F-884

IONOSPHERIC DATA IN JAPAN

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≪WDC for Ionosphere and Space Weather ･･･ https://wdc.nict.go.jp/IONO/wdc/index.html ≫

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

This Series contains data on ionosphere obtained at the following stations under the National Institute of Information and Communications Technology, Japan.

Stations	Geographic (WGS84)		Geomagnetic (IGRF-13 (2022))		Technical Method
	Latitude	Longitude	Latitude	Longitude	
✳Wakkanai/Sarobetsu	45˚10'N	141˚45'E	37.1˚N	149.9˚W	Vertical Sounding
Kokubunji	35˚43'N	139˚29'E	27.5˚N	150.8˚W	Vertical Sounding
Yamagawa	31˚12'N	130˚37'E	22.4˚N	158.5˚W	Vertical Sounding
Okinawa	26˚41'N	128˚09'E	17.8˚N	160.5˚W	Vertical Sounding

✳We moved the observation facilities at Wakkanai to Sarobetsu in 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.

1. 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.

2. Manual Scaling

The published data consist of tabulations of hourly values of the ionospheric characteristics and figures of daily *f*-plot.

All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Hand-book of Ionogram Interpretation and Reduction (Second Edition) 1972 " and its revision of chapters I-4, published in July 1978.

a. Characteristics of Ionosphere

fxI	Top frequency of spread ***F*** trace
foF2 ***foF1*** ***foE*** ***foEs***	Ordinary wave critical frequency for the ***F2***, ***F1***, ***E,*** and ***Es*** (including particle type ***E)*** layers, respectively
fbEs	Blanketing frequency of the ***Es*** layer, e.g. the lowest ordinary wave frequency visible through ***Es***
fmin	Lowest frequency that shows vertical ionospheric reflections
M(3000)F2 ***M(3000)F1***	Maximum usable frequency factor for a path of 3000 km for transmission by the ***F2*** and ***F1*** layers, respectively
h'F2 ***h'F*** ***h'E*** ***h'Es***	Minimum virtual height on the ordinary wave for the ***F2,*** whole ***F***, ***E*** and ***Es*** layers, respectively
Types of ***Es***	See below b. (iii)

b. Symbols

(i) Descriptive Letters

The following letters are entered after, or used to replaced a numerical value on the monthly tabulation sheets, if necessary.

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.

B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.

C Measurement influenced by, or impossible because of, any non-ionospheric reason.

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.

F Measurement influenced by, or impossible because of, the presence of spread echoes.

G Measurement influenced by, or impossible because the ionization density of the layer is too small to enable it to be made accurately.

H Measurement influenced by, or impossible because of, the presence of a stratification.

K Presence of particle *E* layer.

L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.

M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

P Man-made perturbations of the observed parameter; or spur type spread *F* present.

Q Range spread present.

R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.

S Measurement influenced by, or impossible because of, interference or atmospherics.

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

The following letters are entered in the first column before a numerical value on the monthly tabulation sheets, if necessary.

A Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

O Extraordinary component characteristic deduced from the ordinary component. (Used for x-characteristics only.)

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

When more than one type of *Es* trace are present on the ionogram, the type for the trace used to determine *foEs* must be written first. The number of multiple trace is indicated after the type letter.

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.

l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the part *E* layer minimum virtual height.

c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)

h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)

q An *Es* trace which is diffuse and non-blanketing over a wide frequency range.

r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.

a An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.

s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.

d A weak diffuse trace at heights below 95 km as-sociated with high absorption and large *fmin.*

n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.

k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

Median count (**CND**) is the number of values from which the median has been computed. In addition to numerical values, the count may include certain descriptive letters.

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

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

HOURLY VALUES OF foF2 AT Wakkanai

AUG.2022

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	66	52	53	55	46	60	64	76	81	74	67	62	A	59	96	48	51	58	68	76	73	68	A	A
2	67	65	51	43	49	53	65	71	A	A	A	62	59	57	A	48	54	93	38	A	A	70	64	62
3	45	44	41	42	42	44	48	66	59	60	A	62	A	61	60	59	55	54	61	65	68	73	64	A
4	A	A	A	39	41	A	A	A	A	A	A	A	59	55	A	A	49	A	48	A	69	67	64	A
5	A	A	A	53	45	46	55	54	82	75	72	78	69	65	72	67	63	60	59	59	68	63	A	62
6	59	50	51	51	50	57	71	65	61	93	73	51	89	N 76	52	51	65	61	62	66	67	A	A	A
7	42	53	A	51	49	A	63	A	72	66	61	63	62	64	A	A	63	64	68	74	81	A	A	53
8	A	54	52	39	A	A	A	53	A	A	A	A	51	A	A	A	43	57	59	56	A	A	A	A
9	51	40	39	A	A	A	50	A	51	46	A	A	A	49	52	55	57	55	A	A	65	68	62	51
10	55	56	51	A	41	47	50	65	49	A	46	A	A	A	48	49	49	49	49	53	A	59	A	50
11	47	42	A	42	A	45	A	58	65	53	47	A	A	47	A	A	59	54	56	60	66	65	67	57
12	43	45	47	43	42	50	46	54	45	A	A	53	A	A	A	A	55	53	61	60	64	57	54	51
13	51	50	49	48	48	54	61	49	61	73	A	68	65	A	A	A	51	61	A	72	A	76	69	67
14	63	58	52	48	40	42	A	57	A	A	A	A	A	49	49	55	52	57	53	A	62	65	61	53
15	47	45	45	45	49	52	66	66	A	70	65	A	A	A	66	54	62	62	57	63	70	68	65	56
16	54	A	48	50	49	38	54	68	71	N 70	A	61	62	67	61	58	59	58	61	71	77	74	67	65
17	57	56	52	45	42	47	55	65	64	74	72	65	62	65	68	66	38	67	72	72	69	59	A	A
18	58	57	A	45	39	38	49	57	64	69	60	C	C	C	C	C	69	67	67	71	71	70	64	59
19	61	55	54	57	49	39	48	50	61	73	69	61	67	63	64	68	67	69	A	A	65	67	61	58
20	61	56	52	43	A	38	57	56	50	54	A	55	53	60	67	71	69	64	A	68	A	65	68	64
21	59	57	54	57	42	48	58	53	63	70	72	59	71	61	63	66	A	55	63	77	A	75	65	57
22	A	51	44	41	39	A	47	51	A	A	61	57	62	73	70	65	52	A	69	67	66	A	69	62
23	51	51	50	53	52	51	59	68	71	62	67	64	68	65	70	62	70	71	70	77	71	69	73	53
24	46	44	45	43	42	46	56	63	63	57	67	70	63	63	55	63	63	67	69	78	80	A	60	49
25	41	45	42	42	42	45	60	58	62	74	68	67	N 59	90	A	62	59	56	58	72	75	84	66	52
26	50	49	42	41	41	46	62	76	63	67	63	63	63	57	62	A	60	62	A	80	87	A	35	A
27	48	60	54	41	54	50	57	66	77	80	A	65	A	63	67	65	63	A	68	73	76	73	62	55
28	52	52	53	43	39	42	60	73	73	83	72	55	68	68	71	A	65	67	A	79	81	71	63	63
29	57	58	55	51	51	46	55	68	64	63	65	64	66	67	75	67	69	68	67	65	A	65	59	53
30	56	58	54	51	42	45	60	67	67	64	73	76	61	60	A	77	78	77	69	60	57	61	58	A
31	A	A	53	47	40	43	63	64	71	83	63	A	A	62	A	72	72	64	61	A	A	63	A	58
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	26	29	27	26	27	28	25	24	20	22	20	25	20	22	30	28	25	25	23	25	23	23
MED	53	52	51	45	42	46	57	64	64	70	67	62	62	63	65	62	60	62	61	71	69	68	64	57
U Q	59	57	53	51	49	50	62	67	71	74	72	65	67	66	70	67	65	67	68	75	76	72	67	62
L Q	47	45	45	42	41	43	50	55	61	62	62	59	60	58	57	55	52	56	57	61	66	64	61	53

HOURLY VALUES OF fEs AT Wakkanai

AUG.2022

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	59	57	39	40	40	35	50		85	94	110	82	115			119	109	46	25	70	107	64	78	71
2	59	79	26	28	35	32	48	84	71	95	92	57	51	87	84		51		149	116	113	11	38	31
3	40	29	34	39	94	39	35	41	84	51	75	84	71	47	50	70	49	54	39	33	60	48	70	83
4	109	107	109	39	30	49	60	70	134	110	72	88	90	54	70	57		122		85	57	92	40	84
5	94	92	60	34	25	30	44	45	71	62	92	91	150	47	66	65	84	49	40	29	50	52	60	82
6	73	48	44	44	58	94	48	42	69	144	112		121	118	109	108	70	52	103	65	158	126	111	174
7	149	108	73	41	35	78	155	92	70	69	54	58	54	90	90	87	47	56	36	36	33	92	92	59
8	69	38	30	33	57	83	74	90	145	114	90	82	114	64	89	59	52	84	52	26	41	69	113	70
9	40	43	40	58	59	59	60	71	84		62	56	72				124		126	59	36	33	39	48
10	G	44	41	58	36	45	48	49	56	53	44	51	60	62	145	59	98	69		113	94	57	72	43
11	47	30	71	38	60	36	66	145	114	90	76	59	55	47	64	81	46	49	52	30	G	38	29	G
12	G	G	G	G	G	41	43	42	51	65	59	55	44	64	70	61	54	38	35	32	39	38	69	34
13	25	29	28	33	37	37		92		102	116	69	100	112	102	81	30	26	70		109	51	60	30
14	48	27	40	38	153	58	57	57	109	81	93	90	74	107	51	38	38	40	70	72	30	24	32	32
15	35	28	G	G	24	50	40	116	121	78	69	72	71	88	40	41	40	43	50	32	41	38	33	48
16	56	59	48	33	28	34	38	51	47	63	124	97	40	64	52	43	43	44	50	35	56	50	53	60
17	32	34	G	58	38	50	53	88			54	63	55	70	50	64		164	147	113	51	116	127	129
18	41	56	69	48	34	29	43	134	53	50	60	C	C	C	C	C	48	45	40	73	39	48	57	34
19	32	G	G	G	23	G	38	52	60	46	40	38	42	38	78	38	39	59	97	59	48	39	34	35
20	28	27	39	34	60	42	156	49	89		156	92	46	43		146	109	48	77	56	92	49	41	53
21	26	34	38	G	30	G	27	45	59	53	43	45	53	54	46	47	64	73	49	60	60	59	47	55
22	103	47	35	32	31	64	35		89	95	55	60	128	57	80	118	74	146	59	43	56	127	66	47
23	59	38	26	G	G	G	34	85	61	56	52	132	53	57	52	56	52	48	116	41	48	34	29	53
24	28	G	28	31	G	G	26	39	45	49	52	56	47	46	57	55	60	66	59	49	32	114	48	G
25	33	31	41	27	G	G	30	40	45	43	53	59	72	83	116	83	59	39	41	34	40	60	30	34
26	28	G	112	G	G	29	45	47	57		40	42	54	45	47	66	77	89	145	116	109	167		93
27	41	35	29	33	G	48	57	114	108	91	69	51	97	50	46	53	54	60	48	41	41	30	28	33
28	G	30	30	G	29	126	46	40	50	57	55	46	G	54	60	72	68	165	153	53	G	G	28	35
29	32	30	28	28	32	31	34	56	61	50	62	53	54	38	36	31	44	40	49	30	84	107	83	40
30	48	39	37	36	G	30	43	154		107	54	G	42	49	71	56	64	40	36	41	44	35	49	83
31	116	92	47	34	G	30	35	48	45	92	39	97	64	83	126	90	55	34	56	81	69	92	70	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	31	30	29	28	27	31	29	30	28	27	28	29	29	29	30	31	31	30	31
MED	41	35	38	33	31	37	44	56	70	69	62	59	58	57	66	62	54	49	52	51	50	51	51	48
U Q	59	56	47	39	40	50	57	91	89	95	92	86	90	83	89	82	72	71	100	72	84	92	70	71
L Q	28	29	28	27	G	30	35	45	54	53	53	52	51	47	50	54	46	41	40	34	39	38	34	34

HOURLY VALUES OF fmin AT Wakkanai

AUG.2022

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	16	16	14	15	15	16	15	9	15	17	21	18	15	15	38	26	17	14	15	13	15	16	15	15
2	15	15	16	16	15	16	14	14	13	18	17	15	17	17	15	5	15	5	14	16	16	16	15	16
3	15	16	15	15	16	15	16	15	15	16	15	18	18	15	16	16	16	14	13	16	16	15	14	15
4	13	13	15	16	16	15	15	13	8	16	17	15	17	14	15	15	14	102	14	14	16	17	15	14
5	13	16	17	15	16	16	14	15	13	14	18	17	19	17	19	17	15	13	14	15	15	14	16	15
6	17	15	15	16	14	17	14	14	16	9	10	11	9	16	18	13	14	14	14	15	16	15	5	11
7	15	17	15	15	16	15	15	14	15	14	18	15	18	20	16	16	15	12	16	16	16	15	15	15
8	15	15	16	16	14	16	16	14	5	12	15	17	15	16	13	14	13	13	15	16	14	15	13	15
9	15	15	15	16	13	15	13	13	16	15	16	15	17	18	17	14	12	14	5	15	16	15	16	15
10	16	16	16	15	14	15	14	14	14	19	21	17	17	15	20	15	15	14	15	15	13	15	16	16
11	16	15	15	15	17	16	15	13	15	16	18	20	17	22	16	15	15	14	14	15	16	15	16	15
12	15	14	24	15	14	15	15	15	15	14	18	16	17	15	16	16	16	16	15	15	15	15	16	16
13	16	16	15	17	16	16	15	14	19	17	17	19	18	16	17	17	15	15	13	15	15	14	15	16
14	15	16	16	15	16	15	15	14	15	15	15	14	13	20	15	17	15	14	15	15	15	16	15	16
15	15	15	16	14	15	15	15	17	10	15	18	16	13	18	18	15	14	14	14	15	16	15	16	16
16	15	17	16	16	16	15	17	15	14	15	20	16	18	17	17	15	15	17	15	14	15	15	15	16
17	15	16	15	16	15	14	14	15	9	15	19	20	18	19	17	14	9	15	5	16	15	15	6	7
18	16	15	16	15	15	17	15	16	14	16	17	C	C	C	C	C	15	15	15	13	14	15	15	16
19	16	14	14	15	16	15	16	14	14	15	16	17	17	17	22	15	15	14	16	15	15	15	15	17
20	16	16	15	14	15	15	15	15	13	15	11	22	20	16	16	17	14	14	14	15	15	15	15	15
21	17	15	15	15	15	16	15	15	14	16	16	17	19	17	20	16	16	14	15	15	17	16	17	17
22	19	15	16	16	16	17	16	15	17	16	15	14	11	15	16	9	15	15	14	15	15	5	15	15
23	16	16	16	15	15	16	17	15	14	15	20	5	20	19	13	14	14	14	15	15	15	15	15	15
24	15	14	15	16	15	16	15	15	15	17	19	16	16	18	17	16	13	14	15	15	16	16	15	17
25	15	16	15	15	16	15	16	15	14	16	16	17	19	18	16	15	17	15	17	15	15	15	16	15
26	15	16	17	15	16	14	14	13	13	17	15	18	21	18	17	15	15	16	5	11	14	5	45	15
27	15	16	16	17	16	15	17	14	17	15	19	17	23	19	21	15	14	14	13	13	15	15	15	15
28	17	16	16	15	16	15	15	15	15	17	19	38	43	23	18	17	14	14	10	15	14	15	15	15
29	16	16	15	16	15	15	16	15	15	16	21	18	18	19	17	15	14	14	13	16	14	15	16	15
30	16	16	15	15	16	15	14	15	16	20	16	21	21	15	20	15	15	13	16	16	14	15	15	14
31	5	9	16	15	14	15	16	14	15	19	17	11	16	17	18	16	15	16	14	14	16	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	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	31
MED	15	16	15	15	15	15	15	15	15	16	17	17	18	17	17	15	15	14	14	15	15	15	15	15
U Q	16	16	16	16	16	16	16	15	15	17	19	18	19	19	18	16	15	15	15	15	16	15	16	16
L Q	15	15	15	15	15	15	14	14	13	15	16	15	16	16	16	15	14	14	13	15	15	15	15	15

HOURLY VALUES OF foF2 AT Kokubunji

AUG.2022

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	51	57	50	51	65	63	A	77	A	112	A	67	52	64	A	A	69	81	88	72	58	61
2	A	A	54	53	51	49	A	46		88		A	66	74	65	A	69	68	73	75	85	A	A	A
3	A	A	A	35	38	53	A	67	A	65	67	65	70	N	61	67	A	86	63	74	79	65	52	A
4	A	A	41	A	A	50	A	63	72		112	A	A	67	64	A	63	A	60	61	54	A	A	49
5	45	51	51	51	49	42	53	64	66	71	72	A	80	63	73	81	77	65	62	59	63	55	59	A
6	55	53	51	49	49	53	65	65	50	69	A	65	67	72	69	71	79	76	71	67	70	72	74	57
7	51	49	53	55	53	57	65	75	63	53	61	63	65	A	A	66	A	65	52	93	89	65	A	A
8	50	46	A	38	42	39	55	61	49	A	A	A	A	109	A	49	55	56	63	71	57	54	49	A
9	A	A	A	A	34	32	A	A	A	102	A	A	64	58	107	68	77	71	69	81	73	81	65	A
10	54	61	57	A	A	53	62	55	72	A	A	A	A	A	A	56	A	A	A	62	57	55	51	45
11	53	54	A	A	A	41	65	103	A	186		N		127	67	A	A	60	A	73	A	A	61	57
12	61	55	54	53	A	A	65	64	50		53	A	71	67	63	60	66	63	147	76	A	A	58	58
13	56	59	53	48	A	50	75	101	67	64	65	N	A	A	78	77	68	63	66	80	79	62	63	62
14	59	59	53	43	39	46	A	A	N 64	122	A	A	A	80	69	67	71	67	62	67	69	63	A	57
15	59	55	51	46	41	45	59	74	80	71	A	A	A	A	65	72	126	66	57	67	78	73	A	A
16	62	55	47	52	55	57	66	63	87	A	59	65	66	66	69	A	67	65	65	82	79	58	61	57
17	A	65	56	A	44	43	63	69	78	85	78	68	A	81	75	79	83	86	90	92	83	62	56	59
18	66	60	57	53	A	40	59	57	74	73	69	81	77	77	74	77	83	77	82	88	85	69	A	63
19	60	58	57	55	57	61	54	61	66	82	A	74	138	A	A	A	85	93	88	85	69	67	63	61
20	59	55	51	54	35	35	52	73	88	63	66	71	76	75	80	84	84	A	77	80	79	70	65	66
21	64	67	67	57	33	39	51	63	79	73	65	69	61	61	73	85	78	71	85	95	91	62	41	36
22	A	43	40	41	45	45	54	106	159	78	62	A	70	83	93	88	86	77	79	A	79	75	70	A
23	54	57	69	53	51	51	61	75	77	65	A	67	74	84	79	76	81	89	95	93	80	61	56	54
24	53	53	53	A	50	49	60	67	64	62	69	67	64	58	66	67	73	81	91	102	93	55	48	45
25	46	40	43	40	41	39	66	77	73	72	56	67	66	65	69	67	61	60	63	75	82	73	67	A
26	A	55	51	44	41	41	58	75	86	64	63	61	66	60	63	A		A	78	97	84	57	51	47
27	43	43	47	45	43	45	63	85	77	71	70	65		A	69	73	67	67	78	96	88	70	62	61
28	60	57	60	56	35	37	A	85	89	66	67	70	64	70	79	87	79	77	85	88	83	66	64	64
29	59	59	57		52	52	63	72	126	65	71	77	A	81	81	87	84	78	74	83	68	62	57	49
30	54	59	55	53	43	42	65	83	71	63	73	74	78	76	76	79	93	101	100	82	A	57	53	56
31	54	53	53	54	41	41	64	67	80	65	78	72	75	69	67	79	C	80	81	70	70	66	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	26	27	24	25	30	25	29	26	26	20	19	20	24	27	25	24	26	29	30	28	27	24	21
MED	55	55	53	52	43	45	63	67	74	71	67	68	68	71	69	73	78	71	74	80	79	65	58	57
U Q	60	59	57	54	50	51	65	76	80	78	71	74	75	80	78	80	83	80	85	88	84	70	63	61
L Q	53	53	51	44	40	41	56	63	66	65	62	65	65	65	65	67	67	65	63	71	69	58	52	49

HOURLY VALUES OF fEs AT Kokubunji

AUG.2022

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	69	115	50	59	43	G	36	59	154	61	133	89	130	40	50	64	65	86	84	57	49	31	41	53
2	70	57	53	40	48	32	71	90				155		68	94	84	64	114	163	96	108	150	60	80
3	91	57	57	34	26	43	70	78	92	62	130	92		115	55	34	153	100	94	56	69	54	70	81
4	128	115	38	60	70	35	125	82	84		158	132	133		61	86	62	73	53	G	167	146	105	48
5	41	G	G	24	G	G	34	52	84	70	64	92	61	56	77	93	64	33	31	31	26	33	37	60
6	69	109	105	46	50	47	51	40	114	65	147	84	97	70	65	52	128	50	29	G	56		42	38
7	31	30	G	G	G	G	35	38	59	42	41	41	62	94	79	47	65	63	79	69	60	58	83	69
8	57	39	86	38	25	40	50	49	53	39	44	40	46	78	68	55	71	40	32	26	G	33	70	71
9	72	71	94	113	34	33	55	52	39	83	112	75	72	71	81	91		143	45	35	35	35	60	105
10	49	57	39	59	64	88	109	43	74	77	70	41	65	37	60	57	82	84	57	32	59	47	47	48
11	40	40	60	60	54	30	53	113	144	143		140		116	52	72	110	58	65	74	94	149	35	59
12	41	48	49	39	57	146	47		61		90	97	60	57	37	70			148		89	61	59	50
13	37	34	32	35	132	G	112	69	56	59	59	97	88	136	54	69	56	70	G	G	32	35	54	32
14	41	G	26	G	G	G	116	92	65	88	170	133	134	87	60	56	60	62	61	53	59	45	82	55
15	G	31	49	39	G	36	35	145	152	79	101	71	114	65	53	74	136		116	96	71	83	94	83
16	56	41	35	29	31	G	36	47	124	92	46	46	45	53	57	81	53	50	65	55	60	41	50	49
17	117	57	46	57	37	33	40	47	117	75	144		84	59		71	85	83	58	57	33	30	53	36
18	43	92	40	40	64	28	41	36	59	61	52	37	63	40	38	33	46	51	38	32	40	60	90	43
19	53	32	G	27	24	30	39	84	50	71	115	85	110	132	93	77	61	51	50	40	29	25	27	31
20	27	G	G	38	29	G	27	45	62	40	61	58	55	52	42	50	108	109	31	30	41	146	56	60
21	59	42	25	39	33	26	43	86	50	42	41	34	40	40	59	60	40	65	29	G	31	29	46	29
22	112	59	40	24	23	G	40	129	144		43	108		40	50	64	80	125	70	116	60	49	28	90
23	59	29	G	55	36	30	55	51	62	58	66	70	73	81	73	40	37	31	29	32	25		G	41
24	57	G	G	57	47	33	57	40	50	35	37	51	38	49	48	38	35	42	40	71	22	11	33	32
25	31	G	G	G	24	34	50	37	42	35	52	48	34	43	40	83	59	53	55	60	39	48	81	80
26	83	55	27	G	G	G	G	40	47	78	37	49	G	34	32	71		126	115	49	38	38	60	26
27	26	39	27	26	G	214	113	37	36	59	90	66		69	55	50	36	34	29	G	G	47	31	55
28	23	36	29	34	G	27	57	44	33	34	38	G	37	34	G	46	47	41	41	64	59	53	52	35
29	23	49	33		34	32	32	56	82	94	60	57	80	74	57	56	64	41	49	26	25	G	50	45
30	43	48	41	41	32	G	35	52	86	75	127	48	95	36	G	49	62	70	55	41	85	G	70	39
31	43	31	29	28	23	27	27	27	31	56	42	36	G	37	55	118	C	50	46	40	55	59	70	92
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	31	30	30	27	29	30	26	30	30	31	27	29	31	30	31	29	31	31
MED	49	41	35	38	32	30	47	52	62	62	64	68	64	58	55	64	64	62	53	40	49	47	54	50
U Q	69	57	49	55	48	35	57	82	92	78	121	92	95	78	65	77	82	85	70	60	60	59	70	71
L Q	37	31	25	27	23	g	35	40	50	42	43	46	45	40	48	50	53	46	32	30	31	32	41	38

HOURLY VALUES OF fmin AT Kokubunji

AUG.2022

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	15	15	15	17	15	14	23	22	23	15	27	22	25	18	15	14	14	13	15	15	14	15
2	14	15	15	15	15	15	14	15	19	30	27	65	20	18	21	14	15	11	15	14	15	5	15	16
3	16	16	16	16	16	15	14	13	14	15	17	18	19	21	17	17	5	16	15	15	15	15	15	17
4	5	13	17	15	16	16	9	13	14	17	14	14	6	13	21	15	15	14	13	15	17	7	9	15
5	15	16	15	15	16	18	15	14	12	15	17	20	18	15	17	16	15	16	16	16	15	15	15	16
6	16	13	17	14	16	16	15	15	13	17	13	18	19	22	16	17	13	14	15	16	15	16	15	16
7	16	16	15	13	14	15	16	15	15	15	17	17	18	17	16	17	18	13	15	15	15	16	15	17
8	15	15	15	15	15	15	15	13	16	18	17	21	16	21	17	15	13	15	16	15	16	15	16	17
9	15	16	13	12	15	16	15	14	15	15	17	17	21	15	17	13	13	5	14	15	15	15	15	10
10	15	16	15	15	14	14	14	13	17	19	21	21	14	19	22	17	15	13	15	16	14	15	15	15
11	16	15	15	14	15	16	13	13	7	5	65	17	21	14	15	17	6	15	15	16	11	14	16	16
12	15	15	15	15	15	11	15	13	13	13	9	15	13	13	26	18	15	15	5	11	15	16	15	15
13	16	15	16	15	15	15	15	14	16	15	13	7	13	15	19	15	14	13	15	15	15	16	16	16
14	16	16	15	15	17	14	15	15	15	15	12	15	10	14	16	17	15	14	15	15	16	15	15	15
15	17	17	15	15	15	15	16	14	14	16	20	15	19	22	22	18	12	16	9	15	15	15	14	15
16	15	15	15	16	17	15	15	14	15	11	15	18	16	19	14	15	16	15	15	15	15	15	16	16
17	5	17	15	15	15	15	14	15	12	18	14	13	17	15	17	19	15	13	15	15	16	16	16	15
18	15	15	15	15	15	15	16	14	14	19	15	17	15	25	13	14	15	13	15	13	16	16	16	15
19	15	16	16	15	15	15	15	15	14	19	17	17	20	10	16	19	15	15	14	15	16	16	16	16
20	16	15	15	15	16	13	14	14	13	15	15	17	17	16	16	15	15	15	16	16	15	16	16	15
21	15	16	16	15	16	15	15	13	15	14	21	45	17	15	15	15	15	14	17	16	16	16	15	15
22	15	15	15	15	16	17	15	15	11	17	14	12	21	28	26	18	17	15	14	6	17	15	16	12
23	19	16	15	15	16	16	17	13	14	17	14	14	15	14	16	15	15	16	15	16	16	17	17	16
24	14	13	15	15	15	15	15	14	15	18	15	17	28	17	14	14	14	14	14	16	16	14	16	16
25	16	15	15	15	15	15	15	14	13	16	25	14	25	25	23	14	15	14	15	16	15	15	15	15
26	14	15	15	13	14	14	15	14	14	18	26	26	48	24	25	13	15	5	17	15	15	15	16	17
27	16	16	15	15	15	13	16	16	14	20	17	21		17	15	15	15	16	16	13	15	16	17	15
28	16	15	16	16	13	15	14	15	15	23	28	44	28	48	45	24	13	14	15	15	15	17	15	15
29	16	15	16		16	16	16	15	14	18	13	15	15	16	15	16	13	14	15	16	15	17	15	16
30	17	16	15	15	16	13	16	13	11	14	15	32	13	16	45	21	14	14	15	15	12	17	16	16
31	15	16	16	15	15	15	15	15	21	16	16	23	46	26	16	19	C	16	14	16	15	15	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	30	31	31	31	31	31	31	31	31	30	31	31	31	30	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	14	14	17	17	17	18	17	17	16	15	14	15	15	15	15	15	16
U Q	16	16	16	15	16	16	15	15	15	18	21	21	21	22	22	18	15	15	15	16	16	16	16	16
L Q	15	15	15	15	15	15	14	13	13	15	14	15	15	15	16	15	13	13	14	15	15	15	15	15

HOURLY VALUES OF foF2 AT Yamagawa

AUG.2022

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	62	71	58	59	66	49	55	68	86	68	66	62	76	74	63	68	72	68	67	83	95	63	54	52
2	53	54	55	61	42	45	46	51	81	77	67	64	70	76	79	79	95	80	46	A	86	82	61	A
3	57	59	55	A	47	A	46	62	66	71	A	A	A	A	73	73	73	77	83	81	82	65	57	55
4	A	55	A	A	52	42	52	66	56	N 66	112	74	37	122	51	78	A	A	70	65	A	62	53	52
5	50	53	53	53	56	48	45	62	59	A	71	67	A	69	67	84	90	78	69	65	66	69	65	60
6	53	56	A	55	47	50	49	62	A	66	71	69	54	76	75	82	82	79	79	79	76	71	A	57
7	60	56	60	58	55	53	58	61	62	66	67	63	63	69	77	73	75	79	91	105	111	75	65	57
8	56	53	A	48	49	46	54	48	48	A	53	52	61	A	49	58	A	57	71	73	67	59	55	51
9	52	A	51	A	34	A	A	A	A	A	N 46	55	63	144	A	72	77	85	A	98	A	73	78	70
10	71	75	77	62	49	47	51	A	51	47	N 70	69	A	A	58	58	61	61	66	A	71	57	50	A
11	A	51	53	51	A	A	51	65	57	A	N 53	70	A	68	71	79	79	77	69	66	71	59	A	A
12	56	62	59	57	54	51	65	65	63	62	54	54	94	A	78	68	82	79	86	85	59	61	61	A
13	60	66	69	52	54	53	75	77	77	64	69	77	65	77	A	86	84	74	77	83	86	60	65	63
14	62	61	57	57	55	53	58	79	79	72	A	77	83	A	85	85	86	81	67	68	78	A	58	67
15	56	53	53	50	51	49	49	73	83	69	70	67	66	76	73	76	73	77	66	79	92	95	57	57
16	53	A	53	55	53	48	53	67	90	83	64	71	69	78	79	76	78	83	73	81	79	63	57	57
17	57	51	52	49	49	49	57	71	77	79	75	A		79	75	79	85	84	87	95	91	61	66	63
18	A	59	57	54	53	55	59	53	64	78	A	77	77	77	86	79	83	85	86	99	92	61	59	63
19	A	61	57	56	65	66	55	69	77	80	83	83	76	77	89	A	79	93	94	103	85	77	64	62
20	63	60	62	60	44	37	41	78	81	65	75	37	77	A	79	87	92	99	89	85	81	70	59	65
21	61	60	69	50	A	31	47	78	81	64	71	71	58	55	84	92	87	94	99	102	90	57	55	57
22	52	50	50	47	50	40	49	61	72	A	57	67	72	A	95	94	91	89	79	94	89	68	61	57
23	56	55	51	49	40	40	51	69	71	58	46	67	71	A	A	91	94	95	96	89	76	60	55	57
24	55	55	53	51	49	45	53	66	65	67	68	62	59	63	70	74	77	81	97	101	99	56	52	53
25	54	56	57	55	54	46	51	75	79	69	69	73	74	83	73	76	75	72	70	72	76	71	A	52
26	51	60	A	A	58	46	51	69	77	65	59	66	66	65	69	71	70	70	84	100	93	A	52	52
27	52	52	49	50	45	45	49	87	87	83	77	A	A	76	71	76	77	79	88	98	95	69	65	61
28	62	62	65	67	43	35	40	66	89	63	A	A	72	72	79	82	82	80	86	93	87	65	51	56
29	58	56	55	53	54	48	51	69	63	66	68	76	77	82	94	93	89	83	82	85	79	59	57	57
30	53	51	51	47	43	43	51	76	76	65	66	A	83	94	84	79	93	103	117	120	101	56	57	61
31	59	60	60	58	52	42	54	65	63	65	62	74	71	79	77	81	A	95	92	88	72	66	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	29	27	27	29	28	30	29	29	26	27	26	25	23	28	30	28	30	30	29	29	29	27	26
MED	56	56	55	54	51	46	51	67	76	66	68	68	71	76	76	79	82	80	82	85	85	63	57	57
U Q	60	60	60	58	54	49	55	74	81	72	71	74	76	79	81	84	88	85	89	98	92	70	64	62
L Q	53	53	53	50	46	42	49	62	63	65	59	63	63	69	70	73	76	77	70	79	76	59	55	55

HOURLY VALUES OF fEs AT Yamagawa

AUG.2022

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	83	57	49	40	36	40	36	58	79	56	49	48	49	53	48	53	52	31	47	35	28	28	50	39
2	52	32	73	39	32	25	35	45	72	56	60		130	56	60	88	115	86	80	146	70	71	46	116
3	43	54	40	72	40	124	56	60	60	60	73	106	80	84	52	42	40	47	36	60	25	24	G	34
4	71	54	92	69	71	33	34	47	88	91	150	172	100	154			137	81	50	35	60	48	40	48
5	G	40	33	27	G	29	28	39	41	84	53	67	89	60	82	62	60	74	46	28	43	29	60	37
6	35	48	79	33	32	39	30	47	96	62	50	51	55	52	39	40	50	55	46	41	35	23	79	55
7	41	41	27	40	32	40	29	46	55	61	58	50	62	67	100	78	46	42	44	69	38	44	37	33
8	31	39	60	40	28	32	27	67	53	58	60	80	184	65	46	54	103	69	60	41	56	40	37	41
9	33	58	29	70	126	83	70	93	90	152	180		62	124	74	69	55	51	107	116	108	39	31	31
10	24	31	43	27	G	81	111	117	106	95	101	145	55	92	52	47	45	35	40	74	G	24	30	49
11	80	38	45	40	72	72	45	40		114	79	55	82	51	36	93	77	49	30	G	52	28	92	171
12	33	G	G	40	28	G	G	38	62	67	50	46	44	164	72	76	78	71	82	40	40	41	37	53
13	57	38	36	43	36	48	35	49	40	83	46	56	144	47	94	115	56	64	36	27	33	29	G	G
14	29	G	39	G	G	G	28	33	58	71	150	82	80	168	92	50	60	60	43	36	58	111	41	50
15	33	32	171	30	G	24	83	35	52	48	57	50	136	54	40	42	46	33	37	36	39	33	53	53
16	33	73	27	31	30	G	27	83	116	63	61	55	52	53	42	48	38	G	40	42	36	53	59	44
17	46	34	32	39	40	36	G	56	54	38	179	157		56	44	34	70	47	59	72	79	52	41	27
18	57	36	26	27	36		29	33	46	58	85	51	50	47	48	40	32	41	35	47	52	54	41	50
19	128	31	25	48	28	G	35	48	52	62	76	95	72	48	55	96	48	47	53	40	38	49	91	54
20	32	35	33	31	35	32	G	35	55	70	72	105	52	108	66	57	42	35	G	50	36	83	57	32
21	25	34	38	38	38	G	G	40	48	72	44	45	50	43	50	70	43	49	45	39	53	30	27	24
22	25	41	40	G	G	G	28	35	54	95	109	95	61	100	47	34	32	36	28	G	G	G	G	G
23	G	G	G	29	G	G	47	38	40	57	116	128	100	115	125	70	78	52	59	48	30	39	G	24
24	35	48	31	28	40	38	28	144	35	42	48	46	47	44	42	40	49	54	37	84	28	56	29	24
25	G	25	G	G	G	24	G	33	43	52	51	85	44	50	50	43	35	33	57	39	46	26	72	G
26	48	128	84	81	84	33	26	34	40	44	60	50	45	182	51	51	48	54	54	46	46	57	48	36
27	33	26	G	35	G	30	28	32	37	40	46	88	77	49	52	50	52	60	52	55	46	33	34	48
28	33	26	38	G	G	G	30	40	44	84	92	76	47	38	42	46	44	46	38	33	32	27	32	176
29	70	28	30	28	35	25	G	39	38	34	40	48	49	46	100	65	61	57	48	48	35	30	24	33
30	G	G	29	27	31	G	27	42	43	43	68	67	63	50	G	52	60	60	37	56	19	24	G	G
31	35	40	29	39	35	27	27	35	36	45	52	G	45	41	62	55	94	55	70	84	45	69	78	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	31	31	31	31	31	30	31	31	30	31	31	29	30	31	30	30	31	31	31	31	31	31	31	31
MED	33	36	33	35	32	30	28	40	52	61	60	67	62	54	52	52	52	51	46	42	39	39	40	39
U Q	52	48	45	40	38	39	35	56	62	83	92	95	82	100	72	70	70	60	57	60	52	53	57	53
L Q	29	28	27	27	G	G	27	35	41	48	50	50	49	48	44	43	44	41	37	36	32	28	29	27

HOURLY VALUES OF fmin AT Yamagawa

AUG.2022

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	15	15	15	15	15	15	15	15	15	18	22	23	24	21	21	19	15	17	15	13	15	17	15	15
2	15	16	15	15	16	15	15	15	14	16	19	17	20	21	19	18	12	14	15	12	17	17	15	10
3	16	15	15	13	15	15	14	15	15	17	16	19	19	20	19	17	15	14	14	15	15	16	16	16
4	17	16	16	16	16	16	15	15	17	15	16	18	13	7	14	17	10	16	15	15	15	15	15	15
5	16	15	16	16	15	15	16	14	15	16	17	18	25	18	22	17	21	15	14	15	15	15	16	15
6	15	15	15	15	15	15	15	16	13	18	20	17	17	20	18	17	17	14	14	15	15	16	17	14
7	15	15	16	15	15	15	15	16	16	14	20	21	21	19	22	19	15	15	16	15	15	15	15	17
8	16	15	17	15	15	16	15	15	14	17	19	23	22	19	19	17	13	14	14	14	15	15	14	15
9	16	14	15	15	17	15	15	15	14	12	14	17	22	17	15	17	16	15	16	14	18	16	16	16
10	16	15	16	15	16	16	19	13	16	17	20	21	19	20	18	17	17	17	14	14	17	16	16	15
11	15	15	16	15	16	16	15	15	17	19	17	19	16	21	19	19	18	17	15	15	15	17	18	15
12	15	15	15	15	15	15	14	16	14	18	20	19	19	108	16	18	15	16	14	15	15	15	16	15
13	16	15	15	15	15	15	15	15	17	17	20	18	21	19	19	13	18	17	15	16	15	16	16	16
14	15	15	15	15	14	15	16	17	13	17	18	21	18	17	20	17	17	14	14	15	16	16	15	15
15	16	16	15	15	15	16	15	14	15	17	17	20	20	17	21	19	17	15	16	15	15	16	15	16
16	15	16	16	16	16	16	15	15	8	18	18	22	19	19	19	15	16	36	14	15	15	16	16	14
17	16	16	15	15	17	16	15	15	15	19	24	105	15	17	17	22	17	14	15	15	15	15	15	16
18	15	15	16	15	16	15	15	16	15	16	17	16	19	21	17	20	17	15	14	14	14	17	15	15
19	15	15	16	15	16	16	16	14	15	16	17	19	21	19	42	14	17	15	14	15	15	15	11	15
20	16	15	15	16	16	16	15	15	14	15	17	17	19	21	16	18	17	15	15	16	14	13	15	17
21	16	15	16	15	15	14	14	15	15	15	15	17	13	17	17	17	15	15	15	15	15	16	15	16
22	15	15	15	16	15	17	15	17	14	20	17	17	21	20	17	16	15	15	15	18	15	16	16	15
23	15	15	15	16	15	16	15	15	15	16	19	19	21	14	19	17	16	14	14	16	16	15	15	16
24	15	15	16	15	15	15	15	14	17	17	15	20	21	17	18	16	15	14	14	15	15	15	16	16
25	16	15	15	15	16	16	15	16	15	17	17	17	22	21	16	19	18	16	15	15	16	16	16	18
26	16	15	14	17	13	16	15	16	15	19	19	19	19	28	17	16	17	14	14	15	15	16	15	15
27	15	16	15	15	16	16	15	16	15	16	19	23	33	16	22	17	17	14	15	15	15	16	16	15
28	15	16	15	17	14	14	15	14	16	17	21	23	19	20	21	19	17	16	15	17	15	15	15	15
29	17	15	15	15	16	16	18	15	16	18	21	21	22	20	20	18	18	13	14	16	15	16	16	15
30	15	15	16	16	16	15	15	15	16	17	19	27	23	20	18	18	19	14	15	15	15	16	16	14
31	15	15	15	15	16	15	15	15	17	17	17	22	21	18	19	17	17	15	14	15	14	16	15	13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	15	15	17	18	19	20	19	19	17	17	15	15	15	15	16	15	15
U Q	16	15	16	16	16	16	15	16	16	18	20	22	22	21	20	19	17	16	15	15	15	16	16	16
L Q	15	15	15	15	15	15	15	15	14	16	17	17	19	17	17	17	15	14	14	15	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

AUG.2022

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	68	69	58	59	62	47	51	77	89	73	70	75	82	97	85	78	80	71	74	93	99	61	51	50
2	53	56	59	59	52	37	40	52	92	75	74	A	89	102	113	131	139	117	A	A	97	105	A	A
3	44	40	63	56	59	A	55	57	61	A	80	A	67	72	80	87	96	99	89	A	86	61	A	54
4	53	51	49	51	46	29	45	58	A	A	54	71	90	91	93	95	106	103	90	81	A	61	A	53
5	56	58	55	56	55	47	43	53	72	65	A	A	76	73	A	91	102	97	92	75	75	83	61	60
6	59	57	59	58	53	43	48	66	77	72	72	67	66	79	91	89	84	87	89	95	87	93	A	52
7	52	57	61	63	65	58	50	65	59	69	A	68	69	71	A	77	83	95	A	121	107	77	73	63
8	65	66	63	59	56	54	51	44	50	56	63	68	A	63	60	73	64	69	79	83	72	63	58	57
9	A	59	53	A	A	A	44	48	46	A	A	65	A	61	66	76	88	91	100	108	77	79	81	80
10	75	80	85	77	57	52	46	49	57	A	A	A	A	66	72	70	75	79	78	82	69	64	58	A
11	53	57	65	A	44	36	A	65	54	A	65	A	86	87	90	104	107	106	78	87	71	63	57	52
12	59	59	58	53	48	47	57	58	64	A	A	54	95	110	99	94	95	101	97	95	66	63	70	76
13	69	70	70	57	53	51	61	71	73	A	67	72	74	78	89	A	93	83	91	96	77	61	62	60
14	63	60	59	55	52	51	53	81	76	72	72	84	95	103	A	A	100	93	79	83	A	55	53	56
15	A	56	55	51	50	50	48	81	80	69	72	71	77	78	85	88	91	83	82	101	107	83	53	56
16	51	57	58	54	53	51	51	71	85	91	A	A	84	85	91	87	85	89	93	94	85	75	54	A
17	59	53	53	46	42	39	52	69	66	A	A	76	93	97	97	95	100	102	112	123	117	101	73	64
18	63	55	55	54	43	54	49	56	65	75	A	75	88	82	98	97	94	95	97	110	93	64	A	61
19	A	59	60	58	69	63	54	71	70	74	84	89	85	A	102	91	93	101	110	124	101	107	55	A
20	55	57	58	53	A	N 33	40	90	76	64	57	74	A	98	94	89	102	114	117	103	99	93	60	62
21	66	65	90	58	39	35	43	80	79	62	65	67	67	74	101	94	104	109	116	113	88	A	A	61
22	61	55	59	50	47	49	57	67	77	73	65	A	91	100	103	108	111	107	115	124	115	64	63	63
23	57	56	57	51	40	39	51	77	68	63	60	A	82	84	98	103	107	111	113	A	93	69	60	61
24	62	57	53	44	47	43	53	60	70	67	65	61	65	66	79	81	84	90	103	110	89	61	55	57
25	61	64	69	56	62	52	54	78	68	72	86	85	87	94	95	107	105	97	81	83	76	67	66	54
26	52	51	56	57	49	A	53	69	74	61	63	67	69	77	72	77	77	81	98	113	83	A	50	50
27	50	51	50	52	54	56	57	84	99	95	85	80	A	89	93	91	97	112	109	125	101	71	63	63
28	66	65	63	63	41	32	33	69	78	62	65	A	81	77	85	88	89	92	100	98	82	61	51	51
29	56	55	57	53	55	48	47	60	67	71	82	77	87	101	114	111	102	112	111	103	91	55	52	51
30	49	48	49	44	41	38	42	69	86	70	69	79	109	119	125	116	116	147	103	175	129	73	64	71
31	83	83	77	77	64	39	48	67	61	61	66	C	85	85	85	91	103	114	116	113	78	63	56	55
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	31	31	29	29	28	30	31	30	23	23	21	26	30	28	29	31	31	29	28	29	29	25	27
MED	59	57	58	56	52	47	50	67	71	70	67	72	84	84	92	91	96	97	97	102	88	64	58	57
U Q	64	64	63	58	56	51	53	77	78	73	74	78	89	97	98	100	104	109	110	113	100	81	63	63
L Q	53	55	55	51	45	38	45	58	64	63	65	67	74	74	85	84	85	89	85	90	77	61	53	53

HOURLY VALUES OF fEs AT Okinawa

AUG.2022

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	92	27	31	49	57	71	69	72	58	62	53	54	47	40	46	45	44	40	24	35	30	49	28
2	40	28	G	G	G	G	24	71	50	63	59	136	52	53	58	69	106	94	89	96	55	77	93	113
3	36	39	31	41	56	142	30	38	66	93	92	83	54	47	45	40	44	38	46	112	69	33	115	31
4	G	28	28	28	34	G	30	36	70	75	110	58	59	54	43	42	46	35	28	G	69	30	55	G
5	G	G	26	G	G	G	26	35	38	54	70	100	79	64	89	50	62	57	78	59	32	39	36	G
6	G	24	53	89	53	34	G	42	48	94	54	53	65	52	55	57	55	58	49	31	56	36	46	G
7	33	34	40	49	27	48	43	35	42	49	74	56	52	51	112	52	109	74	161	59	70	41	40	43
8	46	40	41	26	G	36	G	32	46	48	56	58	147	57	53	52	56	63	59	49	66	39	G	33
9	56	25	32	59	61	60	31	38	45	116	148	50	150	53	50	60	45	36	34	40	G	G	24	G
10	25	60	G	G	G	G	28	38	58	109	168	75	88	67	65	124	51	52	60	60	40	G	32	60
11	25	48	33	106	71	33	59	58	41	61	66	103	63	68	44	74	49	30	33	G	G	G	54	60
12	37	48	28	34	G	11	G	53	48	92	61	50	47	70	42	40	83	81	70	32	25	G	G	G
13	G	G	36	36	G	G	G	43	51	66	61	52	69	54	67	174	170	61	62	37	60	46	40	G
14	G	G	G	G	G	31	G	27	40	47	45	65	65	90	100	153	69	57	62	55	93	39	46	48
15	94	29	177	26	G	G	44	116	52	48	93	52	55	56	46	52	40	40	34	40	38	G	33	47
16	49	34	35	44	40	25	G	38	46	55	146	103	45	46	46	48	32	G	40	41	36	32	32	56
17	39	46	32	G	G	G	G	42	53	95	136	57	46	50	45	41	47	47	45	43	G	G	G	G
18	G	G	G	G	G	G	39	47	38	56	108	96	54	53	56	44	39	29	30	41	60	51	69	46
19	74	46	57	25	58	46	28	34	41	52	48	76	97	106	67	81	107	41	40	29	32	33	32	26
20	35	59	G	35	40	24	G	40	54	59	61	72	166	75	79	60	60	49	33	33	32	G	G	G
21	45	29	G	52	46	G	38	38	47	58	58	46	50	46	38	60	78	88	67	34	46	60	84	59
22	44	41	26	G	35	24	G	41	67	52	62	91	68	83	83	49	38	45	35	G	11	11	G	G
23	G	G	G	G	38	G	G	32	43	46	50	83	76	75	90	81	61	96	116	88	33	32	26	G
24	G	26	32	32	34	30	25	32	39	40	49	71	47	48	N	40	56	55	93	84	45	33	38	36
25	38	G	G	G	G	G	G	26	45	50	50	57	56	54	48	46	44	40	47	49	58	46	G	G
26	157	G	36	33	59	60	36	56	45	46	50	53	53	51	51	39	48	41	41	32	37	60	47	29
27	29	30	G	G	G	G	G	25	41	46	53	93	113	56	75	147	49	45	59	60	60	28	G	26
28	45	48	63	49	27	26	G	33	44	54	89	164	61	175	52	48	63	53	41	38	24	G	G	G
29	33	30	25	G	35	33	25	48	40	37	42	46	46	G	51	52	53	69	51	40	32	28	24	G
30	G	G	G	28	26	G	25	40	69	41	54	G	70	57	56	54	59	40	38	25	72	11	G	24
31	G	30	G	G	24	27	35	35	41	46	47	C	44	56	55	63	57	42	58	47	53	54	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	31	31	31	31	31	31	31	31	30	31	31	30	31	31	31	31	31	31	31	31	31
MED	33	30	28	28	27	24	25	38	46	54	61	62	59	54	54	52	55	47	47	40	40	32	32	26
U Q	45	46	36	41	46	34	35	47	53	66	92	91	76	68	67	69	63	61	62	59	60	41	47	46
L Q	G	G	G	G	G	G	G	34	41	47	50	53	52	51	46	46	45	40	38	32	32	G	G	G

HOURLY VALUES OF fmin AT Okinawa

AUG.2022

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	15	11	16	15	15	16	15	14	17	23	22	22	19	23	19	18	16	17	14	14	16	16	15	16
2	15	16	15	15	15	16	163	17	14	16	21	21	21	21	24	20	14	14	15	14	15	17	14	5
3	15	15	15	15	15	5	15	15	15	14	20	19	21	19	20	20	17	15	13	8	17	15	13	15
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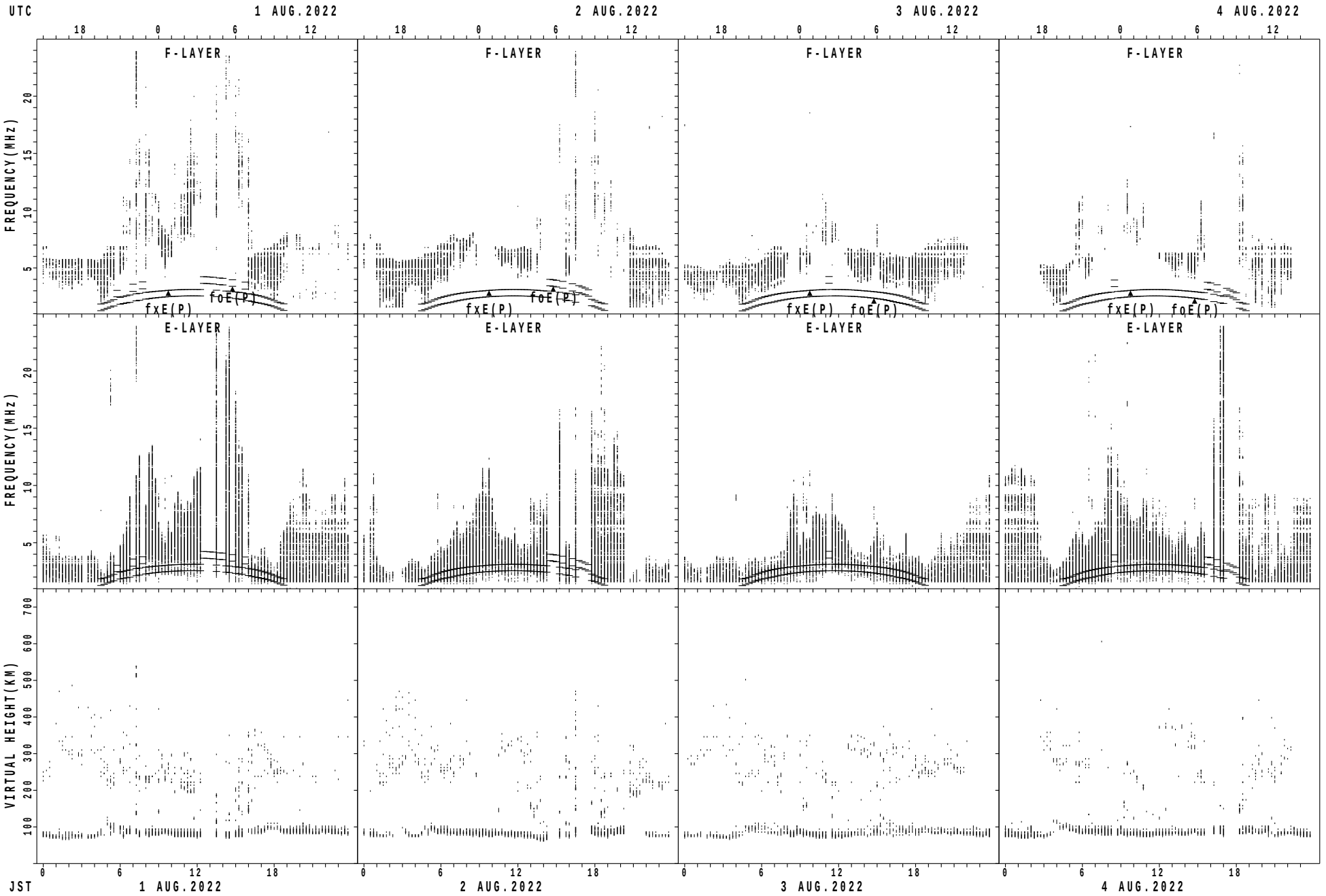
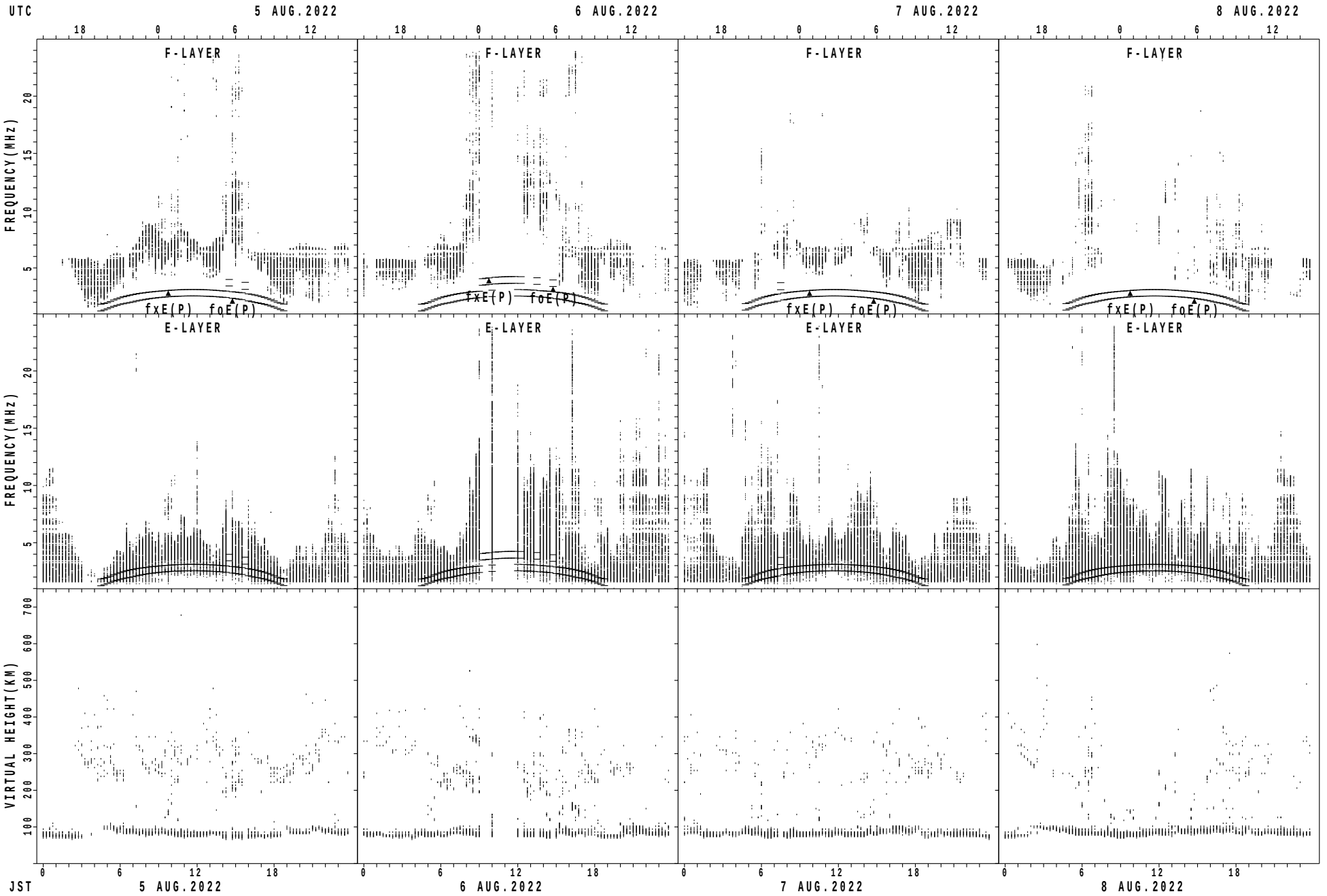
CNT	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	15	15	15	19	20	19	21	19	19	16	15	14	15	15	15	15	15
U Q	15	16	16	16	15	16	16	15	16	17	20	21	21	22	21	20	17	15	15	15	16	16	16	16
L Q	15	15	15	15	15	15	15	15	14	15	17	19	18	19	18	18	16	14	13	14	15	15	15	15

SUMMARY PLOTS AT Wakkanai



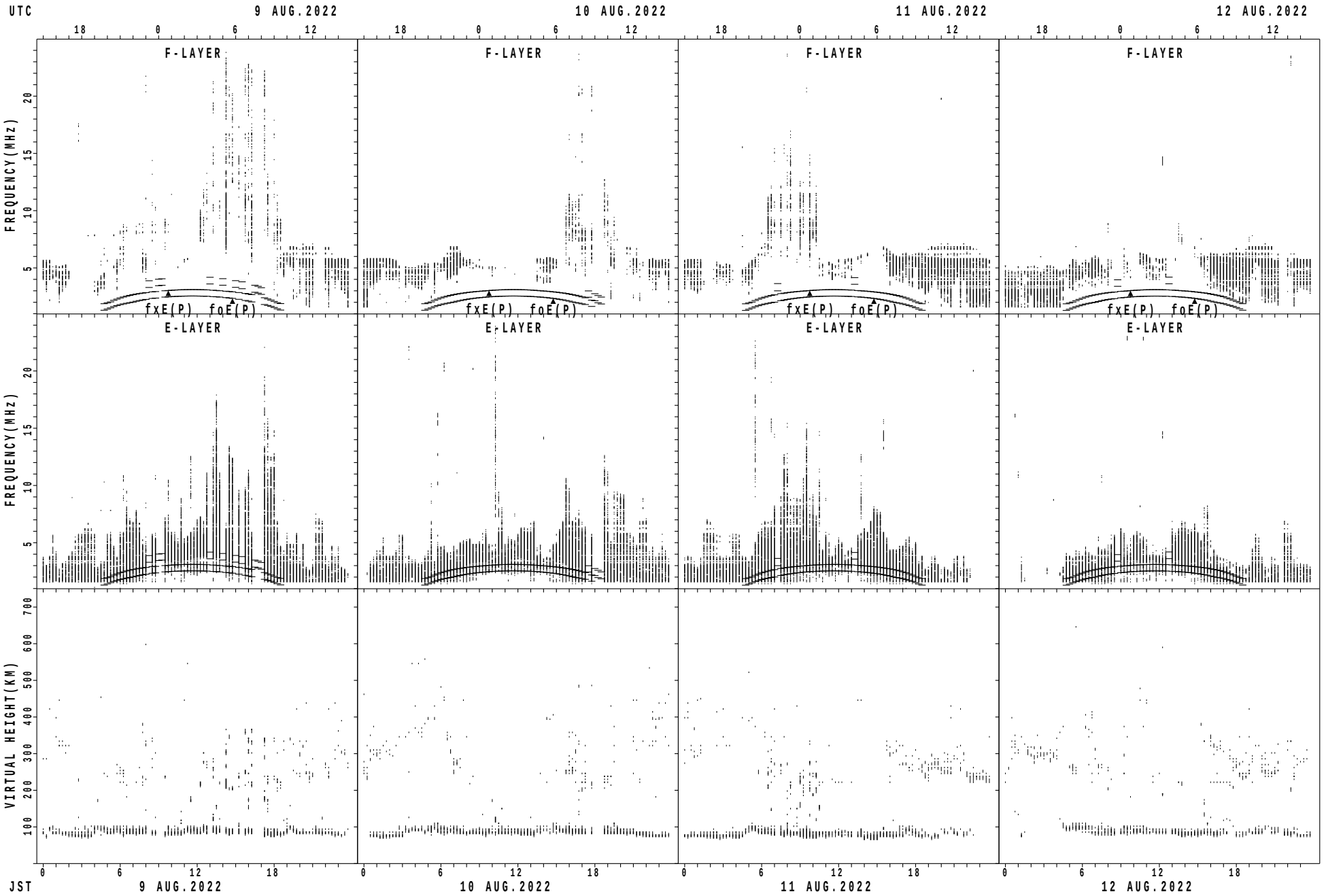
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



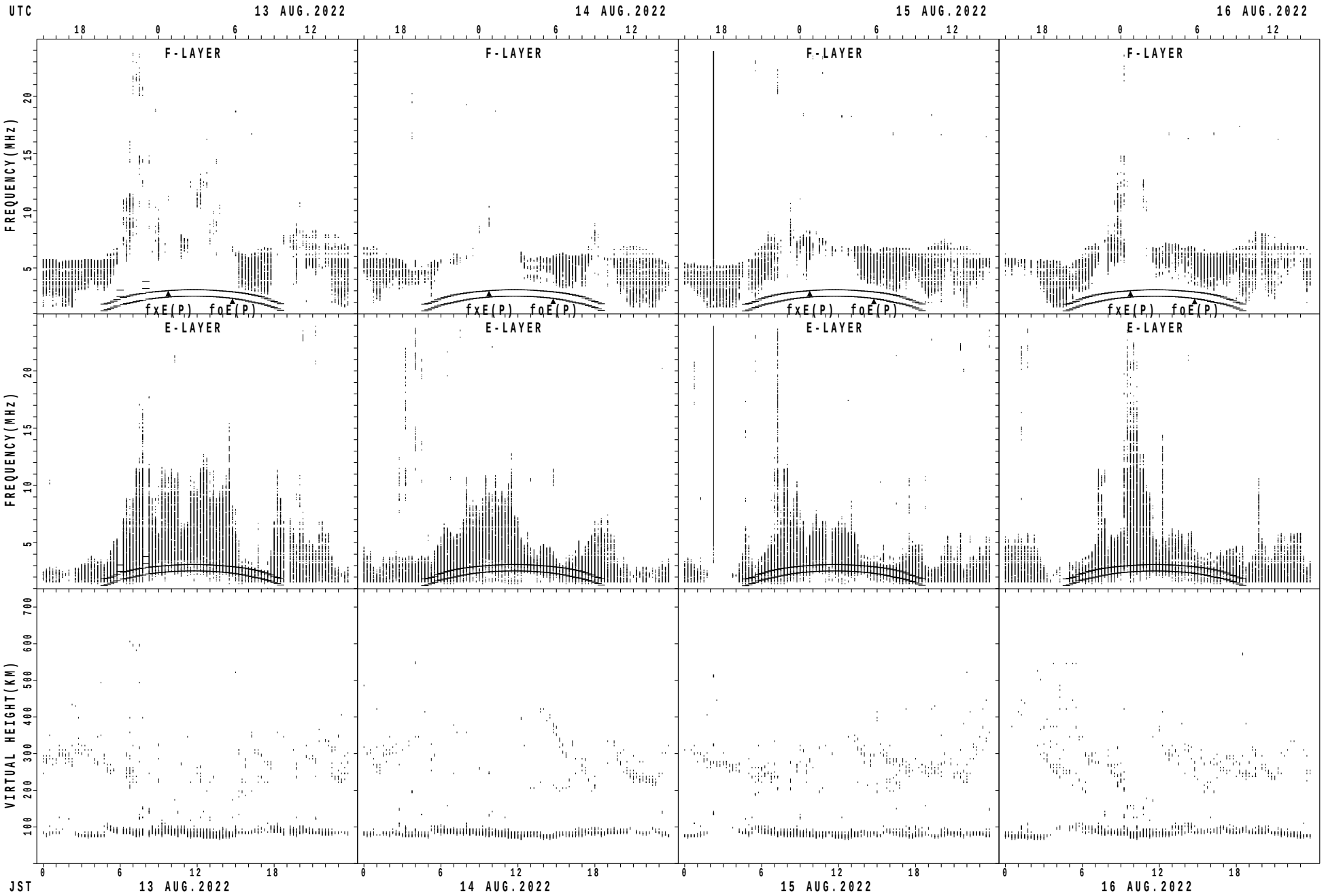
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



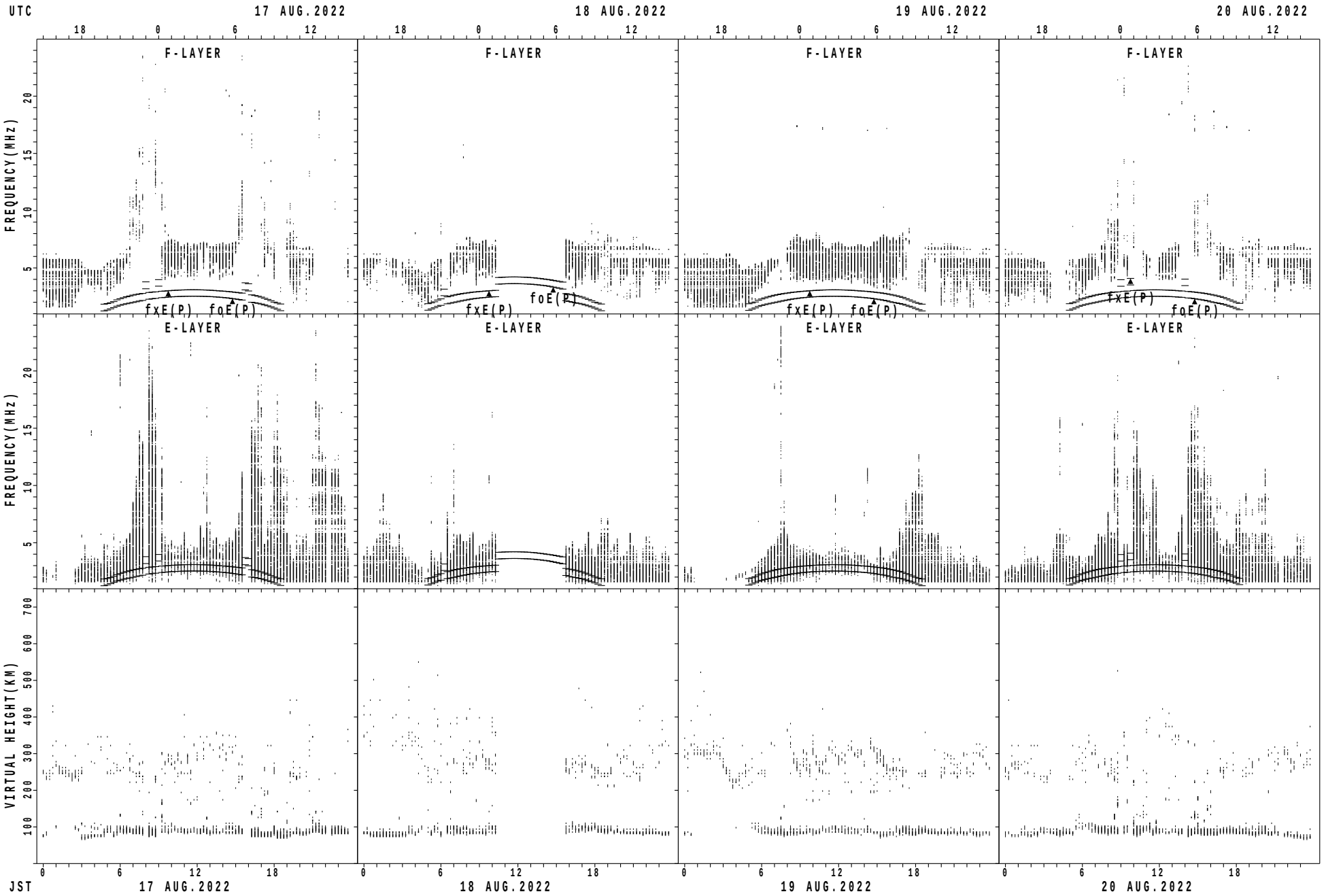
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



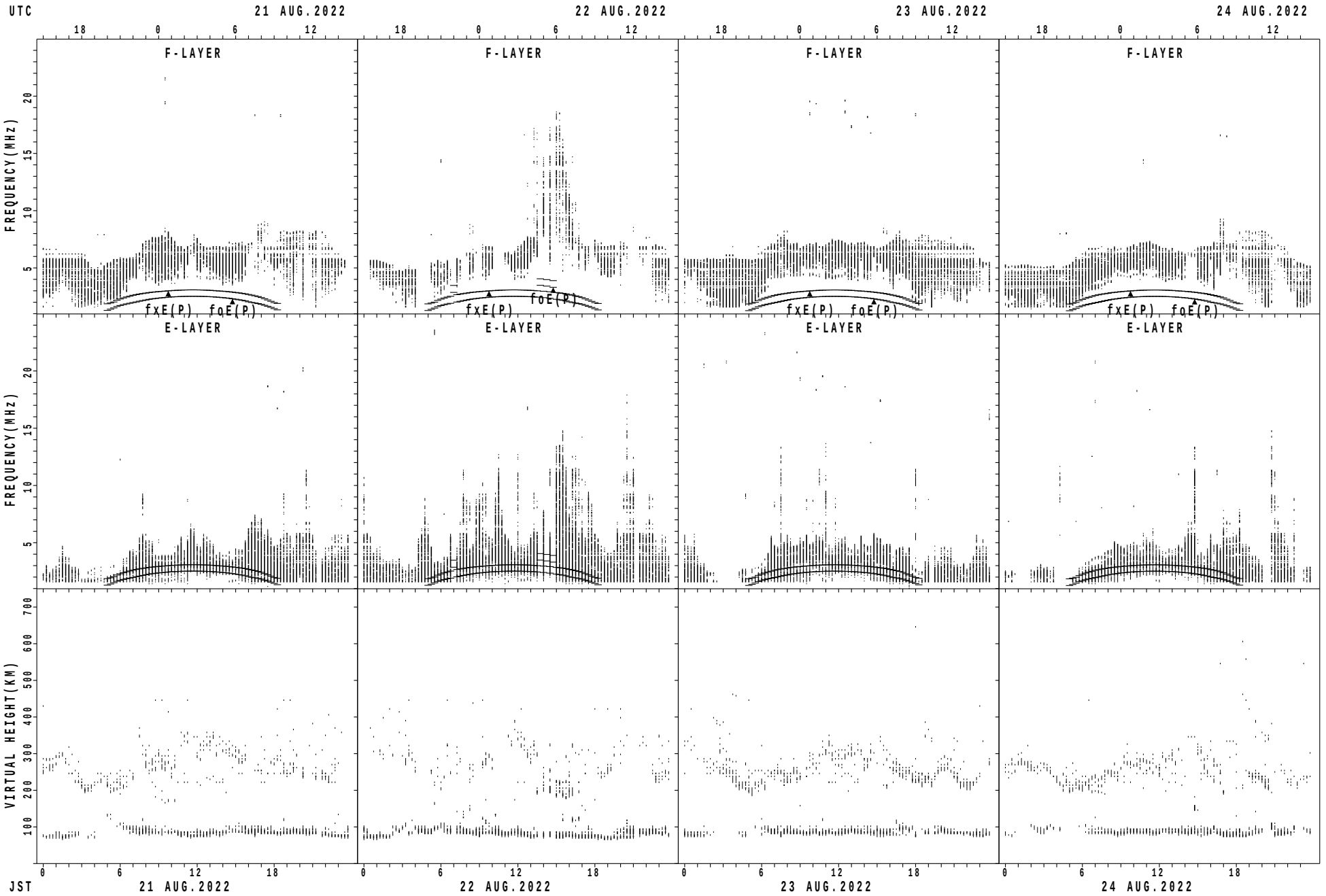
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



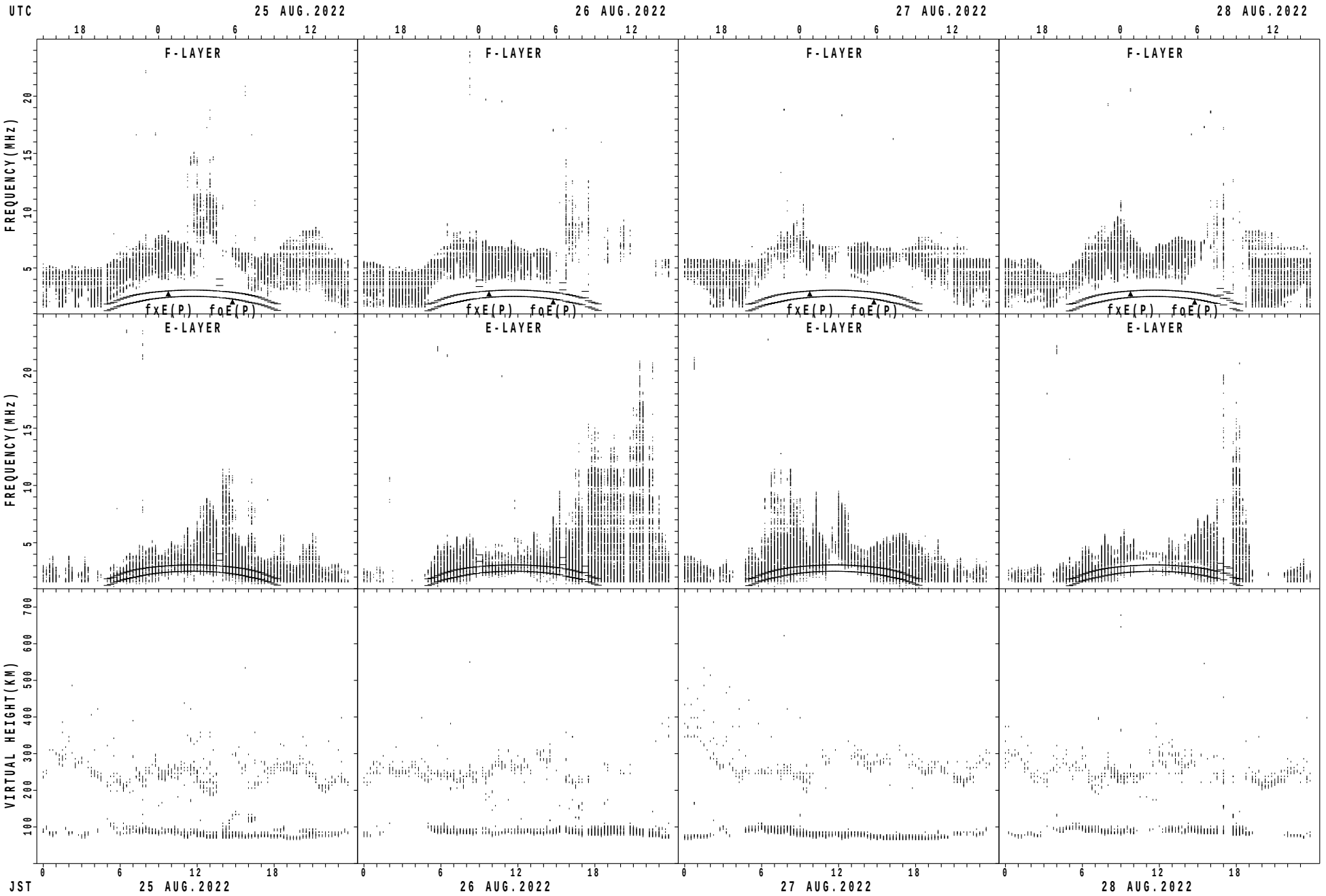
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



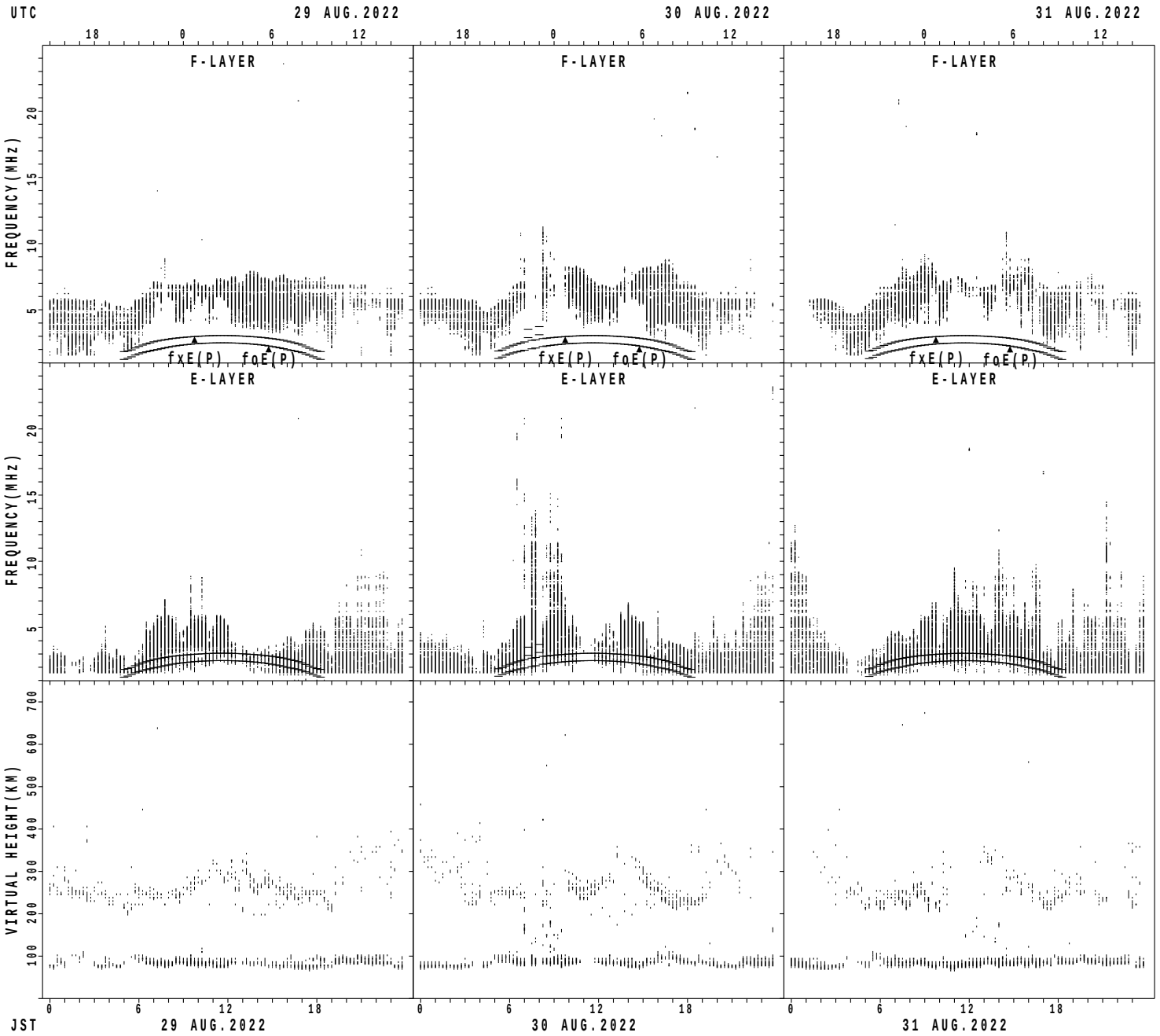
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



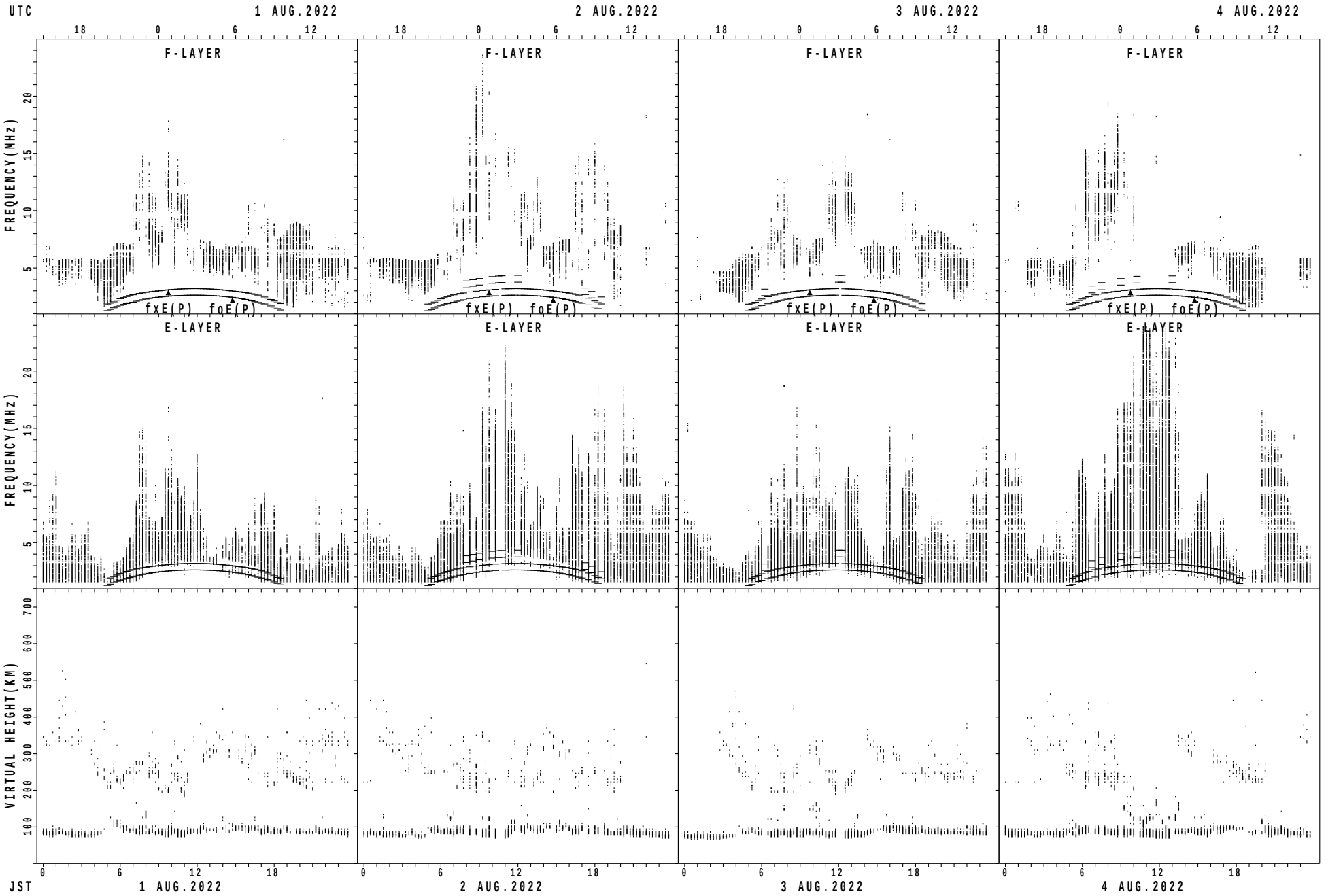
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



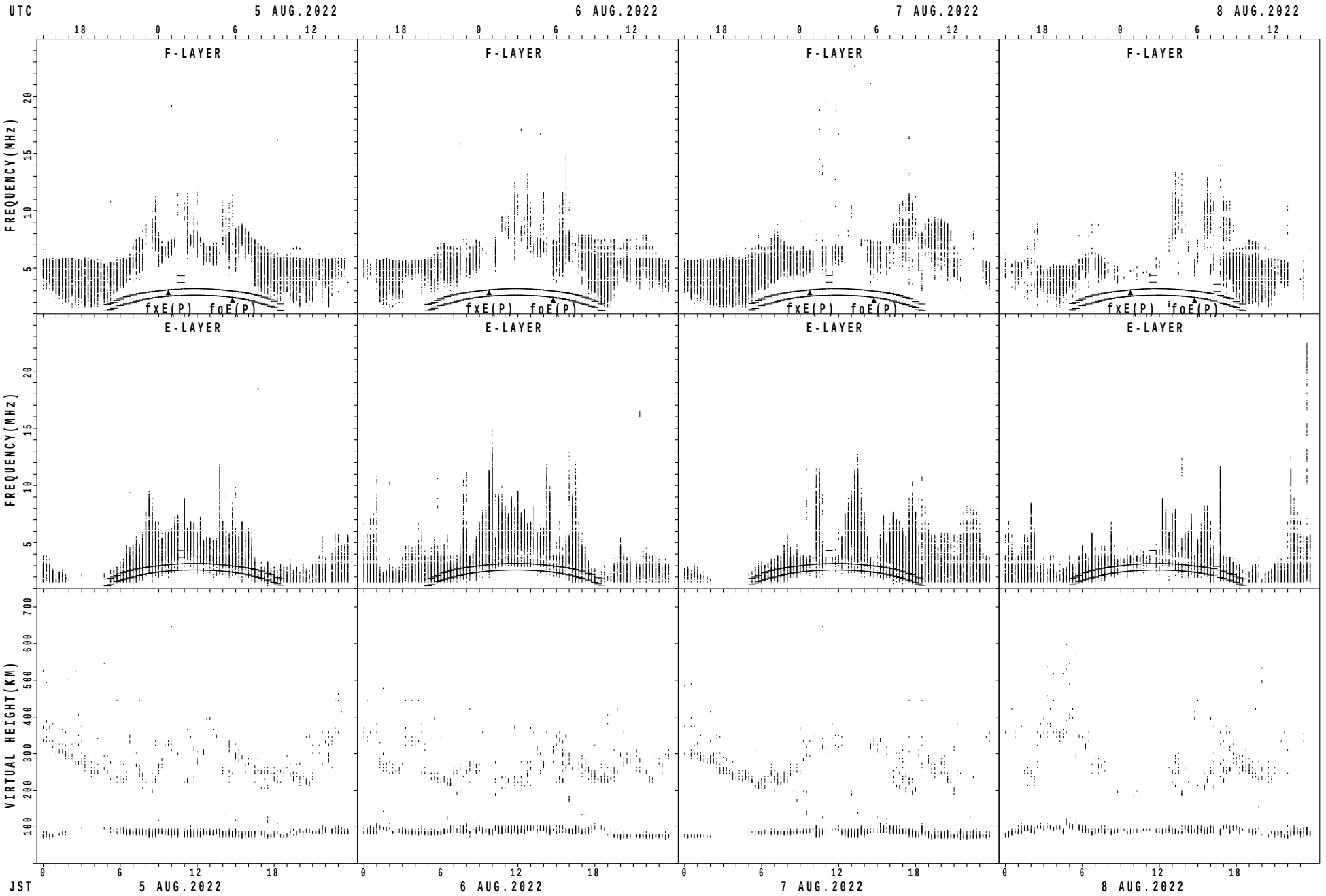
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



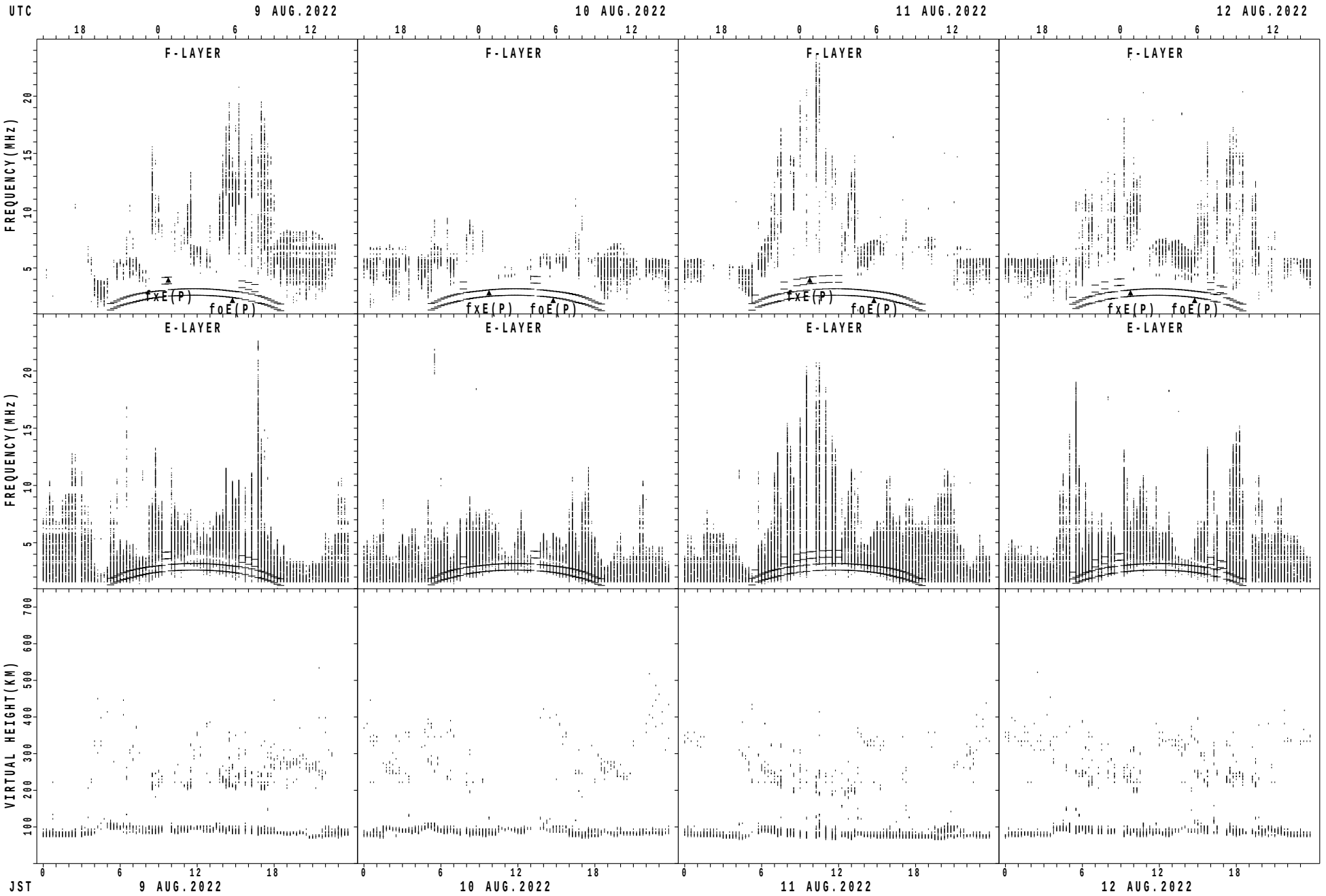
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



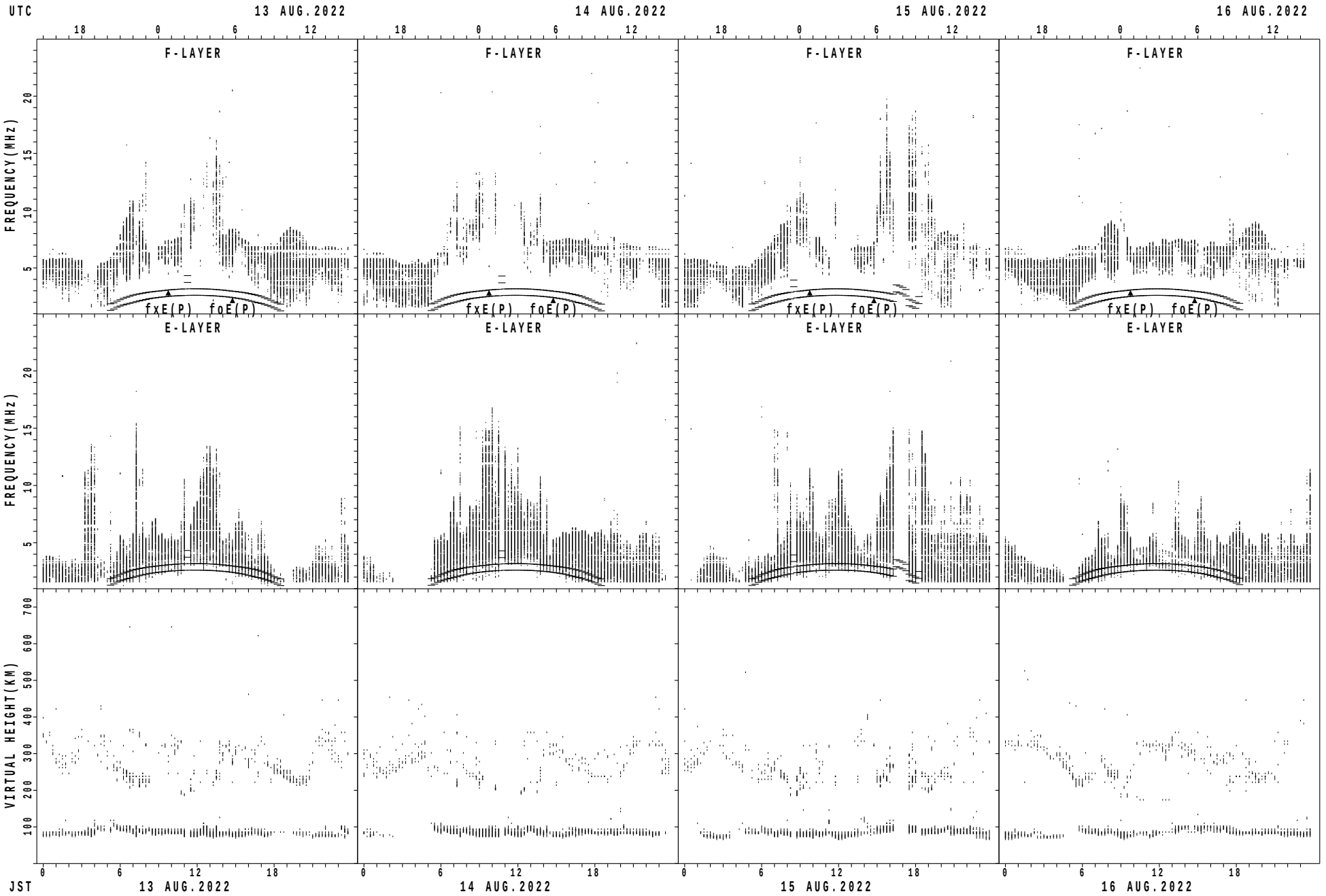
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



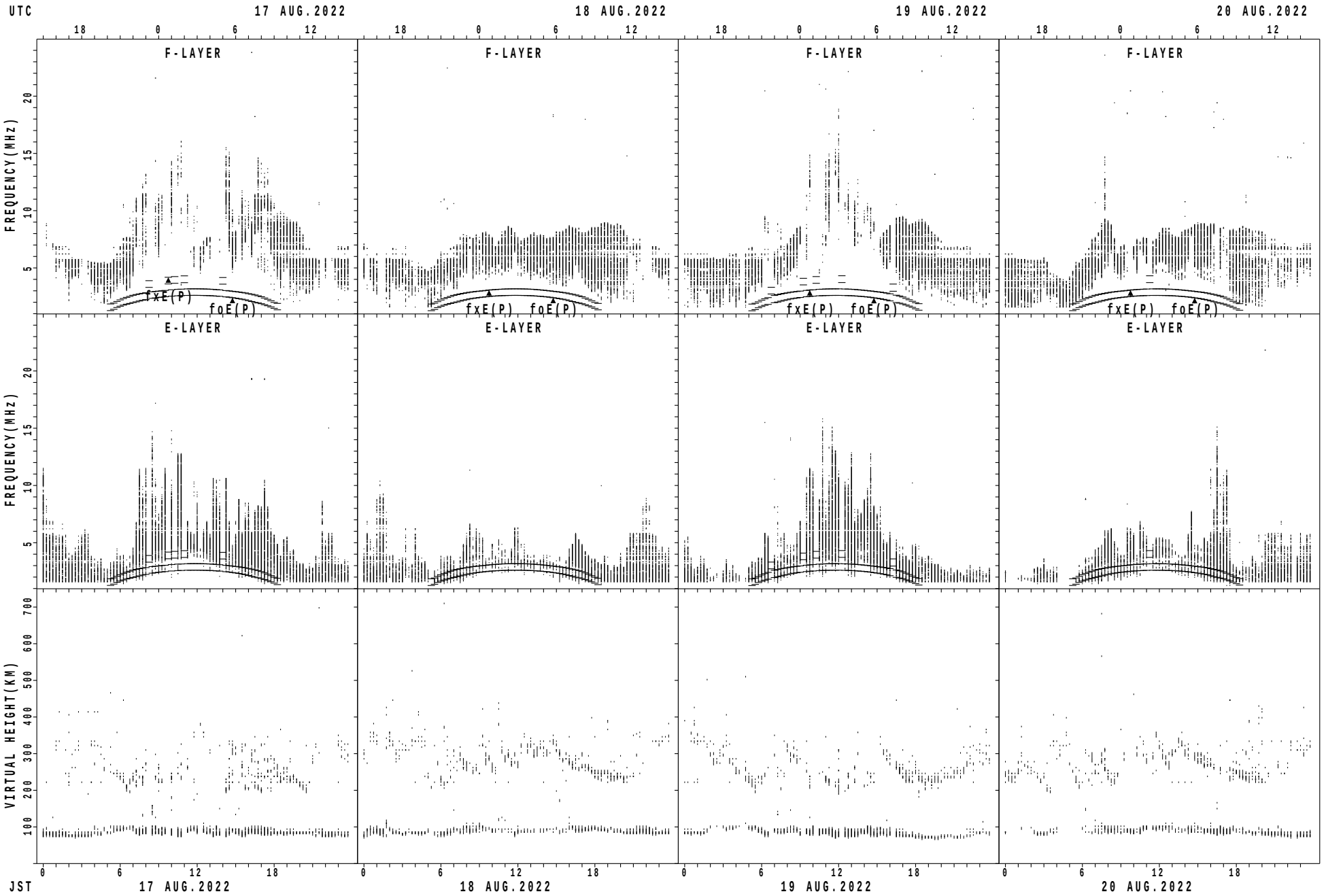
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



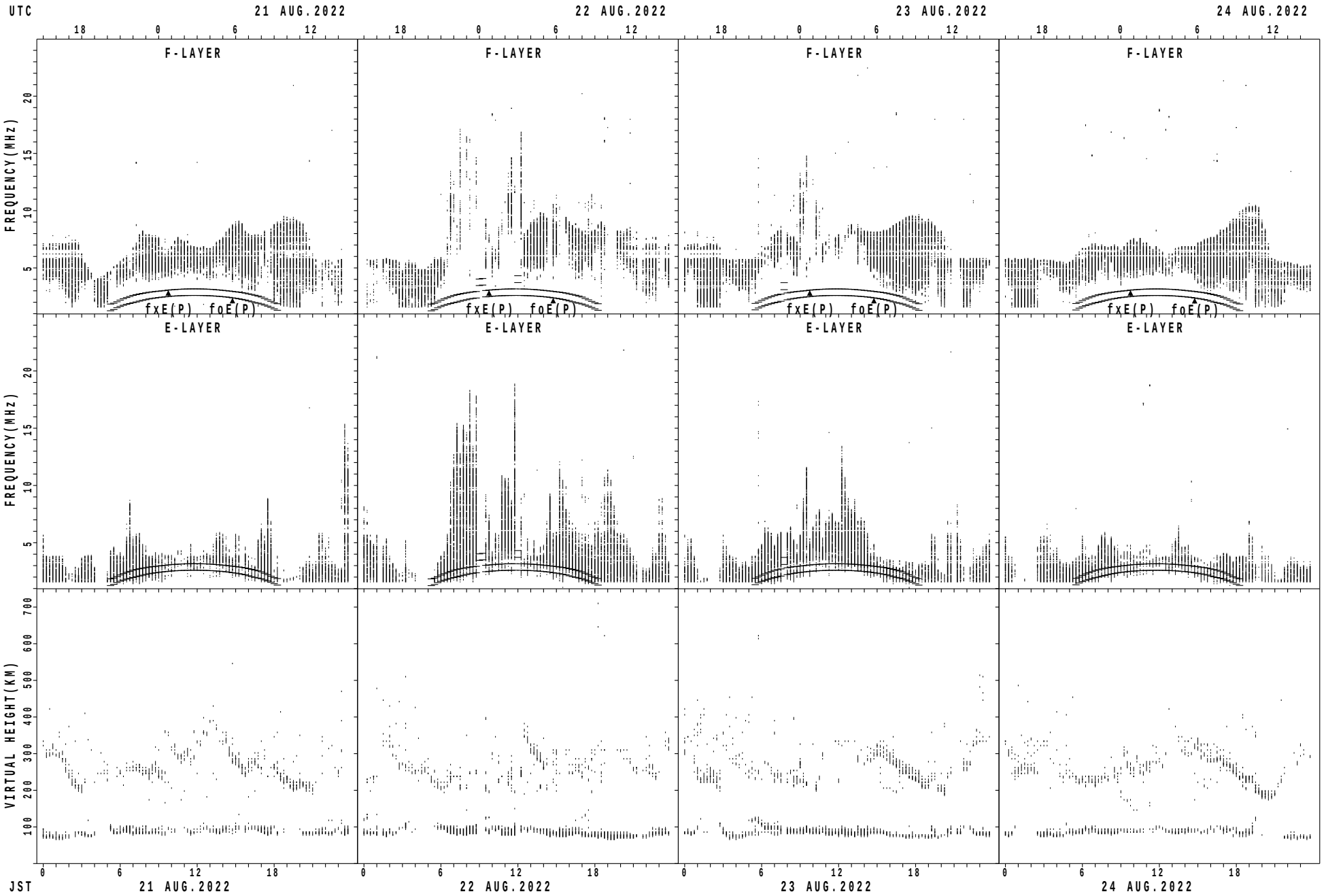
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



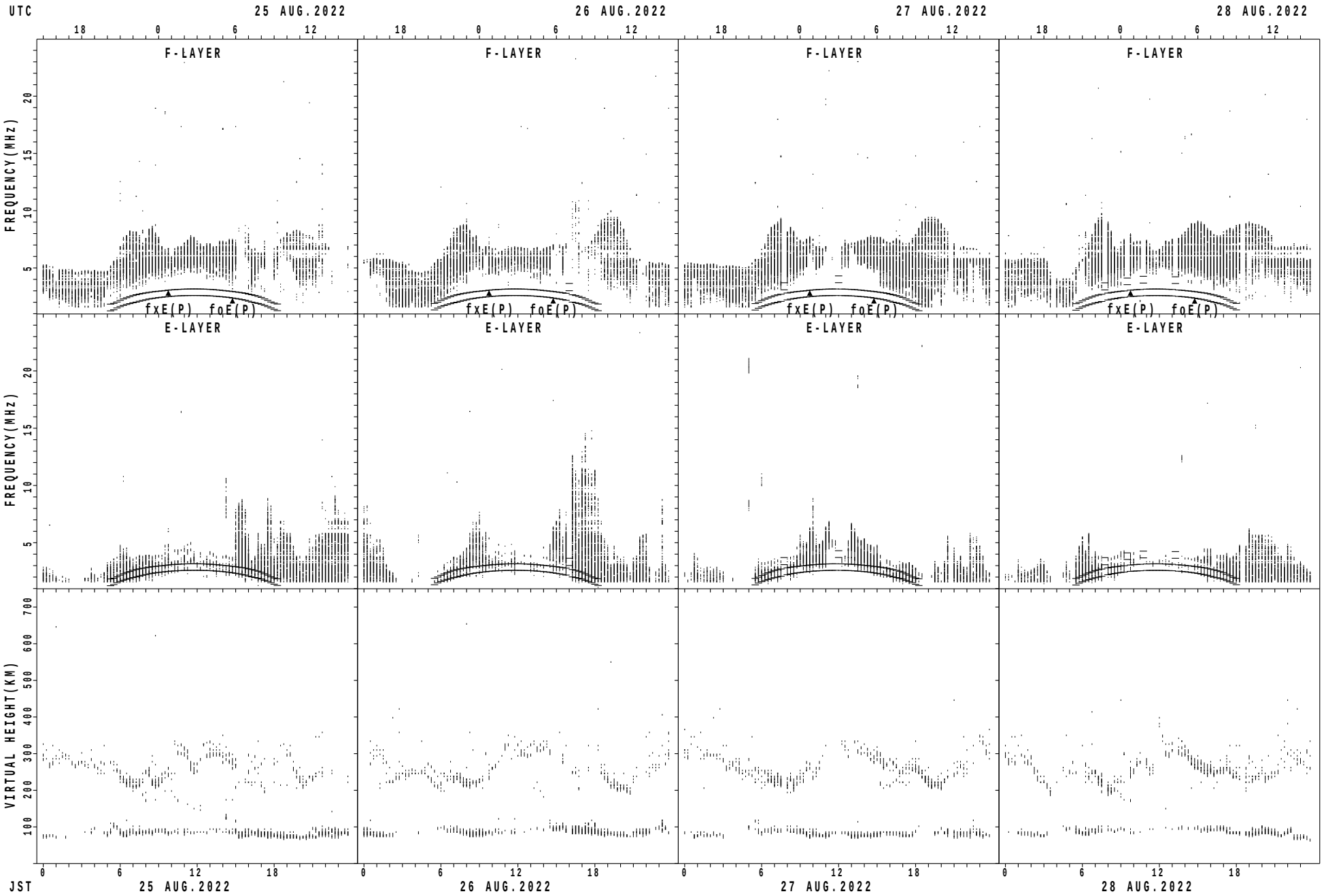
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



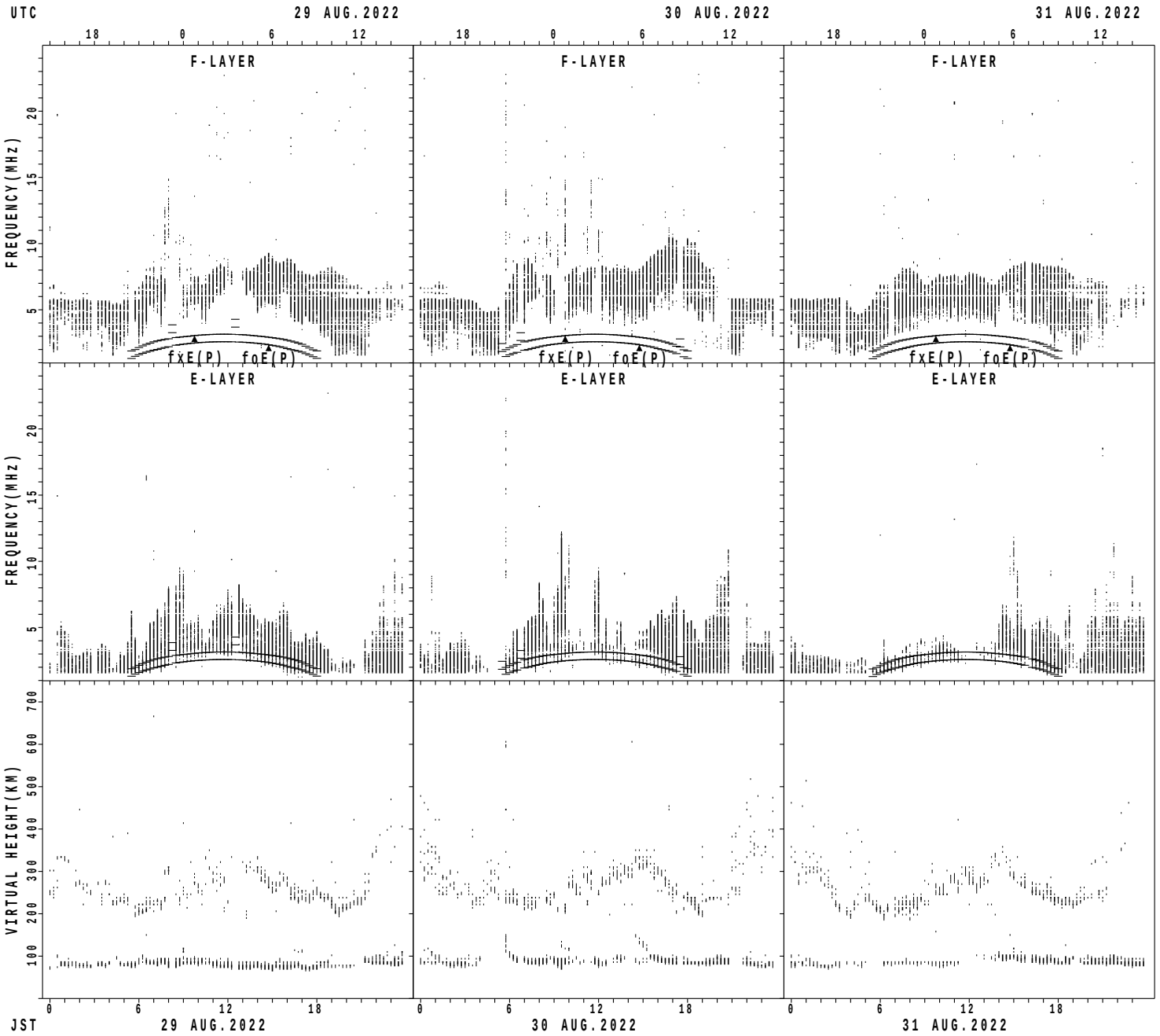
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



