F-824

IONOSPHERIC DATA IN JAPAN

FOR AUGUST 2017

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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

AUG. 2017

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	25	31	33	27	G	39	60	73	127	63	150	61	65	46	41	37	33	65	G	33	27	27	67
2	85	126	70	60	50	G	44	58	57	91		50	43			136	40	35	40	58	112	44	129	87
3	86	34	110	32	34	27	48	58	47	60	50	51	48	70	55	55	78		86	61	126	80	70	70
4	34	57	40	34	28	28	42	72	50	95	69	69	43	48		90	38	39	36	40	G	G	22	G
5	G	G	G	G	G	33	35	40	59	56	58	54	49	64	40	36	36	56	41	59	70	33	28	44
6	G	28	28	39	103	34	160	48	70	61	54	96	58	43	40	53	78	61	47	77	107	60	70	38
7	48	26	G	33	28	54	45	60	78	95	61	48	56	57	58	44	55	44	59	33	39	37	33	48
8	G	54	38	24	48	118	56	59	90	51	71	75	72	78	58	42	47	52	G		46	92	111	60
9	59	27	G	G	24	26	36	48	71	84	52	56	38	38	39	38	39	36	36	33	31	43	30	G
10	34	G	24	27	G	33	40	58	61	108	167	50	179	55	56	47	35	44	61	60	40	57	115	G
11	31	200	G	G	G	G	34	43	52	127		62	57	41	42	61	41	39	56	113	92	34	32	25
12	24	69	58	33	38	59	79	78	70	79	83	55	64	56	44	48	45	45	70	46	55	108	46	69
13	27	G	G	G	94	G	51	60	69	151	55	69	70	41	38	39	86	132	134	70	28	92	46	46
14	26	38	29	27	25	28	113	45	92	91	50	69		100	112	105	53	79	38	41	50	74	84	32
15	67	44	27	49	28	G	45	57	56	54	60	65	53	58	61	51	37	36	38	70	33	36	26	26
16	24	39	36	G	G	G	38	70	126	59	105	42	127	55	49	G	62	63	69	75	38	48	112	69
17	41	28	34	27	26	38	57	84	64	61	72	71	84	57	59	84		96	95	43	46	25	24	G
18	26	24	34	G	24	29	35	48	87	161	51	48	45	46	48	63	76	113	133	144	26	G	60	57
19	96	25	G	G	28	33	35	126		53	54	41	46	42	34	162	60	40	66	54	41	33	28	28
20	24	32	G	G	26	29	45	85	62	55	35		63		42	39	49	31	59	34	59	70	60	59
21	40	48	33	27	122	40	158	41	53	69	65	78	56	44	38	44	47	64	110	116	117	84	39	28
22	25	38	26	G	24	29	40	59	145	70	47	49	49	36	40	44	56	71	136	111	116	91	26	28
23	40	54	59	38	27	127	60	62	78	81	110	82	172	33	83	128	45	80	61	126	94	60	72	60
24	G	G	G		24	26		44	41	62	65	48	58	51	48	62	27	33	47	52	28	33	34	24
25	G	G	24	G	G	G	36	107	116	46	47	43	40	38	38	38	36	34	G	G	G	69	58	71
26	34	34	29	29	G	G	38	56	65	56	79	93	46	41	G	72	116	105	69	38	40	60	72	108
27	58	55	G	G	G	28	50	49	61	54	56	45	48	151	49	38	39	25	G	26	34	35	35	61
28	60	66	70	G	G	33	45	43	49	103	39	39	54	44	41	72	77	100	145	168	104	84	61	60
29	44	48	70	32	69	39	85	58	53		90	77	64	46	43	39	39	35	40	31	G	40	25	30
30	G	G	G	G	G	G	24	28	41	41	48	47	41	49	47	G	38	36	35	34		34	G	41
31	43	G	G	G	34	32	35	41	G	G	48	77	48	48	35	36	34	28	27	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	30	31	30	30	29	30	30	29	29	31	30	30	31	30	30	31	31	31
MED	34	34	28	26	26	29	44	58	63	66	58	56	55	48	44	47	45	44	59	53	40	44	39	44
U Q	48	54	38	33	34	34	56	62	78	95	71	75	64	57	55	72	60	71	70	75	92	74	70	61
L Q	24	24	G	G	G	G	36	45	53	55	50	48	46	41	39	39	38	35	38	34	31	33	27	26

HOURLY VALUES OF fmin AT Wakkanai

AUG. 2017

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

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

HOURLY VALUES OF foF2 AT Kokubunji

AUG. 2017

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	A	A	A	A	A	39	44	45	111		136	91	83	158	55	56	55	59	A	A	A	52	51	47
2	42	42	A	47	37	41	45	48	48	62	124	A	133	A	A	58	64	54	A	54	54	48	42	A
3	39	A	34	34	25	A	A		54	A	A	A	56		A	58	47		50	64	67	51	47	A
4	A	A	30	A	28	A	49	54	54	A	56	54	A	55	A	A	58	64	61	64	66	64	65	46
5	51	38	47	40	27	34	A	A	A	108	115	A	110	A	A	A	A	A	144	A	49	42	A	A
6	A	32	36	37	A	A	41	147	A	131	A	56	A		A	48	A	A	49	57	51	54	A	A
7	A	A	A	A	31	32	A	116	A	A	A		A	46	A	54	A	52		A	52	A	37	A
8	A	A	A	A	35	36	47	46	129	A		129	A	A	69	78	73	52	50	43	46	44	A	40
9	A	36	36	36	35	34	42	53	A	A	102	A	55	64	61	54	51	48	44	54	66	54	42	A
10	37	37	35	A	31	31	A	A	58	58		A	A	54	A	A	48	49	107	50	74	A	A	A
11	A	A	24	30	25	32	37	54	57	52	A	A	N		118	105	58	A	A	63	52	51	A	42
12	38	38	37	42	36	41	31	51		A	149	109	102	A	A	A		104	A	109	A	52	A	51
13	49	47	A	A	37	34	42	108	A	85	122	N	A	71	68	57	56	A	A	69	52	54	54	46
14	42	A	A	42	32	34	45	51	A			A	79	109	133	A	56	51	49		A	A	46	44
15	A	A	37	34	34	35	47	42	A	74	A	A	A	53	91	A	84	58	58	53	A	52	52	50
16	44	39	39	40	39	36	50	52	51	A	A	A	54	120	A	A	A	A	49	58	54	A	A	49
17	A	A	42	40	45	39	A	A	A	N	109	112	73	77	A	58	52	54	58	55	A	63	52	54
18	52	52	44	42	39	34	28	A	A	109	A	A	A	A	A	A	45	41	42	49	51	47	41	189
19	34	34	34	32	32		54	86	65	99	A	A	A	A	A	55	57	A	47	51	A	51	47	41
20	42	40	40	37	37	34	47	54	A	A	48			A	51	54	59	A	59	54	44	43	41	42
21	39	38	37	36	35	31	53	49	42		109	39	A	55	66	A	55	A	56	A	A	A	A	42
22	A	39	34	36	34	36	49	A	54	A	A	64	66	A	A	A	N		N	A	51	49	A	A
23	A	A	A	37	36	34	A	A	A	100	A	66	A	A	A	51		N		A	A	50	49	A
24	42	42	38	34	30	30	47	46	A	A	A	A	61	A	A	54	51	56	49	A	52	51	54	A
25	A	A	A	42	A	A	48	55	54	61	47	59	61	62	66	59	59	A	A	64	54	54	42	41
26	41	36	36	34	48	28	47	64	57	65	61	A	61	38	55	52	55	49	48	52	53	48	44	41
27	39	37	36	38	32	34	47	49	A	67	62	A	A	91	A	54	A	56	55	52	51	54	51	47
28	44	42	A	30	32	58	49	54	71	A	65	55	49	56	59	59	51	55	54	51	49	45	47	47
29	47	A	A	36	39	34	48	79	109	58	57	59	A		56	57	A	55	52	52	54	54	42	37
30	36	36	A	37	27	34	45	A	A		A	A	A	55	A	64	66	52	A	51	49	48	48	48
31	50	42	44	44	40	39	44	54	58	56		56	62	A				50	54	66	64	66	54	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	19	19	20	25	28	26	25	23	16	15	15	13	15	16	13	20	21	19	21	23	23	26	22	21
MED	42	38	36	37	34	34	47	54	57	67	102	59	62	59	66	56	56	54	52	54	52	51	47	46
U Q	47	42	39	41	37	36	48	64	68	100	122	100	83	84	80	58	59	56	58	64	54	54	52	48
L Q	39	36	34	34	31	34	43	49	54	58	57	55	56	54	55	54	51	50	49	51	51	48	42	41

HOURLY VALUES OF fEs AT Kokubunji

AUG. 2017

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	47	42	46	45	80	53	31	44	67		111	77	78	135	87	43	42	71	59	54	46	31	29	47
2	28	55	55	28	G	G	G	36	55	39	97	151	102	56	75	52	56	50	61	42	27	G	35	70
3	34	47	29	27	G	27	43		70	116	69	52	45		39	38	40		31	28	G	115	29	69
4	48	33	33	32	G	29	38	43	43	52	49	45	56	70	118	90	46	48	37	50	26	49	31	24
5	25	G	G	G	G	25	39	69	60	92	107	87	81	74	67	164	162	143	122	144	G	33	56	59
6	36	29	31	34	43	28	34	42	59	62	43	49	45	G	33	G	51	52	51	40	71	60	113	72
7	50	51	55	35	57	29	43	109	78	128	82	G	42	G	36	38	71	179		146	135	90	42	57
8	44	135	33	31	36	33	34	63	103	109		104	126	108	54	37	34	32	29	42	33	45	29	37
9	93	G	33	29	G	23	31	43	55	60	85	58	44	33	41	32	38	33	29	27	31	21	38	34
10	27	G	29	46	31	27	48	50	48	50		68	62	47	80	47	46	42	71	60	151	92	78	72
11	69	43	G	26	G	G	29	40	41	46	56	53	82		121	75	54	86	160	57	50	34	47	34
12	32	33	31	70	G	25	35	52		127	175	104	117	128	113	130		134	136	63	73	163	70	91
13	G	G	86	53	57	28	42	61	56	80	115	117	76	47	107	69	40	57	60	39	113	53	33	40
14	35	84	57	34	G	G	34	48	64			107	65	71	113	76	37	86	94		114	126	34	43
15	70	57	26	31	29	G	38	47	54	81	79	71	59	49	75	136	49	37	30	G	105	41	33	30
16	G	30	23	27	G	G	30	37	60	80	117	65	45	84	112	145	117	126	55	53	45	107	111	49
17	70	58	31	G	G	G	44	91	91	111	130	117	52	71	57	55	45	33	34	G	85	33	34	G
18	24	G	G	G	G	24	30	42	61	56	128	120	54	56	55	40	34	32	G	G	G	G	23	180
19	33	G	G	G	G		42	61	55	76	61	59	49	48	56	48	54	52	34	55	59	40	40	32
20	42	23	G	G	G	26	34	46	63	71	47			72	49	G	52	65	58	31	G	G	G	24
21	G	G	G	G	G	26	29	37	44		57	45	35	34	38	78	40	70	45	107	116	85	70	43
22	59	29	27	33	32	25	34	50	57	80	78	114	63	91	57	151	149		144	150	104	34	79	92
23	58	59	60	33	32	34	60	60	45	92	175	61	85	34	33	37		127		77	150	55	79	72
24	34	37	G	G	G	G	32	37	64	59	85	57	35	62	112	34	31	36	46	135	41	60	47	71
25	59	50	59	36	47	37	31	45	55	51	59	53	51	49	38	41	42	57	84	G	G	G	G	G
26	G	G	G	G	G	G	33	29	36	39	42	57	42	G	37	34	29	35	40	33	G	G	26	G
27	34	30	39	27	24	G	25	40	60	55	62	64	106	84	120	79	69	54	29	23	G	30	49	29
28	28	34	33	G	G	G	30	43	71	71	50	42	43	40	48	80	74	59	70	42	32	36	32	G
29	39	49	54	25	G	G	42	42	93	50	54	54	52		36	37	90	36	32	34	52	41	G	31
30	29	G	55	G	G	28	25	47	60		52	45	49	50	78	53	50	42	56	46	32	27	27	26
31	G	G	G	G	G	G	27	39	29	35		39	38	43				29	G	G	24	G	11	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	31	30	30	27	27	30	30	28	30	30	28	29	29	30	31	31	31	31
MED	34	33	31	27	G	25	34	44	60	71	78	60	53	53	57	50	48	52	51	42	45	40	34	40
U Q	50	50	54	34	32	28	42	52	64	92	111	104	78	73	107	79	62	78	70	60	104	60	56	70
L Q	27	G	G	G	G	G	30	40	54	51	54	52	45	41	39	37	40	36	31	28	24	27	29	26

HOURLY VALUES OF fmin AT Kokubunji

AUG. 2017

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	13	14	14	14	14	17	14	17		18	28	24	22	24	20	18	13	13	14	14	17	14	14
2	14	14	14	14	13	21	24	17	18	22	22	25	22	24	21	18	15	14	13	13	13	13	14	14
3	14	13	13	14	13	14	13		18	22	20	20	30		18	20	14		17	13	13	14	14	13
4	14	14	13	13	14	13	15	14	17	17	20	23	29	18	20	18	13	13	14	13	14	14	13	13
5	14	15	15	14	15	14	14	17	17	18	20	18	21	22	18	20	17	14	14	13	18	14	13	13
6	14	13	15	17	14	13	15	18	20	18	22	21	21	21	17	18	18	14	14	13	15	13	13	14
7	13	13	14	14	14	14	14	14	18	20	18	21	21	43	18	21	17	17		14	14	13	14	13
8	13	14	14	13	14	14	14	18	17	30		29	31	29	22	14	17	13	14	13	14	13	13	13
9	14	14	13	13	13	17	13	17	18	20	22	26	25	21	17	22	17	14	14	15	14	13	13	13
10	14	15	13	13	13	13	13	15	17	15		29	24	24	20	15	14	14	13	14	14	13	13	13
11	13	13	13	13	13	14	13	14	14	17	17	31	26		21	20	15	13	14	13	14	13	14	13
12	14	14	14	14	14	17	13	14		21	25	30	31	24	25	21		14	14	13	14	13	14	13
13	13	14	14	14	13	13	14	14	20	20	17	23	22	22	18	17	13	13	13	14	13	14	14	14
14	13	14	14	13	14	17	13	14	15			29	31	28	26	25	17	14	14		13	13	13	13
15	13	13	14	13	13	17	18	14	17	15	18	24	25	23	23	21	17	13	13	21	14	13	13	13
16	14	13	14	13	14	13	13	14	18	25	18	22	22	22	21	24	21	14	14	18	15	14	13	13
17	13	13	14	13	14	20	15	14	17	21	24	24	22	21	21	18	13	14	13	21	13	13	14	13
18	14	15	14	14	14	17	15	17	15	20	23	25	28	26	25	21	18	14	23	14	14	14	15	14
19	14	17	17	17	15		14	14	17	18	18	22	18	22	23	25	25	14	22	13	13	13	17	13
20	14	13	14	17	14	18	14	20	15	26	28			30	30	30	17	15	13	13	14	14	13	13
21	15	13	14	13	14	15	15	20	17		31	25	22	24	24	25	22	13	13	14	14	14	13	14
22	13	13	13	14	14	15	14	15	20	17	22	26	25	25	25	22	13		14	14	14	14	14	14
23	13	14	14	14	13	13	13	14	17	24	28	24	22	22	21	21		14		15	14	14	13	13
24	13	13	18	14	13	20	14	17	14	17	21	23	23	24	25	18	14	14	14	13	13	13	13	13
25	13	13	13	14	15	13	13	14	15	20	18	23	26	28	22	18	14	14	13	14	14	13	14	14
26	13	13	15	15	20	14	14	14	14	21	24	26	18	14	20	15	14	13	14	13	13	13	14	13
27	13	14	17	13	13	14	14	13	15	17	17	20	21	25	15	17	14	13	13	14	13	13	13	13
28	13	13	13	13	13	13	13	13	13	17	18	21	22	23	23	18	15	13	14	13	13	13	13	14
29	13	13	13	13	18	17	14	14	18	18	25	30	33		24	15	14	14	13	14	13	13	15	14
30	13	13	13	14	14	14	14	13	17		21	23	24	22	18	13	14	13	13	13	13	14	13	15
31	13	13	13	13	17	13	13	14	17	17		21	18	17				14	17	17	14	15	14	13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	31	30	30	27	27	30	30	28	30	30	28	29	29	30	31	31	31	31
MED	13	13	14	14	14	14	14	14	17	20	21	24	24	23	21	20	15	14	14	14	14	13	13	13
U Q	14	14	14	14	14	17	15	17	18	21	24	26	26	25	24	21	17	14	14	14	14	14	14	14
L Q	13	13	13	13	13	13	13	14	15	17	18	22	22	22	18	18	14	13	13	13	13	13	13	13

HOURLY VALUES OF foF2 AT Yamagawa

AUG. 2017

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	A	26	A	B	A	A		42	48	60	A	A	N	A	60	58	58	A	56	51	52	48	43	42
2	41	34	40	38	32	29	40	42	57	55	51	A	A	A	A	64	68	53	54	54	51	48	42	43
3	34	35	37	34	34	29	36	48	44	A	72	79	50	A	A	A	A	54	52	54	54	41	A	A
4	A	32	A	A	A	A	42	45	55	54	A	A	50	62	55	54	70	66	55	54	52	52	54	A
5	B	B	B	B	B	B	B	B	54	58	A	A	53	44	51	54	A	A	A	B	B	B	A	A
6	A	34	A	33	A	B	B	B	B	B	A	58	A	A	A	55	51	A	89	B	B	B	A	A
7	A	A	34	34	B	37	38	89	A	45	A	A	42	A	53	58	64	A	A	A	A	42	34	A
8	34	30	30	C	28	B	42	C	B	B	A	A	54	57	A	A	81	72	51	47	47	47	48	42
9	A	A	34	A	26	N	41	42	47	59	51	84	69	68	68	47	54	51	45	51	52	54	49	34
10	A	A	A	26	49	N	A	50	65	51	A	A	56	55	A	A	A	A	55	69	52	52	A	A
11	A	A	A	A	A	A	A	50	60	45	48	A	A	57	64	72	70	149	A	53	54	A	42	A
12	42	42	36	37	34	A	36	A	50	61	44	A	70	55	A	63	A	A	58	51	52	52	46	51
13	51	42	42	34	A	29	38	48	131	A	A	86	A	62	80	80	60	56	63	A	A	A	A	43
14	A	A	43	A	32	34	40	46	42	A	59	A	A	A	149		86	72	A	A	51	54	A	A
15	A	A	A	34	32	31	36	A	A	A	99	A	A	A	A	65	75	66	50	A	27	52	A	A
16	40	A	38	38	32	35	38	49	54	52	A	A	56	54	59	A	71	68	A	52	54	A	A	A
17	40	A	A	30	49	31	42	51	53	54	47	A	49	55	65	67	58	65	63	53	53	52	54	52
18	51	48	47	44	40	36	26	38	44	A	A	A	A	A	A	A	A	A	48	52	53	40	34	36
19	B	30	32	B	26	28	37	39	53	A	A	130	A	A	106	67	57	A	A	A	A	A	A	A
20	36	37	32	A	A	32	41	54	54	A	A	A	68	69	68	72	A	66	N	A	A	43	45	46
21	49	41	40	36	36	34	42	54	47	52	53	A	58	A	A	65	A	A	68	80	80	A	A	A
22	A	A	B	A	A	A	39	A	A	A	A	A	A	67	70	75	88	63	A	A	A	48	44	42
23	44	42	41	35	34	31	39	44	A	A	A	A	A	A	A	A	A	70	45	49	50	40	40	37
24	A	37	35	37	34	32	A	A	A	44	A	A	55	55	54	57	55	55	55	54	52	54	52	A
25	A	A	A	A	A	A	41	73	51	56	54	57	56	65	62	70	A	A	49	47	A	B	B	
26	B	B	N	B	B	B		39	49	51	58	48	60	54	A		39	39	A	A	B	B	B	B
27	B	B	B	B	B	B	B	A	44	A	A	A	60	58	A	A	A	A	A	A	B	54	44	42
28	41	37	A	A	34	34	37	58	54	67	57	52	56	A	B	78	82	66	57	54	50	51	43	42
29	42	42	37	A	34	32	38	51	50	62	57	45	49	47	52	58	58	54	56	55	54	41	A	36
30	32	A	A	34	25	29	A	46	A	42	A	A	57	A	55	66	66	59	55	50	52	50	48	47
31	42	46	42	38	32	29	36	54	52	51	56	55	56	64	60	58	57	54	55	54	54	81	47	49
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	17	17	16	19	18	22	23	23	19	14	10	20	18	18	22	21	20	21	20	21	22	18	16
MED	41	37	37	34	34	32	38	48	52	54	55	58	56	57	61	64	64	64	55	53	52	50	44	42
U Q	44	42	41	37	34	34	41	54	54	59	58	84	59	64	68	70	73	67	57	54	54	52	48	46
L Q	36	33	34	34	32	29	37	42	47	51	51	52	51	55	55	58	57	54	50	51	51	43	42	39

HOURLY VALUES OF fEs AT Yamagawa

AUG. 2017

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	59	26	33	B	32	39		34	45	46	58	64	50	60	49	35	46	159	82	57	32	28	26	G
2	G	33	G	26	G	G	G	34	48	48	45	70	46	97	50	44	39	44	41	29	30	40	27	24
3	26	28	G	G	G	G	32	36	41	48	88	110	47	86	73	120	75	48	47	45	41	82	56	149
4	39	33	38	59	56	50	31	38	43	49	62	69	57	63	N	46	46	44	40	49	40	58	54	69
5	B	B	B	B	B	B	B	B	54	84	66	62	42	46	46	48	64	49	55	B	B	B	94	35
6	43	30	39	G	28	B	B	B	B	B	60	52	117	79	126	54	54	53	145	B	B	B	160	115
7	59	46	G	G	B	G	46	60	157	46	53	58	55	86	50	47	42	84	122	74	59	G	30	32
8	G	G	G	C	25	B	34	C	B	B	64	60	52	41	161	159	44	38	35	39	33	34	34	36
9	30	84	58	45	26	G	G	34	41	50	46	71	110	64	53	41	48	38	32	28	28	23	G	28
10	29	39	36	23	G	G	30	46	54	50	60	60	50	46	70	89	78	48	36	41	53	91	56	116
11	134	86	84	56	59	55	56	41	55	45	46	59	74	50	54	54	56	151	108	45	40	48	29	78
12	38	G	G	24	G	32	33	41	50	105	47	52	46	56	43	70	89	59	70	60	39	40	34	46
13	43	38	36	69	59	30	32	40	86	86	72	63	69	51	54	50	43	50	60	87	84	149	46	40
14	69	59	34	87	32	25	G	31	49	70	59	85	127	158	128		46	38	71	60	45	49	45	35
15	55	33	41	28	31	G	36	60	73	70	103	78	54	58	54	42	44	59	45	54	26	G	108	54
16	G	40	G	26	G	G	24	53	53	53	44	46	56	48	48	80	53	56	65	49	46	90	58	60
17	48	56	43	G	G	G	G	33	39	43	47	50	48	34	39	34	31	32	G	32	G	G	48	46
18	31	G	G	G	G	G	25	32	36	45	62	47	73	80	61	57	55	58	40	G	G	G	G	G
19	B	G	G	B	G	G	G	32	35	49	55	117	160	109	77	56	67	71	69	56	60	59	60	104
20	G	G	33	39	30	26	33	38	47	60	73	89	50	61	45	63	115	57	168	114	58	31	40	32
21	G	G	G	G	G	G	G	34	39	44	46	85	107	86	69	57	65	96	60	G	11	34	49	56
22	56	48	B	48	38	109	60	73	69	60	103	78	116	54	57	43	59	53	74	90	86	41	41	43
23	40	41	34	33	35	G	33	54	59	66	91	106	86	111	125	82	76	84	48	52	35	G	G	G
24	40	33	24	28	G	G	48	55	45	40	92	57	49	52	54	47	48	53	30	39	50	35	40	56
25	80	48	105	60	57	39	27	37	48	49	55	48	59	52	44	62	113	71	48	37	34	B	B	G
26	B	B	G	B	B	B	G	31	50	38	41	50	G	50	48	G	36	27	38	38	B	B	B	B
27	B	B	B	B	B	B	B	36	43	57	68	66	53	52	76	75	76	51	54	56	B	55	33	30
28	33	34	38	26	25	24	G	38	40	57	34	44	53	62	B	43	36	30	29	28	32	29	29	G
29	G	G	33	43	G	G	28	52	43	45	48	44	43	44	48	44	43	33	33	34	49	43	43	37
30	32	58	48	34	38	G	36	38	93	59	78	65	59	68	49	46	42	29	38	32	28	40	33	28
31	24	30	26	G	G	G	27	35	40	79	45	41	N	G	G	36	35	32	31	24	29	G	11	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	27	28	28	25	27	26	27	28	29	29	31	31	30	31	29	30	31	31	31	29	27	27	29	30
MED	38	33	33	28	25	G	30	38	48	50	59	62	54	58	54	49	48	51	48	45	39	40	40	36
U Q	55	47	38	46	35	30	34	49	54	63	72	78	74	80	71	63	67	59	70	56	50	55	55	56
L Q	24	13	G	G	G	G	G	34	41	45	46	50	49	50	48	43	43	38	36	32	29	23	29	28

HOURLY VALUES OF fmin AT Yamagawa

AUG. 2017

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

HOURLY VALUES OF foF2 AT Okinawa

AUG. 2017

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	49	A	A	23	A	A	32	41	53	54	50	45	49	61	66	71	70	66	80	77	54	54	40	43
2	41	41	40	32	32	29	31	45	63	48	52	54	52	A	54	58	66	71	67	64	63	40	40	35
3	26	30	30		28	N	30	52	71	47	53	48	A	50	A	53	56	62	67	A	64	50	A	A
4	A	A	A	A	32	32	A	52	60	51	A	A	65	67	66	72	80	71	60	49	54	53	51	A
5	A	50	41	47	39	28	A	54	66	52	A	62	A	52	55	55	56	51	58	55	51	46	45	37
6	41	40	36	36	34	A	A	50	43	A	44	A	A	A	A	67	55	109	161	54	A	A	A	A
7	A	A	A	A	A	A	35	54	46	52	47	46	A	57	61	70	77	80	109	54	51	38	31	A
8	31	31	28	25	N	N	32	48	43	47	A	A	60	70	98	A	117	107	82	54	50	51	50	A
9	A	A	A	A	A	A	32	42	50	56	A	54	109	67	66	68	68	57	61	71	78	N	A	28
10	N	A	A	A	A	N	26	51	62	53	A	A	A	66	62	60	58	A	A	49	73	53	A	A
11	A	A	A	A	A	A	30	29	A	A	A	A	A	A	74	A	86	76	72	67	54	A	44	41
12	42	41	41	40	36	A	34	47	A	54	A	A	A	67	57	62	75	74	70	54	51	51	52	A
13	47	41	47	37	29	A	34	51	65	66	A	117	A	60	91	86	73	63	67	65	63	54	A	A
14	A	A	A	A	A	A	38	42	46	A	A	A	A	A	76	91	102	100	97	86	86	40	30	A
15	A	A	A	A	A	28	A	48	41	51	46	A	93	A	A	A	85	189	67	109	A	A	A	A
16	A	A	38	34	34	26	36	43	49	A	A	79	80	55	A	63	70	75	80	A	A	A	A	A
17	A	A	A	N	23	A	34	49	51	57	50	49	A	57	68	66	70	78	86	80	64	54	54	54
18	52	47	50	52	34	31	N	42	49	A	A	A	A	A	A	A	A	A	60	60	54	65	37	34
19	B	N	29	28	B	B	31	59	50	45	A	44	52	61	57	72	71	40	50	51	67	A	A	A
20	A	42	28	N	26	30	A	60	54	A	A	99	72	A	82	A	A	A	77	A	A	52	47	47
21	47	42	42	42	40	34	40	53	52	A	A	A	126	189	64	A	99	A	A	102	65	A	59	A
22	A	A	A	A	A	A	38	A	A	139	90	A	A	86	84	82	102	74	A	53	A	52	A	A
23	A	40	41	A	A	29	36	A	A	A	A	50	66	62	55	68	94	A	72	70	A	40	36	28
24	30	32	A	A	28	28	30	51	A	A	51	54	60	58	58	64	67	61	A	37	68	54	47	A
25	A	42	42	A	159	A	38	53	54	54	61	A	76	A	84	81	74	A	A	A	84	47	A	A
26	29	29	32		B	B	32	33	61	58	A	56	65	71	67	68	65	A	64	62	64	A	37	37
27	36	37	32	32	29	N	25	54	78	66	A	64	A	A	64	A	A	A	A	A	A	A	A	A
28	A	32	34	25	28	26	34	51	63	62	58	62	57	69	86	87	104	108	91	84	78	51	37	40
29	A	40	34	32	A	31	A	55	59	54	53	A	A	54	50	58	64	65	75	71	54	44	40	A
30	37	36	34	36	30	N	34	52	51	55	A	56	A	A	62	62	70	75	70	50	52	52	48	A
31	42	42	47	41	34	34	34	51	53	46	56	A	64	70	49	65	62	66	67	68	67	72	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	14	19	20	16	18	13	24	29	26	22	13	17	16	21	26	24	28	23	25	26	24	22	20	12
MED	41	40	37	35	32	29	34	51	53	54	52	54	65	62	65	68	70	74	70	63	64	52	42	37
U Q	47	42	41	40	34	31	35	53	62	57	57	63	78	69	76	72	85	80	81	71	67	54	49	42
L Q	31	32	32	30	28	28	31	44	49	51	48	48	58	57	57	62	65	63	65	54	54	46	37	33

HOURLY VALUES OF fEs AT Okinawa

AUG. 2017

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	58	33	49	G	50	30	29	34	47	110	38	45	49	60	57	47	52	38	37	G	26	38	28	33
2	G	33	26	G	G	G	G	36	43	44	74	46	94	93	49	46	42	45	31	24	29	34	35	26
3	28	26	27		G	G	85	38	42	164	43	46	68	49	60	48	59	70	59	92	129	70	31	59
4	59	48	48	60	G	G	97	36	44	55	61	48	48	52	59	53	54	50	50	44	46	40	48	131
5	112	27	G	G	40	134	28	45	42	48	58	166	164	50	51	45	35	36	34	25	G	G	28	30
6	29	24	G	G	26	136	38	34	50	55	52	162	90	58	111	60	62	106	151	84	132	92	57	147
7	113	41	58	41	46	108	26	31	42	45	116	51	168	46	49	50	46	49	54	56	34	40	27	45
8	G	G	G	G	G	G	30	35	43	55	78	70	55	52	69	148	79	50	40	50	40	34	26	34
9	38	47	48	38	58	37	45	149	44	39	53	68	104	115	83	51	47	50	31	26	11	48	26	G
10	27	44	40	54	66	G	164	37	42	71	121	111	68	58	135	96	53	110	74	48	59	59	93	67
11	72	116	78	92	39	33	39	44	61	72	54	71	63	70	59	83	73	43	36	25	59	54	40	G
12	34	26	G	25	31	34	G	117	59	87	93	63	64	46	52	50	61	96	40	27	69	34	28	59
13	105	55	56	34	37	43	30	125	45	56	51	124	64	114	48	50	45	49	55	63	133	130	93	60
14	58	59	147	59	58	57	54	54	132	55	60	65	60	80	109	179	154	36	60	G	11	38	G	28
15	33	35	41	61	50	58	30	27	166	59	50	53	64	142	137	124	100	116	46	112	94	134	70	105
16	112	59	34	33	27	G	90	45	70	144	103	97	78	41	74	60	60	73	69	73	126	115	92	110
17	106	58	45	28	24	34	G	40	39	180	50	47	46	48	43	43	39	32	G	G	G	G	G	35
18	38	38	G	G	G	G	24	111	37	115	51	53	52	54	147	78	96	83	53	34	35	28	G	G
19	B	G	G	G	B	B	G	32	31	46	68	60	49	48	54	86	89	44	46	78	59	58	92	92
20	54	34	G	33	G	32	34	59	49	51	66	86	92	92	86	85	104	120	123	64	92	57	29	28
21	31	G	G	G	G	G	G	30	41	61	55	130	114	115	56	66	94	112	136	74	39	27	G	40
22	69	45	67	55	56	70	33	84	72	124	87	124	92	87	75	45	57	70	133	36	115	37	58	48
23	48	40	31	34	31	G	54	105	106	110	89	45	61	60	51	54	71	125	80	57	92	32	G	G
24	G	G	55	32	26	G	109	49	41	45	45	44	45	164	46	40	37	58	83	44	36	48	38	134
25	58	59	26	32	25	30	28	42	165	52	56	78	61	104	57	64	58	130	114	135	59	41	31	28
26	G	G	G	G	B	B	26	43	49	71	147	60	54	48	56	66	58	136	38	25	27	33	34	G
27	27	G	G	G	G	G	G	39	40	49	97	75	88	150	47	121	130	136	87	156	115	85	79	49
28	59	29	G	G	24	G	G	33	40	53	52	59	49	86	48	50	56	41	49	36	32	41	33	28
29	24	28	24	27	52	G	34	41	46	47	47	92	58	49	43	45	37	31	31	27	G	29	24	38
30	32	34	G	G	G	33	G	35	49	55	68	45	118	68	73	47	45	67	34	26	34	G	29	56
31	35	28	27	24	G	G	25	35	49	59	50	61	47	51	45	34	30	32	32	30	G	52	G	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	30	31	31	30	29	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	38	34	27	28	26	30	30	40	45	55	58	63	64	60	57	53	58	58	50	44	40	40	31	38
U Q	59	47	48	38	48	40	45	54	59	87	87	92	92	93	75	83	79	110	80	73	92	58	57	60
L Q	28	26	G	G	G	G	G	35	42	49	51	48	52	49	49	47	45	43	36	26	27	33	26	28

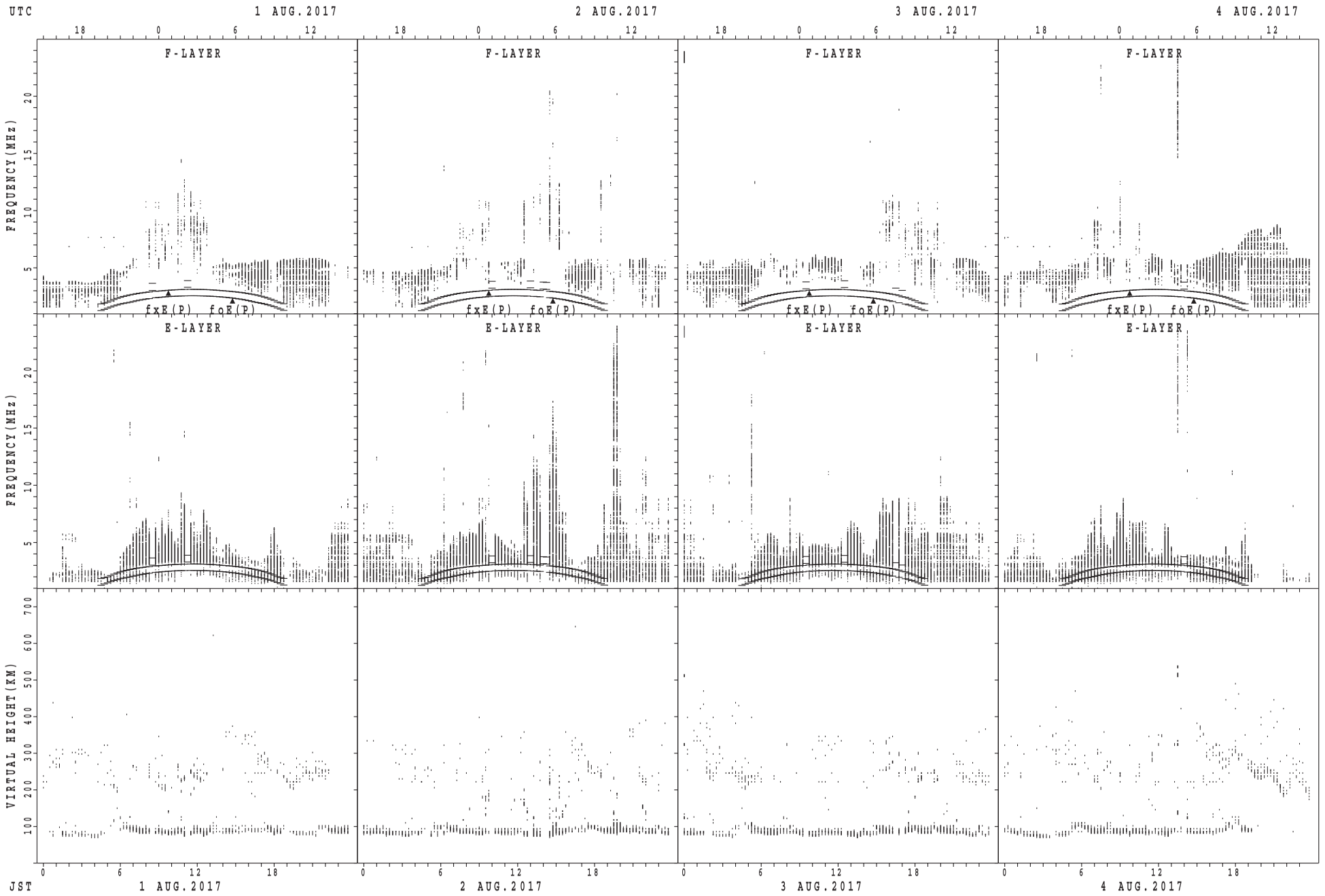
HOURLY VALUES OF fmin AT Okinawa

AUG. 2017

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

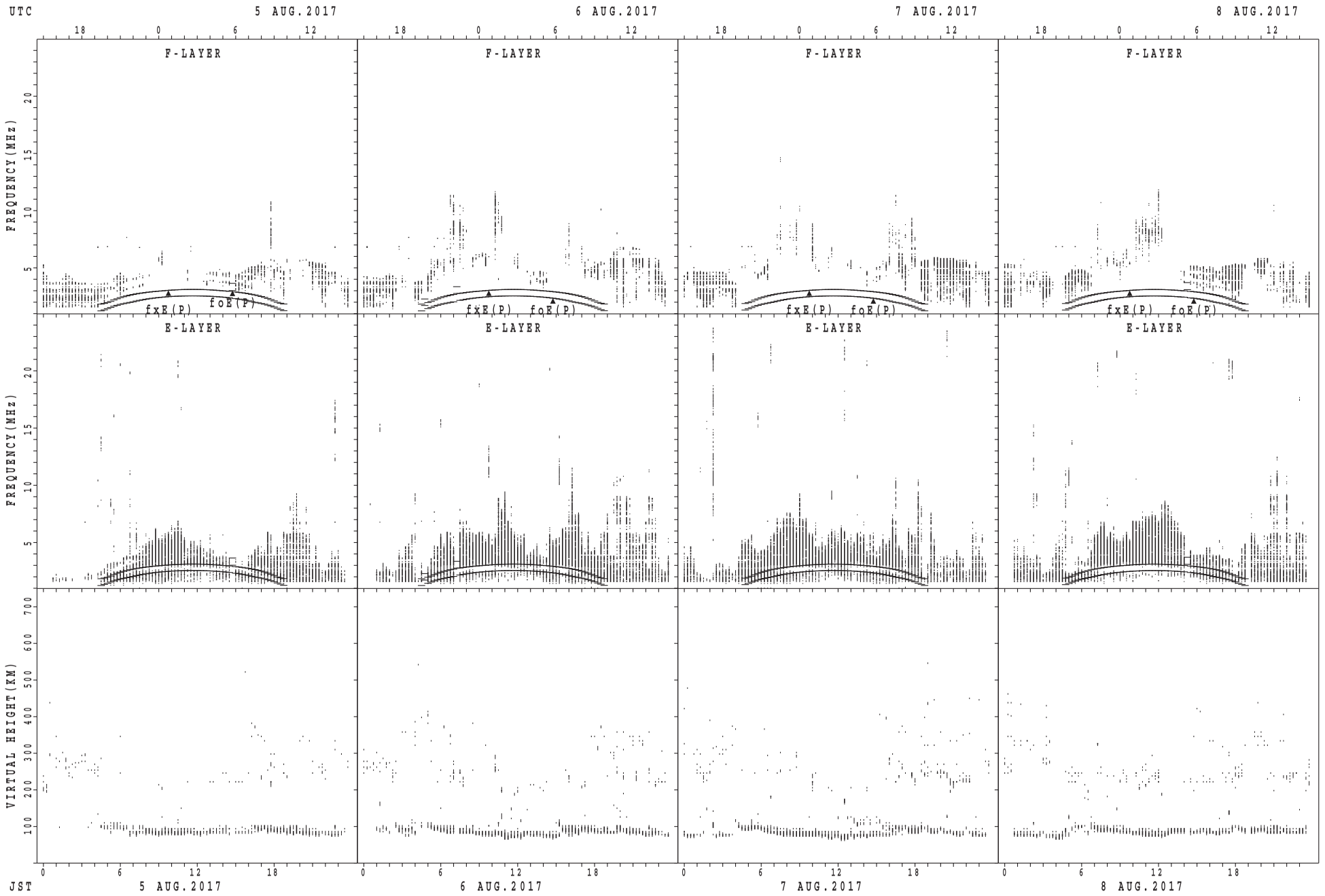
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	14	14	14	14	14	14	14	14	14	15	17	18	18	16	14	14	14	14	15	14	14	14
2	15	15	15	14	14	14	15	14	14	18	18	20	22	18	17	18	18	14	14	15	14	15	14	15
3	14	14	14		15	14	14	14	14	15	17	17	18	18	18	15	14	14	14	14	14	14	14	14
4	14	14	14	14	15	14	14	14	14	14	17	16	17	18	17	15	14	14	14	14	14	14	15	14
5	14	14	15	15	15	14	14	14	14	14	15	18	15	17	14	17	14	14	14	15	15	14	14	14
6	14	15	14	14	14	14	14	15	14	14	16	17	21	22	18	20	17	14	14	14	14	14	15	14
7	14	14	15	16	14	15	15	14	14	14	16	18	20	18	18	15	14	14	14	14	14	14	15	14
8	14	14	14	14	14	14	14	14	14	14	18	18	17	22	20	18	18	14	14	14	14	14	14	14
9	14	14	14	14	14	14	14	14	14	18	16	17	17	20	20	16	14	14	14	14	15	14	15	15
10	15	14	14	15	14	15	14	14	14	15	18	18	20	17	15	15	14	14	14	14	14	14	14	14
11	14	14	14	14	14	14	14	14	14	15	14	18	17	18	17	16	15	14	14	14	14	14	14	15
12	14	14	15	15	14	14	15	14	14	14	15	18	23	20	20	18	14	14	14	14	15	14	15	14
13	14	14	14	14	14	14	14	14	14	15	15	17	20	20	18	16	14	14	14	14	14	14	14	15
14	15	14	14	15	14	14	14	14	14	14	14	21	20	20	17	17	14	14	14	14	15	14	14	15
15	14	14	14	14	14	16	14	14	14	14	15	16	18	17	18	16	14	14	14	14	14	14	15	14
16	14	14	14	14	14	14	14	14	14	14	17	18	15	18	18	17	15	14	14	14	14	15	14	15
17	14	15	15	14	14	14	15	14	14	14	18	20	18	23	23	17	18	16	14	15	14	15	17	14
18	14	14	15	14	15	15	14	14	14	14	16	18	20	20	20	18	14	14	14	14	14	15	15	14
19	B	15	15	15	B	B	14	14	14	14	15	18	20	18	36	23	14	15	14	14	14	14	14	15
20	15	15	15	15	15	14	14	14	14	15	17	36	30	21	21	16	15	14	14	14	14	14	14	14
21	14	14	14	14	14	14	14	14	14	15	23	26	21	21	18	16	14	14	14	14	14	14	16	14
22	14	14	15	14	14	15	14	14	14	14	16	18	20	20	20	16	14	14	14	14	14	14	14	14
23	14	14	14	14	14	14	14	14	14	16	18	18	21	20	20	18	17	14	14	14	14	14	14	14
24	15	14	14	14	14	14	14	14	14	15	18	23	23	21	20	18	15	14	14	14	14	14	15	14
25	14	15	14	14	14	15	15	14	14	14	15	22	23	24	23	20	14	15	14	14	14	14	14	14
26	15	14	15	135	B	B	14	14	14	14	23	23	23	22	20	17	14	14	14	14	14	14	14	14
27	14	14	14	14	15	14	15	14	14	15	15	26	20	21	18	17	14	14	14	14	15	14	14	14
28	15	14	15	14	14	14	14	14	14	14	16	17	20	18	15	15	14	14	14	14	15	14	14	14
29	14	14	15	14	14	14	15	14	14	14	17	18	29	23	20	17	16	14	14	14	14	14	15	14
30	14	15	20	14	14	14	14	14	14	14	17	18	20	22	18	16	15	14	14	14	14	14	14	14
31	15	15	14	14	14	14	16	14	14	15	17	18	20	16	16	14	14	14	14	14	14	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	31	31	30	29	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	14	14	14	14	14	14	14	14	14	14	16	18	20	20	18	17	14	14	14	14	14	14	14	14
U Q	15	15	15	15	14	14	15	14	14	15	18	20	21	21	20	18	15	14	14	14	14	14	15	15
L Q	14	14	14	14	14	14	14	14	14	14	15	17	18	18	17	16	14	14	14	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai

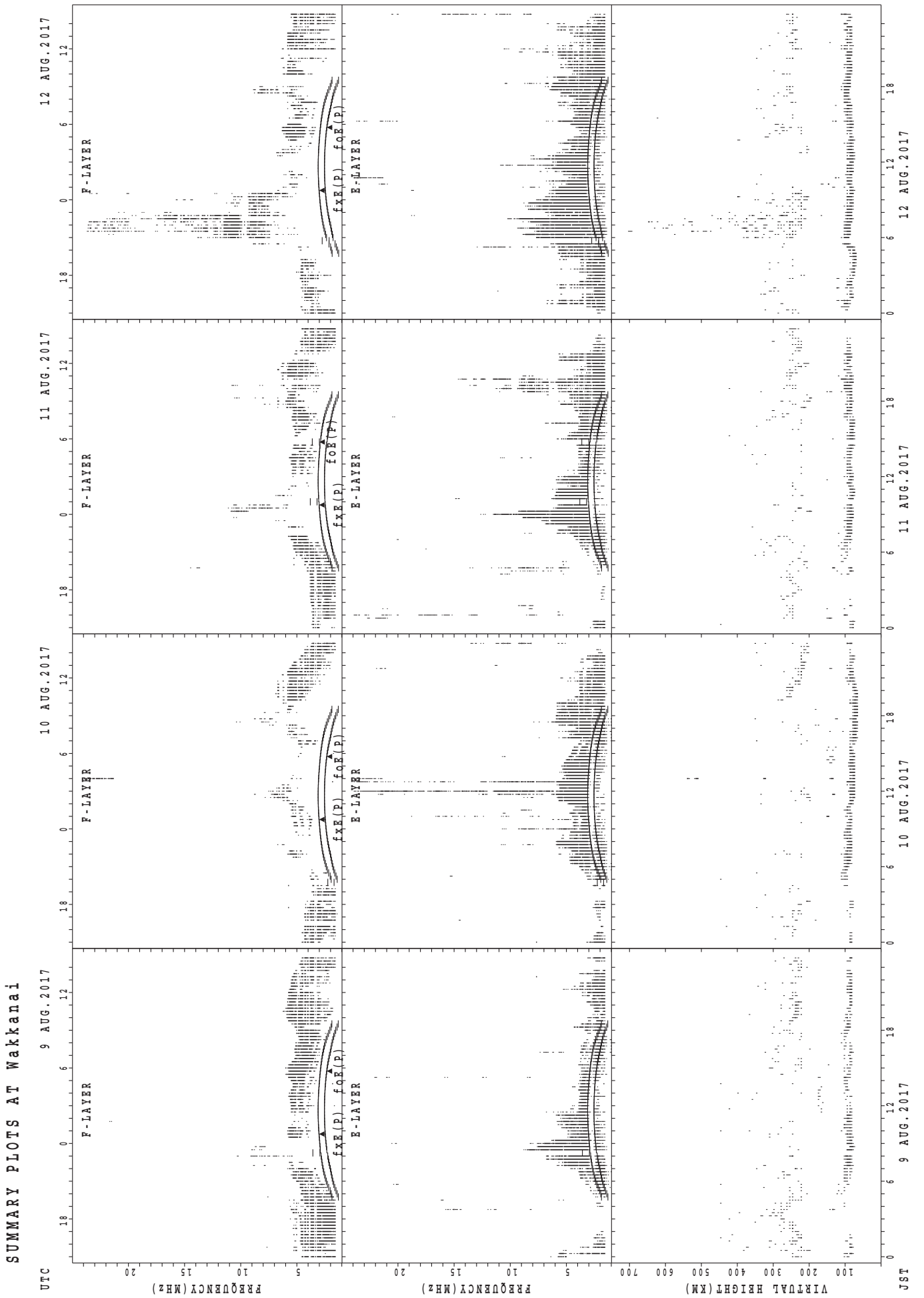


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

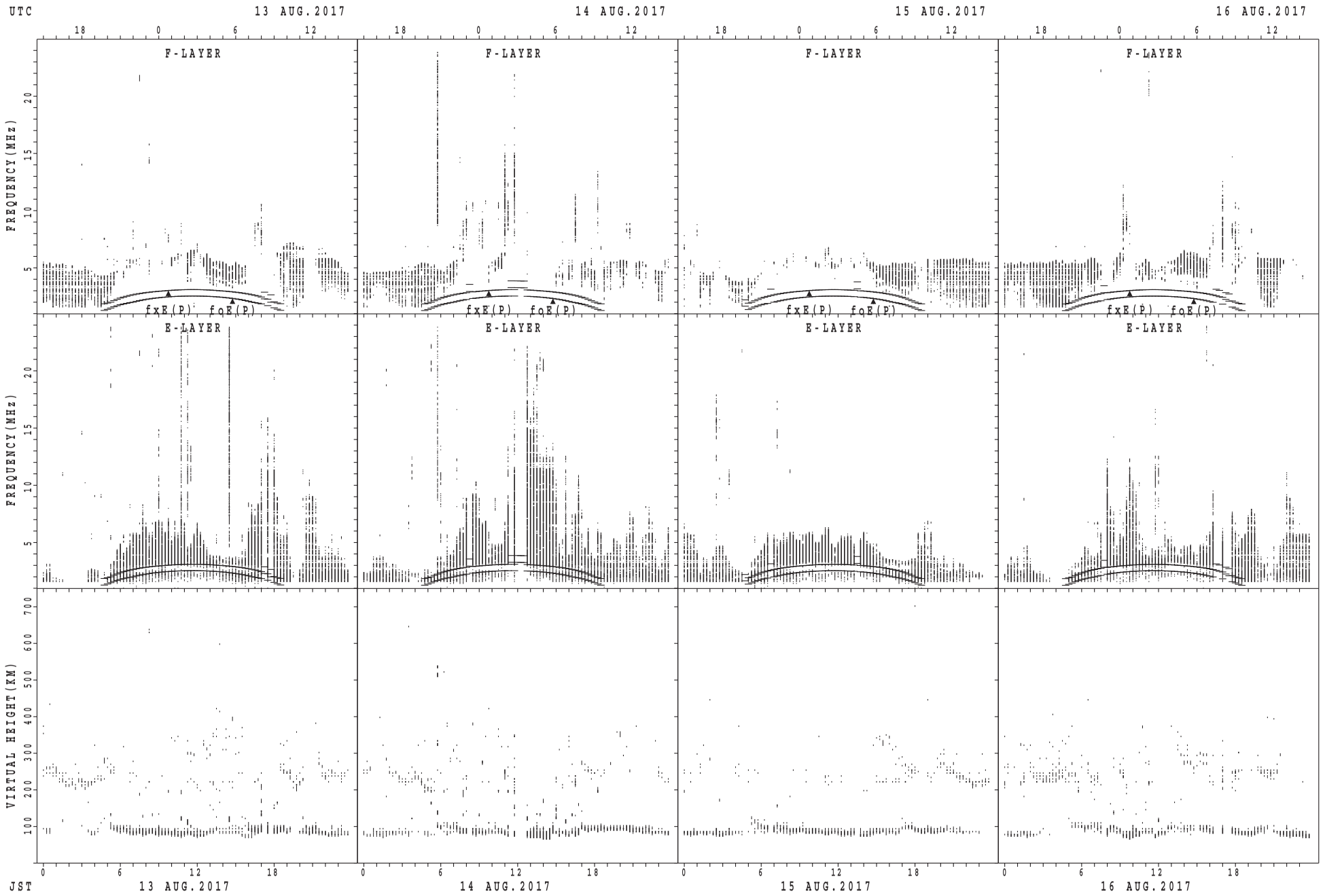
SUMMARY PLOTS AT Wakkanai



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

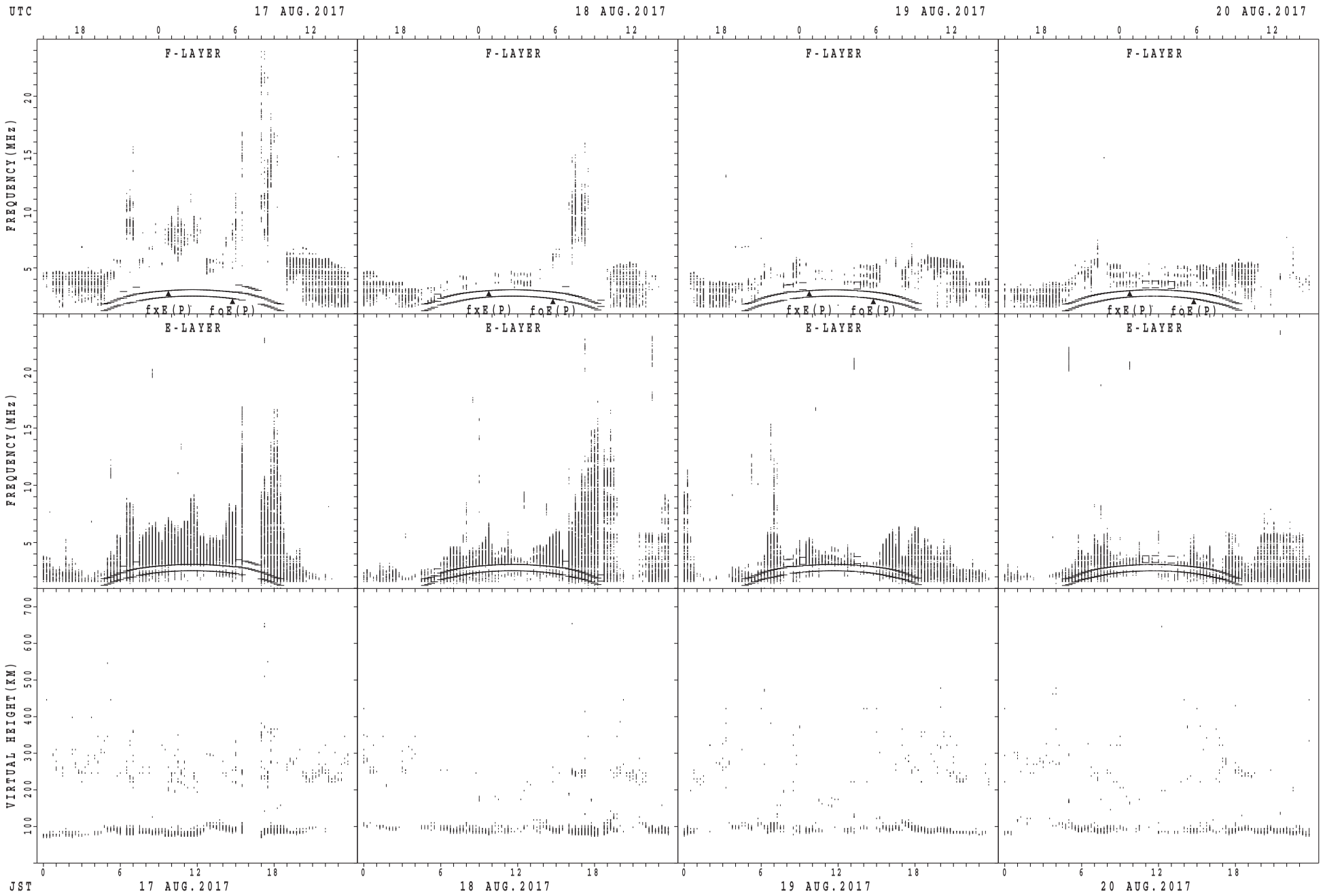

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 AUG.2017
10 AUG.2017
11 AUG.2017
12 AUG.2017
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



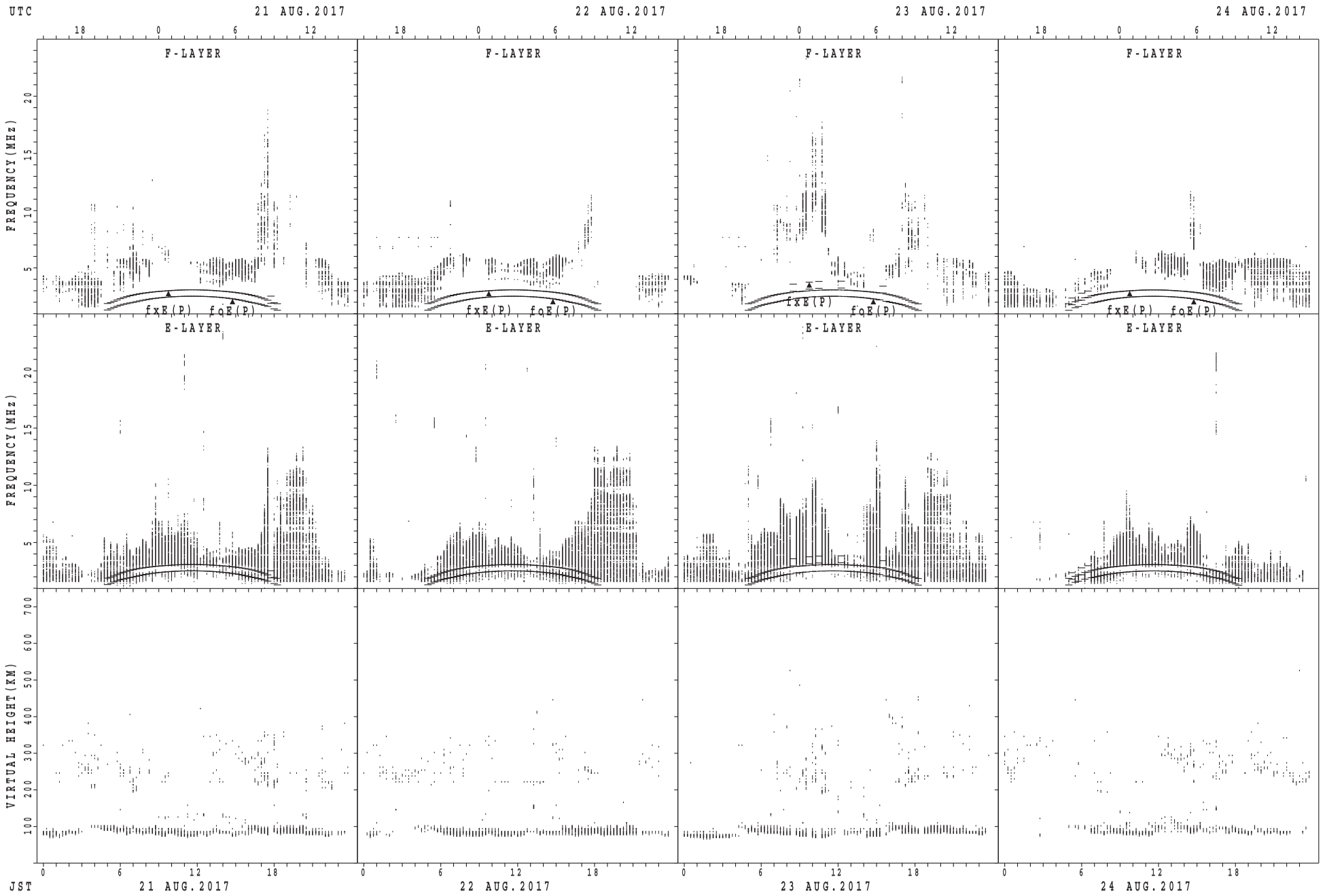
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



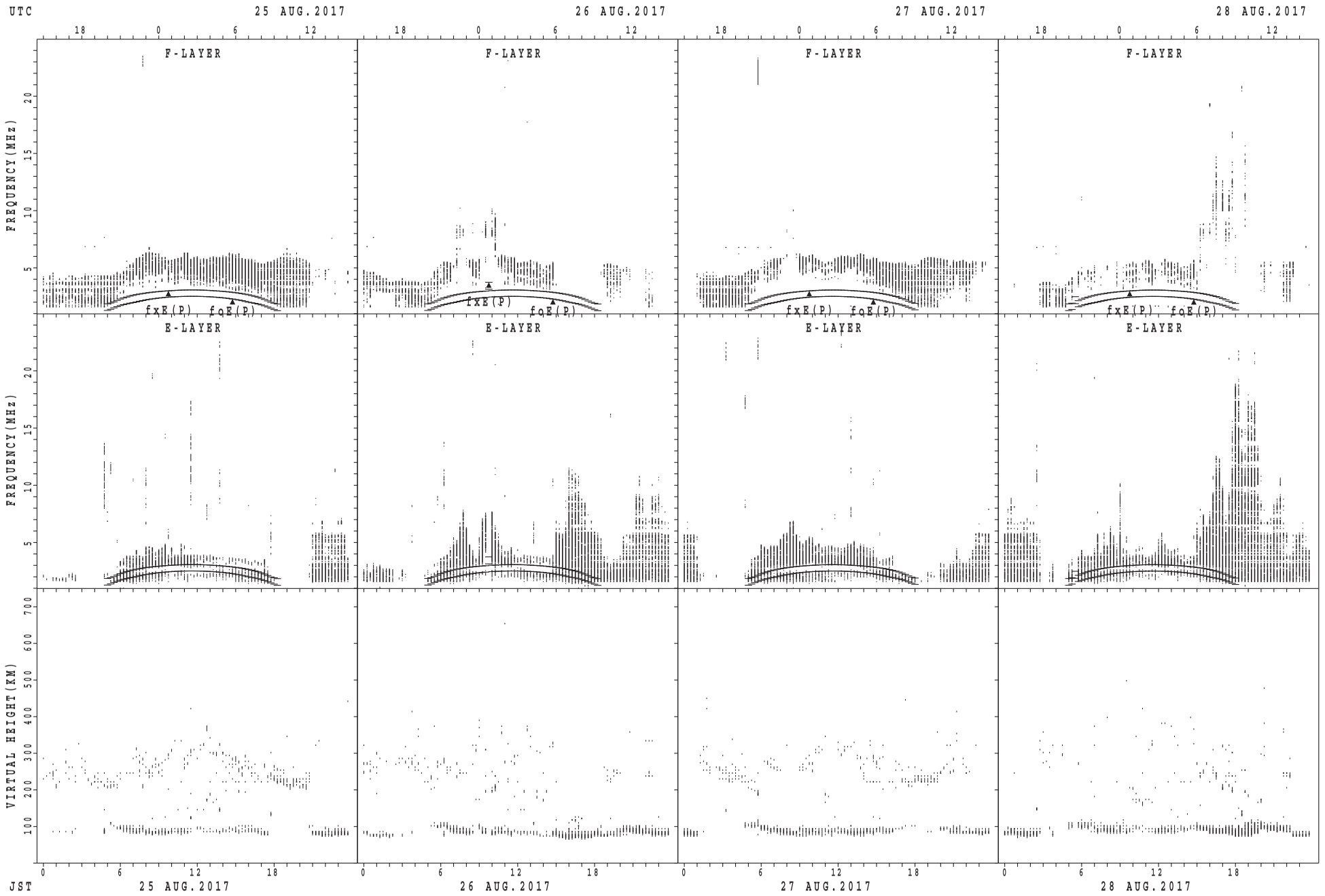
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



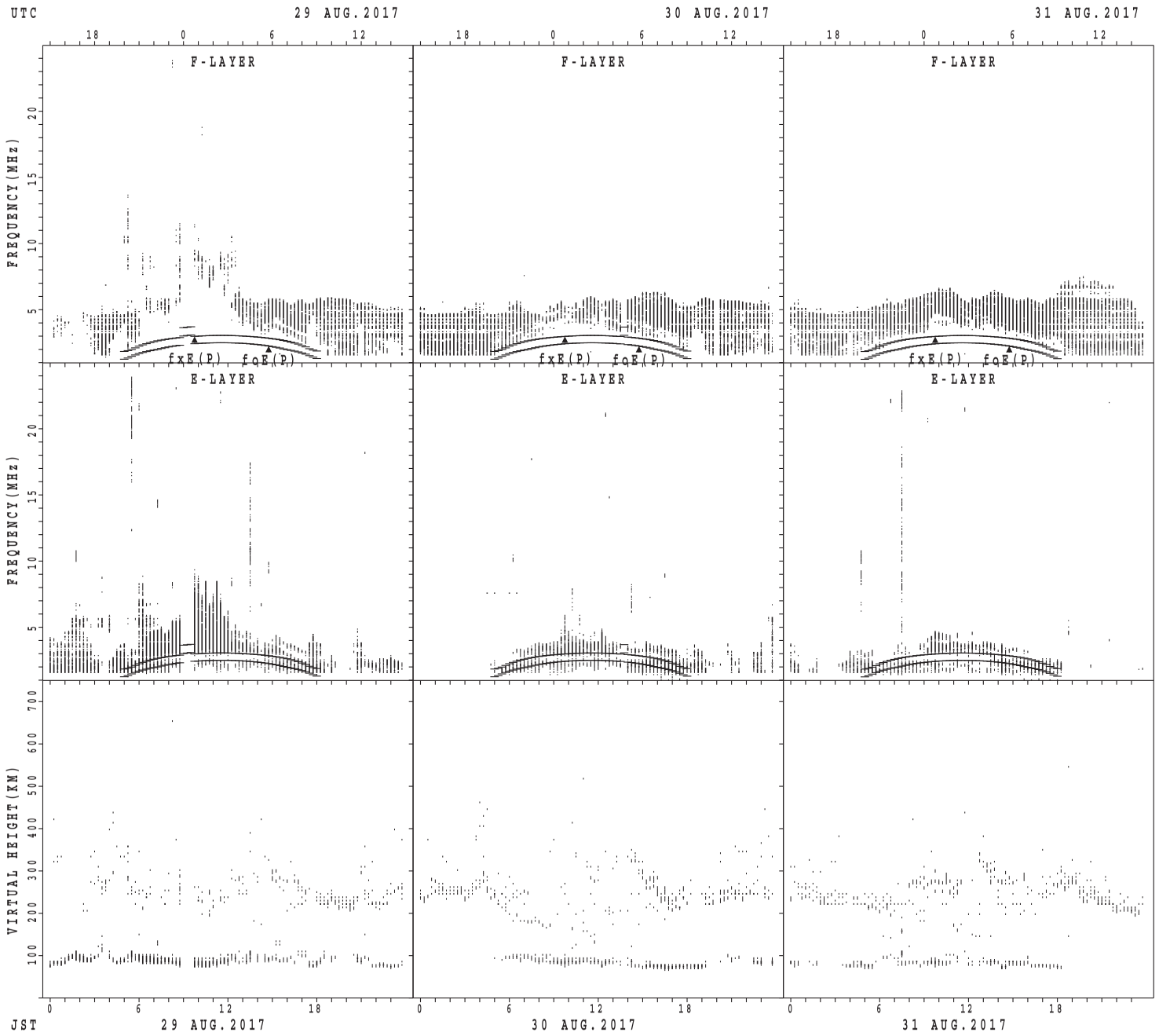
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



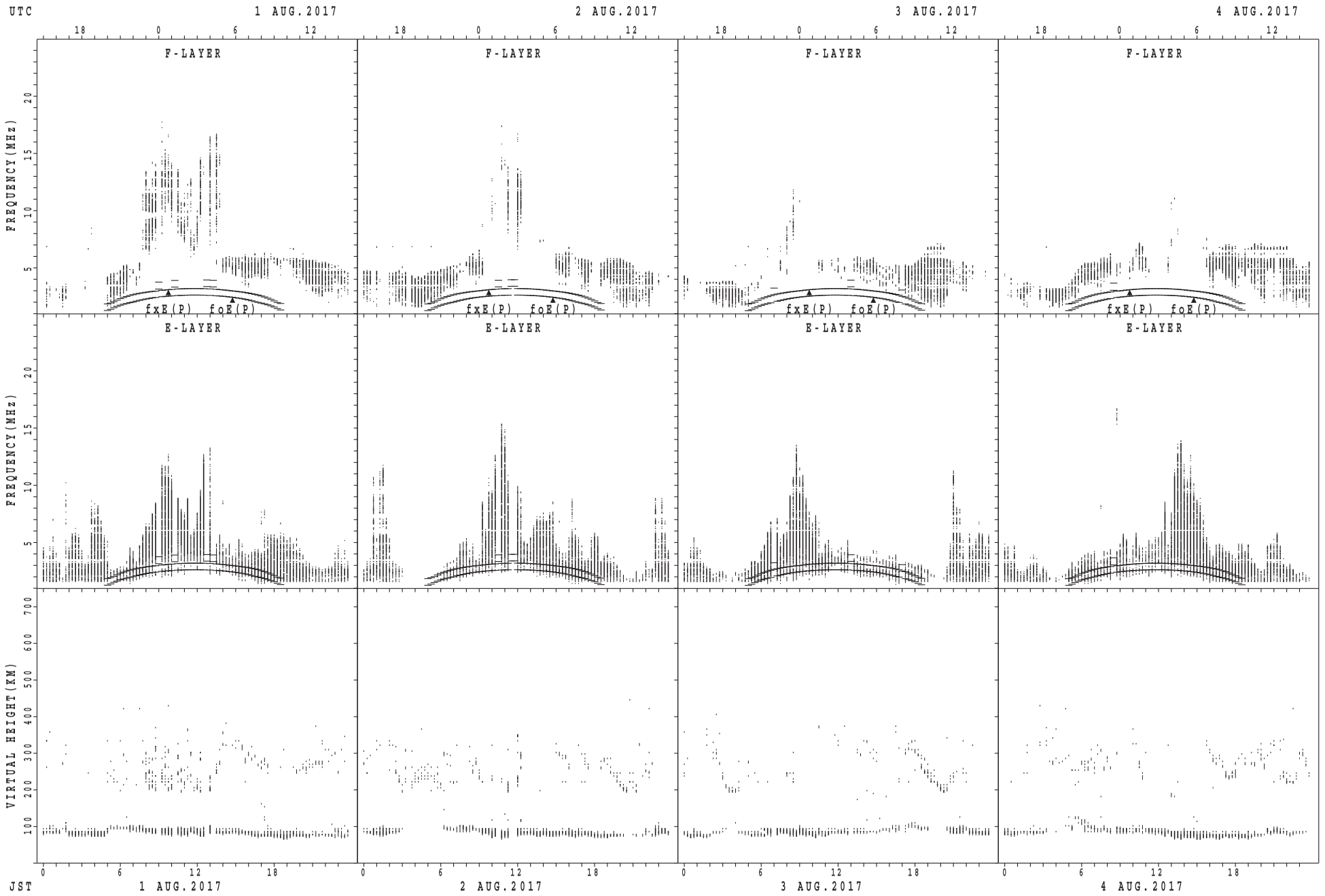
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



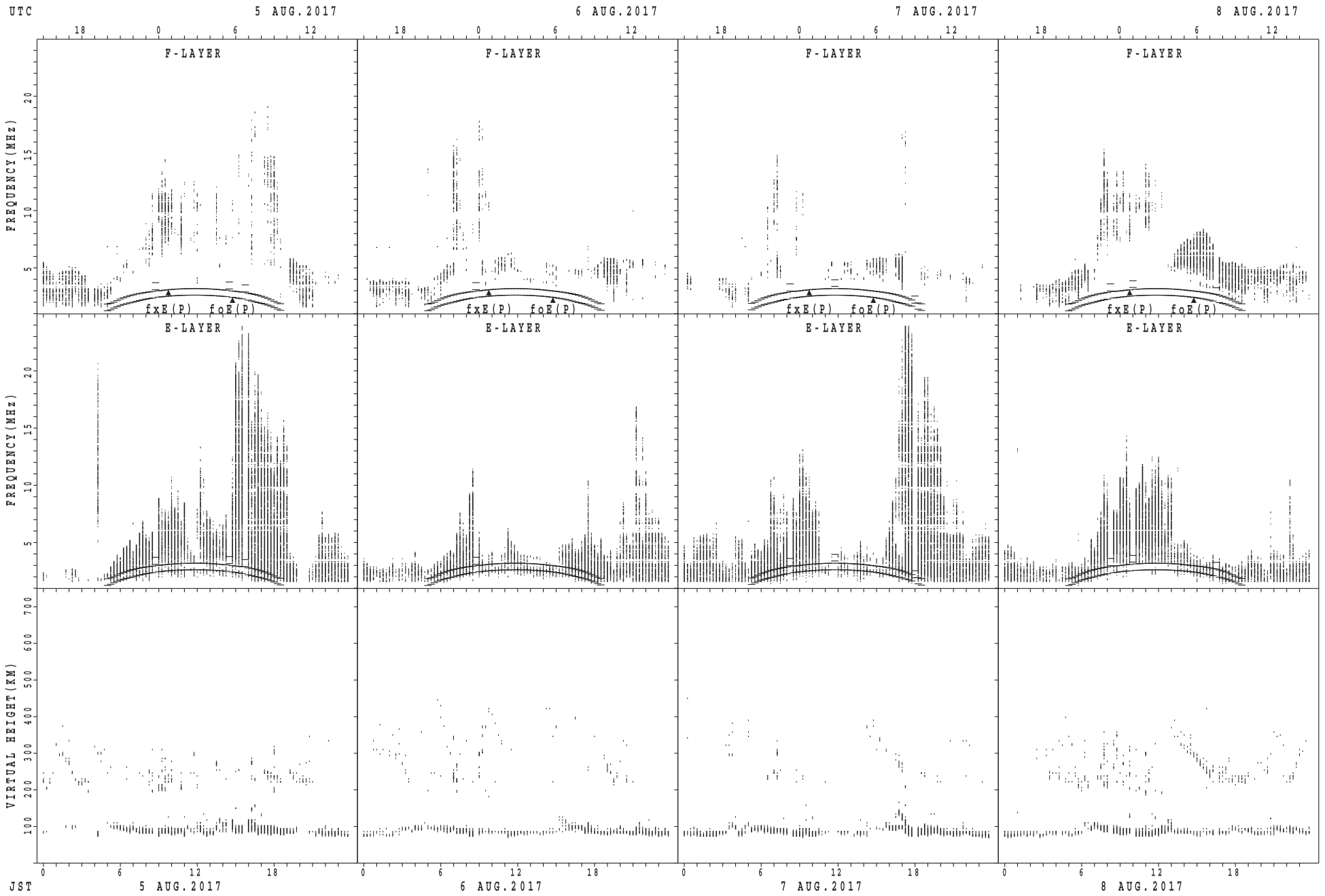
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

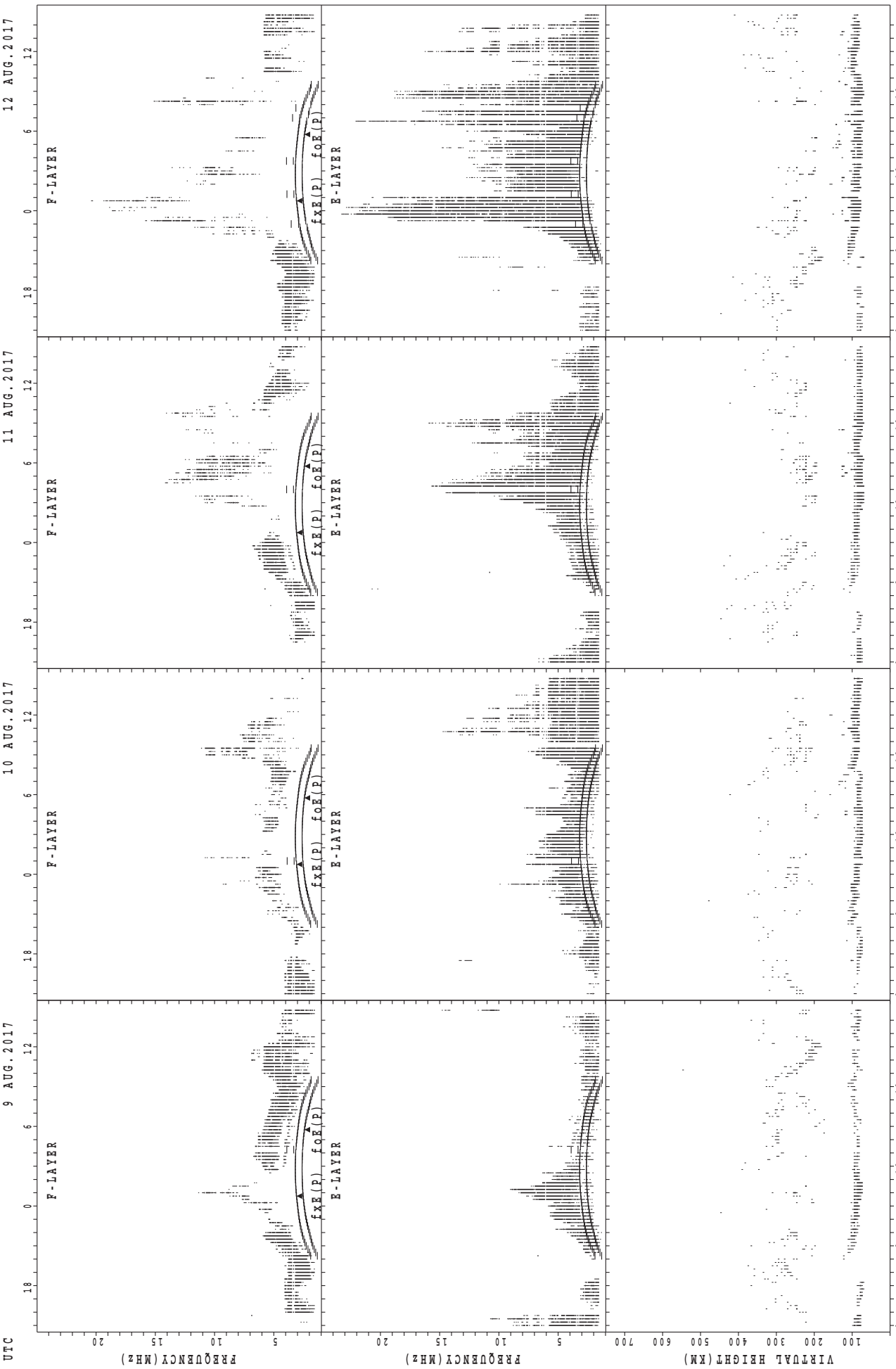


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

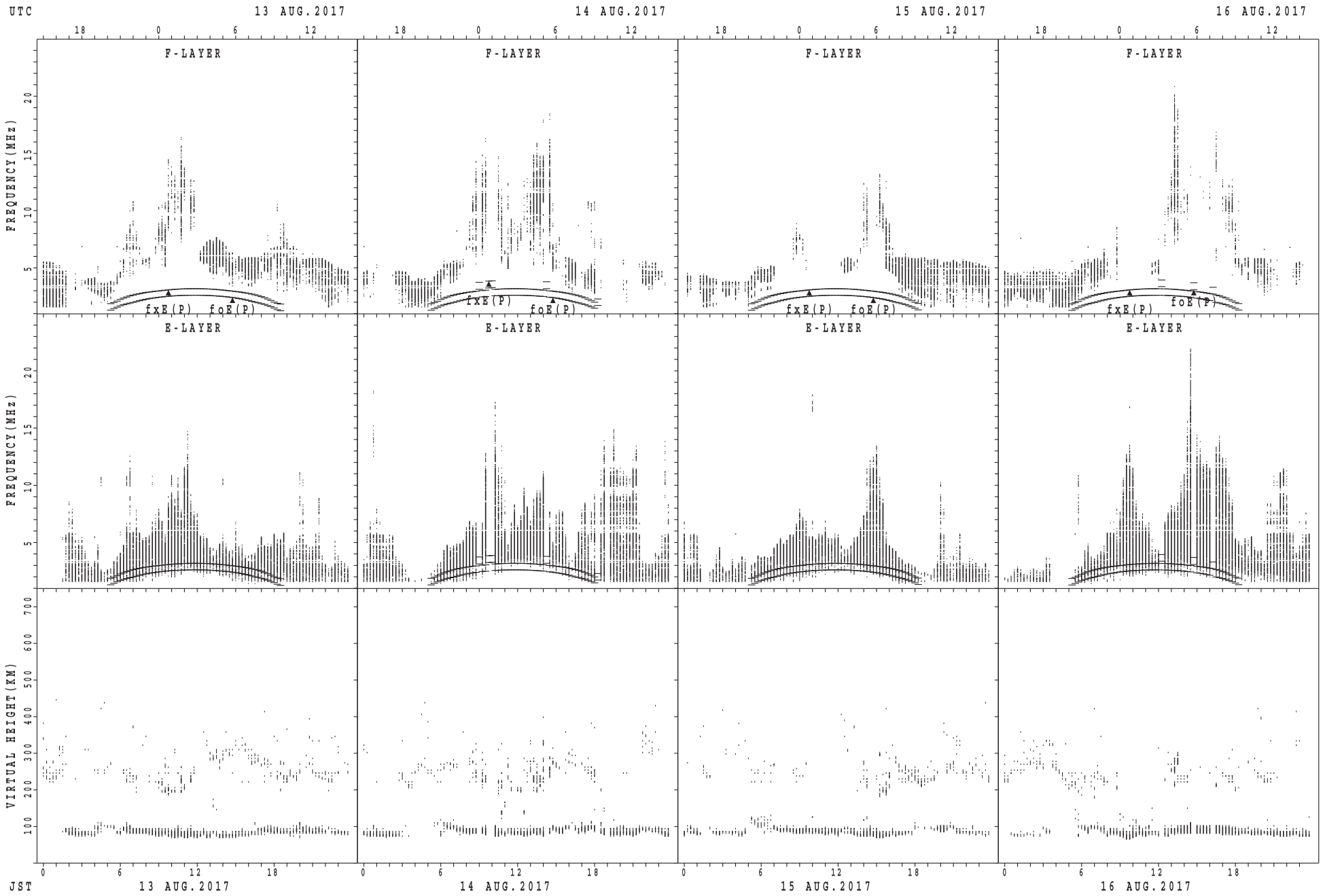
SUMMARY PLOTS AT Kokubunji



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

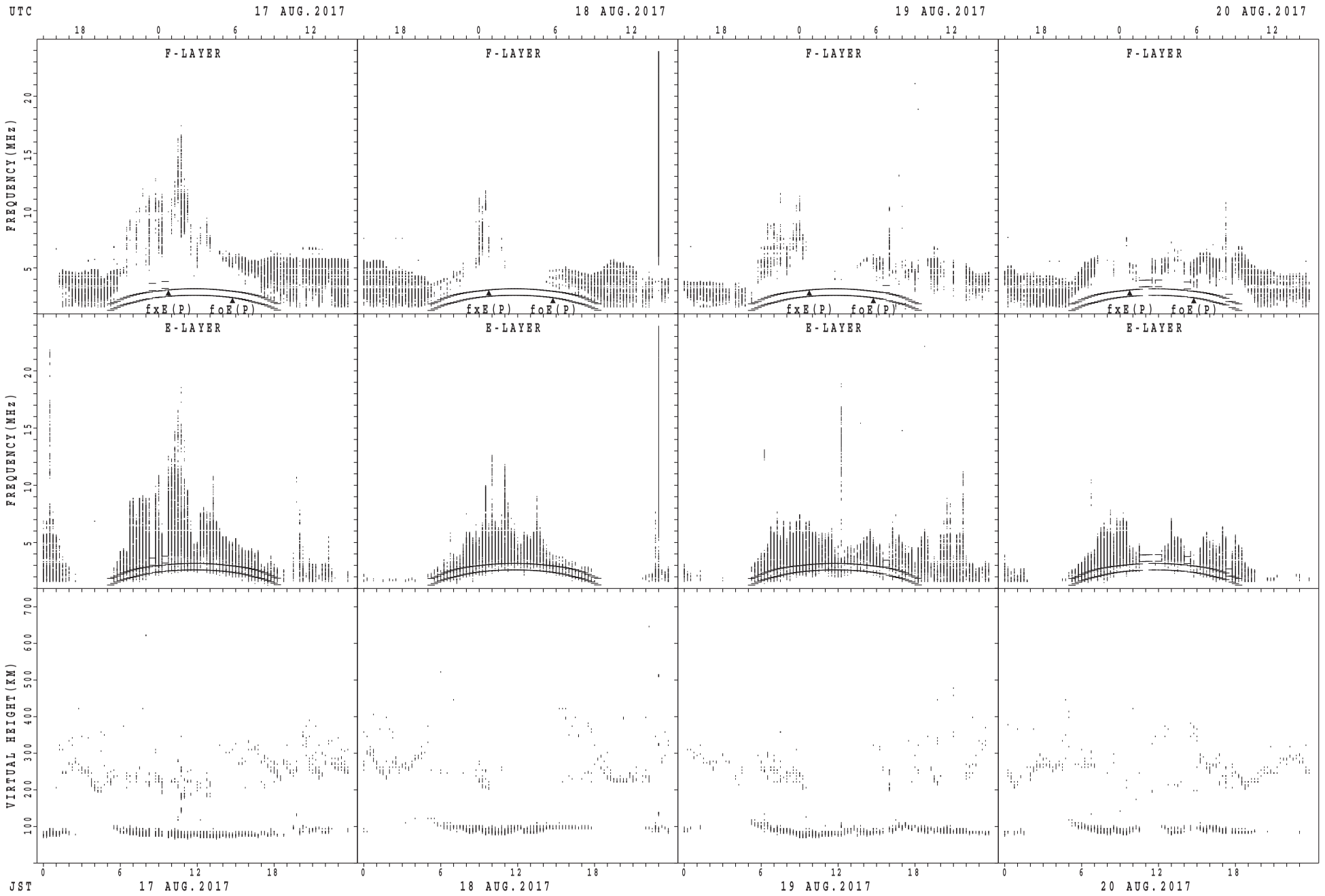

SUMMARY PLOTS AT Kokubunji
UTC
JST
9 AUG.2017
10 AUG.2017
11 AUG.2017
12 AUG.2017
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



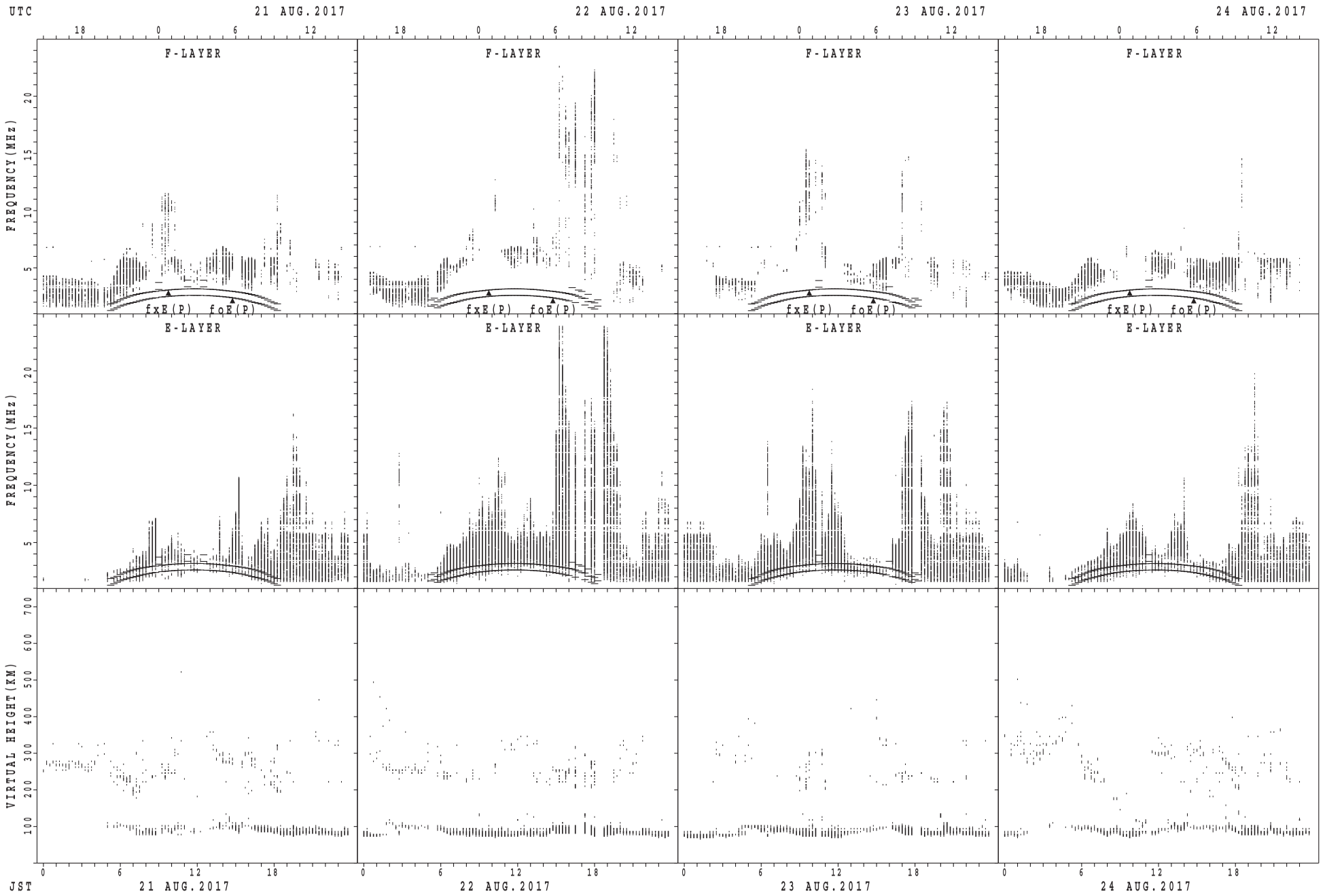
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



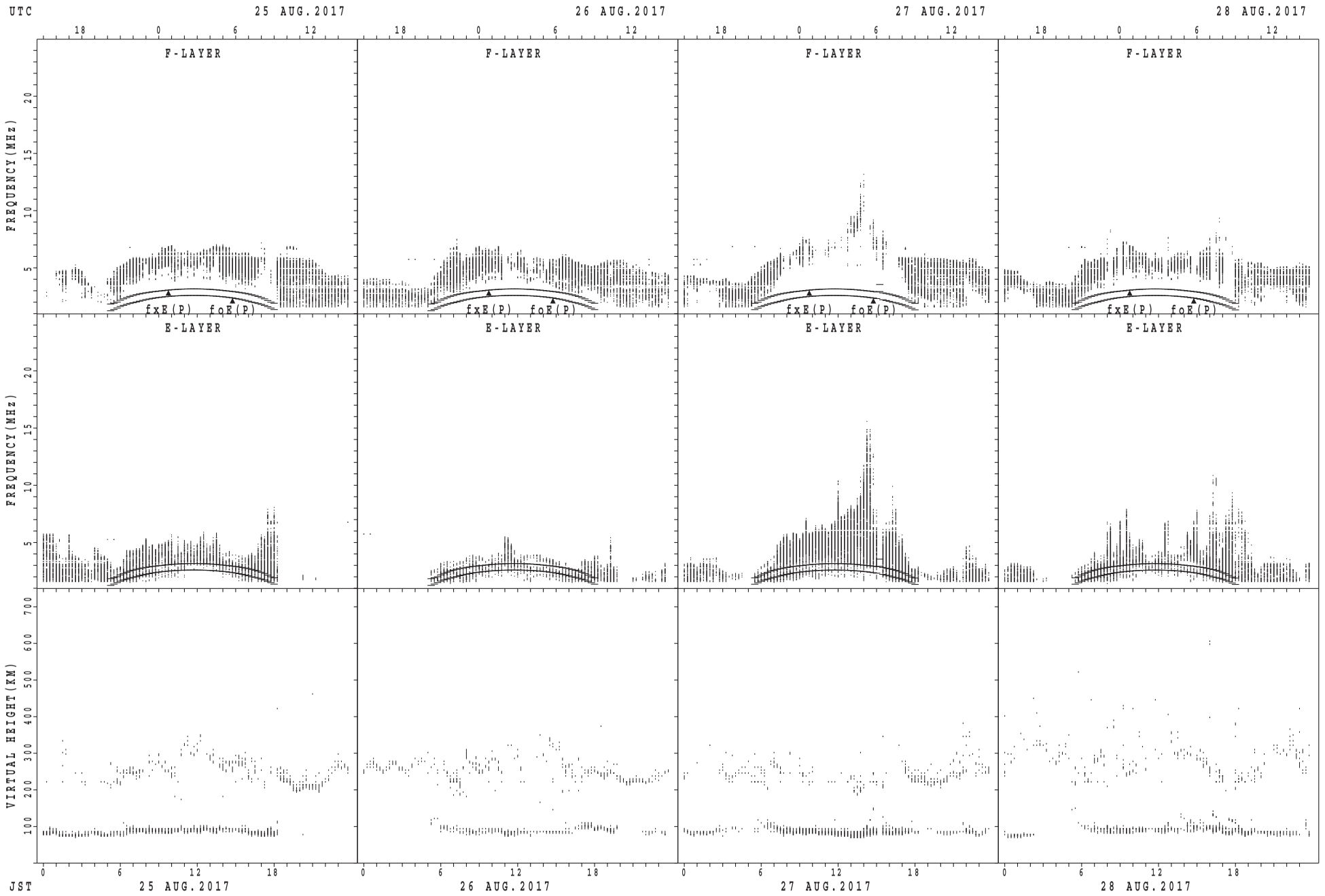
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



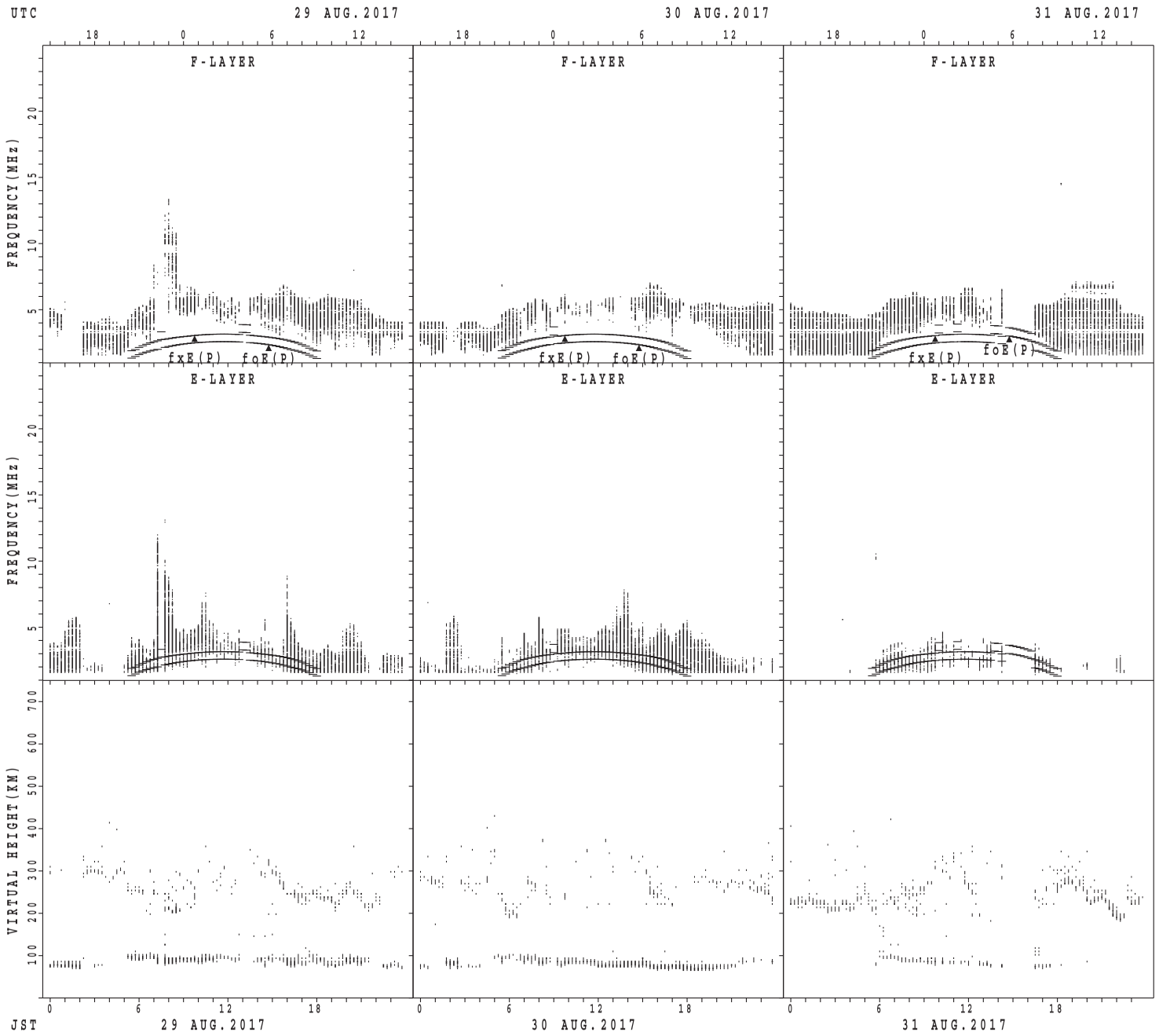
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



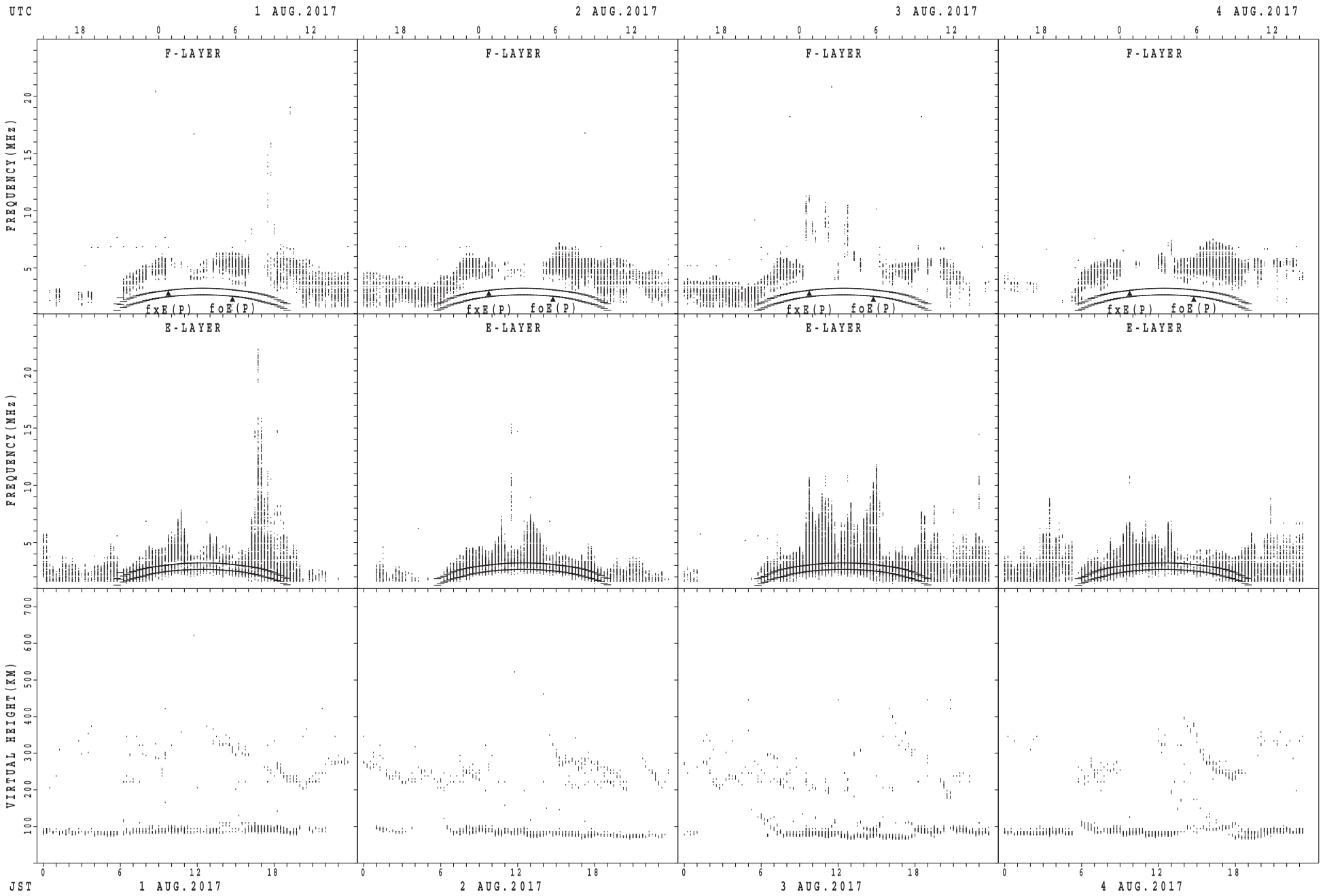
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

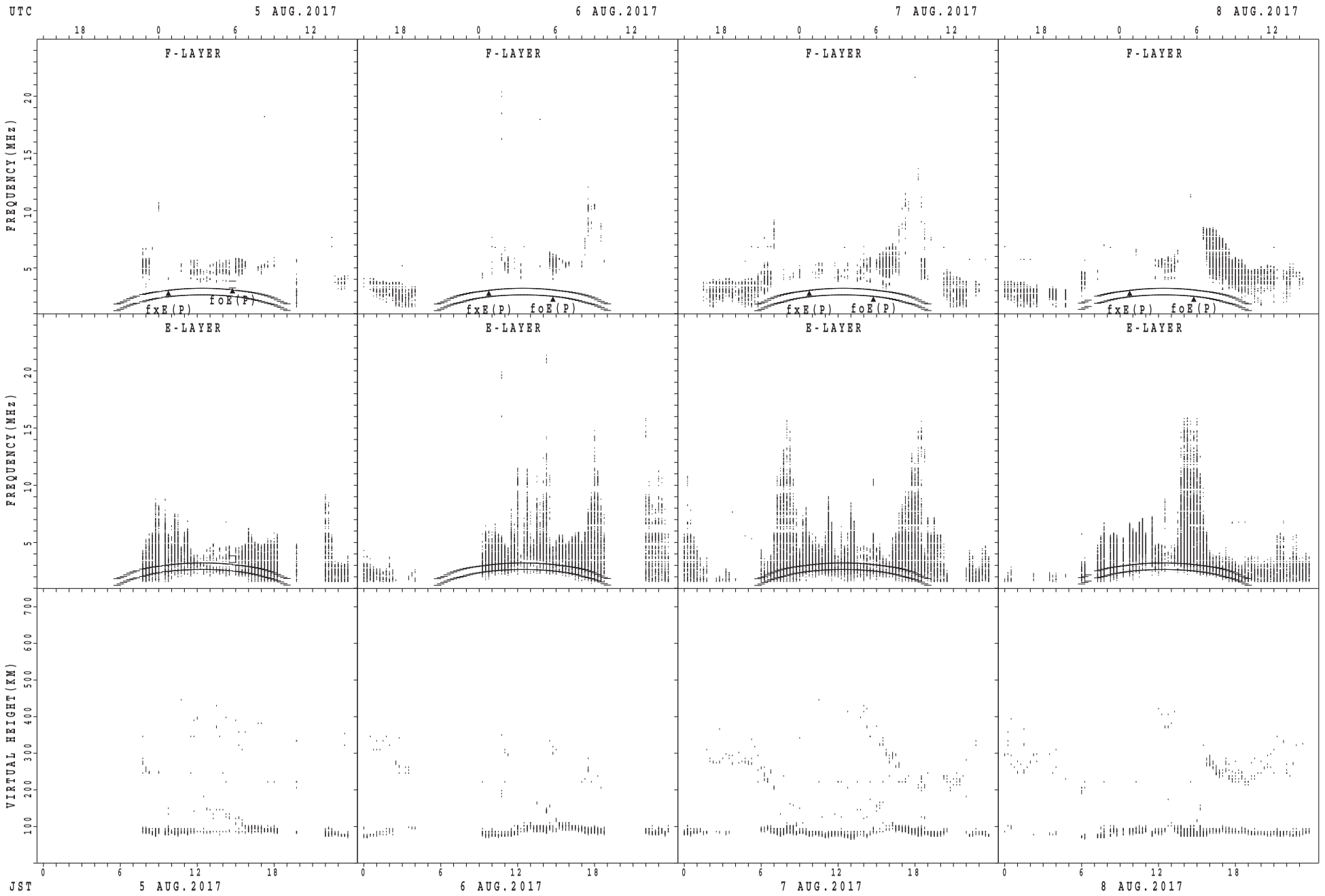


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

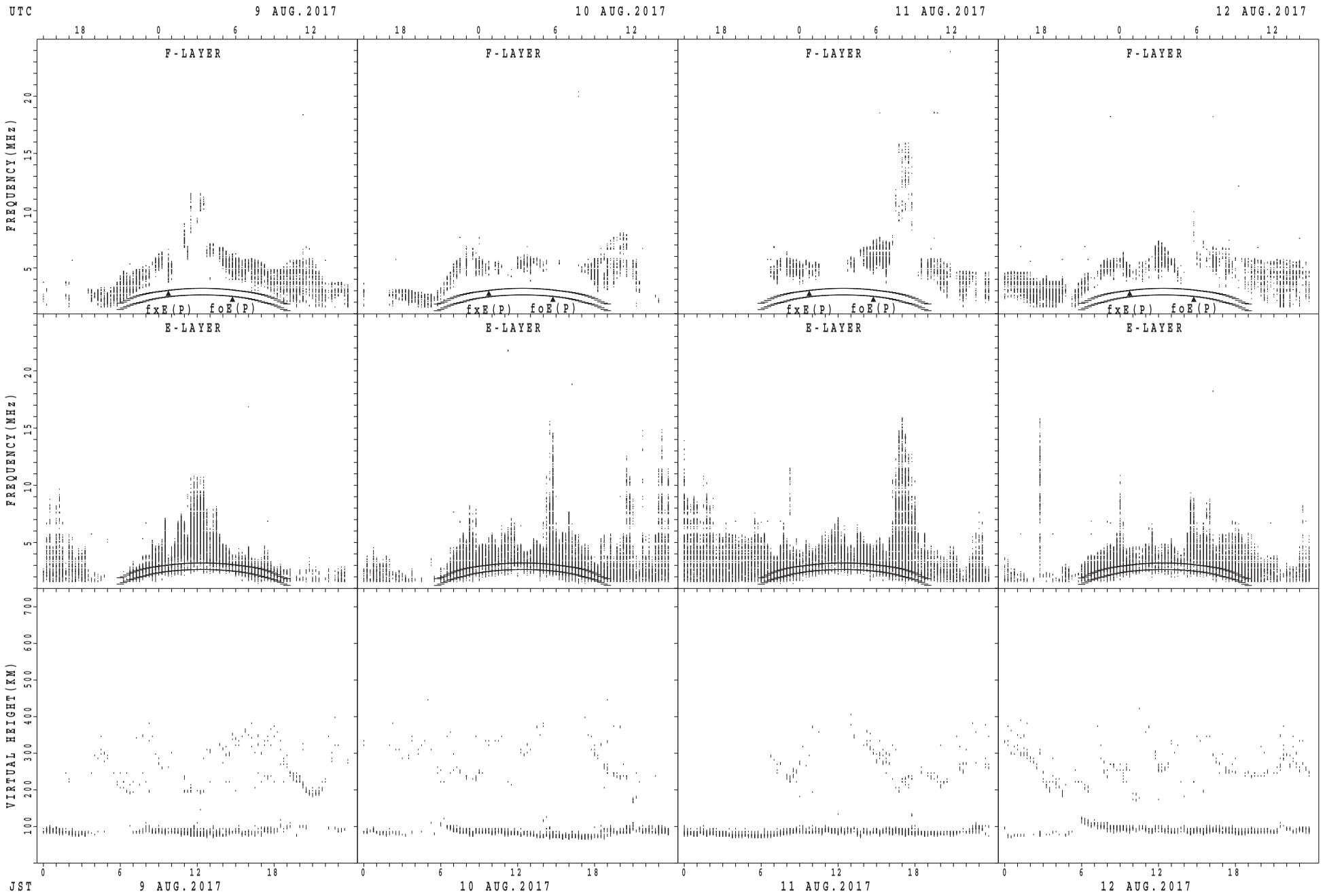
SUMMARY PLOTS AT Yamagawa



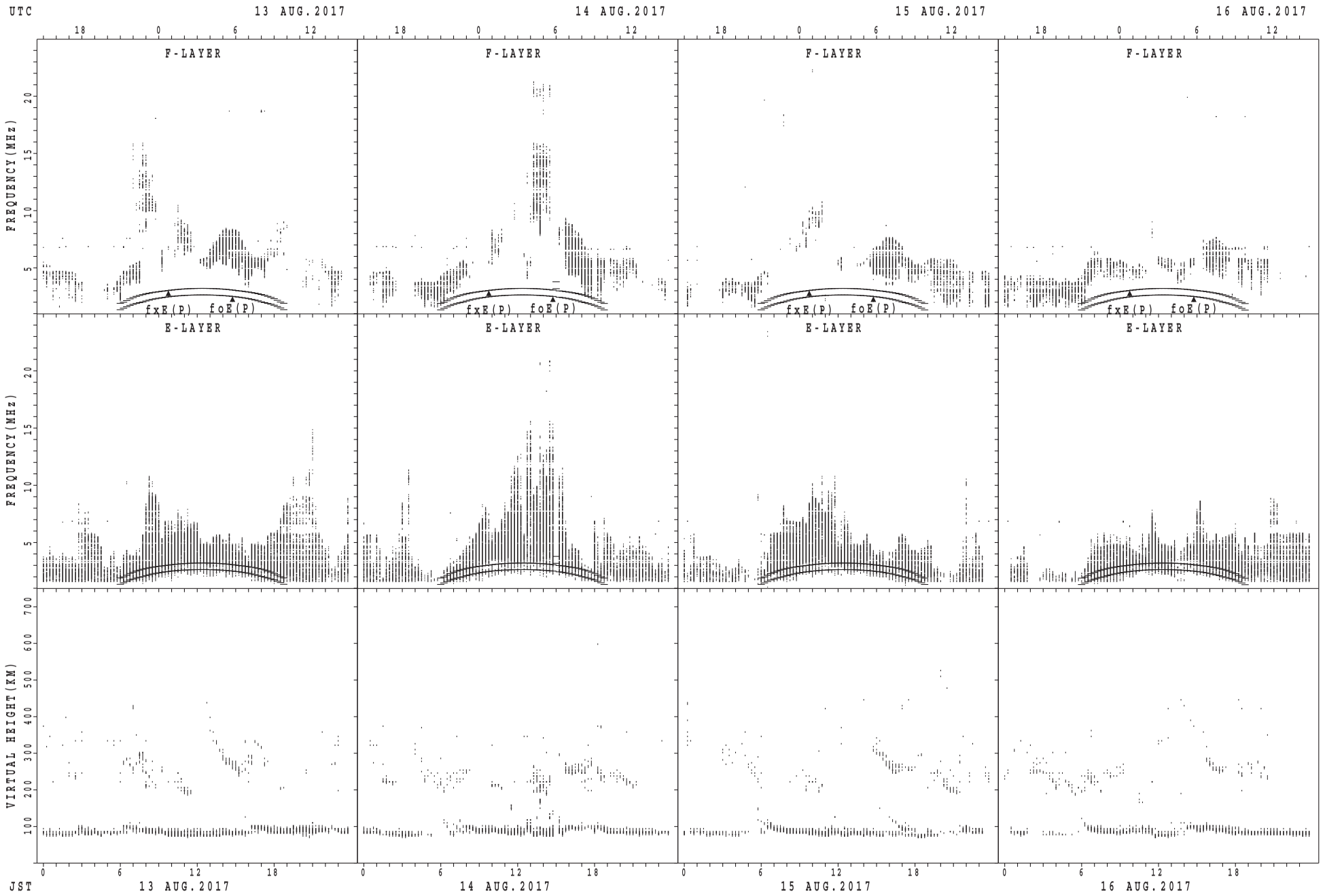
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE



