F-857

IONOSPHERIC DATA IN JAPAN

FOR May 2020
VOL. 72 NO. 5

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≪Real Time Ionograms on the Web ・・・・・・・・・・・・http://wdc.nict.go.jp/index_eng.html≫

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

This Series contains data on ionosphere (I) and solar radio emission (S) obtained at the following stations under the National Institute of Information and Communications Technology , Japan.

Stations	Geographic(WGS84)		Geomagnetic (IGRF-10(2005))		Technical Method
	Latitude	Longitude	Latitude	Longitude	
✳Wakkanai/Sarobetsu	45˚10'N	141˚45'E	36.4˚N	208.9˚	Vertical Sounding (I)
Kokubunji	35˚43'N	139˚29'E	26.8˚N	208.2˚	Vertical Sounding (I)
Yamagawa	31˚12'N	130˚37'E	21.7˚N	200.5˚	Vertical Sounding (I)
Okinawa	26˚41'N	128˚09'E	17.0˚N	198.6˚	Vertical Sounding (I)
Hiraiso	36˚22'N	140˚37'E	27.6˚N	209.1˚	Solar Radio Emission (S)

✳We moved the observation facilities at Wakkanai to Sarobetsu on February 2009. The new observatory is located at approximately 26km south from the old observatory. The observation at Sarobetsu commenced on March 6, 2009.

IONOSPHERE

Ionospheric observations are carried out at the above four stations in Japan by means of vertical sounding using ionosondes. The ionosonde produces ionograms, which are recorded digitally on a computer storage medium. The digitally-recorded ionograms are collected from each station by the central computer and reduced to numerical values and Summary Plots by the automatic processing system. The ionograms obtained at Kokubunji are manually scaled by experienced specialists to supplement automatically-scaled parameters.

A1. Automatic Scaling

Digital ionograms are automatically scaled by the pattern recognition method. The following five characteristics of the ionospheric are listed below. The reliability of these factors has been ascertained by comparison of the automatically-scaled parameters with the manually-scaled values of large amounts of test ionograms.

The published data consist of tabulations of hourly values of three factors (*foF2, fEs*, *fmin*) and monthly medians of two factors (*h'Es* ,*h'F*), daily Summary Plots and monthly medians plot of *foF2*.

a. Characteristics of Ionosphere

foF2	Ordinary wave critical frequency for the ***F2*** layer
fEs	Highest frequency of the ***Es*** layer whether it may be ordinary or extraordinary
fmin	Lowest frequency which shows vertical iono-spheric reflections
h'Es ***h'F***	Minimum virtual height on the ordinary wave for the ***Es*** and ***F*** layers, respectively

b. Descriptive Letters

The following descriptive letters are used in the tables.

A Impossible measurement because of the presence of a lower thin layer, for example *Es* (for *foF2*).

C Impossible measurement because of any failure in observation.

G Impossible automatic scaling because of very small ionization density of the layer (for *fEs*).

N Impossible automatic scaling because of complex echoes.

Blank No digital record because of problems occurring in the auto matic data processing system, but existence of film record.

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

Median count (**CNT**) is the number of numerical values from which the median has been computed. In addition to numerical values, the count may include a descriptive letter G.

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

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

If CNT is less than 10, there are blank spaces left.

d. Reliability of Automatic Scaling

The results of the comparison between automatically-scaled values and manually-scaled ones showed that hourly values of *foF2 , fEs* and *fmin* were scaled within a difference of 1 MHz from about 90, 90 and 99%, respectively of the test ionograms.

e. Summary Plot

Daily Summary Plots which are made from quarter-hourly digital ionograms are published to present general ionosphere conditions. The upper and middle parts of a Summary Plot show the diurnal variation of the frequency range of the echoes reflected from the *F* and *E* regions, respectively. The two solid arcing lines indicate the predicted values of *fxE* and *foE* calculated by the method described in the CCIR report 340. The lower part shows the diurnal variation of the virtual height where the echo traces become horizontal.

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

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

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

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

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

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

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

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

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

K Presence of particle *E* layer.

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

Q Range spread present.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

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

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

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

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

MAY 2020

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	38	37	37	36	35	42	41	47	53	49	52	52	51	52	56	59	53	51	51	64	64	56	42	39
2	A	A	36	33	30	35	37	A	A	A	A	A	A	42	A	41	45	A	49	53	55	43	36	37
3	A	36	35	31	31	A	A	47	A	45	50	51	A	49	52	43	53	53	51	48	52	49	40	38
4	35	35	37	34	34	43	A	48	51	49	55	52	50	52	47	55	54	52	51	56	53	51	44	38
5	38	37	35	34	32	48	45	48	49	50	A	A	A	47	47	51	60	57	A	67	64	58	52	39
6	34	34	36	36	33	39	52	61	56	58	A	47	A	52	46	55	59	A	A	59	65	55	48	43
7	36	37	37	39	41	41	44	52	52	A	50	56	A	49	47	46	48	49	50	60	64	57	53	42
8	41	40	39	37	34	A	45	A	A	51	52	50	45	A	49	48	54	51	51	54	57	55	51	43
9	38	37	41	39	37	41	42	A	47	A	54	55	52	A	51	51	A	44	43	51	54	52	54	43
10	37	37	36	34	34	47	40	A	A	51	47	A	A	53	45	43	48	46	42	51	56	52	53	50
11	42	40	39	35	33	39	44	48	A	A	A	56	57	A	A	46	49	48	51	51	55	56	56	50
12	38	35	A	35	35	47	A	49	A	A	51	46	51	51	47	52	A	45	50	52	55	55	46	41
13	A	35	39	37	38	41	48	A	49	47	A	A	51	A	A	48	53	A	A	50	A	54	A	A
14	46	39	38	37	32	39	42	A	56	N 50	48	45	51	44	49	48	79	80	45	A	66	A	A	A
15	41	41	37	36	35	37	43	52	47	A	59	A	A	A	44	A	A	55	55	51	A	A	A	A
16	40	39	45	46	39	39	57	82	A	A	A	51	A	A	A	53	A	53	44	A	55	56	54	51
17	51	45	39	37	34	42	38	A	A	A	60	A	45	A	A	49	A	A	59	66	69	66	55	43
18	39	35	35	35	35	45	46	58	53	A	A	A	A	48	A	59	87	39	67	59	67	53	46	37
19	36	35	38	41	41	42	A	A	A	A	A	A	A	A	50	51	A	48	51	61	68	73	53	A
20	39	37	41	42	37	A	50	52	A	51	47	A	A	A	49	47	51	54	91	91	A	48	A	A
21	A	37	A	A	A	A	A	81	49	A	57	A	51	51	50	50	45	51	A	A	67	A	49	A
22	A	33	31	32	35	A	45	47	49	A	A	N 45	A	A	A	A	A	39	87	A	A	A	A	A
23	A	A	A	A	A	39	46	A	A	52	38	47	A	A	48	A	106	100	39	57	59	57	58	54
24	43	37	36	37	36	45	55	A	47	A	A	A	52	52	A	45	A	A	47	55	61	60	58	58
25	53	51	55	53	55	54	A	53	49	50	A	54	A	57	56	51	54	A	A	63	71	54	68	66
26	57	61	62	59	52	56	51	A	49	A	A	A	A	A	A	43	A	A	54	64	53	57	53	53
27	47	49	52	49	43	44	45	48	A	A	A	A	A	A	A	A	47	51	45	A	55	A	54	55
28	43	41	43	39	38	44	43	49	58	51	A	A	A	A	A	A	A	A	A	64	63	A	A	A
29	39	37	40	41	38	44	A	52	A	49	A	46	49	57	50	43	39	A	49	48	49	55	50	53
30	54	39	37	A	A	44	51	A	48	A	50	47	A	A	46	41	43	A	51	55	68	65	44	50
31	48	43	41	40	36	39	39	A	A	42	51	50	A	A	51	45	55	73	48	51	58	57	55	49
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	29	28	28	28	26	24	18	17	15	16	17	12	15	20	26	21	21	25	26	27	25	25	23
MED	40	37	38	37	35	42	45	50	49	50	51	50	51	51	49	48	53	51	51	56	59	55	53	43
U Q	46	40	41	40	38	45	49	53	53	51	54	53	51	52	50	51	57	54	52	63	66	57	54	53
L Q	38	35	36	35	34	39	42	48	48	49	49	46	49	48	47	45	47	47	46	51	55	52	46	39

HOURLY VALUES OF fEs AT Wakkanai

MAY 2020

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	29	59	39	37	G	G	128	47	144	G	41	39	54	41	33	24	G	G	83
2	60	49	32	29	27	32	46	50	45	49	45	50	63	51	46	G	43	41	36	41	34	43	24	38
3	59	40	32	G	G	32	59	75	77	154	43	50	96	40	69	G	G	40	43	36	49	G	29	G
4	29	28	29	32	34	30	39	110	40	42	42	45	44	45	40	G	36	36	G	G	G	G	26	24
5	G	24	G	G	G	29	34	108	G	46	85	56	59	48	48	46	42	38	58	46	G	G	11	G
6	G	G	G	G	G	28	35	40	43	42	62	G	50	57	45	46	50	66	63	35	57	59	31	29
7	32	28	25	G	158	28	32	70	40	126	41	G	47			47	43	40	37	36	44	70	24	G
8	27	31	31	32	31	43	178	43	66	50	G	G	42	41	40	44	51	46	40	G	28	34	35	34
9	28	G	G	G	29	32	38	46	46	56	48	75	53	159	G	43	50	47	38	29	34	41	G	G
10	G	G	G	G	G	34	40	45	49	G	41	41	41	G	38	G	38	43	43	28	29	34	G	G
11	G	G	G	G	G	29	36	45	105	56	59	53	56	45	55	G	38	36	36	34	G	G	G	25
12	G	55	43	28	G	33	48	47	57	64	49	56	86	110	49	48	52	46	40	40	57	24	25	37
13	152	35	31	28	G	32	43	59	52	71	52	53	G	62	54	43	49	64	65		70	34	70	92
14	46	41	35	32	G	34	108	47	51	108	88	G	43		148	70	79	85	113	92	41	110	71	59
15	35	32	28	G	G	92	39	49	85	112	74	90	70	60	G	58	59		61	39	55	71	60	91
16	45	G	57	40	32	31	60	88	64	58	64	54	60	66	50	58	54	36	48	66	29	40	37	28
17	32	31	26	26	G	37	104	90	66	65	57	57	75	44	40	38	60	57	58	46	24	G	G	G
18	32	G	G	25	G	35	161	50	83	78	69	92	93	G	81	72	117		103	40	34	71	70	G
19	33	31	G	G	159	117	147	108	65	64	54	142	60	63		48	53	62	50	110	60	53	47	59
20	28	G	G		108	42	91	48	59	60	92	77	92	51	50	64	40	41	91		74	91	109	60
21	59	34	61	93	72	50	72	114	92	60	46	60	43	136	50	61	71		80	81	105	108	60	92
22	56	27	57	32	37	74	52	76	153	107	90	145	72	56	90	104	104	60	84	159	170	111	114	151
23	113	89	88	60	39	36	60	70	112	69			103	63		131					43	35	39	34
24	36	30	28	29	60	54	57	65	56	145	126	71	G	G	74	71	63	74	91	32	39	30	56	38
25	25	29	25	24	32	31	47	81	94	102	83	69	46	142	42	47	54	50	52	53	45	49	31	39
26	32	27	30	35	26	34	47	64	64	152	60	66	47	45	41	40	51	52	49	72	58	24	49	G
27	G	G	28	G	G	33	45	60	60	95	59	66	84	80	71	59	37	38	33	49	41	57	41	39
28	G	46	34	36	31	35	G	174	48	50	93	115	98	54	62	55	84	60	82	84	33	73	112	91
29	38	G		G	38	41	70	71	80		110	158	110	118		109	78	115	91	38	67	58	41	40
30	38	58	39	46	39	126	54	164	66	80	53	71	94	70	60	47	48	55	48	71	60	47	G	G
31	34	34	G		G	32	40	58	53	48	G	G	50	49	40	43	70	129		39	34	39	32	41
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	29	31	31	31	31	31	30	30	30	31	29	27	31	30	27	29	28	31	31	31	31
MED	32	29	28	26	27	34	48	64	60	64	58	58	59	56	49	47	51	50	50	40	41	41	35	37
U Q	45	35	34	32	38	42	70	88	80	102	83	77	86	75	62	61	63	62	81	68	58	70	60	59
L Q	G	G	G	G	G	31	39	47	48	50	45	50	46	45	40	41	42	40	40	34	29	24	24	G

HOURLY VALUES OF fmin AT Wakkanai

MAY 2020

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	14	14	16	14	15	15	16	15	15	15	15	14	14	14	14	16	13	13	15	15	15	16	16
2	16	17	16	16	16	15	13	13	15	14	14	15	15	14	15	15	15	14	17	14	16	16	16	15
3	17	16	15	16	14	16	14	9	15	14	15	14	17	17	14	16	17	13	15	15	14	15	16	16
4	16	16	16	15	16	15	14	15	15	15	15	17	15	15	15	14	14	14	15	17	17	15	15	16
5	16	16	15	15	16	15	16	5	14	14	18	13	13	15	16	15	14	14	15	15	15	14	14	14
6	14	14	14	14	15	15	15	15	14	14	13	16	17	15	15	15	14	13	13	16	15	15	16	15
7	16	16	16	15	16	15	14	13	14	15	15	15	15	14	16	15	14	15	14	14	14	14	16	14
8	15	16	16	17	15	15	15	15	13	13	15	15	15	15	16	15	14	15	14	15	15	15	14	16
9	16	14	15	16	15	16	14	15	14	14	14	15	16	15	17	15	15	12	14	15	16	14	15	14
10	15	14	16	14	14	16	14	13	14	15	14	14	17	17	14	15	15	13	14	14	15	15	14	14
11	14	16	15	15	14	16	15	13	15	13	14	14	14	15	13	15	15	16	15	15	14	15	14	16
12	16	16	17	15	14	15	15	14	13	13	15	15	15	17	16	14	13	13	15	15	16	16	15	15
13	15	15	16	15	15	15	15	14	13	15	13	14	17	15	14	15	14	14	14	15	15	14	16	14
14	15	15	16	17	15	16	14	13	13	13	14	17	15	15	16	13	15	13	7	16	15	13	16	16
15	15	16	16	16	15	15	17	14	16	16	15	12	16	17	17	15	14	15	14	13	15	15	15	14
16	16	16	17	14	16	15	14	13	14	13	16	14	17	14	15	15	14	12	13	14	15	15	15	15
17	15	16	16	16	14	15	16	14	13	13	15	15	14	15	15	14	15	13	14	15	16	14	14	17
18	16	15	14	16	14	16	10	13	14	13	12	15	16	20	13	17	17	11	17	15	16	16	16	16
19	16	15	16	16	17	16	10	17	15	15	14	15	14	13	15	15	15	15	15	13	15	15	15	15
20	15	16	15	15	16	14	13	14	13	14	16	16	14	14	14	14	14	14	14	14	15	17	17	15
21	16	16	15	16	16	14	12	12	15	15	16	17	21	15	16	14	13	15	14	14	15	13	16	5
22	16	16	16	16	16	14	13	12	9	15	14	16	17	13	16	9	8	14	15	16	6	13	14	5
23	5	15	15	17	16	15	14	13	13	15	15	14	16	15	16	100	12	5	45	7	15	14	16	15
24	15	16	16	16	15	14	13	14	13	15	15	15	15	17	15	13	15	13	14	16	14	16	15	15
25	15	16	15	16	16	15	15	12	15	13	13	14	17	14	16	15	14	14	15	14	14	14	16	15
26	15	15	16	15	15	15	13	13	14	13	14	13	15	15	15	15	14	14	14	15	16	17	15	16
27	16	16	16	16	14	15	15	14	13	15	16	17	15	14	15	16	14	14	16	15	15	15	15	15
28	16	16	15	15	14	16	16	14	15	13	17	15	15	16	15	15	13	14	13	14	14	15	15	14
29	15	17	15	15	15	15	13	12	16	15	17	6	15	12	15	15	15	10	13	14	15	16	15	15
30	16	16	15	15	15	11	14	13	14	14	14	16	17	17	14	15	17	15	13	16	15	15	14	15
31	15	15	16		14	16	13	13	14	15	15	16	17	16	16	15	14	16	13	15	15	15	16	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	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	15	15	14	13	14	14	15	15	15	15	15	15	14	14	14	15	15	15	15	15
U Q	16	16	16	16	16	16	15	14	15	15	15	16	17	16	16	15	15	15	15	15	15	15	16	16
L Q	15	15	15	15	14	15	13	13	13	13	14	14	15	14	14	14	14	13	13	14	15	14	15	14

HOURLY VALUES OF foF2 AT Kokubunji

MAY 2020

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	39	36	32	33	31	37	54	55	52	50	49	49	53	55	63	71	73	67	60	A	57	44	41	A
2	A	37	37	36	31	33	A	A	A	A	A	51	A	52	A	52	55	A	A	65	A	A	A	A
3	A	A	A	A	A	36	A	48	A	A	A	69	N 49	A	A	47	55	66	A	63	62	43	A	A
4	36	33	34	31	25	33	47	53	A	85	46	A	56	60	62	62	75	77	74	66	51	42	41	36
5	33	33	33	30	26	35	45	60	55	52	52	51	A	44	55	A	57	58	A	71	72	61	36	32
6	33	32	31	A	25	A	49	53	78	54	A	A	A	A	61	58	49	101	39	A	70	A	48	A
7	39	38	A	34	31	35	45	53	54	61	A	A	A	A	51	A	A	A	A	A	75	65	34	34
8	A	34	33	30	32	38	47	A	A	A	45	A	51	A	50	46	56	A	51	63	A	51	47	42
9	A	A	31	32	31	35	41	A	53	A	A	A	63	A	53	51	46	A	47	55	A	52	43	38
10	36	35	33	31	30	33	41	51	A	A	A	A	47	50	51	51	46	47	44	53	56	53	44	40
11	37	35	31	26	27	38	42	A	A	A	51	53	56	59	61	71	60	59	50	58	57	51	48	37
12	30	A	31	31	30	34	43	55	A	A	A	A	45	44	A	54	49	A	52	66	72	43	A	32
13	A	A	31	A	A	35	41	A	37	75	49	47	46	51	48	62	61	57	48	51	59	54	A	A
14	A	A	A	A	32	33	49	A	37	52	A	A	A	A	A	A	50	52	55	58	73	52	53	40
15	38	36	34	32	31	37	50	45	53	49	A	A	67	A	A	A	54	A	54	57	55	47	98	A
16	A	35	A	A	A	39	A	A	93	77	59	75	N 36	A	A	53	73	A	65	A	A	A	A	42
17	36	A	35	33	31	40	44	A	A	A	49	A	48	46	53	63	63	53	A	A	55	59	57	A
18	A	A	A	A	A	A	A	A	37	72	46	A	50	57	47	51	50	56	52	A	59	51	41	A
19	40	A	33	32	30	A	49	53	51	A	A	A	A	A	43	50	53	45	47	63	A	59	A	A
20	A	A	A	32	33	46	51	51	53	46	73	49	48	52	55	55	A	57	69	56	56	A	40	37
21	37	36	34	A	28	33	43	A	51	46		48	A	73	A	A	A	101	56	A	70	55	43	40
22	A	A	A	A	A	A	44	76	79	61	N 71	51	A	A	57	49	A	44	46	57	53	A	46	41
23	32	A	33	30	A	35	A	A	59	74	37	78	A	A	55	61	52	47	50	51	55	59	58	57
24	A	37	34	32	31	41	49	58	47	A	A	A	A	A	A	51	53	A	A	A	59	58	A	A
25	34	A	A	A	37	34	A	A	38	A	49	48	A	A	A	67	57	74	74	51	64	A	53	A
26	A	40	A	42	47	41	49	63	A	A	50	48	60	67	71	A	37	A	49	A	57	53	A	A
27	49	A	A	34	A	46	48	A	57	59	52	A	47	49	A	48	47	37	A	A	48	A	A	41
28	34	32	31	32	30	34	49	49	51	55	45	A	A	50	A	48	A	47	45	54	58	A	A	A
29	A	A	A	A	25	45	A	45	48	36	49	49	47	A	A	51	55	A	A	A	A	46	A	A
30	A	A	A	A	32	39	A	A	A	70	A	N 47		A	A	53	56	56	51	61	61	52	52	56
31	A	A	A	A	A	29	49	49	53	83	53	49	A	A	A	56	53	53	49	55	A	48	45	43
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	15	18	19	23	27	23	17	21	19	18	16	17	15	17	25	26	21	23	20	24	23	20	17
MED	36	35	33	32	31	35	47	53	53	59	49	49	49	52	55	53	54	56	51	58	58	52	46	40
U Q	38	37	34	33	32	39	49	56	56	74	52	52	56	59	61	61	57	66	56	63	67	58	52	42
L Q	33	33	31	31	28	34	43	49	47	50	46	48	47	49	50	50	50	47	47	54	55	47	41	36

HOURLY VALUES OF fEs AT Kokubunji

MAY 2020

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	36	34	G	50	G	G	G	G	G	G	38	G	45	107	G	G	34	33
2	40	G	26	28	G	28	38	51	59	82	77	41	57	50	92	40	53	92	95	56	45	83	59	82
3	71	59	53	38	54	26	55	49	87	60	70	126	76	61	102	104	87	63	108	53	40	28	52	46
4	40	24	26	G	G	G	42	57	57	116	53	71	G	57	46	47	61	57	83	103	G	28	G	G
5	G	G	G	38	26	G	35	40	45	43	G	G	52	G	47	95	110	82	136	71	40	27	G	G
6	G	G	G	53	26	40	126	54	57	92	77	54	55	60	57	56	75	106	94	71	70	92	38	55
7	39	31	38	33	28	35	39	57	52	70	75	67	52	96	49	68	74	71	67	81	25	30	G	40
8	38	G	G	32	32	G	37	45	69	58	57	75	53	92	G	73		71	48	32	70	87	57	G
9	34	33	26	G	G	G	35	53	56	61	58	94	95	83	G	39	47	82	55	49	78	25	32	40
10	24	G	G	G	G	32	43	60	64	66	87	61	G	G	G	G	G	G	40	36	34	41	50	25
11	G	G	G	G	G	29	43	56	64	80	G	G	G	G	G	G	G	51	50	45	55	55	34	26
12	G	45	39	G	G	26	34	47	73	63	92	63		G	57	G	45	54	45	43	48	26	44	33
13	45	37	28	35	33	34	40	59	84	124		168		76	102	40	64	103	40	72	43	60	60	105
14	71	80	94	59	G	28	48	155	150	57	94	72	103	49	56	101	84	172		127	110	60	60	G
15	36	34	32	27	G		33	40	63	102	124	63	96	80	107	137		110	115	51	59	113	116	70
16	108	70	60	45	36	G	52	66	97	80	84	86	64	57	64	61	152	151		106	92	58	57	60
17	56	69	24	29	27	31	50	71	60	63	69	87	74	127	93		62		116	92	167	55	56	53
18	91	59	59	70	42	38	60	59	102	119	101	70		118		G	45	52	33	112	48	57	47	48
19	45	69	39	40	37	39	38	45	56	46	57	53	52	53	G	G	G	G	29	45	91	57	59	80
20	54	34	55	G	G	28	48	40	64	154	135	115	174	93	G	87	64			35	40	49	39	60
21	33	31	40	48	G	26	39	72	70	92		112	139	80	94	103	76	90	80	90	59	56	40	36
22	40	56	70	73	49	60		92		116	94	146	111	89		39	41	35	48	52	69	93	49	40
23	59	41	30	G	34	28	41	60	78	84	143	98	134	65	G	G	43	36	36	49	50	34	34	
24	59	39	32	G	G	32	42	81	84	95	47	61	105	101	52	38	50	55	77	69	40	50	71	71
25	34	55	53	50	31	27	112	85	106	72		81	127	87	107	61	50	84		78	124	170	54	60
26	55	45	59	40	25	29	42	50	61	63	94	70	112	87		156	126	88	144	111	46	46	59	107
27	72	92	69	34	57	50	37	47	92	58	52	60	60		128	106	95		91	48	47	82	57	109
28	55	G	G	G	G	28	37	42	46	49		41	52	G	64	G	55	72	50	34	59	89	92	81
29	57	50	33	29	38	45	49	41	73	164		74	180	100	103	43	77	78	58	91	134		148	92
30	57	72	127	59	26	28	53	60	109		87	156		55	56	57	48	52	37	46	144	33	49	40
31	80	110	140	65	69	48	69	47	69			112	82	165	103	48	G	39	38	39	59	43	41	49
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	30	31	30	29	25	31	27	30	28	30	29	28	27	31	31	30	31	30
MED	45	39	33	33	26	28	42	54	66	72	77	71	74	70	56	48	55	71	55	56	55	55	50	48
U Q	59	59	59	48	36	35	50	60	84	98	94	98	111	92	98	87	76	89	94	91	78	82	59	71
L Q	34	G	24	G	G	26	37	45	57	59	55	60	52	50	G	G	44	51	40	45	40	33	38	33

HOURLY VALUES OF fmin AT Kokubunji

MAY 2020

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	16	15	18	17	14	17	19	16	44	17	17	17	22	15	15	14	15	16	24	16	16
2	15	15	15	15	16	14	17	14	16	15	17	31	20	22	15	16	15	15	13	16	15	15	16	15
3	16	15	15	15	15	16	15	18	20	20	18	23	24	21	18	17	19	17	17	15	14	16	15	15
4	15	16	16	15	20	18	15	16	19	19	17	23	20	22	15	15	19	15	15	15	17	15	20	14
5	14	16	15	15	16	15	16	15	15	17	16	44	20	17	17	10	17	14	11	14	15	15	15	17
6	13	14	14	15	16	13	19	13	13	15	18	15	23	19	19	16	16	16	15	14	15	15	15	15
7	15	16	15	16	16	16	14	15	14	15	17	19	22	18	22	15	13	16	15	14	15	15	15	15
8	15	14	15	15	15	15	14	16	20	15	20	21	21	22	17	13	16	18	14	15	15	13	15	17
9	17	15	16	16	14	15	17	15	17	18	22	14	33	15	19	42	16	15	15	14	15	16	16	15
10	16	14	14	14	15	15	15	15	17	17	17	17	16	17	17	17	16	16	14	14	15	15	14	16
11	14	14	15	17	15	15	17	15	15	16	43	17	19	43	17	17	15	17	15	15	15	15	16	15
12	16	15	17	14	16	15	17	17	15	17	19	21		22	21	22	19	14	14	14	15	15	15	15
13	15	15	15	15	15	15	15	13	16	19	15	9	21	21	22	20	19	14	14	15	15	15	15	20
14	17	15	13	16	15	15	15	47	15	20	18	23	23	23	17	19	15	15	17	7	8	15	16	15
15	15	15	16	15	15	15	17	15	18	16	17	17	19	23	14	25	15	15	13	15	15	14	14	15
16	16	15	14	15	15	16	16	14	13	16	17	19	16	18	19	15	21	7	5	15	13	17	15	16
17	15	15	15	15	15	16	15	15	17	21	19	16	23	21	19	18	17	74	65	15	123	15	15	16
18	14	15	15	16	15	15	15	15	16	15	18	19		19	16	17	19	15	16	17	14	15	15	15
19	16	14	15	14	15	15	14	14	17	16	19	18	21	20	17	16	16	15	15	15	15	15	16	15
20	16	15	15	16	15	15	13	15	15	11	12	16	15	18	17	19	14	15	16	16	16	15	15	15
21	15	16	15	15	16	15	17	14	16	20		18	15	15	20	15	17	14	14	14	14	15	15	14
22	14	15	16	16	15	15	15	14	17	19	17	18	23	19	20	16	15	17	14	15	15	15	14	15
23	15	15	16	15	16	15	15	15	16	16	7	20	23	19	43	17	17	15	15	14	16	15	15	15
24	16	16	15	16	16	15	15	18	14	15	17	17	17	15	17	15	15	13	14	14	15	14	15	17
25	16	15	14	15	15	16	15	14	16	17	17	18	17	21	19	16	15	13	13	14	13	5	14	15
26	15	15	15	15	15	16	15	14	15	19	18	20	16	17	20	52	9	13	5	13	15	15	14	17
27	17	12	16	15	15	15	15	15	17	15	18	18	19	15	23	16	12	16	14	15	15	15	15	15
28	15	15	14	15	14	15	17	17	18	17		16	21	18	18	17	15	15	14	16	15	16	15	16
29	15	16	15	15	16	15	15	15	17	35	17	17	15	20	20	20	16	15	14	13	11	13	15	11
30	15	14	5	15	15	15	15	15	12	18	20	17		17	19	18	17	15	14	15	13	16	14	15
31	15	14	5	16	15	13	15	15	16	15	20	20	18	15	16	15	16	14	13	14	15	15	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	29	31	28	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	15	16	17	17	18	20	19	18	17	16	15	14	15	15	15	15	15
U Q	16	15	15	16	16	16	17	15	17	19	19	21	22	21	20	19	17	16	15	15	15	15	15	16
L Q	15	14	14	15	15	15	15	14	15	15	17	17	17	17	17	15	15	14	14	14	14	15	15	15

HOURLY VALUES OF foF2 AT Yamagawa

MAY 2020

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	35	33	33	33	33	31	44	59	61	55	49	55	59	66	72	77	79	79	68	57	70	A	A	A
2	37	34	31	31	N 26	N 25	44	64	56	A	A	A	A	59	60	67	77	68	37	A	A	A	A	A
3	36	A	A	33	31	26	47	53	A	54	A	53	56	66	A	73	79	82	48	57	57	49	A	A
4	A	39	A	35	N 24	N 25	41	53	A	A	A	A	A	69	73	77	A	91	81	71	62	51	46	43
5	39	39	38	33	33	31	43	57	71	61	A	A	A	63	73	67	74	68	72	73	76	59	A	A
6	37	A	A	A	A	27	43	48	71	73	48	49	54	65	67	A	73	74	76	A	71	56	38	A
7	A	34	35	35	33	33	44	56	70	A	63	48	45	47	62	67	A	A	53	75	92	56	B 32	33
8	34	33	35	33	31	30	46	50	54	55	55	50	A	69	66	61	61	48	44	A	71	55	37	A
9	A	A	A	31	32	A	47	57	49	A	A	A	63	67	73	70	63	A	A	A	66	A	A	45
10	41	37	A	34	31	30	45	47	50	A	55	A	A	A	A	55	59	A	49	A	70	58	A	A
11	38	A	33	A	31	A	48	A	A	45	47	A	A	38	A	90	76	64	A	A	57	55	A	43
12	47	A	35	33	A	A	47	58	N 49	55	52	55	A	A	A	54	65	74	85	85	75	45	A	42
13	A	A	A	A	A	33	44	53	53	55	51	A	A	A	58	67	66	A	A	59	67	57	A	39
14	A	39	35	37	34	31	45	56	60	58	53	A	52	61	56	59	A	65	70	A	A	A	A	A
15	A	A	A	39	A	34	45	53	55	A	A	47	N 37	N 47	62	67	A	63	58	57	55	46	A	A
16	A	A	A	A	A	33	42	55	A	46	A	48	50	A	A	A	67	75	81	86	A	57	A	A
17	A	A	A	36	A	A	49	54	A	A	A	A	A	A	66	A	A	A	A	A	A	56	A	53
18	A	A	A	A	A	A	44	51	45	A	A	A	110	A	46	47	A	57	50	54	64	A	A	A
19	52	A	A	38	A	A	48	A	50	47	47	A	51	A	57	56	59	63	A	A	86	71	A	A
20	A	A	A	34	A	A	47	52	50	55	61	52	53	59	66	73	A	53	60	67	54	54	45	46
21	44	41	38	35	33	A	45	48	54	A	50	46	50	A	A	A	A	52	49	69	63	A	A	A
22	A	A	A	40	33	A	A	52	A	A	53	45	A	A	52	A	A	A	A	59	59	57	A	51
23	44	A	36	A	37	34	37	55	67	46	48	A	53	55	61	66	55	51	50	53	57	58	55	47
24	A	A	45	43	33	31	45	A	59	49	A	A	A	A	56	61	58	56	57	57	62	A	58	A
25	A	A	A	44	A	27	A	52	A	A	48	A	A	A	A	73	A	A	A	A	71	57	A	A
26	A	A	A	A	A	36	47	51	54	48	49	50	47	A	52	61	60	59	59	62	58	A	51	A
27	54	45	37	A	34	A	A	A	55	53	A	A	45	A	69	76	68	39	A	A	50	A	45	A
28	32	A	A	32	32	32	44	52	64	A	A	45	50	A	A	55	62	A	55	36	A	A	A	39
29	35	A	A	A	A	A	A	A	55	56	N 53	A	79	A	44	N 37	67	64	A	50	53	A	A	A
30	A	A	A	A	A	A	38	A	75	A	A	A	A	A	N 48	A	76	77	37	37	62	69	A	45
31	52	53	53	46	A	A	46	51	A	57	47	52	A	70	67	72	61	66	68	70	54	48	40	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	16	11	13	21	17	18	27	25	23	18	18	14	17	15	23	25	21	23	22	20	26	20	10	12
MED	38	39	35	35	33	31	45	53	55	55	50	50	52	63	62	67	66	64	58	59	62	56	45	44
U Q	45	41	38	38	33	33	47	56	64	56	53	52	57	67	67	73	75	74	70	70	71	57	51	46
L Q	35	34	34	33	31	27	44	51	50	48	48	47	48	55	56	57	60	56	49	55	57	52	38	40

HOURLY VALUES OF fEs AT Yamagawa

MAY 2020

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	G	G	G	G	G	G	32	35	42	48	48	49	G	G	48	G	50	59	48	34	52	67	48	49
2	28	G	G	G	G	G	33	52	47	54	84	73	63	54	56	53	53	62	82	108	50	90	111	26
3	28	45	58	26	G	G	32	58	59	50	74	45	48	53	70	64	65	54	92	72	34	35	109	84
4	79	40	41	44	104	G	36	41	60	50	54	68	67	63	52	159	146	88	70	59	45	34	35	G
5	38	G	G	G	G	G	33	163	41	49	67	63	60	46	41	43	48	77	42	66	58	59	45	41
6	G	60	59	51	38	G	30	34	54	92	78	89	115	48	48	60	59	72	59	84	107	57	28	108
7	92	28	26		G	G	35	50	60	70	83		144	128	53	63	81	78	91	115	35	55	B	G
8	25	G	G	G		G	30	40	44	51	50	56	93	64	53	52	60	66	74	69	51	35	11	35
9	93	92	55	G	30	35	148	50	111	72	57	74	57	48	G	45	42	61	60	84	56	46	57	G
10	G	G	107	25	G	G	36	41	51	57	68	61	102	62	86	108	45	78	69	57	58	37	58	35
11	28	40	48	28	29	38	33	58	66		89	42	108	78	145	70	50	53	65	74	59	40	65	41
12	47	54	48	41	39	36	29	50	89	52	50	55	67	48	53	44	40	48	81	37	104	50	60	38
13	57	59	58	116	46	38	43	44	40	38	46	55	54	66	54	60	126	164	116	41	81	107	69	31
14	59	G	G	G	46	G	34	49	56	56	63	62	G	48	49	56	60	51	78	60	116	58	73	112
15	112	106	112	43	53	39	56	64	57	83	115	102	163	135	70	50	69	55	56	57	45	72	79	144
16	110	57	46	66	31	112	30	48	72	108	128	88	116	105	132	111	87	52	64	90	91	70	60	59
17	58	56	56	34	46	53	40	56	118	128	146	115	81	149	55	115	154	151	138	175	146	58	128	70
18	54	55	47	66	49	59	37	47	78	112	131	128	102	66	135		75	87	71	28	40	72	54	49
19	41	49	60	35	60	59	32	55	59	95	168	90	76	59	46	G	G	46	62	115	58	49	57	40
20	46	54	40	29	35	31	33	35	41	48	41	115	G	53	51	G	75	50	41	46	30	34	G	G
21	25	40	35	28	G	35	35	46	49	66	82	69	94	85	100	43	47	61	151	N	113	148	113	59
22	92	48	43	35	57	56	60	47	71	134	46	134	107	128	90	69	113	90	91	60	70	161	58	40
23	39	73	60	46	48	G	114	43	49	136		92	48	51	G	45	50	40	53	60	45	25	44	83
24	44	58	33	G	G	G	43	56	83	107	131	115	96	76	52	50	43	G	42	43	55	92	37	57
25	72	56	73	56	41	G	49	45	60	92	77	116	88	65	71	63	111	92	69	60	72	50	111	112
26	58	71	45	56	56	33	31	41	50	66	49	60	66	103	41	G	83	62	70	27	G	60	43	85
27	52	40	46	40	G	43	42	56	55	54	74	71	84	116	G	41	50	136	80	59	36	70	70	60
28	49	66	57	G	G	G	30	38	47	55	75	48	48	60	109	92	77	82	110	114	156	111	107	33
29	32	48	41	58	40	38	50	59	50	56	110	86	107	154		137	145	45	65	32	24	89	84	113
30	127	82	106	72	93	72	31	56	60	84	109	48	77	62	129	83	71	108	112	76	52	70	69	46
31	24	41	40	29	85	41	41	59	57	50	77	92	95	129	109	48	G	36	52	32	33	33	31	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	30	30	31	31	31	31	30	30	30	31	31	30	30	31	31	31	30	31	31	30	31
MED	47	49	46	34	38	33	35	49	57	62	76	72	81	64	54	54	60	62	70	60	55	58	59	49
U Q	72	59	58	51	49	41	43	56	66	92	109	92	102	105	90	70	83	87	91	84	81	72	79	83
L Q	28	40	35	G	G	G	32	41	49	51	54	56	57	53	48	44	48	51	59	43	40	40	44	35

HOURLY VALUES OF fmin AT Yamagawa

MAY 2020

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	18	14	14	15	16	17	15	16	19	15	21	17	18	17	15	15	15	16	16	16	15	16
2	16	14	14	15	14	14	16	15	14	14	16	15	18	18	18	17	18	16	14	13	15	14	15	15
3	16	16	16	16	18	15	16	14	15	16	14	17	18	19	15	17	16	13	17	15	15	15	16	16
4	15	15	15	15	16	14	16	15	16	17	17	19	20	19	17	13	11	15	13	15	15	15	15	16
5	14	15	15	15	15	16	15	15	15	15	16	19	19	18	18	17	17	14	14	15	15	15	15	15
6	16	15	16	14	15	15	15	16	14	16	16	18	17	16	21	18	15	15	15	13	15	14	16	15
7	15	16	16	15	15	15	16	14	13	15	16	5	17	18	19	17	16	14	14	13	15	15	B 16	17
8	16	15	16	14	15	15	15	14	15	13	19	17	19	17	18	17	17	15	16	15	15	16	14	15
9	15	15	15	16	16	16	16	14	14	17	18	20	19	19	17	17	17	15	14	14	15	15	15	15
10	15	15	15	16	15	14	15	14	15	15	16	18	21	18	17	20	15	17	14	14	15	16	16	15
11	16	15	15	16	16	15	17	16	13	5	17	18	17	16	5	15	16	13	13	15	15	15	15	16
12	15	15	15	15	15	16	16	15	16	16	19	19	21	19	18	18	17	15	15	14	14	15	15	14
13	15	15	15	15	15	15	13	15	15	15	16	18	17	16	18	20	13	11	15	13	15	18	16	15
14	17	15	14	15	15	15	15	14	15	16	16	21	17	20	16	18	15	14	13	15	5	15	16	14
15	12	14	12	15	15	15	16	15	13	17	17	19	7	18	19	18	13	15	15	14	15	15	15	5
16	16	15	15	16	16	15	15	13	15	15	11	17	11	19	13	17	19	14	12	15	13	15	17	16
17	15	16	15	16	15	16	15	13	11	15	10	19	17	38	16	8	5	11	72	14	15	16	15	15
18	15	15	15	15	16	15	15	14	15	14	83	16	17	17	16	15	14	16	15	15	15	16	15	15
19	15	15	15	16	16	15	16	15	15	17	9	18	19	20	17	16	15	13	15	18	15	15	15	15
20	15	16	16	16	15	16	16	17	15	17	17	19	18	17	17	22	15	14	15	15	16	16	14	15
21	16	15	16	16	16	16	15	15	15	15	17	19	15	19	19	19	15	15	11	11	9	8	16	15
22	15	15	15	16	16	16	15	13	15	16	18	15	17	19	19	14	15	15	13	15	15	16	15	15
23	15	15	16	16	15	15	17	14	15	14	84	14	16	17	17	19	17	16	13	15	15	16	15	15
24	16	15	15	15	15	17	15	14	14	16	17	19	20	18	17	17	17	15	14	15	15	14	15	15
25	16	15	17	16	16	16	16	15	14	17	16	21	17	17	17	14	14	17	15	14	15	16	15	15
26	16	16	15	15	15	15	16	14	13	17	15	18	20	16	19	18	15	15	16	15	15	15	15	14
27	15	15	15	15	15	15	15	14	13	16	14	17	15	17	17	15	14	14	14	15	15	15	15	16
28	15	15	16	14	15	15	15	16	13	16	19	19	17	18	15	18	18	14	14	5	20	15	17	15
29	15	15	15	15	16	15	15	15	17	15	15	17	16	18	30	60	16	14	15	17	16	14	15	17
30	18	15	15	15	15	15	16	14	15	16	17	17	17	15	16	17	16	16	15	15	15	15	14	15
31	16	15	15	16	15	16	15	14	15	15	16	19	17	15	18	17	16	16	14	15	15	15	16	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	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	14	15	16	16	18	17	18	17	17	15	15	14	15	15	15	15	15
U Q	16	15	16	16	16	16	16	15	15	16	18	19	19	19	18	18	17	15	15	15	15	16	16	16
L Q	15	15	15	15	15	15	15	14	14	15	16	17	17	17	16	16	15	14	14	14	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

MAY 2020

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	30	N 25	26	25	B 25	A	39	51	61	50	59	50	62	76	89	89	97	89	75	69	67	63	45	31
2	A	25	N 23	30	A	B	39	59	51	A	58	63	A	50	51	83	93	72	58	65	66	A	75	A
3	A	A	33	35	25	A	A	51	53	A	54	A	A	78	83	89	96	90	69	60	52	A	A	A
4	A	A	32	33	N 23	N	37	60	52	A	A	57	73	89	110	112	105	116	96	83	69	53	A	A
5	A	A	A	35	A	N 23	36	54	75	55	49	A	A	A	A	82	75	77	82	82	72	49	33	A
6	A	A	N 25	25	A	A	40	52	64	59	55	57	64	69	76	74	75	83	81	82	68	63	A	31
7	A	25	N 24	A	24	B 23	39	54	63	63	A	59	58	62	A	79	73	72	74	89	87	A	A	A
8	A	A	A	A	A	A	39	47	58	49	A	A	64	83	93	87	69	55	52	A	A	A	A	26
9	A	25	A	A	A	A	40	A	A	52	A	A	60	81	87	92	87	69	68	66	69	57	A	A
10	A	37	32	27	24	N	38	49	50	A	A	A	55	66	73	75	73	71	63	63	A	A	A	A
11	A	A	A	A	23	A	40	A	A	45	A	A	A	72	84	91	90	89	98	88	A	A	A	A
12	39	A	A	34	A	A	A	A	A	A	A	A	A	A	48	58	67	80	93	99	56	A	A	A
13	A	A	A	31	24	23	39	54	49	51	56	51	A	55	64	68	72	70	71	72	69	A	A	A
14	A	A	A	A	24	N 24	39	61	50	A	A	54	55	66	63	61	69	A	A	71	A	A	A	A
15	A	45	39	38	A	A	41	A	A	47	51	A	A	53	70	76	70	65	72	73	69	A	A	A
16	A	A	A	A	A	A	35	50	52	A	A	A	A	A	52	63	74	86	95	92	78	A	A	A
17	A	A	A	A	A	A	A	A	59	49	47	A	A	A	76	129	89	99	73	61	57	61	43	A
18	A	A	A	A	A	A	38	43	50	55	48	A	A	A	A	A	67	66	66	59	55	44	A	39
19	A	A	A	A	A	A	40	47	A	A	A	A	A	56	60	68	71	73	73	75	A	59	A	A
20	A	A	A	24	A	A	40	48	53	52	56	51	56	69	75	79	62	65	73	69	63	51	43	41
21	49	45	41	37	31	31	36	50	51	A	64	A	A	37	A	A	A	A	71	A	A	A	A	41
22	A	A	A	A	A	A	A	A	47	A	A	63	65	56	53	A	A	A	70	70	57	A	48	A
23	44	A	A	33	34	25	35	60	54	A	A	A	64	61	62	66	A	56	57	57	55	59	55	41
24	50	46	41	39	A	A	A	A	A	A	A	A	55	55	63	A	A	A	66	N 58	A	61	43	A
25	A	A	A	A	A	N 24	A	A	A	52	A	A	A	53	A	78	77	A	A	71	77	A	A	41
26	A	40	A	A	A	24	38	50	54	A	49	A	A	A	66	71	76	78	72	73	62	A	A	A
27	A	A	38	33	27	26	39	52	54	A	A	73	A	61	82	80	65	A	A	49	A	58	A	A
28	A	38	A	A	A	B 23	35	51	51	51	54	A	A	104	51	60	72	85	73	64	60	51	41	39
29	36	36	33	34	B 22	N 23	A	A	A	A	A	A	A	A	171	A	71	70	62	A	44	40	A	A
30	A	A	A	A	A	A	A	49	66	A	A	A	A	57	60	75	85	88	60	43	55	56	52	A
31	47	A	42	A	31	25	39	51	A	52	A	A	A	78	A	110	78	77	92	84	A	42	35	34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	11	13	16	13	12	23	22	22	15	13	10	12	24	25	26	27	25	28	28	22	16	11	10
MED	44	37	33	33	24	24	39	51	53	52	54	57	61	64	70	78	74	77	72	70	64	56	43	39
U Q	49	45	40	35	29	25	40	54	59	55	57	63	64	77	83	89	87	87	78	82	69	60	52	41
L Q	36	25	25	28	23	23	37	49	51	49	49	51	55	55	60	68	70	69	66	62	56	50	41	31

HOURLY VALUES OF fEs AT Okinawa

MAY 2020

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	35	G	G	B	39	32	33	46	40	41	42	50	47	51	56	156	57	58	33	53	11	29	23
2	32	24	G	G	23	B	26	38	57	110	75	60	68	90	100	96	46	59	54	38	41	70	84	93
3	59	44	27	30	35	28	41	55	41	53	42	63	98	44	46	62	54	36	G	48	56	92	94	124
4	35	53	G	25	G	G	G	45	50	66	95	50	51	54	58	48	38	G	32	31	35	43	70	72
5	89	93	39	70	32	G	29	41	54	55	57	79	91	142	178	91	40	G	31	36	47	30	57	41
6	45	60	40	29	82	54	45	34	57	67	127	116	48	47	G	G	G	41	52	48	126	115	93	33
7	34	72	G	66	28	B	26	46	44	49	70	61	46	55	78	53	54	53	60	70	105	137	91	115
8	25	25	26	35	27	28	24	35	44	49	54	75	62	98	70	66	59	43	43	76	92	93	126	34
9	57	57	59	47	57	40	26	62	116	176	95	67	53	45	52	48	55	48	57	42	53	47	56	41
10	59	36	G	G	G	G	26	50	49	115	97	129	52	50	48	51	56	72		133	127	135	92	89
11	44	60	34	33	G	34	31	70	92	90	76	56	108	58	76	73	75	82	106	74	144	148	110	74
12	46	60	43	46	37	57	89	142	110	110	81	94	81	70	49	47	43	51	57	50	55	87	91	106
13	110	127	73	24	G	25	36	42	38	44	42	50	50	50	48	52	51	54	70	54	110	126	59	49
14	50	89	116	33	50	G	26	38	46	62	65	44	47	49	52	88	60	87	87	58	72	92	60	56
15	58	43	49	58	59	45	30	58	92	127	138	115	84	48	57	44	56	44	58	59	53	58	113	146
16	70	103	36	47	50	40	31	38	69	64	132	152	117	81	44	57	49	69	81	33	92	91	146	72
17	115	93	46	58	70	64	51	71	85	70		125	68	63	69	135	100	58	78	45	57	55	60	34
18	44	39	46	46	46	40	60	46	57	69	60	74	57	79	81	77	50	50	48	40	36	46	57	35
19	60	67	41	59	40	57	35	67	70	57	66	77	93	46	54	50	40	40	56	69	116	46	71	60
20	40	45	48	34	36	28	29	31	47	47	50	54	47	G	G	49	56	50	45	26	43	G	34	35
21	33	25	G	G	G	28	G	43	45	55	50	135	107	92	109	69	63	67	52	112	159	93	91	60
22	70	104	48	72	27	46	73	90	78	92	116	61	G	128	53	66	87	70	40	46	38	46	38	48
23	36	40	60	29	G	G	29	43	59	56	61	67	48	48	44	48	58	35	40	41	57	56	24	32
24	41	38	37	34	38	35	41	56	79	135	97	68	108	51	51	78	67	94	67	175	125	58	49	60
25	60	67	46	57	57	32	45	73	64	89	174	113	62	47	58	52	76	97	87	53	56	91	72	69
26	116	36	58	72	49	25	34	42	56	58	64	102	134	158	64	50	47	50	50	93	115	110	92	54
27	69	84	27	57	28	G	34	40	40	78	58	118	153	115	89	78	49	78	50	29	56	32	60	72
28	92	G	40	56	56	B	33	59	48	52	51	102	130	128	127	59	61	49	60	33	57	47	26	32
29	35	29	G	G	B	G	57	67	60	73	90	66	166	148	161	126	74	56	62	56	32	29	72	72
30	147	92	92	83	94	41	41	44	36	54	61	57	127	52	51	G	43	73	51	30	27	40	60	57
31	161	56	46	113	26	G	30	53	69	49	78	58	86	63	96	96	56	54	104	90	57	27	34	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	29	28	31	31	31	31	30	31	31	31	31	31	31	31	30	31	31	31	31	31
MED	57	56	40	46	36	30	32	46	57	64	68	68	68	55	57	57	56	54	56	48	57	58	70	57
U Q	70	84	48	58	53	40	41	62	70	90	95	113	108	92	81	78	63	70	67	70	110	93	92	72
L Q	36	36	26	29	24	G	26	40	46	53	57	58	50	48	49	49	47	44	48	36	47	43	56	35

HOURLY VALUES OF fmin AT Okinawa

MAY 2020

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	15	15	14	B 16	15	16	16	15	15	17	18	18	17	19	17	15	16	13	15	15	15	16	16
2	16	15	14	15	15	B	15	16	14	14	14	15	14	21	15	15	15	15	14	13	14	15	16	13
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7	16	16	17	17	15	B 15	15	14	15	17	17	15	18	20	18	20	15	14	13	14	12	5	14	15
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28	16	16	15	15	15	B 15	15	15	14	13	15	18	17	18	19	16	13	15	14	15	16	15	15	16
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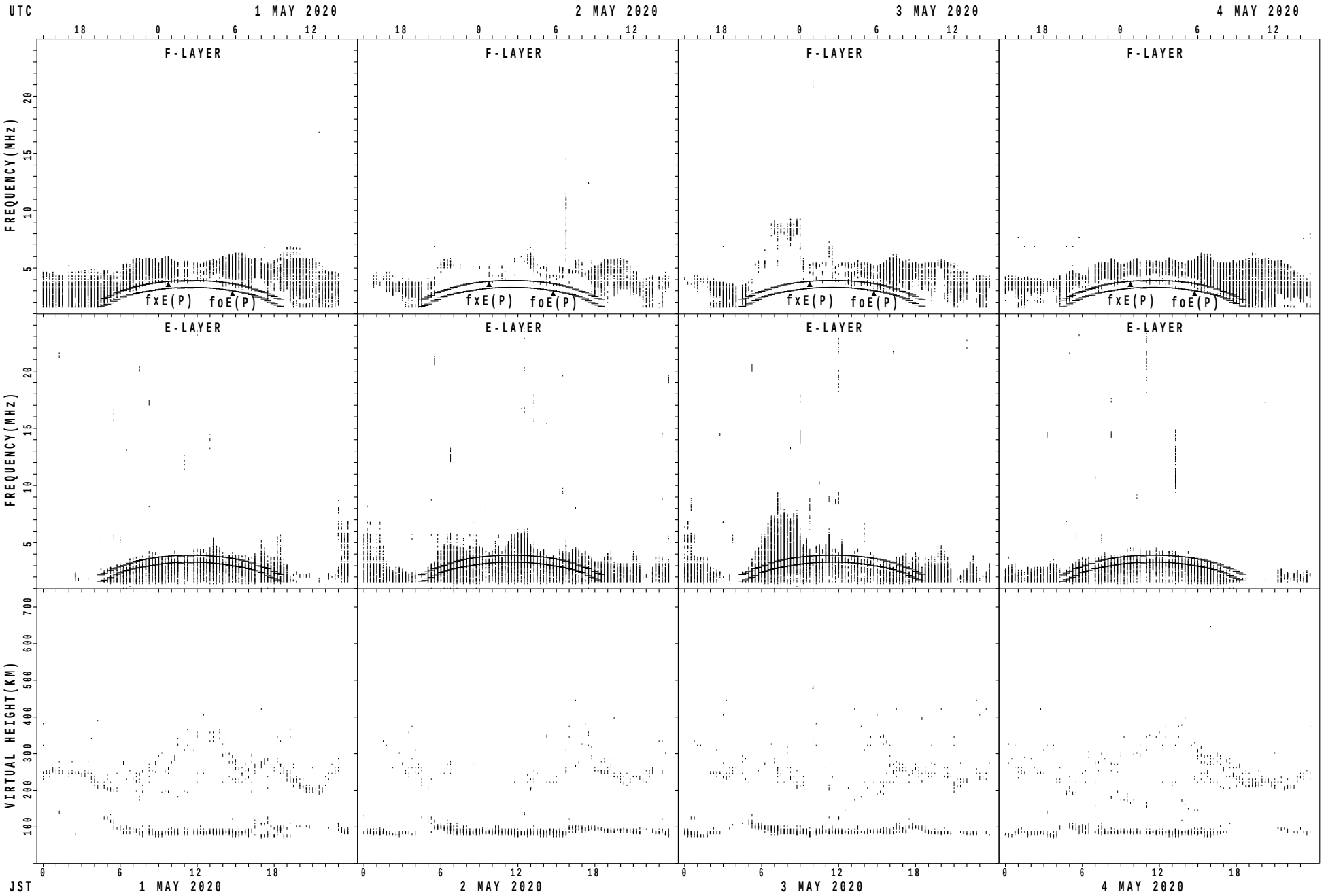
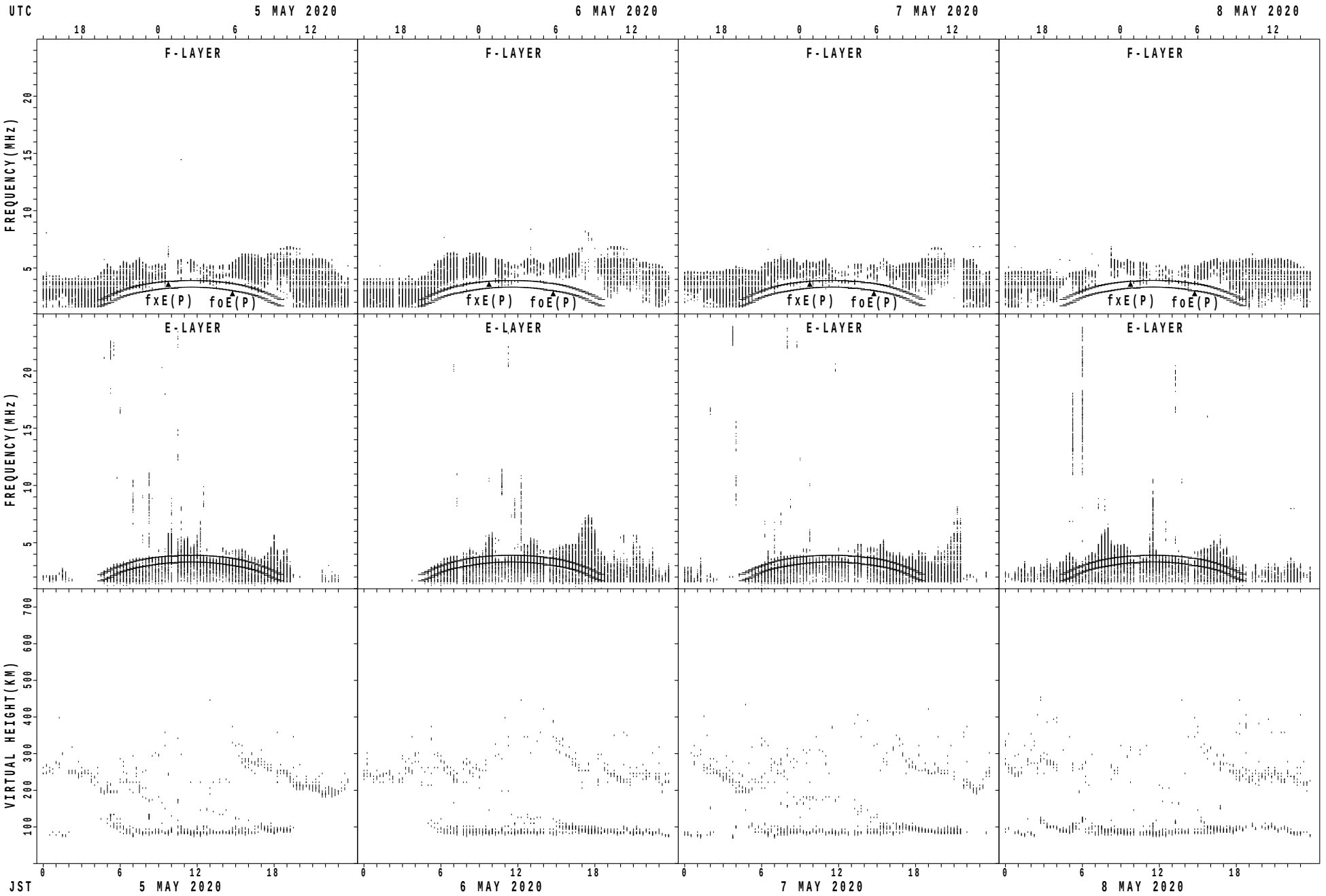
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	14	14	15	17	16	17	17	17	17	15	15	13	14	15	15	15	15
U Q	16	15	16	16	16	16	16	15	15	15	17	18	18	19	19	18	16	15	14	15	15	16	16	16
L Q	15	14	15	15	15	15	15	14	13	14	14	15	16	16	16	15	15	14	13	14	14	14	14	15