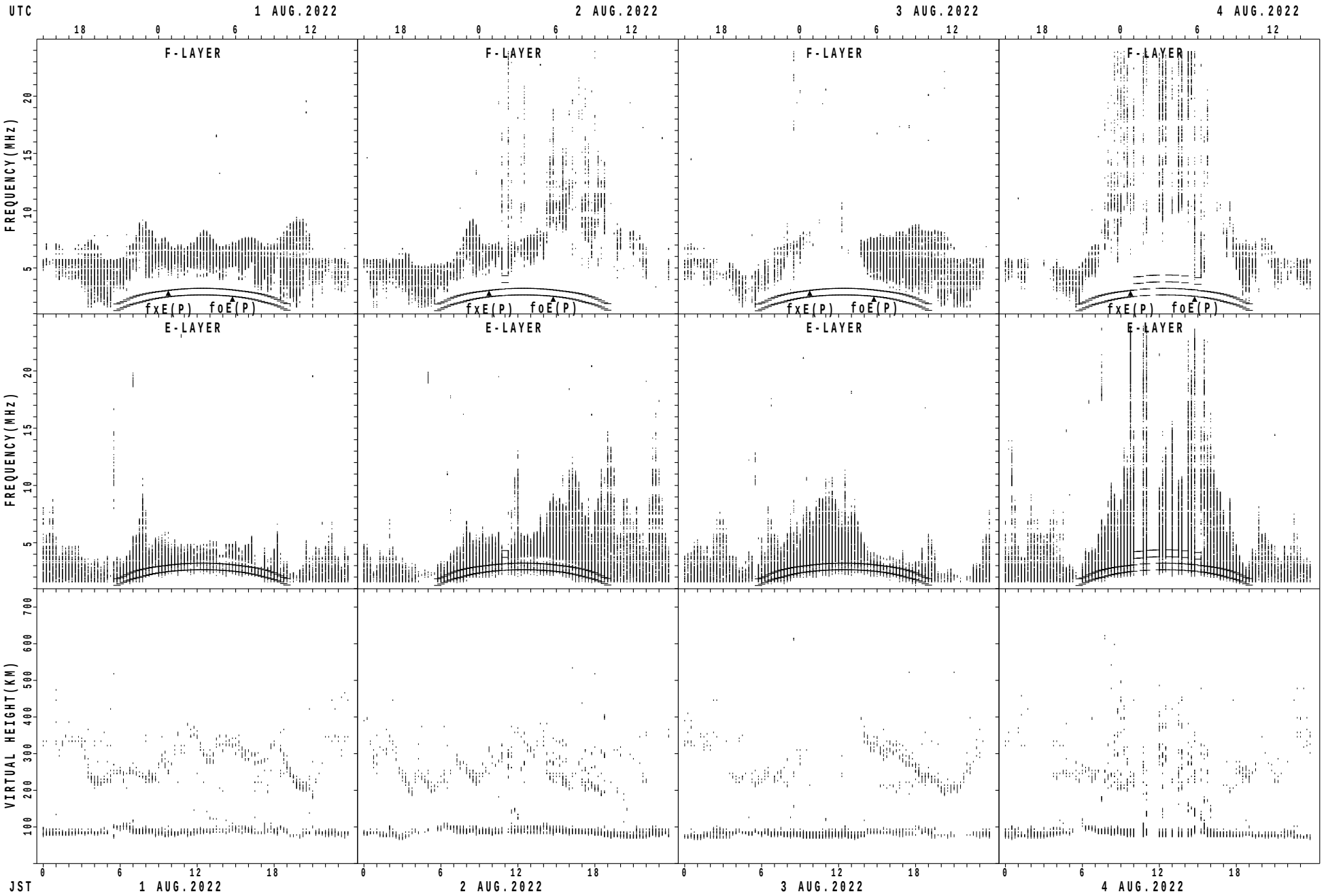
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



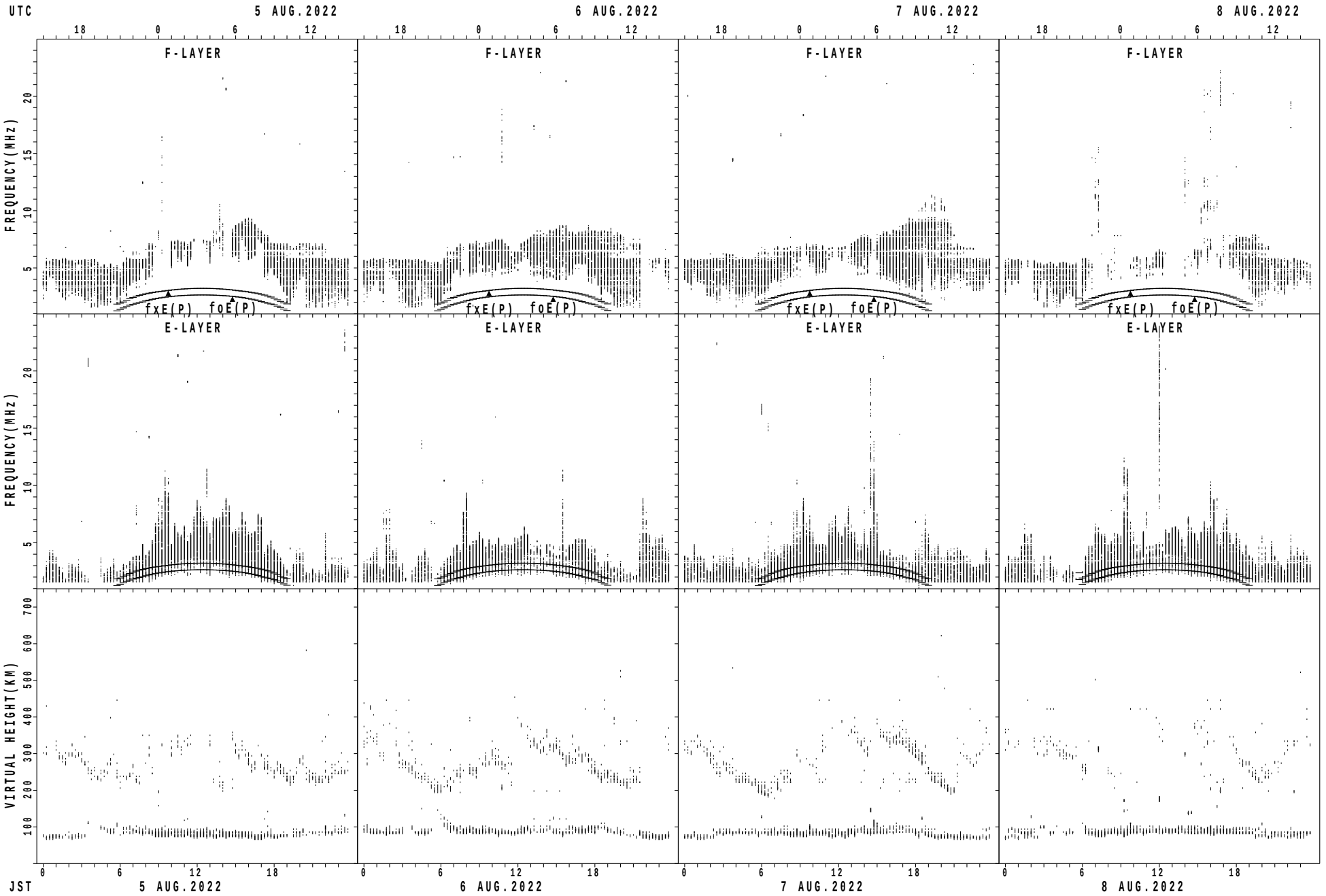
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



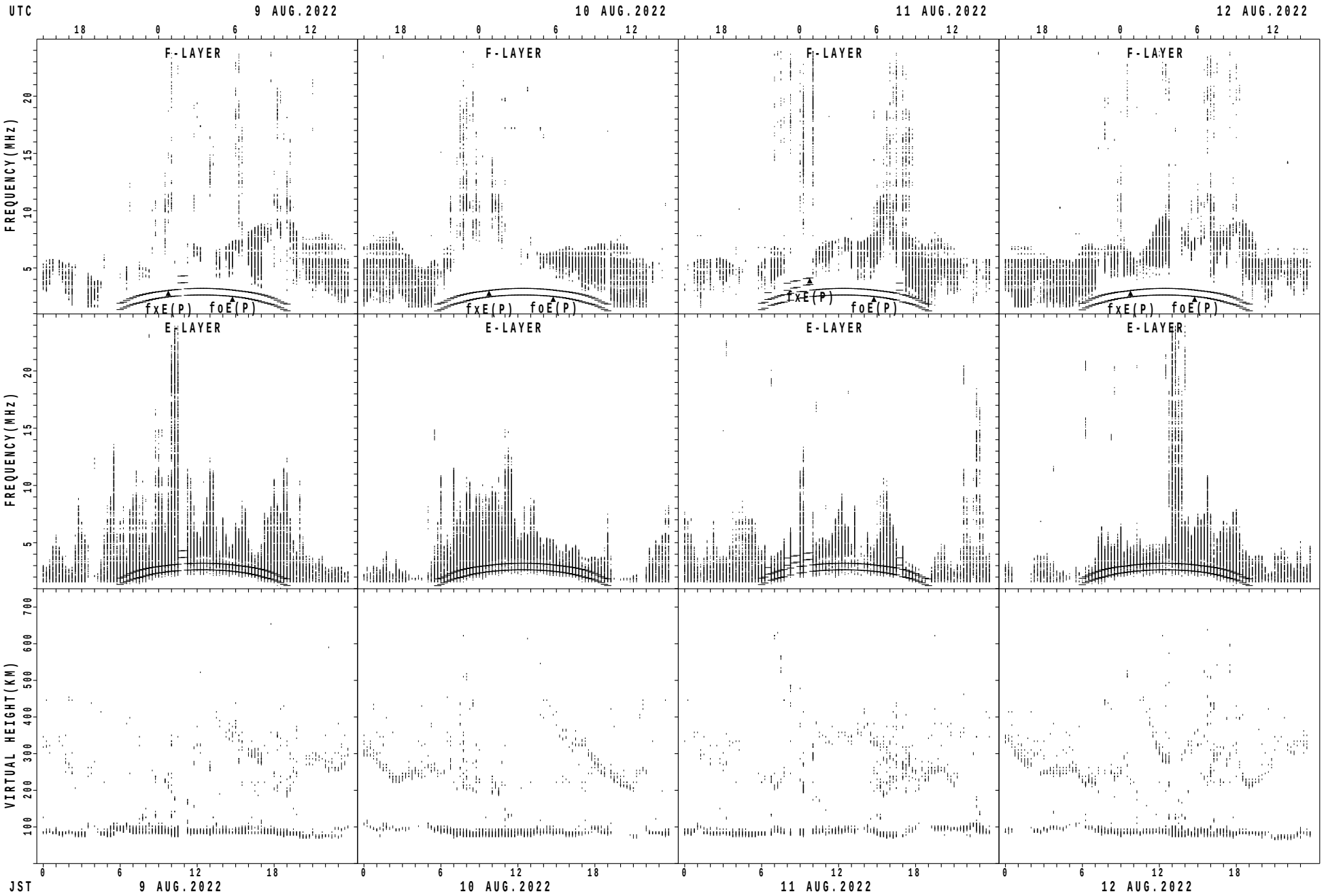
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



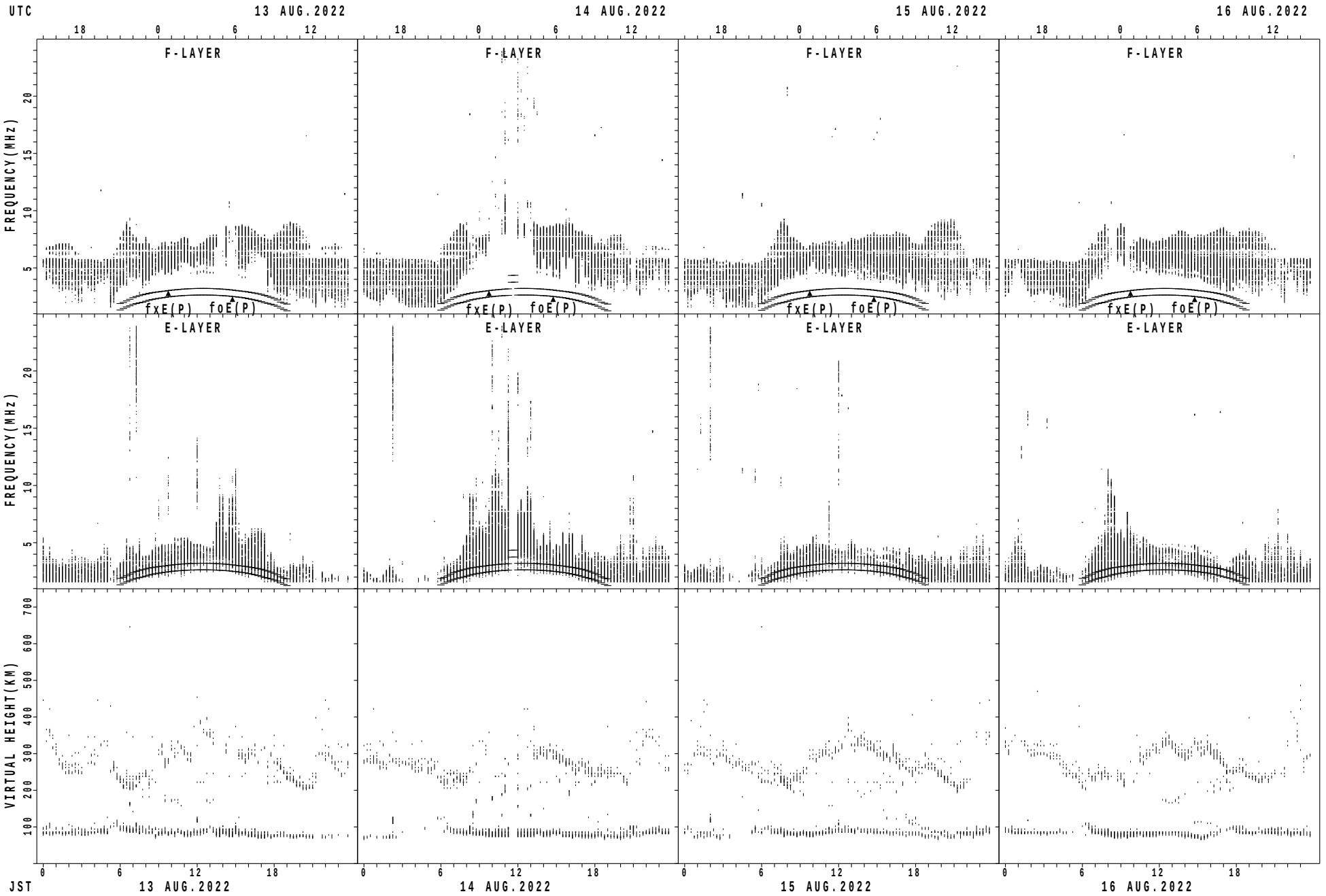
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



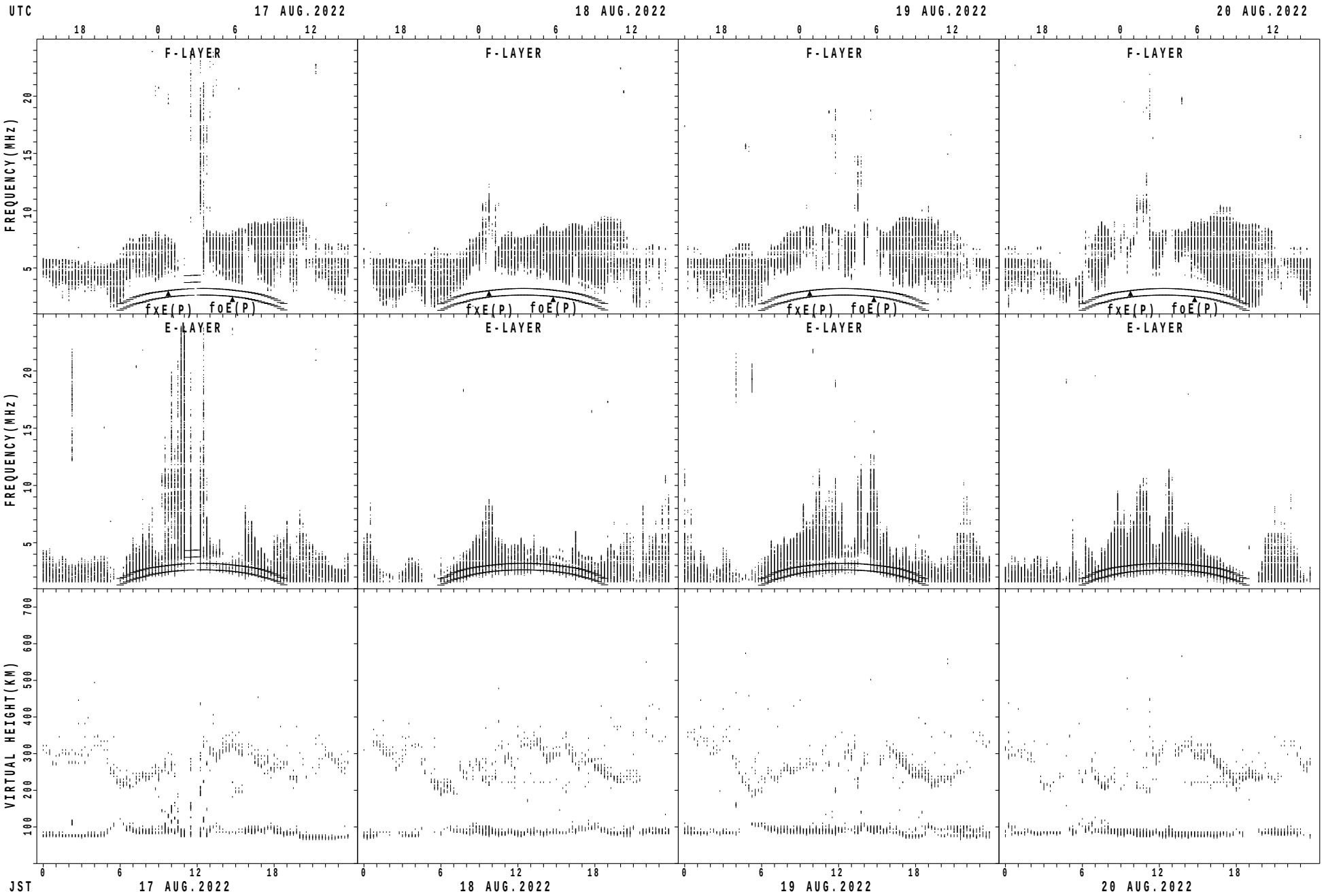
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



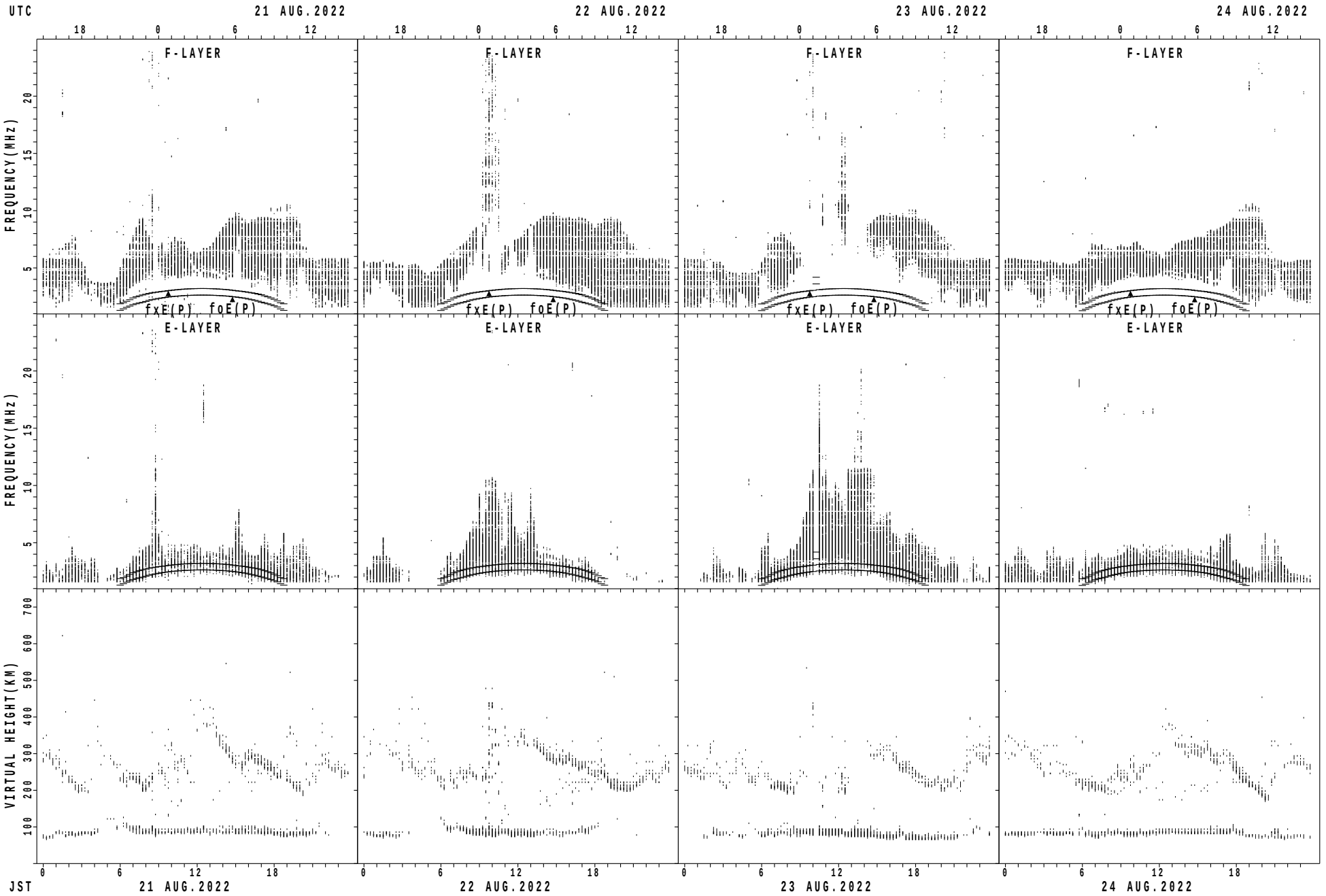
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



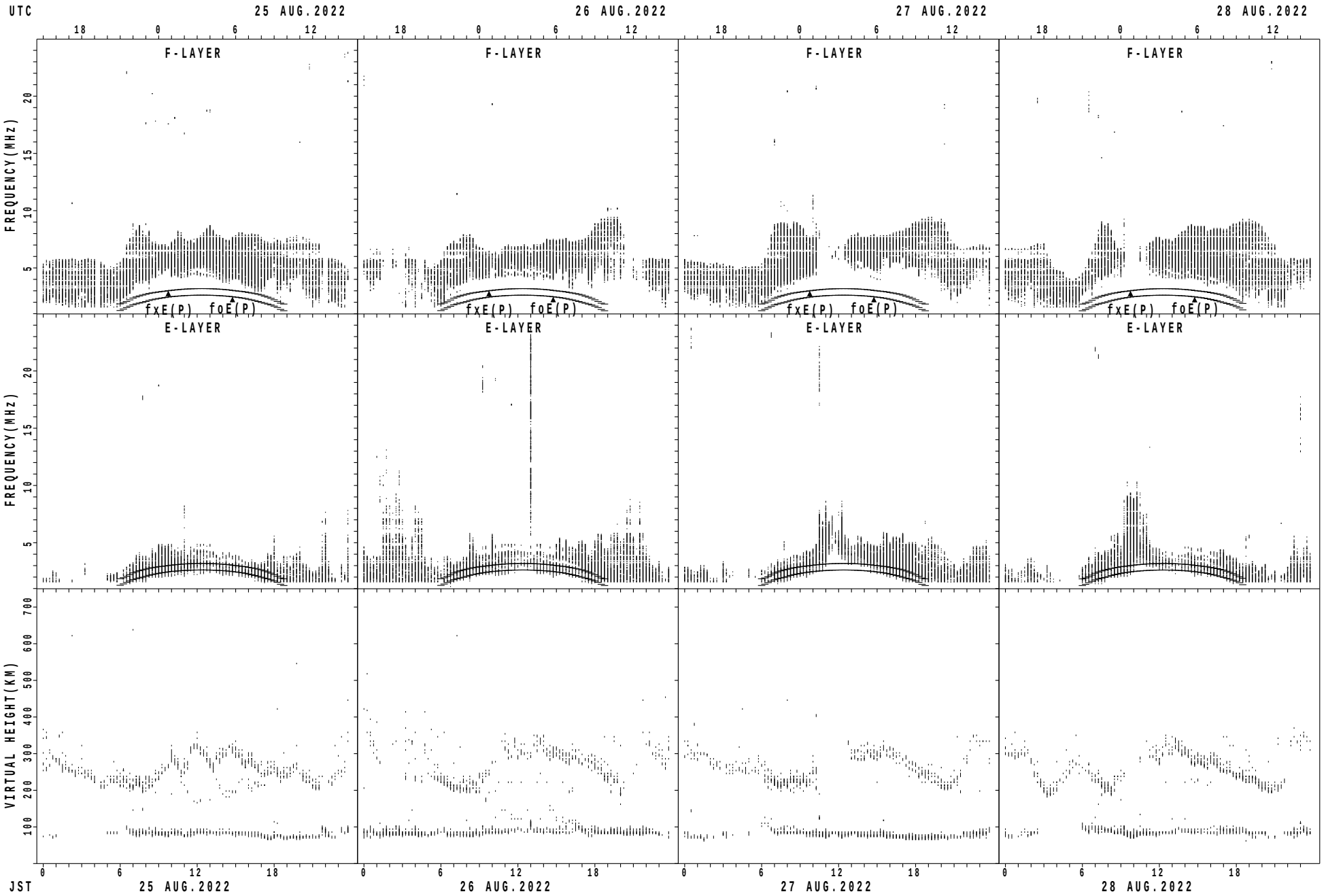
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



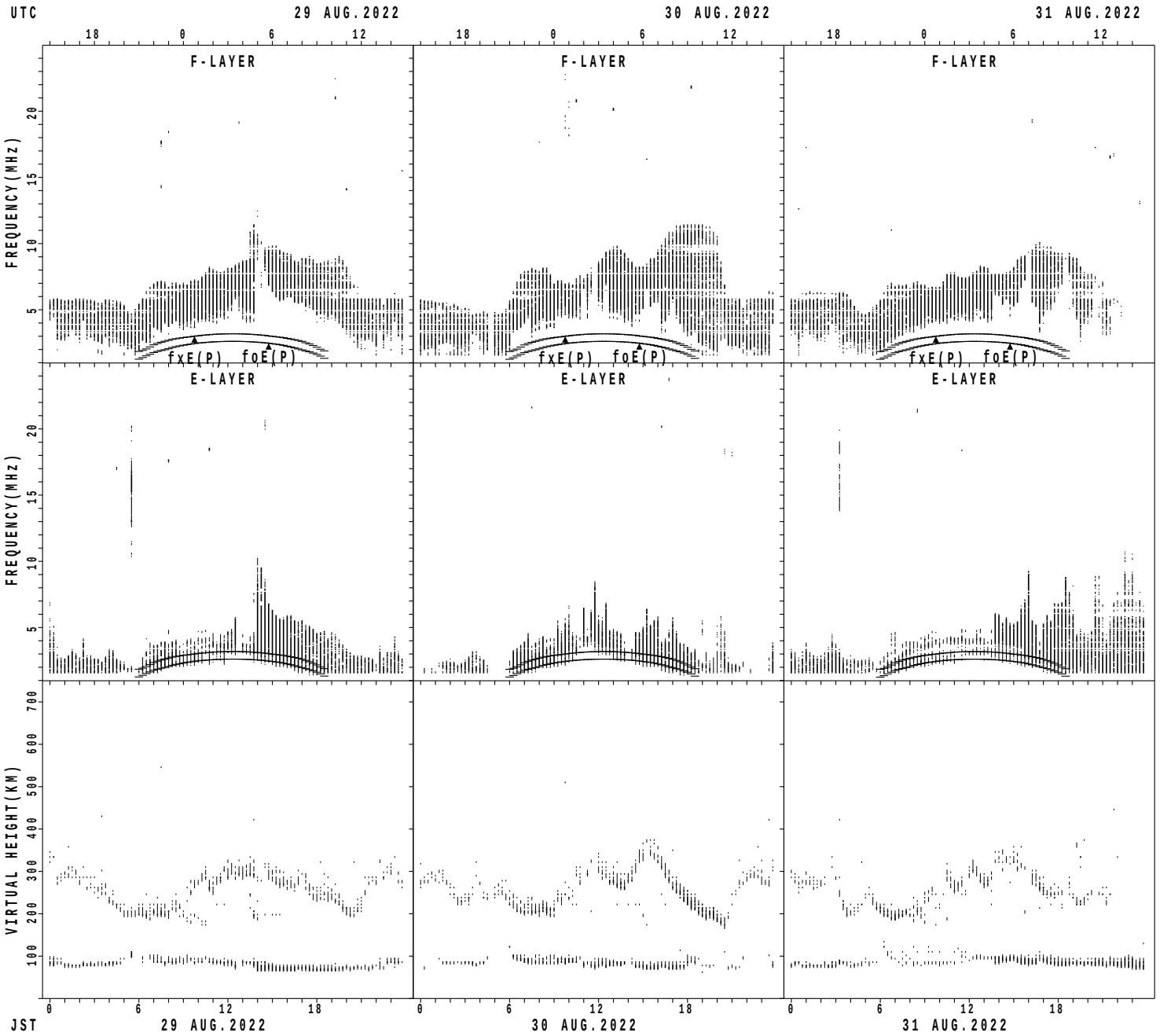
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



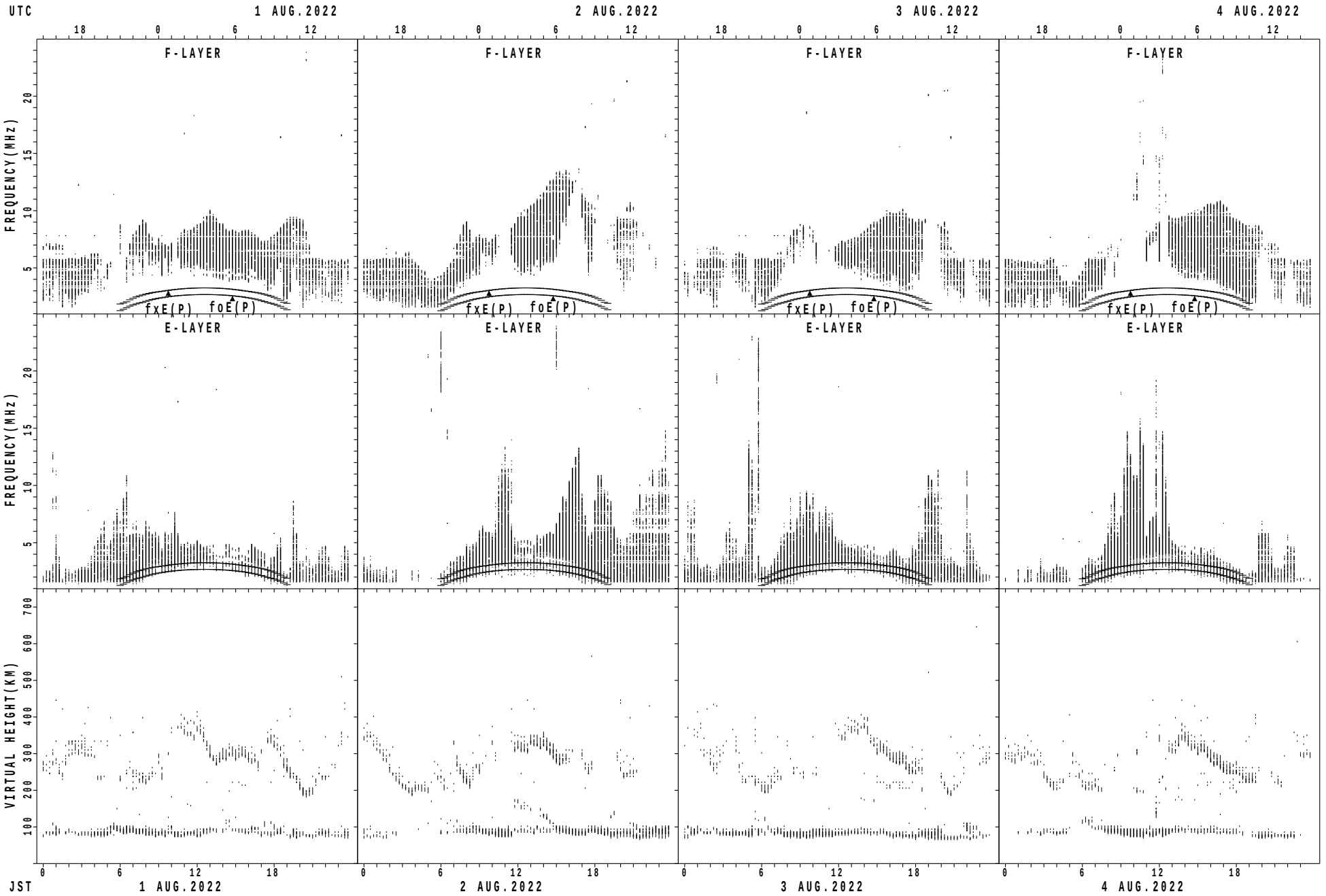
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



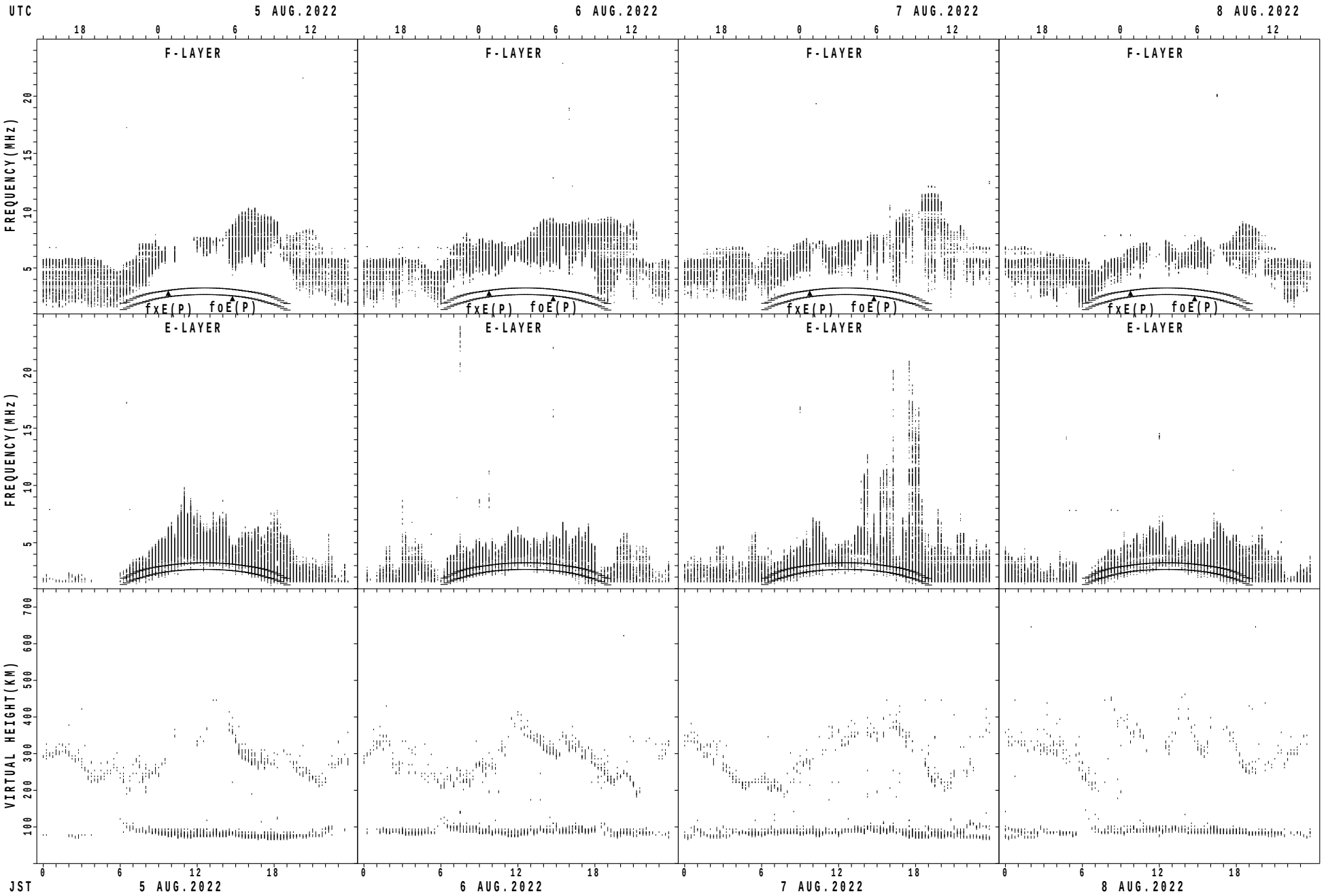
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



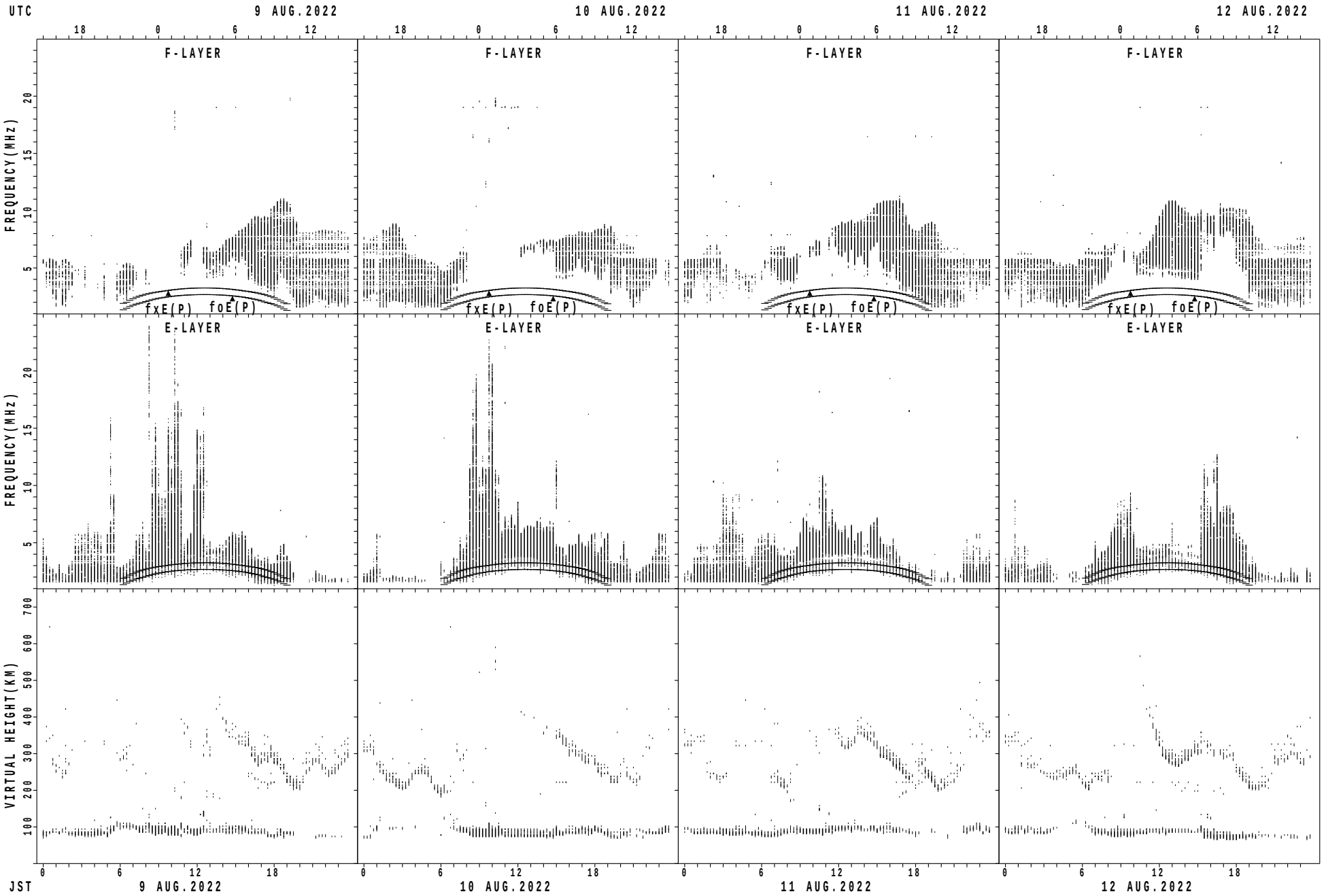
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



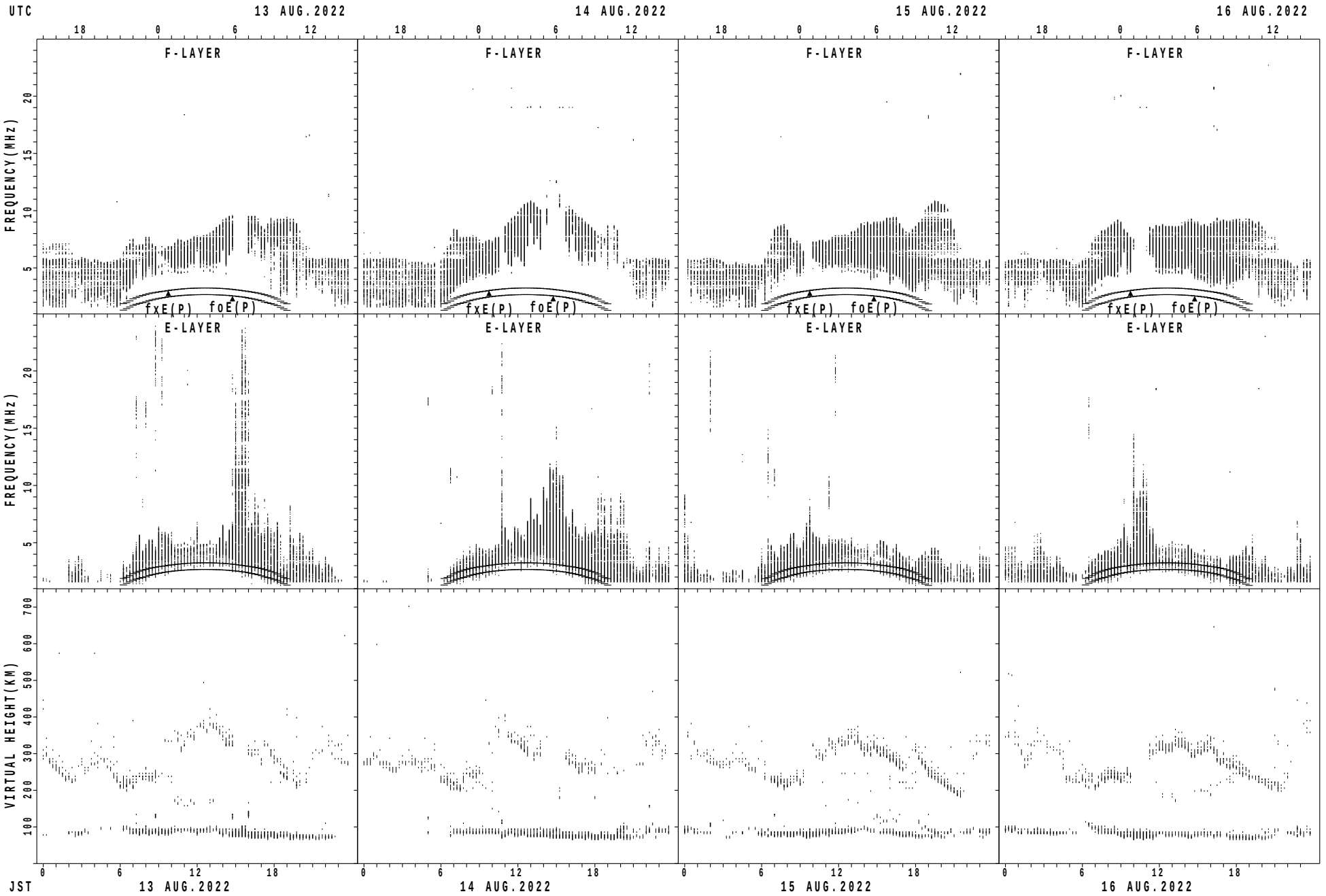
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



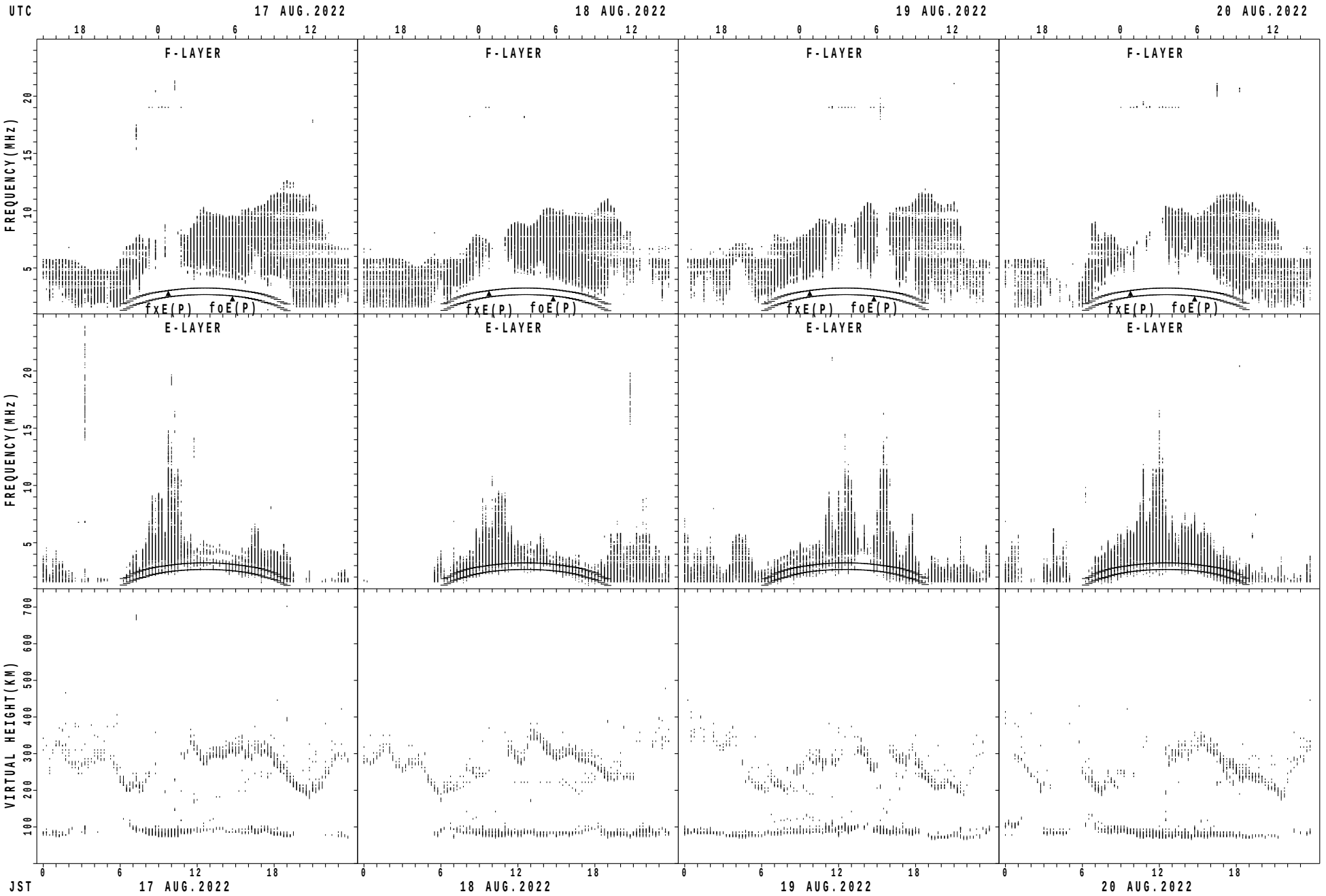
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



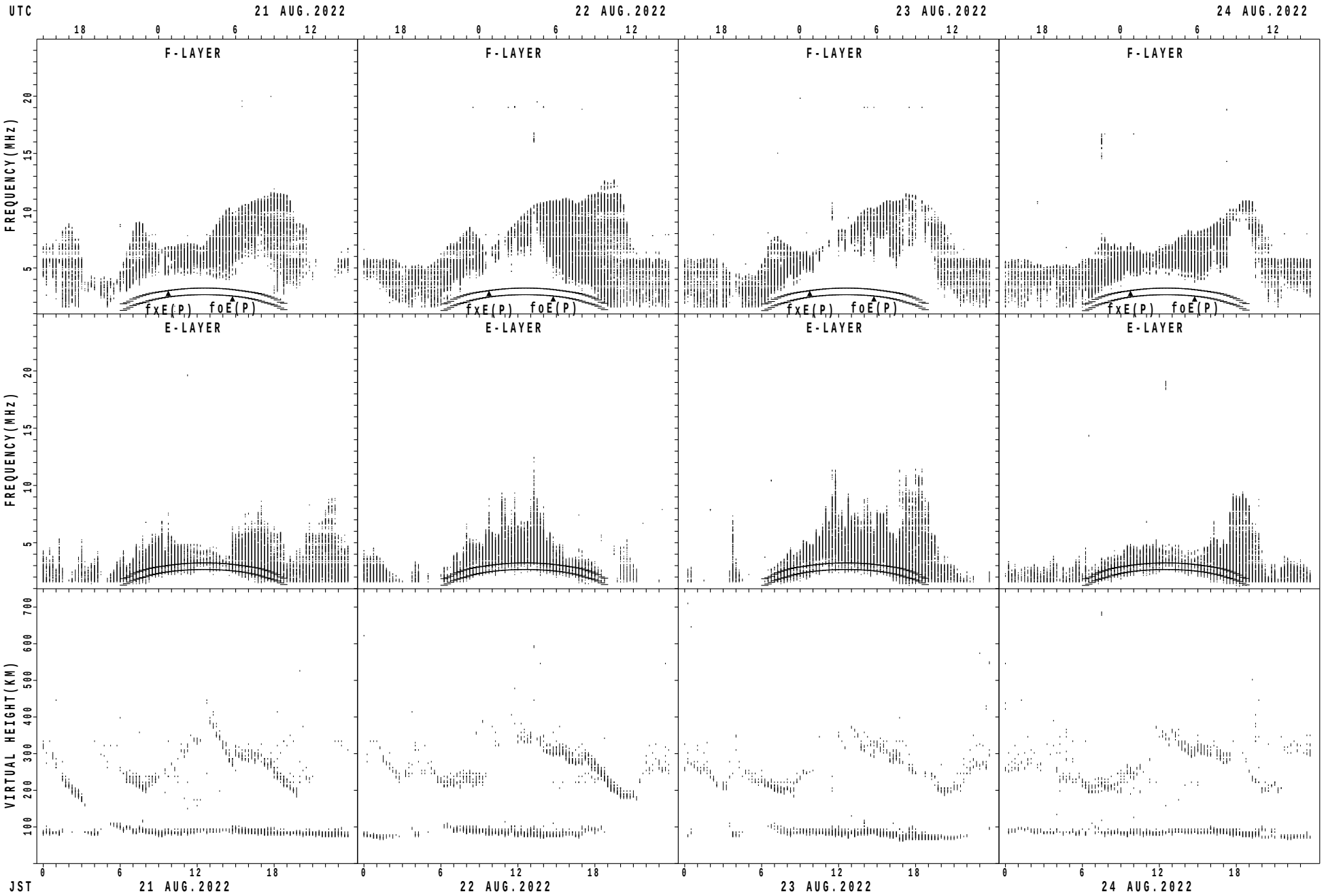
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



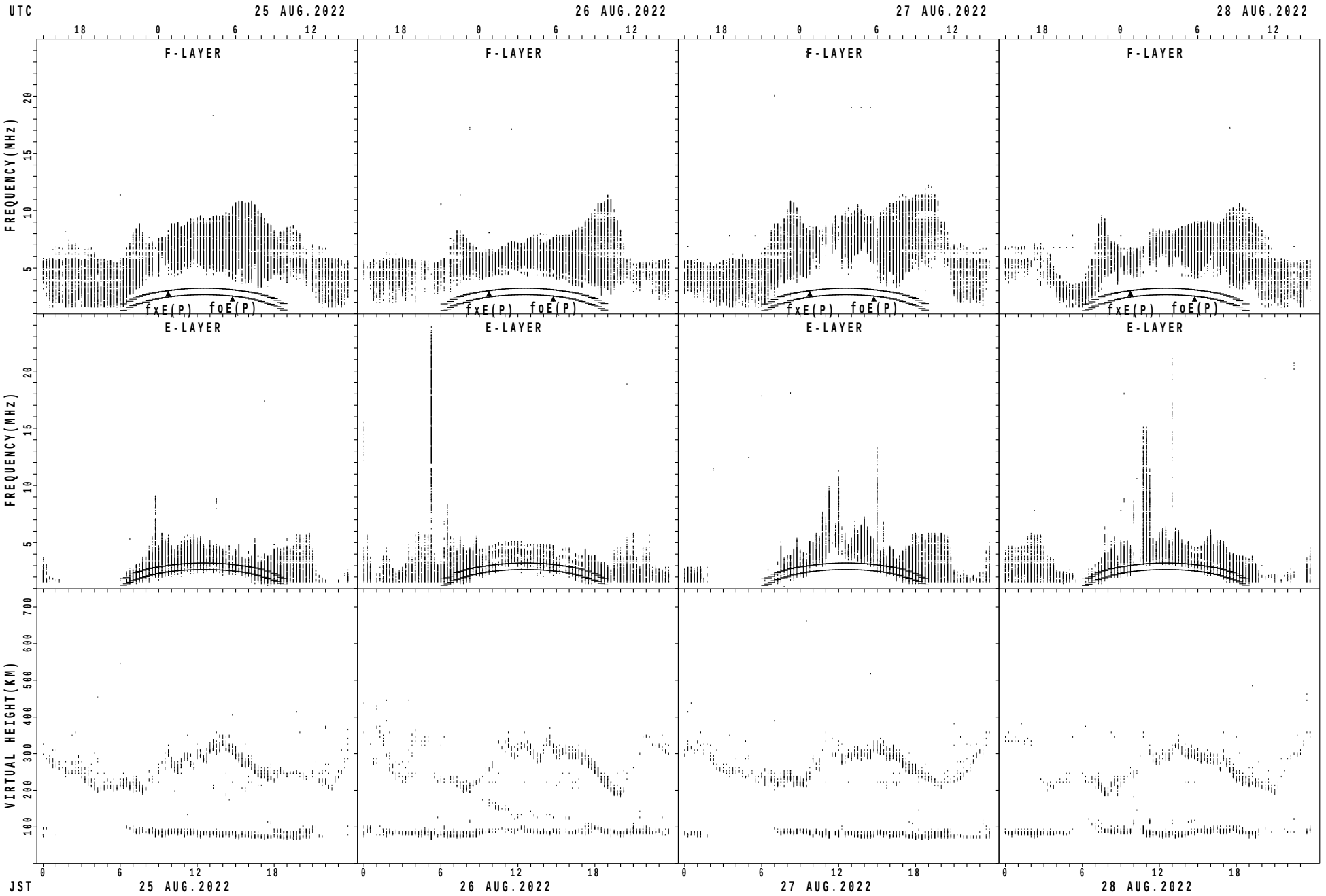
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



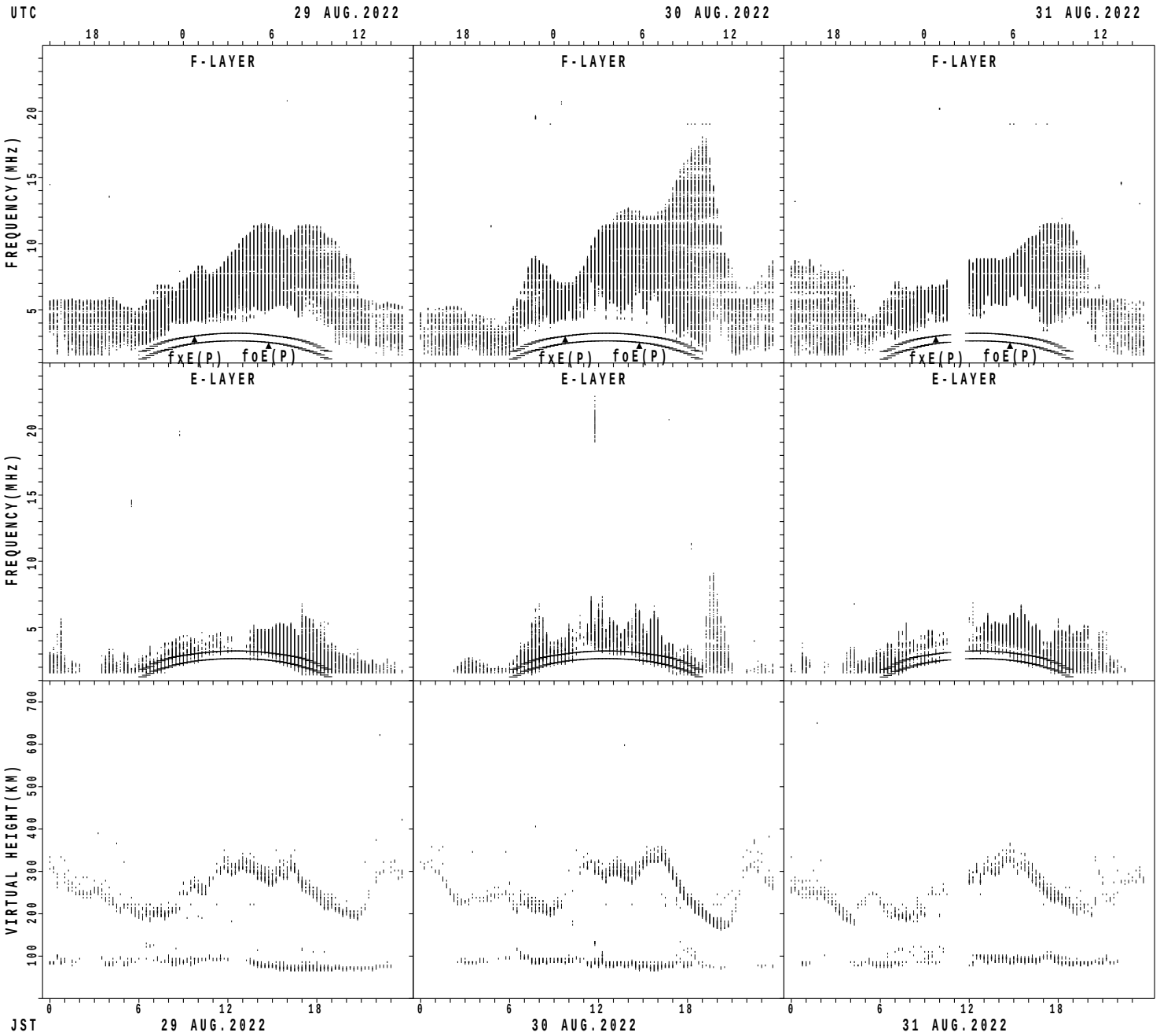
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

AUG.2022 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							3	15									8	13	8	9	5	6	3	1
MED							236	248									245	234	263	256	250	266	234	276
U Q							290	288									280	263	271	273	303	290	314	138
L Q							218	232									207	207	209	218	212	228	198	138

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	31	28	29	30	29	30	31	31	31	31	31	30	29	30	30	30	31	31	31	31	30	31	31	31
MED	96	95	96	96	96	98	98	96	96	96	94	95	94	96	96	96	96	96	96	96	94	96	94	94
U Q	98	96	98	98	98	98	100	98	96	98	98	98	97	96	98	98	98	98	98	98	96	98	98	96
L Q	92	92	92	94	96	96	96	94	94	94	92	92	92	94	94	94	94	94	94	94	94	94	94	92

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		3					5	23									14	17	21	22	17	4		
MED		298					256	234									276	240	258	261	250	293		
U Q		450					285	270									292	274	271	282	277	334		
L Q		284					233	216									250	205	228	240	235	255		

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	31	30	31	28	27	23	31	31	31	31	31	30	28	31	29	31	30	31	31	30	31	30	31	31
MED	92	94	96	96	96	98	96	96	96	96	96	95	94	96	96	96	94	94	94	94	94	94	94	94
U Q	94	98	98	97	98	100	98	98	98	98	98	96	96	97	97	100	96	98	98	96	96	98	94	96
L Q	92	92	94	90	92	96	94	94	94	94	94	92	94	93	92	92	94	94	92	92	94	92	92	92

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	1	1	1	2	15	26									27	22	25	18	3		
MED			294	350	244	232	232	232	214									272	256	248	232	272		
U Q			322	175	122	116	252	242	240									280	272	275	266	290		
L Q			266	175	122	116	212	218	208									256	246	228	224	242		

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	30	30	31	31	30	28	30	31	31	31	31	30	31	31	31	31	31	30	31	31	30	31	31	29
MED	95	96	96	96	96	96	98	98	96	96	96	94	96	96	96	96	98	96	96	94	94	94	94	96
U Q	96	96	98	98	98	98	98	98	98	98	98	98	96	98	98	98	98	98	98	96	96	96	96	98
L Q	92	94	92	94	94	96	96	96	94	92	94	92	94	94	94	94	94	92	92	90	92	92	92	94

MONTHLY MEDIANS OF h'F AND h'Es

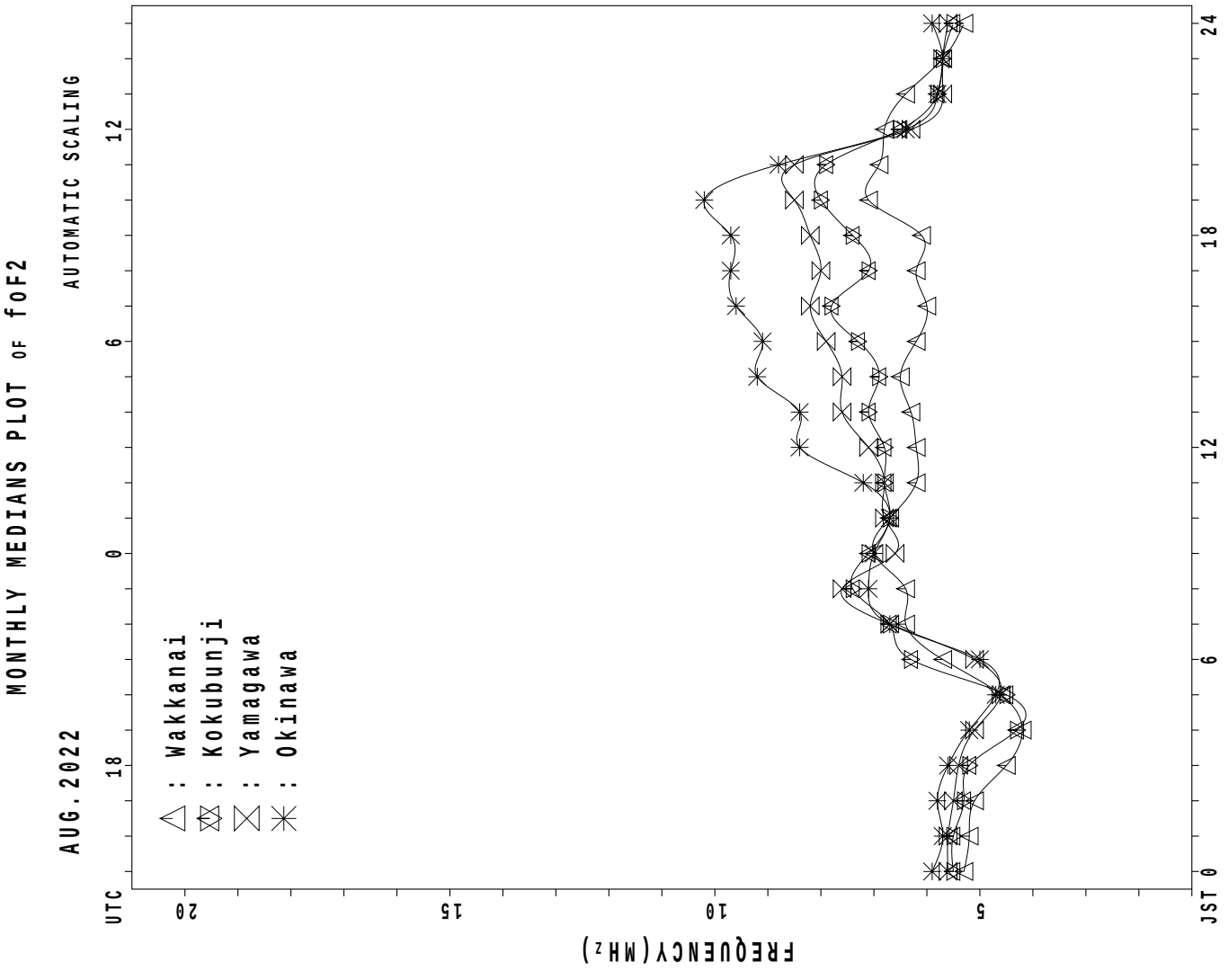
AUG.2022 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	2	1		1	1	16	20									30	28	25	21	8	1	
MED		292	257	232		260	230	224	232									276	255	240	232	232	320	
U Q		146	282	116		130	115	229	242									286	277	257	260	255	160	
L Q		146	232	116		130	115	215	212									256	246	229	214	223	160	

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	30	27	26	25	27	26	22	31	31	31	31	29	31	30	31	31	31	30	31	31	31	28	30	27
MED	96	96	96	98	96	98	97	98	96	96	96	94	94	94	94	96	96	96	94	96	94	96	96	96
U Q	96	98	98	98	98	98	98	98	98	98	98	96	96	96	96	98	96	98	98	98	96	96	98	96
L Q	94	94	96	96	94	94	96	96	94	94	94	94	92	94	94	94	94	92	90	92	92	93	94	92


MONTHLY MEDIANS PLOT OF foF2
AUG.2022
AUTOMATIC SCALING
: Wakkanai
: Kokubunji
: Yamagawa
: Okinawa
UTC
0
6
12
18
JST 0
6
12
18
24
5
10
15
20
FREQUENCY(MHz)

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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 71	X 58	X 58			68															80	X 76	A	X 72
2	79	73	X 56	58	58																	X 77	X 71	X 67
3	X 54	X 53	X 51		54																	X 78	X 71	X 58
4	X 55	A	X 56																			X 74	70	X 65
5	A	X 59	X 60	58	57																	X 70	68	X 71
6	69	X 61	X 60																			X 70	X 70	X 69
7	X 56	59	X 57																			X 97	X 67	X 59
8	X 59	X 59	X 59																			X 63	A	X 59
9	X 58	54	X 46																			X 75	X 69	X 60
10	X 62	X 61	X 58																			X 65	X 60	X 59
11	58	58	58	56																		X 72	X 73	X 64
12	X 54	X 53	X 54																		73	O X 64	X 64	X 59
13	X 58	X 57	X 55																			X 83	X 78	X 76
14	X 66	X 65	X 60																			X 71	X 66	X 61
15	X 55	X 55	X 54																			X 70	X 71	64
16	X 57	X 58	X 58																			X 79	X 74	X 71
17	X 64	X 63	X 59																			X 67	A	A
18	68	X 65	X 58	56	56																	X 79	X 67	X 65
19	X 66	X 63	X 60																			X 73	X 65	X 65
20	X 66	X 63	X 60																			X 71	X 75	X 70
21	X 66	X 63	X 61																			X 81	X 79	X 65
22	X 59	X 58	56																			X 66	X 78	X 68
23	X 59	X 57	58	58																		X 79	X 79	X 59
24	X 54	X 52	X 52																			X 77	X 67	X 55
25	X 51	X 51	X 50																			X 86	X 67	X 60
26	X 58	X 55	X 51		52																	X 89	A	58
27	58	X 58	58	58	58	58																O X 79	X 68	X 63
28	X 60	X 59	X 60																			X 78	X 74	X 70
29	X 65	X 63	X 62																			X 70	X 66	69
30	69	X 62	X 59																			X 66	X 65	A
31	X 59	X 60	X 58																			X 70	71	X 66
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	6	6	2															2	31	27	29
MED	X 59	X 59	X 58	58	56	63															76	X 74	X 70	X 65
U Q	66	X 63	X 60	58	58																	X 79	X 74	X 69
L Q	X 57	X 57	X 55	56	54																	X 70	X 67	X 59

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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	64	51	51	52	48	F 54	63	A	A	73	68	63	A	58	A	A	56	58	65	75	F 71	69	A	65
2	F 62	F 58	49	F 41	F 43	56	67	72	67	67	62	62	61	62	59	A	56	A	62	64	72	70	64	60
3	47	46	44	46	F 40	45	52	65	60	64	64	64	62	60	62	58	56	56	60	65	69	71	64	51
4	48	A	45	47	42	48	55	51	A	54	58	A	57	58	59	58	A	A	52	63	68	67	F	58
5	A	52	53	F	F 44	48	56	63	80	77	71	78	69	66	73	68	62	58	59	59	67	63	F	64
6	F	54	53	51	50	55	70	65	63	A	63	A	A	A	A	63	62	61	61	67	67	63	63	62
7	49	F 48	50	51	52	54	60	64	70	64	62	64	63	65	61	64	61	62	68	75	82	90	60	52
8	52	52	52	48	44	40	A	56	51	A	A	A	A	46	52	50	51	57	60	59	58	56	A	52
9	51	F 44	39	35	33	A	A	A	53	A	A	53	49	52	56	59	59	56	52	60	65	68	62	53
10	55	55	51	46	44	48	48	64	52	48	E G 46	46	A	51	54	52	51	A	51	57	A	58	53	52
11	F	F	F 46	F 46	46	47	61	63	65	56	A	50	52	53	56	61	60	56	57	60	66	65	66	57
12	47	46	47	45	44	50	48	56	E G 44	54	50	55	50	53	53	55	56	56	59	61	F	D C 57	57	52
13	51	50	48	48	50	55	60	A	63	70	70	70	69	67	68	60	56	60	64	72	79	76	R 69	70
14	58	58	53	49	42	46	51	58	62	56	A	55	58	52	54	57	56	56	54	57	63	64	59	54
15	48	48	47	46	48	52	69	73	83	H 73	66	70	63	61	65	59	61	61	57	63	69	69	64	F 53
16	50	51	51	49	51	41	57	68	72	70	63	65	62	67	62	59	59	59	62	71	73	72	67	64
17	57	56	52	Z 52	42	48	56	64	64	75	70	64	65	64	68	68	J R 62	68	71	71	69	60	A	A
18	F 54	58	52	F	F 36	42	52	59	68	68	63	C	C	C	C	C	70	68	68	J A 63	R 72	72	60	58
19	59	56	53	52	52	43	48	53	63	75	66	A 62	66	64	64	69	70	70	68	65	67	67	58	58
20	59	56	53	45	R 39	39	58	58	66	57	54	56	R 57	62	68	70	69	65	61	68	65	64	68	63
21	59	56	54	58	44	48	56	56	67	70	70	63	71	62	62	66	63	58	64	77	77	74	72	58
22	52	51	F 44	41	40	43	48	52	60	60	62	58	64	71	70	68	60	66	67	67	68	59	71	60
23	52	50	F 47	F	51	50	59	66	70	64	66	65	69	68	68	62	69	70	69	74	69	72	72	52
24	47	45	45	44	44	48	57	62	62	60	65	67	64	62	60	63	65	66	69	78	78	70	60	48
25	44	44	43	44	43	47	58	60	63	74	67	67	61	A	64	62	58	55	57	70	72	79	J R 60	53
26	51	48	44	43	F 40	47	59	75	68	68	63	62	64	59	62	58	59	59	A	82	86	82	A	F 45
27	F	51	F	F	F	F 47	58	66	76	76	66	64	67	64	68	64	62	61	69	73	74	R 72	61	56
28	53	52	53	44	40	44	58	72	72	88	70	H 58	66	69	70	62	66	66	70	79	78	71	67	63
29	58	56	55	52	48	47	53	67	65	63	65	64	67	68	73	67	69	67	68	64	64	63	59	F
30	F	55	52	51	45	48	59	68	68	65	74	75	63	62	66	77	78	76	68	60	58	59	58	A
31	52	53	51	47	41	46	60	65	71	82	63	68	63	62	71	72	72	63	61	R 61	69	63	F	59
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	29	30	27	30	30	29	28	29	28	27	27	26	28	28	28	30	28	30	31	29	31	24	28
MED	52	52	51	47	44	48	58	64	65	68	65	64	63	62	63	62	61	61	62	65	69	68	62	58
U Q	58	56	53	51	48	50	60	66	70	74	68	67	66	66	68	68	66	66	68	73	74	72	67	61
L Q	49	48	46	44	41	45	52	58	62	60	62	58	61	58	59	58	56	58	59	61	66	63	60	52

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	A	A	468	A	A	A	A	A	448	L	U L 272					
2						L	L 396	L	L	L	A	468	484	468	A	A	472	A	A	A				
3						L 336	404	428	A	460	464	A	A	L	452	A	L 460	L	L					
4						A	A	A	A	464	A	A	476	468	476	A	A	A	A	A				
5						L	L	L 480	A	L 516	L 492	A	A	H 512	A	A	L	A	L					
6						328	A	L		A	A	A	A	A	A	A	L 440	L	L					
7							A	452	L	U L 464	L	A 480	H 528	476	A	L	L	408	L					
8					A	A	A	400	A	A	460	A	A	L	A	L	420	A	L					
9				A	A	A	A	A	424	A	A	468	L	A	A	U L 460	L	A	A	A				
10					A	L	A	404	A	472	456	L	A	A	472	L 456	L	A	A	A	A			
11					A	L	A	A	L 440	A	A	456	460	L	A	L 464	L	U L 424	A					
12				B		L	U L 392	L 420	440	A	456	H 480	468	472	A	444	L	L	H 244					
13						L	A	A	L	472	L	L	A	A	A	L 492	L	H 412						
14					A	L	A	A	A	A	A	A	A	480	460	L	L	L	L					
15				L			L	L	L 540	L 488	L	488	496	L	L	512	L	L	L					
16						L	L	A	460	U L 460	L 488	492	500	L	U L 508	L	L	L						
17							L	A	A	A	H 572	L	L 476	L	L 492	A	A	L						
18							U L 412	L 436	L	U L 464	L	C	C	C	C	C	L 428	A		A				
19						L	L	L	A	468	L	476	L	L	L	L	L							
20							L	L 412	L 436	L 452	456	492	492	L	L	444	A	352						
21							L	L	L 464	L 464	L 456	L 476	U L 476	456	L	460	A 436	A						
22						A		L	L	A	L	L	476	L	A	A	A	A	A					
23							L		L	L 444	L 480	L 488	L 476	L 476	L 468	A	L							
24						L	L	U L 396	L	L	L 464	L 476	L 476	L 464	U L 488	L 444	U L 424	E A 444						
25							L	424	L	L 436	L	472	L	A	A	L	428	408						
26								U L 444	L	L	U L 464	L 476	L	L	U L 464	L	L	A	A					
27								L	L 448	A	L 468	L	A	L	L	A	A	A	A					
28							L	L	A	820	A	L	468	472	448	A	A	L 348						
29								L	A	L	476	L	L	372	L 476	L 440	L							
30							L		L 444	L 452	L 484	L 484	U L 460	L	A	A	L							
31								400	U L 432	432	L 464	A	U L 472	H 504	A	L 444	A	U L 300		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						2	4	12	10	17	17	15	16	12	11	11	9	8	2					
MED						332	L 400	422	L 442	L 464	L 464	476	476	472	L 472	L 456	436	U 394	258					
U Q							408	L 440	L 460	472	L 482	488	488	478	U L 488	L 464	454	418						
L Q							L 394	402	L 436	L 452	458	472	470	466	460	444	426	L 350						

AUG.2022 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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				A	A	200	264	284	316	336	352	336	328	340	304	288	304	236	204	A	A			
2				212	236	200	252	284	312	316	344	316	284	248	A	376	316	276	208	A	A			
3				252	A	A	272	280	320	312	324	292	292	272	352	344	308	264	204	A	A			
4				A	196	196	252	288	320	U A 320	344	356	368	A	A	A	316	248	A	A	A			
5				A		A	256	296	324	344	424	A	316	A	A	A	A	A	228	200	A			
6				A	A	A	A	296	324	364	344	344	340	316	A	A	316	A	224	A	244			
7				A	A	B	212	308	A	A	A	A	A	312	280	300	328	268	184	216	A			
8				212	A	A	240	272	A	320	A	A	400	376	344	328	300	276	196	A	A			
9				A	A	A	244	288	308	328	328	344	364	364	364	328	308	264	A	A	A			
10				A	A	A	244	292	320	328	320	340	352	352	332	332	316	252	J A 683	A	A			
11				A	A	204	236	288	A	328	308	292	360	A	A 632	332	308	264	208	A	A			
12				A	B	188	252	276	316	340	356	376	376	344	B	328	244	244	200	A	A			
13				A	A	220	248	272	340	372	336	352	336	304	A	360	308	260	216	296	A			
14				A	240	A	236	288	308	340	340	336	280	A	A	328	312	252	240	A	204			
15				200	A	A	240	284	312	324	284	304	A	A	356	328	308	260	272	212	A			
16				A	A	B	248	304	328	328	A	A	360	360	360	340	304	268	B	A	2 217			
17				A	A	A	244	304	328	332	352	352	352	368	344	344	272	A	A	A	A			
18				A	A	A	248	280	320	348	348	C	C	C	C	C	304	252	196	A	A			
19				B	B	A	236	296	316	316	336	368	344	328	316	316	284	260	A	A	A			
20				A	A	A	252	280	316	344	344	324	368	344	340	296	284	248	248	A	A			
21				224	A	A	248	280	308	344	344	280	A	360	352	316	300	240	A	A	A			
22				A	A	A	236	260	304	304	316	A	A	A	296	A	232	A	A	A	240			
23				B	B	200	244	276	308	308	340	312	356	344	344	320	284	236	A	260	192			
24				196	B	180	216	276	292	316	A	A	360	248	320	320	300	A	292	A	A			
25				200	A	188	232	264	292	292	324	A	284	A	A	A	A	A	A	A	A			
26				B	B	192	220	264	288	288	348	A	A	332	A	340	284	220	A	A	A			
27				B	B	A	232	288	320	320	300	A	A	A	352	A	A	A	A	A	A			
28				A	A	A	236	272	296	316	340	364	360	360	348	324	272	240	9 J 173	A	B			
29				A	A	A	A	276	296	320	A	336	288	348	276	320	296	168	A	244	A			
30				A	A	A	220	260	308	308	324	324	348	304	320	248	280	240	A	A	A			
31				A	B	A	224	296	316	320	344	256	A	A	284	236	236	236	A	232	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				7	3	10	29	31	28	30	26	21	23	21	21	24	28	24	17	7	5			
MED				212	236	198	244	284	316	322	340	336	352	344	344	328	302	252	208	232	217			
U Q				224	240	200	250	292	320	340	344	352	360	360	352	336	308	264	244	260	242			
L Q				200	196	188	234	276	308	316	324	308	316	308	310	316	284	240	198	212	198			

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 62	J A 41	J A 37	J A 31	J A 33	J A 29	J A 47	J A 95	J A 85	J A 65	J A 58	J A 75	J A 108	J A 121	J A 167	J A 161	G 38	J A 39	24	J A 62	J A 63	J A 63	J A 79	J A 65
2	J A 52	J A 32	25	J A 25	J A 32	J A 27	J A 41	J A 56	J A 65	J A 87	J A 86	56	J A 50	J A 47	J A 78	J A 121	J A 47	J A 121	J A 109	J A 109	J A E 107	B 16	J A 32	J A 25
3	39	J A 23	J A 32	J A 33	J A 28	J A 32	30	J A 52	J A 53	56	J A 68	J A 77	J A 63	J A 39	41	J A 63	J A 42	44	J A 34	J A 27	J A 53	J A 43	J A 62	J A 83
4	J A 116	J A 108	J A 109	J A 31	J A 23	J A 43	J A 53	J A 61	J A 129	J A 87	J A 63	86	J A 51	J A 47	J A 62	J A 51	J A 89	J A 247	J A 62	J A 77	J A 53	J A 26	J A 33	J A 81
5	J A 104	J A 85	J A 52	J A 31	J A 25	J A 27	J A 37	J A 52	J A 63	J A 61	J A 61	75	J A 144	H 51	J A 65	J A 62	J A 83	J A 43	J A 37	J A 23	J A 42	J A 45	J A 52	J A 85
6	J A 87	J A 49	J A 39	J A 46	J A 51	J A 51	J A 41	36	J A 61	J A 141	J A 160	J A 127	J A 157	J A 111	J A 101	J A 111	J A 63	J A 35	J A 45	J A 57	J A 51	J A 127	J A 118	J A 140
7	J A 110	J A 109	J A 65	J A 34	J A 27	A E 17	B J 63	A J 53	A J 64	A J 62	A J 47	A J 50	A J 47	A J 68	A J 82	A J 81	A J 40	A J 50	A J 32	A J 31	A J 27	A J 109	A J 98	A J 53
8	J A 64	J A 32	J A 24	J A 29	J A 50	J A 77	J A 69	J A 53	J A 149	J A 108	J A 57	J A 76	J A 67	J A 57	J A 67	J A 52	J A 45	J A 43	J A 47	J A 32	J A 39	J A 63	J A 87	J A 65
9	J A 32	J A 38	J A 33	J A 52	J A 52	J A 52	J A 57	J A 63	J A 52	J A 57	J A 54	J A 47	J A 65	J A 105	J A 60	J A 44	J A 110	96	129	J A 52	J A 32	34	J A 34	J A 45
10	24	J A 39	J A 38	J A 52	J A 29	J A 37	J A 42	J A 45	J A 49	J A 45	J A 37	J A 43	J A 53	61	38	J A 52	J A 92	J A 62	J A 61	J A 109	J A 87	J A 50	J A 66	J A 52
11	J A 51	J A 23	J A 83	J A 33	J A 56	J A 28	J A 61	J A 85	J A 107	J A 61	J A 68	J A 51	J A 50	J A 39	J A 57	J A 75	J A 51	J A 42	J A 45	J A 25	J A 26	J A 29	J A 21	20
12	20	J A 34	E B 17	J A 23	E B 16	J A 34	J A 37	J A 37	J A 55	J A 57	J A 53	J A 52	J A 52	J A 63	J A 63	J A 58	J A 33	32	J A 31	J A 26	J A 32	J A 30	J A 74	J A 31
13	26	31	J A 24	J A 31	J A 31	J A 33	J A 57	J A 86	J A 139	J A 77	J A 116	J A 65	J A 87	J A 65	J A 94	J A 76	J A 31	28	J A 62	J A 65	J A 106	J A 44	64	28
14	J A 45	J A 24	J A 32	J A 48	J A 31	J A 56	J A 52	J A 51	J A 101	J A 78	J A 65	J A 82	J A 66	J A 39	J A 43	38	35	J A 39	J A 63	J A 83	32	23	J A 27	J A 24
15	J A 29	J A 23	J A 31	26	J A 21	J A 60	J A 32	J A 122	J A 114	J A 87	J A 66	J A 68	J A 63	J A 86	40	42	J A 49	J A 43	J A 50	J A 48	J A 48	J A 31	J A 25	J A 47
16	J A 52	J A 52	J A 49	33	J A 25	J A 28	30	J A 46	J A 48	J A 61	J A 162	J A 88	J A 52	J A 56	J A 48	43	36	J A 36	J A 42	J A 28	J A 51	J A 51	J A 48	J A 51
17	32	J A 31	E B 16	J A 50	J A 41	J A 47	J A 49	J A 83	J A 133	J A 102	J A 53	J A 63	J A 41	J A 62	L 50	64	J A 115	J A 105	J A 145	J A 108	J A 53	J A 48	J A 122	J A 123
18	J A 37	J A 53	J A 65	J A 41	J A 27	J A 22	J A 37	J A 109	J A 45	J A 45	J A 59	C	C	C	C	C	40	J A 34	J A 32	69	J A 29	J A 39	J A 50	J A 41
19	J A 24	E B 15	E B 15	E B 15	E B 16	20	J A 31	J A 44	J A 54	J A 43	44	G	42	39	38	38	36	60	J A 91	J A 53	J A 34	J A 34	J A 26	J A 32
20	24	26	J A 32	J A 25	J A 55	J A 34	31	46	J A 71	J A 46	J A 71	G 44	G 41	G 38	J A 80	J A 111	J A 65	J A 41	J A 69	J A 71	J A 86	J A 44	J A 33	J A 51
21	J A 31	J A 31	J A 30	26	J A 26	J A 27	G 28	J A 39	J A 56	42	41	J A 46	J A 51	J A 53	39	39	J A 57	J A 63	J A 42	J A 65	60	J A 53	J A 41	J A 40
22	J A 35	J A 38	J A 27	J A 26	J A 27	J A 51	J A 27	J A 37	J A 58	J A 81	J A 44	J A 55	J A 130	J A 50	J A 71	J A 113	J A 68	J A 63	J A 60	J A 35	J A 53	J A 119	J A 86	J A 49
23	J A 52	J A 41	25	E B 16	E B 16	G	30	J A 53	J A 68	J A 44	J A 61	J A 131	J A 48	J A 55	44	J A 48	J A 43	J A 41	J A 110	J A 35	J A 50	J A 30	J A 21	J A 47
24	J A 25	E B 15	J A 21	J A 22	G 20	G	27	32	38	J A 41	J A 46	J A 48	41	J A 36	J A 50	J A 38	J A 53	J A 60	J A 55	J A 48	J A 23	J A 105	J A 53	30
25	J A 28	J A 24	J A 34	J A 21	J A 21	G	28	33	40	36	45	J A 51	J A 70	J A 75	J A 107	J A 45	J A 33	J A 31	J A 35	J A 28	J A 22	J A 52	J A 26	J A 26
26	J A 21	J A 24	J A 125	E B 16	E B 16	J A 20	J A 34	41	J A 51	46	40	L 47	J A 51	41	J A 39	J A 56	J A 55	J A 69	J A 162	J A 109	J A 109	J A 178	J A 182	J A 85
27	J A 33	J A 27	J A 22	J A 26	E B 17	J A 52	J A 53	J A 86	J A 85	J A 83	J A 61	J A 43	J A 92	44	38	J A 44	J A 51	J A 58	J A 43	J A 32	J A 38	J A 22	J A 19	J A 24
28	E B 16	J A 27	22	24	J A 25	J A 31	J A 37	32	50	J A 49	J A 48	G	G	J A 52	J A 65	J A 66	J A 61	J A 45	J A 169	J A 50	E B 16	E B 16	J A 19	J A 26
29	J A 22	J A 22	J A 20	J A 23	26	J A 21	J A 26	J A 50	J A 54	J A 43	J A 52	J A 44	J A 47	G	37	G	38	J A 31	J A 42	G 28	J A 77	J A 63	J A 80	J A 39
30	J A 51	J A 29	J A 32	J A 29	J A 21	22	J A 32	J A 54	J A 68	J A 86	J A 43	G 34	40	42	J A 63	J A 49	J A 56	J A 35	J A 27	J A 37	J A 36	J A 28	J A 51	J A 67
31	J A 109	J A 83	J A 51	J A 26	E B 14	20	31	J A 40	38	J A 84	G J A 40	88	J A 57	J A 51	J A 88	J A 83	50	J A 26	J A 55	J A 72	59	J A 52	J A 83	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	30	30	30	30	30	31	31	31	31	31	31	31	31
MED	J A 35	J A 31	J A 32	J A 29	J A 26	J A 29	J A 37	J A 52	J A 61	J A 61	J A 57	J A 54	J A 52	J A 52	J A 61	J A 54	J A 50	J A 43	J A 50	J A 50	J A 50	J A 44	J A 51	J A 47
U Q	J A 52	J A 41	J A 49	J A 33	J A 32	J A 47	J A 52	J A 63	J A 85	J A 84	J A 66	J A 76	J A 67	J A 63	J A 78	J A 76	J A 63	J A 62	J A 69	J A 71	J A 60	J A 63	J A 80	J A 65
L Q	25	J A 24	24	24	E B 21	21	30	40	51	J A 45	45	46	47	41	41	44	38	J A 35	J A 37	J A 31	J A 32	J A 30	27	J A 28

AUG.2022 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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	21	20	20	23	24	23	36	A A 95	A A 85	52	42	52	A A 108	E A 54	A A 167	A A 161	G 31	28	23	22	22	22	A A 79	A
2	22	20	16	G 16	G 22	21	33	44	37	39	E A 49	42	38	36	A	A A 121	35	A A 121	36	E A 36	25	E B 16	16	17
3	21	19	18	G 21	21	24	G 26	31	37	39	41	52	E A 48	36	37	44	35	29	25	23	26	20	22	22
4	22	A A 108	20	17	G 17	G 19	28	A	A A 129	42	A	A A 86	40	36	40	38	A A 89	A A 247	A	A	E S 16	E B 17	19	A
5	A A 104	E A 40	E A 24	21	E B 16	25	29	35	E A 54	46	G 42	42	46	38	45	40	38	E A 38	G 20	G 18	18	18	32	17
6	16	17	E B 16	17	24	32	26	35	37	A A 141	A	A A 127	A A 157	A A 111	A A 101	A	A	33	G 22	33	G 24	18	22	22
7	16	E B 16	24	18	22	E B 17	35	34	34	40	40	42	42	38	47	36	36	35	19	G 22	22	24	21	21
8	21	16	18	G 19	24	A	A A 69	32	A	A A 108	36	A A 76	A A 67	42	42	38	32	E A 40	22	G 18	17	21	A A 87	23
9	22	23	19	20	18	A A 52	A A 57	A A 63	35	A A 57	A A 54	37	39	47	51	34	34	31	E A 38	22	22	18	18	E B 17
10	E B 16	22	23	E A 23	20	24	40	34	A	38	36	41	A A 53	A	36	36	39	A A 62	G 34	A	A A 87	25	21	22
11	17	17	17	22	22	24	49	E A 53	35	A A 45	A A 68	39	38	38	G 45	42	32	32	24	17	17	21	17	E B 17
12	E B 15	16	E B 17	E B E B 16	E B 16	24	30	34	34	E A 50	39	38	40	40	A	43	31	27	G 19	20	22	17	23	24
13	16	16	16	18	21	25	33	A A 86	40	49	46	42	A	A	A	G 35	G 30	26	22	G 25	27	23	22	17
14	17	16	20	17	G 22	23	E A 42	36	E	A	A A 65	E A 50	E A 50	36	38	34	G 31	31	28	21	G 20	16	18	21
15	23	16	E B 16	E B 16	E B 16	20	27	33	40	41	41	41	38	41	39	34	G 30	28	G 22	G 17	17	20	16	23
16	20	25	18	18	E B 16	22	30	44	42	41	39	40	39	40	40	35	34	E A 35	23	17	G 18	20	29	23
17	16	E B 16	E B 16	19	19	22	30	A	E A 50	55	44	43	39	39	41	E A 48	A	43	24	23	22	18	A A 122	A A 123
18	20	24	23	17	16	18	25	37	37	37	40	C	C	C	C	C	36	28	21	A	21	21	20	E B 16
19	E B 15	E B 15	E B 15	E B 15	E B 16	18	26	35	43	35	38	G	38	38	36	G 31	30	31	24	24	E B 16	17	17	17
20	E B 17	E B 17	21	E B 16	16	23	27	33	34	38	41	G 35	G 35	G 35	40	34	E A 43	26	G 20	22	17	18	22	28
21	E B 16	E B 16	E B 16	G 16	E B 16	20	G 25	31	34	G 34	38	36	32	G 35	G 35	37	G 29	E A 55	22	19	23	17	20	20
22	20	19	16	16	E B 16	22	26	30	35	A	39	35	35	38	E A 56	40	A	24	51	20	G 24	A	22	17
23	17	18	E B 16	E B E B 16	E B 16	G	G 24	39	37	39	40	36	40	37	37	44	32	37	19	G 24	G 18	22	17	21
24	E B 16	E B 15	E B 16	E B E B 16	E B 14	G	22	29	36	35	35	38	37	35	36	G 31	31	37	G 27	20	17	21	16	16
25	E B 16	E B 16	E B 16	E B E B 18	17	G	26	31	34	34	39	39	38	A A 75	37	E A 40	24	21	21	24	21	22	18	18
26	E B 17	E B 16	E B 16	E B E B 16	E B 16	G 17	26	34	34	37	37	A 41	38	36	35	34	35	E A 41	A A 162	18	22	27	A A 182	21
27	22	22	E B 16	E B E B 16	E B 17	19	31	34	34	47	38	40	A	40	36	42	35	35	22	19	23	16	18	E B 17
28	E B 16	E B 17	18	E B 16	18	18	28	31	E A 46	46	E A 45	G	G	38	38	E A 48	E A 57	26	G 34	17	E B 16	E B 16	18	16
29	16	E B 16	E B 16	E B E B 16	E B 16	17	E B 17	33	E A 51	38	40	42	37	G	28	G	33	26	26	G 20	20	17	24	E B 16
30	E B 16	E B 17	18	E B 16	E B E B 16	E B 18	27	46	38	38	42	G 33	38	39	E A 53	E A 47	32	30	26	16	24	24	21	A A 67
31	21	22	22	17	E B 14	17	27	G 28	34	35	G 37	E A 51	38	38	E A 45	34	E A 42	G 23	23	G 21	30	20	19	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	30	31	29	29	29	29	30	28	28	27	29	28	31	30	28	31	30	31	29
MED	17	17	17	16	17	20	28	34	36	40	40	40	38	38	39	36	33	30	23	20	22	20	21	20
U Q	21	22	20	19	21	24	33	42	A 42	48	A 43	A 43	A 44	40	A 45	A 44	36	A 38	27	23	24	22	23	22
L Q	E B 16	E B 16	E B 16	E B E B 16	E B 16	18	26	32	34	38	38	37	38	36	36	34	G 31	27	22	18	17	17	18	E B 17

AUG.2022 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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	14	16	16	16	16	14	16	16	24	22	16	22	16	16	17	15	16	16	16	16	16	16
2	15	16	16	16	15	15	12	12	13	19	20	17	16	15	15	16	16	14	16	16	16	16	16	16
3	16	16	16	17	16	16	15	14	15	17	17	18	22	14	19	16	15	14	12	16	16	15	17	16
4	17	16	16	16	16	16	16	14	16	16	16	14	18	14	17	17	16	16	16	16	17	17	17	16
5	16	16	16	16	16	17	12	16	15	16	18	21	20	18	16	16	15	12	12	16	16	16	16	17
6	16	16	16	16	16	16	17	15	16	17	17	17	16	17	16	16	16	16	16	16	16	16	16	16
7	16	16	16	16	16	17	16	15	14	15	19	16	19	19	18	16	16	11	16	16	16	16	17	17
8	16	16	16	16	15	16	14	14	16	16	16	20	22	16	16	16	15	16	16	16	16	16	15	16
9	16	16	16	17	17	17	16	16	17	17	20	16	21	21	17	15	16	16	15	16	16	17	17	17
10	16	17	16	14	16	16	14	16	16	24	23	20	18	17	22	17	17	12	16	16	15	16	16	16
11	16	16	16	16	16	14	15	15	16	16	19	22	17	23	16	15	14	14	14	16	16	17	16	16
12	16	16	17	16	16	16	16	16	14	15	16	17	16	16	19	17	12	14	15	15	16	16	17	16
13	16	16	16	16	16	17	16	15	16	16	16	22	22	17	23	18	14	17	16	16	16	16	16	16
14	16	16	15	16	16	16	16	14	16	16	16	16	15	22	18	21	16	15	15	15	15	16	16	16
15	16	16	16	13	16	16	16	16	16	16	22	16	16	20	22	16	15	15	15	16	16	16	16	16
16	16	16	16	16	16	16	16	17	16	17	16	18	19	17	19	16	15	18	16	16	16	16	16	14
17	16	16	16	16	17	16	16	16	16	16	17	22	22	20	16	15	15	15	16	16	16	16	15	16
18	17	16	16	16	16	16	16	12	14	18	14	C	C	C	C	C	15	12	15	15	15	16	16	16
19	15	15	15	15	16	16	16	14	15	16	17	17	17	17	18	15	15	14	16	16	16	16	16	16
20	16	16	16	16	16	16	16	13	15	16	15	23	18	16	16	14	16	15	15	16	17	16	16	16
21	16	16	16	16	16	16	16	15	15	14	14	14	16	16	22	16	14	14	16	16	16	16	16	17
22	17	17	16	15	16	16	15	15	15	15	18	13	15	16	18	16	16	13	15	16	16	16	16	16
23	16	16	16	16	16	16	14	15	15	13	17	16	20	18	16	16	16	12	15	17	16	16	16	16
24	15	15	15	16	16	14	15	15	15	16	17	16	16	21	17	14	14	15	15	15	15	15	15	16
25	16	16	16	15	16	15	15	13	14	14	17	16	17	22	17	15	15	14	16	16	16	16	16	16
26	16	16	16	16	16	14	15	13	16	18	18	18	24	18	16	15	16	15	16	15	15	16	16	16
27	16	15	15	17	17	16	16	16	15	16	17	18	33	24	22	15	15	14	15	16	16	16	17	17
28	16	16	16	16	16	16	16	16	15	16	21	25	22	24	18	16	14	14	16	16	16	16	16	16
29	16	16	16	17	15	16	17	14	16	16	22	19	16	22	16	15	13	11	16	16	16	16	16	16
30	16	17	16	16	16	16	14	14	14	18	18	23	21	16	21	13	14	11	14	16	15	16	16	16
31	16	16	17	15	14	15	14	14	15	19	19	16	17	16	16	16	14	15	15	16	16	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	15	15	16	17	18	18	18	17	16	15	14	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	17	19	21	21	21	19	16	16	15	16	16	16	16	16	16
L Q	16	16	16	16	16	16	15	14	15	16	16	16	16	16	16	15	14	13	15	16	16	16	16	16

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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	318	274	271	288	285	F 325	325	A	A	322	321	313	A	314	A	A	303	293	306	306	F	284	A	311
2	F	F	277	F	F	305	330	352	305	346	315	334	308	328	296	A	302	A	217	251	307	326	306	348
3	289	288	280	279	F 308	322	288	344	335	317	316	319	318	298	304	314	292	311	314	295	283	306	305	311
4	301	A	294	266	286	311	310	261	A	288	312	A	307	292	314	311	A	A	308	300	284	299	F	251
5	A	302	266	F	F 282	304	286	279	326	340	300	318	318	264	315	315	315	314	329	304	294	293	F	266
6	F	284	268	266	297	316	346	331	331	A	247	A	A	A	A	201	317	303	323	308	324	279	291	311
7	273	F 281	292	275	293	290	329	303	321	353	312	309	283	304	279	324	287	294	289	301	281	316	315	275
8	273	270	286	242	252	252	A	311	264	A	A	A	A	354	274	242	265	284	303	295	295	294	A	286
9	284	F 254	306	268	267	A	A	A	329	A	A	269	303	218	268	293	320	304	228	279	279	297	285	271
10	275	273	294	283	259	259	265	330	317	334	G	376	A	244	262	281	274	A	296	296	A	264	276	255
11	F	F	F 268	F 263	268	267	311	239	346	308	A	280	252	262	288	289	312	295	295	309	289	284	293	293
12	275	268	275	275	260	319	275	324	G	310	251	286	256	285	273	282	297	291	309	300	F	D C 291	291	289
13	281	275	275	274	275	320	317	A	340	309	310	295	295	295	322	311	296	303	310	308	304	297	R 288	303
14	298	284	281	279	278	277	270	287	300	302	A	252	293	264	272	295	292	322	322	293	286	298	313	299
15	274	280	280	287	293	307	318	317	314	H 295	343	331	286	286	339	280	318	318	307	286	292	161	309	F 275
16	292	277	267	290	281	337	276	320	319	328	316	316	288	319	311	305	320	308	304	305	299	307	278	299
17	299	292	299	Z 329	298	317	300	223	278	345	326	297	317	301	309	314	R	308	318	315	312	264	A	A
18	F	264	279	F	F 279	309	308	320	286	283	296	C	C	C	C	C	311	306	319	A	R 286	309	315	291
19	280	264	262	259	293	292	327	302	302	307	288	A 322	321	307	330	312	308	319	315	289	294	297	310	275
20	303	292	302	304	R 271	344	294	301	221	309	290	297	R 296	296	302	317	317	334	302	302	301	288	288	288
21	288	285	307	321	294	331	330	312	324	305	348	287	316	292	295	306	320	247	309	317	300	299	319	299
22	266	269	F 287	277	295	323	348	308	331	274	346	308	294	318	317	309	303	324	316	315	281	315	287	303
23	300	298	F 286	F	272	310	333	334	362	348	321	332	332	308	328	309	308	335	298	321	287	308	327	309
24	306	291	287	303	312	350	349	335	341	298	332	339	344	333	303	310	310	324	302	318	317	326	327	308
25	284	283	263	290	296	315	354	304	345	345	344	341	302	A	323	328	327	320	303	295	294	315	R	299
26	296	294	293	299	F 300	333	337	347	327	343	343	325	334	316	316	304	304	259	A	301	330	307	A	F
27	F	272	F	F	F	F 326	325	302	336	359	348	318	329	302	320	319	323	317	313	305	306	R 325	325	281
28	279	276	309	305	309	325	302	324	324	303	361	H 353	330	314	324	R	311	249	307	300	313	310	300	300
29	299	294	302	298	331	363	328	352	351	325	324	291	311	295	332	316	325	325	324	320	286	285	290	F
30	F	288	272	291	291	305	335	346	331	345	333	346	329	289	297	310	310	329	335	302	285	285	285	A
31	288	285	268	315	300	320	371	336	335	338	360	326	325	290	309	313	323	338	327	R 324	295	326	F	304
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	28	30	26	29	30	29	28	29	28	27	27	26	28	28	27	29	28	30	30	28	31	23	27
MED	288	282	280	285	291	316	325	318	326	320	321	318	310	297	309	310	310	310	308	302	294	298	300	299
U Q	299	290	294	299	298	325	334	334	336	344	343	332	325	314	321	314	319	323	318	309	305	310	315	304
L Q	277	272	271	274	274	305	297	302	304	304	300	295	294	288	292	293	300	294	302	295	286	285	288	275

AUG.2022 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	A	A	384	A	A	A	A	A	363	L	U L 377					
2						L 348	L	L	L	L	A	391	374	390	A	A	347	A	A	A				
3						L 355	341	338	A	415	406	A	A	L	386	A	L 358	L	L					
4						A	A	A	A	365	A	A	403	387	364	A	A	A	A	A				
5						L	L	L 345	A	L 368	L 374	A	A	H 292	A	A	L	A	L					
6							A	L		A	A	A	A	A	A	A	L 353	L	L					
7							A	362	L	U L 395	L	A	H 321	386	A	L	L	387	L					
8					A	A	A	371	A	A	397	A	A	L	A	L	358	A	L					
9				A	A	A	A	A	396	A	A	362	L	A	A	U L 384	L	A	A	A				
10					A	L	A	361	A	404	427	L	A	A	360	L 368	L	A	A	A	A			
11					A	L	A	A	L 384	A	A	427	426	L	A	L 323	L	U L 346	A					
12				B		L	U L 324	L 357	392	A	412	H 310	383	394	A	338	L	L	H 508					
13						L	A	A	L	351	L	L	A	A	A	L 350	L	H 349						
14					A	L	A	A	A	A	A	A	A	378	387	L	L	L	L					
15				L			L	L	L 373	L 373	L	395	397	L	L	339	L	L	L					
16						L	L	A	384	U L 400	L 376	436	391	L	U L 342	L	L	L						
17							L	A	A	A	H 359	L	L 433	L	L 359	A	A	L						
18							U L 351	L 351	L	U L 366	L	C	C	C	C	C		A		A				
19						L	L	L	A	380	L	380	L	L	L	L	L							
20							L	L 345	L 342	L 374	L 407	353	377	L	L	362	A	374						
21							L	L	L 340	L 375	L 411	L 347	U L 385	377	L	351	A	A						
22						A		L	L	A	L	L	384	L	A	A	A	A	A					
23							L		L	L 404	L 375	L 366	L 370	L 369	L 343	A	L							
24						L	L	U L 383	L	L	L 386	L 390	L 362	L 387	U L 351	L 366	U L 363	A						
25							L	381	L	L 427	L	406	L	A	A	L	373	347						
26								U L 355	L	L	U L 404	L 358	L	L	U L 358	L	L	A	A					
27								L	L 355	A	L 396	L	A	L	L	A	A	A	A					
28							L	L	A	356	A	L	384	348	375	A	A	L 276						
29								L	A	L	382	L	L	477	L 351	L 355	L							
30							L		L 383	L 390	L 352	L 361	U L 392	L	A	A	L							
31								387	U L 387	391	L 390	A	U L 388	H 353	A	L 351	A	U L 365		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	4	12	10	17	17	14	16	12	11	11	7	7	2					
MED						L 355	L 344	359	L 384	L 380	L 390	373	384	382	L 359	L 351	L 358	349	442					
U Q							L 350	376	387	L 402	406	395	394	388	375	L 366	363	374						
L Q							332	L 348	L 355	367	L 376	358	376	361	L 351	339	353	L 346						

AUG.2022 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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							300	A	A	278	284	304	A	EA 348	A	A	346	346	274					
2						290	276	256	298	268	322	306	332	300	374	A	306	A	510	432				
3						270	350	292	304	322	338	296	296	344	328	326	374	314	286					
4						316	324	EA 450	A	392	338	A	364	364	338	342	A	A	304	342				
5						298	272	390	274	272	352	290	286	422	308	300	296	290	272					
6						296	240	280		A	EA 480	A	A	A	A	706	310	306	240					
7							282	292	280	266	332	344	394	340	332	304	358	324	300					
8					380	EA 470	A	346	402	A	A	A	A	276	428	510	452	372	310					
9				EA 324	364	A	A	A	320	A	A	440	370	A	408	364	314	300	A	338				
10					326	380	440	292	326	330	G	248	A	A	478	396	418	A	A 330	344	A			
11					A	400	A	EA 460	264	358	A	468	508	480	398	354	312	312	312					
12				314		290	428	312	G	376	502	398	400	418	426	394	272	330	288					
13						278	306	A	260	306	306	290	A	314	290	312	318	304						
14					A	340	398	374	348	334	A	518	374	A	420	370	356	286	274					
15				396			278	260	302	270	264	284	342	390	294	396	292	292	264					
16						264	374	302	290	278	286	326	366	314	326	360	294	302						
17							282	A	A	266	290	310	302	334	334	312	A	334						
18							340	288	306	352	298	C	C	C	C	C	266	270		A 344				
19						304	306	314	358	276	320	304	296	332	290	306	262							
20							320	312	588	314	388	368	360	360	336	312	270	264						
21							256	268	290	304	268	344	310	344	324	320	310	A						
22						A 334		256	282	324	280	332	370	300	292	290	A	268	268					
23							242		226	246	296	304	302	324	284	288	288							
24						226	244	244	274	282	288	284	268	304	310	314	304	272						
25							246	290	248	254	256	286	338	A	300	288	274	310						
26								248	248	254	278	278	278	272	304	318	326	A	A					
27								310	264	250	250	296	302	296	288	282	264	280	276					
28							316	240	292	376	236	236	298	316	288	288	338	424						
29								266	254	282	282	326	288	320	270	302	262							
30							262		264	256	278	264	286	286	304	298	302							
31								232	248	260	242	300	272	348	308	288	280	244		298				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				3	3	15	23	25	27	28	27	27	25	25	28	28	28	22	15	6				
MED				324	364	297	300	290	290	280	289	304	310	328	317	313	305	303	286	343				
U Q				396	380	340	340	313	320	327	338	344	368	354	356	362	332	324	310	344				
L Q				314	326	278	262	258	264	266	278	286	292	302	293	299	277	280	272	338				