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

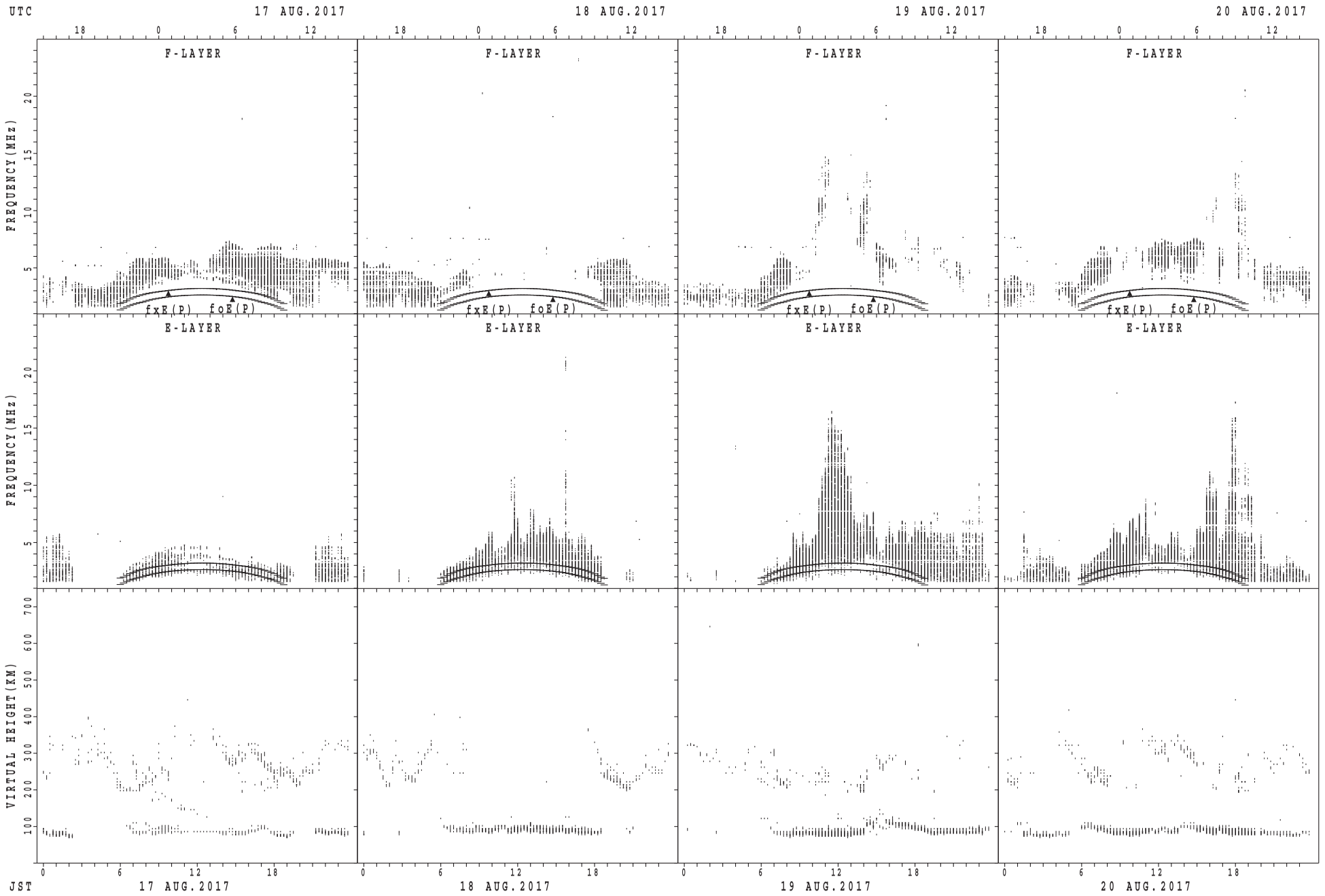

SUMMARY PLOTS AT Yamagawa
UTC
9 AUG.2017
10 AUG.2017
11 AUG.2017
12 AUG.2017
F-LAYER
fxE(P) foE(P)
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



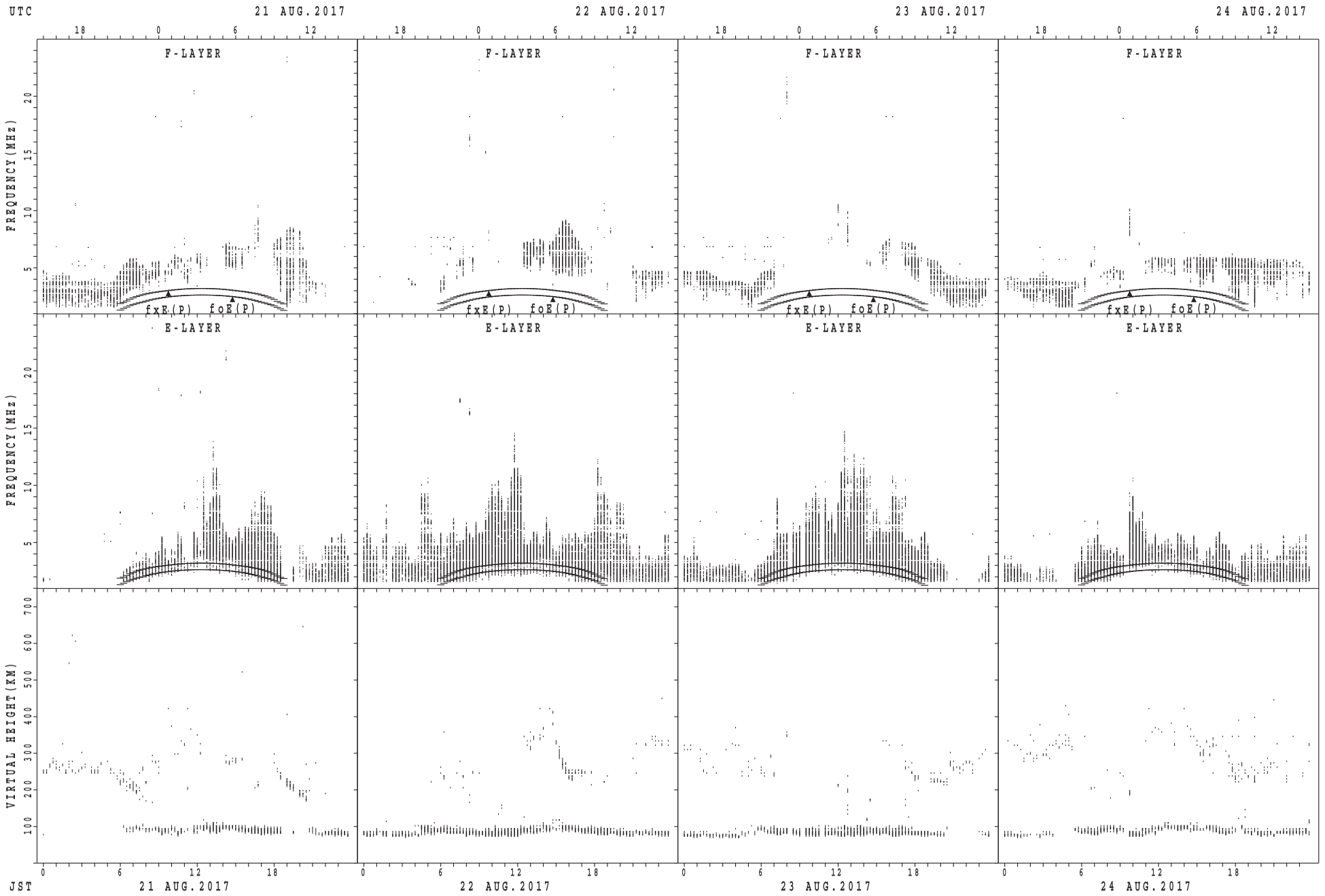
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



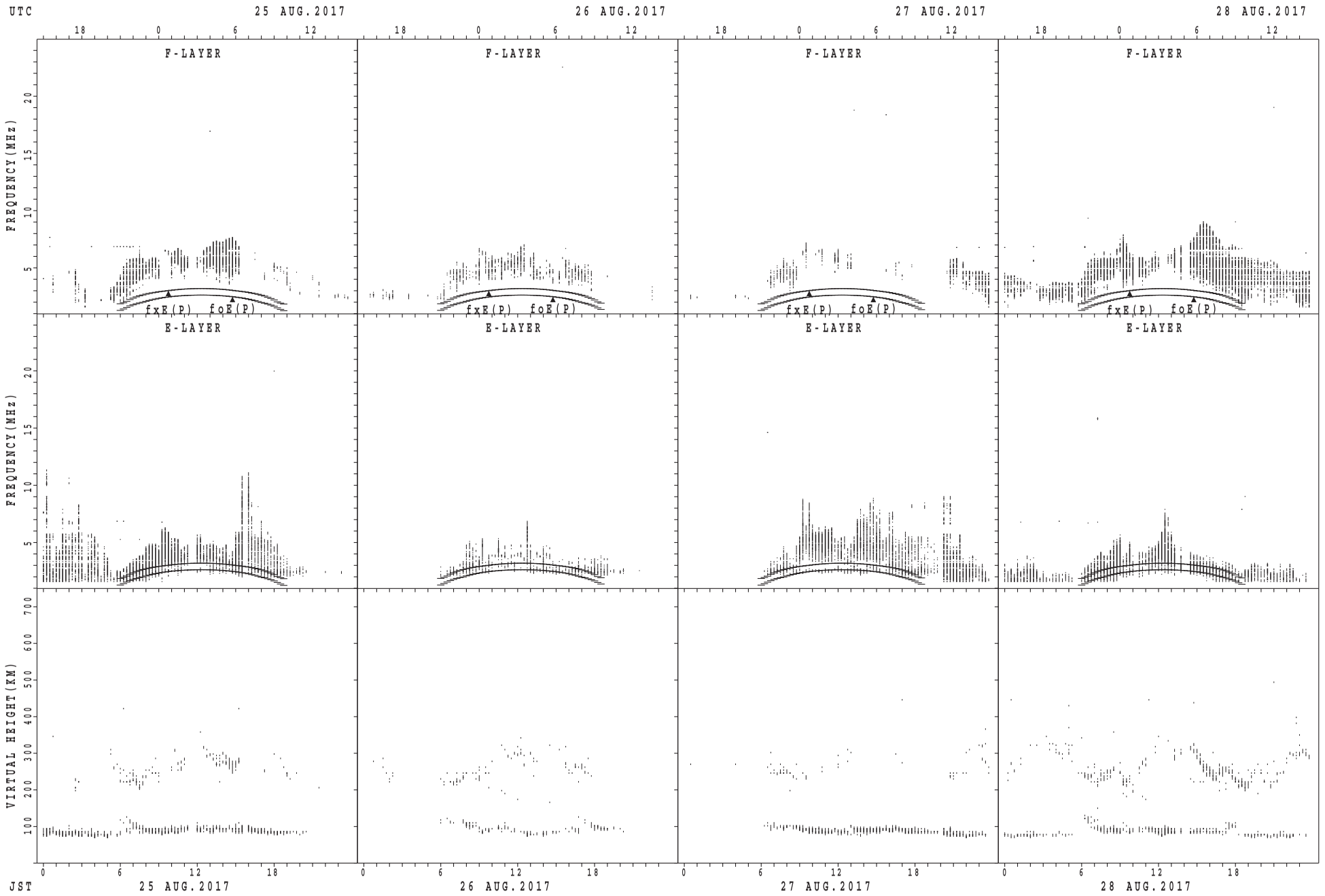
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



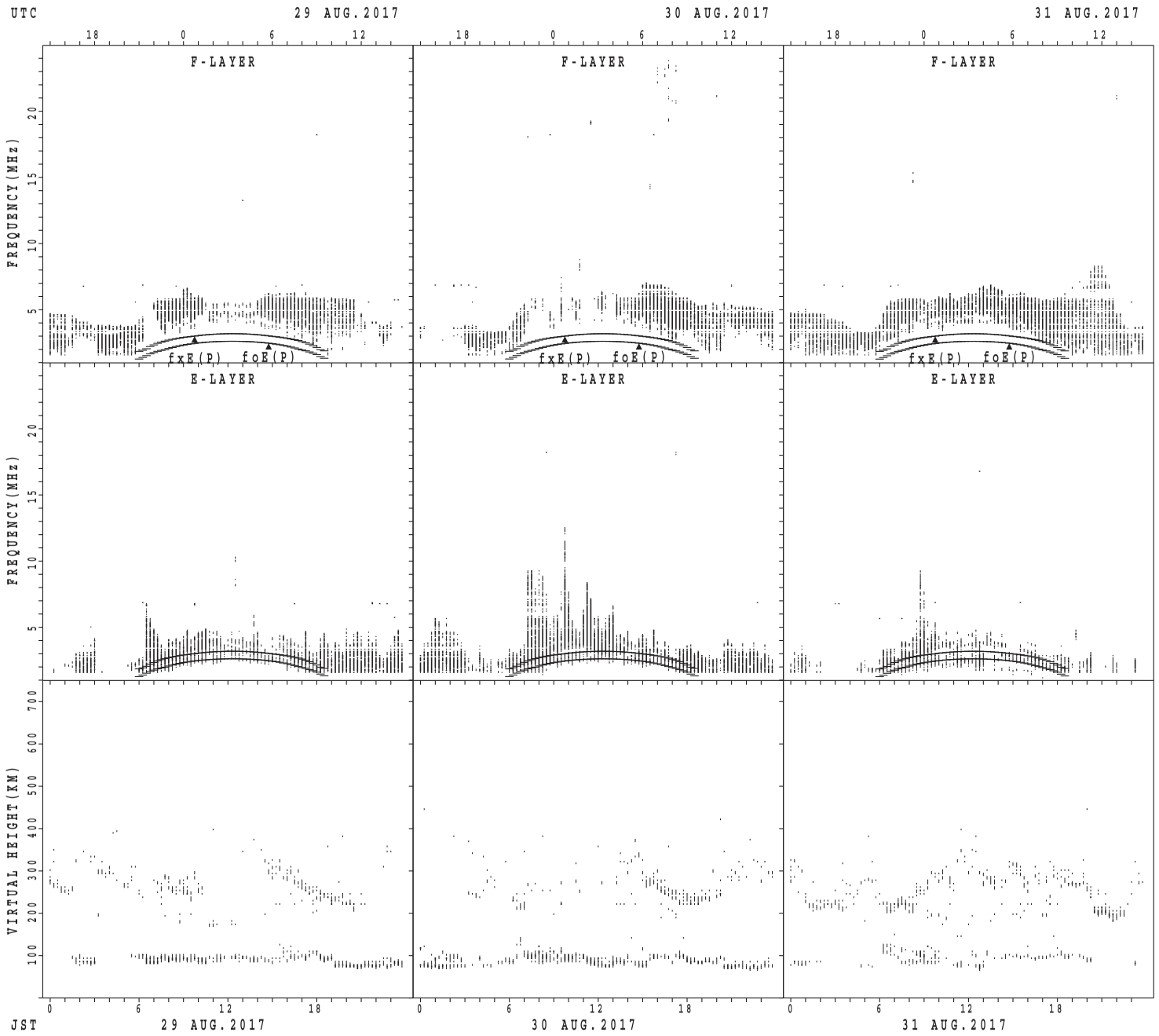
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



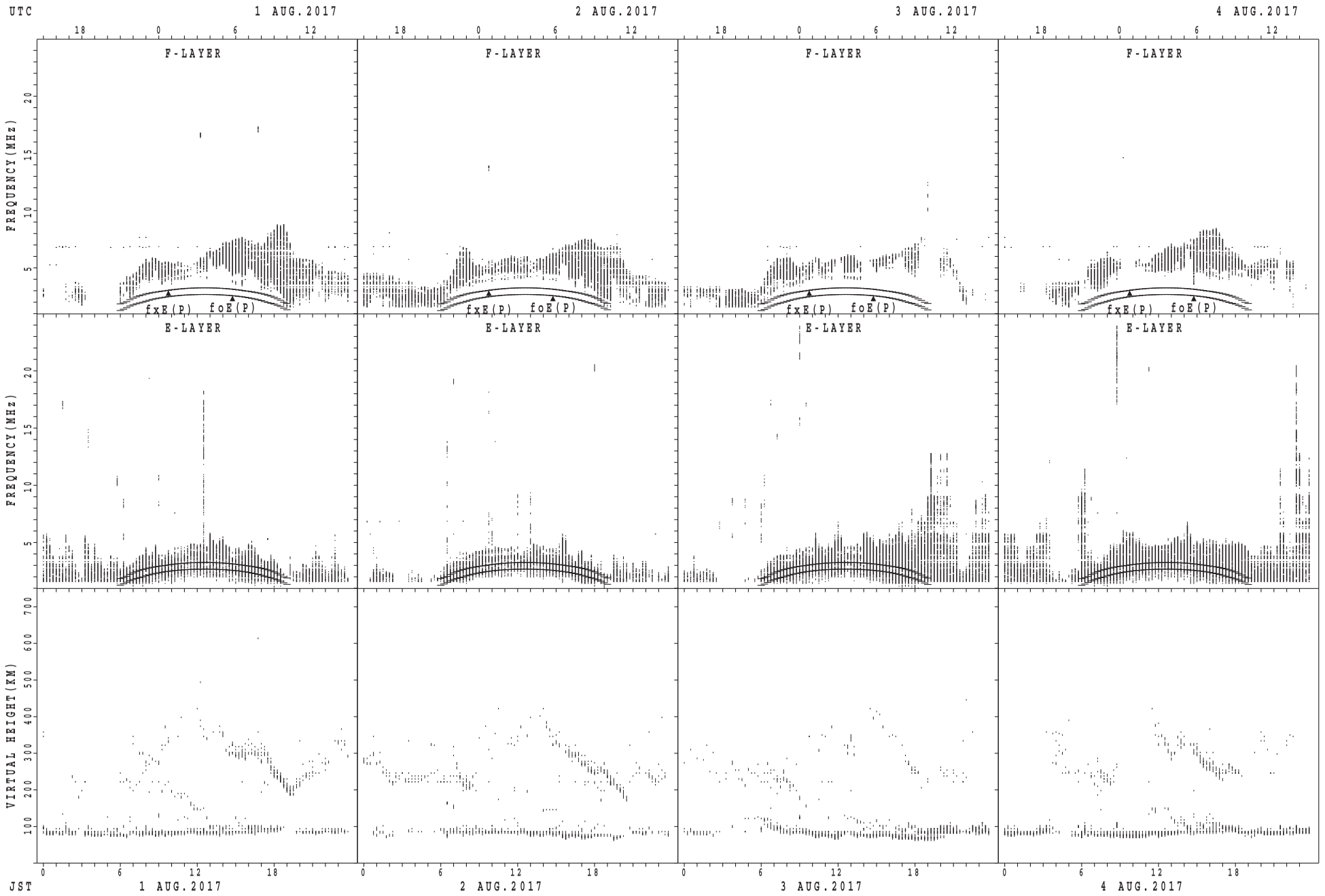
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



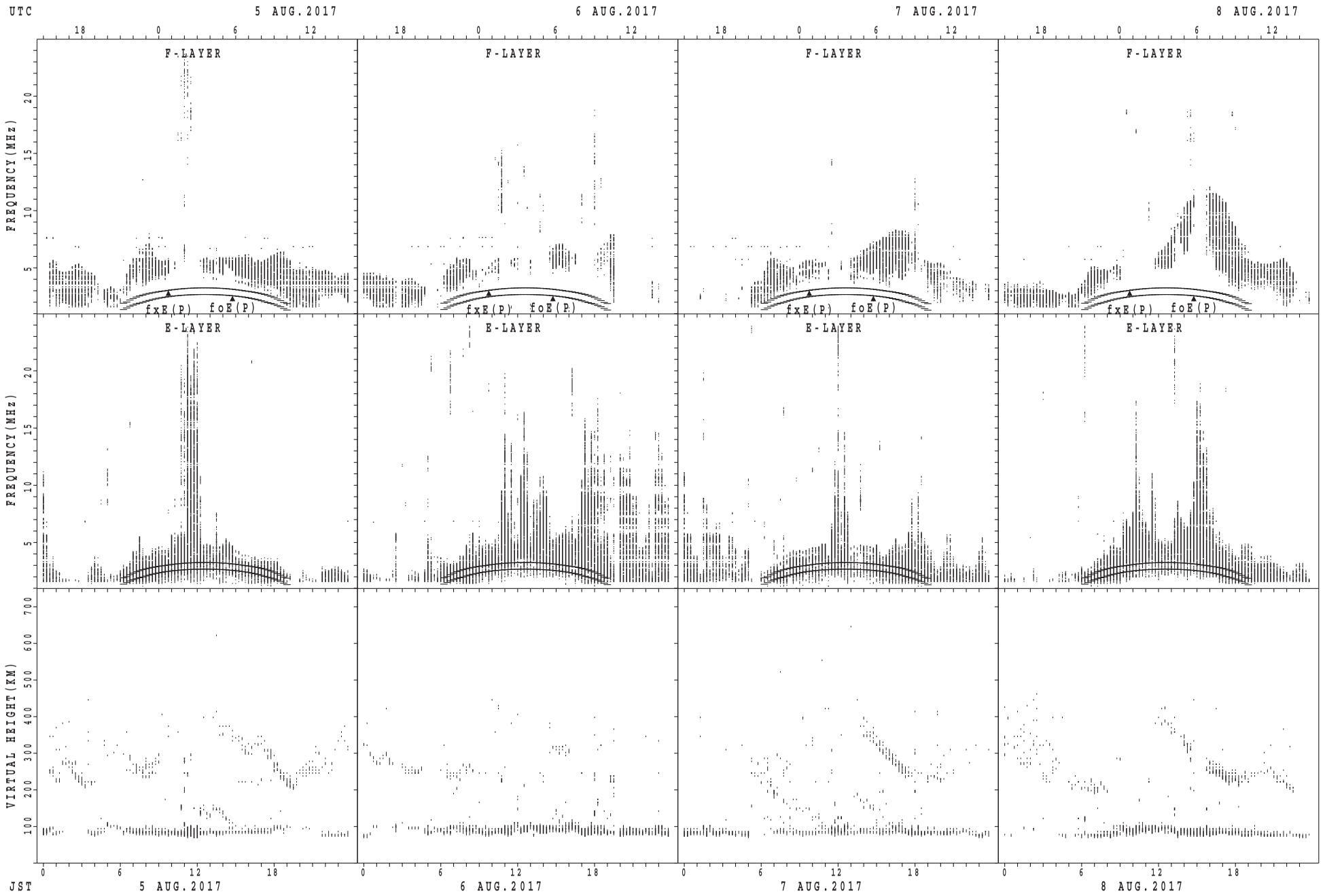
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

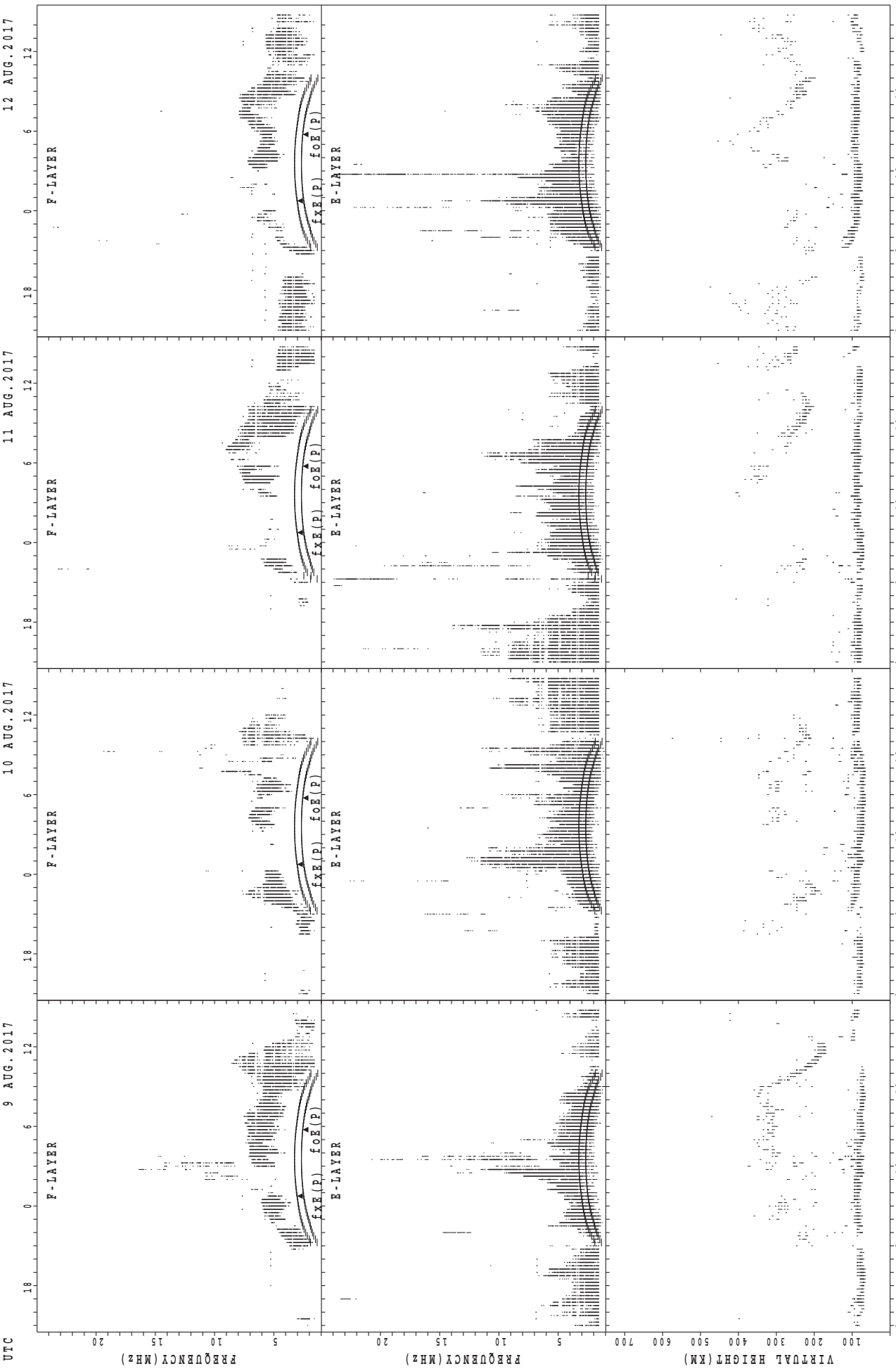


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

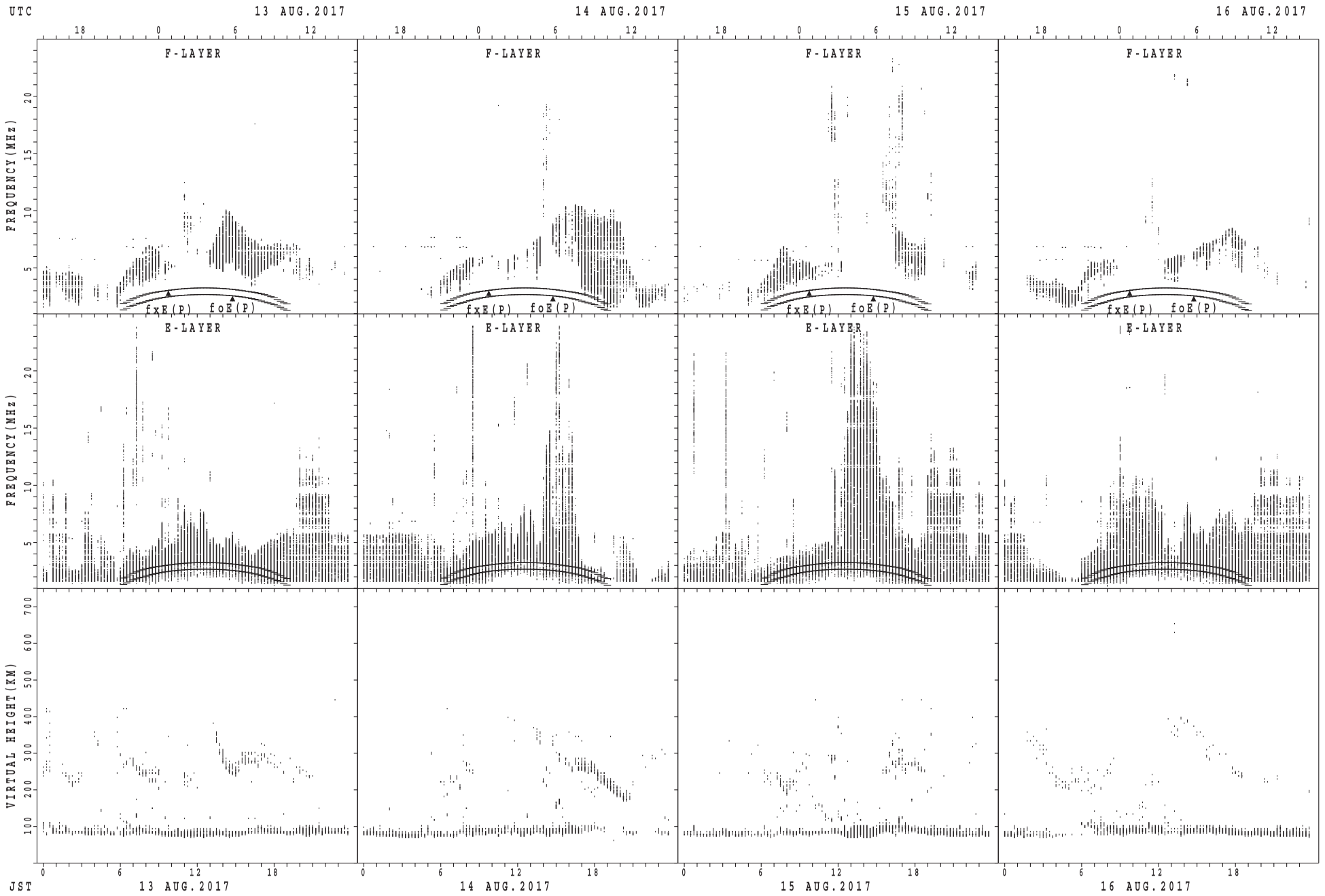
SUMMARY PLOTS AT Okinawa



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

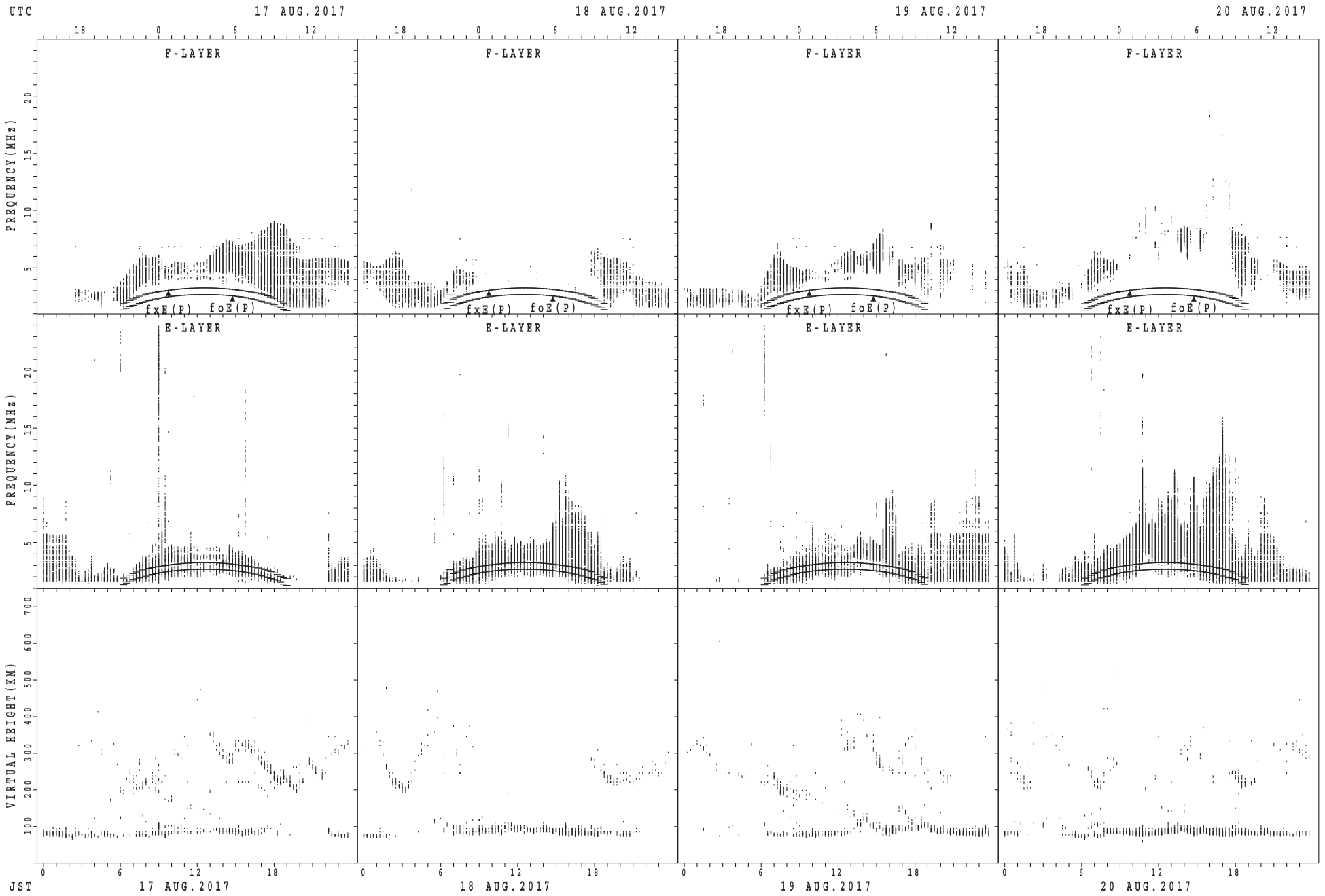

SUMMARY PLOTS AT Okinawa
UTC
JST
9 AUG.2017
10 AUG.2017
11 AUG.2017
12 AUG.2017
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



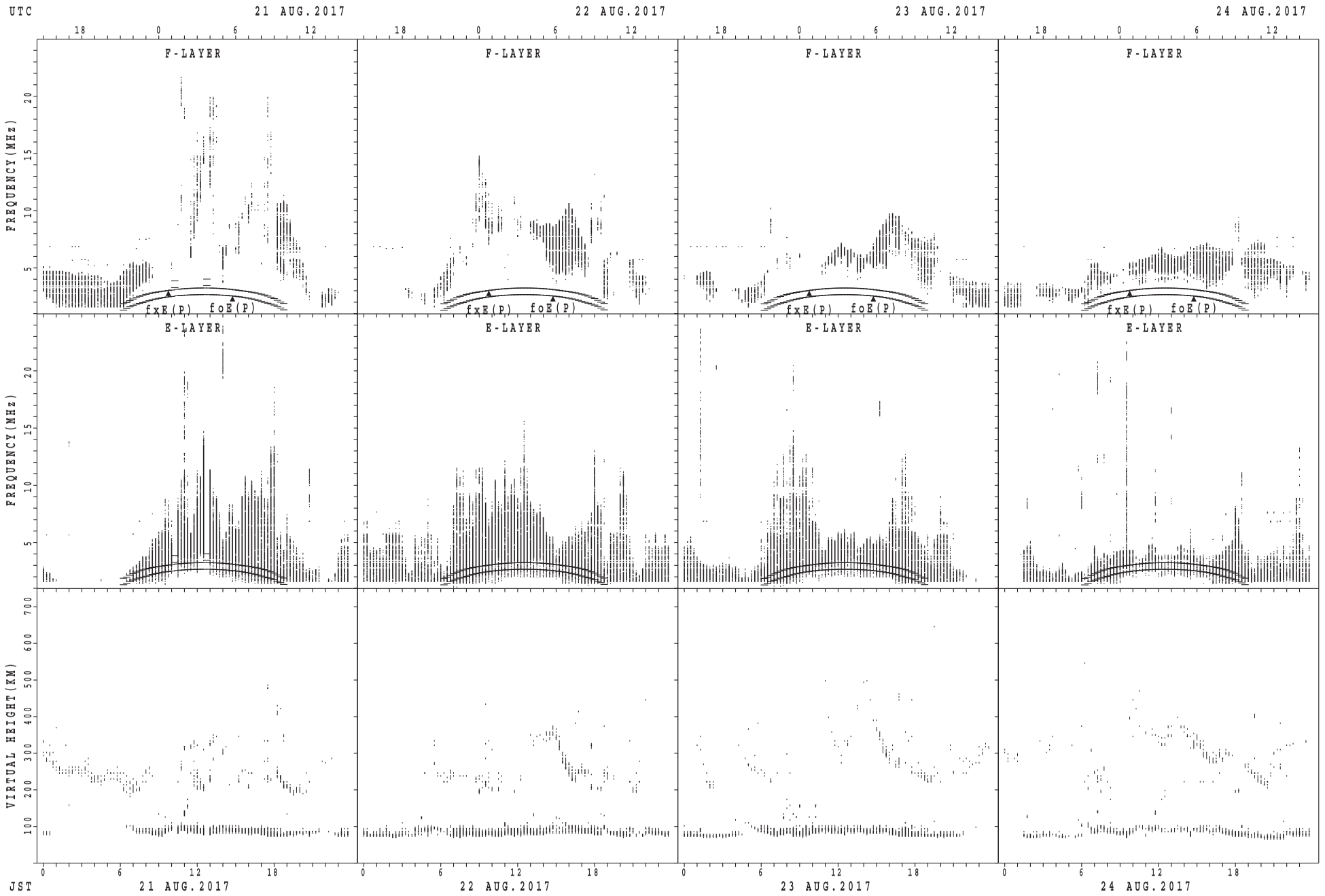
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



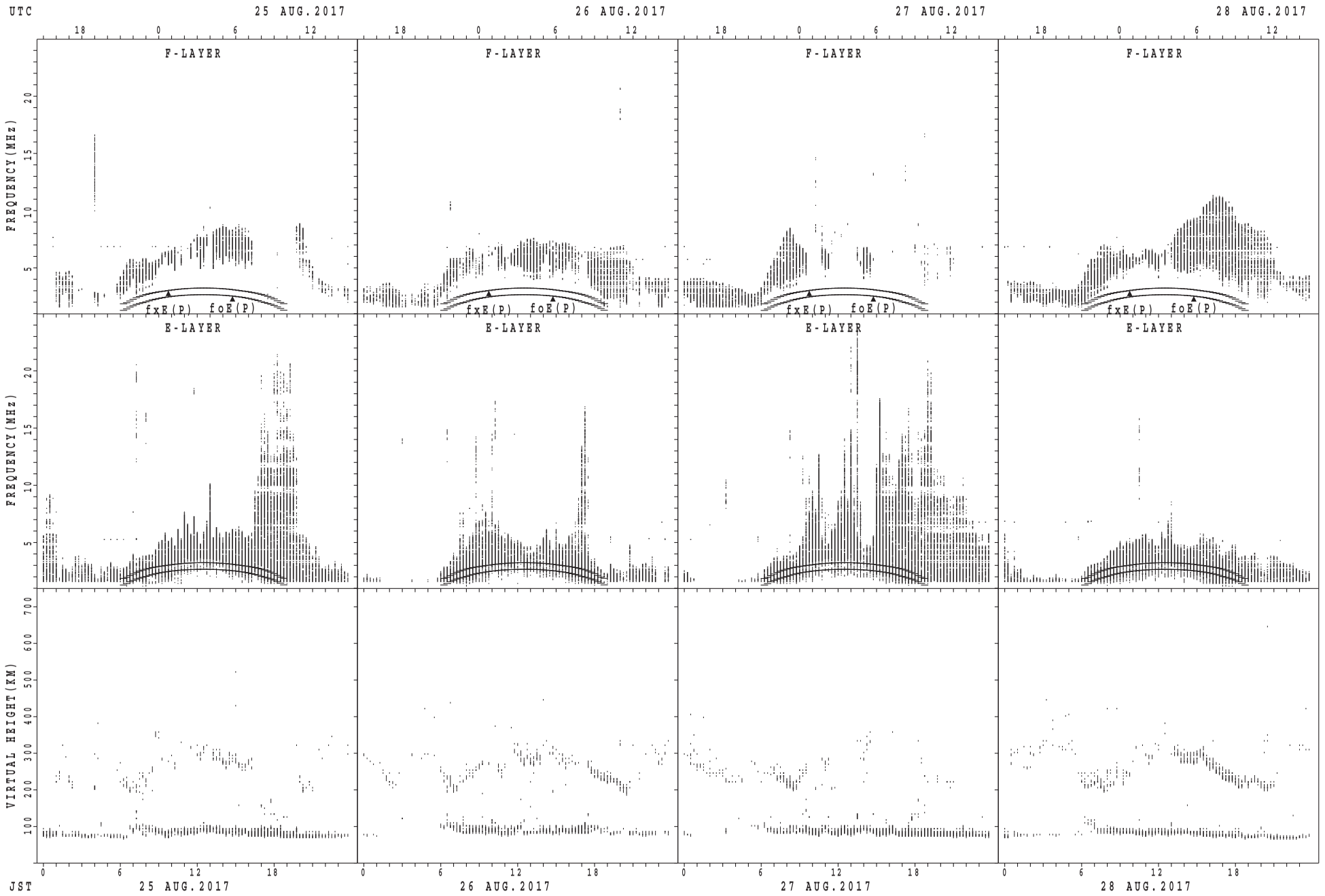
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



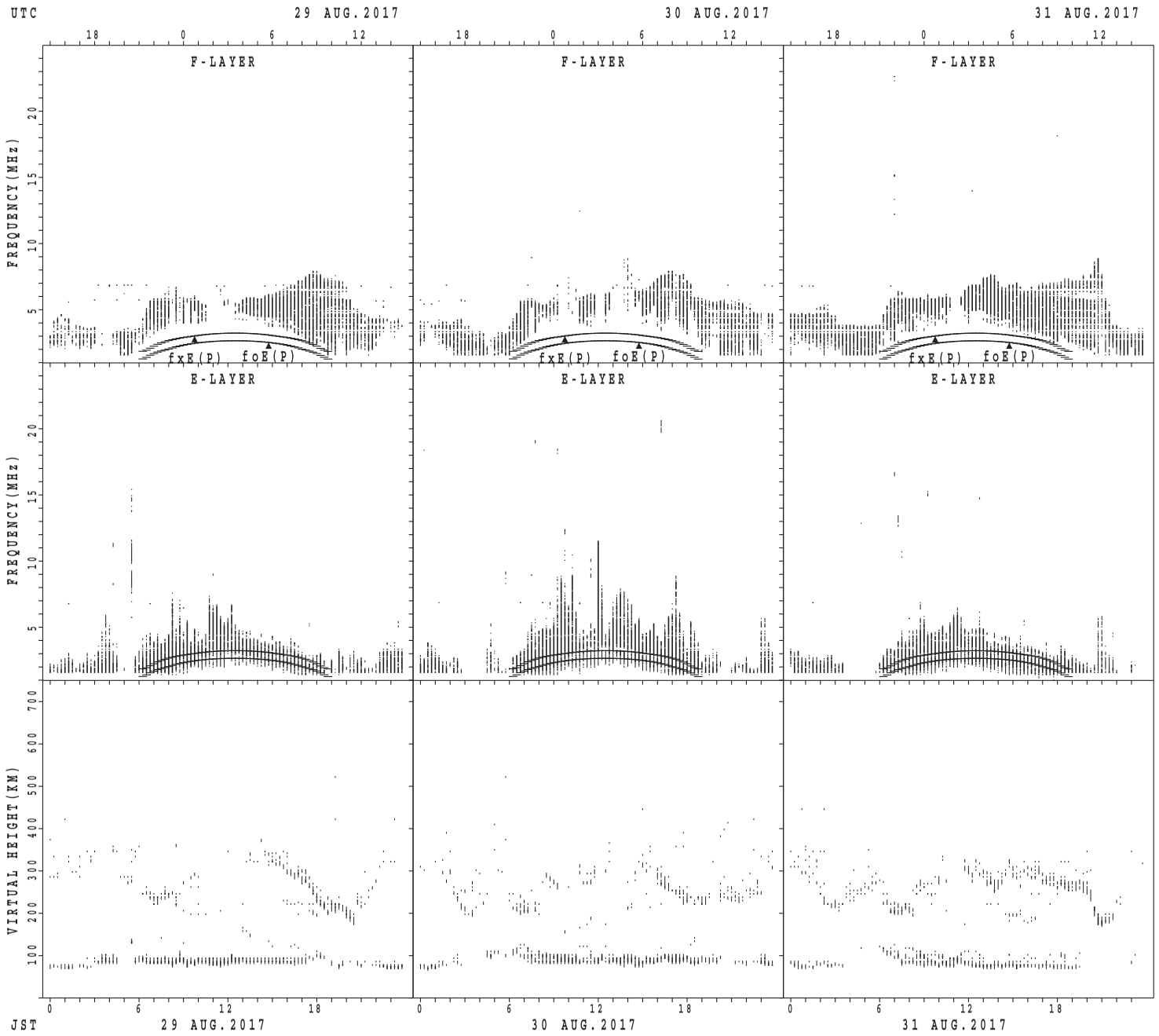
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

AUG.2017 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1		1	5									3	8	7	1	1	1	1	
MED					216		216	200									228	208	216	288	272	282	298	
U Q					108		108	227									266	213	264	144	136	141	149	
L Q					108		108	196									208	206	208	144	136	141	149	

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	24	24	20	16	22	22	30	31	29	29	29	30	30	29	28	29	29	29	28	27	26	28	29	26
MED	87	88	87	81	88	96	97	93	89	95	87	88	89	91	91	95	95	95	91	91	91	91	89	87
U Q	89	98	94	89	105	101	103	101	101	101	91	101	101	104	99	110	108	110	96	97	99	101	102	95
L Q	83	82	80	80	81	89	95	89	89	89	83	83	85	88	87	90	89	90	83	87	89	89	87	83

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								5									6	2	5	1				1
MED								216									234	198	208	266				326
U Q								236									266	204	229	133				163
L Q								205									206	192	193	133				163

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	26	21	22	20	11	18	30	30	30	27	27	29	29	25	30	28	28	29	27	25	24	25	27	26
MED	83	87	83	86	91	103	99	96	89	89	89	89	89	87	91	93	91	95	87	87	89	89	89	87
U Q	87	89	89	90	99	115	103	101	93	95	95	96	97	98	113	101	104	107	95	91	102	96	93	89
L Q	81	79	81	81	83	85	95	93	87	87	87	85	83	82	87	87	86	87	83	83	82	85	85	81

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									6	4	1	2	2		
MED								241	247									274	206	250	220	222		
U Q								274	254									278	237	125	240	226		
L Q								208	234									258	196	125	200	218		

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	21	21	18	18	15	10	19	28	29	29	31	31	29	30	28	29	30	31	30	27	24	21	25	24
MED	85	85	83	83	81	82	97	94	91	91	89	89	91	89	97	97	98	91	89	89	85	85	87	86
U Q	89	89	87	85	89	85	115	105	104	95	95	95	105	101	102	114	113	97	95	89	89	91	95	93
L Q	82	81	81	81	81	81	87	89	89	87	83	83	83	85	87	89	91	87	89	85	81	80	84	82

MONTHLY MEDIANS OF h'F AND h'Es

AUG.2017 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					1			3	7									15	14	7	4	1		
MED					206			228	232									256	249	224	235	202		
U Q					103			248	256									296	262	258	239	101		
L Q					103			202	220									232	234	202	219	101		

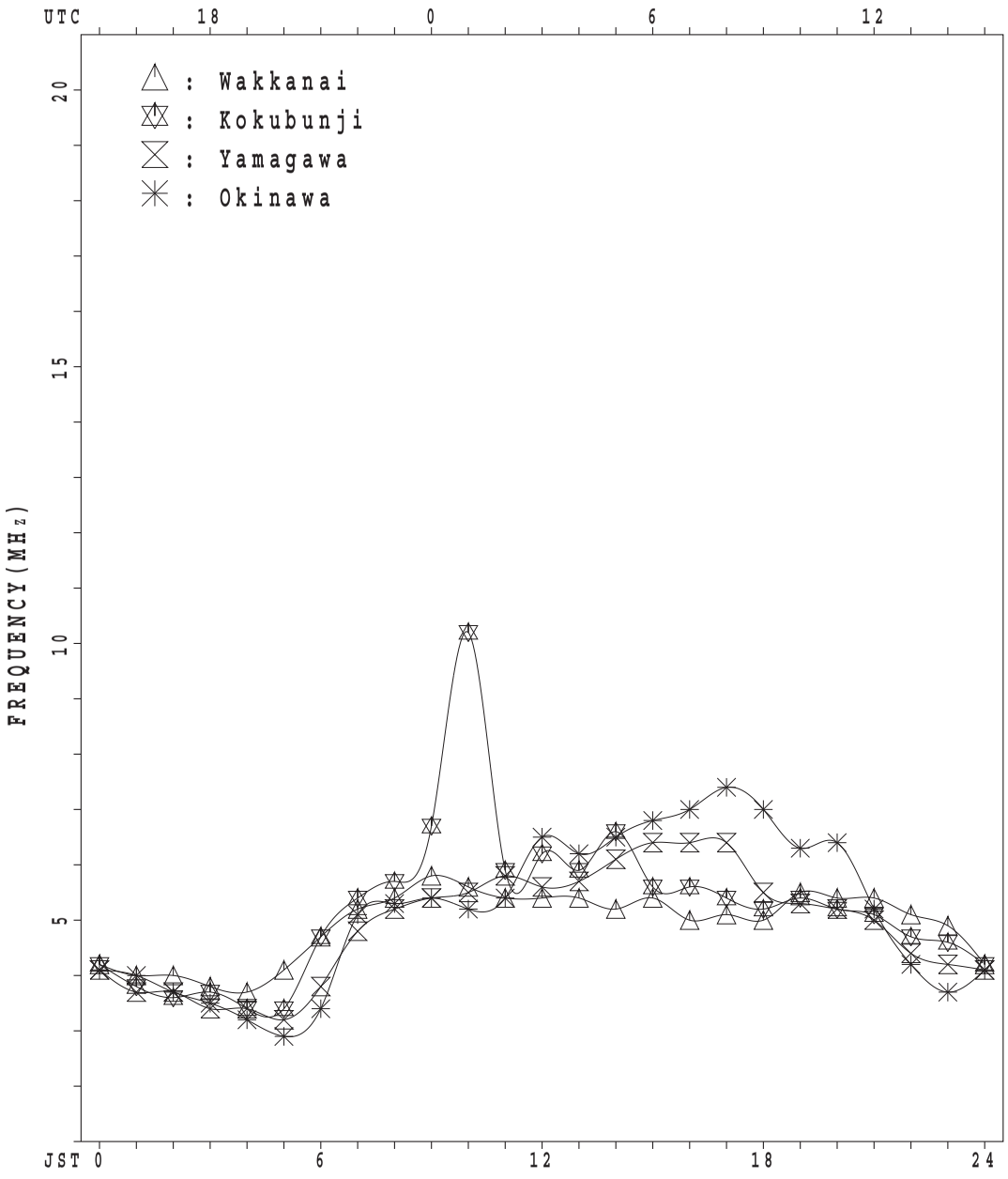
h'Es

	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	26	25	19	18	19	15	23	31	31	31	31	31	31	31	31	31	31	31	30	28	25	28	25	26
MED	87	83	81	85	81	93	93	89	95	95	89	101	91	101	97	95	95	89	89	87	87	87	85	87
U Q	89	89	89	89	89	101	107	101	107	121	101	113	103	125	113	113	101	101	103	89	90	90	92	91
L Q	83	80	79	81	79	85	83	87	89	89	87	89	85	89	89	87	89	89	87	83	82	83	81	79

MONTHLY MEDIANS PLOT OF foF2

AUG.2017

AUTOMATIC SCALING



IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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 43	44	44	40																		X 60	X 57	X 52
2	X 48	56	X 49	X 46	48																58	59	59	58
3	58	55	58	58	57	57																X 62	X 58	55
4	44	47	X 50	58	50	51																86	68	X 59
5	X 57	X 42	X 45	X 38																		X 55	X 53	X 46
6	X 44	X 44	X 45	X 44																		70	X 59	X 58
7	X 46	53	54	51																		X 58		57
8	56	56	55	51																	59	X 56	X 53	
9	49	50	50	54	57																	X 59	X 59	X 51
10	X 46	X 45	X 45	X 44																		X 65	X 56	X 45
11	X 37	X 37	X 39	X 40																	X 66	X 63	X 54	X 46
12	X 46	X 47	X 45	54																	X 65	X 65	X 59	X 54
13	X 54	X 53	X 52	X 51																	X 70	A	X 64	X 55
14	X 45	X 45	X 49	X 50																	58	X 59	X 53	52
15	A	X 43	X 43	X 43																	X 58	X 61	X 61	X 57
16	X 55	X 55	X 55	X 55	57	55															X 63	X 61	X 60	X 55
17	X 46	X 49	51	X 49	47	X 46															X 65	X 64	X 59	X 53
18	X 47	X 43	X 39	X 38																X 52	X 54	X 55	X 49	X 45
19	X 41	X 44	X 39	X 40																	X 60	58	X 45	X 39
20	38	X 36	X 37	X 38																	A	A	X 45	X 43
21	X 44	X 44	X 41	X 43	41																X 66	X 60	57	X 39
22	X 39	X 32	X 46	X 45																	A	A	X 44	X 46
23	X 44	X 39	A	X 38																	A	X 58	58	X 45
24	X 48	X 41	X 34	X 33																	X 65	X 61	X 59	X 54
25	X 48	X 43	X 43	X 43																	X 64	X 56	X 51	X 48
26	X 47	X 43	X 39	X 41														X 54			X 52	X 52	X 51	X 49
27	X 45	47	47	X 41																	X 59	X 55	X 55	X 55
28	A	X 39	A	X 38	38																X 55	A	56	X 50
29	45	X 43	X 41	49	58																X 59	X 57	X 56	58
30				58	56	53																X 57	X 55	59
31	X 51	X 51	56	X 45	54																X 75	X 71	X 65	X 57
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	30	28	31	11	5												1		1	19	27	30	30
MED	X 46	X 44	X 45	X 44	54	53												X 54		X 52	X 60	X 59	X 56	X 52
U Q	X 48	50	50	51	57	56															X 65	X 63	X 59	57
L Q	X 44	X 43	X 41	X 40	47	48															X 58	X 57	X 53	X 46

AUG. 2017 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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	36	F 34	F 32	F 27	32	37	41	A	A	R 58	A	50	50	A	47	48	48	50	51	53	53	53	50	45
2	42	F 44	42	39	F 34	44	45	47	48	A	51	51	52	50	A	47	47	48	48	49	F 46	F 48	F 47	F 36
3	F 44	F 31	F 33	F 33	F 36	F 43	60	A	45	49	56	55	52	48	46	45	A	A	52	53	59	55	51	F 42
4	F 34	F 35	43	F 40	F 31	F 40	45	59	52	47	56	52	52	50	47	51	55	56	V 58	74	77	F 72	F 58	52
5	50	35	38	32	30	33	40	R	R 40	R 44	U R 44	E G 41	E G 41	E G 41	E G 40	E G 39	45	46	44	44	51	48	46	39
6	37	37	38	36	31	38	A	46	52	57	57	A	A	U R 51	R	U R 41	A	A	45	56	R 58	F 57	52	51
7	39	F 37	F 36	F 32	31	A	41	A	A	A	A	42	A	45	A	44	47	46	48	50	54	51	F 44	F 32
8	F 32	F 30	F 31	F 31	A	39	42	48	A	46	A	A	A	49	47	46	45	45	47	A	F 46	49	46	39
9	F 37	F 33	F 38	F 32	F 34	38	44	45	48	54	51	R 51	50	50	50	52	46	44	46	55	58	52	52	44
10	39	38	38	37	31	32	A	A	A	46	49	50	58	A	A	A	44	43	A	57	61	58	49	38
11	30	30	32	33	33	37	46	48	49	A	49	A	47	50	48	46	48	48	50	59	59	56	47	39
12	39	40	38	F 36	V 39	42	A	A	A	A	51	50	A	43	55	53	46	44	A	56	58	58	52	47
13	47	46	45	44	39	38	A	A	A	52	54	56	56	51	50	50	48	47	53	64	63	A	57	48
14	38	38	42	43	46	49	43	50	56	A	52	58	A	A	A	50	46	48	43	47	F 48	52	46	F 41
15	A	36	36	36	32	35	38	A	44	A	50	50	48	48	A	47	48	48	45	51	51	54	54	50
16	48	48	48	48	F 46	F 43	46	52	48	57	50	52	47	51	60	55	51	48	49	A	56	54	53	48
17	39	42	38	42	F 36	39	A	A	A	A	A	A	A	52	49	A	A	A	A	58	58	57	52	46
18	40	36	32	31	27	E G 23	E G 30	A	E G 38	E G 36	U R 42	E G 41	E G 41	R	U R 43	A	43	A	A	45	47	48	42	38
19	34	37	32	33	28	32	40	42	E G 39	46	E G 41	E G 43	E G 42	E G 41	46	46	A	44	44	52	53	47	38	32
20	F 28	29	30	31	31	34	42	42	45	46	46	48	E G 42	R 46	47	46	45	48	52	50	A	A	38	36
21	37	37	34	36	F 31	36	42	64	54	A	E G 45	48	49	52	53	52	48	A	50	59	59	53	F 47	32
22	32	40	39	38	36	39	49	54	54	48	53	E G 43	50	53	49	56	51	56	55	70	A	A	37	39
23	37	32	A	31	30	30	A	A	A	A	A	A	55	E G 42	45	48	46	50	A	A	A	51	48	38
24	41	34	27	26	25	29	33	44	44	A	48	50	58	58	54	47	48	52	51	53	58	54	52	47
25	41	36	36	36	36	37	E G 39	50	58	56	52	58	54	54	55	55	52	48	52	60	57	49	44	41
26	40	37	32	34	32	34	46	46	A	52	A	54	49	51	47	48	46	47	42	49	45	45	44	42
27	38	F 32	F 33	34	35	40	44	52	56	58	55	48	54	55	55	52	50	48	46	54	52	48	48	48
28	A	32	A	31	25	32	48	46	47	R 51	50	50	48	48	46	51	51	58	A	50	48	A	F 47	43
29	F 32	36	34	36	F 40	38	43	45	47	A	A	52	52	53	50	53	49	51	51	55	52	50	48	42
30				F 42	F 41	F 39	46	44	E G 40	47	46	52	51	51	52	58	58	52	46	51	C	50	48	47
31	44	44	40	38	38	44	45	49	52	57	59	59	V 53	54	58	53	53	51	58	63	68	64	58	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	28	30	28	31	30	30	25	20	22	20	24	26	25	27	25	28	27	26	25	28	27	27	31	31
MED	38	36	36	36	32	38	43	48	48	50	50	50	50	50	49	49	48	48	49	54	56	52	48	42
U Q	41	38	38	38	36	40	46	51	52	56	54	52	54	52	54	52	51	51	52	58	59	56	52	47
L Q	35	33	32	32	31	34	40	45	44	46	47	E 48	E G 48	48	46	46	46	46	46	50	51	49	46	38

AUG. 2017 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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					240		352	A	A	A	A	A	L	A	416	L	L	L	A					
2						L	A		A	A	A	L	L	L	A	L	L	L	L					
3						L	L	A	L	A	L	L	L	L	428	480	A	A		A	A			
4								A	L	A	A	L	436	L	L	L	396	368	320					
5							340	364	L	L	L	L	408	408	L	L	L	352						
6					L	L	A	L	A	A	L	A	A	L	L	L	A	A	376	L	A			
7						A	L	A	A	A	A	A	A	A	A	404	A	L	A					
8					A		L	L	A	L	A	A	A	L	L	416	392	368	L	A				
9							344	L	412	L	L	436	L	432	L	420	L	L	336					
10							A	A	A	L	L	L	L	A	A	A	392	L	A					
11							352	384	L	A	A	A	L	416	L	L	L	L	384					
12						L	A	A	A	A	A	L	A	408	L	L	L	404	A	L				
13						L	A	A	A	A	A	L	A	L	412	L	412	A	292					
14								380	A	A	L	A	A	A	A	L	L	L						
15								A	A	A	A	A	A	A	A	412	388	L						
16						L	L	L	L	L	L	L	L	L	L	L	A			A				
17							A	A	A	A	A	A	A	A	A	A	A	A	A					
18						228	296	A	376	360	408	L	L	L	L	A	364	A	A					
19							L	L	L	L	L	L	L	L	L	L	A	L	A					
20						L	360	L	L	L	L	L	420	L	L	408	L	L						
21						L	L	L	L	A	L	432	432	416	436	L	L	A						
22						L	L	388	404	L	L	432	L	L	420	404	A		L	A				
23					4 160		A	A	A	A	A	A	L	L	L	A	L	L	A	A				
24						L	L	364	392	A	L	436	A	L	424	L	L	L						
25							388	L	L	L	L	L	452	L	L	L	380							
26						L	L	L	A	L	A	436	440	L	L	412	L							
27								L	A	A	A	L	L	L	L	404	388							
28							L	L	A	L	432	L	424	L	416	356	A	A	A					
29							348	A	L	A	A	A	L	416	L	L	L	L						
30							L	L	400	408	L	L	L	L	L	L	L	L			C			
31								L	L	420	L	L	L	440	424	400	L	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	2	8	5	5	3	2	5	7	7	8	11	8	4	5					
MED					240	194	350	380	400	408	420	436	432	416	422	408	390	368	336					
U Q							356	386	408	420		436	440	432	426	416	394	386	380					
L Q							342	364	384	360		432	420	408	416	404	384	360	306					

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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					224	180	228	280	284	312	320	320	320	328	U R 316	276	300	280	172	188	A			
2					A	208	244	292	300	320	320	328	164	A	A	A	A	268	200	112	A			
3					A	220	220	244	312	344	336	328	U R	A	324	U R 324	292	240	192	A	A			
4					B	A	232	232	292	316	328	328	A	388	332	U R 296	A	248	204	232	B			
5					164	A	220	264	284	292	A	A	A	A	284	300	276	240	204	196	A			
6					232	176	212	256	280	288	A	A	A	A	A	A	292	240	200	A	A			
7					R 200	156	220	256	280	A	A	A	216	U R 344	316	312	288	232	A	A	A			
8					A	A	232	264	304	304	320	316	A	A	320	A	A	A	184	A	232			J A 648
9					A	240	220	264	300	A	316	328	340	324	324	300	296	228	184	A	A			
10					B	160	216	264	300	300	316	284	A	A	A	A	280	A	A	A	A			
11					A	172	216	264	292	292	320	A	344	328	A	A	A	236	A	A				
12					220	A	240	260	292	312	312	312	292	A	A	A	248	240	A	A				
13					A	196	204	240	288	A	A	A	A	A	A	U R	288	228	220	A				
14					192	A	216	268	296	312	312	A	312	A	A	A	A	228	A	A				
15					A	168	212	268	292	324	328	328	328	A	A	A	224	224	A	A				
16					B	176	228	276	A	A	A	352	A	320	316	292	276	224	A	A				
17					A	224	260	288	316	316	316	316	332	332	304	292	A	260	A					
18					A	R 168	192	236	292	292	308	316	R 316	332	312	300	264	216	228					
19					A	160	192	256	280	272	320	0 170	332	A	316	316	292	240	B	A				
20					176	176	200	276	276	336	324	A	324	324	324	324	264	228	264	A				
21					A	284	204	240	268	308	308	368	A	356	320	320	268	216	A	A				
22					168	A	196	244	272	272	272	A	A	A	320	300	276	236	A	A				
23					200	A	216	252	284	304	304	B	A	A	320	A	268	216	A	A				
24					A	180	196	248	268	256	A	A	336	336	324	324	272	224	A	A				
25					A	228	204	256	288	284	A	A	A	320	328	A	A	A	188	B				
26					B	176	208	260	292	300	A	A	320	A	U R 256	A	A		A	A				
27					B	U R 252	216	260	268	300	U R 304	324	324	A	A	324	A	204	220	A				
28					A	A	212	264	288	316	316	332	344	344	316	300	276	208	A	A				
29					200	A	208	256	296	296	316	316	328	328	304	304	264	212	A	A				
30					B	A	196	244	A	A	A	324	336	336	316	304	256	200	A	A	C			432
31					A	216	212	268	296	320	320	308	316	332	332	252	268	236	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					10	20	31	31	29	26	22	19	19	16	22	19	23	26	14	4	1			2
MED					200	178	216	260	288	304	316	324	324	332	320	304	276	228	202	192	232			540
U Q					220	218	220	264	296	316	320	328	336	340	324	320	292	240	220	214				
L Q					176	170	204	248	280	292	312	316	316	326	316	300	264	216	188	150				

AUG. 2017 foE (0.01MHz)

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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	25	JA 28	33	34	27	20	32	JA 52	73	JA 55	64	JA 79	JA 55	JA 59	38	36	36	34	67	25	37	JA 30	JA 31	JA 63
2	JA 85	JA 120	JA 65	JA 60	JA 48	JA 31	JA 37	JA 52	JA 50	JA 85	JA 57	JA 43	43	55	JA 87	JA 131	JA 45	JA 29	JA 32	JA 51	JA 125	43	JA 157	JA 100
3	70	JA 32	26	JA 28	JA 42	30	44	JA 51	40	57	52	JA 40	JA 40	JA 65	JA 55	JA 50	77	JA 78	52	60	JA 124	JA 76	JA 66	JA 63
4	JA 31	58	JA 40	JA 33	JA 21	JA 32	JA 35	JA 66	JA 45	68	68	JA 66	JA 35	JA 40	JA 40	JA 37	JA 31	32	29	JA 33	EB 16	19	22	20
5	JA 125	25	JA 228	JA 131	22	JA 26	JA 217	34	JA 53	56	JA 60	JA 51	JA 49	JA 56	JA 38	JA 37	36	JA 53	JA 42	60	JA 64	JA 50	JA 61	JA 38
6	EB 16	JA 104	26	38	JA 99	JA 32	JA 53	JA 51	JA 63	61	50	JA 89	JA 55	43	43	JA 55	JA 81	JA 63	48	76	JA 79	JA 58	JA 65	40
7	48	28	20	33	27	JA 47	45	JA 53	73	JA 86	60	48	JA 52	JA 53	JA 63	JA 43	55	JA 41	JA 60	JA 33	JA 35	JA 30	JA 33	JA 47
8	27	40	JA 39	JA 29	JA 43	JA 30	30	JA 52	JA 53	JA 45	68	JA 69	JA 64	JA 76	JA 50	43	JA 40	39	25	JA 52	JA 42	JA 86	JA 67	JA 65
9	JA 107	JA 27	23	21	24	JA 57	28	JA 41	JA 64	JA 76	JA 52	58	47	44	39	34	38	28	JA 30	JA 29	31	JA 41	34	34
10	JA 31	23	25	JA 61	21	JA 26	JA 34	JA 51	58	JA 102	JA 52	JA 43	JA 255	55	55	39	JA 45	JA 49	60	JA 57	JA 38	JA 50	JA 108	24
11	32	JA 251	20	20	24	G 23	JA 31	44	JA 48	JA 121	53	59	JA 52	37	JA 36	JA 52	41	JA 35	59	JA 117	JA 85	JA 50	37	26
12	24	JA 61	JA 51	33	JA 51	57	80	JA 78	JA 63	80	58	55	JA 58	58	45	48	JA 39	38	67	45	60	JA 102	47	JA 62
13	27	22	EB 16	35	28	G	49	58	JA 64	JA 147	JA 56	JA 64	JA 63	41	36	39	60	JA 74	JA 143	77	28	JA 85	JA 47	JA 51
14	25	39	33	JA 27	24	JA 28	JA 129	JA 38	92	73	JA 43	62	JA 221	JA 167	126	JA 52	41	JA 52	JA 40	42	JA 45	74	JA 83	32
15	JA 63	44	27	48	28	21	JA 37	JA 50	56	JA 47	59	JA 59	JA 45	57	61	JA 46	JA 30	29	JA 31	JA 69	33	38	JA 38	25
16	25	JA 31	39	25	EB 15	JA 21	JA 31	JA 77	116	58	JA 98	G 41	48	JA 53	JA 48	35	61	70	JA 63	75	41	JA 48	JA 107	JA 63
17	JA 47	JA 25	39	JA 32	JA 27	JA 31	56	JA 83	60	JA 53	JA 68	JA 62	JA 75	JA 55	JA 51	83	JA 129	JA 89	JA 159	46	JA 39	24	23	EB 16
18	26	23	33	22	22	29	JA 27	JA 40	JA 80	JA 39	JA 44	JA 40	G	G	40	JA 55	JA 68	JA 109	JA 131	JA 136	JA 32	24	59	56
19	94	25	25	EB 14	JA 24	JA 29	28	JA 120	56	JA 49	54	G 37	38	43	G 34	G 35	59	34	JA 60	JA 49	40	JA 29	28	28
20	25	28	22	20	26	JA 23	JA 38	JA 51	JA 62	G 42	G 35	G 36	JA 56	G	JA 35	44	JA 41	30	JA 52	34	59	JA 66	JA 53	JA 53
21	JA 51	JA 42	37	27	27	40	41	34	JA 46	JA 64	JA 56	JA 72	JA 51	JA 37	36	38	JA 42	68	JA 87	JA 95	JA 120	JA 77	JA 37	26
22	26	39	26	22	24	JA 21	JA 31	JA 52	54	JA 63	JA 39	JA 41	JA 41	36	JA 37	37	JA 49	JA 61	JA 109	JA 105	JA 109	JA 97	27	26
23	JA 40	JA 51	58	38	28	JA 28	JA 53	60	JA 73	82	JA 104	82	40	JA 33	39	JA 134	JA 39	JA 77	60	JA 87	95	JA 63	71	59
24	EB 16	EB 16	EB 16	21	25	26	JA 27	JA 35	JA 35	JA 59	66	JA 41	JA 50	JA 44	JA 52	62	G	JA 31	46	51	27	39	39	23
25	24	22	26	24	JA 51	G	28	JA 35	JA 110	44	JA 40	46	37	G 38	G 38	JA 31	34	JA 27	G 19	EB 16	EB 14	BJ 63	AJ 53	A 85
26	45	34	28	46	22	G 20	JA 32	JA 49	JA 58	JA 49	79	JA 37	38	34	JA 33	JA 53	JA 107	JA 81	JA 63	38	44	60	85	73
27	57	41	EB 15	EB 15	EB 15	G	JA 42	JA 41	JA 53	52	JA 52	JA 38	JA 41	51	JA 49	JA 33	JA 31	G 25	G	26	35	JA 51	JA 32	JA 63
28	59	JA 64	JA 64	26	23	JA 25	44	36	JA 42	JA 95	38	JA 57	JA 48	JA 39	34	JA 65	JA 74	102	JA 183	JA 183	JA 65	73	JA 52	60
29	44	48	JA 64	36	JA 65	JA 32	72	JA 53	JA 50	JA 61	JA 84	JA 70	JA 56	40	JA 38	35	35	28	42	30	EB 16	43	26	29
30				26	EB 15	27	24	JA 30	JA 34	JA 34	JA 53	42	49	38	36	39	JA 32	JA 28	36	34	C	38	EB 16	44
31	JA 48	26	23	126	34	JA 27	G	G	33	34	41	36	37	36	34	36	34	JA 27	26	EB 15	EB 14	EB 15	21	EB 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	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31
MED	36	33	28	29	26	JA 27	JA 37	JA 51	JA 56	JA 59	JA 56	JA 51	JA 49	43	39	43	JA 41	JA 39	JA 52	51	40	JA 50	JA 47	44
U Q	57	JA 48	JA 39	38	JA 34	JA 31	49	JA 53	64	JA 80	66	JA 64	JA 56	JA 55	JA 51	53	JA 60	JA 70	JA 67	JA 76	JA 65	JA 73	JA 66	JA 63
L Q	25	25	23	22	22	G	30	38	JA 48	JA 49	50	41	40	G	36	36	35	29	32	33	32	38	31	26

AUG. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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	16	E B 16	20	16	G 18	20	29	A A 52	A A 73	41	A A 64	47	40	A A 59	36	33	34	30	35	21	18	15	16	30
2	21	21	28	16	16	G 20	35	34	33	A A 85	A	40	36	40	A A 87	36	29	27	27	30	21	18	20	E B 16
3	30	20	16	17	20	G 20	33	A A 51	34	A	34	36	36	38	33	42	A A 77	A A 78	34	E A 37	28	30	21	16
4	16	16	19	18	E B 16	18	30	A 52	34	E A 44	A 48	34	35	G 35	G 33	32	30	28	24	G 21	E B 16	16	16	16
5	16	16	E B 17	E B 16	G 16	16	24	29	32	36	34	34	34	34	32	32	30	30	30	G 20	22	16	E B 16	E A 28
6	E B 16	16	16	21	G 16	20	A A 53	A	A	A	A	A A 89	A A 55	35	32	34	A A 81	A A 63	28	26	A	18	A 36	19
7	16	16	17	17	E A 15	A A 47	29	A A 53	A A 73	A A 86	A A 60	A	A A 52	A	A A 63	32	A 34	A	E A 35	21	20	20	E B 16	21
8	16	16	16	16	A A 43	21	29	34	A A 53	36	A A 68	A A 69	A A 64	34	G 32	34	29	30	20	A A 52	G 23	18	16	G 16
9	16	16	16	16	16	G 20	26	31	34	37	36	37	34	34	36	32	32	26	25	22	20	20	18	16
10	16	15	17	17	E B 16	22	A A 34	A A 51	A A 58	35	38	36	37	A A 55	A A 55	A A 39	30	E A 33	A A 60	29	28	18	18	18
11	E B 17	E B 16	E B 16	16	16	G 18	24	30	36	A A 121	41	A A 59	G 34	34	33	31	28	30	30	30	23	21	18	16
12	17	17	20	17	G 19	28	A A 80	A A 78	A A 63	A A 80	37	36	A A 58	36	34	34	33	31	A A 67	21	33	16	30	16
13	17	17	E B 16	17	17	G	A A 49	A A 58	A A 64	42	44	36	48	37	32	32	34	40	G 19	17	17	A A 85	22	22
14	16	16	16	16	G 16	20	28	31	A	A A 73	40	E A 51	A A 221	A A 167	A A 126	32	32	30	30	20	19	21	18	20
15	A A 63	18	16	20	17	20	A	A A 50	A	A A 47	E A 44	E A 46	E A 42	E A 42	A A 61	32	28	28	20	17	19	16	16	16
16	16	16	16	16	E B 15	18	28	G 28	35	33	37	G 35	35	35	36	33	35	36	30	A A 75	21	18	21	29
17	20	15	19	18	17	16	A A 56	A A 83	A A 60	A A 53	A A 68	A A 62	A A 75	44	44	A A 83	A A 129	A A 89	A A 159	19	20	17	17	E B 16
18	17	17	17	E B 17	17	G 17	24	A A 40	32	32	36	36	G	G	36	A A 55	36	A A 109	A A 131	19	16	16	16	20
19	E B 16	17	17	E B 14	17	18	24	31	31	35	35	G 35	35	33	G 33	G 32	A A 59	28	30	21	17	20	20	E B 16
20	16	16	16	E B 17	G 16	18	31	35	33	G 33	G 33	G 34	34	G	34	G 31	30	27	G 24	20	A A 59	A A 66	19	16
21	16	18	17	16	16	G 22	22	30	36	A A 64	36	G 37	37	G 34	33	36	32	A A 68	31	21	30	21	16	E B 16
22	16	20	17	E B 15	G 15	18	30	29	33	33	33	35	32	34	G 32	33	44	32	21	56	A A 109	A A 97	16	16
23	E B 16	22	A A 58	A 23	G 16	E A 20	A A 53	A A 60	A A 73	A A 82	A A 104	A A 82	34	32	32	A	31	31	A A 60	A A 87	A A 95	17	18	29
24	E B 16	E B 16	E B 16	17	16	G 16	G 17	29	30	A A 59	32	35	45	38	36	34	G	28	21	34	20	17	17	17
25	17	17	17	17	17	G	26	29	33	35	36	34	35	G 35	G 34	29	29	25	G 18	E B 16	E B 14	18	20	20
26	E B 16	16	19	17	E B 18	G 18	27	28	A A 58	36	A A 79	36	36	32	30	30	E A 34	20	20	18	18	E A 23	E B 17	17
27	19	19	E B 15	E B 15	E B 15	G	30	33	37	43	44	35	37	40	32	G 31	30	G 23	G	16	19	19	17	E A 41
28	A A 59	18	A A 64	E B 15	16	18	31	30	39	32	32	34	G 34	36	34	31	33	32	A A 183	32	20	A A 73	17	17
29	21	21	22	E B 16	G 16	27	27	34	36	A A 61	A A 84	45	44	38	33	33	30	26	30	21	E B 16	21	16	17
30				15	E B 15	15	20	28	31	32	33	39	35	34	32	G 30	G 26	22	20	18	C	17	E B 16	G 17
31	E B 16	16	13	16	16	G 20	G	G	31	33	38	34	37	34	G 32	32	28	G 23	18	E B 15	E B 14	E B 15	16	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	30	30	30	31	31	31	30	30	28	29	29	30	31	30	31	30	31	30	31	31	29	31	31	31
MED	16	16	17	16	16	20	29	34	36	39	38	36	36	G	33	32	32	30	29	21	20	18	17	16
U Q	17	18	19	17	17	22	A A 33	A A 51	A A 58	A A 62	A A 54	A A 46	A A 45	38	A A 36	34	A 34	A A 33	A A 35	30	26	A 21	20	20
L Q	E B 16	16	16	E B 16	E B 16	18	24	29	33	34	34	35	34	34	32	32	29	27	21	19	18	17	16	E B 16

AUG. 2017 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

AUG. 2017 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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	288	F 265	F 308	F 298	291	321	293	A	A	R 263	A	300	305	A	271	311	305	331	215	333	308	305	314	298
2	316	F 282	294	296	F 303	316	318	337	331	A	313	293	302	308	A	304	308	319	341	337	F 272	F 276	F 340	F 325
3	F 300	F 304	F 286	F 301	F 332	F 352	322	A	346	316	325	346	323	294	261	296	A	A	329	214	316	307	331	F 295
4	F 299	F 289	328	F 283	F 302	F 311	316	262	344	276	333	317	335	331	299	301	329	306	V 284	290	293	F 297	F 304	300
5	327	301	332	298	323	315	318	R	R 300	R 286	R	G	G	G	G	G	296	321	324	308	310	326	308	295
6	298	295	306	306	278	282	A	287	282	311	277	A	A	U R 286	R	U R 345	A	A	314	292	R 306	F 291	289	293
7	271	F 283	F 272	F 302	267	A	294	A	A	A	A	334	A	262	A	276	323	288	330	306	301	354	F 286	F 299
8	F 299	F 288	F 285	F 285	A	351	356	209	A	305	A	A	A	302	268	280	329	319	329	A	F 289	325	310	308
9	F 321	F 299	F 287	F 291	F 298	328	316	322	352	340	326	R 292	301	316	316	339	305	327	317	323	325	324	274	318
10	303	313	282	325	325	315	A	A	A	297	318	334	425	A	A	A	301	304	A	309	323	336	339	343
11	324	316	300	320	320	320	332	333	332	A	324	A	280	307	292	287	321	345	334	328	309	356	318	331
12	306	331	299	F 323	V 331	375	A	A	A	A	338	325	A	340	320	341	286	282	A	326	307	309	317	304
13	306	305	331	332	330	337	A	A	A	317	323	324	346	338	324	321	314	321	326	313	320	A	336	334
14	328	307	309	332	313	353	342	293	338	A	265	337	A	A	A	353	316	327	343	320	F 294	306	319	F 314
15	A	313	300	324	318	344	312	A	327	A	332	317	283	295	A	296	314	329	347	330	295	310	326	334
16	308	317	315	325	F 277	F 332	325	388	253	379	343	354	275	302	333	342	326	317	347	A	303	292	328	366
17	325	317	281	316	F 283	286	A	A	A	A	A	A	A	333	302	A	A	A	A	304	296	302	303	313
18	280	308	302	289	277	G	G	A	G	G	U R 314	G	G	R	U R 256	A	284	A	A	301	317	313	343	310
19	304	308	260	288	302	297	271	367	G	326	G	G	G	G	283	322	A	297	305	318	268	303	311	295
20	F 311	305	297	286	286	303	328	329	302	332	282	280	G	R 280	278	287	295	329	325	316	A	A	215	304
21	295	351	307	298	F 302	298	350	377	310	A	G	280	296	310	324	329	339	A	311	292	320	317	F 356	301
22	291	266	313	312	306	315	308	344	330	308	340	G	263	307	254	313	310	321	329	246	A	A	301	324
23	312	297	A	330	307	289	A	A	A	A	A	A	314	G	258	300	291	313	A	A	A	317	286	306
24	282	280	288	265	278	272	356	322	312	A	281	302	322	326	348	326	313	325	315	291	296	308	309	329
25	303	340	330	315	331	350	G	312	345	355	324	352	337	329	335	333	339	337	325	340	334	314	317	310
26	307	321	310	296	320	333	339	337	A	302	A	354	354	325	286	313	266	354	334	318	334	279	289	316
27	319	F 291	F 315	297	292	362	330	351	343	349	353	317	328	333	364	346	334	342	327	323	309	292	310	304
28	A	280	A	289	329	296	290	324	312	R 242	328	349	262	311	274	320	327	321	A	277	282	A	F 300	319
29	F 328	316	300	278	F 265	312	323	348	340	A	A	337	299	367	349	337	337	337	337	315	329	297	325	301
30				F 308	F 253	F 295	322	370	G	318	291	312	338	338	313	324	345	341	323	316	C	304	308	287
31	309	280	306	318	316	345	340	352	342	349	339	362	V 314	328	358	344	336	315	298	283	298	314	328	353
	00	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	28	31	30	30	25	20	22	20	23	26	25	27	25	28	27	26	25	28	27	27	31	31
MED	306	304	301	301	302	316	322	335	328	314	324	317	302	310	299	320	314	321	326	314	307	308	311	310
U Q	318	316	312	320	320	344	336	352	342	336	333	337	332	331	328	338	329	331	334	323	320	317	328	325
L Q	298	288	288	289	283	297	301	317	300	292	282	G 292	G 269	294	270	298	301	315	314	292	295	297	301	300

AUG. 2017 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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					375		372	A	A	A	A	A	L	A	416	L	L	L	A					
2						L	A		A	A	A	L	L	L	A	L	L	L	L					
3						L	L	A	L	A	L	L	L	L	378	403	A	A		A	A			
4								A	L	A	A	L	403	L	L	L	348	365	338					
5							346	371	L	L	L	L	395	408	L	L	L	368						
6					L	L	A	L	A	A	L	A	A	L	L	L	A	A	345	L	A			
7						A	L	A	A	A	A	A	A	A	A	394	A	L	A					
8					A		L	L	A	L	A	A	A	L	L	365	367	360	L	A				
9							386	L	380	L	L	410	L	399	L	364	L	L	354					
10							A	A	A	L	L	L	L	A	A	A	363	L	A					
11							353	360	L	A	A	A	L	402	L	L	L	L	391					
12						L	A	A	A	A	A	L	A	422	L	L	L	361	A	L				
13						L	A	A	A	A	A	L	A	L	397	L	335	A	367					
14								366	A	A	L	A	A	A	A	L	L	L						
15								A	A	A	A	A	A	A	A	363	383	L						
16						L	L	L	L	L	L	L	L	L	L	L	A			A				
17							A	A	A	A	A	A	A	A	A	A	A	A	A					
18						349	364	A	403	424	388	L	L	L	L	L	381	A	A					
19							L	L	L	L	L	L	L	L	L	L	A	L	A					
20						L	369	L	L	L	L	L	390	L	L	376	L	L						
21						L	L	L	L	A	L	421	381	391	366	L	L	A						
22						L	L	388	382	L	L	406	L	L	375	357	A		L	A				
23						A	A	A	A	A	A	A	L	L	L	A	L	L	A	A				
24						L	L	387	407	A	L	388	A	L	383	L	L	L						
25							370	L	L	L	L	L	373	L	L	L	381							
26						L	L	L	A	L	A	387	387	L	L	379	L							
27								L	A	A	A	L	L	L	L	384	370							
28							L	L	A	L	390	L	435	L	400	422	A	A	A					
29							346	A	L	A	A	A	L	409	L	L	L	L						
30							L	L	409	407	L	L	L	L	L	L	L	L			C			
31								L	L	403	L	L	L	407	365	383	L	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	1	8	5	5	3	2	5	7	7	8	11	8	4	5					
MED					375	349	366	371	403	407	389	406	390	407	380	379	368	363	354					
U Q							371	388	408	424		416	403	409	398	394	381	366	379					
L Q							350	363	381	403		388	381	399	370	364	356	360	342					

AUG. 2017 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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					266		364	A	A	A 466	A	E A 362	358	A	430	346	336	286	A					
2						286	308		308	A	340	372	348	346	A	354	360	314	254					
3						240	254	A	302	330	304	296	304	402	462	388	A	A		544	246			
4								A	270	A	E A 272	318	306	302	356	340	290	276	314					
5							314	392	368	368	360	G	G	G	G	G	378	292						
6					342	356	A	370	372	314	418	A	A	378	382	300	A	A	316	314	310			
7						A	362	A	A	A	A	A	A	A	A	374	318	340	276					
8					A		242	394	A	388	A	A	A	362	456	410	324	306	254	A				
9							312	310	294	272	302	308	366	344	340	290	326	248	276					
10							A	A	A	378	342	312	220	A	A	A	356	346	A					
11							300	304	304	A	332	A	430	348	366	398	320	264	270					
12						248	A	A	A	A	294	318	A	318	318	272	358	366	A	270				
13						278	A	A	A	318	310	310	292	308	312	312	344	A	282					
14								314	272	A	438	270	A	A	A	270	326	270						
15								A	A	A	296	340	396	374	A	350	324	292						
16						254	296	234	472	242	268	282	398	370	292	272	294			A				
17							A	A	A	A	A	A	A	300	E A 352	A	A	A	A					
18						G	G	A	G	G	316	G	G	R	316	A	402	A	A					
19							402	272	G	300	G	G	G	G	394	332	A	362	342					
20						332	304	330	362	320	408	408	G	436	392	400	348	290						
21						324	264	234	360	A	G	424	376	346	304	304	280	A						
22						280	308	260	260	338	304	G	416	334	452	304	324		264	A				
23						334	A	A	A	A	A	A	330	G	314	370	388	326	A	A				
24						436	220	314	360	A	414	356	308	304	284	312	310	276						
25							G	314	274	266	304	282	290	310	288	284	284							
26						272	264	270	A	352	A	284	290	330	420	322	454							
27								274	274	256	250	334	314	298	264	264	276							
28							368	312	344	372	318	310	460	354	370	316	280	264	A					
29							290	292	300	A	A	278	340	258	280	280	278	254						
30							274	266	G	340	346	348	288	310	342	294	260	232			C			
31								248	274	274	290	258	322	322	266	266	272	282	282					
	00	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	13	20	19	21	19	24	25	25	26	26	28	27	20	11	3	2			
MED					304	286	306	304	308	330	317	318	348	345	344	314	324	288	276	314	278			
U Q						345	363	314	370	372	384	G 390	G 423	374	394	362	356	320	314	544				
L Q						263	269	266	274	274	299	290	305	310	304	287	284	267	264	270				

AUG. 2017 h'F2 (KM)

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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	Q 230	Q 252	274	292	236	230	212	A	A	A	A	A	A	A	198	188	204	204	A	238	238	244	244	A
2	264	282	A	238	252	200	A	230	A	A	A	190	196	A	A	198	194	198	212	230	Q 270	Q 294	204	252
3	276	Q 286	Q 236	248	Q 222	200	214	A	214	A	176	176	176	198	196	210	A	A	256	A	A	224	216	214
4	246	272	238	Q 266	Q 236	220	228	A	196	A	A	196	198	216	192	196	196	222	248	248	240	236	198	226
5	224	256	256	260	234	224	230	204	204	210	198	188	188	188	188	196	206	206	266	258	242	242	242	E A 294
6	268	276	254	258	286	234	A	A	A	A	A	A	A	206	190	208	A	A	206	222	A	228	A	210
7	274	244	Q 250	250	E A 292	A	A	A	A	A	A	A	A	A	A	200	A	A	A	242	236	208	Q 212	204
8	Q 246	286	Q 240	260	A	230	194	A	A	192	A	A	A	194	184	220	202	208	210	A	Q 286	202	230	256
9	Q 232	252	234	Q 286	268	204	204	210	200	216	196	202	198	194	194	206	198	204	216	248	248	246	246	234
10	274	256	264	226	250	238	A	A	A	206	196	208	186	A	A	A	194	A	A	260	228	204	204	218
11	236	246	264	238	248	224	224	200	206	A	A	A	182	196	196	204	192	210	192	240	246	208	228	252
12	250	242	278	Q 216	236	210	A	A	A	A	A	210	A	194	194	194	206	230	A	230	268	242	262	262
13	258	258	214	226	236	226	A	A	A	A	A	226	A	210	180	192	A 260	A	198	258	210	A	228	240
14	246	276	250	232	248	216	208	208	A	A	222	A	A	A	A	204	204	218	242	244	300	A	226	256
15	A	246	272	208	226	218	A	A	A	A	A	A	A	A	A	200	192	202	230	230	270	252	232	240
16	224	238	254	238	Q 234	214	200	200	E A 264	188	194	184	174	186	192	218	A	274	222	A	252	242	242	208
17	260	244	Q 250	236	274	232	A	A	A	A	A	A	A	A	A	A	A	A	A	266	258	242	254	248
18	286	244	296	248	278	234	222	A	194	220	204	E A 244	188	206	234	A	230	A	A	250	254	236	242	244
19	276	228	Q 274	246	274	244	228	228	200	200	190	178	178	198	198	198	A	230	A	230	Q 280	Q 246	240	264
20	202	250	250	268	274	238	224	238	214	198	198	198	206	196	220	202	218	212	250	244	A	A	A	264
21	254	234	A 282	262	262	250	230	222	222	A	192	196	210	206	206	232	246	A	246	246	220	212	212	250
22	254	262	266	240	230	230	218	202	202	A	196	196	184	198	198	210	A	260	222	A	A	A	270	258
23	198	A	A	A	248	A	A	A	A	A	A	A	178	208	192	A	202	218	A	A	A	Q 234	262	286
24	Q 280	268	292	312	330	220	204	204	200	A	200	200	A	A	220	220	200	224	258	298	258	258	258	234
25	244	218	250	278	234	232	198	198	206	198	178	192	200	200	202	202	202	222	254	230	224	228	256	278
26	262	238	288	278	262	218	222	222	A	190	A	208	196	196	180	196	A	196	220	240	246	A	230	254
27	224	280	Q 242	238	Q 224	224	242	216	A	A	A	186	186	A	202	200	198	220	220	232	250	276	256	A 948
28	A	A	A	Q 254	216	268	A	214	A	264	194	196	176	214	206	198	A	A	A	254	282	A	Q 232	248
29	248	276	304	246	278	286	214	A	A	A	A	A	A	186	186	228	210	210	236	236	232	280	224	242
30				Q 248	Q 272	248	194	180	194	194	190	188	194	194	194	202	196	196	236	248	C	258	264	252
31	248	258	240	248	242	226	214	186	206	196	198	188	198	196	208	200	192	192	238	284	248	230	220	220
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	27	30	30	29	21	17	15	13	16	21	20	22	25	27	22	22	22	26	25	25	29	30
MED	249	254	254	248	248	226	214	208	203	198	196	196	188	197	196	202	202	211	233	244	248	242	232	248
U Q	266	274	274	262	274	236	226	222	214	213	198	205	198	206	204	210	206	222	248	254	269	249	255	258
L Q	234	244	242	238	234	218	204	200	200	193	191	188	180	194	191	198	196	204	216	232	237	226	222	234

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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					96	102	106	106	100	100	100	100	100	100	100	100	100	106	98	86	94			
2					A	124	110	108	108	100	100	100	A	A	A	A	A	114	114	A	A			
3					A	102	102	102	102	102	102	102	102	A	102	102	100	104	104	A	A			
4					B	A	108	102	102	102	102	102	A	102	102	106	A	106	106	112	B			
5					112	A	96	108	98	98	A	A	A	A	98	98	98	98	106	106	A			
6					110	110	110	104	104	104	A	A	A	A	A	A	96	104	104	A	A			
7					122	116	110	110	110	A	A	A	100	100	96	96	96	96	A	A	A			
8					A	A	96	100	100	100	100	106	A	A	106	A	A	A	110	A	122			100
9					A	128	100	110	106		106	102	102	102	108	108	106	106	106	A	A			
10					B	106	106	106	106	106	106	102	A	A	A	A	102	A	A	A	A			
11					A	118	108	108	108	108	94	A	110	110	A	A	A	104	A	A				
12					104	A	110	110	110	110	104	104	104	A	A	A	104	104	A	A				
13					A	108	102	102	102	A	A	A	A	A	A	102	96	100	108	A				
14					108	A	108	108	108	102	102	A	102	A	A	A	A	102	A	A				
15					A	108	102	102	102	102	102	102	102	A	A	A	102	102	A	A				
16					B	106	112	112	A	A	A	112	A	108	108	108	108	108	A	A				
17					A		114	114	114	114	114	114	114	114	114	114	114	A	114	A				
18					A	114	114	110	110	110	110	96	100	100	100	100	100	100	112					
19					A	112	98	106	106	106	106	A	106	A	106	106	106	106	B	A				
20					120	120	104	104	104	104	104	A	104	104	104	104	104	94	112	A				
21					A	112	102	102	102	102	102	102	A	100	100	100	100	100	A	A				
22					100	A	100	100	100	100	100	A	A	A	100	100	100	100	A	A				
23					100	A	100	100	100	100	100	B	A	A	108	A	108	108	A	A				
24					A	108	108	108	108	108	A	A	100	100	108	108	108	108	A	A				
25					A	116	116	102	102	94	A	A	A	110	110	A	A	A	128	B				
26					B	120	110	104	104	104	A	A	104	A	98	A	A		A	A				
27					B	126	106	106	106	96	96	96	98	A	A	114	A	110	110	A				
28					A	A	116	112	112	112	114	102	102	116	116	110	110	100	A	A				
29					118	A	110	110	104	100	100	100	100	100	100	114	114	98	A	A				
30					B	A	110	104	A	A	A	104	104	104	98	98	98	98	A	A	C			98
31					A	98	112	112	102	102	102	102	102	100	104	100	100	100	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					10	20	31	31	29	26	22	18	19	16	22	20	23	26	14	3	2			2
MED					109	112	108	106	104	102	102	102	102	102	103	103	102	103	109	106	108			99
U Q					118	119	110	110	108	106	106	104	104	109	108	108	108	106	112	112				
L Q					100	107	102	102	102	100	100	100	100	100	100	100	100	100	106	86				

AUG. 2017 h'E (KM)

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 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	96	96	88	88	88	128	120	104	104	104	98	90	102	102	102	102	108	108	96	88	88	88	106	100
2	108	100	90	94	100	108	102	106	98	98	98	92	96	96	96	112	96	96	110	102	116	102	118	104
3	100	94	100	90	100	C	100	100	106	96	86	94	94	94	94	110	96	98	106	100	104	104	100	104
4	96	90	90	80	88	92	110	96	108	100	100	100	100	94	100	100	100	120	120	98	B	106	98	96
5	110	94	94	138	236	106	106	94	102	102	96	96	98	98	98	98	104	104	104	98	98	98	98	98
6	B	98	98	106	90	114	106	106	106	96	96	90	90	90	90	90	98	104	104	104	104	98	96	96
7	92	92	92	88	124	106	108	100	100	100	94	94	88	94	88	88	106	106	100	100	100	94	100	94
8	92	92	92	98	82	90	106	112	112	108	100	100	90	100	100	100	100	100	108	104	104	106	96	96
9	96	96	96	102	112	96	108	108	104	96	108	96	102	102	164	152	146	106	112	100	100	98	98	106
10	98	98	98	92	118	110	106	106	102	102	102	98	98	92	92	142	92	88	88	88	88	98	98	90
11	90	108	100	94	98	118	96	100	104	98	98	98	98	134	100	96	96	104	100	100	104	108	98	98
12	102	108	114	92	92	92	108	108	108	98	98	98	98	98	98	98	98	106	106	106	106	106	98	102
13	90	90	B	94	96	G	102	102	102	102	102	90	90	96	98	98	106	106	106	104	104	104	104	104
14	98	98	98	98	98	86	106	110	102	102	102	98	98	98	100	100	90	110	110	110	110	106	106	98
15	98	92	98	90	92	112	112	112	110	106	104	96	96	96	94	98	98	106	106	106	98	98	98	90
16	90	90	90	90	B	120	98	112	98	98	98	90	90	104	104	120	104	104	94	94	104	104	92	92
17	90	90	90	90	90	104	102	102	102	102	92	92	96	112	112	112	108	92	100	100	100	98	98	B
18	116	110	110	110	110	94	102	102	102	102	102	102	G	G	114	108	108	108	104	110	110	104	104	104
19	104	104	94	B	108	108	108	108	108	108	106	98	156	100	100	114	112	112	108	100	100	100	100	92
20	92	124	124	120	110	110	98	102	102	102	102	102	88	G	102	102	102	116	104	104	104	104	104	104
21	94	94	94	94	104	104	104	104	98	98	98	106	94	94	120	110	110	104	114	104	104	98	88	88
22	88	88	88	88	102	106	100	100	96	96	96	96	96	148	94	108	108	102	102	102	102	102	102	94
23	94	94	84	84	84	108	108	104	102	100	98	92	94	100	100	102	112	104	104	104	104	104	98	98
24	B	B	B	118	92	96	98	98	104	104	94	94	112	118	118	112	G	108	108	92	106	94	94	98
25	98	88	88	94	94	G	94	94	94	94	94	94	134	98	98	98	98	92	164	B	B	106	98	98
26	98	90	90	90	98	112	114	106	100	112	100	96	96	138	88	94	96	96	96	90	96	94	94	100
27	100	100	B	B	B	G	112	102	102	102	102	102	102	96	96	96	96	150	G	100	98	110	102	102
28	102	102	102	102	96	114	112	102	102	102	96	98	98	100	138	118	110	104	96	102	116	116	108	96
29	96	96	108	108	122	106	106	106	106	100	100	100	100	100	100	132	102	112	96	94	B	94	80	86
30				88	B	98	98	108	108	98	98	98	98	98	108	118	90	90	82	86	C	94	B	94
31	94	94	88	110	86	86	G	G	122	108	100	102	152	140	140	94	106	86	86	B	B	B	96	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	27	29	28	27	30	30	31	31	31	31	30	29	31	31	30	31	30	29	26	30	30	29
MED	96	94	94	94	98	106	106	104	102	102	98	96	98	98	100	102	102	104	104	100	104	102	98	98
U Q	100	100	100	104	109	112	108	108	106	102	102	100	100	103	108	112	108	108	108	104	104	106	102	102
L Q	92	91	90	90	91	96	100	100	102	98	96	94	94	96	96	98	96	98	96	96	100	98	96	94

AUG. 2017 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG. 2017 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	F1	F2	F2	L3	C2	C1	C5	C3	C2	C2	C4	C2	C2	C2	C2	C2	C2	C4	C2	L2	F1	F1	F5
2	F3	F3	F8	F2	L2	L1	C2	C3	C5	C4	C3	C2	L1	L2	L3	LQ32	L1	L2	C2	L3	LL41	F4	F4	F2
3	FF51	F3	F1	F3	L2	C2	C2	C3	C2	C2	C2	C2	C2	L2	C1	C3	C5	C8	C4	L6	L4	F4	F3	F3
4	F2	F2	F4	F2	L2	LC11	C2	C6	C1	C3	C3	C1	L1	L2	L1	L1	L2	C2	C3	L6		F1	F1	F1
5	F1	F1	F1	F1	C1	C3	C2	C1	C2	C2	L1	L2	L1	L2	C1	C1	C1	C2	C2	L3	L3	F2	F2	F3
6		F1	FF22	F5	L1	C4	C3	C3	C4	C2	L3	L4	L2	L2	L2	L2	C2	C4	C4	L8	L5	F4	F4	F4
7	F3	F2	F2	F5	C2	C6	C2	C5	C4	L3	L3	L3	LC22	LC22	LC12	LC11	C3	C3	C3	L5	L2	F2	F2	F3
8	F1	F3	F2	F1	L4	L1	C2	C3	C2	C2	C3	C4	L3	L2	L2	L2	L2	L3	C2	L7	L5	F3	F3	F3
9	F2	F2	F2	F1	L1	LC12	C2	C2	C3	L3	C1	C1	C1	C1	CL11	CL11	C1	C2	C2	L6	L5	F3	F3	FF11
10	F3	F2	F1	F2	L1	C2	C2	C2	C5	C2	C2	C2	C2	L3	L3	CL22	LC32	L4	L5	L6	L6	F3	F3	F2
11	F3	F1	F1	F1	F1	C1	C1	C1	C3	C3	C3	C2	C1	CL11	L1	L1	L2	L2	L3	L4	F3	F3	F2	F2
12	F1	F2	FF23	F2	L3	L3	C7	C6	C4	C3	C2	C2	C2	L2	L2	L3	C2	C2	L7	L6	F6	F3	F3	F2
13	F2	F1		F1	L3		C5	C4	C4	C3	L3	L2	L3	L2	L1	L1	C3	C6	C3	L2	F2	F5	F4	F2
14	F2	F3	F2	F2	LC11	L2	C2	C1	C3	C4	C4	L3	L6	L4	LQ53	L2	L3	C2	L2	L6	F8	F7	F7	F7
15	F9	F5	F3	F3	L4	CL21	C5	C3	C4	C3	C2	C2	C3	L3	L3	L1	L2	C2	L4	L3	F3	F2	F3	F2
16	F2	F6	F3	F1		C1	C2	C2	C3	L2	L3	L1	L2	C2	C2	C1	C4	C3	L5	L8	F3	F4	F4	F8
17	F3	F2	F2	F1	L2	L3	C6	C6	C3	C3	C3	C3	C2	C2	C2	C7	C6	L4	C6	L4	F5	F2	F2	
18	F2	F2	F2	F2	L2	C2	C2	C4	C2	C2	C2	C2			C2	C3	C3	C4	C8	C2	F1	F1	F1	F4
19	F3	F2	F1		L2	C4	C2	C2	C1	C2	C2	C1	C1	L2	C1	C1	C3	C2	C3	L8	F3	F3	F3	F2
20	F2	F1	F1	F1	C2	C3	C3	C3	C2	C2	C2	C1	LC11		C1	C1	C2	C2	C2	L3	F4	F4	F7	F3
21	F2	F3	F4	F2	L2	L6	C2	C1	C4	C3	C2	C2	L2	L2	CL11	CL22	C3	C4	L7	L6	F5	F8	F4	F2
22	F2	F4	F2	F1	C3	L4	C2	C4	C3	C3	C3	L2	L2	HL11	L1	CL11	C3	C5	L4	L6	F4	F3	F3	F2
23	F5	F4	F4	F3	LC21	L4	C4	C5	C4	C4	C5	L3	C1	L1	C1	L3	C2	C4	L4	L4	F7	F2	F3	F4
24				F1	L1	C1	C3	C2	C1	C3	L2	L3	C2	C2	CC21	C2		C2	L4	L4	F3	F4	F4	F2
25	F2	F3	F2	F1	L1		C2	C2	C2	C3	L2	L1	C1	C1	L1	L1	L1	L3	C1			LL22	L5	L6
26	F4	F3	F3	F4	C1	L2	C4	C4	C4	C1	L3	L2	CL11	CL11	LC21	L2	L3	L3	LQ21	L3	F2	F4	F3	F3
27	F3	F2					C4	C4	C4	C3	C3	C2	C2	L2	L2	C1	L1	H1		L1	F2	FF24	F3	F6
28	F6	F3	F4	F1	F1	F2	C3	C2	C4	C2	C1	C2	C2	LC21	LC21	C2	C4	C3	L6	L4	F5	F8	F3	F3
29	F4	F3	F7	F2	CL21	L4	C2	C4	C3	C5	C4	C4	C2	C1	C1	C2	C2	C2	C4	C3		F4	F3	F3
30				F1		L2	C1	C1	L1	L2	L1	LC11	LC11	C1	CL11	CL11	L2	L2	L2	L2		F2		F2
31	F2	F1	F1	F1	L3	L2			C1	C1	C2	C1	HL11	HL11	HL11	L2	C2	LC21	L2				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																								