SUMMARY PLOTS AT Wakkanai



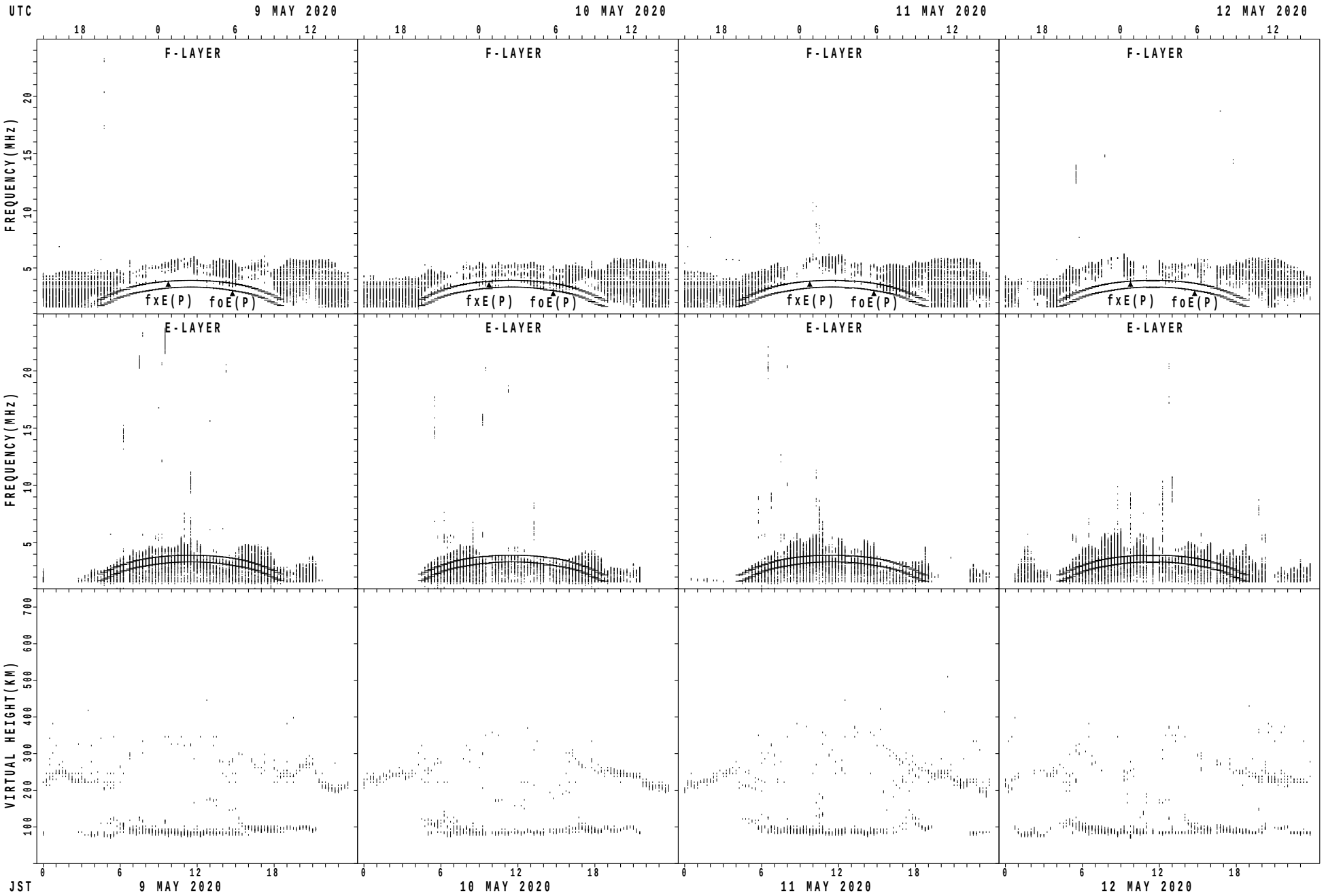
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



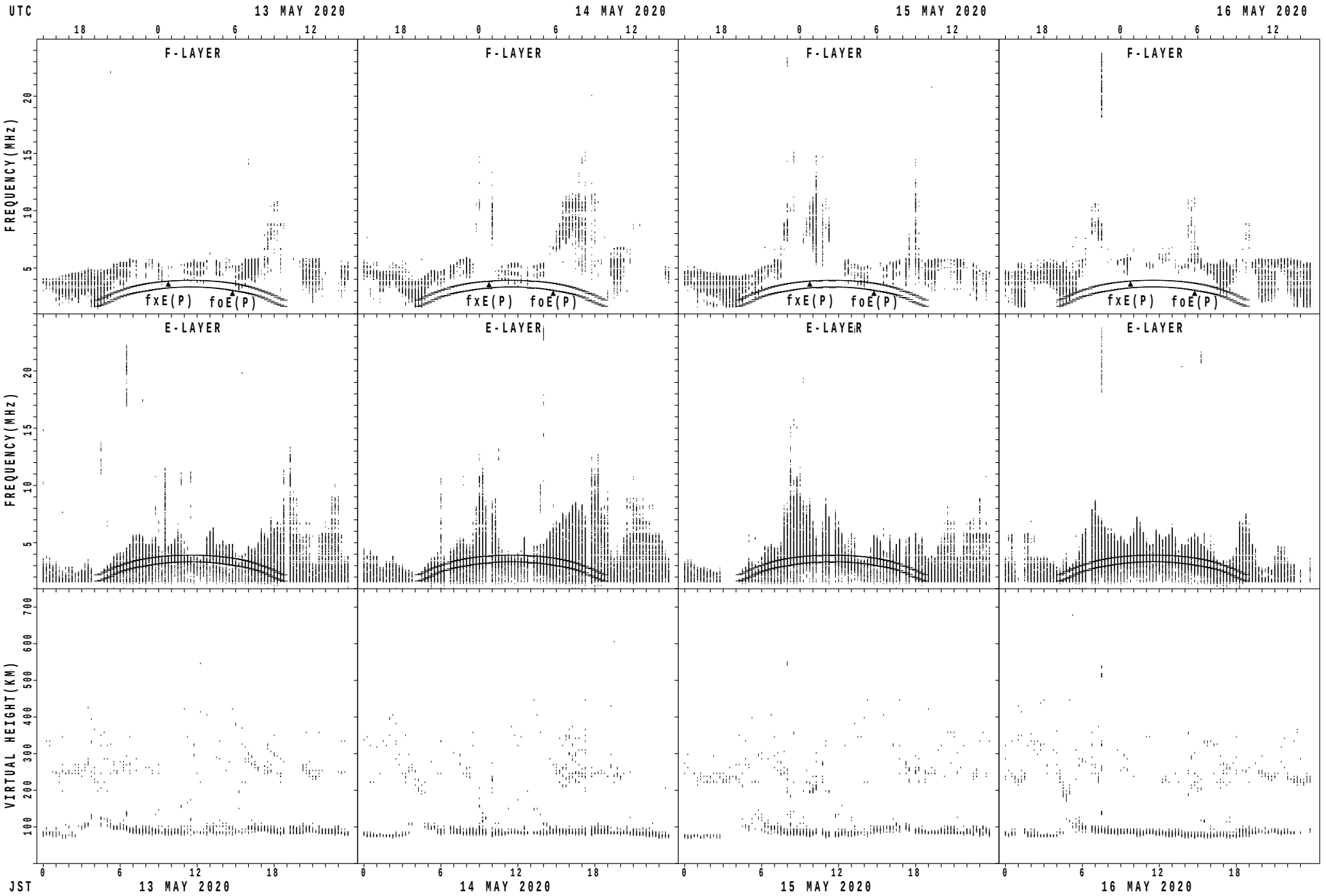
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



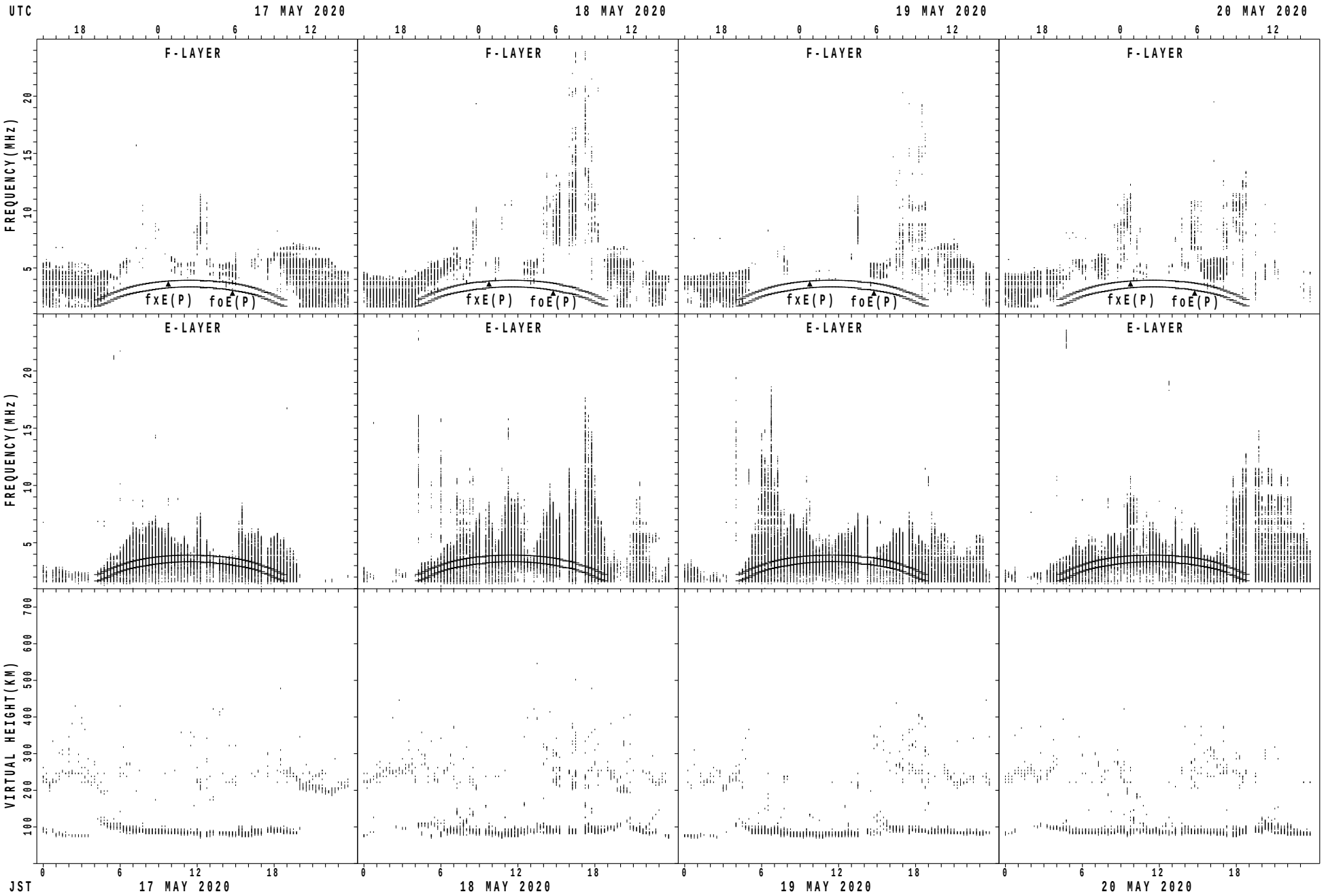
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



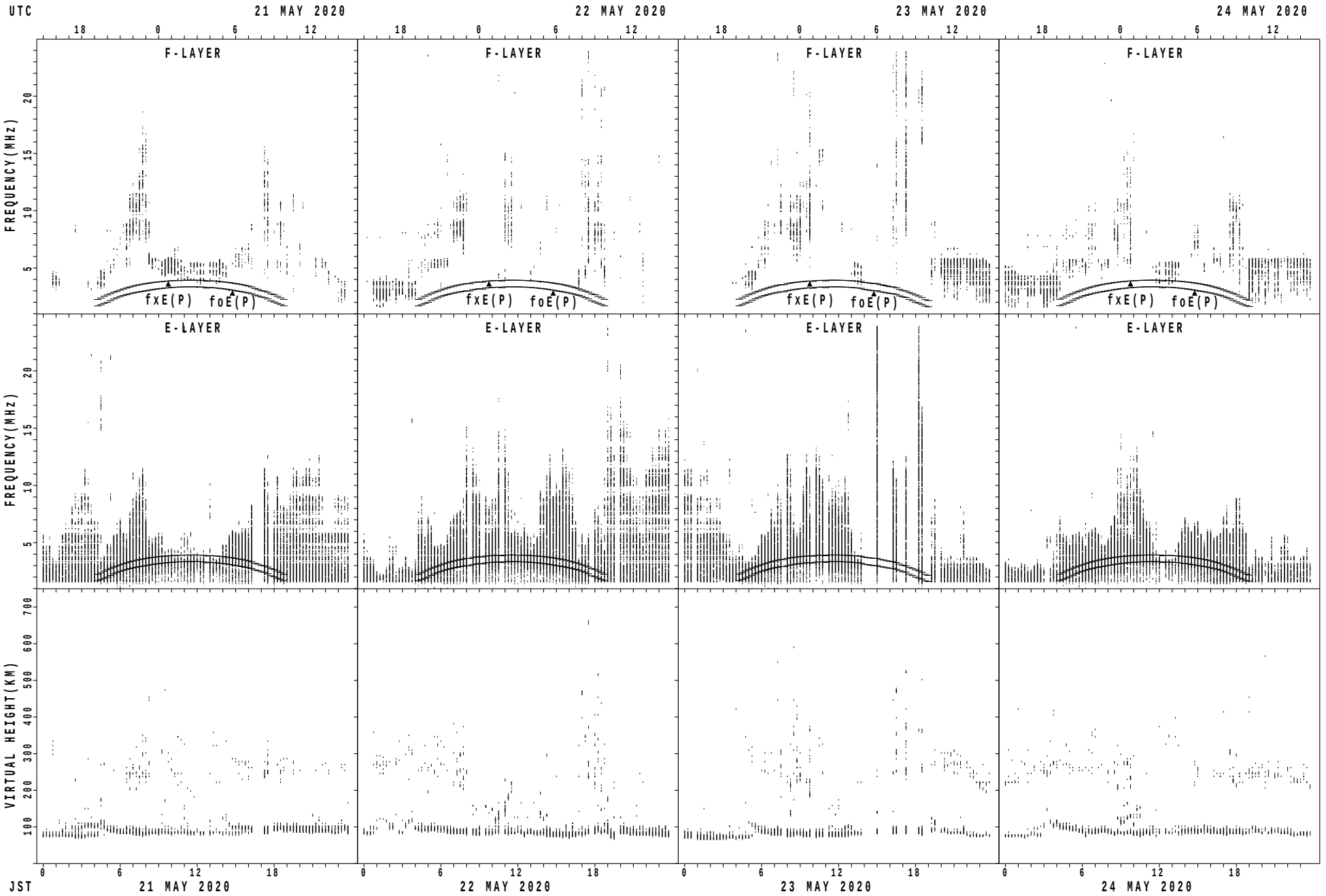
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



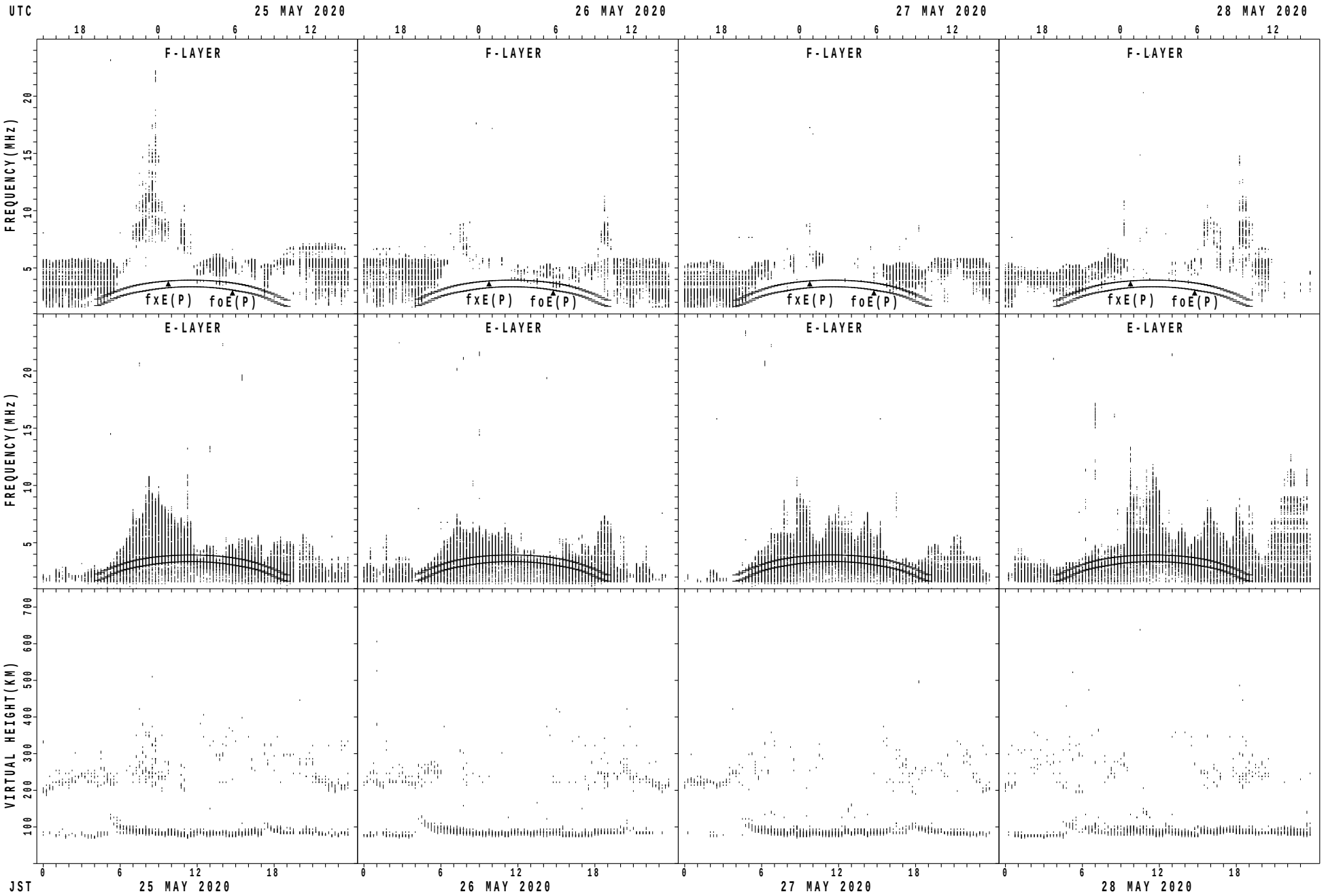
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



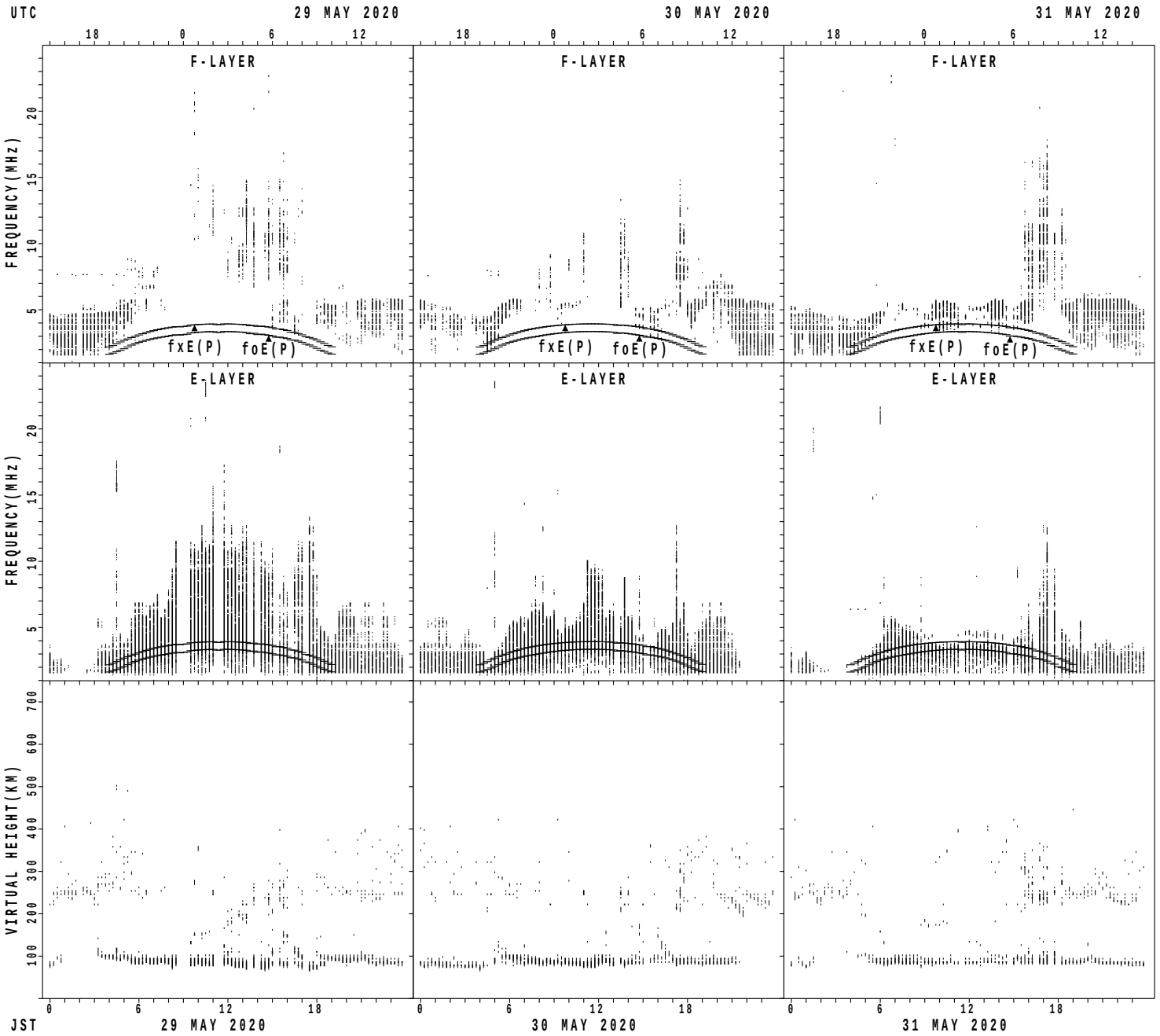
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



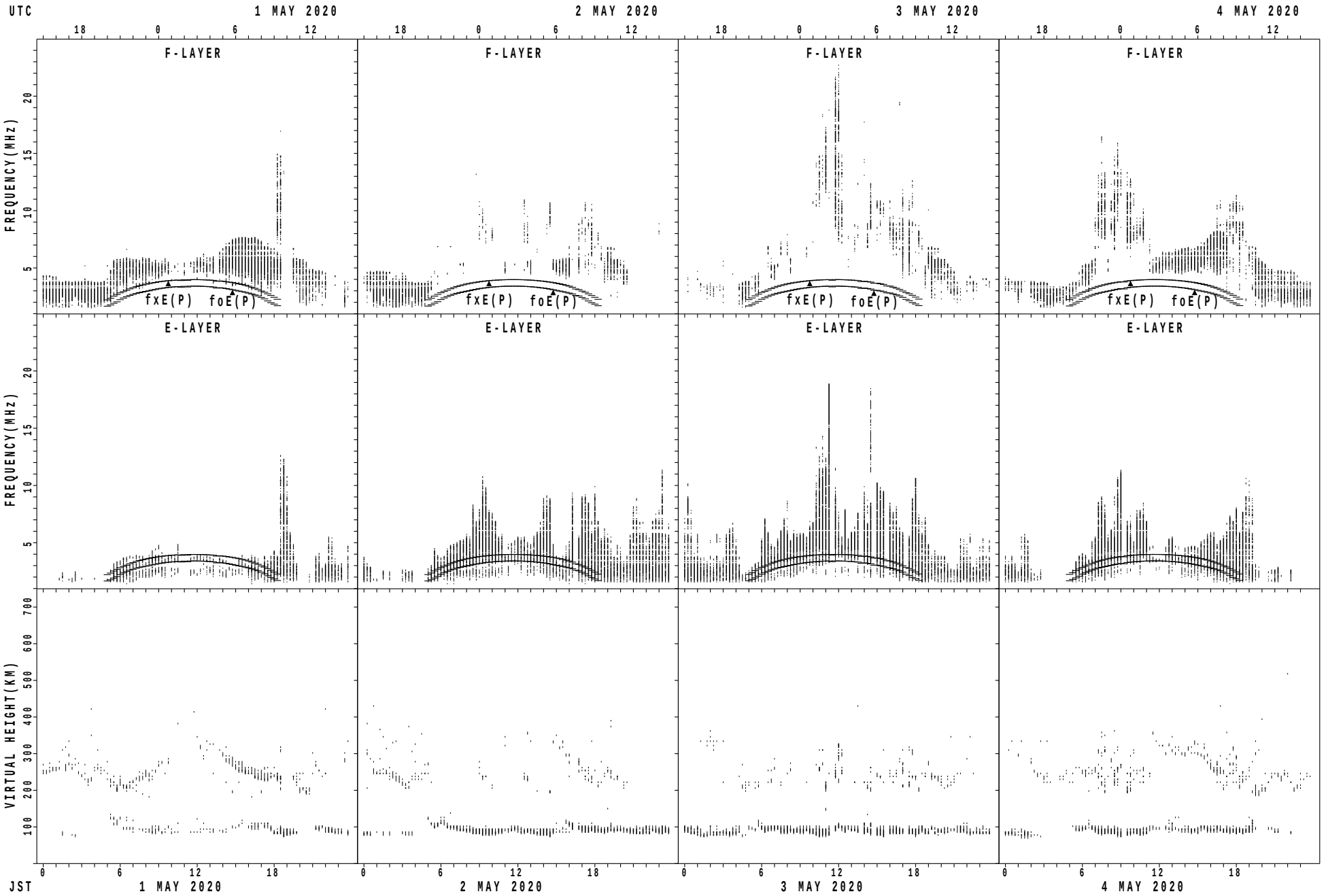
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



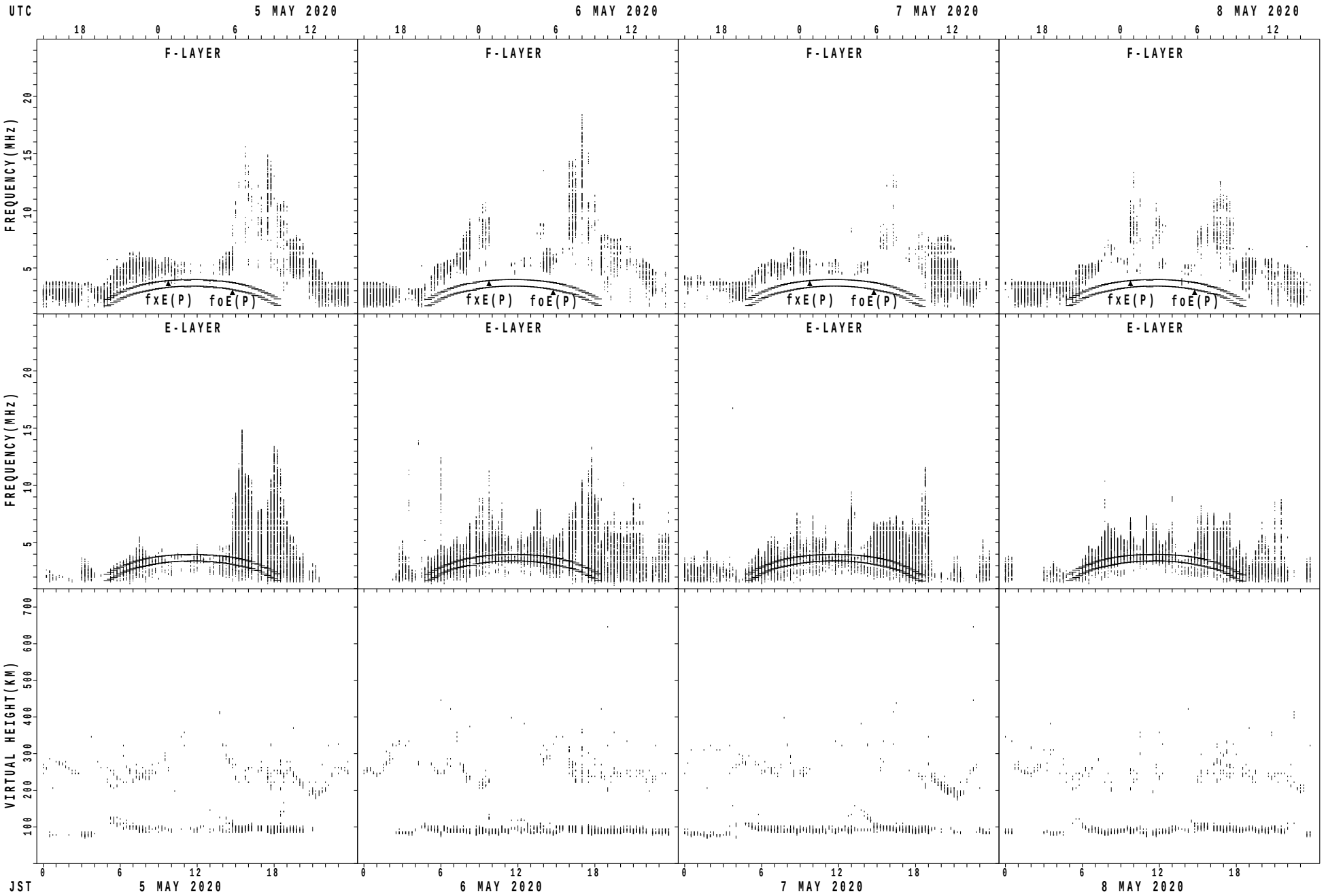
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



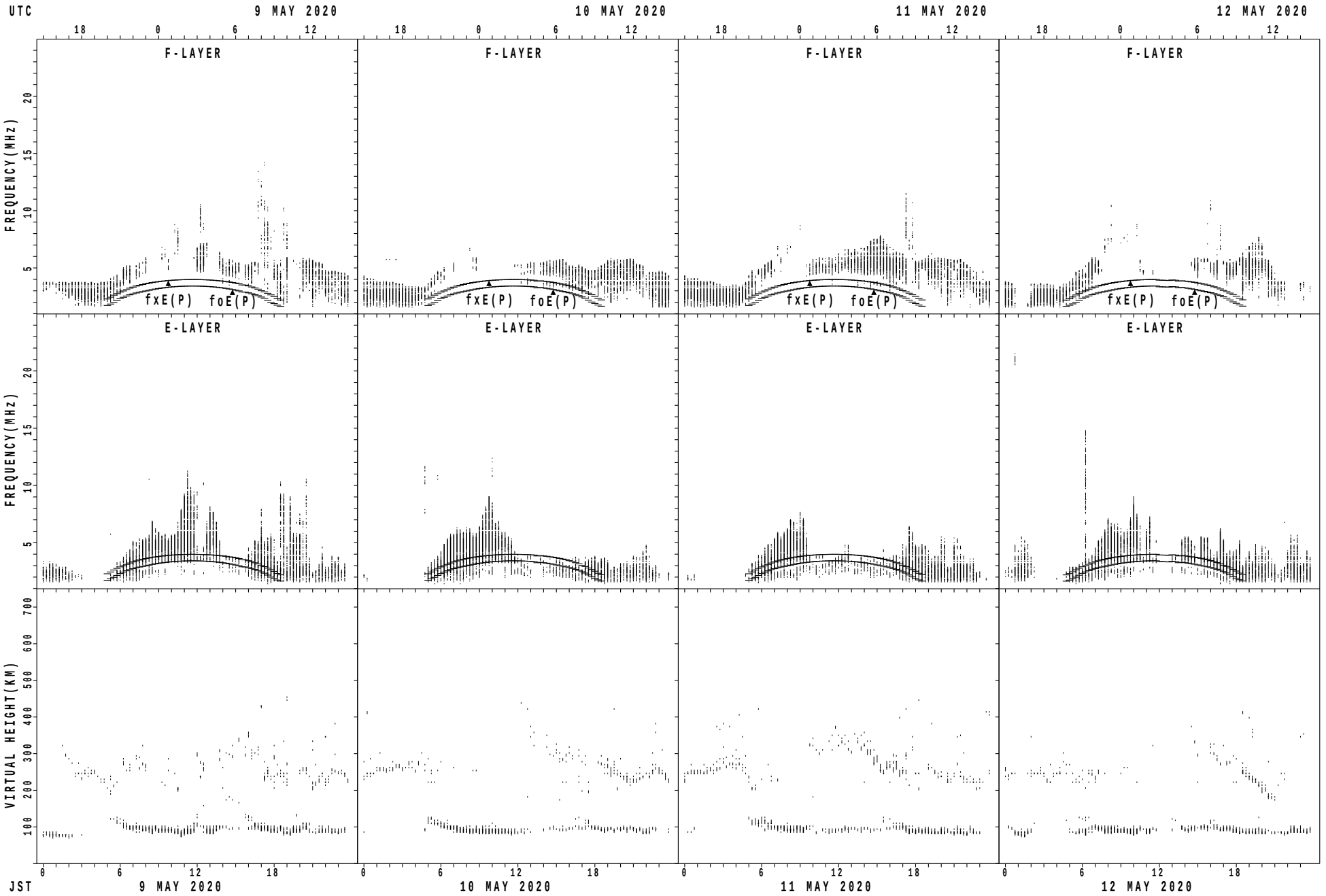
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



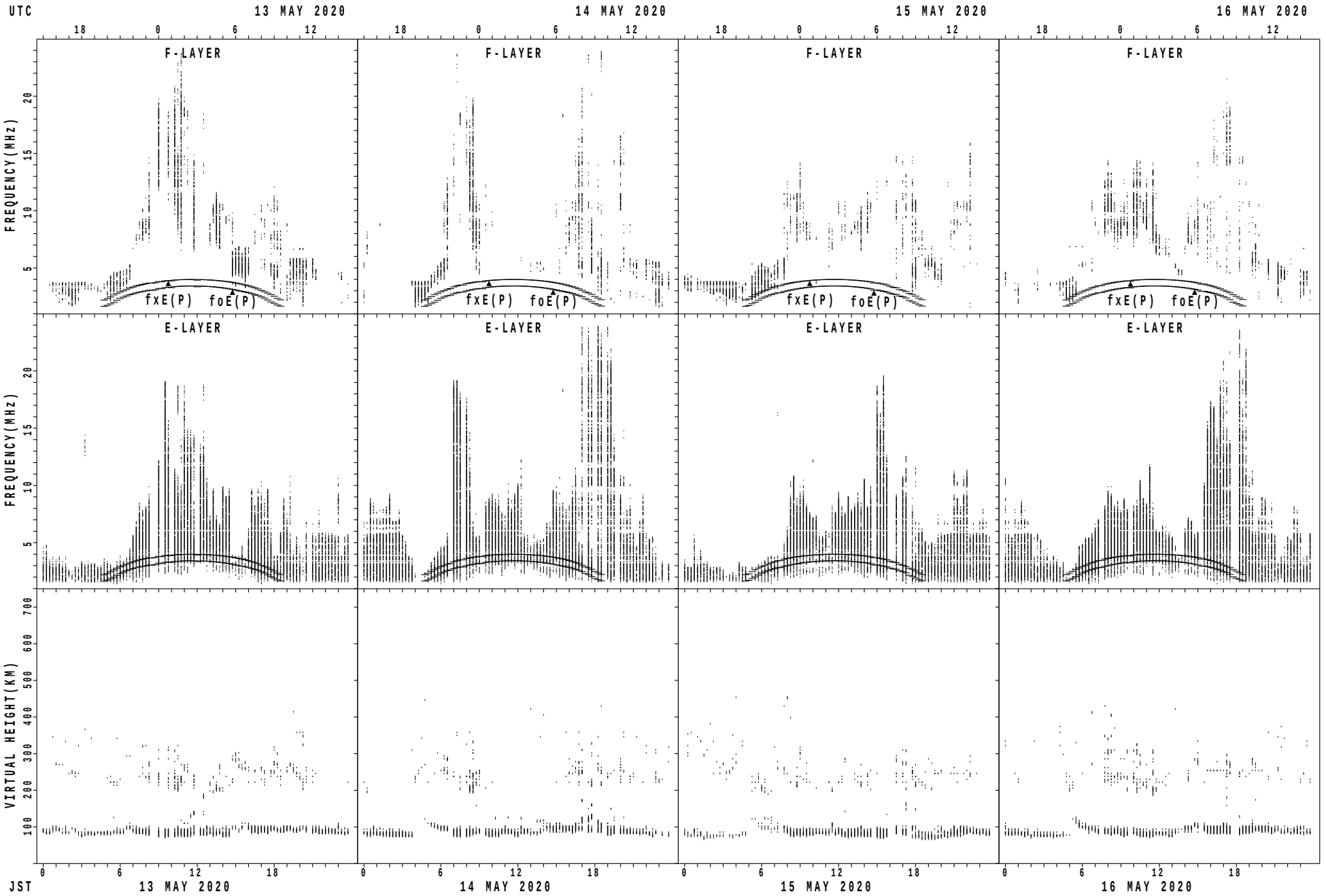
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



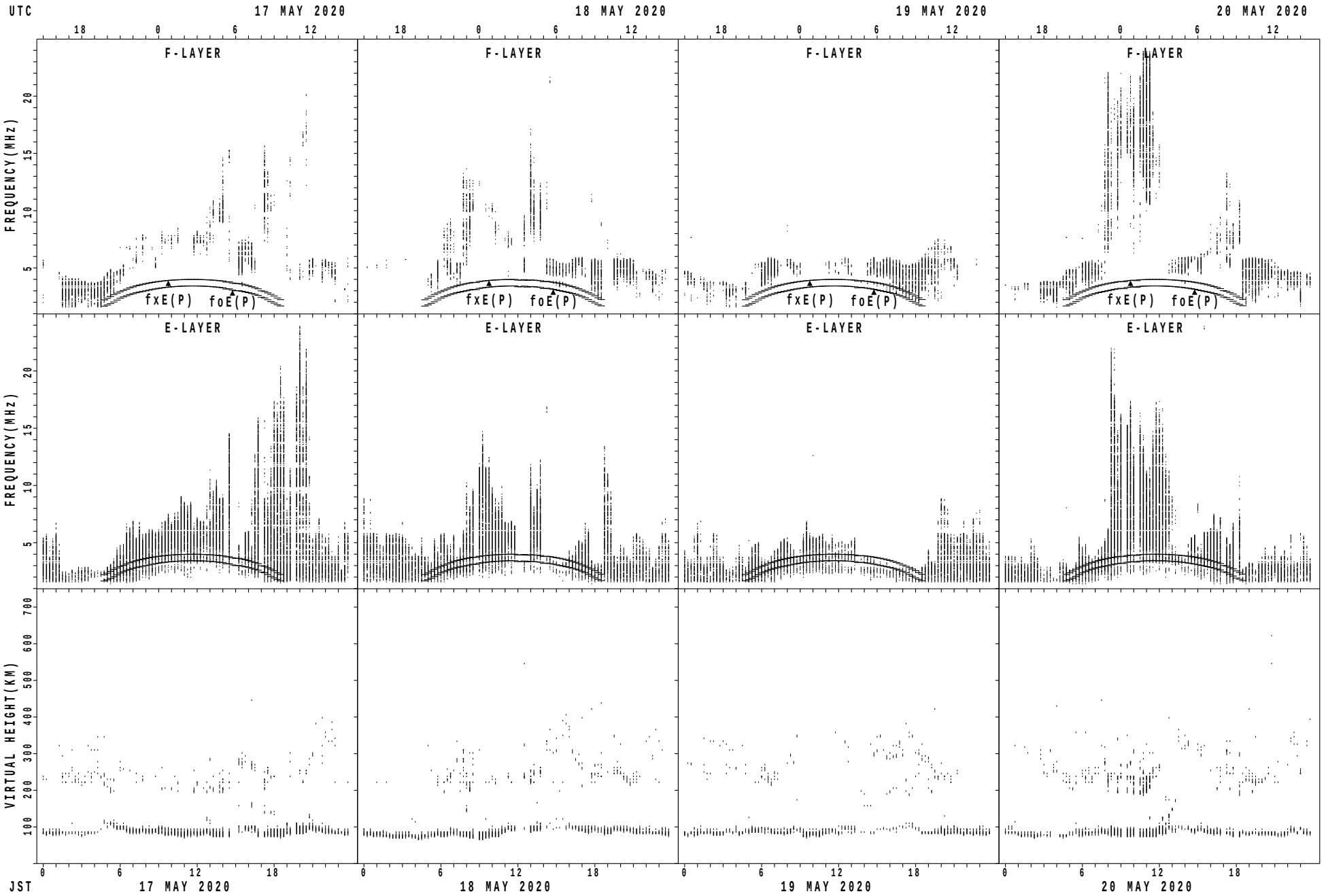
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



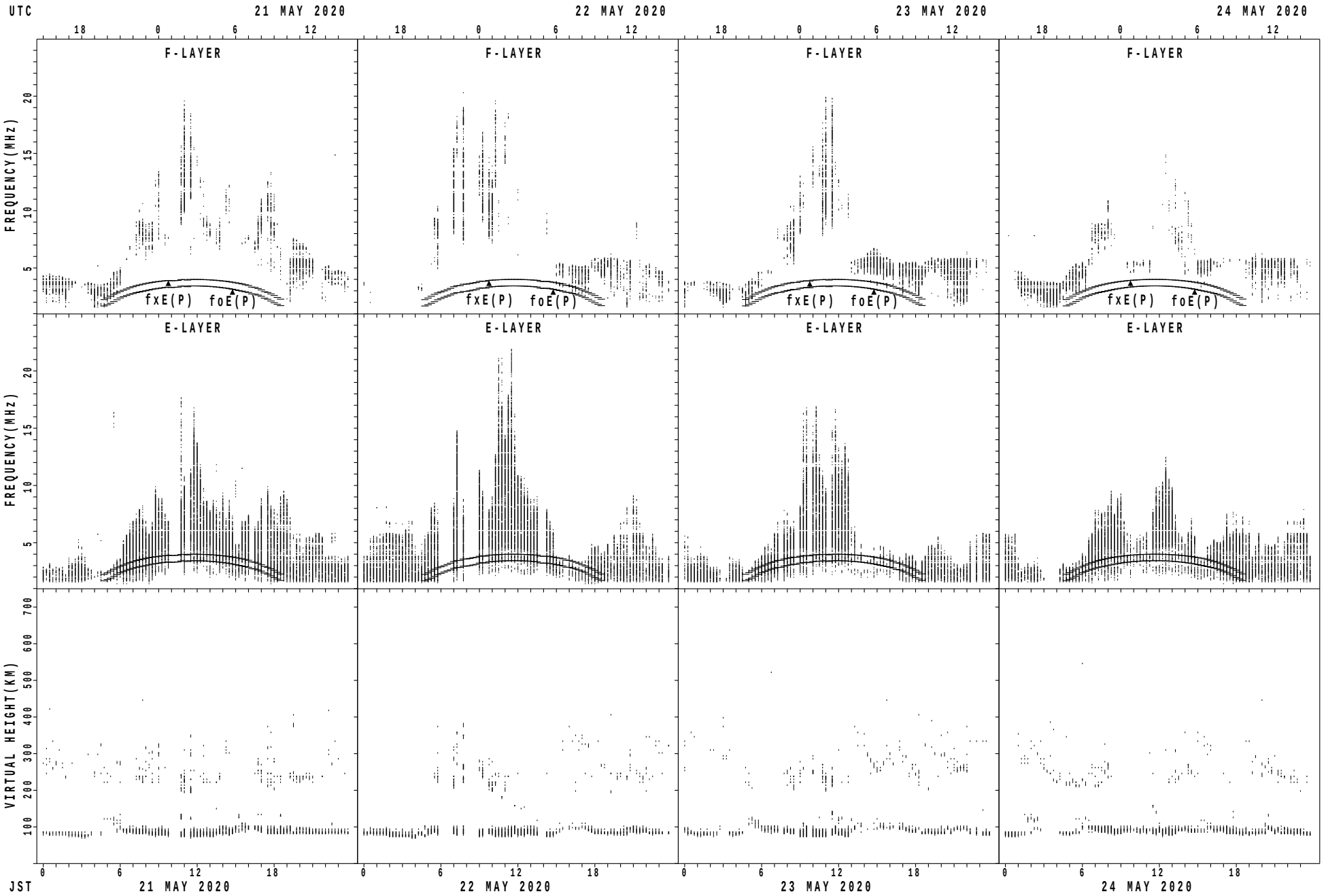
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



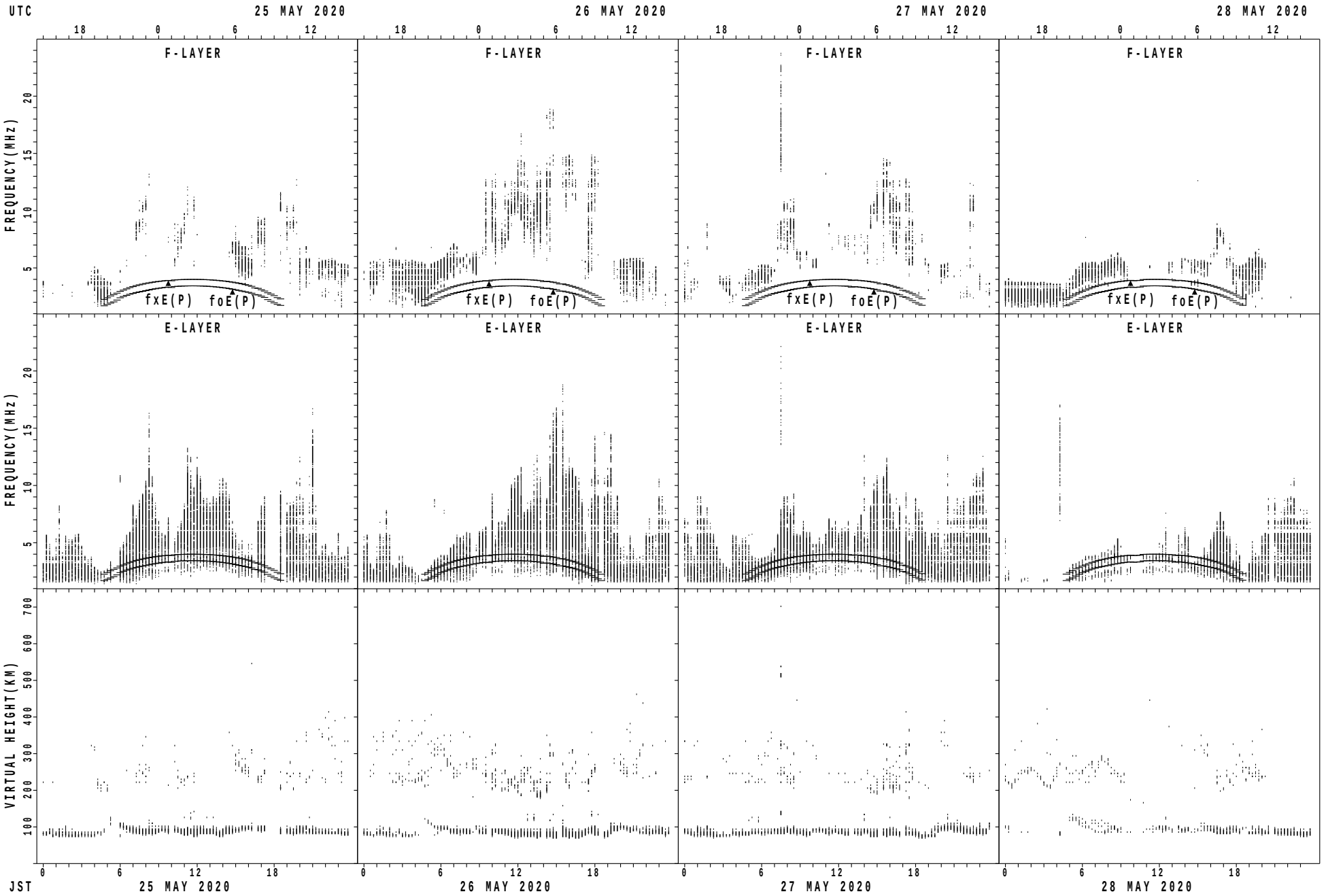
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



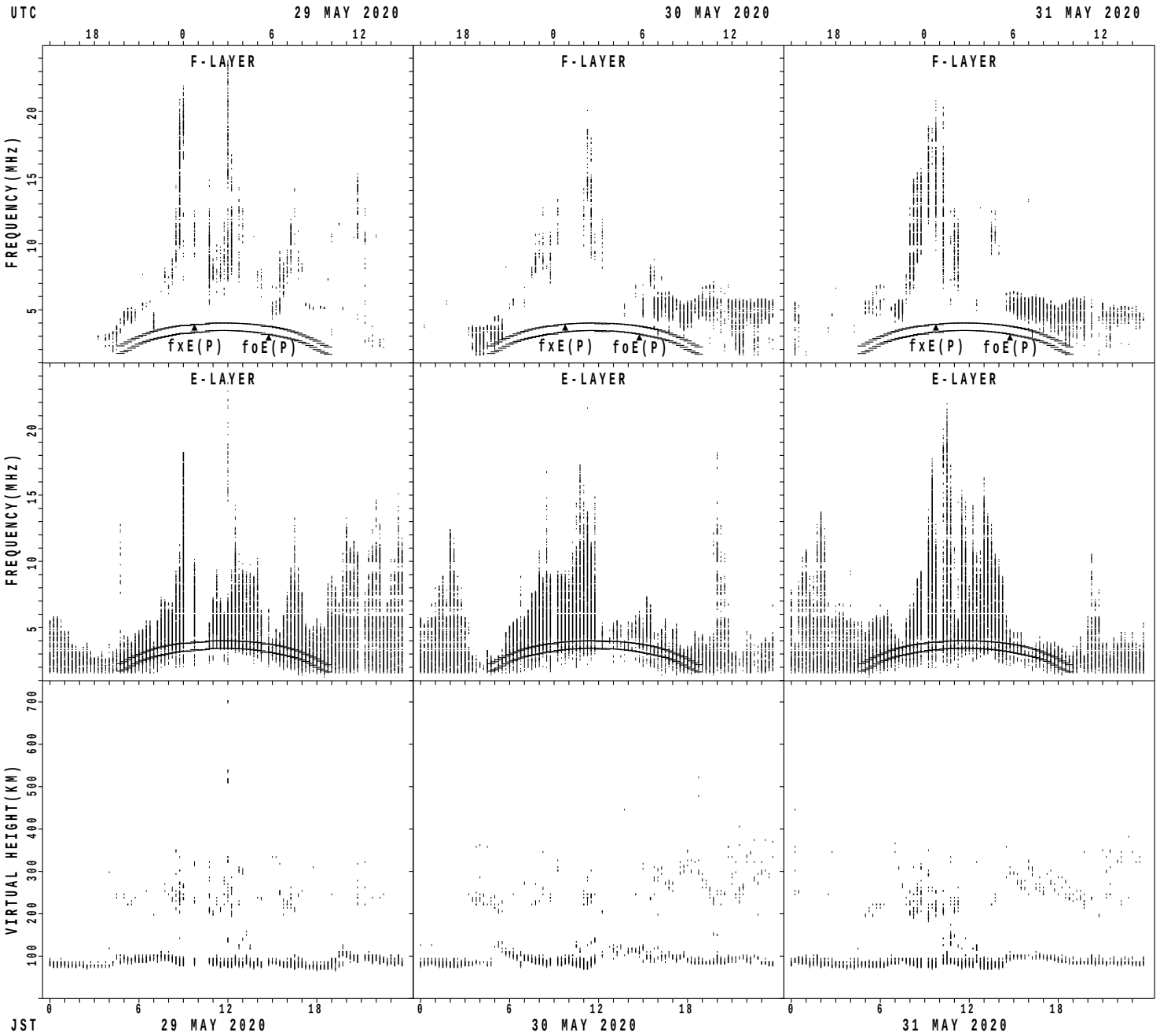
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



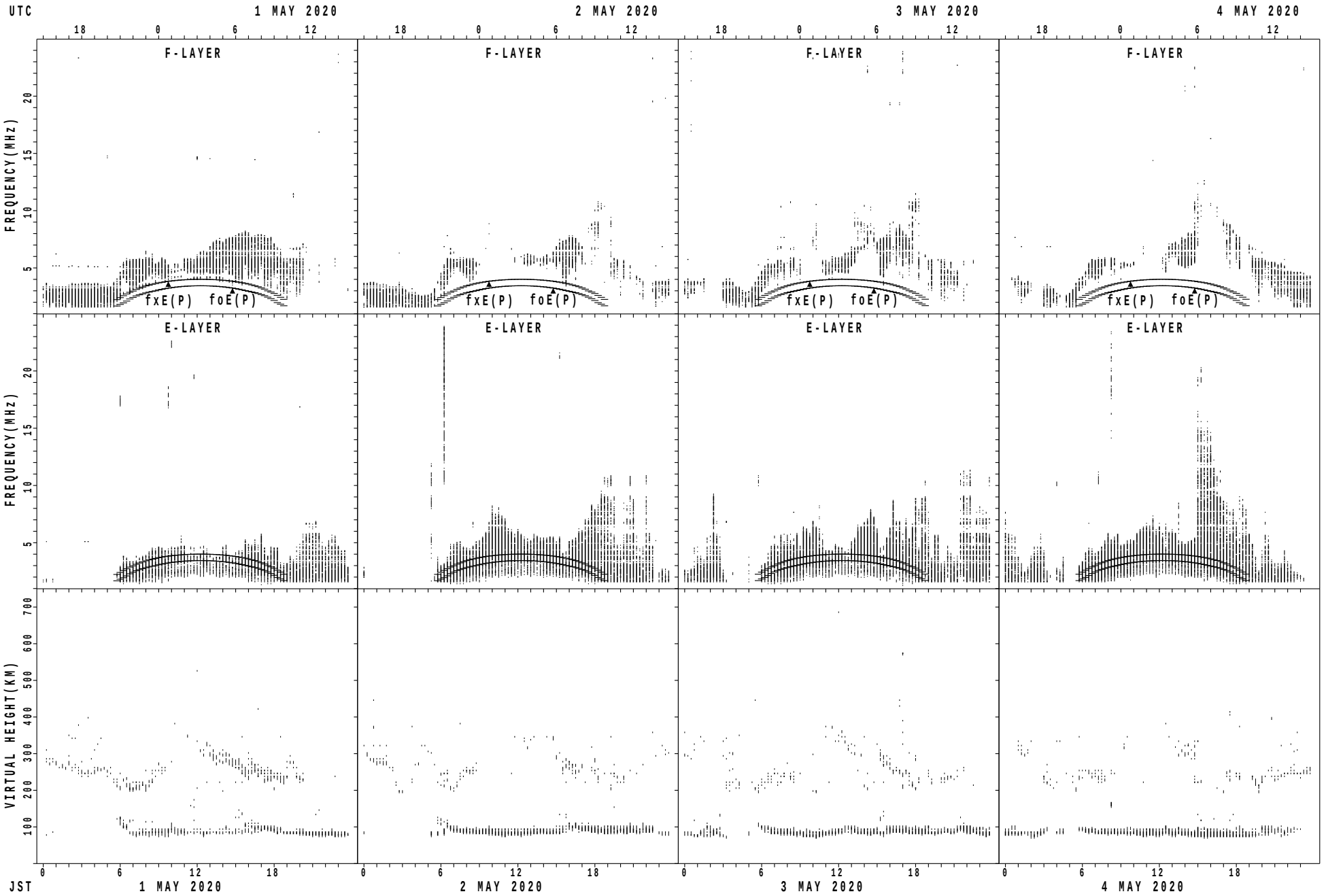
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



