F-814

IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 2016

VOL. 68 NO. 10

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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 fEs AT Wakkanai

OCT. 2016

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	24	26	26	G	G	G	G	36	41	52		G	50	G	G	G	G	37	38	32	G	G	26	32
2	27	31	G	G	G	G	58	G	38	43	41	112	41	75	G	34	G	G	G	G	G	G	G	G
3	G	G	G	G	33	26	33	G	G	G	39	40	40	G	G	G	32	33	25	G	G	G	G	G
4	116	G	G	24	G	G	G	G	164	65	48	44	G	38	G	40	32	60	28	60	55	34	37	26
5	28	32	27	49	39	30	36	34	41	47	54	50	41	G	38	G	33	G	40	27	G	54	91	58
6	94	40	G	G	24	39	G	34	37	49	50	48	47	57	64	56		47	39	G	24	G	G	G
7	G	G	G	G	G	G	47	39	G	116	38	43	G	G	G	G	95	43	71	32	G	G	G	G
8	G	G	G	G	G		G	G	50	G	64	G	G		G	G	34	38	34	35	34	32	G	G
9	G	G	G	32	G		G	G	G	G	40	43	G	G	46	36	34	G	26	32	G	G	G	G
10	G	G	G	G	G	G	G	G	35	G	G	55	G	43	G	G	36	34	48	G	G	G	26	26
11	38	35	39	30	G	G	40	41	55	53	47	52	38	44	37	44	38	40	40	26	G	G	G	32
12	G	G	G	G	G	G	33	39	40	G	43	G	G	G	49	G	38	25	G	G	G	G	G	G
13	G	G	G	G	24	G	48	54	39	42	G	115	53	G	38	34	31	29	32	G	G	G	G	G
14	G	G	G	G	23	27	35	66		102	86	118	111	G	G	G	G	G	G	G		G		G
15						24	32	176	38	51	44	44	40	90	47	38	31	36	57	33	26		G	
16	G	G	38	G	G	G		G	G	135	43	141	113	38	G	G	33	96	61	125		84	59	G
17	40	26		30	G	G	G	129	37	65	58	53	54	G	G	G	G	26	G	36	G	26	33	G
18	26	G	G	G	G	57	25	35	48	46	43	55	G	44	38	46	G	G	G	G	91	59	59	32
19	27	30	G	24	G	G	26	40	50	83	60	39	52	G	35	G	G	11	32	44	44	59	49	36
20	26	G	41	125	34	34	24	150	39	G	76	G	42	G	G	N	G	29	33	31	26	G	G	G
21	G	G	G	G	112	G	37	40	G	41	49	54	52	G	85	37	G	11	33	G	G	G	25	
22	G	G	G	G	G	35	33	49	36	116	168	50	G	G	G	G	G	25	26	G	115	72	40	84
23	56	28	26	32	G	27	24	34	38	46	64	63	78	G	G	G	39	26		30	32	71	70	41
24	33	G	34	27	38		G	34	51	49	61	130	106	39	G	38	36	33	69	59	41	36	26	36
25	35	59	25	70	G	G	G	G		37	59	64	98	106	36	36	32	11	G	G	G	115	84	32
26	32	25	33	65	90		152	116	52	60	58	39	69	58	47	G	G	G	36	25	33	92	26	G
27	G		G		G	G	G	44	43	94	52	133	41	G	G	G	G	G		33	24	69	25	29
28	30	26	29	27	G	G	34	52	93	92	59	39	93	G	40	G	36	58	108	69	70	41	55	168
29	28	26	26	G	G	G	G	38	G	G	53	112	G	40	38	G	26	111	92	130	115	86	106	39
30	27	39		57	26	G	G	54	57	108	54	G	G	G	G	G	43	32	G	G	G	G	33	33
31	40	37	G	26	46	38	35	G	94	43	45	G	G	94	G	G	35	34		G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	28	29	30	27	30	31	29	31	30	31	31	30	31	30	30	31	28	31	29	30	30	29
MED	26	G	G	G	G	G	26	38	39	49	51	50	41	G	G	G	32	29	33	27	G	14	26	26
U Q	33	30	26	31	26	27	35	52	50	83	59	64	54	44	38	36	36	38	44	35	37	59	49	34
L Q	G	G	G	G	G	G	G	G	35	37	43	39	G	G	G	G	G	11	13	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

OCT. 2016

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

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

HOURLY VALUES OF foF2 AT Kokubunji

OCT. 2016

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	31	30	32	30	28	28	41	54	62	55	66	A	62	59	58	61	62	65	64	51		32	34	34
2	26	34	32		N	N	44	61	60	55	61	76	90	65	63	67	64	64	66	43	46	A	45	A
3	37	39	38	36	N	N	47	64	73	69	64	65	69	65	68	67	63	66	49	49	A	A	A	A
4	34	34	32	36	39	N	45	52	75	64	72	81	84	82	82	72	72	58	51	A	44	44	44	44
5	38	39	43	31	28	30	48	73	70	59	74	72	81	66	74	66	64	68	51	A	47	40	43	38
6	37	39	34	36	31	27	45	61	67	72	58	76	75	67	62	59	57	59	59	52	44	47	42	43
7	43	41	42	39	42	38	49	64	66	67	70	76	82	72	66	71	75	64	58	52	40	39	42	42
8	42	34	37	37		31	54	59	67	72	71	95	86	80	70	74	71	76	51	42	44	38	38	38
9	39	39	39	41	37	36	58	69	73	66	66	A	87	75	76	69	62	71	71	A	48	41	43	43
10	43	42	42	16	39	41	54	69	72	77	82	92	80	78	84	81	81	71	67	44	44	43	31	A
11	39	38	38	36	38	34	59	75	76	74	69	A	92	92	78	86	78	71	54	A	A	A	39	39
12	A	39	38	39	38	A	45	59	67	77	85	97	97	80	71	75	75	61	50	49	42	34	32	36
13	38	37	38	37	38	36	52	58	71	69	71	75	80	81	72	74	72	75	51	43	44	44	38	42
14	43	43	44	44	44	38	75	86	74	87	81	96	87	69	A	86	78	63	62	51	46	A	A	36
15	32	31	35	38	34	31	35	44	57		69	76	62	56	60	65	61	A	46	A	36	A	35	34
16	32	31	31	31	30	30	52	52	56	60	70	91	75	71	74	74	65	57	53	47	46	A	A	39
17	A	32	A	37	27	28	45	69	75	65	71	91	81	67	72	75	66	58	42	43	42	A	43	A
18	34	32	28	34	34	34	45	55	66	81	77	83	77	68	72	84	73	59	44	37	37		39	39
19	38	36	28	32	28	N	45	55	72	78	74	80	77	68	73	65	65	67	52	43	44	42	41	41
20	30	N	38	38	42	28	43	59	69	76	65	85	81	74	69	70	69	49	39	A	36	37	38	37
21	37	36	38	39	44	28	39	59	67	71	70	64	75	61	75	85	72	59	48	34	34	29	A	34
22	31	A	32	32	36		38	57	65	74	76	65	61	65	69	75	68	55	43	A	A	35	34	37
23	N	A	32	32	N	27	38	40	67	66	65	69	76	69	71	62	59	51	43	A	A	30	A	34
24	A	32	34	34	38	30	39	53	78	68	67	69	77	74	70	72	78	60	38	40	38	A	A	34
25	34	A	A	37	34	36	52	66	75	67	90	112	83	72	75	75	68	48	36	37	43	N	38	A
26	32	A	36	A	31		38	74	96	72	97	117	87	61	68	72	71	61	42	38	36	A	A	A
27	34	38	39	34	A	31	38	56	63	71	87	81	A	78	74	66	59	57	63	A	37	A	34	37
28	37	34	A	38	A	31	38	59	75	81	85	87	72	67	61	56	58	A	28	A	A	36	36	A
29	A	A	A	A	30		38	64	68	78	72	71	75	71	63	71	63	55	36	A	A	A	39	39
30	34	31		31	31	N	38	60	90	92	A	A	71	72	65	72	66	59	25	A	A	37	A	36
31	36	34	36	36	N	N	35	60	72	83	102	84	69	71	68	62	57	45	A	34	28	30	36	32
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	26	28	24	21	31	31	31	30	30	27	30	31	30	31	31	29	30	19	23	18	23	24
MED	36	36	36	36	35	31	45	59	70	72	71	81	78	71	70	72	66	60	50	43	43	38	38	38
U Q	38	39	38	38	38	36	52	66	75	77	81	91	84	75	74	75	72	66	58	49	44	42	42	40
L Q	32	32	32	32	30	28	38	55	66	66	67	72	75	66	66	66	62	57	42	38	37	34	35	35

HOURLY VALUES OF fEs AT Kokubunji

OCT. 2016

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	23	G	G	G	G	G	G	G	40	41	52	60	G	G	42	42	45	27	26	G		G	G	G
2	G	G	25		G	G	G	G	42	47	G	49	G	G	40	47	47	50	46	34	30	28	34	33
3	29	32	29	26	G	G	G	G	G	G	48	52	45	G	G	G	58	62	50	52	71	93	59	50
4	27	32	28	31	30	G	G	G	G	45	49	G	45	46	G	G	36	29	29	51	23	29	23	G
5	G	G	G	G	G	G	G	37	G	40	G	52	G	G	G	41	61	38	33	59	43	G	G	G
6	G	G	G	G	G	G	G	37	G	G	41	40	G	G	G	G	G	G	23	G	G	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	G	29	26	G	28	G	G
8	G	G	G	G		G	28	33	G	G	G	G	G	G	G	G	G	G	11	G	G	28	G	G
9	G	G	G	28	G	G	28	35	G	45	52	103	40	39	G	G	G	G	29	57	59	G	G	G
10	G	G	32	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34
11	G	23	G	G	G	G	26	32	42	45	66	87	G	G	G	46	39	37	79	74	75	61	28	G
12	42	37	33	29	33	54	34	35	G	G	49	50	G	40	45	G	G	28	27	G	23	G	G	G
13	G	G	G	G	G	G	26	34	43	70	G	G	G	G	G	G	G	G	G	29	G	G	22	24
14	28	G	22	G	G	G	G	36	41	41	G	G	G	G	77	G	35	31	59	G	28	54	83	28
15	G	G	G	G	34	G	39	37	43	G	G	49	G	G	G	48	49	129	38	40	44	57	23	G
16	G	G	G	G	26	23	G	G	G	G	G	G	G	G	G	G	67	41	38	59	33	66	35	G
17	32	28	32	G	24	G	45	37	42	G	40	G	G	G	G	G	G	36	G	34	31	39	43	37
18	G	28	G	G	G	G	26	G	G	G	43	G	48	G	G	G	G	34	72	24	G		28	27
19	G	G	G	G	G	G	26	42	G	G	43	G	G	43	G	36	G	G	G	G	29	30	G	G
20	G	G	G	G	G	G	G	31	35	G	G	45	G	G	G	G	32	37	34	57	32	G	30	26
21	G	G	G	22	23	30	G	G	G	G	49	G	45	G	G	37	33	36	G	G	G	27	34	23
22	G	26	27	G	G		29	32	G	G	40	50	G	G	G	G	G	G	28	58	57	26	32	30
23	30	37	24	G	G	G	G	G	50	43	65	G	G	G	G	G	G	G	29	33	33	G	40	29
24	29	27	G	G	23	G	24	46	42	51	47	G	G	G	G	G	G	11	G	G	G	44	35	27
25	33	36	37	29	G	G	24	33	60	40	G	G	G	G	G	42	51	G	G	G	G	G	26	27
26	29	39	29	27	G		31	G	G	61	61	103	65	77	G	34	G	G	22	34	34	43	60	34
27	29	24	29	24	28	24	G	G	34	59	51	62	86	64	51	49	31	G	G	23	50	58	29	29
28	34	24	32	26	30	G	22	33	62	59	61	47	68	53	49	58	65	68	34	51	50	53	33	51
29	28	30	36	34	30		24	43	G	G	G	G	G	G	G	G	28	25	G	43	69	72	31	34
30	23	23		23	23	G	11	30	53	58	110	104	43	58	41	43	29	28	G	31	61	34	35	29
31	33	32	23	G	G	G	G	G	G	G	G	82	66	60	62	G	33	34	37	G	G	G	G	24
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	30	30	28	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31
MED	G	23	12	G	G	G	11	32	G	G	41	40	G	G	G	G	31	28	28	31	30	28	28	26
U Q	29	30	29	26	24	G	26	36	42	45	51	52	45	40	40	42	45	37	37	51	50	53	35	30
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

OCT. 2016

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

HOURLY VALUES OF foF2 AT Yamagawa

OCT. 2016

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	35	34	B	B	26	29	34	48	69	64	60	67	73	81	68	66	72	79	76	51	32	26	69	25
2	30	22	28		A	A	29	54	59	64	62	72	80	78	72	68	71	71	A	A	A	42	42	39
3	38	42	28	28	B	N	32	58	72	71	72	61	66	75	76	81	68	61	A	42	A	A	34	34
4	34	36	42	39	N	B	30	58	66	64	71	78	82	79	77	80	68	A	58	47	44	47	50	43
5	40	34	40	37	29	29	59	N	68	49	61	81	N	80	A	72	67	66	52	58	40	42	40	48
6	43	42	59	34	32	30	36	53	68	75	70	B	78	86	66	68	64	72	67	53	43	43	B	
7	40	40	34	28	32	29	38	58	64	73	62	72	78	76	72	73	81	75	67	53	46	34	32	
8	37	38	35	34	34	29	36	52	60	75	77	77	85	80	75	70	78	74	72	48	38	40	40	38
9	37	38	40	37	B	30	38	70	60	68	74	73	B	87	79	76	65	75	72	67	38	37	34	36
10	38	40	34	34	37	29	34	54	62	74	73	90	82	78	78	78	81	70	73	67	49	42	34	34
11	B	29	28	59	34	34	38	78	68	72	72	67	80	88	83	86	66	82	68	45	A	40	N	32
12	59	59	B	30	43	A	29	52	67	76	81	59	69	86	79	77	75	76	52	48	46	40	40	B
13	28	37		34	30	30	30	58	62	63	75	76	80	69	92	80	77	76	63	50	48	46	59	42
14	42	34	41	42	34	34	51	71	71	86	80	113	94	78	78	84	79	67	66	53	50	53	A	A
15	A	43	41	49	36	37	A	51	54	58	70	78	76	63	60	75	66	71	54	36	A	A	40	38
16	36	32	34	32	31	34	B	45	59	63	67	78	73	N	84	82	81	75	70	55	40	A	36	34
17	A		B	40	29	B	A	50	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	16	13	15	13	12	14	16	16	16	16	15	14	15	15	16	16	15	14	15	12	13	13	12
MED	38	38	35	34	32	30	35	54	65	70	72	76	79	79	77	76	72	74	67	51	44	42	40	37
U Q	40	41	41	40	35	34	38	58	68	74	74	78	82	86	79	80	78	76	72	55	47	44	46	40
L Q	35	34	31	32	29	29	30	51	60	63	64	67	73	76	72	71	66	70	58	47	39	38	34	34

HOURLY VALUES OF fEs AT Yamagawa

OCT. 2016

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	27	G	B	B	G	G	G	33	34	42	G	46	46	50	G	G	G	31	26	G	G	G	G	G
2	G	G	G	G	28	27	G	G	G	G	G	48	G	G	G	47	48	59	80	93	48	30	40	24
3	G	G	G	G	B	G	G	G	G	G	G	G	48	48	48	67	39	39	83	41	67	44	G	27
4	25	G	G	G	G	B	G	28	G	40	G	G	52	G	G	45	G	65	47	27	34	G	32	24
5	G	G	G	G	G	G	G	31	39	47	50	50	G	G	56	G	G	40	48	54	33	G	G	G
6	G	G	G	G	G	G	G	G	44	G	G	B	G	G	G	40	45	39	29	31	26	G	B	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	72	39	38	G	G	G	G	G	G
8	G	G	G	G	G	G	G	32	34	G	G	G	G	G	G	G	G	G	32	31	G	G	G	G
9	G	G	G	G	B	G	G	33	G	G	G	42	B	G	39	G	40	G	50	30	G	G	G	G
10	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	G	G	36	31	G	G	G	G	G
11	B	G	G	G	G	G	G	34	G	43	46	42	50	G	G	G	40	58	51	48	35	28	G	G
12	G	G	B	G	26	33	G	G	40	G	G	G	G	G	G	G	G	G	G	G	G	G	30	B
13	G	G	G	G	G	G	G	G	G	G	G	56	G	42	G	G	G	G	G	G	G	G	G	28
14	G	G	G	23	25	G	G	G	G	37	G	G	G	G	G	45	40	36	26	25	28	31	31	32
15	33	24	G	G	G	33	32	28	38	49	G	G	G	G	G	G	G	G	G	70	95	74	G	G
16	G	G	24	G	G	G	B	G	G	49	46	41	G	46	41	G	G	G	G	35	32	33	G	G
17	34	G	B	G	G	B	33	39	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	17	14	16	15	15	16	17	16	16	16	15	15	16	16	16	16	16	16	16	16	16	15	15
MED	G	G	G	G	G	G	G	28	G	G	G	G	G	G	G	G	G	36	30	30	27	G	G	G
U Q	13	G	G	G	G	G	G	33	36	42	G	46	46	21	20	45	40	39	49	44	34	30	30	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 Yamagawa

OCT. 2016

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	18	15	B	B	17	18	16	16	17	18	28	28	28	23	22	18	39	14	16	16	15	18	15	20
2	17	18	15	66	17	14	16	22	16	18	17	30	59	50	44	22	16	17	18	17	15	15	15	16
3	15	15	17	17	B	18	15	18	28	18	29	46	29	20	33	34	18	14	16	15	16	14	17	16
4	16	18	15	17	17	B	16	17	30	27	47	55	32	33	43	28	20	16	15	16	14	16	17	18
5	15	18	21	15	18	20	20	22	18	28	33	34	29	46	29	33	18	15	14	16	15	15	17	17
6	17	18	16	18	16	17	17	23	17	20	23	B	48	42	24	21	17	20	15	17	21	32	B	20
7	21	17	18	18	17	16	15	17	16	22	40	45	54	43	21	21	18	15	16	16	21	16	16	21
8	18	16	15	16	17	17	18	18	21	40	21	50	43	56	45	21	18	14	17	14	18	17	17	18
9	17	18	16	17	B	20	16	17	20	28	22	24	B	24	44	41	18	18	14	16	17	15	17	16
10	18	18	20	16	18	16	16	14	18	21	24	43	48	42	43	39	20	20	15	15	16	17	14	15
11	B	17	18	17	16	17	15	14	16	20	21	41	33	48	53	21	16	18	17	15	15	15	15	20
12	17	18	B	17	14	17	18	14	16	33	42	20	56	26	42	22	29	23	15	17	16	20	16	B
13	16	17	20	17	17	17	16	17	17	23	21	22	46	35	21	21	17	23	16	16	16	17	17	18
14	16	20	15	15	15	16	16	22	18	17	21	47	44	42	42	30	18	17	16	16	14	15	14	15
15	16	16	20	17	17	14	15	16	17	18	22	21	44	40	40	40	18	23	16	16	15	15	16	17
16	18	18	16	18	16	15	B	20	16	18	17	18	20	18	21	39	20	22	17	16	16	14	15	18
17	15	66	B	17	18	B	14	21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	17	14	16	15	15	16	17	16	16	16	15	15	16	16	16	16	16	16	16	16	16	15	15
MED	17	18	16	17	17	17	16	17	17	20	22	34	44	41	41	25	18	18	16	16	16	16	16	18
U Q	18	18	20	17	17	18	16	21	19	27	31	46	48	44	43	36	20	21	16	16	16	17	17	20
L Q	16	16	15	16	16	16	15	16	16	18	21	22	29	25	23	21	17	15	15	15	15	15	15	16

HOURLY VALUES OF foF2 AT Okinawa

OCT. 2016

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	37	B	B	30	30	B	30	49	66	66	74	80	92	108	116	117	118	110	95	51	44	B	28	28
2	30	29	34	31	B	B	N	54	62	68	92	81	106	107	100	77	92	94	77	46	40	42	A	53
3	42	40	34	28	N	B	30	61	80	77	92	90	90	108	131	121	98	80	64	A	A	A	A	34
4	34	37	45	36	B	B	N	59	67	70	71	86	118	142	130	107	92	93	78	A	A	46	51	52
5	51	37	42	37	B	B	29	67	67	76	74	96	121	131	140	133	104	100	86	67	53	50	52	60
6	53	46	43	35	32	B	34	57	59	75	77	70	80	97	97	91	92	80	72	63	A	42	43	B
7	44	41	37	37	32	34	36	52	63	68	83	81	80	88	91	84	83	90	96	87	73	52	54	54
8	52	58	46	43	34	35	34	60	60	77	100	102	91	104	115	110	97	93	A	67	52	52	54	48
9	52	52	53	52	35	34	38	66	67	67	80	82	91	95	102	100	86	86	86	71	43	44	41	42
10	47	51	53	60	51	29	29	58	70	77	87	105	110	105	107	104	85	90	87	98	74	53	54	43
11	37	34	35	34	34		37	69	65	75	85	82	92	107	108	110	110	106	97	A	52	42	45	40
12	41	37	37	46	37	B	B	53	72	68	85	110	102	110	121	118	107	98	80	72	74	58		46
13	38	40	38	42	42	26	B	55	58	67	80	98	105	111	125	122	106	94	77	58	58	52	52	54
14	52	50	38	A	40	26	41	67	82	86	101	121	100	84	84	86	78	71	68	67	51	48	A	A
15	40	A	36	38	A	34	29	51	73	43	A	96	95	101	85	90	84	77	67	46	A	40	A	45
16	40		B	34	B	B	B	47	63	79	88	90	107	141	148	143	130	125	107	78	43	42	37	A
17	30	A	36	41	B	B	B	60	61	67	72	89	90	104	107	93	92	76	67	51	42	42	A	39
18	38	40	38	36	34	B	B	51	74	81	78	82	87	106	121	110	113	94	72	52	41	38	A	38
19	38	38	31	31	N	B	B	50	64	75	80	82	75	75	110	94	71	70	82	73	51	A	A	B
20	B	B	B	33	30	B	B	50	61	73	80	78	84	100	114	130	105	92	79	72	43	35	37	36
21	30	34	34	38	N	B	A	50	65	67	75	74	76	84	104	105	107	75	71	52	44	42	44	42
22	46	40	36	34	A	B	B	50	66	67	72	77	77	85	88	92	76	92	65	52	A	A	A	37
23	36	37	B	B	34	B	B	53	73	75	67	96	98	106	131	136	102	78	51	51	43	47	42	B
24	B	40	B	31	30	29	30	65	67	58	71	87	77	78	92	104	97	76	58	50	43	47	37	A
25	B	30	31	34	32	32		54	61	61	97	122	110	82	88	100	71	66	52	43	52	54	47	
26	30	31	42	N		B	B	58	81	84	100	147	72	72	A	102	111	97	62	41	44	44	39	44
27	A	A	A	40	A	B	B	52	67	78	88	122	81	82	102	100	90	72	68	54	A	36	40	41
28	40	A	A	A	B	B	N	46	82	102	104	110	81	77	100	102	86	66	55	45	44	44	40	A
29	A	A		31	B	B	B	50	72	73	92	95	91	107	140	123	97	77	102	77		52	42	40
30	34		37	37	B	B	B	54	67	86	98	78	84	95	83	82	76	64	55	42	A	A	40	34
31	40	41	28	B	B	B	B	54	60	82	114	127	87	106	105	90	78	64	44	45	46	45	45	43
	00	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	22	23	26	15	9	12	31	31	31	30	31	31	31	30	31	31	31	30	28	23	26	22	23
MED	40	40	37	36	34	32	32	54	67	75	84	90	91	104	107	104	92	86	72	53	44	44	42	42
U Q	46	41	42	40	37	34	36	60	72	78	92	105	102	107	121	118	106	94	86	71	52	52	51	48
L Q	36	37	34	33	32	27	29	50	62	67	75	81	81	84	97	92	84	75	64	48	43	42	40	38

HOURLY VALUES OF fEs AT Okinawa

OCT. 2016

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	B	B	G	G	B	G	32	G	40	48	43	G	G	G	G	G	34	G	G	G	B	G	G
2	G	G	G	G	B	B	G	28	35	G	49	47	G	45	G	46	46	99	36	G	G	32	71	88
3	49	G	G	G	G	B	G	30	41	45	49	46	51	49	64	44	41	G	45	44	57	94	57	23
4	G	G	G	40	B	B	G	30	40	43	G	48	42	48	54	47	G	38	40	90	69	26	27	G
5	G	G	G	G	B	B	G	G	38	61	51	64	48	G	41	41	37	33	G	29	73	34	28	32
6	34	32	G	G	G	B	G	G	G	46	50	G	G	47	G	G	47	58	39	46	59	36	34	B
7	G	27	G	G	G	G	G	G	34	G	47	G	56	G	G	44	40	32	27	38	33	G	G	G
8	G	G	G	G	G	G	G	32	G	G	42	G	44	G	G	40	G	G	90	49	46	46	G	28
9	24	G	G	G	G	G	G	32	35	G	G	G	G	55	48	45	42	G	G	G	G	G	G	G
10	G	G	26	26	29	26	G	35	G	42	46	G	G	G	G	G	G	34	G	38	25	G	G	G
11	G	G	G	G	G	G	G	G	37	G	G	42	47	G	G	51	G	56	38	95	38	G	24	G
12	G	G	G	G	36	B	B	36	G	40	49	52	47	G	G	G	G	G	G	G	G	G	G	G
13	G	G	G	G	G	G	B	G	39	46	49	57	58	49	G	45	41	G	G	G	G	G	G	G
14	G	G	G	24	G	G	G	G	G	G	G	G	48	49	48	44	59	40	G	34	25	40	50	50
15	26	24	G	G	29	24	26	30	37	51	103	77	G	75	63	52	50	33	G	25	49	58	47	28
16	G	G	B	G	B	B	B	G	G	G	G	48	42	G	G	G	G	G	G	11	G	G	G	32
17	25	25	G	G	B	B	B	30	G	50	G	48	68	43	56	52	52	70	G	G	36	33	40	33
18	36	27	34	G	G	B	B	G	G	G	G	G	G	G	G	41	46	64	51	43	26	G	34	G
19	G	G	G	G	G	B	B	34	42	48	46	G	G	G	47	47	40	45	35	32	38	48	28	B
20	B	B	B	G	G	B	B	G	36	43	44	G	G	44	42	38	43	G	26	34	25	27	27	G
21	G	G	G	G	G	B	34	G	37	40	G	G	G	42	G	40	37	51	46	25	34	G	G	G
22	G	G	G	49	30	B	B	28	36	G	46	G	G	G	G	G	41	38	G	11	29	26	42	G
23	G	G	B	B	G	B	B	G	G	38	42	48	48	48	41	43	41	31	G	G	26	G	30	B
24	B	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	38	G	G	G	29
25	B	G	G	G	G	G	G	G	38	41	49	53	G	G	48	40	G	G	G	G	G	G	G	G
26	G	G	G	G	G	B	B	30	46	55	58	107	83	49	78	57	39	36	27	27	27	58	34	36
27	49	40	50	31	34	B	B	26	42	52	47	52	58	74	58	67	48	46	33	32	36	G	30	G
28	G	40	42	26	B	B	G	G	36	48	G	G	G	G	G	G	G	G	G	G	G	G	32	36
29	40	41	G	G	B	B	B	33	37	G	G	G	G	G	G	G	37	G	G	G	G	33	30	G
30	24	G	G	G	B	B	B	28	40	G	G	G	48	G	46	37	54	49	31	33	41	34	G	G
31	G	G	G	B	B	B	B	28	34	37	40	44	G	45	G	G	34	44	G	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	26	29	22	10	17	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	28
MED	G	G	G	G	G	G	G	28	36	40	44	42	G	G	G	41	40	34	G	27	26	14	27	G
U Q	24	24	G	G	G	G	G	30	38	46	49	48	48	48	48	46	46	46	36	38	38	34	34	30
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

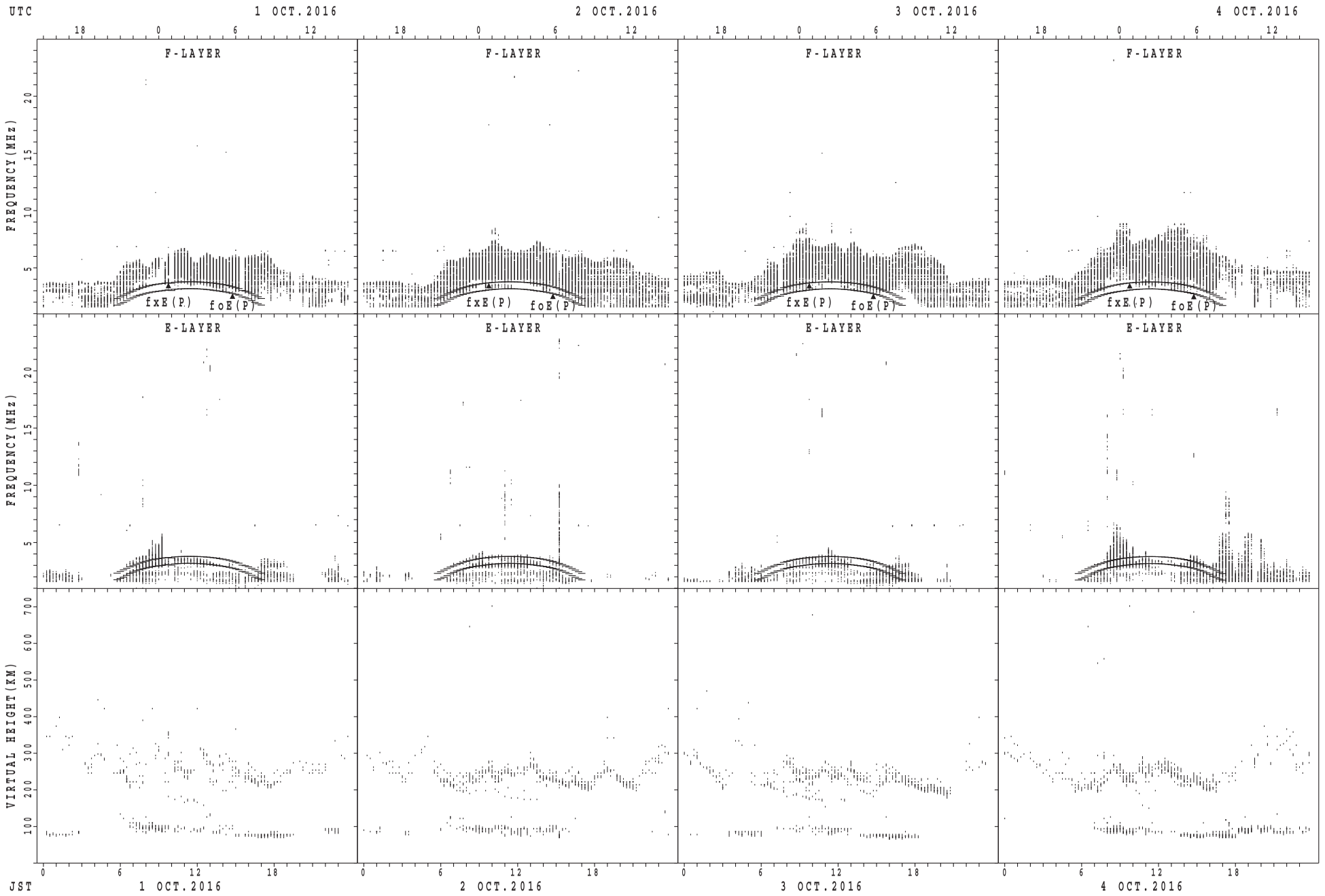
HOURLY VALUES OF fmin AT Okinawa

OCT. 2016

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

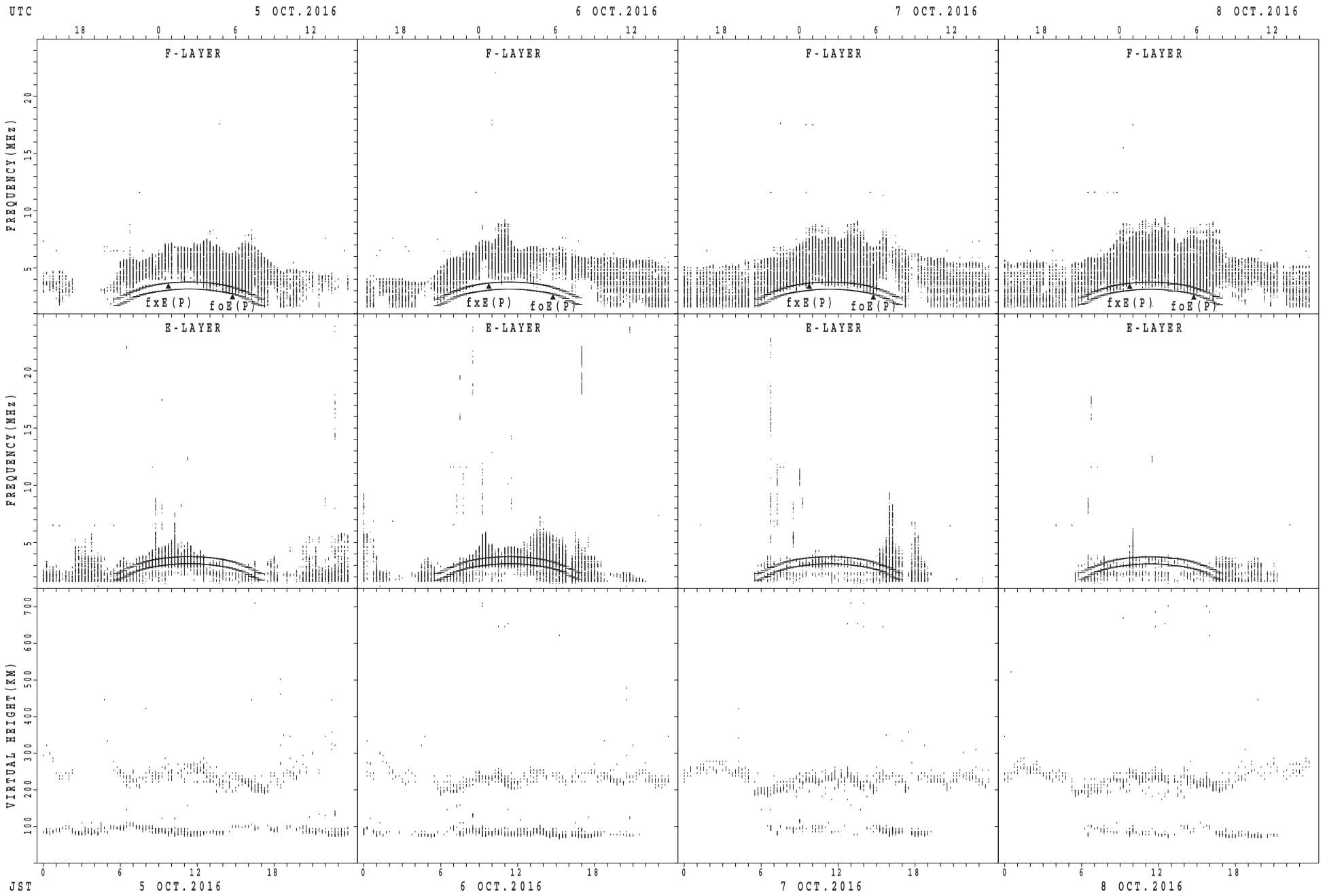
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	17	B	B	15	20	B	15	15	14	20	28	44	44	24	21	40	14	15	17	17	15	B	15	17
2	17	15	17	14	B	B	17	14	16	18	22	27	29	21	41	20	28	14	14	14	15	15	14	14
3	14	14	15	15	14	B	16	14	14	20	28	32	35	34	32	22	20	18	15	15	14	14	14	17
4	14	16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

SUMMARY PLOTS AT Wakkanai

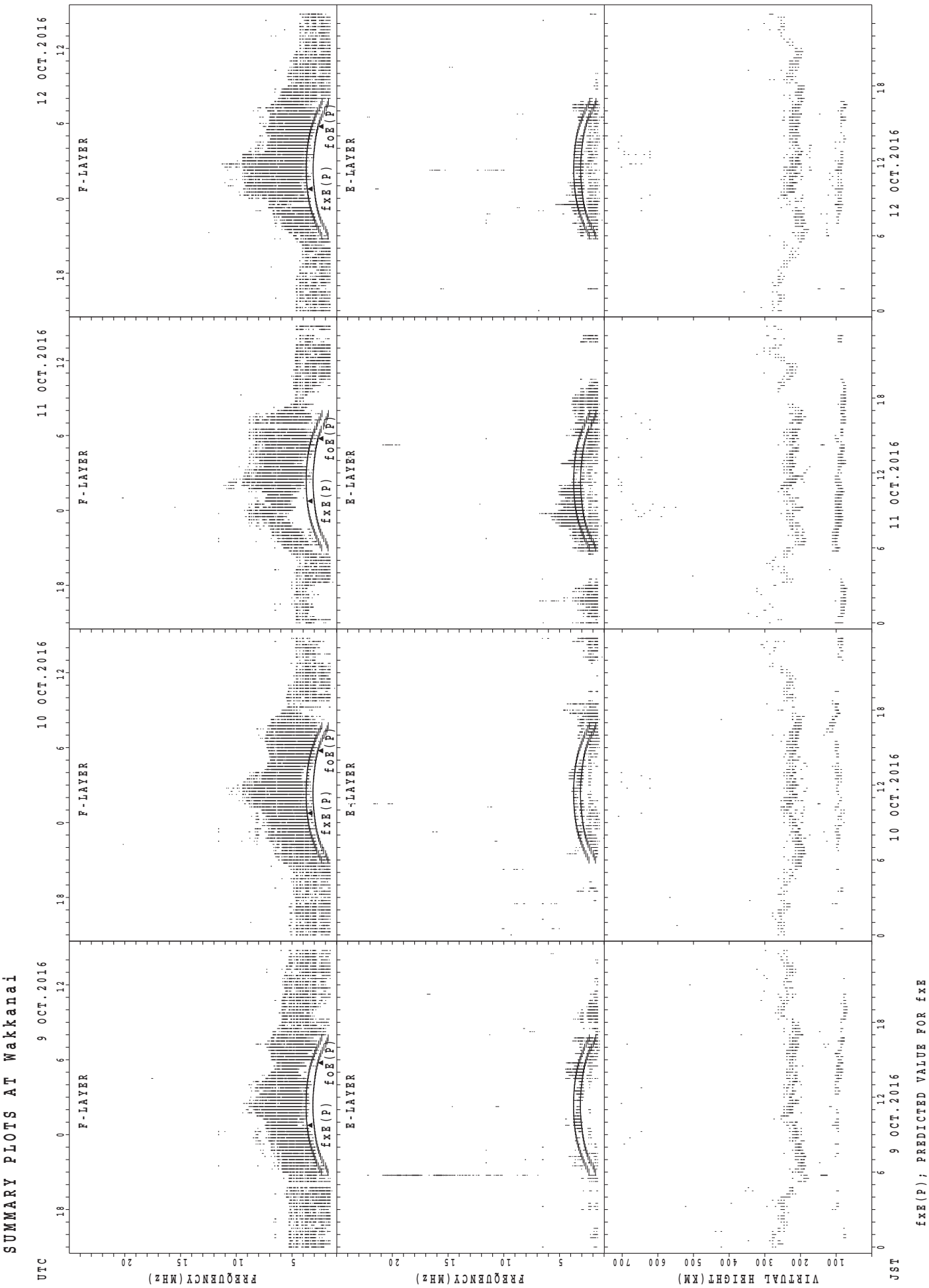


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

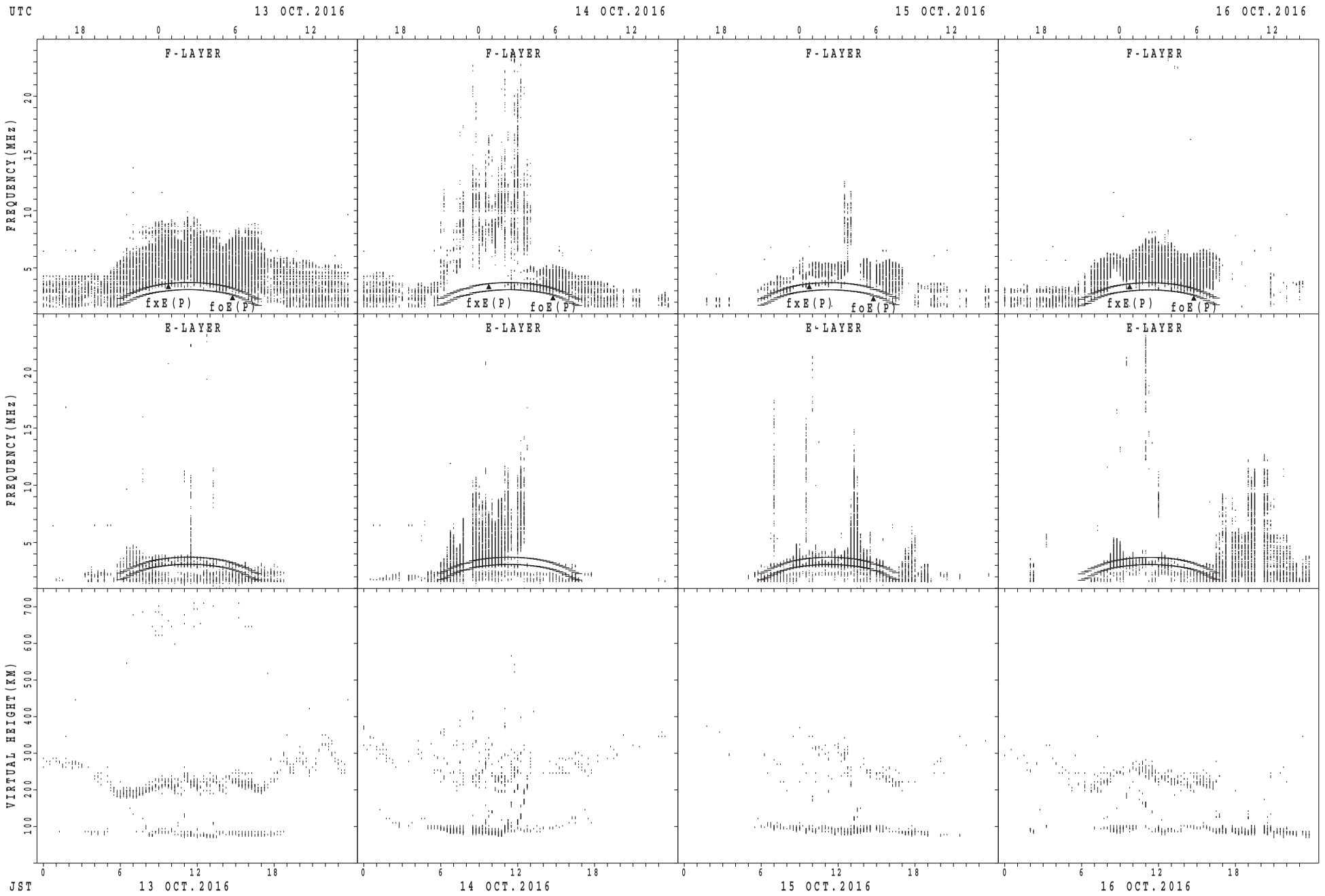
SUMMARY PLOTS AT Wakkanai



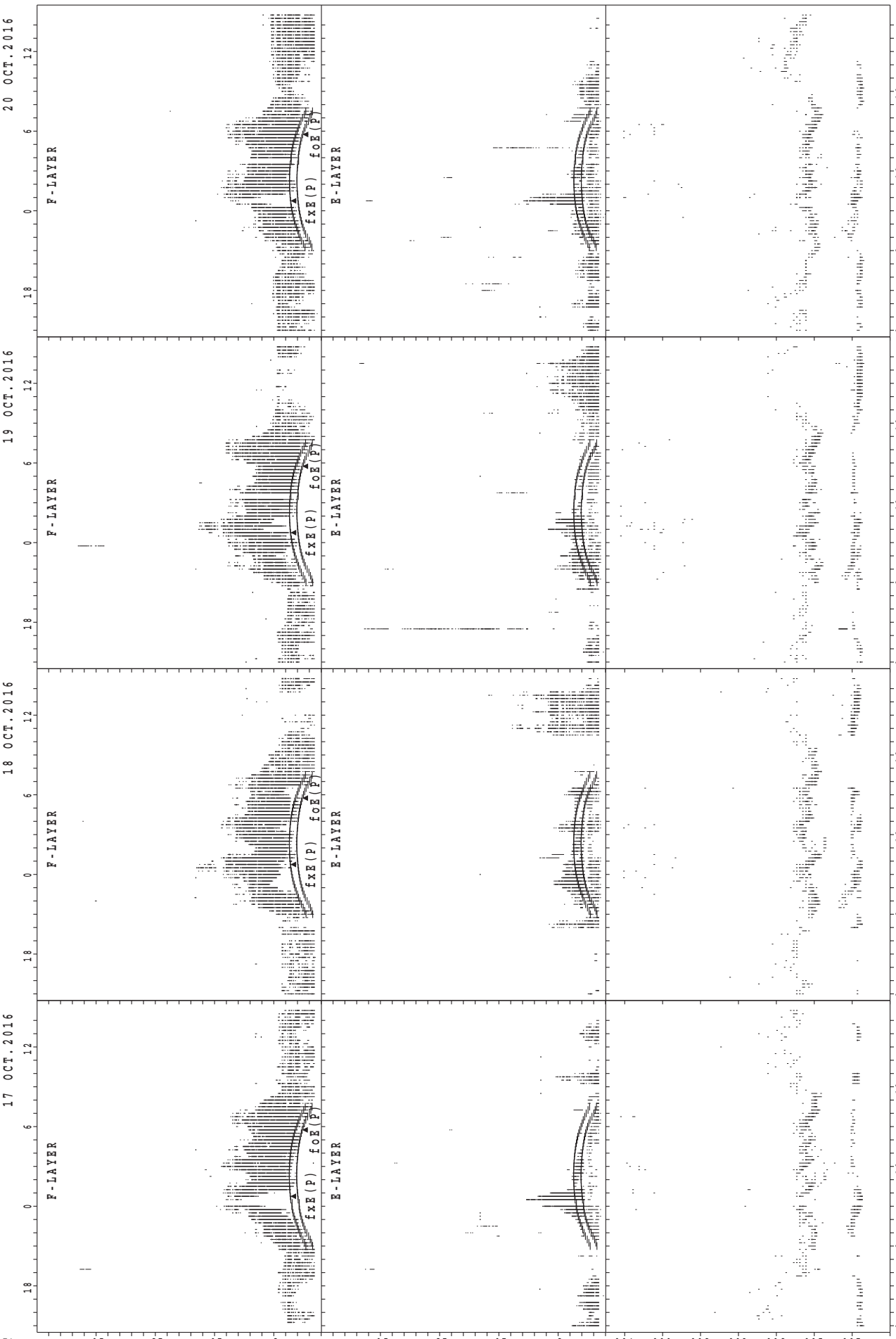
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
9 OCT.2016
10 OCT.2016
11 OCT.2016
12 OCT.2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

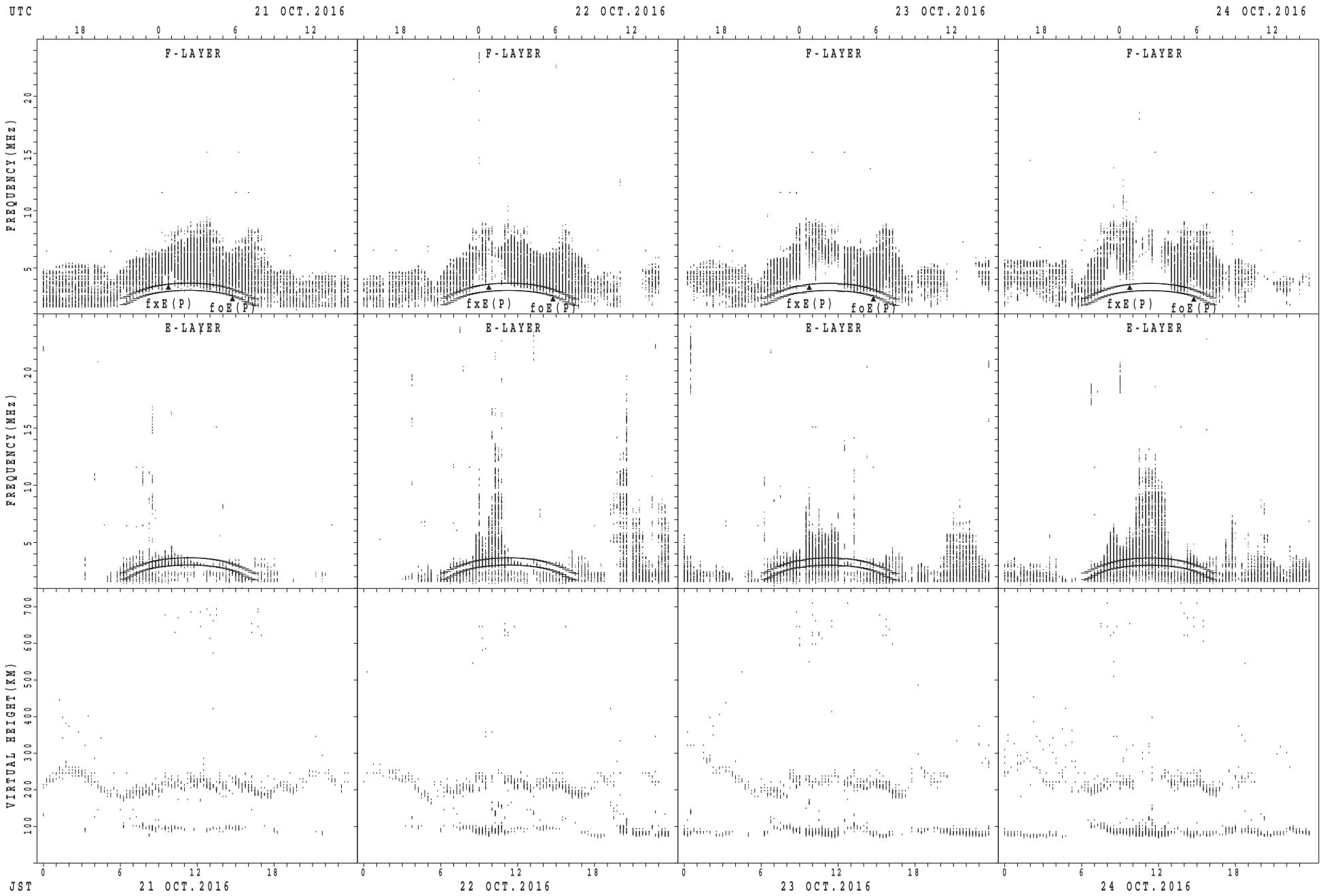
SUMMARY PLOTS AT Wakkanai



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

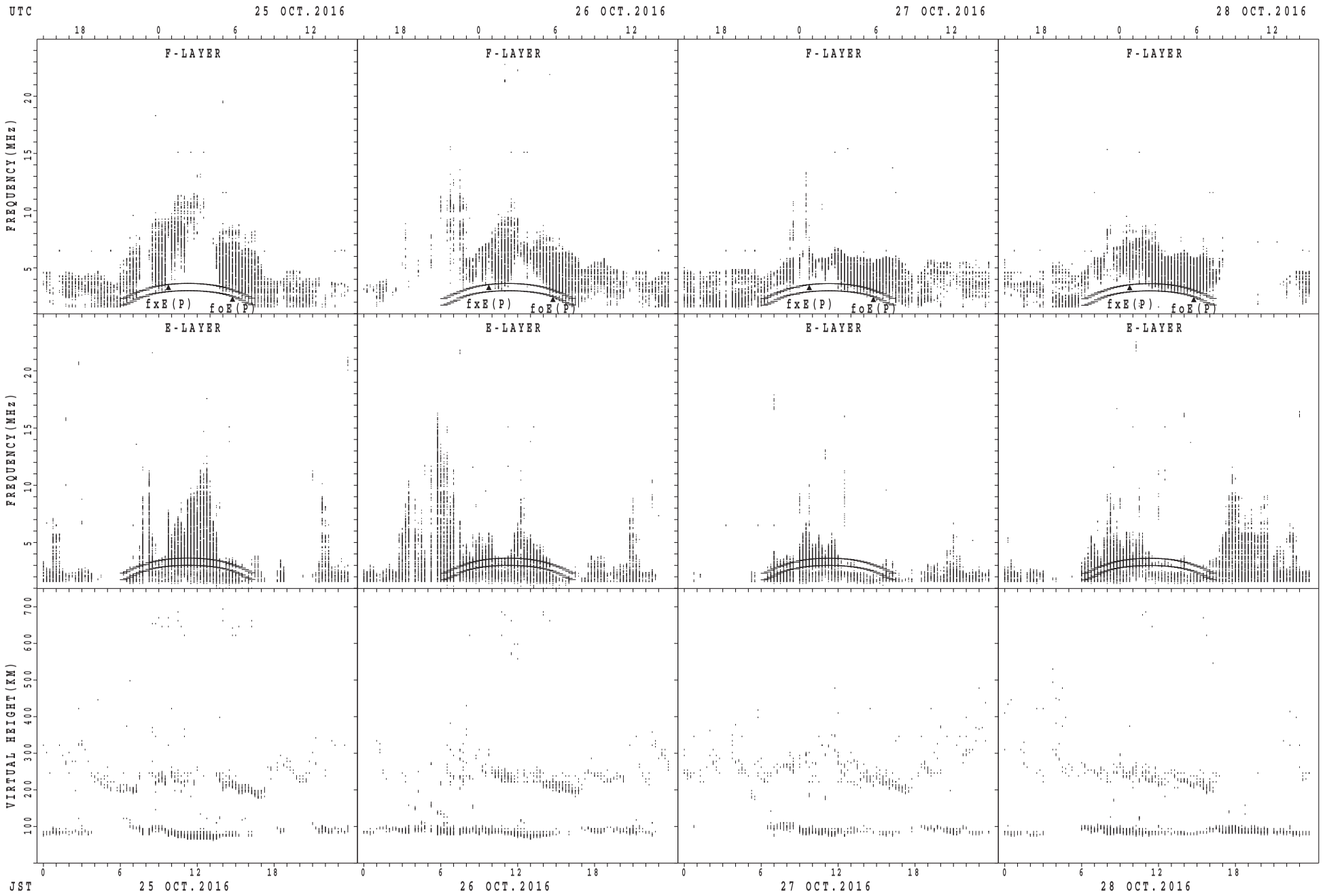

SUMMARY PLOTS AT Wakkanai
UTC
JST
17 OCT.2016
18 OCT.2016
19 OCT.2016
20 OCT.2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

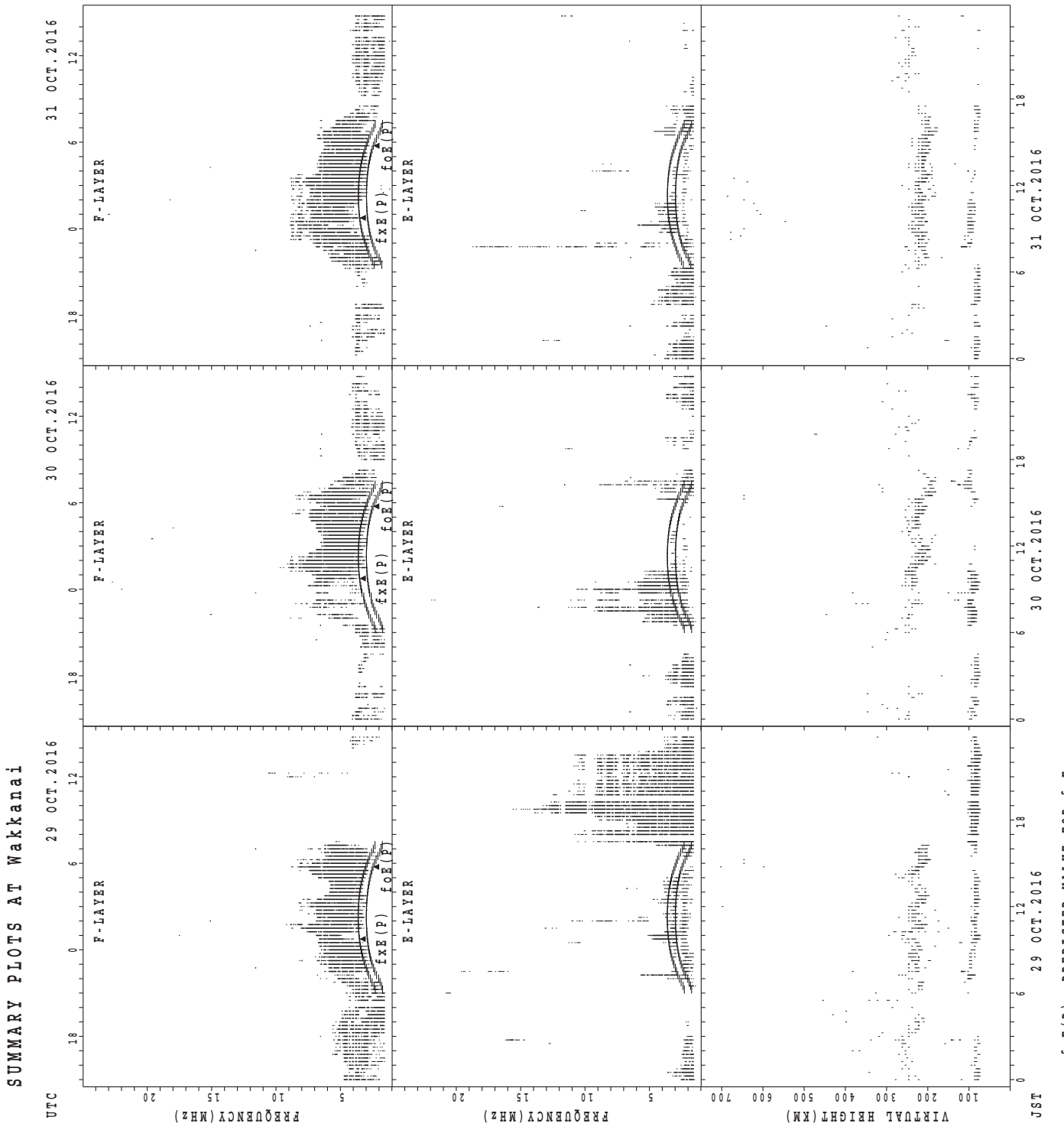


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

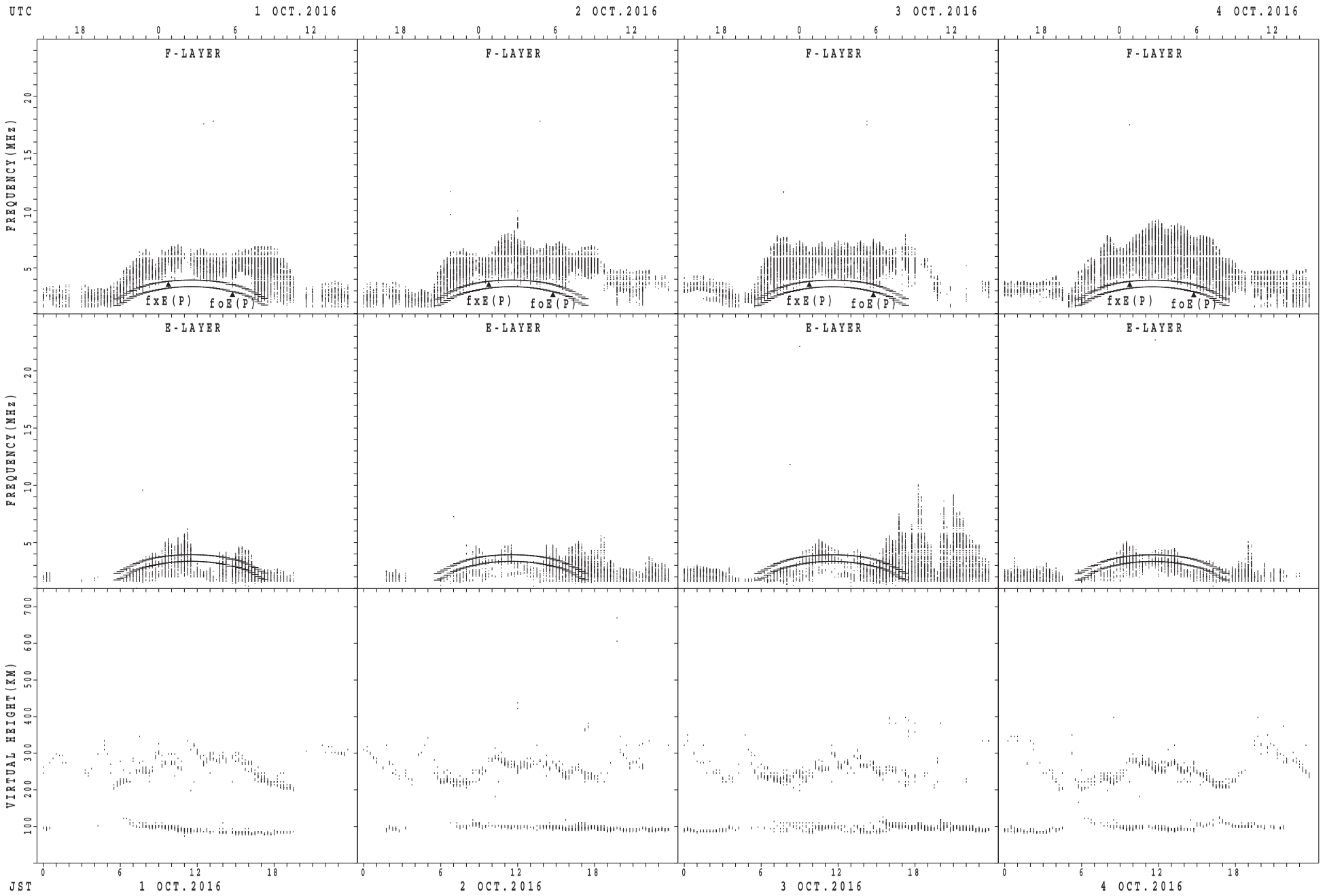
SUMMARY PLOTS AT Wakkanai



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

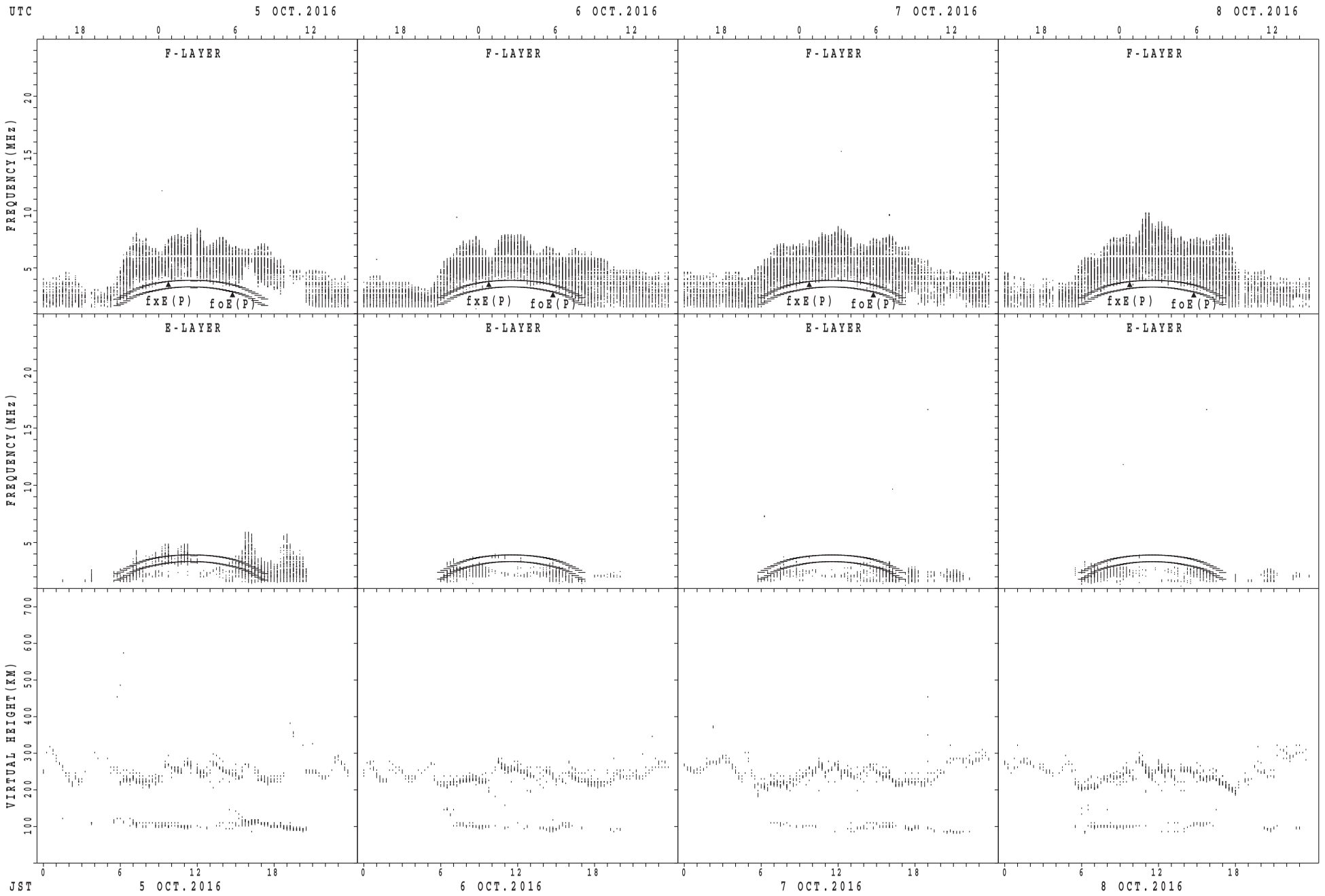

SUMMARY PLOTS AT Wakkanai
UTC
JST
29 OCT.2016
30 OCT.2016
31 OCT.2016
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



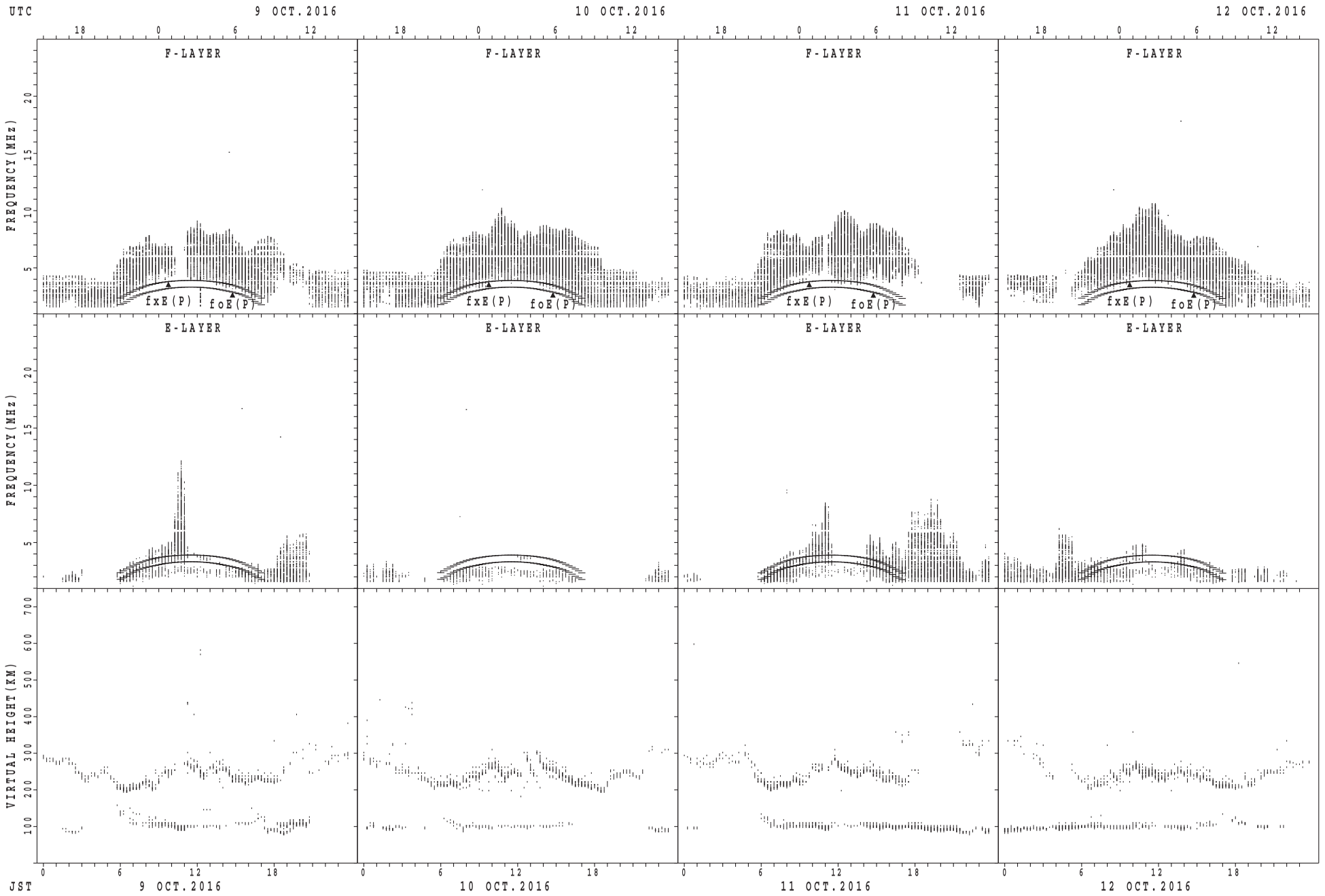
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



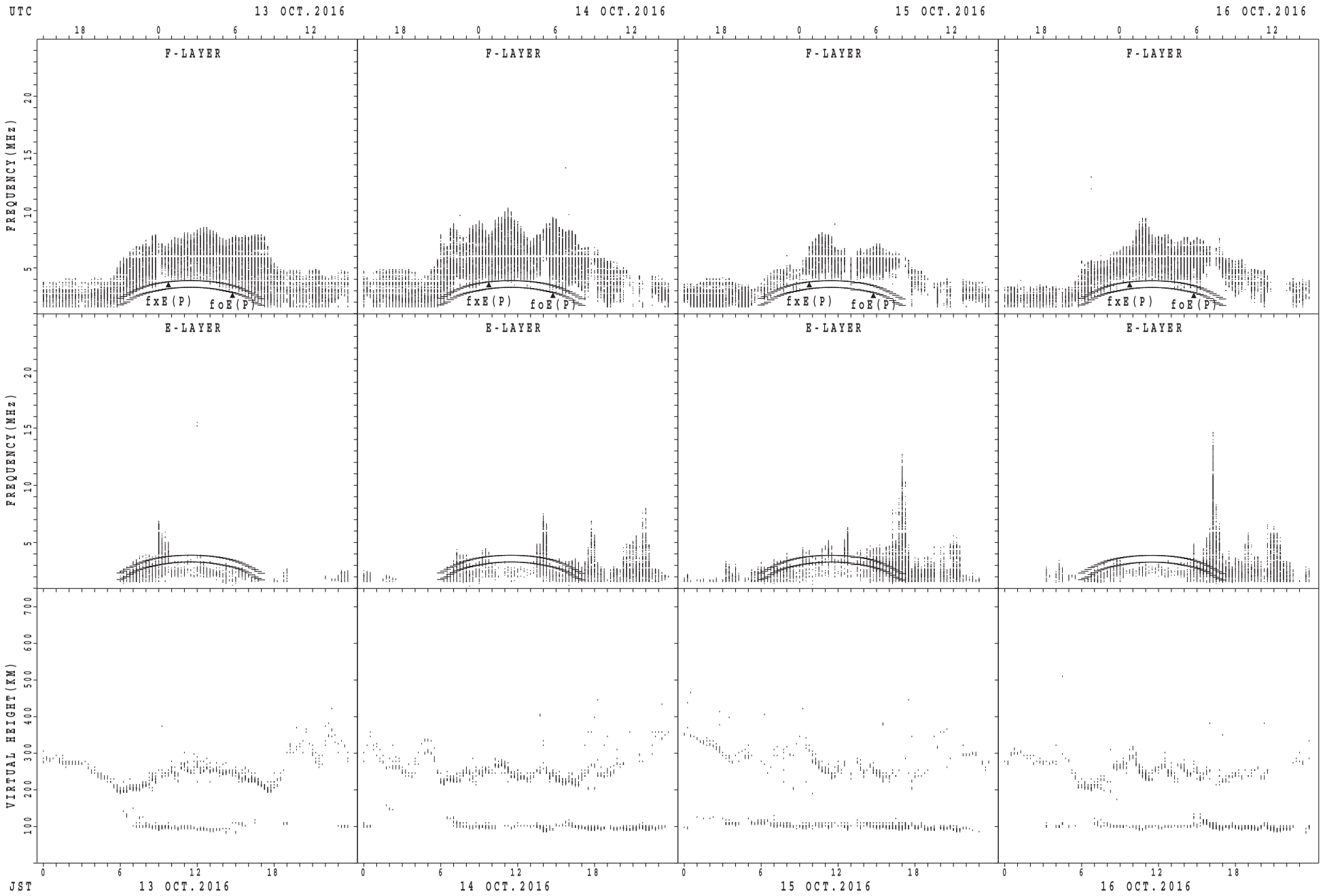
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



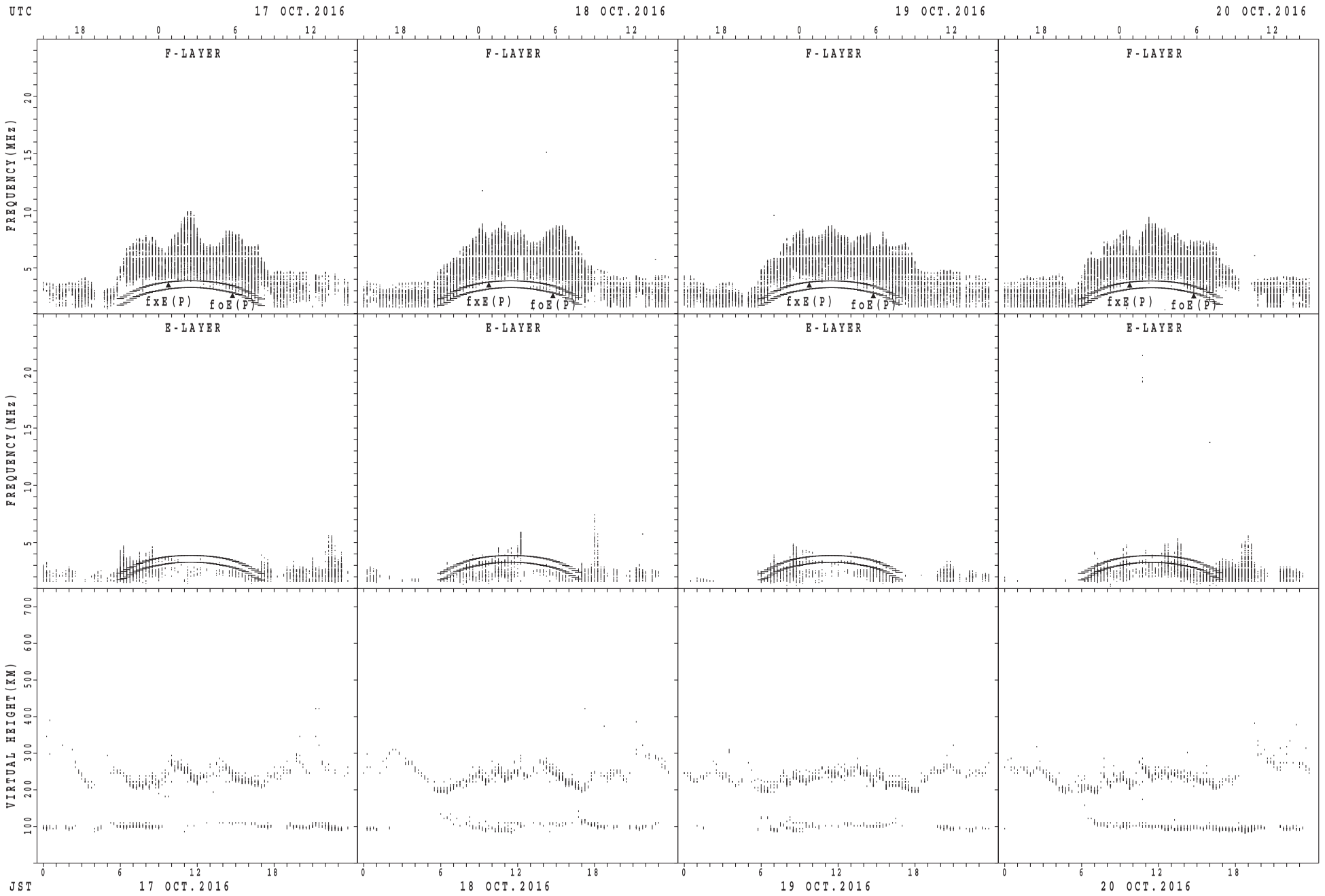
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



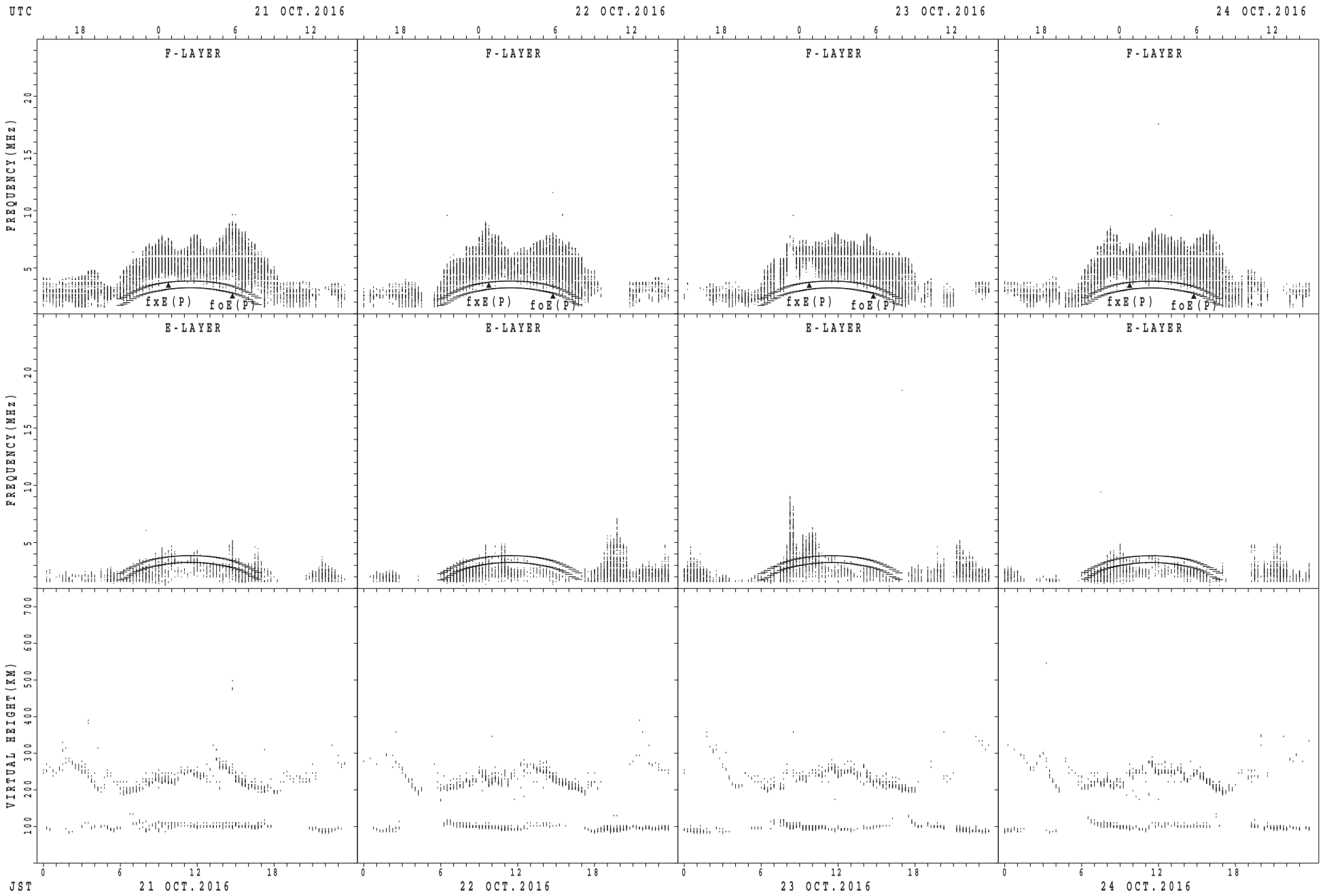
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



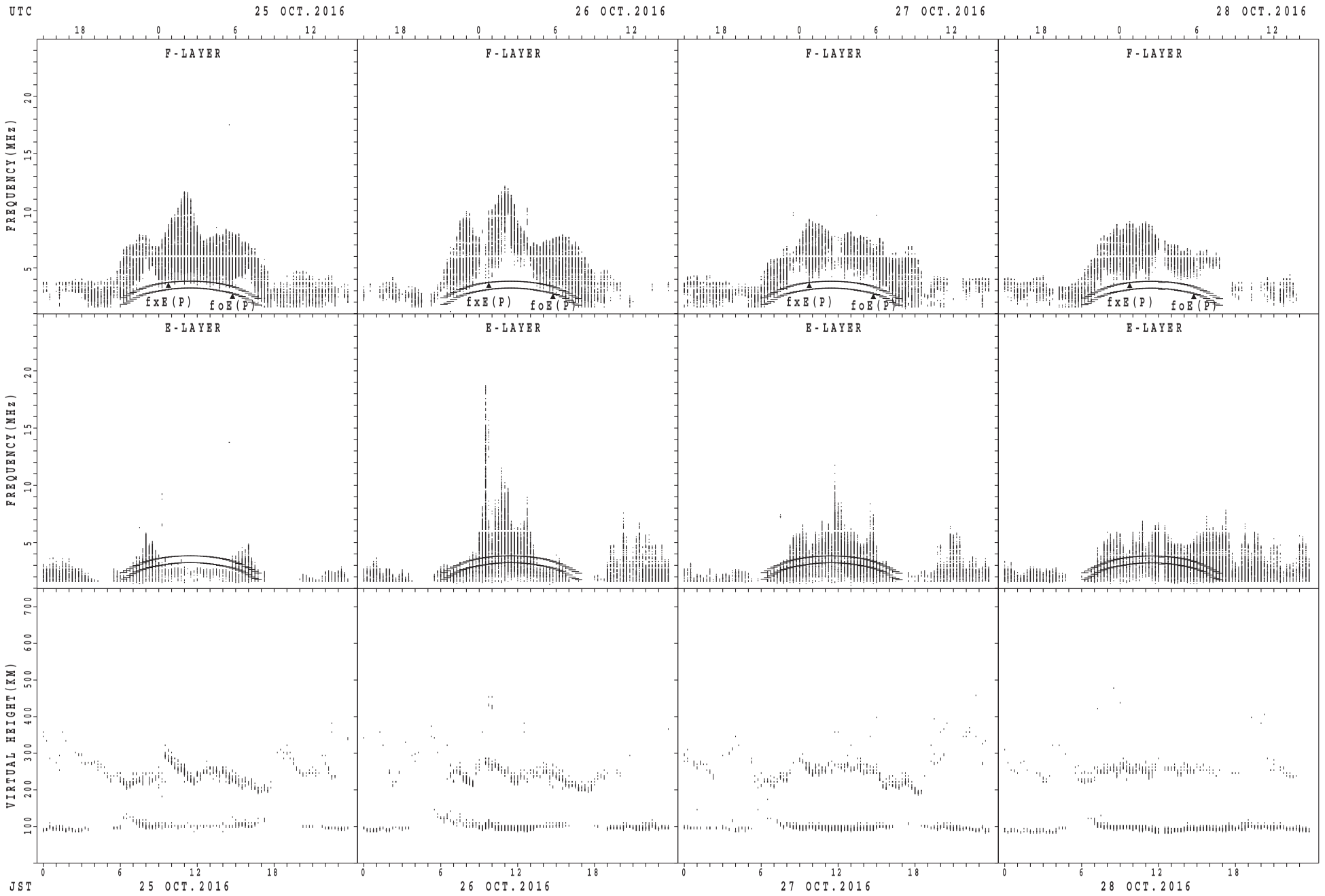
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



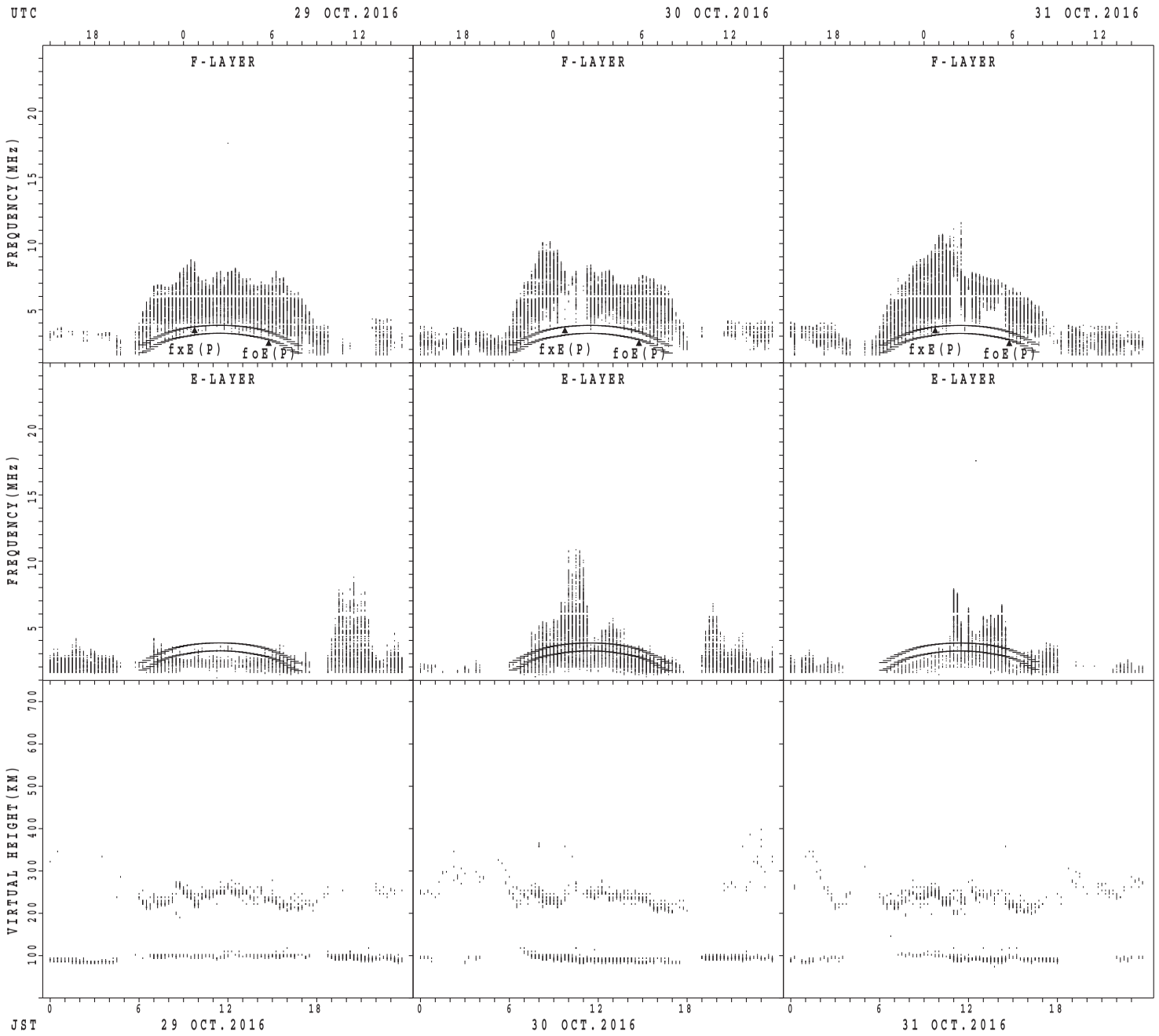
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

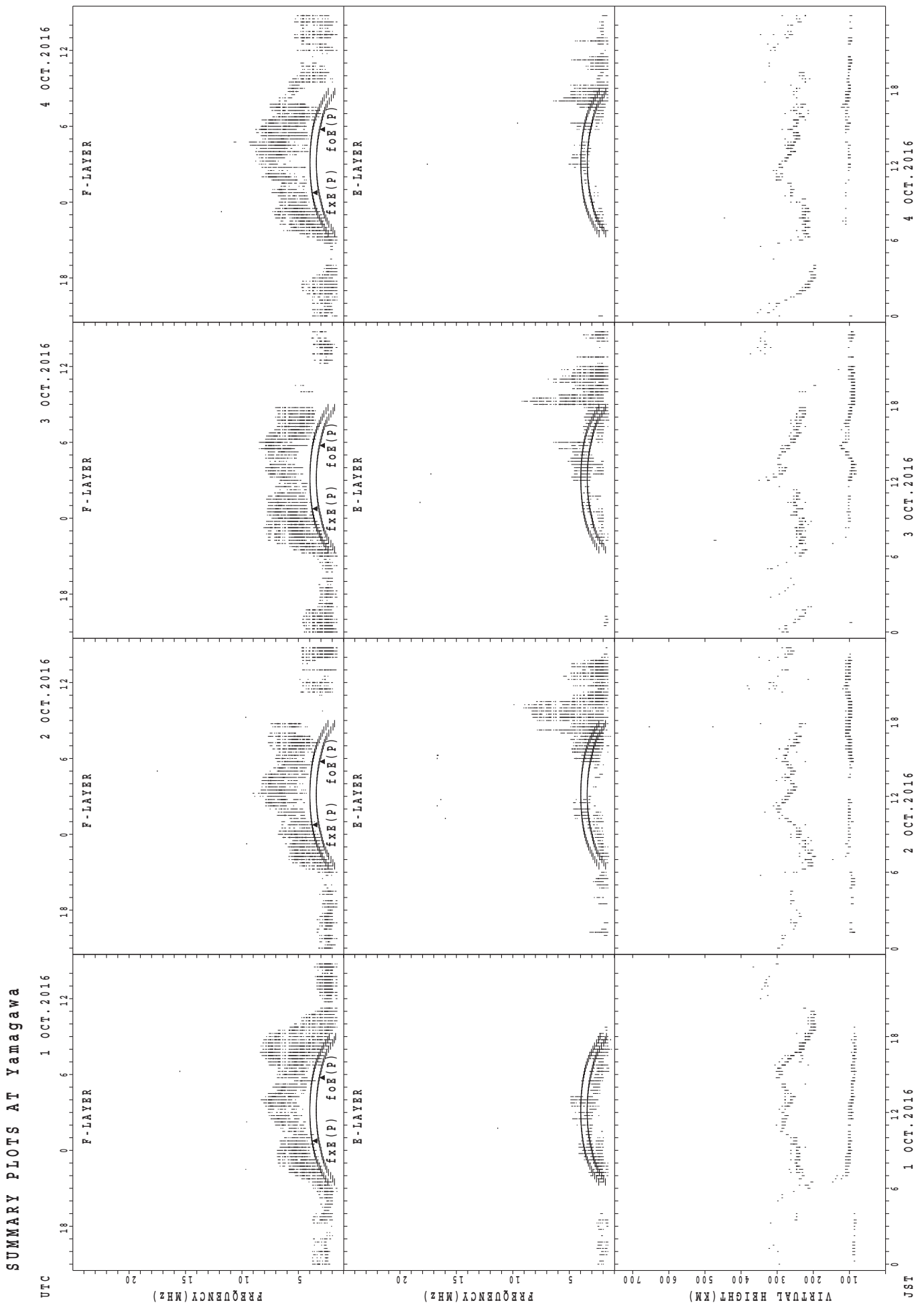


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

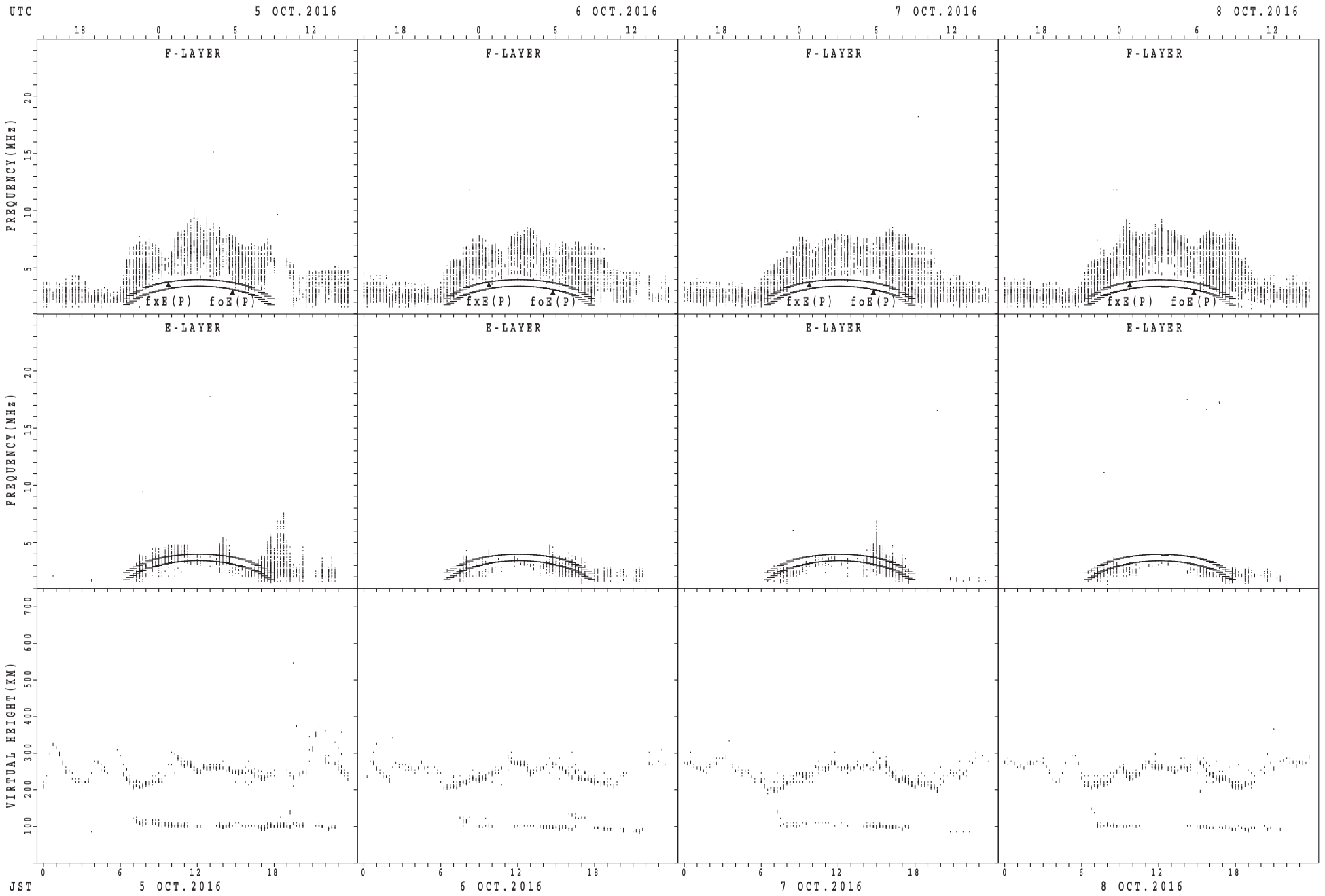
SUMMARY PLOTS AT Kokubunji



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

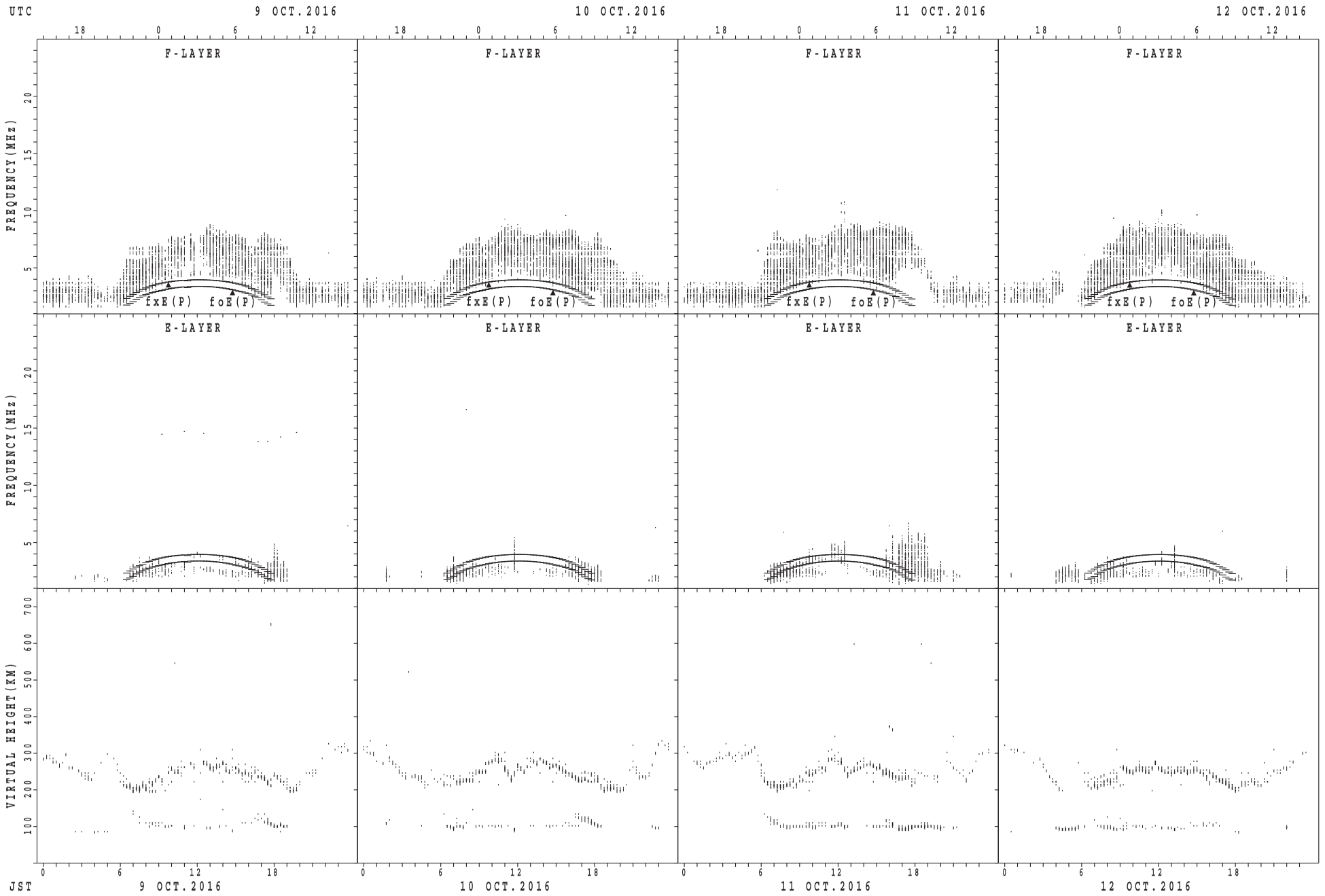

SUMMARY PLOTS AT Yamagawa
UTC
JST
1 OCT.2016
2 OCT.2016
3 OCT.2016
4 OCT.2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