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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	246	320	Q 280	272	282	236	240	A	A	A	222	A	A	A	A	A	208	218	228	256	240	234	A	A
2	222	252	270	268	272	220	220	216	216	216	A	A	210	192	A	A	248	A	A	A	228	216	256	228
3	258	284	298	Q 294	250	202	202	212	A	198	A	A	A	198	198	A	238	214	224	254	268	254	232	262
4	210	A	272	Q 284	280	A	A	A	A	224	A	A	202	190	252	A	A	A	A	A	268	254	Q 268	A
5	A	A	310	Q 288	290	224	208	218	A	A	212	A	A	202	A	A	220	A	198	274	274	274	A	Q 280
6	Q 248	280	Q 284	Q 292	286		A	204	282	A	A	A	A	A	A	A	A	224	202	214	244	244	254	292
7	224	292	292	294	290	324	A	194	194	202	202	202	204	196	A	200	246	324	228	260	288	236	258	312
8	330	310	278	338	A	A	A	240	A	A	202	A	A	220	A	238	194	A	228	270	258	244	A	306
9	274	310	272	A	A	A	A	A	202	A	A	206	234	A	A	208	208	A	A	A	272	264	264	274
10	274	274	274	306	A	220	A	232	A	202	194	186	A	A	226	254	E A 288	A	A	A	A	296	224	306
11	280	282	292	280	A	286	A	A	200	A	A	196	192	200	A	290	224	230	A	262	270	280	270	246
12	248	314	302	B	330	236	250	222	194	A	186	186	196	224	A	306	216	234	246	256	272	270	Q 270	270
13	280	286	282	288	268	228	A	A	220	220	A	212	A	A	A	210	202	206	264	246	266	276	276	266
14	282	276	276	258	A	258	A	A	A	A	A	A	A	202	202	222	226	218	212	246	284	262	246	264
15	296	292	292	270	288	242	212	190	204	204	194	194	180	224	200	214	218	214	206	264	260	246	246	296
16	292	286	322	278	Q 258	222	228	A	210	204	202	176	198	198	202	212	224	E A 248	260	234	270	246	292	264
17	250	280	252	246	272	272	222	A	A	A	232	190	196	216	256	A	A	206	264	234	250	310	A	A
18	344	338	314	Q 266	Q 276	250	246	240	216	206	238	C	C	C	C	C	236	A	250	A	284	274	256	280
19	290	304	320	280	228	218	218	230	A	210	194	194	194	194	194	196	200	260	242	284	260	266	266	304
20	260	268	260	228	256	210	234	230	218	304	206	194	194	192	224	212	A	212	238	254	264	286	286	276
21	272	282	252	230	230	226	210	204	222	200	194	194	194	H 192	200	H 218	A	A	250	250	272	252	256	248
22	318	276	296	302	274	A	228	200	210	A	200	188	192	192	A	A	A	A	A	264	300	A	260	232
23	254	270	266	Q 268	Q 238	216	206	244	200	200	200	182	194	192	216	A	196	256	260	234	278	266	228	250
24	270	282	276	286	258	188	218	198	190	196	196	186	186	196	218	198	226	A	250	250	240	224	222	254
25	250	Q 304	Q 310	280	252	248	202	194	200	182	182	196	190	A	A	A	202	202	252	278	278	256	218	264
26	238	274	268	266	280	262	234	208	208	192	202	176	200	200	200	224	218	A	A	254	254	244	A	274
27	Q 314	358	Q 292	278	250	242	260	214	206	A	194	192	A	200	200	A	A	A	A	254	252	242	238	274
28	288	300	268	244	264	262	222	196	A	226	A	184	188	216	216	A	A	A	216	260	230	230	262	252
29	272	280	256	254	228	224	238	206	A	208	206	212	190	206	208	198	222	258	228	232	286	294	A	Q 252
30	310	246	280	Q 250	Q 234	246	222	224	210	198	A	198	190	190	A	A	232	236	234	260	292	292	258	A
31	266	270	Q 254	256	258	252	234	222	194	194	194	A	210	198	A	210	A	208	248	242	242	242	A	242
	00	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	31	29	26	26	22	23	20	20	21	21	21	24	16	17	22	18	23	26	30	30	24	27
MED	272	282	280	278	266	236	222	214	207	203	200	194	194	198	205	212	220	220	238	254	268	255	257	266
U Q	290	304	296	288	280	252	234	230	216	213	206	197	201	204	221	231	232	248	250	262	278	274	267	280
L Q	250	275	268	257	250	220	212	200	200	198	194	186	190	192	200	204	208	212	224	246	252	244	242	252

AUG.2022 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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				A	A	110	110	100	100	100	100	94	94	94	96	92	100	100	110	A	A			
2				102	96	96	102	102	102	94	100	98	98	98	A	92	96	96	96	A	A			
3				96	A	A	100	100	100	90	96	96	96	96	96	102	102	102	102	A	A			
4				A	116	116	94	102	102	104	96	96	96	A	A	A	96	96	A	A	A			
5				86		110	104	104	104	104	104	A	104	A	A	A	A	A	104	104	A			
6				A	A	A	A	96	98	98	98	98	98	98	A	A	98	A	98	A	96			
7				A	A	100	100	100	A	A	A	A	A	96	96	96	106	102	98	82	A			
8				108	A	A	108	98	A	98	A	A	100	100	100	100	100	100	106	A	A			
9				A	A	A	106	106	106	106	94	94	94	94	94	94	98	98	A	A	A			
10				A	A	A	96	98	98	88	100	100	100	100	100	96	100	104	98	A	A			
11				A	A	110	98	98	A	98	98	94	100	A	A	98	100	100	92	A	A			
12				A	B	112	98	98	98	98	98	98	98	98	B	98	98	100	100	A	A			
13				A	A	110	110	106	106	98	98	98	98	94	A	102	102	106	106	106	A			
14				A	98	A	100	100	100	104	94	94	94	A	A	94	100	100	100	A	100			
15				106	A	A	106	98	98	98	98	98	A	A	98	98	104	104	98	98	A			
16				A	A	106	106	106	100	100	A	A	100	100	100	100	100	102	B	A	A			
17				A	A	A	102	102	102	90	108	108	102	102	102	94	102	A	A	A	A			
18				A	A	A	102	102	102	102	102	C	C	C	C	C	100	104	104	A	A			
19				B	B	A	106	106	98	100	100	100	100	100	100	100	100	100	A	A	A			
20				A	A	A	100	100	100	100	100	100	100	98	98	98	98	110	104	A	A			
21				102	A	A	102	102	102	102	102	102	A	90	108	108	108	98	A	A	A			
22				A	A	A	100	100	100	100	100	A	A	A	100	A	100	A	A	A	98			
23				B	B	92	108	102	92	100	100	100	100	100	100	100	104	104	104	96	96			
24				96	B	114	98	98	98	98	A	A	98	98	98	98	98	A	98	A	A			
25				82	A	100	100	100	90	102	102	A	102	A	A	A	A	A	A	A	A			
26				B	B	118	106	102	102	102	102	A	A	102	A	102	102	102	A	A	A			
27				B	B	A	94	94	108	98	98	A	A	A	98	A	A	A	A	A	A			
28				A	A	A	104	104	96	96	96	96	96	96	100	100	100	100	104	A	B			
29				A	A	A	A	104	94	94	A	94	94	94	94	94	94	94	A	86	A			
30				A	A	A	98	98	94	94	94	94	86	92	92	92	92	102	A	A	A			
31				A	B	A	94	94	94	94	90	90	A	A	90	90	98	98	A	98	A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				8	3	13	29	31	28	30	26	21	23	21	20	24	28	24	18	7	4			
MED				99	98	110	102	100	100	98	99	98	98	98	98	98	100	100	101	98	97			
U Q				104	116	113	106	102	102	102	100	100	100	100	100	100	102	103	104	104	99			
L Q				91	96	100	98	98	98	96	96	94	96	94	96	94	98	99	98	86	96			

AUG.2022 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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	94	84	84	88	92	118	112	100	100	98	98	100	92	94	94	94	104	104	120	100	104	100	102	98
2	98	88	90	104	92	92	108	102	102	94	96	94	94	94	86	94	116	96	98	96	104	B	96	92
3	92	92	92	86	88	106	102	118	106	106	98	90	94	94	94	106	122	114	104	104	104	104	96	96
4	96	96	102	88	122	108	98	106	108	108	90	96	94	100	98	100	104	104	98	100	104	92	92	98
5	92	92	86	86	86	106	106	100	100	100	100	96	92	94	90	90	98	90	96	112	104	108	106	106
6	106	96	92	92	92	98	94	108	100	98	108	96	106	92	92	92	92	100	100	90	90	98	102	96
7	106	108	88	94	94	B	100	94	94	94	96	96	94	96	96	100	136	114	106	90	102	96	96	96
8	96	96	96	108	108	100	100	100	100	90	94	88	100	108	100	102	114	104	104	110	94	94	98	98
9	98	98	96	90	100	100	104	104	G 104	90	100	100	100	100	108	108	108	96	96	102	102	102	102	102
10	98	94	94	94	104	104	104	104	102	94	102	104	102	102	116	110	106	102	102	102	102	102	98	94
11	94	88	88	90	88	110	104	98	110	94	90	90	96	96	90	90	92	108	100	92	96	96	92	92
12	110	98	B	98	B	106	106	112	112	100	108	100	100	100	100	100	100	112	92	108	104	102	102	100
13	100	94	126	92	92	104	104	96	114	100	100	110	100	92	96	104	98	G	106	98	104	104	104	98
14	90	90	90	96	96	92	108	104	102	100	100	94	96	96	90	90	120	108	96	100	106	102	98	98
15	98	92	92	104	104	96	102	102	94	94	94	94	94	94	122	90	98	106	96	104	104	100	100	96
16	88	88	88	84	106	106	108	108	108	96	96	96	96	106	116	116	116	108	100	100	100	100	94	94
17	94	100	B	112	112	106	104	104	98	C 108	108	100	104	94	268	100	96	98	100	102	104	108	106	108
18	106	94	94	94	94	100	94	108	108	108	108	C	C	C	C	C	130	112	112	102	102	102	102	102
19	94	B	B	B	B	106	106	96	96	104	104	G	104	104	98	98	112	110	96	106	102	102	102	102
20	96	96	92	106	98	98	140	114	102	106	98	108	190	112	96	116	94	110	106	102	106	106	94	84
21	94	94	96	86	86	90	108	108	108	116	164	100	100	100	100	112	112	104	104	104	96	108	98	90
22	92	86	90	108	108	102	112	112	106	102	102	96	96	96	96	92	92	92	92	92	100	100	100	100
23	100	100	100	B	B	G	100	100	100	100	92	98	104	100	104	104	104	110	88	104	112	100	100	94
24	94	B	112	106	106	G	150	108	104	100	100	104	152	98	98	106	106	92	106	106	106	102	102	108
25	102	102	96	86	100	G	110	98	100	100	100	94	94	92	92	92	92	92	90	84	86	102	102	92
26	92	102	108	B	B	108	108	108	100	196	144	186	102	108	98	114	104	96	98	104	104	104	100	100
27	94	94	94	108	B	108	108	108	108	96	94	92	92	92	92	92	92	84	84	84	90	104	94	94
28	B	88	88	96	104	108	108	108	100	100	100	G	G	100	100	108	104	104	104	102	B	B	88	88
29	94	94	104	100	94	94	98	98	98	98	98	94	94	G	106	G	116	90	98	90	110	110	110	98
30	98	88	94	94	106	106	106	96	102	110	100	100	100	100	94	94	110	112	98	98	98	94	104	98
31	98	98	90	90	B	90	106	106	88	102	86	86	94	96	96	104	94	98	98	98	98	98	98	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	30	29	28	28	25	27	31	31	31	31	31	28	29	29	30	29	31	30	31	31	30	29	31	30
MED	96	94	93	94	98	104	106	104	102	100	100	96	96	96	97	100	104	104	98	102	103	102	100	98
U Q	98	98	96	104	106	106	108	108	108	106	102	100	102	100	100	107	114	110	104	104	104	104	102	100
L Q	94	89	90	89	92	98	102	100	100	96	96	94	94	94	94	92	96	96	96	96	98	99	96	94

IONOSPHERIC DATA STATION Wakkanai

AUG.2022 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	F5	F3	F3	L2	L3	CL21	CL53	C5	C3	C4	C3	C3	C4	C4	CQ71	C5	C2	C3	C2	L8	L6	F6	F8	F9
2	F9	F4	F3	C1	LQ41	LC21	C3	C4	C3	C4	C3	C2	C2	C2	L3	C5	CL22	C6	C4	L5	L7		F2	F2
3	F2	F3	F2	LC31	L3	L3	CL21	C2	C3	C3	C3	C3	C3	C2	C2	C2	C2	C2	C5	L3	L5	F8	F7	F6
4	F6	F8	F6	F6	C2	C7	C6	C5	C5	C2	C3	C4	C2	L1	L2	L2	C5	CQ41	CQ51	L8	L3	F3	F5	F6
5	F4	F4	F3	L2	L1	L3	C4	C3	C4	C4	C2	C3	C2	L2	L3	L4	L4	L5	L4	C3	L9	F4	F8	F5
6	F7	F7	F5	L5	L3	L4	L3	C2	C5	C6	CQ41	C5	C4	C3	C6	C5	C3	L3	L2	L6	L6	F5	F3	F4
7	F2	F2	FQ31	L4	L3		C4	C2	L3	L3	L2	L2	L2	L2	L3	C2	C2	C3	C2	L3	L5	F5	F5	FQ51
8	FQ41	FQ31	F2	L3	L7	L4	C7	C3	L2	C3	L2	L2	C4	C1	C2	C2	C2	C4	C4	L3	L4	F7	F9	F7
9	F4	F7	F6	L6	L3	L5	C3	C6	C2	C3	C2	C2	C2	C3	C4	C2	C3	C6	L4	LQ51	L4	F3	F7	F6
10	F2	F5	F5	L4	L8	L3	C3	C4	C3	C2	C1	C2	C2	C3	C1	C2	C3	C6	C6	L7	L7	F8	F7	F6
11	F3	F4	F5	L3	LQ31	C4	C5	C6	CQ21	C3	C4	C3	L2	L2	L3	L3	LC32	CL32	C4	C2	L1	F4	F3	F1
12	F1	F1		L1		C5	C4	C2	C2	C4	C2	C1	C1	C2	L3	C3	C2	C2	LC32	L3	L4	F3	F5	F3
13	FQ11	FF11	F1	LQ31	L4	C2	C6	C5	C3	C3	C3	C2	C4	C4	L4	L2	L2	C2	C3	C5	L5	F5	F6	F3
14	F4	F2	F3	LQ41	L4	L3	C5	C3	C3	C2	C3	C3	C3	L2	L2	C2	CL22	C3	C5	L5	C3	L1	F3	F2
15	F4	F2	F1	C1	C2	LQ21	C3	C3	C4	C4	C2	C2	C2	L2	CL21	CL11	C1	C3	CQ31	CQ21	C2	F4	F2	FQ51
16	FQ62	FQ52	FQ31	L3	L2	C3	C2	C3	C3	C2	LQ32	L2	LC11	C1	C1	C1	C2	C1	C3	L3	L7	F6	F7	FQ61
17	F4	FF11		LL13	LL23	LL32	C3	C4	C7	C3	C2	C1	C2	C1	C2	C3	C5	C6	C6	L3	L3	FQ51	F7	F8
18	F5	F7	F4	L3	L4	C1	C3	C3	C2	C2	C2						C2	C4	C4	L6	L5	F6	F6	F3
19	F2					L2	C3	C3	C3	C1	C1		C2	C2	C2	C2	C2	C3	L3	L5	L3	F3	F5	F3
20	F2	FF11	FQ41	L2	LQ31	LL31	C2	C3	C4	C3	C3	C1	C1	C1	C3	C3	C3	C3	C4	L6	L5	F4	F4	F4
21	F3	F2	F2	LC11	L1	LL11	C1	C3	C2	C1	H1	C2	C2	C1	L2	C2	C3	C6	L3	L5	L4	F4	F4	FQ41
22	FF41	FQ41	F3	L3	L3	L4	C3	C2	C3	C4	C2	L2	L2	L3	C4	L6	CQ61	L5	L6	L7	C2	F3	F5	F3
23	F4	F4	F2				C2	C2	C4	C2	C2	C1	LH11	C2	C2	C4	C2	C4	LC12	L5	C3	F6	F3	F5
24	F2		F1	C2	C1		C2	C2	C2	C3	C1	L1	HL11	C1	C2	C2	C2	L5	L6	LQ31	L3	F6	F2	F1
25	FF21	FQ21	F2	C2	L2		C2	C2	C2	C2	C2	L2	C3	L4	L4	L4	L3	L4	L4	L4	LQ41	F2	F3	F2
26	F2	FF11	F1			C2	C4	C4	C3	C1	HL11	L1	L1	C1	L2	C2	C3	C4	C5	CQ61	CQ41	FQ41	FQ51	F4
27	F5	F5	F1	F2		L3	C5	CQ31	C2	C4	C3	L2	L2	L2	C2	L2	L4	LQ41	LQ61	LQ62	LQ41	F3	F3	F3
28		F1	F4	L1	L3	L5	C5	C2	C2	C4	C2			C2	LC12	C3	C3	C3	L4	L4			F4	F2
29	F3	F1	F2	LL21	LQ11	L3	LQ11	C3	C3	C2	L2	C2	C2		C1		C2	C2	L2	C2	L4	F6	F7	F2
30	FQ42	F5	F4	L3	L2	L1	C4	C3	CQ21	CQ21	C4	C1	C1	C2	C3	C3	C3	C3	L3	L2	L5	F3	F8	F5
31	F4	F3	FQ31	L4		L3	C2	C2	C2	C2	C2	CQ31	LQ21	LQ21	CQ31	CQ21	C3	C2	L3	C5	L7	F5	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.2022 TYPES OF Es

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IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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	71	72	65	68	68	62															X 90	X 76	77	82
2	68	72	X 58	X 59	X 56																X 88	81	72	70
3	X 59	X 53	X 47	58	63	67															X 82	X 72	64	A
4	60	59	67	58	58	60															X 72	A	A	66
5	70	71	X 58	X 57	X 58																X 69	X 64	66	71
6	70	X 58	X 58	X 55	X 56																X 77	X 78	X 80	X 64
7	X 58	X 58	X 58	X 58	X 59																X 95	X 80	A	X 56
8	X 57	58	A	X 48	X 52	55															X 71	X 62	X 57	X 54
9	X 56	X 52	X 53	A	X 44																X 85	X 84	X 74	X 72
10	X 62	X 67	X 65	X 64	X 59																X 72	X 60	69	64
11	X 58	X 59	X 58	X 53	X 52																X 76	X 72	X 68	X 59
12	X 64	X 60	X 60	X 60	X 64																X 67	X 69	X 67	X 65
13	X 62	X 68	X 61	X 58	X 56																X 83	X 72	73	X 69
14	X 67	X 64	X 59	X 55	X 54																X 76	X 70	X 70	X 68
15	X 66	X 60	X 57	X 54	X 53																X 82	X 81	86	X 72
16	X 68	70	64	X 58	X 60																X 85	X 68	X 68	70
17	A	73	70	60	57	56															X 87	X 67	X 63	X 69
18	X 72	X 66	70	62	X 54																X 90	X 78	X 75	X 69
19	X 66	X 65	X 64	X 61	X 64																X 78	X 73	X 70	X 65
20	X 66	X 63	X 58	X 60	X 44																X 84	X 77	X 73	X 72
21	73	78	82	66	X 40																X 93	X 69	X 60	X 58
22	A	60	63	X 48	X 54																X 85	X 85	X 77	X 76
23	86	90	84	71	70	60															X 84	X 67	X 63	67
24	63	67	67	66	X 56																X 94	X 66	X 58	X 54
25	X 54	X 52	X 50	X 50	X 49																X 86	X 78	82	70
26	68	68	X 58	X 53	X 48																X 92	X 66	X 58	X 56
27	X 54	X 55	X 54	X 53	X 52																X 90	X 75	X 70	X 66
28	X 66	X 63	X 65	X 61	X 44																X 88	X 76	X 72	X 70
29	X 70	X 64	X 64	C	X 58																X 75	X 69	70	72
30	72	73	70	X 59	X 53																X 70	X 65	71	70
31	65	66	64	64	56												C				X 76	X 72	X 60	71
	00	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	31	30	29	31	6															31	30	29	30
MED	X 66	X 64	X 62	X 58	X 56	60															X 84	X 72	X 70	X 69
U Q	70	70	65	62	X 59	62															X 88	X 78	X 74	71
L Q	X 60	X 59	X 58	X 54	X 52	56															X 76	X 67	X 64	X 64

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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 58	F 57	F 52	F 53	F 50	F 52	66	65	81	76	66	A	69	68	62	65	64	64	69	80	84	70	F 57	F 61
2	F 53	F 56	52	53	50	50	58	62	76	80	A	A	66	73	66	69	71	70	74	79	82	F 71	F 62	F
3	53	47	41	F 39	F 41	F 54	58	68	74	65	67	68	67	60	64	68	64	63	66	75	76	66	F 52	A
4	F	F	F	F 48	F 47	F 50	A	61	68	A	56	71	A	67	66	66	63	60	60	63	66	A	A	F 55
5	F 52	F 56	52	51	52	48	54	65	64	71	72	A	78	66	73	81	76	66	62	60	63	58	F 58	F 55
6	F 52	52	52	49	50	54	66	64	66	68	68	A	65	68	70	70	78	75	70	70	71	72	74	58
7	52	52	52	52	53	57	66	75	64	H 59	61	65	66	A	72	69	64	68	72	90	89	R 74	A	50
8	51	F 48	A	42	46	F 44	58	63	54	E G 46	50	E G 48	53	A	A	55	56	58	63	70	65	56	51	48
9	50	46	47	A	38	38	50	57	E G 43	A	A	61	64	60	68	A	76	70	71	81	79	78	68	66
10	56	61	59	58	52	52	60	59	A	A	A	E G 47	A	54	58	58	55	A	57	63	66	54	F 52	F 50
11	52	53	52	47	46	44	64	A	A	A	A	A	61	A	67	70	68	62	64	73	70	66	62	53
12	58	54	54	54	58	52	63	65	54	A	52	61	72	70	64	61	66	66	73	76	61	63	61	59
13	56	62	55	52	50	50	74	100	66	65	70	73	A	A	76	79	69	64	66	80	77	66	F 64	63
14	61	58	53	49	48	49	58	A	66	A	A	67	74	78	70	70	72	70	65	70	70	64	64	62
15	60	55	51	48	47	46	60	73	80	71	69	63	A	64	64	72	A	68	63	68	76	75	F 72	66
16	62	F 55	F 55	52	54	57	65	65	84	A	61	66	67	69	70	69	69	66	69	82	79	62	62	F 52
17	A	F 63	F 59	F 50	F 48	F 47	64	70	77	84	75	67	64	73	75	78	85	86	91	92	81	61	57	63
18	66	60	F 60	F	48	43	60	62	76	71	72	80	74	75	74	76	82	77	82	85	84	72	69	63
19	60	59	58	55	58	60	57	60	67	82	77	74	A	78	A	71	83	91	87	83	72	67	64	59
20	60	57	52	54	38	38	55	73	87	64	67	71	76	76	80	84	84	81	79	80	78	71	67	66
21	F 65	F 67	F 66	F 57	34	40	53	64	76	72	65	69	66	64	72	85	76	75	84	92	87	63	54	52
22	A	F	F 52	42	48	44	56	A	A	78	62	A	67	84	92	87	86	78	79	86	79	79	71	70
23	F	F	F 67	F 54	F 50	F 51	59	72	V 76	63	A	67	74	83	78	77	81	88	92	89	78	61	57	F 52
24	F 51	F 53	F 53	F 53	50	50	62	67	64	62	71	68	62	59	66	68	73	80	91	100	88	60	52	48
25	48	46	44	44	43	43	62	76	72	71	57	68	68	67	69	68	61	60	64	76	80	72	F	F
26	F	F 57	52	47	42	43	58	72	83	66	63	62	64	61	62	65	66	66	77	94	86	60	52	50
27	48	49	48	47	46	46	60	83	80	70	71	66	63	67	70	72	68	69	76	92	84	69	64	60
28	60	57	59	55	38	38	58	84	85	H 69	69	70	62	72	78	86	78	76	83	84	82	70	66	65
29	64	58	58	C	52	53	64	70	A	66	70	76	76	77	81	85	84	75	73	79	69	63	F 59	F
30	F	F 60	F 57	53	47	44	65	80	71	67	72	74	79	77	77	80	90	100	99	82	64	59	F 59	F
31	F	F 54	F 54	F 55	F 46	44	64	68	78	66	73	72	74	69	68	78	C	78	79	71	70	66	54	F 53
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	28	29	28	31	31	30	28	27	24	25	25	26	27	29	30	29	30	31	31	31	30	28	26
MED	56	56	53	52	48	48	60	68	74	68	68	68	67	69	70	70	72	70	73	80	78	66	62	58
U Q	60	58	58	54	50	52	64	73	80	72	72	72	74	76	76	79	82	78	82	86	82	71	65	63
L Q	52	52	52	48	46	44	58	64	66	65	62	64	64	64	66	68	65	66	65	71	70	61	56	52

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	A	464	A	A	A	468	U L 496	A	452	A						
2							A	444	A	A	A	A	A	A	468	448	A	428	L	A				
3							A	A	A	A	480	A	A	A	L 504	460	L 452	A						
4							A	A	A	A	A	A	A	A	468	A	L 452	A	L					
5							L	432	A	472	A	A	A	A	488	472	A	L	L					
6							L	L 456	A	A	A	A	A	A	A	472	452	L	L					
7							L	440	460	468	H 512	492	508	A	A	476	A	A	A					
8						264	A	A	476	460	464	480	A	A	A	A	440	U L 412	L					
9						U L 304	A	A	428	A	A	A	500	508	A	A	A	A	A					
10							A	404	A	A	A	472	A	468	A	A	A	A	A					
11							A	A	A	A	A	A	A	A	472	A	A	A						
12							L	A	A	A	U L 472	A	472	492	492	480	444	A	A					
13							A	A	A	A	516	A	A	A	504	A	A	L 428						
14								A	A	A	A	A	A	504	496	496	A	A	A					
15								436	468	A	A	560	A	A	U L 520	A	A	A	A					
16								A	464	A	504	512	520	524	508	484	468	A						
17									A	A	A	600	L 528	508	A	A	A	A	A					
18							L	436	A	A	472	504	508	492	504	472	L 452	A	A					
19								452	L 472	A	A	L 500	A	A	A	A	A	A	L					
20							L	L 420	A	548	A	A	504	L 492	488	468	L 448	A						
21								408	444	452	500	488	500	U L 536	496	460	452	A	L					
22								A	A	A	496	A	472	480	A	A	L 416	L 396	A					
23								A	A	A	A	A	A	A	484	480	432	388						
24								L	L 444	U L 472	472	472	L 496	U L 480	480	468	428	396	A					
25							L	L	L 468	468	476	472	476	472	484	452	L 468	U L 392						
26								L	L 472	L 452	516	488	U L 476	464	464		A		L					
27									456	464	468	A	B	A	488	472	L 444	L						
28								L	444	460	464	L 480	512	512	484	452	L 452	L						
29								A	A	A	488	A	A	A	496	A	440	L						
30								A	A	A	484	L 488	A	504	464	468	A	A						
31								L	440	436	488	R 512	504	500	488	L 476	C	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						2		9	13	12	17	15	14	17	23	19	17	7						
MED						284		436	456	466	480	492	502	492	488	472	452	L 396						
U Q								442	468	472	498	512	508	508	496	476	L 452	428						
L Q								414	444	460	470	480	488	478	480	460	440	392						

AUG.2022 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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						A	224	276	308	A	A	A	A	320	348	328	296	256	A	B				
2						A	A	A	A	A	344	A	368	356	352	336	308	264	A	A				
3						A	204	256	A	304	A	A	A	A	A	332	308	264	A	A				
4						B	244	284	324	340	352	A	344	A	A	A	A	A	A	B				
5						B	196	252	A	348	336	A	A	A	A	A	A	268	A	B				
6						B	A	A	320	360	A	376	380	380	356	340	312	244	A	B				
7						A	A	A	A	A	368	416	A	A	A	344	316	268	A	A				
8						A	228	268	316	A	380	396	380	368	356	340	308	260	A	B				
9						A	220	272	320	344	348	364	380	376	364	340	312	260	A	A				
10						A	220	272	296	A	340	356	A	376	352	332	A	A	A	A				
11						A	216	272	308	A	A	A	A	A	A	A	A	A	A	A				
12						A	232	284	316	332	344	A	A	A	356	332	304	252	A	A				
13						A	224	272	316	340	356	A	A	A	A	A	A	A	A	B				
14						B	204	280	316	340	A	A	A	A	A	A	A	A	A	A				
15						A	A	A	304	A	A	A	A	A	A	360	308	256	180	A				
16						B	A	A	A	A	A	A	A	368	364	336	308	284	A	A				
17						A	220	280	304	324	340	A	A	A	A	A	308	248	A	A				
18						B	236	A	320	348	352	372	A	352	360	336	312	260	A	A				
19						A	A	A	U A 324	336	336	348	A	A	A	A	A	A	B	A				
20						B	208	280	320	336	348	360	364	364	352	328	288	224	A	A				
21						A	A	A	A	U A 324	A	336	340	320	A	A	292	248	A	B				
22						B	208	276	300	A	344	348	360	344	A	A	A	A	A	A				
23						B	200	272	312	328	336	352	A	A	A	328	304	264	A	B				
24						B	A	264	308	328	A	356	360	A	A	320	288	236	A	A				
25						B	A	256	A	344	A	A	A	352	340	324	A	A	A	A				
26						B	228	260	A	A	A	372	384	360	352	328	296	A	A	A				
27						B	A	A	324	A	A	A	B	A	A	A	A	A	A	B				
28						B	A	240	276	336	A	U G 368	372	364	352	336	296	244	A	A				
29						A	A	268	288	308	A	A	A	A	A	A	A	A	A	B				
30						B	212	284	312	328	A	A	A	376	B	332	284	220	A	A				
31						B	224	284	316	U R 348	A	A	B	372	A	A	C	A	A	B				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							19	22	23	20	15	14	11	16	13	19	19	19	1					
MED							220	272	316	336	344	362	368	364	352	332	308	256	180					
U Q							228	280	320	344	352	372	380	374	358	340	308	264						
L Q							208	264	304	328	340	352	360	352	352	328	296	244						

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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 65	J A 108	J A 52	J A 53	J A 54	 18	 29	J A 53	J A 73	J A 56	J A 110	J A 89	J A 126	J A 45	 44	J A 60	J A 64	J A 80	J A 78	J A 53	J A 46	J A 26	J A 38	J A 48
2	J A 66	J A 62	J A 53	J A 35	J A 46	J A 27	J A 64	J A 53	J A 78	J A 167	J A 128	J A 223	J A 74	J A 61	J A 54	J A 77	J A 62	J A 110	J A 100	J A 105	J A 64	J A 189	J A 67	J A 77
3	J A 78	J A 53	J A 65	J A 34	J A 28	J A 38	J A 65	J A 71	J A 90	J A 56	J A 67	J A 84	J A 119	J A 109	J A 52	G	J A 149	J A 94	J A 88	J A 52	J A 64	J A 50	J A 30	J A 77
4	J A 127	J A 143	J A 32	J A 62	J A 64	J A 32	J A 119	J A 76	J A 79	J A 148	J A 208	J A 254	J A 153	J A 168	J A 57	J A 81	J A 58	J A 69	J A 59	J A 20	J A 22	J A 158	J A 104	J A 53
5	J A 41	J A 30	 20	J A 19	E B 16	E B 16	J A 29	J A 49	J A 77	J A 49	J A 58	J A 86	J A 59	J A 51	J A 71	J A 65	J A 58	G 24	J A 26	J A 26	J A 20	J A 26	J A 37	J A 59
6	J A 87	J A 109	J A 60	J A 45	J A 48	J A 56	J A 48	 34	J A 116	J A 64	J A 169	J A 80	J A 90	J A 64	J A 59	J A 48	J A 58	J A 47	J A 30	J A 16	J A 52	J A 32	J A 46	J A 35
7	J A 28	J A 26	J A 22	E B 16	E B 16	J A 24	J A 30	J A 32	J A 54	 42	 43	G	J A 63	J A 88	J A 74	 45	J A 63	J A 61	J A 73	J A 65	J A 62	J A 41	J A 80	J A 67
8	J A 64	J A 34	J A 81	J A 32	J A 28	J A 35	J A 44	J A 47	J A 42	 41	 G	 G	 47	J A 71	J A 64	J A 48	J A 64	J A 53	 24	J A 21	 19	J A 28	J A 83	J A 77
9	J A 76	J A 66	J A 100	J A 87	J A 36	 25	J A 50	J A 47	 38	J A 82	J A 75	J A 72	J A 70	J A 70	J A 82	J A 85	J A 85	J A 139	J A 39	J A 32	J A 54	J A 32	J A 54	J A 99
10	J A 50	J A 53	J A 34	J A 59	J A 58	J A 93	J A 48	J A 42	J A 70	J A 72	J A 70	 42	J A 59	 41	J A 53	J A 51	J A 79	J A 78	J A 50	J A 26	J A 54	J A 45	J A 44	J A 53
11	J A 33	J A 35	J A 62	J A 57	J A 52	J A 24	J A 47	J A 109	J A 150	J A 162	J A 228	J A 180	J A 66	J A 110	J A 47	J A 67	J A 105	J A 53	J A 62	J A 72	J A 98	J A 78	J A 26	J A 53
12	J A 36	J A 44	J A 44	J A 33	J A 51	J A 112	J A 47	J A 54	J A 54	J A 150	J A 101	J A 79	J A 55	J A 50	 G	J A 67	J A 71	J A 62	J A 143	J A 54	J A 94	J A 66	J A 61	J A 52
13	J A 32	J A 33	J A 28	J A 31	J A 154	 20	J A 54	J A 65	J A 54	J A 53	J A 54	J A 95	J A 82	J A 133	J A 49	J A 63	J A 54	J A 66	 29	 20	J A 29	J A 32	J A 52	J A 26
14	J A 38	J A 17	J A 19	J A 19	E B 16	E B 16	J A 53	J A 86	J A 61	J A 84	J A 166	J A 129	J A 136	J A 80	J A 58	J A 50	J A 55	J A 56	J A 55	J A 47	J A 53	J A 43	J A 83	J A 51
15	J A 33	J A 21	J A 50	J A 34	J A 20	J A 52	J A 31	J A 34	J A 72	J A 76	J A 96	J A 72	J A 108	J A 61	J A 54	J A 71	J A 136	J A 148	J A 111	J A 99	J A 74	J A 84	J A 97	J A 84
16	J A 53	J A 36	J A 33	J A 30	J A 34	E B 16	J A 33	J A 41	J A 37	J A 89	J A 40	 45	 44	J A 50	J A 50	J A 75	J A 50	J A 46	J A 62	J A 48	J A 62	J A 38	J A 53	J A 44
17	J A 114	J A 63	J A 42	J A 52	J A 36	J A 28	J A 34	J A 42	J A 100	J A 74	J A 94	J A 76	J A 78	J A 54	J A 80	J A 53	J A 83	J A 78	J A 56	J A 50	J A 28	J A 26	J A 53	J A 32
18	J A 46	J A 72	J A 36	J A 34	J A 61	J A 22	J A 58	 32	J A 55	J A 55	J A 50	 46	J A 62	 39	 G	 G	 40	J A 44	J A 32	J A 35	J A 38	J A 62	J A 84	J A 38
19	J A 51	J A 26	J A 27	J A 22	J A 18	J A 24	J A 33	J A 36	J A 46	J A 70	J A 108	J A 82	J A 103	J A 129	J A 89	J A 70	J A 63	J A 48	J A 49	J A 36	J A 26	J A 20	J A 23	J A 25
20	J A 22	 20	J A 16	J A 34	E B 26	E B 16	 26	 38	J A 55	 40	J A 56	J A 52	J A 50	 46	 42	 43	J A 62	J A 106	J A 24	J A 26	J A 49	J A 74	J A 53	J A 58
21	J A 53	J A 42	J A 21	J A 33	J A 28	J A 20	J A 38	J A 53	J A 48	 39	 41	 38	 40	 40	J A 53	J A 63	 36	J A 63	J A 32	J A 29	J A 25	J A 24	J A 52	J A 24
22	J A 63	J A 58	J A 41	J A 21	J A 28	E B 16	 32	J A 124	J A 146	J A 111	 42	J A 101	J A 166	 39	 44	J A 57	J A 85	J A 64	J A 70	J A 110	J A 62	J A 46	J A 26	J A 88
23	J A 86	J A 29	J A 20	J A 64	J A 31	J A 25	J A 51	J A 52	J A 55	J A 52	J A 60	J A 70	J A 67	J A 77	J A 68	 36	 32	J A 25	J A 25	J A 31	J A 20	J A 80	J A 47	J A 34
24	J A 53	E B 16	 20	J A 52	J A 45	J A 28	J A 52	J A 38	J A 42	 36	 41	 39	 41	J A 48	J A 43	 38	 G	J A 37	J A 32	J A 68	J A 17	E B 16	J A 29	J A 31
25	J A 31	J A 19	 20	J A 15	J A 18	J A 32	J A 44	 33	 35	 G	 37	J A 44	 37	 G	 G	J A 78	J A 58	J A 48	J A 35	J A 55	J A 34	J A 44	J A 79	J A 78
26	J A 84	J A 50	J A 25	E B 16	E B 16	E B 16	 G	 32	J A 42	J A 76	 43	 43	 44	 40	 G	J A 64	J A 86	J A 128	J A 116	J A 48	J A 32	J A 34	J A 53	J A 24
27	J A 23	J A 33	J A 22	J A 22	 19	E B 16	 27	J A 31	 G	J A 52	J A 84	J A 60	E B 53	J A 62	J A 49	J A 43	J A 31	J A 28	J A 24	E B 16	J A 20	J A 41	J A 25	J A 53
28	J A 19	J A 31	J A 22	J A 32	E B 16	J A 24	J A 51	J A 39	 34	 G	 38	 G	 42	 41	 38	 40	 40	J A 35	J A 37	J A 62	J A 78	J A 52	J A 48	J A 30
29	J A 19	J A 49	J A 30	 C	J A 28	J A 26	J A 27	J A 53	J A 76	J A 88	J A 55	J A 52	J A 76	J A 67	J A 53	J A 49	J A 63	J A 34	J A 44	J A 26	J A 19	J A 43	J A 53	J A 42
30	J A 52	J A 51	J A 46	J A 52	J A 26	E B 16	 30	J A 47	J A 79	J A 69	J A 47	 50	J A 94	 G	E B 46	 42	J A 57	J A 64	J A 49	J A 36	J A 86	J A 32	J A 64	J A 38
31	J A 52	J A 30	J A 26	J A 24	J A 18	J A 23	 26	 G	 G	 G	J A 43	 41	E B 42	 G	J A 48	J A 53	 C	J A 42	J A 36	J A 32	J A 52	J A 67	J A 65	J A 85
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31
MED	J A 52	J A 36	J A 32	J A 34	J A 28	J A 24	J A 44	J A 47	J A 55	J A 64	J A 58	J A 70	J A 66	J A 54	J A 52	J A 53	J A 62	J A 61	J A 49	J A 36	J A 49	J A 43	J A 53	J A 52
U Q	J A 66	J A 58	J A 50	J A 52	J A 48	J A 32	J A 51	J A 53	J A 78	J A 84	J A 101	J A 86	J A 94	J A 77	J A 59	J A 67	J A 79	J A 78	J A 70	J A 55	J A 62	J A 66	J A 67	J A 77
L Q	J A 33	J A 29	J A 22	J A 22	E B 18	E B 16	 30	 34	 42	 42	 43	 43	 47	 41	 44	 43	 54	J A 44	J A 32	J A 26	J A 25	J A 32	J A 38	J A 34

AUG.2022 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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	28	30	E B 16	23	17	28	44	48	43	50	A A 89	53	41	44	53	42	54	44	E B 16	31	E B 16	28	32
2	36	32	28	E B 16	E B 16	21	44	38	71	57	A A 128	A A 223	49	57	46	42	54	30	24	42	E B 16	E B 16	17	43
3	34	34	22	19	E B 16	22	40	52	49	47	41	48	49	48	41	G	35	45	32	30	21	E B 16	20	A A 77
4	22	21	E B 21	E B 16	19	E B 16	A A 119	55	49	A A 148	48	54	A A 153	51	40	43	36	37	21	E B 16	E B 16	A A 158	A A 104	E B 16
5	21	E B 16	E B 16	E B 16	E B 16	E B 16	26	37	53	40	49	A A 86	51	50	43	42	45	G 21	20	E B 16	E B 16	E B 16	E B 16	30
6	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	29	32	36	46	57	A A 80	60	54	53	38	42	30	21	E B 16	27	21	22	20
7	E B 16	E B 16	E B 16	E B 16	E B 16	19	25	30	36	42	43	G	44	A A 88	57	39	47	58	49	32	21	E B 16	A A 80	30
8	E B 16	20	A A 81	E B 16	E B 16	19	41	40	36	38	G	G	47	A A 71	A A 64	46	34	29	21	E B 16	19	21	E B 16	E B 16
9	E B 16	40	32	A A 87	E B 16	21	44	40	35	A A 82	A A 75	58	48	48	59	A A 85	67	49	31	22	21	22	E B 16	25
10	E B 16	24	26	43	E B 16	21	43	32	A A 70	A A 72	A A 70	40	A A 59	39	52	49	45	A A 78	48	22	E B 16	E B 16	24	22
11	E B 16	20	19	18	E B 16	20	42	A A 109	A A 150	A A 162	A A 228	A A 180	49	A A 110	45	52	50	40	42	36	23	20	19	26
12	29	26	20	22	E B 16	23	32	46	46	A A 150	44	54	42	48	G	42	35	50	43	26	48	28	26	26
13	19	E B 16	E B 16	E B 16	E B 16	17	53	46	46	48	48	66	A A 82	A A 133	44	53	44	32	28	E B 16	E B 16	E B 16	E B 16	E B 16
14	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	47	A A 86	51	A A 84	A A 166	52	58	41	46	43	50	45	29	41	E B 16	E B 16	35	E B 16
15	E B 16	E B 16	E B 16	20	E B 16	20	24	32	40	65	51	44	A A 108	50	43	52	A A 136	53	31	45	E B 16	E B 16	33	E B 16
16	21	27	E B 16	E B 16	E B 16	E B 16	24	33	36	A A 89	34	40	44	42	43	38	34	42	46	21	35	E B 16	E B 16	20
17	A A 114	24	E B 16	31	E B 16	19	32	39	46	54	60	45	46	49	60	49	77	74	45	34	20	20	21	21
18	E B 16	E B 16	E B 16	24	E B 16	E B 16	G 16	32	46	44	44	46	42	38	G	G	36	41	29	20	32	29	18	E B 16
19	E B 16	17	E B 16	E B 16	E B 16	20	24	33	37	61	54	44	A A 103	50	A A 89	50	43	34	E B 16	24	E B 16	E B 16	E B 16	E B 16
20	E B 16	E B 16	E B 16	20	E B 16	E B 16	25	38	50	36	50	50	47	44	40	42	34	34	20	20	E B 16	E B 16	31	20
21	E B 16	21	E B 16	22	18	18	27	34	36	39	40	37	39	37	43	36	36	37	21	E B 16	E B 16	E B 16	23	E B 16
22	A A 63	18	E B 16	E B 16	E B 16	E B 16	29	A A 124	A A 146	51	37	A A 101	45	39	43	51	35	28	32	48	34	34	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	35	42	46	49	A A 60	52	53	50	43	35	32	G 20	20	E B 16	E B 16	E B 16	E B 16	E B 16
24	E B 16	E B 16	E B 16	28	E B 16	E B 16	30	29	36	35	41	38	40	40	40	34	G	34	29	44	E B 16	E B 16	E B 16	E B 16
25	20	E B 16	E B 16	E B 16	E B 16	E B 16	24	29	34	G	36	37	37	G	G	G 28	30	30	28	38	21	E B 16	29	E B 16
26	24	31	E B 16	E B 16	E B 16	E B 16	G	31	37	37	42	42	43	40	G	43	49	32	21	21	21	25	E B 16	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	30	G	40	42	56	E B 53	59	47	42	29	27	21	E B 16	E B 16	E B 16	E B 16	E B 16
28	E B 16	E B 16	18	E B 16	E B 16	E B 16	46	34	33	G	37	G	42	41	38	38	38	33	30	29	20	E B 16	E B 16	24
29	E B 16	E B 16	21	C	25	21	24	44	A A 76	44	45	50	57	59	41	46	36	28	28	E B 16	E B 16	E B 16	23	E B 16
30	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	40	51	46	40	46	53	G	E B 46	40	53	47	43	34	39	E B 16	26	E B 16
31	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	G	G	G	38	40	E B 42	G	40	36	C	36	26	E B 16	20	E B 16	25	29
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	30	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	29	38	46	46	45	48	48	48	43	42	40	36	29	22	20	E B 16	20	E B 16
U Q	21	24	21	20	16	20	42	44	51	A A 65	A A 57	A A 58	A A 57	54	47	49	49	47	42	34	23	21	26	26
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	32	36	39	40	40	43	40	40	38	35	30	21	E B 16	E B 16	E B 16	E B 16	E B 16

AUG.2022 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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	15	16	16	23	28	28	21	34	25	23	20	18	16	16	16	16	16	16	16
2	16	16	16	16	16	16	14	16	20	17	29	28	20	25	26	18	18	15	16	16	16	16	16	16
3	16	16	16	16	16	16	14	16	17	19	21	23	22	24	19	20	19	16	16	16	16	16	16	16
4	16	16	21	16	16	16	16	16	16	18	21	22	18	26	28	21	20	16	14	16	16	16	16	16
5	16	16	16	16	16	16	15	14	14	18	22	26	23	22	18	18	17	16	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	20	21	20	25	30	22	19	17	15	15	16	16	16	16	16
7	16	16	16	16	16	16	16	16	16	19	21	26	28	22	17	17	18	14	16	16	16	16	16	16
8	16	16	16	16	16	16	16	16	19	22	24	25	22	26	19	20	16	17	16	16	16	16	16	16
9	16	16	16	16	16	16	15	16	16	17	21	22	27	22	22	18	16	16	12	16	16	16	16	16
10	16	16	16	16	16	16	16	14	20	22	30	24	22	24	26	22	16	14	15	16	16	16	16	16
11	16	16	16	16	16	16	14	16	14	18	20	21	21	23	20	20	16	16	16	16	16	16	16	16
12	16	16	16	16	16	16	16	16	17	19	26	29	31	27	27	19	17	15	16	16	16	16	16	16
13	16	16	16	16	16	16	16	16	16	20	21	24	32	27	29	22	19	16	16	16	16	16	16	16
14	16	16	16	16	16	16	16	16	18	20	25	32	32	29	25	24	18	16	18	16	16	16	16	16
15	16	16	16	16	16	16	16	17	17	19	22	20	26	24	28	21	16	15	16	16	16	16	16	16
16	16	16	16	16	16	16	16	15	17	20	18	21	28	23	26	22	19	22	16	16	16	16	16	16
17	16	16	16	16	16	16	16	18	18	20	22	35	38	25	28	26	19	16	15	16	16	16	16	16
18	16	16	16	16	16	16	16	17	17	25	24	24	24	23	22	18	18	16	16	16	16	16	16	16
19	16	16	16	16	16	16	16	17	20	22	21	22	27	22	32	24	18	16	16	16	16	16	16	16
20	16	16	16	16	16	16	16	15	17	17	20	24	27	23	21	20	17	16	16	16	16	16	16	16
21	16	16	16	16	16	16	16	13	16	16	18	25	26	19	27	18	16	15	16	16	16	16	16	16
22	16	16	16	16	16	16	16	17	18	19	22	24	26	26	27	18	18	16	16	16	16	16	16	16
23	16	16	16	16	16	16	16	15	16	20	24	28	20	26	22	22	17	16	16	16	16	16	16	16
24	16	16	16	16	16	16	16	16	20	20	22	22	24	25	23	20	20	17	16	16	16	16	16	16
25	16	16	16	16	16	16	16	16	16	19	21	22	23	25	25	17	19	16	16	16	16	16	16	16
26	16	16	16	16	16	16	16	17	18	22	28	26	29	25	22	25	20	16	16	16	16	16	16	16
27	16	16	16	16	16	16	16	16	19	22	23	28	53	30	27	20	18	16	16	16	16	16	16	16
28	16	16	16	16	16	16	16	16	16	19	27	32	25	24	24	24	20	16	16	16	16	16	16	16
29	16	16	16	C	16	16	16	16	21	25	25	32	27	30	25	20	16	12	16	16	16	16	16	16
30	16	16	16	16	16	16	16	18	20	22	26	33	30	24	46	20	16	16	16	16	16	16	16	16
31	16	16	16	16	16	16	16	16	21	22	24	25	42	24	25	26	C	16	14	16	16	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	16	17	20	22	24	26	25	25	20	18	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	20	22	25	28	30	26	27	22	19	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	19	21	22	23	23	22	18	16	15	16	16	16	16	16	16

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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 311	F 291	F 279	F 307	F 314	F 336	357	322	337	337	286	A	313	317	277	319	310	311	287	301	344	341	F 281	F 305
2	F 299	F 283	284	302	290	318	333	317	A	364	A	A	294	313	306	309	315	299	297	302	322	F 316	F 306	F
3	315	309	283	F 273	F 293	F 324	337	321	335	341	300	315	312	309	284	317	302	312	307	308	324	305	F 295	A
4	F	F	F	F 290	F 303	F 340	A	300	329	A	275	312	A	307	307	319	316	306	322	302	317	A	A	F 281
5	F 274	F 268	283	293	298	301	322	308	318	349	314	A	332	274	296	309	326	322	329	298	310	287	F 284	F 268
6	F 285	298	300	302	306	325	356	364	334	339	324	A	292	288	303	293	320	312	325	301	300	294	317	293
7	283	289	295	310	306	335	353	354	359	H 327	303	325	307	A	320	298	293	298	268	308	318	R 355	A	274
8	272	F 295	A	272	251	F 264	289	311	293	G	256	G	272	A	A	279	276	276	295	299	307	298	271	263
9	289	276	305	A	274	256	289	310	G	A	A	291	300	284	304	A	320	312	304	292	278	296	274	277
10	271	278	297	287	283	289	292	284	A	A	A	G	A	262	289	288	299	A	303	291	306	298	F 283	F 276
11	283	283	304	287	276	312	331	A	A	A	A	A	303	A	299	314	312	301	309	313	288	305	290	294
12	279	287	282	289	298	311	347	325	318	A	317	269	303	302	313	294	309	312	306	325	277	295	291	289
13	277	295	309	299	281	290	329	346	377	332	294	299	A	A	310	312	321	303	304	307	322	269	F 280	287
14	298	303	309	275	281	282	319	A	301	A	A	305	289	307	320	310	321	321	325	306	310	279	282	284
15	288	280	287	288	301	297	318	326	345	339	313	302	A	296	299	314	A	313	315	285	303	305	F 285	287
16	291	F 276	F 269	281	280	302	342	306	343	A	340	314	299	308	304	315	313	313	305	309	322	288	287	F 262
17	A	F 292	F 320	F 324	F 289	F 299	335	344	348	349	308	308	289	314	304	299	292	298	302	313	329	292	278	273
18	293	268	F 280	F	269	299	355	311	321	300	353	314	335	297	308	301	304	299	306	307	315	285	290	272
19	268	264	280	262	295	340	332	329	307	320	326	319	A	327	A	304	311	309	309	320	300	300	289	288
20	304	288	301	333	287	272	301	333	354	295	284	328	296	299	305	308	310	298	309	303	305	298	299	304
21	F 298	F 292	F 315	F 363	315	331	344	340	351	350	311	326	301	275	292	314	313	305	301	325	336	316	294	310
22	A	F	F 294	285	304	307	367	A	A	365	334	A	298	297	313	303	320	317	302	312	302	307	287	311
23	F	F	F 320	F 306	F 303	F 334	356	356	V 357	390	A	308	304	320	317	302	301	310	327	333	340	311	289	F 288
24	F 304	F 299	F 289	F 299	320	330	354	374	353	332	327	348	332	297	318	301	306	302	313	333	361	297	291	290
25	300	298	292	295	297	301	347	357	331	382	362	321	335	309	329	336	321	328	299	303	332	327	F	F
26	F	F 305	325	295	314	328	327	354	364	385	345	315	324	307	311	314	322	298	296	336	363	325	288	292
27	279	287	293	293	291	305	340	356	351	352	358	322	298	309	309	315	302	308	295	323	338	303	287	279
28	284	279	297	332	312	310	315	334	379	H 304	322	339	293	303	307	323	329	304	316	314	329	308	294	288
29	299	293	305	C	315	333	350	373	A	366	350	327	325	320	301	327	323	320	311	327	323	302	F 275	F
30	F	F 290	F 308	320	313	305	347	360	371	336	327	310	315	307	309	291	294	315	327	321	320	294	F 283	F
31	F	F 286	F 291	F 321	F 343	325	377	361	370	352	341	333	329	332	302	308	C	321	322	311	304	319	290	F 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	24	28	29	28	31	31	30	28	26	24	25	25	26	27	29	30	29	30	31	31	31	30	28	26
MED	288	288	295	295	298	310	338	334	344	340	322	314	303	307	306	309	312	310	306	308	318	301	288	288
U Q	299	295	306	308	312	330	353	356	357	358	340	326	324	313	312	315	320	313	316	321	329	311	291	293
L Q	279	280	284	287	283	299	322	314	321	330	302	304	296	297	300	301	302	301	301	302	304	294	282	276

AUG.2022 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	A	A	A	A	A	396	A	A	A	A						
2							A	353	A	A	A	A	A	A	A	A	A	338	L	A				
3							A	A	A	A	395	A	A	A	354	379	L 354	A						
4							A	A	A	A	A	A	A	A	396	A	L 360	A	L					
5							L	366	A	425	A	A	A	A	372	A	A	L	L					
6							L	L 407	A	A	A	A	A	A	A	379	A	L	L					
7							L	384	395	420	H 398	390	390	A	A	396	A	A	A					
8						313	A	A	355	404	429	386	A	A	A	A	384	U L 346	L					
9						U L 306	A	A	407	A	A	A	A	A	A	A	A	A	A					
10							A	384	A	A	A	412	A	403	A	A	A	A	A					
11							A	A	A	A	A	A	A	A	A	A	A	A						
12							L	A	A	A	A	A	399	A	368	A	365	A	A					
13							A	A	A	A	A	A	A	A	344	A	A	L 363						
14								A	A	A	A	A	A	381	A	354	A	A	A					
15								376	379	A	A	362	A	A	U L 350	A	A	A	A					
16								A	375	A	399	423	390	369	361	359	351	A						
17									A	A	A	340	L 397	A	A	A	A	A	A					
18							L	359	A	A	A	A	383	383	364	383	L 350	A	A					
19								359	L 372	A	A	L 389	A	A	A	A	A	A	L					
20							L	A	A	348	A	A	A	L 397	372	A	L 353	A						
21								388	384	414	384	396	380	U L 350	365	369	365	A	L					
22								A	A	A	400	A	A	383	A	A	L 386	L 376	A					
23								A	A	A	A	A	A	A	A	359	365	366						
24								L	L 394	U L 395	414	430	L 415	U L 399	377	368	368	363	A					
25							L	L	L 394	388	409	443	429	415	379	378	L 355	U L 369						
26								L	L	399	L 432	363	408	U L 393	398	A	A		L					
27									394	408	405	A	B	A	A	A	L 364	L						
28								L	399	422	415	L 408	381	357	356	372	L 360	L						
29								A	A	A	A	A	A	A	351	A	373	L						
30								A	A	A	397	A	A	375	B	346	A	A						
31								L	393	431	383	R 383	378	359	366	L 354	C	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						2		8	13	11	13	13	11	14	16	13	15	7						
MED						310		371	394	408	400	390	390	383	366	369	L 364	L 363						
U Q								384	397	422	414	418	408	397	374	379	368	L 369						
L Q								359	377	395	396	373	381	369	355	356	L 354	346						

AUG.2022 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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							232	260	262	254	290	A	308	306	352	314	314	328						
2							E A 266	316	E A 364	234	A	A	358	314	324	318	300	316	286	E A 264				
3							258	296	268	268	340	292	318	338	376	298	326	278						
4							A	E A 362	290	A	452	316	A	322	326	302	308	268	268					
5							280	302	330	262	308	A	284	398	342	296	264	260	256					
6							234	258	260	264	300	A	382	360	322	334	288	280	254					
7							238	240	244	266	352	316	334	A	310	322	284	336	326					
8						390	326	300	380	G	528	G	464	A	A	416	410	344	298					
9						420	390	298	G	A	A	E A 406	348	398	344	A	308	280	270					
10							E A 322	360	A	A	A	G	A	490	396	384	364	A	330					
11							270	A	A	A	A	A	366	A	344	310	316	314						
12							250	292	300	A	348	438	334	330	328	366	316	296	274					
13							272	228	226	288	320	E A 360	A	A	298	290	280	306						
14								A	320	A	A	344	358	308	304	314	284	274	234					
15								272	248	E A 294	316	374	A	350	342	310	A	286	254					
16								234	256	A	274	336	340	340	326	306	308	286						
17									270	260	322	360	386	316	328	316	E A 364	E A 334	268					
18							240	306	272	252	270	294	278	336	310	326	288	274	252					
19								312	322	282	278	282	A	292	A	324	290	252	254					
20							314	260	246	358	370	292	328	310	312	290	282	250						
21								270	256	250	326	298	340	404	346	286	270	276	276					
22								A	A	248	296	A	338	320	274	296	258	254	264					
23								238	226	222	A	340	314	288	288	314	294	262						
24								228	242	264	254	274	294	326	312	330	292	284	256					
25							248	226	264	226	246	314	264	306	290	276	302	264						
26								236	230	226	272	324	304	304	326	306	302		276					
27									222	246	248	304	E B 332	324	318	298	296	260						
28								258	214	238	264	278	386	328	312	274	266	270						
29								222	A	246	266	290	274	296	314	268	270	268						
30								230	230	252	282	300	290	306	304	322	302	246						
31								232	222	234	258	292	290	286	330	300	C	250						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	15	26	27	24	25	25	26	27	29	30	29	29	18	1				
MED						405	262	260	258	252	296	310	333	322	324	310	295	275	268	E A 264				
U Q							314	300	300	267	333	360	358	340	342	322	311	301	276					
L Q							240	234	230	242	268	292	294	306	310	296	283	261	254					

AUG.2022 h'F2 (KM)

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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	236	E A 288	E A 306	218	E A 256	222	228	A	A	E A 236	A	A	A	212	E A 272	A	A	A	E A 296	250	222	206	E A 294	E A 260
2	E A 318	E A 318	E A 292	260	280	238	A	254	A	A	A	A	A	A	A	A	A	218	232	A	220	216	252	E A 308
3	E A 280	E A 292	E A 288	E A 304	268	232	A	A	A	A	200	A	A	A	230	192	230	A	274	242	238	228	242	A
4	258	E A 344	294	250	250	250	A	A	A	A	A	A	A	A	216	A	214	A	234	244	226	A	A	306
5	316	286	290	272	250	252	210	244	A	182	A	A	A	A	E A 244	E A 276	A	212	240	242	228	228	282	E A 320
6	316	262	242	252	246	220	220	204	190	A	A	A	A	A	A	204	A	236	224	240	276	258	238	226
7	274	282	270	252	236	242	194	190	182	196	192	216	206	A	A	196	A	A	A	258	234	190	A	E A 340
8	314	E A 302	A	314	344	296	A	A	222	206	188	222	A	A	A	A	226	226	232	264	238	242	280	310
9	294	E A 398	E A 304	A	296	290	A	A	184	A	A	A	A	E A 296	A	A	A	A	A	258	260	252	222	E A 262
10	308	294	228	E A 346	286	276	A	222	A	A	A	190	A	202	A	A	A	A	A	262	226	224	E A 296	E A 316
11	288	292	238	298	270	262	A	A	A	A	A	A	A	A	E A 280	A	A	A	E A 278	E A 258	288	E A 242	282	E A 286
12	E A 322	E A 306	E A 288	E A 274	242	268	A	A	A	A	E A 232	A	E A 222	A	222	E A 266	226	A	A	246	E A 346	E A 264	E A 286	290
13	292	256	248	260	288	268	A	A	A	A	E A 250	A	A	A	E A 252	A	A	210	256	238	220	250	280	250
14	246	242	248	266	278	266	E A 296	A	A	A	A	A	A	204	E A 284	E A 254	A	A	A	280	230	276	E A 288	262
15	264	272	272	286	266	268	220	206	212	A	A	212	A	A	236	A	A	A	A	E A 308	242	238	E A 308	240
16	292	E A 298	288	296	280	258	214	A	210	A	184	172	204	204	E A 224	214	220	A	E A 286	238	226	212	258	E A 322
17	A	268	214	E A 280	264	260	230	232	A	A	A	238	200	A	A	A	A	A	A	246	220	264	E A 292	E A 284
18	254	302	304	290	306	242	222	212	A	A	A	A	206	198	192	208	234	A	A	244	238	276	254	288
19	320	324	294	298	258	228	212	210	204	A	A	E A 214	A	A	A	A	A	A	226	226	218	234	260	264
20	252	246	250	218	268	276	234	A	A	188	A	A	E A 274	E A 216	226	A	E A 226	A	254	236	224	250	E A 254	268
21	274	276	238	200	220	244	230	230	208	196	210	184	204	184	E A 244	198	242	A	246	230	214	190	E A 252	246
22	A	326	274	266	248	252	218	A	A	A	178	A	E A 248	194	A	A	214	224	A	258	E A 272	E A 252	248	222
23	288	230	238	220	224	246	234	A	A	A	A	A	A	A	E A 274	216	202	208	240	212	206	220	262	304
24	248	Q 244	260	E A 280	230	218	224	204	206	194	182	178	174	206	202	216	206	E A 252	A	234	188	194	230	246
25	276	274	280	268	262	250	228	212	188	184	188	180	166	180	180	190	222	222	E A 260	E A 270	224	214	E A 252	270
26	E A 266	E A 264	222	244	246	246	212	188	220	198	202	232	206	206	188	E A 290	A	E A 232	242	228	210	204	250	264
27	284	278	282	274	260	252	218	226	206	202	206	A	B	A	A	E A 260	222	228	262	226	212	238	250	298
28	282	282	266	214	230	262	E A 300	236	200	192	192	204	218	218	218	222	E A 242	250	248	242	224	232	232	E A 260
29	250	284	260	C	E A 244	228	216	A	A	A	A	A	A	A	E A 230	A	E A 230	236	236	220	220	230	298	296
30	276	258	244	234	214	262	230	A	A	A	210	E A 236	A	200	B	268	A	A	240	202	E A 242	248	E A 300	264
31	282	280	282	228	198	246	216	206	200	176	222	200	214	224	218	226	C	A	230	222	234	220	E A 264	E A 304
	00	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	31	30	29	31	31	22	16	14	12	15	14	13	15	20	17	15	13	21	30	31	30	29	30
MED	279	273	U 260	259	258	252	220	212	205	194	196	202	205	203	U 209	207	224	224	239	240	225	230	255	268
U Q	301	E A 302	288	288	278	266	230	231	210	200	210	222	E A 220	216	E A 248	E A 263	230	236	E A 261	258	238	250	E A 287	E A 304
L Q	261	264	244	239	242	242	216	205	190	186	188	184	202	198	217	201	214	215	233	230	220	216	250	260

AUG.2022 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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						A	106	104	102	A	A	A	A	102	102	102	102	100	A	B				
2						A	A	A	A	A	100	A	100	100	98	98	102	102	A	A				
3						A	100	100	A	100	A	A	A	A	A	100	100	100	A	A				
4						B	100	100	100	100	100	A	100	A	A	A	A	A	A	B				
5						B	100	100	A	100	100	A	A	A	A	A	A	112	A	B				
6						B	A	A	102	102	A	102	102	102	102	102	102	100	A	B				
7						A	A	A	A	A	100	100	A	A	A	100	100	100	A	A				
8						A	104	102	102	A	100	100	100	100	100	100	100	104	A	B				
9						A	104	104	102	100	100	102	102	102	102	102	100	100	A	A				
10						A	100	100	100	A	100	100	A	100	100	100	A	A	A	A				
11						A	104	102	102	A	A	A	A	A	A	A	A	A	A	A				
12						A	106	102	102	100	100	A	A	A	100	100	100	100	A	A				
13						A	104	100	100	100	100	A	A	A	A	A	A	A	A	B				
14						B	106	102	100	100	A	A	A	A	A	A	A	A	A	A				
15						A	A	A	100	A	A	A	A	A	A	104	102	102	104	A				
16						B	A	A	A	A	A	A	A	102	102	102	102	102	A	A				
17						A	106	102	102	100	100	A	A	A	A	A	100	100	A	A				
18						B	114	A	102	102	102	102	A	102	102	102	102	102	A	A				
19						A	A	A	102	102	102	100	A	A	A	A	A	A	B	A				
20						B	104	100	100	100	100	100	100	100	100	100	100	100	A	A				
21						A	A	A	A	100	A	100	100	100	A	A	104	104	A	B				
22						B	110	102	102	A	102	102	102	102	A	A	A	A	A	A				
23						B	100	100	102	100	100	98	A	A	A	100	100	108	A	B				
24						B	A	100	100	102	A	102	102	A	A	102	102	102	A	A				
25						B	A	100	A	100	A	A	A	100	100	100	A	A	A	A				
26						B	106	102	A	A	A	102	102	102	102	102	102	A	A	A				
27						B	A	A	102	A	A	A	B		A	A	A	A	A	B				
28						B	A	100	102	102	A	100	100	100	100	104	104	102	A	A				
29						A	A	102	102	102	A	A	A	A	A	A	A	A	A	B				
30						B	104	102	102	102	A	A	A	100	B	100	100	104	A	A				
31						B	104	102	102	102	A	A	B	100	A	A	C	A	A	B				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							19	22	23	20	15	14	11	16	13	19	19	19	1					
MED							104	102	102	100	100	100	100	100	100	100	102	102	104					
U Q							106	102	102	102	100	102	102	102	102	102	102	104						
L Q							100	100	100	100	100	100	100	100	100	100	100	100						

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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	98	98	96	92	92	126	114	104	100	100	100	96	98	104	122	110	110	102	102	106	102	98	100	98
2	94	94	92	92	92	108	104	100	102	100	96	94	108	108	114	108	108	108	104	100	96	98	98	92
3	90	86	86	86	90	100	96	98	96	94	92	92	94	94	94	G	104	104	104	100	98	96	96	98
4	96	96	94	94	94	102	104	104	104	100	124	128	96	96	96	98	102	106	102	100	96	100	96	96
5	92	92	92	100	B	B	100	100	96	102	98	96	96	96	96	96	92	92	88	88	96	96	102	102
6	116	108	134	100	96	96	96	118	106	108	98	104	104	104	106	110	104	102	110	92	88	92	90	86
7	88	88	86	B	B	96	96	96	96	162	106	G	106	96	96	130	112	102	96	96	88	88	88	90
8	90	102	104	108	108	118	108	100	110	102	G	G	114	104	108	110	108	112	108	100	88	94	114	114
9	94	94	94	96	100	116	112	112	118	108	106	106	108	108	110	106	108	104	102	98	102	88	100	100
10	98	98	114	106	104	116	106	104	102	100	100	102	102	130	118	116	98	94	106	100	100	98	98	98
11	98	96	96	90	88	108	110	106	100	94	92	92	94	90	94	90	94	90	90	90	102	106	88	88
12	90	92	92	94	108	108	108	104	102	100	100	96	98	98	G	120	116	110	104	100	100	102	98	94
13	94	96	96	96	96	108	108	102	102	100	98	96	96	98	94	92	96	94	94	94	98	86	98	90
14	94	90	88	94	B	B	108	104	102	96	108	100	108	106	100	94	114	106	102	98	98	98	96	96
15	96	98	90	86	90	104	104	100	98	96	94	94	90	94	128	112	112	112	106	102	102	102	102	96
16	92	92	92	82	82	B	106	102	98	92	94	92	166	112	112	108	114	108	102	100	98	98	98	96
17	94	94	90	90	96	96	106	106	106	102	102	102	102	106	100	100	104	100	100	100	96	96	92	94
18	88	100	102	96	96	100	90	146	112	112	100	120	100	138	G	G	128	106	108	106	102	102	102	98
19	98	98	110	114	110	110	104	106	102	100	100	100	96	104	104	108	98	94	90	90	88	86	96	96
20	96	106	104	94	102	B	150	118	108	110	102	108	108	114	174	110	104	100	104	96	96	96	92	92
21	92	86	84	94	96	126	104	116	110	178	162	114	108	104	104	110	198	106	106	90	100	94	96	102
22	98	98	98	104	122	B	112	104	102	102	108	104	104	106	102	98	98	96	92	88	88	88	86	100
23	118	106	136	102	86	132	118	114	108	108	100	102	96	100	106	118	142	88	86	86	86	100	126	98
24	94	B	94	94	94	102	100	104	102	142	158	162	156	102	102	112	G	108	102	98	88	B	84	86
25	86	86	86	98	100	94	94	110	102	G	98	98	98	G	G	122	96	94	92	90	86	90	96	96
26	96	92	92	B	B	B	G	100	96	94	156	134	136	180	G	108	106	104	118	98	94	98	98	106
27	96	90	86	86	86	B	122	102	G	102	96	92	B	90	90	92	92	90	104	B	102	98	96	96
28	86	96	94	92	B	106	98	102	110	G	98	G	154	156	134	114	110	106	100	96	112	96	102	84
29	82	94	92	C	94	94	98	98	98	118	96	96	92	92	92	90	90	88	104	100	90	114	104	100
30	106	106	94	100	102	B	112	104	100	102	102	96	96	G	B	138	108	104	102	98	98	124	100	94
31	100	98	90	92	92	92	180	G	G	G	92	162	B	G	112	112	C	104	100	100	100	100	100	98
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	28	26	23	30	30	29	28	30	28	29	28	26	29	29	31	31	30	31	30	31	31
MED	94	96	94	94	96	106	106	104	102	102	100	100	102	104	104	110	106	104	102	98	98	98	98	96
U Q	98	98	98	100	102	116	112	106	107	108	106	107	108	108	112	113	112	106	104	100	100	100	100	98
L Q	90	92	90	92	92	96	100	100	99	100	96	96	96	96	96	98	98	94	96	92	88	94	96	92

AUG.2022 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG.2022 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	F3	F6	F5	F3	F5	C1	C2	C4	C2	C2	C2	L3	L2	C1	C1	C2	C2	C2	C3	C3	F6	F4	F3	F6
2	F6	F6	F3	F3	F2	C2	C3	C2	C4	C2	L4	L3	C2	C2	C2	C2	C2	C2	C2	C3	F8	F3	F3	F4
3	FQ41	F5	F3	F2	F1	C3	L4	L4	L3	L2	LH11	L2	L2	L2	L2		C2	C3	C3	C6	F3	F3	F4	F7
4	F3	FQ31	F4	FQ21	FQ31	C1	C5	C4	C3	C4	CL22	CL22	L3	L3	L2	L2	C2	C2	C2	C1	F2	F3	FQ41	FQ21
5	FQ31	F2	F1	F1			C2	C2	L4	C2	L3	L3	L2	L1	L1	L3	L2	L2	LC21	L2	F2	F3	F2	F5
6	FF14	F2	F1	F2	F4	L3	L3	C1	C2	C2	L2	C3	C3	C2	C2	C1	C2	C3	C1	L2	F4	F3	F4	F3
7	F2	F2	F1			L1	L2	L1	L2	HL11	C1		C1	L3	L3	H1	C2	C4	L4	L3	F3	F3	F4	F2
8	F3	F4	F4	F4	F2	C4	C3	C2	C2	C1			C1	C2	C2	C2	C1	C1	C1	C2	F3	F4	FF22	FF23
9	F3	F4	F3	F4	F3	C4	C2	C2	C1	C2	C2	C2	C2	C2	C2	C3	C4	C4	C3	L5	F3	F3	F3	FF34
10	F4	F4	F4	F5	F3	C4	C4	C2	C3	C2	C2	C1	C2	H1	C1	C3	LC22	L3	CL33	C7	F4	F3	F4	F3
11	F2	FQ21	FQ41	FQ31	F3	CL11	C4	C4	C3	L3	L4	L3	L2	L4	L2	L3	L2	L3	L4	L4	FF24	FF33	F3	F3
12	F3	F4	F4	F3	F3	C3	C3	C3	C2	C3	C3	L2	L1	L1		C2	C1	C3	C4	C6	F5	F5	F2	F3
13	F2	F2	F2	F2	F3	C1	C4	C3	C2	C2	C2	L2	L3	L3	L2	L3	L2	L1	L2	L1	F2	F3	FF23	F2
14	F3	F2	F1	F1			C4	C4	C3	L3	CL13	L2	CL22	C2	CL22	L2	CL31	CL32	C4	L4	F3	F3	F3	F3
15	F1	F1	F2	F2	F1	C3	C2	C2	L2	L3	L3	L1	L3	L2	CL12	C3	C3	C4	C5	C5	F3	F3	F4	F2
16	FF23	FF62	F4	F3	F2		C1	C2	L1	L3	L1	L1	HL11	C1	C1	C1	C1	C1	C4	C6	F4	F2	F2	F4
17	F5	F3	F3	F5	F3	L3	C2	C2	C2	C2	C3	C2	C2	C2	C2	C2	C2	C4	C4	C4	F3	F4	F4	F2
18	F2	F2	F2	F6	F3	C3	L1	HC12	C2	C2	C2	C1	C1	H1			C2	C3	C3	C6	F7	F7	F3	F4
19	F6	F6	F2	F3	F2	C4	C2	C2	C1	C2	C3	C1	L2	CL22	CL22	CL22	L2	L3	L3	L8	F3	F2	F2	F2
20	F2	F1	F1	F4	F2		H1	C2	C2	C1	C2	C1	C2	C1	H1	C1	C2	C3	C2	L3	F3	F3	F4	F2
21	F3	F4	F2	F3	F4	C3	C2	FL22	C1	HC11	HC11	C1	C1	C1	C1	C1	HC11	C2	C1	L1	F1	F1	F3	F3
22	F6	F5	F3	F2	F1		C3	C3	C3	C2	C1	C3	C3	C1	C2	L3	L2	L2	L4	L3	F3	F2	F2	F2
23	FF12	F2	FF11	F3	F3	HL11	C2	C2	C2	C1	C2	C3	L2	C2	C2	CL11	HL11	L1	L2	L3	F2	FQ31	F1	F5
24	F3		F1	F5	F5	C3	C2	C1	C2	H1	HL11	H1	H1	C1	C2	C1		C3	C3	L4	F1		F2	F2
25	F2	F2	F1	F2	F1	L3	L2	C1	C1		L1	L1	L1			CL11	L2	L2	L3	L5	F4	F3	F3	FF22
26	F4	F5	F3					C1	L2	L2	H1	H1	H1	H1		C1	C2	C2	CL12	L3	F3	FF32	F3	F2
27	F1	F3	F2	F1	F1		CL11	C1		C2	L1	L2		L2	L2	L2	L1	L2	C2		F1	FF23	F2	F2
28	F2	F2	F3	F3		C1	L3	C3	C1		L1		H1	H1	H1	H1	C1	C2	C5	L6	FF13	FQ31	F2	F2
29	F2	F2	F5		F3	L4	L2	L2	L3	CL12	L2	L2	L2	L2	L2	L3	L2	L3	CL33	CL11	F2	F1	F3	FQ21
30	FQ21	F2	F3	F2	F2		C1	C2	C3	C2	C1	L1	L2			H1	C3	C3	C4	L8	F6	F1	F3	F2
31	F1	F1	F2	F2	F1	L2	H1				L1	HL11			C1	C1		C2	C3	C1	F4	F3	F2	F2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

AUG.2022 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 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	72	83	78	87	79	64															X 100	X 70	X 59	69
2	71	68	70	X 64	54																X 86	X 83	X 70	A
3	72	80	68	70	54																X 84	X 72	X 63	X 60
4	63	70	70	60	X 55																X 79	X 71	X 61	X 58
5	X 62	X 60	X 58	X 58	X 59																X 73	X 76	X 69	X 65
6	X 60	70	66	X 58	X 57																X 84	X 76	X 64	66
7	68	69	69	X 64	X 61																X 115	X 86	X 71	X 64
8	X 63	X 60	X 58	X 57	X 54																X 76	X 67	X 62	X 59
9	X 58	X 58	X 56	X 53	X 43																X 84	X 79	X 83	X 77
10	X 73	X 75	X 81	X 70	X 54																X 77	X 64	X 58	X 56
11	X 55	X 57	X 60	X 58	X 54																X 79	X 69	X 62	X 63
12	X 65	X 64	72	X 64	68	58															X 67	X 71	X 68	X 70
13	X 68	X 72	X 72	X 60	X 59																X 90	X 71	X 72	X 72
14	X 70	X 66	X 64	X 63	X 61																X 80	X 66	70	72
15	X 64	X 59	X 60	X 56	X 55																X 95	X 96	X 65	X 61
16	67	70	X 59	X 58	X 58																X 82	X 70	X 64	X 68
17	X 63	X 59	X 58	X 54	X 53																X 95	X 82	X 73	X 72
18	X 70	X 64	X 62	X 59	X 58																X 95	X 70	X 66	X 70
19	X 68	X 68	X 64	X 62	X 69																X 88	X 84	X 72	X 68
20	X 69	X 69	X 70	X 66	X 50																X 88	X 77	X 68	X 70
21	X 67	X 67	X 74	X 58	X 39																X 94	X 65	X 62	X 62
22	X 59	X 56	X 55	X 52	X 55																X 93	X 73	X 67	X 63
23	X 62	X 61	X 57	X 54	X 47																X 81	X 72	X 62	X 61
24	X 59	X 59	X 58	X 58	X 56																X 98	X 63	X 58	X 59
25	X 60	X 63	X 63	X 61	X 60																X 81	X 77	X 67	X 59
26	62	X 67	X 69	72	65	58															X 99	X 64	60	X 58
27	X 58	X 57	X 56	X 55	X 52																X 98	X 75	X 70	X 72
28	X 69	X 68	X 70	X 73	X 51																X 89	X 72	X 60	X 64
29	X 64	X 62	X 62	X 58	X 60																X 85	X 65	X 64	X 62
30	X 60	X 58	X 57	X 53	X 50																X 108	X 64	X 64	X 66
31	X 67	X 67	X 65	X 63	X 59																X 80	X 74	X 61	X 59
	00	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	3															31	31	31	30
MED	X 64	X 66	X 64	X 59	X 55	58															X 86	X 72	X 64	X 64
U Q	X 69	69	X 70	X 64	X 60	64															X 95	X 77	X 70	X 70
L Q	X 60	X 59	X 58	X 57	X 53	58															X 80	X 67	X 62	X 60

AUG.2022 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 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 61	F	F	F 62	F	F 53	54	68	85	68	65	64	73	75	65	68	72	68	68	82	94	64	53	F 52
2	F	F 56	F 56	58	F 45	46	48	53	80	76	66	65	67	75	77	A	A	78	A	A	80	77	64	A
3	F	F	F	F 50	F 43	38	47	63	66	72	68	A	65	63	69	75	73	76	83	81	78	66	57	54
4	F 54	F 52	F 53	F 52	49	42	51	64	A	64	A	74	A	A	A	80	A	A	71	67	73	65	55	52
5	56	54	52	52	53	48	48	62	59	66	71	68	70	70	70	83	89	78	68	66	67	70	63	59
6	54	F 54	F 47	52	51	51	50	62	A	66	69	67	62	73	74	80	79	79	79	77	78	70	58	F 56
7	F 60	F 58	F 59	58	55	52	59	63	63	65	66	61	63	67	75	72	76	84	92	106	109	80	65	58
8	57	54	52	51	48	48	54	A	47	48	54	55	62	A	54	61	59	60	72	73	70	61	56	53
9	52	52	50	47	37	38	44	A	50	A	A	61	65	A	A	70	77	84	A	92	78	73	77	71
10	67	71	75	64	48	46	52	A	A	A	A	A	55	59	59	61	64	62	65	A	71	58	52	50
11	49	51	54	52	48	41	53	64	58	55	57	69	72	70	71	79	81	77	70	70	73	63	56	57
12	59	58	F 60	58	F 57	F 50	63	64	66	68	55	66	90	90	79	70	78	80	88	81	61	65	62	64
13	62	66	66	54	53	52	71	76	73	66	68	72	66	74	80	83	82	73	76	84	84	65	66	66
14	64	60	58	57	55	54	59	78	80	71	76	78	83	88	82	84	84	78	70	72	74	60	F 58	F 62
15	58	53	54	50	49	49	52	71	82	68	68	68	68	72	72	75	74	76	68	79	89	90	59	55
16	F	F 58	53	52	52	50	53	69	85	85	65	70	70	75	77	75	77	81	74	81	76	64	58	62
17	57	53	52	48	47	47	57	71	72	77	70	A	A	79	76	78	84	84	88	95	89	76	67	66
18	64	58	56	53	52	52	59	54	65	76	64	76	72	76	84	79	84	84	86	95	89	64	60	64
19	62	62	58	56	63	66	56	65	76	82	83	85	79	78	86	84	80	93	94	100	82	78	66	62
20	63	63	64	60	44	38	44	76	78	66	73	A	77	81	80	86	92	99	88	84	82	71	62	64
21	61	61	68	52	33	32	46	74	82	64	69	69	60	66	82	94	88	94	98	105	88	59	56	56
22	53	50	49	46	49	42	49	61	71	A	58	66	72	83	91	92	90	90	84	91	87	67	61	57
23	56	55	51	48	41	40	50	70	70	59	A	69	72	A	85	91	93	94	98	85	75	66	56	55
24	53	53	52	52	50	47	53	66	63	66	68	62	60	64	70	73	78	82	95	101	92	57	52	53
25	54	V 56	57	55	54	46	52	73	77	65	68	72	71	83	72	74	75	73	68	71	75	71	61	53
26	F 49	61	63	F 60	F 56	F 47	52	68	74	63	59	64	65	65	69	70	70	70	84	100	93	58	F 52	52
27	52	51	50	49	46	46	48	82	84	82	75	65	63	74	72	73	76	78	88	96	92	69	63	66
28	63	62	64	67	45	37	42	66	84	63	A	65	72	70	79	82	79	80	85	89	83	66	54	58
29	58	56	56	52	54	49	51	65	63	65	68	76	77	83	89	94	89	84	81	84	79	59	58	56
30	54	52	51	47	44	43	52	75	76	65	66	70	81	93	86	80	92	106	114	116	J R 102	58	58	60
31	61	61	59	57	53	43	55	64	62	64	63	73	71	78	74	80	90	95	92	87	74	68	55	53
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	31	30	31	31	28	28	28	26	27	29	27	29	30	29	30	29	29	31	31	31	30
MED	58	56	56	52	49	47	52	66	72	66	68	68	70	75	76	79	79	80	84	84	80	66	58	57
U Q	62	61	60	58	53	50	55	72	80	72	69	72	72	81	82	83	88	84	90	96	89	71	63	62
L Q	54	53	52	50	45	42	48	64	63	64	64	65	64	70	70	73	76	76	70	78	74	61	56	53

AUG.2022 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 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								A	440	U L 464	456	488	504	480	500	468	436	L 440	U L 424	L				
2								U L 404	A	A	A	488	A	A	A	A	A	A	A	A				
3								L	432	472	A	A	A	A	484	488	476	420	376					
4								L	A	A	A	A	A	A	A	468	A	A	A					
5								L	L 440	U A 460	460	A	A	492	A	A	A	A	L					
6								L	A	A	488	504	536	496	492	488	448	A	A	A				
7									L	L 480	488	U L 496	524	512	488	512	452	456	388					
8							292	A	L 420	448	472	476	492	A	480	480	A	432	A					
9							312	A	440	A	A	484	A	A	A	A	484	444	A					
10							A	A	A	A	A	A	480	480	480	464	452	432	380	A				
11								L	A	472	520	500	496	496	504	492	A	432	U L 380					
12								L	A	L 572	U L 484	492	496	492	A	A	468	A						
13								L 392	460	U L 532	L 512	500	552	504	488	500	L 480	L						
14								L	A	U L 472	A	A	A	A	A	488	L	452						
15								L	452	472	484	512	516	516	520	504	484	L	L					
16								A	L 444	A	496	524	U L 528	516	512	512	492	460	L					
17									L 452	464	460	A	A	512	516	488	A	L 440	L					
18									L	A	A	504	556	496	480	L 528	488	U L 476	L					
19									L 480	A	L 508	516	524	500	500	504	484	448	L					
20								L	A	A	A	A	U L 508	512	524	496	480	428						
21								L	L	A	496	484	508	496	496	476	472	432	L					
22								L	A	A	U L 472	496	480	A	476	464	484	L 436	L 360					
23								L		A	A	A	A	A	A	480	A	416	A					
24									L	456	476	L 488	492	508	472	472	448	A	360					
25								L	436	464	476	492	492	484	508	472	460	404	L					
26									412	L 484	A	L 516	480	472	480	484	468	A	A					
27								L	436	456	L 480	L 528	A	496	488	480	L 484	A	A					
28								L	L	L 452	A	L 532	488	484	504	480	480	L	L					
29								L	L	L	492	480	512	508	A	A	A	A	A					
30									L	L 456	464	A	500	492	496	492	468	L	L					
31									L 408	L 456	436	488	L 508	492	A	508	A	416						
	00	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	2	14	18	20	22	22	23	22	26	21	18	7					
MED							302	L 398	440	464	482	496	506	496	494	488	476	434	380					
U Q									452	L 472	494	512	524	508	504	500	484	448	388					
L Q									432	456	468	488	492	492	480	476	456	428	360					

AUG.2022 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	A	252	296	A	A	A	A	A	360	348	316	276	228	A				
2						B	A	236	300	328	344	368	376	372	360	344	324	284	232	A				
3						B	A	A	256	A	A	A	A	A	A	A	A	276	220	A				
4						B	196	A	304	332	364	364	368	368	348	A	A	A	A	A				
5						B	A	232	284	320	A	A	A	A	A	A	A	A	A	A				
6						A	180	256	320	A	A	A	376	384	384	356	332	292	244	A				
7						A	A	A	A	A	A	A	A	A	A	A	332	A	208	A				
8						B	A	A	264	A	348	376	388	388	368	348	320	284	232	A				
9						A	A	244	288	336	360	376	368	364	368	352	324	296	232	A				
10						B	A	236	276	A	A	A	A	A	376	A	A	276	228	A				
11						A	A	236	284	320	A	368	368	372	376	A	A	A	A	B				
12						B	A	240	288	A	A	A	A	A	A	A	A	284	A	A				
13						B	A	236	288	320	A	A	A	A	352	A	A	A	A	A				
14						B	A	236	284	A	A	A	356	360	A	A	A	A	A	A				
15						B	A	A	A	A	A	A	A	A	A	360	332	288	228	A				
16						B	A	240	A	A	A	A	A	A	372	A	332	B	232	A				
17						B	A	248	280	312	340	A	A	364	360	360	324	288	224	A				
18						B	A	236	288	344	A	A	A	A	A	352	324	292	232	A				
19						B	A	236	296	328	340	352	360	372	384	A	320	A	A	A				
20						A	A	240	296	324	348	A	A	A	A	A	312	A	216	B				
21						B	180	224	A	A	A	A	A	336	348	332	296	A	A	A				
22						B	A	212	284	316	A	A	A	A	348	332	312	A	A	B				
23						B	A	252	284	316	344	360	352	A	A	A	A	A	A	A				
24						A	A	A	292	A	A	A	A	A	A	336	308	264	A	A				
25						B	B	A	A	A	A	A	A	368	344	A	320	A	A	A				
26						A	B	A	A	A	360	372	388	388	368	344	324	288	A	A				
27						B	A	252	300	A	A	A	A	A	A	A	A	A	A	A				
28						B	A	228	276	300	A	A	A	A	368	348	316	276	A	A				
29						B	A	224	A	A	348	A	A	A	A	A	A	A	A	A				
30						B	A	232	292	320	A	A	A	A	A	A	A	A	212	B				
31						B	A	232	284	324	344	372	376	376	372	352	324	280	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	23	24	15	11	9	11	13	18	14	19	15	14					
MED							180	236	288	320	348	368	368	372	368	348	324	284	228					
U Q							196	244	296	328	360	374	376	380	372	352	324	288	232					
L Q							180	232	284	316	344	362	360	364	352	344	316	276	220					

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 77	J A 67	J A 44	J A 38	J A 33	J A 36	J A 33	J A 53	J A 76	J A 54	J A 52	J A 45	J A 43	47	40	46	J A 44	31	J A 40	J A 31	28	J A 30	J A 48	J A 36
2	J A 50	J A 28	J A 70	J A 34	J A 26	J A 21	J A 31	J A 38	J A 66	J A 50	J A 54	G	J A 60	J A 50	J A 55	J A 83	J A 110	J A 80	J A 74	J A 144	J A 81	J A 60	J A 42	J A 128
3	J A 40	J A 52	J A 33	J A 66	J A 33	J A 39	J A 50	J A 64	J A 54	J A 55	J A 68	J A 85	J A 74	J A 80	J A 50	J A 36	J A 34	J A 42	J A 30	J A 57	J A 18	J A 18	J A 21	J A 30
4	J A 77	J A 51	J A 88	J A 66	J A 54	J A 28	26	J A 40	J A 81	J A 86	J A 144	J A 82	J A 94	J A 151	J A 123	39	J A 136	J A 75	J A 46	J A 31	J A 64	J A 46	J A 39	J A 32
5	J A 16	J A 33	J A 31	J A 24	18	J A 25	21	32	36	J A 73	J A 47	J A 61	J A 83	J A 55	J A 76	J A 58	J A 56	J A 68	J A 40	J A 21	J A 42	J A 22	J A 68	J A 34
6	J A 37	J A 47	J A 86	J A 33	J A 31	J A 33	26	40	J A 94	J A 55	44	J A 49	49	46	43	40	42	J A 49	J A 41	J A 30	J A 33	J A 18	J A 66	J A 51
7	J A 40	J A 30	J A 21	J A 35	J A 31	J A 38	J A 24	J A 39	J A 48	J A 62	J A 54	J A 44	J A 60	J A 67	J A 78	J A 78	39	J A 38	J A 42	J A 65	J A 38	J A 44	J A 34	J A 25
8	J A 30	J A 33	J A 62	J A 38	J A 22	J A 26	22	J A 62	J A 46	J A 53	54	43	J A 46	J A 59	45	J A 48	J A 101	72	J A 59	J A 35	J A 52	J A 34	J A 32	J A 36
9	J A 26	J A 61	J A 23	J A 68	J A 28	J A 65	76	J A 89	J A 41	J A 125	J A 109	78	J A 55	J A 120	J A 68	J A 63	J A 50	47	J A 100	J A 110	J A 105	35	J A 25	J A 24
10	J A 22	J A 25	J A 21	J A 22	J A 17	J A 18	J A 106	J A 114	J A 102	J A 89	J A 94	J A 79	J A 51	J A 86	46	43	J A 39	33	J A 33	J A 70	J A 16	J A 18	J A 25	J A 47
11	J A 76	J A 35	J A 27	J A 38	J A 69	J A 72	40	J A 34	J A 58	J A 108	J A 74	48	J A 78	47	42	J A 52	J A J A 71	J A 43	26	J A 22	J A J A 47	J A 24	J A 108	J A 120
12	J A 32	E B J A 16	J A 22	J A 40	J A 33	J A 18	19	31	J A 57	J A 62	J A 50	42	43	J A 260	J A 66	J A 72	J A 72	J A 65	J A 77	J A 34	J A 34	J A 36	J A 35	J A 51
13	J A 62	J A 32	J A 29	J A 58	J A 32	J A 45	J A 31	J A 42	34	J A 42	40	49	J A 46	47	J A 91	J A 110	J A 49	J A 60	J A 33	J A 22	J A 29	J A 26	J A 20	J A 18
14	J A 26	J A 16	J A 53	J A 43	E B 16	J A 20	21	28	J A 54	J A 70	J A 107	78	J A 74	J A 88	J A 54	J A 44	J A 63	J A 56	J A 42	J A 30	J A 62	J A 122	J A 39	J A 58
15	J A 26	J A 29	J A 34	J A 25	J A 26	J A 19	J A 41	J A 33	J A 49	J A 42	J A 52	J A 48	45	J A 48	40	39	41	32	J A 30	J A 29	J A 33	J A 26	J A 52	J A 64
16	J A 31	J A 66	J A 34	J A 25	J A 25	J A 17	20	J A 44	J A 110	J A 59	J A 61	J A 49	44	41	40	42	38	E B J A 37	J A 34	J A 36	J A 30	54	J A 62	J A 46
17	J A 42	J A 29	J A 32	J A 32	J A 39	J A 34	19	J A 44	J A 50	38	J A 44	J A 228	J A 126	J A 50	G	G	J A 64	J A 41	J A 54	J A 66	J A 74	46	J A 35	J A 22
18	J A 50	J A 32	J A 20	J A 22	J A 26	E B 16	J A 22	28	J A 43	J A 57	J A 82	46	43	J A 41	J A 42	39	G	35	28	J A 41	J A 46	J A 62	J A 39	J A 50
19	J A 77	J A 25	J A 21	J A 50	J A 22	J A 18	J A 32	J A 47	J A 48	J A 59	J A 68	J A 95	J A 84	42	J A 50	J A 91	J A 44	J A 41	J A 48	J A 44	J A 32	J A 42	J A 86	J A 49
20	J A 30	J A 32	J A 27	J A 32	J A 29	J A 26	20	30	J A 49	J A 66	J A 68	J A 104	J A 48	J A 103	J A 58	J A 56	J A 43	J A 33	G	E B 16	J A 32	J A 77	J A 82	J A 26
21	J A 22	J A 38	J A 34	J A 34	J A 34	20	G	32	J A 44	J A 66	J A 43	42	42	G	J A 43	J A 65	36	J A 45	J A 40	J A 43	J A 63	J A 29	J A 21	J A 18
22	J A 20	J A 39	J A 36	J A 26	J A 26	E B 16	20	27	J A 50	J A 89	J A 105	43	J A 54	J A 101	G	G	36	J A 34	21	E B 15	E B J A 16	J A 18	E B J A 16	J A 18
23	E B E B 16	E B J A 16	J A 24	20	J A 25	J A 42	J A 45	33	J A 52	J A 109	J A 124	J A 96	J A 117	J A 118	J A 65	J A 82	J A 48	J A 53	J A 42	J A 26	J A 42	J A 19	J A 18	
24	J A 32	J A 48	J A 25	J A 27	J A 40	J A 48	J A 24	J A 33	G	J A 36	J A 42	J A 44	J A 41	J A 42	J A 39	38	42	J A 48	J A 30	J A 24	J A 22	J A 50	J A 28	J A 20
25	J A 18	J A J A E B 23	E B 16	E B J A 16	J A 18	J A 18	E B 16	28	J A 38	J A 47	J A 42	J A 40	J A 42	G	G	J A 36	34	29	J A 52	J A 36	J A 44	J A 24	J A 73	E B 16
26	J A 51	J A 40	J A 84	J A 77	J A 87	J A 28	J A 38	26	J A 34	J A 40	J A 53	44	45	43	40	44	42	J A 47	J A 47	J A 52	J A 51	J A 59	J A 52	J A 32
27	J A 32	J A 22	J A 23	J A 30	J A 19	J A 25	20	G 24	32	36	40	J A 82	J A 78	J A 44	J A 46	J A 45	J A 46	J A 55	J A 48	J A 54	J A 41	J A 27	J A 29	J A 42
28	J A 30	J A 26	J A 38	J A 21	E B 16	E B 16	23	J A 33	J A 39	J A 38	J A 86	J A 73	43	43	41	39	37	38	J A 32	J A 26	J A 26	J A 21	J A 26	J A 40
29	J A 66	J A 25	J A 27	J A 26	J A 32	J A 22	19	30	33	37	G	41	42	42	J A 96	J A 61	J A 55	J A 52	J A 42	J A 42	J A 30	J A 24	J A 21	J A 28
30	J A 20	20	J A 24	J A 21	J A 26	E B 16	19	J A 36	37	37	J A 65	J A 61	J A 57	J A 44	39	J A 52	J A 56	J A 57	J A 31	J A 22	19	J A 20	J A 18	E B 16
31	J A 28	J A 40	J A 26	J A 34	J A 30	J A 22	20	30	36	39	38	41	40	40	J A 56	J A 48	J A 88	J A 48	J A 64	J A 60	J A 40	J A 75	J A 78	J A 110
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J A 32	J A 32	J A 29	J A 33	J A 28	J A 25	23	J A 34	J A 48	J A 55	J A 54	J A 49	J A 49	J A 47	J A 46	J A 46	J A 44	J A 47	J A 41	J A 36	J A 34	J A 34	J A 35	J A 34
U Q	J A 50	J A 40	J A 38	J A 40	J A 33	J A 34	J A 33	J A 44	J A 57	J A 66	J A 82	J A 79	J A 74	J A 86	J A 66	J A 63	J A 64	J A 56	J A 52	J A 54	J A 51	J A 50	J A 62	J A 50
L Q	J A 26	J A 25	J A 23	J A 25	J A 22	18	20	30	36	40	44	43	43	42	40	39	39	37	31	J A 26	J A 28	J A 24	J A 25	J A 22

AUG.2022 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 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	20	18	20	E B 16	E B 16	E B 16	22	42	36	36	37	38	41	43	39	44	41	30	30	23	E B 16	E B 16	20	28
2	E B 16	E B 16	E B 16	20	E B 16	E B 16	26	31	46	44	50	G	54	48	50	A A 83	A A 110	66	A A 74	A A 144	43	33	21	A A 128
3	27	30	E B 16	E B 16	17	18	21	26	39	37	53	A A 85	51	50	42	34	32	30	27	24	E B 16	E B 16	E B 16	22
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	30	A A 81	57	A A 144	58	A A 94	A A 151	A A 123	36	A A 136	A A 75	40	18	48	E B 16	32	23
5	E B 16	20	E B 16	E B 16	E B 16	E B 16	18	30	36	46	42	56	57	44	50	50	49	64	31	18	30	E B 16	E B 16	E B 16
6	E B 16	E B 16	21	E B 16	E B 16	20	21	29	A A 94	50	41	41	43	42	41	40	40	45	37	23	E B 16	E B 16	31	36
7	22	21	19	18	E B 16	20	19	30	35	38	40	42	44	42	39	39	35	34	30	22	19	20	22	E B 16
8	21	23	29	E B 16	E B 16	E B 16	20	A A 62	31	37	41	40	43	A A 59	42	41	50	37	37	23	E B 16	E B 16	22	24
9	E B 16	35	E B 16	E B 16	E B 16	19	25	A A 89	33	A A 125	A A 109	40	53	A A 120	A A 68	58	43	33	A A 100	82	22	E B 16	19	E B 16
10	E B 16	22	E B 16	E B 16	E B 16	E B 16	28	A A 114	A A 102	A A 89	A A 94	A A 79	47	43	43	40	36	31	30	A A 70	E B 16	E B 16	E B 16	31
11	E B 16	E B 16	E B 16	E B 16	28	26	26	27	43	38	36	46	46	42	40	44	66	40	24	E B 16	E B 16	E B 16	E B 16	E B 16
12	20	E B 16	E B 16	E B 16	18	E B 16	18	29	48	53	37	41	42	46	56	62	36	44	41	28	28	E B 16	20	E B 16
13	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	29	32	37	38	46	41	46	43	38	35	31	28	19	20	20	E B 16	E B 16
14	20	E B 16	18	E B 16	E B 16	E B 16	20	26	42	40	48	65	68	65	49	38	45	36	26	22	21	E B 16	19	E B 16
15	E B 16	19	E B 16	E B 16	E B 16	E B 16	19	27	35	38	41	39	43	41	40	38	40	32	28	27	20	17	E B 16	E B 16
16	22	38	E B 16	18	E B 16	E B 16	19	36	36	51	40	40	40	40	39	40	36	E B 37	30	20	22	E B 16	E B 16	E B 16
17	25	E B 16	20	18	E B 16	E B 16	18	41	36	38	39	A A 228	A A 126	45	G	G	53	37	30	42	64	41	E B 16	18
18	40	E B 16	E B 16	E B 16	22	E B 16	20	27	35	44	45	41	42	40	40	38	G	34	27	37	37	E B 16	E B 16	E B 16
19	E B 16	21	E B 16	E B 16	E B 16	E B 16	21	33	41	48	38	42	42	40	47	40	36	29	29	28	E B 16	25	21	E B 16
20	E B 16	27	24	E B 16	E B 16	20	18	27	41	50	49	A A 104	42	47	38	36	33	28	G	E B 16	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 16	19	20	20	E B 16	G	26	32	44	36	39	40	G	38	36	34	32	22	21	22	E B 16	E B 16	E B 16
22	E B 16	20	20	E B 16	E B 16	E B 16	18	27	43	A A 89	39	41	39	50	G	G	34	29	21	E B 15	E B 16	E B 16	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	G 18	30	46	A A 109	61	63	A A 117	60	39	45	29	38	24	19	20	E B 16	E B 16
24	21	32	19	E B 16	E B 16	20	18	28	G	35	40	39	39	39	36	36	37	43	26	20	18	E B 16	E B 16	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	31	38	35	37	38	G	G	35	34	28	27	26	20	E B 16	E B 16	E B 16
26	30	23	24	E B 16	E B 16	19	E B 16	26	31	35	49	43	43	43	39	43	33	40	36	36	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 16	20	E B 16	E B 16	20	G 20	31	35	38	47	54	42	43	39	43	45	41	41	22	21	E B 16	22
28	18	E B 16	E B 16	E B 16	E B 16	E B 16	18	30	32	35	A A 86	40	41	42	40	38	35	37	29	23	E B 16	E B 16	E B 16	E B 16
29	E B 16	E B 16	E B 16	E B 16	18	E B 16	18	30	32	35	G	39	40	40	69	56	51	47	38	36	22	18	E B 16	E B 16
30	E B 16	E B 16	E B 16	E B 16	18	E B 16	18	28	32	34	37	52	46	40	38	43	34	34	26	E B 16	E B 16	E B 16	E B 16	E B 16
31	21	E B 16	E B 16	21	E B 16	E B 16	18	28	33	37	38	40	40	39	52	45	64	36	35	52	22	E B 16	46	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	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	29	35	38	40	41	43	43	41	39	37	35	30	23	20	E B 16	E B 16	E B 16
U Q	21	22	19	16	16	18	22	31	42	50	A A 49	56	53	48	50	44	49	43	37	36	22	18	20	22
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	18	27	32	37	38	40	41	40	39	36	34	31	27	20	E B 16	E B 16	E B 16	E B 16

AUG.2022 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

AUG.2022 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	16	16	16	16	16	16	16	20	20	24	26	26	23	22	22	22	18	15	16	16	16	16	16
2	16	16	16	16	16	16	16	16	16	18	19	20	21	22	21	24	18	16	15	14	16	16	16	16
3	16	16	16	16	16	16	14	16	16	17	18	20	23	22	22	17	16	16	14	16	16	16	16	16
4	16	16	16	16	16	16	16	16	19	18	22	22	22	21	20	20	18	16	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	18	20	22	24	21	23	22	23	16	14	16	16	16	16	16
6	16	16	16	16	16	16	15	17	19	21	19	20	22	23	23	20	20	20	17	16	16	16	16	16
7	16	16	16	16	16	16	16	17	17	16	21	23	28	22	23	21	19	16	16	16	16	16	16	16
8	16	16	16	16	16	16	16	16	17	18	22	24	24	24	22	20	17	17	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	15	20	20	20	25	23	22	20	20	16	14	16	16	16	16	16
10	16	16	16	16	16	16	16	16	17	19	22	24	22	22	22	20	21	16	14	16	16	16	16	16
11	16	16	16	16	16	16	16	16	17	18	19	24	18	23	23	21	20	20	16	16	16	16	16	16
12	16	16	16	16	16	16	16	16	15	20	20	20	22	21	22	21	21	18	15	16	16	16	16	16
13	16	16	16	16	16	16	16	16	20	20	22	21	24	25	28	23	20	18	15	16	16	16	16	16
14	16	16	16	16	16	16	16	16	16	18	21	25	21	23	22	22	21	17	16	16	16	16	16	16
15	16	16	16	16	16	16	16	16	16	21	21	21	26	24	28	23	19	17	14	13	16	16	16	16
16	16	16	16	16	16	16	16	16	16	20	21	26	22	21	22	19	18	37	16	16	16	16	16	16
17	16	16	16	16	16	16	16	16	17	20	23	24	23	24	24	24	20	19	16	16	16	16	16	16
18	16	16	16	16	16	16	16	16	16	19	19	21	22	22	22	23	21	21	16	16	16	16	16	16
19	16	16	16	16	16	16	16	16	17	18	18	20	24	23	32	24	20	16	16	16	16	16	16	16
20	16	16	16	16	16	16	16	16	16	18	18	21	23	23	19	21	19	14	15	16	16	16	16	16
21	16	16	16	16	16	16	16	16	16	21	22	22	27	26	23	22	17	17	16	16	16	16	16	16
22	16	16	16	16	16	16	16	16	17	20	20	21	23	22	24	21	21	16	16	15	16	16	16	16
23	16	16	16	16	16	16	16	16	16	19	22	22	24	21	28	22	18	16	16	16	16	16	16	16
24	16	16	16	16	16	16	16	14	18	18	20	20	22	21	21	21	18	16	14	16	16	16	16	16
25	16	16	16	16	16	16	16	16	16	20	20	19	28	22	22	22	20	16	16	16	16	16	16	16
26	16	16	16	16	16	16	16	15	18	20	23	22	27	26	21	21	21	15	15	16	16	16	16	16
27	16	16	16	16	16	16	16	16	17	18	22	24	40	29	29	22	19	16	16	16	16	16	16	16
28	16	16	16	16	16	16	16	16	18	20	25	29	26	26	24	22	20	19	16	16	16	16	16	16
29	16	16	16	16	16	16	16	16	18	20	22	23	30	28	24	22	20	16	14	16	16	16	16	16
30	16	16	16	16	16	16	16	16	18	19	23	35	25	26	30	20	20	16	14	16	16	16	16	16
31	16	16	16	16	16	16	16	16	19	21	23	23	23	22	24	22	20	16	14	16	16	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	16	17	19	21	22	24	23	23	22	20	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	18	20	22	24	26	24	24	22	21	18	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	18	20	20	22	22	22	20	18	16	14	16	16	16	16	16

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 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 296	F	F	F 288	F	F 299	326	343	368	326	312	310	293	319	308	309	314	303	272	301	344	360	297	F 280
2	F	F 291	F 291	335	F 300	332	333	310	349	339	337	307	305	298	289	A	A	324	A	A	301	309	330	A
3	F	F	F	F 286	F 342	316	337	354	329	323	338	A	294	284	297	287	292	307	316	320	331	325	295	286
4	F 297	F 286	F 290	F 298	335	321	329	347	A	316	A	294	A	A	A	297	A	A	321	316	304	324	301	283
5	276	286	286	289	321	293	316	337	334	339	320	310	305	300	272	300	318	324	328	325	290	307	304	303
6	279	F 290	F 293	312	316	344	351	364	A	324	328	353	265	307	295	298	308	305	320	315	305	310	324	F 286
7	F 287	F 280	F 288	309	322	337	374	352	350	338	336	323	298	292	306	282	280	271	285	310	331	321	293	280
8	277	278	278	280	275	295	333	A	368	209	288	282	306	A	246	298	306	272	311	299	290	294	275	259
9	275	310	289	312	289	282	281	A	283	A	A	277	330	A	A	299	300	313	A	315	295	277	285	286
10	273	281	322	313	314	294	344	A	A	A	A	A	259	282	280	287	306	301	314	A	315	294	284	281
11	277	271	296	317	308	272	351	370	346	347	282	299	306	288	271	292	305	322	317	296	310	305	267	270
12	278	294	F 289	304	F 281	F 297	347	349	316	285	350	265	299	309	309	290	310	311	324	337	297	261	280	289
13	264	286	312	299	300	302	348	369	355	301	310	319	263	293	293	307	293	301	286	318	333	290	270	288
14	287	283	291	285	297	293	323	342	334	307	319	277	291	304	308	315	321	334	331	303	325	286	F 279	F 294
15	299	286	289	283	291	299	330	340	372	362	328	316	304	309	301	307	302	315	307	285	315	344	317	269
16	F	F 286	280	281	288	293	330	338	351	337	328	319	296	311	321	304	305	313	300	315	325	309	281	294
17	288	291	299	306	271	303	337	343	345	353	341	A	A	304	294	305	297	298	286	315	312	309	284	292
18	294	270	281	292	284	320	355	359	307	332	335	309	297	295	312	296	298	291	295	325	339	293	264	277
19	276	274	274	261	291	344	348	348	332	306	328	322	303	303	328	308	298	312	309	332	328	309	316	288
20	271	269	289	346	319	283	327	338	373	327	330	A	299	307	298	309	304	320	311	303	310	332	284	293
21	285	299	333	364	280	289	334	354	365	343	313	339	292	280	294	314	303	301	318	318	366	301	290	305
22	291	279	298	292	291	285	339	351	334	A	335	300	298	288	302	313	300	305	294	330	321	318	302	295
23	291	299	309	334	301	332	339	369	385	354	A	316	299	A	290	300	294	317	321	336	320	322	285	291
24	295	304	290	312	310	332	348	374	362	359	348	329	315	282	314	314	307	297	315	336	364	308	287	291
25	304	V 281	301	305	323	316	337	367	341	360	331	341	307	329	309	312	327	330	326	316	315	324	327	301
26	F 272	306	303	F 297	F 319	F 318	334	367	383	353	343	315	328	322	307	311	321	315	310	324	361	324	F 284	303
27	306	289	292	309	299	304	314	364	370	370	336	339	325	325	320	316	296	308	301	329	346	315	291	287
28	279	278	296	351	318	299	299	330	376	354	A	309	317	312	307	315	311	314	313	327	343	323	279	280
29	286	289	302	308	324	356	354	381	375	346	327	337	318	309	296	304	315	291	317	321	340	315	281	281
30	280	283	306	308	306	314	335	368	366	364	348	312	306	313	305	275	280	311	333	352	J R 372	283	277	285
31	292	302	298	303	346	292	364	377	375	365	319	346	313	327	303	293	295	319	327	329	321	316	325	278
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	31	30	31	31	28	28	28	26	27	29	27	29	30	29	30	29	29	31	31	31	30
MED	286	286	292	305	304	302	337	353	353	339	329	315	303	304	302	304	304	311	314	318	321	309	285	286
U Q	293	292	302	312	319	321	348	368	371	354	337	329	310	312	308	311	310	317	321	329	340	323	302	293
L Q	276	280	289	289	291	293	329	342	334	324	319	300	295	292	294	296	296	301	300	312	310	294	280	280