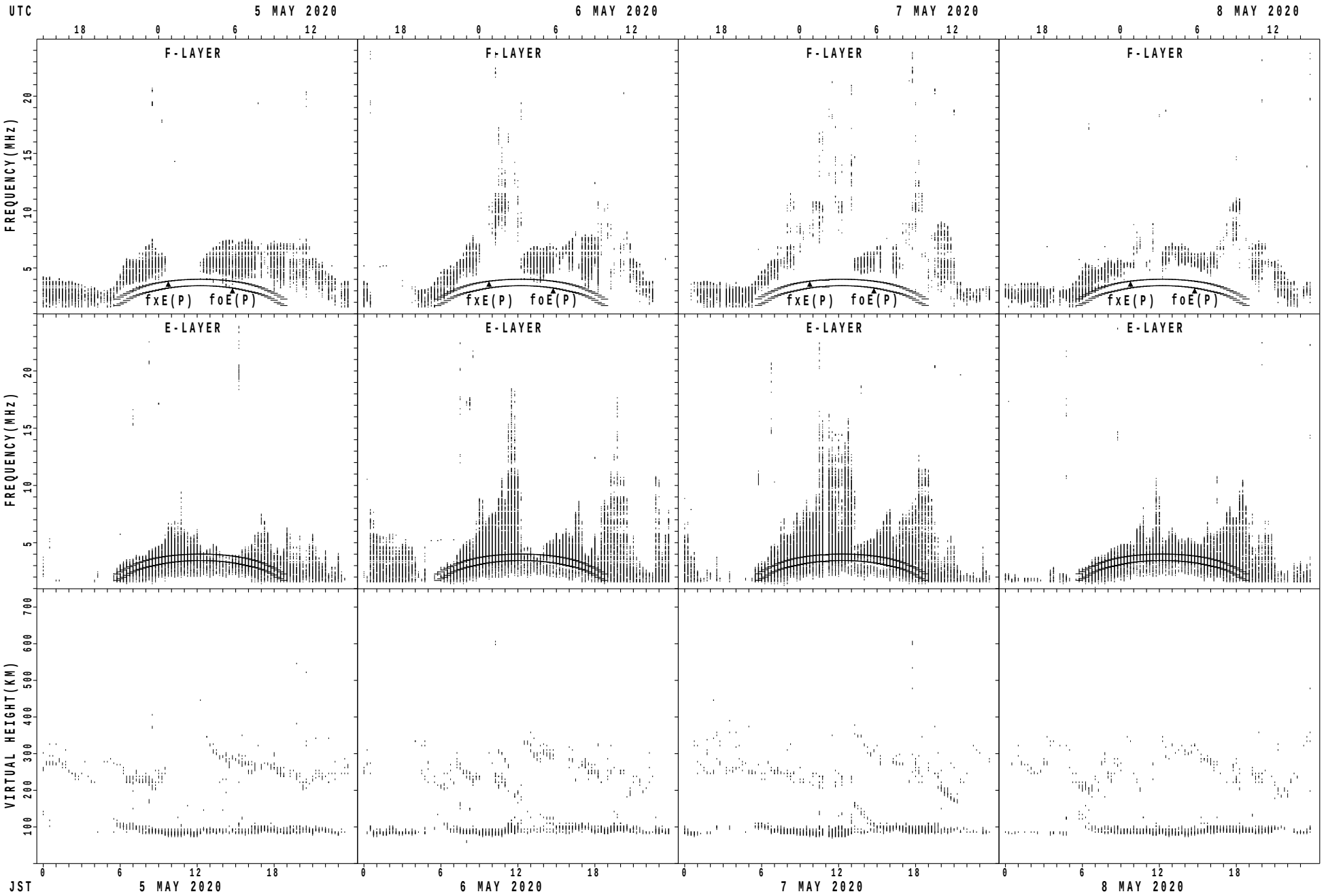
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



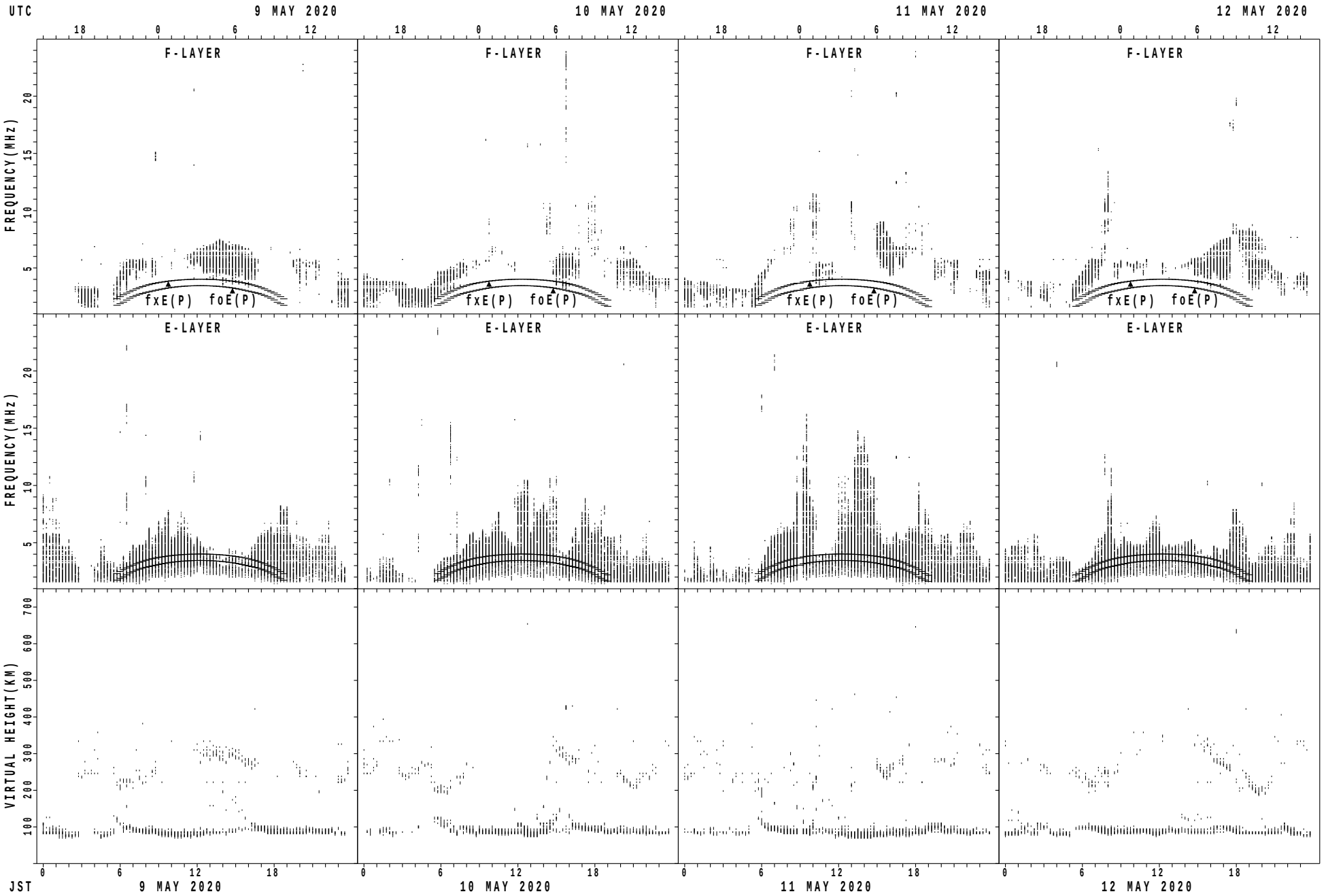
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



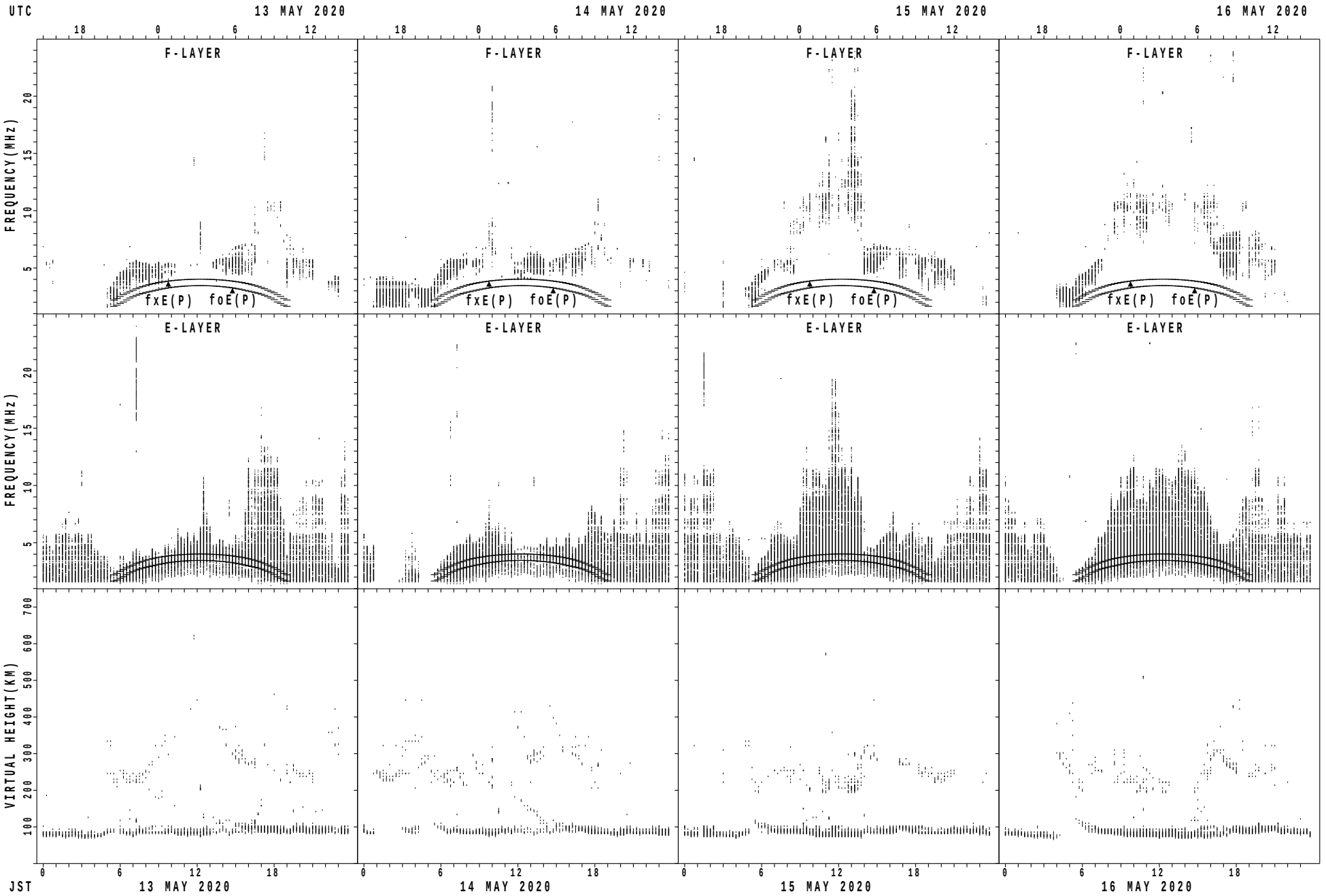
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



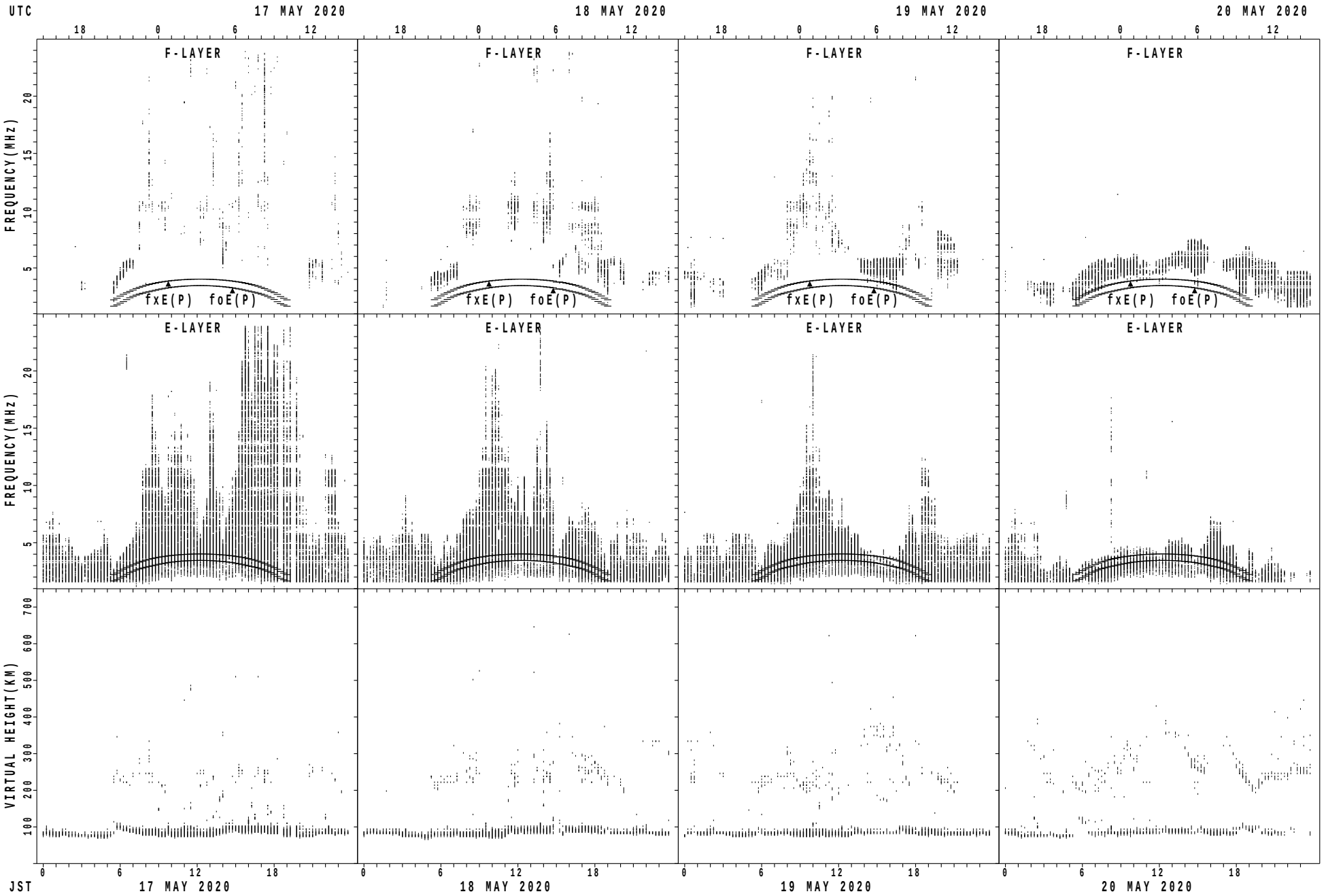
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



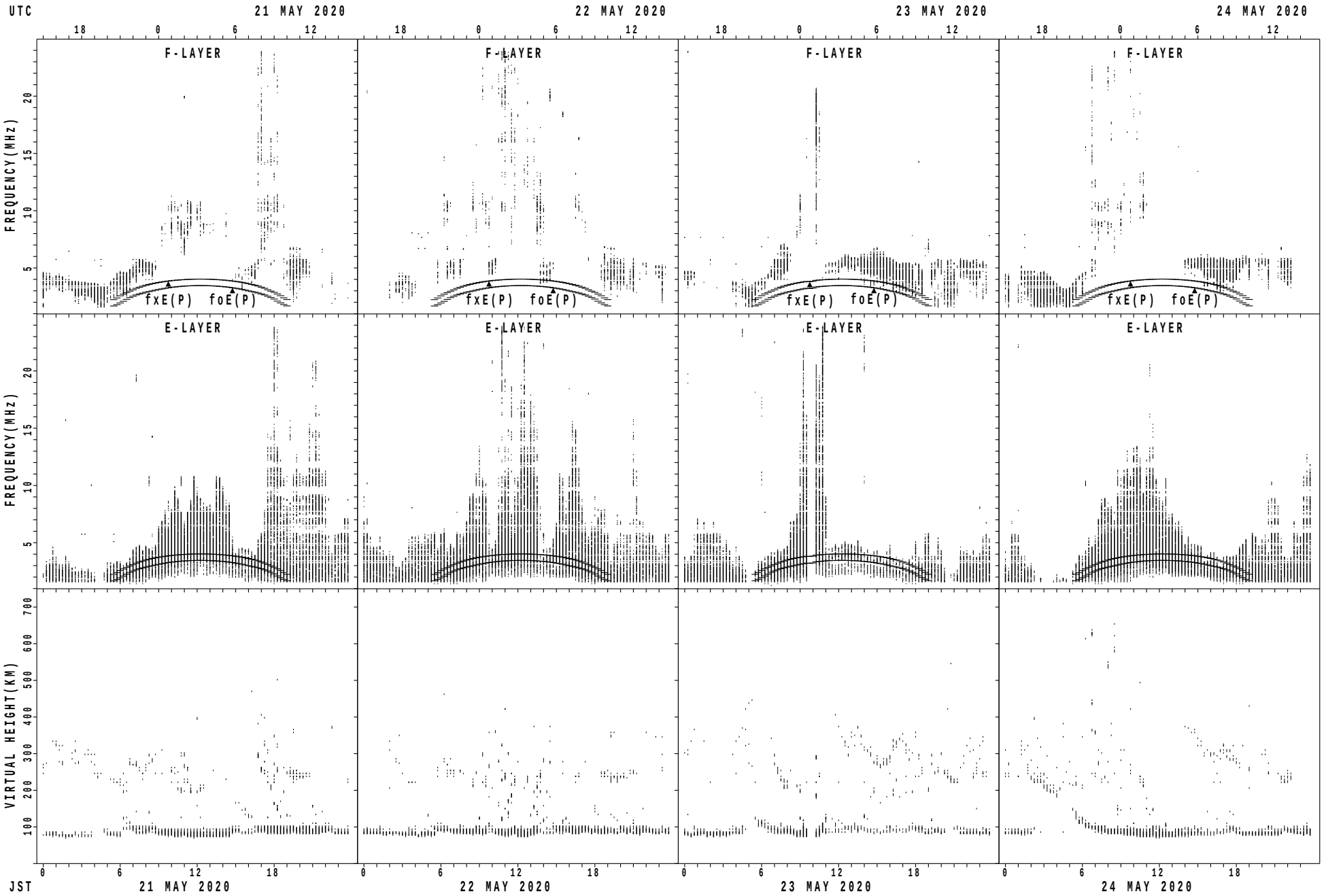
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



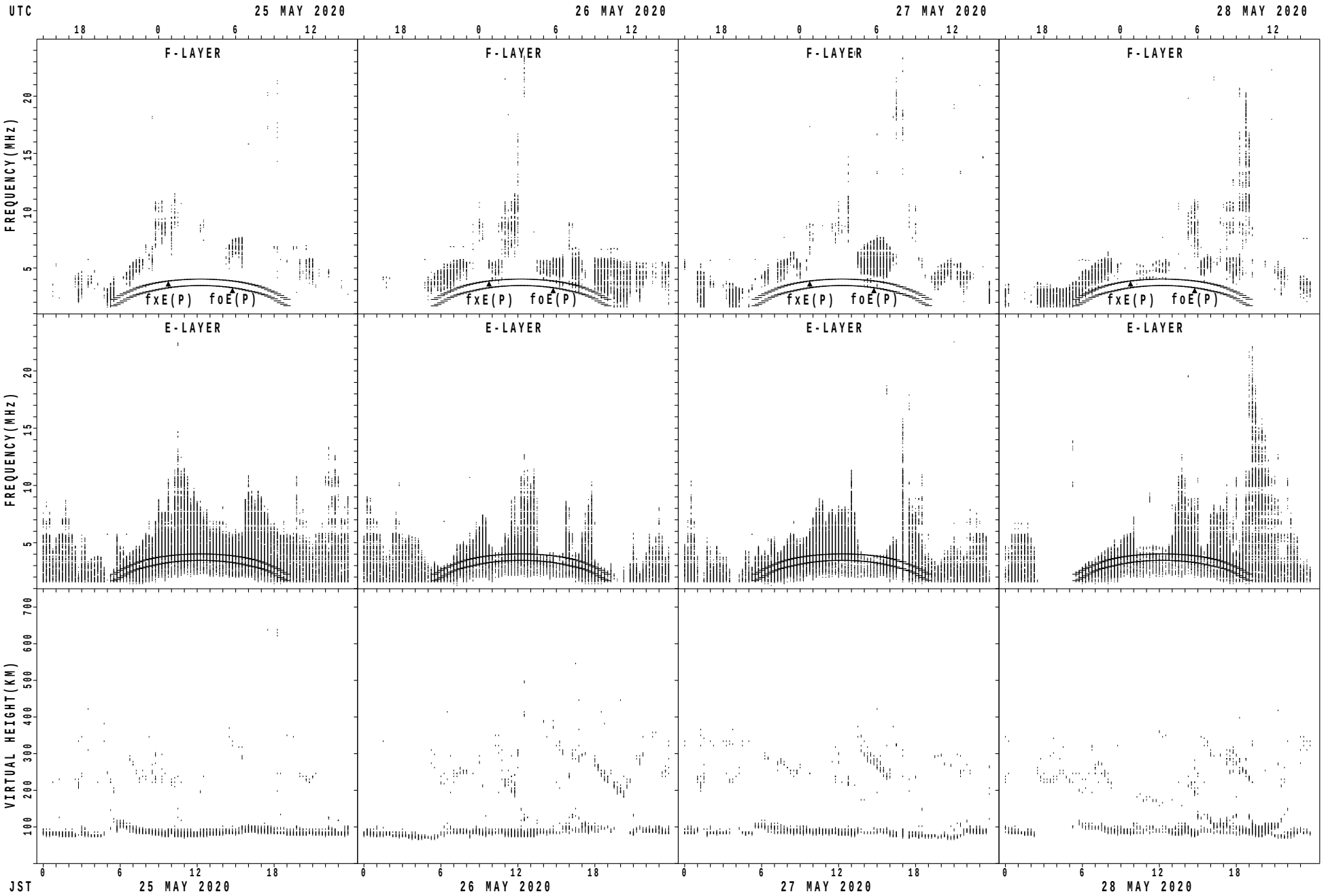
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



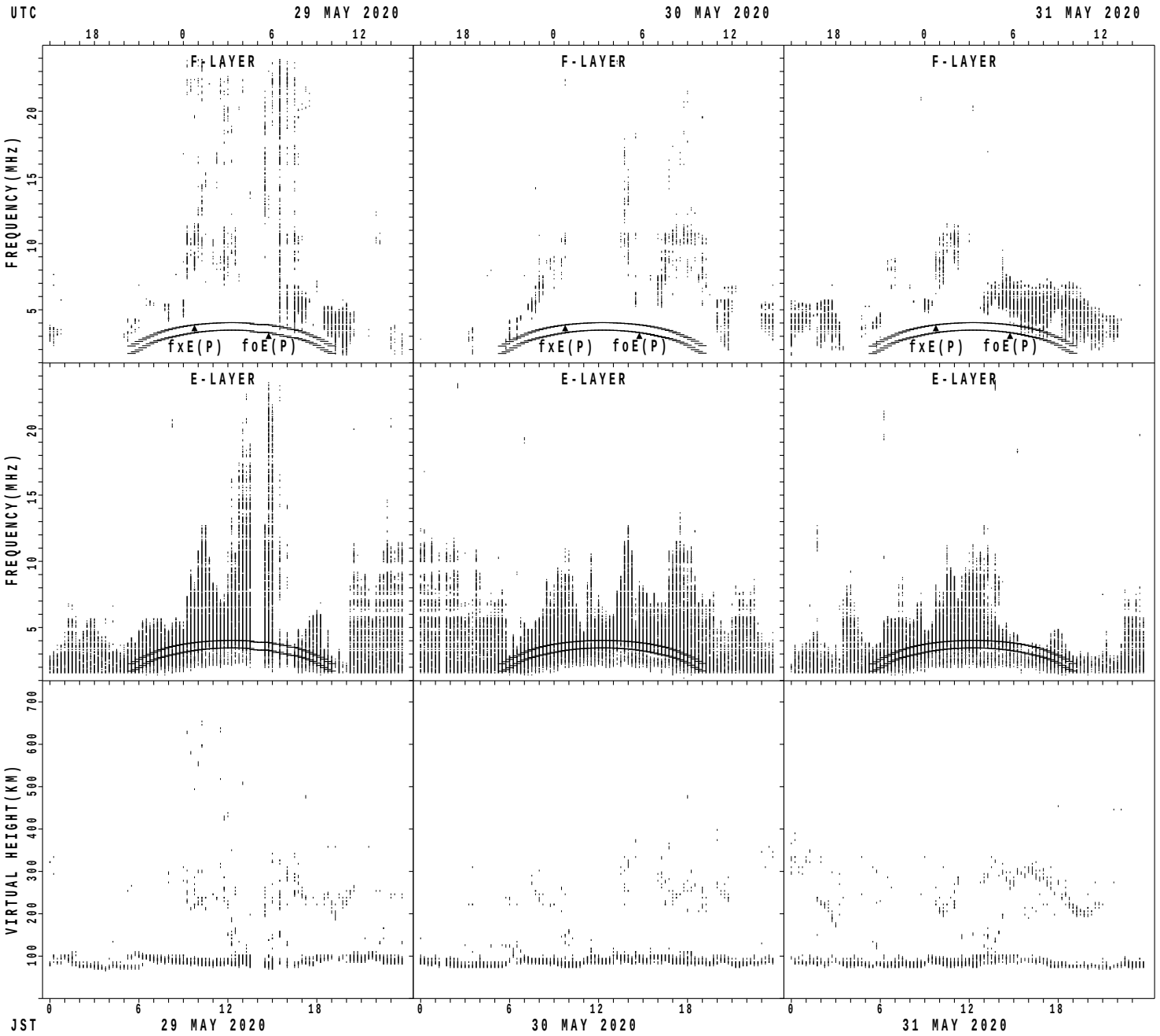
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



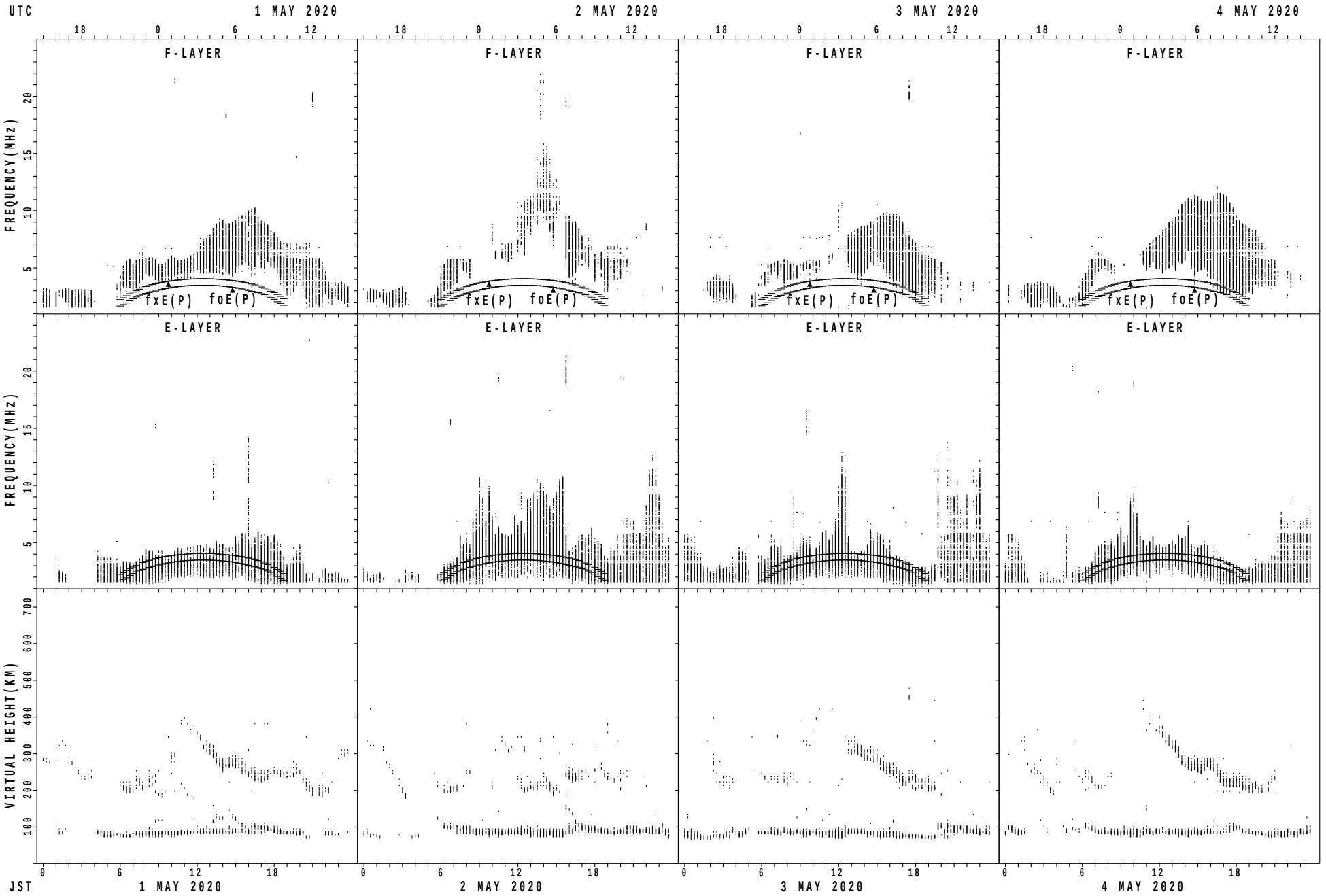
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



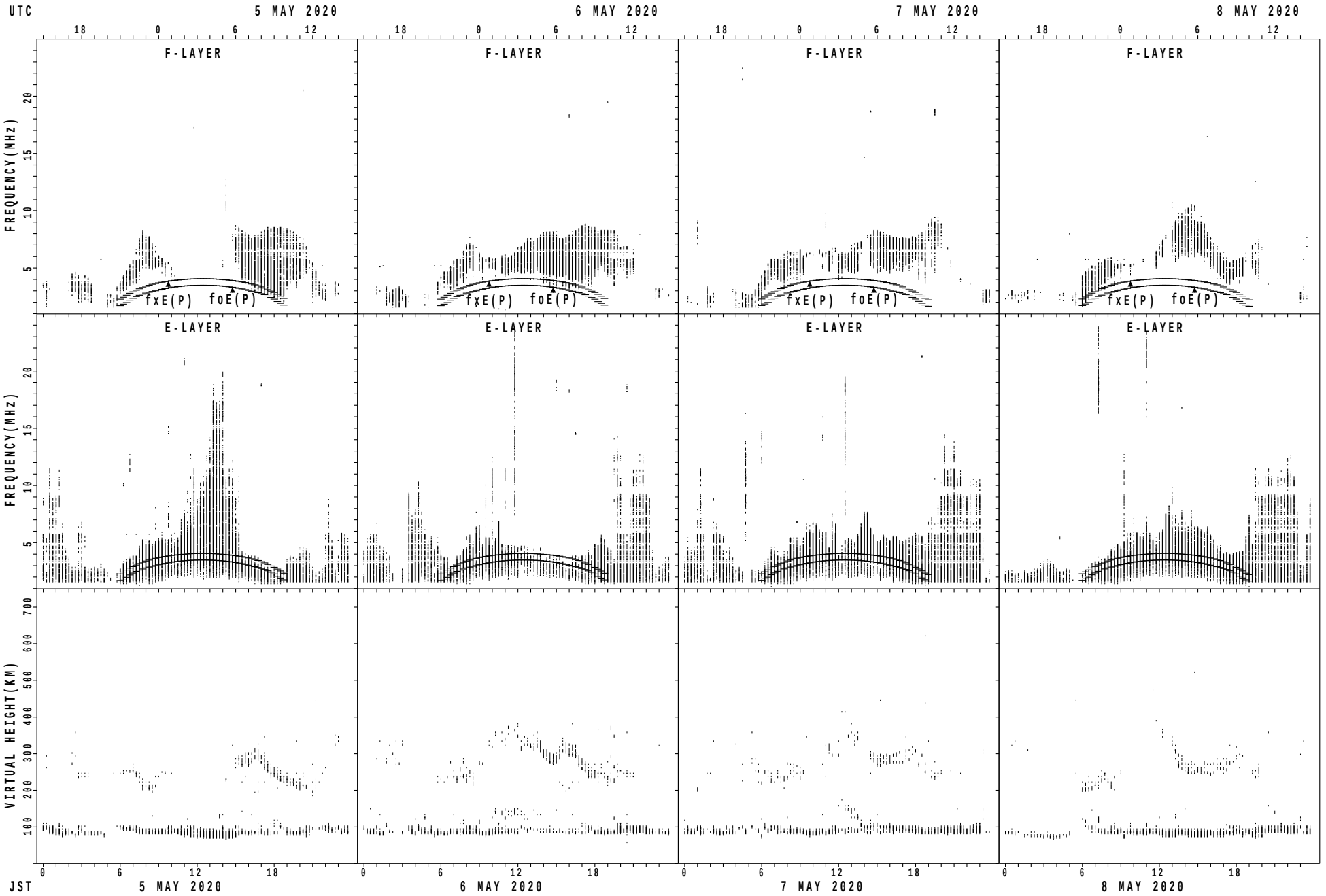
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



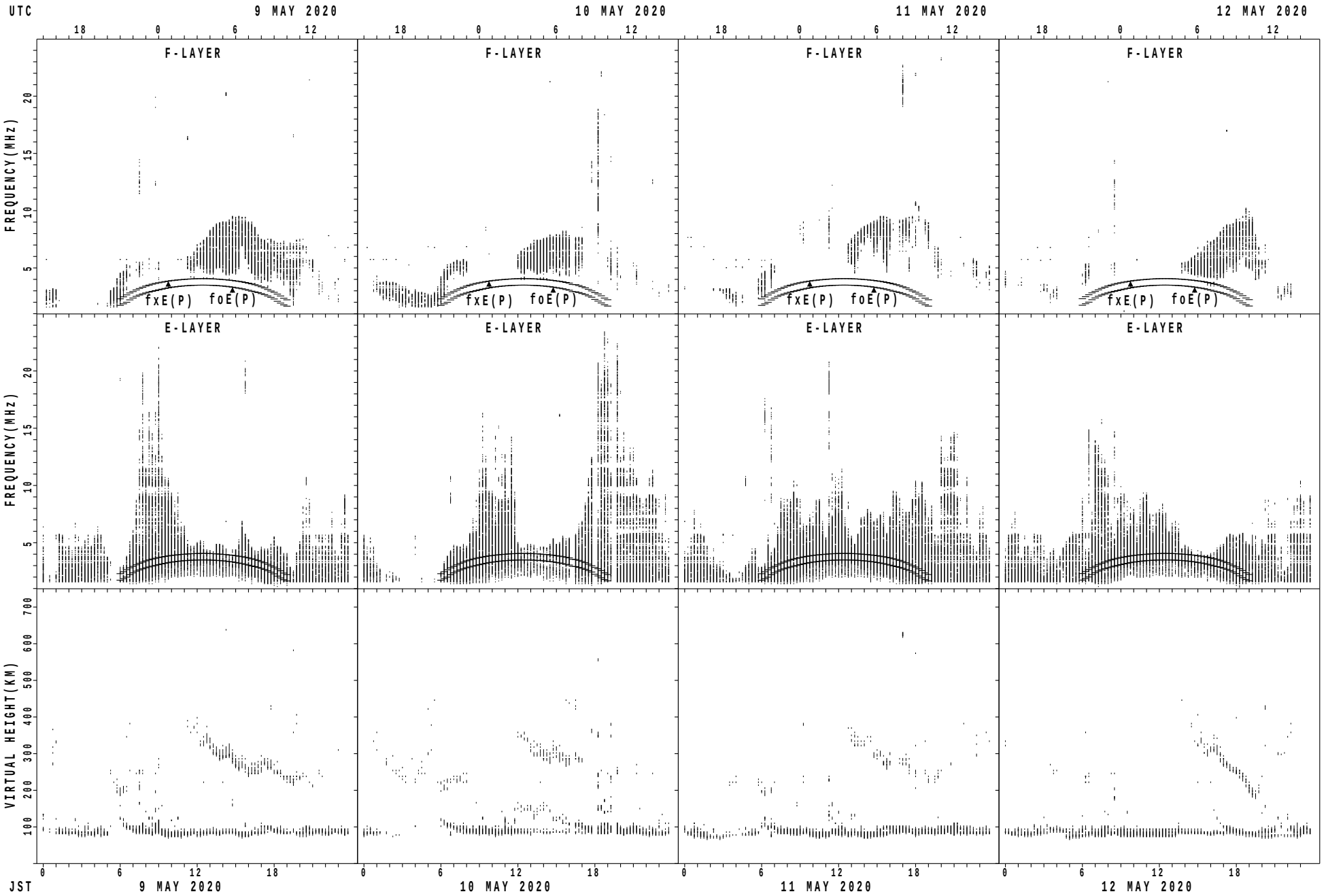
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



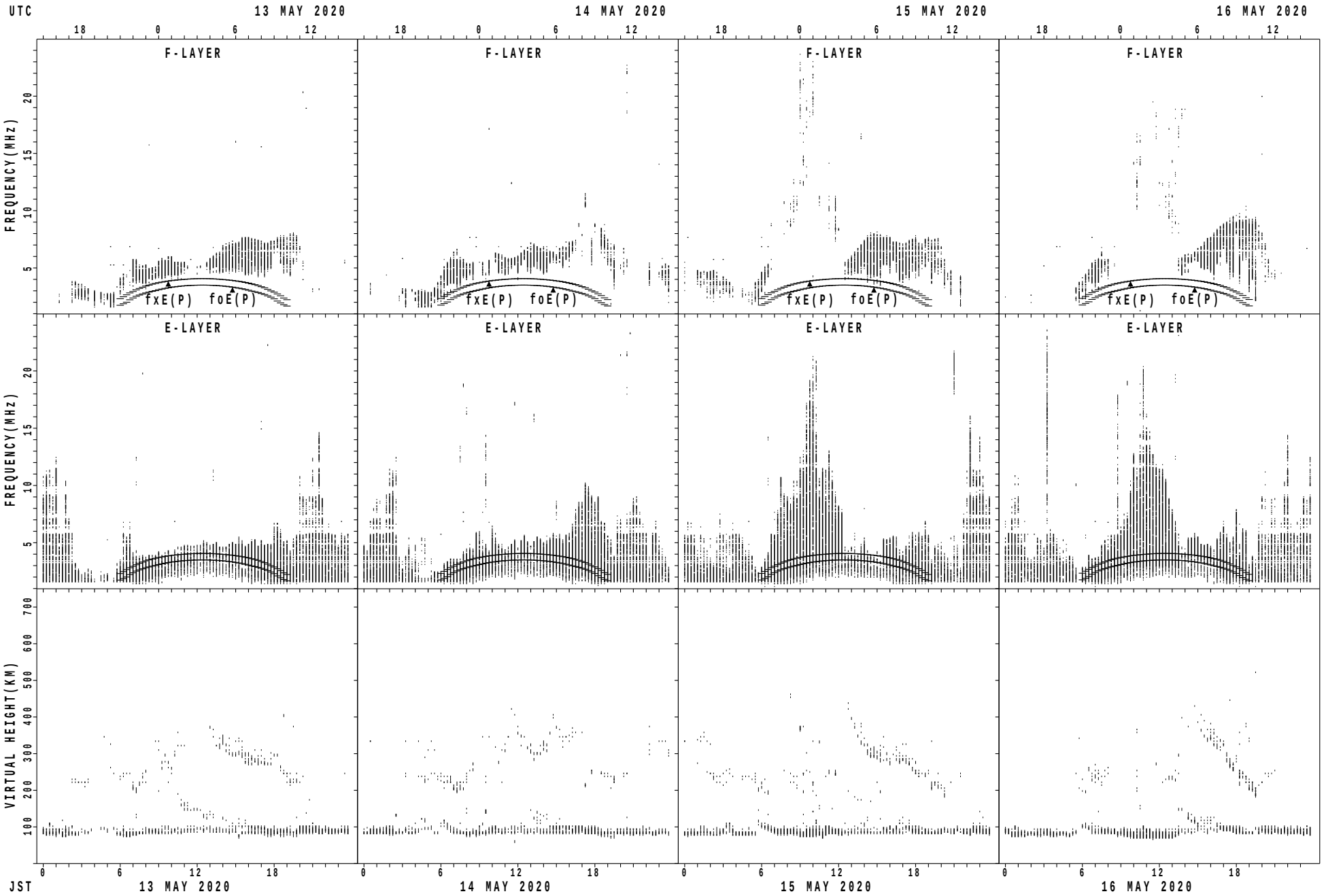
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



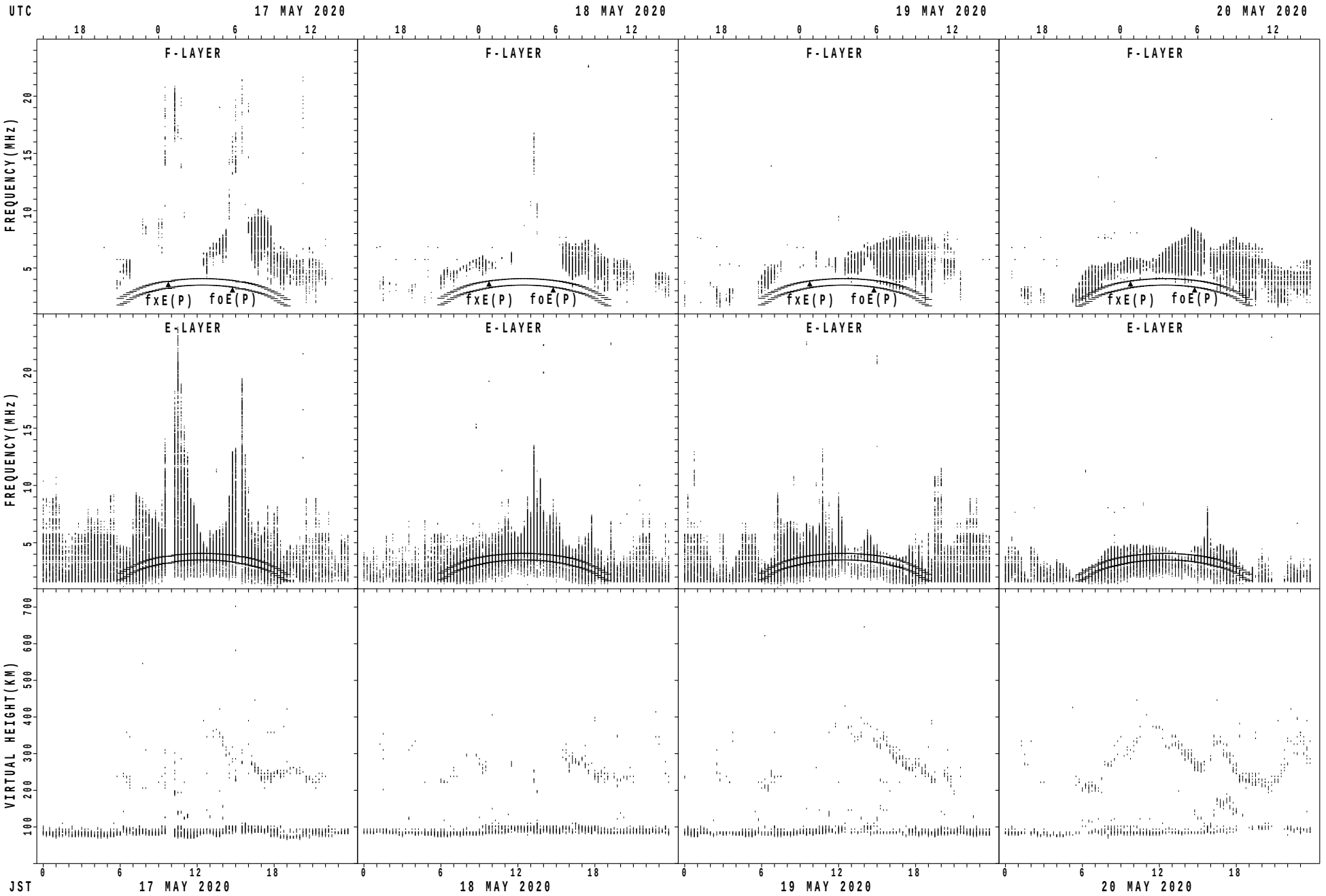
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



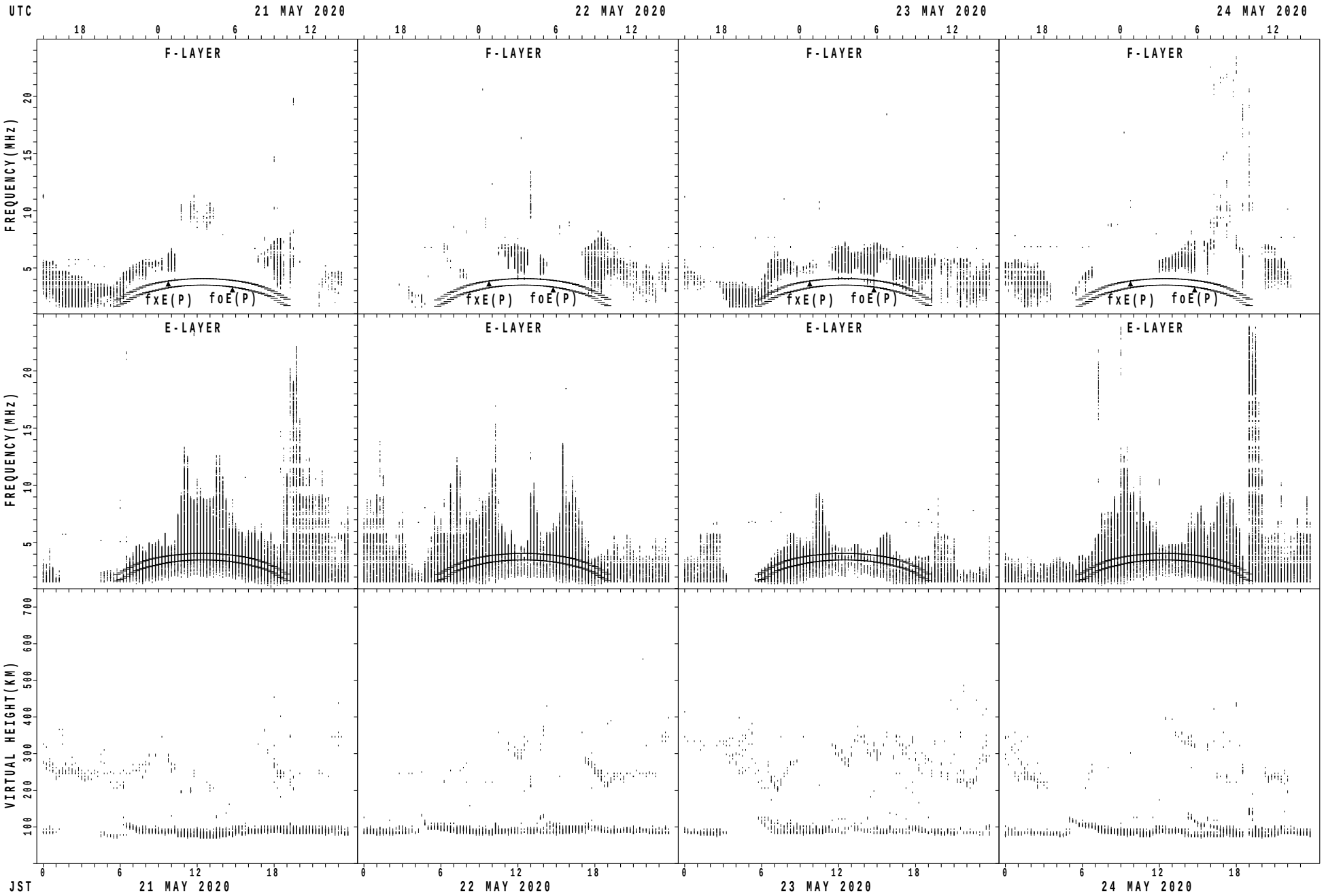
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



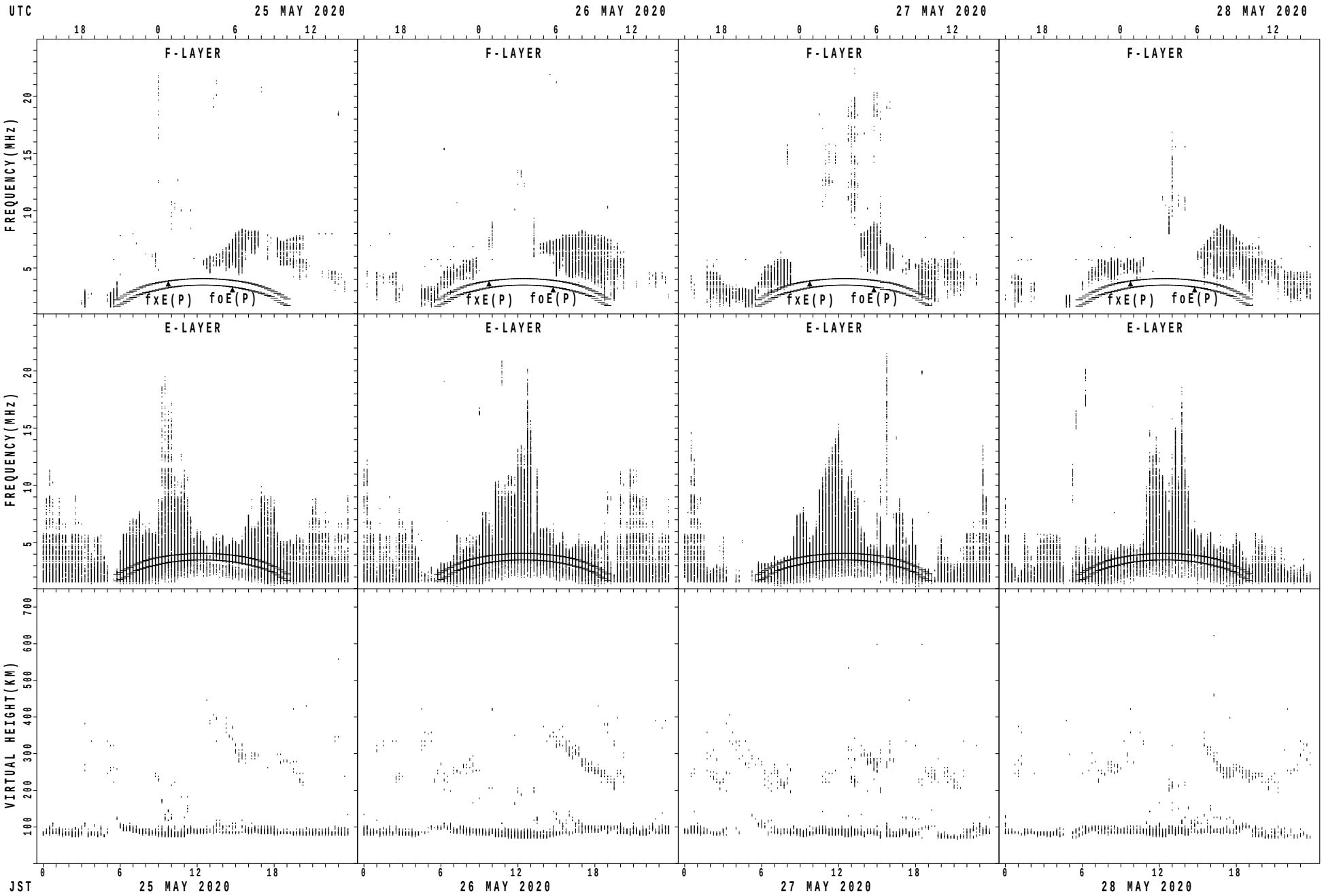
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



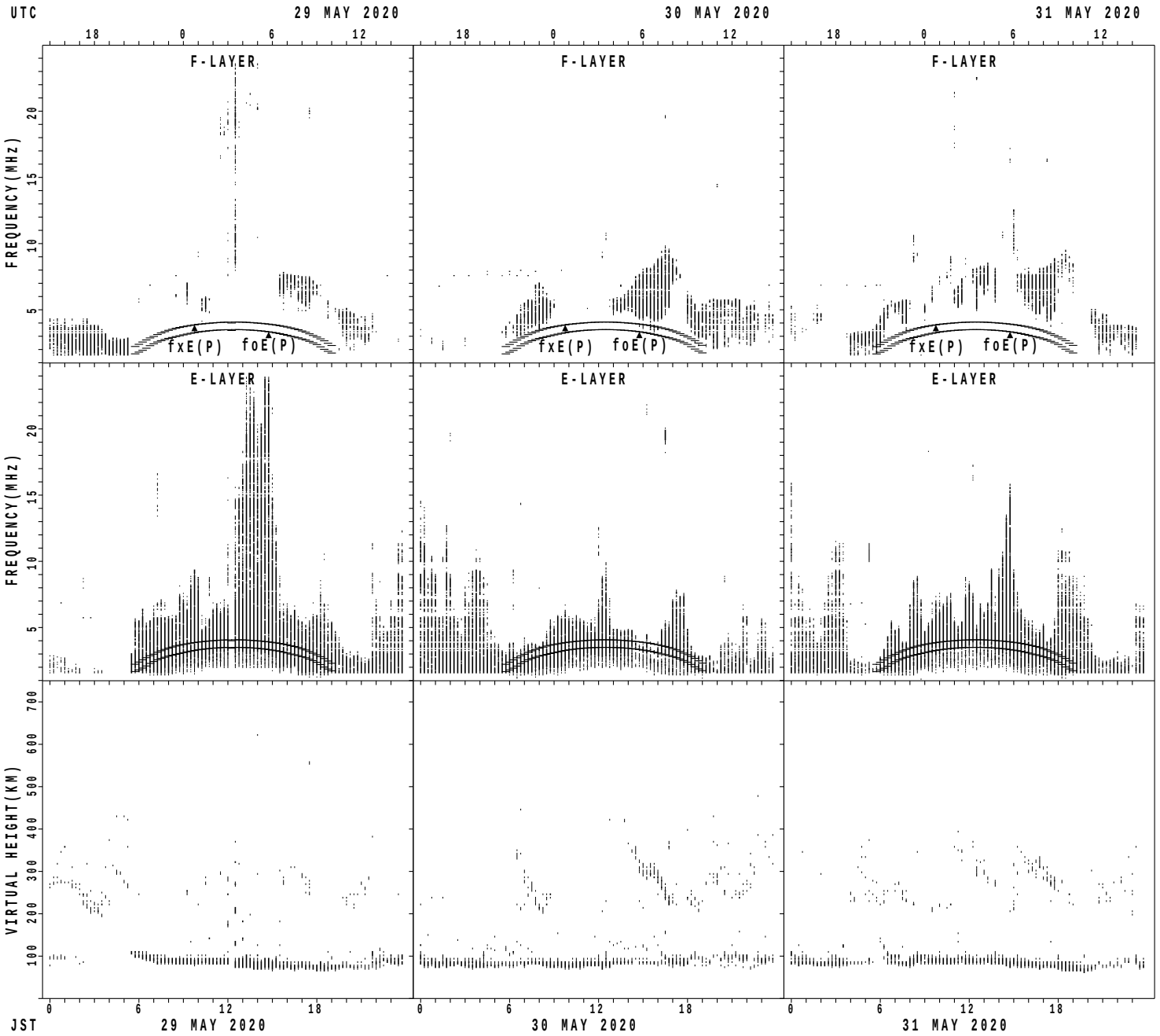
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

MAY 2020 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	3									1	4	6	2	4			
MED							248	250									290	215	205	225	237			
U Q							124	262									145	276	208	242	290			
L Q							124	216									145	206	202	208	212			

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	26	28	28	21	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	29	26	25
MED	96	96	96	98	98	98	98	98	96	96	96	96	96	98	98	98	98	98	98	98	98	98	96	98
U Q	98	98	98	98	99	100	100	98	98	98	98	98	98	98	98	98	100	100	98	98	98	98	98	98
L Q	95	94	96	96	96	98	98	96	94	94	94	94	94	94	94	96	96	96	94	94	96	95	94	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1		5									10	11	7	5	5	2	1	1
MED						200		234									219	210	208	216	208	205	198	258
U Q						100		267									258	216	240	264	245	208	99	129
L Q						100		205									208	206	198	200	202	202	99	129

