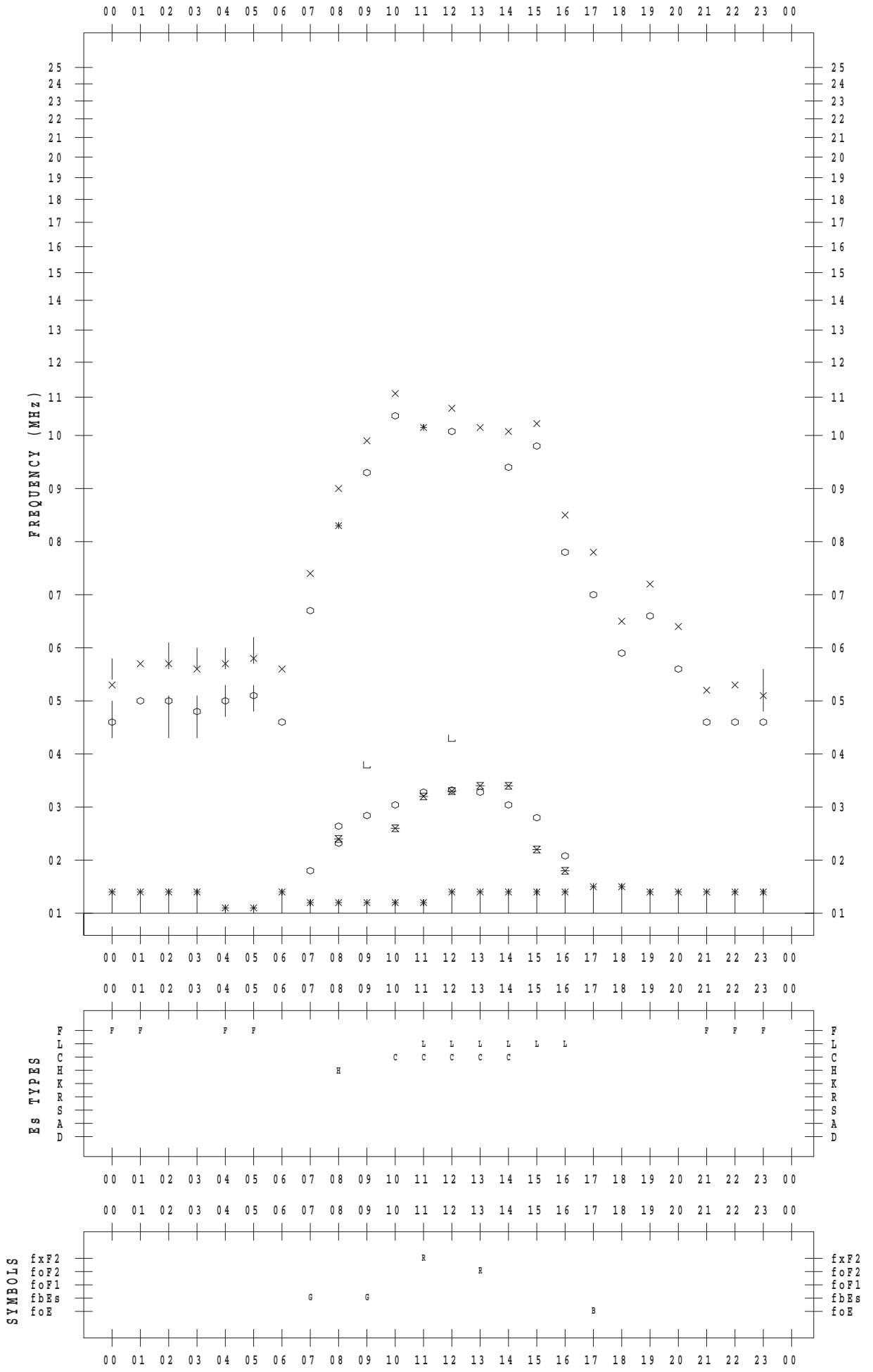
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/ 1

135 °E MEAN TIME



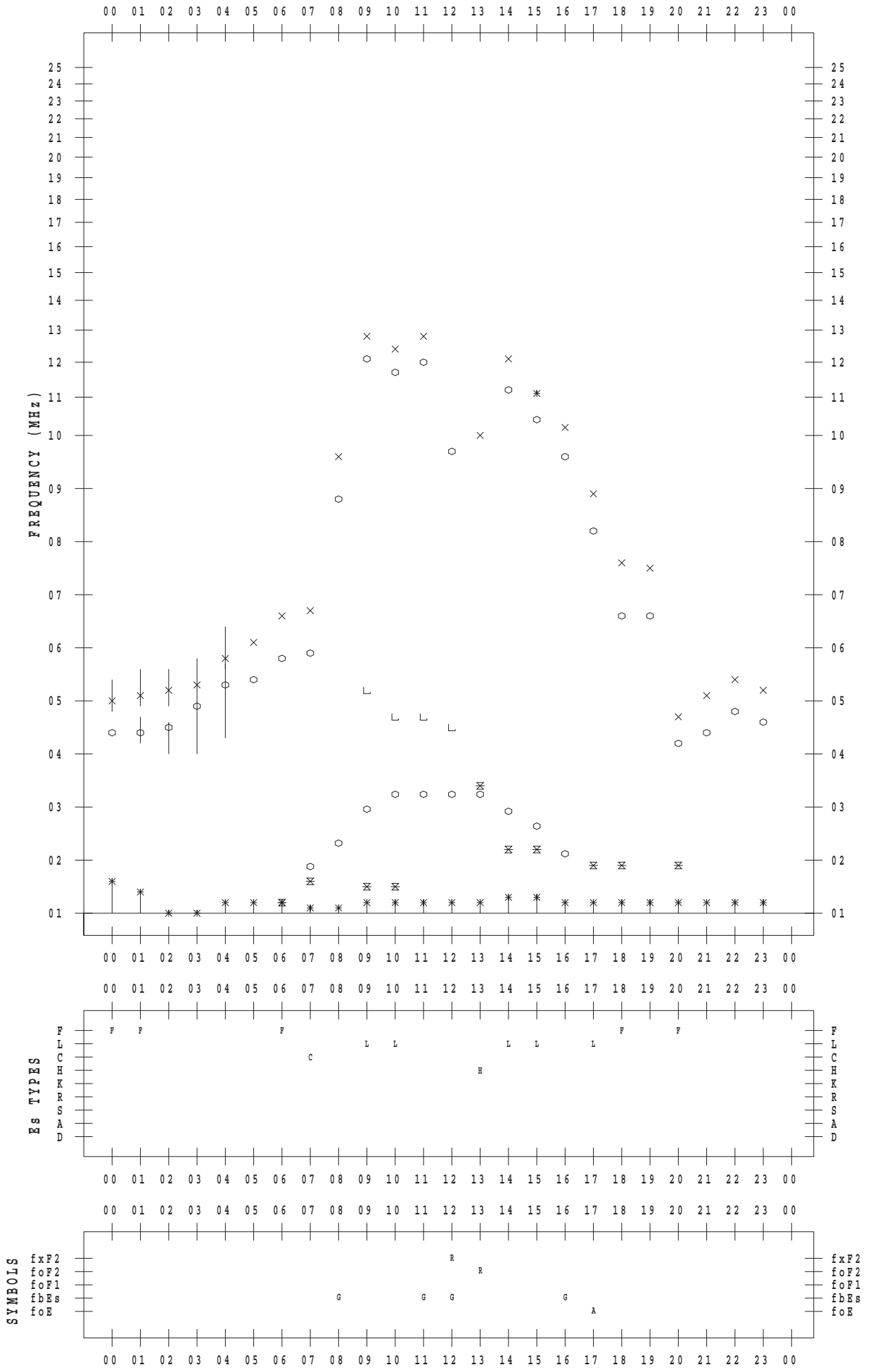
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/ 2

135 °E MEAN TIME



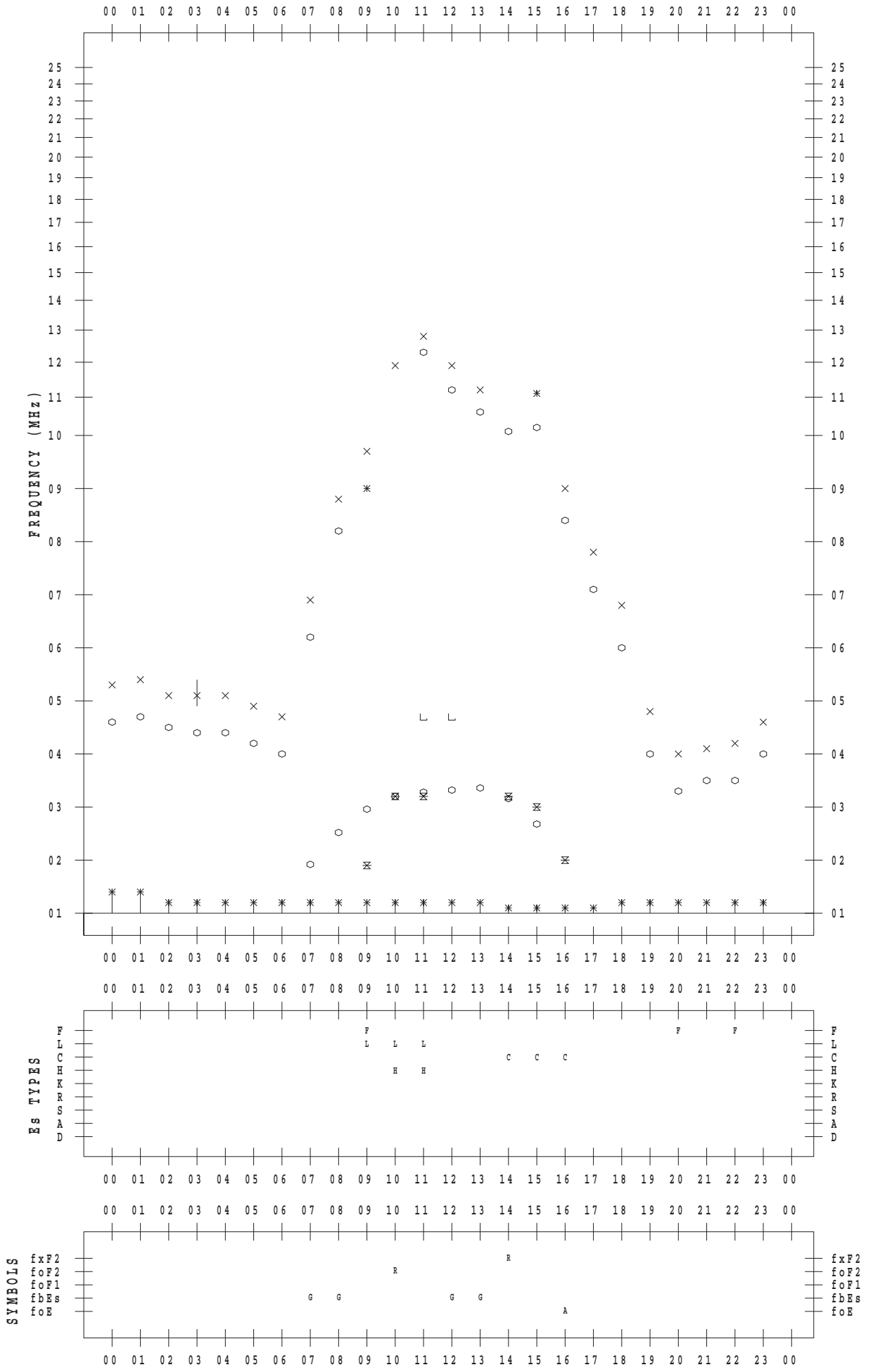
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/ 3

135 °E MEAN TIME



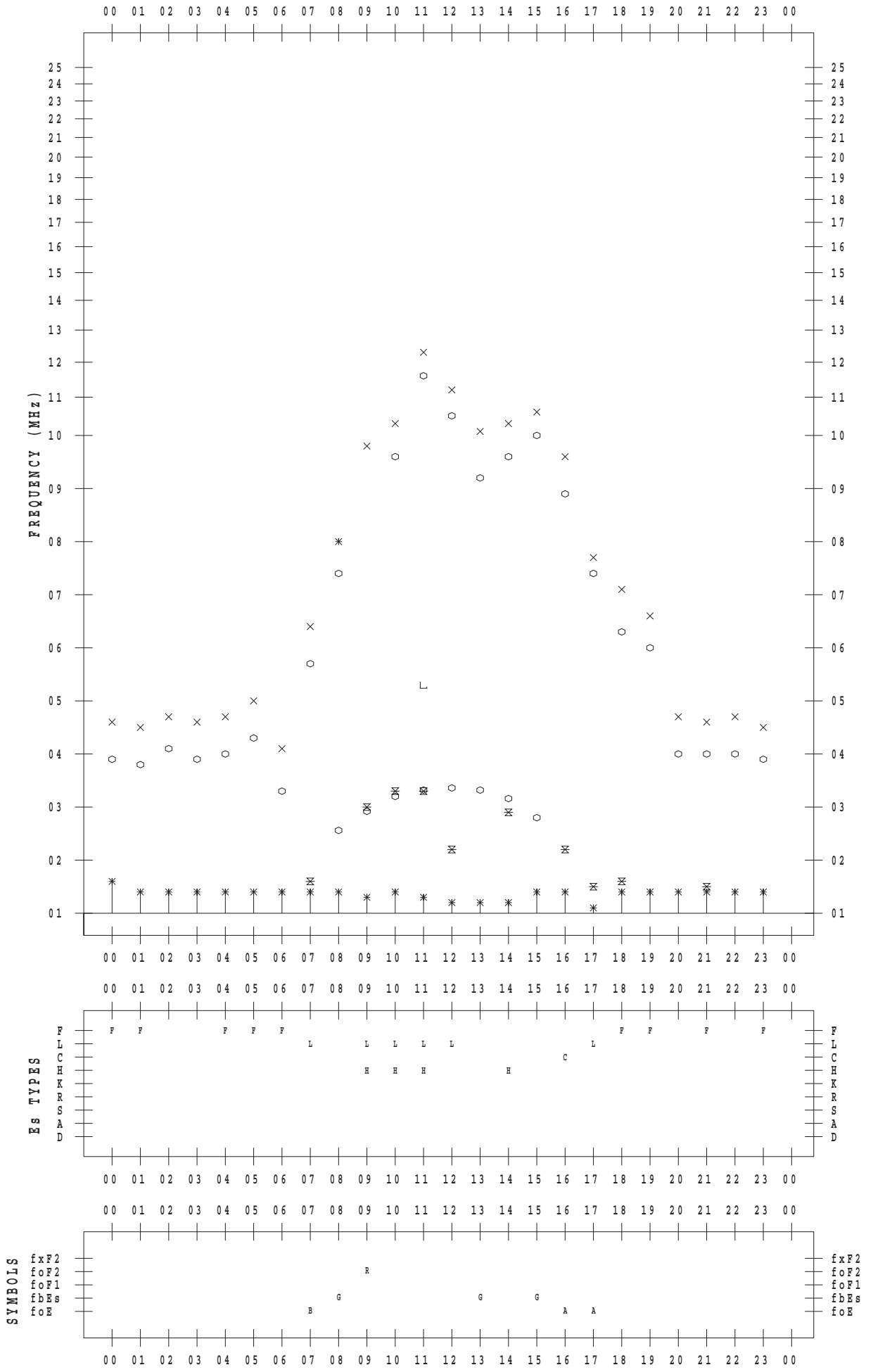
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/ 4

135 °E MEAN TIME



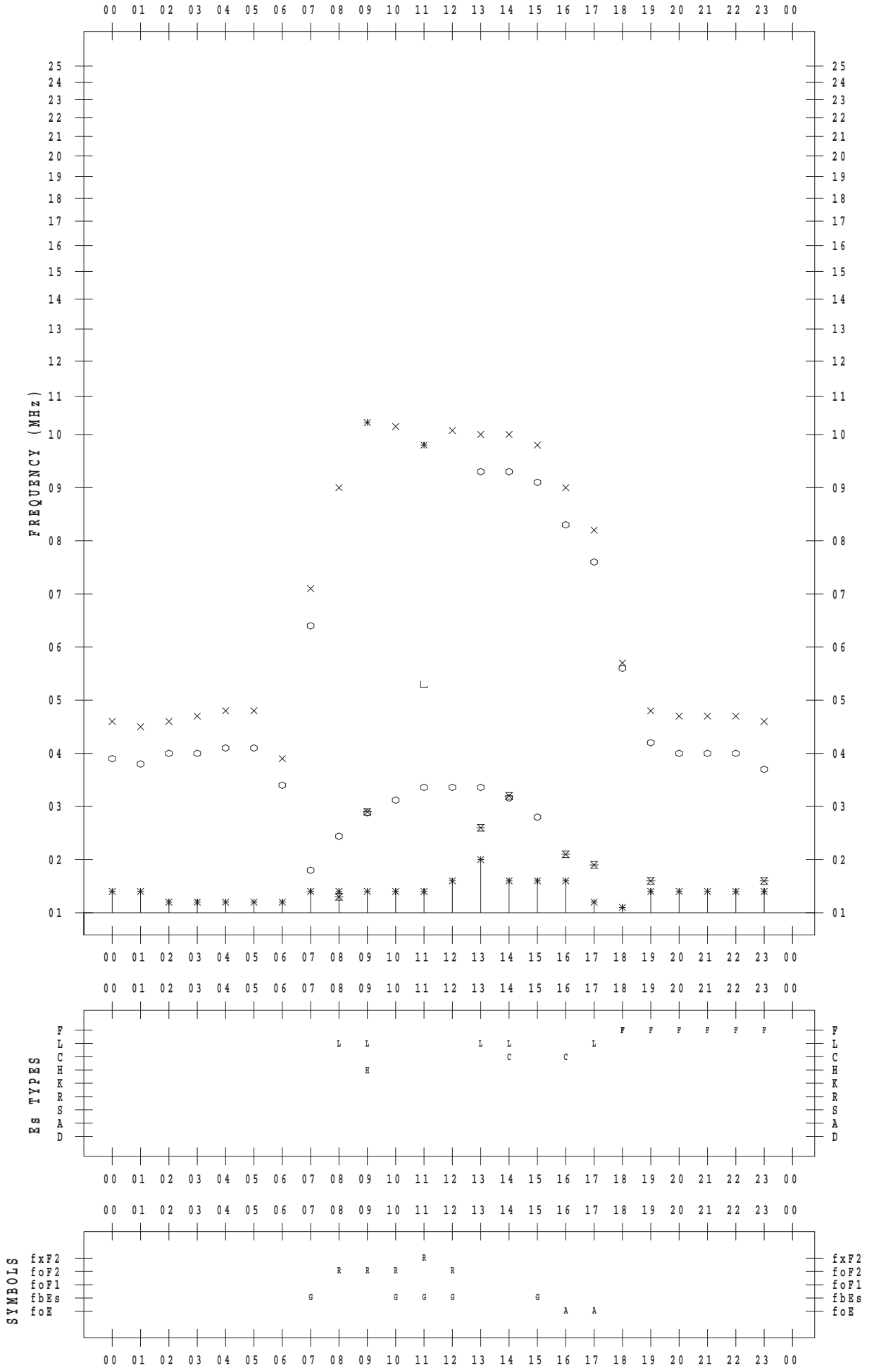
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/ 5

135 °E MEAN TIME



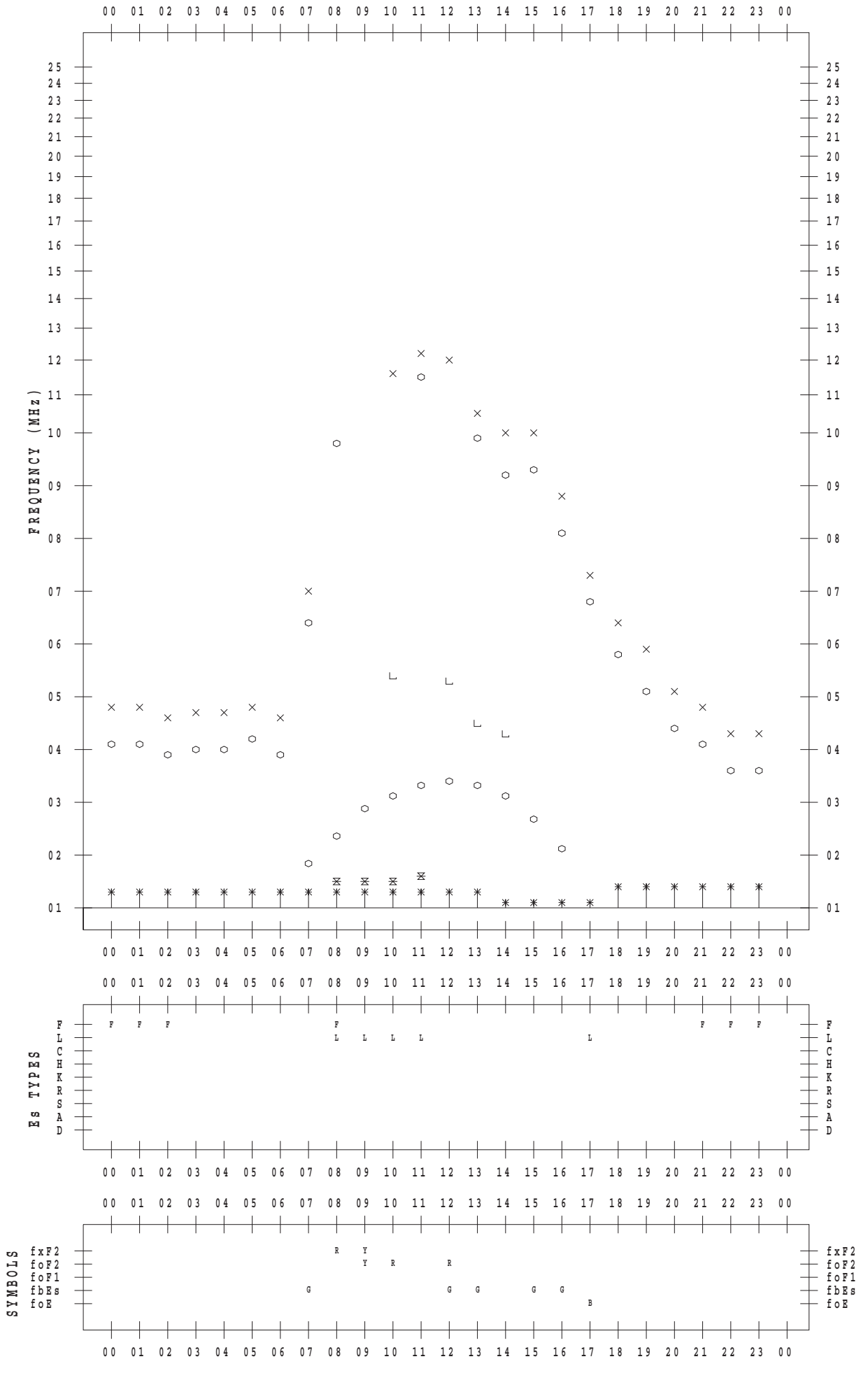
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/ 6

135 °E MEAN TIME



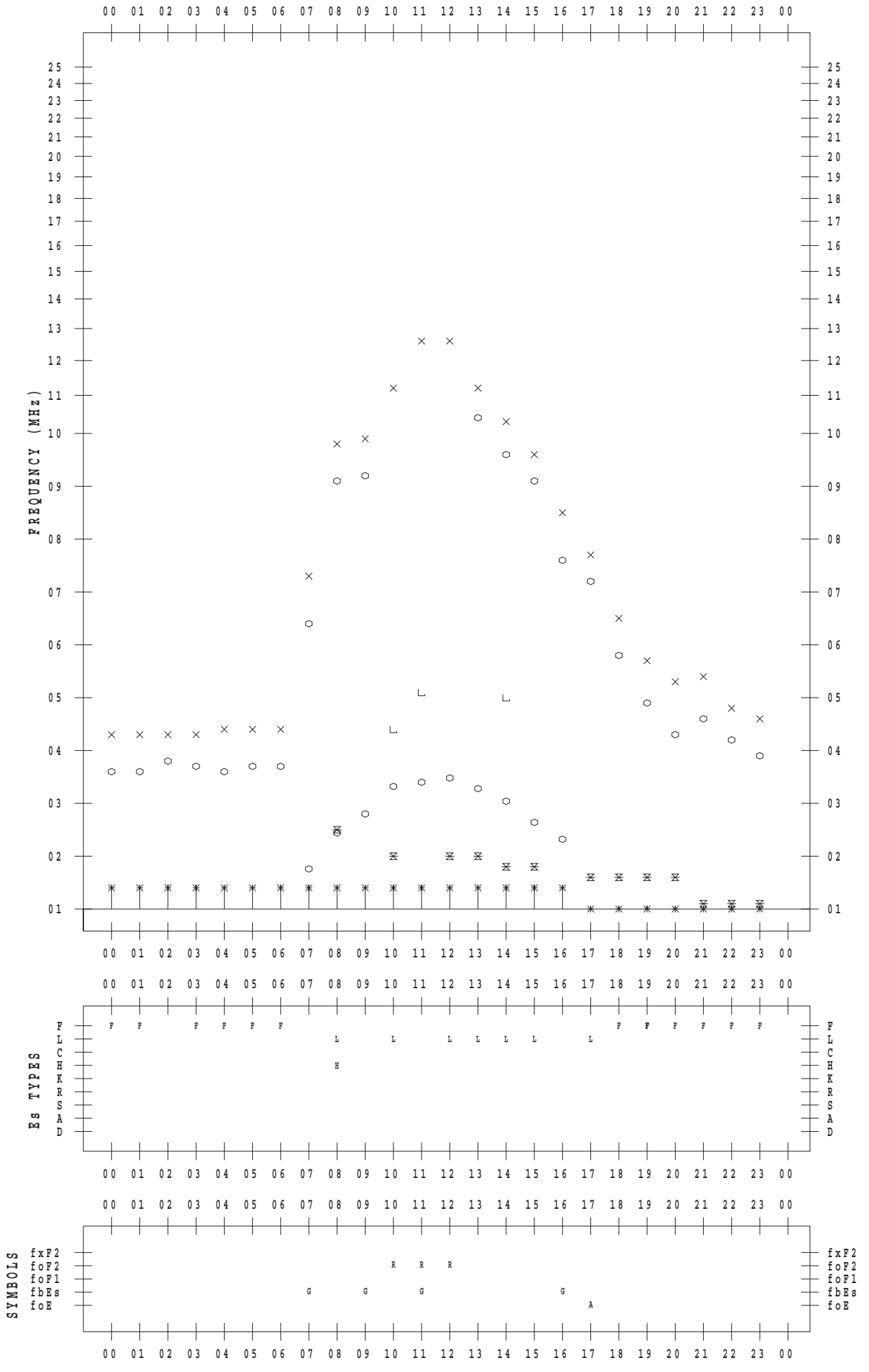
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/ 7

135 °E MEAN TIME



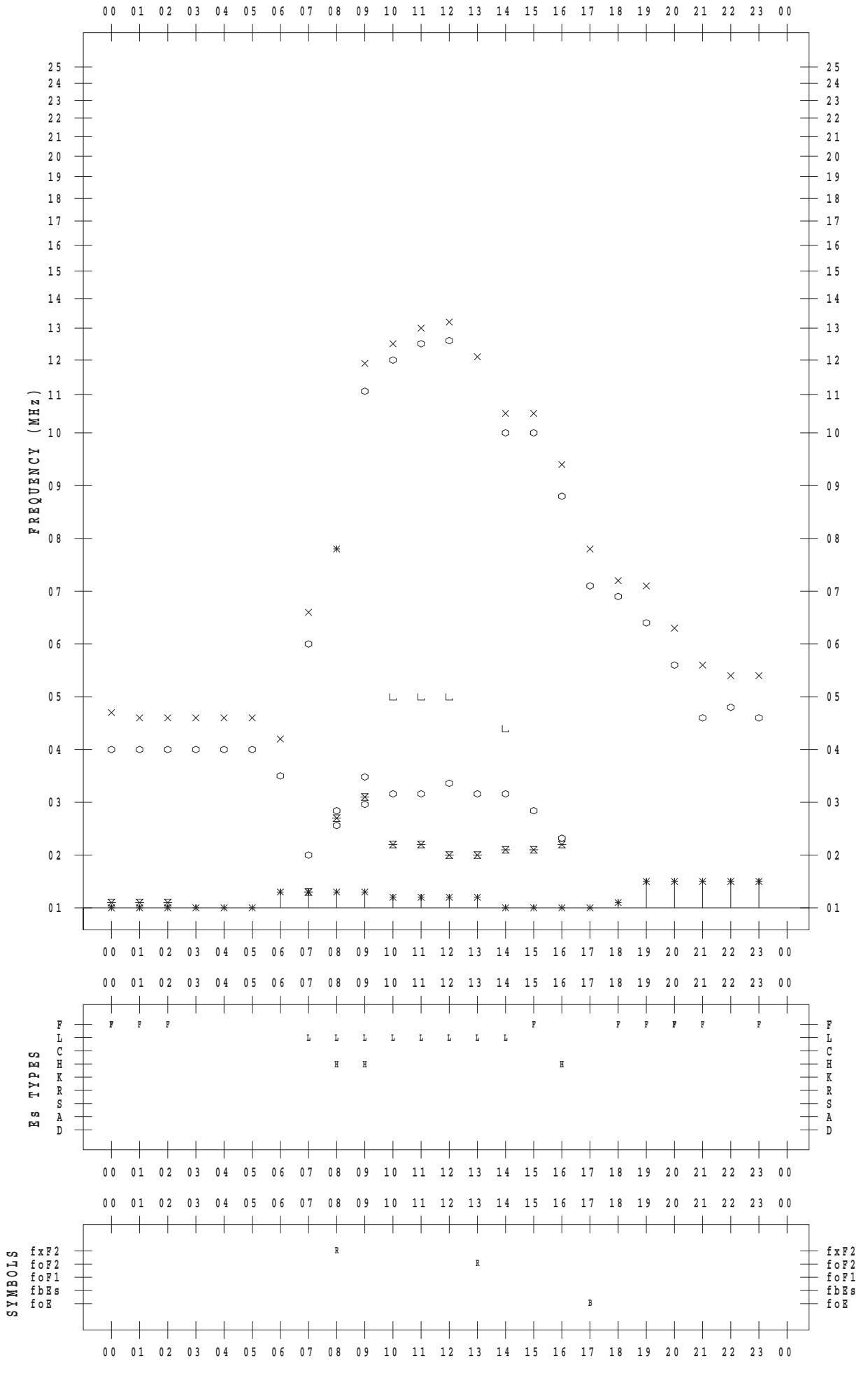
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/ 8

135 °E MEAN TIME



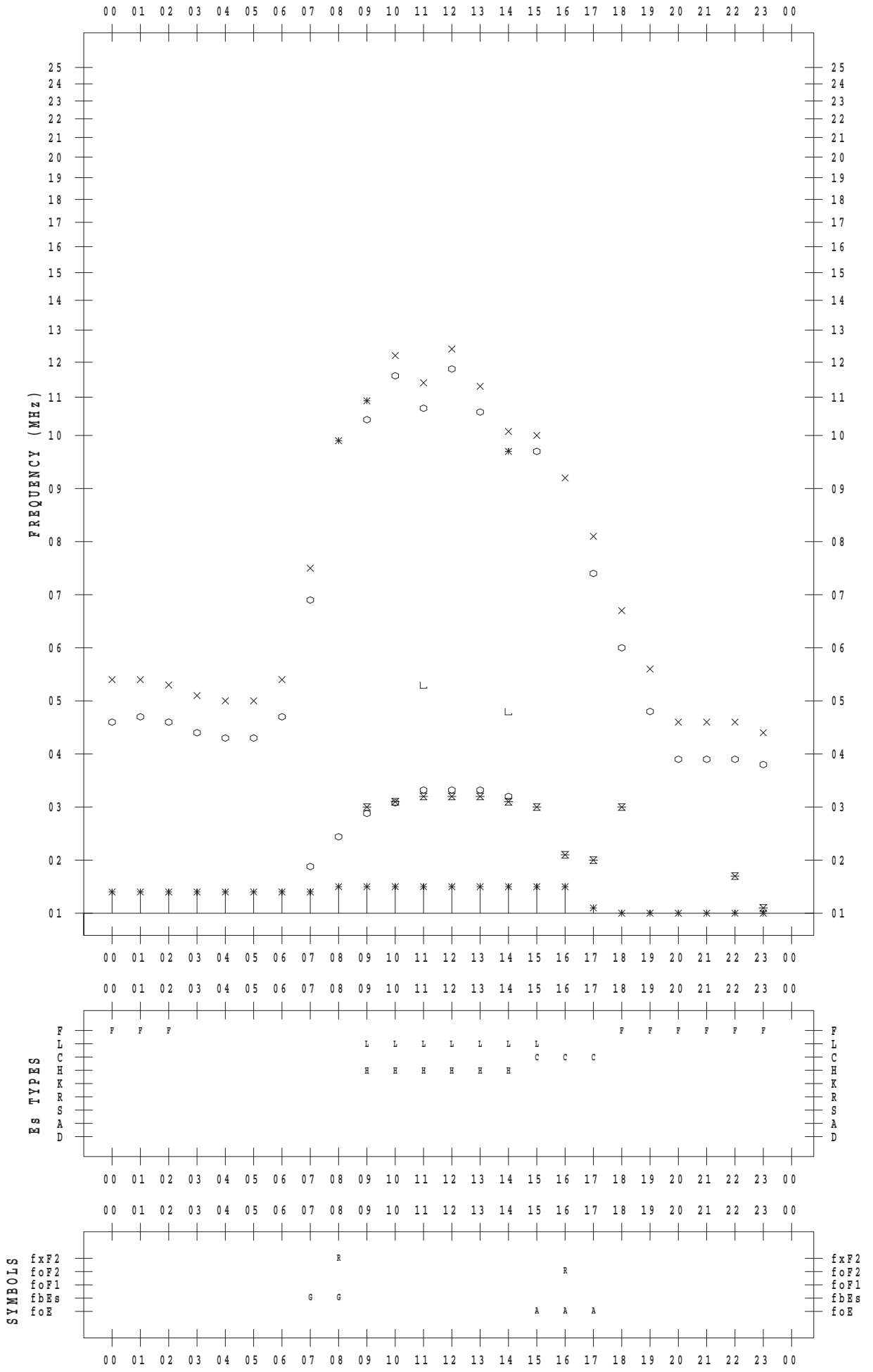
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/ 9

135 °E MEAN TIME



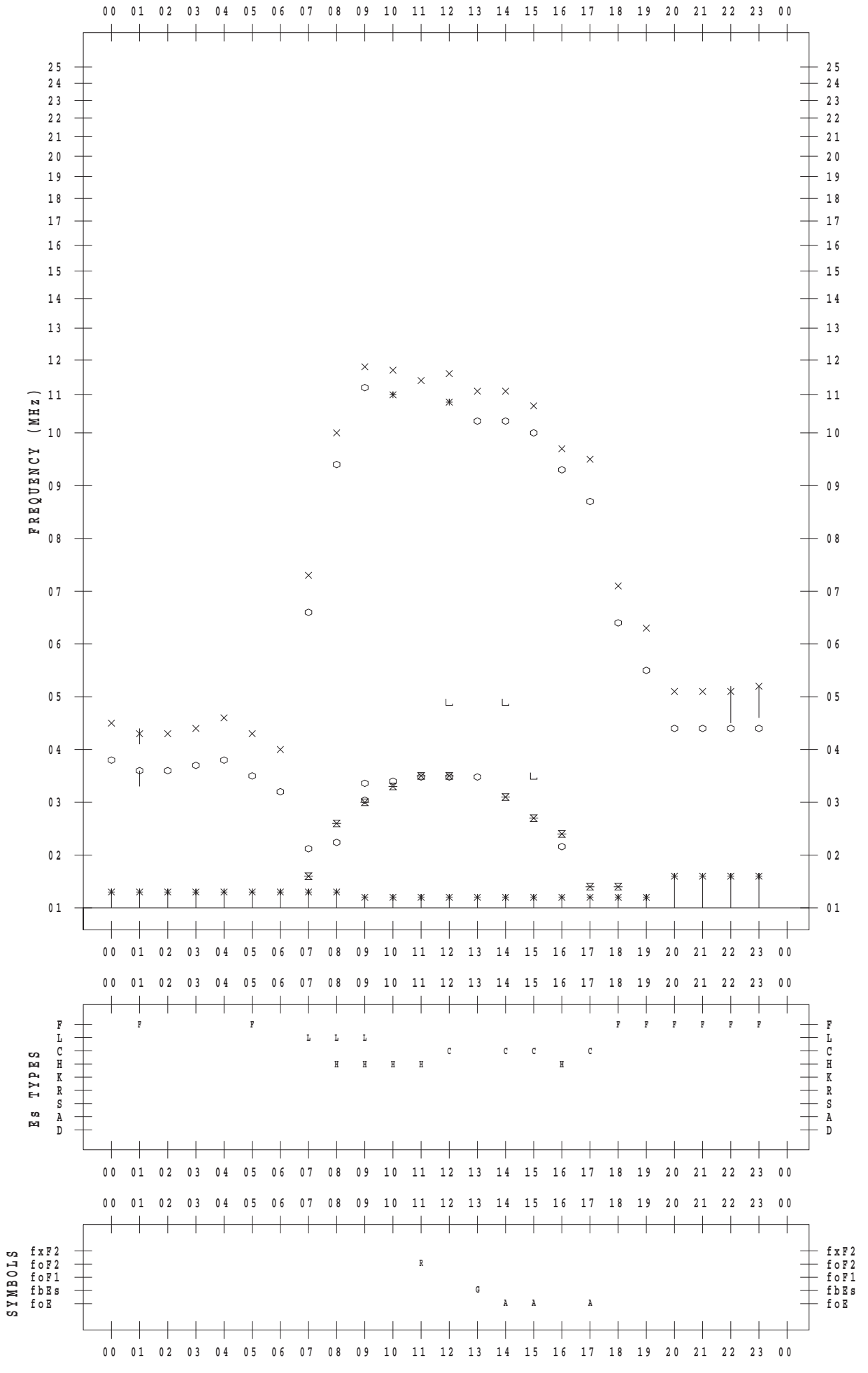
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/10

135 °E MEAN TIME



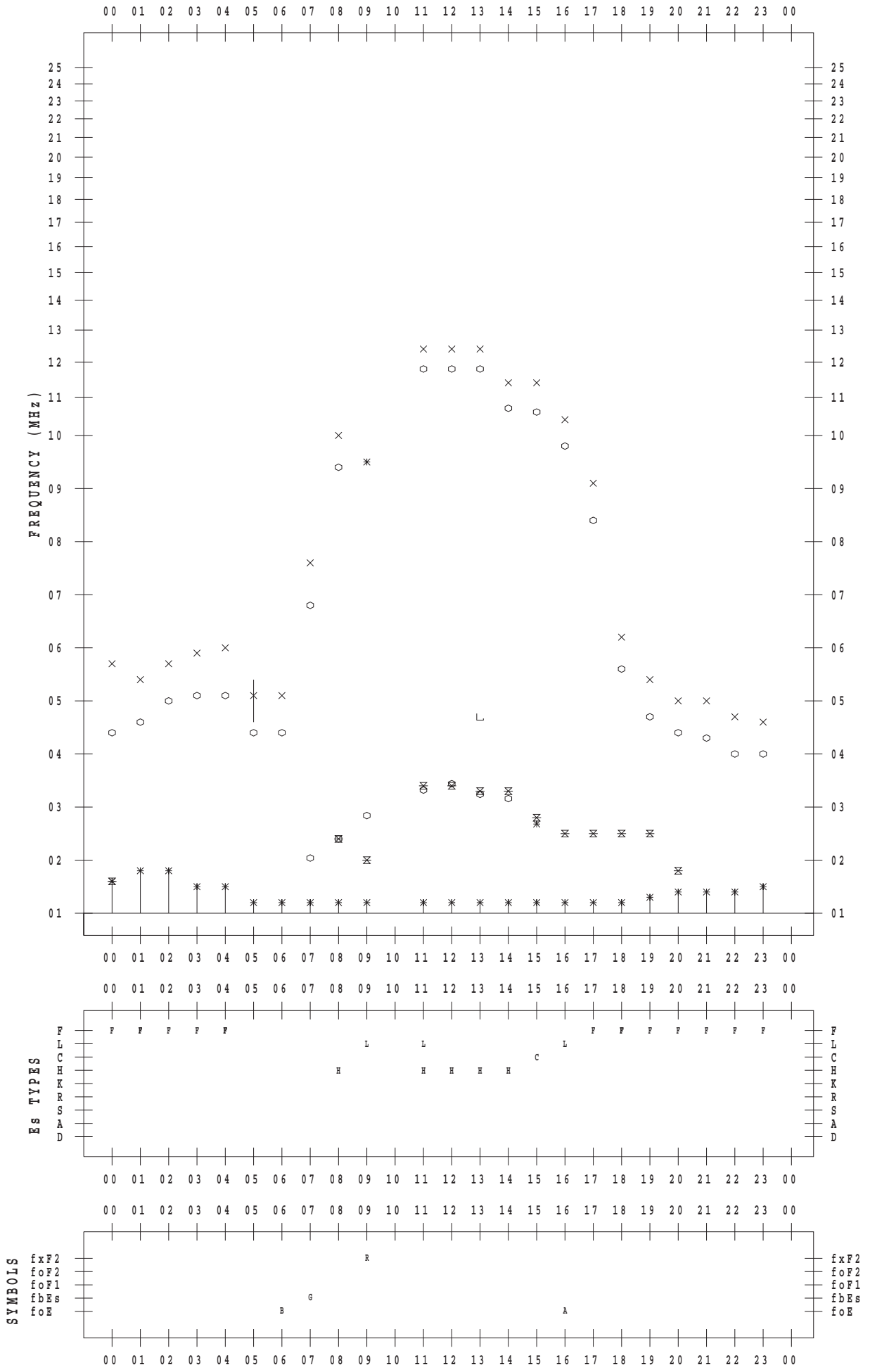
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/11

135 °E MEAN TIME



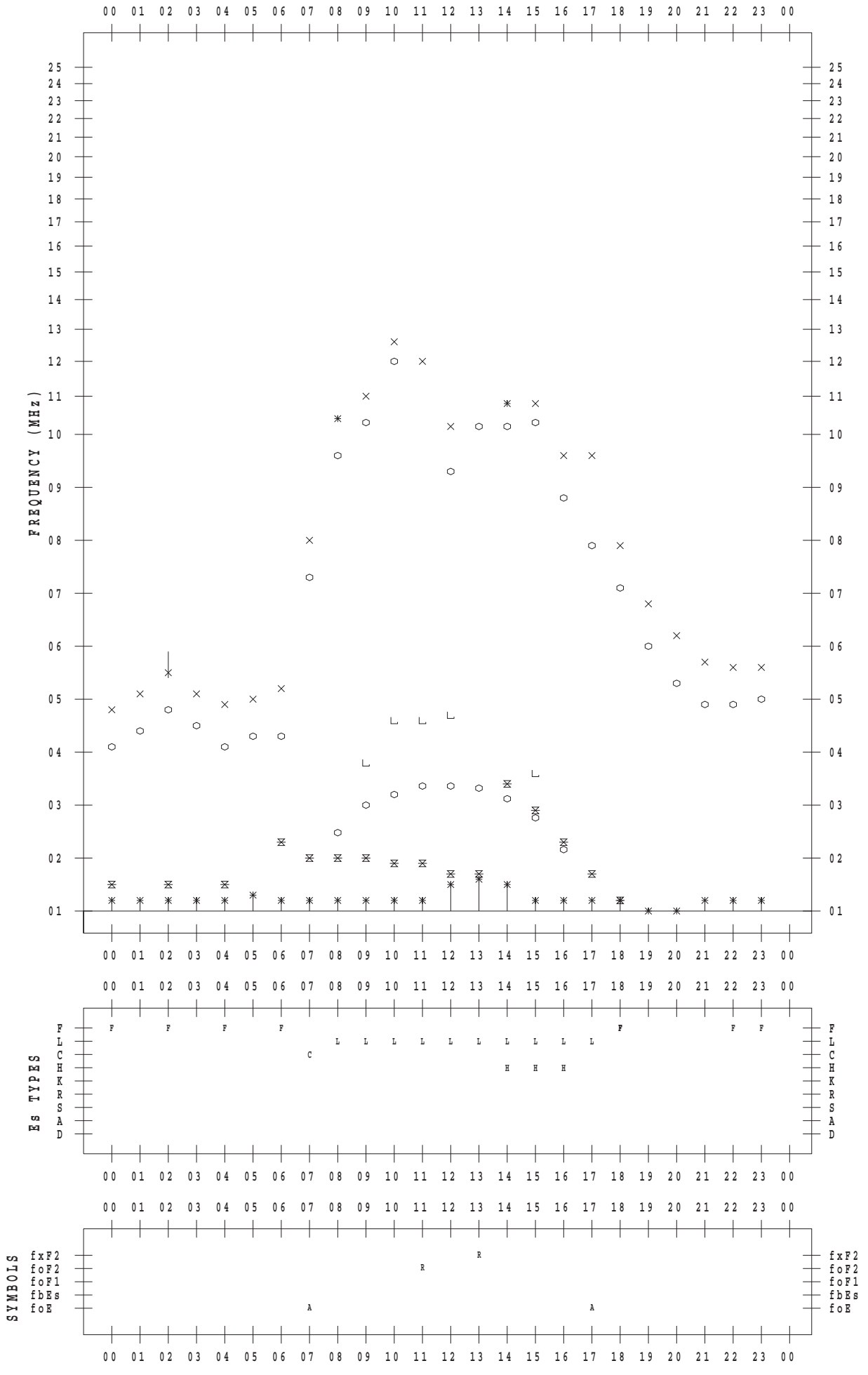
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/12

135 °E MEAN TIME



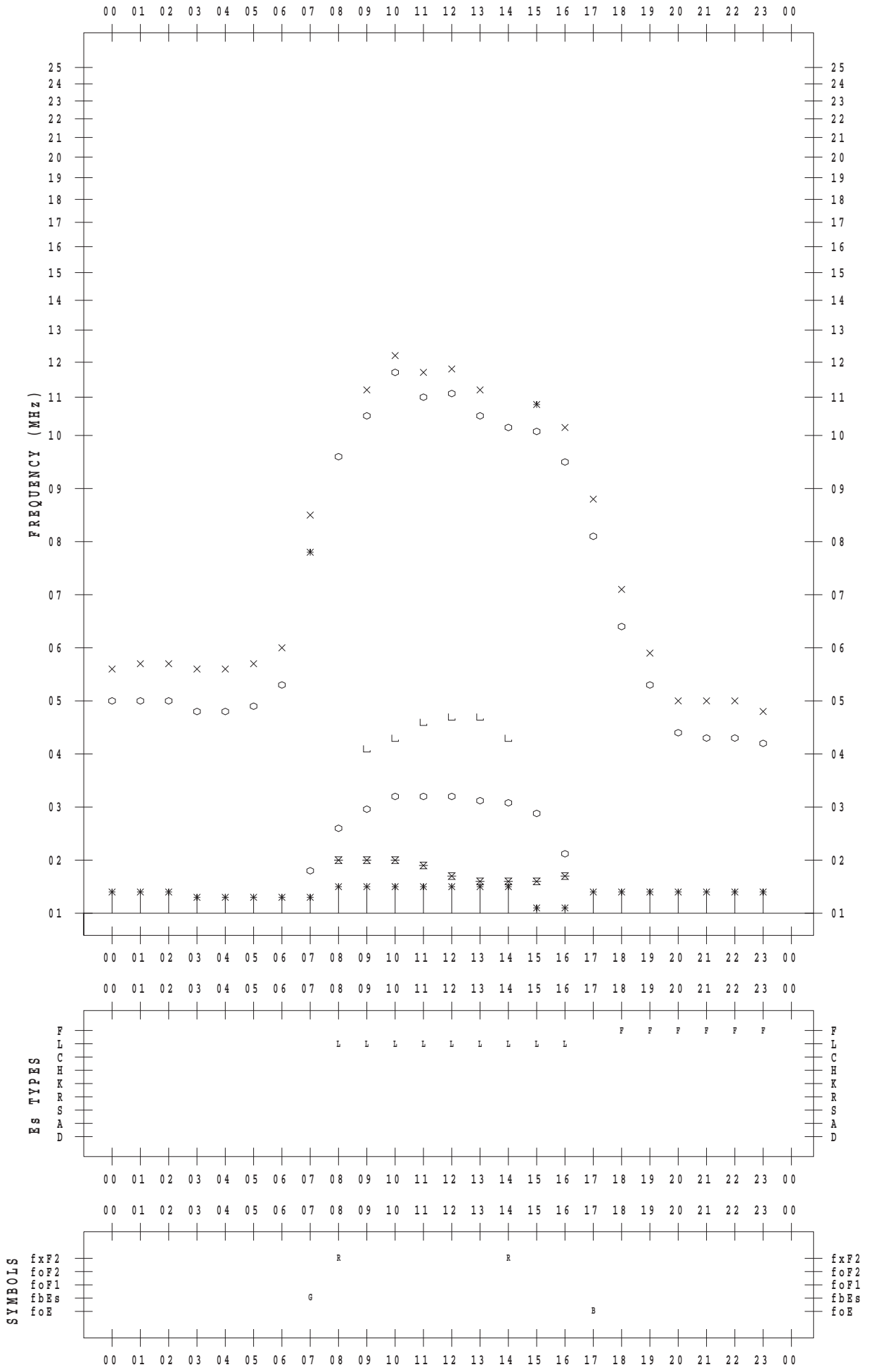
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/13

135 °E MEAN TIME



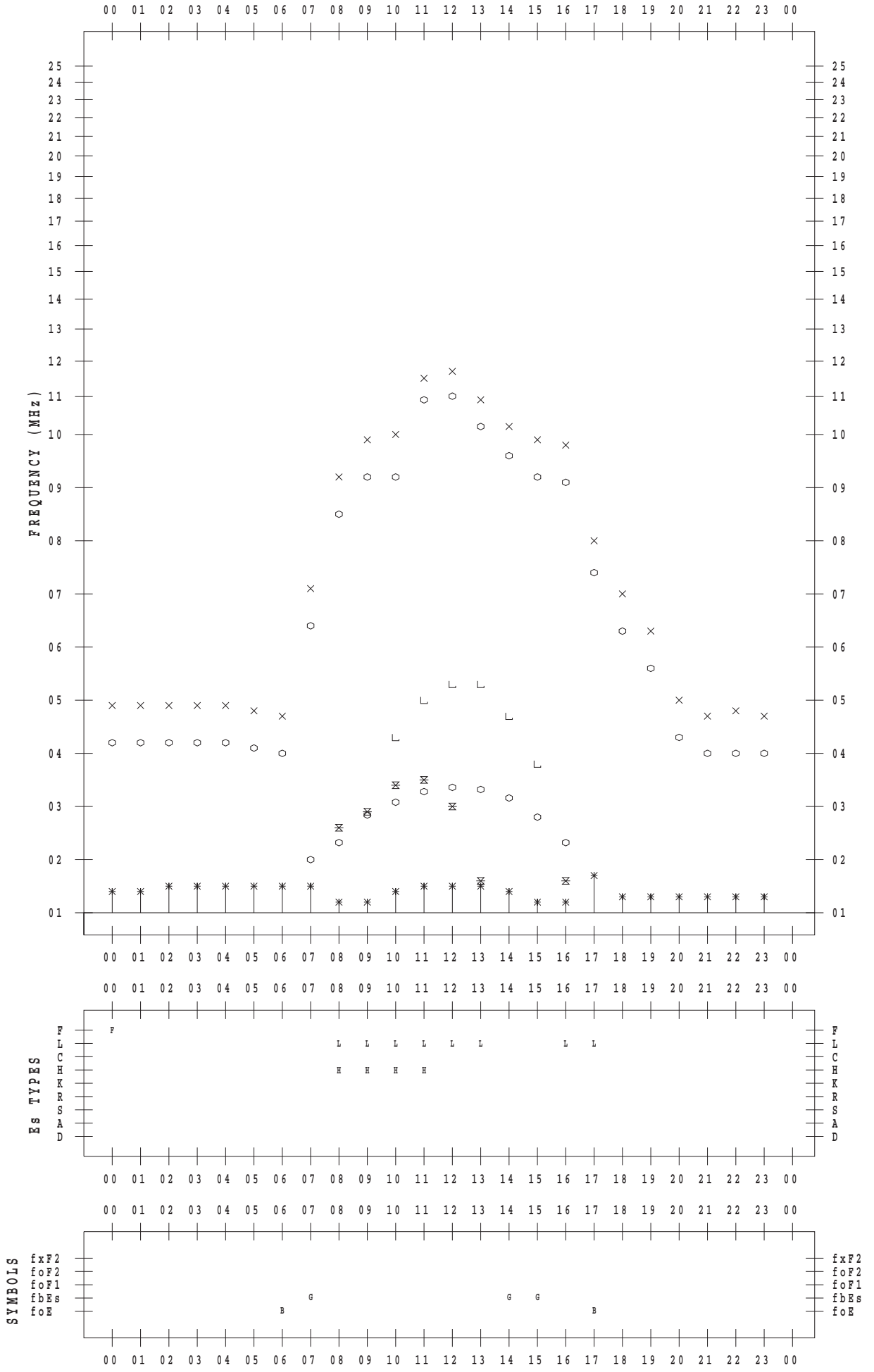
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/14