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 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								A	384	U L 403	445	421	362	A	374	A	A	L 353	U L 330	L				
2								U L 370	A	A	A	410	A	A	A	A	A	A	A	A				
3								L	402	365	A	A	A	A	401	368	350	370	366					
4								L	A	A	A	A	A	A	A	366	A	A	A					
5								L	L 389	A	460	A	A	388	A	A	A	A	L					
6								L	A	A	408	396	393	409	388	366	396	A	A	A				
7									L	L 385	384	U L 400	391	394	411	355	391	364	368					
8							365	A	L 394	386	394	394	394	A	398	370	A	L 346	A					
9							345	A	368	A	A	400	A	A	A	A	A 360	352	A					
10							A	A	A	A	A	A	A	387	387	386	369	365	351	A				
11								L	A	392	373	A	A	406	370	A	A	A	U L 382					
12								L	A	A	U L 401	400	394	A	A	A	370	A						
13								L 401	375	U L 395	L 422	A	356	391	421	377	L 363	L						
14								L	A	U L 395	A	A	A	A	A	385	L	L 372						
15								L	389	403	426	409	362	390	376	358	364	L	L					
16								A	L 394	A	408	405	U L 389	408	383	355	348	360	L					
17									L 393	409	448	A	A	383	383	382	A	L 358	L					
18									L	A	A	385	366	411	397	L 345	341	U L 360	L					
19									L 371	A	L 364	385	382	394	A	355	369	348	L					
20								L	A	A	A	A	U L 373	A	363	360	353	364						
21								L	L	A	386	416	380	385	375	358	352	358	L					
22								L	A	A	U L 391	409	413	A	397	385	348	L 358	L 364					
23								L		A	A	A	A	A	A	L 364	A	L 371	A					
24									L	386	403	L 409	410	384	392	377	377	A	363					
25								L	402	398	413	397	415	419	375	378	362	380	L					
26									417	L 390	A	L 377	418	410	405	A	355	A	A					
27								L	399	397	L 400	A	A	390	A	L 365	A	A	A					
28								L	L	L 407	A	L 377	388	390	355	352	350	L	L					
29								L	L	L	388	400	387	375	A	A	A	A	A					
30									L	L 414	408	A	A	394	365	A	339	L	L					
31									L 428	L 417	430	407	L 378	401	A	A	A	381						
	00	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	2	14	16	20	19	19	20	20	21	19	17	7					
MED							355	L 386	394	396	406	400	388	392	385	366	360	360	364					
U Q									402	L 405	424	409	394	407	398	378	369	370	368					
L Q									384	388	390	394	373	388	374	356	350	356	351					

AUG.2022 M(3000)F1 (0.01)

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AUG.2022 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								252	226	266	276	318	356	292	326	316	298	294	330	276				
2								306	264	242	292	344	344	320	334	A	A	272	A	A				
3								242	268	284	270	A	316	376	352	338	326	298	264					
4								244	A	E A 340	A	330	A	A	A	304	A	A	262					
5								280	274	280	308	320	314	340	390	320	286	282	252					
6								236	A	262	302	268	464	332	324	330	288	294	266	250				
7									254	272	280	288	372	356	322	374	334	342	306					
8							270	A	258	722	422	432	360	A	524	372	342	414	294					
9							350	A	402	A	A	412	308	A	A	342	312	290	A					
10							244	A	A	A	A	A	494	408	414	394	334	332	290	A				
11								224	248	298	428	346	336	342	388	336	E A 312	274	266					
12								236	284	390	254	436	316	298	300	E A 356	314	292						
13								220	256	334	326	316	466	362	332	308	294	262						
14								242	246	278	290	376	E A 338	310	316	302	280	272						
15								256	222	248	300	314	324	336	338	306	298	286	278					
16								236	248	244	274	302	324	330	298	326	318	282	280					
17									242	242	272	A	A	314	322	322	314	282	274					
18									262	274	284	290	364	332	310	314	312	288	280					
19									274	274	274	288	280	300	290	292	304	282	252					
20								252	226	280	298	A	304	298	322	302	306	258						
21								248	220	236	324	280	378	396	328	282	300	284	258					
22								240	254	A	262	370	328	322	316	286	296	276	262					
23								222		234	A	334	E A 334	A	336	304	304	266	246					
24									236	244	268	284	314	384	318	312	300	292	268					
25								224	232	248	298	264	330	280	308	308	292	258	272					
26									222	250	276	326	304	304	328	310	290	282	278					
27								232	226	230	264	292	292	302	298	298	310	280	262					
28								240	220	244	A	338	286	314	308	290	294	268	250					
29								218	212	252	288	266	298	304	312	294	272	280	246					
30									222	230	250	284	314	288	290	344	338	268	244					
31									208	244	234	266	306	280	330	336	308	264						
	00	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	20	27	28	26	27	29	27	29	30	29	30	24	2				
MED							270	240	246	254	282	316	320	320	322	312	304	282	266	263				
U Q							350	250	262	280	300	344	358	342	335	336	314	292	279					
L Q							244	228	222	244	270	284	307	300	309	302	294	272	255					

AUG.2022 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 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	258	284	300	280	216	228	230	A	210	176	168	168	254	E A 222	200	A	E A 260	202	236	258	210	192	258	E A 332
2	322	256	270	226	204	220	218	210	A	A	A 186		A	A	A	A	A	A	A	A	272	248	192	A
3	E A 292	E A 276	276	266	216	238	224	214	E A 220	230	A	A	A	A	E A 208	192	206	208	212	240	210	200	238	280
4	266	280	280	280	220	226	234	218	A	A	A	A	A	A	A	208	A	A	A	238	286	222	E A 264	E A 298
5	276	296	264	276	244	258	220	206	216	A 182		A	A	E A 212	A	A	A	A	236	246	266	230	224	238
6	296	286	310	260	248	212	212	218	A	A	186	190	196	196	206	220	220	A	A	A	216	216	242	E A 342
7	E A 294	E A 290	268	250	224	224	210	194	200	194	210	198	210	196	170	208	206	210	224	254	226	200	270	272
8	294	E A 288	E A 320	294	302	276	246	A	206	218	212	194	216	A	212	238	A	264	A	264	224	232	288	E A 326
9	306	E A 284	254	244	262	284	272	A	204	A	A	200	A	A	A	A	E A 262	202	A	E A 324	236	252	260	252
10	306	282	240	232	246	272	A	A	A	A	A	A	E A 272	228	228	220	218	216	248	A	224	206	250	E A 336
11	304	302	254	234	E A 276	354	222	194	A	190	186	E A 260	E A 300	204	214	E A 308	A	A	216	246	240	208	304	318
12	318	290	278	238	248	260	236	220	A	E A 348	192	204	210	A	A	A	228	A	260	214	E A 240	274	E A 290	282
13	324	284	244	238	262	266	234	208	188	188	178	E A 264	204	226	194	218	210	236	260	244	224	218	282	252
14	270	278	266	270	260	258	234	224	A	202	A	A	A	A	A	204	A	208	236	240	236	226	E A 314	252
15	238	E A 282	274	274	266	260	234	210	200	188	186	178	230	200	200	208	226	226	228	274	242	218	204	300
16	E A 308	E A 314	292	288	278	236	222	A	208	A	180	172	188	180	188	216	210	242	236	242	230	216	254	278
17	282	238	266	266	292	262	222	218	206	192	174	A	A	E A 224	188	202	A	E A 228	232	242	E A 268	E A 250	270	260
18	E A 284	310	296	272	E A 292	236	206	208	222	A	A	202	192	184	204	226	208	222	252	244	230	208	320	276
19	296	308	294	310	256	212	212	238	244	A	190	208	198	198	A	226	202	210	240	234	222	224	242	280
20	304	E A 290	282	206	226	314	234	222	A	A	A	A	222	A	200	192	204	216	220	252	230	200	252	262
21	278	262	234	196	E A 278	282	242	236	212	A	178	176	206	182	196	216	218	222	222	236	206	210	278	250
22	236	294	272	262	260	262	228	220	A	A	196	186	180	A	178	196	230	210	206	236	212	212	240	226
23	256	246	234	210	250	232	240	212	210	A	A	A	A	A	A	220	A	218	A	220	210	222	248	286
24	E A 290	E A 296	278	246	240	234	216	216	198	192	200	184	194	186	196	192	212	A	230	226	198	204	242	268
25	256	286	260	246	232	212	222	208	192	194	180	204	178	176	198	190	222	212	244	240	240	218	222	234
26	E A 372	272	278	278	240	240	228	210	196	182	A	204	206	214	194	E A 248	204	A	A	234	194	212	274	268
27	268	282	272	266	254	254	236	218	204	190	196	E A 266	A	196	E A 238	218	E A 270	A	A	244	218	218	264	286
28	290	292	264	206	212	242	238	216	212	188	A	186	210	210	218	214	216	E A 242	238	238	212	210	246	296
29	266	276	266	246	234	200	214	208	206	208	186	186	192	204	A	A	A	A	A	240	210	218	272	280
30	272	280	260	232	260	244	236	218	210	208	184	A	E A 252	192	214	E A 260	220	E A 250	240	212	194	220	282	282
31	280	252	264	268	198	230	218	206	194	192	180	186	188	180	A	E A 284	A	E A 236	242	242	238	220	E A 306	E A 276
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	30	26	22	18	20	22	22	21	21	25	21	21	22	28	31	31	31	30
MED	284	282	269	260	246	242	228	215	206	192	186	189	202	197	199	212	214	214	236	240	224	218	255	274
U Q	304	292	280	274	262	262	236	218	212	208	194	204	222	213	213	E A 226	227	236	242	246	240	224	282	E A 296
L Q	268	276	260	234	226	228	218	208	200	188	180	186	192	185	194	203	207	210	224	236	210	208	242	260

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IONOSPHERIC DATA STATION Yamagawa

AUG.2022 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	A	108	100	A	A	A	A	A	100	100	100	100	106	A				
2						B	A	102	102	102	102	100	100	100	100	102	102	102	102	A				
3						B	A	A	100	A	A	A	A	A	A	A	A	100	100	A				
4						B	110	A	102	102	102	102	100	100	100	A	A	A	A	A				
5						B	A	100	100	100	A	A	A	A	A	A	A	A	A	A				
6						A	116	108	102	A	A	A	102	102	102	102	102	102	102	A				
7						A	A	A	A	A	A	A	A	A	A	A	102	A	98	A				
8						B	A	A	100	A	100	100	100	100	100	100	100	100	100	A				
9						A	A	100	100	100	100	100	100	100	100	100	100	100	104	A				
10						B	A	104	104	A	A	A	A	A	100	A	A	100	104	A				
11						A	A	104	102	102	A	102	100	100	100	A	A	A	A	B				
12						B	A	102	102	A	A	A	A	A	A	A	A	104	A	A				
13						B	A	100	98	98	A	A	A	A	102	A	A	A	A	A				
14						B	A	102	102	A	A	A	102	100	A	A	A	A	A	A				
15						B	A	A	A	A	A	A	A	A	A	100	106	106	110	A				
16						B	A	104	A	A	A	A	A	A	102	A	102	B	102	A				
17						B	A	102	102	100	100	A	A	100	100	100	100	100	106	A				
18						B	A	104	104	102	A	A	A	A	A	102	102	102	106	A				
19						B	A	102	102	102	102	100	102	102	102	A	102	A	A	A				
20						A	A	102	100	100	100	A	A	A	A	A	100	A	100	B				
21						B	110	104	A	A	A	A	A	100	100	100	102	A	A	A				
22						B	A	102	102	102	A	A	A	A	100	100	100	A	A	B				
23						B	A	100	102	100	100	100	100	A	A	A	A	A	A	A				
24						A	A	A	100	A	A	A	A	A	A	100	100	100	A	A				
25						B	B	A	A	A	A	A	A	98	98	A	106	A	A	A				
26						A	B	A	A	A	100	100	100	106	102	102	102	104	A	A				
27						B	A	104	104	A	A	A	A	A	A	A	A	A	A	A				
28						B	A	102	100	100	A	A	A	A	100	100	102	102	A	A				
29						B	A	102	A	A	102	A	A	A	A	A	A	A	A	A				
30						B	A	102	102	102	A	A	A	A	A	A	A	A	102	B				
31						B	A	102	100	102	102	102	102	100	102	102	102	102	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	23	24	15	11	9	11	13	18	14	19	15	14					
MED							110	102	102	102	100	100	100	100	100	100	102	102	102					
U Q							116	104	102	102	102	102	102	101	102	102	102	102	106					
L Q							110	102	100	100	100	100	100	100	100	100	100	100	100					

AUG.2022 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 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	98	98	98	98	94	96	112	104	102	100	96	98	98	134	124	114	108	134	104	100	88	110	100	94
2	98	98	98	86	102	98	108	116	104	104	102	G	108	118	118	108	104	104	100	94	88	88	88	96
3	88	88	88	98	94	94	94	98	94	98	94	92	94	90	94	98	102	102	110	102	88	88	88	92
4	96	104	104	96	96	96	118	108	102	102	100	100	100	100	100	108	96	98	98	96	92	90	100	88
5	88	88	86	86	92	100	106	102	110	98	98	94	94	94	94	92	92	92	90	90	102	96	100	100
6	100	100	98	98	98	98	132	110	106	104	110	118	114	120	124	124	116	106	104	108	96	92	88	86
7	86	84	80	94	100	98	98	98	100	96	96	96	100	100	106	116	112	106	100	96	86	88	88	84
8	110	104	98	112	108	98	160	98	120	104	106	108	116	108	128	118	104	104	100	100	112	96	98	96
9	100	100	100	94	98	94	110	104	110	106	100	108	104	102	110	110	116	124	100	98	90	90	88	114
10	120	108	108	108	112	112	104	100	100	100	100	98	98	98	120	124	96	126	110	100	92	86	102	98
11	96	112	96	100	96	94	94	112	102	100	100	148	110	116	142	100	94	94	132	108	110	106	108	104
12	100	B	104	104	104	116	136	132	104	96	100	156	132	102	118	110	110	108	102	100	96	86	86	96
13	96	102	96	92	102	100	110	104	104	102	102	166	98	176	102	108	94	92	92	90	90	88	88	94
14	86	84	88	90	B	102	120	122	102	100	98	98	98	98	96	98	94	94	92	104	108	106	100	106
15	102	92	90	96	88	98	92	100	100	98	94	98	172	106	102	160	122	146	128	110	102	86	96	98
16	104	98	98	96	96	98	116	104	98	92	96	96	96	96	146	122	122	B	106	100	100	100	98	98
17	94	92	90	88	88	98	120	108	102	112	100	100	96	108	G	G	108	108	104	98	88	86	86	86
18	90	92	92	90	90	B	96	142	128	116	112	96	96	96	94	152	G	116	118	102	98	106	100	100
19	100	96	98	98	98	98	116	112	112	110	106	106	108	118	114	106	112	94	104	116	106	106	104	104
20	104	96	98	98	98	106	116	130	114	100	100	96	96	96	96	94	94	94	G	B	96	96	100	94
21	84	96	96	96	96	132	G	108	100	100	100	100	158	G	112	102	108	102	98	96	98	98	98	100
22	94	94	94	94	96	B	124	118	106	100	96	100	96	96	G	G	196	108	104	B	B	90	B	84
23	B	B	84	94	94	92	92	90	112	106	100	100	100	96	96	94	94	102	86	88	84	86	86	102
24	96	96	96	96	98	98	104	92	G	96	96	94	98	104	100	130	112	106	106	88	86	100	86	86
25	82	84	B	B	96	98	B	142	98	94	100	94	96	G	G	96	188	116	86	84	88	88	102	B
26	102	96	96	96	98	94	100	94	94	94	118	138	130	138	166	124	122	110	104	98	100	100	100	94
27	94	82	84	94	84	92	114	96	142	98	94	92	94	94	92	94	92	88	88	88	86	86	92	96
28	98	86	96	102	B	B	114	108	110	102	96	96	136	124	124	120	116	106	102	100	100	84	94	100
29	100	96	92	98	94	98	158	104	130	108	G	100	94	98	94	92	88	88	86	86	86	86	90	96
30	92	86	98	98	98	B	130	108	108	108	104	96	96	96	98	92	92	92	106	110	92	86	98	B
31	92	92	92	94	94	94	116	120	118	120	118	122	122	114	108	108	104	108	98	100	100	94	98	98
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	29	27	29	31	30	31	30	30	31	29	28	29	30	30	30	29	30	31	30	29
MED	96	96	96	96	96	98	114	108	104	100	100	99	98	102	107	108	106	105	102	100	94	90	98	96
U Q	100	99	98	98	98	100	120	116	112	106	102	108	114	117	122	121	116	108	106	102	100	100	100	100
L Q	92	88	90	94	94	94	102	100	100	98	96	96	96	96	96	97	94	94	98	92	88	86	88	93

AUG.2022 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

AUG.2022 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	F4	F3	F3	F4	F3	L2	C3	C6	C2	C2	L1	L1	L1	HL11	C1	C2	C2	HL11	C3	C3	F3	F1	F3	F4
2	F9	F2	F2	F3	F1	L1	C4	C3	C4	C3	C3		C3	C2	C2	C5	C6	C4	C6	L5	F5	F8	F5	F3
3	F7	F4	F3	FF33	F3	L4	L3	L3	L5	L3	L3	L4	L3	L3	L3	L1	C1	C1	C2	C3	F3	F1	F1	F4
4	F2	FF22	FF22	F2	F3	L2	C4	C3	C5	C5	C7	C4	C5	C6	C6	C1	L5	L7	L5	L4	F9	F9	FF62	F8
5	F2	F3	F2	F1	F1	C3	C2	C2	C2	L5	L2	L2	L3	L2	L3	L4	L5	L5	L6	L2	F9	F2	F2	F2
6	F2	F3	F3	F2	F3	L3	H2	C3	C3	C3	C1	CL11	CL11	C1	C1	C1	C2	C4	C3	C6	F2	F2	F5	F6
7	F5	F5	F5	F4	F3	L4	L2	L2	LH21	LH21	LH11	L2	L2	L1	C1	C1	C1	CH11	C2	L3	F3	F5	F4	F4
8	FF24	FF53	FF52	FF21	F1	L3	HC11	L5	C2	C2	C2	C1	C1	C2	C1	C2	C3	C3	C4	C6	FF12	FF43	FF43	FF75
9	F4	F7	F3	F6	F1	L3	C4	C4	C2	C3	C3	C1	C2	C4	C3	C3	C2	C2	C7	L6	F6	F3	F4	FF82
10	F1	F4	F4	F5	F2	C3	C3	C8	C9	C5	C4	L4	L2	L2	C2	CL11	L2	C1	C4	C5	F1	F2	F3	F8
11	F4	F2	F3	FQ31	F8	L6	L4	C2	C4	C2	C2	HC12	C3	C1	C1	C2	C4	C3	H1	C1	F8	F2	F3	F2
12	F4		F2	F3	F4	C1	H1	C2	C4	L5	C1	C1	HC11	C3	CL22	CL32	CL11	CL41	C6	C7	F7	F6	F5	F2
13	F2	F2	F2	F3	F2	C3	C3	C2	C1	C2	C1	HC12	L1	H1	C2	C1	L3	L2	L3	L2	F4	F4	F2	F1
14	F3	F2	F2	F1		C1	C2	C1	C3	C2	L3	L4	L4	L3	L2	L1	L4	L4	L3	CL43	FF26	F3	F2	FQ21
15	FQ21	F2	F2	F1	F1	L1	L1	L1	C3	L3	L2	L1	H1	C1	C1	H1	C2	HL11	CL11	CL63	FF72	F5	F3	F2
16	F4	F4	F4	F3	F2	L2	C1	C3	L3	L5	L2	L1	L1	L1	HL12	CL13	CL11		C4	C7	F8	F3	F2	FQ31
17	F4	F7	F7	F7	F5	L3	C1	C4	C2	C1	C1	C4	L6	C1			C4	C3	C3	L4	F6	F8	F6	F3
18	F6	F2	F2	F2	F5		L2	H1	C1	C3	C3	C2	L2	L2	L1	H1		C3	C1	C8	F6	F1	F7	F3
19	F4	F5	F2	F6	F3	LC11	C3	C4	C2	C3	C3	C2	C1	C1	C1	C2	C2	L4	CHL22	C3	FF32	F6	FF23	FF33
20	FF22	F9	F5	F3	F7	C3	C1	HL11	C3	C4	C3	L4	L2	L2	L2	L2	L2	L1			F5	F6	F3	F2
21	F2	F2	F3	F3	F4	H1		C3	C1	C1	C1	C1	HL11		C1	C2	C1	C2	L3	L4	F5	F1	F1	F1
22	F1	F7	F3	F1	F1		C2	C2	C3	C5	L3	C2	L2	L4			H1	C1	C1			L1		F1
23			F1	F2	F2	L1	L2	L1	C1	C3	C5	C3	C4	L4	L4	L2	L3	C2	LQ41	LQ41	F5	F3	F1	F2
24	F5	F6	F3	F3	F4	L4	C1	L3		L2	L2	L2	L2	C1	C2	H1	C2	C5	C3	C5	F5	FF33	F2	F2
25	F1	F2			F1	L1		HC13	L2	L3	C1	L2	L1			L2	HL11	CL12	L4	L7	F7	F3	F3	
26	F5	F4	F5	F5	F5	L6	L1	L3	L3	L1	C2	H1	H1	H1	H1	C1	C1	C2	C5	L5	F3	F4	F2	F3
27	FF42	F3	F2	F3	F1	L1	C2	L1	HL11	L1	L2	L2	L1	L1	L1	L2	L4	L7	L4	L9	F8	F4	F3	F6
28	F3	F1	F3	F1			C1	C4	C2	C2	L3	L1	CL11	CL11	C1	C1	C1	C2	C3	C7	F5	F2	F3	F3
29	F3	F3	F5	F4	F4	L1	H1	C3	HC11	C1		C1	L1	L1	L4	L3	L5	L7	L6	L9	F6	F3	F1	F2
30	F1	F1	F3	F2	F7		H1	C3	C1	C1	C1	L2	L2	L2	L1	L4	L4	L4	C2	C1	F1	F2	F1	
31	F4	F3	F3	F4	F1	L1	C1	C1	C1	C1	C1	C1	C1	C1	C3	C2	C3	C3	L8	L7	F9	F6	F6	F4
	00	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.2022 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG.2022 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 72	X 74	X 65	67	69	X 54															X 100	X 71	X 60	X 57
2	68	X 59	X 64	X 66	X 60	X 44															X 100	X 104	X 78	X 56
3	X 48	78	72	68	67	X 59															X 90	X 66	X 59	X 61
4	X 59	X 58	X 54	58	X 52	X 37															X 85	X 74	X 58	X 58
5	X 62	X 62	X 60	X 61	X 62	X 54															X 83	X 86	X 67	X 65
6	X 64	X 63	X 65	X 64	X 59	X 51															X 92	X 96	X 59	X 59
7	X 59	X 64	X 69	X 69	X 70	X 64															X 113	X 85	X 81	X 71
8	X 71	X 71	X 71	X 66	X 65	X 61															X 77	X 71	X 65	X 64
9	X 60	X 64	X 58	X 53	X 47	X 43															X 84	X 84	X 86	X 86
10	X 79	X 82	X 88	X 81	X 62	X 56															X 76	X 72	X 63	X 62
11	X 58	X 62	X 71	X 64	X 53	X 45															X 78	X 70	X 64	X 64
12	X 64	X 67	X 64	X 59	X 55	X 54															X 74	X 72	X 76	X 81
13	X 76	X 77	X 75	X 63	X 59	X 56															X 84	X 68	X 66	X 66
14	X 67	X 65	X 64	X 61	X 58	X 57															X 78	X 64	X 59	X 65
15	X 63	X 62	X 60	X 58	X 56	X 55															X 108	X 88	X 61	X 62
16	X 63	X 64	X 65	X 61	X 58	X 57															X 89	X 80	X 60	59
17	X 65	X 58	62	X 53	X 49	X 52	63														X 120	X 111	X 82	X 74
18	X 69	X 63	X 61	X 60	X 52	X 59															X 94	X 73	X 68	X 70
19	X 69	X 67	X 65	X 68	X 73	X 70															X 108	X 110	X 65	X 60
20	X 59	X 61	X 64	X 59	X 44	X 40															X 101	X 95	X 68	X 70
21	X 71	X 76	X 90	X 64	X 45	X 43	X 50														X 92	X 72	A	X 68
22	X 69	X 62	X 63	X 58	X 55	X 54														X 128	X 118	X 70	X 67	X 67
23	X 64	X 62	X 62	X 58	X 48	X 46															X 93	X 77	X 66	X 65
24	X 66	X 62	X 58	X 52	X 54	X 53															X 92	X 68	X 60	X 63
25	X 66	X 71	X 72	82	X 68	X 58															X 82	X 75	X 69	X 60
26	X 58	X 61	X 67	X 64	X 57	58															X 86	X 58	X 55	X 58
27	X 57	X 57	X 55	X 58	X 63	X 61															X 102	X 78	X 72	X 68
28	X 72	X 70	X 70	X 72	X 47	X 39															X 86	X 69	X 59	X 56
29	X 61	X 60	X 62	X 59	X 61	X 53															X 94	X 64	X 59	X 57
30	X 54	X 53	X 55	X 52	X 48	X 45															X 129	X 87	X 73	X 79
31	X 88	X 89	X 88	X 82	X 70	X 48						C									X 84	X 71	X 63	X 60
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	2													1	31	31	30	31
MED	X 64	X 63	X 64	X 61	X 58	X 54	56													X 128	X 92	X 73	X 65	X 64
U Q	X 69	X 71	X 71	X 67	X 63	X 58															X 101	X 86	X 69	X 68
L Q	X 59	X 61	X 61	X 58	X 52	X 45															X 84	X 70	X 60	X 59

AUG.2022 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG.2022 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	66	68	59	F 57	F 61	48	51	74	86	72	68	78	82	96	84	78	79	71	76	90	94	65	54	51
2	F 56	53	58	60	54	38	41	55	88	74	71	78	91	102	116	131	127	116	90	86	94	98	72	50
3	42	F	F 63	F 60	F 57	53	53	56	64	84	78	62	68	72	78	87	95	97	87	A	84	60	53	55
4	53	52	48	F 50	46	31	46	58	62	A	A	74	86	92	92	95	102	101	90	83	79	68	52	52
5	56	56	54	55	56	48	45	53	68	65	63	A	74	73	74	90	98	94	90	76	77	80	61	59
6	58	57	59	58	53	45	48	66	75	71	70	66	69	77	88	87	85	88	88	92	86	90	53	53
7	53	58	63	63	64	58	50	63	58	68	68	67	68	70	72	77	83	94	105	116	107	79	75	65
8	65	65	65	60	59	55	52	48	52	56	63	68	61	64	60	70	63	68	78	84	71	65	59	58
9	54	58	52	47	41	37	45	48	E G 48	55	53	64	A	60	67	76	86	90	100	104	78	78	80	80
10	73	76	82	75	56	50	48	52	59	A	A	A	A	67	72	71	75	79	81	81	70	66	57	56
11	52	56	65	58	47	39	46	63	55	56	66	72	82	88	91	102	105	102	80	88	72	65	58	58
12	58	61	58	53	49	48	55	59	63	65	61	66	91	105	96	94	92	98	97	92	68	66	70	75
13	70	71	69	57	53	50	59	71	72	61	65	70	75	78	89	94	92	83	89	94	78	62	60	60
14	61	59	58	55	52	51	53	80	74	70	71	82	95	104	97	A	100	89	79	82	72	58	53	59
15	57	56	54	52	50	49	49	80	79	66	68	70	74	76	85	87	90	82	84	100	102	82	55	56
16	57	58	59	55	52	51	52	72	80	87	74	80	84	84	88	86	87	88	90	90	83	74	54	F 48
17	59	52	F 52	47	43	46	F 52	68	69	R 72	72	76	92	94	92	92	98	102	110	122	114	105	76	68
18	63	57	55	54	46	53	51	55	63	74	63	75	86	83	97	97	95	96	96	106	88	67	62	64
19	63	61	59	62	67	64	54	72	70	74	82	88	87	87	99	93	92	99	106	116	102	104	59	54
20	53	55	58	53	38	34	42	86	74	63	55	76	93	99	96	91	101	113	112	102	95	89	62	64
21	65	70	84	58	39	37	44	78	76	62	65	68	66	74	92	96	102	107	115	110	86	66	A	62
22	63	56	57	52	49	48	56	69	77	74	65	75	88	98	103	106	106	105	113	122	112	64	61	61
23	58	56	56	52	42	40	50	73	66	62	60	68	79	84	97	99	105	107	109	100	87	71	60	59
24	60	56	52	46	48	47	52	59	68	64	64	59	62	67	75	78	82	90	97	107	86	62	54	57
25	60	65	66	F 70	62	52	54	77	68	71	83	84	90	90	93	104	103	93	78	81	76	69	63	54
26	52	55	61	58	51	F 50	52	70	71	60	62	65	67	73	68	75	75	82	97	109	80	52	49	52
27	51	51	49	52	57	55	57	83	94	91	81	80	94	94	94	96	102	109	109	120	96	72	66	62
28	66	64	64	66	41	33	34	69	76	62	64	71	80	79	83	87	87	89	98	95	80	63	53	51
29	55	54	56	53	55	47	47	60	65	67	79	74	87	100	110	108	101	109	109	100	88	58	53	51
30	48	47	49	46	42	39	42	69	82	68	65	81	108	116	126	122	121	141	164	R 179	123	81	67	73
31	82	83	82	76	64	42	48	66	60	61	64	C	84	85	84	90	100	112	115	107	78	65	57	54
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	31	31	31	31	31	29	29	28	29	31	31	30	31	31	31	30	31	31	30	31
MED	58	57	58	55	52	48	50	68	69	67	65	73	84	84	91	92	95	96	97	100	86	67	59	58
U Q	63	64	64	60	57	51	53	73	76	73	72	78	90	96	97	97	102	107	109	109	95	80	63	62
L Q	53	55	54	52	46	39	46	58	63	62	63	68	72	73	78	86	86	88	87	88	78	64	54	53

IONOSPHERIC DATA STATION Okinawa

AUG.2022 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								A	A	488	L 524	508	492	488	488	472	444	L 460	L 412	L				
2								U L 424	424	L 480	508	A	504	496	A	A	A	A	A	A				
3									452	A	A	488	488	512	480	468	460	440	L 388	A				
4									A	A	A	U A 480	512	492	488	480	464	436	376					
5								L 384	436	464	492	A	500	504	A	476	A	A	A					
6									L	L 492	488	U L 512	A	508	496	A	488	472	L					
7								L	L	U L 500	L 512	516	512	524	516	480	488	A	A					
8									424	U L 476	500	492	A	L 508	492	484	U L 484	A	A					
9								U L 388	480	484	A	492	A	508	500	484	496	L	408					
10									L 432	A	A	A	A	A	A	484	464	A	392					
11									L	A	A	528	A	A	504	A	472	440	L					
12								A	A	U L 460	U L 504	496	508	500	504	496	A	A	A	A				
13								A	L	U L 472	U L 512	504	512	516	A	492	A	452	L 392					
14								L	L	L	U L 524	544	A	A	A	A	A	A	A					
15								L	L	472	520	U L 528	U L 532	528	524	516	496	L 452	L 444					
16								L	L	480	A	540	540	520	524	516	484	L 476	L 416					
17									A	A	A	532	516	520	488	492	480	L 476	L 400					
18									L	L	A	516	516	528	508	508	L 504	468	L					
19									L	A	L	A	532	A	536	A	484	L	L					
20								L	U A 416	A	476	A	A	A	508	L 508	468	448	L					
21								L	428	L 424	L 480	496	488	504	496	496	468	L 448	L					
22									L	L 460	524	U L 500	500	488	A	480	464	L	L					
23									L	U L 452	U L 492	504	A	A	480	A	452	A						
24									L	460	468	U L 488	492	L 504	480	480	468	A	A					
25								L	L	468	488	504	500	504	500	488	464	424	A					
26								L	L	L 452	L 492	L 496	492	480	492	468	460	428	L					
27								L	L	468	L 516	U L 532	A	A	A	496	L 480	416	A					
28								L	L	A	476	L 520	A	L 516	492	496	L 476	L						
29								L 316	L	L 480	480	L 496	512	520	484	492	L 484	L 432						
30										L	U L 504	L 528	504	512	504	512	A	L 468						
31										420	U L 480	C	472	L 532	496	A	A	456						
	00	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	8	20	22	25	21	24	24	24	24	18	9					
MED								L 386	430	470	L 496	504	504	508	496	490	474	450	L 400					
U Q								U L 406	444	480	L 512	528	514	520	506	496	484	468	L 414					
L Q								L 350	424	460	L 480	496	492	502	488	480	464	436	390					

AUG.2022 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

AUG.2022 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	224	284	A	A	A	A	A	360	348	328	284	232	A				
2							A	236	296	332	A	A	388	380	364	348	328	288	244	A				
3							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
4							A	248	300	332	352	364	372	372	372	360	A	288	240	A				
5							A	A	288	312	344	A	A	A	A	A	A	A	A	A				
6							A	236	292	A	A	A	A	U 376	A	364	336	300	244	A				
7							A	A	A	A	A	A	A	384	376	356	340	A	A	A				
8							B	236	284	332	360	380	396	392	384	364	328	280	216	A				
9							A	232	288	336	368	380	388	380	A	360	336	296	244	A				
10							B	216	284	A	A	A	A	A	A	A	A	284	224	A				
11							A	A	A	332	356	368	372	376	368	356	340	284	232	B				
12							B	216	272	A	A	A	A	A	356	348	A	A	A	A				
13							B	220	280	312	336	364	A	A	368	A	A	A	A	A				
14							B	A	A	A	A	A	A	A	A	A	A	A	A	A				
15							A	A	A	A	A	A	A	A	A	360	332	A	A	A				
16							B	220	276	A	A	A	A	A	A	356	332	B	A	A				
17							B	232	284	328	336	360	A	380	376	360	316	284	A	A				
18							A	208	276	A	A	A	A	A	A	A	320	292	236	A				
19							A	232	A	328	352	364	380	376	A	360	328	296	196	A				
20							B	216	280	328	348	A	A	A	A	A	A	A	A	A				
21								200	272	A	A	A	A	A	372	340	A	A	A	A				
22							B	196	280	A	A	A	A	A	A	A	324	260	A					
23							B	240	276	312	336	352	A	A	A	A	A	A	A	A				
24							B	200	A	A	A	A	A	A	376	348	312	272	196	A				
25							B	212	A	A	A	A	A	A	A	A	324	288	204	A				
26							B	A	A	A	A	372	A	A	A	344	328	280	224	A				
27							B	A	A	A	A	A	A	A	A	A	A	280	A	A				
28							B	220	268	312	A	A	A	A	A	356	324	292	208	A				
29							B	216	292	A	A	344	A	B	A	A	A	A	A	A				
30							B	220	284	A	A	A	A	A	A	A	A	A	212	B				
31							B	240	288	328	356	C	A	A	360	344	320	288	212	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								23	21	13	11	10	6	9	12	18	18	18	16					
MED								220	284	328	352	364	384	380	370	356	328	286	224					
U Q								236	288	332	356	372	388	382	376	360	332	292	238					
L Q								216	276	312	336	360	372	376	362	348	324	280	210					

IONOSPHERIC DATA STATION Okinawa

AUG.2022 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 17	J A 120	J A 24	J A 28	J A 46	J A 52	J A 73	J A 66	J A 66	J A 56	J A 60	48	J A 49	40	39	39	39	37	J A 34	J A 18	J A 31	J A 24	J A 46	J A 22
2	J A 42	J A 22	J A 22	J A 22	E B 16	J A 18	20	29	J A 47	J A 60	J A 59	J A 131	47	47	51	J A 63	J A 100	J A 90	J A 83	J A 84	J A 50	J A 88	J A 88	J A 128
3	J A 33	J A 38	J A 26	J A 40	J A 55	J A 151	J A 29	J A 34	J A 58	J A 89	J A 84	J A 78	J A 49	44	J A 41	39	J A 38	35	J A 41	J A 106	J A 99	J A 29	J A 109	J A 25
4	21	J A 22	J A 26	J A 27	J A 28	J A 18	J A 25	29	J A 65	J A 69	J A 104	J A 53	J A 52	J A 48	G	G	J A 42	G	G	18	J A 66	J A 28	J A 47	20
5	J A 17	20	J A 20	J A 20	19	E B 16	19	J A 29	33	J A 50	J A 64	J A 95	J A 74	J A 60	J A 68	J A 43	J A 56	J A 52	J A 70	J A 52	J A 31	J A 32	J A 32	J A 16
6	20	J A 20	J A 50	J A 108	J A 48	J A 33	19	J A 37	J A 44	J A 49	J A 51	J A 46	J A 59	44	J A 55	J A 51	J A 50	J A 55	J A 43	J A 24	J A 50	J A 40	J A 42	J A 22
7	J A 32	J A 26	J A 35	J A 44	J A 28	J A 48	J A 39	J A 28	37	42	J A 68	J A 50	J A 52	45	J A 106	J A 48	J A 103	J A 68	J A 163	J A 54	J A 74	J A 38	J A 33	J A 42
8	J A 41	J A 38	J A 38	J A 28	J A 16	J A 32	E B 16	G	40	40	J A 50	J A 53	J A 71	J A 50	47	47	J A 49	J A 64	J A 53	J A 43	J A 60	J A 33	J A 18	J A 26
9	J A 49	J A 19	J A 26	J A 51	J A 58	J A 52	J A 24	31	37	J A 82	J A 142	G	J A 144	47	J A 48	J A 56	G	34	J A 29	J A 34	19	J A 18	J A 22	18
10	J A 20	J A 53	J A 16	J A 15	J A 16	19	J A 27	31	J A 58	J A 102	J A 202	J A 70	J A 82	J A 61	J A 61	J A 47	44	J A 48	J A 56	J A 53	J A 36	J A 18	J A 26	J A 61
11	J A 20	J A 44	J A 33	J A 102	J A 80	J A 33	J A 52	J A 53	J A 36	J A 56	J A 61	J A 98	J A 58	J A 61	45	J A 67	J A 48	G	J A 27	E B 17	J A 17	J A 18	J A 52	J A 53
12	J A 40	J A 52	J A 30	J A 29	J A 18	J A 20	E B 16	J A 50	J A 43	J A 77	J A 58	J A 45	44	J A 64	42	40	J A 77	J A 77	J A 65	J A 30	J A 20	J A 18	J A 21	E B 16
13	J A 17	E B 16	J A 30	J A 32	J A 22	J A 18	19	J A 40	J A 46	J A 60	J A 56	42	J A 66	42	J A 61	J A 194	J A 60	J A 59	J A 63	J A 36	J A 62	J A 44	J A 32	20
14	18	E B 16	E B 16	E B 16	E B 16	E B 16	J A 17	E B 16	27	J A 33	J A 47	J A 41	J A 60	J A 58	J A 84	J A 96	J A 116	J A 64	J A 52	J A 54	J A 54	J A 88	J A 33	J A 42	J A 46
15	J A 88	J A 25	J A 19	J A 21	J A 23	J A 19	J A 53	J A 40	J A 46	J A 42	J A 59	J A 47	J A 49	J A 51	45	45	37	J A 34	30	J A 34	J A 31	J A 18	J A 26	J A 50
16	J A 52	J A 28	J A 45	J A 42	J A 34	J A 24	J A 17	31	J A 40	J A 54	J A 141	J A 90	J A 46	J A 44	J A 44	39	G	G	J A 38	J A 40	J A 32	J A 27	J A 27	J A 50
17	J A 43	J A 41	J A 29	J A 16	J A 29	19	E B 16	J A 36	J A 49	J A 88	J A 145	J A 49	41	44	G	G	J A 47	J A 40	J A 38	J A 37	E B 16	E B 16	19	J A 19
18	21	E B 16	E B 16	E B 16	E B 16	E B 16	J A 38	J A 29	36	J A 52	J A 62	J A 68	J A 48	46	J A 51	40	36	G	26	J A 36	J A 66	J A 51	J A 85	J A 44
19	J A 84	J A 41	J A 52	J A 20	J A 53	J A 47	J A 22	31	35	44	42	J A 70	J A 93	J A 105	J A 60	J A 78	J A 65	35	J A 34	J A 26	J A 26	J A 30	J A 28	J A 20
20	J A 34	J A 53	J A 15	J A 32	J A 34	J A 19	E B 16	33	J A 49	J A 53	J A 58	J A 72	J A 123	J A 70	J A 80	J A 53	J A 57	J A 53	J A 27	J A 29	J A 26	J A 17	E B 16	J A 17
21	J A 43	J A 24	J A 19	E B 16	J A 42	20	J A 33	31	J A 41	J A 52	J A 53	J A 44	J A 40	42	G	J A 64	J A 64	J A 84	J A 64	28	J A 42	J A 64	J A 78	J A 66
22	J A 41	J A 39	J A 26	19	J A 33	J A 19	18	J A 34	J A 63	J A 47	J A 58	J A 74	J A 64	J A 77	J A 57	J A 44	G 29	34	J A 30	J A 16	19	E B 16	20	20
23	19	E B 16	E B 16	18	J A 34	E B 16	E B 16	G	J A 39	39	43	J A 78	J A 72	J A 66	J A 90	J A 78	J A 64	J A 101	J A 109	J A 81	J A 34	J A 30	J A 25	E B 16
24	J A 22	J A 29	J A 26	J A 33	J A 31	J A 26	J A 24	27	32	35	41	J A 53	41	42	40	40	J A 50	J A 52	J A 87	J A 78	J A 51	J A 26	J A 38	J A 27
25	J A 42	20	E B 16	E B 16	E B 16	E B 16	J A 15	26	J A 44	J A 52	J A 45	J A 50	J A 53	J A 48	J A 41	39	38	32	J A 39	J A 42	J A 54	J A 52	20	20
26	J A 66	J A 19	J A 35	J A 27	J A 66	J A 62	J A 36	53	J A 40	J A 41	43	46	47	45	45	39	40	34	35	J A 26	J A 31	J A 61	J A 42	J A 26
27	J A 28	J A 26	J A 20	E B 16	E B 16	E B 16	19	26	34	J A 42	J A 47	J A 73	J A 109	J A 50	J A 68	J A 147	J A 43	38	J A 53	J A 50	J A 66	J A 25	J A 18	J A 20
28	J A 48	J A 43	J A 59	J A 49	J A 21	J A 22	E B 16	26	J A 39	J A 52	J A 82	J A 160	J A 55	J A 49	J A 46	42	J A 58	J A 47	J A 36	J A 32	J A 18	J A 19	J A 21	18
29	J A 28	J A 26	J A 27	E B 16	J A 32	J A 29	J A 20	28	34	36	39	40	41	E B 41	45	J A 46	J A 47	J A 39	J A 45	J A 33	J A 25	J A 22	J A 21	J A 18
30	E B 16	E B 16	E B 16	J A 22	J A 22	J A 16	J A 20	32	J A 65	36	J A 50	46	J A 70	J A 51	J A 50	J A 48	J A 52	J A 34	30	J A 20	19	E B 16	J A 24	J A 20
31	J A 18	J A 26	J A 17	E B 16	J A 20	J A 22	J A 30	29	35	39	40	C	45	49	J A 48	J A 56	J A 50	35	J A 53	J A 41	J A 48	J A 53	J A 22	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	30	31	31	31	31	31	31	31	31	31	31	31	31
MED	J A 32	J A 26	J A 26	J A 22	J A 28	J A 20	J A 20	31	J A 40	J A 52	J A 58	J A 53	J A 53	J A 48	J A 48	J A 47	J A 49	J A 39	J A 41	J A 36	J A 34	J A 28	J A 27	J A 20
U Q	J A 43	J A 41	J A 33	J A 33	J A 42	J A 33	J A 30	J A 36	J A 49	J A 60	J A 68	J A 74	J A 71	J A 61	J A 61	J A 63	J A 60	J A 55	J A 63	J A 52	J A 60	J A 40	J A 42	J A 44
L Q	20	E B 20	E B 17	E B 16	E B 18	E B 18	E B 16	28	36	42	45	46	47	44	42	40	39	34	30	J A 26	25	J A 18	21	19

AUG.2022 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

AUG.2022 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	28	E B 16	E B 16	23	23	42	38	57	44	37	45	46	40	39	38	37	35	28	18	E B 16	20	E B 16	18
2	18	E B 16	E B 16	E B 16	E B 16	E B 16	20	28	34	43	43	62	46	44	49	58	95	74	80	76	36	E B 16	21	20
3	20	E B 16	E B 16	20	25	18	18	26	34	49	54	41	42	42	39	38	34	35	30	A A 106	24	20	E B 16	E B 16
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	28	46	A A 69	A A 104	48	49	44	G	G	35	G	G	18	55	21	37	E B 16
5	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	18	28	32	41	47	A A 95	45	46	50	38	51	45	57	28	19	18	E B 16	E B 16
6	E B 16	E B 16	18	E B 16	E B 16	E B 16	18	29	36	42	45	42	51	42	44	50	41	44	40	20	45	19	21	E B 16
7	24	E B 16	E B 16	E B 16	E B 16	18	22	26	33	39	42	41	42	42	40	38	39	46	42	23	36	21	23	27
8	31	22	25	18	E B 16	27	E B 16	G	36	37	44	44	53	44	43	42	43	54	39	36	57	29	E B 16	23
9	30	E B 16	22	19	E B 16	18	20	28	34	40	48	G	A A 144	43	41	42	G	31	G 19	31	E B 16	E B 16	E B 16	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	28	32	A A 102	A A 202	A A 70	A A 82	53	50	40	41	43	37	51	33	E B 16	25	38
11	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	35	32	49	56	44	50	57	43	61	38	G	G 19	E B 17	E B 16	E B 16	21	E B 16
12	E B 16	E B 16	E B 16	22	E B 16	E B 16	E B 16	34	38	40	38	42	43	42	40	39	65	63	47	22	E B 16	E B 16	E B 16	E B 16
13	E B 16	E B 16	E B 16	25	E B 16	E B 16	E B 16	36	36	42	40	40	42	40	58	42	56	34	31	19	36	22	24	E B 16
14	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	32	37	40	46	52	80	82	A A 116	49	42	48	30	30	18	E B 16	E B 16
15	E B 16	E B 16	E B 16	E B 16	18	E B 16	22	28	34	36	40	40	42	45	44	42	37	33	28	31	29	E B 16	22	E B 16
16	E B 16	22	E B 16	E B 16	E B 16	E B 16	E B 16	30	36	41	49	40	41	40	40	38	G	G	30	30	27	E B 16	E B 16	32
17	19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	32	43	68	51	46	41	42	G	G	36	34	32	34	E B 16	E B 16	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	28	32	38	48	42	42	46	42	40	G 28	G	26	31	42	28	33	E B 16
19	E B 16	33	E B 16	E B 16	44	19	18	G 18	33	40	41	56	40	56	43	47	36	33	23	19	22	18	20	E B 16
20	20	E B 16	E B 16	E B 16	30	E B 16	E B 16	28	42	44	43	46	65	60	46	43	40	29	25	21	22	E B 16	E B 16	E B 16
21	20	E B 16	E B 16	E B 16	E B 16	E B 16	22	29	35	34	35	38	38	41	G	40	34	32	24	24	23	E B 16	A A 78	26
22	21	23	E B 16	18	E B 16	E B 16	E B 16	32	39	39	40	40	40	45	50	32	G 28	32	23	E B 16	E B 16	E B 16	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	34	37	41	46	49	54	42	46	38	43	42	69	21	22	E B 16	E B 16
24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	31	34	39	40	40	42	40	38	42	42	82	74	22	24	20	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	33	35	36	41	40	40	38	38	37	32	34	34	26	E B 16	E B 16	E B 16
26	E B 16	E B 16	E B 16	E B 16	E B 16	16	E B 16	27	36	38	42	44	45	43	43	38	37	33	32	24	28	19	22	E B 16
27	E B 16	20	E B 16	E B 16	E B 16	E B 16	E B 16	26	32	36	44	48	56	48	60	39	38	32	43	20	32	E B 16	E B 16	E B 16
28	E B 16	22	23	18	18	E B 16	E B 16	25	34	44	37	42	52	42	42	40	40	42	32	28	E B 16	E B 16	E B 16	E B 16
29	E B 16	E B 16	E B 16	E B 16	E B 16	20	E B 16	27	32	35	38	40	41	E B 41	42	44	43	35	29	29	22	17	E B 16	E B 16
30	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	30	31	35	40	42	45	47	46	41	51	33	26	E B 16	E B 16	E B 16	E B 16	18
31	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	34	37	39	C	42	47	47	52	48	33	41	32	42	22	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	30	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	28	34	40	42	42	45	44	43	40	38	34	32	28	24	17	E B 16	E B 16
U Q	19	16	16	16	16	16	20	30	36	44	48	46	51	47	47	44	43	43	42	34	36	21	22	18
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	32	37	39	40	41	42	40	38	36	32	26	20	E B 16	E B 16	E B 16	E B 16

AUG.2022 fbEs (0.1MHz)

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AUG.2022 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	15	19	28	25	26	26	28	23	23	18	19	16	13	16	16	16	16
2	16	16	16	16	16	16	16	16	15	18	24	22	22	24	24	23	19	15	16	16	16	16	16	16
3	16	16	16	16	16	16	16	16	14	19	23	22	25	23	23	22	19	15	14	15	16	16	16	16
4	16	16	16	16	16	16	16	16	16	20	23	22	30	22	22	21	20	15	14	16	16	16	16	16
5	16	16	16	16	16	16	16	16	15	20	21	27	26	26	24	22	22	16	14	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	20	22	21	27	29	25	22	21	17	13	16	16	16	16	16
7	16	16	16	16	16	16	16	15	17	20	21	26	24	25	25	21	19	15	14	16	16	16	16	16
8	16	16	16	16	16	16	16	16	16	19	22	23	23	26	24	19	18	16	14	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	17	22	20	25	24	23	20	17	14	13	16	16	16	16	16
10	16	16	16	16	16	16	16	16	16	18	23	22	24	24	25	23	18	18	16	16	16	16	16	16
11	16	16	16	16	16	16	16	16	15	20	20	25	26	24	26	24	23	20	16	17	16	16	16	16
12	16	16	16	16	16	16	16	16	14	20	24	21	23	24	24	23	20	18	16	16	16	16	16	16
13	16	16	16	16	16	16	16	15	17	22	25	26	27	27	27	24	20	18	16	14	16	16	16	16
14	16	16	16	16	16	16	16	16	17	18	23	26	32	24	27	22	22	18	14	16	16	16	16	16
15	16	16	16	16	16	16	16	16	17	19	21	22	26	26	35	24	20	17	14	16	16	16	16	16
16	16	16	16	16	16	16	16	16	15	19	23	24	25	25	21	21	16	36	12	16	16	16	16	16
17	16	16	16	16	16	16	16	16	19	21	22	25	26	27	29	23	20	15	16	16	16	16	16	16
18	16	16	16	16	16	16	16	16	16	20	23	24	28	24	28	23	20	14	16	16	16	16	16	16
19	16	16	16	16	16	16	16	16	16	18	20	21	23	26	41	26	16	17	16	16	16	16	16	16
20	16	16	16	16	16	16	16	16	15	17	19	22	21	25	20	22	18	15	14	16	16	16	16	16
21	16	16	16	16	16	16	16	14	14	21	21	24	25	23	26	24	17	15	16	16	16	16	16	16
22	16	16	16	16	16	16	16	16	16	22	24	24	22	25	23	20	20	15	15	16	16	16	16	16
23	16	16	16	16	16	16	16	16	16	17	22	23	24	23	22	21	19	14	15	16	16	16	16	16
24	16	16	16	16	16	16	16	16	17	17	22	22	22	26	23	20	16	15	12	16	16	16	16	16
25	16	16	16	16	16	16	16	16	16	18	20	22	24	25	21	23	18	14	14	16	16	16	16	16
26	16	16	16	16	16	16	16	16	16	20	24	26	29	29	23	22	20	16	16	16	16	16	16	16
27	16	16	16	16	16	16	16	16	19	21	27	30	39	34	32	23	22	16	14	16	16	16	16	16
28	16	16	16	16	16	16	16	16	18	20	25	30	30	30	28	21	21	17	16	16	16	16	16	16
29	16	16	16	16	16	16	16	16	17	21	24	26	30	41	26	26	20	14	14	16	16	16	16	16
30	16	16	16	16	16	16	16	16	17	21	23	35	30	29	32	22	20	15	13	16	16	16	16	16
31	16	16	16	16	16	16	16	16	19	21	24	C	34	26	26	24	19	20	14	16	16	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	16	16	20	23	24	26	25	25	22	20	16	14	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	17	21	24	26	29	27	27	23	20	18	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	15	18	21	22	24	24	23	21	18	15	14	16	16	16	16	16

IONOSPHERIC DATA STATION Okinawa

AUG. 2022 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	291	312	278	F 303	F 308	305	334	355	371	321	290	265	259	304	296	314	311	285	275	303	355	329	308	284
2	F 288	285	301	338	352	350	340	307	364	347	306	307	273	268	275	302	316	306	289	288	310	329	300	304
3	303	F	F 294	F 298	F 307	319	372	337	319	357	358	300	292	276	270	288	297	303	305	A	332	334	285	296
4	280	291	294	F 328	369	307	342	364	330	A	A	273	277	282	273	285	306	317	311	307	327	310	272	287
5	288	285	287	291	319	297	324	332	348	354	290	A	310	283	256	279	304	302	316	290	307	324	299	294
6	289	277	292	317	337	327	339	371	359	331	339	316	269	288	295	302	284	294	292	322	314	354	285	285
7	280	282	295	300	337	363	350	365	356	326	331	312	294	295	283	278	259	272	288	313	335	300	298	272
8	279	276	287	282	277	289	320	330	312	282	301	315	268	293	271	310	278	292	294	301	314	282	271	275
9	268	307	307	282	266	284	303	298	G	276	251	297	A	330	276	286	288	296	296	323	292	277	291	270
10	271	287	320	340	313	315	366	285	326	A	A	A	A	282	288	281	309	300	307	329	312	306	274	276
11	276	283	320	342	318	284	307	356	376	331	299	283	288	282	265	284	302	326	287	301	317	288	271	269
12	284	290	293	305	313	319	357	339	357	325	316	266	291	313	302	286	305	310	320	343	297	270	272	275
13	268	293	320	303	292	297	349	369	336	341	295	292	280	259	276	289	299	308	307	322	330	290	274	279
14	289	283	293	283	287	296	306	354	335	332	278	257	275	289	280	A	310	326	327	311	338	284	285	293
15	286	283	287	291	287	300	306	355	370	377	314	307	294	286	296	301	304	303	275	305	331	349	274	280
16	285	285	300	302	306	320	328	357	345	360	326	305	289	291	288	295	280	301	305	322	329	338	296	F 250
17	299	287	F 298	307	290	281	F 338	355	340	R 357	298	310	296	301	304	291	292	275	294	310	323	307	295	263
18	284	274	272	301	295	332	377	363	325	351	342	305	310	276	285	295	277	291	300	329	324	323	275	256
19	275	272	276	267	300	332	364	358	345	316	316	318	301	298	304	305	290	296	298	331	326	344	291	267
20	262	285	312	364	327	262	289	374	352	356	377	286	290	298	290	275	284	298	318	308	323	345	290	284
21	285	304	350	398	298	292	333	368	396	346	337	306	303	261	291	293	303	308	327	334	318	310	A	287
22	303	283	308	304	280	291	339	363	352	348	296	263	278	281	288	296	301	284	306	344	362	337	296	297
23	297	302	316	327	303	319	346	385	381	360	303	299	298	271	297	299	307	311	332	332	342	318	299	301
24	308	303	297	299	311	327	355	358	376	375	365	317	305	285	305	298	298	301	317	330	348	333	291	277
25	289	291	302	U F 309	333	324	354	363	373	342	326	294	281	292	277	290	308	338	341	321	321	304	321	302
26	287	301	313	323	309	F 311	349	366	389	366	338	305	322	316	308	319	304	300	314	343	365	299	287	278
27	284	288	295	305	293	299	320	345	338	362	322	295	289	291	295	273	270	306	325	331	363	294	283	277
28	270	278	294	335	334	327	291	347	380	376	352	310	328	296	311	311	305	302	331	337	326	312	281	265
29	289	296	302	299	317	353	362	380	385	342	348	311	298	287	302	302	286	316	329	333	340	333	285	275
30	279	279	311	329	318	322	324	351	381	369	324	285	291	291	292	264	263	289	329	R 345	346	278	251	276
31	281	292	289	314	374	303	345	377	392	366	326	C	319	293	294	286	297	321	326	357	357	303	288	289
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	31	31	31	31	31	29	29	28	29	31	31	30	31	31	31	30	31	31	30	31
MED	285	286	297	305	309	311	339	357	356	348	322	302	291	289	290	292	299	302	307	322	327	310	286	278
U Q	289	293	311	328	327	327	354	366	376	361	338	310	302	296	297	302	305	310	326	333	342	333	296	289
L Q	279	283	292	299	293	296	320	345	336	331	298	286	279	282	276	285	284	294	294	308	317	294	274	272

IONOSPHERIC DATA STATION Okinawa

AUG.2022 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

H / D	00	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	372	L 385	A	A	418	375	388	394	L 356	L 340	L				
2								U L 350	388	A	394	A	A	386	A	A	A	A	A	A				
3									379	A	A	410	430	389	414	382	371	368	L 373	A				
4									A	A	A	A	A	407	405	394	369	369	363					
5								L 374	382	401	A	A	368	385	A	394	A	A	A					
6									L	L 376	A	U L 393	A	419	373	A	370	A	L					
7								L	L	U L 370	L 362	390	403	392	381	391	369	A	A					
8									398	U L 383	A	394	A	L 388	380	375	A	A	A					
9								U L 334	340	350	A	391	A	396	400	366	340	L	344					
10									L 368	A	A	A	A	A	A	380	A	A	A					
11									L	A	A	386	A	A	391	A	374	367	L					
12								A	A	U L 410	U L 374	400	379	390	371	376	A	A	A	A				
13								A	L	U L 405	U L 403	414	413	415	A	366	A	367	L 349					
14								L	L	L	U L 372	351	A	A	A	A	A	A	A					
15								L	L	395	392	U L 400	U L 401	381	361	370	364	L 364	L 331					
16								L	L	388	A	378	390	405	384	365	369	L 366	L 364					
17									A	A	A	365	408	389	403	381	369	L 347	L 352					
18									L	L	A	392	397	377	381	343	L 350	357	L					
19									L	A	L	A	360	A	357	A	360	L	L					
20								L	A	A	416	A	A	A	A	L 358	348	367	L					
21								L	398	L 419	L 402	404	424	385	376	359	365	L 347	L					
22									L	L 392	367	U L 396	396	A	A	376	356	L	L					
23									L	U L 409	U L 407	A	A	A	414	A	388	A						
24									L	389	407	U L 399	417	L 401	397	365	A	A	A					
25								L	L	384	390	398	402	398	400	363	356	360	A					
26								L	L	L 413	L 386	A	385	410	381	391	363	365	L					
27								L	L	393	L 375	A	A	A	A	368	L 356	L 365	A					
28								L	L	A	404	L 388	A	L 357	384	359	L 358	L						
29								L 419	L	L 381	L 389	L 394	386	375	397	A	A	L 358						
30										L	U L 390	L 377	A	A	A	345	A	L 329						
31										431	U L 395	C	438	U A 362	A	A	A	358						
	00	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	7	19	19	20	17	22	21	23	20	17	8					
MED								L 362	382	L 392	L 390	394	401	390	384	370	364	364	L 350					
U Q								L 396	398	L 409	403	400	415	405	400	382	370	367	L 364					
L Q								U L 342	368	L 381	L 375	387	386	385	376	363	356	L 356	L 342					

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AUG.2022 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								240	230	292	362	368	382	310	302	298	298	320	334	272				
2								330	232	262	338	332	330	342	338	296	282	278	EA368	EA372				
3									314	254	244	320	364	370	382	316	302	290	260	A				
4									304	A	A	358	354	322	352	314	294	266	260					
5								286	254	256	376	A	322	360	416	348	298	290	262					
6									238	284	276	306	390	360	328	304	328	306	284					
7								228	246	286	290	310	372	362	380	350	384	352	302					
8									306	410	358	322	L454	352	444	330	364	350	312					
9								346	G	408	518	372	A	306	406	356	340	296	292					
10									298	A	A	A	A	386	356	358	312	304	284					
11									214	EA290	EA336	376	350	328	364	328	296	260	288					
12								232	240	252	310	434	336	290	300	318	300	284	262	224				
13								224	262	258	338	336	348	396	352	320	304	282	280					
14								234	264	264	320	398	342	318	374	A	290	268	258					
15								238	222	232	318	324	346	356	314	318	294	274	324					
16								226	250	236	280	322	328	324	332	320	332	290	276					
17									232	EA290	320	304	312	302	304	312	310	308	286					
18									276	258	244	312	294	356	330	302	318	296	282					
19									270	240	290	280	298	322	314	282	308	298	288					
20								218	230	246	242	304	322	294	304	324	320	268	262					
21								232	216	230	266	304	340	402	330	310	294	284	260					
22									238	236	366	328	344	336	324	312	292	292	270					
23									222	248	304	346	324	360	322	314	296	288						
24									218	238	244	274	362	374	324	324	310	290	EA310					
25								232	222	266	284	298	304	322	338	302	282	250	240					
26								232	218	244	278	322	310	316	320	302	304	288	266					
27								236	248	228	292	304	288	300	294	320	302	280	256					
28								248	206	226	252	330	290	314	304	302	294	302						
29								208	220	268	266	298	314	322	302	286	300	270						
30										228	280	324	302	310	298	326	338	300						
31										214	268	C	288	308	314	324	304	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								17	29	29	29	28	29	31	31	30	31	31	26	3				
MED								232	238	251	290	322	330	324	328	317	302	290	277	U248				
U Q								244	267	276	337	341	352	360	356	324	318	300	292	EA372				
L Q								227	222	236	267	304	307	310	304	302	294	274	262	224				

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AUG.2022 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	258	260	278	298	252	E A 236	E A 276	A	A	E A 244	176	E A 282	E A 250	166	224	192	200	212	228	246	206	200	206	254
2	298	310	260	214	204	202	246	216	224	E A 252	204	A	E A 290	234	A	A	A	A	A	A	260	224	216	252
3	264	308	270	270	E A 254	214	214	218	208	A	A	202	176	214	190	218	208	224	220	A	216	E A 196	266	260
4	284	284	274	244	202	230	228	222	A	A	A	A	E A 242	206	180	200	200	212	204	238	E A 250	228	E A 324	286
5	288	288	298	262	230	250	248	208	206	206	E A 306	A	240	E A 236	A	196	A	A	A	276	244	226	202	268
6	282	310	280	248	240	208	220	224	216	E A 234	E A 232	196	A	180	238	A	E A 226	A	A	242	E A 248	214	E A 264	272
7	E A 290	282	260	256	222	202	220	202	192	208	E A 236	180	188	192	190	198	216	A	A	250	216	230	226	E A 294
8	E A 328	300	306	300	296	E A 258	242	224	214	200	E A 268	226	A	E A 222	E A 226	E A 238	E A 268	A	A	258	E A 294	E A 256	280	306
9	E A 338	256	264	E A 284	306	304	274	242	216	E A 234	A	198	A	204	184	E A 240	236	212	224	242	216	268	254	268
10	302	274	230	212	244	244	198	222	224	A	A	A	A	A	A	198	E A 250	A	A	250	238	228	E A 292	E A 344
11	312	294	236	218	236	282	258	226	196	A	A	192	A	A	212	A	222	202	212	252	210	228	302	322
12	308	278	264	246	238	240	228	A	A	204	186	196	212	214	214	212	A	A	A	A	218	274	288	276
13	288	260	236	E A 260	262	262	222	A	214	208	H 182	172	178	176	A	232	A	210	228	246	218	E A 230	E A 300	272
14	272	286	262	270	268	264	234	216	198	212	200	236	A	A	A	A	A	A	A	236	226	246	286	288
15	286	288	274	260	276	264	250	214	202	204	192	178	H 174	222	E A 224	214	216	218	236	252	226	198	E A 228	286
16	284	296	270	276	272	226	236	210	212	208	A	192	190	180	184	186	198	236	228	238	222	220	226	E A 400
17	274	286	274	258	276	286	236	222	A	A	A	E A 224	182	190	184	H 190	224	216	264	244	208	206	242	280
18	280	292	310	258	270	232	186	216	202	234	A	202	194	226	206	212	212	206	238	242	242	220	E A 314	326
19	312	E A 344	322	304	E A 306	206	208	228	206	A	204	A	186	A	216	A	202	210	228	236	214	210	208	278
20	E A 326	284	246	202	E A 264	346	262	210	A	A	200	A	A	A	E A 246	E A 246	E A 268	208	220	246	226	210	228	284
21	292	250	212	180	260	266	252	222	204	190	184	180	172	198	184	E A 222	216	214	226	222	202	216	A	E A 296
22	262	312	260	234	276	248	230	228	A	E A 212	198	182	194	E A 246	A	192	H 204	214	218	226	196	188	250	262
23	258	262	238	212	244	242	232	214	200	196	184	E A 270	A	A	192	A	206	A	246	248	200	208	242	264
24	256	256	270	256	246	238	226	208	202	196	186	186	184	190	208	210	E A 296	A	A	E A 250	198	212	E A 268	274
25	294	264	254	240	214	204	222	208	202	180	200	188	182	178	178	216	232	224	A	246	224	224	214	234
26	290	272	256	222	236	248	224	214	206	180	222	E A 238	246	208	234	198	230	218	258	224	196	222	302	302
27	282	296	284	246	254	236	248	210	204	216	E A 212	E A 268	A	A	A	198	236	230	A	224	206	216	244	302
28	292	302	280	210	210	222	254	222	200	A	184	188	A	E A 230	214	208	E A 240	260	242	226	214	190	262	300
29	292	272	252	256	232	214	204	202	204	186	190	194	190	210	204	E A 266	E A 274	E A 250	246	228	204	196	272	300
30	292	298	250	220	232	238	242	224	214	198	188	178	E A 254	A	E A 268	E A 242	A	234	240	210	178	192	304	300
31	258	244	248	216	190	228	220	208	206	202	186	C	176	E A 250	E A 298	A	A	234	246	218	212	E A 230	238	280
	00	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	28	25	23	23	24	21	23	24	24	24	21	20	28	31	31	30	31
MED	286	285	264	247	243	238	231	216	206	202	192	191	186	199	200	204	214	215	228	242	215	217	U 246	280
U Q	298	298	278	262	270	262	248	223	214	E A 216	E A 212	E A 225	E A 241	E A 226	E A 225	E A 227	E A 238	232	244	249	226	228	288	300
L Q	274	264	250	218	232	222	220	210	202	196	186	184	180	190	187	198	207	211	222	227	206	206	228	268

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AUG.2022 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	104	104	A	A	A	A	A	102	100	102	100	112	A				
2							A	110	104	104	A	A	102	102	102	102	102	102	102	A				
3							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
4							A	104	104	104	102	102	104	102	102	102	A	102	102	A				
5							A	A	102	102	100	A	A	A	A	A	A	A	A	A				
6							A	102	102	A	A	A	A	102	A	102	102	102	102	A				
7							A	A	A	A	A	A	A	104	102	100	104	A	A	A				
8							B	102	102	102	102	102	102	102	102	102	100	100	102	A				
9							A	110	104	104	102	102	100	100	A	100	102	100	100	A				
10							B	104	104	A	A	A	A	A	A	A	A	104	102	A				
11							A	A	A	102	102	102	102	102	102	102	100	100	100	B				
12							B	104	102	A	A	A	A	A	100	98	A	A	A	A				
13							B	102	102	98	98	102	A	A	102	A	A	A	A	A				
14							B	A	A	A	A	A	A	A	A	A	A	A	A	A				
15							A	A	A	A	A	A	A	A	A	102	102	A	A	A				
16							B	102	102	A	A	A	A	A	A	104	102	B	A	A				
17							B	106	102	102	102	102	A	102	104	100	102	100	A	A				
18							A	102	100	A	A	A	A	A	A	A	102	102	102	A				
19							A	110	A	104	104	104	102	102	A	102	102	102	104	A				
20							B	104	102	102	102	A	A	A	A	A	A	A	A	A				
21								102	102	A	A	A	A	A	102	102	A	A	A	A				
22							B	102	102	A	A	A	A	A	A	A	102	102	A					
23							B	106	100	100	100	98	A	A	A	A	A	A	A	A				
24							B	102	A	A	A	A	A	A	102	102	102	100	100	A				
25							B	102	A	A	A	A	A	A	A	A	102	110	106	A				
26							B	A	A	A	A	100	A	A	A	102	102	102	100	A				
27							B	A	A	A	A	A	A	A	A	A	A	104	A	A				
28							B	104	100	100	A	A	A	A	A	102	102	96	104	A				
29							B	102	102	A	A	102	A	B	A	A	A	A	A	A				
30							B	102	102	A	A	A	A	A	A	A	A	A	108	B				
31							B	120	100	100	100	C	A	A	102	102	100	104	106	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								23	21	13	11	10	6	9	12	18	18	18	16					
MED								104	102	102	102	102	102	102	102	102	102	102	102					
U Q								106	103	104	102	102	102	102	102	102	102	102	105					
L Q								102	102	100	100	102	102	102	102	100	102	100	101					

AUG.2022 h'E (KM)

IONOSPHERIC DATA STATION Okinawa

AUG.2022 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	84	92	94	96	94	96	106	106	102	96	108	186	96	102	150	126	122	112	112	92	96	88	96	86
2	98	88	90	98	B	106	132	124	112	108	102	94	166	150	144	116	102	102	106	100	96	108	104	100
3	104	104	98	96	94	98	96	98	92	94	94	96	116	176	102	170	94	198	90	100	104	84	106	98
4	86	98	98	100	98	102	124	126	110	102	100	102	104	106	G	G	110	G	G	140	88	90	90	84
5	88	86	86	84	88	B	122	120	124	102	98	94	96	94	96	96	92	90	88	88	90	94	100	100
6	88	102	98	98	96	98	128	114	114	112	98	98	94	106	102	120	120	110	108	106	96	96	98	94
7	86	102	92	106	96	92	96	98	134	122	110	102	96	122	104	116	104	100	94	108	98	116	116	114
8	112	104	96	100	100	96	B	G	116	126	114	114	108	112	140	118	116	106	104	100	98	98	90	96
9	94	102	98	96	94	96	112	112	112	104	102	G	102	118	106	116	G	128	90	102	98	88	88	86
10	86	108	108	106	108	120	90	120	104	98	98	98	96	96	96	96	112	114	110	100	100	102	102	100
11	102	98	98	98	98	98	94	96	98	110	104	108	112	112	132	110	110	G	96	B	120	88	102	108
12	104	100	100	100	102	114	B	100	98	98	96	100	140	98	142	142	92	90	88	88	90	86	86	B
13	84	B	96	94	94	106	118	104	102	100	100	104	96	106	100	98	94	92	90	90	86	86	86	88
14	86	B	B	B	B	104	B	152	102	104	104	96	98	96	96	94	92	92	90	88	106	98	96	100
15	100	98	98	120	96	98	96	94	96	96	94	96	98	102	152	138	152	92	154	106	98	82	100	100
16	100	100	100	96	96	96	134	116	108	94	92	94	92	92	92	128	G	G	110	86	98	100	98	98
17	98	94	92	94	96	102	B	110	104	100	98	98	104	122	G	G	108	104	98	96	B	B	86	86
18	84	B	B	B	B	B	102	108	144	100	94	98	94	172	92	164	150	G	128	100	92	94	102	100
19	96	100	98	92	90	96	88	128	122	116	124	114	108	108	112	106	104	112	102	90	86	96	86	84
20	114	118	98	100	98	104	B	122	114	108	100	96	92	92	94	122	92	92	92	88	88	86	B	98
21	96	96	88	B	94	114	112	102	106	96	98	100	102	156	G	110	104	102	98	98	96	96	94	94
22	96	90	86	82	94	94	122	102	102	102	100	98	96	96	92	90	92	186	100	92	90	B	88	86
23	110	B	B	82	94	B	B	G	106	106	106	102	98	102	110	100	102	100	90	86	84	84	84	B
24	106	104	100	98	98	96	98	148	134	128	130	96	144	144	166	130	112	104	98	96	108	98	86	86
25	98	86	B	B	B	B	100	138	116	96	100	96	96	92	92	158	164	136	110	102	100	106	84	84
26	102	88	98	92	98	96	96	92	120	96	166	142	132	142	134	142	130	130	110	102	98	102	102	102
27	94	94	86	B	B	B	102	122	98	106	94	94	94	96	92	94	92	126	88	90	96	88	84	84
28	96	96	94	96	96	96	B	118	104	104	120	96	94	94	94	120	108	106	106	102	102	98	96	96
29	96	98	100	B	94	96	98	168	130	132	134	130	132	B	122	92	88	88	88	86	84	84	84	84
30	B	B	B	98	100	100	102	110	100	102	116	98	96	92	96	90	90	92	114	110	86	B	82	88
31	84	94	96	B	94	96	94	126	124	120	126	C	114	106	104	106	106	112	106	98	96	98	98	86
	00	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	26	26	24	26	26	24	29	31	31	31	29	31	30	28	29	29	27	30	30	30	28	30	29
MED	96	98	98	97	96	98	102	114	108	102	100	98	98	106	103	116	104	104	99	98	96	95	95	94
U Q	102	102	98	100	98	104	120	125	120	110	114	103	112	122	133	129	114	114	110	102	98	98	100	100
L Q	86	94	92	94	94	96	96	102	102	98	98	96	96	96	95	97	92	92	90	90	90	87	86	86

AUG.2022 h'Es (KM)

IONOSPHERIC DATA STATION Okinawa

AUG.2022 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	F4	F3	F2	F2	F3	C4	C4	C3	L2	C1	HL11	L2	C1	H1	C1	CL11	CL11	CL21	L2	F2	F3	F2	F3
2	FF24	F2	F1	F1		F1	H1	C2	C2	C2	C2	L3	H1	H1	H1	C2	C6	C9	C8	L9	F6	FF23	FF44	FF23
3	FF33	F3	F4	F5	F4	F4	LH12	L2	L2	L4	L3	L2	CL11	HL11	C1	HL11	L2	HL11	LC31	CL42	FF14	F4	FF23	F2
4	F1	F2	F1	F3	F3	F1	C2	C1	C5	C4	C6	C2	C1	C1			C1			H1	F7	F5	F5	F1
5	F1	F1	F1	F2	F1		C1	C2	C1	C2	L2	L5	L2	L2	L3	L2	L5	L4	L6	L3	F4	F3	F3	F1
6	F1	F2	F2	F3	F3	F2	C1	C2	C2	C1	L2	L2	L3	C1	C1	C1	C2	C3	C3	C2	FF52	F4	F4	F1
7	F3	F2	F2	FF22	F1	F3	L4	LH21	HL11	CL11	LL32	CH11	LH11	C1	C2	C1	C3	C2	L4	CL22	FF44	FF33	FF14	FF64
8	FF44	FF52	FF43	FF32	F1	F6			C2	C1	C2	C2	C2	C1	H1	C1	C2	C4	C4	C4	F8	F5	F2	F2
9	FF33	F1	F9	F4	F6	F6	C2	C2	C1	C3	C3		C4	C1	CH11	C1		C1	L2	C7	F1	F1	F2	F1
10	F2	FF21	F1	F1	F1	F1	L1	C1	C5	L6	L6	L3	L4	L2	L2	L2	C1	C3	C6	C7	FF64	F2	FF82	F4
11	F2	F3	F3	F3	F4	F4	L4	L7	L1	C3	C2	C2	C2	C2	H1	C2	C2		L1		F1	F1	F2	F2
12	F2	F2	F2	F4	F1	F1		C4	L3	L3	L2	L2	HL11	LH11	H1	H1	L5	L7	L7	L3	F1	F2	F2	
13	F1		F3	F5	F1	F1	C1	C3	C2	C2	C1	C1	L1	C1	C2	L3	L3	L3	L4	L2	F5	F6	F4	F2
14	F2					F1		HC11	C2	CH11	CH11	L3	L1	L5	L5	L9	L3	L6	L6	L6	FF33	FF22	F3	F2
15	F2	F3	F2	F1	F2	F1	L4	L2	LQ21	L2	L2	LH11	L1	CH11	H1	H1	H1	L2	HL12	CL83	FF53	F2	F3	F2
16	F2	F9	F2	F3	F5	F1	H1	C2	C1	L3	L3	L2	L1	L1	L1	CL11			CL25	L8	FF25	FF31	F3	F5
17	FQ31	F5	F4	F1	F1	F1		C2	C3	C3	L3	L2	C1	C1			C1	C2	C3	L9			F1	F1
18	F1						C1	C1	HC11	C2	L3	L2	L1	HL11	LH11	HL11	HL11		C1	CL32	F4	F4	FF32	F3
19	F4	F6	F3	F2	F4	F2	L2	HL12	CL11	C1	C1	C2	C1	C2	C1	C3	C2	C1	C2	L2	F5	F2	F3	F2
20	F3	F1	F1	F3	F7	F2		C3	C2	C2	C2	L2	L4	L3	L2	CL22	LH21	L1	L3	L3	F2	F1		F1
21	F3	F2	F1		F4	F1	C4	C2	C1	L2	L1	L1	C1	HC11		C1	C1	C2	L3	L3	F3	F4	F8	F4
22	F3	F3	F1	F1	F2	F1	C1	C2	C4	C2	C1	L1	L2	L2	L3	L1	L1	HC11	LH21	L1	F1		F1	F1
23	F1			F1	F2				C2	C2	C1	C4	L2	C2	C2	C3	CL23	CL26	L6	L6	F3	F3	F1	
24	F1	F3	F2	F5	F1	F3	L1	H1	HL11	CL11	HL11	L1	HL11	HL11	H1	H1	C2	C4	L9	L9	F3	FF62	F4	F2
25	F2	F1					C1	H1	C1	L2	L1	L2	L1	L2	L2	HL11	HL11	HL13	CL22	CL66	FF36	F3	F1	F2
26	F2	F1	F2	F3	F4	F4	L3	L3	CL21	LC11	HL11	H1	HL11	HL11	HL11	C1	H1	H2	C2	C7	F9	F3	F2	F1
27	F2	F2	F1				C1	C1	L1	C1	L2	L1	L1	L1	L2	L1	L3	CL21	LC53	LQ31	F3	F2	F2	F2
28	F2	F3	F3	F4	F3	F3		C1	C1	C2	C1	L2	L2	LH11	LC11	C1	C3	C3	C2	CL62	F1	F1	F1	F1
29	F4	F1	F1		F3	F3	L1	H1	H1	HL11	HL11	HC11	H1		CL11	L2	L2	L3	L3	L4	F5	F3	F2	F1
30				F2	F2	F1	C1	C2	L1	C1	C1	L1	L1	L2	L1	L3	L3	L2	CL22	C1	F1		F1	F1
31	F1	F2	F1		F3	F1	LQ31	CL11	C2	C1	C1		C1	C1	C1	C2	C2	C1	C6	L9	F6	F3	F2	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.2022 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

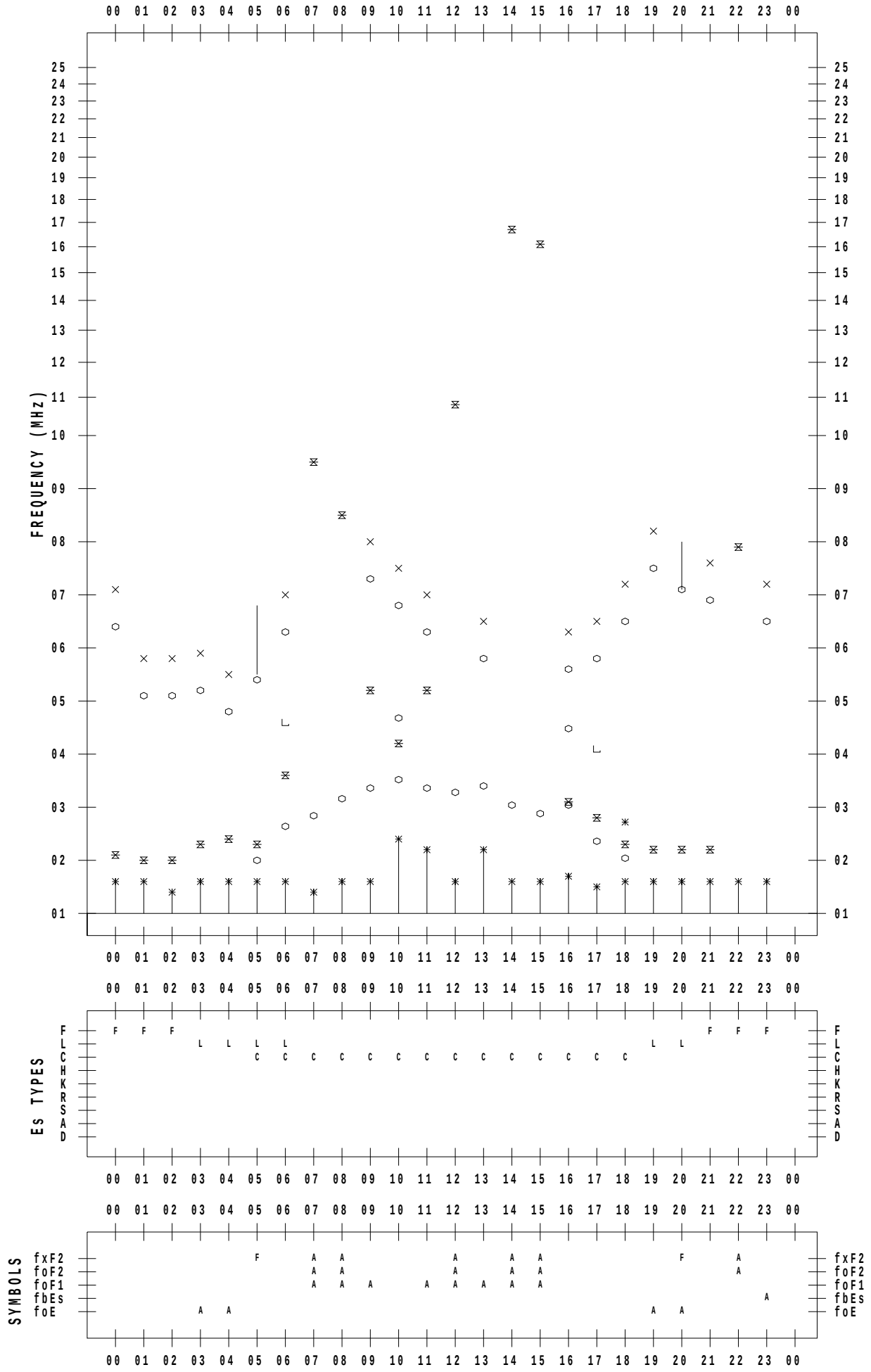
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/ 1

135 °E MEAN TIME



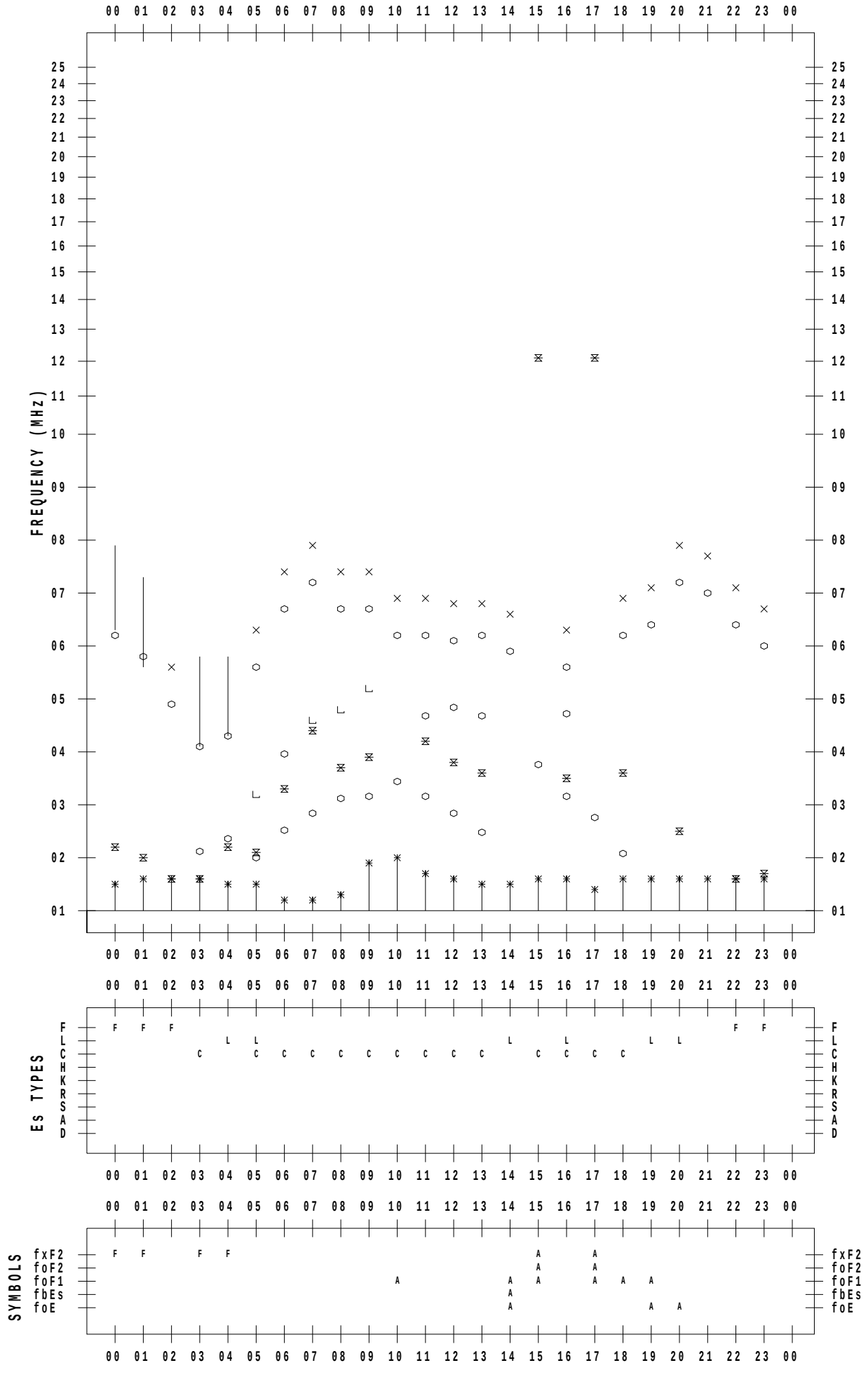
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/ 2

135 °E MEAN TIME



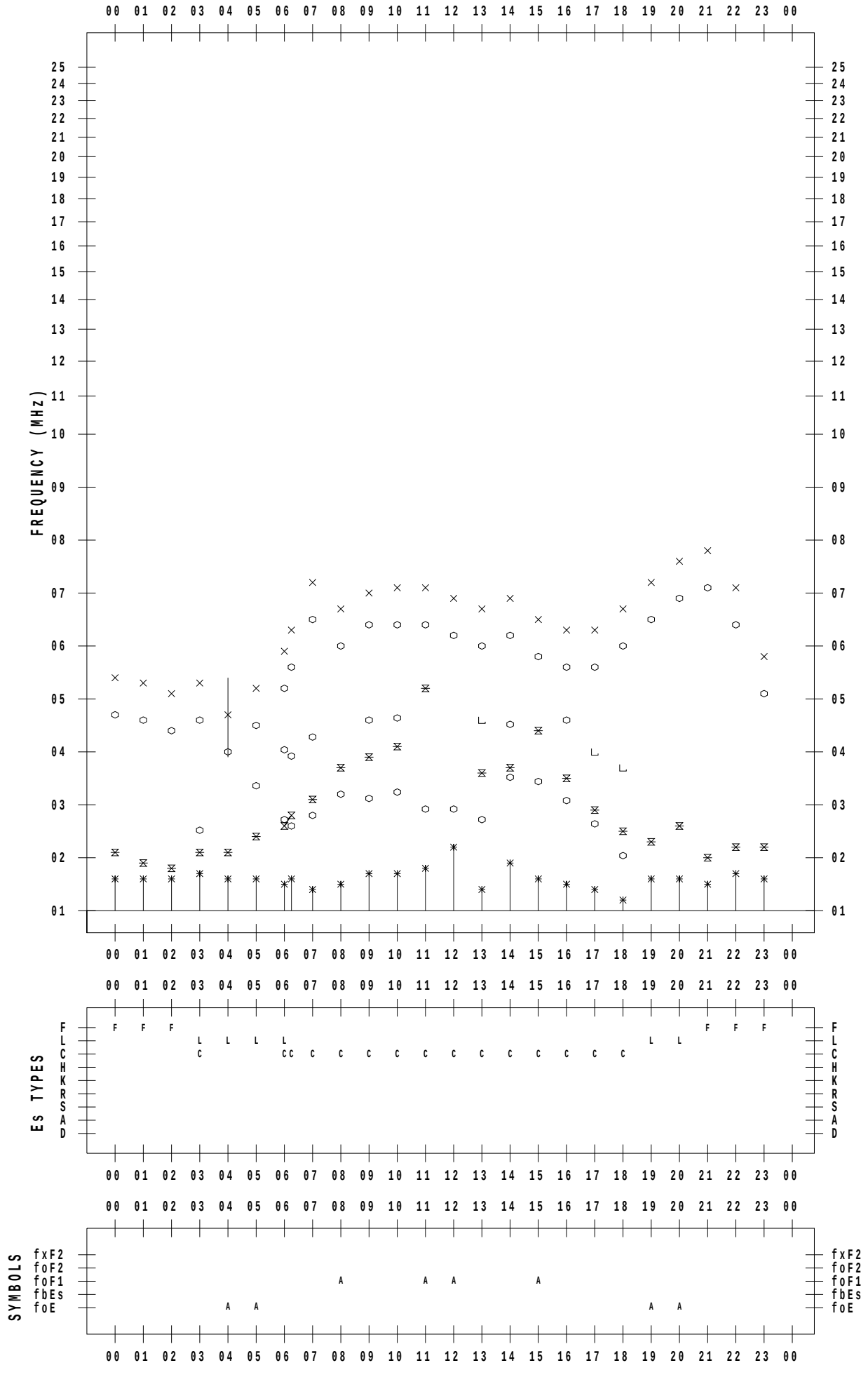
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/ 3

135 °E MEAN TIME



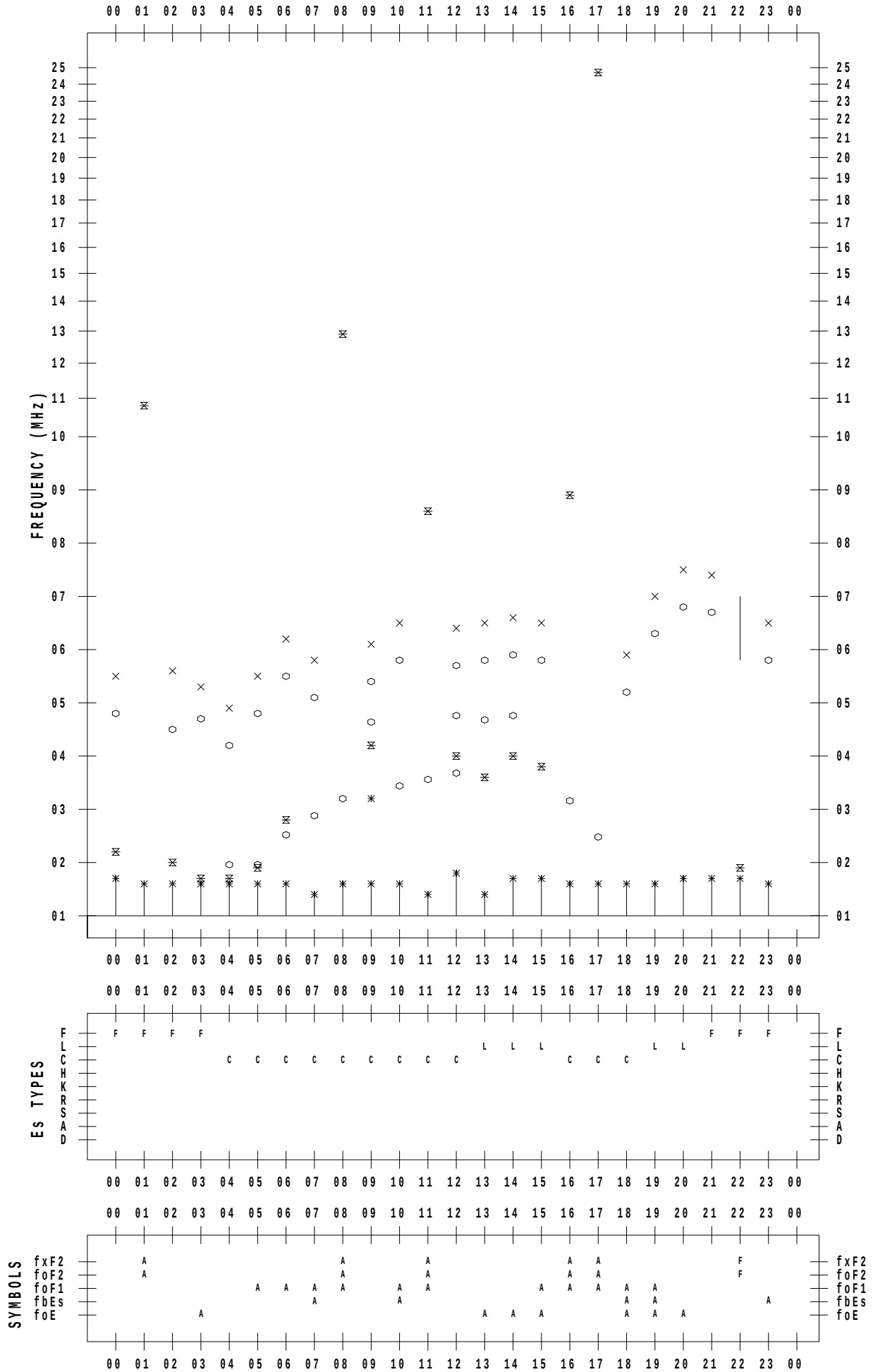
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/ 4

135 °E MEAN TIME



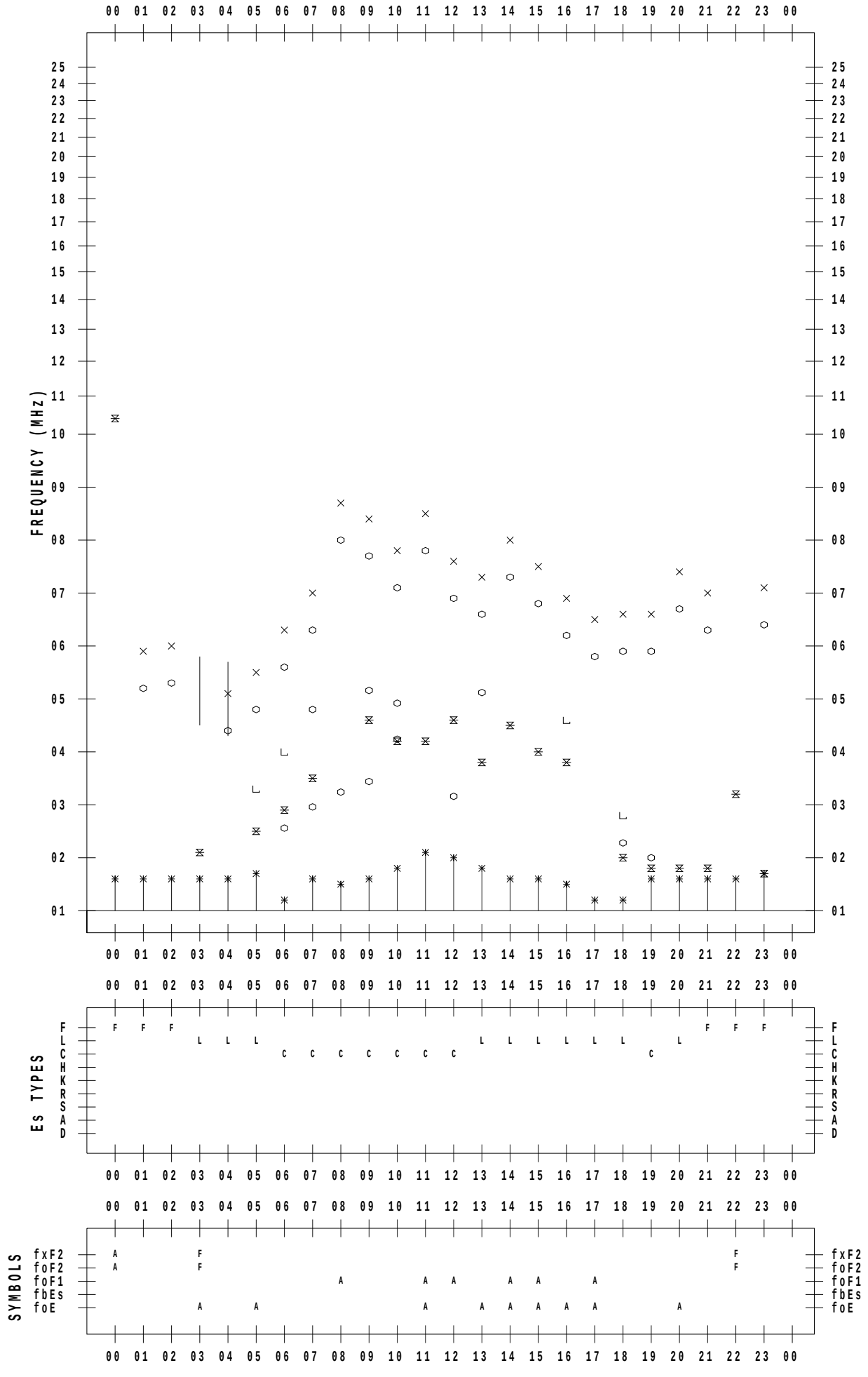
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/ 5

135 °E MEAN TIME



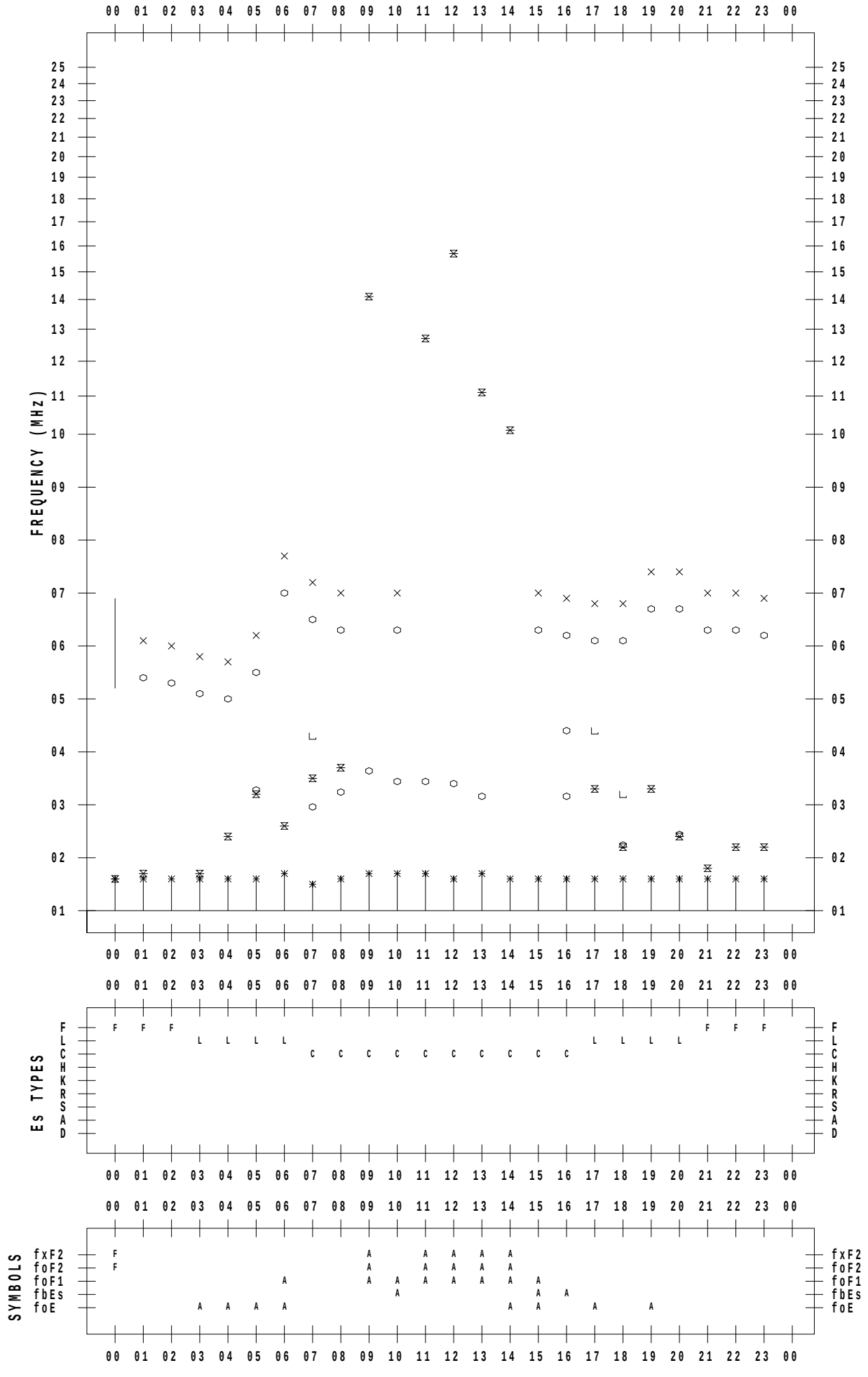
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/ 6

135 °E MEAN TIME



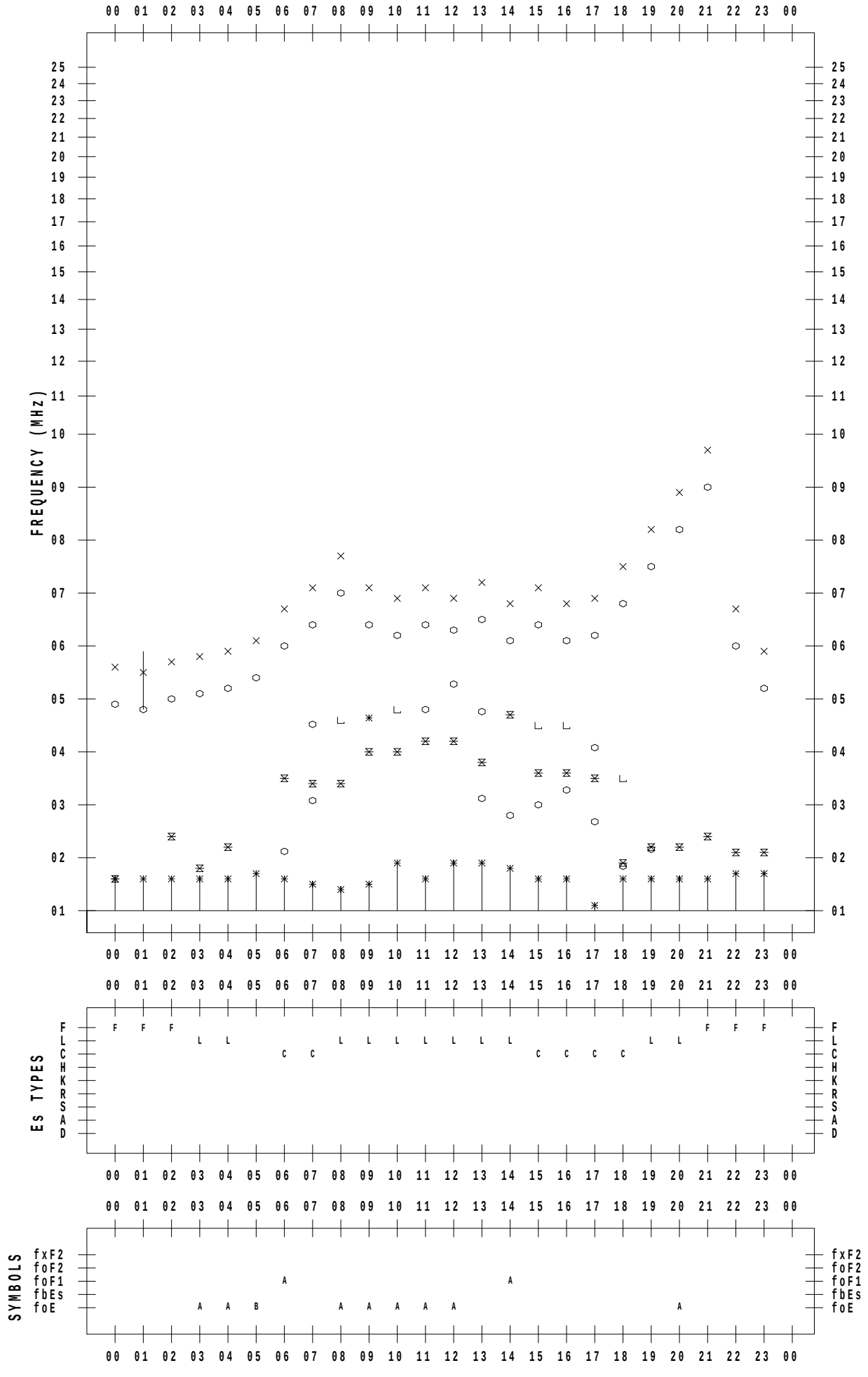
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/ 7

135 °E MEAN TIME



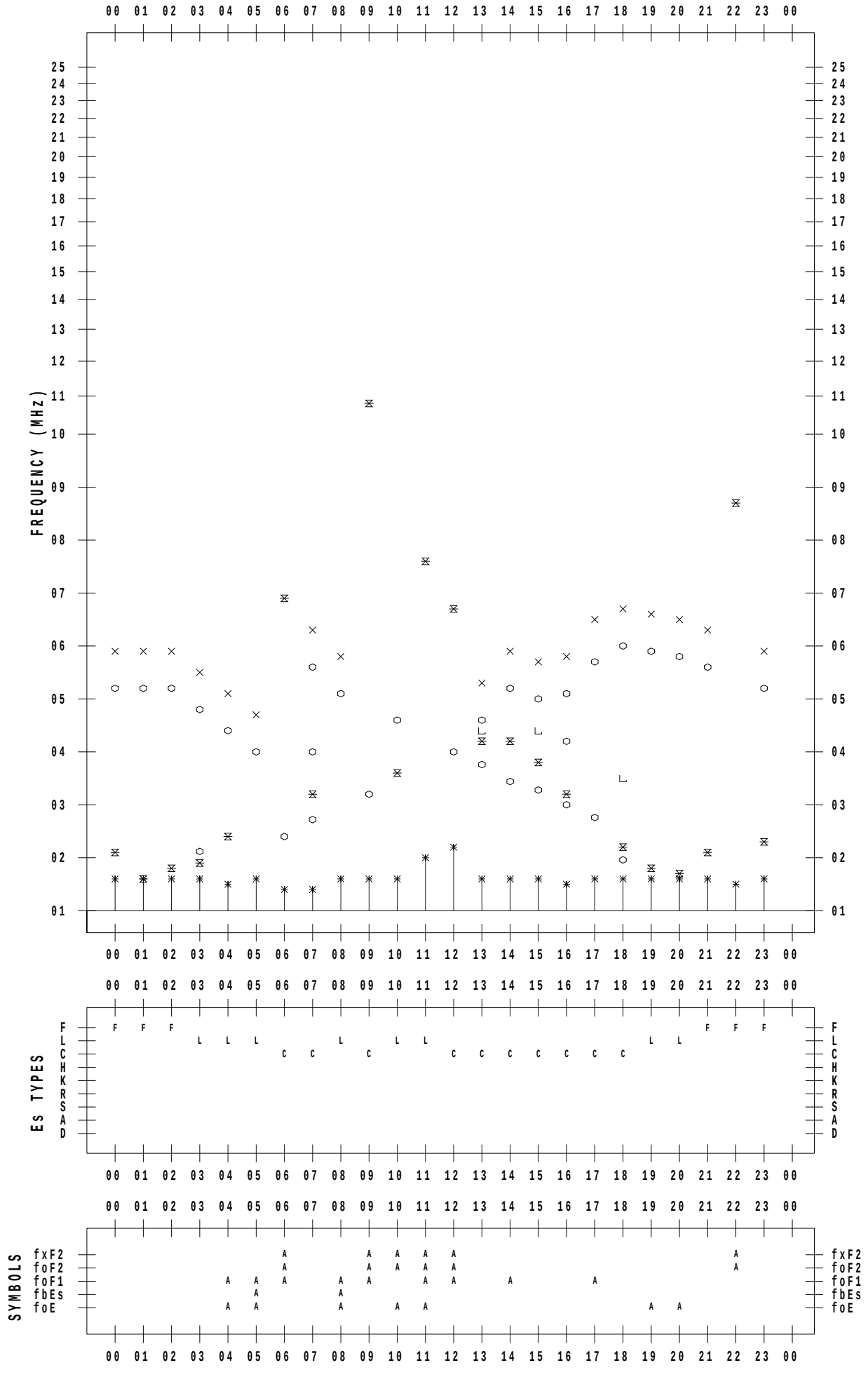
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/ 8