AUG. 2017 TYPES OF Es

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IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 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	40	40	38	42	A																X 64	60	X 56	X 52
2	X 49	X 48	49	54	X 43																X 64	X 56	X 48	X 46
3	X 44	44	39	X 38	X 35																X 73	X 61	54	54
4	48	X 39	38	36	X 34																X 71	X 68	70	X 52
5	X 58	X 47	X 49	X 45	X 36																X 55	X 49	X 47	X 47
6	X 42	X 39	X 40	X 42	X 37																X 64	X 58	59	A
7	52	X 39	44	X 40	43																A	X 38	45	X 40
8	X 38	X 37	38	X 33	43																X 52	X 50	X 54	55
9	48	X 41	43	44	43	44															X 70	X 62	X 49	45
10	44	43	45	43	38																X 78	X 54	56	X 40
11	A	X 35	40	38	39															X 68	X 64	X 54	X 48	X 46
12	X 44	47	X 41	48	44															X 63	A	60	60	60
13	59	58	50	45	X 41															X 75	X 67	X 65	X 58	X 50
14	X 48	X 46	48	X 46	42															X 56	X 57	X 56	60	55
15	X 46	X 44	X 42	X 38	41	X 39														X 60	X 58	58	X 56	X 54
16	X 48	X 45	X 43	58	52															X 64	X 68	X 62	54	58
17	58	52	X 47	49	51	47														X 64	X 64	X 66	68	68
18	X 56	X 56	X 48	52	X 45															X 56	X 56	X 52	X 47	X 43
19	X 41	X 38	X 39	X 38	X 38															X 63	O X 63	58	56	X 45
20	X 48	X 44	X 44	X 42	X 43															X 60	X 51	X 49	X 48	X 47
21	X 46	X 45	X 44	X 42	X 40															X 74	X 67	60	57	59
22	52	X 43	X 41	X 40	44															A	X 56	X 54	58	X 54
23	X 47	X 45	X 44	X 42	X 41															X 65	X 47	57	X 53	56
24	50	X 47	47	X 38	X 36															X 69	X 64	62	60	A
25	X 45	49	X 48	X 47	X 35															X 70	X 68	X 61	X 50	X 46
26	X 46	X 43	X 41	X 41	X 37															X 59	X 58	X 54	X 50	X 46
27	X 45	X 43	X 41	X 40	X 38															X 66	X 62	X 58	57	55
28	54	X 47	X 38	X 36	X 38															X 56	X 56	X 50	X 51	58
29	X 52	X 46	44	X 42	51															X 65	X 60	X 53	X 47	X 42
30	X 42	45	X 41	X 42	43	40														X 58	X 57	X 54	X 54	X 54
31	X 54	54	55	X 46	48										C	C	C			X 71	X 76	X 72	X 65	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	30	31	31	31	30	4														20	29	31	31	29
MED	X 48	X 45	X 43	X 42	X 41	42														X 64	X 64	X 58	X 54	X 52
U Q	52	47	47	46	43	46														X 68	X 68	X 61	58	55
L Q	X 44	X 41	40	X 38	X 38	40														X 60	X 56	X 54	X 49	X 46

AUG. 2017 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 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	F	F	F	F	A	36	42	44	A	A	A	A	A	52	54	55	56	58	57	57	58	F	50	46
2	43	42	F	F	36	38	44	46	51	60	A	A	A	A	54	59	62	54	51	55	58	50	42	40
3	38	F	F	32	29	30	38	50	56	A	54	52	54	52	54	50	46	48	50	64	67	55	F	F
4	F	33	F	F	28	31	48	51	55	50	58	56	51	54	A	A	58	62	61	63	65	62	F	46
5	52	41	43	39	30	34	39	43	A	A	A	A	A	A	A	A	A	50	A	53	49	43	41	41
6	36	33	34	36	31	31	42	50	53	52	52	54	50	47	50	47	44	44	48	60	58	52	F	A
7	F	33	F	34	F	32	41	A	A	A	A	46	48	51	52	55	54	58	53	58	A	32	F	34
8	32	31	F	27	F	35	46	47	A	A	A	A	A	57	69	77	66	52	48	46	46	44	48	F
9	F	35	F	F	F	F	42	51	50	56	A	49	52	63	60	54	50	48	44	54	64	56	43	F
10	F	F	F	F	F	30	40	45	58	58	53	51	A	53	46	48	48	48	A	66	72	48	F	34
11	A	29	F	F	F	31	40	52	56	58	46	50	A	A	A	57	59	54	A	62	58	48	42	40
12	37	F	35	F	F	41	44	A	A	A	A	53	61	59	51	60	49	52	A	57	A	F	F	F
13	F	F	F	F	35	32	42	A	55	55	A	A	60	71	68	56	56	57	62	69	61	59	52	44
14	42	40	F	40	F	32	44	49	A	47	A	61	A	70	A	66	55	50	49	50	51	50	F	F
15	40	37	36	32	F	33	46	46	48	A	A	A	51	53	A	54	56	56	58	53	51	F	50	47
16	42	39	37	F	F	35	48	52	59	51	A	A	52	A	A	58	66	A	49	58	62	56	F	F
17	F	F	40	F	F	F	44	A	69	55	A	A	A	A	60	56	52	54	60	58	58	60	F	F
18	50	50	42	F	39	34	35	43	A	A	A	A	47	A	44	45	45	41	41	50	50	46	41	37
19	35	32	33	32	32	28	A	A	64	A	A	A	A	45	54	54	46	A	47	57	57	F	F	38
20	42	38	38	36	37	31	46	56	54	49	48	51	52	A	51	54	59	54	60	54	45	43	41	41
21	40	39	38	36	34	30	53	59	50	49	54	50	50	57	64	A	55	A	55	67	61	F	F	F
22	F	36	35	34	F	36	49	46	55	55	53	63	64	63	56	A	75	A	A	A	50	48	F	48
23	41	39	37	36	34	33	A	A	46	A	A	66	48	47	43	51	54	56	A	59	41	F	47	F
24	F	41	F	32	30	30	46	49	A	42	A	56	60	59	56	53	51	55	55	63	58	F	F	A
25	39	F	42	41	29	33	47	54	54	60	66	57	60	62	65	59	59	56	54	64	62	54	44	40
26	40	37	35	35	31	30	47	62	60	64	60	57	60	51	55	52	55	48	47	53	52	48	44	40
27	39	37	35	34	32	33	46	55	55	66	61	57	A	A	A	55	54	56	55	60	56	52	F	F
28	F	41	32	30	32	28	48	53	50	66	62	58	57	56	60	58	65	60	51	50	50	44	44	F
29	46	40	F	36	F	33	46	55	59	59	56	57	53	52	56	57	63	55	52	59	54	50	41	36
30	36	F	35	36	F	F	45	48	A	52	54	52	50	55	56	58	64	52	49	51	51	48	48	47
31	48	F	F	40	F	37	43	54	58	56	55	55	62	53	C	C	C	50	53	65	70	66	59	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	20	22	17	20	16	28	29	25	22	21	15	21	21	23	23	26	29	27	25	30	29	24	17	18
MED	40	38	36	36	32	32	44	50	55	55	54	55	52	54	55	55	55	54	52	58	58	50	44	40
U Q	42	40	39	36	34	34	46	54	58	60	60	57	60	59	60	58	60	56	56	63	62	56	49	46
L Q	38	33	35	32	30	30	42	46	51	50	53	51	50	52	51	53	50	50	48	53	50	47	42	38

IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 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							UL 344	A	A	A	A	A	A	A	A	UL 412	UL 396	368	L					
2									A	UL 416	A	A	A	A	UL 424	UL 420	400	UL 388	A					
3							A	A	A	A	A	UL 444	UL 468	444	UL 436	A	408	UL 408	L					
4								UL 392	UL 424	UL 428	UL 436	UL 472	432	A	A	A	396	368	A					
5							A	A	A	A	A	A	A	A	A	A	A	A	A					
6							UL 340	UL 396	A	UL 424	UL 420	UL 448	UL 432	UL 428	UL 432	408	A	A	A	A				
7							UL 336	A	A	A	A	UL 424	UL 436	UL 428	UL 440	UL 408	UL 396	UL 364	A					
8								UL 424	A	A	A	A	A	444	UL 436	UL 412	396	L						
9							UL 376	UL 380	A	A	A	UL 464	UL 456	UL 440	UL 432	416	404	UL 372	UL 340					
10							A	A	408	440	A	UL 444	A	UL 436	UL 440	A	A	UL 372	A	A				
11								384	UL 408	424	UL 440	UL 436	A	A	A	A	UL 396	A	A					
12								A	A	A	A	A	A	A	A	A	A		A					
13							A	A	A	A	A	A	A	UL 432	424	412	384	A	A					
14								L	A	A	A	A	A	A	A	A	388	A						
15								A	A	A	A	A	A	A	A	A	A	L	L					
16							L	L	A	A	A	A	UL 440	A	A	A	A	A	A					
17							A	A	A	A	A	A	A	A	A	A	UL 408	UL 376	L					
18							UL 304	356	A	A	A	A	UL 420	A	UL 404	UL 396	376	UL 372	UL 304					
19							A	A	A	A	A	A	A	424	A	A	UL 420	A	A					
20							L	A	A	420	428	UL 460	UL 436	A	432	424	A	A	A					
21						L	L		UL 436	UL 436	UL 432	UL 452	444	UL 448	424	A	400	A	A					
22							UL 356		A	A	A	A	460	A	A	A	A	A	A					
23							A	A	388	A	A	UL 436	UL 432	UL 432	UL 404	408	388	A	A					
24						L	304	UL 372	A	UL 428	A	A	436	A	A	UL 432	UL 404	L	A					
25								L	A	A	436	444	UL 456	448	UL 432	UL 428	L	L						
26							L	L	UL 412	428	456	A	UL 452	UL 440	436	UL 408	384	L						
27							L	L	UL 524	A	A	A	A	A	A	UL 408	400	L						
28							L	L	UL 412	A	UL 440	444	444	UL 444	UL 440	A	A							
29							A	392	A	436	A	440	452	UL 444	UL 460	420	L	L	A					
30								A	A	UL 432	UL 440	UL 456	UL 456	UL 440	424	UL 416	A							
31							L	L	L	432	448	460	452	464	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							7	8	8	12	10	15	18	16	17	16	18	9	2					
MED							UL 340	UL 388	UL 412	428	UL 438	UL 444	UL 444	UL 440	UL 432	UL 412	396	UL 372	UL 322					
U Q							UL 356	UL 394	UL 430	434	440	UL 460	UL 456	UL 444	UL 438	UL 420	UL 404	UL 382						
L Q							304	UL 376	408	424	UL 432	UL 440	UL 436	UL 432	424	UL 408	388	368						

AUG. 2017 foF1 (0.01MHz)

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AUG.2017 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	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
2						B	UR 224	R	A	A	A	A	A	A	A	A	A	A	A	B				
3						B	A	A	A	A	A	A	A	A	A	UA 312	UA 292	A	A	B				
4						B	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
5						B	A	A	A	A	A	A	A	A	A	A	A	A	B	B				
6						B	A	A	A	A	A	A	A	A	R	R	A	A	A	B				
7						B	A	A	A	A	A	R	R	A	A	A	A	A	A	B				
8						B	A	A	A	A	A	A	A	A	A	A	A	A	UR 212	B				
9							A	A	A	A	A	A	R	A	UR 336	UR 320	R	A	A	B				
10						B	A	A	A	A	A	A	A	A	A	UA 320	284	A	B	B				
11						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
12						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
13						B	A	A	A	A	A	A	A	A	A	A	UA 284	A	B					
14						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
15							A	A	A	A	A	A	A	A	A	A	A	A	B					
16						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
17						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
18						B	A	A	A	A	A	A	A	A	A	A	R	R	UR 172					
19						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
20						B	A	A	A	A	A	A	A	A	A	R	A	A	B					
21						B	A	A	A	A	A	A	A	UR 340	A	A	A	A	B					
22						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
23						B	A	A	A	A	A	A	A	R	A	R	A	A	B					
24						B	A	A	A	A	A	A	A	A	A	A	UR 288	UA 228	B					
25						B	B	A	A	A	A	A	A	A	A	A	A	A	B					
26						B	A	A	R	UR 336	A	A	A	R	340	R	UR 280	A	B					
27						B	A	A	A	A	A	A	A	A	A	A	A	A	UR 196					
28						B	UR 232	A	A	A	A	A	A	A	A	A	A	A	B					
29						B	A	A	A	A	A	A	A	R	340	UA 304	A	A	B					
30						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
31						B	UR 208	A	A	A	A	A	A	A	C	C	C	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							3			1				1	3	4	5	1	3					
MED							UR 224			UR 336				UR 340	340	UA 316	U 284	UA 228	UR 196					
U Q							UR 232								340	U 320	U 290		UR 212					
L Q							UR 208								UR 336	UA 308	282		UR 172					

AUG.2017 foE (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 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	J A 46	J A 36	J A 50	J A 46	J A 76	J A 49	26	J A 38	J A 68	J A 121	113	73	J A 71	J A 82	J A 52	J A 44	J A 42	J A 38	J A 52	J A 51	J A 52	32	25	56
2	J A 39	J A 62	J A 55	J A 42	J A 38	E B 15	G	G	J A 51	37	J A 96	J A 130	J A 103	J A 52	74	49	J A 57	47	J A 58	J A 39	J A 21	20	J A 34	J A 71
3	J A 39	J A 46	J A 27	J A 22	J A 22	J A 24	J A 38	J A 62	J A 66	J A 116	64	48	39	J A 42	38	38	34	32	J A 26	J A 24	E B 15	J A 108	J A 31	64
4	J A 50	J A 31	J A 49	J A 27	22	J A 26	32	J A 39	J A 40	J A 48	48	42	J A 52	J A 66	122	89	J A 51	48	37	44	25	52	30	23
5	24	E B 16	23	E B 16	E B 14	J A 20	34	J A 41	J A 56	J A 86	106	81	J A 82	72	65	200	J A 227	178	J A 122	144	E B 16	30	64	55
6	J A 32	J A 27	27	J A 36	J A 36	J A 24	31	J A 38	56	58	39	47	50	39	G	G	J A 46	48	J A 47	38	87	55	111	67
7	J A 49	J A 52	J A 51	J A 34	J A 60	J A 24	J A 38	J A 108	J A 74	J A 102	82	G	G	39	40	38	J A 64	45	J A 189	J A 195	J A 131	J A 100	J A 41	53
8	J A 51	J A 37	J A 33	J A 28	J A 36	J A 32	27	J A 51	J A 100	J A 103	66	J A 101	J A 128	J A 102	51	44	33	J A 33	G	J A 35	J A 36	53	J A 40	36
9	J A 88	E B 15	J A 28	J A 26	E B 16	22	J A 27	J A 41	J A 50	J A 55	80	58	G	G	G	G	G	29	J A 29	J A 24	J A 28	23	J A 34	42
10	J A 30	22	J A 29	J A 52	J A 29	J A 23	43	J A 44	J A 46	J A 49	80	66	J A 56	J A 44	74	41	40	J A 37	J A 68	J A 56	J A 160	98	76	74
11	J A 66	J A 40	25	J A 25	25	22	26	J A 35	36	J A 43	J A 52	J A 49	J A 76	J A 137	J A 88	J A 70	J A 49	J A 86	J A 158	J A 55	J A 46	J A 32	J A 43	39
12	J A 32	J A 27	J A 29	J A 109	E B 16	J A 24	J A 32	J A 50	J A 84	J A 215	J A 203	J A 109	J A 111	J A 97	J A 92	J A 129	J A 124	J A 111	J A 186	J A 73	J A 66	J A 169	J A 72	88
13	J A 30	21	J A 84	J A 50	J A 48	J A 26	J A 37	J A 54	J A 51	J A 80	J A 114	J A 116	J A 66	J A 43	J A 58	J A 63	35	J A 52	J A 54	J A 48	J A 107	J A 51	J A 28	45
14	J A 32	J A 79	J A 52	J A 31	21	E B 16	26	J A 45	J A 61	J A 54	J A 168	J A 57	J A 66	J A 74	J A 108	J A 71	J A 42	80	J A 89	J A 111	J A 110	J A 121	J A 32	40
15	J A 66	J A 54	J A 25	J A 27	J A 28	25	J A 34	J A 42	J A 48	J A 75	J A 50	70	J A 52	J A 44	J A 73	J A 133	J A 44	J A 31	23	J A 18	J A 100	J A 53	J A 38	J A 30
16	24	J A 28	23	J A 28	E B 15	E B 15	26	34	J A 54	J A 68	J A 111	J A 63	44	J A 78	J A 109	J A 123	J A 111	J A 121	J A 50	J A 51	J A 46	J A 107	J A 122	J A 46
17	J A 68	J A 66	J A 26	E B 15	E B 16	E B 16	J A 39	86	J A 84	J A 106	J A 128	J A 82	J A 47	J A 68	J A 52	J A 49	J A 40	J A 32	J A 32	E B 15	J A 87	J A 36	J A 38	E B 16
18	24	E B 16	20	E B 16	20	J A 20	25	J A 39	J A 55	J A 52	J A 124	J A 117	J A 50	J A 53	J A 49	34	G	G	G	E B 15	E B 16	E B 15	22	J A 49
19	J A 30	J A 26	E B 15	E B 16	E B 15	J A 22	J A 37	J A 56	J A 52	J A 70	J A 58	J A 60	47	J A 43	J A 51	J A 50	J A 56	J A 49	J A 32	J A 55	J A 55	J A 38	J A 47	J A 28
20	J A 40	22	20	20	E B 14	J A 24	J A 30	J A 40	J A 58	J A 65	J A 42	J A 37	40	J A 68	J A 46	G	J A 50	J A 61	J A 54	J A 26	21	22	22	24
21	21	E B 15	E B 15	E B 15	E B 15	E B J A 22	24	J A 33	J A 40	J A 60	J A 52	J A 41	43	39	41	J A 71	33	J A 63	J A 40	J A 103	J A 137	J A 83	J A 65	J A 43
22	J A 53	J A 26	J A 21	J A 34	J A 26	J A 21	J A 31	J A 44	J A 50	J A 78	J A 74	J A 107	J A 58	J A 84	J A 54	J A 145	J A 154	J A 127	J A 170	J A 257	J A 109	J A 33	J A 86	J A 88
23	J A 53	J A 54	J A 53	J A 29	J A 32	J A 30	J A 55	J A 54	J A 40	J A 86	J A 91	J A 56	J A 82	G	37	G	33	J A 128	J A 142	J A 74	J A 53	J A 54	J A 74	J A 64
24	J A 38	J A 35	21	E B 16	E B 15	20	J A 29	J A 33	J A 61	J A 58	J A 81	J A 56	40	J A 56	J A 119	36	G	31	J A 44	J A 134	J A 50	J A 54	J A 47	J A 69
25	J A 53	J A 46	J A 53	J A 33	J A 42	J A 31	26	J A 41	J A 49	J A 46	J A 58	J A 47	J A 45	J A 46	38	J A 38	J A 36	J A 51	J A 79	E B 16	22	21	E B 16	22
26	E B 15	E B 16	E B 16	E B 15	E B 15	E B 16	J A 31	31	G	G 32	36	J A 52	J A 42	G 31	38	G 27	G	28	J A 34	J A 28	E B 16	22	24	24
27	J A 39	J A 29	J A 39	J A 28	J A 23	J A 18	25	J A 35	J A 53	J A 49	J A 57	J A 59	J A 99	J A 78	J A 119	J A 76	J A 64	54	J A 28	23	23	J A 28	J A 51	J A 31
28	J A 26	J A 30	J A 32	J A 22	E B 16	E B 15	G	36	J A 64	J A 68	J A 47	38	J A 41	36	42	J A 74	J A 69	J A 41	J A 68	J A 54	J A 26	J A 34	J A 38	27
29	J A 34	J A 42	J A 51	23	22	J A 21	J A 38	J A 37	J A 92	J A 44	J A 49	J A 50	J A 47	G	38	36	J A 84	31	J A 29	J A 30	J A 53	J A 46	E B J A 16	28
30	J A 26	25	J A 52	22	J A 25	J A 25	J A 26	J A 42	J A 53	J A 46	J A 48	J A 40	J A 43	J A 45	J A 72	J A 55	J A 47	J A 39	J A 53	J A 53	J A 30	J A 29	J A 22	J A 24
31	E B 16	E B 15	E B 15	E B 15	20	E B 15	G	32	34	36	39	38	G	37	C	C	C	27	E B 18	E B 15	24	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	31	30	30	30	31	31	31	31	31	31	31
MED	J A 38	J A 29	J A 28	J A 27	22	J A 22	J A 30	J A 41	J A 53	J A 60	J A 66	J A 57	J A 50	J A 46	J A 52	J A 49	J A 45	J A 47	J A 50	J A 48	J A 46	J A 38	J A 38	J A 42
U Q	J A 51	J A 46	J A 51	J A 34	J A 32	J A 25	J A 37	J A 50	J A 64	J A 86	J A 106	J A 81	J A 71	J A 74	J A 74	J A 74	J A 64	J A 63	J A 79	J A 73	J A 87	J A 55	J A 64	J A 64
L Q	26	E B 22	21	E B 16	E B 16	E B 18	26	35	J A 48	J A 48	J A 49	J A 47	42	39	40	G 36	34	32	29	24	23	28	25	27

AUG. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 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 16	20	19	18	A A 76	E B 16	24	36	A A 68	A A 121	A A 113	A A 73	A A 71	48	45	31	33	29	22	29	32	22	22	21
2	20	E B 16	18	20	E B 16	E B 15	G	G	46	34	A A 96	A A 130	A A 103	A A 52	38	37	32	24	38	30	17	E B 15	E B 15	20
3	21	22	E B 16	E B 15	E B 15	18	33	44	40	A A 116	46	38	37	36	37	37	32	28	22	19	E B 15	22	21	36
4	22	18	E B 15	E B 15	E B 16	19	29	33	34	40	37	39	38	49	A A 122	A A 89	30	28	28	35	E B 16	31	20	E B 16
5	E B 16	E B 16	E B 16	E B 16	E B 14	E B 16	30	34	A A 56	A A 86	A A 106	A A 81	A A 82	A A 72	A A 65	A A 200	A A 227	38	A A 122	30	E B 16	E B 16	22	27
6	22	E B 16	E B 16	E B 16	22	20	24	32	39	36	34	38	38	36	G	G	37	36	35	26	27	26	36	A A 67
7	26	21	24	20	16	18	33	A A 108	A A 74	A A 102	A A 82	G	G	38	38	36	35	29	31	23	A A 131	24	19	23
8	20	20	20	19	E B 15	19	24	32	A A 100	A A 103	A A 66	A A 101	A A 128	38	38	35	31	26	G	26	22	23	19	22
9	21	E B 15	E B 16	18	E B 16	E B 16	22	32	40	48	A A 80	38	G	G	G	G	G	26	23	18	E B 16	E B 16	E B 19	20
10	E B 16	16	E B 16	19	E B 16	19	35	37	35	37	44	38	A A 56	37	34	39	38	32	A A 68	49	22	24	21	23
11	A A 66	21	E B 16	E B 15	E B 16	E B 15	23	31	32	35	38	38	A A 76	A A 137	A A 88	49	35	37	A A 158	32	25	E B 16	26	22
12	20	20	20	E B 16	E B 16	16	24	A A 50	A A 84	A A 215	A A 203	45	51	44	46	52	43	36	A A 186	44	A A 66	22	24	E B 16
13	E B 16	E B 15	22	20	18	17	34	A A 54	42	50	A A 114	A A 116	46	38	37	34	32	40	32	29	20	20	20	E B 16
14	21	26	22	E B 16	E B 16	E B 16	24	32	A A 61	41	A A 168	49	A A 66	56	A A 108	41	31	36	22	E B 17	23	24	20	22
15	27	23	E B 16	22	E B 16	E B 15	29	38	44	A A 75	A A 50	A A 70	44	40	A A 73	42	40	27	21	17	18	E B 16	E B 16	E B 15
16	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	24	30	39	42	A A 111	A A 63	38	A A 78	A A 109	45	55	A A 121	43	29	30	26	31	23
17	24	22	E B 15	E B 15	E B 16	E B 16	34	A A 86	56	49	A A 128	A A 82	A A 47	A A 68	49	44	32	26	20	E B 15	E B 15	22	20	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	28	A A 55	A A 52	A A 124	A A 117	38	A A 53	36	32	G	G	G	E B 15	E B 16	E B 15	E B 16	E B 16
19	E B 16	E B 16	E B 15	E B 16	E B 15	17	A A 37	A A 56	42	A A 70	A A 58	A A 60	A A 47	39	42	36	31	A A 49	27	41	26	23	20	17
20	20	E B 16	E B 16	E B 15	E B 14	16	23	37	46	37	36	36	36	A A 68	39	G	36	45	38	21	E B 16	E B 16	E B 16	E B 16
21	16	E B 15	E B 15	E B 15	E B 15	16	23	27	36	35	38	37	36	37	38	A A 71	32	A A 63	35	43	46	39	30	26
22	27	20	E B 16	E B 16	17	16	23	37	43	42	50	44	41	48	48	A A 145	57	A A 127	A A 170	A A 257	22	E B 15	22	38
23	28	25	25	E B 16	19	23	A A 55	A A 54	35	A A 86	A A 91	38	40	G	34	G	32	53	A A 142	38	30	31	E B 16	20
24	23	20	E B 16	E B 16	E B 15	16	23	26	A A 61	38	A A 81	43	38	44	42	34	G	29	26	32	23	E B 15	21	A A 69
25	27	24	24	22	19	26	22	32	41	42	35	37	40	38	35	34	25	24	27	E B 16	E B 16	E B 15	E B 16	16
26	E B 15	E B 16	E B 16	E B 15	E B 15	E B 16	23	28	G	G 30	33	48	38	G 30	37	G 26	G	26	24	22	E B 16	E B 16	E B 16	E B 16
27	E B 16	18	20	E B 16	E B 15	E B 15	22	30	46	45	51	53	A A 99	A A 78	A A 119	37	32	26	G 17	E B 16	E B 15	E B 15	17	19
28	E B 16	22	19	16	E B 16	E B 15	G	32	33	58	37	36	36	34	39	38	38	36	E B 15	27	18	22	E B 16	E B 16
29	24	30	E B 15	E B 16	E B 16	E B 15	32	32	41	39	44	39	39	G	36	34	31	28	21	25	19	23	E B 16	22
30	E B 15	E B 16	E B 16	E B 16	E B 15	E B 16	22	39	A A 53	38	39	38	38	40	34	34	38	28	34	29	22	19	18	E B 15
31	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	G	30	32	34	36	37	G	33	C	C	C	24	E B 18	E B 15	E B 16	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	31	30	30	30	31	31	31	31	31	31	31
MED	20	18	E B 16	E B 16	E B 16	E B 16	24	32	42	42	A A 51	43	40	40	38	36	32	29	27	27	20	22	20	20
U Q	24	22	20	18	16	18	32	A A 39	A A 56	A A 75	A A 106	A A 70	A A 56	A A 53	A A 49	44	38	38	A A 38	32	26	24	22	23
L Q	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	23	30	36	37	38	38	38	36	36	G 34	31	26	21	E B 18	E B 16	E B 16	E B 16	E B 16

AUG. 2017 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

AUG. 2017 fmin (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 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	F	F	F	F	A	323	339	310	A	A	A	A	A	297	324	319	333	350	357	322	340	F	294	334
2	304	317	F	F	298	344	358	355	323	382	A	A	A	A	312	322	341	332	326	327	340	340	315	302
3	326	F	F	345	390	342	327	330	368	A	323	327	330	287	311	362	313	305	308	324	356	355	F	F
4	F	311	F	F	293	334	338	361	334	313	314	334	299	315	A	A	322	342	346	313	280	285	F	269
5	336	286	306	331	305	322	297	285	A	A	A	A	A	A	A	A	A	327	A	327	313	321	296	308
6	326	289	314	309	301	285	293	318	333	292	285	302	282	256	281	298	310	310	305	317	313	335	F	A
7	F	300	F	297	F	282	282	A	A	A	A	258	286	326	302	321	324	348	347	341	A	313	F	322
8	307	301	F	344	F	354	371	329	A	A	A	A	A	300	292	313	350	348	341	334	313	293	354	F
9	F	321	F	F	F	F	311	367	326	355	A	289	301	332	325	338	336	331	315	314	347	365	275	F
10	F	F	F	F	F	314	295	314	326	355	346	330	A	332	298	302	321	328	A	326	327	349	F	331
11	A	324	F	F	F	335	333	344	364	383	269	312	A	A	A	331	345	345	A	329	318	350	311	311
12	322	F	303	F	F	377	401	A	A	A	A	308	326	329	279	336	326	335	A	322	A	F	F	F
13	F	F	F	F	335	347	339	A	317	309	A	A	298	322	314	335	332	336	335	340	323	316	308	318
14	312	321	F	324	F	310	353	360	A	289	A	345	A	329	A	341	338	352	349	310	307	312	F	F
15	307	299	344	322	F	327	376	379	333	A	A	A	309	345	A	323	344	342	352	327	300	F	310	309
16	325	322	300	F	F	350	378	355	399	380	A	A	334	A	A	313	323	A	332	314	331	348	F	F
17	F	F	310	F	F	F	315	A	367	372	A	A	A	A	313	335	319	322	334	299	279	301	F	F
18	287	283	292	F	291	273	259	280	A	A	A	A	268	A	271	271	314	272	301	317	318	330	330	284
19	299	300	307	311	350	321	A	A	378	A	A	A	A	251	305	347	337	A	320	299	344	F	F	303
20	304	341	321	303	286	275	331	349	323	304	282	275	292	A	306	310	352	270	347	341	297	302	294	307
21	302	307	305	289	298	301	357	385	334	326	334	265	275	302	337	A	325	A	332	330	330	F	F	F
22	F	326	306	319	F	305	337	343	337	320	278	344	300	319	300	A	343	A	A	A	289	289	F	312
23	294	305	320	316	294	325	A	A	290	A	A	397	295	286	249	292	301	328	A	338	315	F	315	F
24	F	283	F	281	273	276	332	368	A	255	A	315	333	343	335	321	335	325	326	306	315	F	F	A
25	296	F	308	340	312	345	357	354	350	351	366	330	323	341	348	338	365	348	330	327	341	349	326	312
26	313	316	316	319	310	308	342	377	318	365	334	318	337	309	343	329	341	347	344	315	316	332	331	319
27	327	321	323	317	338	329	362	338	270	345	370	349	A	A	A	344	327	335	345	333	328	306	F	F
28	F	315	335	288	308	308	342	349	322	354	348	365	338	316	330	326	355	367	348	335	318	296	292	F
29	306	327	F	291	F	290	352	349	382	340	352	356	337	317	314	325	353	346	336	328	316	307	322	307
30	308	F	312	290	F	F	394	333	A	358	347	290	301	348	336	328	347	347	351	327	310	304	293	296
31	329	F	F	327	F	306	342	364	362	367	316	324	358	317	C	C	C	321	307	296	320	321	368	320
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	22	17	20	16	28	29	25	22	21	15	21	21	23	23	26	29	27	25	30	29	24	17	18
MED	308	313	310	316	303	322	339	349	334	351	334	324	301	317	312	326	335	335	335	326	318	318	311	310
U Q	326	321	320	326	324	338	358	362	364	366	348	344	334	332	330	336	344	347	347	330	330	344	328	319
L Q	303	300	306	294	294	303	321	330	323	311	285	296	294	300	298	313	322	325	323	314	312	303	294	303

AUG. 2017 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 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							UL 401	A	A	A	A	A	A	A	A	UL 439	UL 394	377	L					
2									A	UL 437	A	A	A	A	UL 432	UL 398	406	UL 364	A					
3							A	A	A	A	A	UL 409	UL 365	421	UL 409	A	371	UL 345	L					
4								UL 385	UL 383	UL 416	UL 422	UL 367	434	A	A	A	378	366	A					
5							A	A	A	A	A	A	A	A	A	A	A	A	A					
6							UL 363	UL 391	A	UL 380	UL 425	UL 389	UL 422	UL 421	UL 391	396	A	A	A	A				
7							UL 365	A	A	A	A	UL 430	UL 430	UL 423	UL 402	UL 398	UL 394	UL 382	A					
8								UL 377	A	A	A	A	A	382	UL 383	UL 407	380	L						
9							UL 354	UL 392	A	A	A	UL 413	UL 419	UL 402	UL 415	404	378	UL 374	UL 332					
10							A	A	414	419	A	UL 438	A	UL 431	UL 397	A	A	UL 369	A	A				
11								399	UL 416	424	UL 449	UL 447	A	A	A	A	UL 416	A	A					
12								A	A	A	A	A	A	A	A	A	A		A					
13							A	A	A	A	A	A	A	UL 451	381	378	394	A	A					
14								L	A	A	A	A	A	A	A	A	399	A						
15								A	A	A	A	A	A	A	A	A	A	L	L					
16							L	L	A	A	A	A	UL 423	A	A	A	A	A	A					
17							A	A	A	A	A	A	A	A	A	A	UL 372	UL 370	L					
18							UL 371	377	A	A	A	A	UL 442	A	UL 402	UL 391	379	UL 350	UL 334					
19							A	A	A	A	A	A	A	394	A	A	UL 364	A	A					
20							L	A	A	413	420	UL 395	UL 425	A	370	375	A	A	A					
21						L	L		UL 390	UL 426	UL 437	UL 386	416	UL 392	397	A	398	A	A					
22							UL 374		A	A	A	A	367	A	A	A	A	A	A					
23							A	A	425	A	A	UL 403	UL 414	UL 414	UL 421	369	371	A	A					
24						L	364	UL 385	A	UL 425	A	A	399	A	A	UL 386	UL 400	L	A					
25								L	A	A	408	435	UL 387	397	UL 417	UL 383	L	L						
26							L	L	UL 412	427	413	A	UL 410	UL 417	392	UL 405	404	L						
27							L	L	UL 333	A	A	A	A	A	A	UL 424	365	L						
28							L	L	UL 383	A	UL 412	431	431	UL 426	UL 403	A	A							
29							A	375	A	382	A	444	432	UL 432	UL 386	395	L	L	A					
30								A	A	UL 425	UL 430	UL 400	UL 408	UL 350	397	UL 405	A							
31							L	L	L	412	435	398	405	412	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							7	8	8	12	10	15	18	16	17	16	18	9	2					
MED							UL 365	UL 385	UL 401	422	UL 424	UL 409	UL 418	UL 416	UL 397	UL 397	387	UL 369	UL 333					
U Q							UL 374	UL 392	415	UL 426	UL 435	435	430	UL 424	UL 412	UL 405	399	UL 376						
L Q							UL 363	377	UL 383	412	413	UL 395	405	396	UL 388	384	372	UL 357						

AUG. 2017 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 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							304	E A 296	A	A	A	A	A	E A 394	314	320	300	268	244					
2									E A 346	236	A	A	A	A	354	294	266	286	E A 260					
3							E A 276	E A 324	242	A	316	328	314	396	328	272	366	338	308					
4								268	280	354	330	288	378	E A 348	A	A	304	274	248					
5							E A 334	406	A	A	A	A	A	A	A	A	A	E A 296	A					
6							386	334	306	360	400	370	414	482	408	368	378	362	E A 314	E A 252				
7							386	A	A	A	A	422	410	328	374	312	304	260	254					
8								304	A	A	A	A	A	366	318	288	246	242						
9							366	268	330	270	A	414	372	286	300	294	300	290	320					
10							E A 390	356	282	266	290	320	A	314	372	376	324	314	A	E A 276				
11								288	266	236	372	342	A	A	A	E A 294	258	258	A					
12								A	A	A	A	348	300	284	E A 406	E A 298	E A 316		A					
13							E A 284	A	310	352	A	A	350	292	264	310	294	E A 266	236					
14								272	A	414	A	284	A	E A 294	A	270	280	266						
15								246	E A 332	A	A	A	352	300	A	E A 316	264	276	250					
16							258	246	222	252	A	A	326	A	A	328	E A 290	A	E A 290					
17							E A 304	A	E A 238	E A 262	A	A	A	A	E A 304	298	312	284	272					
18							472	398	A	A	A	A	434	A	462	454	356	416	338					
19							A	A	240	A	A	A	A	518	348	282	304	A	270					
20							306	266	E A 304	362	400	438	386	A	352	338	254	E A 408	E A 240					
21						340	262		306	338	318	452	446	354	286	A	302	A	E A 254					
22							278		276	300	E A 352	278	336	322	358	A	272	A	A					
23							A	A	390	A	A	226	410	416	468	382	322	E A 326	A					
24						402	286	250	A	468	A	324	300	294	310	314	296	302	E A 256					
25								260	264	284	250	294	318	286	272	284	244	260						
26							270	244	294	256	284	334	288	350	290	314	260	250						
27							276	270	498	270	E A 254	E A 310	A	A	A	282	308	274						
28							288	280	302	E A 274	254	264	302	338	294	288	256							
29							256	258	232	266	272	288	308	334	326	294	254	254	244					
30								320	A	280	272	370	390	288	292	294	246							
31							236	250	242	244	324	330	262	362	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						2	20	22	22	21	15	21	21	23	23	26	29	23	17	2				
MED						371	282	270	280	274	U 303	328	350	328	322	297	295	272	253	E A 264				
U Q							350	320	310	353	352	370	400	366	372	320	310	314	299					
L Q							273	258	242	259	272	288	305	294	294	288	259	260	246					

AUG. 2017 h'F2 (KM)

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AUG. 2017 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 270	E A 278	E A 274	E A 288	A	212	192	A	A	A	A	A	A	A	A	172	212	204	208	234	228	E A 250	E A 256	E A 244
2	E A 254	E B 246	E A 260	212	212	226	208	206	A	170	A	A	A	A	192	226	204	204	A	E A 254	214	198	E B 250	E A 270
3	E A 246	E A 282	E B 268	222	186	232	A	A	A	A	A	196	210	188	188	A	186	206	216	230	206	214	216	E A 310
4	230	E A 254	230	E B 320	E B 256	242	230	214	204	216	192	210	192	A	A	A	192	218	A	266	E B 270	E A 284	218	E B 254
5	228	E B 276	E B 266	216	E B 270	240	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 254	216	216	E A 286	E A 266
6	E A 262	E B 278	E B 262	E B 256	E A 268	E A 260	202	194	A	210	196	202	202	202	202	202	A	A	A	A	E A 238	E A 236	E A 256	A
7	E A 286	E A 306	E A 328	E A 288	E A 270	230	E A 262	A	A	A	A	208	182	182	218	224	218	198	A	212	A	E A 288	E A 240	E A 292
8	E A 308	E A 280	E A 270	E A 260	228	212	202	198	A	A	A	A	A	212	226	196	194	200	200	220	E A 248	E A 286	216	E A 246
9	E A 354	220	E B 252	E A 254	E B 256	228	206	206	A	A	A	202	188	186	184	194	184	188	206	E A 252	212	194	E A 274	E A 274
10	216	E A 252	E B 256	E A 328	E B 288	E A 254	A	A	208	190	A	174	A	182	200	A	A	E A 236	A	A	214	218	218	E A 250
11	A	E A 284	E B 244	E B 252	E B 256	226	208	208	196	190	180	180	A	A	A	A	202	A	A	232	220	212	E A 278	E A 244
12	E A 234	E A 256	E A 286	E B 256	232	212	204	A	A	A	A	A	A	A	A	A	A	270	A	E A 280	A	E A 252	E A 258	E B 246
13	E B 232	E B 224	E A 264	E A 240	214	220	A	A	A	A	A	A	A	170	224	216	208	A	A	224	226	228	228	224
14	E A 270	E A 282	E A 286	222	224	E B 246	220	212	A	A	A	A	A	A	A	A	196	A	218	222	E A 232	E A 240	E A 280	E A 240
15	E A 284	E A 302	208	E A 270	E B 258	230	218	A	A	A	A	A	A	A	A	A	A	212	212	214	E A 256	E B 248	220	E B 242
16	216	242	E B 254	E B 252	E B 252	204	192	186	A	A	A	A	194	A	A	A	A	A	A	E A 254	228	218	E A 246	E A 288
17	E A 282	E A 286	E B 258	E B 246	208	206	A	A	A	A	A	A	A	A	A	A	204	210	218	E B 252	E B 246	E A 238	E A 252	E B 256
18	E B 244	E B 260	E B 232	E B 254	E B 270	E B 278	240	202	A	A	A	A	198	A	200	196	204	208	226	230	216	224	224	E B 262
19	E B 270	E B 278	E B 260	E B 262	230	E A 282	A	A	A	A	A	A	A	236	A	A	208	A	A	E A 302	212	E A 308	E A 236	E A 264
20	E A 268	196	224	E B 252	E B 248	E A 264	218	A	A	202	186	194	192	A	E A 250	198	A	A	A	206	218	E B 238	E B 258	E B 272
21	E B 240	E B 256	E B 256	E B 254	E B 252	E A 258	212	198	192	180	186	202	188	210	214	A	194	A	A	E A 248	E A 256	E A 308	E A 298	E A 298
22	E A 296	E A 266	E B 244	E B 252	E A 238	E A 246	212	E A 244	A	A	A	A	224	A	A	A	A	A	A	A	214	E B 240	E A 314	E A 354
23	E A 326	E A 296	E A 274	E B 244	E A 244	E A 294	A	A	200	A	A	212	196	192	192	194	208	A	A	220	E A 278	E A 358	234	214
24	E A 288	E A 286	E B 246	E B 288	E B 306	E B 326	222	198	A	194	A	A	208	A	A	206	184	218	A	E A 248	E A 248	E B 254	226	A
25	E A 308	E A 298	E A 286	226	E A 270	E A 268	206	206	A	A	194	186	E A 236	192	186	208	198	218	E A 238	222	198	208	214	E B 252
26	E B 242	E B 254	E B 256	E B 238	E B 250	E B 242	216	192	188	176	190	A	188	188	182	198	188	198	E A 238	E A 244	226	214	210	222
27	228	E A 254	E A 242	E B 246	224	236	212	214	E A 274	A	A	A	A	A	A	212	210	216	224	216	214	232	E A 248	E A 238
28	232	E A 256	E A 262	E B 294	E B 256	E B 248	214	228	202	A	194	192	190	176	226	A	A	230	220	214	228	E A 272	E B 260	E B 248
29	E A 258	E A 278	E A 320	E B 270	E B 270	E A 258	A	208	A	E A 242	A	184	182	188	210	204	214	210	A	224	234	224	212	E A 266
30	E B 270	E B 256	E B 256	E B 256	E B 234	E B 260	198	A	A	196	194	188	204	E A 266	194	204	A	214	226	E A 254	E A 244	E A 246	E A 254	E B 252
31	220	E B 214	E B 216	208	208	226	174	216	198	198	182	192	198	194	C	C	C	212	E B 250	E B 276	230	230	196	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	30	31	31	31	30	31	23	18	9	12	10	15	18	16	17	16	20	20	14	28	29	31	31	29
MED	E A 260	E A 266	E B 258	E B 254	E 251	U 224	210	206	199	194	191	194	194	189	200	203	203	210	216	223	221	E 238	E 246	E A 252
U Q	E A 284	E A 282	E A 270	E 270	E B 268	E A 260	218	214	206	206	194	202	204	206	221	210	208	218	E 226	E A 254	E A 245	E A 254	E A 258	E A 271
L Q	232	E 254	E 244	240	228	226	202	198	194	185	186	186	188	184	190	196	193	204	212	221	214	218	218	243

AUG. 2017 h'F (KM)

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IONOSPHERIC DATA STATION Kokubunji

AUG.2017 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	116	A	A	A	A	A	A	A	A	A	A	A	A	B				
2						B	114	116	A	A	A	A	A	A	A	A	A	A	A	B				
3						B	A	A	A	A	A	A	A	A	112	112	112	112	110	B				
4						B	118	A	A	A	A	A	A	A	A	A	A	A	A	B				
5						B	A	A	A	A	A	A	A	A	108	A	A	A	B	B				
6						B	A	A	A	A	A	A	A	A	108	112	A	A	A	B				
7						B	A	A	A	A	A	108	110	104	108	110	A	A	A	B				
8						B	112	A	A	A	A	A	A	A	A	A	A	A	110	B				
9							116	A	A	A	A	A	108	108	108	106	106	110	112	B				
10						B	A	A	A	A	A	A	A	A	A	112	112	112	B	B				
11						B	112	112	A	A	A	A	A	A	A	A	A	A	B					
12						B	112	A	A	A	A	A	A	A	A	A	A	A	B					
13						B	A	A	A	A	A	A	A	A	A	A	112	A	B					
14						B	118	A	A	A	A	A	A	A	A	A	A	A	B					
15							A	110	A	A	A	A	A	A	A	A	A	A	B					
16						B	110	112	A	A	A	A	112	A	A	A	A	A	A					
17						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
18						B	112	A	A	A	A	A	A	A	A	A	112	112	112					
19						B	112	A	A	A	A	A	A	A	A	A	A	A	B					
20						B	A	A	A	A	A	A	A	A	A	112	A	A	B					
21						B	A	A	A	A	A	A	A	112	112	A	112	A	B					
22						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
23						B	A	A	A	A	A	A	A	112	A	110	110	A	B					
24						B	A	A	A	A	A	108	110	A	A	114	114	112	B					
25						B	B	A	A	A	A	A	A	A	A	A	A	A	B					
26						B	112	114	106	116	A	A	A	108	108	112	110	110	B					
27						B	112	A	A	A	A	A	A	A	A	A	A	A	118					
28						B	116	110	A	A	A	A	A	A	110	A	A	A	B					
29						B	A	A	A	A	A	A	A	108	112	110	A	110	B					
30						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
31						B	112	112	112	A	A	A	108	A	C	C	C	108	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							15	7	2	1		2	5	6	9	10	9	8	5					
MED							112	112	109	116		108	110	108	108	112	112	111	112					
U Q							116	114					111	112	112	112	112	112	115					
L Q							112	110					108	108	108	110	110	110	110					

AUG.2017 h'E (KM)

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AUG.2017 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	90	96	88	92	94	98	106	100	96	96	100	90	96	98	90	92	88	88	86	88	82	90	86	96
2	96	92	92	92	100	B	G	G	100	98	88	88	88	92	88	88	88	88	84	84	84	84	92	92
3	92	82	82	92	92	92	92	96	96	92	92	92	92	92	122	122	114	114	114	98	B	98	96	92
4	92	88	88	92	104	106	112	102	98	96	102	96	96	88	82	82	80	84	82	80	82	90	92	84
5	90	B	110	B	B	110	100	98	94	94	94	92	104	90	114	100	98	94	94	94	B	94	92	92
6	88	88	82	88	98	100	98	102	94	92	92	94	84	94	G	G	102	104	96	94	94	90	94	94
7	90	92	86	86	102	106	102	96	96	90	90	G	G	124	112	110	102	108	88	92	92	90	94	86
8	86	86	86	84	86	88	124	104	98	96	94	90	90	94	94	90	90	90	G	96	92	94	98	98
9	94	B	90	88	B	116	116	102	96	94	92	96	G	G	G	G	G	116	110	102	100	100	96	96
10	98	96	94	90	86	88	102	102	98	98	96	90	88	86	86	152	128	116	98	96	96	96	96	96
11	88	88	88	92	114	106	112	114	98	96	96	96	90	84	84	88	88	92	90	86	86	84	88	88
12	88	88	88	88	B	116	114	102	100	96	96	96	96	94	92	92	90	90	86	92	104	104	98	98
13	104	96	96	90	86	102	90	98	92	92	88	86	82	84	84	88	116	96	90	92	98	100	98	92
14	92	90	86	92	76	B	124	102	94	96	82	86	98	92	88	100	100	100	100	88	90	88	98	98
15	90	88	94	94	92	94	106	110	98	96	94	94	94	94	84	86	84	84	98	94	96	100	90	88
16	86	84	84	92	B	B	124	124	90	90	94	92	118	96	100	100	100	94	94	94	94	94	90	90
17	86	86	86	B	B	B	94	94	88	88	88	88	84	84	84	84	84	84	84	B	94	98	98	B
18	98	B	104	B	112	116	110	110	100	96	92	92	100	100	100	100	G	G	G	B	B	B	100	100
19	94	100	B	B	B	120	112	100	96	88	88	88	88	92	92	92	96	102	102	94	94	94	92	92
20	90	90	112	112	B	110	100	100	92	92	92	100	102	92	92	G	98	94	94	94	94	94	96	96
21	92	B	B	B	B	108	100	100	100	92	92	96	96	134	116	98	122	102	96	92	92	90	90	90
22	90	90	98	106	102	100	94	94	94	94	88	88	88	88	88	96	96	96	96	90	90	90	88	88
23	84	80	78	84	80	104	102	100	92	92	92	86	82	G	92	G	120	96	90	90	90	92	92	90
24	90	84	90	B	B	114	96	94	96	94	86	116	126	102	98	126	G	134	98	94	94	98	92	92
25	96	94	86	86	84	84	114	100	98	96	96	100	100	102	96	96	96	92	82	B	90	90	B	90
26	B	B	B	B	B	B	118	134	G	90	92	86	88	92	146	94	G	122	104	102	B	90	90	90
27	90	88	90	94	98	98	116	94	98	98	98	94	86	86	86	90	90	88	90	90	90	90	90	90
28	90	82	82	88	B	B	G	120	102	92	92	96	96	96	128	100	104	96	100	92	92	92	90	88
29	84	84	84	88	100	102	104	104	96	96	94	96	96	G	134	144	84	110	100	94	90	96	B	86
30	86	82	88	88	82	90	98	98	98	90	92	92	92	86	86	86	86	84	84	84	84	84	88	88
31	B	B	B	B	88	B	G	126	120	96	94	96	G	90	C	C	C	120	B	B	102	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	25	27	23	20	24	28	30	30	31	31	30	28	28	28	26	26	30	28	27	27	29	28	29
MED	90	88	88	90	93	103	105	101	96	94	92	92	93	92	92	95	96	96	94	92	92	92	92	92
U Q	93	92	94	92	101	110	114	104	98	96	94	96	97	96	106	100	102	108	99	94	94	97	96	96
L Q	88	84	86	88	86	96	99	98	94	92	90	88	88	88	86	88	88	90	87	90	90	90	90	88

AUG.2017 h'Es (KM)

IONOSPHERIC DATA STATION Kokubunji

AUG. 2017 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	F5	F4	F3	F4	L2	C2	L3	L4	L4	L5	L4	L4	L2	L2	L2	L2	L3	L3	L3	F2	F2	F2	F2
2	F2	F2	F3	F3	F2				L2	L2	L3	L4	L3	L2	L2	L2	L2	L2	L3	L5	F3	F3	F2	F3
3	F2	F3	F2	F2	F1	L2	L3	L4	L3	L3	L2	L2	L1	L1	C1	C1	C1	C2	C2	L3		F4	F2	F6
4	F7	F3	F2	F2	F2	L3	C2	L2	L2	L2	L2	L1	L1	L2	L3	L3	L3	L2	L3	CL23	F2	F7	F5	F3
5	F3		F1			L1	L4	L3	L3	L4	L3	L3	L2	L2	C2	L4	L4	L4	L7	L3		F3	F5	F3
6	F2	F1	F2	F2	F5	L2	L3	L3	L3	L2	L1	L1	L2	L1			L2	L3	L4	L6	F4	F7	F5	F5
7	F4	F5	F3	F2	F2	L2	L5	L3	L3	L3	L3			C1	C1	C1	L2	L2	L3	L4	F6	F4	F3	F4
8	F3	F2	F3	F2	F2	L2	C2	L2	L4	L5	L4	L4	L3	L2	L2	L2	L2	L2		L4	F4	F3	F4	F6
9	F6		F2	F4		F1	C2	L2	L3	L3	L5	L2						C1	C2	L2	F2	F1	F2	F3
10	F1	F2	F2	F3	F3	L2	L3	L2	L2	L2	L2	L2	L3	L2	L3	HL11	CL32	CL42	L8	L7	F4	F5	F4	F5
11	F5	F5	F2	F3	F1	L1	C2	C3	L2	L2	L2	L2	L3	L4	L4	L4	L2	L3	L5	F4	F3	F3	F5	F3
12	F2	F2	F2	F2		C1	C2	L3	L5	L5	L4	L3	L3	L2	L3	L3	L3	L4	L5	F5	F8	F6	F4	F2
13	F2	F1	F6	F4	F3	L3	L4	L6	L4	L4	L4	L3	L2	L2	L2	L2	CL12	L4	L7	F4	F2	F4	F4	F4
14	F3	F5	F4	F2	F1		CL12	L3	L4	L3	L4	L3	L4	L3	L5	L3	L2	L2	L3	F3	F3	F4	F5	F7
15	F6	F4	F2	F6	F2	L1	L3	C3	L3	L4	L3	L3	L3	L2	L3	L3	L4	L2	L3	F1	F3	F2	F2	F2
16	F2	F3	F2	F2			C2	C2	L3	L3	L3	L2	CL12	L3	L4	L3	L4	L4	L5	F3	F4	F5	F4	F3
17	F2	F3	F2				L3	L5	L3	L3	L4	L3	L2	L3	L3	L3	L3	L2	L2		F2	F4	F2	
18	F2		F1		F1	C1	C2	L2	L3	L3	L2	L3	L2	L2	L2	L1							F2	F2
19	F3	F2				C1	C3	L4	L3	L4	L3	L2	L2	L1	L2	L2	L2	L3	L3	F8	F3	F5	F3	F2
20	F3	F1	F1	F1		L1	L3	L2	L4	L2	L2	L1	L1	L3	L2		L2	L4	L5	F5	F1	F2	F2	F2
21	F1					L2	L2	L2	L2	L2	L2	L2	L2	C1	C2	L3	C1	L6	L4	F6	F7	F5	F6	F6
22	F4	F5	F2	F3	F3	L4	L3	L4	L4	L2	L3	L3	L2	L2	L3	L4	L4	L6	L7	F5	F4	F3	F4	F5
23	F5	F4	F4	F2	F2	L3	L4	L3	L2	L3	L3	L2	L3		L2		C1	L5	L5	F8	F5	F6	F3	F3
24	F4	F2	F2			C1	L3	L3	L2	L2	L3	CL12	CL12	L2	L3	C2		H2	L3	F4	F5	F6	F8	F5
25	F6	F6	F5	F6	F3	L5	CL14	L2	L3	L2	L2	L2	L2	L2	L2	L2	L2	L4	L3		F1	F1		F2
26							C2	C2		L2	L1	L3	L2	L2	H1	L2		C2	L4	F6		F2	F3	F2
27	F2	F3	F2	F2	F2	L1	C2	L2	L3	L3	L3	L3	L3	L4	L5	L3	L3	L2	L2	F2	F2	F2	F4	F3
28	F2	F5	F2	F2				C2	L2	L3	L2	L1	L1	L1	C1	L2	L2	L3	L2	F5	F3	F5	F2	F2
29	F5	F5	F3	F2	F2	L1	L3	L3	L3	L2	L2	L1	L1		H1	HL12	L2	C2	L2	F4	F3	F5		F5
30	F4	F2	F4	F2	F2	L2	L2	L3	L3	L2	L2	L2	L2	L2	L2	L2	L3	L3	L3	F3	F2	F2	F2	F2
31					F1			C2	C1	L1	L2	L1		L2				CL22			F3			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

AUG. 2017 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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	38	38	33	X 27	33	X 31	X 40													O X 76	X 66	X 56	X 50	X 48
2	X 48	X 48	X 45	X 44	X 36	40														X 60	X 65	X 54	X 50	X 50
3	X 43	X 40	44	X 38	X 38	X 33															X 72	X 56	X 42	A
4	X 41	40	40	40	A	33	X 50													X 61	X 62	X 67	X 66	X 55
5	C	C		C	C	C	C	C												C	C	C	A	X 43
6	X 44	X 40	X 38	X 37	X 36	C	C	C	C	C										C	C	C	X 50	A
7	A	A	47	44	47															X 60	X 60	X 48	X 40	X 37
8	X 39	X 39	X 37	C	X 33	C	X 49	C	C	C										X 53	X 52	X 52	X 52	51
9	49	A	X 39	X 32	35	37														X 58	X 68	X 62	X 40	X 40
10	X 38	40	40	37	X 31	32															X 83	X 70	40	X 36
11	A	A	A	A	X 35	A														X 66	X 62	54	54	X 49
12	53	55	49	49	X 38	X 30															X 62	X 58	61	61
13	59	49	X 48	41	A	39	X 44														X 66	X 66	X 60	X 51
14	X 48	X 48	X 50	A	39	40														X 67	X 67	X 65	X 41	X 40
15	X 37	X 37	X 37	X 39	40	39														X 59	X 66	X 60	X 51	51
16	X 44	50	48	46	40	45														X 67	X 69	X 64	X 47	A
17	X 45	X 42	45	X 34	X 34	40														X 67	X 67	X 64	X 64	X 58
18	X 56	X 53	56	X 49	X 45	X 42														X 59	X 65	X 48	X 43	X 41
19	X 38	X 37	X 38	X 38	X 35	X 34														X 57	X 68	X 59	A	X 38
20	42	X 43	42	A	40	40	X 44													A	X 54	X 55	X 51	X 53
21	X 51	X 47	X 46	X 43	X 42	X 40														X 86	X 86	X 44	A	A
22	46	A	C	A	X 38	39														X 58	A	X 55	X 50	55
23	X 48	X 48	X 46	42	41	X 37														X 62	X 56	X 46	X 46	X 43
24	X 43	X 43	X 42	50	47	X 38														X 64	X 65	X 60	X 59	59
25	48	X 43	X 44	X 33	A	X 31														O X 65	51	54	X 40	X 40
26	X 40	C	X 41	O X 38	O X 34	X 32														X 59	55	53	48	48
27	42	36	35	34	X 36	X 33														A	C		X 48	X 49
28	48	X 43	X 39	X 38	X 39	X 38									C					X 61	X 64	X 61	X 51	X 48
29	X 49	X 50	X 44	X 42	X 41	X 39														X 62	X 65	X 52	X 42	43
30	41	X 39	X 37	X 38	X 36	X 34														X 55	X 58	X 56	X 54	X 52
31	X 52	X 52	X 48	X 44	X 38	X 34														X 68	X 76	X 88	X 54	X 39
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	25	28	25	27	26	5													23	27	28	28	27
MED	X 44	X 43	X 43	X 39	X 38	X 38	X 44													X 61	X 65	X 56	X 50	X 48
U Q	X 48	X 48	46	44	40	40	X 50													X 67	X 68	X 63	X 54	X 52
L Q	X 41	X 40	X 38	X 37	X 35	X 33	X 42													X 59	X 60	X 54	X 42	X 40

AUG. 2017 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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	F 21	F	F	F	25	34	41	49	56	54	A	49	54	60	59	58	60	56	70	60	50	44	42
2	42	42	39	38	30	F	38	44	58	58	50	50	49	42	50	64	64	58	54	54	58	48	44	44
3	37	34	F	32	32	26	36	47	54	50	A	A	48	A	A	A	48	49	51	57	66	50	36	A
4	34	F	F	F	A	F	43	50	51	52	A	A	58	55	54	59	70	67	59	55	56	60	60	49
5	C	C		C	C	C	C	C	63	58	44	51	51	48	51	52	50	50	49	C	C	C	A	37
6	38	34	32	31	30	C	C	C	C	C	52	58	48	49	58	57	49	49	A	C	C	C	44	A
7	A	A	F	F	F	36	43	48	42	50	48	50	50	A	54	58	65	A	A	53	54	42	34	31
8	33	32	30	C	27	C	43	C	C	C	A	A	53	56	64	79	80	69	55	47	46	46	46	F
9	F	A	33	26	F	F	39	42	46	58	52	A	63	67	63	58	52	51	44	52	62	56	34	34
10	32	F	F	F	25	F	32	48	64	57	51	49	56	56	54	53	A	50	54	67	77	63	F	31
11	A	A	A	A	29	A	A	48	58	51	49	46	A	56	63	70	69	A	A	59	56	F	F	43
12	F	F	F	F	32	23	36	37	A	59	46	53	69	56	48	61	61	63	58	57	56	51	F	F
13	F	F	42	F	A	F	38	50	A	A	53	A	A	61	78	80	60	58	62	A	60	60	54	45
14	42	42	44	A	F	F	38	46	50	A	59	54	60	57	A	77	86	70	A	61	61	59	34	34
15	31	31	31	33	F	F	40	A	A	A	A	A	52	51	51	64	72	65	49	53	60	54	45	F
16	38	F	F	F	F	F	38	60	53	50	46	46	55	53	51	60	68	66	63	61	61	58	41	A
17	39	36	F	28	28	F	41	50	52	52	48	51	51	53	64	66	59	64	65	60	60	57	58	53
18	50	47	F	43	39	36	31	37	44	45	A	A	50	A	A	A	A	45	48	53	59	42	37	35
19	34	31	32	32	29	28	38	51	53	46	A	A	A	A	55	65	57	44	A	51	61	52	A	32
20	F	37	F	A	F	F	38	56	60	A	A	61	68	68	68	70	A	60	A	A	47	49	45	47
21	45	41	40	37	36	34	43	56	47	51	54	50	59	59	68	64	64	A	68	80	80	38	A	A
22	F	A	C	A	32	F	38	A	A	A	A	60	A	68	68	74	87	63	58	52	A	49	44	F
23	43	42	40	F	F	31	40	45	49	49	50	A	A	A	A	56	69	69	65	56	50	40	40	37
24	37	37	36	F	F	32	32	A	42	43	A	53	54	54	53	56	56	55	56	58	59	54	53	F
25	F	37	38	27	A	25	39	57	51	54	58	56	56	64	69	69	A	61	R 56	R 59	R	R	R 34	34
26	34	C	35	R 32	28	26	R 38	54	R 65	64	56	58	61	59	55	60	63	R	R 46	53	R	R	R	R
27	R	R	R	R	30	27	35	46	R	70	A	A	62	58	A	A	A	R	A	A	C	54	41	43
28	F	36	33	32	32	32	36	54	59	70	54	52	56	60	C	77	82	64	66	56	58	55	45	42
29	43	44	37	34	35	33	38	51	56	60	56	50	52	52	52	60	58	61	56	56	59	46	36	F
30	F	33	31	32	30	28	33	50	A	49	53	51	54	58	57	65	65	61	54	49	52	50	48	46
31	46	46	42	37	32	28	36	53	58	54	56	54	57	63	61	58	58	54	56	62	70	82	48	33
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	18	17	16	18	16	28	25	23	24	21	20	26	26	25	28	26	26	24	26	25	26	24	20
MED	38	37	36	32	30	28	38	50	53	53	52	52	54	56	57	62	64	60	56	56	59	52	44	40
U Q	43	42	40	36	32	32	40	54	58	58	55	55	59	60	64	70	69	64	60	60	61	57	47	44
L Q	34	34	32	30	29	26	36	46	49	50	48	50	51	53	52	58	58	51	52	53	56	48	36	34

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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									404	416	UL 420	A	UL 436	A	428	UL 412	404	A	L					
2									400	412	UL 412	440	UL 456		UL 432	UL 420	UL 408	UL 392	L					
3								L	UL 396	L	A	A	444	A	A	A	412	UL 372	A					
4								L	UL 404	A	A	A	440	A	UL 440	408	UL 400	A						
5							C	C	UL 400	A	A	UL 428	UL 428	444	436	UL 416	A	UL 380	A					
6						C	C	C	C	C	UL 428	428	UL 436	UL 440	A	A	A	A	A					
7								A		UL 416	432	UL 432	448	A	UL 428	UL 424	416	A	A					
8									C	C	A	A	UL 448	444	UL 424	A	400	UL 384						
9								UL 384	UL 420	404	UL 428	A	A	428	416	420	400	380	348					
10								UL 380	A	A	416	A	UL 432	428	UL 436	A	A	A	UL 352	A				
11							A	UL 364	A	424	424	UL 432	A	A	432	424	A	A	A					
12								364	A	408	UL 424	A	428	A	UL 440	A	UL 404	A	A					
13								L	A	A	A	A	A	UL 440	A	A	412	A	A	A				
14									L	A	A	A	A	440	A	A	404	380	A					
15								A	A	A	A	A	UL 440	428	A	432	396	A						
16								L	UL 392	UL 468		UL 432	UL 440	432	UL 436	A	404	A						
17							L	UL 364	388	436	UL 452	432	A	448	436	412	408	388	L					
18							268	332	376	UL 396	A	A	A	A	A	A	A	UL 368	324					
19							L	UL 360	UL 388	UL 424	A	A	A	A	UL 440	A	A	A	A					
20								L	A	A	A	A	A	A	440	A	A	A	A					
21									UL 400	UL 412	UL 408	UL 472	A	A	UL 448	A	A	A	A					
22								A	A	A	A	A	A	A	A	UL 420	400	A	A					
23								A	UL 376	A	A	A	A	A	A	A	404	A	A					
24							A	A	UL 384	UL 424	A	A	UL 448	440	A	UL 428	UL 412	A	L					
25								L		A		456	456	448	448	436	A	A						
26										UL 436	UL 476	UL 456	452	UL 464	452	UL 432	A	L						
27									L		A	A	A	UL 448	A	A	A	A	A					
28								L	L	A	UL 464	UL 440	456	448	C	UL 424	UL 428	L						
29								A	396	420	428	456	444	440	440	424	UL 420	L	L					
30									A	L	A	UL 448	UL 452	A	A	432	416	L	L					
31									L	L	444	UL 444	460	448	UL 440	UL 444	L	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	7	14	14	14	14	19	17	19	17	19	8	3					
MED							268	UL 364	UL 396	418	UL 428	UL 440	UL 444	440	UL 436	UL 424	404	UL 380	348					
U Q								UL 380	UL 400	UL 424	UL 444	456	452	448	UL 440	432	UL 412	UL 386	UL 352					
L Q								360	388	412	UL 420	432	UL 436	436	432	418	400	UL 376	324					

AUG. 2017 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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								UR 256	A	A	A	A	A	A	A	A	A	A	A					
2							UR 176	248	A	A	A	348	A	A	A	A	A	A	A					
3							A	UA 224	A	A	A	A	UR 348	A	A	A	A	A	A	B				
4								A	A	A	A	A	A	A	348	320	A	A	A					
5							C	C	A	A	A	A	A	336	332	A	A	A	A					
6						C	C	C	C	C	A	A	352	A	A	UA 332	A	A	A					
7						B	B	A	A	A	A	A	UA 376	A	A	336	A	A	A					
8									C	C	A	A	A	UR 356	A	A	A	A	B					
9							B	UA 236	A	A	A	A	A	A	A	UR 352	A	UR 276	UR 224					
10							B	A	A	A	A	A	A	A	A	A	A	A	A	B				
11							A	B	A	A	A	A	A	A	A	A	A	A	A					
12							B	A	A	A	A	A	A	A	A	A	A	A	A	A				
13								A	A	A	A	A	A	A	A	A	UA 312	A	A	B				
14							UR 180	UA 228	A	A	A	A	A	A	A	A	A	A	A					
15							A	UA 236	A	A	A	A	A	A	A	UA 352	UR 308	A	A					
16							B	A	A	A	A	A	A	A	A	A	A	A	A					
17							B	A	A	A	A	UA 360	UR 356	UA 368	A	A	292	UR 264	A					
18							UR 176	UR 236	A	A	A	A	A	A	A	A	A	A	B					
19							A	UA 220	A	A	A	A	A	A	A	A	A	UA 260	A					
20								A	A	A	A	A	A	A	A	A	A	A	A					
21							B	A	A	A	A	A	A	A	A	A	A	A	A					
22							B	A	A	A	A	A	A	A	A	A	A	A	A					
23							B	A	A	A	A	A	A	A	A	A	A	A	A					
24							B	A	A	A	A	A	A	A	A	A	A	A	A					
25							B	A	A	A	A	A	A	A	A	A	B	B	B					
26							B	A	A	A	R	A	R	A	A	336	300	R	B					
27							B	A	A	A	A	A	A	A	A	A	A	A	A			A		
28							B	UA 228	A	A	A	A	A	A	C	A	UR 292	UA 256	B					
29							B	A	A	A	A	UR 352	A	A	340	UA 316	UA 300	UA 264	UA 192					
30							B	UA 232	A	UA 308	A	A	A	A	A	A	UA 296	UR 268	A					
31							B	UA 224	UA 276	A	A	UA 328	UA 356	A	A	UA 328	UA 292	UR 260	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							3	11	1	1		4	5	3	3	8	8	7	2					
MED							UR 176	UA 232	UA 276	UA 308		U 350	U 356	U 356	340	U 334	U 298	UR 264	U 208					
U Q							UR 180	UR 236				U 356	U 366	UA 368	348	U 344	UA 304	UR 268						
L Q							UR 176	UA 224				338	350	336	332	UA 324	U 292	UA 260						

AUG. 2017 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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	JA 74	JA 28	JA 28	JA 21	JA 26	JA 33	JA 26	JA 29	37	38	JA 57	JA 59	40	JA 54	JA 44	43	38	JA 156	JA 80	JA 51	JA 30	JA 23	JA 22	22
2	EB 16	JA 51	22	JA 25	25	22	G	30	JA 41	JA 44	JA 40	41	JA 41	JA 77	JA 48	JA 39	JA 36	JA 42	JA 44	JA 33	JA 29	JA 36	JA 25	JA 23
3	JA 23	JA 25	EB 15	EB 15	EB 15	EB 15	JA 26	31	34	JA 43	JA 87	JA 81	41	JA 81	JA 68	JA 119	JA 39	JA 43	49	JA 40	JA 40	JA 85	JA 54	JA 55
4	JA 37	JA 34	JA 34	JA 54	JA 52	JA 50	JA 26	JA 34	JA 38	JA 43	JA 58	JA 65	JA 57	JA 59	39	40	40	36	33	JA 45	JA 37	JA 53	JA 57	JA 64
5	C	C		C	C	C	C	C	JA 49	JA 79	JA 45	JA 56	39	40	40	40	JA 59	JA 46	JA 56	C	C	C	JA 88	JA 37
6	JA 44	JA 35	JA 35	23	JA 23	C	C	C	C	C	JA 55	JA 47	40	JA 55	JA 86	JA 54	JA 49	JA 48	JA 150	C	C	C	JA 156	JA 110
7	JA 54	JA 45	JA 32	JA 30	22	EB 16	JA 40	JA 55	JA 128	JA 42	JA 48	JA 54	41	JA 80	42	42	35	JA 85	JA 126	JA 72	JA 54	22	JA 25	JA 28
8	JA 28	24	22	C	JA 21	C	JA 29	C	C	C	JA 58	JA 55	JA 48	43	JA 154	JA 117	JA 45	JA 38	JA 33	JA 41	JA 30	JA 32	JA 36	JA 36
9	JA 34	JA 78	JA 55	JA 54	JA 25	JA 76	EB 16	30	34	JA 45	38	JA 65	JA 85	JA 66	JA 53	G	JA 45	G	JA 31	22	JA 23	JA 25	22	JA 30
10	JA 26	JA 33	JA 33	26	23	20	24	JA 43	JA 53	JA 46	JA 54	JA 55	JA 44	JA 42	42	JA 55	JA 74	JA 46	JA 31	JA 36	JA 53	JA 90	JA 57	JA 112
11	JA 150	JA 86	JA 84	JA 52	JA 60	JA 54	JA 54	JA 40	JA 51	JA 41	JA 44	JA 57	JA 70	JA 44	JA 52	JA 50	JA 52	JA 155	JA 77	JA 42	JA 39	JA 46	JA 28	JA 74
12	JA 34	JA 25	26	26	26	JA 28	JA 28	JA 36	JA 48	JA 105	JA 42	JA 48	JA 44	JA 55	38	JA 66	JA 85	JA 62	JA 64	JA 62	JA 40	JA 47	JA 37	JA 53
13	JA 46	JA 34	JA 39	JA 74	JA 55	JA 34	JA 32	JA 36	JA 85	JA 82	JA 71	JA 61	JA 64	JA 47	JA 49	JA 47	37	JA 45	JA 58	JA 84	JA 86	JA 152	JA 44	JA 38
14	JA 79	JA 52	JA 38	JA 84	JA 34	JA 29	G	29	JA 44	JA 65	JA 64	JA 86	JA 133	JA 86	JA 122	JA 147	JA 42	JA 37	JA 67	JA 58	JA 39	JA 55	JA 46	JA 36
15	JA 42	JA 38	JA 40	JA 27	JA 29	JA 26	JA 34	JA 54	JA 67	JA 64	JA 100	JA 74	JA 56	JA 49	JA 48	39	38	JA 56	JA 43	JA 52	JA 24	22	JA 104	JA 53
16	EB 16	JA 50	EB 16	JA 28	24	21	18	JA 52	JA 54	JA 47	JA 40	JA 41	JA 51	JA 43	43	JA 75	JA 50	JA 51	JA 64	JA 44	JA 44	JA 86	JA 77	JA 56
17	JA 52	JA 55	JA 43	EB 16	JA 28	EB 16	EB 16	JA 30	32	JA 39	38	43	43	40	40	37	33	G	JA 28	JA 26	EB 15	28	JA 54	JA 54
18	JA 31	EB 15	EB 15	22	JA 25	EB 15	G	28	31	37	JA 58	JA 42	JA 68	JA 77	JA 58	JA 54	JA 54	JA 57	JA 36	EB 16	21	25	EB 15	EB 15
19	22	EB 15	21	21	21	21	18	25	JA 31	JA 44	JA 53	JA 112	JA 154	JA 102	JA 76	JA 56	JA 63	JA 65	JA 62	JA 50	JA 54	JA 54	JA 65	JA 99
20	JA 23	22	JA 43	JA 38	JA 31	JA 23	JA 28	31	JA 42	JA 55	JA 67	JA 86	JA 45	JA 59	JA 43	JA 58	JA 111	JA 54	JA 170	JA 110	JA 56	JA 28	JA 35	JA 35
21	21	EB 15	EB 15	EB 16	EB 15	EB 16	EB 18	32	JA 38	JA 40	JA 40	40	JA 53	JA 82	JA 64	JA 52	JA 66	JA 91	JA 76	EB 15	24	JA 28	JA 45	JA 50
22	JA 52	JA 45	C	JA 50	JA 34	JA 111	JA 55	JA 68	JA 63	JA 54	JA 99	JA 73	JA 114	JA 49	JA 53	42	JA 56	JA 51	JA 70	JA 85	JA 81	JA 44	JA 40	JA 40
23	JA 37	JA 45	JA 31	JA 30	JA 32	24	JA 31	JA 48	JA 54	JA 61	JA 90	JA 89	JA 80	JA 111	JA 122	JA 78	JA 76	JA 78	JA 47	JA 47	JA 34	20	20	22
24	JA 39	JA 33	24	JA 26	JA 27	20	JA 42	JA 55	JA 41	36	JA 88	JA 55	43	JA 48	JA 49	JA 43	JA 44	JA 48	JA 30	JA 34	JA 50	JA 31	JA 43	JA 53
25	JA 51	JA 44	JA 44	JA 54	JA 55	JA 40	20	29	JA 44	JA 45	JA 52	JA 43	JA 55	JA 48	41	JA 74	JA 108	JA 67	JA 48	JA 42	JA 30	EB 22	28	28
26	EB 22	C	EB 15	EB 19	EB 23	EB 19	JA 26	32	JA 46	40	GJ A 45		G	JA 47	JA 43	40	37	EB 18	JA 32	JA 36	JA 34	JA 27	28	26
27	26	EB 20	EB 18	EB 21	EB 20	EB 22	28	30	JA 38	JA 51	JA 66	JA 62	JA 50	JA 49	JA 71	JA 71	JA 74	JA 46	JA 54	JA 81	C	JA 55	JA 32	JA 30
28	JA 28	JA 38	JA 35	JA 25	JA 23	24	20	29	33	JA 55	38	37	JA 47	JA 61	C	JA 41	33	29	22	JA 28	JA 28	JA 24	JA 27	23
29	JA 20	23	JA 32	JA 42	24	EB 15	20	JA 47	JA 38	JA 42	JA 42	G	40	42	42	38	37	33	26	JA 42	JA 49	JA 46	JA 43	JA 41
30	JA 30	JA 53	JA 43	JA 30	JA 34	JA 20	30	34	JA 52	JA 55	JA 72	JA 60	JA 58	JA 62	JA 44	39	35	G	JA 32	JA 28	JA 24	JA 42	JA 36	JA 26
31	JA 25	JA 27	JA 25	EB 15	EB 15	JA 23	20	30	33	JA 54	39	38	40	40	40	36	36	G	24	24	JA 23	EB 15	20	EB 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	29	30	28	29	28	29	29	31	31	31	31	30	31	31	31	31	29	28	29	31	31
MED	JA 32	JA 34	JA 32	JA 26	JA 25	22	JA 26	32	JA 42	JA 45	JA 54	JA 55	JA 48	JA 54	JA 48	JA 47	JA 45	JA 46	JA 48	JA 42	JA 36	JA 32	JA 37	JA 37
U Q	JA 46	JA 48	JA 40	JA 46	JA 32	JA 31	JA 30	45	JA 52	JA 55	JA 67	JA 65	JA 64	JA 77	JA 64	JA 66	JA 63	JA 62	JA 67	JA 55	JA 50	JA 54	JA 54	JA 54
L Q	23	24	EB 22	EB 21	EB 23	EB 20	18	30	36	42	40	43	41	44	42	40	37	36	JA 32	30	JA 26	24	27	26

AUG. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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	21	E B 16	17	17	17	19	19	G 22	33	37	38	A A 59	37	47	36	37	35	38	25	28	23	E B 15	E B 15	E B 16
2	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	G	28	33	34	35	38	36	37	35	34	33	29	24	18	18	27	20	E B 16
3	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	23	27	32	36	A A 87	A A 81	39	A A 81	A A 68	A A 119	31	31	38	36	22	22	22	A A 55
4	22	20	20	20	A A 52	E B 16	20	28	33	39	A A 58	A A 65	38	45	36	37	35	35	30	36	30	24	34	33
5	C	C		C	C	C	C	C	31	41	36	39	36	38	38	36	46	36	38	C	C	C	A A 88	22
6	20	20	E B 15	E B 15	E B 15	C	C	C	C	C	34	38	G 32	38	42	44	43	40	A A 150	C	C	C	24	A A 110
7	A A 54	A A 45	E B 16	E B 16	E B 16	E B 16	28	34	31	31	38	39	39	A A 80	38	38	35	A A 85	A A 126	22	28	E B 15	E B 15	E B 15
8	E B 15	E B 15	E B 15	C	E B 15	C	18	C	C	C	A A 58	A A 55	40	41	36	56	33	29	21	21	E B 16	E B 15	E B 15	24
9	E B 16	A A 78	E B 15	E B 15	D 15	E B 15	E B 16	25	32	39	36	A A 65	57	39	39	G	34	G	G 20	19	19	E B 15	E B 15	E B 15
10	E B 16	24	E B 15	E B 16	E B 16	E B 16	21	28	40	39	38	41	38	37	35	43	A A 74	35	27	28	30	18	23	16
11	A A 150	A A 86	A A 84	A A 52	23	A A 54	A A 54	23	36	33	34	36	A A 70	40	36	36	40	A A 155	A A 77	34	E B 16	20	E B 15	18
12	E B 15	19	E B 15	15	E B 15	E B 15	23	30	A A 48	35	36	42	37	42	36	40	32	46	31	20	20	24	19	E B 15
13	E B 15	18	18	18	A A 55	18	20	26	A A 85	A A 82	48	A A 61	A A 64	39	43	41	34	38	51	A A 84	E B 16	29	25	21
14	26	22	17	A A 84	20	E B 15	G	26	34	A A 65	43	43	46	39	A A 122	40	32	28	A A 67	46	26	39	23	17
15	20	21	27	16	19	E B 15	27	A A 54	A A 67	A A 64	A A 100	A A 74	37	37	43	37	34	49	35	39	20	18	20	22
16	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	17	26	30	33	34	36	37	37	37	47	36	38	38	37	22	31	23	A A 56
17	E B 16	E B 16	24	E B 16	E B 16	E B 16	E B 16	25	28	33	36	40	40	38	37	35	31	G	22	20	E B 15	E B 15	22	20
18	20	E B 15	E B 15	E B 15	E B 15	E B 15	G	25	29	32	A A 58	A A 42	41	A A 77	A A 58	A A 54	A A 54	26	22	E B 16	E B 15	16	E B 15	E B 15
19	E B 15	E B 15	E B 15	16	E B 16	E B 16	18	24	28	32	A A 53	A A 112	A A 154	A A 102	34	52	42	41	A A 62	43	40	41	A A 65	22
20	E B 16	E B 15	E B 15	A A 38	18	E B 15	19	26	36	A A 55	A A 67	50	42	52	37	47	A A 111	43	A A 170	A A 110	22	19	21	21
21	E B 16	E B 15	E B 15	E B 16	E B 15	E B 16	E B 18	26	28	36	28	36	46	46	37	44	54	A A 91	50	E B 15	E B 16	25	A A 45	A A 50
22	20	A A 45	C	A A 50	22	20	23	A A 68	A A 63	A A 54	A A 99	45	A A 114	43	48	36	34	39	48	23	A A 81	27	20	23
23	24	22	22	20	20	E B 16	21	32	32	44	41	A A 89	A A 80	A A 111	A A 122	40	33	33	38	39	24	E B 15	E B 15	E B 15
24	E B 16	20	E B 15	E B 15	E B 15	E B 16	28	A A 55	32	32	A A 88	42	38	37	44	38	34	37	24	24	36	24	22	25
25	23	16	30	21	A A 55	21	18	28	35	37	40	39	37	40	39	38	A A 108	42	37	33	26	E B 22	24	25
26	E B 22	C	E B 15	E B 19	E B 23	E B 19	21	30	37	35	G	36	G	38	38	38	34	E B 18	28	30	22	22	E B 22	E B 22
27	E B 22	E B 20	E B 18	E B 21	E B 20	E B 22	E B 22	29	34	45	A A 66	A A 62	44	40	A A 71	A A 71	A A 74	37	A A 54	A A 81	C	22	19	20
28	20	20	19	E B 16	E B 16	E B 16	18	25	29	42	35	36	38	36	C	35	31	28	21	21	21	E B 16	E B 16	E B 15
29	E B 15	E B 15	E B 16	E B 16	E B 16	E B 15	16	40	33	33	38	G	37	39	40	36	32	29	22	16	17	19	23	21
30	18	23	22	17	E B 16	E B 16	18	26	A A 52	36	48	38	38	44	42	36	34	G	22	22	19	24	24	20
31	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	18	28	31	36	36	37	39	36	38	35	34	G	23	16	20	E B 15	16	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	29	30	28	29	28	29	29	31	31	31	31	30	31	31	31	31	29	28	29	31	31
MED	E B 17	18	E B 16	E B 16	E B 16	E B 16	18	28	33	36	38	42	39	40	38	38	34	36	35	28	22	22	22	20
U Q	22	22	20	20	20	17	22	30	A A 36	A A 43	A A 58	A A 61	A A 46	A A 46	A A 43	44	A A 43	41	A A 51	38	26	24	24	24
L Q	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	18	26	31	33	36	38	37	38	36	36	33	28	23	20	E B 18	E B 16	E B 16	E B 16

AUG. 2017 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

AUG. 2017 fmin (0.1MHz)

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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	F	F	F	341	F	339	337	328	361	338	345	A	264	308	305	335	327	328	326	335	339	327	302	296
2	299	311	335	350	334	F	364	324	367	376	375	319	338	357	299	326	329	336	314	332	336	332	308	349
3	308	313	F	338	338	319	327	343	388	385	A	A	277	A	A	A	289	335	325	325	365	353	341	A
4	319	F	F	F	A	F	348	376	368	365	A	A	317	301	295	311	334	348	350	313	286	306	308	283
5	C	C		C	C	C	C	C	349	360	391	281	290	285	292	306	320	302	325	C	C	C	A	311
6	322	277	294	309	313	C	C	C	C	C	304	332	282	258	320	322	318	297	A	C	C	C	344	A
7	A	A	F	F	F	303	345	349	378	339	269	298	296	A	300	302	327	A	A	357	324	324	309	319
8	300	309	306	C	332	C	398	C	C	C	A	A	296	297	295	309	319	315	330	344	316	314	317	F
9	F	A	332	321	F	F	358	315	312	345	351	A	322	339	337	309	317	322	301	311	349	382	341	306
10	290	F	F	F	307	F	350	336	372	376	341	296	319	332	293	305	A	305	315	315	338	369	F	327
11	A	A	A	A	292	A	A	348	383	361	303	328	A	294	304	335	330	A	A	343	335	F	F	310
12	F	F	F	F	335	372	374	303	A	378	248	308	354	328	266	318	321	336	332	325	306	316	F	F
13	F	F	324	F	A	F	347	357	A	A	358	A	A	289	318	334	344	325	341	A	312	344	299	293
14	311	313	373	A	F	F	354	350	365	A	349	346	337	287	A	297	334	340	A	348	348	397	329	319
15	279	315	335	320	F	F	376	A	A	A	A	A	313	310	290	308	340	336	335	322	340	347	306	F
16	306	F	F	F	F	F	367	385	371	398	400	322	346	338	291	312	334	333	321	332	340	357	334	A
17	325	317	F	300	308	F	372	340	385	347	370	317	340	302	325	337	303	324	348	308	335	307	296	294
18	293	290	F	315	338	295	253	317	333	297	A	A	289	A	A	A	A	294	316	339	350	338	319	313
19	288	286	299	300	334	305	327	320	394	362	A	A	A	A	302	345	339	318	A	297	327	318	A	294
20	F	348	F	A	F	F	338	355	383	A	A	318	313	313	313	334	A	359	A	A	304	321	305	301
21	311	316	303	323	328	310	349	381	380	363	310	340	327	328	332	340	341	A	321	339	385	302	A	A
22	F	A	C	A	358	F	367	A	A	A	A	322	A	311	295	293	353	361	341	329	A	317	276	F
23	296	315	338	F	F	312	348	354	326	333	312	A	A	A	A	288	315	319	351	337	340	308	310	293
24	284	313	299	F	F	271	305	A	276	283	A	324	317	310	290	322	331	308	340	322	328	318	319	F
25	F	320	320	348	A	325	343	349	375	337	345	348	323	334	332	349	A	327	R 314	R 355	R	R	R 324	325
26	325	C	353	R 306	300	319	R 356	387	R 369	380	361	324	351	344	309	334	354	R	R 341	343	R	R	R	R
27	R	R	R	R	335	335	327	361	R	356	A	A	370	343	A	A	A	R	A	A	C	356	335	308
28	F	323	318	269	296	297	317	354	373	350	328	358	309	295	C	324	343	342	355	335	324	323	299	290
29	301	327	314	286	286	304	339	356	351	370	377	328	323	321	319	337	344	337	337	353	343	345	317	F
30	F	297	312	305	317	313	349	366	A	324	313	222	314	344	341	330	348	349	365	330	311	321	310	299
31	283	325	341	351	312	304	356	385	362	372	344	369	341	349	324	340	345	320	314	307	298	363	347	301
	00	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	18	17	16	18	16	28	25	23	24	21	20	26	26	25	28	26	26	24	26	25	26	24	20
MED	300	314	320	318	322	311	348	350	369	360	345	323	318	312	304	323	332	328	331	332	335	326	314	304
U Q	311	320	336	340	335	322	361	364	380	374	366	336	338	338	322	335	343	337	341	343	342	353	332	316
L Q	290	309	304	302	307	304	338	332	351	338	311	312	296	297	294	308	320	318	318	322	314	317	306	294

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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									388	437	UL424	A	UL456	A	429	UL428	421	A	L					
2									392	382	UL439	411	UL451		UL427	UL424	UL401	UL381	L					
3								L	UL401	L	A	A	432	A	A	A	413	UL394	A					
4								L	UL399	A	A	A	442	A	UL412	410	UL376	A						
5							C	C	UL363	A	A	UL427	UL413	418	384	UL381	A	UL364	A					
6						C	C	C	C	C	UL415	418	UL440	UL407	A	A	A	A	A					
7								A		UL428	415	UL425	407	A	UL435	UL396	404	A	A					
8									C	C	A	A	UL436	398	UL396	A	419	UL389						
9								UL370	UL386	426	UL434	A	A	428	441	432	415	387	374					
10								UL368	A	A	384	A	UL483	434	UL396	A	A	A	UL386	A				
11							A	UL395	A	421	454	UL439	A	A	420	389	A	A	A					
12								386	A	420	UL451	A	446	A	UL426	A	UL383	A	A					
13								L	A	A	A	A	A	UL433	A	A	398	A	A	A				
14									L	A	A	A	A	352	A	A	381	369	A					
15								A	A	A	A	A	UL451	434	A	385	408	A						
16								L	UL399	UL383		UL430	UL412	418	UL415	A	378	A						
17							L	UL371	430	398	UL424	351	A	393	404	428	396	371	L					
18							426	393	384	UL416	A	A	A	A	A	A	A	UL378	372					
19							L	UL370	UL399	UL414	A	A	A	A	UL368	A	A	A	A					
20								L	A	A	A	A	A	A	389	A	A	A	A					
21									UL403	UL385	UL330	UL379	A	A	UL404	A	A	A	A					
22								A	A	A	A	A	A	A	A	UL394	396	A	A					
23								A	UL407	A	A	A	A	A	A	A	376	A	A					
24							A	A	UL377	UL395	A	A	UL387	383	A	UL382	UL403	A	L					
25								L		A		412	403	408	408	388	A	A						
26										UL401	UL387	UL412	434	UL425	419	UL412	A	L						
27									L		A	A	A	UL418	A	A	A	A	A					
28								L	L	A	UL384	UL439	395	427	C	UL404	UL379	L						
29								A	387	417	424	431	437	442	418	386	UL363	L	L					
30									A	L	A	UL293	UL360	A	A	391	396	L	L					
31									L	L	406	UL417	405	422	UL417	UL394	L	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	7	14	14	14	14	19	17	19	17	19	8	3					
MED							426	UL371	UL396	415	UL420	UL418	UL434	418	UL415	UL394	396	UL380	374					
U Q								393	UL401	421	UL434	UL430	UL446	430	UL426	UL418	408	UL388	UL386					
L Q								UL370	UL386	UL395	UL387	411	405	402	UL396	387	UL379	370	372					

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AUG. 2017 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									272	288	288	A	500	356	334	310	302	286	286					
2									240	234	274	342	330		390	290	286	272	272					
3								286	236	244	A	A	424	A	A	A	404	306	294					
4								260	260	246	A	A	332	E A 360	380	338	278	250						
5							C	C	254	280	222	424	392	436	402	350	E A 346	346	E A 300					
6						C	C	C	C	C	370	308	430	492	332	308	334	E A 346	A					
7								264		288	466	392	404	A	374	350	288	A	A					
8									C	C	A	A	380	380	346	E A 304	278	256						
9								374	354	280	284	A	E A 338	278	278	314	314	308	336					
10								310	244	244	302	E A 332	332	312	364	348	A	340	310	262				
11							A	276	236	272	376	442	A	382	328	282	276	A	A					
12								458	A	230	464	346	264	306	374	304	304	270	250					
13								266	A	A	E A 276	A	A	358	296	264	274	296	E A 274	A				
14									258	A	280	282	294	372	A	318	250	250	A					
15								A	A	A	A	A	356	356	390	302	278	E A 242						
16								228	246	286		356	304	308	376	316	286	260						
17							228	270	230	288	288	334	310	372	318	276	334	282	254					
18							406	380	298	390	A	A	E A 318	A	A	A	A	380	308					
19							280	298	218	294	A	A	A	A	356	E A 278	276	E A 336	A					
20								270	228	A	A	E A 316	308	310	310	270	A	264	A					
21									238	260	322	316	314	318	298	278	E A 298	A	280					
22								A	A	A	A	318	A	318	332	332	246	246	246					
23								E A 242	298	E A 330	350	A	A	A	A	368	294	280	240					
24							E A 420	A	428	418	A	326	354	354	386	310	302	316	270					
25								254		254		280	344	300	284	262	A	276						
26										238	268	312	294	302	338	288	256	258						
27									258		A	A	266	302	A	A	A	258	A					
28								266	252	250	286	276	340	338	C	296	246	246						
29								260	260	260	260	356	342	340	346	290	290	272	264					
30									A	354	E A 328	380	336	280	290	278	270	252	252					
31									252	238	284	256	294	282	284	294	284	284	296					
	00	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	17	21	23	19	20	26	25	25	28	26	28	17	1				
MED							U 298	270	252	266	287	326	333	328	338	301	284	272	273	262				
U Q							413	304	266	288	350	356	356	366	375	317	302	307	298					
L Q							254	260	237	244	276	310	308	304	304	280	276	257	253					

AUG. 2017 h'F2 (KM)

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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 296	220	E A 336	E A 268	E A 298	E A 290	220	218	210	198	198	A	176	A	176	186	194	A	194	218	218	206	E B 240	E B 264
2	264	E B 264	232	210	214	226	210	204	210	212	190	190	180	E A 284	180	180	192	192	192	206	206	216	E A 242	214
3	234	E B 242	E B 242	208	E B 212	E B 242	224	212	200	200	A	A	192	A	A	A	198	206	A	E A 250	214	208	220	A
4	E A 298	E A 298	E A 246	E A 308	A	E B 298	210	208	202	A	A	A	180	A	196	202	E A 244	A	244	E A 260	E A 294	E A 268	E A 268	E A 298
5	C	C		C	C	C	C	C	224	A	A	224	196	196	218	E A 236	A	E A 254	A	C	C	C	A	E A 288
6	E A 270	E A 284	E B 266	E B 242	E B 252	C	C	C	C	C	212	196	196	196	A	A	A	A	A	C	C	C	224	A
7	A	A	E B 268	E B 268	E B 266	E B 262	E A 256	A	188	188	188	188	192	A	192	228	208	A	A	214	E A 242	196	224	E B 276
8	E B 276	E B 232	250	C	E B 236	C	192	C	C	C	A	A	192	212	212	A	202	202	202	202	220	230	240	E A 240
9	206	A	206	E B 286	E B 238	E B 266	214	196	196	202	186	A	A	194	194	194	194	194	204	228	228	196	206	E B 266
10	E B 266	E A 338	E B 278	E B 266	E B 266	E B 288	216	216	A	A	E A 238	A	168	176	192	A	A	A	192	A	214	186	E A 350	230
11	A	A	A	A	E A 344	A	A	194	A	188	188	186	A	A	186	188	A	A	A	216	200	E A 276	250	E A 260
12	E B 250	E A 270	E B 270	222	214	176	208	208	A	196	196	A	188	A	188	A	196	A	A	230	220	230	E A 276	E B 250
13	E B 250	224	222	228	A	E A 256	222	216	A	A	A	A	A	204	A	A	204	A	A	A	230	230	E A 260	E A 276
14	E A 304	E A 272	208	A	E A 266	226	224	214	218	A	A	A	A	E A 240	A	A	206	202	A	232	232	204	E A 286	E A 258
15	E A 290	E A 290	E A 302	E B 254	E A 254	E B 236	222	A	A	A	A	A	176	176	A	222	222	A	238	E A 256	232	202	230	E A 298
16	216	E B 258	E B 234	238	210	210	196	196	194	196	188	180	182	182	192	A	E A 256	A	256	250	234	212	216	A
17	E B 240	E B 246	E A 282	E B 282	E B 264	E B 260	192	192	188	186	186	A	A	186	190	190	190	202	202	244	214	E B 232	E A 262	E A 262
18	E A 276	E B 276	216	E B 240	226	E B 276	220	220	206	196	A	A	A	A	A	A	A	210	214	E B 236	210	210	E B 242	E B 242
19	E B 264	E B 304	E B 274	E B 258	E B 256	E B 278	218	208	194	194	A	A	A	A	208	A	A	A	A	E A 364	E A 240	E A 304	A	E A 316
20	234	212	224	A	E A 296	E B 274	E A 246	222	A	A	A	A	A	A	222	A	A	A	A	A	222	E A 238	E A 262	E A 268
21	244	E B 252	E B 252	E B 246	238	E B 248	224	214	178	186	208	208	A	A	190	A	A	A	A	214	190	232	A	A
22	E A 298	A	C	A	206	E A 284	232	A	A	A	A	A	A	A	A	222	210	A	A	210	A	E A 236	E A 282	E A 288
23	E A 280	E A 280	E A 246	E A 254	E A 274	230	230	A	186	A	A	A	A	A	A	A	212	A	A	E A 248	216	E B 250	E B 256	E B 256
24	E B 304	E A 292	E B 272	E B 272	E B 298	E B 312	A	A	220	192	A	A	202	202	A	230	182	A	220	228	E A 248	E A 246	222	E A 280
25	E A 266	E A 266	E A 296	202	A	E A 296	222	206	224	A	258	196	190	210	210	210	A	A	E A 248	238	232	208	E A 280	E A 290
26	E B 280	C	220	E B 244	E B 290	E B 290	226	214	228	202	190	190	190	190	188	198	A	206	218	E A 252	222	212	E A 250	E B 266
27	E A 258	E B 254	E B 242	230	E B 254	E B 254	E B 244	234	208	234	A	A	A	212	A	A	A	A	A	A	C	212	212	E A 258
28	E A 254	E A 252	E A 270	E B 312	E B 268	E B 268	236	214	206	A	202	188	196	188	C	192	186	186	226	210	226	216	240	E B 270
29	E B 266	E B 248	E B 266	E B 276	E B 276	E B 252	226	A	212	194	194	176	176	192	210	210	208	202	202	212	212	212	E A 268	E A 302
30	E A 302	E A 324	E A 312	E B 254	232	E B 264	228	218	A	200	A	E A 278	E A 242	A	A	184	186	198	204	220	E B 236	E A 254	E A 266	E A 266
31	E B 266	230	216	E B 216	216	E B 244	232	216	202	192	192	188	196	190	190	190	206	194	214	E B 266	E A 256	208	E B 192	224
	00	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	25	28	25	27	27	27	22	21	18	16	13	19	18	19	17	20	13	17	25	27	29	28	27
MED	E 266	E 264	E 251	E B 254	E 254	E B 262	221	214	206	196	192	189	190	193	192	196	200	202	209	221	218	211	E 246	E A 266
U Q	E A 285	E A 287	E A 273	E B 270	E A 274	E B 284	230	216	215	200	205	202	196	210	210	222	209	206	232	E A 250	E A 234	E A 237	E A 267	E A 288
L Q	250	244	228	229	226	242	214	206	194	192	188	187	180	188	188	189	193	194	202	214	214	208	224	E 256

AUG. 2017 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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								114	114	116	A	A	112	A	112	118	118	A	A					
2							120	114	110	110	A	110	A	A	A	A	A	A	A					
3							A	110	110	A	A	A	110	A	A	A	A	A	A	B				
4								A	A	A	A	A	A	A	108	108	108	108	108					
5							C	C	A	A	A	A	108	108	104	104	A	A	A					
6						C	C	C	C	C	A	A	104	A	A	104	A	A	A					
7						B	B	A	A	A	A	A	108	A	108	102	114	A	A					
8									C	C	A	A	A	114	A	A	A	A	B					
9							B	116	110	A	A	A	A	A	A	110	A	110	110					
10							B	A	A	A	A	A	A	A	A	A	A	A	110	B				
11							A	B	A	A	A	A	A	A	A	A	A	A	A					
12							B	112	112	A	A	A	A	A	A	A	A	A	A	A				
13								112	A	A	A	A	A	A	A	A	112	112	A	B				
14							120	110	112	A	A	A	A	A	A	A	A	A	A					
15							A	112	A	A	A	A	A	A	A	116	116	A	A					
16							B	A	A		A	A	A	106	106	112	114	A	A					
17							B	A	108	A	A	114	118	112	112	108	108	108	A					
18							108	108	108	108	A	A	A	A	A	A	A	A	B					
19							108	108	A	A	A	A	A	A	A	108	108	110	A					
20								A	A	A	A	A	A	A	110	A	A	A	A					
21							B	A	A	A	A	A	A	A	A	A	A	A	A					
22							B	A	A	A	A	A	A	A	A	110	A	A	A					
23							B	A	A	A	A	A	A	A	A	A	A	A	A					
24							B	A	A	A	A	A	A	A	A	A	A	A	A					
25							B	110	A	A	A	A	A	A	A	A	B	B	B					
26							B	110	A	110	110	A	110	A	A	106	106	108	B					
27							B	A	A	A	A	A	A	A	A	A	A	A	A			A		
28							B	106	106	A	A	A	A	A	C	A	106	108	B					
29							B	A	A	A	A	108	A	A	106	112	112	112	112					
30							B	112	112	112	A	A	A	A	A	112	110	104	A					
31							B	112	112	112	112	106	108	108	108	114	114	114	114					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	15	11	6	2	4	8	5	9	15	13	10	5					
MED							114	112	110	111	111	109	109	108	108	110	112	109	110					
U Q							120	112	112	112		112	111	113	111	112	114	112	113					
L Q							108	110	108	110		107	108	107	106	106	108	108	109					

AUG. 2017 h'E (KM)

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IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	90	90	90	90	90	90	90	90	108	108	102	102	108	94	108	126	118	94	94	94	94	94	94	94
2	B	94	94	94	94	94	G	140	110	108	102	158	92	92	92	90	90	88	88	88	88	86	86	86
3	84	88	B	B	B	B	120	120	116	88	88	88	136	74	106	102	84	106	106	100	98	98	98	92
4	92	90	90	90	90	90	106	106	102	96	94	92	92	92	116	138	124	108	108	96	96	96	96	96
5	C	C		C	C	C	C	C	94	94	94	94	112	122	124	112	98	98	92	C	C	C	92	90
6	88	88	88	90	92	C	C	C	C	C	90	88	136	108	104	126	104	98	98	C	C	C	98	94
7	94	94	94	94	94	B	94	94	98	98	90	90	134	84	118	126	138	96	96	96	94	94	96	94
8	94	92	92	C	86	C	84	C	C	C	98	98	98	144	90	90	90	104	104	96	96	96	96	94
9	94	94	94	94	88	88	B	108	108	96	96	96	90	90	90	G	88	G	92	98	98	106	106	106
10	100	94	94	94	92	100	104	104	102	100	94	94	92	92	92	84	84	84	92	98	98	98	98	98
11	94	86	90	90	90	90	92	92	92	96	94	94	94	94	100	100	96	96	96	96	92	92	92	100
12	100	88	88	88	88	88	120	120	120	100	100	100	100	98	98	98	98	98	98	98	98	94	92	98
13	98	90	90	96	96	94	92	110	94	94	94	94	88	88	88	88	120	112	94	94	94	94	100	100
14	98	94	92	86	86	86	G	144	116	102	102	94	94	96	88	90	98	98	98	98	98	94	94	94
15	94	94	94	94	94	94	112	110	100	100	92	92	92	92	92	136	124	100	100	90	90	90	100	100
16	B	94	B	94	94	94	118	102	102	98	98	96	96	110	112	112	112	102	102	96	96	96	94	94
17	94	88	80	B	90	B	B	98	112	106	104	140	136	122	122	118	118	G	92	84	B	108	92	92
18	92	B	B	90	90	B	G	108	116	116	104	104	102	100	100	100	98	98	98	B	98	98	B	B
19	104	B	96	96	86	86	112	116	92	92	92	90	90	90	90	118	118	118	100	100	92	92	92	94
20	94	108	100	88	88	88	104	104	98	96	92	92	92	92	112	100	100	100	92	92	92	92	88	88
21	78	B	B	B	B	B	B	96	94	94	94	108	108	100	100	100	100	100	100	B	100	100	94	94
22	94	94	C	94	94	94	100	96	92	92	92	94	96	96	104	120	106	102	100	98	88	88	88	88
23	86	88	88	88	88	88	98	98	98	98	98	94	94	94	94	94	94	94	94	94	94	98	96	94
24	86	86	88	88	88	110	100	94	94	94	94	94	122	112	102	102	102	96	96	96	92	92	92	92
25	90	90	90	90	90	90	116	112	98	98	98	98	96	96	124	104	102	102	92	92	92	B	92	92
26	B	C	B	B	B	B	116	120	106	108	G	104	G	90	90	144	138	B	106	102	102	100	100	98
27	96	B	B	B	B	B	106	106	106	102	100	94	92	94	94	92	90	94	94	94	C	94	86	86
28	86	86	86	86	84	82	132	122	120	94	98	96	96	96	C	96	124	116	108	88	84	84	80	80
29	80	92	92	92	94	B	98	92	92	92	92	G	100	100	110	114	114	114	114	110	86	86	86	86
30	86	104	104	104	104	98	98	116	116	116	102	102	96	96	96	104	102	G	102	94	94	88	88	88
31	88	88	88	B	B	90	128	122	122	122	122	132	150	114	114	128	118	G	114	108	102	B	100	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	27	25	23	23	25	20	23	28	29	29	30	30	30	31	30	30	31	26	31	27	27	27	30	29
MED	94	90	90	90	90	90	104	107	102	98	95	94	96	96	100	103	102	99	98	96	94	94	94	94
U Q	94	94	94	94	94	94	116	118	114	104	100	102	108	100	112	120	118	104	102	98	98	98	98	97
L Q	86	88	88	88	88	88	98	97	94	94	92	94	92	92	92	96	96	96	94	94	92	92	92	89