135 °E MEAN TIME



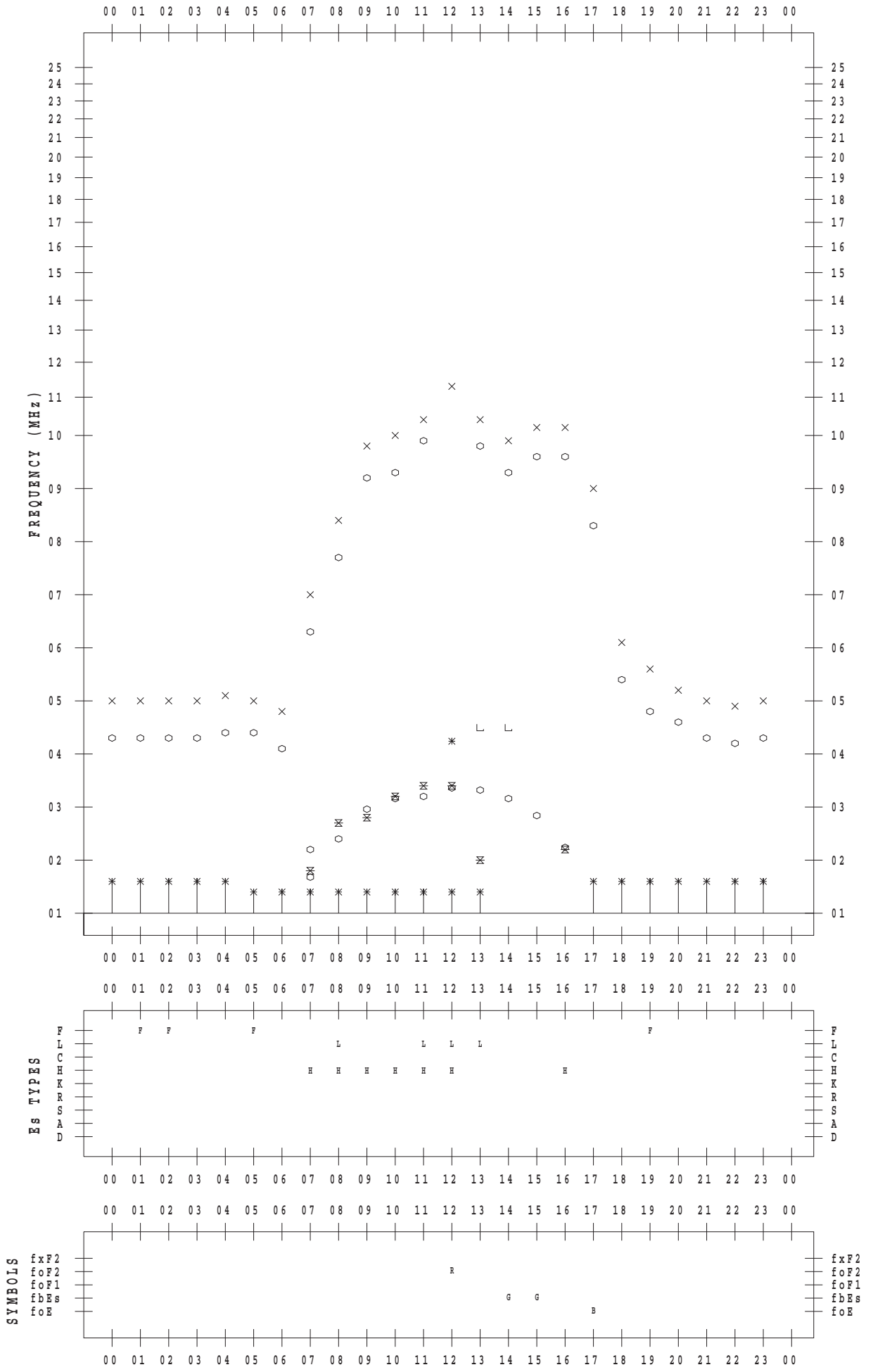
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/15

135 °E MEAN TIME



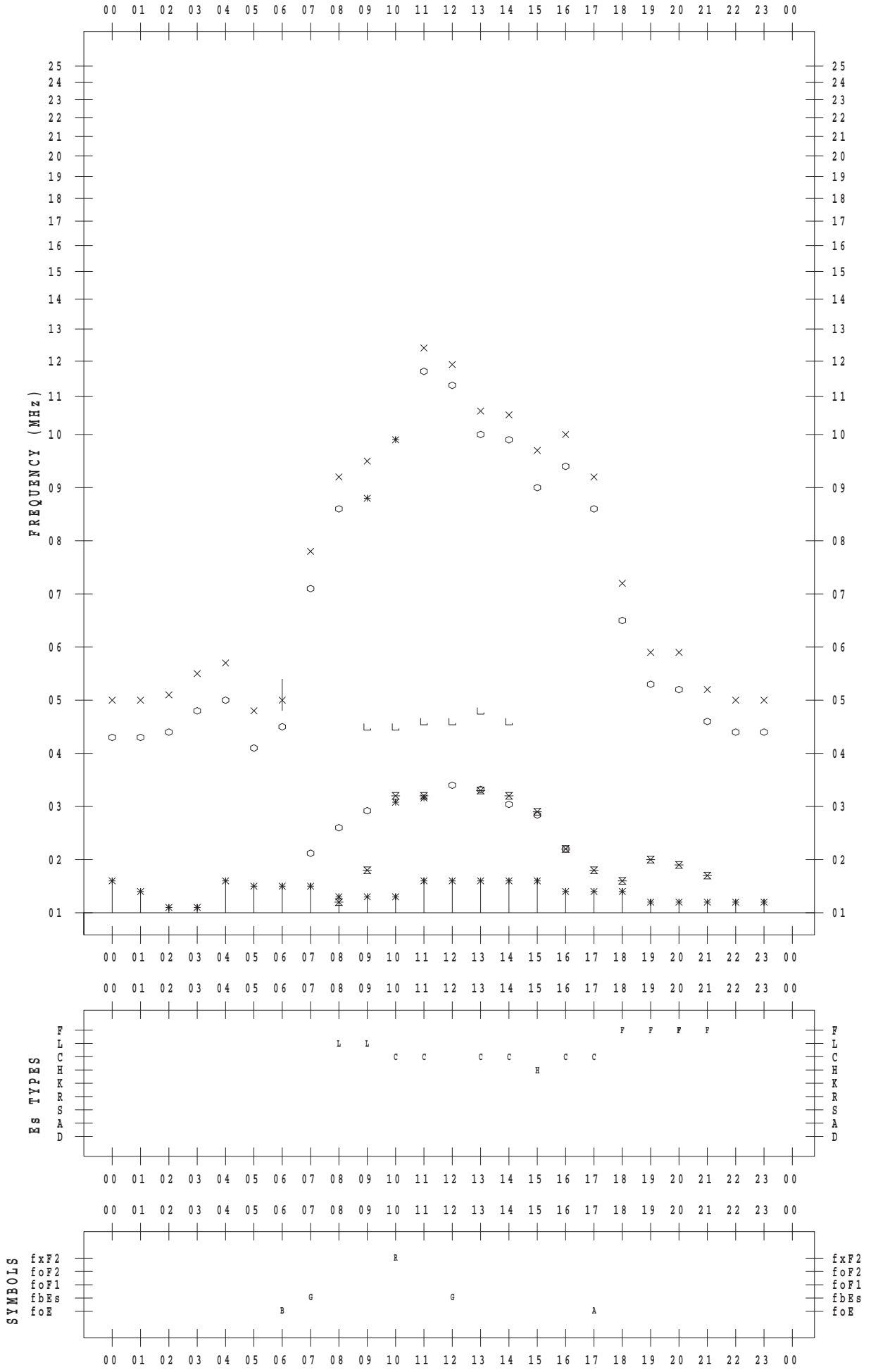
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/16

135 °E MEAN TIME



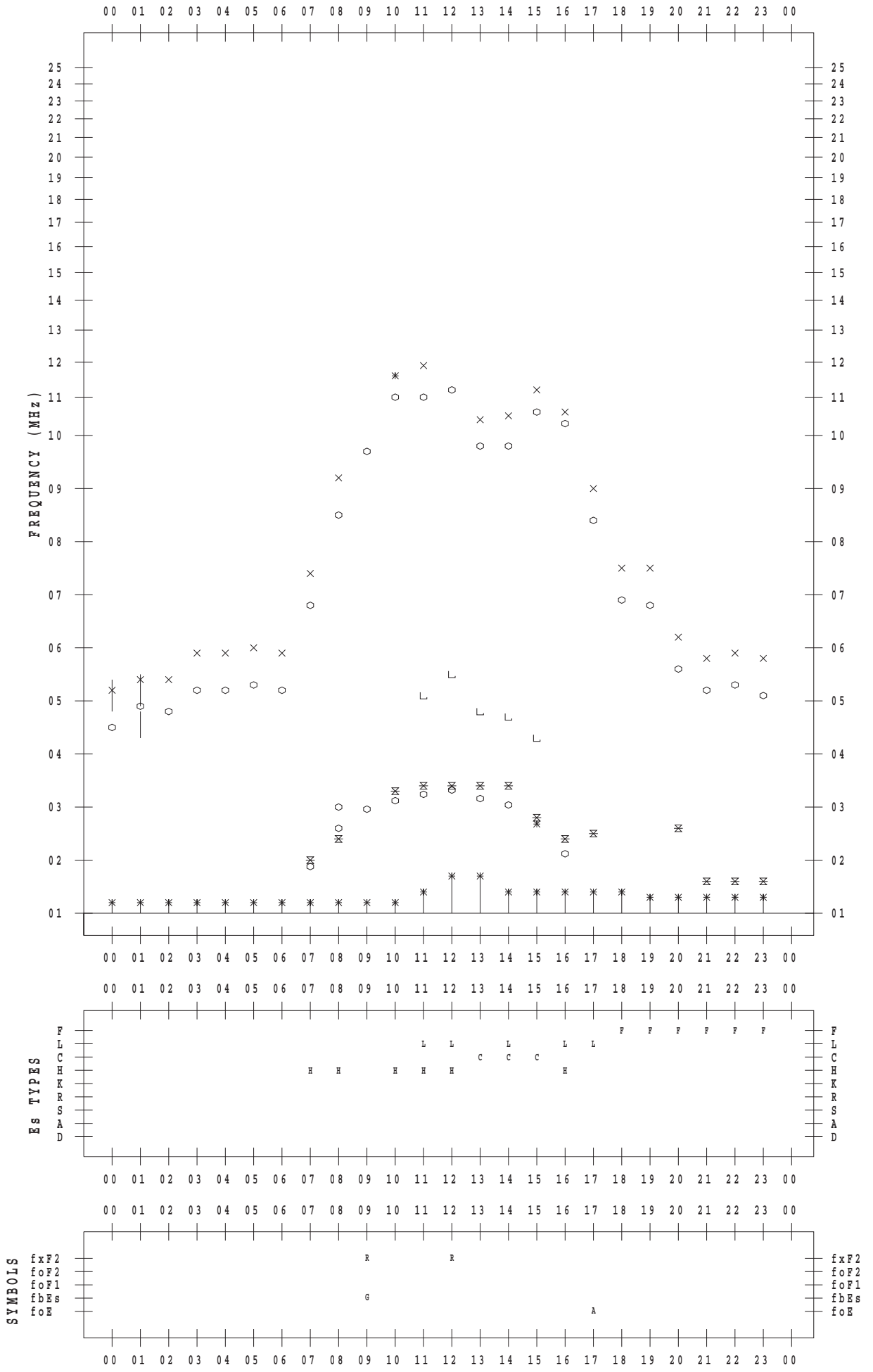
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/17

135 °E MEAN TIME



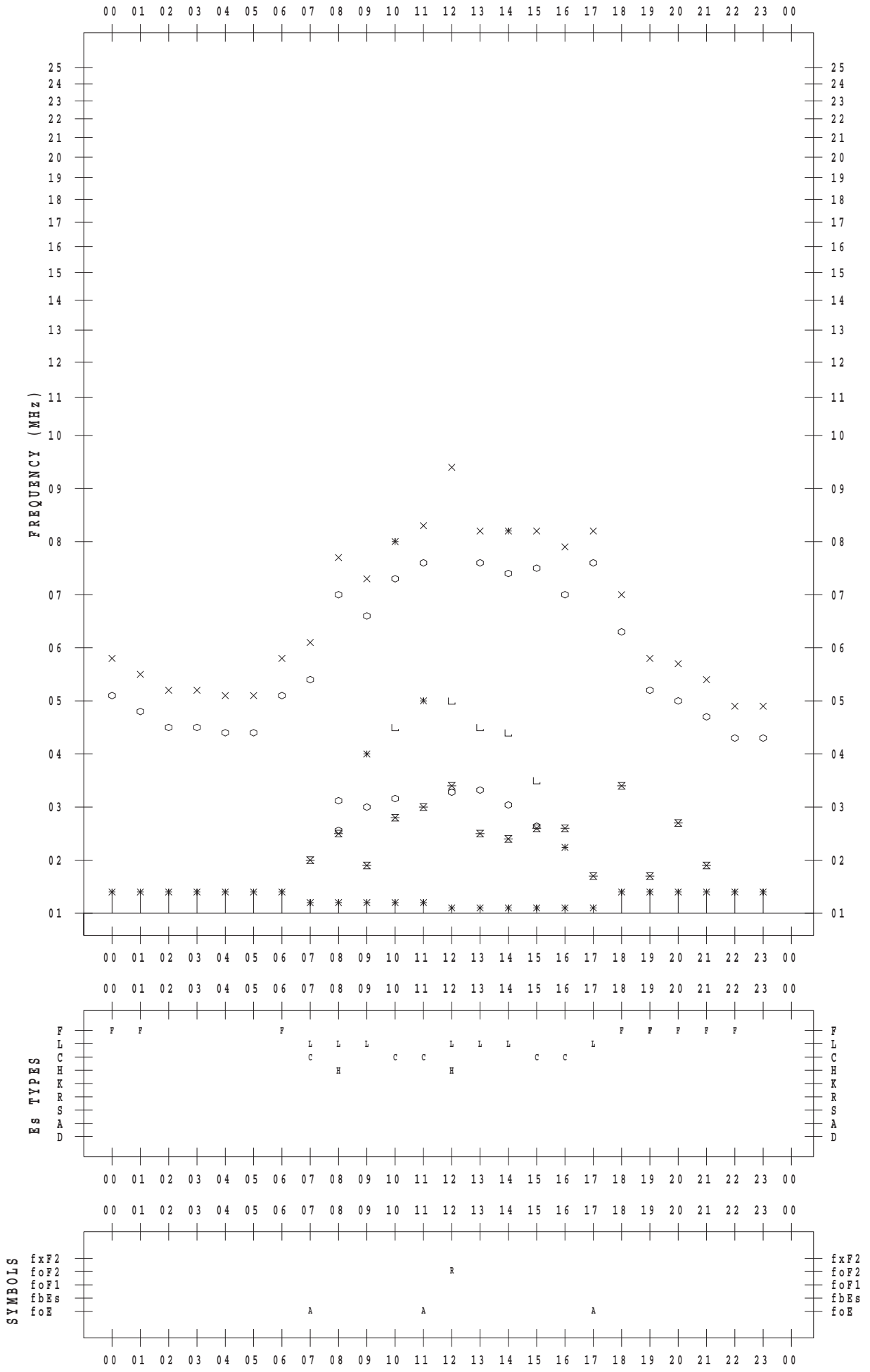
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/18

135 °E MEAN TIME



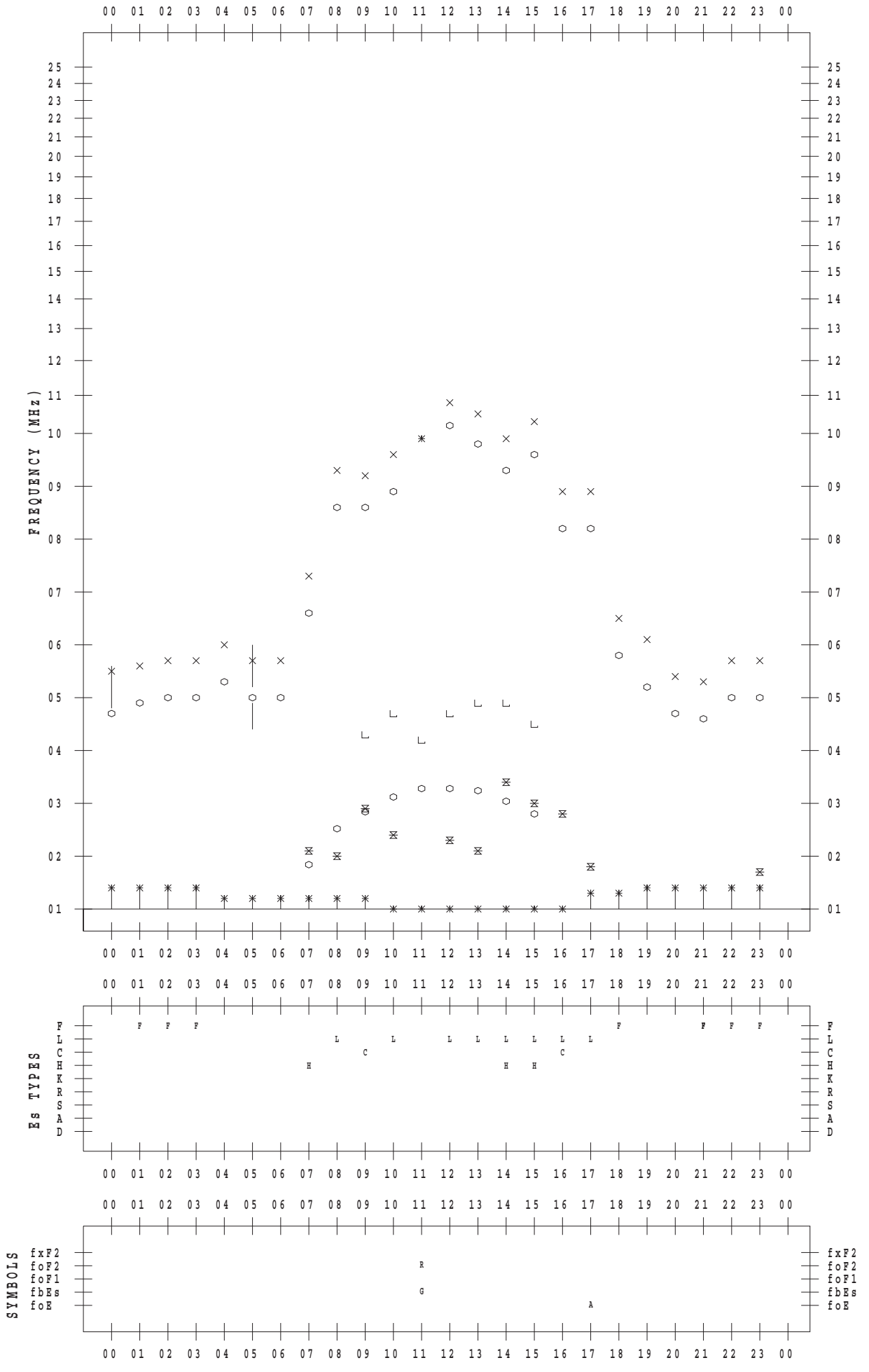
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/19

135 °E MEAN TIME



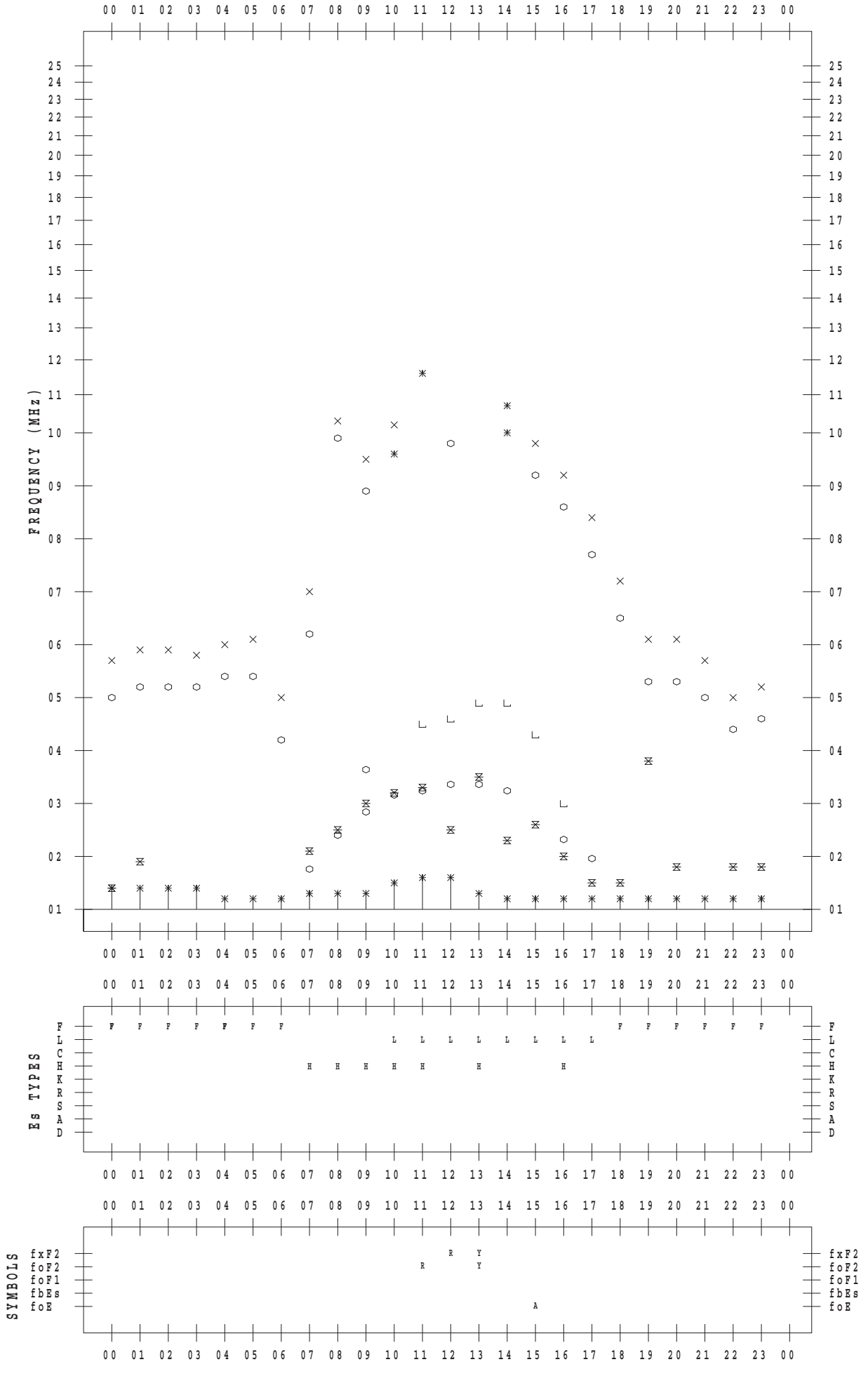
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/20

135 °E MEAN TIME



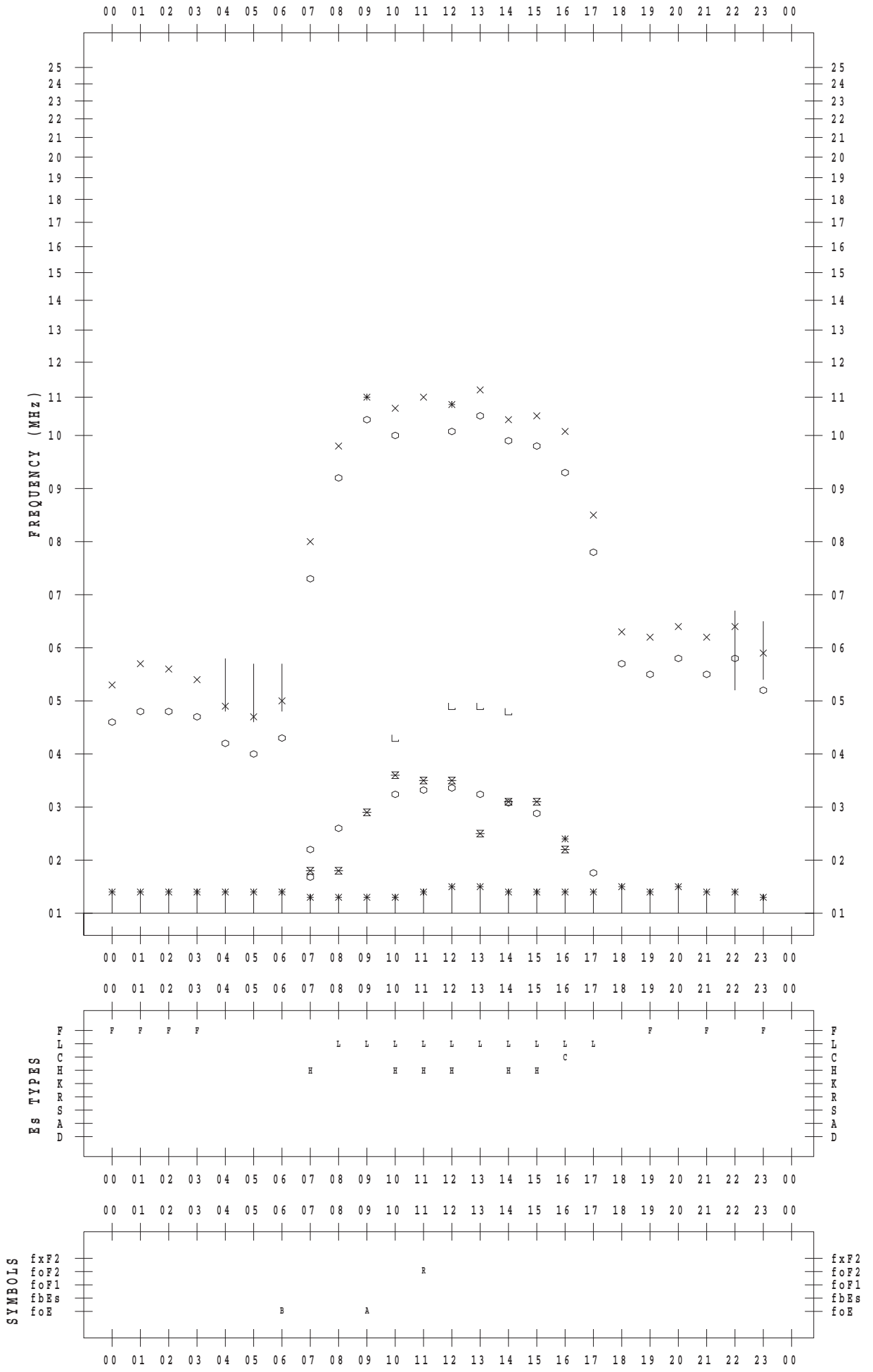
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/21

135 °E MEAN TIME



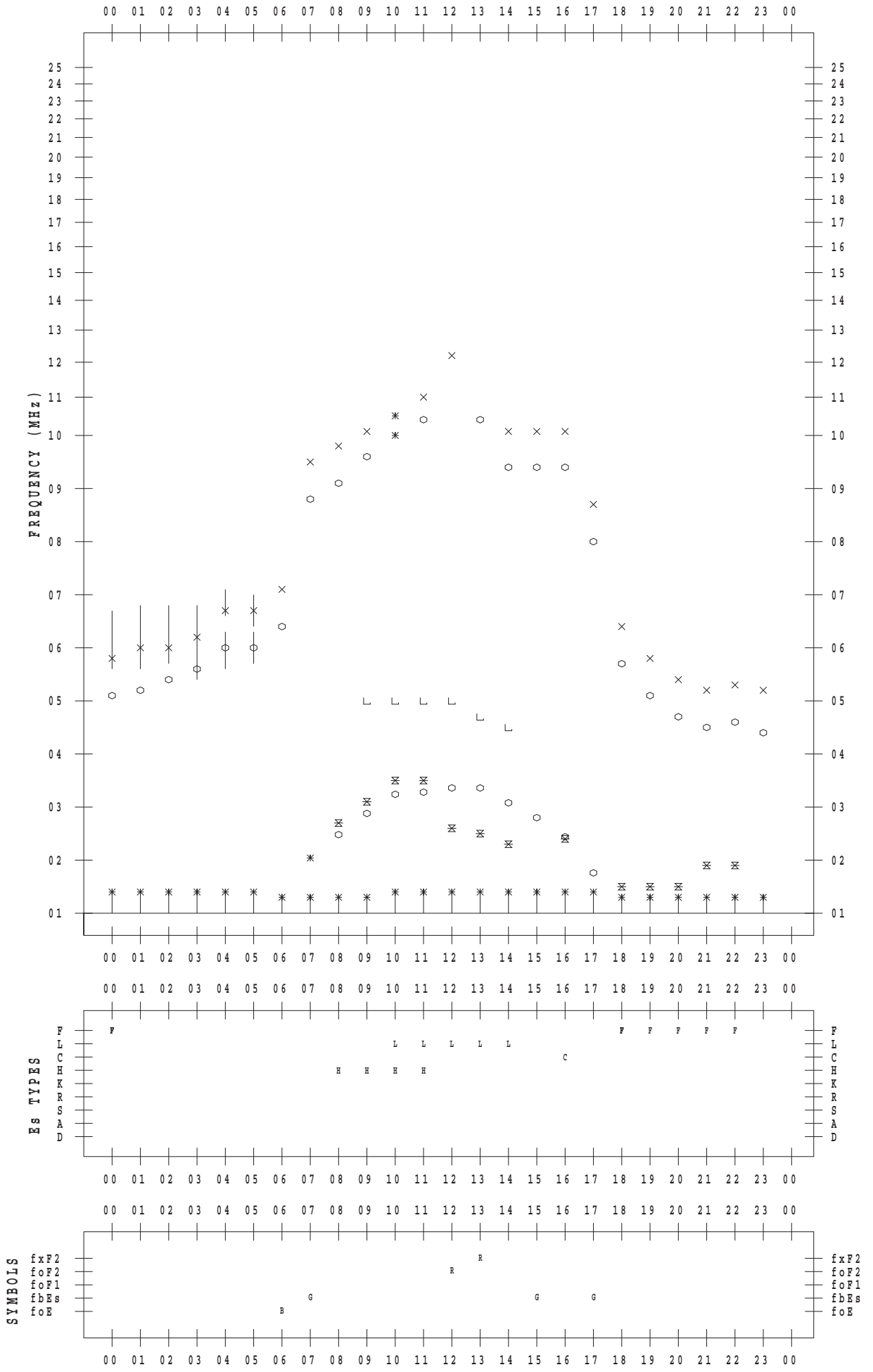
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/22

135 °E MEAN TIME



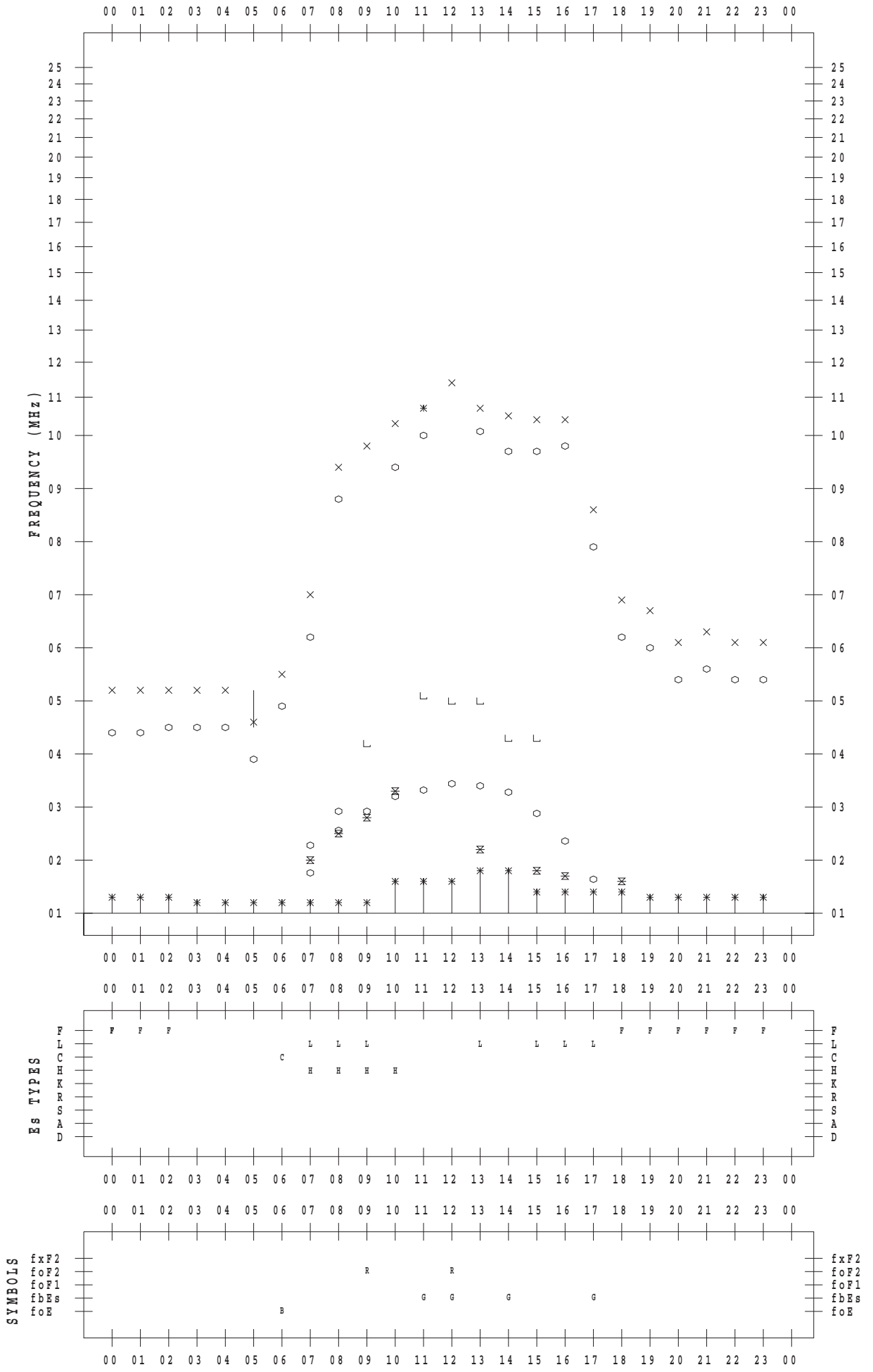
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/23

135 °E MEAN TIME



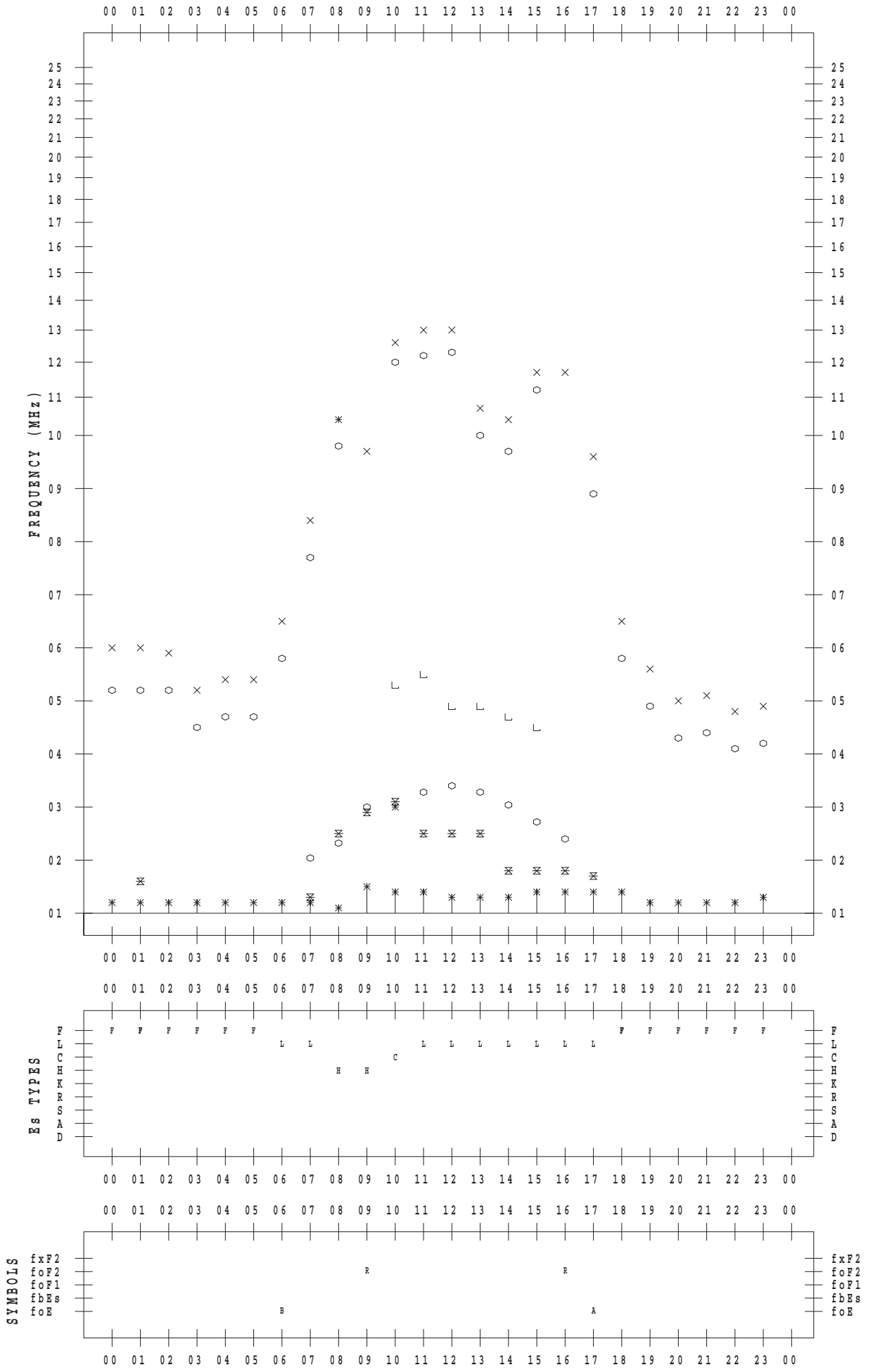
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/24

135 °E MEAN TIME



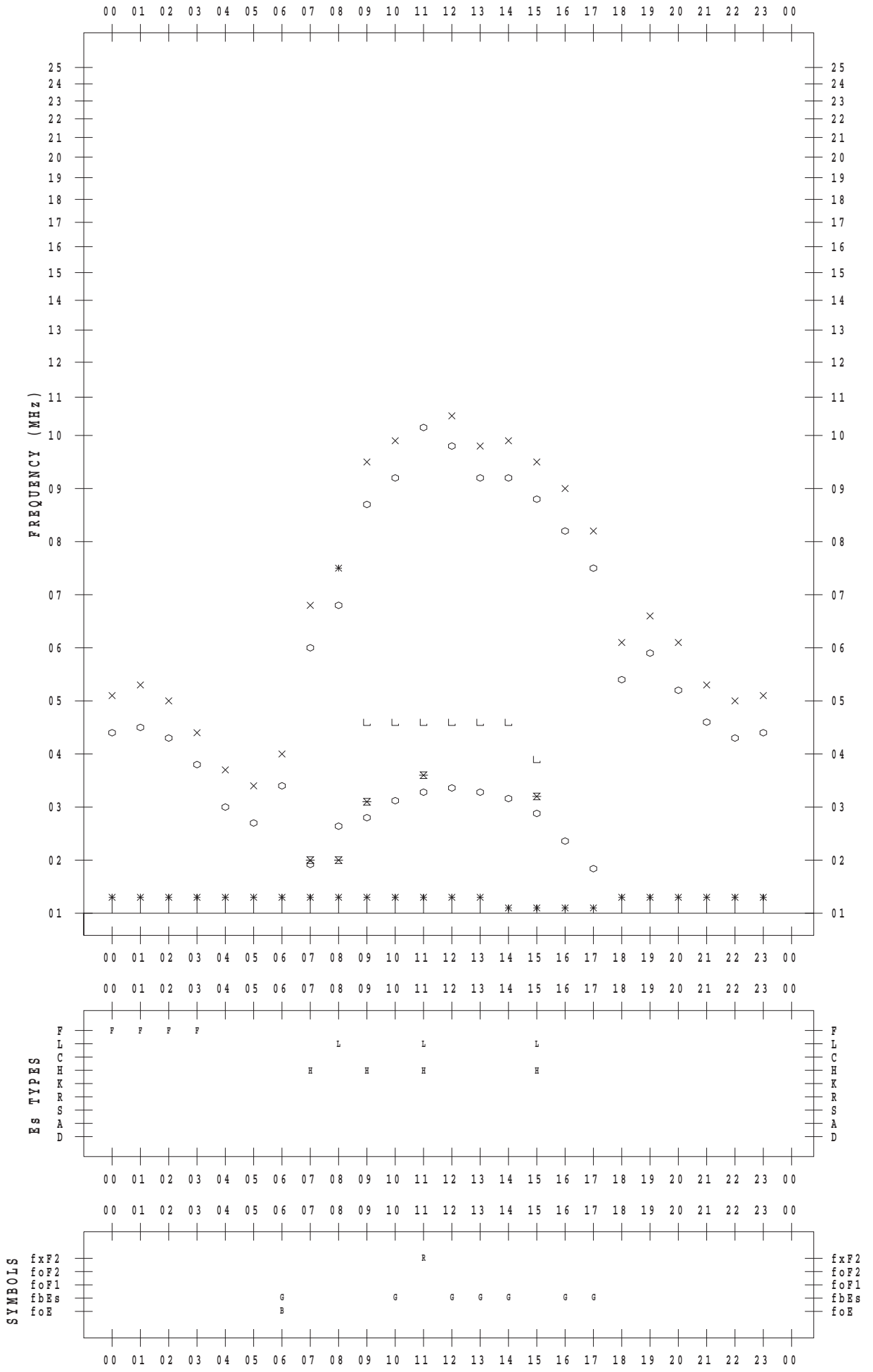
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/25

135 °E MEAN TIME



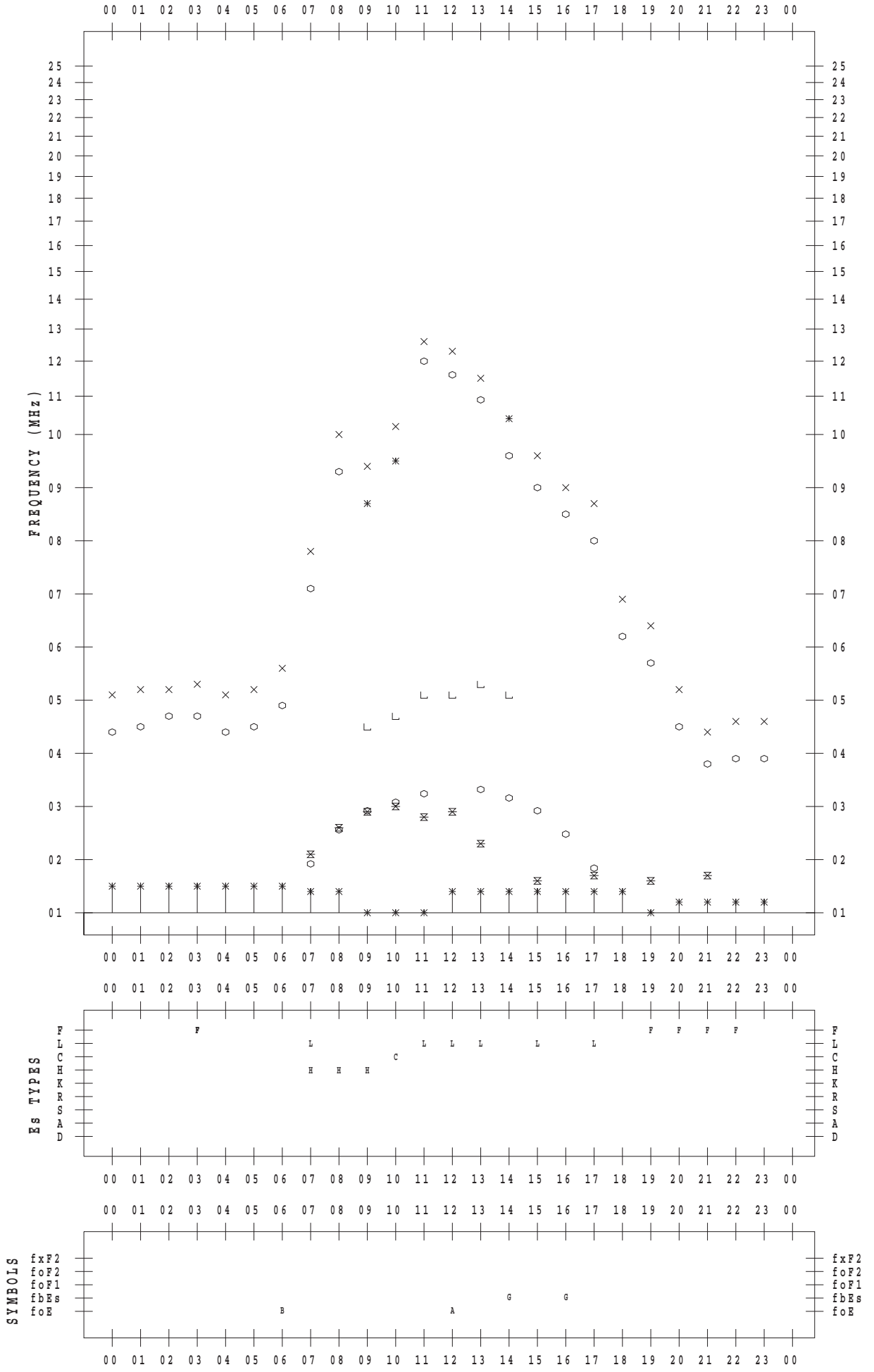
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/26

135 °E MEAN TIME



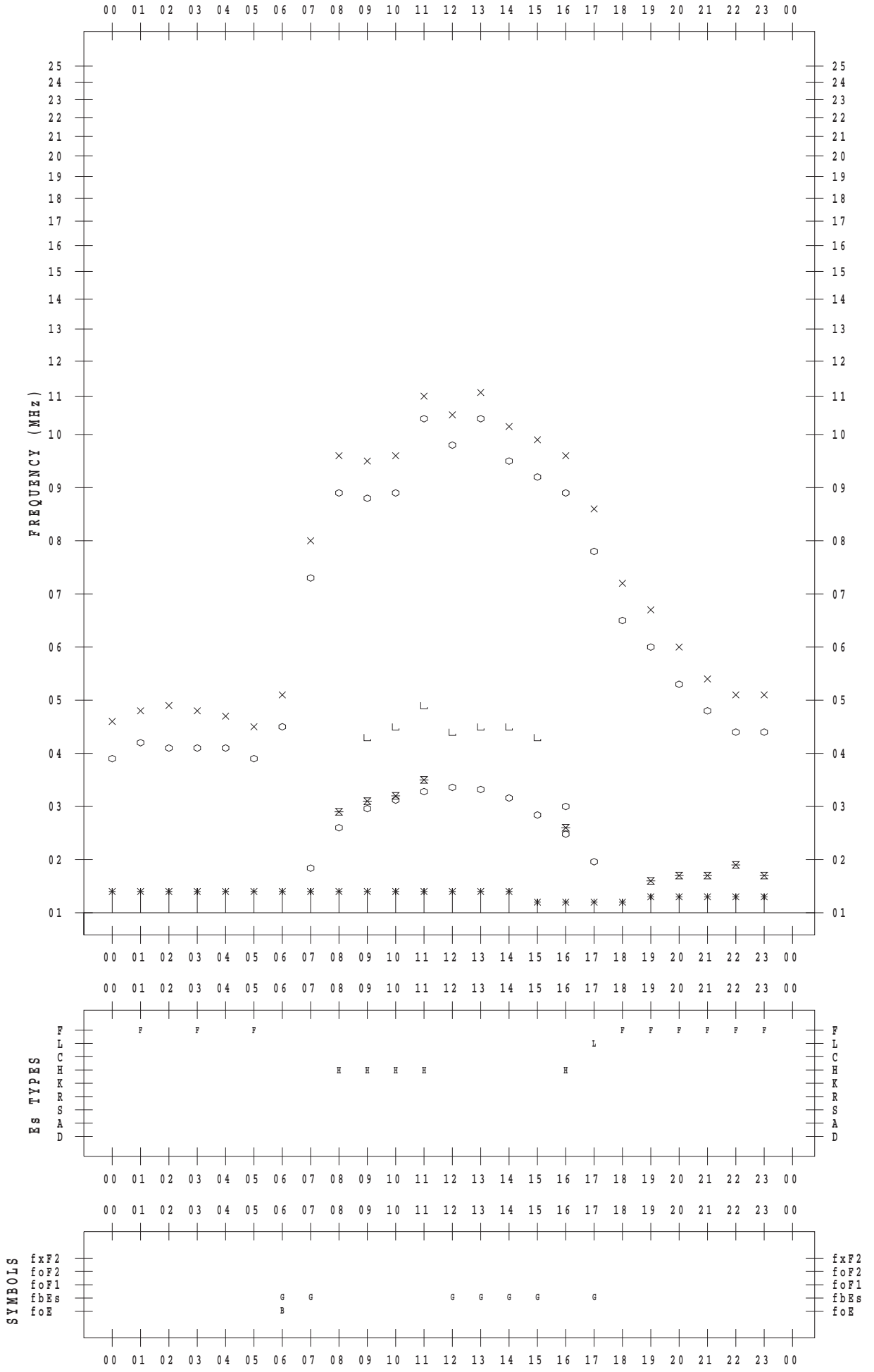
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/27

135 °E MEAN TIME



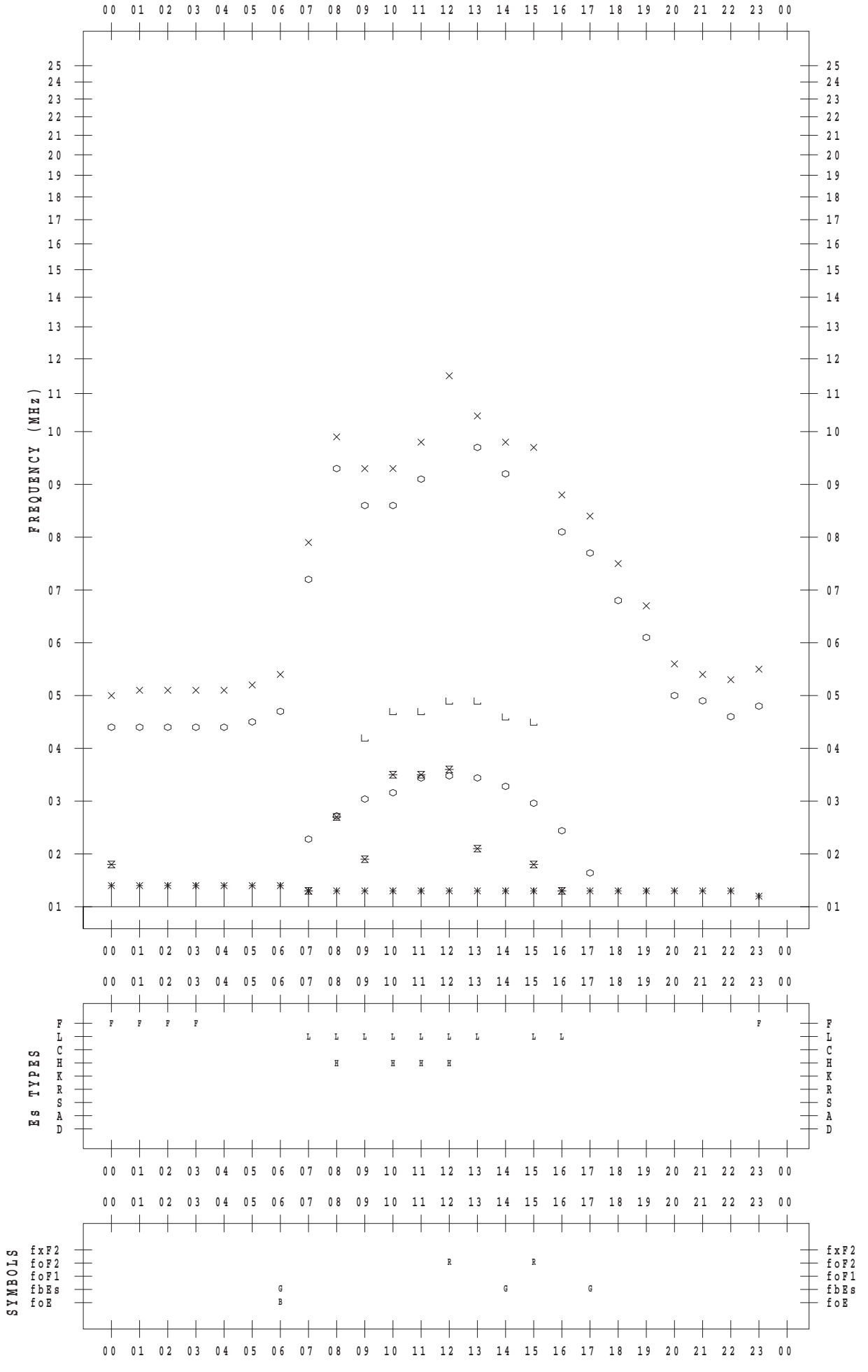
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 2/28