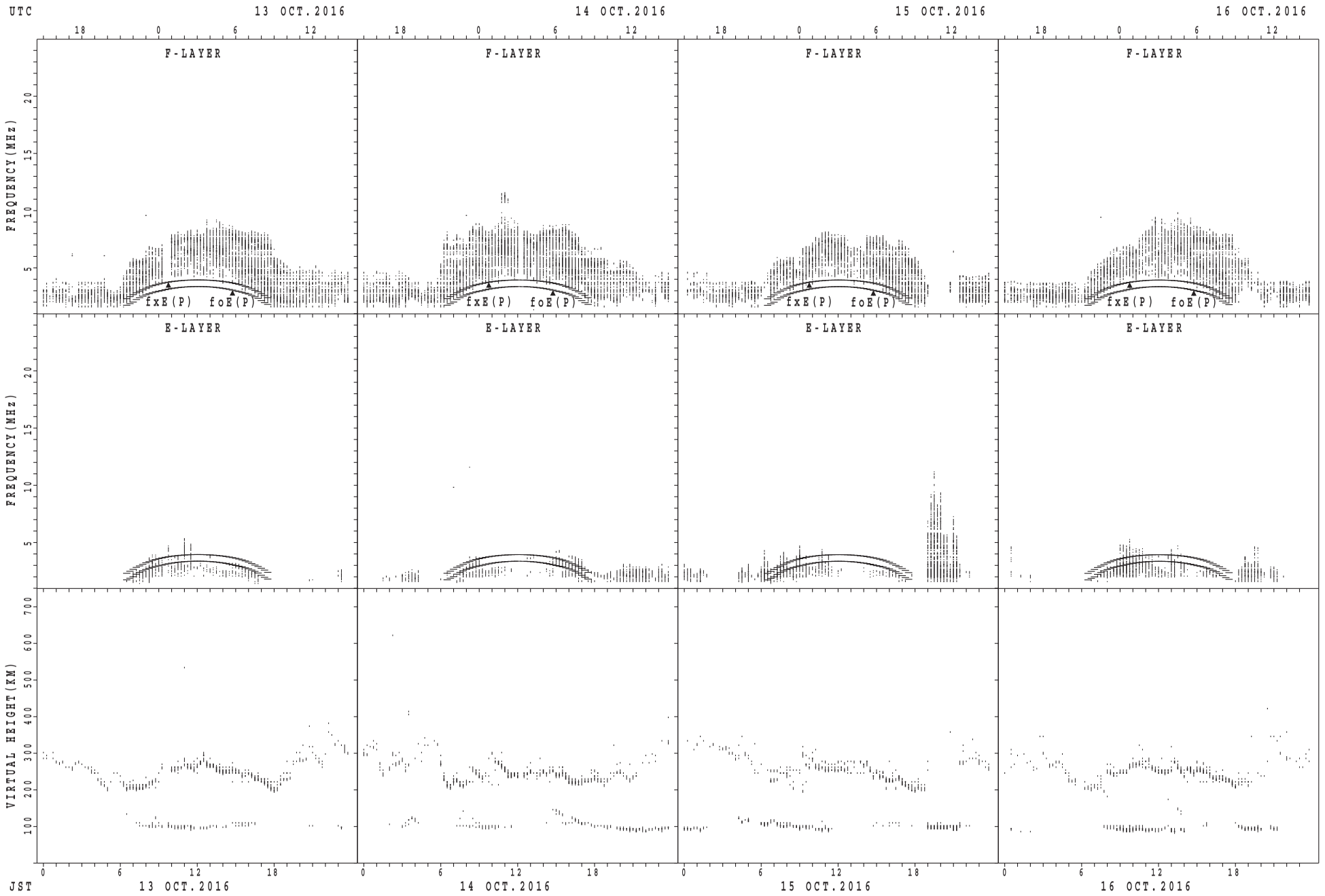
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



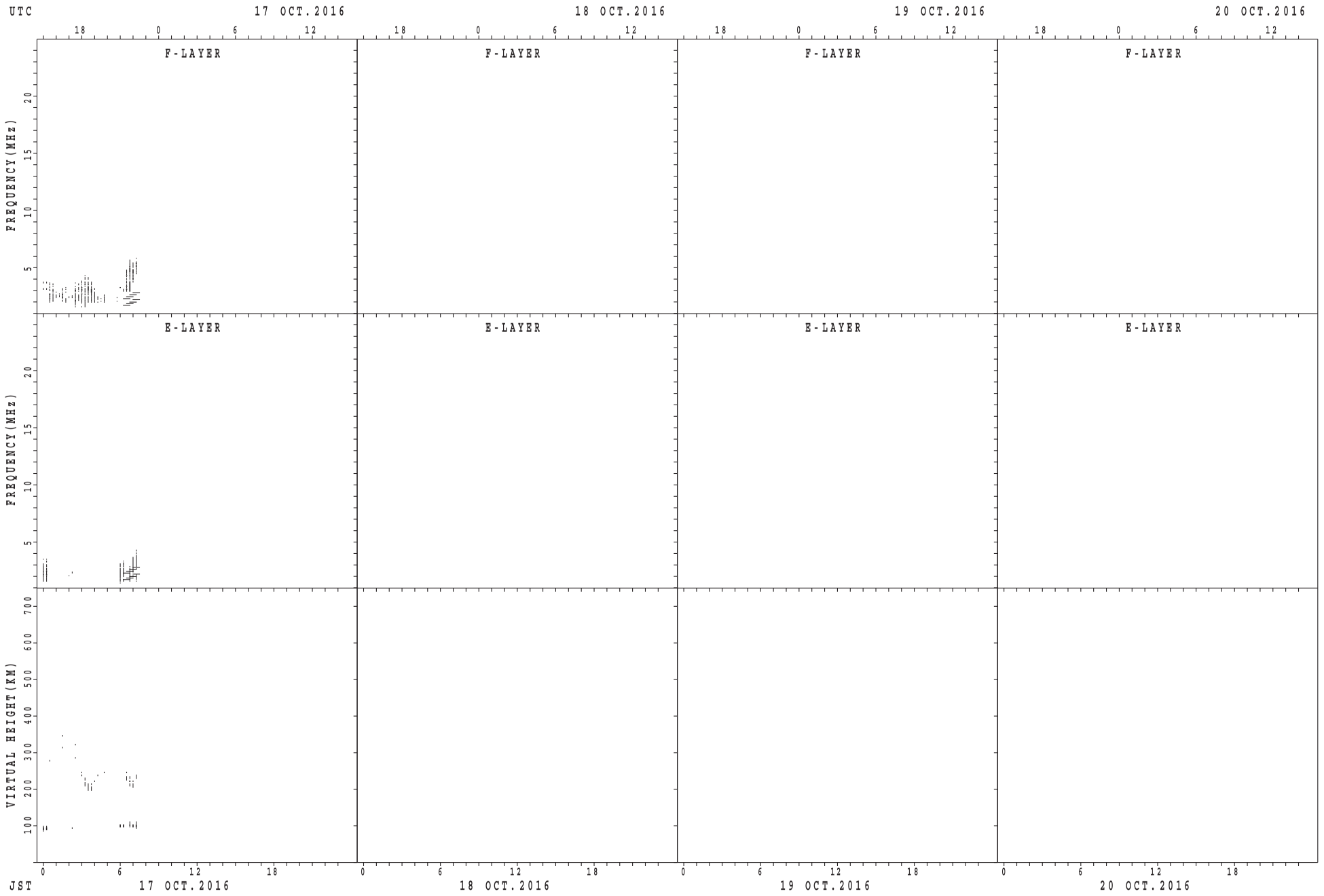
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



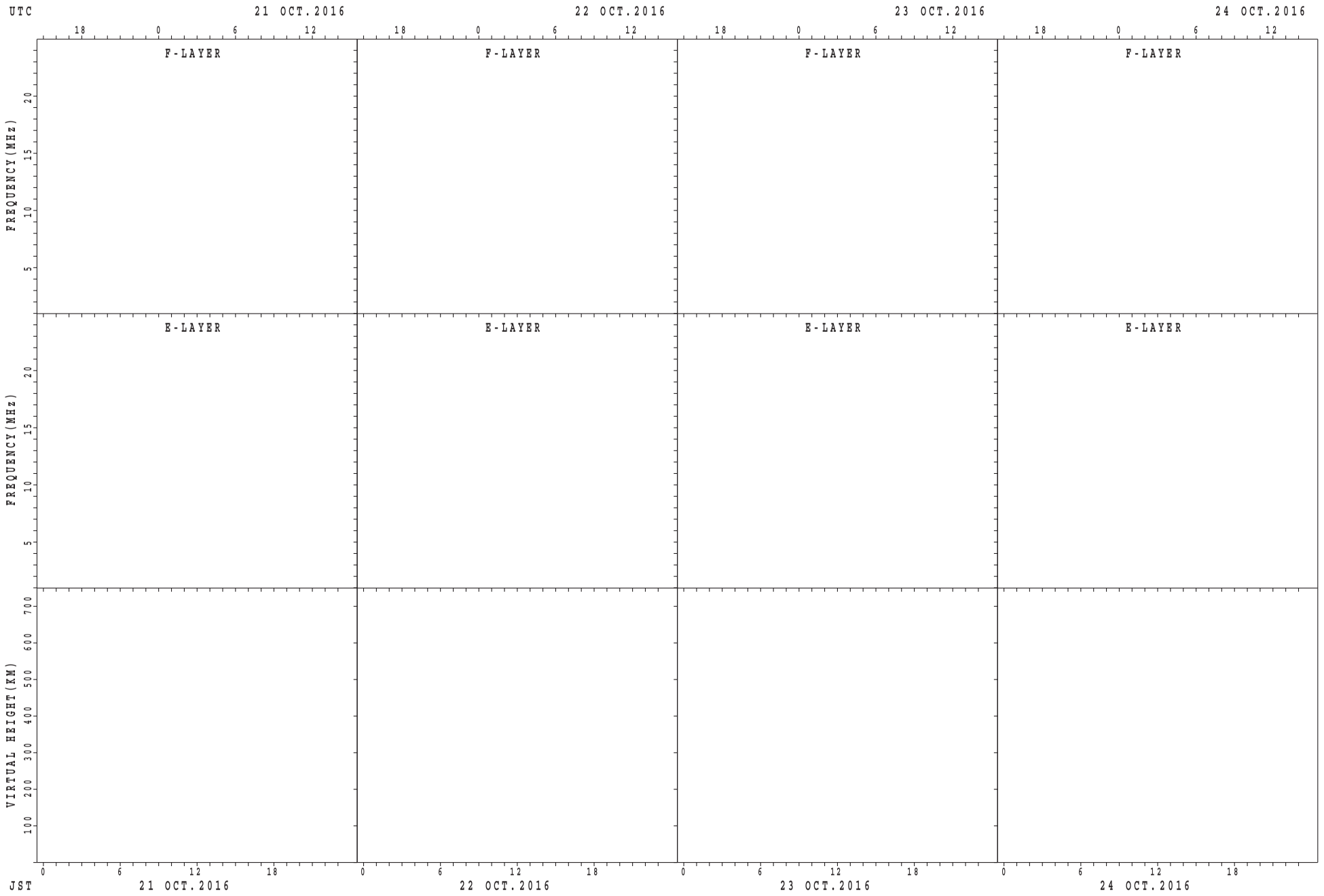
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



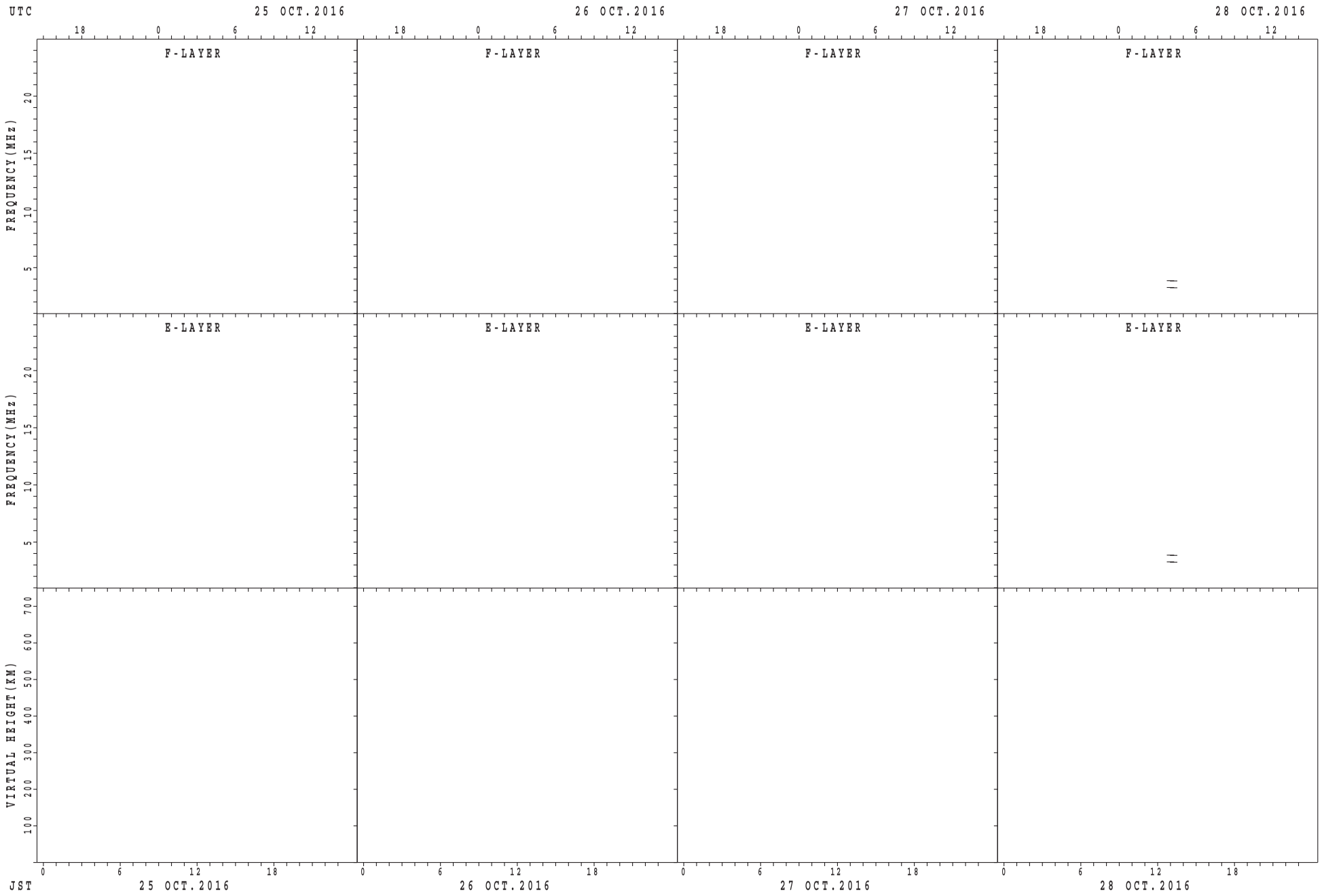
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



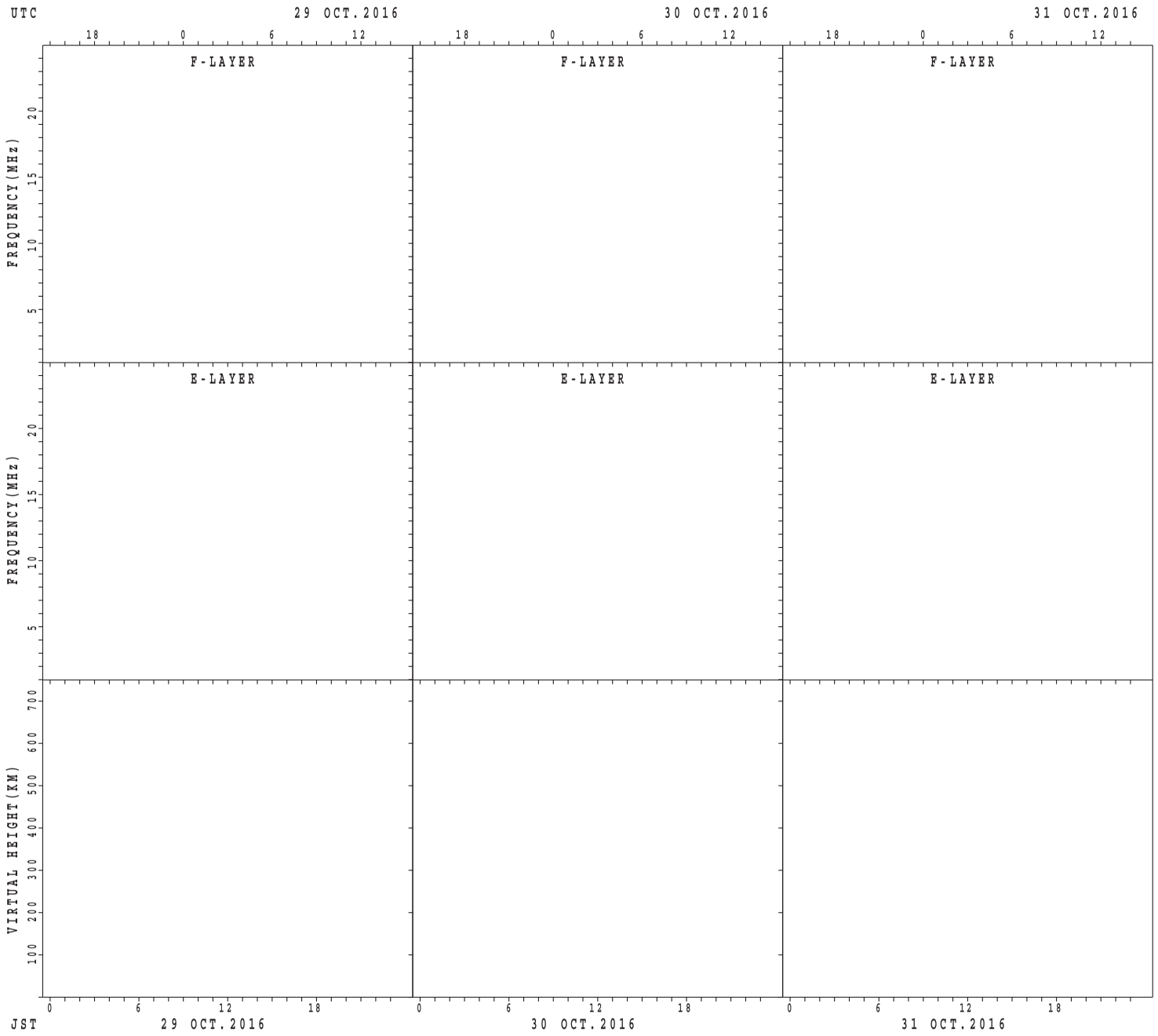
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



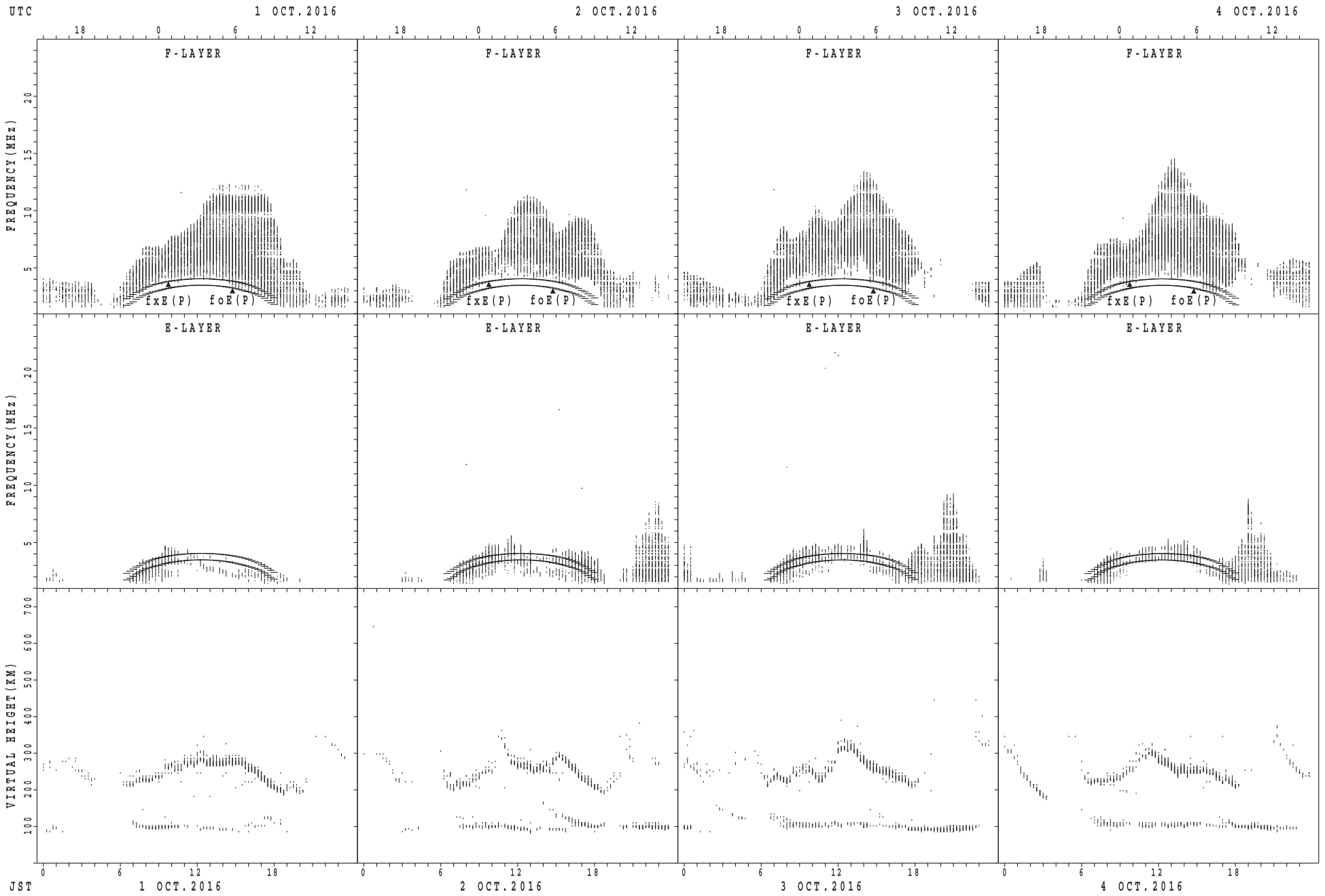
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



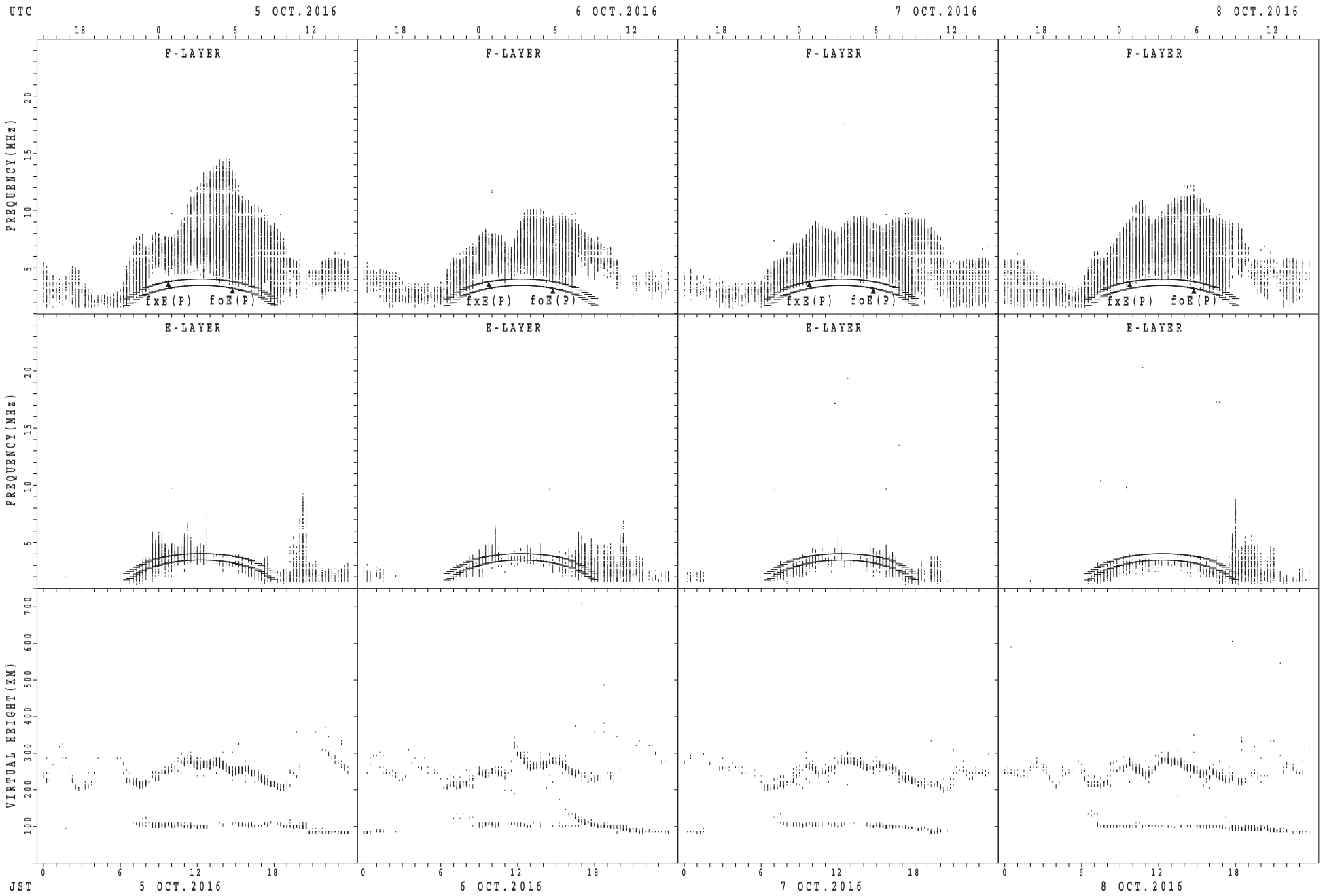
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



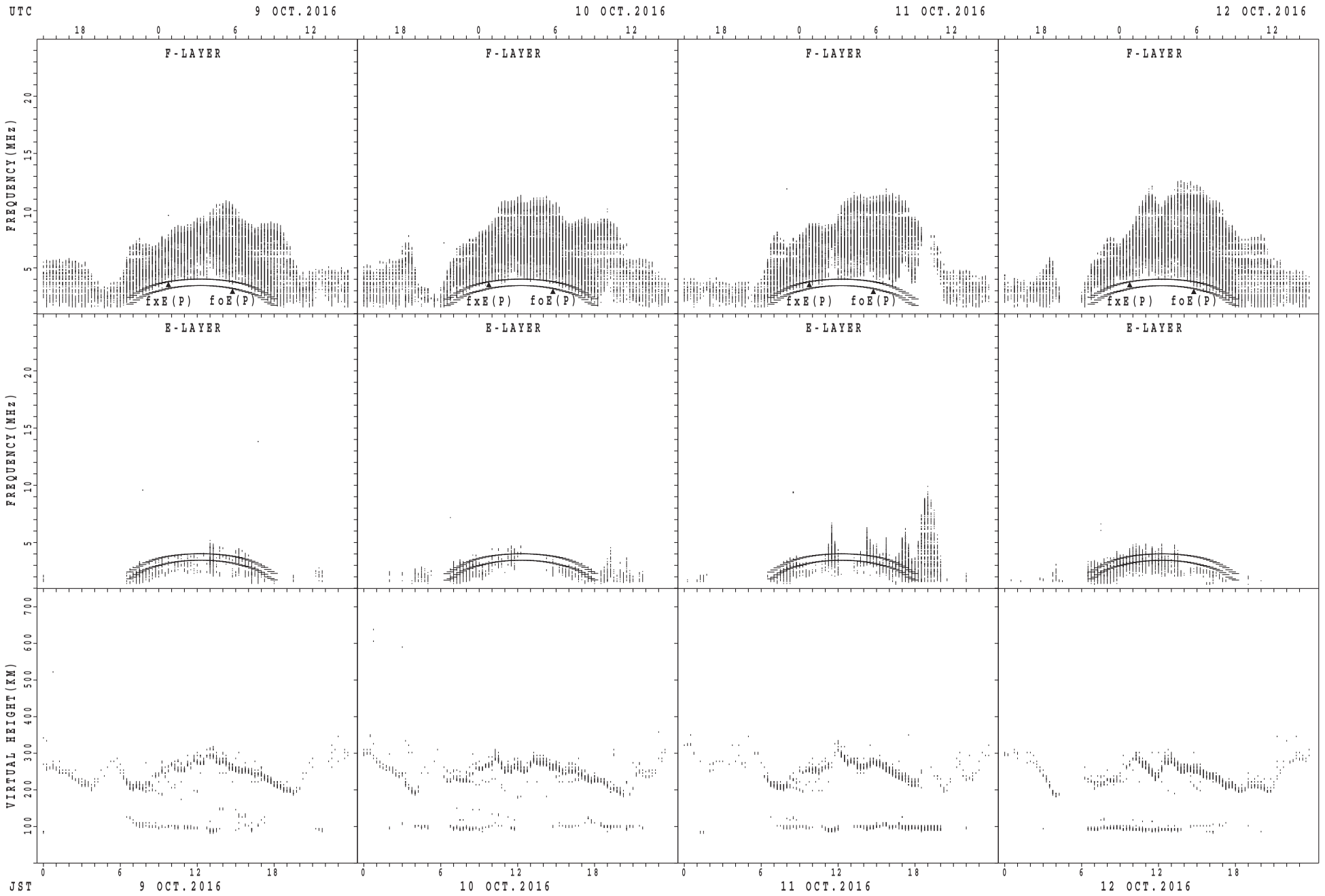
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



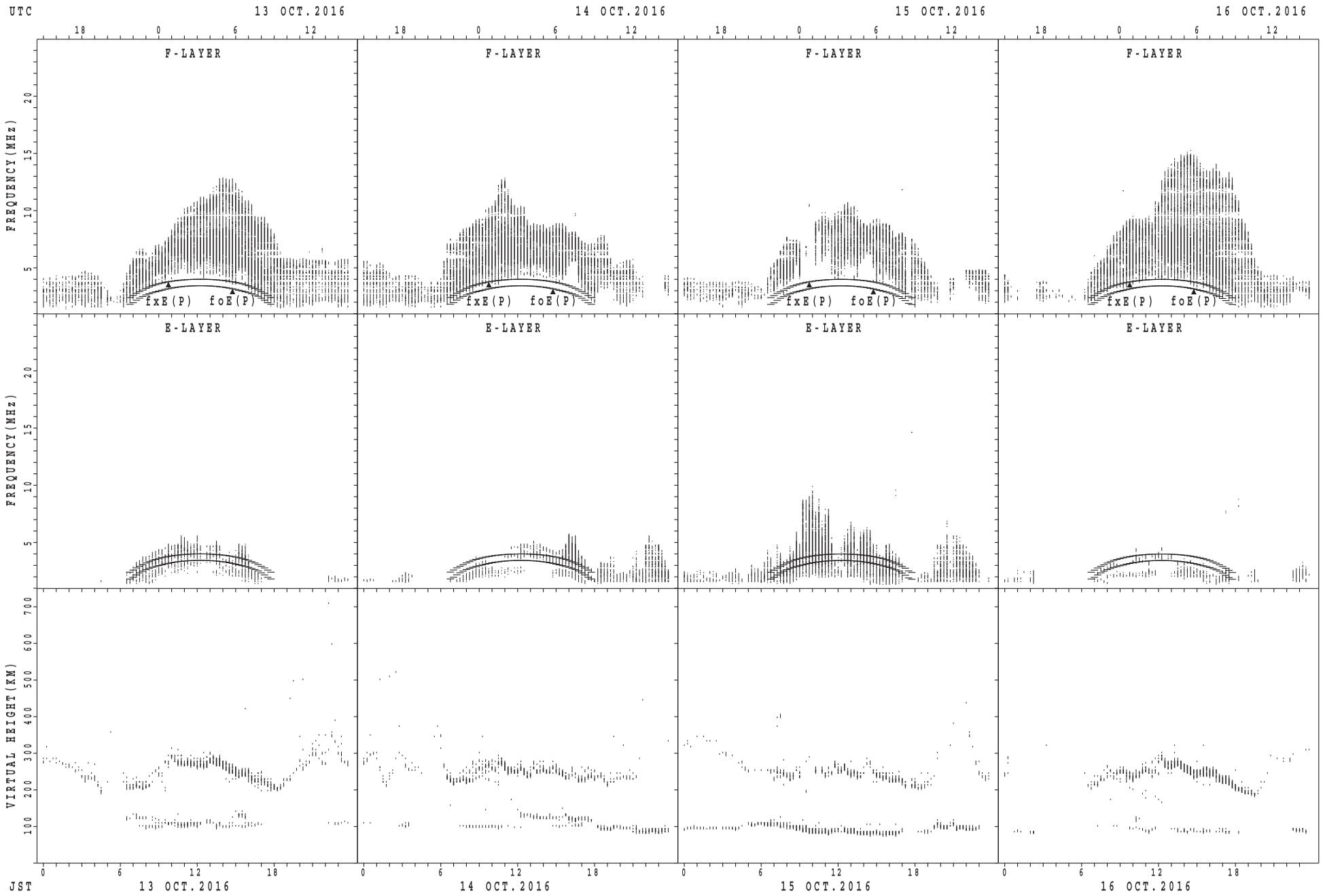
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



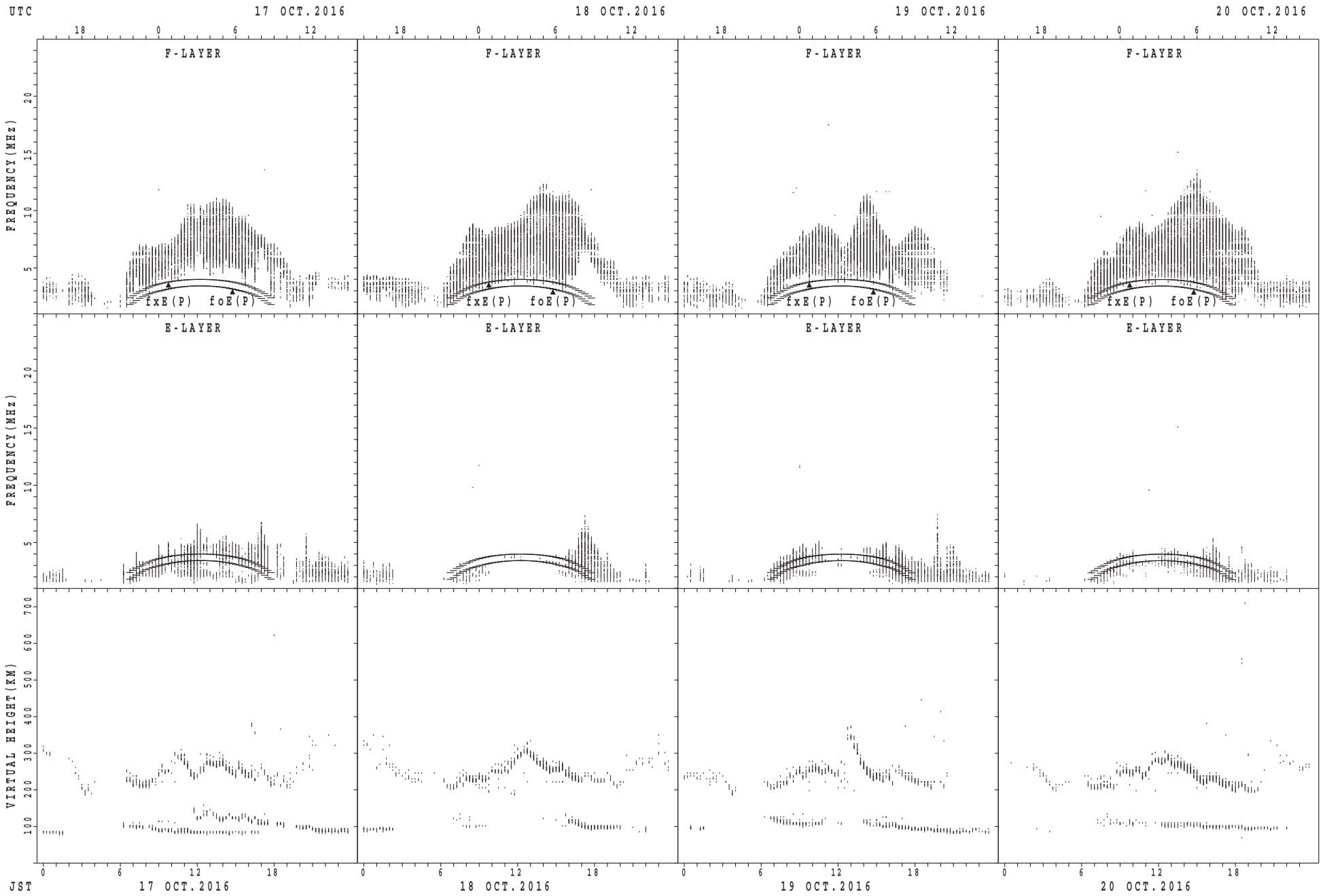
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



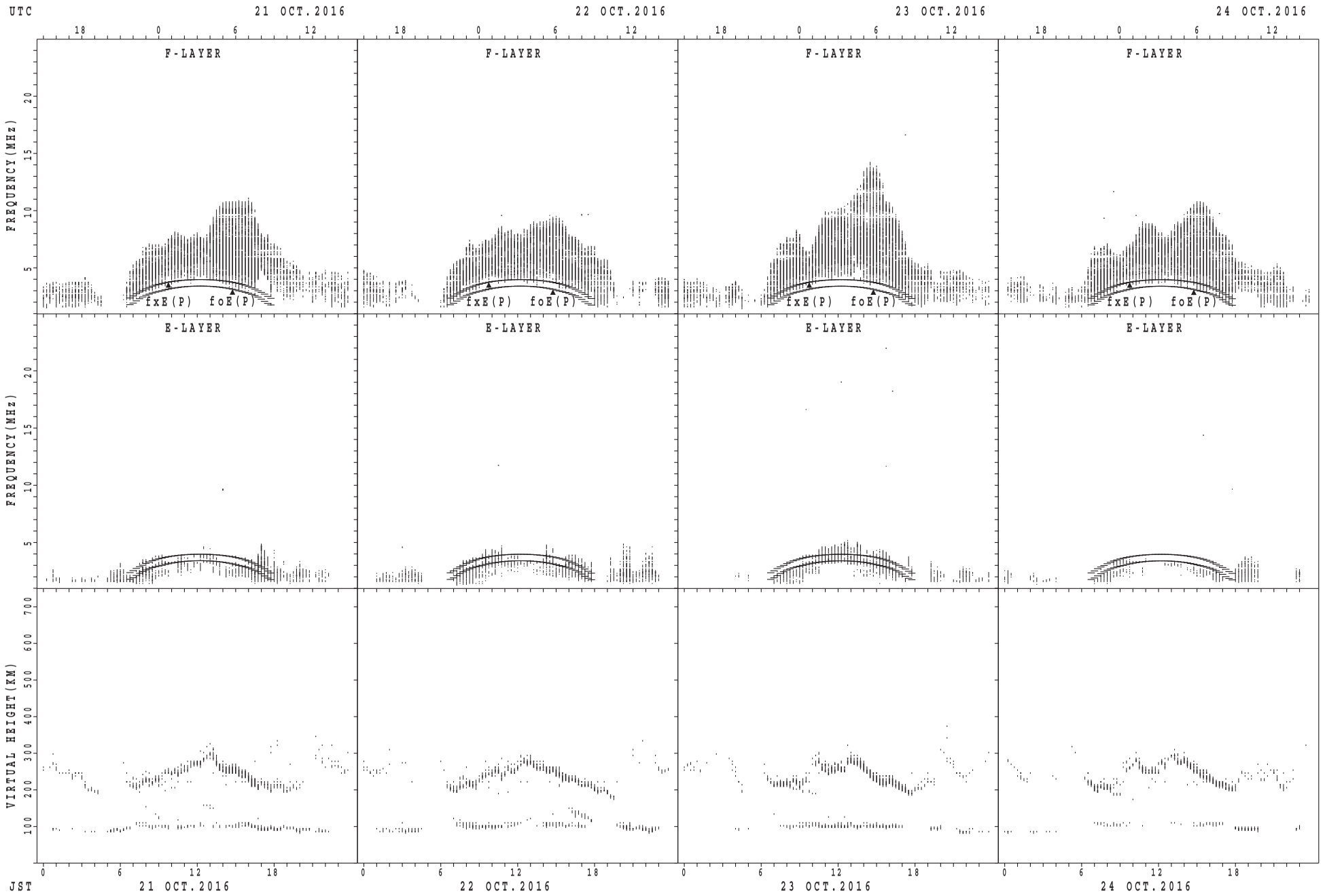
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



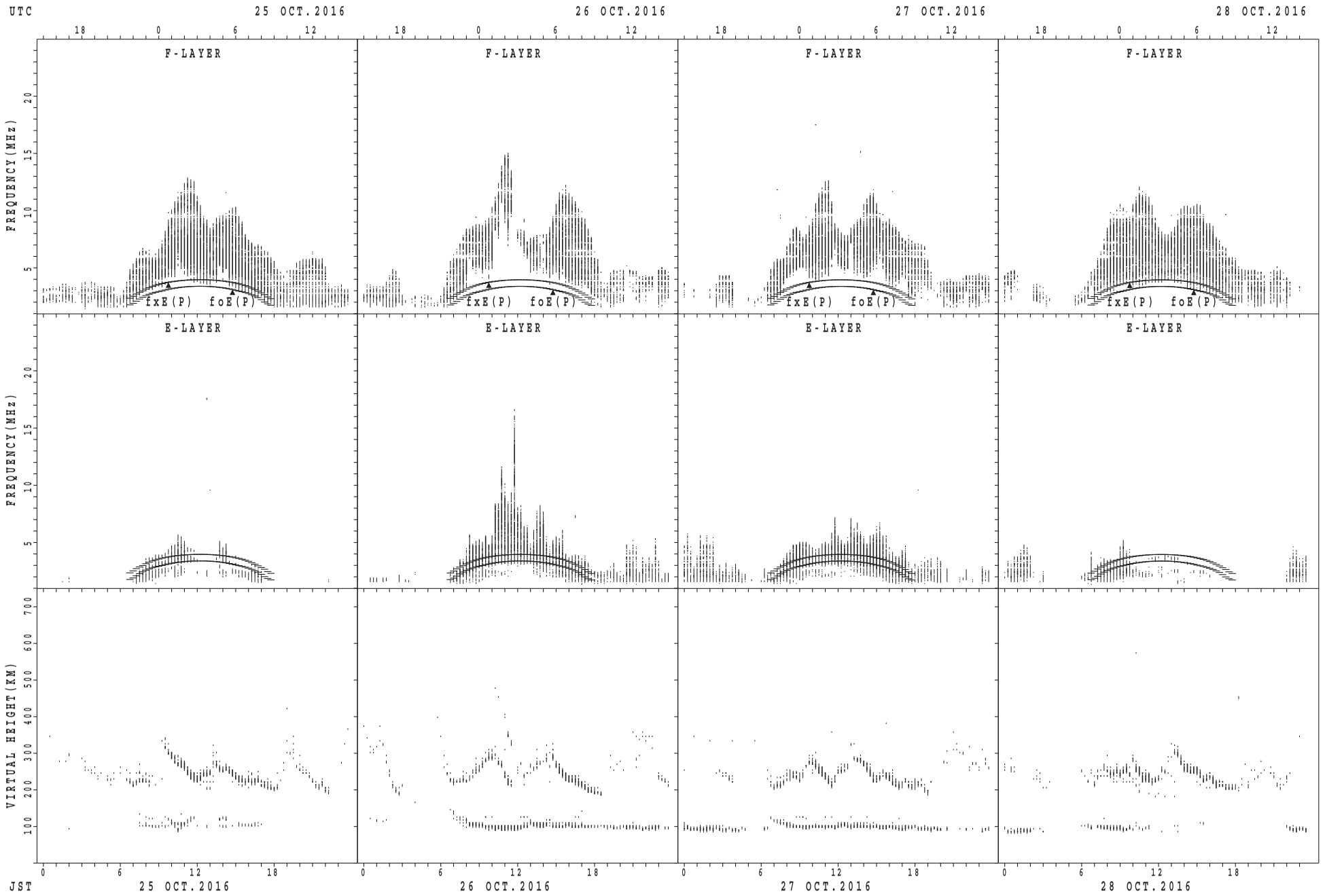
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



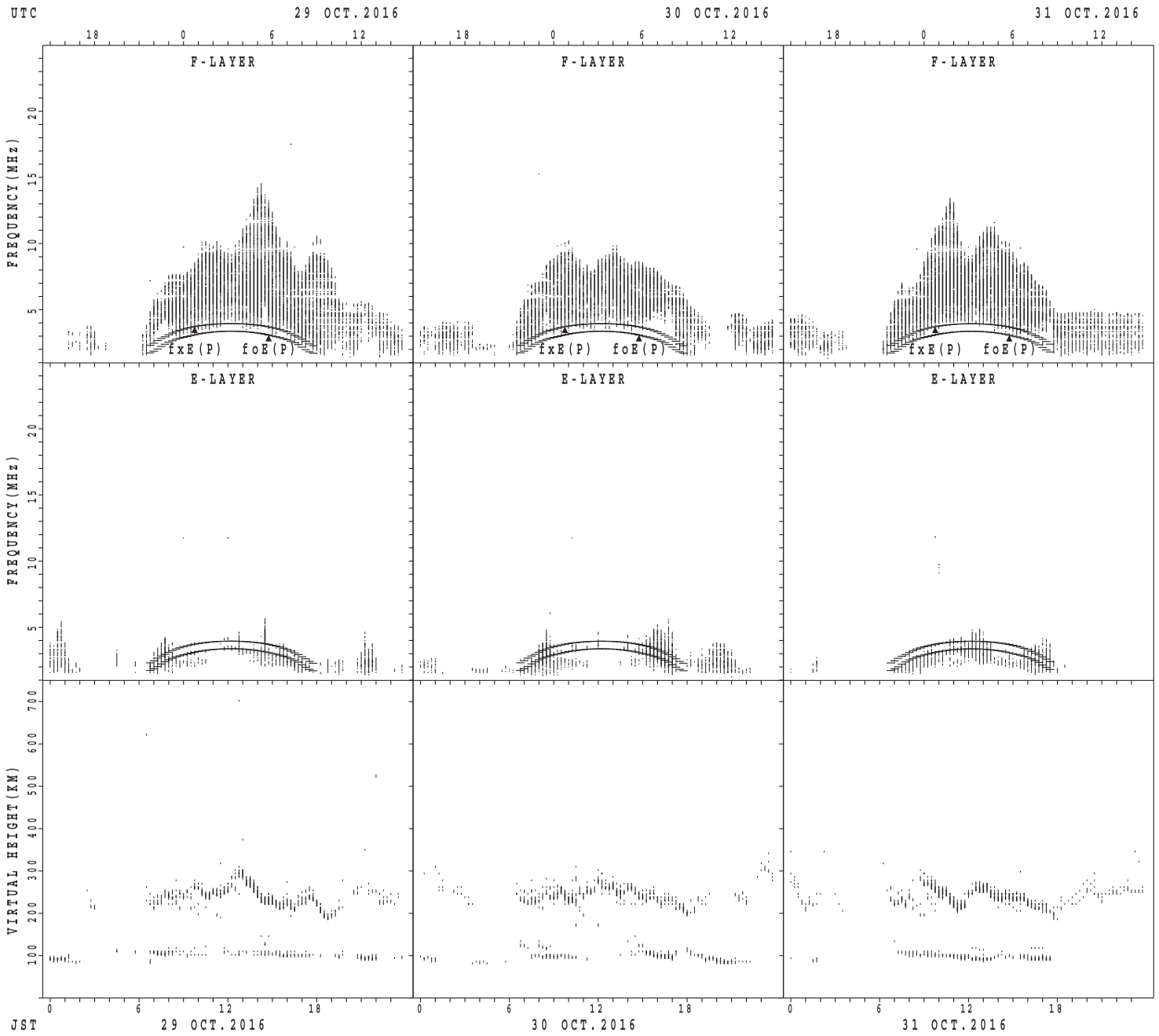
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

OCT.2016 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	7	16	18	2			7	18	17	17	5	1		1	1		
MED							278	220	229	226	238			234	236	240	230	242	250		190	240		
U Q							360	248	242	234	244			250	248	255	236	250	125		95	120		
L Q							196	204	222	218	232			216	228	225	223	226	125		95	120		

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	14	11	14	11	10	18	22	23	24	28	25	20	12	14	11	19	21	21	18	14	15	18	15
MED	87	87	83	89	89	88	95	108	101	95	91	101	93	93	89	91	89	85	89	89	89	95	88	89
U Q	91	89	89	101	107	101	123	125	113	100	95	166	111	105	95	95	99	96	93	95	97	107	95	91
L Q	83	81	81	81	81	79	91	97	93	88	87	86	85	83	83	89	81	81	79	79	81	87	85	85

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							2	11	28	14					15	24	19	7	4					
MED							240	234	238	236					256	247	238	238	244					
U Q							242	242	248	256					270	254	242	248	248					
L Q							238	224	228	226					252	239	224	230	231					

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	16	15	12	11	4	15	18	14	15	18	16	10	9	8	12	18	18	20	20	20	19	21	19
MED	93	91	93	94	91	97	129	111	105	103	105	99	97	95	95	102	103	101	99	98	99	97	97	95
U Q	97	95	95	97	105	101	137	125	107	107	113	105	101	111	96	106	107	105	105	105	103	101	102	97
L Q	91	90	89	89	89	97	103	101	103	97	97	95	91	90	89	96	95	95	95	97	97	95	94	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	6	13						13	15	14	4	1				
MED								216	239	250						260	252	245	240	232				
U Q								218	242	266						280	266	250	252	116				
L Q								214	236	241						247	246	236	231	116				

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	4	1	1	1	3	3	2	9	6	7	3	7	4	4	4	6	7	10	11	11	9	6	4	5
MED	95	97	89	105	97	97	107	119	110	103	105	103	101	95	103	105	113	105	103	99	97	97	98	101
U Q	96	48	44	52	121	119	111	138	113	111	111	105	105	100	129	113	119	111	105	105	105	101	102	103
L Q	94	48	44	52	97	91	103	108	107	97	95	103	98	93	94	97	105	97	97	95	95	95	94	96

MONTHLY MEDIANS OF h'F AND h'Es

OCT.2016 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								7	25	28						19	31	29	20	6	3			
MED								230	238	249						238	236	230	230	226	232			
U Q								242	248	255						246	248	240	236	230	240			
L Q								220	229	238						232	230	222	222	216	212			

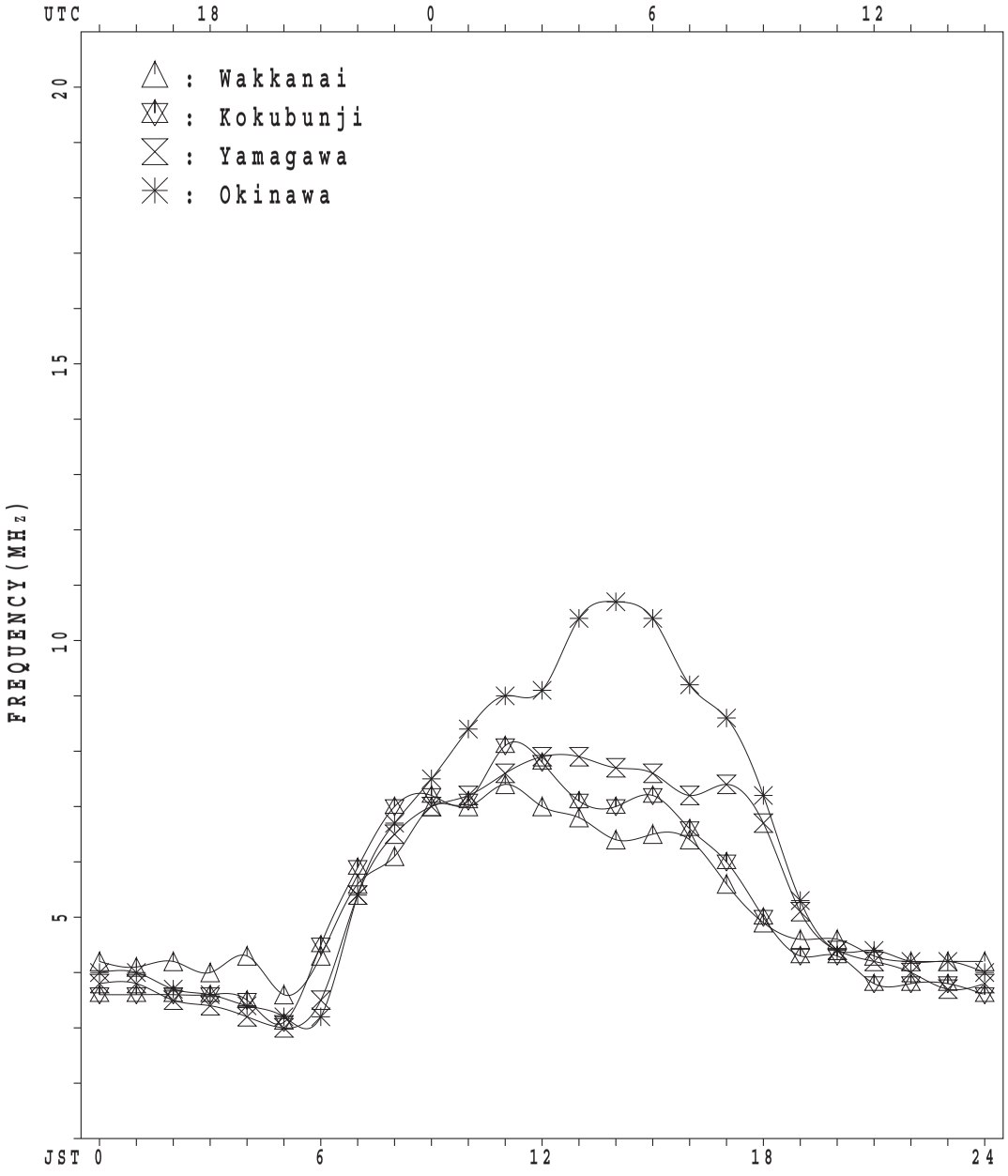
h'Es

	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	9	8	4	6	5	2	2	17	20	19	19	16	14	15	14	21	21	20	15	18	20	15	18	11
MED	95	91	96	108	95	106	100	119	112	105	105	103	105	107	106	109	107	103	99	97	100	95	95	95
U Q	97	95	98	115	145	113	111	129	113	111	109	106	123	113	121	127	120	114	105	101	102	97	99	101
L Q	89	88	93	93	92	99	89	110	106	103	103	96	99	93	103	104	103	97	95	95	93	89	89	89

MONTHLY MEDIANS PLOT OF foF2

OCT.2016

AUTOMATIC SCALING



IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 37	X 37	X 37	39	39															X 49	X 47	X 45	X 42	X 41
2	X 40	X 40	X 40	X 39	X 37															X 60	X 61	X 54	X 45	X 44
3	X 43	X 43	X 48	X 43	38															X 63	X 55	X 39	X 40	X 42
4	X 42	X 38	X 40	X 42	X 39															X 53	52	X 47	X 53	X 49
5	X 47	X 50	X 43	A	X 33															X 48	X 49	X 47	X 46	X 45
6	X 43	X 42	X 43	X 43	X 38															X 65	X 64	X 55	X 56	X 55
7	X 51	X 53	X 53	X 52	X 52															X 62	X 62	X 54	X 54	X 54
8	X 54	56	X 53	X 58	X 53															X 60	X 54	X 53	X 51	X 52
9	X 53	X 53	X 54	X 51	X 56															X 63	X 60	X 60	X 58	X 54
10	X 51	X 53	X 55	X 53	X 51															X 57	X 56	X 51	X 51	X 51
11	X 51	X 51	X 50	X 51	X 48															X 51		X 50	X 47	X 48
12	X 49	X 47	X 47	X 45	X 46														X 56	X 55	X 53	X 46	X 45	X 45
13	X 46	X 46	X 46	X 46	X 46														X 64	X 64	X 58	X 55	X 55	X 54
14	X 44	X 49	X 44	X 39	X 36														X 41	X 39	X 35	X 34	X 32	X 30
15	X 27	X 28	X 28	X 27	X 32														X 37	X 37	X 38	X 33	X 33	X 35
16	X 35	X 35	X 33	X 35	X 35														X 53	X 46	X 47	X 47	X 41	X 39
17	X 39	X 39	X 45	X 44	X 47														X 47	X 46		X 46	X 46	X 47
18	X 47	X 42	X 43	X 44	X 43														X 56	X 47	X 42	X 46	X 46	X 45
19	X 46	X 46	X 48	X 40	X 43														X 48	X 49	X 50	X 50	X 49	X 49
20	X 48	X 48	X 49	X 50	X 51														X 46	X 51	X 51	X 51	X 53	X 53
21	54	X 51	57	X 54	53														X 51	X 50	X 46	X 46	X 45	X 46
22	X 45	X 46	X 48	X 49	X 51														X 45	X 47	X 47	X 49	53	X 53
23	X 47	53	60	X 48	X 49														X 43	X 53	X 51	X 49	X 55	X 54
24	X 55	X 55	58	58	54	57													X 60	X 56	X 42	X 40	X 44	X 43
25	X 43	X 43	X 42	X 43	X 45														X 43	X 48	X 48	X 43	X 43	X 39
26	X 37	X 39	X 33	A	A				X 61										X 57	X 54	X 51	X 47	X 48	43
27	X 49	X 49	49	48	49														X 43	58	58	55	57	54
28	59	X 39	X 39	X 33	58	X 46	48											73	X 44	X 42	X 41	X 38	X 46	X 49
29	X 47	X 49	57	57	57	49	49												A	A	A	A	A	X 42
30	X 42	X 37	X 37	X 43	X 36	X 35	X 39												X 37	X 41	X 43	X 41	X 42	X 41
31	X 41	X 41	X 41	X 40	X 39	X 36													X 35	X 39	X 40	X 43	X 43	X 43
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	29	30	5	3		1									1	19	30	28	30	30	31
MED	X 46	X 46	X 46	X 44	X 46	X 46	48		X 61									73	X 46	X 51	X 50	X 47	X 46	X 46
U Q	X 51	X 51	53	X 51	51	53	49												X 56	X 58	X 56	X 51	X 53	X 53
L Q	X 42	X 39	X 40	X 40	X 38	X 36	X 39												X 43	X 47	X 44	X 43	X 43	X 42

OCT. 2016 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	30	30	Z 30	F 26	F 26	29	41	48	46	53	59	62	53	56	54	56	56	57	49	42	40	38	35	34
2	33	33	33	32	30	27	43	52	54	58	69	60	58	63	64	58	53	56	48	53	54	47	38	37
3	36	36	41	36	F 24	31	40	49	57	70	64	64	64	67	57	57	55	63	66	56	48	32	33	35
4	35	32	33	35	32	32	42	52	59	76	66	71	74	80	74	66	60	55	44	46	F 42	40	46	42
5	40	43	36	A	26	26	52	52	50	58	66	63	66	68	60	60	67	59	48	41	42	40	39	38
6	36	35	36	36	31	32	45	53	60	68	66	77	60	64	61	60	56	56	54	58	57	48	49	48
7	44	46	46	45	46	48	51	54	58	66	72	71	68	75	63	63	67	60	60	56	56	48	48	49
8	47	F 44	46	51	46	46	47	55	58	72	73	76	78	74	71	71	73	62	51	53	47	46	44	45
9	46	46	47	51	49	46	53	58	63	68	68	80	74	75	63	63	67	61	55	56	53	53	51	47
10	44	46	48	46	44	45	56	60	66	67	72	86	84	72	64	68	68	64	55	50	49	44	44	44
11	44	44	43	44	42	40	52	62	69	76	67	89	77	75	69	75	74	59	41	44		43	40	41
12	42	40	40	38	39	34	46	57	61	72	87	83	84	68	66	65	66	58	49	48	46	39	38	38
13	39	39	39	39	39	37	52	61	65	74	78	79	76	74	64	74	72	66	57	57	51	48	48	47
14	37	42	37	32	29	30	40	R	R	A	A	A	42	43	43	46	41	40	34	32	28	27	25	23
15	20	21	21	20	25	R	28	35	40	46	50	50	50	51	53	48	52	45	30	30	32	26	26	J R 28
16	28	28	26	28	28	28	38	48	58	55	60	71	67	68	58	59	60	50	46	39	40	40	34	32
17	32	32	38	37	40	34	42	53	64	76	75	63	76	69	62	67	65	54	40	39	39	39	39	40
18	40	35	36	37	36	37	44	65	70	74	87	60	75	80	67	64	66	56	49	40	34	39	39	38
19	F 36	39	41	33	36	32	44	67	63	R 72	86	76	70	68	62	68	75	64	41	42	43	43	42	42
20	41	41	42	43	44	39	41	51	55	62	74	71	64	64	68	71	60	48	39	44	44	44	46	46
21	F 42	44	F 46	47	F 41	38	41	52	59	59	66	64	70	72	62	62	66	62	44	43	39	39	38	39
22	38	39	42	42	44	38	38	51	60	66	68	67	68	61	56	60	64	53	38	40	40	42	F 41	46
23	40	F 41	F 42	41	42	39	37	52	52	71	71	66	64	64	58	63	69	47	36	46	44	42	48	47
24	48	48	F 46	F 43	F 38	F 35	34	55	72	70	77	74	74	66	72	65	65	48	53	49	35	33	37	36
25	36	36	35	36	38	38	40	60	60	78	92	88	A	66	69	69	61	45	36	41	41	36	36	32
26	30	32	R 26	A	A	A	A	A	54	61	70	78	72	61	64	62	58	45	50	48	44	40	41	F 34
27	42	41	F 34	F 37	F 38	42	34	40	48	56	56	52	58	52	54	52	55	X R 50	36	F 42	F 46	F 43	F 38	30
28	F 37	32	32	26	F 44	39	F 35	53	58	62	66	70	65	56	60	55	53	F 65	37	35	34	31	39	42
29	41	42	F 47	F 43	F 44	F 32	F 30	48	58	58	63	63	69	52	63	67	60	38	A	A	A	A	A	35
30	35	30	30	36	29	28	32	56	68	64	68	74	59	62	69	65	55	38	30	34	36	34	35	34
31	34	34	34	33	32	29	36	54	68	74	69	70	74	62	60	57	52	38	28	32	33	36	36	36
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	29	30	29	30	29	30	30	30	30	30	31	31	31	31	31	30	30	29	30	30	31
MED	38	39	38	37	38	35	41	53	59	68	68	71	68	66	63	63	61	56	45	44	42	40	39	38
U Q	42	43	43	43	44	39	46	58	64	72	74	77	74	72	67	67	67	61	51	50	48	44	44	45
L Q	35	32	33	33	30	30	37	51	55	59	66	63	64	61	58	58	55	47	37	40	38	36	36	34

OCT. 2016 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L	412	392	408	428	404	L	L							
2							L	L	L	408	L	432	432	432	L	L								
3									L	412	L	L	L	444	408	L								
4										L	L	432	448	L	416	L								
5								348	400	416	L	L	L	424	L	L								
6									L	L		L	L	L	396									
7										L	L	448	L	L	L	L								
8						L	L	L	L	U L 424	424	L	L	U L 428	404	L								
9						L	L	L	L	L	L	L	L	432	L	L 324								
10									L 368	U L 416	U L 440	420	U L 436	388	L									
11										420	L	L	440	420	L	L								
12										L	U L 448	U L 464	U L 432	396										
13						L			L	L 404	L	L	L	L 428			L	L						
14							A	A	A	A	A	A	L	L	L	U L 364	L	L						
15						R			364	L	400	408	408	404	392	L								
16									L		432	400	L	L	L									
17						L					L	428	384	376	L									
18							208	A		L	L	L	L	L	L									
19												L	L	408	368	L								
20									L	404		412	412	L	336	L								
21									L	U L 388	L	L	L	L	360			L						
22									L	L	L	416	L											
23										L		L	L	L										
24										L	L			L	L									
25										332	L	L	A	A	L									
26						A	A	A		L	L	384	U R 388	392	368	L	L								
27										400	400	388	400	400	356	L								
28										L 388	392	L	412	372	372									
29									L	392	L	L	372	L	L									
30								L	L	L	400	L	L	L	L									
31									L	L	L	404	404	L	L									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	1	3	13	9	14	14	16	12	2								
MED							208	348	368	404	412	414	410	414	382	L 344								
U Q									400	416	U L 436	432	432	428	404									
L Q									364	390	400	400	400	394	364									

OCT. 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B 204	172	228	268	292	304	300	300	U R 292	284	260	176	A	A					
2						B 196	B	228	264	268	248	288	236	232	176	244	212	B	B					
3							A	228	244	264	A	A	256	300	U R 268	256	A	A	A					
4						B	188	236	U R 268	308	A	324	312	312	A	A	228	A	A					
5						204	A	232	260	292	280	A	A	296	296	264	220	B	A					
6						A 196	256	268	276	276	A	A	244	A	A	A	A	A	A					
7						B 172	224	288	288	320	320	304	308	R 248	268	A	296	A						
8						B 192	228	240	288	328	328	304	A	284	280	A	228	A						
9						B	A 232	284	300	312	308	316	300	268	A	204	200	A						
10						B	B 220	280	292	296	308	296	U R 284	292	280	224	A	A						
11						B	A 236	272	296	312	312	A	A	288	244	A	A	A						
12						B	A 224	288	296	300	328	308	288	288	260	244	A							
13						200	176	240	284	284	292	296	308	A	R 280	248	A	A						
14						192	A	204	252	280	A	344	308	A	208	U R 248	196	192						
15						188	A	212	236	272	280	292	A	A	A 216		A	A						
16						B	192	196	236	272	252	264	308	R 308	R 284	252	A	A						
17						B	J R 104	208	236	252	A	R 308	288	288	272	244	184	196			152			
18						A	172	208	236	R 248	U R 260	280	292	308	264	232	200	B						
19						220	188	212	252	276	280	296	U R 312	R 296	R 276	228	A	B						
20						A	A	224	264	284	A	308	308	260	240	244	196	A						
21						B	180	220	252	U A 292	292	292	300	300	U R 280	280	204	B						
22						B	A 216	272	300		A	A	300	280	U R 276	228	B	A						
23						B	B 220	224	236		A	A	300	284	268	244	A	B						
24						192	B	184	256	292	A	A	A	U A 280	260	248	A	196						
25						B	228	224	A	A	A	A	A	A	256	236	204	B						
26						196	A	A		A	A	A	A	A	A	224	R 216	A						
27						B	208	188	A 244	U A 272	268	A	A	252	252	228	A	188						
28							176	A	220	A	A	A	A	A	248	232	R 244	A						
29							B	A	248	A	A	304	A	A	A	B	A	A						
30								A	R 308	A	A	A	U R 312	B	B	272	224	A						
31							A	212	R 260	248	308	A	308	A	288	B	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						8	14	27	29	26	18	19	21	20	25	26	16	7			1			
MED						196	184	224	260	284	292	308	304	290	272	246	208	196			152			
U Q						202	192	228	272	292	308	320	308	300	284	260	224	228						
L Q						192	172	212	242	272	276	292	298	280	254	232	198	192						

OCT. 2016 foE (0.01MHz)

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	JA 28	26	26	24	EB 15	EB 15	22	28	34	JA 46	JA 59	JA 30	JA 43	35	33	32	24	JA 31	JA 30	JA 26	18	EB 16	JA 19	33
2	JA 19	JA 26	23	EB 15	20	EB 16	60	28	JA 31	34	JA 33	JA 106	JA 34	36	JA 48	33	G 17	EB 16	EB 16	26	EB 16	EB 15	19	23
3	JA 18	21	19	22	JA 30	26	JA 27	G	G 20	JA 31	JA 31	JA 33	JA 33	36	G 19	35	JA 24	JA 27	JA 33	21	EB 15	EB 15	JA 26	EB 15
4	119	EB 16	EB 16	24	20	EB 15	G	26	JA 35	JA 66	JA 41	JA 37	35	36	33	38	31	JA 57	28	JA 65	54	JA 34	JA 29	32
5	27	32	27	40	39	25	JA 30	34	34	JA 41	54	45	40	33	JA 30	G	JA 25	EB 16	38	27	34	JA 50	JA 51	58
6	94	40	27	24	24	JA 127	JA 26	JA 27	JA 33	JA 42	JA 43	JA 40	JA 39	43	JA 62	JA 56	JA 38	JA 47	42	26	JA 33	25	21	19
7	EB 15	EB 15	20	EB 15	EB 15	EB 15	20	26	32	JA 109	JA 37	35	35	36	37	JA 42	JA 88	45	JA 73	JA 53	EB 16	24	EB 16	19
8	EB 15	EB 15	EB 15	EB 15	EB 15	EB 15	G	26	37	38	JA 65	G 26	35	JA 60	G 25	G 21	35	JA 37	35	JA 31	34	JA 32	EB 16	23
9	21	23	EB 15	JA 25	JA 17	EB 15	20	27	31	32	38	37	35	33	JA 40	JA 28	26	JA 108	JA 33	JA 31	24	19	21	21
10	EB 15	EB 15	EB 15	21	EB 15	EB 15	EB 16	32	35	33	40	37	34	36	33	G 23	27	JA 27	JA 49	JA 26	EB 15	23	25	JA 20
11	JA 40	JA 29	47	JA 27	EB 15	EB 15	JA 33	JA 35	JA 50	47	39	JA 46	37	JA 37	36	39	JA 30	JA 33	40	25		EB 15	EB 15	32
12	23	EB 15	23	EB 15	JA 34	EB 15	JA 27	31	34	35	36	38	37	34	G 26	G 22	JA 44	JA 26	24	JA 32	EB 15	19	EB 15	EB 15
13	24	23	20	EB 15	JA 20	27	JA 29	27	32	33	36	JA 33	34	33	38	G 33	JA 24	28	JA 27	EB 15	JA 24	EB 15	EB 15	EB 15
14	EB 15	21	23	20	23	26	40	JA 63	80	JA 98	JA 67	JA 115	JA 107	25	25	34	32	27	EB 16	22	20	EB 15	EB 15	21
15	19	19	EB 15	EB 16	21	24	JA 25	JA 169	36	53	JA 38	JA 37	JA 33	92	48	JA 31	JA 24	JA 29	37	34	25	25	19	19
16	EB 15	19	39	EB 15	EB 15	EB 15	JA 26	24	29	52	JA 46	38	JA 107	37	37	G	JA 27	JA 88	74	JA 53	58	58	JA 51	26
17	40	26	JA 33	JA 25	21	EB 15	G	24	30	JA 59	57	G	38	31	34	32	22	26	24	39	JA 19	JA 19	34	26
18	JA 19	EB 15	23	23	EB 15	JA 51	25	26	JA 41	JA 40	36	33	K 38	56	JA 30	JA 42	G	EB 15	JA 31	EB 15	JA 102	JA 54	JA 62	JA 28
19	JA 20	28	JA 20	26	68	G	25	JA 33	JA 42	39	60	35	35	G	36	31	G	EB 15	32	JA 39	JA 49	JA 51	JA 47	JA 39
20	27	JA 77	JA 46	27	JA 30	37	25	26	32	32	JA 79	JA 63	JA 38	G 25	33	JA 201	G 20	JA 22	33	34	JA 25	23	18	EB 15
21	20	EB 15	EB 15	EB 15	EB 15	EB 15	21	25	34	JA 52	JA 42	34	33	G 31	35	40	22	EB 16	JA 43	EB 15	24	24	25	22
22	EB 15	EB 15	EB 15	20	26	20	JA 28	25	38	JA 108	JA 81	44	34	JA 58	35	27	21	JA 35	JA 27	JA 27	JA 120	JA 84	49	JA 42
23	JA 58	JA 31	26	33	21	28	25	26	JA 31	JA 39	JA 59	JA 57	64	36	G	G	JA 42	26	JA 28	28	45	JA 77	JA 65	40
24	JA 29	JA 30	33	JA 28	JA 37	24	EB 15	26	JA 43	JA 47	JA 62	JA 123	JA 99	40	JA 33	44	41	JA 33	69	JA 63	43	JA 31	JA 21	JA 32
25	JA 33	JA 52	26	JA 109	24	24	G	32	JA 86	JA 30	JA 62	JA 62	JA 94	JA 97	JA 33	38	JA 25	EB 15	EB 15	EB 15	EB 15	26	59	33
26	JA 26	JA 19	32	JA 63	JA 61	JA 54	103	JA 97	JA 46	JA 61	59	JA 42	JA 72	59	JA 44	JA 31	JA 25	JA 25	37	JA 31	JA 35	JA 86	27	21
27	EB 15	24	EB 15	EB 15	EB 15	20	24	44	JA 38	51	53	JA 39	40	40	33	26	JA 27	26	JA 20	JA 26	34	JA 62	25	JA 28
28	JA 30	JA 29	30	JA 28	23	EB 15	JA 29	51	83	JA 85	JA 69	JA 59	JA 125	JA 34	JA 39	32	JA 33	JA 53	JA 111	JA 63	JA 86	46	JA 49	JA 176
29	26	JA 30	JA 26	JA 26	JA 26	25	EB 16	JA 31	JA 29	JA 30	JA 45	JA 105	40	JA 39	JA 31	EB 28	33	JA 108	JA 85	JA 142	JA 127	JA 86	JA 101	JA 40
30	JA 46	JA 33	25	JA 40	JA 35	23	EB 15	JA 52	JA 53	JA 117	JA 47	JA 29	G	EB 29	EB 30	G	JA 63	JA 26	EB 15	37	JA 23	JA 19	JA 27	JA 25
31	JA 38	40	JA 23	JA 26	JA 43	JA 33	JA 33	G 23	JA 87	JA 36	JA 39	35	G 28	JA 87	G 22	EB 28	JA 31	JA 55	21	21	EB 16	33	24	25
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31
MED	24	24	23	24	21	20	25	27	35	JA 42	JA 46	JA 38	37	36	33	G	JA 27	JA 27	33	28	25	25	25	25
U Q	JA 33	JA 30	27	JA 27	JA 30	26	JA 29	JA 34	JA 43	JA 59	JA 60	JA 57	JA 43	43	JA 37	38	JA 33	JA 45	JA 42	JA 39	JA 45	JA 51	JA 49	33
L Q	EB 18	EB 16	EB 16	EB 15	EB 15	EB 15	G	26	32	34	38	34	34	33	G 30	28	24	EB 25	24	25	EB 18	EB 19	EB 19	20

OCT. 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	18	16	E B 16	E B 15	E B 15	20	27	31	36	33	G 28	31	33	30	28	23	27	27	20	16	E B 16	16	19
2	18	15	E B 16	E B 15	E B 15	E B 16	20	27	30	32	32	32	33	30	30	28	G 16	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15
3	E B 15	E B 15	E B 15	E B 15	E B 15	G 16	19	G	G 19	29	29	31	30	31	G 19	28	22	22	18	E B 15	E B 15	E B 15	E B 15	E B 15
4	E B 15	E B 16	E B 16	15	E B 15	E B 15	G	G 23	33	32	30	G 29	35	33	28	28	G 22	22	22	29	27	20	21	E B 15
5	E B 15	23	E B 15	A A 40	21	G 19	26	29	30	34	34	34	32	30	G 29	G	G 21	E B 16	26	16	16	E B 15	E B 16	17
6	22	22	15	E B 15	E B 15	22	G 18	G 24	28	36	39	A 36	36	34	29	29	29	29	22	E B 15	17	E B 17	17	17
7	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	19	26	30	34	35	34	34	35	30	30	30	G 28	28	17	E B 16	E B 16	E B 16	E B 14
8	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	26	28	30	33	G 24	32	33	G 24	G 20	28	G 20	20	20	20	16	E B 16	16
9	E B 15	E B 15	E B 15	E B 15	15	E B 15	20	26	29	31	37	33	32	31	36	27	24	G 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
10	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	28	32	33	32	32	34	33	30	G 21	25	24	34	E B 15	E B 15	E B 15	17	19
11	19	21	23	18	E B 15	E B 15	29	33	40	34	37	34	33	35	32	28	27	29	28	E B 15		E B 15	E B 15	17
12	15	E B 15	E B 15	E B 15	E B 15	E B 15	26	30	30	32	34	G 32	35	32	G 23	G 19	26	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
13	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 17	26	30	33	33	32	33	31	30	G 28	21	21	20	E B 15	E B 15	E B 15	E B 15	E B 15
14	E B 15	E B 15	E B 15	E B 15	E B 15	G 17	28	23	A A 98	A A 67	A A 115	A 5	G 30	22	23	28	20	G 17	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
15	15	E B 15	E B 15	E B 16	E B 16	R	17	26	28	36	29	33	31	34	28	28	21	21	E B 15	18	E B 15	E B 15	E B 15	E B 15
16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	28	37	29	30	34	31	30	G	22	17	21	28	32	16	16	15
17	A 22	E B 15	21	19	E B 15	E B 15	G	21	28	36	36	G	31	30	28	29	20	G 18	15	16	16	15	E B 15	E B 15
18	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 16	G 18	39	38	33	G 28	G 29	G 30	28	27	G	E B 15	E B 15	E B 15	15	E B 15	E B 15	E B 15
19	E B 15	19	E B 15	E B 15	E B 15	G	E B 15	29	34	30	47	34	32	G	31	28	G	E B 15	E B 15	20	E B 28	21	A 28	19
20	E B 15	E B 15	21	E B 15	16	16	16	25	28	32	30	32	32	G 24	28	25	G 20	E B 15	22	21	17	E B 15	E B 15	E B 15
21	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	19	23	30	31	31	31	32	G 29	29	28	G 20	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
22	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	21	24	28	34	31	31	33	32	29	24	19	16	E B 15	E B 15	E B 15	17	17	E B 15
23	28	E B 15	E B 15	15	E B 15	E B 15	E B 15	24	28	32	41	32	32	G 28	G	G	23	16	22	20	20	28	A 36	21
24	E B 15	E B 16	20	19	E B 15	21	E B 15	24	29	34	34	36	44	30	29	27	23	G 16	18	18	18	20	15	20
25	A 24	19	E B 15	16	E B 15	E B 15	G	G 18	29	28	30	30	A A 94	49	28	26	G 19	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	18
26	E B 15	E B 15	21	A A 63	A A 61	A A 54	A A 103	A A 97	28	28	30	30	28	27	28	24	G 19	20	20	E B 15	16	E A 22	E B 16	E B 15
27	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	28	28	30	35	32	30	30	28	G 22	22	G 16	E B 15	20	E B 15	17	E B 15	15
28	16	16	16	E B 15	E B 15	E B 15	E B 15	29	24	28	29	29	29	28	27	24	G 22	29	23	30	16	16	16	21
29	16	E B 15	E B	16	E B 15	E B 15	E B 16	29	26	29	36	G 29	29	29	28	E B 28	29	27	A A 85	A A 142	A A 127	A A 86	A A 101	26
30	E B 15	E B 15	15	29	E B 15	E B 15	E B 15	23	G 29	30	30	29	G	E B 29	E B 30	G	29	21	E B 15	E B 15	E B 15	16	17	18
31	27	16	E B 15	E B 15	32	21	20	G 21	28	30	G 31	31	G 26	29	G 21	E B 28	21	21	18	19	E B 16	16	E B 16	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	31	31	30	31	31	30	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	26	29	32	33	G	32	30	28	G	G	18	18	16	E B 16	E B 16	E B 16	15
U Q	16	16	16	16	15	16	20	28	30	34	36	33	34	33	30	28	25	22	22	20	17	17	17	18
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	23	28	30	30	G 30	30	29	28	25	G 20	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

OCT. 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT. 2016 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	267	284	Z 322	F 302	F 294	309	338	324	346	333	345	353	312	359	330	336	335	344	340	320	304	313	311	302
2	304	304	307	335	312	301	333	371	355	349	352	343	336	313	348	348	344	356	327	300	329	335	293	288
3	291	276	283	338	F 305	305	358	351	332	356	358	339	341	346	346	333	324	336	343	342	363	300	319	305
4	271	310	300	301	361	318	364	336	340	356	341	336	323	343	342	336	371	345	331	317	F 299	309	267	304
5	292	305	345	A	316	311	346	346	359	344	359	333	334	357	355	329	358	358	333	318	311	314	289	322
6	306	302	301	305	313	311	370	376	366	356	329	361	365	343	361	368	350	340	330	310	316	321	310	313
7	309	295	292	292	297	317	370	363	357	363	345	339	354	355	355	347	359	342	333	309	311	328	312	320
8	312	F 298	303	303	322	300	369	362	356	353	346	352	337	369	339	350	343	354	321	309	320	296	310	302
9	297	292	308	261	318	340	358	378	365	361	353	349	344	360	353	332	354	355	331	310	319	304	317	314
10	318	304	319	292	318	310	362	360	352	356	336	357	352	350	345	335	351	351	340	320	315	301	304	296
11	300	300	302	309	295	301	364	358	363	366	362	355	340	349	335	355	358	378	327	319		290	295	296
12	294	300	300	312	309	334	366	371	363	326	351	343	363	354	338	342	350	338	340	337	337	338	297	303
13	301	298	288	291	317	329	377	388	367	353	374	344	352	337	340	344	343	353	315	284	274	288	267	293
14	255	285	297	296	266	277	304	R	R	A	A	A	326	321	303	319	336	310	304	284	279	287	278	271
15	302	269	270	286	299	R	329	322	242	316	316	336	328	334	335	346	344	350	322	310	314	305	297	J R 249
16	299	299	337	291	307	370	357	372	363	366	329	342	338	354	340	338	362	325	338	309	296	324	340	303
17	291	288	289	268	342	321	354	349	348	367	359	342	342	332	338	341	370	356	314	302	319	292	295	327
18	317	317	294	301	327	317	366	374	353	353	356	337	340	360	341	339	345	334	347	319	356	299	299	302
19	F 322	320	327	326	311	346	364	389	360	R 302	356	363	357	334	339	336	359	361	337	326	320	318	322	289
20	315	314	310	312	342	335	383	366	383	357	370	352	370	351	357	363	369	338	336	308	308	302	292	306
21	F 333	291	F 311	307	F 329	345	378	367	376	377	363	350	348	367	350	355	362	362	342	350	328	313	310	338
22	292	313	306	335	348	358	354	365	367	350	384	354	354	369	347	355	383	379	316	355	303	312	F 338	346
23	288	F 287	F 279	295	322	346	350	384	352	362	383	359	364	352	355	345	381	372	304	310	322	326	321	330
24	316	309	F 282	F 326	F 304	F 300	344	357	370	373	377	348	349	358	348	347	358	342	321	339	364	319	284	294
25	295	298	310	289	330	335	370	381	365	345	338	354	A	344	345	352	358	375	304	310	342	297	297	285
26	264	266	R 268	A	A	A	A	A	324	332	335	341	359	349	365	351	357	346	324	344	325	301	323	F 271
27	318	305	F 302	F 279	F 273	301	328	340	333	340	340	320	323	326	342	342	362	X R 342	301	F 300	F 285	F 263	F 293	295
28	F 278	312	330	357	F 255	277	F 306	348	329	326	338	340	373	325	361	340	372	F 340	343	301	305	271	283	308
29	315	256	F 284	F 292	F 284	F 271	F 334	343	350	363	335	364	360	369	317	358	356	312		A	A	A	A	A	302
30	309	313	306	322	319	289	331	339	382	344	345	375	347	342	358	325	378	361	322	298	301	319	302	311
31	307	298	324	326	348	304	330	341	349	356	358	363	341	348	373	357	377	337	319	321	306	333	315	327
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	29	30	29	30	29	30	30	30	30	30	31	31	31	31	31	30	30	29	30	30	31
MED	301	299	302	302	314	311	358	362	356	354	352	348	346	349	345	344	358	346	328	310	315	307	300	303
U Q	315	309	311	324	327	335	366	373	365	362	359	355	357	358	355	352	369	358	338	321	326	319	315	314
L Q	291	288	289	292	299	301	334	344	348	344	338	340	337	337	339	336	345	338	319	308	304	297	293	294

OCT. 2016 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	393	439	422	366	377	L	L							
2							L	L	L	389	L	384	385	385	L	L								
3									L	395	L	L	L	365	397	L								
4										L	L	375	378	L	389	L								
5								387	395	390	L	L	L	384	L	L								
6									L	L		L	L	L	401									
7										L	L	390	L	L	L	L								
8						L	L	L	L	U L 399	399	L	L	U L 399	393	L								
9						L	L	L	L	L	L	L	L	378	L	L 412								
10									L 422	U L 399	U L 401	403	U L 379	426	L									
11										340	L	L	400	404	L	L								
12										L	U L 379	U L 398	U L 399	404										
13						L			L	L 410	L	L	L	L 395			L	L						
14							A	A	A	A	A	A	L	L	L	U L 356	L	L						
15						R			394	L	370	381	395	373	374	L								
16									L		375	406	L	L	L									
17						L					L	411	421	404	L									
18							403	A		L	L	L	L	L	L									
19												L	L	401	422	L								
20									L	388		402	403	L	415	L								
21									L	U L 412	L	L	L	L	403			L						
22									L	L	L	406	L											
23										L		L	L	L										
24										L	L			L	L									
25										417	L	L	A	A	L									
26						A	A	A		L	L	396	U R 368	392	381	L	L								
27										348	377	412	367	364	379	L								
28										L 382	385	L	386	395	361									
29									L	384	L	L	402	L	L									
30								L	L	L	372	L	L	L	L									
31									L	L	L	407	386	L	L									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	1	3	13	9	14	14	16	12	2								
MED							403	387	395	390	379	402	390	394	391	L 384								
U Q									L 422	L 404	396	407	402	402	402									
L Q									394	383	374	390	379	376	378									

OCT. 2016 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								314	266	296	272	252	262	262	272	278	256							
2							268	236	246	246	260	270	270	290	244	256								
3									278	244	244	268	250	270	244	240								
4										246	246	260	276	254	246	246								
5								242	248	248	246	278	258	246	244	258								
6									234	256		232	232	250	240									
7										240	240	258	232	232	230	258								
8						252	210	222	214	244	244	242	248	228	252	226								
9						234	232	220	220	226	234	248	248	240	234	234								
10									222	238	256	230	228	238	238									
11										234	222	244	244	244	232	230								
12										262	242	228	220	226										
13						258			218	222	228	262	220	236			230	218						
14							A	A	A	A	A	A	260	246	250	304	284	290						
15						R			414	324	324	302	316	288	292	250								
16									250		280	258	252	248	252									
17						246					224	224	246	248	240									
18							222	204		224	224	236	250	242	242									
19												220	232	224	230	270								
20									208	234		232	228	242	238	232								
21									220	220	220	226	236	230	224			212						
22									232	244	204	242	238											
23										232		234	234	240										
24										222	222			230	248									
25										248	258	236	A	252	240									
26						A	A	A		288	270	252	226	250	230	230	230							
27										288	282	318	300	300	266	266								
28										290	272	250	234	266	242									
29									250	240	290	240	244	228	296									
30								260	224	248	254	220	234	264	248									
31									242	242	228	230	246	234	228									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						4	4	7	17	27	26	29	29	30	27	15	4	3						
MED						249	227	236	234	244	245	242	244	245	242	250	243	218						
U Q						255	250	260	250	256	270	259	255	254	250	266	270	290						
L Q						240	216	220	220	234	228	231	232	234	234	232	230	212						

OCT. 2016 h'F2 (KM)

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	266	266	278	268	268	250	250	226	214	224	194	180	180	216	200	206	228	228	222	244	230	238	254	246
2	288	274	274	234	262	290	228	208	200	192	200	192	192	182	200	210	228	220	234	260	230	224	256	256
3	290	288	252	Q 210	Q 244	238	222	214	202	196	192	168	178	198	198	A 180	236	234	214	214	206	220	258	254
4	294	276	276	266	218	234	212	220	244	194	200	200	208	192	212	196	226	226	218	280	304	272	302	272
5	290	256	232	A	A	A	256	216	198	198	196	196	196	204	204	204	230	220	224	262	262	262	Q 274	264
6	272	A	246	232	244	A 272	202	210	188	A	250	216	192	A 188	188	216	214	214	232	246	224	234	234	234
7	246	262	266	266	236	232	202	212	208	202	202	194	196	202	188	192	208	222	234	240	226	226	238	226
8	240	256	256	242	242	226	194	194	172	198	194	194	188	208	182	210	238	192	210	240	224	264	226	256
9	264	260	248	258	248	206	206	194	198	198	212	200	192	192	212	188	232	222	222	238	238	244	232	244
10	252	258	252	266	240	234	214	210	180	192	192	178	186	186	202	232	228	220	226	236	240	246	280	268
11	266	290	280	272	248	290	222	222	218	216	182	188	188	188	188	204	222	208	A 242	250		230	274	272
12	272	266	272	252	248	218	202	216	220	196	196	196	188	174	220	222	228	212	208	224	224	224	254	264
13	274	274	274	268	248	222	196	196	190	190	196	180	202	196	214	238	210	192	230	284	292	252	320	284
14	312	306	272	288	320	304	A	A	A	A	A	A	200	200	200	E A 232	232	248	248	252	274	284	272	312
15	314	E B 360	E B 354	E B 320	290	R	264	256	200	E A 306	212	200	186	208	200	200	240	212	216	A 282	252	268	266	266
16	262	270	226	256	242	218	224	224	206	240	190	180	196	206	196	238	232	230	220	E A 276	A	250	214	244
17	A	312	288	252	222	212	214	214	236	224	194	184	174	176	194	240	214	210	258	228	254	284	260	248
18	248	214	274	250	258	228	192	A	212	210	194	172	180	202	194	226	214	214	214	214	224	266	266	250
19	238	238	234	218	234	220	196	202	212	220	224	190	190	184	194	214	228	204	214	228	242	222	256	256
20	236	240	284	250	230	202	202	216	188	188	218	182	182	190	180	206	200	210	228	260	272	266	250	238
21	226	236	246	246	222	194	194	194	194	180	198	176	208	208	188	242	212	184	192	210	228	242	258	224
22	224	232	252	238	216	184	214	204	206	206	188	178	210	220	226	236	210	200	216	216	260	224	238	214
23	A 300	270	284	250	242	222	212	212	206	206	216	186	174	182	224	236	212	200	238	254	226	248	A	258
24	248	268	264	Q 224	248	232	220	214	224	194	194	234	234	200	210	230	218	222	246	242	240	240	264	A
25	A	270	270	A 288	232	220	220	208	226	188	206	206	A	A	206	222	222	204	E B 242	258	240	284	232	300
26	E A 334	E B 312	A	A	A	A	A	A	204	204	190	198	198	192	206	198	192	220	238	224	226	240	248	306
27	242	244	278	300	Q 244	228	258	A 248	214	214	202	184	192	192	202	202	226	214	214	E B 262	244	234	Q 256	310
28	290	278	256	242	Q 286	228	240	214	212	202	198	186	186	186	210	220	216	218	216	A	242	E A 302	250	236
29	236	240	250	254	222	262	266	254	200	192	212	178	184	184	202	226	230	E A 262	A	A	A	A	A	A
30	256	278	232	A	232	A 286	234	208	208	192	192	192	196	182	230	236	210	210	228	268	268	268	264	258
31	A	272	252	252	E A 272	A	A 250	228	198	214	192	192	192	184	192	214	204	224	248	256	228	248	278	250
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	30	30	28	29	27	29	28	30	29	30	30	30	30	31	31	31	31	30	29	28	30	29	29
MED	264	268	262	252	243	228	214	214	206	198	196	189	192	192	200	215	222	214	224	244	240	246	256	256
U Q	290	278	276	267	253	250	237	221	214	214	206	196	196	202	210	232	230	222	238	261	257	266	269	270
L Q	244	256	250	242	232	218	202	208	198	192	192	180	186	184	194	204	212	208	216	228	226	234	243	244

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	118	112	112	112	112	112	106	106	106	112	A	A						
2						B	B 112	112	100	100	100	94	94	94	110	98	B	B						
3						98	A	98	100	100	A	A	100	104	92	104	A	A	A					
4						B 146	122	108	114	A	114	106	106	A	A	106	A	A						
5						106	A	112	104	104	104	A	A	104	102	112	112	B	A					
6						A 136	124	106	100	100	A	A	100	A	A	A	A	A						
7						B	A 138	110	118	116	112	108	108	110	98	118	A	118	A					
8						B 140	110	110	110	110	108	100	A	118	118	A	98	A						
9						B	A 114	114	114	102	102	102	102	108	A	108	108	A						
10						B	B 112	112	110	106	110	106	106	112	116	116	A	A						
11						B	A 114	114	114	108	104	A	A	104	104	A	A	A						
12						B	A 118	116	104	104	108	108	108	104	104	104	A							
13						110	E B 154	110	106	106	100	100	106	A	106	102	A	A						
14						104	A	104	104	104	A	104	104	A	102	120	120	132						
15						116	A	110	108	108	108	108	A	A	A	104	A	A						
16						B	104	112	112	104	104	110	110	110	110	112	A	A						
17						B	B 110	110	110	A	110	102	114	114	114	114	114							
18						A	124	100	100	100	98	98	108	108	94	102	114	B						
19						112	118	116	112	112	112	114	114	102	110	110	136	B						
20						A	A 112	112	112	A	100	100	98	98	116	104	A							
21						B	156	120	120	112	112	112	116	116	116	116	134	B						
22						B	A 116	116	108	A	A	108	108	108	108	112	B	A						
23						B	B 120	112	112	A	A	112	112	108	108	A	B							
24						92	B	104	104	104	A	A	A	104	104	104	A	104						
25						B	118	118	A	A	A	A	A	A	110	106	104	B						
26						114	A	A		A	A	A	A	A	A	106	106	A						
27						B	144	404	112	112	102	A	A	102	102	102	A	94						
28							116	A	110	A	A	A	A	A	110	110	110	A						
29							B	A	110	A	A	92	A	A	A	B	A	A						
30								A	116	A	A	A	96	B	B	100	126	A						
31							A	126	112	92	92	A	106	A	106	B	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						8	13	27	29	26	18	19	21	20	25	26	17	7						
MED						108	130	112	112	109	104	108	106	106	106	109	112	108						
U Q						113	145	118	113	112	110	110	109	109	110	114	118	118						
L Q						101	117	110	107	104	100	100	101	102	102	104	105	98						

OCT. 2016 h'E (KM)

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	90	90	90	90	B 90	B	128	120	106	106	94	98	98	150	94	100	92	84	86	86	78	B	96	96
2	96	96	96	B	96	B	96	B 204	108	108	104	98	98	100	108	108	92	B	B	90	B	B	90	90
3	90	90	90	90	94	94	94	G	94	108	100	100	96	96	78	108	80	80	86	96	B	B	104	B
4	118	B	B	90	90	B	G	138	98	110	100	92	156	180	86	86	86	86	86	96	102	102	102	102
5	96	96	106	104	Q 94	94	104	116	98	98	98	98	98	98	88	G	114	B	100	100	100	100	100	100
6	100	92	92	92	92	88	92	102	102	102	92	92	92	92	94	100	94	Q 88	88	86	86	86	86	86
7	B	B	86	B	B	B	158	138	128	118	104	112	100	164	116	108	100	100	90	92	B	92	B	84
8	B	B	B	B	B	B	G	164	106	110	106	88	84	84	100	96	102	86	86	86	86	86	B	86
9	84	86	B	116	112	B	180	146	134	136	104	104	104	104	98	98	134	134	98	86	86	86	86	86
10	B	B	B	94	B	B	B	120	106	116	92	164	96	100	178	102	120	118	104	138	B	104	92	96
11	100	94	94	94	B	B	106	106	104	104	94	106	104	94	90	106	90	94	94	88		B	B	98
12	98	B	98	B	98	B	130	122	108	106	106	98	98	98	88	94	94	88	88	88	B	88	B	B
13	94	92	92	B	92	92	92	134	110	188	96	88	162	86	114	110	92	92	92	B	96	B	B	B
14	B	162	120	118	110	102	102	102	102	102	98	100	120	98	100	126	134	142	B	128	84	B	B	88
15	96	96	B	B	132	114	114	104	106	106	106	104	98	102	102	106	102	96	96	96	82	90	90	98
16	B	86	100	B	B	B	92	158	112	102	108	108	104	102	120	G	106	104	100	100	98	98	100	96
17	88	94	92	92	100	B	G	104	98	94	96	G	114	140	200	120	110	100	106	98	106	98	98	98
18	92	B	100	100	B	100	100	120	106	102	88	88	102	92	102	102	G	B	96	B	108	106	106	94
19	94	90	98	98	100	G	94	112	100	104	96	168	162	G	108	118	G	B	102	94	94	94	94	94
20	96	120	94	92	92	94	94	128	116	116	106	92	92	92	92	104	90	90	90	90	90	90	86	B
21	86	B	B	B	B	B	172	122	122	106	106	106	150	102	110	102	138	B	102	B	102	100	90	90
22	B	B	B	108	108	108	102	138	106	100	100	100	154	104	110	134	114	96	90	90	106	100	100	96
23	96	96	92	92	92	92	92	114	114	100	98	98	104	178	G	G	94	94	96	96	104	98	98	98
24	98	98	84	88	88	80	B	116	106	98	98	102	98	92	92	106	86	90	106	106	90	90	94	94
25	94	104	94	102	92	92	G	122	104	104	98	90	90	90	90	90	90	B	B	B	B	106	106	100
26	100	100	100	100	102	102	108	100	100	100	100	100	100	84	92	92	92	102	102	118	100	100	90	90
27	B	112	B	B	B	94	124	106	118	100	100	100	100	98	106	106	92	92	92	102	102	102	Q 102	90
28	98	98	90	92	92	B	108	108	100	100	100	104	104	94	86	92	102	102	108	104	104	104	118	110
29	92	92	92	92	84	90	B	110	106	100	100	100	96	96	96	B	96	96	96	110	110	100	100	100
30	104	98	98	94	94	94	B	108	108	100	100	100	G	B	B	G	110	110	B	104	94	94	94	94
31	94	94	94	94	94	94	94	148	102	102	102	88	96	108	94	B	94	94	92	92	B	88	88	92
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	23	23	22	22	17	23	30	31	31	31	30	30	29	29	25	29	25	27	27	23	25	25	27
MED	96	96	94	94	94	94	102	120	106	104	100	100	100	98	98	104	94	94	96	96	98	98	96	94
U Q	98	98	98	100	100	101	124	138	110	108	104	104	104	104	109	108	110	102	102	104	104	101	101	98
L Q	92	92	92	92	92	92	94	108	102	100	96	92	96	92	91	97	92	89	90	90	86	90	90	90

OCT. 2016 h'Es (KM)