AUG. 2017 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG. 2017 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	F3	F2	F5	F2	F3	F6	F2	L3	C2	C2	L2	L3	C1	L2	C1	C1	C2	L4	L4	F5	F3	F3	F2	F2
2		F3	F3	F3	F3	F2		H2	C3	C2	L2	H2	L2	L3	L2	L2	L3	L3	L2	L3	F3	F4	F3	F3
3	F1	F2					C2	C2	CL23	L3	L5	L7	HL11	L5	LL33	LL33	L3	LL34	L6	L8	F4	F3	F7	F6
4	F7	F5	F6	F6	F9	F4	L3	L5	L4	L3	L3	L4	L3	L3	C1	H1	C1	L2	CL23	FF54	FF54	FF54	F7	F5
5									L3	L3	L2	L2	C1	C1	C1	C1	L3	L4	L6				F6	F3
6	F4	F2	F2	F1	F2						L3	L3	HL22	L2	L3	C2	L3	L4	L8				F4	F4
7	F3	F4	F2	F3	F2		L3	L5	L3	L2	L3	L2	HL11	L4	CL21	CL21	CL21	L5	L6	F4	F4	F1	F5	F2
8	F2	F2	F2		F2		F3				L3	L3	L2	H1	L3	L4	F2	L2	L2	F2	F2	F2	F3	F3
9	F2	F5	F3	F4	F2	F2		CL22	C2	L3	L2	L3	L4	L4	F3		L2		L2	F2	F2	F2	F1	F2
10	F2	F5	F2	F2	F2	F1	L3	L3	L4	L3	L2	L2	L2	L2	L2	L6	L6	L5	C3	L4	F8	F6	F4	F5
11	F5	F5	F5	F4	F4	F7	L7	L3	L4	L2	L3	L2	L3	L3	L2	L3	L3	L8	L9	F9	F6	F4	F3	F4
12	F2	F2	F2	F2	F2	F2	C3	C3	C4	L3	L2	L3	L2	L2	L1	L2	L2	L4	L7	L4	F3	F7	F6	F3
13	F3	F3	F4	F3	F9	F5	F4	C3	L6	L6	L4	L5	L5	L4	L4	L2	C1	C6	L8	L9	F4	F6	F8	F8
14	F4	F4	F6	F6	F5	F2		H2	C3	L4	L4	L4	L2	L2	L5	L3	L1	L2	L3	F6	F5	F4	F8	F4
15	F4	F3	F7	F2	F5	F2	CL12	C7	L6	L6	L6	L5	L2	L2	L2	HL12	CL22	LL32	LL43	F6	F3	F2	F5	F5
16		F2		F2	F3	F1	C2	L3	L3	L2	L2	L2	L2	CL12	CL12	L3	C2	L5	L5	F4	F4	F4	F2	F6
17	F2	F3	F3		F2			L2	CL12	L2	L2	HL11	HL11	CL11	CL11	CL11	CL11		L2	F4		F1	F3	F3
18	F2			F2	F1			C2	C1	C1	L3	L2	L2	L3	L3	L3	L3	L3	L4		F1	F1		
19	F1		F1	F2	F1	F1	C1	C1	L2	L2	L3	L5	L5	F6	F3	C2	C2	C3	L7	F8	F6	F5	F6	F5
20	F2	F2	F4	F7	F3	F2	F3	L3	L2	L5	L4	L2	L2	L3	C1	L3	L4	L4	L6	F9	F7	F6	F5	F3
21	F2							L2	L3	L2	L2	L2	L2	L3	L3	L3	L3	L8	L5		F1	F5	F9	F9
22	F3	F5		F5	F5	F4	L7	L9	L5	L4	L5	L2	L3	L2	L3	C2	L3	L6	L9	F8	F8	F7	F3	F6
23	F6	F3	F5	F2	F3	F2	L4	L6	L4	L4	L2	L3	L5	L4	L3	L2	L2	L4	L7	F6	F5	F1	F1	F2
24	F3	F4	F2	F2	F2	F1	L7	L6	L3	L2	L5	L3	CL12	CL12	L2	L2	L2	L3	L2	F6	F5	F9	F4	F8
25	F4	F3	F6	F7	F9	F5	CL32	C3	C3	L3	L3	L2	L2	L2	CL12	L2	L5	L2	L3	F3	F3		F2	F2
26							C1	C2	L2	C2		L2		L2	L2	H1	H1		L4	F3	F3	F1	F1	F1
27	F1						L1	L3	L2	L3	L4	L5	L2	L1	L3	L2	L2	L2	L2	F3		F8	F2	F2
28	F2	F5	F4	F2	F2	F2	C1	C3	C2	L2	L1	L2	L2	L2		LC21	CL12	CL12	C1	F4	F7	F3	F3	F2
29	F1	F1	F2	F2	F1		L3	L4	L3	L1	L3		L2	L2	C1	C1	C2	C2	C2	F2	F3	F3	F5	F2
30	F3	FF35	FF33	FF13	F2	F1	L3	C3	C5	C3	L3	L3	L3	L3	L2	CL12	C1		L3	F4	F3	F3	F3	F3
31	F2	F2	F1			F2	CL21	C2	C2	C2	C2	C1	H1	C1	C1	C1	C1		C1	F1	F3		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																								

AUG. 2017 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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 38	X 31	X 36	X 33	A	X 26															X 61	X 59	X 50	X 48
2	X 47	X 46	X 45	X 41	X 38	X 33															X 69	X 46	X 45	X 41
3	X 38	X 36	X 36	X 34	X 32	X 30															X 70	X 56	X 35	X 34
4	X 37	X 35	A	X 33	38	47															X 60	X 62	58	X 54
5	X 58	58	50	52	X 43	X 33			72												X 53	X 52	X 49	X 43
6	48	47	X 40	X 42	X 40	X 31															X 84	A	X 43	X 38
7	A	X 31	X 32	X 33	X 34	X 36															X 56	X 45	X 39	A
8	39	42	38	39	36	31															X 55	59	X 54	X 32
9	37	X 32	39	38	A	33															X 82	X 60	X 32	X 33
10	34	A	X 28	A	A	31															X 78	X 59	59	56
11	A	A	A	A	X 30	X 29															X 59	X 56	53	56
12	54	48	51	47	X 40	X 27															X 57	X 56	X 58	X 53
13	56	57	56	45	44	44															X 69	X 59	A	69
14	A	A	A	A	A	X 34															X 92	X 45	X 36	X 37
15	X 36	X 38	41	40	38	X 33															A	A	X 53	A
16	52	A	47	X 39	43	X 32															X 71	A	A	O X 42
17	X 32	47	A	36	39	30															X 70	X 66	X 65	X 60
18	X 58	X 53	X 62	X 58	X 42	41	35	48													X 60	X 48	X 42	X 39
19	X 34	X 34	X 34	X 34	X 33	X 28															X 71	X 58	X 58	54
20	58	58	38	32	38	44															X 58	X 58	X 52	55
21	54	52	X 47	48	X 45	X 40															X 70	X 34	X 34	X 35
22	X 34	A	A	X 34	36	X 34															A	X 60	X 45	45
23	48	47	47	X 32	X 34	X 34															X 66	X 46	X 42	X 39
24	X 38	X 39	A	X 38	X 36	X 34															X 75	X 58	56	58
25	X 48	X 48	50	36	31	X 30	45													A	90	X 54	X 37	X 36
26	X 35	X 34	X 38	X 30	X 30	X 29															X 70	X 54	X 43	X 43
27	X 41	45	X 39	X 38	X 35	X 29															X 74	X 64	A	A
28	44	40	40	35	38	33															X 84	X 62	X 44	X 44
29	X 45	X 44	X 42	X 38	39	X 36															X 70	X 50	X 46	X 44
30	X 42	X 40	X 41	X 41	X 34	X 30															X 59	X 58	X 54	X 51
31	X 48	56	56	X 45	X 38	X 37															X 76	X 80	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	28	26	25	28	27	31	2	1	1												29	28	28	28
MED	X 43	X 44	X 41	X 38	X 38	X 33	40	48	72												X 70	X 58	X 46	X 44
U Q	50	48	48	42	X 40	36															X 76	X 60	X 54	54
L Q	X 37	X 36	X 38	X 34	X 34	X 30															X 60	X 51	X 42	X 38

AUG. 2017 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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	32	25	30	27	A	20	31	40	52	52	50	48	52	61	66	71	68	66	78	77	55	53	44	42
2	41	40	39	35	32	27	32	44	62	48	52	53	54	52	53	59	66	70	68	64	63	40	39	35
3	32	30	30	28	26	24	31	50	57	46	53	49	52	54	52	53	56	61	68	A	64	50	29	28
4	31	29	A	27	F 30	F 28	A	49	59	51	50	46	59	66	63	71	78	70	59	48	54	56	F 52	48
5	52	F 49	F 44	F 46	37	27	28	52	F 66	52	52	50	52	52	54	54	55	50	58	56	47	46	43	38
6	F 39	F 38	34	36	34	25	33	50	54	43	50	54	52	53	A	64	60	A	A	70	R 78	A	37	32
7	A	25	26	27	28	U R 30	35	59	47	48	52	50	54	52	60	69	75	78	64	53	50	39	33	A
8	F 30	F 30	F 26	F 26	F 22	F 23	32	46	42	47	A	A	59	73	98	113	116	105	79	53	49	50	48	27
9	25	26	25	F 30	A	F 25	31	41	50	55	A	53	62	66	66	66	67	58	59	70	76	54	26	28
10	F 26	A	22	A	A	F 23	26	56	62	52	A	48	54	64	61	60	56	A	58	72	72	53	F 48	F
11	A	A	A	A	24	23	28	47	56	55	50	A	A	63	73	78	84	75	72	68	53	50	F 43	F 45
12	F 43	F 39	F 42	F 38	34	21	33	45	54	53	47	53	62	H 66	57	62	74	72	68	54	51	50	52	47
13	F 47	F 44	F 44	F 38	F 29	F 32	32	50	62	58	49	A	50	62	89	86	73	64	66	66	J R 63	53	A	F
14	A	A	A	A	A	28	37	46	52	52	56	A	56	65	76	90	101	99	97	91	86	39	30	31
15	30	32	F 30	F 33	F 29	27	31	47	61	50	46	50	52	A	54	70	A	77	67	A	A	A	47	A
16	F 42	A	F 36	33	F 31	26	34	51	52	50	48	54	54	54	58	63	68	74	78	A	J R 65	A	A	R 36
17	26	F 34	A	F 26	F 24	F 21	33	49	56	56	49	48	50	56	68	65	68	78	86	78	64	60	59	54
18	52	47	56	52	36	F 34	F 25	39	41	E G 40	E G 41	E G 41	A	46	45	A	A	51	60	60	54	42	36	33
19	28	28	28	28	27	22	30	58	49	44	43	E G 42	52	59	58	72	69	53	49	57	65	52	52	F 46
20	F	F	F 28	F 24	F	F	32	59	51	48	59	63	74	78	82	80	A	90	77	68	52	52	46	F 47
21	F 44	44	41	F 38	39	34	38	50	51	51	51	58	A	A	64	63	A	71	A	102	64	28	28	29
22	28	A	A	28	28	28	38	61	57	A	A	A	72	85	83	84	101	73	A	58	A	54	39	F
23	F	F 38	F 40	26	28	28	36	50	57	58	R	51	65	62	57	72	92	83	72	70	60	40	36	33
24	32	33	A	32	30	28	28	49	42	E G 40	50	54	60	58	57	62	66	60	A	J R 63	69	52	F	F
25	42	42	F 43	26	F 24	24	36	52	53	54	61	A	76	76	82	79	75	A	A	A	F 82	48	31	30
26	29	28	32	24	24	23	30	57	60	59	58	55	64	71	H 66	67	64	58	61	62	64	48	37	37
27	35	F 35	33	32	29	23	30	55	78	64	59	63	A	J R 64	63	58	62	65	66	R 66	68	58	A	A
28	F	F 32	F 33	F 28	F 26	F 25	34	55	64	59	57	61	58	68	84	90	102	108	95	85	78	56	38	38
29	39	38	36	32	F 30	30	32	56	58	54	53	50	53	53	54	58	62	68	75	70	64	44	40	38
30	36	34	35	35	28	24	30	51	51	54	58	55	59	62	63	61	69	74	68	56	53	52	48	45
31	42	F 46	F 45	39	32	31	33	56	56	54	55	51	63	69	66	64	62	64	66	69	70	74	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	25	25	25	28	26	30	30	31	31	30	26	25	27	29	30	30	27	28	26	27	29	28	27	24
MED	35	34	34	31	29	26	32	50	56	52	52	51	56	62	63	66	68	70	68	66	64	51	39	36
U Q	F 42	41	F 42	36	32	28	34	56	60	55	56	54	62	67	73	78	78	78	77	70	70	54	48	45
L Q	30	30	29	27	F 26	23	30	47	51	48	49	48	52	54	57	62	62	62	61	57	54	45	36	32

AUG. 2017 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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								U L 356	392	420	432	444	440	A	A	424	408	388	352					
2								U L 364	L 392	U L 436	428	440	440	440	432	416	416	392	L 356	L				
3								L	L 392	420	428	444	444	444	A	440	412	A		A				
4							A		L 396	U L 428	432	444	436	A	440	416	416	A						
5									L 400	L 412	A	A	U R 424	436	U A 416	420	396	392	344					
6								L	U L 384	400	424	432	A	436	A	A	A	A	A					
7								L	U L 384	400	432	436	428	440	424		396	388						
8								U L 304		U L 404	A	A	440	A	A	A	A	396	336					
9									388	408	A	436	444	440	436	420	404	384	340	L				
10								L	L 392	412	A	440	U A 448	432	432	A	A	A	344					
11								U L 360		U A 412	432	A	A	A	432	A	404	396	348					
12									A	L 416	U L 428	A	436	448	432	424	A	392	L 348					
13								U L 360	L 404	A	A	A	A	U A 432	U A 420	424	404	A	A	A				
14									A	452	A	A	A	A	A	U A 420	U A 408	388	L 344					
15								L	376	U L 416	428	A	440	A	A	A	A	A	L 352	A				
16									L	U L 412	U L 440	A	A	432	A	420	A	A	A	A				
17								L	L	L 420	U L 436	432	440	432	440	432	408	L 400	L 344					
18								L 328	368	400	408	412	A	A	A	A	A	A	L 328					
19								L	L	U L 408	A	424	428	440	A	A	A	A	L					
20							A	L	L	U L 456	A	A	U A 460	A	A	A	A	A	L					
21								L	L	A	U L 468	A	A	A	440	A	A	A	A					
22								L	A	A	A	A	A	A	A	420	A	A	A					
23								A	L 408	412	432	432	A	A	428	420	404	A	A					
24							L	A	U L 388	396	424	432	436	436	432	432	412	396	A					
25									L	L	A	A	A	A	444	A	A	A	A					
26									L	L	452	452	456	464	436	L 436	A	L	L					
27								L		436	L 440	440	A	440	L 444	A	A	A	A					
28								L	L	A	L 464	A	448	444	436	432	420	392	L					
29								L	L 400	U L 424	440	448	452	444	428	432	412	392	L					
30										A	A	L 440	A	U A 452	456	U L 456	U L 428	A	L					
31									L	L	L 448	L 452	448	456	452	444	428	L 392	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								6	15	23	20	18	19	19	20	19	17	14	12					
MED								U L 358	L 392	412	432	440	440	440	434	424	408	392	344					
U Q								U L 360	L 400	U L 424	L 440	444	448	444	440	432	416	396	L 350					
L Q								L 328	384	408	428	432	436	436	430	420	404	388	342					

AUG. 2017 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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							A	A 208	A	A	A	344	348	348	336	336	316	284	A	B				
2							B	232	268	308	324	332	344	A	A	332	A	U A 284	A	A				
3							A	244	276	312	A	A	A	352	348	336	A	276	A	A				
4							A	236	A	A	A	A	A	A	344	336	312	A 280	224	A				
5							B	A	U A 260	A	A	A	A	340	340	324	308	272	236	A				
6							A	A	U A 264	296	A	U A 344	352	360	A	A	316	A	A	A				
7							B	232	R 284	A	324	340	A	344	348	328	328	284	A	A				
8							A	A	264	308	328	348	A	U A 352	U A 336	A	A	A	A	A				
9							A	220	276	A	324	A	A	352	A	A	A	A	A	A				
10							B	A	A	U A 284	A	A	A	A	348	A	A	A	212	A				
11							B	A	A	A	A	A	A	A	A	A	A	A	A	B				
12							176	U A 232	A	A	A	A	A	A	340	U A 324	U A 300	A	A	A				
13							A	A	A	A	A	A	A	A	A	A	U A 304	272	A	A				
14							A	A	U A 276	304	U A 316	U A 340	U A 344	A	U A 380	A	A	292	216	B				
15							A	236	268	A	A	348	372	A	A	A	A	A	A	A				
16							A	U A 208	A	A	U A 320	U A 340	352	348	340	328	312	A	A	A				
17							B	220	A	U A 300	A	344	348	348	A	A	A	260	208	B				
18							B	A	276	A	A	A	U A 356	344	336	A	A	A	A	A				
19							B	A	268	312	A	A	364	352	B	336	304	292	228	A				
20							A	A	A	A	A	A	A	A	A	U A 336	A	A	A	A				
21							B	A	A	A	A	360	360	360	356	340	A	A	A	A				
22							B	A	U A 272	U A 296	U A 312	A	A	A	340	344	304	A	A	A				
23							A	A	A	A	A	A	U A 352	U A 352	A	A	A	A	A	A				
24							B	U A 216	U A 252	A	A	344	348	360	348	328	304	A	A	A				
25							A	212	260	292	U A 304	332	336	U A 348	A	A	A	A	A					
26							A	204	276	304	A	A	356	U A 356	U A 348	A	A	A	208	B				
27							B	A	A 276	A	A	A	A	A	A	A	A	A	A	A				
28							B	U A 204	260	304	320	320	A	A	A	A	A	A	A	A				
29							A	A	A	A	A	A	A	A	A	328	300	272	U A 208	A				
30							B	A	A	304	328	332	A	356	344	332	300	A	A	B				
31							A	200	276	316	A	344	344	A	A	332	304	260	200	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	15	18	14	10	15	15	17	16	16	14	12	9					
MED							176	220	270	304	322	344	352	352	344	332	304	278	212					
U Q								232	276	308	324	344	356	356	348	336	312	284	226					
L Q								208	264	296	U A 316	332	344	348	340	328	304	272	208					

AUG. 2017 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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	JA 52	JA 41	JA 48	JA 37	JA 45	JA 26	JA 22	28	JA 42	JA 34	JA 36	40	38	JA 55	JA 51	JA 40	JA 46	G	JA 31	G	JA 21	JA 35	JA 26	JA 26
2	18	JA 32	JA 19	EB 16	21	EB 16	JA 30	JA 30	32	38	JA 66	40	JA 40	JA 89	42	JA 39	JA 36	JA 38	JA 25	23	JA 25	JA 30	JA 29	JA 21
3	JA 26	JA 25	JA 21	EB 15	EB 15	20	JA 22	JA 33	JA 51	JA 40	JA 40	JA 40	JA 62	43	JA 53	JA 42	JA 54	JA 69	JA 66	JA 86	JA 160	JA 66	JA 28	JA 53
4	JA 52	JA 44	JA 42	JA 53	JA 25	JA 17	JA 92	JA 29	JA 44	JA 54	JA 54	JA 43	JA 42	JA 46	JA 54	JA 46	JA 52	JA 47	JA 44	JA 38	JA 43	JA 36	JA 43	JA 130
5	JA 120	JA 21	19	20	JA 35	19	JA 21	JA 40	JA 36	JA 45	JA 52	JA 60	JA 219	46	44	39	34	G	G	19	19	JA 17	JA 24	JA 29
6	JA 26	JA 18	19	EB 16	JA 20	JA 52	JA 35	JA 28	JA 43	JA 50	JA 50	JA 192	JA 54	JA 54	JA 107	JA 54	JA 56	JA 100	JA 85	JA 54	JA 129	JA 86	JA 51	JA 164
7	JA 107	JA 39	JA 103	JA 52	JA 39	JA 39	JA 19	G 18	G	38	41	45	JA 109	39	G	43	JA 40	JA 49	JA 52	JA 54	JA 32	JA 42	JA 32	JA 38
8	JA 19	JA 16	17	JA 18	18	JA 23	JA 25	28	JA 40	JA 47	JA 71	JA 64	JA 50	JA 46	JA 63	JA 169	JA 75	JA 52	JA 38	JA 50	JA 40	JA 34	JA 20	JA 30
9	JA 33	JA 46	JA 42	JA 36	59	JA 30	JA 20	28	JA 38	37	JA 49	JA 61	JA 42	JA 41	JA 79	JA 48	JA 40	JA 44	JA 27	JA 21	EB 16	EB 16	JA 21	JA 19
10	JA 28	JA 46	JA 40	JA 38	JA 60	JA 18	JA 18	JA 30	JA 35	JA 43	JA 115	JA 71	JA 62	JA 51	JA 52	JA 48	JA 48	JA 103	JA 70	JA 42	JA 74	JA 53	JA 86	JA 62
11	JA 66	JA 252	JA 79	JA 86	JA 33	JA 28	JA 36	JA 38	JA 59	JA 66	JA 48	JA 64	JA 59	JA 66	JA 60	JA 76	JA 74	JA 37	38	JA 18	JA 80	JA 52	JA 41	JA 18
12	JA 37	JA 21	JA 18	JA 22	JA 26	JA 28	JA 26	JA 42	JA 53	JA 51	JA 96	JA 57	JA 60	39	JA 46	JA 43	JA 54	JA 97	JA 33	JA 22	JA 71	JA 41	JA 22	JA 53
13	JA 108	JA 110	JA 40	JA 32	JA 36	JA 43	JA 26	JA 37	JA 47	JA 54	JA 44	JA 76	JA 63	JA 50	JA 44	JA 44	40	JA 42	JA 49	JA 57	JA 128	JA 128	JA 102	JA 62
14	JA 52	JA 62	JA 74	JA 53	JA 53	JA 53	JA 48	JA 46	JA 43	JA 50	JA 54	JA 60	JA 57	JA 74	JA 102	JA 65	JA 188	G	G	EB 14	19	JA 31	JA 17	JA 28
15	JA 29	JA 41	JA 38	JA 58	JA 45	JA 56	JA 26	27	34	JA 54	JA 46	47	JA 60	JA 271	JA 240	JA 188	JA 97	JA 58	JA 40	JA 106	JA 97	JA 122	JA 52	JA 100
16	JA 110	JA 52	JA 35	JA 28	JA 22	JA 15	JA 32	JA 39	JA 66	JA 138	JA 96	JA 82	JA 72	G	JA 70	JA 53	JA 54	JA 68	JA 62	JA 66	JA 136	JA 122	JA 109	JA 104
17	JA 118	JA 52	JA 40	JA 24	JA 18	JA 27	JA 18	G 21	JA 33	JA 37	36	38	40	42	37	37	JA 33	G	24	EB 16	EB 16	EB 16	EB 17	JA 36
18	JA 33	JA 32	JA 16	19	JA 16	18	JA 18	JA 30	G	JA 49	JA 46	47	JA 45	44	JA 45	74	JA 90	77	JA 53	JA 28	JA 29	JA 26	EB 16	JA 15
19	EB 18	EB 16	19	EB 16	EB 18	EB 16	20	JA 27	30	G 24	JA 62	JA 54	JA 46	42	46	44	JA 84	37	JA 47	JA 78	JA 61	JA 54	JA 87	JA 86
20	JA 51	JA 31	JA 16	JA 28	20	JA 26	JA 28	JA 53	JA 42	JA 44	JA 60	JA 93	JA 85	JA 88	JA 70	JA 78	JA 98	JA 155	JA 55	JA 60	JA 87	JA 51	JA 24	JA 26
21	JA 32	JA 16	EB 16	EB 16	19	18	EB 16	JA 23	JA 36	JA 54	JA 52	JA 248	JA 109	JA 109	JA 48	JA 60	JA 90	JA 108	JA 130	JA 75	JA 38	JA 22	19	JA 38
22	JA 64	JA 40	JA 76	JA 52	JA 54	JA 66	JA 26	JA 79	JA 66	JA 118	JA 82	JA 142	JA 86	JA 82	JA 70	JA 42	JA 52	JA 69	JA 129	JA 30	JA 119	JA 32	JA 63	JA 48
23	JA 42	JA 35	JA 26	JA 28	JA 25	JA 19	JA 50	JA 98	JA 62	JA 55	JA 85	JA 40	JA 54	JA 54	JA 44	JA 47	JA 82	JA 124	JA 77	JA 53	JA 98	JA 27	JA 18	18
24	EB 16	EB 16	JA 52	JA 27	JA 23	JA 16	JA 20	JA 42	JA 34	JA 38	JA 40	38	40	40	40	37	G	JA 38	JA 77	JA 42	JA 32	JA 42	JA 33	JA 128
25	JA 62	JA 52	JA 21	JA 39	JA 19	JA 28	JA 23	JA 36	JA 34	JA 45	JA 52	JA 73	JA 55	JA 97	JA 57	JA 61	JA 52	JA 133	JA 125	JA 130	JA 63	JA 36	JA 35	JA 26
26	JA 16	20	EB 16	EB 16	18	18	JA 22	JA 38	JA 47	JA 64	JA 68	JA 54	JA 47	JA 42	JA 50	JA 62	JA 52	JA 130	JA 32	JA 18	JA 22	JA 28	JA 32	20
27	JA 27	EB 16	21	EB 16	EB 16	18	JA 20	JA 32	JA 34	JA 44	JA 92	JA 71	JA 82	JA 144	JA 41	JA 122	JA 85	JA 139	JA 80	JA 263	JA 110	JA 86	JA 76	JA 49
28	JA 52	JA 29	20	19	JA 19	JA 18	JA 18	JA 27	JA 34	JA 47	JA 48	JA 53	JA 42	JA 72	JA 44	JA 48	JA 53	JA 37	JA 50	JA 32	JA 27	JA 37	JA 26	JA 23
29	JA 19	JA 24	JA 21	JA 26	JA 51	JA 16	JA 28	JA 35	JA 40	JA 41	JA 43	JA 86	JA 54	JA 42	JA 39	JA 38	JA 32	G 24	JA 25	JA 22	JA 21	JA 23	JA 21	JA 33
30	JA 29	JA 30	JA 21	JA 19	18	JA 32	EB 16	JA 29	JA 42	JA 49	JA 62	JA 41	JA 113	JA 64	JA 72	JA 43	JA 40	JA 59	JA 32	JA 22	JA 36	JA 22	JA 25	JA 53
31	JA 39	JA 28	JA 28	JA 18	EB 16	EB 16	18	28	JA 50	JA 54	JA 43	JA 54	JA 45	JA 45	39	36	GJA 24	JA 45	JA 25	JA 28	JA 20	19	18	JA 19
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	JA 37	JA 32	JA 21	JA 26	JA 22	JA 20	JA 22	JA 30	JA 40	JA 47	JA 52	JA 57	JA 55	JA 50	JA 50	JA 47	JA 52	JA 52	JA 47	JA 38	JA 40	JA 36	JA 28	JA 36
U Q	JA 62	JA 46	JA 42	JA 38	JA 39	JA 30	JA 28	JA 39	JA 47	JA 54	JA 68	JA 73	JA 72	JA 74	JA 70	JA 62	JA 82	JA 100	JA 70	JA 60	JA 97	JA 53	JA 51	JA 62
L Q	JA 26	21	19	EB 18	18	18	JA 19	28	34	40	JA 44	43	JA 45	42	44	42	40	G 37	31	22	22	JA 26	21	JA 23

AUG. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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 16	E B 16	E B 16	E B 16	A A 45	E B 16	18	26	36	34	36	37	37	47	45	36	36	G	28	G	E B 16	25	E B 14	E B 16
2	E B 16	21	E B 16	E B 16	E B 16	E B 16	E B 16	G 19	31	36	37	39	38	37	39	37	33	34	23	16	18	18	E B 16	E B 16
3	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	18	27	32	34	37	38	39	40	49	39	38	47	42	A A 86	22	E B 16	E B 15	E B 16
4	24	E B 15	A A 42	E B 16	E B 16	E B 16	A A 92	G 17	28	39	40	37	41	44	42	38	36	40	42	36	32	30	E B 16	E B 16
5	40	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	36	29	32	43	48	38	41	42	37	33	G	G	17	E B 16	E B 16	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	E B 16	20	18	24	32	32	38	40	43	38	A A 107	42	44	A A 100	A A 85	30	52	A A 86	E B 16	E B 16
7	A A 107	E B 16	E B 16	E B 16	18	28	E B 16	G 16	G	37	40	42	41	39	G	42	G 33	29	36	18	E B 16	E B 16	E B 16	A A 38
8	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16	18	24	32	37	A A 71	A A 64	40	46	50	100	49	31	26	22	20	20	E B 16	19
9	E B 16	E B 16	E B 16	26	A A 59	22	18	26	33	33	A A 49	39	40	G 31	39	36	31	30	23	18	E B 16	E B 16	19	E B 16
10	E B 16	A A 46	E B 16	A A 38	A A 60	E B 16	E B 16	28	32	36	A A 115	37	45	37	G 28	44	44	A A 103	34	21	E B 16	34	32	39
11	A A 66	A A 252	A A 79	A A 86	15	E B 16	E B 16	30	50	40	37	A A 64	A A 59	45	38	58	37	29	24	E B 16	E B 16	24	24	E B 16
12	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	28	41	35	35	46	41	38	40	40	42	36	28	18	21	20	20	E B 16
13	E B 16	E B 16	E B 16	22	E B 16	E B 16	19	32	33	42	44	A A 76	46	43	42	38	36	40	45	50	20	27	A A 102	29
14	A A 52	A A 62	A A 74	A A 53	A A 53	E B 16	18	28	38	43	48	A A 60	46	46	48	42	41	G	G	E B 14	E B 16	E B 16	E B 16	E B 16
15	E B 16	E B 16	E B 16	E B 16	18	E B 16	21	27	30	34	36	47	41	A A 271	46	48	A A 97	50	31	A A 106	A A 97	A A 122	24	A A 100
16	25	A A 52	18	18	20	E B 16	22	30	32	36	38	44	45	G	46	38	45	56	44	A A 66	42	A A 122	A A 109	21
17	22	19	A A 40	E B 16	E B 16	E B 16	E B 16	G 18	33	32	36	37	40	40	37	35	32	G	24	E B 16	E B 16	E B 16	E B 17	20
18	E B 16	20	E B 16	E B 16	15	E B 16	E B 16	23	G	35	34	36	A A 45	42	42	A A 74	A A 90	43	28	E B 14	21	E B 16	E B 16	E B 16
19	E B 18	E B 16	E B 16	E B 16	E B 18	E B 16	E B 15	22	30	G 22	41	38	G 31	40	45	43	52	36	29	20	21	34	26	30
20	21	E B 15	E B 16	E B 16	E B 16	E B 16	24	27	34	40	56	52	46	70	64	69	A A 98	64	24	34	28	24	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 14	E B 16	E B 16	23	31	41	38	49	A A 109	A A 109	38	54	A A 90	64	A A 130	33	20	17	E B 16	E B 14
22	E B 16	A A 40	A A 76	19	20	E B 16	24	31	49	A A 118	A A 82	A A 142	52	60	64	38	42	45	A A 129	18	A A 119	E B 16	21	E B 16
23	21	24	21	21	19	E B 16	22	40	30	37	38	37	50	46	41	40	36	44	33	22	27	E B 16	E B 16	E B 16
24	E B 16	E B 16	A A 52	E B 16	E B 16	E B 16	E B 16	37	32	36	37	37	38	38	39	36	G	32	A A 77	22	24	30	23	18
25	20	E B 16	E B 16	17	E B 16	E B 16	20	34	32	40	44	A A 73	52	71	42	51	44	A A 133	A A 125	A A 130	39	24	20	19
26	E B 16	E B 16	E B 16	E B 16	E B 16	E B 14	18	28	34	36	36	40	42	41	43	36	47	36	23	E B 12	E B 14	19	18	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	27	33	37	42	40	A A 82	41	40	53	42	56	46	22	40	41	A A 76	A A 49
28	22	17	E B 16	E B 16	E B 16	E B 16	E B 16	24	32	44	43	48	40	39	36	34	32	28	25	22	E B 16	30	22	18
29	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	26	33	32	36	40	39	41	38	36	32	G 22	24	20	E B 16	E B 16	E B 16	20
30	18	20	E B 16	E B 16	E B 16	E B 16	E B 16	26	35	44	50	40	54	45	42	37	35	46	24	E B 14	E B 16	E B 16	E B 16	E B 16
31	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	17	25	34	34	38	42	38	40	38	34	G 20	G 17	24	E B 14	E B 16	E B 16	E B 16	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	18	27	32	36	38	40	41	41	42	39	38	36	28	20	20	20	E B 16	E B 16
U Q	22	A A 20	A A 18	18	18	E B 16	19	30	34	40	44	A A 49	46	46	46	48	45	50	A A 44	33	28	30	23	20
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	31	34	37	38	39	39	38	36	33	G 29	24	G	E B 16	E B 16	E B 16	E B 16

AUG. 2017 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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	16	16	16	16	16	16	16	12	14	15	14	15	18	18	18	22	15	14	12	16	16	16	14	16
2	16	16	16	16	16	16	16	16	14	18	18	21	23	20	18	18	20	14	12	10	16	16	16	16
3	16	16	16	15	15	16	14	14	14	16	15	16	19	20	19	16	14	11	10	14	16	16	15	16
4	14	15	16	16	16	16	16	12	12	14	15	17	18	17	16	16	15	14	14	14	16	16	16	16
5	16	16	16	16	16	16	16	14	14	13	15	18	14	17	15	15	14	12	14	15	16	16	16	16
6	16	16	16	16	16	16	14	14	14	14	18	16	18	20	20	21	19	15	12	14	16	16	16	16
7	16	16	16	16	16	16	16	15	13	14	15	15	20	17	18	16	14	13	15	16	16	16	16	14
8	16	16	15	16	16	16	14	14	14	14	20	17	18	20	21	19	16	15	14	15	16	16	16	16
9	16	16	16	16	16	16	16	14	14	20	17	18	17	20	20	18	15	14	10	16	16	16	16	16
10	16	16	16	16	16	16	16	14	14	16	18	17	16	15	14	16	15	15	12	16	16	16	16	16
11	16	16	16	14	15	16	16	15	14	15	16	19	18	21	18	16	16	14	14	16	16	16	16	16
12	16	16	16	16	15	16	16	16	14	16	15	18	25	20	21	17	14	14	14	12	16	16	16	16
13	16	16	16	16	16	16	14	16	14	15	16	18	20	20	18	17	16	14	13	14	16	16	16	16
14	16	16	16	16	16	16	16	14	13	14	14	22	22	20	17	19	14	14	14	14	16	16	16	16
15	16	16	16	16	16	16	14	16	14	14	17	17	18	18	18	16	15	14	12	16	16	16	16	16
16	16	16	16	16	16	16	16	14	12	15	19	21	17	19	18	16	15	15	14	14	16	16	16	16
17	16	16	14	16	16	16	16	16	16	15	20	20	20	20	24	16	20	18	14	16	16	16	17	16
18	16	16	16	16	15	16	16	15	12	14	17	19	21	21	18	18	16	14	14	14	15	16	16	16
19	18	16	16	16	18	16	15	14	14	15	15	20	19	19	34	24	15	15	14	14	16	16	16	16
20	16	15	16	16	16	16	16	16	14	14	17	38	23	20	21	16	15	14	12	16	16	16	16	16
21	16	16	16	16	14	16	16	15	16	16	20	23	24	22	20	17	15	15	14	15	16	16	16	14
22	16	16	16	16	16	16	16	12	14	14	16	19	21	20	21	17	14	14	14	13	16	16	16	16
23	16	16	16	16	16	16	16	14	13	16	19	20	22	19	20	20	18	14	15	16	16	16	16	16
24	16	16	16	16	16	16	16	16	15	14	20	20	20	20	21	18	14	15	15	15	16	16	16	16
25	16	16	16	16	16	16	16	14	12	14	16	15	20	17	23	22	14	16	14	14	15	16	16	16
26	16	16	16	16	16	14	16	16	12	14	18	24	20	22	18	16	14	14	14	12	14	16	16	16
27	16	16	16	16	16	16	16	15	13	16	16	19	21	21	20	17	15	14	15	14	16	16	16	16
28	16	16	16	16	16	16	16	15	12	15	18	18	20	16	15	16	14	12	11	16	16	16	16	16
29	16	16	16	16	16	16	16	15	14	16	19	20	26	23	20	18	16	14	14	14	16	16	16	16
30	16	16	16	16	16	16	16	14	14	14	19	18	21	23	17	17	16	14	15	14	16	16	16	16
31	16	16	16	16	16	16	15	16	15	16	18	18	22	18	16	14	14	13	14	14	16	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	15	14	15	17	18	20	20	18	17	15	14	14	14	16	16	16	16
U Q	16	16	16	16	16	16	16	16	14	16	19	20	22	20	21	18	16	15	14	16	16	16	16	16
L Q	16	16	16	16	16	16	16	14	13	14	15	17	18	18	18	16	14	14	12	14	16	16	16	16

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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	293	337	347	370	A	295	356	319	350	366	339	273	281	316	291	312	304	315	333	366	329	329	318	279
2	294	313	348	325	336	334	343	330	392	322	343	308	314	307	287	307	318	321	331	329	365	315	327	334
3	318	328	311	328	332	350	328	358	388	338	328	318	293	316	304	286	313	321	344	A	352	380	319	327
4	311	320	A	327	F 310	F 327	A	362	372	355	290	249	316	329	305	312	337	359	350	310	284	324	F 293	303
5	293	F 332	F 300	F 360	379	301	319	346	F 336	335	316	A 277	303	298	305	304	324	312	346	355	300	301	316	280
6	F 296	F 285	308	317	329	310	331	354	362	302	299	309	292	292	A	329	321	A	A	343	R 336	A	301	338
7	A	289	280	311	344	U R 342	357	409	351	312	323	308	309	275	293	296	310	342	353	352	335	343	328	A
8	F 311	F 308	F 325	F 360	F 370	F 357	393	405	415	342	A	A	277	270	280	316	336	335	331	359	322	340	361	384
9	284	347	316	F 336	A	F 332	353	346	332	334	A	297	308	318	300	307	288	301	291	318	360	392	352	285
10	F 283	A	314	A	A	F 319	355	372	397	361	A	274	306	333	325	322	330	A	325	343	364	329	F 312	F
11	A	A	A	A	306	323	333	350	370	381	344	A	A	275	286	296	323	320	349	346	331	322	F 294	F 325
12	F 306	F 312	F 307	F 287	383	352	370	367	365	383	317	302	312	H 323	277	290	306	327	357	351	307	302	305	296
13	F 299	F 299	F 359	F 365	F 310	F 312	323	345	348	362	313	A	257	275	309	335	310	311	328	333	J R 330	351	A	F
14	A	A	A	A	A	327	372	377	366	283	343	A	280	282	286	305	319	314	318	349	381	380	309	309
15	296	288	F 280	F	F 294	336	336	345	406	356	367	304	298	A	289	290	A	334	305	A	A	A	310	A
16	F 283	A	F 305	330	F 350	339	363	392	378	347	277	330	320	301	301	300	317	319	341	A	J R 331	A	A	R 297
17	347	F 327	A	F 304	F 322	F 322	365	371	379	380	299	317	280	301	320	310	295	313	342	329	319	297	294	294
18	295	278	322	372	305	F 267	F 298	312	325	G	G	G	A	257	258	A	A	289	332	340	331	334	322	332
19	308	286	301	323	343	317	316	364	401	375	347	G	292	315	294	325	352	340	308	310	329	314	304	F 298
20	F	F	F 354	F 304	F	F	320	380	342	U L 266	A	304	302	302	302	309	A	351	345	362	297	308	300	F 287
21	F 311	316	312	F 320	342	330	338	385	351	325	290	301	A	A	321	316	A	322	A	383	375	363	314	301
22	308	A	A	373	335	291	357	378	389	A	A	A	279	294	288	276	339	338	A	325	A	379	280	F
23	F	F 316	F 372	307	312	320	342	357	344	367	R	268	324	301	247	263	319	330	334	337	367	322	306	302
24	298	298	A	304	292	288	303	372	324	G	316	302	307	301	294	303	325	336	A	J R 310	342	313	F	F
25	333	347	F 357	294	F 330	322	361	373	386	314	341	A	298	A 304	319	311	306	A	A	A	F 369	367	305	294
26	312	315	352	335	311	309	354	390	371	350	335	370	323	337	H 302	319	342	315	338	330	359	362	315	304
27	310	F 309	314	324	337	321	335	360	382	373	345	357	A	J R 329	334	284	315	333	339	R 340	352	392	A	A
28	F	F 293	F 332	F 286	F 286	F 297	356	374	351	343	354	343	317	321	310	301	311	344	325	301	338	369	308	291
29	307	298	303	273	F 287	290	321	365	365	352	357	304	318	309	328	313	319	321	327	337	363	322	298	305
30	297	311	308	366	335	299	325	388	399	369	359	353	332	340	335	310	317	335	344	323	318	311	326	305
31	279	F 293	F 330	347	328	325	330	379	385	363	349	337	329	325	346	325	322	320	311	298	300	394	314	293
	00	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	25	25	27	26	30	30	31	31	30	25	25	27	29	30	30	27	28	26	27	29	28	27	24
MED	299	311	314	325	330	322	340	367	370	348	335	304	306	304	302	308	319	322	334	337	335	332	310	302
U Q	311	324	F 348	360	342	332	357	379	388	366	346	324	317	322	319	316	325	336	344	351	362	368	319	317
L Q	294	293	F 306	F 304	F 310	301	325	350	350	322	306	276	292	293	288	296	310	315	325	323	320	314	301	294

AUG. 2017 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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								U L 389	399	393	425	423	468	A	A	402	404	379	366					
2								U L 367	L 386	U L 403	407	411	440	445	455	403	409	377	L 374	L				
3								L	L 394	432	430	430	423	434	A	399	399	A		A				
4							A		L 385	U L 404	420	449	418	A	A	421	365	A						
5									L 370	L 419	A	A	U R 425	400	A	373	394	361	359					
6								L	U L 384	432	408	A	A	428	A	A	A	A	A					
7								L	U L 418	396	A	A	421	400	465		427	369						
8								U L 428		U L 436	A	A	429	A	A	A	A	397	395					
9									408	416	A	429	462	432	414	427	423	372	376	L				
10								L	L 412	424	A	436	A	441	424	A	A	A	A					
11								U L 382		A	413	A	A	A	419	A	368	382	371					
12									A	L 405	U L 446	A	417	437	442	A	A	370	L 377					
13								U L 375	L 381	A	A	A	A	A	A	A 387	401	A	A	A				
14									A	A	A	A	A	A	A	A	A	382	L 367					
15								L	418	U L 408	438	A	429	A	A	A	A	A	L 383	A				
16									L	U L 422	U L 426	A	A	435	A	406	A	A	A	A				
17								L	L	L 399	U L 449	447	424	436	392	387	414	L 358	L 384					
18								L 360	392	395	428	421	A	A	A	A	A	A	L 381					
19								L	L	U L 422	A	431	391	407	A	A	A	A	L					
20							A	L	L	U L 391	A	A	A	A	A	A	A	A	L					
21								L	L	A	U L 365	A	A	A	400	A	A	A	A					
22								L	A	A	A	A	A	A	A	400	A	A	A					
23								A	L 372	382	413	410	A	A	404	A	370	A	A					
24							L	A	U L 395	421	A	417	421	422	419	380	378	368	A					
25									L	L	A	A	A	A	A	A	A	A	A					
26									L	L	403	422	A 391	398	A	L 439	A	L	L					
27								L		404	A	447	A	A	L 436	A	A	A	A					
28								L	L	A	A 377	A	436	433	422	386	375	366	L					
29								L	L 378	U L 395	408	433	411	429	432	401	368	371	L					
30										A	A	L 444	A	A	A	U L 374	U L 363	A	L					
31									L	L	L 407	A	423	425	402	394	387	L 368	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								6	15	21	17	15	17	16	14	16	16	14	11					
MED								U L 378	L 392	L 405	413	430	423	430	420	400	390	370	L 376					
U Q								U L 389	408	422	429	444	432	436	436	404	406	379	L 383					
L Q								L 367	L 381	396	407	421	418	414	404	386	369	368	367					

AUG. 2017 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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								340	270	258	308	472	420	320	346	306	312	286	248					
2								308	220	352	300	362	348	362	402	338	304	280	252	248				
3								244	230	310	326	354	394	348	A 380	416	336	300		A				
4							A		244	270	410	546	334	298	334	310	268	242						
5									278	286	344	E A 448	410	394	360	350	314	336	266					
6								240	254	372	390	360	386	380	A	302	316	A	A					
7								198	274	368	332	376	358	448	360		298	256						
8								204		292	A	A	398	368	326	A 320	262	244	238					
9									302	286	A	380	342	302	332	308	324	334	330	250				
10								240	214	264	A	454	374	302	302	312	294	A	292					
11								272		240	308	A	A	390	340	332	280	274	242					
12									266	248	358	376	332	286	396	358	306	268	234					
13								278	252	242	352	A	504	394	288	254	290	294	266	262				
14									260	408	294	A	376	360	344	310	276	268	256					
15								274	206	264	270	E A 382	392	A	408	342	A	266	280	A				
16									234	286	L 434	310	340	370	358	338	296	286	248	A				
17								238	230	244	L 358	346	440	362	302	320	326	282	242					
18								348	344	G	G	G	A	498	522	A	A	384	276					
19								244	214	L 266	310	G	408	326	374	284	258	280	326					
20							274	224	L 270	U L 478	E A 354	338	330	370	312	A 326	A	258	240					
21								212	250	326	L 390	360	A	A	308	A 316	A	E A 332	A					
22								228	A 230	A	A	A	342	326	336	352	256	258	A					
23								266	280	254	R	456	306	340	462	380	284	268	246					
24							344	252	L 324	G	354	368	344	362	370	334	288	288	A					
25									226	L 322	286	A	296	A 376	286	290	282	A	A					
26									248	264	296	260	312	284	306	298	272	284	250					
27								260		234	284	266	A	304	294	A 408	308	288	256					
28								230	230	246	274	294	324	308	294	288	270	246	228					
29								234	248	264	276	380	344	362	326	334	304	284	240					
30										264	274	278	A 316	298	282	326	300	256	244					
31									222	246	282	312	310	298	272	296	302	284	272					
	00	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	21	27	30	26	25	27	29	30	29	27	28	23	3				
MED							309	244	248	268	314	364	344	360	335	320	296	280	250	250				
U Q								273	270	326	358	451	394	373	370	340	308	288	272	262				
L Q								229	230	254	286	325	330	303	302	304	276	262	242	248				

AUG. 2017 h'F2 (KM)

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	314	270	244	192	A	332	222	216	A 230	206	188	184	156	A	A	198	200	204	228	208	210	238	252	286
2	286	272	226	236	222	222	220	216	216	196	194	204	176	174	188	216	198	A 234	202	226	196	234	242	226
3	254	262	248	232	236	232	230	206	218	188	190	H 176	198	H 194	A	A 218	230	A	254	A	222	188	214	256
4	312	258	A	284	Q 264	Q 236	A	204	H 180	A 212	206	162	208	A	E A 304	212	E A 258	A	250	E A 272	A 318	232	276	258
5	A 348	226	Q 262	220	202	276	258	250	228	194	A	A	190	E A 248	A	234	216	218	220	224	250	256	254	296
6	Q 294	276	276	260	240	A 330	244	202	226	182	218	A	A	194	A	A	A	A	A	244	A 244	A	258	238
7	A	330	342	276	256	E A 284	214	190	174	242	E A 270	A	222	210	164	336	192	208	226	218	220	208	252	A
8	272	Q 280	Q 266	Q 234	Q 230	Q 218	192	190	192	188	A	A	196	A	A	A	A	200	178	218	236	222	212	200
9	312	232	286	Q 300	A	306	194	214	200	200	A	188	176	192	198	190	196	224	214	224	198	182	A 230	304
10	Q 304	A	310	A	A	274	230	206	188	186	A	178	A	162	172	A	A	A	A	232	206	A 230	A 286	E A 346
11	A	A	A	A	302	300	222	A 220	A 254	A	200	A	A	A	206	A	E A 264	214	214	224	208	232	A 292	Q 266
12	230	Q 272	246	262	186	252	212	212	A	218	186	A	218	178	194	E A 272	A	E A 248	218	210	230	266	266	284
13	246	298	212	228	270	264	248	E A 250	220	A	A	A	A	A	A	E A 236	220	A	A	A	222	212	A	A 316
14	A	A	A	A	A	262	212	220	A	E A 316	A	A	A	A	A	A	A	212	194	218	188	194	264	258
15	296	286	288	248	266	244	234	222	198	198	180	A	208	A	A	A	A	A	E A 246	A	A	A	268	A
16	A 322	A	270	264	216	Q 206	204	210	208	196	184	A	A	162	A	210	A	A	A	A	246	A	A	A 330
17	A 268	256	A	296	Q 284	306	204	198	212	H 174	174	166	196	194	224	202	204	202	216	234	214	264	244	280
18	298	320	236	206	256	324	256	234	208	230	194	202	A	A	A	A	A	A	A 230	234	216	200	234	246
19	302	334	302	250	248	280	228	206	194	182	A	200	246	210	A	A	A	A	220	254	242	A 258	A 288	296
20	316	228	210	354	Q 306	Q 254	A	220	222	218	A	A	A	A	A	A	A	A	214	214	A 248	250	244	298
21	266	254	246	244	224	242	222	194	180	A	204	A	A	A	210	A	A	A	A	206	192	214	254	296
22	318	A	A	214	A 274	320	216	216	A	A	A	A	A	A	A	216	A	A	A	238	A	194	314	326
23	Q 326	300	210	E A 306	E A 282	256	254	A	204	A 238	210	202	A	A	232	E A 292	E A 250	A	A	224	206	240	252	278
24	304	280	A	278	310	316	250	A	210	206	E A 254	196	194	202	206	222	212	218	A	252	224	248	228	276
25	252	216	Q 224	254	Q 254	272	228	208	186	A 244	A	A	A	A	A	A	A	A	A	A	220	200	262	300
26	274	262	216	246	290	284	232	212	218	212	190	194	E A 256	220	A	168	A	250	226	228	208	196	258	276
27	256	264	242	246	218	266	224	226	220	216	E A 260	178	A	A 230	182	A	A	A	A	220	232	206	A	A
28	E A 306	274	252	Q 314	Q 314	Q 302	228	222	206	A	E A 250	A	184	174	176	214	198	214	222	218	200	202	280	296
29	272	280	276	302	284	274	280	220	220	198	196	182	196	200	190	202	216	218	206	218	198	214	256	278
30	292	278	280	204	232	292	238	216	210	A	A	182	A	A	A	232	A 220	A	222	222	240	240	242	242
31	276	252	Q 242	206	238	246	236	210	204	200	192	A	188	182	206	196	192	190	236	256	254	182	202	286
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	26	25	28	27	31	29	29	28	25	20	15	17	17	15	19	16	15	21	26	29	28	28	28
MED	294	272	248	248	255	273	228	213	209	200	192	184	196	194	196	213	206	214	220	224	220	218	254	280
U Q	312	280	278	281	284	302	241	220	220	218	E A 214	200	213	210	210	E A 234	E A 225	224	229	234	241	240	267	297
L Q	270	256	231	230	230	246	215	206	196	191	189	178	186	176	182	202	198	204	214	218	206	200	242	258

AUG. 2017 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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							A 106		A 104	A 104	A 102	104	104	104	106	106	106	106	A 102	B 118				
2							B 118		A 104	104	102	A 108	A	A	A 112		A 102		A 104	A 106				
3							A 108	104	104		A	A	A	108	108	108	A	A	A	A				
4							A 104		A	A	A	A	A	A	108	110	110	110	104	A 106				
5							B	A 102		A	A	A	A	102	100	104	104	106	106	A 106				
6							A	A 106	106		A	104	106	106	A	A	106	A	A	A 106				
7							B	108	104	A	102	108	A	104	104	106	106	106	A	A 106				
8							A	A 106	104	104	104	104	A	108	102	A	A	A	A	A 106				
9							A	112	102	A	102	A	A	104	A	A	A	A	A	A 106				
10							B	A	A	104	A	A	A	A	108	A	A	A	A	A 106				
11							B	A	A	A	A	A	A	A	A	A	A	A	A	B 106				
12							130	110	A	A	A	A	A	A	102	102	102	A	A	A 106				
13							A	A	A	A	A	A	A	A	A	A	108	104	A	A 106				
14							A	A 106	108	108	106	106	A	106	A	A	A	106	106	B 106				
15							A	104	108	A	A	108	108	A	A	A	A	A	A	A 106				
16							A	108	A	A	108	104	104	104	104	104	104	A	A	A 106				
17							B	114	A	110	A	104	104	108	A	A	A	102	102	B 106				
18							B	A 104		A	A	A	104	104	104	A	A	A	A	A 106				
19							B	A 106	106		A	A	114	110	B	108	104	104	110	A 106				
20							A	A	A	A	A	A	A	A	A	108	A	A	A	A 106				
21							B	A	A	A	A	110	106	106	106	106	A	A	A	A 106				
22							B	A 104	100	100		A	A	A	100	104	104	A	A	A 106				
23							A	A	A	A	A	A	104	104	A	A	A	A	A	A 106				
24							B	104	104	A	A	104	108	106	106	110	108	A	A	A 106				
25							A	108	108	104	104	106	106	106	A	A	A	A	A					
26							A	106	106	106	A	A	106	110	110	A	A	A	106	B 106				
27							B	A 106		A	A	A	A	A	A	A	A	A	A	A 106				
28							B	106	106	102	102	106	A	A	A	A	A	A	A	A 106				
29							A	A	A	A	A	A	A	A	A	106	106	108	106	A 106				
30							B	A	A	106	106	106	A	A	108	A	108	A	A	B 106				
31							A	108	108	108	A	106	104	A	A	104	104	108	108	B 106				
	00	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	15	17	14	10	14	15	16	16	15	14	11	8					
MED							130	108	106	105	103	106	106	106	106	106	106	106	106					
U Q								110	106	106	106	106	108	108	108	108	108	108	107					
L Q								106	104	104	102	104	104	104	103	104	104	104	105					

AUG. 2017 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 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	100	100	98	98	88	94	92	126	108	130	126	124	134	112	108	128	108	G	100	G	98	96	96	96
2	104	104	86	B	96	B	96	98	116	116	110	112	116	86	144	142	88	104	106	86	82	94	94	94
3	94	92	92	B	B	124	126	118	92	114	130	132	90	120	110	118	116	108	106	102	106	100	100	106
4	96	94	92	100	98	92	90	90	90	92	92	92	138	122	122	128	144	110	104	96	96	96	96	100
5	98	92	92	98	92	116	108	100	102	108	98	96	102	136	138	130	130	G	G	106	96	96	94	90
6	88	104	104	B	104	100	100	112	106	98	106	106	116	114	104	144	120	98	98	96	94	98	96	100
7	96	96	124	92	90	88	118	92	G	166	124	112	104	152	G	122	118	122	94	98	94	98	118	88
8	90	82	90	90	90	102	86	86	116	116	102	106	108	104	98	98	96	98	98	94	94	92	88	84
9	92	116	96	86	100	90	100	134	104	102	100	100	94	92	106	90	106	88	102	84	B	B	102	108
10	98	94	88	88	96	94	120	106	106	102	90	98	90	90	90	86	124	102	106	98	98	98	114	98
11	98	92	94	102	94	94	106	88	88	92	108	96	96	96	104	98	96	98	96	94	92	92	92	122
12	106	94	94	90	88	88	98	116	106	102	102	100	96	100	104	104	100	106	100	98	96	88	90	100
13	112	126	98	96	96	96	94	112	106	104	104	90	96	96	96	92	122	112	102	98	102	102	98	98
14	94	92	92	88	88	96	90	90	106	106	102	102	102	98	100	102	112	G	G	B	102	92	102	94
15	92	96	92	96	90	90	90	170	136	94	94	132	96	96	100	100	118	110	106	98	98	94	98	98
16	90	98	90	90	86	92	118	112	104	98	106	102	108	G	108	112	110	102	98	96	96	96	96	92
17	92	96	90	84	84	90	92	92	88	110	108	118	150	122	124	114	94	G	138	B	B	B	B	90
18	90	86	86	82	96	90	128	108	G	108	108	108	112	106	106	102	96	106	102	96	90	96	B	86
19	B	B	100	B	B	B	114	110	140	86	94	88	92	132	128	122	106	160	130	110	100	98	96	94
20	94	90	84	114	88	112	112	86	102	98	98	96	98	112	108	100	102	96	104	94	106	92	92	90
21	92	92	B	B	84	106	B	102	98	96	106	144	102	102	116	106	102	102	96	92	92	94	94	90
22	92	92	92	96	102	100	100	102	100	100	100	116	102	102	100	116	112	106	100	98	94	98	96	96
23	94	90	88	88	90	114	104	94	102	98	104	110	102	100	100	102	100	96	96	92	90	90	90	102
24	B	B	86	92	88	84	90	100	100	98	98	112	112	162	120	134	G	104	92	92	86	86	94	128
25	94	92	90	86	86	86	86	104	104	102	104	100	100	116	100	116	96	98	98	88	88	88	88	88
26	88	84	B	B	100	124	110	110	116	104	104	110	108	152	104	106	100	106	106	100	96	96	92	94
27	92	B	92	B	B	128	130	98	120	106	98	106	94	100	104	96	102	94	94	94	94	90	90	90
28	104	88	84	88	88	92	88	116	108	102	100	96	96	110	94	106	110	94	92	84	106	82	82	82
29	86	84	84	100	104	102	102	100	100	132	98	98	96	168	146	122	160	96	114	92	88	88	90	90
30	86	86	108	96	92	112	B	126	118	110	108	114	102	102	104	110	104	102	102	102	96	134	90	94
31	92	84	90	90	B	B	122	120	120	108	112	108	108	108	152	142	84	86	136	84	84	84	80	90
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	29	24	27	28	29	31	29	31	31	31	31	30	30	31	30	27	29	28	29	29	29	31
MED	94	92	92	91	90	95	100	104	106	102	104	106	102	107	105	110	106	102	102	96	96	94	94	94
U Q	98	96	95	97	96	109	116	116	116	110	108	112	108	122	120	122	118	106	106	98	98	98	97	100
L Q	91	89	88	88	88	90	91	94	100	98	98	98	96	100	100	100	100	96	97	92	91	90	90	90

AUG. 2017 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG. 2017 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	FQ21	F2	F1	F4	F3	L4	C2	C4	HL11	C1	C1	HL11	CL21	C2	C1	C1		C2		F2	F3	F2	F3
2	F1	FF31	F2		F1		L1	LH11	CL11	CL11	C1	C1	CL11	LC11	HL11	HL11	L3	CL22	CL12	L1	F4	F4	F4	F2
3	F1	F2	F2			F1	C2	CQ21	LC11	C1	HL12	HL12	L3	C1	CL21	CL12	CLQ22	CL44	CL35	CL96	FFQ31	FQ31	F2	FQ31
4	FQ51	FQ51	F8	F3	F2	F1	L7	L2	LQ21	LCQ22	LQ31	L2	HL12	CL11	C2	C2	HC13	C3	C6	L9	F9	F9	FQ61	FQ51
5	FQ61	F3	F2	F1	F4	F2	C2	C5	C1	CQ11	L3	L4	CL24	H1	H1	H1	H1			C1	F1	F1	F3	FQ21
6	FQ31	F1	F1		F1	FQ51	LQ31	C1	C2	C2	CL11	CL31	C2	C1	C4	H2	C3	LQ41	LQ41	LQ41	FQ41	FQ31	F3	FQ21
7	FQ71	F5	FF13	F2	F4	F3	C1	L1		HC11	C2	CL21	CQ11	H1		C2	C1	C1	LQ51	LQ31	FQ31	FQ21	FQ11	F6
8	FQ11	FF11	F1	F1	F1	FF11	L3	LH31	CL22	C2	CL41	CL41	C2	C2	C2	L5	LQ31	LQ21	LQ21	LQ31	FQ31	FQ21	F2	F3
9	F1	FF12	FF23	F3	FF23	FQ21	CQ41	HC11	C2	C1	C4	C2	L1	L1	CL12	L2	CL11	C5	CL13	L2			F3	F1
10	F2	F7	F4	F7	FQ31	F2	C1	C2	C2	C2	LQ41	LH11	L2	L2	L2	L4	CL23	CL32	CL52	L3	F2	FQ71	FF14	F8
11	FQ71	FQ51	FQ51	FQ41	FQ41	F5	C1	LQ41	L4	LQ31	CL12	LH21	L3	L2	C1	C4	LQ21	CQ21	L2	L1	F3	FQ41	F5	F1
12	F2	F2	F1	F2	F3	F2	L1	C4	C4	CQ11	CQ11	C2	L3	C1	C1	C1	C3	CQ31	C4	L2	F3	F3	F1	FQ31
13	FF12	FF13	F3	F7	F3	FQ21	LC21	CL32	C1	C4	CL24	LC41	L3	L2	LH21	LH21	C2	C3	C8	L5	F3	F3	F8	F2
14	FQ61	FQ61	F7	FQ41	F6	F2	LQ41	LC31	CL32	C3	C3	C3	C2	L3	C4	C3	CQ31				F1	F3	F1	F3
15	F2	F3	F2	FF21	F3	F2	L2	H1	HL22	LH11	LH11	H2	LH31	LQ51	LQ41	LQ31	C7	C5	C6	L9	F9	FQ51	F3	F5
16	F5	F4	F3	F2	FQ31	F1	CL22	CL41	C2	LQ21	CQ21	CQ21	C2		C3	C3	C3	C6	L3	L9	F4	F4	FQ41	FQ41
17	FQ41	FQ31	FQ41	FQ21	F1	F2	L1	L1	LHQ21	C1	C1	CL11	HC11	CL11	CL11	CL11	L2		H1					F4
18	F3	FQ41	F2	F1	F1	F1	CL11	CQ11		CQ21	CQ11	C1	C1	C1	C1	C2	C6	CL14	CQ31	LQ21	F4	F1		F1
19			F1				C1	CL11	H1	L1	LH21	LH11	LH11	H1	C1	C2	C5	H2	H4	CL32	FQ31	FQ71	FQ31	FQ31
20	FQ31	FQ31	F1	F2	F1	FF11	CL25	LC12	C3	L2	L3	L2	L3	CQ41	CQ31	CQ31	CQ71	LQ81	CQ31	L5	FF13	F4	F2	F5
21	F2	F1			F1	F1		L2	L2	LQ31	CQ11	HC12	C6	C6	C2	C3	C9	CQ81	L7	L3	F2	F4	F2	F6
22	F4	F6	FQ51	FQ31	FF22	FQ31	L2	CL33	C6	C7	C6	CL14	C3	CQ31	C3	C2	C2	C5	C7	L6	F8	F3	F5	F3
23	FQ51	F9	F8	F5	FQ51	F1	C3	LQ41	CQ21	LQ21	CQ21	C1	C2	C2	C1	C2	CQ21	LQ21	LQ31	L5	FQ41	F3	F1	F1
24			F4	F2	F4	F2	L1	C2	C1	L2	L2	C1	C1	H1	C1	H1		C2	L4	L3	F4	F4	FQ11	FF13
25	FQ61	F3	F2	F3	F2	F4	L4	C4	C2	C2	CL31	C3	C2	CLH41	C2	CLH32	LQ31	LQ41	LQ41	LQ71	FQ61	FQ41	FQ41	FQ31
26	F1	F1			F1	F1	C1	C4	C3	C2	CL11	CL11	CL11	HCL11	C2	CL21	C4	C3	C3	L1	F5	F6	F3	F1
27	F2		F1			F1	H1	LC22	C2	C2	L2	C1	L3	C3	C1	L4	CQ31	LQ61	LQ61	LQ61	FQ41	FQ61	FQ41	FQ71
28	FF16	F3	F2	F1	F2	F1	LC11	C3	F1	C4	C2	L3	L2	CL11	CQ11	CLQ11	CLQ12	LQ21	LQ31	L5	FF13	F6	FF41	F3
29	F2	F2	F1	F2	F2	F1	C2	C3	C4	HC11	L2	L2	L1	HL11	HL11	CL11	CL11	L1	C2	L2	F1	F2	F1	F4
30	F4	FQ51	FF11	F1	F1	F1		C1	C2	C3	C3	C2	C2	C2	C2	C1	C2	C4	C2	C2	F2	FF11	F2	F2
31	F2	F2	F2	F3			CL11	CL11	C2	C1	CL11	CL21	CL11	CL11	HCL11	H1	L1	L1	HL21	LC22	F2	F1	F1	FQ11
	00	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																								

AUG. 2017 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

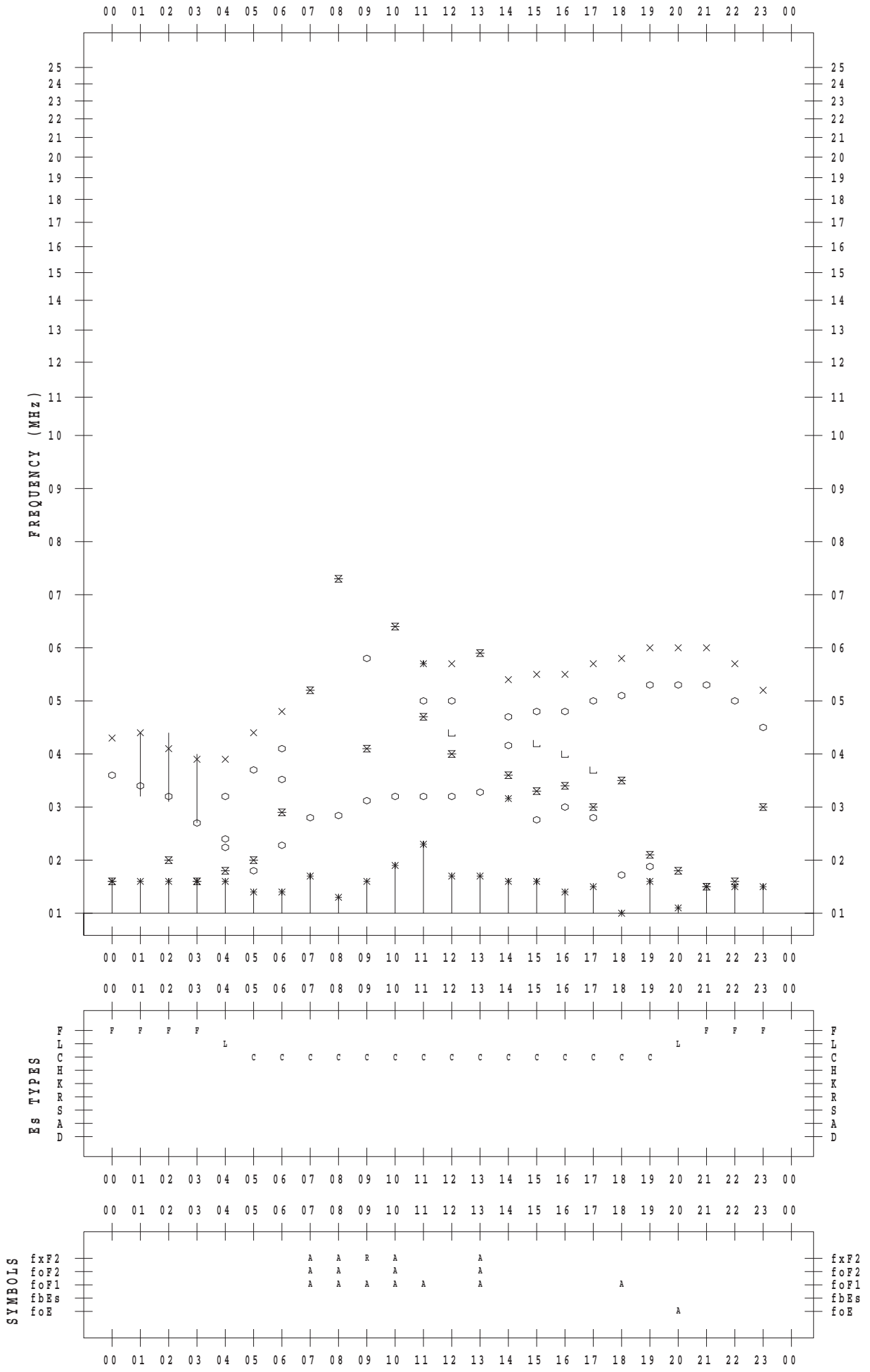
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/ 1

135 °E MEAN TIME



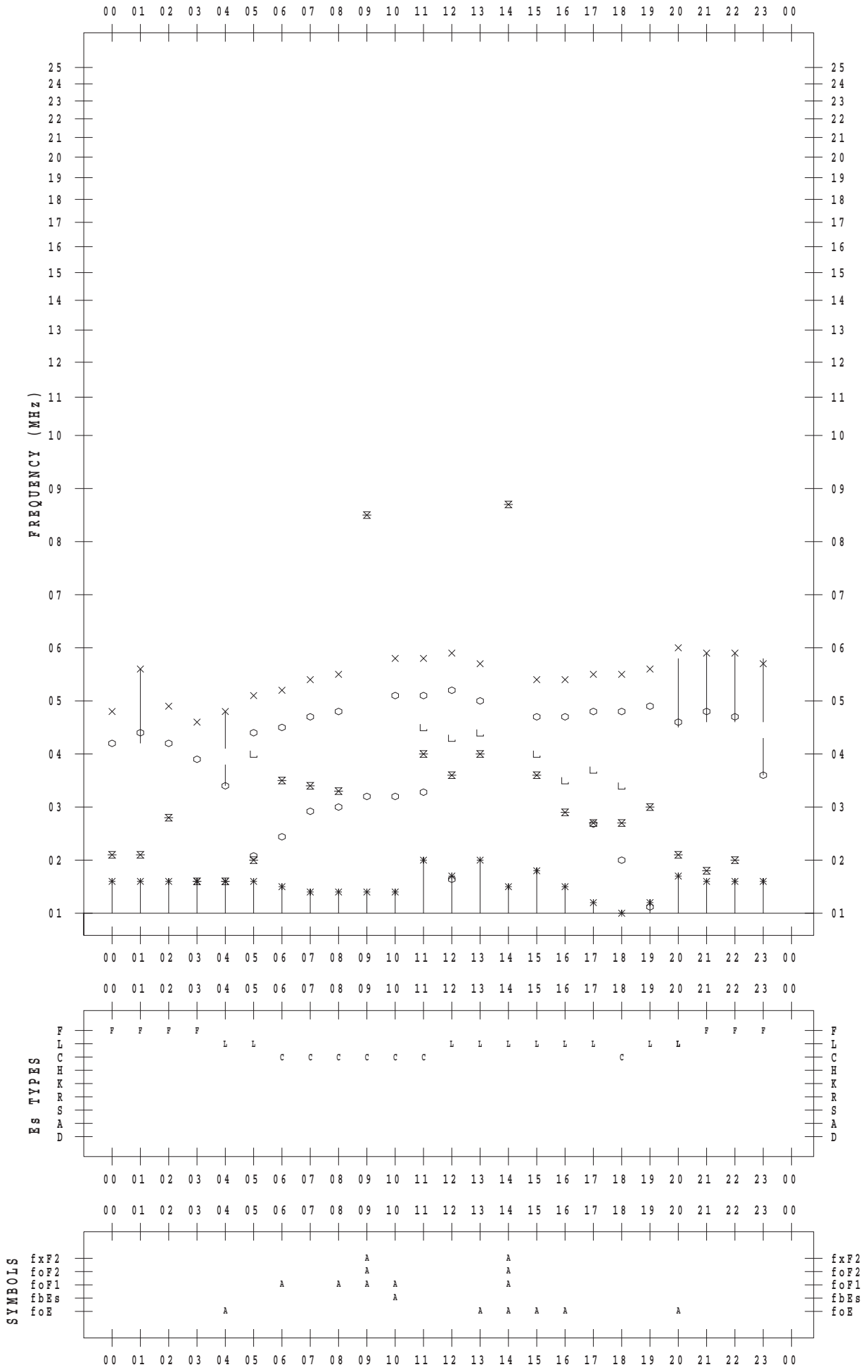
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/ 2

135 °E MEAN TIME



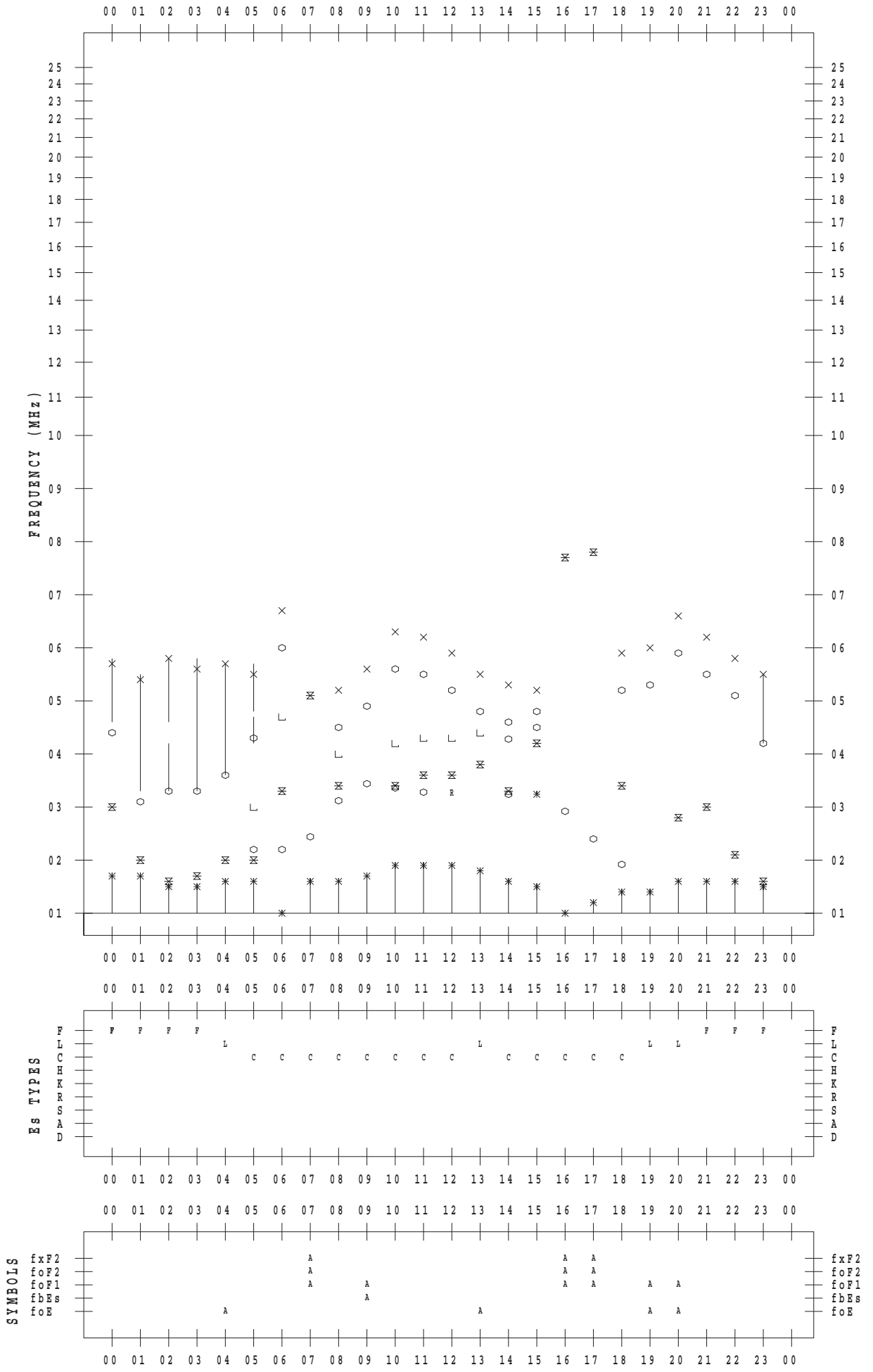
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/ 3

135 °E MEAN TIME



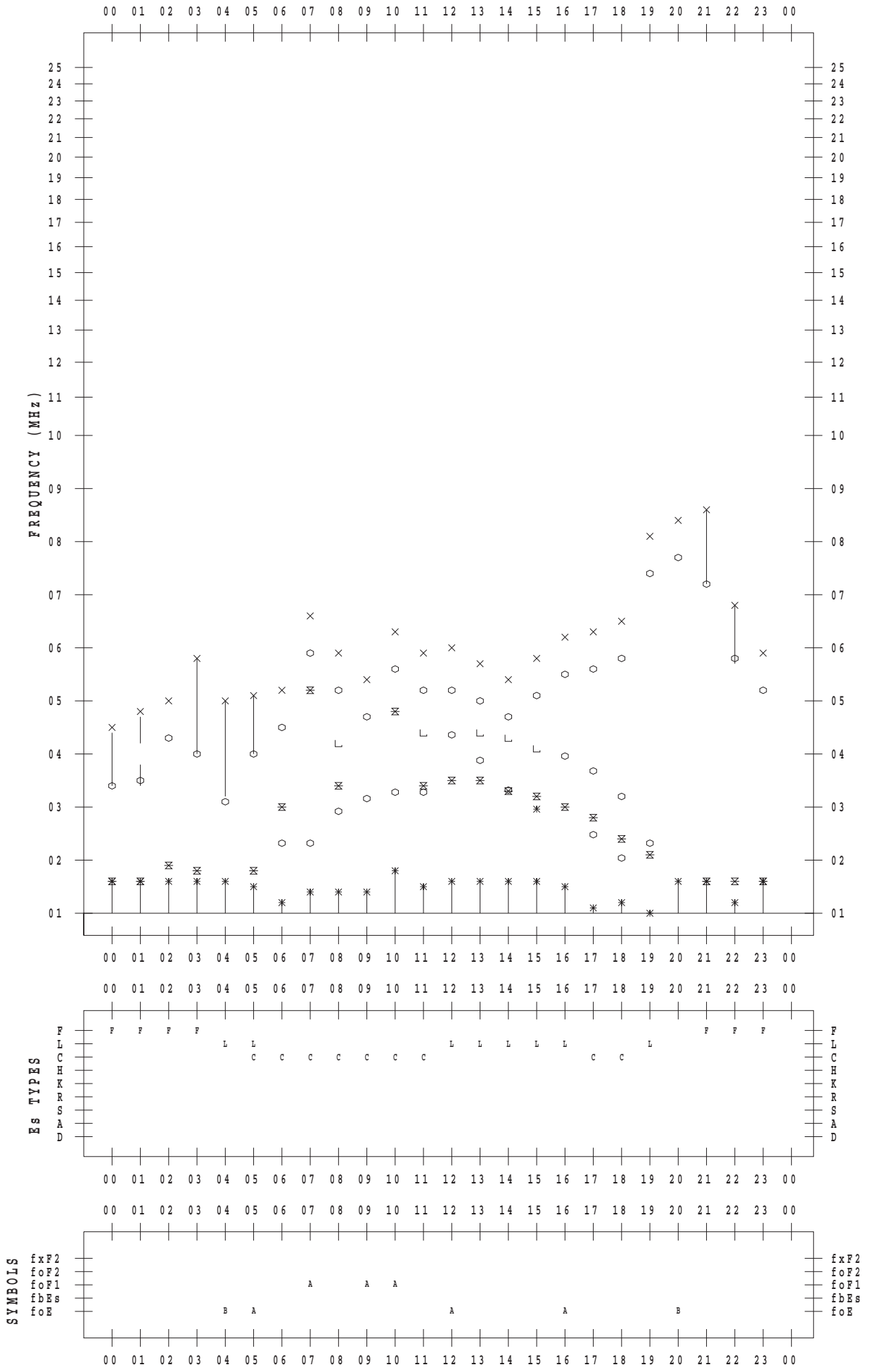
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/ 4

135 °E MEAN TIME



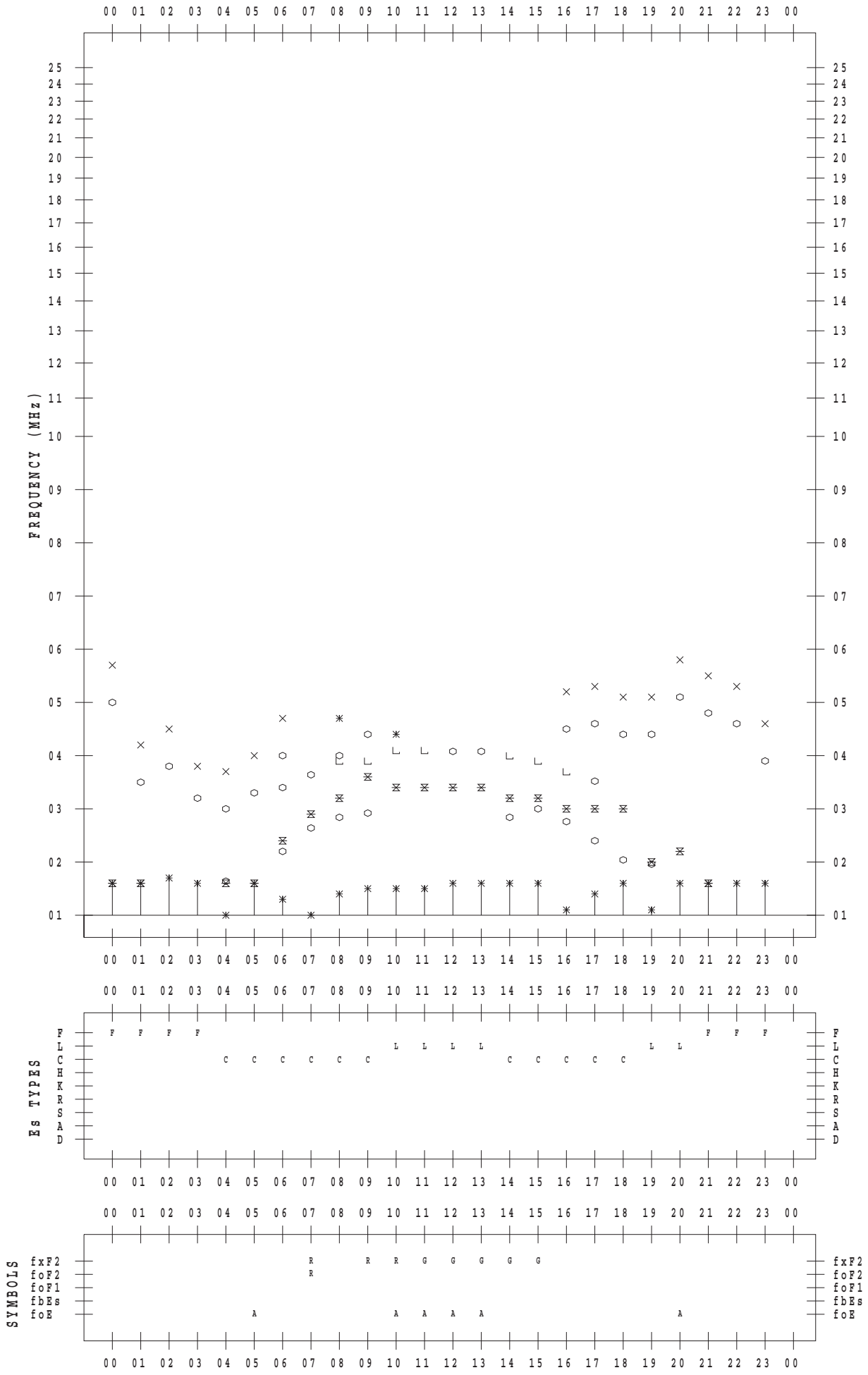
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/ 5

135 °E MEAN TIME



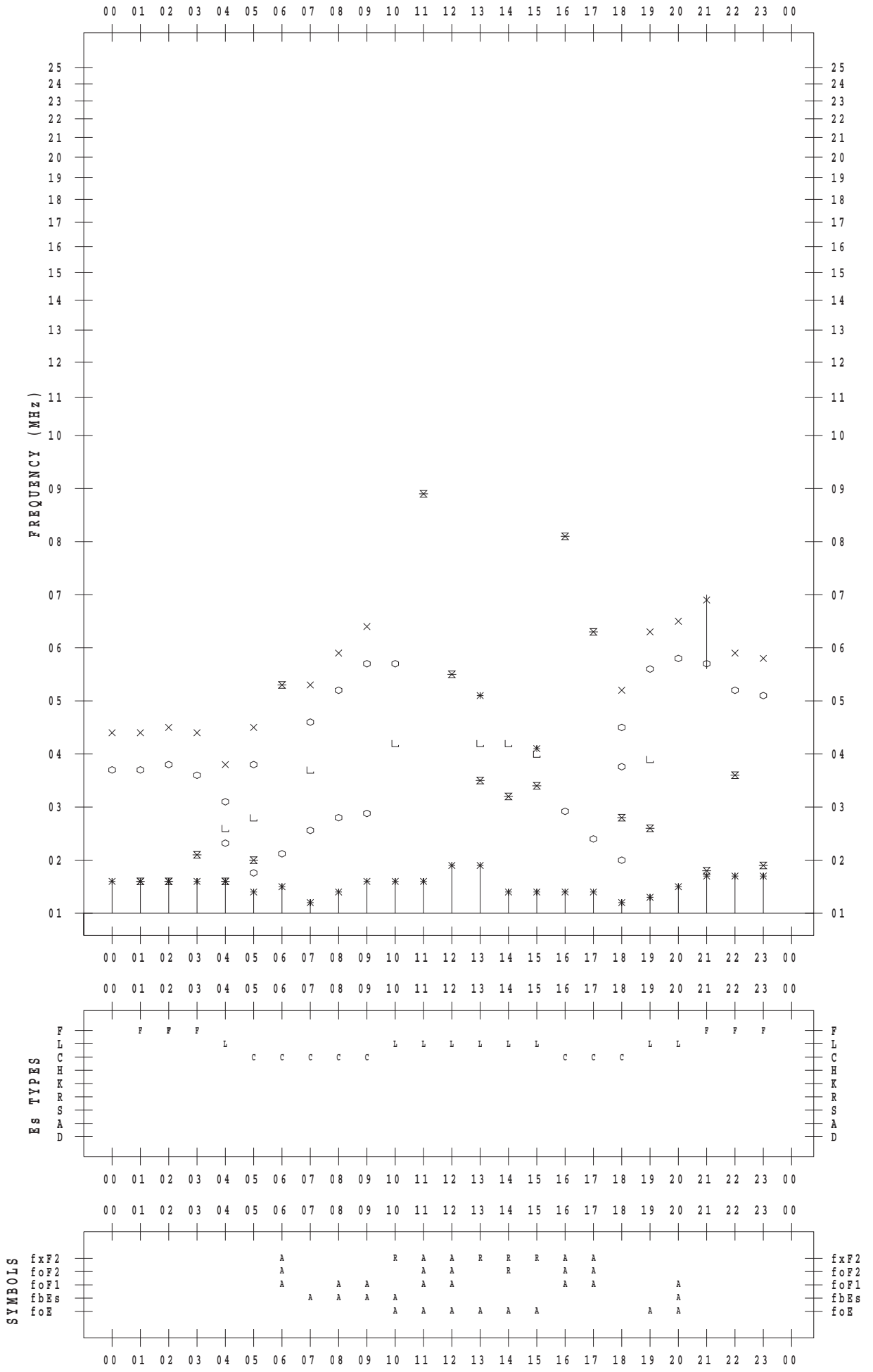
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/ 6

135 °E MEAN TIME



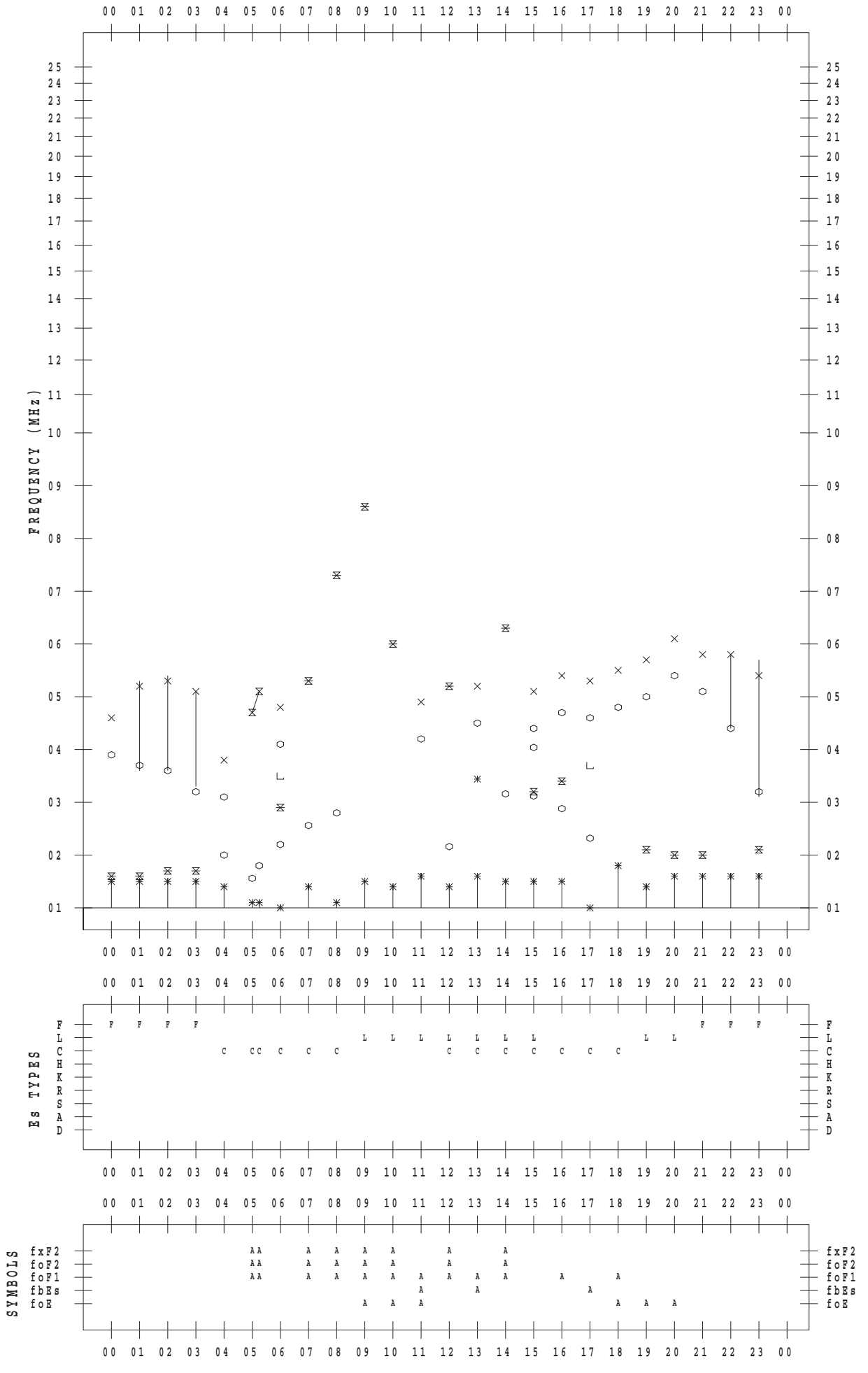
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/ 7

135 °E MEAN TIME



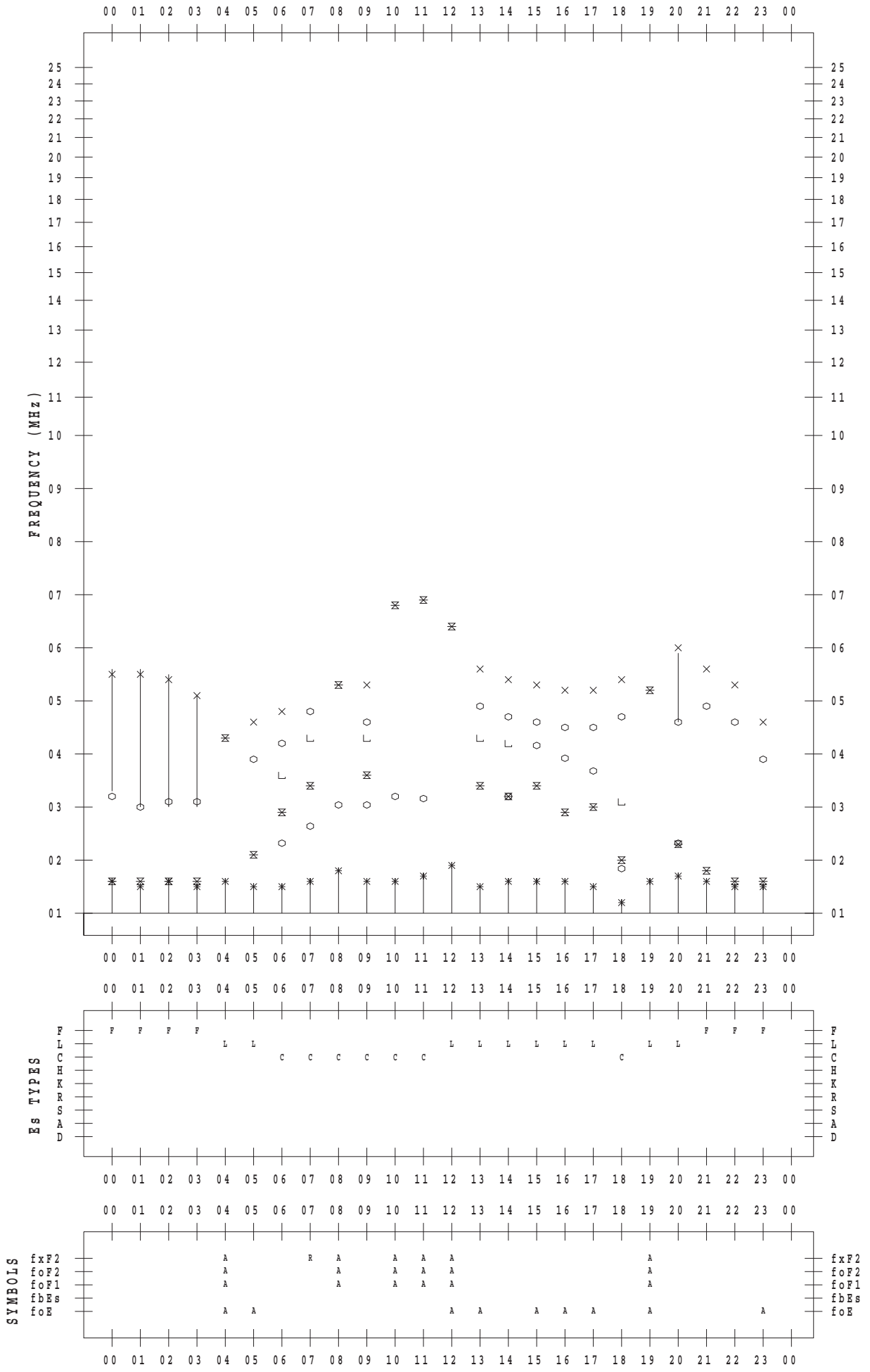
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/ 8

135 °E MEAN TIME



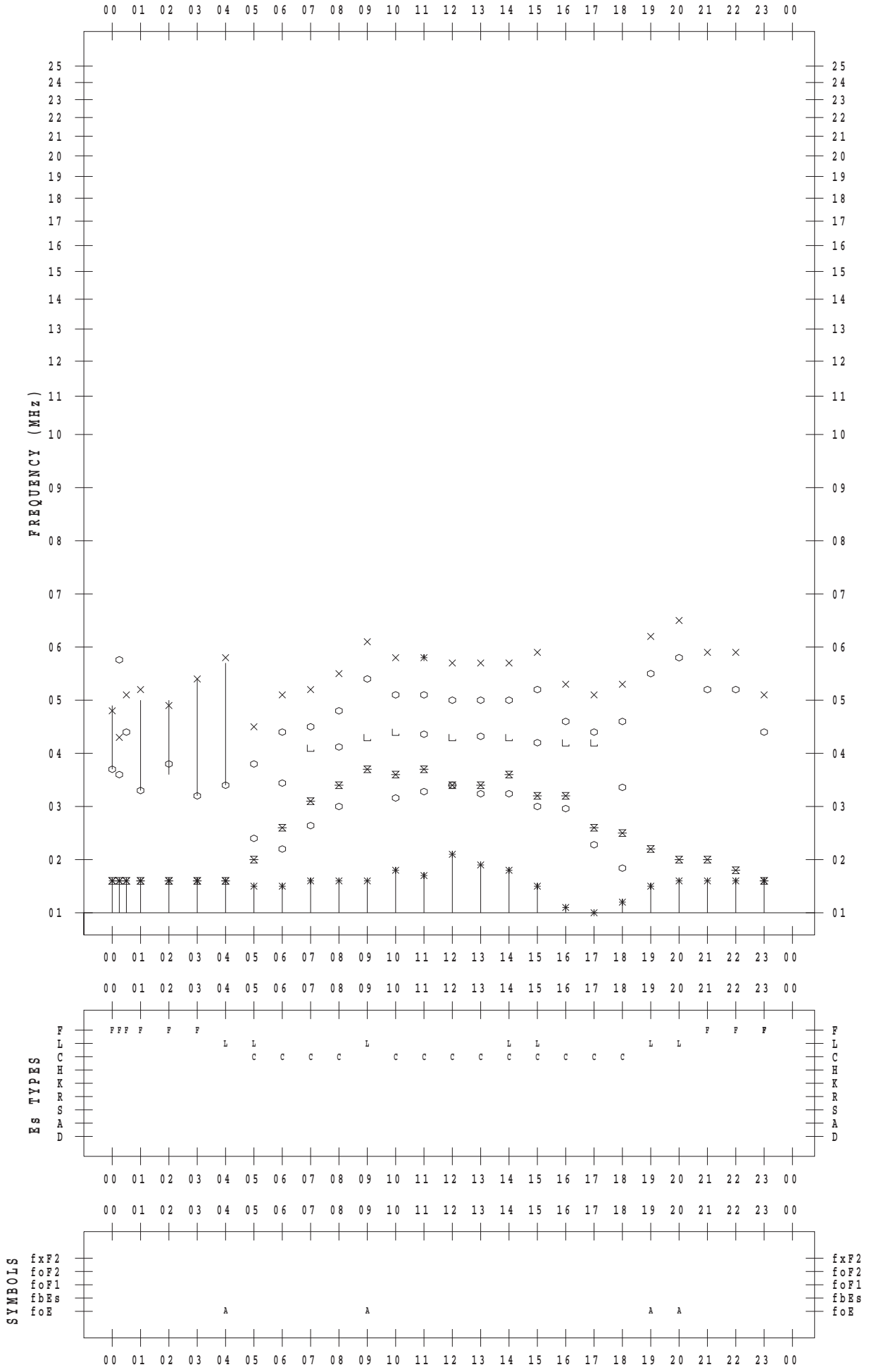
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/ 9

135 °E MEAN TIME



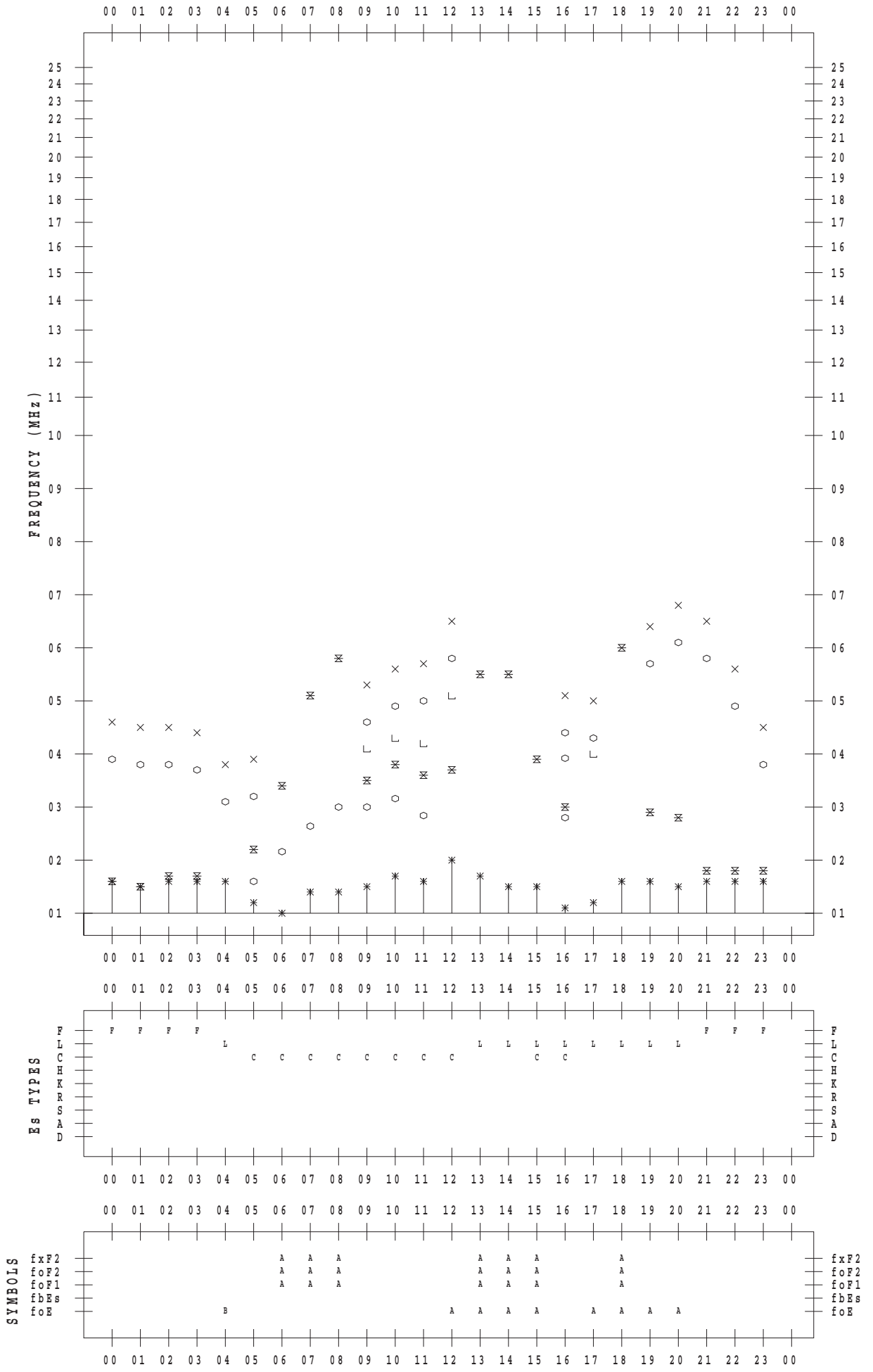
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/10

135 °E MEAN TIME



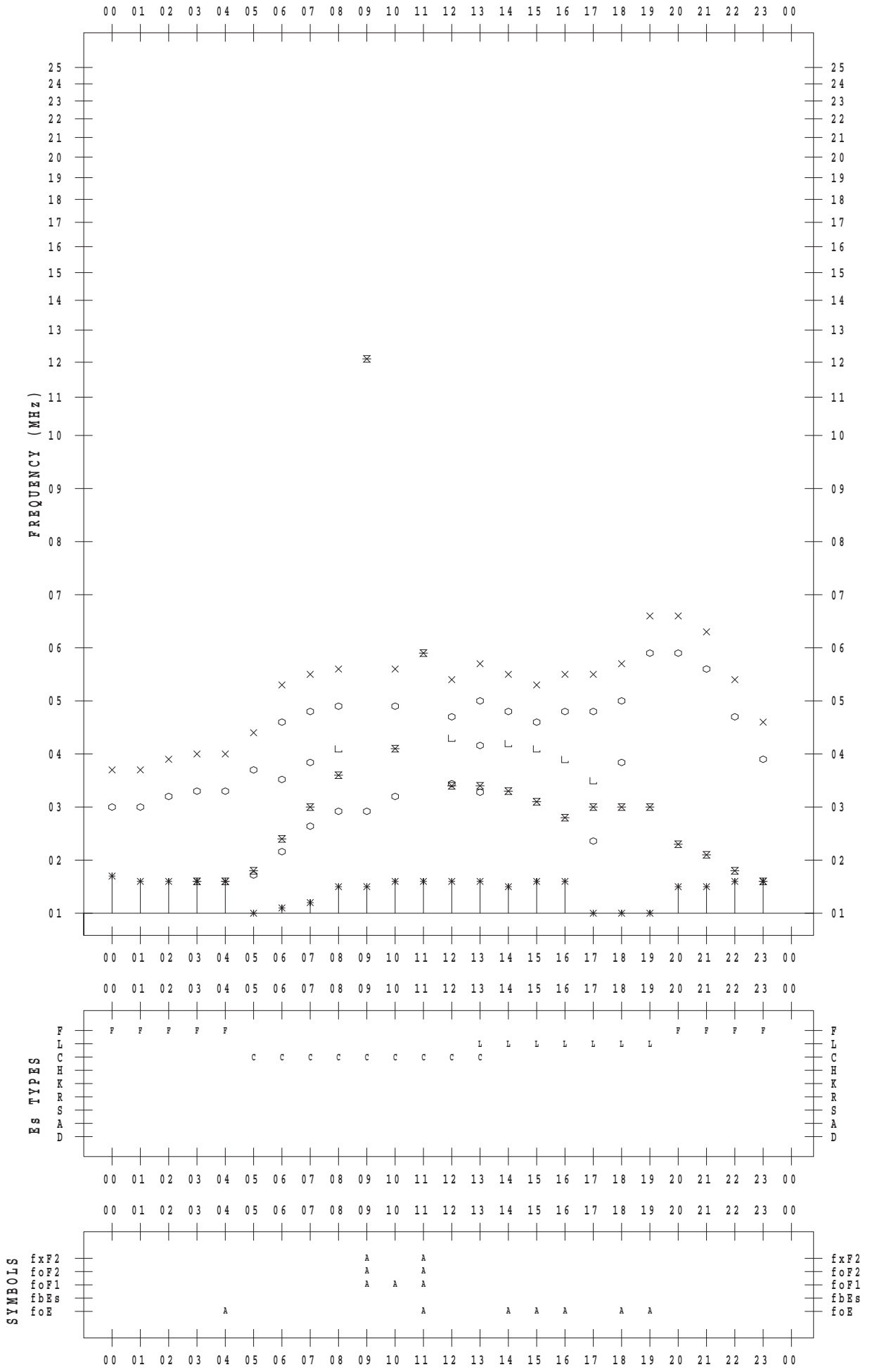
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/11

135 °E MEAN TIME



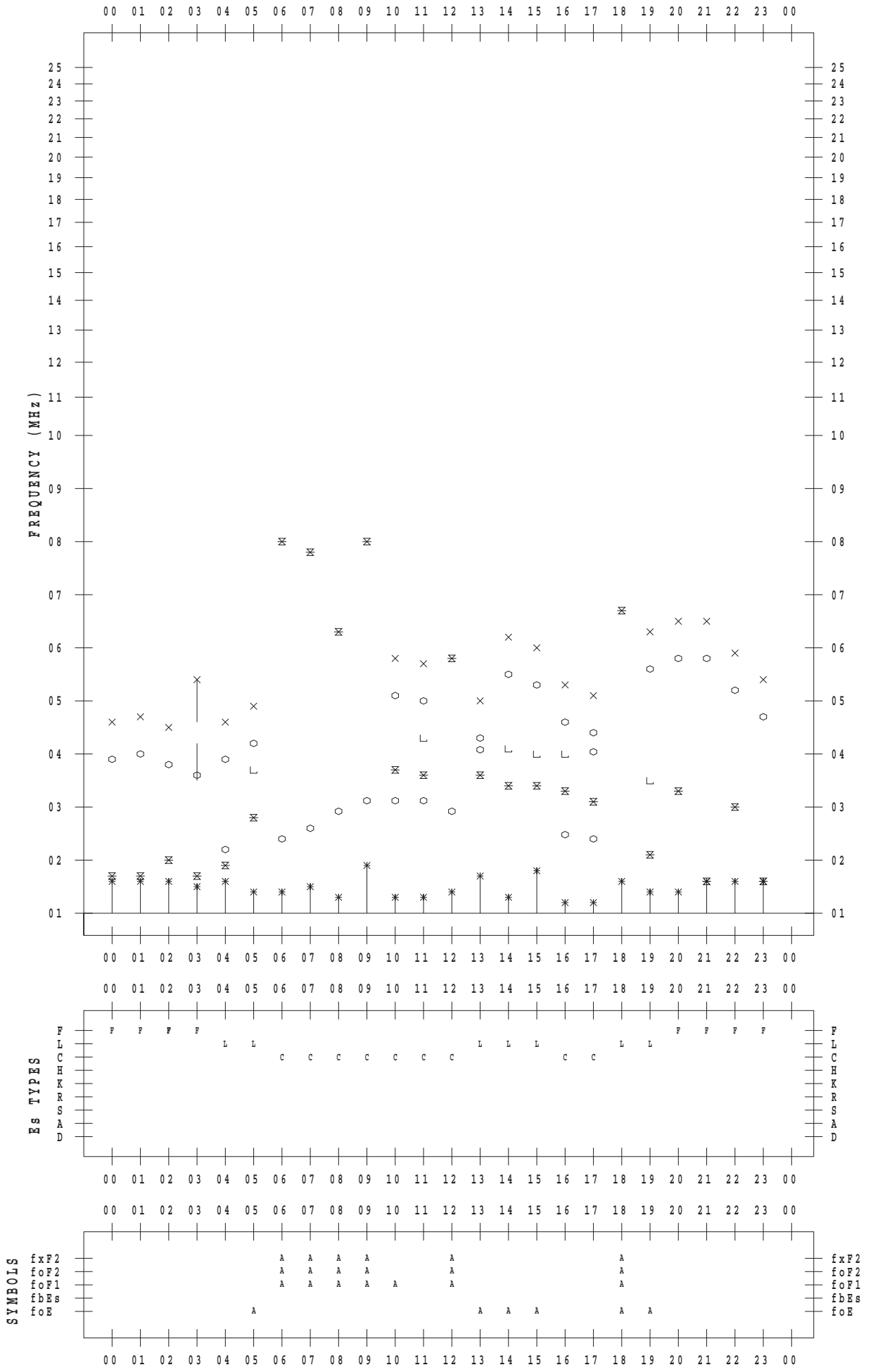
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/12