135 °E MEAN TIME



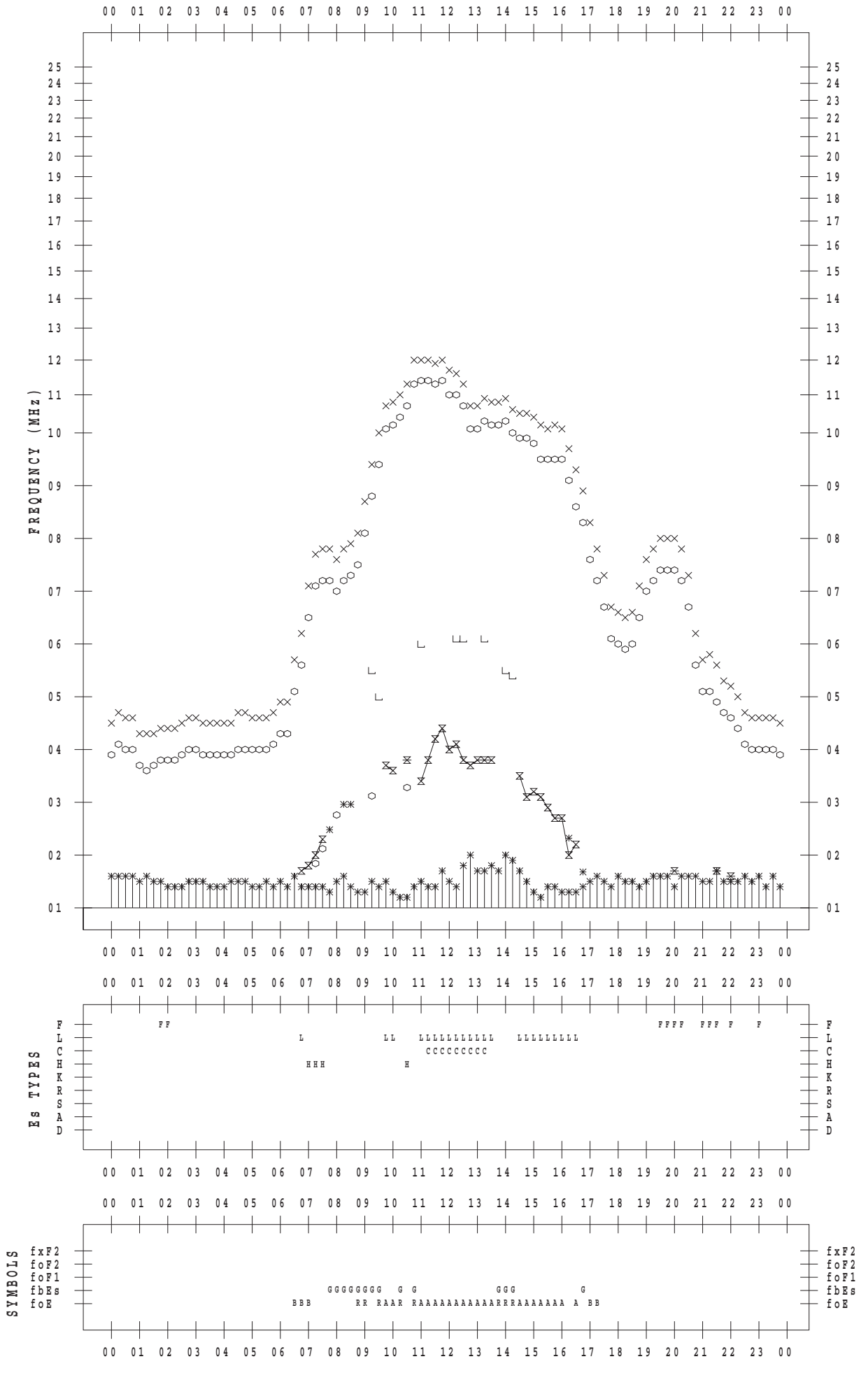
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/ 1

135 °E MEAN TIME



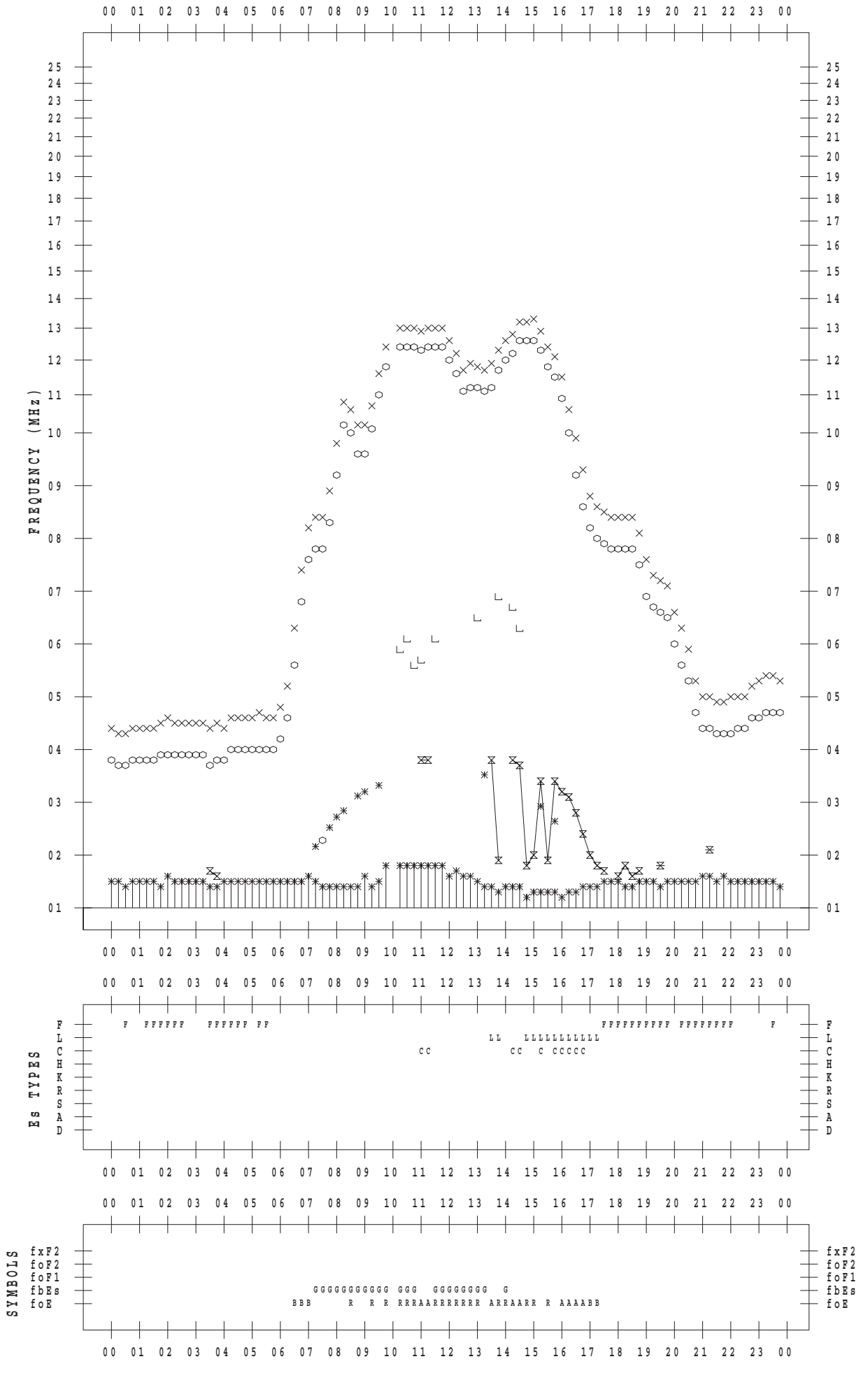
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/ 2

135 °E MEAN TIME



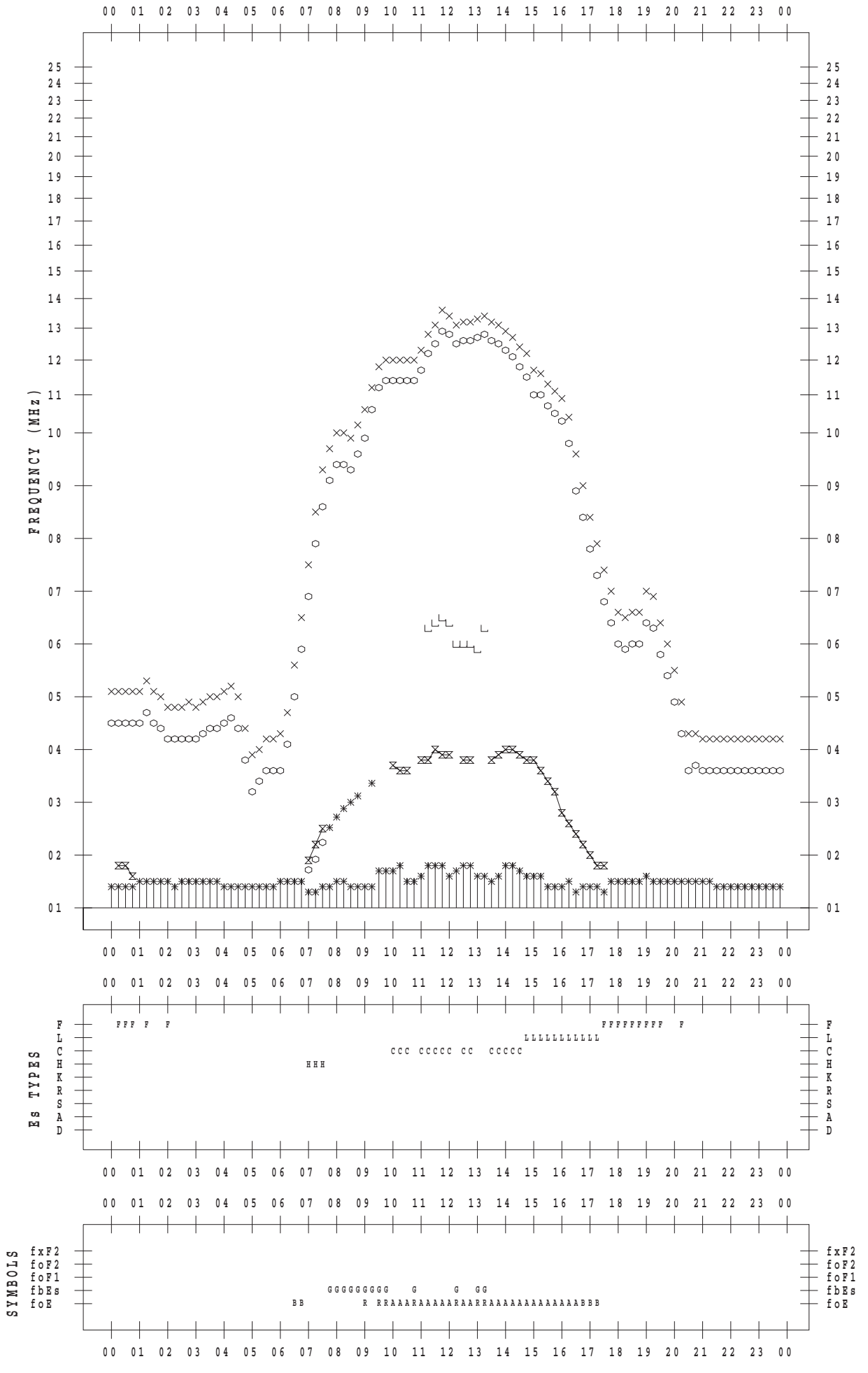
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/ 3

135 °E MEAN TIME



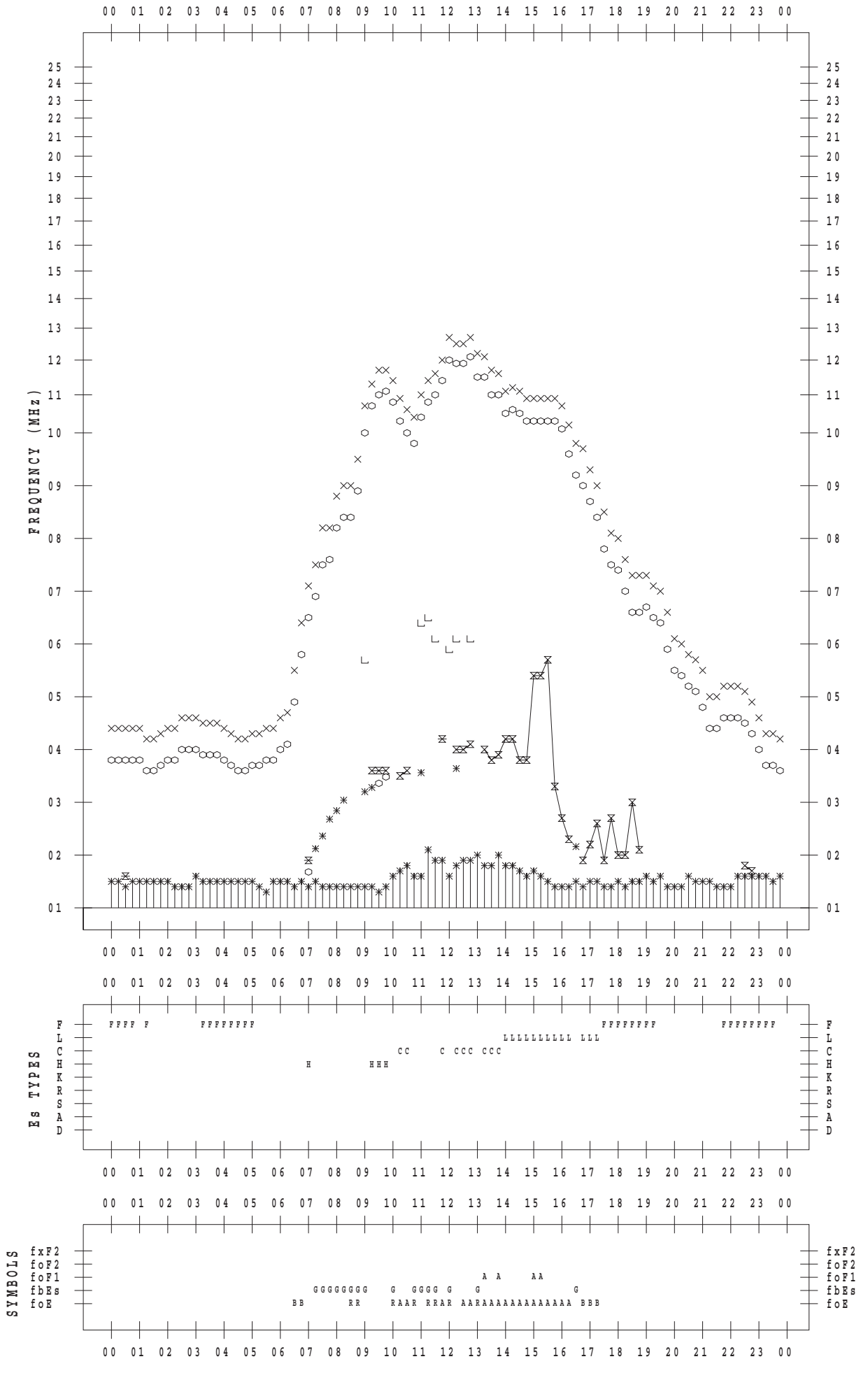
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/ 4

135 °E MEAN TIME



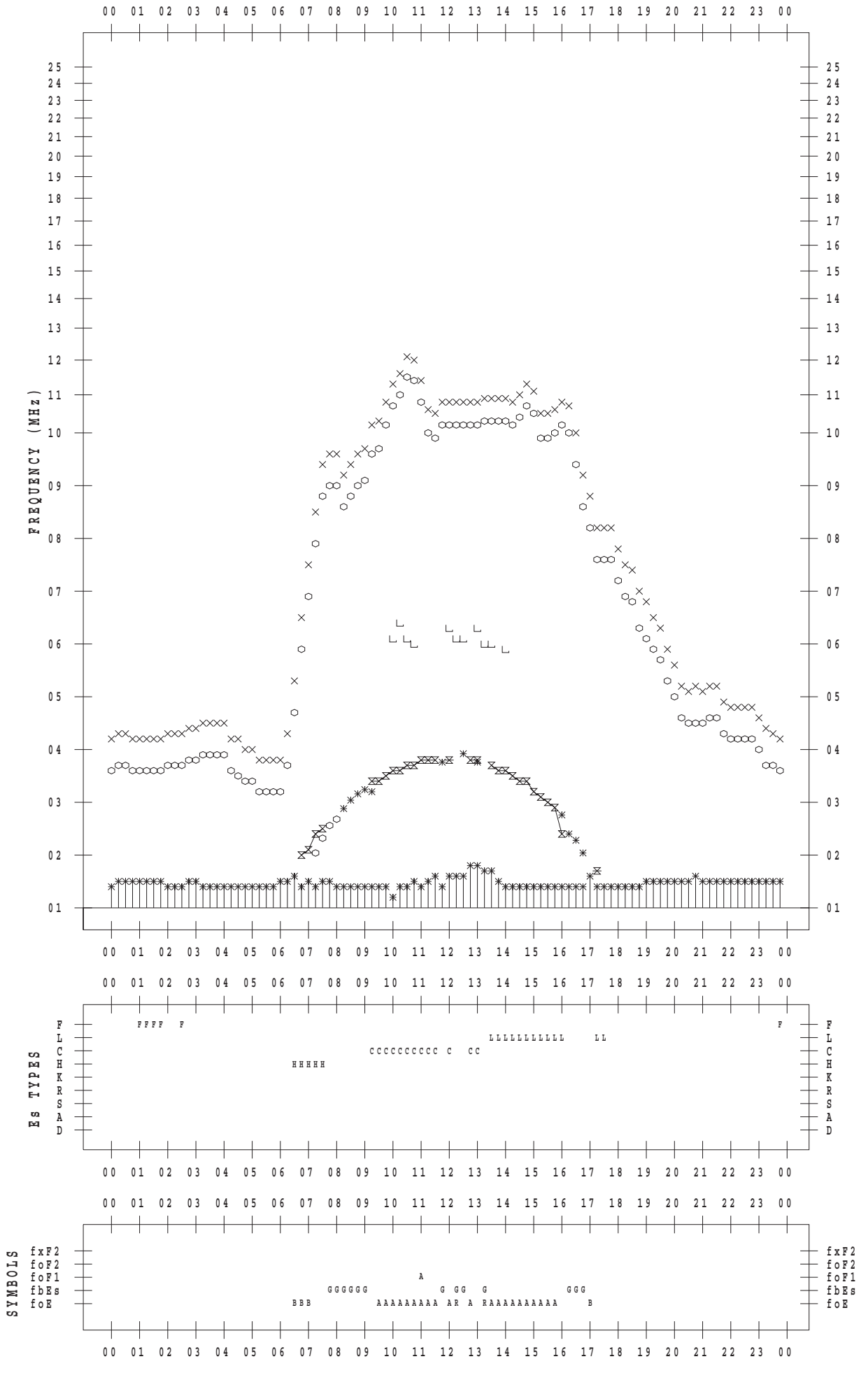
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/ 5

135 °E MEAN TIME



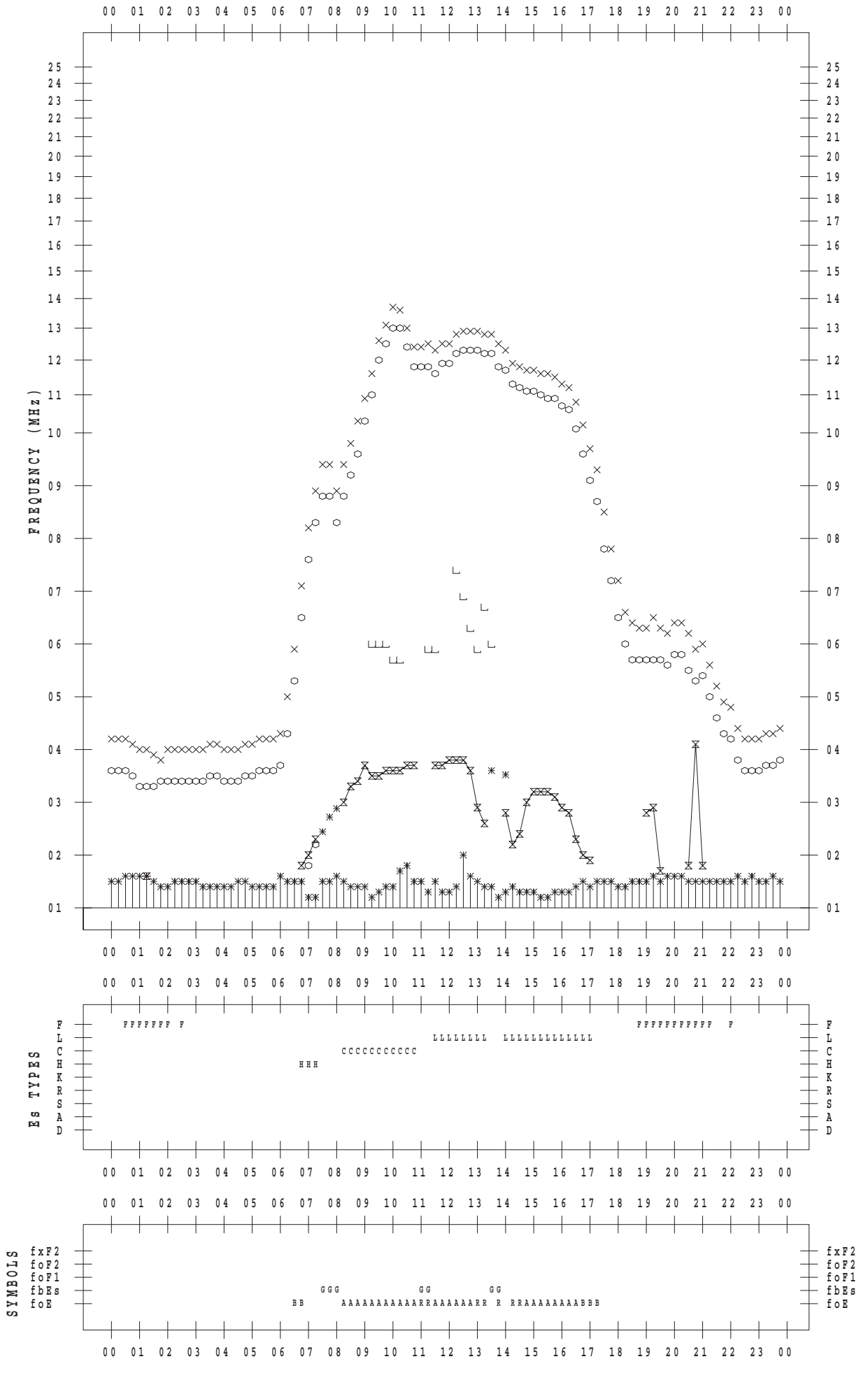
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/ 6

135 °E MEAN TIME



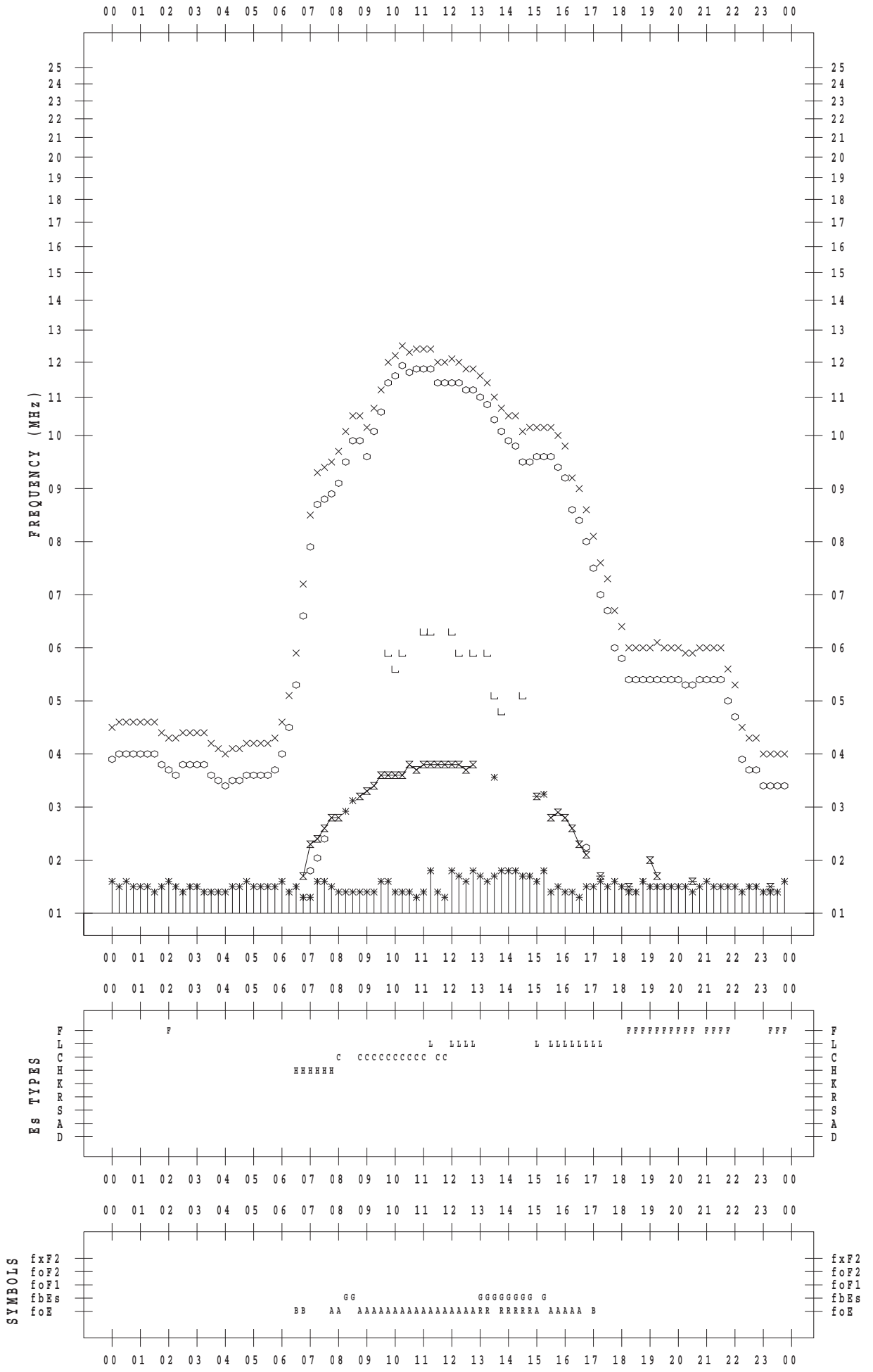
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/ 7

135 °E MEAN TIME



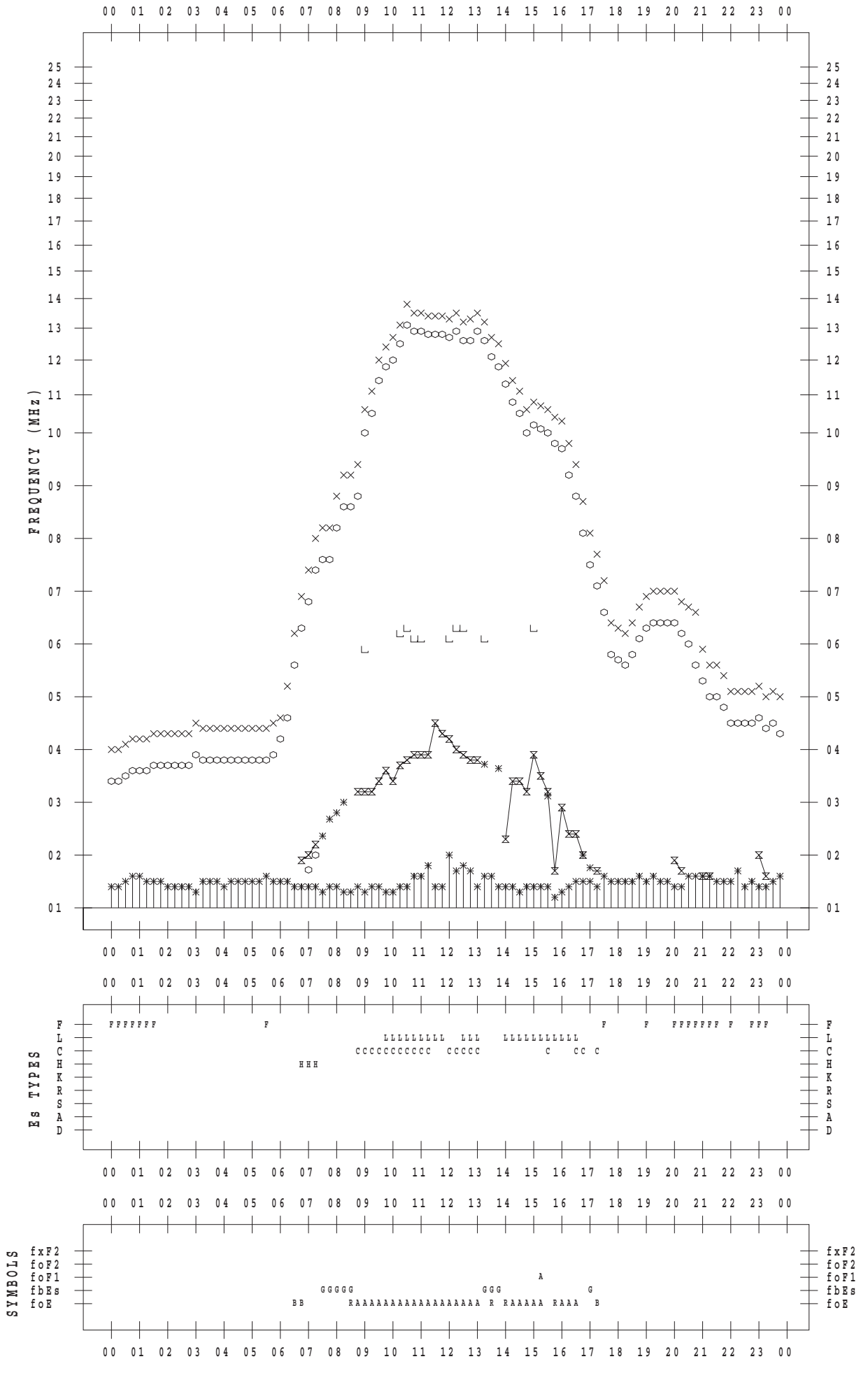
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/ 8

135 °E MEAN TIME



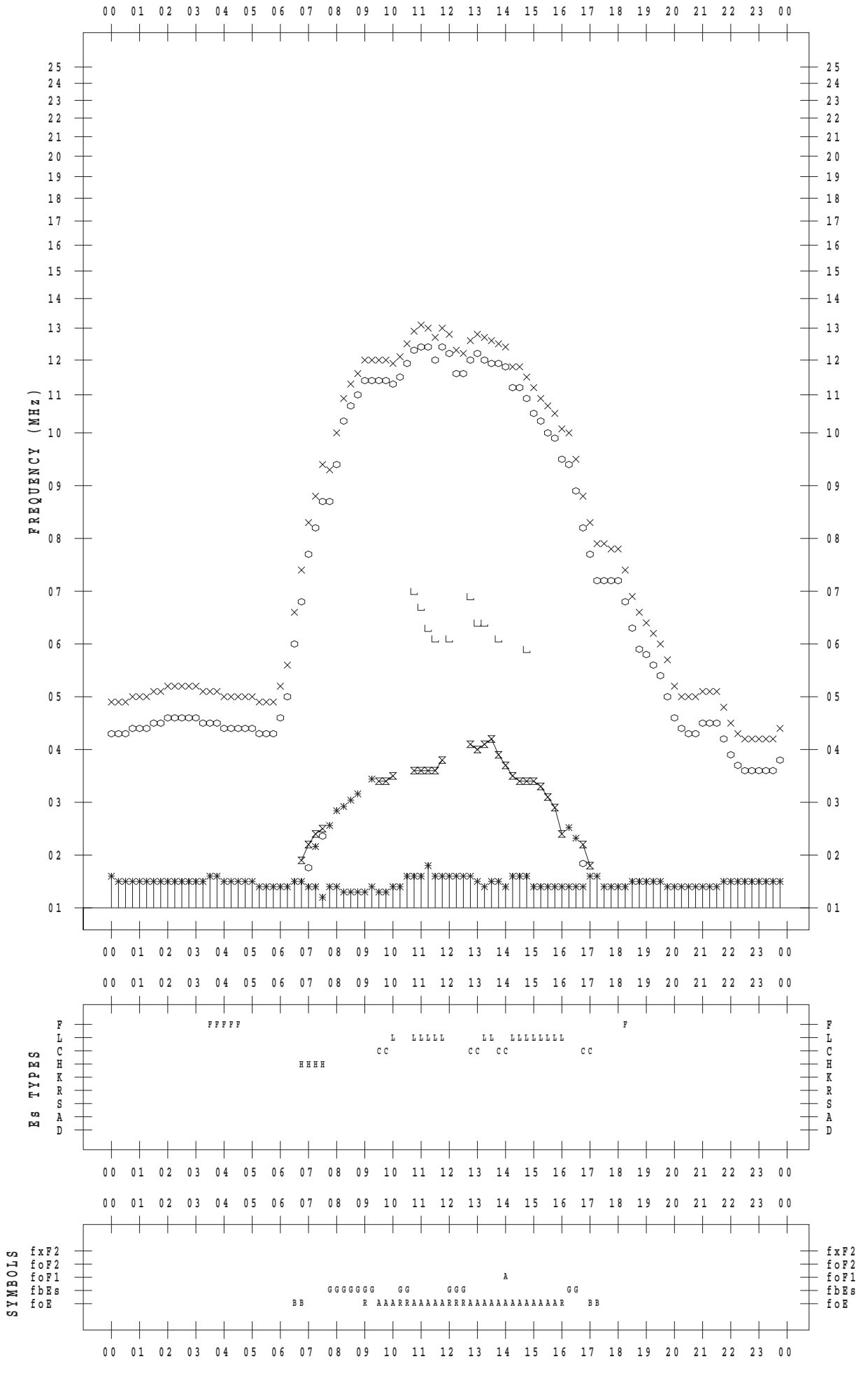
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/ 9

135 °E MEAN TIME



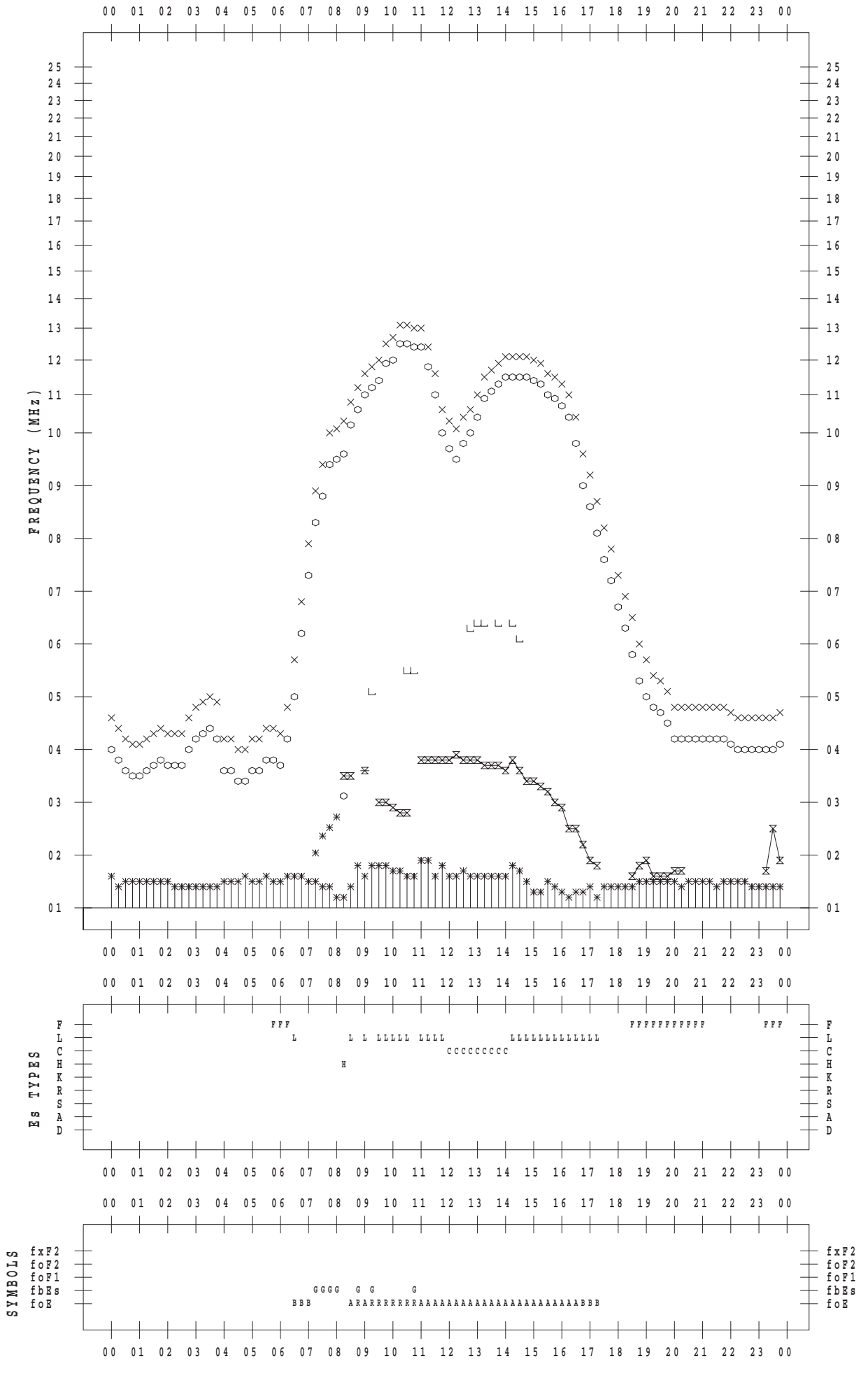
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/10

135 °E MEAN TIME



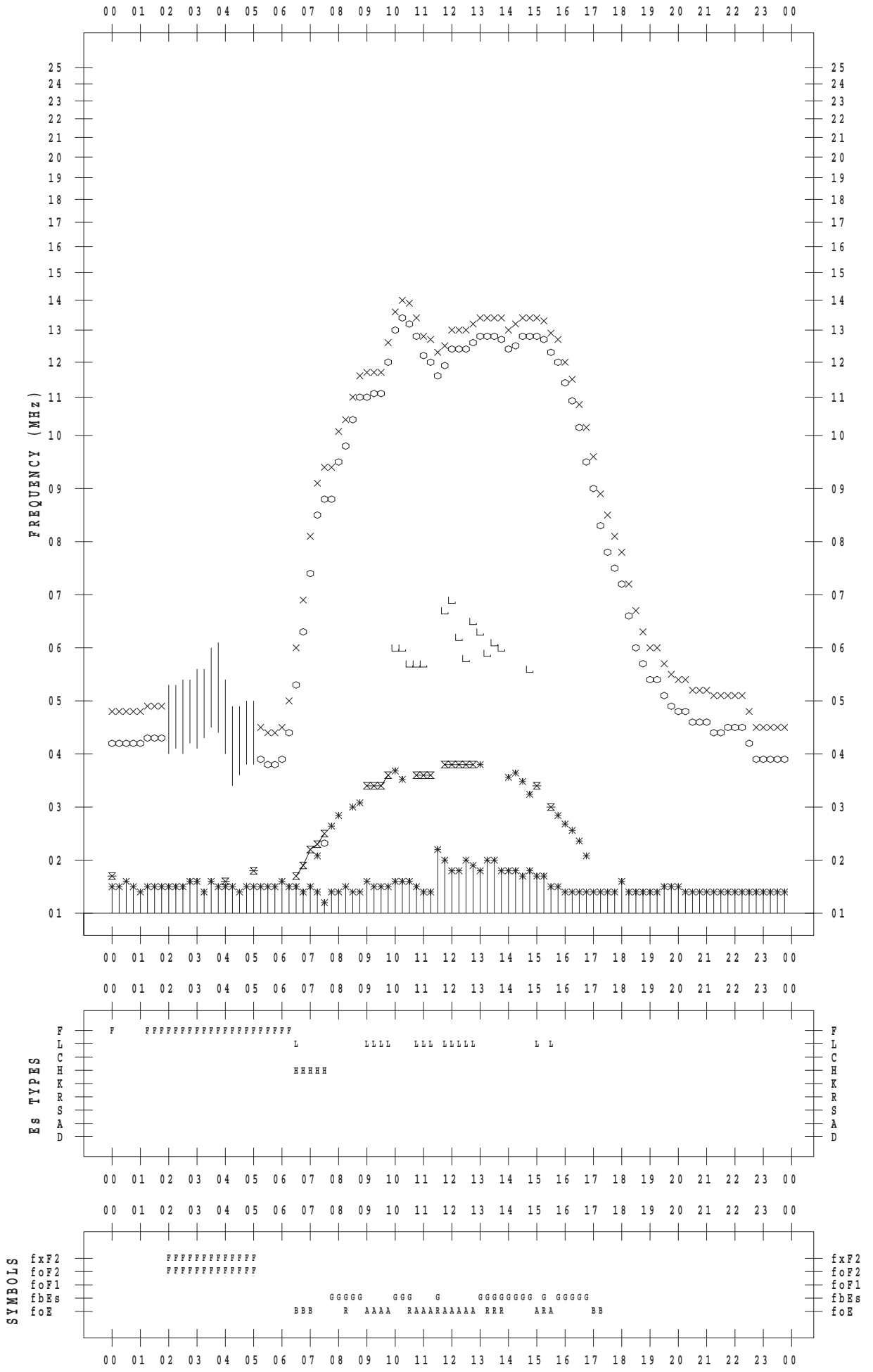
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/11

135 °E MEAN TIME



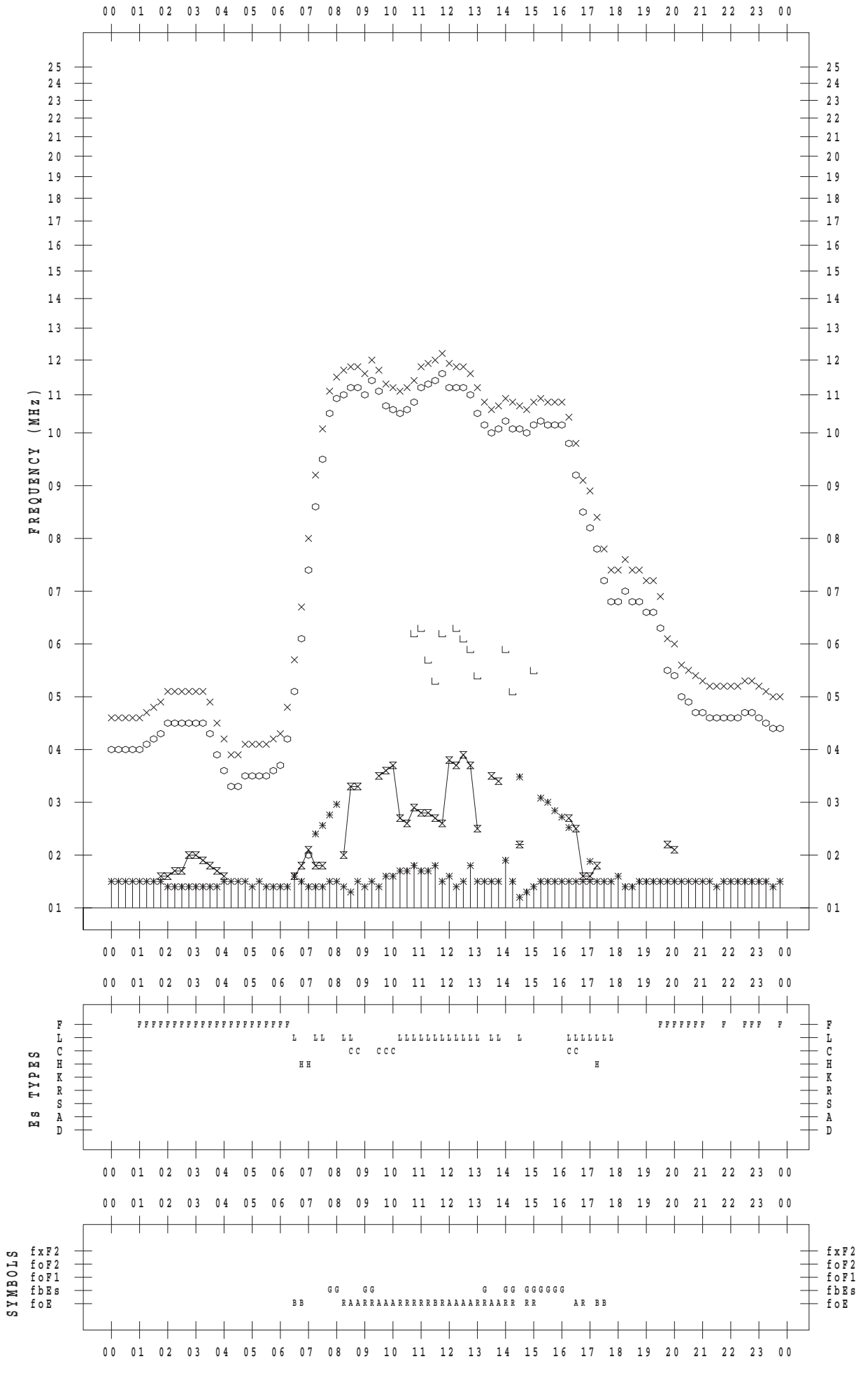
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/12

135 °E MEAN TIME



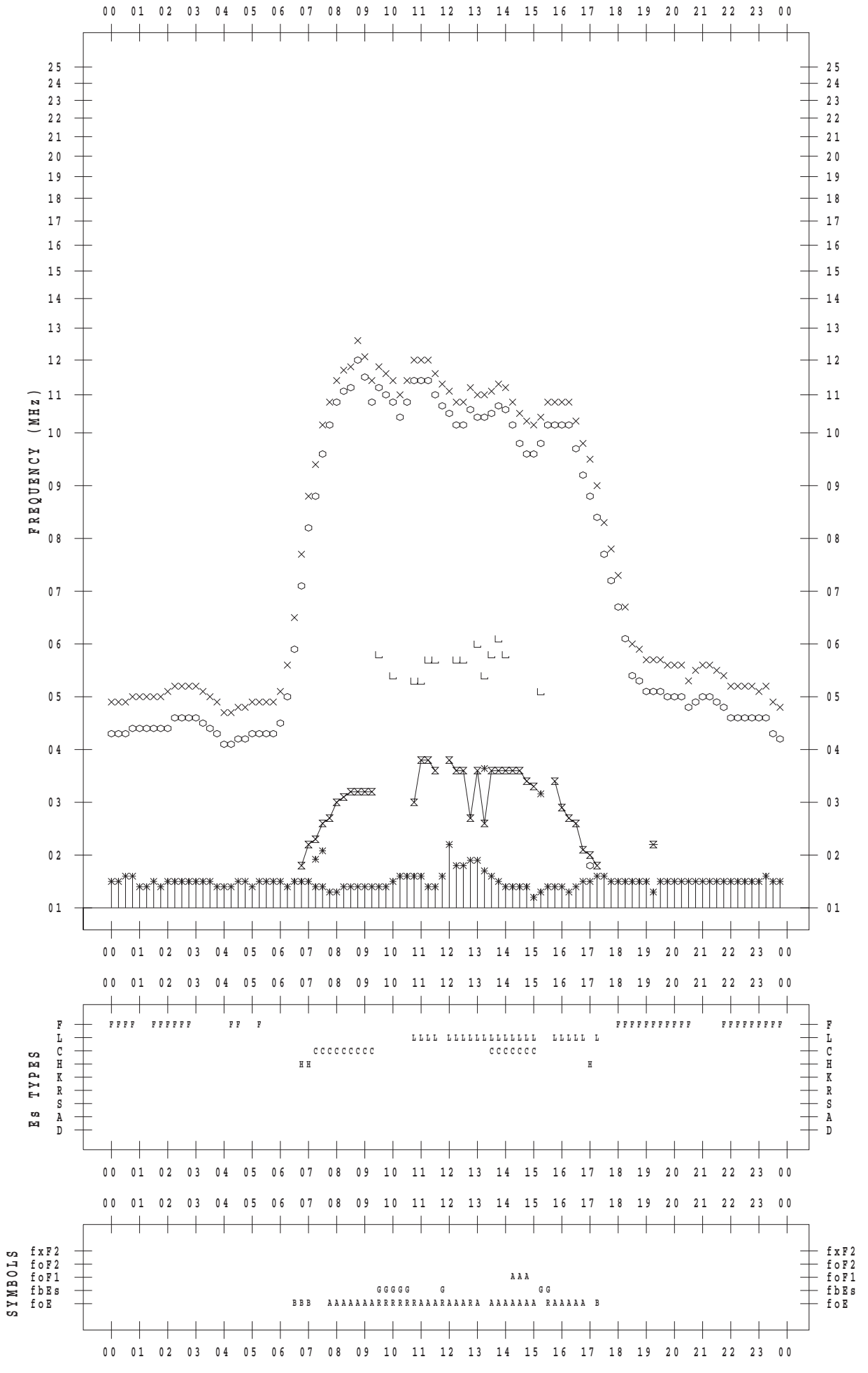
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/13

135 °E MEAN TIME



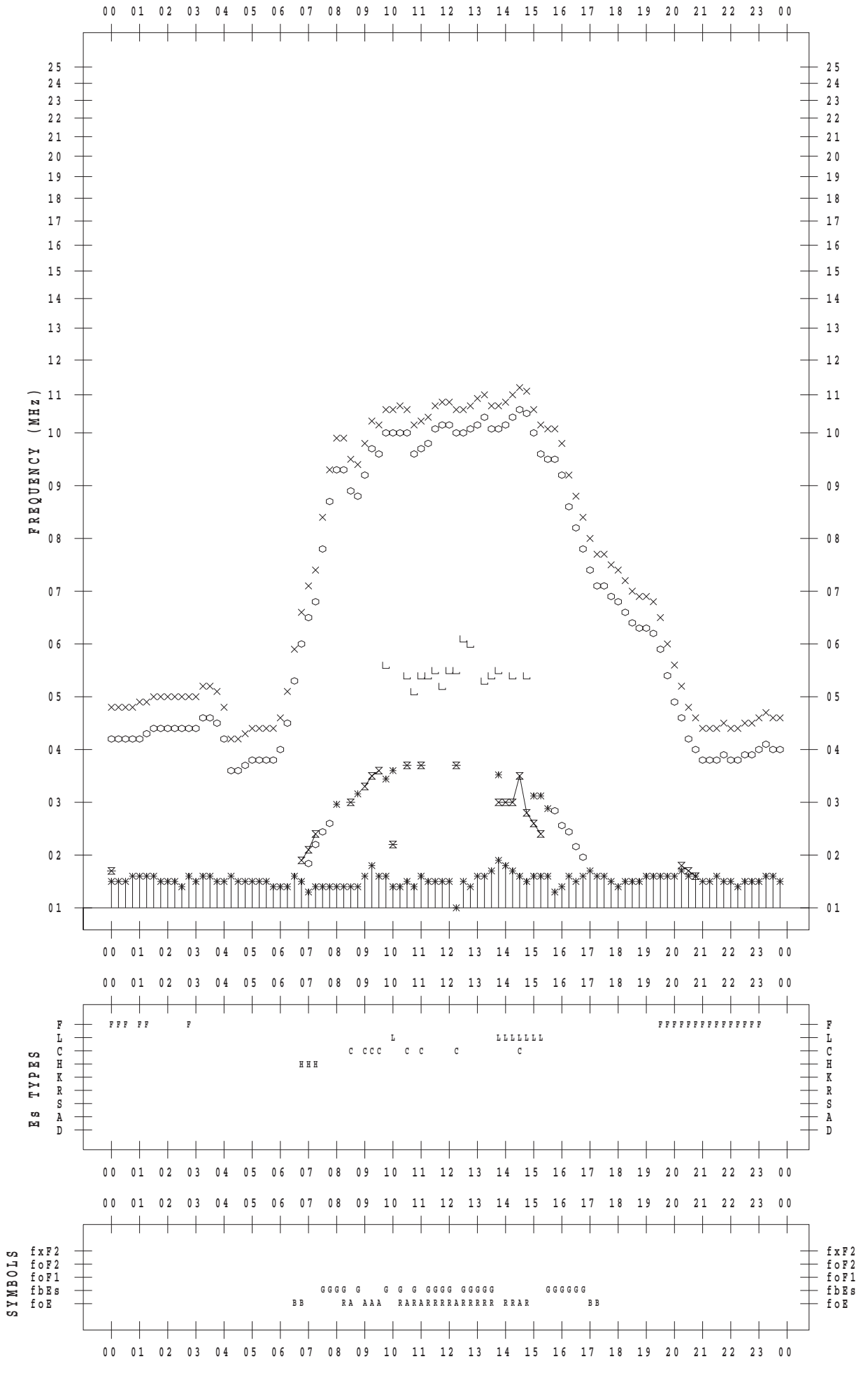
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/14