IONOSPHERIC DATA STATION Wakkanai

OCT. 2016 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F3	F3	F3	F2			C2	C2	C3	C4	C2	L1	L1	H1	C1	CL12	L2	L2	L2	F2	F1		F2	F3
2	F3	F3	F1		F1		C1	C1	C1	C2	C2	C2	C2	C1	C1	C1	L1			F1			F1	F1
3	F1	F1	F1	F2	F2	C2	L2		L1	C1	L1	L1	C1	C1	L1	CL21	L2	L2	L2	F1			F1	
4	F1			F1	F1			C1	C3	C1	L2	L2	CL11	CL11	L2	L2	C2	L3	L2	F3	F4	F3	F4	F2
5	F2	F5	F1	F3	F3	C2	L3	C1	C2	C2	C2	L2	L2	L2	L2		C2		L3	F2	F2	F2	F2	F2
6	F3	F4	F1	F1	F1	L3	L1	L1	C1	C3	C2	L2	L2	L2	L1	L2	L2	L3	L2	F1	F1	F1	F1	F1
7			F1				H1	H1	C1	C1	C1	C2	C1	H1	C1	C1	L3	L3	L3	F2		F1		F1
8								HL11	C1	C1	L1	L1	L1	L1	L1	L1	L1	C1	L2	F2	F2	F2		F1
9	F1	F1		F1	F1		H1	H1	H1	H1	L1	L1	C1	C1	L1	L1	H1	H1	L1	F1	F1	F1	F1	F1
10				F1				C1	L1	C2	LC11	H1	C2	C2	H1	L1	C2	L2	L2	F1		F1	F1	F2
11	F2	F2	F3	F2			L3	C2	C2	C2	C2	C1	L1	L3	C1	C1	L2	L2	L2	F1				F3
12	F1		F1		F1		L2	C1	C2	C2	C2	LC11	C2	C2	LC11	LC11	C1	L1	F1	F1		F1		
13	F1	F1	F1		F1	LC11	LH11	H1	C2	C2	C1	LC11	HL11	L2	C1	L2	L2	L2	F2		F1			
14		F1	F1	F1	F1	L3	L3	L4	L4	L2	LL32	LL32	LL21	L1	L1	C1	C2	C1		F1	F1			F1
15	F1	F1			F1	L2	L2	L2	C1	C2	C2	C1	L2	L2	L2	C1	L2	L2	F2	F3	F2	F1	F1	F2
16		F1	F2				L1	H1	C1	L3	C2	L1	L1	L1	C2		L2	LQ31	FQ21	F2	FFF51	F2	F2	F2
17	F3	F2	F3	F3	F1			LH11	L1	L4	L3		C1	C1	C1	C1	C2	C2	C1	F2	F2	F2	F2	F2
18	F2		F1	F1		L2	C2	C2	C6	C2	C2	C2	C1	L1	L1	L2			F1		F3	F3	FF31	F2
19	F3	F3	F1	F1	F1		C1	C2	C3	C1	C2	CL11	C1		C1	C1			F1	F2	F3	F4	F3	F2
20	FF11	FF11	F3	F2	F2	L3	L1	C1	C2	C2	L2	C1	C2	C1	C1	C1	C1	L1	F2	F1	F2	F1	F1	
21	F1						C1	C3	C1	LC11	C3	C2	C1	LC11	LC11	CC21	C1		F1		F1	FQ11	F1	F1
22				F2	F1	L1	L2	C2	C1	C2	L1	L2	L1	LC11	C1	C1	L2	L1	FQ11	F1	FFQ11	FFQ31	FQ21	FFQ31
23	FFQ31	FQ21	F2	F2	F1	L3	L1	C2	C2	C2	L2	L2	L1	L1			L2	L1	F2	F2	F2	F3	F4	F2
24	F1	F3	F3	F2	F2	C2		C2	C2	C3	C3	L3	L3	C1	C1	C1	L1	L1	F3	F2	F3	F2	F2	F4
25	F5	F4	F2	F3	F1	L1		C2	L3	L1	L2	L3	L5	L3	C1	C1	C1					F1	FF21	F3
26	F3	F2	F2	F6	FF51	FF82	FF82	FF81	L2	L2	L1	L1	L2	L3	L2	C1	L2	L1	F5	F3	F4	F1	F2	F1
27		F1				L1	C1	C3	C2	C2	C2	L2	L1	C1	C1	C2	L2	C1	F1	F3	F4	F4	FF11	FQ21
28	F3	FQ21	F4	F2	F2		L5	L4	C3	L1	L2	L1	L1	L1	LC11	C1	C1	L5	FQ31	FQ31	FQ31	FQ31	FF13	FF13
29	F2	FF11	F1	F1	F1	F1		L1	C1	L1	L2	C1	L1	L1	L1		L1	LQ21	FQ21	FQ41	FFQ41	FFQ41	FQ41	FQ31
30	F1	F3	F1	FF31	F2	F1		L4	L1	L2	L1	L1					C3	C1		F2	F1	F2	F3	F3
31	F4	F2	F2	F2	F4	F5	L3	C2	C1	C2	C2	C1	C1	C1	C1		C1	C2	F1	F2		F1	F1	F1
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

OCT. 2016 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 39	X 37	X 39	X 39	X 36														X 69	X 57	X 36	X 38	X 40	X 40
2	X 40	X 40	X 40	X 36	X 32														X 71	X 52	X 51	X 50	X 50	X 48
3	X 46	X 47	X 44	X 44	X 34														X 71	X 62	X 42	X 36	A	X 40
4	X 40	X 40	X 40	X 40	X 42														X 57	A	X 49	X 50	X 50	X 50
5	X 44	X 46	X 49	X 37	X 35															X 54	X 52	X 51	X 48	X 44
6	X 44	X 48	X 41	X 42	X 39														X 65	X 59	X 55	X 52	X 48	X 48
7	X 48	X 48	X 46	X 46	X 47														X 64	X 60	X 51	X 49	X 47	X 48
8	X 47	X 47	X 45	X 43	X 42	X 40													X 59	X 49	X 52	X 45	X 46	X 46
9	X 47	X 46	X 46	X 48	X 44	X 42													X 78	X 59	X 56	X 52	X 50	X 49
10	X 50	X 49	X 49	X 48	X 46														X 72	X 51	X 52	X 50	X 44	X 46
11	X 46	X 45	X 45	X 42	X 43														X 60		A	A	X 45	X 46
12	X 47	X 45	X 44	X 45	X 45														X 63	X 56	X 48	X 45	X 42	X 42
13	X 44	X 43	X 44	X 43	X 44														X 57	X 50	X 50	X 51	X 46	X 49
14	X 49	X 49		X 52	X 49														X 66	X 57	X 51	50	X 44	49
15	44	42	47	X 41	X 40	39													X 52	X 42	X 42	X 40	X 41	X 40
16	X 39	X 37	X 37	X 37	X 36	X 35													X 59	X 54	X 51	O X 42	X 42	X 41
17	X 40	X 38	X 39	X 42	X 32	X 34													X 46	X 48	X 48	X 43	X 49	X 44
18	X 41	X 40	X 38	X 40	X 40	X 42													X 52	X 47	X 46	X 43	X 44	X 45
19	X 45	X 42	X 37	X 39	X 37	X 33													X 58	X 48	X 51	X 48	X 47	X 46
20	X 42	X 44	X 43	X 43	X 46														X 46	X 36	X 41	X 43	X 43	X 42
21	X 42	X 42	X 45	X 43	X 46	X 34													X 54	X 40	X 42	X 39	X 38	X 39
22	X 38	X 37	X 38	X 39	X 42		X 44												X 49	X 40	A	X 40	42	X 42
23	X 40	X 37	X 37	X 38	X 41														X 48	X 40	X 42	X 39	X 40	X 40
24	X 40	X 40	X 40	X 39	X 44														X 44	X 51	X 46	A	X 38	X 40
25	X 40	X 43	X 41	X 43	X 40														X 42	X 46	X 50	X 47	X 44	X 36
26	X 40	X 38	X 44	X 31	X 36	X 30													X 48	X 52	X 41	X 37	X 42	X 38
27	X 40	X 44	X 46	X 40	X 39	X 37													X 67	X 38	45	X 41	48	X 42
28	X 44	X 40	X 40	X 43	X 34	X 36													X 40	X 41	45	X 41	47	A
29	X 36	X 38	X 37	X 34	X 35	X 31													X 42	X 43	A	A	X 45	X 45
30	X 40	X 37	X 36	X 37	X 37	X 34													X 39	X 39	X 42	X 44	X 43	X 43
31	X 41	X 40	X 41	X 42	X 34	X 30													X 41	X 40	X 41	X 41	X 42	X 38
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	31	31	14	1												30	29	28	28	30	30
MED	X 42	X 42	X 41	X 42	X 40	X 34	X 44												X 57	X 49	X 48	X 44	X 44	X 44
U Q	X 46	X 46	X 45	X 43	X 44	X 39													X 65	X 55	X 51	X 50	X 47	X 46
L Q	X 40	X 38	X 39	X 39	X 36	X 33													X 46	X 40	X 42	X 40	X 42	X 40

OCT. 2016 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT. 2016 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 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	U L 420	A	A	U L 448	U L 448	U L 436	L	A						
2									L	A	U L 464	A	U L 460		L	A	A	A						
3									L	U L 448	A	A	A	L	L	A	A	A						
4									L	A	U L 472	U L 480	L	A	L	L								
5									L	L	U L 468	A	U L 448	L	L	A	A							
6										A		U L 468	U L 472	U L 444	L		L							
7							L			L	L	U L 472	U L 460	U L 460	L	L								
8									A	L	L	U L 452	U L 480	U L 456	L	L								
9									L		A	A	U L 476	L	L									
10									L	L	U L 444	U L 456	U L 464	U L 448	L	L								
11											L	A	L	L	L	L				A				
12						A				L	L	L	U L 456	L	A	L								
13										A	L	U L 480	U L 484	L	L	A								
14										L	L	L	L		A									
15							A	U L 384	U L 440	U L 432	U L 416	A	U L 444	L	L	A	A							
16									L	U L 424	U L 444	U L 456	L	L	U L 424	L	A							
17									L	L	U L 460	A	A	L	L									
18										L	L	U L 440	A	L	L	L								
19										L	L	L	L	L	L	L								
20										L	A	U L 468	L	L	L	L								
21									L	L	L	L	L	L	L	L								
22									L	L	L	L	U L 432	L	L									
23									L	A	A	L	U L 448	A	L	L								
24										A	U L 448	L	U L 416	L		L								
25										L	A	L	L	L	L	A								
26											L	A	A	A	L	L								
27									L	A	A	A	A	A	L	A								
28									A	A	A	U L 440	A	A	A	A		A						
29									L	U L 436	L	U L 416	U L 432	L										
30								A	A			A	U L 440	A	L	A								
31									L	L	U L 444	A	A	A	A									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	1	5	9	11	16	5	2									
MED								U L 384	U L 440	U L 432	U L 448	U L 456	U L 452	U L 448	U L 430									
U Q										U L 442	U L 466	U L 472	U L 468	U L 458										
L Q										U L 422	U L 444	U L 440	U L 442	U L 446										

OCT. 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 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	B	UR 244	A	A	A	A	A	A	A	A	A	A						
2						B	B	236	A	A	A	A	A		A	A	A	A						
3						B	B	A	A	A	A	A	A	A	A	A	A	B						
4						B	188	A	R	A	A	R	A	A	UR 332	R	A	B						
5						B	A	A	A	A	A	A	A	R	A	A	A	B	B					
6						B	180	236	A	A	R	R	R	R	R	R	R	B						
7						B	B	R	A	R	R	R	R	R	A	A	A	B						
8							B	A	A	A	R	R	R	R	A	R	UR 248	B						
9							B	244	A	A	A	A	R	A	304	R	244	B						
10						B	B	UR 260	R	R	A	A	R	R	R	UR 280	232	B						
11						B	B	A	A	A	A	A	A	R	A	A	A	B		A				
12						B	A	A	A	A	A	A	A	A	A	R	236	B						
13						B	B	240	A	A	A	A	R	R	R	A	UR 232	B						
14			K 180			B	B	A	A	A	A	A	A	A	A	A	A	B						
15						B	A	A	A	A	A	A	A	A	A	A	A	B						
16							B	A	R	A	R	A	A	R	R	A	A	B						
17							A	A	A	A	R	A	R	R	R	264	UR 224	B						
18							B	A	A	A	A	A	A	A	R	R	216	B						
19							B	A	A	A	A	R	A	A	A	A	UA 216	B						
20						B	B	A	A	A	A	A	A	A	R	R	UR 220	B						
21							B	236	A	A	A	A	A	A	A	A	B	B						
22						B		244	A	A	A	A	R	R	R	R	UA 196	B						
23						B	B	UR 240	A	A	A	A	A	A	UR 316	A	UR 212	B						
24						B	B	224	A	A	R	R	A	R	288	256	UA 196	B						
25						B	B	A	A	A	A	A	R	R	A	A	A	B						
26							B	A	A	A	A	A	A	A	UR 296	A	UR 200	B						
27							B	UA 204	A	A	A	A	A	A	A	A	A	B						
28							B	A	A	A	A	A	A	A	A	A	A	B						
29							B	A	UR 272	R	A	R	R	R	R	A	A	B						
30							B	A	A	A	A	A	A	A	A	A	A	B						
31							B	204	UR 260	A	A	A	A	A	A	R	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			1				2	12	2						5	3	13							
MED			K 180				184	238	UR 266						UR 304	264	U 220							
U Q								244							UR 324	UR 280	234							
L Q								230							292	256	U 206							

OCT. 2016 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	22	J A 19	J A 21	20	21	E B 14	E B 15	G	J A 36	35	J A 49	J A 56	41	36	J A 40	J A 38	J A 41	J A 24	J A 28	J A 22	J A 20	21	E B 15	E B 15
2	E B 15	E B 15	J A 23	J A 22	E B 15	E B 15	20	29	33	J A 41	J A 38	J A 46	38		36	J A 43	J A 43	J A 47	J A 42	J A 54	J A 24	J A 24	J A 30	J A 28
3	J A 24	J A 26	J A 24	J A 22	22	21	19	29	31	36	J A 42	J A 47	J A 41	J A 37	J A 36	36	J A 54	J A 60	J A 48	J A 61	J A 127	J A 100	J A 56	J A 47
4	J A 26	J A 31	J A 24	J A 26	J A 25	E B 15	22	29	G	38	J A 44	G	J A 40	J A 42	G 28	G	30	23	J A 22	J A 51	J A 24	J A 24	J A 18	J A 25
5	E B 16	E B 15	E B 14	E B 15	19	E B 15	J A 24	J A 36	34	J A 38	40	J A 46	37	G	36	36	J A 56	J A 35	J A 28	J A 61	J A 39	20	E B 15	E B 14
6	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	21	31	32	38	G 28	G 26	G	G	G	J G 27	G	J A 28	J A 19	J A 22	J A 22	E B 14	E B 14	E B 15
7	E B 14	E B 15	E B 15	E B 16	E B 14	E B 14	E B 15	G	34	G	G	G	G	G 23	37	33	J A 30	E B 15	J A 26	J A 22	J A 21	J A 23	21	E B 14
8	E B 16	E B 14	E B 15	E B 16	E B 14	E B 15	21	J A 30	34	36	G	G	G	G 22	36	G	G	20	J A 22	20	J A 20	J A 28	E B 15	J A 20
9	22	E B 14	22	J A 23	E B 15	E B 15	22	30	36	J A 40	J A 48	J A 102	G 31	40	36	G	28	22	J A 25	J A 52	J A 54	J A 23	E B 15	E B 14
10	J A 25	J A 24	J A 33	J A 23	E B 15	18	20	G	G	G	38	39	G	G	G	35	28	E B 15	E B 15	E B 15	E B 15	E B 15	22	J A 28
11	22	22	22	E B 14	E B 14	E B 16	20	29	35	J A 40	J A 61	J A 83	37	G	38	J A 44	J A 33	J A 36	J A 82	J A 80	J A 77	J A 60	J A 28	J A 27
12	J A 39	J A 34	J A 26	J A 26	J A 28	J A 54	J A 30	31	34	35	J A 44	J A 47	39	36	J A 40	G 21	28	21	J A 24	20	23	22	J A 20	21
13	E B 14	E B 15	E B 15	J A 20	19	E B 15	19	30	36	J A 65	J A 38	39	G 30	G 29	G 26	33	G	E B 16	21	J A 25	E B 15	E B 16	22	J A 20
14	J A 24	E B 15	K 22	E B 14	E B 15	E B 15	E B 16	30	35	36	40	36	35	37	J A 72	32	28	J A 26	J A 61	21	J A 24	J A 55	J A 88	J A 26
15	J A 19	19	18	20	J A 30	22	J A 41	J A 33	J A 37	34	35	J A 43	38	40	35	J A 41	J A 42	J A 136	J A 42	J A 36	J A 41	54	J A 21	22
16	E B 15	E B 15	E B 15	22	J A 30	J A 21	E B 16	28	G	34	G	40	37	G	G	34	J A 67	J A 38	J A 34	J A 69	J A 29	J A 75	J A 30	20
17	J A 32	J A 23	J A 27	J A 22	J A 24	22	J A 39	J A 32	J A 38	32	G	39	G	G	G	29	G	J A 31	J A 24	J A 32	J A 31	44	44	31
18	E B 14	J A 26	22	J A 30	20	E B 15	19	25	34	35	39	J A 34	J A 43	37	G	G	26	J A 29	J A 82	J A 20	J A 23	24	25	23
19	E B 15	22	20	E B 14	18	E B 15	20	J A 37	32	36	37	G	38	J A 38	35	31	26	21	E B 15	J A 19	27	25	20	J A 22
20	J A 28	19	E B 15	E B 15	E B 14	E B 14	E B 15	27	J A 39	35	38	J A 41	34	J A 38	G 27	G 23	G	J A 38	J A 32	J A 57	J A 30	J A 20	J A 27	J A 23
21	E B 16	21	21	J A 20	J A 22	J A 31	J A 21	30	31	36	J A 42	36	J A 40	34	34	J A 37	33	J A 33	J A 29	21	E B 14	J A 22	33	J A 20
22	J A 21	J A 21	J A 22	J A 20	E B 15	J A 26	J A 20	28	30	J A 40	J A 36	J A 44	G 28	G 22	G	G	23	J A 20	J A 23	J A 73	J A 61	J A 35	J A 30	J A 25
23	J A 28	J A 32	J A 23	23	19	19	J A 18	G	J A 46	J A 39	J A 60	36	36	38	G 21	31	G	E B 14	J A 23	J A 29	J A 38	J A 20	J A 42	J A 26
24	J A 24	J A 21	J A 20	21	20	E B 14	E B 16	26	J A 38	J A 47	G 30	G 28	35	G	33	29	G 18	J A 20	E B 14	J A 28	J A 27	J A 43	J A 29	J A 21
25	J A 31	J A 35	J A 32	J A 27	J A 19	21	J A 22	28	J A 54	35	36	36	G	G	34	36	J A 46	E B 18	E B 16	E B 14	20	J A 23	J A 20	J A 24
26	J A 24	J A 37	J A 25	J A 26	E B 15	E B 14	J A 26	26	31	J A 55	J A 61	J A 106	J A 59	J A 57	G	J A 30	G	E B 15	22	J A 31	J A 32	J A 58	J A 66	J A 30
27	J A 24	22	J A 27	J A 20	J A 25	J A 20	E B 15	24	32	J A 56	J A 44	J A 58	J A 82	J A 61	J A 44	J A 54	J A 28	E B 15	E B 15	23	J A 54	74	J A 24	J A 24
28	J A 32	22	J A 30	J A 23	J A 30	E B 16	J A 17	J A 29	J A 48	J A 56	J A 56	J A 43	J A 62	J A 49	J A 44	J A 55	J A 62	J A 62	J A 30	J A 50	J A 44	J A 60	J A 28	J A 53
29	J A 25	J A 31	J A 32	J A 32	J A 30	J A 24	J A 23	J A 38	G 25	G	J A 36	G	G	G	G	J A 26	J A 25	J A 20	E B 16	J A 37	J A 76	J A 76	J A 25	J A 55
30	J A 20	J A 21	20	J A 24	J A 20	E B 15	J A 18	26	J A 47	J A 54	J A 105	J A 102	J A 41	J A 54	J A 43	J A 43	J A 29	J A 29	21	J A 38	J A 63	J A 32	J A 32	J A 25
31	J A 30	J A 30	22	J A 20	21	E B 15	E B 14	24	G	32	35	J A 77	J A 61	J A 58	J A 58	G 23	J A 30	J A 32	J A 35	J A 20	J A 24	E B 16	22	J A 23
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31
MED	J A 22	21	22	J A 21	19	E B 15	20	29	34	36	J A 38	J A 40	37	36	35	32	28	J A 24	J A 24	J A 29	J A 27	J A 24	J A 25	J A 23
U Q	J A 26	J A 26	J A 25	J A 23	J A 24	J A 21	J A 22	30	J A 37	40	J A 44	J A 47	J A 41	40	38	37	J A 41	J A 35	J A 34	52	J A 44	55	J A 30	J A 27
L Q	E B 16	E B 15	E B 18	E B 16	E B 15	E B 15	E B 16	26	G 31	35	G 35	G 34	G	G	G	G	G	E B 20	E B 21	21	22	21	E B 20	E B 20

OCT. 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 15	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	G	32	33	39	50	33	32	32	33	35	18	19	16	E B 16	E B 16	E B 15	E B 15
2	E B 15	E B 15	E B 15	15	E B 15	E B 15	18	26	30	38	34	38	34		33	36	30	38	37	25	20	19	18	22
3	19	23	20	E B 14	E B 15	E B 15	18	26	29	34	39	43	38	33	32	33	34	56	32	39	19	22	A A 56	20
4	E B 15	16	E B 16	22	E B 16	E B 15	G 18	25	G	36	38	G	35	38	G 27	G	27	21	20	A A 51	E B 15	E B 15	E B 15	E B 15
5	E B 16	E B 15	E B 14	E B 15	E B 14	E B 15	20	28	31	34	36	40	35	G	33	33	32	30	24	39	32	E B 15	E B 15	E B 14
6	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	20	28	30	36	G 27	G 24	G	G	G	G 20		19	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15
7	E B 14	E B 15	E B 15	E B 16	E B 14	E B 14	E B 15	G	32	G	G	G	G	G 21	34	30	26	E B 15	18	18	E B 15	17	E B 15	E B 14
8	E B 16	E B 14	E B 15	E B 16	E B 14	E B 15	20	25	33	33	G	G	G	G 20	34	G	G	18	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15
9	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	20	27	32	37	41	58	G 28	39	35	G	27	20	19	44	35	E B 15	E B 15	E B 14
10	E B 14	E B 16	16	E B 15	E B 15	E B 15	18		G	G	36	36	G	G	G	33	25	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	20
11	E B 15	E B 15	E B 15	E B 14	E B 14	E B 16	17	25	33	37	38	A A 83	35	G	34	35	30	31	E B 15	A A 80	A A 77	A A 60	20	E B 15
12	28	27	21	19	16	A A 54	20	29	31	34	38	39	37	35	36	G 21	26	20	17	E B 15	E B 16	E B 16	E B 15	E B 16
13	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	17	27	35	62	36	37	G 30	G 28	G 25	31	G	E B 16	16	19	E B 15	E B 16	E B 15	E B 15
14	E B 15	E B 15	E B 16	E B 14	E B 15	E B 15	E B 16	28	33	34	35	34	33	32	55	30	25	22	38	E B 15	19	E B 15	E B 15	E B 15
15	E B 15	E B 15	E B 15	E B 14	17	E B 15	20	29	31	30	34	38	35	36	33	37	37	38	E B 15	18	22	28	E B 15	E B 15
16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	24	G	31	G	36	35	G	G	30	38	33	19	E B 15	E B 15	30	20	E B 15
17	22	E B 15	18	E B 15	E B 15	E B 15	27	28	32	29	G	35	G	G	G	28	G	29	E B 15	E B 15	19	E B 15	17	26
18	E B 14	19	E B 14	E B 16	E B 15	E B 15	18	24	30	34	36	34	37	34	G	G	24	25	E B 15	E B 15	E B 15	15	E B 16	E B 14
19	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	18	29	31	34	36	G	34	36	33	30	22	19	E B 15	E B 14	E B 15	17	E B 15	E B 15
20	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	25	31	33	33	36	34	34	G 22	G 21	G	19	24	22	E B 15	E B 15	19	E B 15
21	E B 16	E B 16	E B 15	E B 16	E B 15	E B 15	18	26	30	34	35	36	36	32	31	28	31	18	E B 15	E B 15	E B 14	E B 15	21	E B 15
22	E B 16	E B 15	E B 15	E B 14	E B 15	E B 14	16	25	28	32	32	35	G 27	G 20	G	G	22	E B 14	19	19	A A 61	E B 15	20	17
23	E B 16	19	E B 15	20	E B 15	15	E B 15	G	30	34	44	33	34	35	G 19	28	G	E B 14	19	18	E B 15	E B 15	27	E B 16
24	19	17	E B 15	E B 16	E B 15	E B 14	E B 16	23	32	38	G 26	G 25	33	G	31	28	G 18	E B 15	E B 14	E B 14	E B 15	A A 43	20	18
25	18	20	E B 15	E B 15	E B 14	E B 15	E B 16	26	44	33	36	33	G	G	32	34	41	E B 18	E B 16	E B 14	E B 16	E B 15	17	18
26	E B 15	26	E B 16	E B 15	E B 15	E B 14	21	24	29	40	33	52	43	36	G	26	G	E B 15	E B 15	23	22	22	E B 15	20
27	E B 15	E B 16	18	E B 15	E B 15	E B 16	E B 15	22	28	46	39	41	43	39	31	29	23	E B 15	E B 15	20	E B 15	18	E B 15	17
28	19	E B 15	18	E B 15	18	E B 16	E B 15	22	42	38	45	36	45	42	37	39	33	41	20	20	E B 15	18	21	A A 53
29	E B 15	20	25	20	17	16	E B 15	34	G 22	G	31	G	G	G	G 25	26	21	16	E B 16	32	A A 76	A A 76	E B 16	18
30	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	22	34	42	35	57	34	38	30	30	23	20	18	17	28	19	19	19
31	E B 15	19	E B 15	E B 15	E B 15	E B 15	E B 14	23	G	29	32	73	56	50	53	G 21	23	22	24	E B 15	E B 15	E B 16	E B 15	E B 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	17	25	31	34	35	36	34	32	31	29	25	19	17	18	E B 16	E B 16	E B 16	E B 15
U Q	16	19	16	16	15	E B 15	20	28	32	37	38	41	36	36	34	33	31	29	20	23	22	19	20	18
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	23	G 29	32	G 32	G 33	G	G	G	G	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

OCT. 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT. 2016 fmin (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	306	310	315	312	306	296	367	341	363	334	341	360	335	340	332	326	346	346	356	361	296	300	297	301
2	282	308	319	316	302	292	359	382	371	369	330	341	351		327	341	356	344	360	323	293	306	305	304
3	278	305	315	335	316	308	341	357	369	363	341	343	349	320	333	360	360	348	333	365	324	308	A	303
4	287	297	302	341	379	278	376	362	372	347	336	325	337	325	339	341	350	365	343	A	288	284	292	309
5	293	288	344	358	300	313	343	358	V 367	372	348	331	351	336	351	349	348	354	343	323	307	298	320	294
6	307	315	307	326	318	306	365	360	372	388	326	343	354	356	336	351	342	342	351	323	317	324	313	310
7	306	303	313	301	327	293	362	372	358	363	359	355	357	356	338	354	360	343	344	337	310	310	311	285
8	311	301	307	315	311	306	366	388	352	356	345	351	343	357	350	348	345	350	353	330	314	303	307	286
9	297	303	321	334	326	322	366	383	369	384	356	347	337	332	337	346	341	344	344	337	301	292	295	295
10	289	304	307	319	316	339	353	377	362	362	330	356	351	339	341	343	354	356	346	317	321	316	297	285
11	295	298	300	298	310	302	349	364	384	378	344	A	329	345	333	348	346	365	357	A	A	A	286	282
12	281	297	297	321	331	A	372	363	335	323	329	343	362	343	344	361	356	354	343	350	328	289	301	307
13	291	299	305	313	328	327	371	388	380	368	350	336	335	348	345	351	344	358	341	275	271	287	254	278
14	296	283	303	317	297	290	V 326	351	327	327	302	326	340	340	328	353	340	327	303	301	296	F	275	F
15	F	F	F	290	296	F	339	332	315	323	347	360	344	360	353	371	360	370	351	333	285	310	300	298
16	294	295	299	313	310	320	368	377	345	350	322	351	343	336	352	355	363	362	326	334	328	308	299	309
17	303	297	303	337	387	315	354	370	370	386	339	336	360	337	319	349	353	369	322	320	298	286	319	328
18	311	323	293	307	316	340	381	365	348	354	340	367	358	324	329	349	359	358	336	324	320	304	303	294
19	315	341	307	332	352	317	372	369	386	364	360	347	339	338	349	347	351	354	365	316	323	317	319	327
20	301	317	322	329	359	378	365	402	372	363	354	354	355	353	362	354	375	366	369	287	297	300	316	303
21	330	316	296	300	360	335	382	372	365	362	367	355	363	343	332	363	361	366	379	327	333	319	283	302
22	317	315	309	330	388	322	359	383	376	343	V 364	369	326	331	364	378	383	378	381	320	A	308	F	328
23	328	302	301	345	375	338	368	373	354	380	335	330	358	345	340	359	365	370	382	311	341	324	305	300
24	310	301	315	306	381	325	375	373	367	399	371	337	342	348	357	354	374	390	314	336	339	A	296	300
25	302	319	291	309	317	332	348	364	361	336	325	340	347	338	346	363	386	355	294	305	319	301	318	288
26	284	276	333	287	311	269	319	333	361	303	332	348	367	345	341	353	357	342	341	333	342	301	295	284
27	296	308	338	307	283	306	338	352	363	325	352	328	332	345	344	355	354	345	394	296	F	281	F	302
28	317	319	324	364	298	301	338	334	340	333	343	340	346	353	337	346	355	367	332	273	F	320	F	A
29	304	311	317	326	308	347	350	360	359	351	368	342	333	344	332	345	355	353	314	316	A	A	312	335
30	324	330	318	312	309	300	323	350	349	365	367	353	339	358	358	358	359	384	368	294	315	324	331	305
31	312	299	305	362	334	306	320	368	336	352	361	370	346	362	368	377	379	363	340	296	320	315	327	307
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	31	31	29	31	31	31	31	31	30	31	30	31	31	31	31	31	29	26	27	27	29
MED	302	304	307	317	316	313	359	365	363	362	344	345	346	344	341	353	356	356	344	323	316	306	303	302
U Q	311	315	318	334	352	330	368	377	371	369	359	355	355	353	351	359	361	366	360	334	324	316	316	308
L Q	293	298	302	307	308	300	341	357	349	336	332	337	337	337	333	347	348	346	333	303	297	298	295	291

OCT. 2016 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	U L 406	A	A	U L 383	U L 379	U L 372	L	A						
2									L	A	U L 382	A	U L 377		L	A	A	A						
3									L	U L 389	A	A	A	L	L	A	A	A						
4									L	A	U L 395	U L 373	L	A	L	L								
5									L	L	U L 395	A	U L 371	L	L	A	A							
6										A		U L 400	U L 374	U L 385	L		L							
7							L			L	L	U L 381	U L 413	U L 393	L	L								
8									A	L	L	U L 410	U L 389	U L 378	L	L								
9									L		A	A	U L 415	L	L									
10									L	L	U L 406	U L 414	U L 394	U L 397	L	L								
11											L	A	L	L	L	L				A				
12						A				L	L	L	U L 397	L	A	L								
13										A	L	U L 382	U L 379	L	L	A								
14										L	L	L	L		A									
15							A	U L 330	U L 342	U L 386	U L 420	A	U L 389	L	L	A	A							
16									L	U L 393	U L 379	U L 381	L	L	U L 377	L	A							
17									L	L	U L 393	A	A	L	L									
18										L	L	U L 414	A	L	L	L								
19										L	L	L	L	L	L	L								
20										L	A	U L 374	L	L	L	L								
21									L	L	L	L	L	L	L	L								
22									L	L	L	L	U L 421	L	L									
23									L	A	A	L	U L 399	A	L	L								
24										A	U L 399	L	U L 419	L		L								
25										L	A	L	L	L	L	A								
26											L	A	A	A	L	L								
27									L	A	A	A	A	A	L	A								
28									A	A	A	U L 384	A	A	A	A		A						
29									L	U L 365	L	U L 413	U L 393	L										
30								A	A			A	U L 389	A	L	A								
31									L	L	U L 377	A	A	A	A									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	1	5	9	11	16	5	2									
MED								U L 330	U L 342	U L 389	U L 395	U L 384	U L 391	U L 385	U L 374									
U Q										U L 400	U L 402	U L 413	U L 406	U L 395										
L Q										U L 376	U L 380	U L 381	U L 381	U L 378										

OCT. 2016 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	252	304	276	E A 270	300	290	286	278	254							
2									230	232	284	276	260		278	272	240	240						
3									238	250	248	258	266	296	274	254	246	E A 266						
4									240	232	284	274	260		258	254								
5									230	238	262	268	242	284	258	246	238							
6										228		262	256	244	266		254							
7							222			246	244	242	248	242	266	258								
8									234	248	240	252	264	248	256	258								
9									240		242	E A 270	268	268	266									
10									250	248	266	238	246	262	264	258								
11											260	A	272	250	258	254				A				
12						A				256	268	242	234	248	248	248								
13										E A 248	250	272	274	258	258	248								
14										254	286	274	244		258									
15							E A 252	300	314	346	278	250	260	254	244	248	230							
16									242	270	294	242	264	254	264	254	234							
17									226	220	272	258	232	266	278									
18										248	256	238	248	254	282	254								
19										232	238	260	252	256	254	254								
20										238	222	258	246	252	254	244								
21									238	236	232	260	238	258	270	240								
22									236	256	226	238	230	270	250									
23									252	234	238	252	236	254	268	234								
24										212	240	268	250	258		254								
25										246	284	248	248	268	256	234								
26											258	236	224	236	258	248								
27									250	E A 276	246	250	260	260	250	246								
28									248	250	250	256	264	262	252	252		220						
29									238	256	226	244	264	252										
30								250	254			246	242	234	250	244								
31									262	248	246	248	E A 264	244	236									
	00	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	3	19	27	29	30	31	28	29	24	7	3						
MED							237	260	240	248	250	252	251	255	258	253	240	230						
U Q								300	252	256	274	268	264	264	267	254	254	E A 266						
L Q								250	236	234	240	244	242	249	253	246	234	220						

OCT. 2016 h'F2 (KM)

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IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 240	E B 260	E B 248	E B 252	E B 248	E B 288	214	198	222	188	A	A	216	204	204	E A 236	A	226	214	200	E B 246	E B 272	E B 292	E B 278
2	E B 286	E B 268	E B 250	234	E B 258	E B 304	220	220	200	A	192	A	198		202	A	A	A	226	222	E A 280	E A 262	E A 262	E A 272
3	E A 292	E A 274	E A 252	228	222	E B 274	232	230	206	194	A	A	A	228	206	A	A	A	222	222	E A 270	E A 294	A	E A 298
4	E B 276	E A 294	E B 250	E A 250	212	E B 318	204	214	198	A	198	184	196	A	218	208	222	214	216	A	E B 294	E B 292	E B 268	E B 262
5	E B 236	E B 282	224	206	E B 274	E B 252	218	228	204	192	184	A	198	206	226	A	A	226	216	E A 274	E A 304	E B 240	E B 224	E B 266
6	E B 240	224	E B 244	232	214	230	210	220	226	A	182	172	192	194	208	218	210	222	214	212	230	230	228	E B 258
7	E B 254	E B 242	E B 256	E B 268	E B 244	E B 258	188	214	210	200	198	194	198	192	196	212	218	216	210	220	E B 234	E A 260	E B 258	E B 276
8	E B 268	E B 246	E B 266	E B 254	226	E B 260	212	204	A	212	196	202	212	196	196	218	226	220	196	210	E B 246	E B 232	E B 278	E B 278
9	E B 274	E B 270	E B 264	232	228	E B 242	210	204	204	218	A	A	170	224	206	220	218	230	216	E A 266	E A 296	E B 232	E B 258	E B 272
10	E B 276	E B 260	266	E B 240	E B 232	214	208	214	204	204	202	196	188	190	208	230	228	216	204	202	E B 234	E B 232	E B 254	E A 306
11	E B 278	E B 270	E B 258	E B 272	E B 270	E B 278	220	206	216	220	202	A	188	200	208	224	224	214	208	A	A	A	E A 298	E B 290
12	E A 312	E A 310	E A 280	E A 256	226	A	206	206	206	198	208	204	194	200	A	204	226	214	208	210	220	E B 236	E B 236	E B 248
13	E B 268	E B 268	E B 264	E B 264	E B 244	222	200	202	212	A	198	196	190	212	200	A	220	216	202	E A 292	E B 296	E B 290	E B 310	E B 306
14	E B 280	E B 296	260	E B 244	E B 234	E B 294	222	228	228	212	220	216	198	214	A	226	222	216	E A 270	E B 240	E A 260	E A 256	E B 292	E B 286
15	E B 324	E B 326	E B 312	E B 294	E A 268	E B 272	A	E A 250	222	196	190	A	202	206	208	A	A	222	216	226	E A 314	E A 330	E B 270	E B 268
16	E B 254	E B 282	E B 280	E B 270	E B 260	E B 262	210	206	184	176	204	206	192	180	192	224	A	220	E A 234	212	224	E A 270	E A 308	E B 268
17	E A 284	E B 292	E A 282	E B 234	200	E B 252	230	212	202	182	180	A	A	200	202	222	220	210	E B 234	E B 240	E A 272	E B 268	E A 252	E A 242
18	E B 240	E A 252	E B 258	E B 278	E B 256	222	198	206	214	200	194	188	A	210	200	220	222	204	210	224	E B 234	E A 260	E B 288	E B 282
19	E B 242	218	218	E B 230	206	E B 236	200	198	214	200	208	206	204	212	222	210	212	208	200	222	E B 244	E A 258	228	E B 236
20	E B 256	E B 242	E B 234	E B 242	214	200	200	196	222	206	A	192	200	204	198	210	218	202	218	E A 306	E B 282	E B 262	E A 272	E B 260
21	E B 242	E B 238	E B 254	E B 246	208	206	194	200	202	210	202	200	198	196	200	212	206	200	200	220	220	216	E A 300	E B 270
22	E B 256	E B 260	E B 266	E B 246	200	E B 240	204	206	202	208	184	188	170	186	196	226	206	196	204	E A 260	A	E B 248	E A 276	E A 258
23	232	E A 298	E B 292	E A 270	202	232	208	208	202	A	A	184	172	A	216	204	202	204	198	E A 284	228	220	E A 318	E B 282
24	E A 288	E A 286	E B 252	E B 266	204	E B 240	208	220	224	A	188	204	170	224	232	224	222	194	198	232	204	A	E A 310	E A 284
25	E A 298	E A 266	E B 294	E B 268	E B 258	234	224	218	228	198	A	190	214	212	210	A	208	200	E B 256	E B 282	E B 248	E B 240	E A 266	E A 302
26	E B 312	E A 374	230	E B 238	E B 274	E B 344	E A 256	226	226	E A 234	222	A	A	A	216	204	210	206	198	E A 238	230	E A 316	E B 272	E A 292
27	E B 274	E B 264	E A 248	E B 262	E B 292	E B 260	208	206	212	A	A	A	A	A	212	A	214	214	196	E A 238	E B 274	E B 338	E B 294	E A 280
28	E A 266	E B 242	E A 254	220	E A 310	E B 248	224	224	A	A	A	202	A	A	A	A	218	A	222	E A 338	E B 316	E A 228	228	A
29	E B 274	E A 286	E A 308	E A 280	E A 248	E A 250	E B 240	226	196	202	200	186	186	226	218	222	216	212	210	E A 330	A	A	E B 250	E A 244
30	E B 238	E B 236	E B 260	E B 258	E B 256	E B 298	E B 246	A	A	220	208	A	196	A	206	A	212	204	200	E A 276	E A 330	E A 252	E A 238	E A 288
31	E B 264	E A 280	E B 274	210	218	E B 270	E B 242	216	198	212	190	A	A	A	A	216	206	206	E A 242	E B 256	E B 248	E B 250	E B 234	E B 258
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	30	30	28	23	23	19	24	23	27	22	25	28	31	29	28	28	30	30
MED	E B 268	E B 268	E B 258	E B 250	E 234	E B 252	209	212	208	201	198	196	196	204	206	218	218	214	207	E 238	E 248	E 257	E B 269	E B 274
U Q	E A 284	E A 286	E B 274	E B 268	E B 258	E B 274	224	220	222	212	204	204	199	212	216	224	222	218	E 222	E A 275	E 288	E A 271	E A 292	E A 286
L Q	E B 242	E B 246	E 250	234	214	234	204	206	202	196	190	188	188	196	200	210	210	204	200	220	232	E 234	E 250	E B 260

OCT. 2016 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	A	A	A	A	A	A	A	A	A	A	A						
								118																
2						B	B	A	A	A	A	A	A		A	A	A	A						
								116	112									112						
3						B	B	A	A	A	A	A	A		A	B								
								114	110	108						114	114							
4						B	E B	A	A	A	A	A	A	A	A	B								
							138	122	112			112			112	112	114							
5						B	A	A	A	A	A	A	A	A	A	B	B							
							114		114					114		114	116							
6						B	A	A	A	A	A	A	A	A	A	B								
							120	118			114	116	118	114	116	114	122							
7						B	B	A	A	A	A	A	A	A	A	B								
								120	112	112	112	116	118	110	110		114							
8							B	A	A	A	A	A	A	A	A	B								
								118	116	112	112		116	112	112	116	116							
9							B	A	A	A	A	A	A	A	A	B								
								116	116				114	114	116	120	120							
10						B	B	A	A	A	A	A	A	A	A	B								
								116	114	112	110		112	112	112	112	110							
11						B	B	A	A	A	A	A	A	A	A	B				A				
								118	118	114				112	112									
12						B	A	A	A	A	A	A	A	A	A	B								
								120	118	118	114					114	114							
13						B	B	A	A	A	A	A	A	A	A	B								
								116	116				112	112	112	112	112							
14			E B			B	B	A	A	A	A	A	A	A	A	B								
			138					116	114							112	112							
15						B	A	A	A	A	A	A	A	A	A	B								
							116						114	112	112									
16							B	A	A	A	A	A	A	A	A	B								
								118	118		110			110	112	114								
17							A	A	A	A	A	A	A	A	A	B								
											114		114	114	114	112	114							
18							B	A	A	A	A	A	A	A	A	B								
								128	118	108	112	112	112	112	112	114	112							
19							B	A	A	A	A	A	A	A	A	B								
									116	116		114		116	116		118							
20						B	B	A	A	A	A	A	A	A	A	B								
								126							116	114	114							
21							B	A	A	A	A	A	A	A	A	A	B	B						
								120	120	114														
22						B	A	A	A	A	A	A	A	A	A	B								
								118	108				116	112	112	112	116							
23						B	B	A	A	A	A	A	A	A	A	B								
								120						110	110	118	118							
24						B	B	A	A	A	A	A	A	A	A	B								
								114			118	110		118	112	114	116							
25						B	B	A	A	A	A	A	A	A	A	B								
								118					114	114	114	114								
26							B	A	A	A	A	A	A	A	A	B								
								116	116						110		110							
27							B	A	A	A	A	A	A	A	A	A	A	B						
								116	116															
28							B	A	A	A	A	A	A	A	A	A	A	B						
								118																
29							B	A	A	A	A	A	A	A	A	B								
									124	116		108	114	114	114									
30							B	A	A	A	A	A	A	A	A	A	A	B						
								120																
31							B	A	A	A	A	A	A	A	A	A	A	B						
								114	114							118								
	00	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	25	21	10	9	8	12	18	20	19	19	1						
MED			E B				116	118	116	114	112	112	114	112	112	114	114	A						
			138															112						
U Q							129	120	118	116	114	115	116	114	114	114	116							
L Q							115	116	113	112	111	111	113	112	112	112	112							

OCT. 2016 h'E (KM)

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ 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	102	94	94	102	B	B	G	106	104	102	92	90	92	92	90	88	94	88	86	86	86	B	B
2	B	B	98	92	B	B	148	144	120	106	104	104	98		104	102	100	112	104	100	98	94	92	92
3	92	90	90	90	94	92	142	122	116	114	102	100	100	98	98	114	116	102	102	102	102	100	100	98
4	98	98	98	94	94	B	174	120	G	104	102	G	102	98	98	G	128	112	108	106	102	100	100	108
5	B	B	B	B	124	B	114	108	114	104	104	104	100	G	104	128	118	112	108	100	100	100	B	B
6	B	B	B	B	B	B	144	128	104	100	104	100	G	G	G	98	G	96	98	96	94	B	B	B
7	B	B	B	B	B	B	B	G	124	G	G	G	G	94	112	106	120	B	94	100	98	92	90	B
8	B	B	B	B	B	B	140	102	138	114	G	G	G	98	114	G	G	136	104	92	94	92	B	98
9	98	B	98	96	B	B	138	144	122	108	106	104	104	134	130	G	144	126	96	108	110	118	B	B
10	114	106	102	104	B	100	130	G	G	G	118	102	G	G	G	158	144	B	B	B	B	B	106	98
11	92	92	104	B	B	B	130	124	118	116	104	106	104	G	118	104	104	104	102	98	98	98	90	108
12	96	96	94	96	100	100	100	132	124	126	116	106	102	102	102	102	160	134	120	116	106	94	100	96
13	B	B	B	96	96	B	122	136	122	98	100	100	100	98	98	112	G	B	90	110	B	B	128	110
14	104	B	148	B	B	B	B	122	118	106	102	102	104	106	98	120	116	104	104	102	98	98	100	100
15	102	126	126	124	112	118	116	104	102	106	102	102	110	118	116	104	100	104	108	104	104	96	98	96
16	B	B	B	110	110	106	B	124	G	104	G	100	102	G	G	124	104	100	104	106	102	100	100	108
17	102	102	102	102	102	102	108	100	102	102	G	106	G	G	G	148	G	106	104	106	108	104	102	100
18	B	100	100	100	98	B	122	122	122	114	114	114	114	120	G	G	156	116	108	106	104	104	102	106
19	B	104	104	B	104	B	124	92	118	116	106	G	106	118	114	104	130	110	B	106	106	102	98	98
20	98	100	B	B	B	B	B	116	102	104	106	106	104	100	102	102	G	100	100	94	98	106	102	100
21	B	94	94	104	104	104	98	136	118	110	102	104	104	104	104	104	104	106	108	106	B	104	96	92
22	96	100	88	100	B	100	160	148	118	102	102	98	102	98	G	G	142	96	94	98	92	102	100	102
23	98	94	94	92	96	94	98	G	106	108	96	102	100	134	92	124	G	B	108	110	102	100	98	92
24	88	92	92	92	92	B	B	164	102	100	100	96	106	G	150	130	106	102	B	114	108	102	96	94
25	94	98	94	92	94	102	104	122	102	102	104	106	G	G	126	120	104	B	B	B	112	106	106	98
26	96	94	96	98	B	B	130	128	128	100	108	100	100	100	G	108	G	B	108	104	102	100	98	102
27	100	100	100	98	96	96	B	146	120	100	102	102	98	98	98	102	102	B	B	106	104	96	98	96
28	94	94	94	92	90	B	120	126	102	102	100	100	100	94	96	100	100	100	100	106	104	102	100	100
29	92	92	94	92	90	98	98	106	106	G	102	G	G	G	102	102	106	104	B	104	100	100	100	98
30	98	96	102	98	96	B	130	112	98	94	96	92	92	92	90	90	90	90	88	98	98	100	100	100
31	98	98	98	98	98	B	B	150	G	102	104	98	94	94	92	104	98	96	96	100	100	B	98	98
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	22	24	23	20	12	23	27	27	28	27	26	24	21	24	26	24	24	25	29	28	27	26	26
MED	98	98	98	96	97	100	124	124	118	104	102	102	102	98	102	104	106	104	104	104	102	100	100	98
U Q	99	100	102	100	103	103	140	136	122	109	106	104	104	112	114	120	129	112	108	106	104	102	100	102
L Q	94	94	94	92	94	97	108	112	102	102	102	100	100	96	98	102	101	100	96	99	98	96	98	96

IONOSPHERIC DATA STATION Kokubunji

OCT. 2016 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	F1	F1	F1	F1				L2	L2	L2	L3	L2	L1	L2	L3	L3	L3	F2	F2	F1	F2		
2			F2	F3			H2	H2	C2	L2	L2	L2	L2		L2	L2	L3	CL33	F5	F4	F4	F3	F2	F4
3	F4	F5	F4	F4	F3	L2	HL11	CL22	CL12	C2	L2	L3	L2	L2	L2	CL22	CL33	L4	F5	F5	F3	F5	F5	F4
4	F2	F3	F4	F4	F2		H2	C2		L2	L2		L2	L2	L1		C1	C3	F5	F4	F2	F2	F1	F2
5					F1		C2	L3	C2	L2	L2	L2	L2		L2	CL12	CL22	C3	F4	F5	F4	F2		
6							H3	C3	L2	L1	L2	L2				L2		LH21	F1	F1	F1			
7									C1					L2	C1	L1	C1		F3	F3	F2	F2	F2	
8							H2	L2	CL12	CL11				L2	CL22			H2	F1	F1	F2	F2		F2
9	F2		F2	F1			H2	H1	C2	L2	L2	L3	L1	C1	C1		H1	C2	F2	FF42	F4	F2		
10	F2	F1	F2	F2		L1	HL11				C2	L2				H1	H1						F1	F4
11	F2	F2	F1				H2	C2	C2	C1	L2	L3	L2		C1	L2	L3	L3	F2	F4	F4	F3	F4	F1
12	F3	F4	F3	F3	F3	L5	L3	CL13	C2	CL12	CL12	L2	L2	L2	L2	L2	H2	H2	F2	F2	F1	F1	F2	F2
13				F1	F1		H2	H2	C2	L2	L2	L2	L2	L2	L1	CL12			F1	F3			F2	F2
14	F3		K2					C2	C2	L2	L2	L2	L2	L2	L2	CL12	C2	L3	F4	F2	F3	F3	F3	F2
15	F3	F2	F2	F2	F3	C2	C2	L2	L2	L2	L2	L2	C1	C1	C1	L3	L2	L3	F2	F3	F3	F4	F2	F2
16				F1	F2	F2		C2		L1		L2	L1			C1	L3	L4	F3	F3	F2	F3	F2	F1
17	F3	F2	F2	F1	F2	F1	L3	L3	L2	L2		L2				H1		L2	F1	F1	F2	F2	F2	F4
18		F4	F2	F1	F1		C2	C2	C1	C2	C2	CL12	CL12	C1			H1	C2	F3	F1	F2	F2	F2	F2
19		F1	F1		F1		C2	L3	CL12	CL22	L2		L1	C2	C1	L2	C1	C2		F1	F2	F2	F1	F1
20	F2	F2						C2	L2	L2	L1	L1	L1	L2	L2	L2		L2	F2	F3	F2	F1	F2	F2
21		F2	F2	F2	F1	F2	L1	H2	CL22	CL22	L2	L2	L1	L1	L2	L2	L2	L2	F1	F1		F2	F3	F2
22	F1	F2	F2	F1		L1	HL11	HL12	CL12	L2	L1	L2	L1	L1			H2	L1	F4	F3	F4	F2	F4	F4
23	F4	F4	F3	F3	F1	L2	L2		L2	L2	L2	L1	L2	CL12	L2	CL12			F3	F4	F2	F2	F5	F2
24	F3	F2	F1	F2	F3			H1	L2	L2	L2	L2	L2		H1	C1	L2	L1		F2	F2	F5	F4	F3
25	F3	F2	F3	F2	F1	L2	L2	C2	L3	L1	L2	L1			C1	C1	L4				F1	F2	F4	F4
26	F3	F5	F3	F2			H3	C2	C1	L3	L1	L2	L2	L2		L2			F1	F5	F5	F4	F3	F2
27	F4	F3	F3	F2	F4	F2		H2	C1	L3	L2	L2	L2	L2	L2	L2	L3			F2	F2	F3	F3	F2
28	F2	F3	F2	F3	F2		C1	C2	L3	L2	L3	L2	L2	L2	L1	L2	L2	L4	F4	F2	F2	F2	F4	F4
29	F2	F2	F5	F3	F3	F1	L1	L2	L2		L1				L1	L2	L2	L1		F3	F3	F4	F2	F2
30	F1	F2	F1	F2	F1		H1	C2	L3	L2	L2	L3	L2	L2	L2	L2	L1	L1	F1	F2	F2	F2	F2	F3
31	F3	F4	F2	F2	F1			H1		L1	L1	L3	L3	L3	L3	L2	L2	L3	F2	F1	F1		F2	F2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 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 44	X 39	X 40	X 40	X 40	X 36	X 40													X 59	X 40	X 34	X 37	42
2	X 38	X 38	X 38	X 35	X 34	X 32	X 38													A	X 47	51	54	54
3	50	X 48	X 38	X 35	X 35	X 33	X 42													X 54	A	A	X 40	X 40
4	X 41	X 42	X 51	X 50	X 28	X 24	X 39													X 56	X 54	X 54	X 58	X 57
5	X 46	X 43	X 45	X 44	X 35	X 35														X 66	X 51	X 48	54	54
6	X 50	X 47	X 41	X 40	X 39	X 38	X 42													X 65	X 51	X 50		X 49
7	X 49	X 46	X 43	X 43	X 42	X 42														X 72	X 53	X 48	X 43	X 44
8	X 45	X 46	X 42	X 40	X 40	X 35	X 43													X 56	X 47	X 47	X 45	X 46
9	X 45	X 45	X 46	X 46	X 39	X 39	X 44													X 73	X 46	X 45	X 44	X 44
10	X 44	X 46	X 45	X 46	X 43	X 38														X 74	X 57	X 52	X 47	X 41
11	X 42	X 44	X 42	X 42	X 42	X 42														X 57	X 42	X 46	X 44	X 41
12	X 41	X 42	X 42	X 45	X 49	A														X 60	X 53	X 48	X 46	X 44
13	X 44	X 44	X 43	X 43	X 43	X 39														X 57	X 56	X 56	X 51	X 52
14	X 54	X 52	X 47	X 48	X 42	X 41														X 65	X 65	X 56	X 49	X 48
15	X 48	X 48	X 48	X 46	X 42	X 42														X 43	A	A	X 46	X 45
16	50	X 40	X 40	X 38	X 40	X 40	X 35													X 61	X 45	X 40	X 42	X 42
17	X 42	X 39	X 39	X 45	X 34	X 28			C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	16	8													15	14	14	15	16
MED	X 45	X 44	X 42	X 43	X 40	X 38	X 41													X 60	X 51	X 48	X 46	X 44
U Q	X 50	X 46	X 46	X 46	X 42	X 40	X 42													X 66	X 54	X 52	51	X 50
L Q	X 42	X 41	X 40	X 40	X 35	X 34	X 38													X 56	X 46	X 46	X 43	X 42

OCT. 2016 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT. 2016 foF2 (0.1MHz)

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 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	U L 444	U L 472	A	L	L	L							
2									L	L	U L 460	U L 484	U L 468	A	U L 452	A	L	A	A					
3									L	L	U L 436	U L 436	U L 488	L	U L 468	A	L		A					
4										L	U L 452	L	A	U L 480	U L 468	L	L	A	A					
5										A	U L 464	A	U L 464	L	A	L	L							
6										L	L	U L 460	U L 468	U L 464	L	L	A							
7										L	L	L	L	U L 468	L	A	L							
8										L	L	U L 476	U L 472	L	L	L								
9										L	L	U L 464	U L 460	U L 460	L	L	A							
10										L	L	464	U L 504	U L 512	L	L	L							
11										L	L	U L 456		L	L	L								
12										L	L	L	U L 484	L	L	L	L							
13											L	A	L	L	L	L	L							
14											L	L		L	L									
15									L	L	L	U L 452	U L 472	L	L	L	L							
16									L	L	U L 456	U L 444	U L 444	A	A	L	L							
17									C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											5	10	11	5	3									
MED											U L 456	U L 458	U L 472	U L 468	U L 468									
U Q											U L 462	U L 464	U L 484	U L 496	U L 468									
L Q											U L 444	U L 444	U L 464	U L 462	U L 452									

OCT. 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 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								208	UA 284	A	A	A	A	A	R	UR 308	UR 280	A	B					
2								UA 204	UR 260	R	A	A	A	UA 336	R	A	A	A	B					
3								UA 204	UA 276	R	A	A	A	A	A	A	A	A	B					
4								UR 240	R	A	A	A	A	A	A	A	UR 292	A	B					
5							B	UA 192	A	A	A	A	A	A	A	UR 320	R	A	B					
6								UA 208	A	R	A	A	A	A	A	A	A	A	B				A	
7							B	UA 216	UA 268	UA 308	A	R	A	A	A	A	A	A	B					
8								UA 196	UR 280	R	R	R	A	R	A	A	UA 276	UA 200	B					
9								UA 212	UA 268	A	R	A	R	R	UA 352	UA 312	A	A	B					
10							B	B	R	R	R	R	R	R 340	R	UR 348	UA 280	200	B					
11							B	UA 200	UA 272	A	A	A	A	R	R	UR 320	A	A	B					
12							B	B	A	A	R	A	A	A	UR 340	UR 324	UR 280	224	B					
13							B	UA 192	A	A	A	A	A	A	UR 340	A	UR 284	UR 224	B					
14							B	200	UA 260	A	A	R	A	UA 340	A	A	A	A	B					
15							B	A	A	A	R	R	R	R	R	UR 304	A	A	B					
16								UR 208	UR 260	A	A	A	A	A	A	R	A	UR 208	B					
17							B	A	C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								13	9	1				3	3	7	6	5						
MED								UA 204	UA 268	UA 308				UA 340	UR 340	UR 320	UR 280	U 208						
U Q								U 210	UA 278					UA 340	UA 352	UR 324	UR 284	224						
L Q								UA 198	UR 260					UA 336	UR 340	UR 308	UA 280	200						

OCT. 2016 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 26	J A 24	J A 21	J A 23	J A 19	J A 17	E B 15	28	30	J A 37	36	J A 42	J A 44	J A 47	G 30	G 29	G 26	J A 26	J A 22	18	E B 14	E B 15	E B 14	E B 14
2	E B 16	21	21	E B 14	J A 25	J A 23	J A 22	25	G	G	38	J A 42	40	39	G	J A 45	J A 41	J A 55	J A 80	J A 97	J A 64	J A 29	J A 52	21
3	19	20	E B 15	E B 15	E B 14	E B 14	E B 14	25	34	G	37	37	J A 43	J A 42	J A 43	J A 61	34	J A 33	J A 77	J A 46	J A 72	J A 47	22	J A 24
4	J A 23	E B 15	E B 15	E B 15	E B 15	E B 14	E B 16	G	G	34	36	38	J A 46	J A 41	39	J A 39	G	J A 63	J A 41	J A 22	35	22	J A 28	J A 20
5	21	E B 15	E B 15	E B 14	21	E B 14	J A 28	24	34	J A 43	J A 45	J A 56	J A 49	42	J A 53	G	G	J A 35	J A 44	J A 70	J A 39	J A 32	J A 30	E B 14
6	E B 16	20	E B 15	20	E B 15	E B 15	E B 15	27	J A 41	G	39	39	J A 40	38	36	J A 46	38	32	J A 24	J A 26	J A 24	J A 24	J A 27	J A 24
7	23	E B 15	22	E B 15	E B 14	E B 14	E B 14	26	30	37	42	G	40	38	39	J A 68	J A 37	J A 33	E B 16	E B 15	E B 15	E B 15	E B 15	J A 21
8	18	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	26	G	G	G	G	36	G	36	37	34	25	J A 31	J A 26	J A 25	21	E B 14	E B 14
9	E B 14	E B 14	E B 13	J A 19	24	20	E B 15	26	30	37	G	38	G 32	G 31	40	38	34	26	J A 48	J A 25	E B 15	E B 15	E B 15	E B 14
10	E B 15	E B 15	J A 24	E B 15	E B 15	E B 15	E B 15	J A 36	G	G	G	G	G	G	G	G	33	31	J A 25	E B 15	E B 15	E B 15	23	J A 18
11	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	J A 29	33	36	J A 40	J A 42	J A 46	G	G	G	J A 44	J A 54	J A 46	J A 55	J A 32	J A 24	E B 15	E B 15
12	E B 15	E B 14	22	J A 20	J A 22	J A 29	22	22	34	35	G	38	40	J A 40	G	G	G	G	21	21	E B 16	E B 16	J A E B 27	16
13	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	24	32	37	40	J A 58	J A 42	J A 44	G	36	G	G	E B 15	E B 14	E B 15	22	E B 15	J A 25
14	E B 15	21	21	22	22	E B 15	E B 15	24	32	J A 38	35	G	41	39	36	39	33	J A 34	26	J A 20	J A 22	J A 25	J A 25	J A 29
15	J A 27	J A 22	E B 15	E B 15	E B 15	J A 27	J A 28	J A 26	J A 34	J A 45	G 31	J G 34	G	G	G	G	29	J A 24	E B 14	J A 78	J A 104	J A 73	J A 24	E B 15
16	J A 23	23	J A 23	21	E B 14	E B 14	E B 15	G	G	J A 44	J A 42	J A 38	40	46	42	G	30	G	J A 21	J A 30	J A 34	J A 32	E B 15	E B 15
17	J A 34	E B 16	J A 34	E B 14	E B 14	E B 14	J A 31	J A 34	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
MED	18	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	26	31	36	36	38	40	39	36	36	33	J A 32	J A 26	J A 26	J A 24	23	22	17
U Q	J A 23	21	J A 22	20	22	J A 18	J A 22	J A 28	34	J A 38	J A 40	J A 42	J A 44	J A 42	40	J A 42	J A 36	J A 34	J A 45	J A 50	J A 37	J A 30	J A 27	J A 22
L Q	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	24	G	G	G	G	G 38	G	G	G	G	G 24	E B 21	E B 19	E B 15	E B 16	E B 15	E B 14

OCT. 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 16	20	19	E B 16	E B 16	E B 15	26	29	32	35	38	38	41	G 29	G 27	G 24	24	20	E B 15	E B 14	E B 15	E B 14	E B 14
2	E B 16	E B 15	E B 15	E B 14	20	17	E B 16	23	G	G	36	38	40	38	G	38	30	44	A A 80	A A 97	E B 15	21	E B 16	E B 15
3	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	23	30	G	35	35	37	38	37	55	32	30	A A 77	32	A A 72	A A 47	E B 16	18
4	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14	E B 16	G	G	32	34	34	42	33	35	33	G	57	38	19	32	E B 15	E B 15	18
5	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	22	30	35	36	42	38	38	47	G	G	30	40	37	18	E B 14	E B 14	E B 14
6	E B 16	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	25	30	G	35	38	38	36	34	34	34	29	18	22	19	19	21	19
7	19	E B 15	18	E B 15	E B 14	E B 14	E B 14	24	28	35	35	G	38	37	36	48	29	26	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
8	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	24	G	G	G	G	36	G	34	34	30	23	20	20	E B 14	E B 15	E B 14	E B 14
9	E B 14	E B 14	E B 13	E B 17	20	E B 16	E B 15	25	29	34	G	35	G 30	G 30	39	36	32	25	42	20	E B 15	E B 15	E B 15	E B 14
10	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	27	G	G	G	G	G	G	G	G	32	28	23	E B 15	E B 15	E B 15	E B 15	E B 15
11	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	22	29	35	36	37	44	G	G	G	33	39	42	38	26	17	E B 15	E B 15
12	E B 15	E B 14	E B 16	E B 15	16	A A 29	E B 16	21	32	32	G	33	38	38	G	G	G	G	E B 14	15	E B 16	E B 16	E B 16	E B 16
13	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	23	29	35	38	47	37	39	G	34	G	G	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15
14	E B 15	E B 15	E B 15	20	E B 15	E B 15	E B 15	22	29	32	34	G	40	38	36	36	31	27	19	E B 16	17	20	22	25
15	21	E B 16	E B 15	E B 15	E B 15	22	20	21	29	34	G 29	G 28	G	G	G	G	27	22	E B 14	15	A A 104	A A 73	E B 15	E B 15
16	E B 18	E B 16	E B 15	E B 15	E B 14	E B 14	E B 15	G	G	34	34	34	38	42	38	G	28	G	19	19	21	20	E B 15	E B 15
17	23	E B 16	21	E B 14	E B 14	E B 14	24	28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
MED	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	23	29	32	34	34	38	38	34	34	30	26	20	19	16	E B 16	E B 15	E B 15
U Q	18	E B 16	16	E B 15	16	16	E B 16	25	30	34	36	38	39	38	36	36	32	30	41	27	24	20	E B 16	17
L Q	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	22	G	G	G	G	G 36	G	G	G	G	G 22	E B 17	E B 15	E B 15	E B 15	E B 15	E B 14

OCT. 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT. 2016 fmin (0.1MHz)

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	299	309	313	314	323	303	359	334	355	361	360	336	331	337	322	321	323	342	362	347	359	286	286	F
2	299	313	313	318	332	301	328	386	376	363	340	315	329	331	347	324	346	348	A	A	316	F	F	F
3	F	332	349	312	341	294	325	365	357	359	337	369	303	321	317	355	363	356	A	367	A	A	275	283
4	302	295	355	367	359	291	338	367	362	345	346	312	321	331	361	350	348	355	358	337	285	280	306	312
5	346	287	320	354	316	326	317	389	386	380	317	324	341	331	330	336	339	366	341	349	317	280	F	F
6	320	320	339	316	311	310	340	358	371	382	358	322	337	350	331	334	340	360	346	360	329	309	307	295
7	297	326	309	306	316	306	338	387	372	369	348	342	353	338	334	336	338	348	335	351	332	319	312	309
8	303	308	312	298	336	308	337	377	354	335	373	332	342	346	332	322	345	339	361	358	298	305	288	299
9	293	300	313	320	337	298	339	383	374	374	355	335	324	348	333	329	352	344	352	362	331	322	280	280
10	287	300	316	325	332	337	339	350	370	364	339	337	333	314	332	323	340	350	337	352	355	297	313	284
11	298	308	303	296	298	291	319	383	378	358	359	338	313	335	327	327	347	348	368	345	290	314	312	295
12	280	289	304	310	385	A	339	391	366	337	351	336	334	349	335	346	338	358	364	334	340	318	295	288
13	308	308	309	316	344	353	333	382	367	336	349	335	334	365	341	340	339	360	355	336	287	269	268	306
14	299	286	305	312	280	283	307	347	328	353	301	341	338	335	359	354	373	339	324	316	317	325	312	300
15	281	276	276	271	298	315	329	363	368	311	335	356	351	339	340	353	358	367	348	313	A	A	285	289
16	F	285	314	302	317	347	336	372	348	363	348	328	338	316	343	335	354	349	354	363	311	295	290	317
17	309	295	292	343	398	338	328	376	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	17	17	17	17	16	17	17	16	16	16	16	16	16	16	16	16	16	14	15	14	13	14	13
MED	299	300	313	314	332	307	336	376	368	360	348	336	334	336	334	336	346	350	353	349	317	305	292	295
U Q	308	311	318	322	342	332	339	384	373	366	356	340	340	347	342	348	353	359	361	360	332	318	312	308
L Q	293	288	304	304	314	296	326	360	356	341	338	326	326	331	330	326	339	346	341	336	298	283	285	286

OCT. 2016 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	U L 431	U L 382	A	L	L	L							
2									L	L	U L 384	U L 366	U L 408	A	U L 373	A	L	A	A					
3									L	L	U L 432	U L 434	U L 371	L	U L 347	A	L		A					
4										L	U L 396	L	A	U L 363	U L 363	L	L	A	A					
5										A	U L 403	A	U L 396	L	A	L	L							
6										L	L	U L 400	U L 404	U L 387	L	L	A							
7										L	L	L	L	U L 385	L	A	L							
8										L	L	U L 410	U L 397	L	L	L								
9										L	L	U L 422	U L 427	U L 392	L	L	A							
10										L	L	386	U L 383	U L 369	L	L	L							
11										L	L	U L 416		L	L	L								
12										L	L	L	U L 385	L	L	L	L							
13											L	A	L	L	L	L	L							
14											L	L		L	L									
15									L	L	L	U L 393	U L 377	L	L	L	L							
16									L	L	U L 374	U L 423	U L 422	A	A	L	L							
17									C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											5	10	11	5	3									
MED											U L 396	U L 413	U L 396	U L 385	U L 363									
U Q											U L 418	U L 423	U L 408	U L 390	U L 373									
L Q											U L 379	U L 393	U L 382	U L 366	U L 347									

OCT. 2016 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 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									260	248	248	276	284	270	280	288	276							
2									236	244	266	294	274	260	254	274	264	240	A					
3									240	240	250	244	326	280	290	244	254		A					
4										254	254	286	294	262	248	248	256	E A 256	224					
5										224	280	272	250	266	262	262	274							
6										236	242	260	274	242	262	276	256							
7										246	254	258	258	258	268	274	256							
8										268	244	264	260	260	266	282								
9										242	260	264	276	264	272	272	242							
10										254	278	260	262	276	276	276	266							
11										256	256	256		256	264	262								
12										262	248	246	258	246	250	260	268							
13											252	268	268	266	248	248	250							
14											296	256		256	254									
15									246	258	288	260	260	258	266	252	246							
16									252	260	268	268	254	254	242	260	258							
17									C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									5	14	16	16	14	16	16	15	13	2	1					
MED									246	251	255	262	265	260	263	262	256	248	224					
U Q									256	258	273	270	276	266	270	276	267							
L Q									238	242	249	257	258	256	252	252	252							

OCT. 2016 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 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	E A 272	E B 272	E A 272	E A 272	E B 240	E B 270	206	226	224	208	202	192	192	A	200	200	218	228	212	200	200	E B 294	E B 308	E B 302
2	E B 290	E B 264	E B 240	E B 230	E A 250	E A 298	E B 238	212	196	198	198	198	198	A	198	A	214	A	A	A	E B 248	E A 308	E B 260	E B 268
3	E B 266	E B 238	204	E B 250	222	E B 266	228	228	196	194	178	176	202	218	218	A	216	230	A	214	A	A	E B 306	E A 306
4	E B 290	E B 286	226	200	194	E B 322	226	216	220	212	192	202	A	202	200	208	208	A	A	220	E A 322	E B 298	E B 264	E A 254
5	206	E B 286	E B 232	212	E B 252	E B 232	E B 248	210	212	A	208	A	208	198	A	212	210	232	232	228	222	E B 298	E B 268	E B 252
6	216	E B 246	222	E B 246	E B 240	E B 240	218	218	218	206	204	190	202	194	194	218	A	228	220	208	220	E A 256	E A 270	E A 270
7	E A 270	E B 246	E A 252	E B 262	E B 240	E B 240	216	202	202	198	198	198	198	186	192	A	206	E A 230	214	210	210	228	228	E B 268
8	E B 256	E B 254	E B 254	E B 254	210	E B 244	226	220	218	210	210	194	194	220	198	198	244	226	214	212	226	E B 240	E B 264	E B 260
9	E B 266	E B 266	E B 260	E B 238	226	E B 266	226	202	200	200	200	196	182	188	206	204	A	230	230	212	212	E B 238	E B 256	E B 296
10	E B 296	E B 272	E B 266	E B 234	226	206	204	218	228	206	206	196	192	180	222	218	226	226	226	210	202	E B 242	E B 234	E B 280
11	E B 288	E B 258	E B 256	E B 270	E B 270	E B 280	236	216	216	202	202	186	E A 258	220	192	200	234	230	214	214	E A 314	E A 256	224	E B 272
12	E B 296	E B 296	E B 270	E B 258	210	A	210	210	210	210	208	196	196	212	196	208	220	220	206	206	206	224	E B 244	E B 266
13	E B 274	E B 268	E B 260	E B 260	E B 244	194	210	208	208	202	200	A	188	202	202	202	208	222	200	220	E B 270	E B 288	E B 278	E B 300
14	E B 286	E B 286	E B 254	E A 262	E B 238	E B 310	E B 266	216	214	234	206	206	E A 242	202	202	236	226	222	220	216	E A 242	226	E A 250	E A 292
15	E A 324	E B 300	E B 300	E B 296	E B 270	E A 284	E A 238	224	212	208	200	206	190	180	198	200	206	214	198	198	A	A	E B 268	E B 256
16	E B 244	E B 242	E B 248	E B 258	E B 256	220	206	206	192	218	194	194	192	A	A	204	214	228	214	208	224	E A 272	E B 272	E B 256
17	E A 294	E B 294	E A 308	E B 236	200	224	E A 290	206	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	16	17	17	16	15	16	14	15	13	14	13	14	14	13	15	14	14	16	16
MED	E B 274	E B 268	E B 254	E B 254	E B 240	E B 255	218	216	212	206	201	196	194	202	199	204	215	228	214	212	214	E 256	E B 264	E B 269
U Q	E B 292	E B 286	E B 268	E B 262	E B 251	E B 282	E B 238	219	218	210	206	198	202	215	202	215	226	230	223	216	E 248	E B 294	E B 271	E B 294
L Q	E B 261	E B 250	236	E B 235	216	228	210	207	201	200	198	192	192	187	196	200	208	222	209	208	210	238	E 247	E B 258

OCT. 2016 h'F (KM)

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IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 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								120	120	A	A	A	A	A	120	108	106	A	B					
2								118	110	112	A	A	A	112	112	A	A	A	B					
3								112	112	112	A	A	A	A	A	A	112	A	B					
4								112	112	112	112	112	A	A	A	A	112	A	B					
5							B	112	112	A	A	A	A	A	A	112	112	A	B					
6								118	118	118	118	A	A	A	A	A	118	114	B				A	
7							B	114	116	116	116	120	120	A	A	A	A	A	B					
8								120	120	120	120	120	A	120	A	A	120	120	B					
9								120	116	116	116	A	116	116	118	118	118	118	B					
10							B	B	118	118	112	112	112	112	112	112	112	112	B					
11							B	118	118	118	A	A	A	118	118	118	118	A	B					
12							B	B	114	114	114	114	A	A	114	114	114	114	B					
13							B	114	114	114	116	A	A	114	114	A	112	112	B					
14							B	112	112	A	A	112	116	116	116	120	120	A	B					
15							B	A	A	A	120	120	118	126	120	120	120	A	B					
16								120	114	A	A	A	A	A	A	114	114	114	B					
17							B	A	C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								13	15	11	9	7	5	8	9	9	14	7						
MED								118	114	116	116	114	116	116	116	114	114	114						
U Q								120	118	118	119	120	119	119	119	119	118	118						
L Q								112	112	112	113	112	114	113	113	112	112	112						

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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	96	96	94	94	94	94	B	138	160	104	102	102	102	98	98	92	92	92	92	92	B	B	B	B
2	B	92	92	B	92	92	92	134	G	G	106	102	102	150	G	98	102	106	106	106	106	114	114	108
3	102	102	B	B	B	B	B	150	134	G	104	102	102	98	106	110	120	104	100	96	96	96	106	106
4	98	B	B	B	B	B	B	G	G	114	114	114	104	104	108	108	G	106	106	106	106	106	106	104
5	104	B	B	B	104	B	104	118	118	108	108	108	108	108	102	G	G	100	106	106	106	106	112	B
6	B	96	B	96	B	B	B	134	120	G	120	104	104	104	102	102	140	124	102	100	100	94	94	94
7	92	B	92	B	B	B	B	136	148	128	122	G	122	106	106	106	106	102	B	B	B	B	B	94
8	94	B	B	B	B	B	B	136	G	G	G	G	108	G	108	110	178	154	96	96	112	102	B	B
9	B	B	B	102	88	88	B	118	118	118	G	108	102	102	142	130	122	122	106	106	B	B	B	B
10	B	B	116	B	B	B	B	102	G	G	G	G	G	G	G	G	124	124	116	B	B	B	106	106
11	B	B	B	B	B	B	B	118	126	118	112	102	106	G	G	G	110	102	102	102	100	98	B	B
12	B	B	94	94	94	94	106	128	124	118	G	124	104	102	G	G	G	G	96	96	B	B	96	B
13	B	B	B	B	B	B	B	128	128	122	118	104	104	112	G	106	G	G	B	B	B	106	B	106
14	B	122	106	106	118	B	B	146	126	106	106	G	120	126	126	130	122	112	112	108	98	92	92	92
15	92	94	B	B	B	120	118	118	110	104	104	104	G	G	G	G	110	110	B	110	100	100	100	B
16	100	92	92	92	B	B	B	G	G	98	96	96	96	96	96	G	118	G	110	104	104	96	B	B
17	96	B	96	B	B	B	102	102	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	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	7	8	6	6	5	5	15	11	11	12	12	14	12	10	10	12	13	13	13	10	11	9	8
MED	96	96	94	95	94	94	104	128	126	114	107	104	104	104	106	107	119	106	106	104	102	100	106	105
U Q	101	102	101	102	104	107	112	136	134	118	116	108	108	110	108	110	123	123	108	106	106	106	109	106
L Q	93	92	92	94	92	90	97	118	118	104	104	102	102	100	102	102	108	102	98	96	100	96	95	94

OCT. 2016 h'Es (KM)

IONOSPHERIC DATA STATION Yamagawa

OCT. 2016 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	F2	F2	F2	F2	F2		H2	H2	L2	L2	L2	L2	L3	L2	L3	L3	L4	L2	F1				
2		F2	F2		F2	F4	F2	H1			L1	L1	L1	H1		L2	L2	L3	L7	F5	F3	F4	F2	F2
3	F1	F1						H2	H1		L2	L2	L2	L2	L2	L2	C1	L4	L4	F7	F4	F4	F1	F2
4	F2									F2	F2	F2	L2	L2	L2	L2		L3	L4	L2	F5	F1	F2	F2
5	F1				F2		L1	C1	C1	L1	L2	L2	L2	L2	L2			L3	L8	F3	F2	F1	F2	
6		F1		F1				H1	C2		C1	L2	L2	L2	L2	L2	CL12	C2	L3	F2	F2	F3	F1	F1
7	F2		F2					H1	H1	C2	C1		C1	L1	L1	L2	L2	L2						F2
8	F1							H2					L2		L2	L2	HL12	HL12	L3	F4	F1	F1		
9				F1	F2	F1		C1	C1	C1		L1	L2	L2	HL11	HL11	C1	C1	L7	F2				
10			F2					L3									C2	C3	C3				F1	F2
11								C1	C1	C1	C1	L1	L1				C2	L3	L5	F5	F5	F2		
12			F1	F1	F2	F4	L2	C1	CL11	C1		C2	L2	L2					L1	F1			F2	
13								C2	C1	C1	C2	L2	L2	C2		L2						F2		F2
14		F1	F2	F3	F2			H2	C1	L1	L2		C1	C1	C1	C1	C1	L2	L2	F2	F3	F7	F5	F5
15	F4	F3				F3	L3	L2	L3	L2	L2	L1					C1	L2		F2	F6	F5	F1	
16	F1	F1	F2	F1						L2	L2	L1	L2	L2	L2		C1		C2	F3	F4	F3		
17	F3		F2				L4	L5																
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

OCT. 2016 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 44	X 40	X 40	X 39	X 36	X 30														X 57	X 50	X 30	X 34	X 35
2	X 37	X 36	X 39	X 37	X 26	X 24														X 53	X 46	53	A	55
3	52	52	X 39	X 33	X 32	X 30														X 49	A	A	46	47
4	44	46	54	X 42																A	X 56	X 54	X 58	X 60
5	X 56	X 43	X 48	X 43	X 30	X 32														X 74	X 58	59	65	68
6	X 61	X 53	X 48	X 42	X 38	X 38														X 70	X 51	X 47	X 48	X 50
7	X 50	X 47	X 46	X 43	X 40	X 40														X 92	X 79	X 64	X 70	X 72
8	X 72	X 64	X 54	X 53	X 41	X 39														X 71	X 68	X 70	X 67	X 60
9	X 66	X 61	X 62	X 57	X 43	X 40														X 77	X 51	X 53	X 58	X 56
10	X 57	X 63	X 64	X 74	X 56	X 34														X 104	X 80	X 66	X 64	X 50
11	X 44	X 44	X 43	X 42	X 40	X 40														X 82	X 82	X 60	X 52	X 50
12	X 45	X 43	X 44	X 52	X 46	X 27														X 81	X 83	X 66	X 60	X 53
13	X 48	X 46	X 46	X 47	X 47	X 33														X 64	X 63	X 66	X 69	X 62
14	X 60	X 56	X 48	X 46	X 46	X 39														X 75	X 58	X 56	X 47	A
15	X 46	X 44	X 44	X 45	X 42	X 42														X 52	X 43	48	52	54
16	47	42	X 40	43	X 40	X 38														X 85	X 52		X 46	X 44
17	X 43	X 42	X 42	X 48	X 28	X 24														X 57	X 47	X 47	47	46
18	46	46	46	X 42	X 42	X 36														X 58	X 48	X 44	X 46	X 44
19	X 46	X 46	X 38	X 38	X 32	X 24														X 79	X 56	A	X 35	X 33
20	X 35	X 35	X 38	X 41	X 37	X 28														X 88	X 49	X 44	X 44	X 42
21	X 40	X 40	X 40	X 42	X 36	X 26														X 59	X 52	X 48	X 51	X 52
22	X 55	X 45	X 40	X 40	X 36	X 27														X 59	X 35	X 40	X 41	X 42
23	X 42	X 43	X 38	X 36	42	X 29														X 57	X 54	X 54	X 48	X 42
24	X 44	X 45	X 38	X 38	X 38	X 34														X 58	X 51	X 53	X 43	X 33
25	X 35	X 37	X 38	X 40	X 40	X 38														X 50	X 59	X 68	X 54	X 39
26	X 37	X 39	X 47	X 32	X 29	X 30														X 47	X 52	52	47	52
27	X 40	A	X 36	X 45	X 32	X 28														X 58	X 40	X 41	X 46	X 46
28	X 46	X 46	X 40	X 38	X 24															X 50	X 49	X 52	X 44	X 38
29	X 34	X 36	X 36	X 37	X 29	X 24														X 89	X 58	X 58	X 52	X 44
30	X 40	X 41	X 42	X 43	X 32	X 32														X 48	A	X 48	X 46	X 40
31	X 45	X 46	X 34	X 39	O X 30	X 25														X 54	X 53	X 53	X 51	X 50
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	30	29														30	29	28	30	30
MED	X 45	X 44	X 42	X 42	X 38	X 32														X 59	X 52	X 53	X 48	X 48
U Q	X 52	X 46	X 47	X 45	X 42	X 38														X 79	X 58	X 60	X 58	X 54
L Q	X 40	X 41	X 38	X 38	X 32	X 27														X 54	X 49	X 48	X 46	X 42

OCT. 2016 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	38	34	34	33	30	24	30	49	66	66	73	79	88	111	120	118	119	116	94	51	44	24	28	29
2	31	30	33	31	20	18	26	54	61	63	62	80	106	113	100	79	87	94	77	47	40	F 43	A	F 45
3	F 42	F 39	33	27	26	24	31	61	79	76	94	88	96	114	R 132	121	98	79	65	43	A	A	F 34	F 35
4	F 34	F 38	F 46	36	18	19	27	61	67	70	71	87	119	R 142	129	114	96	H 88	78	A	50	48	53	54
5	50	37	42	37	24	26	29	67	66	75	73	94	119	135	144	J R 132	106	100	87	68	52	50	F 53	F 60
6	55	47	42	36	32	32	33	58	63	74	76	70	80	97	98	92	94	80	72	64	45	41	42	44
7	44	41	40	37	34	34	36	52	61	69	83	81	80	88	93	84	85	90	97	86	73	58	64	66
8	66	58	48	47	35	33	33	60	59	78	100	101	92	104	R 122	116	98	89	86	65	62	64	61	J R 54
9	60	55	56	51	37	34	38	66	69	69	80	83	91	96	102	100	85	85	86	71	45	47	52	50
10	51	57	58	R 68	50	28	29	59	68	77	88	105	109	J R 108	109	J R 106	85	91	87	98	74	60	58	44
11	38	38	37	36	34	34	38	74	64	75	85	83	94	110	111	111	111	106	97	76	76	54	46	44
12	39	37	38	46	40	21	28	53	72	69	84	111	104	116	122	122	111	98	79	75	77	60	54	47
13	42	40	40	41	41	27	27	56	60	66	80	98	104	113	125	122	104	92	76	58	57	60	63	56
14	54	50	41	40	40	33	41	69	82	91	101	127	99	83	84	87	79	70	70	69	52	50	41	A
15	40	38	38	39	36	36	28	51	73	68	82	96	95	101	84	90	82	77	69	46	37	F 39	F 43	F 45
16	F 38	F 35	34	F 34	34	32	16	46	62	79	94	92	R 110	140	R 156	144	132	128	114	79	46	42	40	38
17	37	36	36	42	22	18	25	61	66	66	70	92	J R 102	104	107	93	86	74	68	51	41	41	F 41	F 39
18	F 40	F 39	F 39	36	36	30	26	50	74	81	79	82	88	106	120	111	110	88	74	52	42	38	40	38
19	40	40	32	32	26	18	24	50	60	74	80	82	74	75	110	H 95	72	70	83	V 73	50	A	29	27
20	29	29	32	35	31	22	22	50	60	70	80	78	84	100	115	129	106	95	84	J R 82	43	J R 38	R 40	36
21	34	34	34	36	30	20	A	50	64	66	74	73	76	84	103	104	106	76	71	53	46	42	45	46
22	49	39	34	34	30	21	22	50	64	67	73	76	76	84	88	93	76	68	65	53	29	34	35	36
23	36	37	32	30	F 33	23	25	56	73	74	67	95	99	107	131	136	107	78	51	51	48	48	42	36
24	38	39	32	32	32	28	32	64	66	58	70	86	78	79	93	105	97	76	58	51	45	47	36	27
25	29	31	32	34	34	32	24	50	61	64	97	120	110	82	93	100	70	66	52	44	53	62	48	33
26	31	33	41	26	23	24	24	58	81	84	100	148	83	72	74	102	111	96	62	41	46	43	F 40	F 43
27	34	A	30	39	26	22	22	51	65	78	91	122	80	81	102	101	89	73	70	52	34	35	40	40
28	40	40	34	32	18	21	25	45	80	102	102	111	81	77	99	102	85	65	54	44	43	46	38	32
29	28	30	30	31	23	18	22	55	72	72	90	94	89	109	139	122	97	J R 82	102	R 83	52	52	46	38
30	34	35	36	37	26	26	26	56	68	86	98	78	84	95	81	82	76	65	54	42	A	42	40	34
31	39	40	28	33	24	19	20	54	63	83	114	127	87	106	104	90	78	64	46	48	47	47	45	44
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	30	29	29	30	30
MED	39	38	36	36	31	24	26	55	66	74	82	92	91	104	107	104	96	82	74	53	46	47	42	42
U Q	44	40	41	39	35	32	31	61	72	78	94	105	104	111	122	121	106	94	86	73	52	53	52	46
L Q	34	35	32	32	24	21	24	50	62	67	73	81	81	84	93	93	85	73	65	48	43	41	40	36

OCT. 2016 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 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	U L 468	L 464	U L 468	U L 484	472	L 464	L 416							
2								240	304	L	U L 436	U L 484	480	472	U L 456	L	L	A						
3									L	L	L 464	456	U L 480	L 512	A	U L 464	U L 424	L						
4									L	L 432	U L 432	U L 484	U L 484	L 480	A	U L 460	L	A						
5											U L 448	U L 472	U L 492	L 468	U L 500	L	L							
6										L	U L 472	464	L 468	L 476	U L 484	U L 460	L	A						
7										L	U L 480	L 476	U L 480	L 472	U L 472	U L 444	L	L						
8										U L 444	U L 460	L 468	U L 488	U L 488	L 472	L 452	U L 372	L						
9									U L 380	L	L	L 480	L	L 484	L 484	L	L	L						
10										U L 456	L 488	464	L 516	U L 476	L 476	L	L	L						
11										L	L	U L 480	U L 528	U L 512	L 476	L	L							
12									L	L	L	U L 480	L 492	L 484	U L 480	L 456	L							
13										L	L	U L 492	U L 468	U L 488	L 492	U L 464	L	L						
14										L	L	U L 472	L	L	L	L	A							
15									L	L 432	A	A	U L 464	U L 472	A	L	A	L						
16								L	U L 324	L	464	464	L	L	L	L	L							
17									L	L	L	L 460	A	L	A 484	A	A	A						
18										L	L	U L 480	U L 476	U L 492	L 476	L								
19										U L 452	U L 452	L 468	U L 484	U L 496	U L 456	L	L 372							
20										L	L	U L 460	U L 480	L 472	U L 460	L 440	L	U L 240						
21							A			L	U L 448	U L 460	U L 468	L	L 444	U L 436	L							
22									L	L	L 448	U L 452	U L 460	U L 468	U L 452	U L 440								
23									L	L	U L 456	L 468	U L 464	468	L 444	L 428	L							
24									L	L	U L 452	L 464	U L 440	U L 472	U L 472	U L 424	L	L						
25										L	L	A	L 456	L	L	L	L							
26										L	A	A	A	L	L	A	L							
27										A	L	L	L	L	U L 456	L	L							
28									L	L	L	L 428	L 440	U L 512	U L 440	L 440	L	272						
29									L	U L 396	U L 448	L 460	456	U L 476	L	L								
30									L	U L 416	440	432	L	L 472	444	L								
31									L	U L 372	U L 404	L 444	U L 436	U L 476	L 436	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	3	8	18	27	24	24	23	14	4	2						
MED								240	U L 324	U L 432	U L 452	L 464	U L 472	U L 476	L 472	U L 448	L 394	256						
U Q									U L 380	U L 448	U L 464	U L 480	U L 484	U L 488	L 480	U L 460	L 420							
L Q									304	U L 406	U L 448	L 460	U L 462	L 472	L 452	L 440	L 372							

OCT. 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B 216	A 256	A	296	A	A	A	A	316	284	220	A					
2								B 216	A	UA 304	A	316	292	A	320	A	280	228	A					
3								B 224	260	296	316	324	A	R 332	332	316	288	A	A					
4					JK 112	JK 116		B 196	256	292	UR 312	328	A	332	328	320	308	240	A					
5								B 216	UA 280	UA 328	328	A	A	376	336	A	A	232	172					
6								B 188	268	292	320	336	A	A	336	332	300	220	A					
7								B 176	268	308	332	A	A	356	336	UA 316	A	A	A					
8								B 188	260	304	A	A	A	344	344	A	220	228	A					
9								B 188	272	300	332	348	348	A	352	328	300	228	A					
10								B A	264	312	336	344	336	328	332	332	280	232	A					
11								B 188	268	276	336	340	A	344	A	UA 284	284	A	A					
12								B A	272	A	A	A	A	A	324	312	276	212	B					
13								B 180	256	304	328	352	UA 352	348	332	320	288	216	B					
14								B 180	256	304	328	352	UR 352	R 344	328	308	280	208	A					
15								B 184	A	A	A	A	A	A	A	A	A	A	A					
16								B A	252	292	312	UR 324	332	340	328	A	R 276	A	A			JK 116		
17								B A	244	A	A	A	A	A	328	328	280	A	A					
18								B 180	248	276	A	332	R 336	B	B	300	272	208	A					
19								B A	252	288	320	328	340	328	320	308	A	A	A					
20								B 188	256	288	UA 312	A	A	A	A	A	A	A	A					
21								A 200	276	292	312	A	352	A	328	A	A	A	A					
22								B 176	A	A	R 280	A	344	UA 332	324	A	276	A	A					
23								B 180	256	UA 284	UA 308	A	UA 320	A	A	A	A	A	A					
24								B A	256	280	308	320	324	A	316	308	256	A	A					
25								B 192	244	292	312	320	328	316	316	300	260	232	B					
26								B 192	252	280	300	312	316	328	A	A	A	A	A					
27								B A	232	268	280	300	A	A	A	A	A	A	A					
28						JK 124		B A	A	A	A	308	324	320	304	284	256	B	B					
29								B A	UA 240	268	296	324	R 312	332	UA 324	A	A	A	B					
30								B A	236	UA 288	UR 316	320	B	360	320	324	A	A	B					
31								B A	A	272	A	A	A	A	328	296	A	A	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	2		19	26	25	23	19	16	17	23	19	19	13	1			1		
MED					JK 112	JK 120		188	256	292	312	324	334	332	328	316	280	228	172			JK 116		
U Q								196	268	304	328	340	346	346	332	324	288	232						
L Q								180	252	280	308	320	322	328	320	300	272	214						

OCT. 2016 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 20	J A 31	20	E B 13	18	18	E B 14	25	29	J A 33	J A 41	37	38	37	34	G 24	30	28	19	J A 15	18	E B 13	E B 13	E B 13
2	E B 13	J A 20	18	J A 18	20	E B 13	E B 14	G	30	36	J A 42	J A 41	J A 39	J A 38	40	40	39	J A 39	J A 30	J A 16	19	J A 46	J A 68	J A 108
3	J A 54	J A 15	J A 14	J A 20	J A 19	E B 13	E B 14	G	34	J A 38	J A 43	40	J A 45	J A 43	J A 58	38	35	27	J A 39	J A 37	J A 52	J A 106	J A 58	J A 21
4	19	E B 13	E B 13	E B 13	J K 11	J K 12	J A 13	23	J A 34	37	36	41	39	42	J A 48	40	G	32	J A 35	J A 84	J A 66	J A 28	J A 26	J A 20
5	J A 22	J A 20	J A 19	E B 13	J A 16	19	E B 13	G	J A 34	J A 55	J A 45	J A 58	J A 42	G	G	36	31	27	G	J A 23	J A 109	J A 33	J A 30	J A 36
6	J A 39	J A 28	E B 13	J A 15	E B 13	E B 13	E B 13	23	31	39	J A 45	38	41	J A 42	39	38	40	J A 51	J A 39	J A 47	J A 65	J A 33	J A 44	J A 20
7	J A 22	J A 32	22	20	18	E B 13	E B 13	24	30	33	40	40	J A 49	G	37	38	34	24	22	J A 35	J A 30	J A 16	E B 13	E B 13
8	E B 13	E B 13	19	E B 13	18	E B 13	J A 19	24	28	33	J A 39	J A 39	J A 39	G 34	G 31	34	29	27	J A 85	J A 46	J A 44	J A 43	J A 17	J A 42
9	J A 18	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	25	29	G	G	38	G 33	J A 51	41	39	34	28	18	J A 18	J A 16	J A 29	J A 26	18
10	E B 13	E B 13	J A 20	J A 21	J A 23	J A 27	J A 17	J A 29	29	35	40	38	G 26	G	39	36	32	27	18	J A 32	J A 25	J A 21	J A 16	E B 13
11	J A 20	J A 16	J A 19	E B 13	E B 13	E B 13	E B 13	23	30	34	G	38	J A 44	G	36	J A 44	J A 42	J A 51	J A 32	J A 110	J A 46	19	J A 19	E B 13
12	J A 18	J A 18	18	J A 16	18	E B 13	J A 17	J A 30	32	J A 36	J A 43	J A 46	J A 44	J A 40	G 27	G	G 17	24	E B 14	J A 16	J A 20	12	J A 19	E B 13
13	19	19	18	18	E B 13	E B 13	E B 14	23	33	39	J A 44	J A 50	J A 52	43	39	41	34	24	18	E B 13	18	E B 12	18	20
14	20	17	18	J A 19	E B 13	E B 13	E B 13	20	28	34	37	41	41	43	41	37	J A 53	34	19	J A 32	J A 19	J A 39	J A 46	J A 48
15	J A 28	J A 23	J A 21	J A 18	J A 23	J A 21	J A 25	28	J A 31	J A 57	J A 96	J A 76	J A 42	J A 78	J A 61	J A 46	J A 47	J A 31	J A 18	J A 26	J A 50	J A 74	J A 49	J A 28
16	J A 20	J A 20	J A 29	21	23	J A 21	J A 22	23	G 18	32	36	36	G 25	G 27	38	34	G 26	J A 23	J A 21	E B 13	E B 13	E B 12	E B 13	J A 26
17	J A 20	J A 21	J A 20	E B 13	19	J A 14	J A 14	J A 24	28	J A 44	39	J A 44	J A 62	44	J A 52	45	J A 47	J A 63	24	J A 21	J A 37	J A 31	J A 45	J A 28
18	J A 36	J A 28	J A 39	J A 21	20	J A 20	J A 20	21	30	31	33	G	G	E B 35	36	34	39	J A 61	J A 44	J A 37	J A 20	20	J A 43	18
19	J A 21	J A 16	J A 16	19	18	18	19	27	35	J A 42	40	37	38	37	40	J A 41	J A 42	J A 38	J A 29	J A 26	J A 43	J A 46	J A 28	J A 22
20	J A 20	J A 20	J A 20	J A 15	E B 13	E B 13	E B 13	22	29	36	39	38	37	J A 38	J A 36	J A 34	J A 42	23	J A 20	J A 28	J A 19	J A 25	J A 29	J A 19
21	E B 13	J A 21	20	J A 20	J A 16	J A 16	J A 29	23	31	34	34	40	G 33	41	36	34	J A 31	J A 46	J A 42	J A 20	J A 31	J A 21	J A 22	E B 13
22	E B 13	J A 30	J A 23	J A 53	J A 29	J A 18	16	22	J A 30	32	J A 39	39	G	36	38	34	34	31	18	E B 13	J A 38	J A 22	J A 40	J A 21
23	J A 16	18	E B 13	E B 13	J A 21	J A 22	E B 13	22	28	32	36	41	42	J A 44	J A 41	J A 40	J A 34	24	E B 14	J A 20	J A 26	J A 16	J A 32	J A 20
24	J A 22	J A 20	J A 20	J A 20	J A 17	J A 16	E B 13	19	G	G	G	G	33	35	G	G	30	21	J A 24	J A 32	J A 18	E B 13	E B 13	J A 31
25	J A 19	J A 20	J A 21	J A 16	19	J A E 15	B 14	G	31	35	42	J A 47	36	G	41	34	G	G	E B E 14	B E 14	B E 13	B E 13	B E 13	B E 13
26	E B 13	J A 16	20	18	J A 22	E B 13	J A 19	23	J A 40	J A 48	J A 53	J A 101	J A 79	J A 48	J A 72	J A 51	J A 32	J A 31	J A 24	J A 22	J A 21	56	29	43
27	J A 108	J A 37	J A 58	J A 33	J A 41	J A 17	J A 20	21	J A 35	J A 46	J A 41	J A 46	J A 61	J A 70	J A 56	J A 64	J A 42	J A 42	J A 29	J A 34	J A 34	21	J A 31	J A 31
28	J A 21	J A 36	J A 43	J A 25	E B 14	J K 12	J A 17	J A 22	J A 30	J A 42	J A 42	G 26	G	G	G 24	G 22	G 18	E B 20	E B 14	18	E B 13	E B 13	J A 45	J A 44
29	J A 38	J A 43	J A 21	E B 13	E B 13	J A 19	J A 17	J A 29	J A 34	32	35	G	38	37	37	33	36	27	J A E 20	B 14	J A 19	J A 29	J A 29	J A 16
30	J A 29	J A 33	J A 20	J A 18	J A 17	21	J A 18	21	34	32	J A 29	35	42	38	39	G 24	J A 48	J A 44	J A 37	J A 34	J A 40	J A 34	J A 16	18
31	J A 23	E B 13	J A 20	E B 13	E B 19	E B 14	E B 14	21	28	31	34	38	37	J A 44	G 28	G 25	J A 28	J A 40	J A 16	E B 13	E B 13	E B 13	E B 13	E B 13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J A 20	J A 20	J A 20	J A 18	18	14	14	23	30	35	39	39	39	38	39	36	34	28	J A 21	J A 23	J A 25	J A 22	J A 28	J A 20
U Q	J A 23	J A 28	J A 21	J A 20	J A 20	J A 19	J A 19	J A 24	34	39	42	44	44	43	41	40	42	40	32	34	43	34	43	31
L Q	E B 18	E B 16	18	E B 13	E B 13	E B 13	E B 13	21	29	32	35	37	G 33	G	G 36	G 34	G 30	24	18	E B 16	18	E B 13	E B 16	E B 13