135 °E MEAN TIME



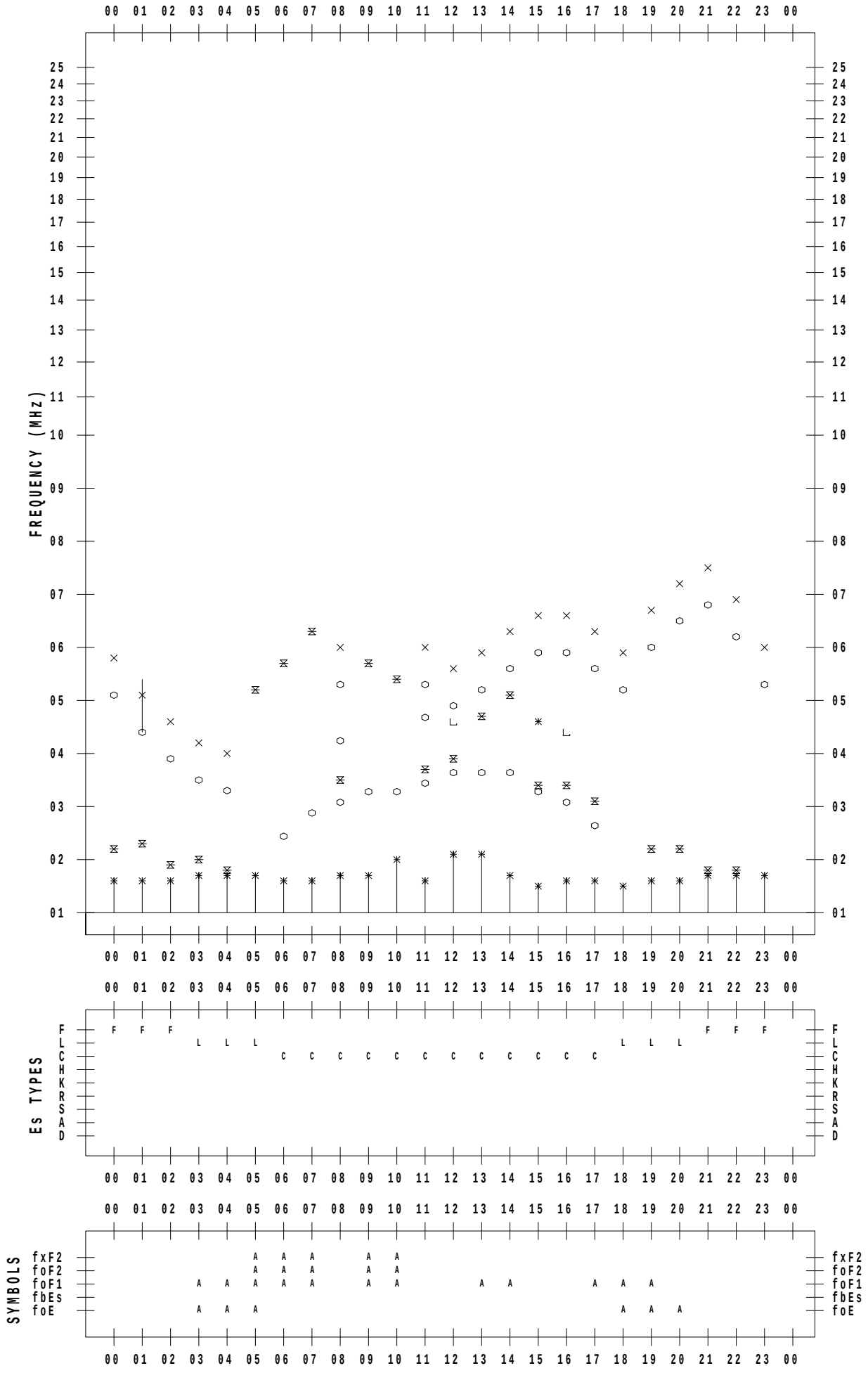
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/ 9

135 °E MEAN TIME



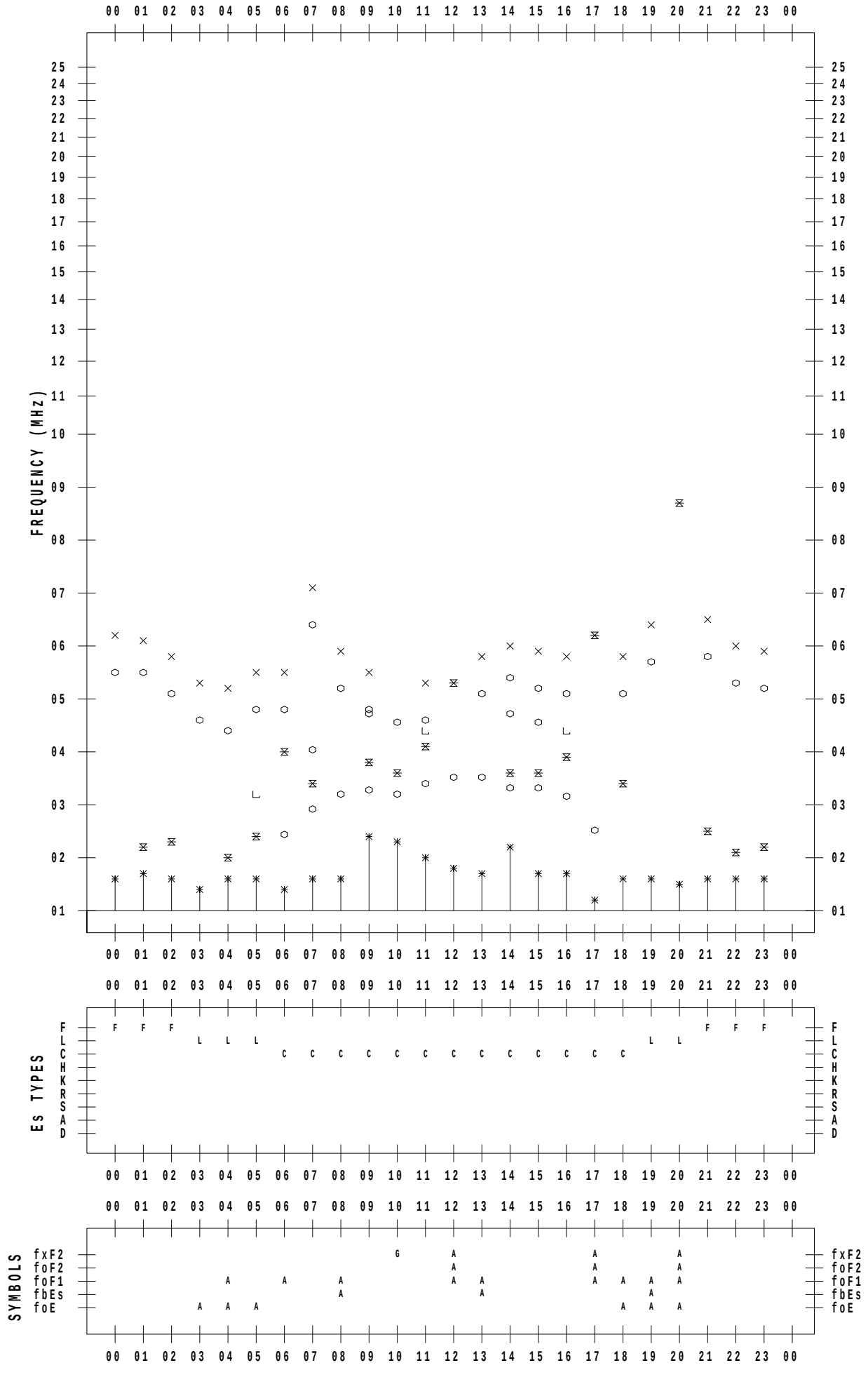
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/10

135 °E MEAN TIME



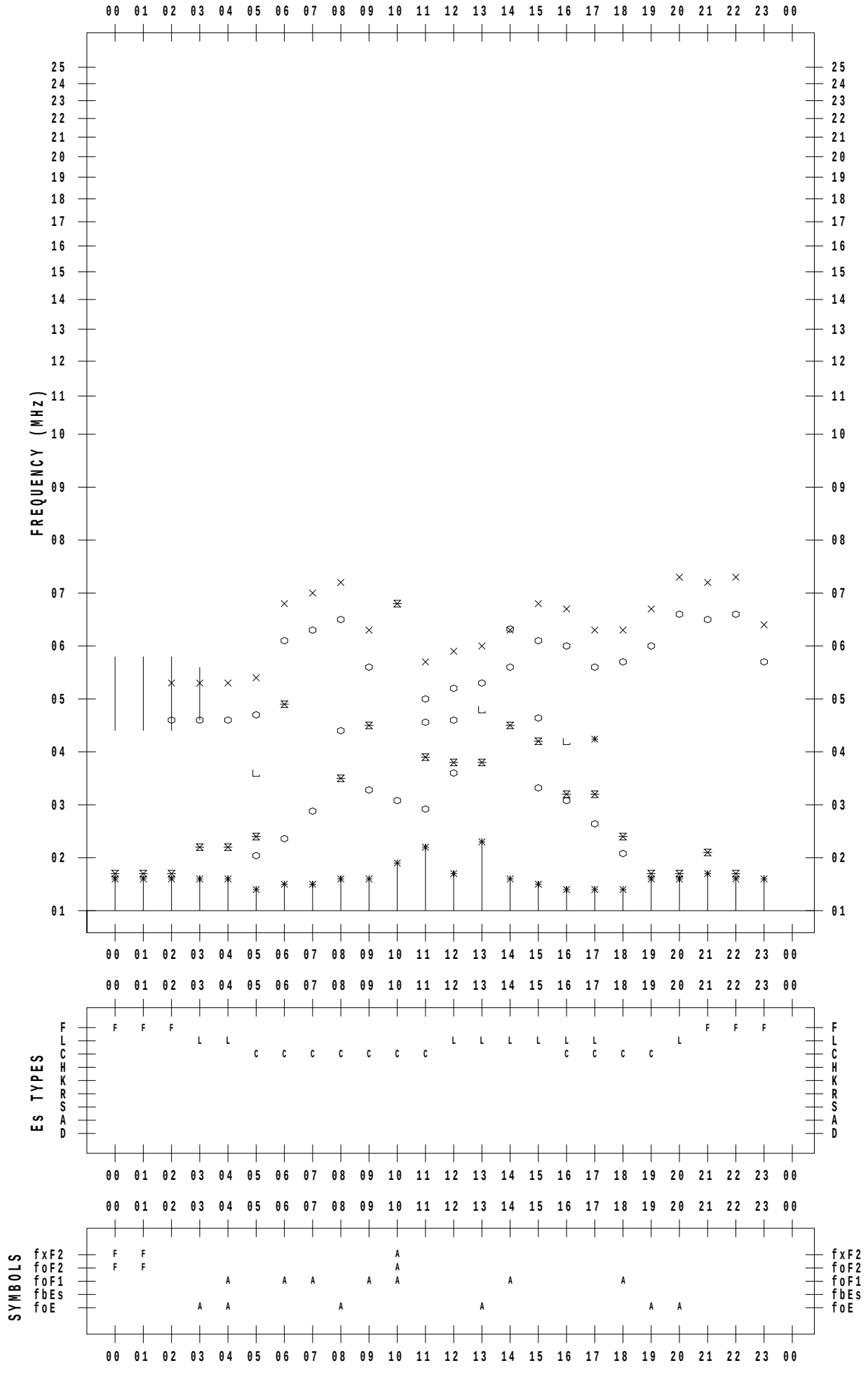
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/11

135 °E MEAN TIME



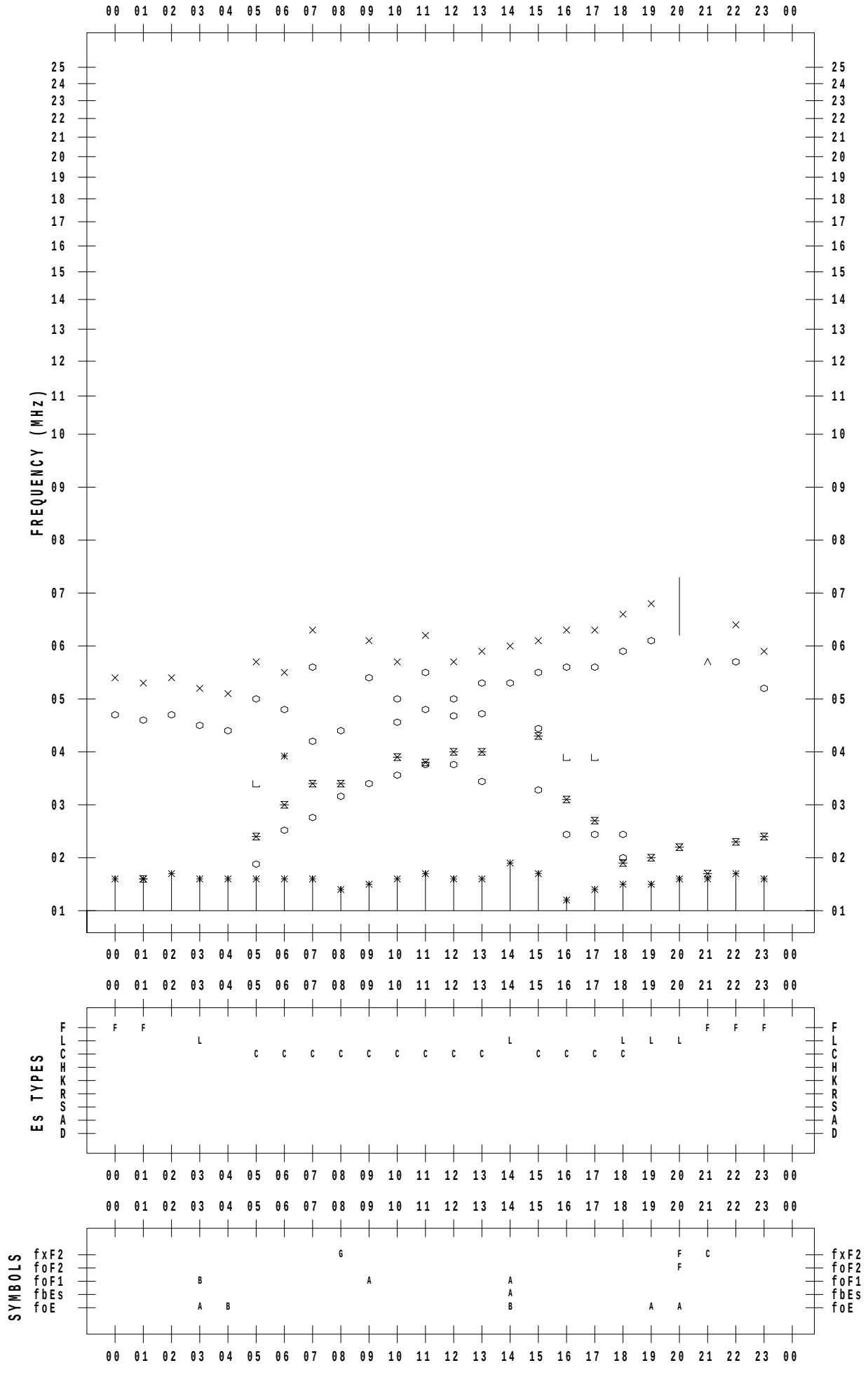
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/12

135 °E MEAN TIME



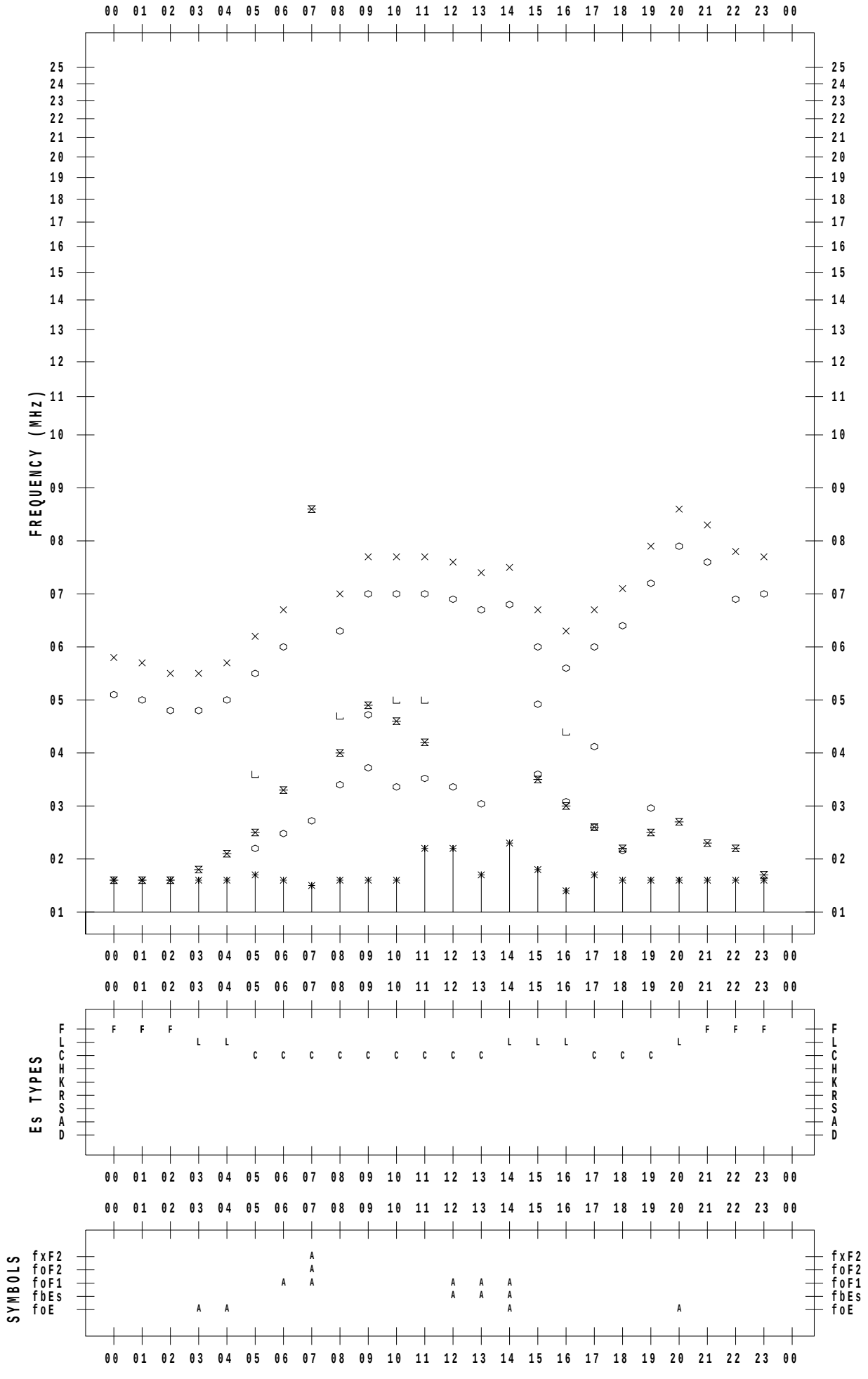
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/13

135 °E MEAN TIME



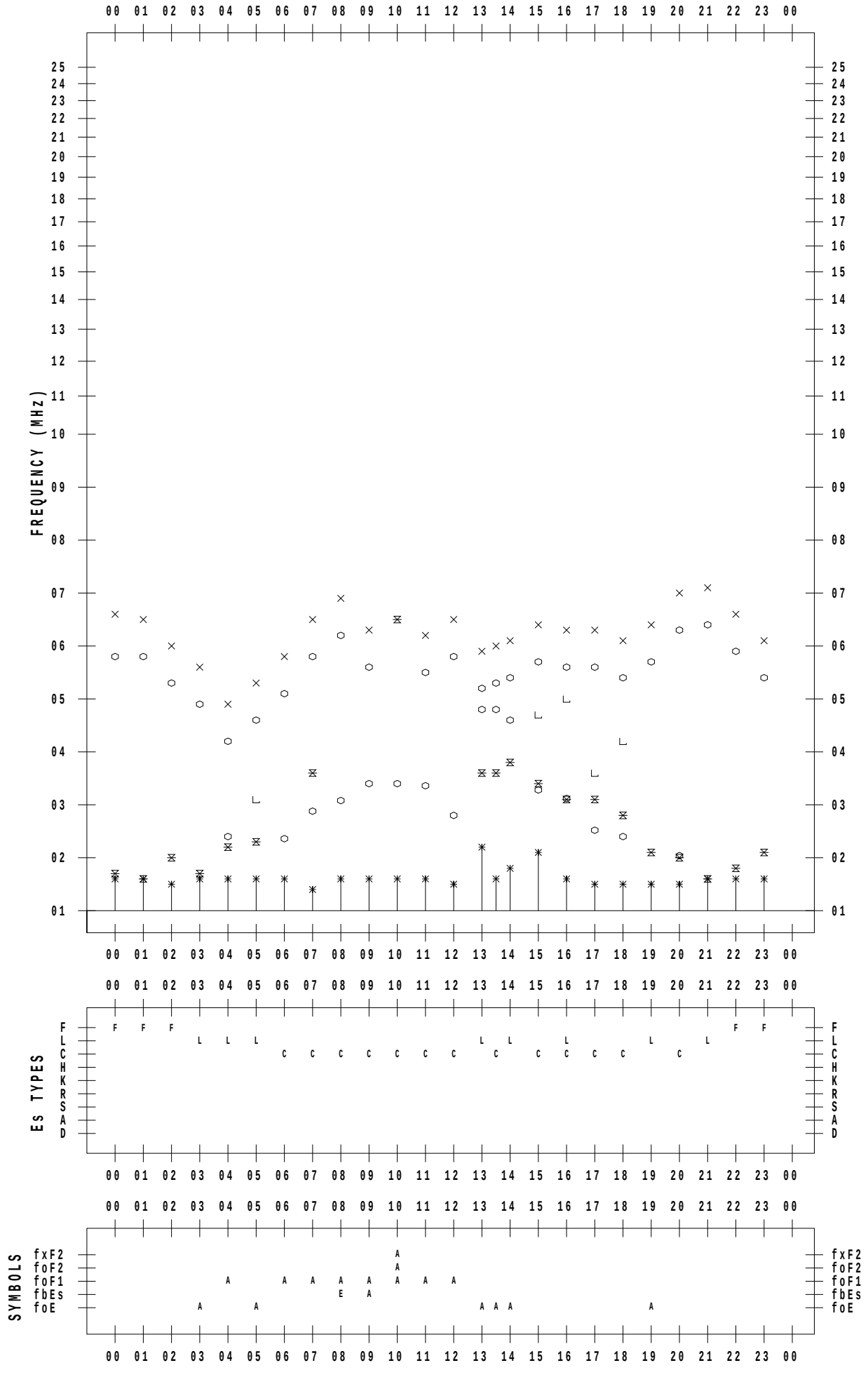
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/14

135 °E MEAN TIME



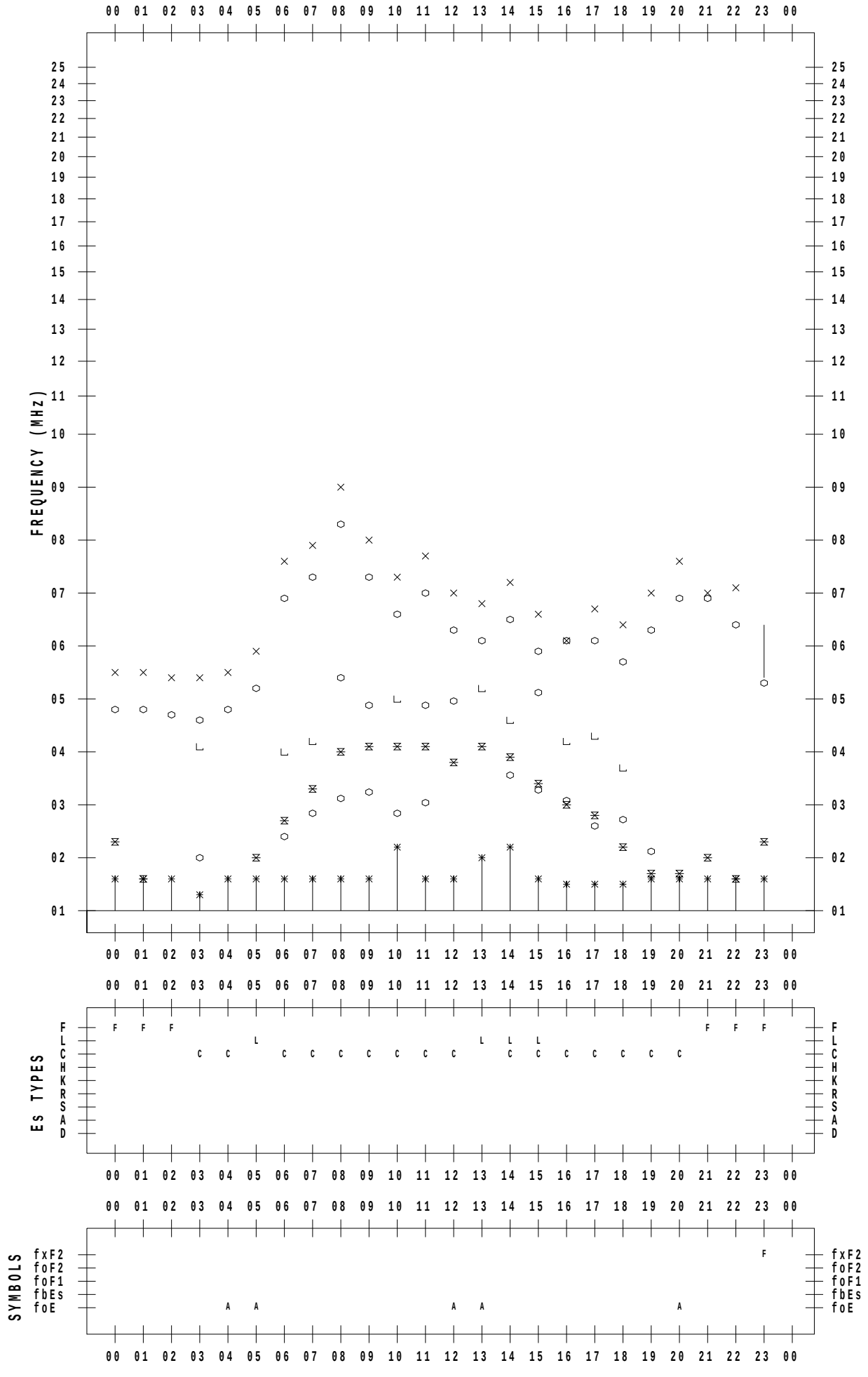
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/15

135 °E MEAN TIME



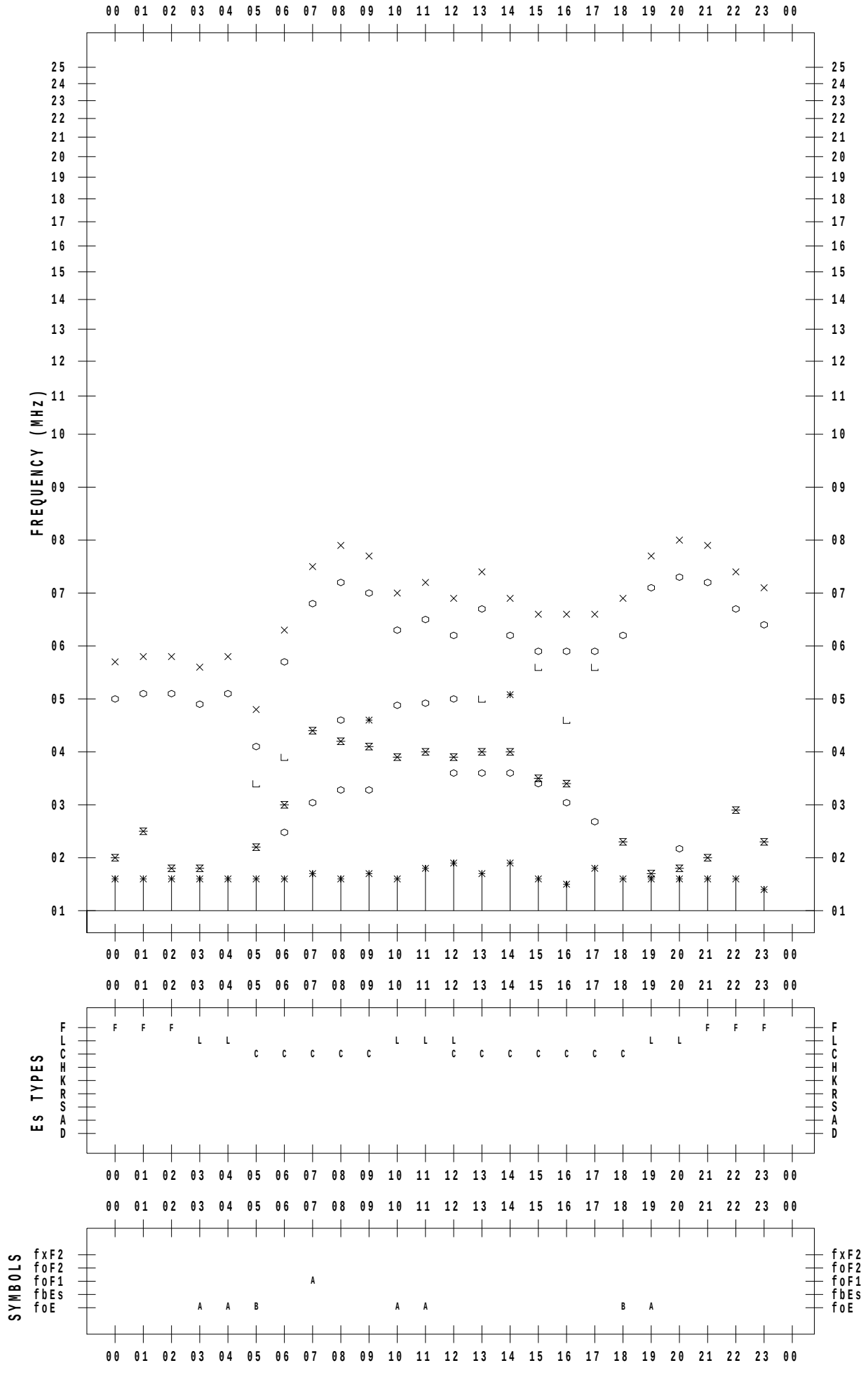
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/16

135 °E MEAN TIME



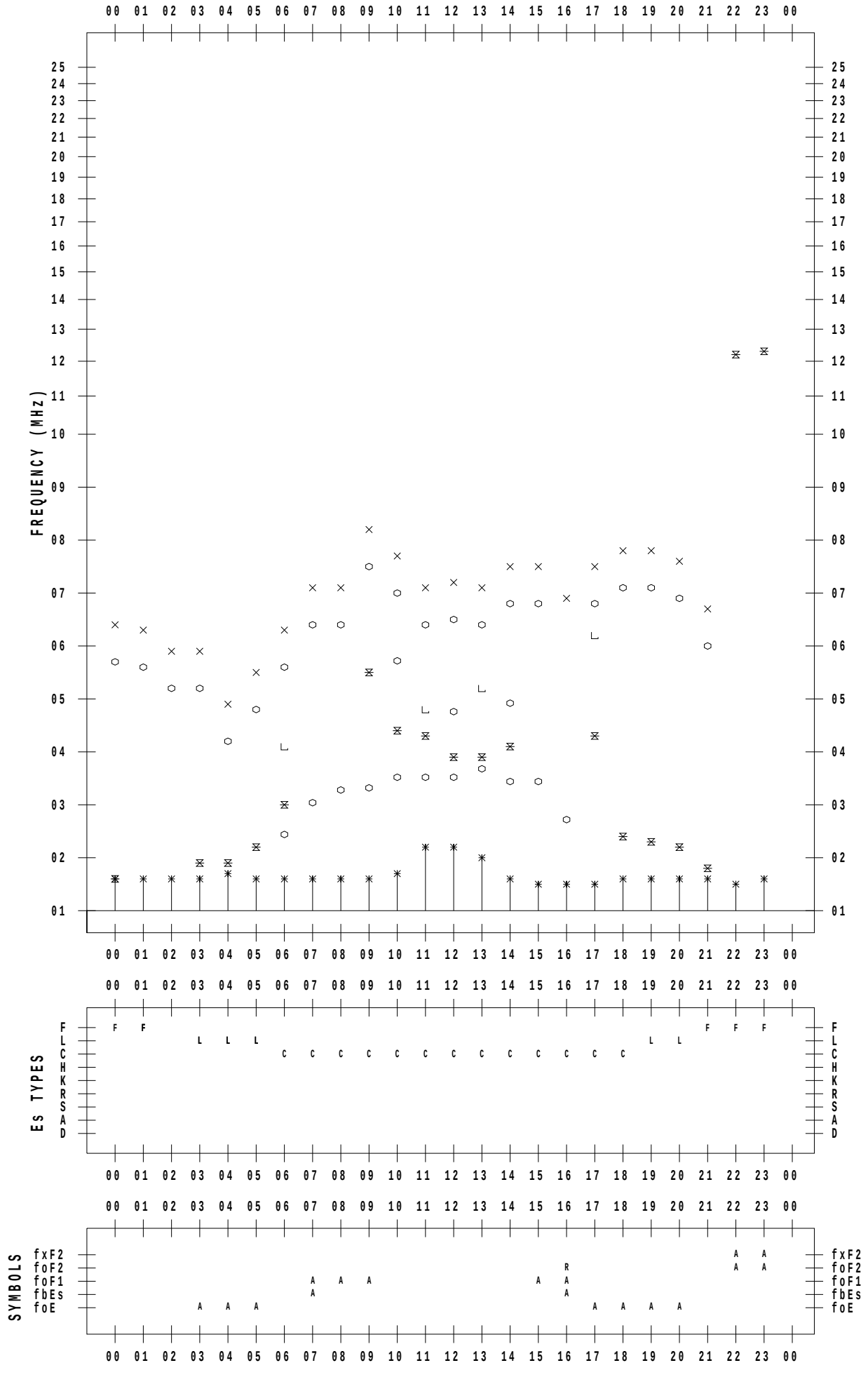
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/17

135 °E MEAN TIME



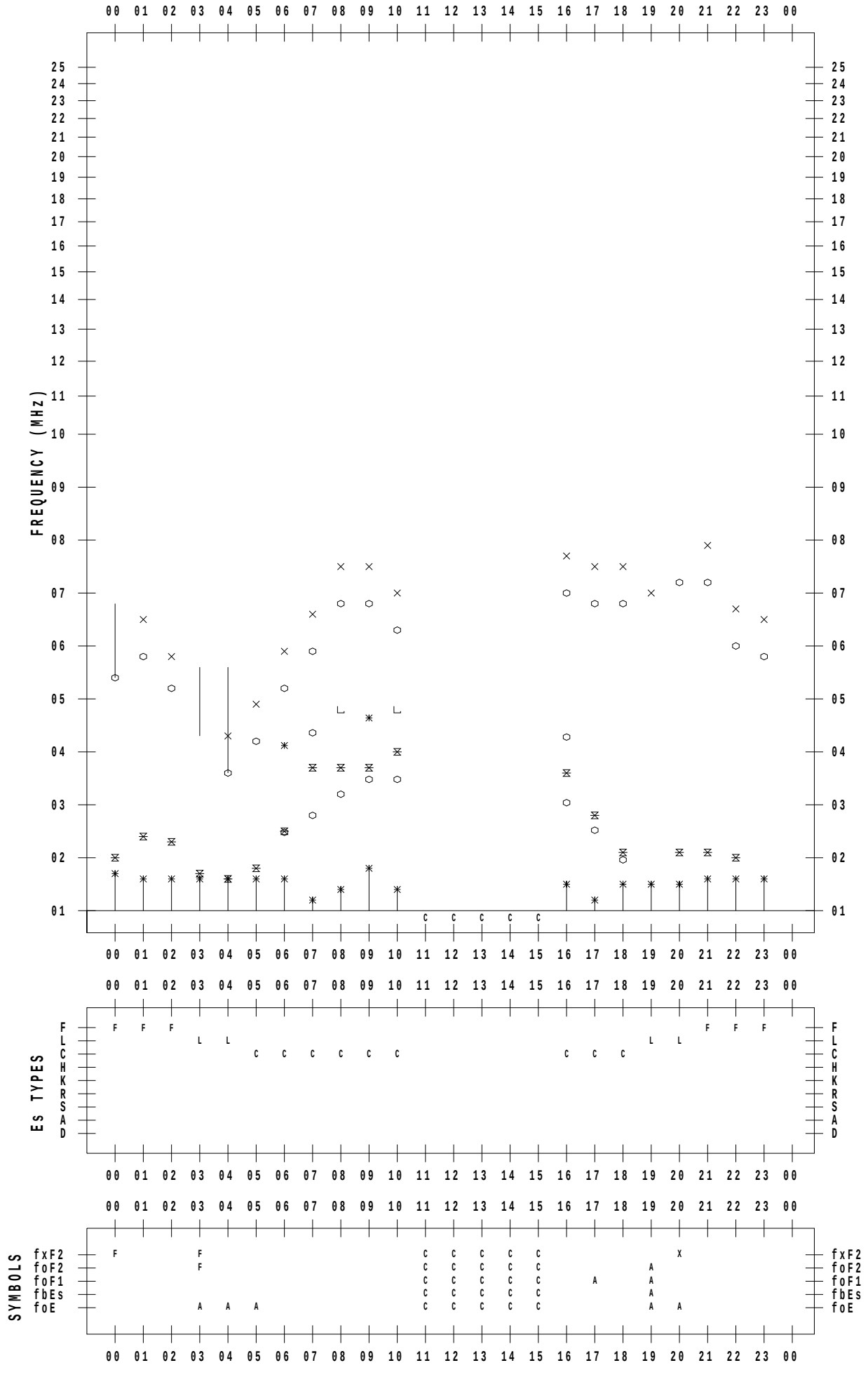
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/18

135 °E MEAN TIME



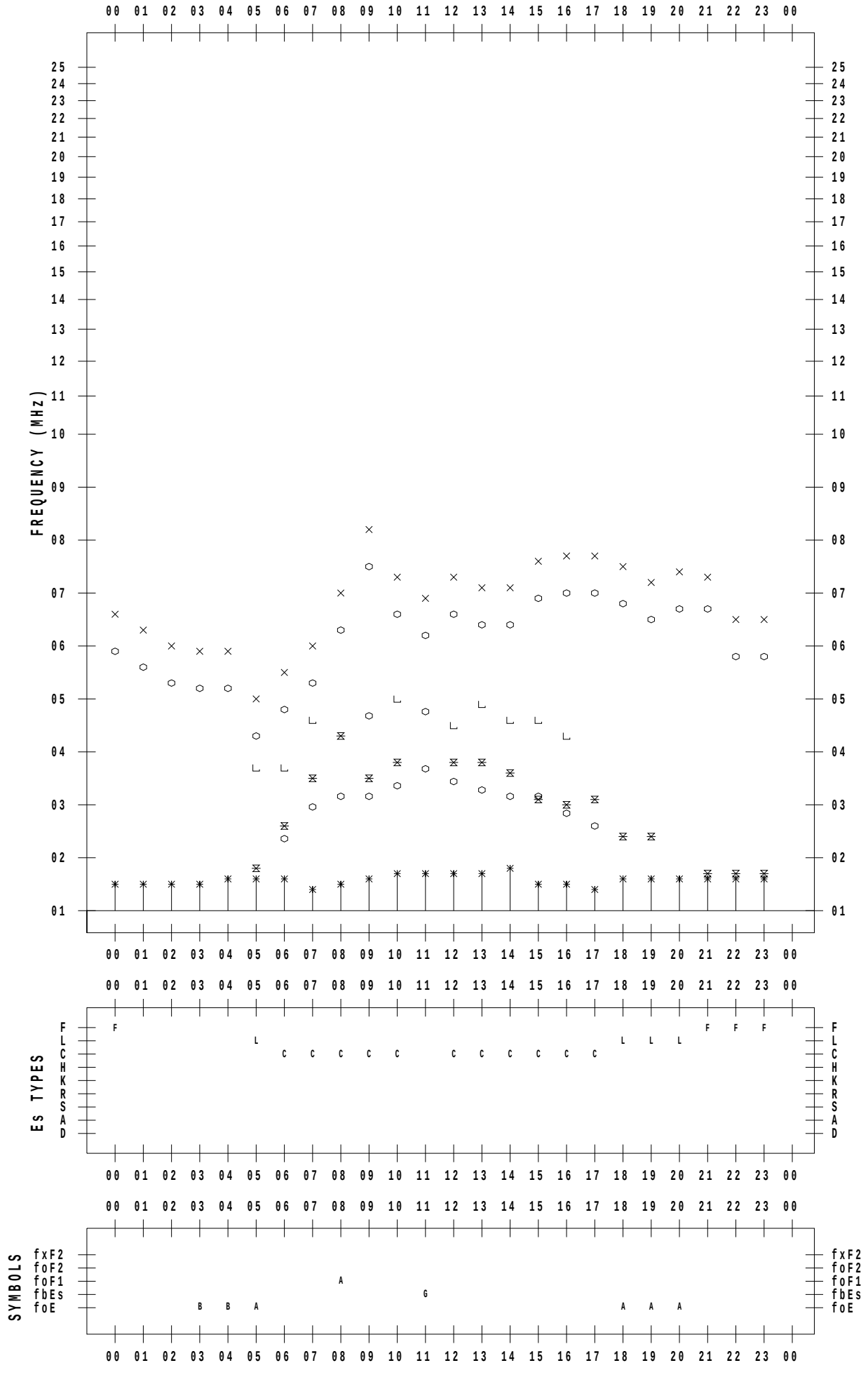
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/19

135 °E MEAN TIME



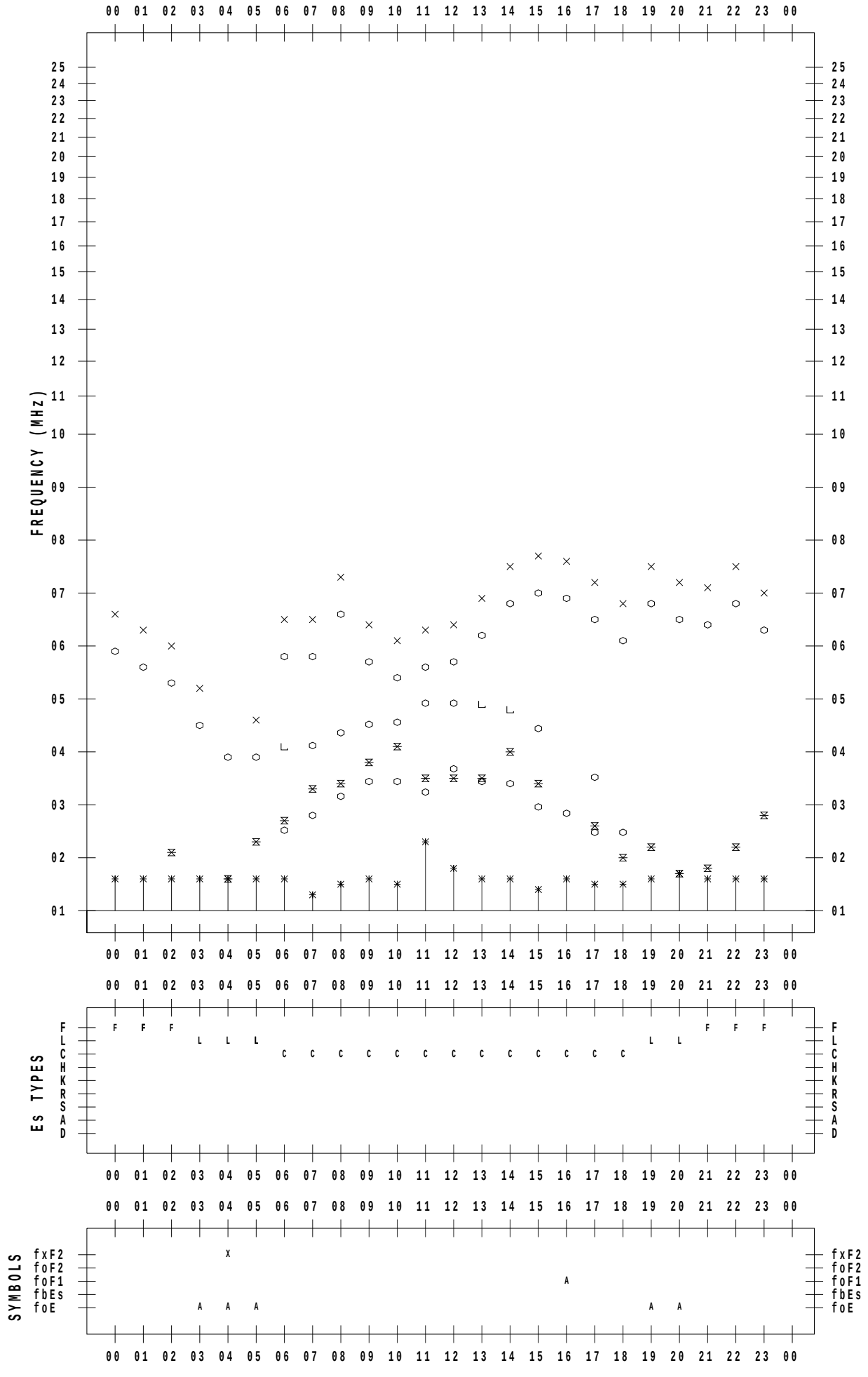
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/20

135 °E MEAN TIME



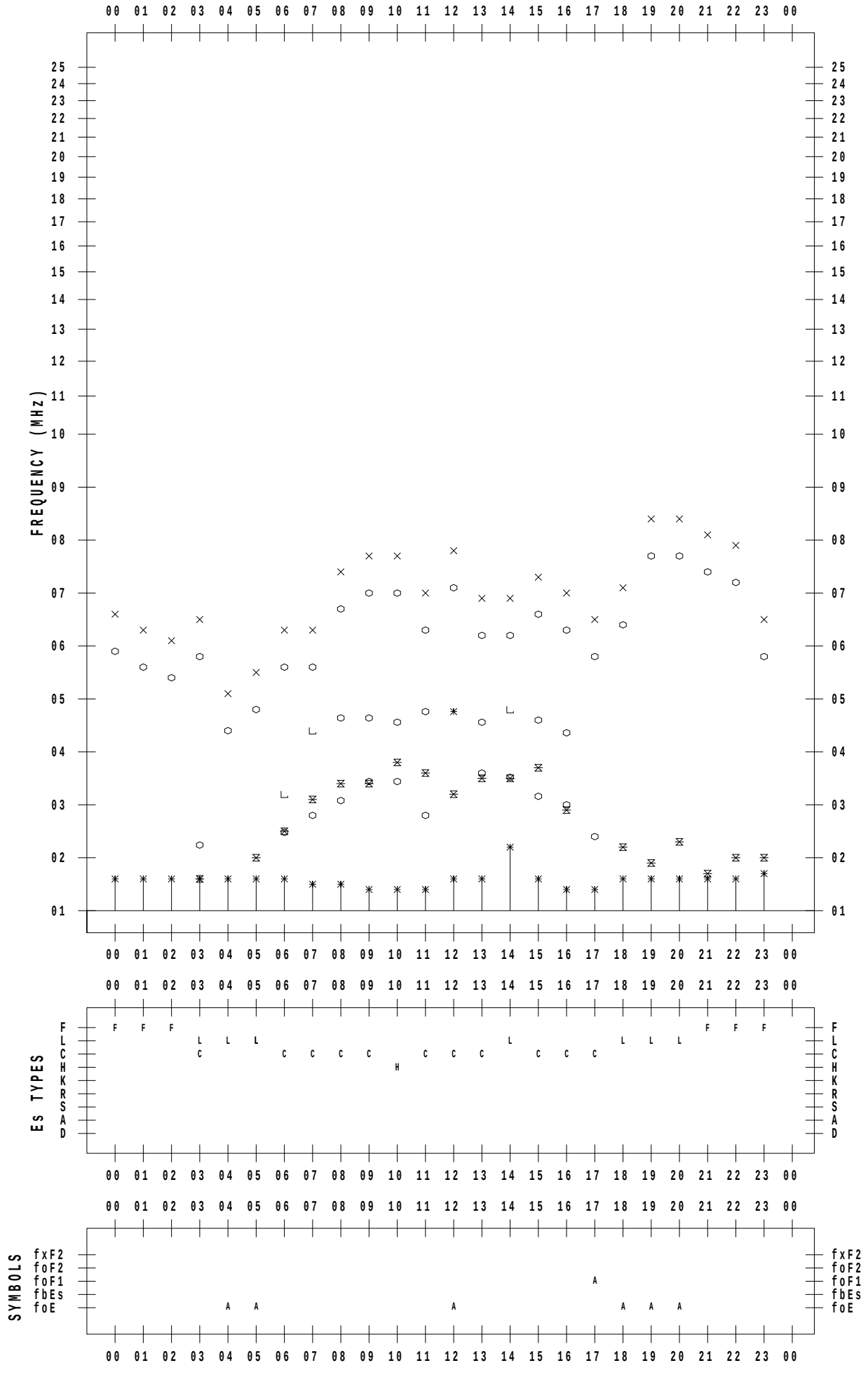
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/21

135 °E MEAN TIME



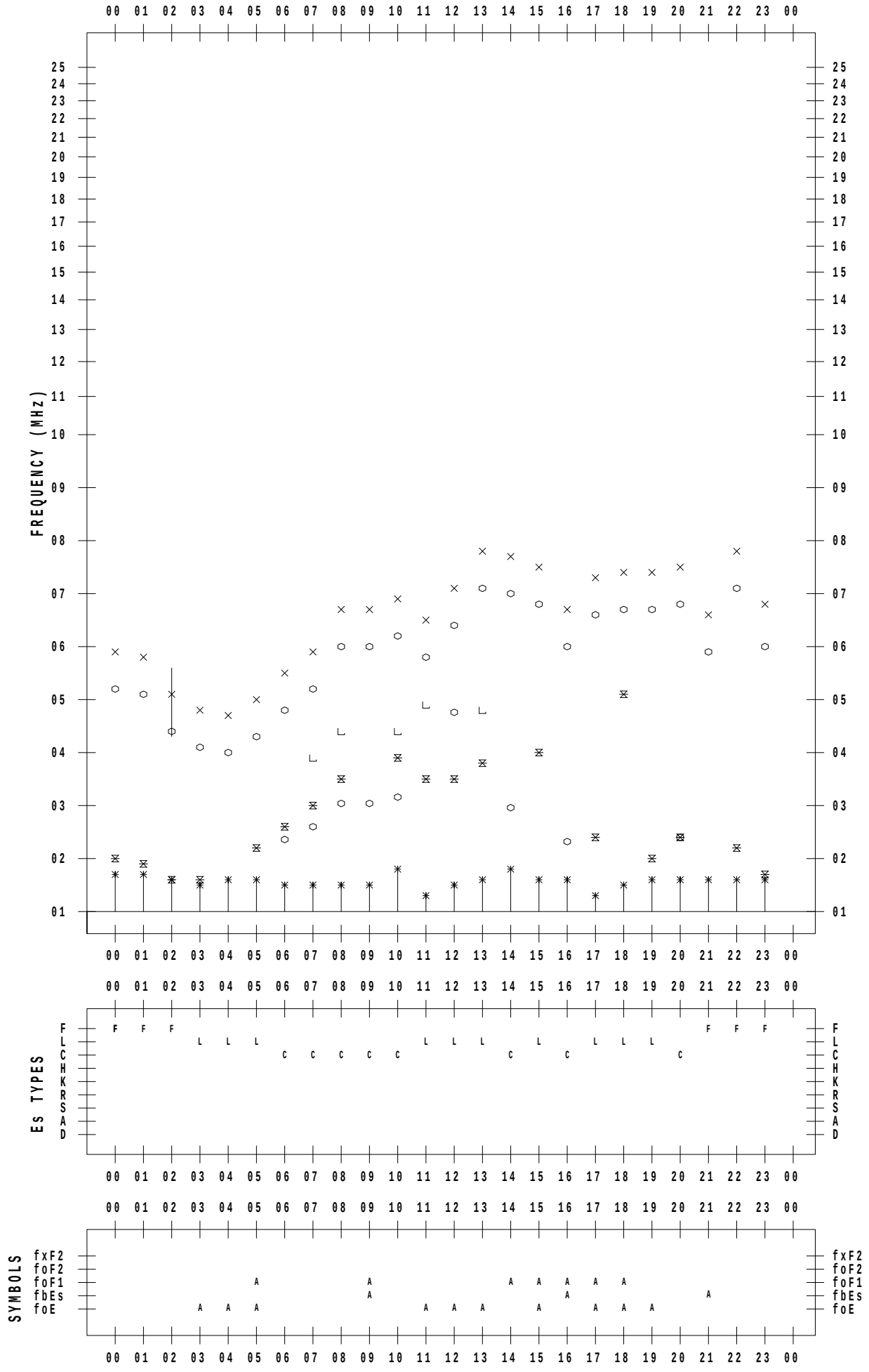
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/22

135 °E MEAN TIME



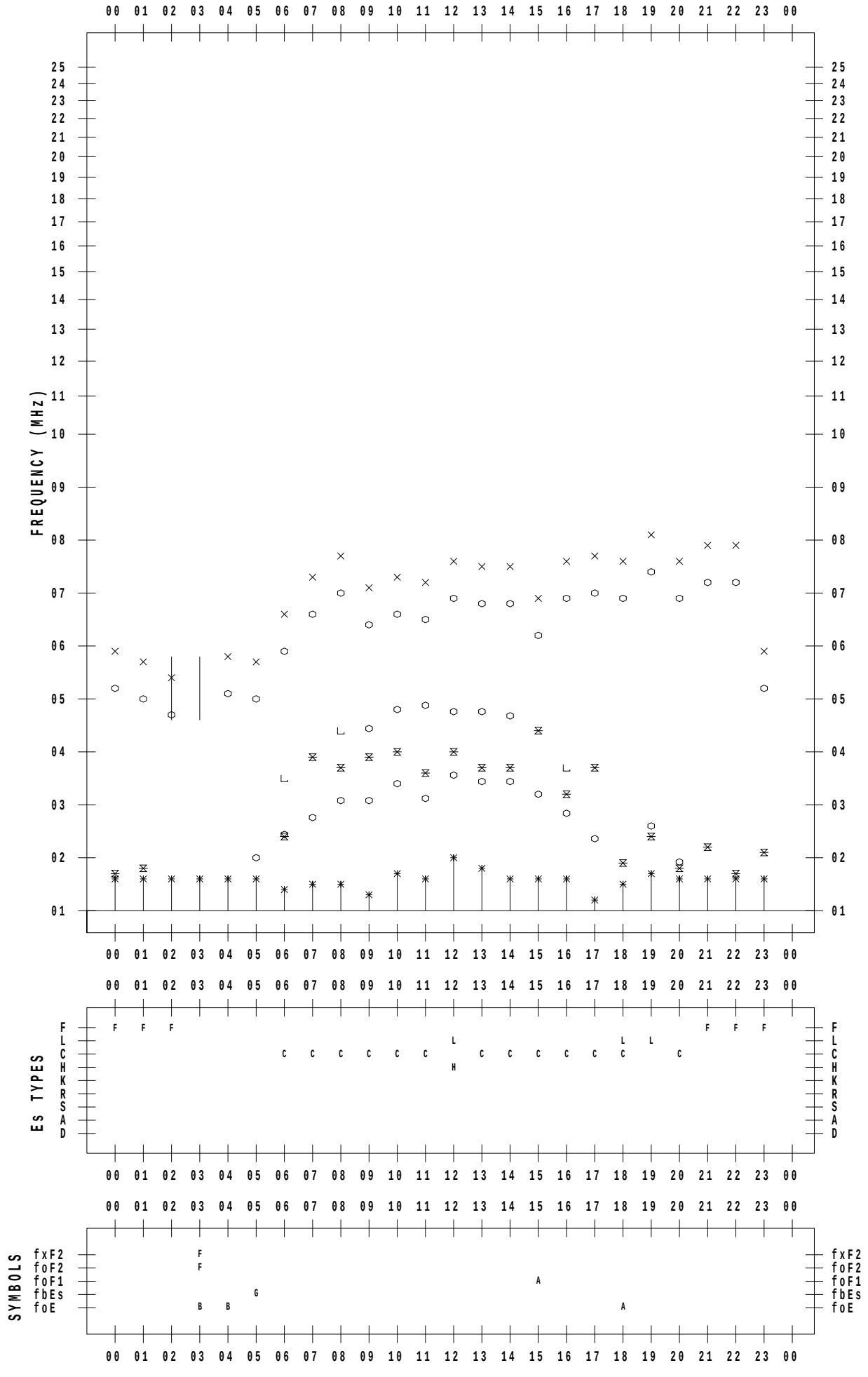
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/23

135 °E MEAN TIME



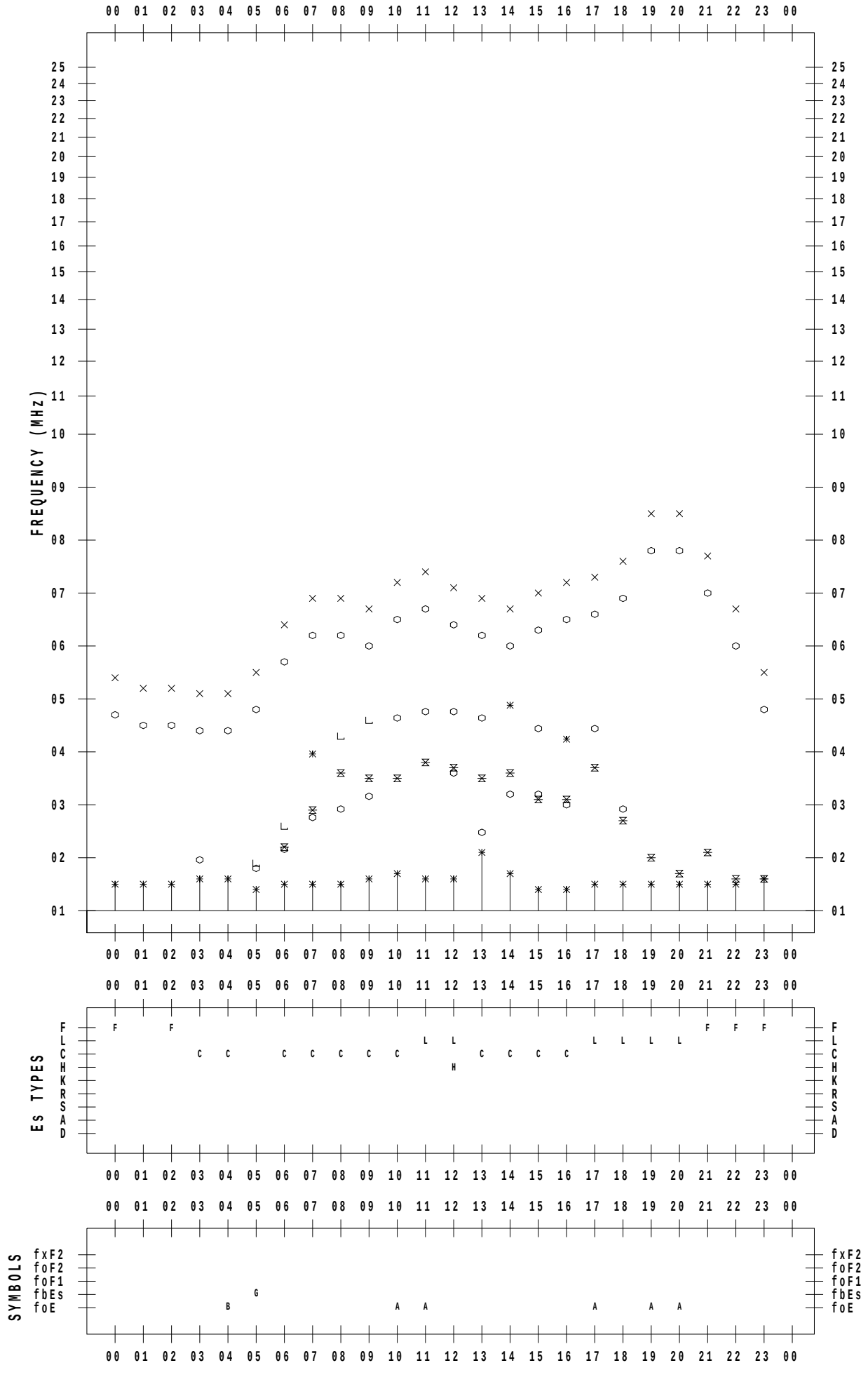
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/24

135 °E MEAN TIME



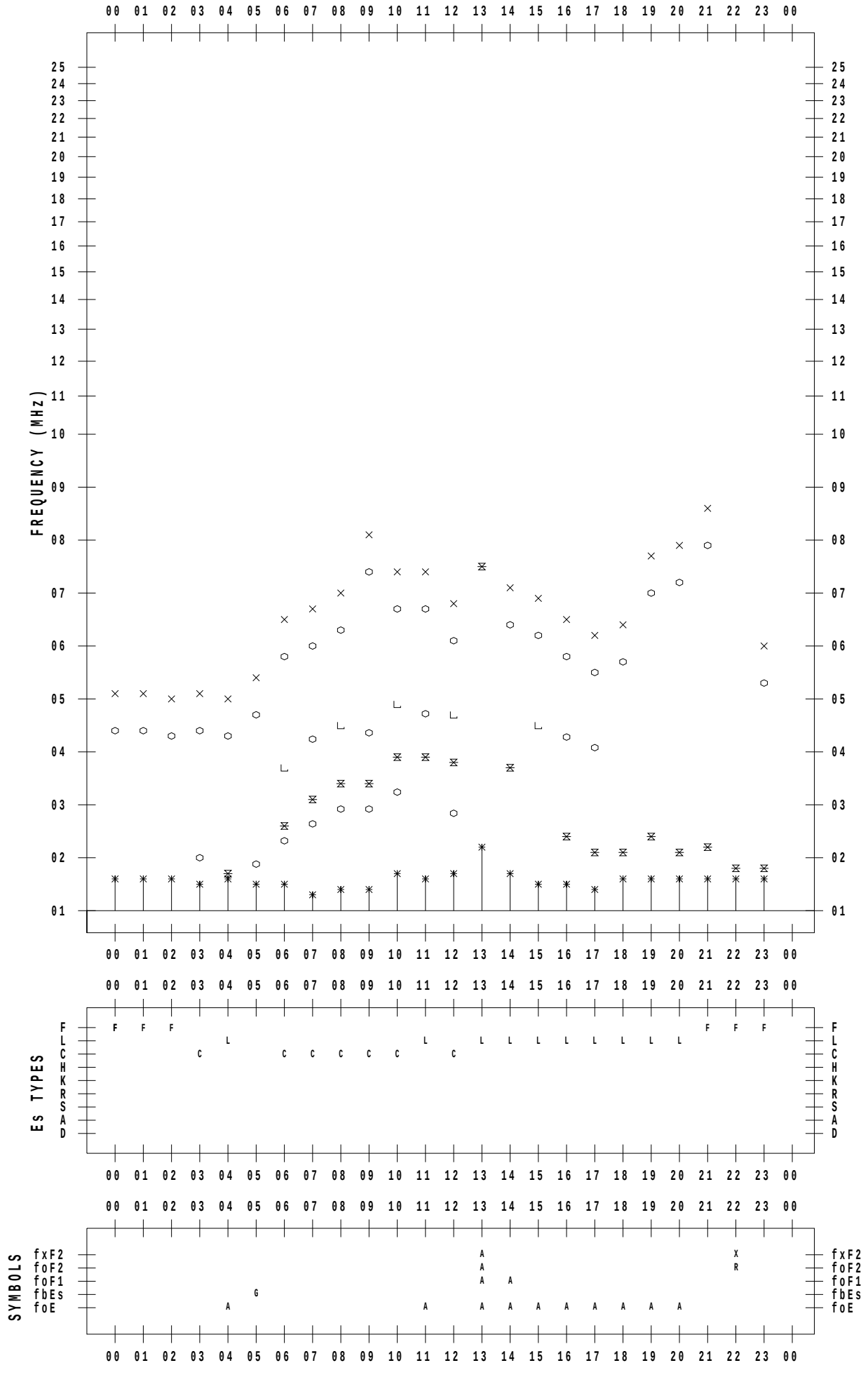
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/25

135 °E MEAN TIME



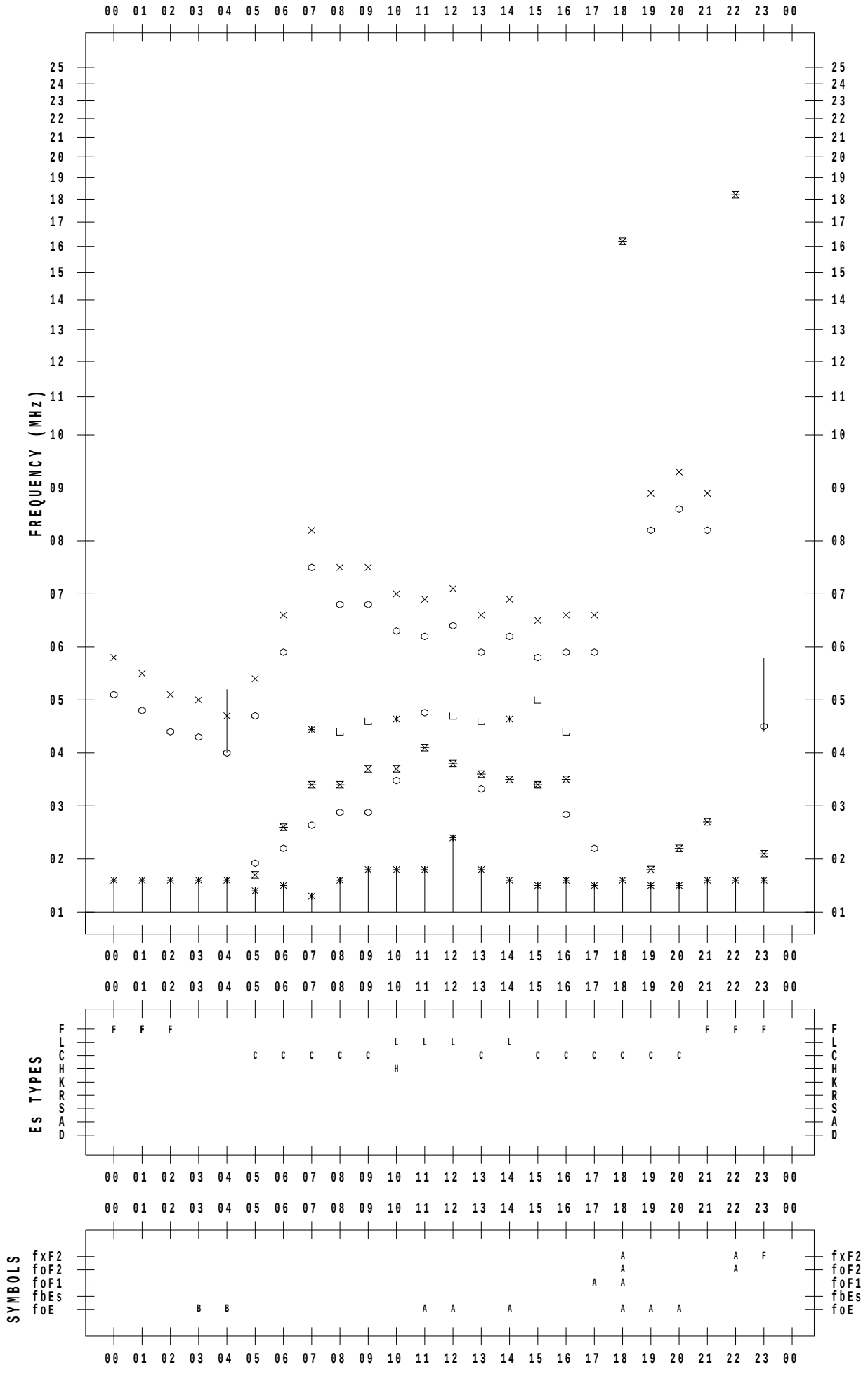
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/26

135 °E MEAN TIME



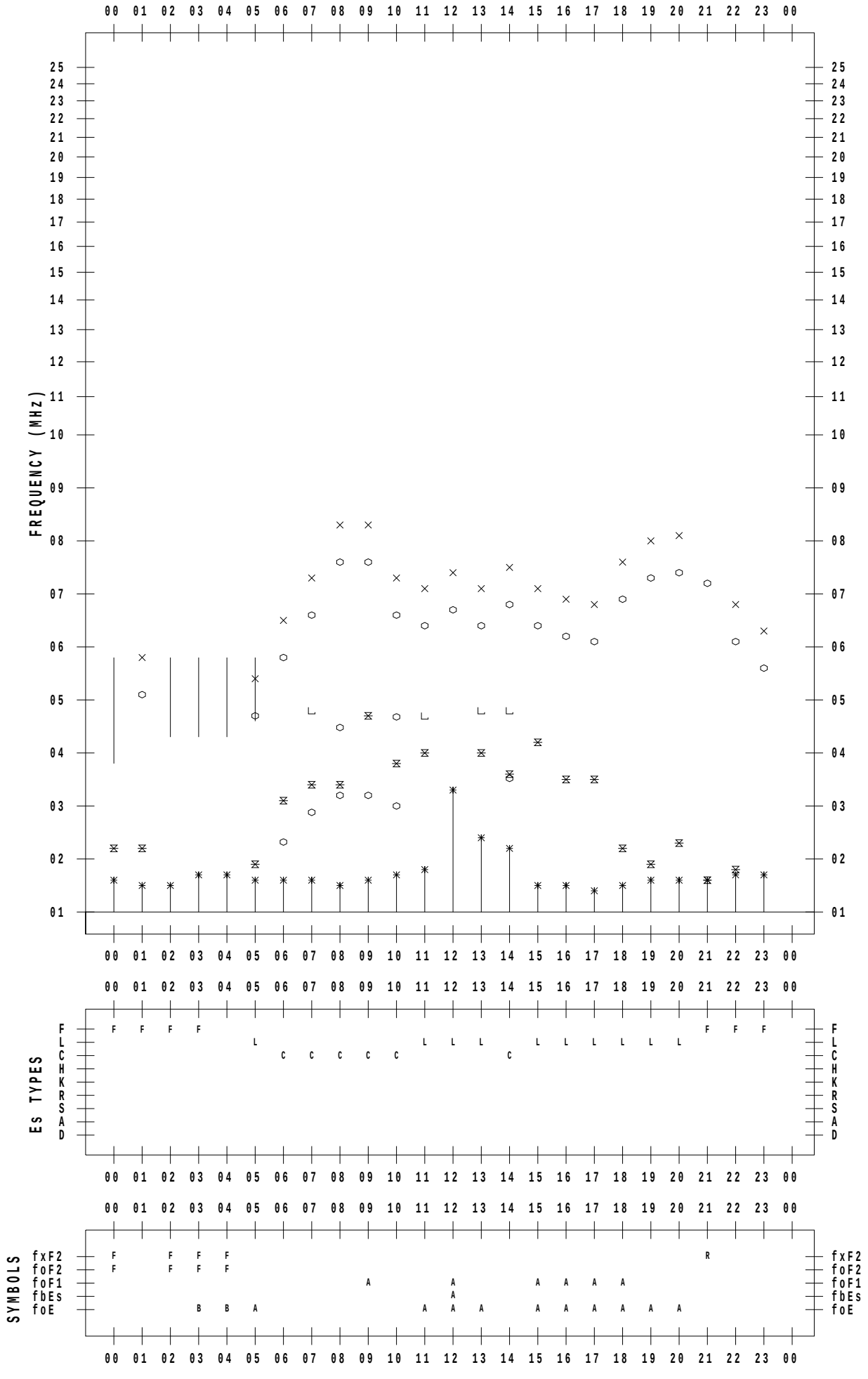
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/27

135 °E MEAN TIME



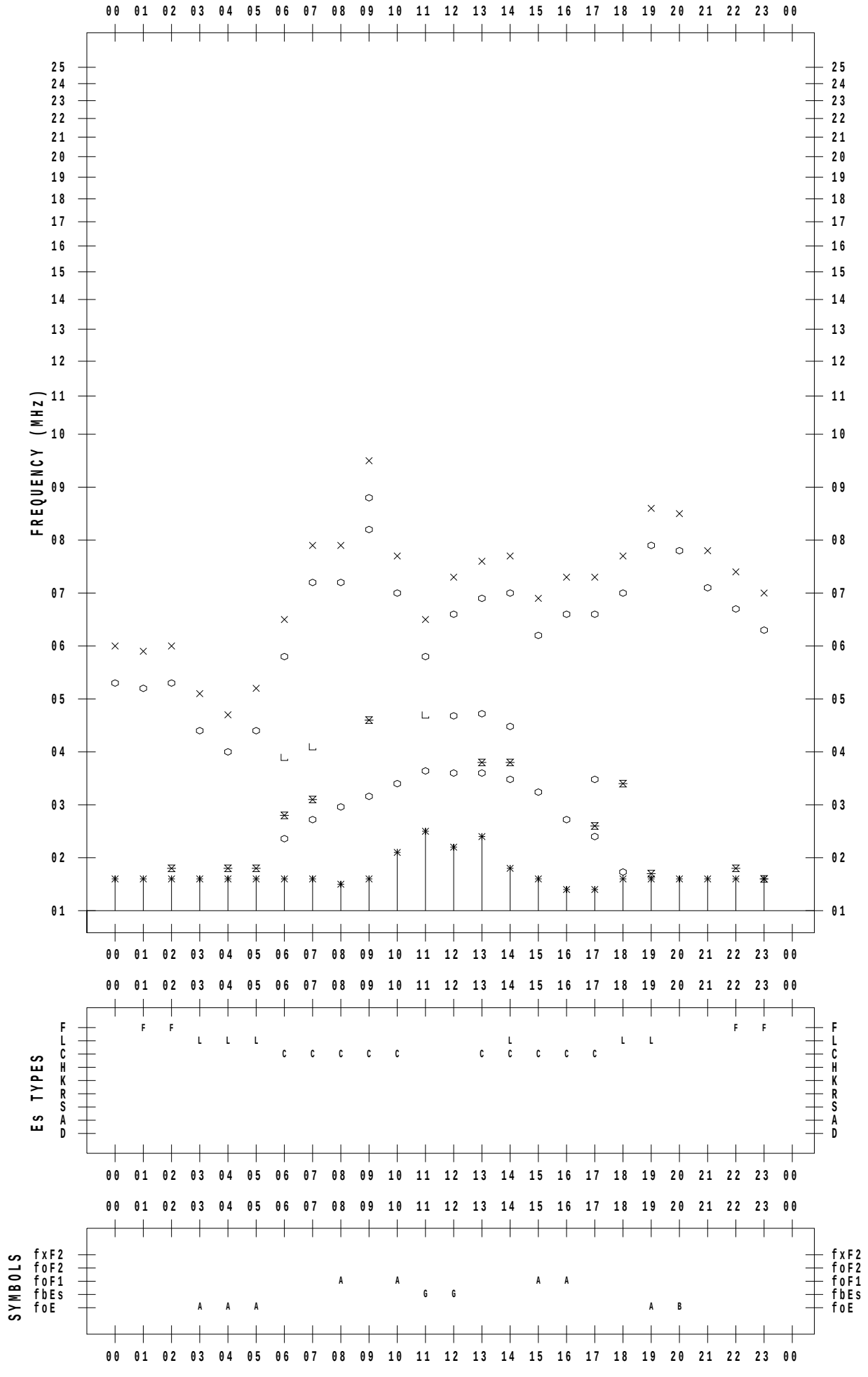
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/28

135 °E MEAN TIME



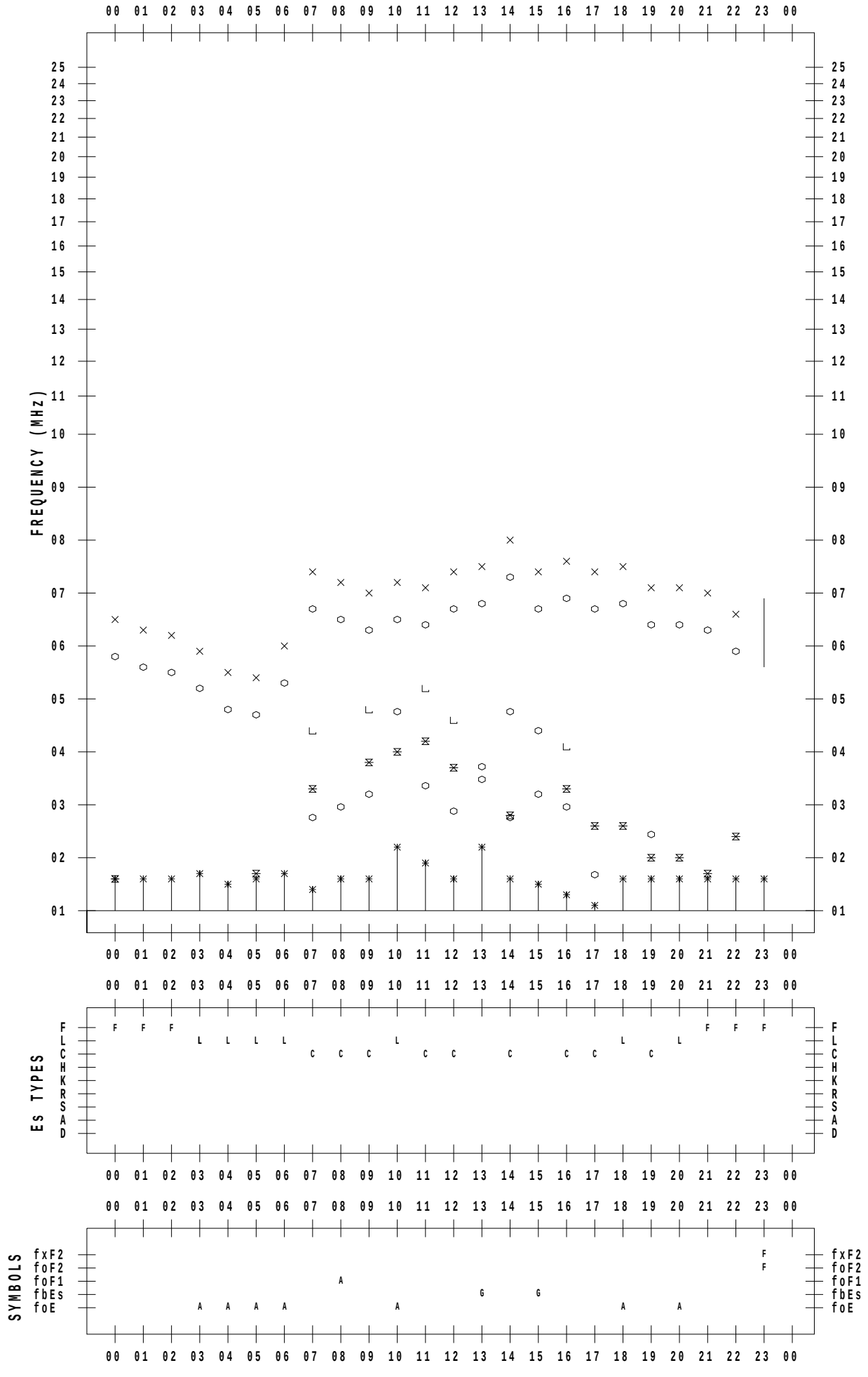
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/29

135 °E MEAN TIME



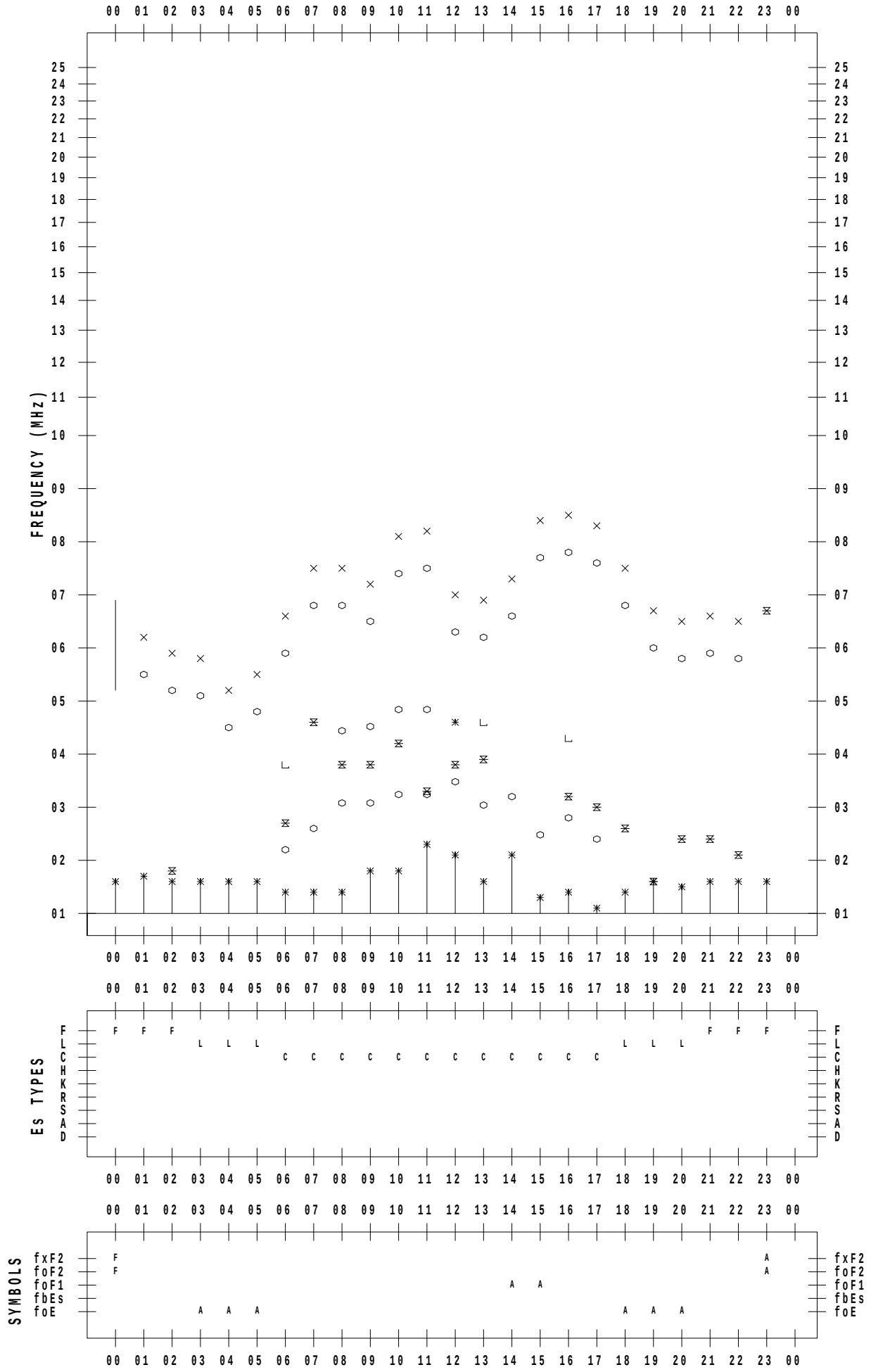
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/30

135 °E MEAN TIME



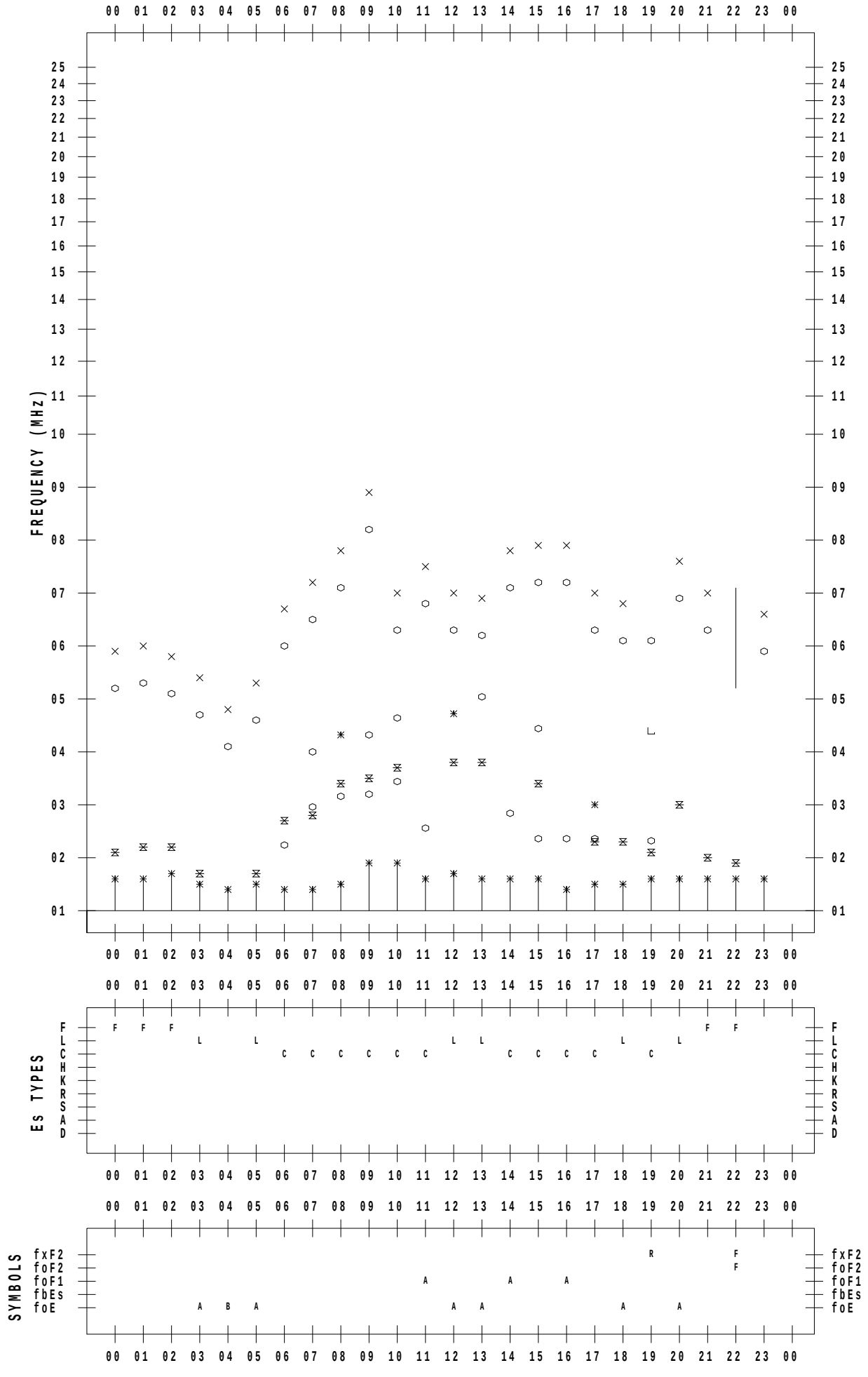
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2022/ 8/31

135 °E MEAN TIME



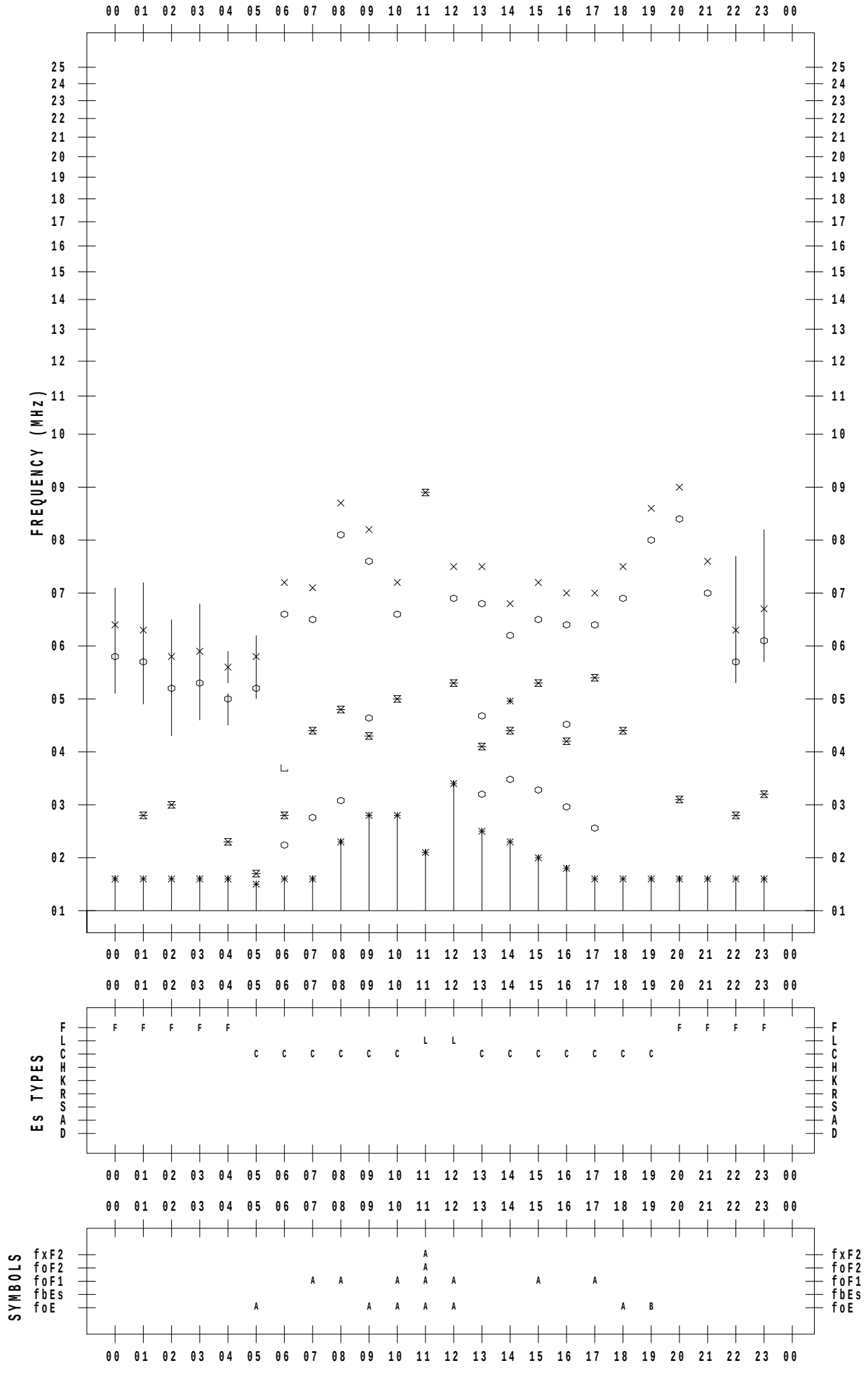
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/ 1

135 °E MEAN TIME



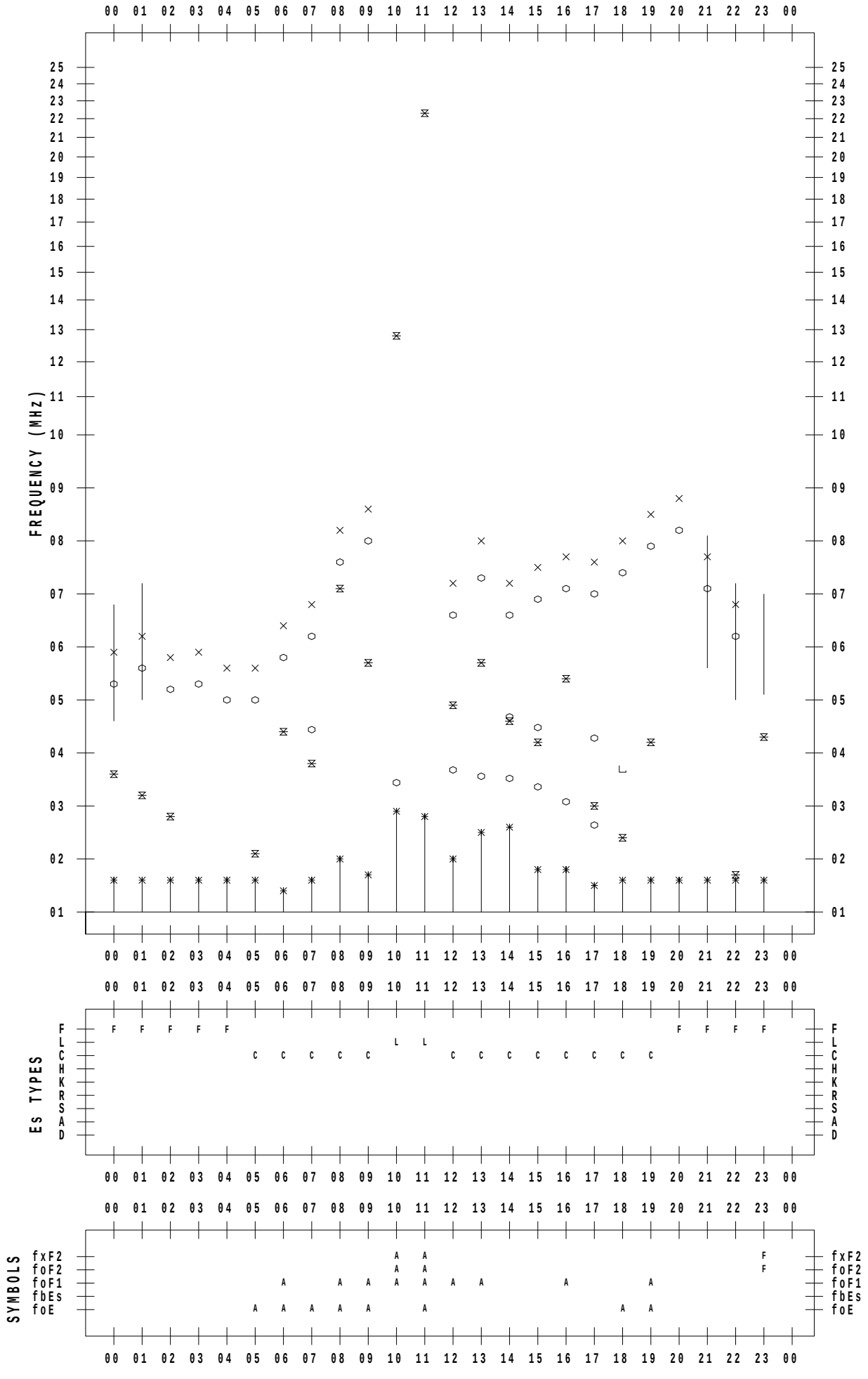
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/ 2

135 °E MEAN TIME



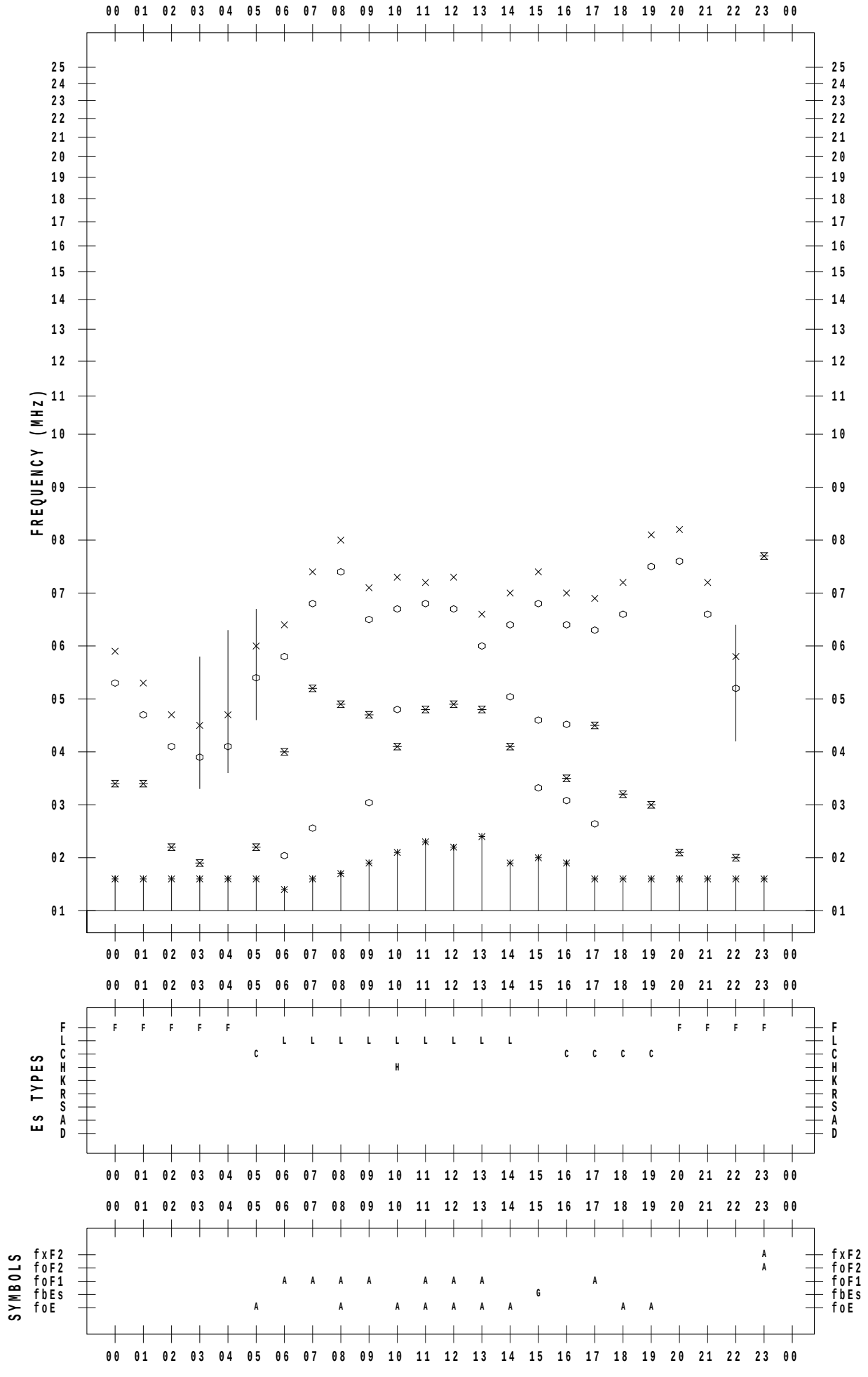
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/ 3

135 °E MEAN TIME



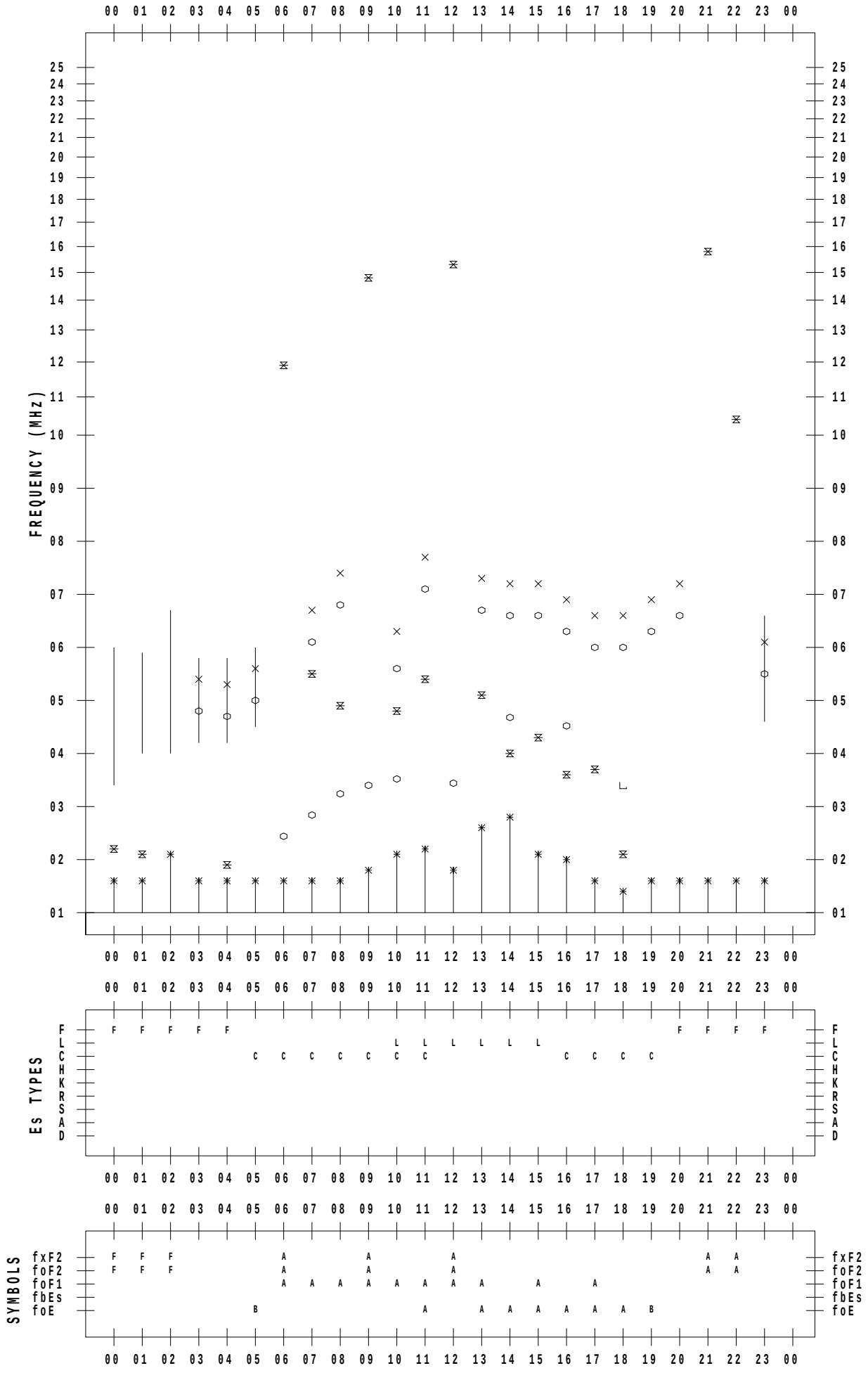
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/ 4

135 °E MEAN TIME



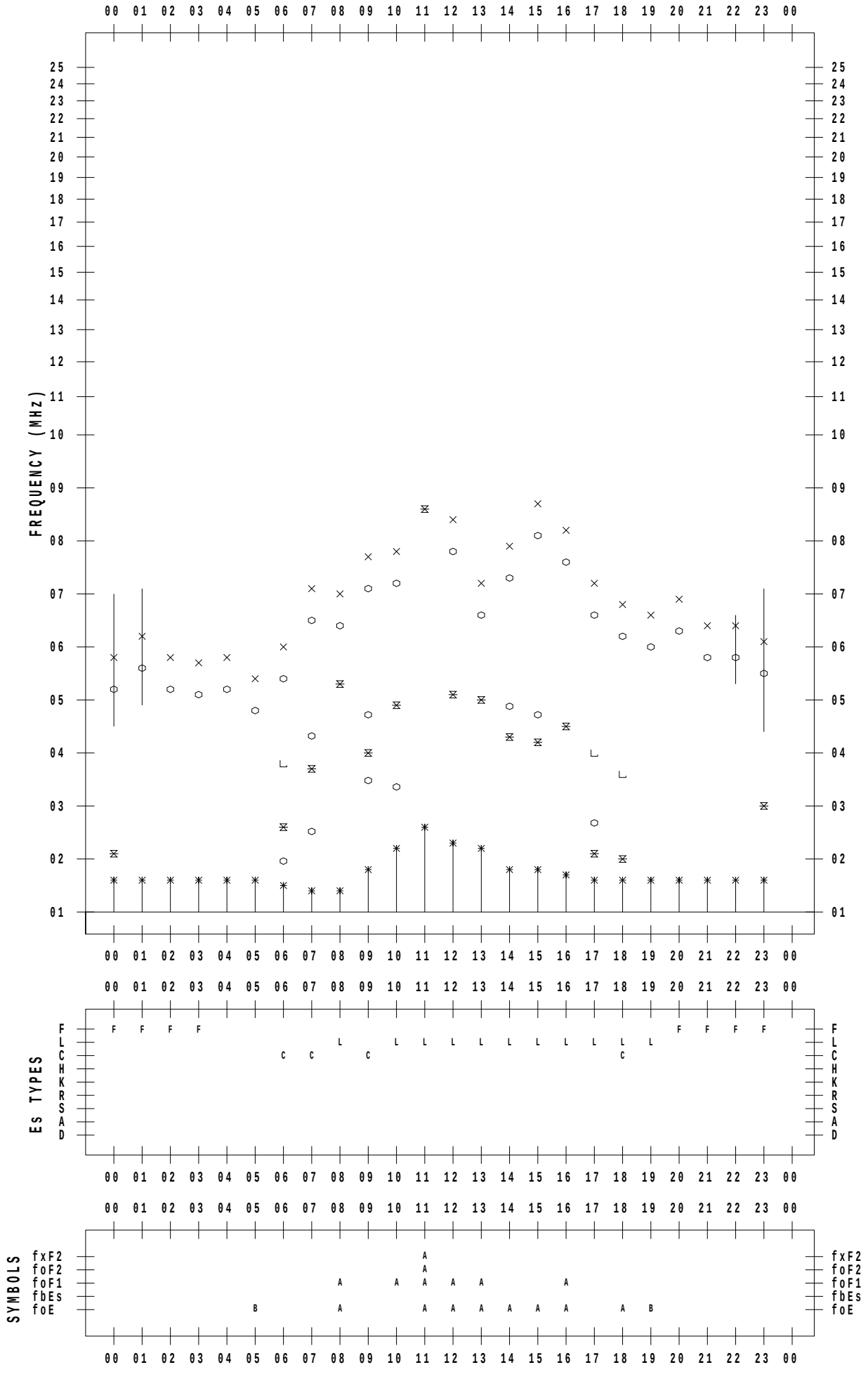
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/ 5