135 °E MEAN TIME



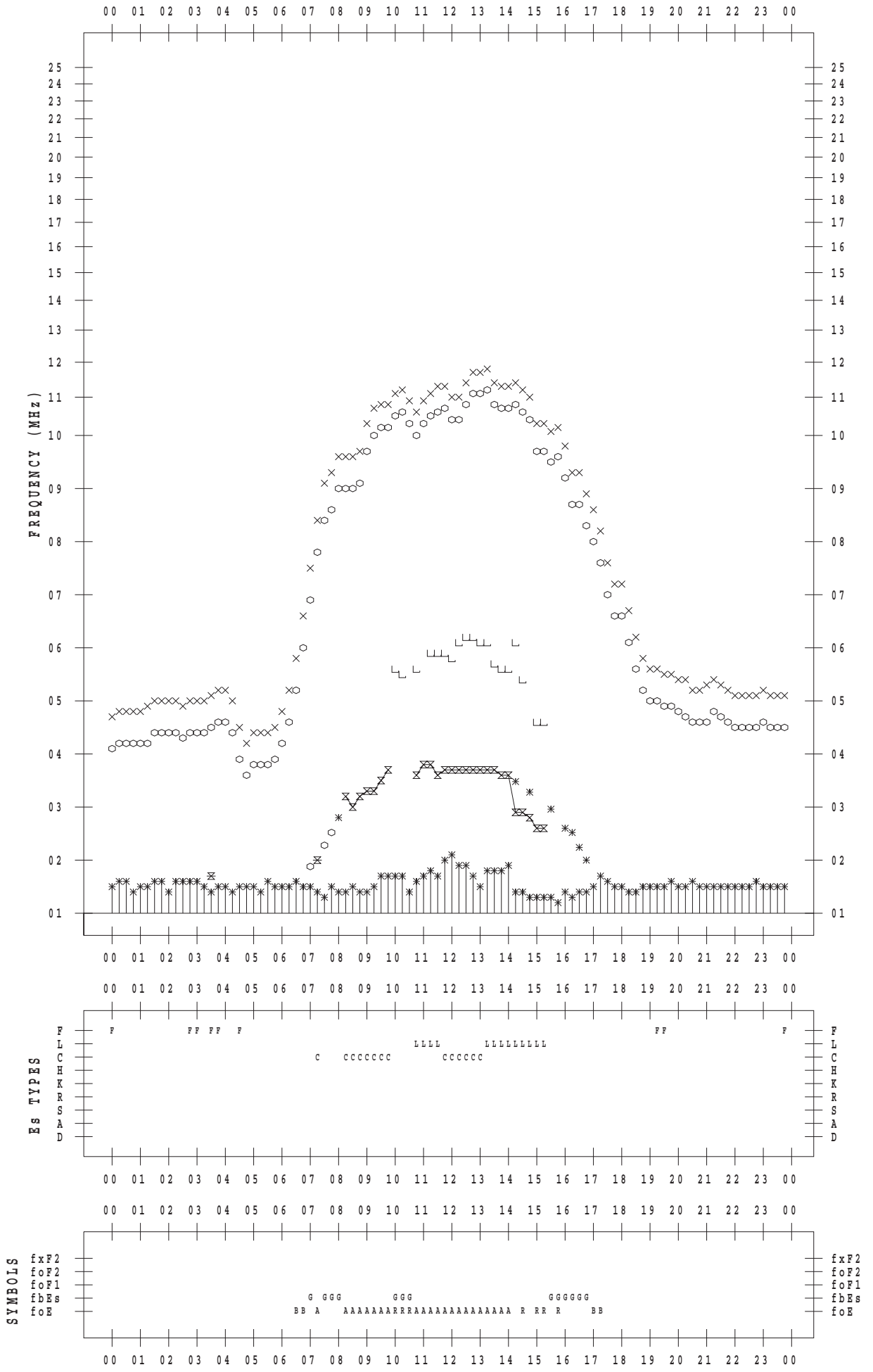
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/15

135 °E MEAN TIME



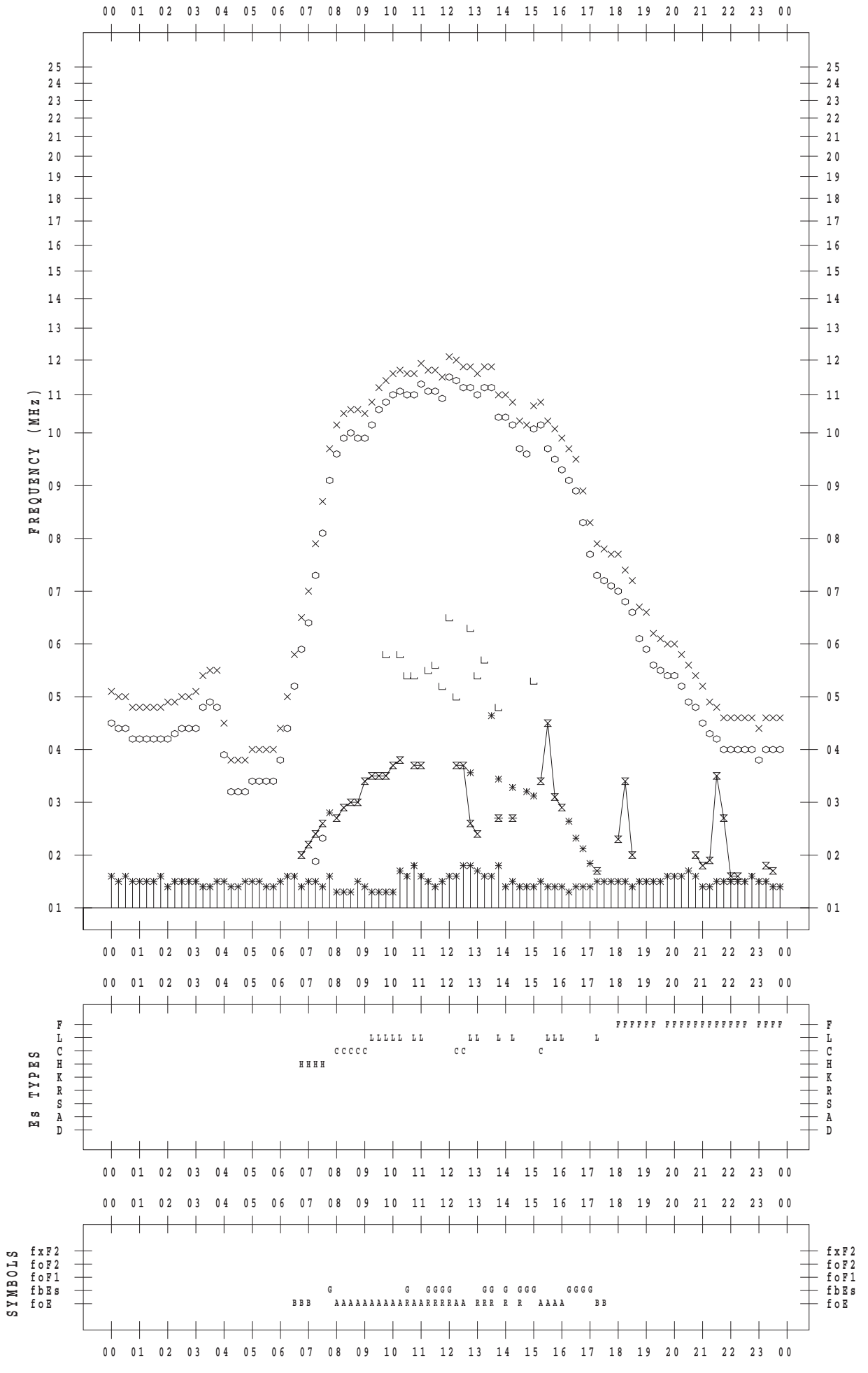
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/16

135 °E MEAN TIME



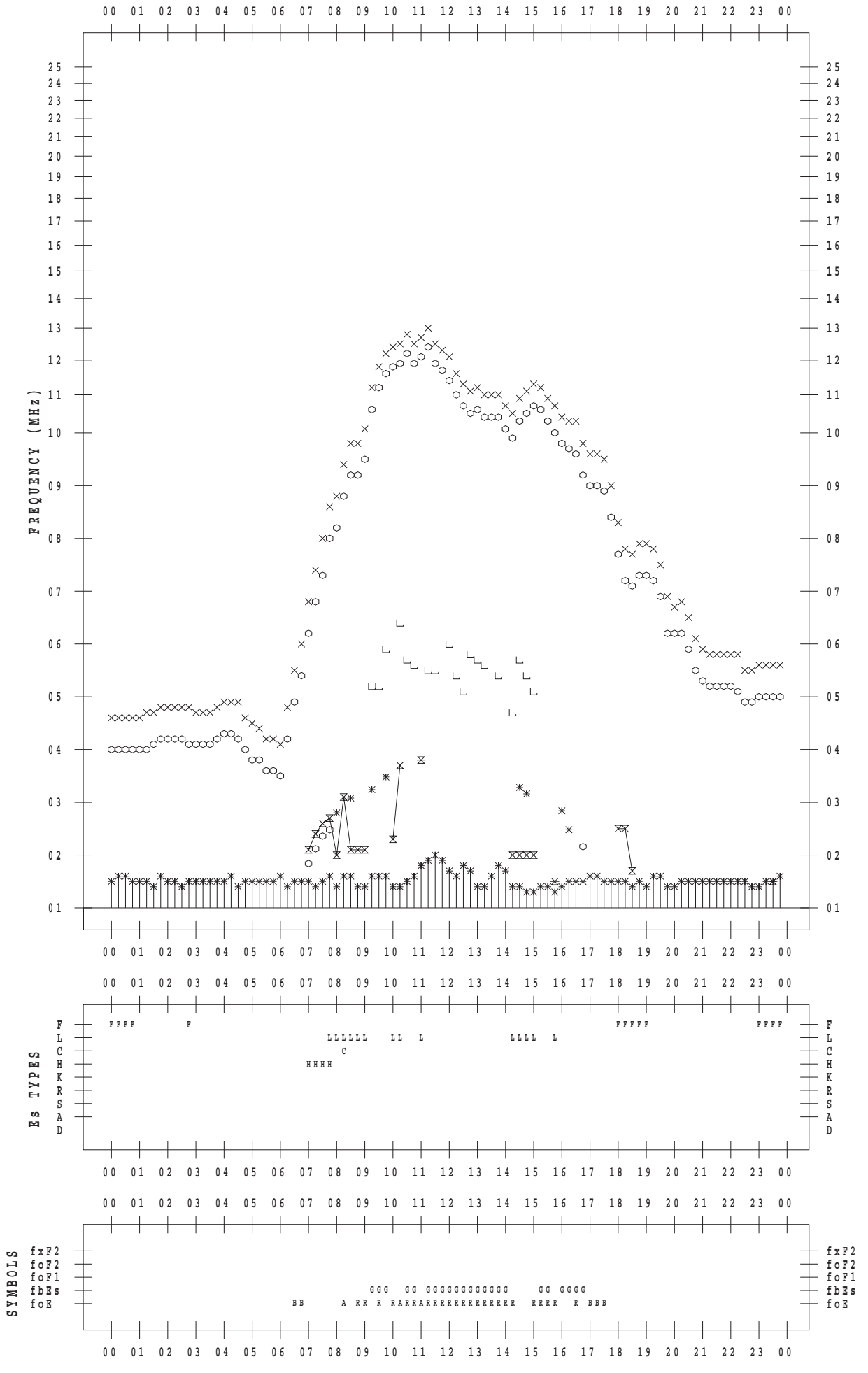
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/17

135 °E MEAN TIME



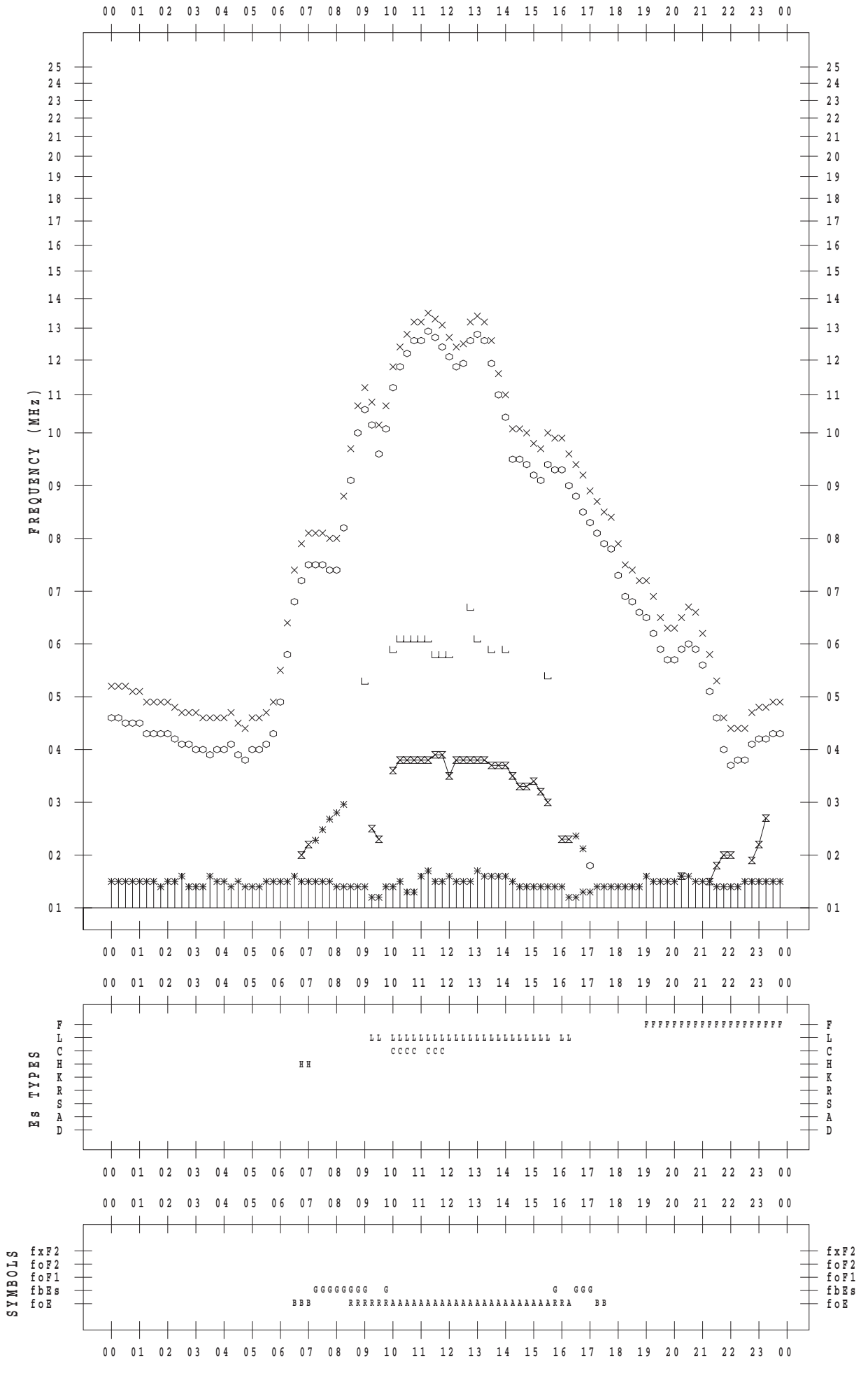
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/18

135 °E MEAN TIME



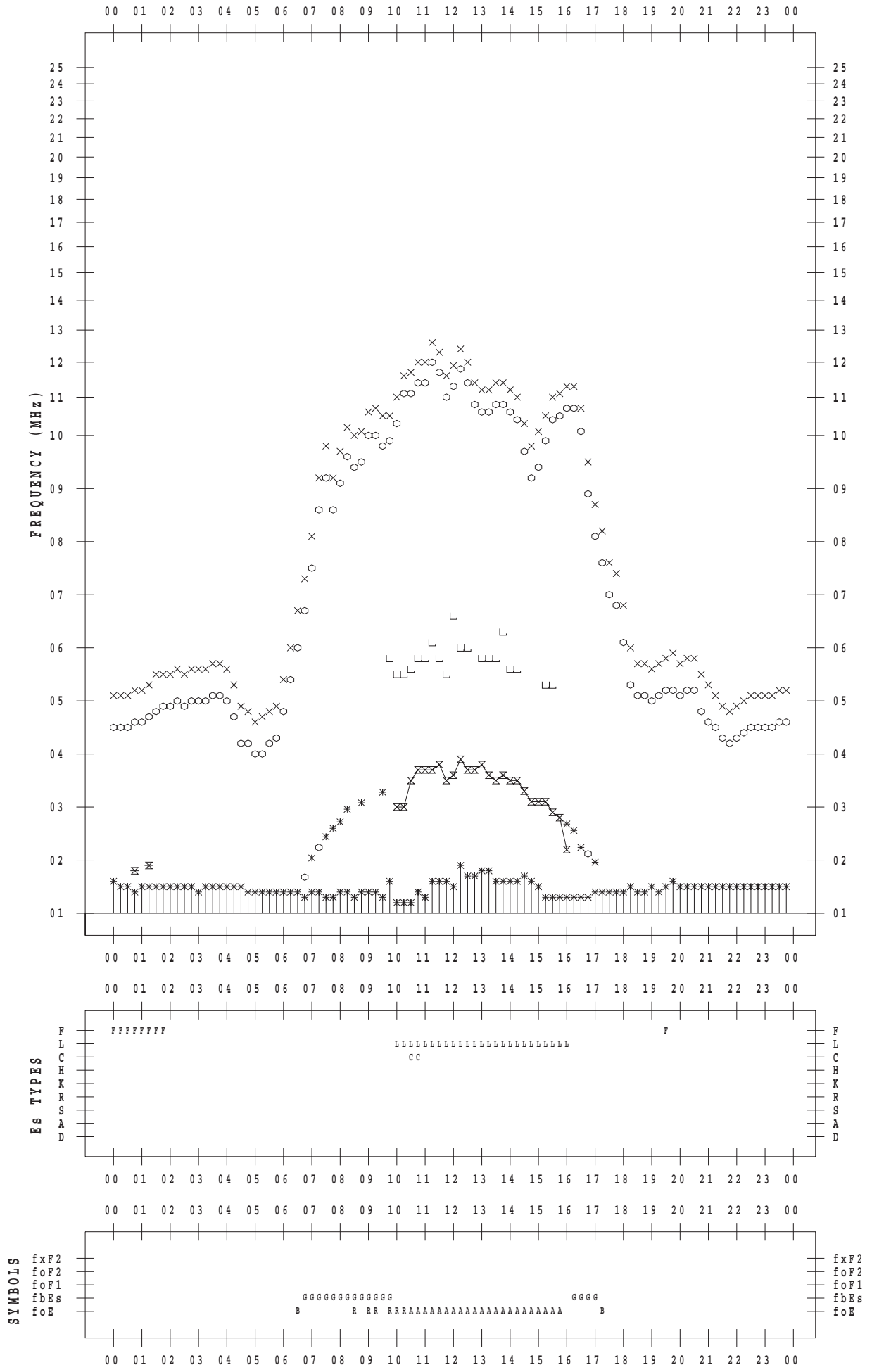
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/19

135 °E MEAN TIME



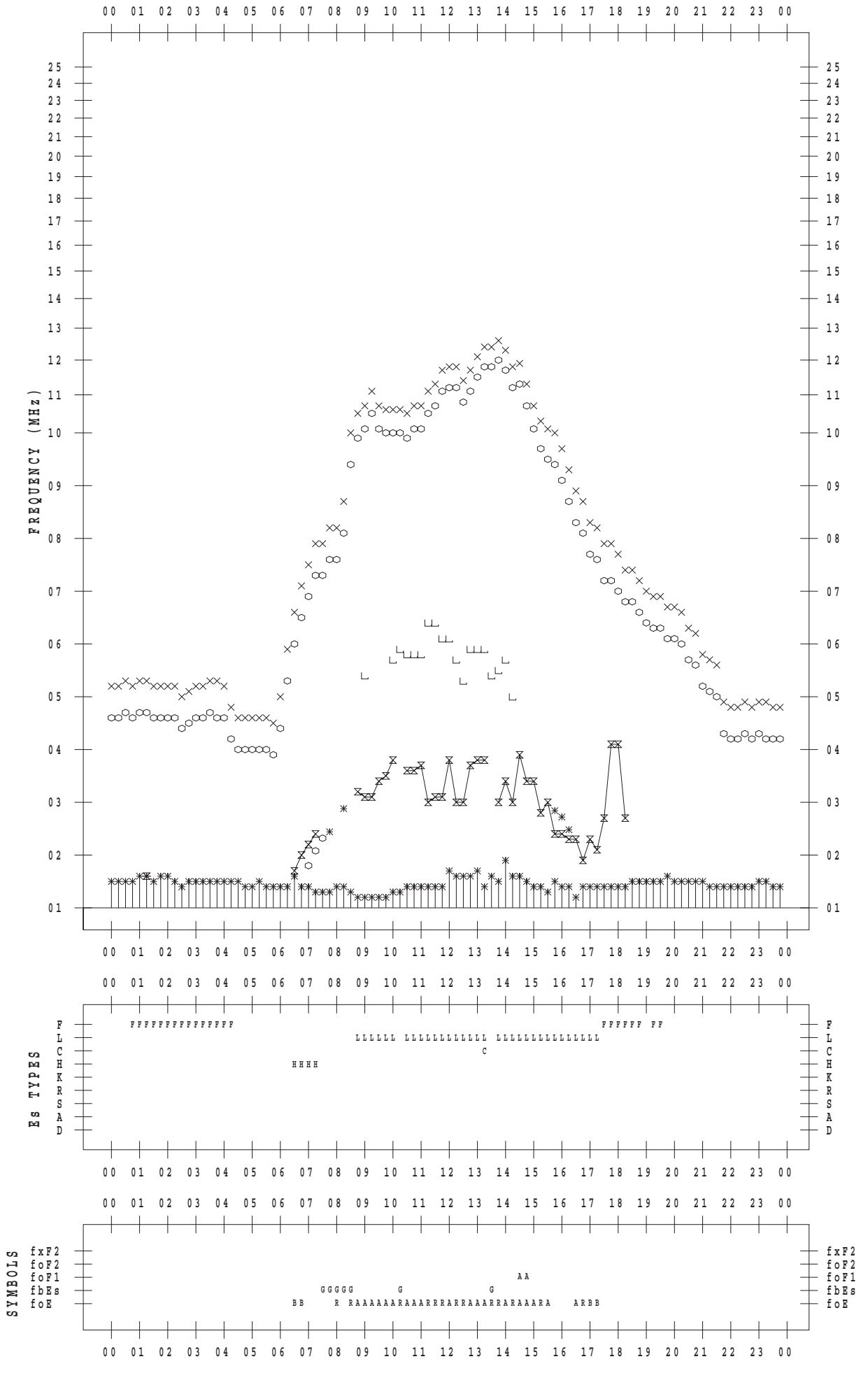
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/20

135 °E MEAN TIME



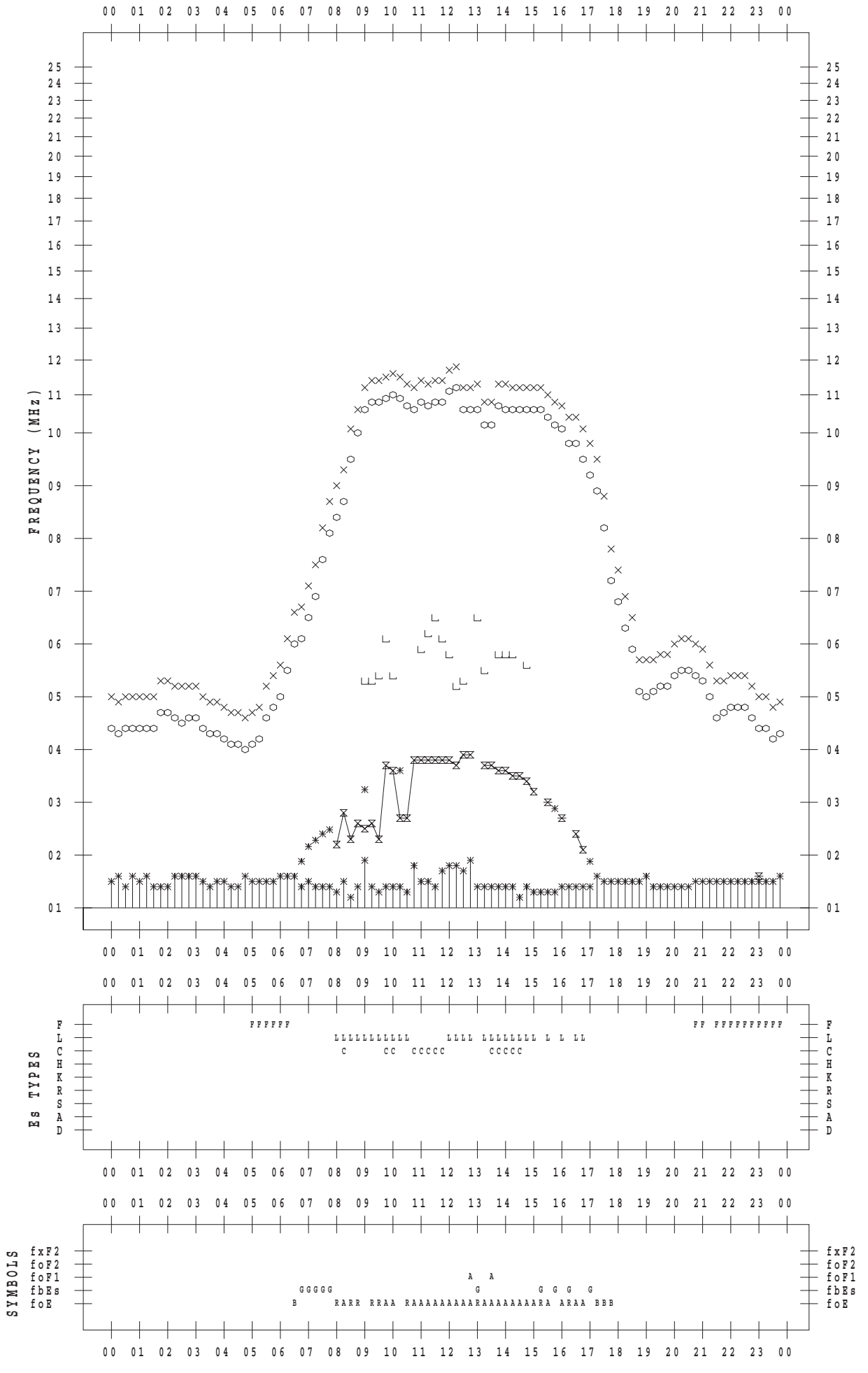
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/21

135 °E MEAN TIME



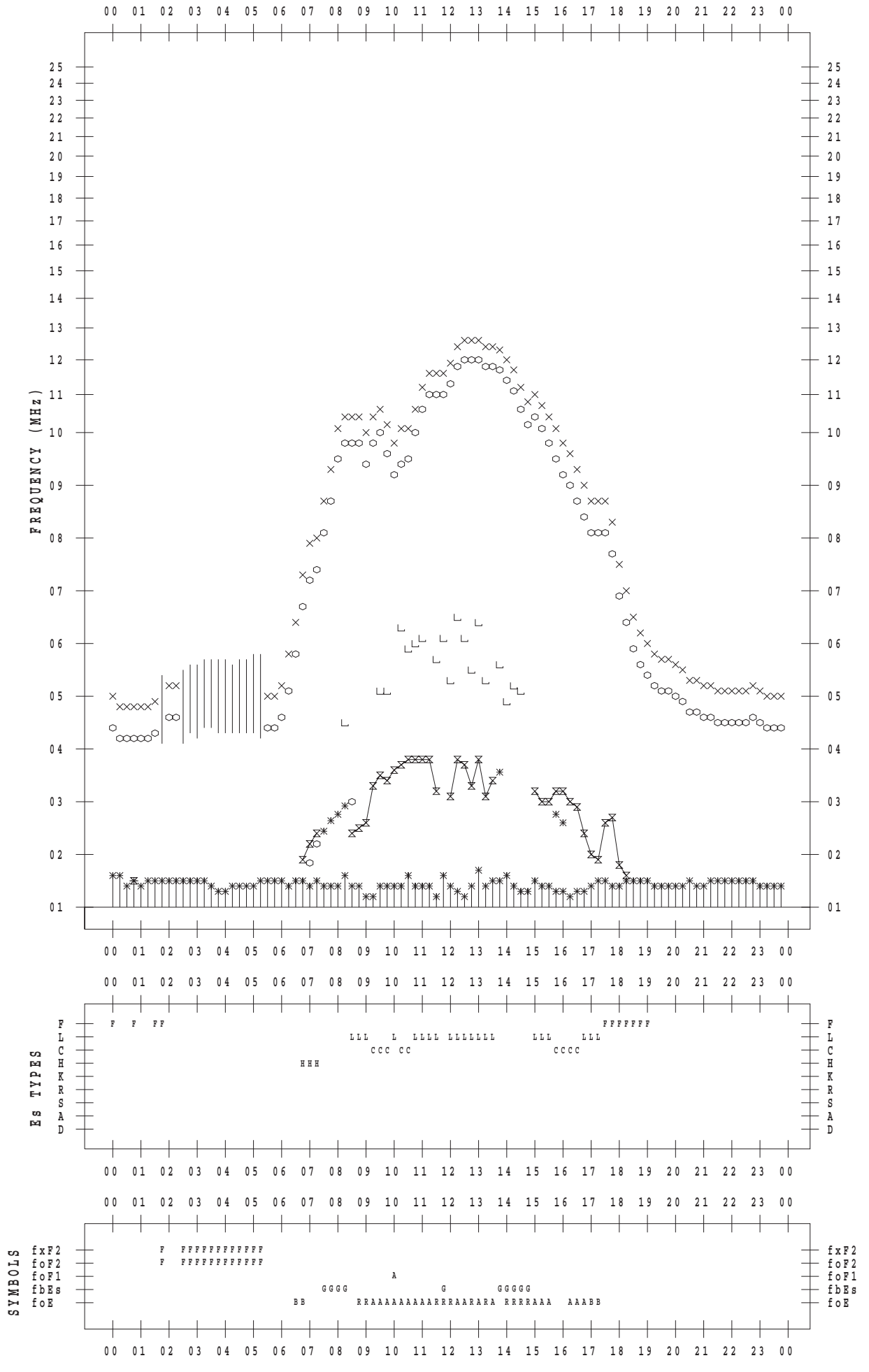
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/22

135 °E MEAN TIME



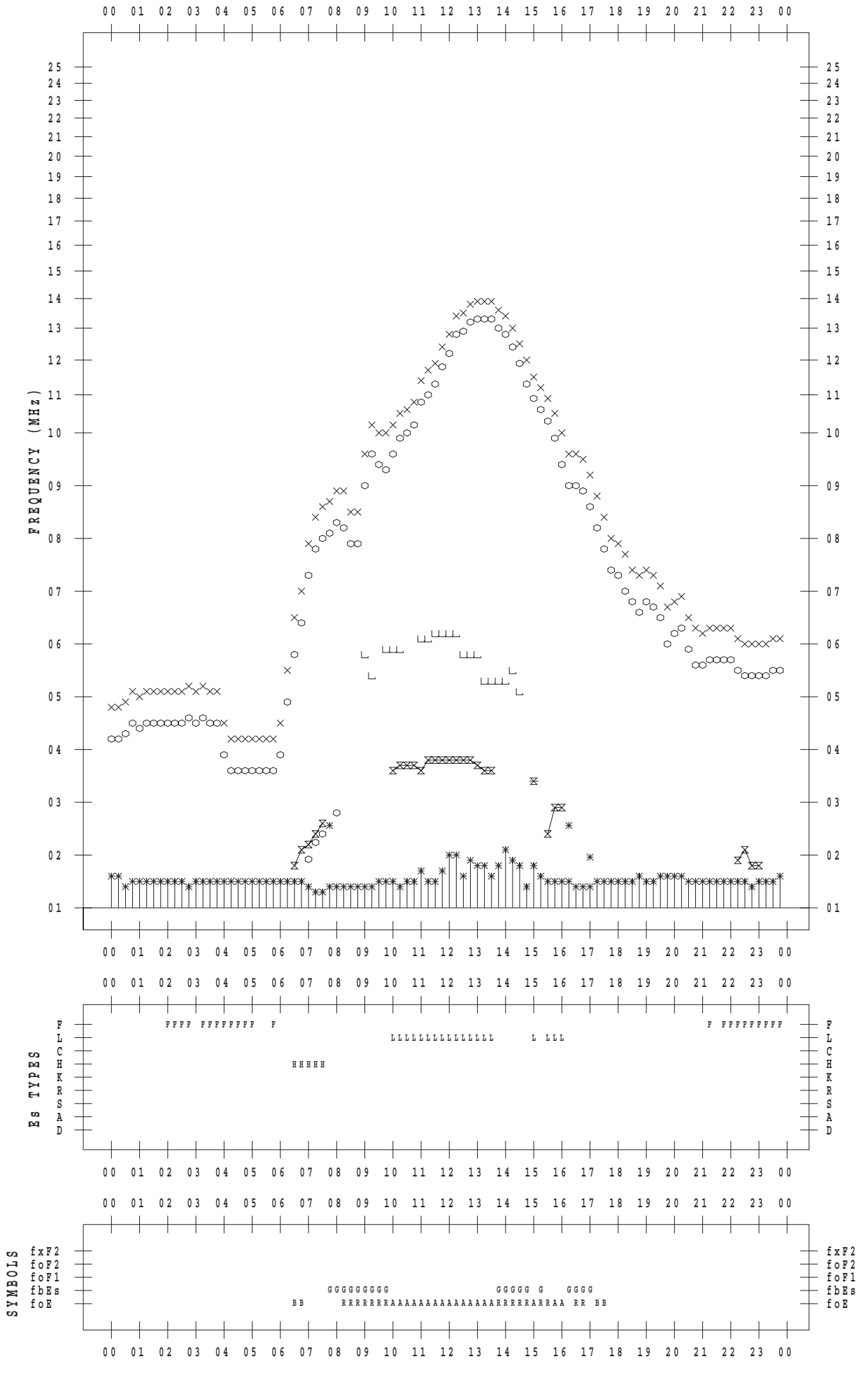
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/23

135 °E MEAN TIME



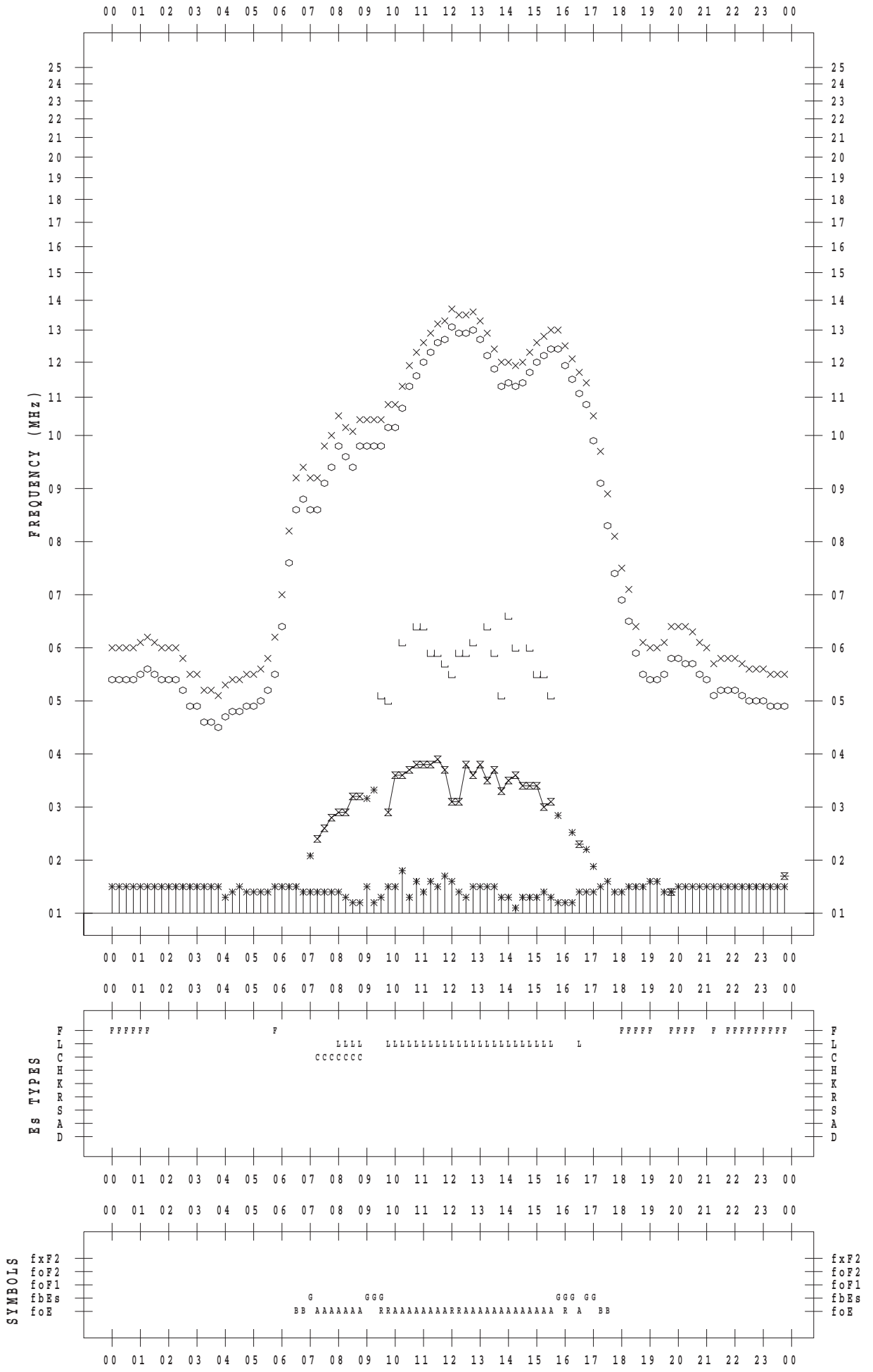
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/24

135 °E MEAN TIME



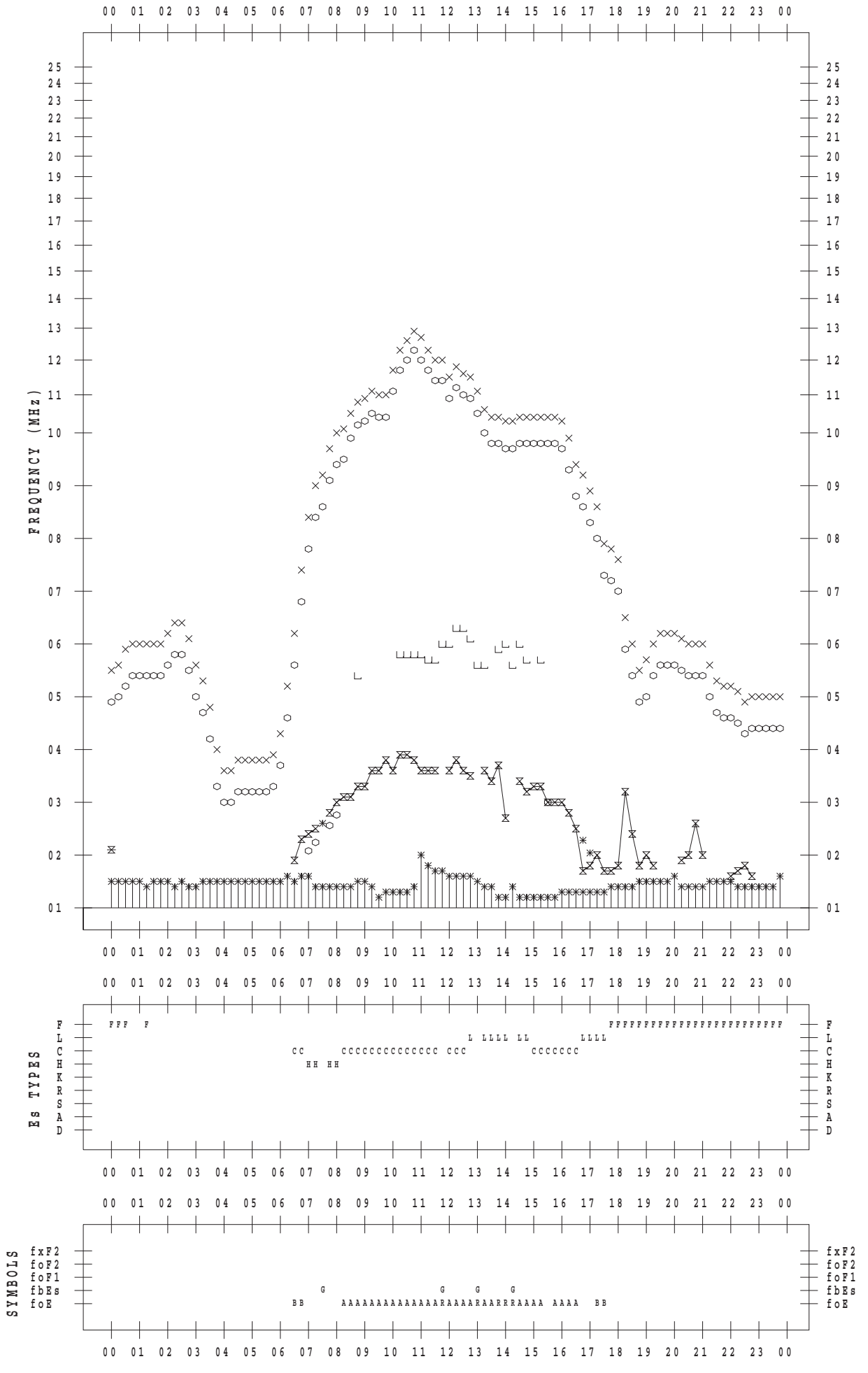
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/25

135 °E MEAN TIME



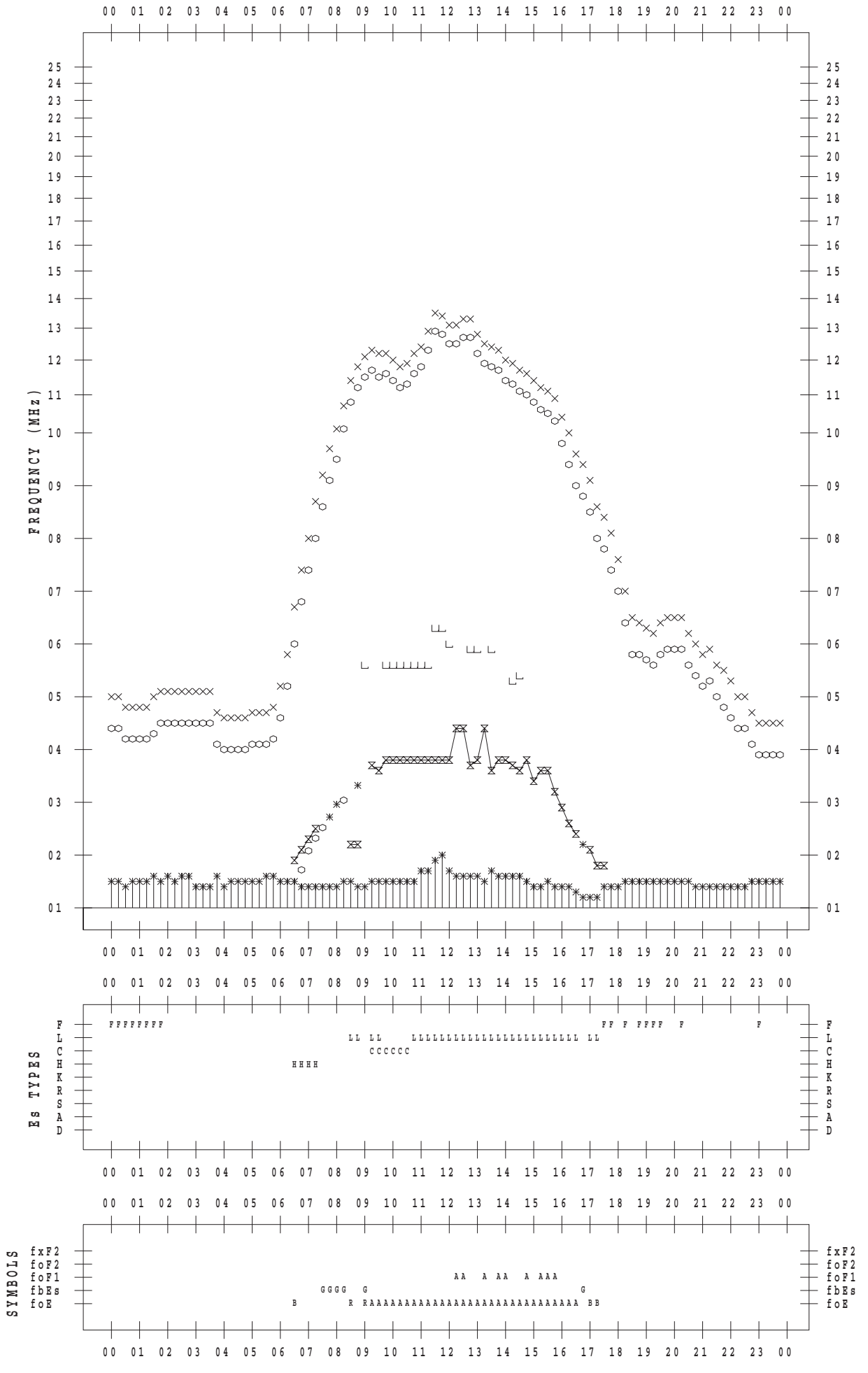
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/26

135 °E MEAN TIME



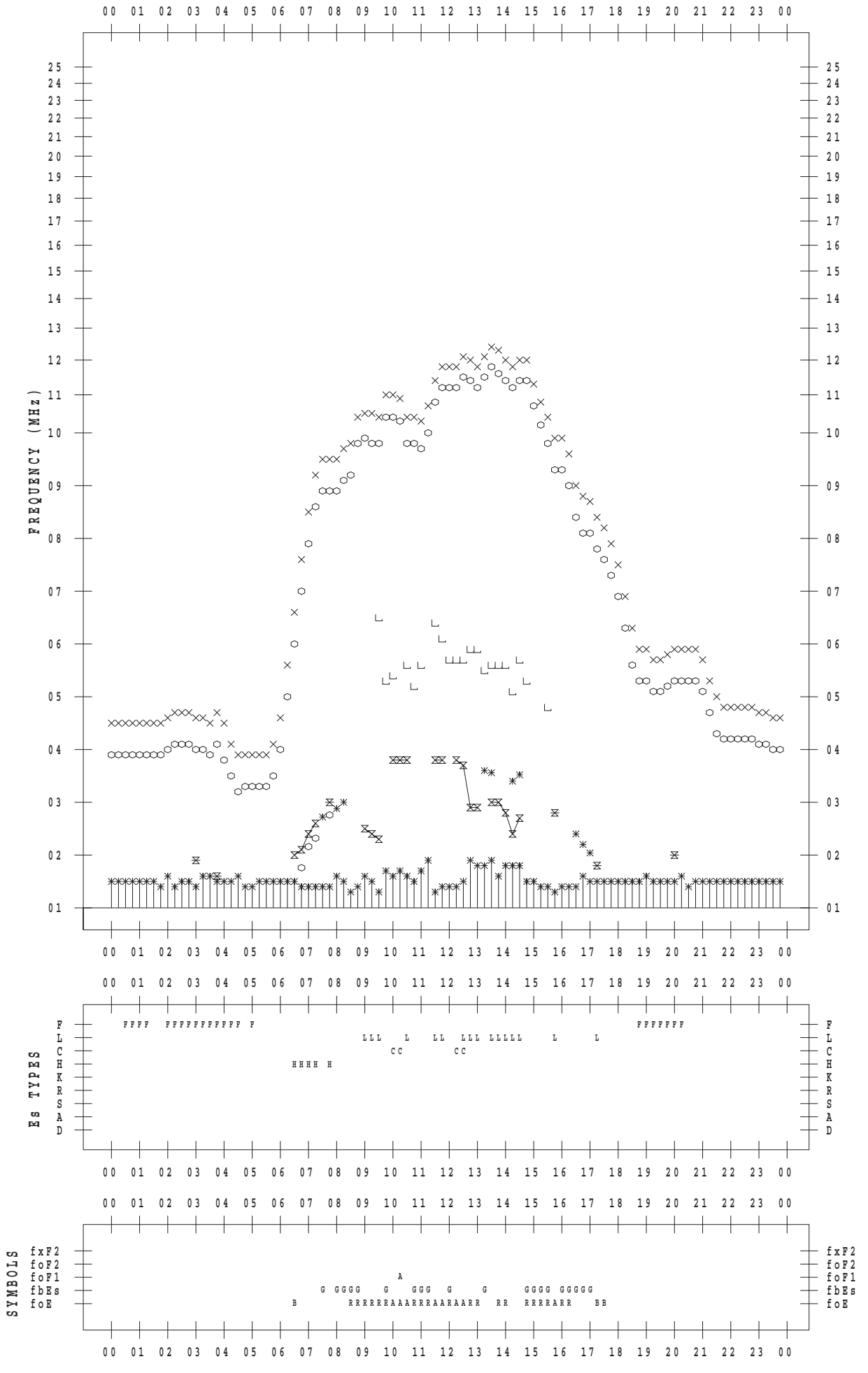
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/27

135 °E MEAN TIME



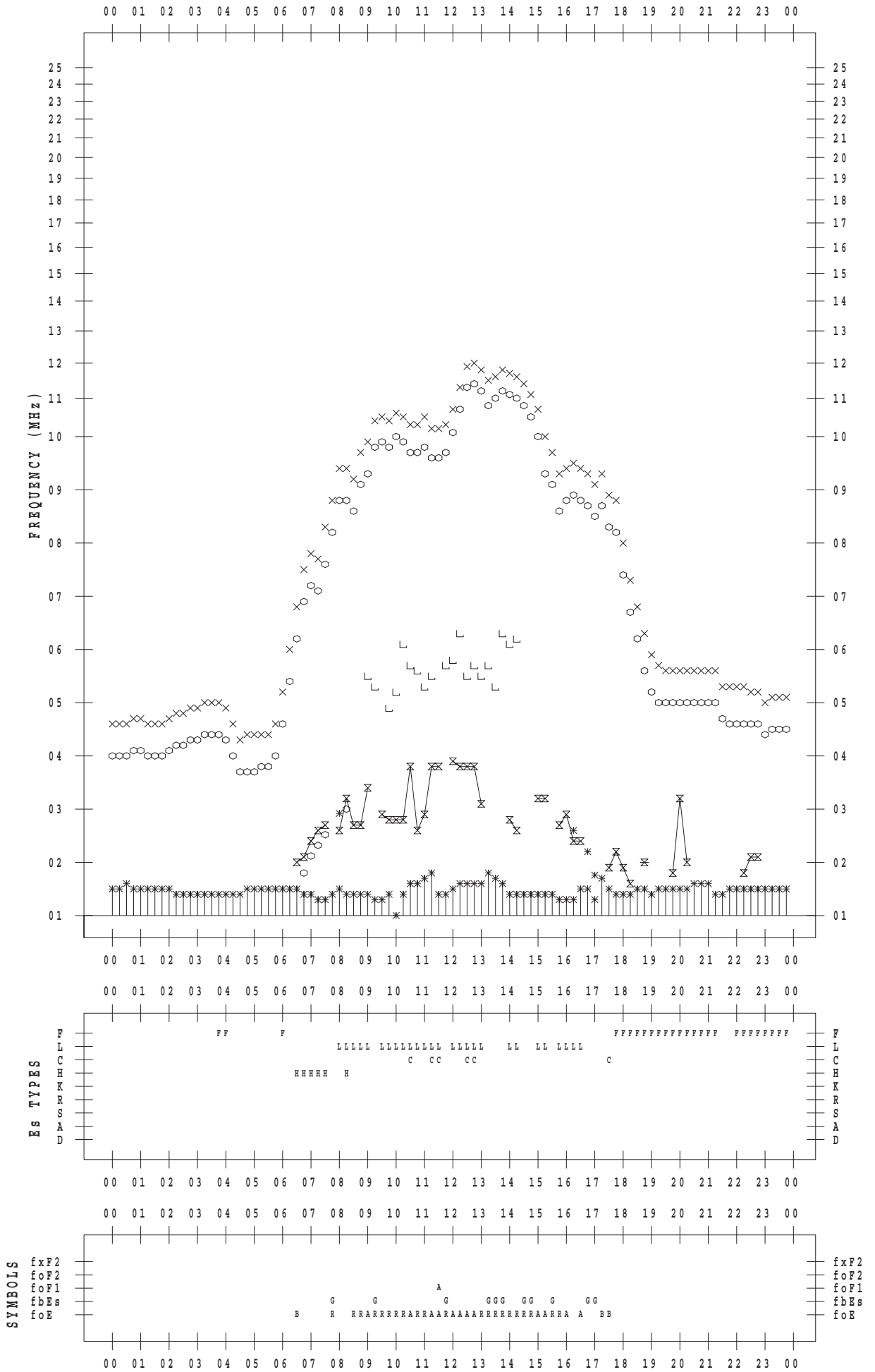
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 2/28