OCT. 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	23	29	32	36	36	36	36	34	G 21	30	27	18	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 14	G	29	33	38	39	37	38	40	39	37	36	28	E B 13	E B 13	E B 13	A A 68	E B 13
3	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	29	34	41	39	43	41	54	37	33	26	34	30	A A 52	A A 106	22	E B 13
4	E B 13	E B 13	E B 13	E B 13	J K 11	J K 12	E B 14	23	30	34	36	39	38	40	46	38	G	30	33	A A 84	23	18	17	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	G	30	41	38	40	42	G	G	33	30	25	G	20	20	23	21	23
6	25	24	E B 13	E B 13	E B 13	E B 13	E B 13	23	29	38	42	36	40	41	38	37	36	49	23	24	28	22	22	19
7	19	21	20	E B 13	E B 13	E B 13	E B 13	24	30	33	39	39	43	G	36	36	33	24	19	24	20	E B 13	E B 13	E B 13
8	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	24	27	32	36	38	38	G 30	G 30	33	28	26	62	22	20	33	16	20
9	17	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	20	29	G	G	38	G 31	43	40	37	33	25	17	E B 13	E B 13	E B 13	19	E B 13
10	E B 13	E B 13	17	18	18	18	E B 13	27	29	34	38	37	G 25	G	39	36	31	26	18	28	E B 13	E B 13	E B 13	E B 13
11	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	29	32	G	37	37	G	36	36	33	47	27	59	23	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 14	25	30	34	36	41	40	38	G 24	G	G 16	24	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13
13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	23	30	38	39	45	43	42	39	36	31	23	17	E B 13	E B 13	E B 12	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	20	28	33	36	40	40	41	40	36	52	32	17	22	17	20	28	A A 48
15	E B 13	15	20	E B 13	20	17	16	22	28	34	46	45	36	35	52	34	38	22	15	15	21	E B 13	26	E B 13
16	16	16	23	19	22	20	E B 13	20	G 18	32	35	35	G 24	G 23	38	33	G 21	22	16	E B 13	E B 13	J K 12	E B 13	23
17	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	20	27	38	38	40	53	42	42	42	35	59	22	20	18	21	27	24
18	21	18	E B 13	E B 13	E B 13	E B 13	E B 14	20	30	31	32	G	G	E B 35	36	33	38	56	36	34	17	E B 13	E B 13	E B 13
19	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	25	33	38	38	36	37	36	39	36	32	35	28	20	21	A A 46	20	19
20	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	28	34	35	36	36	36	34	32	30	21	16	22	E B 13	18	E B 13	E B 13
21	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	A A 29	21	29	32	33	38	G 32	41	36	33	30	41	30	E B 13	19	16	20	E B 13
22	E B 13	E B 13	E B 13	20	20	E B 13	E B 13	21	28	32	38	36	G	35	36	33	33	31	16	E B 13	E B 13	E B 13	24	E B 13
23	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	21	27	32	34	39	40	36	37	31	30	23	E B 14	E B 13	19	E B 13	20	20
24	20	E B 13	18	E B 13	E B 13	E B 13	E B 13	19	G	G	G	G	G 31	34	G	G	28	20	21	27	E B 13	E B 13	E B 13	17
25	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	29	34	41	45	36	G	40	33	G	G	E B 14	E B 14	E B 13	E B 13	E B 13	E B 13
26	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	32	38	48	82	55	38	36	45	28	24	18	E B 13	E B 13	25	E B 13	E B 13
27	21	A A 37	18	16	E B 13	E B 13	E B 13	20	32	44	39	44	38	46	35	34	28	26	17	20	21	E B 13	E B 13	E B 13
28	17	29	26	19	E B 14	J K 12	E B 14	20	29	31	32	G 20	G	G	G 23	G 20	G 16	E B 20	E B 14	E B 14	E B 13	E B 13	E B 13	18
29	18	15	19	E B 13	E B 13	E B 13	E B 14	21	28	32	35	G	36	G 30	36	32	35	25	E B 14	E B 14	E B 13	20	20	E B 13
30	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	19	28	31	G 23	35	42	38	37	G	36	28	E B 13	E B 13	A A 40	21	E B 13	E B 13
31	17	E B 13	E B 13	E B 13	E B 19	E B 14	E B 14	20	27	30	32	35	34	36	G 23	G 20	27	23	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	21	29	33	36	38	37	36	36	33	31	26	17	15	17	E B 13	E B 13	E B 13
U Q	17	15	17	13	13	E B 13	E B 14	23	30	34	39	40	40	41	40	36	35	32	27	24	21	21	21	19
L Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	20	28	32	33	36	G	G	G 34	G 32	G 28	23	G	E B 13	E B 13	E B 13	E B 13	E B 13

OCT. 2016 fbEs (0.1MHz)

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT. 2016 fmin (0.1MHz)

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	329	330	314	339	349	280	329	362	370	373	343	325	311	319	310	312	317	350	368	355	363	289	285	292
2	300	280	315	343	402	300	307	376	373	370	358	296	325	327	311	313	335	355	374	336	309	F	A	F 319
3	F 319	F 329	324	335	315	317	333	357	380	325	342	342	285	292	R 317	330	347	362	364	331	A	A	F 278	F 275
4	F 288	F 303	F 362	426	308	304	322	371	372	371	335	296	315	R 327	330	322	320	H 333	368	A	302	277	295	312
5	331	290	330	381	311	309	309	377	369	369	337	309	326	311	317	J R 316	339	338	337	338	303	286	F 288	F 298
6	313	306	321	325	310	322	340	375	379	360	359	362	316	330	314	314	333	356	348	348	340	298	292	306
7	318	320	310	320	311	325	357	377	359	358	348	348	324	321	327	326	329	348	346	353	351	273	274	285
8	284	321	298	271	351	317	337	364	353	343	347	357	313	320	R 316	327	312	339	354	319	281	293	281	J R 324
9	292	314	311	345	355	310	327	380	372	341	335	336	322	308	316	332	342	343	350	357	326	279	276	267
10	261	274	283	R 303	386	325	322	348	353	348	308	337	329	J R 301	310	J R 315	326	335	335	359	357	290	293	283
11	280	313	324	295	306	321	307	380	377	348	347	325	301	318	318	320	337	348	350	340	276	269	335	278
12	295	309	308	335	394	304	307	382	367	339	315	336	326	322	328	319	322	351	349	312	326	272	272	269
13	291	301	311	336	353	366	326	375	387	365	322	333	324	315	330	341	339	341	350	329	283	270	282	284
14	298	292	313	309	300	269	264	366	339	320	311	336	325	337	340	337	346	352	324	358	309	346	305	A
15	278	281	281	286	298	324	342	354	352	364	342	353	344	352	332	351	364	361	363	350	294	F 285	F 291	F 337
16	F 331	F 294	310	F 314	323	351	307	361	349	356	364	334	R 311	310	R 333	333	331	339	366	349	316	289	291	293
17	304	305	302	368	384	293	305	370	384	360	324	322	J R 323	316	327	325	352	359	353	364	311	309	F 301	F 291
18	F 285	F 323	F 320	336	334	359	323	372	365	367	338	330	312	312	328	319	343	368	337	344	318	312	305	297
19	346	345	356	341	379	334	319	366	384	361	353	353	350	294	343	H 336	360	336	352	V 369	369	A	328	305
20	298	311	321	347	379	359	311	374	383	350	353	350	325	321	332	346	332	343	325	J R 322	312	J R 267	R 284	312
21	324	332	336	348	368	347	A	366	373	378	358	352	342	304	335	345	367	359	329	363	351	289	297	290
22	267	330	313	323	352	354	334	389	380	363	357	344	330	321	337	348	359	370	374	394	291	309	310	321
23	312	319	309	296	F 346	328	326	377	382	400	329	342	330	312	336	358	350	373	345	340	259	294	337	316
24	303	342	341	317	340	305	331	392	397	349	334	346	318	307	322	345	362	357	358	320	322	335	365	288
25	291	308	306	317	332	348	336	363	365	285	323	343	356	326	337	361	365	368	357	284	306	345	380	308
26	275	281	345	346	279	275	293	356	355	342	319	362	366	336	317	331	363	377	382	287	310	F 297	F 296	F 334
27	337	A	307	352	369	281	314	365	368	372	325	366	345	308	331	365	369	367	358	392	294	293	306	307
28	322	360	361	381	386	301	353	364	349	355	322	359	336	310	343	348	363	375	359	340	304	348	344	315
29	283	316	335	384	376	284	314	374	365	347	337	339	322	314	344	352	334	J R 291	344	R 320	289	299	324	343
30	322	324	315	336	317	297	300	365	351	348	374	360	327	341	318	354	365	358	372	348	A	320	353	293
31	311	370	316	340	349	318	293	372	351	318	352	374	330	332	341	341	373	370	328	313	304	328	310	319
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	30	29	28	30	30
MED	300	314	315	336	349	317	322	371	369	356	338	342	325	318	328	333	343	355	352	342	309	293	296	302
U Q	322	329	330	347	376	334	333	377	380	367	353	353	330	327	336	348	363	367	364	357	326	310	324	316
L Q	285	301	309	317	311	300	307	364	353	343	324	333	316	310	317	320	332	341	344	322	294	282	285	288

OCT. 2016 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	U L 372	L 388	U L 388	U L 375	369	L 357	L 359							
2								431	446	L	U L 404	U L 384	394	395	A	L	L	A						
3									L	L	A	408	U L 388	L 345	A	U L 353	U L 372	L						
4									L	L 398	U L 413	U L 386	U L 394	L 356	A	U L 367	L	A						
5											U L 392	U L 395	U L 367	L 391	U L 354	L	L							
6										L	U L 381	401	L 415	L 382	U L 365	U L 373	L	A						
7										L	U L 370	L 386	U L 392	L 398	U L 369	U L 384	L	L						
8										U L 379	U L 372	L 382	U L 381	U L 373	L 367	L 368	U L 406	L						
9									U L 408	L	L	L 393	L	L 367	L 362	L	L	L						
10										U L 372	L 371	399	L 378	U L 388	L 365	L	L	L						
11										L	L	U L 382	U L 364	U L 365	L 375	L	L							
12									L	L	L	U L 383	L 380	L 396	U L 380	L 375	L							
13										L	L	U L 356	U L 380	U L 368	L 357	U L 367	L	L						
14										L	L	U L 370	L	L	L	L	A							
15									L	L 396	A	A	U L 409	U L 378	A	L	A	L						
16								L	U L 433	L	385	400	L	L	L	L	L							
17									L	L	L	L 400	A	L	A 350	A	A	A						
18										L	L	U L 376	U L 384	U L 363	L 360	L								
19										U L 379	U L 381	L 378	U L 382	H 377	U L 357	L	L 401							
20										L	L	U L 376	U L 377	L 374	U L 366	L 376	L	U L 415						
21							A			L	U L 380	U L 383	U L 396	L	L 383	U L 370	L							
22									L	L	L 397	U L 391	U L 395	U L 379	U L 373	U L 362								
23									L	L	U L 394	L 392	U L 376	388	L 362	L 371	L							
24									L	L	U L 374	L 372	U L 402	U L 366	U L 357	U L 367	L	L						
25										L	L	A	L 380	L	L	L	L							
26										L	A	A	A	L	L	A	L							
27										A	L	L	L	L	U L 363	L	L							
28									L	L	L	L 404	L 409	U L 366	U L 368	L 372	L	408						
29									L	U L 392	U L 395	L 388	389	U L 355	L	L								
30									L	U L 389	386	422	L	L 363	372	L								
31									L	U L 416	U L 412	L 384	U L 417	U L 368	L 383	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	3	8	17	27	24	24	22	14	4	2						
MED								431	U L 433	U L 390	U L 385	L 386	U L 388	L 374	L 366	U L 369	L 386	412						
U Q									446	L 397	U L 396	399	U L 396	L 385	L 372	L 373	L 404							
L Q									U L 408	U L 379	U L 373	U L 382	U L 380	U L 366	L 360	U L 367	L 366							

OCT. 2016 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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									230	238	268	276	278	272	270	274	256							
2								206	218	236	260	320	266	256	256	288	268	236						
3									224	240	248	240	308	318	282	258	242	232						
4									228	230	256	290	282	266	256	252	246	222						
5											258	276	266	266	264	252	254							
6										248	252	236	300	264	264	278	256	234						
7										248	262	248	278	280	266	272	266	236						
8										262	262	238	274	276	258	252	238	232						
9									212	246	272	254	280	292	284	256	252	244						
10										256	272	250	268	272	276	266	260	244						
11										256	252	266	312	278	262	270	252							
12									234	246	284	264	242	280	250	250	238							
13										246	294	268	268	282	266	244	244	232						
14										262	266	262	252	244	258	252	238							
15									238	242	262	240	250	248	248	242	228	224						
16								220	244	252	232	256	282	268	258	244	244							
17									214	246	L 254	276	240	274	276	244	238	254						
18										238	260	258	296	298	264	260								
19										252	254	250	242	342	260	240	236							
20										248	246	246	280	274	260	236	232	218						
21							A			230	248	254	276	304	256	250	230							
22									222	230	244	246	262	278	260	248								
23									222	212	276	256	260	282	262	232	224							
24									208	226	274	252	252	294	284	252	232	216						
25										L 300	294	264	228	246	258	238	230							
26										258	294	240	230	270	286	268	228							
27										230	276	236	250	308	272	226	234							
28									258	246	288	232	230	298	260	250	240	216						
29									240	242	262	248	256	290	250	230								
30									238	244	232	240	278	266	260	240								
31									248	274	250	224	252	258	238	238	226							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	16	30	31	31	31	31	31	31	27	14						
MED								213	229	246	262	252	266	276	260	250	238	232						
U Q									239	252	274	264	280	292	270	260	252	236						
L Q									220	238	252	240	250	266	258	240	232	222						

OCT. 2016 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	244	240	262	234	208	320	242	218	216	200	206	186	184	182	H 178	210	224	236	210	200	188	288	322	298
2	278	294	254	228	200	322	270	198	196	206	208	198	172	206	A	240	252	A	212	200	230	Q 268	A	250
3	248	Q 240	224	236	270	270	242	230	216	200	A	206	A 230	228	A	230	226	220	212	A 248	A	A	E A 324	Q 304
4	Q 300	260	216	180	332	328	250	224	216	196	190	194	174	250	A	226	224	A	210	A	270	308	284	240
5	228	294	250	204	232	252	258	222	210	232	210	216	224	218	192	208	216	232	214	200	232	272	Q 294	268
6	242	A 266	230	212	254	236	220	214	220	228	E A 244	202	188	228	216	212	240	A	224	230	A 236	E A 280	300	268
7	258	260	264	246	246	242	206	208	220	216	220	204	A 230	188	206	206	226	230	222	216	208	208	236	244
8	240	234	238	248	204	228	242	214	214	208	200	206	H 184	176	192	206	206	226	A 238	212	218	E A 276	256	236
9	254	246	238	214	210	244	244	204	194	192	208	210	188	E A 244	230	242	222	230	218	196	188	252	260	262
10	292	268	254	228	192	E A 242	250	224	228	214	230	198	H 184	194	220	236	222	230	228	212	190	198	234	242
11	306	272	246	260	272	250	252	216	210	202	196	194	186	190	200	216	226	234	218	A 248	204	234	226	242
12	282	278	264	240	182	292	246	206	218	210	208	218	228	194	178	202	208	218	206	202	204	206	254	276
13	266	276	248	236	226	212	236	208	214	216	216	A	E A 252	A 232	234	230	220	210	210	228	254	286	262	294
14	266	276	222	266	246	306	316	222	224	236	226	240	238	E A 224	A 236	230	A	234	232	214	230	226	E A 294	A
15	296	314	A 324	280	A 286	236	230	230	214	202	A	A	178	186	A	214	A	218	216	204	E A 270	292	E A 320	234
16	232	272	E A 282	E A 270	A 266	A 224	B	196	180	214	200	180	H 178	H 164	254	226	216	224	210	192	200	260	264	298
17	284	258	274	202	198	328	264	220	204	218	208	A 214	A	A 264	E A 264	A	A	A	220	212	244	A 254	E A 298	E A 290
18	A 284	256	246	232	218	212	218	210	230	208	198	186	186	180	224	218	244	220	214	240	202	242	264	284
19	236	226	216	224	196	E B 294	264	204	224	222	218	210	204	H 188	246	224	222	242	226	212	208	A	E A 250	E A 296
20	276	262	248	228	198	210	266	210	212	212	206	196	188	184	198	210	210	202	200	194	200	A 300	266	252
21	248	248	236	226	182	236	A	212	224	214	202	192	188	268	218	204	224	216	210	192	198	266	A 262	250
22	248	236	248	A 252	210	242	246	202	208	202	200	190	180	180	210	H 196	226	216	206	192	288	266	E A 320	248
23	254	250	266	290	230	254	260	214	214	198	192	196	E A 230	190	226	220	212	204	200	218	A 270	254	220	260
24	278	228	226	260	222	272	244	210	206	190	170	182	182	190	204	218	220	208	198	A 224	224	242	204	284
25	304	288	268	268	234	226	228	216	224	206	E A 288	A	220	H 208	E A 250	210	210	216	204	292	254	224	202	252
26	344	294	236	190	356	350	310	220	230	A 250	A	A	A	214	A 220	A	218	218	198	232	240	A 276	288	234
27	E A 228	A	E A 308	234	210	306	266	208	232	A	A 232	A	230	A 258	210	222	228	218	210	190	E A 308	288	272	252
28	246	A 244	A 240	206	232	320	238	214	232	210	206	198	190	182	184	220	212	212	204	208	240	230	224	268
29	A 316	286	A 256	208	206	364	270	218	216	204	202	202	180	H 180	248	216	224	226	224	192	218	254	226	222
30	258	252	244	226	258	294	282	232	216	198	H 192	198	268	230	220	218	232	214	202	208	A	262	226	288
31	264	206	232	220	238	304	338	220	198	190	196	H 184	190	212	216	214	224	208	190	218	248	226	246	248
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	31	31	29	31	31	30	28	26	29	31	27	29	28	27	31	30	29	29	30	30
MED	264	260	247	230	226	253	250	214	216	208	205	198	188	192	217	218	223	218	210	212	224	257	255	254
U Q	284	276	264	252	254	306	266	220	224	216	217	206	229	228	234	226	226	230	220	224	251	278	E A 294	284
L Q	246	244	236	214	204	236	240	208	210	200	199	192	183	184	200	210	216	214	204	200	203	232	234	244

OCT. 2016 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	A 110		A	108	A	A	A	A	110	110	110	A					
2							B	122	A	108	A	108	104	A	108	A	110	114	A					
3							B	124	114	110	110	106	A	110	114	112	110	A	A					
4					B	B	B	110	110	110	110	112	A	112	110	110	110	120	A					
5							B	116	114	114	110	A	A	112	112	A	A	114	116					
6							B	116	114	112	108	108	A	A	112	112	110	110	A					
7							B	112	112	110	110	A	A	110	112	112	A	A	A					
8							B	116	112	112	A	A	A	112	114	A	106	112	A					
9							B	116	112	110	108	108	110	A	110	110	110	114	A					
10							B	A 110	110	110	110	110	110	116	112	112	110	112	A					
11							B	116	114	108	108	108	A	108	A	108	108	A	A					
12							B	A 108		A	A	A	A	A	112	110	108	108	B					
13							B	114	108	108	110	108	108	110	110	110	110	110	B					
14							B	132	108	108	108	108	A	108	108	108	108	110	A					
15							B	110	A	A	A	A	A	A	A	A	A	A	A					
16							B	A 110	108	108	A	110	110	110	A	110	A				B			
17							B	A 114		A	A	A	A	A	122	118	118	A	A					
18							B	122	108	108	A	108	118	B	B	112	112	112	A					
19							B	A 110	110	110	110	112	112	112	114	112	A	A	A					
20							B	122	112	112	112	A	A	A	A	A	A	A	A					
21							A	118	110	110	112	A	118	A	114	A	A	A	A					
22							B	114	A	A	106	A	112	112	112	A	114	A	A					
23							B	118	108	108	108	A	108	A	A	A	A	A	A					
24							B	A 112	112	112	112	112	114	A	116	114	114	A	A					
25							B	128	110	110	110	108	108	108	108	108	110	112	B					
26							B	122	110	110	110	108	112	110	A	A	A	A	A					
27							B	A 108	106	106	112	A	A	A	A	A	A	A	A					
28						B	B	A	A	A	A	110	106	106	106	108	108	B	B					
29							B	A 108	108	108	106	108	110	114	A	A	A	A	B					
30							B	A 108	112	110	110	B	112	112	112	A	A	A	B					
31							B	A	A	110	A	A	A	A	114	116	A	A	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								19	26	25	23	18	15	17	23	19	19	13	1					
MED								116	110	110	110	108	110	110	112	112	110	112	116					
U Q								122	112	111	110	110	112	112	114	112	110	114						
L Q								114	108	108	108	108	108	109	110	110	108	110						

OCT. 2016 h'E (KM)

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	122	108	94	B	96	96	B	144	146	100	106	106	106	102	98	96	158	126	116	92	106	B	B	B
2	B	104	96	96	98	B	B	G	128	118	110	110	106	96	164	126	118	114	110	114	108	110	108	108
3	106	100	96	150	136	B	B	G	114	110	110	106	108	110	110	130	118	106	104	102	100	100	106	106
4	104	B	B	B	B	B	B	118	112	108	112	108	110	110	108	110	G	118	112	110	106	100	100	98
5	100	100	100	B	98	112	B	G	122	110	110	108	104	G	G	108	108	116	G	108	122	94	96	94
6	92	94	B	94	B	B	B	144	128	112	110	114	108	108	126	176	134	120	110	114	106	98	90	90
7	92	92	92	92	92	B	B	130	150	160	110	110	108	G	112	110	108	102	98	94	94	96	B	B
8	B	B	90	B	106	B	108	138	152	156	108	110	110	104	104	100	102	158	102	100	104	96	96	110
9	90	B	B	B	B	B	B	114	136	G	G	166	100	98	140	136	128	122	96	94	104	102	102	88
10	B	B	100	110	110	104	110	102	160	136	126	130	96	G	190	170	146	126	114	106	104	104	104	B
11	104	92	92	B	B	B	B	124	112	112	G	114	104	G	108	106	116	104	104	104	104	104	100	B
12	96	100	88	96	96	B	104	98	148	116	98	98	98	98	98	G	94	178	B	106	90	90	98	B
13	94	92	96	92	B	B	B	148	118	116	116	112	110	114	112	144	138	162	186	B	120	B	116	114
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21	B	100	102	94	94	94	96	166	152	122	126	104	102	156	156	112	110	104	100	100	92	96	94	B
22	B	94	94	114	96	96	96	142	110	110	106	110	G	124	120	142	142	126	118	B	126	100	100	98
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24	90	96	92	92	92	94	B	154	G	G	G	G	94	116	G	G	124	110	104	102	96	B	B	100
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31	94	B	98	B	B	B	B	130	106	108	106	106	104	100	104	104	102	102	102	B	B	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	26	27	21	21	16	15	27	30	29	28	28	28	24	29	28	29	29	26	25	27	24	25	23
MED	98	96	96	96	98	96	104	130	124	112	110	110	107	110	112	112	110	110	104	102	104	99	100	98
U Q	104	100	100	100	105	103	112	144	146	123	112	115	110	119	128	135	129	124	114	106	106	102	103	106
L Q	94	94	94	94	95	94	96	114	112	109	106	106	103	101	108	108	104	104	102	100	98	96	95	94

IONOSPHERIC DATA STATION Okinawa

OCT. 2016 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	FF 11	FF 12	F 1		F 1	F 1		HC 11	H 1	L 1	C 1	C 1	C 1	L 1	L 1	L 1	HL 11	C 1	C 1	F 1	F 1			
2		F 1	F 1	F 2	F 2				C 1	C 1	C 1	C 2	C 1	L 1	H 1	CL 11	CL 11	C 3	C 3	F 1	F 1	FF 22	F 5	FQ 41
3	FQ 31	FQ 11	F 4	F 2	F 3				C 1	C 2	C 2	C 1	C 1	C 1	C 2	H 1	C 1	C 1	L 9	F 5	FQ 71	FQ 61	FQ 31	FQ 11
4	F 1				K 1	K 1	H 1	C 2	CQ 11	C 1	C 1	C 1	C 1	C 1	C 1	C 1		CL 21	L 2	F 8	FQ 41	FQ 21	FQ 21	FQ 11
5	F 1	FQ 11	F 2		F 1	F 1			C 1	C 3	C 2	C 1	L 1			C 1	C 1	C 1		F 2	FFQ 13	FQ 31	FQ 31	F 3
6	F 3	F 2		F 1				HC 11	C 1	C 2	C 1	C 1	C 1	C 1	C 1	H 1	H 2	C 4	C 3	FQ 41	FQ 41	F 4	F 3	F 1
7	F 1	FQ 21	F 1	F 1	F 1			H 2	H 1	H 1	C 1	C 1	C 1		C 1	C 1	C 1	L 1	L 1	F 3	F 4	F 1		
8			F 1		F 1		C 1	H 1	H 1	H 1	C 1	C 1	C 1	L 1	L 1	L 1	L 1	HL 11	L 7	FQ 41	FF 24	F 9	F 3	FF 12
9	F 1							C 1	H 1			H 1	L 1	LC 21	H 1	HL 11	CL 11	C 1	L 1	F 1	F 1	F 1	F 1	F 1
10			F 1	F 1	F 3	F 3	C 1	L 1	HL 11	HL 11	C 1	HL 11	L 1		H 1	H 1	H 1	C 1	C 1	FF 31	F 3	FQ 11	FQ 11	
11	FQ 11	F 2	F 1					C 1	C 1	C 1		CL 11	L 1		C 1	C 1	C 1	L 2	L 2	F 6	F 7	F 1	F 1	
12	F 1	F 1	F 1	F 1	F 1		L 1	L 3	H 2	CL 12	LC 21	L 1	L 1	L 1	L 1		L 1	H 1		F 1	F 1	F 1	F 1	
13	F 1	F 1	F 1	F 1				HC 21	C 2	C 2	C 1	C 2	C 1	C 1	C 1	H 1	H 1	H 1	H 1		F 1		FF 11	F 1
14	F 1	F 1	F 1	F 4				H 1	H 1	H 1	H 1	HH 11	HL 11	C 1	C 1	C 1	C 3	C 1	HC 11	F 7	F 1	FF 32	F 4	FQ 51
15	FQ 21	FQ 21	F 3	F 2	F 5	F 2	C 5	C 3	C 2	C 2	LQ 31	LQ 31	LC 11	LQ 21	LQ 31	L 2	LQ 21	LQ 11	LQ 11	FQ 21	FQ 21	FQ 21	FQ 31	FQ 21
16	FQ 11	F 2	F 2	F 1	F 1	F 1	L 1	L 1	L 1	H 1	C 1	CL 11	L 1	L 1	HL 11	HC 11	L 1	C 1	L 1			K 1		F 4
17	F 2	F 2	FF 11		F 1	F 1	C 1	C 1	HC 11	L 2	L 2	LH 11	CL 11	HL 11	CL 11	CL 11	CL 11	CL 41	CL 11	FF 11	F 2	FQ 31	FQ 31	FQ 41
18	FQ 21	F 3	F 2	F 1	F 1	F 1	F 1	H 1	HC 11	HC 11	L 1				C 1	C 1	C 2	C 5	C 8	F 6	F 1	F 2	F 2	F 1
19	F 1	F 1	F 1	F 1	F 1	F 1	H 1	C 2	C 1	C 2	C 1	C 1	C 1	C 1	CL 11	C 1	C 1	LQ 21	L 6	F 2	F 5	FQ 41	FQ 21	FQ 21
20	FQ 21	FQ 11	F 1	F 1				HH 11	C 1	C 1	C 1	C 1	C 1	C 1	C 1	C 1	L 1	L 1	L 1	F 5	F 3	F 4	F 2	F 1
21		F 3	F 1	F 2	F 1	F 1	LQ 31	HL 11	H 1	C 1	CL 11	LC 11	L 1	HL 11	H 1	C 1	C 1	L 3	L 2	F 1	FQ 31	FQ 11	F 3	
22		FQ 21	FQ 21	FF 12	FQ 21	F 1	L 1	HC 11	C 1	C 1	C 1	C 1		C 1	C 1	HC 11	HL 21	CL 11	C 1		FFQ 12	FQ 21	FQ 31	FQ 11
23	FQ 11	F 1			F 1	F 1		H 1	H 1	C 1	C 1	C 1	C 1	C 1	C 1	C 1	L 1	L 1		F 1	F 2	FQ 11	FQ 41	FQ 21
24	F 3	F 1	F 1	FQ 11	F 1	F 1		HC 11					LC 11	C 1			C 1	C 1	L 2	F 4	F 1			FQ 11
25	F 1	F 1	F 1	F 1	F 1	F 1			C 1	C 1	C 1	C 1	C 1		C 1	H 1								
26		F 3	F 1	F 1	F 4		C 1	H 1	C 1	CQ 21	C 3	L 7	L 3	C 1	C 2	C 3	C 1	CH 31	L 2	F 2	FQ 21	FQ 81	F 4	F 4
27	FF 18	FQ 81	FQ 71	FQ 31	FQ 41	F 3	L 3	C 1	C 2	C 3	C 2	CL 11	CQ 11	CQ 21	CQ 21	CQ 21	C 2	LQ 31	LQ 31	F 5	F 4	F 1	F 2	F 2
28	F 2	FQ 41	FQ 31	F 2		K 1	C 1	CH 11	LH 11	L 1	CL 11	L 1			L 1	L 1	L 1			F 1			F 1	FQ 21
29	F 2	FQ 21	F 2			F 1	L 1	C 2	C 1	C 1	C 1		C 1	C 1	HC 11	HC 11	HC 11	HC 11	L 1		FQ 11	F 3	F 4	F 1
30	F 2	FQ 21	FQ 11	FQ 11	FQ 21	F 1	L 1	C 1	C 2	CL 11	L 1	HL 11	H 1	H 1	H 1		LQ 21	LQ 21	CQ 31	FQ 31	FQ 61	FQ 31	F 1	F 1
31	F 2		F 1					H 1	C 1	C 1	C 1	C 1	L 1	L 2	L 1	L 1	L 2	L 2	L 1					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

OCT. 2016 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

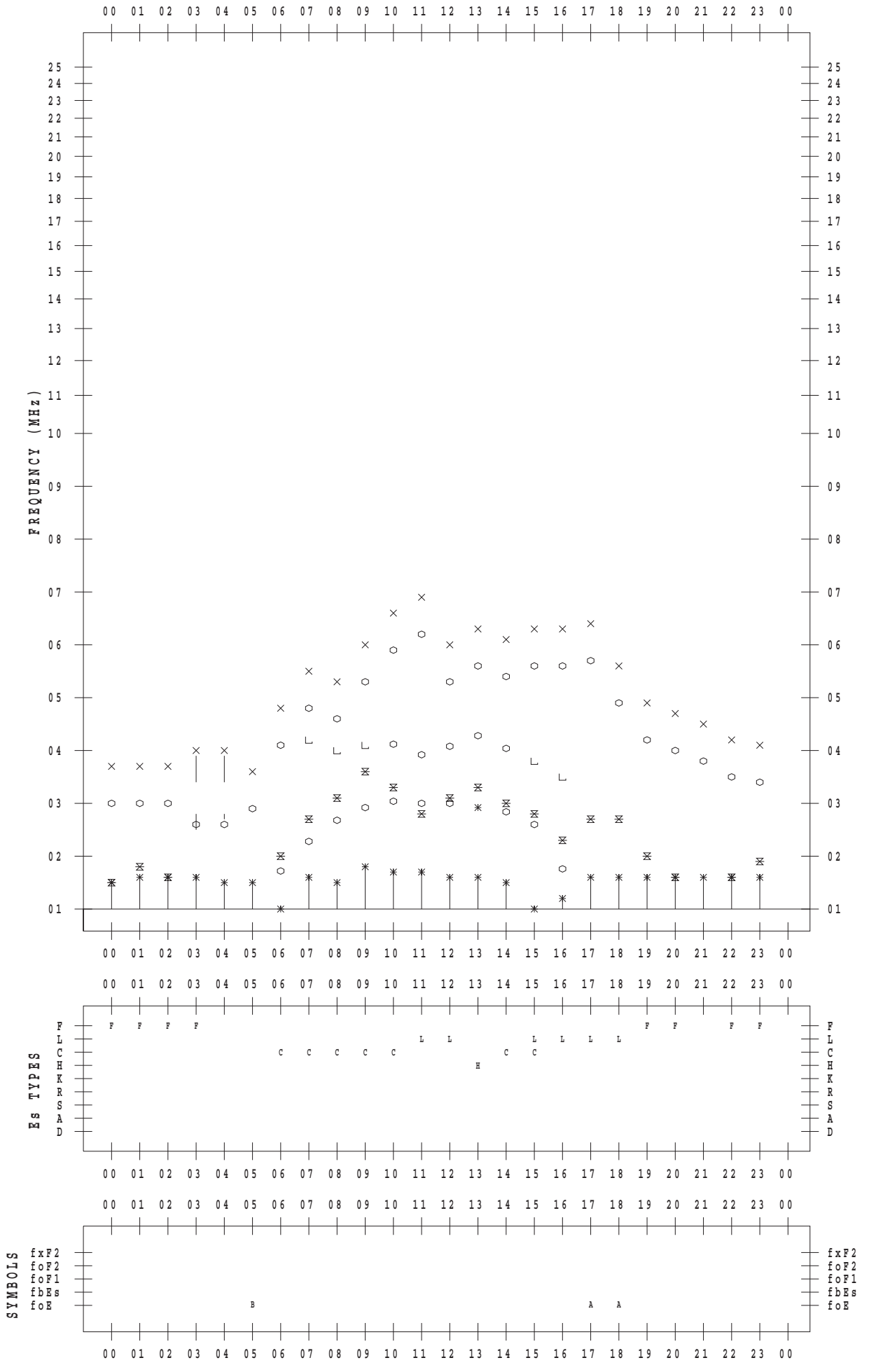
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/ 1

135 °E MEAN TIME



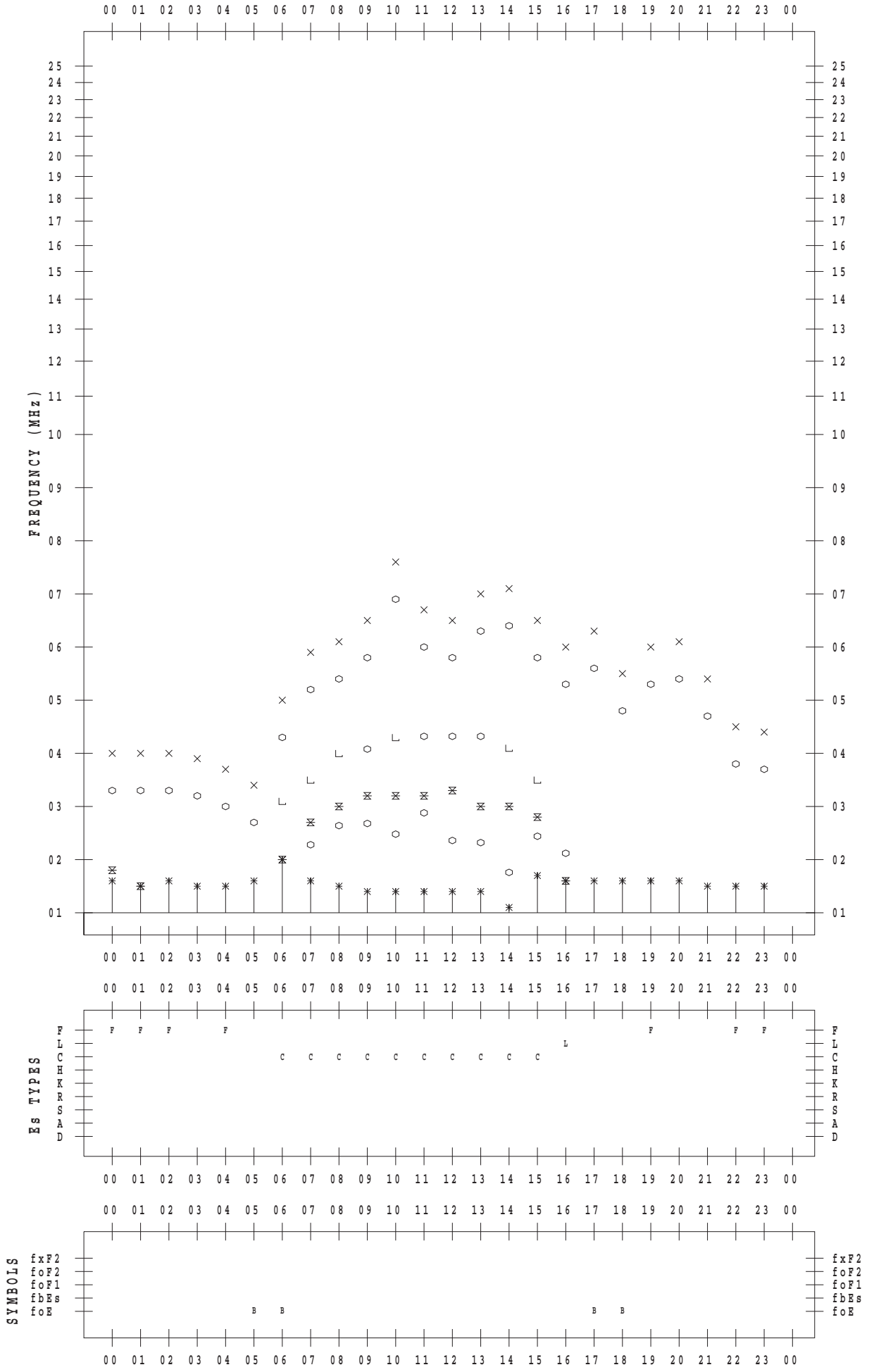
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/ 2

135 °E MEAN TIME



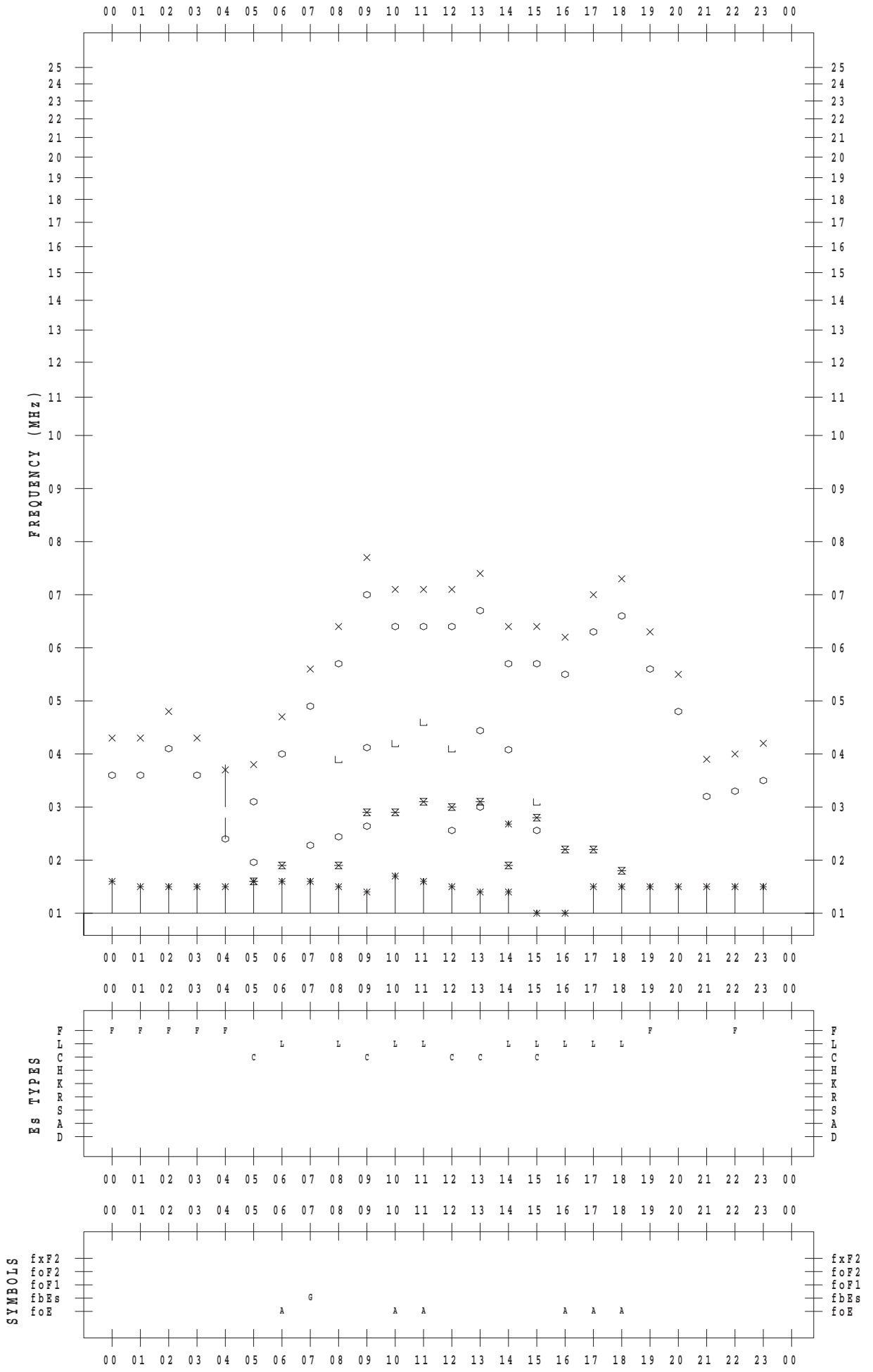
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/ 3

135 °E MEAN TIME



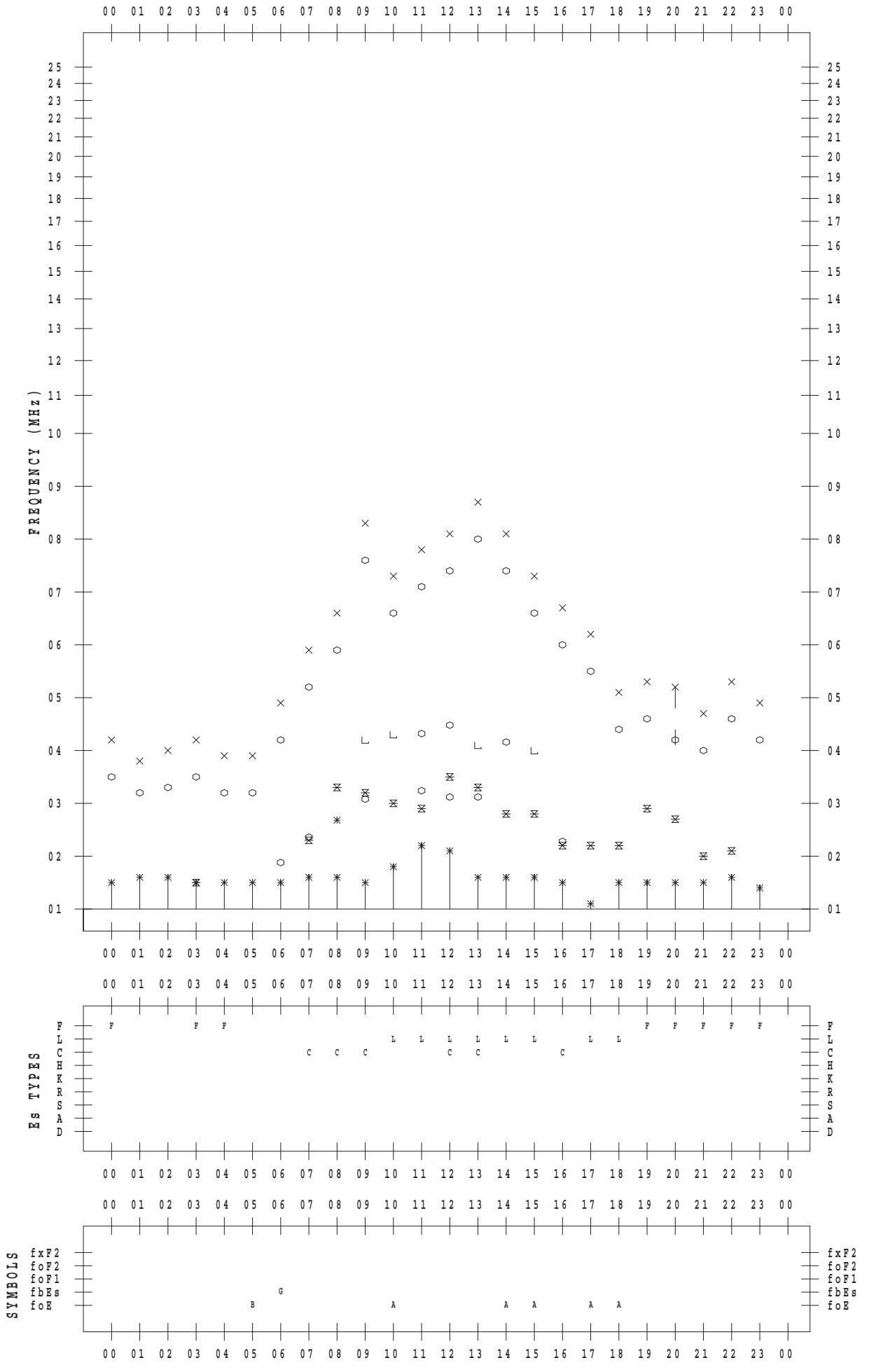
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/ 4

135 °E MEAN TIME



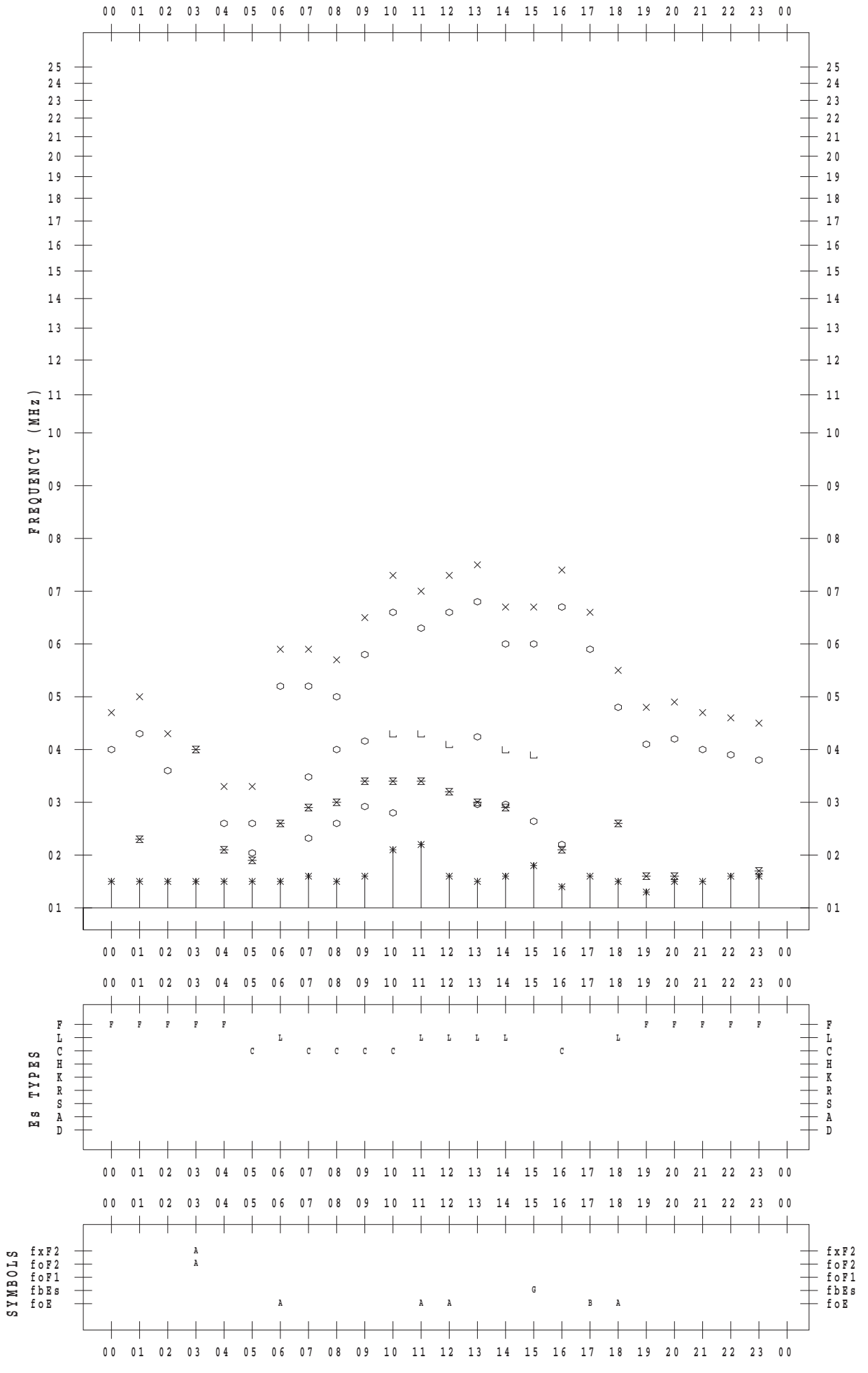
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/ 5

135 °E MEAN TIME



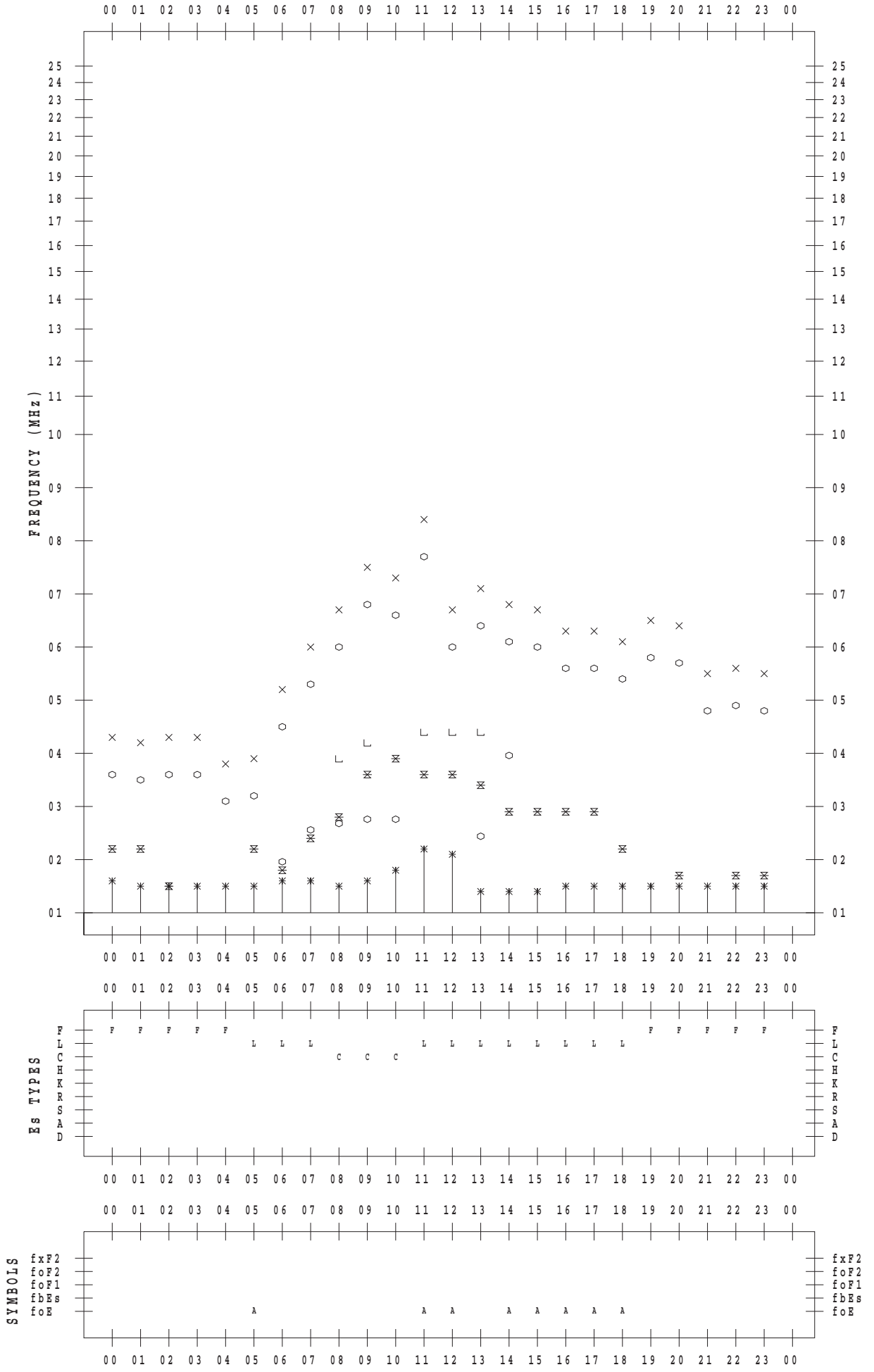
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/ 6

135 °E MEAN TIME



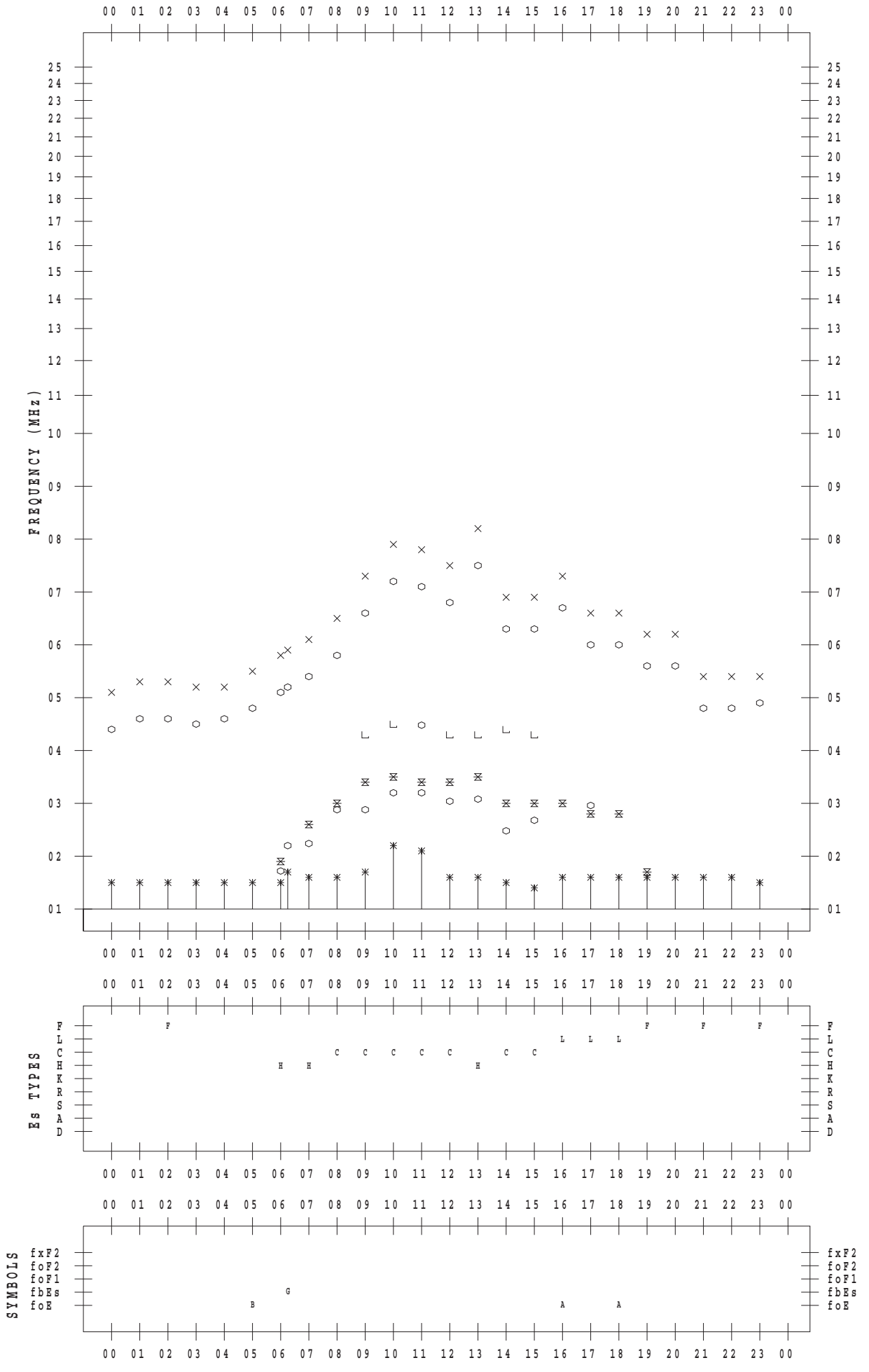
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/ 7

135 °E MEAN TIME



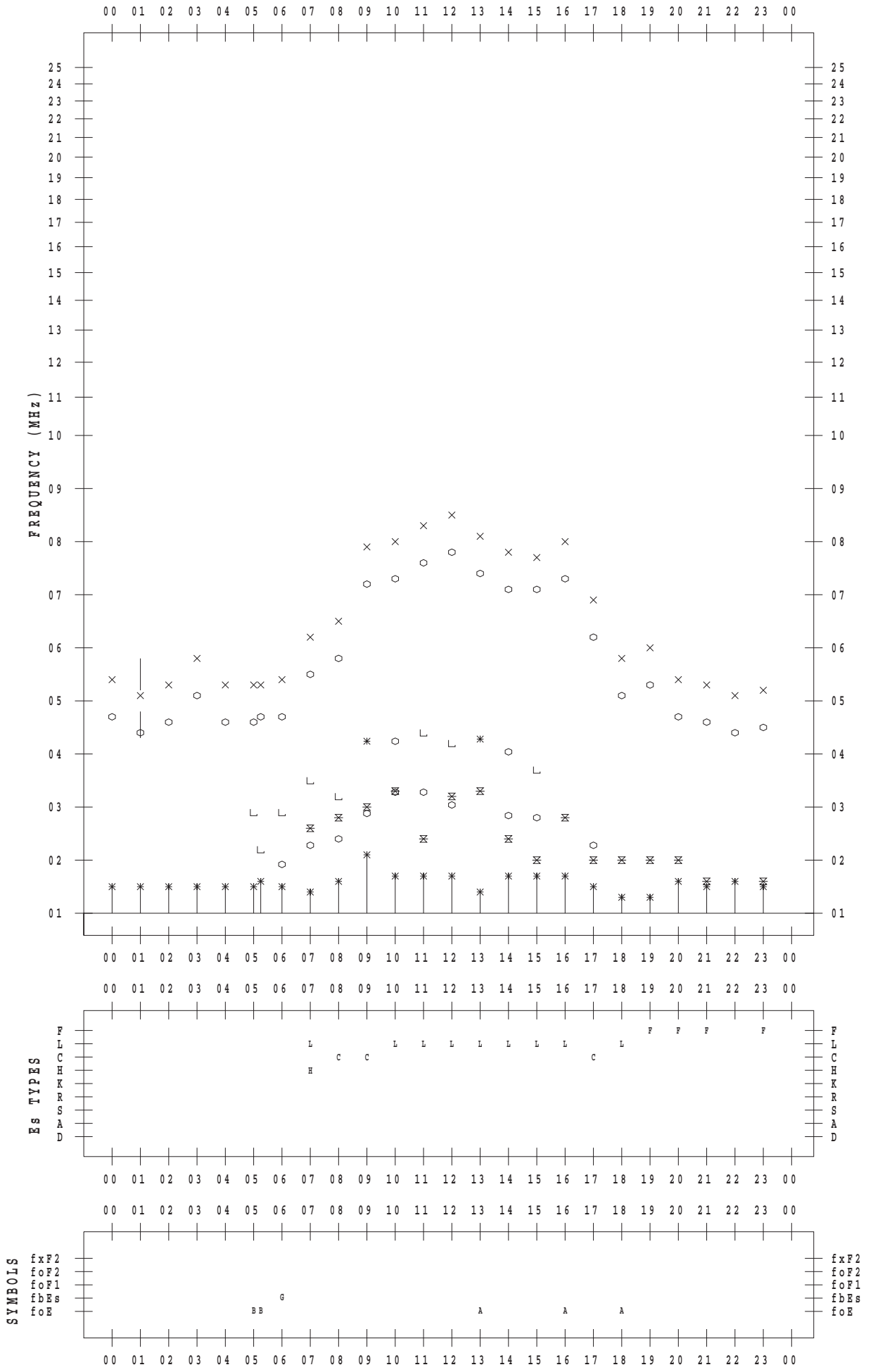
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/ 8

135 °E MEAN TIME



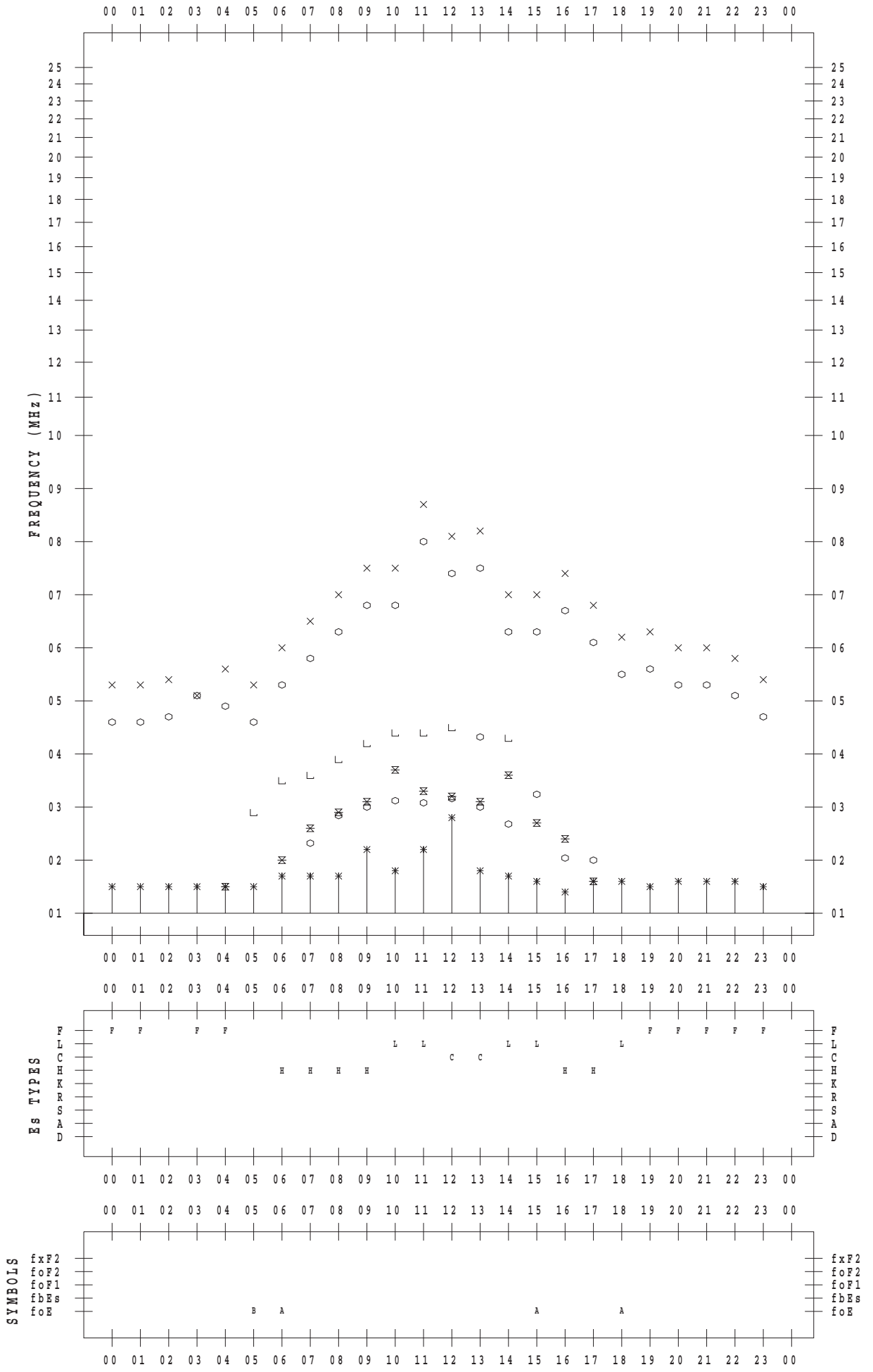
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/ 9

135 °E MEAN TIME



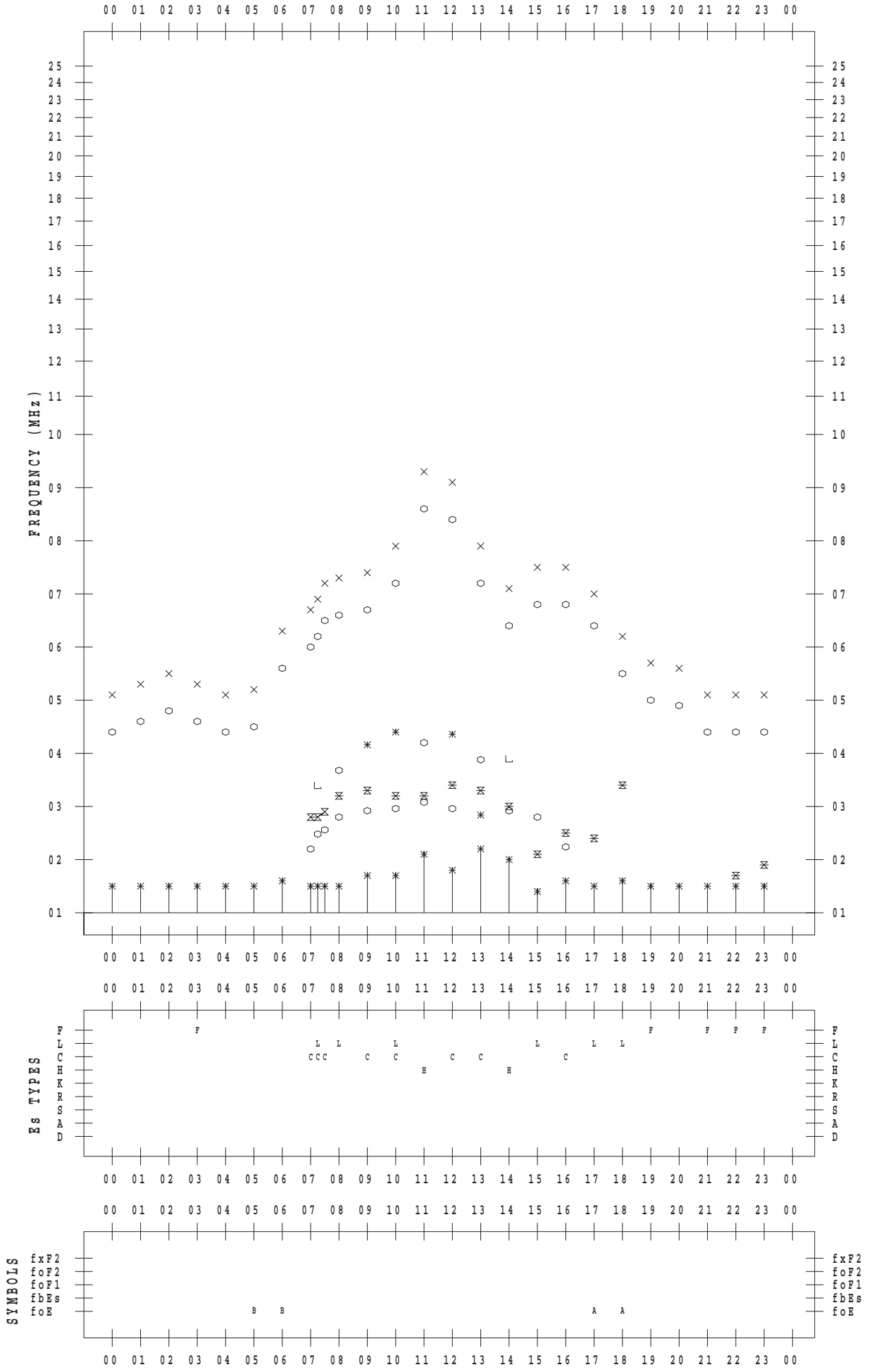
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/10

135 °E MEAN TIME



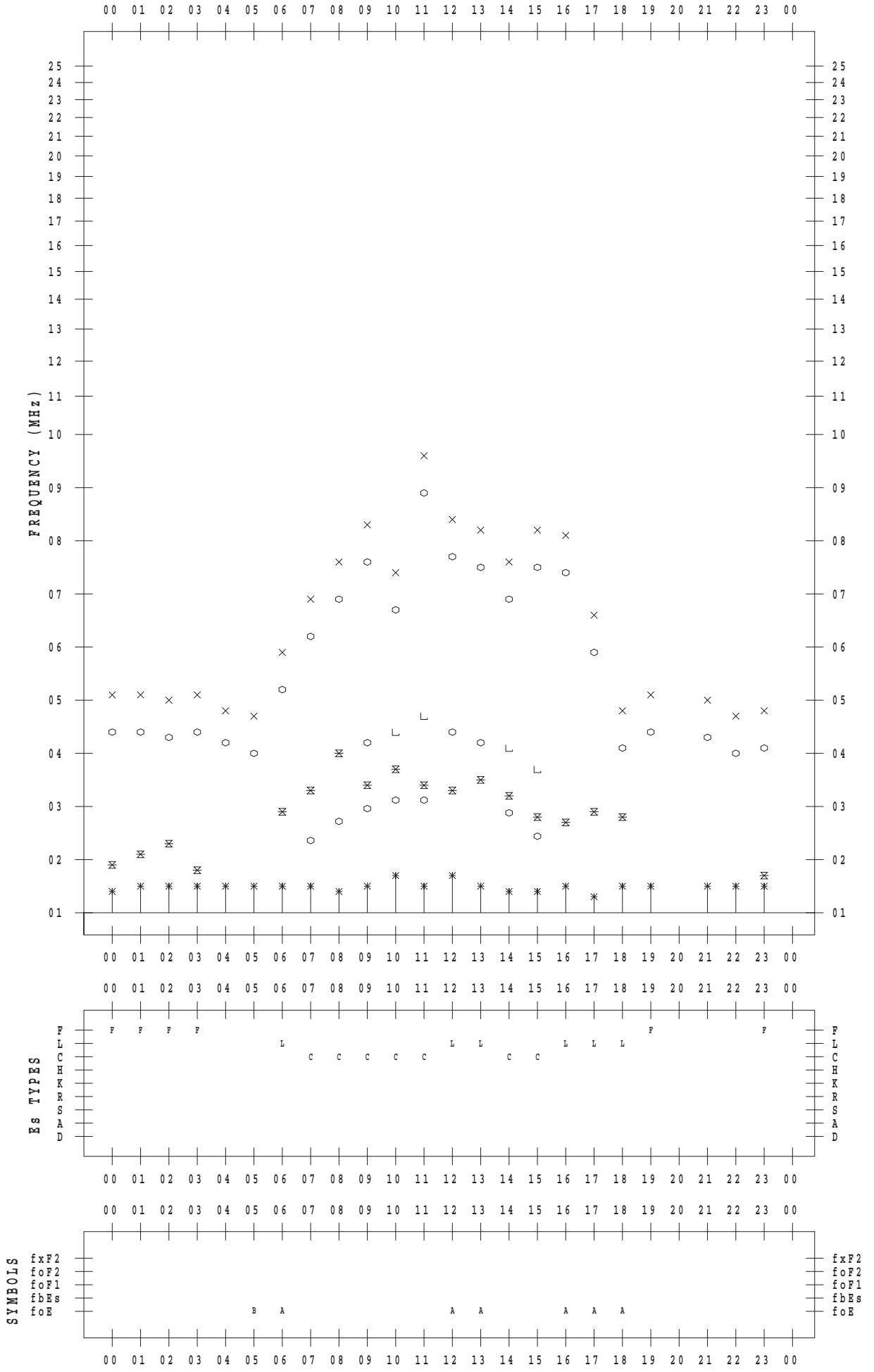
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/11

135 °E MEAN TIME



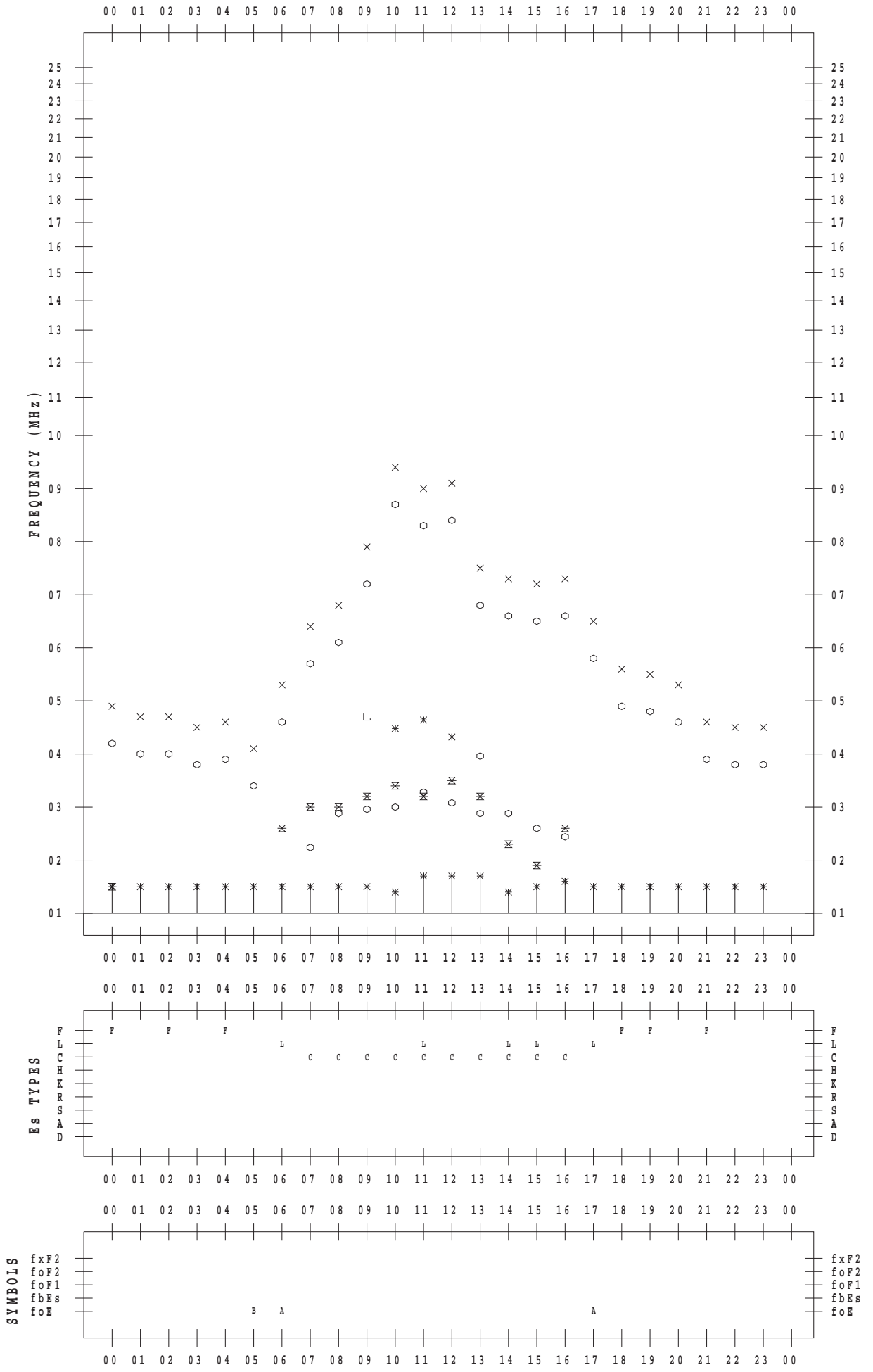
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/12

135 °E MEAN TIME



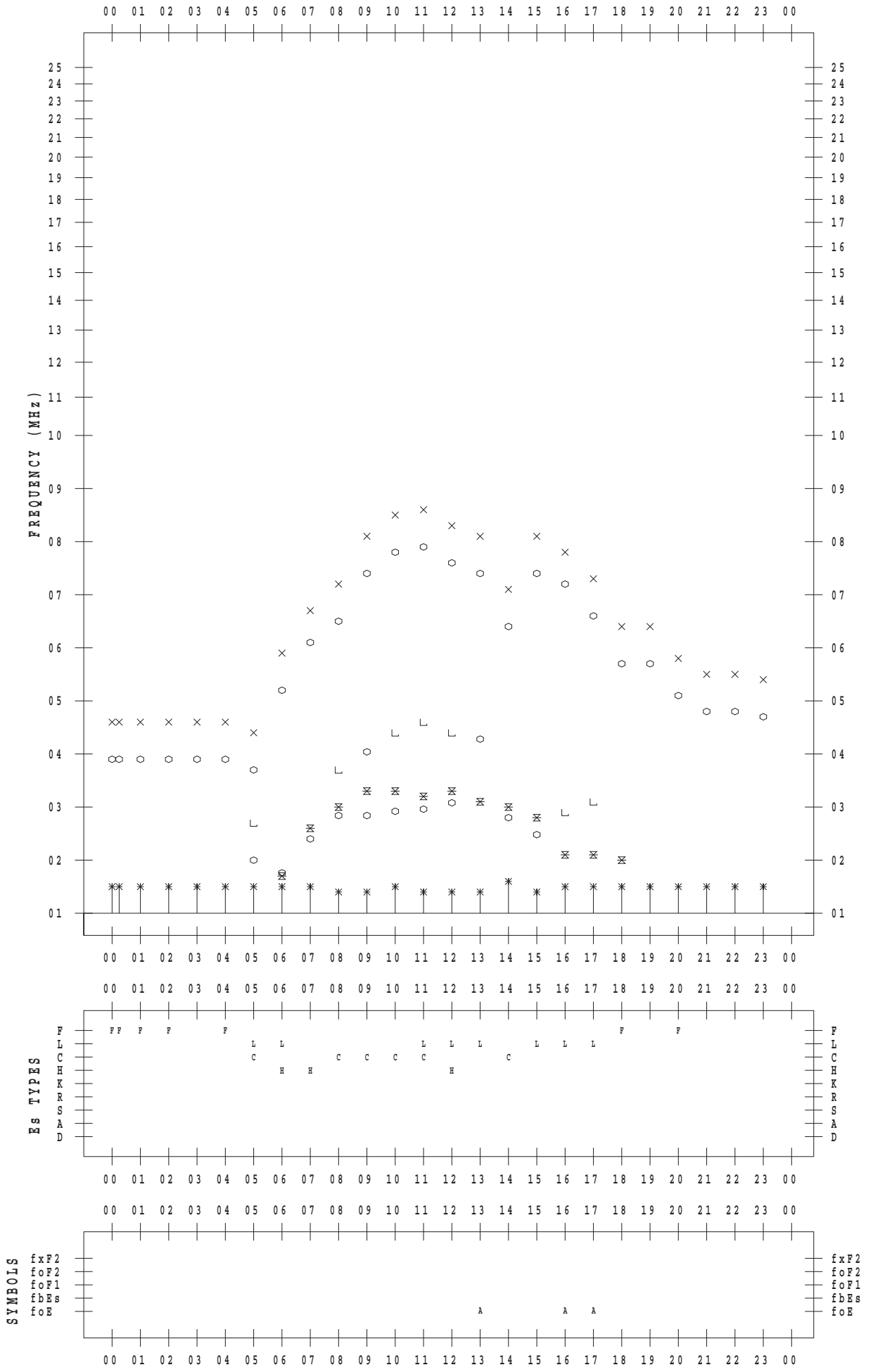
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/13

135 °E MEAN TIME



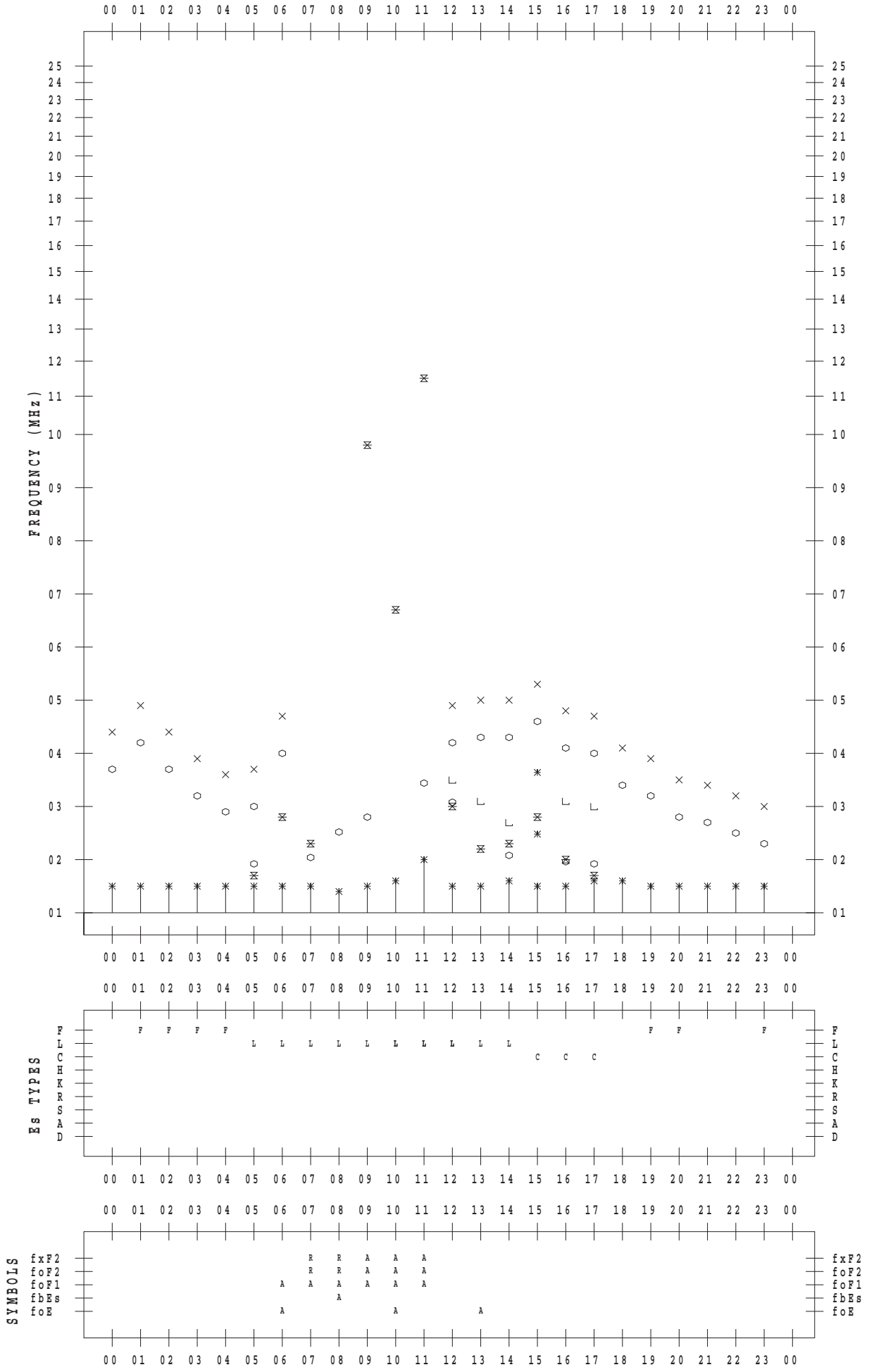
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/14

135 °E MEAN TIME



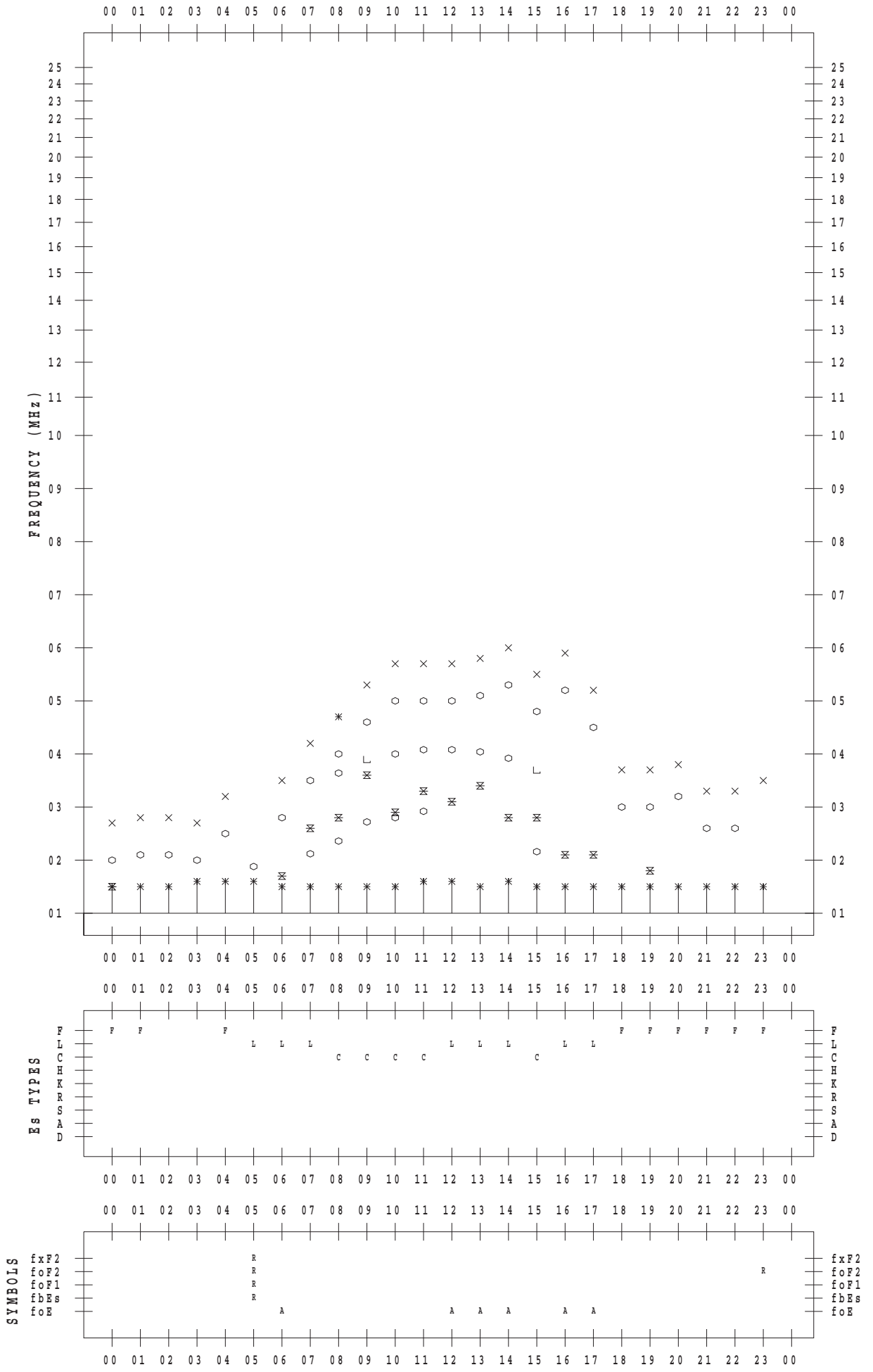
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/15

135 °E MEAN TIME



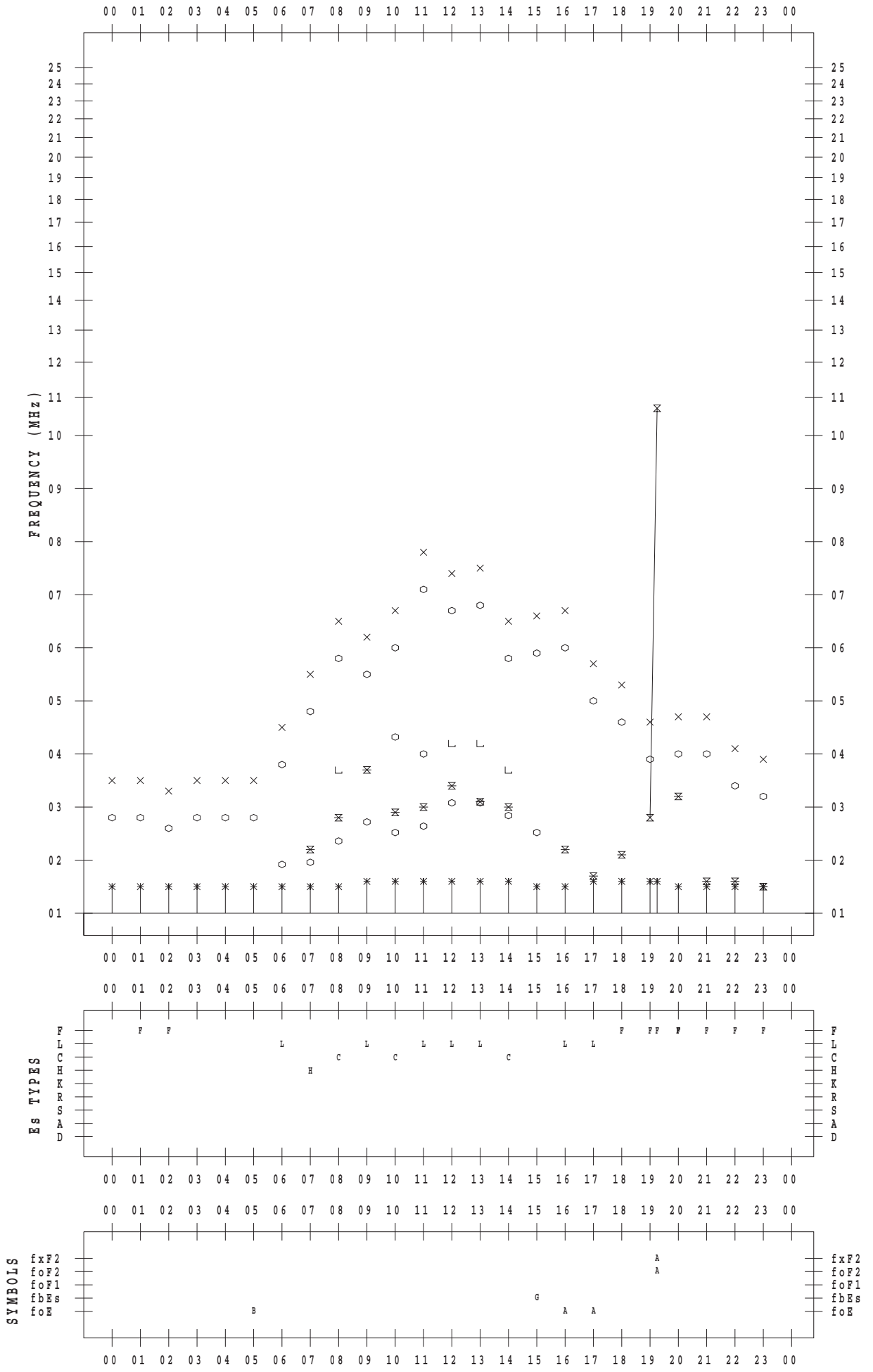
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/16

135 °E MEAN TIME



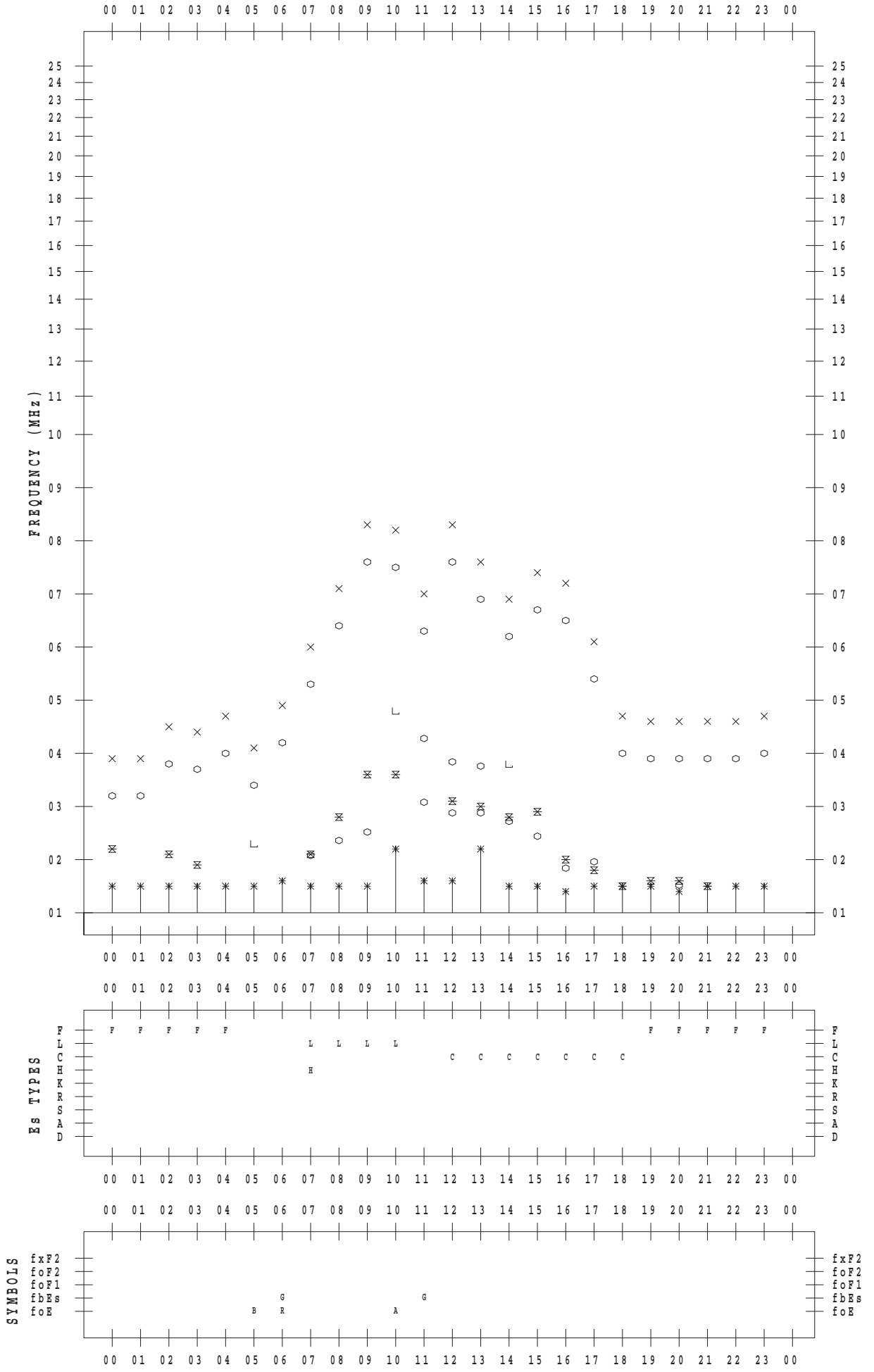
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/17

135 °E MEAN TIME



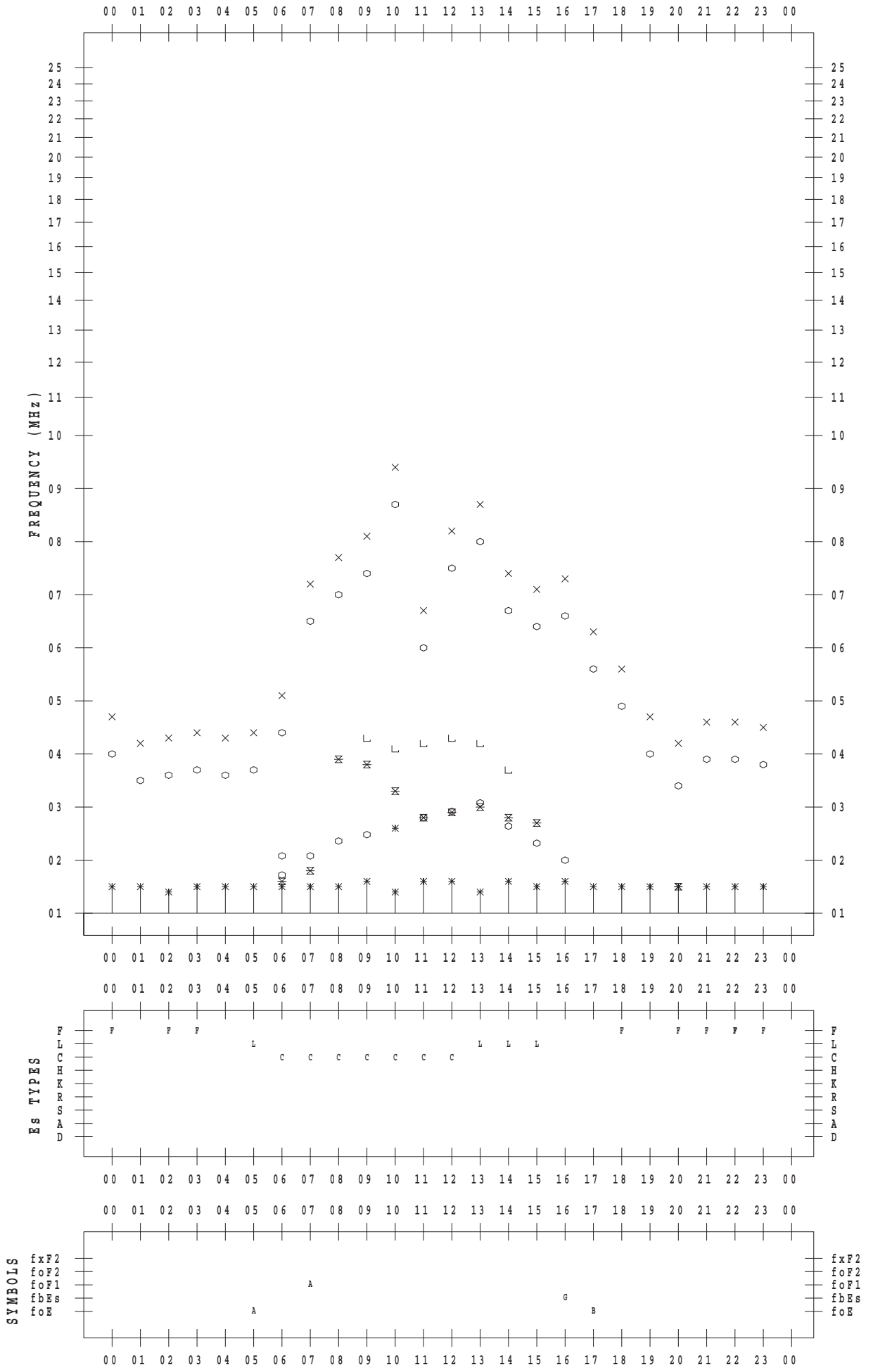
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/18

135 °E MEAN TIME



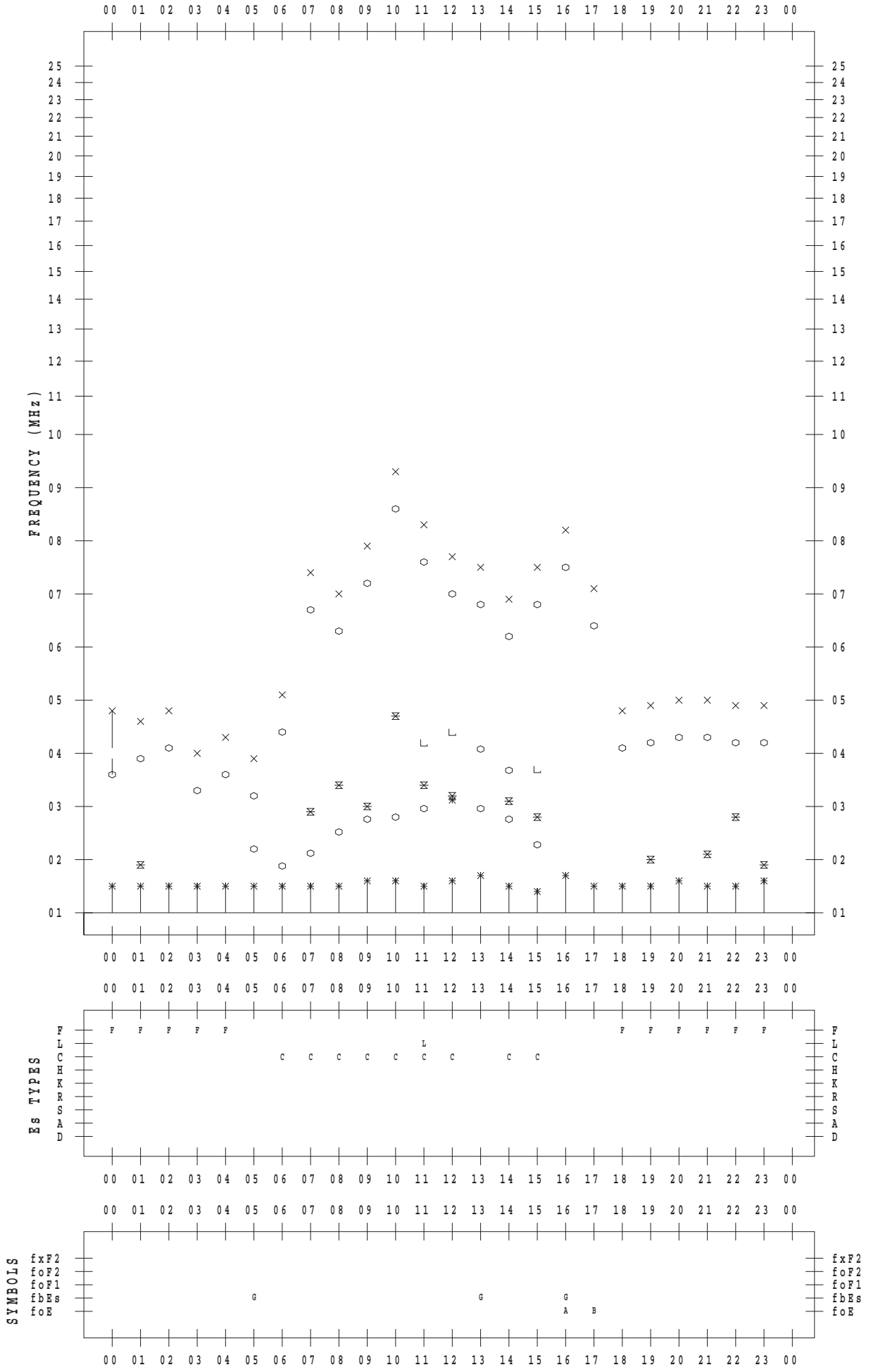
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/19