135 °E MEAN TIME



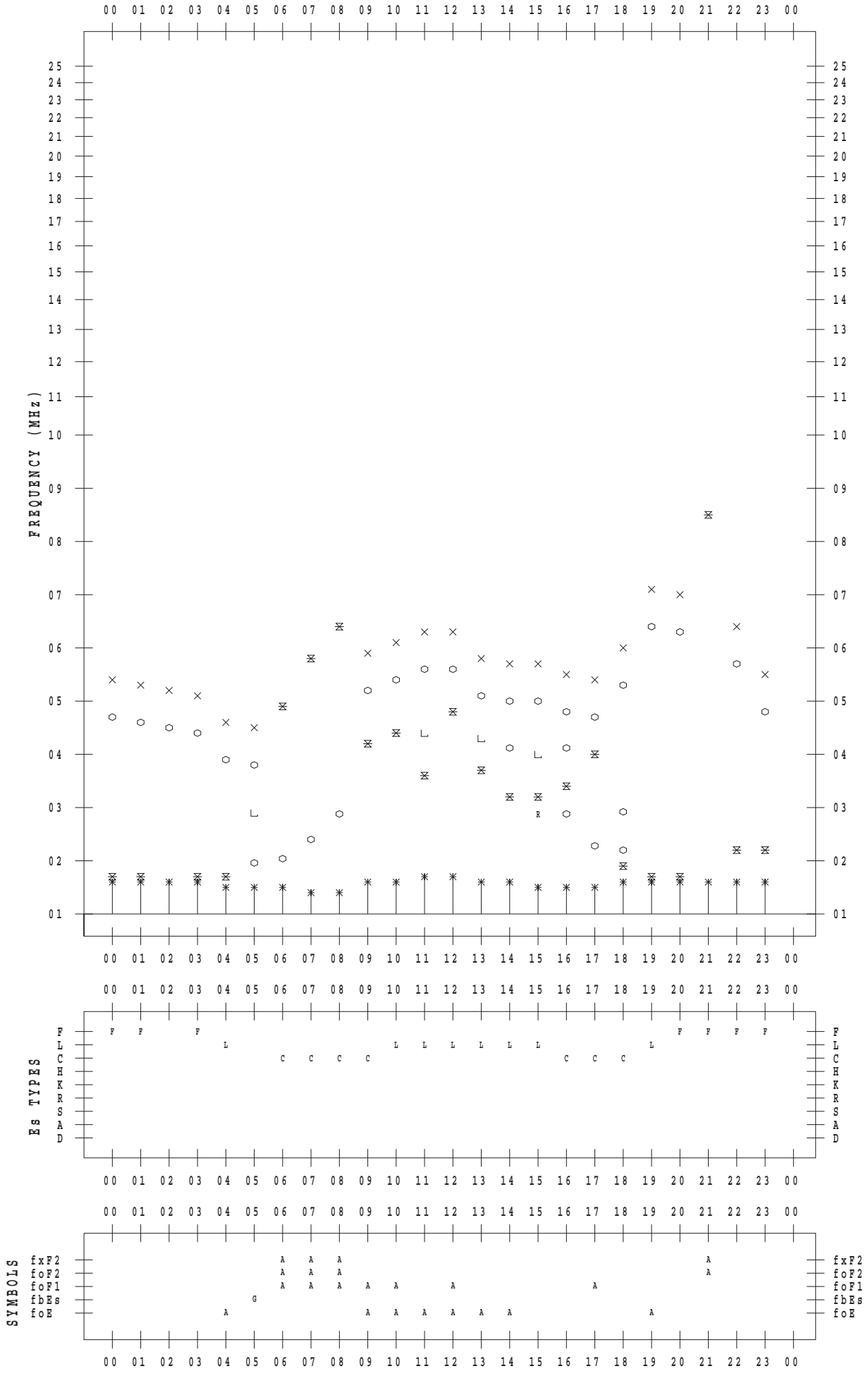
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/13

135 °E MEAN TIME



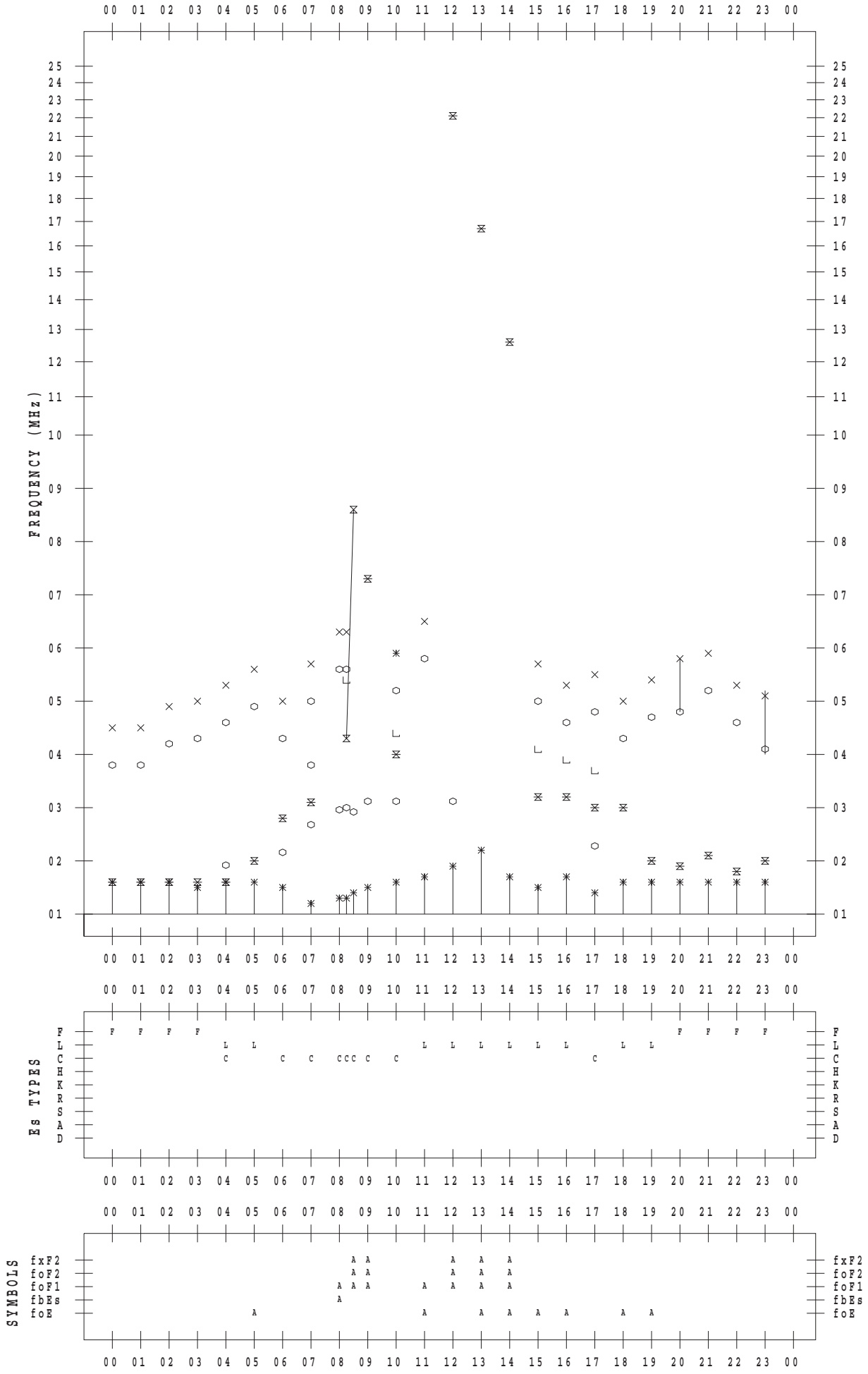
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/14

135 °E MEAN TIME



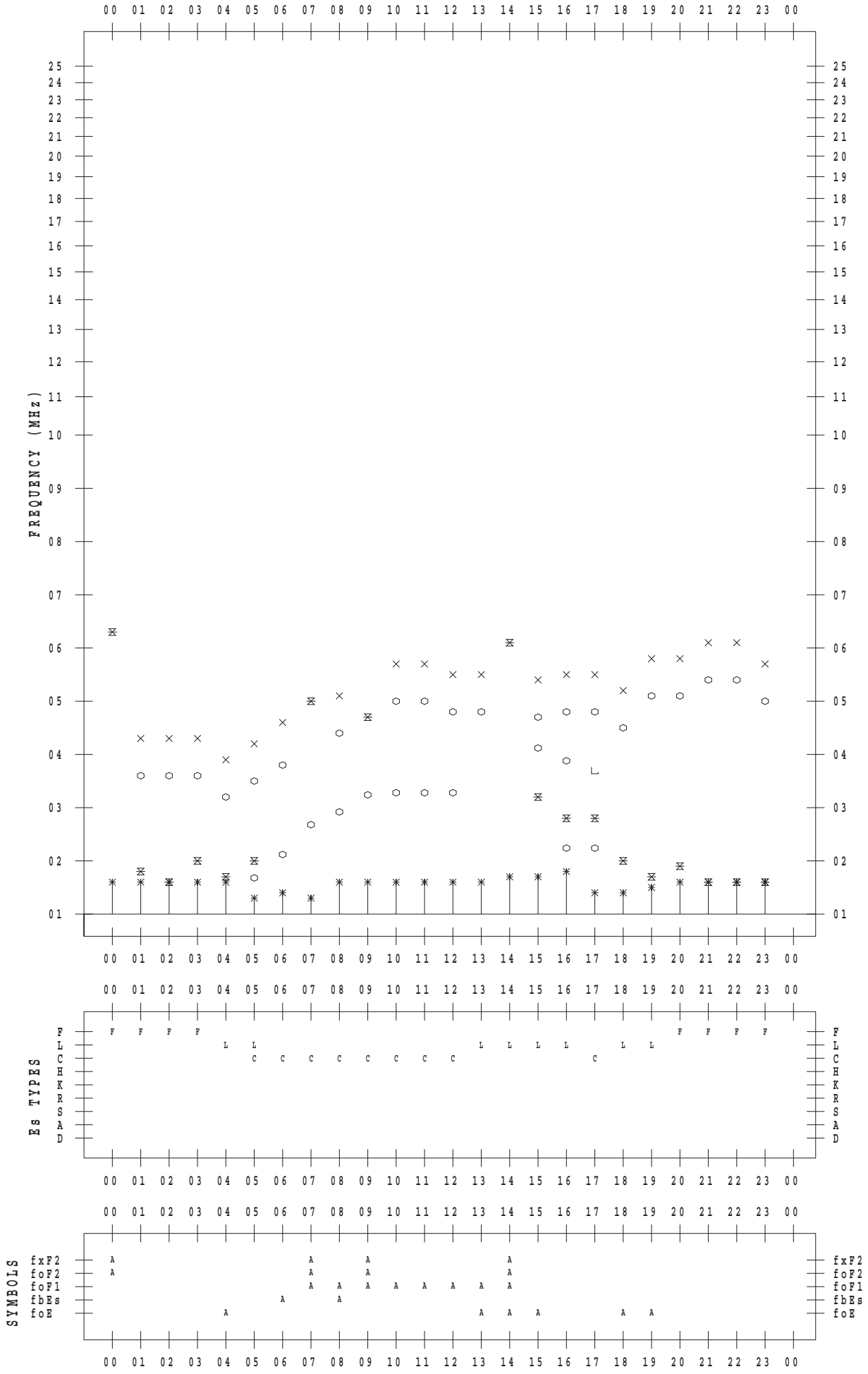
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/15

135 °E MEAN TIME



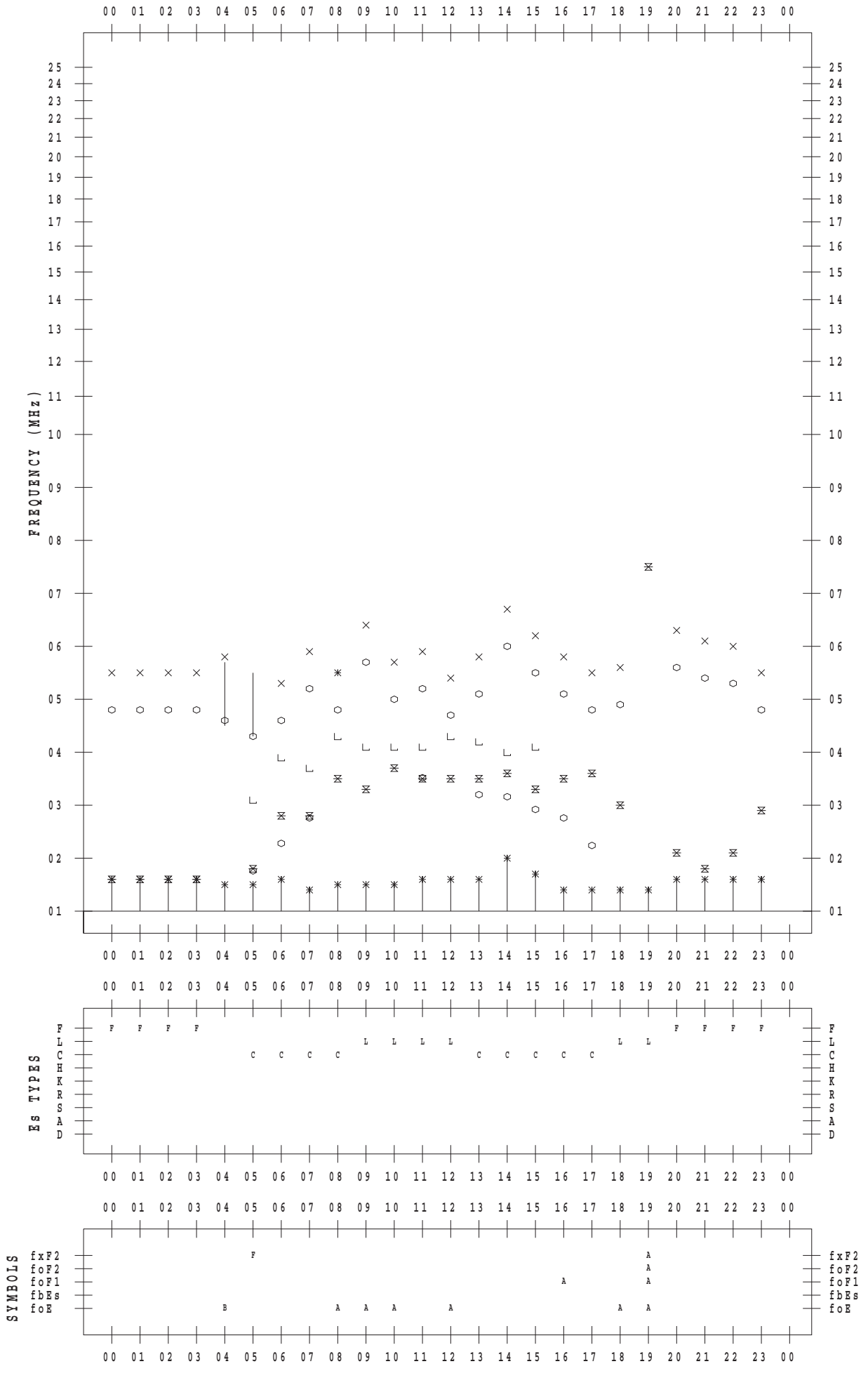
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/16

135 °E MEAN TIME



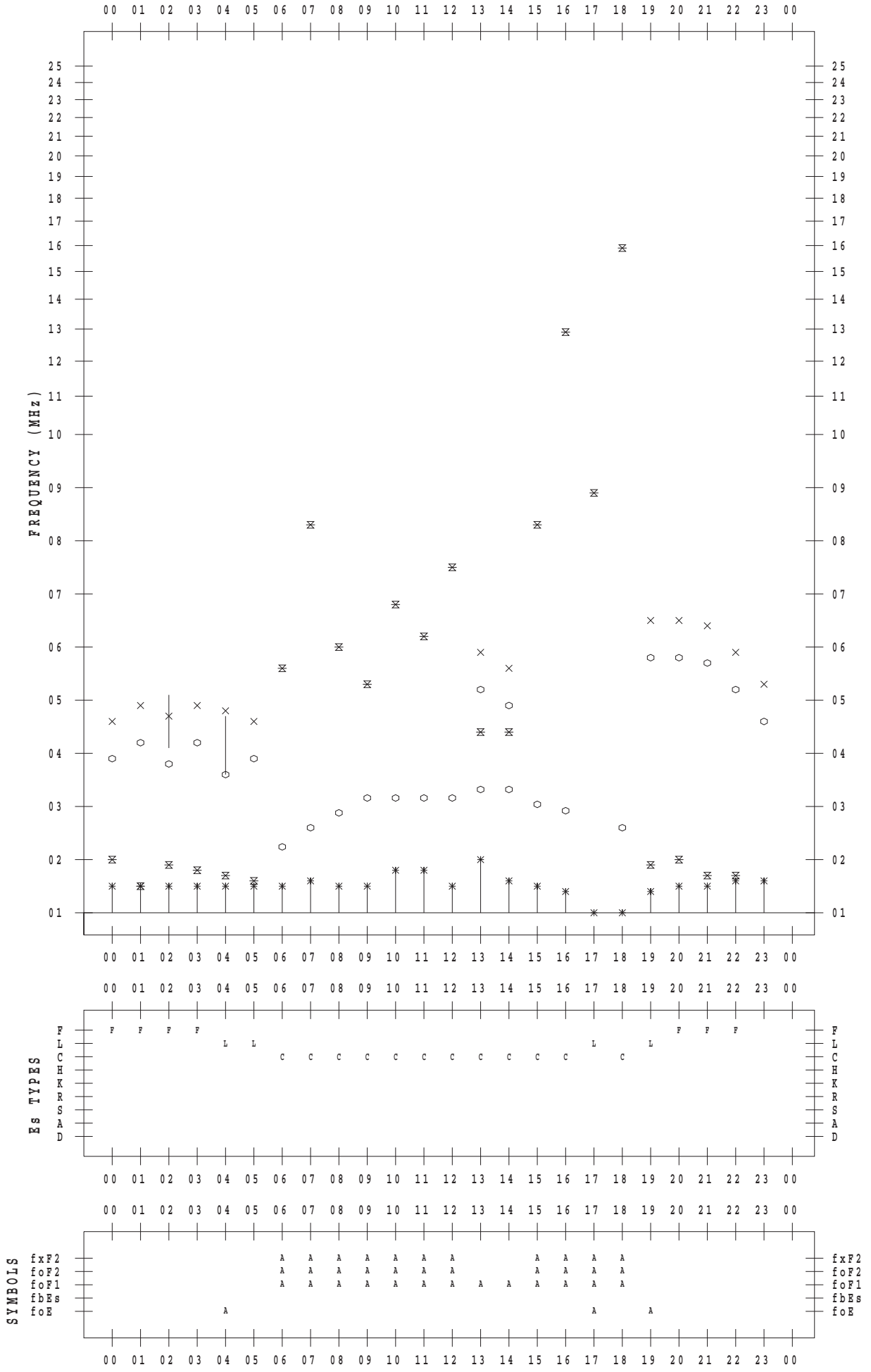
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/17

135 °E MEAN TIME



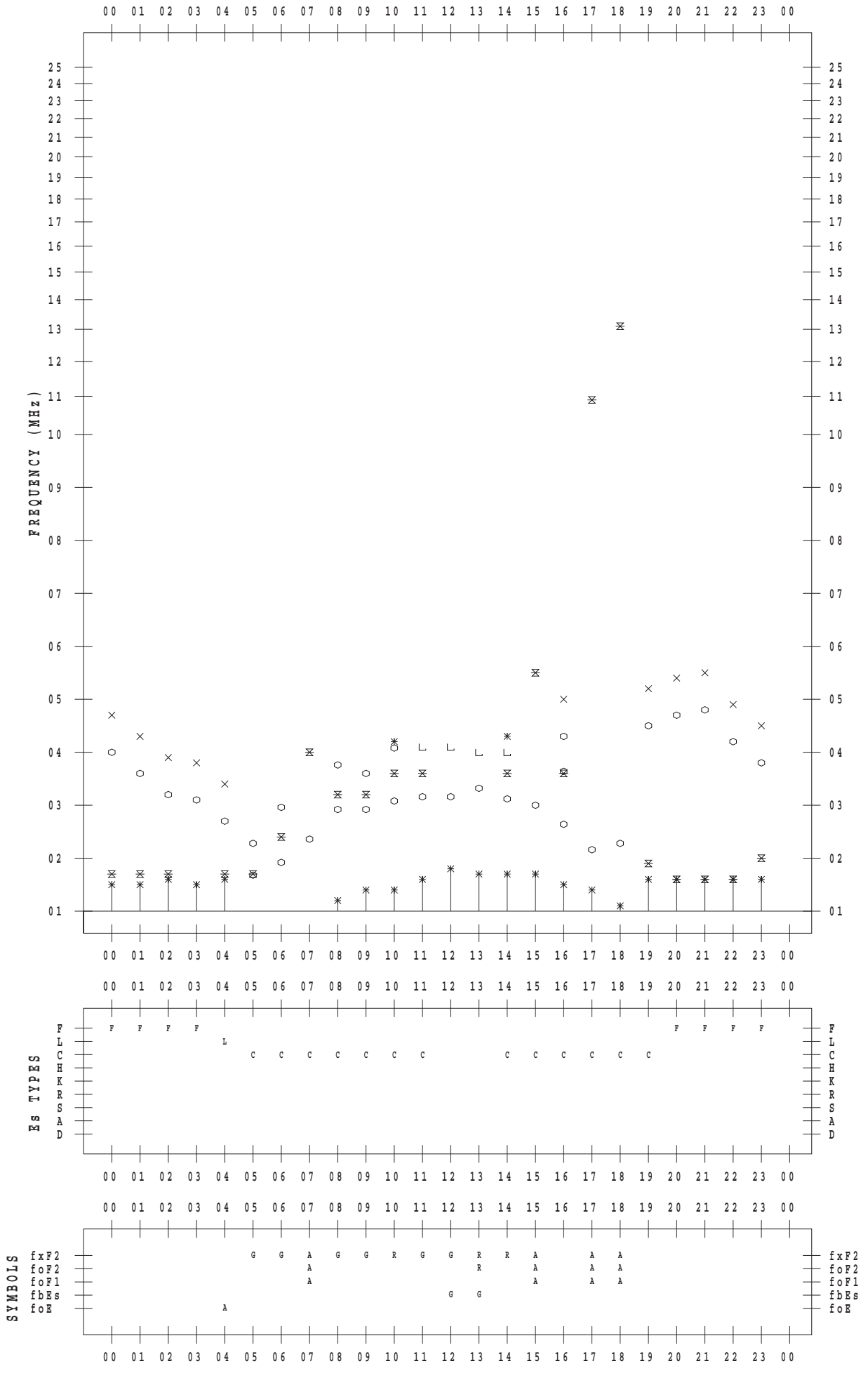
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/18

135 °E MEAN TIME



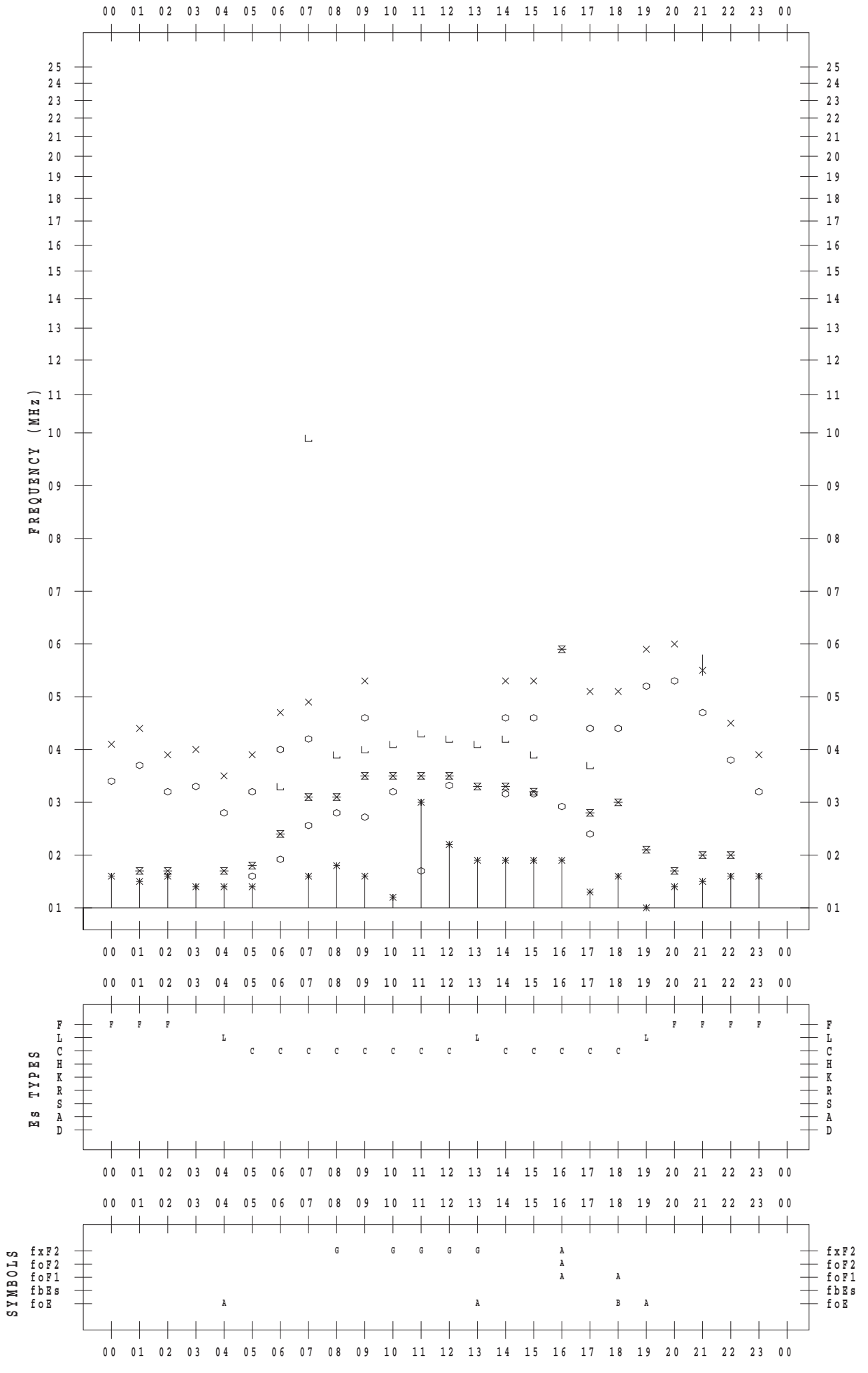
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/19

135 °E MEAN TIME



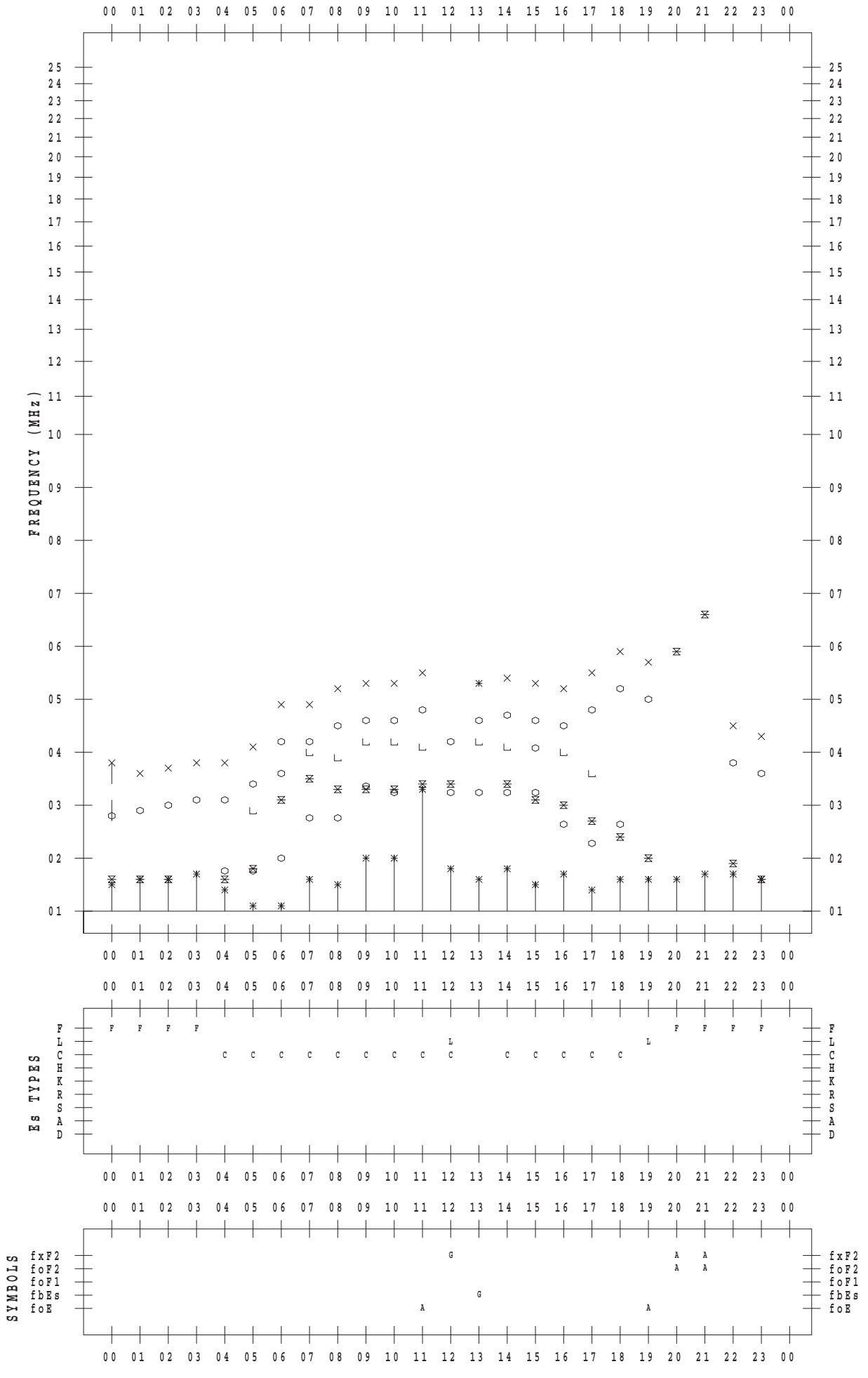
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/20

135 °E MEAN TIME



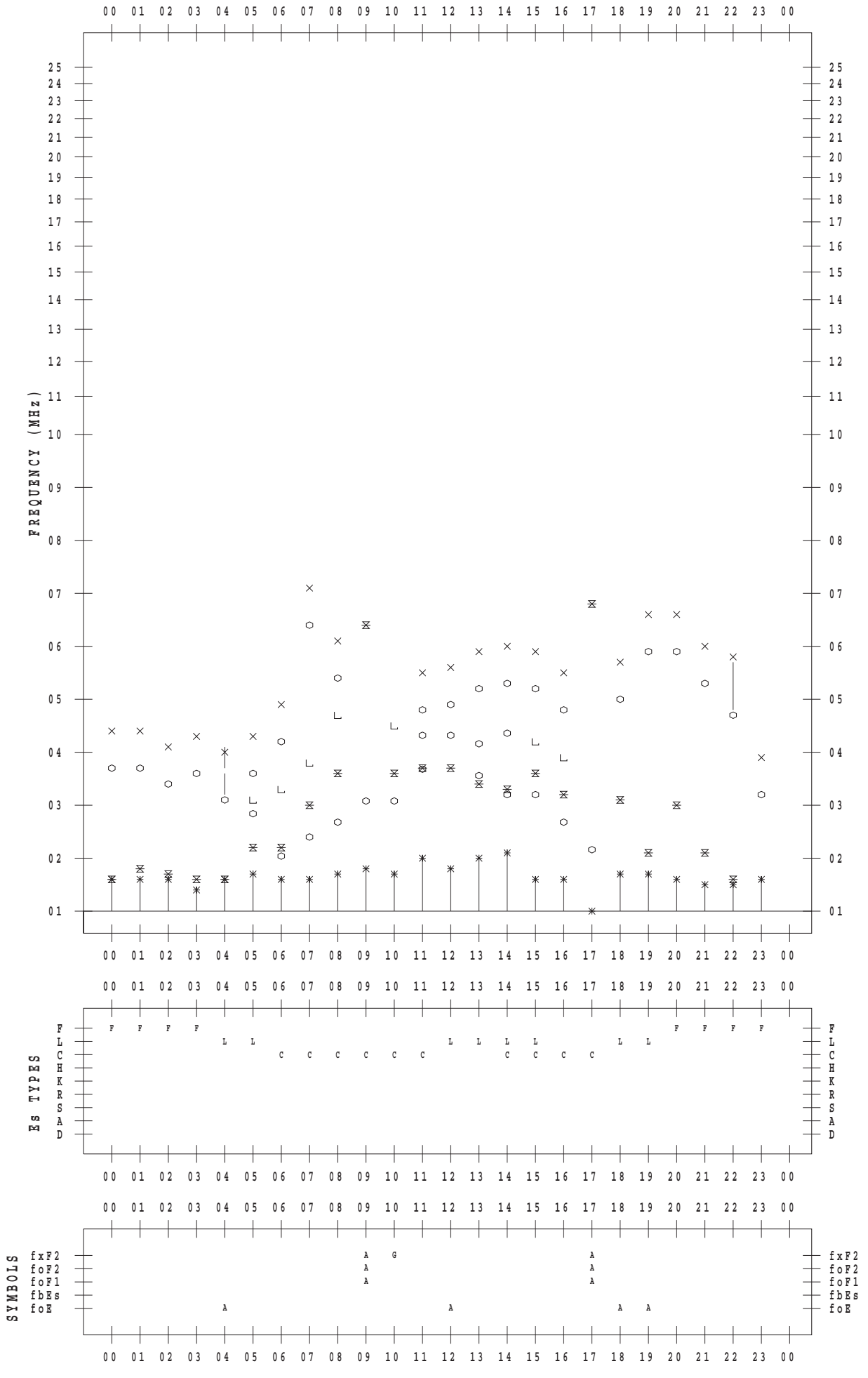
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/21

135 °E MEAN TIME



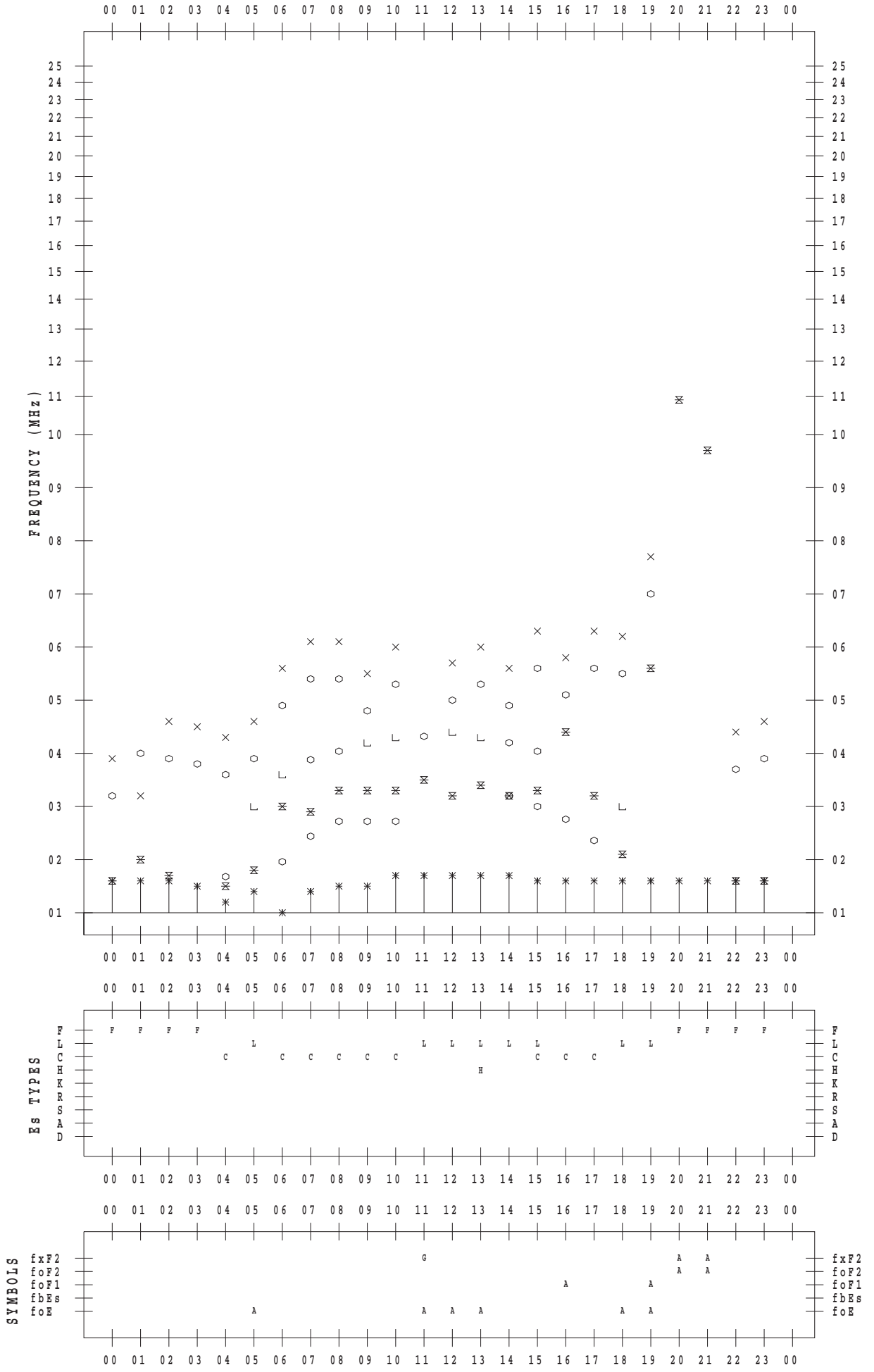
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/22

135 °E MEAN TIME



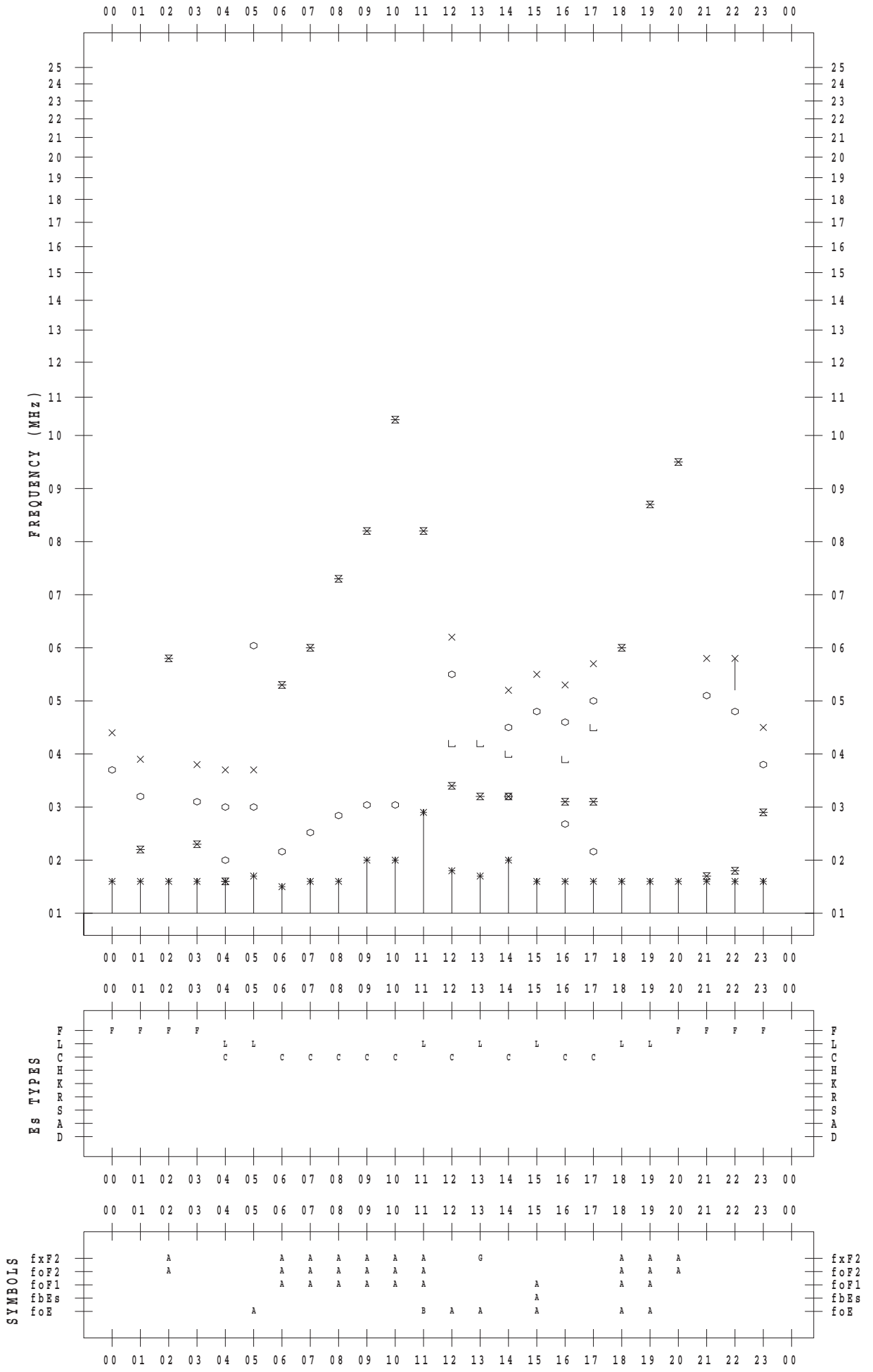
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/23

135 °E MEAN TIME



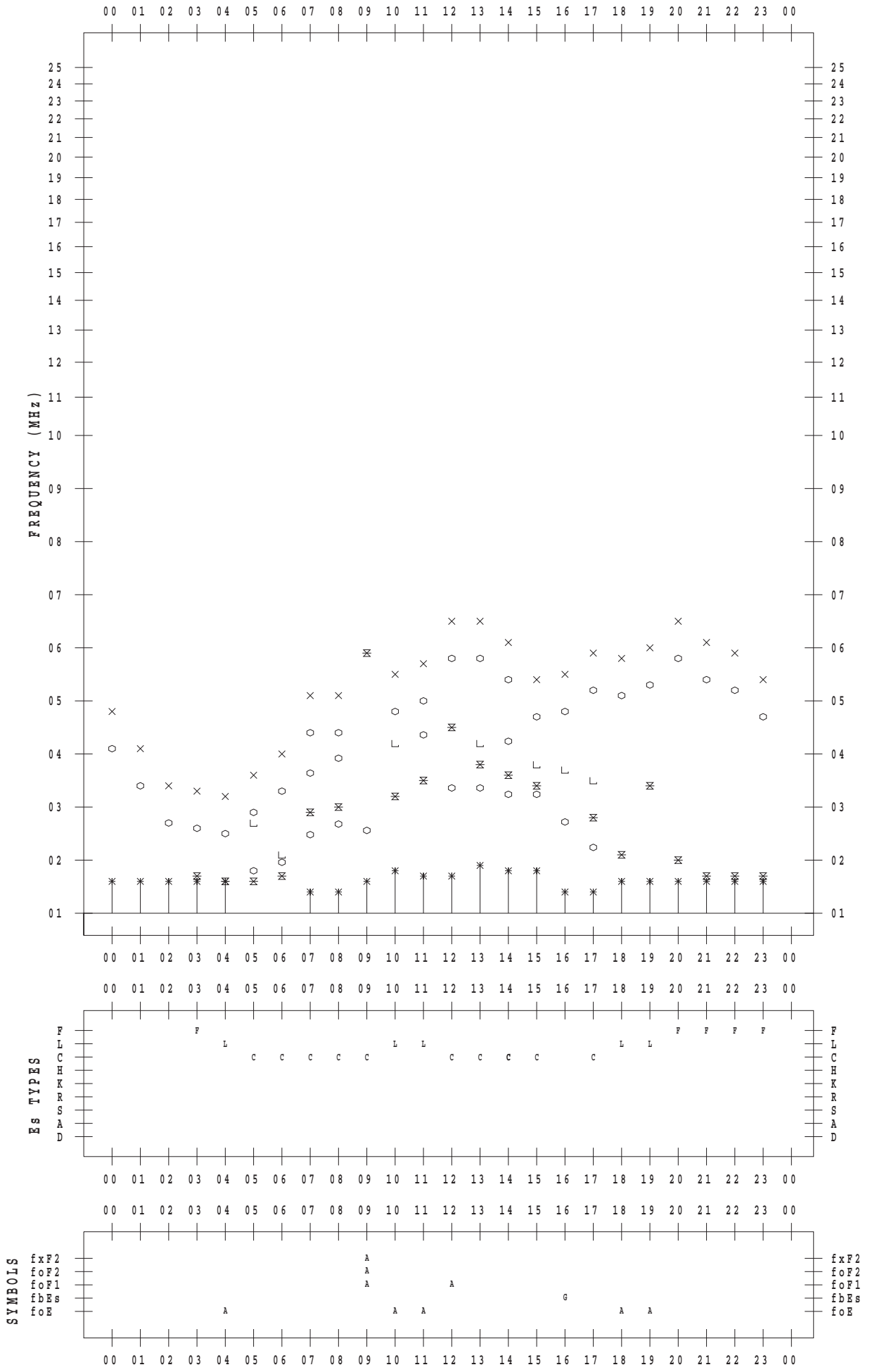
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/24

135 °E MEAN TIME



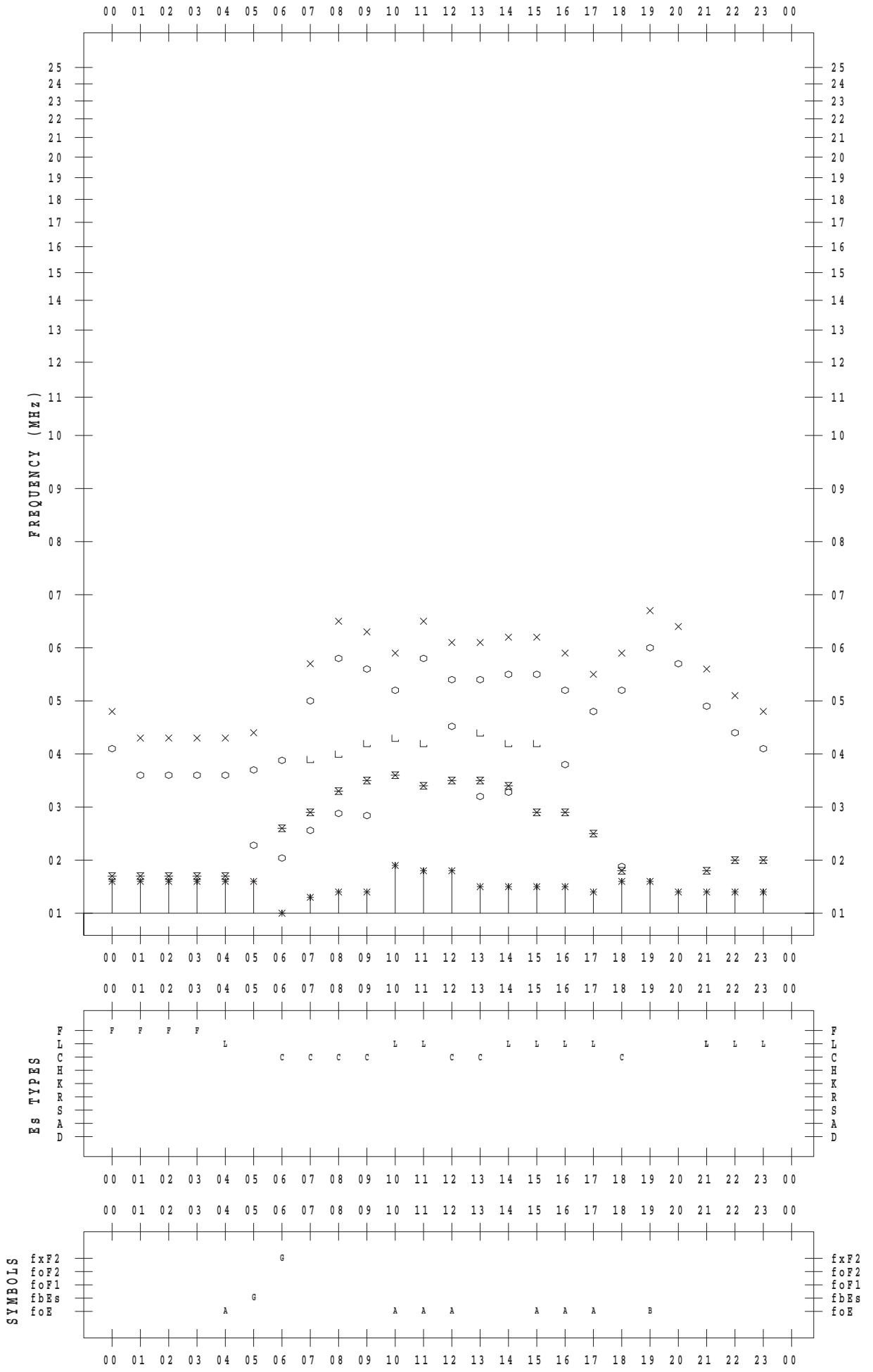
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/25

135 °E MEAN TIME



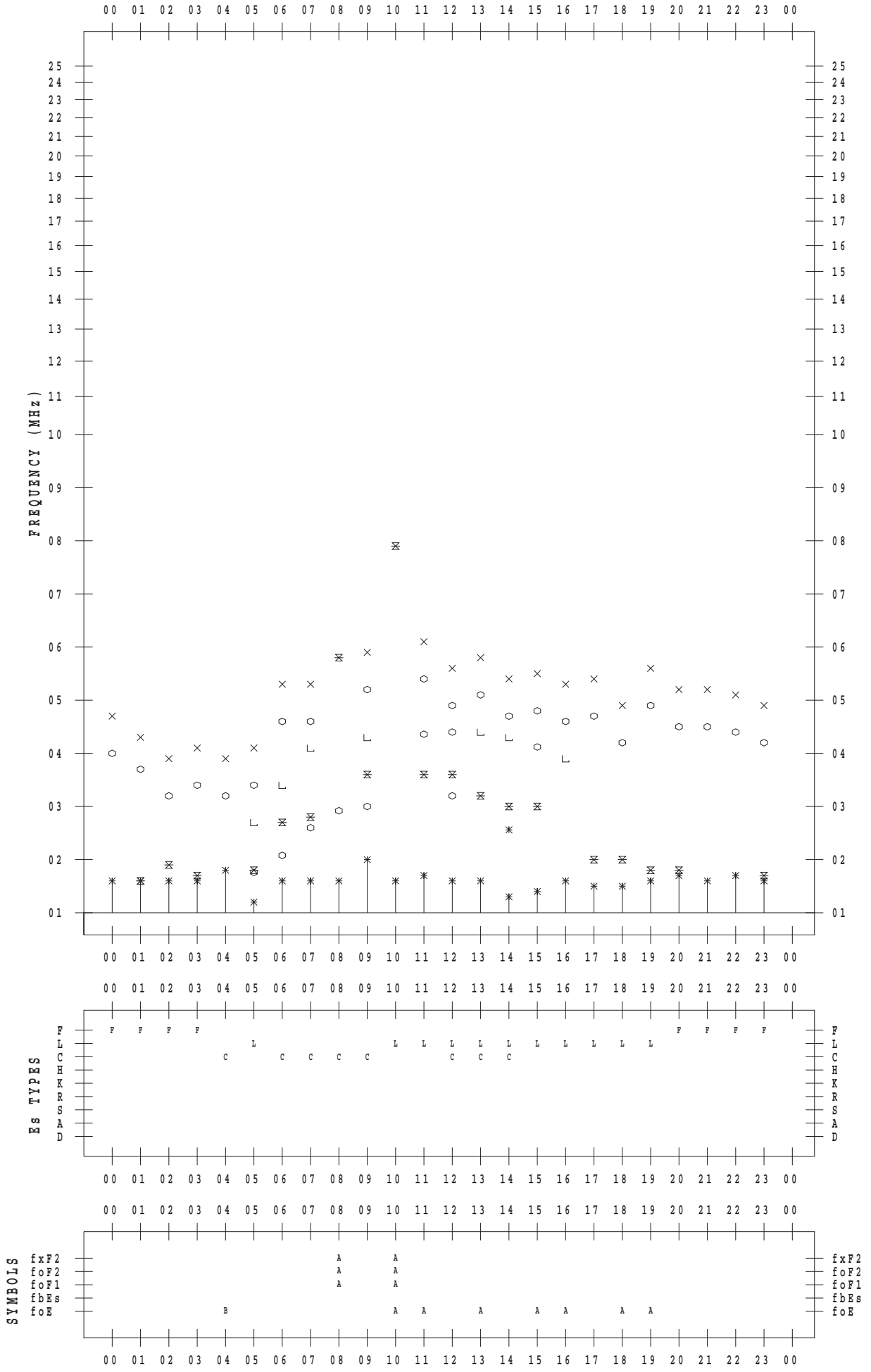
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/26

135 °E MEAN TIME



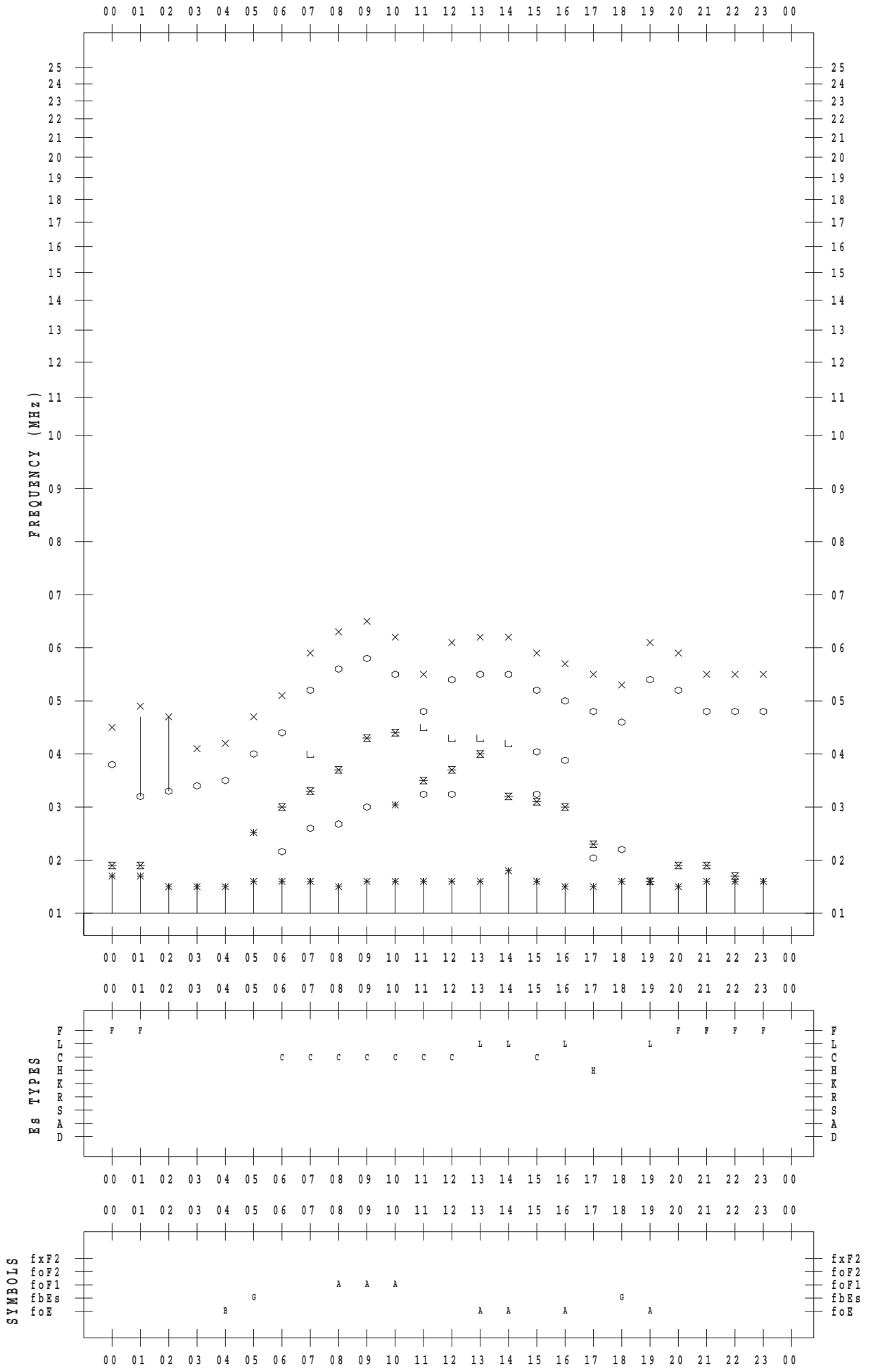
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/27

135 °E MEAN TIME



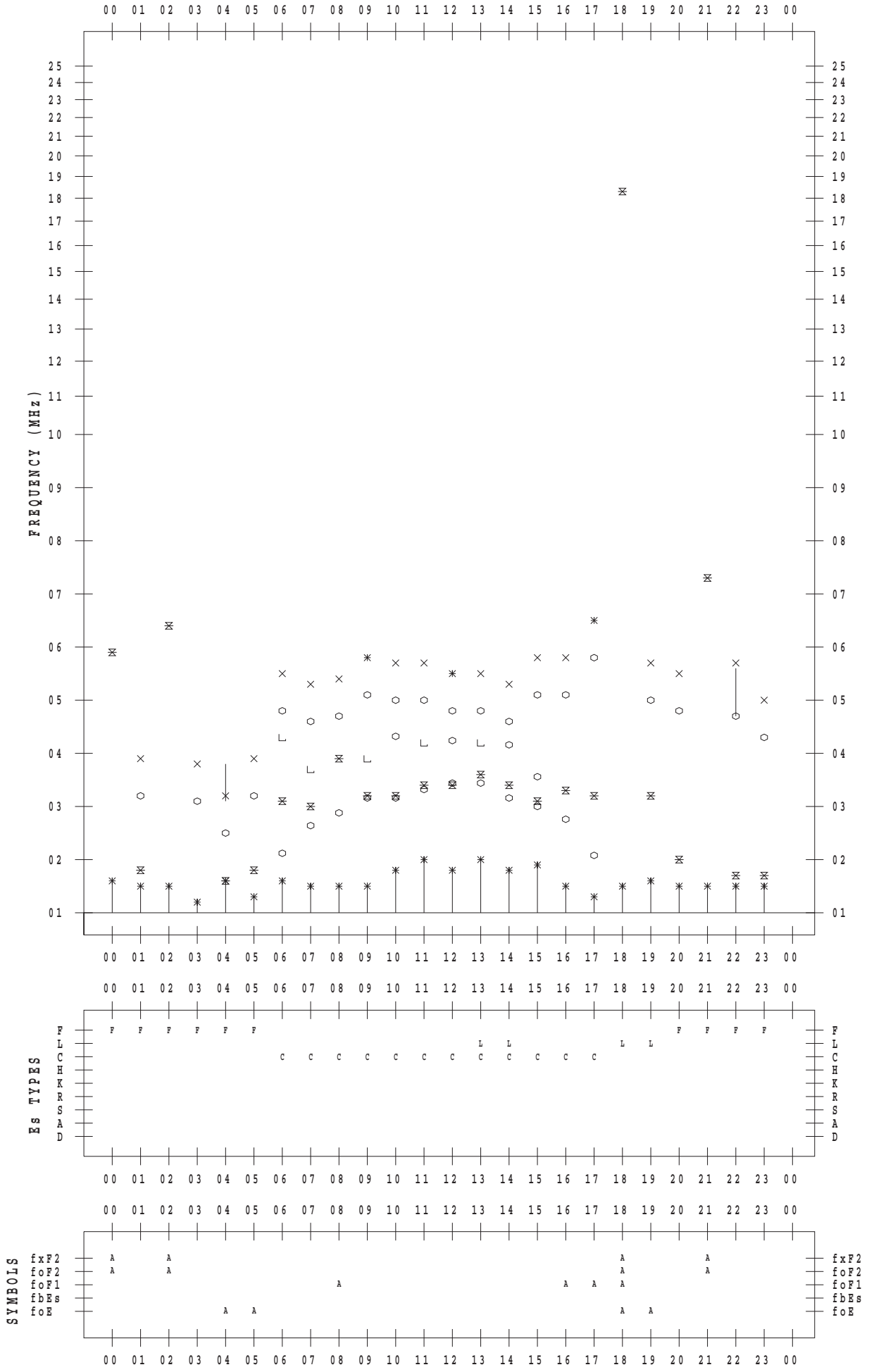
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/28

135 °E MEAN TIME



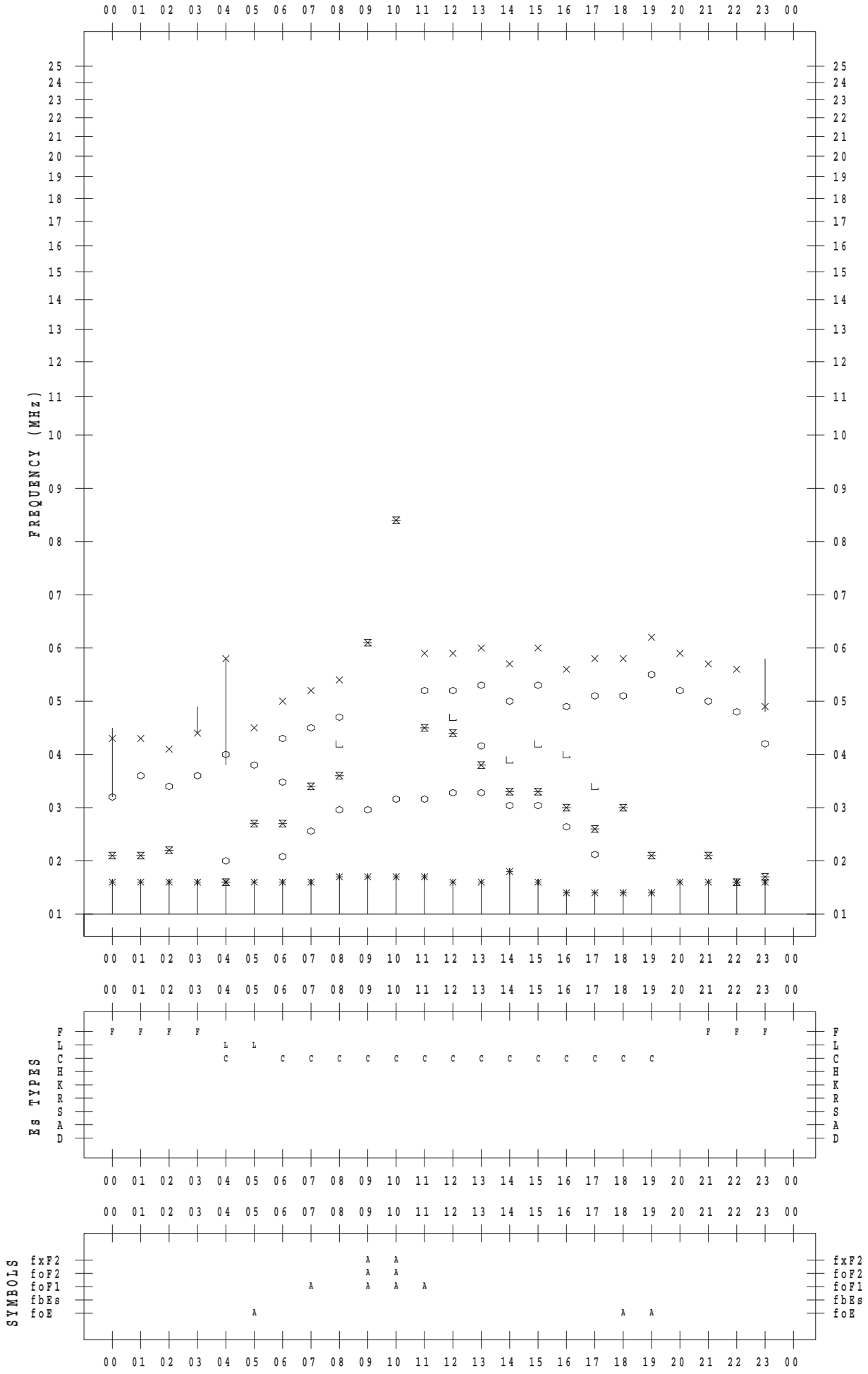
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/29

135 °E MEAN TIME



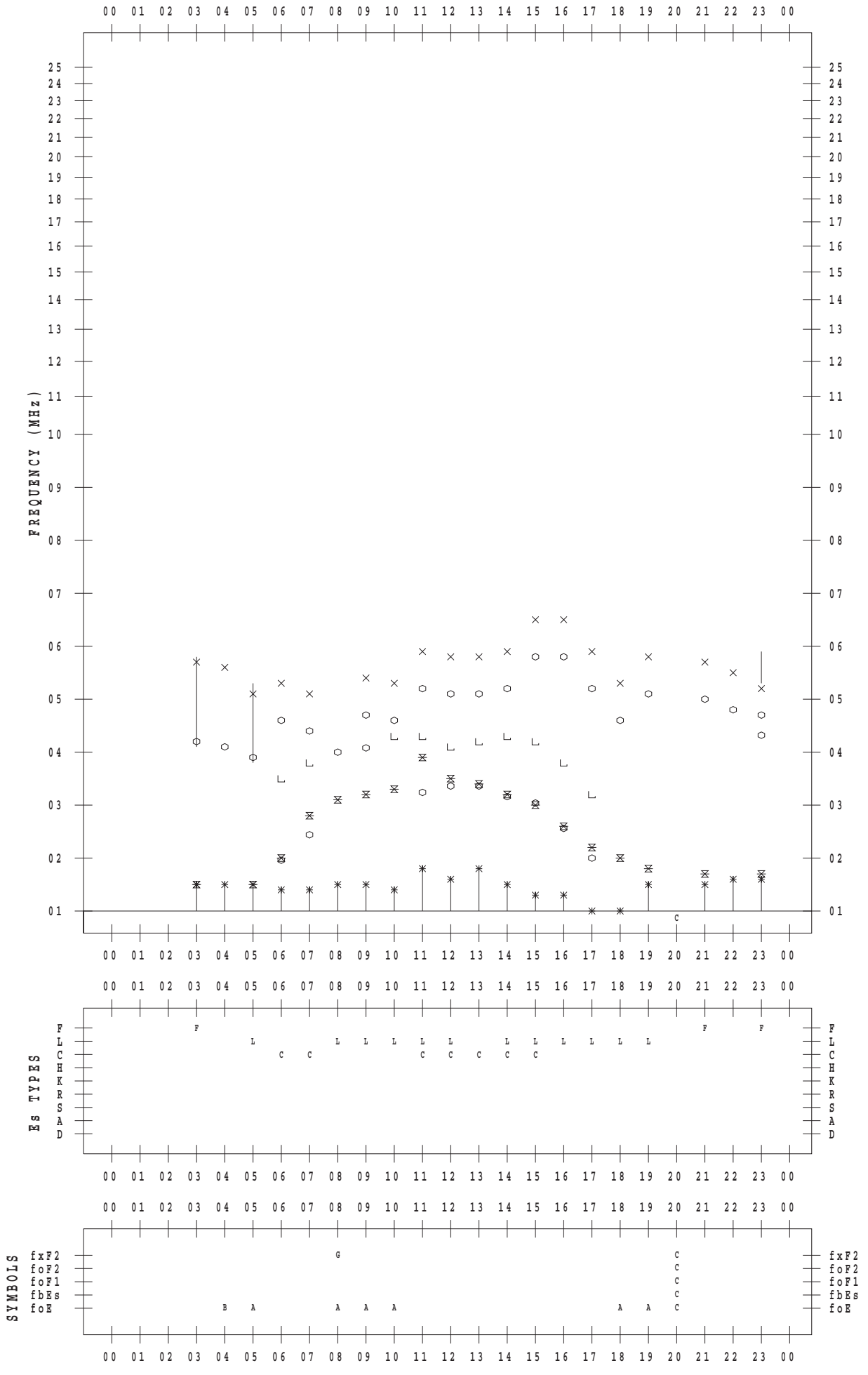
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/30

135 °E MEAN TIME



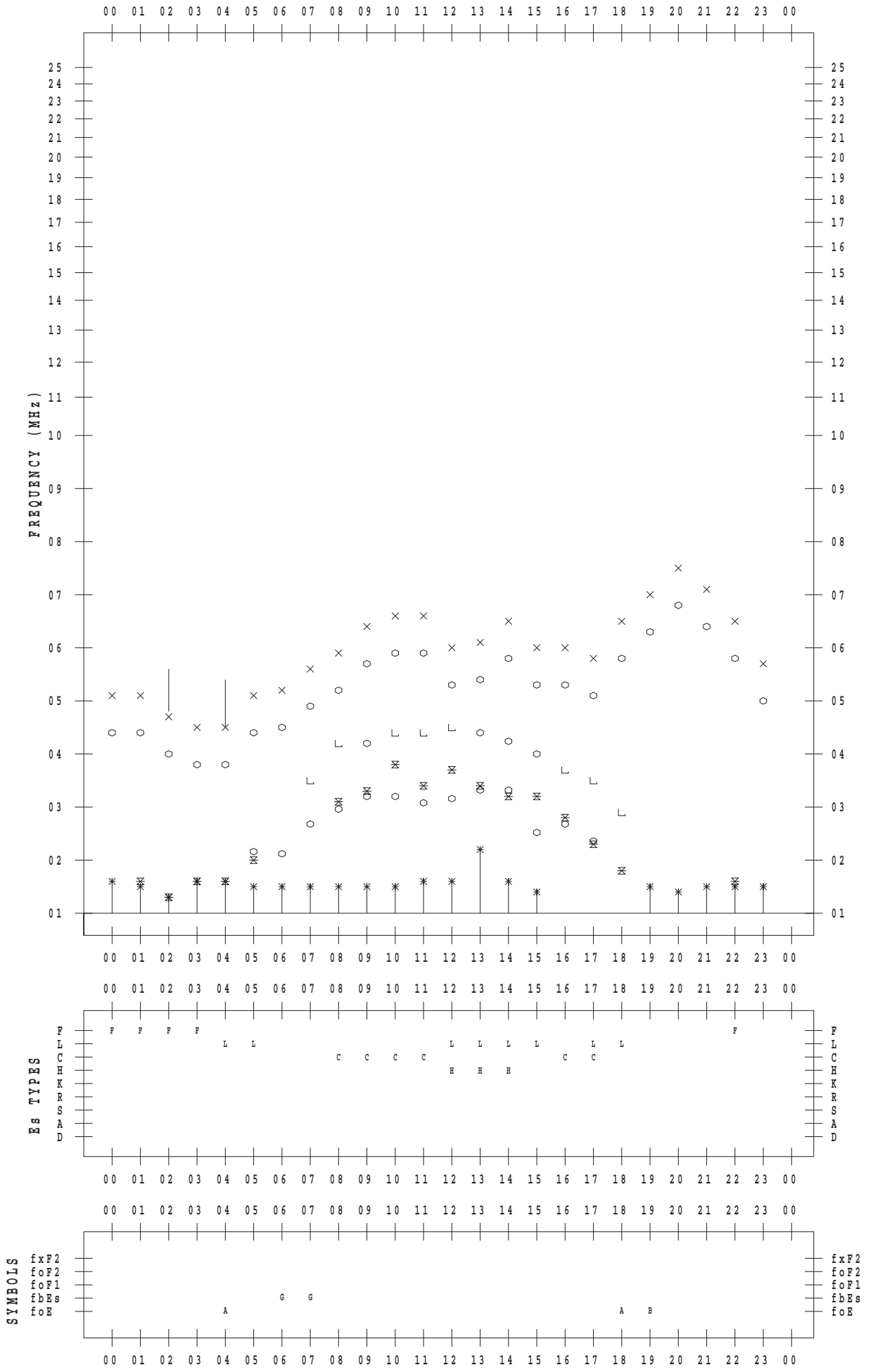
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 8/31

135 °E MEAN TIME



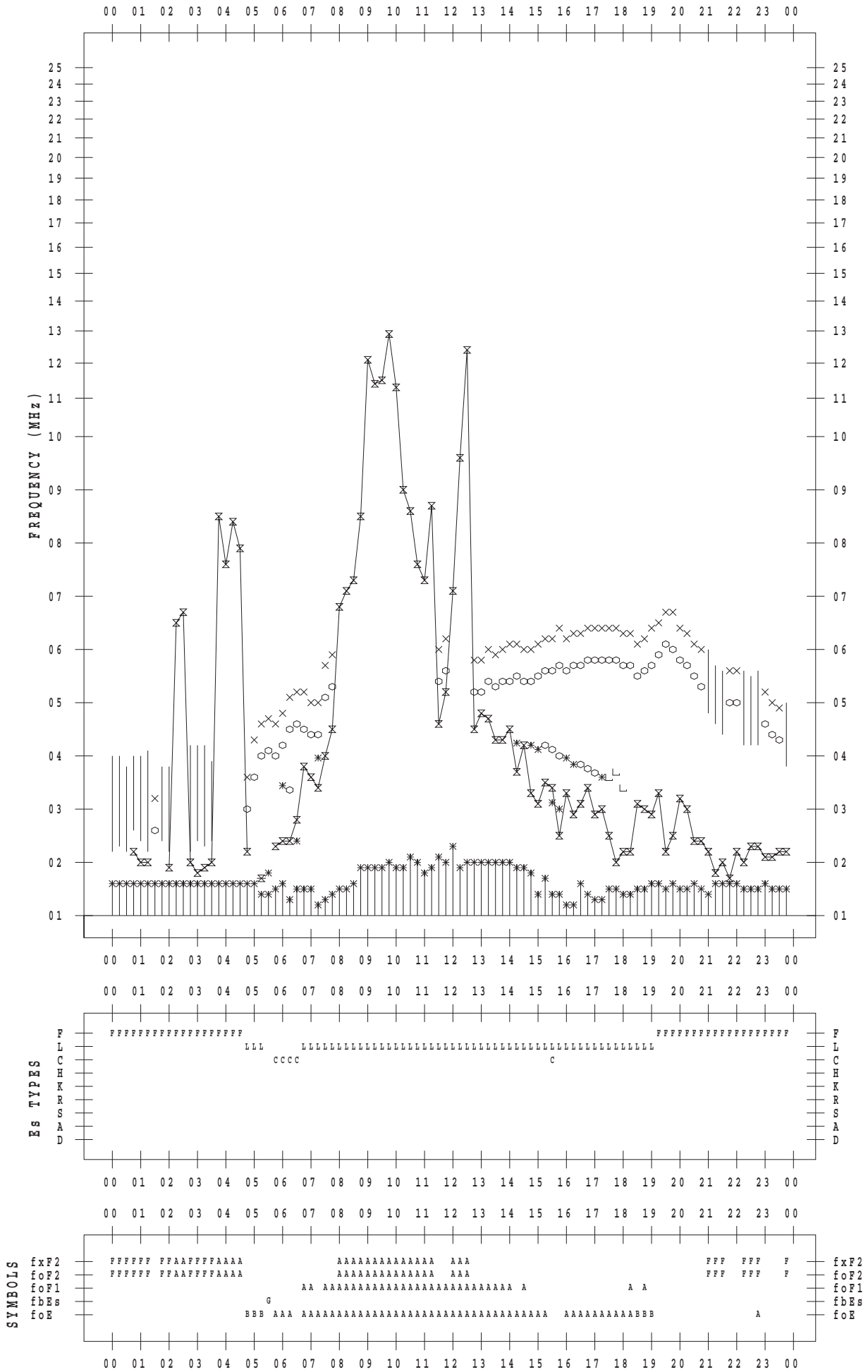
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/ 1

135 °E MEAN TIME



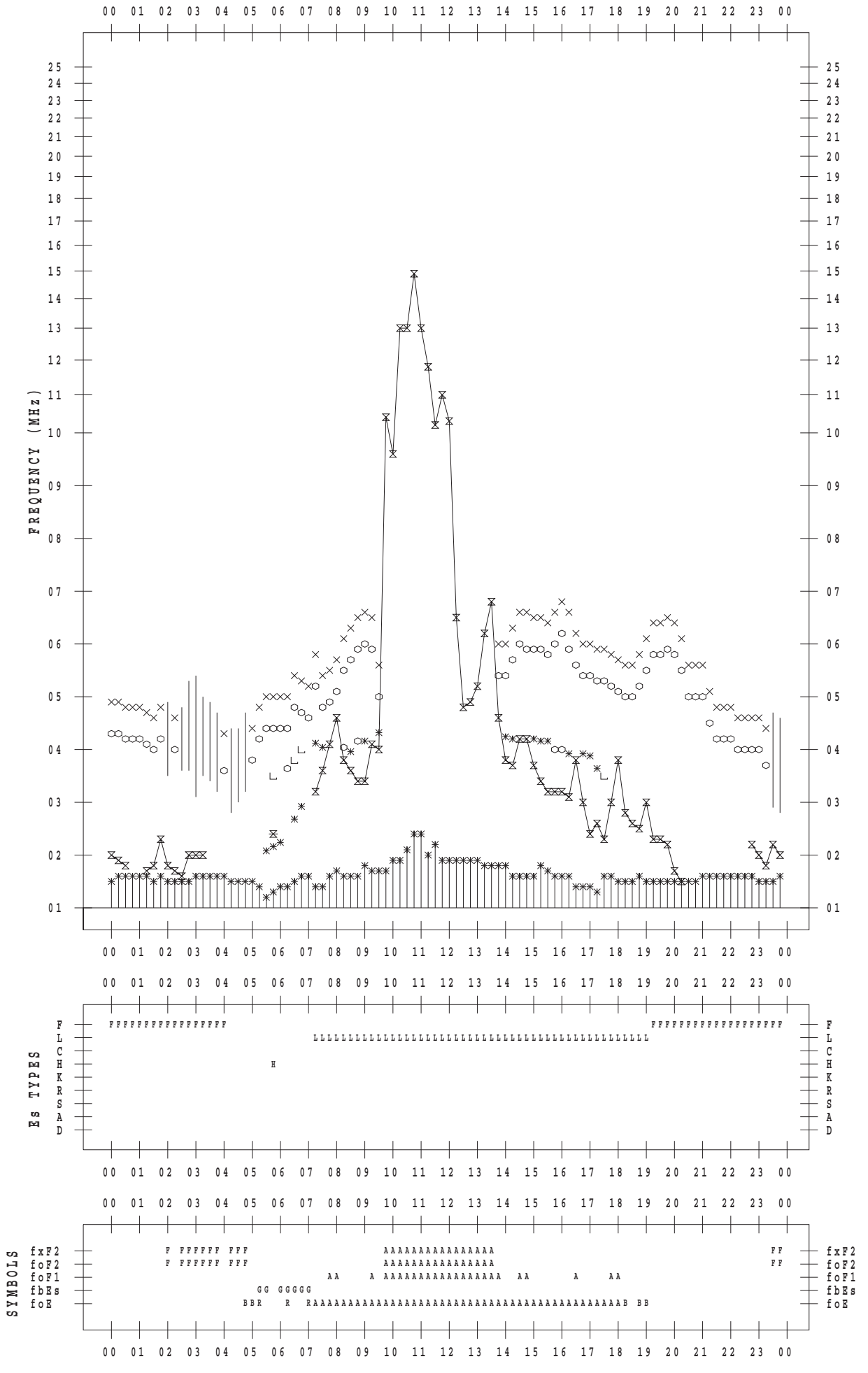
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/ 2

135 °E MEAN TIME



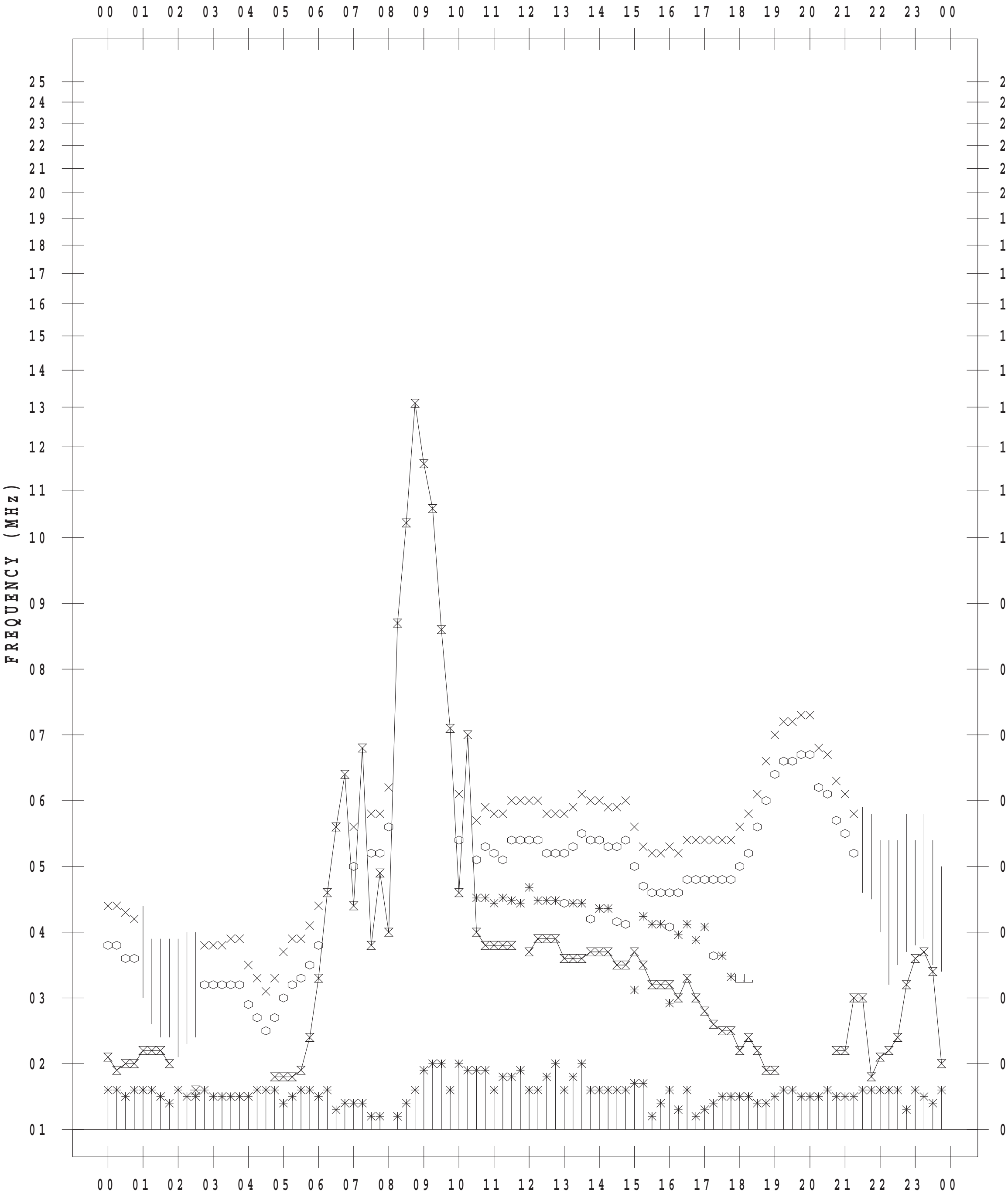
f-PLOT DATA

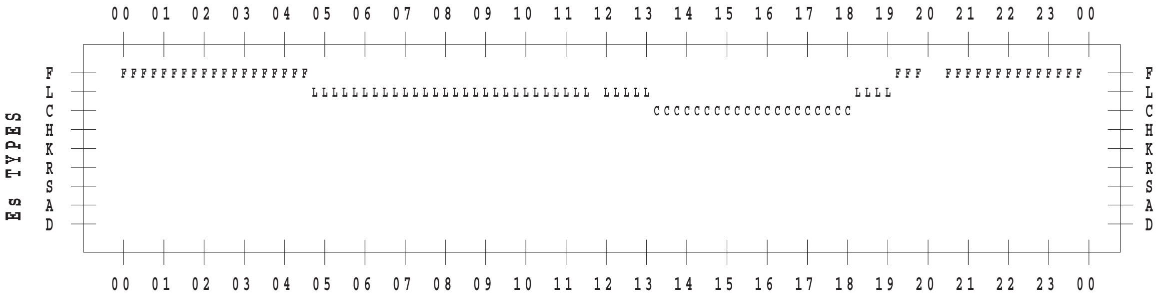
SCALER : I.NISHIMUTA

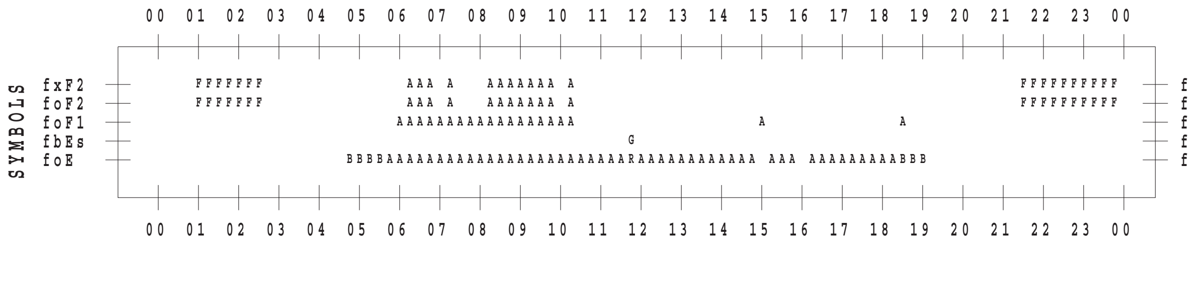
STATION : Kokubunji

DATE : 2017/ 8/ 3

135 °E MEAN TIME







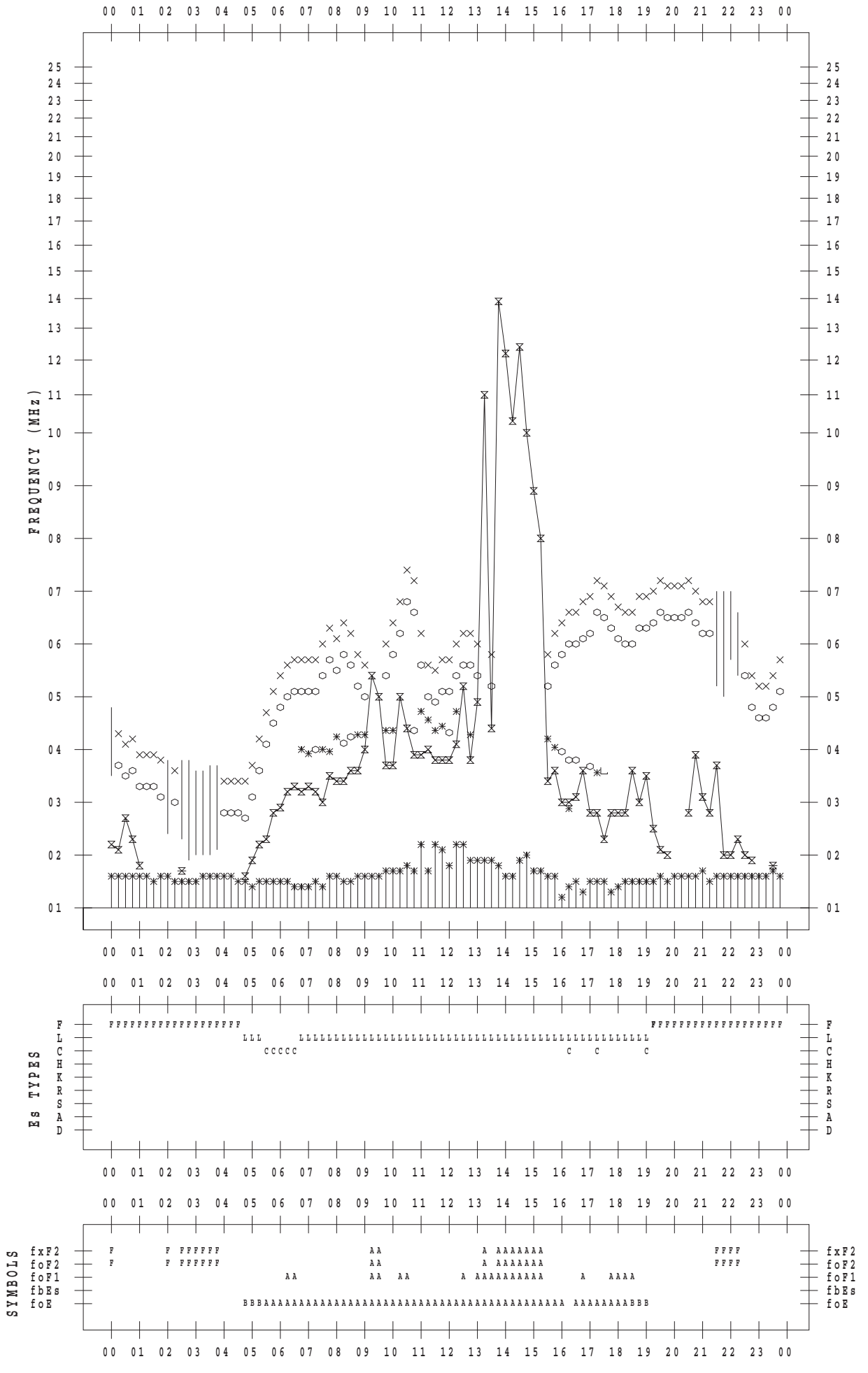
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/ 4

135 °E MEAN TIME



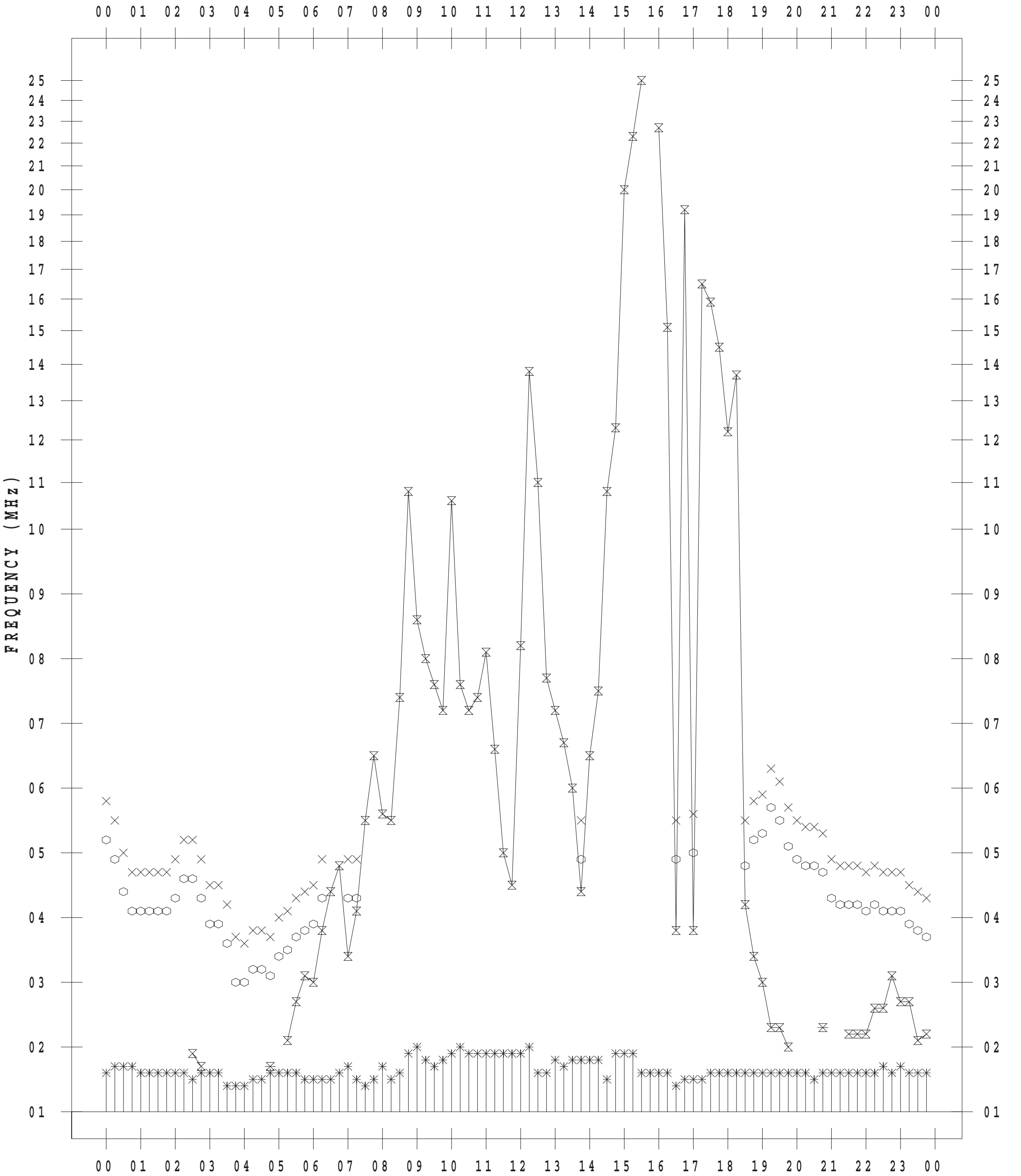
f-PLOT DATA

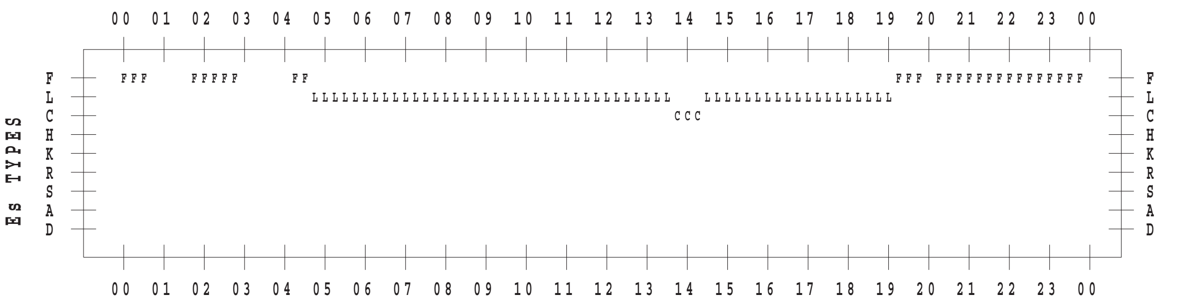
SCALER : I.NISHIMUTA

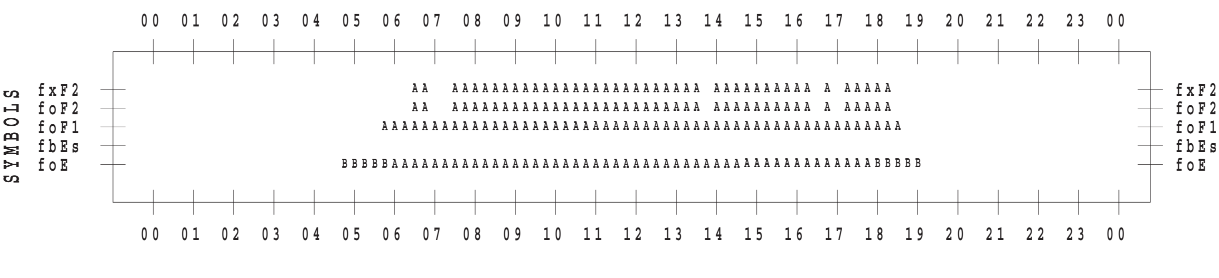
STATION : Kokubunji

DATE : 2017/ 8/ 5

135 °E MEAN TIME







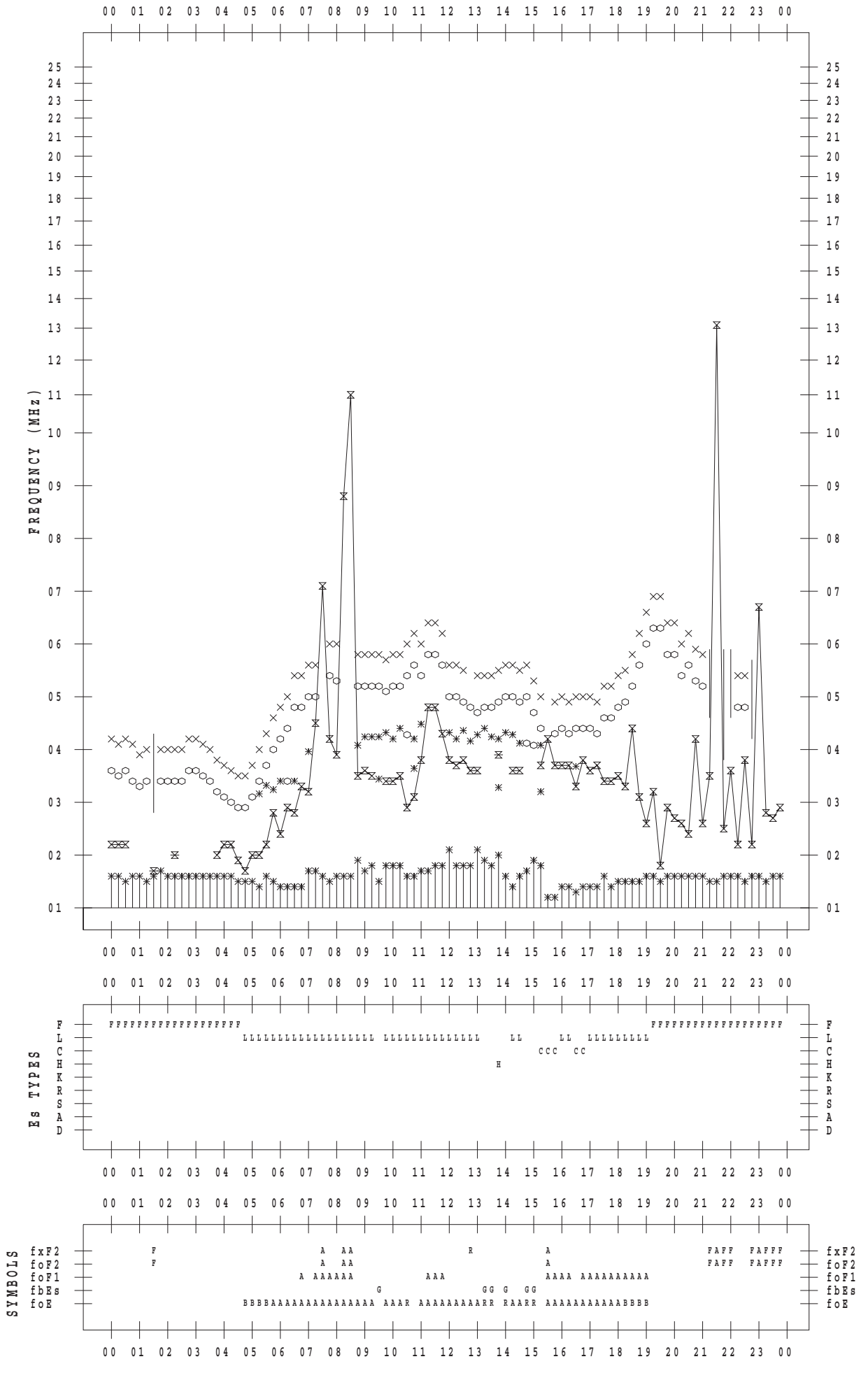
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/ 6

135 °E MEAN TIME



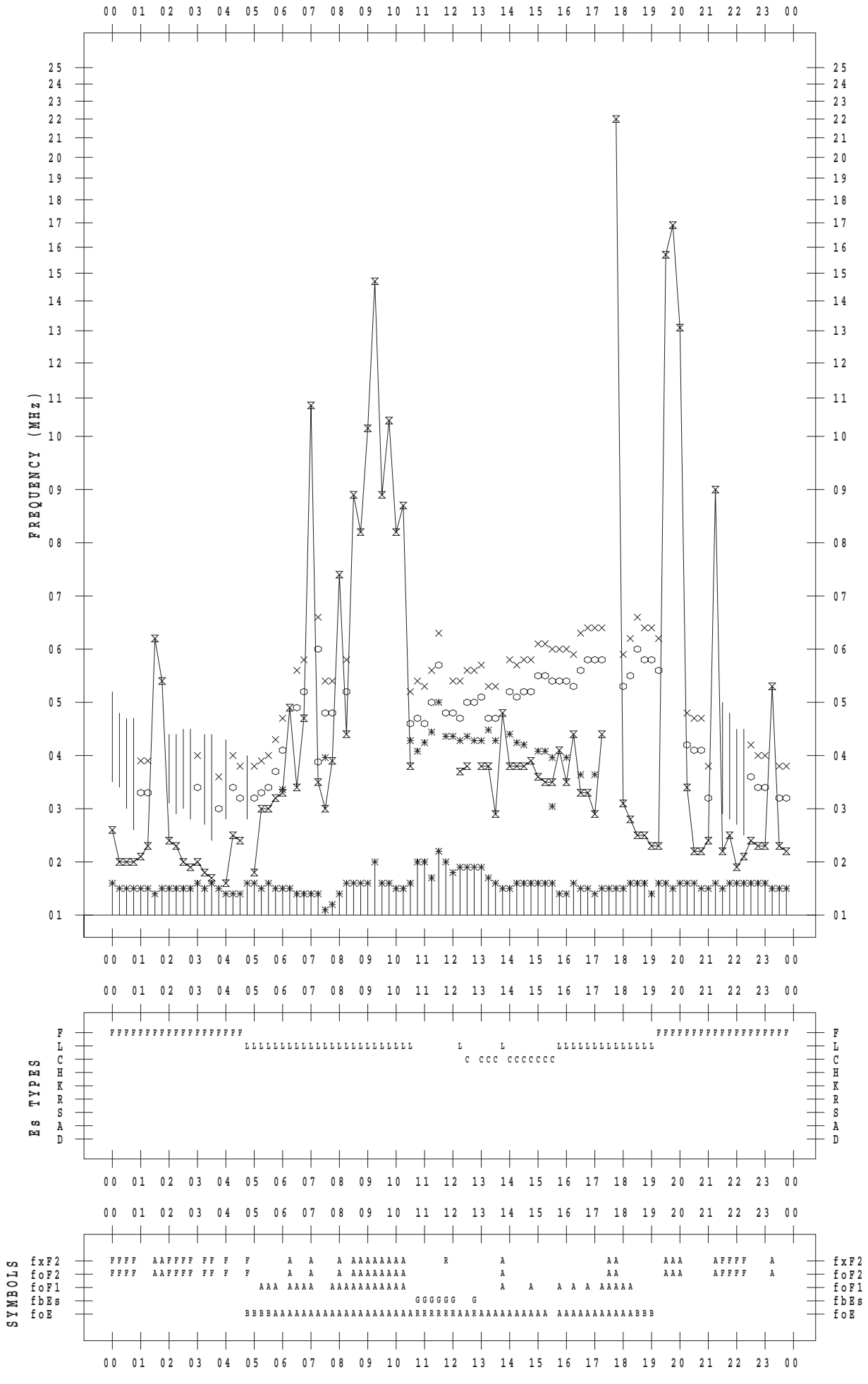
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/ 7

135 °E MEAN TIME



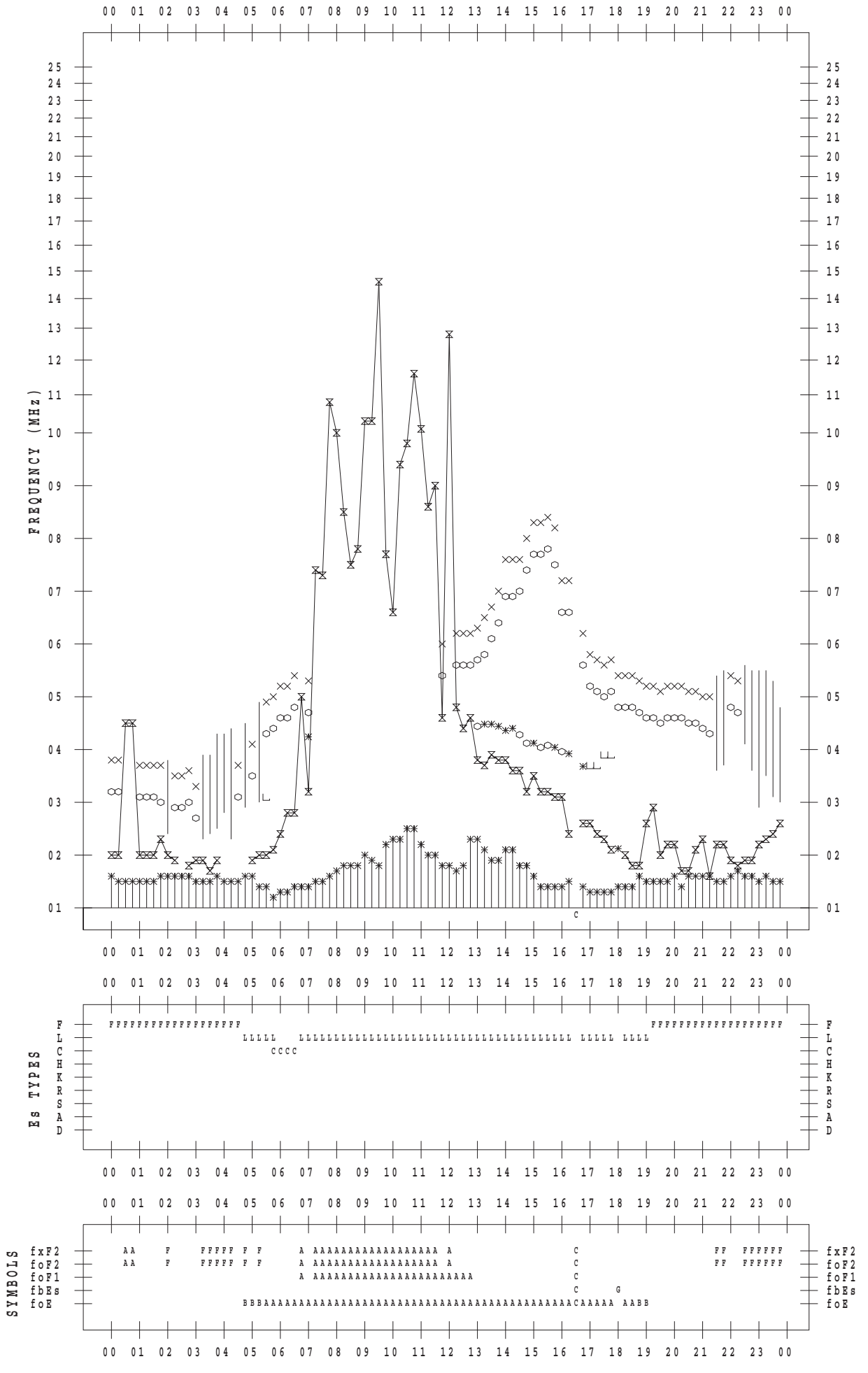
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/ 8