135 °E MEAN TIME



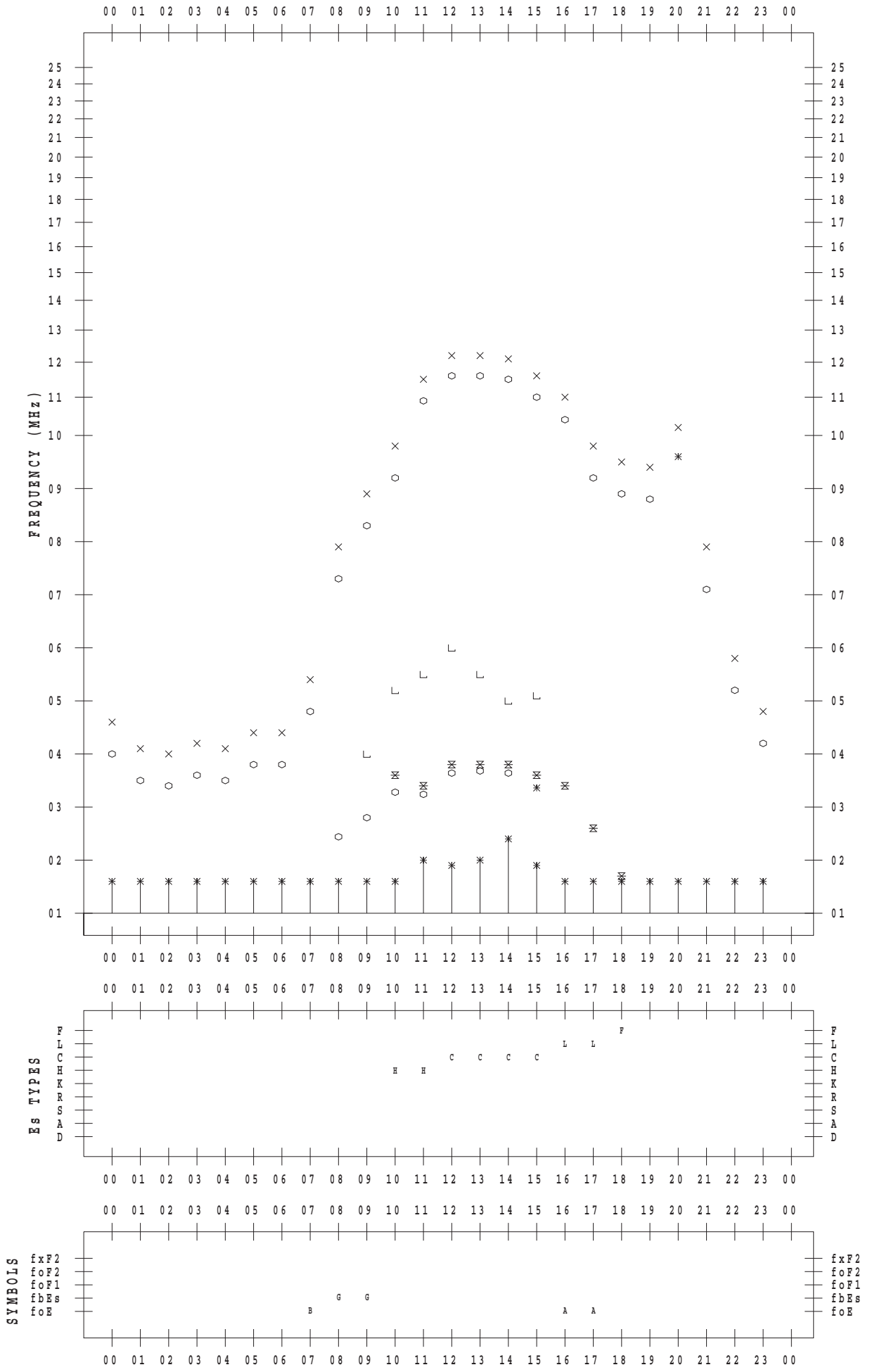
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/ 1

135 °E MEAN TIME



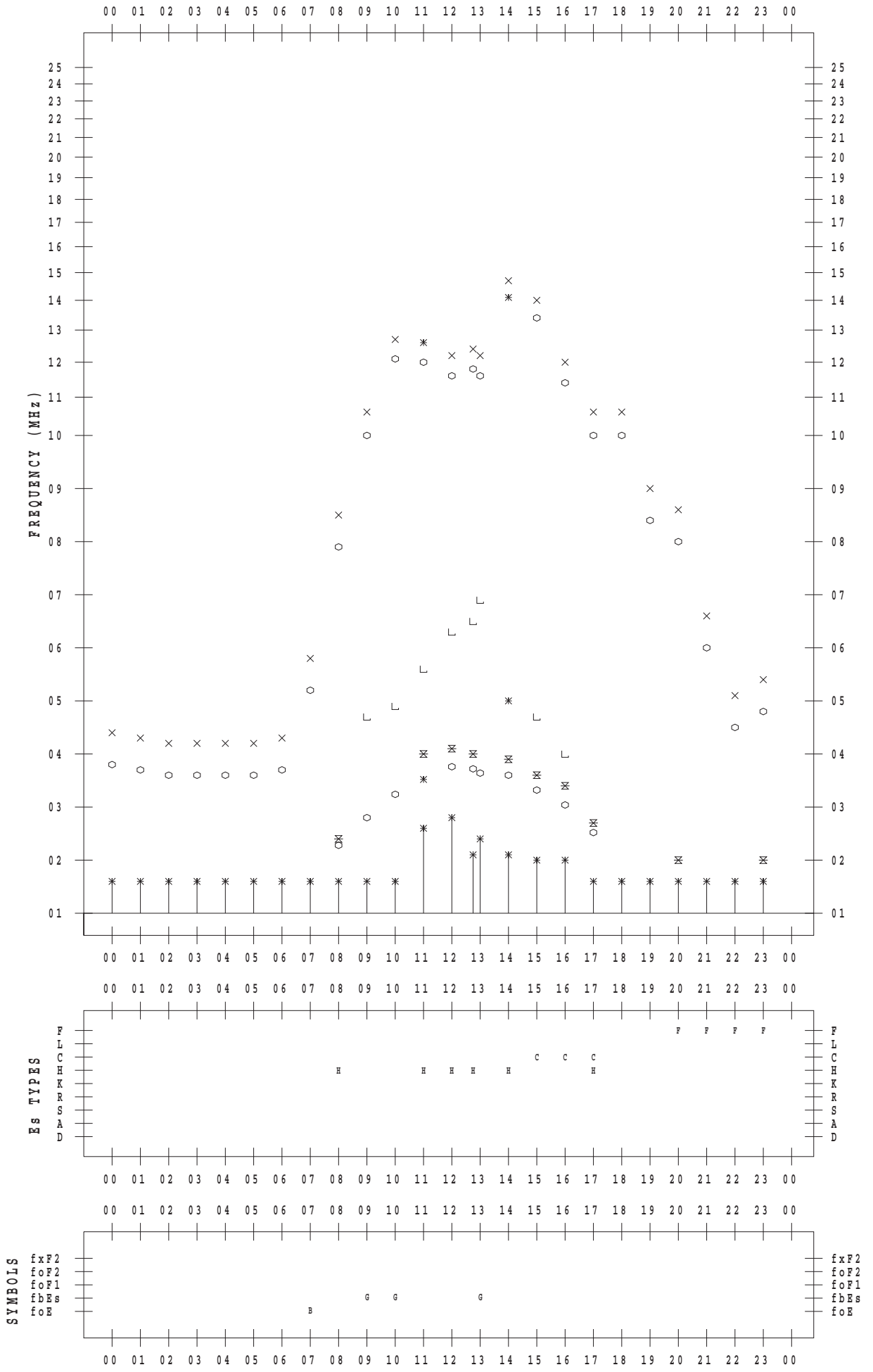
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/ 2

135 °E MEAN TIME



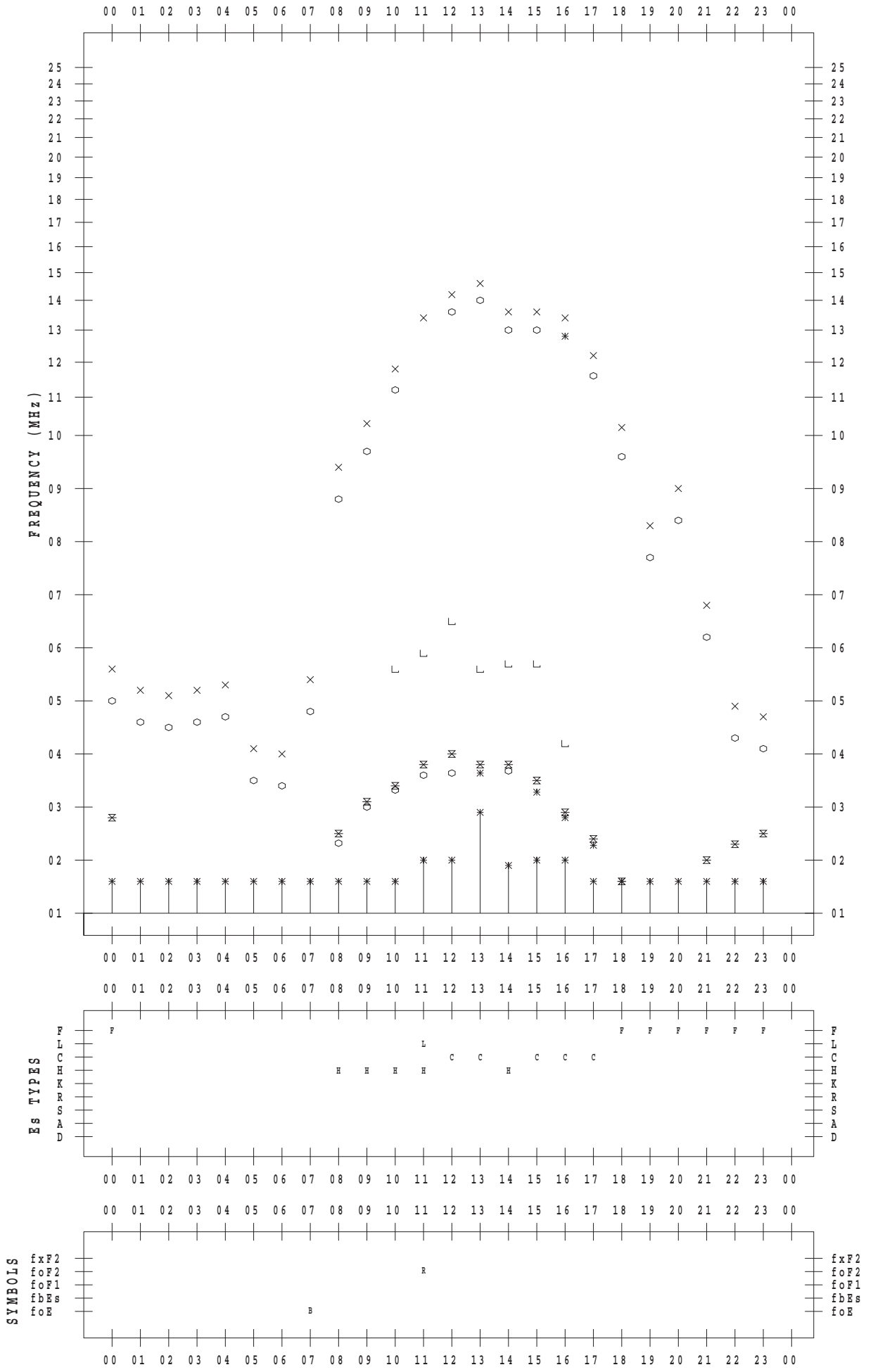
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/ 3

135 °E MEAN TIME



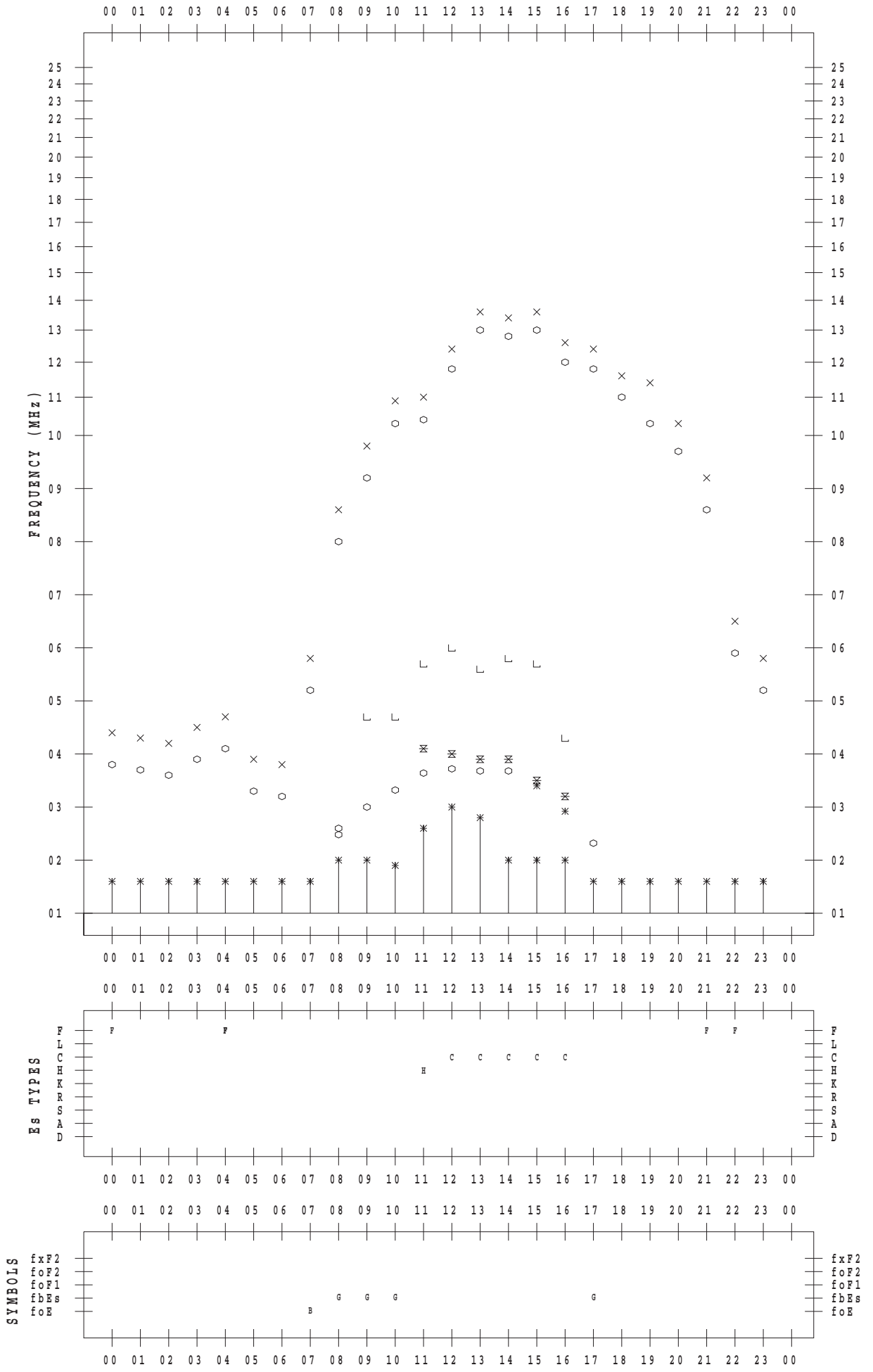
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/ 4

135 °E MEAN TIME



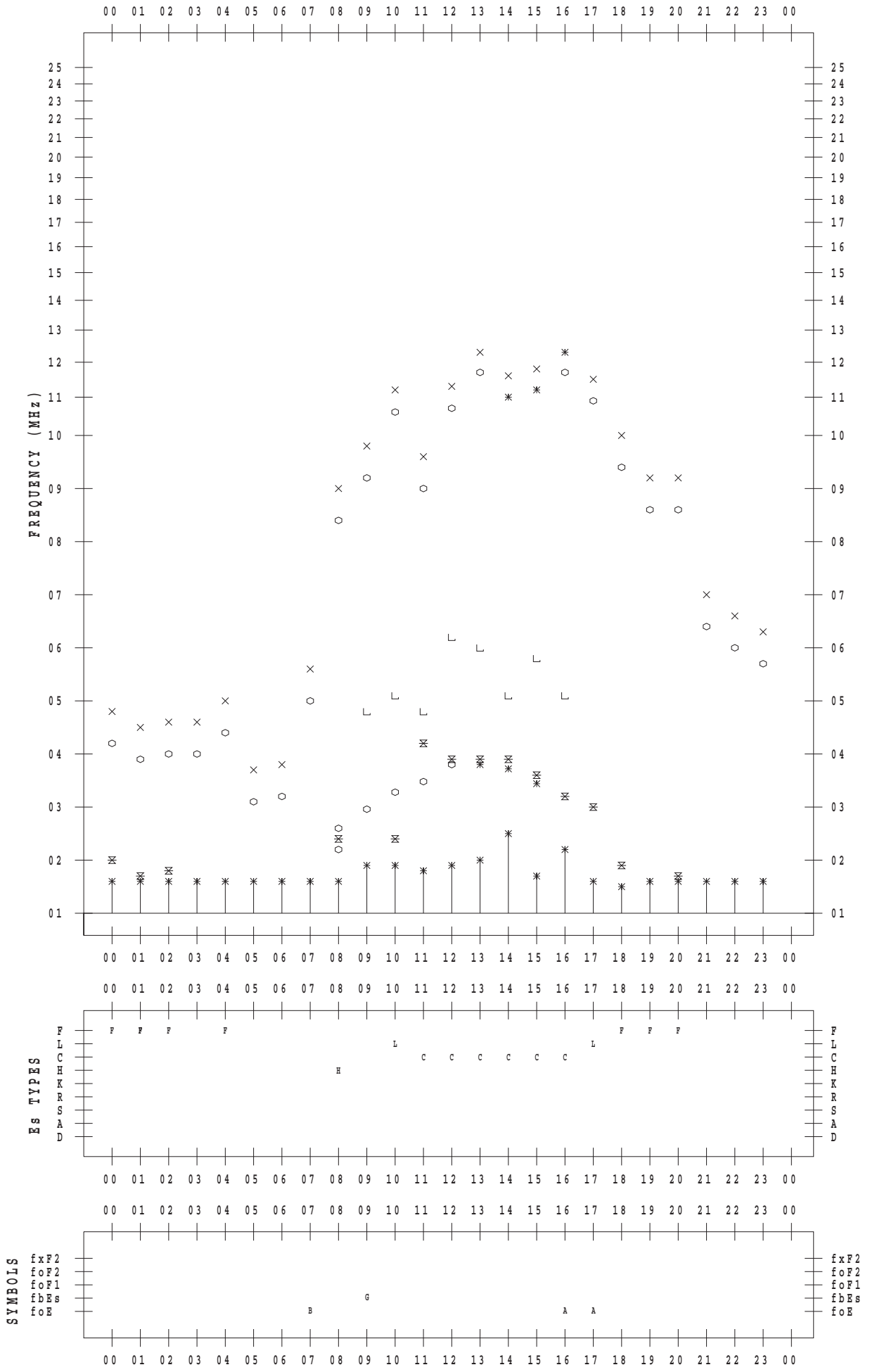
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/ 5

135 °E MEAN TIME



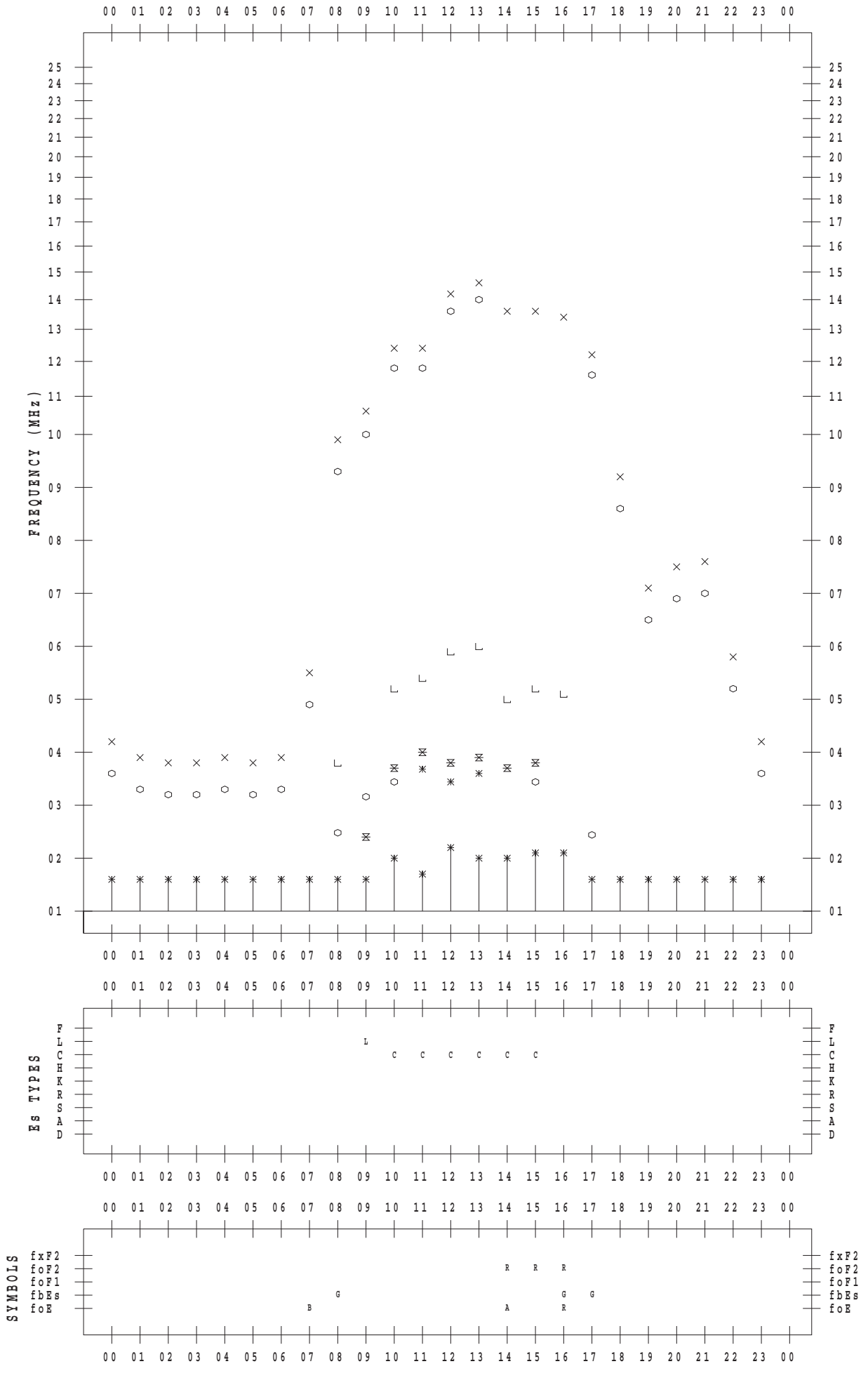
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/ 6

135 °E MEAN TIME



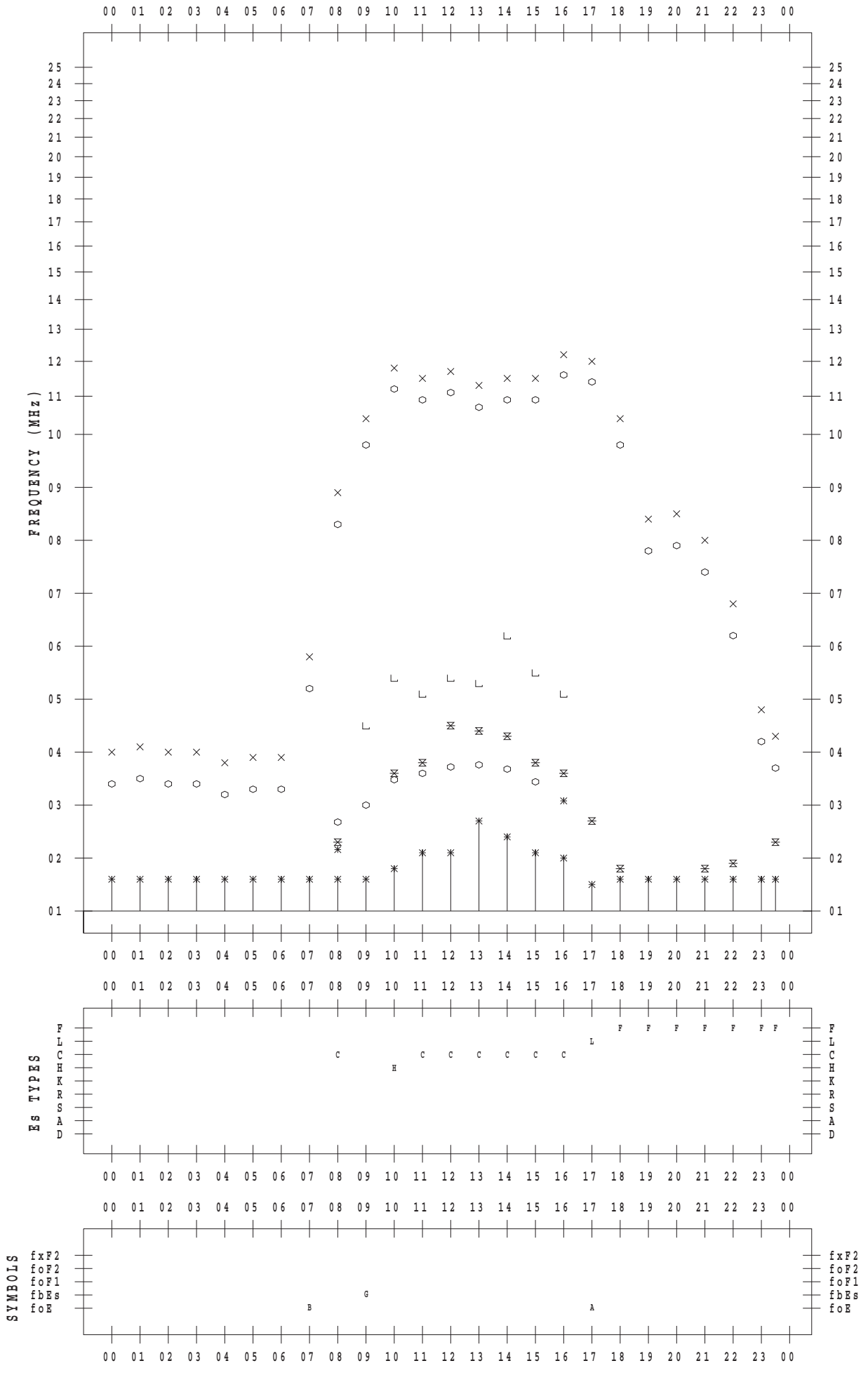
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/ 7

135 °E MEAN TIME



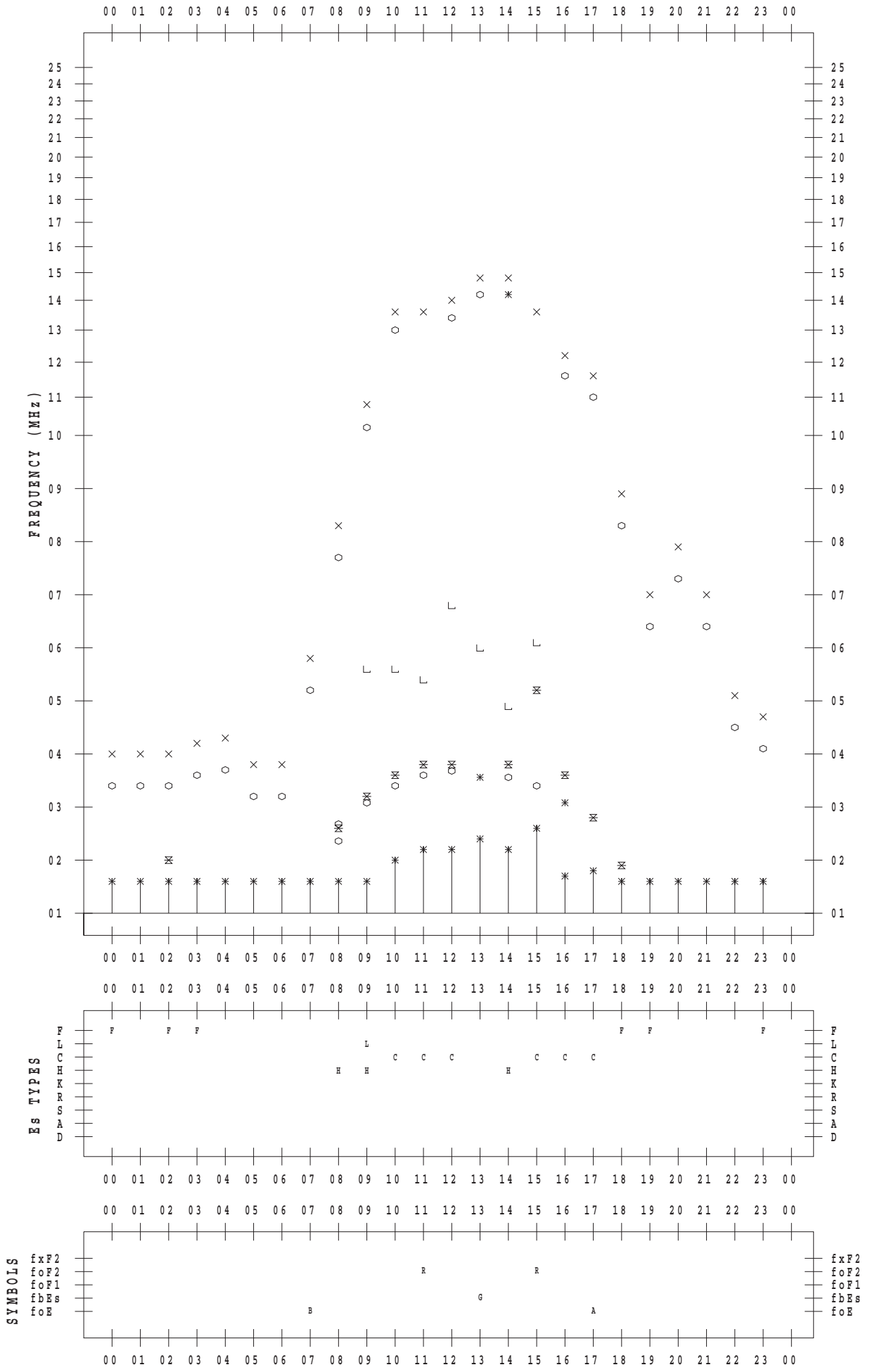
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/ 8

135 °E MEAN TIME



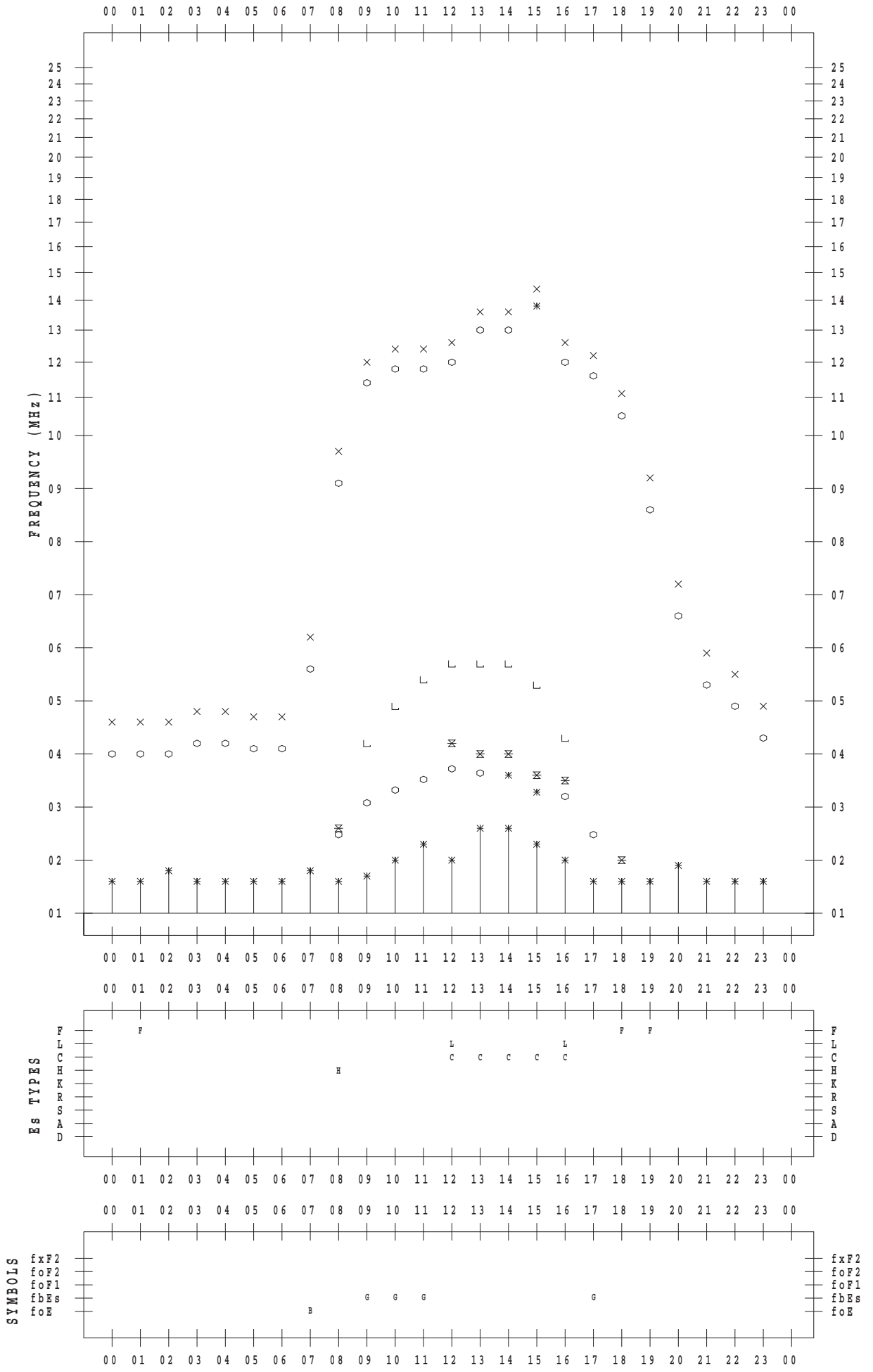
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/ 9

135 °E MEAN TIME



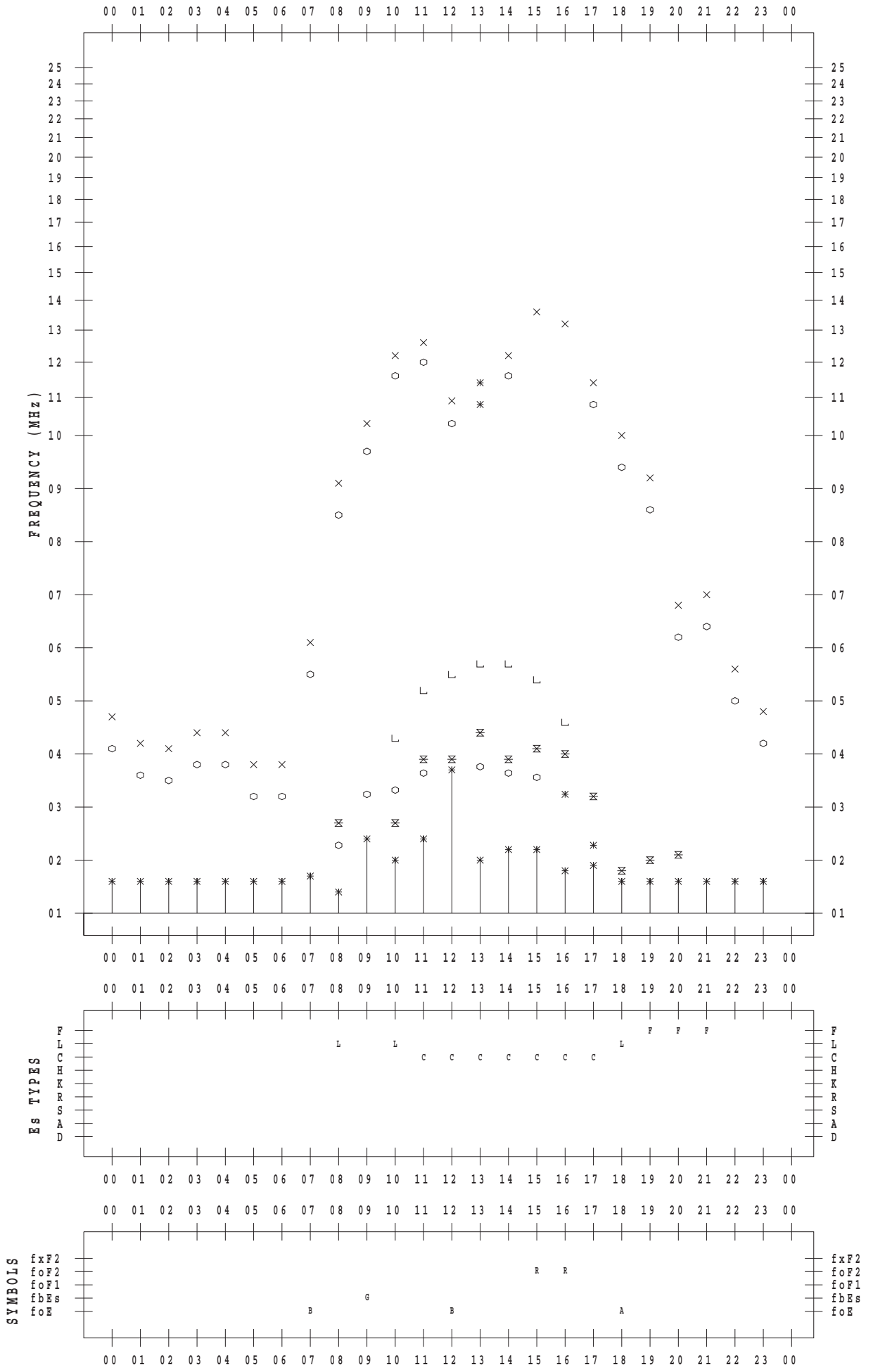
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/10

135 °E MEAN TIME



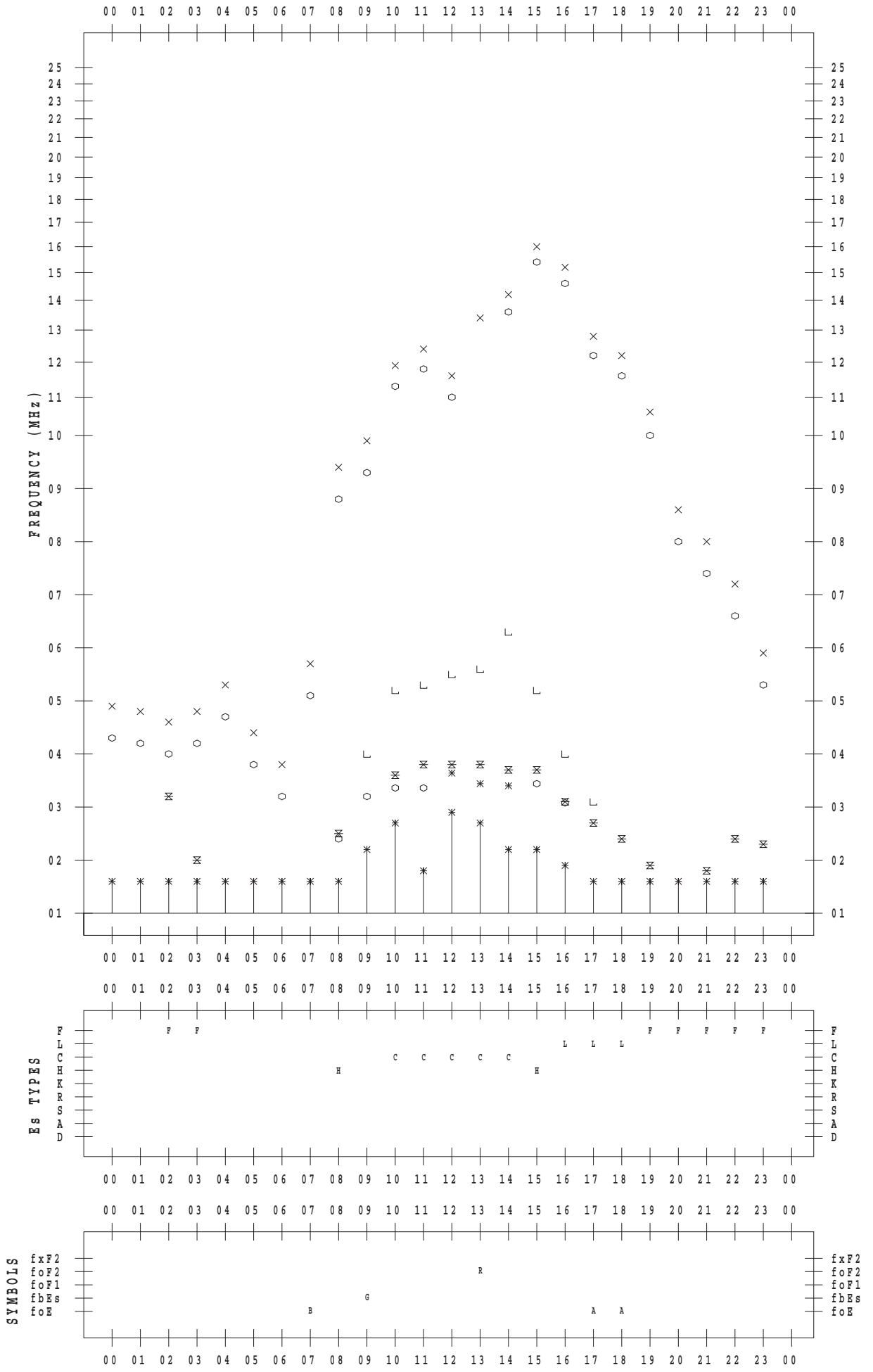
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/11

135 °E MEAN TIME



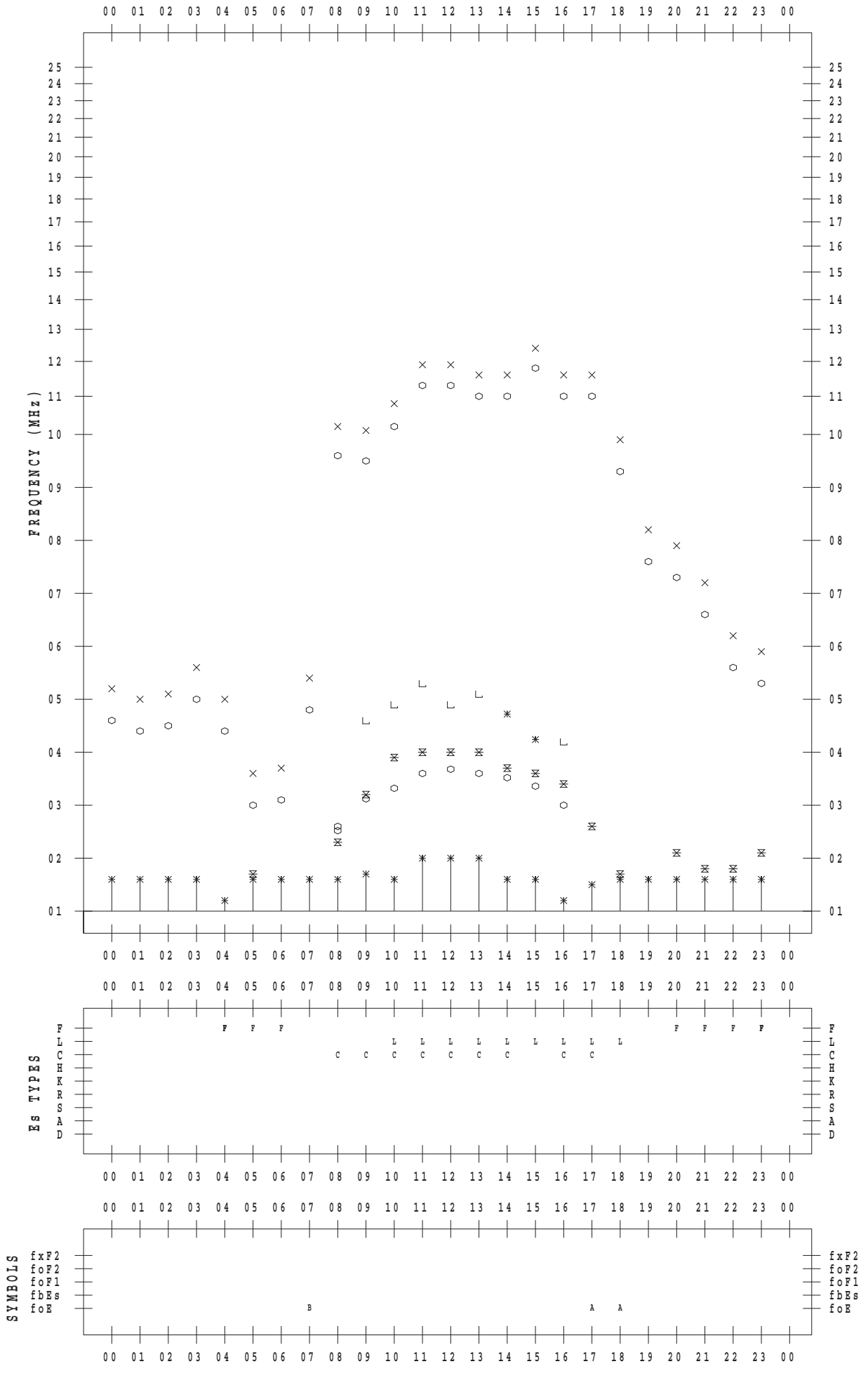
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/12

135 °E MEAN TIME



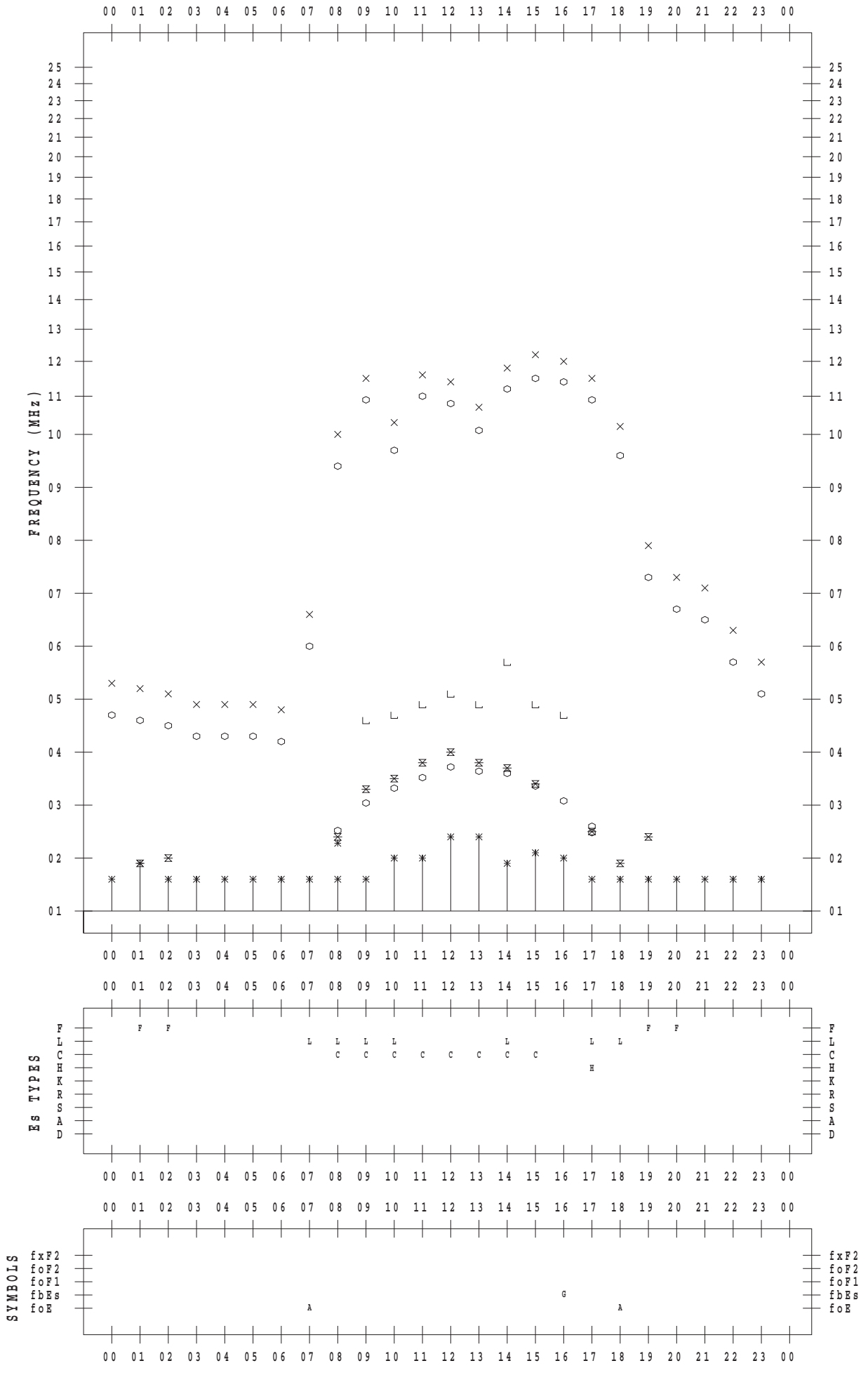
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/13