135 °E MEAN TIME



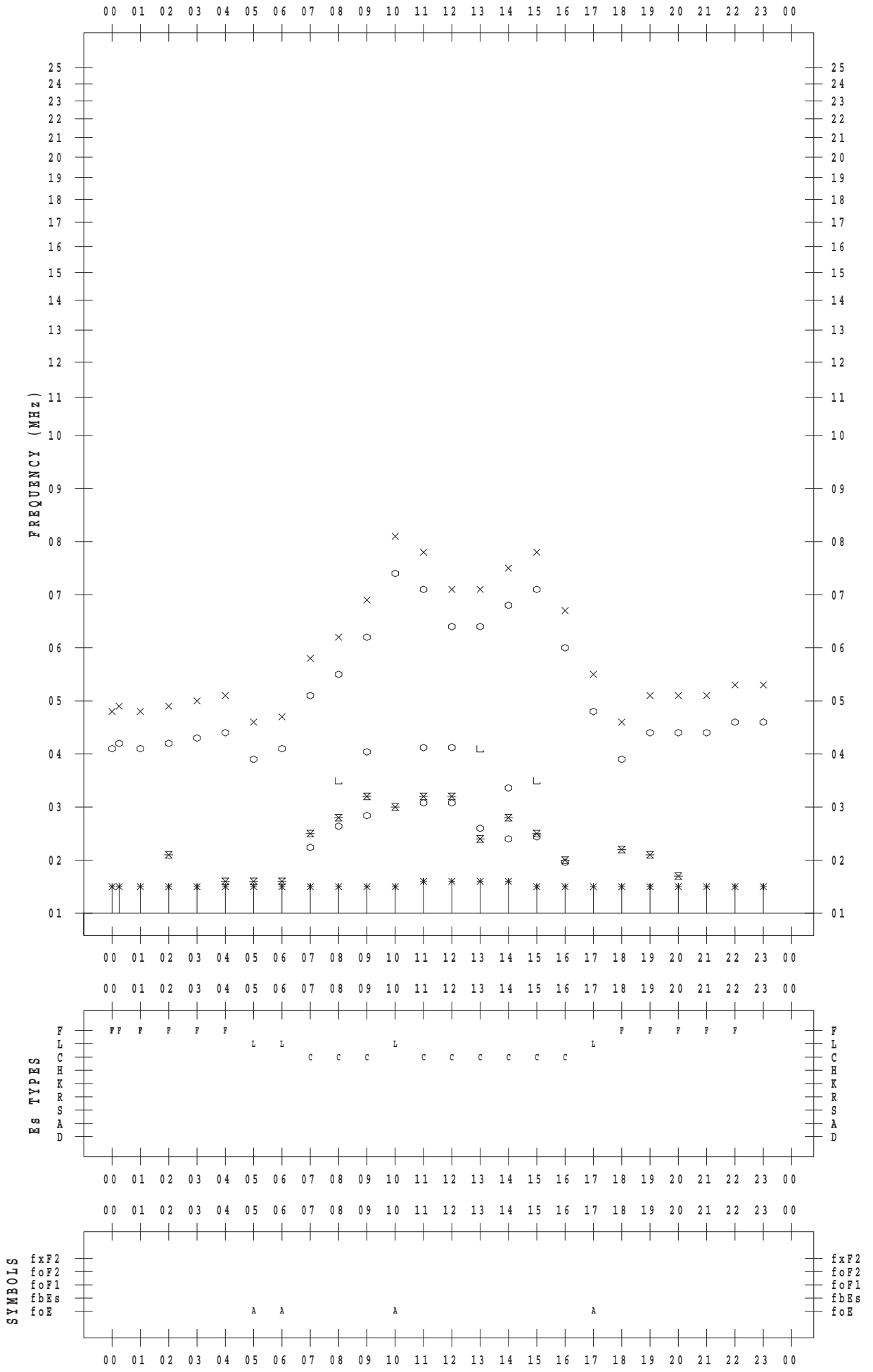
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/20

135 °E MEAN TIME



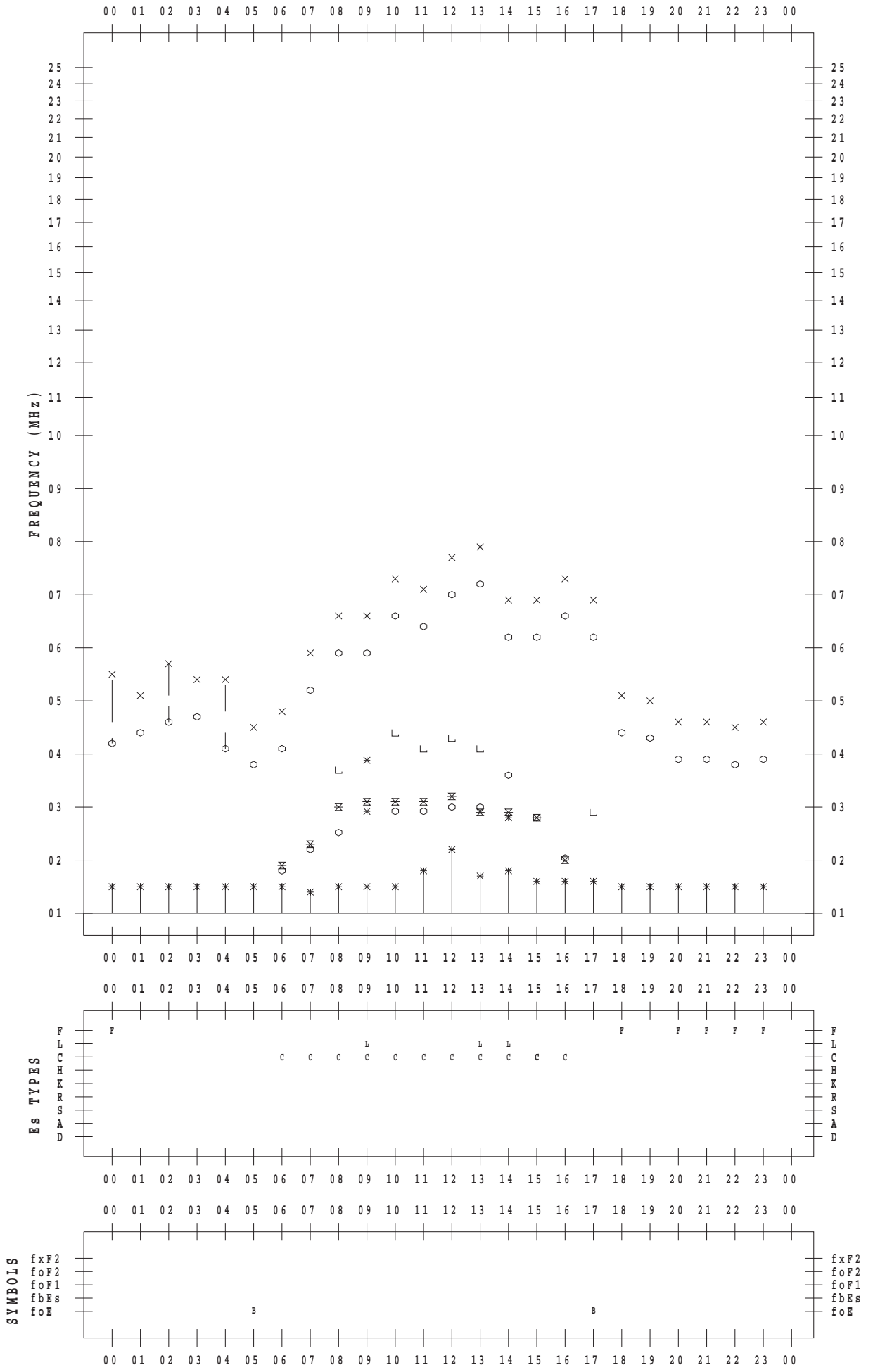
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/21

135 °E MEAN TIME



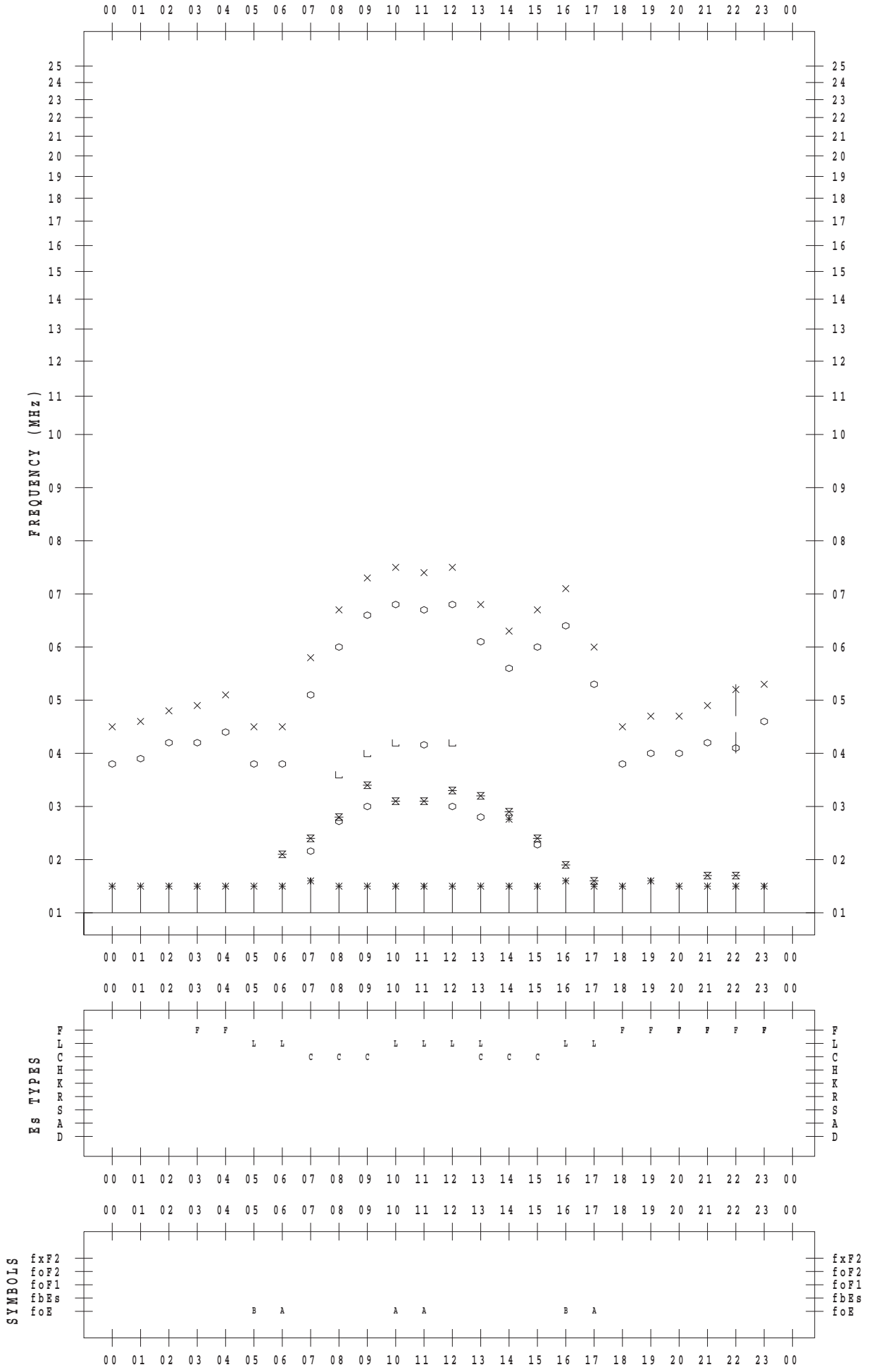
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/22

135 °E MEAN TIME



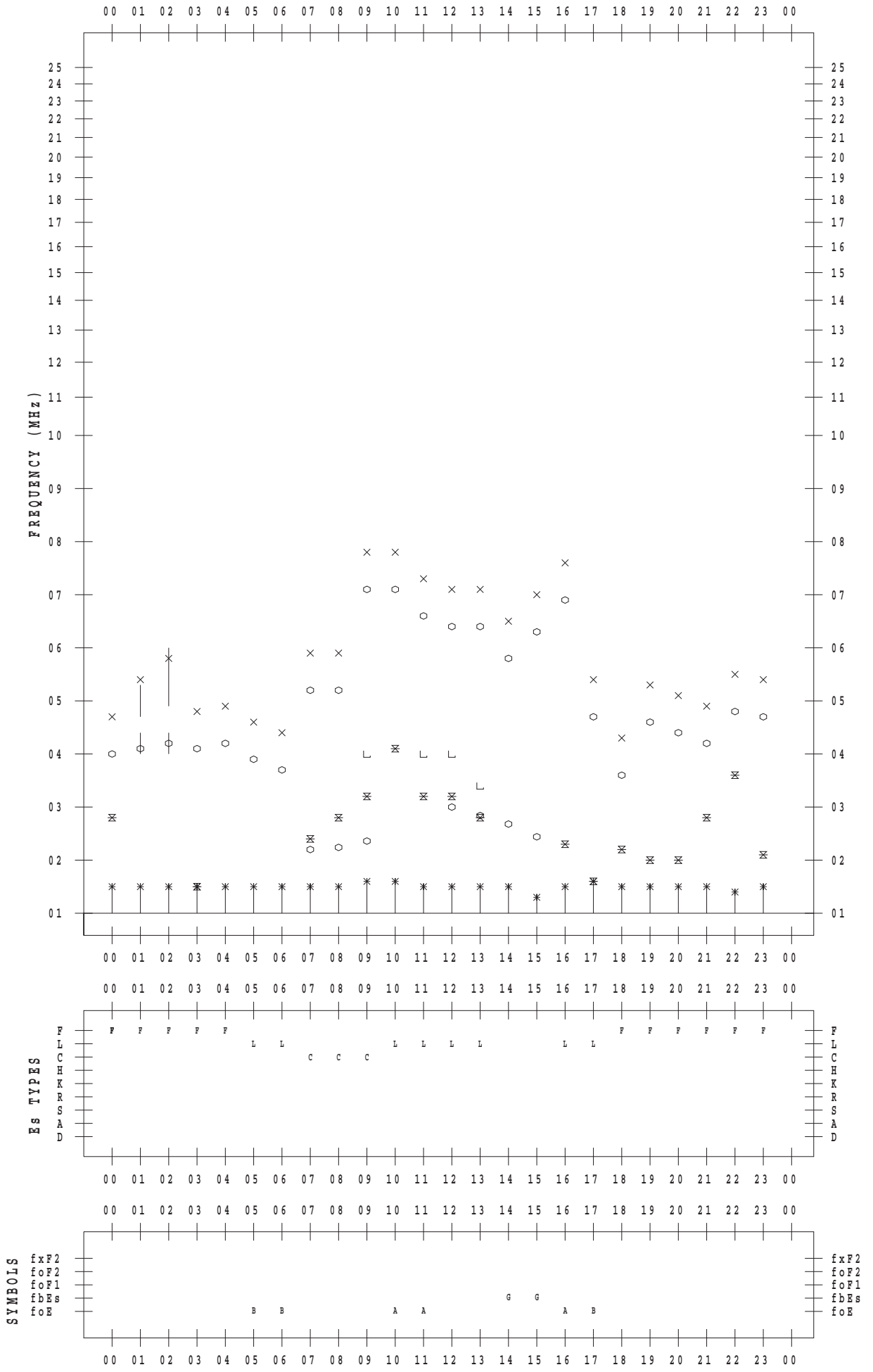
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/23

135 °E MEAN TIME



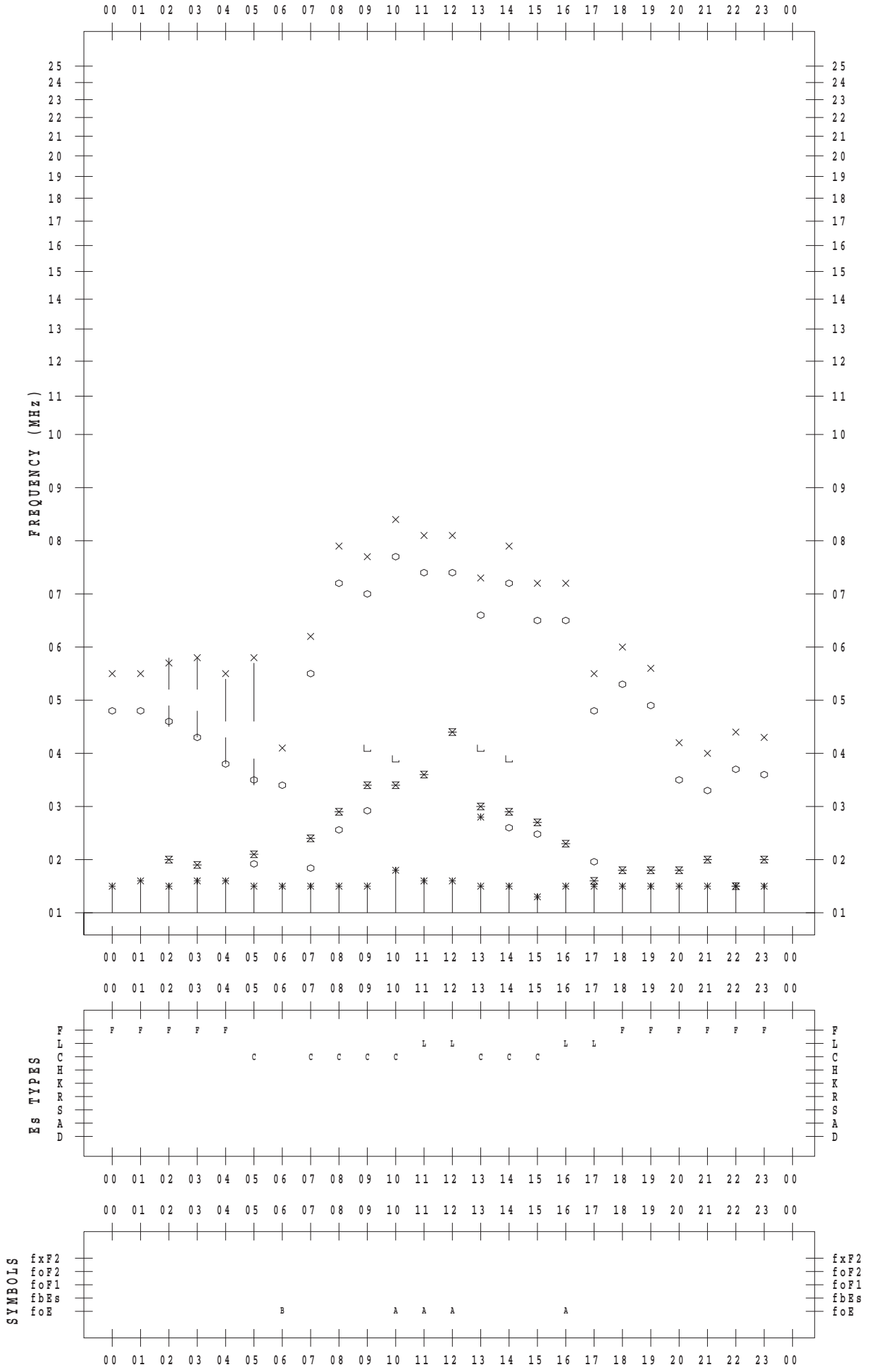
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/24

135 °E MEAN TIME



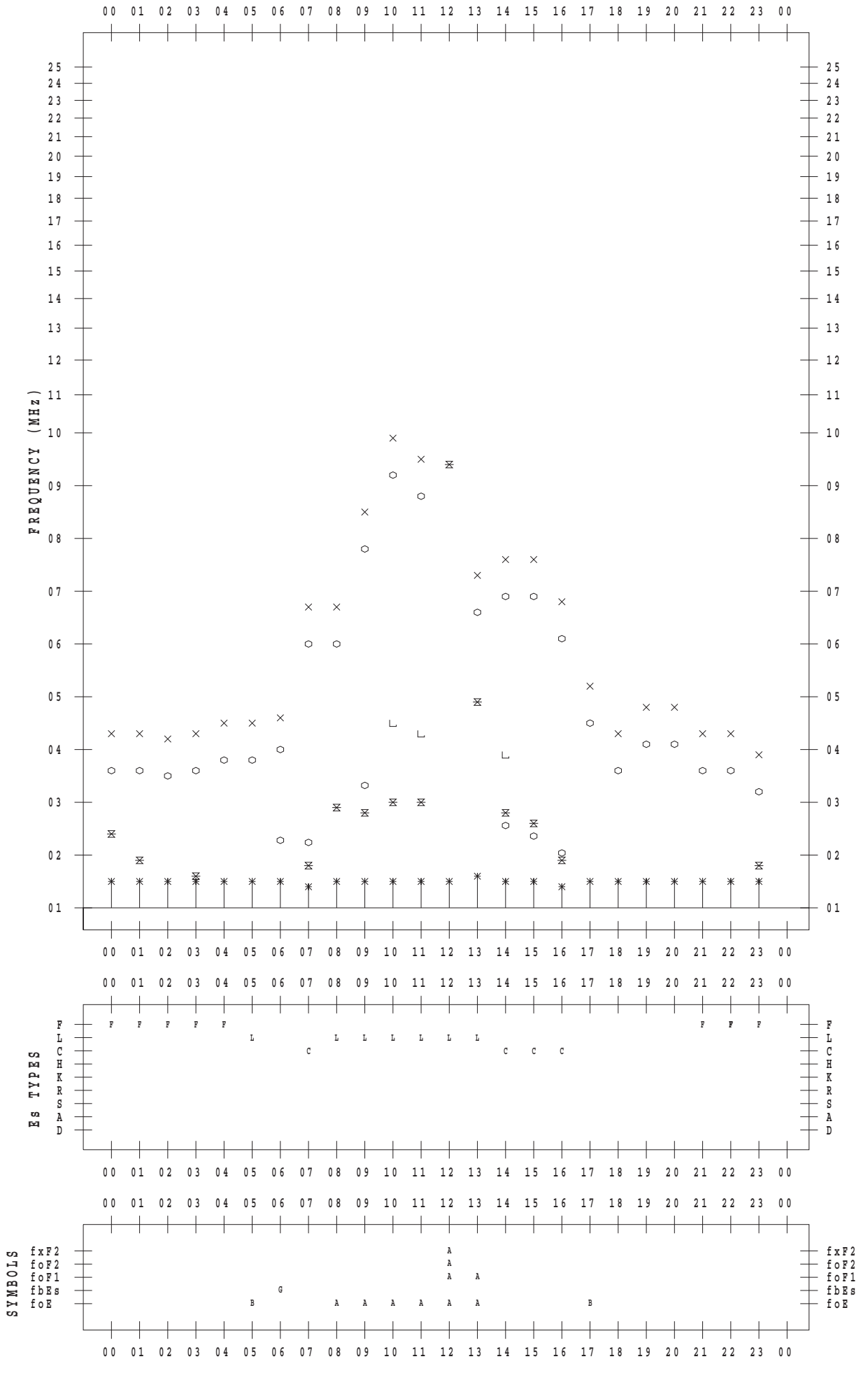
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/25

135 °E MEAN TIME



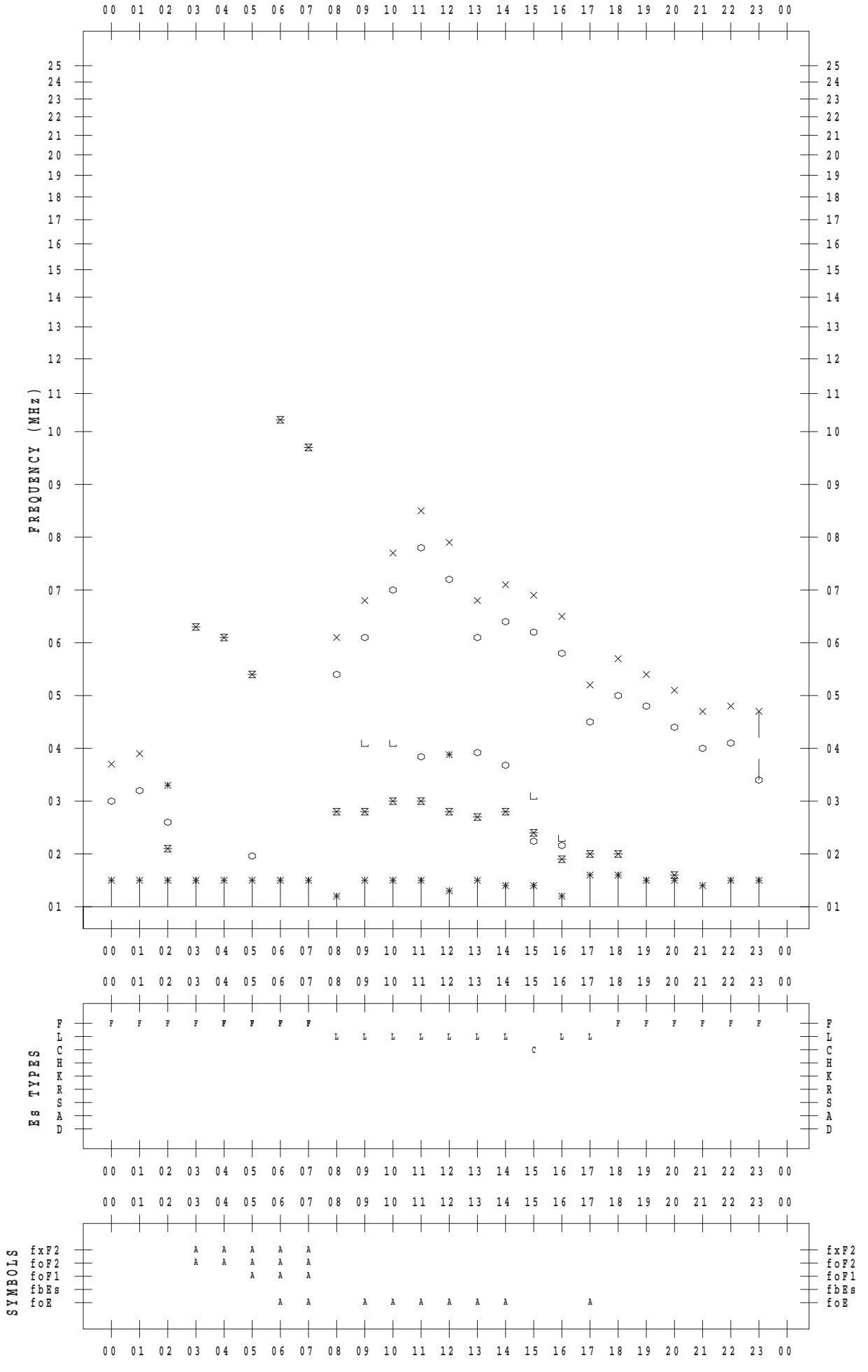
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/26

135 °E MEAN TIME



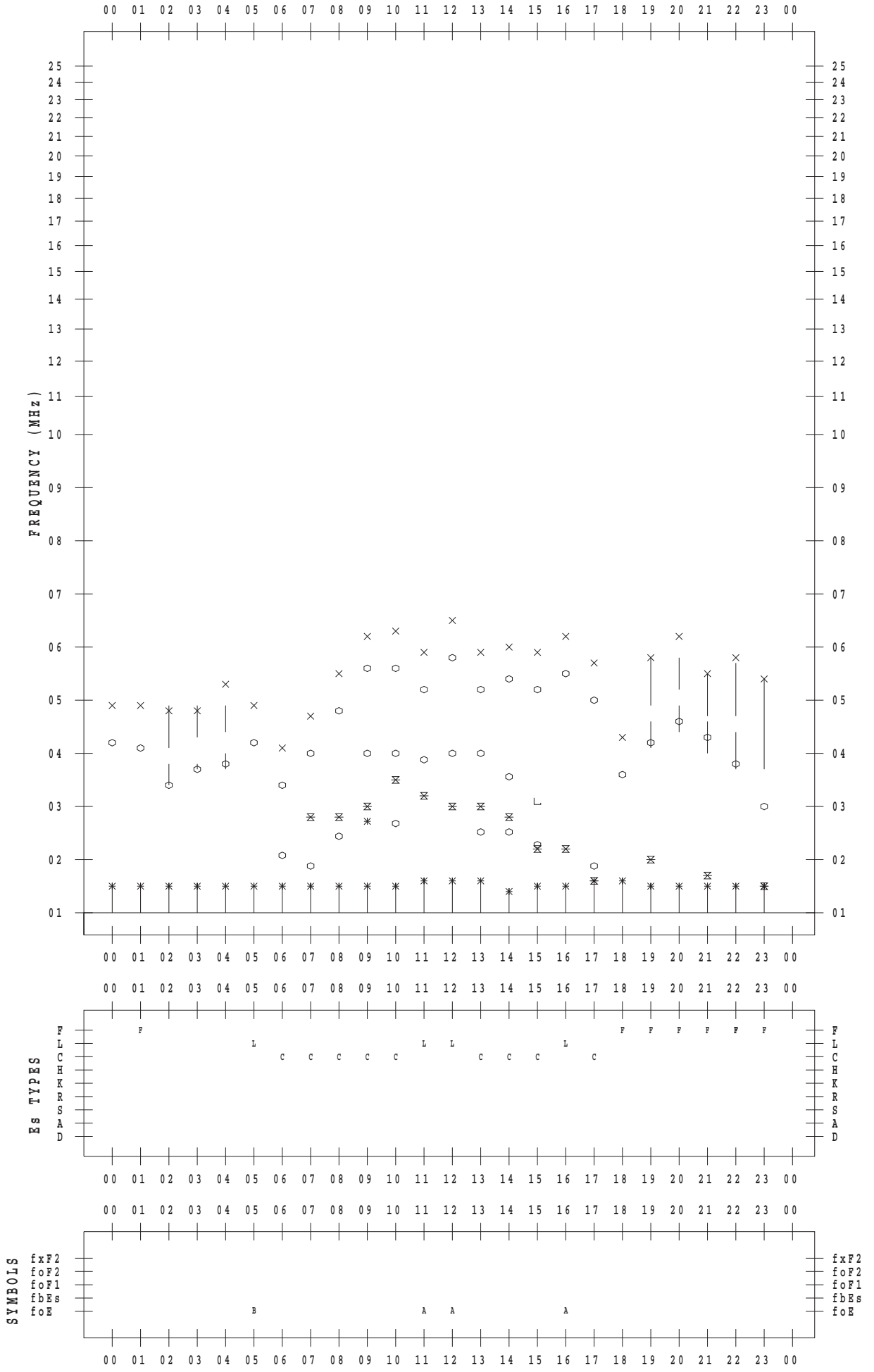
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/27

135 °E MEAN TIME



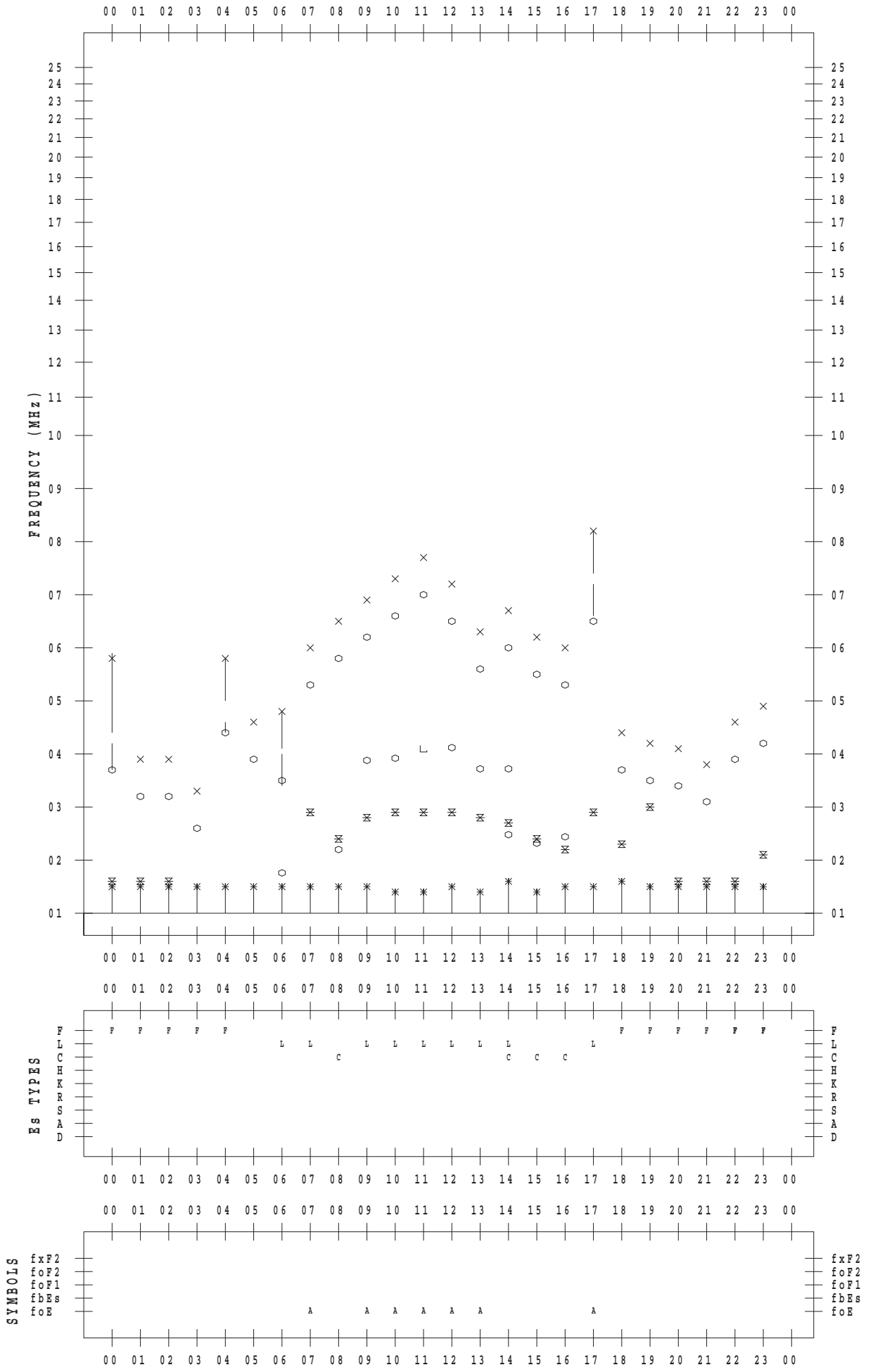
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/28

135 °E MEAN TIME



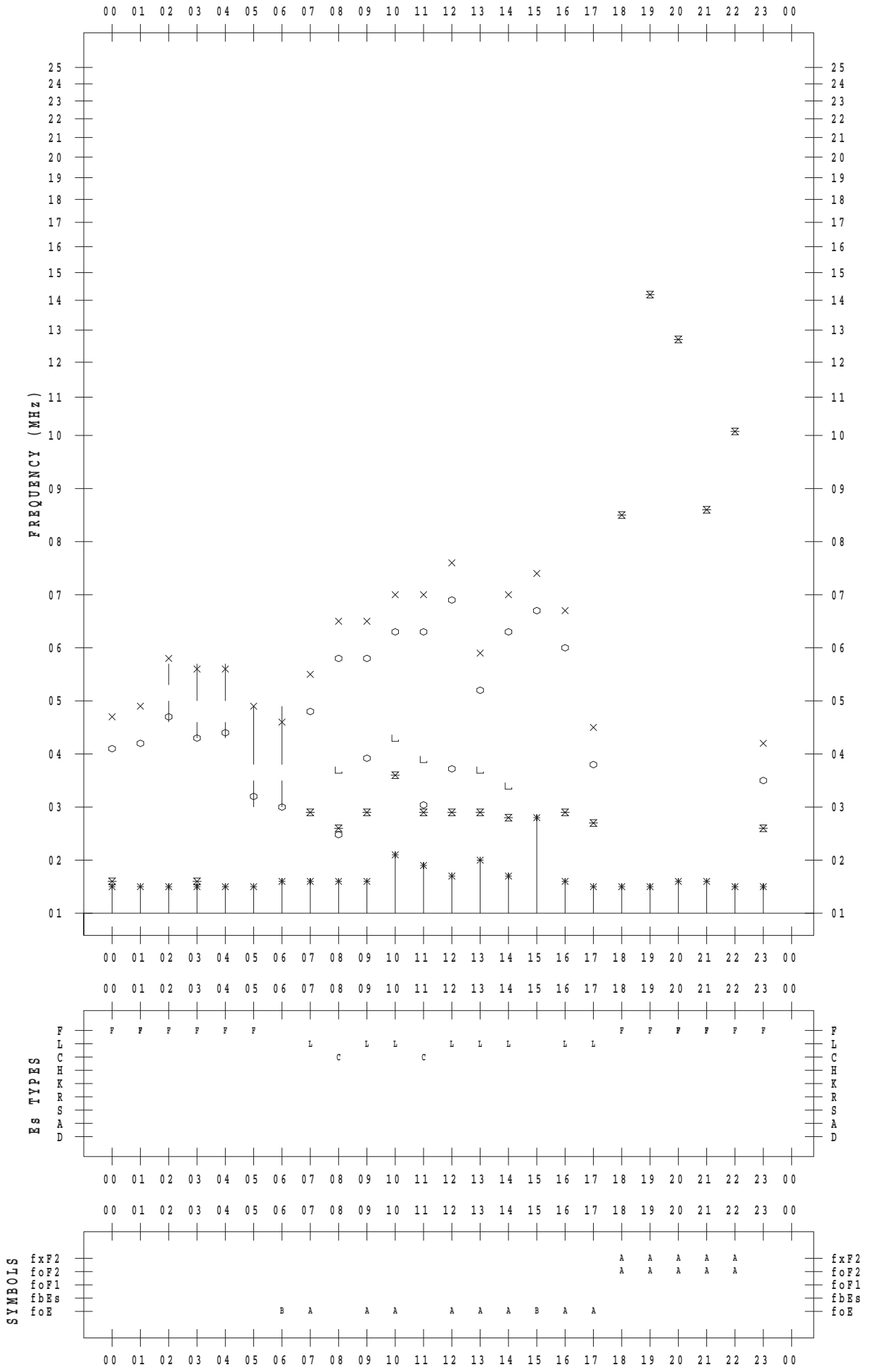
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/29

135 °E MEAN TIME



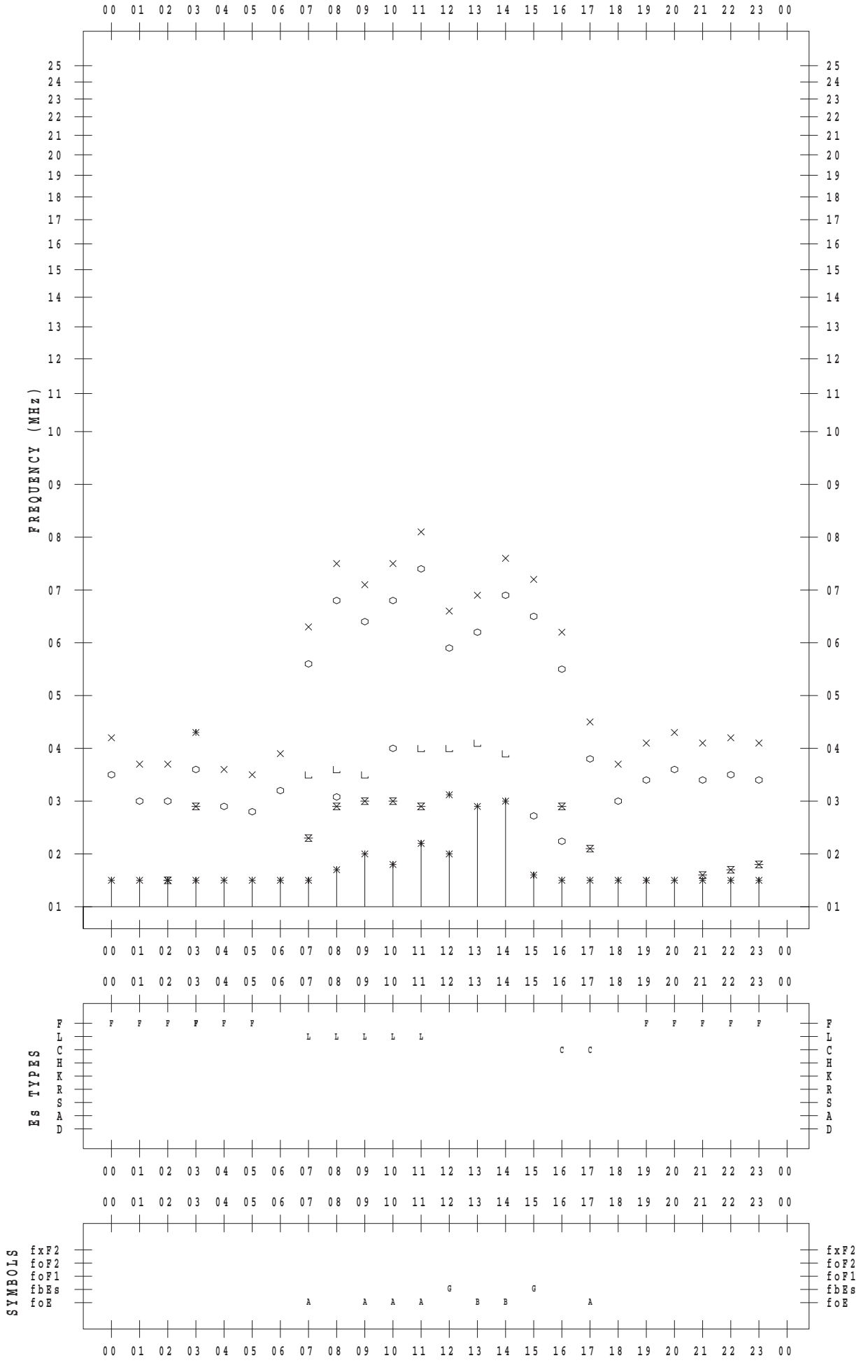
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/30

135 °E MEAN TIME



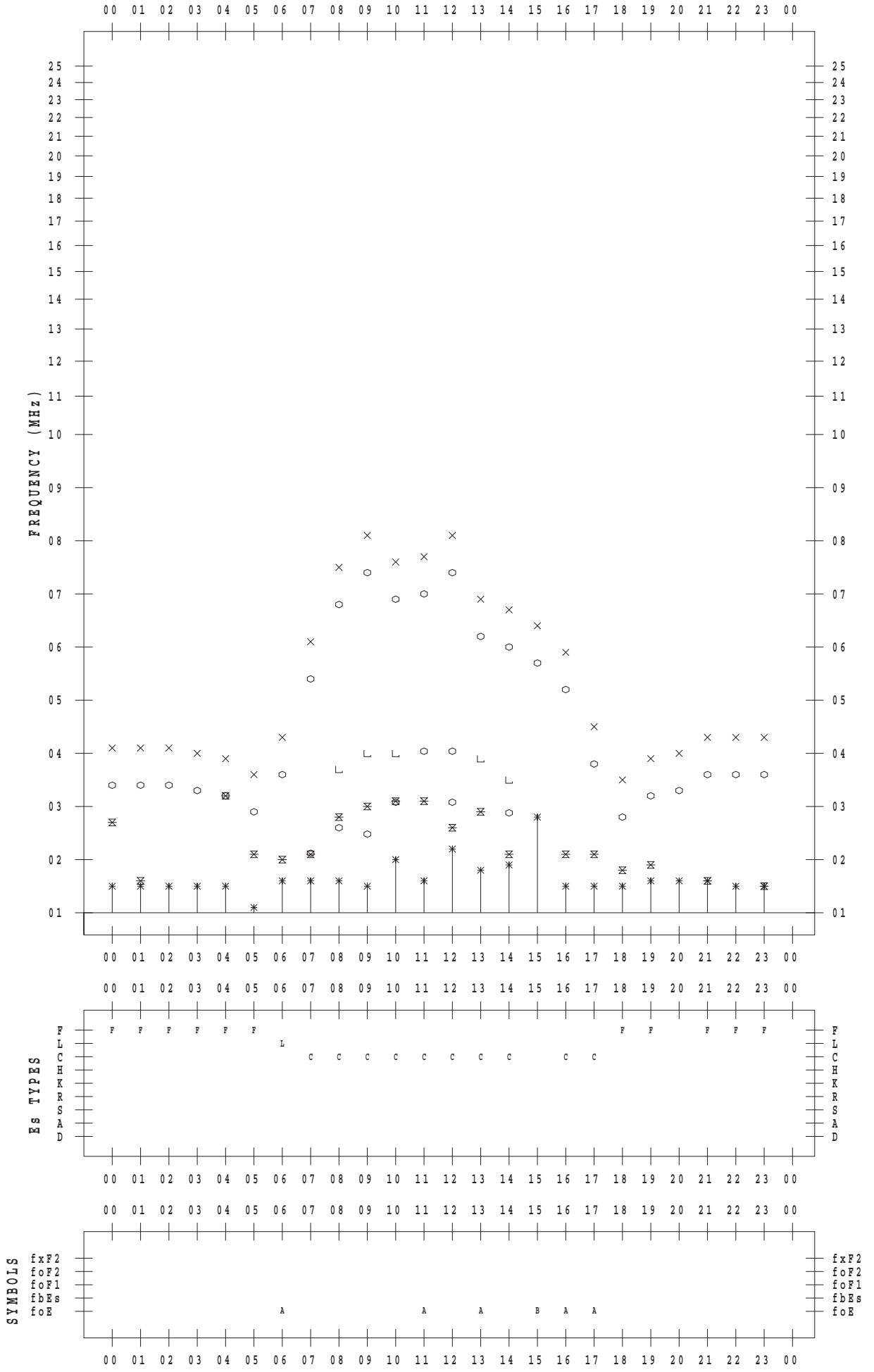
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/10/31

135 °E MEAN TIME



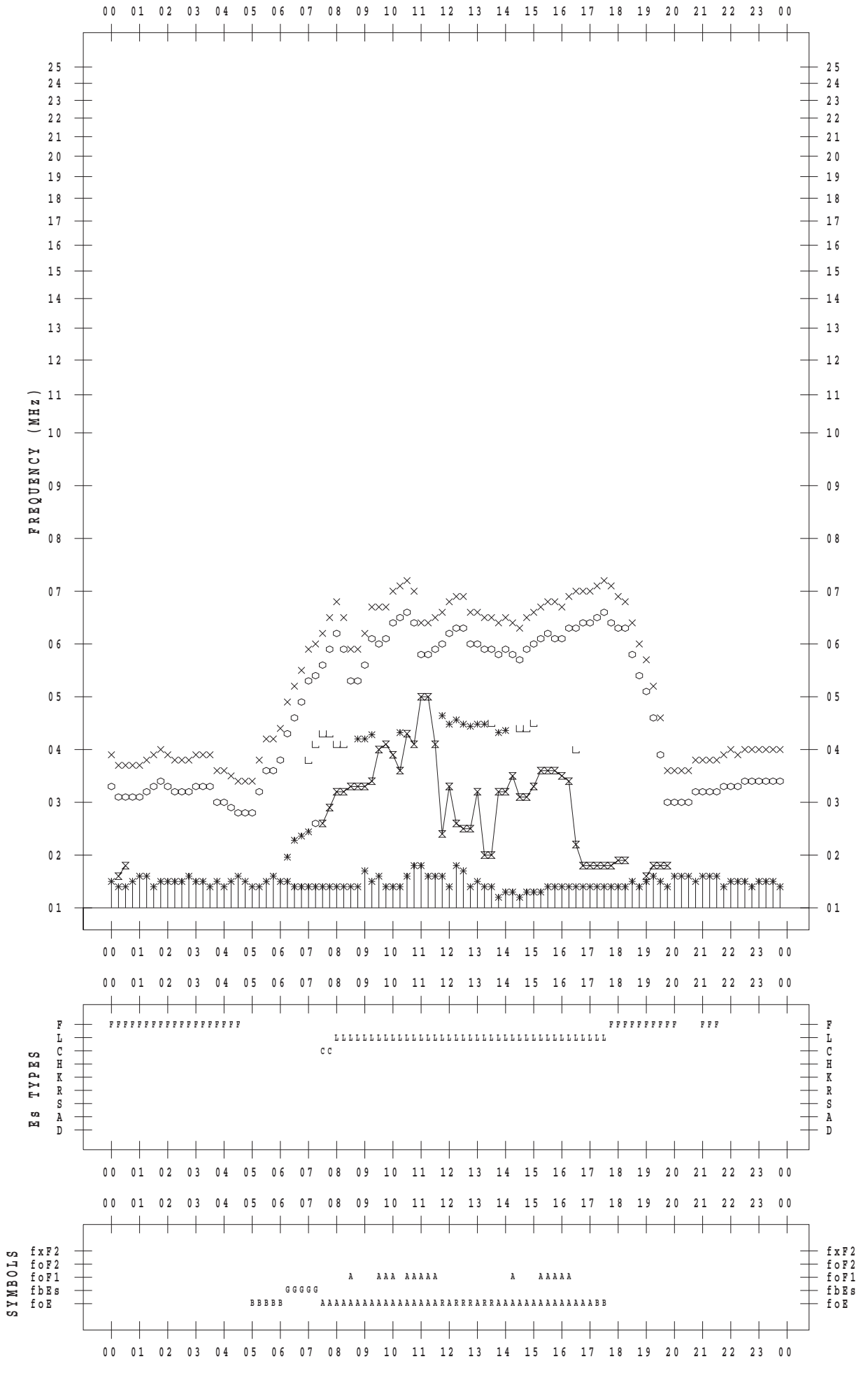
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/ 1

135 °E MEAN TIME



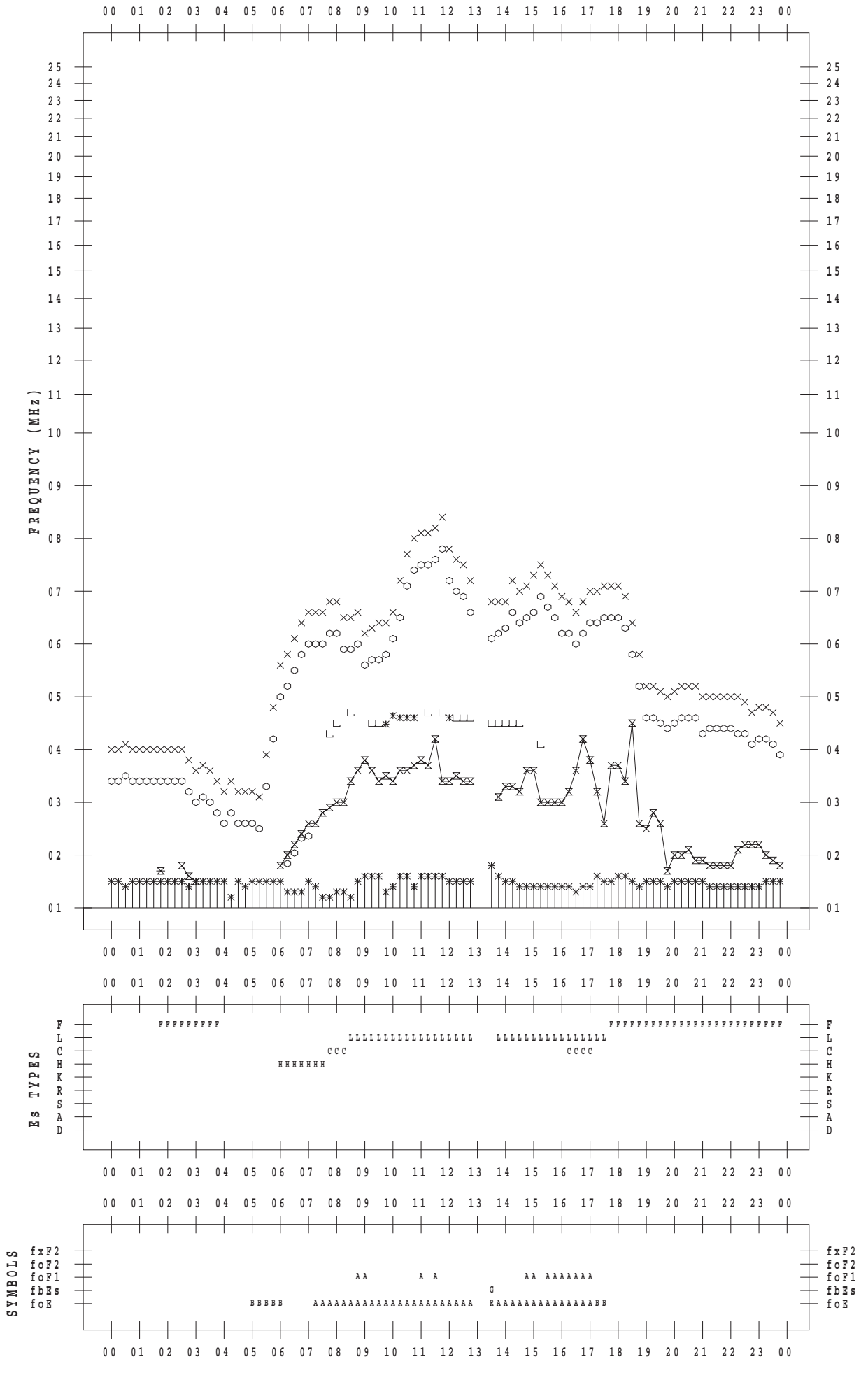
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/ 2

135 °E MEAN TIME

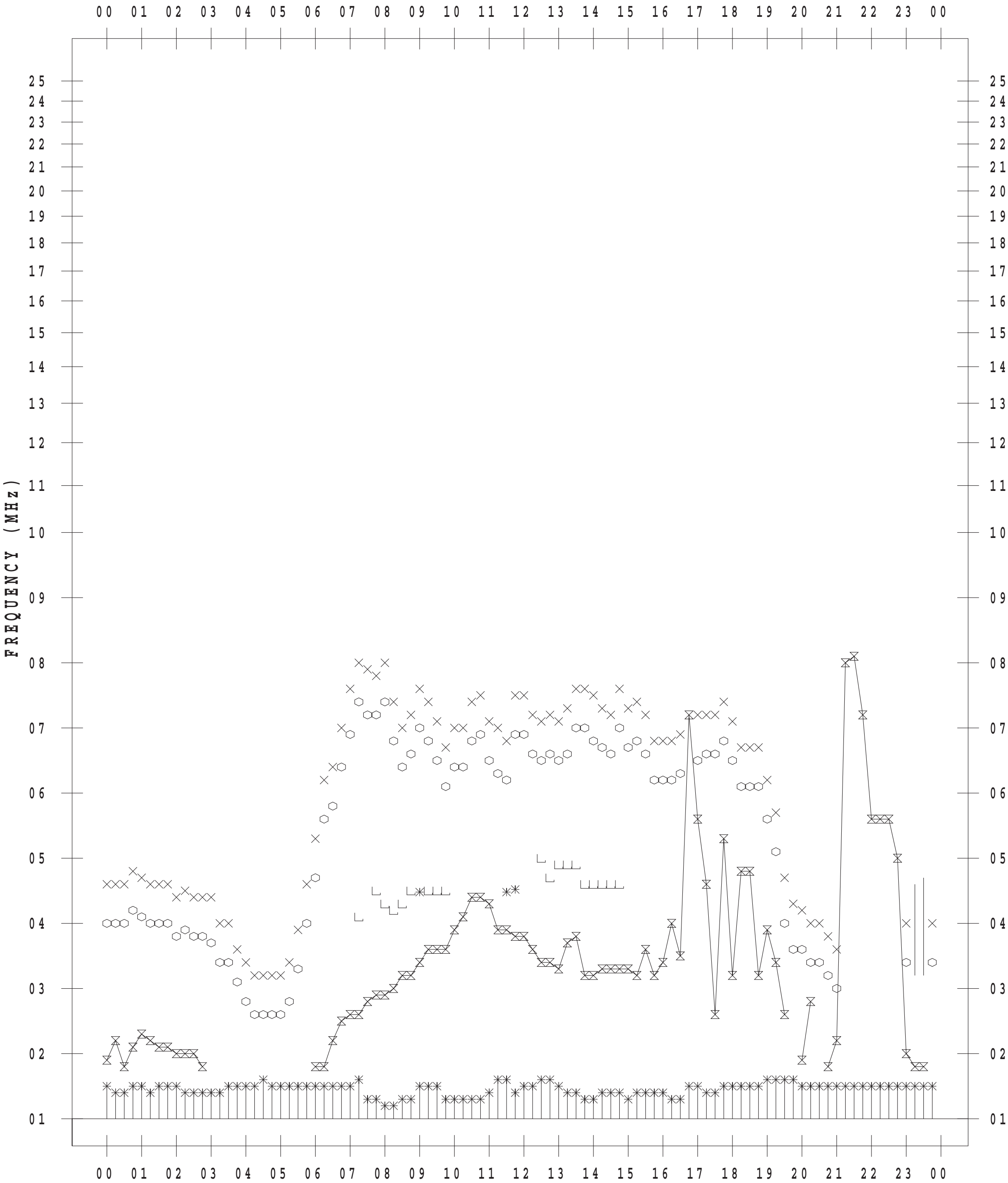


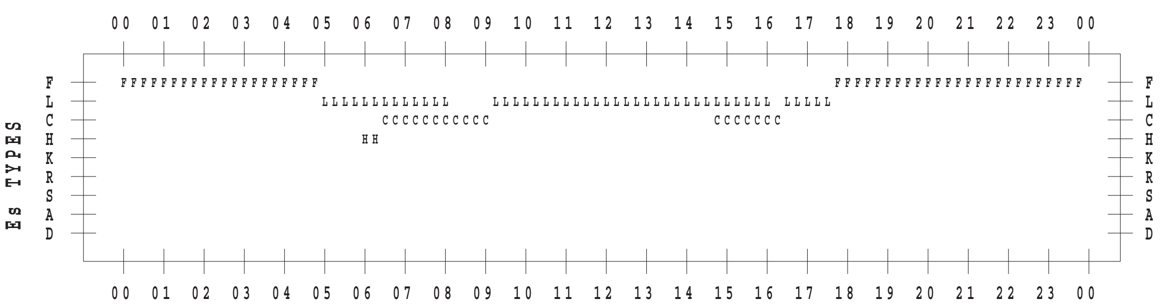
f-PLOT DATA

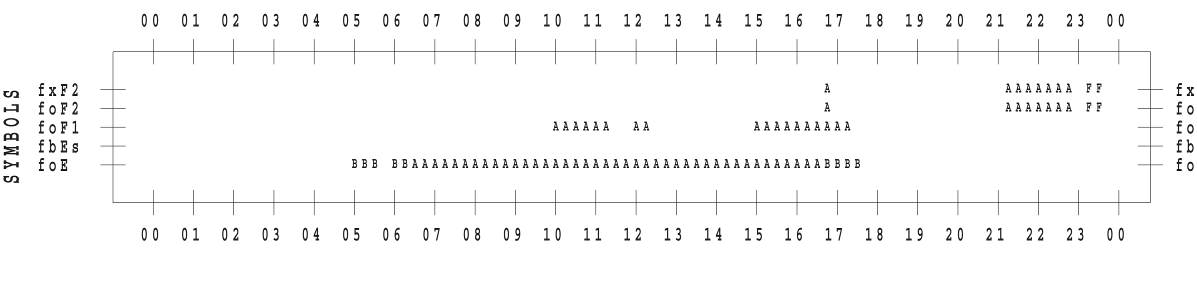
SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2016/10/ 3

135 °E MEAN TIME







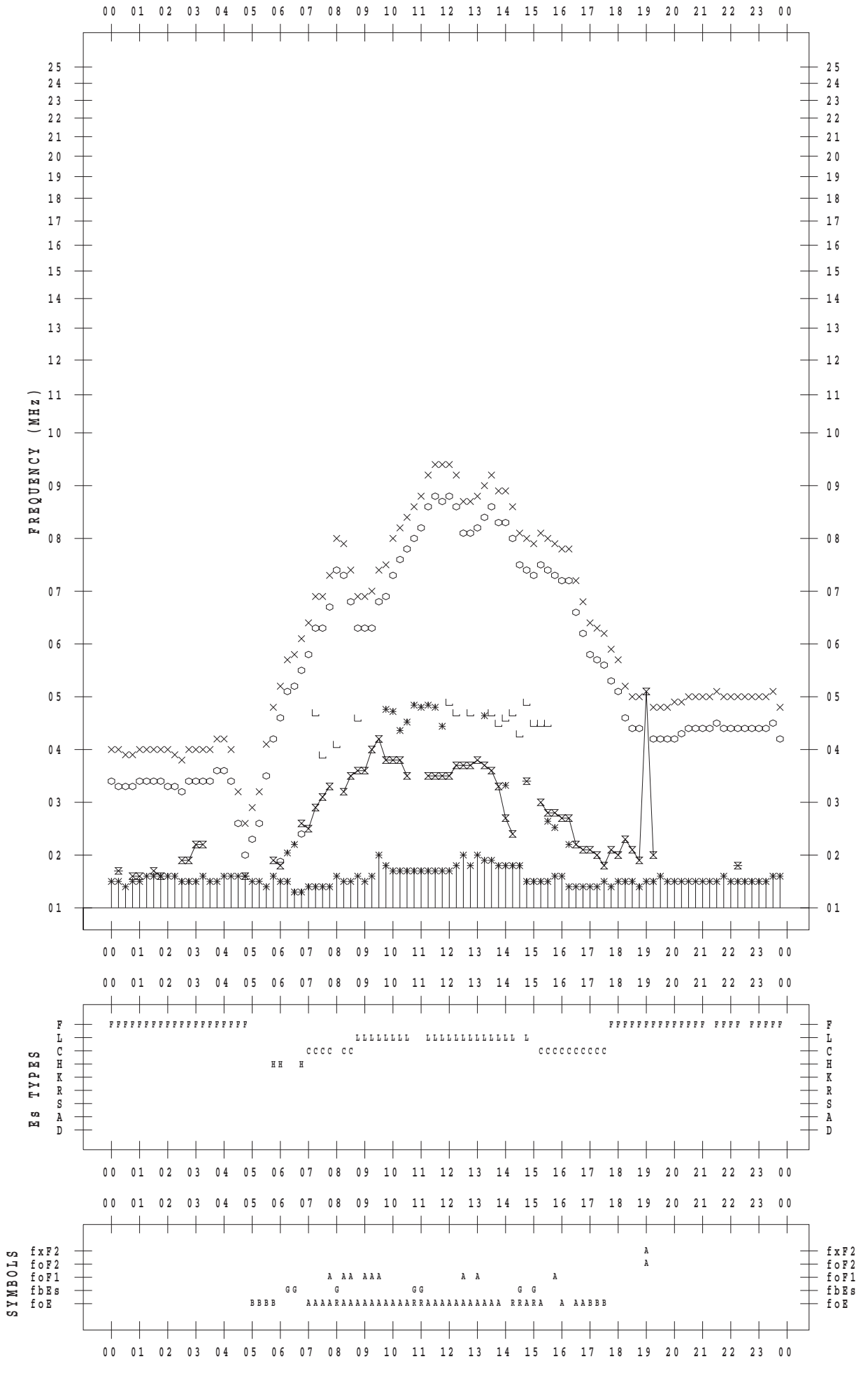
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/ 4

135 °E MEAN TIME



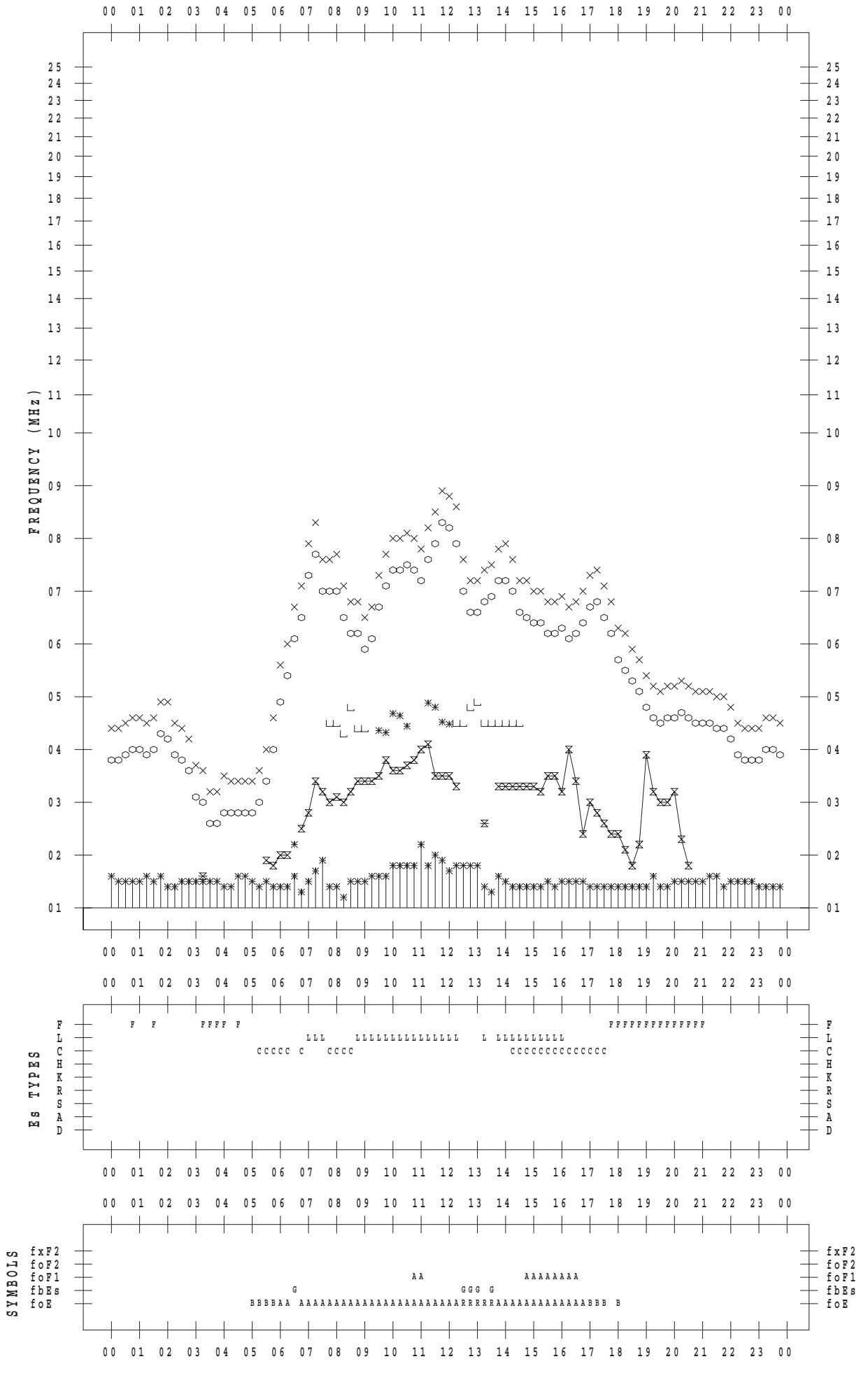
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/ 5

135 °E MEAN TIME



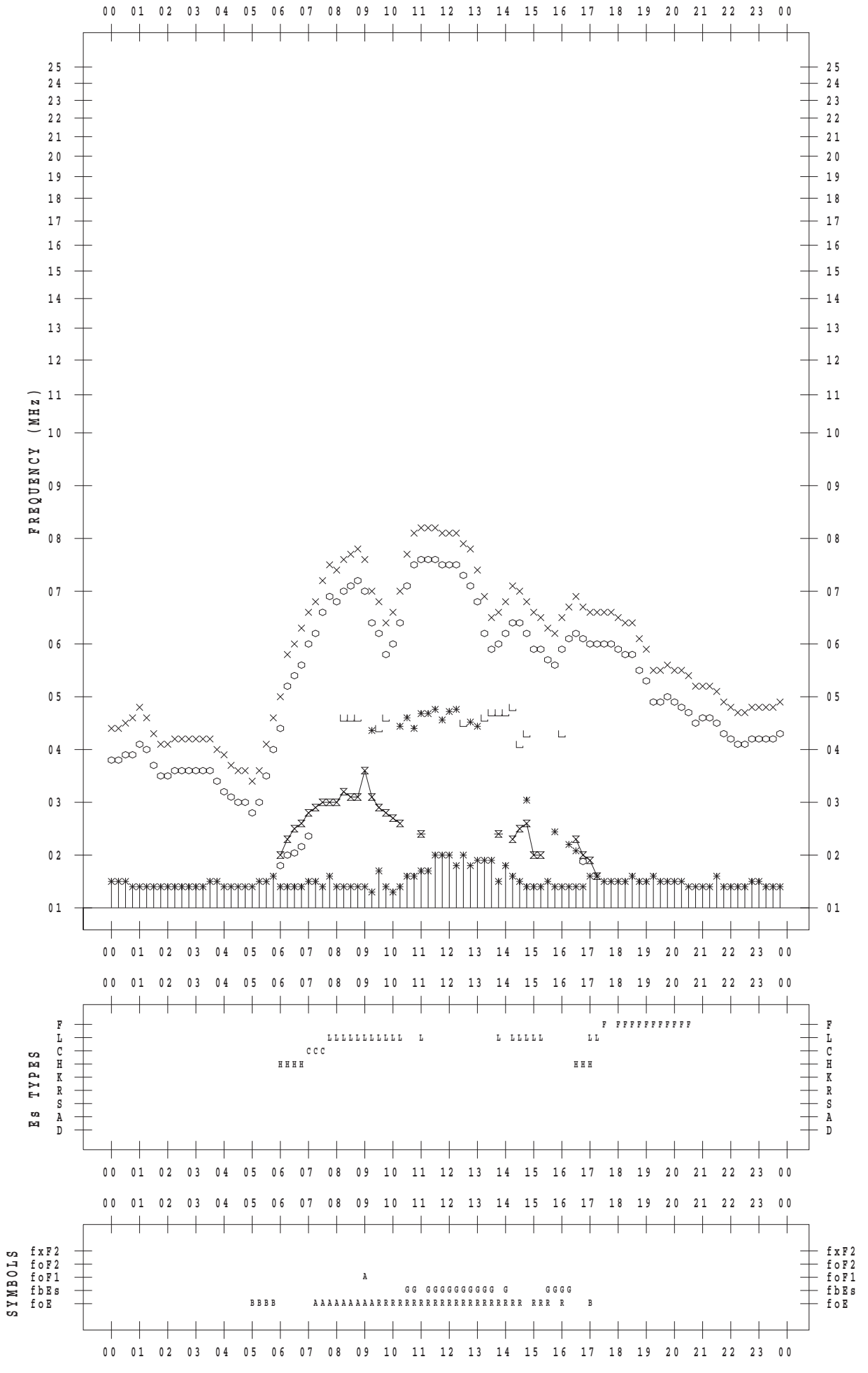
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/ 6

135 °E MEAN TIME



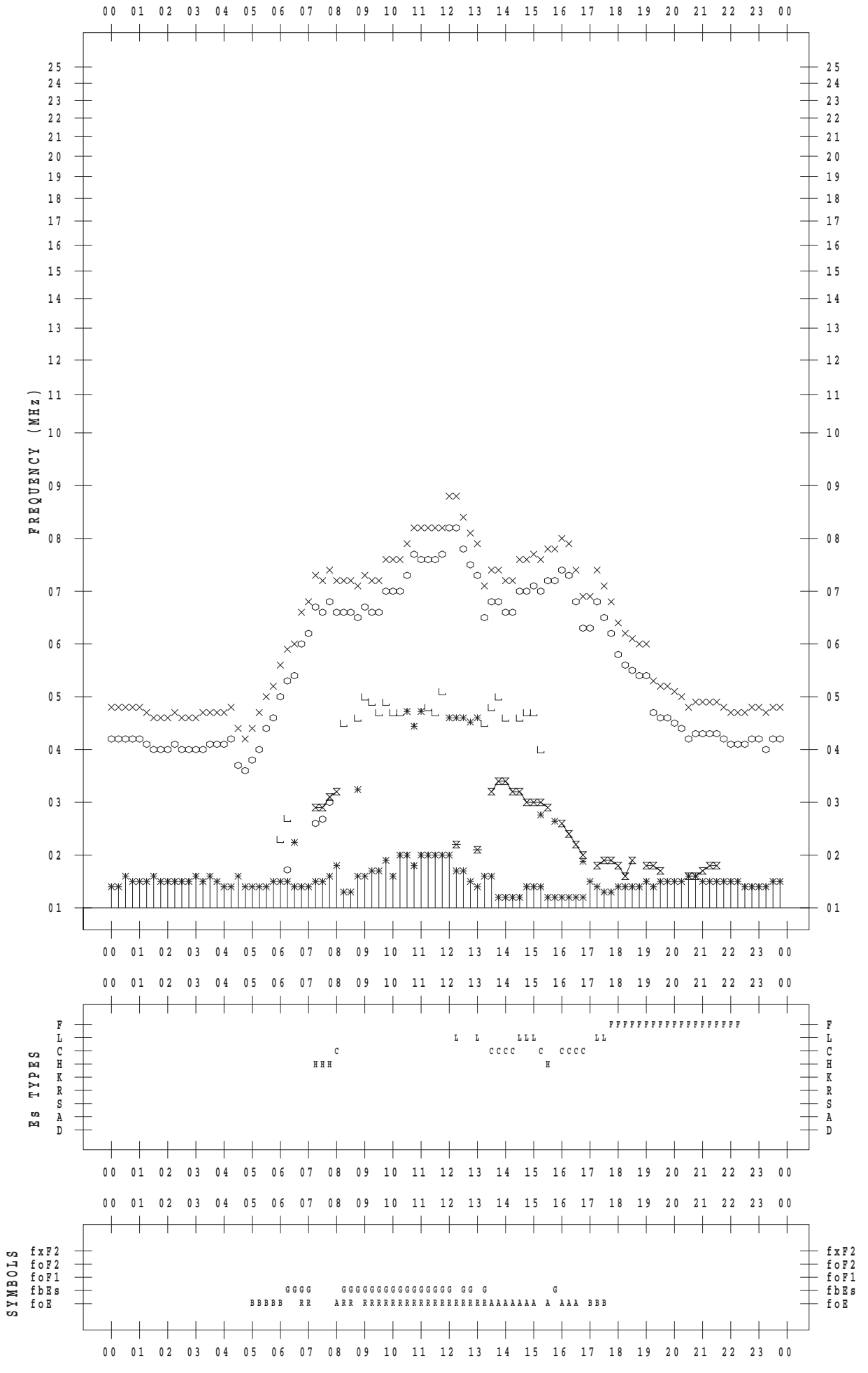
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/ 7

135 °E MEAN TIME



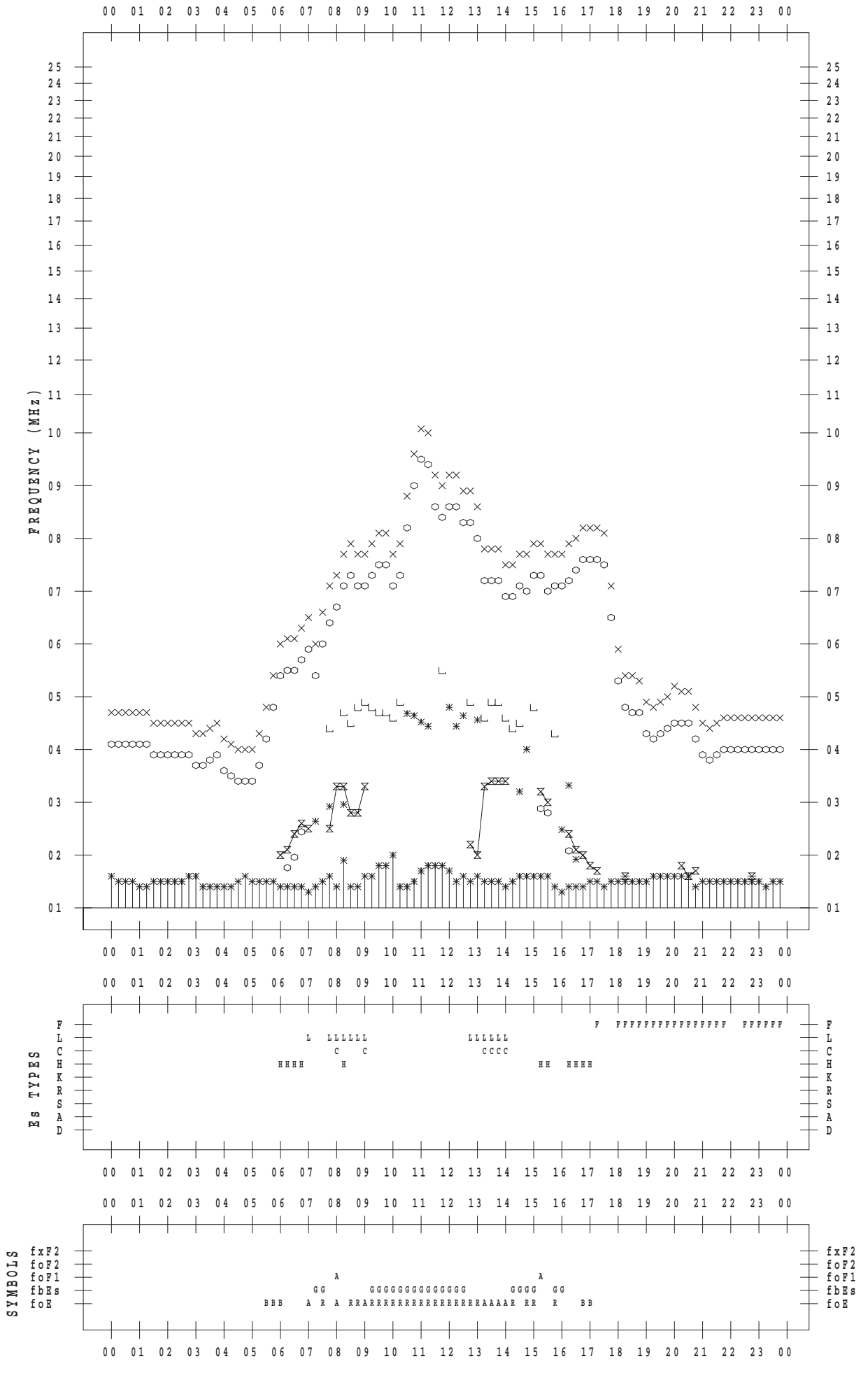
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/ 8

135 °E MEAN TIME



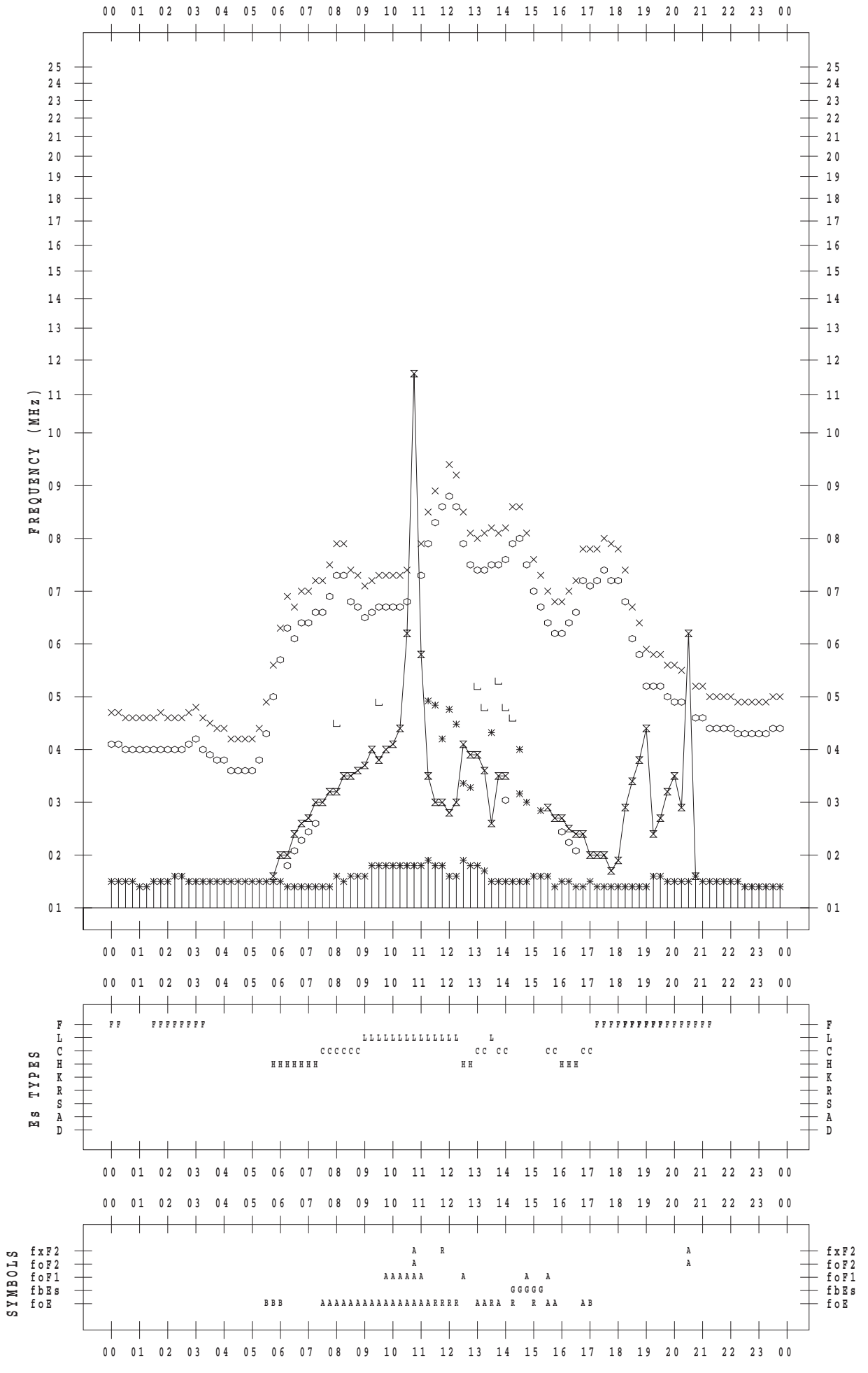
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/ 9

135 °E MEAN TIME



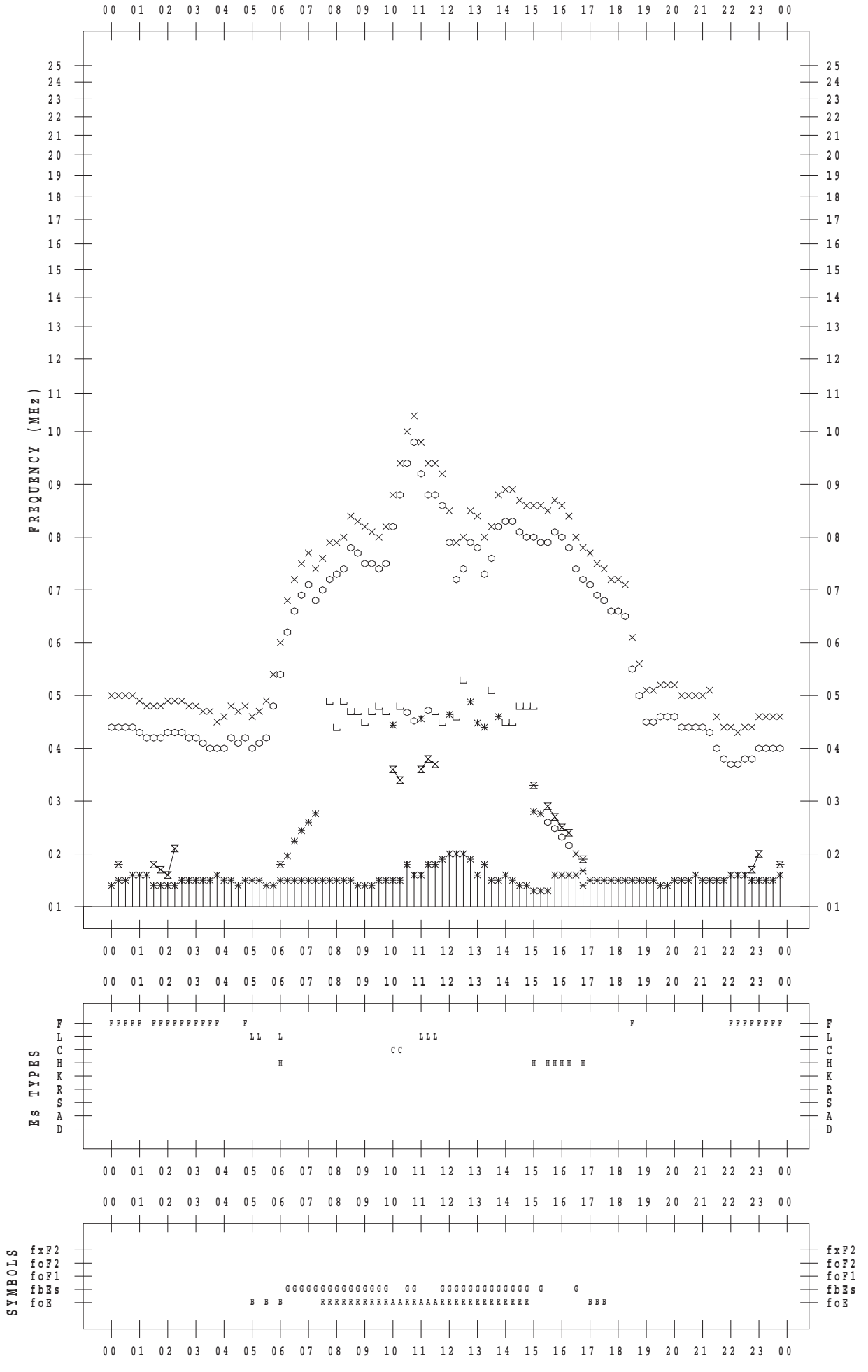
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/10

135 °E MEAN TIME



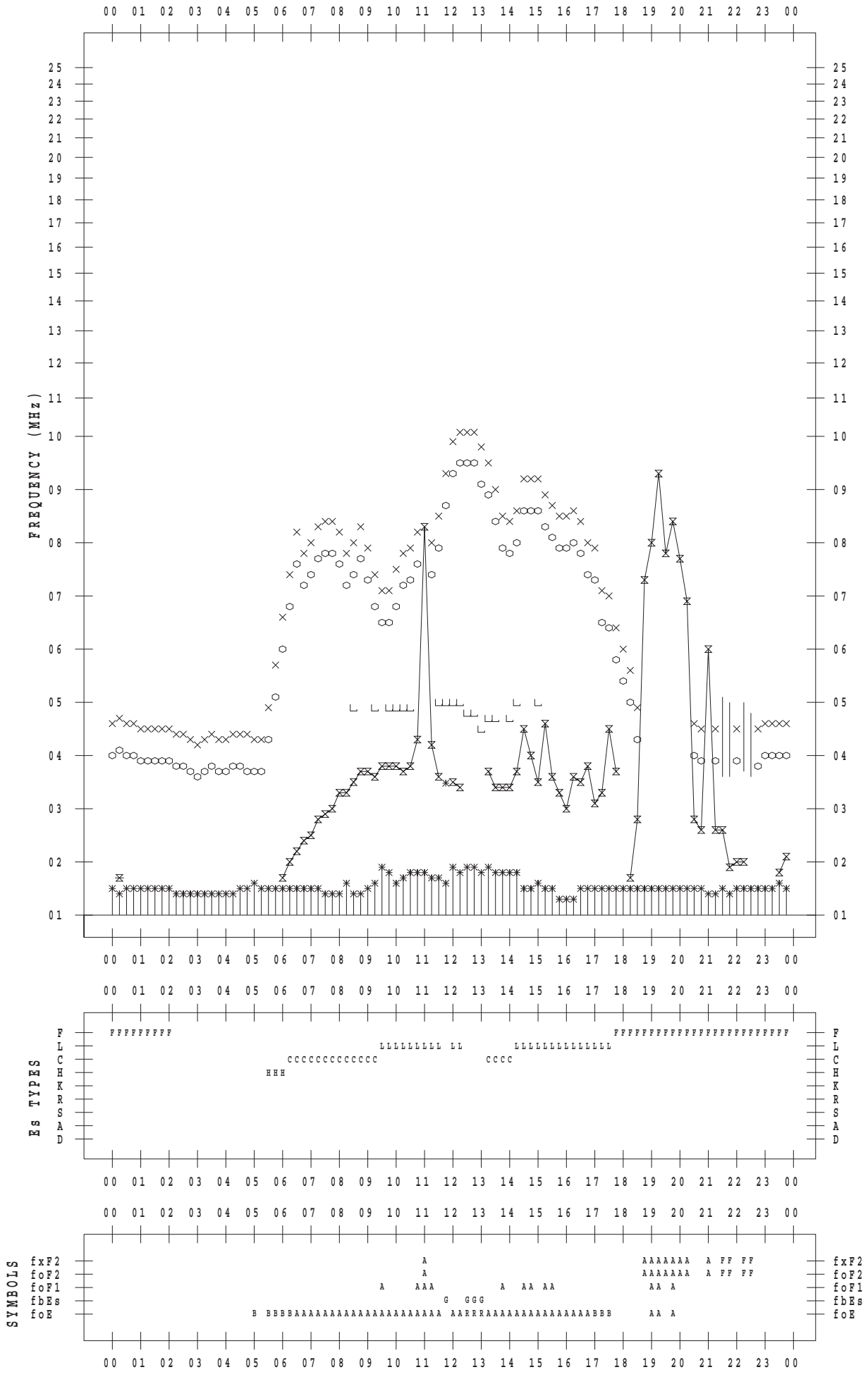
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/11

135 °E MEAN TIME



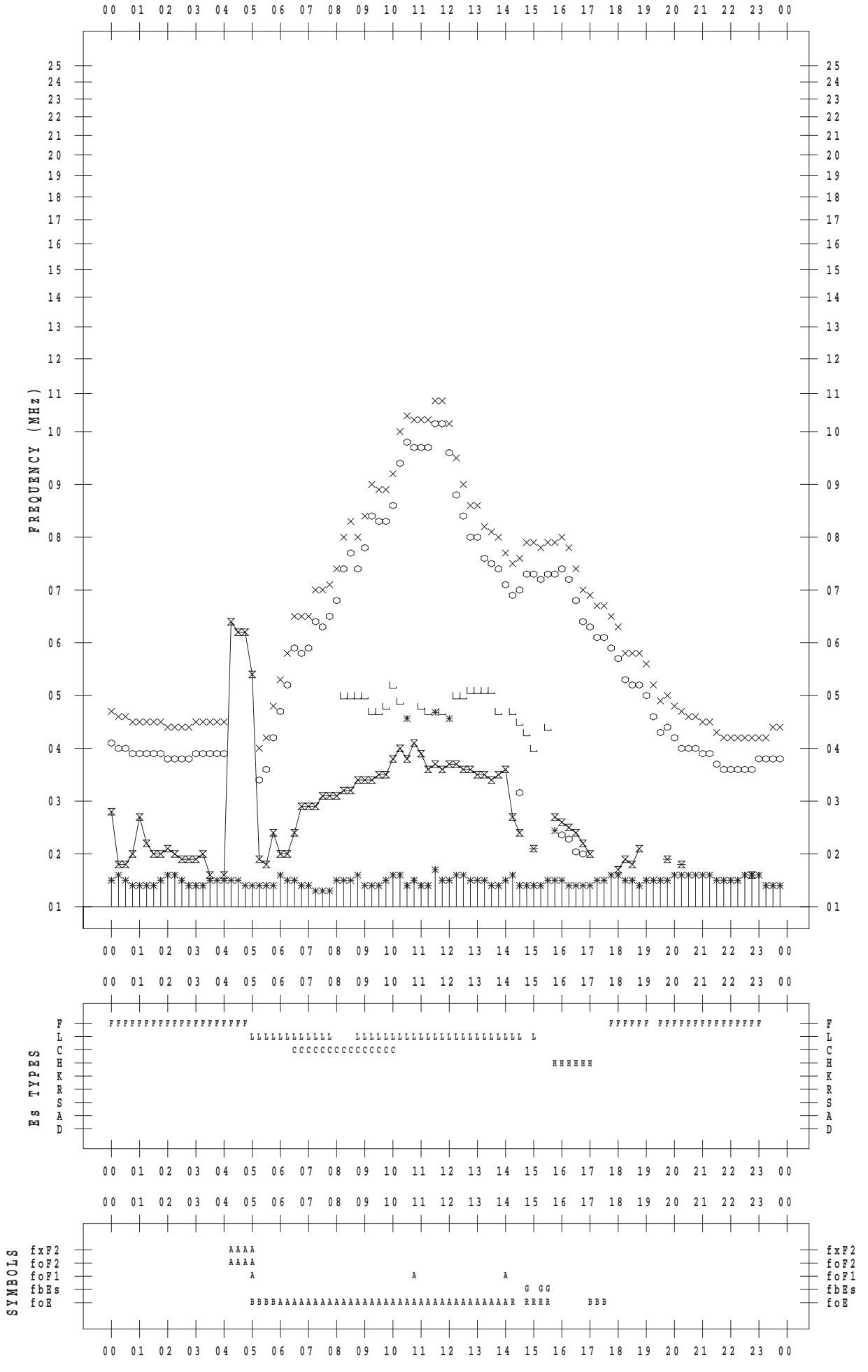
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/12

135 °E MEAN TIME



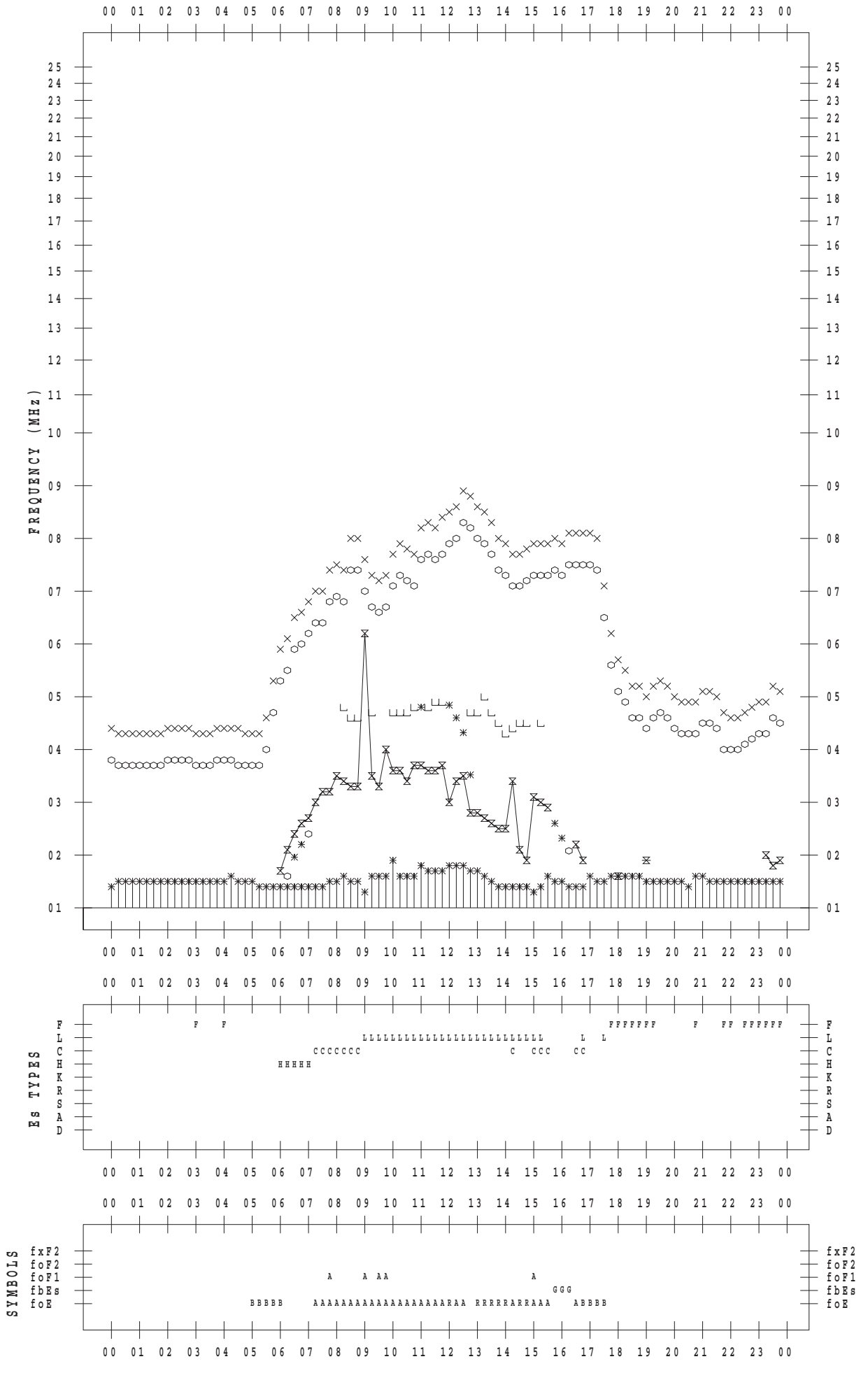
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/13