135 °E MEAN TIME



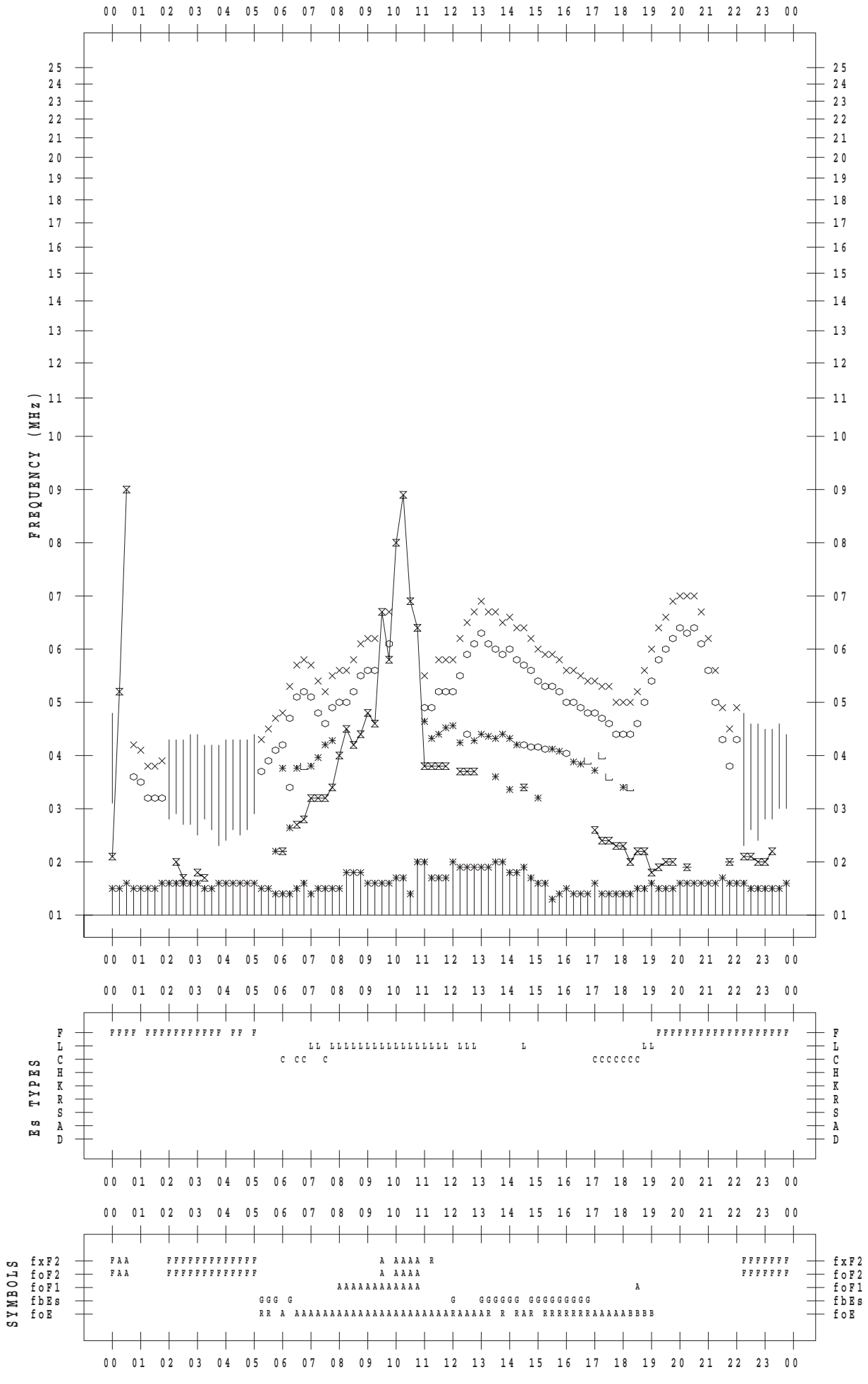
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/ 9

135 °E MEAN TIME



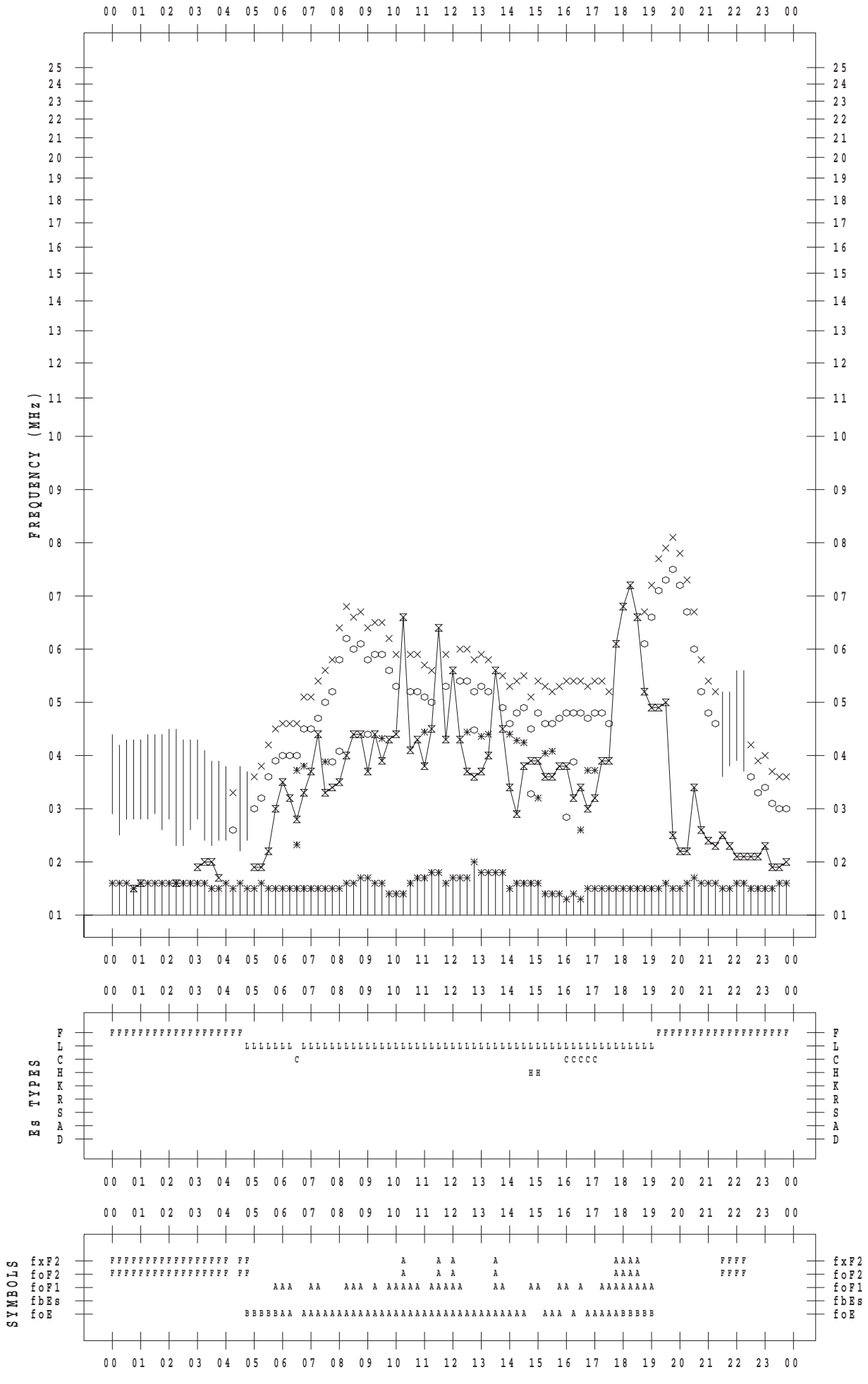
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/10

135 °E MEAN TIME



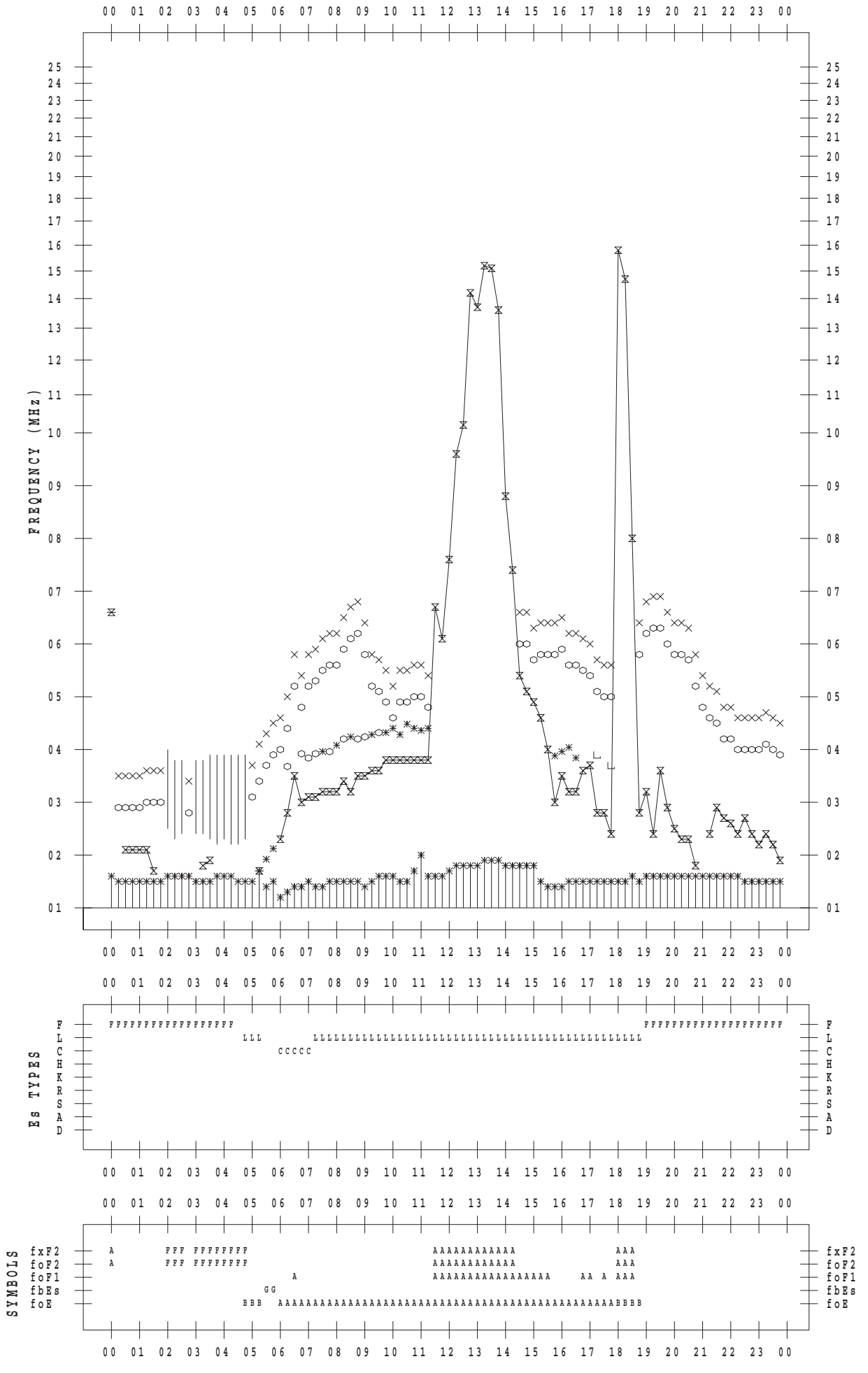
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/11

135 °E MEAN TIME



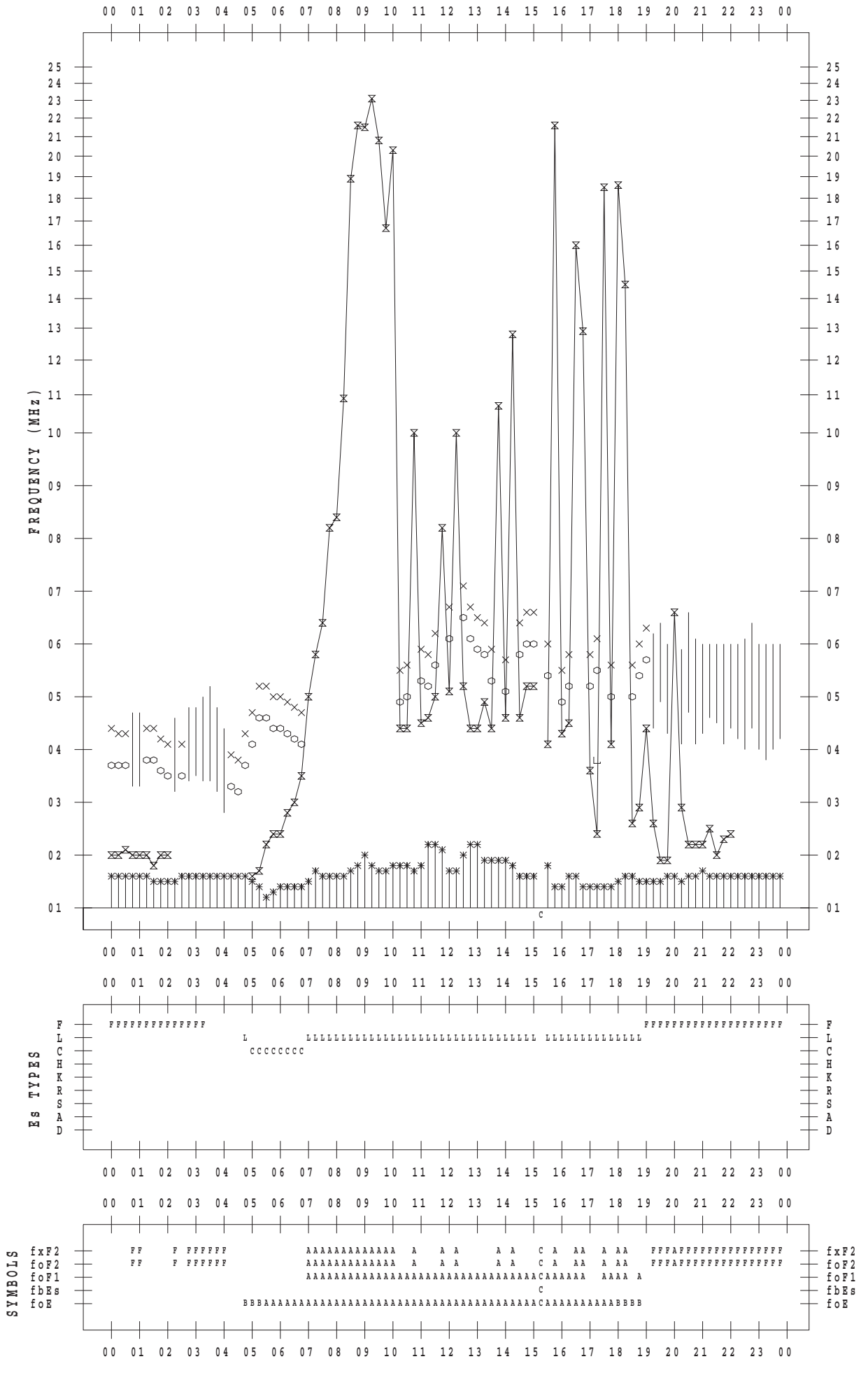
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/12

135 °E MEAN TIME



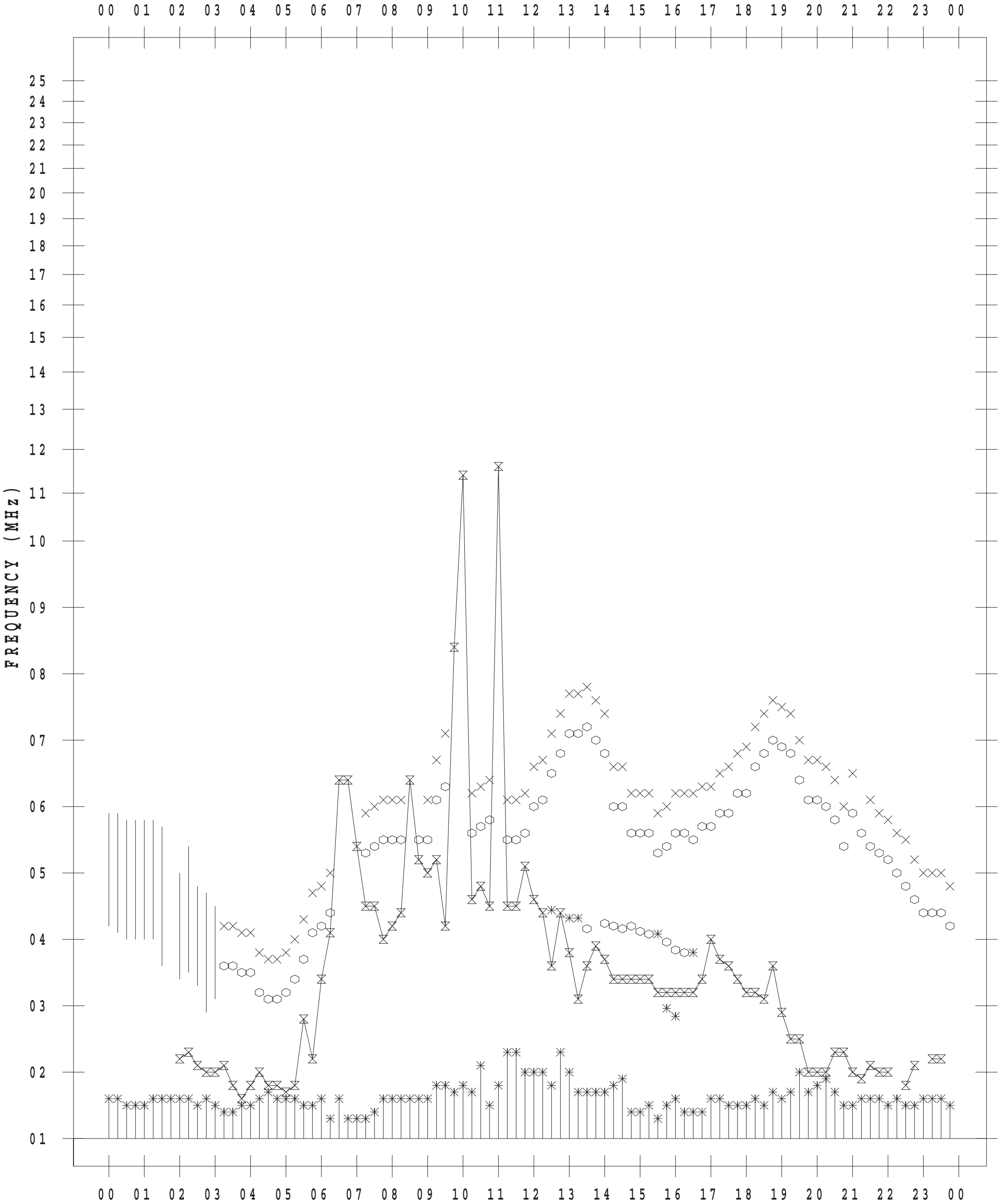
f-PLOT DATA

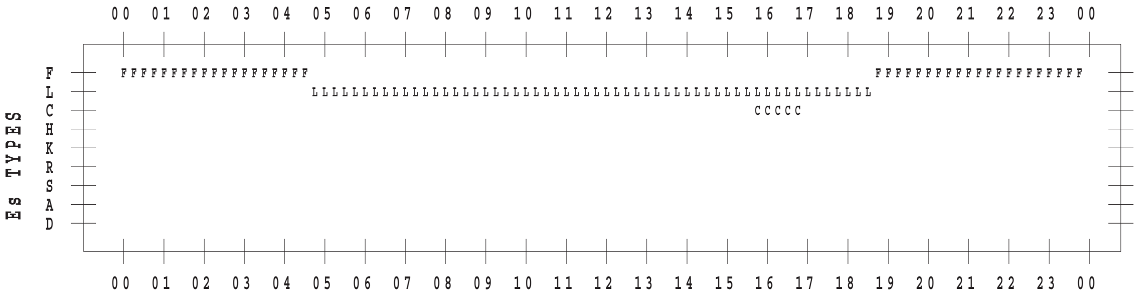
SCALER : I.NISHIMUTA

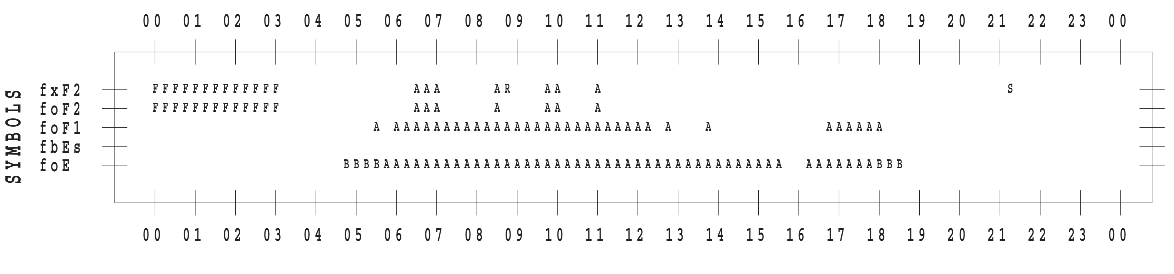
STATION : Kokubunji

DATE : 2017/ 8/13

135 °E MEAN TIME







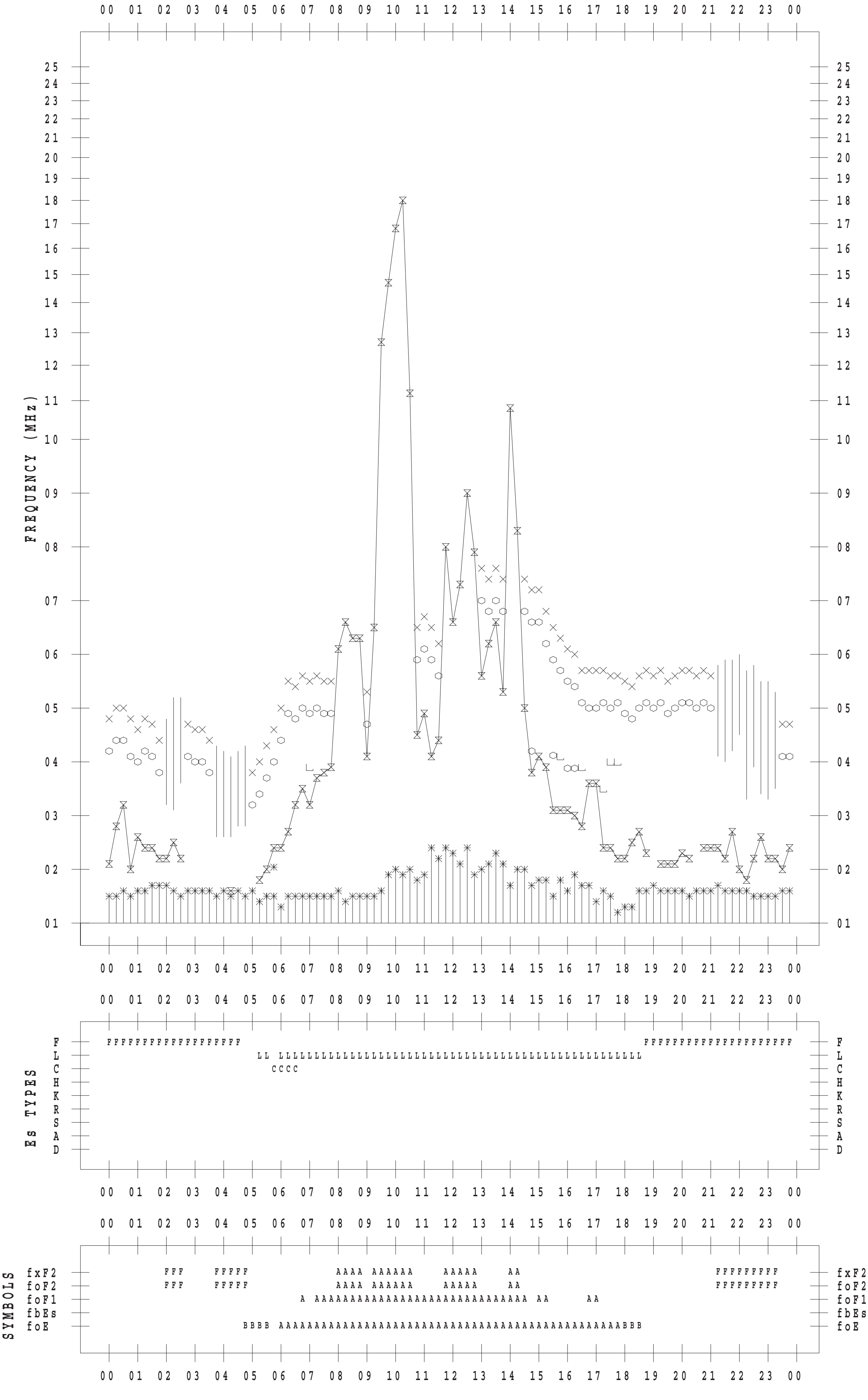
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/14

135 °E MEAN TIME



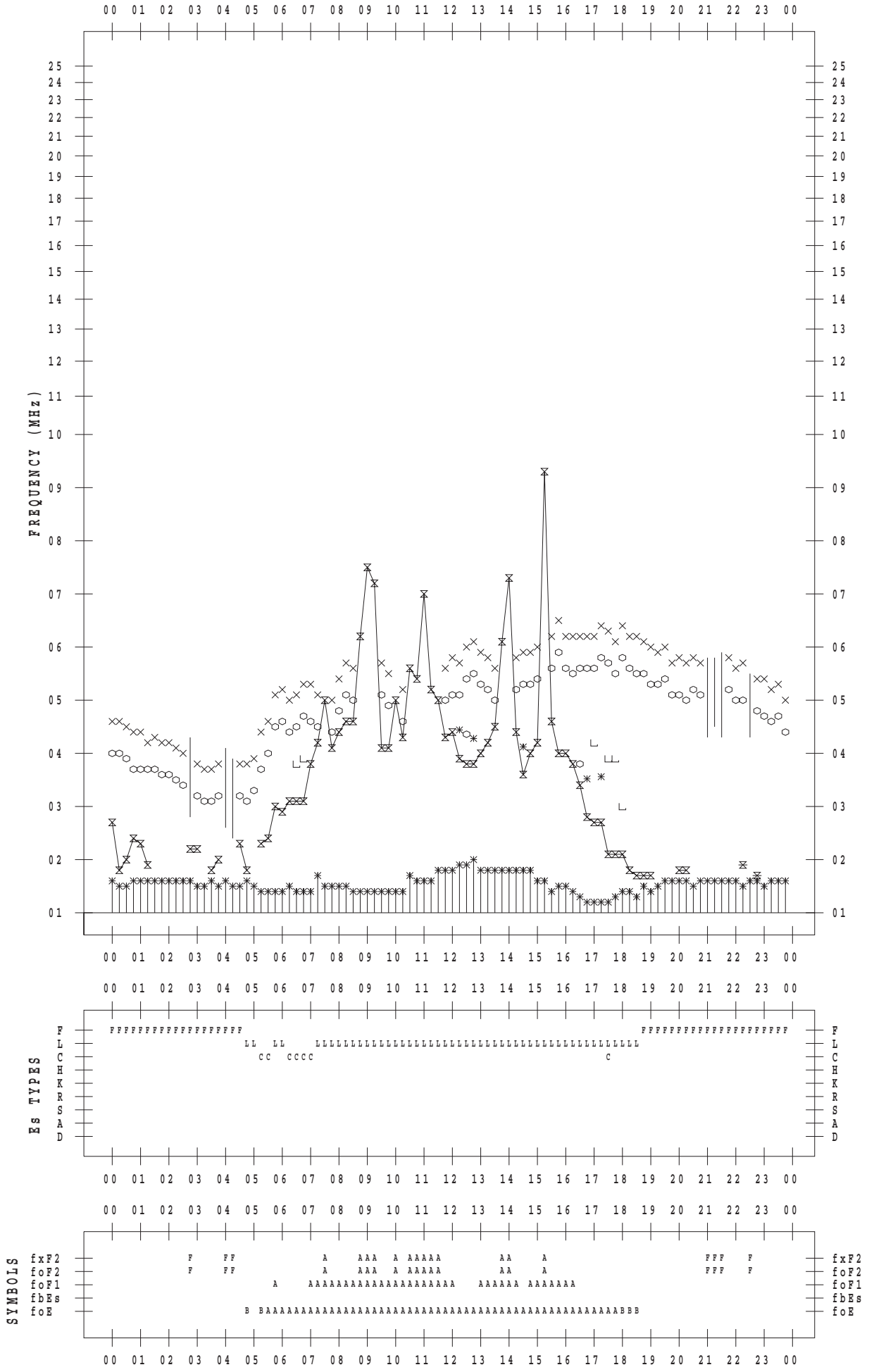
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/15

135 °E MEAN TIME



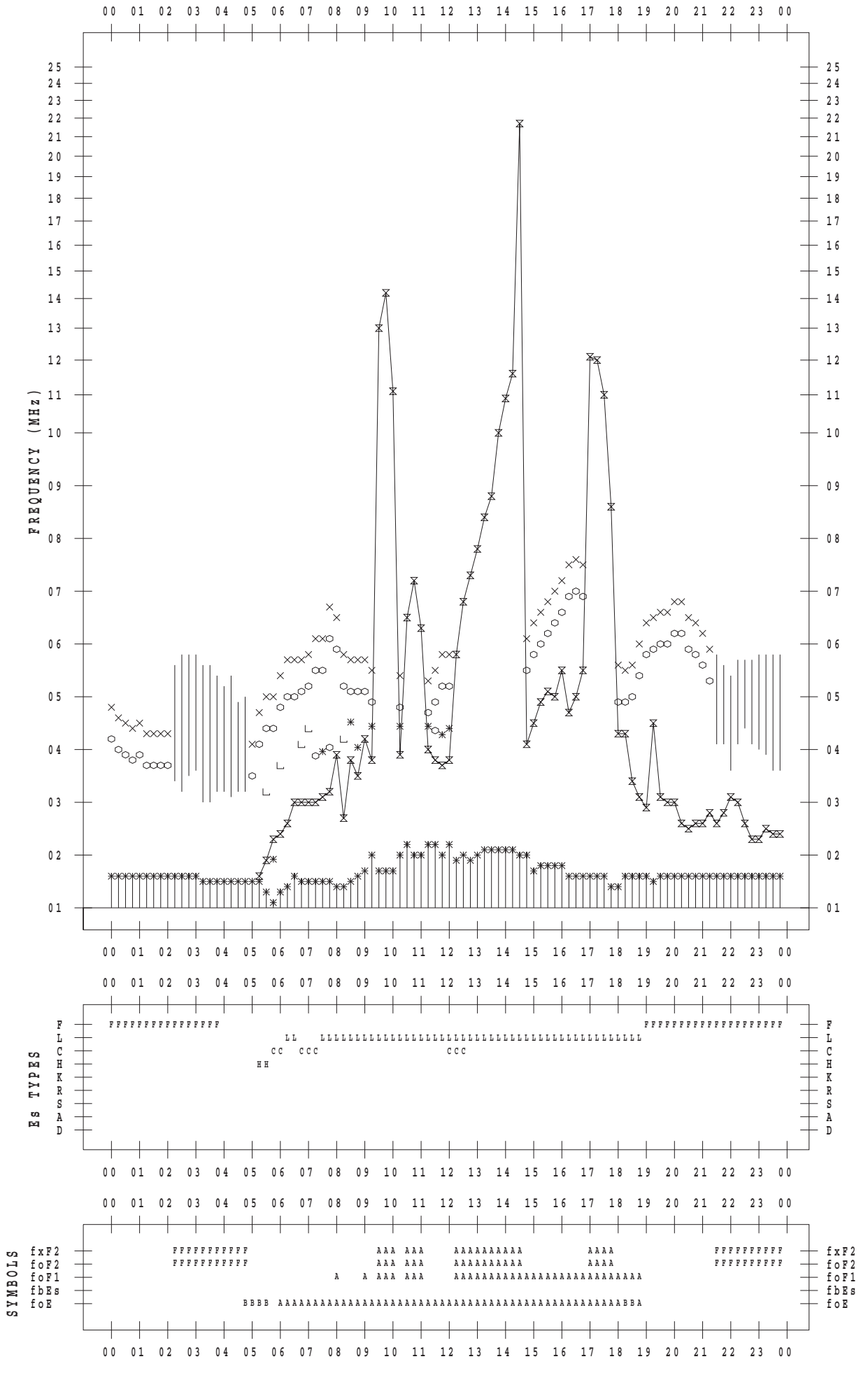
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/16

135 °E MEAN TIME



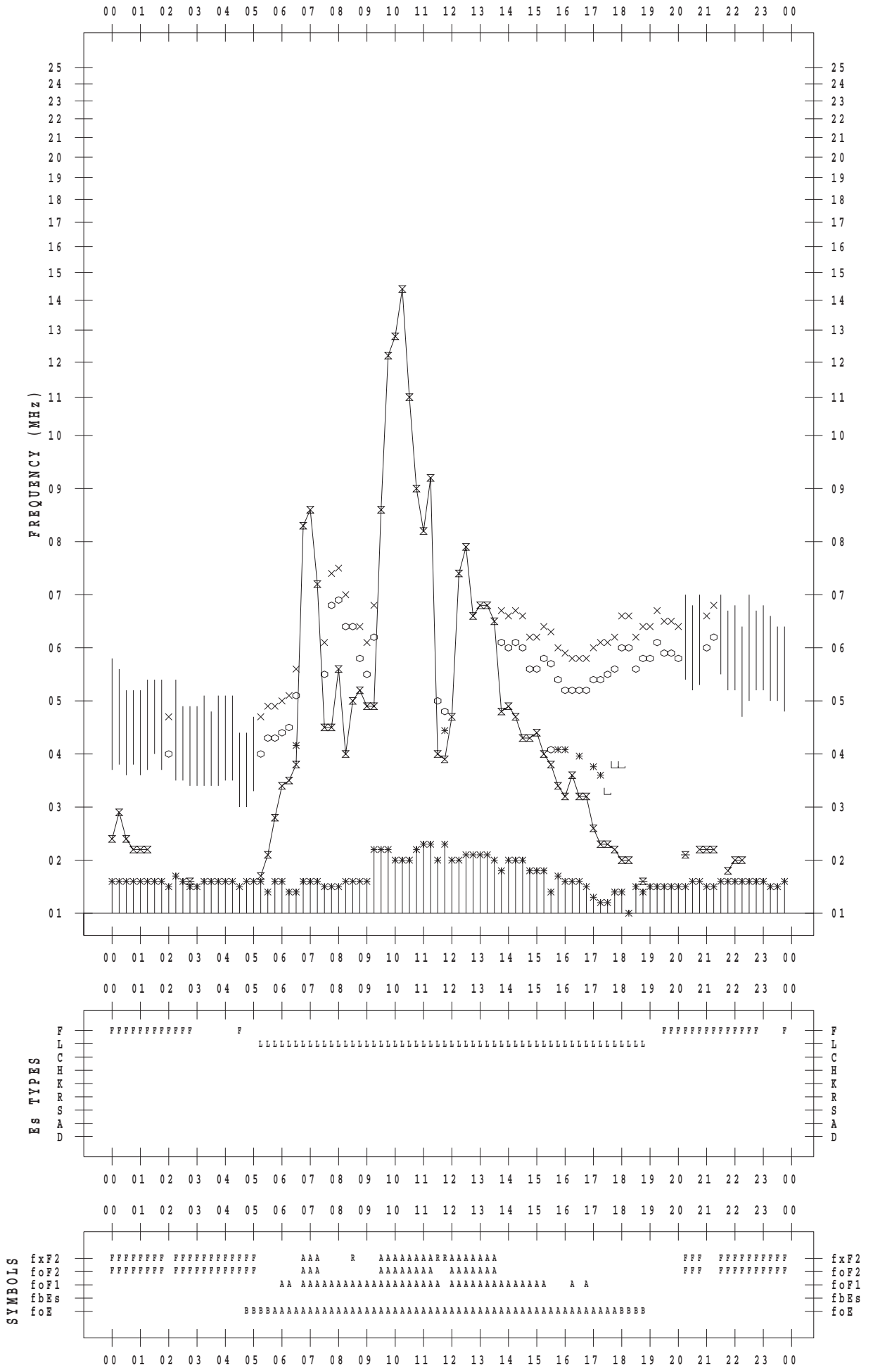
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/17

135 °E MEAN TIME



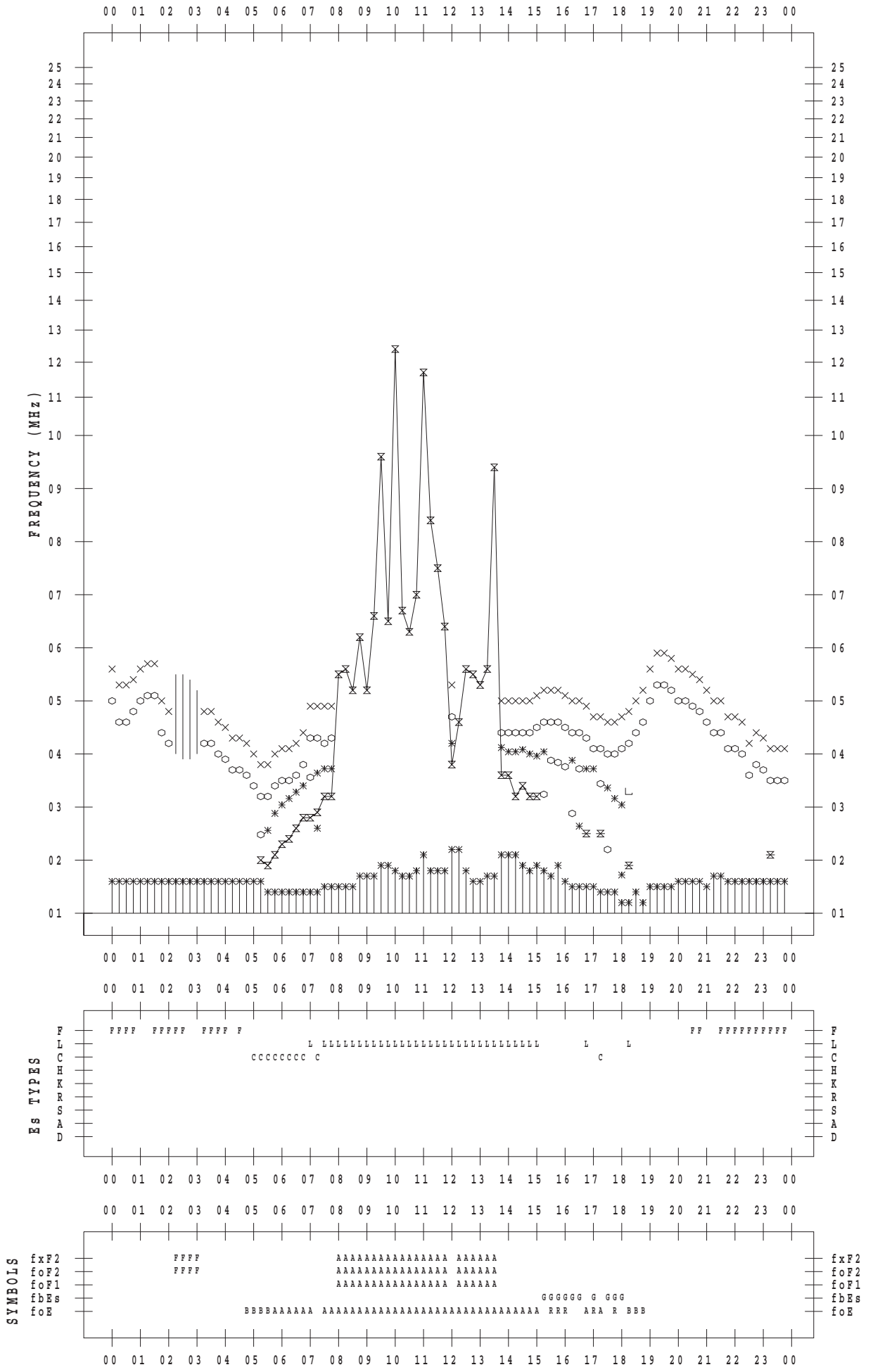
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/18

135 °E MEAN TIME



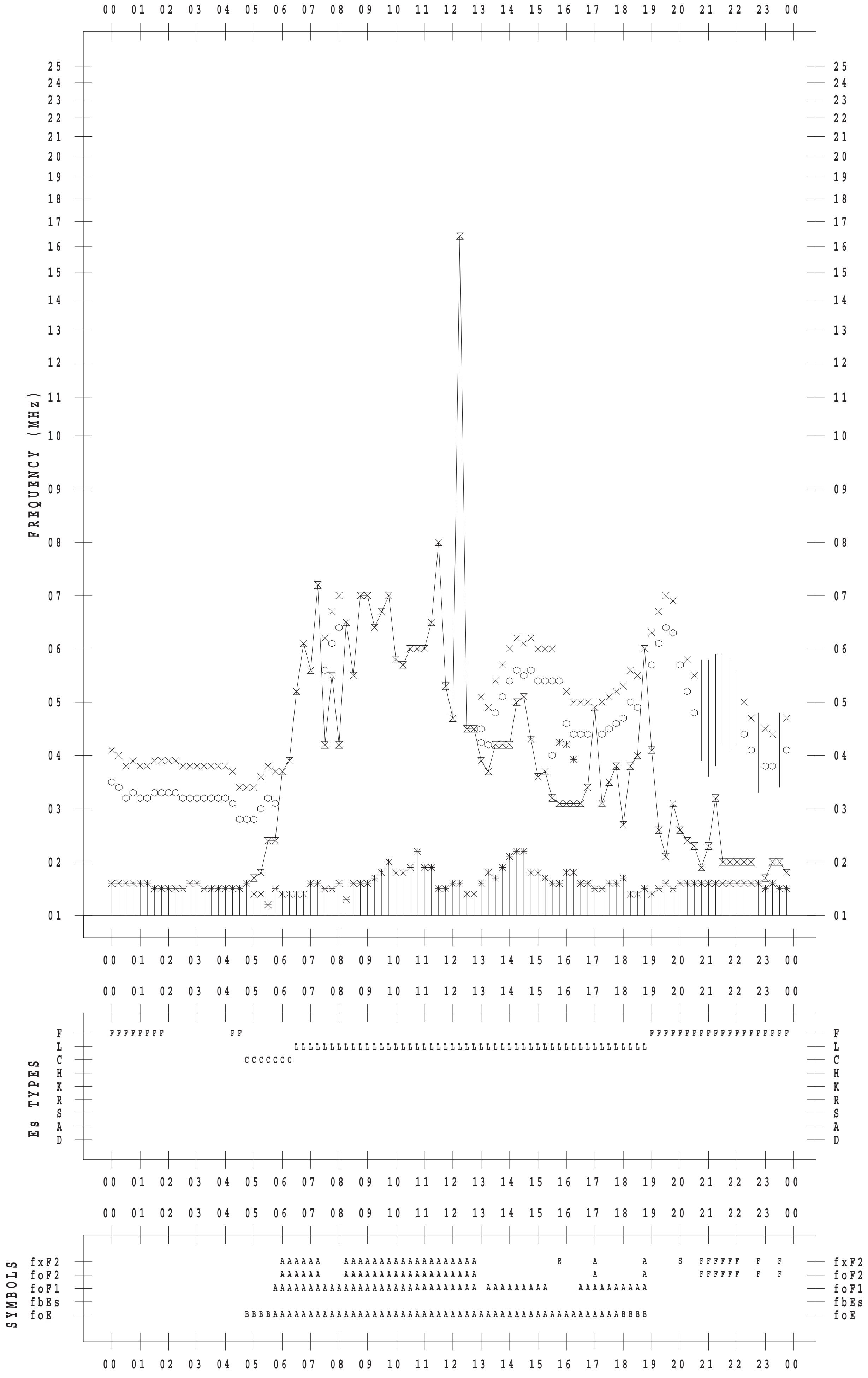
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/19

135 °E MEAN TIME



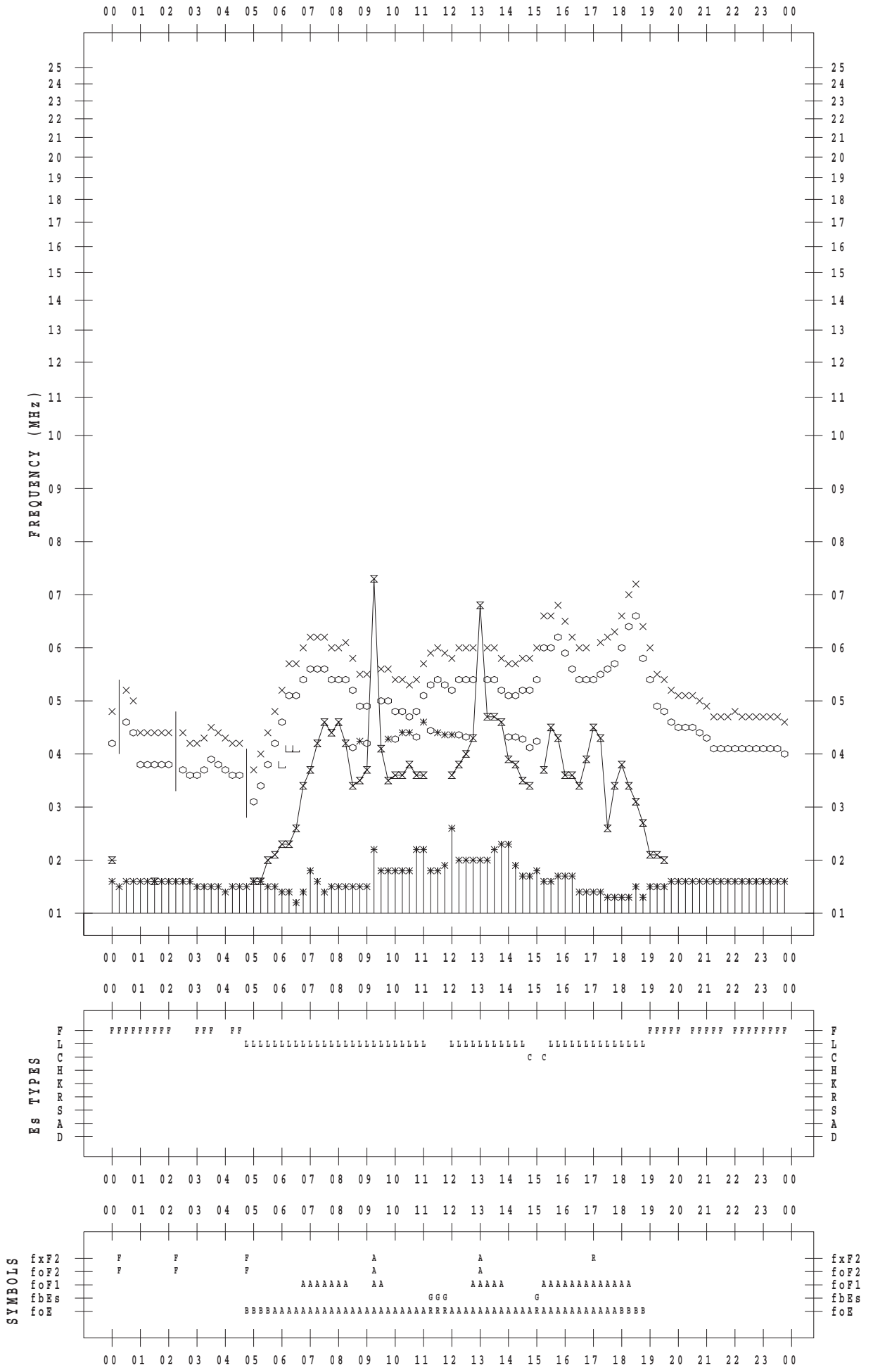
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/20

135 °E MEAN TIME



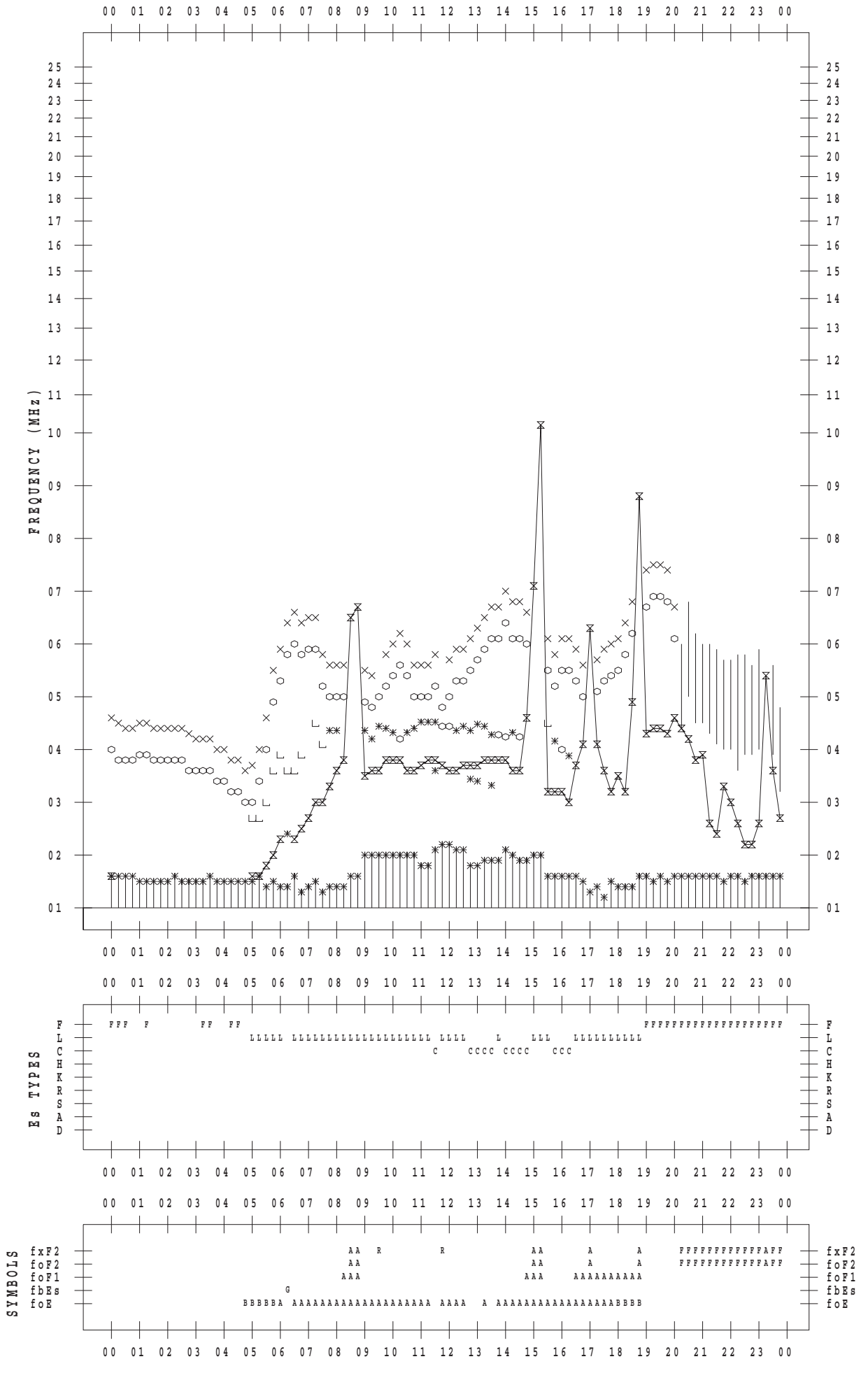
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/21

135 °E MEAN TIME



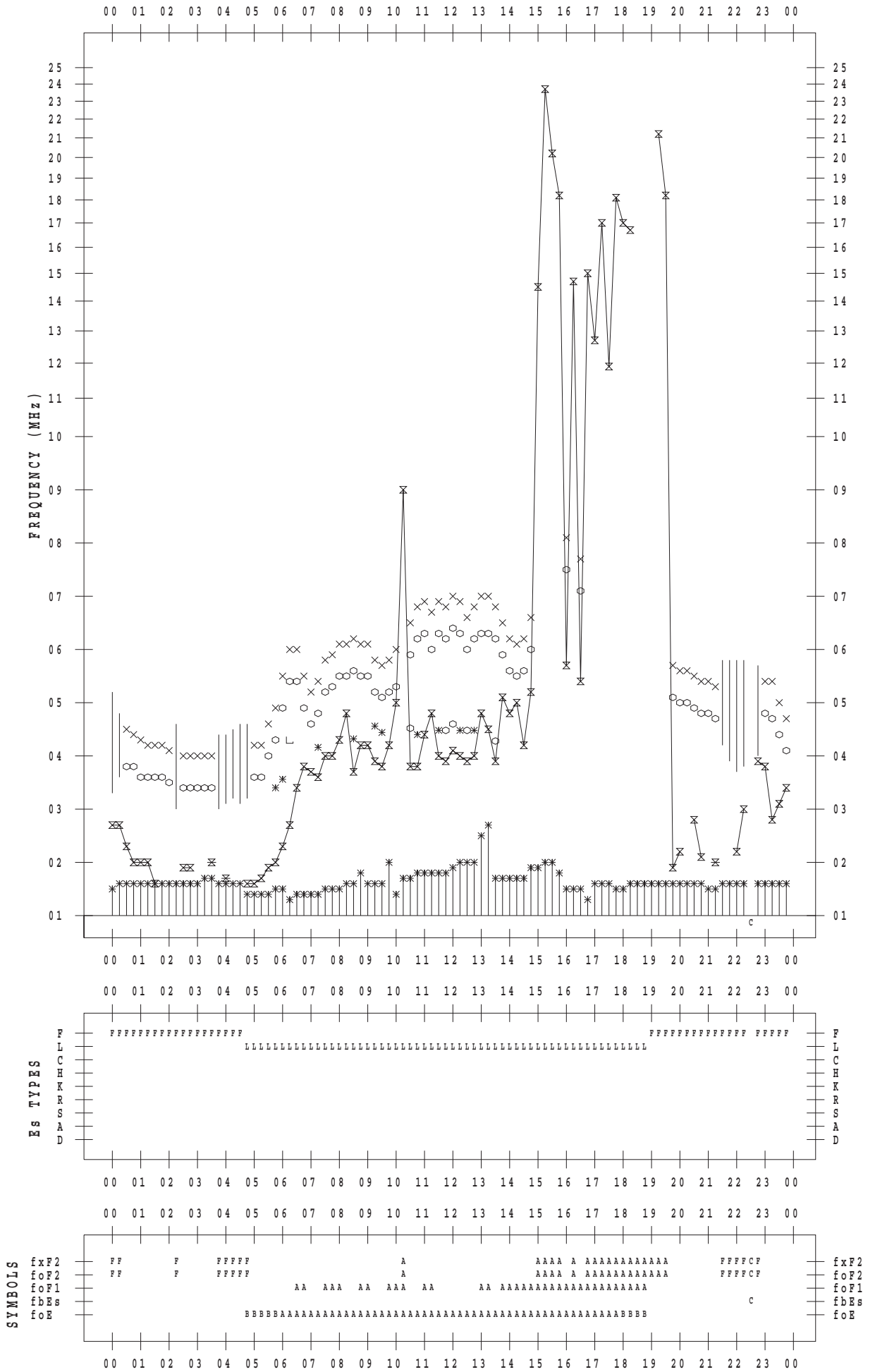
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/22

135 °E MEAN TIME



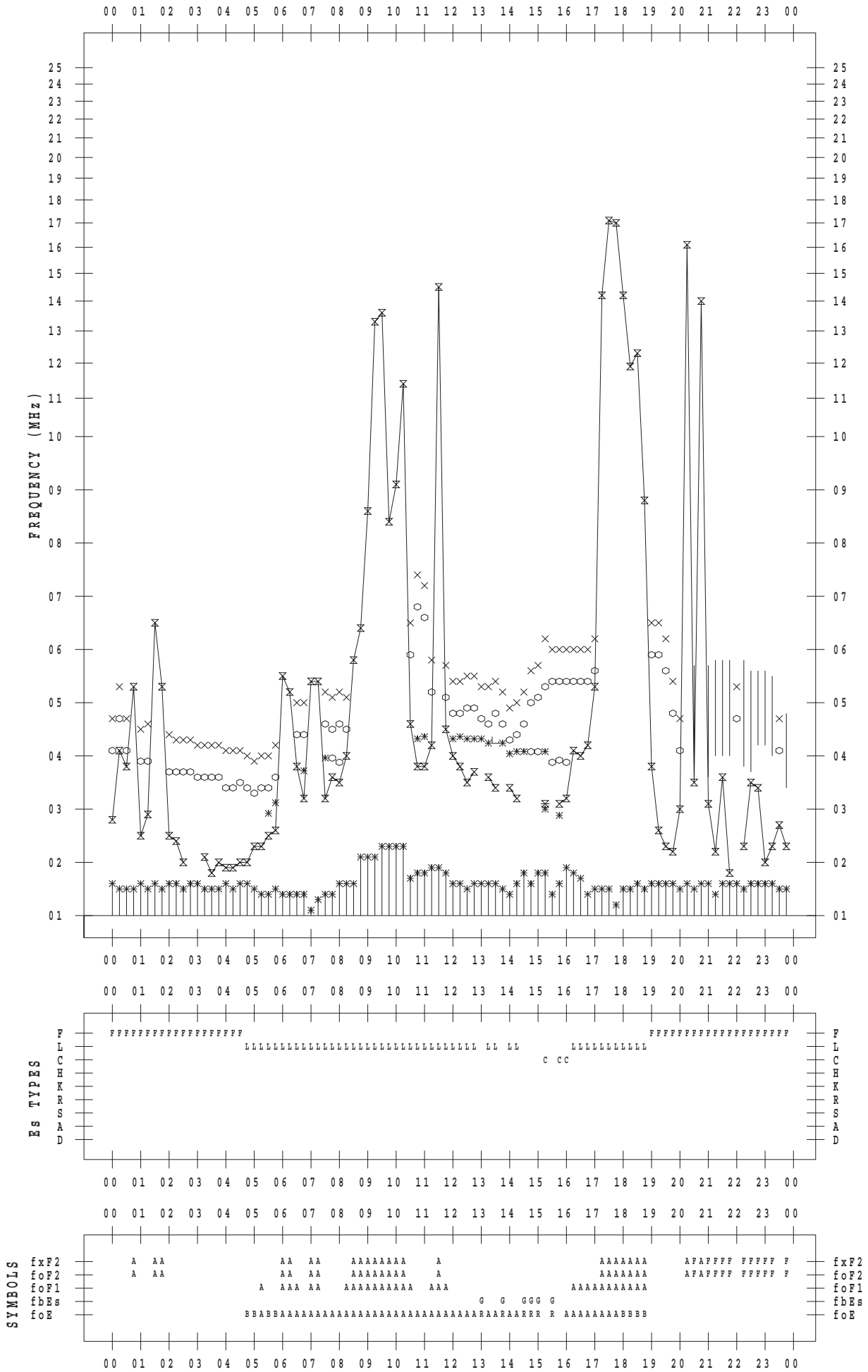
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/23

135 °E MEAN TIME



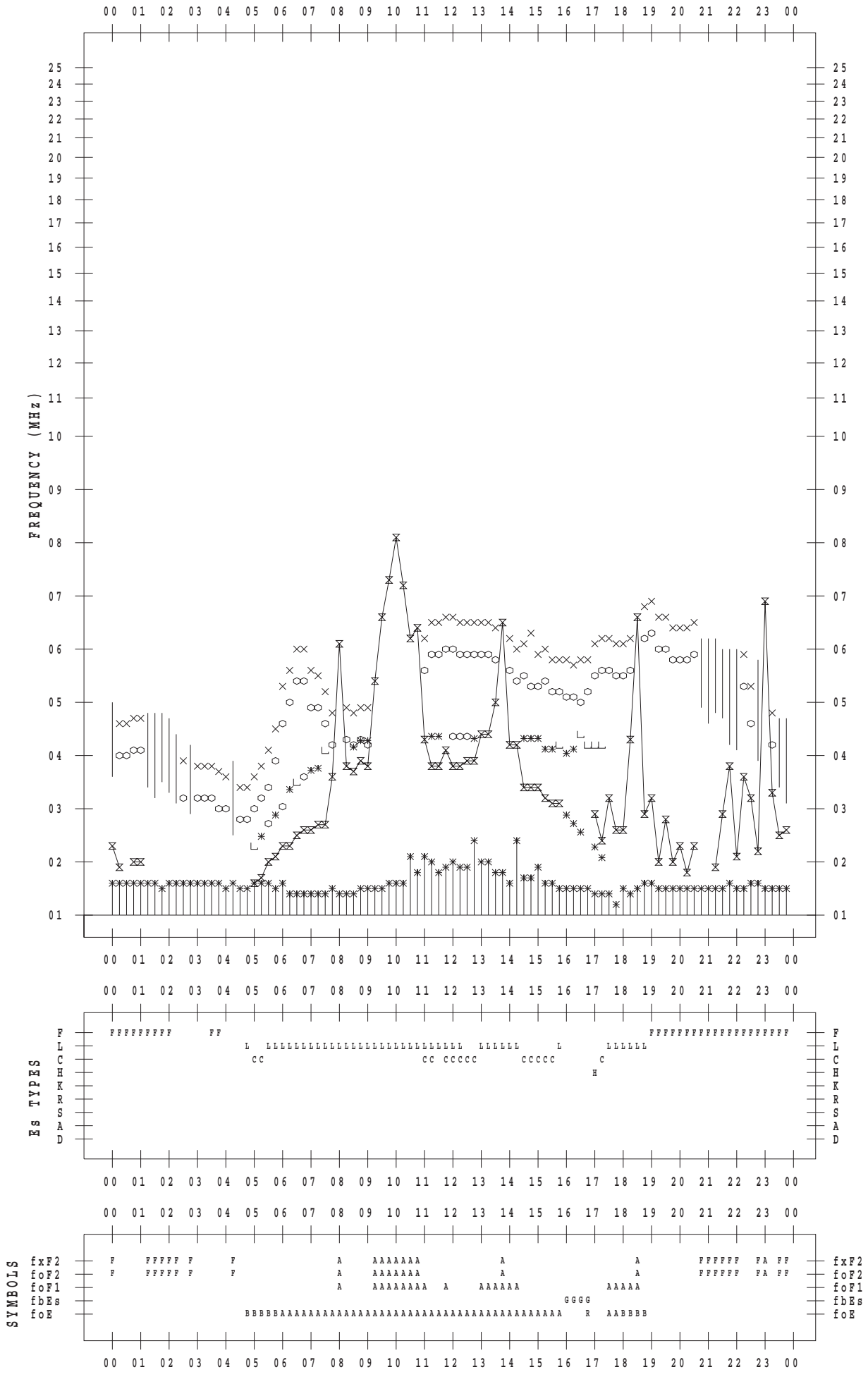
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/24

135 °E MEAN TIME

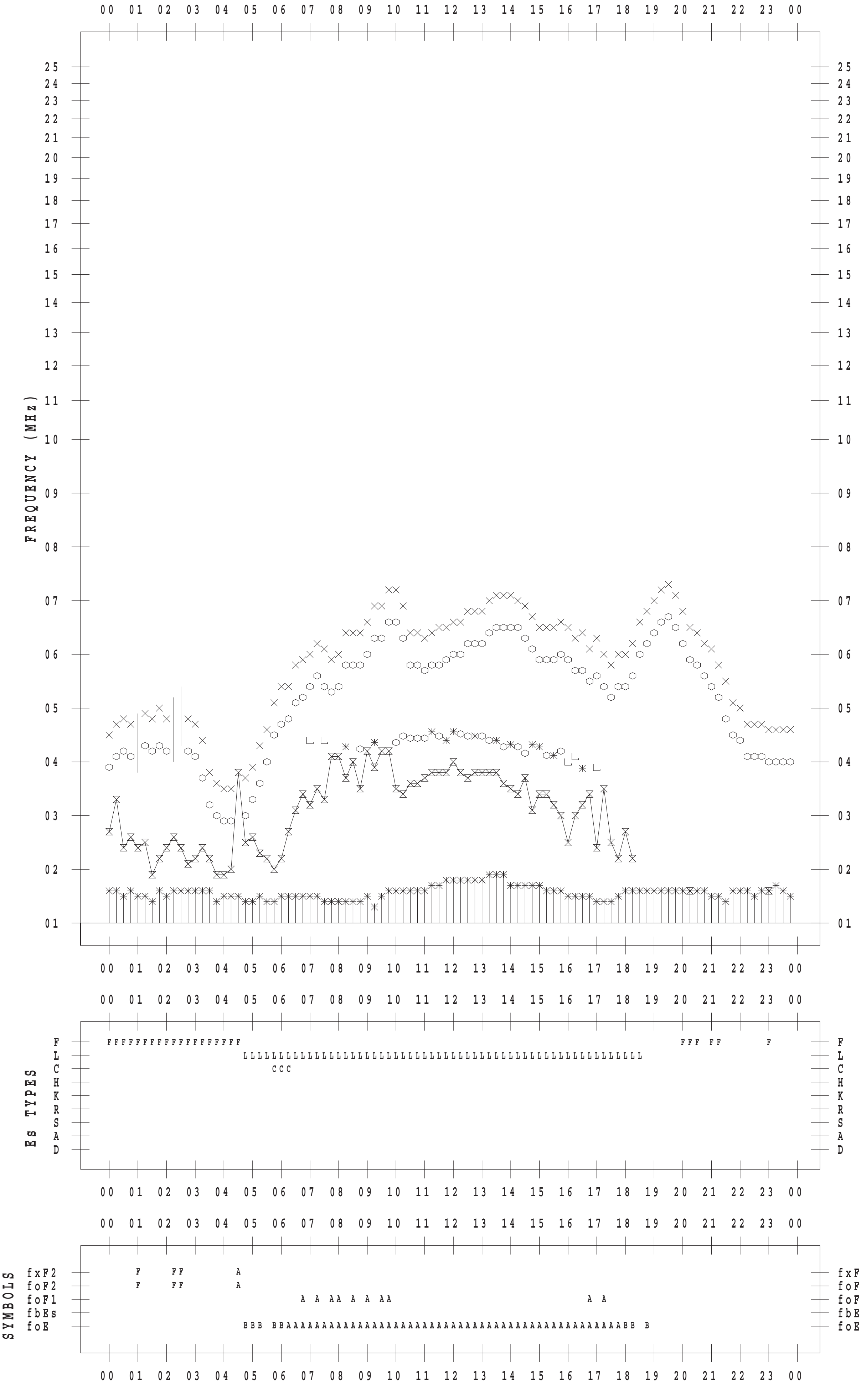


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2017/ 8/25

135 °E MEAN TIME



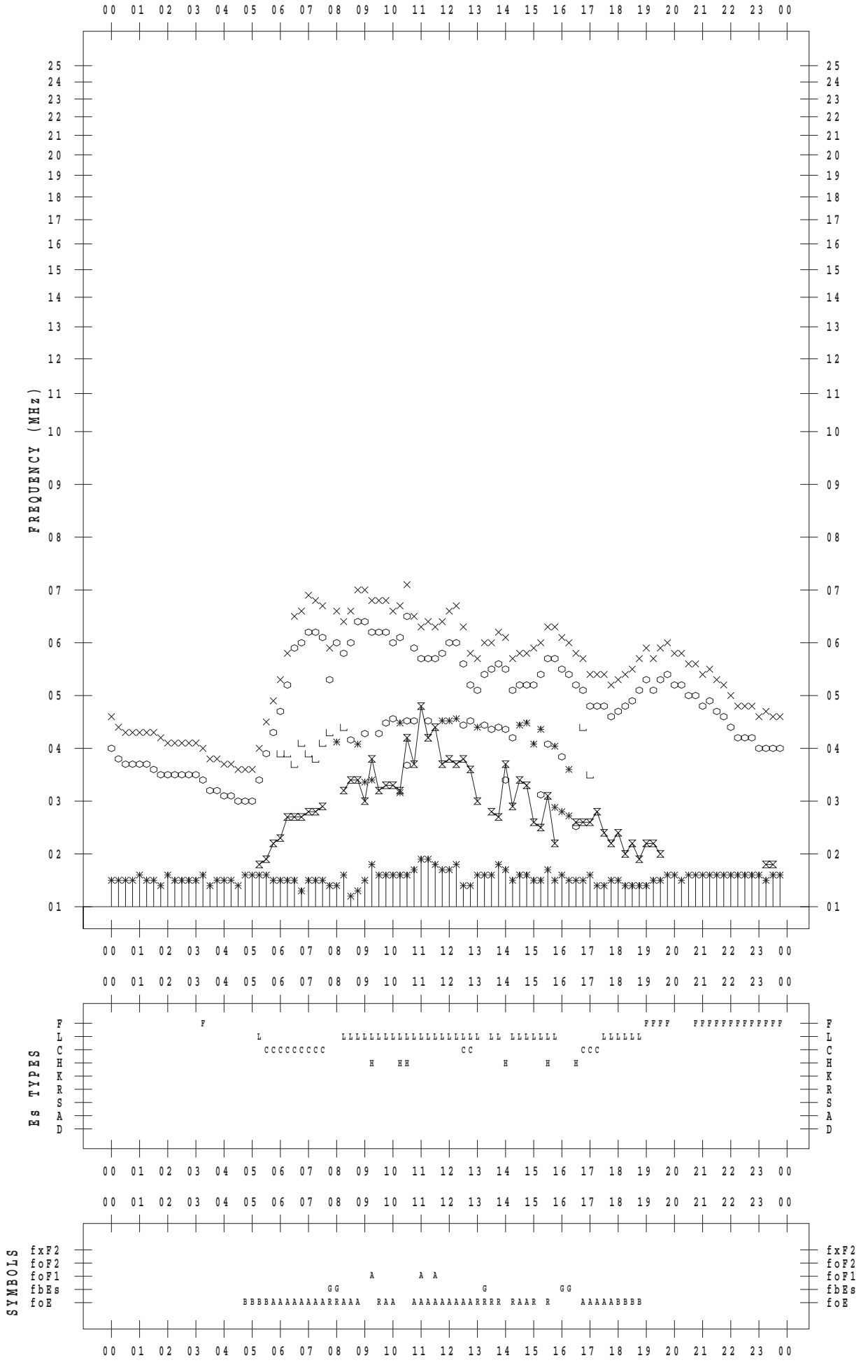
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/26

135 °E MEAN TIME

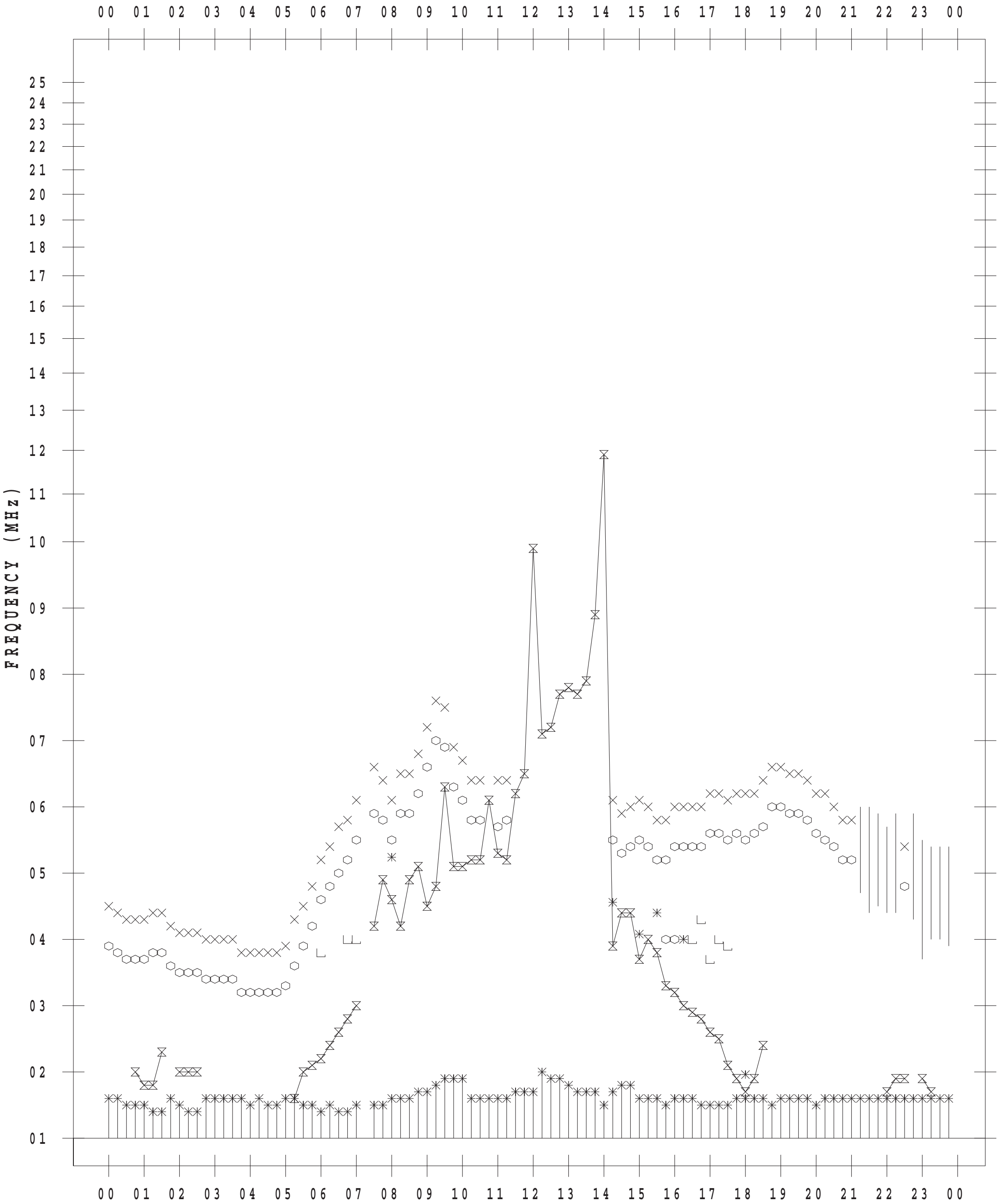


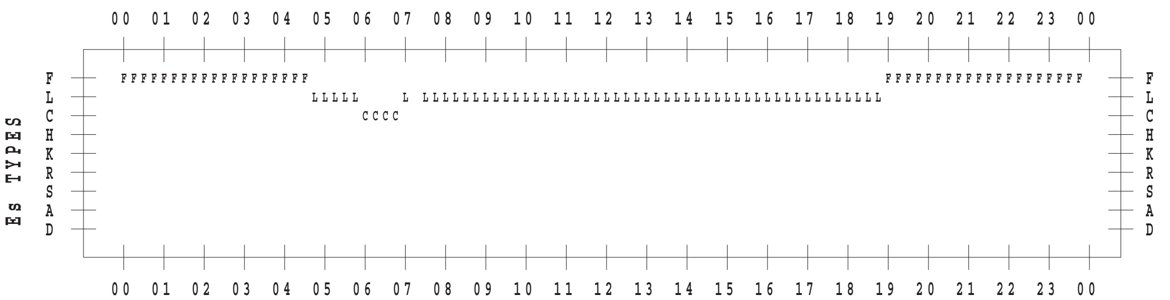
f-PLOT DATA

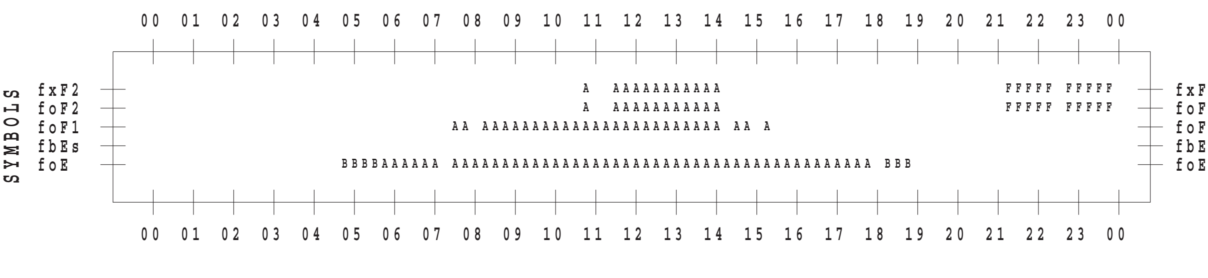
SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2017/ 8/27

135 °E MEAN TIME







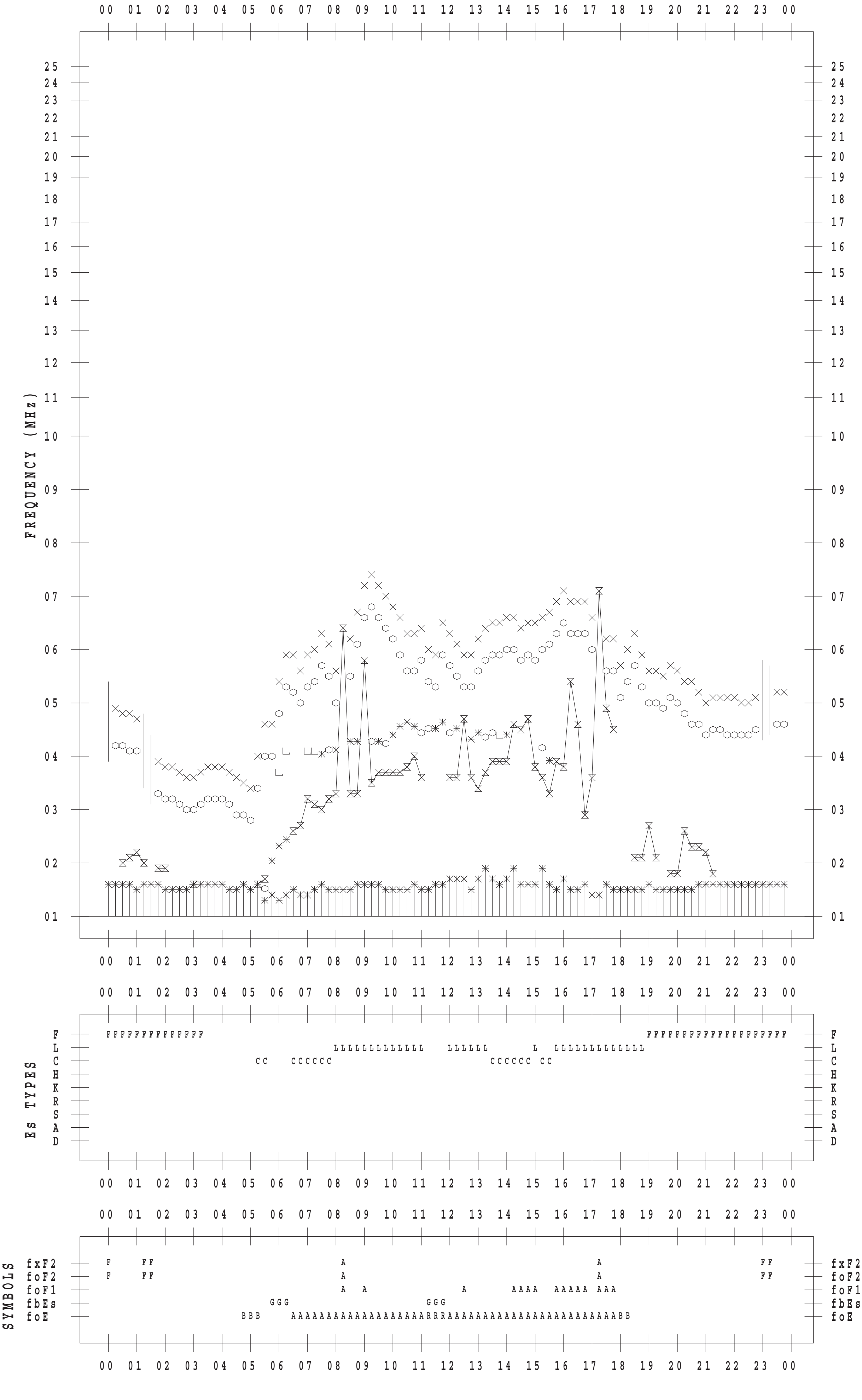
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/28

135 °E MEAN TIME



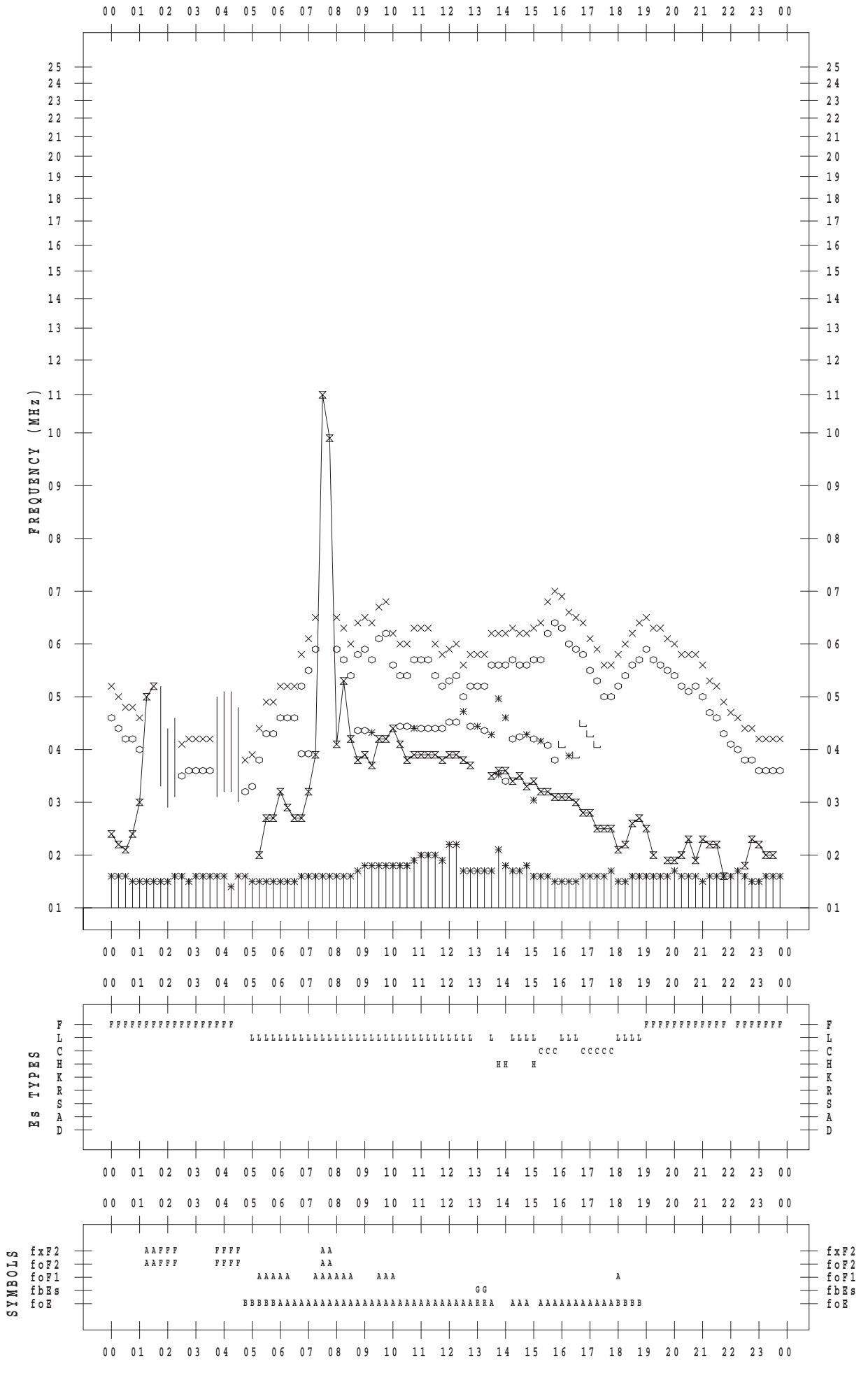
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/29

135 °E MEAN TIME



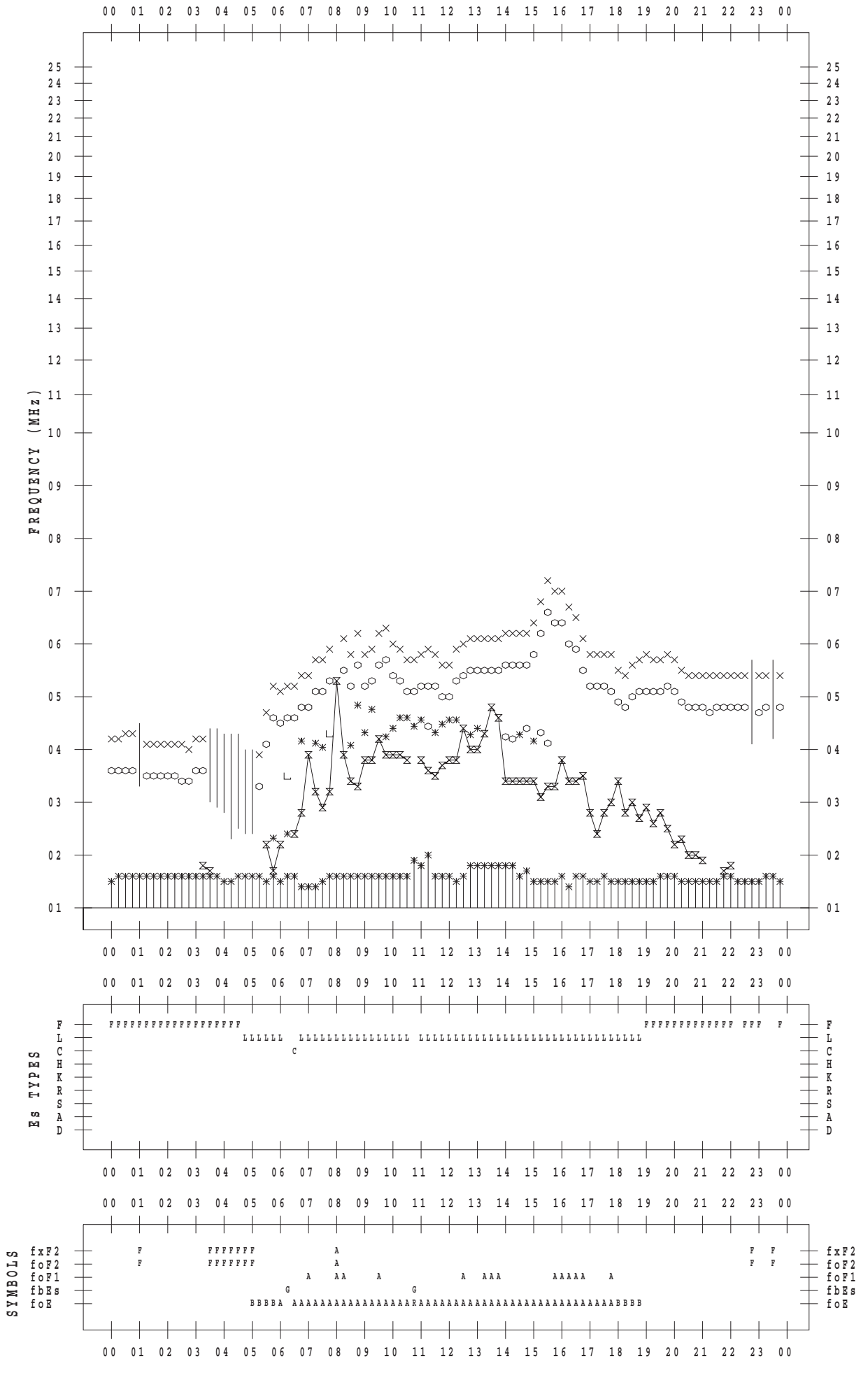
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/30

135 °E MEAN TIME



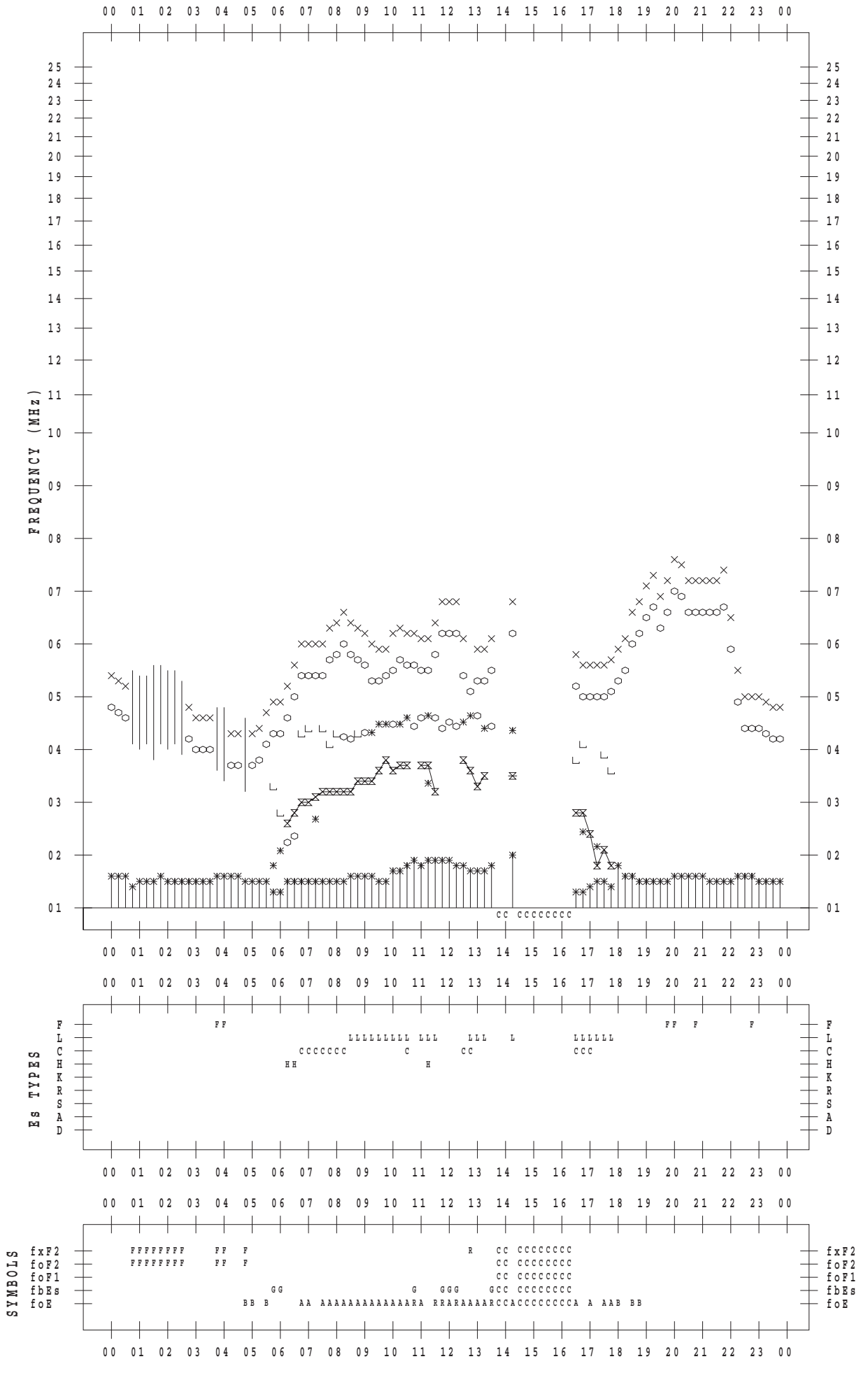
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 8/31

135 °E MEAN TIME



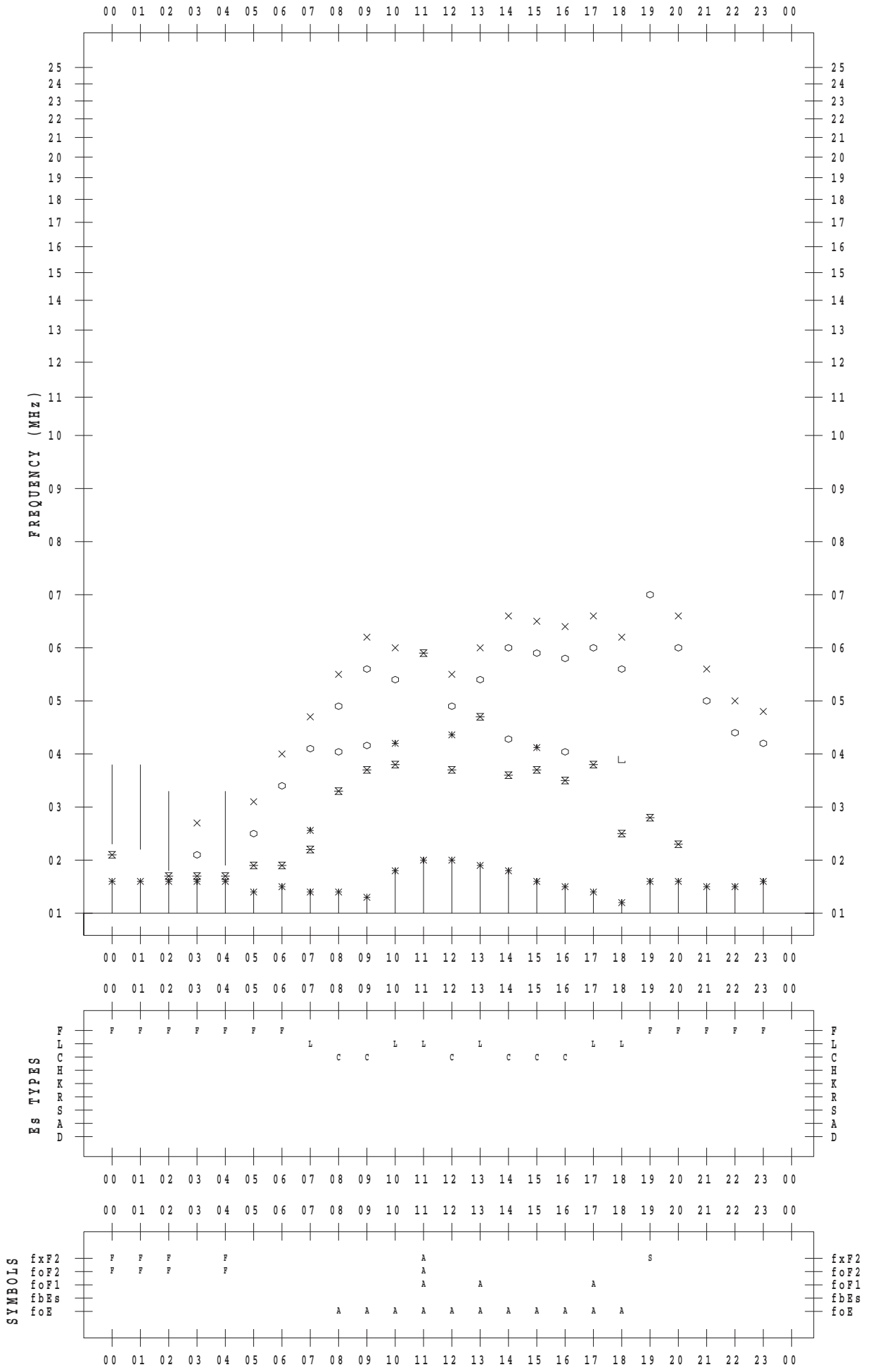
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/ 1

135 °E MEAN TIME



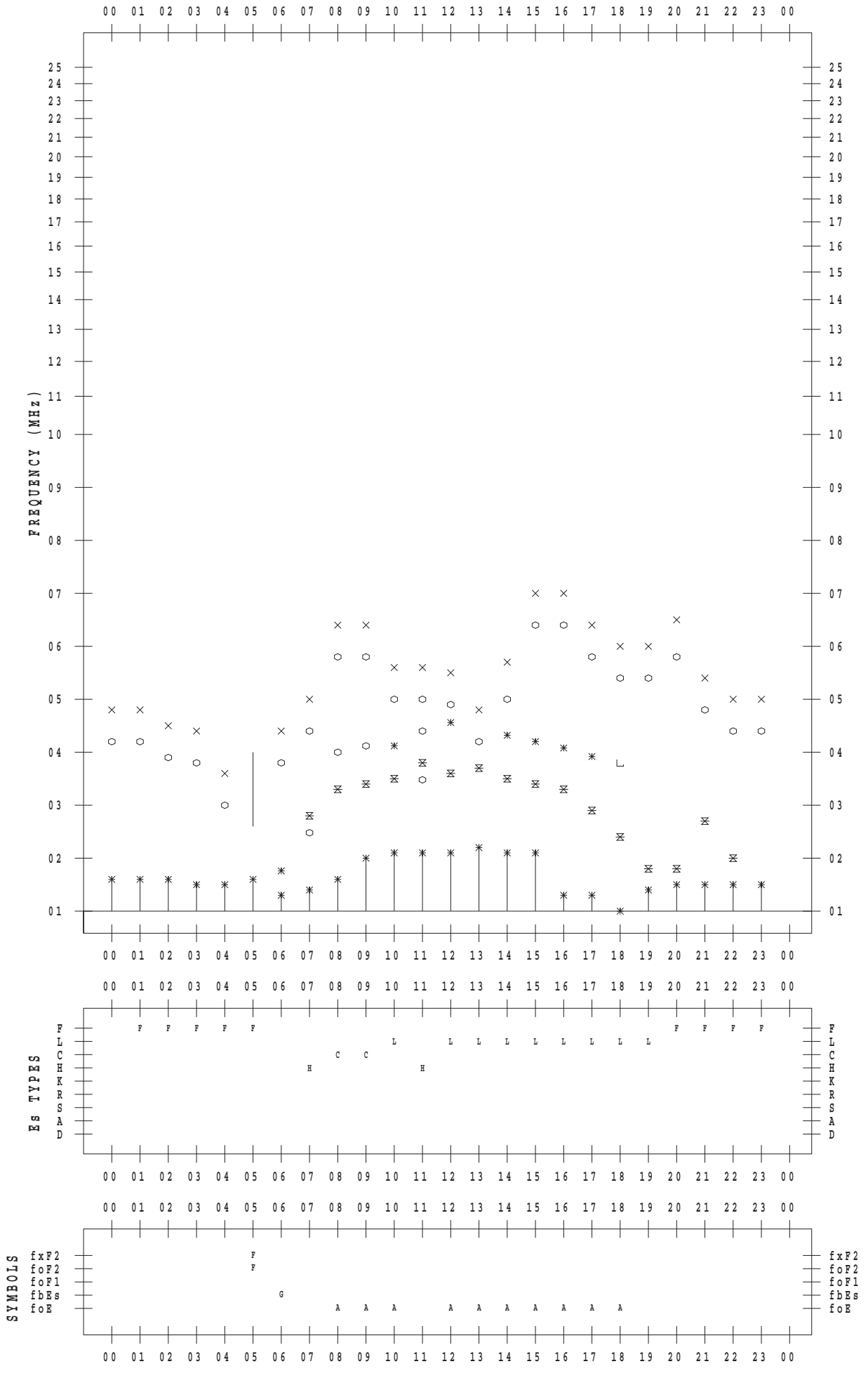
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/ 2

135 °E MEAN TIME



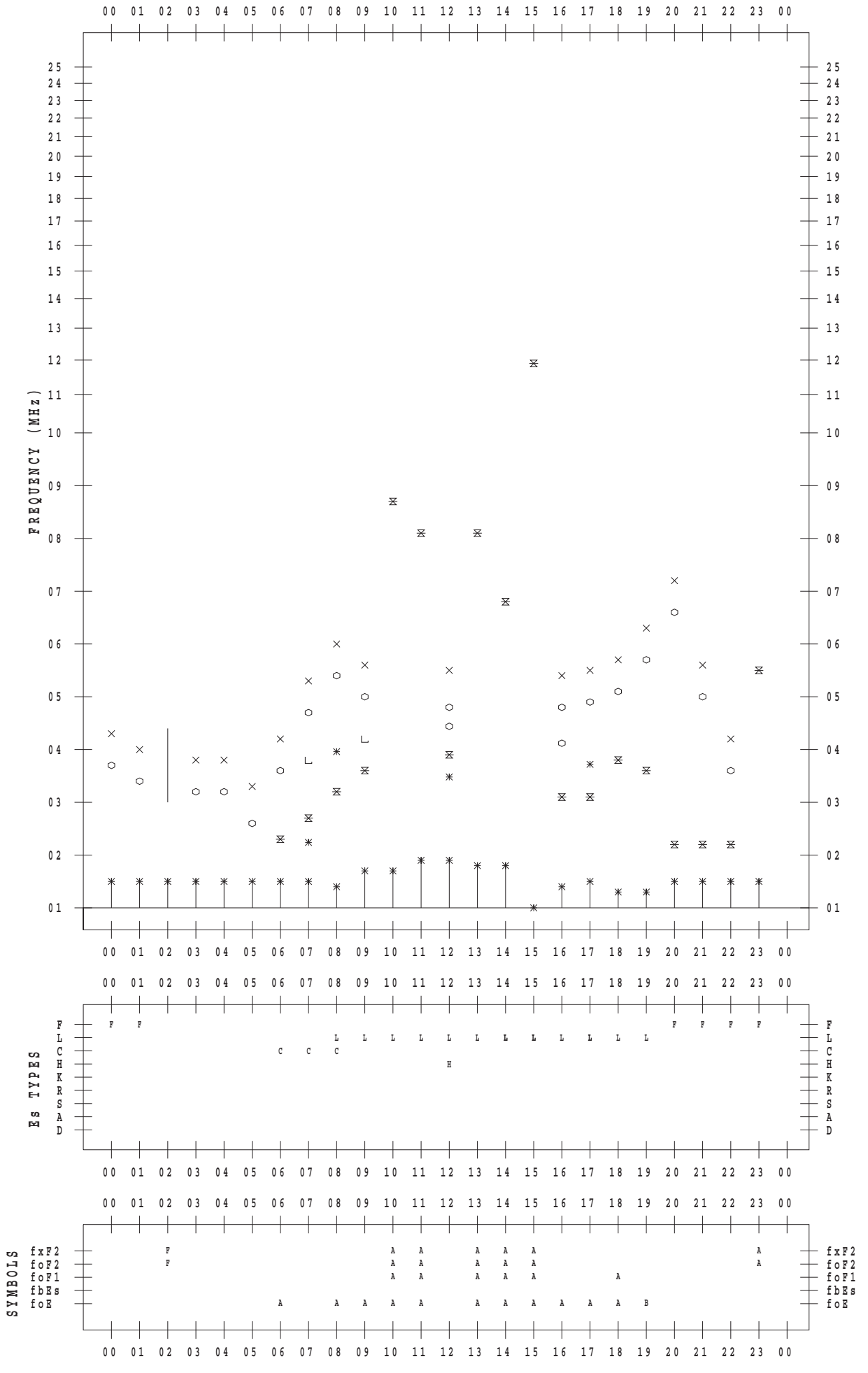
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/ 3

135 °E MEAN TIME



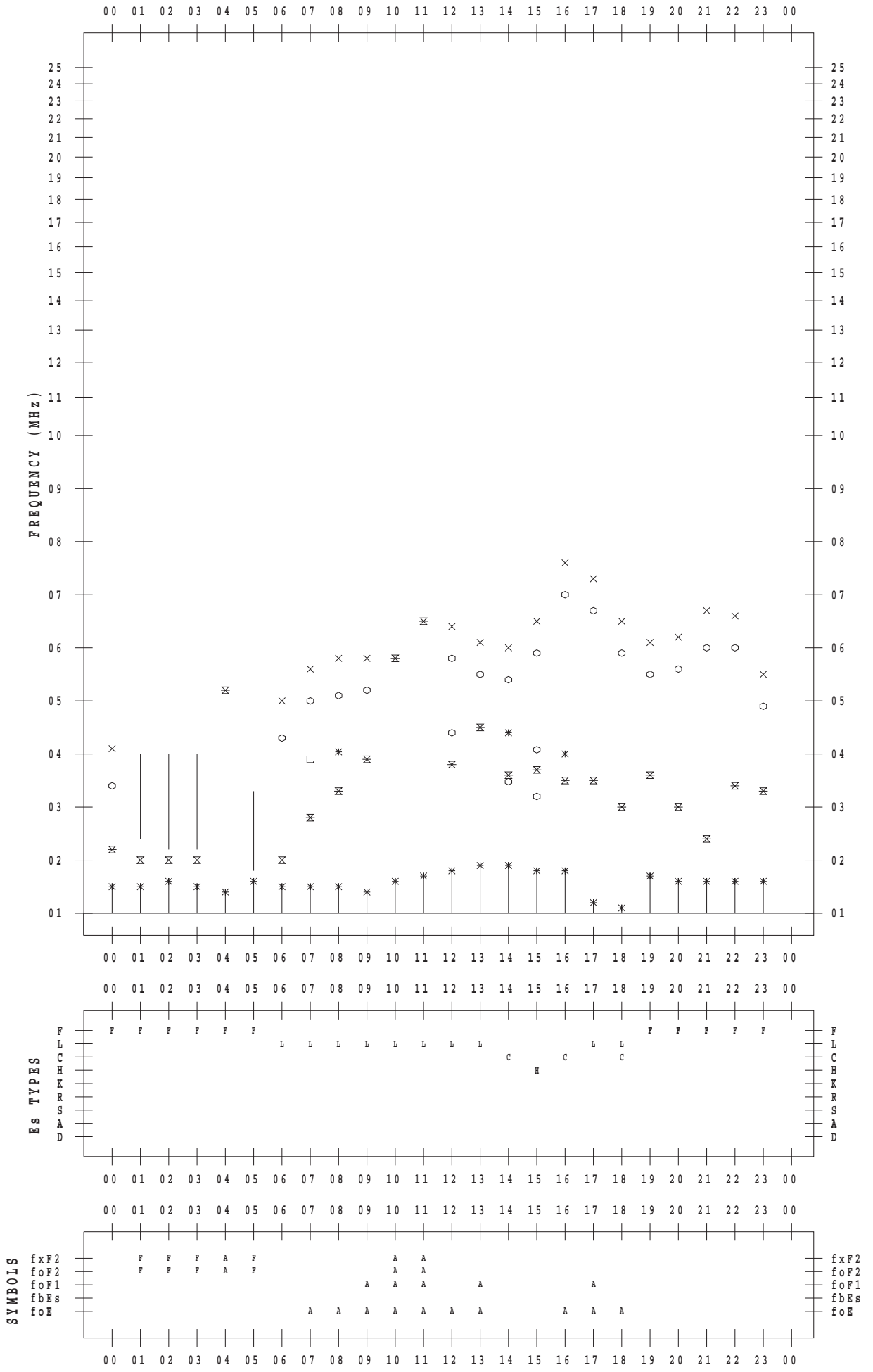
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/ 4