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	28	28	26	28	31	31	31	31	28	29	28	29	30	29	31	31	31	31	30	30	29	28
MED	94	94	95	95	98	98	98	98	96	96	96	94	96	96	98	98	96	96	96	94	96	96	94	95
U Q	96	96	98	98	98	98	100	98	96	98	96	96	98	96	98	100	98	96	98	96	98	98	96	98
L Q	92	92	92	92	96	96	96	96	94	94	94	94	94	94	96	96	94	94	94	94	94	94	94	94

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			1						11									15	15	8	3	1		
MED			192						242									266	212	212	228	202		
U Q			96						268									298	266	275	232	101		
L Q			96						216									230	202	205	226	101		

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	27	26	26	25	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	30	31
MED	96	94	94	94	95	96	98	98	96	94	96	96	96	96	96	98	98	96	96	94	96	94	94	96
U Q	98	96	96	98	98	98	100	98	98	98	98	98	98	98	98	98	100	98	98	98	98	98	96	98
L Q	92	92	92	92	92	93	96	96	94	92	94	94	92	94	94	96	96	96	94	94	92	92	94	92

MONTHLY MEDIANS OF h'F AND h'Es

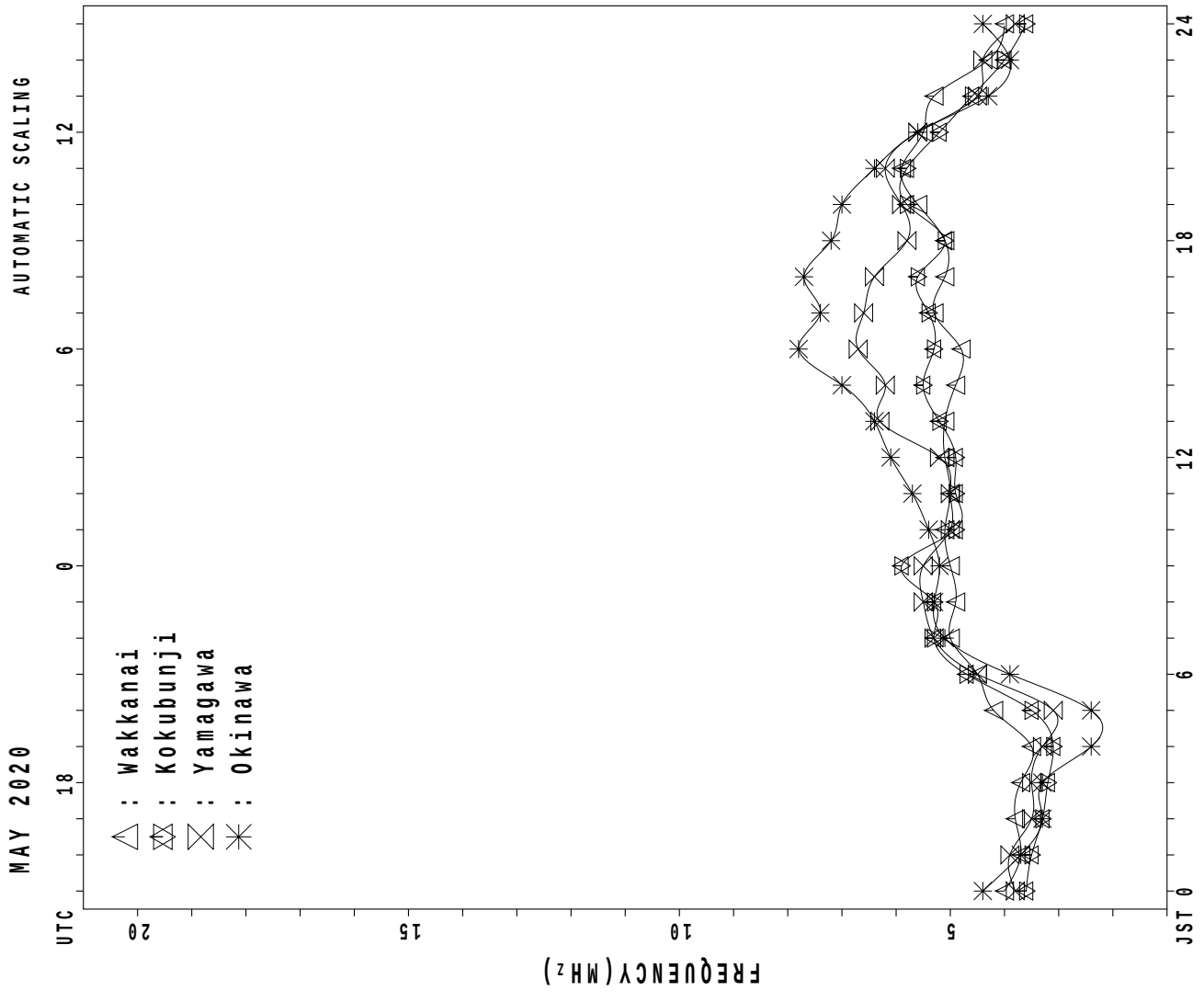
MAY 2020 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	7									18	17	12	5		1	
MED		204						228	222									264	252	224	238		208	
U Q		102						234	244									290	273	241	250		104	
L Q		102						222	216									240	229	209	212		104	

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	31	28	29	28	27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	94	96	94	94	96	96	98	98	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
U Q	96	96	96	96	98	98	100	98	98	98	96	98	98	98	98	98	98	98	98	98	98	98	98	98
L Q	92	94	93	92	94	94	96	96	94	94	94	94	94	94	94	96	94	94	94	94	94	94	94	94


MONTHLY MEDIANS PLOT OF foF2
MAY 2020
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

MAY 2020 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 46	X 44	X 44	X 43	46																X 69	X 62	X 50	X 48
2	A	57	X 39	43	40																X 61	X 51	X 44	X 44
3	X 42	X 43	X 40	X 39	X 37																X 58	X 55	X 48	X 45
4	X 43	X 42	X 42	X 40																	X 61	X 59	X 54	X 46
5	X 46	X 45	X 44	X 43	42																X 67	X 65	X 58	X 46
6	X 40	X 42	X 43	X 44																	X 71	X 60	X 53	54
7	X 46	X 50	50	54	52																X 67	X 63	X 60	X 49
8	X 45	X 51	48	47	44																X 63	X 61	X 57	X 51
9	X 45	X 46	X 48	X 46	48																X 59	X 59	X 61	X 51
10	X 46	X 45	X 44	X 43																	X 61	X 59	X 59	X 57
11	X 51	X 48	X 46	X 44	X 42															X 58	X 62	X O 62	X 61	X 57
12	X 45	X 41	X 41	X 41	X 42															X 60	X 58	X 59	X 54	X 50
13	X 41	X 43	X 46	X 45	54															X 59	X 61	X 61	X 59	58
14	58	58	55	57	X 40															X 63	X 69	A	X 55	A
15	X 48	X 48	X 45	X 44	X 45															X 57	X 59	X 56	X 53	A
16	54	57	X 53	57	56															A	X 62	X 62	X 60	X 58
17	X 55	X 52	58	58	X 41															X 70	X 74	X 71	X 61	X 51
18	X 45	X 44	X 45	X 41	49															X 67	X 70	X 60	X 51	X 45
19	X 44	X 43	X 45	X 48	X 48															X 67	X 73	X 75	X 59	X 50
20	X 46	X 44	X 47	X 50	49															A	X 61	X 57	X 57	A
21	X 43	X 44	X 38	X 37	X 42															X 71	X 77	X 69	X 56	X 41
22	X 42	41	X 38	X 39	X 40															X 61	A	A	A	A
23	A	A	A	A	X 38															X 63	X 64	69	X 61	X 56
24	53	X 44	X 43	X 45	X 44															X 60	X 66	X 65	X 65	X 65
25	X 60	X 59	X 62	X 58	X 60															X 67	X 76	X 71	X 74	X 70
26	X 64	X 67	X 66	X 65	X 62															A	X 59	X 64	X 62	X 59
27	X 55	X 55	X 58	X 55	X 51															X 53	X 59	X 55	X 60	X 61
28	54	53	52	54	X 45															X 64	X 68	A	A	X 47
29	X 46	48	55	56	49	55														X 53	A	X 58	59	X 58
30	59	X 52	X 54	X 45	X 41																X 76	X 68	X 55	X 55
31	X 53	X 51	X 46	X 46	X 43															X 58	X 66	X 63	X 63	X 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	29	30	30	30	28	1														17	29	28	29	27
MED	X 46	X 47	X 46	X 45	X 44	55														X 61	X 64	X 62	X 59	X 51
U Q	54	52	X 53	54	49															X 67	X 70	X 65	X 61	X 58
L Q	X 44	X 44	X 43	X 43	X 42															X 58	X 61	X 59	X 54	X 47

MAY 2020 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 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	39	37	37	36	F 32	43	42	53	53	48	52	50	48	51	55	58	54	50	51	62	62	55	43	42
2	A	F 43	32	F 27	F 27	34	54	A	38	45	46	U R 51	48	A	46	43	43	42	46	52	54	44	37	37
3	35	36	33	32	30	31	A	A	A	A	49	49	48	48	50	47	54	51	50	48	51	48	41	38
4	36	35	35	33	33	41	40	48	49	48	52	51	51	53	49	55	54	50	50	55	54	52	47	39
5	39	38	37	36	F 32	47	47	47	48	48	50	48	48	47	47	51	55	54	57	64	60	58	51	39
6	33	35	36	37	35	40	52	60	56	58	R 52	R 49	48	52	48	53	55	61	A	58	64	53	46	F 41
7	V 39	43	F 35	F 37	F 40	40	44	50	50	47	49	52	45	47	47	46	47	48	48	59	60	56	53	42
8	38	44	F 38	F 34	F 29	38	42	42	A	49	49	48	46	45	47	47	51	50	50	54	56	54	50	44
9	38	V 39	41	39	F 34	41	42	R 42	47	46	51	52	51	49	52	48	46	42	43	49	52	52	54	44
10	39	38	37	36	36	43	43	38	46	49	48	47	47	48	46	44	46	46	42	48	54	52	52	50
11	44	41	39	37	35	40	44	46	46	47	52	54	54	48	48	46	48	46	50	51	55	55	54	50
12	38	34	34	34	35	47	45	49	52	54	50	47	50	48	47	48	46	46	50	53	51	52	47	43
13	34	V 36	39	38	F 37	43	47	50	48	48	A	48	49	A	47	47	52	52	51	52	54	54	52	F 42
14	F 42	F 38	F 38	F 34	33	39	42	46	53	51	A	45	49	45	48	A	A	A	A	56	62	A	48	A
15	41	41	38	37	V 38	38	44	47	A	A	A	A	47	48	46	A	48	51	50	50	52	49	46	A
16	F 37	F 38	46	F 46	F 44	38	A	A	46	52	54	50	A	A	49	A	48	50	44	A	55	55	53	51
17	48	45	F 43	F 38	34	40	39	A	A	52	55	A	48	47	47	48	49	50	59	63	67	64	54	44
18	38	37	Z 39	34	F 32	42	49	58	50	A	R	A	49	50	53	A	A	A	A	60	63	53	44	38
19	37	36	38	R 41	41	43	48	58	R 58	R 56	A	R	48	50	50	49	48	A	50	60	66	68	52	43
20	39	37	40	43	F 34	37	47	51	52	51	46	46	46	48	50	48	52	51	A	A	54	50	50	A
21	36	37	31	30	35	A	A	A	A	51	54	47	50	50	48	A	A	A	51	64	70	J R 62	49	34
22	35	F 31	31	32	33	A	41	A	47	49	U R 44	U R 45	48	47	45	A	A	43	A	54	A	A	A	A
23	A	A	A	A	31	39	A	A	A	49	A	49	A	48	49	A	A	A	A	56	57	F 57	54	49
24	F 42	37	36	38	37	44	53	A	A	A	A	48	50	50	49	A	A	49	A	53	59	58	58	58
25	53	52	55	51	53	53	44	A	A	A	A	A	50	57	55	50	J A 44	46	48	60	69	64	67	63
26	57	60	59	58	55	56	50	A	A	A	48	51	U R 49	45	47	45	46	46	46	A	52	57	55	52
27	48	48	51	V 48	44	45	47	48	52	52	59	52	48	48	48	45	47	48	46	46	52	48	53	54
28	F 44	F 40	F 38	F 38	38	45	46	47	59	52	50	47	A	49	49	48	A	43	A	57	61	A	A	40
29	39	F 37	F 41	F 42	F 37	F 44	55	A	A	A	51	R 59	48	A	A	45	43	43	46	46	A	51	F 47	51
30	F 46	45	47	Z 38	34	42	48	A	A	A	50	A	A	51	A	45	44	A	49	55	69	61	48	48
31	46	44	39	39	36	39	44	47	43	R	50	50	47	48	50	48	52	A	50	51	59	56	56	48
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	30	31	29	27	19	20	22	23	25	27	27	29	23	24	24	23	28	29	28	29	27
MED	39	38	38	37	35	41	45	48	50	49	50	49	48	48	48	48	48	48	50	54	57	54	51	44
U Q	44	43	41	39	38	44	48	51	52	52	52	51	50	50	50	49	52	50	50	60	62	58	54	50
L Q	37	37	36	34	F 33	39	42	46	46	48	49	47	48	47	47	45	46	46	46	51	54	52	47	40

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	420	436	440	L	420	L	L	L	L	L					
2								A		L	L	L	L	A	L	L	L	A						
3						L	A	A	A	A	L	L	L	L	L	L	L	L						
4						L	L	L	L	L	L	428	L	428	404	L	L	L	L					
5						L	356	392	404	L	L	A	L	L	L	L	L	356						
6						L	356	396	L	L	A	L	L	A	L	L	A	A	A					
7							L	380	L	L	L	L	L	L	392	L	L	L						
8						A	344	388	A	A	L	428	L	L	L	L	A	L	L					
9							L	L	L	L	L	L	L	L	L	L	A	L	L					
10						L	L		A	L	428	L	L	L	L	L	L							
11							L	376	A	A	A	L	A	420	A	396	380	352	L					
12						L	A	E A 408	A	A	432	428	L	424	A	A	A	A	A					
13						L	L	A	A	424	A	424	L	A	A	400	A	A	A					
14						316	360	384	A 388	420	A	404	420	L	A 404	A	A	A	A					
15							368		A	A	A	A	A	412	408	A	L	L	A					
16								A	A	A	A	A	A	A	A	A	388	372	L					
17								A	A	A	A	A	448	428	424	400	388	A						
18						316	360	384	428	A	432	A	A	424	A	A	A	A	A					
19						328	352	400	528	L	A	424	A	A	A	A	A	A	A					
20						A	A	L	A	L	L	L	A	L	L	A	396	364	A					
21						A	A	A	A	L	416	444	L	428	L	A	A	A	A					
22						A	A	A	A 412	A	420	428	L	416	404	A	A	L	A					
23						312	A	A	A	A	A	A	A	428	L	A	A	A	A					
24								A	A	A	A	L	424	420	A	A	A	A	A					
25						316	A	A	A	A	A	A	424	A	L	L	A	324	A					
26						324	L	A	A	A	A	A	420	428	408	388	376	A						
27						348	400	400	408	A	L	A	A	A	L	408	L	364	316					
28						328	364	384	404	428	448	428	A	428	A 428	L	A	L	A					
29						L		A	A	A	A	A	436	A	A	412	400	368	L					
30						320		A	A	A	A	A	L	424	A	392	A	A	A	A				
31						316	356	376	L	412	L	L	L	L	L	368	388	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						10	10	12	7	5	7	10	6	14	8	8	7	7	1					
MED						318	358	385	408	420	432	428	424	424	406	398	388	364	316					
U Q						328	364	398	428	426	436	428	436	428	416	404	396	368						
L Q						316	356	382	404	416	420	424	420	420	404	390	380	352						

MAY 2020 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					B	192	228	268	292	316	316	324	324	324	312	300	268	240	212	A				
2					212	188	236	264	284	300	300	312	288	304	288	288	276	232	B	A				
3						212	228	280	288	304	324	324	332	316	316	288	264	228	172	272				
4					B	B	224	252	312	316	320	320	320	A	320	308	272	232	172	A				
5					192	220	252	272	288	304	316	316	344	316	316	308	260	232	B	A				
6					232	196	244	260	292	312	324	324	324	324	308	296	276	228	B	B				
7					A	196	240	272	288	312	324	332	316	312	312	284	272	232	184	B				
8					A	260	236	256	296	296	312	332	U A 336	320	312	308	260	232	A	B				
9						224	232	276	292	304	308	308	160	A	312	304	272	228	B	228				
10					B	172	216	276	292	312	328	336	324	312	304	284	260	244	A	A				
11						208	240	268	296	316	316	316	316	316	296	292	256	232	180					
12						192	236	280	300	312	312	328	320	320	312	292	268	232	A					
13						A	244	280	300	300	324	328	328	328	312	288	280	240	208					
14						208	276	276	292	308	308	300	340	320	320	296	272	232	168					
15						188	256	272	284	316	316	316	A	A	316	304	280	248	B					
16						212	268	268	312	312	324	324	324	296	A	A	A	240	A					
17						212	252	280	312	312	332	332	320	288	A	288	A	U R 248	204					
18						196	228	284	308	308	320	320	280	348	324	300	276	220	A					
19						200	244	264	300	A	A	A	300	A	304	304	284	244	180					
20						184	232	276	288	320	332	332	332	332	332	288	A	A	A					
21						208	248	272	304	316	320	340	324	324	304	292	272	244	168					
22						216	240	288	288	312	304	324	324	308	296	276	A	A	192					
23						A	240	276	276	316	312	340	A	A	308	308	276	248	A					
24						200	248	284	304	304	320	320	U R 336	336	348	312	284	252	184					
25						188	260	276	296	304	312	312	312	A	A	A	268	220	180					
26						200	248	276	308	308	316	312	316	300	288	312	A	188	212					
27						220	236	276	308	308	308	284	328	316	280	300	284	236	204					
28						204	236	288	304	312	324	324	324	312	A	308	276	248	204					
29						216	240	288	296	324	324	324	324	324	304	304	276	344	A					
30						224	256	276	292	316	316	320	A	A	320	296	284	260	200	288				
31						208	256	276	292	288	340	336	332	332	324	308	280	252	208					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					3	28	31	31	31	30	30	30	28	24	27	29	26	29	18	3				
MED					212	206	240	276	296	312	318	324	324	318	312	300	274	236	188	272				
U Q					232	214	252	280	304	316	324	332	330	324	320	308	280	248	204	288				
L Q					192	194	236	268	288	304	312	316	316	312	304	288	268	232	180	228				

MAY 2020 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 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	22	E B 16	E B 16	21	E B 16	G	J A 53	32	35	37	37	36	38	J A 55	35	J A 35	31	J A 46	J A 35	27	24	23	27	J A 85
2	58	J A 51	34	J A 26	28	22	J A 39	41	39	42	38	42	59	51	39	J A 30	37	35	J A 28	J A 35	J A 27	J A 37	24	J A 48
3	J A 77	J A 32	J A 31	28	J A 25	J A 25	J A 51	J A 71	J A 70	63	42	43	37	34	J A 62	35	30	40	J A 37	35	47	28	30	24
4	29	33	28	31	33	J A 23	31	32	40	J A 50	41	37	37	J A 37	38	36	J A 30	J A 31	32	32	31	24	26	26
5	23	23	28	20	J A 24	J A 22	G 25	J A 105	32	35	J A 83	J A 48	J A 51	37	40	38	34	31	J A 51	J A 38	22	E B 16	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	G	G	29	34	34	J A 56	J A 56	38	42	J A 51	38	39	J A 45	J A 63	J A 56	35	37	J A 53	J A 27	34
7	31	J A 26	J A 26	21	J A 205	J A 21	26	J A 117	34	J A 34	35	J A 34	34	35	41	38	36	33	J A 30	37	43	J A 72	24	E B 16
8	28	37	30	J A 32	30	J A 35	27	35	J A 62	J A 45	36	45	42	37	36	37	J A 45	J A 39	J A 49	22	28	J A 29	36	36
9	30	E B 16	E B 14	20	J A 21	24	33	37	38	39	39	J A 123	J A 47	J A 93	37	37	42	J A 40	J A 31	J A 23	34	40	19	E B 16
10	20	E B 16	32	E B 16	E B 16	25	32	37	42	37	G 37	38	G	34	J A 33	G	30	J A 35	J A 37	28	30	28	E B 16	E B 16
11	E B 16	20	21	19	E B 16	24	30	37	42	J A 48	58	J A 47	J A 48	39	J A 47	34	31	29	28	J A 28	E B 16	E B 16	E B 16	26
12	22	32	J A 40	28	E B 16	27	45	J A 40	J A 54	63	42	J A 50	38	36	41	41	J A 44	J A 39	J A 34	41	J A 51	23	27	J A 29
13	J A 148	J A 29	J A 27	J A 22	E B 16	J A 25	J A 37	J A 52	J A 52	J A 42	J A 44	J A 46	36	62	J A 47	35	41	J A 57	J A 59	J A 106	J A 62	J A 62	J A 65	J A 85
14	46	39	J A 33	33	24	34	J A 103	49	J A 45	J A 108	J A 81	J A 44	G 43	38	43	J A 64	78	J A 77	J A 111	J A 87	J A 47	J A 106	J A 63	J A 50
15	J A 31	J A 29	J A 29	24	26	J A 32	32	42	J A 76	J A 76	J A 76	86	J A 65	48	36	J A 51	J A 52	J A 45	J A 54	J A 35	J A 51	J A 76	J A 65	J A 99
16	J A 40	21	J A 62	40	31	G	J A 52	J A 82	J A 63	56	64	J A 49	59	65	50	J A 57	J A 52	30	J A 41	J A 62	J A 23	J A 35	J A 33	28
17	J A 26	33	26	26	E B 16	J A 30	J A 48	J A 64	J A 60	J A 57	J A 49	J A 53	J A 67	J A 38	40	33	J A 55	56	J A 49	J A 44	24	E B 16	E B 16	E B 17
18	J A 27	20	E B 16	J A 20	E B 16	27	J A 173	J A 44	J A 74	J A 70	J A 63	81	J A 87	G	J A 76	73	J A 108	J A 152	J A 98	38	J A 49	J A 83	J A 83	J A 49
19	J A 33	J A 29	J A 23	J A 25	J A 216	J A 33	142	J A 108	J A 68	J A 56	J A 51	J A 51	J A 57	J A 55	J A 71	40	45	J A 59	J A 43	48	J A 52	J A 52	J A 41	60
20	28	25	23	26	36	J A 37	J A 38	J A 43	J A 52	J A 56	J A 87	J A 56	J A 56	J A 45	J A 45	64	J A 33	36	J A 88	J A 103	J A 109	J A 64	J A 109	58
21	J A 51	J A 31	J A 61	J A 94	J A 70	J A 45	J A 65	J A 87	J A 86	J A 55	J A 40	38	J A 38	40	42	J A 53	J A 65	96	J A 75	J A 75	J A 117	J A 108	J A 52	J A 98
22	J A 61	33	J A 51	J A 31	J A 30	J A 65	J A 45	J A 75	J A 146	J A 104	J A 67	J A 63	48	J A 50	J A 61	J A 97	J A 108	J A 61	J A 83	J A 247	J A 237	J A 117	J A 108	J A 153
23	J A 127	J A 87	J A 85	J A 51	J A 33	36	58	J A 73	J A 125	J A 65	93	J A 86	J A 79	J A 57	43	J A 261	108	J A 129	192	J A 120	44	35	J A 38	35
24	J A 28	30	27	31	58	J A 47	J A 50	J A 59	54	J A 138	65	J A 64	38	38	J A 67	J A 67	J A 57	J A 67	94	31	38	28	J A 53	37
25	27	27	26	24	33	J A 30	J A 41	J A 74	J A 95	J A 97	J A 74	J A 65	38	47	J A 34	J A 41	55	J A 43	J A 44	J A 50	J A 51	49	32	J A 47
26	32	29	29	J A 36	27	28	J A 41	J A 58	J A 63	J A 61	60	J A 60	41	38	36	40	J A 45	52	49	72	J A 51	23	J A 42	23
27	26	22	28	22	E B 16	26	J A 37	J A 46	58	J A 87	J A 51	J A 64	68	J A 60	J A 65	J A 52	37	30	26	J A 44	J A 37	J A 50	J A 45	J A 32
28	23	J A 40	J A 31	J A 31	32	28	32	49	41	42	J A 87	J A 58	J A 90	J A 48	J A 55	52	J A 75	J A 53	J A 79	J A 82	J A 35	J A 82	J A 107	94
29	38	24	20	26	J A 37	J A 45	70	J A 64	J A 75	J A 72	J A 104	J A 151	J A 105	J A 121	J A 121	J A 105	46	J A 108	44	38	J A 61	J A 72	J A 40	J A 41
30	36	42	J A 34	J A 43	J A 43	J A 119	J A 47	40	J A 61	J A 61	J A 45	J A 65	J A 88	J A 63	60	37	40	J A 48	J A 40	J A 72	59	J A 39	E B 16	E B 16
31	32	J A 29	25	E B 15	E B 16	24	J A 41	J A 51	J A 51	G 35	G 37	G 37	42	42	39	G 42	J A 72	134	J A 49	38	33	38	32	J A 39
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	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	30	29	28	26	27	J A 27	J A 41	J A 49	J A 54	J A 56	J A 51	J A 50	47	45	42	41	45	J A 46	J A 49	J A 38	J A 43	J A 39	J A 33	36
U Q	J A 40	33	J A 33	J A 31	J A 33	J A 35	J A 52	J A 73	J A 70	J A 70	J A 74	J A 64	J A 65	J A 55	J A 60	J A 57	J A 57	J A 63	J A 75	J A 72	J A 51	J A 72	J A 53	J A 58
L Q	26	22	23	21	E B 16	24	32	40	41	42	40	42	38	37	38	37	36	35	J A 35	35	30	28	E B 24	E B 24

MAY 2020 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 16	E B 16	E B 16	E B 16	G	24	30	33	33	34	34	34	34	33	31	29	26	G 21	E B 16	E B 16	E B 16	E B 16	E B 17
2	A A 58	E B 16	E B 16	E B 16	E B 16	22	30	A A 41	32	36	36	36	36	A A 51	34	G 28	30	32	25	25	24	24	E B 15	E B 16
3	18	21	E B 17	E B 16	E B 16	G 21	A A 51	A A 71	A A 70	A A 63	34	39	34	34	34	30	28	31	31	G 21	21	E B 16	18	E B 16
4	E B 16	E B 16	E B 16	E B 16	E B 16	20	26	30	G 30	35	34	34	36	34	G 30	32	28	G 23	19	E B 16	E B 16	E B 16	E B 16	E B 16
5	E B 16	E B 16	E B 16	E B 16	E B 16	G 21	G 25	G 26	31	34	38	A	G 34	36	E A 38	36	31	28	24	20	E B 16	E B 16	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	G	G	27	32	32	33	A	35	36	E A 44	35	35	A 33	A 28	A A 56	21	26	22	18	16
7	E B 16	16	E B 16	E B 16	E B 16	G 17	G 23	28	31	32	34	G 30	33	33	38	33	33	28	26	19	22	22	E B 16	E B 16
8	E B 16	E B 16	E B 16	E B 16	E B 18	A	26	32	A A 62	A	35	G 32	G 32	34	34	34	A 32	G 21	20	E B 16	E B 16	16	21	E B 16
9	E B 16	E B 16	E B 14	E B 16	E B 17	G 22	24	35	36	36	38	E A 40	34	31	G 31	34	40	E A 28	E A 24	G 19	18	16	E B 16	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	23	29	A 33	A	35	G 35	35	G	34	32	G	28	29	22	19	18	16	E B 16	E B 16
11	E B 16	E B 16	E B 16	E B 16	E B 16	G 20	28	34	A	E B 44	A	E A 37	A	37	A	32	28	26	26	20	E B 16	E B 16	E B 16	E B 16
12	16	E B 16	16	E B 16	E B 16	22	A	E A 38	E A 35	A	38	34	34	35	35	E A 37	A	A	A 22	19	16	E B 16	E B 16	E B 16
13	17	E B 16	E B 16	E B 16	E B 16	22	31	A 42	A	37	A A 44	35	35	A A 62	E A 43	33	32	A	28	21	21	17	19	18
14	18	20	18	16	E B 16	22	G 28	G 28	34	36	A A 81	35	G 34	34	A	A A 64	A A 78	A A 77	A A 111	20	21	A A 106	21	A A 50
15	16	E B 16	E B 16	E B 16	E B 16	G 16	29	A	A A 76	A A 76	A A 76	A A 86	A	33	33	A A 51	29	28	32	22	30	20	E A 41	A A 99
16	18	E B 16	16	18	E B 18	G	A A 52	A A 82	A 42	40	35	A	A A 59	A A 65	A	A A 57	27	24	26	A A 62	20	16	E B 16	18
17	E B 16	E B 16	E B 16	E B 16	E B 16	25	E A 34	A A 64	A A 60	A	A	A A 53	36	35	34	31	31	A	26	23	E B 16	E B 16	E B 16	E B 17
18	E B 16	E B 16	E B 16	16	E B 16	26	G 22	33	35	A A 70	38	A A 81	A	G	A	A A 73	A A 108	A A 152	A A 98	23	E B 16	E B 16	E B 16	E B 16
19	18	E B 17	E B 17	E B 16	18	26	29	32	43	39	A A 51	37	G 29	A	A	39	G 26	A A 59	G 18	18	22	22	22	20
20	17	E B 16	E B 16	E B 16	16	G 18	G 21	G 24	G 26	G 31	34	38	A	G 33	37	G 27	26	26	A A 88	A A 103	18	18	18	A A 58
21	20	16	16	18	18	A A 45	A A 65	A A 87	A A 86	36	35	34	34	35	31	A A 53	A A 65	A A 96	22	17	20	21	E B 17	17
22	19	E B 16	16	E B 16	16	A A 65	37	A A 75	41	42	35	34	35	35	35	A A 97	A A 108	21	A A 83	22	A A 237	A A 117	A A 108	A A 153
23	A A 127	A A 87	A A 85	A A 51	24	20	A A 58	A A 73	A A 125	46	A A 93	42	A A 79	36	32	A A 261	A A 108	A A 129	A A 192	20	18	18	18	18
24	18	E B 16	E B 16	E B 16	16	40	42	A A 59	A A 54	A A 138	A A 65	35	36	35	G 29	A A 67	A A 57	32	A A 94	21	16	22	20	20
25	16	16	16	E B 15	18	22	38	A A 74	A A 95	A A 97	A A 74	A A 65	34	A	32	29	40	22	22	30	20	21	21	17
26	18	18	18	18	16	24	31	A A 58	A A 63	A A 61	42	44	35	34	34	G 31	27	E A 42	24	A A 72	19	E B 17	20	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 16	23	32	32	33	42	42	A	40	34	34	32	29	28	23	23	23	21	E B 17	17
28	E B 17	20	17	17	17	24	30	32	34	38	36	36	A A 90	36	36	37	A A 75	28	A A 79	28	19	A A 82	A A 107	19
29	E B 16	E B 16	E B 16	E B 16	22	26	39	A A 64	A A 75	A A 72	43	A	37	A A 121	A A 121	32	32	G 28	22	22	A A 61	E B 16	18	18
30	E B 16	E B 16	18	20	16	23	40	A A 40	A A 61	A A 61	44	A A 65	37	35	A A 60	34	37	A A 48	26	E A 34	23	24	E B 16	E B 16
31	E B 16	E B 16	E B 16	E B 15	E B 16	22	27	30	33	G 33	G 33	G 35	39	37	33	G 32	30	A A 134	30	21	21	21	17	20
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	30	30	28	28	28	27	27	29	26	31	30	28	31	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	22	30	34	38	38	38	36	35	35	34	34	32	28	26	21	20	18	E 17	17
U Q	18	16	16	16	17	24	38	A A 64	A A 62	A A 61	A A 44	A A 42	37	A 36	A 36	A A 51	A A 40	A A 45	A A 56	23	22	22	20	19
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	G 21	26	32	33	35	35	34	G 34	34	32	32	28	26	22	19	E B 16	E B 16	E B 16	E B 16

MAY 2020 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

MAY 2020 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 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	319	312	318	294	F 332	370	316	363	363	339	360	340	301	327	330	343	350	340	318	321	335	331	331	288
2	A	F 301	305	F 308	F 310	348	336	A	397	318	322	U R 296	307	A	306	242	321	315	331	327	332	343	301	302
3	312	302	309	293	293	353	A	A	A	A	323	327	307	313	325	289	341	330	327	320	320	330	327	318
4	302	312	312	296	349	367	333	356	354	345	329	326	313	327	285	333	331	330	331	328	312	324	332	308
5	309	298	305	304	F 317	376	321	340	369	345	332	306	324	302	302	314	333	323	339	325	322	338	347	354
6	320	319	308	305	300	286	318	359	325	358	R 282	R 296	262	329	284	311	314	333	A	311	342	349	339	F 299
7	V 301	282	F 287	F 293	F 327	324	312	336	342	295	324	354	257	304	318	323	320	316	314	318	322	319	311	342
8	300	304	F 297	F	F	330	350	334	A	335	341	342	282	273	318	304	323	328	332	322	310	324	331	329
9	324	V 289	289	288	F	351	347	R 297	365	303	341	342	353	274	339	351	335	336	327	318	314	298	350	340
10	325	337	318	291	297	342	363	385	330	362	303	290	319	340	298	307	338	350	332	308	314	317	328	338
11	325	334	336	310	316	316	352	351	325	321	321	319	332	304	302	321	333	341	327	312	302	323	322	359
12	356	325	325	324	323	345	306	333	332	370	370	301	351	305	312	347	306	318	322	321	340	340	327	345
13	329	V 332	319	319	F 318	310	325	257	359	368	A	293	322	A	324	290	324	300	220	315	319	318	334	F
14	F 303	F 313	F 280	F	311	317	334	345	367	366	A	356	337	281	331	A	A	A	A	317	317	A	324	A
15	321	320	320	319	V 305	326	336	331	A	A	A	A	286	307	278	A	325	331	356	320	311	308	305	A
16	F 343	F	312	F 288	F	374	A	A	319	335	353	329	A	A	294	A	334	348	323	A	312	321	329	329
17	321	318	F	F	333	357	269	A	A	344	357	A	320	272	288	327	329	300	316	315	331	331	358	327
18	332	287	Z 301	298	F	358	291	364	363	A	R	A	327	309	336	A	A	A	A	307	337	323	326	325
19	318	318	318	R 329	328	300	324	376	R 289	R 296	A	R	313	301	267	328	308	A	306	305	308	345	338	317
20	317	317	317	299	F 312	312	340	347	354	335	326	291	285	296	311	308	314	353	A	A	294	291	288	A
21	306	306	305	305	304	A	A	A	A	335	356	333	319	321	334	A	A	A	221	308	324	R	361	317
22	326	F 287	316	298	327	A	277	A	326	352	U R 344	R	313	296	295	A	A	303	A	241	A	A	A	A
23	A	A	A	A	287	304	A	A	A	332	A	324	A	292	290	A	A	A	A	308	307	F 292	289	310
24	F 310	290	315	318	317	365	252	A	A	A	A	302	321	335	334	A	A	216	A	313	314	313	319	339
25	339	313	313	310	335	334	295	A	A	A	A	A	258	301	313	315	J A 328	310	295	299	301	296	324	291
26	313	319	326	325	296	321	333	A	A	A	304	332	U R 315	305	274	272	298	272	318	A	304	317	331	330
27	319	336	331	V 320	328	300	318	327	314	308	297	323	302	317	304	270	324	358	348	308	305	344	309	331
28	F 318	F 318	F 309	F 304	304	301	347	347	358	357	337	274	A	320	317	345	A	296	A	326	321	A	A	360
29	314	F 299	F 268	F	F 319	F	376	A	A	A	331	R 249	305	A	A	305	285	297	313	339	A	332	F 329	290
30	F 289	289	285	Z 328	326	323	367	A	A	A	343	A	A	270	A	256	285	A	311	287	309	348	295	309
31	306	303	320	319	318	312	317	318	298	R	309	313	296	278	318	291	338	A	329	322	293	311	310	307
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	26	27	28	27	19	20	22	23	24	27	27	29	23	24	24	23	28	29	27	29	26
MED	318	312	312	305	317	328	325	345	348	337	331	321	313	304	311	311	324	326	323	316	314	323	327	326
U Q	325	319	318	319	327	355	347	359	363	357	344	332	322	320	324	328	334	338	331	322	323	338	333	339
L Q	308	298	303	296	304	312	312	331	325	321	321	296	296	292	292	290	314	302	313	308	308	313	310	308

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	413	398	398	L	405	L	L	L	L	L					
2								A		L	L	L	L	A	L	L	L	A						
3						L	A	A	A	A	L	L	L	L	L	L	L	L						
4						L	L	L	L	L	L	378	L	394	418	L	L	L	L					
5						L	366	385	415	L	L	A	L	L	L	L	L	368						
6						L	367	369	L	L	A	L	L	A	L	L	A	A	A					
7							L	363	L	L	L	L	L	L	350	L	L	L						
8						A	395	384	A	A	L	392	L	L	L	L	A	L	L					
9							L	L	L	L	L	L	L	L	L	L	A	L	L					
10						L	L		A	L	422	L	L	L	L	L	L							
11							L	387	A	A	A	L	A	406	A	388	361	361	L					
12						L	AE	A 367	A	A	402	427	L	390	A	A	A	A	A					
13						L	L	A	A	390	A	407	L	A	A	365	A	A	A					
14						357	370	379	A	388	A	427	411	L	A	A	A	A	A					
15							366		A	A	A	A	A	384	381	A	L	L	A					
16							A	A	A	A	A	A	A	A	A	A	377	358	L					
17							A	A	A	A	A	A	394	420	344	381	378	A						
18						377	376	379	379	A	433	A	A	381	A	A	A	A	A					
19						375	375	372	379	L	A	425	A	A	A	A	A	A	A					
20						A	A	L	A	L	L	L	A	L	L	A	372	369	A					
21						A	A	A	A	L	419	398	L	394	L	A	A	A	A					
22						A	A	A	A	A	428	387	L	401	400	A	A	L	A					
23						379	A	A	A	A	A	A	A	381	L	A	A	A	A					
24								A	A	A	A	L	409	394	A	A	A	A	A					
25						391	A	A	A	A	A	A	397	A	L	L	A	366	A					
26						366	L	A	A	A	A	A	417	409	409	395	392	A						
27						357	357	365	389	A	L	A	A	A	L	386	L	378	378					
28						378	383	369	383	382	382	422	A	388	A	L	A	L	A					
29						L		A	A	A	A	A	399	A	A	391	356	355	L					
30						353		A	A	A	A	A	L	389	A	394	A	A	A	A				
31						361	359	384	L	424	L	L	L	L	L	386	352	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						10	10	12	5	5	7	10	6	14	6	8	7	7	1					
MED						370	368	376	383	390	419	402	404	394	390	387	372	366	378					
U Q						378	376	384	402	418	428	425	411	405	409	392	378	369						
L Q						357	366	368	379	385	398	392	397	388	350	384	356	358						

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 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							304	252	252	296	272	302	350	334	316	280	258	258	274					
2								A		338	352	364	384	A	372	366	350	304						
3						242	A	A	A	A	330	340	364	360	334	388	290	276						
4						244	284	270	294	296	318	332	356	326	382	308	284	284	252					
5						234	302	308	254	296	330	346	330	392	404	344	288	288						
6						346	286	250	282	250	A	366	436	314	408	318	314	280	A					
7							336	288	304	366	328	290	A	378	350	338	324	310						
8						E A 330	272	310	A	308	308	318	376	422	368	364	310	288	254					
9							266	396	294	360	322	300	290	416	294	294	314	304	294					
10						264	278		338	282	358	412	346	326	378	336	294							
11							294	282	330	346	336	320	320	378	A 342	342	306	278	264					
12						236	304	302	302	A 290	260	366	306	374	320	308	332	296	268					
13						296	312	334	276	272	A	408	328	A	322	378	308	A	A					
14						320	320	296	262	262	A	262	342	344	338	A	A	A	A					
15							298		A	A	A	A	408	360	386	A	322	276	246					
16							A	A	E A 342	292	288	330	A	A	382	A	314	262	326					
17							428	A	A	290	278	A	350	464	408	338	320	330						
18						264	332	248	288	A	280	A	A	356	306	A	A	A	A					
19						362	308	248	342	328	A	A	350	378	460	324	332	A	A					
20						334	286	290	262	308	304	414	382	398	348	B 348	312	266	A					
21						A	A	A	A	310	278	316	370	356	328	A	A	A	A					
22						A	A	A	316	284	284	284	364	390	374	A	A	352	A					
23						310	A	A	A	A	A	306	A	386	396	A	A	A	A					
24								A	A	A	A	372	354	334	316	A	A	A	A					
25						250	364	A	A	A	A	A	460	352	316	332	A	280	A					
26						276	256	A	A	A	A	276	360	322	404	390	352	A						
27						298	274	316	332	A	322	312	396	350	340	438	318	266	260					
28						302	276	296	256	282	300	428	A	362	342	302	A	380	A					
29						302		A	A	A		A	378	A	A	342	346	346	290					
30						332		A	A	A	324	A	A	422	A	460	400	A	330	310				
31						336	326	350	338	286	348	326	382	440	342	380	294	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						20	22	17	19	21	21	24	25	27	29	23	23	20	11	1				
MED						298	300	296	294	296	318	328	360	362	348	342	314	286	268	310				
U Q						331	320	313	332	319	330	366	382	392	384	378	332	307	294					
L Q						257	278	261	262	283	282	304	344	344	325	318	294	276	254					

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 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	250	258	252	Q 238	228	228	200	208	194	194	194	194	194	194	200	200	214	214	224	236	228	218	218	262
2	A	254	264	248	252	230	246	A	216	216	198	202	200	A	192	210	210	A	252	244	224	224	242	264
3	240	262	258	Q 240	256	A	A	A	A	A	186	210	198	194	200	202	198	224	258	226	236	216	230	242
4	Q 250	Q 250	260	260	232	198	218	200	204	194	186	194	196	202	190	202	202	202	206	228	230	230	218	234
5	248	Q 268	Q 254	Q 246	240	202	208	208	198	180	216	A	194	196	A	A	206	210	220	234	216	216	200	200
6	Q 240	240	248	236	266	204	236	222	196	196	A	196	204	A	212	236	A	A	A	246	214	226	230	Q 230
7	246	Q 262	Q 262	Q 242	216	216	224	224	212	196	196	198	180	200	A	A	A 212	220	246	246	244	244	216	216
8	Q 274	Q 250	Q 268	Q 248	272	A	206	212	A	A	206	202	202	190	204	210	A	222	210	236	236	236	236	236
9	220	Q 256	Q 242	Q 242	230	246	204	214	214	204	204	A	186	192	176	228	A	228	252	264	254	258	232	200
10	220	226	240	248	264	222	206	236	A	202	202	188	172	214	200	192	208	254	242	270	248	262	240	214
11	214	222	228	252	248	246	226	232	A	A	A	A	A	202	A	212	222	222	224	250	252	230	228	200
12	208	252	234	258	258	202	A	A	A	A	210	186	176	188	A	A	A	A	A	228	228	228	214	214
13	246	226	254	Q 236	Q 228	212	234	A	A	198	A	196	188	A	A	206	A	A	A	224	244	228	240	Q 240
14	Q 266	218	270	234	246	232	240	210	A	210	A	182	188	200	A	A	A	A	A	240	240	A	218	A
15	234	Q 234	Q 240	240	240	230	228	328	A	A	A	A	A	208	210	A	A	A	A	248	232	248	A	A
16	230	Q 230	230	Q 242	Q 246	206	A	A	A	A	A	A	A	A	A	A	214	212	230	A	262	238	230	230
17	Q 244	244	Q 246	Q 240	252	198	A	A	A	A	A	A	194	198	206	214	200	A	E A 274	260	228	Q 218	200	208
18	234	Q 246	258	250	Q 236	230	228	212	196	A	192	A	A	200	A	A	A	A	A	244	212	224	226	226
19	238	244	236	212	258	226	208	208	232	A	A	192	A	A	A	A	A	A	A	256	256	224	224	250
20	250	Q 252	258	252	262	A	A	A	A	232	186	192	A	256	A	A	216	216	A	A	246	246	278	A
21	212	240	234	200	200	A	A	A	A	A	188	210	188	196	A	A	A	A	A	256	242	242	220	238
22	256	Q 250	260	278	260	A	A	A	A	A	194	202	202	216	202	A	A	202	A	A	A	A	A	A
23	A	A	A	A	A	212	A	A	A	A	A	A	A	222	204	A	A	A	A	232	266	254	254	Q 204
24	Q 228	Q 236	248	Q 250	Q 266	A 242	A	A	A	A	A	190	200	200	A	A	A	A	A	268	256	256	256	236
25	204	232	232	252	242	220	A	A	A	A	A	A	198	A	204	202	A	210	A	246	270	260	228	228
26	214	242	234	234	224	218	218	A	A	A	A	A	200	184	192	202	194	A	242	A	248	240	204	214
27	226	226	230	226	250	230	216	216	204	A	A	A	A	A	194	200	206	214	204	262	268	234	254	220
28	198	250	Q 256	Q 248	234	298	208	222	208	216	198	192	A	208	A	A	A	A	A	250	250	A	A	212
29	232	Q 254	Q 260	Q 238	270	228	216	A	A	A	A	A	198	A	A	210	198	198	198	240	A	208	242	Q 256
30	Q 268	238	Q 270	236	242	226	240	A	A	A	A	A	186	214	A	214	A	A	A	A	246	224	250	240
31	250	266	240	248	216	220	236	210	220	188	194	188	A	222	192	192	230	A	246	250	256	256	232	246
	00	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	30	30	30	30	26	21	16	12	13	16	18	21	23	16	17	15	15	16	26	29	28	28	27
MED	238	245	250	242	246	224	218	213	206	198	195	194	194	200	200	206	208	214	232	246	244	232	230	230
U Q	250	254	260	250	258	230	235	223	215	213	203	202	200	214	204	213	214	222	249	256	255	247	241	240
L Q	220	234	236	236	232	212	208	209	197	194	190	190	187	194	192	201	200	210	215	236	229	224	218	214

MAY 2020 h'F (KM)

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					B	102	96	96	96	96	96	96	96	96	98	98	98	98	98	98				
2					98	102	102	102	102	102	102	102	96	96	96	96	104	100	B	A				
3						108	92	92	98	104	102	102	102	88	96	96	96	102	102	126				
4					B	B	102	102	102	102	102	102	102	A	102	102	102	102	108	A				
5					102	114	98	98	98	98	98	98	98	98	102	102	102	102	B	A				
6					102	102	102	102	102	102	102	102	102	102	102	102	104	104	B	B				
7					A	114	102	102	102	102	102	102	102	102	102	102	102	102	102	B				
8					A	104	98	98	98	98	98	98	98	98	98	108	108	102	A	B				
9						110	102	102	104	90	90	90	A	100	100	100	108	98	B	106				
10					B	98	98	98	98	98	98	98	98	98	100	100	100	108	A	A				
11						102	102	102	102	102	102	102	92	92	94	102	102	102	108					
12						108	96	96	96	94	98	98	98	98	98	98	98	98	A					
13						A	102	102	102	102	96	96	96	98	98	98	98	102	102					
14						108	108	98	98	98	98	98	98	98	108	108	102	102	102					
15						108	108	108	92	92	100	100	A	A	100	100	100	106	B					
16						106	104	104	104	104	104	92	92	92	A	A	A	92	A					
17						110	102	102	102	102	102	102	102	102	A	102	A	102	102					
18						108	106	104	104	104	88	98	98	104	104	104	104	104	A					
19						108	98	98	98	A	A	A	98	A	98	98	100	100	100					
20						100	96	96	96	98	98	98	98	98	98	98	A	A	A					
21						102	98	98	98	98	98	98	106	106	106	102	102	102	106					
22						108	108	108	108	108	92	92	92	92	92	92	A	A	104					
23						A	104	98	92	102	94	104	A	A	102	102	102	106	A					
24						108	100	100	100	100	100	96	96	96	96	102	102	102	102					
25						102	102	102	102	102	102	102	102	A	A	A	102	102	102					
26						102	102	102	102	94	94	92	92	92	92	96	A	96	102					
27						106	96	96	96	96	96	96	96	96	96	96	98	106	106					
28						108	96	98	98	98	98	96	96	96	A	96	102	108	104					
29						104	92	92	104	104	102	102	102	102	102	102	102	90	A					
30						100	100	94	98	98	98	98	A	A	110	110	106	106	106	106				
31						106	106	106	106	98	98	108	104	104	104	104	104	104	104					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					3	28	31	31	31	30	30	30	27	25	27	29	26	29	18	4				
MED					102	106	102	100	100	99	98	98	98	98	100	102	102	102	102	106				
U Q					102	108	102	102	102	102	102	102	102	102	102	102	104	104	106	116				
L Q					98	102	98	98	98	98	96	96	96	96	96	98	100	100	102	102				

MAY 2020 h'E (KM)

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IONOSPHERIC DATA STATION Wakkanai

MAY 2020 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	102	B	B	102	B	G	104	124	108	108	108	108	102	102	148	92	134	122	110	90	116	116	106	106
2	102	104	104	104	96	122	120	110	110	96	98	104	104	104	98	100	116	116	112	106	108	100	100	100
3	100	96	96	106	98	120	118	112	106	108	106	106	106	110	88	90	140	112	120	100	100	100	100	100
4	92	100	100	100	96	116	108	108	108	104	104	104	104	102	94	94	134	90	90	92	92	92	106	106
5	100	92	96	94	94	128	128	84	124	124	106	106	106	146	132	122	122	108	108	108	108	B	B	B
6	B	B	B	B	G	G	116	116	108	106	106	106	120	124	124	124	116	116	106	106	106	106	106	104
7	96	96	96	94	106	116	140	86	108	108	108	104	104	104	136	130	114	114	114	108	104	104	104	B
8	100	100	96	116	112	106	136	120	110	110	104	104	94	110	160	130	118	108	108	112	112	112	102	102
9	98	B	B	98	96	128	102	108	108	108	100	100	100	92	98	134	120	112	108	110	114	110	110	B
10	94	B	94	B	B	120	112	114	114	114	188	100	G	106	100	G	134	114	102	102	108	102	B	B
11	B	82	82	86	B	132	124	116	110	110	110	110	110	110	102	108	168	130	130	112	B	B	B	100
12	100	100	100	96	B	122	112	112	112	108	108	114	104	132	132	114	114	110	110	110	110	110	110	100
13	94	102	106	106	B	122	114	114	114	114	106	106	132	112	116	122	122	110	110	110	110	110	108	108
14	102	96	96	108	118	118	100	112	106	116	100	106	106	152	128	114	108	108	108	108	104	104	104	96
15	96	96	94	98	98	114	120	120	104	104	104	104	104	104	122	114	114	116	112	108	108	108	108	108
16	102	96	100	96	96	G	114	114	114	112	104	104	104	96	96	96	98	134	106	106	106	106	106	100
17	104	96	96	90	B	122	122	114	110	110	106	100	100	100	102	128	100	104	104	104	106	B	B	B
18	90	90	B	116	B	116	98	114	124	102	104	104	104	G	116	116	110	110	112	112	122	118	118	118
19	92	92	92	92	114	114	116	110	100	100	100	100	100	100	100	138	118	114	114	106	106	106	106	98
20	98	128	116	116	116	112	110	104	104	106	126	106	106	120	114	108	112	102	104	112	120	114	114	100
21	100	100	108	102	126	114	106	106	106	110	100	162	108	108	124	124	120	108	116	116	116	114	114	114
22	102	128	134	100	116	116	116	108	108	108	106	106	106	106	98	98	98	102	104	122	136	106	102	102
23	100	96	90	90	90	90	110	110	104	104	104	104	96	104	122	110	110	112	112	124	112	106	100	94
24	94	94	94	110	118	118	112	110	110	124	104	104	142	124	106	110	110	108	108	108	100	108	108	98
25	98	98	92	92	92	92	118	112	106	106	106	102	102	102	102	102	102	102	108	108	108	108	98	98
26	96	96	96	96	96	118	118	110	110	104	104	100	100	100	100	100	100	100	104	104	104	104	104	106
27	92	90	90	94	B	114	114	110	104	104	104	96	98	98	108	100	106	118	118	112	104	104	106	100
28	100	96	96	96	96	112	116	116	116	116	108	114	100	106	106	114	104	106	106	106	106	106	106	106
29	100	100	98	98	112	112	112	112	112	110	110	110	114	102	102	118	102	114	96	110	110	110	104	104
30	104	104	102	96	88	102	116	116	116	106	106	100	106	106	106	124	162	112	110	110	110	110	B	B
31	100	94	94	B	B	110	110	110	104	106	102	136	126	126	G 106	106	118	108	108	108	108	108	102	102
	00	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	27	27	28	21	28	31	31	31	31	31	31	30	30	31	30	31	31	31	31	30	28	26	25
MED	100	96	96	98	98	116	114	112	108	108	106	104	104	106	106	114	114	110	108	108	108	107	106	102
U Q	101	100	100	105	115	121	118	114	112	110	108	106	106	112	124	124	122	114	112	112	112	110	108	106
L Q	95	94	94	94	96	112	110	110	106	104	104	102	100	102	100	100	106	108	106	106	106	104	102	100

MAY 2020 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 2020 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F1			F1			LC11	C2	C2	C2	C2	C2	C2	C2	H2	LC32	CL22	CL13	CL22	LL31	F1	F1	F1	F2
2	F5	F3	F2	FQ21	CL11	CL21	C6	C3	C3	C3	C2	C2	C2	C2	C2	C2	C3	C4	C4	L4	F4	F4	F1	F3
3	F3	F4	F2	F2	FF11	C4	C4	C5	C4	C4	C1	C2	C2	C1	LC11	LC21	LC21	C3	C8	LC71	F8	F2	F4	F2
4	F2	F2	F2	F2	L3	C2	C3	C2	C2	C2	C2	C2	C2	L3	C2	C2	CL21	CL11	LC12	L1	F1	F1	F1	F1
5	F2	F2	F1	F1	C1	C1	C2	LC11	C2	C2	C2	C2	C1	C1	HL21	C3	C3	C3	C4	L5	F1			
6							C2	C3	C3	C2	C3	C2	C1	C2	C2	C2	C3	C7	C7	C5	F3	F6	F3	F3
7	F3	F3	F2	F1	L1	C2	H2	LC11	CC21	C1	C2	C1	C2	C1	H1	C2	C4	C5	C6	L5	F8	F5	F1	
8	F2	F2	F2	FQ11	L3	C5	C2	C2	C5	C2	C2	C2	C2	C1	H1	C2	C4	C3	L3	L1	F2	F3	F4	F4
9	F3			F1	F2	CL21	C3	C3	CL31	C2	C2	C2	L2	L2	L1	C2	C3	C4	C5	L3	F3	F4	F1	
10	F1		F1			CL21	C2	C4	C2	CL21	C2	C2		LC11	LC11		HL11	C5	L5	L3	F2	F2		
11		F2	F2	F1		C2	C3	C2	C3	C3	C3	C3	C2	C2	C2	C1	H1	C2	C2	F3				F1
12	F5	F2	F3	F3		C3	C4	C4	C3	C3	C2	C2	C1	H1	H2	C2	C4	C3	C5	F5	F3	F1	FF11	F5
13	F3	F2	FF22	FQ11		L2	C4	C4	C4	C3	C2	C2	H1	C3	C2	C1	C2	C5	C7	F5	F5	F5	F8	F9
14	F9	F6	F7	F2	F1	C3	C3	C3	C2	C2	C3	C2	C1	H1	C2	C5	C6	C8	C8	F5	F5	F8	F7	F5
15	F5	F2	F2	F1	F1	C2	C2	C2	C8	C3	C3	C5	L2	L2	C1	C2	C2	C5	C7	F4	F8	F5	F8	F6
16	F4	F1	F4	F5	F3		C3	C7	C3	C3	C4	C2	C3	C4	C3	L3	L5	H2	LL42	F6	F3	F3	F3	F1
17	F2	F3	F2	F2		C3	C4	C4	C3	C3	C2	C3	C2	C2	L2	C2	L2	L3	C5	F6	F1			
18	F3	F1		F1		C3	LC15	C3	C2	C4	C3	C2	C3		C3	C6	C7	C7	LQ62	F4	F1	F1	F3	F1
19	F3	F3	F2	F1	F1	C5	CQ31	CQ31	C3	L3	L2	L2	C2	L2	C3	CL21	C3	C6	C8	L5	F5	F6	F7	F4
20	F3	F1	F1	F1	F4	C4	C4	C3	C3	C3	C1	C1	C2	C2	C2	C3	L2	L4	L7	F7	FQ51	FF41	FQ61	F9
21	FQ92	FQ51	FQ51	FQ41	FF23	CQ41	CQ71	CQ61	CQ41	C3	C2	H1	C2	C1	C2	C3	C3	C4	C8	F5	F8	F7	FQ11	F3
22	FQ31	FQ11	FQ31	FQ21	F7	C7	C5	C6	CQ41	CQ21	CQ11	C1	C1	C2	CL21	CQ31	CQ31	CQ41	CQ61	F7	FF27	F6	F8	F5
23	F8	F4	F4	F5	F3	L3	C5	C5	C6	C4	C4	C3	C2	L1	C2	C6	CQ81	CQ71	LQ51	FQ31	F5	F7	F4	F5
24	F4	F3	F3	FF11	F2	C4	C4	C4	C2	CC23	C4	C2	HL11	C1	C2	C3	C4	C5	C8	F3	F8	F3	FQ51	FQ71
25	F1	F3	F3	F2	F3	LC11	C5	C7	C7	C7	CQ41	CQ41	C2	L2	L2	L4	C3	C3	C5	F6	F6	F4	F6	F4
26	F4	F3	F4	F4	F1	C3	C4	C5	C4	C4	C3	C2	C2	C2	C2	C1	L2	C4	C5	F7	F5	F2	F3	F1
27	F1	F1	F2	F2		C2	C3	C4	C2	C3	C3	C2	C3	C2	C2	C2	C2	C2	C2	F7	F7	F9	F4	F4
28	F1	F3	F4	F4	F2	C3	C2	C2	C2	C2	C2	C1	C5	C2	L3	C2	C4	C5	C8	F3	F3	F9	F9	F7
29	F3	F2	F1	F1	F4	C4	C4	C4	C4	C4	C2	C4	C2	C3	C5	C2	C4	CC23	CL32	F5	F8	F2	F3	F4
30	F4	F2	FQ21	FQ31	FQ31	LH11	C3	C3	C4	C2	C3	C4	L2	L2	C3	C1	H2	C4	C4	CQ51	F7	F4		
31	F2	F2	F1			C2	LC11	C2	C2	C1	C1	C1	C1	C1	C1	C2	C2	C4	C6	F4	FF21	F4	F4	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																								