135 °E MEAN TIME



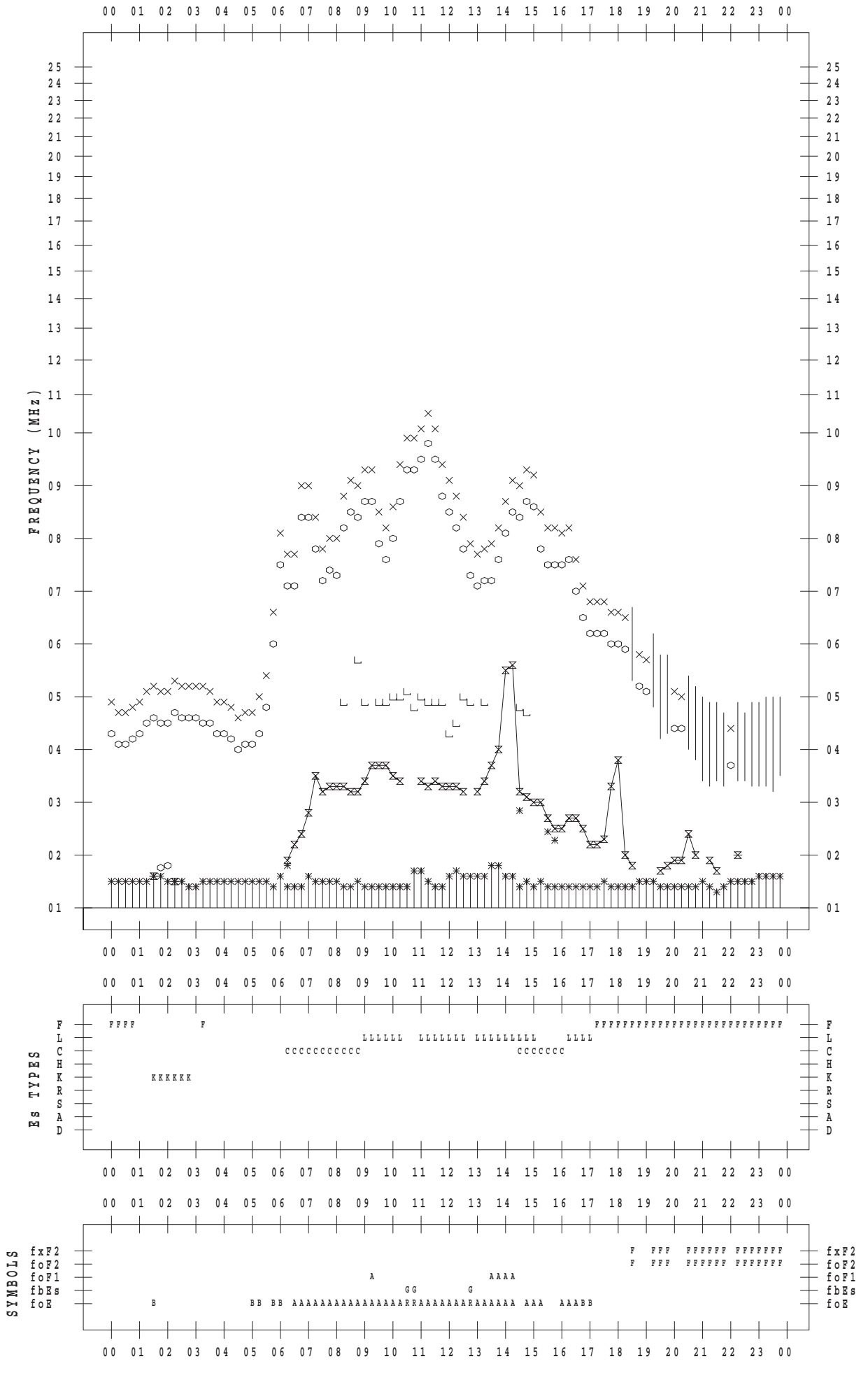
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/14

135 °E MEAN TIME



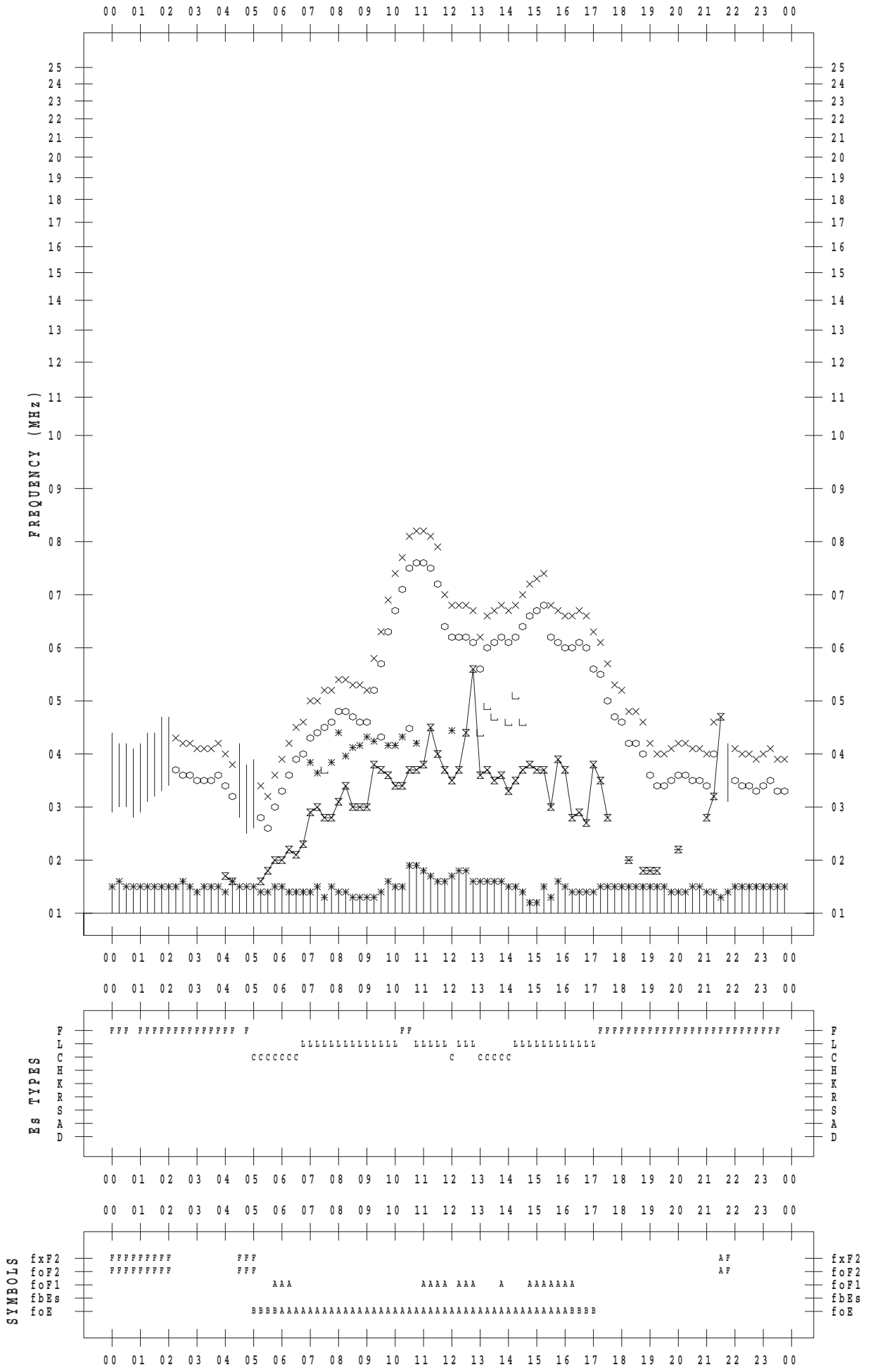
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/15

135 °E MEAN TIME



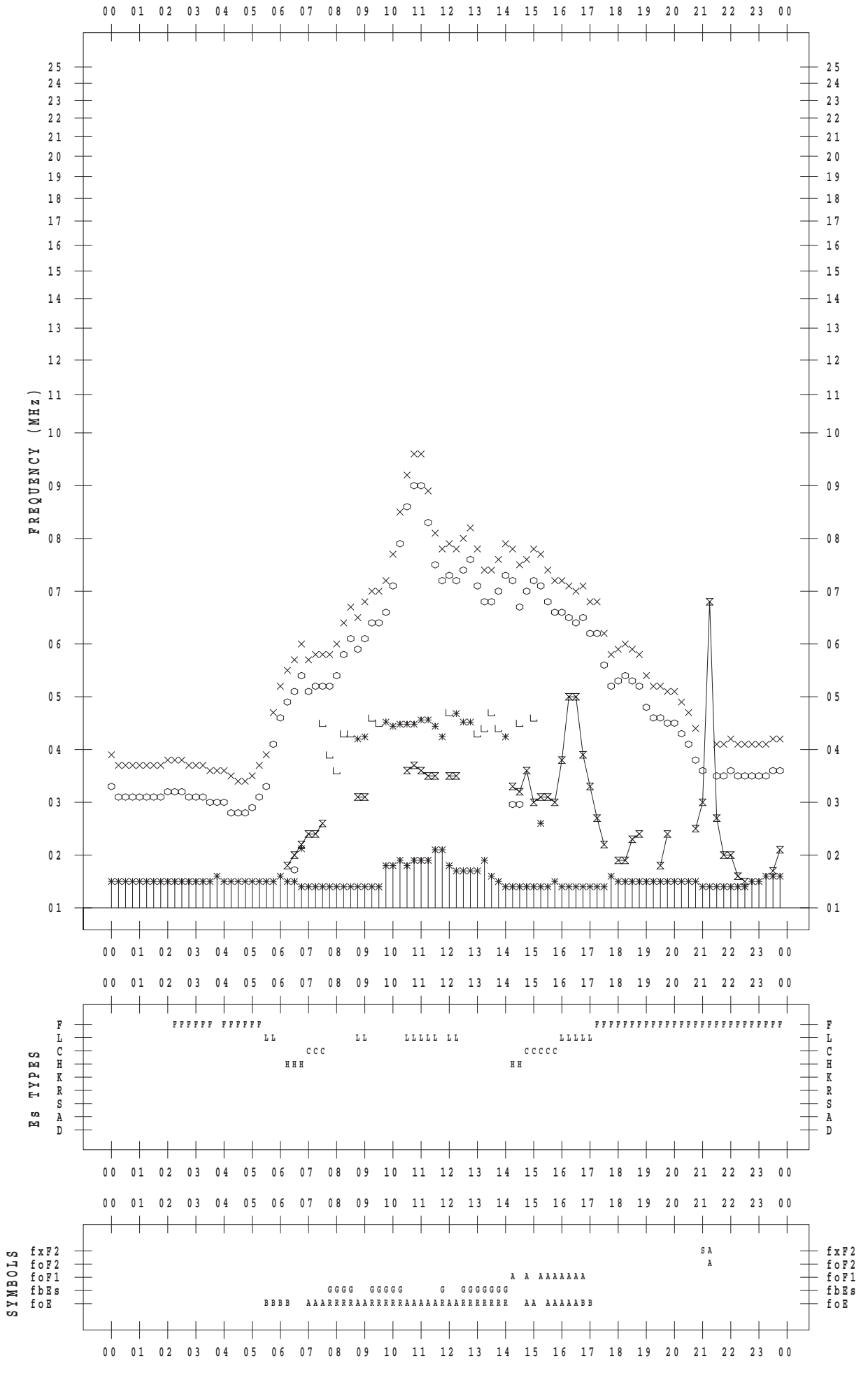
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/16

135 °E MEAN TIME



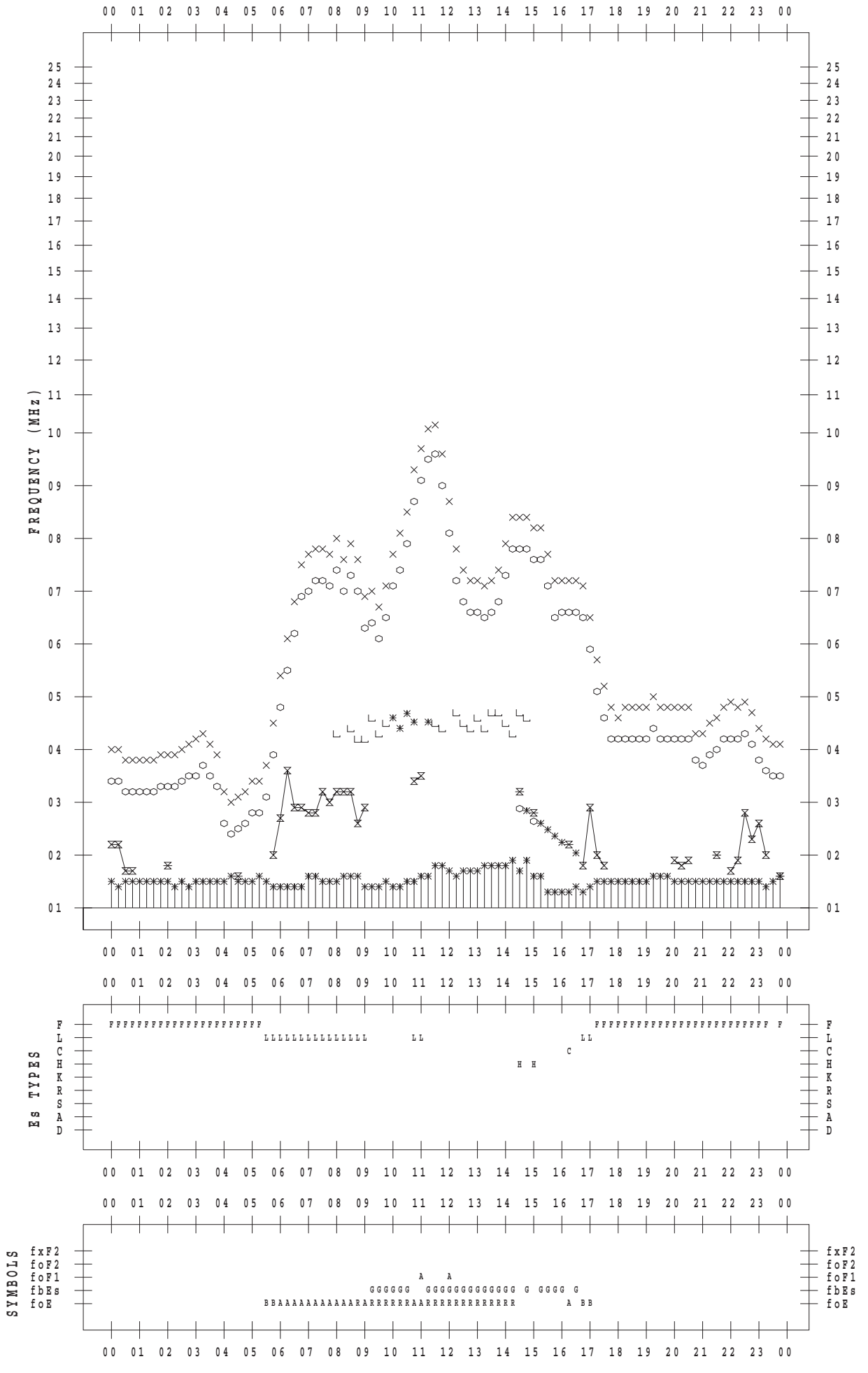
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/17

135 °E MEAN TIME



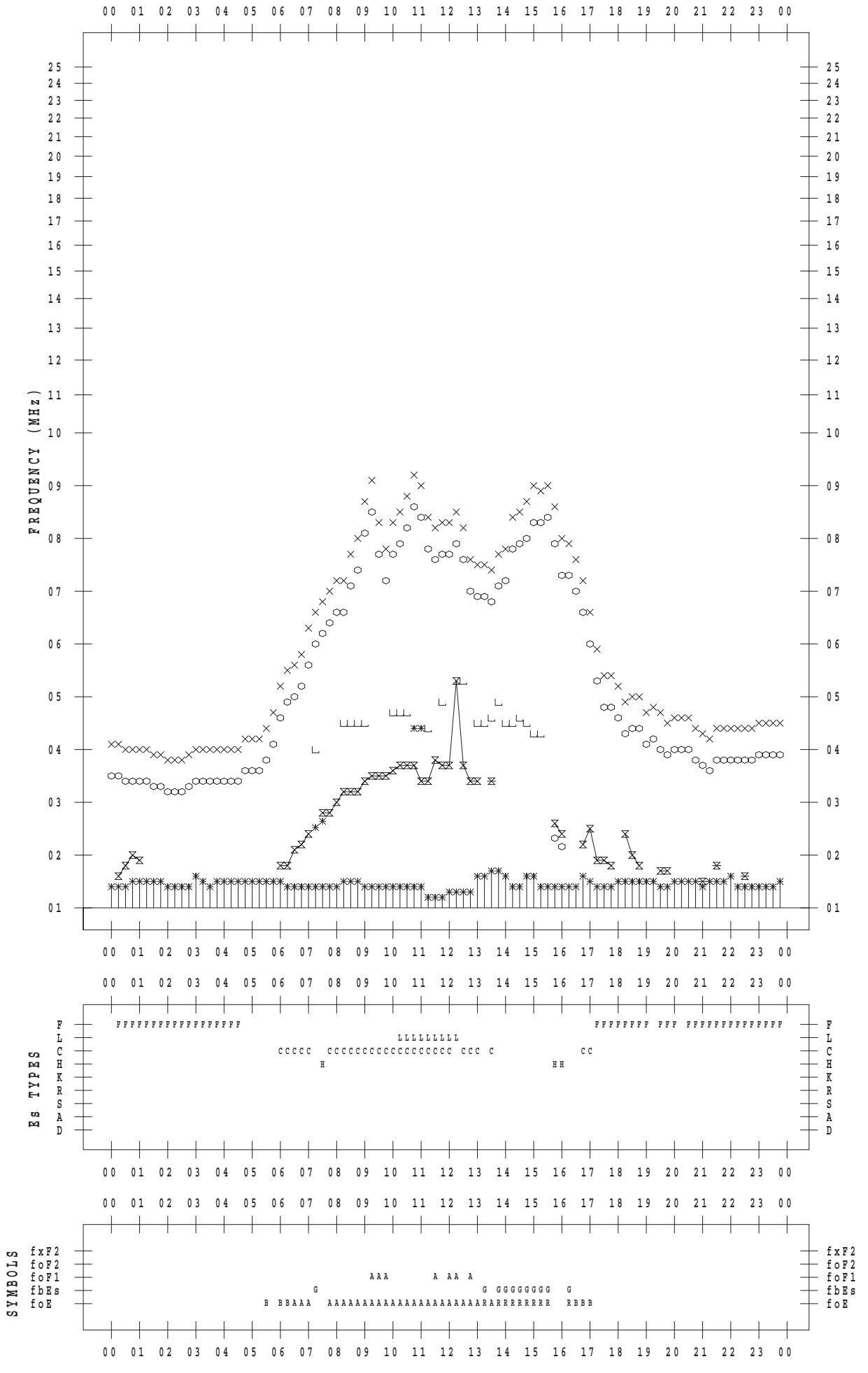
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/18

135 °E MEAN TIME



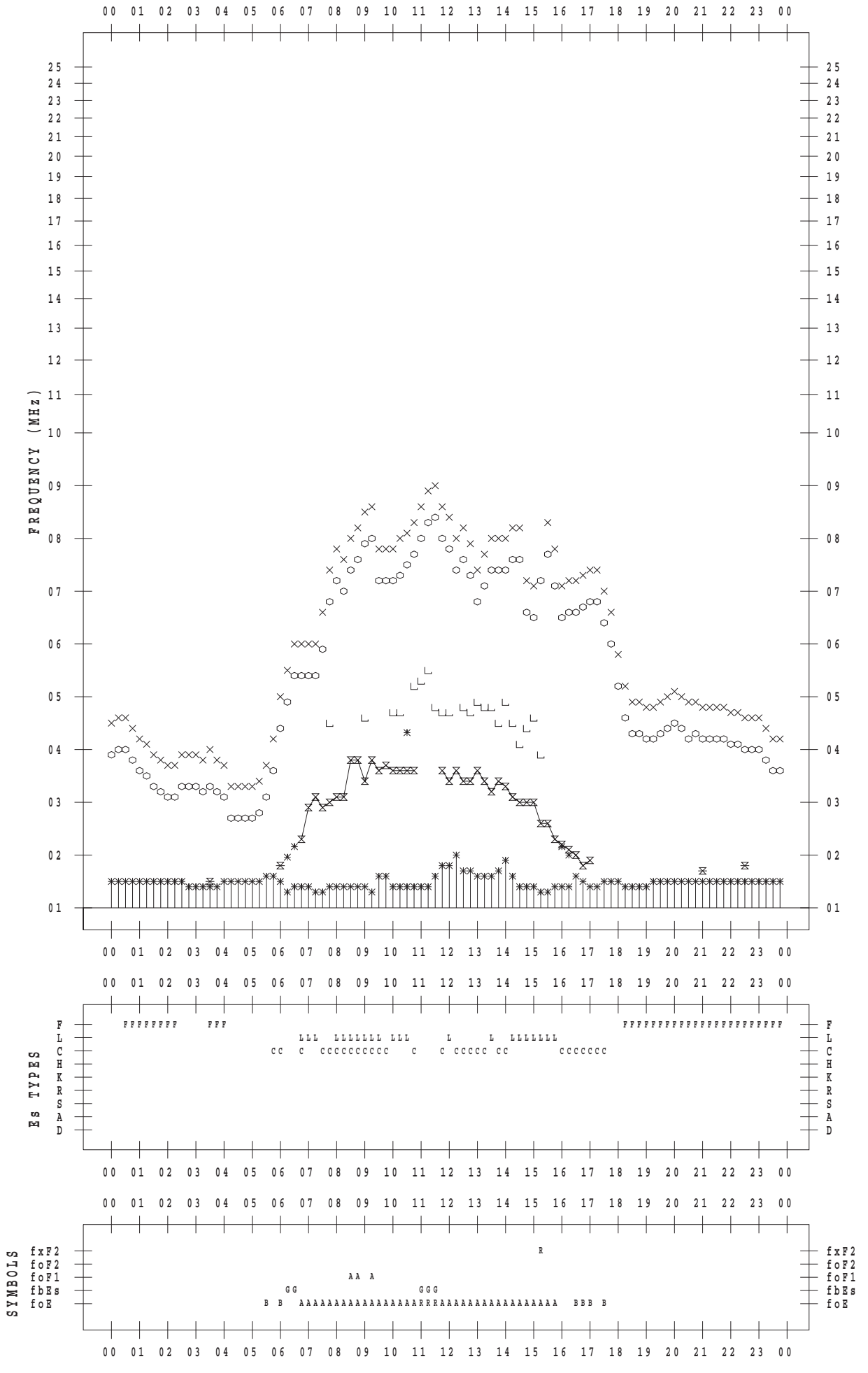
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/19

135 °E MEAN TIME



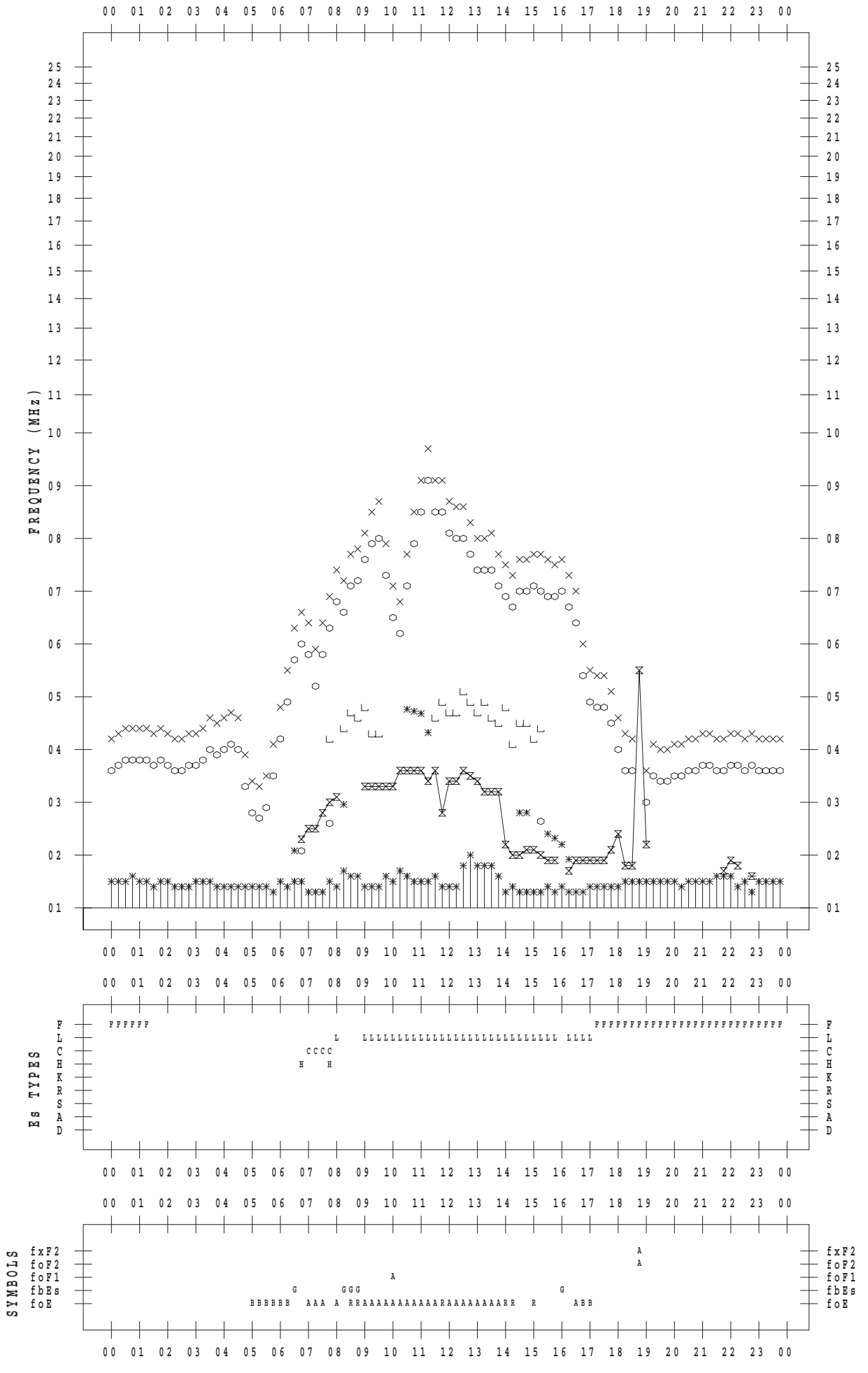
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/20

135 °E MEAN TIME



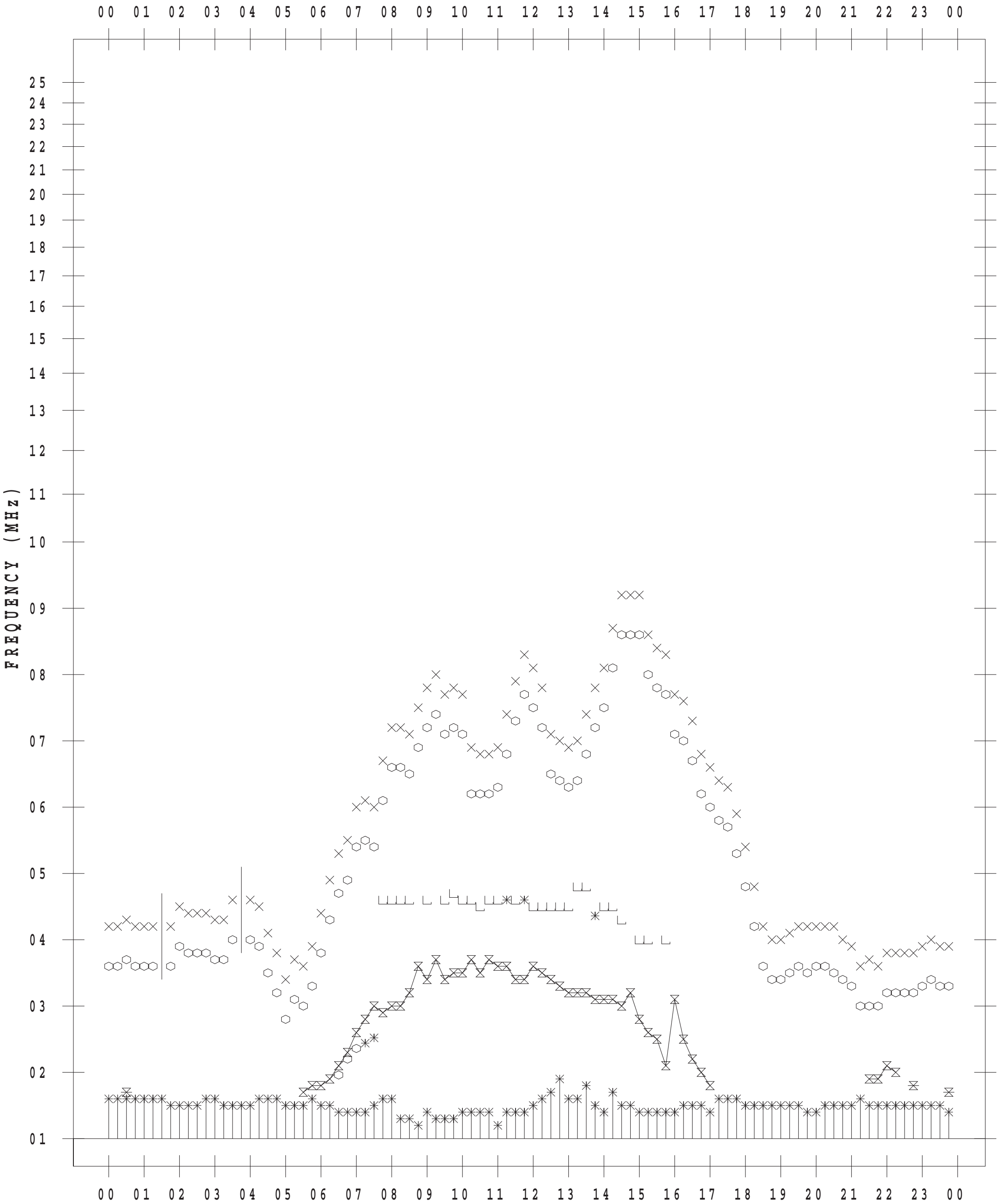
f-PLOT DATA

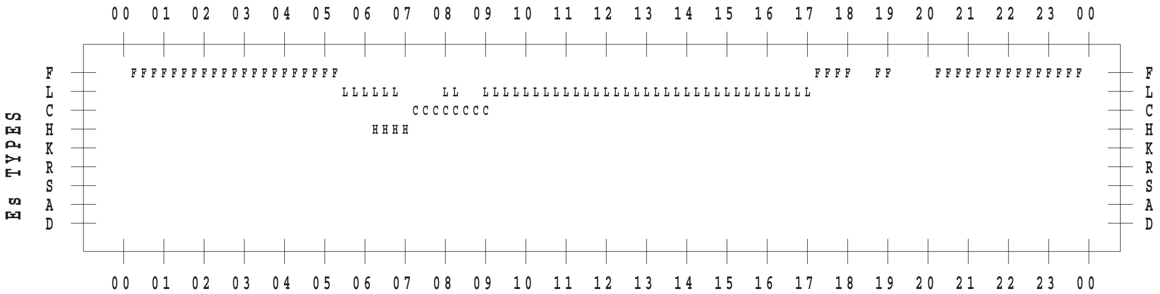
SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/21

135 °E MEAN TIME





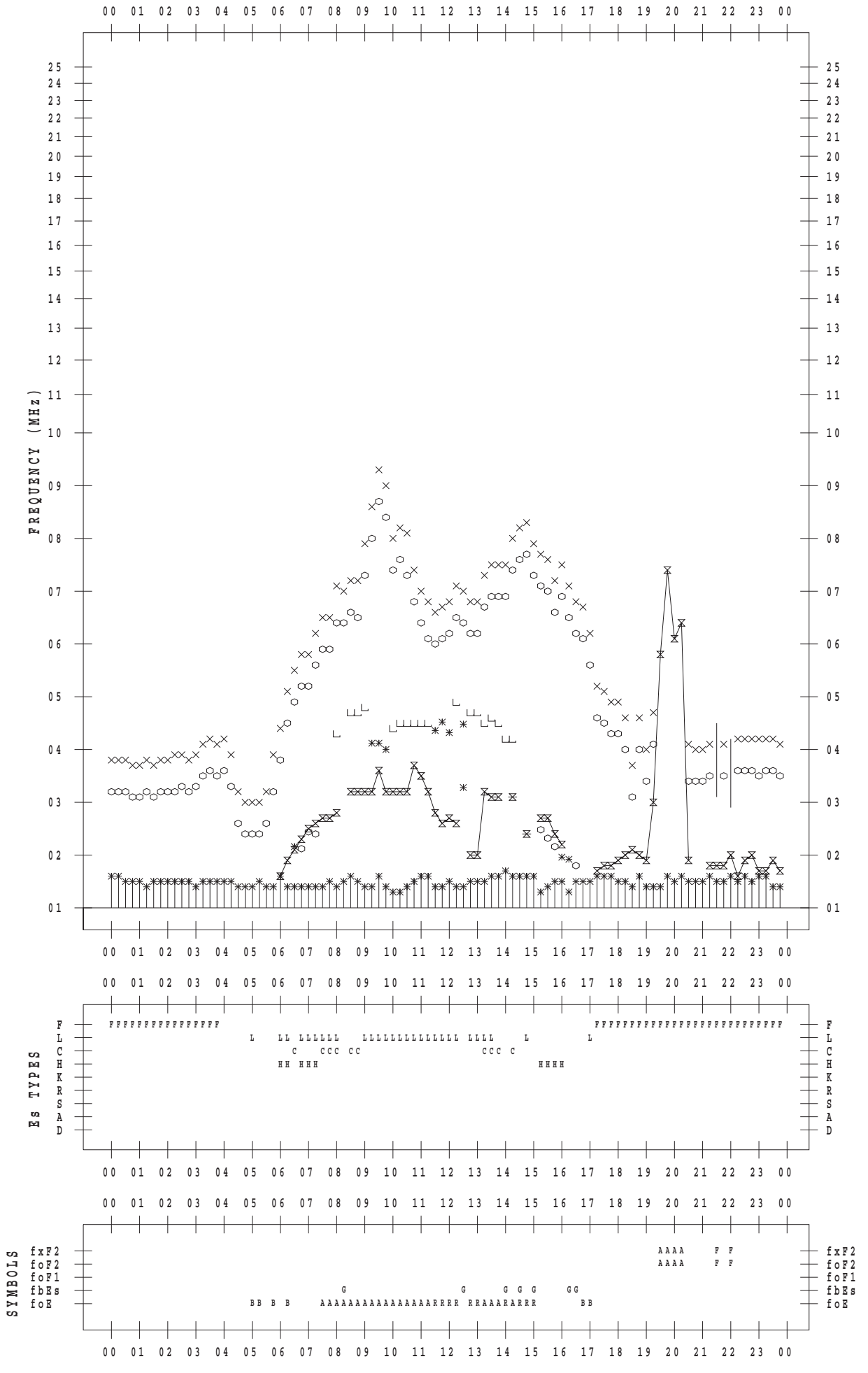
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/22

135 °E MEAN TIME



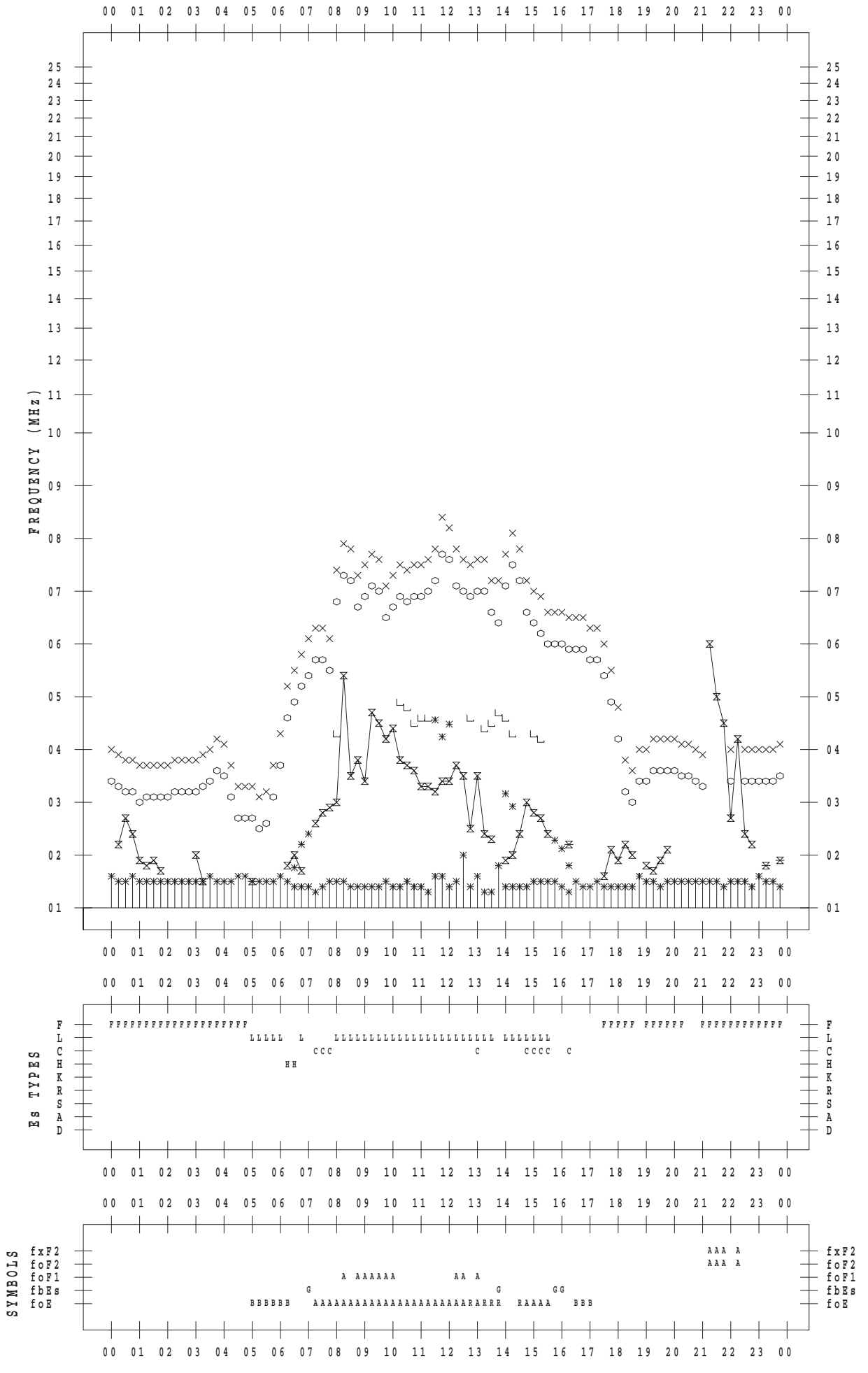
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/23

135 °E MEAN TIME



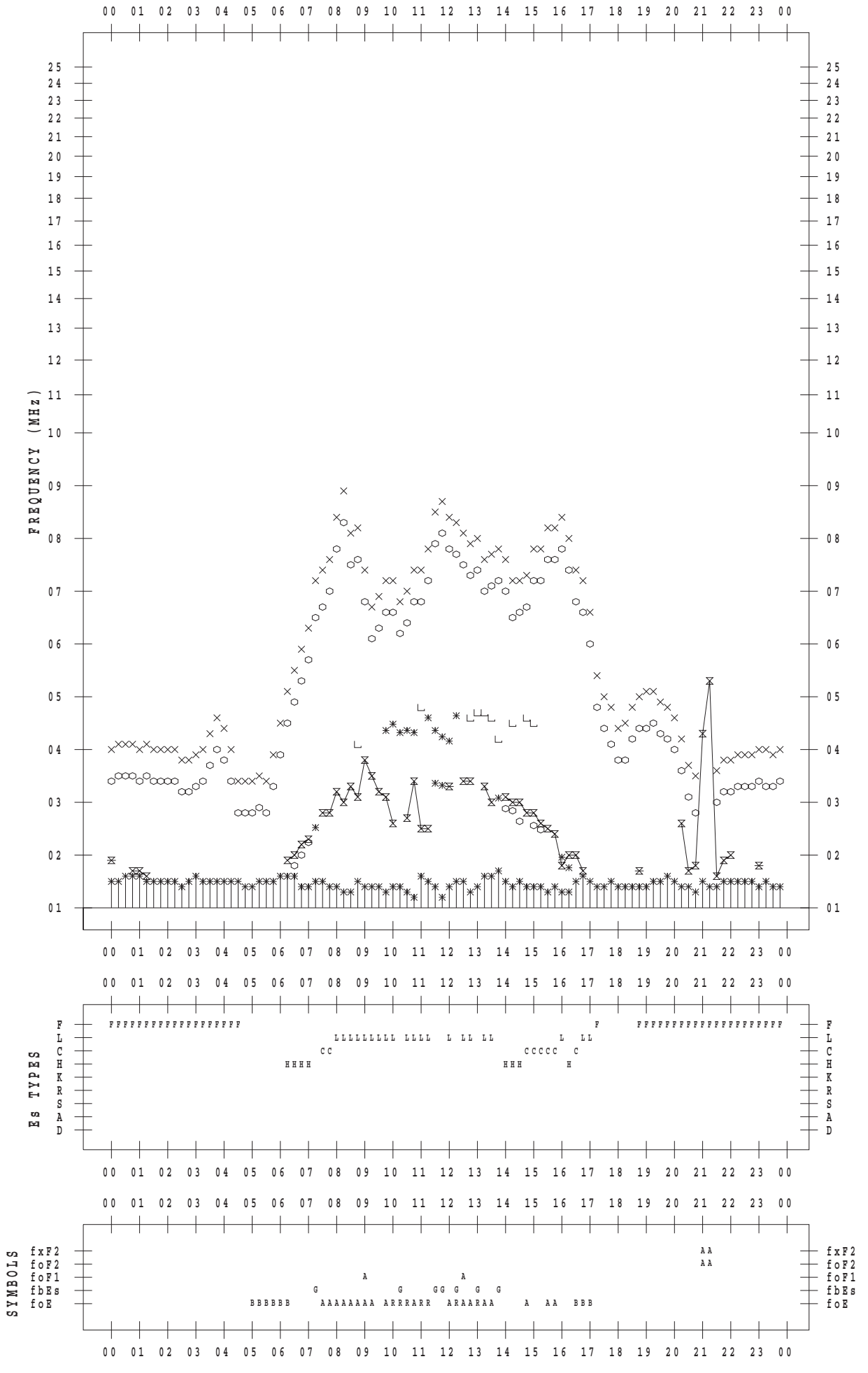
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/24

135 °E MEAN TIME



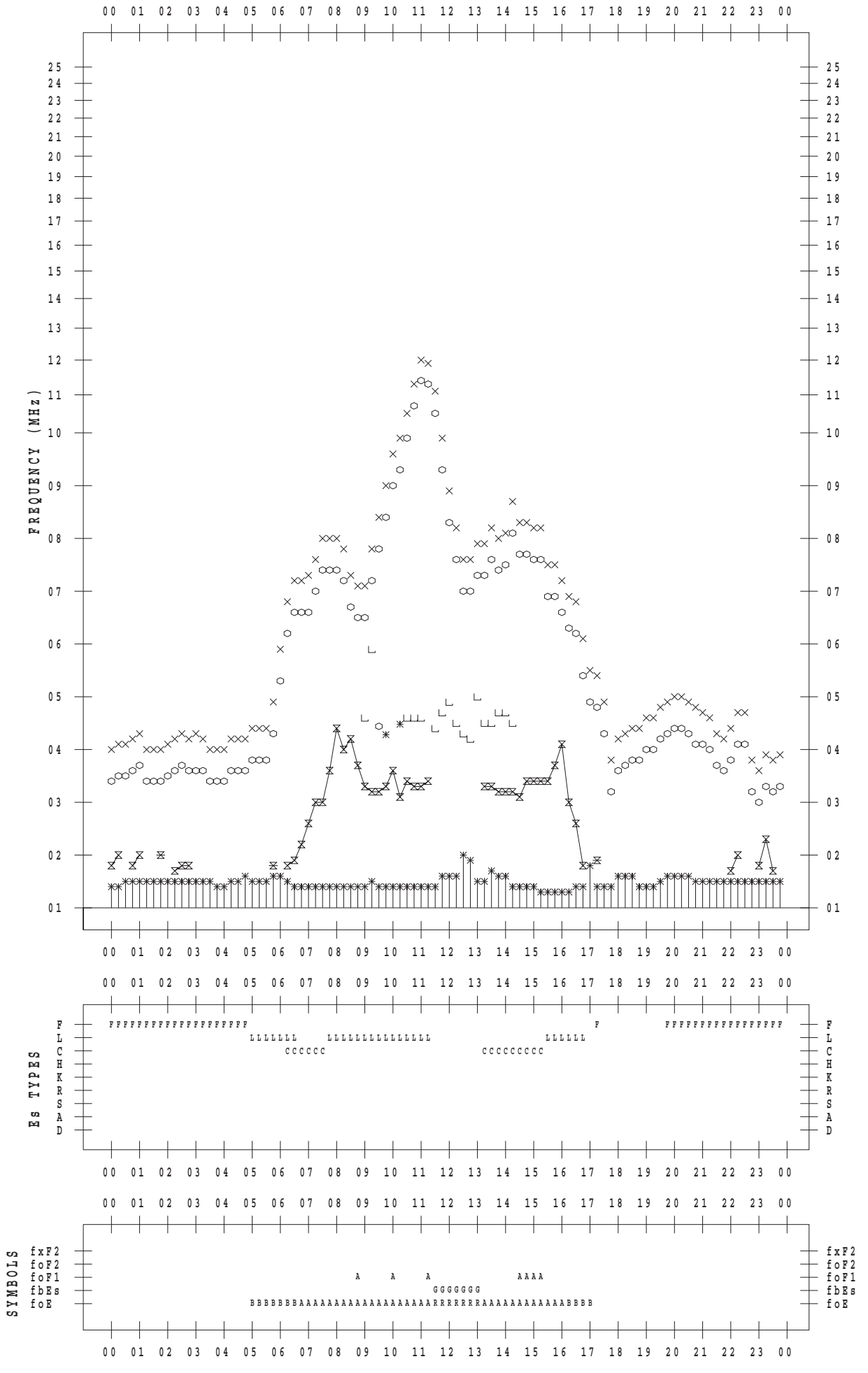
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/25

135 °E MEAN TIME



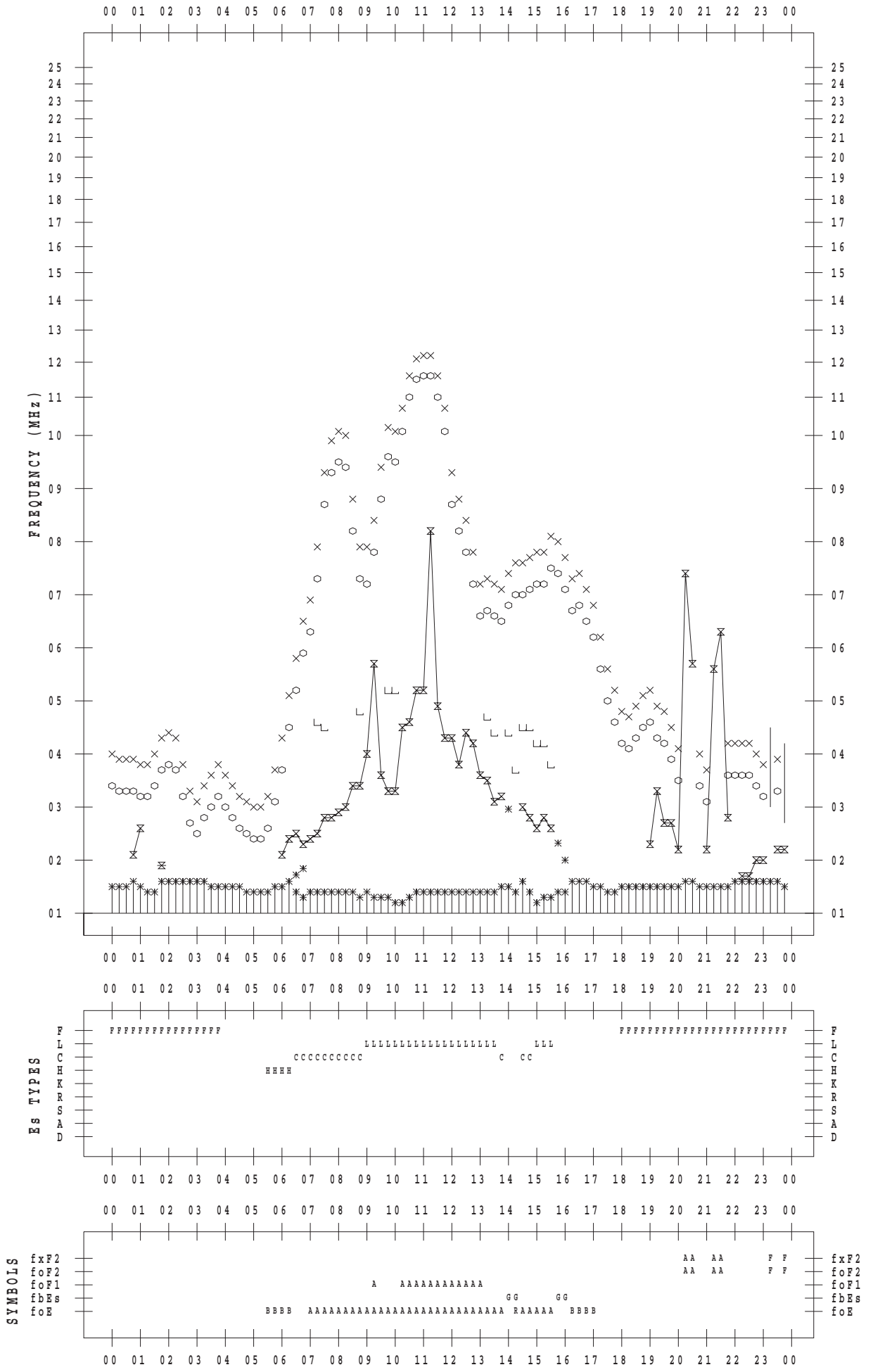
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/26

135 °E MEAN TIME



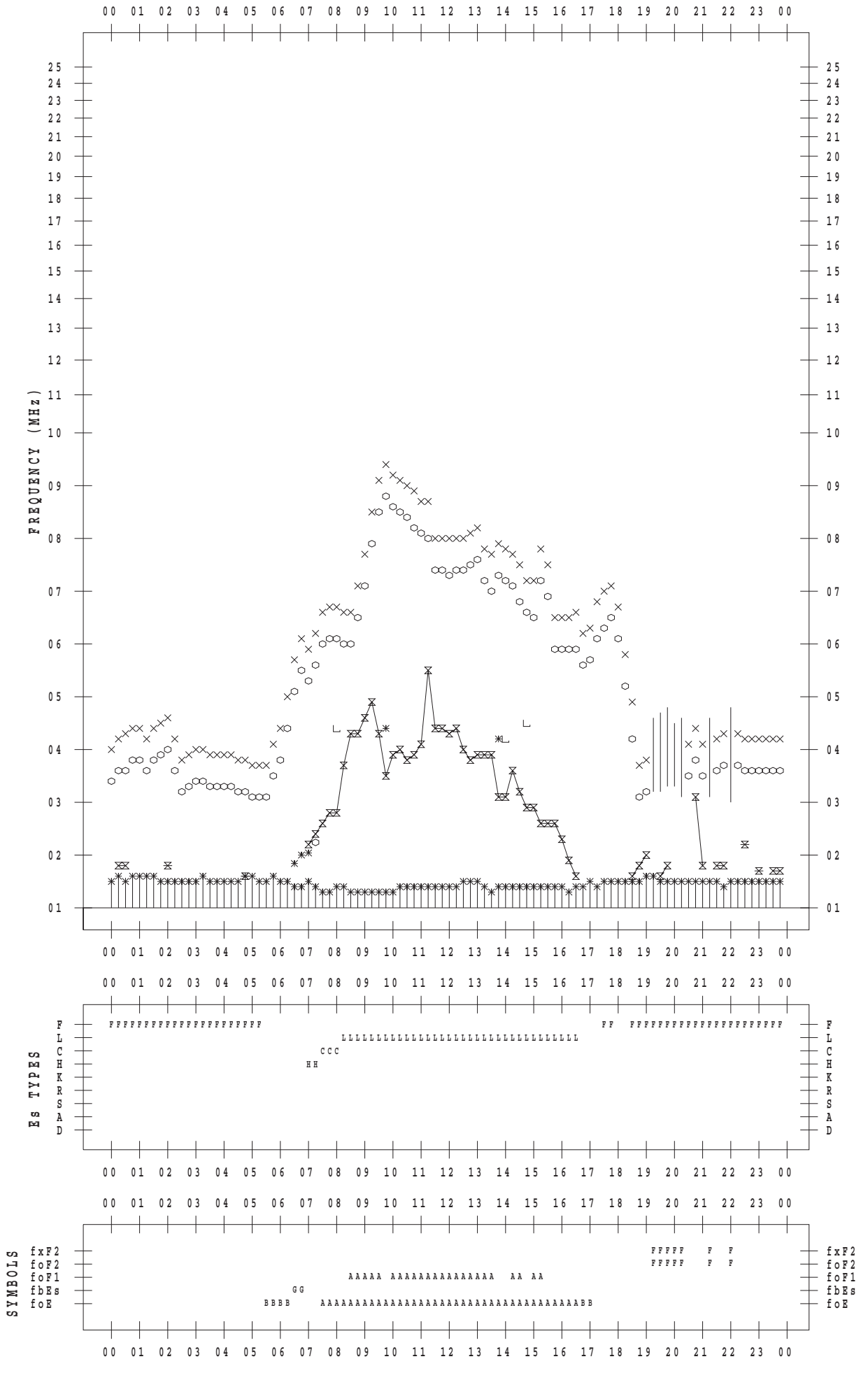
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/27

135 °E MEAN TIME



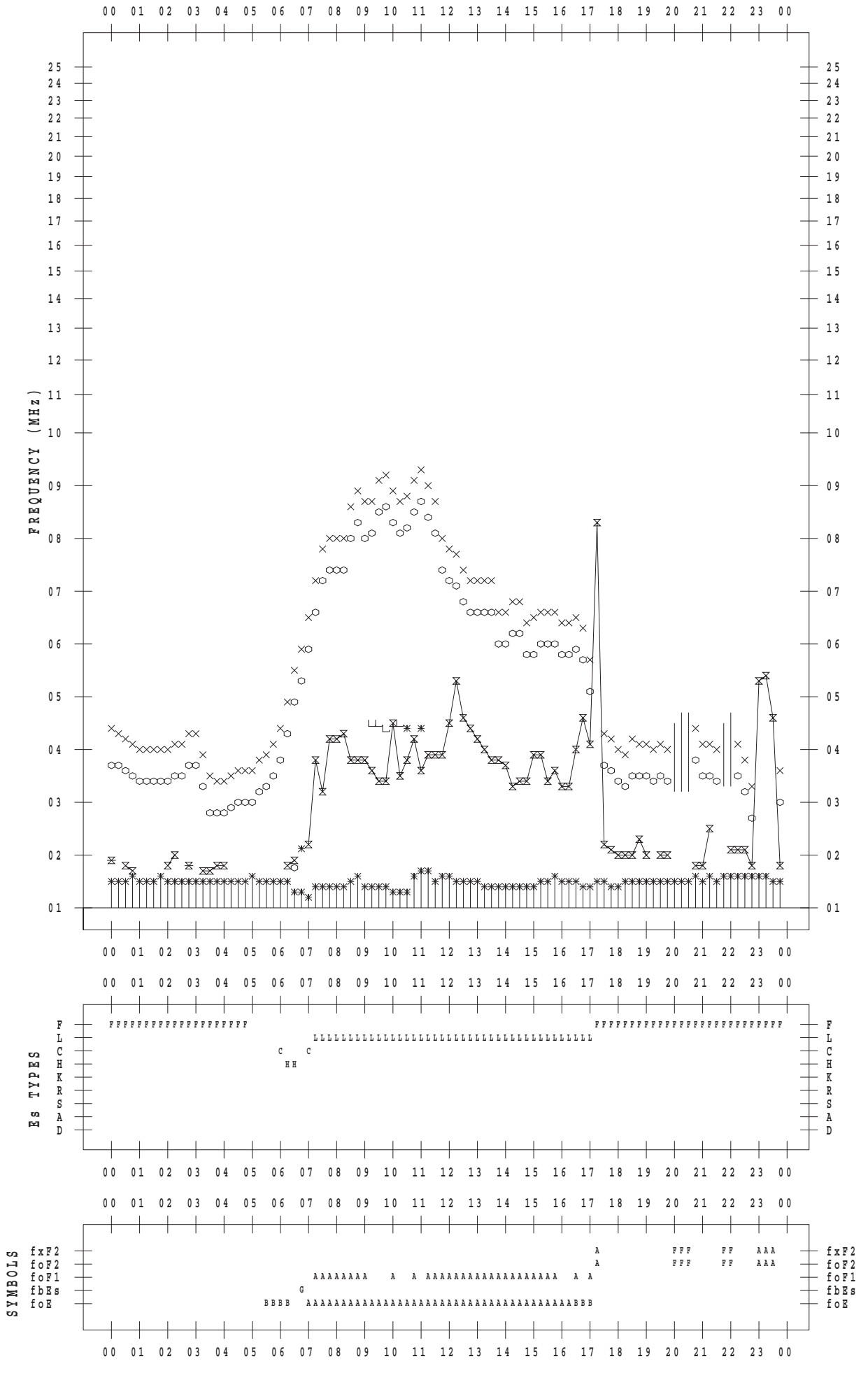
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/28

135 °E MEAN TIME



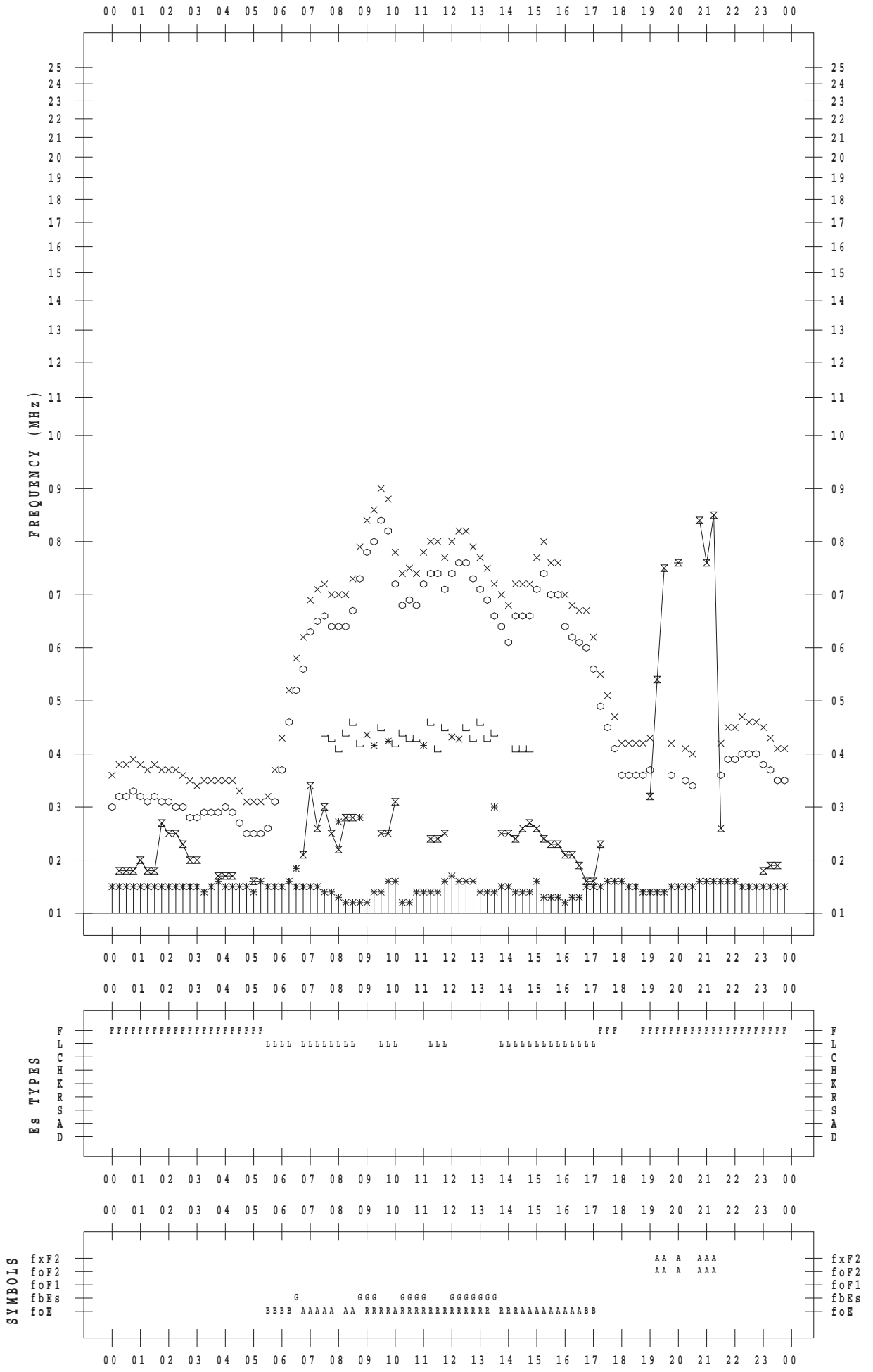
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/29

135 °E MEAN TIME



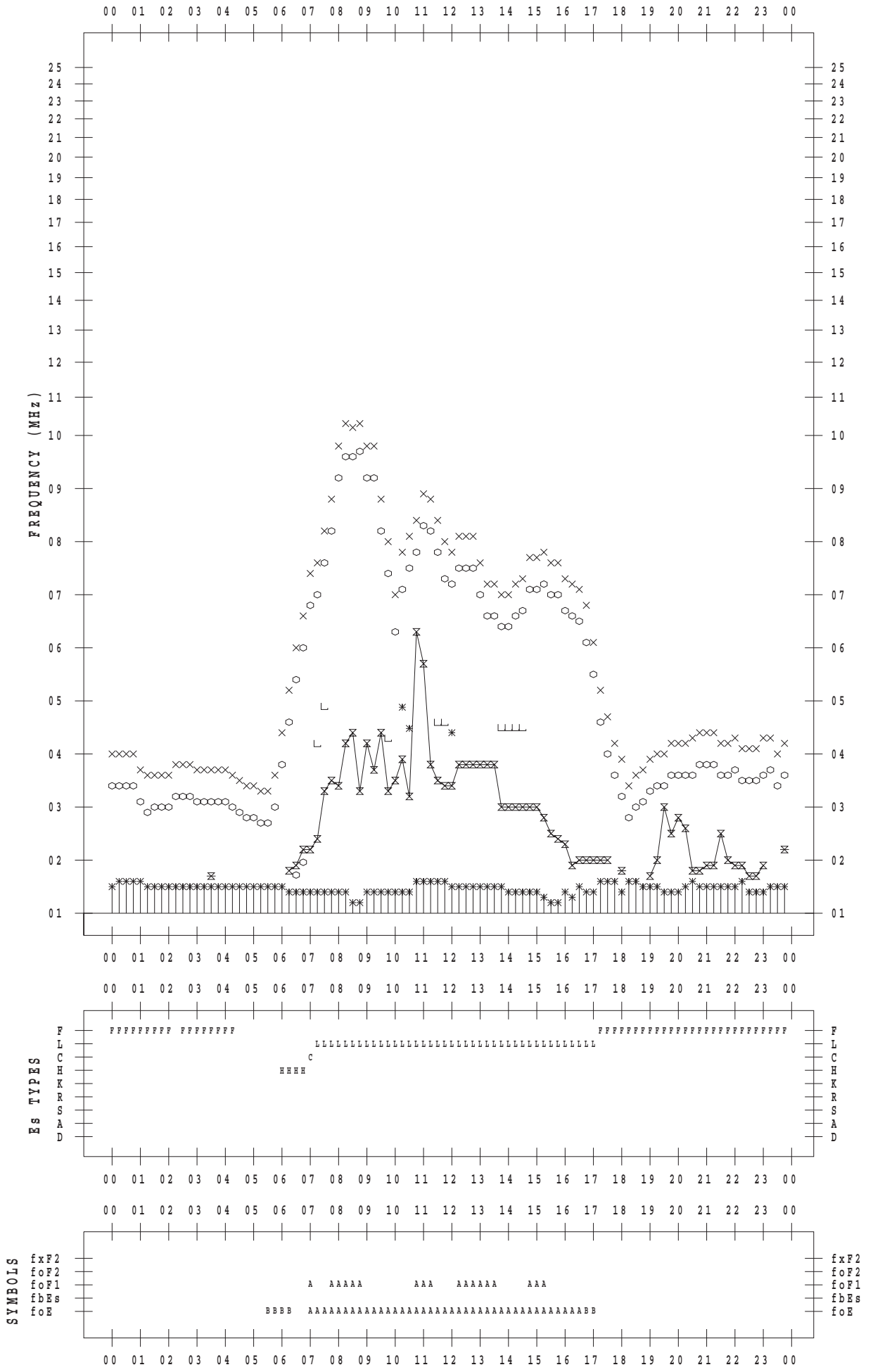
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/30

135 °E MEAN TIME



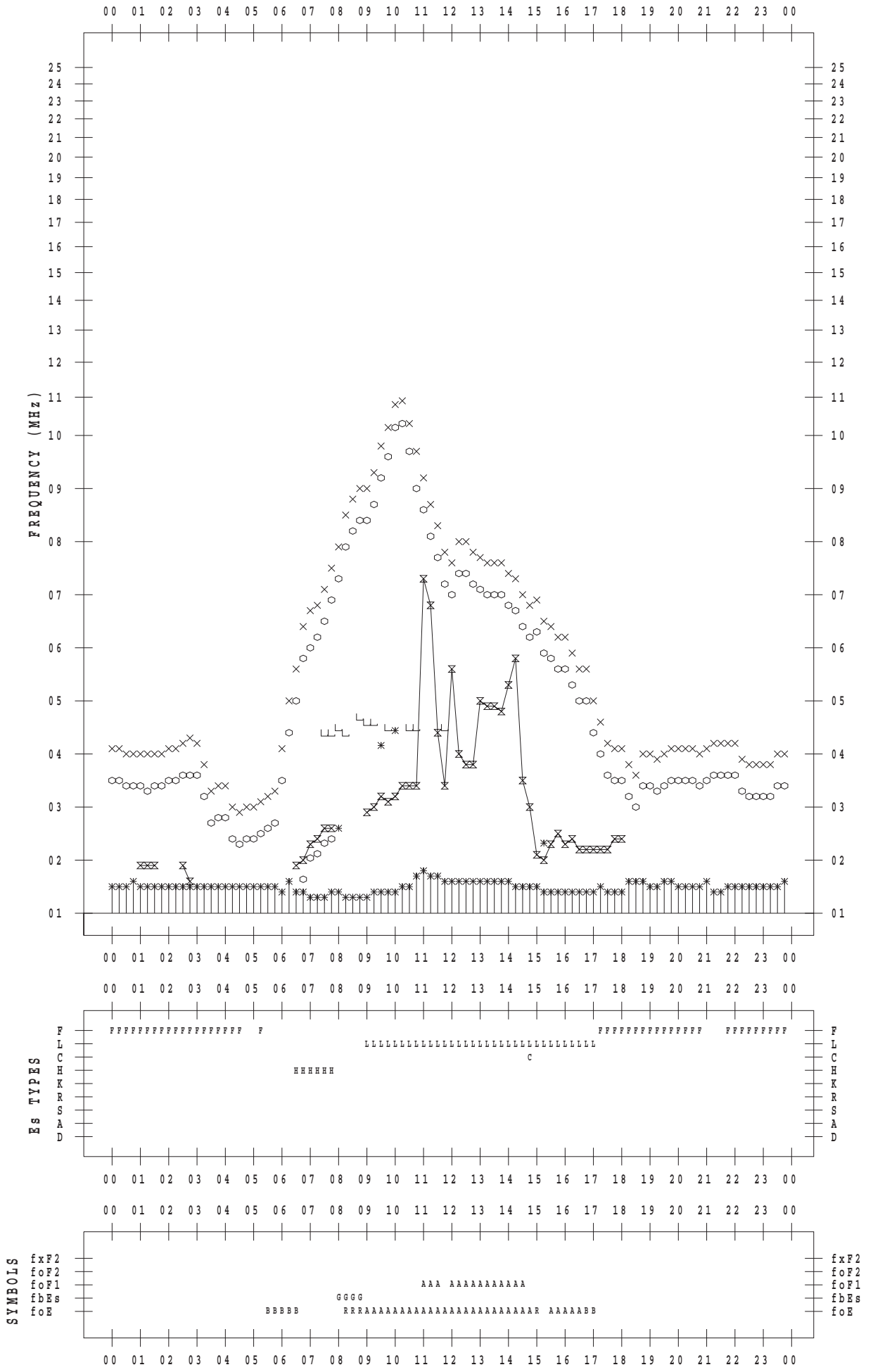
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/10/31

135 °E MEAN TIME



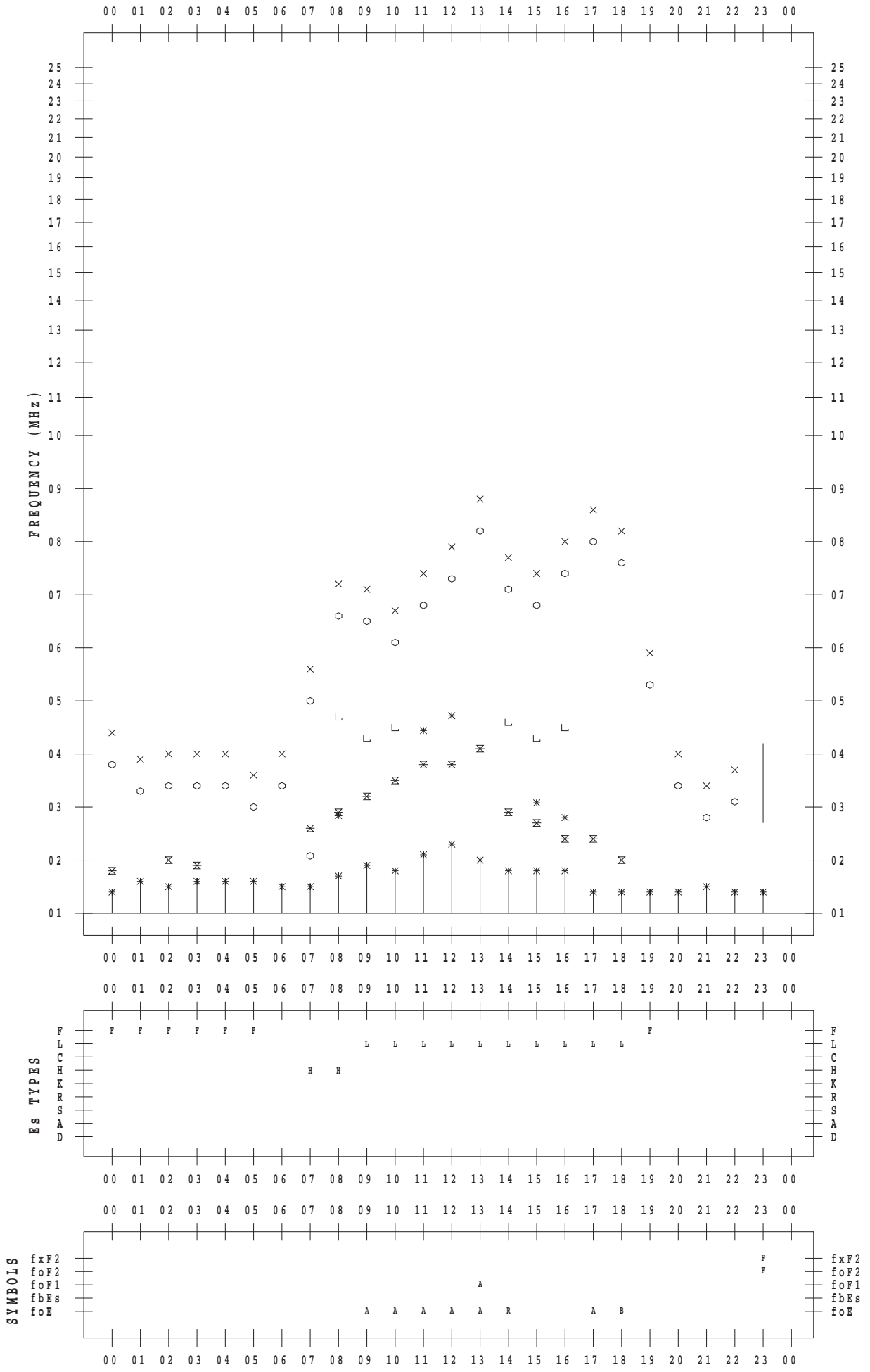
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/ 1

135 °E MEAN TIME



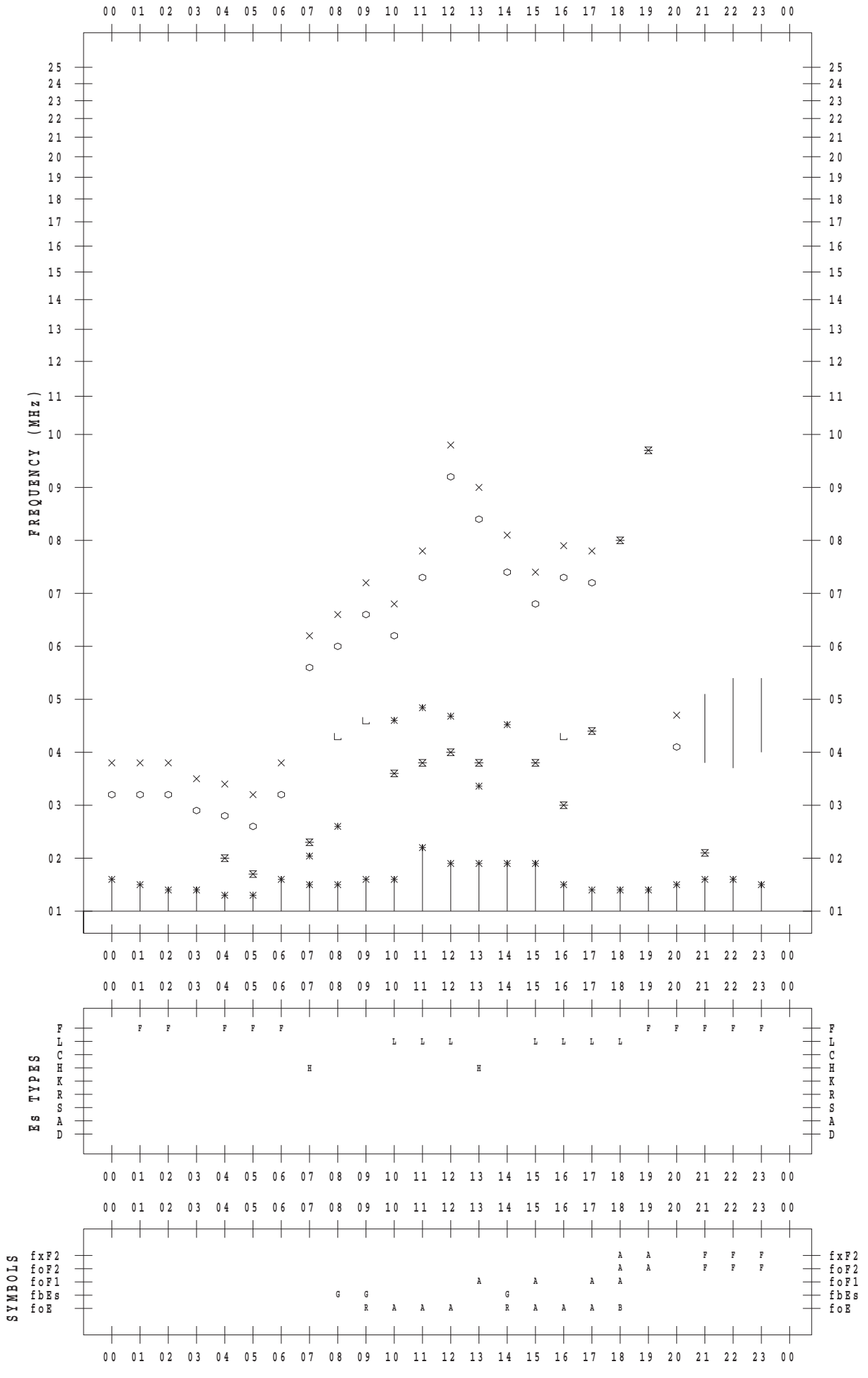
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/ 2

135 °E MEAN TIME



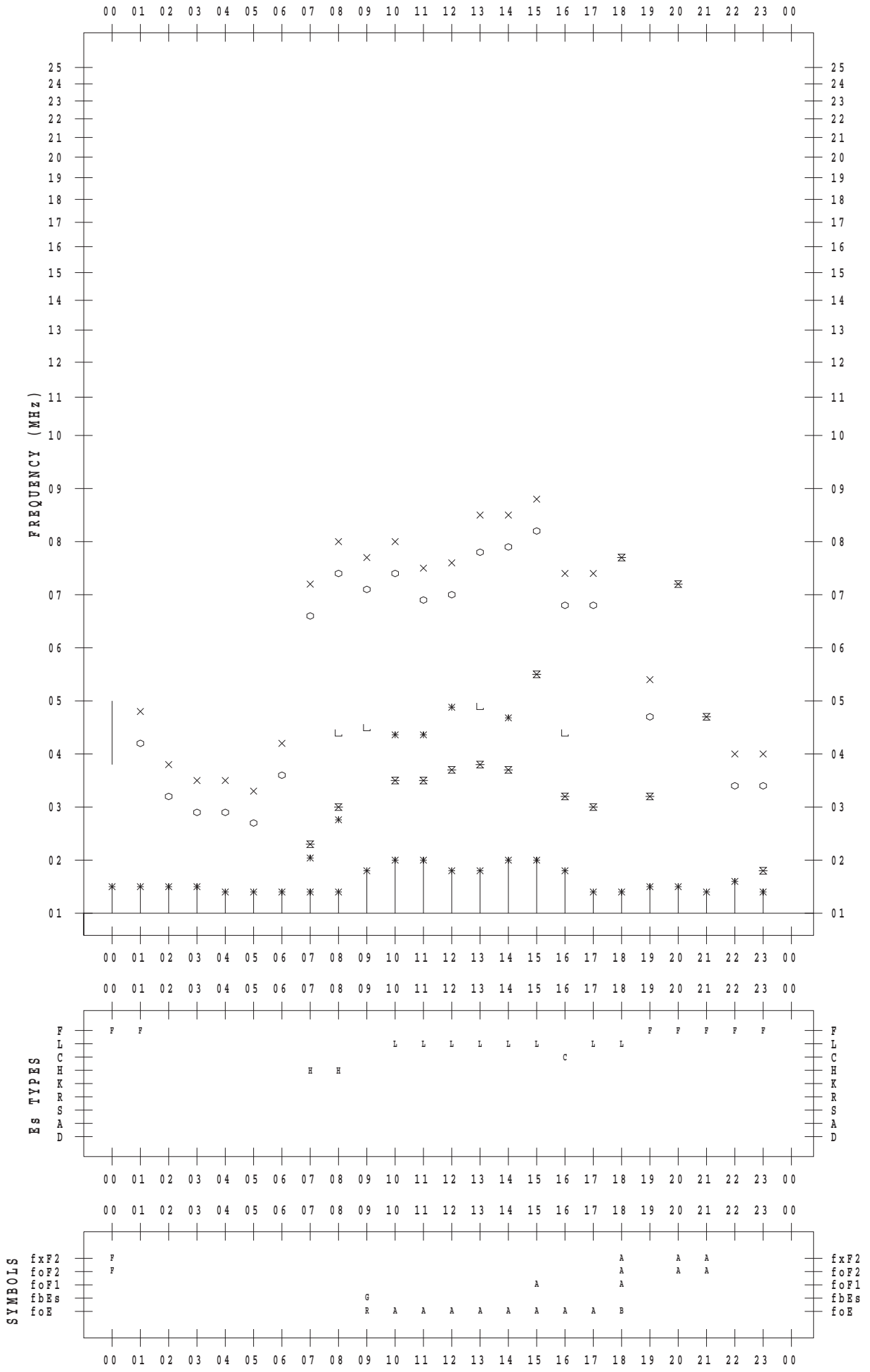
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/ 3

135 °E MEAN TIME



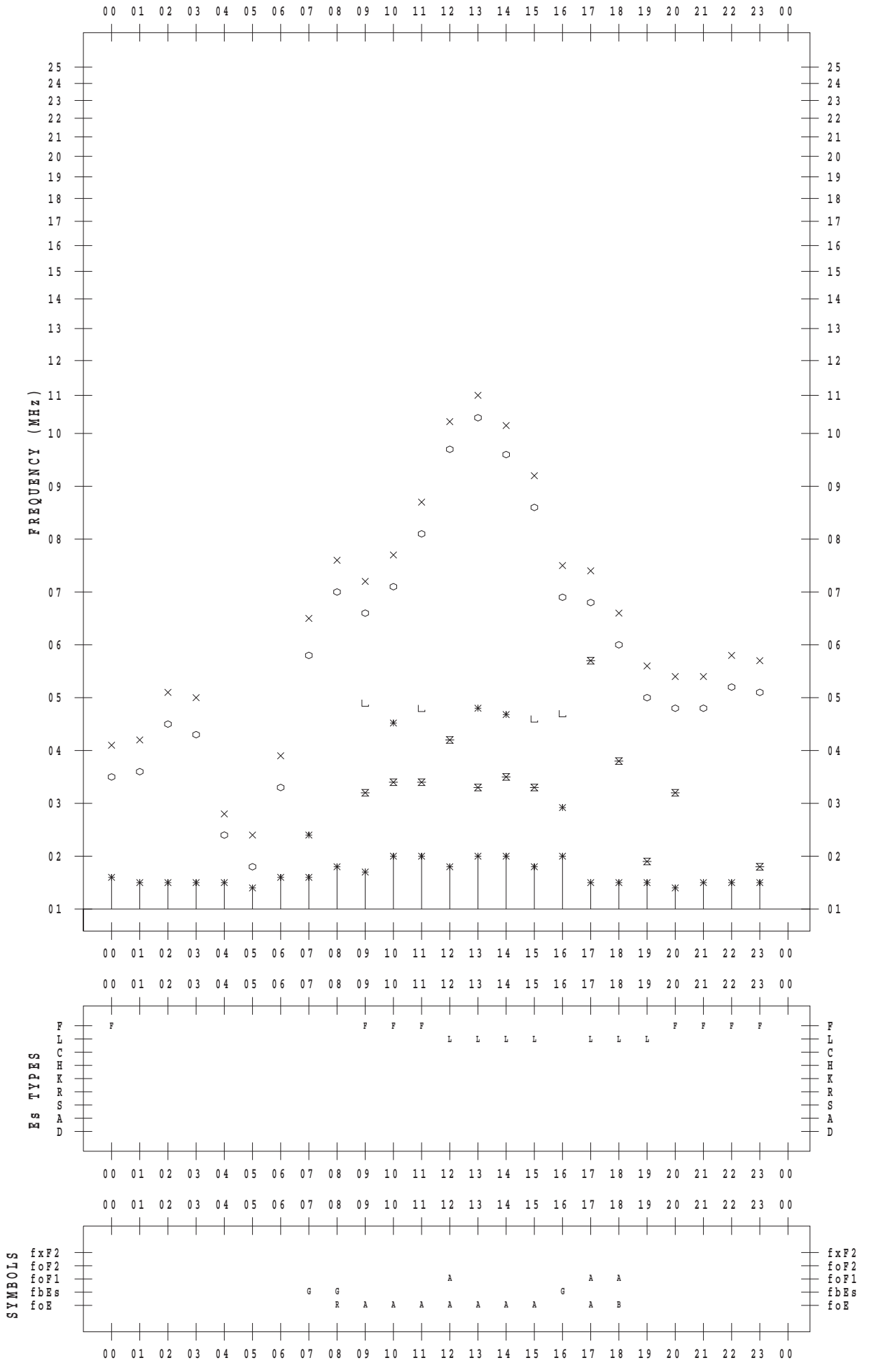
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/ 4

135 °E MEAN TIME



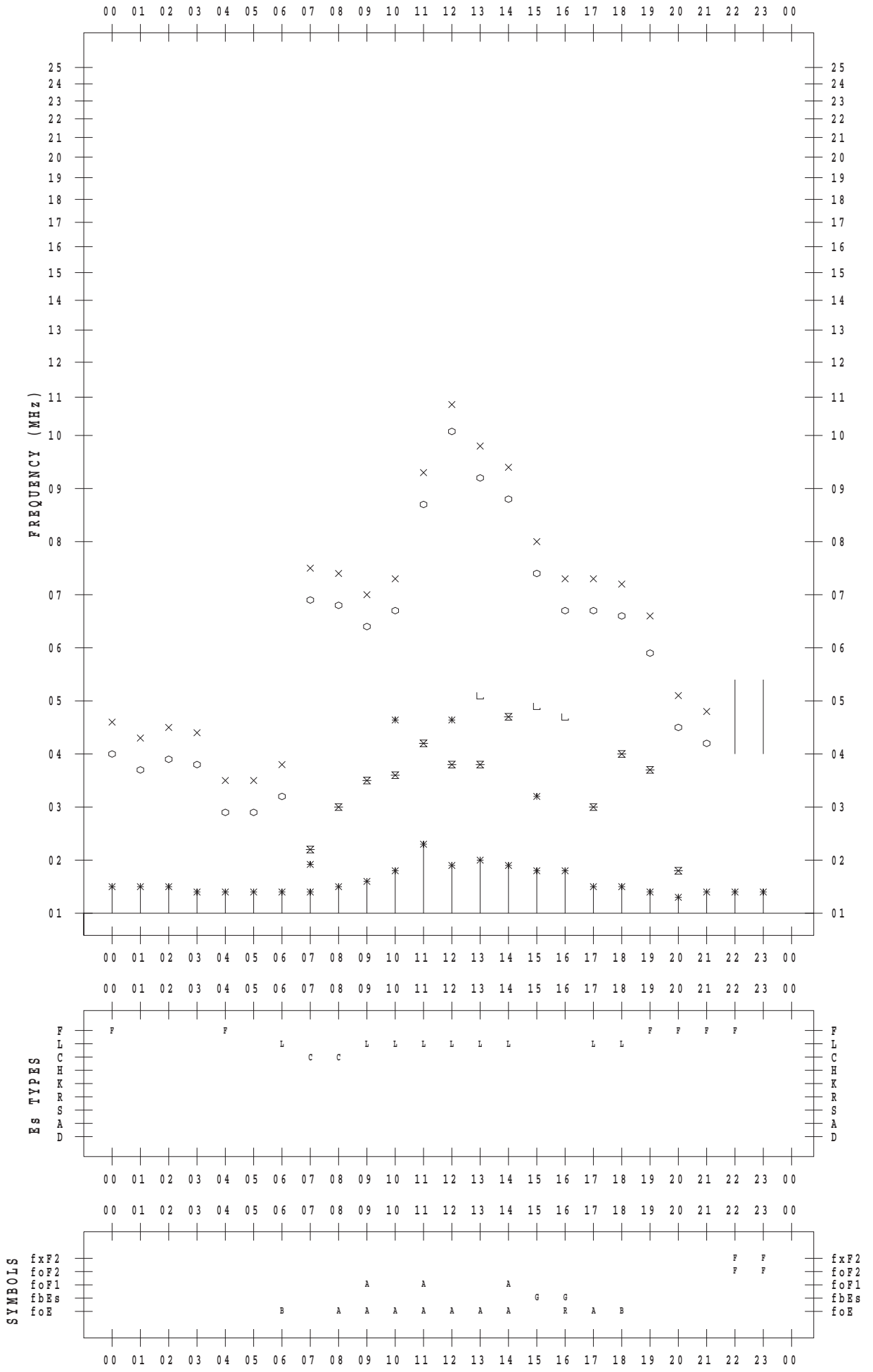
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/ 5

135 °E MEAN TIME



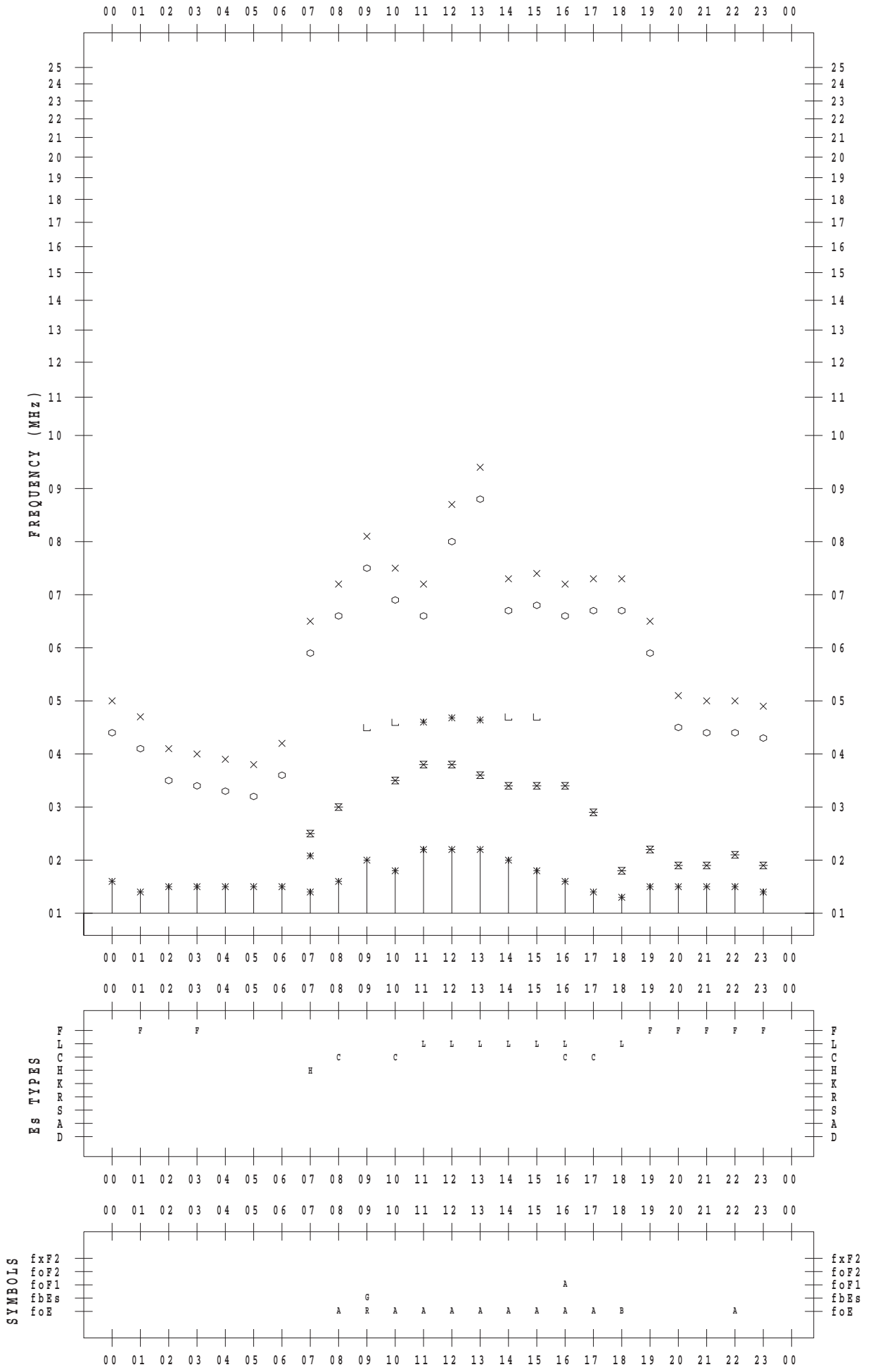
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/ 6

135 °E MEAN TIME



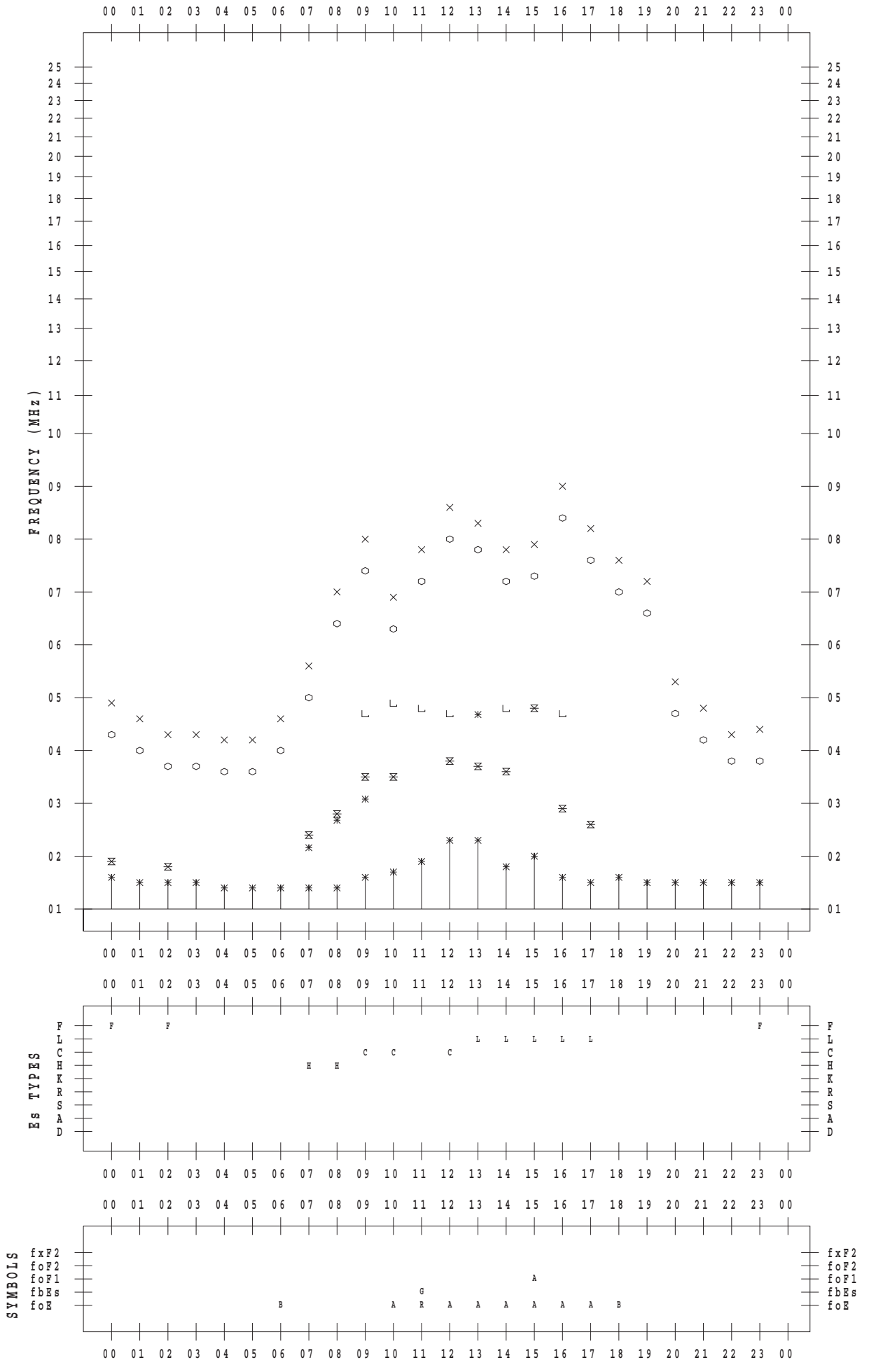
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/ 7

135 °E MEAN TIME



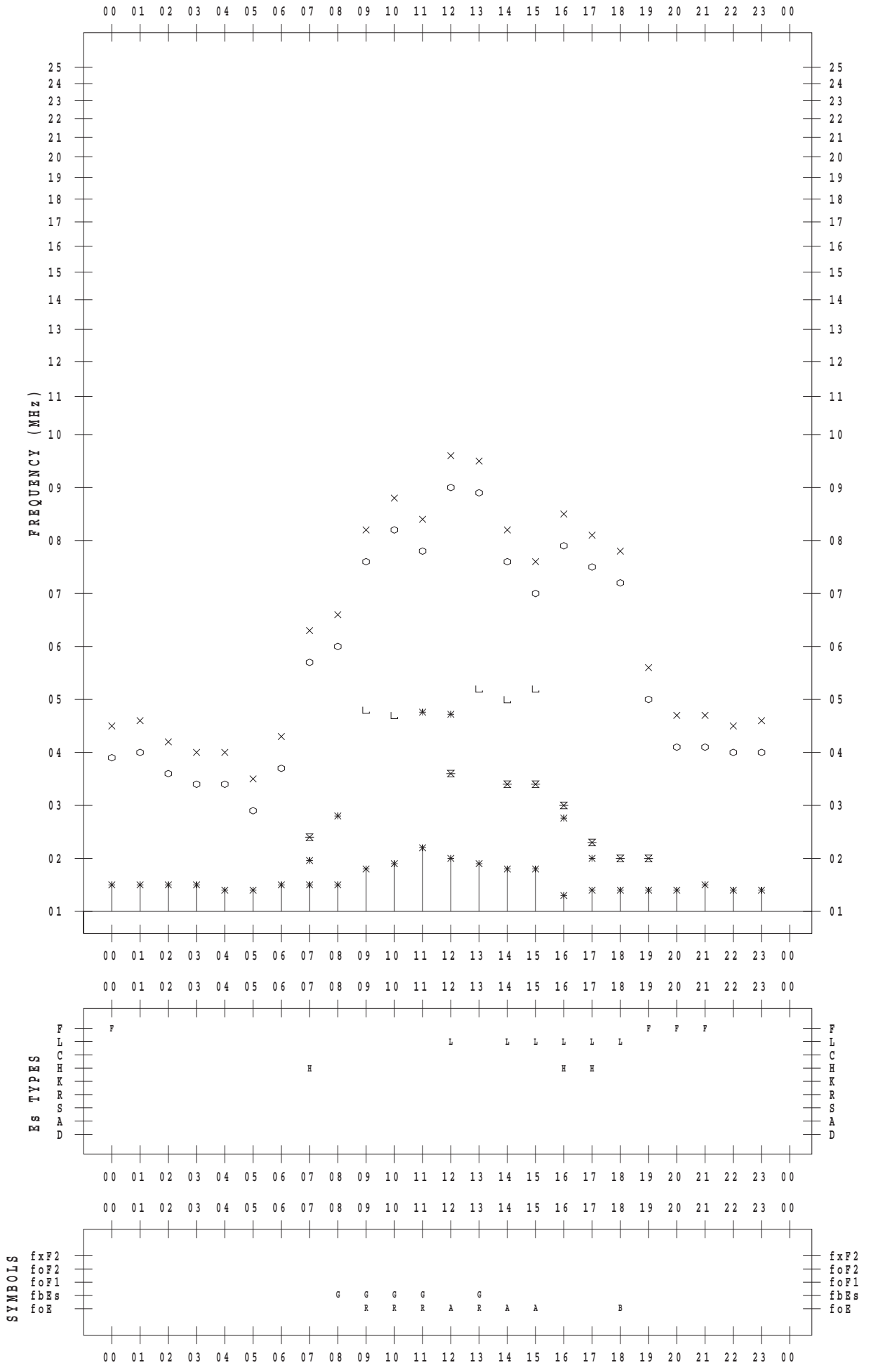
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/ 8