135 °E MEAN TIME



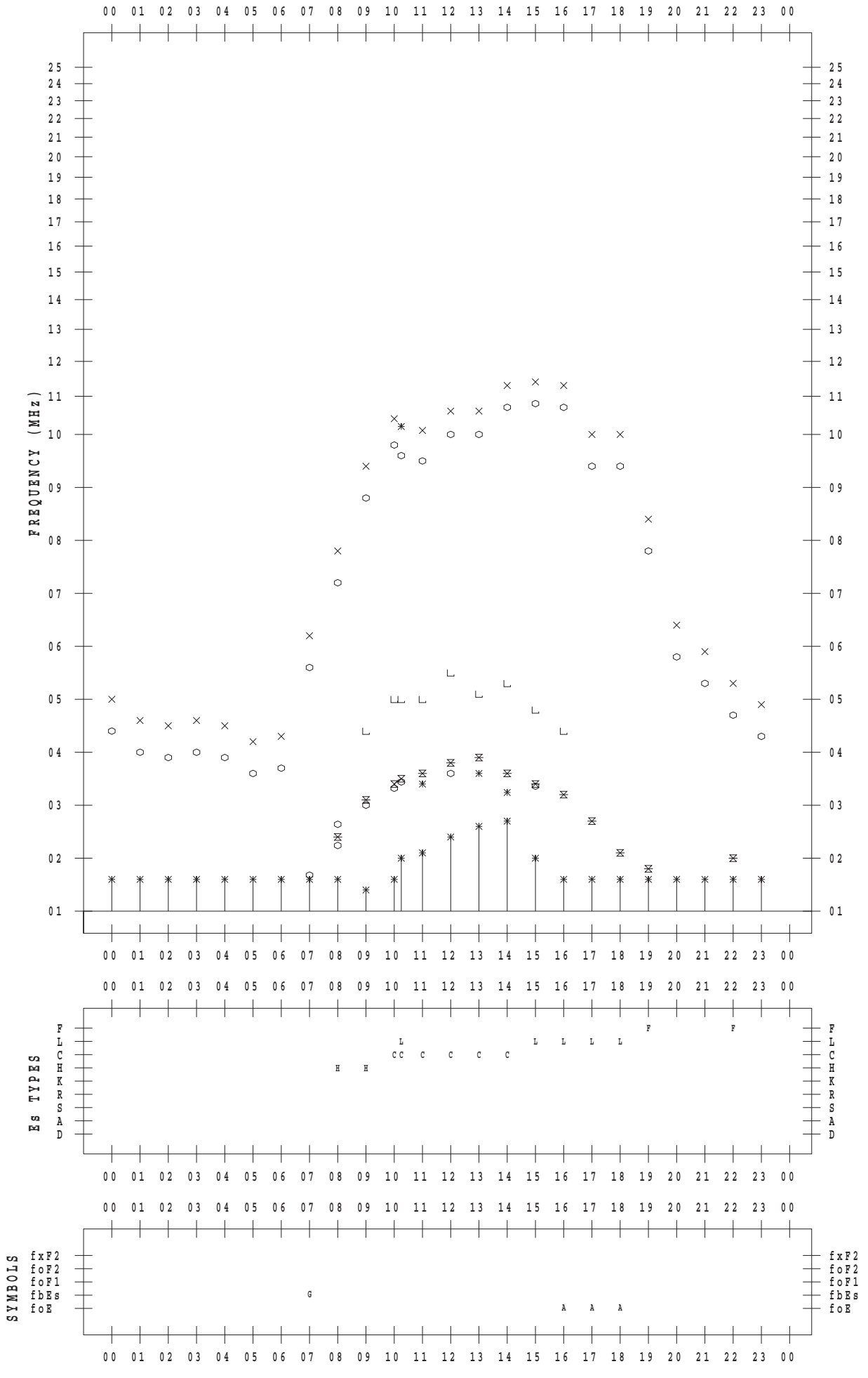
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/14

135 °E MEAN TIME



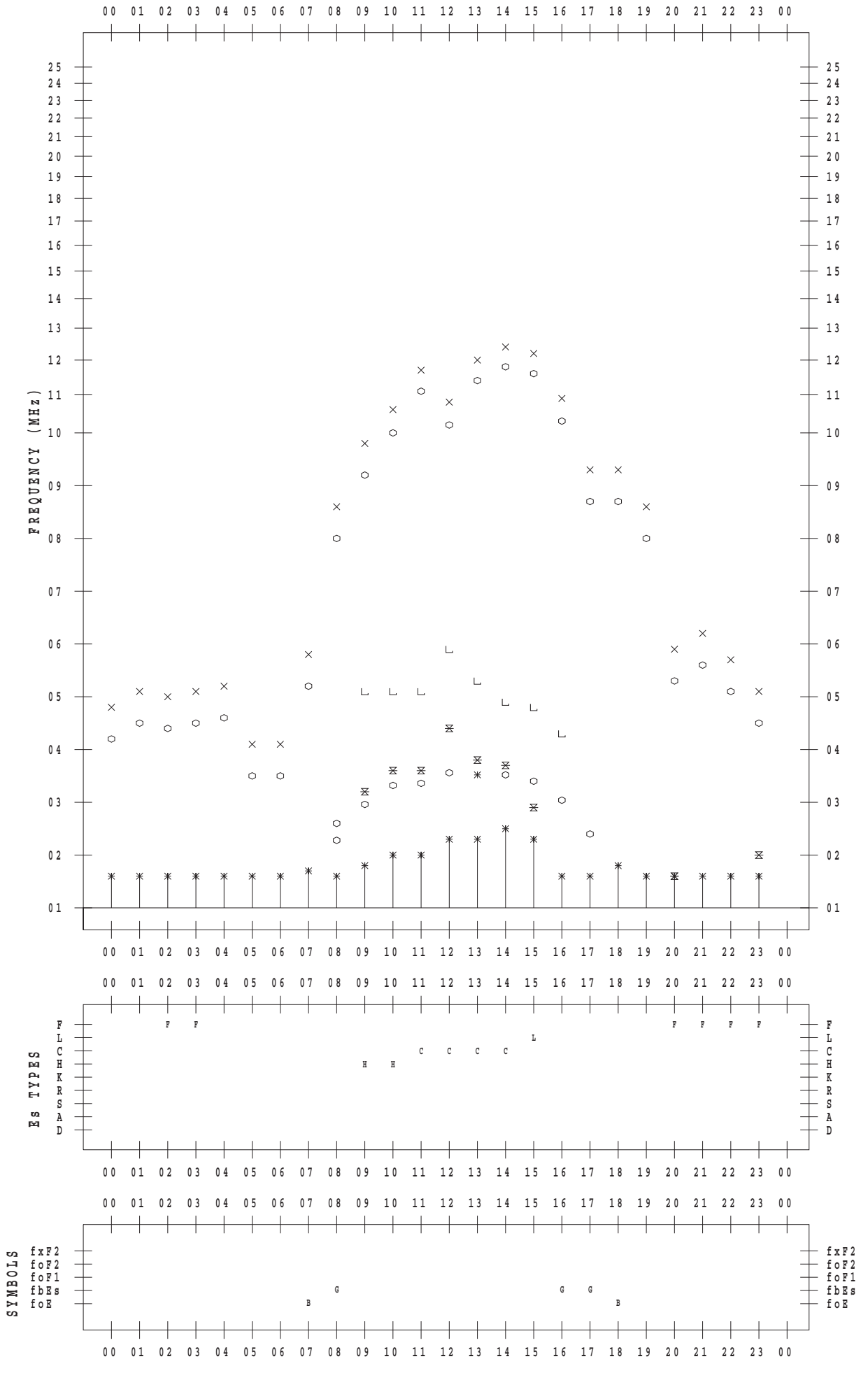
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/15

135 °E MEAN TIME



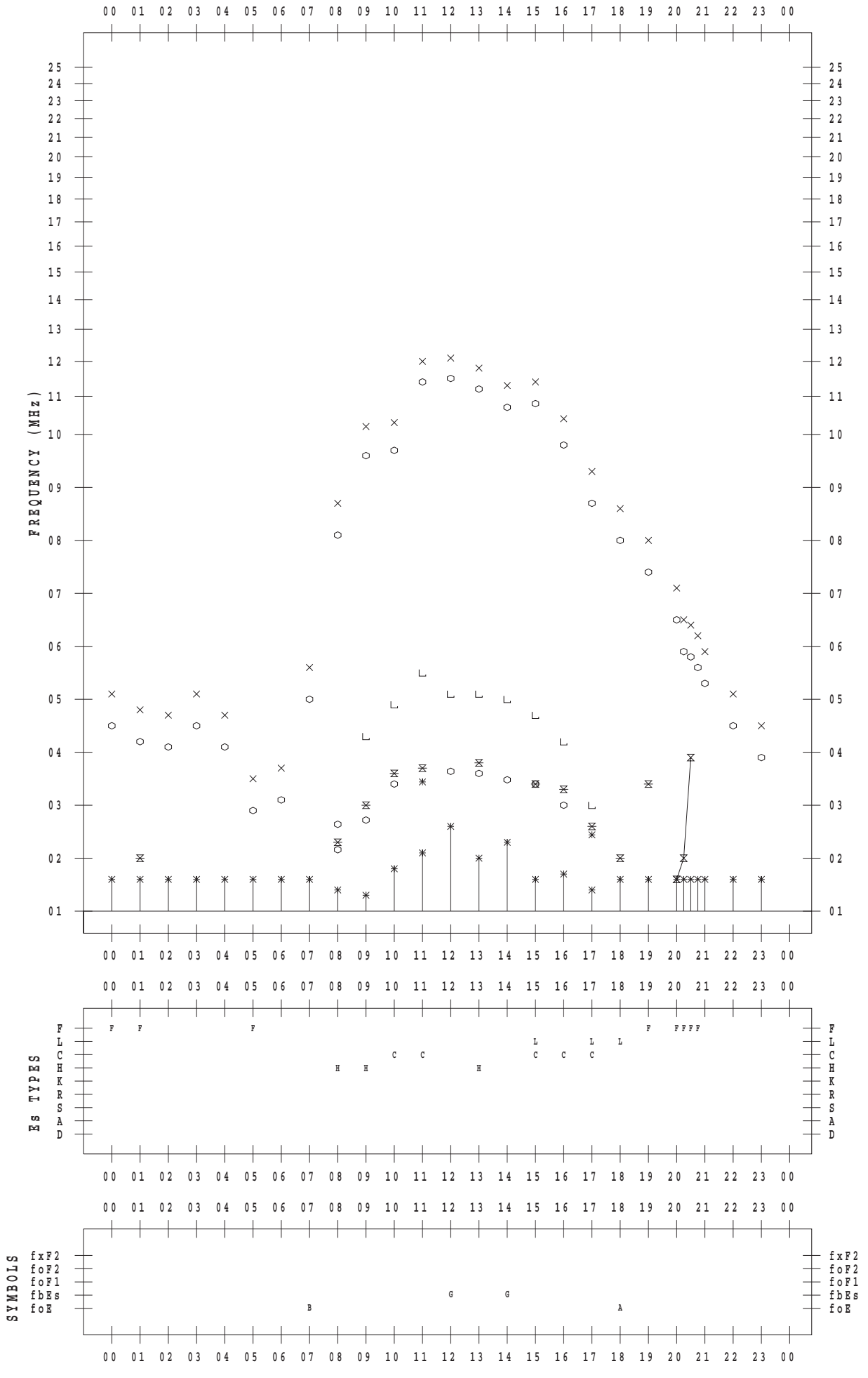
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/16

135 °E MEAN TIME



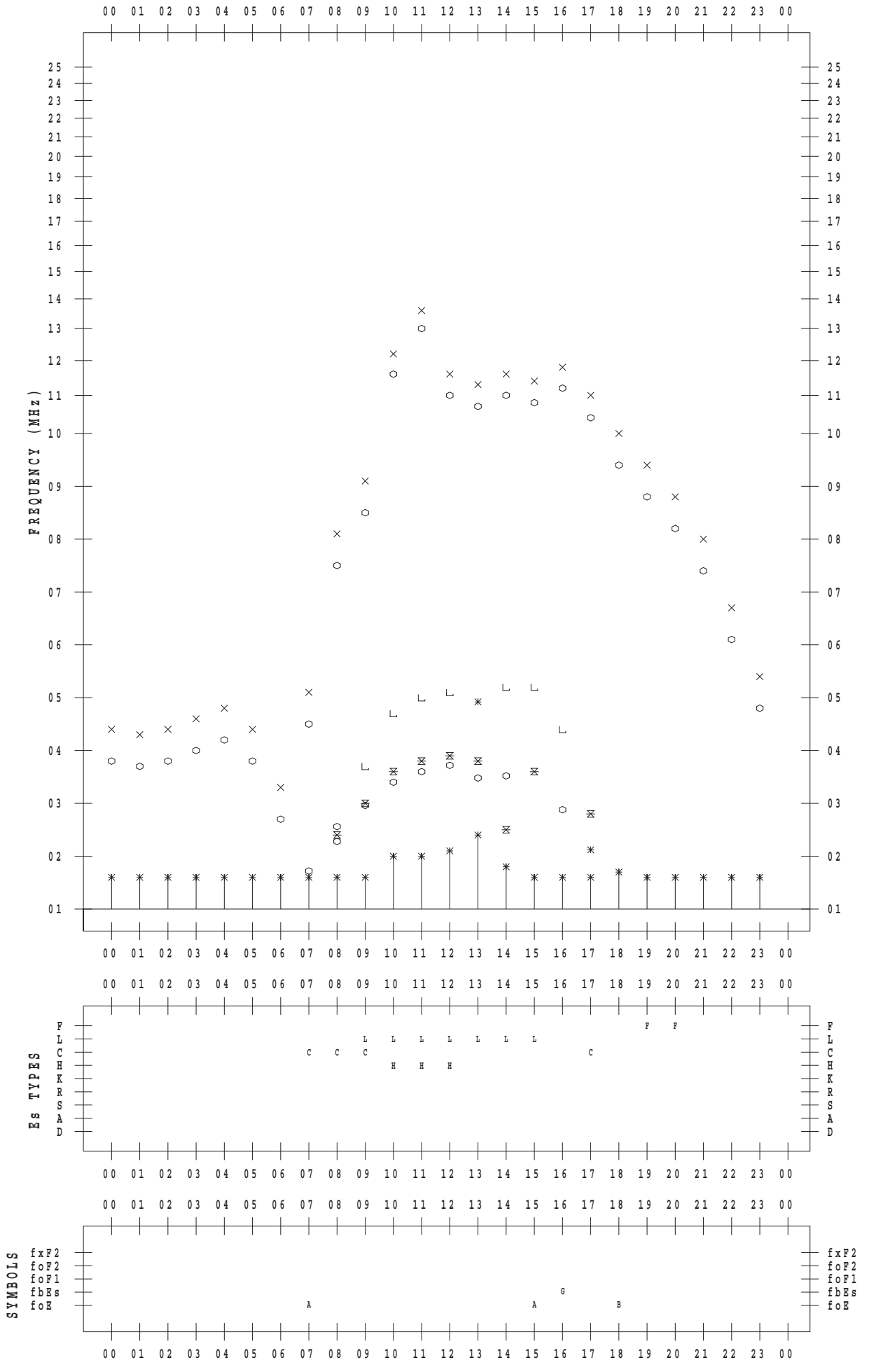
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/17

135 °E MEAN TIME



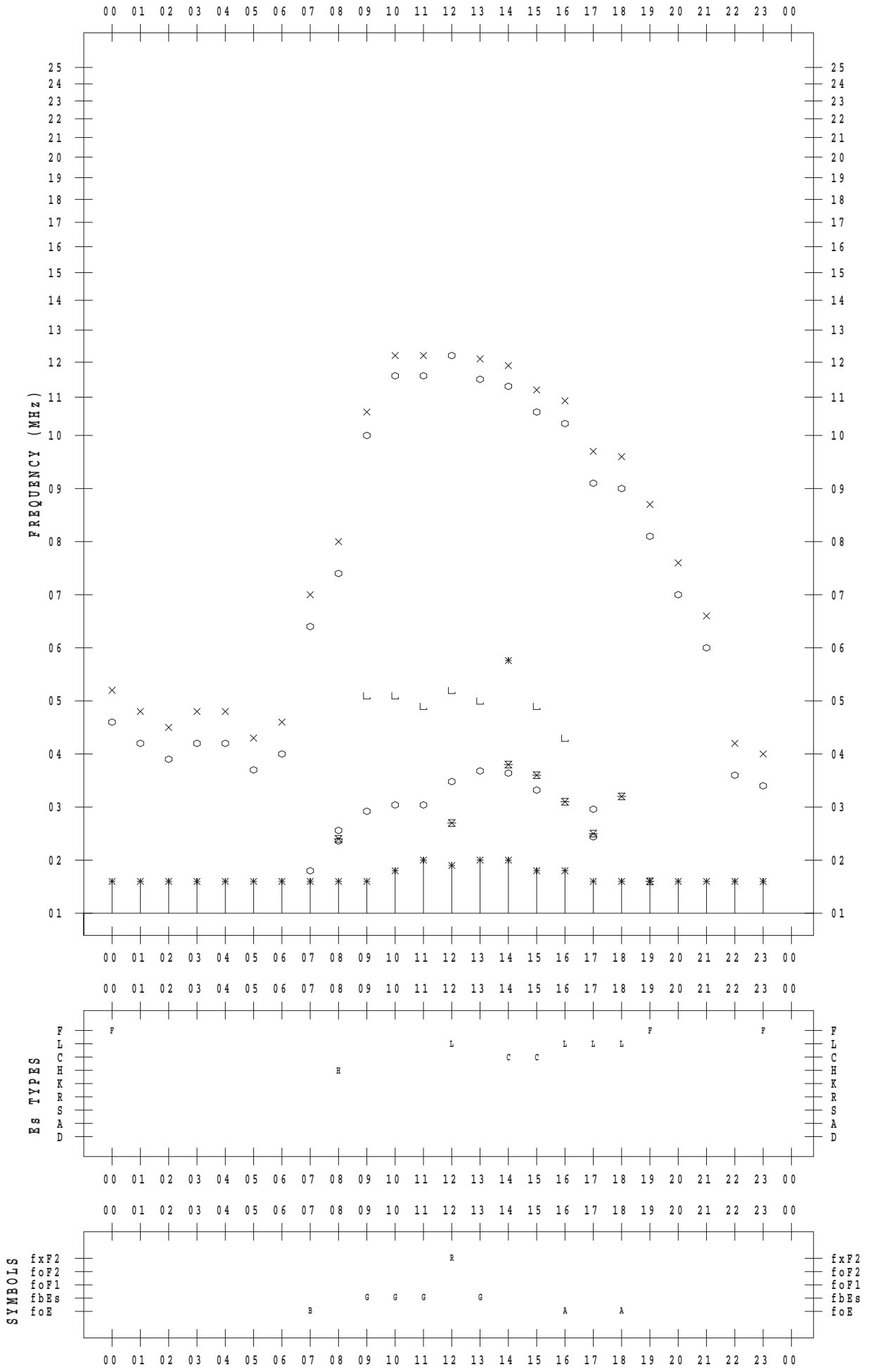
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/18

135 °E MEAN TIME



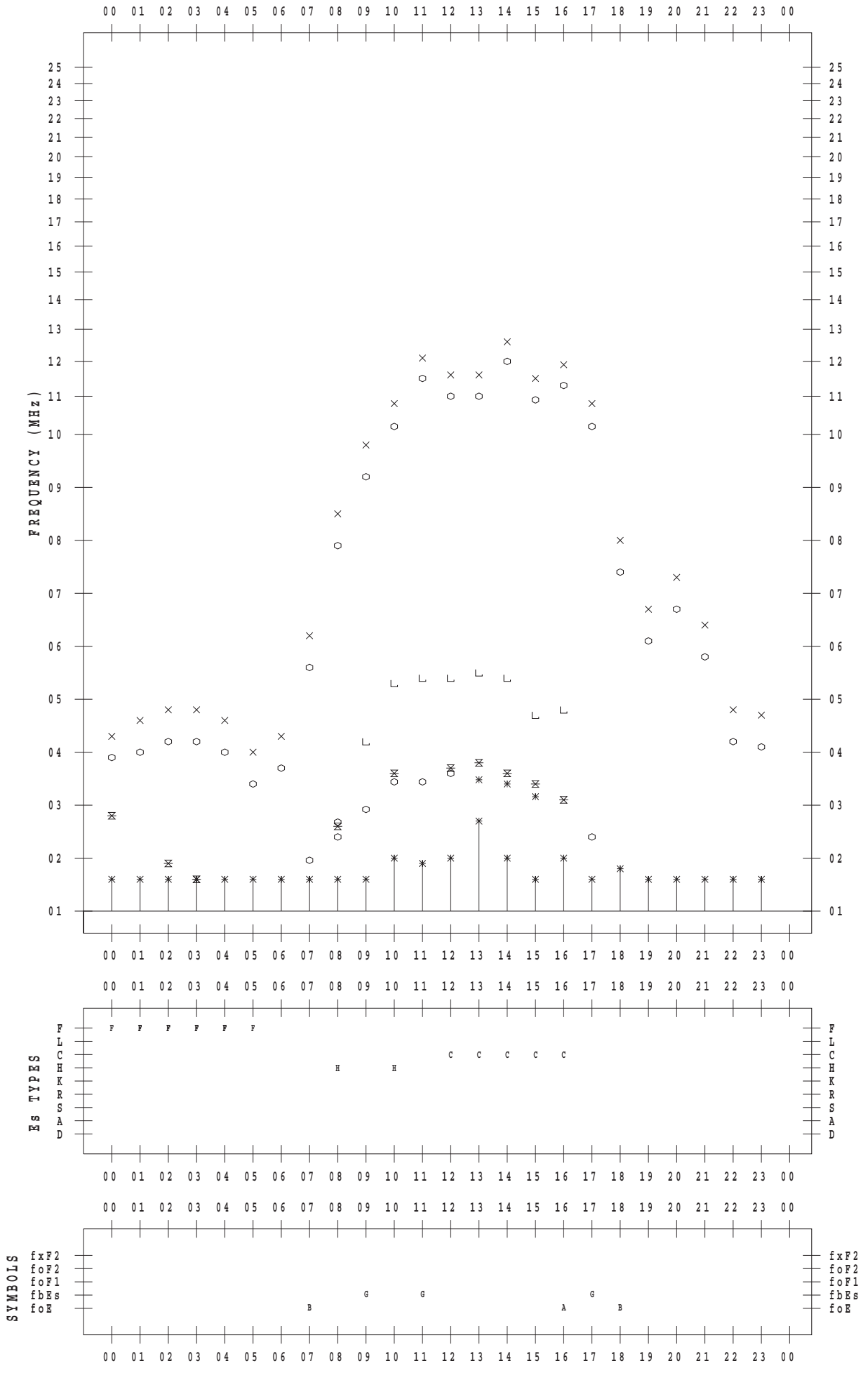
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/19

135 °E MEAN TIME



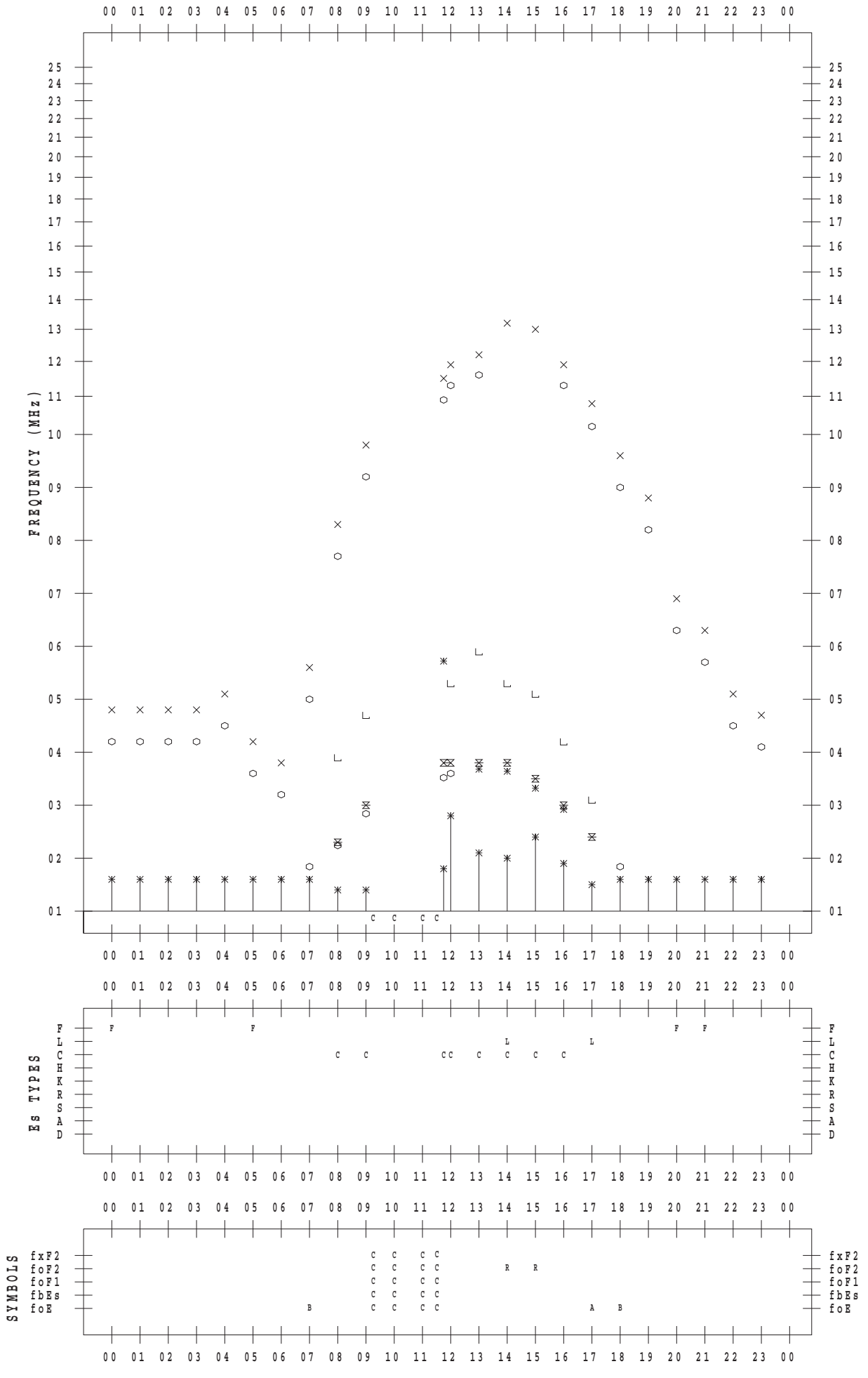
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/20

135 °E MEAN TIME



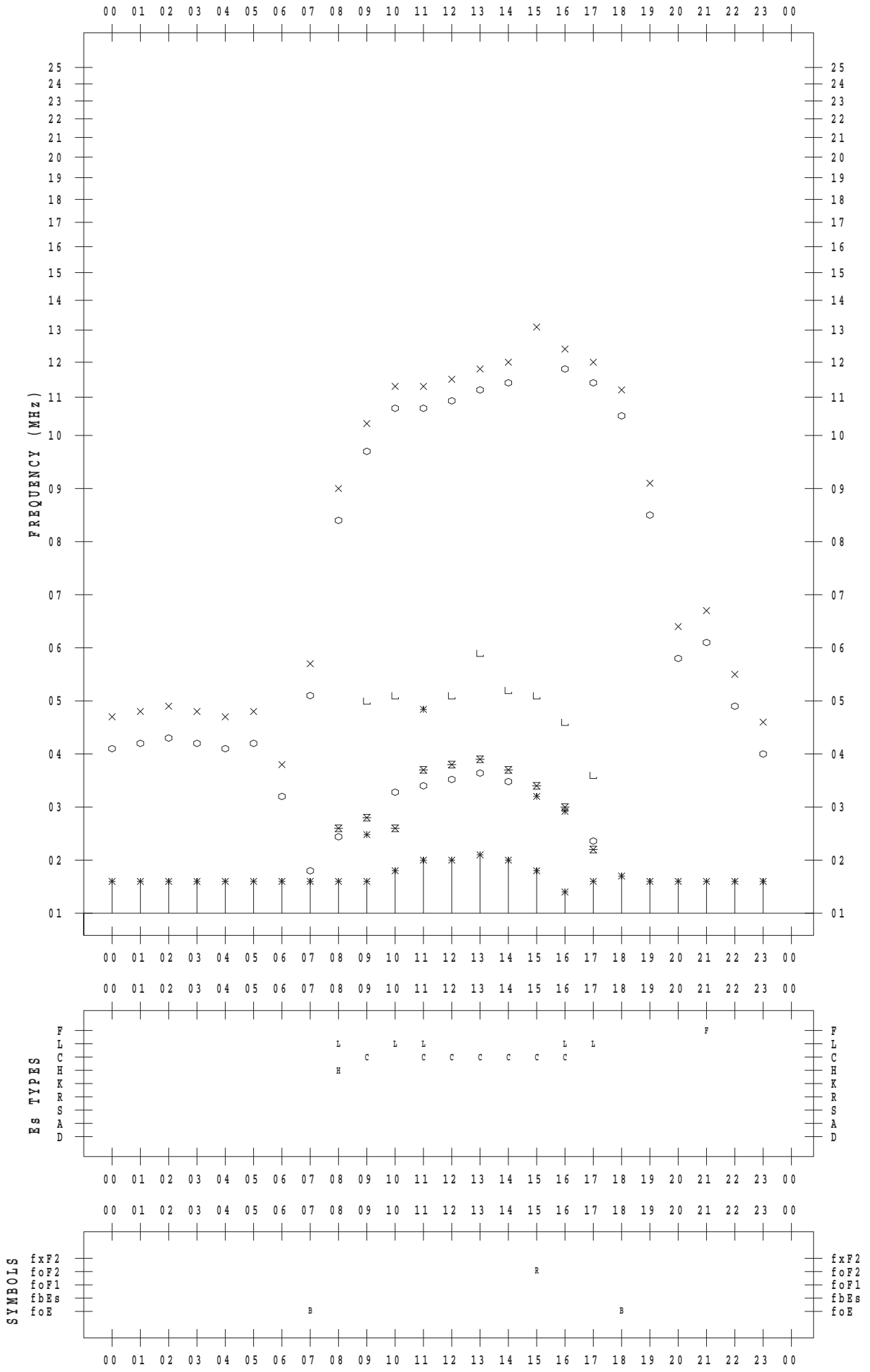
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/21

135 °E MEAN TIME



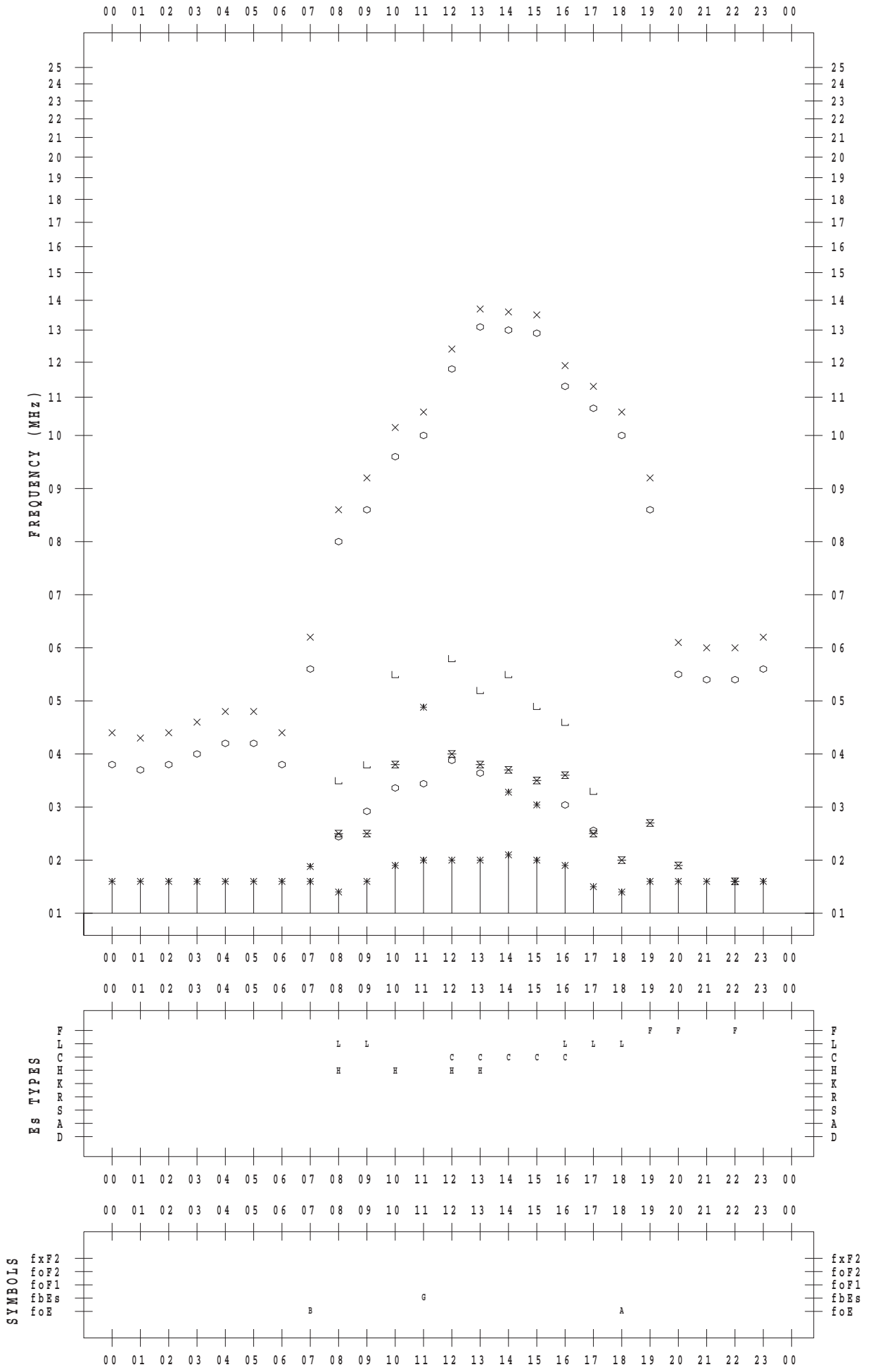
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/22

135 °E MEAN TIME



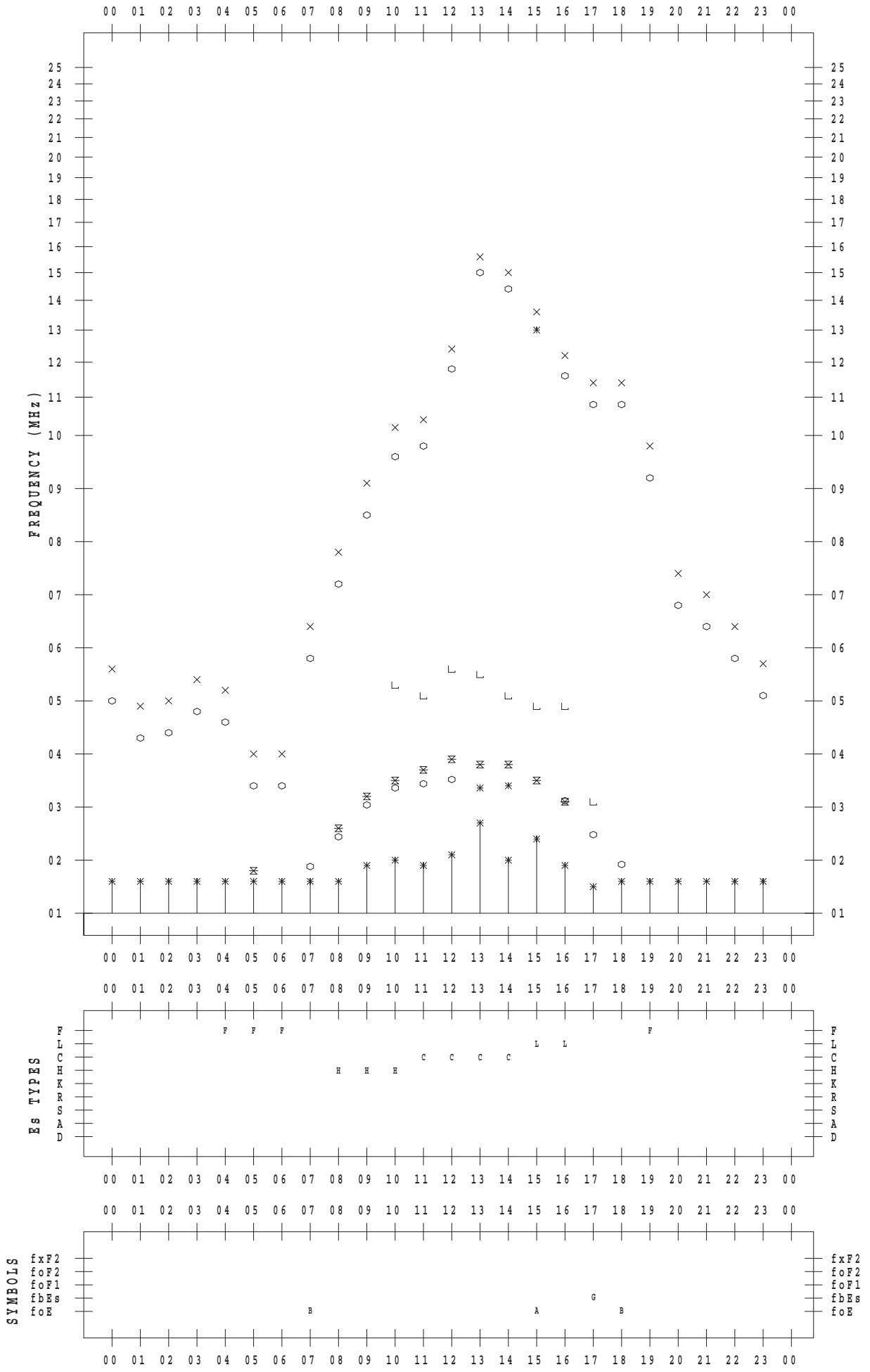
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/23

135 °E MEAN TIME



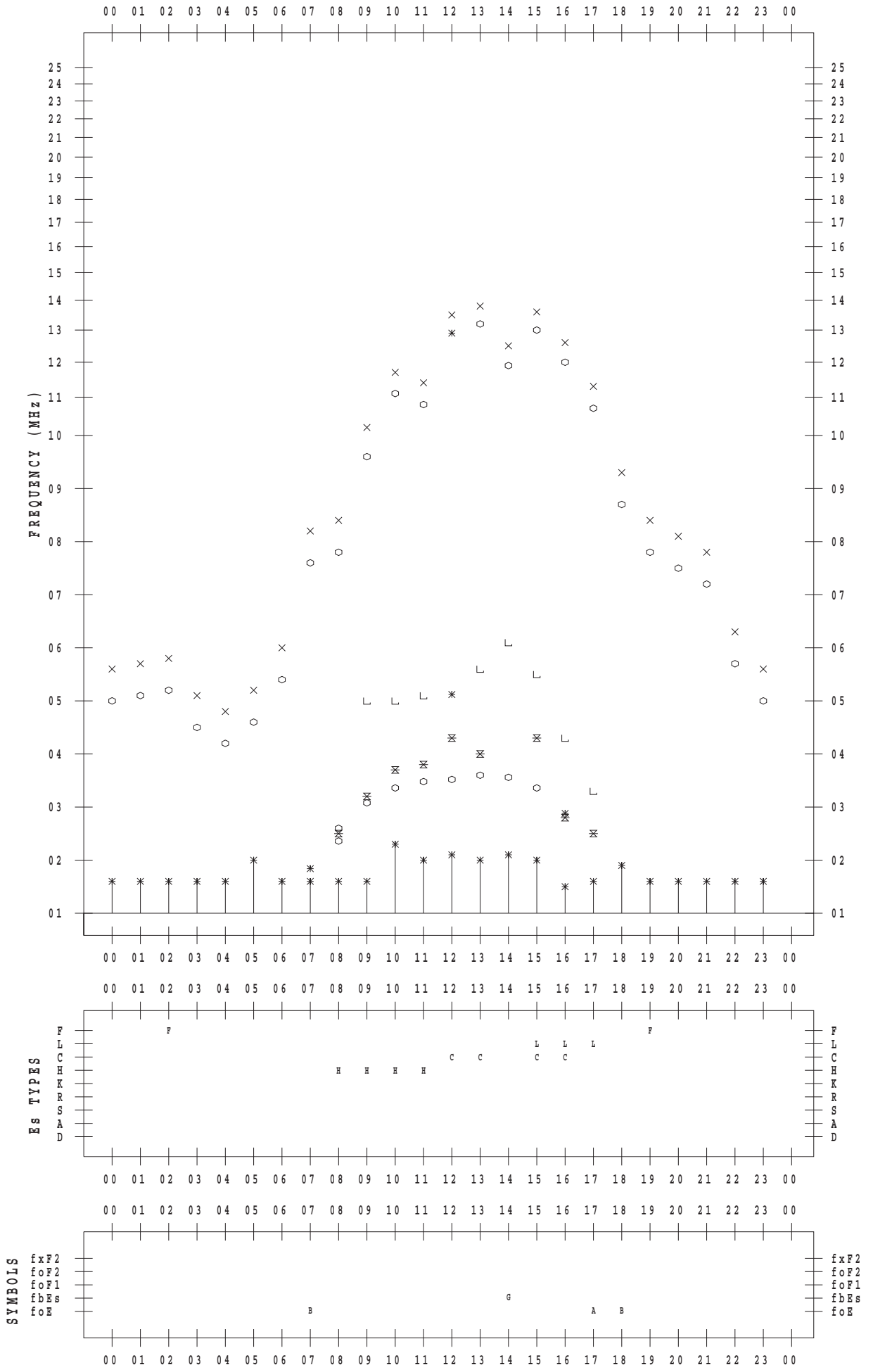
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/24

135 °E MEAN TIME



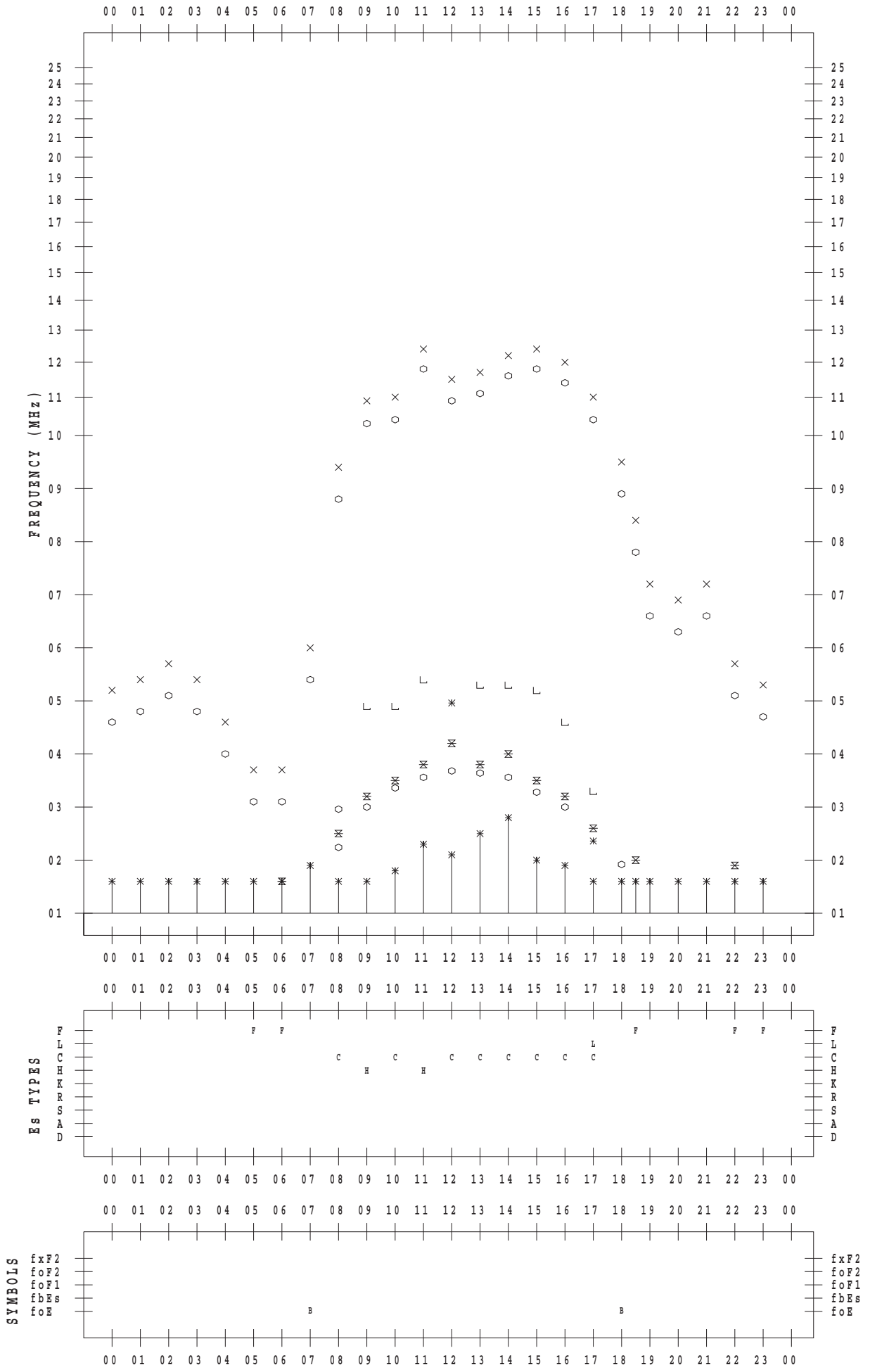
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/25

135 °E MEAN TIME



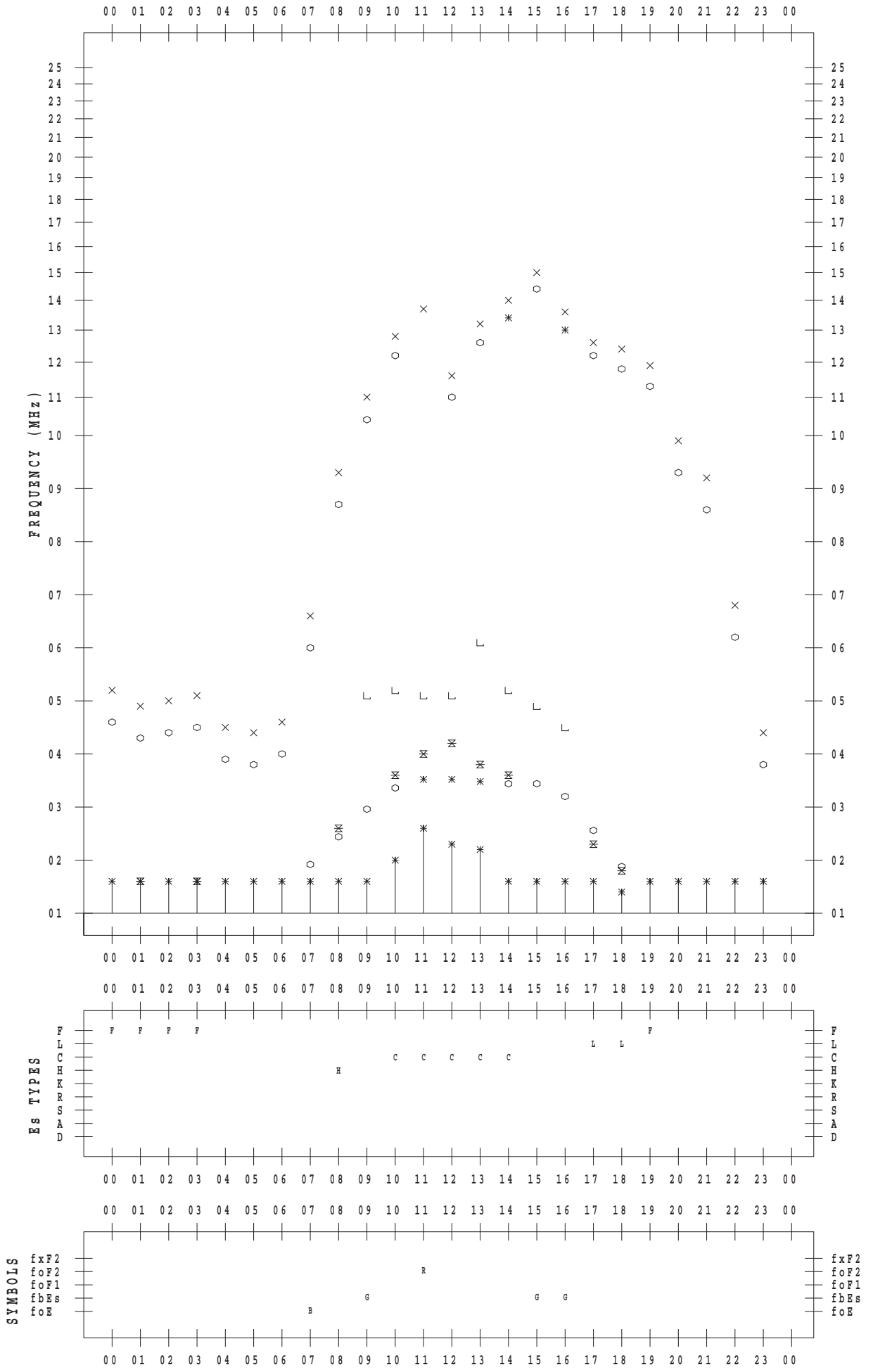
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/26

135 °E MEAN TIME



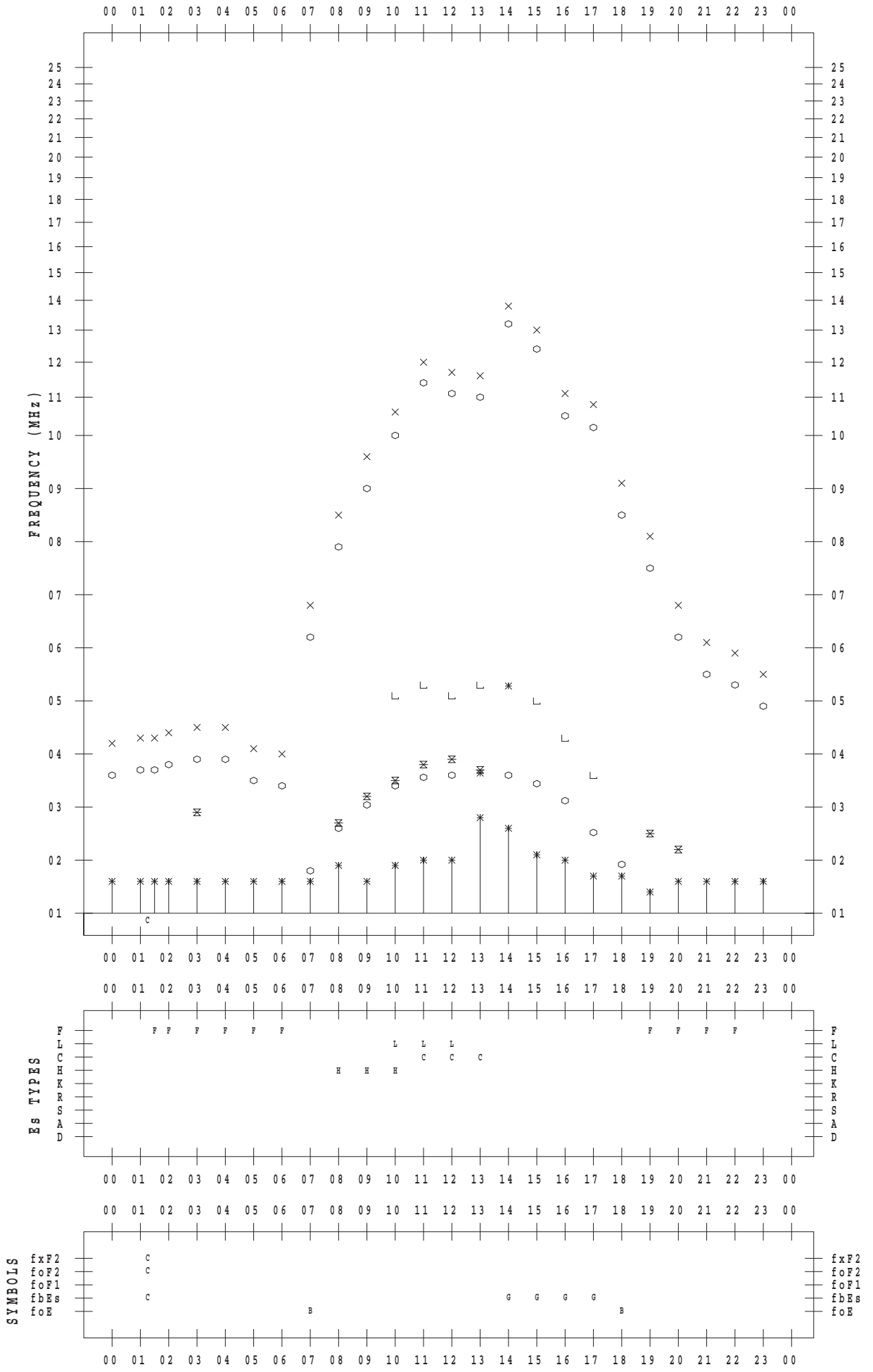
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/27