MAY 2020 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

MAY 2020 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

MAY 2020 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	40	38	35	35	32	38	54	55	52	51	49	50	55	56	62	71	72	70	58	A	58	46	43	40
2	F	F	F	F	F	34	38	45	50	A	A	50	48	52	55	52	55	A	A	63	58	A	A	A
3	F	32	30	F	F	37	A	48	A	A	A	A	A	56	65	A	61	68	A	61	61	44	40	36
4	F	34	33	F	26	33	47	54	54	A	48	A	56	61	64	64	76	76	72	68	52	46	45	37
5	34	34	34	30	28	37	46	59	55	51	53	52	A	50	56	A	62	62	A	69	70	59	F	F
6	33	32	F	F	26	A	49	53	78	55	53	50	51	54	62	60	62	A	A	74	71	62	F	42
7	39	38	32	F	32	36	46	54	56	62	52	50	51	A	52	A	A	56	A	66	73	63	35	34
8	F	F	F	32	32	39	47	48	A	57	A	A	52	A	48	A	58	A	52	62	58	53	48	42
9	34	33	33	F	31	36	40	48	54	55	53	A	63	65	56	51	48	48	48	56	57	53	46	41
10	38	35	34	31	29	34	42	52	52	A	A	A	48	51	51	53	48	47	44	53	56	52	46	41
11	39	36	33	F	F	38	44	51	A	A	53	55	58	60	63	71	62	60	53	59	58	53	48	38
12	31	31	30	31	31	35	46	55	A	A	A	A	46	43	A	55	52	52	53	64	70	45	34	F
13	F	31	31	F	F	36	42	55	A	A	A	A	A	A	A	62	61	61	49	54	60	53	38	F
14	A	A	A	33	F	34	50	A	A	51	A	A	A	50	50	52	52	52	56	62	A	F	F	F
15	38	F	F	33	30	38	50	47	52	A	A	A	A	A	A	A	56	56	55	58	54	A	A	38
16	39	F	A	F	31	39	A	A	A	A	A	A	A	A	51	56	A	A	62	71	61	47	F	43
17	A	F	F	F	32	41	45	57	51	A	A	A	A	A	A	64	65	A	A	66	F	F	F	F
18	A	A	A	A	28	37	52	49	A	A	A	A	51	52	53	52	51	57	53	A	61	52	F	46
19	43	A	F	33	30	36	50	54	53	50	51	52	52	47	48	51	55	50	50	63	72	F	A	A
20	30	28	30	31	32	45	50	51	55	A	A	A	50	53	56	56	60	58	A	57	56	50	43	F
21	F	F	35	31	31	33	46	A	A	A	C	A	A	A	A	A	A	A	A	A	68	56	47	F
22	F	32	F	32	28	A	A	A	A	A	A	A	A	A	A	48	47	47	49	58	F	49	F	F
23	32	F	F	F	28	35	43	A	60	A	A	A	A	52	56	62	53	51	51	54	57	57	F	F
24	F	F	F	F	F	41	50	A	A	49	51	52	A	A	51	52	53	47	46	55	59	59	57	A
25	33	33	A	F	31	34	42	A	A	A	52	A	A	53	57	67	57	A	A	53	62	54	F	F
26	F	F	F	F	F	F	F	66	58	58	A	A	A	A	A	A	A	A	A	A	F	F	F	41
27	A	F	40	F	F	45	48	46	A	60	54	A	50	49	51	A	A	A	A	41	47	47	47	43
28	34	32	32	32	29	36	50	51	53	55	46	46	44	51	54	52	50	A	47	56	F	A	A	A
29	A	A	A	F	26	44	41	45	A	A	A	A	A	A	48	52	A	52	48	45	A	A	A	A
30	32	A	A	F		38	F	A	A	70	50	A	C	A	A	57	57	58	52	62	62	F	F	F
31	F	F	F	40	38	A	45	48	54	A	54	49	54	A	A	57	55	55	48	55	57	F	F	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	15	14	13	22	27	26	23	16	13	14	10	16	18	22	23	25	21	20	27	25	21	14	14
MED	34	33	33	32	30	37	46	51	54	55	52	50	51	52	54	56	56	56	52	59	59	53	46	41
U Q	39	35	34	33	32	39	50	55	56	59	53	52	54	56	57	62	62	60	54	64	65	56	47	42
L Q	32	32	31	31	28	35	43	48	52	51	50	50	49	50	51	52	52	50	48	55	57	47	40	38

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 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	L	UL 436	UL 448	UL 412	448	UL 444	UL 436	420	396	UL 344	A					
2								A	A	A	A	UL 436	A	A	A	UL 404	A	A	A					
3							A	A	A	A	A	A	A	A	A	A	A	A	A					
4							A	A	A	A	A	A	444	A	436	UL 408	A	A	A					
5								384	412	424	440	432	A	UL 416	A	A	A	A	A					
6						A		A	A	A	A	A	A	A	A	A	A	A	A					
7						A		A	A	A	A	UL 460	UL 444	A	A	A	A	A	A					
8									A	A	A	A	A	A	A	A	A	A	A					
9								A	A	A	A	A	448	A	428	A	404	L	L					
10							A	A	A	A	A	A	432	UL 432	UL 432	400	UL 404	UL 384	A					
11									A	A	424	440	UL 448	UL 420	412	408	384	A						
12							L	A	A	A	A	A			A	408	A	A	A					
13							L	A	A	A	A	A	A	A	A	UL 416	A	A	A					
14							A	A	A	A	A	A	A	UL 440	A	A	A	A	A					
15						L	L	384	A	A	A	A	A	A	A	A	A	A						
16							A	A	A	A	A	A	A	A	A	A	A	A	A					
17							A	A	A	A	A	A	A	A	A	A	A	A	A					
18						L	A		A	A	A	A	A	A	A	420	384	A	L					
19						L	L	UL 396	A	436	A	A	A	A	UL 400	416	392	372	296					
20						L	A	L		A	A	A	A	UL 436	UL 436	UL 436	A	A	A					
21							L	A	A	A	C	A	A	A	A	A	A	A	A					
22							A	A	A	A	A	A	A	A	A	408	396	364	A					
23							U L 376	A	A	A	A	A	A	A	UL 432	UL 412	A	356	A					
24							A	A	A	A	A	A	A	A	UL 444	UL 416	A	A	A					
25							A	A	A	A	A	A	A	A	A	A	384	A	A					
26							U L 372	A	A	A	A	A	A	A	A	A	A	A	A					
27							L	A	A	A	A	A	A	A	A	A	A	A	A					
28							L	UL 384	408	424	UL 420			UL 416	A	UL 416	A	A	L					
29							A		A	A	A	A	A	A	UL 440	UL 412	A	A	A					
30								A	A	A	A	A	C	A	A	A	UL 392	A	316					
31						A	A	A	A	A	A	UL 456	A	A	A	A	UL 404	372	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	4	2	4	4	6	6	7	10	15	10	6	2					
MED							U L 374	384	410	430	432	UL 438	446	UL 432	UL 434	UL 412	394	368	306					
U Q								UL 390		436	444	UL 456	448	UL 440	UL 436	416	UL 404	372						
L Q								384		424	422	432	444	UL 416	428	408	384	356						

MAY 2020 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	A	U A 264	A	A	A	R	A	U A 324	A	U R 320	A	U A 232	A					
2						A	A	A	A	A	A	A	A	A	A	U A 324	A	A	B					
3						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
4	A				B	B	A	A	A	A	A	A	A	A	A	A	A	A	B					
5						B	U A 232	A	A	A	U R 344	U R 352	A	R	A	A	A	A	B					
6						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
7						B	A	A	A	A	A	A	A	A	U A 336	U A 308	A	A	A					
8						B	A	A	A	A	A	A	A	A	U A 324	A	A	A	B					
9						B	U A 240	A	A	A	A	A	A	A	A	U A 316	U A 284	A	B					
10						B	U A 208	A	A	A	A	A	U A 336	U A 332	R	U R 320	U A 276	U R 264	B					
11						B	U A 232	A	A	A	U A 344	A	A	A	A	U A 316	U A 276	A	B					
12						B	A	U A 264	A	A	A	A	U R 356	U A 336	A	316	U A 284	A	B					
13						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
14						B	A	A	A	A	A	A	A	A	U A 340	A	A	A	B					
15						U R 196	U A 248	A	A	A	A	A	A	A	A	A	A	A	A					
16						U R 188	A	A	A	A	A	A	A	A	A	U A 320	A	A	B					
17						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
18						B	A		A	A	A	A	A	A	U A 320	U A 308	A	A	B					
19						B	A	A	A	A	A	A	A	A	U A 328	R	U R 272	U R 248	B					
20						U R 184	A	A	A	A	A	A	A	A	A	A	A	A	B					
21						U R 192	A	A	A	A	C	A	A	A	A	A	A	A	A					
22							A	A	A	A	A	A	A	A	A	U A 308	A	A	B					
23						B	U A 220	A	A	A	A	A	A	A	A	A	A	A	B					
24						B	U A 236	A	A	A	A	A	A	A	A	A	A	A	B					
25						U R 200	240	A	A	A	A	A	A	A	A	A	A	A	B					
26						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
27						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
28						B	A	U A 280	A	A	A	A	A	A	A	U A 300	A	A	B					
29						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
30						U R 200	U A 256	A	A	A	A	A	C	A	U A 360	U A 320	A	A	B					
31						B	A	A	A	A	A	A	A	A	A	A	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						6	9	3			2	1	2	3	6	12	5	3						
MED						U R 194	U A 236	U A 264			U 344	U R 352	U 346	U A 332	U A 332	U A 316	U A 276	U R 248						
U Q						U R 200	U A 244	U A 280						U A 336	U A 340	U 320	U 284	U R 264						
L Q						U R 188	U A 226	U A 264						U A 324	U A 324	U A 308	U 274	U A 232						

MAY 2020 foE (0.01MHz)

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 16	23	23	23	20	29	35	36	J A 46	36	G	41	37	36	G	33	28	J A J A 40 120		J A J A 26	22	J A 28	J A 29
2	J A 34	22	J A J A 25	24	23	24	J A J A 34	J A J A 46	J A J A 53	J A J A 77	76	41	J A J A 54	46	J A 86	39	J A J A 50	86	J A J A 97	53	J A J A 42	88	J A 54	J A 87
3	J A 86	J A J A 53	J A J A 53	J A J A 32	J A J A 50	J A J A 26	J A J A 48	J A J A 43	J A J A 56	J A J A 56	J A J A 64	J A J A 119	J A J A 75	57	J A J A 68	98	J A J A 86	J A J A 60	J A J A 102	50	40	J A 24	J A J A 48	J A J A 43
4	J A 37	J A J A 27	J A J A 30	22	E B 15	G	J A J A 37	J A J A 54	J A J A 56	J A J A 111	J A J A 52	J A J A 65	38	J A 52	41	40	J A J A 60	58	J A J A 77	74	E B 16	J A 23	E B 19	E B 16
5	21	23	22	J A 37	24	19	28	J A J A 36	40	38	G	G	J A 50	G	40	J A 91	J A J A 105	75	J A J A 136	66	J A J A 43	25	E B 16	E B 16
6	E B 16	E B 16	J A J A 26	J A 50	25	J A J A 36	J A J A 44	J A J A 51	J A J A 53	J A J A 86	J A J A 74	J A J A 53	J A J A 48	54	J A J A 52	52	J A J A 72	102	J A J A 89	73	J A J A 66	84	J A 53	J A 54
7	J A 33	J A J A 27	J A J A 33	J A 31	22	J A J A 28	J A J A 37	J A J A 53	J A J A 48	J A J A 64	J A J A 70	J A J A 62	J A J A 46	91	J A 43	J A 62	J A J A 68	65	J A J A 63	64	25	J A 28	22	J A 44
8	J A 35	E B 16	21	J A J A 29	J A 29	26	J A J A 33	J A J A 40	J A J A 62	J A J A 53	J A J A 59	J A J A 69	J A J A 48	J A 65	37	J A 70	J A J A 81	66	J A J A 43	29	J A J A 64	88	J A 50	E B 17
9	J A 29	J A J A 34	J A 25	25	E B 16	20	30	J A J A 48	J A J A 52	J A J A 55	J A J A 52	J A J A 89	J A J A 46	78	37	40	40	J A 61	J A J A 52	52	J A 77	24	J A 28	J A 38
10	23	E B 16	E B 16	E B 15	E B 15	J A 26	J A J A 40	J A J A 54	J A J A 59	J A J A 62	J A J A 86	J A 58	38	36	G	G	32	G	J A J A 34	32	J A J A 33	40	J A J A 47	J A 27
11	22	E B 16	E B 16	E B 16	E B 16	21	34	J A J A 50	J A J A 58	J A 82	G	36	41	38	39	36	33	J A 49	J A J A 44	43	J A J A 52	51	J A J A 28	J A 26
12	J A J A 35	J A J A 41	J A 35	E B 15	24	23	28	J A 44	J A J A 67	J A J A 61	J A J A 79	J A 59	G	40	J A 51	36	39	J A 50	J A J A 40	39	J A J A 49	23	J A 48	J A 36
13	J A J A 42	39	26	J A 32	J A J A 31	30	34	J A J A 53	J A J A 81	J A J A 118	J A J A 122	J A J A 163	J A J A 81	74	J A J A 98	35	J A J A 64	97	J A J A 47	68	J A J A 53	52	J A J A 65	J A 87
14	J A J A 68	J A J A 90	J A J A 102	J A 85	24	20	J A 43	J A J A 188	J A J A 173	J A J A 52	J A J A 89	J A 64	J A J A 95	44	J A J A 51	J A 77	J A J A 78	48	J A J A 55	J A 248	J A J A 110	54	J A 54	23
15	J A J A 38	J A J A 34	J A J A 30	J A 26	22	G	30	33	J A J A 61	J A J A 100	J A 68	J A 60	J A J A 91	75	J A J A 101	J A 182	J A J A 99	103	J A J A 64	49	J A J A 54	110	J A J A 116	J A 66
16	J A J A 102	J A J A 66	J A 54	J A 42	J A 32	G	J A 44	J A J A 62	J A J A 94	J A J A 74	J A 79	J A 81	J A J A 63	50	J A J A 58	56	J A J A 169	205	J A J A 158	90	J A J A 90	67	J A 53	J A 53
17	J A J A 54	J A 67	23	J A 25	26	J A 25	J A 46	J A J A 67	J A 53	J A 60	J A 64	J A 81	J A J A 70	68	J A J A 89	53	J A J A 58	192	J A J A 170	88	262	J A 54	55	J A 53
18	J A J A 85	J A J A 54	J A 62	J A J A 66	J A J A 40	J A 33	J A 56	J A J A 52	J A 64	J A 116	J A 95	J A 64	42	J A 121	J A J A 59	36	38	J A 50	J A J A 28	107	J A 46	54	J A 49	49
19	J A J A 41	J A J A 62	J A 54	J A J A 44	J A J A 46	J A 34	J A 33	J A 40	J A 49	39	J A 52	J A 48	J A J A 47	47	36	G	G	G	21	J A 42	J A J A 88	62	J A 56	83
20	J A J A 52	J A J A 33	J A 51	J A J A 26	20	G	J A 42	35	J A J A 60	J A 160	J A J A 151	J A J A 113	J A J A 179	49	38	J A 44	J A J A 62	59	J A J A 74	30	J A J A 35	47	J A 36	J A 67
21	J A J A 35	J A J A 27	J A 40	J A 52	21	G	31	J A 68	J A J A 66	J A 86	C	J A 106	J A J A 134	76	J A J A 93	48	J A J A 70	85	J A J A 79	86	J A 55	52	J A 35	J A 38
22	J A J A 38	J A J A 56	J A 68	J A J A 66	J A J A 46	J A 56	J A 65	J A 88	J A 85	J A 110	J A 99	J A 140	J A J A 105	88	J A 81	36	35	29	J A 44	49	J A J A 76	88	J A 46	J A 44
23	J A J A 53	J A J A 44	J A 29	23	J A 31	20	33	J A 56	J A J A 70	J A 80	J A 150	J A 103	J A J A 134	61	37	35	J A 41	29	J A 31	49	J A 49	32	J A 34	J A 53
24	J A 56	J A J A 35	J A 25	J A 25	20	J A 26	34	J A J A 78	J A 73	J A 90	J A 48	J A 54	J A J A 101	97	J A 48	J A 43	J A J A 44	50	J A J A 72	68	J A J A 47	50	J A 67	J A 67
25	J A J A 32	J A 54	J A 51	J A 51	J A 27	G	J A 42	J A 79	J A 103	J A 68	J A 56	J A 74	J A J A 113	81	J A 103	J A 56	J A 52	85	J A J A 98	72	J A 86	165	J A 52	J A 54
26	J A 54	J A J A 45	J A 54	J A J A 34	J A 23	23	J A 37	J A 45	J A 55	J A 59	J A 89	J A 66	J A J A 107	83	J A 83	J A 167	J A J A 129	85	J A J A 144	110	J A 52	52	J A 53	J A 103
27	J A 76	J A J A 87	J A 66	J A J A 32	J A J A 64	J A 47	32	J A 42	J A 86	J A 53	J A 50	J A 54	J A J A 55	57	J A 57	J A 103	J A J A 90	60	J A J A 86	39	J A 43	80	J A 65	J A 110
28	J A 51	19	19	19	E B 16	G	30	34	J A 41	40	38	38	J A J A 46	41	J A 61	36	J A J A 48	67	J A J A 51	29	J A 53	86	J A 86	J A 86
29	J A J A 54	J A J A 50	J A 35	J A J A 24	J A J A 30	J A 43	J A 43	36	J A 69	J A 178	J A 102	J A 70	J A J A 73	94	J A J A 100	J A 39	J A J A 72	73	J A J A 54	90	J A 128	91	J A 112	J A 106
30	J A 53	J A J A 67	J A 124	J A J A 53		G	J A J A 49	J A J A 56	J A 104	J A 76	J A 90	J A 126	C	J A 52	J A J A 52	J A 56	40	J A 48	J A J A 32	44	J A 146	31	J A 51	J A 46
31	J A J A 75	J A J A 107	J A J A 136	J A J A 66	J A J A 67	J A 44	J A 52	J A 41	J A 66	J A 90	J A 112	J A 62	J A J A 77	170	J A 97	J A 44	32	34	J A 32	J A 34	J A 57	41	J A 36	J A 47
	00	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	30	31	31	31	31	31	30	31	30	31	31	31	31	31	31	31	31	31	31	31
MED	J A 41	J A 39	J A 33	J A 31	24	23	J A 37	J A 50	J A 61	J A 74	J A 72	J A 64	J A 59	57	J A 52	J A 44	J A 58	60	J A 55	53	J A 53	52	J A 50	J A 49
U Q	J A 54	J A 56	J A 54	J A 50	J A 31	J A 30	J A 44	J A 56	J A 73	J A 90	J A 90	J A 89	J A 95	81	J A 86	J A 62	J A 78	85	J A 89	86	J A 77	84	J A 55	J A 67
L Q	33	E B 23	25	24	E B 21	G	32	40	J A 53	J A 55	52	54	46	46	39	36	39	48	J A 40	42	J A 43	31	J A 35	36

MAY 2020 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 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	E B 16	E B 16	E B 16	E B 16	19	28	33	33	35	35	G	38	35	34	G	32	26	35	A A 120	E B 16	E B 16	E B 16	24
2	24	E B 16	E B 16	E B 16	16	21	28	39	43	A A 77	A A 76	38	43	43	46	34	39	A A 86	A A 97	22	34	A A 88	A A 54	A A 87
3	20	E B 16	E B 16	E B 16	19	20	A A 48	38	A A 56	A A 56	A A 64	A A 119	A A 75	51	62	A A 98	56	39	A A 102	27	36	18	24	28
4	21	17	18	E B 15	E B 15	G	34	45	47	A A 111	44	A A 65	36	47	37	37	49	47	65	46	E B 16	20	E B 19	E B 16
5	E B 16	16	E B 16	E B 16	E B 16	E B 16	26	32	35	36	G	G	A A 50	G	39	A A 91	45	51	A A 136	55	38	17	E B 16	E B 16
6	E B 16	E B 16	E B 16	18	E B 16	A A 36	39	41	41	46	47	43	43	49	43	46	60	A A 102	A A 89	46	61	44	E B 16	18
7	E B 16	20	23	23	E B 16	24	29	41	41	42	44	41	37	A A 91	41	A A 62	A A 68	45	A A 63	50	16	20	17	18
8	21	E B 16	E B 16	E B 16	19	24	29	38	A A 62	49	A A 59	A A 69	44	A A 65	36	A A 70	54	A A 66	34	22	44	23	E B 16	E B 17
9	20	20	17	E B 17	E B 16	20	26	36	41	51	47	A A 89	38	56	36	38	34	31	25	E B 16	47	E B 16	E B 16	20
10	17	E B 16	E B 16	E B 15	E B 15	24	33	42	47	A A 62	A A 86	A A 58	38	35	G	G	32	G	32	26	20	23	23	E B 16
11	E B 16	E B 16	E B 16	E B 16	E B 16	20	34	43	A A 58	A A 82	G	34	39	36	38	35	31	36	35	35	27	27	23	20
12	E B 15	E B 15	E B 17	E B 15	E B 16	22	26	39	A A 67	A A 61	A A 79	A A 59	G	38	A A 51	35	36	46	37	34	33	18	21	E B 16
13	18	18	18	23	22	20	26	51	A A 81	A A 118	A A 122	A A 163	A A 81	A A 74	A A 98	33	44	45	32	E B 16	E B 16	39	23	26
14	A A 68	A A 90	A A 102	21	E B 16	20	37	A A 188	A A 173	45	A A 89	A A 64	A A 95	39	42	46	43	35	36	42	A A 110	43	32	16
15	20	20	20	17	E B 16	G	28	31	45	A A 100	A A 68	A A 60	A A 91	A A 75	A A 101	A A 182	38	46	27	36	25	A A 110	A A 116	34
16	23	E B 16	A A 54	19	22	G	A A 44	A A 62	A A 94	A A 74	A A 79	A A 81	A A 63	A A 50	50	50	A A 169	A A 205	47	49	43	22	33	21
17	A A 54	22	E B 16	E B 16	E B 16	21	37	46	46	A A 60	A A 64	A A 81	A A 70	A A 68	A A 89	48	53	A A 192	A A 170	21	21	27	34	33
18	A A 85	A A 54	A A 62	A A 66	22	23	48	41	A A 64	A A 116	A A 95	A A 64	41	50	50	35	35	43	23	A A 107	37	34	24	35
19	23	A A 62	19	E B 16	E B 16	23	23	34	42	39	48	44	43	44	36	G	G	G	20	38	22	E B 16	A A 56	A A 83
20	20	21	22	E B 16	E B 16	G	36	33	52	A A 160	A A 151	A A 113	45	38	36	36	54	49	A A 74	22	21	36	21	E B 16
21	19	E B 16	E B 16	E B 16	E B 16	G	30	A A 68	A A 66	A A 86	C	A A 106	A A 134	A A 76	A A 93	A A 48	A A 70	A A 85	A A 79	A A 86	24	35	24	20
22	24	22	22	22	18	A A 56	A A 65	A A 88	A A 85	A A 110	A A 99	A A 140	A A 105	A A 88	A A 81	34	33	27	39	43	22	34	24	20
23	E B 16	22	E B 16	E B 16	E B 16	19	32	A A 56	46	A A 80	A A 150	A A 103	A A 134	46	36	34	39	28	28	45	19	E B 16	18	39
24	34	18	E B 16	E B 16	E B 16	24	27	A A 78	A A 73	43	44	47	A A 101	A A 97	45	33	41	43	40	42	19	42	43	A A 67
25	23	23	A A 51	E B 16	18	G	36	A A 79	A A 103	A A 68	46	A A 74	A A 113	46	47	43	33	A A 85	A A 98	32	31	31	22	21
26	23	E B 16	18	16	E B 16	21	30	40	42	48	A A 89	A A 66	A A 107	A A 83	A A 83	A A 167	A A 129	A A 85	A A 144	A A 110	E B 16	24	20	19
27	A A 76	19	24	19	18	24	30	36	A A 86	47	45	A A 54	47	46	47	A A 103	A A 90	A A 60	A A 86	34	23	25	35	23
28	E B 17	E B 16	E B 16	E B 16	E B 16	G	28	33	34	38	37	36	40	37	46	35	44	A A 67	24	25	36	A A 86	A A 86	A A 86
29	A A 54	A A 50	A A 35	20	E B 16	23	36	35	A A 69	A A 178	A A 102	A A 70	A A 73	A A 94	38	35	A A 72	46	40	24	A A 128	A A 91	A A 112	A A 106
30	18	A A 67	A A 124	20		G	41	A A 56	A A 104	62	44	A A 126	C	A A 52	A A 52	42	34	41	26	40	24	21	23	24
31	24	E B 16	19	26	28	A A 44	41	38	46	A A 90	51	44	46	A A 170	A A 97	42	30	31	31	24	43	24	24	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	31	30	31	31	31	31	31	30	31	30	31	31	31	31	31	31	31	31	31	31	31
MED	20	18	18	E B 16	E B 16	20	32	41	52	A A 62	A A 62	A A 64	46	50	46	38	43	46	39	36	25	25	23	21
U Q	A A 24	A A 22	A A 23	20	18	24	37	A A 56	A A 73	A A 90	A A 89	A A 89	A A 91	A A 75	A A 62	A A 50	A A 56	A A 67	A A 86	46	38	39	A A 34	A A 34
L Q	E B 17	E B 16	E B 16	E B 16	E B 16	G	28	36	42	46	44	44	40	39	37	34	34	35	31	24	20	20	E B 19	E B 18

MAY 2020 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 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	17	16	16	17	17	19	19	18	21	19	20	18	15	14	16	16	16	16	16
2	16	16	16	16	16	16	14	14	16	17	17	21	21	19	19	20	16	14	15	16	16	16	16	16
3	16	16	16	16	16	16	16	18	17	20	19	19	25	18	18	17	17	16	16	16	16	16	16	16
4	15	16	16	15	15	17	15	16	18	18	17	20	20	22	16	15	15	15	16	16	16	16	19	16
5	16	16	16	16	16	16	16	14	15	15	20	20	20	20	20	18	17	15	15	16	15	15	16	16
6	16	16	16	16	16	13	16	17	15	18	19	18	26	21	21	17	16	16	16	16	16	14	16	16
7	16	16	16	16	16	15	12	16	16	16	20	20	20	22	22	16	16	16	14	16	16	16	16	16
8	16	16	16	16	15	16	16	19	19	19	19	20	22	22	18	18	18	15	15	15	16	16	16	17
9	16	16	16	17	16	17	16	16	16	18	18	18	18	18	18	18	16	13	16	16	15	16	16	16
10	17	16	16	15	15	14	15	15	16	18	22	20	21	19	19	20	18	17	17	16	16	16	16	16
11	16	16	16	16	16	16	16	16	16	16	20	20	22	22	18	17	16	16	17	16	16	16	16	16
12	16	16	17	15	16	16	16	16	19	18	19	21	21	22	22	22	18	16	16	16	16	16	16	16
13	16	16	15	16	15	16	16	16	17	18	23	23	24	24	23	20	20	15	15	16	16	16	16	16
14	16A	17	17	15	16	14	16	16	17	19	19	24	30	25	18	20	18	15	16	16	16	16	16	16
15	16	16	16	16	16	16	16	17	18	17	22	22	21	25	17	22	17	17	17	16	16	16	16	16
16	16	16	16	16	16	16	14	16	17	19	19	20	20	19	20	21	17	15	16	16	15	16	16	16
17	16	16	16	16	16	16	16	16	17	21	21	21	23	21	24	20	21	16	16	17	16	16	16	16
18	16	16	16	16	15	16	16	18	18	20	20	20	25	22	19	19	19	16	16	15	15	16	16	16
19	16	16	16	16	16	16	15	15	16	17	18	21	21	21	21	17	17	16	16	16	16	16	16	16
20	16	16	16	16	16	15	15	15	16	16	22	19	19	19	19	18	17	14	16	16	16	16	16	16
21	16	16	16	16	16	15	16	16	17	23	C	22	23	19	22	16	16	16	15	14	16	15	16	16
22	16	16	16	16	16	16	16	16	16	18	18	22	22	19	19	16	16	17	16	16	16	16	16	16
23	16	16	16	16	16	16	16	17	17	16	20	24	28	23	23	19	19	16	15	16	16	16	16	16
24	17	16	16	16	15	16	15	17	17	17	19	22	20	17	19	16	16	15	16	16	16	15	16	16
25	16	16	16	16	15	16	17	16	20	16	17	21	23	22	20	17	16	16	16	16	16	17	16	16
26	16	16	16	15	16	16	16	14	16	17	20	20	20	17	17	24	17	16	16	15	16	16	16	16
27	16	16	16	15	15	16	16	19	20	17	19	22	22	18	26	16	16	16	17	16	16	16	16	15
28	17	16	16	16	16	16	16	19	18	22	24	22	22	21	20	18	17	17	13	17	16	16	16	16
29	16	16	16	16	16	16	16	16	18	18	20	19	19	22	24	23	19	16	16	17	16	16	16	16
30	16	16	16	16		15	17	16	18	18	22	22	C	20	19	19	17	17	17	15	16	16	17	16
31	16	16	16	16	16	15	16	16	18	18	18	19	19	25	22	18	17	15	15	13	15	15	15	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	31	31	31	31	31	30	31	30	31	31	31	31	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	16	17	18	19	20	21	21	19	18	17	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	17	18	19	20	22	23	22	22	20	18	16	16	16	16	16	16	16
L Q	16	16	16	16	15	15	15	16	16	17	19	20	20	19	18	17	16	15	15	16	16	16	16	16

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 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	317	311	286	320	305	344	384	399	372	347	329	315	311	316	323	335	338	346	332	A	351	312	327	305
2	F	F	F	F	F	330	347	329	357	A	A	331	316	320	329	309	340	A	A	333	352	A	A	A
3	F	285	301	F	F	359	A	364	A	A	A	A	A	318	316	A	339	327	A	332	351	325	317	314
4	F	290	314	F	320	354	361	368	377	A	292	A	336	320	308	304	322	347	341	349	341	303	322	337
5	320	320	315	335	321	321	341	382	371	347	368	327	A	247	324	A	356	332	A	306	352	375	F	F
6	313	318	F	F	307	A	346	323	347	366	334	327	298	305	323	300	317	A	A	330	345	345	F	323
7	315	317	325	F	305	324	338	360	336	358	370	316	328	A	322	A	A	328	A	314	350	373	312	313
8	F	F	F	309	312	339	379	338	A	355	A	A	335	A	321	A	339	A	321	331	332	331	336	343
9	314	312	312	F	333	362	332	360	366	366	333	A	330	343	343	345	314	336	313	323	319	332	334	311
10	322	321	325	322	325	340	353	362	375	A	A	A	310	317	316	326	325	348	318	310	335	349	315	314
11	333	328	319	F	F	365	363	364	A	A	335	317	317	322	305	316	332	345	333	328	325	323	343	341
12	334	310	320	320	325	323	359	395	A	A	A	A	356	407	A	320	323	336	325	338	386	337	307	F
13	F	317	321	F	F	365	348	332	A	A	A	A	A	A	A	320	335	356	338	312	344	367	312	F
14	A	A	A	316	F	327	354	A	A	393	A	A	A	293	314	316	325	325	310	330	A	F	F	F
15	313	F	F	328	316	365	392	338	370	A	A	A	A	A	A	A	332	325	336	327	320	A	A	341
16	311	F	A	F	301	351	A	A	A	A	A	A	A	A	294	319	A	A	313	313	336	318	F	343
17	A	F	F	F	299	358	357	364	325	A	A	A	A	A	A	330	345	A	A	349	F	F	F	F
18	A	A	A	A	309	338	383	379	A	A	A	A	295	336	R 289	331	311	342	322	A	339	358	F	317
19	325	A	F	317	323	338	367	363	368	338	332	321	324	329	272	323	324	314	311	311	348	F	A	A
20	332	333	337	335	334	368	356	354	360	A	A	A	329	306	314	322	341	338	A	330	352	357	310	F
21	F	F	311	336	326	337	350	A	A	A	C	A	A	A	A	A	A	A	A	A	344	360	301	F
22	F	312	F	325	329	A	A	A	A	A	A	A	A	A	A	319	310	310	323	337	F	315	F	F
23	326	F	F	F	289	340	314	A	353	A	A	A	A	317	314	348	341	341	332	304	296	286	F	F
24	F	F	F	F	F	352	389	A	A	333	328	336	A	A	319	312	327	303	306	316	309	317	355	A
25	336	323	A	F	307	381	331	A	A	A	320	A	A	286	294	338	350	A	A	302	334	320	F	F
26	F	F	F	F	F	F	F	345	349	347	A	A	A	A	A	A	A	A	A	A	F	F	F	309
27	A	F	323	F	F	346	356	314	A	358	335	A	309	295	299	A	A	A	A	321	305	323	311	345
28	341	337	329	329	312	355	362	368	352	390	R 307	285	R 245	325	321	272	335	A	317	328	F	A	A	A
29	A	A	A	F	333	366	388	369	A	A	A	A	A	A	304	311	A	343	342	333	A	A	A	A
30	297	A	A	F	370	F	A	A	395	368	A	C	A	A	332	322	329	298	314	334	F	F	F
31	F	F	F	331	326	A	325	312	355	A	320	273	310	A	A	320	319	351	322	322	331	F	F	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	15	14	13	22	27	26	23	16	13	14	10	16	18	22	23	25	21	20	27	25	21	14	14
MED	321	317	320	325	318	351	356	362	358	358	332	319	316	318	315	320	332	336	322	327	339	331	316	320
U Q	332	323	325	333	326	365	367	368	370	378	335	327	330	325	322	331	340	346	332	332	350	358	334	341
L Q	314	311	312	318	307	338	346	338	350	347	320	315	310	305	304	312	322	326	313	313	328	318	311	313

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 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	L	U L 418	U L 408	U L 442	413	U L 397	U L 391	392	394	U L 408	A					
2								A	A	A	A	U L 402	A	A	A	U L 390	A	A	A					
3							A	A	A	A	A	A	A	A	A	A	A	A	A					
4							A	A	A	A	A	A	404	A	376	U L 390	A	A	A					
5								397	400	417	403	440	A	U L 446	A	A	A	A	A					
6						A		A	A	A	A	A	A	A	A	A	A	A	A					
7						A		A	A	A	A	U L 401	U L 423	A	A	A	A	A	A					
8									A	A	A	A	A	A	A	A	A	A	A					
9								A	A	A	A	A	412	A	390	A	374	L	L					
10							A	A	A	A	A	A	424	U L 412	U L 390	422	U L 376	U L 352	A					
11									A	A	433	417	U L 393	U L 419	390	392	390	A						
12							L	A	A	A	A	A			A	379	A	A	A					
13							L	A	A	A	A	A	A	A	A	U L 379	A	A	A					
14							A	A	A	A	A	A	A	U L 384	A	A	A	A	A					
15						L	L	420	A	A	A	A	A	A	A	A	A	A						
16							A	A	A	A	A	A	A	A	A	A	A	A	A					
17							A	A	A	A	A	A	A	A	A	A	A	A	A					
18						L	A		A	A	A	A	A	A	A	399	384	A	L					
19						L	L	U L 399	A	387	A	A	A	A	U L 417	398	382	371	355					
20						L	A	L		A	A	A	A	U L 400	U L 382	U L 360	A	A	A					
21							L	A	A	A	C	A	A	A	A	A	A	A	A					
22							A	A	A	A	A	A	A	A	A	388	380	364	A					
23							U L 361	A	A	A	A	A	A	A	U L 408	U L 385	A	384	A					
24							A	A	A	A	A	A	A	A	U L 381	U L 380	A	A	A					
25							A	A	A	A	A	A	A	A	A	A	409	A	A					
26							U L 372	A	A	A	A	A	A	A	A	A	A	A	A					
27							L	A	A	A	A	A	A	A	A	A	A	A	A					
28							L	U L 408	422	420	U L 434			U L 441	A	U L 404	A	A	L					
29							A		A	A	A	A	A	A	U L 391	U L 400	A	A	A					
30								A	A	A	A	A	C	A	A	A	U L 415	A	371					
31						A	A	A	A	A	A	U L 339	A	A	A	A	U L 374	373	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	4	2	4	4	6	6	7	10	15	10	6	2					
MED							U L 366	404	411	418	420	U L 410	412	U L 412	U L 390	U L 390	383	372	363					
U Q								414		419	434	440	423	U L 441	U L 391	399	394	384						
L Q								398		402	406	U L 401	404	U L 397	U L 382	U L 380	U L 376	364						

MAY 2020 M(3000)F1 (0.01)

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MAY 2020 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							238	226	250	268	326	342	336	326	300	268	252	242	242					
2								E A 310	280	A	A	314	372	334	310	346	278	A	A					
3							A	260	A	A	A	A	A	E A 340	E A 368	A	E A 318	258	A					
4							244	244	244	A	E A 404	A	322	306	306	302	260	244	E A 300					
5								224	244	272	260	314	A	468	318	A	E A 262	E A 290	A					
6						A		282	224	E A 242	E A 308	312	388	E A 370	284	326	E A 354	A	A					
7						E A 258		244	290	248	262	350	306	A	332	A	A	E A 274	A					
8									A	E A 262	A	A	318	A	338	A	E A 302	A	282					
9								E A 260	260	E A 272	E A 298	A	298	E A 284	272	274	358	296	282					
10							E A 264	E A 250	E A 272	A	A	A	374	344	344	298	310	280	E A 280					
11									A	A	318	326	312	308	328	286	270	246						
12							256	228	A	A	A	A			A	298	298	E A 298	E A 276					
13							276	E A 326	A	A	A	A	A	A	A	284	254	260	248					
14							256	A	A	232	A	A	A	386	356	E A 328	304	292	274					
15						260	218	298	258	A	A	A	A	A	A	A	286	E A 290						
16							A	A	A	A	A	A	A	A	E A 396	E A 324	A	A	E A 294					
17							E A 256	E A 238	E A 320	A	A	A	A	A	A	286	264	A	A					
18						290	E A 268		A	A	A	A	E A 388	E A 300	E A 396	304	342	258	258					
19						296	248	238	260	320	E A 320	320	334	328	452	304	288	288	306					
20						236	240	250		A	A	A	352	358	320	308	E A 290	E A 278	A					
21							276	A	A	A	C	A	A	A	A	A	A	A	A					
22							A	A	A	A	A	A	A	A	A	344	344	330	E A 292					
23							332	A	264	A	A	A	A	342	320	264	286	278	252					
24							230	A	A	E A 312	332	E A 316	A	A	340	334	308	E A 378	E A 346					
25							E A 300	A	A	A	E A 338	A	A	E A 382	370	272	246	A	A					
26							312	236	266	E A 252	A	A	A	A	A	A	A	A	A					
27							272	326	A	254	288	A	E A 376	E A 402	E A 394	A	A	A	A					
28							252	240	272	232	356			334	306	376	314	A	284					
29							234		A	A	A	A	A	A	380	338	A	E A 298	272					
30								A	A	228	290	A	C	A	A	308	284	256	318					
31						A	E A 342	334	E A 268	A	E A 352	432	346	A	A	288	312	252	E A 244					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						5	20	19	15	13	14	9	14	17	22	23	25	21	18					
MED						260	251	245	261	248	U 304	320	334	334	327	301	288	268	273					
U Q						293	276	298	272	272	E A 338	346	374	E A 376	370	328	313	294	E A 294					
L Q						247	242	238	250	237	290	314	318	317	310	286	267	257	258					

MAY 2020 h'F2 (KM)

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MAY 2020 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 240	E B 248	E B 256	E B 240	E B 240	214	206	A	190	190	190	190	194	190	188	198	198	194	A	A	204	200	224	E A 272
2	E A 294	E B 242	E B 234	222	222	228	218	A	A	A	A	206	A	A	A	206	A	A	A	220	218	A	A	A
3	E A 282	E B 282	E B 270	E B 258	E B 262	A 206	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 242	210	210	222	E A 286
4	E A 240	E A 270	E A 256	E B 222	222	222	A	A	A	A	A	A	194	A	204	E A 240	A	A	A	218	202	E A 242	E B 232	214
5	E B 252	E B 260	E B 254	E B 254	E B 246	218	202	200	222	190	188	170	A	168	A	A	A	A	A	E A 308	220	196	196	E B 240
6	E B 246	228	E B 264	E A 290	E B 268	A	228	A	A	A	A	A	A	A	A	A	A	A	A	E A 268	E A 266	E A 244	200	226
7	E B 238	E A 264	E A 288	E A 244	E B 244	A	220	A	A	A	A	214	188	A	A	A	A	A	A	E A 298	206	196	206	E A 272
8	E A 310	E B 254	E B 240	E B 260	E A 242	220	214	E A 234	A	A	A	A	A	A	A	A	A	A	A	E A 230	E A 256	222	222	204
9	E A 272	E A 282	E A 260	E B 228	E B 240	208	206	A	A	A	A	A	186	A	206	A	216	226	224	E B 238	E A 286	198	198	E A 244
10	E B 240	E B 252	E B 250	E B 250	E B 244	218	A	A	A	A	A	A	202	188	200	192	210	190	A	E A 264	228	210	E A 232	E B 248
11	230	E B 242	E B 246	E B 266	E B 260	220	220	226	A	A	190	190	204	202	222	222	194	A	226	E A 250	E A 242	E A 242	220	220
12	E B 242	E B 292	E B 246	E B 236	E B 234	226	206	A	A	A	A	A	204	204	A	212	A	A	A	E B 234	200	184	E A 248	E B 292
13	E A 288	E A 258	E A 244	E A 244	E A 288	228	208	A	A	A	A	A	A	A	A	206	A	A	A	234	208	E A 230	E A 250	E A 264
14	A	A	A	E A 272	E B 220	226	A	A	A	A	A	A	A	226	A	A	A	A	A	E A 236	A	E A 236	E A 268	220
15	E A 276	E A 276	E A 260	E A 236	E B 254	208	198	184	A	A	A	A	A	A	A	A	A	A	244	E A 248	222	A	A	E A 266
16	E A 266	212	A	E A 280	E A 298	206	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 254	E A 254	E A 248	E A 314	214
17	A	E A 274	E B 232	208	E B 242	206	A	A	A	A	A	A	A	A	A	A	A	A	A	214	214	E A 256	E A 290	E A 298
18	A	A	A	A	E A 326	206	A	E A 230	A	A	A	A	A	A	A	202	226	A	192	A	226	222	E A 236	E A 308
19	E A 258	A	E A 236	E B 252	E B 252	204	206	206	A	206	A	A	A	A	206	206	202	202	202	E A 268	E A 232	206	A	A
20	E A 270	E A 286	E A 280	E B 238	E B 238	202	A	202	E A 290	A	A	A	A	216	196	226	A	A	A	E A 230	212	E A 234	E A 268	E B 236
21	E A 254	E B 252	E B 242	E B 236	E B 236	226	210	A	A	A	C	A	A	A	A	A	A	A	A	A	210	210	E A 264	E A 234
22	E A 260	E A 302	E A 302	E A 296	E A 296	A	A	A	A	A	A	A	A	A	A	202	212	212	A	E A 254	228	E A 272	228	226
23	E B 246	E A 288	E B 272	E B 272	E B 280	214	226	A	A	A	A	A	A	A	192	214	A	196	A	E A 340	E A 260	E B 252	E A 252	E A 252
24	E A 250	E A 250	E B 252	E B 252	212	206	A	A	A	A	A	A	A	A	E A 244	212	A	A	A	E A 302	E A 240	E A 264	E A 272	A
25	E A 270	E A 292	A	E B 258	E A 236	200	A	A	A	A	A	A	A	A	A	A	212	A	A	E A 286	E A 244	E A 240	E A 318	E A 244
26	E A 304	E B 254	E A 244	218	218	212	212	A	A	A	A	A	A	A	A	A	A	A	A	A	E B 228	E A 252	E A 252	E A 240
27	A	E A 242	E A 254	E A 252	E A 238	212	212	A	A	A	A	A	A	A	A	A	A	A	A	E A 288	E A 288	E A 256	E A 286	210
28	E B 218	E B 232	E B 252	218	E B 228	216	206	196	196	196	190	190	198	198	A	200	A	A	218	E B 246	E B 234	A	A	A
29	A	A	A	E A 314	E B 252	218	A	204	A	A	A	A	A	A	204	202	A	A	A	220	A	A	A	A
30	E A 254	A	A	218		214	E A 240	A	A	A	A	A	C	A	A	A	210	A	E A 232	E A 276	218	E A 266	E A 276	E A 276
31	E A 290	E B 258	E A 240	E A 262	E A 248	A	A	A	A	A	A	E A 312	A	A	A	A	188	218	A	E A 230	E A 248	E A 256	E A 288	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	26	26	25	30	30	27	18	9	4	4	4	7	8	8	10	15	10	7	7	27	29	27	26	26
MED	E A 256	E 258	E B 252	E 251	E B 243	214	210	202	201	193	190	190	196	200	203	206	210	202	221	E A 248	U 216	E A 236	E A 249	E A 244
U Q	E A 276	E A 282	E A 262	E A 262	E A 260	220	220	E A 228	256	201	190	214	203	210	206	214	212	218	232	E A 276	E A 246	E A 252	E A 272	E A 272
L Q	E B 242	E B 248	E B 243	236	236	206	206	198	193	190	189	190	191	189	196	202	198	194	202	230	211	210	222	226

MAY 2020 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
						112	112	108				108	108	104	110	110	112	110						
2						A			A	A	A	A	A	A	A			A	B					
						110	110									110	108							
3						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
4	A				B	B	A	A	A	A	A	A	A	A	A	A	A	A	B					
5						B		A	A	A			A		A		A	A	B					
						108					108	108		108	110									
6						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
7						B	A	A	A	A	A	A	A	A			A	A	A					
															112	112								
8						B	A	A	A	A	A	A	A	A		A	A	A	B					
															114									
9						B		A	A	A	A	A	A	A	A			A	B					
						114										108	108							
10						B		A	A	A	A	A							B					
						108							112	110	110	110	110	110						
11						B		A	A	A		A	A	A	A				B					
						110					110					110	110	110						
12						B			A	A	A	A			A				B					
						114	114						112	108		108	108							
13						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
14						B		A	A	A	A	A	A	A		A	A	A	B					
						110									110									
15									A	A	A	A	A	A	A	A	A	A	A					
						120	114	114																
16							A	A	A	A	A	A	A	A	A		A	A	B					
						118										108								
17						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
18						B	A		A	A	A	A		A					B					
													112		112	112	112							
19						B	A	A	A	A	A	A	A	A					B					
															108	108	108	108						
20							A	A	A	A	A	A	A	A		A	A	A	B					
						108									108									
21								A	A	A	C	A	A	A	A	A	A	A	A					
						110	118																	
22							A	A	A	A	A	A	A	A	A				B					
																112	110	110						
23						B		A	A	A	A	A	A	A				A	B					
						110									110	110		114						
24						B		A	A	A	A	A	A	A	A	A	A	A	B					
						114																		
25								A	A	A	A	A	A	A	A	A	A	A	B					
						120	120																	
26						B		A	A	A	A	A	A	A	A	A	A	A	A					
						116																		
27						B	A		A	A	A	A	A	A	A	A	A	A	B					
								116																
28						B			A	A			A	A	A		A	A	B					
						110	110				110	112				108								
29						B	A		A	A	A	A	A	A	A	A	A	A	B					
								108																
30								A	A	A	A	A	C					A	B					
						120	120							110	110	110	110							
31						B	A	A	A	A	A	A	A	A	A	A		A	B					
																	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						6	16	7	1		3	3	4	5	11	14	11	6						
MED						119	113	112	108		110	108	112	108	110	110	110	110						
U Q						120	115	114			110	112	112	110	112	110	110	110						
L Q						110	110	110			108	108	110	106	110	108	108	110						

MAY 2020 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	86	88	88	126	116	112	112	102	102	G	120	120	116	G	116	138	98	90	96	108	98	98
2	88	88	88	88	88	126	124	114	102	96	94	94	94	94	94	114	114	96	96	94	94	94	94	94
3	94	94	94	94	90	96	96	104	100	100	94	94	104	104	100	90	88	92	92	98	98	98	96	96
4	90	88	88	88	B	G	98	96	96	90	90	90	96	116	122	100	100	100	96	96	B	96	B	B
5	92	86	86	86	88	116	116	102	102	102	G	G	102	G	112	96	102	102	102	98	98	98	B	B
6	B	B	100	92	92	102	102	98	98	98	98	98	98	116	104	104	104	100	96	92	92	92	94	94
7	94	94	88	88	88	106	102	102	100	100	96	96	94	94	134	116	104	102	98	98	98	98	98	96
8	96	B	96	92	92	102	102	102	96	96	96	88	88	94	136	102	102	102	102	96	96	96	106	B
9	94	88	84	82	B	80	114	100	100	100	100	96	106	98	100	152	132	106	102	94	94	94	94	92
10	92	B	B	B	B	120	120	100	100	98	98	94	142	142	G	G	158	G	102	96	98	98	98	98
11	98	B	B	B	B	122	122	104	100	100	G	100	100	100	100	156	120	114	100	94	94	94	94	94
12	100	88	92	B	92	112	112	110	94	94	92	92	G	122	98	136	122	102	98	92	90	90	90	94
13	92	98	98	88	88	98	98	98	96	88	88	88	88	94	86	94	104	104	104	94	94	94	94	94
14	90	90	88	88	88	116	110	88	88	94	90	90	90	90	118	106	102	102	96	88	88	88	88	98
15	90	88	84	84	84	G	124	124	98	96	94	92	92	92	90	90	90	90	86	82	82	94	94	94
16	94	94	84	84	82	G	104	102	92	92	92	88	88	88	100	110	98	98	98	98	98	98	98	96
17	92	90	90	90	90	102	102	98	98	98	98	88	88	88	88	100	100	90	90	90	98	98	98	94
18	92	90	84	84	84	88	88	88	88	82	82	92	116	104	104	116	114	98	98	92	94	94	94	94
19	94	94	94	94	94	98	98	94	94	94	92	92	92	100	150	G	G	G	112	92	96	96	96	94
20	94	88	88	84	84	G	96	96	94	88	88	88	92	92	110	102	96	96	88	84	86	86	86	96
21	96	90	90	88	88	G	108	100	100	94	C	86	86	86	98	98	104	96	96	90	90	90	92	90
22	88	88	88	88	88	96	96	96	94	90	90	88	88	90	82	114	112	112	96	88	88	96	96	92
23	92	92	90	90	88	114	114	94	94	88	88	88	112	122	122	120	102	110	98	88	90	96	96	94
24	94	92	92	94	94	92	112	102	102	100	100	94	100	94	98	98	106	100	96	94	94	94	94	94
25	86	90	86	86	84	G	112	100	96	96	96	94	90	90	90	94	100	100	92	92	92	94	94	94
26	94	94	94	86	86	110	106	96	90	90	90	90	88	88	88	82	86	86	90	86	102	102	100	92
27	92	90	90	90	90	90	118	106	96	96	96	96	94	94	94	88	86	90	90	84	94	100	100	98
28	98	96	96	96	B	G	114	114	104	100	108	108	102	100	98	118	102	96	94	94	94	92	92	96
29	92	86	86	86	86	102	100	110	104	92	92	92	86	86	86	90	102	94	86	86	106	102	102	96
30	92	92	88	88		G	112	100	96	96	96	88	C	122	122	122	122	104	104	88	96	96	96	90
31	90	88	88	88	88	90	90	90	90	90	90	90	90	84	84	102	118	102	100	88	88	90	90	90
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	26	29	28	25	23	31	31	31	31	28	29	29	30	30	28	30	29	31	31	30	31	29	28
MED	92	90	88	88	88	102	108	100	96	96	94	92	94	94	100	102	103	100	96	92	94	96	94	94
U Q	94	94	93	90	90	116	114	104	100	100	97	94	102	104	116	116	114	103	100	94	98	98	98	96
L Q	91	88	86	86	86	96	98	96	94	90	90	88	88	90	90	95	100	96	92	88	90	94	94	94

IONOSPHERIC DATA STATION Kokubunji

MAY 2020 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			F1	F1	F1	C2	C2	C2	C2	L2	L1		C1	C1	C1		C1	H1	L5	F5	F1	F1	F3	F3
2	F5	F2	F2	F4	F2	C3	C2	C2	L2	L3	L3	L2	L2	L2	L4	C1	C2	L5	L6	F5	F5	F5	F4	F6
3	F2	F3	F2	F2	F4	L1	L3	L3	L3	L3	L3	L4	L3	L2	L3	L4	L4	L5	L5	F5	F5	F4	F4	F4
4	F2	F2	F2	F1			L4	L3	L3	L4	L2	L3	L2	CL21	CL21	L2	L3	L4	L6	F6		F6		
5	F2	F2	F2	F2	F2	C1	C2	L2	L2	L1			L2		C2	L4	L3	L5	L5	F8	F6	F3		
6			F2	F6	F2	L4	L3	L3	L2	L3	L2	L2	L2	CL22	L2	L4	L3	L7	L6	F4	F5	F7	F3	F3
7	F3	F6	F4	F4	F2	L5	L4	L3	L2	L2	L2	L2	L1	L2	C1	C3	L4	L4	L5	F5	F2	F3	F3	F3
8	F6		F1	F2	F4	L2	L2	L2	L4	L2	L2	L3	L2	L2	H1	L2	L3	L5	L7	F4	F5	F3	F3	
9	F3	F2	F2	F1		L1	C2	L3	L2	L2	L2	L3	L1	L3	L1	H2	H2	L2	L4	F3	F7	F1	F1	F4
10	F2					C2	C3	L2	L3	L3	L2	L2	H1	H1			H1		L3	F4	F5	F2	F7	F2
11	F1					C2	C2	L3	L3	L2		L1	L1	L2	L2	H1	C2	C3	L5	F6	F5	F4	F4	F3
12	F2	F4	F2		F1	CL22	CL22	CL21	L4	L3	L3	L3		C1	L2	H1	C2	L4	L6	F6	F3	F4	F5	F2
13	F4	F3	F3	F6	F4	L2	L3	L3	L4	L5	L5	L4	L4	L4	L4	L2	L3	L4	L6	F3	F3	F4	F4	F5
14	F6	F5	F4	F3	F1	L3	C4	L6	L5	L2	L3	L2	L3	L2	C1	L3	L3	L4	L3	F4	F6	F6	F7	F1
15	F3	F2	F2	F2	F2		C2	C2	L3	L3	L3	L2	L3	L3	L3	L4	L3	L3	L2	F4	F2	F4	F6	F5
16	F5	F3	F6	F2	F3		L4	L4	L4	L4	L3	L4	L3	L3	L3	C3	L4	L6	L5	F4	F7	F5	F6	F4
17	F4	F6	F2	F2	F1	L3	L4	L3	L2	L3	L3	L3	L3	L3	L4	L2	L3	L5	L4	F6	F5	F7	F7	F4
18	F7	F7	F6	F6	F4	L2	L3	L3	L3	L4	L3	L2	C1	L3	C2	C1	C3	L4	L2	F4	F6	F6	F6	F8
19	F8	F6	F4	F2	F2	L2	L3	L3	L2	L1	L2	L2	L1	L1	H1				C1	F6	F4	F4	F5	F7
20	F4	F3	F3	F2	F2		L3	L2	L4	L4	L5	L4	L3	L1	C1	L2	L4	L4	L6	F5	F4	F4	F4	F2
21	F5	F2	F2	F2	F1		C4	L6	L4	L4		L5	L4	L4	L2	L2	L5	L7	L8	F5	F5	F6	F5	F3
22	F3	F4	F5	F4	F5	L5	L4	L5	L5	L5	L4	L4	L3	L2	L3	CL11	C1	C2	L3	F6	F3	F6	F8	F7
23	F2	F3	F2	F2	F2	C2	C3	L3	L3	L4	L3	L3	CL23	CC12	C1	C1	L2	C2	L3	F3	F4	F2	F4	F7
24	F4	F4	F2	F2	F2	L3	C3	L5	L4	L2	L2	L2	L3	L3	L2	L1	L2	L3	L4	F4	F3	F8	F8	F6
25	F7	F7	F8	F2	F2		C5	C5	L6	L3	L2	L3	L3	L3	L2	L2	L1	L4	L6	F4	F4	F3	F8	F6
26	F6	F2	F5	F4	F2	C3	C3	L3	L2	L2	L4	L4	L4	L4	L4	L4	L4	L4	L3	F4	F3	F5	F7	F7
27	F9	F4	F3	F7	F2	L3	CL32	C2	L4	L2	L2	L2	L2	L2	L2	L4	L5	L4	L5	F5	F5	F6	F6	F6
28	F2	F2	F1	F1			C2	C2	L3	L1	C1	C1	L2	L1	L2	C1	L3	L4	L2	F5	F5	F7	F6	F6
29	F7	F7	F4	F4	F2	L3	L3	C1	L4	L4	L3	L4	L3	L3	L2	L2	LL32	LL33	L4	F3	F7	F8	F7	F7
30	F3	F6	F5	F3			C2	L3	L5	L3	L2	L3		C1	C1	C2	C2	L4	L3	F6	F5	F6	F5	F5
31	F4	F3	F3	F5	F3	L4	L3	L3	L3	L4	L4	L2	L2	L4	L3	L2	C1	L2	L3	F3	F5	F7	F7	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																								