135 °E MEAN TIME



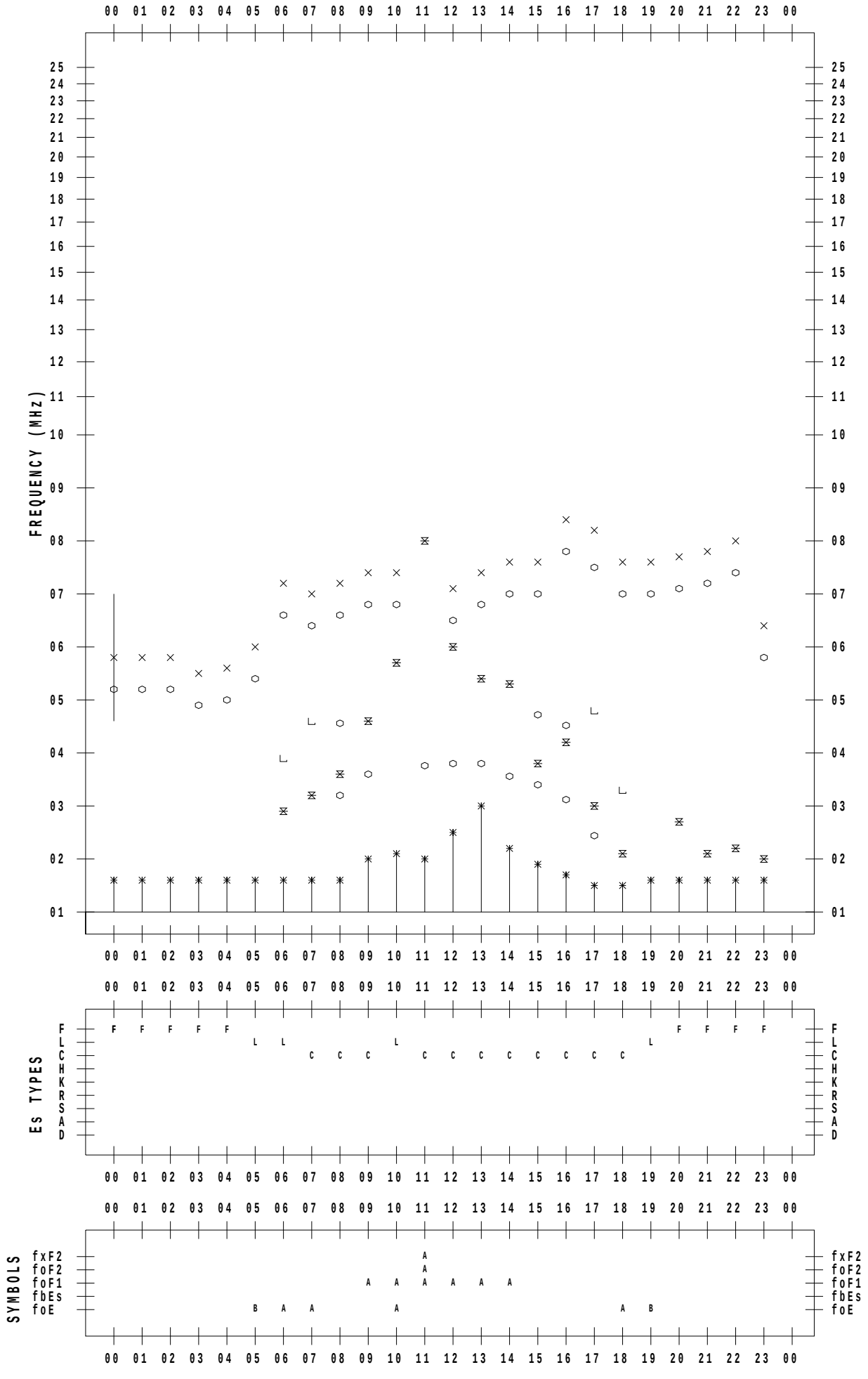
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/ 6

135 °E MEAN TIME



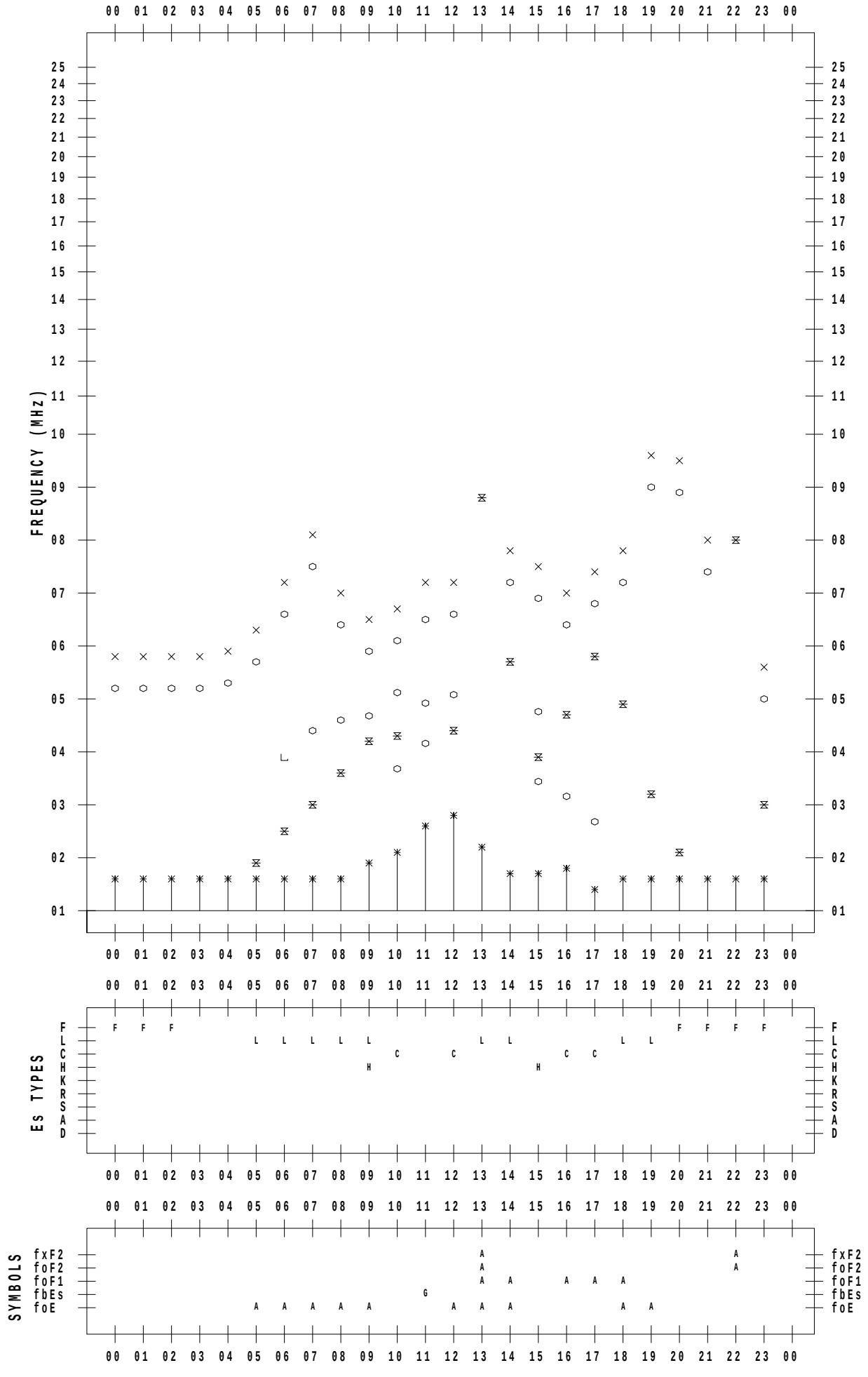
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/ 7

135 °E MEAN TIME



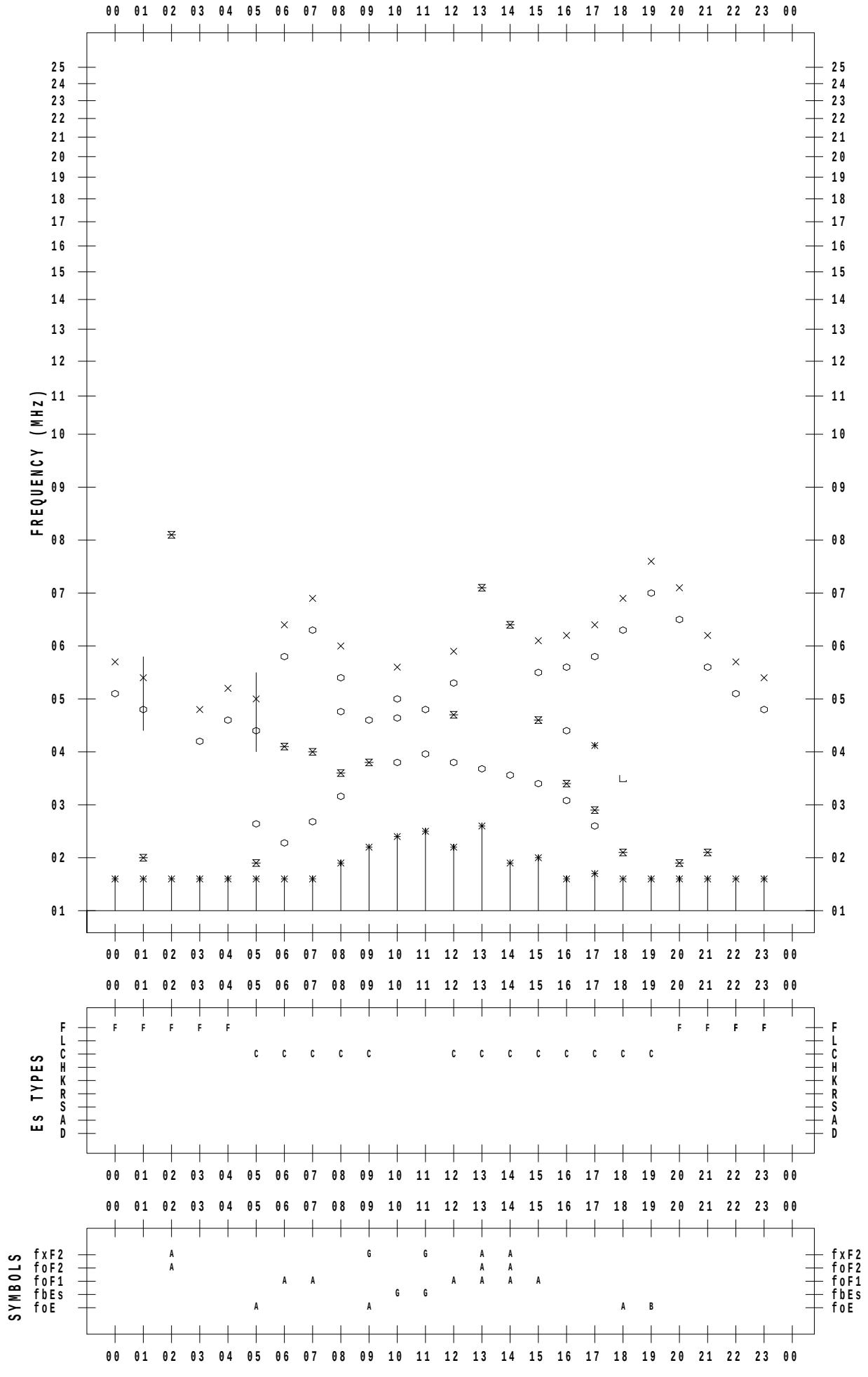
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/ 8

135 °E MEAN TIME



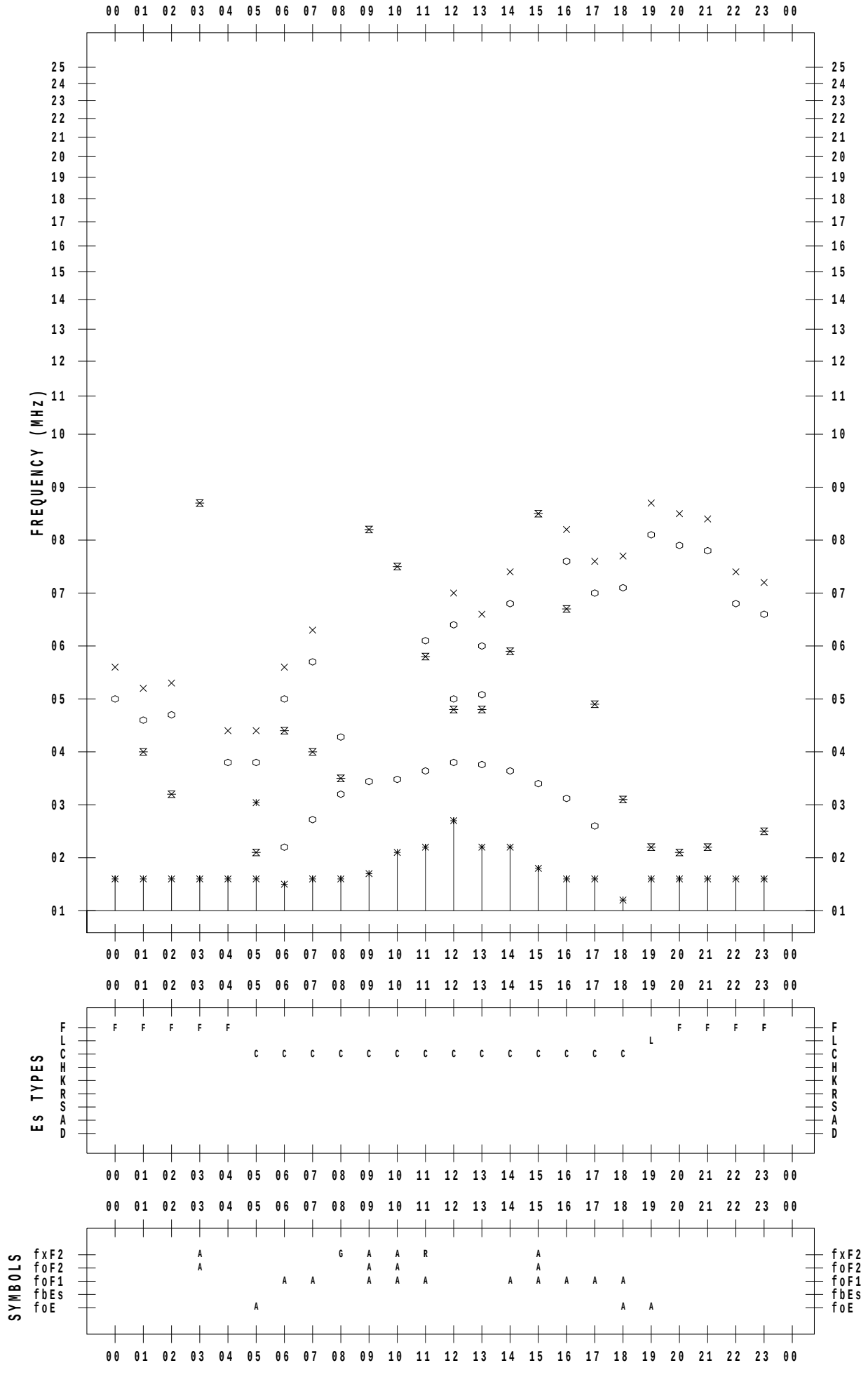
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/ 9

135 °E MEAN TIME



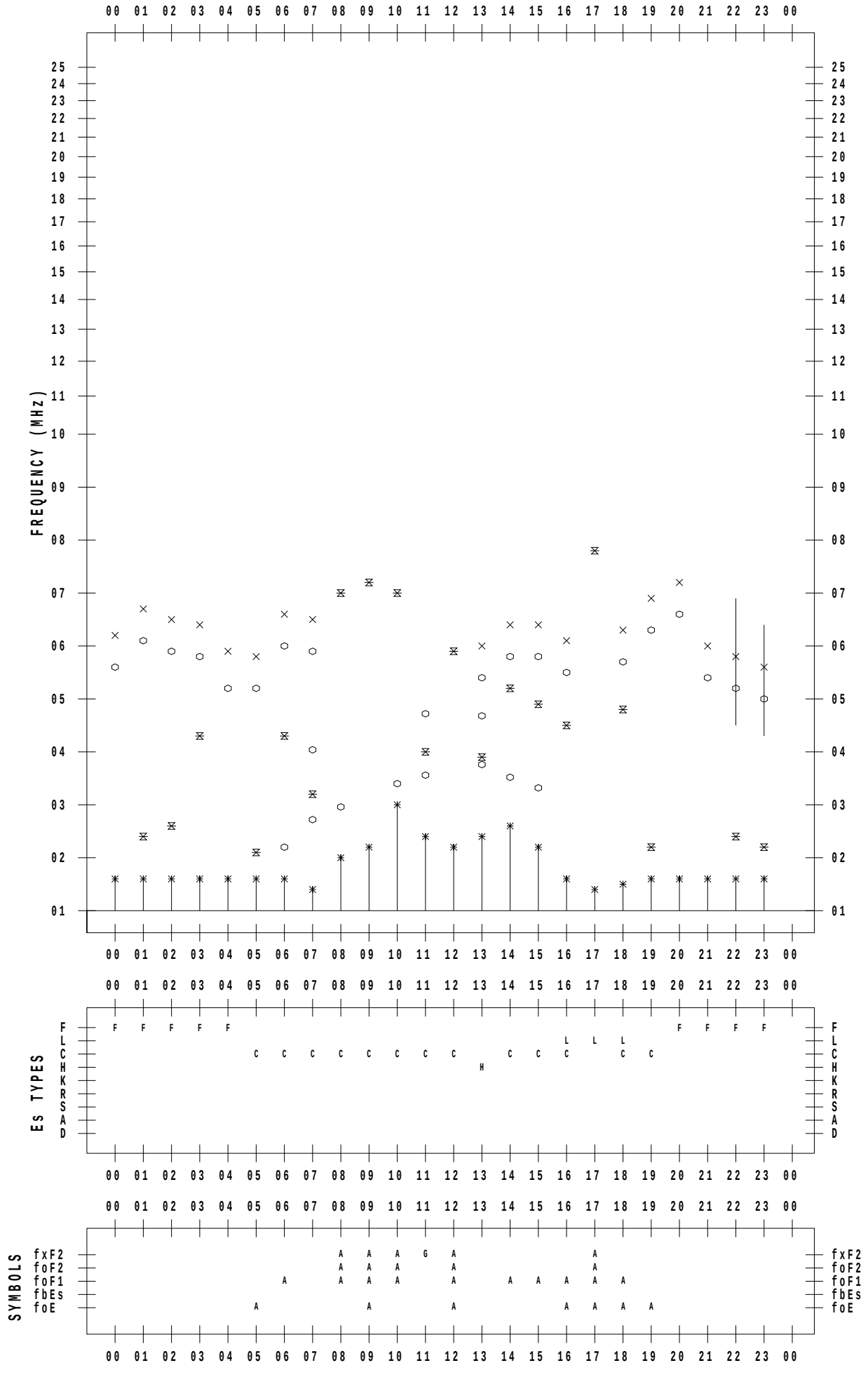
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/10

135 °E MEAN TIME



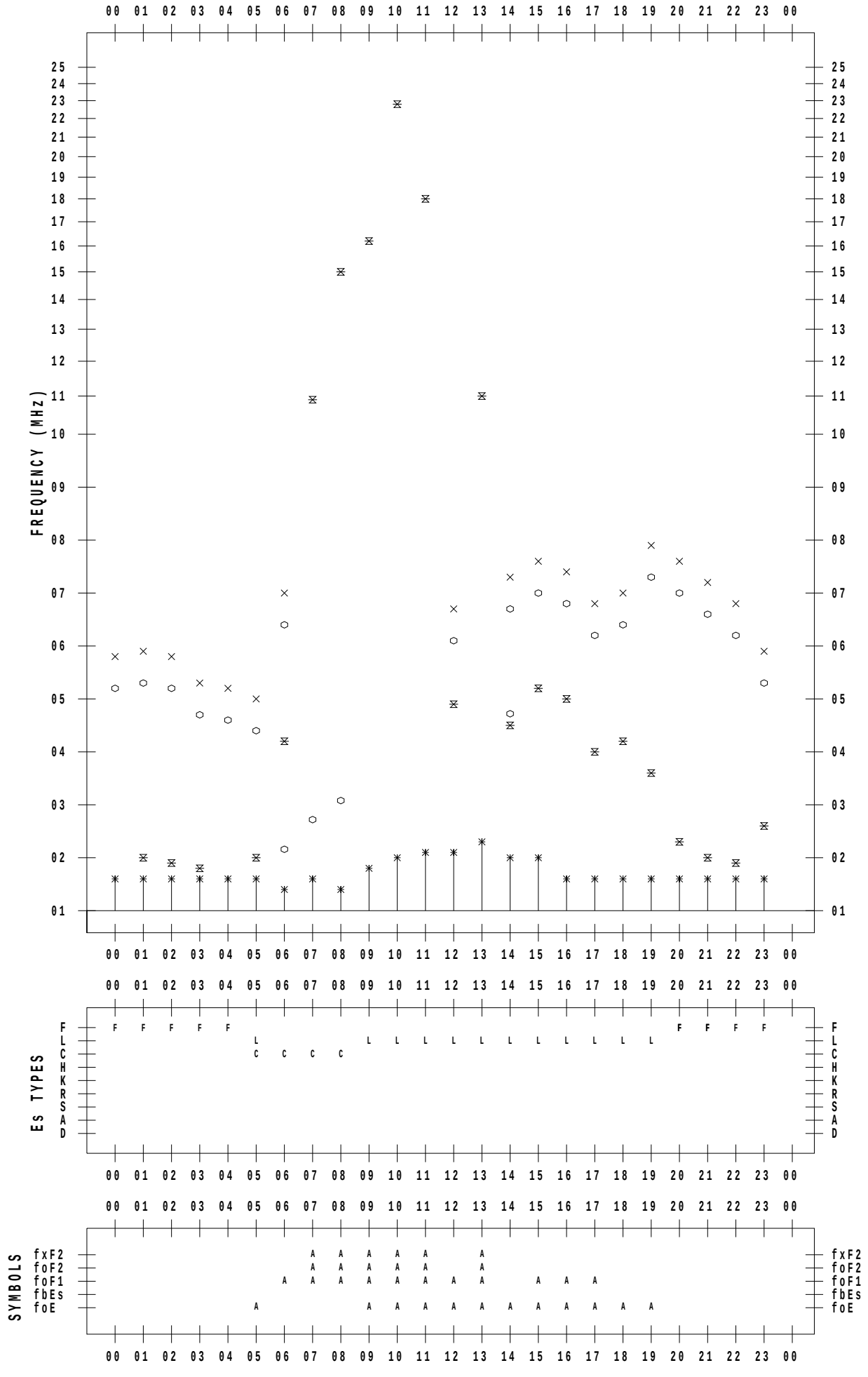
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/11

135 °E MEAN TIME



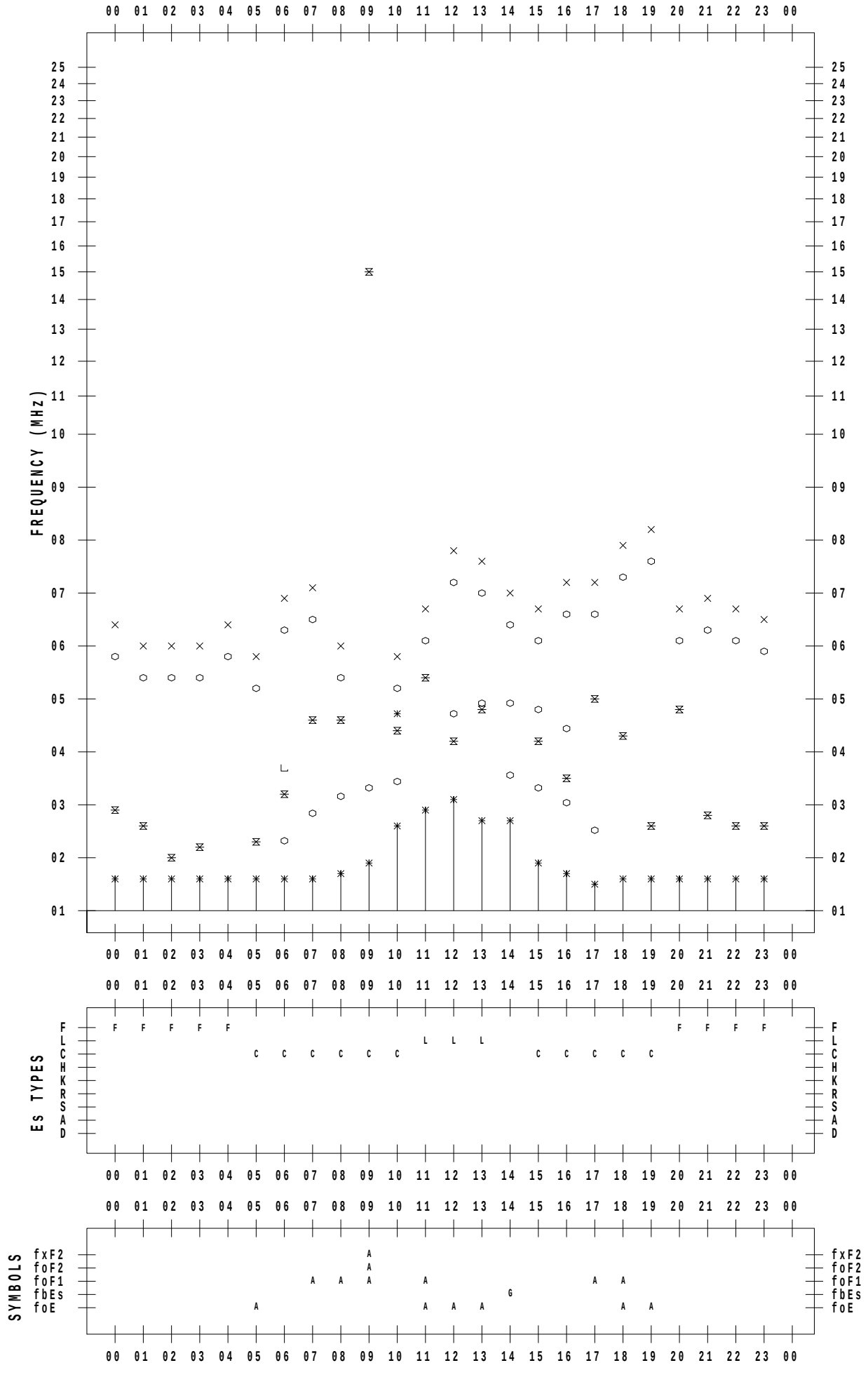
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/12

135 °E MEAN TIME



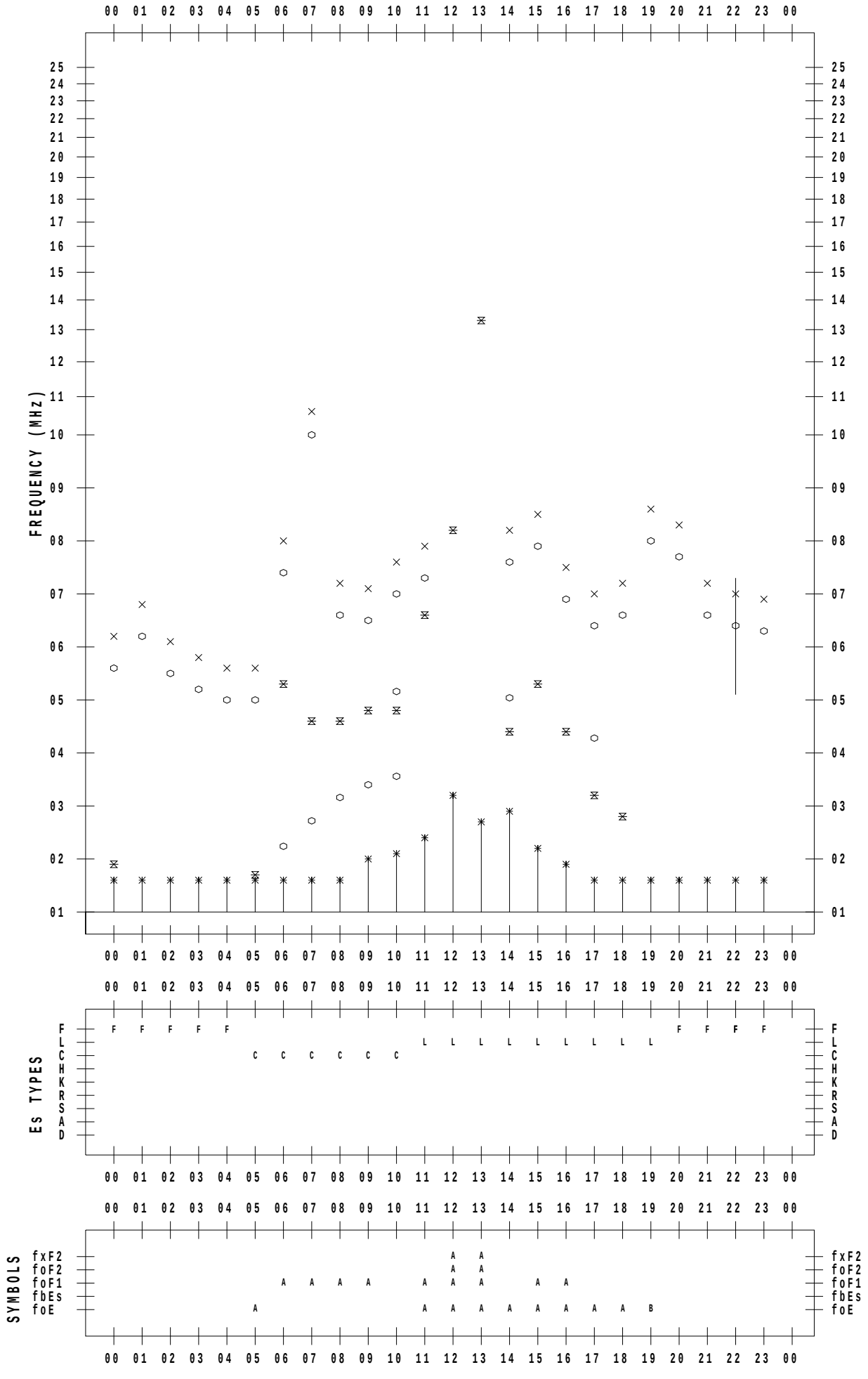
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/13

135 °E MEAN TIME



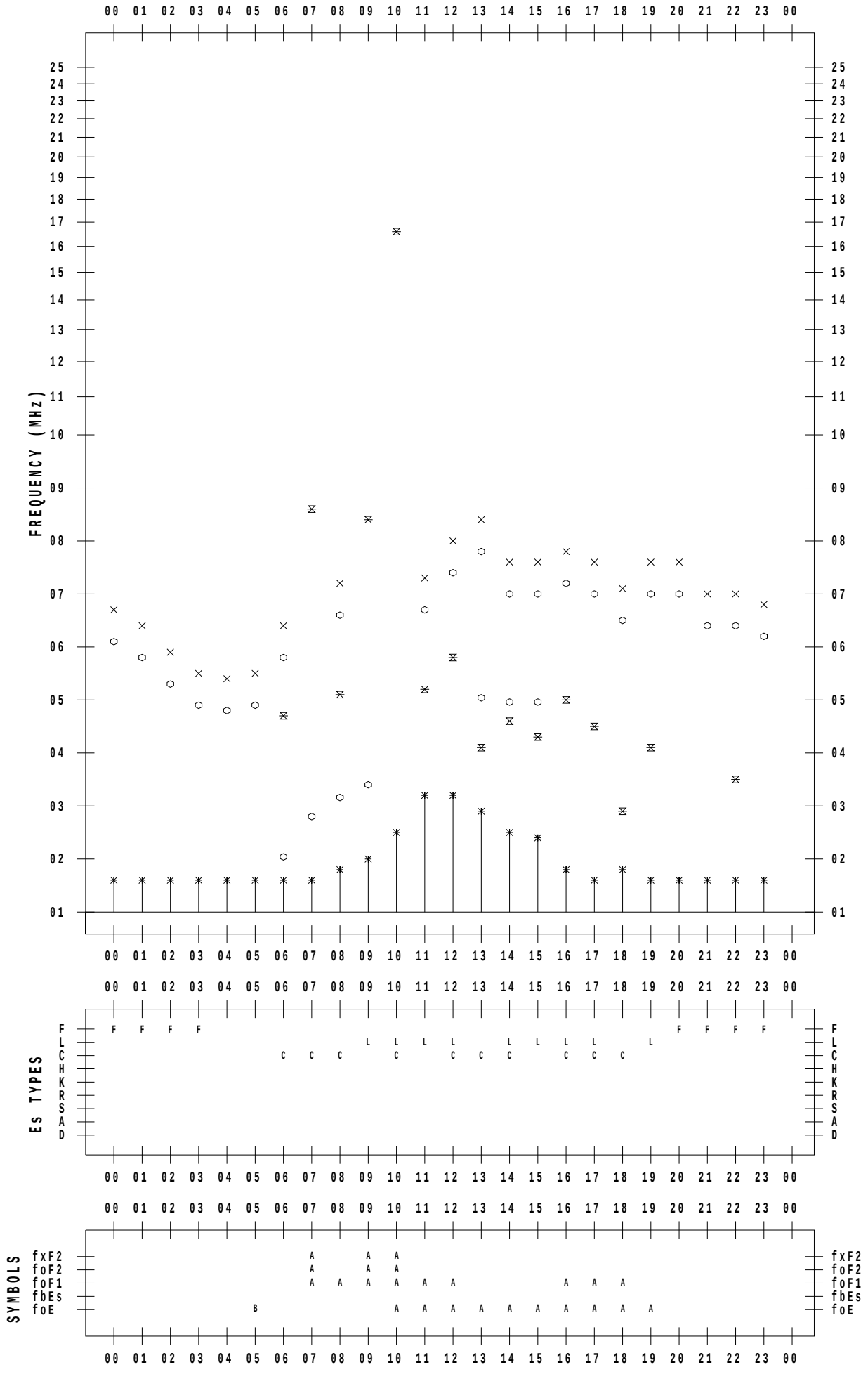
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/14

135 °E MEAN TIME



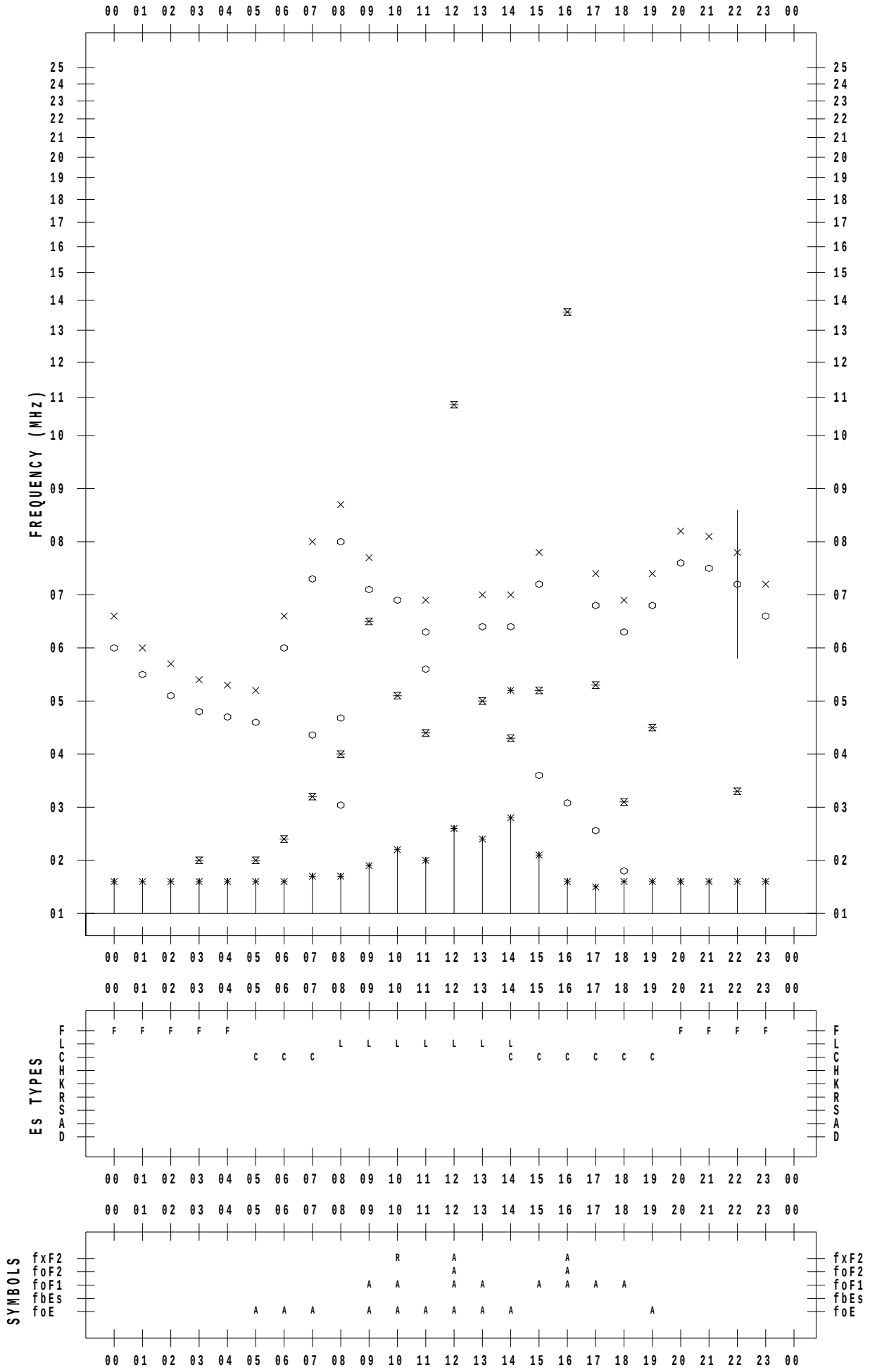
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/15

135 °E MEAN TIME



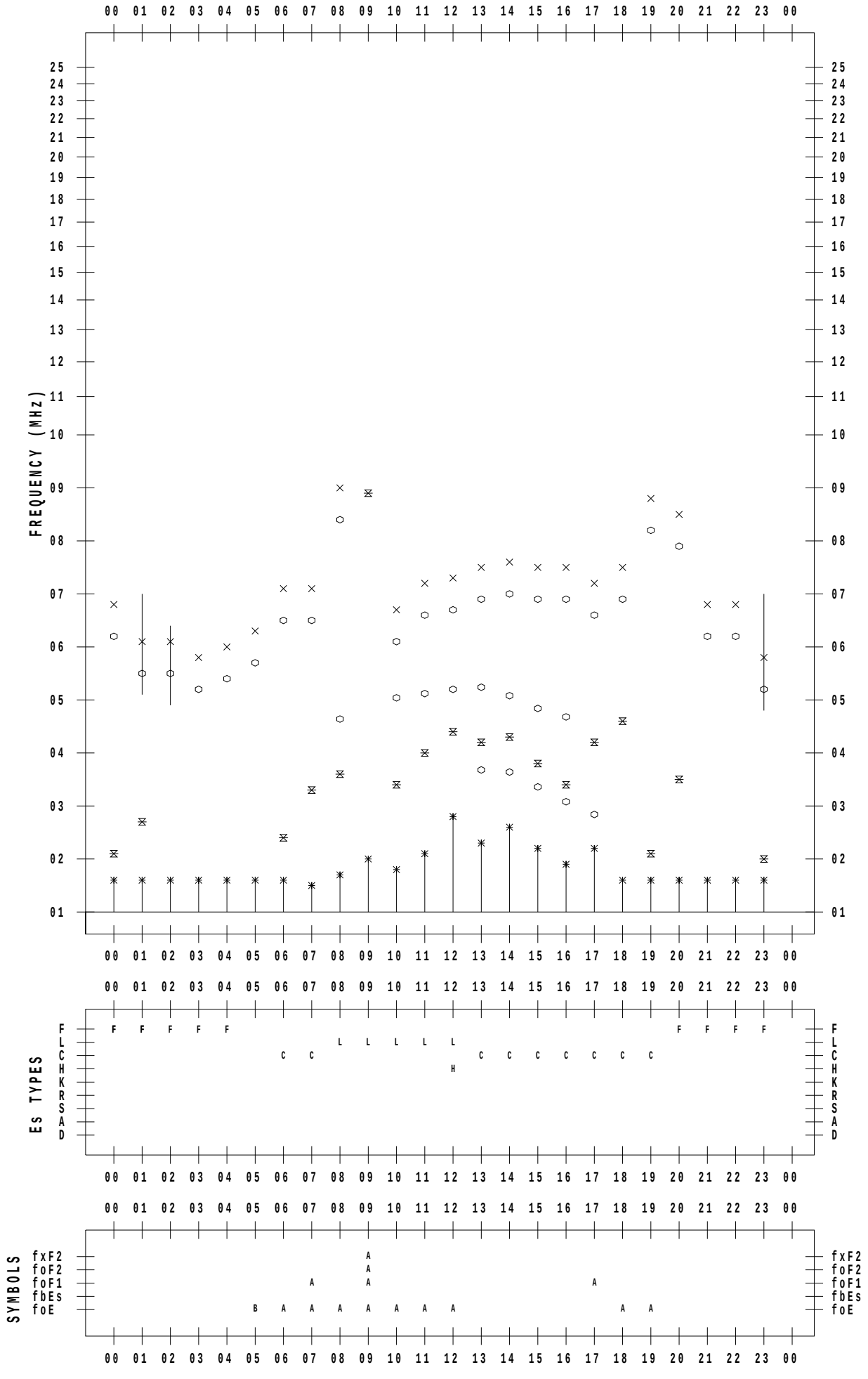
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/16

135 °E MEAN TIME



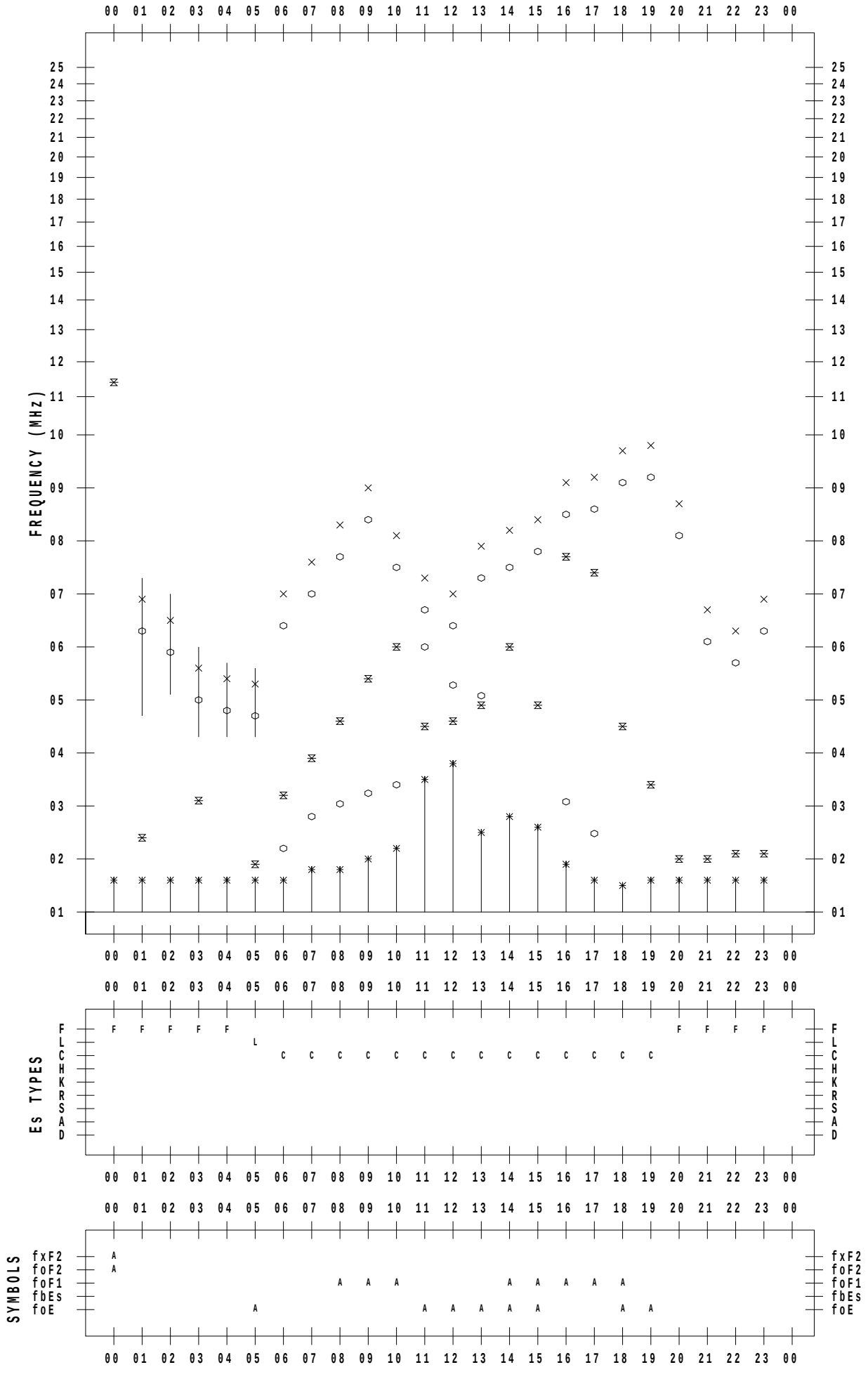
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/17

135 °E MEAN TIME



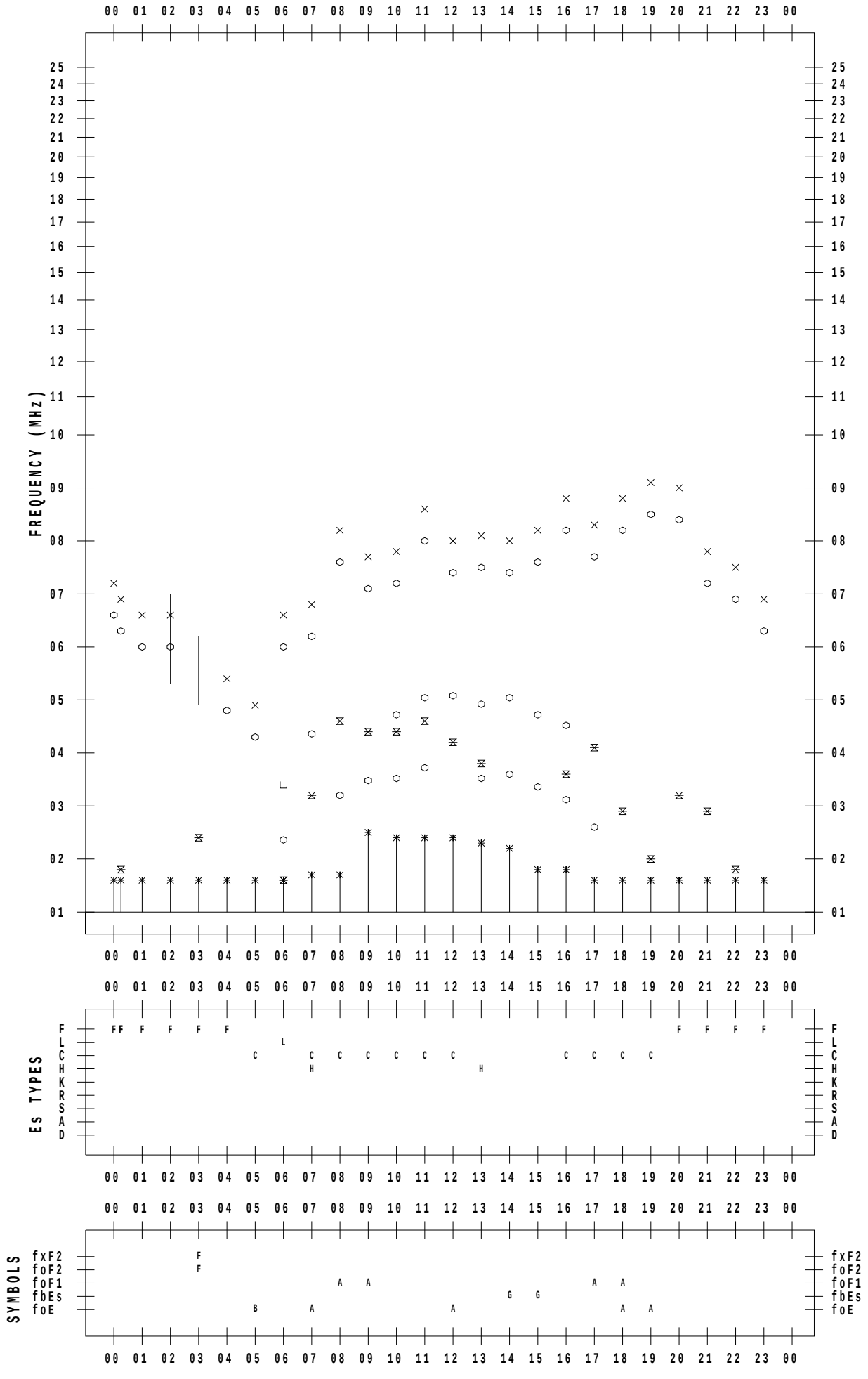
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/18

135 °E MEAN TIME



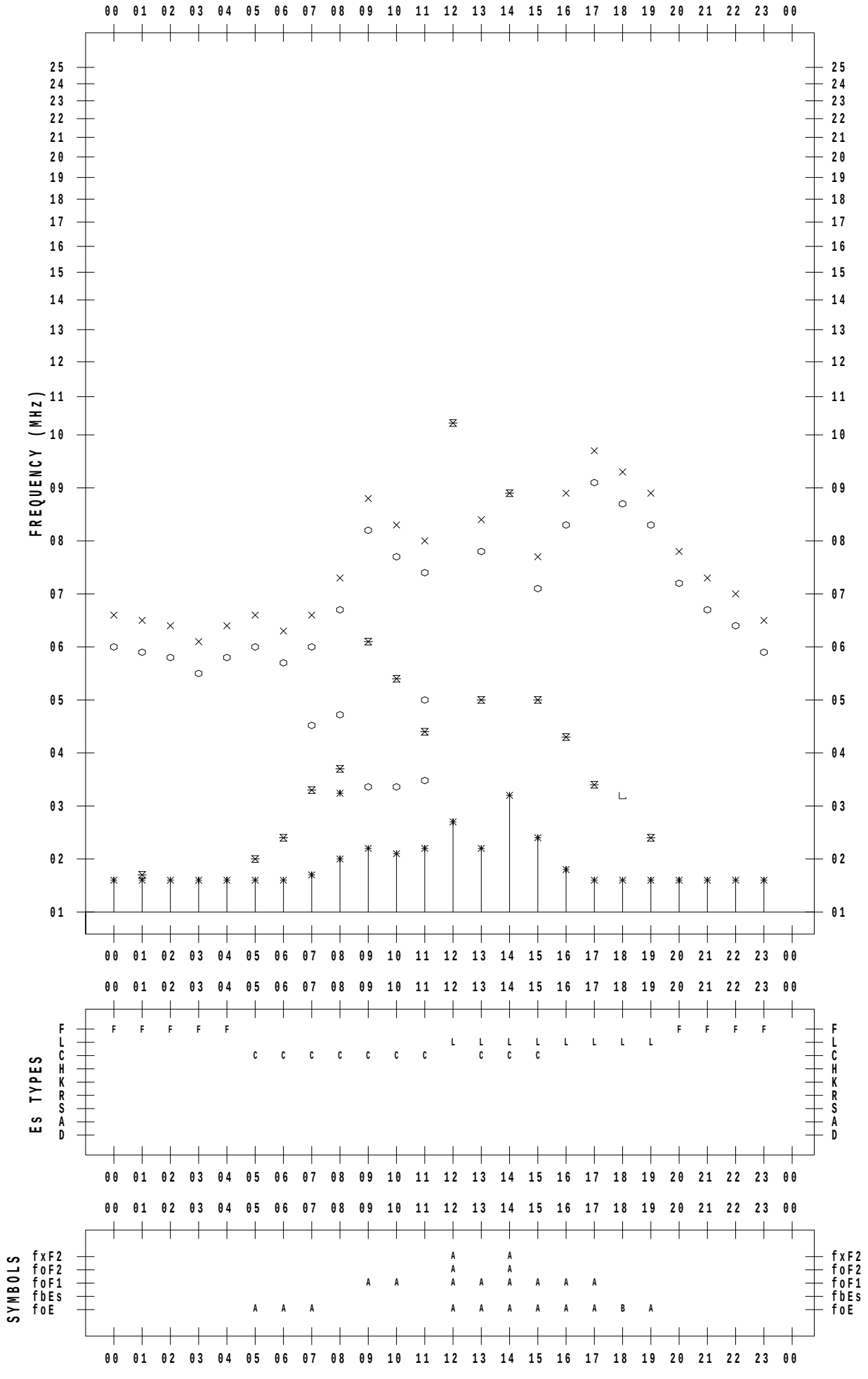
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/19

135 °E MEAN TIME



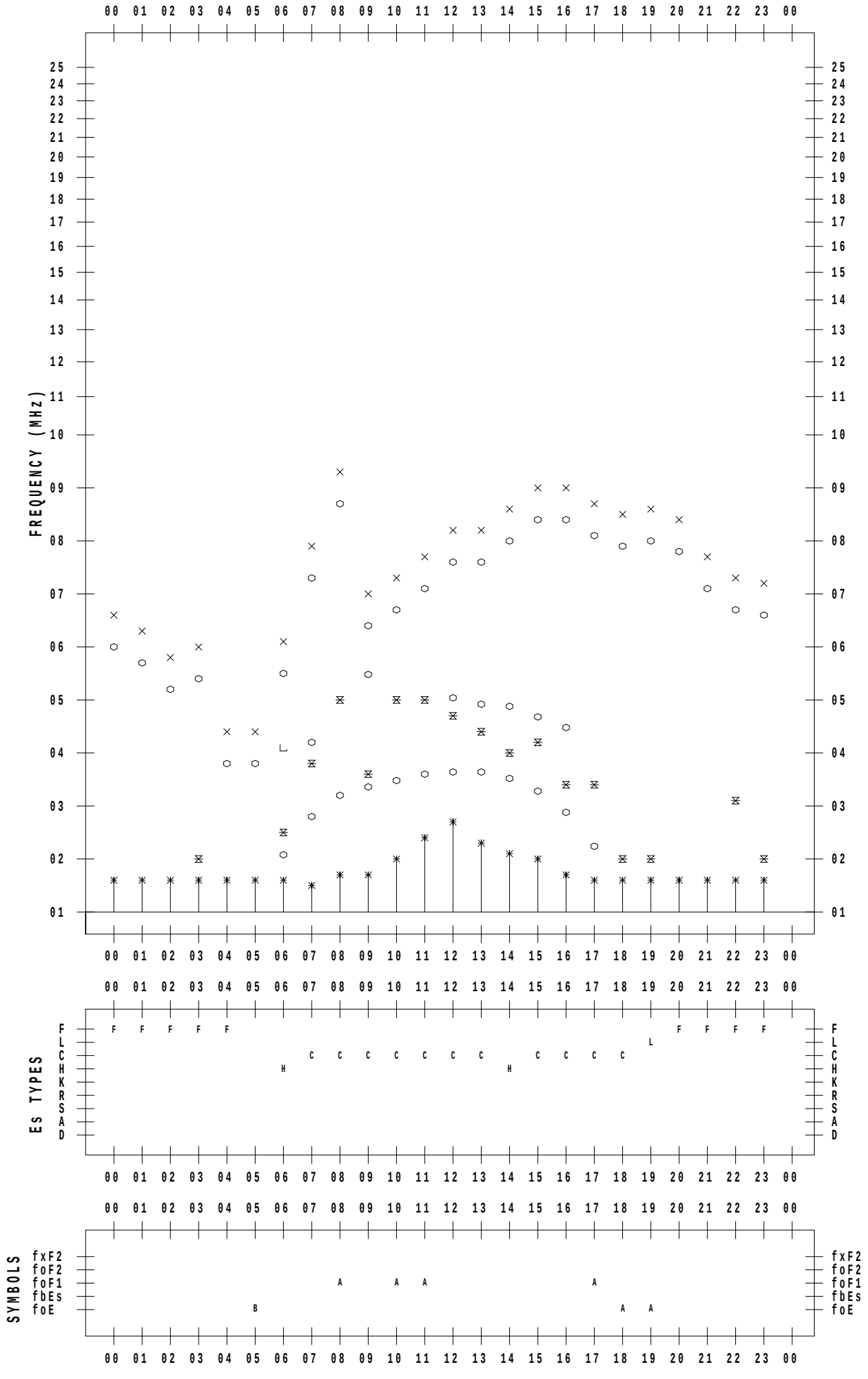
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/20

135 °E MEAN TIME



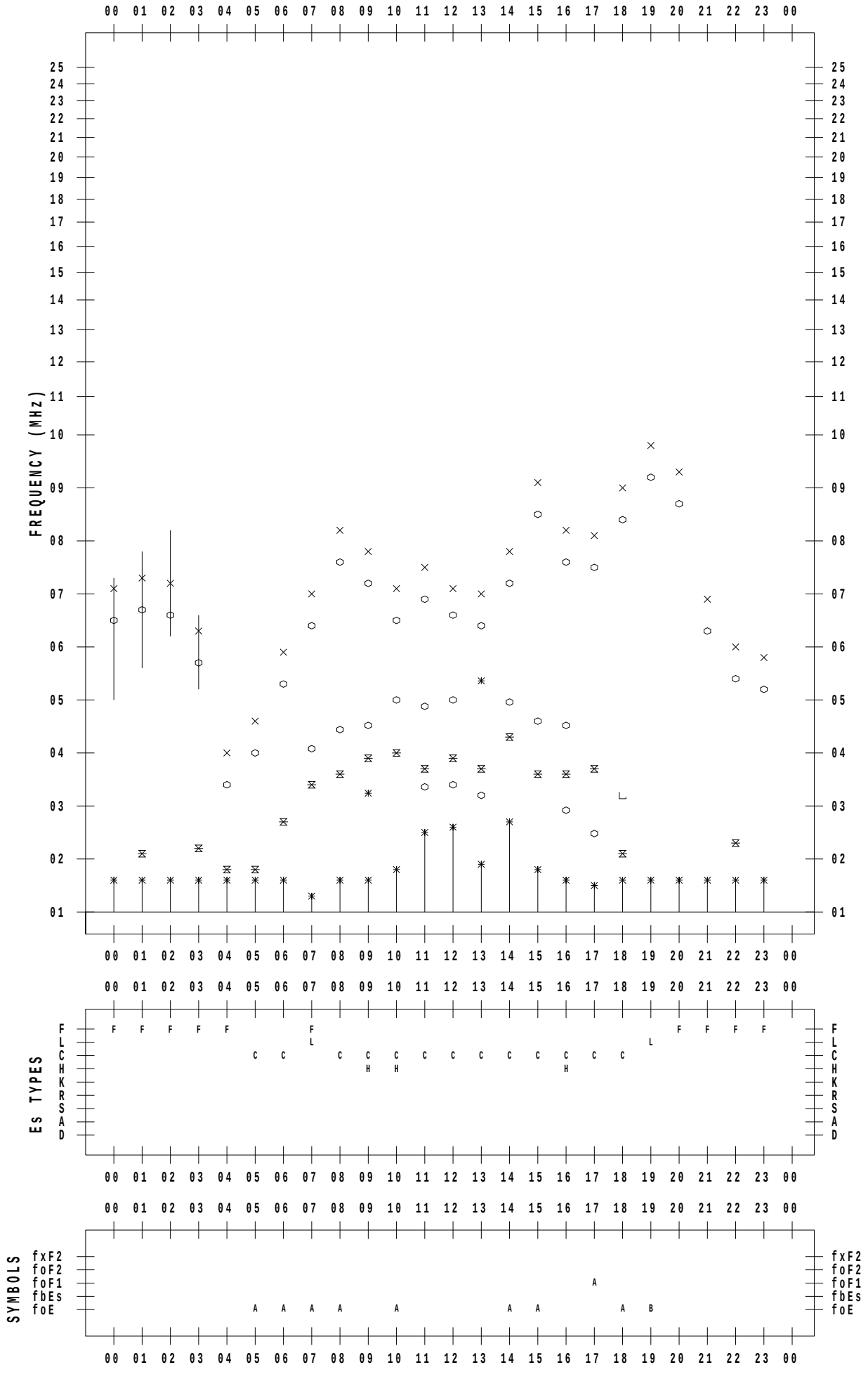
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/21

135 °E MEAN TIME



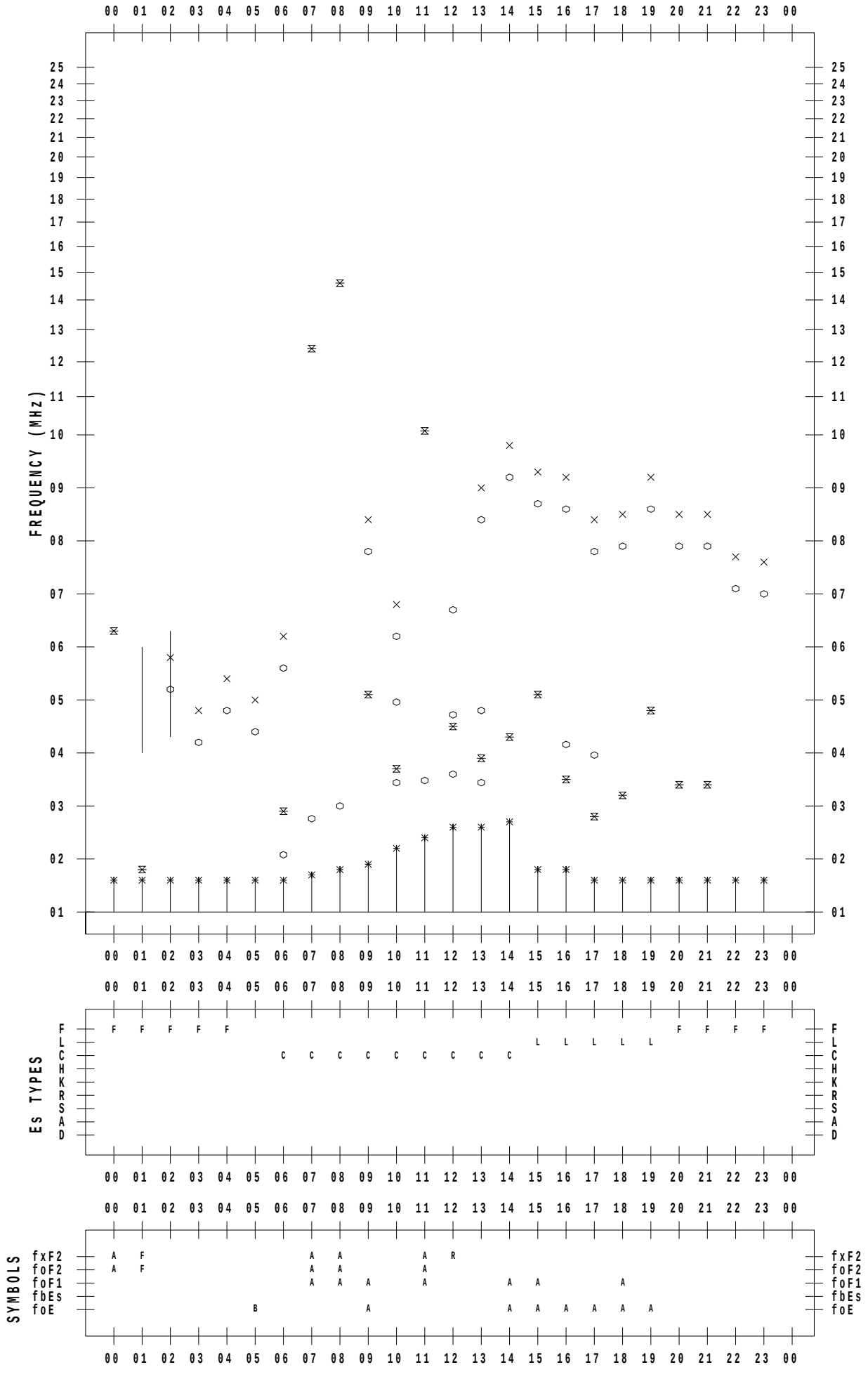
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/22

135 °E MEAN TIME



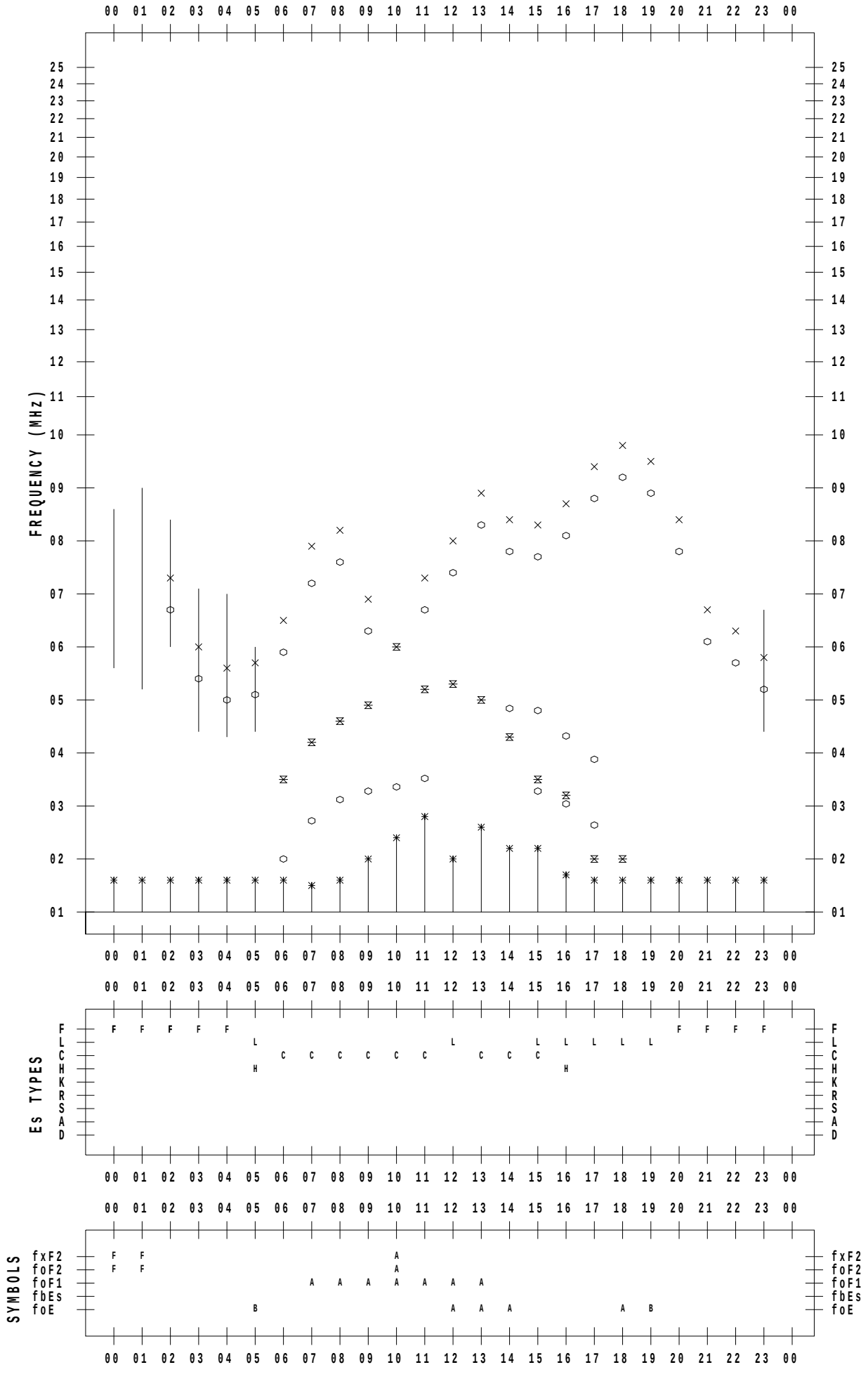
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/23

135 °E MEAN TIME



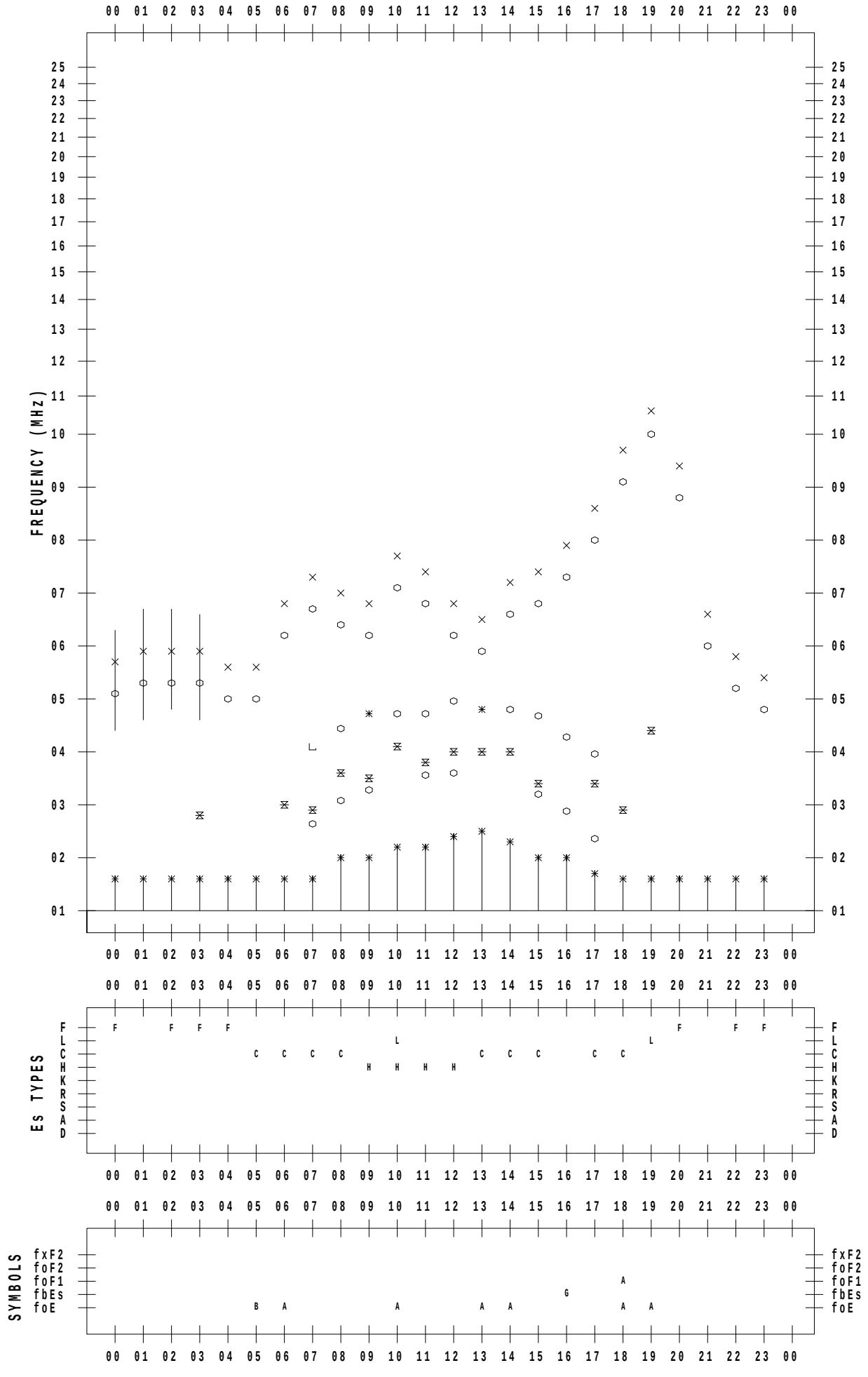
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/24

135 °E MEAN TIME



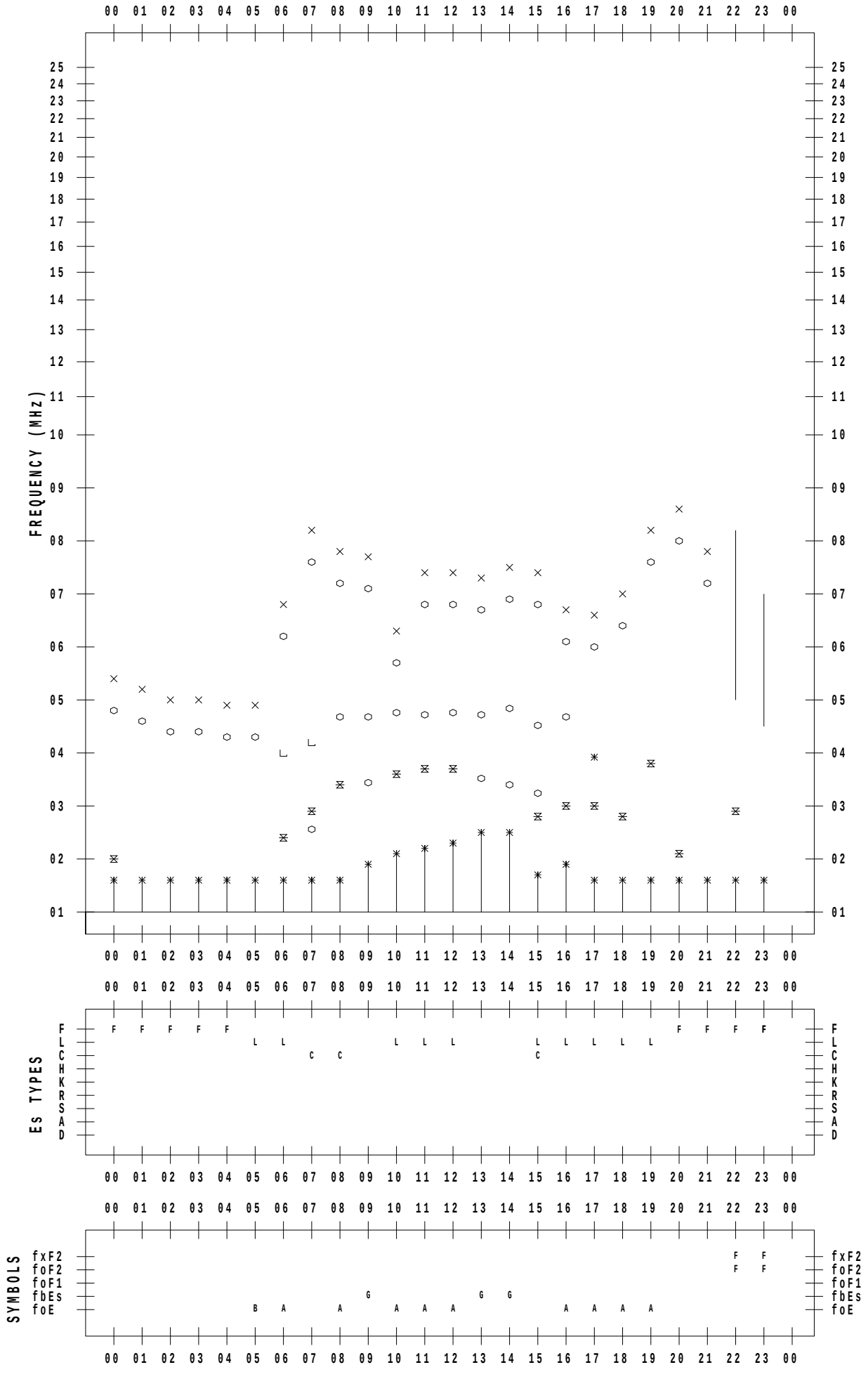
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/25

135 °E MEAN TIME



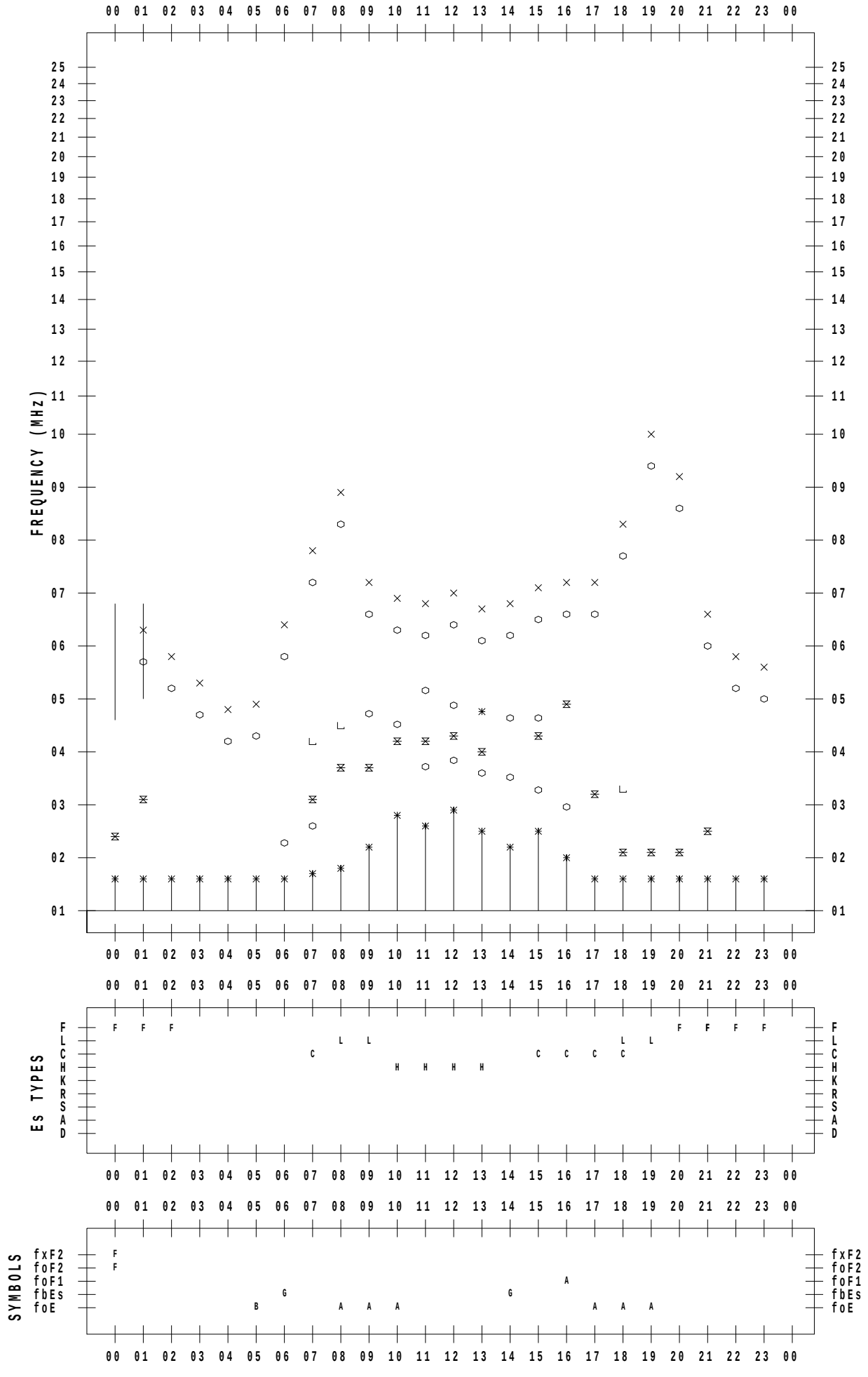
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/26

135 °E MEAN TIME



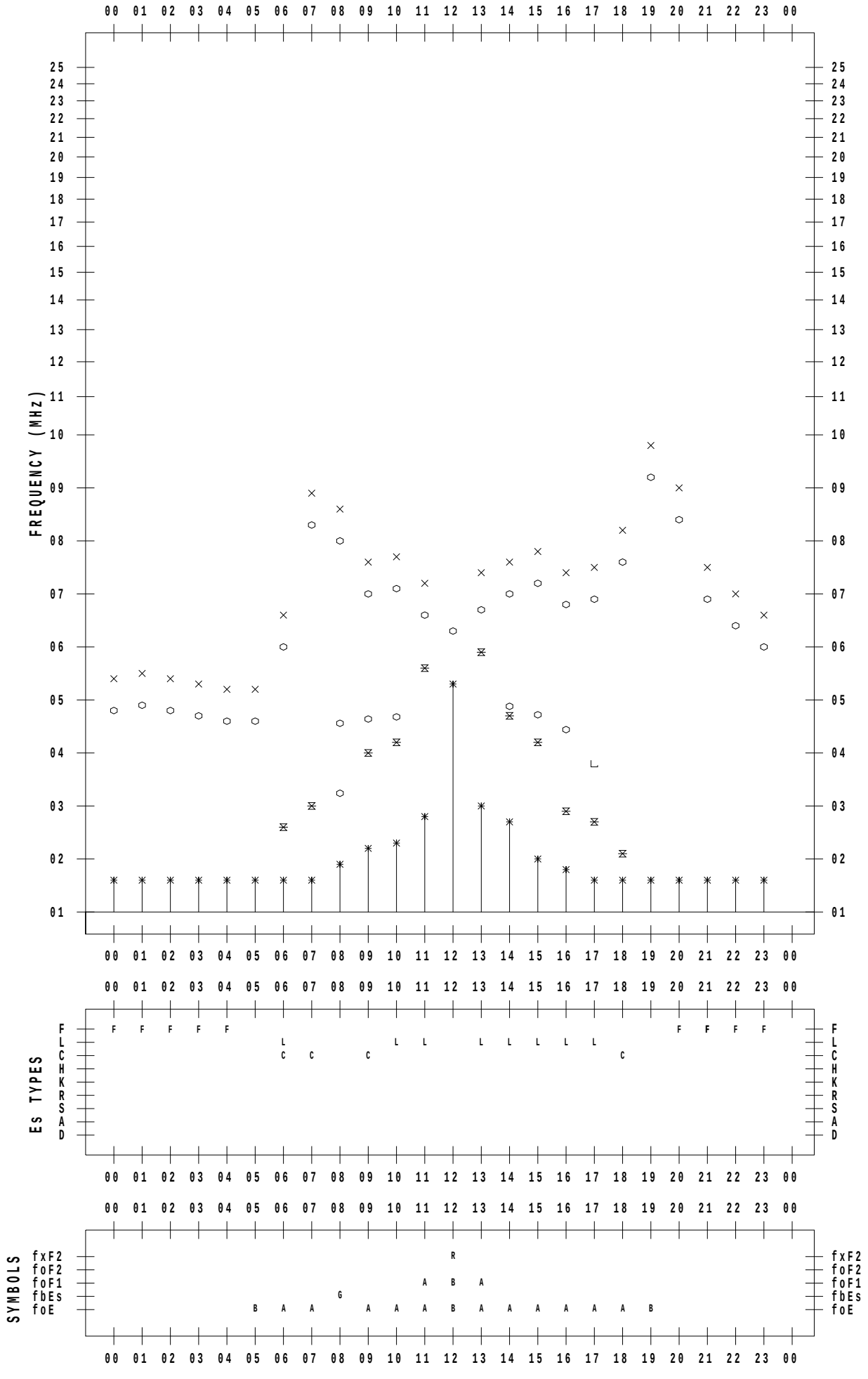
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/27

135 °E MEAN TIME



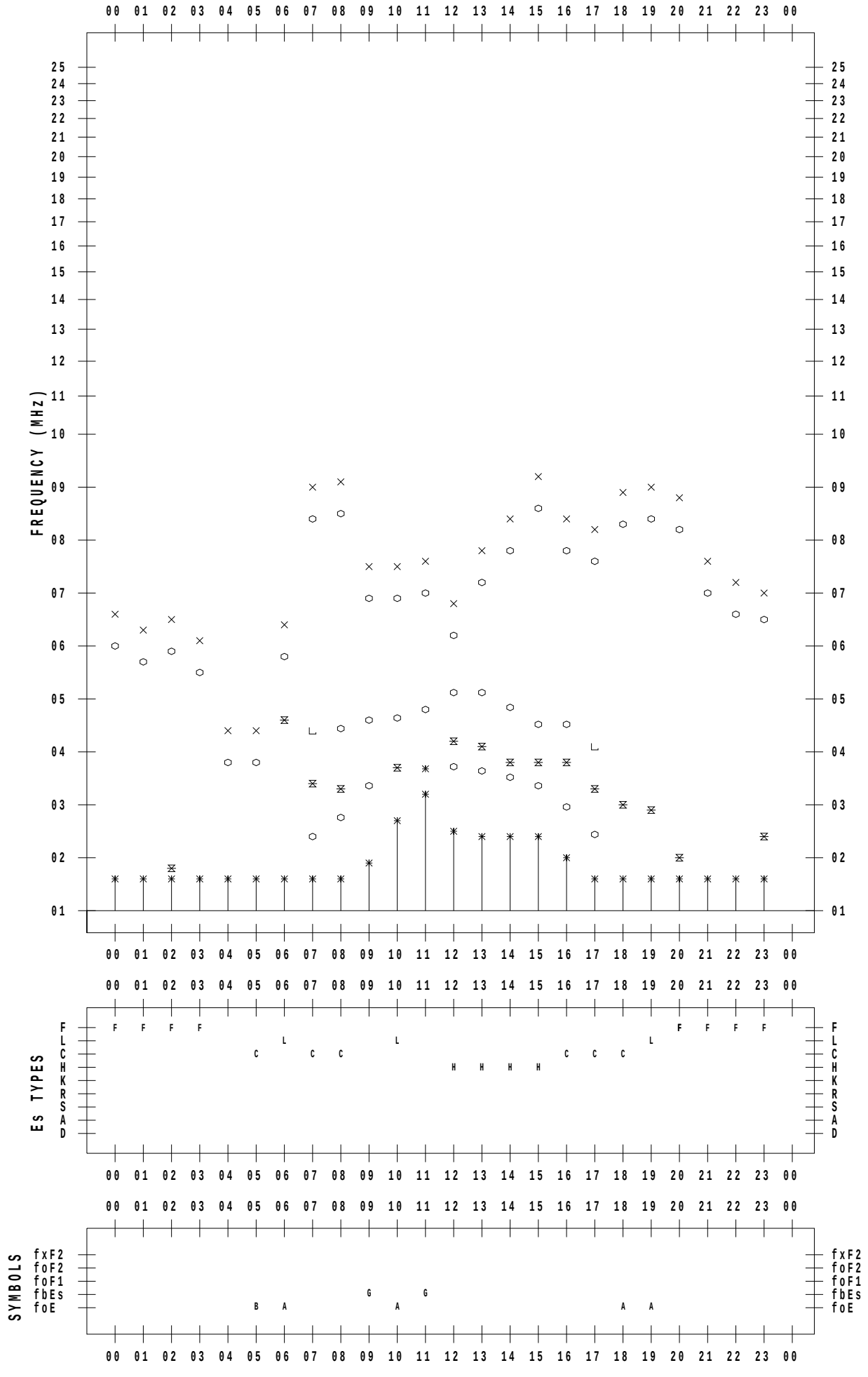
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/28

135 °E MEAN TIME



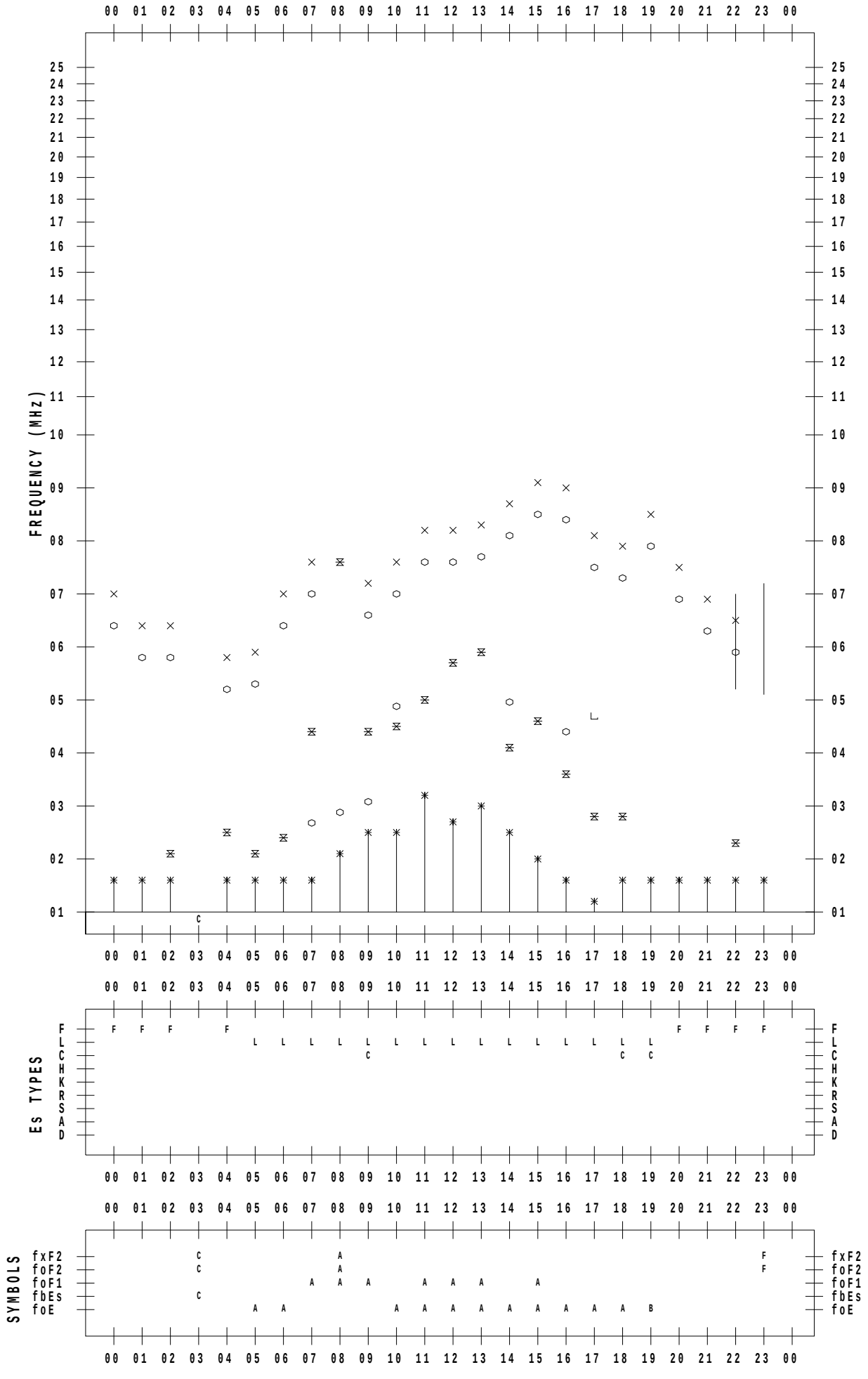
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/29

135 °E MEAN TIME



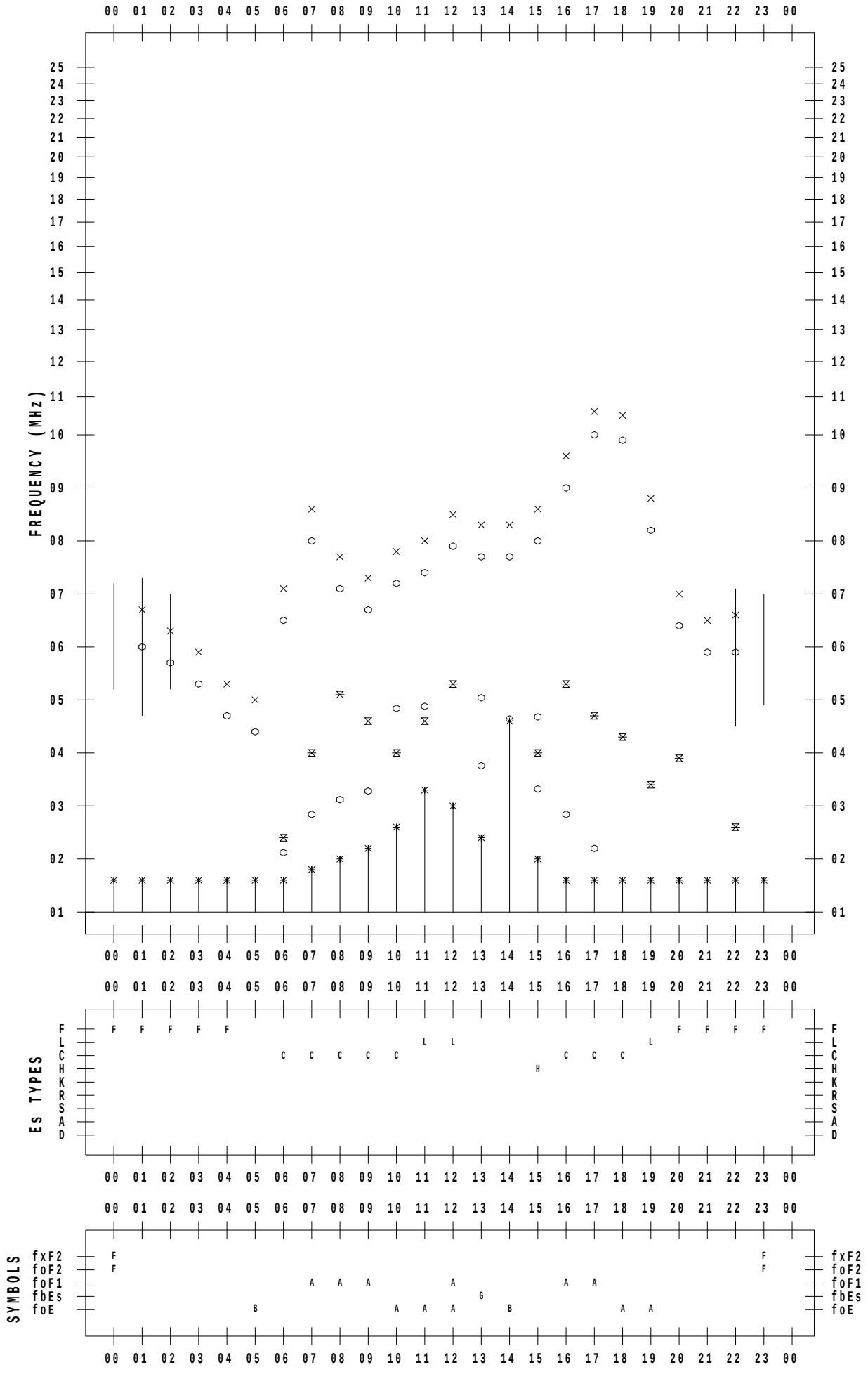
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/30

135 °E MEAN TIME



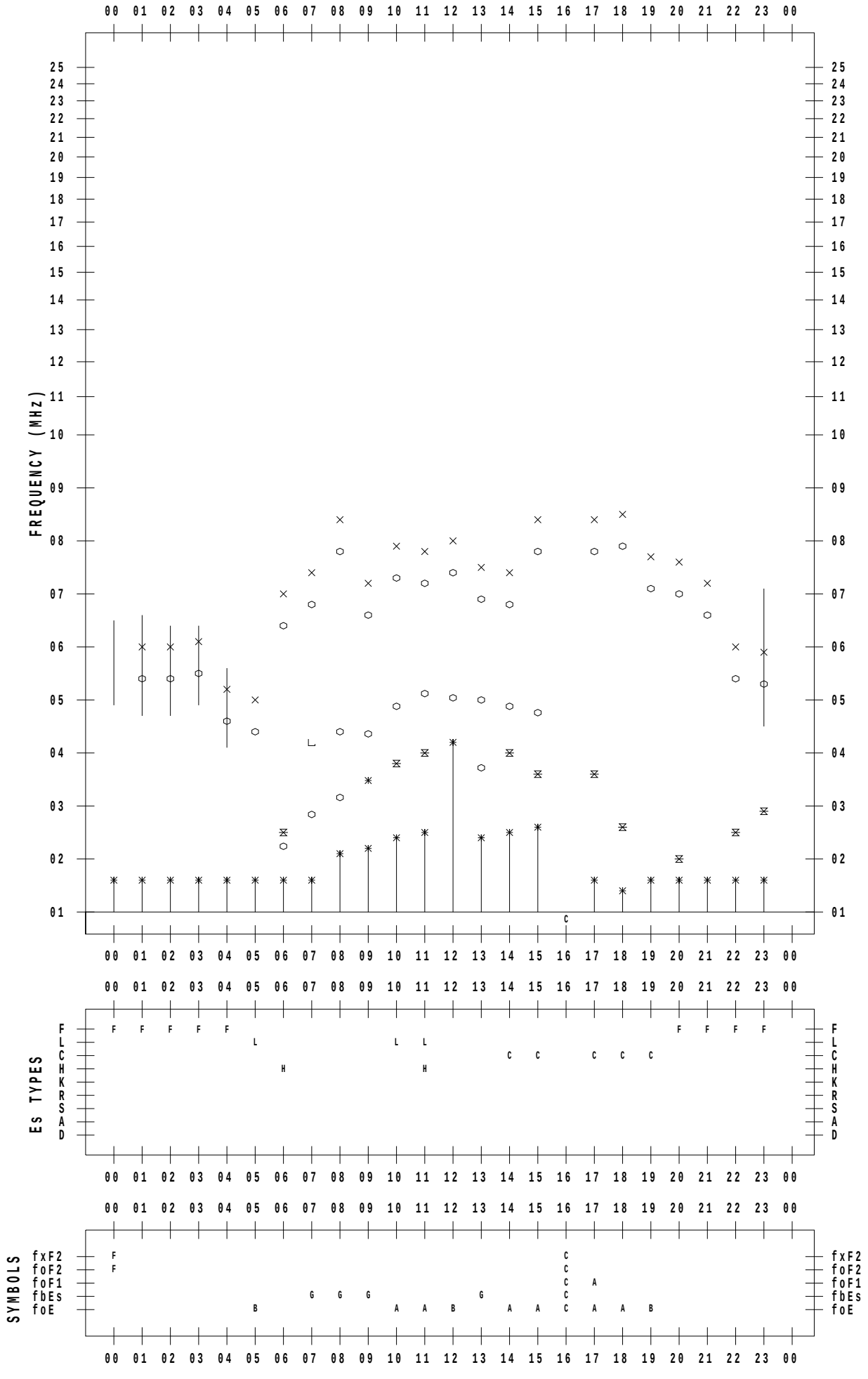
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Kokubunji

DATE : 2022/ 8/31

135 °E MEAN TIME



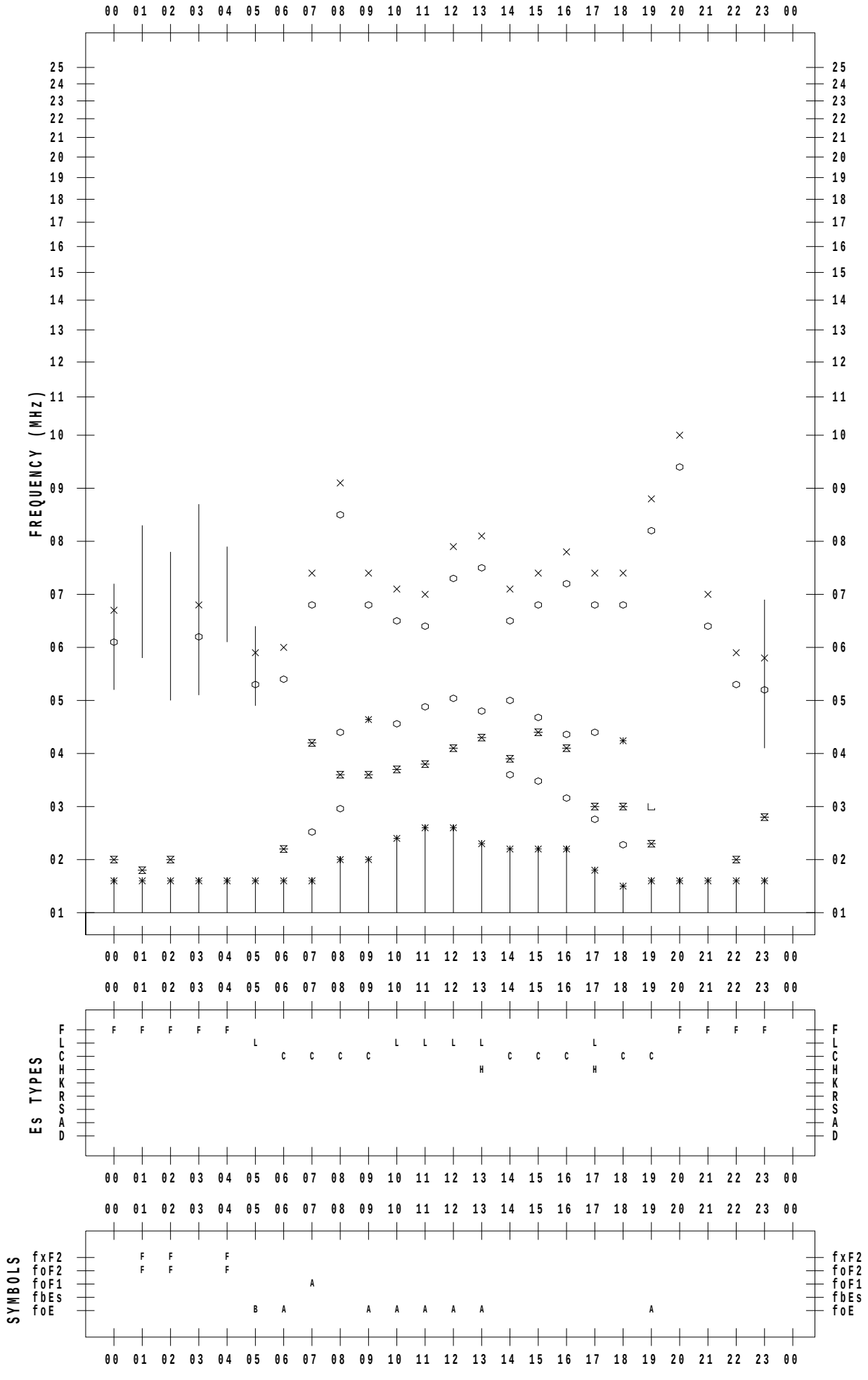
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/ 1

135 °E MEAN TIME



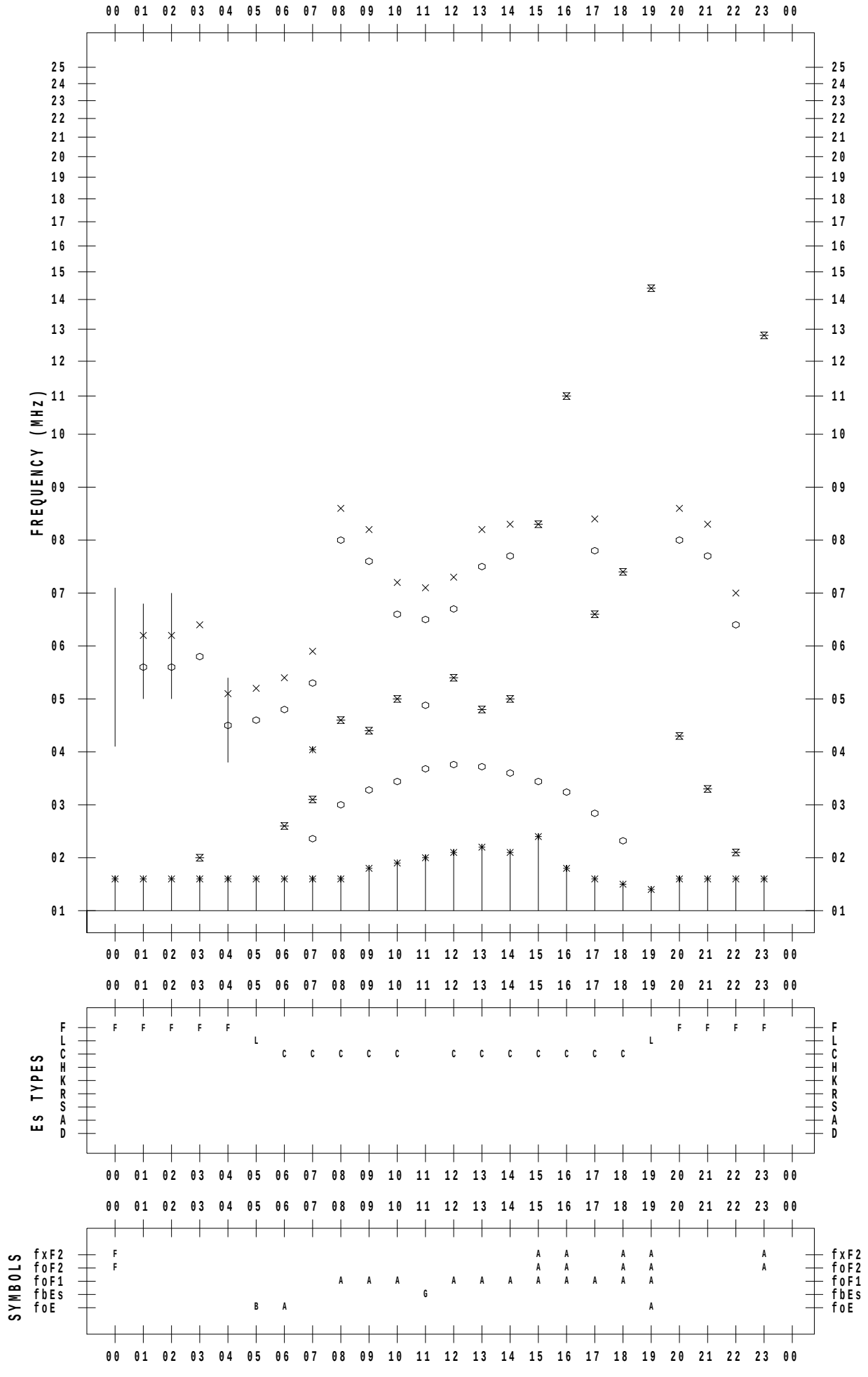
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/ 2

135 °E MEAN TIME



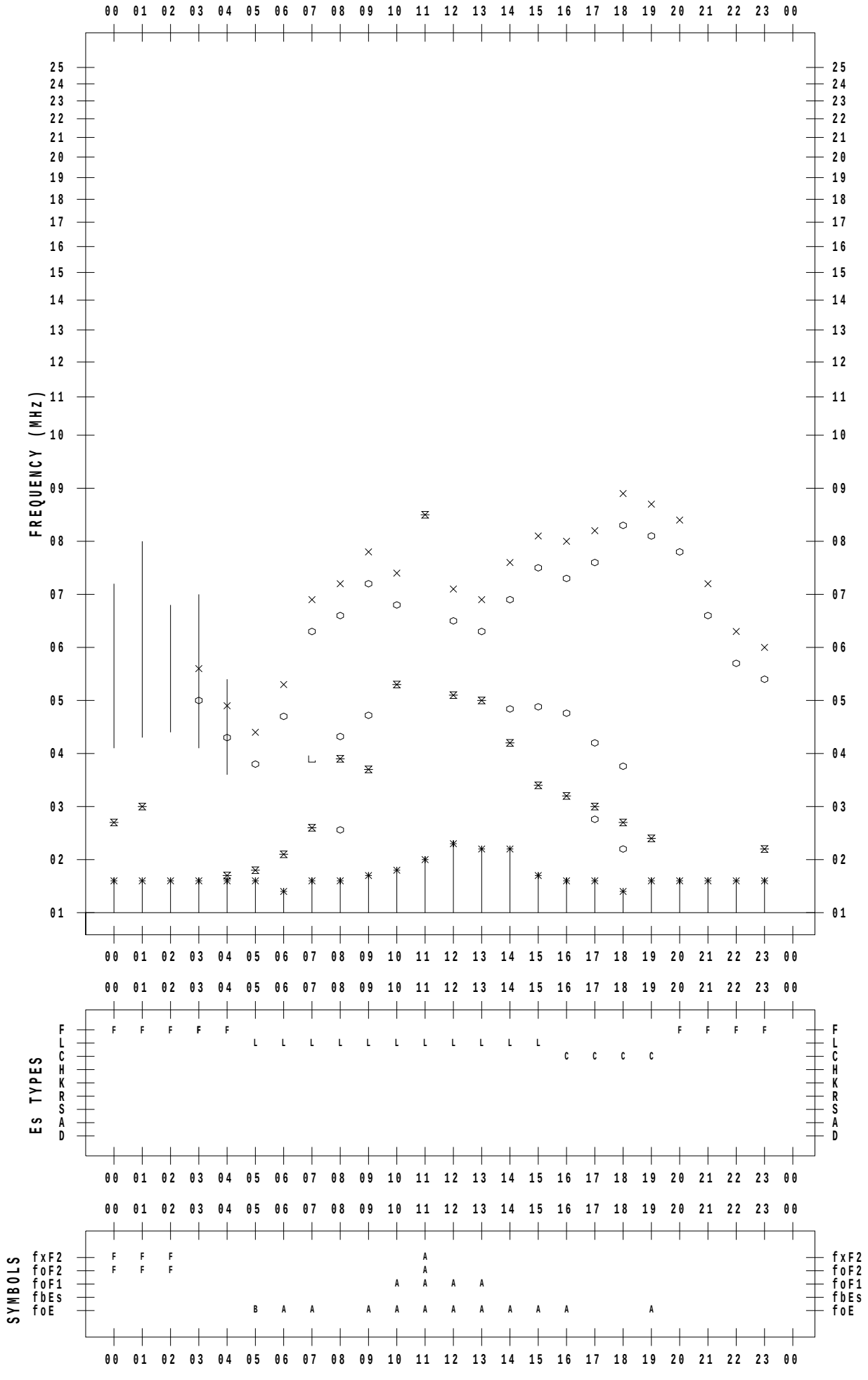
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/ 3