135 °E MEAN TIME



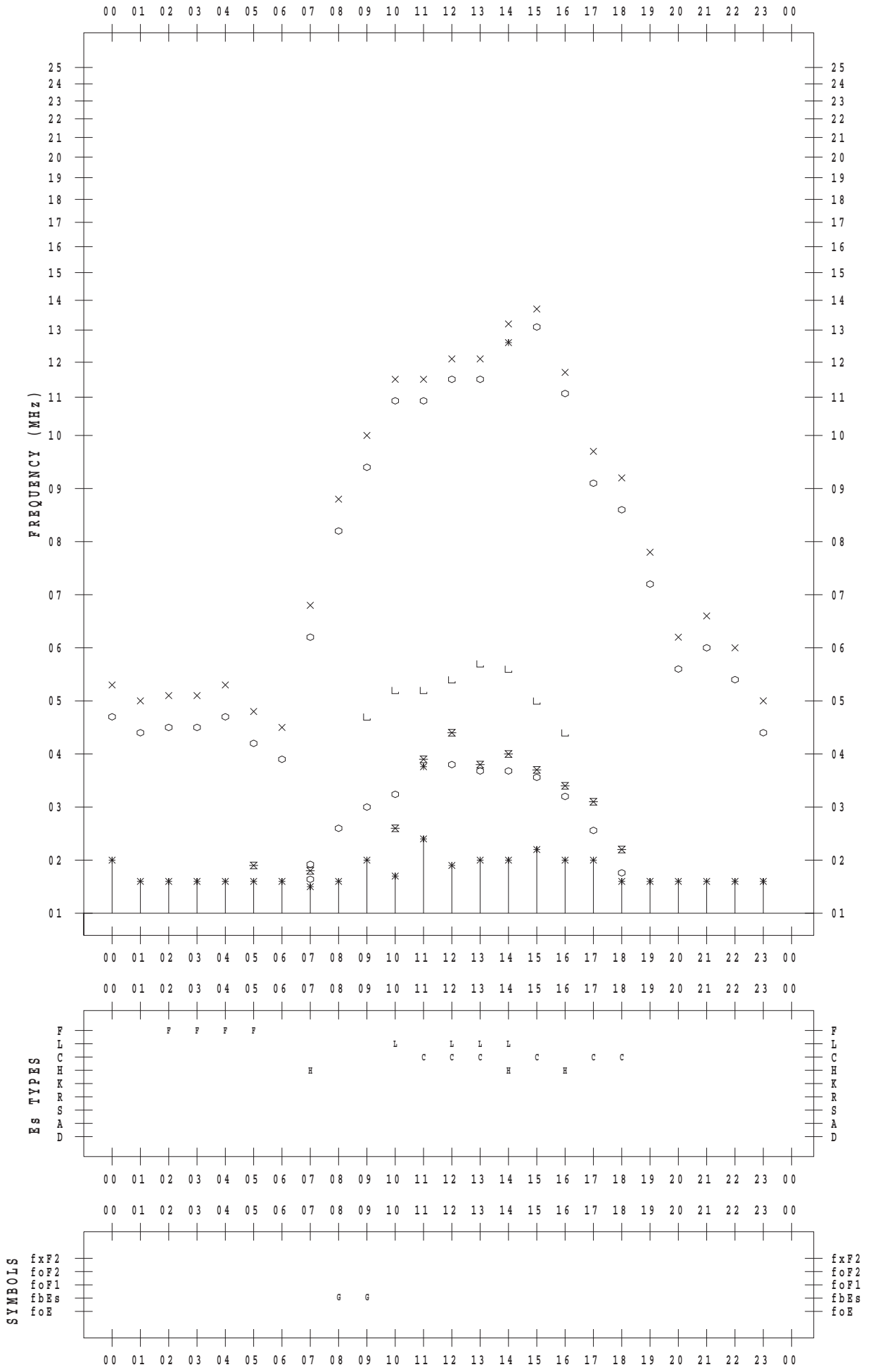
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 2/28

135 °E MEAN TIME



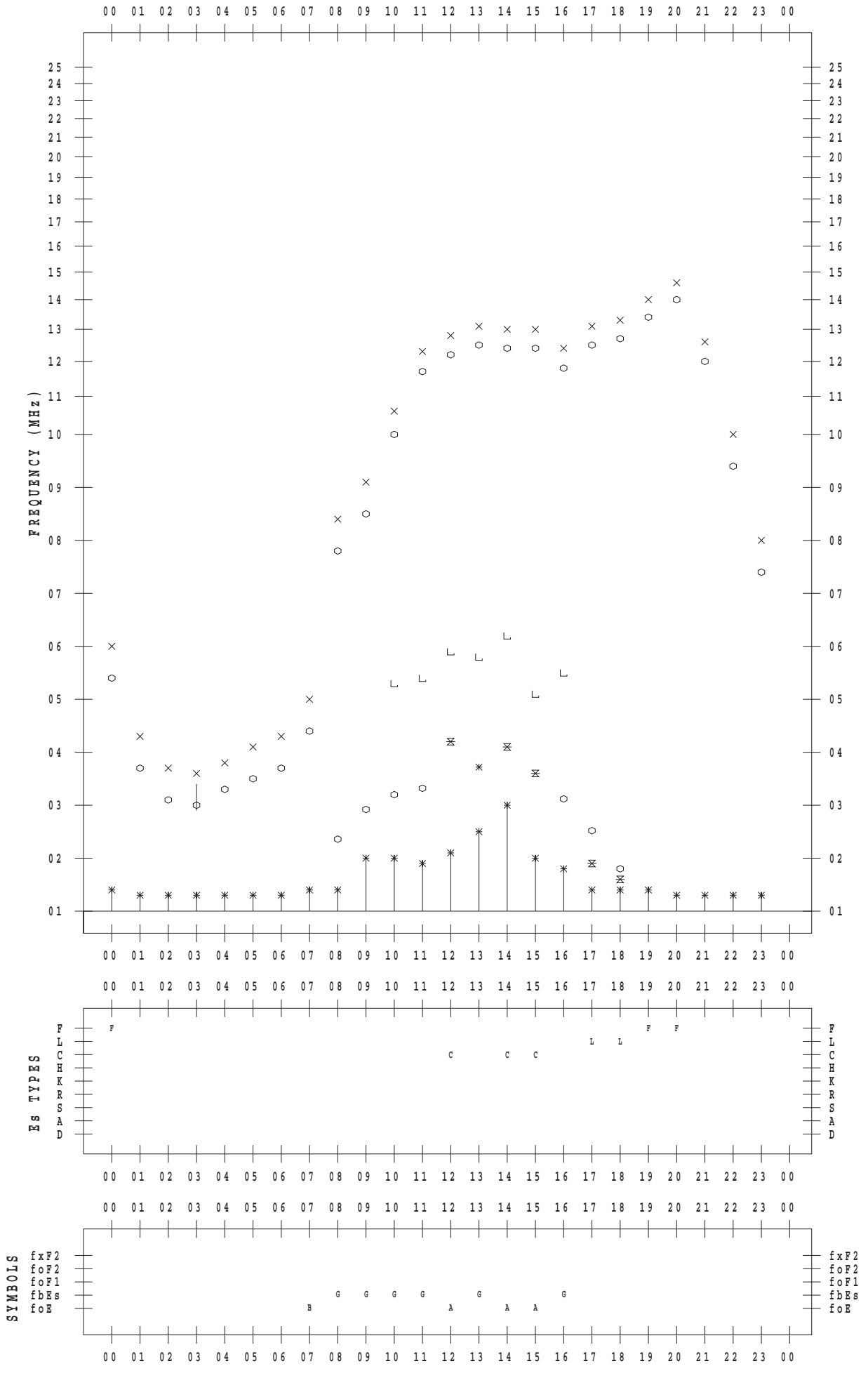
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/ 1

135 °E MEAN TIME



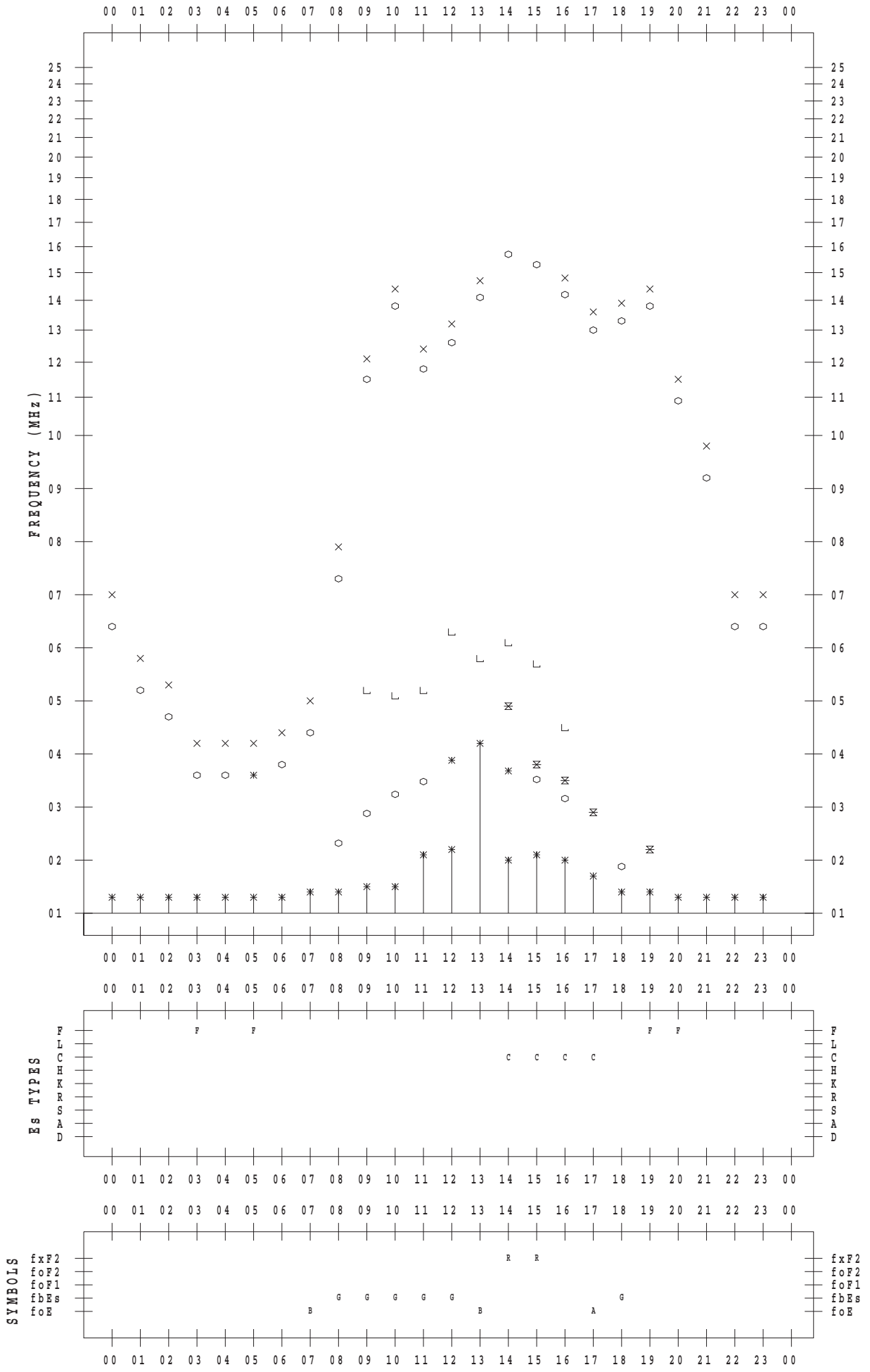
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/ 2

135 °E MEAN TIME



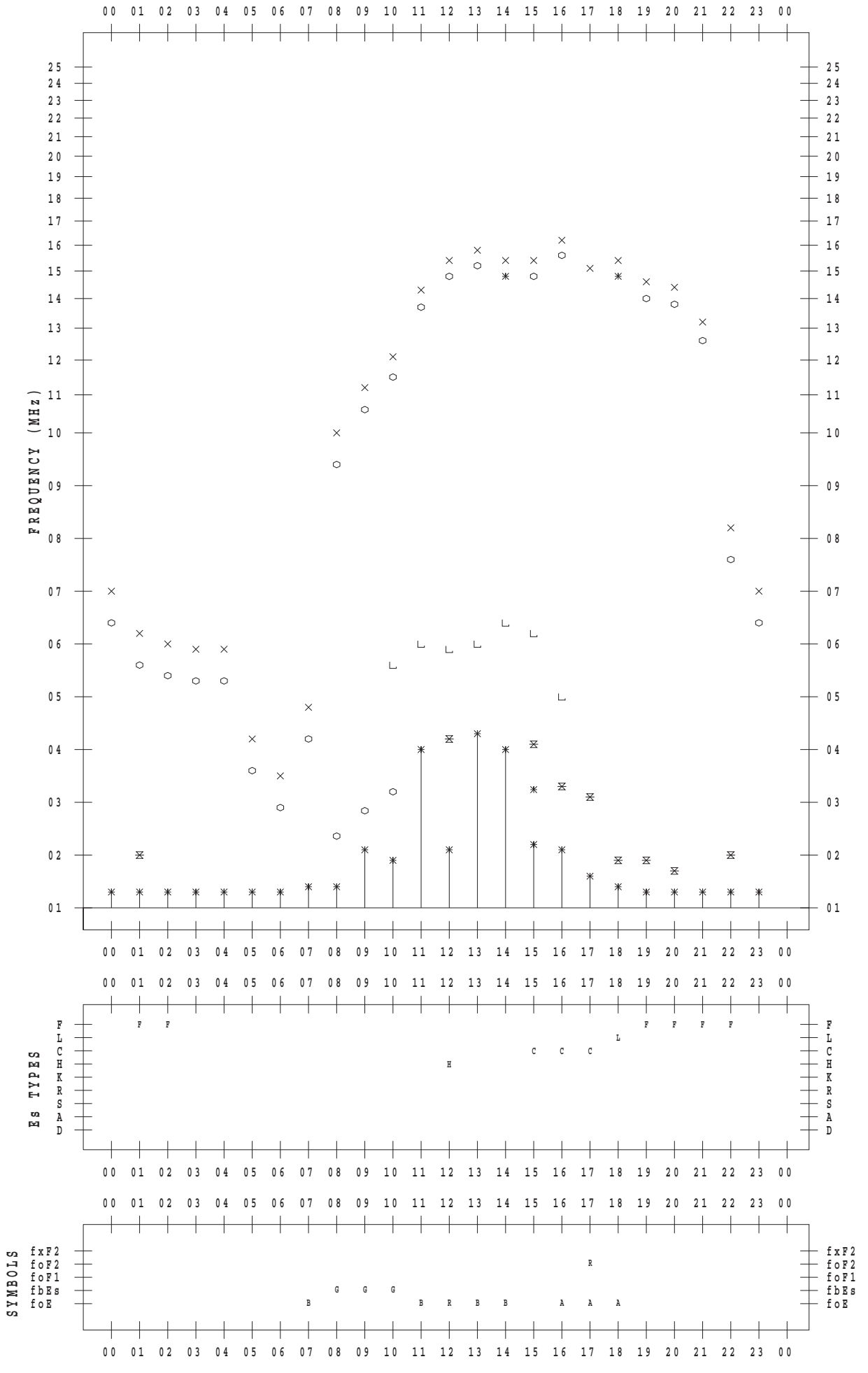
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/ 3

135 °E MEAN TIME



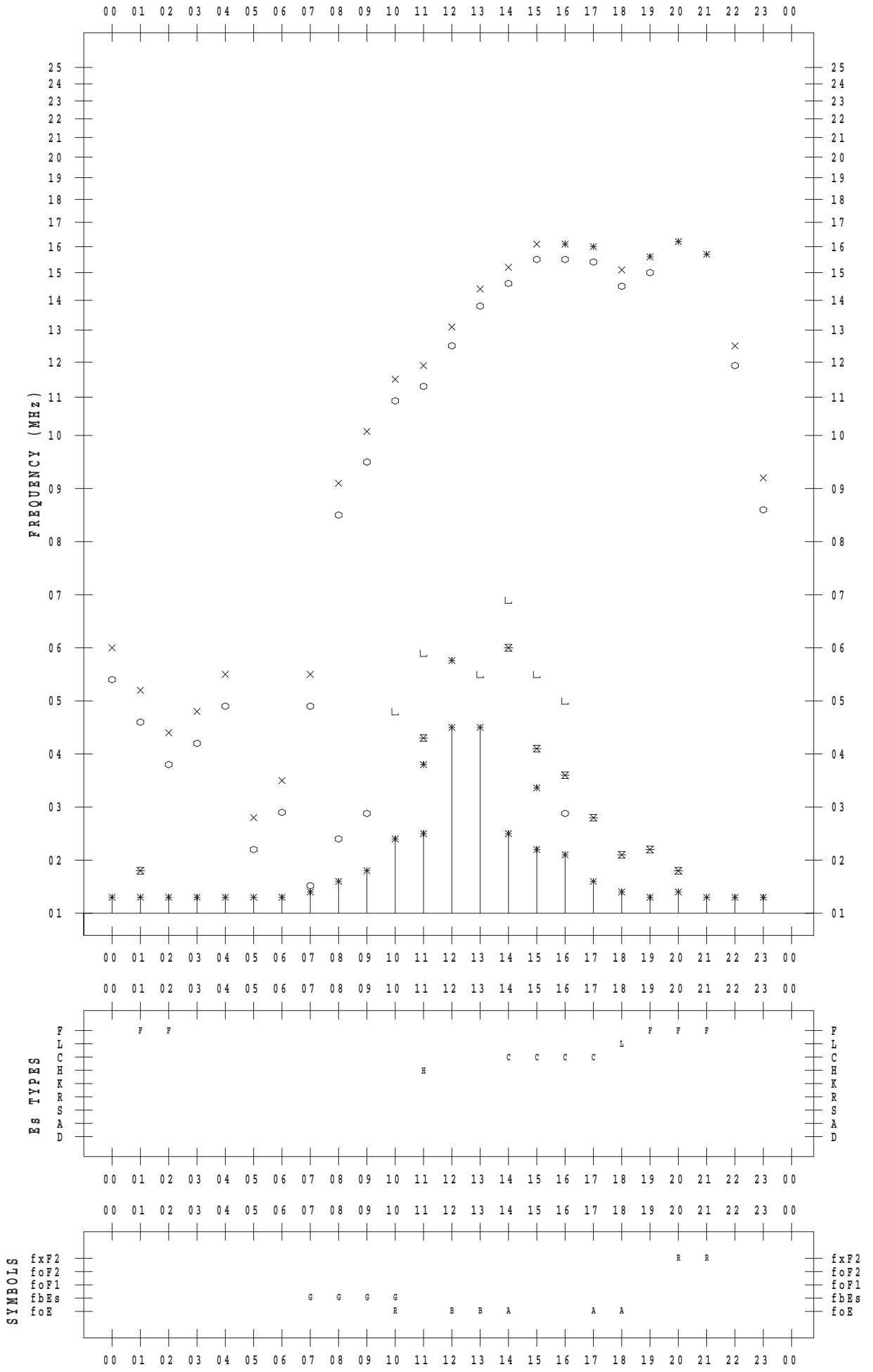
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/ 4

135 °E MEAN TIME



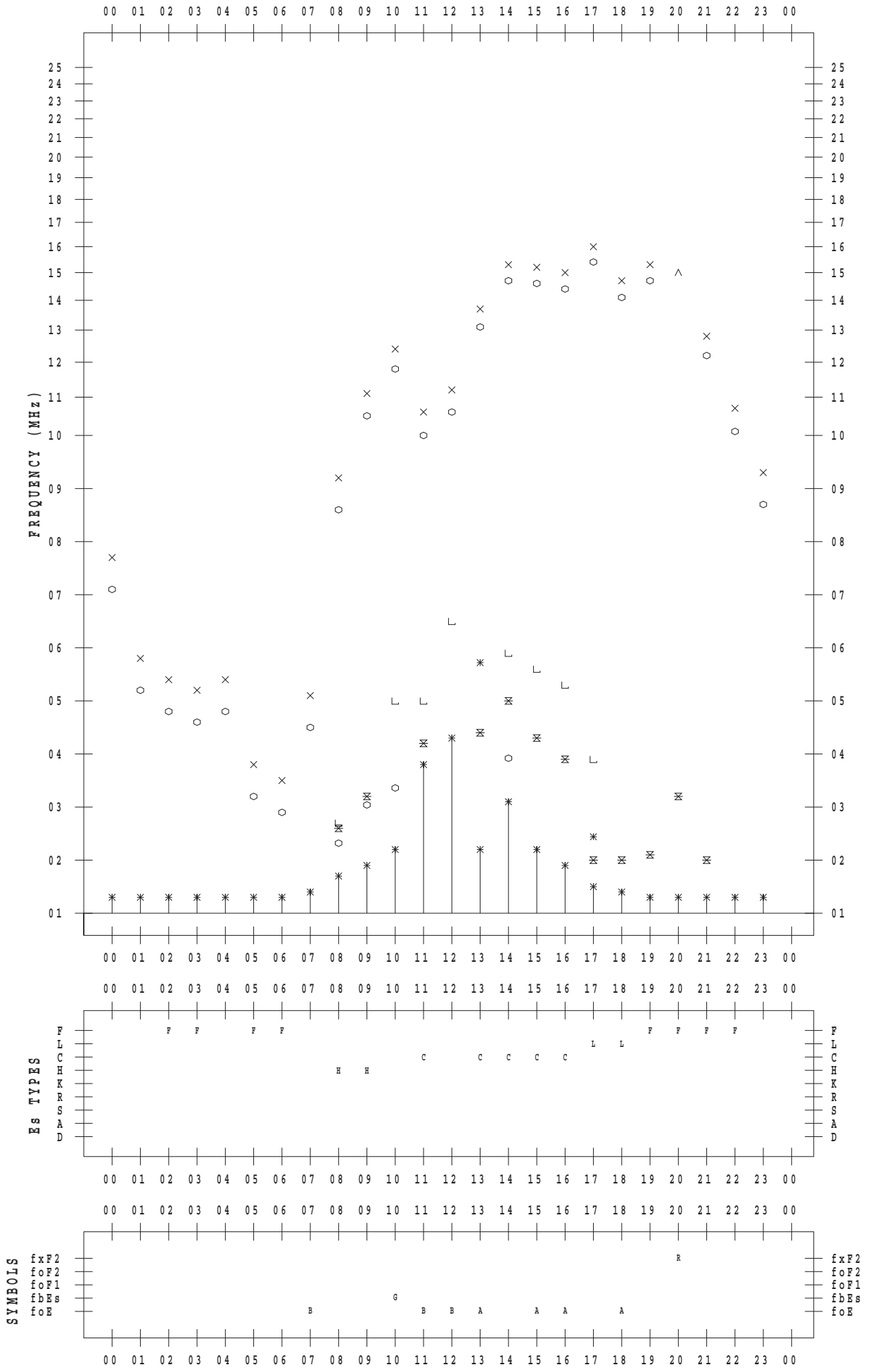
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/ 5

135 °E MEAN TIME



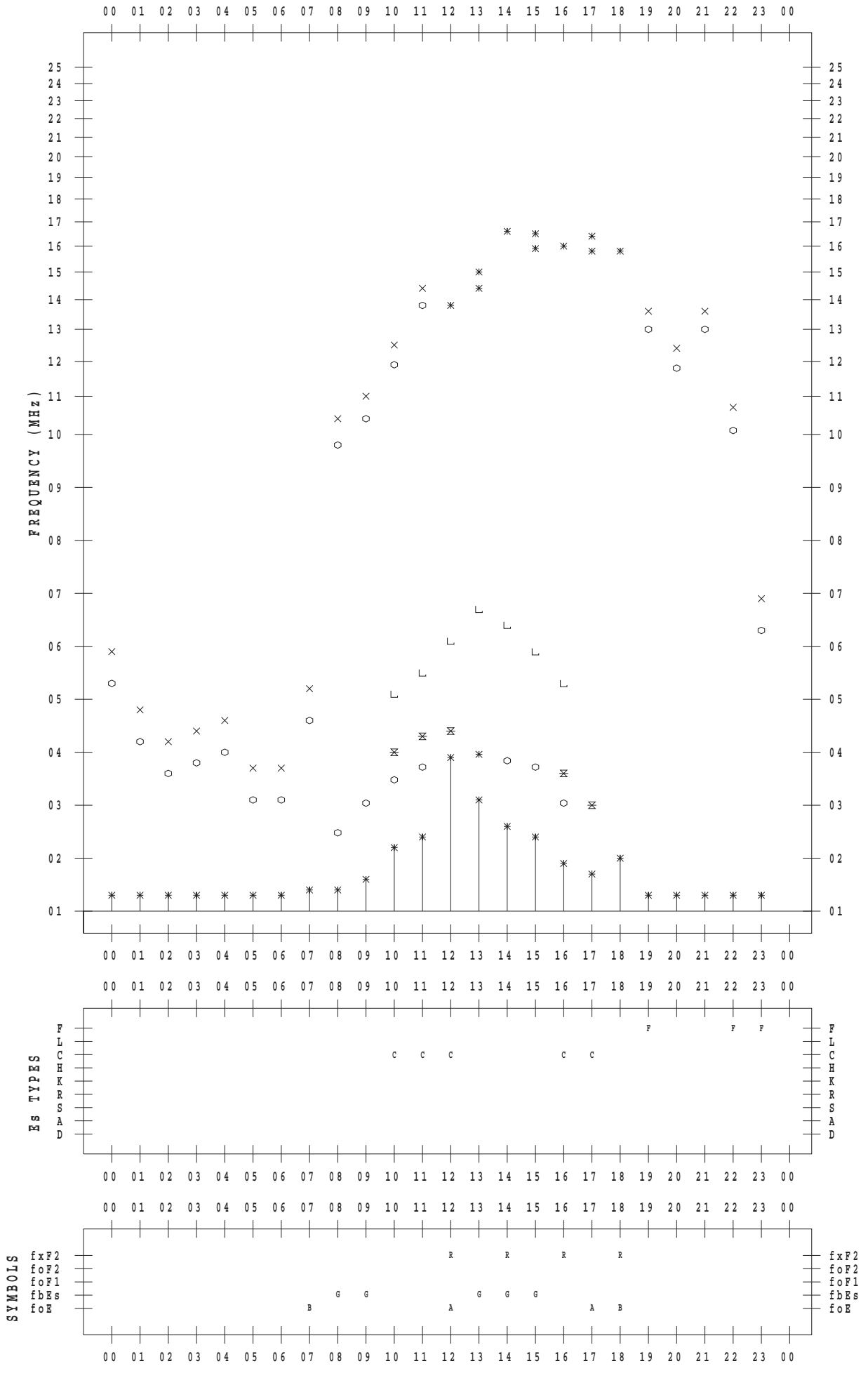
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/ 6

135 °E MEAN TIME



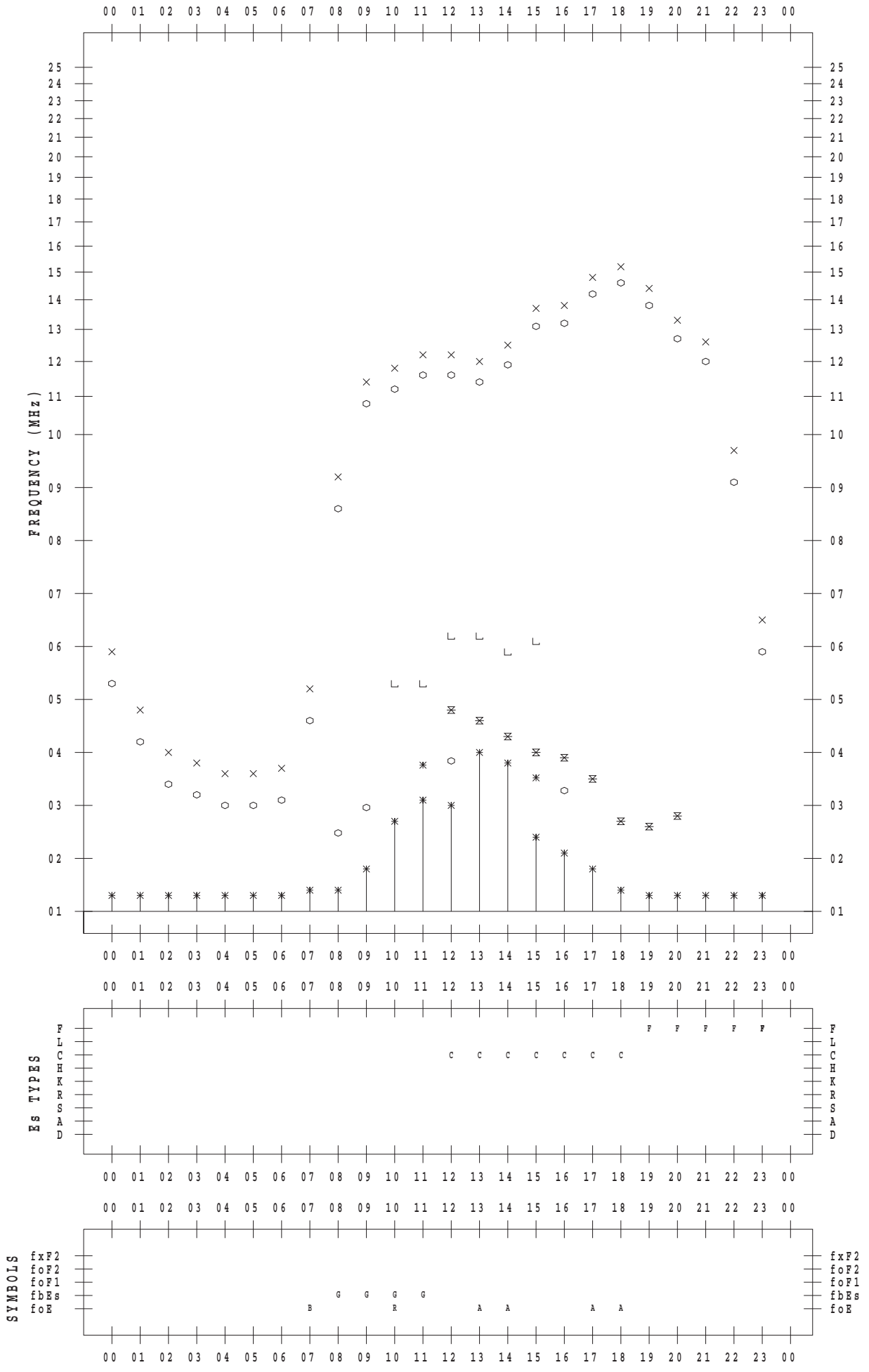
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/ 7

135 °E MEAN TIME



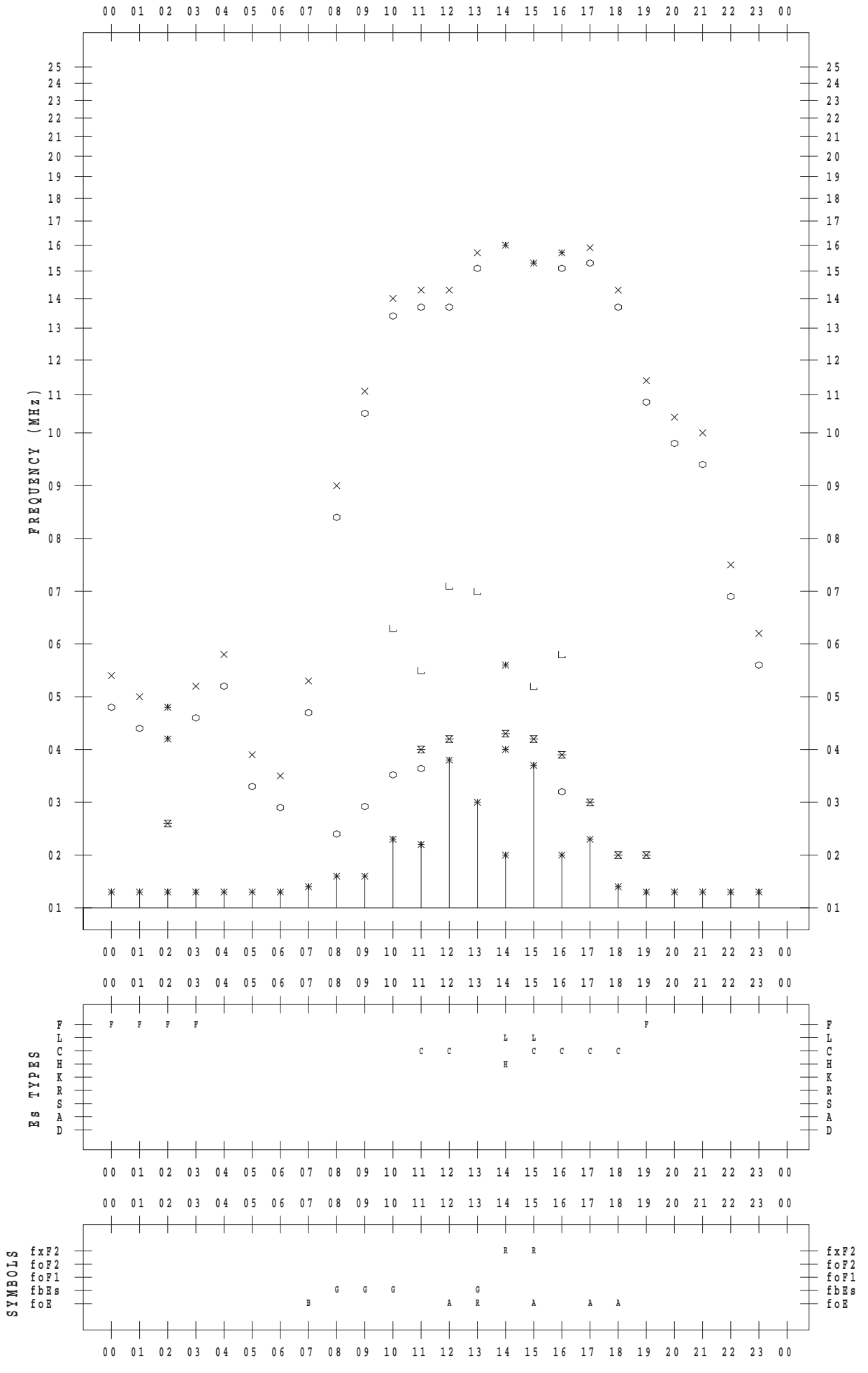
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/ 8

135 °E MEAN TIME



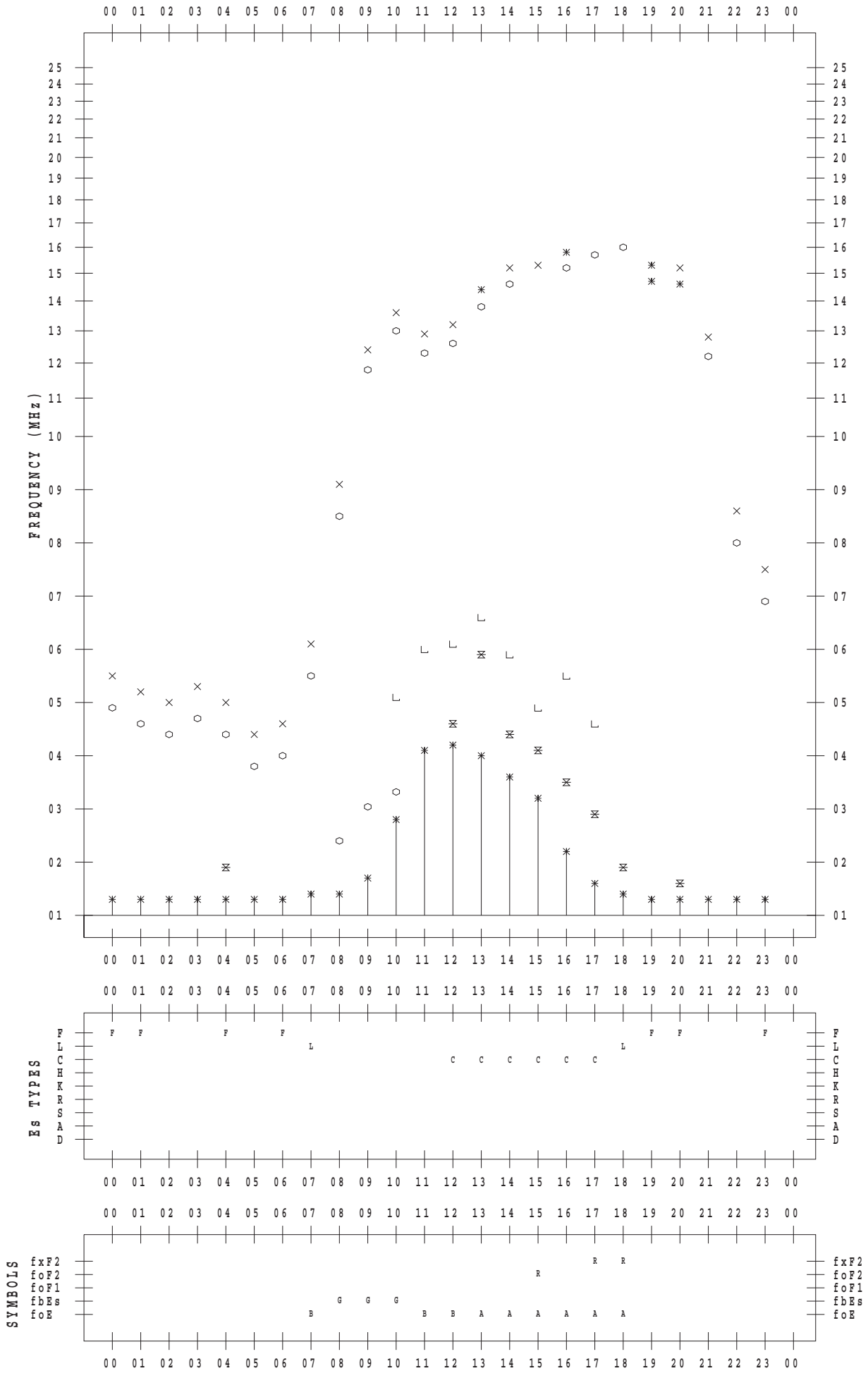
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/ 9

135 °E MEAN TIME



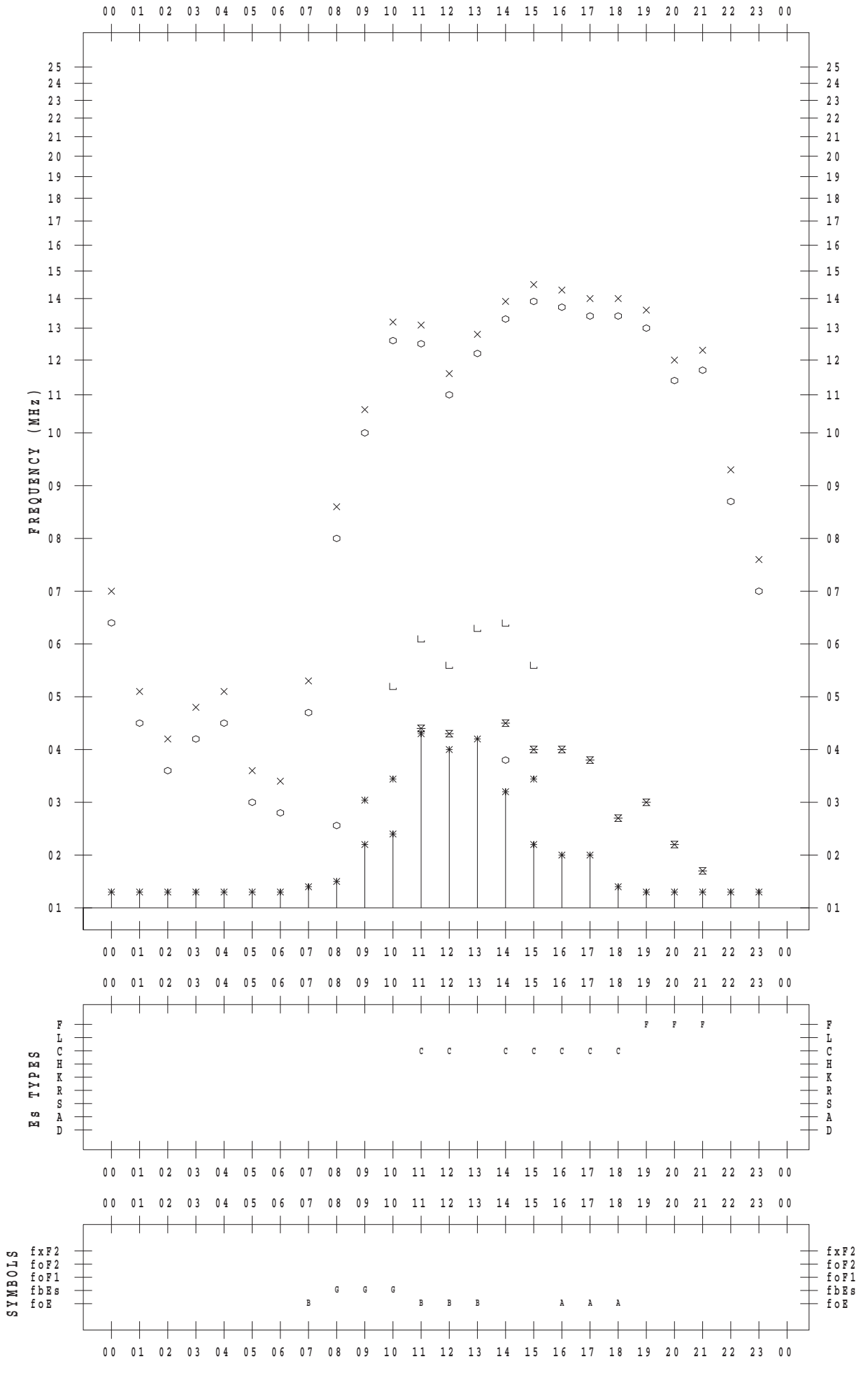
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/10

135 °E MEAN TIME



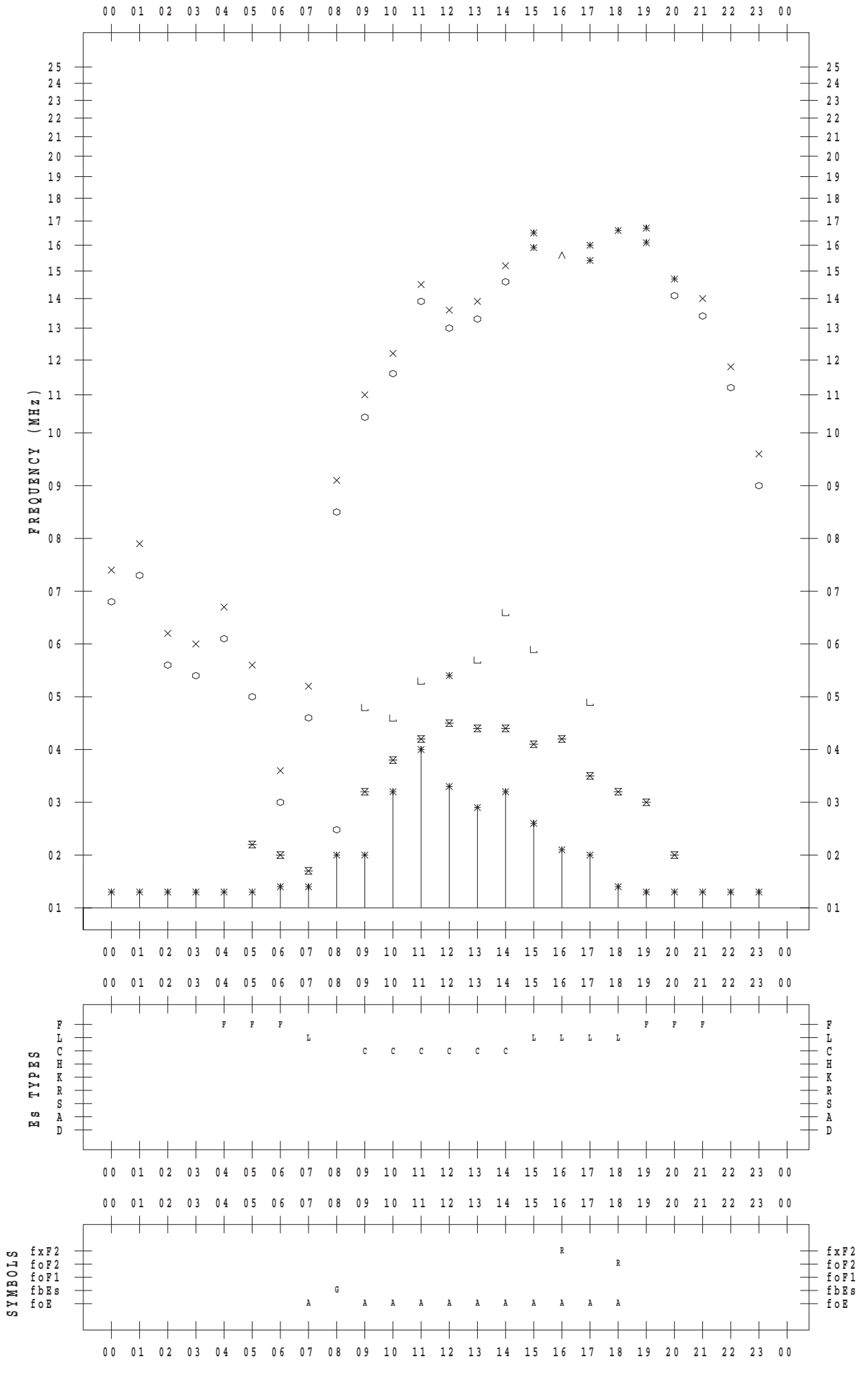
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/11

135 °E MEAN TIME



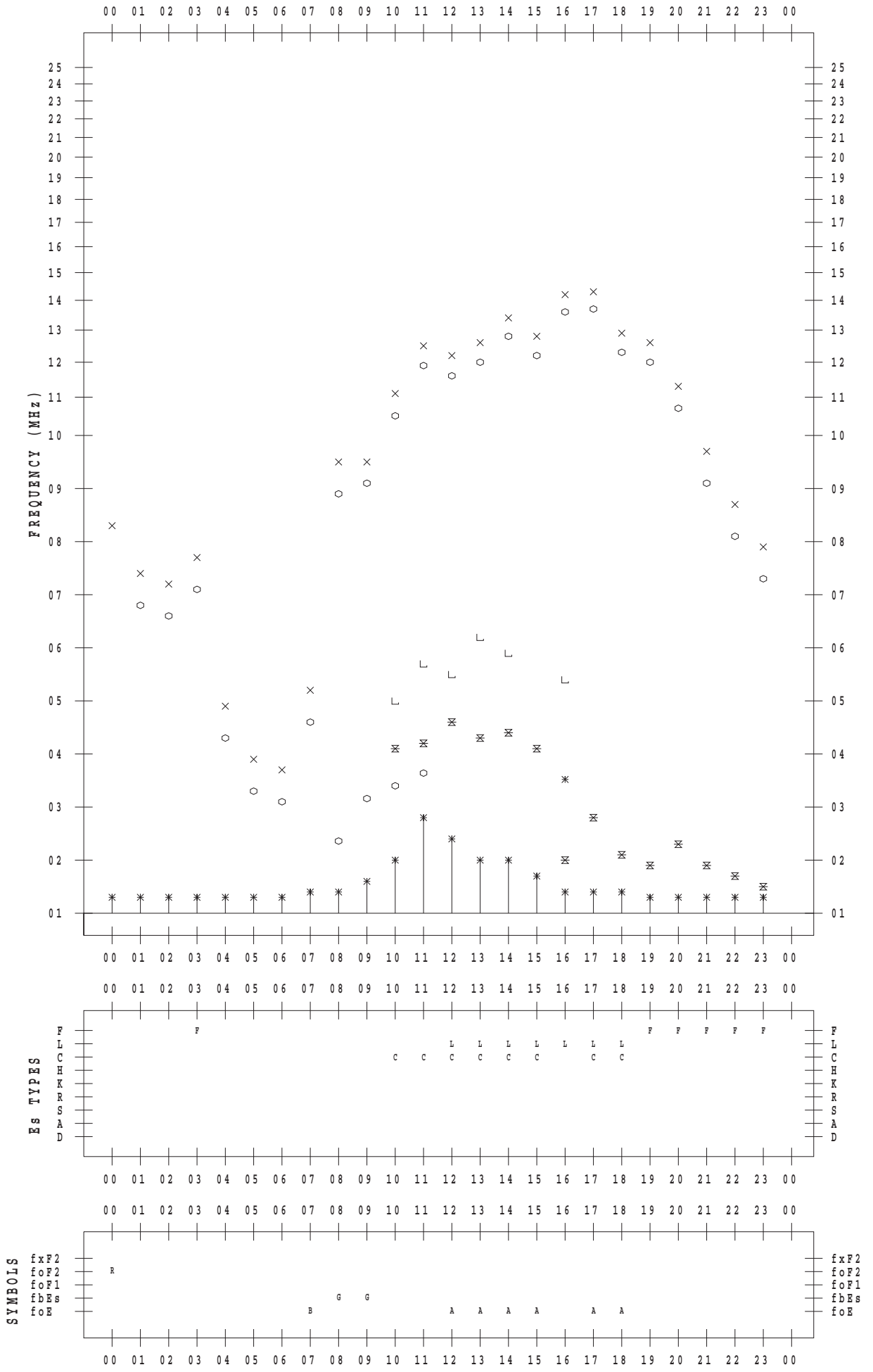
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/12

135 °E MEAN TIME



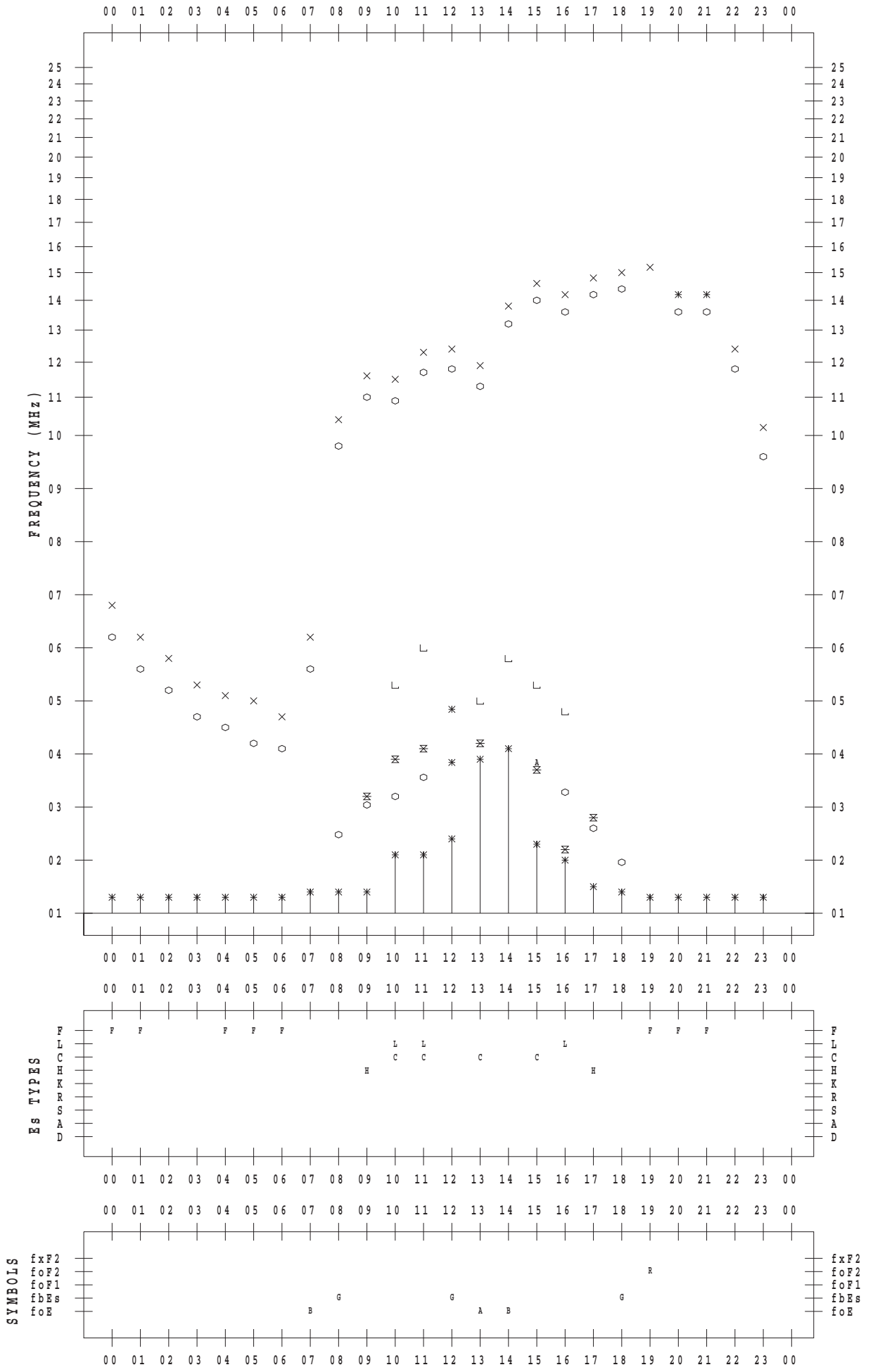
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/13