135 °E MEAN TIME



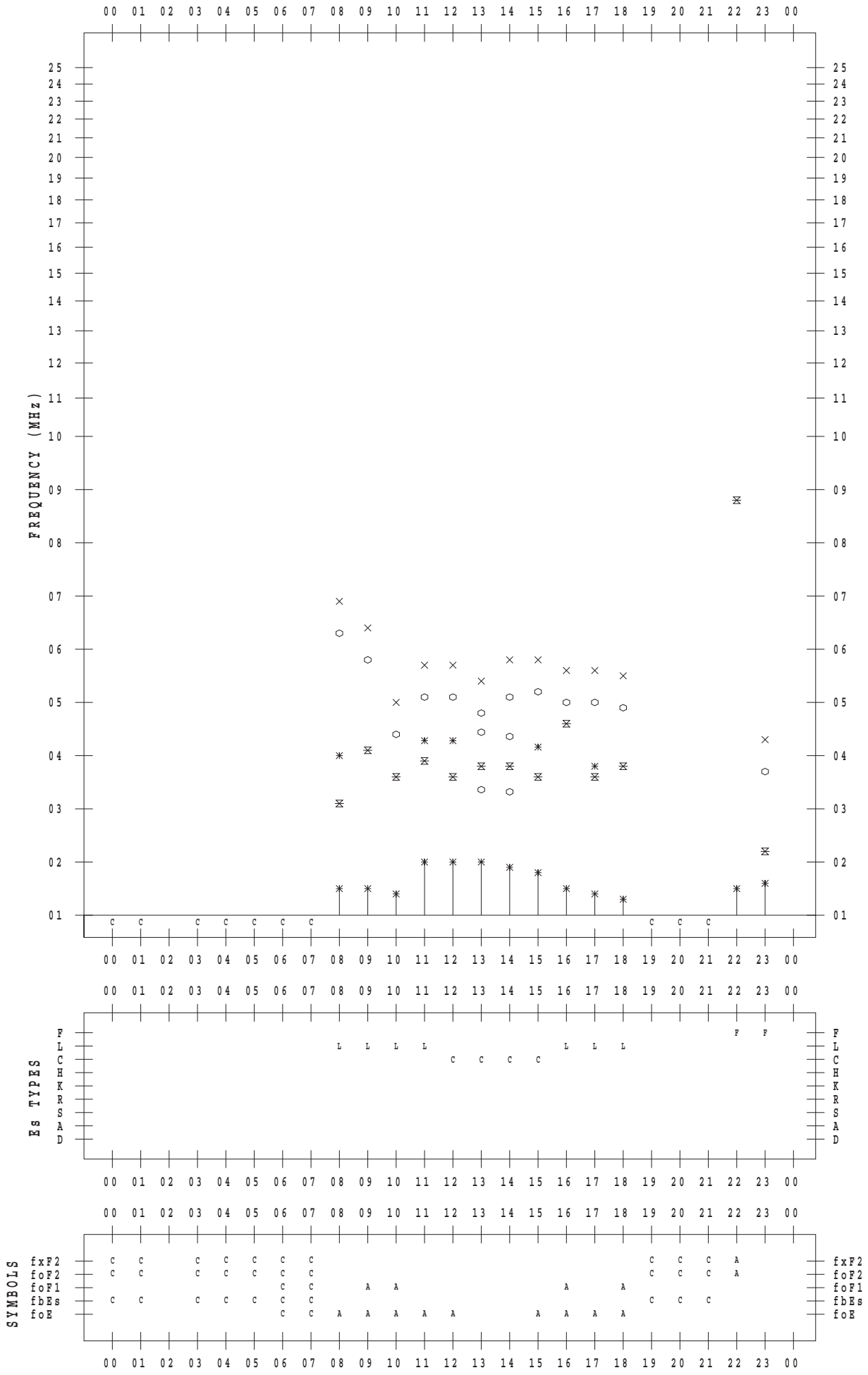
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/ 5

135 °E MEAN TIME



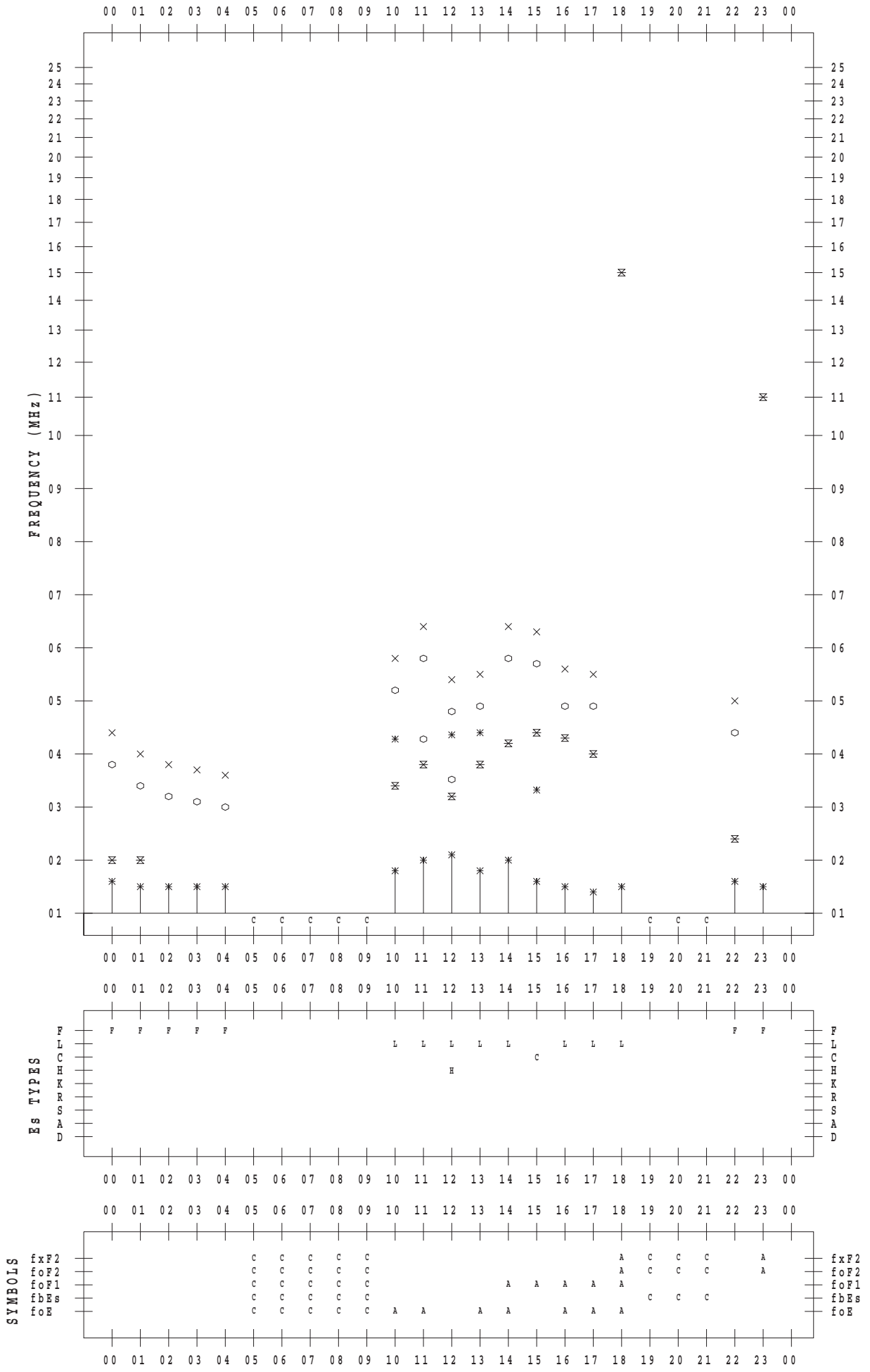
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/ 6

135 °E MEAN TIME



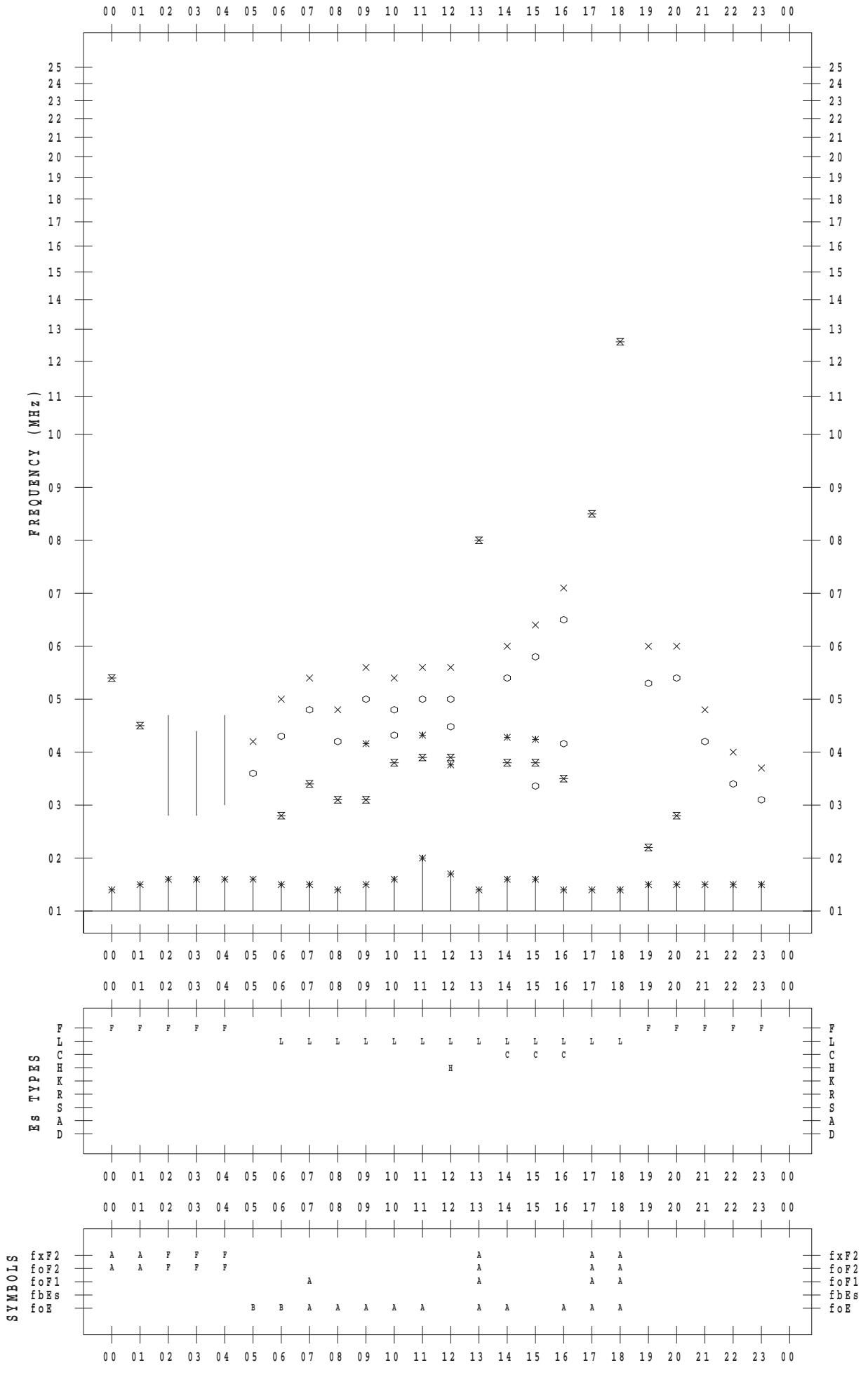
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/ 7

135 °E MEAN TIME



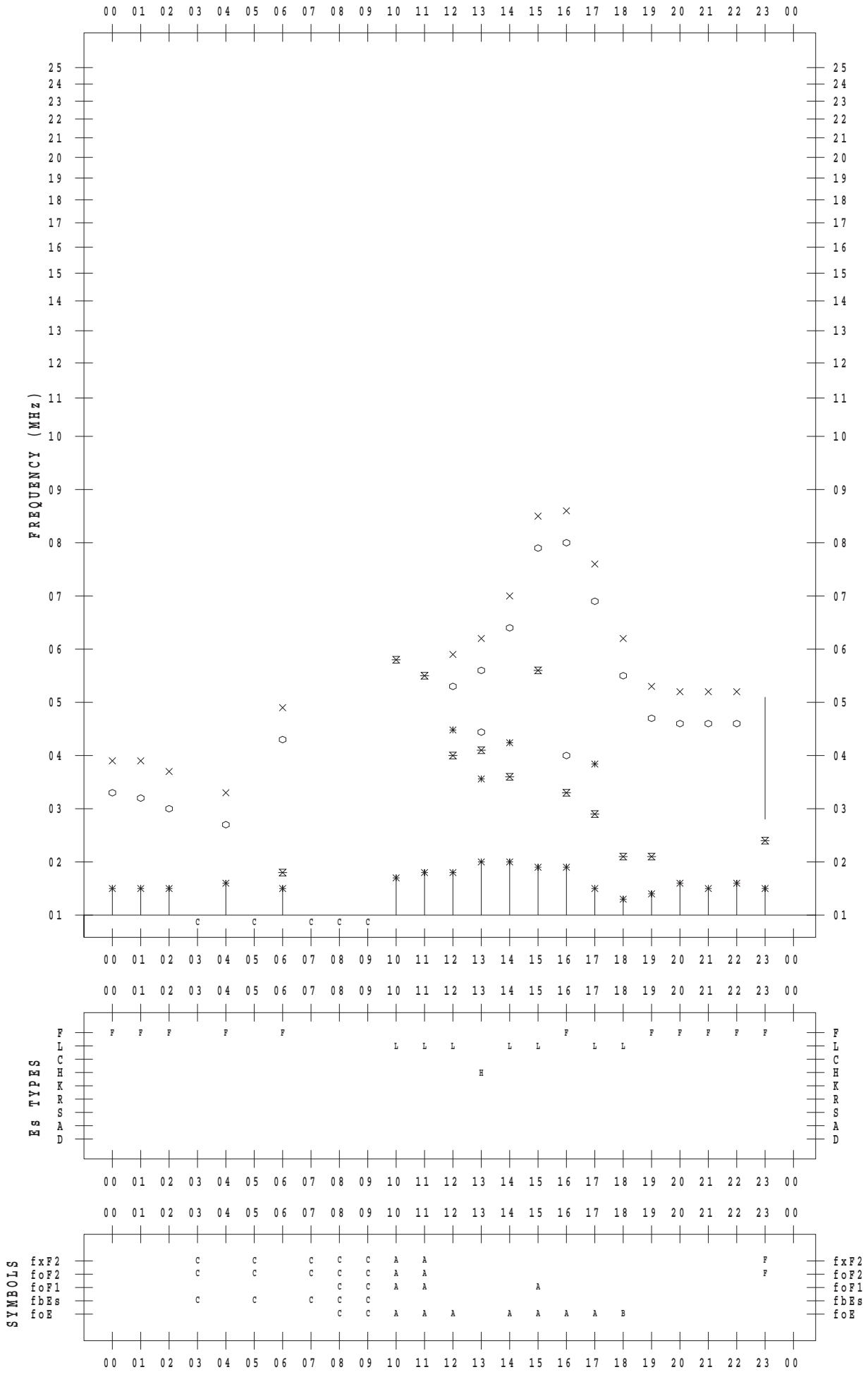
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/ 8

135 °E MEAN TIME



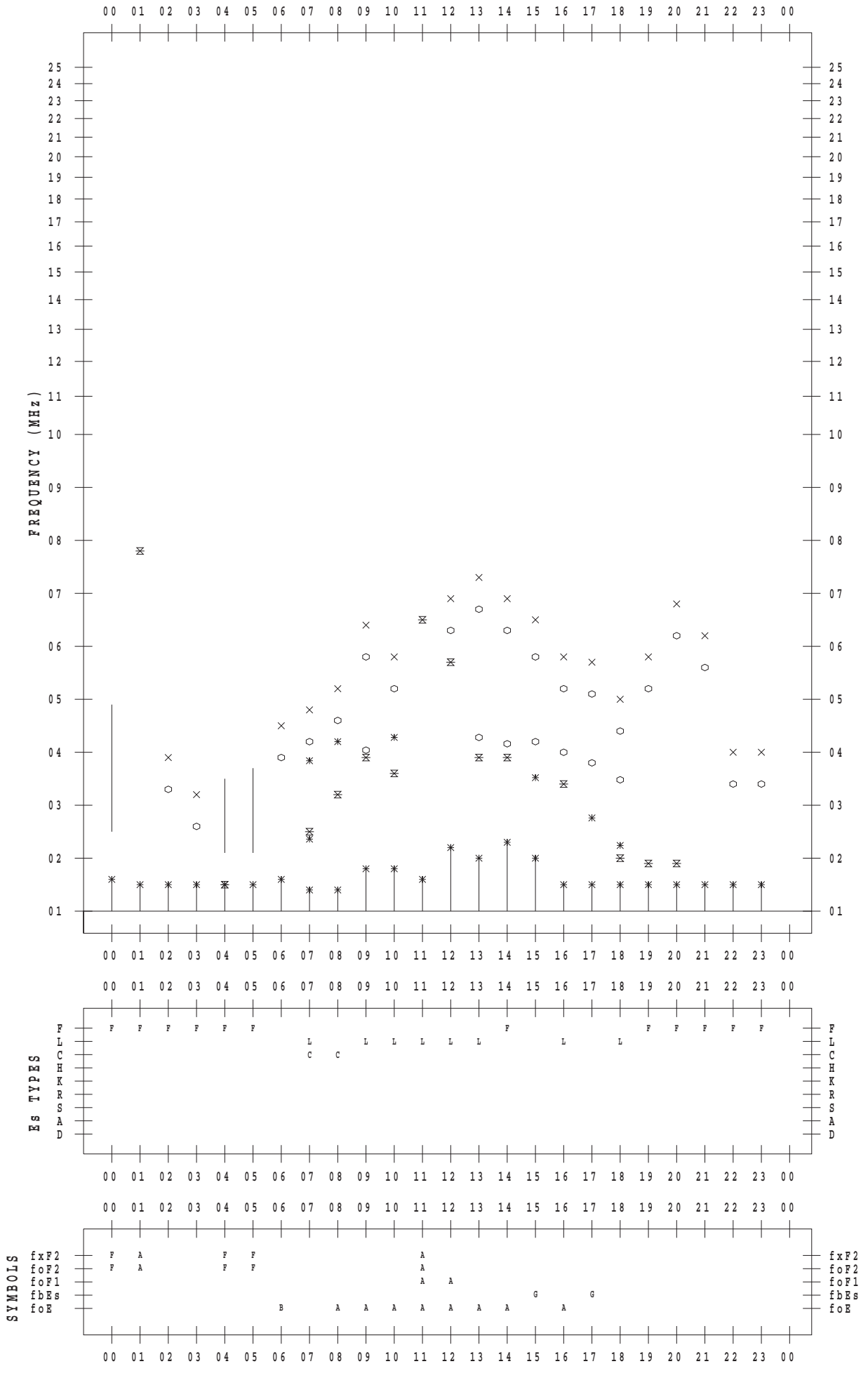
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/ 9

135 °E MEAN TIME



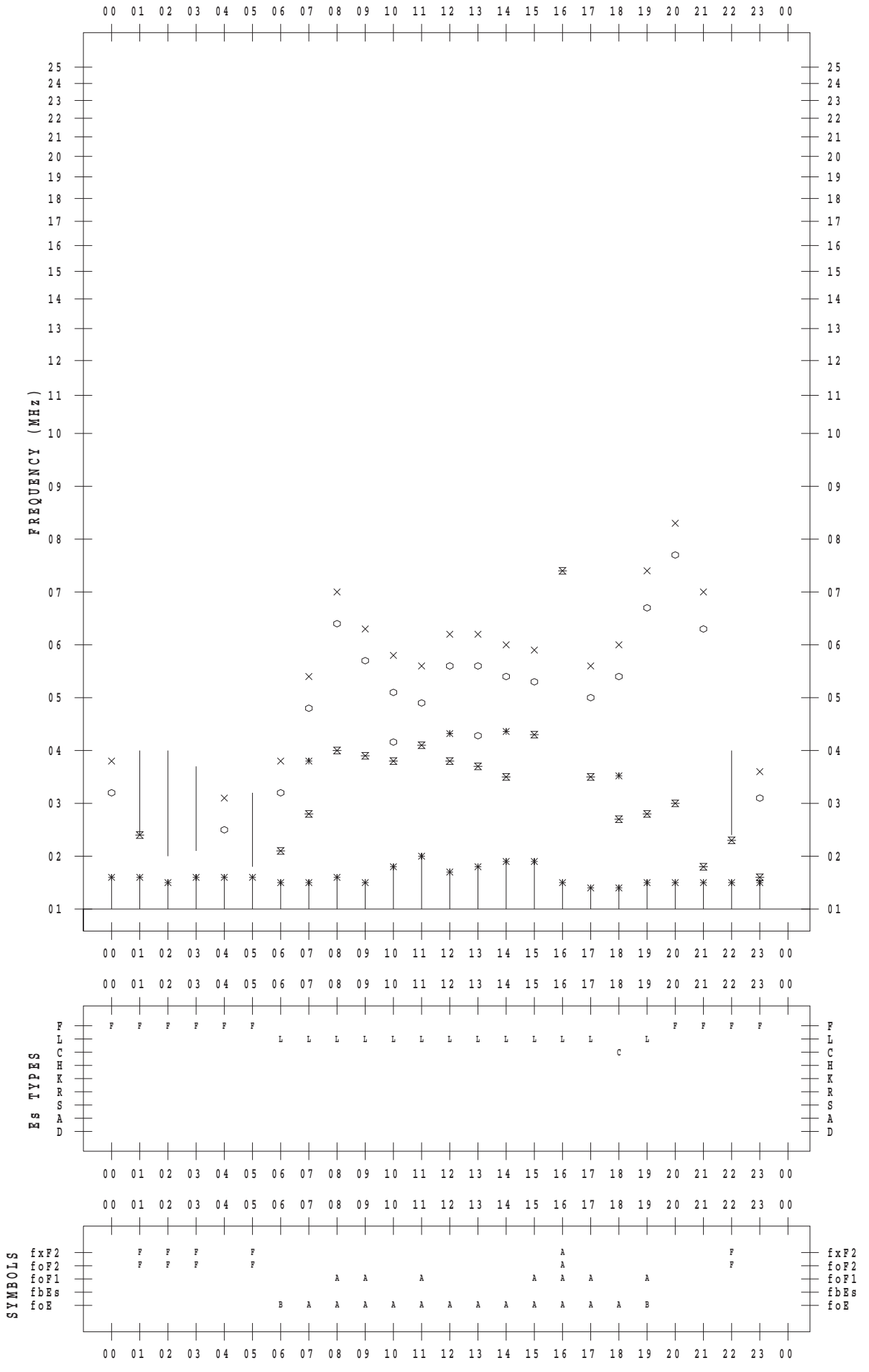
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/10

135 °E MEAN TIME



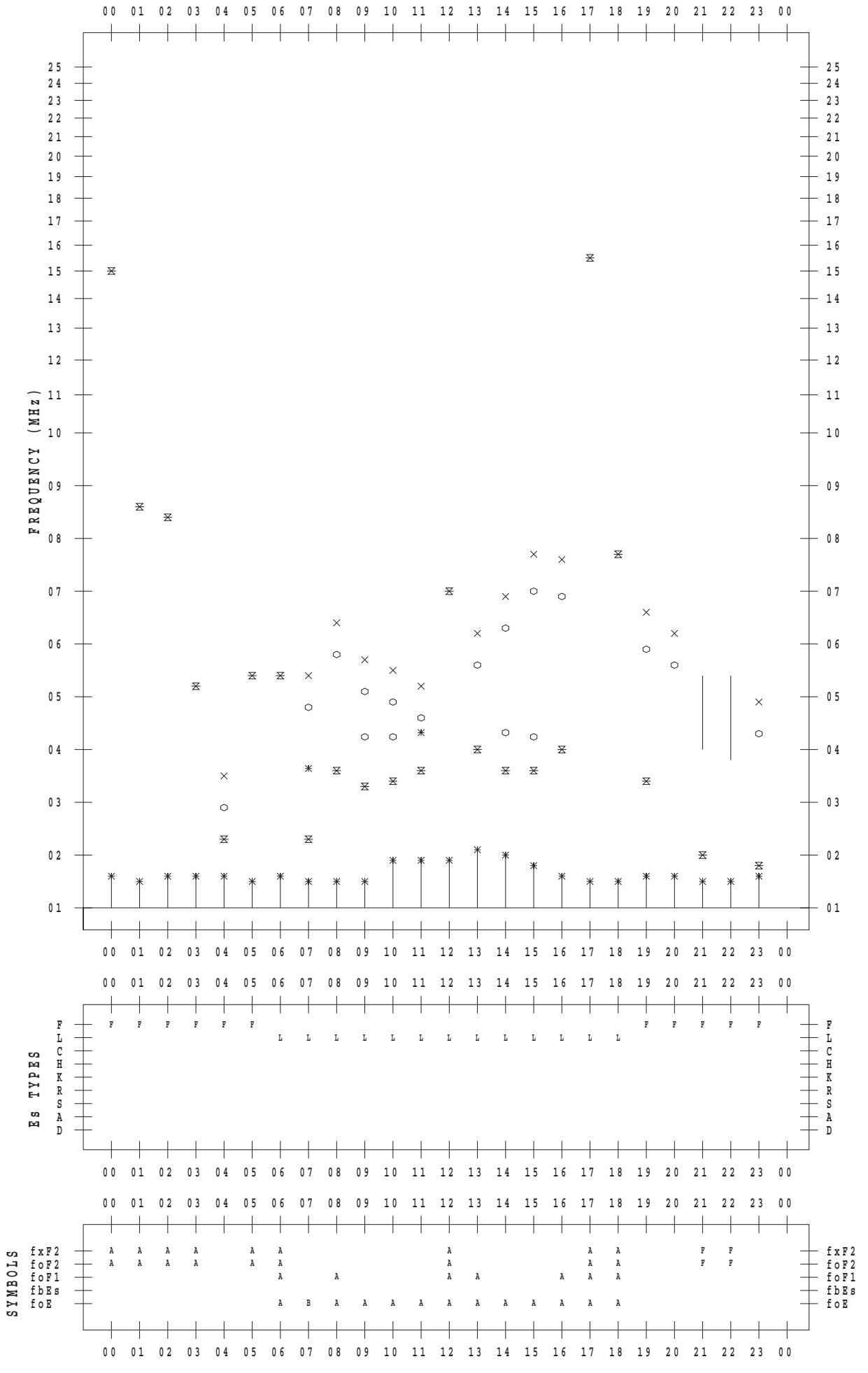
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/11

135 °E MEAN TIME



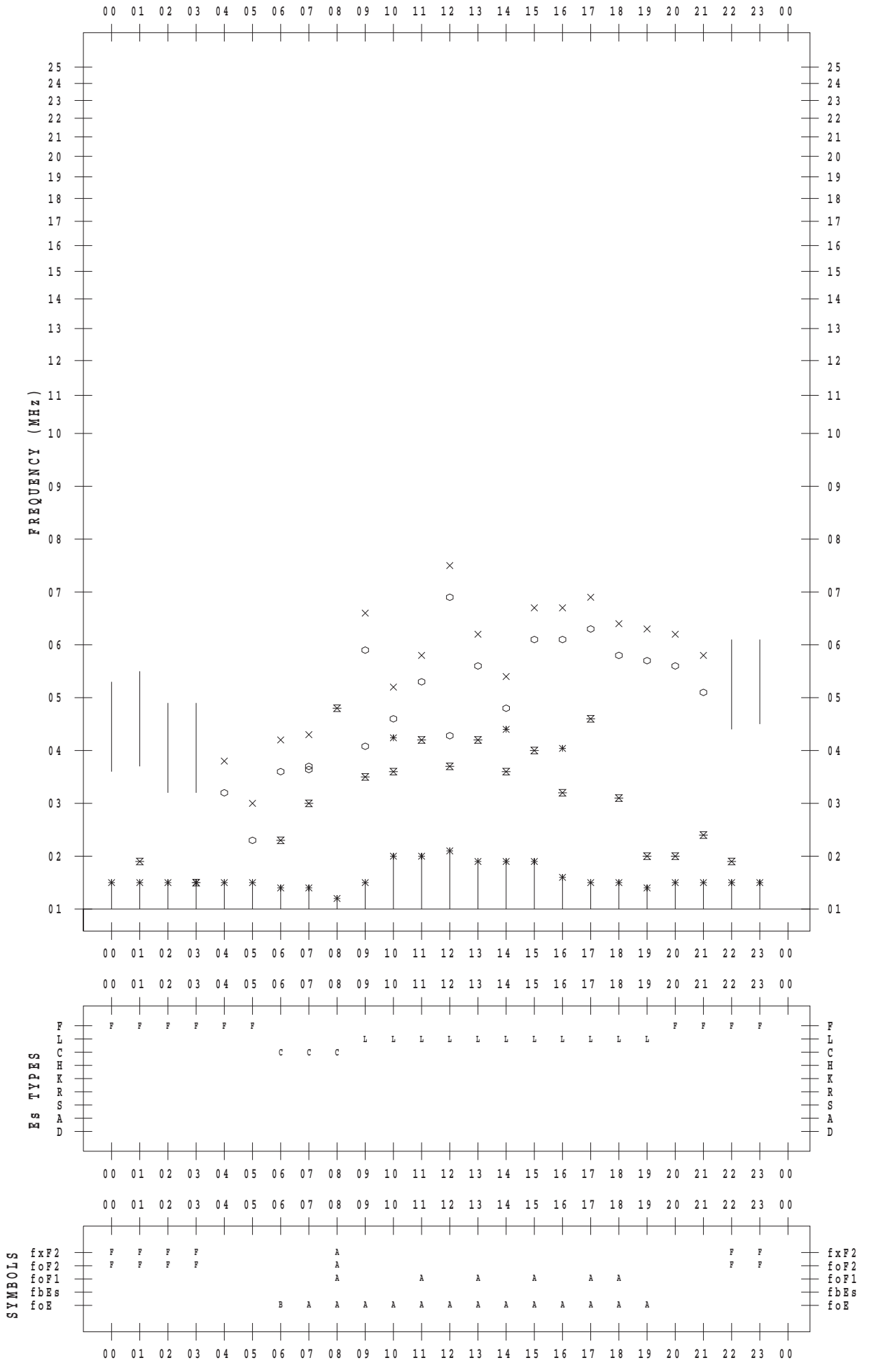
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/12

135 °E MEAN TIME



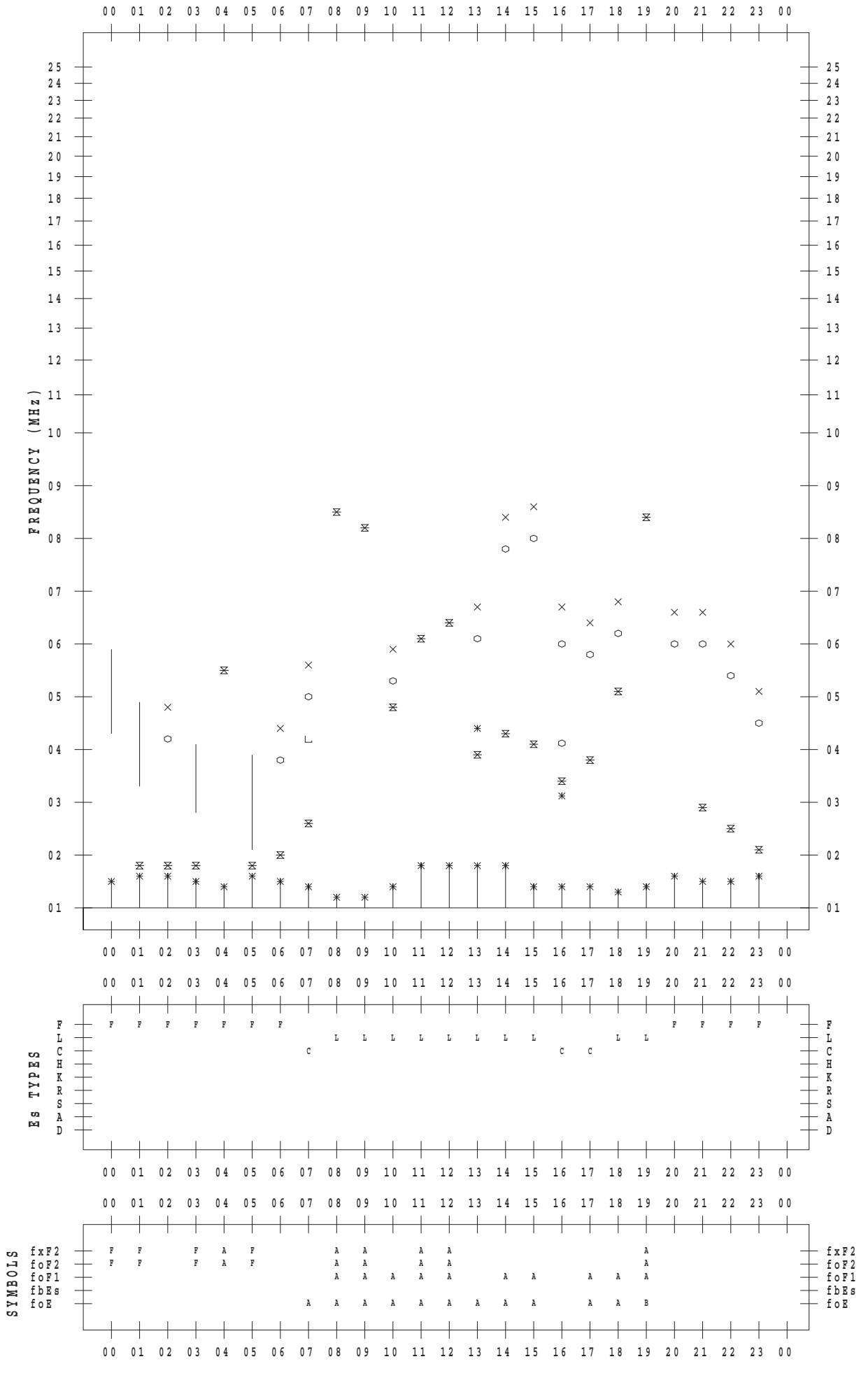
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/13

135 °E MEAN TIME



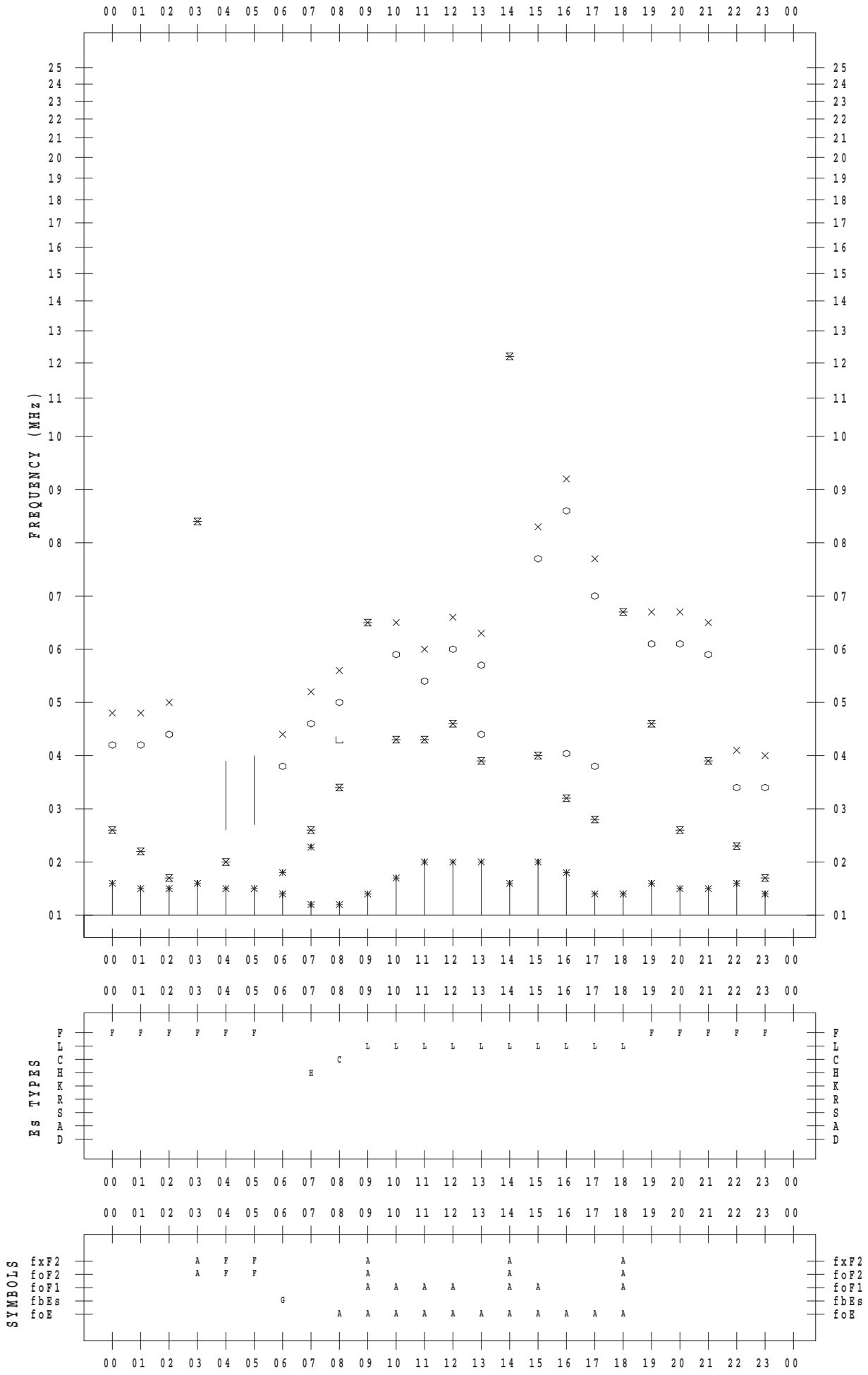
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/14

135 °E MEAN TIME



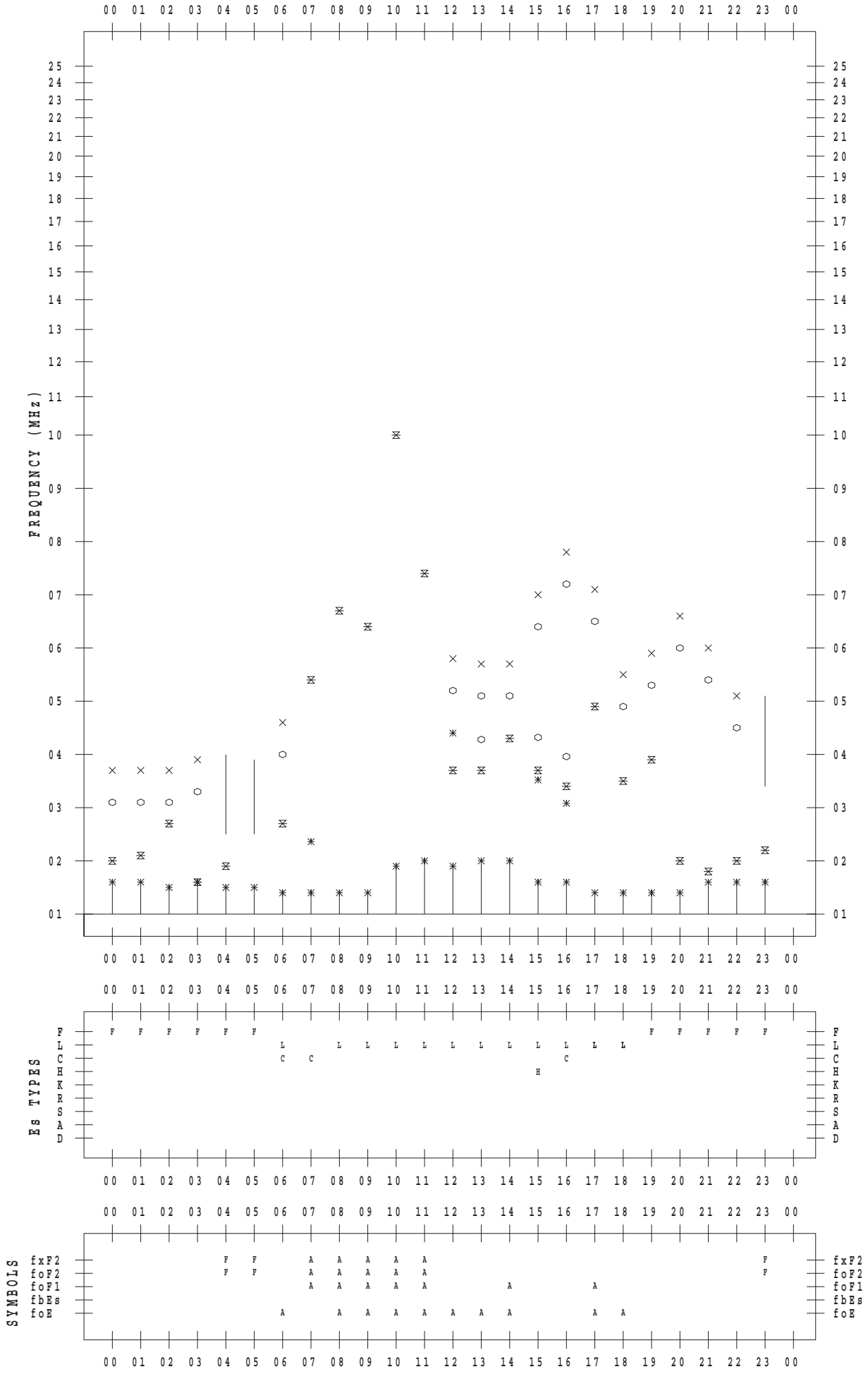
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/15

135 °E MEAN TIME



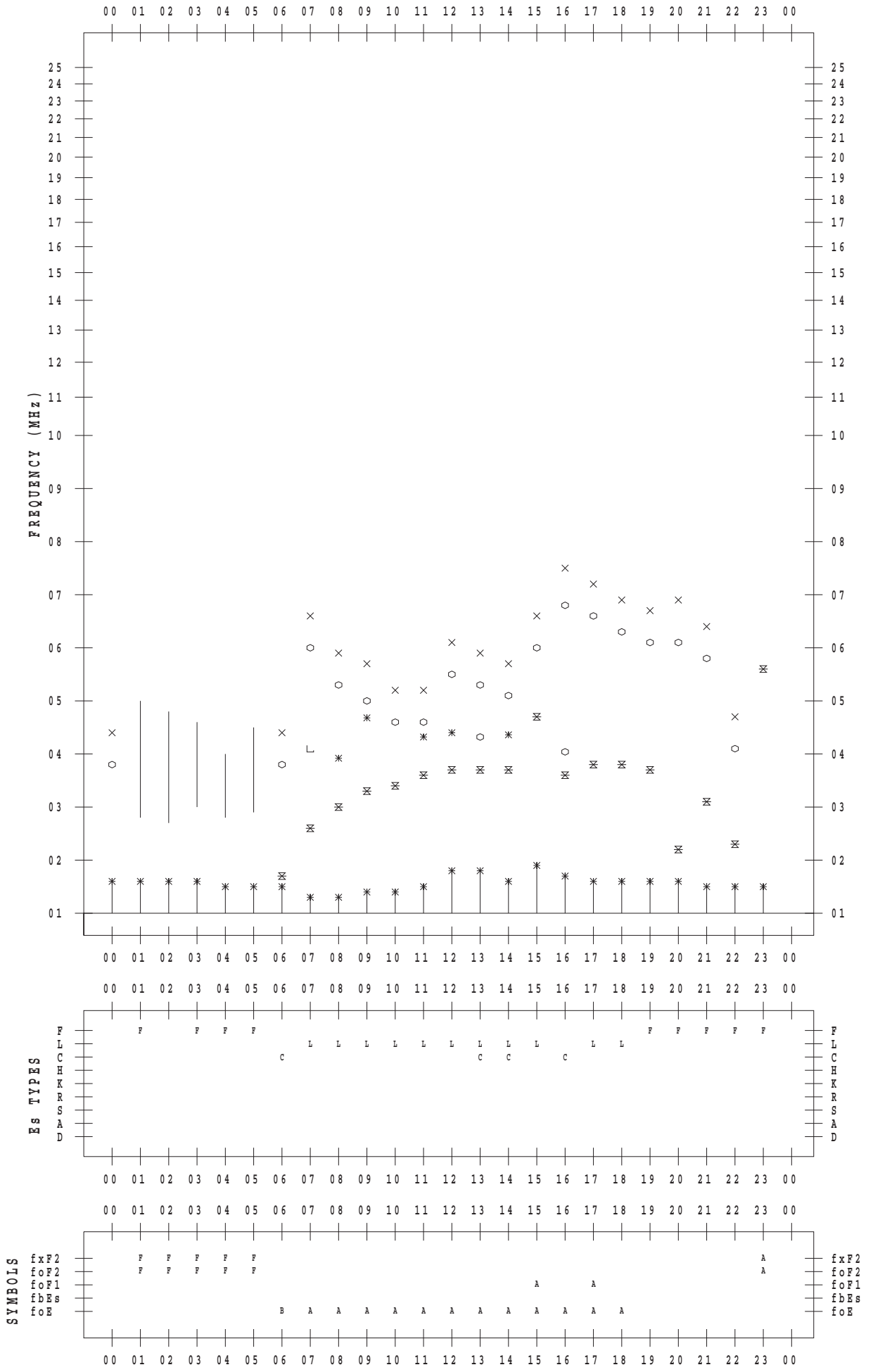
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/16

135 °E MEAN TIME



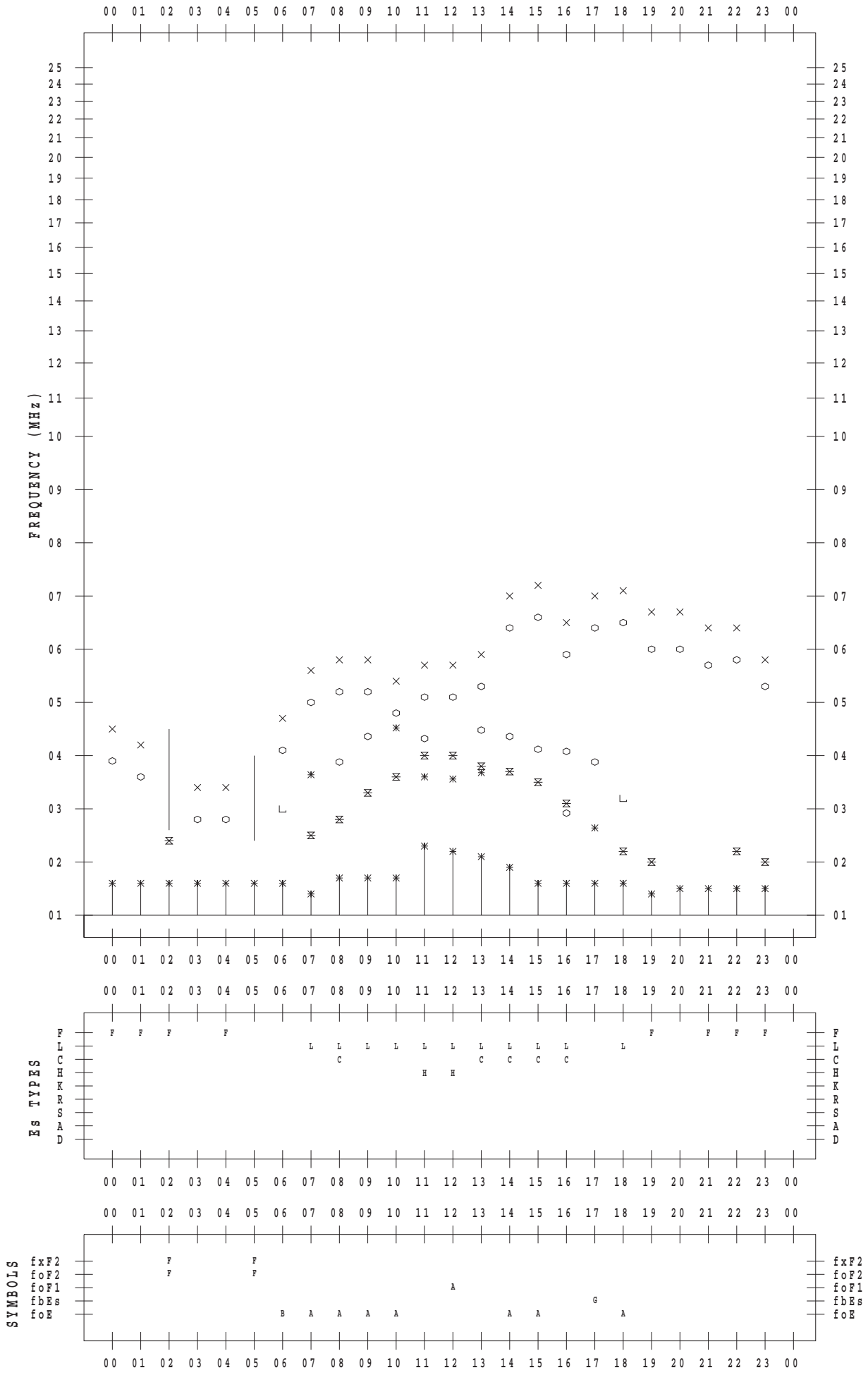
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/17

135 °E MEAN TIME



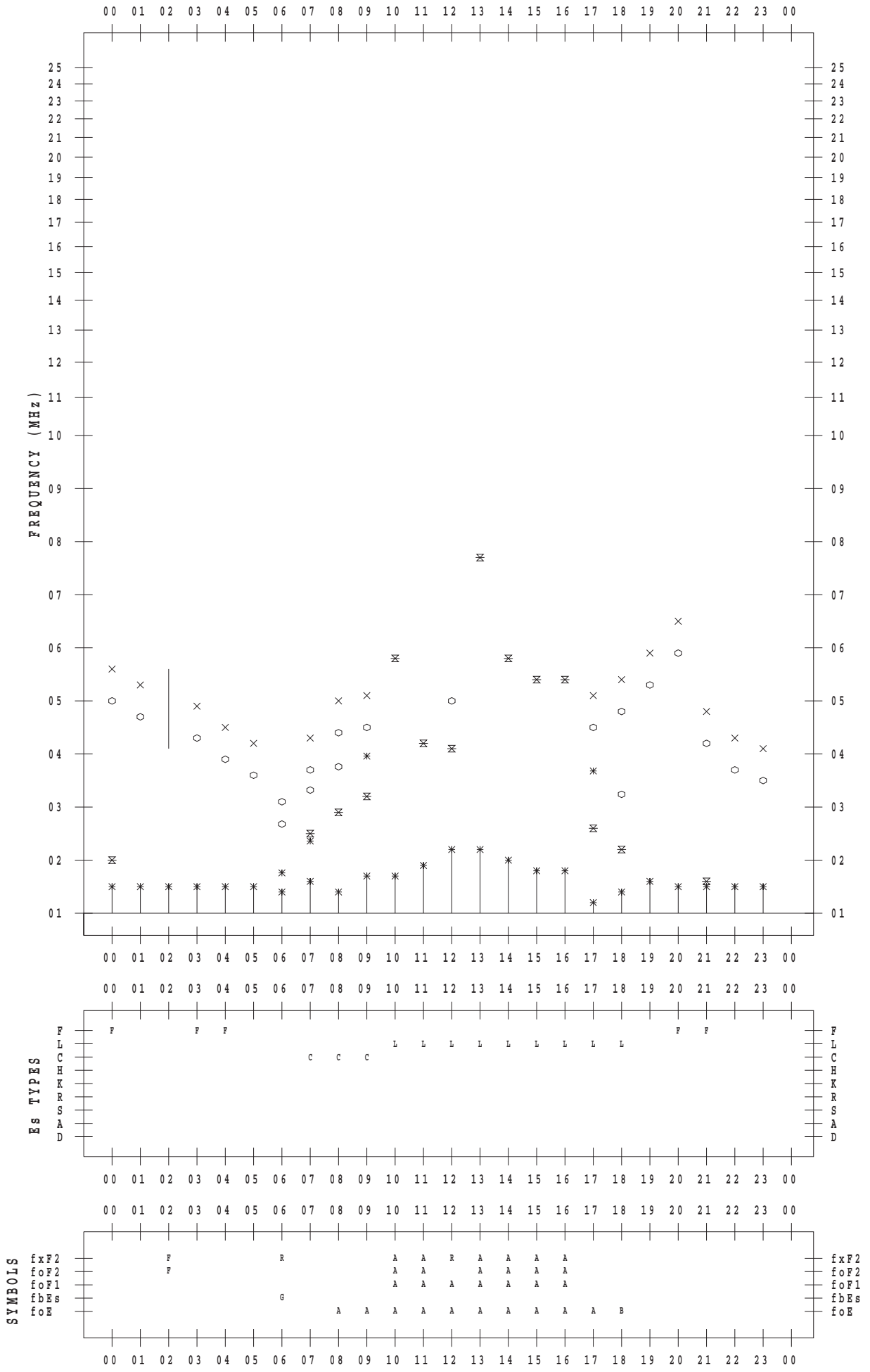
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/18

135 °E MEAN TIME



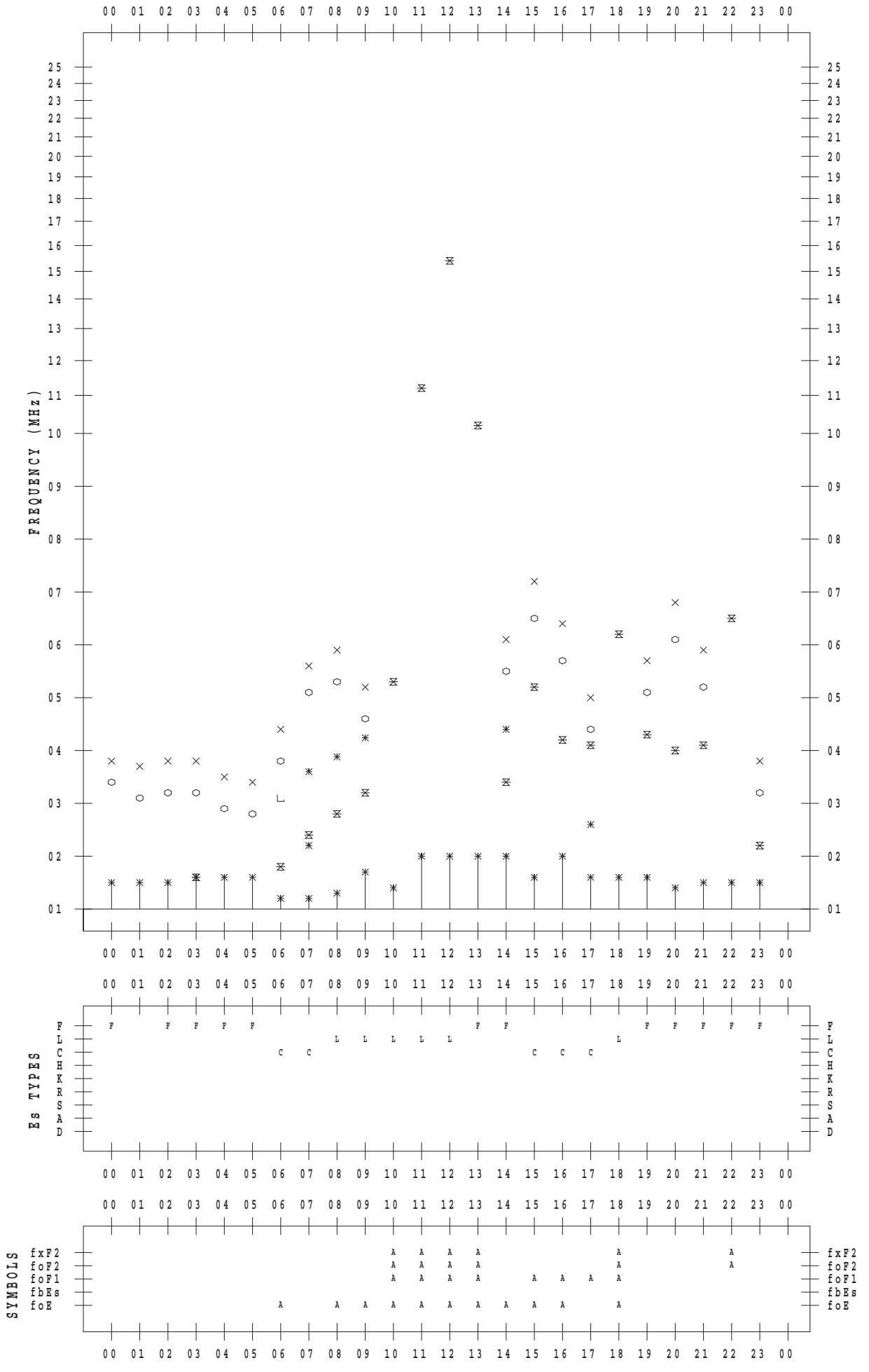
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/19

135 °E MEAN TIME



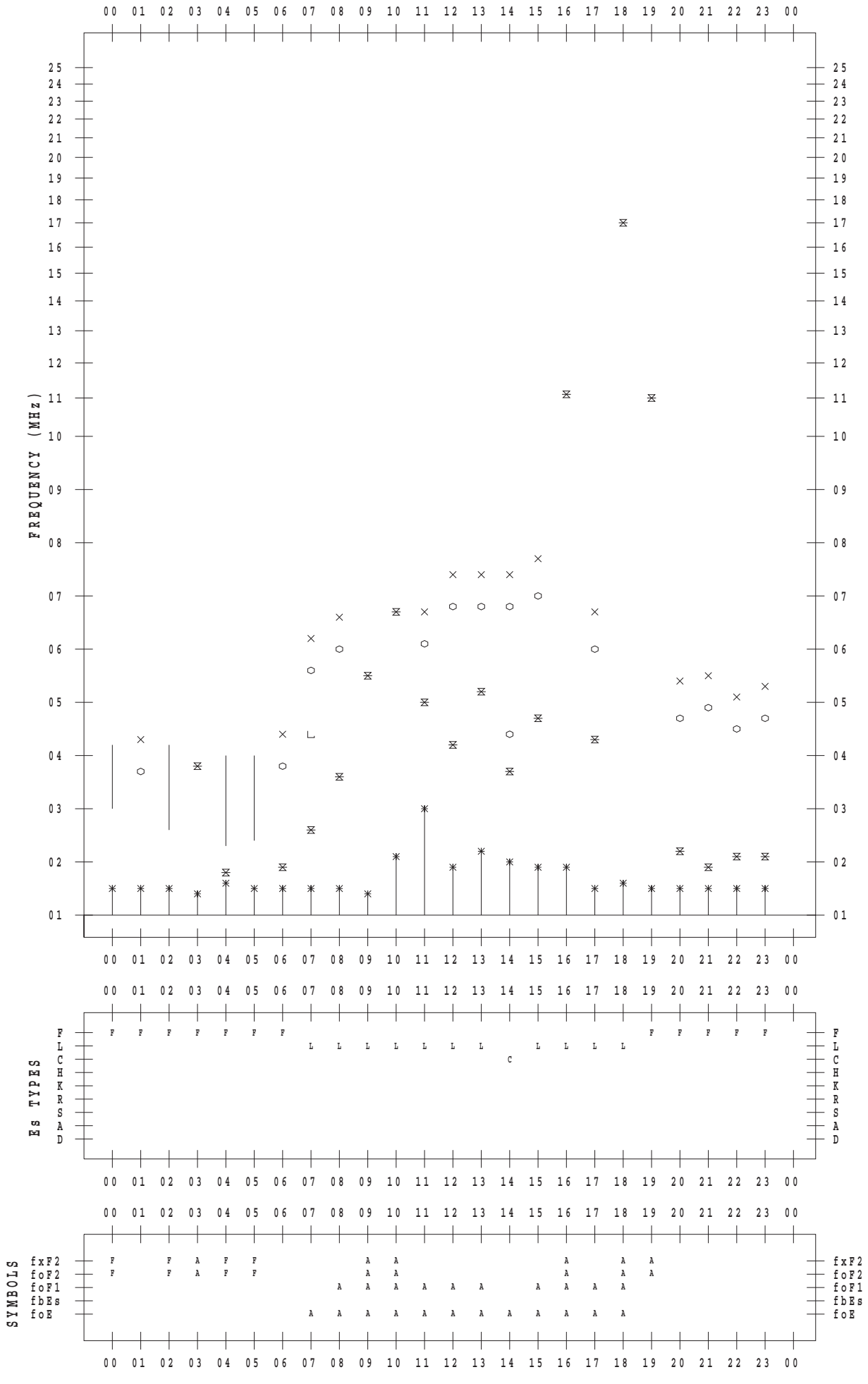
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/20

135 °E MEAN TIME



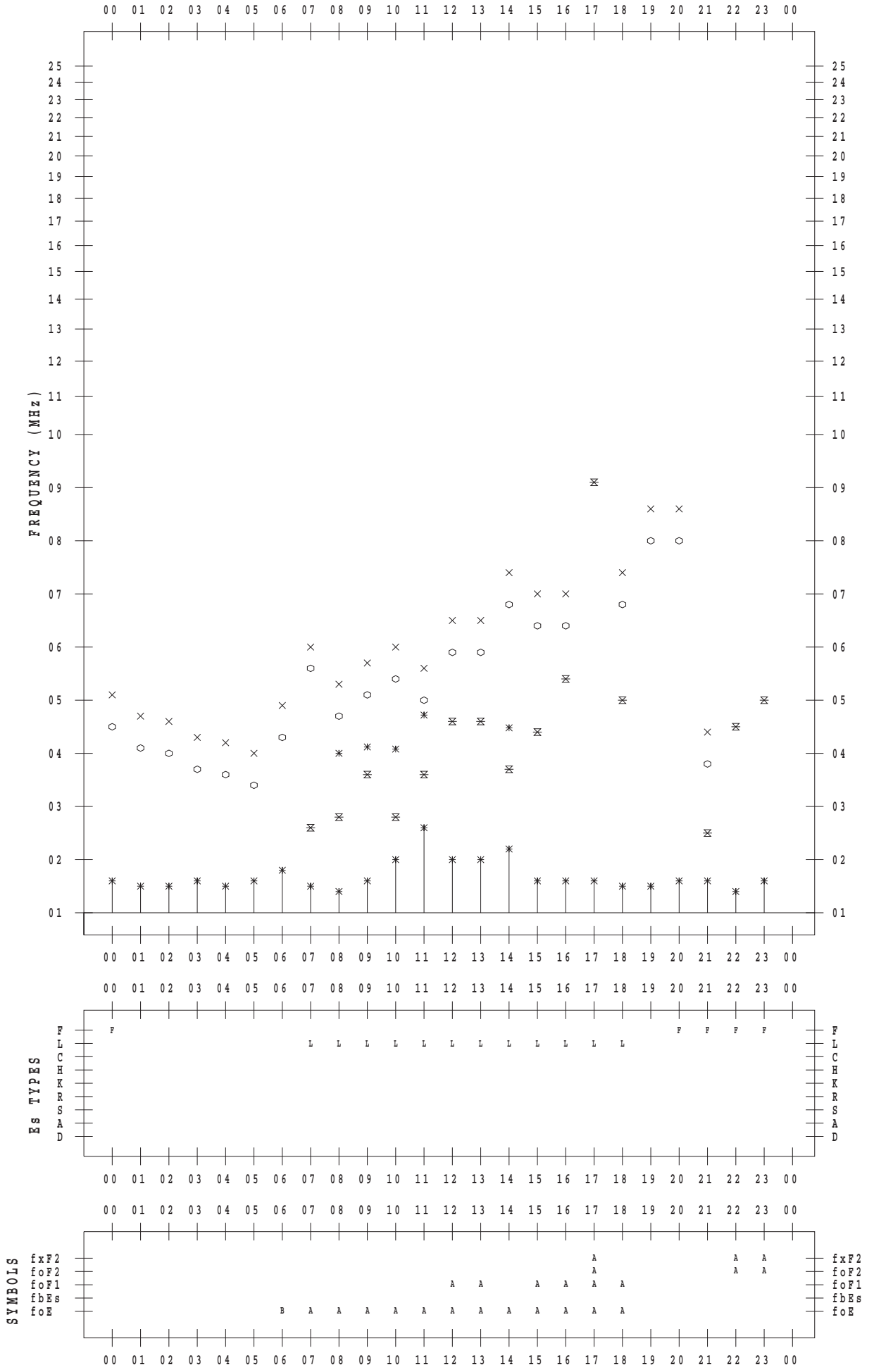
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/21

135 °E MEAN TIME



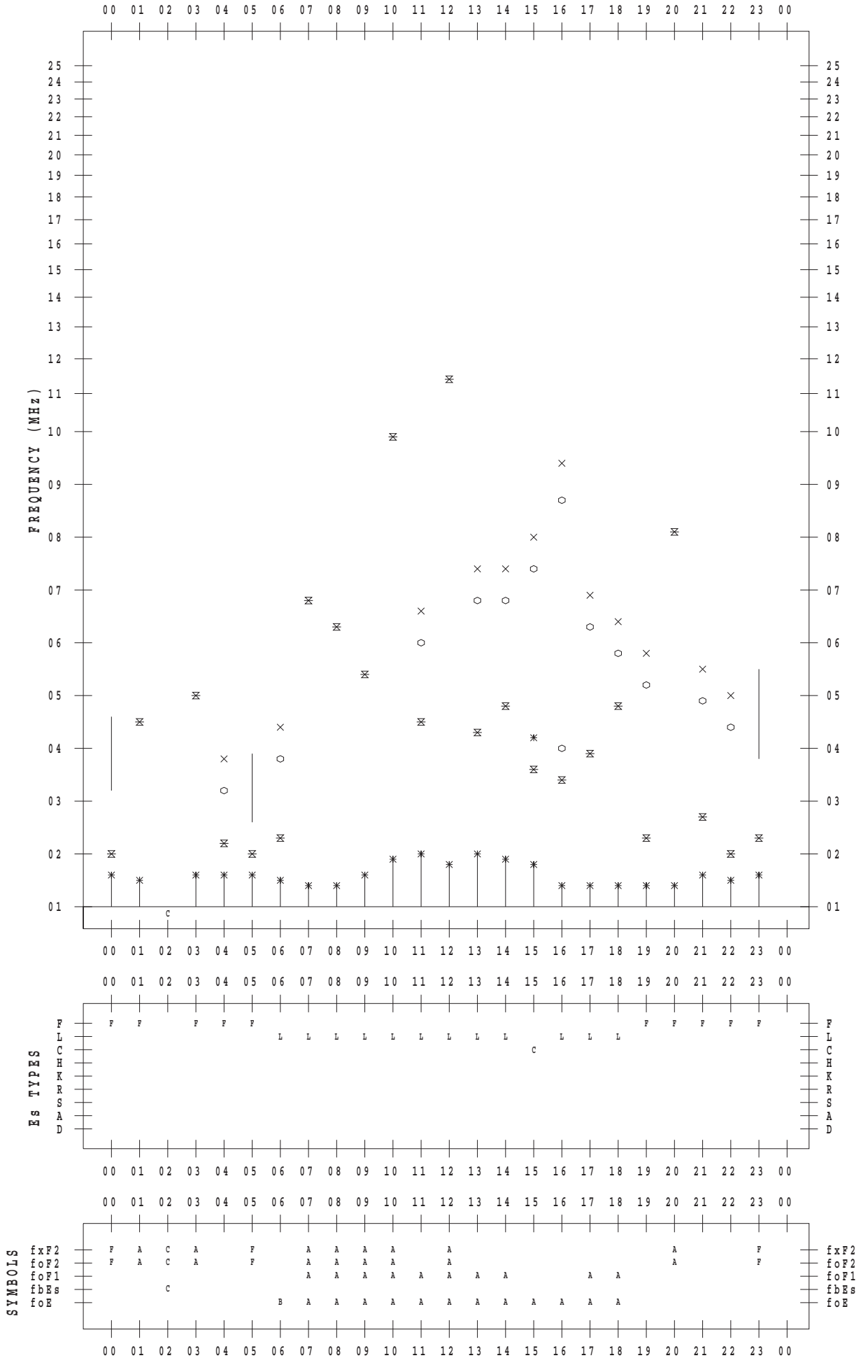
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/22

135 °E MEAN TIME



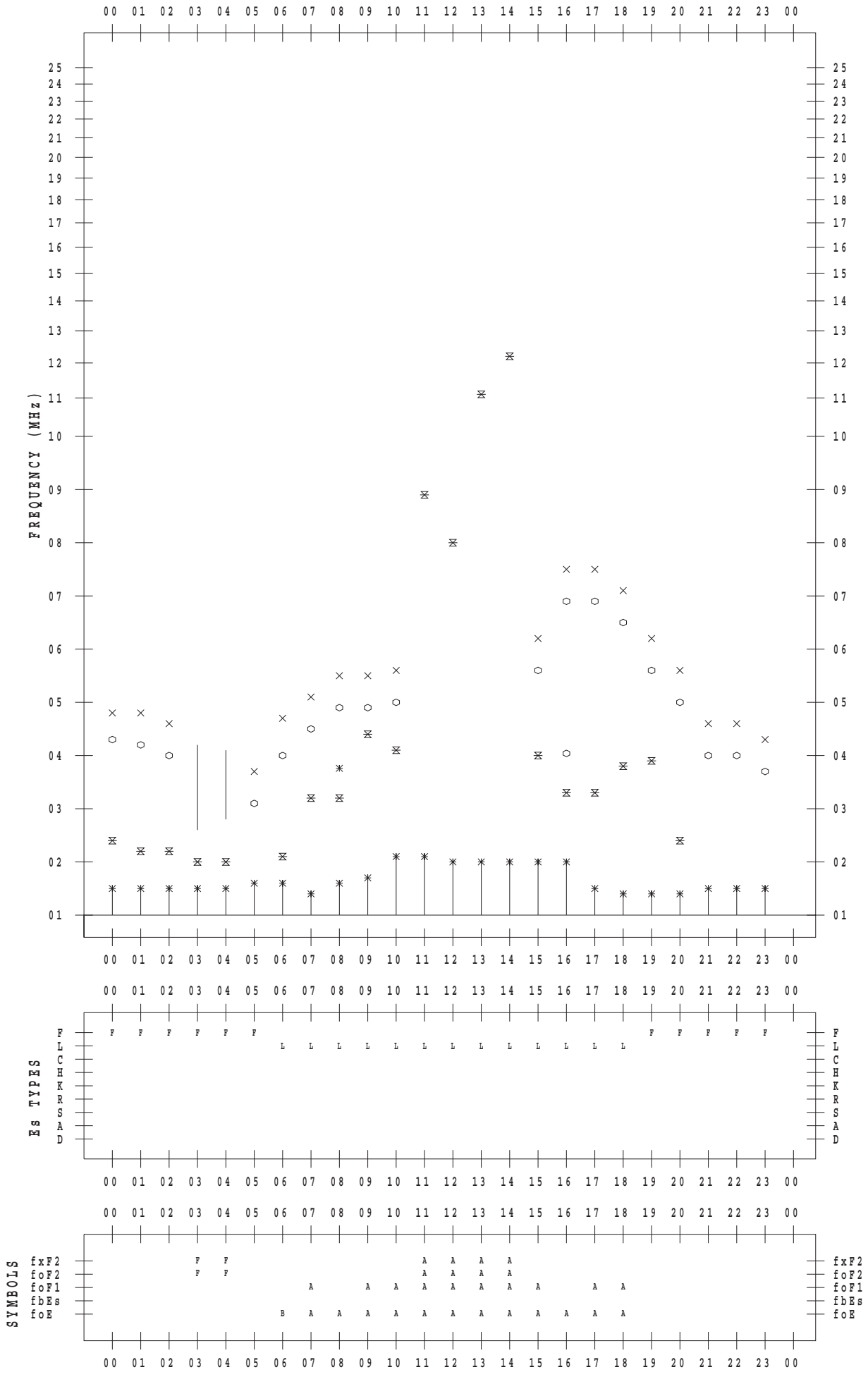
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/23

135 °E MEAN TIME



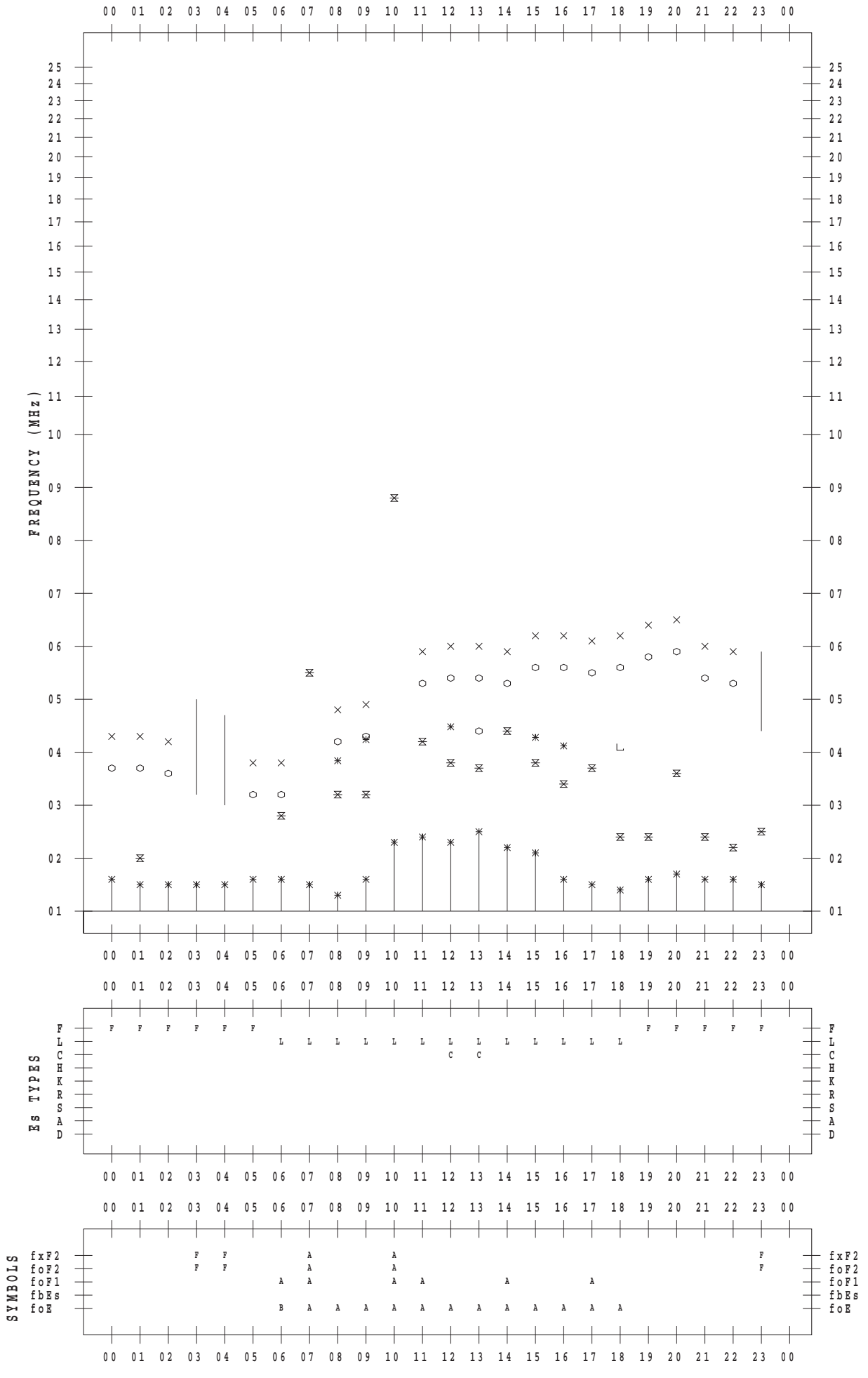
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/24

135 °E MEAN TIME



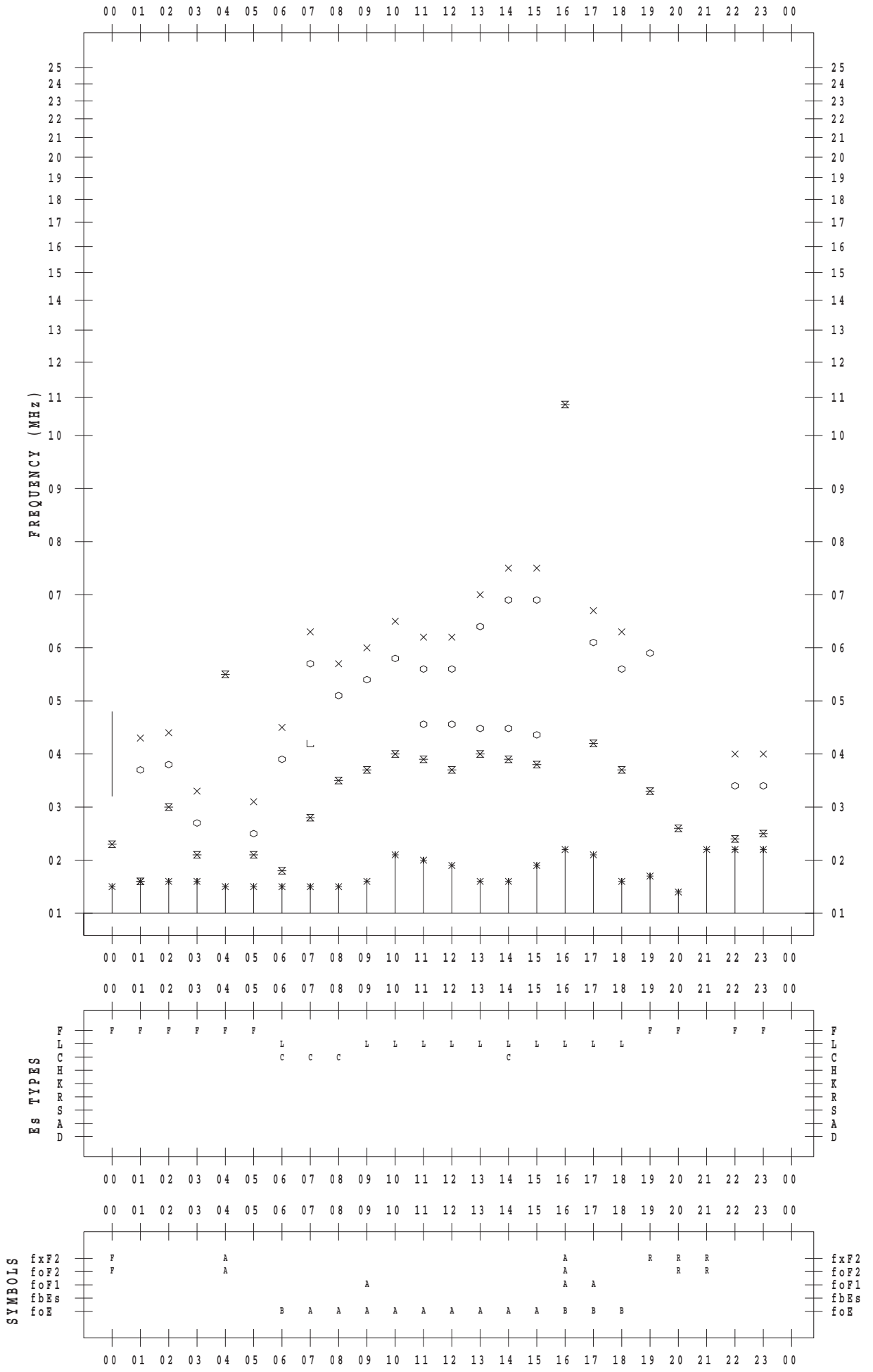
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/25

135 °E MEAN TIME



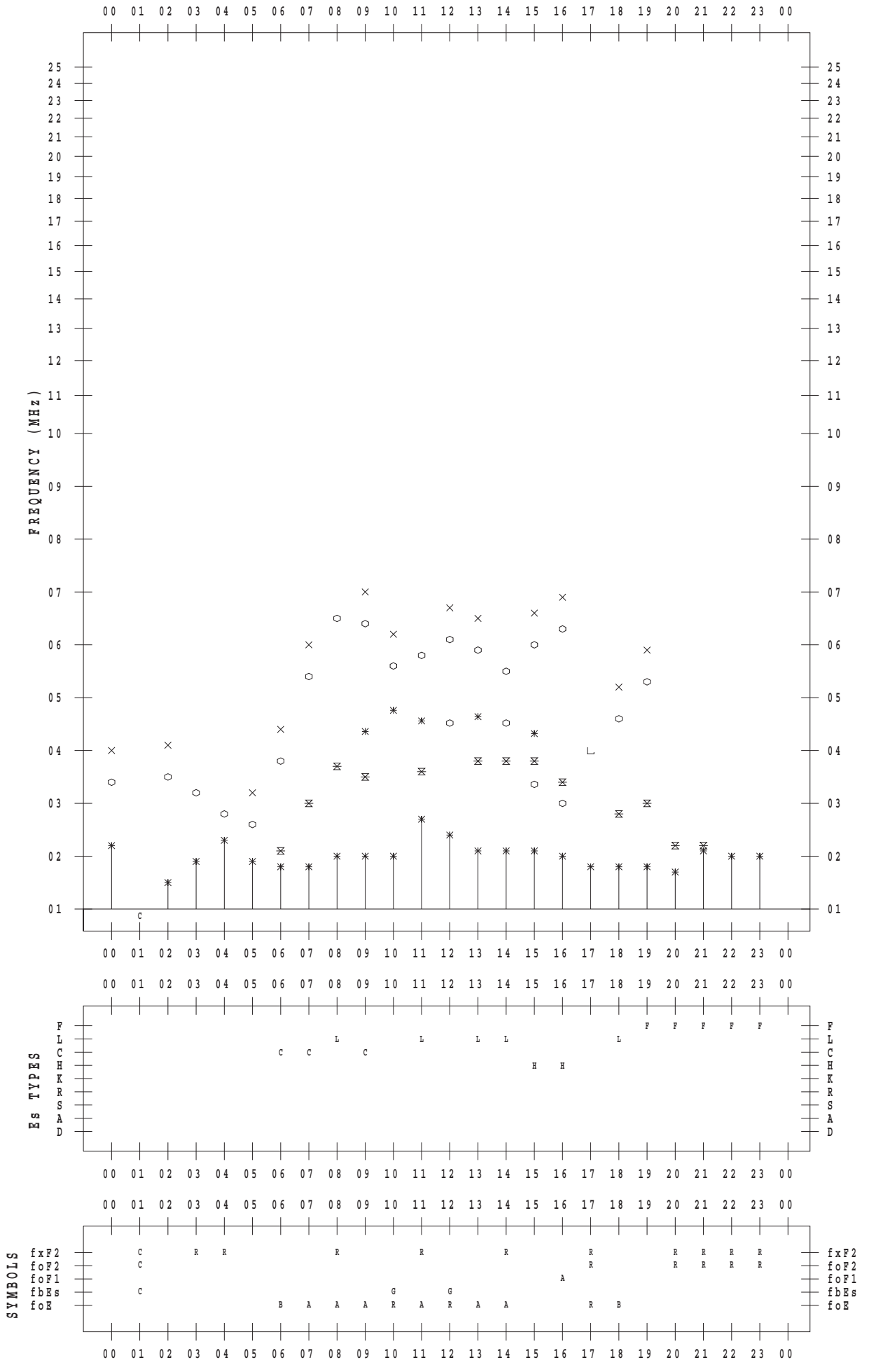
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/26

135 °E MEAN TIME



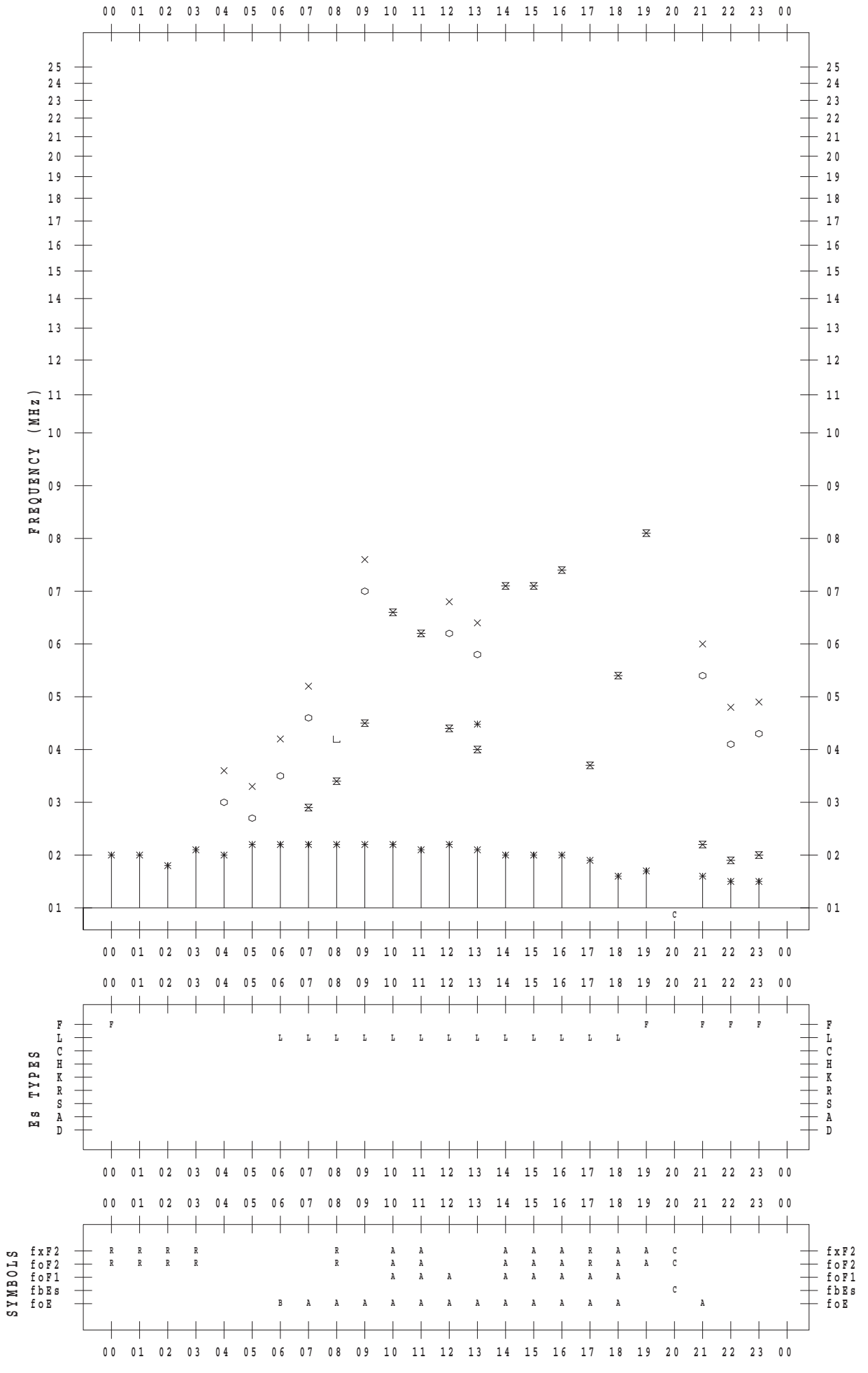
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/27

135 °E MEAN TIME



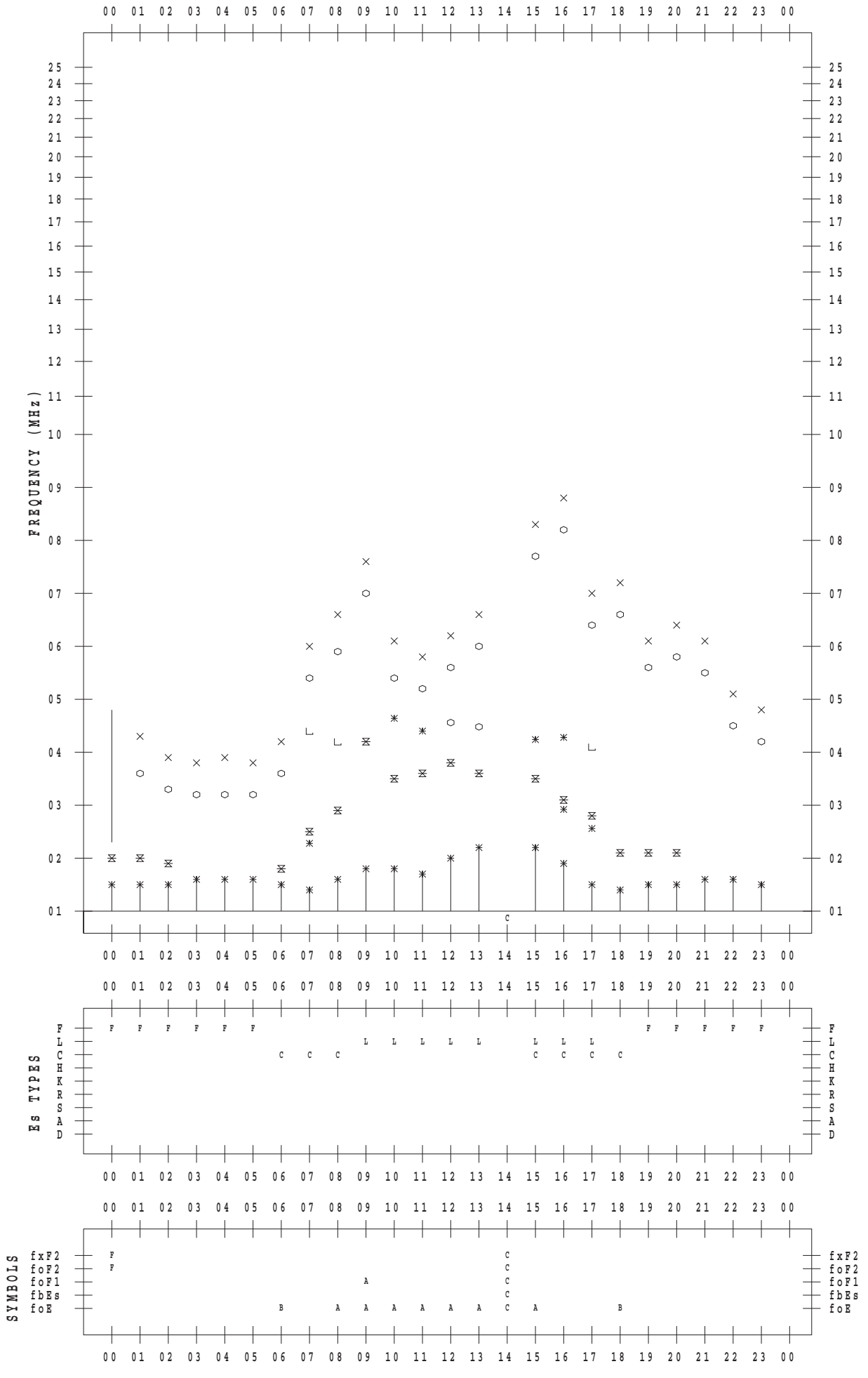
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/28

135 °E MEAN TIME



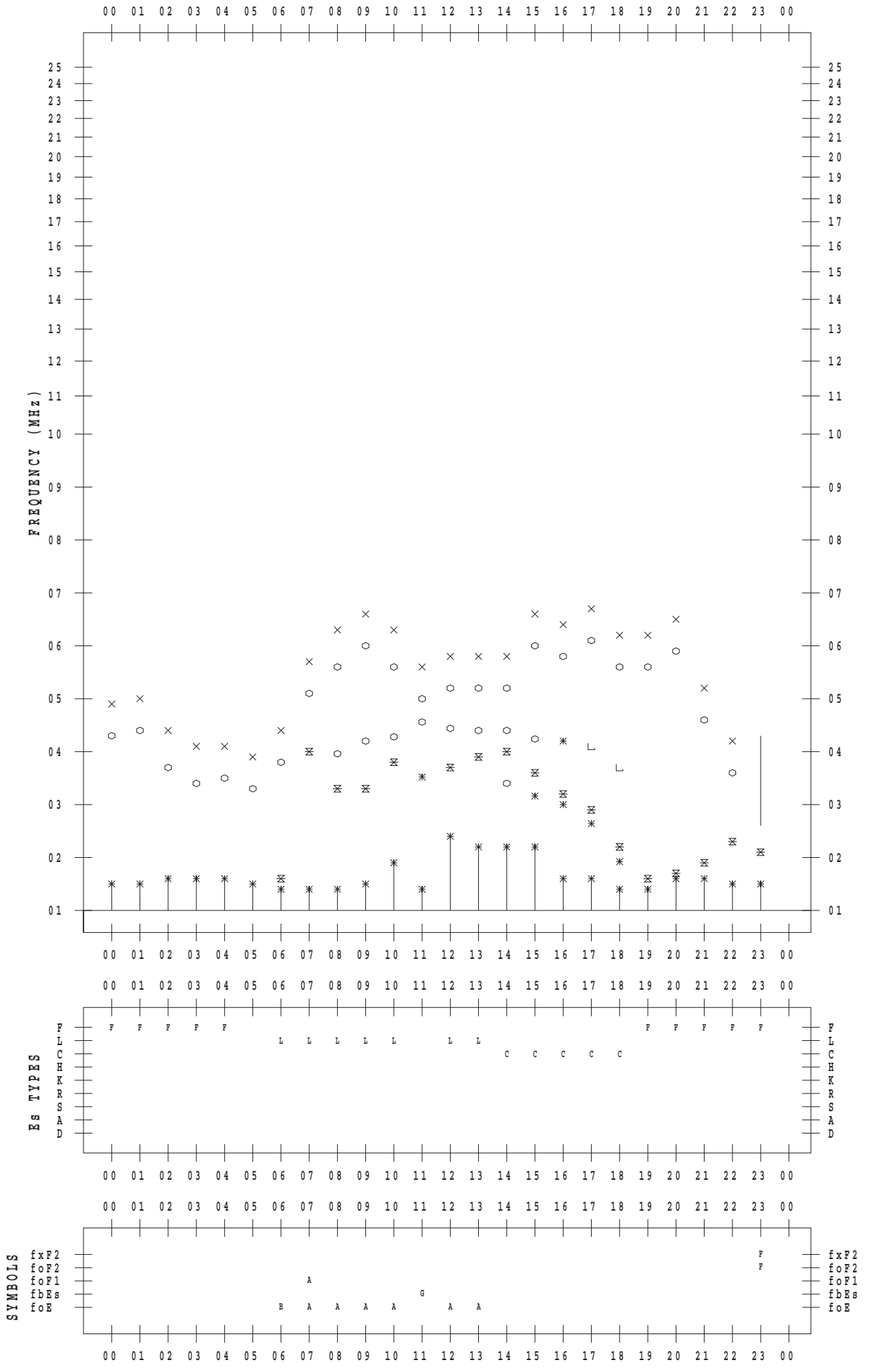
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/29

135 °E MEAN TIME



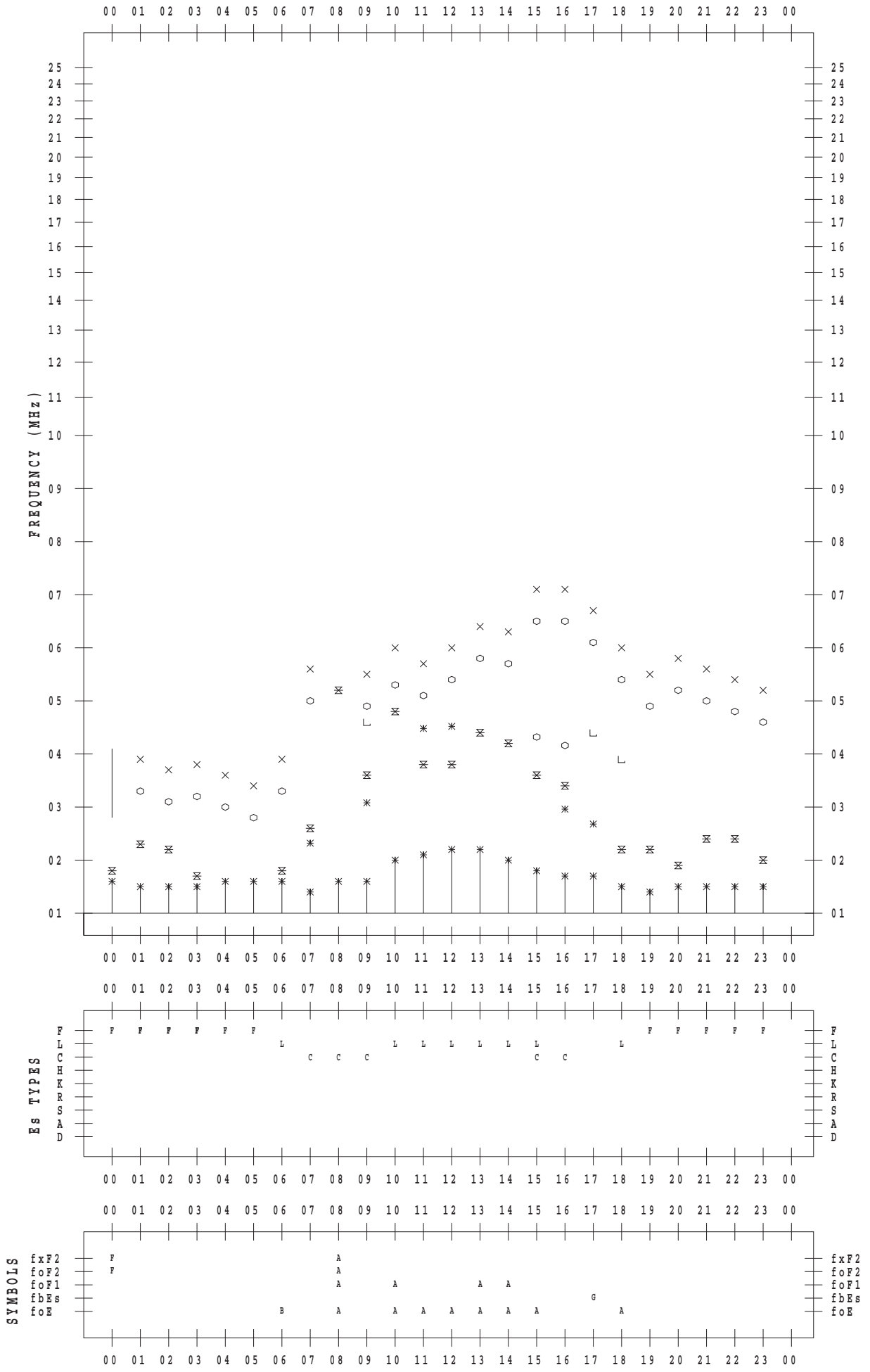
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/30

135 °E MEAN TIME



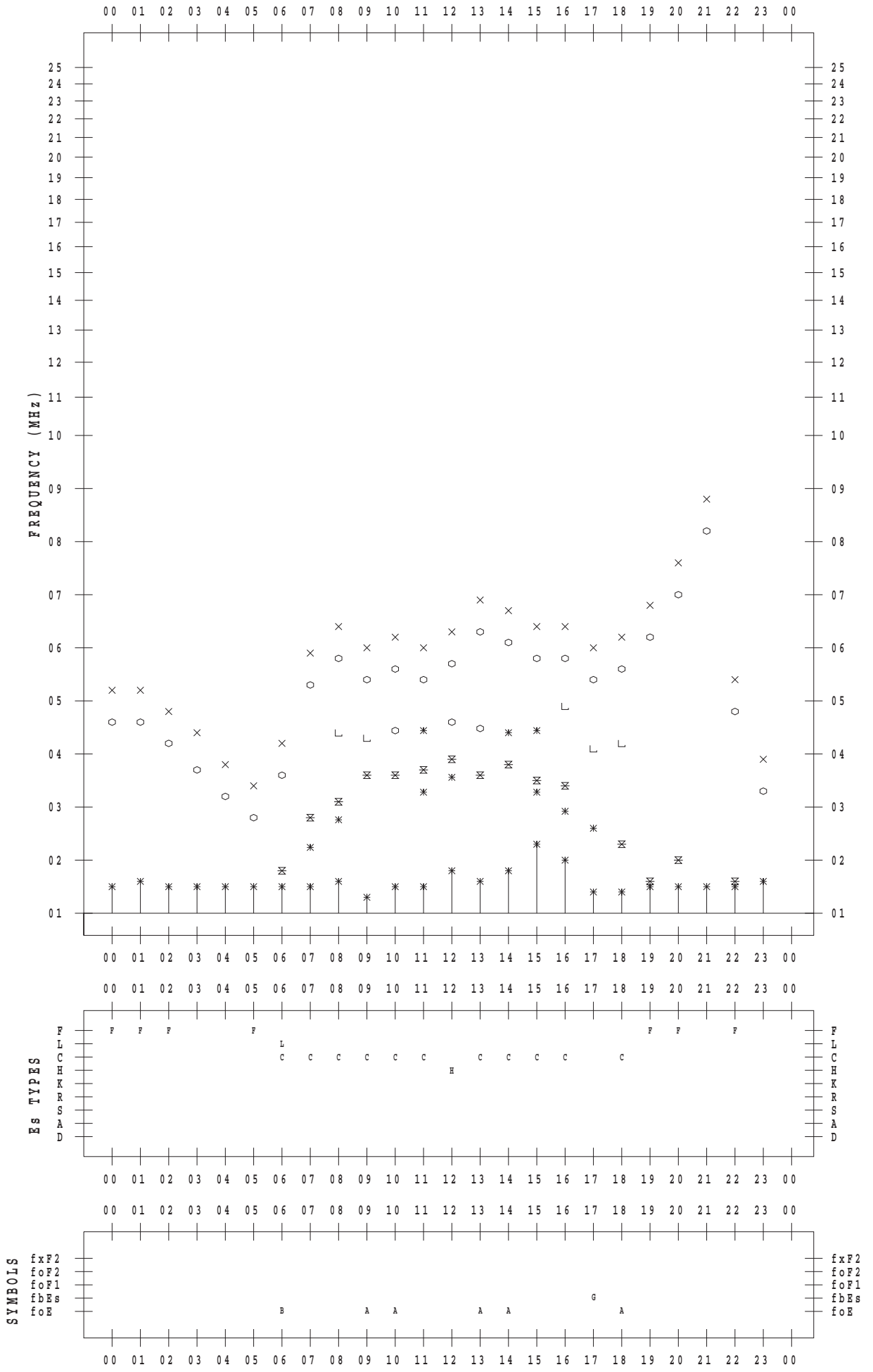
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 8/31

135 °E MEAN TIME



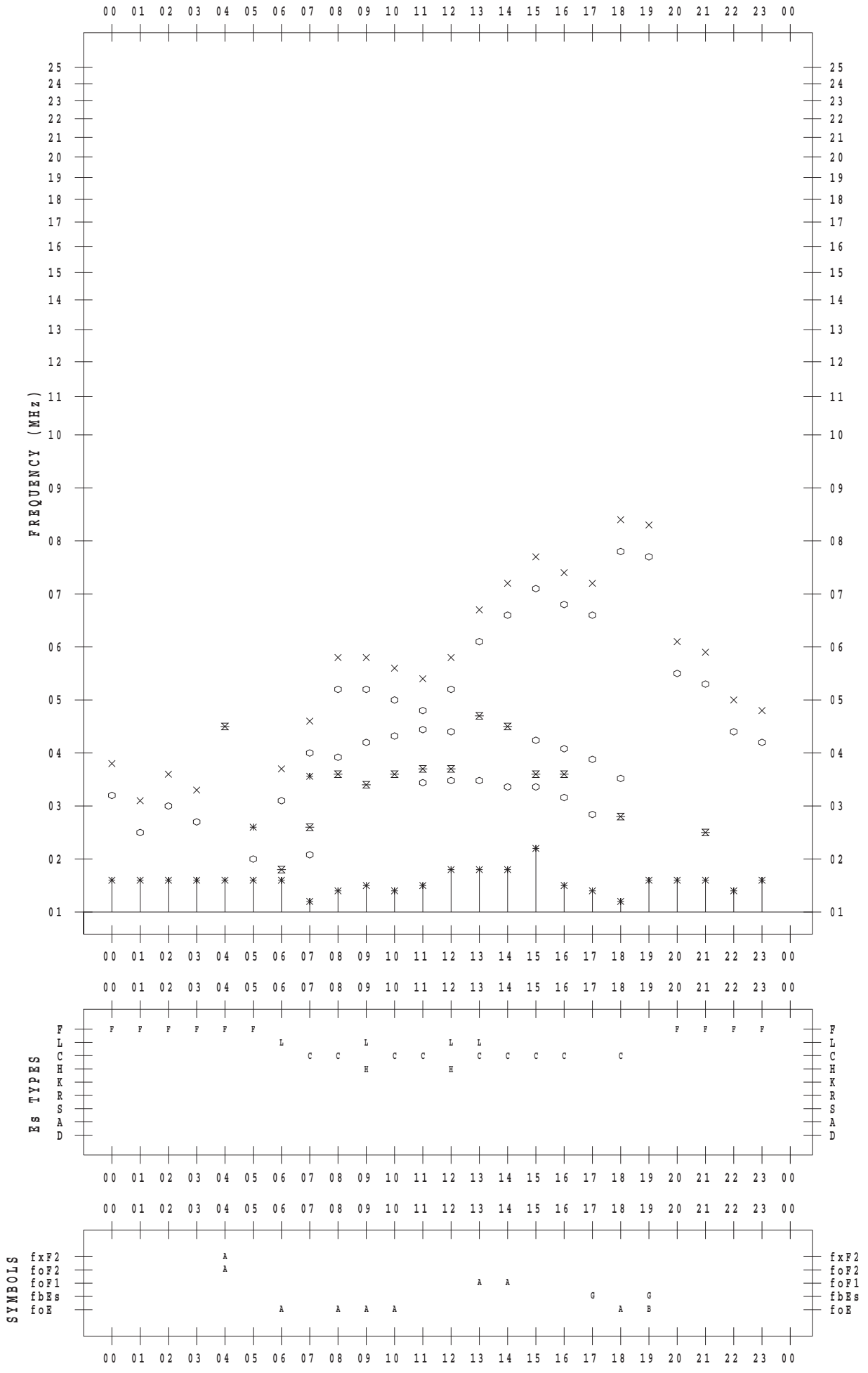
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/ 1