135 °E MEAN TIME



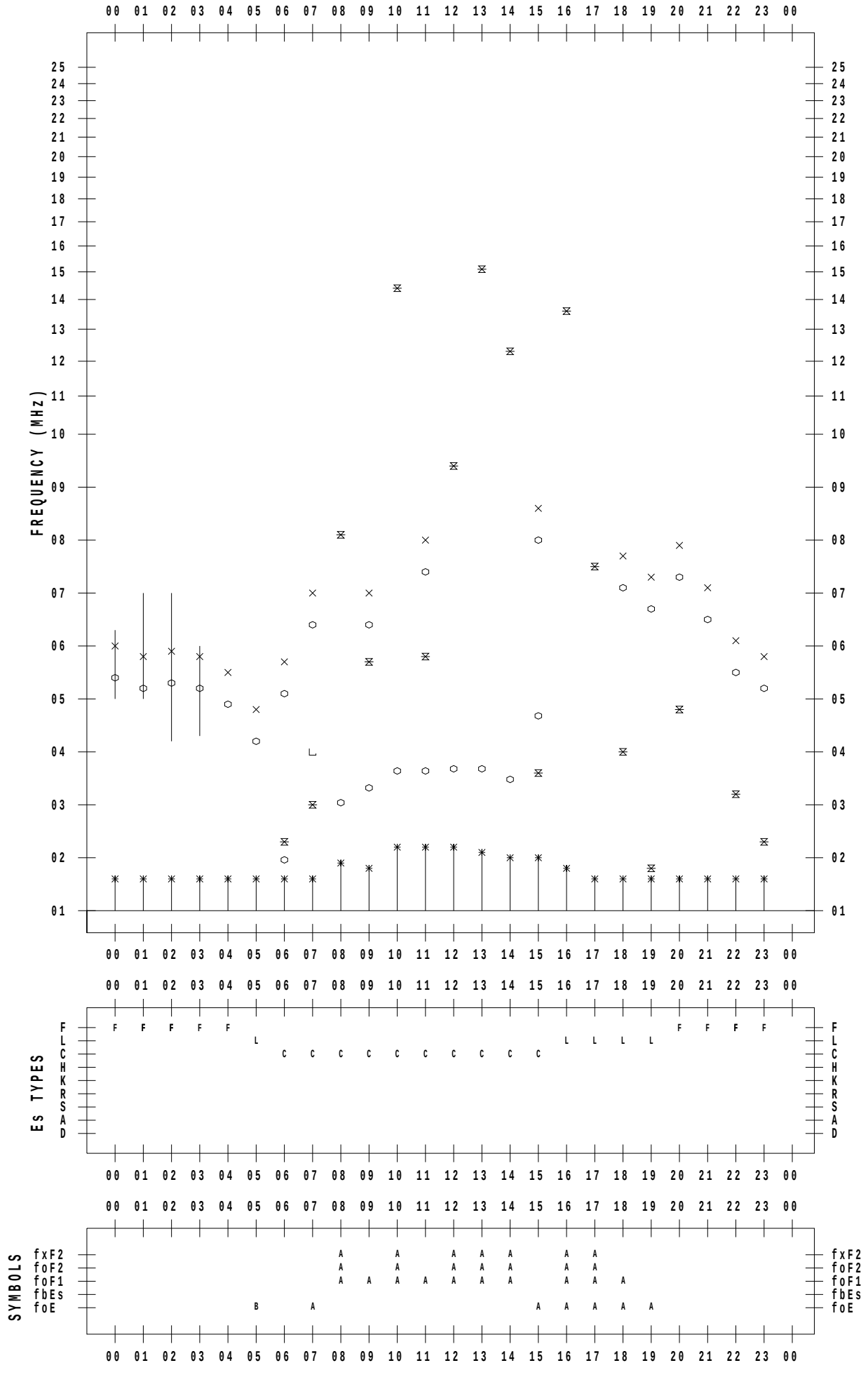
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/ 4

135 °E MEAN TIME



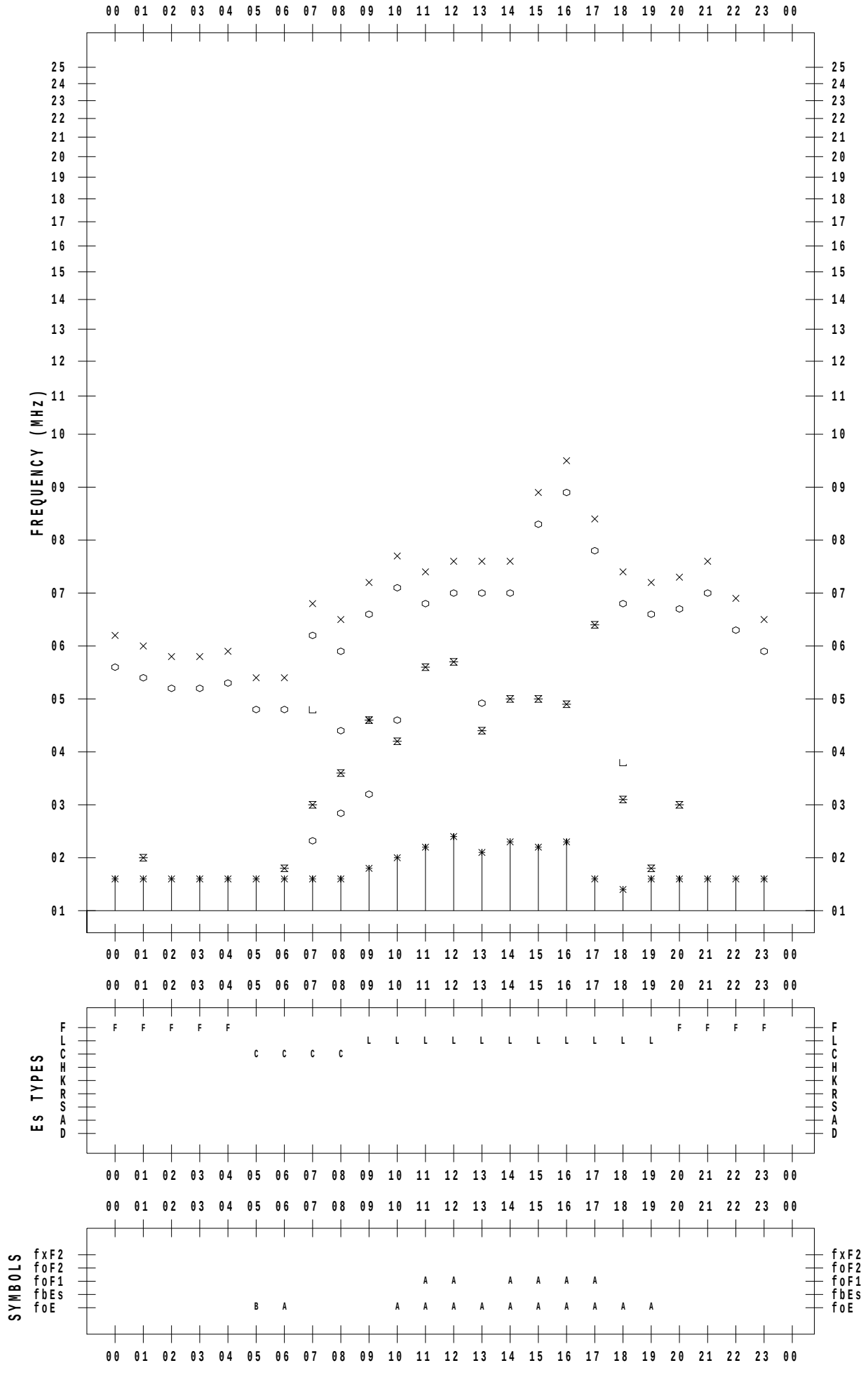
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/ 5

135 °E MEAN TIME



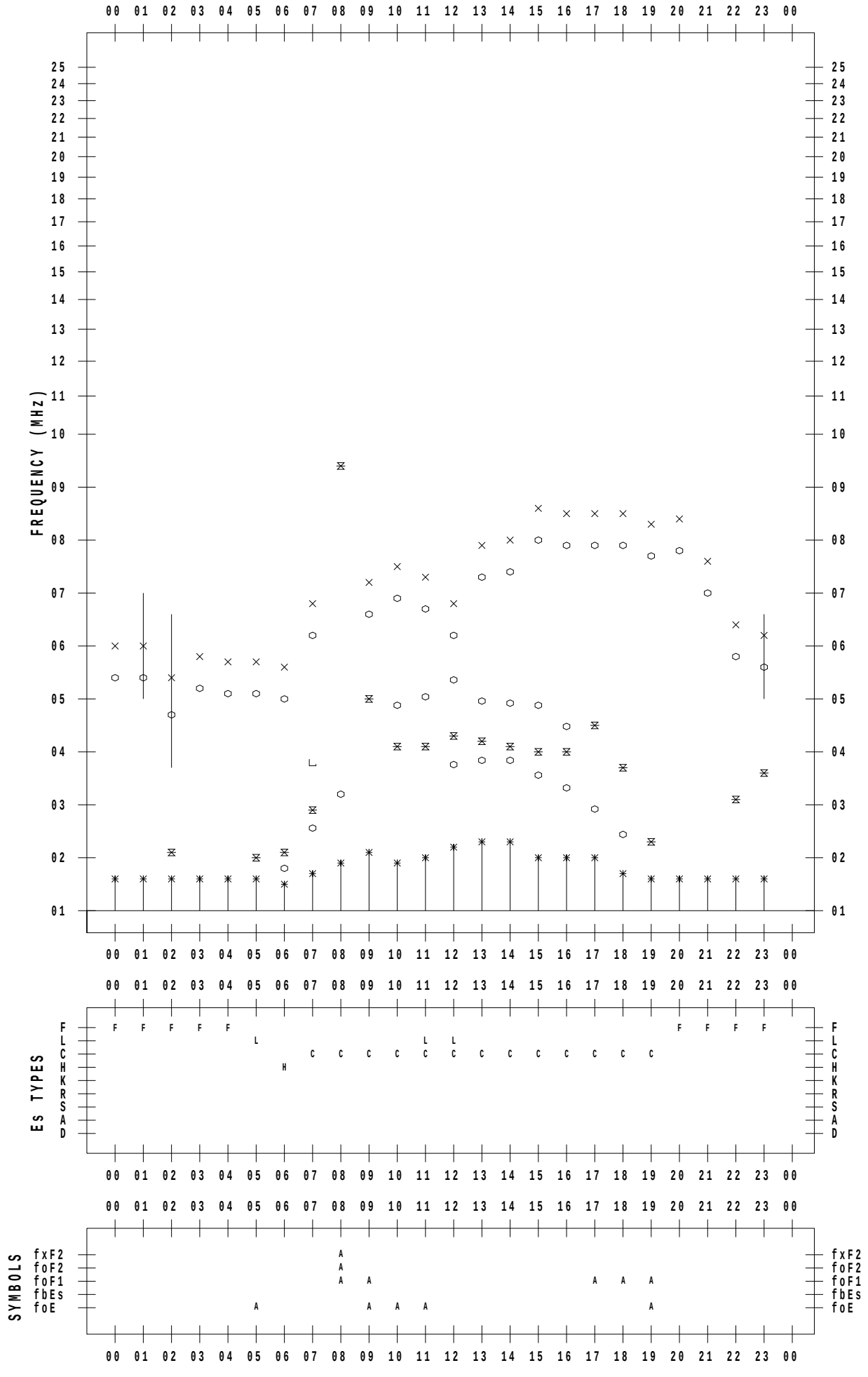
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/ 6

135 °E MEAN TIME



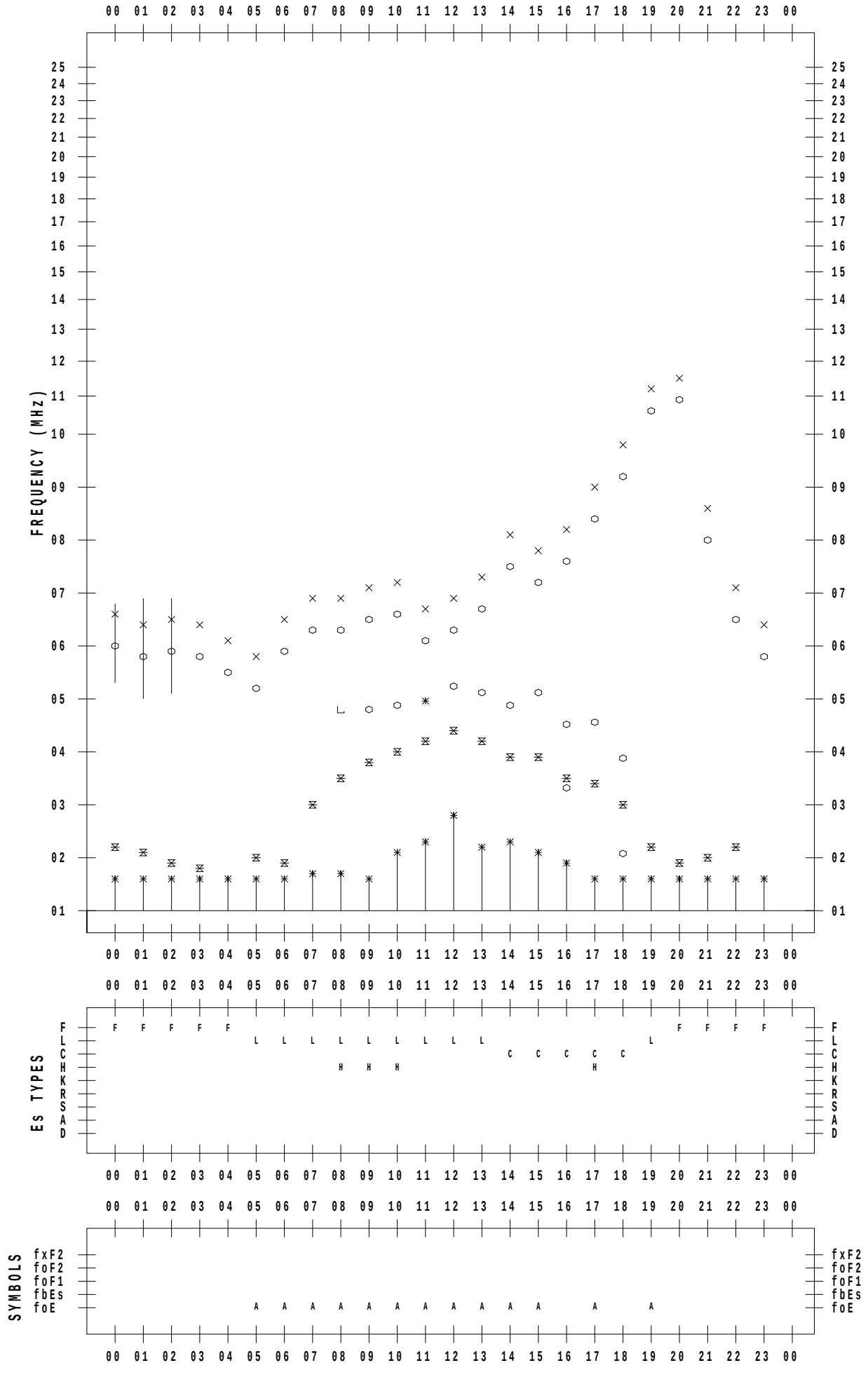
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/ 7

135 °E MEAN TIME



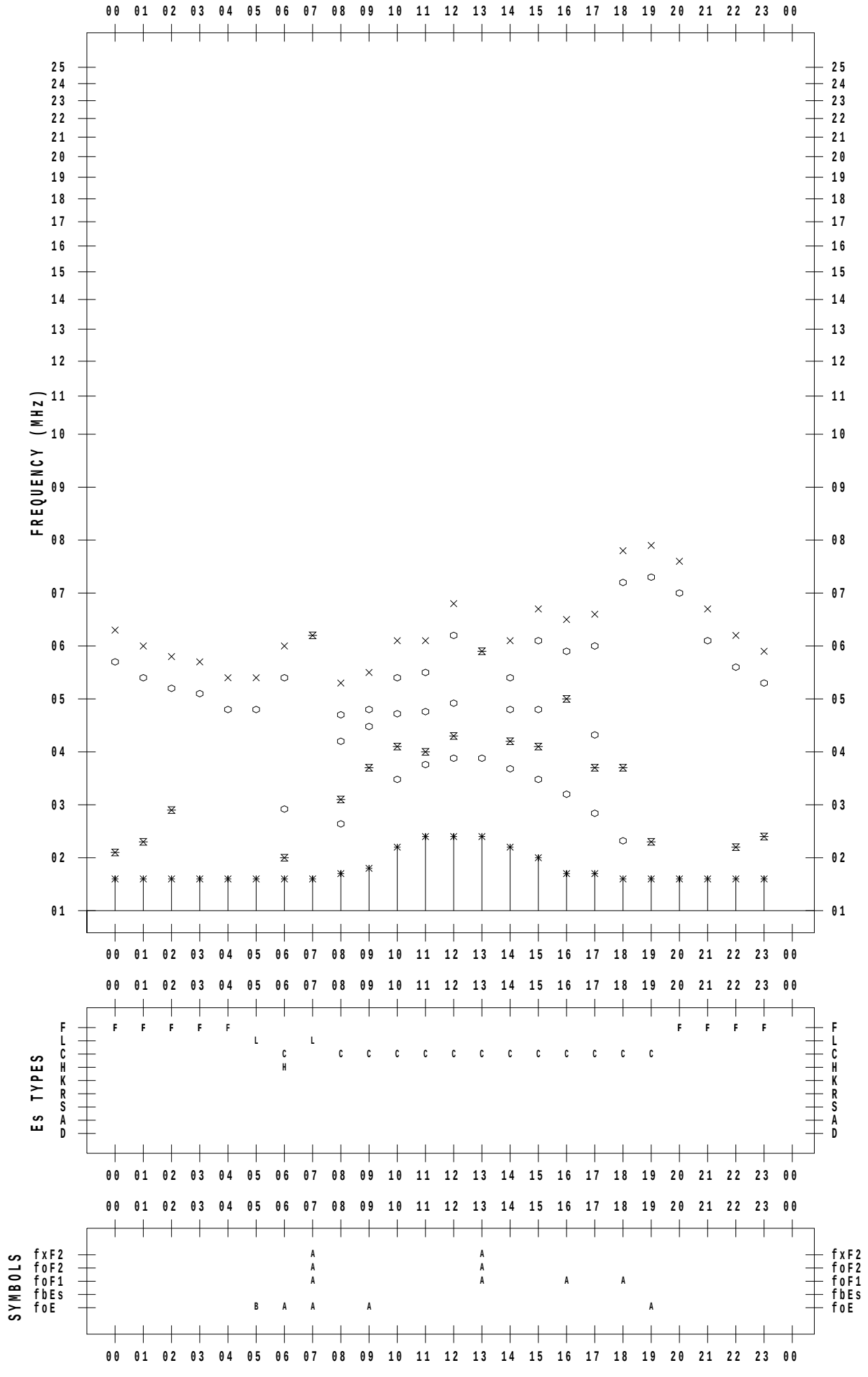
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/ 8

135 °E MEAN TIME



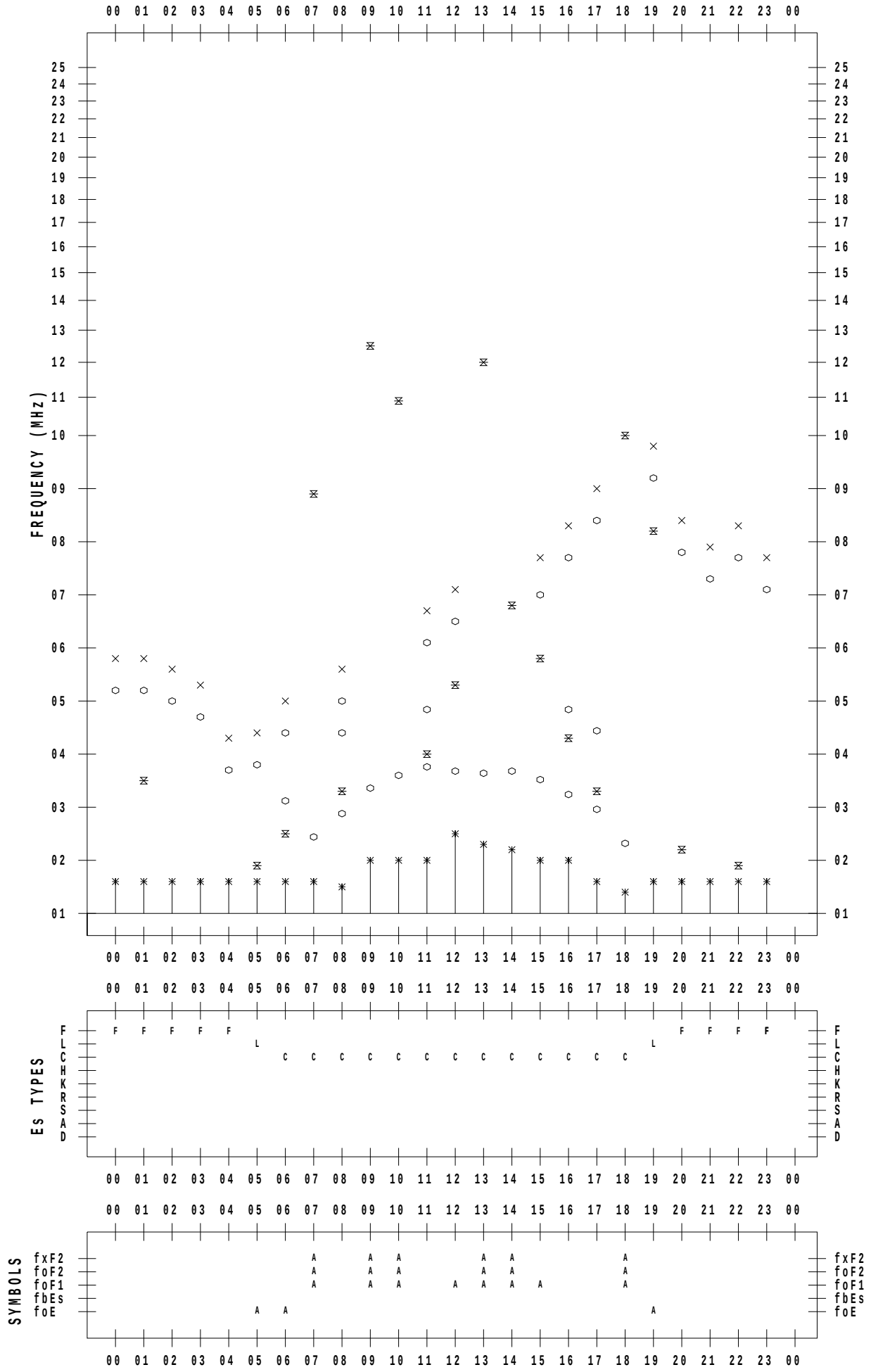
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/ 9

135 °E MEAN TIME



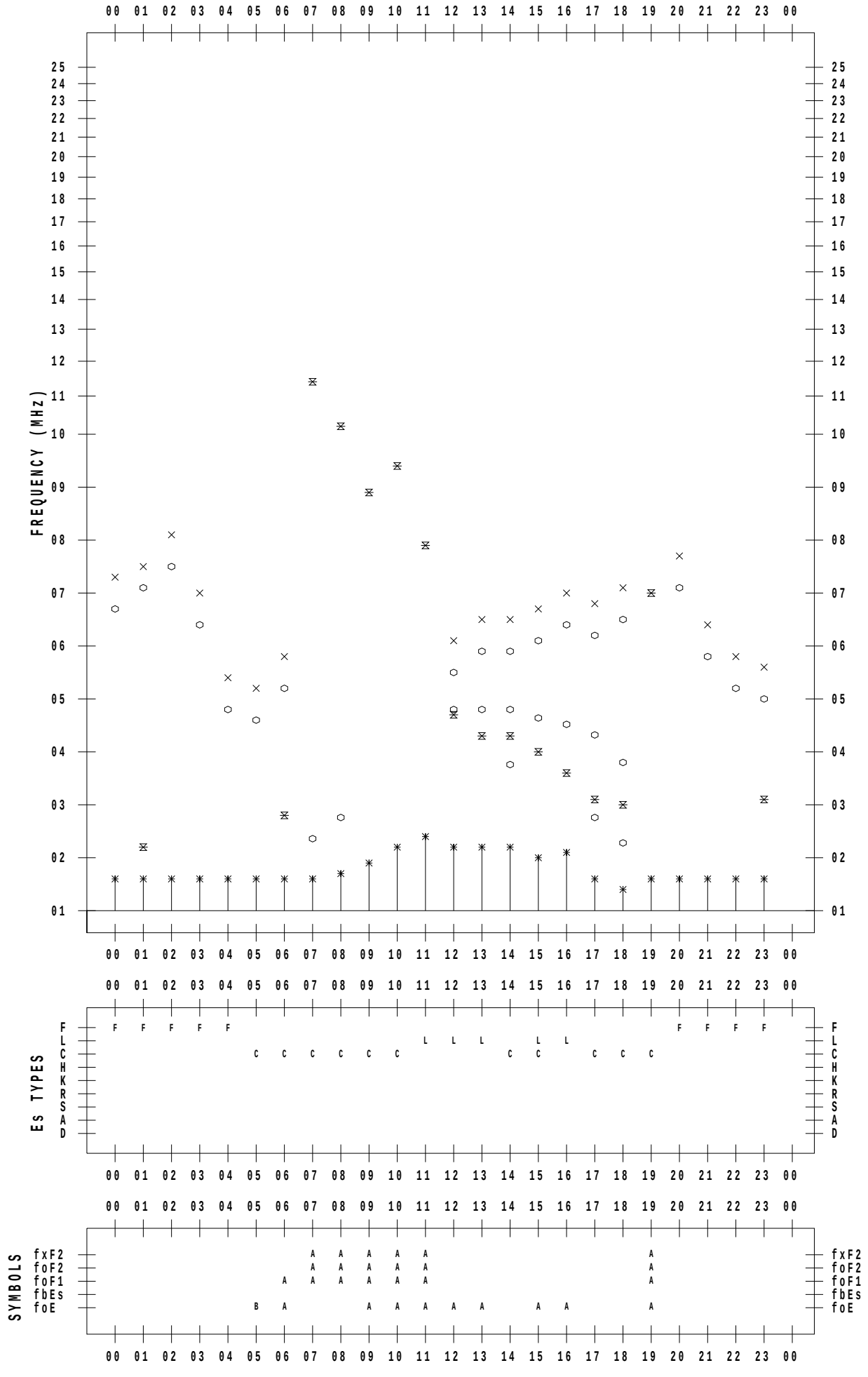
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/10

135 °E MEAN TIME



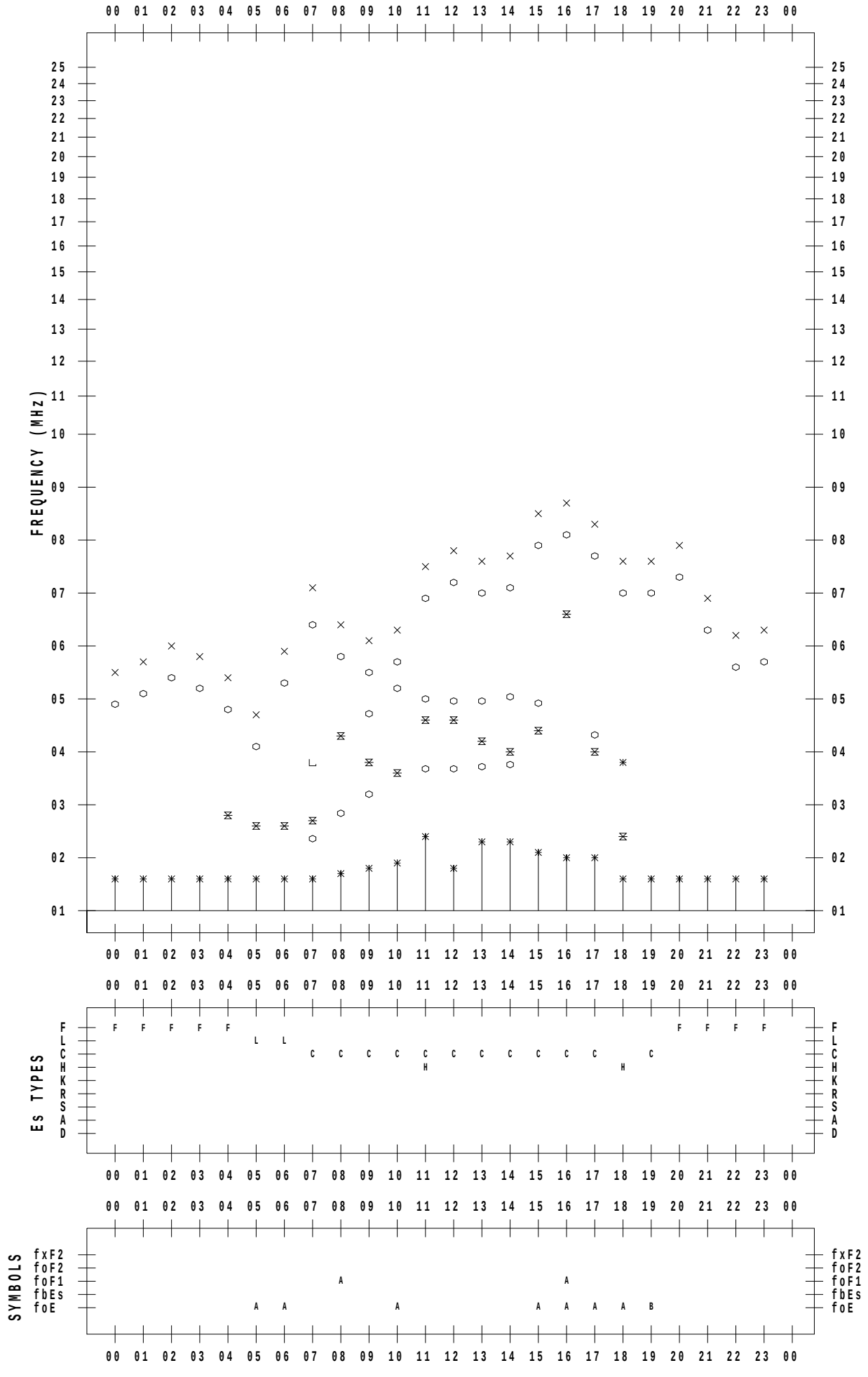
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/11

135 °E MEAN TIME



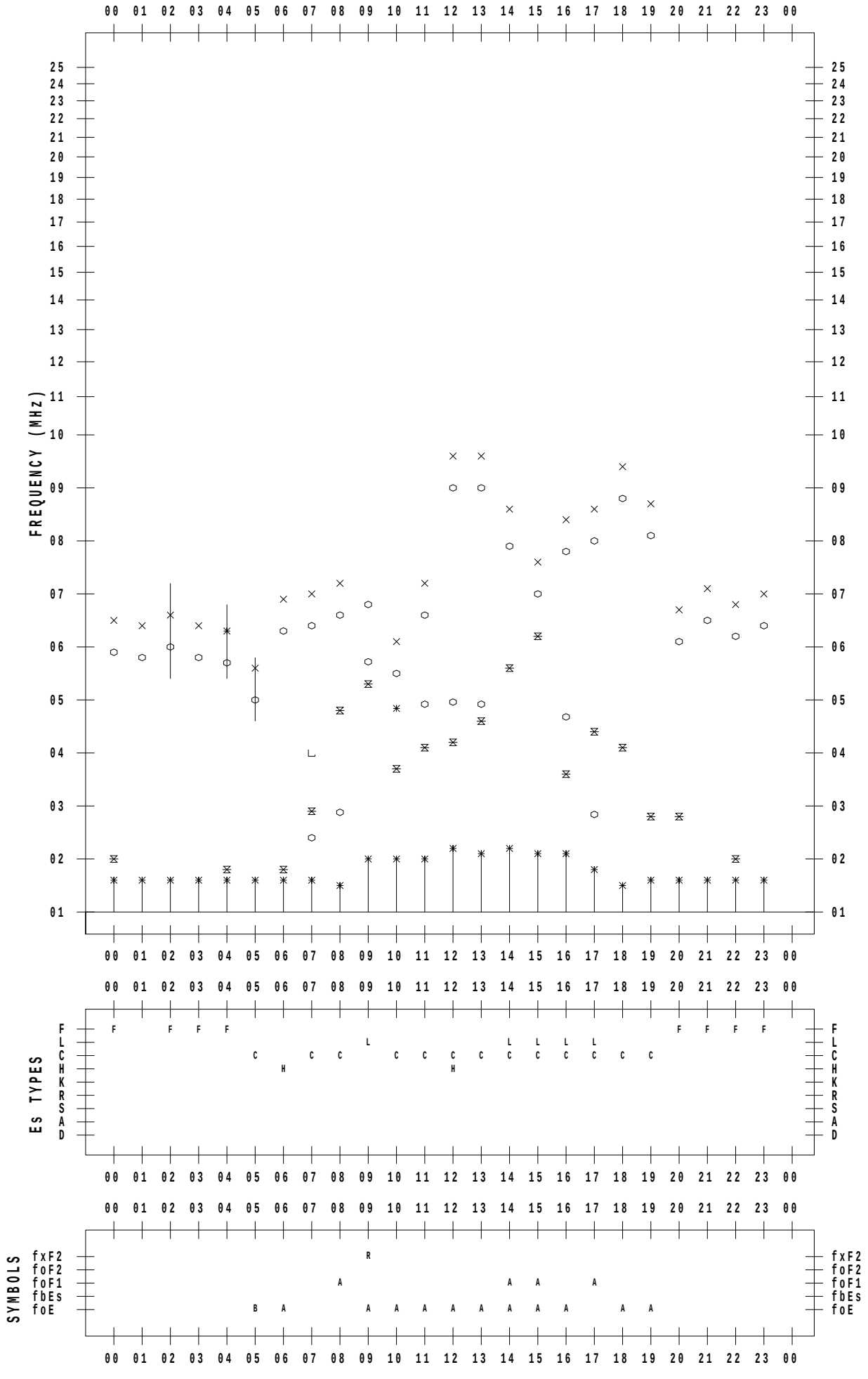
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/12

135 °E MEAN TIME



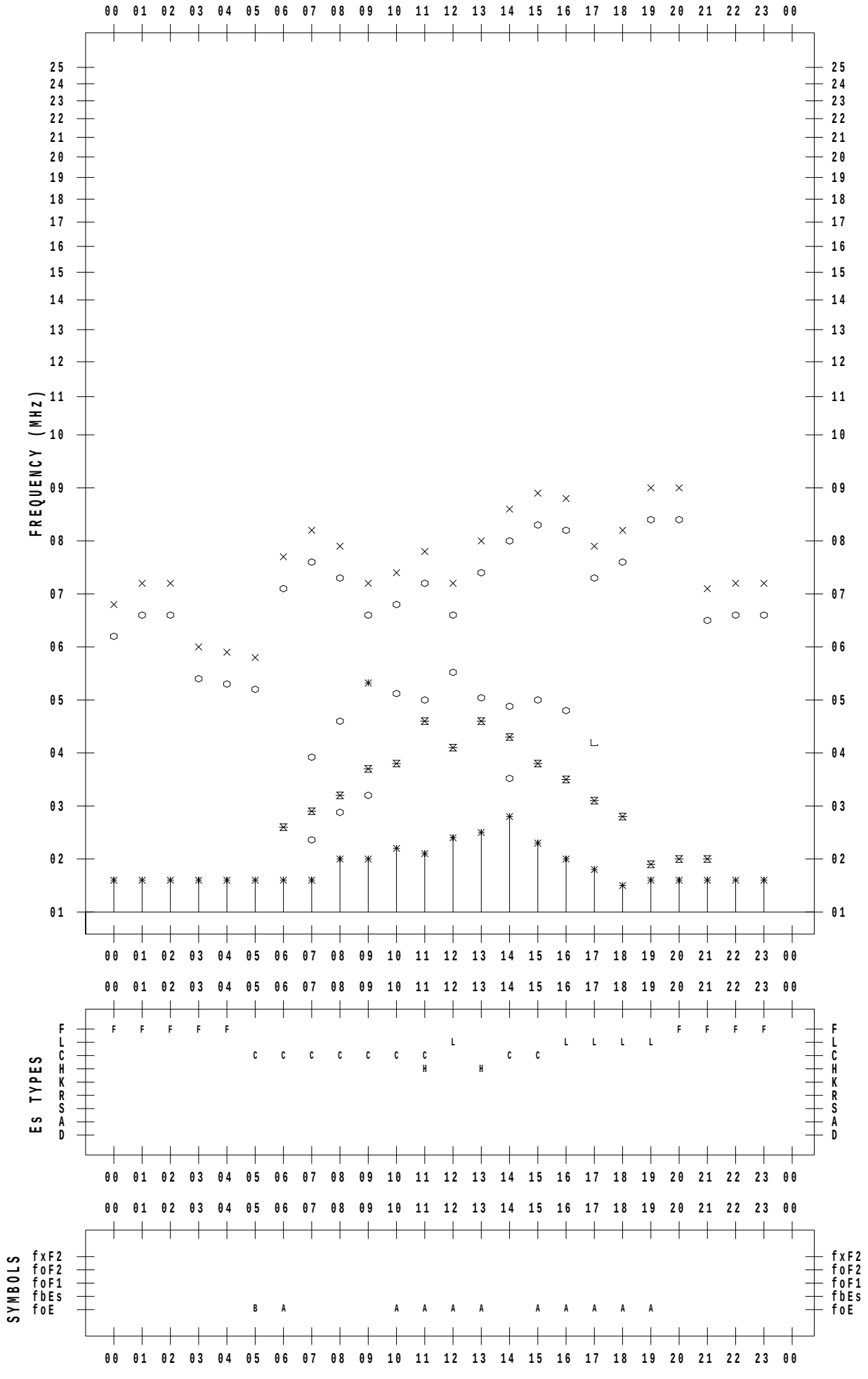
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/13

135 °E MEAN TIME



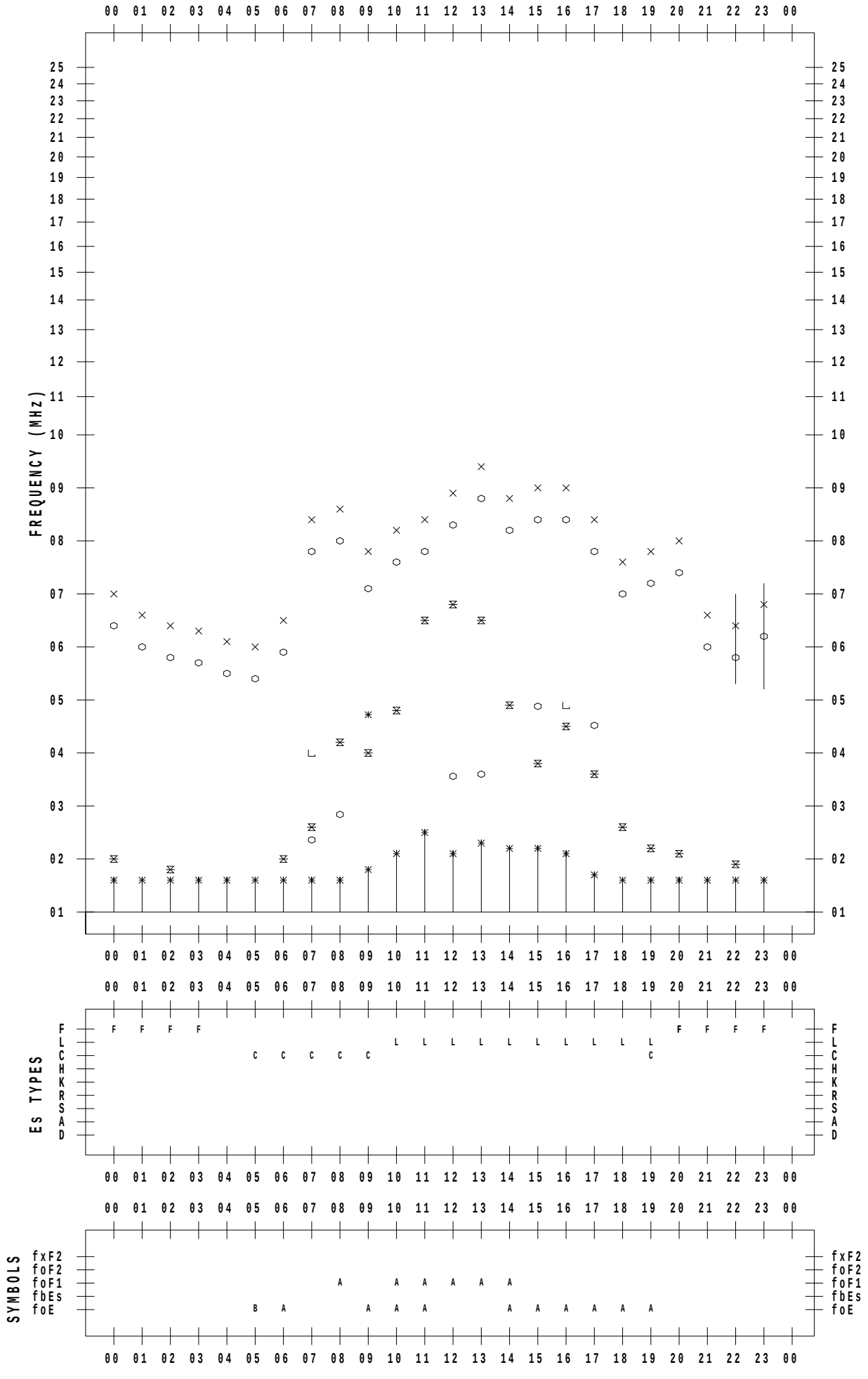
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/14

135 °E MEAN TIME



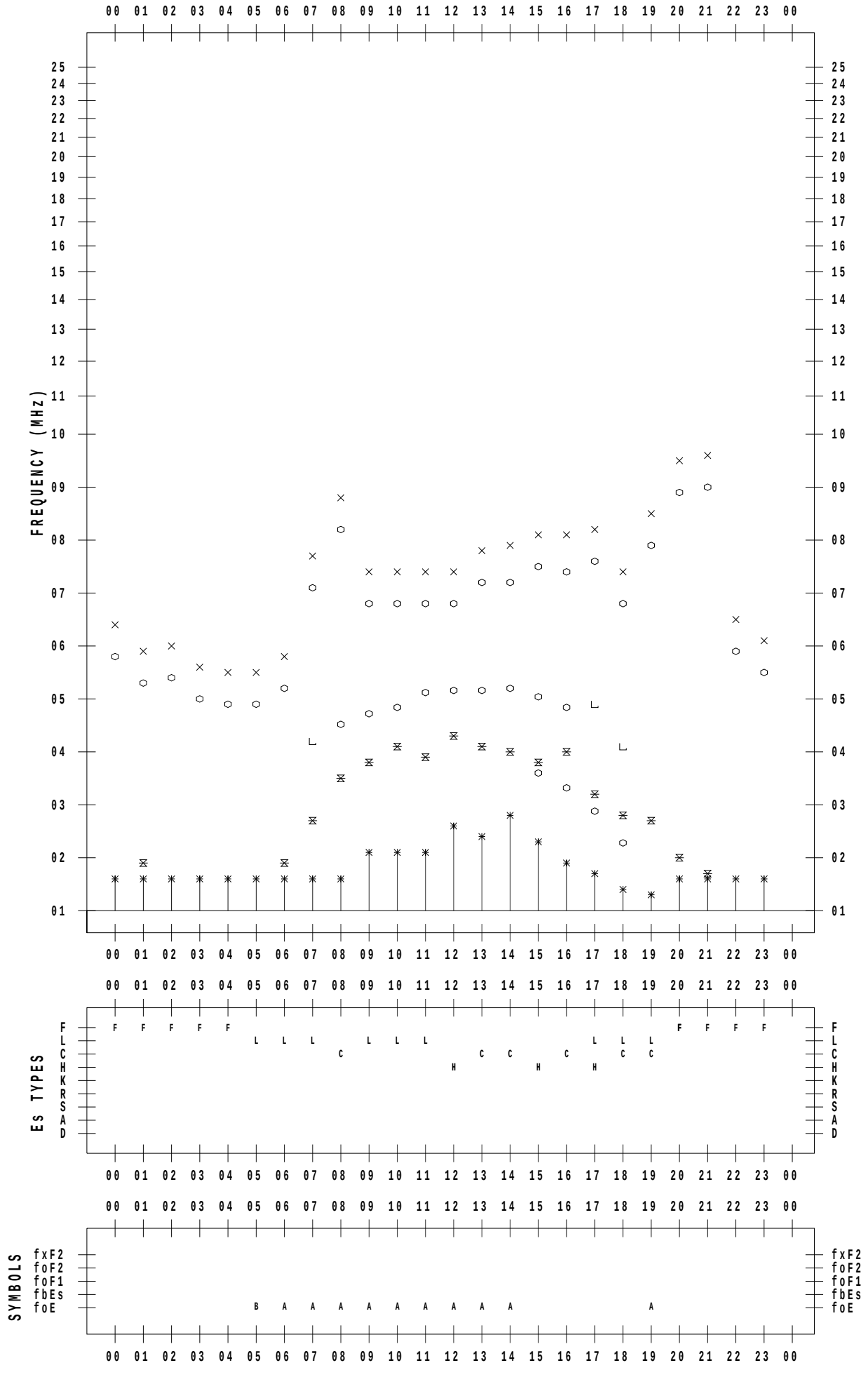
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/15

135 °E MEAN TIME



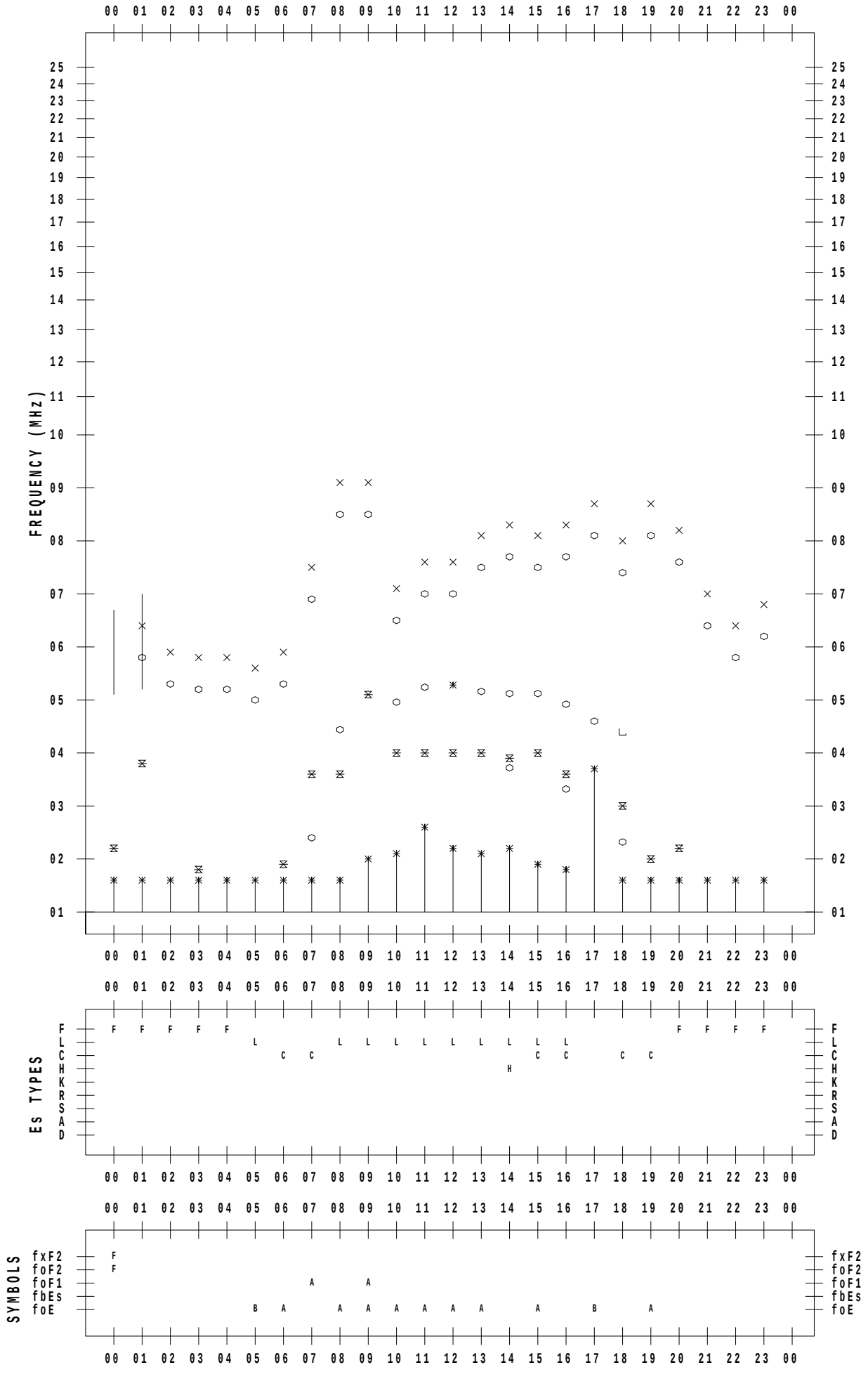
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/16

135 °E MEAN TIME



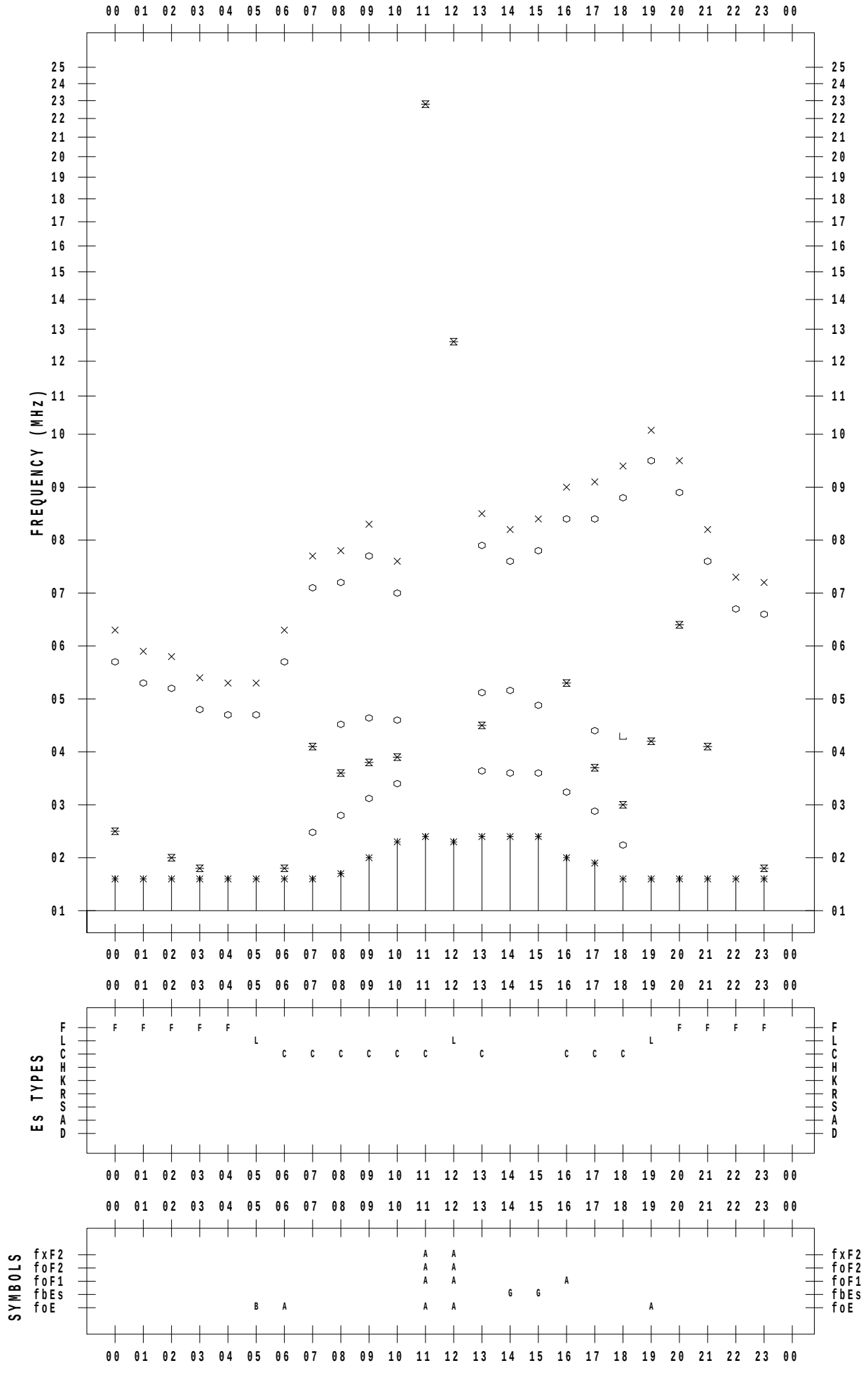
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/17

135 °E MEAN TIME



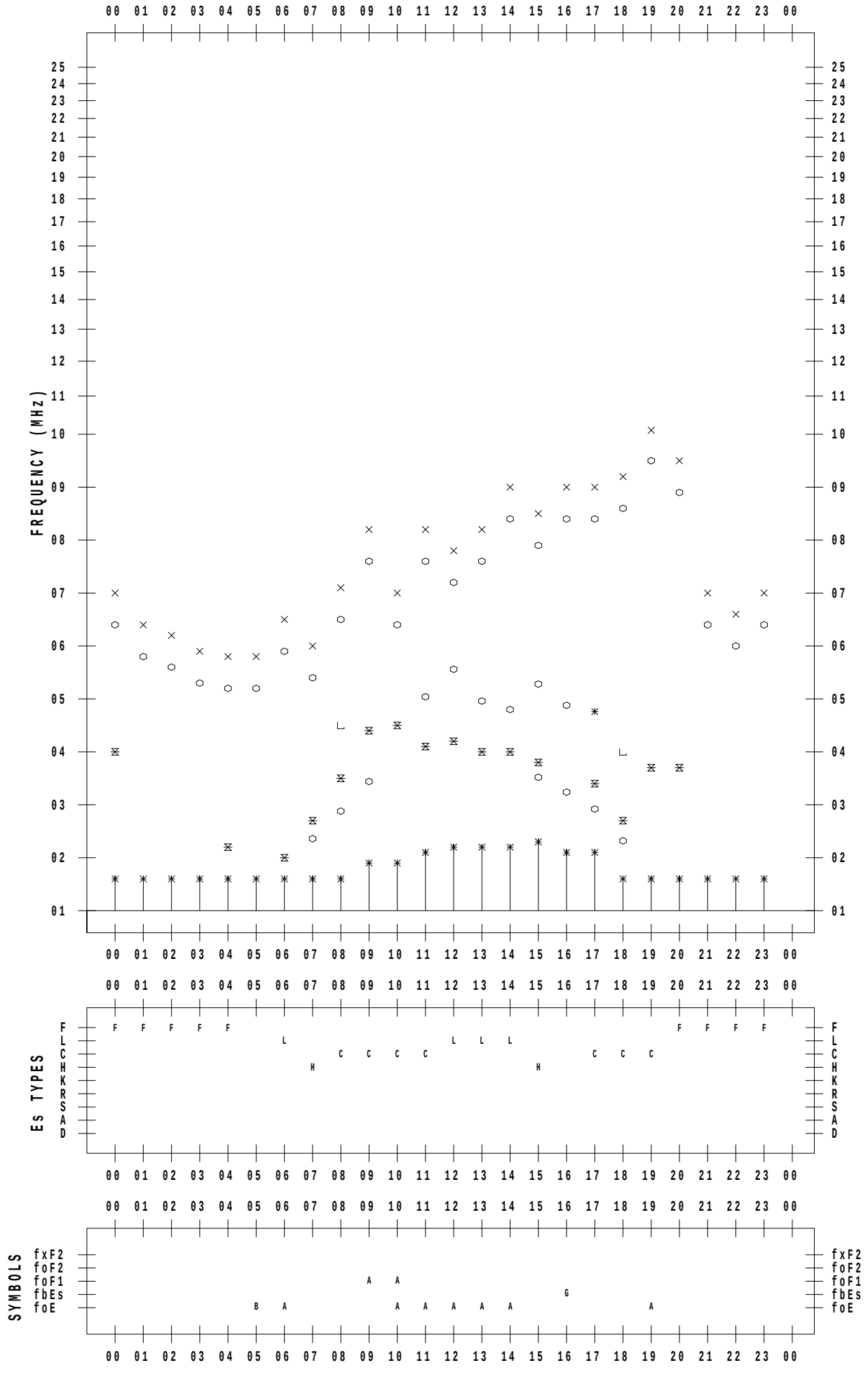
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/18

135 °E MEAN TIME



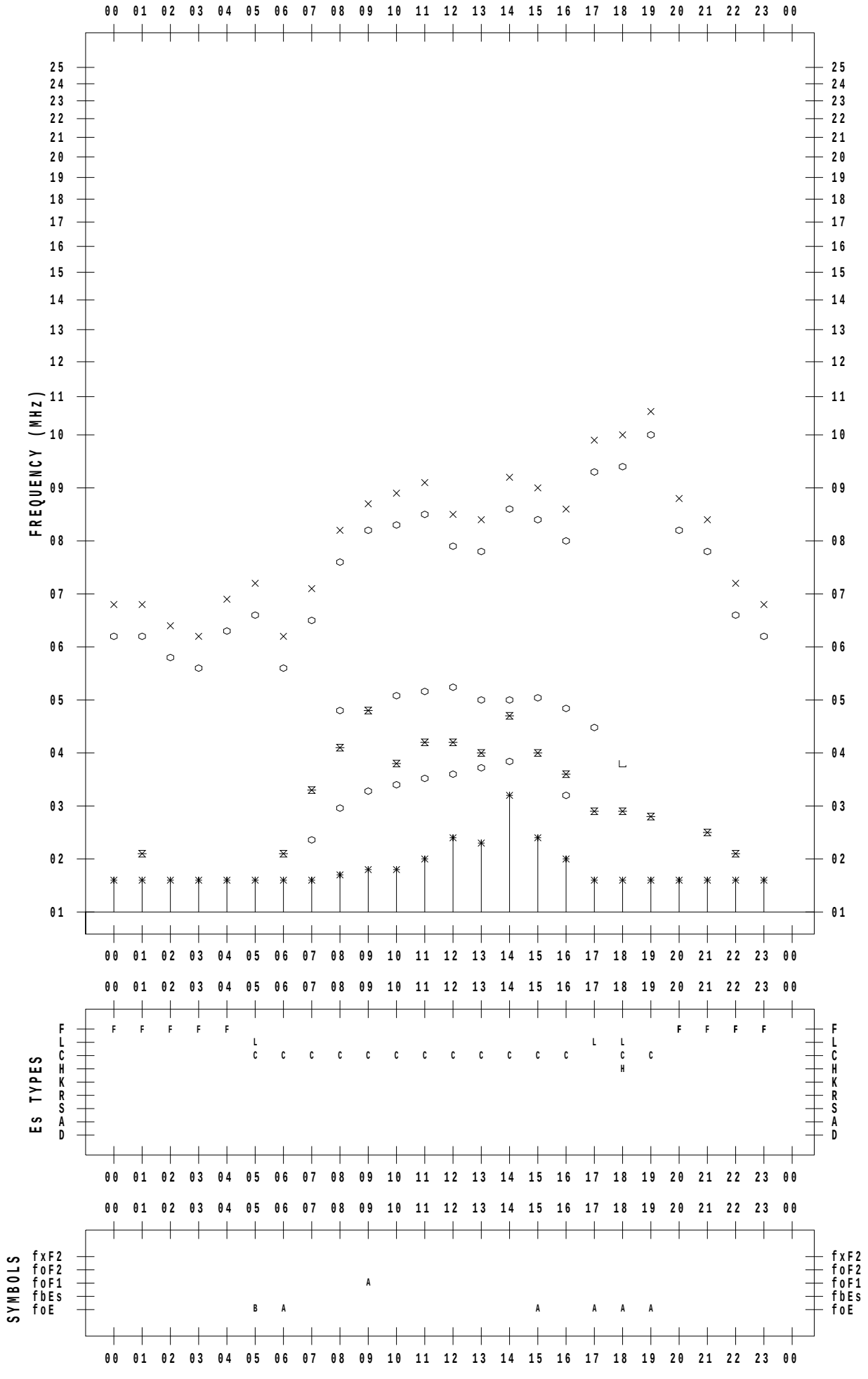
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/19

135 °E MEAN TIME



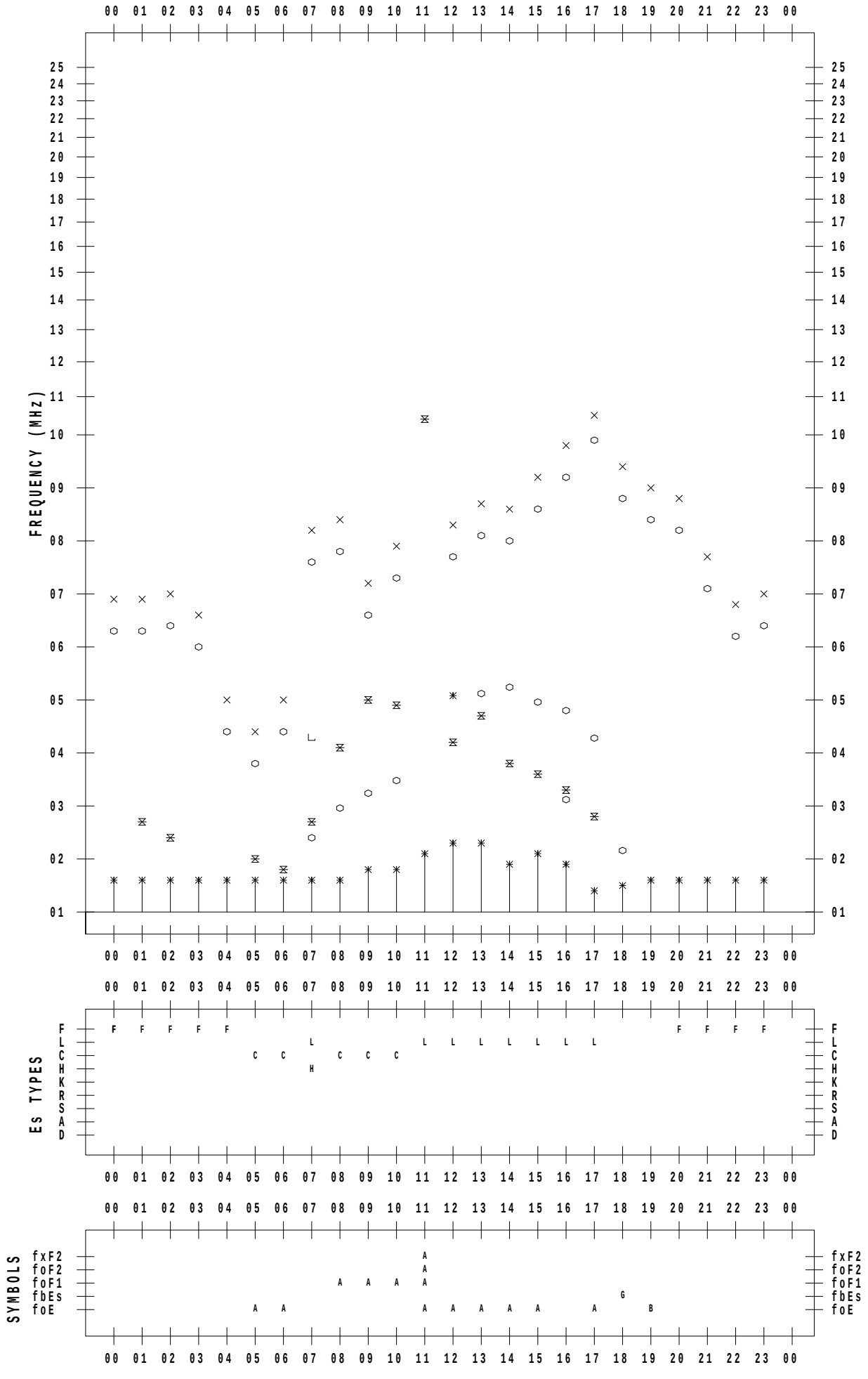
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/20

135 °E MEAN TIME



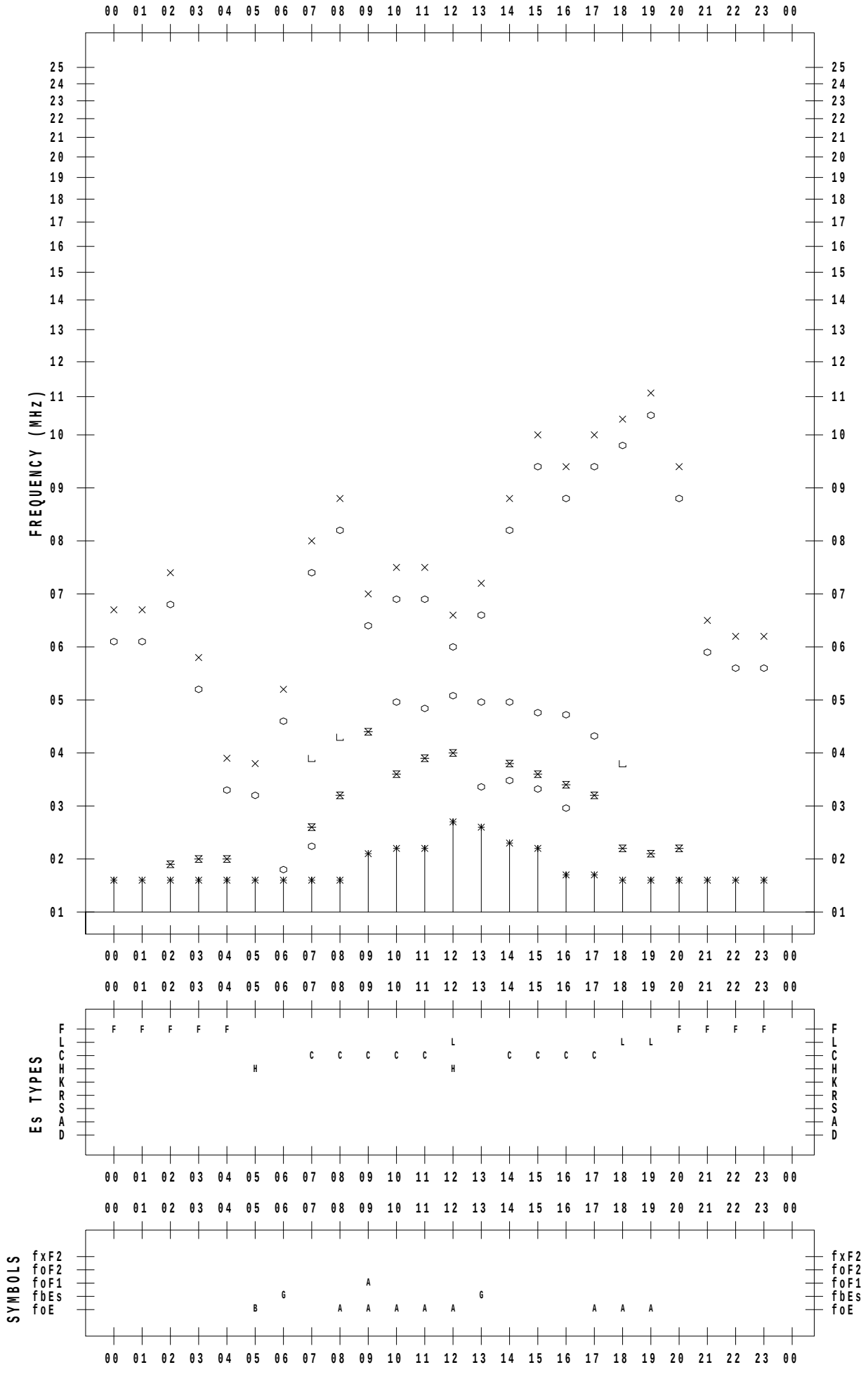
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/21

135 °E MEAN TIME



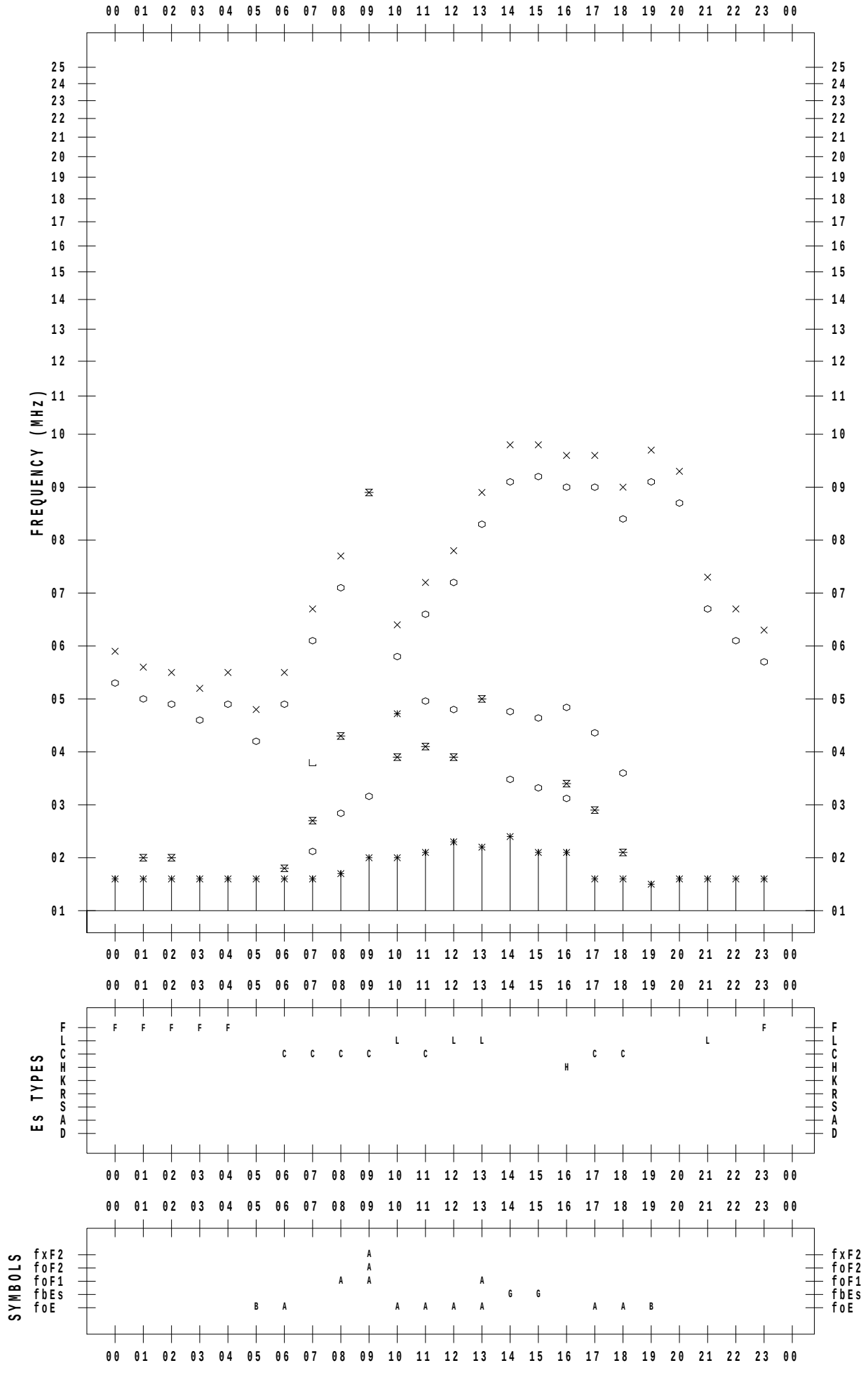
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/22

135 °E MEAN TIME



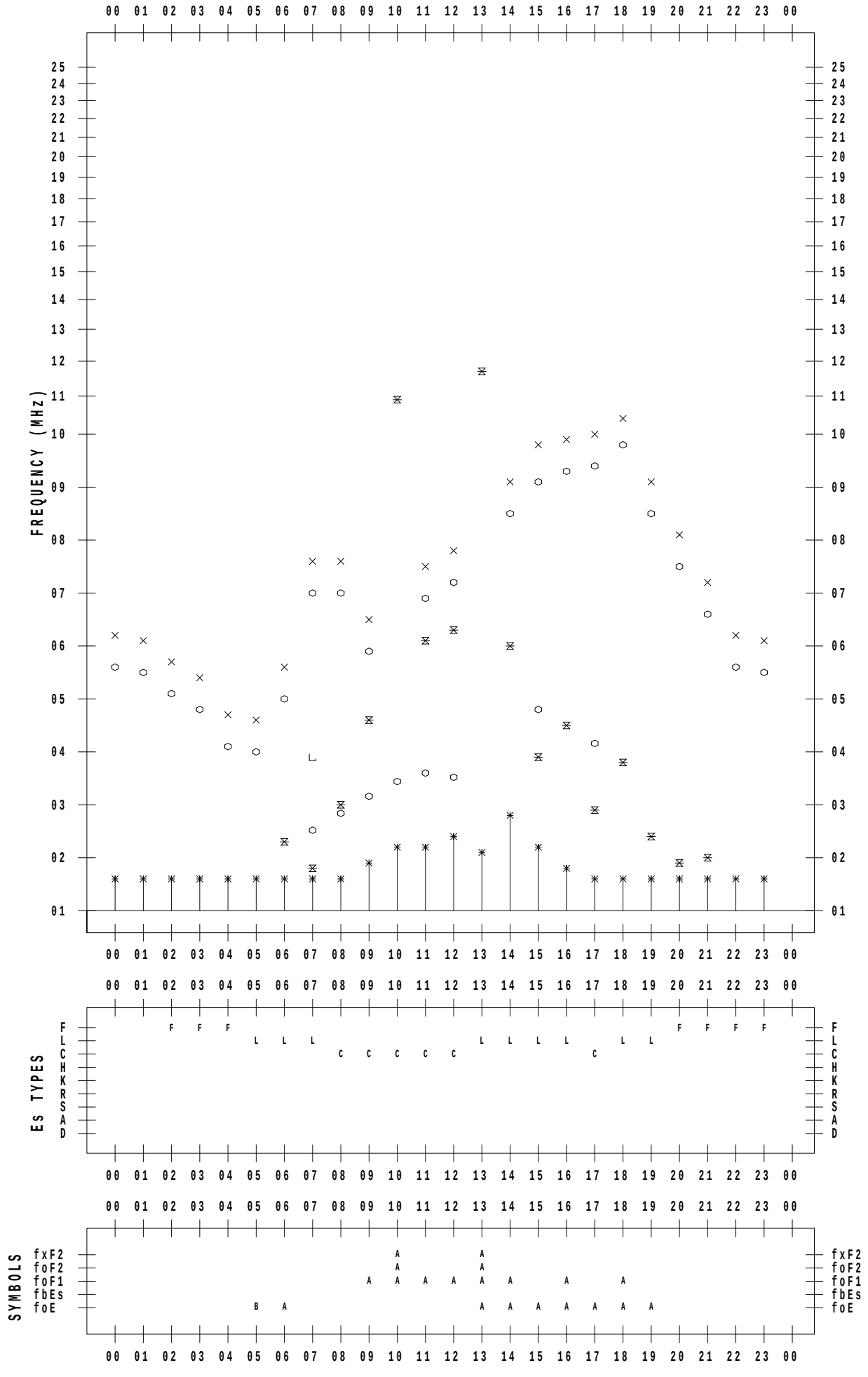
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/23

135 °E MEAN TIME



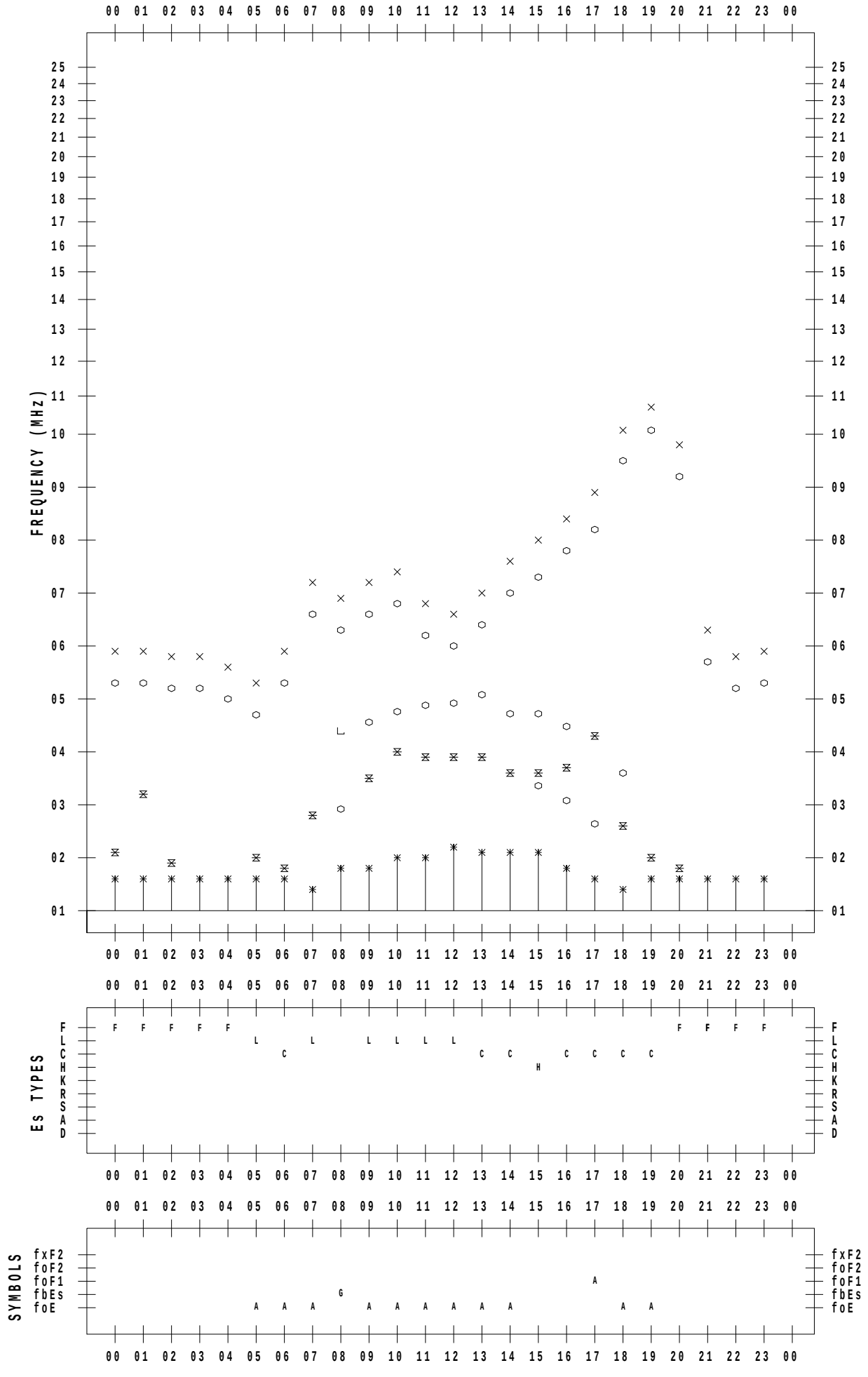
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/24

135 °E MEAN TIME



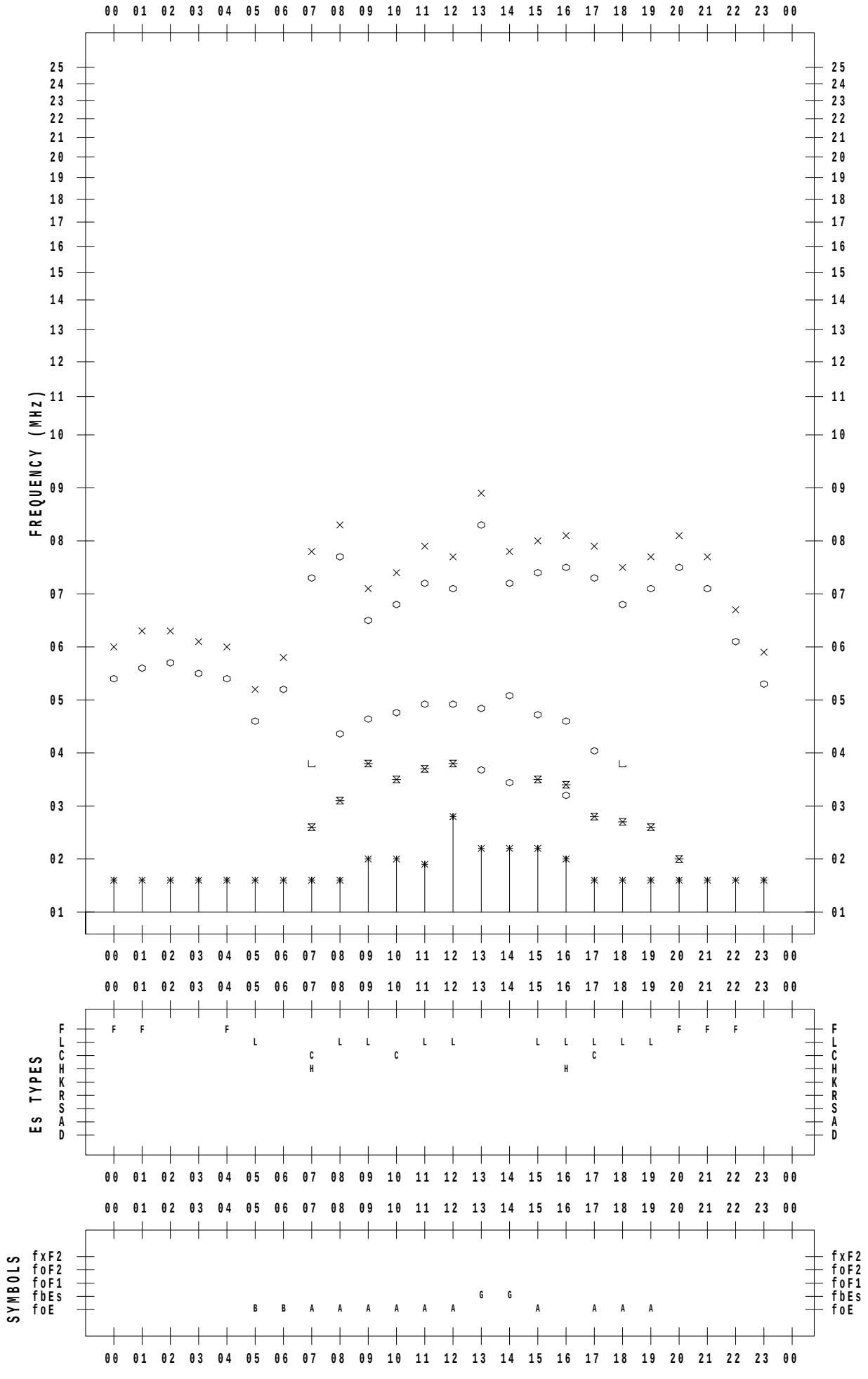
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/25

135 °E MEAN TIME



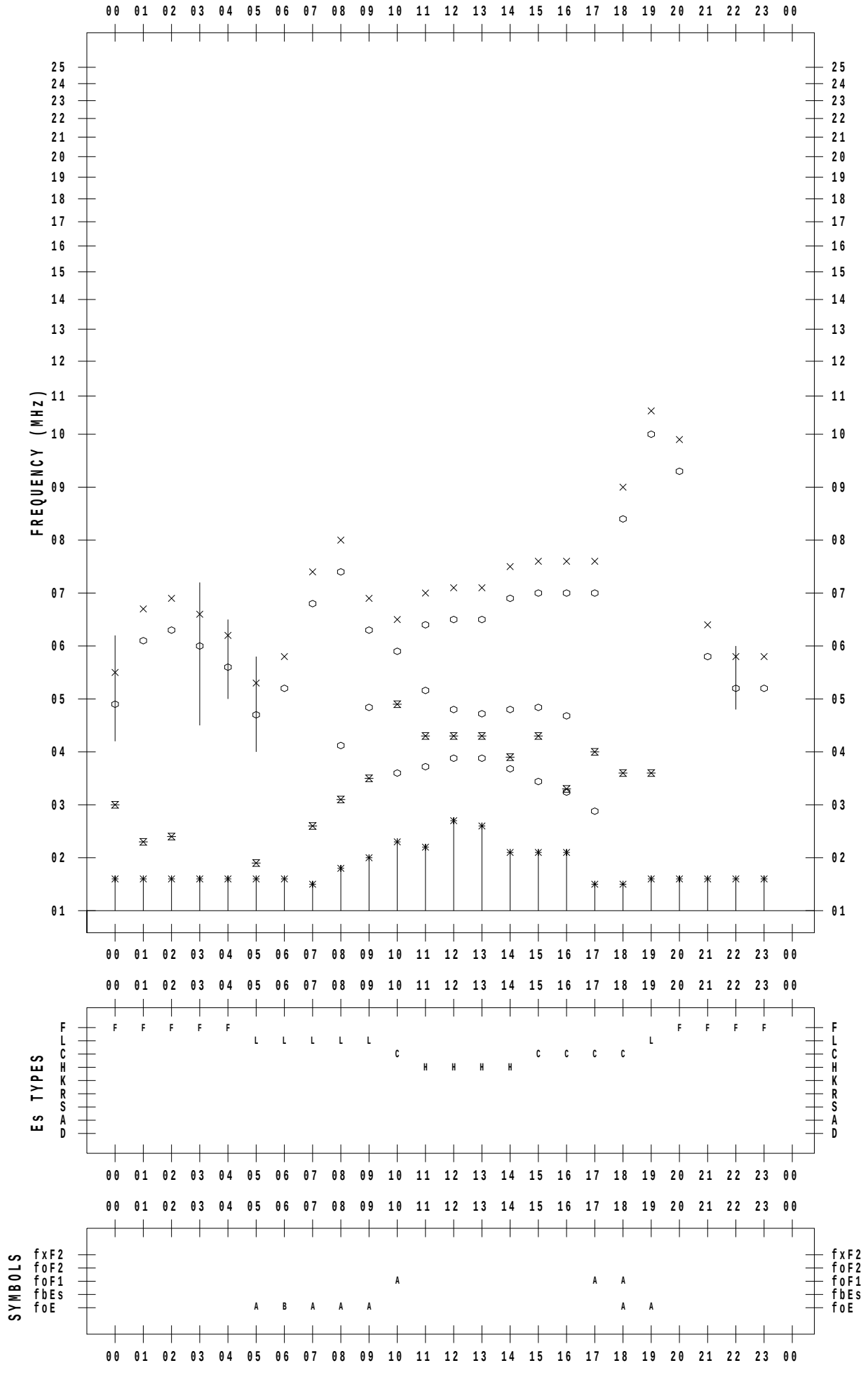
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/26

135 °E MEAN TIME



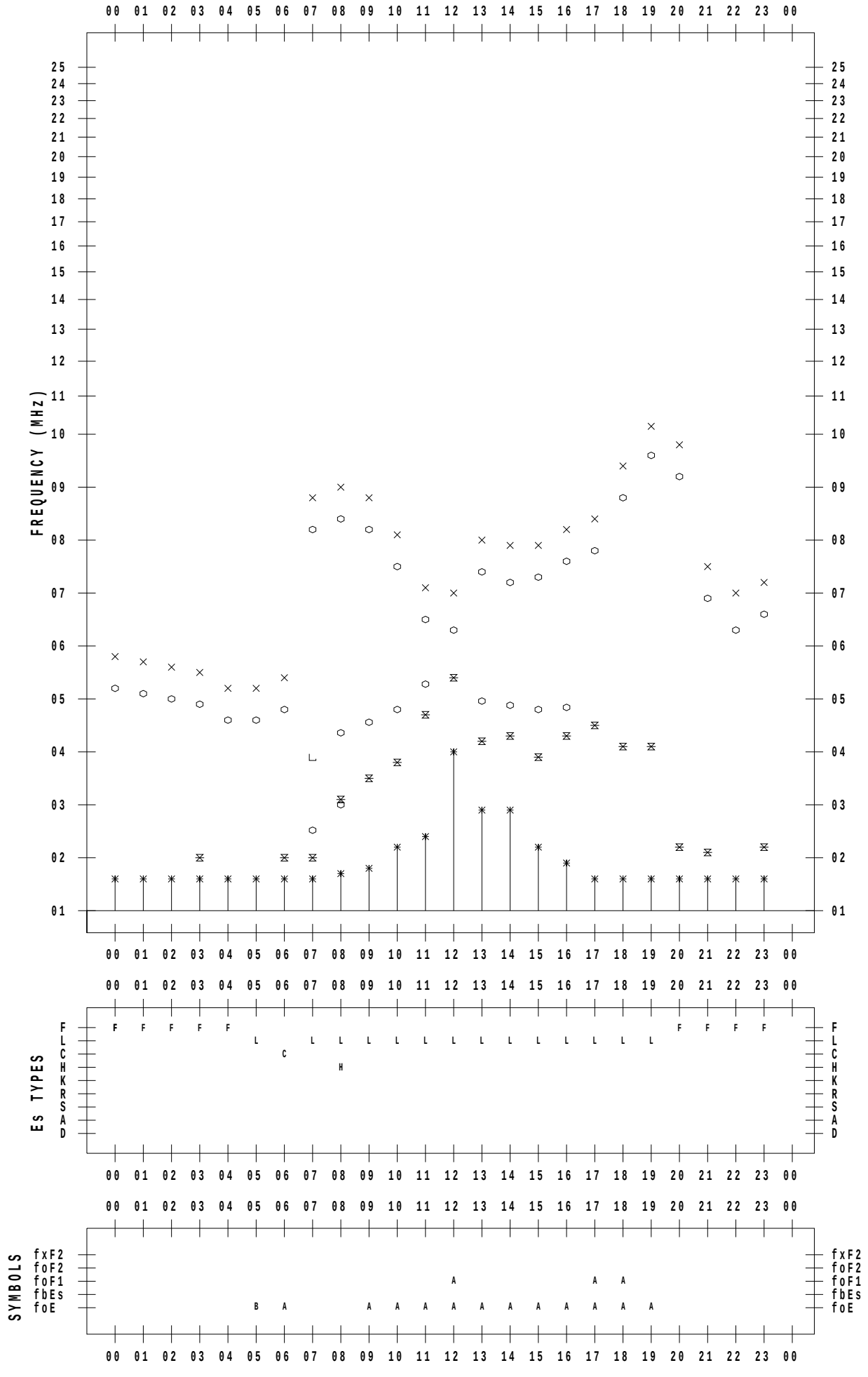
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/27

135 °E MEAN TIME



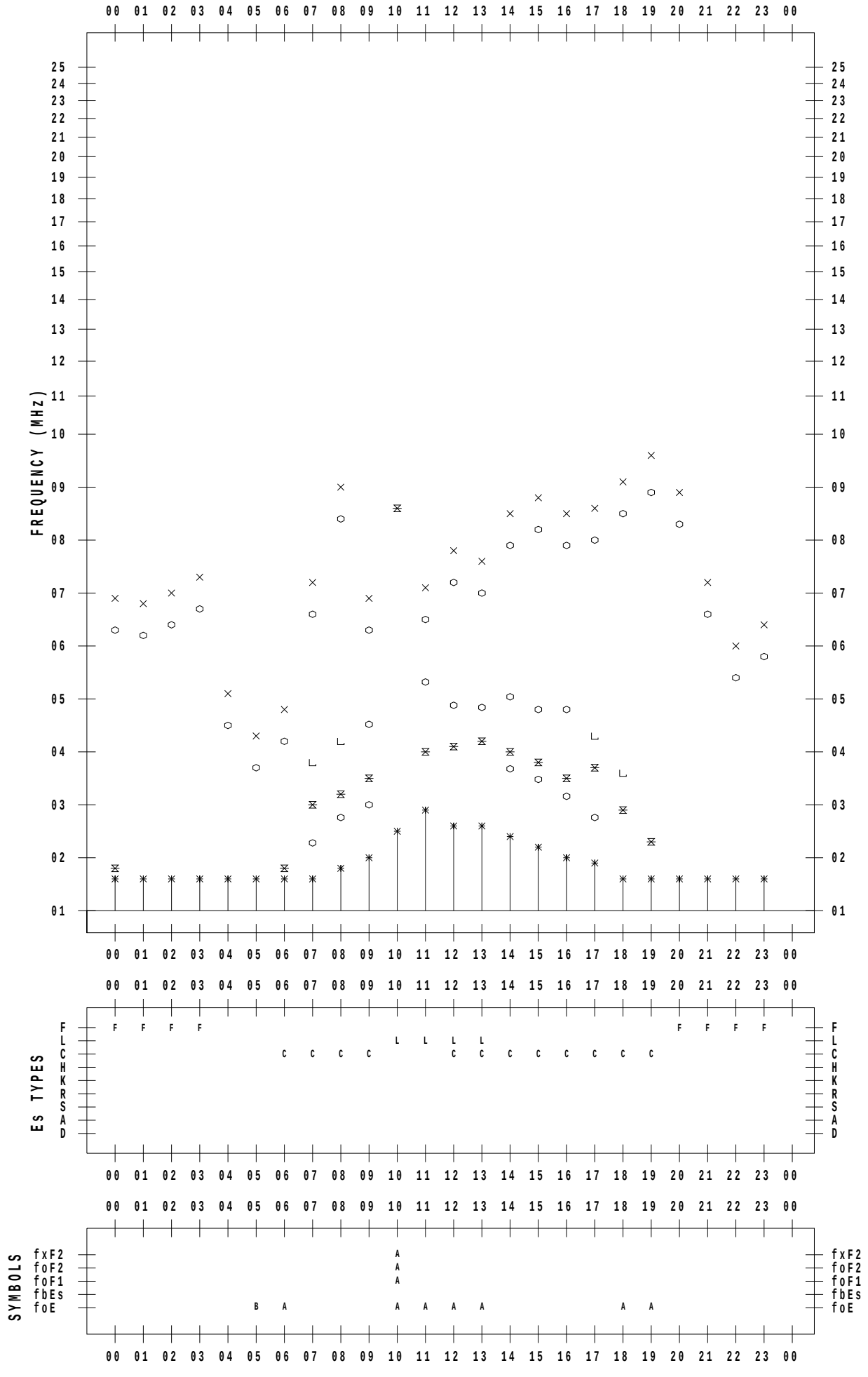
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/28

135 °E MEAN TIME



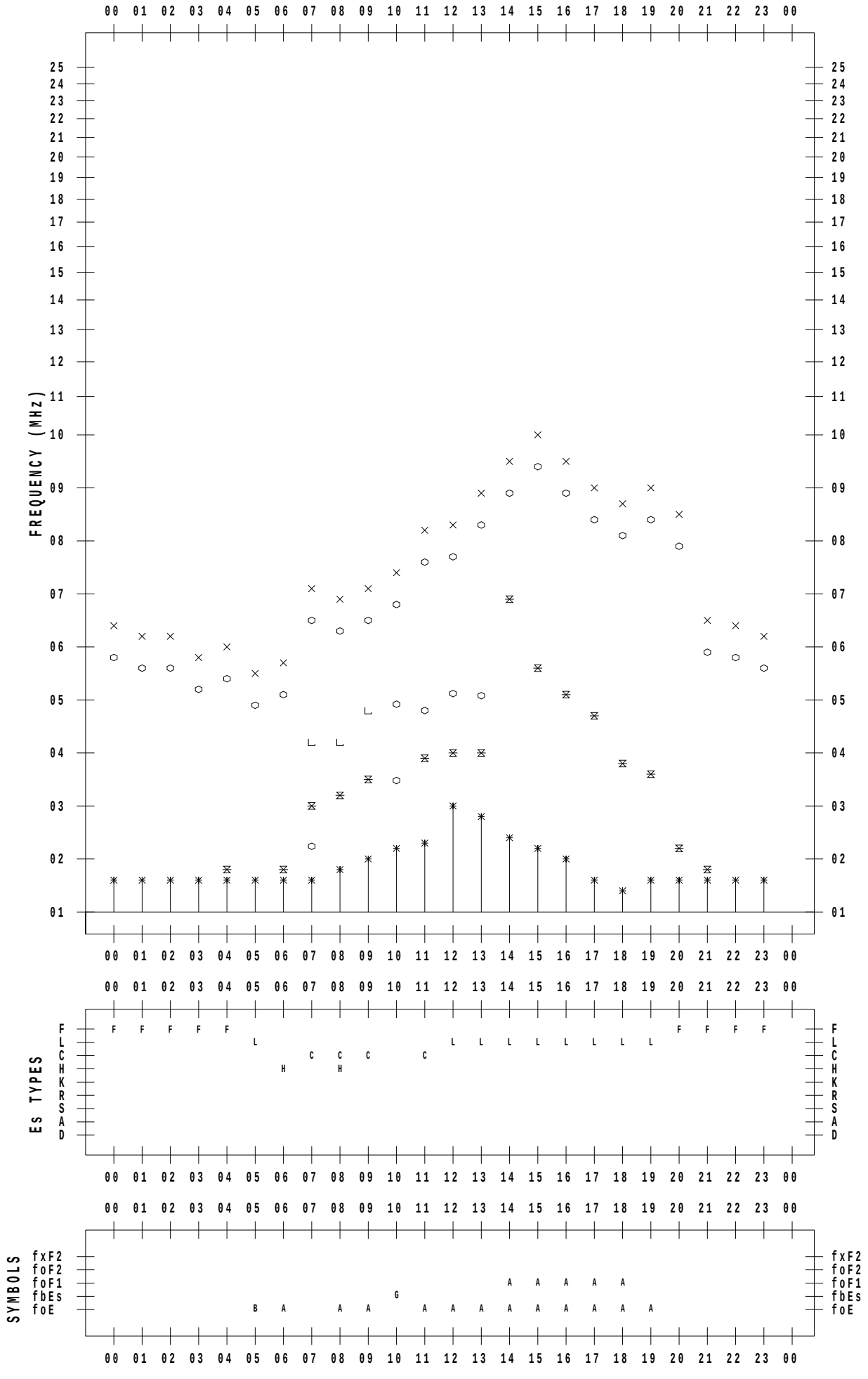
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/29

135 °E MEAN TIME



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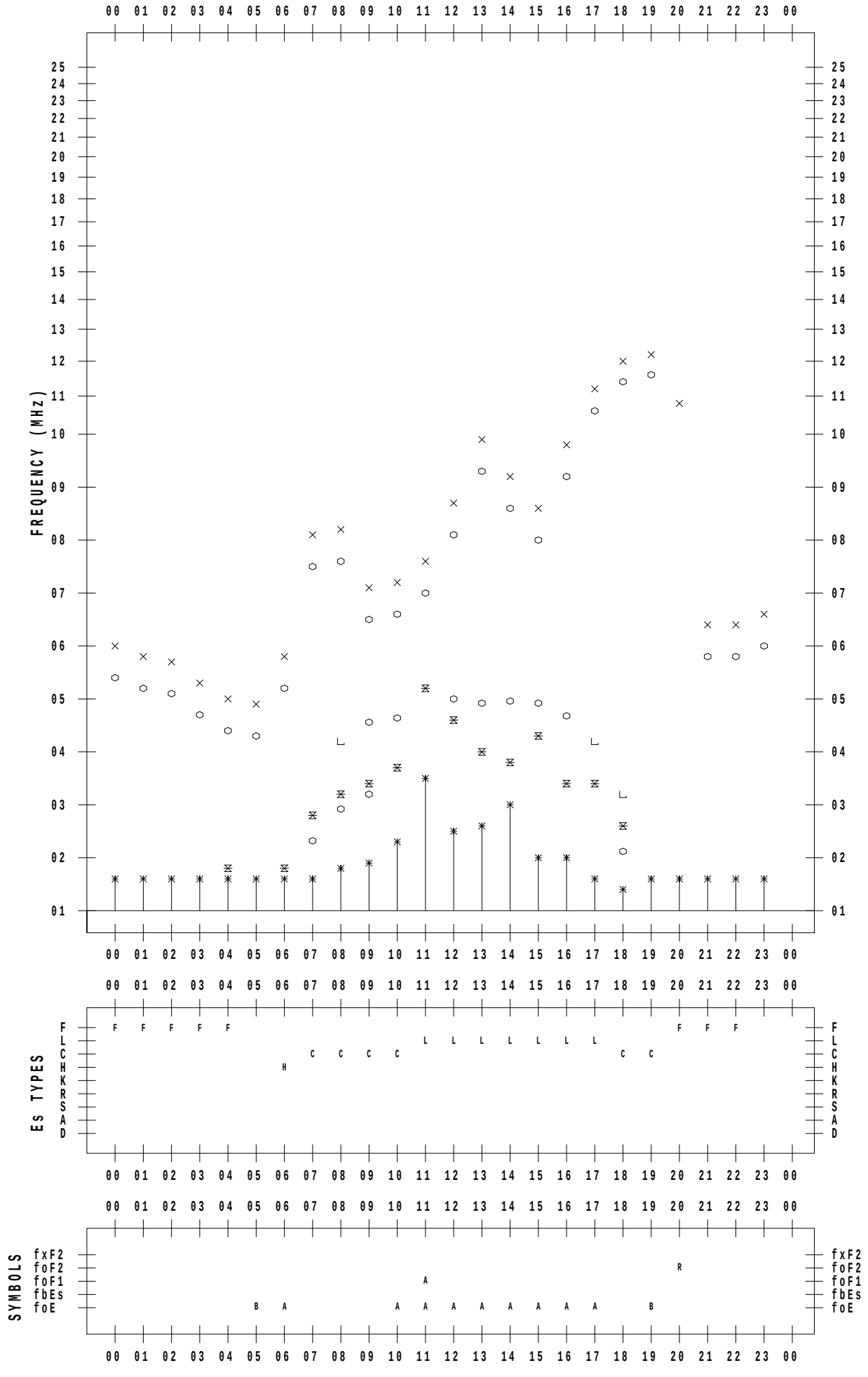
SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/30

135 °E MEAN TIME



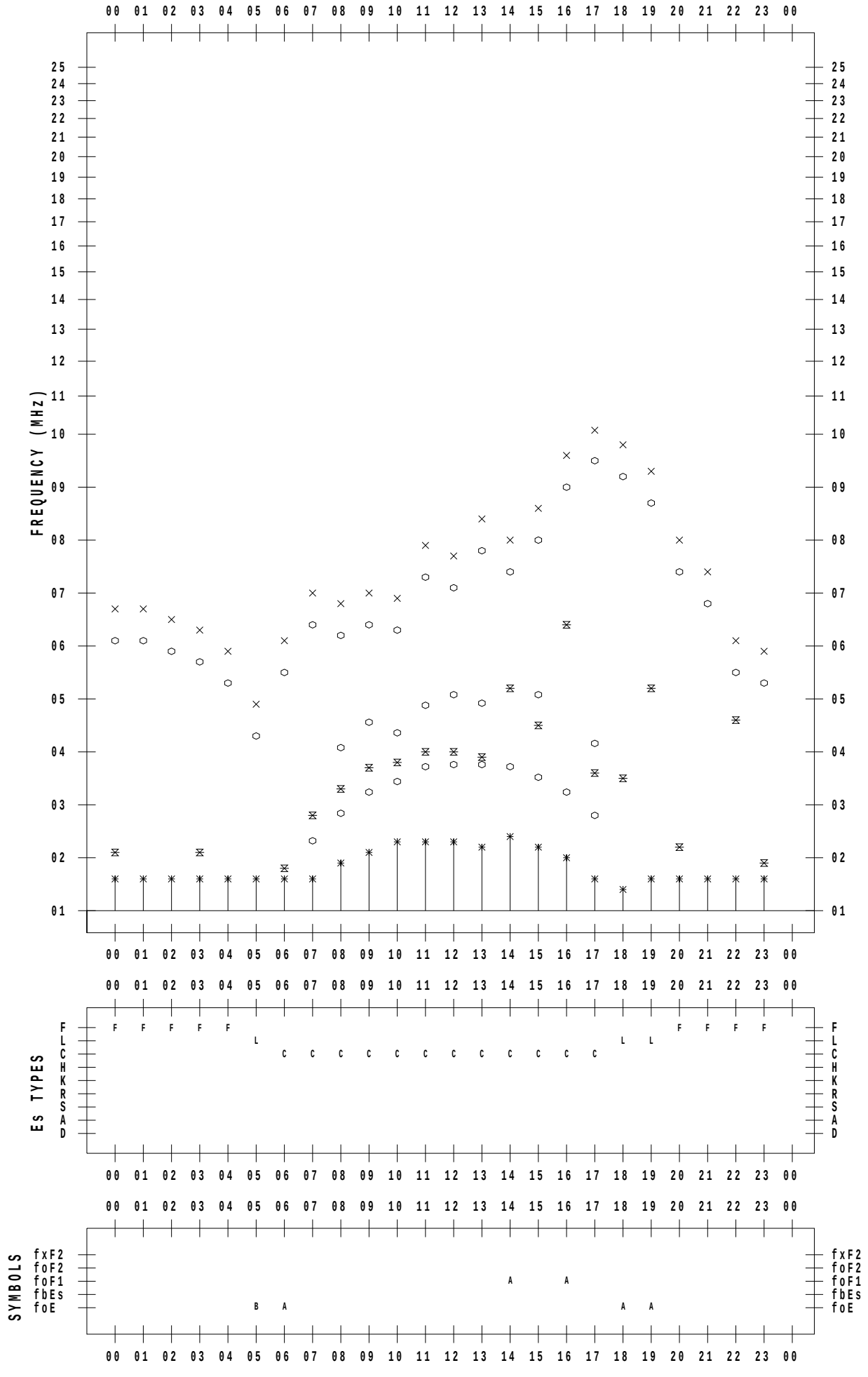
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Yamagawa

DATE : 2022/ 8/31

135 °E MEAN TIME



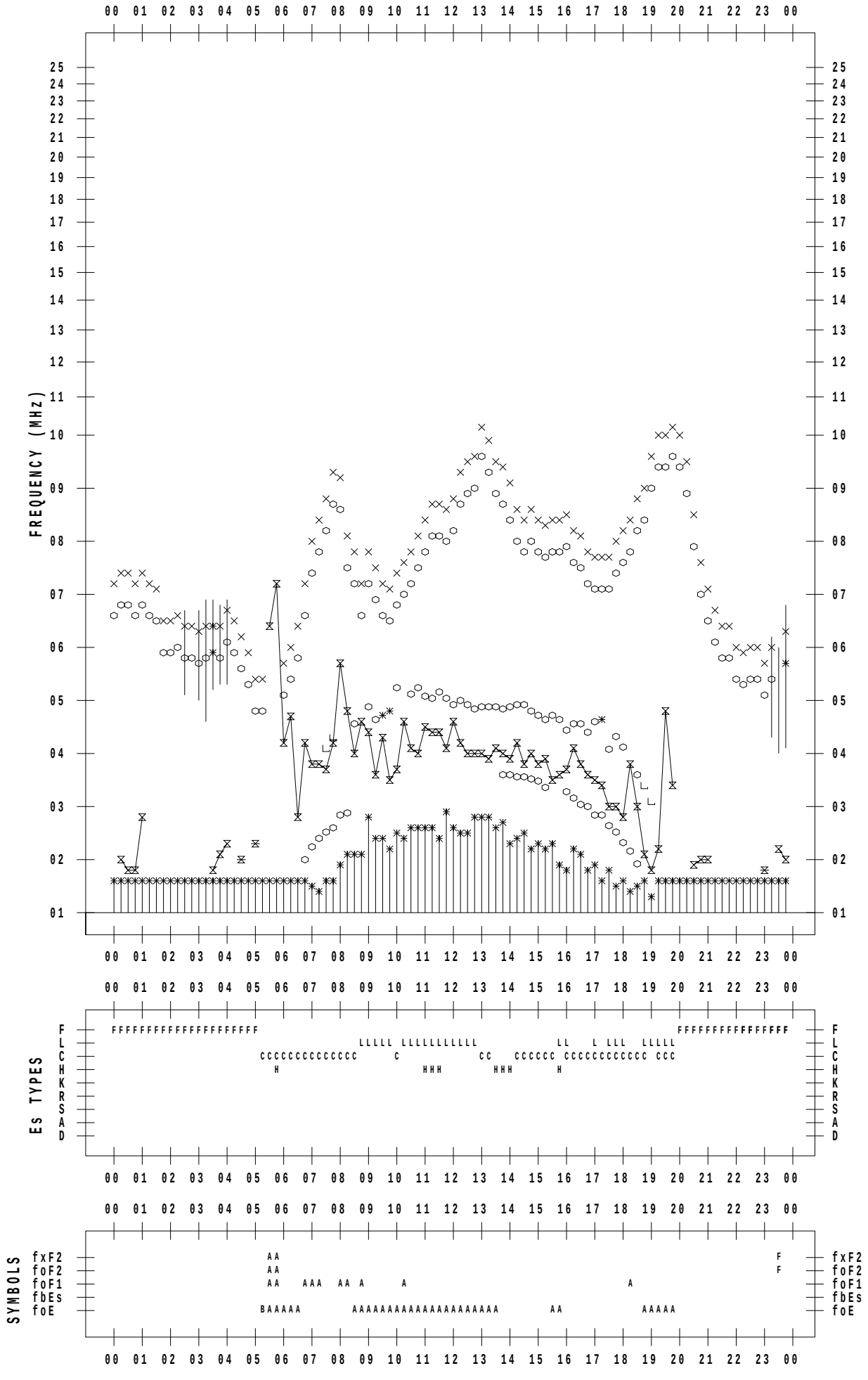
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/ 1