135 °E MEAN TIME



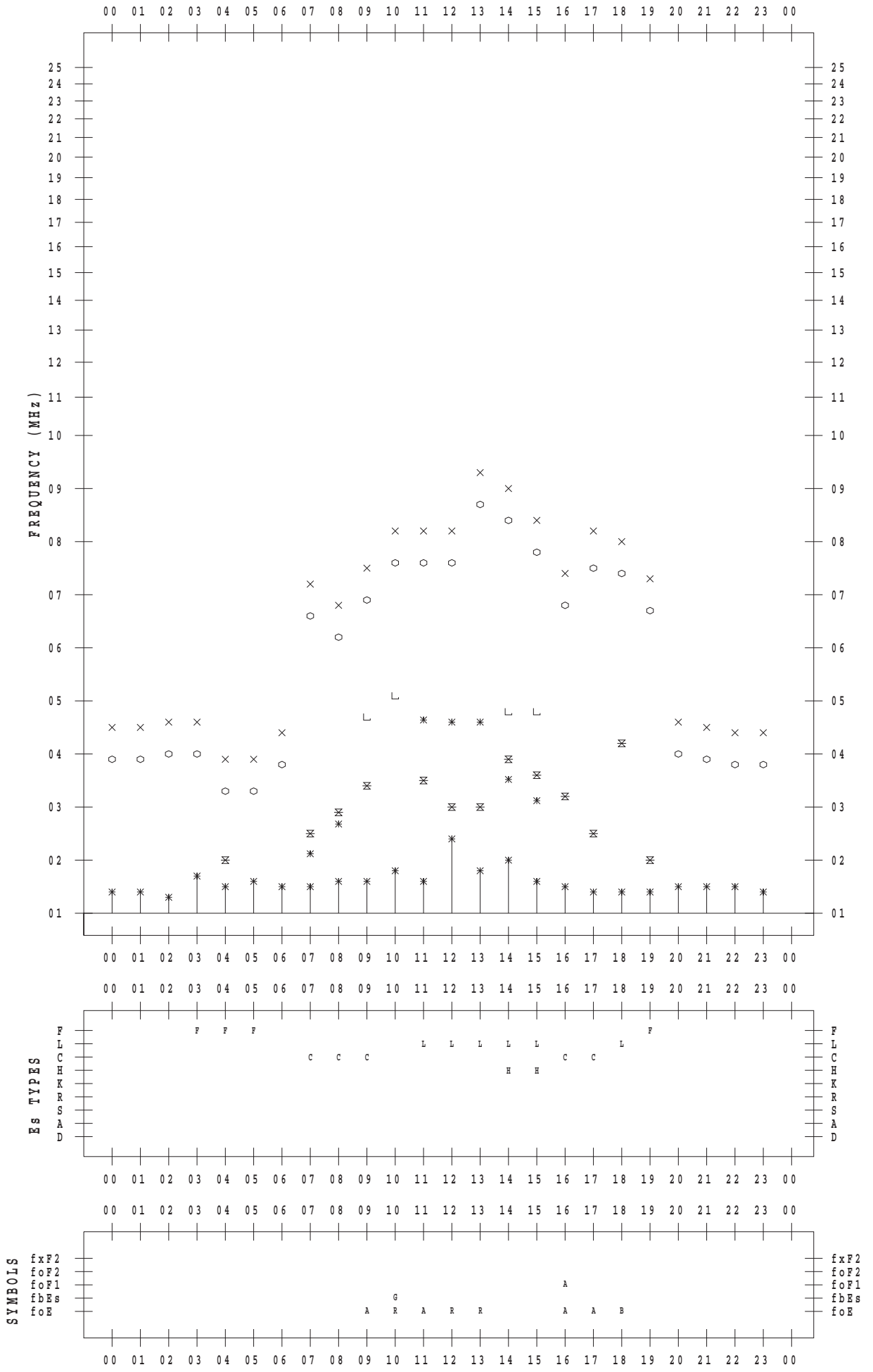
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/ 9

135 °E MEAN TIME



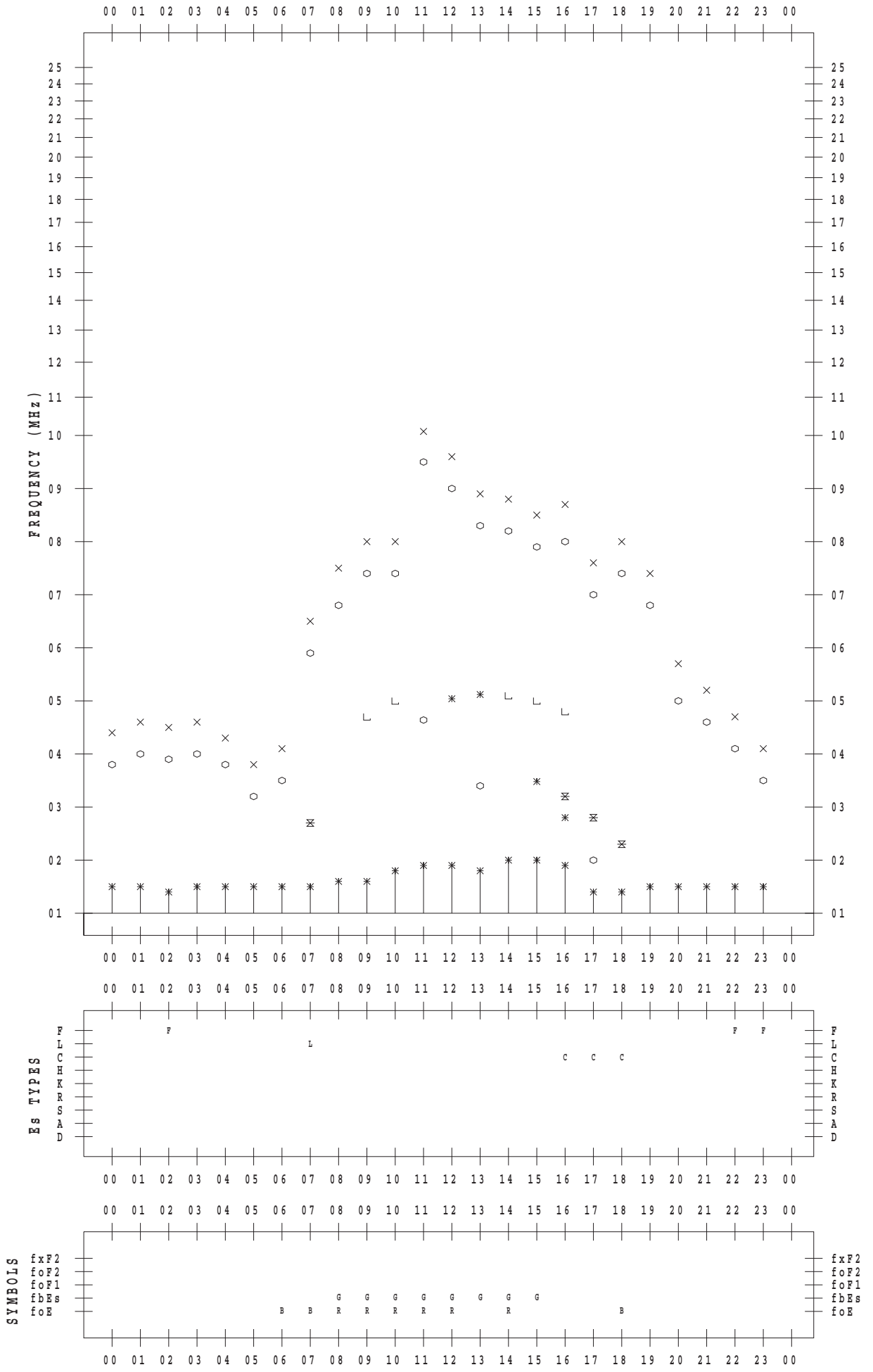
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/10

135 °E MEAN TIME



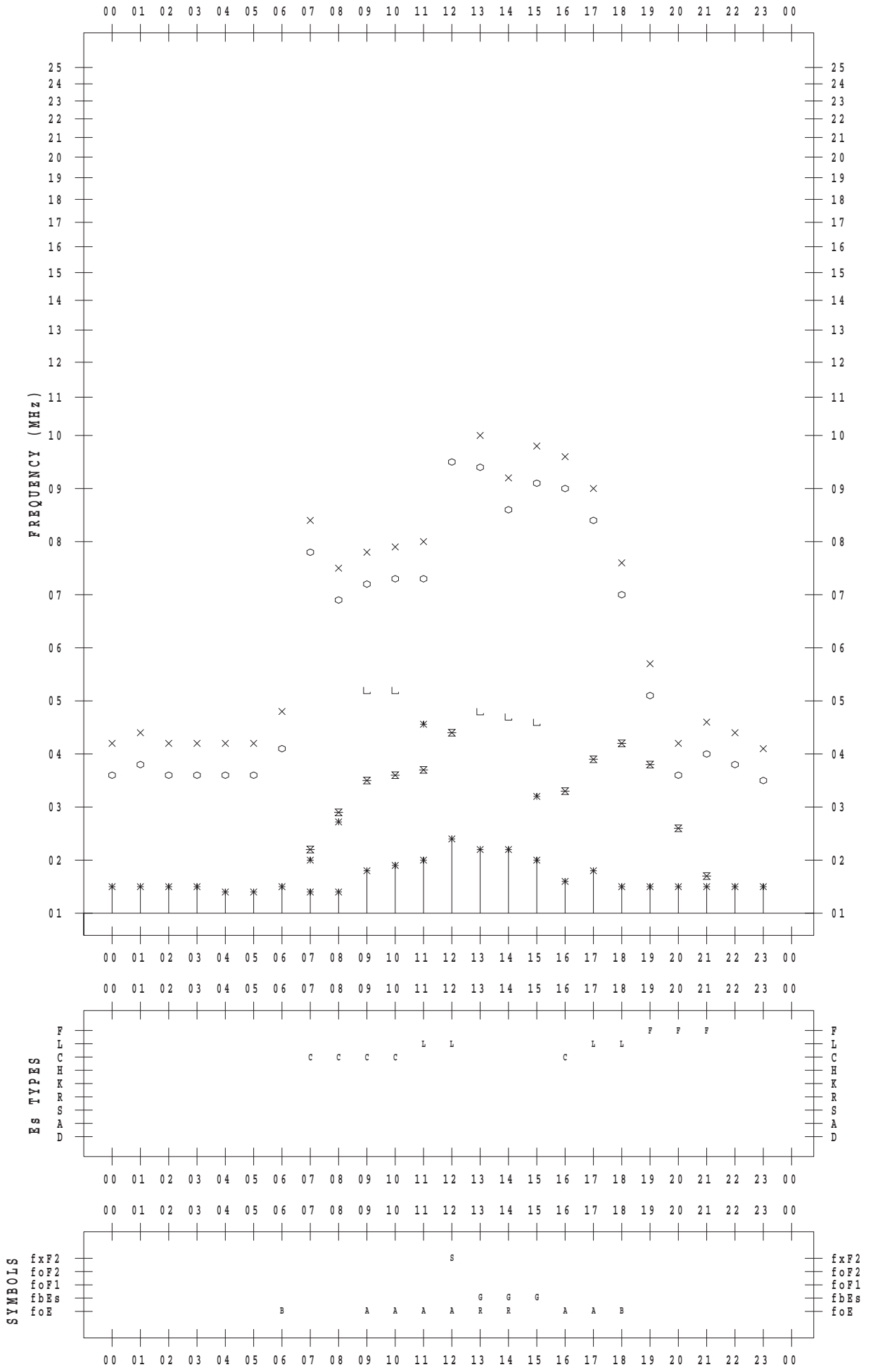
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/11

135 °E MEAN TIME



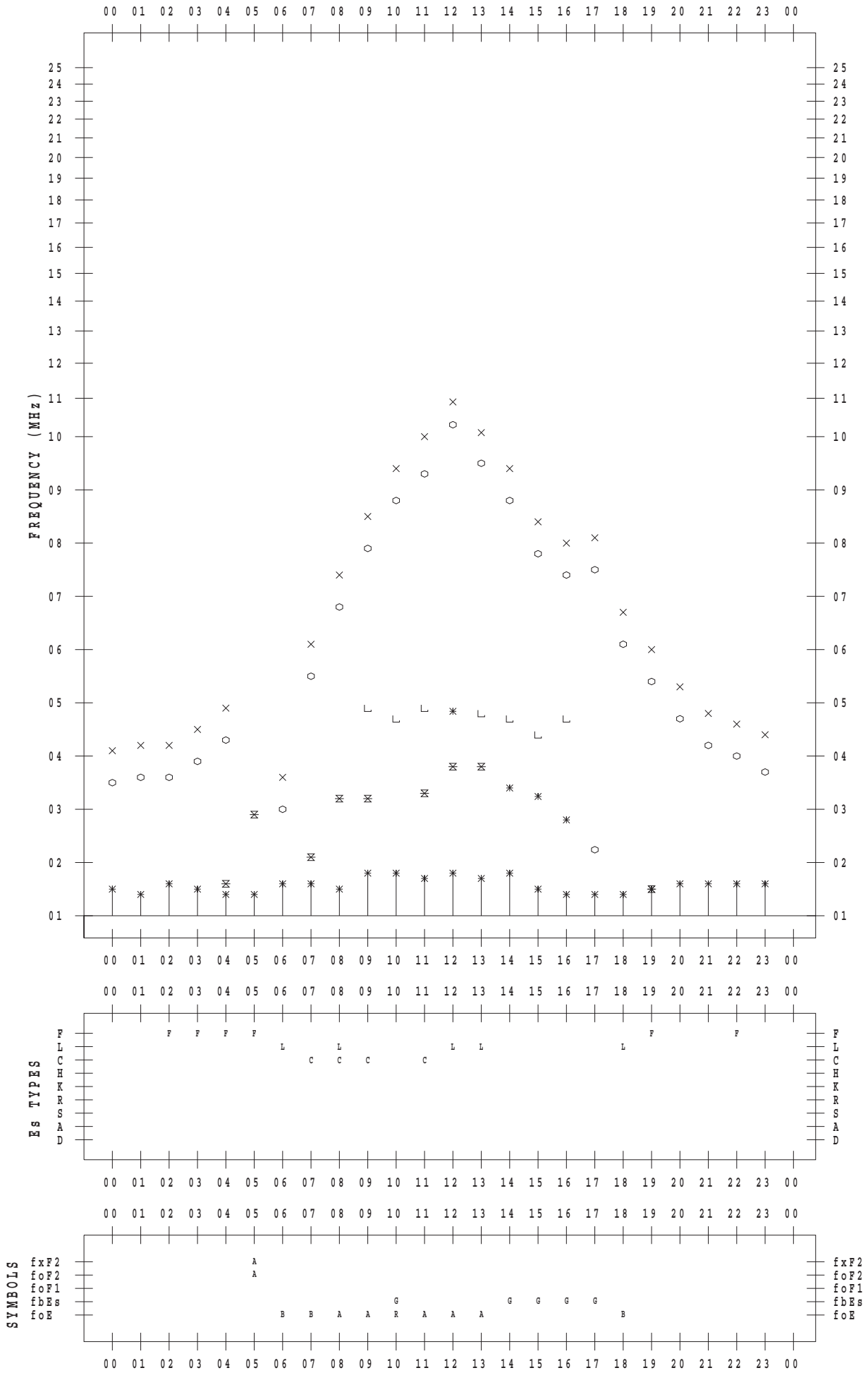
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/12

135 °E MEAN TIME



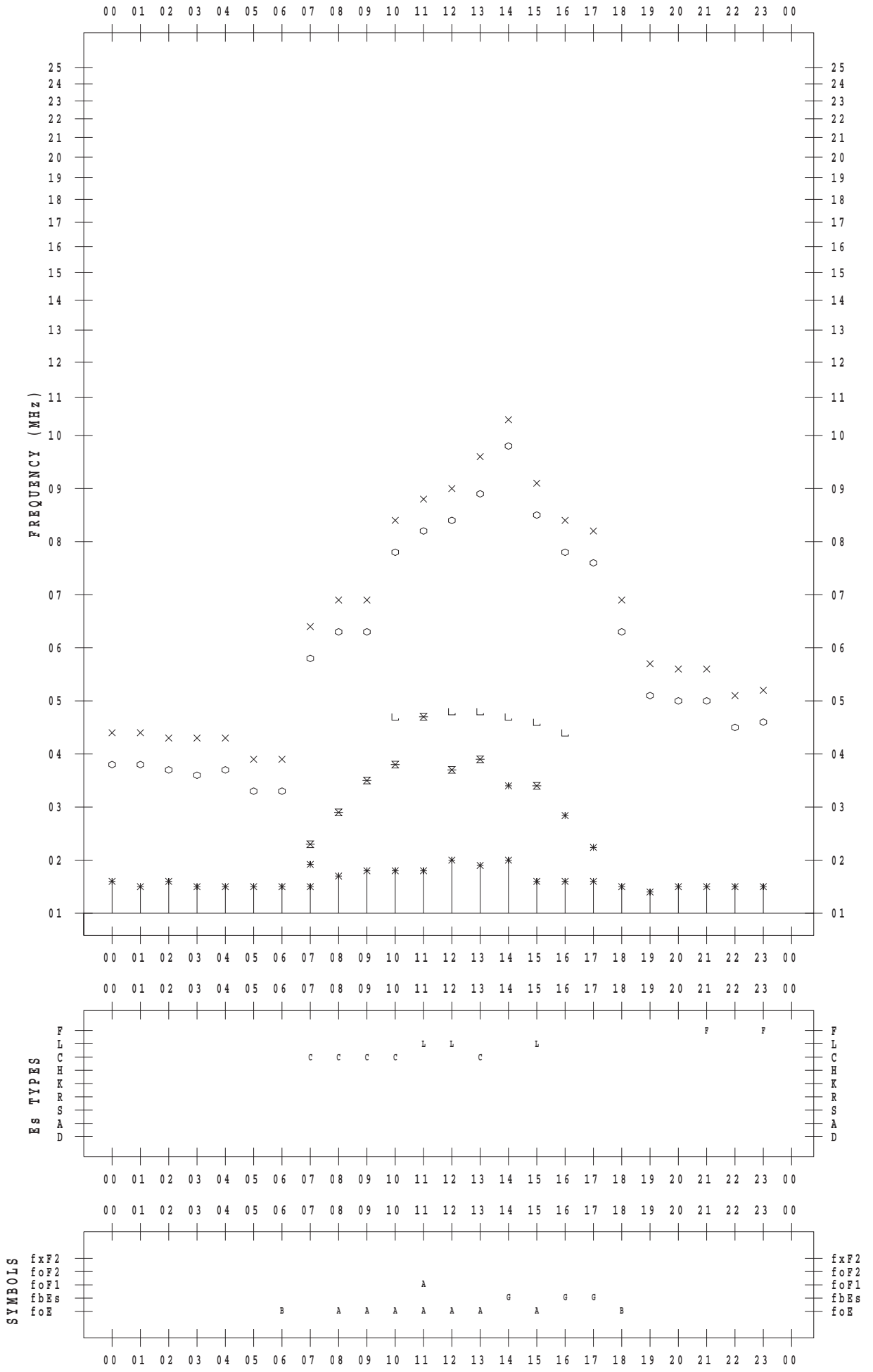
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/13

135 °E MEAN TIME



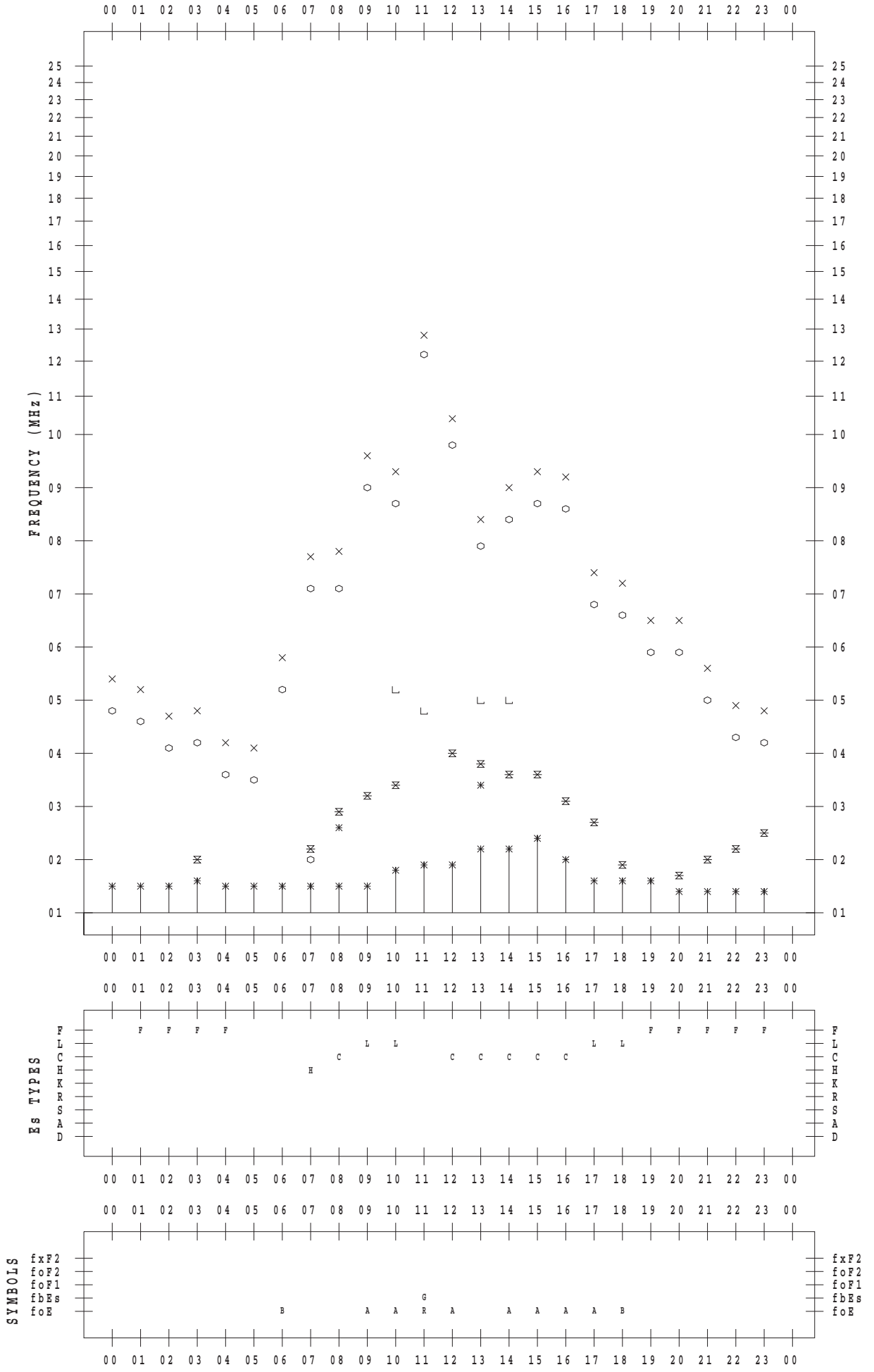
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/14

135 °E MEAN TIME



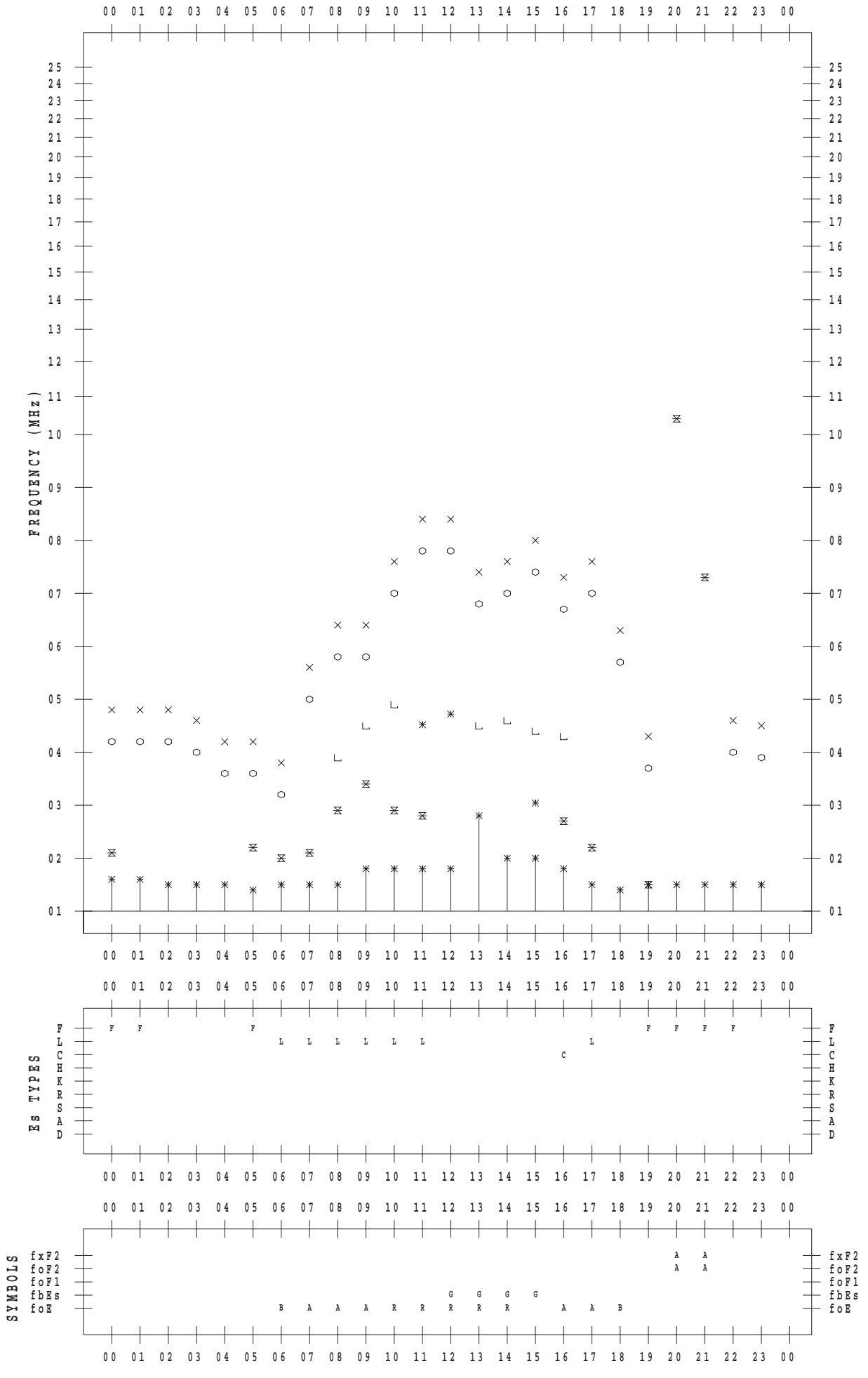
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/15

135 °E MEAN TIME



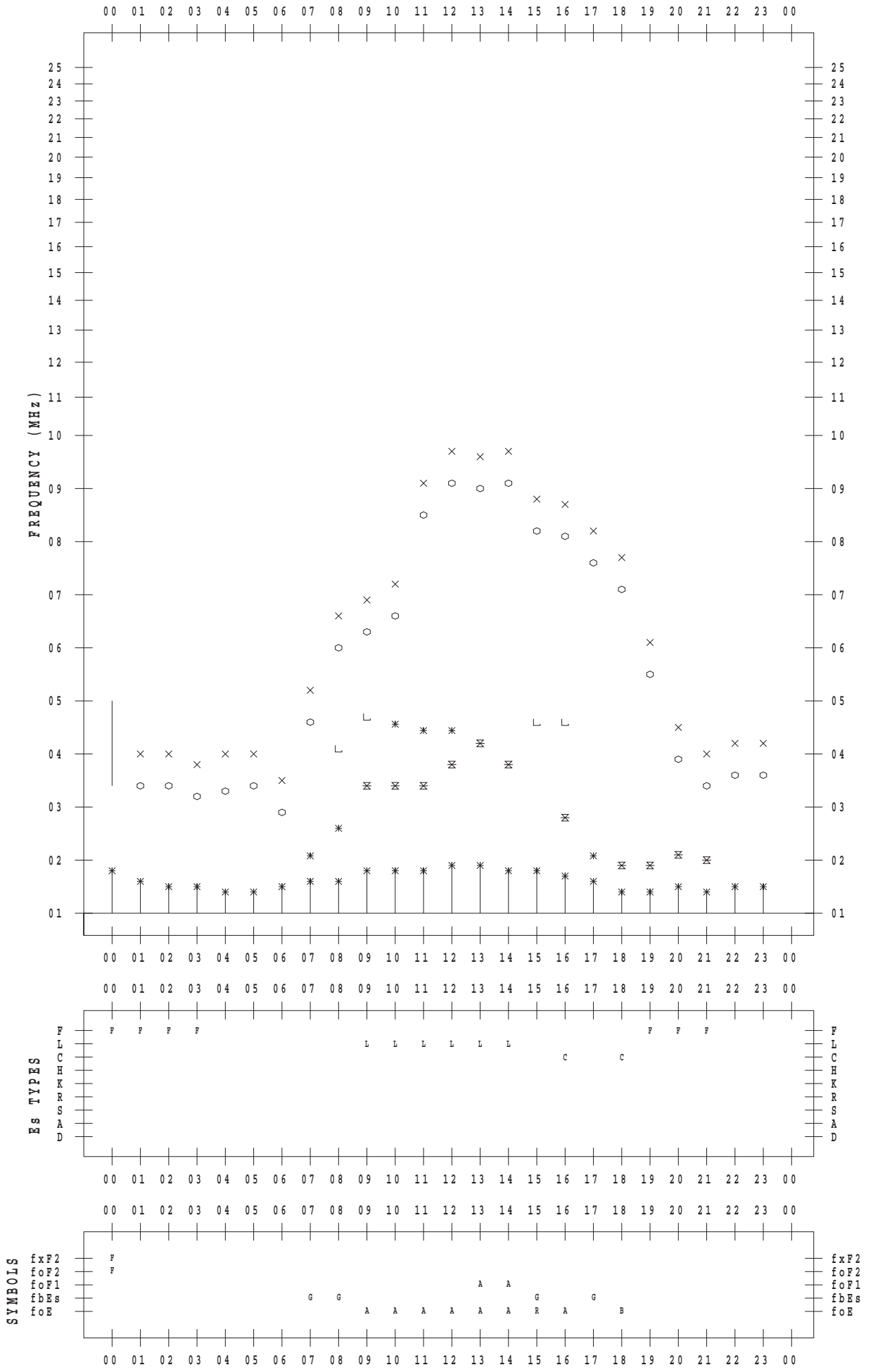
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/16

135 °E MEAN TIME



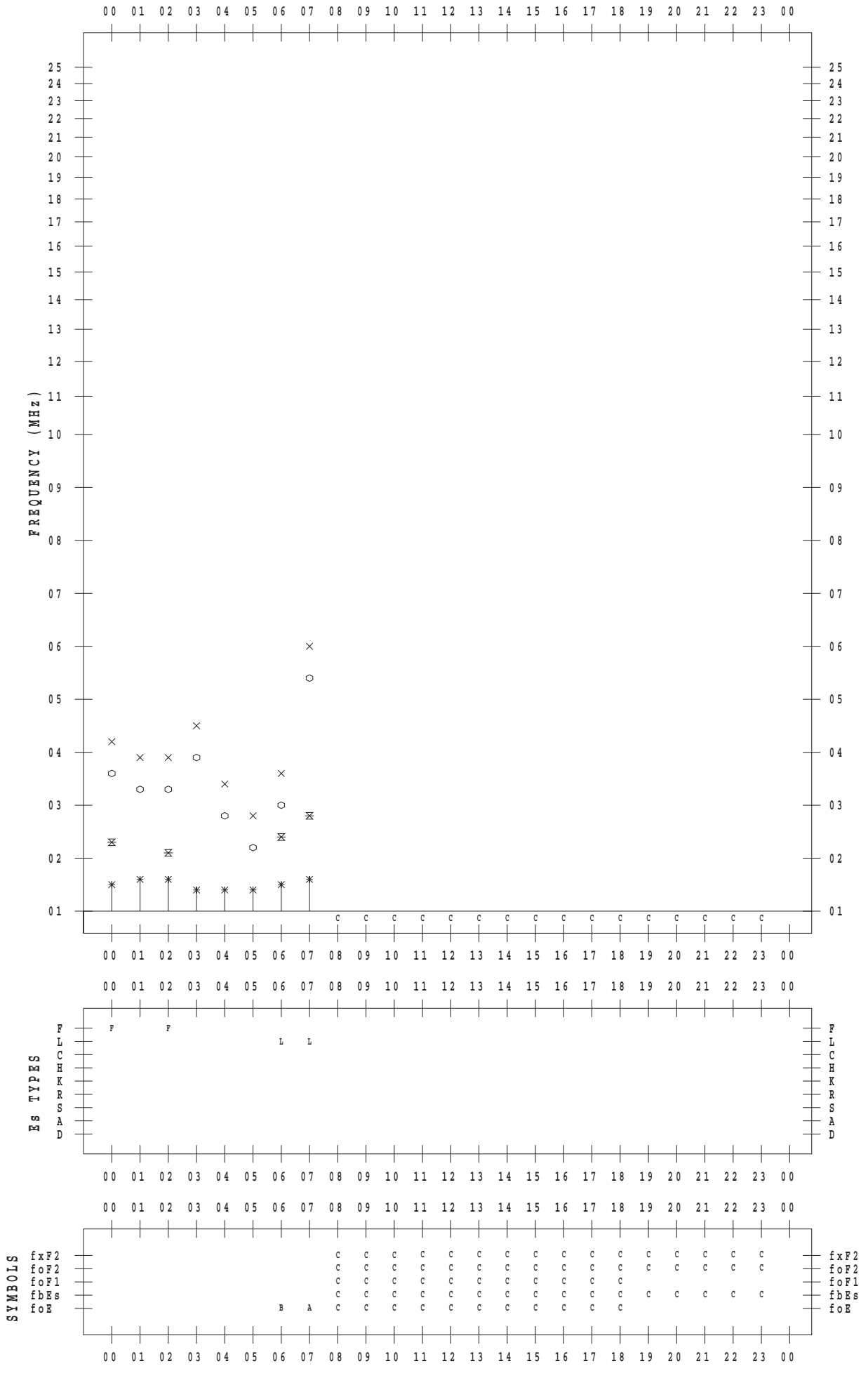
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/17

135 °E MEAN TIME



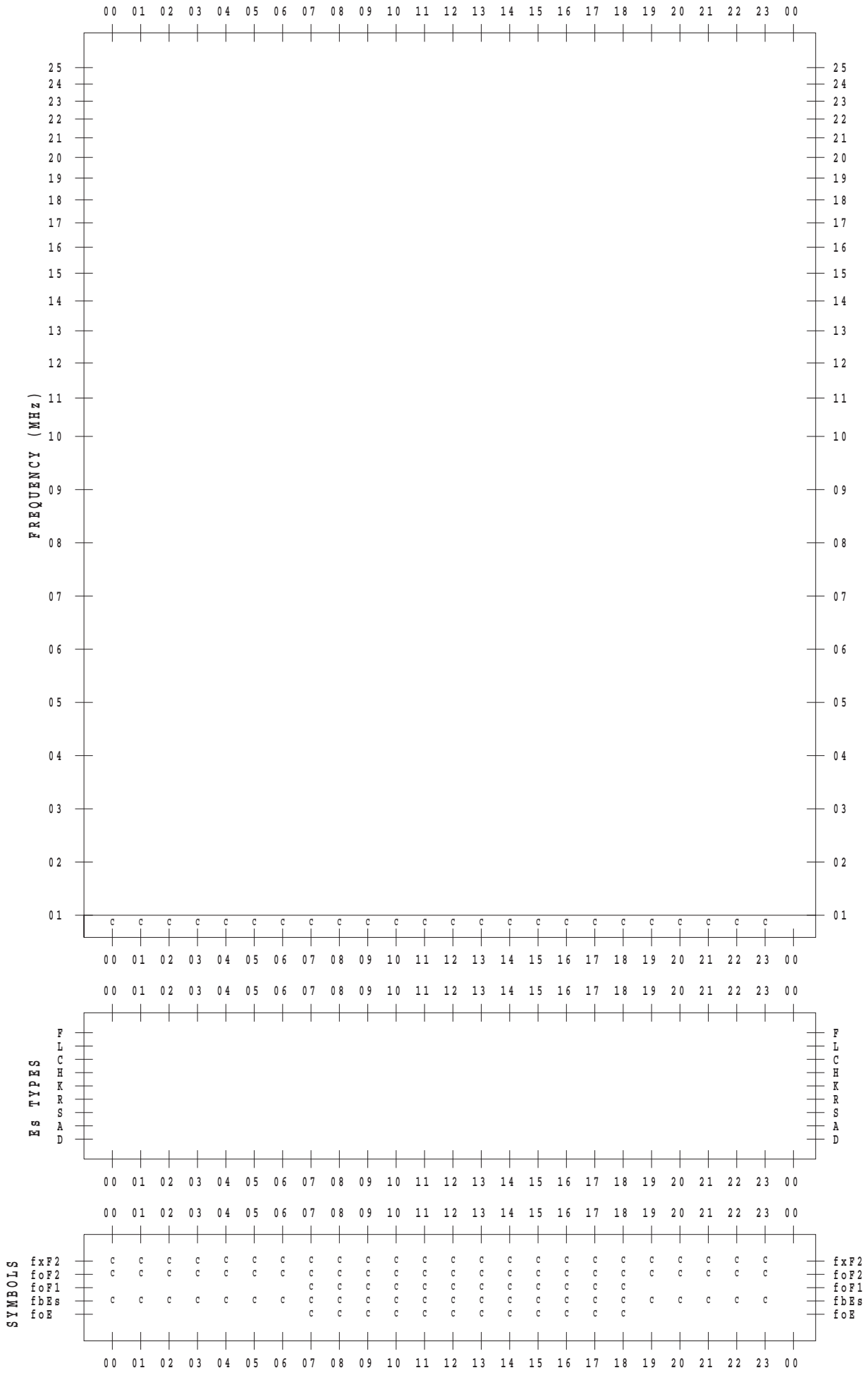
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/18

135 °E MEAN TIME



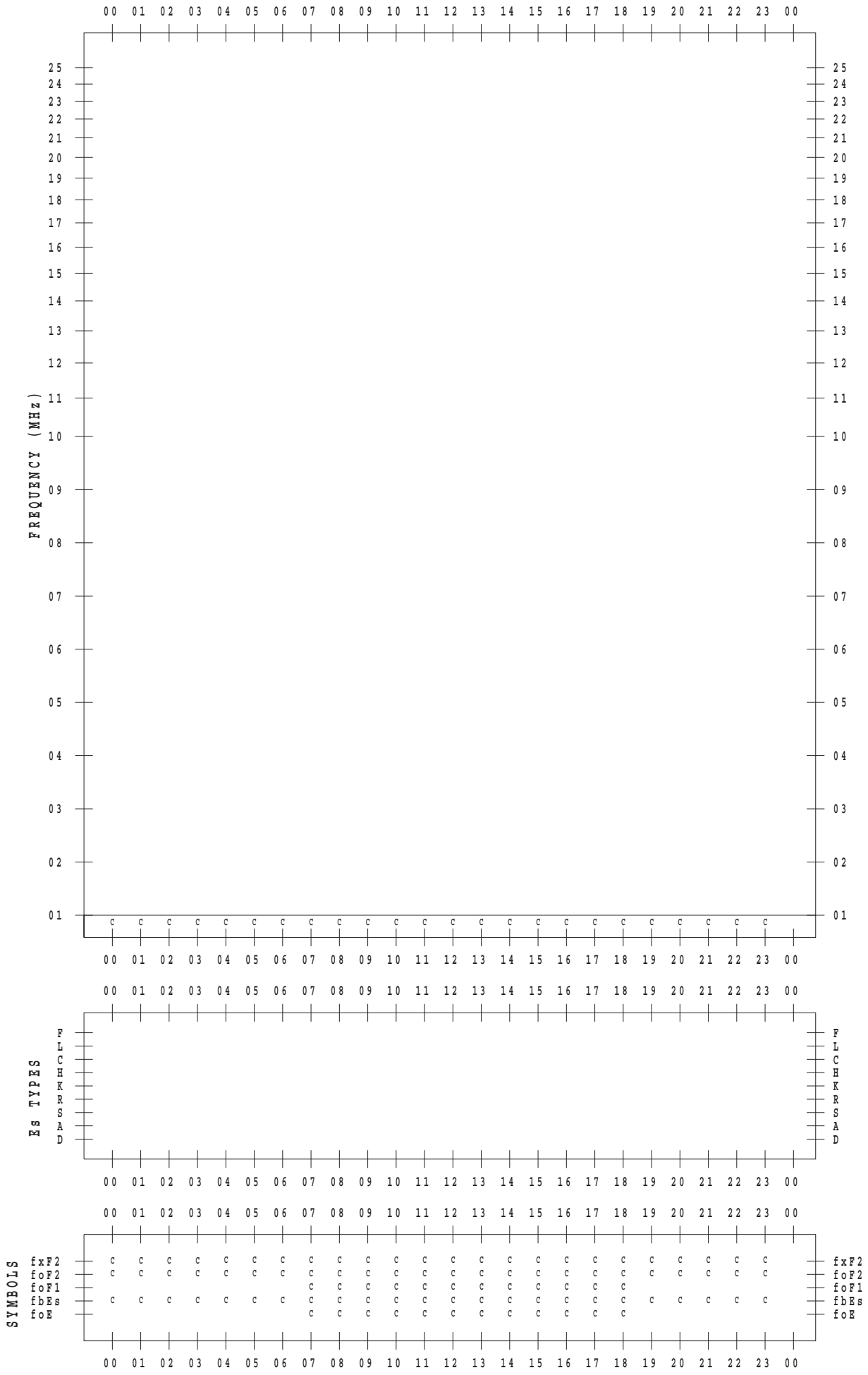
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/19

135 °E MEAN TIME



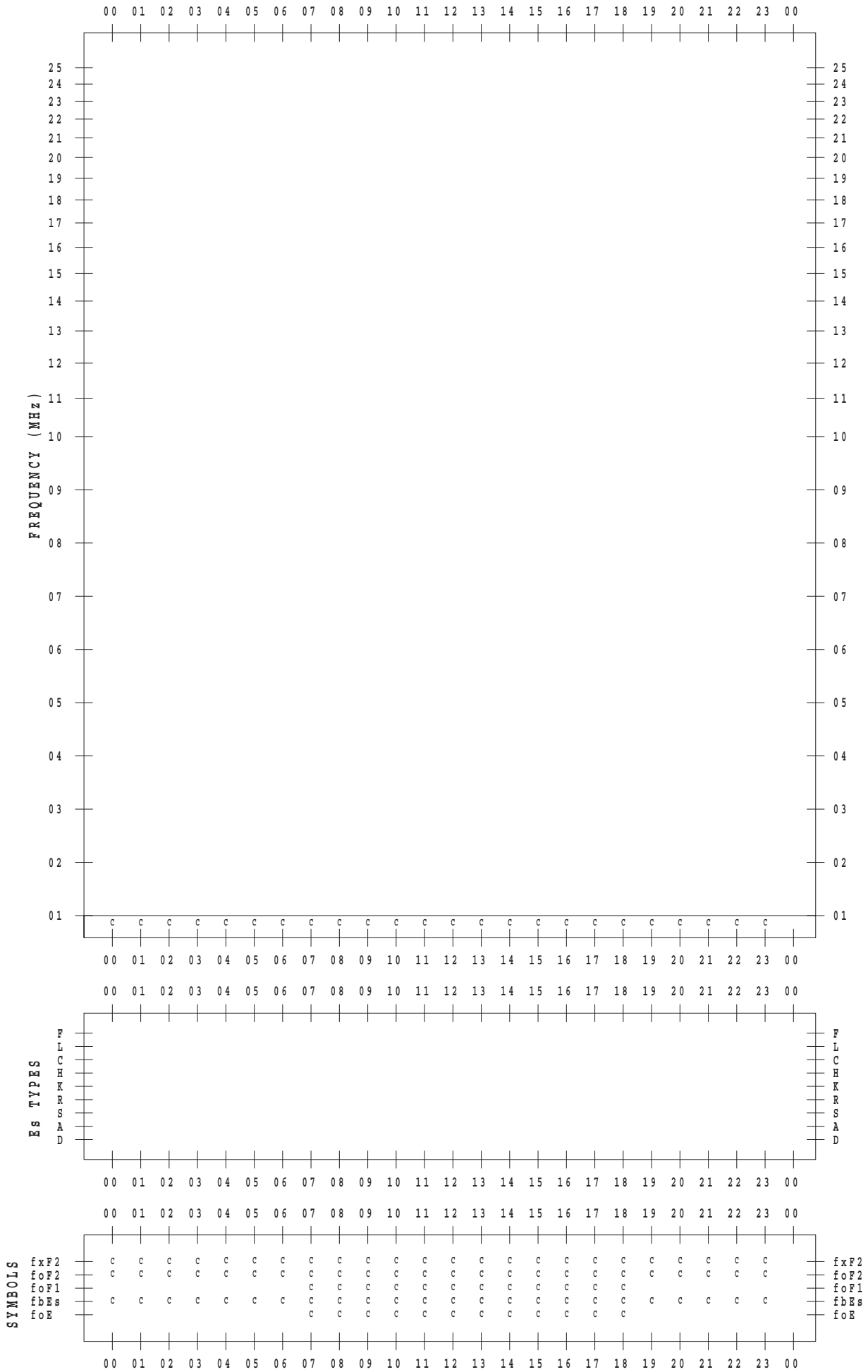
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/20

135 °E MEAN TIME



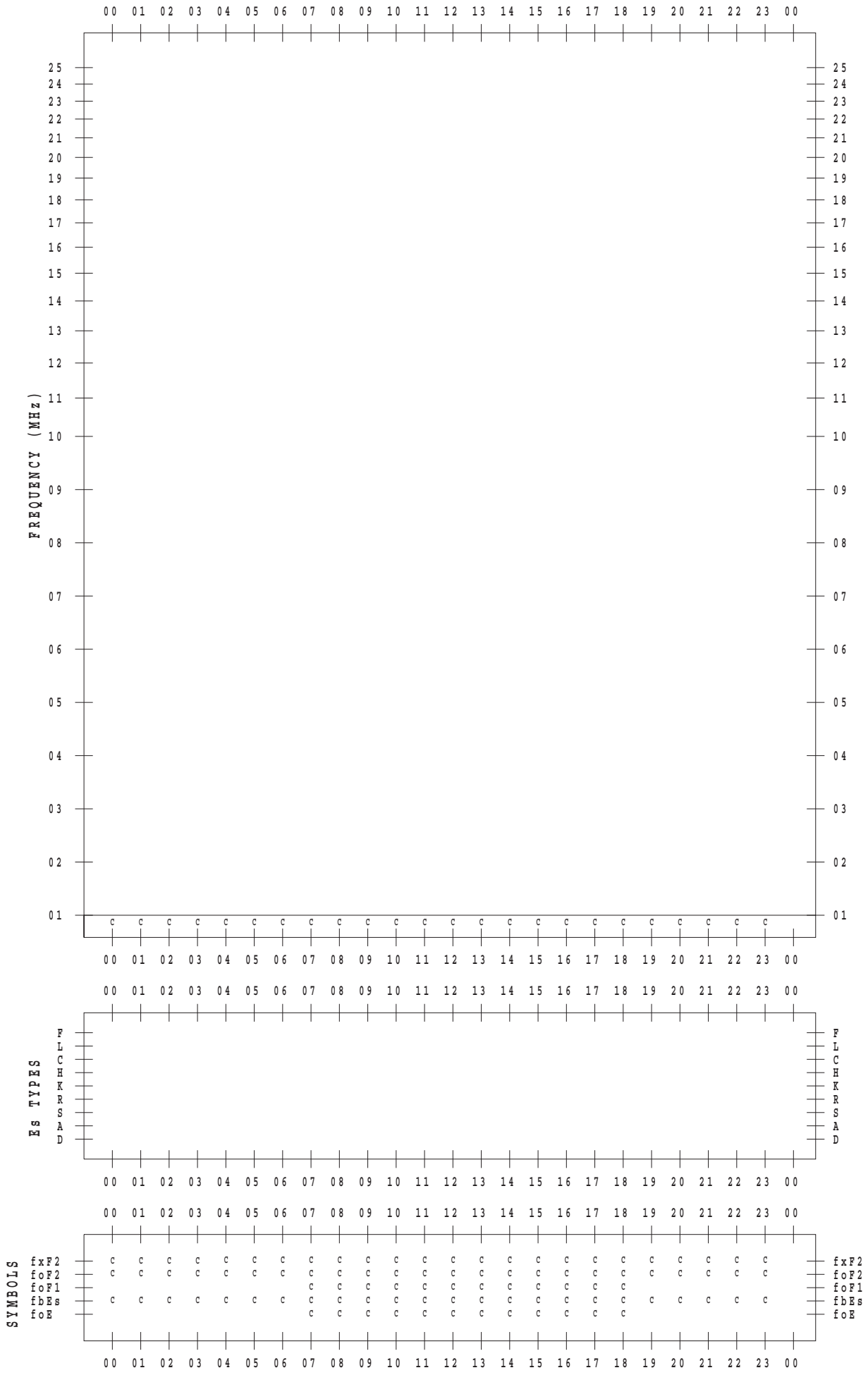
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/21

135 °E MEAN TIME



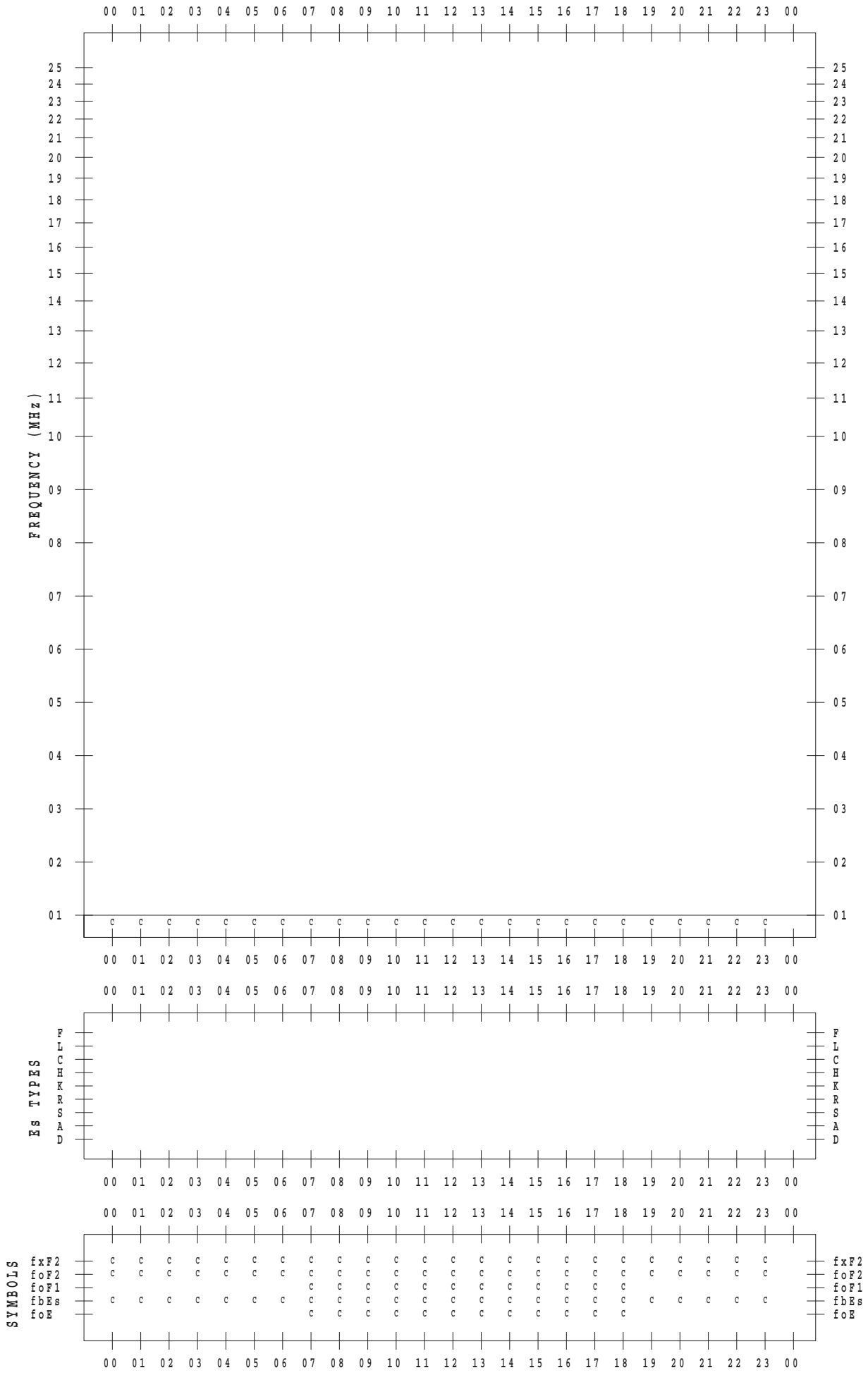
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/22

135 °E MEAN TIME



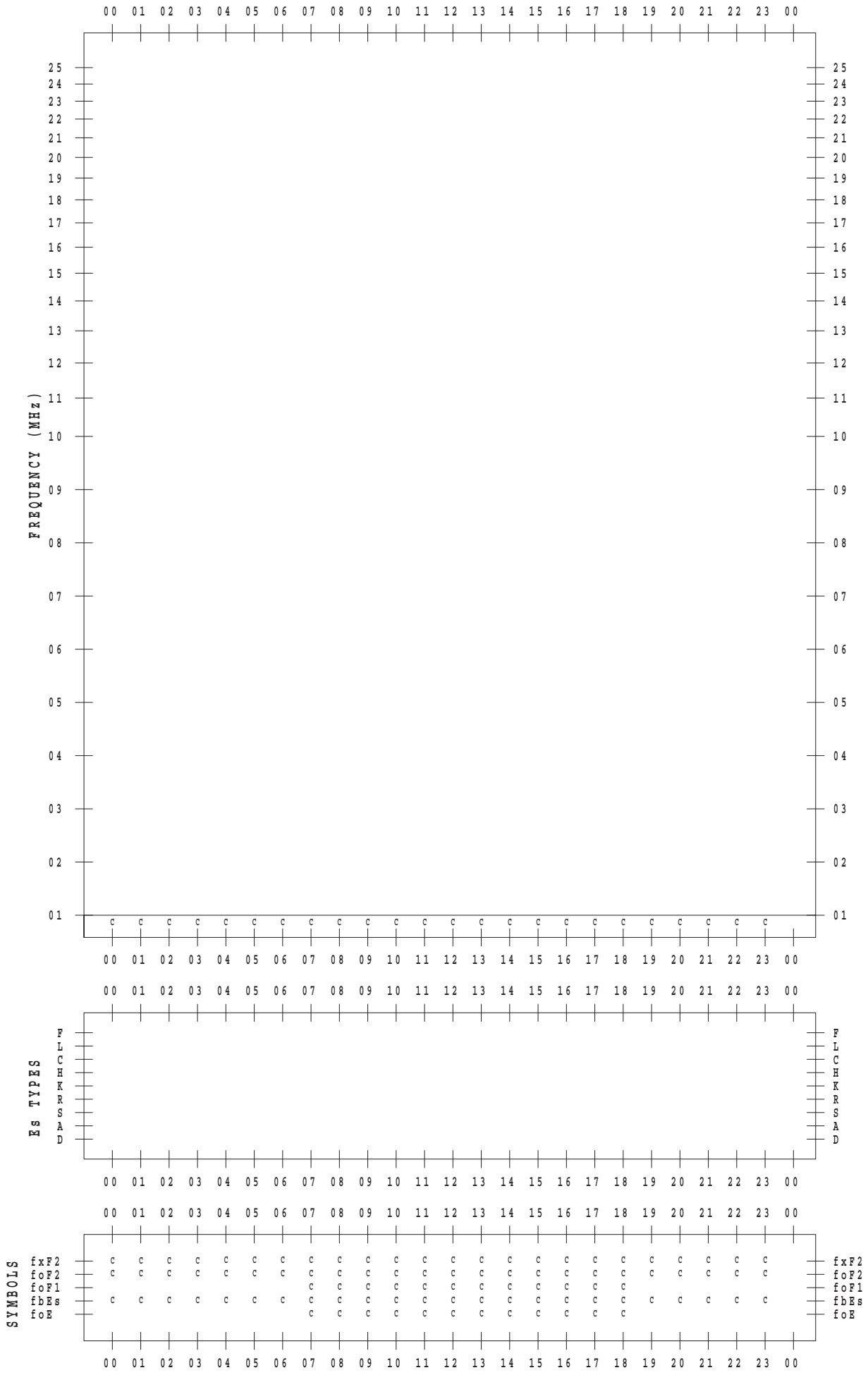
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/23

135 °E MEAN TIME



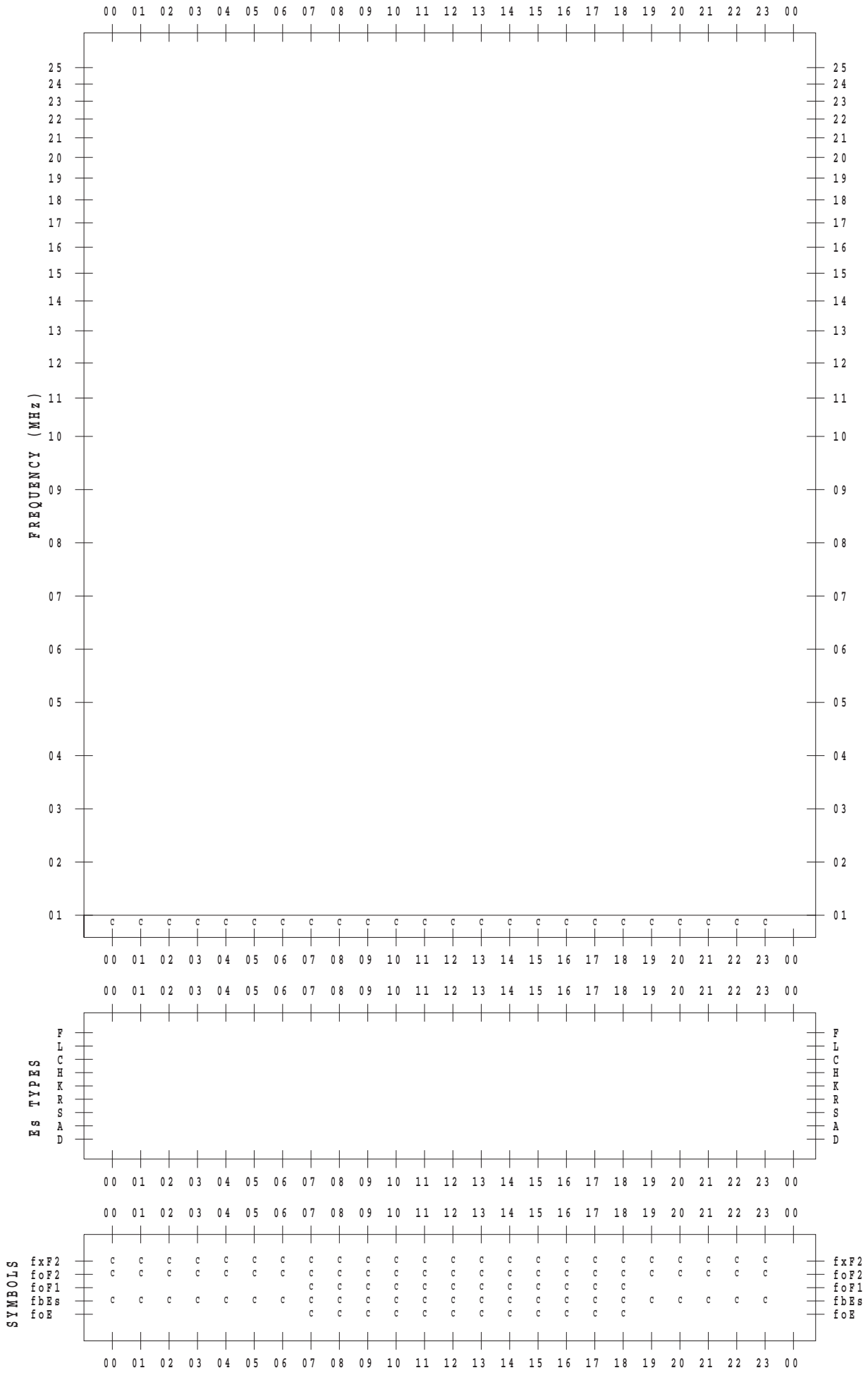
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/24

135 °E MEAN TIME



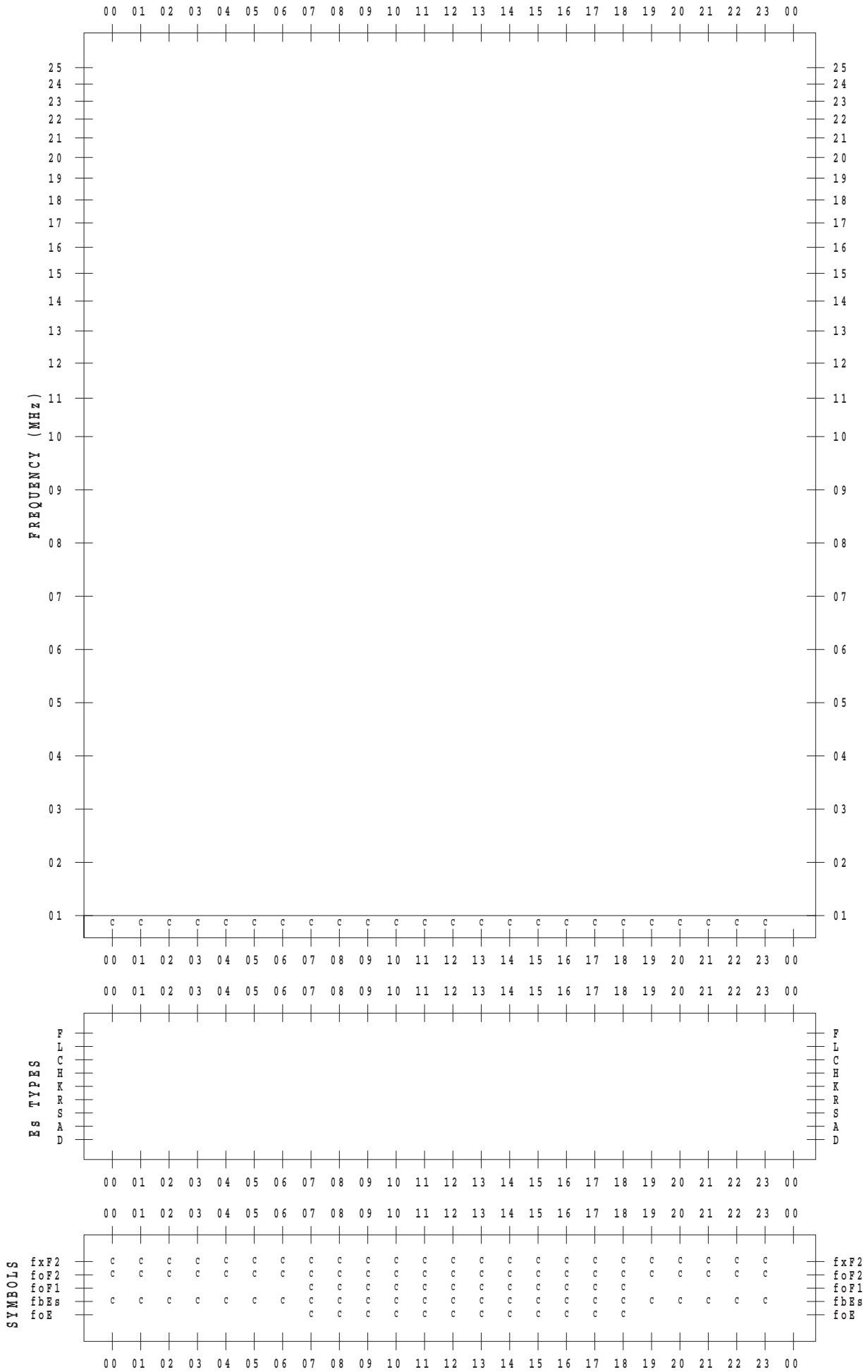
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/25

135 °E MEAN TIME



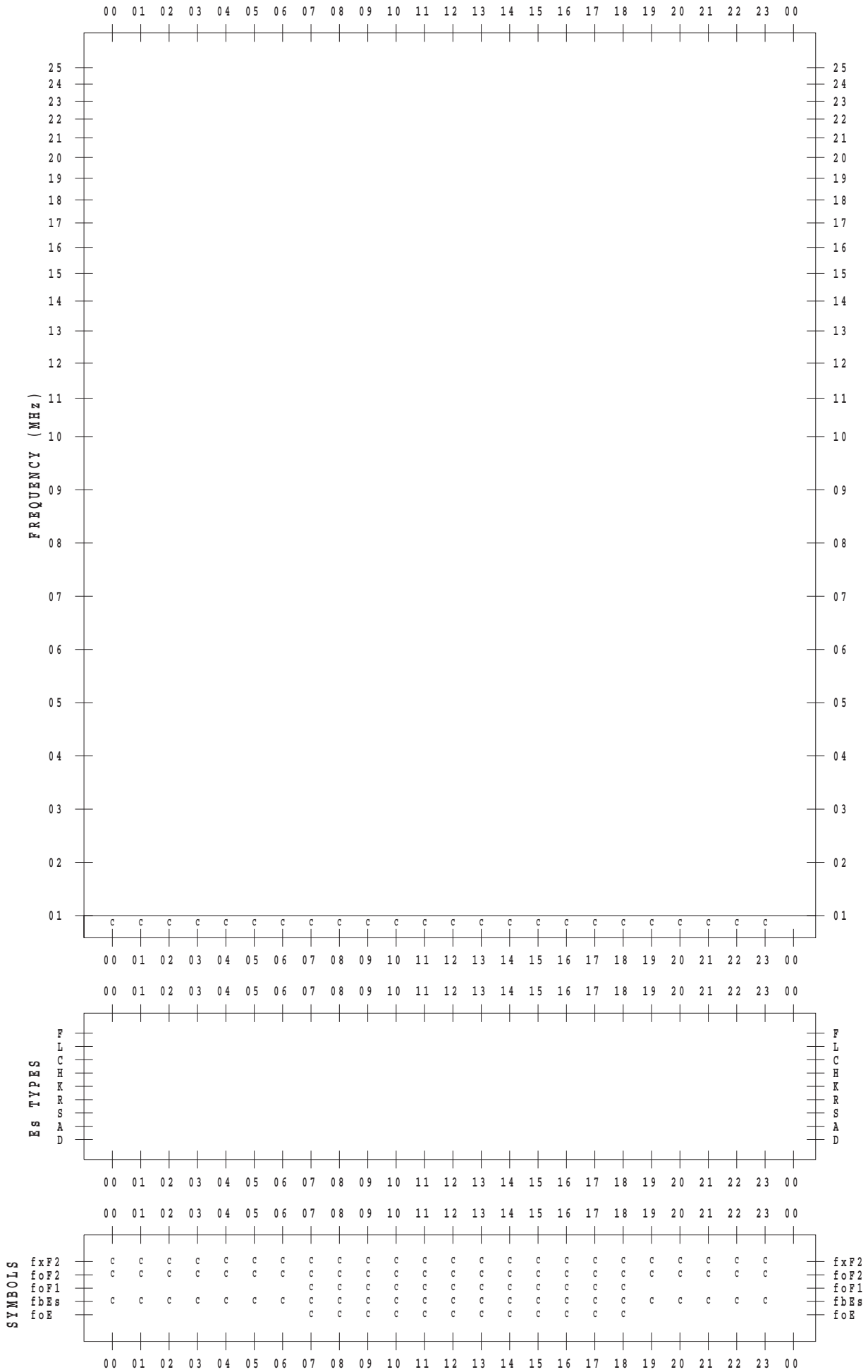
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/26

135 °E MEAN TIME



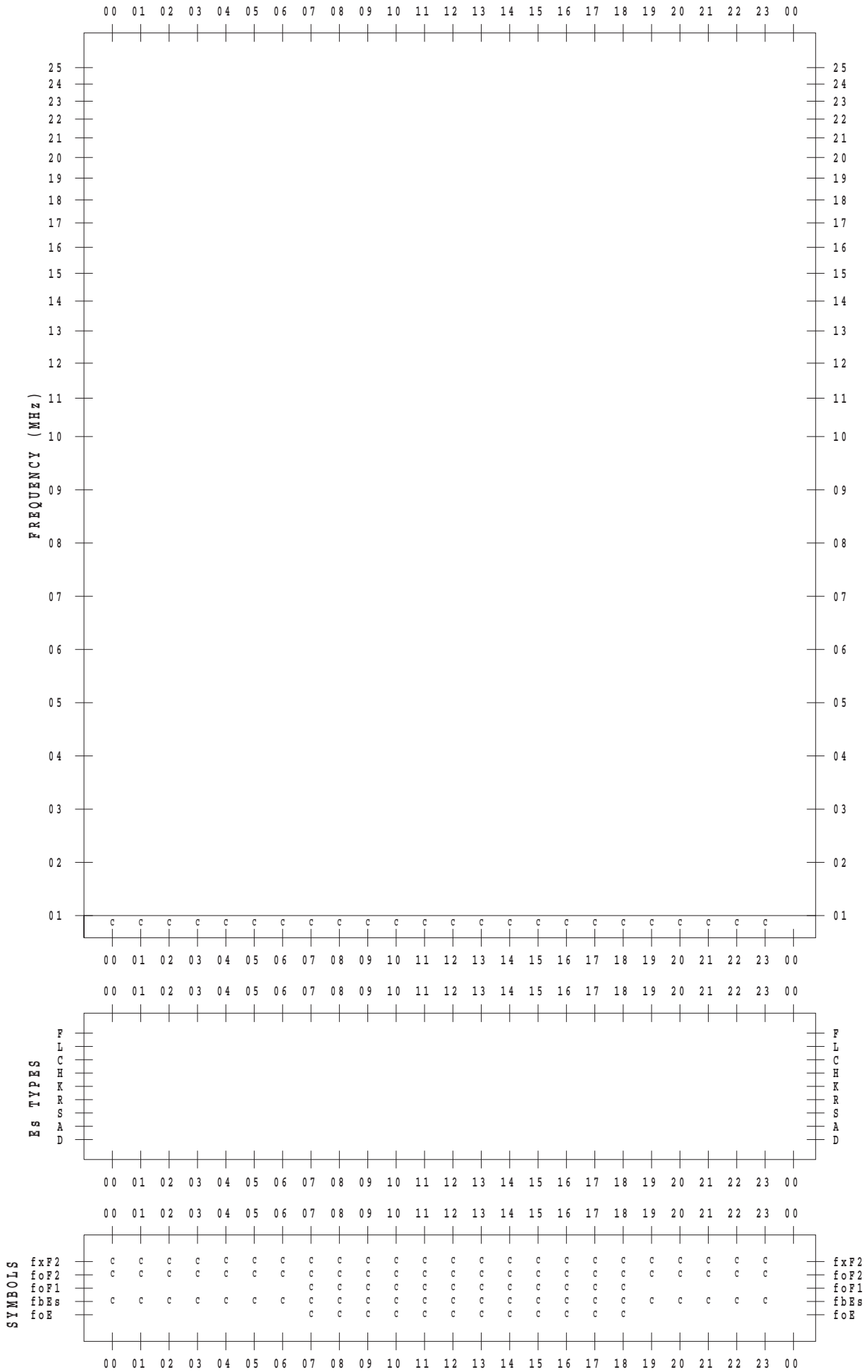
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/27

135 °E MEAN TIME



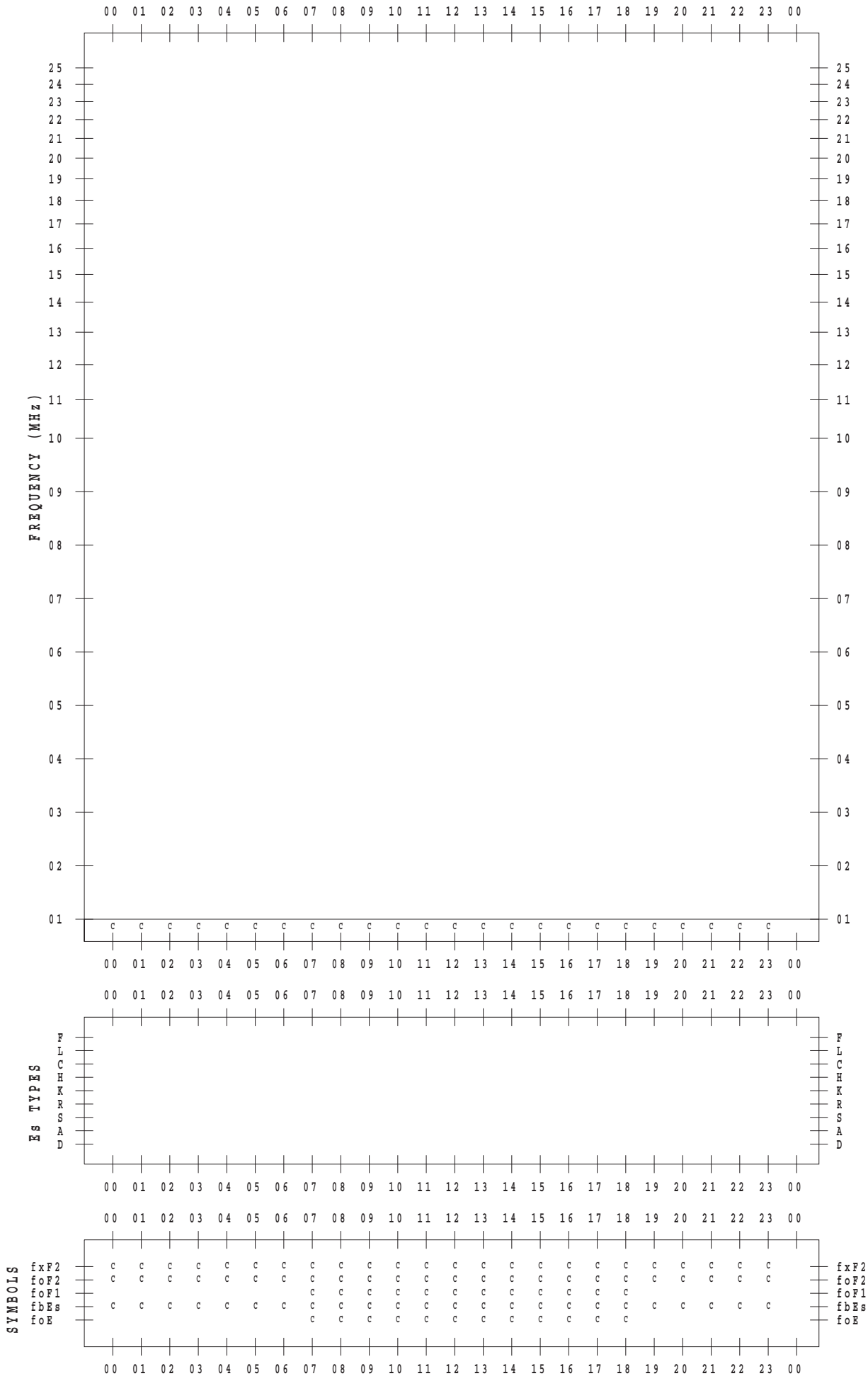
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/28

135 °E MEAN TIME



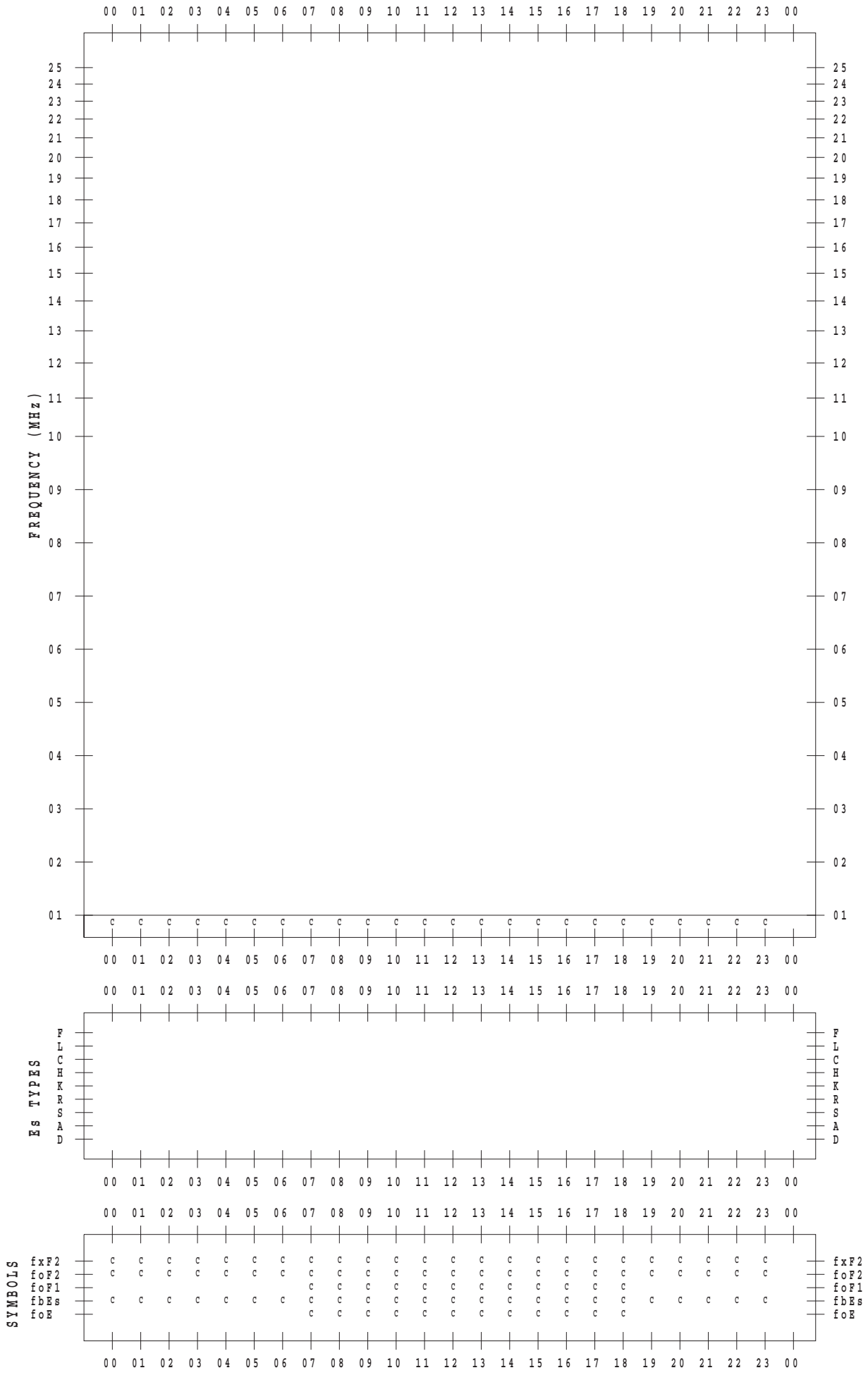
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/29

135 °E MEAN TIME



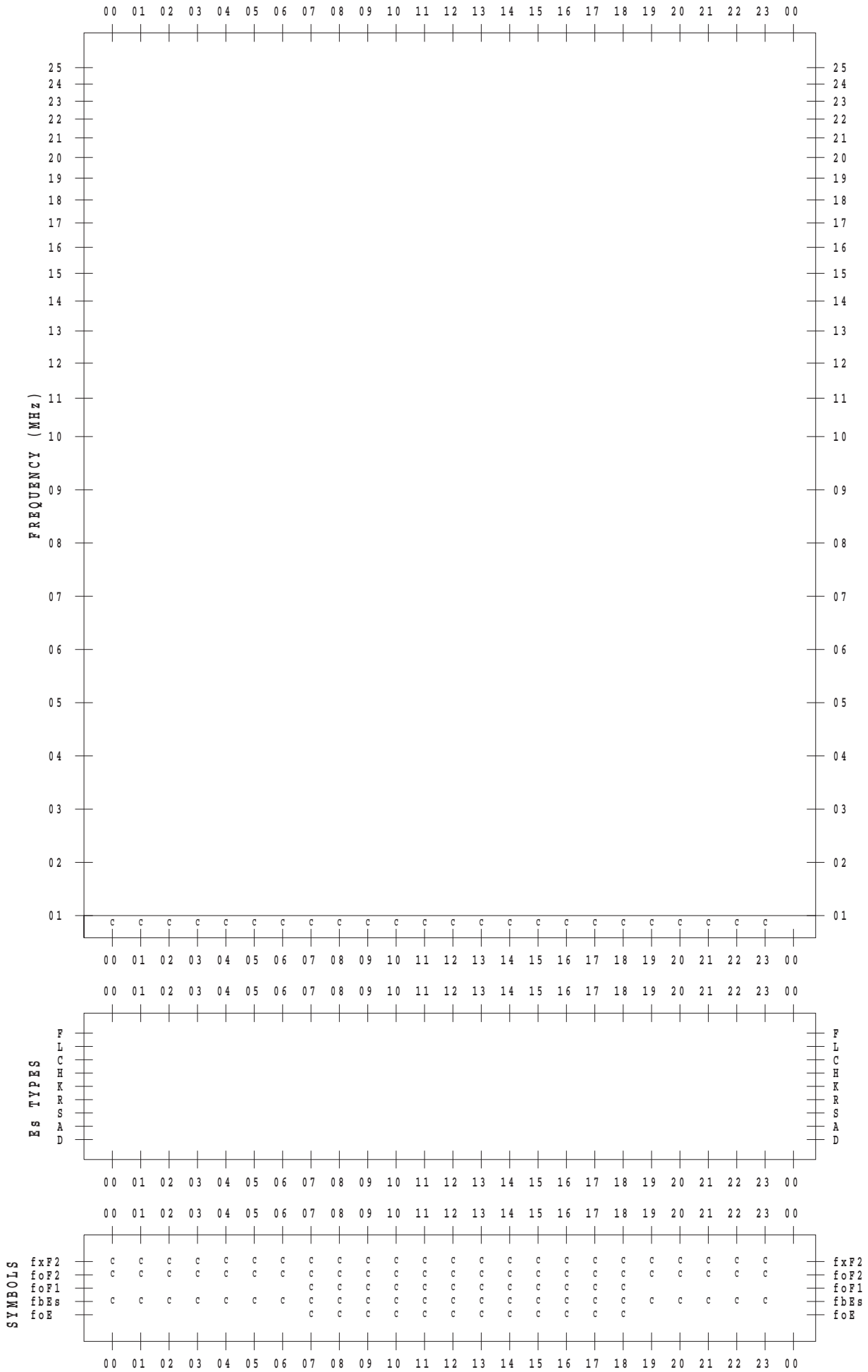
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/30

135 °E MEAN TIME



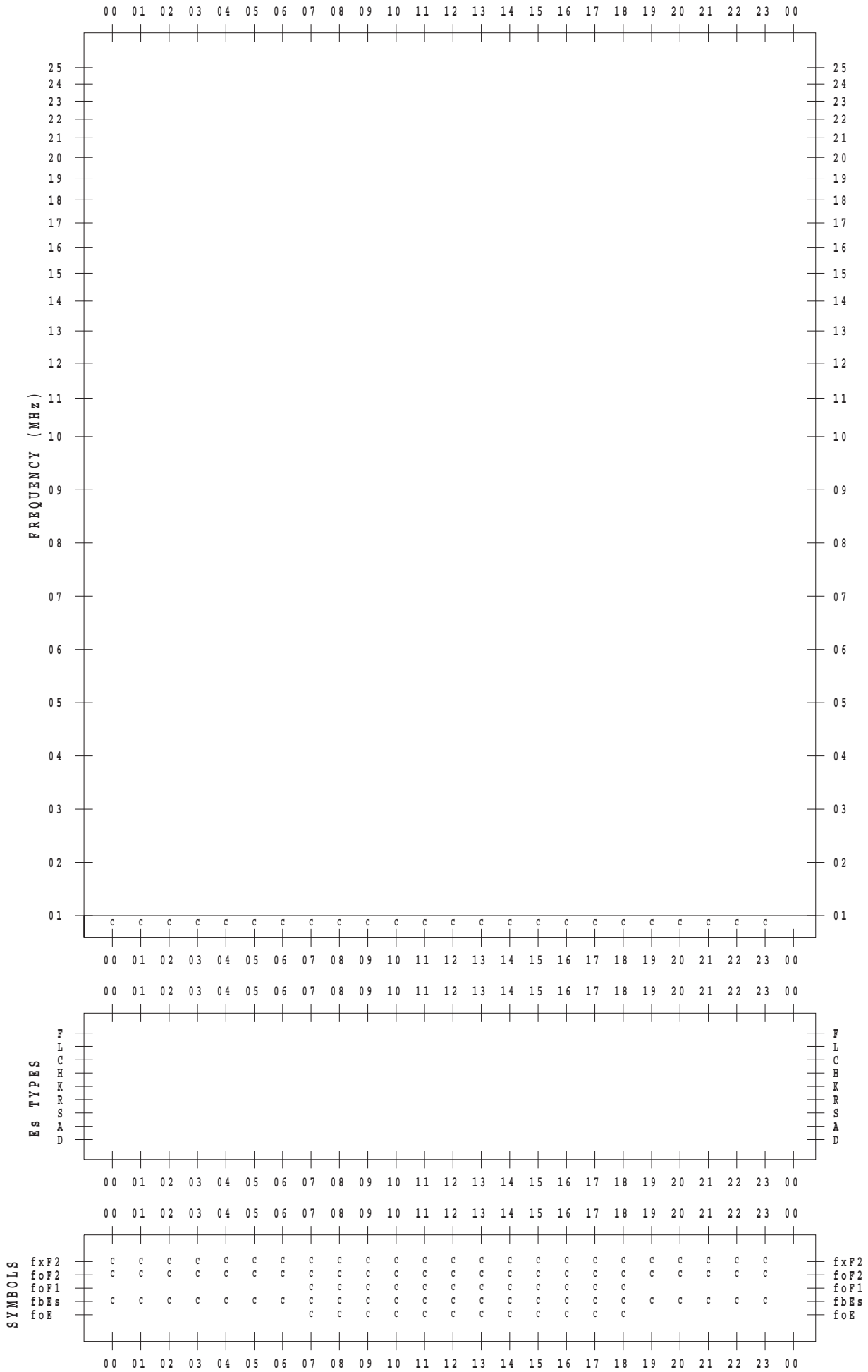
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2016/10/31

135 °E MEAN TIME



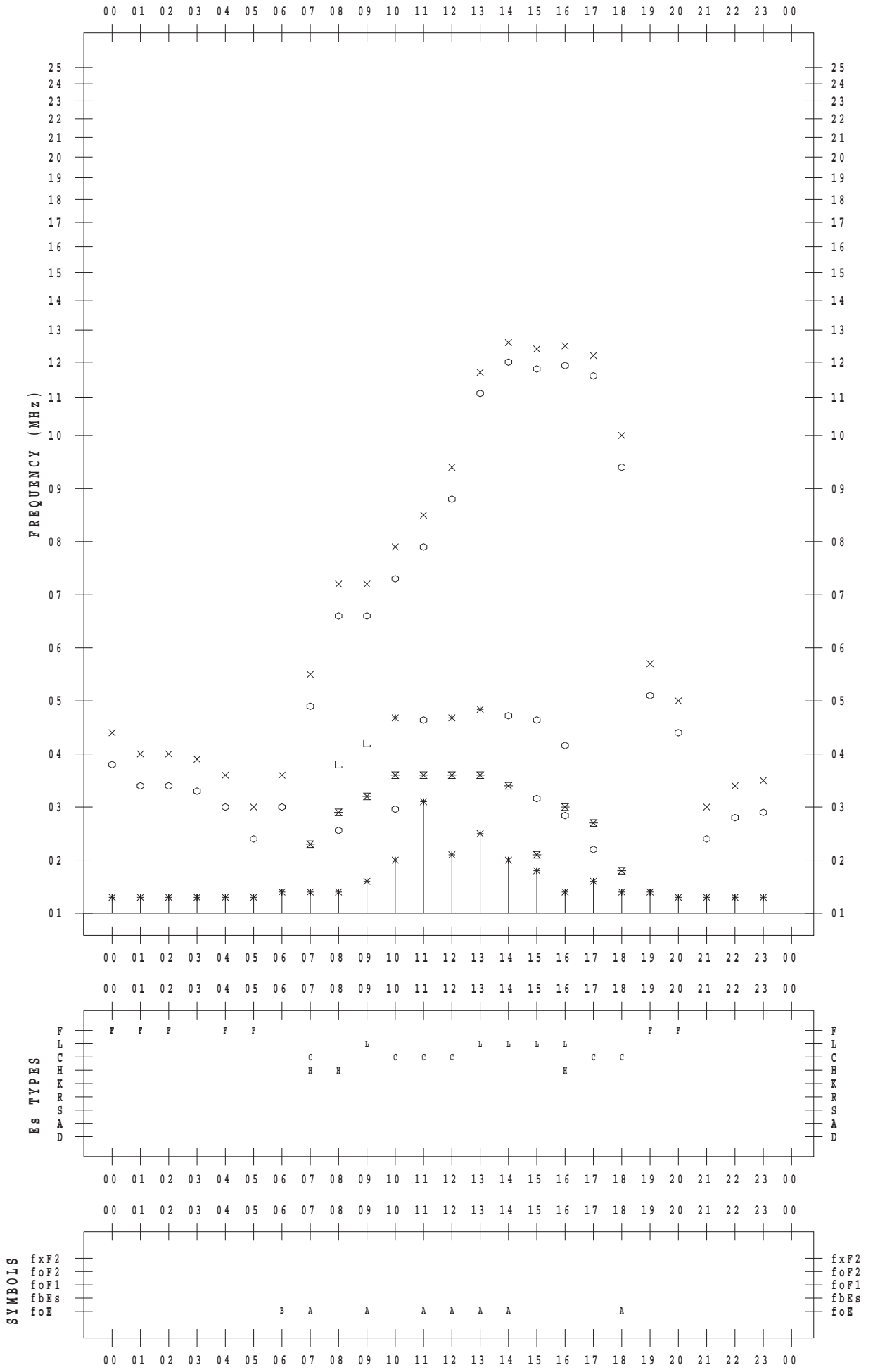
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/ 1

135 °E MEAN TIME



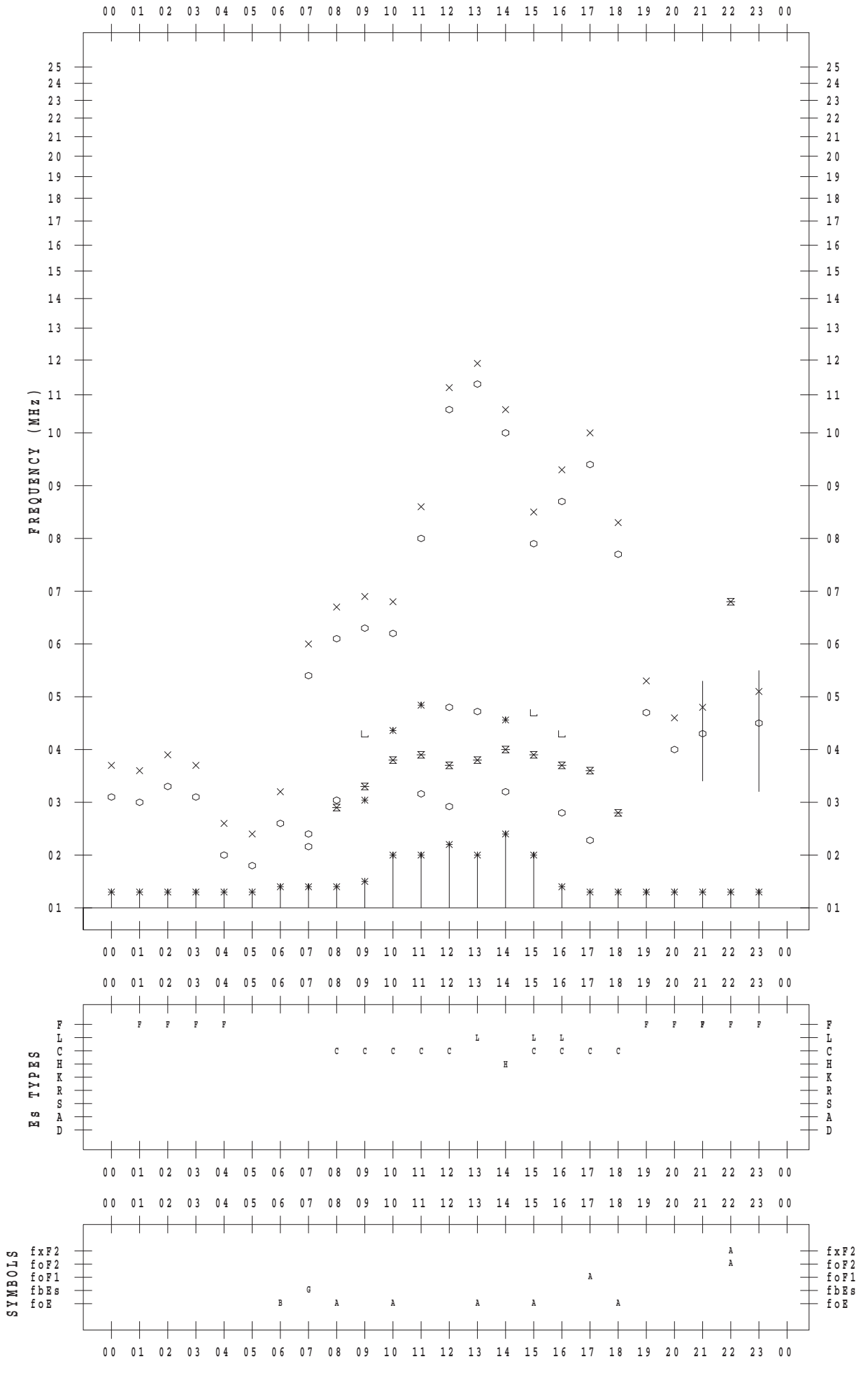
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/ 2

135 °E MEAN TIME



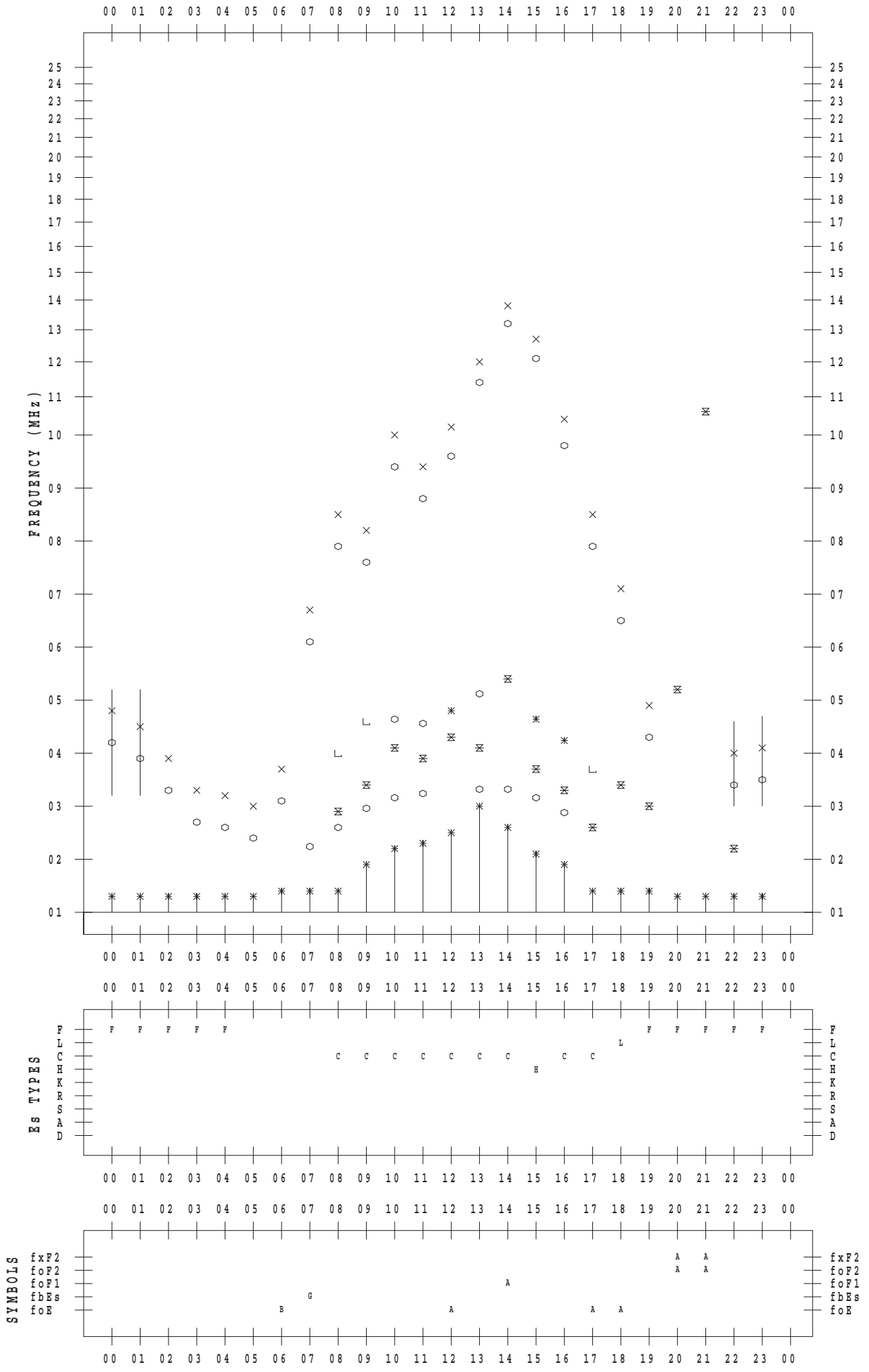
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/ 3

135 °E MEAN TIME



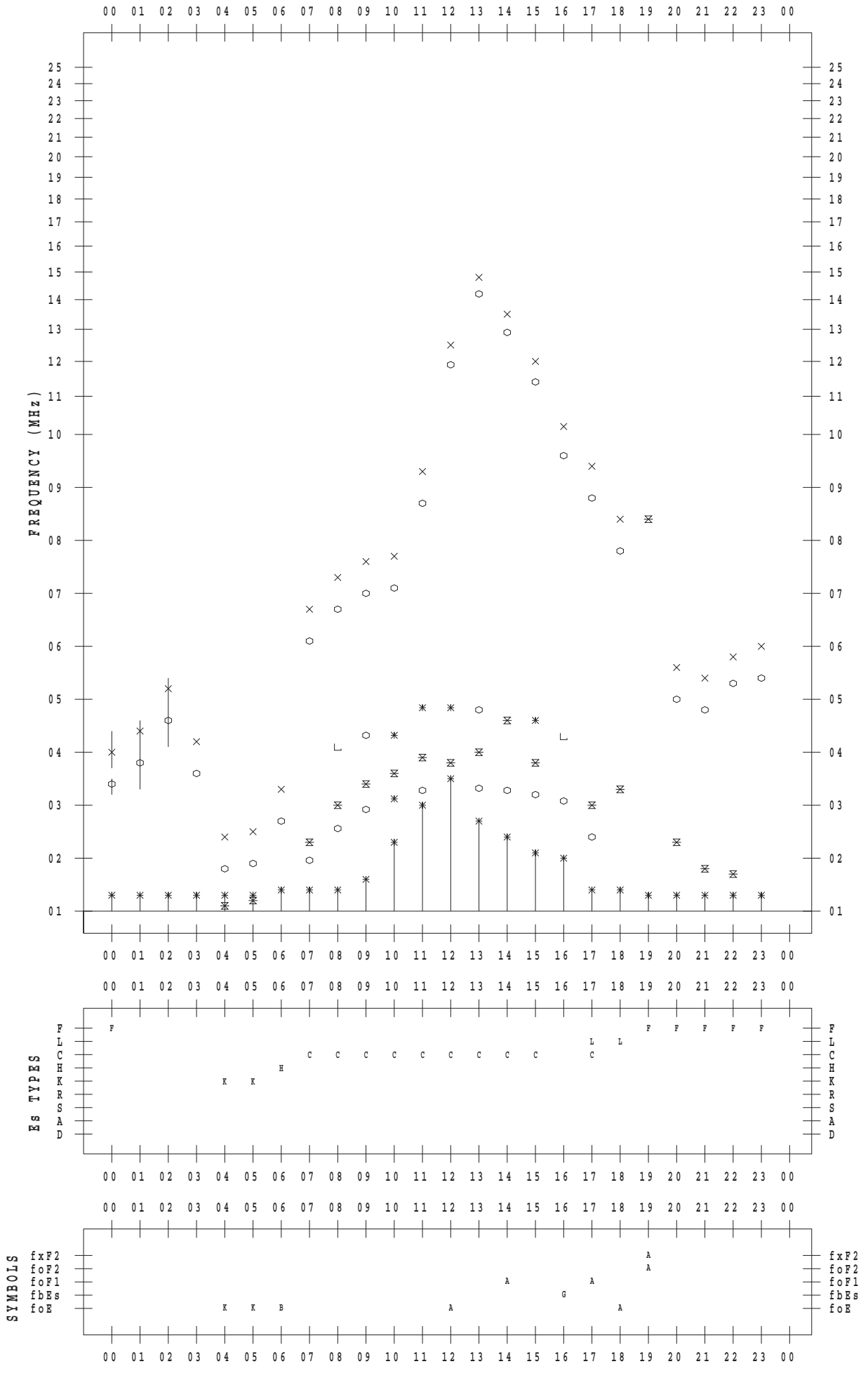
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/ 4