MAY 2020 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

MAY 2020 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 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	30	30	F	F	F	F	42	58	58	53	49	53	59	65	69	74	76	76	68	58	66	55	43	A
2	32	F	F	28	22	21	42	60	55	48	57	A	56	58	55	63	72	64	A	A	59	A	31	35
3	35	F	F	F	28	24	44	51	52	48	A	52	56	62	66	68	76	80	A	59	55	48	39	37
4	A	F	F	F	F	23	39	52	54	50	50	A	A	67	71	77	A	84	75	66	60	51	F	F
5	37	F	34	31	29	27	40	56	64	58	52	45	50	61	68	68	71	68	70	69	71	60	46	34
6	33	F	F	26	F	F	40	48	66	68	A	54	54	62	63	60	70	73	73	A	72	F	39	F
7	F	F	F	F	F	28	43	55	64	A	61	A	A	A	59	64	63	63	A	71	87	56	29	29
8	31	31	32	F	F	26	45	46	53	53	51	51	60	66	66	59	61	A	A	A	68	52	37	32
9	A	A	F	F	F	24	44	54	52	54	52	56	62	66	69	66	61	55	A	A	62	56	A	F
10	F	36	33	32	28	F	44	46	48	51	55	A	54	54	A	57	59	A	A	56	64	57	44	38
11	37	33	32	28	26	25	41	A	A	A	48	48	52	A	A	85	74	64	A	A	56	F	F	F
12	F	A	33	F	F	28	44	56	A	52	51	52	50	46	48	54	63	70	A	80	72	F	F	F
13	39	37	37	32	30	F	41	50	51	51	49	47	50	52	54	62	63	A	A	59	65	55	35	F
14	F	F	F	F	F	F	45	55	58	54	50	48	52	60	54	54	60	61	A	60	58	A	A	A
15	A	F	F	F	F	F	43	55	53	A	A	A	A	A	60	65	63	61	60	60	56	46	A	F
16	A	A	F	26	F	F	38	50	A	A	A	A	A	A	A	A	A	76	77	78	69	F	F	A
17	A	38	F	F	26	A	46	53	A	A	A	A	A	A	64	A	72	A	A	53	57	56	55	A
18	A	A	F	A	28	F	41	50	A	A	A	A	A	A	A	50	60	61	55	54	60	40	F	F
19	F	F	F	F	33	29	44	46	52	A	A	A	A	54	54	54	55	60	59	A	79	68	A	26
20	A	F	F	F	27	29	44	51	50	54	58	50	53	58	62	69	60	53	57	66	54	50	43	42
21	41	40	35	31	31	30	42	48	50	A	A	A	A	A	A	A	46	54	A	63	63	A	A	A
22	A	34	F	F	F	F	A	51	A	49	51	A	58	58	49	49	A	53	A	61	58	53	F	48
23	F	F	A	F	F	29	38	50	63	A	A	49	52	55	59	62	55	50	50	50	57	58	53	F
24	F	F	F	F	F	28	41	46	A	A	A	A	A	A	52	56	57	54	54	57	60	A	F	A
25	32	A	32	F	F	F	A	49	54	A	A	A	A	54	60	72	A	A	A	56	70	56	F	A
26	A	A	A	A	A	F	47	52	51	A	50	51	A	54	52	56	60	58	59	60	59	48	F	F
27	F	F	F	F	F	26	39	48	56	49	A	A	A	A	66	72	64	A	A	39	49	49	F	A
28	F	A	F	F	F	30	43	50	61	50	47	47	52	A	52	52	60	A	56	A	A	55	40	F
29	F	F	A	A	26	F	38	A	50	53	A	A	A	A	A	A	64	61	A	48	48	A	A	F
30	F	A	F	A	32	A	38	A	70	A	A	46	44	50	A	A	72	A	A	A	62	63	A	F
31	F	F	51	42	32	33	40	49	51	54	A	54	66	68	64	68	62	64	63	67	55	44	40	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	10	8	9	9	14	17	29	28	24	18	16	16	18	20	24	26	27	23	14	23	30	22	14	9
MED	34	35	33	31	28	28	42	50	54	52	51	50	54	58	60	62	63	61	60	60	60	55	40	35
U Q	37	38	36	32	31	29	44	54	60	54	54	52	58	64	66	68	71	70	70	66	68	56	44	40
L Q	32	32	32	27	26	24	40	48	51	50	50	48	52	54	54	56	60	55	56	56	57	49	37	30

MAY 2020 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	400	432	UL 448	UL 428	452	432	436	416		A						
2									A	A	A	A	A	A	A	A	A	A	A					
3								A	A	A	A	444	432	A	A	A	A	A	A					
4								L	A		UL 440	A	A	A	A	A	A	A						
5								L	400	424	A		432	428	436	416	400	360	L					
6								L	A	A	A	A	444	436	424	A	A	A	A					
7									A	A	A	A	A	A	A	A	A	A	A					
8								L	388	A	UL 432	436	444	A	A	A	A	A	A					
9								A	U L 484		432	A	A	428	436	416	408	A	A					
10									A	A	A	A	444	A	A	416	408	A	A					
11								A	A	A	UL 448	432	428	A	A	A	A	A	A					
12								A	A	U L 408	UL 432	440	A	420	A	416	396	A	A					
13								L	L	412	432	UL 436	UL 452	A	A	A	A	A	A					
14										A	A	UL 436	436	432	A	A	A	A	A					
15								A	A	A	A	A	A	A	424	A	A	A	A					
16								372	A	A	A	A	A	A	A	A	A	A	A					
17						A	A		A	A	A	A	A	A	A	A	A	A	A					
18						A		U L 424	A	A	A	A	A	A	A	420	A	A	A					
19							L	A	A	A	A	A	A	A	432	424	400	A	A					
20							L	L	UL 420	392	420	444	436	A	A	424	A	A	A					
21								A	A	A	A	A	A	A	A	A	A	A	A					
22						A	A	A	A	U L 460	420	A	A	A	436	424	A	A	A					
23								372	A	A	A	440	452	444	432	412	416	384	UL 348					
24								A	A	A	A	A	A	A	A	416	404	384	A					
25							A	A	A	A	A	A	A	A	A	A	A	A	A					
26							L	364	A	A	UL 444	A	A	516	440	428	396	364	340					
27							A	A	A	U L 424	A	A	A	A	428	420	A	A	A					
28								UL 376	400	A	440	UL 440	432	A	424	428	A	A	A					
29								A	A	A	A	A	A	A	A	A	412	384	A					
30						A	324	A		A	A	440	UL 428	A	A	A	A	A	A					
31								A	A	A	A	A	A	A	A	A	400	UL 384	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	5	5	8	11	11	13	8	11	14	10	6	2					
MED							324	372	400	424	UL 432	440	436	432	432	418	402	384	344					
U Q								UL 400	410	U L 446	UL 444	440	448	440	436	424	408	384						
L Q								368	394	410	432	436	432	428	424	416	400	364						

MAY 2020 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 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	A	U A 276	A	A	A	U A 340	R	A	U A 316	A	A	A					
2						B	A	A	A	A	A	A	A	A	A	A	U A 292	A	A					
3						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
4						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
5							A	A	A	A	A	A	A	A	U A 340	U R 336	U A 288	A	A					
6							A	U R 264	A	A	A	A	A	U A 348	A	A	A	A	A					
7						B	A	A	A	A	A	A	A	A	U A 324	U A 304	A	A	A					
8						B	U R 204	U A 256	A	A	A	A	A	A	A	A	A	A	A					
9						B	A	A	A	A	A	A	A	A	U A 336	U R 316	A	A	A					
10						B	A	A	A	A	A	A	A	A	A	U A 316	U A 308	A	A					
11						B	A	A	A	A	A	U R 352	A	A	A	A	A	A	A					
12						B	A	A	A	A	A	A	A	A	U A 348	U A 312	U A 300	A	A					
13						B	U A 188	A	A	A	A	A	A	A	U A 324	A 324	A	A	A					
14						B	A	A	A	A	A	A	A	U A 368	A	A	A	A	A					
15						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
16						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
17						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
18						B		A	A	A	A	A	A	A	A	U A 324	A	A	A					
19							U R 212	A	A	A	A	A	A	A	A	R	U A 308	A	A					
20						B	A	A	A	U A 324	A	A	A	A	A	A	A	A	A					
21						B	A	A	A	A	A	A	A	A	A	U A 352	300	A	A					
22						B	B	A	A	A	A	A	A	A	U A 344	A	A	A	A					
23						B	A	U A 260	A	A	A	U A 340	U A 340	A	A	A	A	U A 248	A					
24							A	U A 260	A	A	A	A	A	A	A	A	U A 296	U A 272	A					
25						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
26						B	A	A	A	A	A	A	A	A	A	U A 336	A	A	A					
27							A	A	A	A	A	A	A	A	A	A	A	A	A					
28						B	U R 228	U A 264	A	A	A	A	U R 356	A	A	U A 348	U A 316	A	U A 208					
29						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
30						B	U A 228	A	A	A	A	A	A	U A 380	A	A	U A 292	A	A					
31							A	A	A	A	A	A	A	A	A	A	U R 304	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							5	5	1	1		2	3	3	6	11	10	2	1					
MED							U R 212	U A 260	U A 276	U A 324		U 346	U A 340	U A 368	U A 338	U A 324	U A 300	U A 260	U A 208					
U Q							U 228	U 264					U R 356	U A 380	U A 344	U A 336	U A 308							
L Q							U 196	U A 258					U A 340	U A 348	U A 324	U A 316	U A 292							

MAY 2020 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 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	22	J A 25	18	E B 16	E B 16	E B 16	24	30	35	J A 43	J A 42	J A 44	40	G	42	38	J A 50	J A 54	J A 46	J A 30	J A 85	J A 64	J A 52	J A 46
2	J A 30	E B 16	E B 16	E B 16	E B 16	E B 16	J A 29	J A 46	J A 44	J A 49	J A 82	J A 68	J A 59	J A 49	J A 52	J A 49	J A 48	J A 60	J A 78	J A 106	J A 53	J A 84	J A 108	25
3	J A 25	J A 34	J A 51	J A 30	J A 41	J A 36	J A 28	J A 53	J A 56	J A 50	J A 72	J A 41	J A 43	J A 47	J A 65	J A 58	J A 60	J A 51	J A 89	J A 66	J A 28	J A 34	J A 106	J A 88
4	J A 65	J A 42	J A 39	J A 43	J A 28	E B 16	J A 31	J A 36	J A 54	J A 46	J A 50	J A 64	J A 66	J A 61	J A 46	J A 152	J A 148	J A 85	J A 65	J A 56	J A 41	J A 38	J A 34	23
5	J A 42	20	E B 16	E B 16	22	22	J A 32	31	36	J A 45	J A 62	J A 62	J A 56	40	38	G	J A 44	J A 71	J A 39	J A 60	J A 54	J A 54	J A 42	J A 37
6	J A 34	J A 54	J A 54	J A 46	J A 32	23	24	G	J A 50	J A 85	J A 72	J A 84	J A 106	40	42	J A 54	J A 54	J A 70	J A 53	J A 84	J A 110	J A 53	J A 23	J A 78
7	J A 68	J A 30	24	20	E B 16	24	J A 32	J A 46	J A 58	J A 67	J A 77	J A 168	J A 66	J A 78	46	J A 58	J A 76	J A 71	J A 85	J A 111	J A 42	J A 32	24	J A 33
8	J A 25	20	23	20	J A 25	21	23	32	36	J A 46	J A 44	J A 52	J A 100	J A 60	J A 48	J A 47	J A 56	J A 63	J A 68	J A 57	J A 54	J A 33	18	J A 29
9	J A 53	J A 66	J A 53	J A 28	J A 33	J A 30	26	J A 43	J A 49	J A 65	J A 52	J A 67	J A 51	J A 41	36	39	36	J A 56	J A 58	J A 78	J A 51	J A 43	J A 53	J A 32
10	22	24	J A 34	J A 23	22	E B 16	28	35	J A 45	J A 53	J A 62	J A 57	J A 44	J A 56	J A 81	J A 84	38	J A 74	J A 64	J A 53	J A 53	J A 42	J A 53	J A 32
11	J A 28	J A 38	J A 44	J A 26	J A 26	J A 33	26	J A 55	J A 60	J A 158	J A 87	G	J A 58	J A 74	J A 139	J A 70	J A 52	J A 50	J A 62	J A 70	J A 55	J A 48	J A 52	J A 41
12	J A 44	J A 48	J A 43	J A 38	J A 35	J A 31	J A 24	J A 43	J A 85	J A 48	J A 44	J A 56	J A 63	J A 43	46	40	35	39	J A 76	J A 32	J A 35	J A 52	J A 54	J A 40
13	J A 52	J A 54	J A 54	J A 54	J A 43	J A 44	23	31	35	37	J A 43	J A 49	J A 49	J A 61	J A 52	J A 55	J A 120	J A 111	J A 111	36	J A 86	J A 102	J A 85	J A 38
14	J A 66	20	E B 16	J A 38	J A 42	21	J A 33	J A 44	J A 53	J A 51	J A 62	J A 61	41	41	J A 44	J A 51	J A 64	J A 47	J A 73	J A 54	J A 124	J A 51	J A 67	J A 109
15	J A 112	J A 85	J A 110	E B 16	J A 50	J A 33	J A 34	J A 56	J A 54	J A 78	J A 110	J A 103	J A 112	J A 113	39	J A 44	J A 64	J A 52	J A 52	J A 52	J A 45	J A 52	J A 64	J A 141
16	J A 73	J A 52	J A 43	J A 66	J A 31	E B 16	26	J A 44	J A 67	J A 103	J A 113	J A 83	J A 120	J A 100	J A 127	J A 101	J A 60	J A 48	J A 64	J A 86	J A 100	J A 53	J A 62	J A 54
17	J A 54	J A 52	J A 52	J A 28	J A 46	J A 53	J A 34	J A 52	J A 114	J A 124	J A 140	J A 111	J A 77	J A 190	J A 50	J A 104	J A 164	J A 264	J A 218	J A 147	J A 110	J A 68	J A 56	J A 66
18	J A 54	J A 54	J A 45	J A 64	J A 46	J A 58	J A 34	J A 43	J A 72	J A 87	J A 191	J A 125	J A 97	J A 59	J A 69	39	J A 72	J A 58	J A 69	J A 24	J A 42	J A 71	J A 53	J A 43
19	J A 39	J A 54	J A 54	E B 16	J A 57	J A 54	G	J A 51	J A 54	J A 88	J A 127	J A 84	J A 72	J A 52	J A 40	G	36	J A 45	J A 57	J A 110	J A 53	J A 45	J A 53	J A 40
20	J A 46	J A 53	J A 38	J A 25	J A 29	J A 30	J A 27	J A 29	J A 39	J A 36	J A 38	J A 44	J A 38	J A 49	J A 46	J A 34	J A 68	J A 46	J A 37	J A 42	J A 25	J A 34	E B 16	E B 16
21	24	J A 36	J A 28	J A 28	22	J A 28	J A 32	J A 39	J A 43	J A 60	J A 78	J A 74	J A 89	J A 80	J A 96	J A 40	39	J A 55	J A 151	J A 89	J A 144	J A 140	J A 110	J A 54
22	J A 66	J A 44	J A 42	J A 30	J A 55	J A 53	J A 53	J A 42	J A 65	J A 83	J A 42	J A 100	J A 90	J A 176	39	J A 65	J A 110	J A 84	J A 61	J A 52	J A 64	J A 75	J A 52	J A 42
23	J A 34	J A 66	J A 54	J A 51	J A 46	24	29	36	J A 44	J A 88	J A 230	J A 37	41	42	37	38	J A 44	28	J A 48	J A 56	J A 42	24	J A 45	J A 45
24	J A 45	J A 53	J A 28	19	E B 16	20	J A 41	J A 51	J A 78	J A 87	J A 91	J A 82	J A 89	J A 70	J A 51	J A 45	36	33	J A 36	J A 43	J A 52	J A 89	J A 33	J A 51
25	J A 78	J A 51	J A 72	J A 67	J A 40	22	J A 44	J A 41	J A 55	J A 86	J A 72	J A 110	J A 82	J A 66	J A 56	J A 57	J A 107	J A 87	J A 64	J A 56	J A 79	J A 53	J A 53	J A 53
26	J A 63	J A 54	J A 42	J A 52	J A 51	J A 33	J A 27	J A 36	J A 45	J A 60	J A 44	J A 55	J A 64	J A 98	36	37	J A 63	J A 64	J A 30	J A 22	24	J A 53	J A 43	J A 83
27	J A 48	J A 38	J A 52	J A 36	22	J A 38	J A 36	J A 51	J A 50	J A 52	J A 69	J A 64	J A 79	J A 110	38	36	J A 45	J A 159	J A 76	J A 41	J A 33	J A 34	J A 66	J A 54
28	J A 44	J A 64	J A 52	E B 16	E B 16	E B 16	G	30	J A 42	J A 52	J A 51	38	G	J A 55	J A 105	43	J A 72	J A 76	J A 39	J A 108	J A 166	J A 109	J A 49	J A 33
29	J A 28	J A 42	J A 38	J A 52	J A 37	J A 44	J A 46	J A 52	J A 45	J A 52	J A 105	J A 79	J A 70	J A 203	J A 168	J A 220	J A 48	J A 45	J A 62	J A 28	24	J A 87	J A 86	J A 106
30	J A 148	J A 85	J A 104	J A 69	J A 87	J A 68	26	J A 50	J A 53	J A 83	J A 72	J A 44	J A 70	J A 60	J A 123	J A 78	J A 70	J A 104	J A 106	J A 79	J A 53	J A 69	J A 65	J A 53
31	25	J A 36	J A 38	J A 34	J A 83	J A 44	J A 34	J A 50	J A 50	J A 44	J A 70	J A 86	J A 90	J A 70	J A 49	J A 44	G	J A 31	J A 48	J A 26	J A 30	J A 34	J A 29	J A 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	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 45	J A 48	J A 43	J A 30	J A 33	J A 30	J A 29	J A 43	J A 50	J A 60	J A 72	J A 64	J A 66	J A 60	J A 48	J A 47	J A 56	J A 58	J A 64	J A 56	J A 53	J A 53	J A 53	J A 45
U Q	J A 65	J A 54	J A 53	J A 51	J A 46	J A 44	J A 34	J A 51	J A 58	J A 86	J A 91	J A 84	J A 89	J A 80	J A 69	J A 65	J A 72	J A 76	J A 76	J A 84	J A 85	J A 71	J A 65	J A 54
L Q	28	34	28	E B 20	E B 22	E B 21	26	35	44	J A 48	J A 50	J A 49	49	47	40	39	44	J A 47	J A 48	J A 41	41	J A 38	J A 42	J A 33

MAY 2020 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	27	33	39	38	41	38	G	38	37	37	43	37	23	24	44	24	A A 46
2	16	E B 16	E B 16	E B 16	E B 16	E B 16	22	39	37	40	47	A A 68	52	44	44	41	42	52	A A 78	A A 106	27	A A 84	23	E B 15
3	17	E B 16	E B 16	18	E B 16	E B 16	E B 16	39	39	38	A A 72	36	39	44	60	56	54	40	A A 89	44	21	31	20	21
4	A A 65	E B 16	E B 16	E B 16	16	E B 16	22	32	45	40	42	A A 64	A A 66	44	43	47	A A 148	74	30	53	E B 16	E B 16	E B 16	E B 16
5	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	28	33	36	48	37	38	38	36	G	34	30	28	54	41	38	28	24
6	E B 16	E B 16	E B 16	20	E B 16	E B 16	22	G	41	42	A A 72	48	39	39	39	52	43	39	43	A A 84	E B 16	E B 16	18	21
7	20	E B 16	E B 16	E B 16	E B 16	E B 16	22	25	40	A A 67	54	A A 168	A A 66	A A 78	45	52	53	44	A A 85	E B 16	E B 16	E B 16	E B 16	E B 16
8	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	23	29	34	39	39	37	39	44	43	42	37	A A 63	A A 68	A A 57	21	16	E B 16	26
9	A A 53	A A 66	19	E B 16	E B 16	21	24	40	42	42	38	43	45	38	36	37	34	44	A A 58	A A 78	E B 16	39	A A 53	E B 16
10	E B 16	E B 16	20	E B 16	E B 16	E B 16	28	32	41	45	51	A A 57	39	50	A A 81	35	36	A A 74	A A 64	47	21	E B 16	18	23
11	E B 16	E B 16	E B 16	E B 16	18	E B 16	23	A A 55	A A 60	A A 158	35	G	39	A A 74	A A 139	42	38	43	A A 62	A A 70	32	21	40	E B 16
12	21	A A 48	E B 16	E B 16	20	E B 16	21	34	A A 85	36	38	39	43	40	44	36	31	37	A A 76	21	30	20	19	20
13	28	28	26	21	23	E B 16	22	30	32	34	37	40	40	45	42	41	44	A A 111	A A 111	29	21	21	21	E B 16
14	28	E B 16	E B 16	E B 16	E B 16	E B 16	23	26	38	44	42	38	39	39	41	44	43	42	A A 73	46	E B 16	A A 51	A A 67	A A 109
15	A A 112	19	20	E B 16	21	E B 16	28	44	40	A A 78	A A 110	A A 103	A A 112	A A 113	37	41	42	40	36	30	28	E B 16	A A 64	E B 16
16	A A 73	A A 52	19	22	E B 16	E B 16	23	32	A A 67	A A 103	A A 113	A A 83	A A 120	A A 100	A A 127	A A 101	A A 60	37	38	40	43	39	36	A A 54
17	A A 54	32	20	20	21	A A 53	27	38	A A 114	A A 124	A A 140	A A 111	A A 77	A A 190	42	A A 104	45	A A 264	A A 218	22	39	23	37	A A 66
18	A A 54	A A 54	25	A A 64	E B 16	22	18	35	A A 72	A A 87	A A 191	A A 125	A A 97	A A 59	A A 69	35	50	42	44	E B 16	26	26	22	32
19	31	21	E B 16	E B 16	23	22	G	37	40	A A 88	A A 127	A A 84	A A 72	48	37	G	34	37	48	A A 110	18	36	A A 53	20
20	A A 46	20	E B 16	19	22	19	24	27	32	34	36	37	37	44	42	34	48	40	31	32	22	E B 16	E B 16	E B 16
21	15	E B 16	20	E B 16	E B 16	19	22	33	37	A A 60	A A 78	A A 74	A A 89	A A 80	A A 96	A A 40	38	42	A A 151	22	E B 16	A A 140	A A 110	A A 54
22	A A 66	28	24	20	21	19	A A 53	35	A A 65	35	38	A A 100	47	46	38	39	A A 110	42	A A 61	25	E B 16	20	E B 16	25
23	25	31	A A 54	20	E B 16	E B 16	26	31	36	A A 88	A A 230	36	39	40	36	37	33	27	24	29	20	E B 16	28	E B 16
24	20	E B 16	E B 16	E B 16	E B 16	E B 16	25	41	A A 78	A A 87	A A 91	A A 82	A A 89	A A 70	42	38	36	30	31	33	37	A A 89	E B 16	A A 51
25	18	A A 51	28	E B 16	17	E B 16	A A 44	35	44	A A 86	A A 72	A A 110	A A 82	47	49	45	A A 107	A A 87	A A 64	44	22	22	35	A A 53
26	A A 63	A A 54	A A 42	A A 52	A A 51	20	22	30	40	A A 60	36	46	A A 64	47	34	36	34	32	26	E B 16	E B 16	21	25	36
27	22	E B 16	23	23	E B 16	E B 16	32	43	44	38	A A 69	A A 64	A A 79	A A 110	36	34	39	A A 159	A A 76	35	24	29	21	A A 54
28	E B 16	A A 64	E B 16	E B 16	E B 16	E B 16	G	29	34	45	41	36	G	A A 55	40	37	46	A A 76	34	A A 108	A A 166	E B 16	26	E B 16
29	20	E B 16	A A 38	A A 52	20	19	33	A A 52	39	41	A A 105	A A 79	A A 70	A A 203	A A 168	A A 220	34	32	A A 62	20	E B 16	A A 87	A A 86	A E B 16
30	E B 16	A A 85	20	A A 69	20	A A 68	24	A A 50	50	A A 83	A A 72	38	38	46	A A 123	A A 78	52	A A 104	A A 106	A A 79	26	23	A A 65	20
31	E B 17	25	E B 16	E B 16	27	19	25	46	43	41	A A 70	52	44	44	43	40	G	30	39	22	22	18	20	A A 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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	20	19	E B 16	E B 16	E B 16	E B 16	23	34	40	44	54	52	45	46	42	40	42	42	A A 61	35	22	22	24	21
U Q	A A 53	A A 48	23	20	21	19	26	40	A A 50	A A 86	A A 91	A A 83	A A 77	A A 74	A A 60	47	50	A A 74	A A 76	A A 57	28	A A 39	A A 40	A A 51
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	29	37	39	38	38	39	44	38	36	34	37	36	22	E B 16	E B 16	E B 18	E B 16

MAY 2020 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 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	15	16	14	16	17	17	20	22	21	20	18	16	16	16	16	16	16	16
2	16	16	16	16	16	16	16	15	14	16	16	18	19	19	19	19	17	15	14	16	16	16	16	15
3	16	16	16	16	17	16	16	13	16	16	17	16	19	23	19	18	16	12	13	16	16	16	16	16
4	16	16	16	16	16	16	16	16	16	17	20	22	21	21	18	18	20	16	14	16	16	16	16	16
5	16	16	16	16	16	16	15	15	16	18	20	20	20	20	20	22	20	16	15	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	18	18	19	20	20	22	20	17	15	15	15	16	16	16	16
7	16	16	16	16	16	16	15	15	14	16	16	17	20	20	17	20	16	14	14	16	16	16	16	16
8	16	16	16	16	16	17	15	16	16	16	18	20	20	20	22	20	19	17	14	16	16	16	16	16
9	16	16	16	16	16	15	16	16	16	18	20	20	20	20	21	17	17	15	14	16	16	15	16	16
10	16	16	16	16	16	16	16	16	16	16	20	19	21	18	17	18	18	17	10	16	16	16	15	15
11	16	16	16	16	16	16	16	16	16	17	20	18	18	18	20	18	17	11	13	16	16	16	16	16
12	16	16	16	16	16	16	16	16	16	17	20	20	20	19	18	20	21	16	16	15	15	16	16	16
13	16	15	16	16	16	16	16	16	16	16	17	19	19	19	18	20	19	16	15	14	16	16	16	16
14	15	16	16	16	16	16	14	14	16	19	19	18	18	20	20	21	17	16	15	16	16	16	16	16
15	16	16	16	16	16	16	15	16	15	15	19	19	20	22	20	20	16	15	15	15	16	16	16	16
16	16	16	16	16	16	16	16	14	14	16	17	19	19	22	19	20	20	14	14	16	16	16	16	16
17	16	16	16	16	16	16	15	13	15	16	16	20	18	19	19	18	16	13	15	16	16	16	16	16
18	16	16	16	16	16	16	16	16	15	17	17	17	19	20	20	20	15	15	16	16	16	16	17	16
19	15	16	16	16	16	16	17	16	16	15	19	20	22	22	20	18	18	14	17	16	16	16	16	16
20	16	16	16	16	16	15	16	16	15	16	18	22	21	21	20	23	16	15	16	16	16	16	16	16
21	15	16	16	16	16	16	14	16	16	16	19	19	20	20	21	20	16	16	14	14	16	15	15	16
22	16	16	16	16	16	16	16	14	16	18	20	21	20	18	19	19	20	16	14	16	16	16	16	16
23	16	16	16	16	16	16	16	16	16	14	16	20	22	22	22	20	19	16	16	16	16	16	16	16
24	16	16	16	16	16	16	16	16	16	15	20	22	23	19	19	22	17	16	15	16	16	16	16	16
25	16	16	16	16	16	16	16	16	16	16	18	23	21	20	19	18	18	18	16	16	16	16	16	16
26	16	16	16	16	16	16	16	16	15	17	16	18	20	19	19	19	16	15	16	16	16	16	16	16
27	16	16	16	16	16	16	16	16	14	16	18	19	19	20	20	18	16	16	16	16	16	16	16	16
28	16	16	16	16	16	16	15	15	14	16	19	20	20	20	20	17	17	16	16	15	16	16	16	16
29	16	16	16	16	16	16	16	14	15	16	18	19	20	20	20	16	16	16	16	16	16	16	16	16
30	16	17	16	16	16	16	15	16	15	15	18	20	20	19	21	21	20	14	16	16	16	16	15	16
31	17	16	16	16	16	16	16	16	16	16	15	18	20	19	20	19	16	16	15	16	15	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	16	16	18	19	20	20	20	20	17	16	15	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	17	20	20	20	21	20	20	19	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	15	15	15	16	17	18	19	19	19	18	16	15	14	16	16	16	16	16

MAY 2020 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 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	307	313	F	F	F	F	365	360	395	359	295	321	308	317	327	321	349	349	353	313	333	355	343	A
2	308	F	F	378	331	294	350	397	353	337	345	A	312	319	315	329	325	341	A	A	353	A	308	304
3	313	F	F	F	375	317	379	356	356	356	A	312	314	326	326	313	330	355	A	359	333	358	311	330
4	A	F	F	F	F	319	350	346	372	327	321	A	A	314	301	313	A	346	352	332	360	320	F	F
5	312	F	323	325	348	310	336	364	375	371	404	415	284	310	315	313	337	325	320	323	350	370	344	316
6	287	F	F	317	F	F	363	337	362	383	A	329	295	323	320	307	311	300	334	A	345	F	334	F
7	F	F	F	F	F	323	368	367	370	A	358	A	A	A	317	323	325	323	A	317	364	393	305	308
8	320	298	317	F	F	334	380	374	382	351	353	289	316	320	299	328	338	A	A	A	339	352	338	306
9	A	A	F	F	F	344	377	392	358	350	339	334	329	318	325	315	332	334	A	A	337	346	A	F
10	F	318	313	317	314	F	378	358	352	356	353	A	336	329	A	323	334	A	A	312	R 336	353	343	332
11	311	309	295	316	363	324	405	A	A	A	293	294	276	A	A	340	342	319	A	A	316	F	F	F
12	F	A	306	F	F	319	356	376	A	345	321	334	315	237	300	296	313	316	A	347	366	F	F	F
13	320	318	330	329	331	F	367	395	359	361	342	299	287	298	314	333	337	A	A	324	334	357	312	F
14	F	F	F	F	F	F	358	378	378	354	352	263	304	331	325	319	330	326	A	327	332	A	A	A
15	A	F	F	F	F	F	382	359	374	A	A	A	A	A	330	320	318	329	316	345	345	326	A	F
16	A	A	F	364	F	F	365	367	A	A	A	A	A	A	A	A	A	307	326	331	338	F	F	A
17	A	325	F	F	348	A	373	376	A	A	A	A	A	A	313	A	341	A	A	324	337	338	324	A
18	A	A	F	A	310	F	372	343	A	A	A	A	A	A	A	273	330	327	339	338	361	341	F	F
19	F	F	F	F	353	361	378	376	379	A	A	A	A	298	303	303	307	330	305	A	353	394	A	309
20	A	F	F	F	359	358	363	361	349	358	359	315	309	318	295	328	332	315	328	360	338	318	315	317
21	319	310	302	307	308	345	376	362	369	A	A	A	A	A	A	A	277	314	A	315	326	A	A	A
22	A	303	F	F	F	F	A	358	A	328	306	A	324	348	307	281	A	310	A	340	331	312	F	314
23	F	F	A	F	F	311	312	341	394	A	A	283	308	316	321	341	339	314	324	311	310	338	299	F
24	F	F	F	F	F	352	371	369	A	A	A	A	A	A	314	323	327	313	318	316	321	A	F	A
25	322	A	357	F	F	F	A	349	354	A	A	A	A	280	306	303	A	A	A	301	342	327	F	A
26	A	A	A	A	A	F	364	372	376	A	295	317	A	319	295	322	320	327	325	336	362	301	F	F
27	F	F	F	F	F	350	317	344	369	359	A	A	A	A	318	331	353	A	A	330	303	314	F	A
28	F	A	F	F	F	341	358	367	379	344	311	R 282	297	A	312	309	325	A	331	A	A	339	325	F
29	F	F	A	A	371	F	382	A	351	333	A	A	A	A	A	A	324	359	A	369	336	A	A	F
30	F	A	F	A	332	A	254	A	377	A	A	283	247	266	A	A	324	A	A	A	301	325	A	F
31	F	F	345	414	329	329	358	348	338	330	A	308	319	324	321	322	311	315	322	364	338	343	322	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	10	8	9	9	14	17	29	28	24	18	16	16	18	20	24	26	27	23	14	23	30	22	14	9
MED	312	312	317	325	340	329	365	363	370	352	340	310	308	318	314	320	330	325	326	330	338	340	323	314
U Q	320	318	338	371	359	348	378	375	378	359	353	325	316	324	321	328	337	334	334	345	350	355	338	324
L Q	308	306	304	316	329	318	357	352	355	337	308	286	295	304	304	309	320	314	320	316	332	325	311	307

MAY 2020 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	408	411	UL 423	UL 439	408	429	411	411		A						
2									A	A	A	A	A	A	A	A	A	A	A					
3								A	A	A	A	403	412	A	A	A	A	A	A					
4								L	A		UL 343	A	A	A	A	A	A	A						
5								L	402	401	A		430	426	377	414	397	405	L					
6								L	A	A	A	A	417	382	364	A	A	A	A					
7									A	A	A	A	A	A	A	A	A	A	A					
8								L	393	A	UL 413	435	445	A	A	A	A	A	A					
9								A		UL 405	425	A	A	460	411	418	398	A	A					
10									A	A	A	A	425	A	A	408	375	A	A					
11								A	A	A	UL 382	410	392	A	A	A	A	A	A					
12								A	A	UL 429	UL 408	423	A	440	A	394	414	A	A					
13								L	L	413	416	UL 408	UL 336	A	A	A	A	A	A					
14										A	A	UL 441	437	419	A	A	A	A	A					
15								A	A	A	A	A	A	A	425	A	A	A	A					
16								375	A	A	A	A	A	A	A	A	A	A	A					
17							A	A	A	A	A	A	A	A	A	A	A	A	A					
18							A	UL 397	A	A	A	A	A	A	A	403	A	A	A					
19							L	A	A	A	A	A	A	A	416	396	400	A	A					
20							L	L	UL 416	445	447	398	405	A	A	415	A	A	A					
21								A	A	A	A	A	A	A	A	A	A	A	A					
22							A	A	A	UL 351	404	A	A	A	424	367	A	A	A					
23								382	A	A	A	440	391	393	423	403	377	378	UL 376					
24								A	A	A	A	A	A	A	A	386	382	387	A					
25							A	A	A	A	A	A	A	A	A	A	A	A	A					
26							L	402	A	A	UL 395	A	A	338	410	394	427	421	381					
27							A	A	A	UL 427	A	A	A	A	430	396	A	A	A					
28								UL 375	410	A	397	UL 430	439	A	369	362	A	A	A					
29								A	A	A	A	A	A	A	A	A	398	389	A					
30						A	398	A		A	A	442	UL 458	A	A	A	A	A	A					
31								A	A	A	A	A	A	A	A	A	408	UL 402	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	5	5	8	11	11	13	8	11	14	10	6	2					
MED							398	382	408	412	UL 408	430	417	422	411	400	398	396	378					
U Q								400	413	UL 428	423	440	438	434	424	411	408	405						
L Q								375	398	UL 403	UL 395	408	398	388	377	394	382	387						

MAY 2020 M(3000)F1 (0.01)

IONOSPHERIC DATA STATION Yamagawa

MAY 2020 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								232	222	272	408	334	334	302	280	272		250						
2									250	E A 272	E A 282	A	E A 350	308	338	298	264	E A 258	A					
3								244	254	268	A	346	332	310	E A 314	302	262	240	A					
4								256	E A 240		340	A	A	310	300	284	A	E A 282						
5								228	230	230	E A 230		402	326	292	290	254	262	272					
6								276	244	228	A	E A 312	372	310	310	E A 336	290	262	E A 248					
7									242	A	E A 260	A	A	A	322	E A 302	E A 308	270	A					
8								244	242	250	290	394	314	290	300	292	268	A	A					
9								204		316	298	310	310	292	292	292	270	E A 296	A					
10									E A 254	E A 272	E A 284	A	322	E A 332	A	304	272	A	A					
11								A	A	A	398	406	406	A	A	260	246	274	A					
12								216	A	268	322	304	352	E A 556	388	354	308	274	A					
13								242	242	270	308	416	412	E A 370	326	286	264	A	A					
14										E A 246	296	466	364	282	294	332	288	274	A					
15								E A 246	232	A	A	A	A	A	304	290	274	264	264					
16								260	A	A	A	A	A	A	A	A	A	282	260					
17						A	236		A	A	A	A	A	A	320	A	270	A	A					
18						E A 270		270	A	A	A	A	A	A	A	414	E A 290	266	E A 284					
19							234	222	234	A	A	A	A	E A 368	348	356	332	274	E A 312					
20							242	262	280	256	262	344	352	322	318	260	E A 284	E A 276	262					
21								258	238	A	A	A	A	A	A	A	440	E A 322	A					
22						E A 252	A	240	A	308	366	A	304	282	366	392	A	312	A					
23								282	218	A	A	422	360	332	320	278	278	334	290					
24								E A 272	A	A	A	A	A	A	348	314	294	314	280					
25							A	268	264		A	A	A	E A 414	E A 340	286	A	A	A					
26							246	246	234	A	394	E A 350	A	356	378	316	316	272	272					
27							E A 272	E A 292	252	262		A	A	A	300	270	246	A	A					
28								250	228	E A 292	374	400	362	A	344	344	290	A	274					
29								A	274	284		A	A	A	A	A	284	250	A					
30						A	394	A			A	402	R 518	E A 468	A	A	274	A	A					
31								E A 300	E A 296	296	A	E A 386	306	276	292	274	306	290	E A 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						2	6	23	21	17	16	15	18	20	24	26	26	23	12					
MED						E A 261	242	247	241	266	303	386	352	U 304	318	293	277	270	268					
U Q							272	270	254	288	370	406	372	E A 362	342	332	294	290	282					
L Q							236	240	233	253	E A 283	334	322	297	300	284	268	262	263					

MAY 2020 h'F2 (KM)

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IONOSPHERIC DATA STATION Yamagawa

MAY 2020 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 270	E B 260	E B 258	E B 238	E B 252	E B 242	208	192	190	214	184	210	200	188	194	194	236	A	E A 232	228	218	E A 248	E A 234	A
2	E B 282	E B 264	E B 262	204	E B 252	E B 298	224	216	A	A	A	A	A	A	A	A	A	A	A	A	218	A	E A 280	E B 280
3	E A 266	E B 264	E B 286	E A 240	204	E B 270	224	A	A	A	A	208	208	A	A	A	A	A	A	228	224	218	E A 264	E A 246
4	A	E B 264	E B 264	228	214	238	220	218	A	E A 244	E A 294	A	A	A	A	A	A	A	208	E A 262	208	206	214	E B 232
5	E B 250	E B 256	E B 254	E B 238	214	E B 242	230	194	194	202	A	174	174	198	220	190	194	194	200	E A 286	E A 232	224	224	E A 258
6	E B 250	E B 272	E B 280	E A 332	E B 278	208	208	208	A	A	A	A	208	E A 230	E A 252	A	A	A	A	A	214	192	192	E A 304
7	E A 318	E B 236	E B 236	E B 256	E B 250	E B 244	216	216	A	A	A	A	A	A	A	A	A	A	A	E B 250	210	182	E B 236	E B 278
8	E B 268	E B 268	E B 252	E B 252	E B 280	248	206	198	208	A	198	198	196	A	A	A	A	A	A	A	216	194	194	E A 282
9	A	A	E A 268	E B 220	E B 236	E A 296	210	A	224	210	198	A	A	180	180	210	198	A	A	A	228	228	A	218
10	E B 248	E B 248	E A 286	E B 238	E B 238	E B 250	196	196	A	A	A	A	194	A	A	198	218	A	A	E A 332	E A 232	200	216	E A 238
11	E B 236	E B 250	E B 258	E B 258	212	266	188	A	A	A	188	188	188	A	A	A	A	A	A	A	E A 254	E A 266	E A 286	E B 270
12	E A 260	A	E B 256	E B 240	E B 260	E B 240	206	A	A	192	202	196	A	196	A	202	196	A	A	208	200	228	E A 266	E A 254
13	E A 284	E A 270	E A 270	E A 242	E A 258	E B 240	206	200	188	188	188	200	E A 300	A	A	A	A	A	A	E A 248	220	206	E A 278	E B 266
14	E A 322	E B 254	224	E B 230	E B 262	270	200	208	208	A	A	194	194	208	A	A	A	A	A	E A 266	222	A	A	A
15	A	228	E A 250	210	E A 284	E B 244	204	A	A	A	A	A	A	A	200	A	A	A	A	E A 240	220	220	A	E B 232
16	A	A	E A 262	E A 248	E B 264	E B 234	208	220	A	A	A	A	A	A	A	A	A	A	A	228	228	E A 244	E A 312	A
17	A	E A 292	E A 292	E A 262	E A 288	A	A	218	A	A	A	A	A	A	A	A	A	A	A	E A 232	E A 266	222	E A 266	A
18	A	A	E A 304	A	E B 264	A	200	194	A	A	A	A	A	A	A	192	A	A	A	220	E A 208	218	E A 278	E A 276
19	E A 276	E A 240	E B 252	E B 232	224	228	198	A	A	A	A	A	A	A	194	192	216	A	A	A	212	202	A	E A 326
20	A	E A 278	E B 248	E B 236	E A 274	208	200	196	188	180	178	202	200	A	A	198	A	A	A	206	206	220	226	E B 250
21	E B 250	E B 258	E A 246	E B 246	E B 232	E A 232	206	A	A	A	A	A	A	A	A	A	A	A	A	E A 232	218	A	A	A
22	A	E A 324	E A 278	E A 240	206	A	A	A	A	218	218	A	A	A	198	E A 272	A	A	A	222	220	220	248	E A 274
23	E A 270	E A 294	A	E A 256	E B 244	E B 272	E A 232	218	A	A	A	178	196	214	194	194	194	182	200	E A 260	E A 260	218	E A 254	E B 238
24	E A 238	E B 226	E B 226	E B 212	190	224	206	A	A	A	A	A	A	A	A	E A 248	220	212	A	E A 240	E A 272	A	212	A
25	E A 262	A	E A 286	218	E A 304	224	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 324	224	210	E A 316	A
26	A	A	A	A	A	E A 246	198	194	A	A	192	A	A	E A 304	164	212	192	202	202	218	204	E A 256	E A 292	E A 290
27	E B 236	236	E A 290	E A 242	E B 226	228	A	A	A	196	A	A	A	A	182	196	A	A	A	E A 290	E A 258	E A 264	E A 234	A
28	222	A	E B 246	E B 224	E B 222	214	200	200	E A 218	A	224	188	184	A	E A 270	E A 252	A	A	A	A	A	198	E A 238	E B 258
29	E A 290	E B 290	A	A	E A 226	220	E A 240	A	A	A	A	A	A	A	A	A	202	208	A	206	216	A	A	E B 216
30	E B 212	A	E B 270	A	E A 240	A	208	A	220	A	A	178	178	A	A	A	A	A	A	A	E A 254	E A 248	A	E A 324
31	E B 288	E A 298	212	184	E A 316	E A 234	232	A	A	A	A	A	A	A	A	A	194	196	A	208	200	202	E A 252	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	22	23	28	27	30	27	27	17	9	9	11	12	13	8	11	14	11	6	5	23	30	26	24	22
MED	E 264	E B 264	E B 260	E 238	E 247	E 240	206	200	201	199	195	195	195	198	194	196	198	199	201	E A 232	216	212	E A 250	E 262
U Q	E A 282	E A 278	E A 279	E A 248	E A 264	E B 250	220	217	219	216	218	201	204	E A 222	E A 220	E A 212	218	208	220	E A 262	E A 232	E A 228	E A 278	E A 280
L Q	E B 248	E 248	E 249	224	224	228	200	195	189	190	188	183	186	192	182	194	194	194	200	220	212	202	225	E B 238

MAY 2020 h'F (KM)

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MAY 2020 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	120	A	120	A	A	A	112	108	108	108	108	A	A					
2						B	120	116	A	A	A	A	A	A	A	A	116	A	A					
3						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
4						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
5							A	116	110	A	A	A	A	A	110	116	114	A	A					
6							114	112	A	A	A	A	A	102	102	102	A	A	A					
7						B	A	A	A	A	A	A	A	A	102	102	A	A	A					
8						B	118	118	118	A	A	A	A	A	A	A	A	A	A					
9						B	118	A	A	A	A	A	A	A	110	110	110	A	A					
10						B	110	110	A	A	A	A	A	A	A	106	102	A	A					
11						B	124	A	A	A	A	110	A	A	A	A	A	A	A					
12						B	A	A	A	A	A	A	A	A	108	108	106	112	A					
13						B	108	108	108	108	A	A	A	A	108	112	A	A	A					
14						B	A	A	A	A	A	A	108	114	114	110	A	A	A					
15						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
16						B	116	A	A	A	A	A	A	A	A	A	A	114	A					
17						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
18						B		A	A	A	A	A	A	A	A	116	A	A	A					
19							120	A	A	A	A	A	A	A	A	114	108	A	A					
20						B	128	114	A	112	112	A	110	A	A	110	A	A	A					
21						B	A	A	A	A	A	A	A	A	A	126	118	A	A					
22						B	B	A	A	A	A	A	A	A	112	A	A	A	A					
23						B	108	108	A	A	A	108	108	A	110	110	A	110	A					
24							120	108	A	A	A	A	A	A	A	A	106	106	A					
25						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
26						B	A	A	A	A	A	A	A	A	A	110	A	A	A					
27							A	A	A	A	A	A	A	A	A	A	A	A	A					
28						B	118	114	A	A	A	A	114	A	A	116	112	112	112					
29						B	A	A	112	A	A	A	A	A	A	A	A	A	A					
30						B	118	A	A	A	A	A	A	112	A	A	110	A	A					
31							A	A	A	A	A	A	A	A	A	A	108	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							15	10	5	2	1	2	5	4	10	16	12	5	1					
MED							118	113	112	110	112	109	110	110	109	110	109	112	112					
U Q							120	116	119				113	113	110	115	113	113						
L Q							114	108	109				108	105	108	108	107	108						

MAY 2020 h'E (KM)

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MAY 2020 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	90	92	86	B	B	B	118	118	116	96	96	96	154	G	136	136	126	96	96	90	90	90	92	90
2	90	B	B	B	B	B	122	108	98	94	94	90	90	90	92	92	110	102	96	94	96	96	96	96
3	92	88	86	86	86	90	108	100	100	96	90	90	94	100	100	96	96	96	96	92	92	92	92	92
4	92	92	88	92	92	B	96	96	96	96	96	90	90	90	90	90	88	88	88	88	96	96	96	96
5	128	86	B	B	86	114	114	114	108	96	88	88	88	92	128	G	122	102	102	96	96	94	94	92
6	98	98	98	98	96	102	112	G	104	92	92	92	102	124	124	100	100	100	100	94	102	102	100	98
7	98	96	96	104	B	96	104	100	100	96	90	90	90	94	116	110	100	100	96	102	102	102	100	100
8	100	100	94	92	92	96	136	122	110	100	96	96	96	94	94	94	104	104	100	94	98	102	102	96
9	96	96	90	100	98	92	112	104	100	94	88	88	88	88	144	160	124	98	98	92	92	92	92	96
10	96	92	92	92	92	B	116	116	104	102	94	94	92	92	94	120	130	104	102	92	94	94	94	92
11	92	90	98	98	96	96	112	96	94	94	106	G	100	84	80	80	84	94	92	102	102	102	92	92
12	88	88	104	104	92	92	104	104	94	94	94	94	92	92	120	120	126	118	96	90	88	92	102	94
13	92	90	90	88	88	98	132	126	114	116	102	96	94	90	110	116	102	102	100	94	96	94	94	94
14	100	100	B	100	96	124	106	104	94	94	94	92	118	136	124	116	104	98	98	92	92	92	92	88
15	88	88	86	B	84	98	104	104	100	96	92	90	90	90	94	94	94	94	98	92	92	92	94	94
16	94	92	88	88	88	B	120	104	104	90	88	88	88	88	88	86	86	108	96	94	98	98	96	96
17	90	90	86	86	84	88	100	100	94	90	90	90	90	90	96	96	96	96	96	94	90	90	90	90
18	90	90	90	86	86	86	88	88	88	88	88	88	88	94	94	114	98	98	98	90	90	92	92	92
19	88	88	90	B	88	92	G	92	90	90	88	88	88	90	88	G	158	94	94	88	88	88	88	88
20	88	88	88	88	88	84	122	118	102	124	114	104	114	96	94	114	92	92	92	98	96	96	B	B
21	96	86	84	84	84	92	92	106	102	96	90	90	86	86	86	156	122	98	96	92	92	92	96	94
22	94	94	94	92	88	92	100	100	100	96	96	88	88	88	120	96	96	96	96	96	94	94	94	94
23	94	94	92	90	90	96	116	112	100	92	86	116	112	98	118	112	100	126	94	90	90	96	92	92
24	92	92	92	92	B	92	124	114	96	96	90	84	86	86	94	94	118	118	100	92	90	90	98	92
25	92	90	82	86	86	100	108	100	94	92	92	88	86	90	90	92	96	96	96	92	92	92	92	92
26	92	88	86	86	82	88	88	96	96	96	96	92	86	84	86	144	106	106	98	100	100	94	94	94
27	92	96	96	94	98	98	110	100	98	96	96	96	92	92	98	94	92	90	88	86	86	82	100	96
28	96	92	92	B	B	B	G	112	98	94	94	104	G	94	100	134	124	114	114	90	86	102	92	96
29	92	102	86	84	84	82	102	98	110	100	90	90	90	88	88	88	88	94	94	100	100	98	96	96
30	96	96	90	90	90	90	130	102	100	96	90	90	98	120	100	100	108	98	92	90	94	92	92	92
31	92	92	92	92	92	92	92	88	88	88	86	86	86	102	100	98	G	98	84	92	88	86	86	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	31	30	28	25	26	25	29	30	31	31	31	30	30	30	31	29	30	31	31	31	31	31	30	30
MED	92	92	90	92	88	92	110	104	100	96	92	90	90	91	96	100	101	98	96	92	92	94	94	94
U Q	96	96	93	96	92	98	119	112	104	96	96	94	96	94	118	118	122	104	98	94	96	96	96	96
L Q	90	88	86	86	86	90	101	100	94	92	90	88	88	88	90	94	96	96	94	90	90	92	92	92

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MAY 2020 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	F1	F1	F1				C6	CL22	CL22	L2	L3	L2	H1		H1	H1	C2	L4	L6	F5	F6	F9	F7	F8
2	F2						C4	C5	L5	L4	L4	L4	L3	L3	L3	L3	C3	L7	L8	F8	F8	F6	F4	F2
3	F2	F2	F2	F2	F1	L2	L3	L5	L5	L5	L6	L3	L2	L2	L5	L5	L5	L7	L9	F8	F4	F4	F7	F6
4	F7	F2	F2	F2	F2		L5	L4	L5	L3	L4	L4	L3	L2	L2	L5	L4	L7	L7	F8	F1	F2	F3	F2
5	F2	F1			F2	L1	L3	C4	C2	L3	L5	L2	L2	L2	C1		C2	L4	L7	F8	F3	F4	F5	F4
6	F2	F4	F4	F8	F5	L1	C2		L5	L3	L5	L3	L2	C1	C1	L3	L4	L3	L6	F8	F7	F5	F2	F4
7	F5	F4	F2	F1		L2	L3	L5	L5	L6	L6	L6	L3	L4	C2	C3	L3	L7	L8	F5	F2	F3	F3	F2
8	F3	F3	F2	F2	F2	L2	H2	H2	C3	L3	L2	L2	L2	L3	L2	L3	L3	L6	L6	F6	F5	F3	F1	F3
9	F8	F7	F3	F1	F3	L6	C4	L4	L6	L3	L3	L3	L2	L2	H1	H1	C1	L5	L7	F8	F5	F6	F8	F4
10	F2	F2	F3	F1	F1		C5	C3	L4	L3	L3	L3	L2	L3	L3	C1	H2	L5	L8	F8	F5	F2	F3	F9
11	F3	F2	F2	F4	F3	L2	C3	L8	L5	L5	L2		L2	L4	L4	L4	L3	L7	L8	F8	F5	F8	F9	F4
12	F4	F8	F3	F2	F5	L2	L4	L3	L6	L4	L3	L2	L2	L2	C2	C1	C2	C3	L8	F8	F3	F4	F6	F5
13	F5	F7	F5	F4	F6	L2	H2	CL33	C2	C1	L2	L2	L2	L3	C3	C2	C3	L5	L8	F8	F3	F6	F2	F2
14	F8	F1		F2	F3	C1	L3	L6	L3	L4	L3	L2	C1	H1	C2	C2	L3	L3	L8	F9	F3	F8	F9	F8
15	F9	F5	F5		F5	L2	L4	L6	L4	L4	L5	L6	L6	L5	L3	L2	L4	L6	L6	F8	F4	F4	F8	F4
16	F8	F9	F3	F4	F2		C3	L5	L7	L6	L7	L5	L5	L5	L6	L5	L3	CL32	L5	F5	F8	F8	F8	F8
17	F6	F5	F4	F4	F4	L4	L8	L4	L6	L6	L3	L3	L3	L7	L3	L6	L5	L6	L7	F3	F6	F6	F9	F9
18	F7	F7	F9	F9	F7	L3	L3	L4	L6	L6	L4	L4	L4	L4	L3	C1	L4	L6	L6	F1	F3	F5	F2	F8
19	F9	F2	F2		F5	L4		L4	L6	L6	L5	L4	L4	L2	L2		H1	L4	L9	F9	F4	F7	F9	F8
20	F7	F5	F2	F7	F9	L6	C4	CL23	L2	CL12	CL12	L2	C1	L2	L2	C1	L4	L5	L6	F3	F6	F3		
21	F2	F5	F2	F2	F2	L4	L6	L2	L3	L4	L4	L5	L6	L4	L5	HL22	CL22	L4	L6	F7	F5	F5	F8	F9
22	F9	F9	F9	F8	F8	L3	L7	L6	L8	L3	L3	L3	L3	L3	C1	L2	L5	L4	L7	F5	F2	F6	F8	F8
23	F6	F9	F9	F4	F2	L1	C4	C2	L3	L4	L5	CL11	CL11	L2	C1	C1	L1	C2	L2	F3	F3	F1	F6	F7
24	F9	F5	F8	F1		L3	C3	C5	L5	L6	L5	L4	L3	L3	L2	L2	C1	C2	L5	F7	F7	F6	F6	F9
25	F8	F9	F7	F2	F8	L2	L7	L5	L4	L7	L5	L6	L5	L3	L3	L3	L6	L5	L8	F9	F5	F3	F7	F9
26	F5	F8	F9	F9	F7	L7	L2	L4	L3	L4	L2	L4	L3	L3	L2	H1	L2	L4	L4	F2	F1	F6	F8	F8
27	F5	F7	F8	F8	F2	L3	L7	L5	L4	L2	L4	L4	L3	L4	L2	L1	L3	L9	L8	F7	F6	F6	F7	F9
28	F2	F9	F3					C3	L4	L4	L2	L1		L3	L3	HL22	C5	C4	C5	F9	F7	F3	F7	F3
29	F9	F2	F7	F8	F6	L2	L7	L5	C4	L3	L5	L5	L5	L3	L8	L6	L2	L3	L8	F2	F1	F8	F8	F6
30	F6	F9	F6	F7	F7	L7	CL23	L7	L7	L5	L3	L2	L2	C2	L4	L7	C6	L8	L9	F9	F9	F5	F8	F7
31	F2	F8	F4	F4	F6	L5	L7	L5	L4	L4	L4	L3	L2	L2	L3	L2		L3	L6	F4	F3	F3	F2	F8
	00	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																								