135 °E MEAN TIME



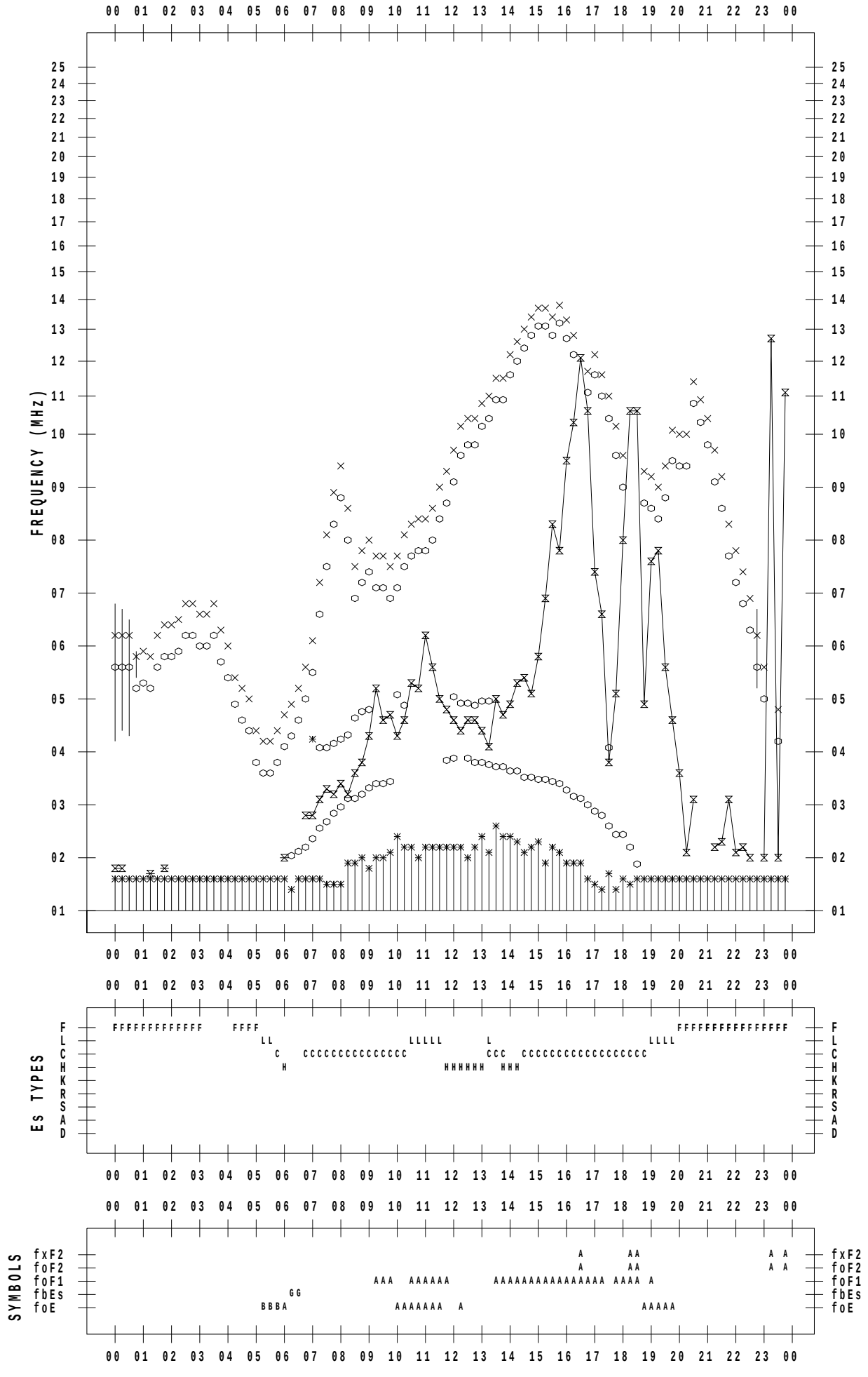
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/ 2

135 °E MEAN TIME



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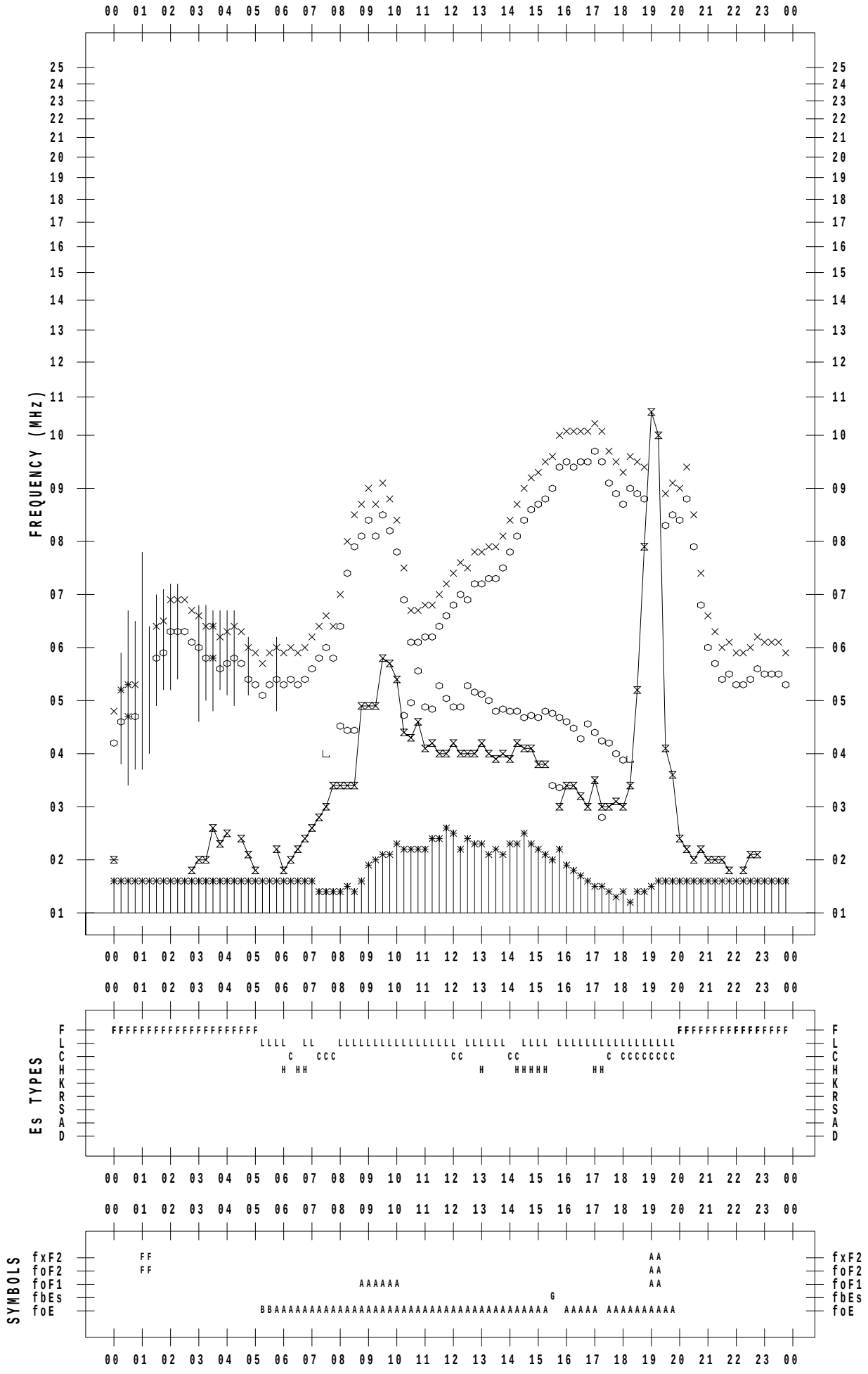
SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/ 3

135 °E MEAN TIME



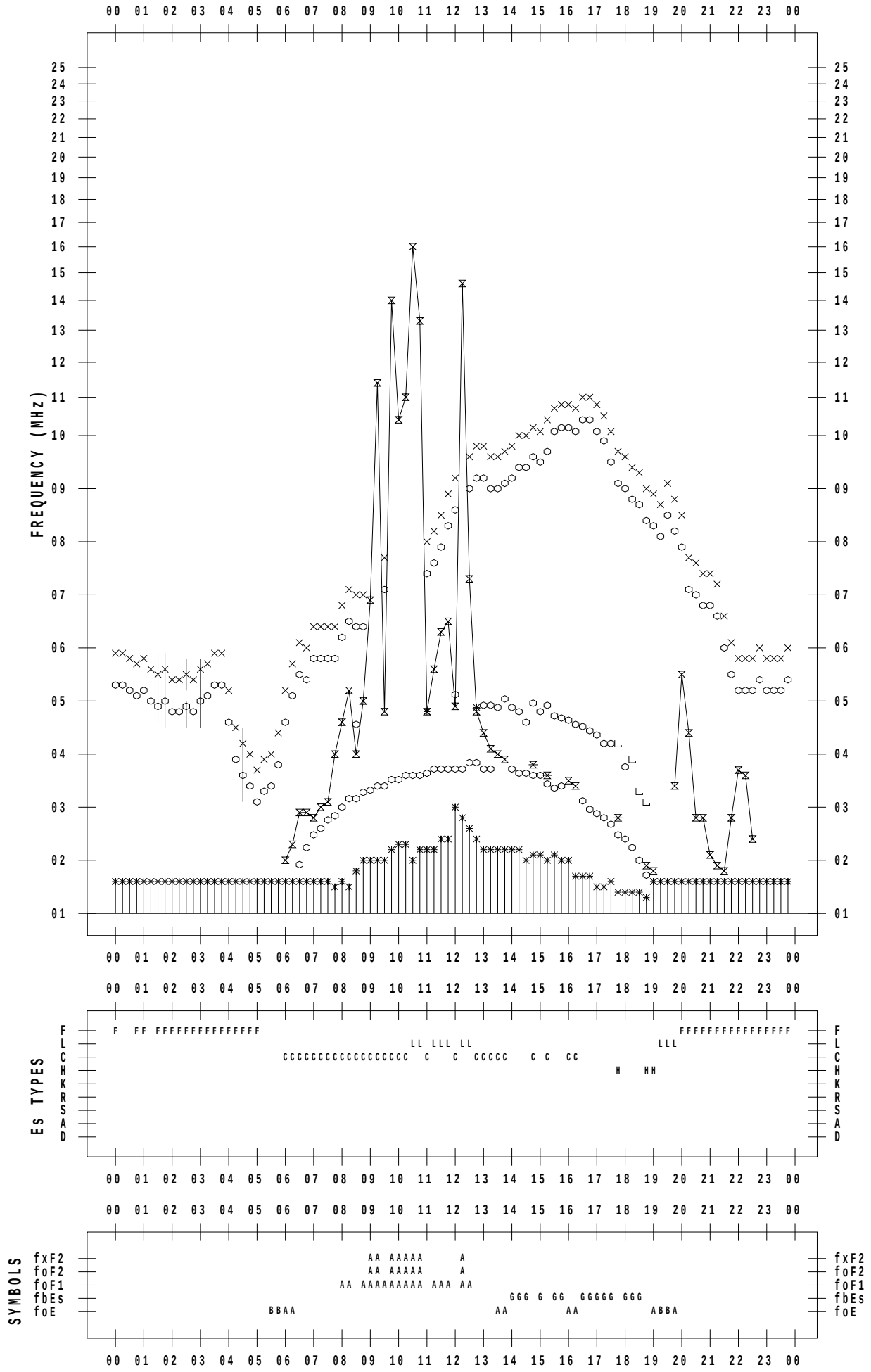
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/ 4

135 °E MEAN TIME



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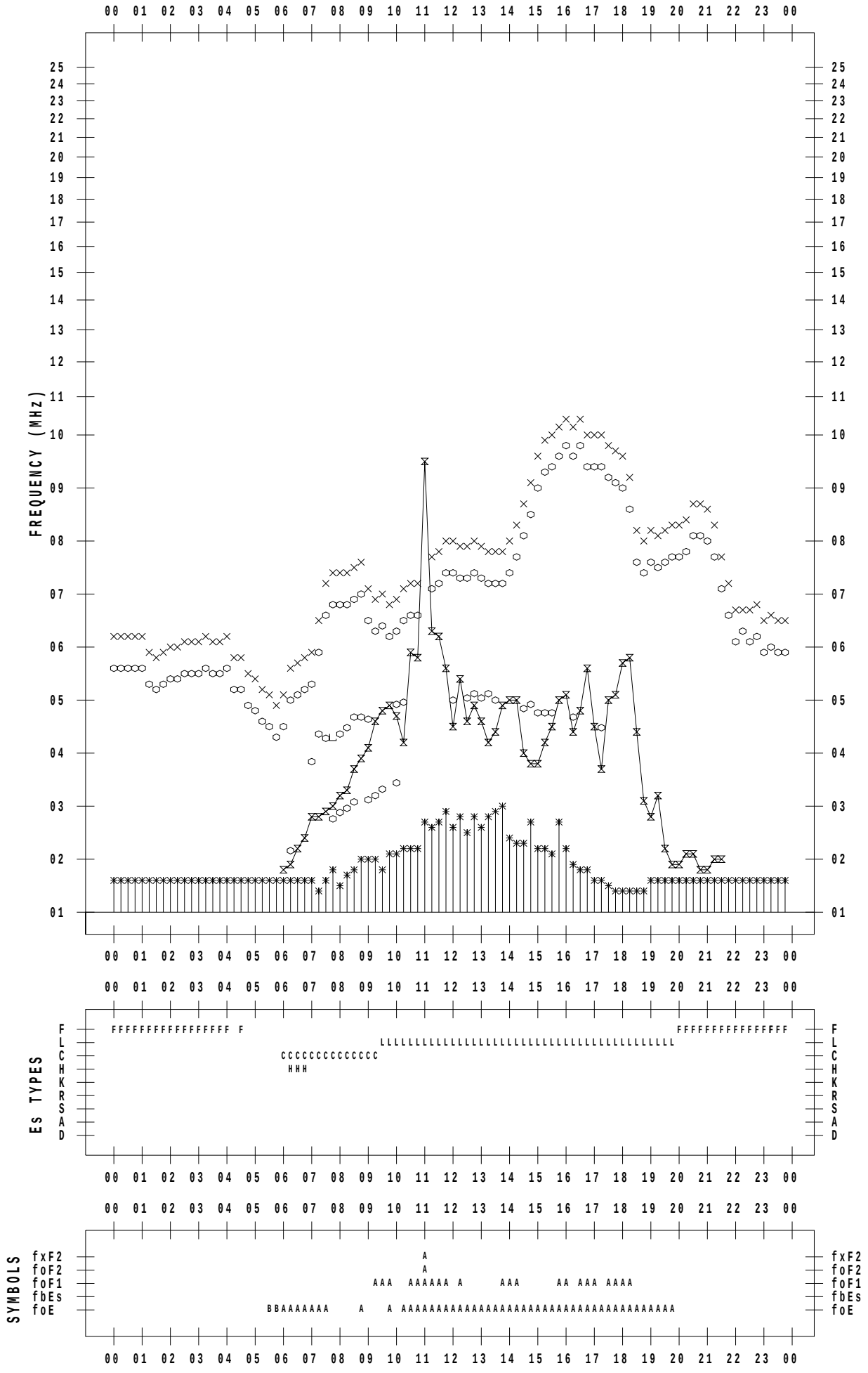
SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/ 5

135 °E MEAN TIME



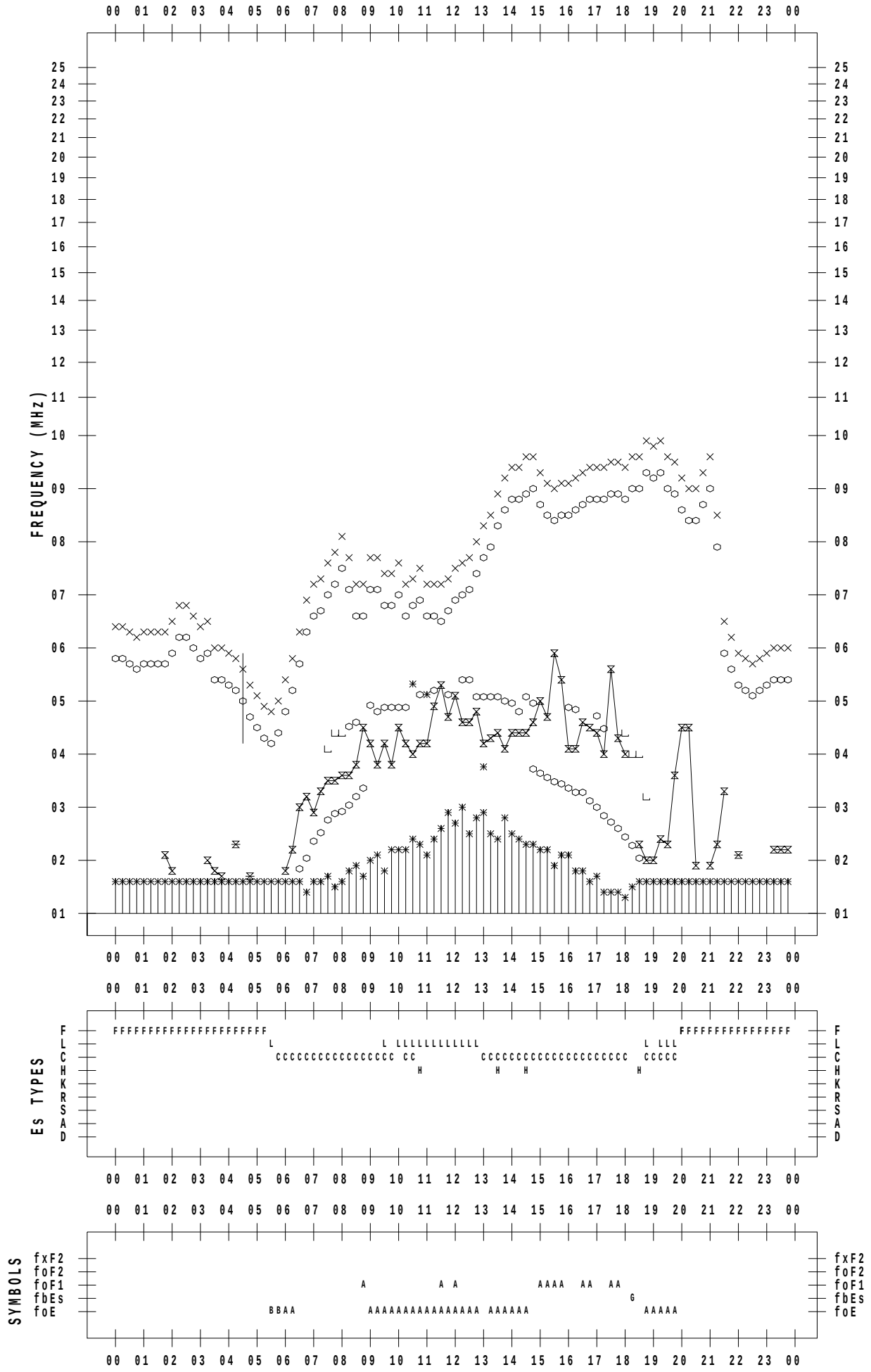
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/ 6

135 °E MEAN TIME



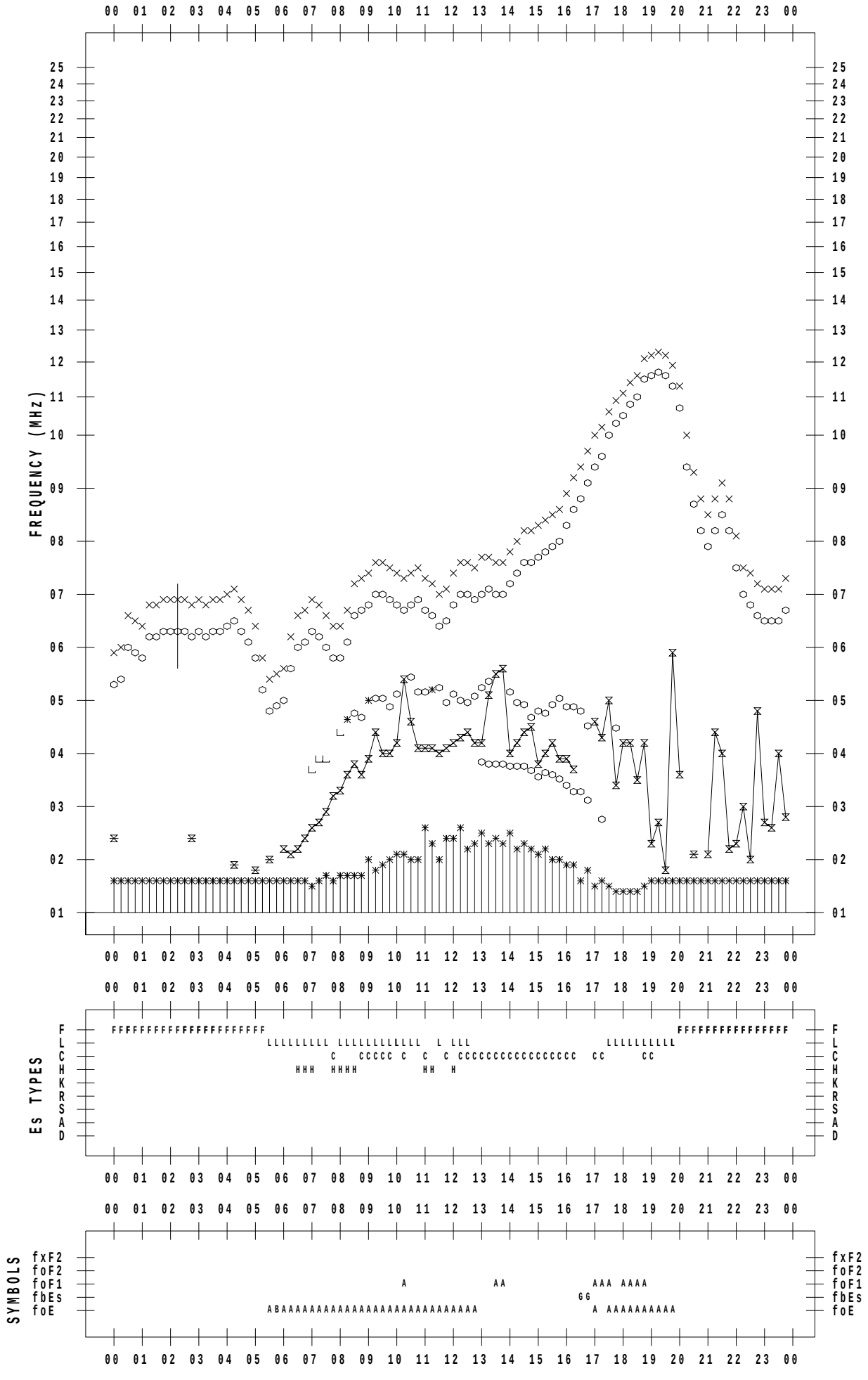
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/ 7

135 °E MEAN TIME



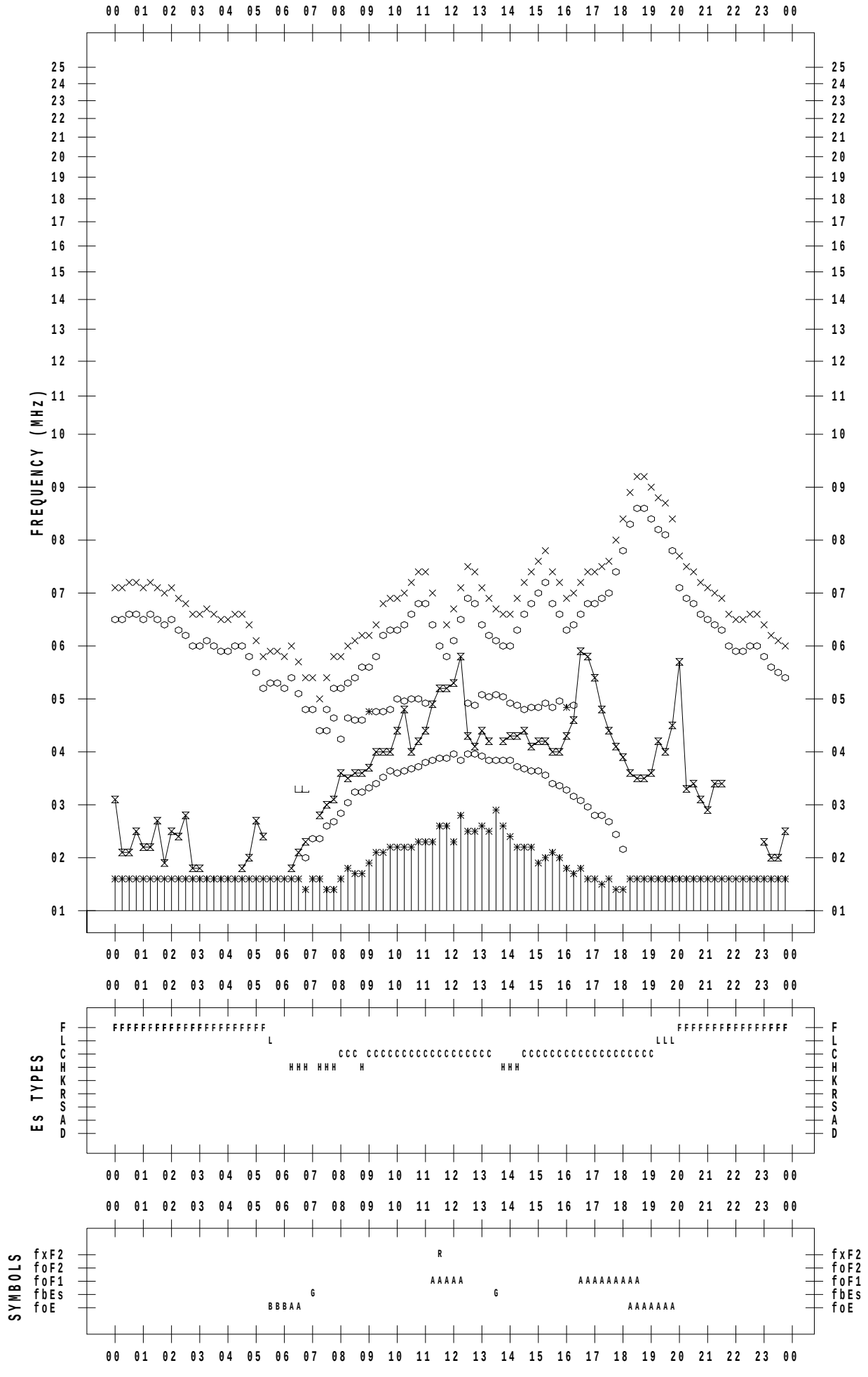
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/ 8

135 °E MEAN TIME



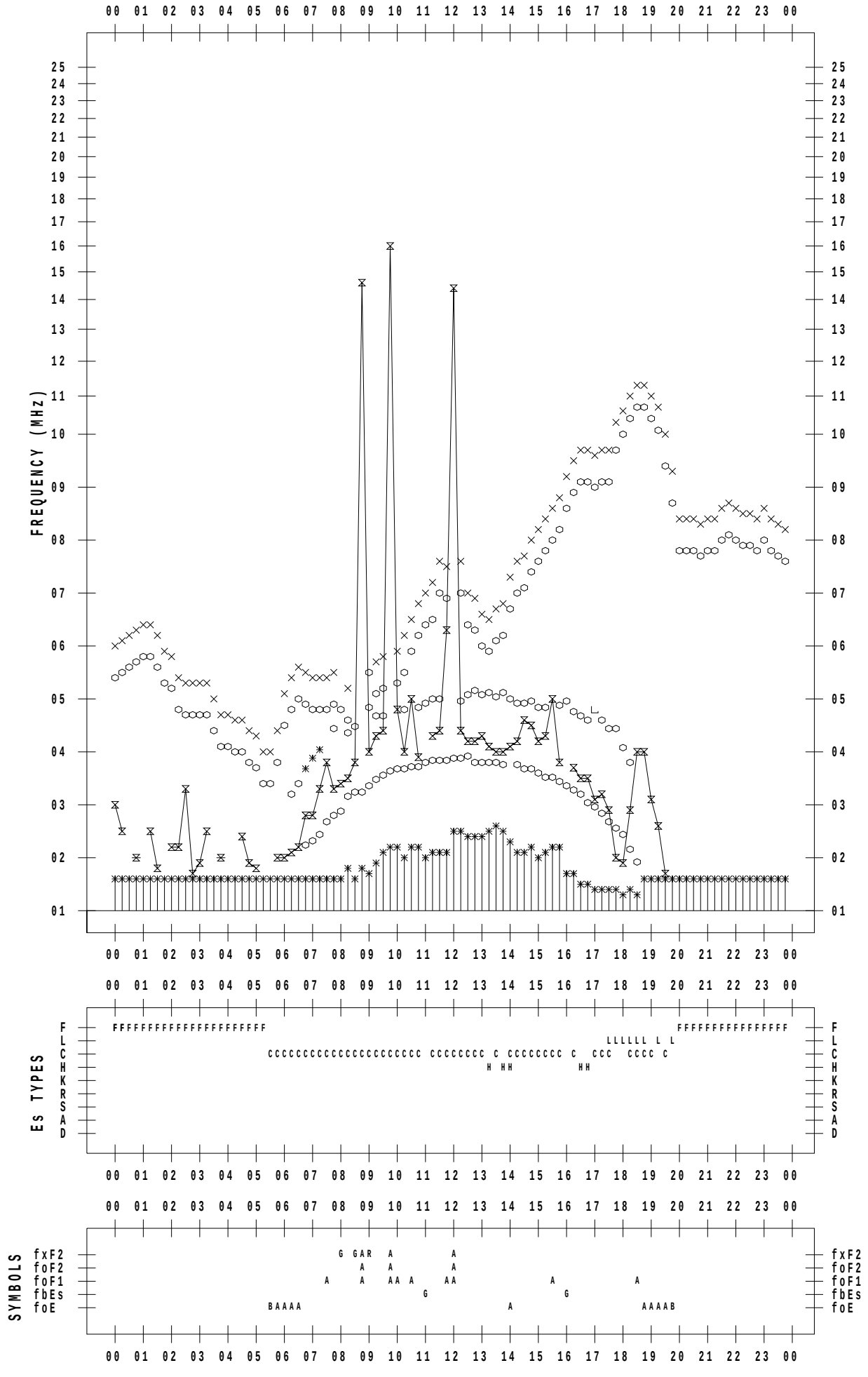
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/ 9

135 °E MEAN TIME



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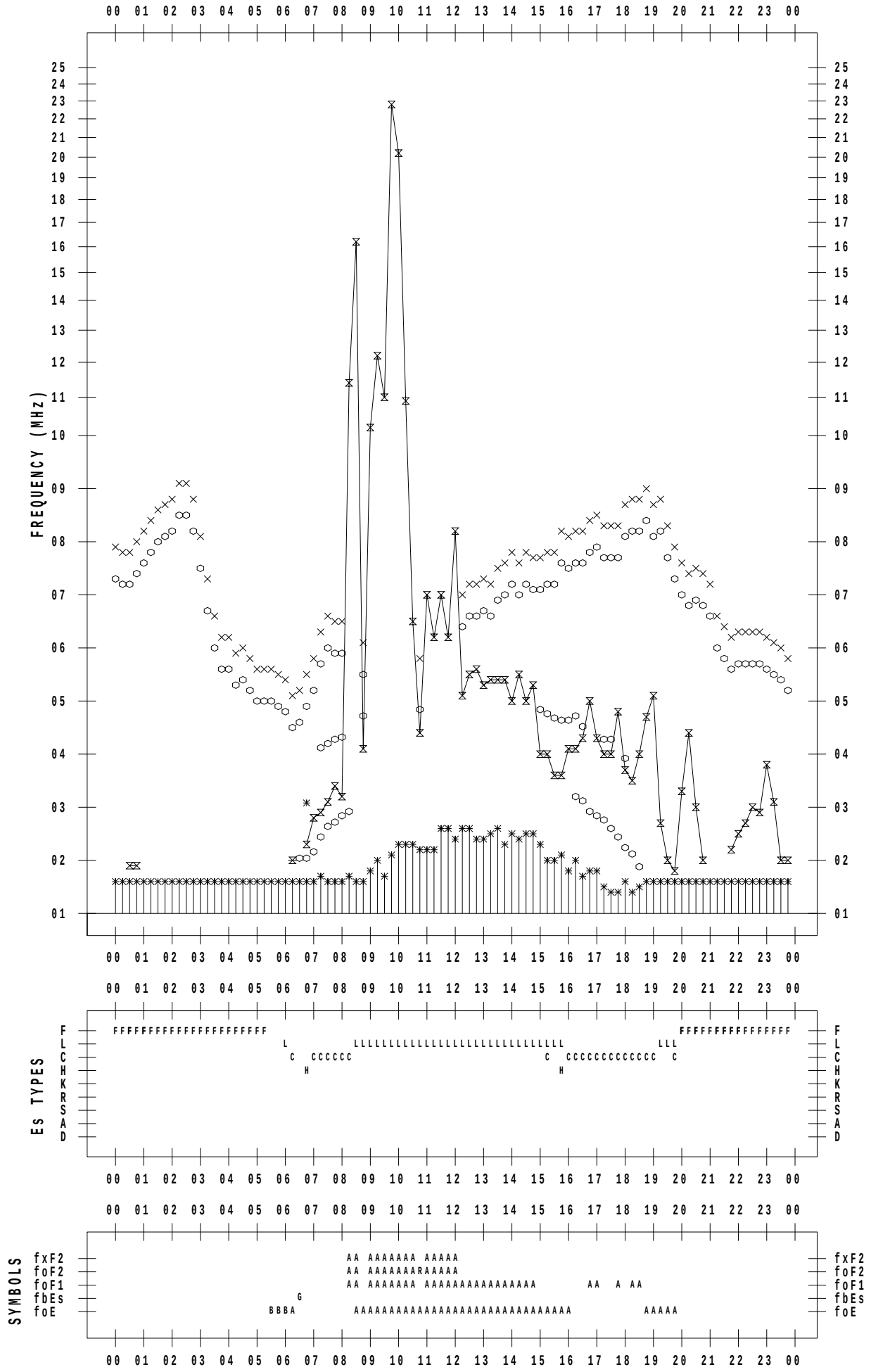
SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/10

135 °E MEAN TIME



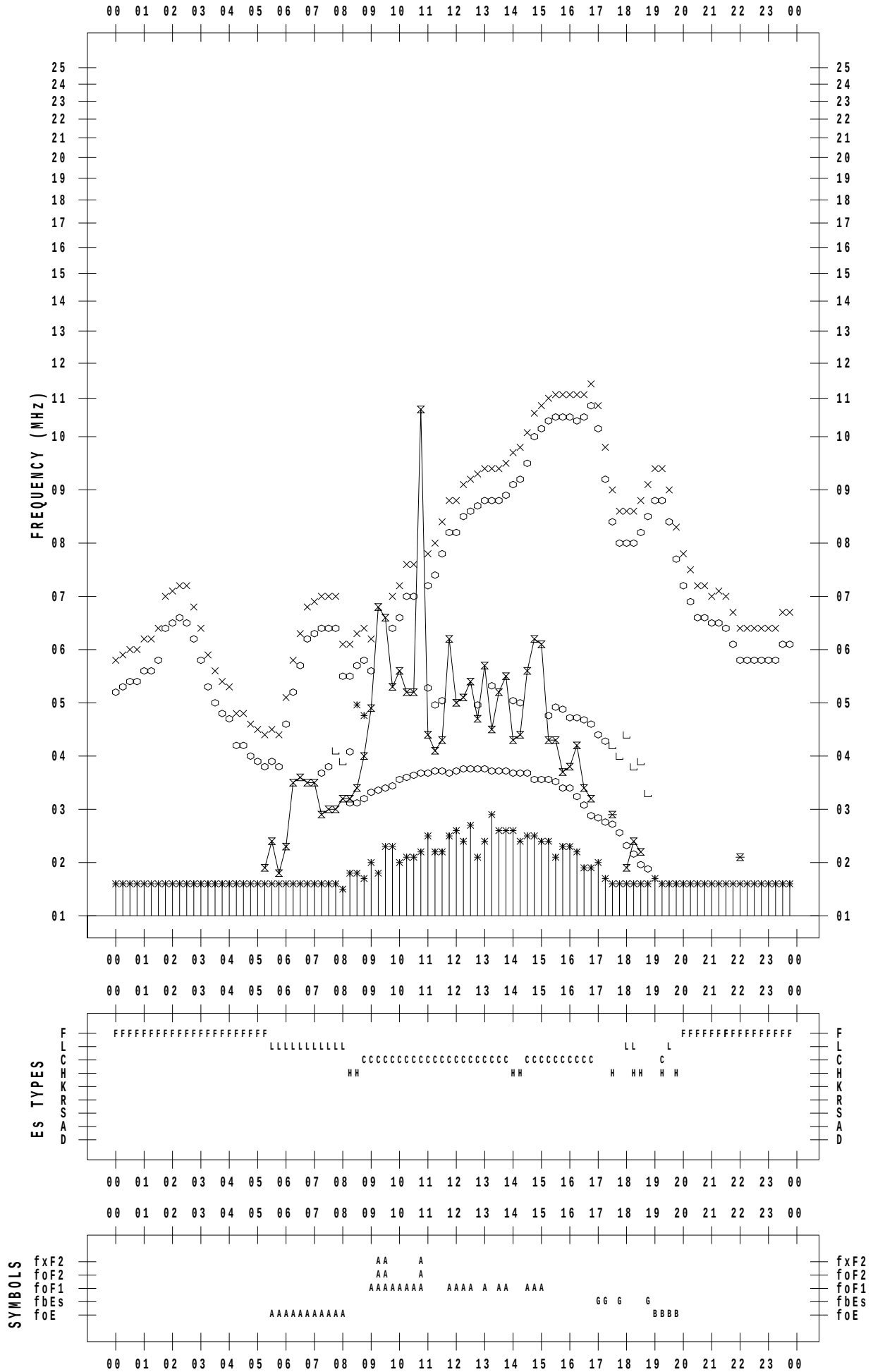
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/11

135 °E MEAN TIME



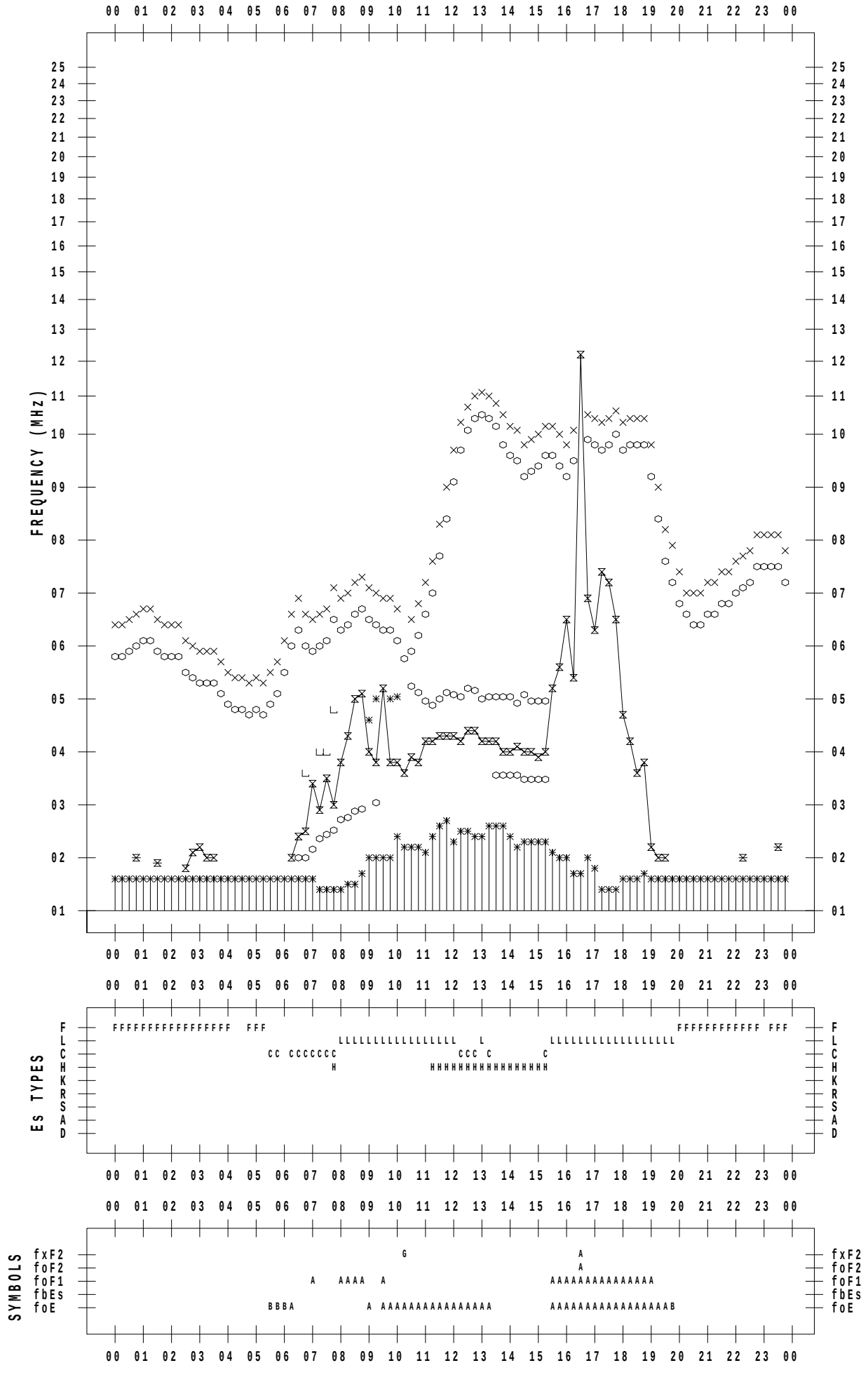
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/12

135 °E MEAN TIME



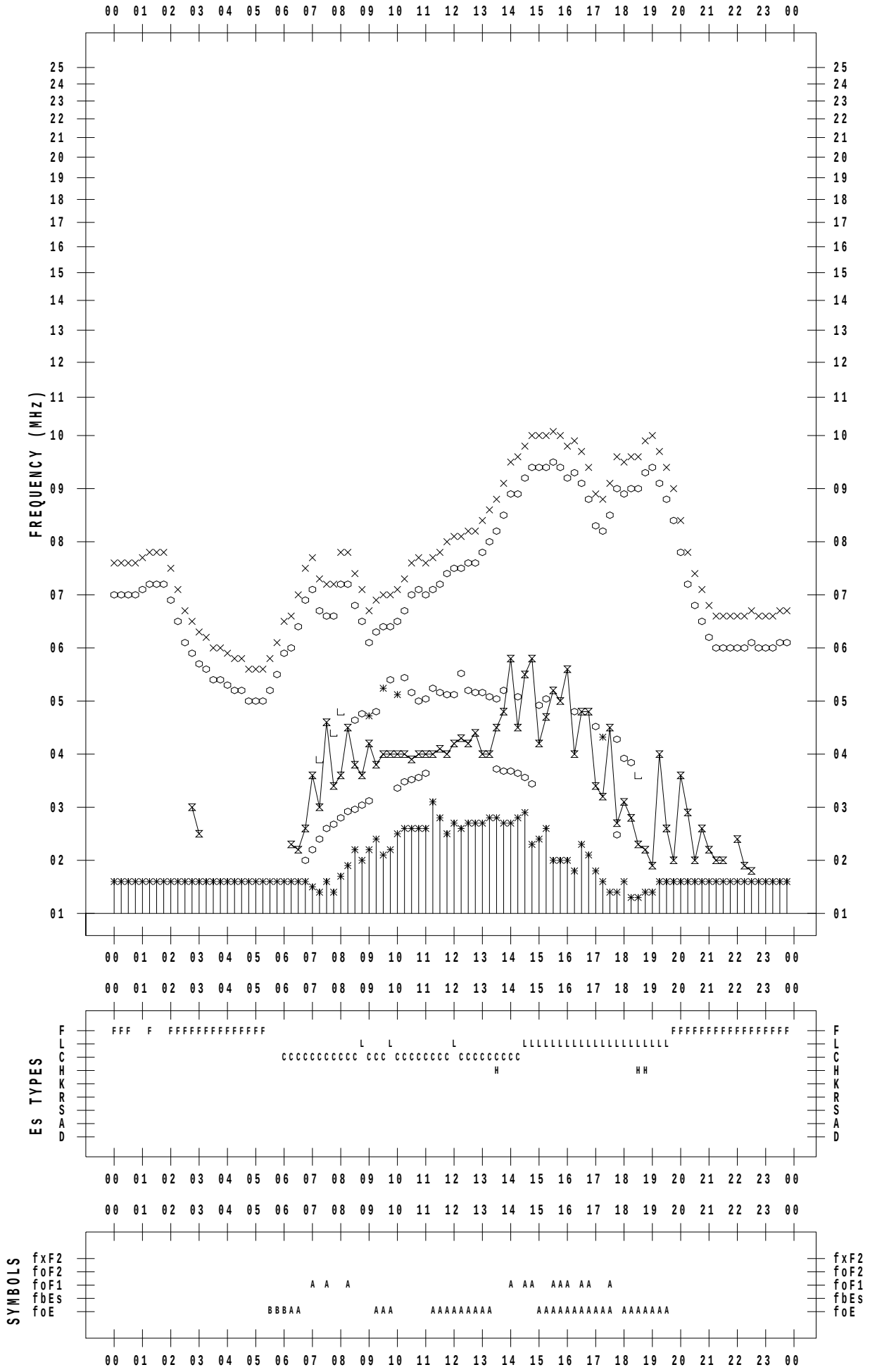
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/13

135 °E MEAN TIME



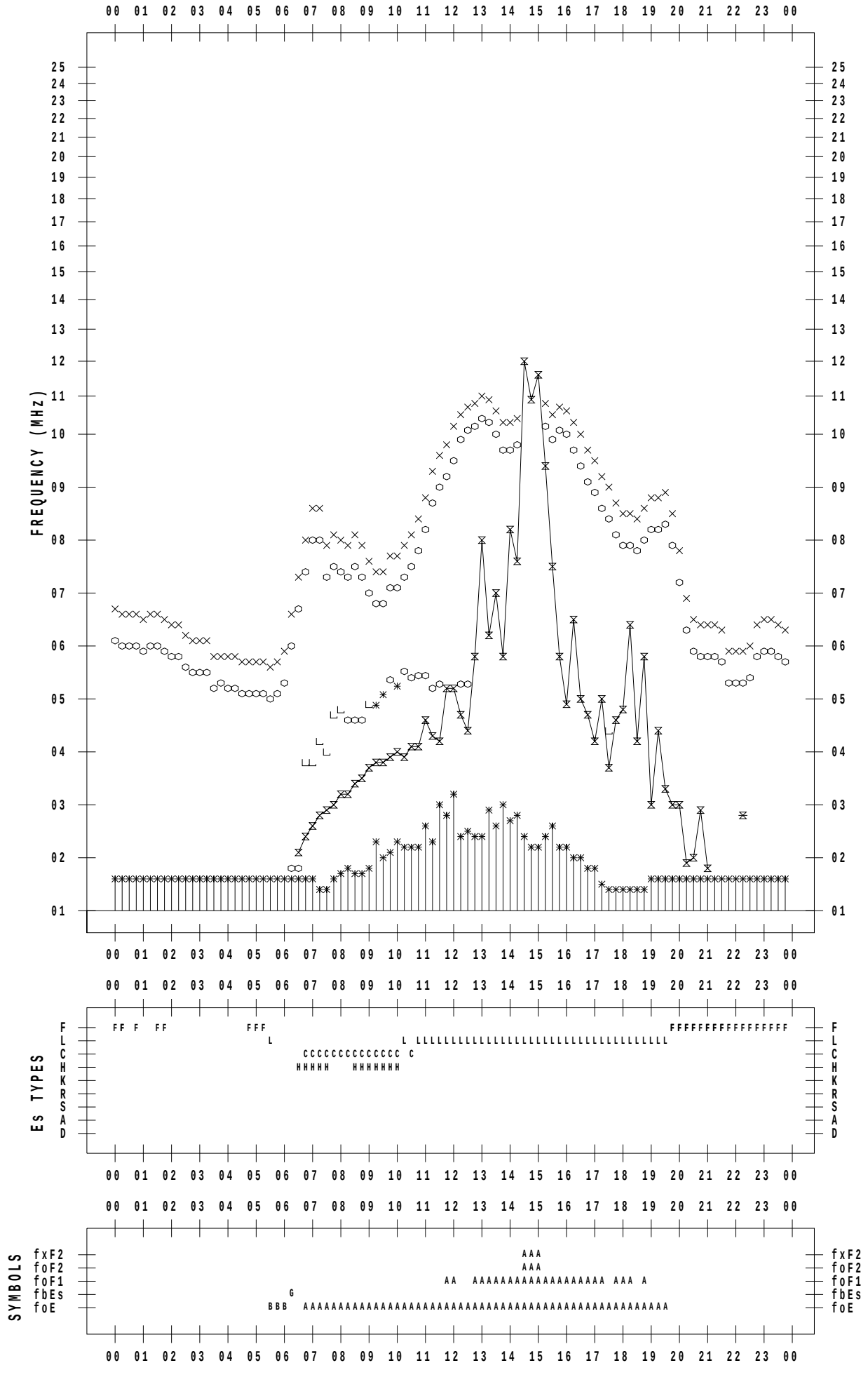
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/14

135 °E MEAN TIME



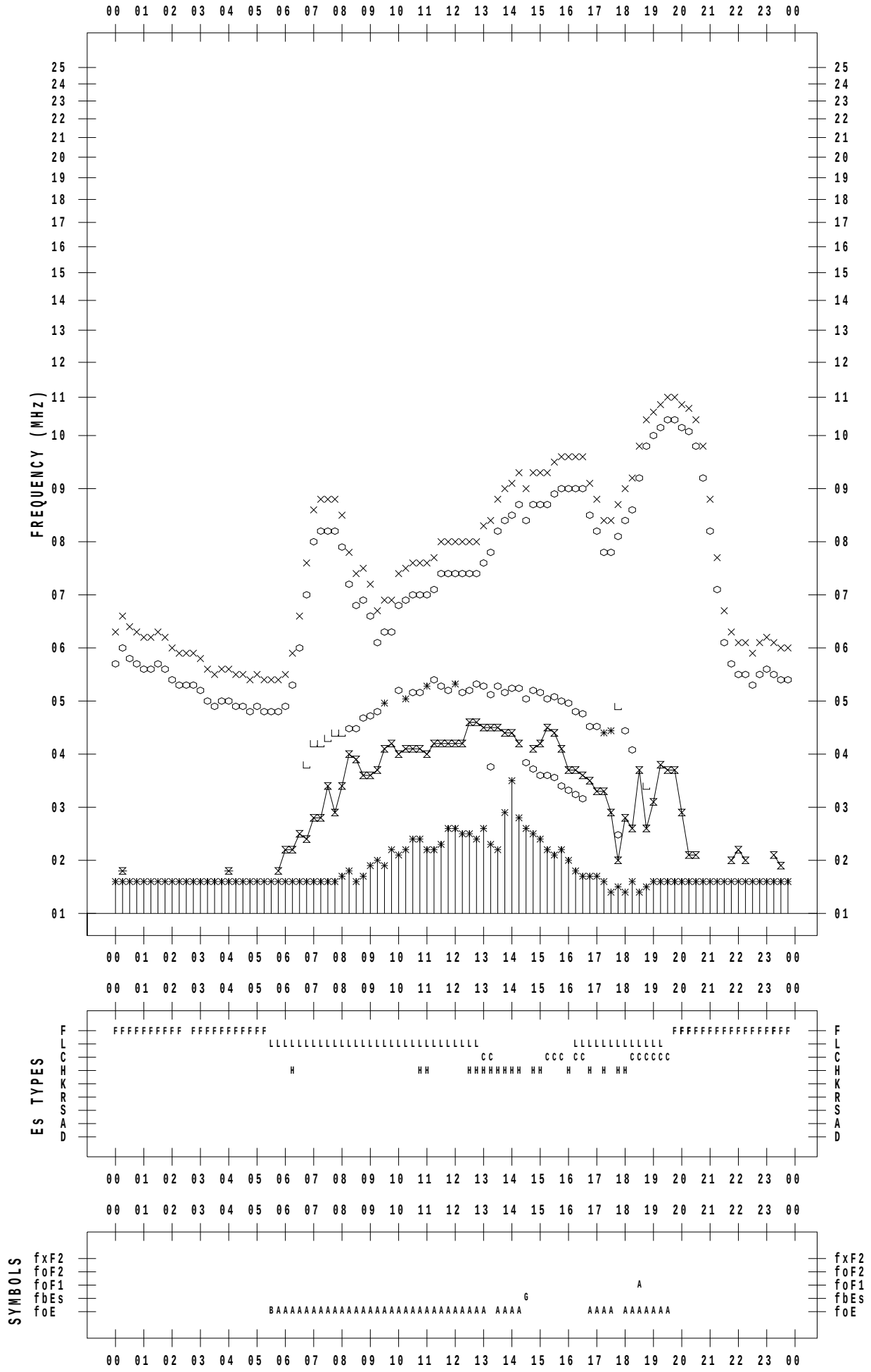
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/15

135 °E MEAN TIME



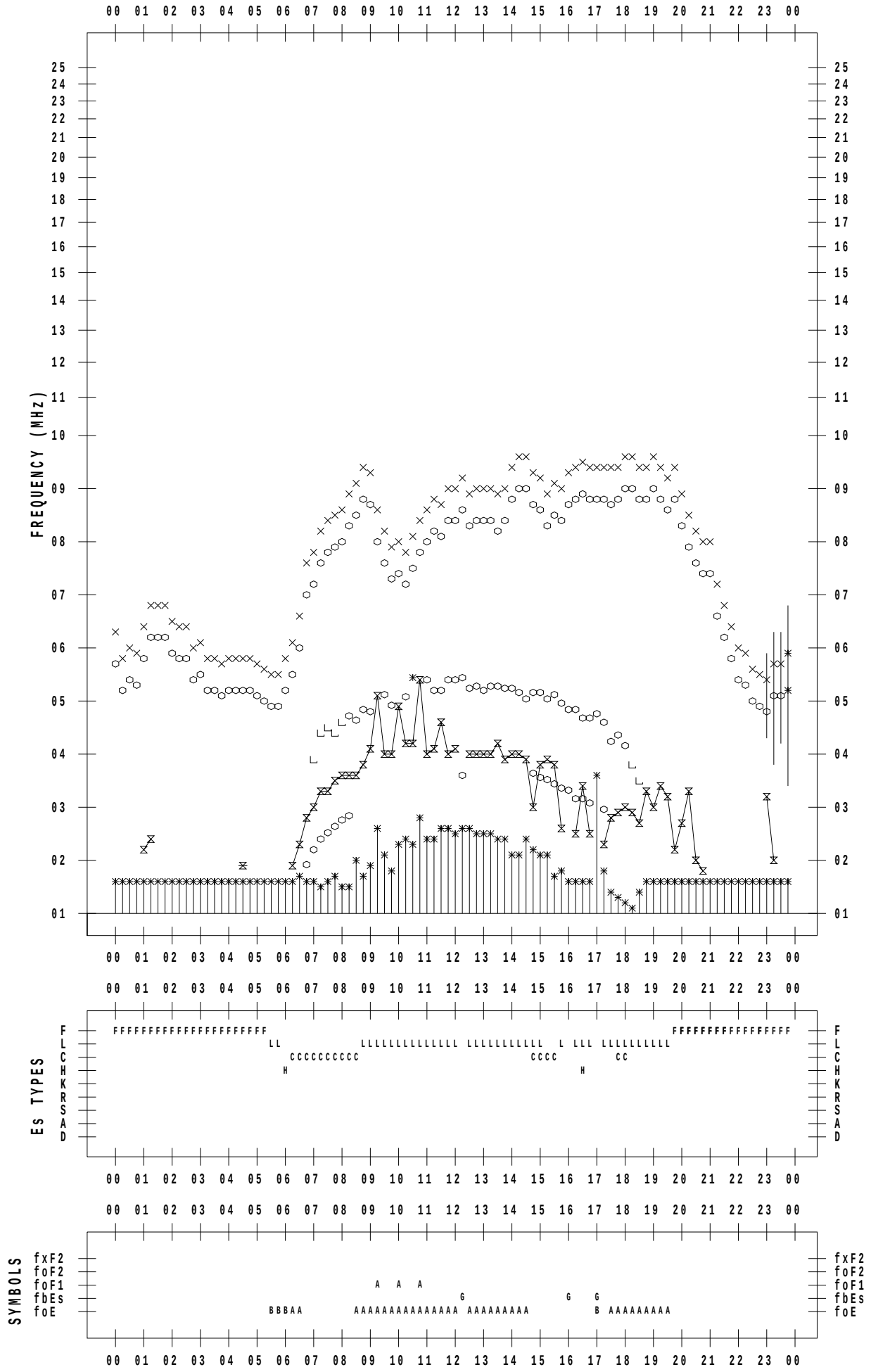
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/16

135 °E MEAN TIME



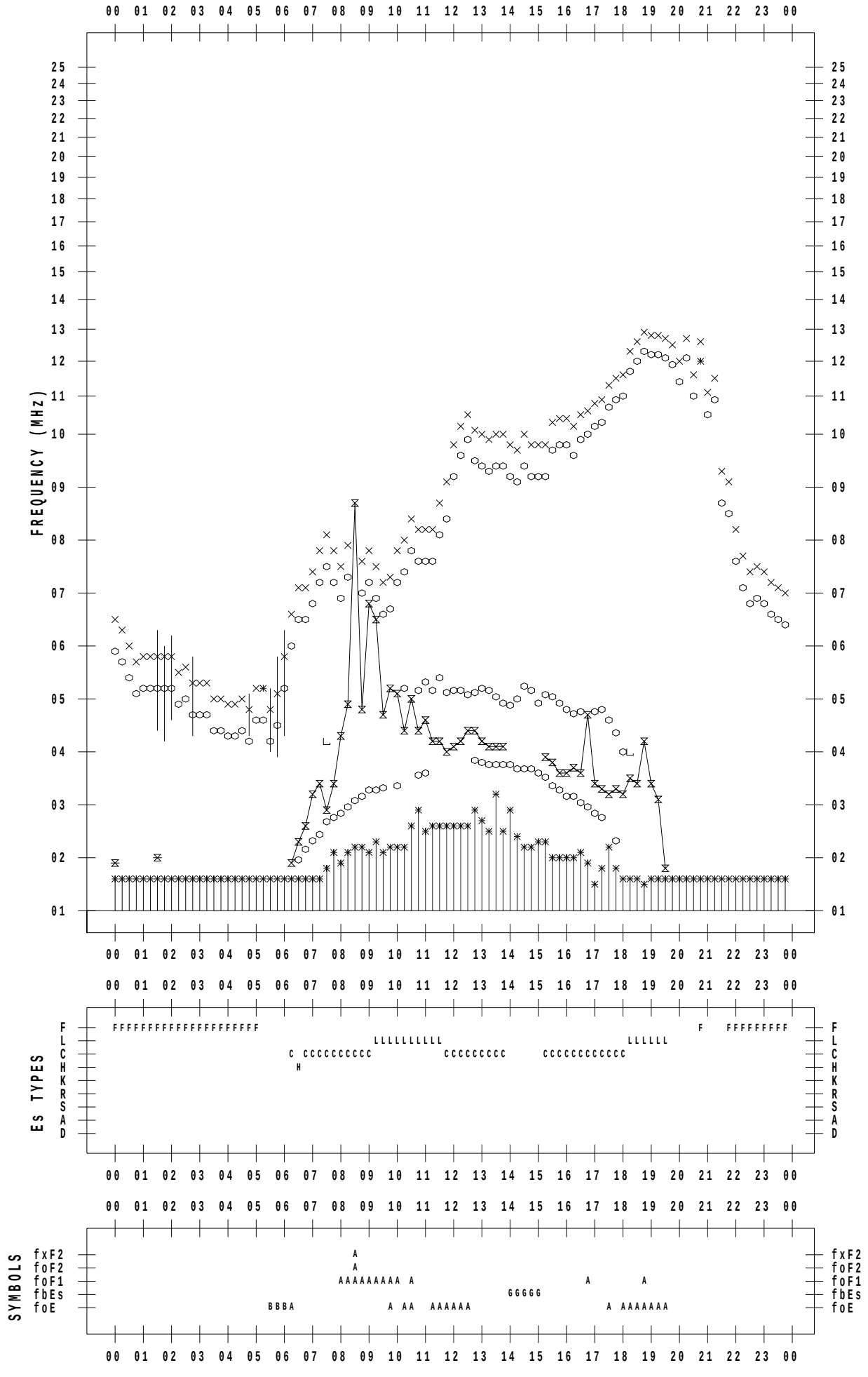
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/17

135 °E MEAN TIME



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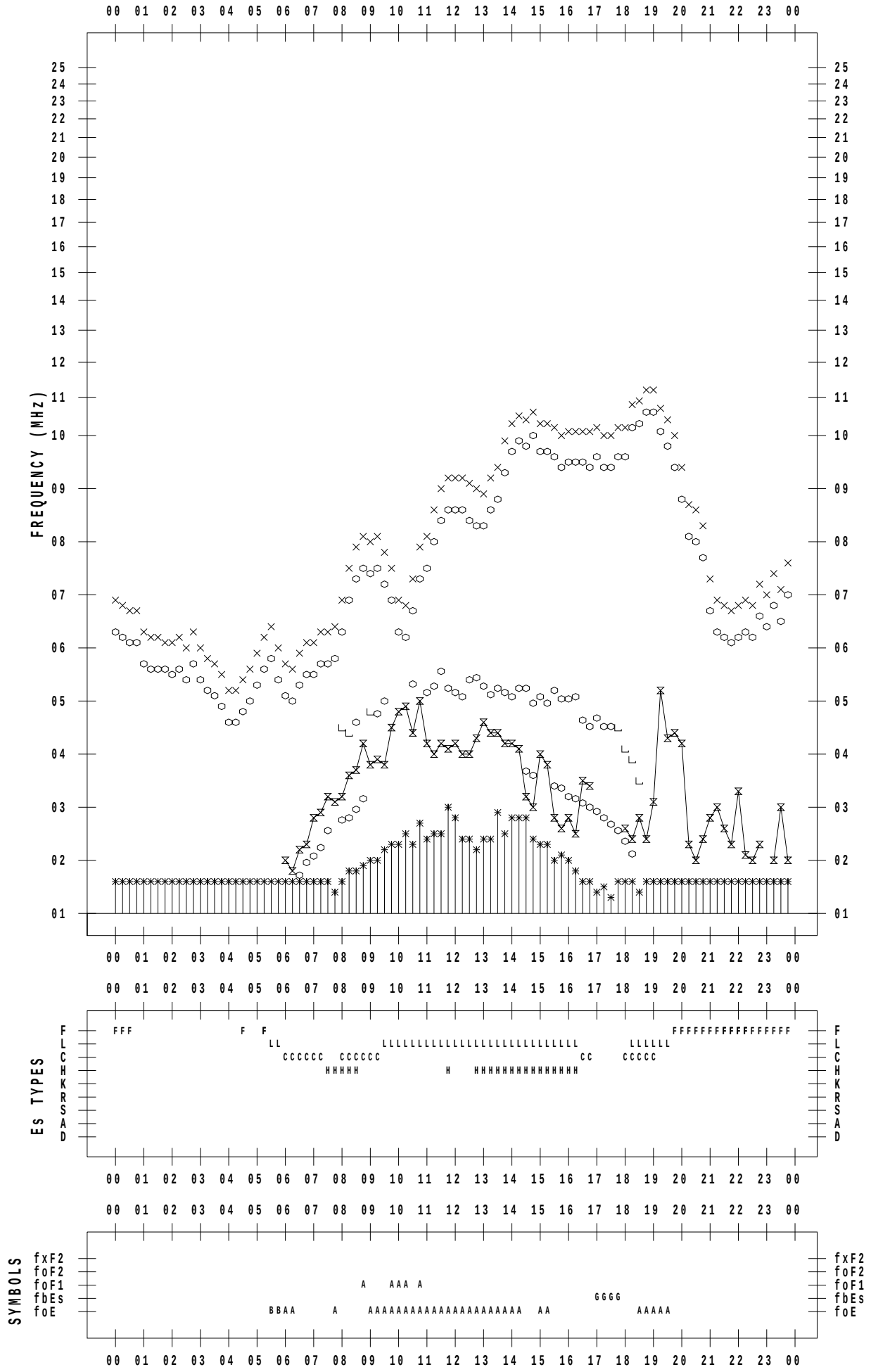
SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/18

135 °E MEAN TIME



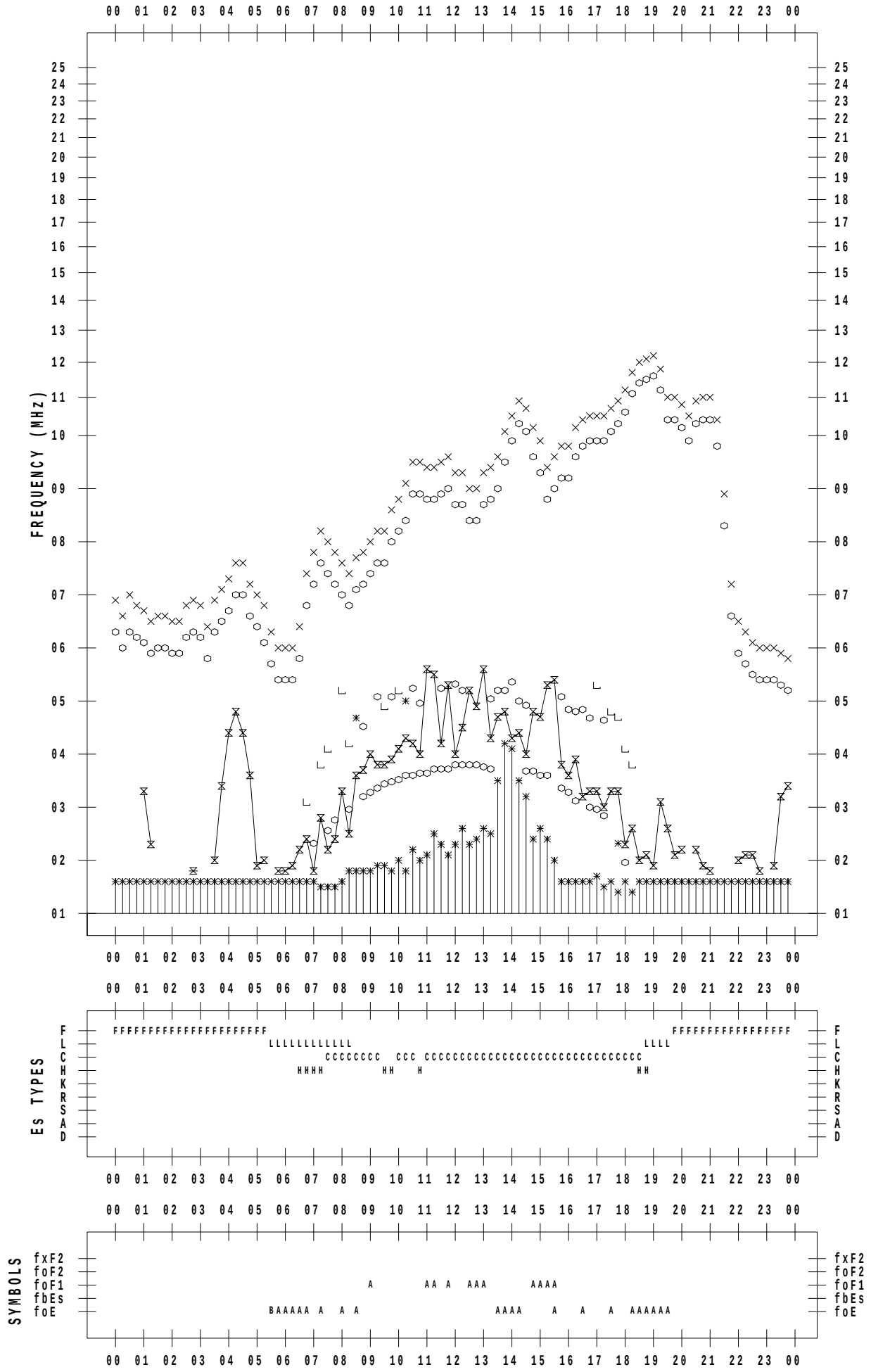
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/19

135 °E MEAN TIME



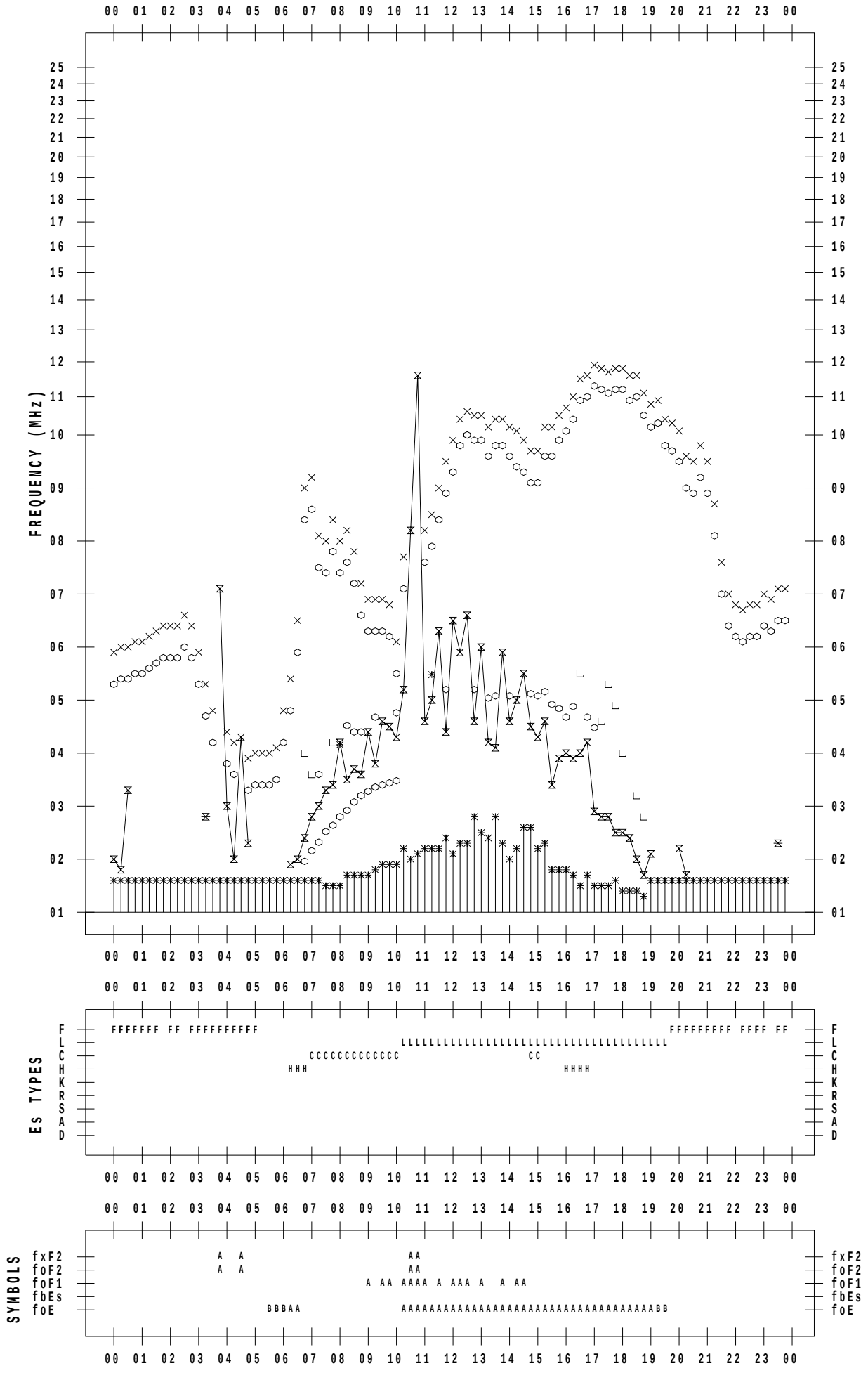
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/20

135 °E MEAN TIME



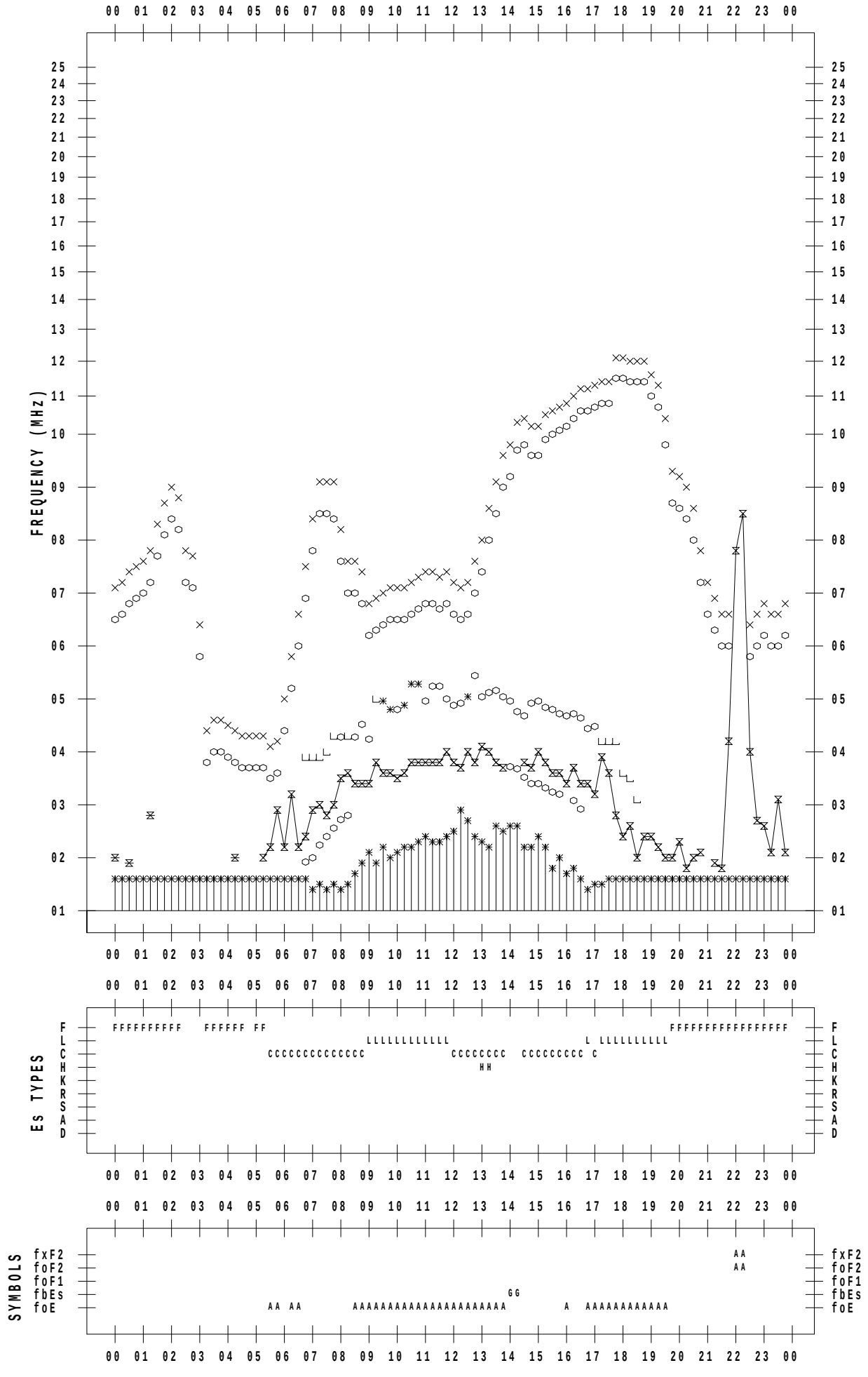
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/21

135 °E MEAN TIME



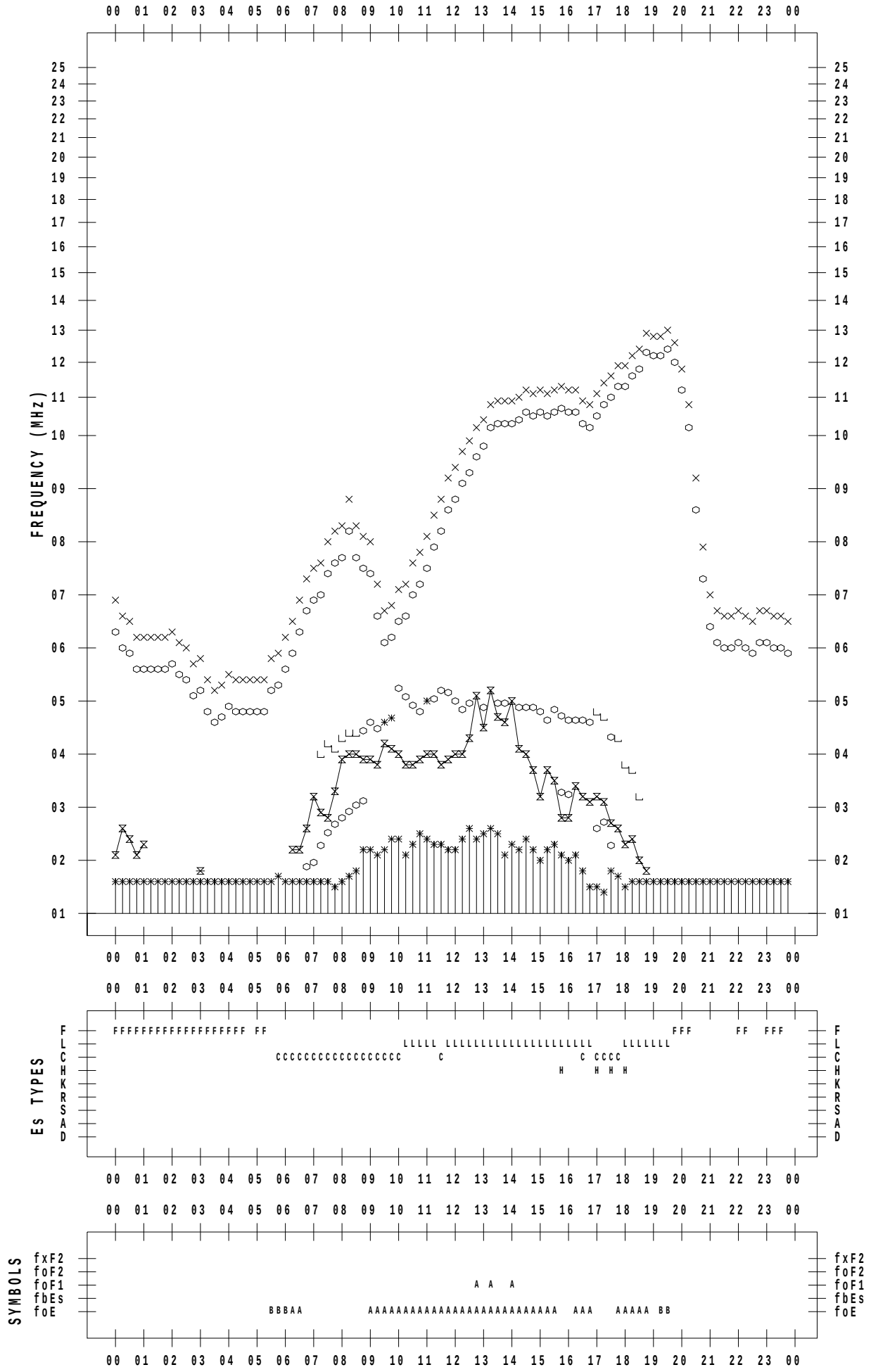
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/22

135 °E MEAN TIME



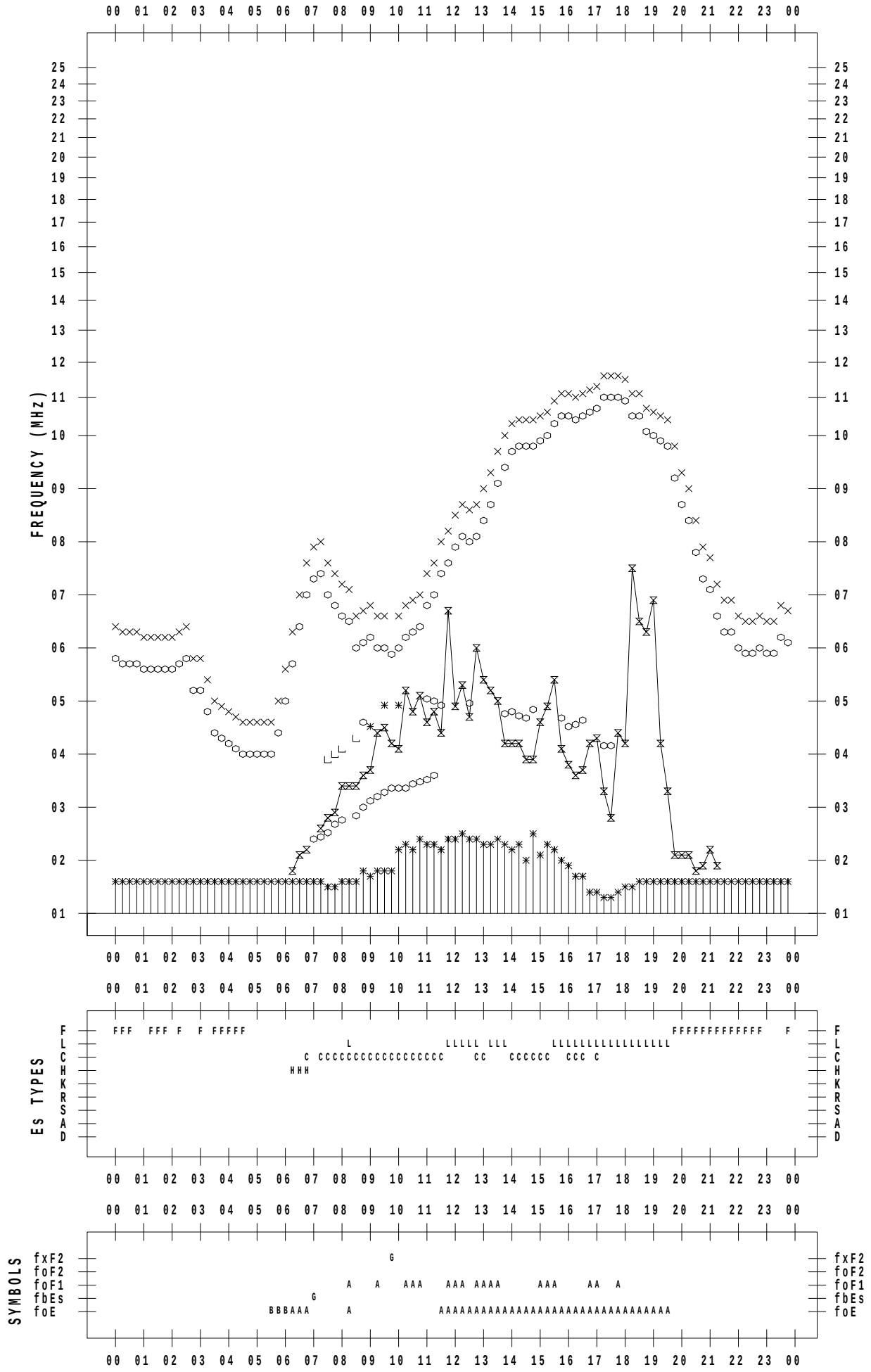
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/23

135 °E MEAN TIME



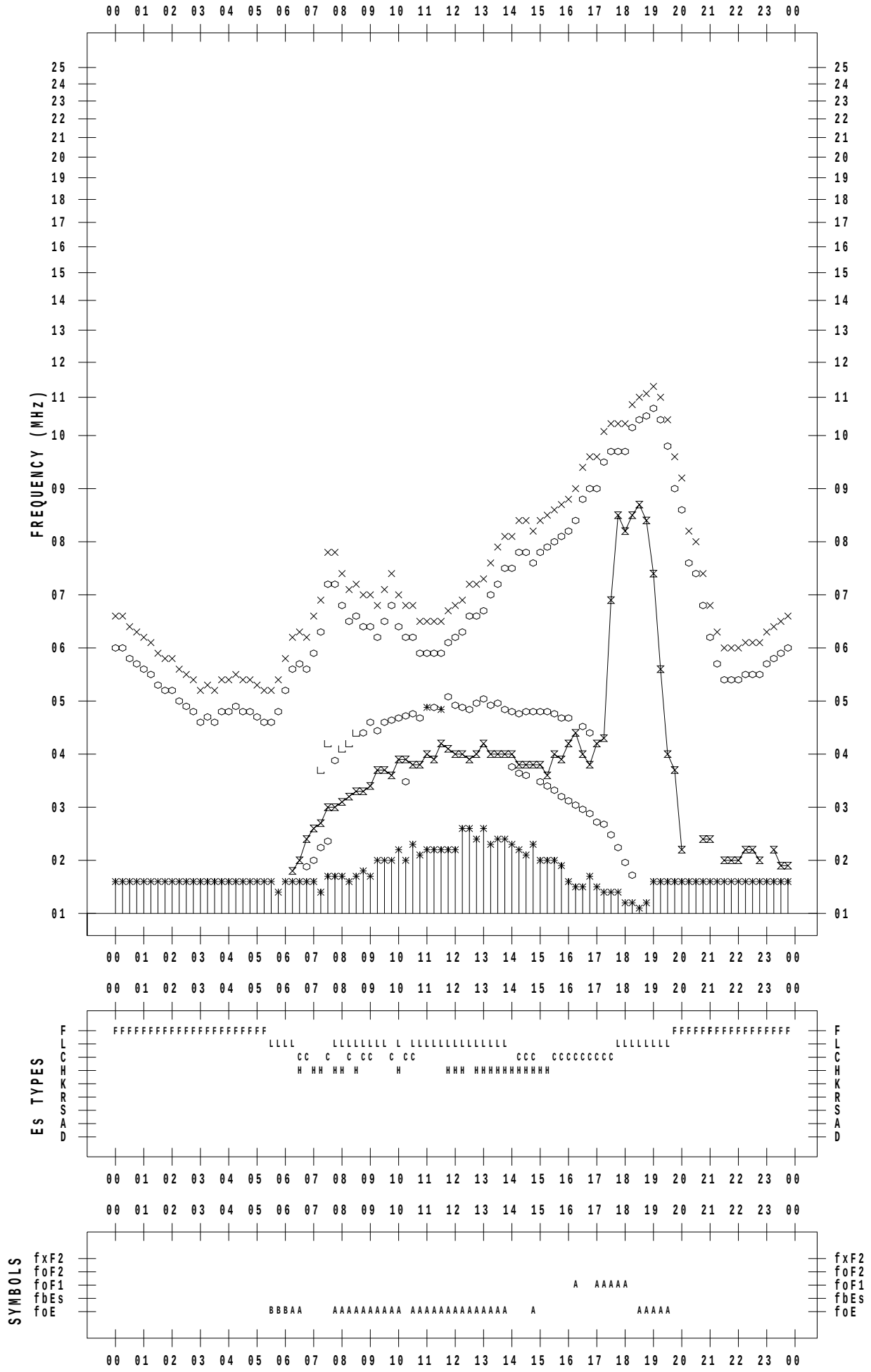
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/24

135 °E MEAN TIME



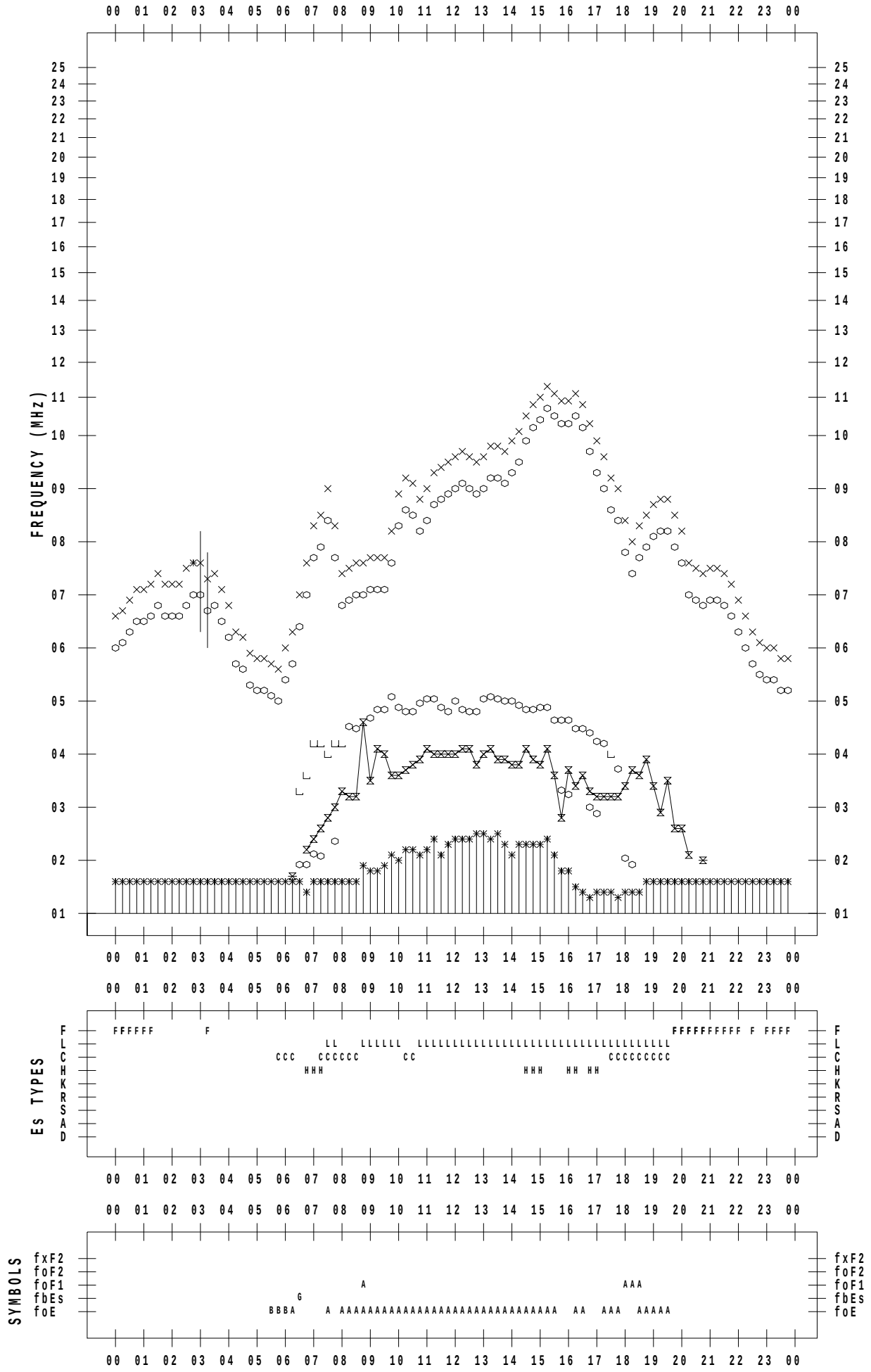
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/25

135 °E MEAN TIME



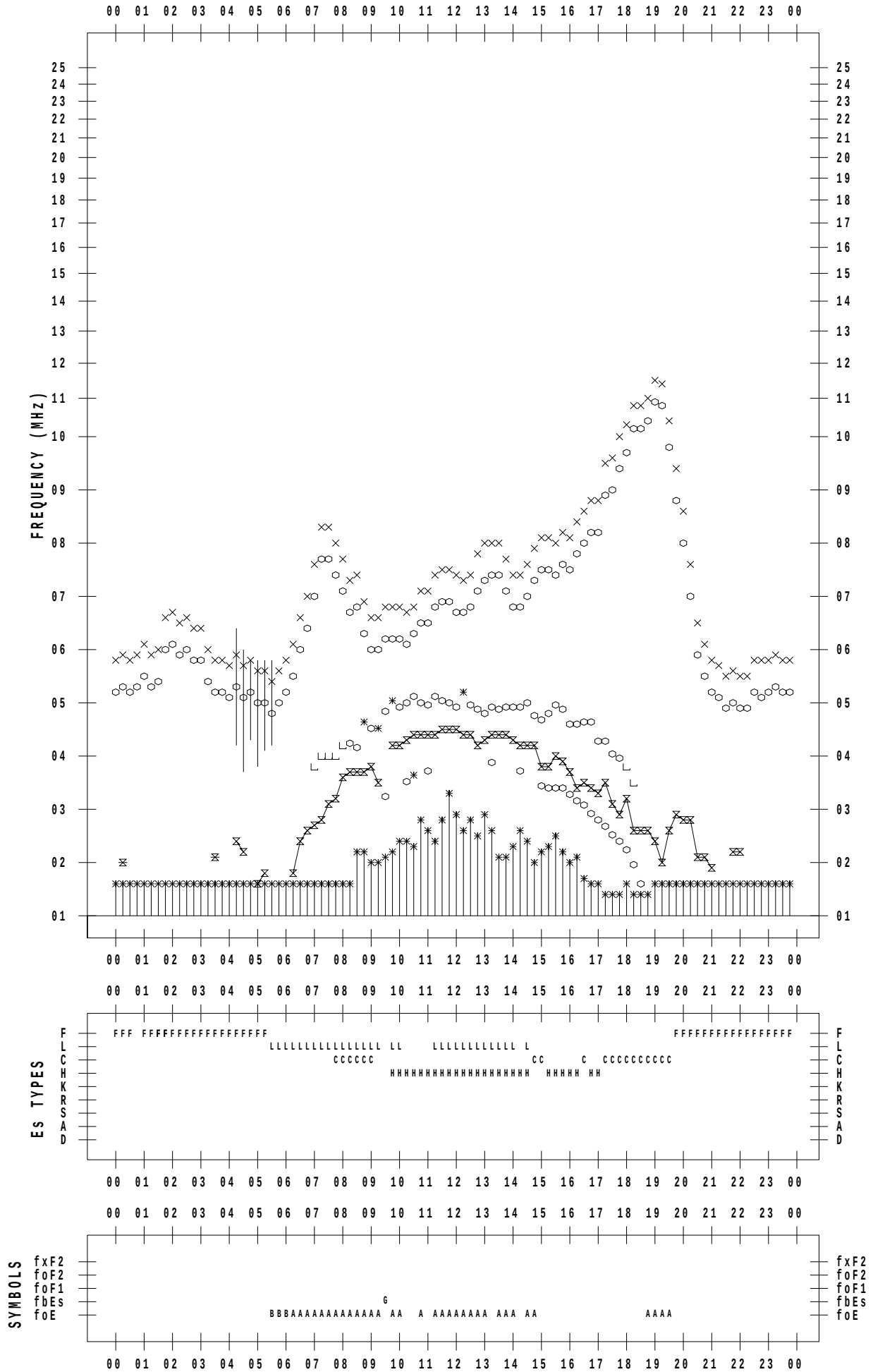
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/26

135 °E MEAN TIME



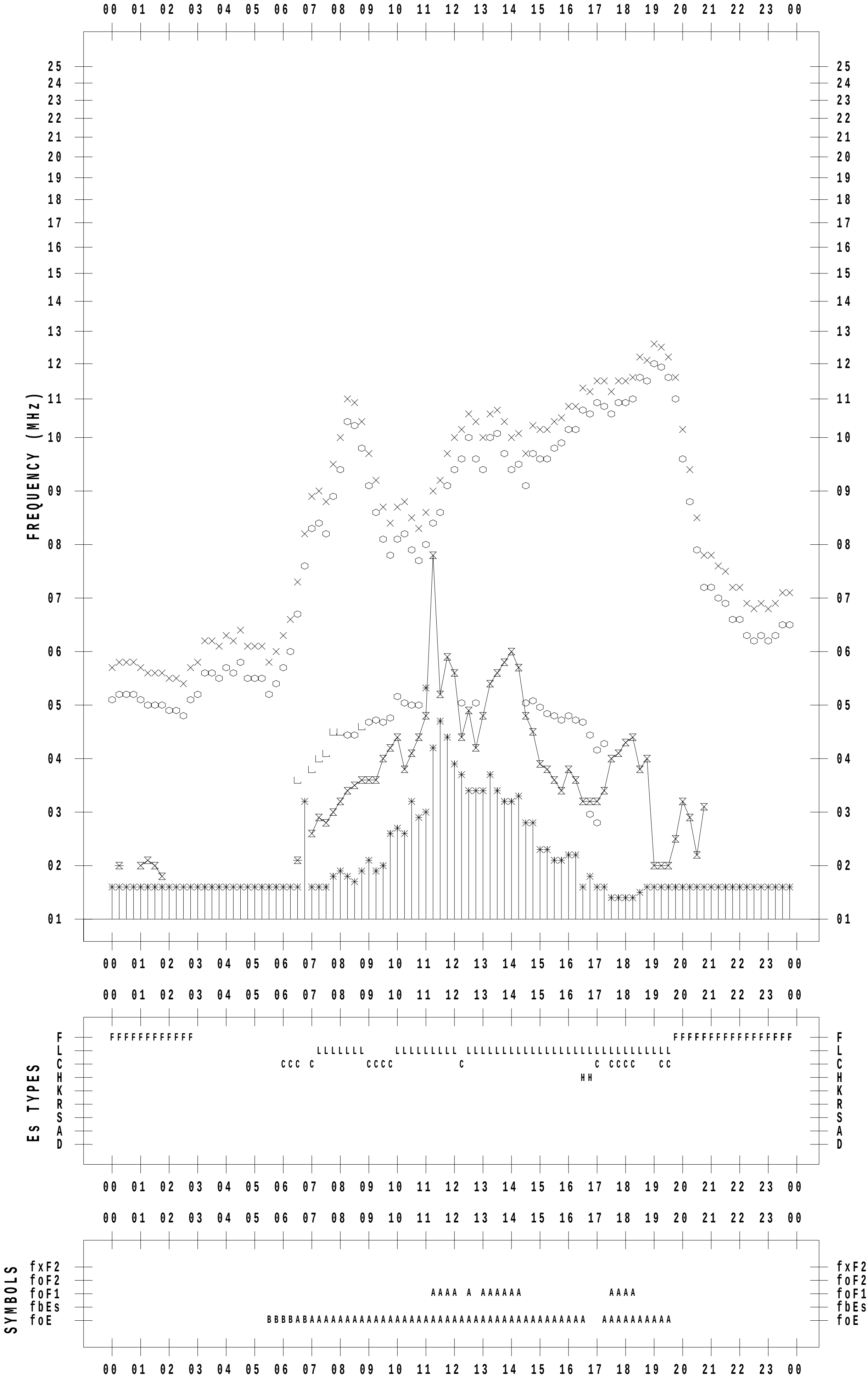
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/27

135 °E MEAN TIME



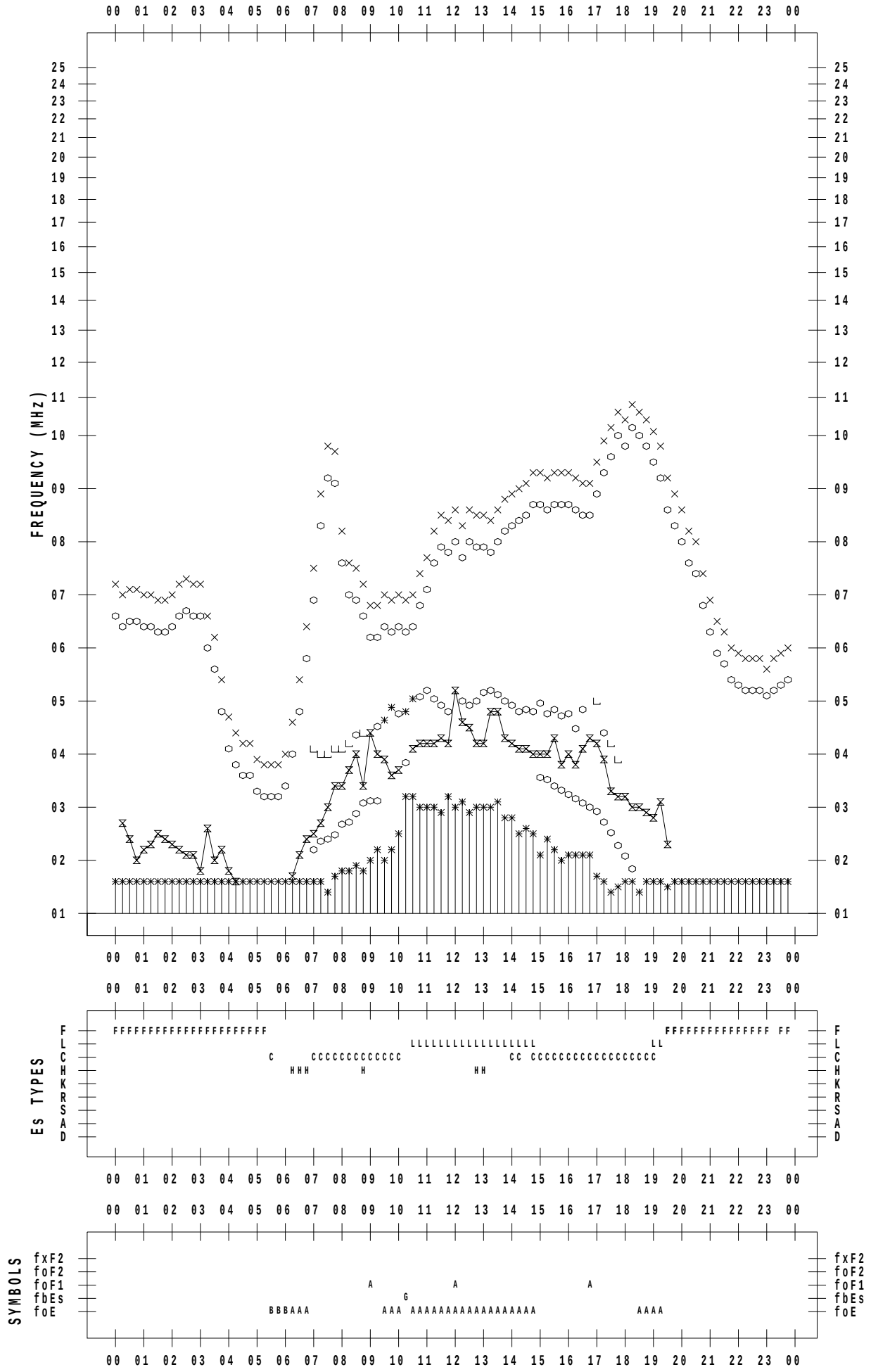
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/28

135 °E MEAN TIME



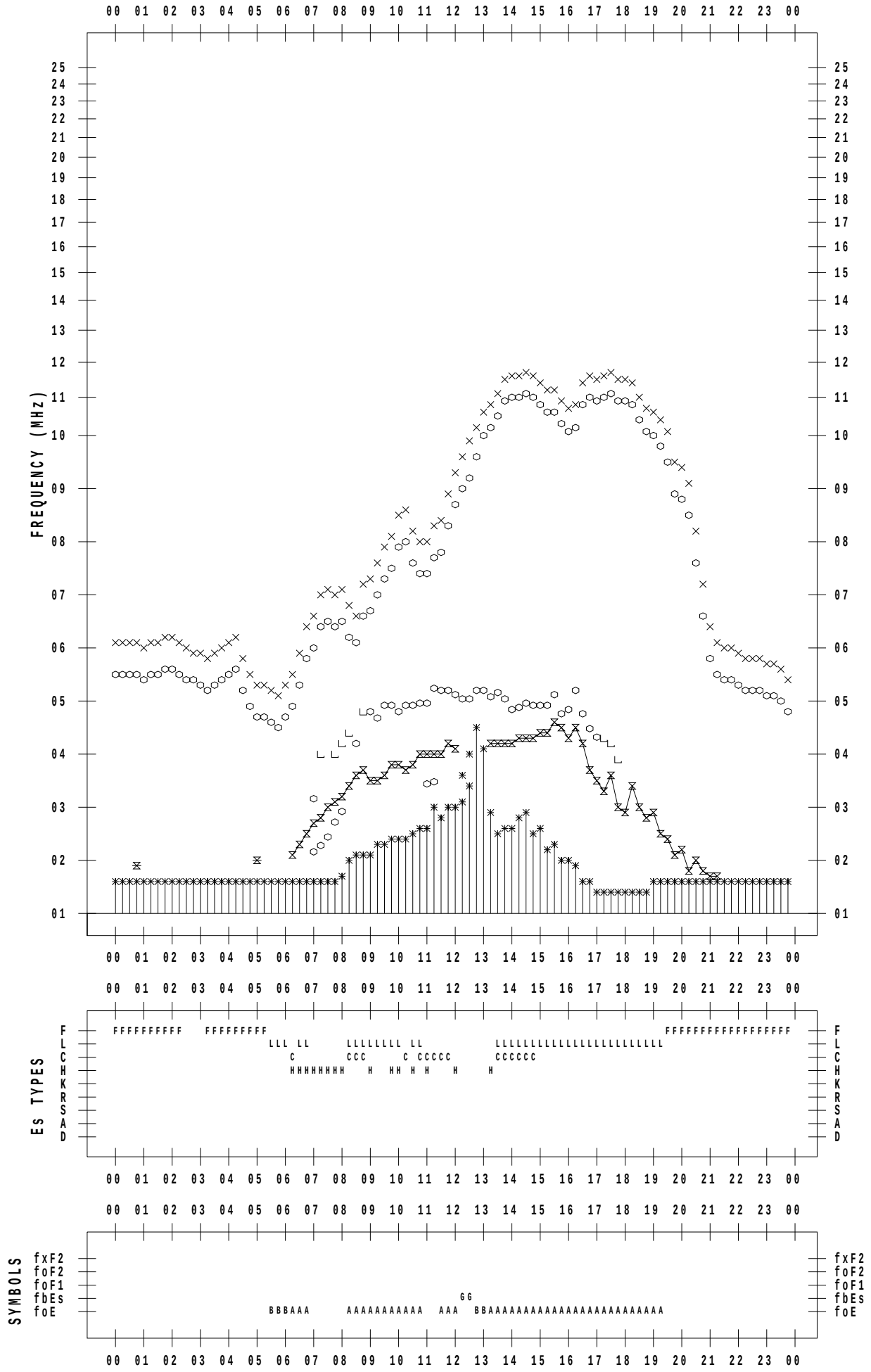
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/29

135 °E MEAN TIME



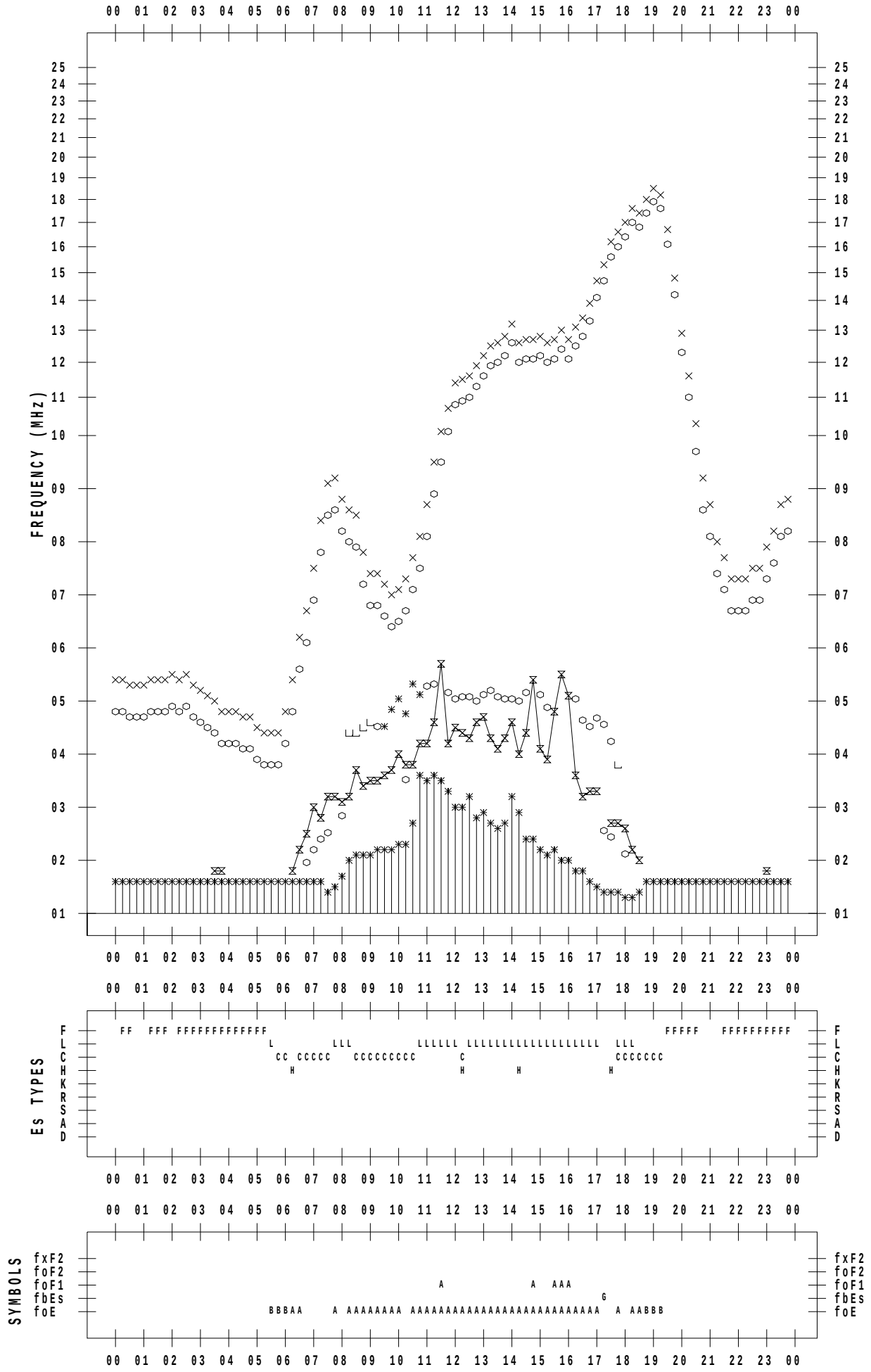
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2022/ 8/31

135 °E MEAN TIME