135 °E MEAN TIME



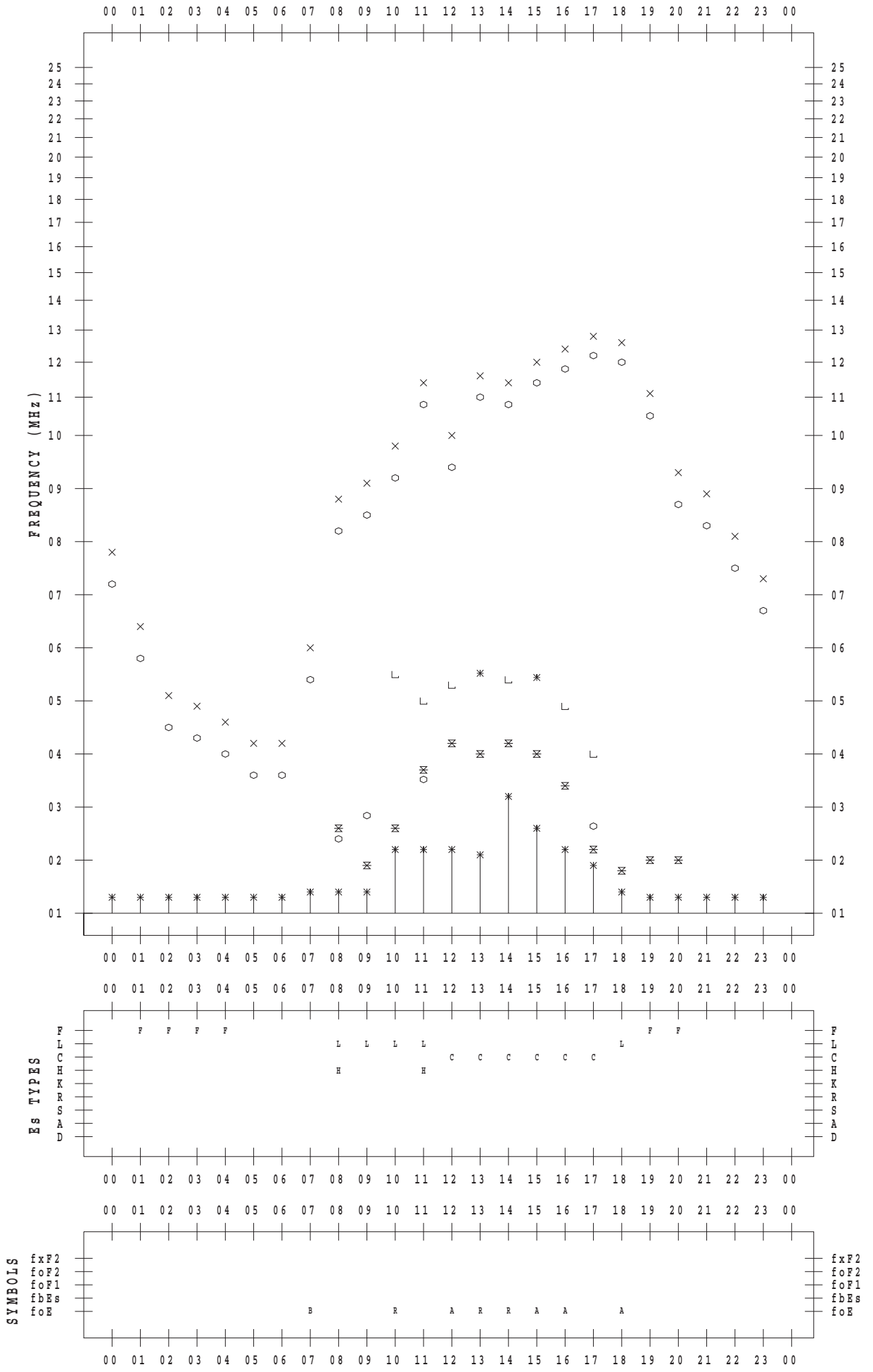
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/14

135 °E MEAN TIME



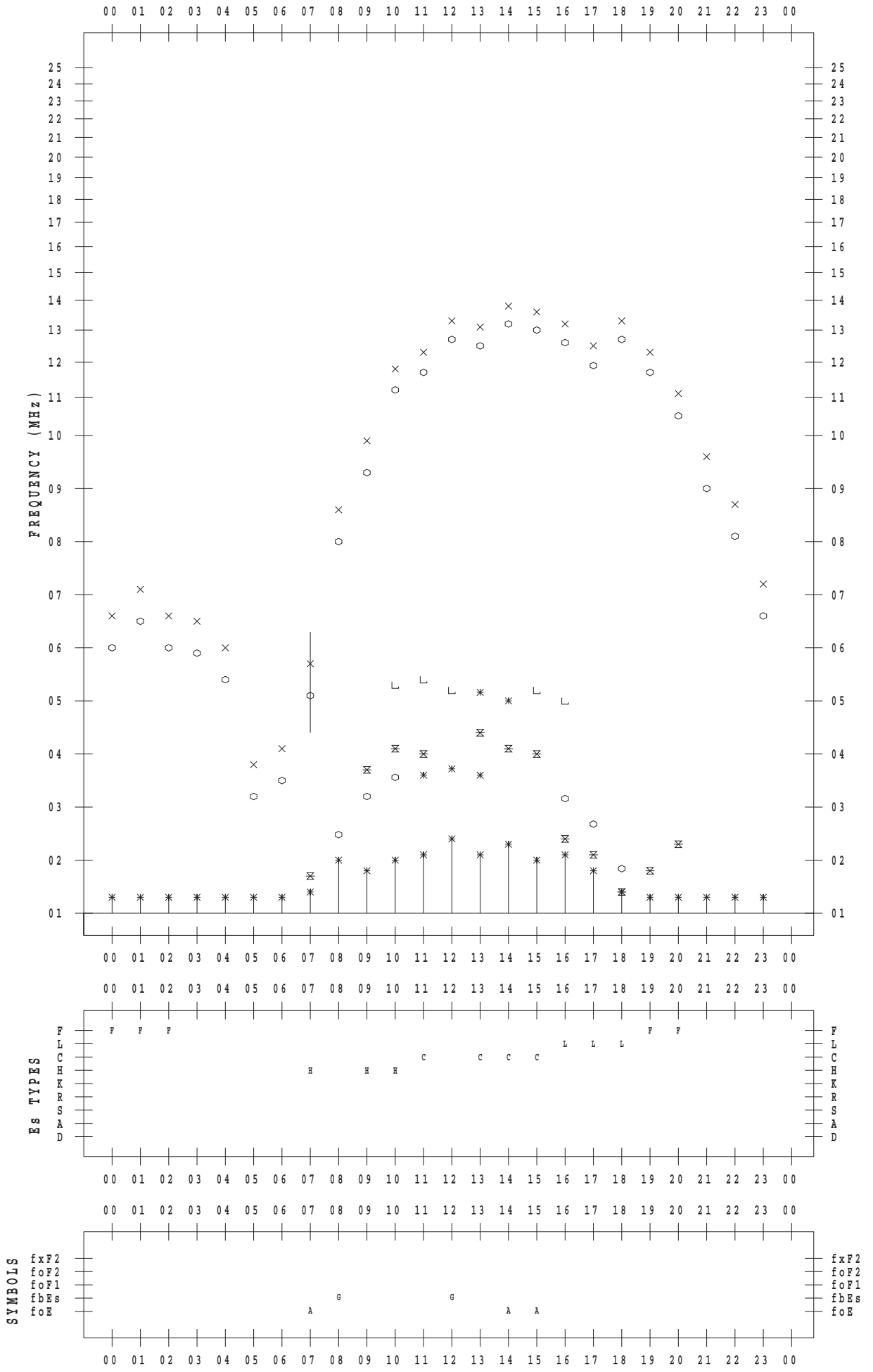
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/15

135 °E MEAN TIME



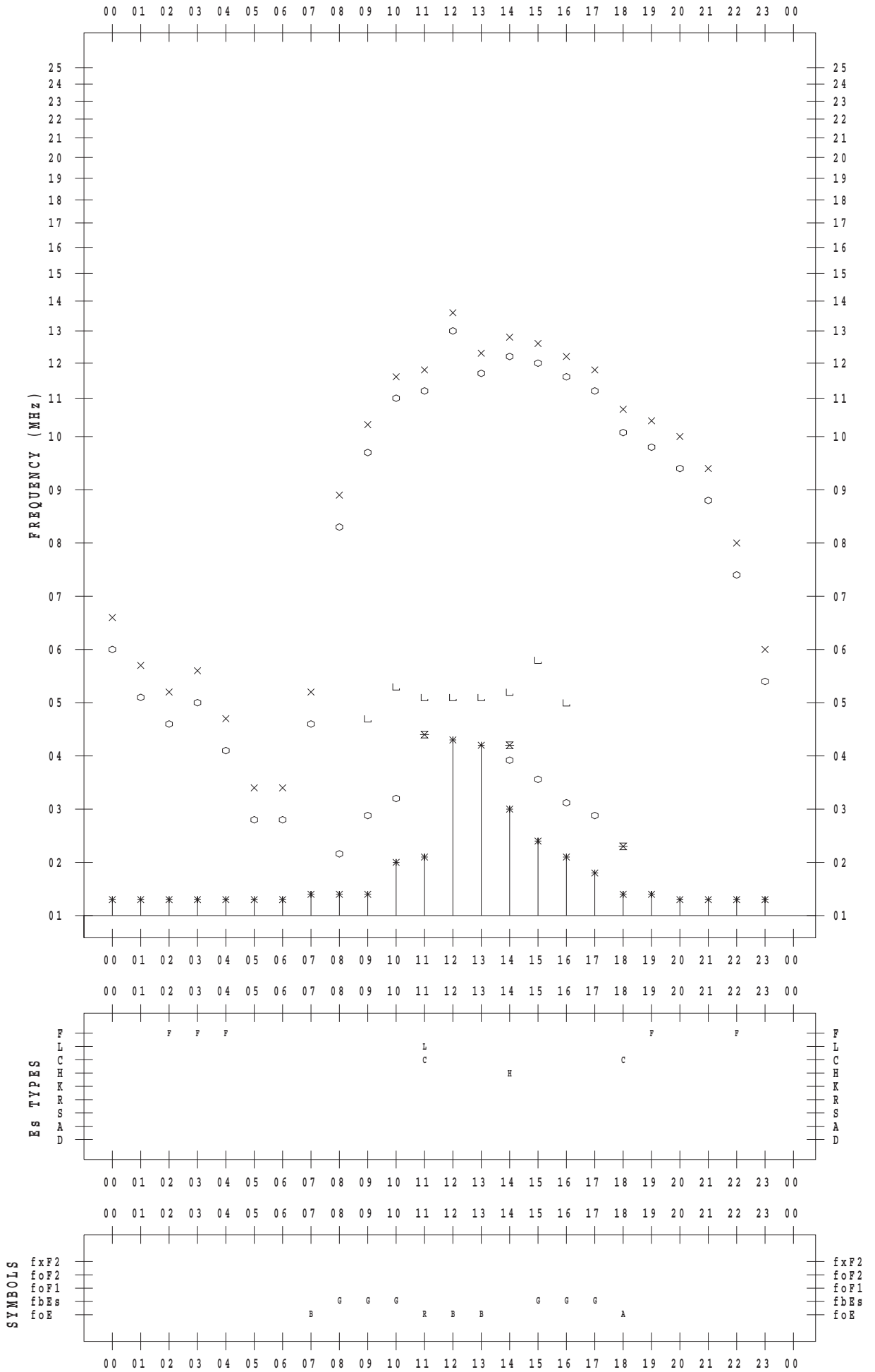
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/16

135 °E MEAN TIME



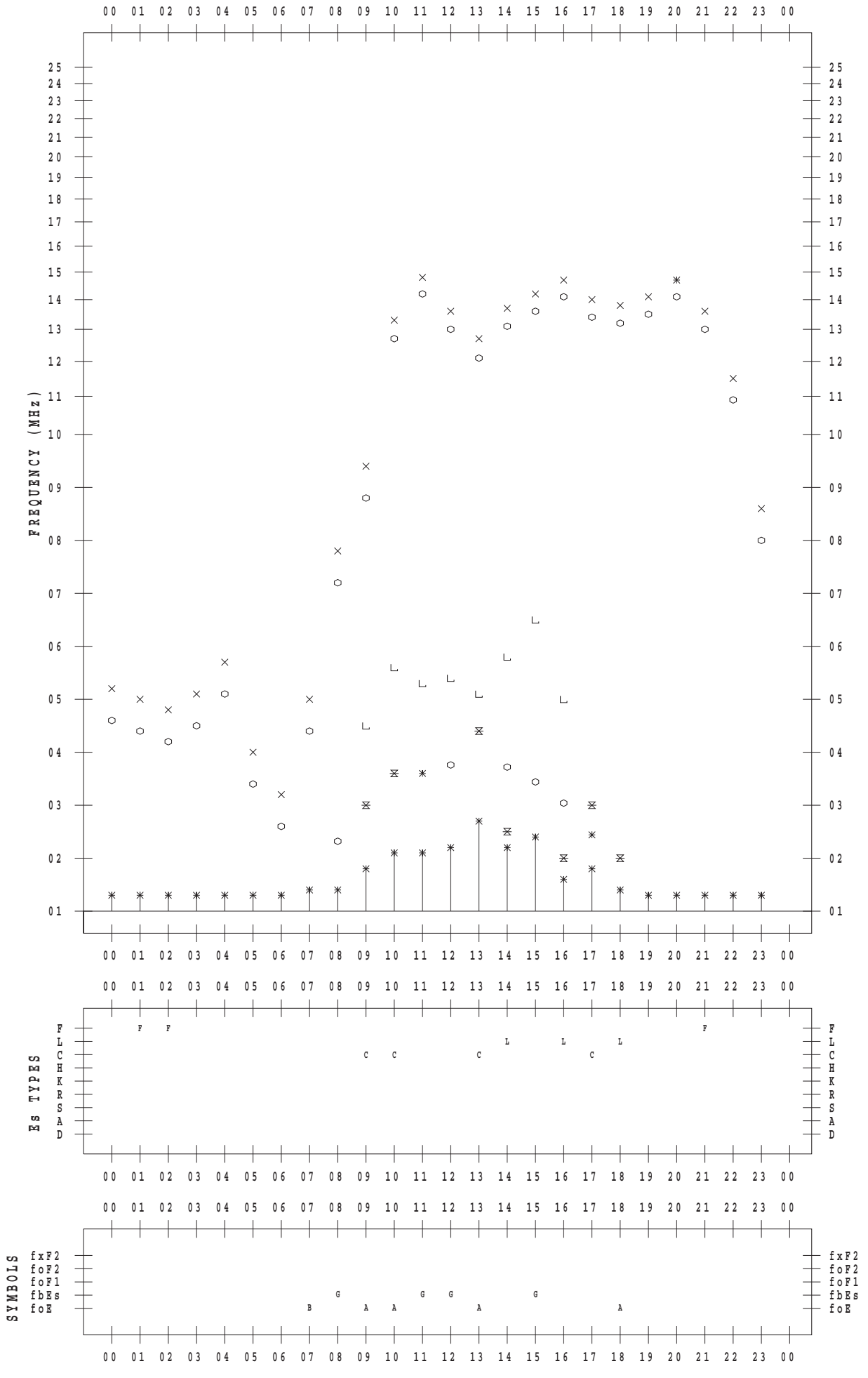
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/17

135 °E MEAN TIME



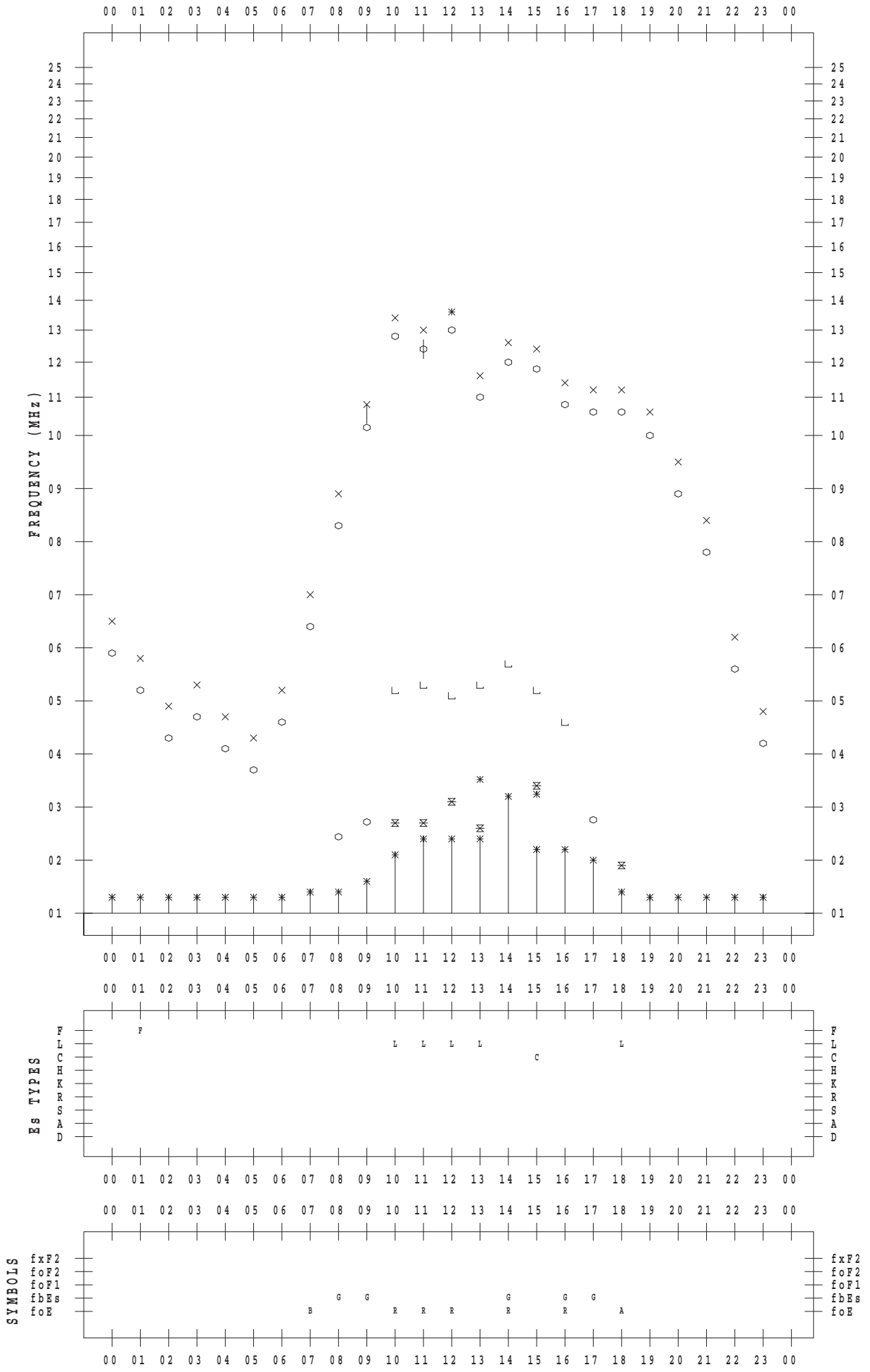
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/18

135 °E MEAN TIME



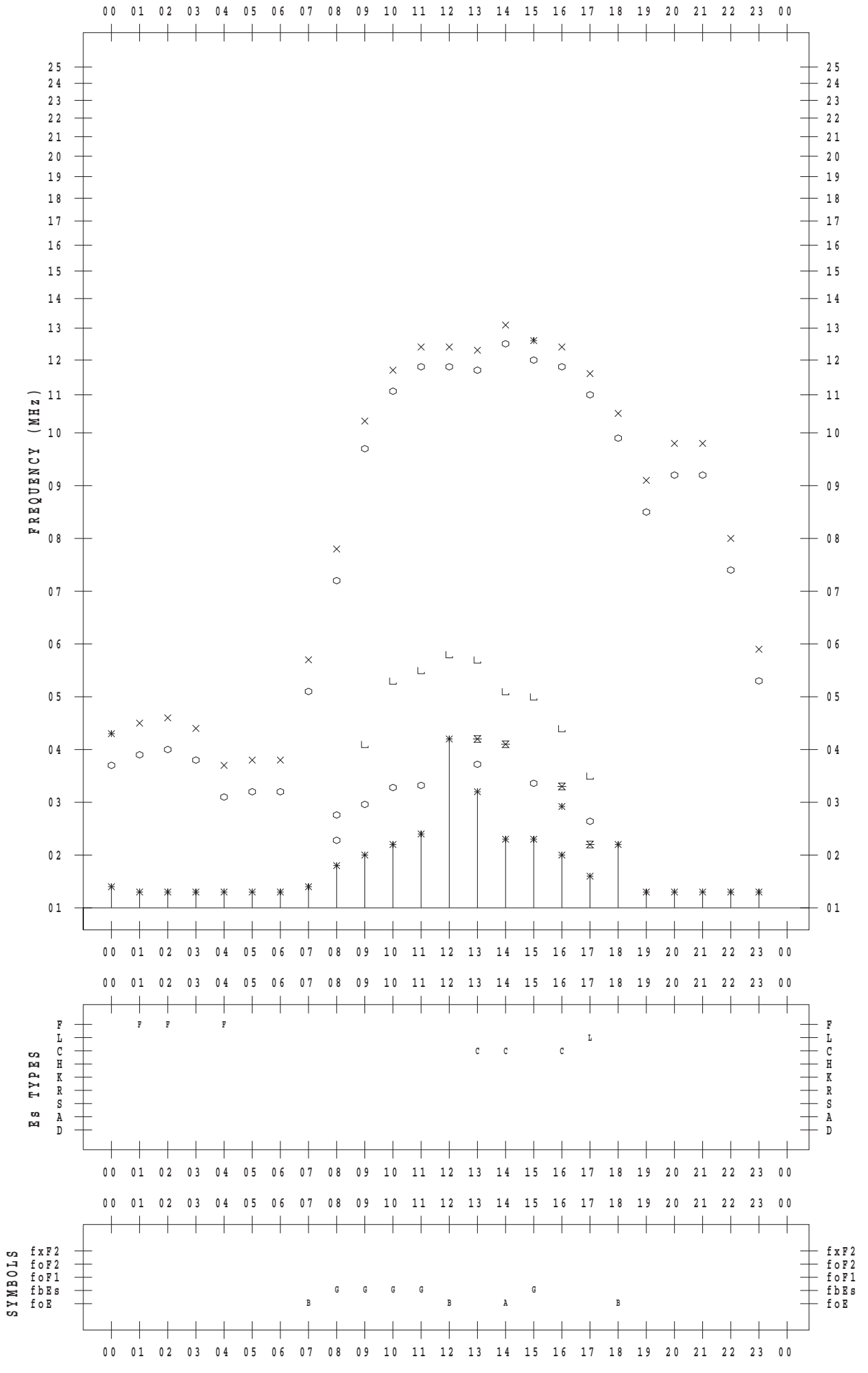
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/19

135 °E MEAN TIME



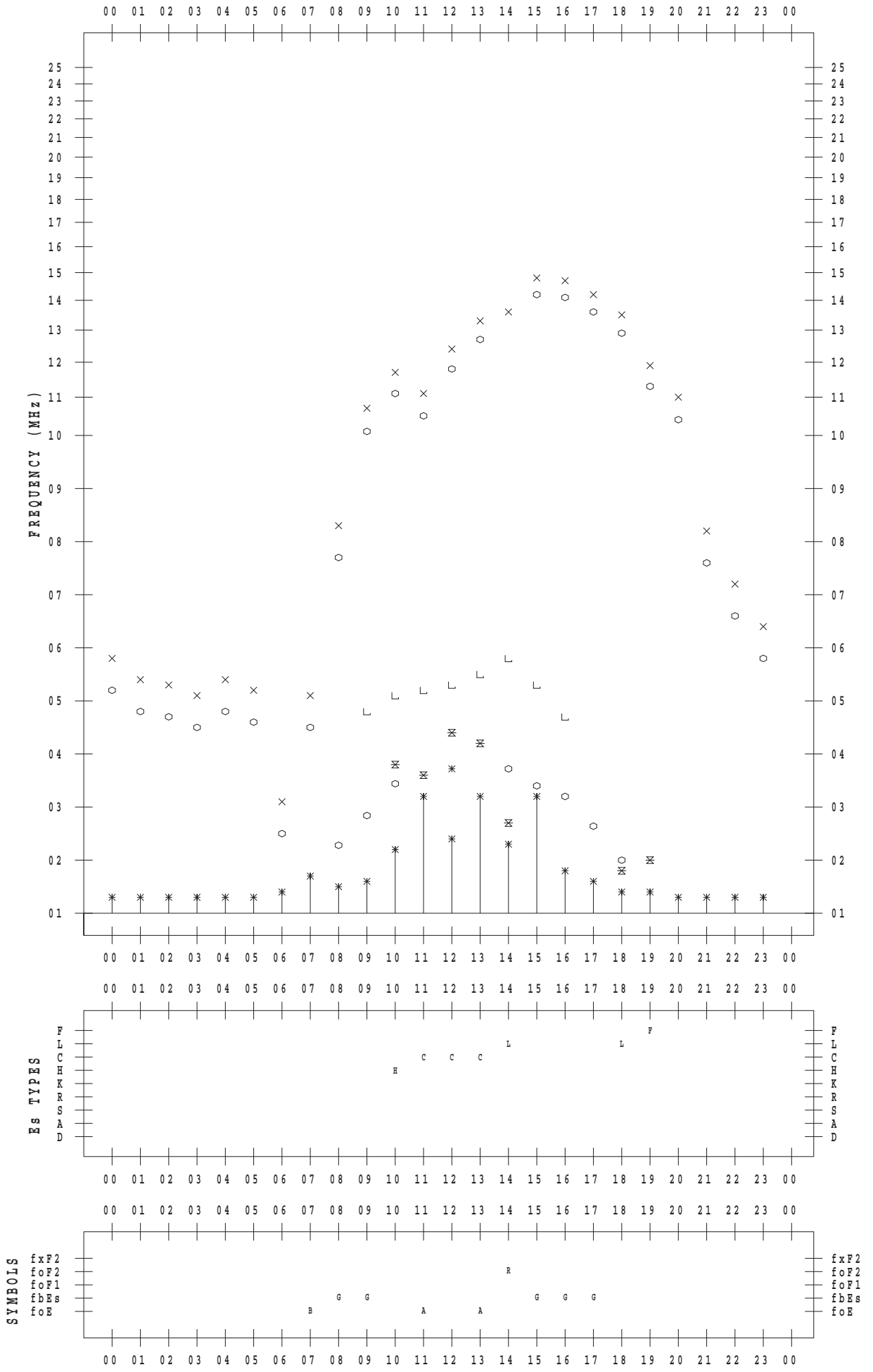
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/20

135 °E MEAN TIME



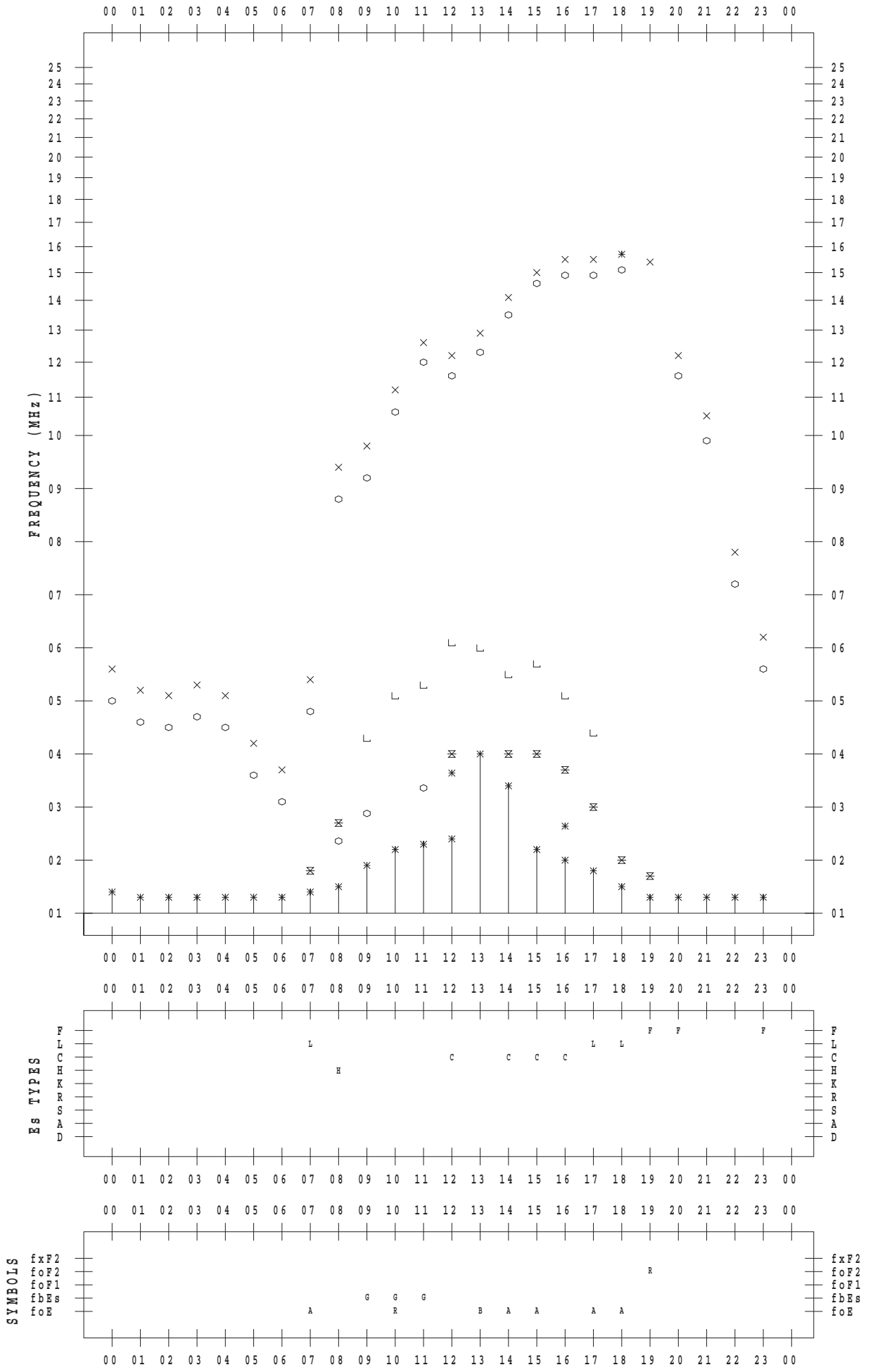
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/21

135 °E MEAN TIME



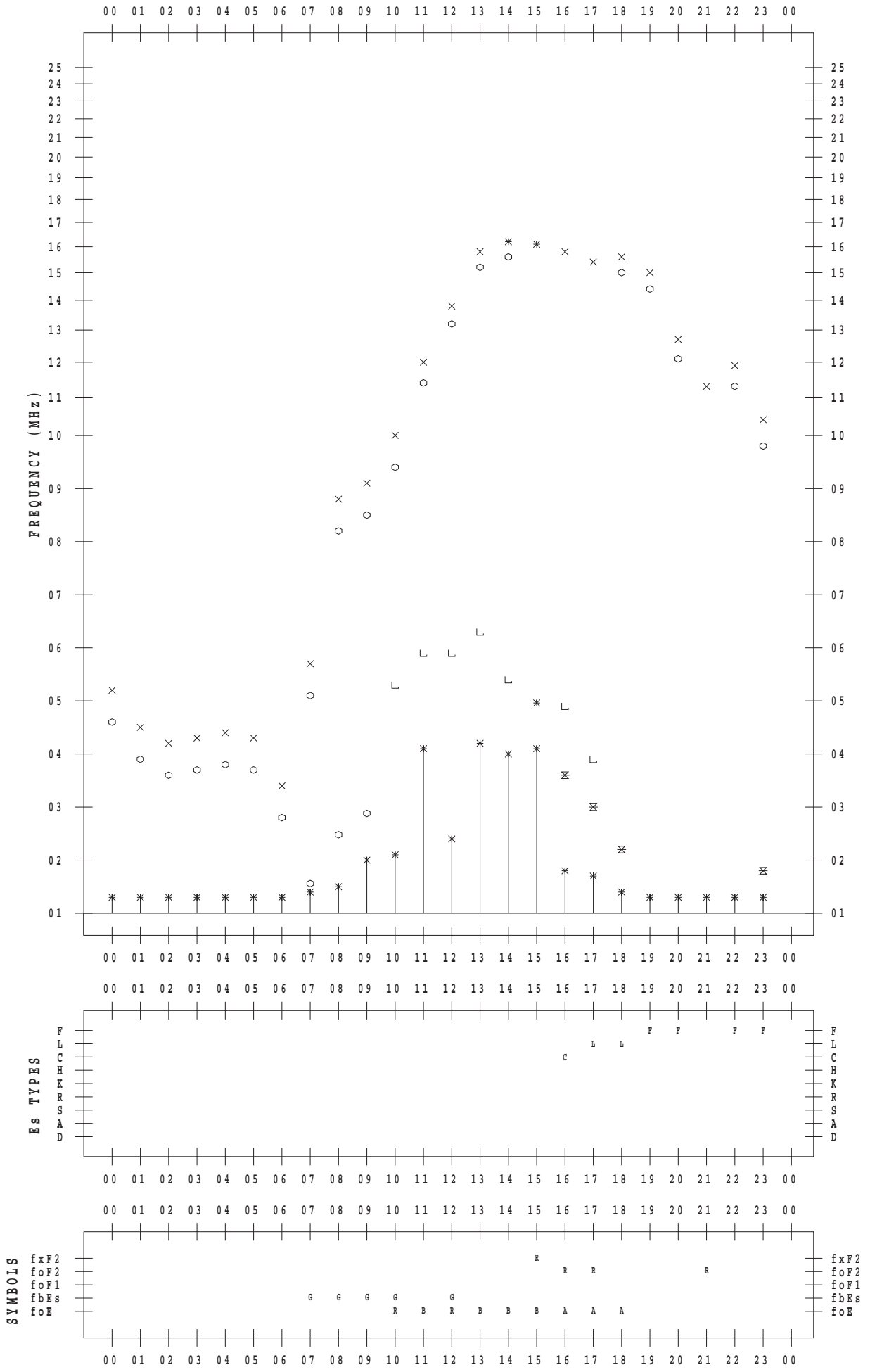
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/22

135 °E MEAN TIME



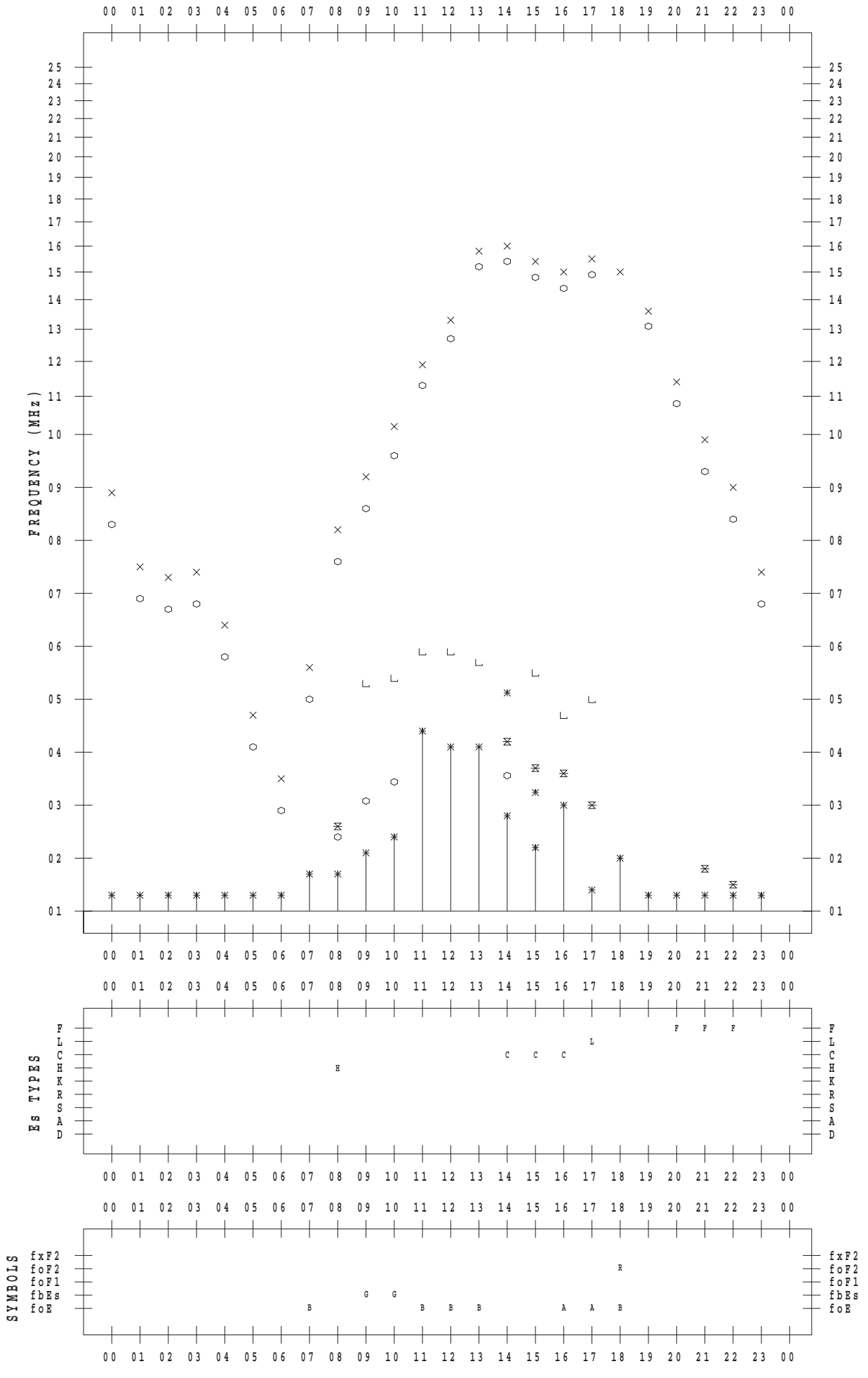
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/23

135 °E MEAN TIME



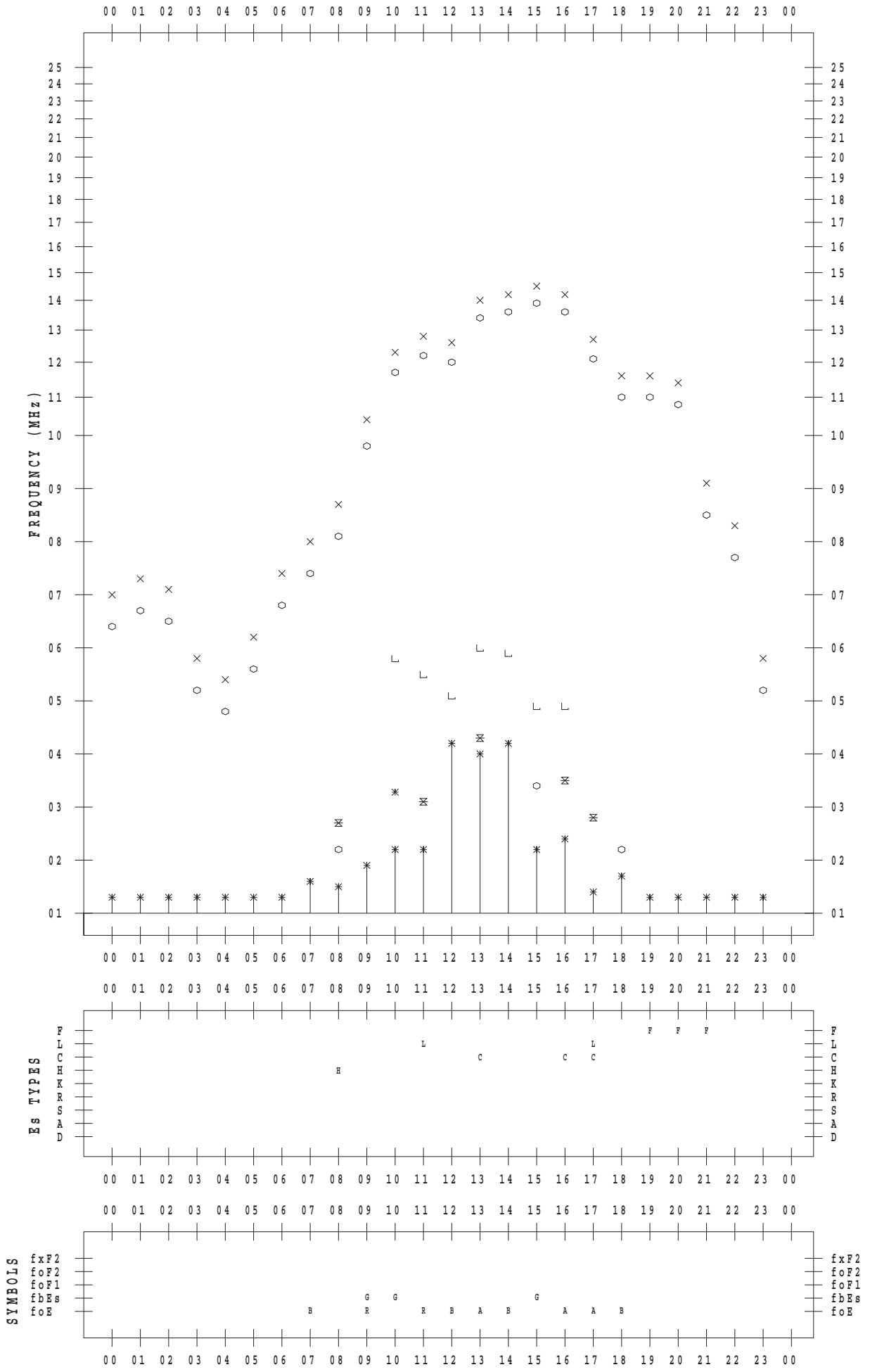
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/24

135 °E MEAN TIME



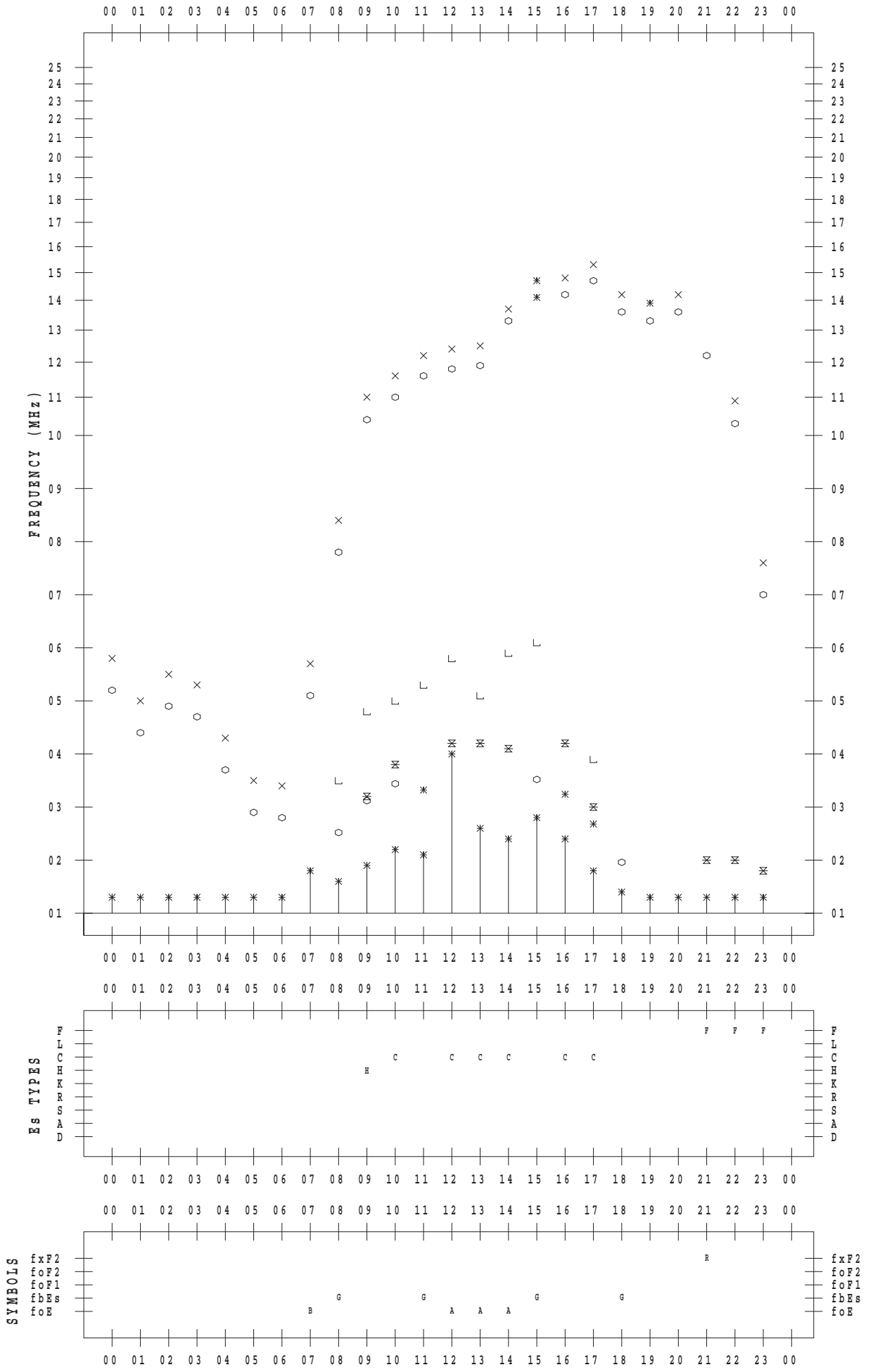
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/25

135 °E MEAN TIME



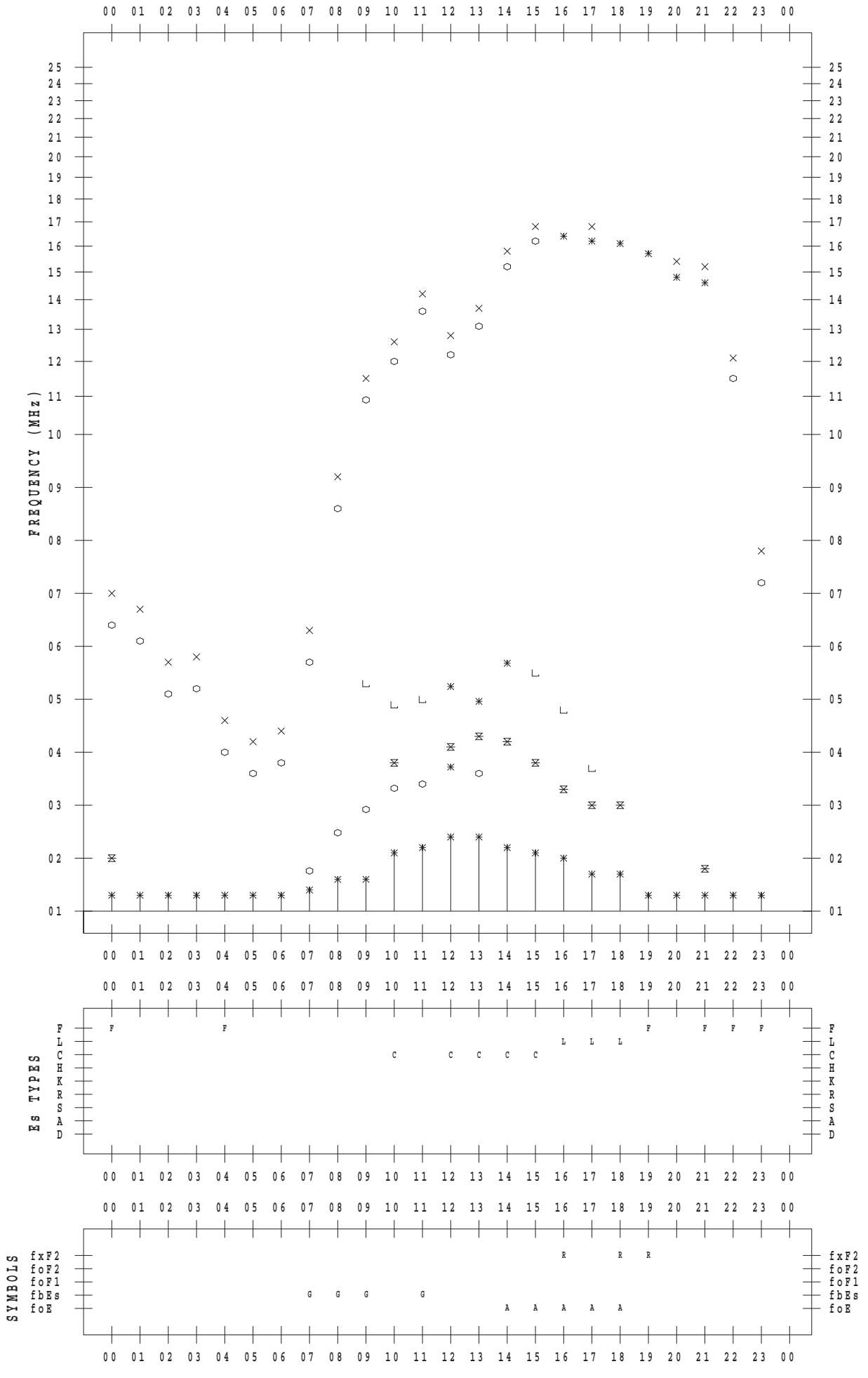
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/26

135 °E MEAN TIME



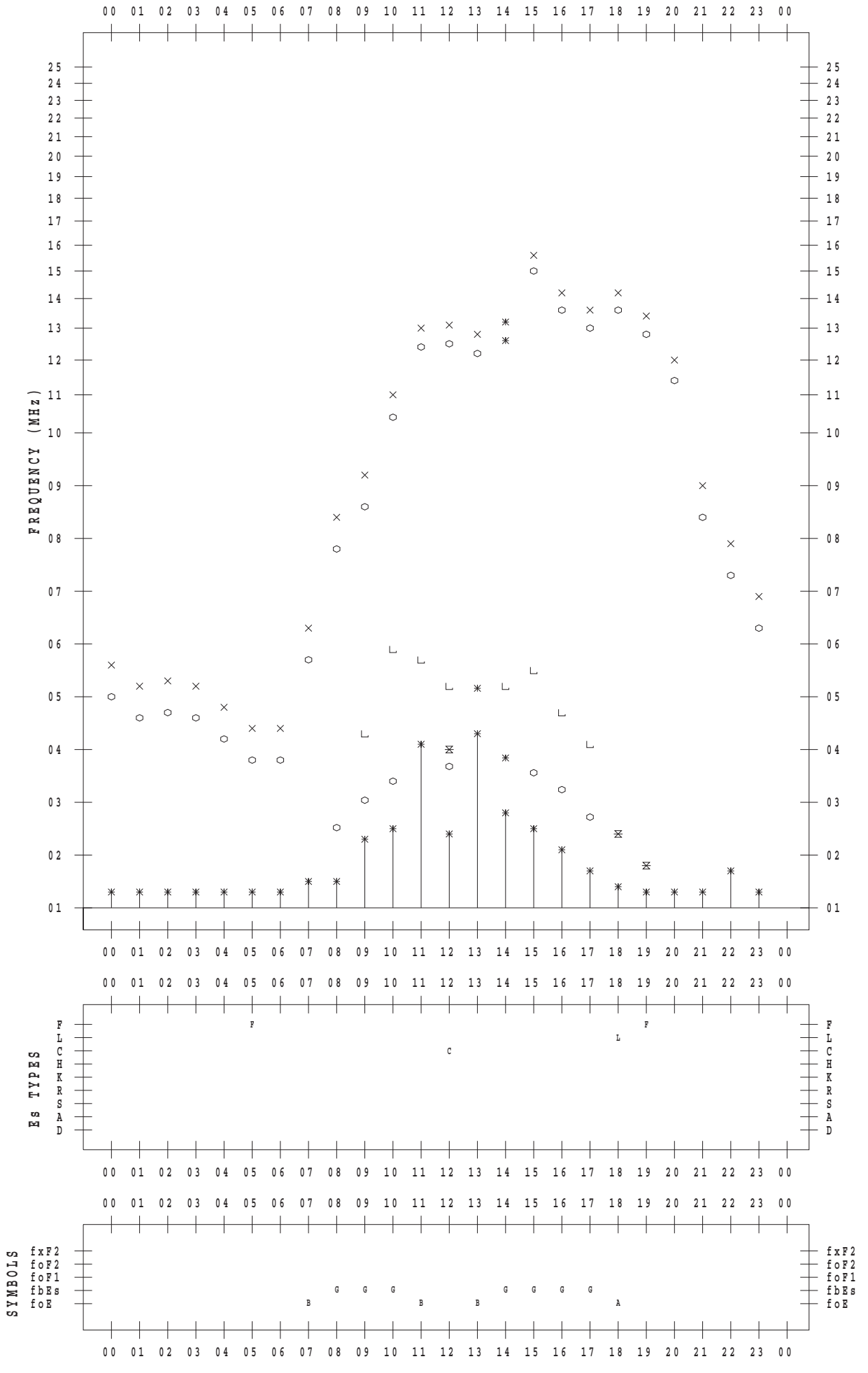
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/27

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 2/28

135 °E MEAN TIME