MAY 2020 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAY 2020 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 35	X 34	X 33	X 32	X 31	X 30															X 74	X 67	X 52	X 38
2	X 34	X 32	X 31	X 35	A	X 23															X 73	X 53	A	A
3	X 40	X 38	46	45	36	X 25															X 57	X 44	X 37	X 39
4	X 34	X 35	X 34	X 37	X 31	X 25															X 75	X 60	X 50	X 47
5	X 44	X 41	X 39	X 44	X 32	X 30															X 79	X 56	X 38	42
6	A	X 37	X 32	35	36	32															X 75	X 72	A	X 34
7	X 34	X 31	X 28	X 30	X 29	X 27															X 91	X 56	X 32	X 32
8	X 31	X 31	X 32	X 32	X 31	X 30														A	X 78	A	X 28	34
9	X 33	X 31	X 30	A	X 29	X 28															X 77	X 64	X 40	X 44
10	X 44	X 43	X 38	X 34	34	31															X 72	X 61	A	X 40
11	X 36	X 38	X 35	X 34	X 30	X 29															X 65	X 65	X 57	59
12	57	47	47	47	X 35	A															X 63	X 40	X 38	X 36
13	X 32	X 33	X 40	X 36	X 32	X 29															X 75	X 45	A	X 47
14	A	X 39	A	X 37	X 32	X 29															X 70	A	X 53	56
15	55	56	51	X 45	X 39	X 32															X 71	X 47	A	A
16	X 38	A	37	A	A	A															X 81	58	A	A
17	A	A	X 32	X 32	A	A															X 65	X 65	X 50	52
18	X 47	X 45	X 40	47	39	X 34															X 62	X 50	X 40	X 49
19	X 45	47	43	X 36	X 33	A															X 78	X 66	A	X 40
20	X 36	X 35	38	X 32	X 30	X 25															X 68	X 56	X 51	56
21	58	58	48	X 44	X 38	X 36															X 60	X 56	X 57	X 49
22	A	A	X 39	X 40	X 28	A															X 64	X 58	X 55	X 40
23	60	48	X 45	44	X 36	38															X 63	X 64	X 61	X 49
24	59	59	58	51	X 36																X 70	X 67	X 51	A
25	A	A	X 34	X 30	38																X 80	A	X 52	X 46
26	52	55	48	44	X 28	35															X 70	O X 61	54	X 46
27	X 45	X 45	55	44	38	36															X 63	X 65	X 50	47
28	X 46	X 44	X 38	A	A																X 70	X 59	X 50	X 44
29	48	48	44	X 40	32																X 52	X 47	X 44	A
30	X 42	A	A	X 30	A																X 62	X 64	X 56	56
31	58	56	55	A	X 34																X 56	X 49	X 41	X 39
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	29	27	26	20															31	28	24	26
MED	X 44	X 42	X 39	X 37	X 32	X 30															X 70	X 58	X 50	X 45
U Q	52	48	46	44	X 36	33															X 75	X 64	X 54	49
L Q	X 35	X 35	X 34	X 32	X 31	X 28															X 63	X 52	X 40	X 39

IONOSPHERIC DATA STATION Okinawa

MAY 2020 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	29	29	27	26	25	24	39	51	58	49	56	52	62	76	87	88	95	88	77	70	68	61	46	32
2	28	26	25	29	A	17	39	58	52	56	59	65	70	66	A	84	93	73	59	65	67	48	A	A
3	34	32	F 35	F 34	F 27	19	38	51	52	49	52	A	66	77	82	90	94	86	69	60	51	38	31	33
4	28	29	28	31	25	19	35	58	52	49	56	64	74	88	104	109	104	110	92	80	69	54	44	41
5	38	35	33	38	26	24	35	54	74	56	48	48	A	67	80	82	75	77	81	80	73	50	32	F 34
6	A	31	26	F 26	F 28	F 23	39	51	65	58	55	57	64	70	76	76	75	83	82	78	69	65	A	28
7	28	24	22	24	23	21	38	52	61	60	60	59	59	64	A	78	73	72	75	84	85	50	26	26
8	25	25	26	26	25	24	39	47	57	49	50	50	66	83	96	87	70	58	53	A	72	A	22	F 25
9	27	25	24	A	23	22	41	A	52	51	52	56	64	78	86	91	86	72	70	67	71	58	34	38
10	38	37	32	28	F 25	F 21	38	50	51	A	55	50	58	66	72	75	74	74	A	70	66	55	A	34
11	30	32	29	28	23	23	40	48	A	A	A	50	A	71	82	89	88	88	95	84	59	59	51	F 50
12	F 47	F 40	F 34	F 32	29	A	39	A	53	A	A	A	A	A	51	59	68	80	90	95	57	34	32	30
13	26	27	34	30	26	23	37	55	47	51	55	50	47	54	64	68	73	70	72	74	69	39	A	41
14	A	33	A	31	26	23	39	61	49	50	56	55	57	64	64	61	68	78	83	70	64	A	47	F 48
15	F 45	F 45	F 42	39	33	26	41	47	A	A	A	A	A	56	70	75	72	68	71	72	65	41	A	A
16	32	A	F 26	A	A	A	34	51	52	50	A	A	A	A	57	63	74	85	94	90	75	F 48	A	A
17	A	A	26	26	A	A	42	52	A	A	A	A	A	63	76	A	87	96	73	61	59	59	44	F 39
18	R 41	R 39	34	F 33	F 30	28	V 39	44	48	55	48	57	A	A	A	59	68	67	68	59	56	44	33	43
19	39	F 37	F 33	30	27	A	39	48	A	47	60	54	A	60	63	69	71	75	74	74	72	60	A	34
20	30	29	F 30	26	24	19	39	48	50	51	54	51	56	66	73	78	63	67	73	68	62	50	45	F 44
21	F 49	F 50	F 39	38	32	30	37	48	51	51	62	A	A	A	A	A	50	57	70	73	54	50	51	43
22	A	A	33	34	22	A	A	A	48	A	A	64	66	61	55	A	53	61	70	70	58	52	49	34
23	F	F 40	39	F 30	30	F 26	36	60	54	48	52	52	63	60	64	68	60	56	56	56	57	58	54	43
24	F 49	F 48	F 44	F 38	30	21	38	A	A	A	A	54	52	59	67	A	72	A	67	A	64	61	44	A
25	A	A	28	24	F 25	20	40	A	A	53	A	A	51	56	62	76	78	78	A	71	74	A	46	40
26	F 41	F 42	F 34	F 34	22	F 22	37	49	52	51	48	A	A	60	68	71	75	79	76	72	64	55	F 44	40
27	39	39	F 38	F 28	F 24	F 25	39	51	53	A	49	A	A	58	78	78	66	56	49	48	57	59	44	F 38
28	40	38	32	A	A	23	35	49	51	50	54	55	A	A	A	60	74	83	72	65	64	53	44	38
29	F 38	F 32	F 33	34	F 21	23	A	A	A	60	51	52	A	A	A	A	72	70	64	49	47	41	38	A
30	36	A	A	24	A	25	36	50	65	50	51	47	50	55	61	75	84	86	60	49	56	58	50	F 44
31	F 48	F	F 41	A	27	28	39	51	53	51	A	60	A	78	A	A	76	77	88	80	51	43	35	33
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	25	29	27	26	26	29	25	24	23	22	22	17	25	24	25	31	30	29	29	31	28	24	26
MED	38	33	33	30	26	23	39	51	52	51	54	54	62	64	71	76	74	76	72	70	64	52	44	38
U Q	F 41	F 40	F 34	34	28	25	39	53	56	55	56	57	66	74	81	86	84	83	82	79	69	58	46	F 43
L Q	28	29	26	26	24	21	37	48	51	49	51	50	54	60	64	68	68	68	68	63	57	46	34	33

IONOSPHERIC DATA STATION Okinawa

MAY 2020 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L 424	436	444	444	440	U A 428	U A 436	A	A						
2									L	A	A	A	A	A	A	A	396	A						
3									L	U L 420	412	A	A	432	420	U A 432	392	384	L					
4									L 400	A	A	436	U A 428	U A 444	A	408	392	380	L					
5								L	A	A	U L 432	A	A	A	A	404	400	384	L					
6								L	A	424	A	436	436	436	428	416	400	384						
7									L	424	A	A	440	A	A	A	A							
8									L 388	U L 420	428	A	U A 444	A	A	A	A	388						
9								A	A	420	416	432	440	432	428	408	396	384	A					
10										A	A	436	432	448	424	A	A	A	A					
11									A	A	A	A	A	A	A	A	A	A						
12								A	A	A	A	A	A	A	416	400	400	A	A					
13									L	412	424	U A 424	432	U A 432	424	U A 428	A	A	A					
14								340	L 392	408	A	424	428	432	U A 436	A	A	A						
15									A	A	A	A	A	428	U A 432	408	396	384	A					
16								L 364	L	A	A	A	A	A	A	A	U A 412	A	A					
17									A	A	A	A	A	U A 436	A	A	A	A	A					
18								U L 364	L 392	416	428	U A 432	A	A	A	A	396	A	336					
19									A	408	A	424	A	428	A	408	396	372	L 348					
20									A	420	428	432	440	428	432	424	A	A	348					
21								L	L 396	A	U A 420	A	A	A	A	A	A	A	A					
22							A	A	A	A	A	428	444	A	436	A	A	368	L 348					
23								L 352	396	U L 416	420	U A 436	428	432	424	424	404	372	336					
24								A	A	A	A	A	436	436	428	A	A	A	A	A				
25								A	A		A	A	A	432	A	A	A	A	A					
26							L	L	U A 404	A	U A 436	A	A	A	A	A	400	A	A					
27							L	L 368	L 400	A	A	A	A	A	A	412	416	388	U L 340					
28								L	400	L 424	420	A	A	A	A	U A 428	A	372						
29							A	A	A	A	432	A	A	A	A	A	A	388	A					
30								356	388	U L 404	A	440	A	U A 436	U A 428	412	392	A						
31									A	412	A	A	A	A	A	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								6	10	15	13	13	13	16	14	15	15	13	6					
MED								L 360	L 396	420	428	432	436	432	428	412	396	384	344					
U Q								L 364	L 400	424	432	436	442	U A 436	432	U A 428	400	386	L 348					
L Q								352	L 392	412	420	426	430	432	424	408	396	372	336					

MAY 2020 foF1 (0.01MHz)

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MAY 2020 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	A	A	A	A	344	344	332	316	288	260	208	A				
2							176	U A 212	260	U A 304	316	A	U A 332	340	324	300	U A 300	268	204	A				
3							A	U A 192	U A 252	U A 264	A	A	A	A	A	A	A	A	A	A				
4							A	A	U A 276	A	A	A	A	A	A	A	296	260	A	A				
5							A	A	280	288	320	A	A	A	A	A	296	256	208	A				
6							A	A	A	A	A	A	344	344	332	A	288	256	204	A				
7							A	228	300	A	316	332	340	348	344	316	300	276	220	A				
8							A	240	276	308	324	A	340	A	A	A	A	A	184					
9							A	228	292	A	A	A	A	A	A	A	A	268	224	A				
10							A	248	284	304	320	A	328	340	328	316	304	264	196	A				
11							A	216	268	296	A	A	A	A	A	A	288	264	196	A				
12							A	A	A	288	A	A	A	A	A	A	A	268	204	A				
13							A	A	A	A	320	340	340	340	340	320	300	268	A	A				
14							192	228	276	A	U A 316	U A 332	352	348	332	324	304	276	232	A				
15							A	A	272	300	U A 312	320	344	340	336	316	292	272	208	A				
16							A	240	280	U A 312	A	A	A	A	340	332	304	272	204	A				
17							A	A	272	292	312	A	284	324	304	324	296	260	A	A				
18							A	A	A	A	A	348	340	360	336	316	284	272	224	A				
19							A	A	A	A	316	324	336	348	340	320	300	260	204	A				
20							A	A	264	296	320	340	348	340	328	316	296	260	200	A				
21							A	224	276	300	316	316	A	304	A	A	A	260	220	A				
22							A	228	276	304	324	332	340	336	332	320	292	260	216	A				
23							192	252	300	308	A	336	348	344	332	316	296	268	204	A				
24						B	A	244	280	312	A	312	336	336	324	312	A	A	A	A				
25						B	A	220	260	A	A	A	320	344	332	316	296	268	208	A				
26						B	A	220	264	292	308	A	A	A	A	A	300	264	220	A				
27						B	188	220	244	A	A	A	A	A	276	A	A	A	A	A				
28						B	A	A	276	U A 308	284	332	A	360	A	332	296	A	A	A				
29						B	A	236	276	300	328	340	340	A	A	A	A	A	A	A				
30						B	A	A	A	A	A	A	A	A	348	328	300	268	A	A				
31						B	A	A	A	312	328	336	340	348	328	316	A	A	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	17	23	19	17	14	19	19	20	19	22	24	21					
MED							190	228	276	300	316	332	340	344	332	316	296	266	208					
U Q							192	240	280	308	322	340	344	348	338	324	300	268	220					
L Q							182	220	264	292	314	324	336	340	328	316	292	260	204					

MAY 2020 foE (0.01MHz)

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IONOSPHERIC DATA STATION Okinawa

MAY 2020 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	J A 32	20	E B 16	J A 17	J A J 33	J A 26	28	J A 40	34	35	J A 37	43	39	44	J A 50	J A J 151	A 53	J A J 52	A 27	J A 48	19	J A 22	J A 18
2	J A 26	J A J 17	E B 16	18	J A 22	E B 16	G	J A J 31	A J 53	A J 105	A J 70	A 53	J A J 64	A 85	J A 94	J A 91	A J 41	A 54	J A J 49	A 32	J A J 37	A 71	J A 88	J A 100
3	J A 53	J A J 42	A J 24	A J 32	J A J 29	A J 22	J A J 36	A J 49	A J 34	A J 47	37	J A 57	J A J 94	A J 38	A J 40	A 58	J A J 54	A 30	J A J 23	A 23	J A J 50	A 88	J A 87	J A 118
4	J A 32	J A J 49	A J 21	A J 25	A J 17	A J 18	19	J A 41	J A 44	A J 60	A J 89	A 41	43	J A 47	J A 51	J A 42	34	30	J A J 26	A 25	J A J 29	A 41	J A 66	J A 67
5	J A 60	J A J 86	A J 42	A J 67	A J 27	A J 19	J A 22	A J 34	A J 48	A J 49	A J 50	A 74	J A J 77	A 137	J A J 126	A 95	36	29	24	J A 30	J A J 44	A 26	J A 53	J A 30
6	J A 42	J A J 63	A J 35	A J 24	A J 76	A J 48	J A 40	A J 27	A J 42	A J 61	A J 122	A 45	42	40	38	35	32	34	J A J 46	A 48	J A J 143	A 110	J A 86	J A 30
7	J A 38	J A J 97	A J 17	A J 38	A J 22	A J 19	19	J A 39	G	J A J 49	A J 56	A J 55	G	47	J A 71	47	J A J 48	A 46	J A J 54	A 64	J A J 108	A 140	J A 85	J A 122
8	J A 18	J A J 19	A J 21	A J 31	A J 23	A J 22	19	29	34	J A J 42	A J 48	A 63	J A J 56	A 93	J A 69	J A 61	J A J 53	A 38	J A J 36	A 70	J A J 107	A 88	J A 119	J A 52
9	J A 38	J A J 27	A J 50	A J 41	A J 51	A J 33	22	J A 57	J A 105	A J 217	A 89	J A 58	J A J 47	A 39	J A 47	J A 42	J A J 49	A 45	J A J 50	A 36	J A J 47	A 52	J A 50	J A 36
10	J A 52	J A J 32	A J 20	A J 19	A J 61	A J 15	19	J A 44	J A 43	A J 101	A 91	J A 123	J A 46	42	42	45	J A J 59	A 66	J A J 239	A 168	J A J 126	A 139	J A 87	J A 64
11	J A 41	J A J 63	A J 32	A J 28	A J 49	A J 31	J A 27	43	J A 82	A J 87	A 74	J A 50	J A J 91	A 51	J A 76	J A 66	A J 68	A 81	J A J 99	A 66	J A J 139	A 157	J A 104	J A 65
12	J A 50	J A J 66	A J 42	A J 34	A J 32	A J 50	J A 86	A J 136	A J 108	A J 94	A 76	J A 89	J A J 75	A 64	J A 43	J A 42	A J 37	A 44	J A J 50	A 43	J A J 48	A 84	J A 28	J A 100
13	J A 106	J A J 120	A J 66	A J 22	A J 19	A J 18	J A 31	A J 41	A J 33	A 39	J A 39	A 42	J A 43	A 43	J A 41	J A 46	A J 45	J A 48	J A J 64	A 48	J A J 106	A 88	J A 52	J A 47
14	J A 44	J A J 66	A J 116	A J 30	A J 32	A J 22	G	31	J A 41	A J 55	A 58	J A 40	41	42	46	J A 52	J A J 54	A 81	J A J 82	A 53	J A J 85	A 86	J A 54	J A 51
15	J A 53	J A J 47	A J 45	A J 52	A J 58	A J 47	J A 24	A J 50	A J 86	A J 122	A J 208	A 110	J A 78	A 40	J A 52	J A 37	A J 51	A 38	J A J 53	A 56	J A J 52	A 53	J A 72	J A 143
16	J A J 82	A J 86	A J 32	A J 41	A J 44	A J 35	J A 24	A J 32	A J 46	A J 56	A J 126	A 152	J A J 113	A 74	J A 42	J A 50	A J 43	A 65	J A J 74	A 30	J A J 107	A 101	J A 142	J A 66
17	J A J 108	A J 87	A J 52	A J 53	A J 65	A J 64	J A 44	A J 65	A J 83	A J 62	A J 232	A 149	J A J 62	A 57	J A 73	J A 128	A J 76	A 52	J A J 72	A 40	J A J 53	A 48	J A 53	J A 30
18	J A J 38	A J 39	A J 50	A J 36	A J 49	A J 38	J A 53	A J 40	A J 42	A J 53	A J 55	A 69	J A J 50	A 72	J A 76	J A 75	A J 46	A 43	J A J 42	A 33	J A J 43	A 53	J A 52	J A 29
19	J A J 65	A J 62	A J 38	A J 52	A J 35	A J 53	J A 30	A J 65	A J 64	A J 46	A J 60	A 71	J A 88	A 40	J A 47	J A 43	A J 34	A 33	J A J 52	A 78	J A J 122	A 50	J A 66	J A 65
20	J A J 39	A J 38	A J 45	A J 28	A J 31	A J 24	J A 22	28	J A 40	A J 48	A J 44	A 42	J A 41	A 37	G	J A 42	J A 49	A 43	J A J 38	A 20	J A J 45	A 21	J A 30	J A 29
21	J A J 26	A J 22	E B 16	J A J 20	A J 17	A J 26	J A 20	A J 36	A J 39	A J 49	A J 47	A 129	J A J 102	A 90	J A J 102	A 62	J A J 56	A 62	J A J 48	A 105	J A J 145	A 105	J A 85	J A 54
22	J A J 66	A J 99	A J 49	A J 84	A J 21	A J 33	J A 66	A J 54	A J 72	A J 69	A J 110	A 60	J A 41	J A 89	J A 46	J A 60	A J 80	A 66	J A J 35	A 40	J A J 34	A 42	J A 35	J A 42
23	J A J 39	A J 35	A J 59	A J 25	E B 16	E B 16	23	36	J A 52	A J 50	A J 56	A 60	J A 42	40	J A 42	40	J A 52	A 32	J A J 34	A 35	J A J 53	A 53	J A 20	J A 35
24	J A 53	J A J 33	A J 33	A J 28	A J 32	A J 28	J A 34	A J 50	A J 76	A J 128	A J 90	A 62	J A J 42	A 46	J A 44	J A 72	A J 64	A 89	J A J 62	A 60	J A J 120	A 84	J A 50	J A 59
25	J A J 53	A J 66	A J 40	A J 42	A J 32	A J 30	J A 38	A J 66	A J 60	A J 68	A J 90	A 70	J A 56	A 40	J A 53	J A 46	A J 70	A 96	J A J 78	A 46	J A J 52	A 84	J A 77	J A 62
26	J A J 130	A J 31	A J 62	A J 66	A J 42	A J 20	J A 28	A J 38	A J 46	A J 51	A J 63	A 95	J A J 127	A 155	J A 57	J A 44	A J 42	A 46	J A J 44	A 96	J A J 110	A 109	J A 108	J A 52
27	J A J 64	A J 84	A J 21	A J 52	A J 30	A J 18	J A 27	A J 34	A J 34	A J 72	A J 52	A 124	J A J 148	A 108	J A J 54	A 40	J A J 43	A 72	J A J 44	A 24	J A J 53	A 27	J A 54	J A 54
28	J A J 86	A J 18	A J 36	A J 52	A J 52	A J 20	J A 28	A J 52	A J 43	A J 46	A J 46	A 95	J A J 78	A 123	J A J 88	A 54	J A J 54	A 42	J A J 53	A 26	J A J 52	A 49	J A 22	J A 29
29	J A J 33	A J 25	A J 22	A J 21	E B 16	E B 16	J A 50	A J 62	A J 53	A J 66	A J 84	A 58	J A J 57	A 170	J A J 198	A 156	J A J 71	A 50	J A J 57	A 53	J A J 30	A 27	J A 66	J A 68
30	J A J 119	A J 88	A J 83	A J 81	A J 99	A J 36	J A 36	A J 32	A 35	J A J 46	A J 52	A 50	J A 68	A 46	J A 44	J A 38	A J 36	A 71	J A J 48	A 24	J A J 22	A 34	J A 62	J A 58
31	J A J 159	A J 52	A J 42	A J 110	A J 24	A J 18	J A 24	A J 48	A J 62	A 42	J A 62	A 59	J A J 80	A 62	J A J 89	A 90	J A J 54	A 49	J A J 90	A 86	J A J 53	A 22	J A 27	J A 20
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J A 52	J A J 49	A J 38	A J 34	A J 32	A J 24	J A 27	A J 41	A J 46	A J 55	A J 62	A 60	J A J 57	A 47	J A 51	J A 50	A J 51	A 48	J A J 50	A 43	J A J 53	A 53	J A 62	J A 54
U Q	J A 66	J A J 84	A J 50	A J 52	A J 49	A J 35	J A 36	A J 52	A J 64	A J 72	A J 90	A 95	J A J 80	A 89	J A 76	J A 66	A J 59	A 66	J A J 64	A 64	J A J 108	A 88	J A 86	J A 66
L Q	J A 38	J A J 32	A J 21	A J 25	A J 22	A 18	22	32	40	J A J 47	A 50	50	43	40	43	42	42	38	J A J 42	A 30	J A J 45	A 41	J A 50	J A 30

MAY 2020 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAY 2020 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	26	38	33	35	35	41	37	43	44	42	41	48	26	37	E B 16	20	E B 16
2	19	E B 16	E B 16	E B 16	A A 22	E B 16	G	28	32	45	54	47	52	61	A A 94	60	36	40	35	25	36	33	A A 88	A A 100
3	E B 16	19	20	16	E B E B 16		30	44	30	36	36	A A 57	56	37	36	43	33	27	21	20	E B 16	20	22	E B 16
4	18	E B 16	E B 16	E B 16	E B E B 16		18	32	36	45	48	38	43	44	49	38	32	28	24	21	28	20	E B 16	28
5	E B 16	E B 16	18	E B 16	E B E B 16		21	29	40	44	39	46	A A 77	55	62	37	33	29	23	22	22	E B 16	E B 16	22
6	A A 42	E B 16	E B 16	E B 16	21	E B 16	22	27	39	38	43	41	40	39	37	34	32	32	42	35	21	20	A A 86	E B 16
7	22	E B 16	E B 16	E B 16	E B E B 16		18	32	G	35	48	52	G	45	A A 71	44	43	40	42	51	62	44	E B 16	E B 16
8	E B 16	E B 16	17	20	E B E B 16		18	28	32	38	38	46	44	47	44	54	40	32	34	A A 70	42	A A 88	E B 16	E B 16
9	E B 16	E B 16	E B 16	A A 41	E B E B 16		18	A A 57	39	34	36	37	39	37	35	39	34	32	46	33	29	20	E B 16	22
10	25	E B 16	E B 16	E B E B 16	E B E B 16		18	36	38	A A 101	44	36	36	42	40	43	41	50	A A 239	25	E B 16	38	A A 87	E B 16
11	E B 16	E B 16	18	E B 16	E B E B 16	19	21	30	A A 82	A A 87	A A 74	45	A A 91	45	48	58	57	55	34	50	39	27	40	31
12	23	E B 16	E B 16	E B E B 16	B A 50		29	A A 136	40	A A 94	A A 76	A A 89	A A 75	A A 64	39	34	35	41	45	40	41	18	E B 16	E B 16
13	E B 16	E B 16	18	E B 16	E B E B 16		25	27	32	36	36	42	42	43	40	43	44	44	44	46	52	E B 16	A A 52	25
14	A A 44	E B 16	A A 116	E B 16	E B E B 16		G	28	35	34	42	38	40	41	44	45	40	45	74	52	40	A A 86	29	31
15	24	E B 16	E B 16	E B 16	21	E B 16	22	40	A A 86	A A 122	A A 208	A A 110	A A 78	38	43	37	38	32	38	54	28	E B 16	A A 72	A A 143
16	E B 16	A A 86	E B 16	A A 41	A A 44	A A 35	22	26	32	46	A A 126	A A 152	A A 113	A A 74	42	50	41	46	73	22	E B 17	E B 16	A A 142	A A 66
17	A A 108	A A 87	E B 16	E B 16	B A 65	A A 64	24	41	A A 83	A A 62	A A 232	A A 149	A A 62	44	48	A A 128	70	50	32	36	26	22	23	23
18	30	28	20	18	E B 16	21	23	32	35	33	38	43	A A 50	A A 72	A A 76	42	36	40	28	25	21	E B 16	20	20
19	E B 16	18	E B 16	21	18	A A 53	19	30	A A 64	39	49	38	A A 88	38	46	37	33	31	27	33	36	31	A A 66	E B 16
20	E B 16	E B 16	E B 16	E B E B 16	E B E B 16		21	27	38	37	40	40	38	36	G	40	44	43	31	18	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B E B 16		20	31	34	44	42	A A 129	A A 102	A A 90	A A 102	A A 62	42	43	35	47	34	42	19	E B 16
22	A A 66	A A 99	22	E B 16	E B B A 33		A A 66	A A 54	39	A A 69	A A 110	38	36	56	40	A A 60	50	28	25	24	25	E B 16	E B 16	E B 16
23	22	21	E B 16	E B E B 16	E B E B 16		20	32	32	37	38	44	40	40	37	38	36	29	30	32	E B 16	33	E B 16	18
24	22	20	19	E B 16	24	E B 16	30	A A 50	A A 76	A A 128	A A 90	48	37	42	40	A A 72	54	A A 89	56	A A 60	34	E B 16	E B 16	A A 59
25	A A 53	A A 66	E B 16	E B 16	E B E B 16		35	A A 66	A A 60	41	A A 90	A A 70	46	39	47	45	67	72	A A 78	40	40	A A 84	26	E B 16
26	20	E B 16	E B 16	E B E B 16	E B E B 16		24	31	40	44	44	A A 95	A A 127	54	48	42	38	37	36	20	19	19	E B 16	28
27	E B 16	23	E B 16	E B E B 16	E B E B 16		26	31	32	A A 72	44	A A 124	A A 148	56	51	36	37	31	31	17	35	22	21	23
28	E B 16	E B 16	E B 16	B A A 52	A A 52	E B 16	23	28	32	40	37	50	A A 78	A A 123	A A 88	43	51	33	32	22	24	17	E B 16	E B 16
29	E B 16	E B 16	E B 16	E B E B 16	E B E B 16	B A A 50	A A 62	A A 53	57	39	45	A A 57	A A 170	A A 198	A A 156	43	29	33	42	E B 16	E B 16	E B A 16	A A 68	
30	E B 16	A A 88	A A 83	E B A 16	A A 99	E B 16	26	28	35	36	43	39	44	44	43	36	35	47	33	22	E B 16	E B 16	22	20
31	E B 16	E B 16	29	A A 110	E B 16	E B 16	22	43	49	40	A A 62	46	A A 80	50	A A 89	A A 90	41	43	42	46	37	E B 16	25	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	31	38	41	44	46	50	44	44	43	40	40	35	33	28	20	20	20
U Q	A A 24	A A 21	18	16	A A 21	A A 16	26	A A 43	A A 49	A A 62	A A 74	A A 70	A A 78	A A 56	A A 62	A A 58	44	45	45	46	37	33	A A 40	A A 28
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	28	32	36	38	39	40	39	40	38	35	31	31	22	E B 19	E B 16	E B 16	E B 16

MAY 2020 fbEs (0.1MHz)

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MAY 2020 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	16	15	16	20	20	22	19	20	20	17	14	14	14	16	16	16	16
2	16	16	16	16	16	16	16	16	16	13	17	17	19	23	17	17	16	16	14	14	16	16	16	16
3	16	16	16	16	16	16	16	14	16	17	21	21	20	21	20	18	15	14	12	14	16	16	16	16
4	16	16	16	16	16	16	16	16	15	16	24	21	22	21	23	24	16	14	14	16	16	16	16	16
5	16	16	16	16	16	16	16	16	14	16	19	17	21	20	20	19	16	16	14	16	16	16	16	16
6	16	16	16	16	16	16	16	16	15	20	18	21	20	24	19	20	16	16	14	14	16	16	16	16
7	16	16	16	16	16	16	16	16	14	17	18	18	19	20	21	20	19	16	14	14	16	16	16	16
8	16	16	16	16	16	16	16	16	15	17	17	22	21	20	19	16	17	15	14	15	16	16	16	16
9	16	16	16	16	16	16	16	16	16	16	18	21	20	20	20	18	18	16	13	13	16	16	16	16
10	16	16	16	16	16	16	16	14	14	15	16	19	20	20	18	20	19	14	13	16	16	16	16	16
11	16	16	16	16	16	16	16	16	14	16	16	18	20	20	20	17	18	14	14	14	16	16	16	16
12	16	16	16	16	16	16	16	14	14	18	20	18	21	21	21	20	18	15	13	14	14	16	16	16
13	16	16	16	16	16	16	16	16	15	14	19	21	23	22	22	18	16	15	14	16	16	16	16	16
14	16	16	16	16	16	16	16	16	14	18	20	21	25	20	20	18	18	17	14	16	16	16	16	16
15	16	16	16	16	16	16	16	14	14	14	18	18	20	21	20	19	16	14	14	16	16	16	16	16
16	16	16	16	16	16	16	16	14	14	14	16	19	21	20	19	20	16	15	15	14	17	16	16	16
17	16	16	16	16	16	16	16	15	14	19	14	17	17	19	19	19	15	14	14	16	16	16	16	16
18	16	16	16	16	16	16	16	16	14	15	18	19	21	22	18	16	15	15	14	14	16	16	16	16
19	16	16	16	16	16	16	16	16	16	14	17	18	18	18	20	17	14	14	13	16	16	16	16	16
20	16	16	16	16	16	16	16	16	15	15	18	18	20	20	20	15	18	16	14	16	16	16	16	16
21	16	16	16	16	16	16	16	16	16	17	19	21	23	22	20	16	16	14	13	14	16	16	16	16
22	16	16	16	16	16	16	15	14	14	14	16	18	22	20	18	16	16	14	13	14	16	16	16	16
23	16	16	16	16	16	16	16	14	14	16	18	20	19	19	22	20	17	14	14	14	16	16	16	16
24	16	16	16	16	16	16	16	16	16	16	16	18	22	22	20	17	16	15	13	15	16	16	16	16
25	16	16	16	16	16	16	16	16	14	16	16	17	20	21	17	18	16	16	14	14	16	16	16	16
26	16	16	16	16	16	16	16	13	14	14	20	21	21	19	23	16	18	14	13	15	16	16	16	16
27	16	16	16	16	16	16	16	14	14	15	19	18	21	21	18	22	19	15	14	15	16	16	16	16
28	16	16	16	16	16	16	16	14	14	16	16	21	21	20	21	15	16	15	14	16	16	16	16	16
29	16	16	16	16	16	16	16	14	14	16	16	20	20	20	20	17	20	14	14	14	16	16	16	16
30	16	16	16	16	16	16	16	15	14	16	18	18	18	20	21	20	17	14	14	14	16	16	16	16
31	16	16	16	16	16	16	16	16	14	16	20	19	20	18	18	15	15	15	14	14	16	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	16	14	16	18	19	20	20	20	18	16	15	14	14	16	16	16	16
U Q	16	16	16	16	16	16	16	16	15	17	19	21	21	21	21	20	18	16	14	16	16	16	16	16
L Q	16	16	16	16	16	16	16	14	14	15	16	18	20	20	19	16	16	14	13	14	16	16	16	16

MAY 2020 fmin (0.1MHz)

IONOSPHERIC DATA STATION Okinawa

MAY 2020 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	312	307	318	341	330	310	380	371	388	371	350	290	287	303	330	310	336	338	331	305	332	361	363	312
2	286	298	320	390	A	319	378	391	376	341	330	315	317	298	A	315	353	361	331	340	338	339	A	A
3	272	292	F 325	F 342	F 383	354	376	386	388	347	319	A	283	303	306	314	329	360	354	355	362	309	294	292
4	306	294	313	351	365	331	367	394	370	309	312	281	273	296	319	330	317	355	354	350	366	334	327	311
5	305	326	328	329	333	321	351	346	386	397	363	283	A	292	317	314	314	313	334	346	362	360	324	F 301
6	A	320	318	F 316	F 317	F 331	384	371	378	373	331	315	296	294	311	304	299	319	340	340	350	349	A	318
7	313	341	362	328	339	328	342	388	370	375	351	336	311	278	A	327	320	315	297	336	383	370	300	309
8	320	311	319	338	334	322	367	380	389	332	313	261	284	301	310	320	342	323	318	A	362	A	321	F 340
9	316	319	287	A	317	346	383	A	362	374	331	308	282	299	305	322	338	319	331	338	359	368	321	336
10	292	300	326	335	F 340	F 339	364	380	385	A	360	293	297	307	318	301	327	311	A	342	342	351	A	309
11	309	317	322	338	370	346	408	403	A	A	A	293	A	291	305	318	326	325	340	373	335	316	305	F 317
12	F 296	F 310	F 328	F 332	347	A	373	A	377	A	A	A	A	A	296	308	302	322	341	379	367	296	298	308
13	336	314	349	377	329	334	366	407	379	334	367	336	256	299	297	309	318	315	317	334	389	345	A	284
14	A	334	A	317	341	354	364	397	376	342	343	327	293	319	304	297	301	315	342	346	341	A	282	F 297
15	F 290	F 334	F 338	376	337	364	378	378	A	A	A	A	A	279	298	297	315	305	334	346	379	321	A	A
16	348	A	F 309	A	A	A	378	365	382	315	A	A	A	A	283	281	285	302	336	359	370	F 343	A	A
17	A	A	346	372	A	A	378	383	A	A	A	A	A	280	300	A	311	349	346	320	334	358	357	F 319
18	R 299	R 301	331	F 294	F 330	377	V 391	371	347	351	317	341	A	A	A	305	333	318	349	337	343	375	308	293
19	344	F 283	F 337	358	328	A	390	397	A	337	361	311	A	287	277	289	297	322	309	324	336	401	A	289
20	319	317	F 319	374	366	346	376	394	358	324	327	292	291	297	314	331	309	299	339	342	354	328	306	F 282
21	F 321	F 331	F 321	331	327	335	350	364	372	328	358	A	A	A	A	A	303	305	323	335	358	335	334	305
22	A	A	318	379	340	A	A	A	346	A	A	328	321	313	299	A	299	315	327	352	364	325	327	328
23	F	F 324	319	F 305	324	F 317	357	391	380	336	319	298	325	317	294	318	317	312	322	309	340	332	357	296
24	F 311	F 359	F 350	F 378	334	291	379	A	A	A	A	332	311	273	282	A	289	A	331	A	324	361	364	A
25	A	A	342	365	F 304	358	388	A	A	387	A	A	290	292	277	303	316	334	A	307	354	A	304	290
26	F 298	F 306	F 328	F 387	308	F 309	348	355	373	365	280	A	A	294	301	286	302	320	310	348	340	320	F 311	311
27	316	328	F 334	F 407	F 311	F 314	348	354	381	A	329	A	A	A	310	337	308	329	333	326	332	356	315	F 315
28	345	336	331	A	A	298	346	353	347	353	348	339	A	A	A	295	308	341	335	325	346	353	316	317
29	F 316	F 312	F 323	348	F 366	317	A	A	A	369	310	353	A	A	A	A	317	320	324	356	329	310	280	A
30	370	A	A	382	A	326	360	350	387	348	327	254	272	295	285	304	318	362	352	269	296	304	314	F 276
31	F 313	F	F 323	A	356	329	344	369	373	306	A	280	A	313	A	A	298	303	331	369	327	304	308	309
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	25	29	27	26	26	29	25	24	23	22	22	17	24	24	25	31	30	29	29	31	28	24	26
MED	313	317	325	348	334	330	373	380	376	347	330	310	291	296	302	309	315	320	333	340	346	341	314	309
U Q	320	330	336	377	347	346	380	392	384	371	351	332	311	303	310	319	326	334	340	351	362	359	327	317
L Q	298	304	319	331	327	317	354	364	370	332	319	290	282	292	295	299	302	313	324	326	335	320	304	293

IONOSPHERIC DATA STATION Okinawa

MAY 2020 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L 427	412	425	A 405	440	A	A	A	A						
2									L	A	A	A	A	A	A	A	391	A						
3									L	U L 411	445	A	A	428	430	A	418	374	L					
4									L 424	A	A	467	A	A	A	439	425	377	L					
5								L	A	A	U L 440	A	A	A	A	418	387	384	L					
6								L	A	401	A	A	A 389	402	410	410	386	360						
7									L	390	A	A	437	A	A	A	A							
8									L 389	U L 418	437	A	A	A	A	A	A	387						
9								A	A	412	450	436	425	430	427	A	397	374	A					
10										A	A	434	461	A 372	425	A	A	A	A					
11									A	A	A	A	A	A	A	A	A	A						
12								A	A	A	A	A	A	A	432	433	396	A	A					
13									L	424	429	A	U A 410	A	386	A	A	A	A					
14								402	L 425	426	A	433	426	422	A	A	A	A						
15									A	A	A	A	A	436	A	406	A	372	A					
16								L 385	L	A	A	A	A	A	A	A	A	A	A					
17									A	A	A	A	A	A	A	A	A	A	A					
18								U L 412	L 402	398	433	A	A	A	A	A	417	A	387					
19									A	431	A	442	A	438	A	424	406	395	L 370					
20									A	393	A	420	425	434	415	A	A	A	372					
21								L	L 406	A	A	A	A	A	A	A	A	A	A					
22							A	A	A	A	A	399	422	A	A 398	A	A	384	L 369					
23								A	394	U L 418	443	A	435	A 402	423	A 417	393	395	A 354					
24								A	A	A	A	A	430	426	A 416	A	A	A	A	A				
25								A	A		A	A	A	423	A	A	A	A	A					
26							L	L	A	A	A	A	A	A	A	A	A	A	A					
27							L	L 379	L 399	A	A	A	A	A	A	429	395	399	U L 374					
28								L 401		A	449	A	A	A	A	A	A	408						
29							A	A	A	A	431	A	A	A	A	A	A	387	A					
30								391	400	U L 449	A	450	A	A	A	404	420	A						
31									A	A	A	A	A	A	A	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								5	9	13	10	9	11	12	10	9	12	13	6					
MED								L 391	L 401	418	438	434	425	427	420	418	396	384	371					
U Q								407	L 415	426	445	446	435	435	427	431	418	395	374					
L Q								L 382	L 396	400	431	422	A 410	412	410	408	392	374	369					

MAY 2020 M(3000)F1 (0.01)

IONOSPHERIC DATA STATION Okinawa

MAY 2020 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										256	290	406	368	312	268	278	256	240						
2									226	290	E A 320	314	290	E A 380	A	288	246	238						
3									234	292	338	A	366	310	298	292	264	232	234					
4									234	E A 366	330	376	372	328	280	264	274	230	226					
5								262	216	228	266	E A 444	A	352	292	278	284	288	252					
6								250	238	246	310	328	354	332	302	290	312	270						
7									246	244	260	E A 310	308	374	A	280	290							
8									232	L 300	360	490	368	310	270	258	254	276						
9								A	254	254	318	340	364	332	302	278	256	264	256					
10										A	272	388	356	322	300	308	276	284	A					
11									A	A	A	402	A	348	308	292	280	274						
12								A	242		A	A	A	A	396	334	320	284	254					
13									246	322	264	328	530	382	340	310	290	288	274					
14								216	242	314	298	318	366	316	326	356	320	292						
15									A	A	A	A	A	398	338	306	284	296	254					
16								250	240	A 352	A	A	A	A	392	378	356	316	274					
17									A	A	A	A	A	368	322	A	320	240	236					
18								L 248	286	284	358	302	A	A	A	342	262	296	240					
19									A	314	266	350	A	370	368	332	314	278	276					
20									264	320	320	384	378	338	298	268	292	308	258					
21								258	258	314	264	A	A	A	A	A	376	322	276					
22							A	A	278		A	A	298	302	342	362	A	E A 390	308	262				
23								222	236	312	350	396	304	308	342	300	314	314	294					
24								A	A	A	A	E A 316	364	388	340	A	324	A	A 290	A				
25								A	A		A	A	414	392	380	318	310	310	A					
26							270	254	248	258	442	A	A	380	342	334	312	282	254					
27							268	258	236	A	340	A	A	A	296	262	300	300	280					
28								254	278	270	290	308	A	A	A	356	308	250						
29							A	A	A	276	342	278	A	A	A	A	286	284	242					
30								278	226	258	346	526	462	374	374	308	290	226						
31									E A 258	372	A	388	A	302	A	A	312	294	254					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	11	22	22	22	22	17	24	24	25	31	29	20					
MED							269	254	242	289	316	340	366	342	324	300	291	284	255					
U Q								258	258	314	342	396	375	377	352	333	314	298	275					
L Q								248	234	258	272	314	331	319	298	278	276	257	247					

MAY 2020 h'F2 (KM)

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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	280	266	280	234	242	284	212	202	222	182	178	186	A 214	164	A	A	A	A	248	240	244	194	196	276
2	332	310	256	194	A	344	214	210	194	A	A	A	A	A	A	A	234	A	264	236	216	E A 236	A	A
3	354	E A 332	E A 272	212	202	256	226	226	204	196	182	A	A	178	194	A	208	176	196	214	190	A 244	E A 342	306
4	292	288	256	206	200	284	218	218	216	A	A	156	A	A	A	A 210	194	202	202	210	198	208	242	A 278
5	284	264	260	230	230	270	226	214	A	A	184	A	A	A	A	214	208	194	210	230	206	188	236	A 304
6	A	256	270	280	E A 284	254	214	226	A	210	A	E A 284	E A 248	214	210	190	220	246	248	228	224	222	A	270
7	E A 298	266	250	270	250	266	224	222	200	202	A	A	158	A	A	A	A	292	292	260	232	A 256	300	296
8	280	300	E A 268	E A 268	256	288	212	224	204	200	180	A	A	A	A	A	A	214	292	A	228	A	276	276
9	276	278	314	A	270	246	202	A	A	194	182	182	196	188	186	E A 270	202	236	A	228	226	196	222	250
10	E A 300	262	252	228	220	278	210	216	216	A	A	178	164	E A 254	222	A	A	A	A	228	222	216	A	236
11	268	272	256	226	216	256	202	210	A	A	A	A	A	A	A	A	A	A	240	210	A 242	266	E A 324	282
12	288	240	250	244	220	A	234	A	A	A	A	A	A	A	198	188	208	A	A	206	210	228	278	310
13	264	278	228	200	244	270	226	214	198	186	184	A	E A 238	A	262	A	A	A	A	242	212	224	A	A 318
14	A	258	A	228	254	226	218	206	196	190	A	194	200	224	A	A	A	A	276	238	238	A	E A 314	A 292
15	276	248	236	200	224	212	214	E A 238	A	A	A	A	A	186	A	220	A	230	A	244	200	220	A	A
16	258	A	306	A	A	A	212	206	230	A	A	A	A	A	A	A	A	A	A	214	192	220	A	A
17	A	A	242	224	A	A	212	220	A	A	A	A	A	A	A	A	A	A	A	244	242	212	206	E A 288
18	E A 310	E A 304	262	288	248	208	214	194	208	208	194	A	A	A	A	A	230	A	220	232	212	196	294	300
19	232	312	248	E A 238	244	A	204	210	A	210	A	174	A	186	A	208	206	212	226	244	238	188	A	306
20	282	272	238	202	222	272	210	214	A	222	E A 238	202	194	168	186	A	A	A	E A 252	236	200	224	266	294
21	264	230	252	236	242	236	224	230	200	A	A	A	A	A	A	A	A	A	A	260	226	E A 302	214	276
22	A	A	E A 286	210	248	A	A	A	A	A	A	210	186	A	E A 226	A	A	194	214	220	216	224	228	230
23	294	282	254	298	256	256	218	A	210	202	182	A	194	E A 234	184	E A 216	228	184	A 274	270	234	244	214	258
24	272	232	228	202	E A 314	352	A 242	A	A	A	A	A	174	204	E A 234	A	A	A	A	A	250	210	214	A
25	A	A	262	224	288	234	226	A	A	A 228	A	A	A	198	A	A	A	A	A	270	228	A	282	298
26	290	260	256	202	334	280	230	228	A	A	A	A	A	A	A	A	E A 260	A	A	216	228	230	260	E A 292
27	276	A 258	230	196	278	266	240	220	196	A	A	A	A	A	A	182	E A 228	194	238	236	A 246	212	A 220	252
28	238	236	242	A	A	278	214	208	196	A	176	A	A	A	A	A	A	214	238	238	222	200	244	242
29	264	Q 282	Q 254	210	230	270	A	A	A	A	192	A	A	A	A	A	A	196	A	248	208	240	292	A
30	188	A	A	198	A	292	234	212	212	176	A	170	A	A	A	220	210	A	230	214	278	216	250	340
31	264	308	E A 262	A	224	250	230	242	A	E A 290	A	A	A	A	A	A	A	A	A	218	E A 258	244	E A 278	252
	00	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	26	29	27	26	26	29	24	16	15	11	10	11	12	10	10	13	14	18	29	31	28	24	26
MED	276	267	254	218	243	268	218	214	204	201	182	182	190	190	197	206	209	207	238	236	225	220	U 244	281
U Q	292	288	265	238	256	280	226	225	214	210	192	202	E A 214	219	E A 226	220	229	230	264	244	238	238	287	300
L Q	264	258	245	202	224	250	212	210	197	190	180	174	174	182	186	190	207	194	220	217	210	209	221	258

MAY 2020 h'F (KM)

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IONOSPHERIC DATA STATION Okinawa

MAY 2020 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	A	A	A	A	A	100	100	100	102	100	102	106	A				
2							116	112	102	102	102	A	102	102	102	102	102	104	104	A				
3							A	96	96	96	A	A	A	A	A	A	A	A	A	A				
4							A	A	102	A	A	A	A	A	A	A	102	102	A	A				
5							A	A	102	102	102	A	A	A	A	A	102	102	102	A				
6							A	A	A	A	A	A	102	102	102	A	102	102	106	A				
7							A	106	102	A	102	102	102	102	102	102	102	108	106	A				
8							A	106	106	104	104	A	104	A	A	A	A	A	102					
9							A	102	102	A	A	A	A	A	A	A	A	102	102	A				
10							A	108	106	104	104	A	104	104	104	104	104	104	104	A				
11							A	106	102	102	A	A	A	A	A	A	100	104	104	A				
12							A	A	A	100	A	A	A	A	A	A		100	104	A				
13							A	A	A	A	104	102	102	102	102	102	102	104	A	A				
14							112	100	104	A	102	102	102	102	102	102	102	106	106	A				
15							A	A	110	104	104	104	102	106	104	104	104	104	102	A				
16							A	104	104	100	A	A	A	A	100	102	102	106	106	A				
17							A	A	100	100	100	A	96	96	96	104	104	104	A	A				
18							A	A	A	A	A	104	104	104	104	104	104	104	104	A				
19							A	A	A	A	102	102	102	102	102	102	102	104	102	A				
20							A	A	102	106	106	106	106	106	102	104	104	104	104	A				
21							A	104	104	102	102	100	A	100	A	A	A	108	108	A				
22							A	108	106	106	106	102	102	102	102	102	102	102	108	A				
23							120	112	108	106	A	106	104	104	102	102	102	102	102	A				
24						B	A	108	106	102	A	100	100	100	100	100	A	A	A	A				
25						B	A	102	102	A	A	A	102	102	102	102	102	102	102	A				
26						B	A	102	102	100	100	A	A	A	A	A	100	100	100	A				
27						B	120	100	100	A	A	A	A	A	100	A	A	A	A	A				
28						B	A	A	104	102	102	102	A	102	A	102	102	A	A	A				
29						B	A	102	102	102	102	102	102	A	A	A	A	A	A	A				
30						B	A	A	A	A	A	A	A	A	102	102	108	108	A	A				
31						B	A	A	A	102	102	100	100	100	100	100	A	A	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	17	23	19	17	14	19	19	20	19	22	24	21					
MED							118	104	102	102	102	102	102	102	102	102	102	104	104					
U Q							120	108	106	104	104	104	104	104	102	104	104	104	106					
L Q							114	102	102	100	102	102	102	100	100	102	102	102	102					

MAY 2020 h'E (KM)

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MAY 2020 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	110	112	B	94	90	90	120	110	112	92	94	116	112	132	124	94	112	104	98	96	82	92	92
2	88	88	B	82	82	B	G	116	108	100	100	96	100	100	98	98	110	114	106	100	98	98	100	100
3	90	88	80	82	94	100	98	98	100	96	152	130	100	100	98	92	96	88	88	84	106	106	100	96
4	96	94	120	116	78	104	144	106	100	96	98	98	98	98	96	96	138	132	106	98	94	94	98	96
5	104	96	96	114	88	92	108	108	102	100	102	96	92	92	92	112	128	132	112	102	98	98	106	102
6	102	102	92	92	94	94	94	94	108	120	94	142	132	138	134	146	156	118	102	98	108	102	102	94
7	94	104	94	96	90	112	132	110	G	104	98	98	G	140	114	116	116	106	102	98	102	98	100	102
8	98	92	90	86	82	86	144	128	114	104	104	98	96	96	96	92	96	96	106	100	104	102	100	114
9	102	94	94	94	90	94	116	106	102	116	92	98	94	96	96	96	94	112	102	98	94	98	96	96
10	90	90	90	90	106	84	124	110	106	104	104	130	106	156	148	128	120	116	104	112	96	104	96	110
11	100	96	88	80	98	94	122	110	102	102	94	94	106	94	94	112	112	108	98	98	102	110	94	98
12	96	100	96	96	104	102	102	92	100	96	96	94	94	96	98	96	94	116	106	96	96	106	100	98
13	98	98	98	96	96	96	94	94	128	118	124	158	138	130	124	112	112	110	104	100	100	102	102	102
14	100	96	96	96	96	98	G	106	98	106	106	124	128	140	124	114	112	104	102	98	98	92	96	96
15	94	98	96	96	96	96	116	104	100	100	96	102	102	112	118	164	110	124	102	98	98	102	100	98
16	98	92	92	92	92	90	112	114	108	98	92	92	92	92	144	118	126	110	100	100	100	102	102	98
17	98	88	92	92	92	88	94	98	100	100	112	92	92	128	96	108	108	108	104	102	102	96	96	94
18	94	94	90	90	92	92	92	96	144	126	120	108	112	112	108	104	108	108	108	100	100	100	100	100
19	94	90	92	92	92	92	96	108	98	98	98	104	106	142	114	124	134	110	100	96	100	96	96	94
20	94	94	94	94	90	92	118	124	112	112	114	118	116	122	G	128	114	162	154	112	108	96	106	104
21	96	94	B	90	96	84	112	110	112	100	100	94	94	94	96	110	108	104	104	102	98	100	100	100
22	98	96	96	96	96	110	108	108	108	106	98	104	120	102	128	116	108	108	114	100	102	98	102	100
23	98	94	94	94	B	B	122	112	118	114	118	110	118	118	114	108	108	126	108	100	92	92	94	108
24	112	94	94	90	90	130	118	112	104	102	98	98	104	104	104	126	120	108	102	94	94	100	98	98
25	92	98	96	96	94	96	118	106	100	96	98	94	98	130	114	118	104	104	98	98	96	96	96	96
26	96	94	96	96	94	98	108	108	108	102	102	98	92	92	92	130	140	116	108	104	104	104	96	102
27	100	102	96	96	96	100	116	112	126	104	116	102	102	98	92	94	94	98	96	104	88	84	100	110
28	114	94	94	94	96	86	108	108	108	104	108	120	98	104	100	122	116	126	112	112	92	88	86	86
29	102	102	102	96	B	B	114	110	110	104	104	102	102	96	112	92	104	90	88	106	90	90	96	102
30	110	92	96	96	94	90	122	126	180	92	92	94	96	132	122	130	138	104	100	104	104	100	104	102
31	116	100	96	96	94	92	130	114	108	112	108	104	104	108	106	100	98	90	90	86	86	86	100	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	29	30	29	28	29	31	30	31	31	31	30	31	30	31	31	31	31	31	31	31	31	31
MED	98	94	94	94	94	94	114	108	108	104	100	98	102	104	107	112	110	110	104	100	98	98	100	100
U Q	102	98	96	96	96	99	122	112	112	112	108	110	112	130	122	124	120	116	106	102	102	102	100	102
L Q	94	92	92	90	90	90	100	106	100	100	96	94	96	96	96	98	104	104	100	98	94	94	96	96

MAY 2020 h'Es (KM)