135 °E MEAN TIME



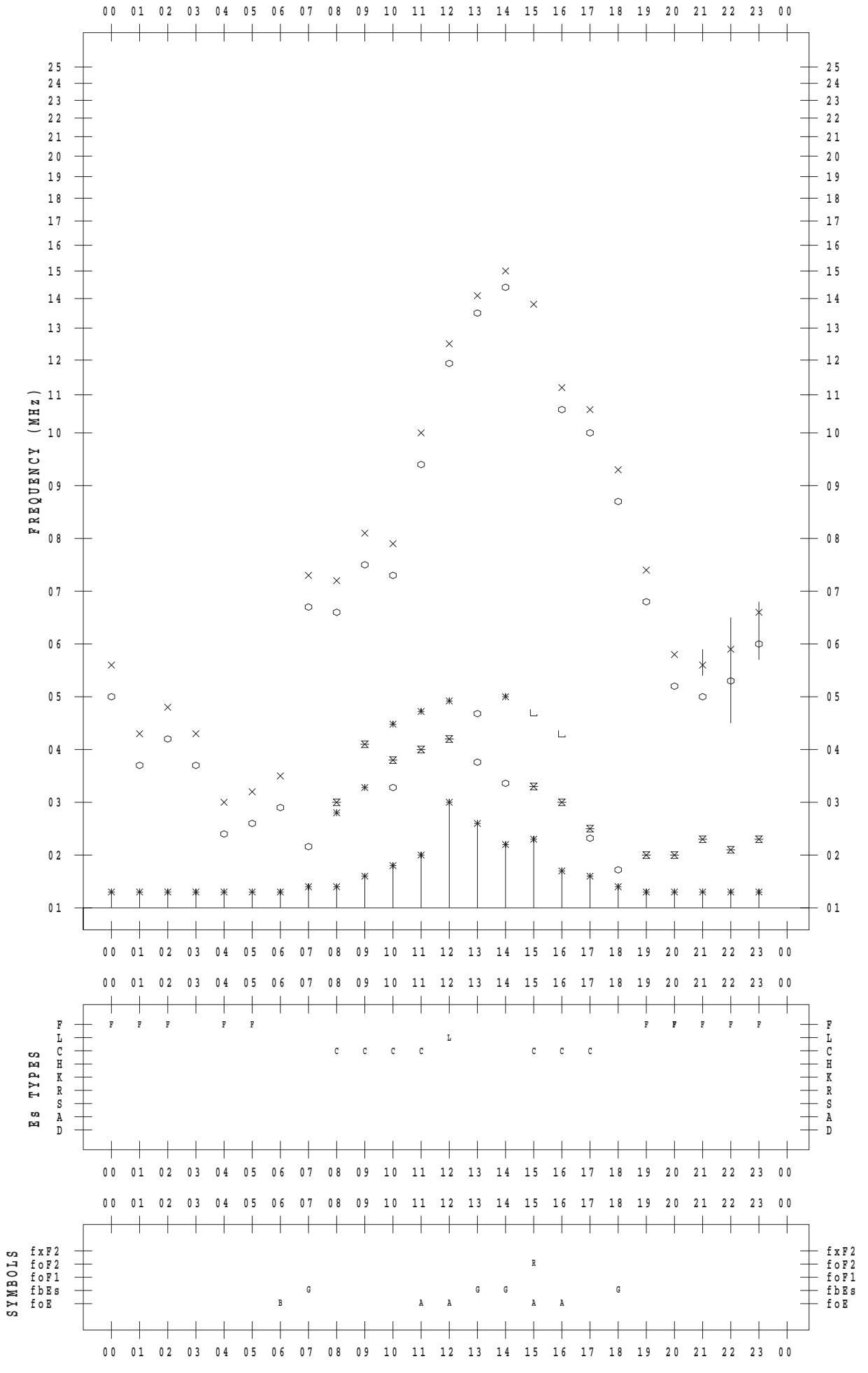
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/ 5

135 °E MEAN TIME



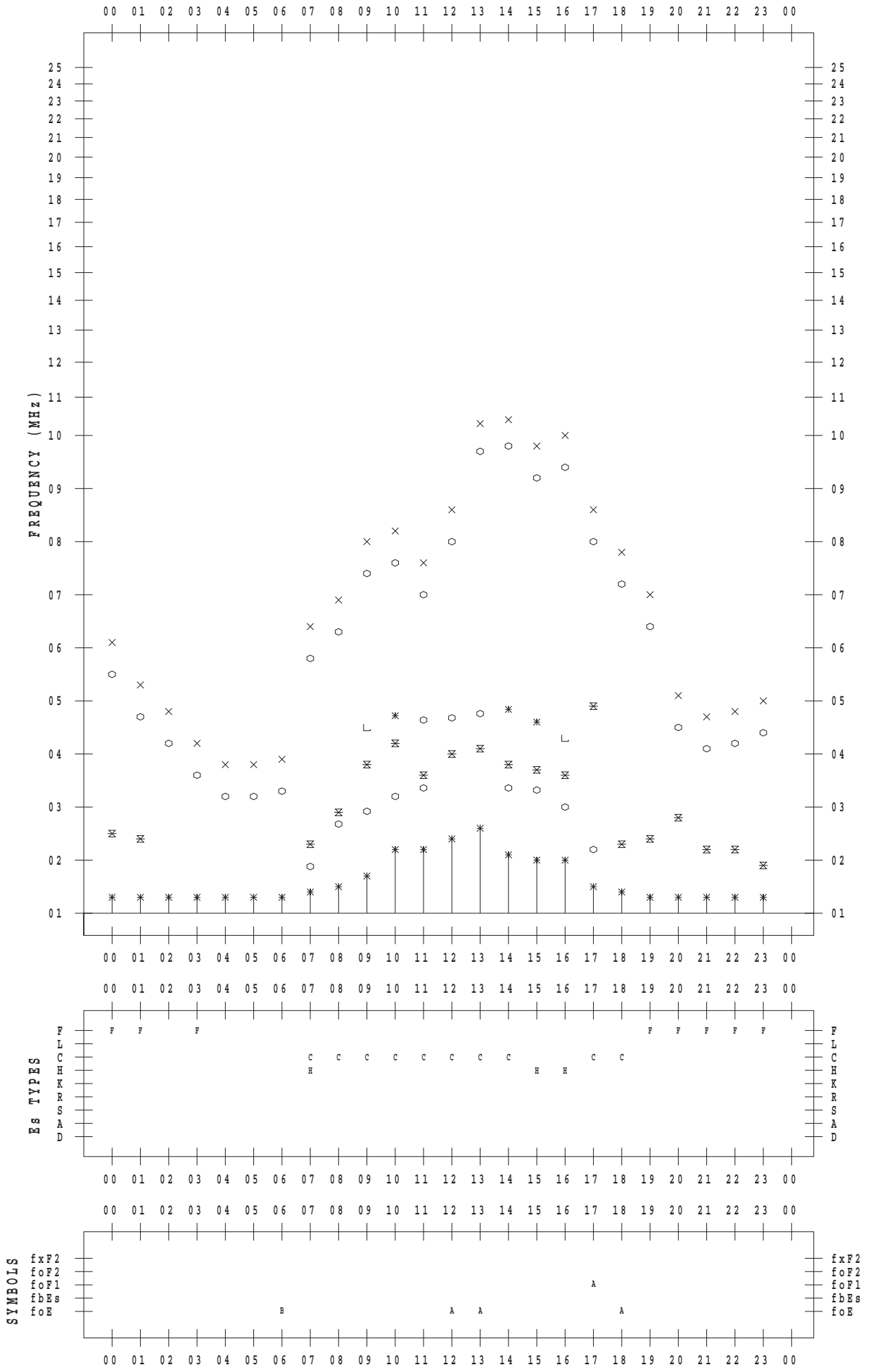
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/ 6

135 °E MEAN TIME



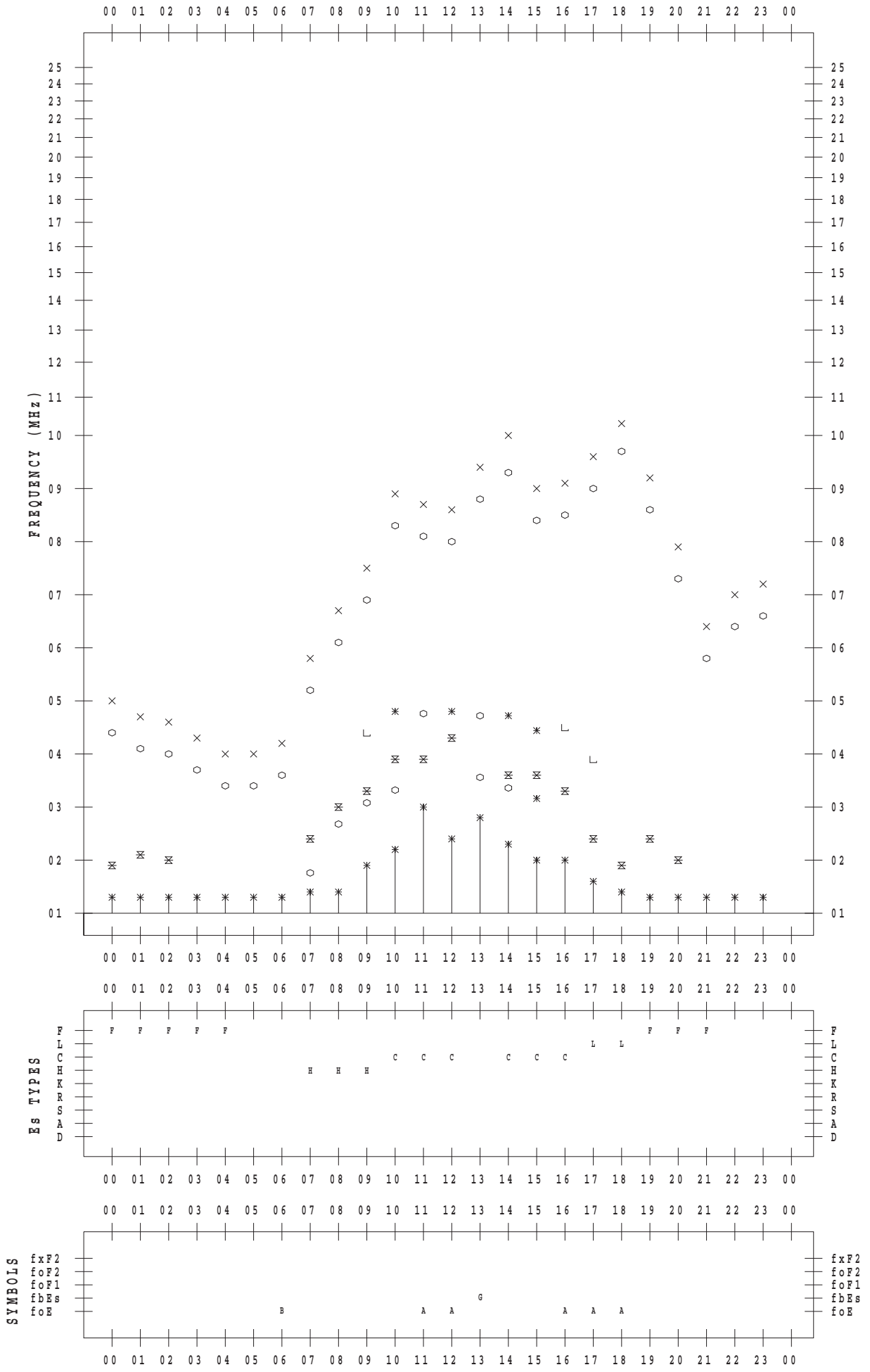
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/ 7

135 °E MEAN TIME



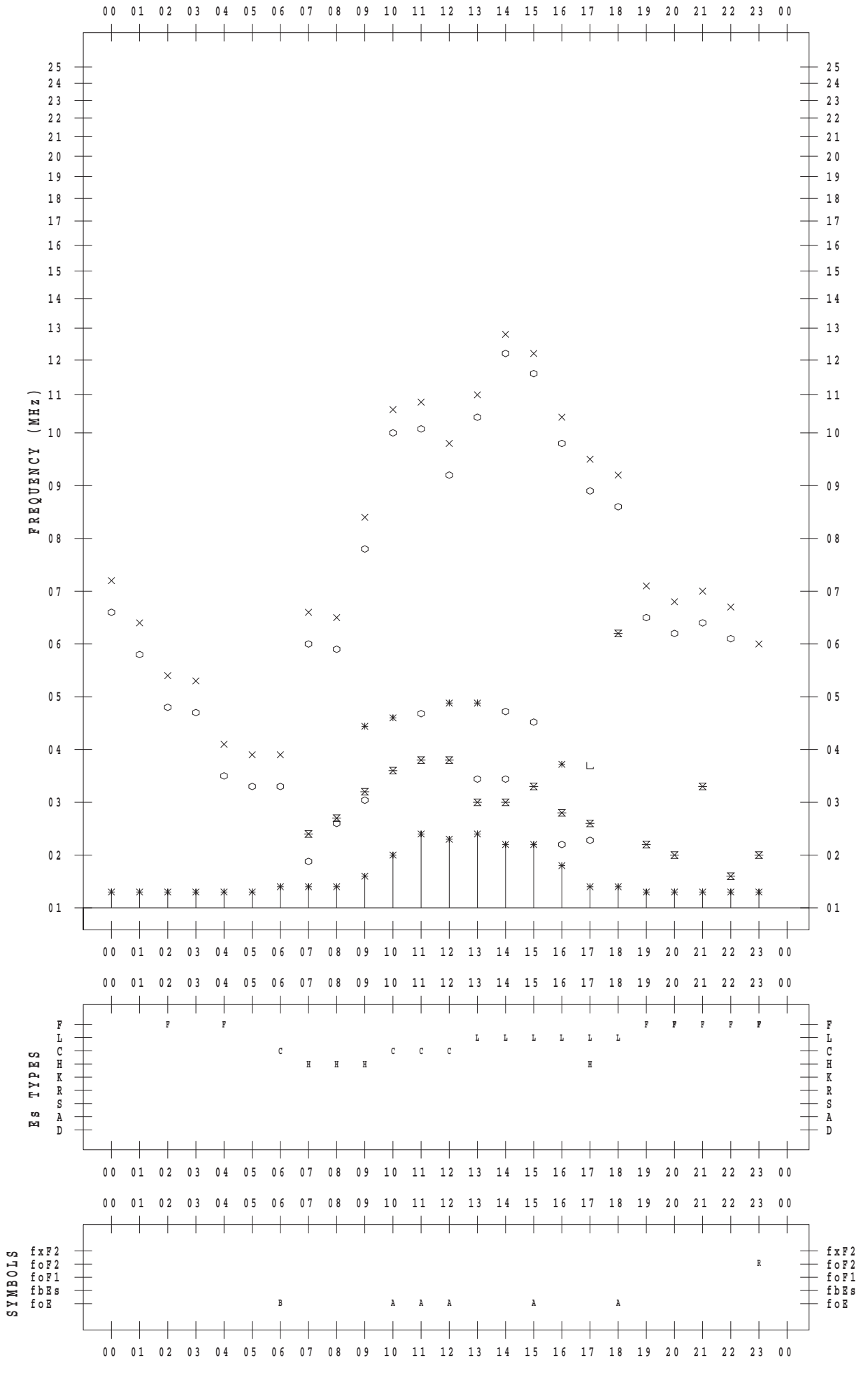
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/ 8

135 °E MEAN TIME



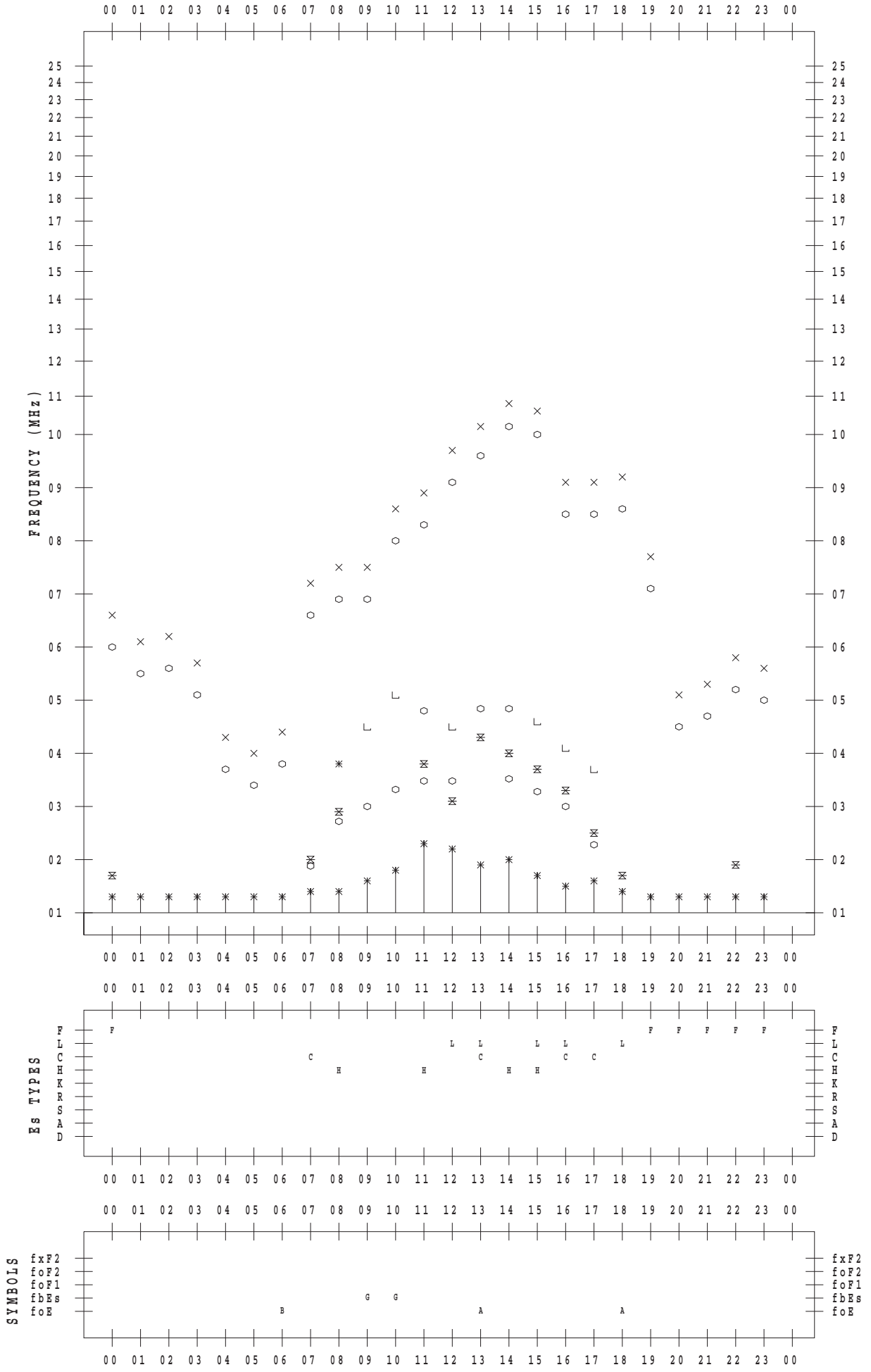
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/ 9

135 °E MEAN TIME



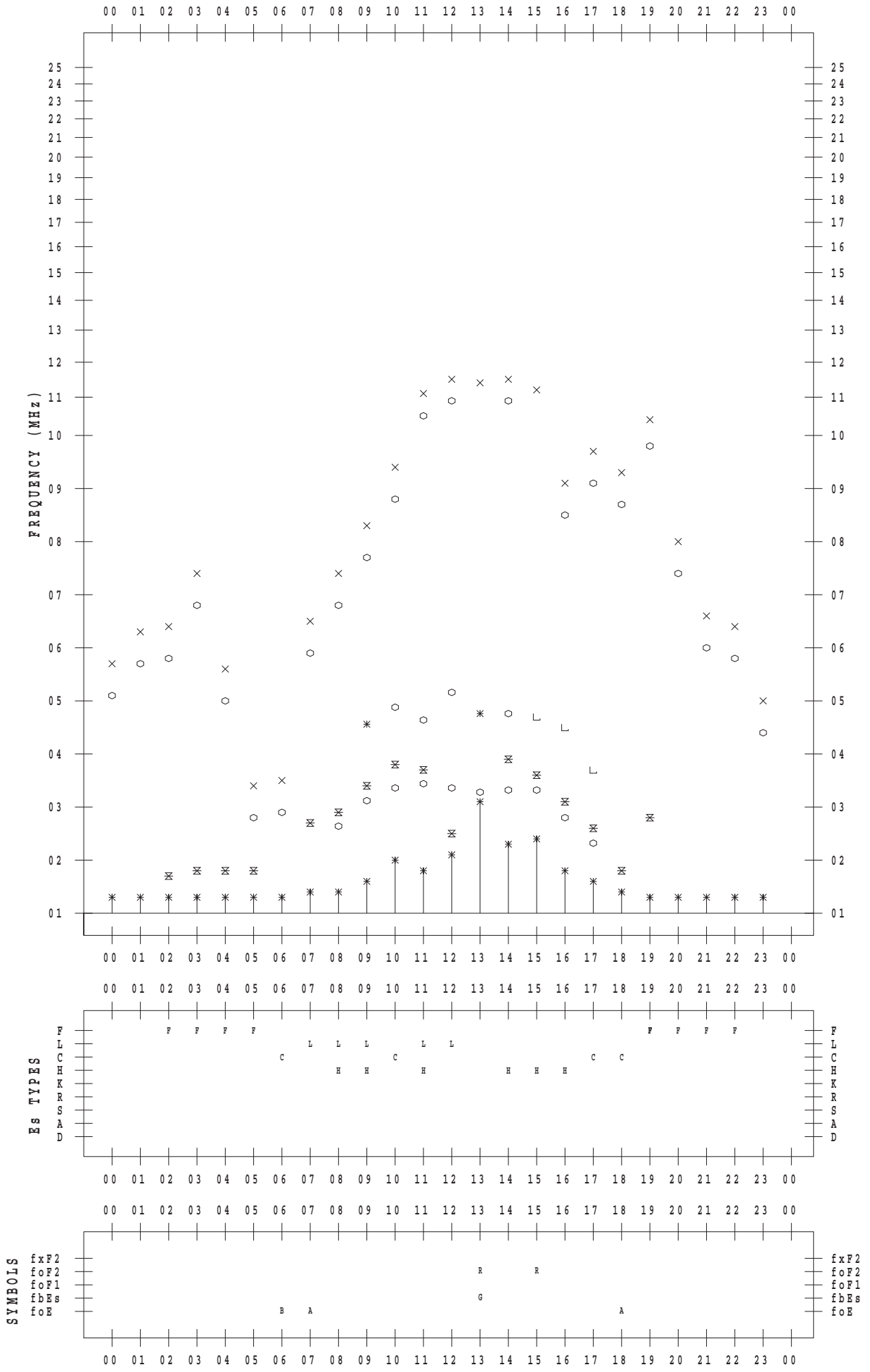
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/10

135 °E MEAN TIME



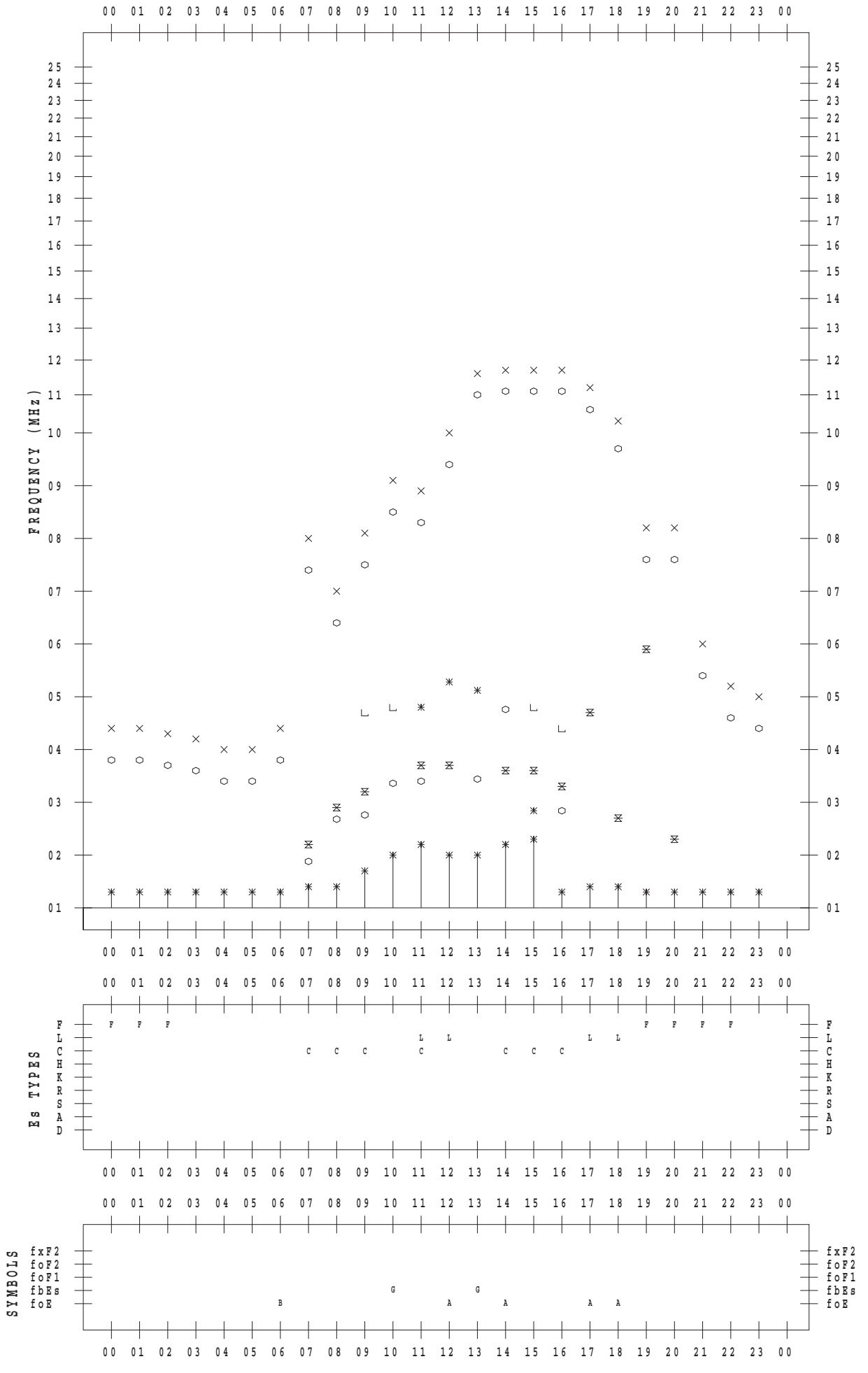
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/11

135 °E MEAN TIME



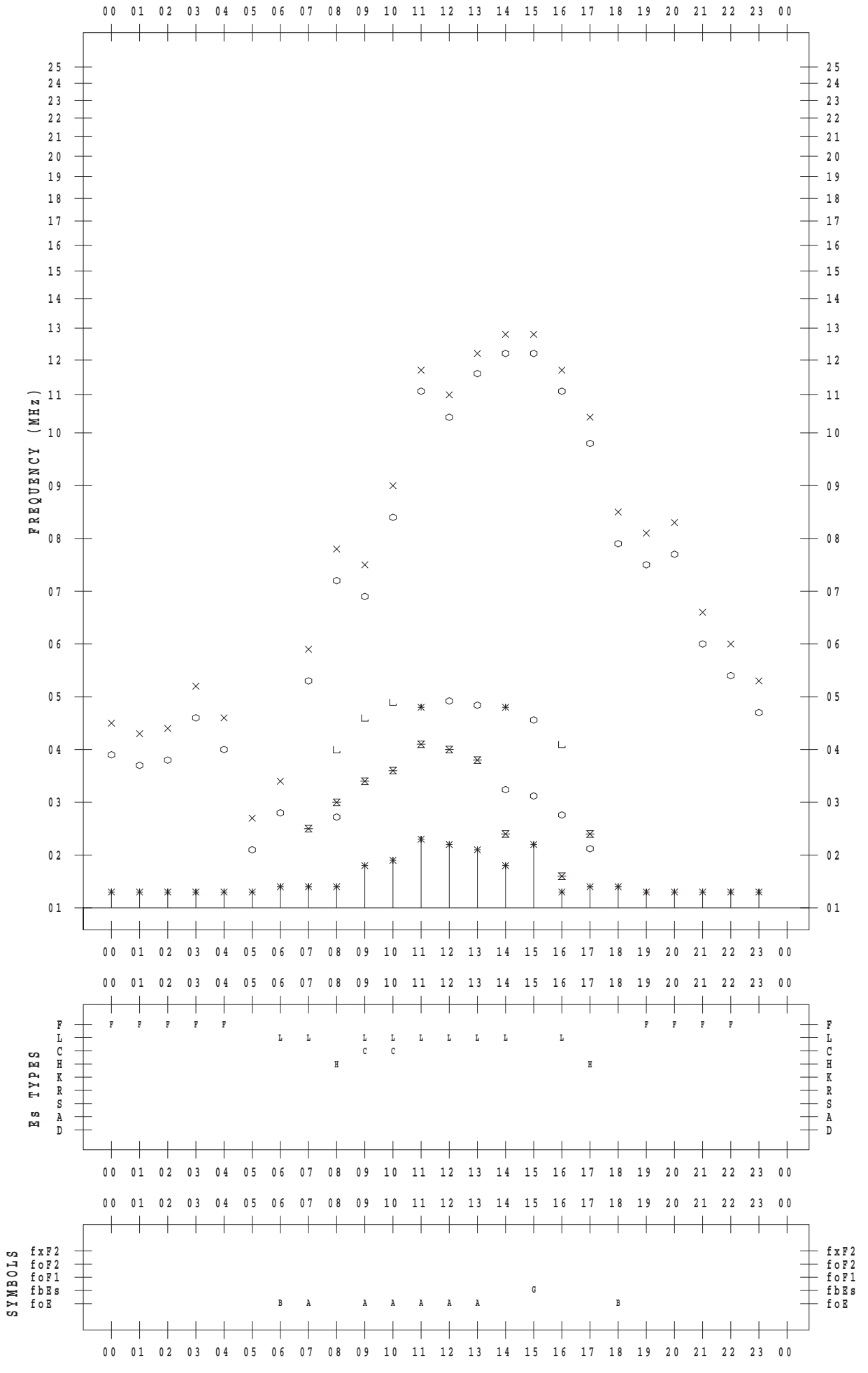
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/12

135 °E MEAN TIME



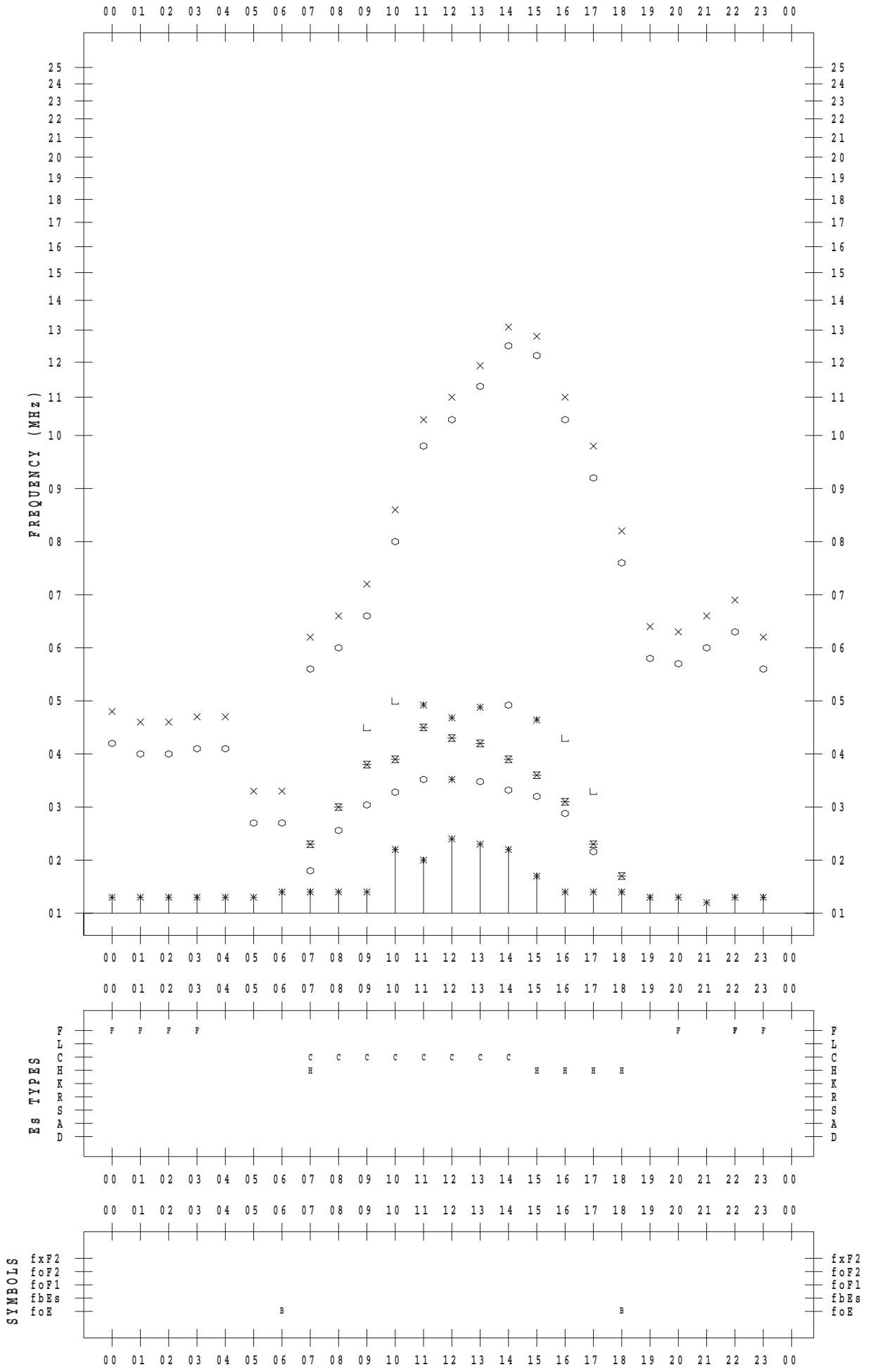
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/13

135 °E MEAN TIME



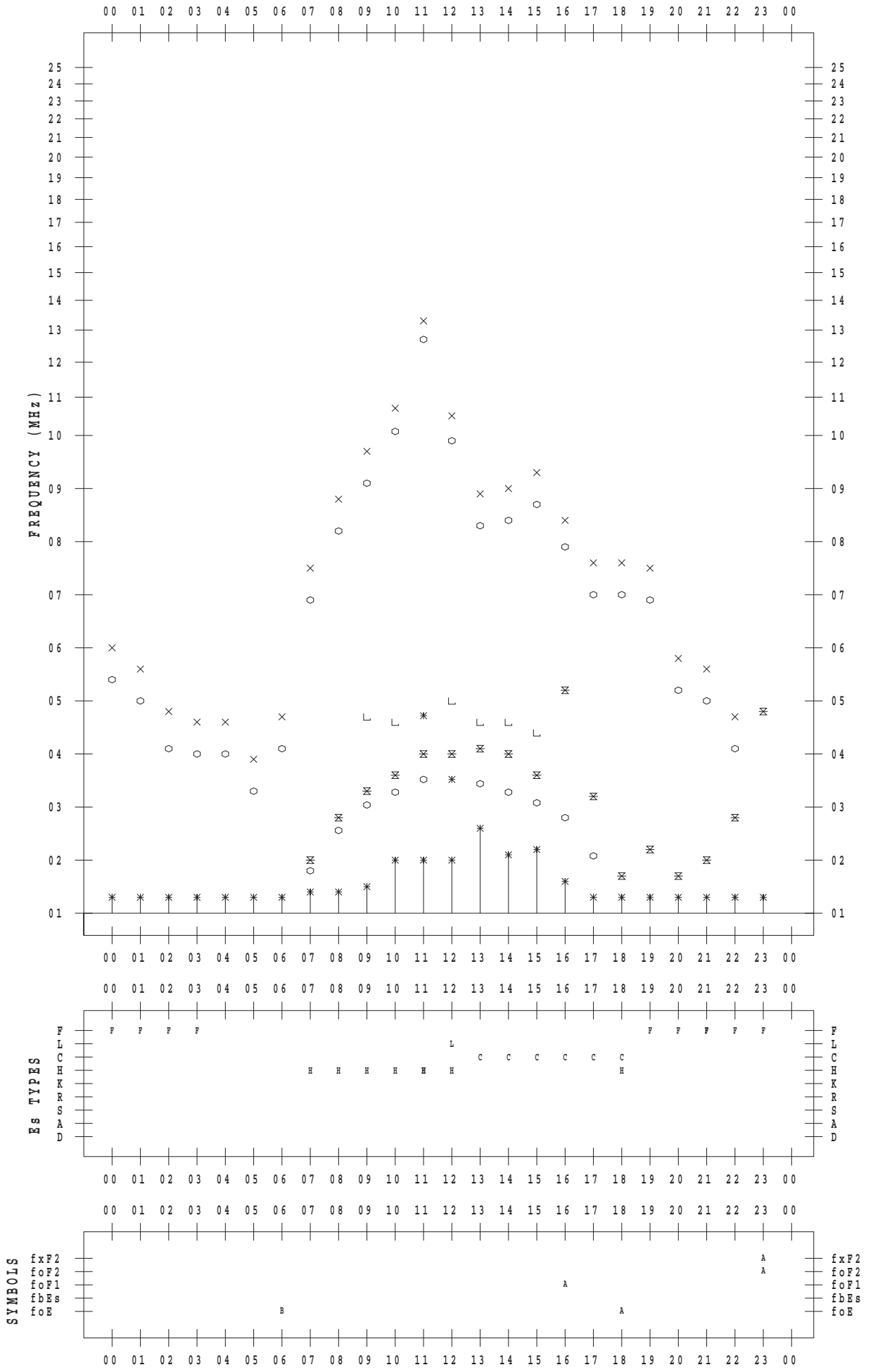
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/14

135 °E MEAN TIME



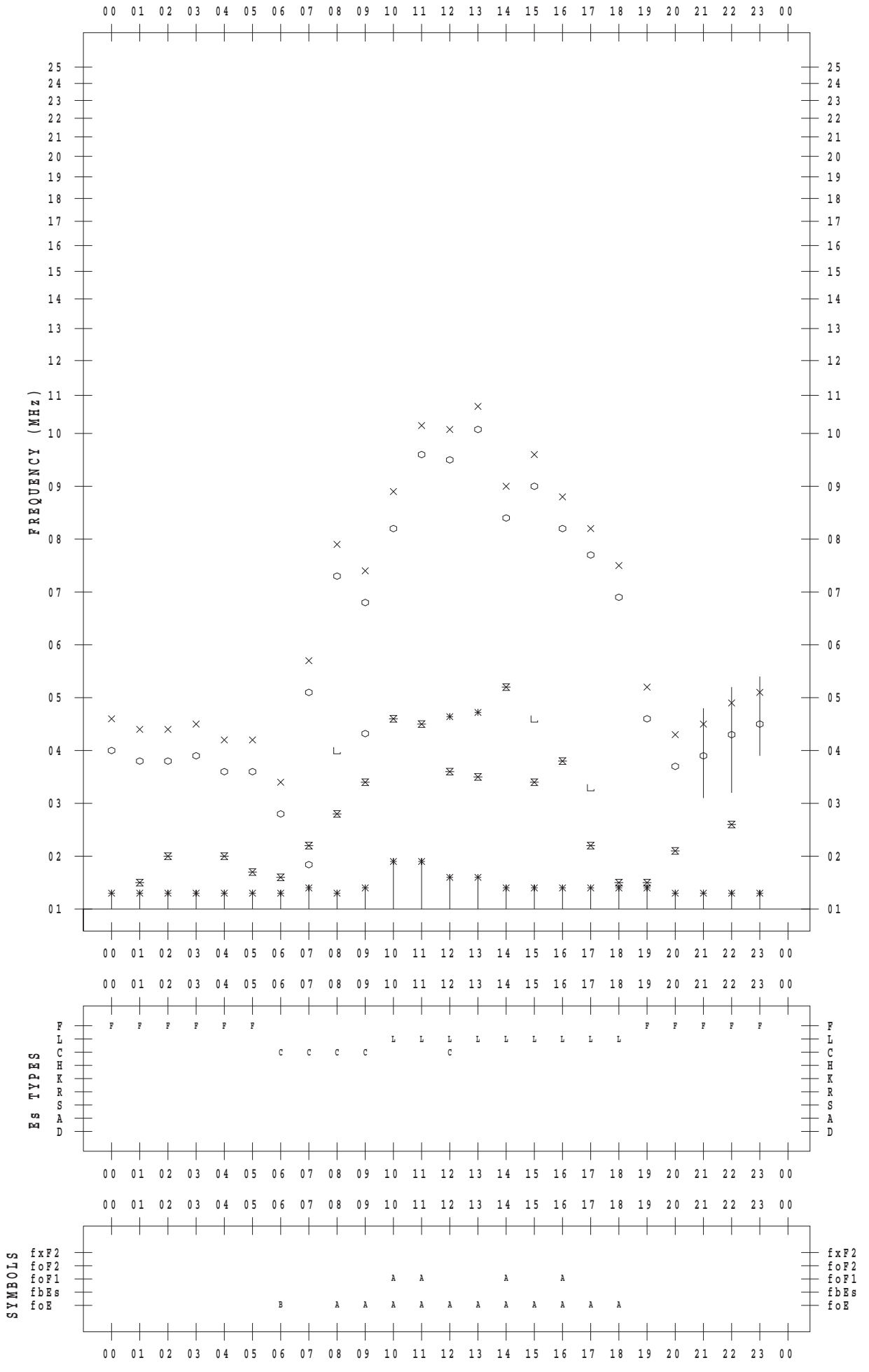
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/15

135 °E MEAN TIME



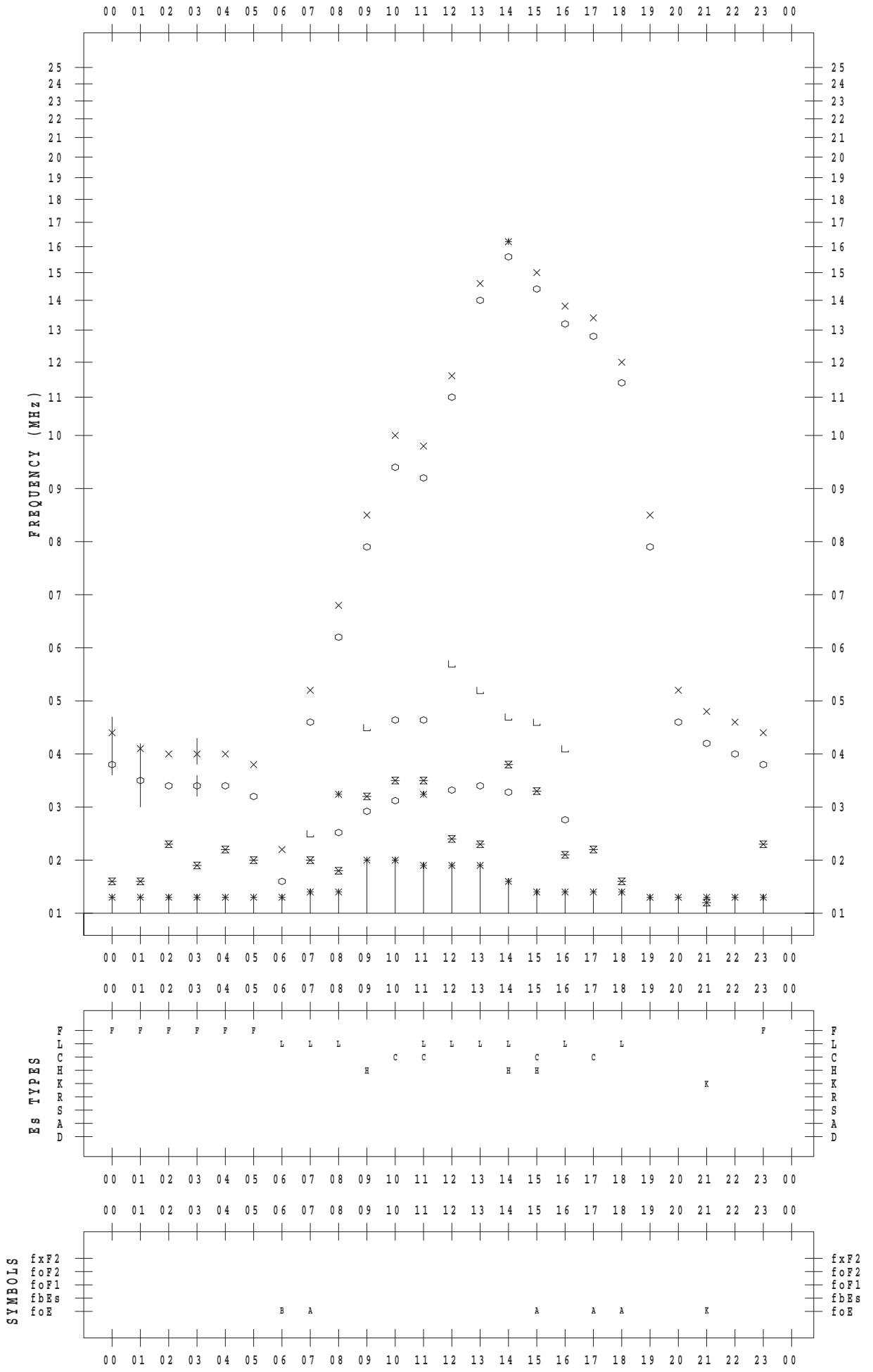
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/16

135 °E MEAN TIME



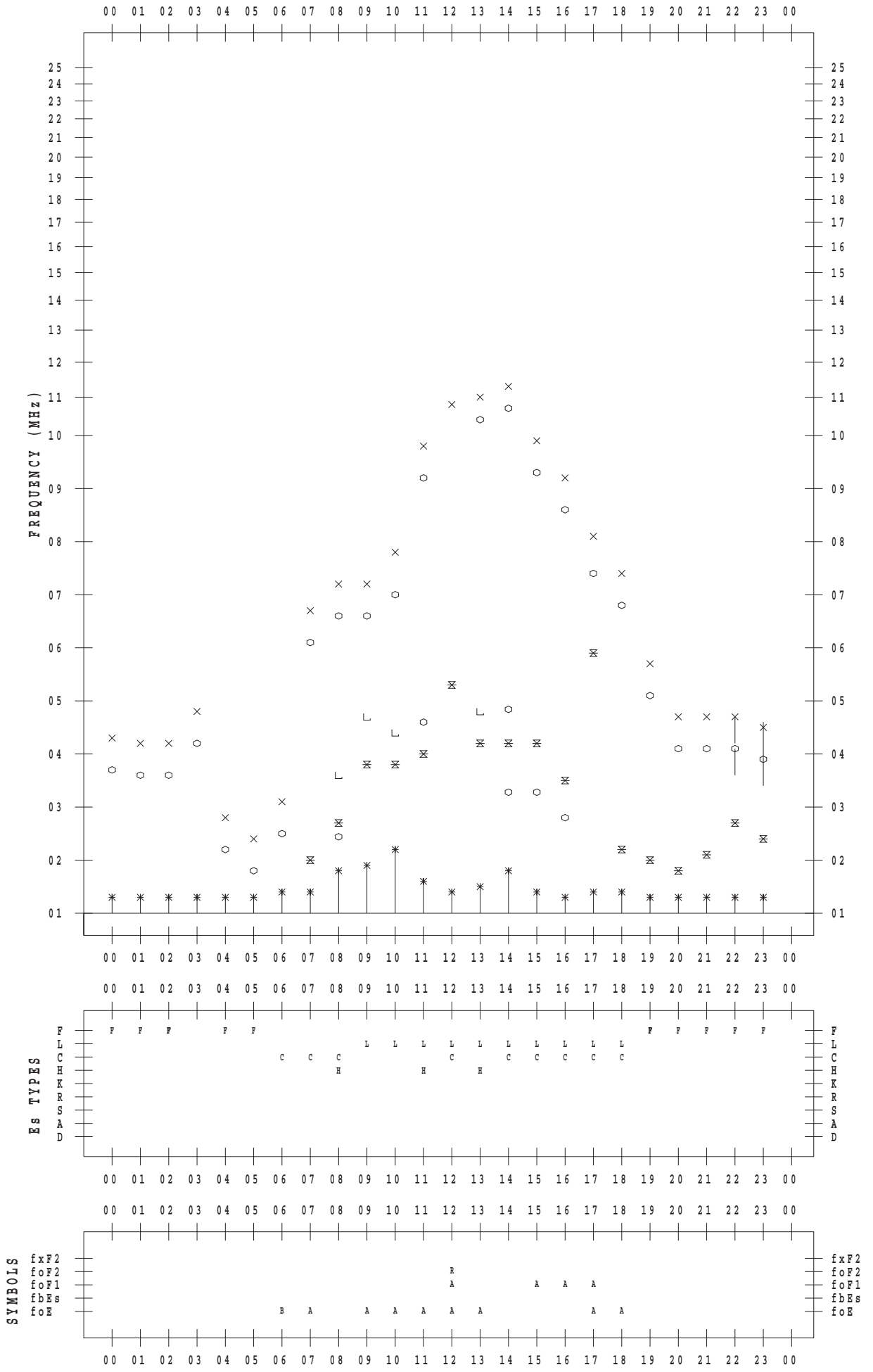
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/17

135 °E MEAN TIME



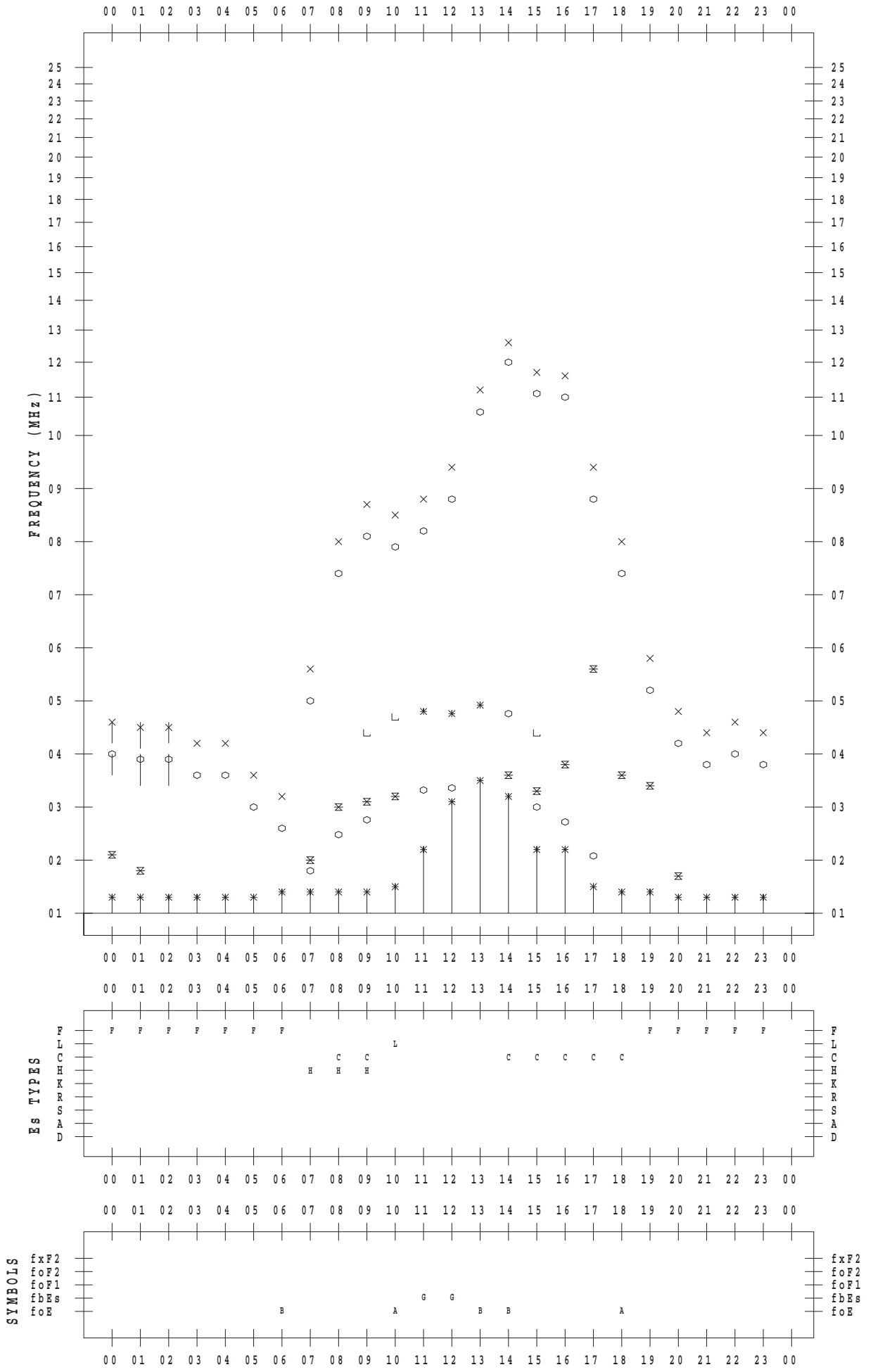
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/18

135 °E MEAN TIME



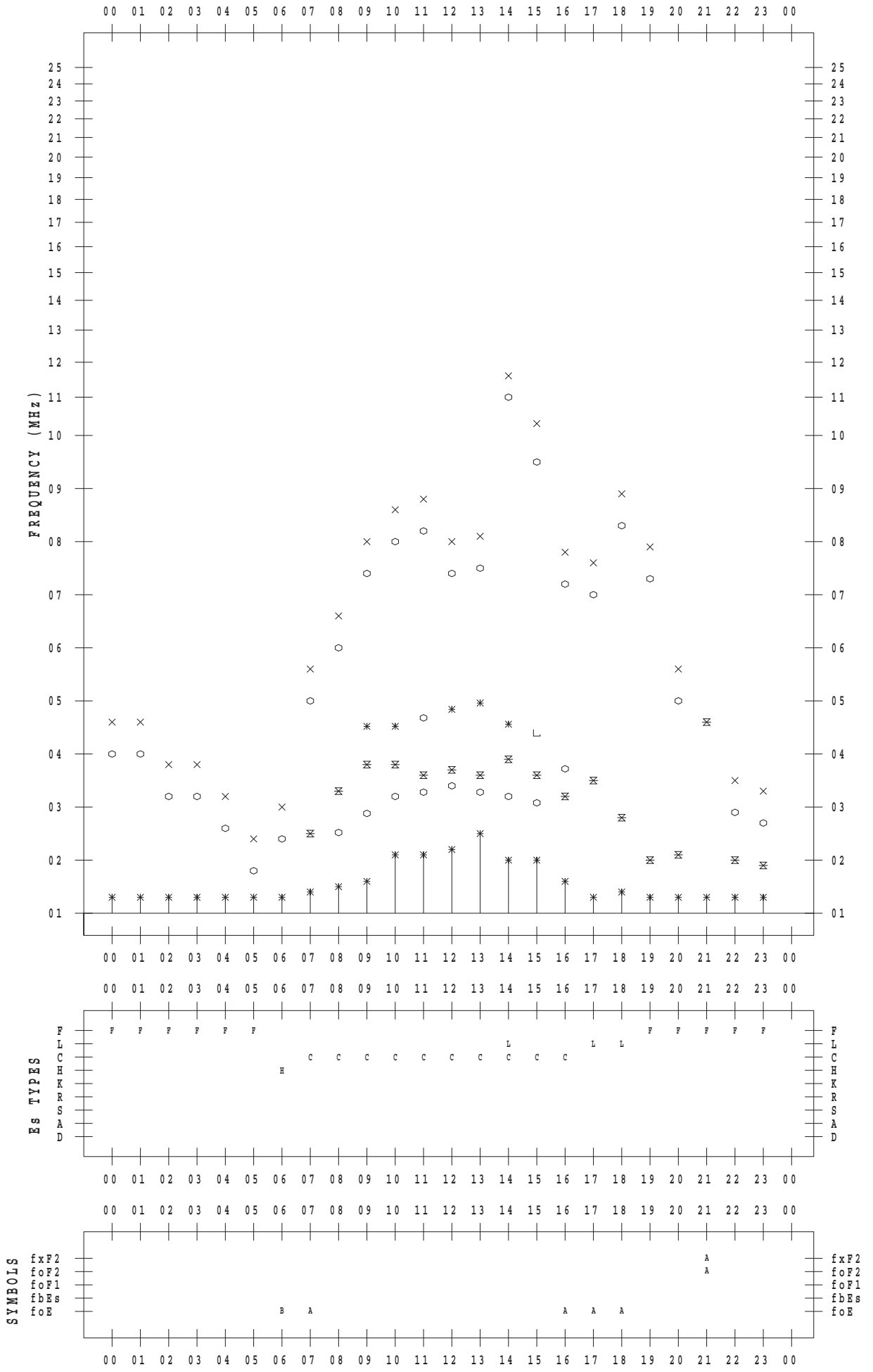
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/19

135 °E MEAN TIME



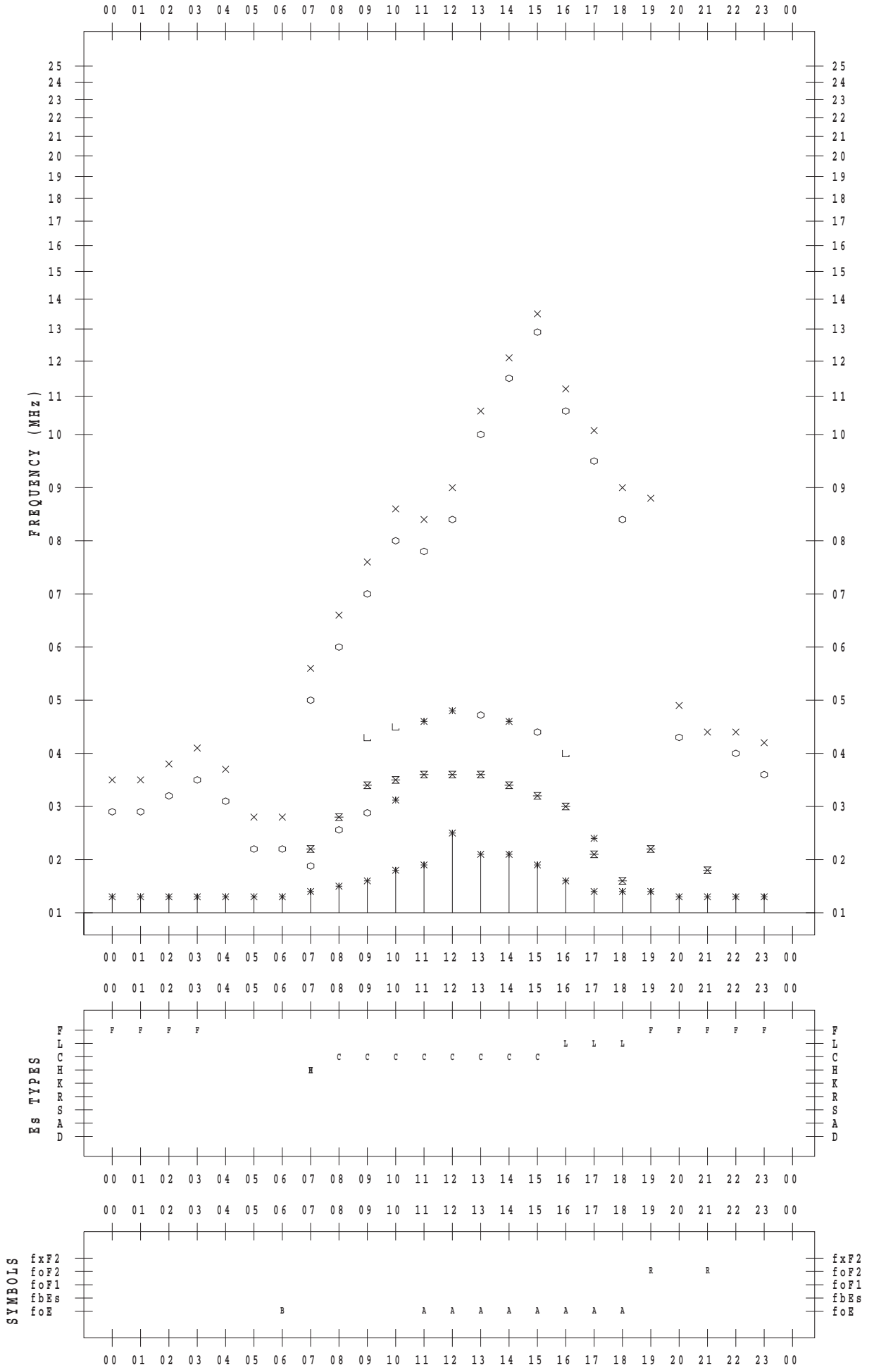
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/20

135 °E MEAN TIME



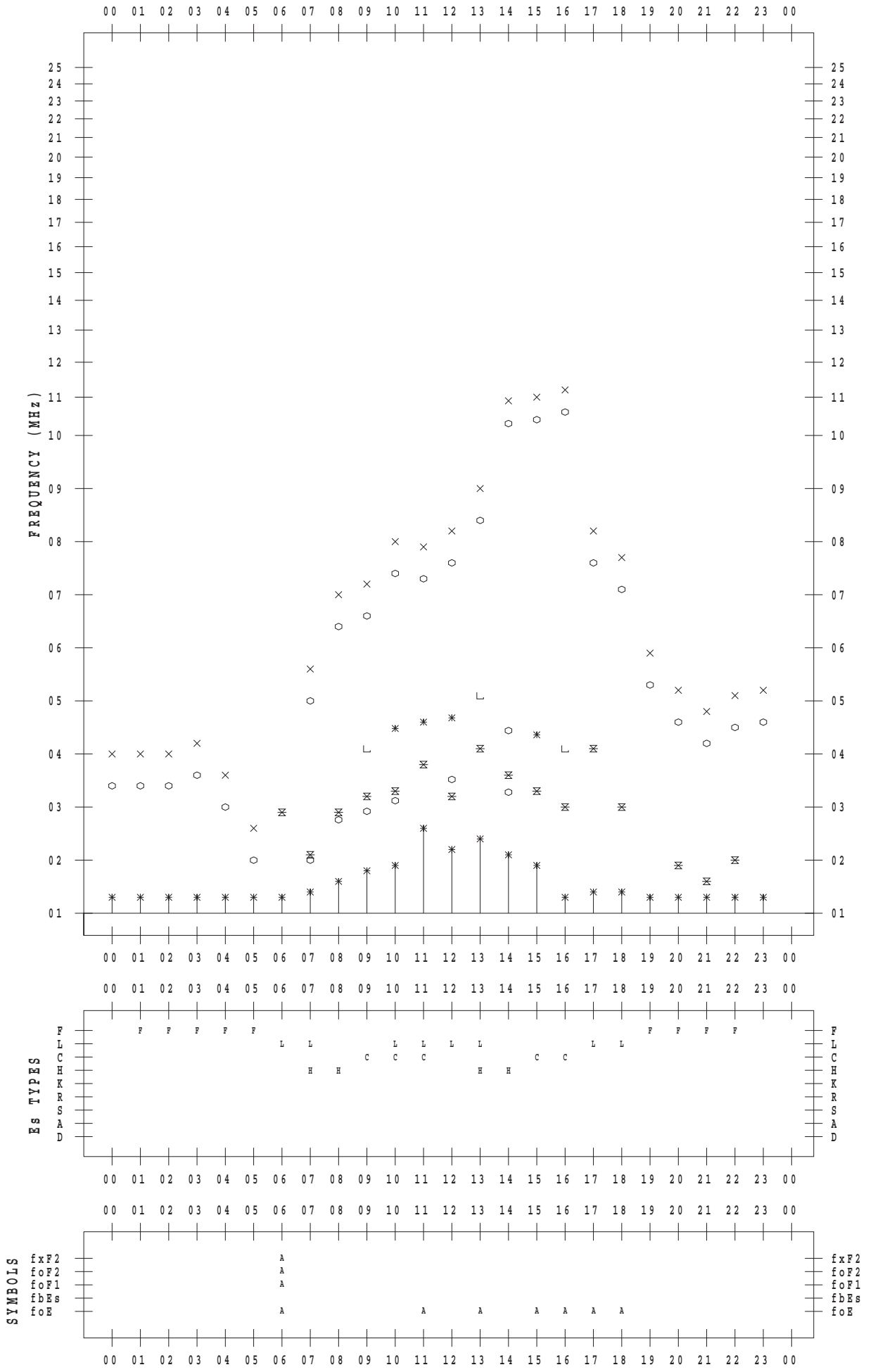
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/21

135 °E MEAN TIME



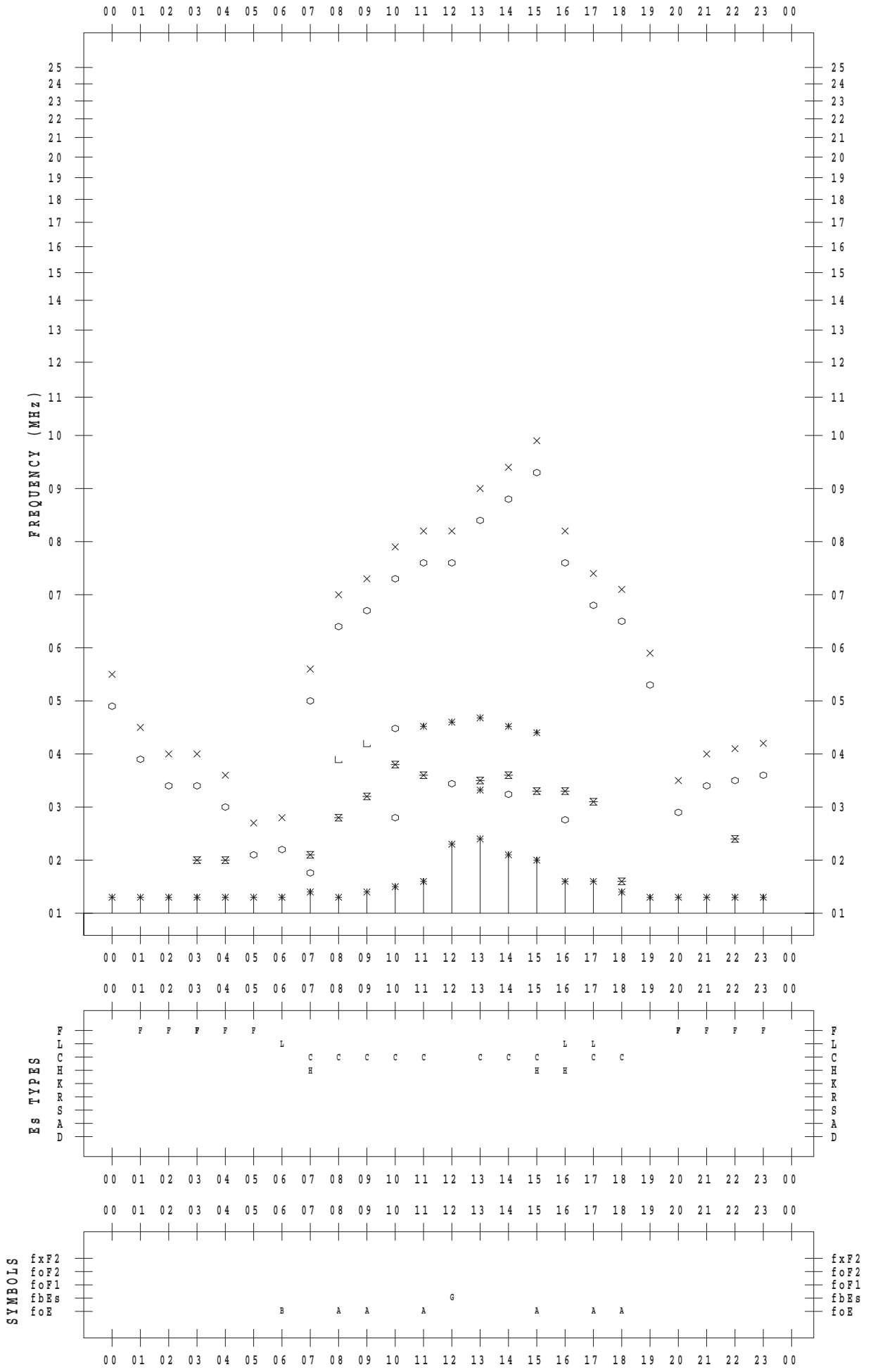
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/22

135 °E MEAN TIME



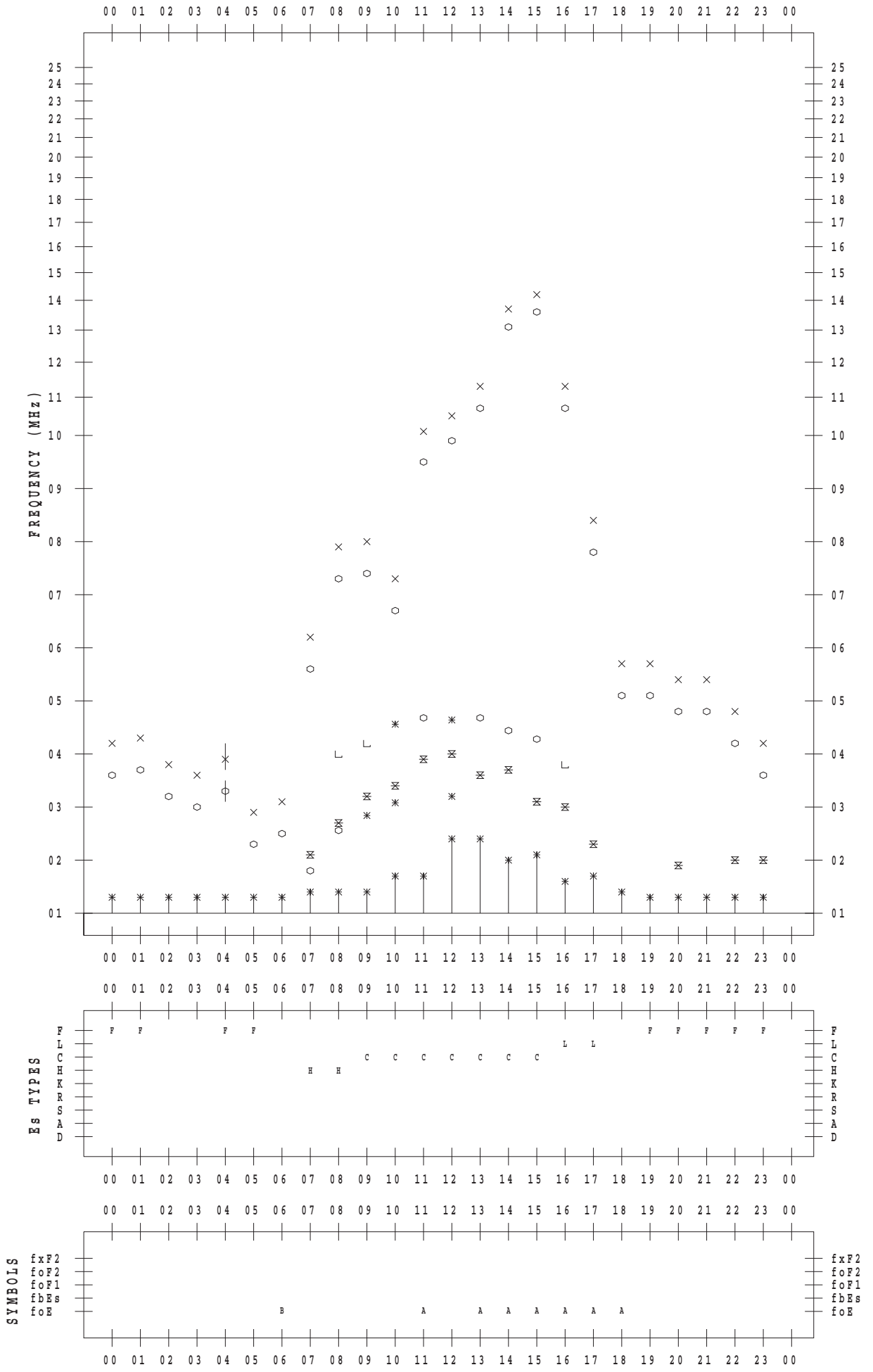
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/23

135 °E MEAN TIME



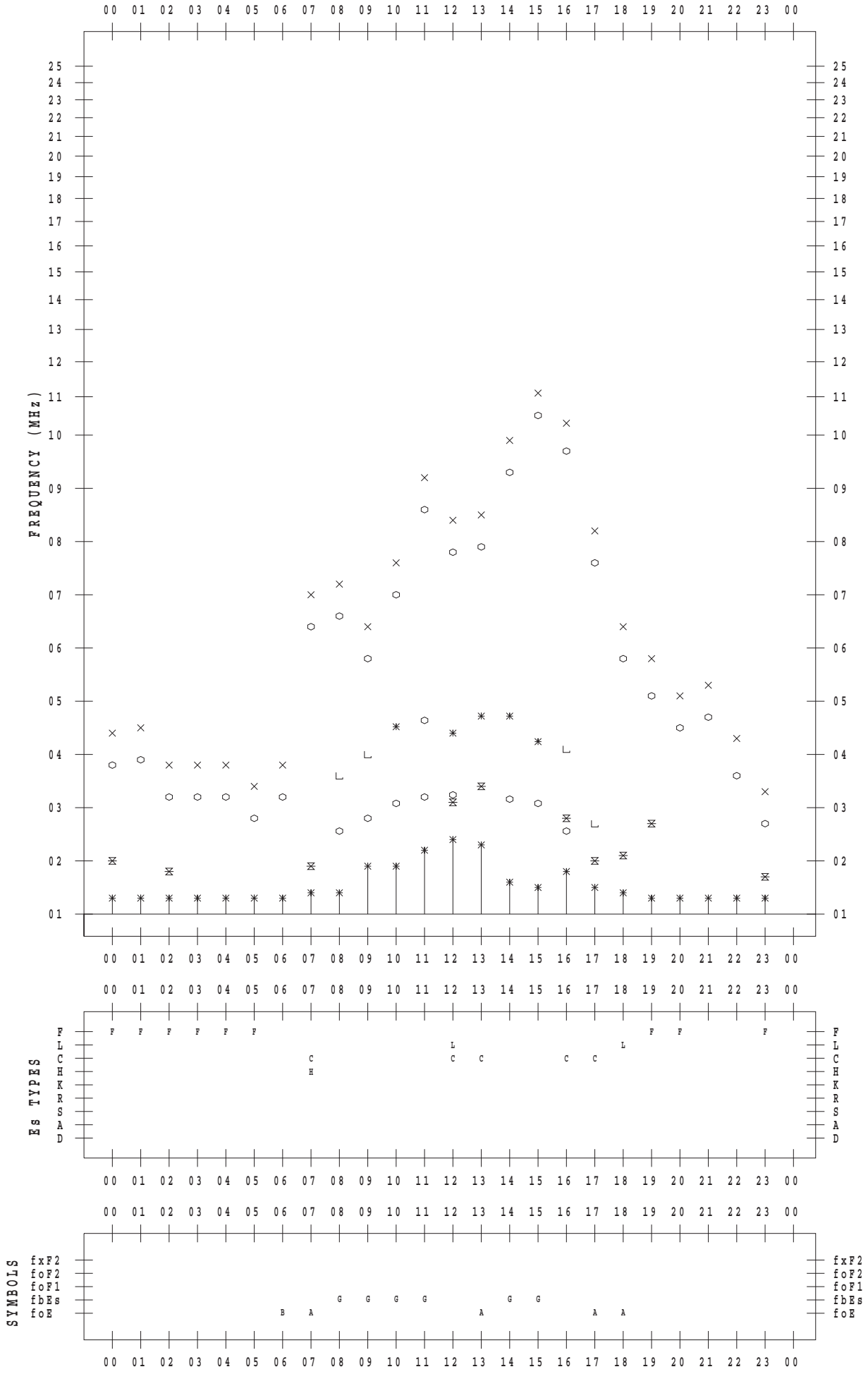
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/24

135 °E MEAN TIME



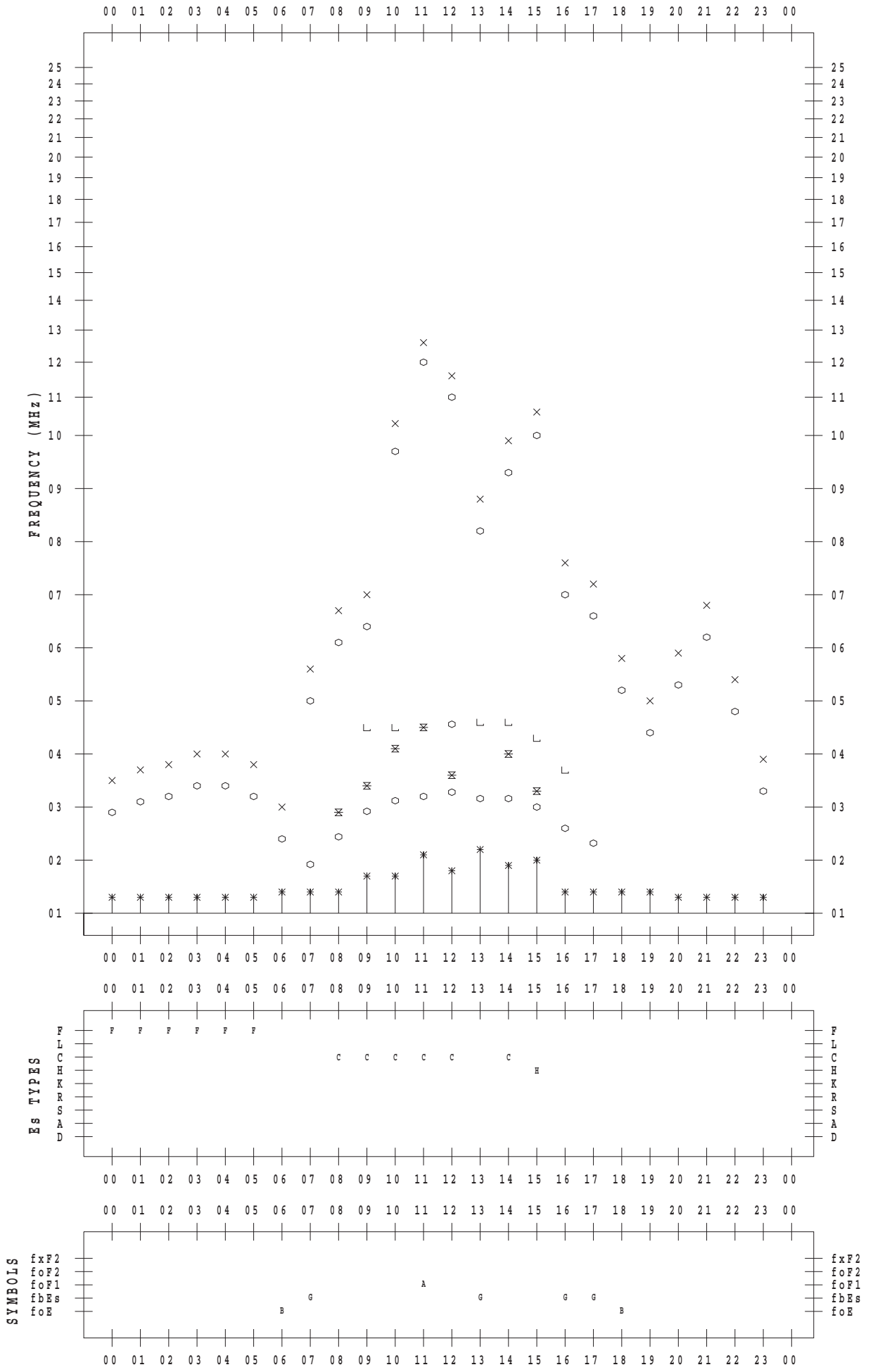
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/25

135 °E MEAN TIME



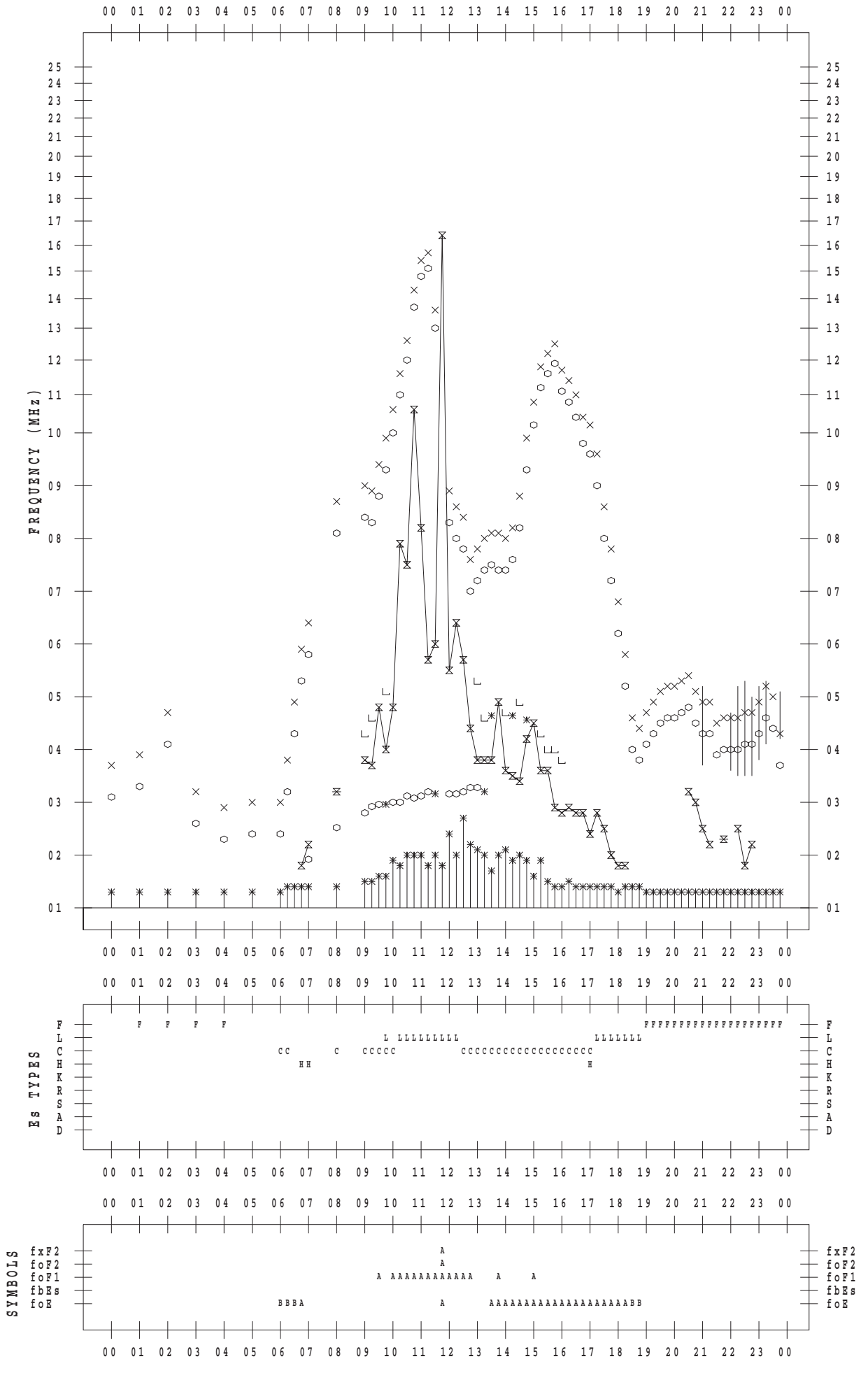
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/26

135 °E MEAN TIME



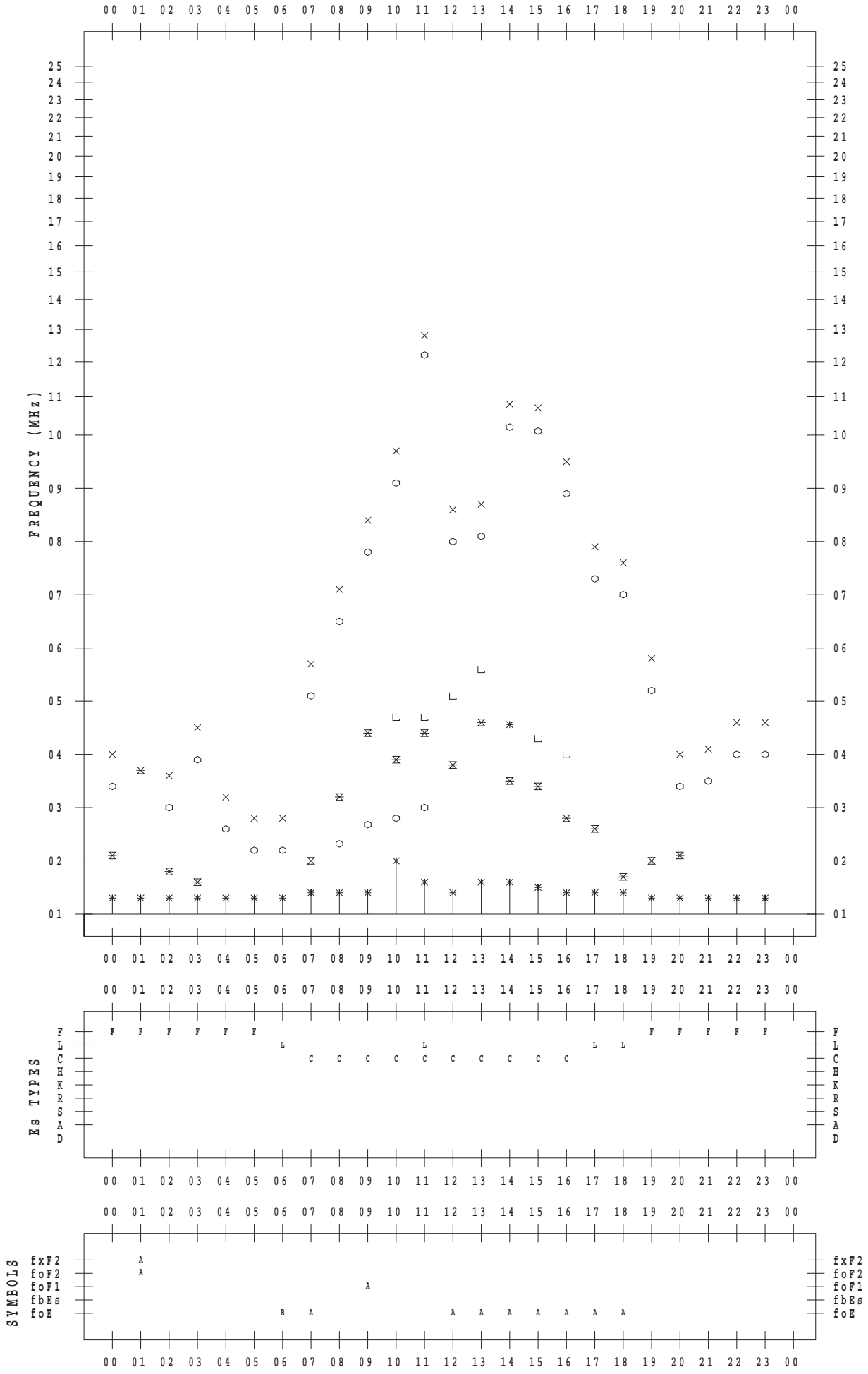
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/27

135 °E MEAN TIME



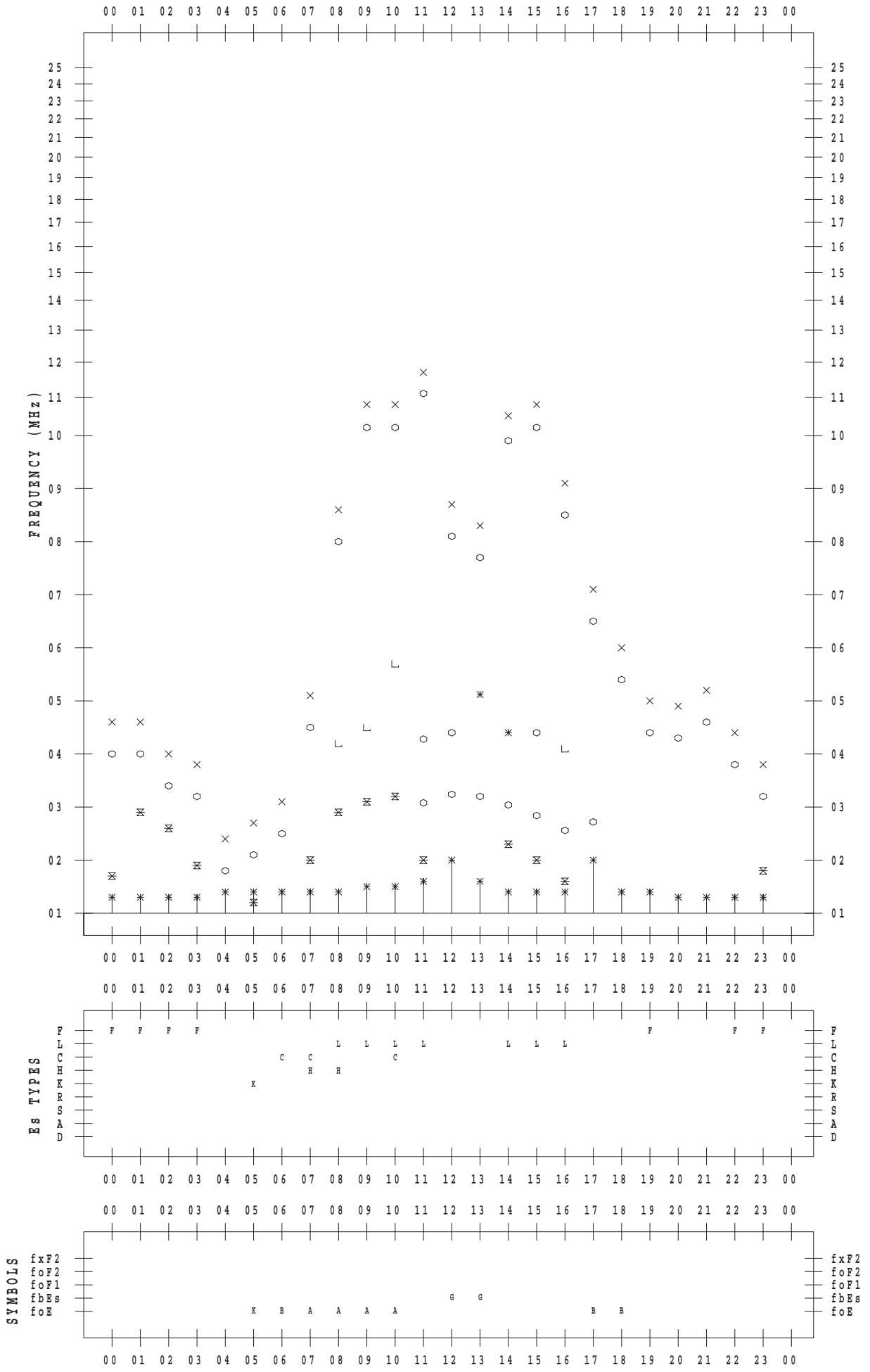
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/28

135 °E MEAN TIME



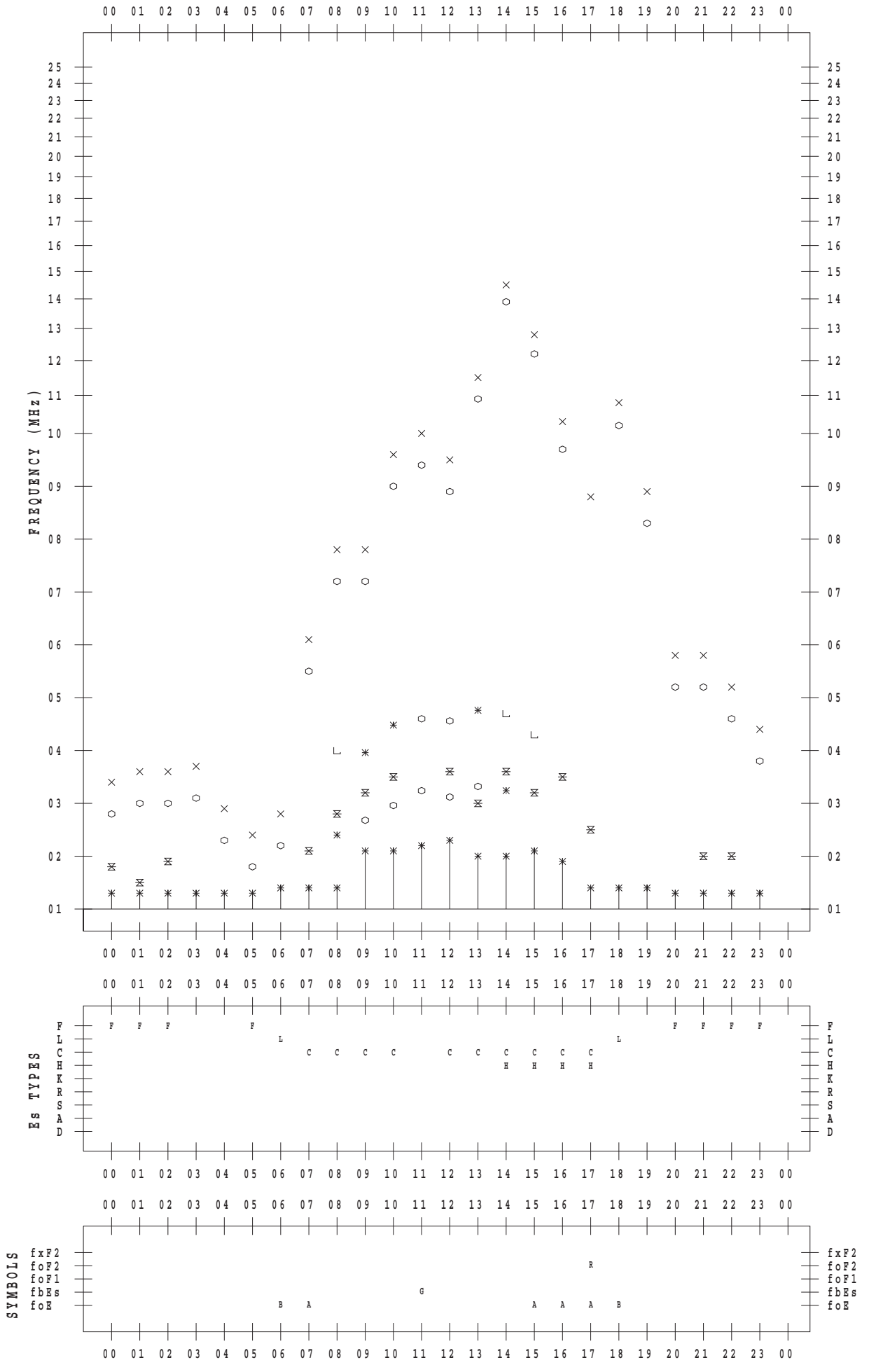
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/29

135 °E MEAN TIME



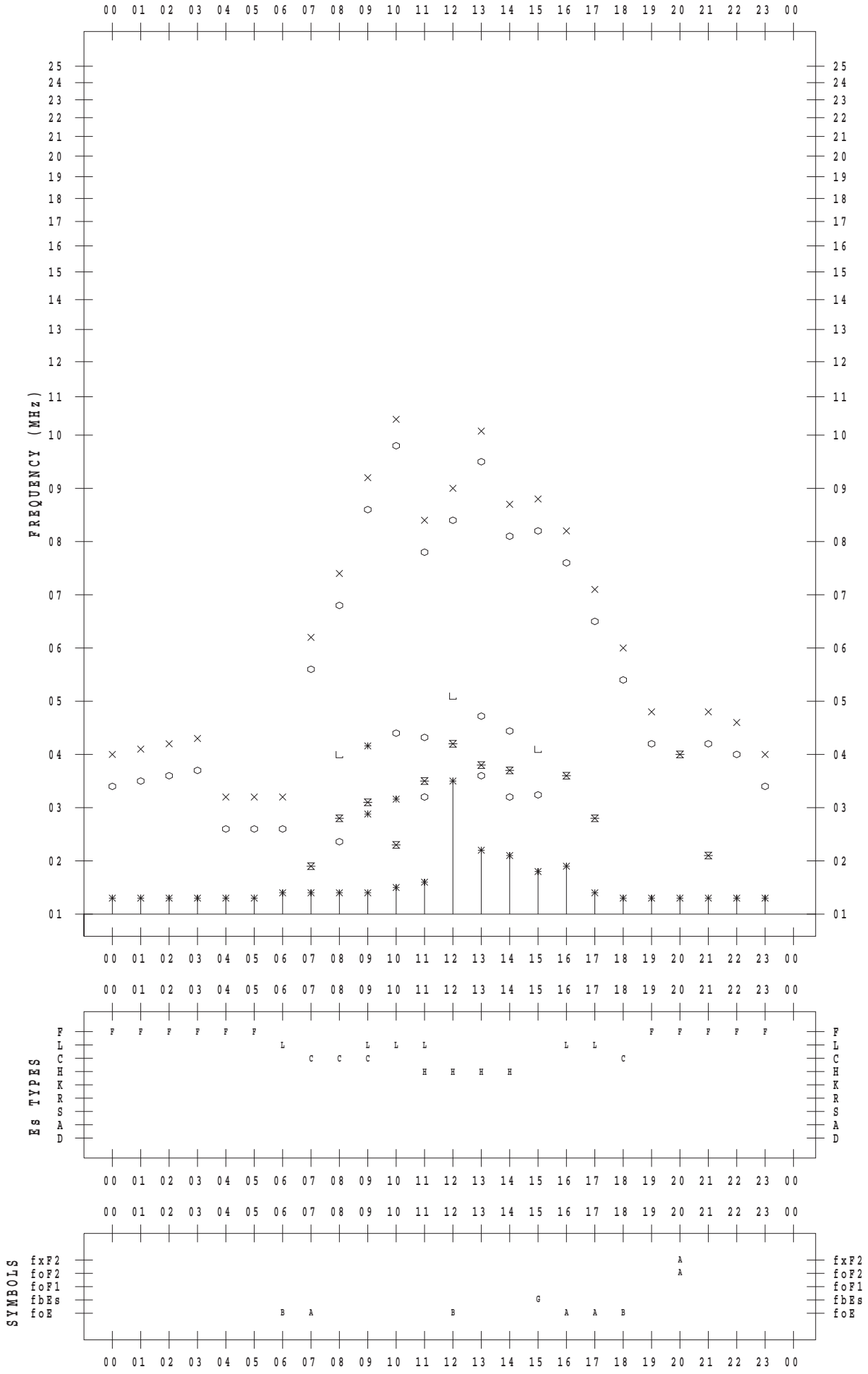
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/10/31

135 °E MEAN TIME