135 °E MEAN TIME



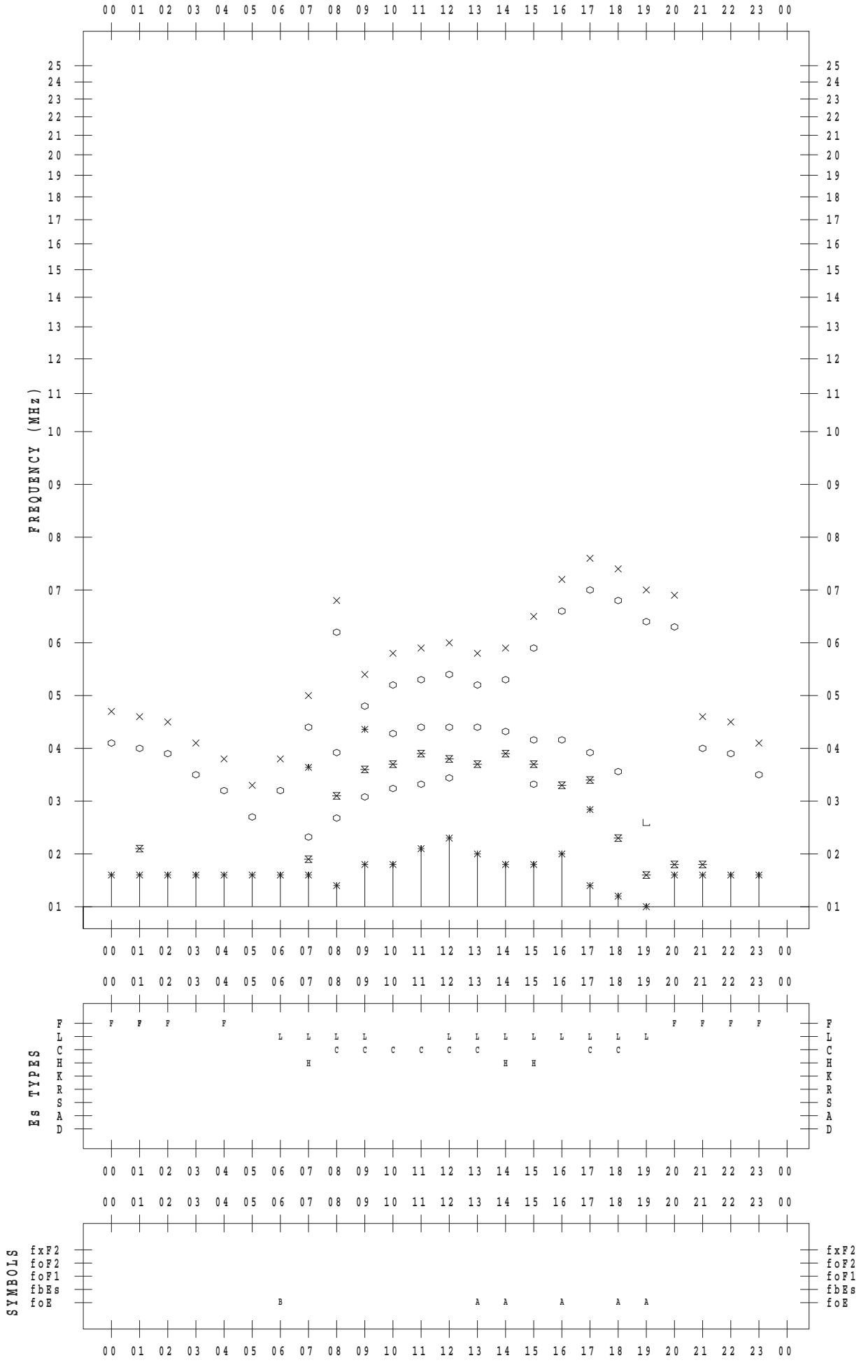
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/ 2

135 °E MEAN TIME



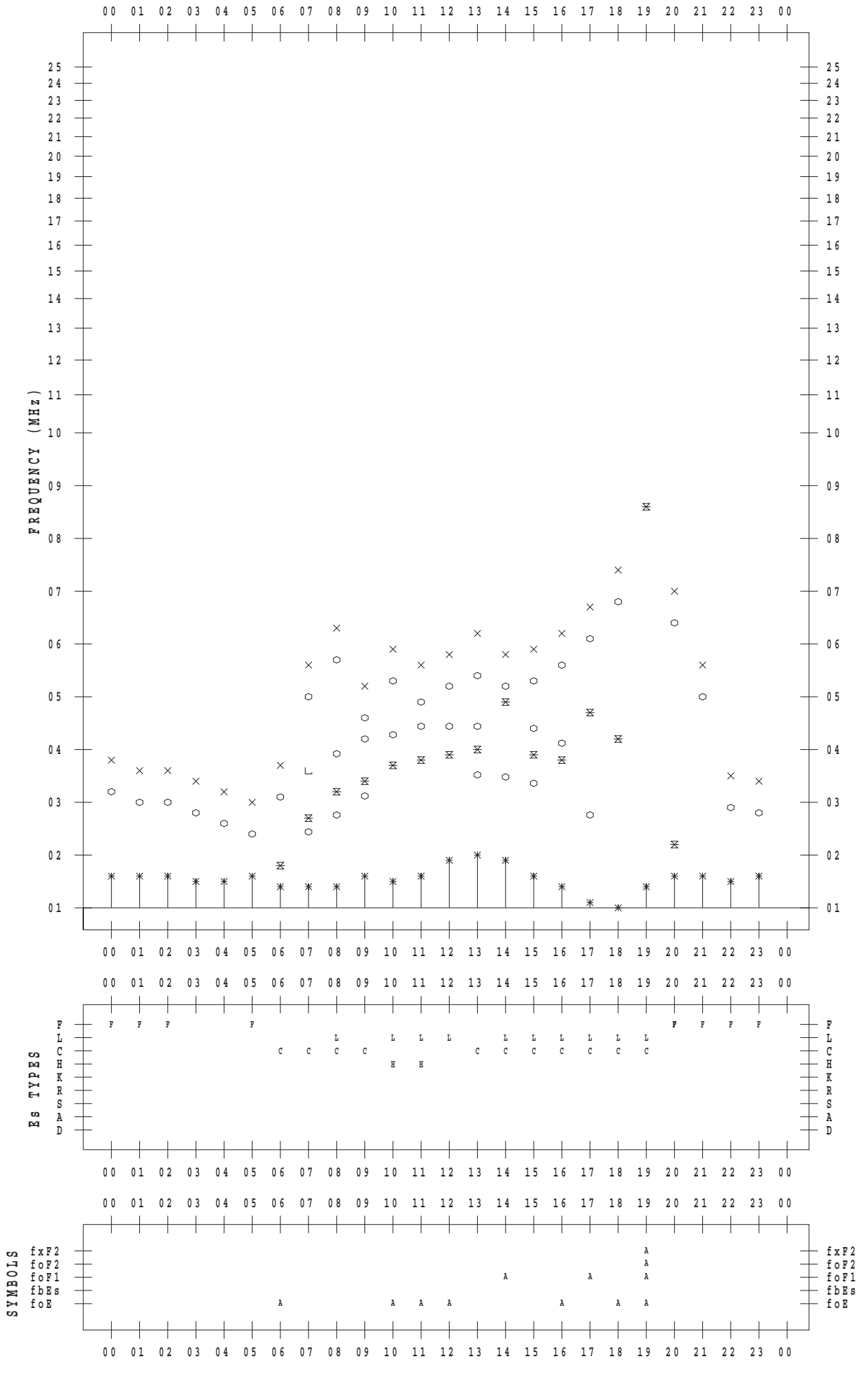
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/ 3

135 °E MEAN TIME



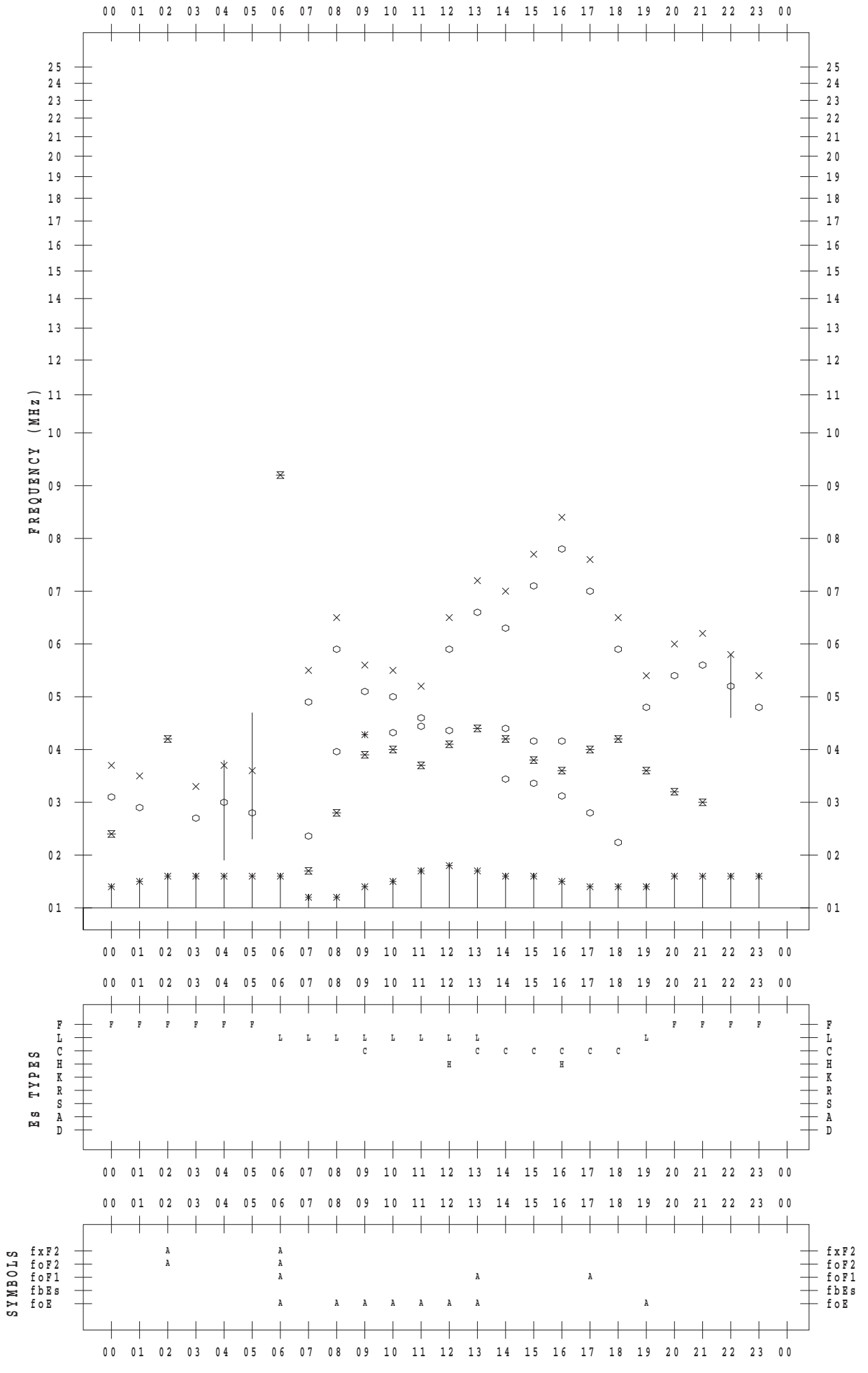
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/ 4

135 °E MEAN TIME



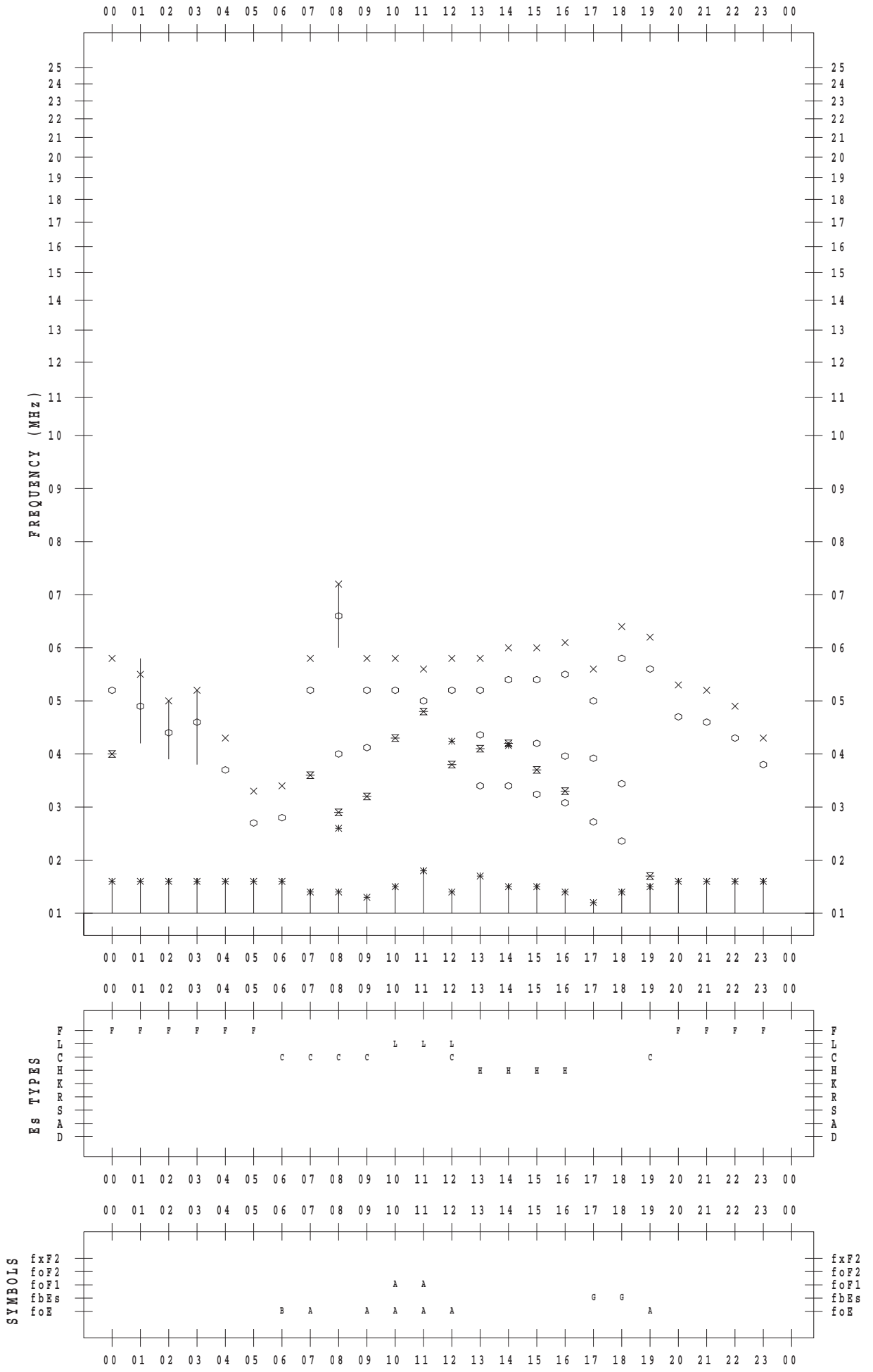
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/ 5

135 °E MEAN TIME



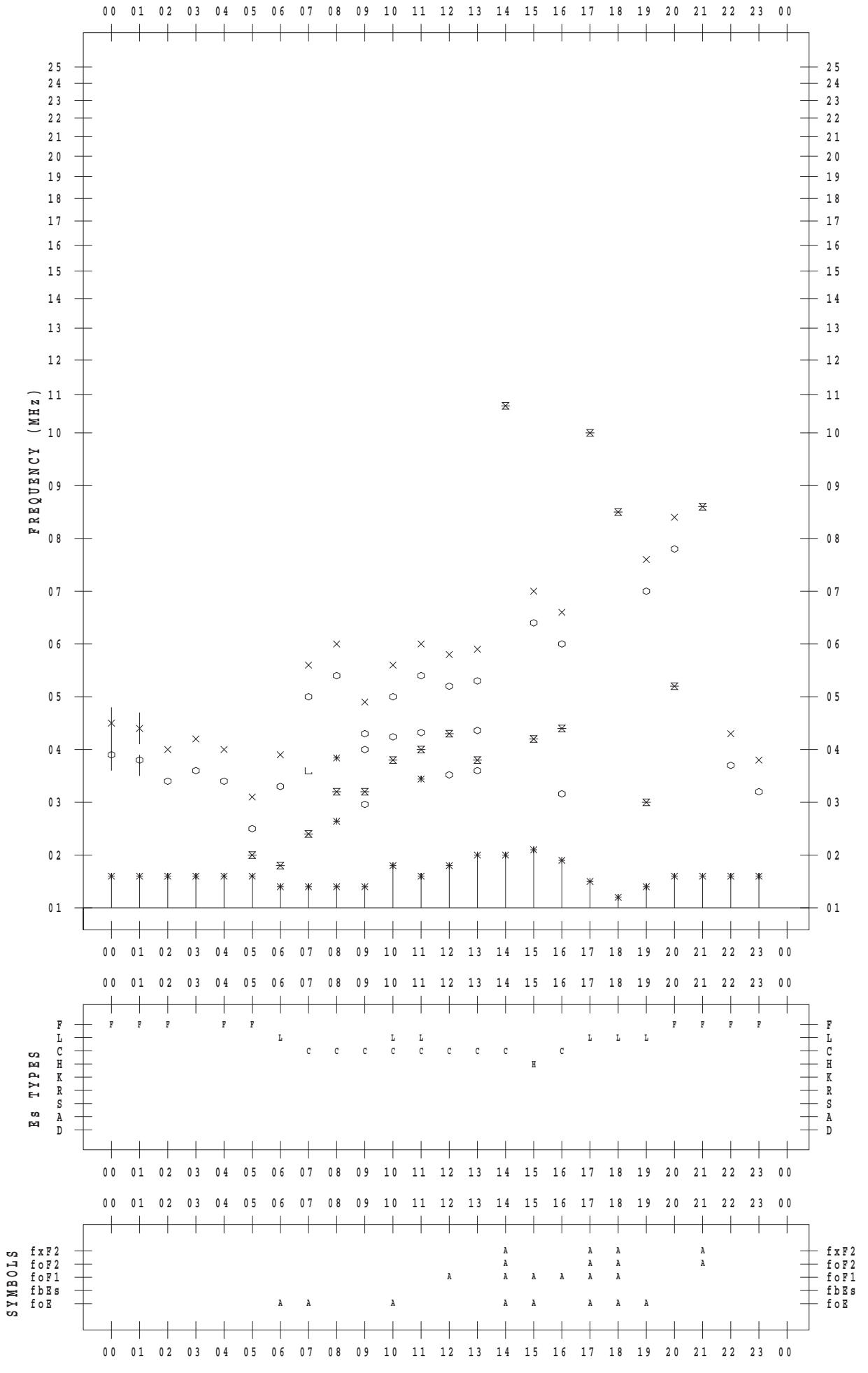
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/ 6

135 °E MEAN TIME



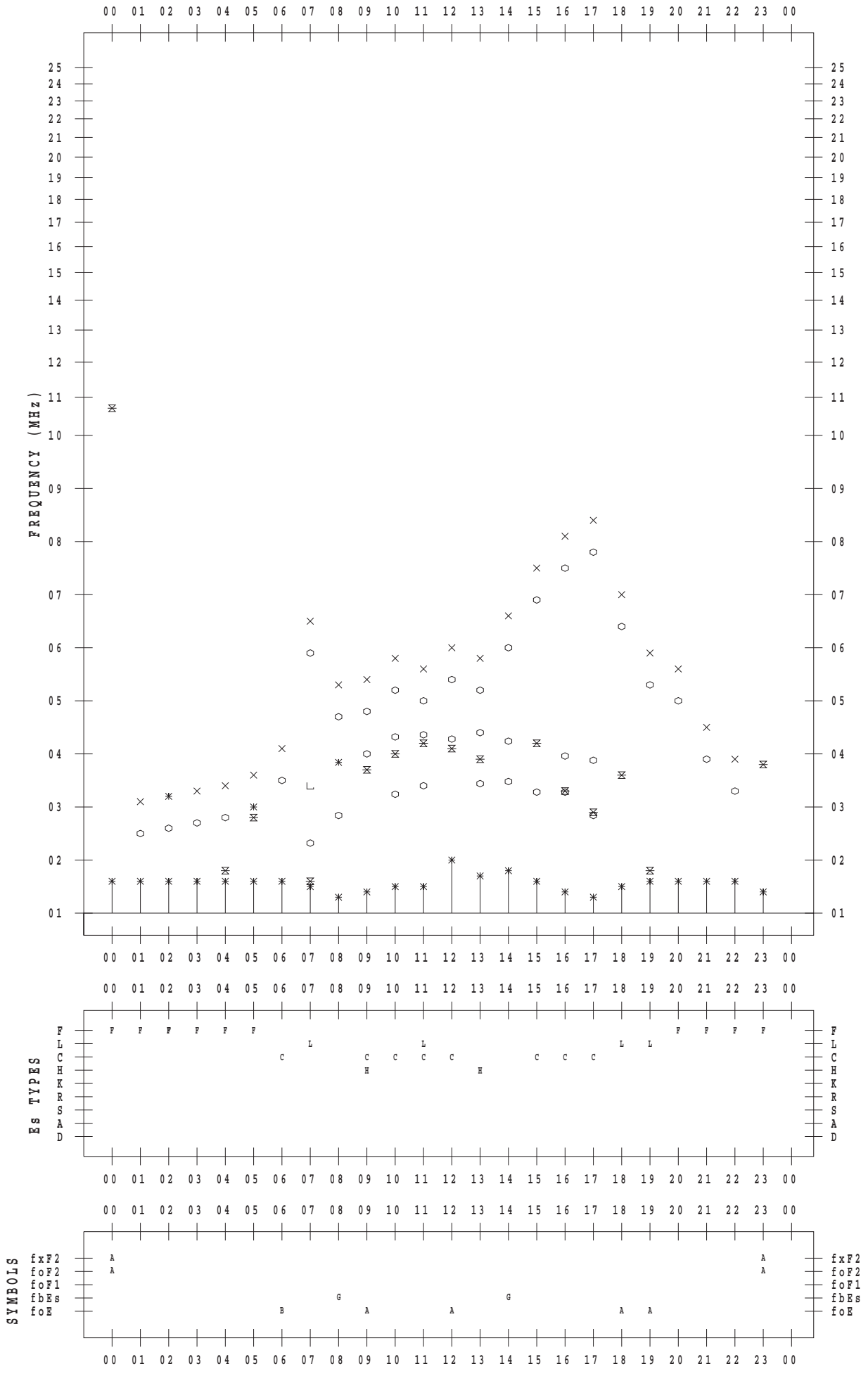
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/ 7

135 °E MEAN TIME



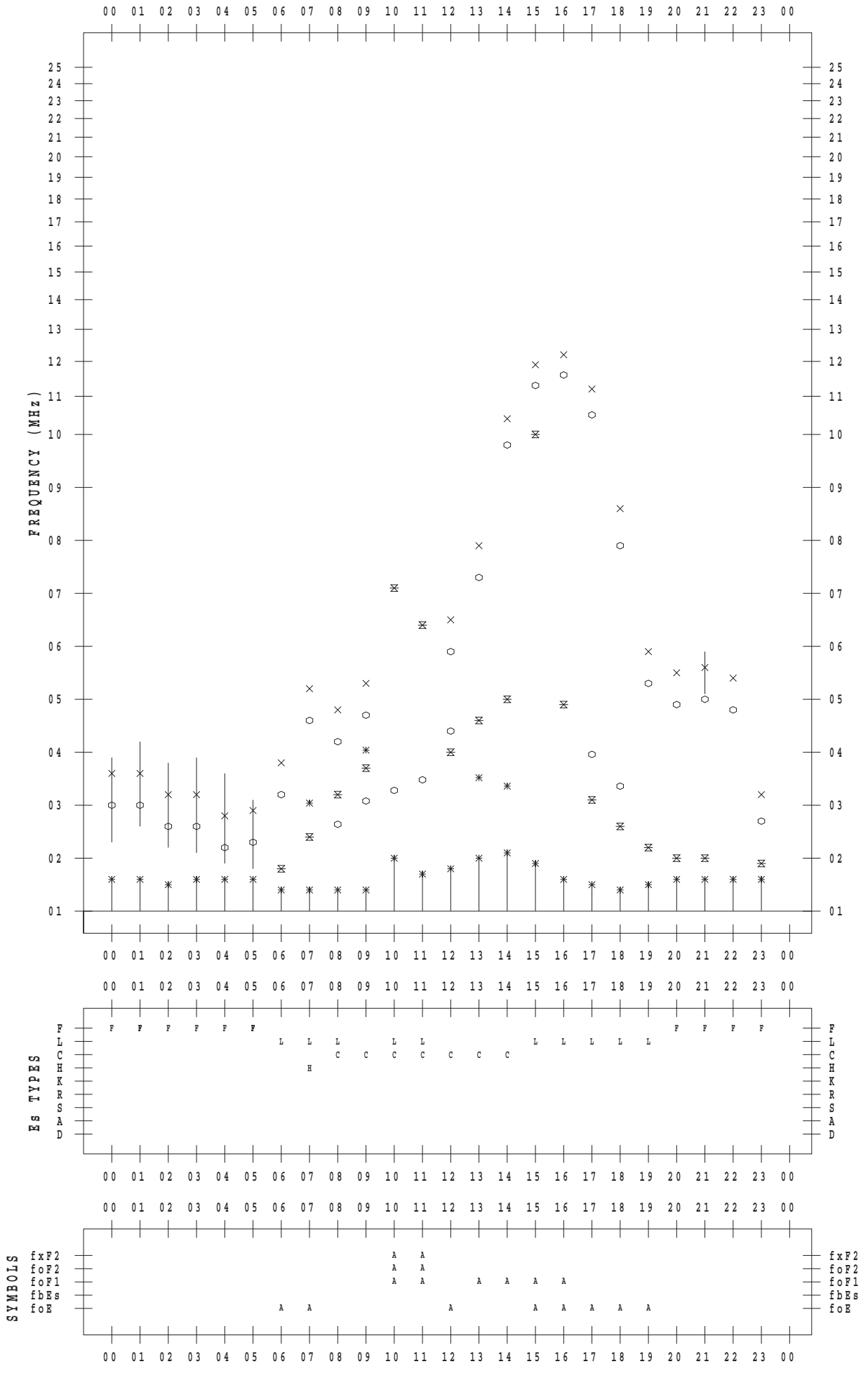
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/ 8

135 °E MEAN TIME



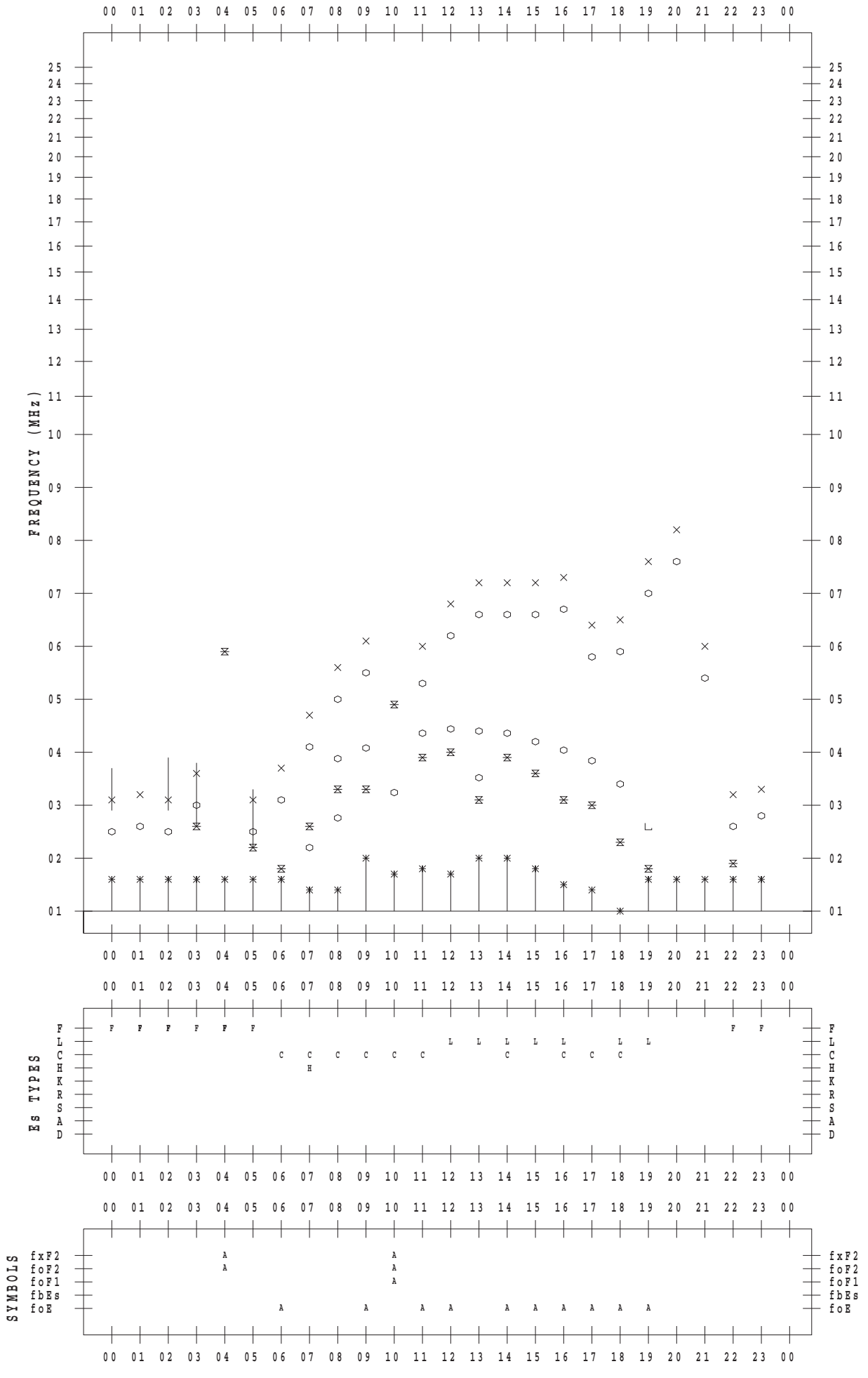
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/ 9

135 °E MEAN TIME



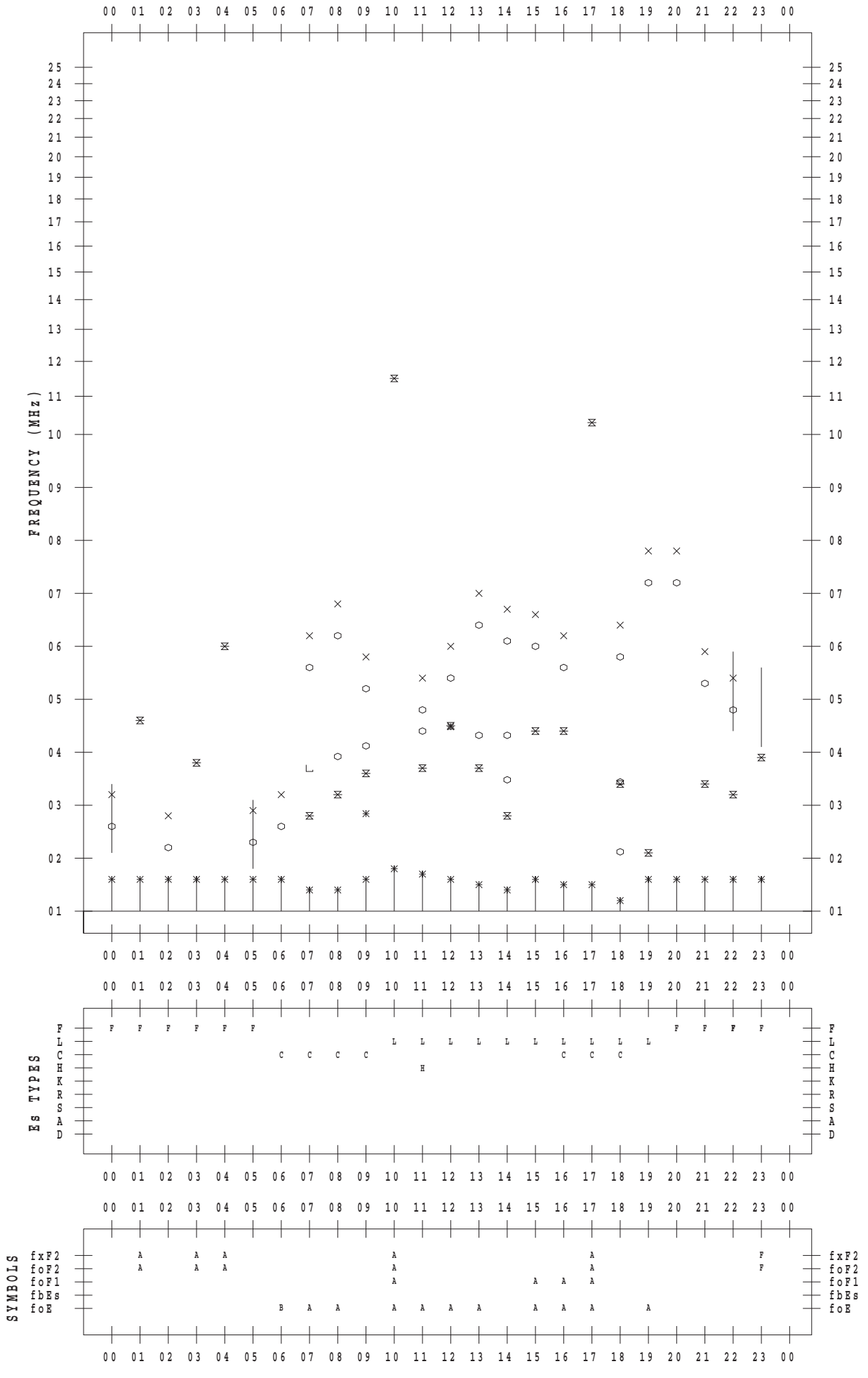
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/10

135 °E MEAN TIME



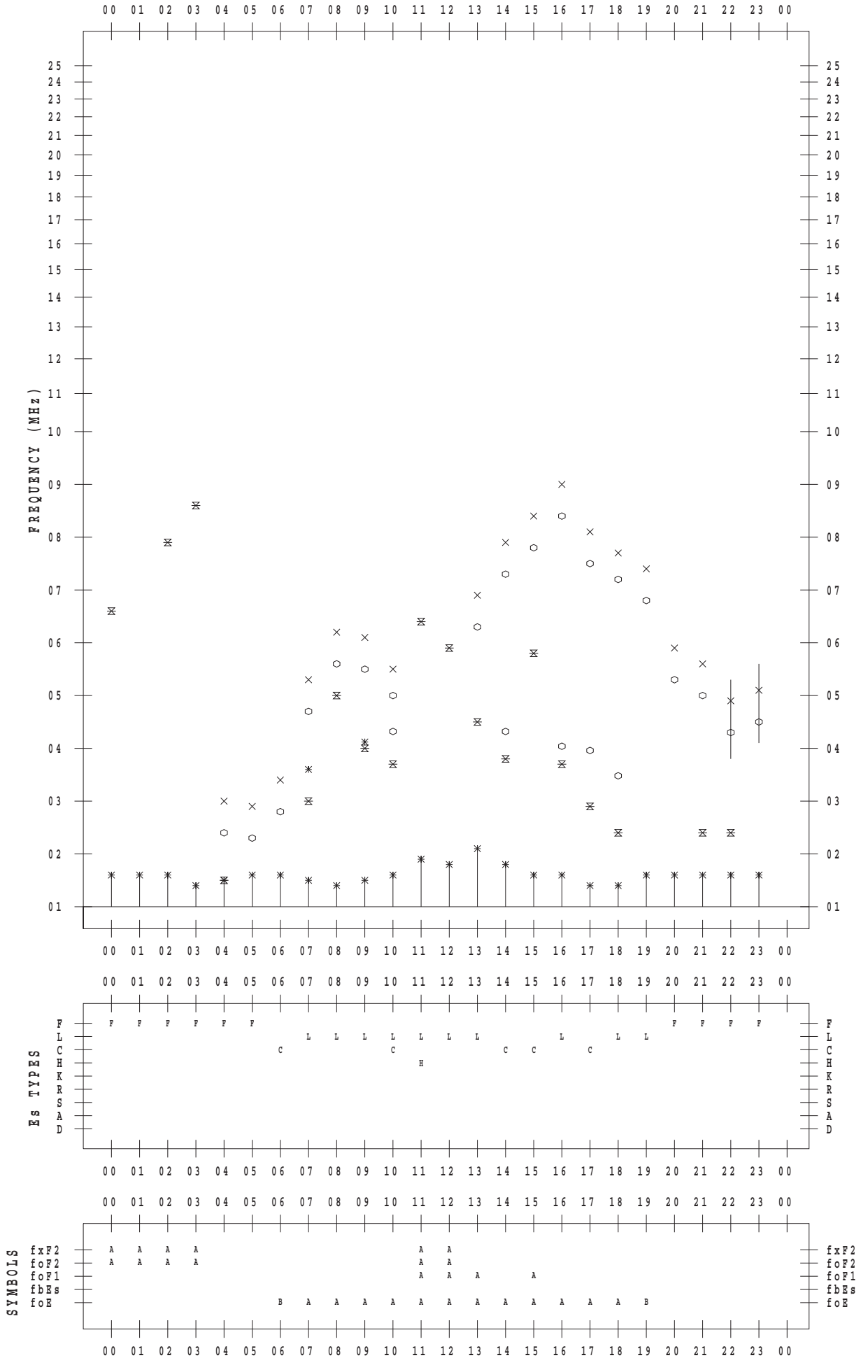
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/11

135 °E MEAN TIME



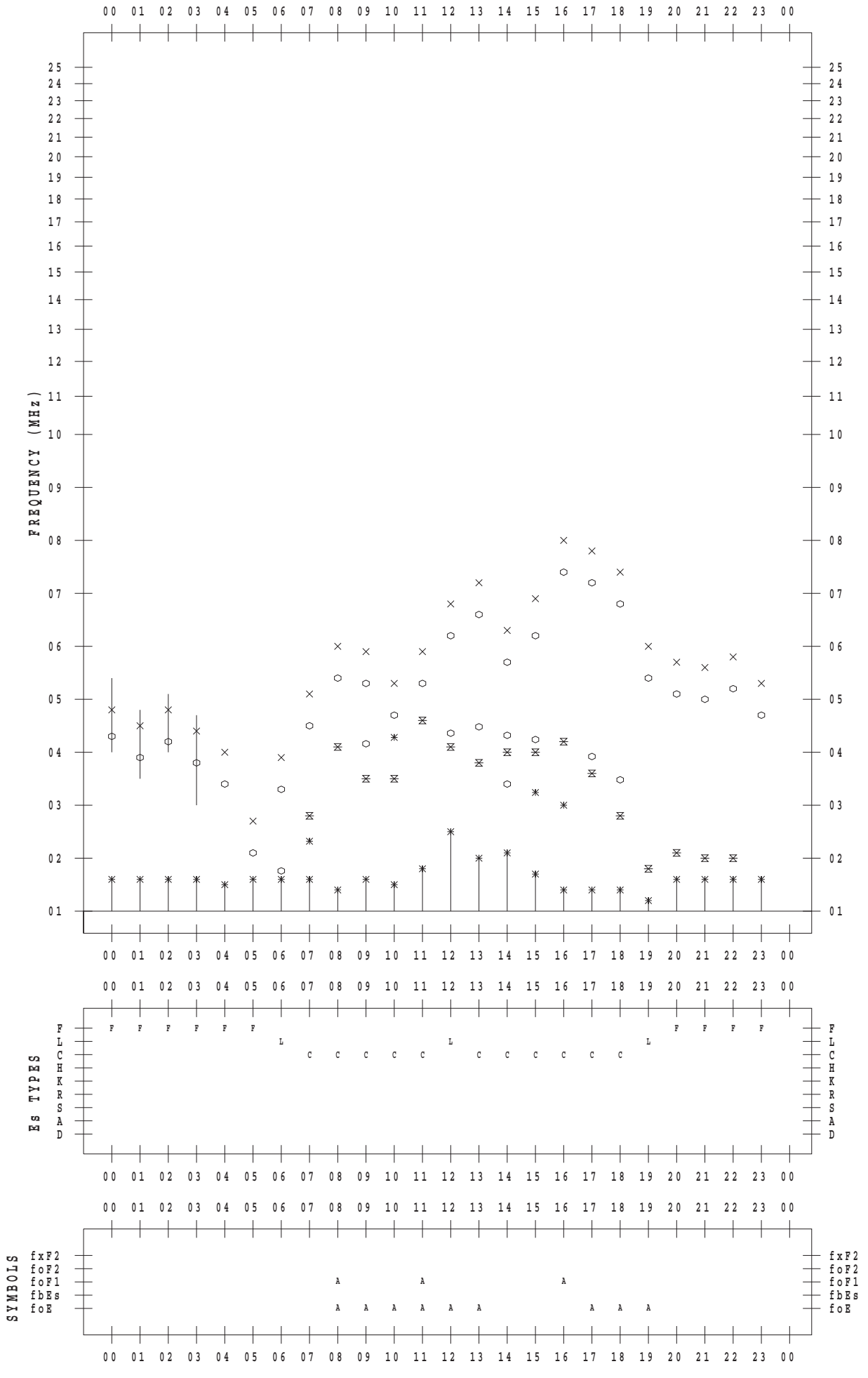
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/12

135 °E MEAN TIME



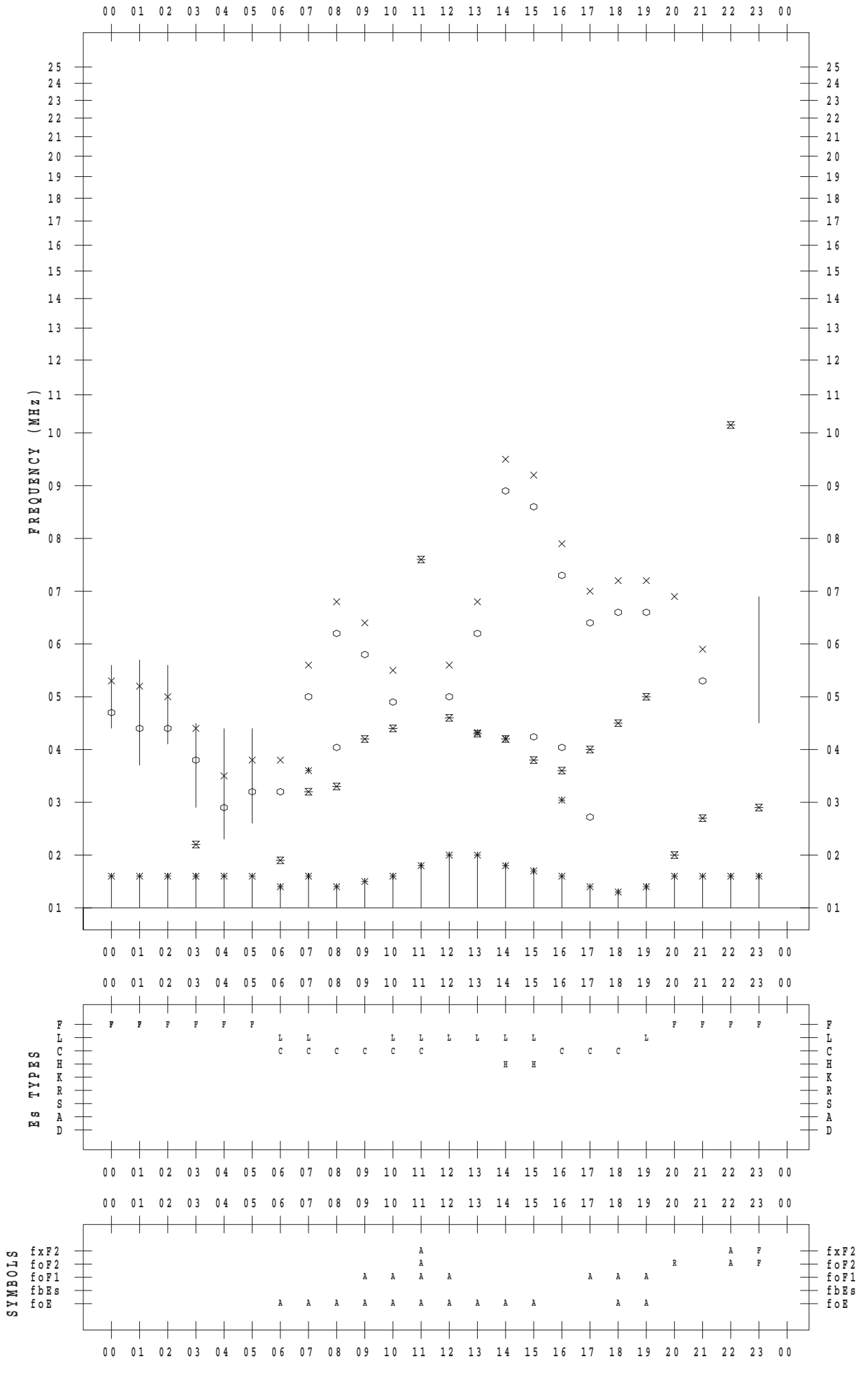
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/13

135 °E MEAN TIME



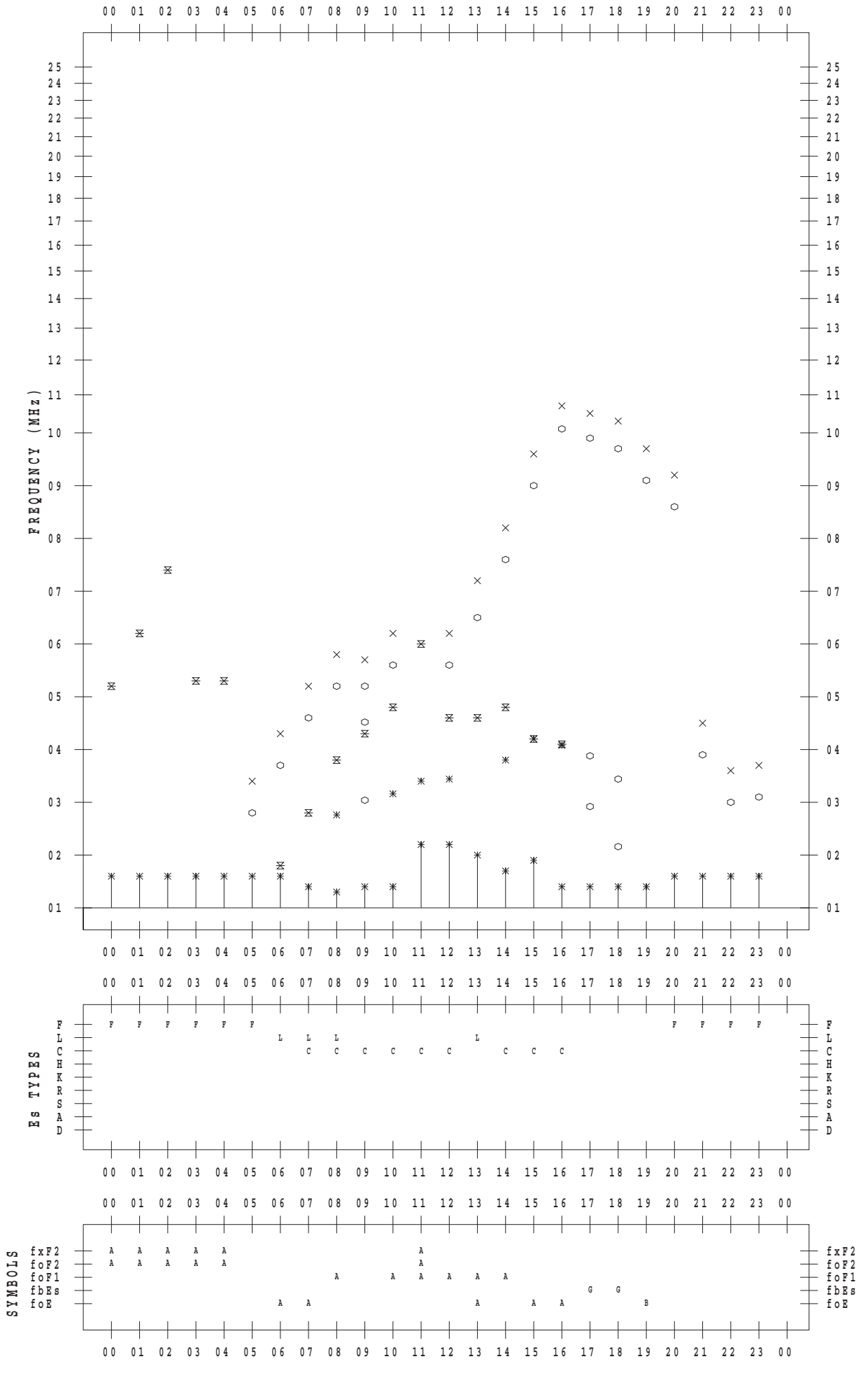
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/14

135 °E MEAN TIME



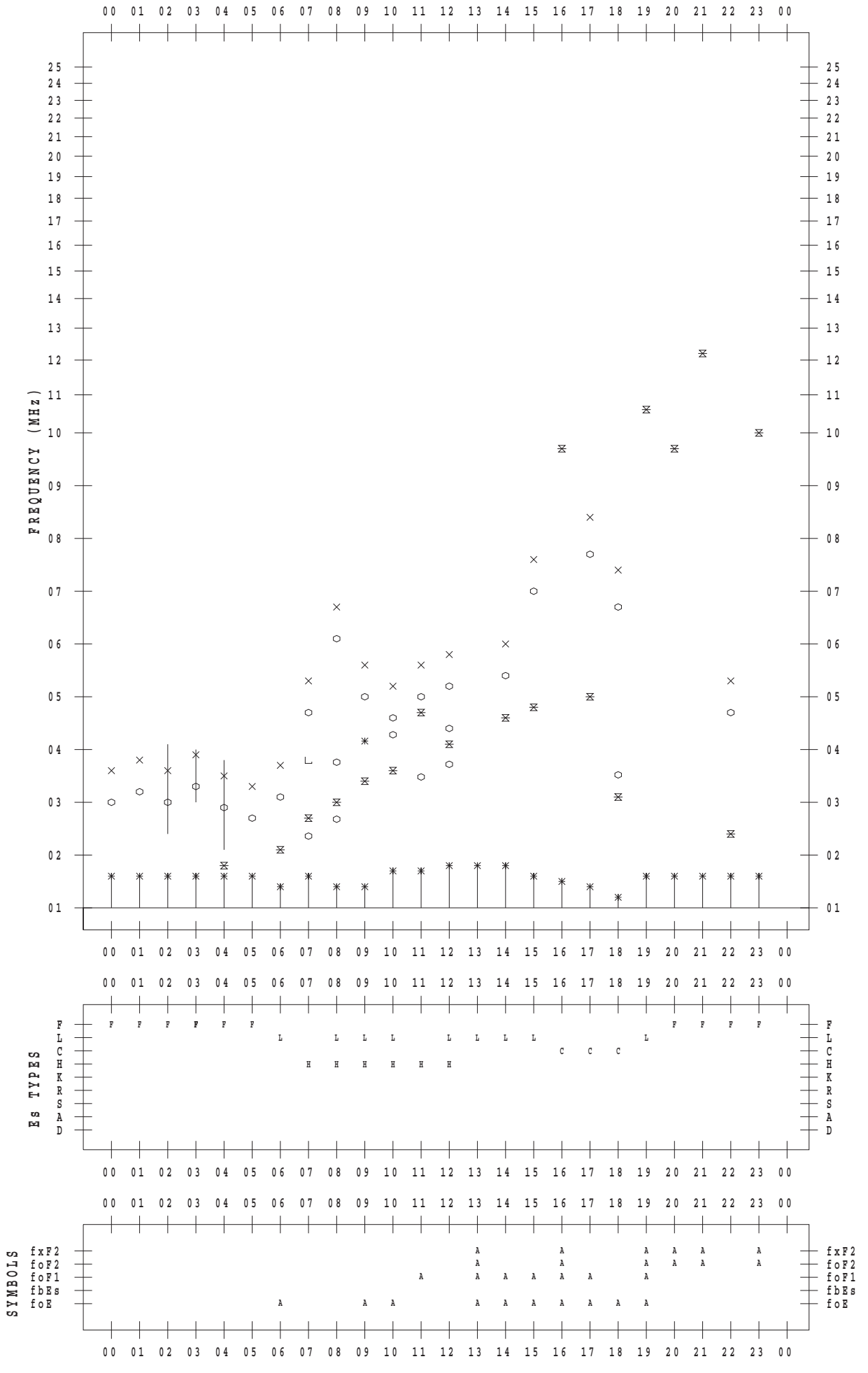
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/15

135 °E MEAN TIME



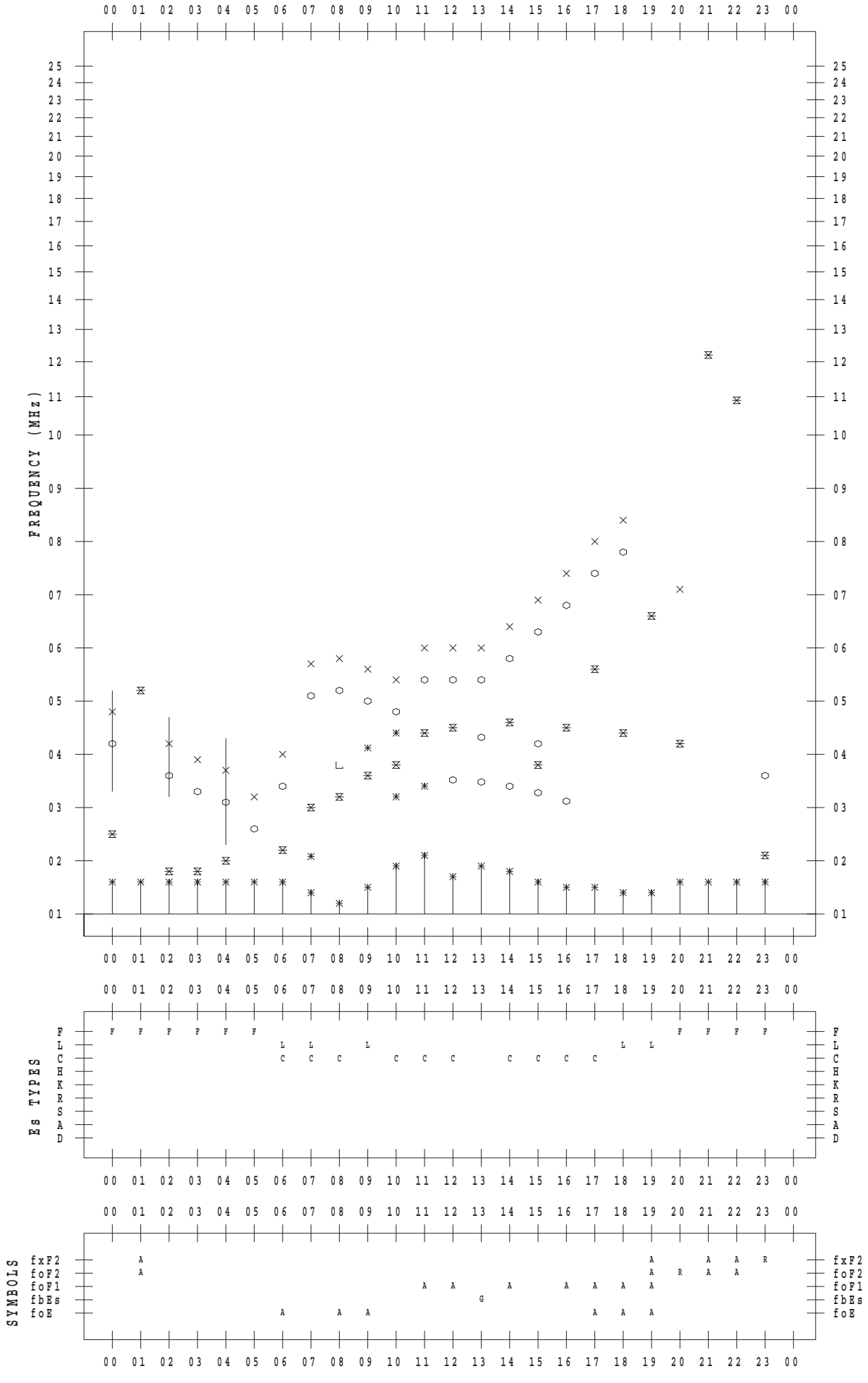
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/16

135 °E MEAN TIME



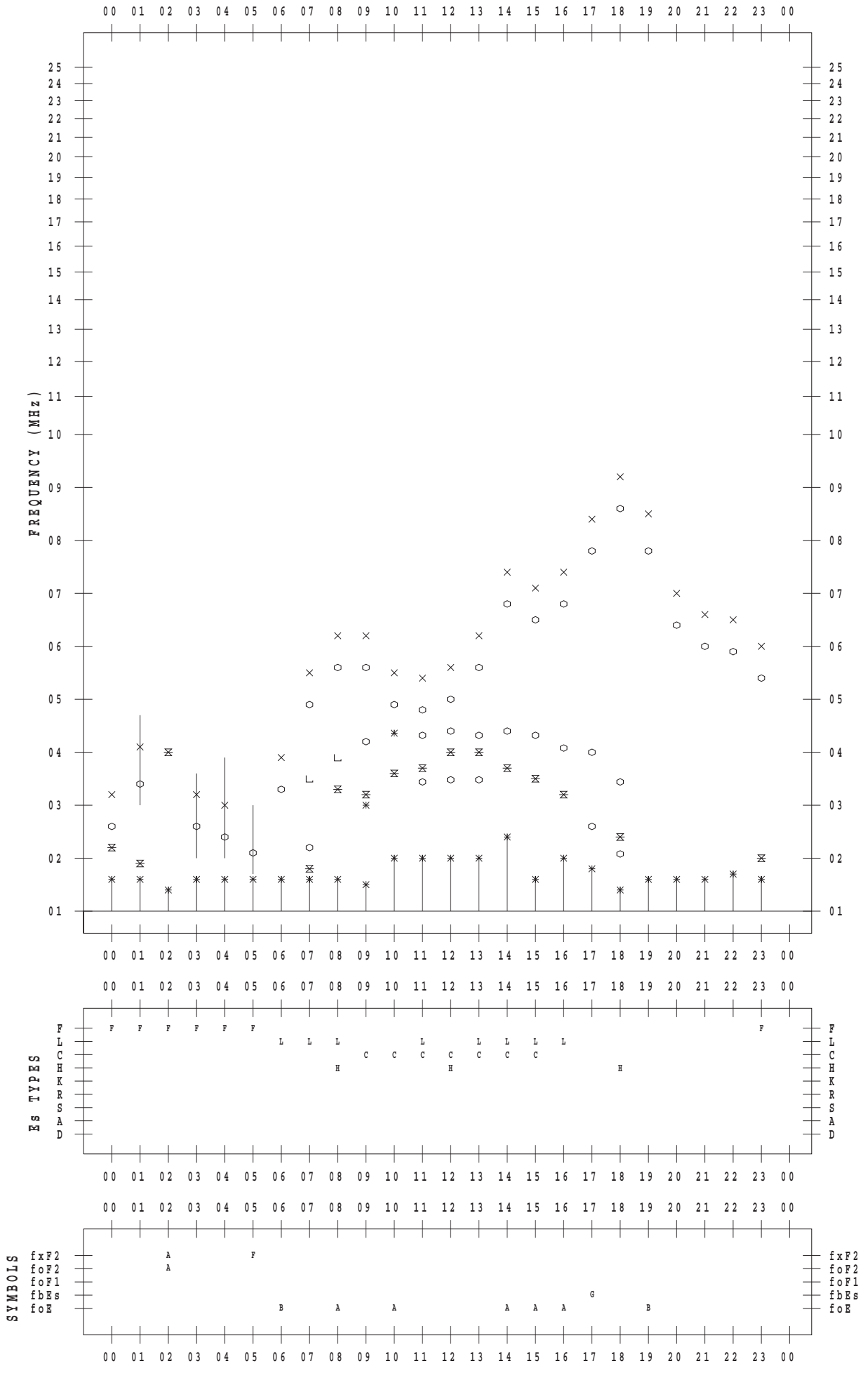
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/17

135 °E MEAN TIME



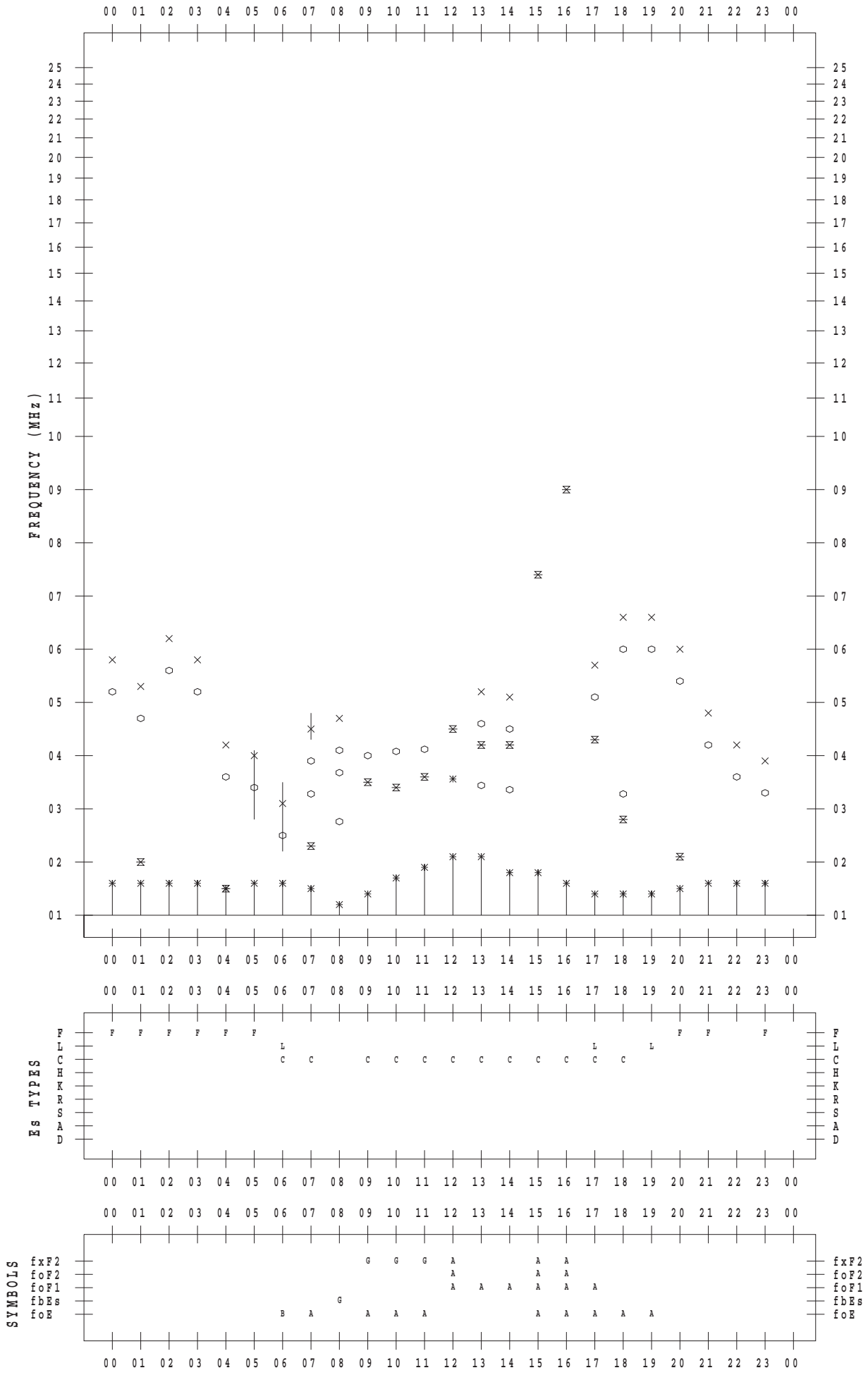
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/18

135 °E MEAN TIME



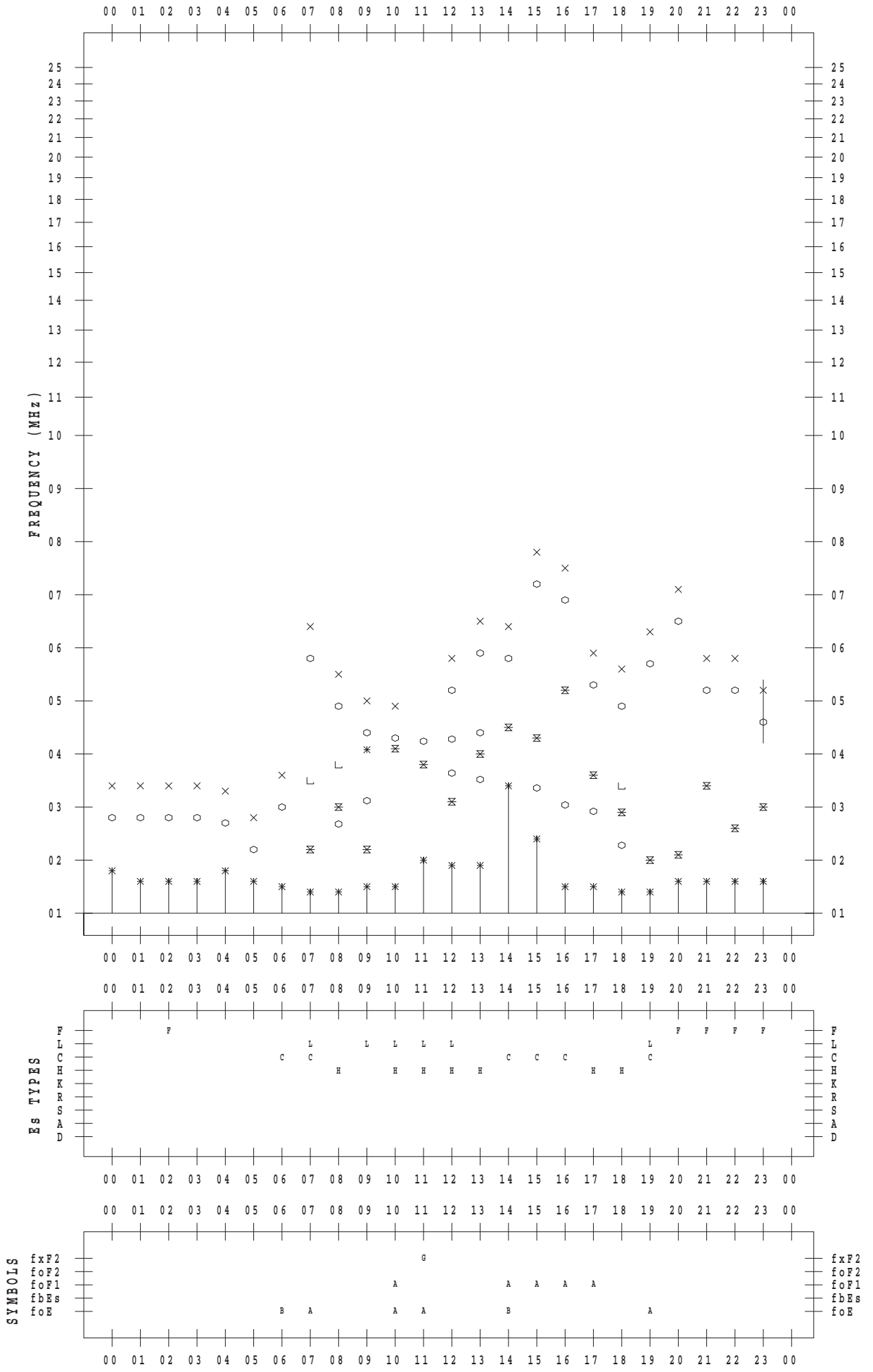
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/19

135 °E MEAN TIME



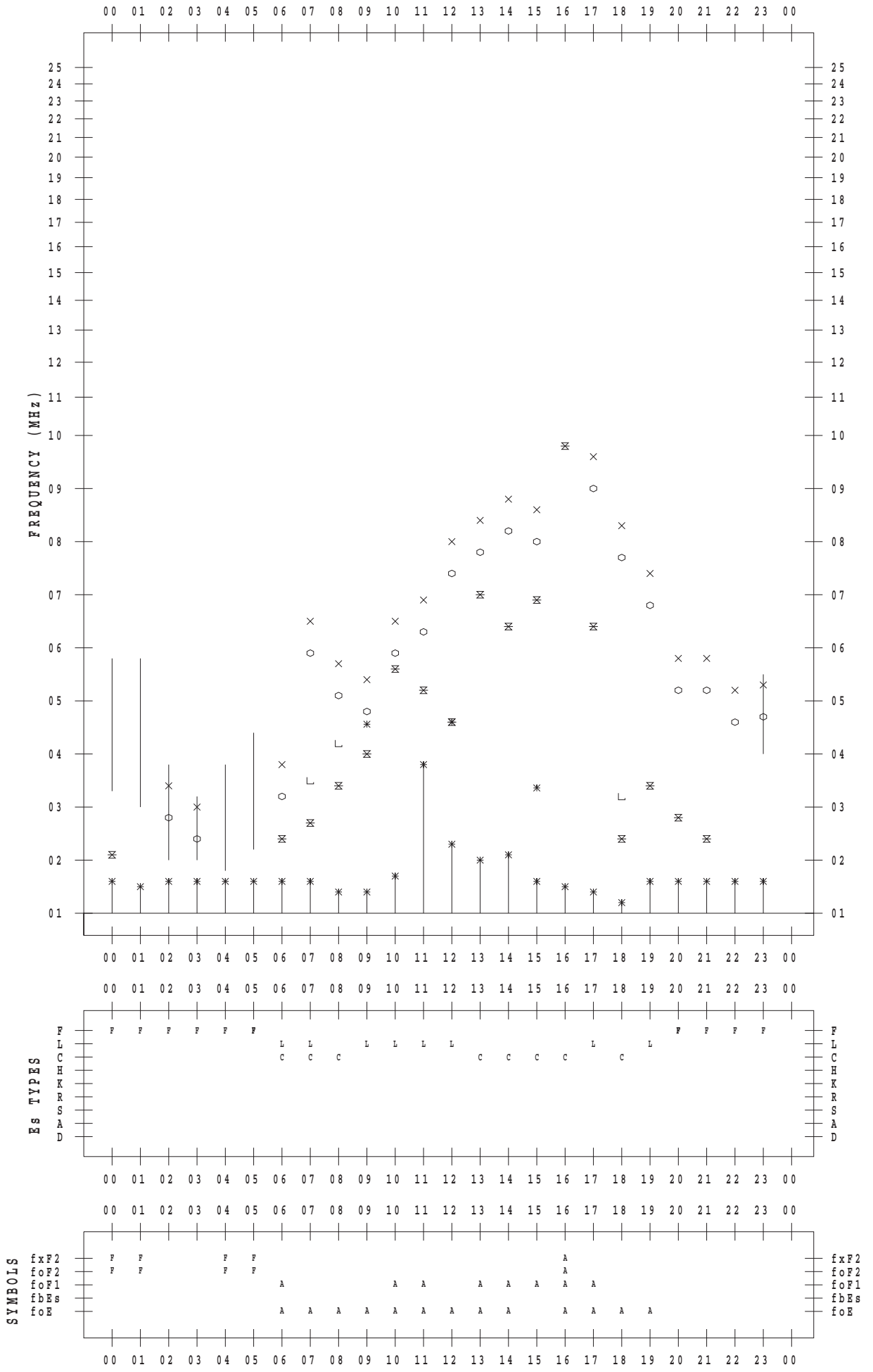
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/20

135 °E MEAN TIME



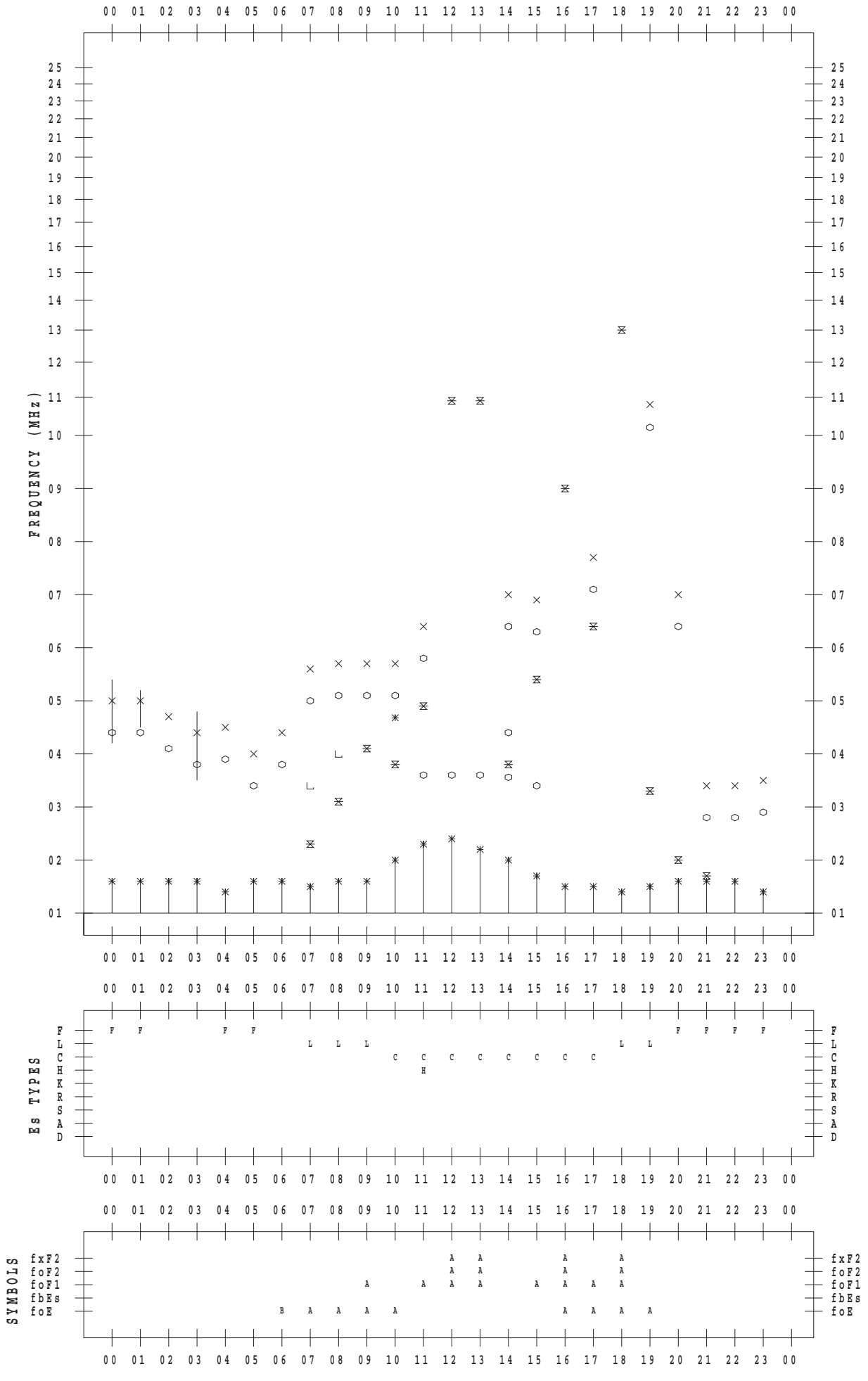
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/21

135 °E MEAN TIME



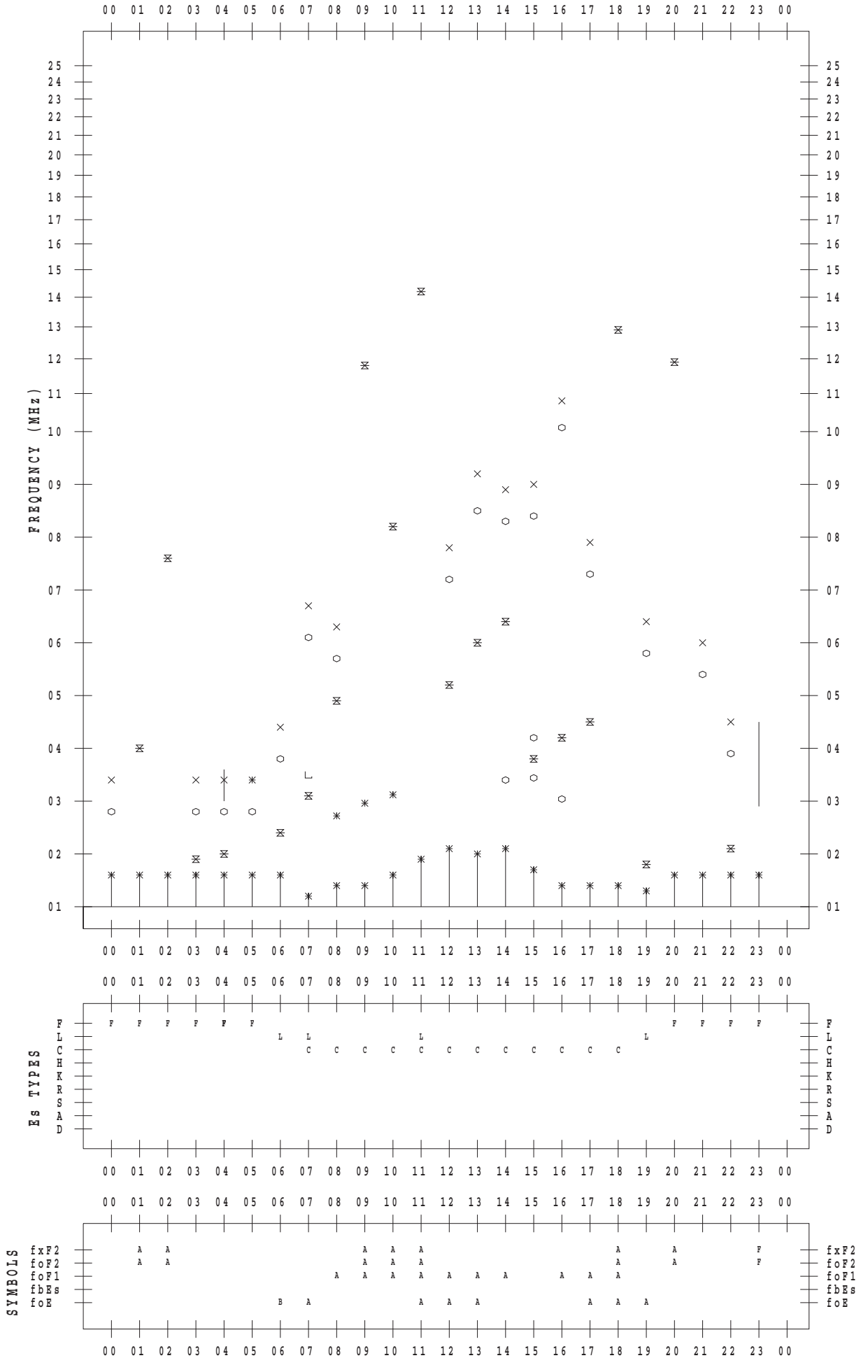
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/22

135 °E MEAN TIME



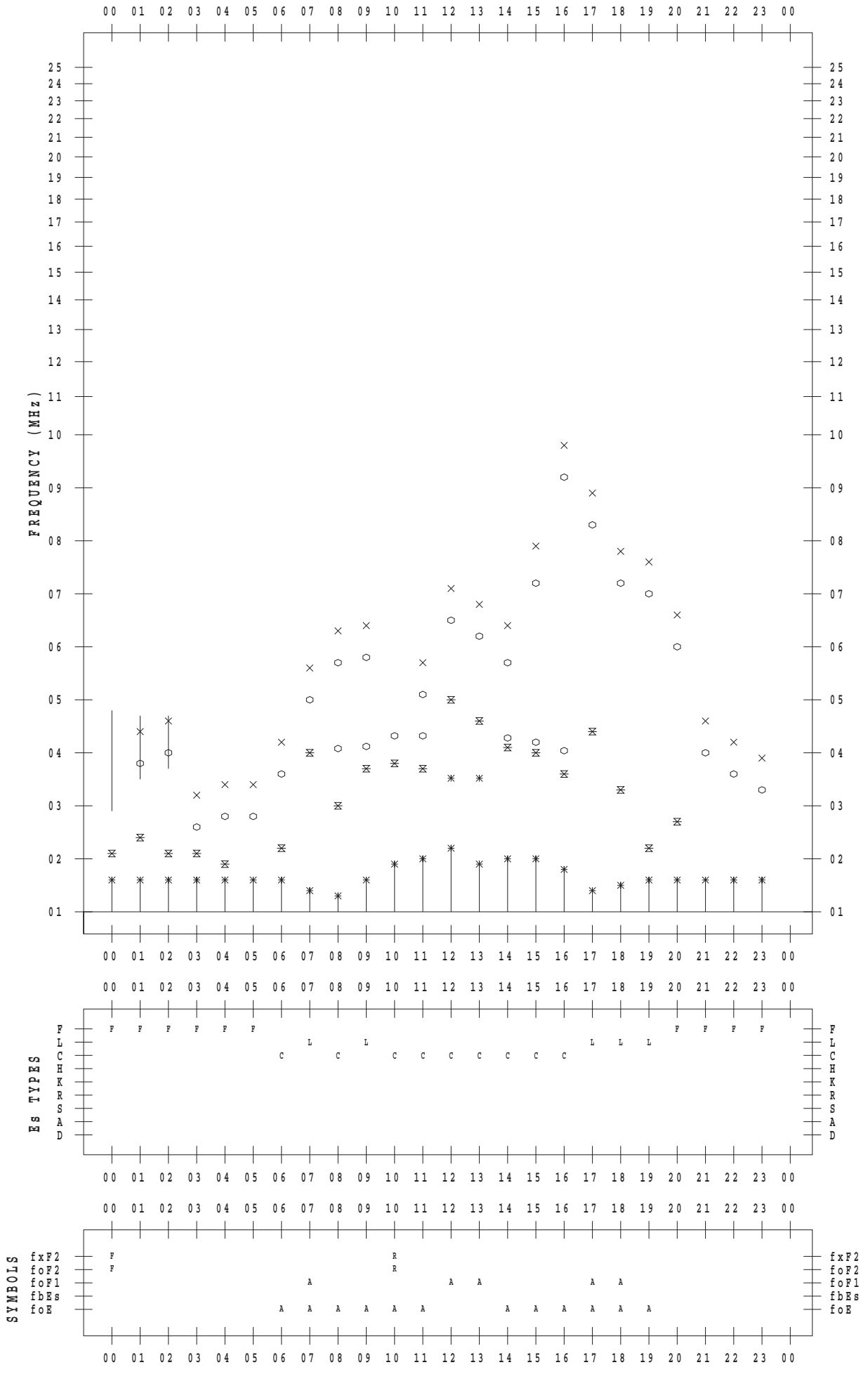
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/23

135 °E MEAN TIME



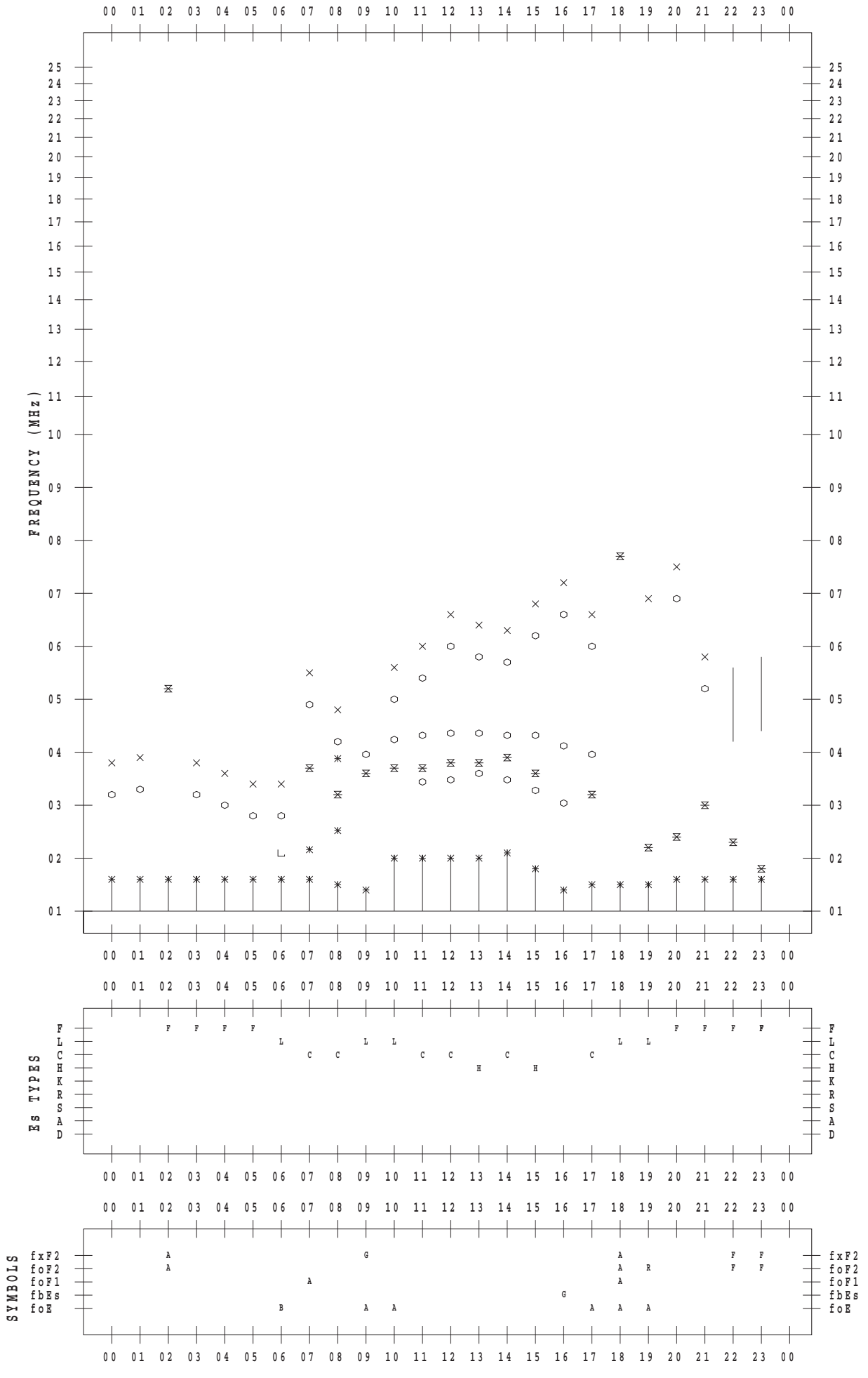
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/24

135 °E MEAN TIME



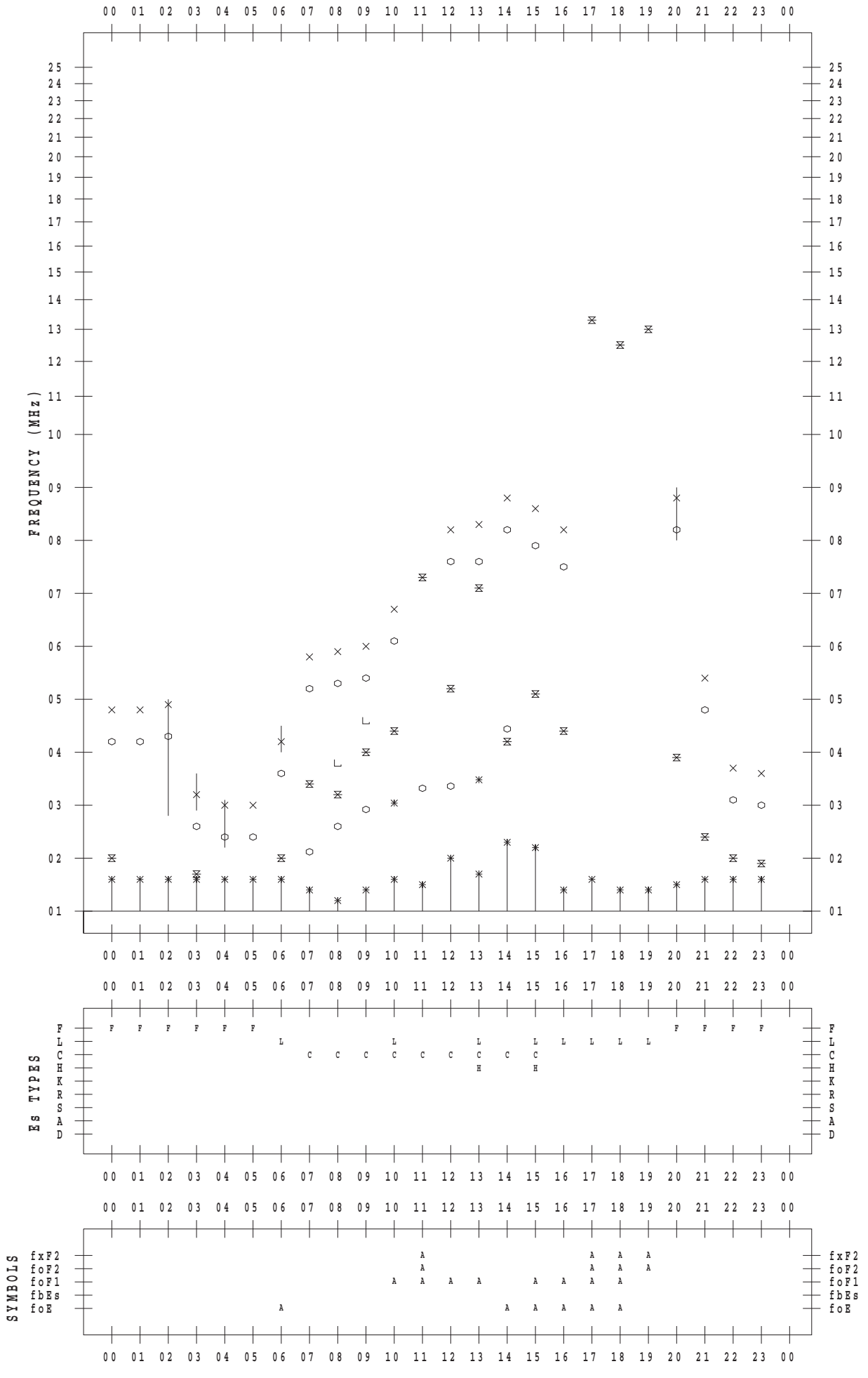
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/25

135 °E MEAN TIME



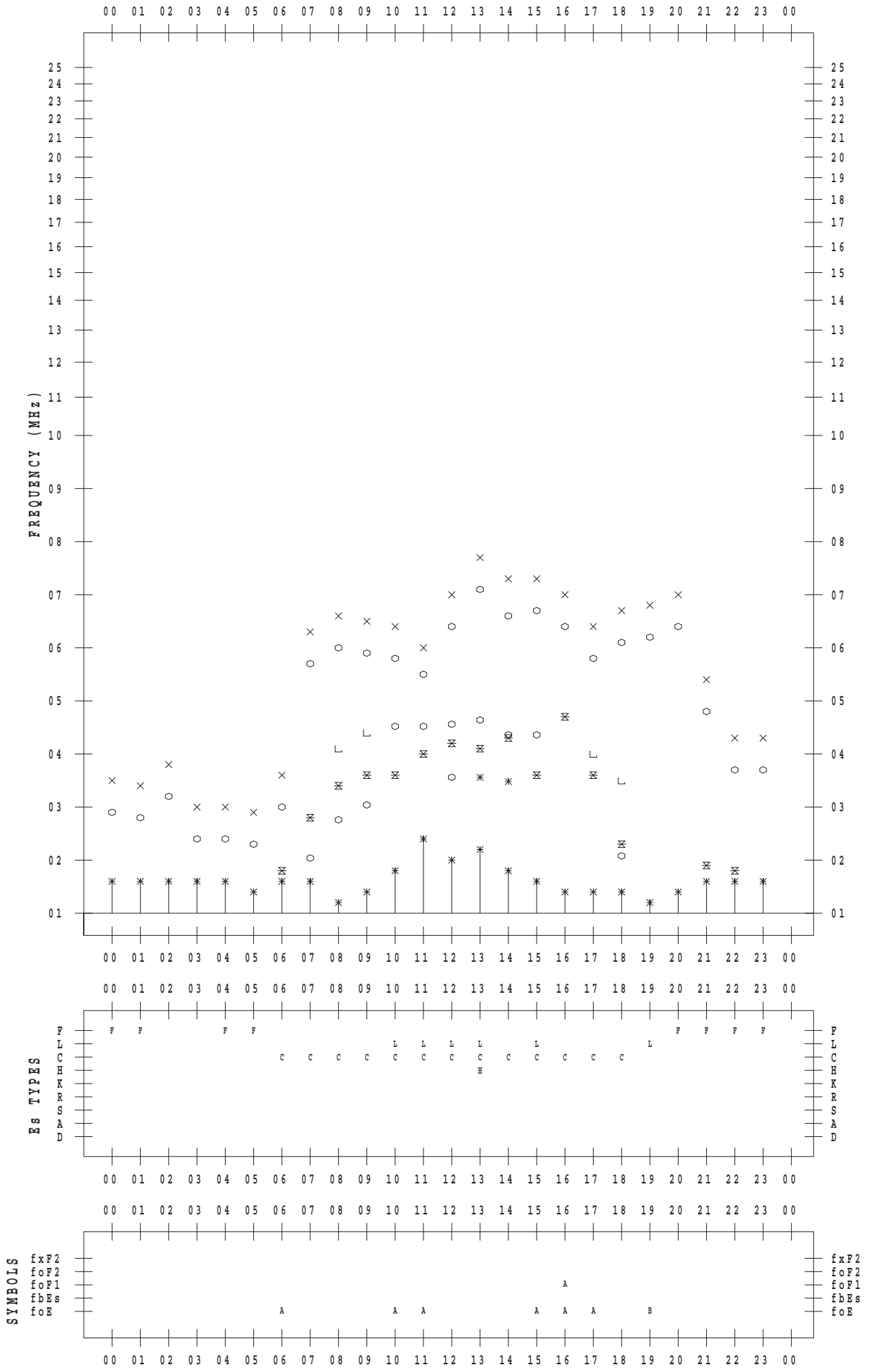
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/26

135 °E MEAN TIME



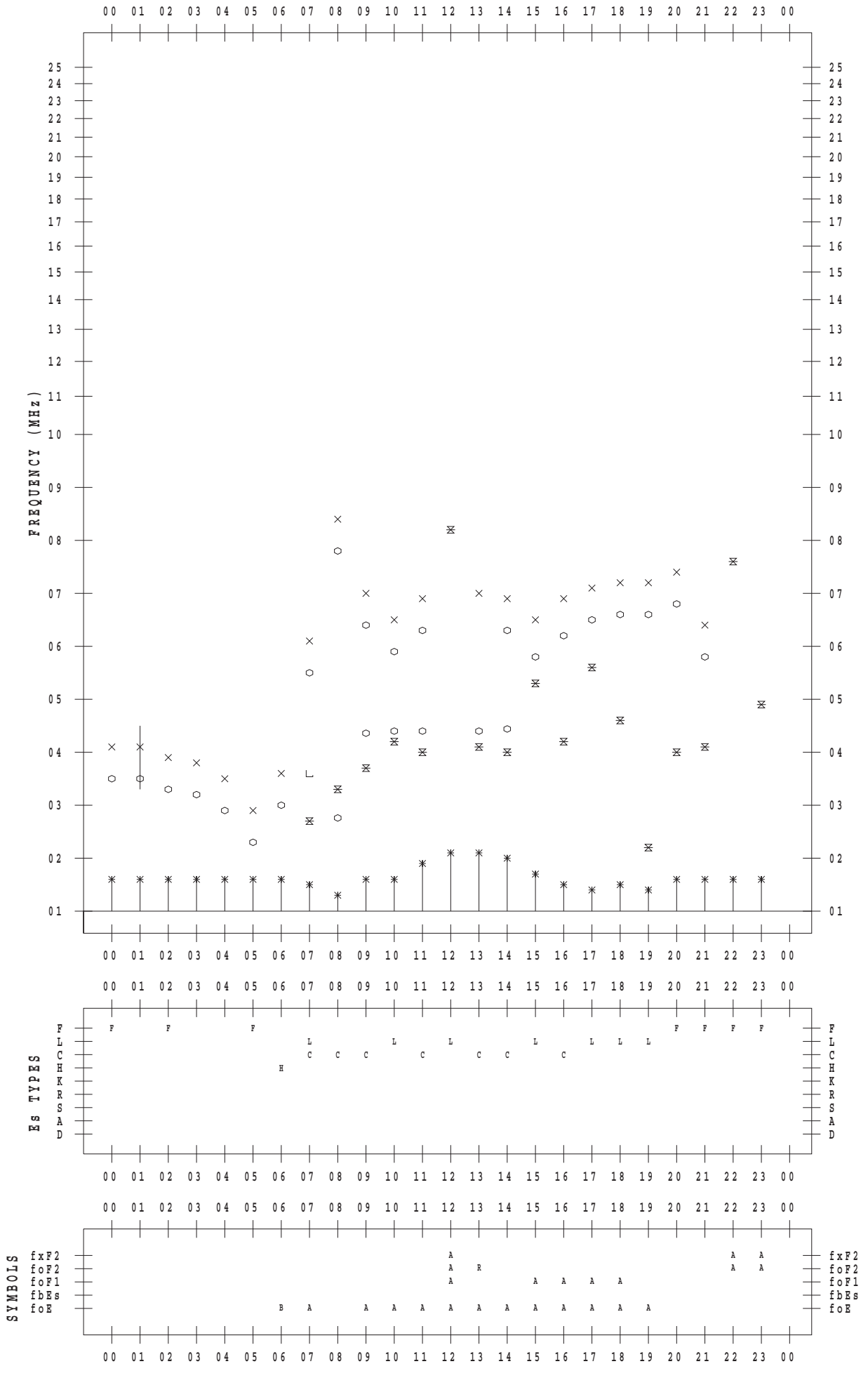
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/27

135 °E MEAN TIME



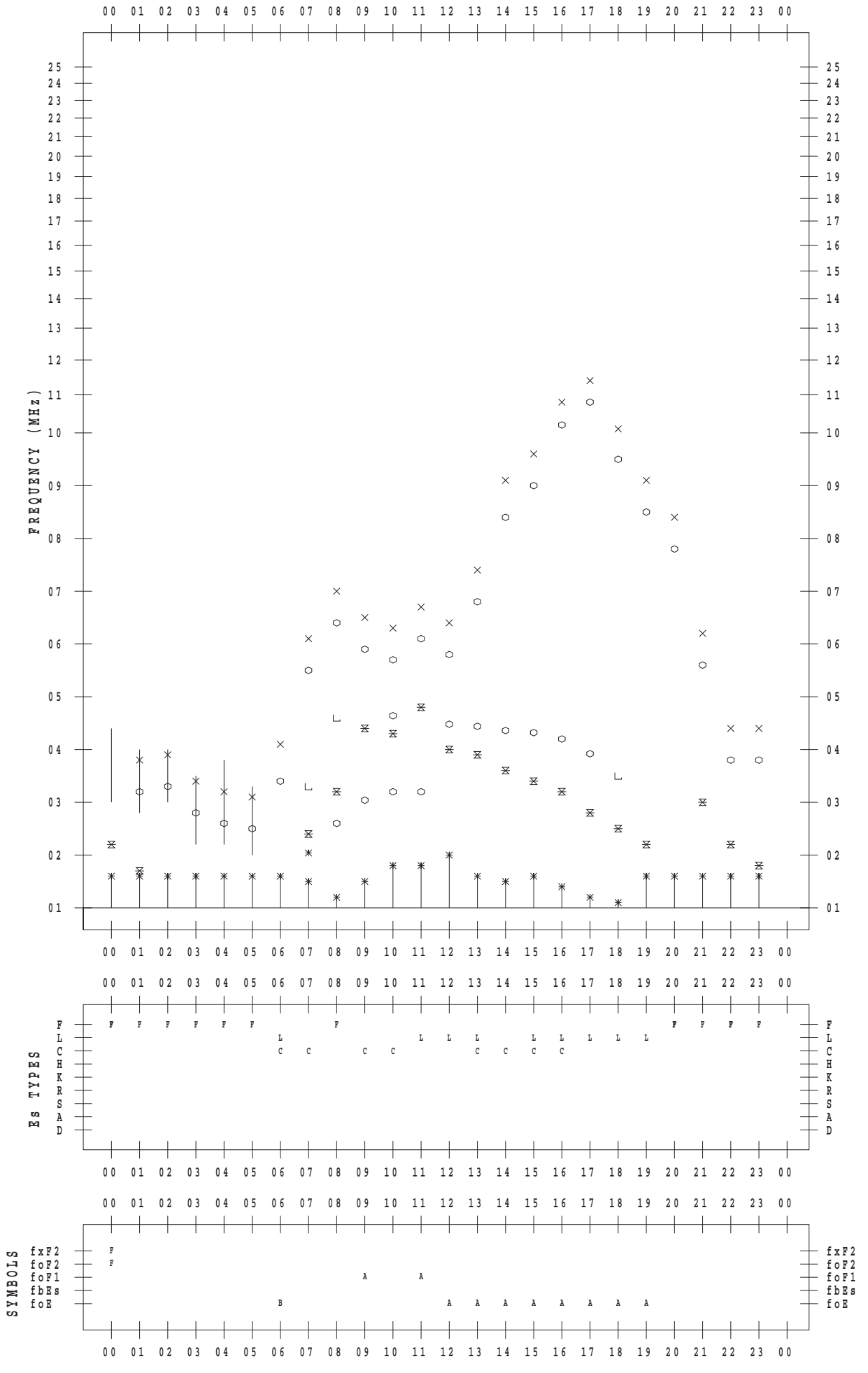
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/28

135 °E MEAN TIME



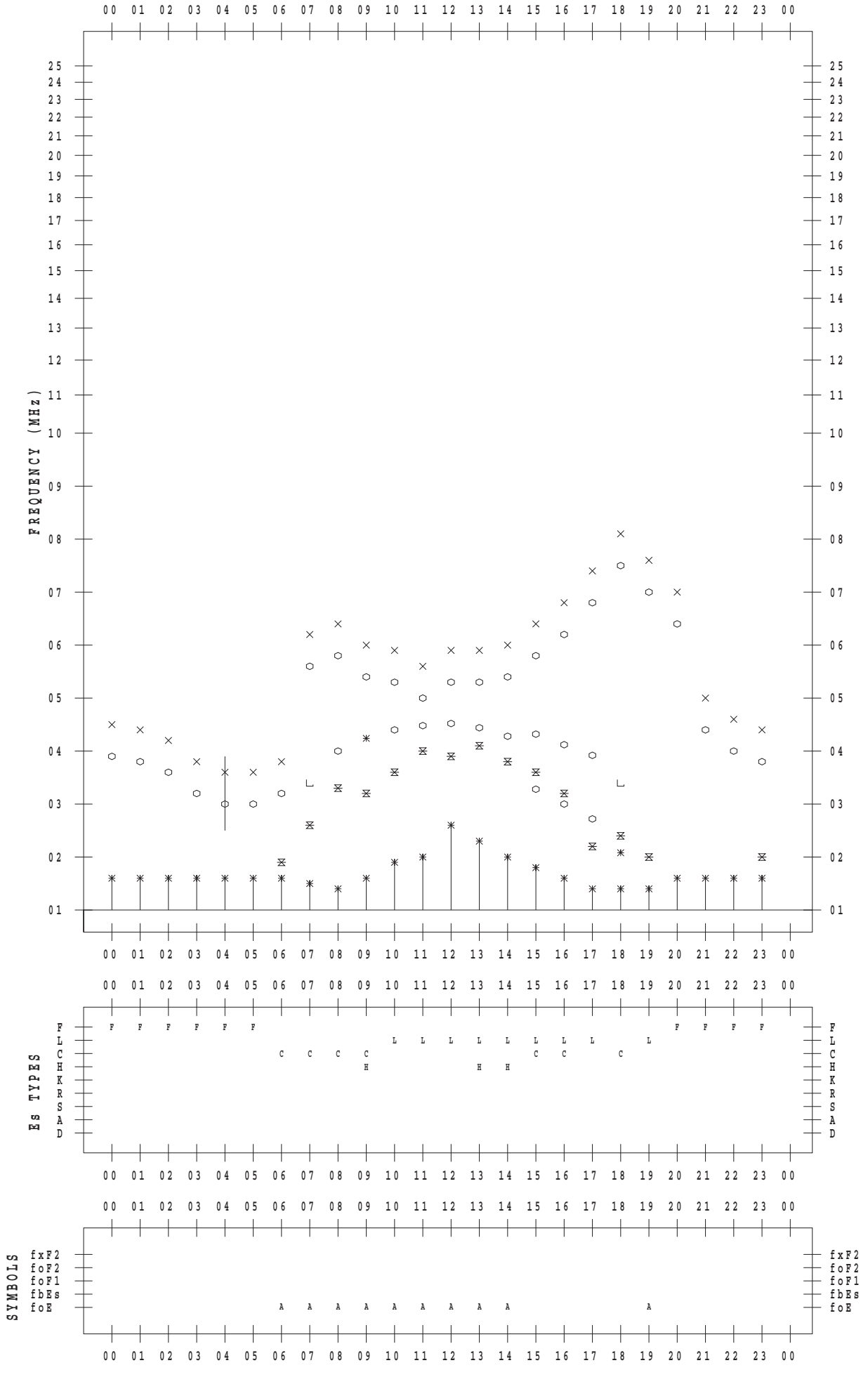
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/29

135 °E MEAN TIME



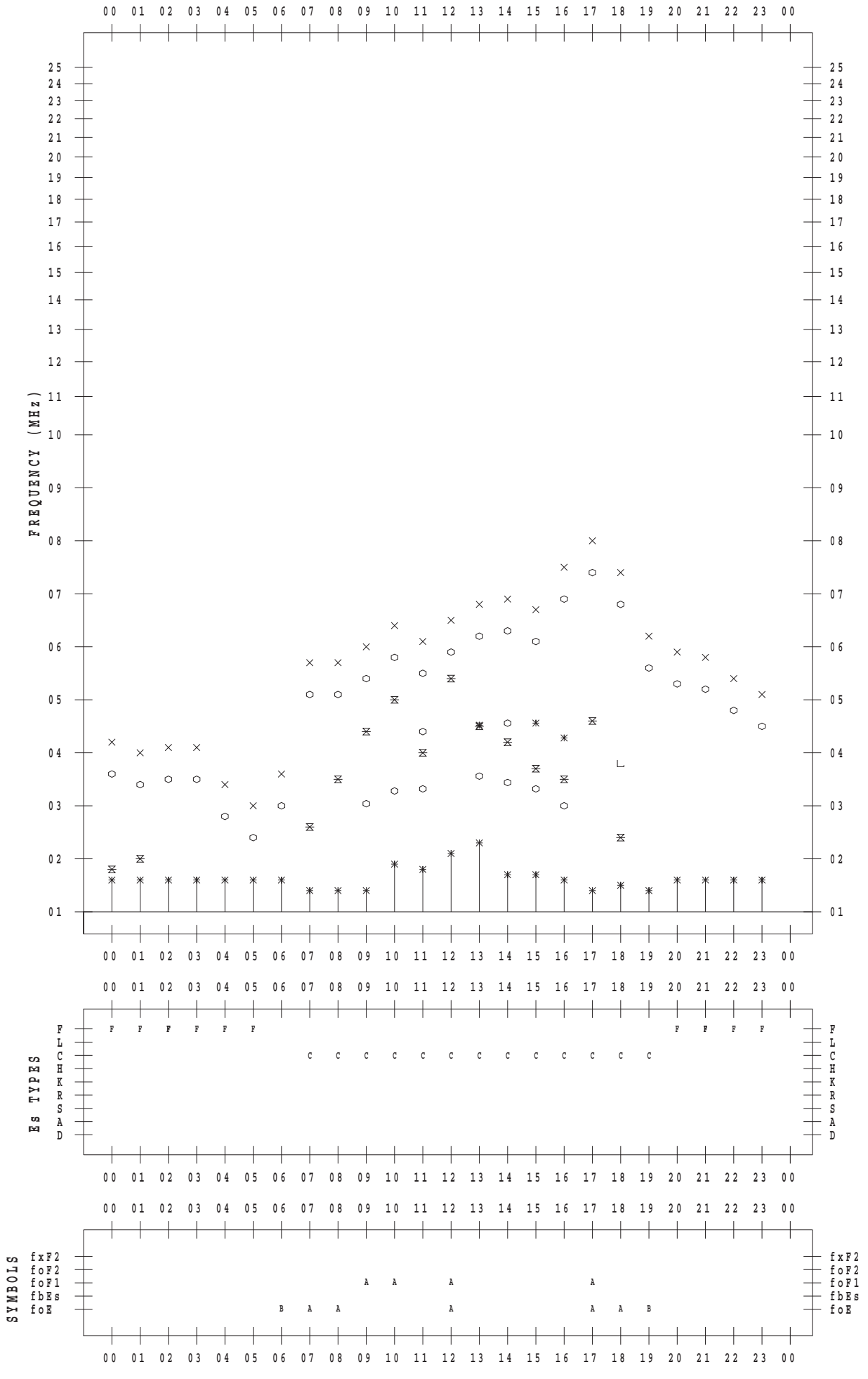
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 8/31

135 °E MEAN TIME