IONOSPHERIC DATA STATION Okinawa

MAY 2020 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	F1		F1	F2	L5	CL12	CL32	CL11	L2	L1	C1	C1	HC11	CC21	LC13	C5	C3	L8	F6	F1	F4	F6
2	F4	F2		F2	F2			C2	C3	C4	C3	L2	C4	C4	L8	L5	CH12	C4	C7	C6	F9	F6	F9	FQ41
3	FQ41	F3	F2	F1	F1	F1	L6	L5	C2	L2	HL11	HL22	CL24	C1	L1	L3	L2	L3	L2	L4	FF11	FF41	F3	F4
4	F3	F3	F1	F1	F1	F1	HC11	C4	C3	L4	L3	L1	L2	L2	L2	L1	HL11	H1	C2	L5	F6	F3	F3	F3
5	F4	F2	F3	F1	F3	F1	C3	C3	C4	C4	C2	L3	L3	L4	L4	CL12	CL11	H1	C2	C4	F3	F2	F2	F2
6	F6	F2	F1	F3	F4	F6	L5	L1	C2	CL22	LH21	HL11	H1	H1	H1	H1	H1	C2	C4	C8	F3	F3	F7	F3
7	F2	F2	F1	F2	F1	F1	F1	C3		C2	L3	L4		H1	C2	C2	C2	C2	C7	L6	FQ51	F4	F3	F4
8	F2	F3	F3	F3	F3	F2	HC11	C2	C1	C2	C2	L2	L3	L3	LC21	L3	L2	LC21	C2	L9	FF35	F6	F5	F2
9	F3	F2	F3	F4	F5	F2	C1	C7	C3	C3	L4	L2	L2	L1	L1	LH21	L2	C2	C4	L7	F5	FQ31	F3	F6
10	F3	F2	F2	F1	F1	F1	C1	C7	C3	C4	C3	HC11	C1	H1	H1	C2	C4	C5	C8	C8	F3	F4	FQ41	FF13
11	FQ21	FQ31	F3	F2	FF11	F4	C3	C4	C8	C4	L4	L3	CL41	LH21	LC32	CL42	C6	C7	L6	L7	F5	FF35	F9	F8
12	F9	FF13	FQ31	F3	F3	FF25	CL32	L7	C3	L4	L5	L5	L4	L3	LH11	L1	LH21	C2	C8	L9	F9	FF24	FF22	FF44
13	F3	F3	F5	F1	F1	F2	L3	LH32	CL11	CL11	CL11	H1	H1	H1	C2	C2	C2	C3	C6	C8	F3	F3	F8	F8
14	F9	F3	F6	F3	F3	F1		C2	L3	CL22	C2	CL11	C1	H1	C2	C2	C3	C5	C8	L9	F5	F6	F8	F7
15	F5	FQ31	F3	F3	F4	F3	C4	C7	C6	C8	L5	C4	C4	C1	C2	HC11	C2	C2	C3	L3	F3	F2	F5	F3
16	F3	F4	F5	F3	F5	F4	C4	C2	C3	L3	L7	L8	L5	L7	H2	C2	C2	C4	C5	L2	F2	F2	F5	F5
17	F4	F4	F2	F3	F6	FQ41	L3	L4	C8	C5	CL29	L5	L4	CL11	LC22	C8	C6	C7	CL32	CL25	FF27	F2	F2	F1
18	F2	F2	F2	F2	F4	F2	L5	LQ41	HL12	CL11	C1	C2	C2	C4	C3	C3	C2	C2	C5	L3	F7	F3	F4	F5
19	F2	F6	F3	F5	F8	F4	L2	CL33	L5	L3	L3	C2	C6	H1	C1	C1	HL11	C1	C3	L4	F4	F5	F9	F3
20	F2	F4	F3	F2	F4	F2	C3	CL11	C2	C2	C1	CL11	CL11	C1		CL11	C2	H2	H4	C2	F4	F1	FF21	F2
21	F2	F1		F1	F1	F1	F1	C3	C3	C2	C2	L5	L6	L6	L3	C2	C3	C4	C3	C5	F3	F3	F4	F3
22	F8	F5	F5	F3	F3	F3	C8	C7	C3	C6	C5	C2	C1	C5	C1	C3	C5	C3	C2	C7	F4	F4	F3	F4
23	F5	F6	F7	F3			C1	C2	C2	C2	C1	C2	C1	C1	C1	C2	C2	C1	C3	C5	F4	F4	F2	FF13
24	FF23	F2	F3	F4	F9	HL22	C4	C5	C6	C5	L3	L3	C1	C1	C1	CL32	CL42	CL62	C8	L7	F5	F3	F5	F7
25	F7	F5	F5	F5	F3	L3	C6	C8	C7	L3	L5	L3	L2	H1	C3	C1	C3	C5	L7	L8	F9	F5	F5	F5
26	F4	F2	F3	F3	F5	L1	C3	C3	C3	C4	C3	L6	L7	L6	L4	CL11	H2	C3	C3	C3	F4	F4	F2	F4
27	F3	F3	F2	F2	F2	C1	C5	C3	CL21	C3	CL22	C6	C5	L3	L2	L1	L4	L2	L4	C2	F3	F3	FF25	FF15
28	FF19	FF11	F4	F9	F6	L1	C2	CQ21	C2	C2	C1	CL13	L4	C7	CQ41	C3	C2	CL22	CL32	C5	F4	F4	F3	F3
29	F1	F1	FF11	F1			C7	C8	C5	C4	C4	C2	C3	L9	CL29	LQ51	CL22	L2	L4	CL33	F3	F2	FF22	F6
30	FF26	F5	F5	F3	F5	LC22	CL43	CL21	HL11	L2	L3	L2	L2	HL21	CL11	H1	H2	C4	C2	C4	F1	FF11	F2	F4
31	FF13	F3	F3	F8	F3	L1	HC11	CL42	CL72	C2	C3	C2	C5	C3	C5	C8	L3	L4	LQ41	L5	FQ31	F1	F8	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																								

MAY 2020 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

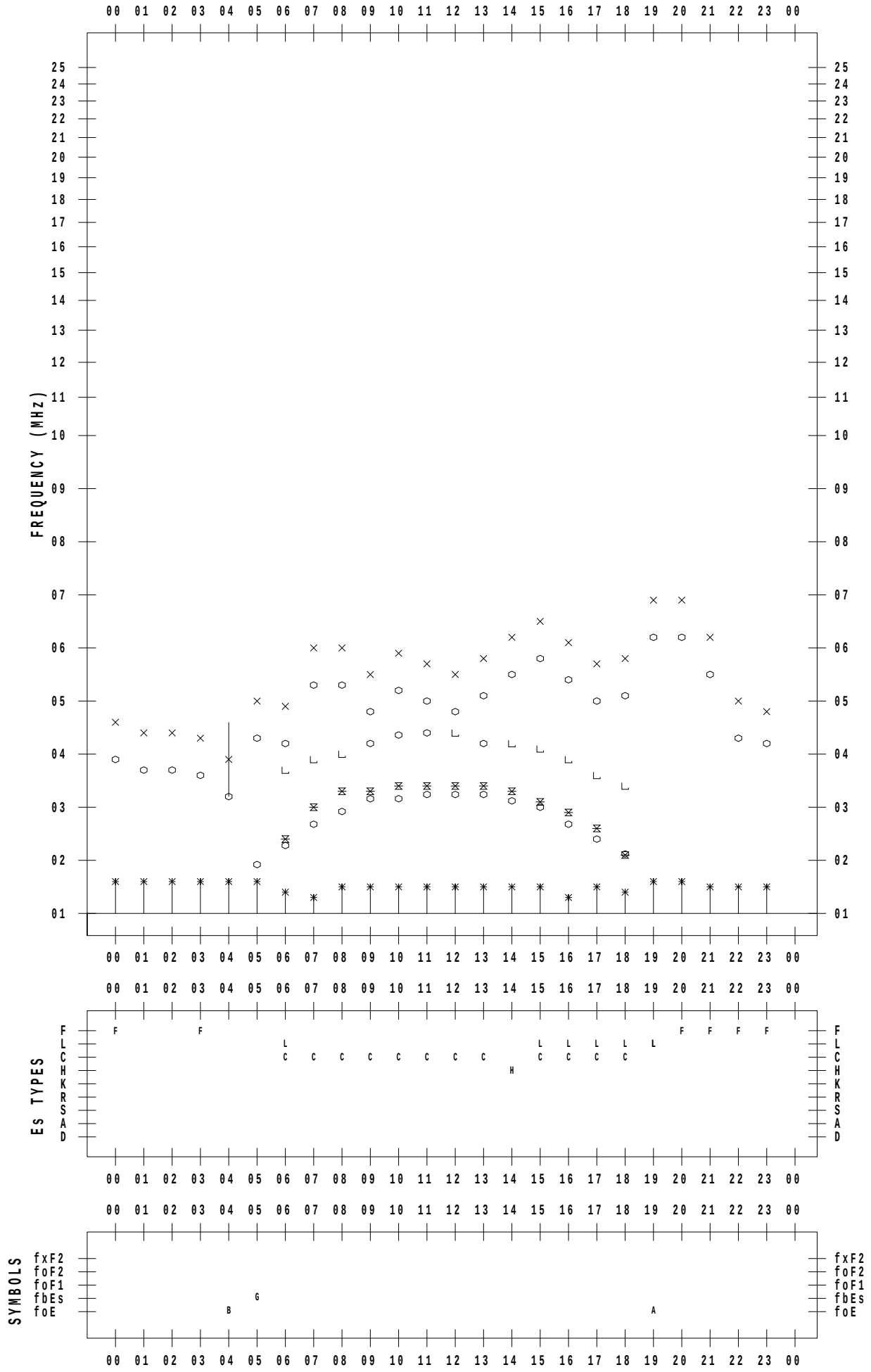
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/ 1

135 °E MEAN TIME



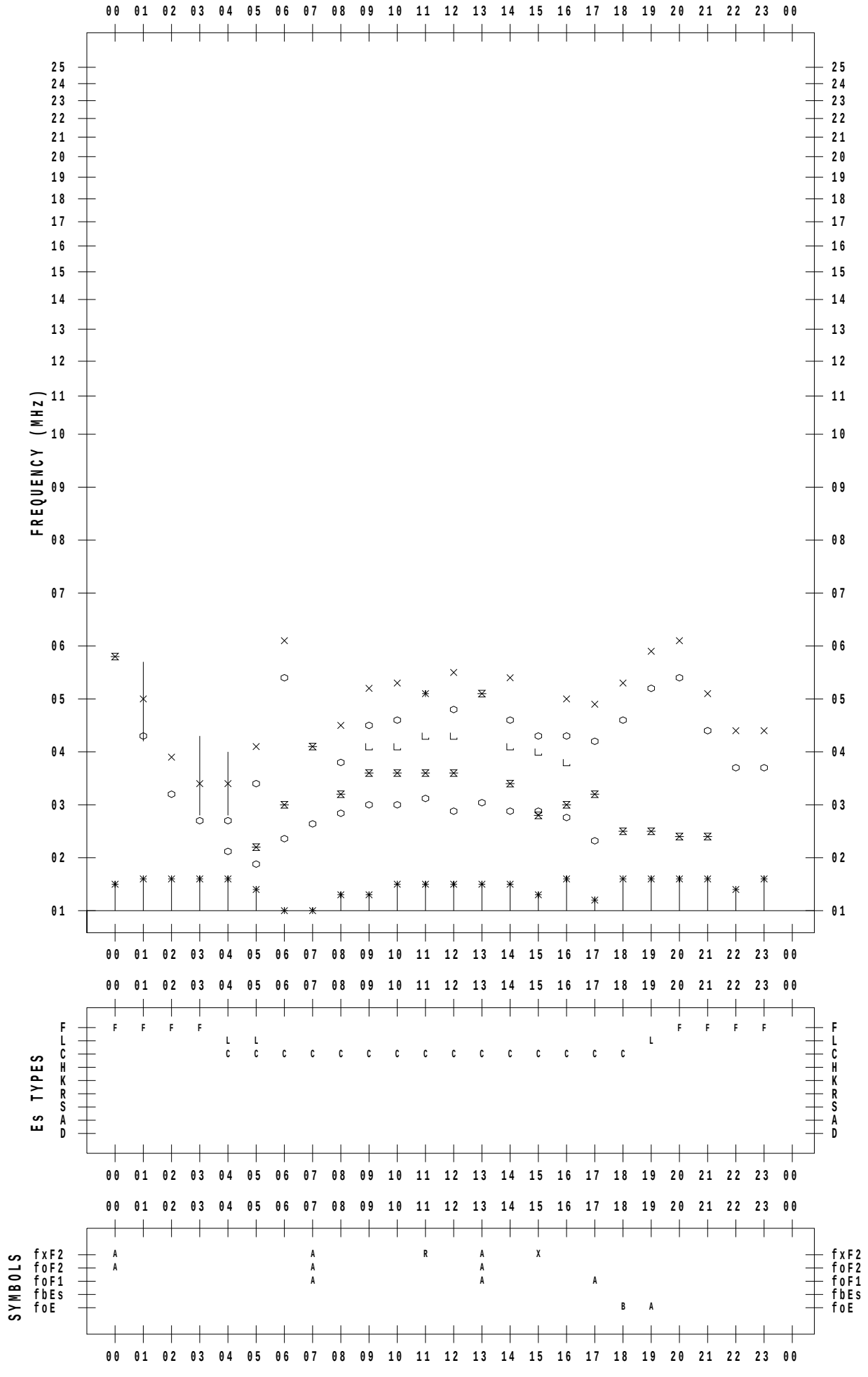
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/ 2

135 °E MEAN TIME



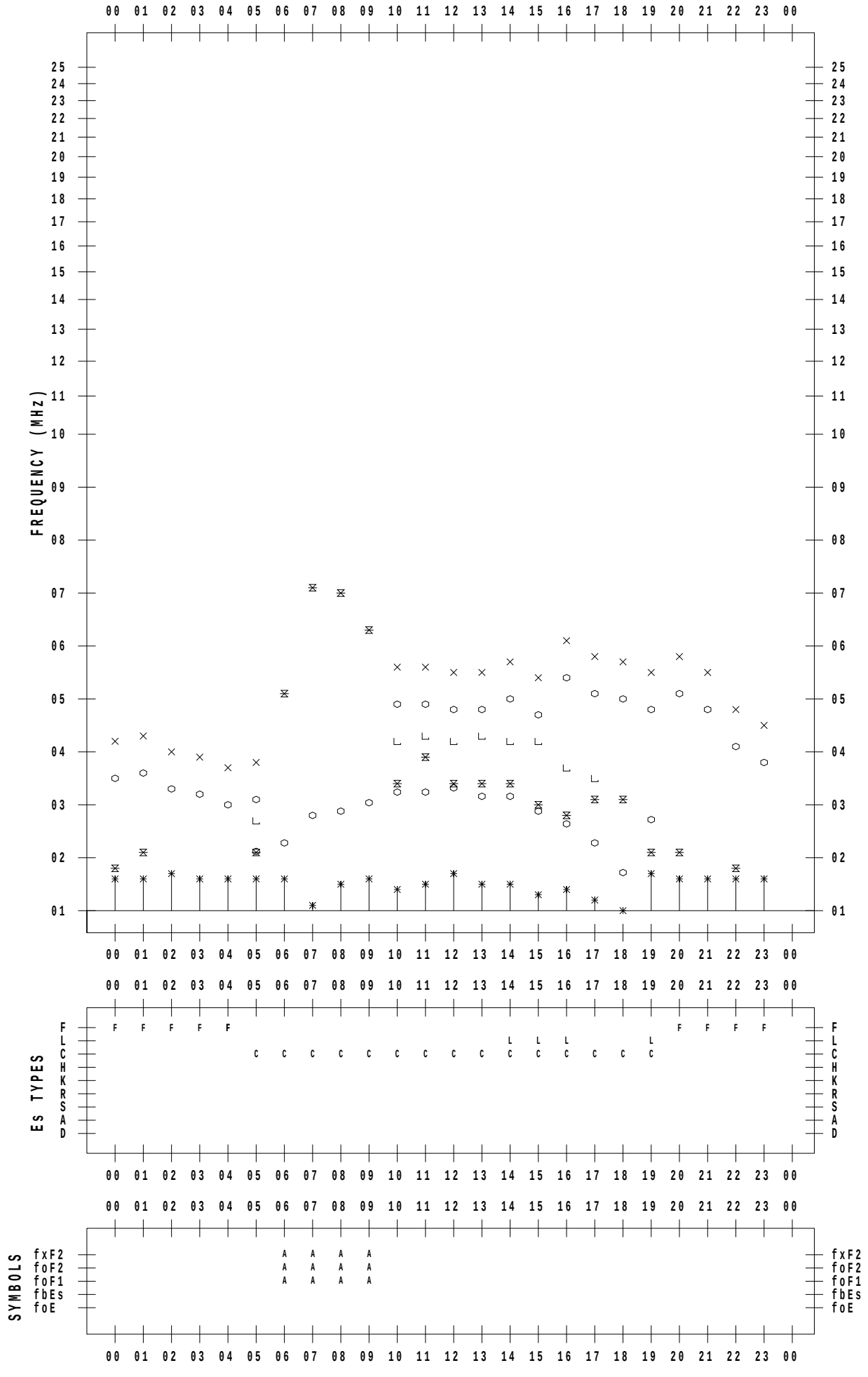
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/ 3

135 °E MEAN TIME



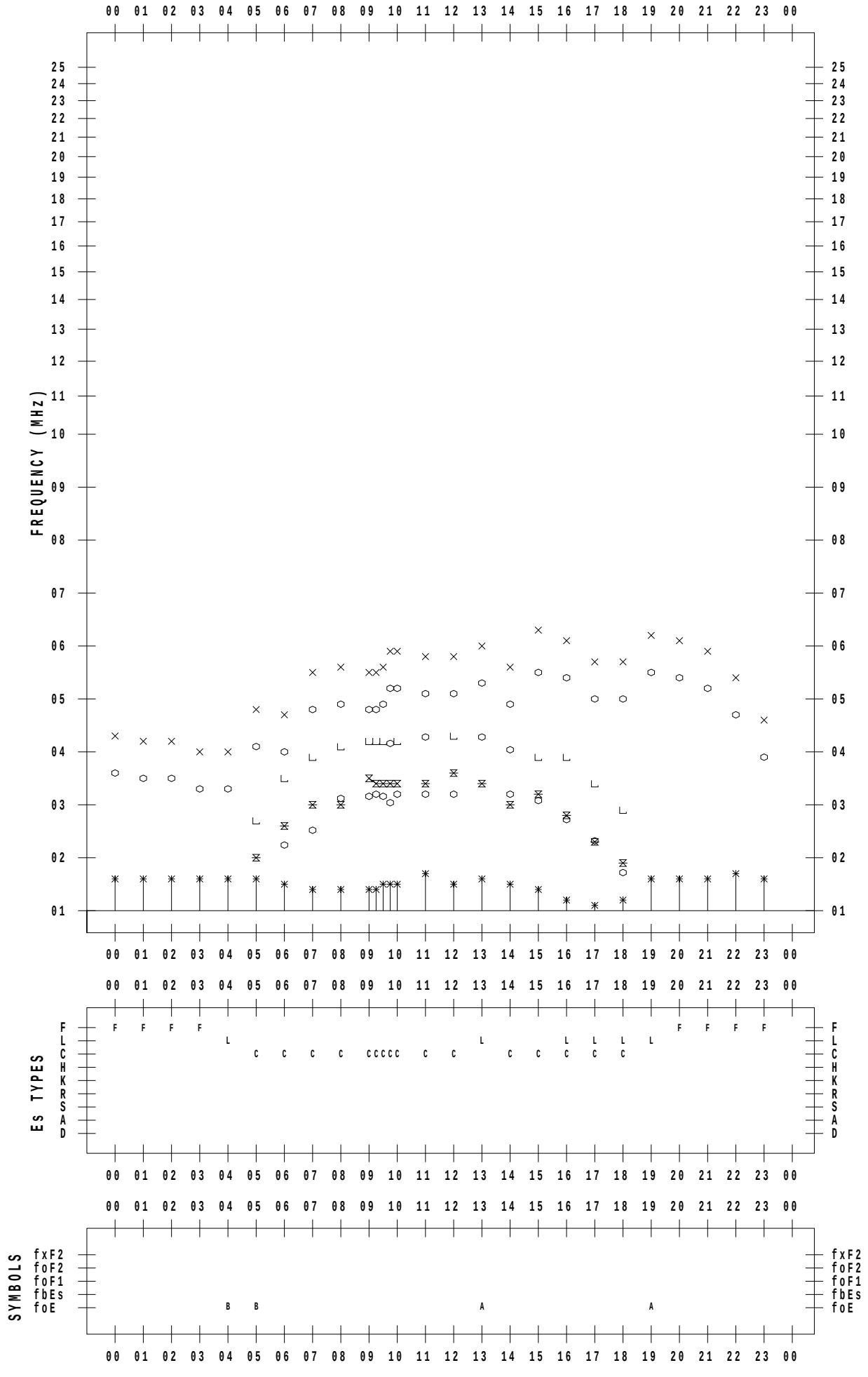
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/ 4

135 °E MEAN TIME



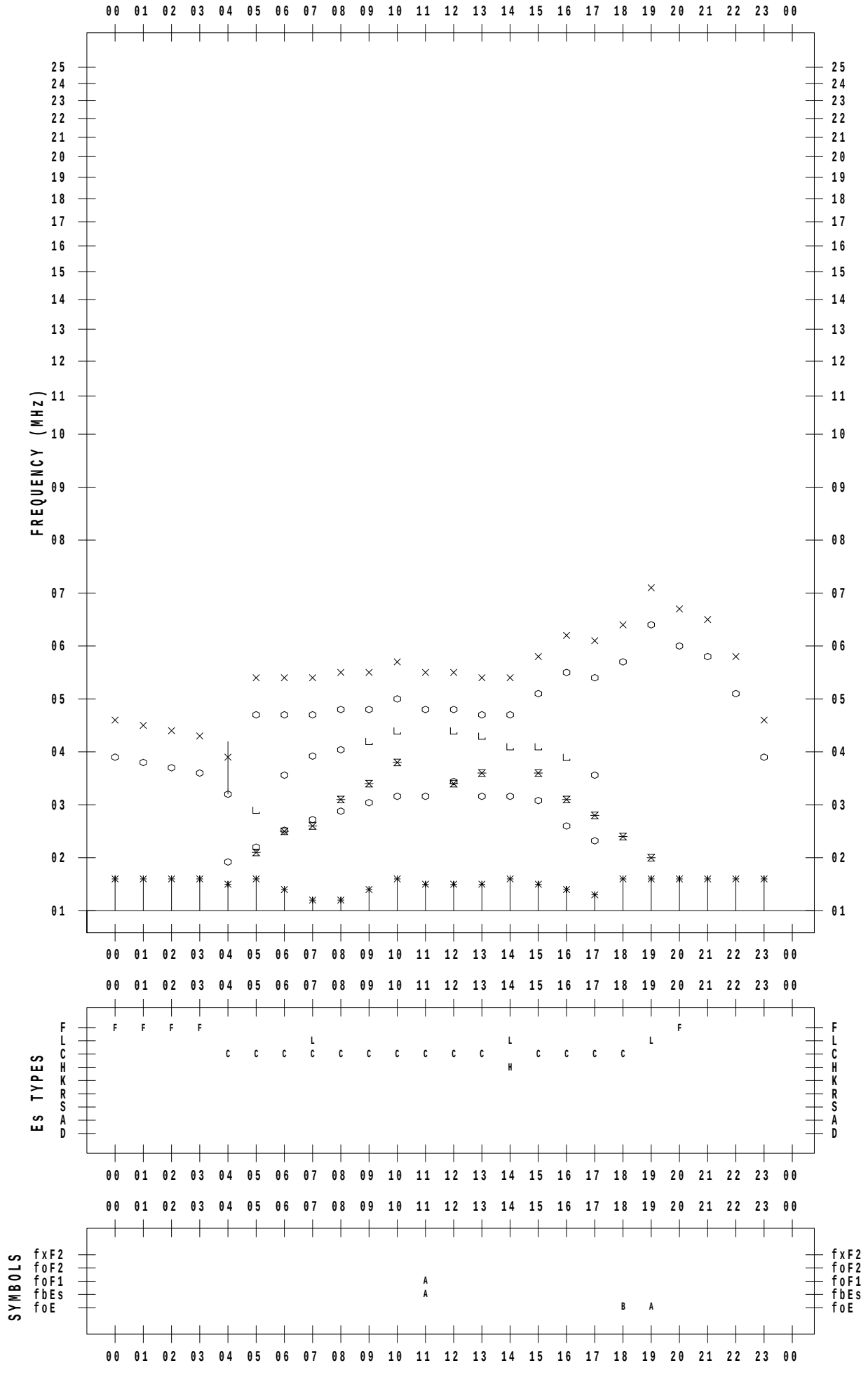
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/ 5

135 °E MEAN TIME



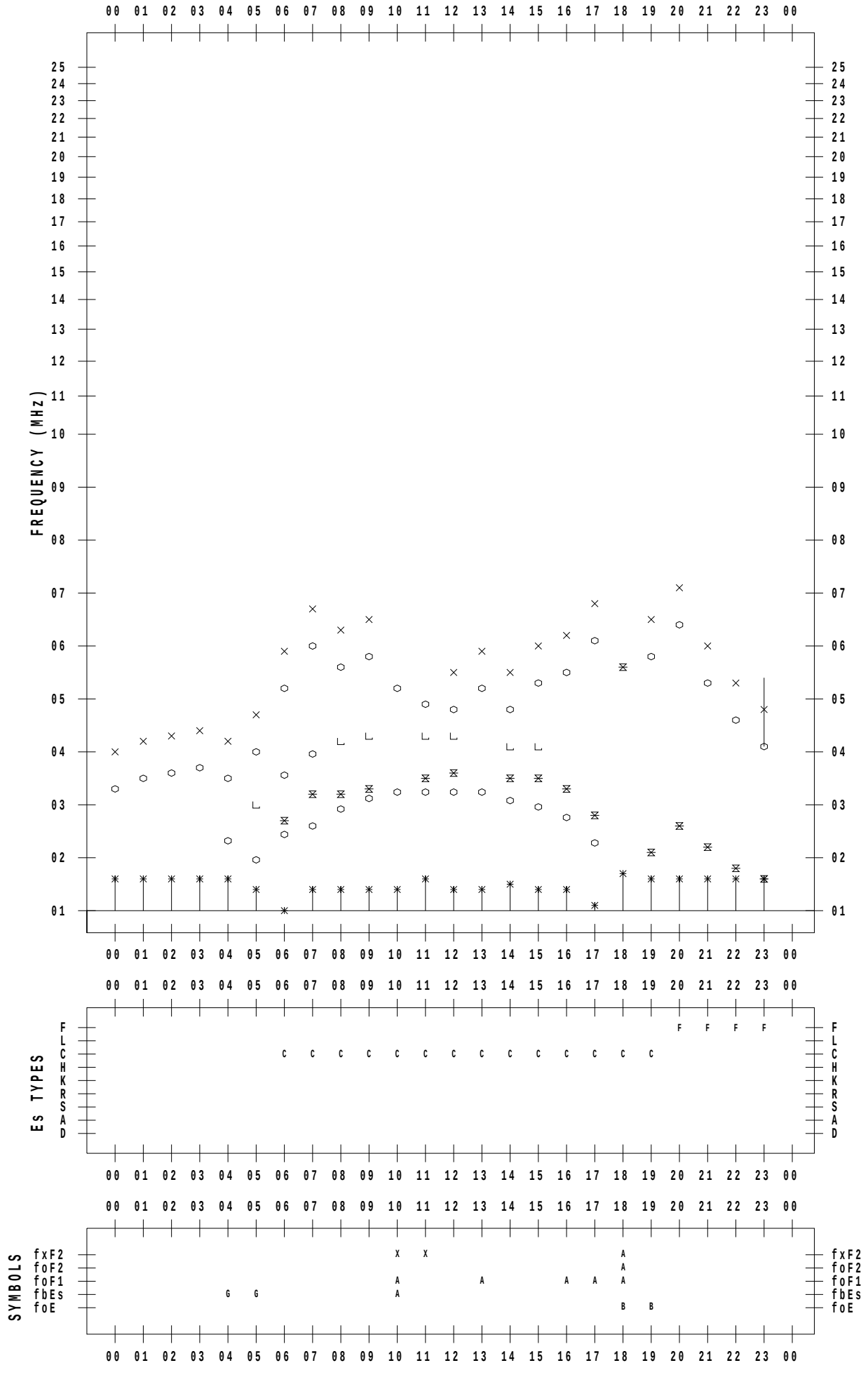
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/ 6

135 °E MEAN TIME



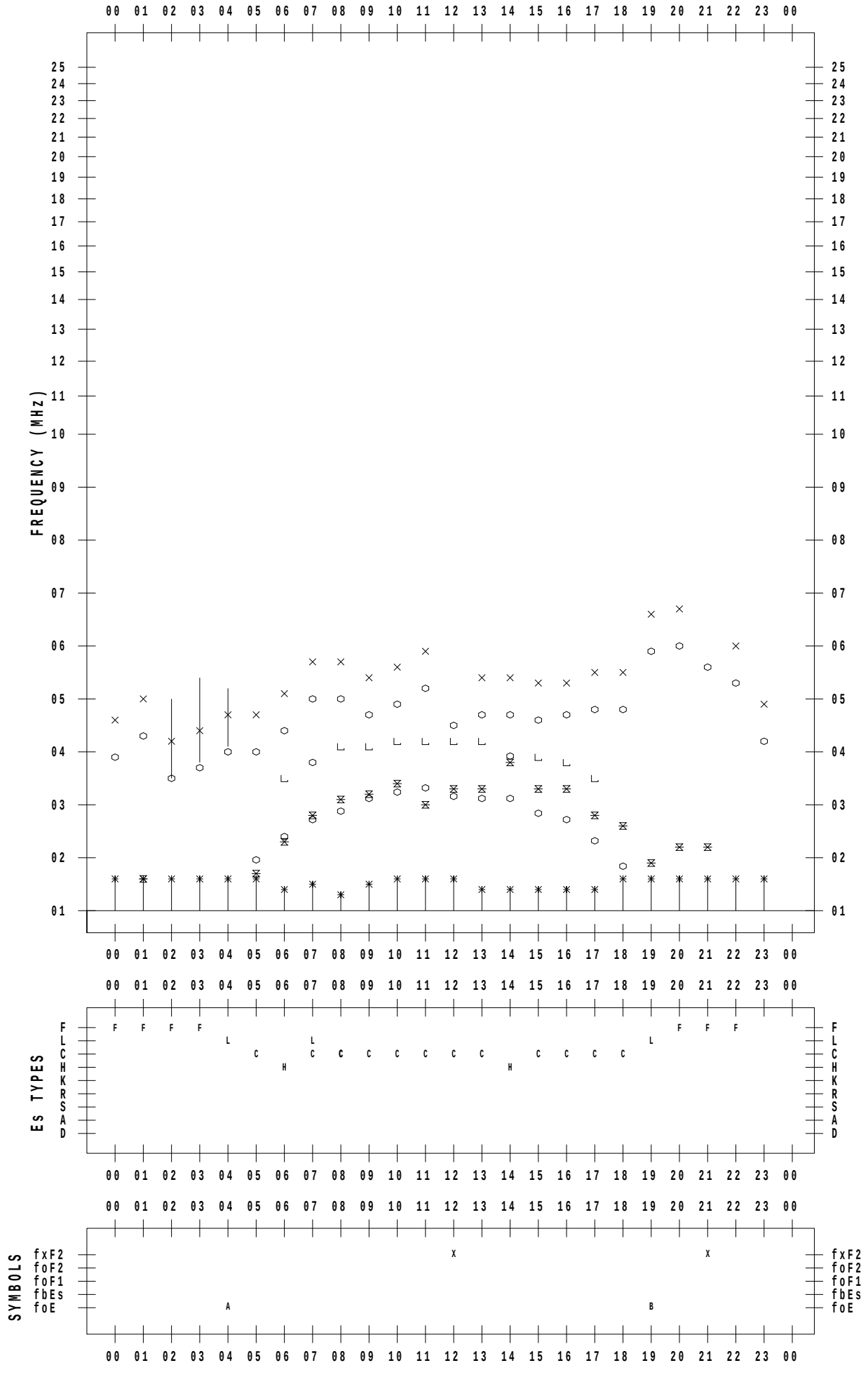
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/ 7

135 °E MEAN TIME



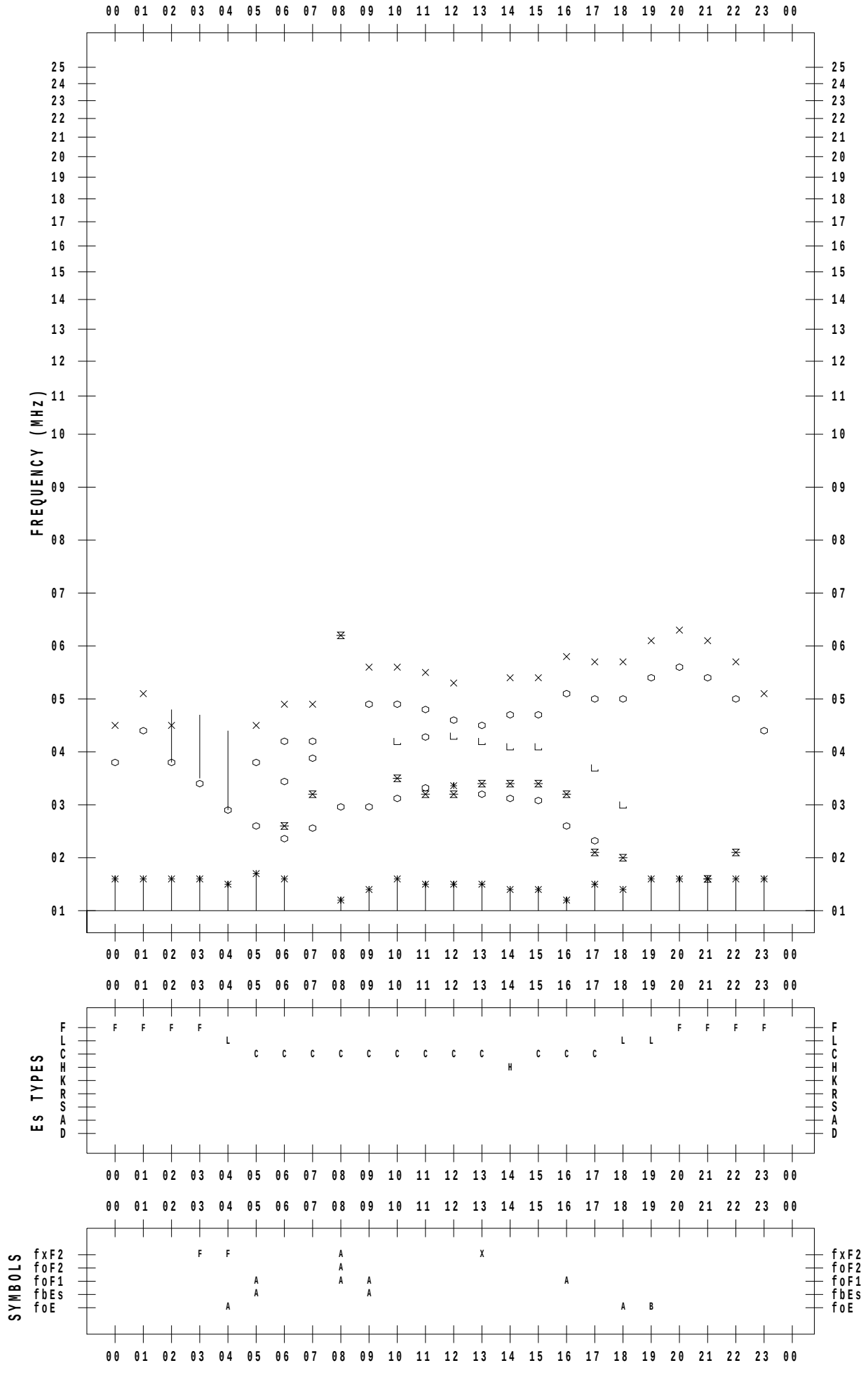
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/ 8

135 °E MEAN TIME



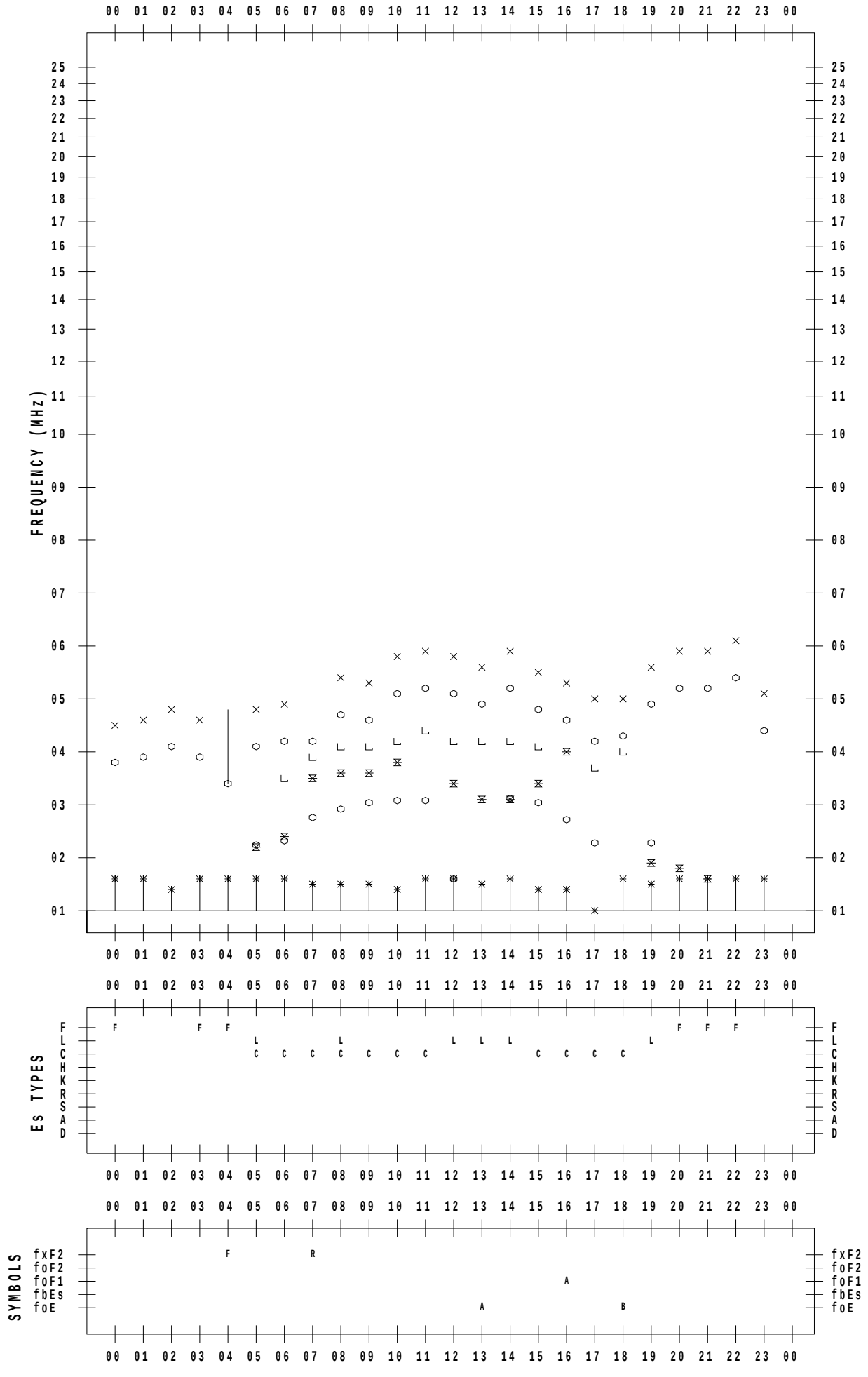
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/ 9

135 °E MEAN TIME



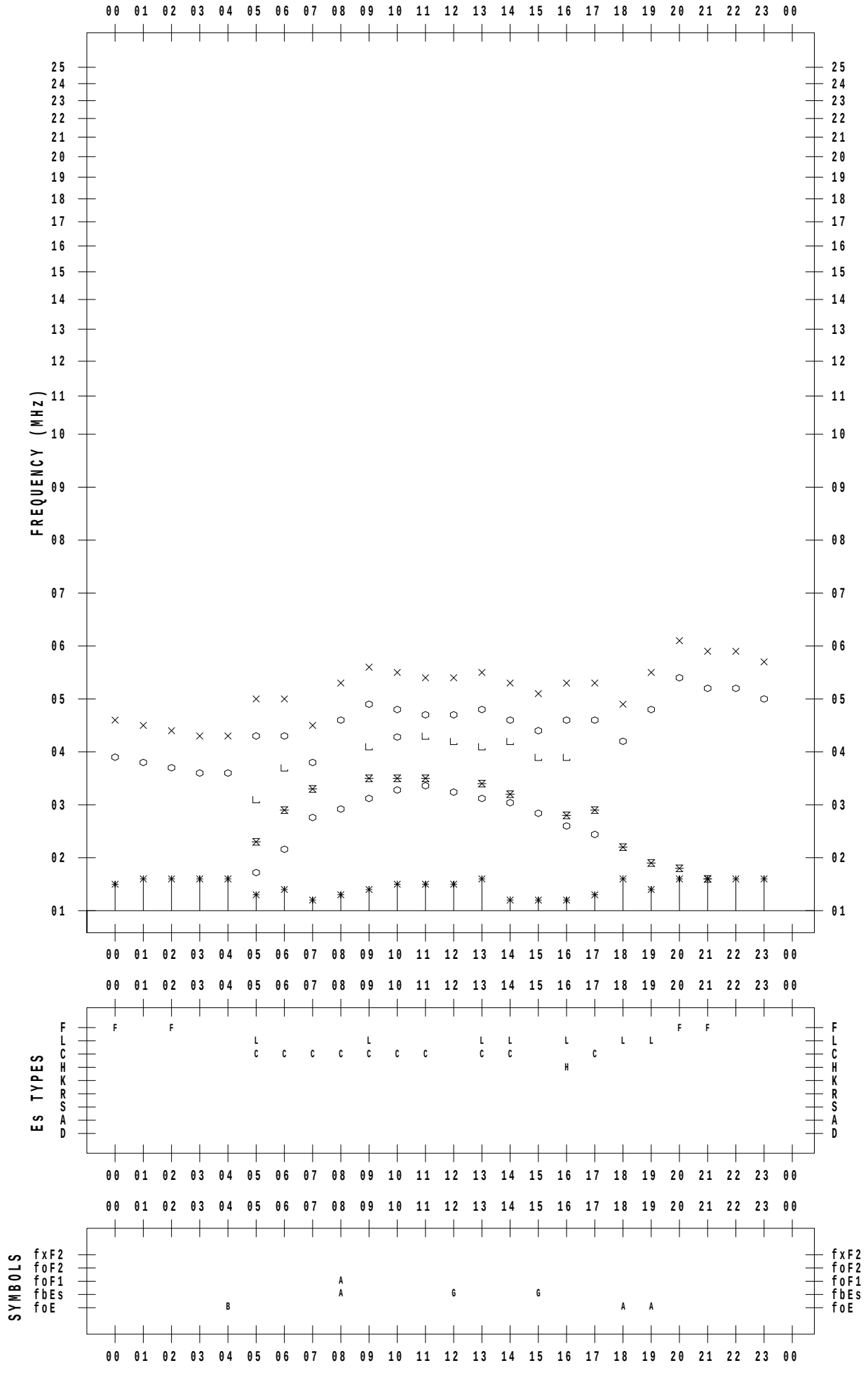
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/10

135 °E MEAN TIME



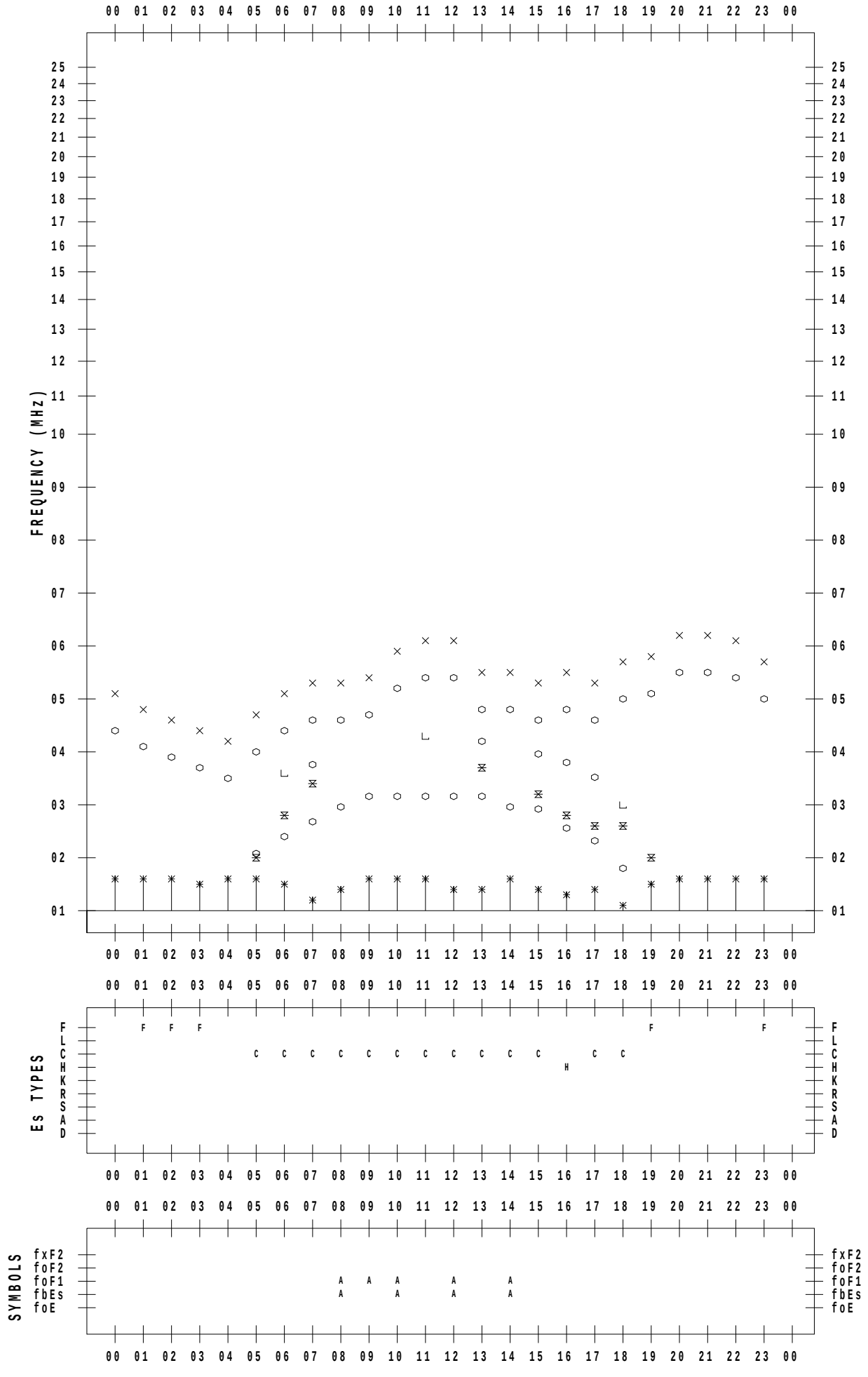
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/11

135 °E MEAN TIME



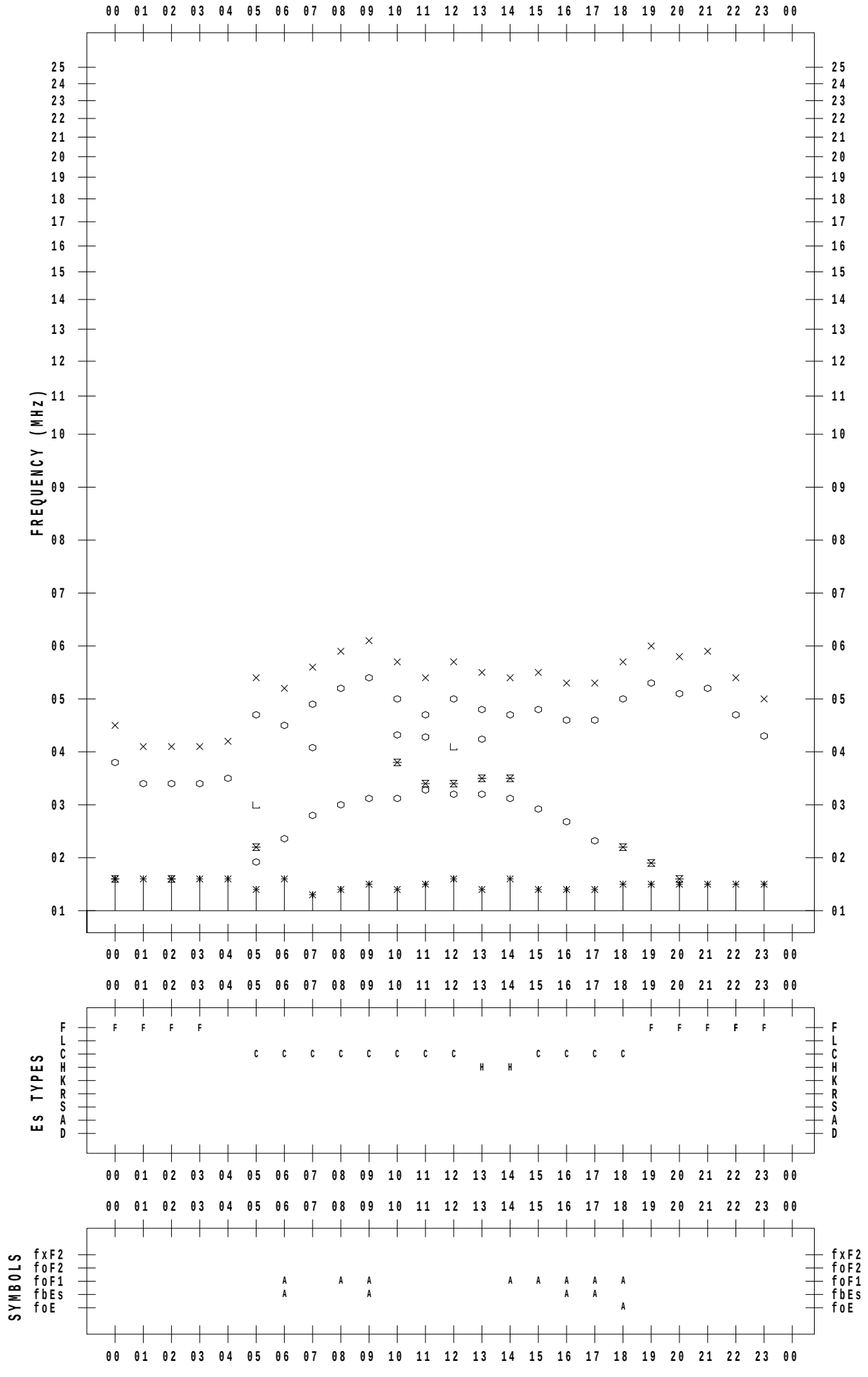
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/12

135 °E MEAN TIME



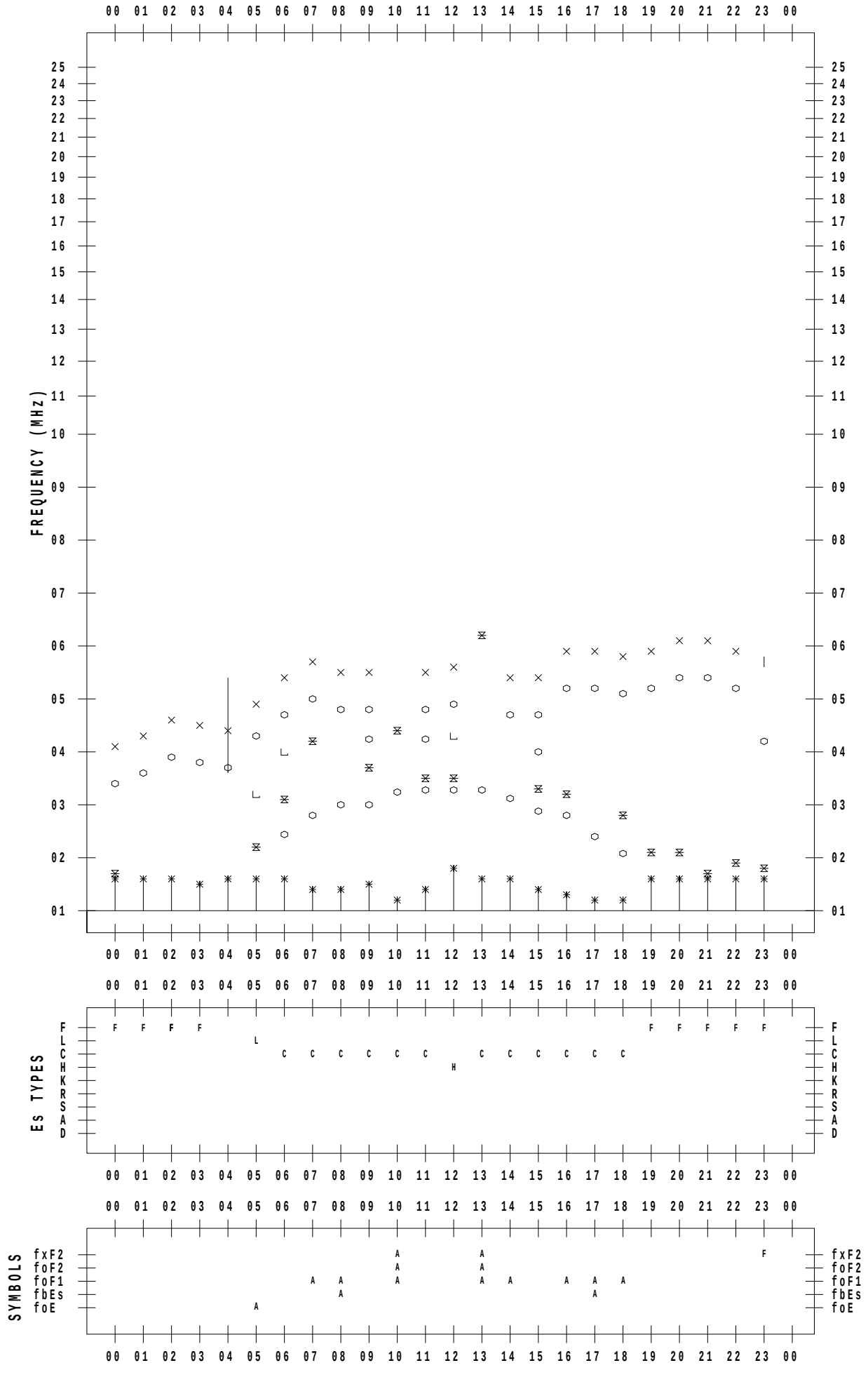
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/13

135 °E MEAN TIME



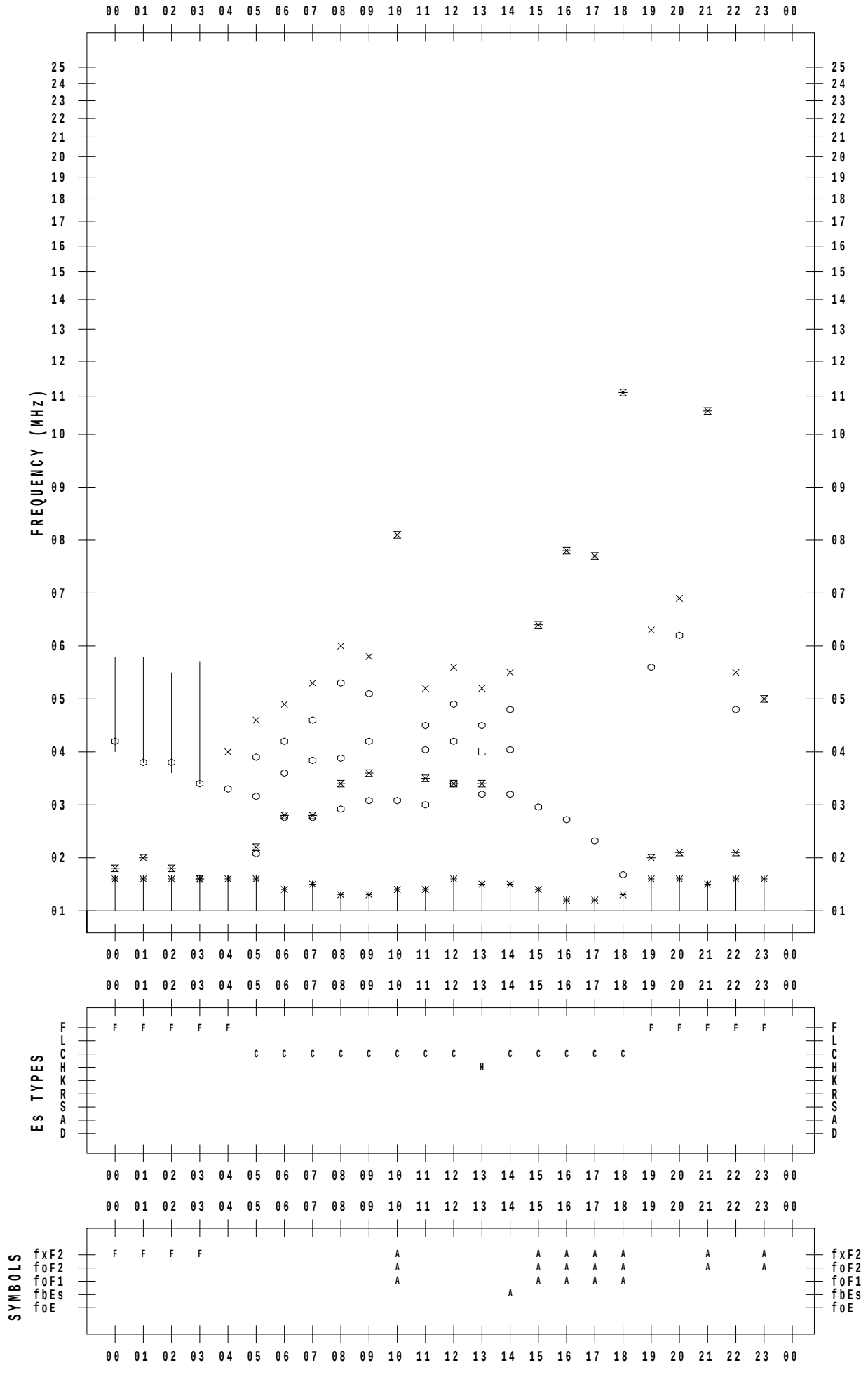
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/14

135 °E MEAN TIME



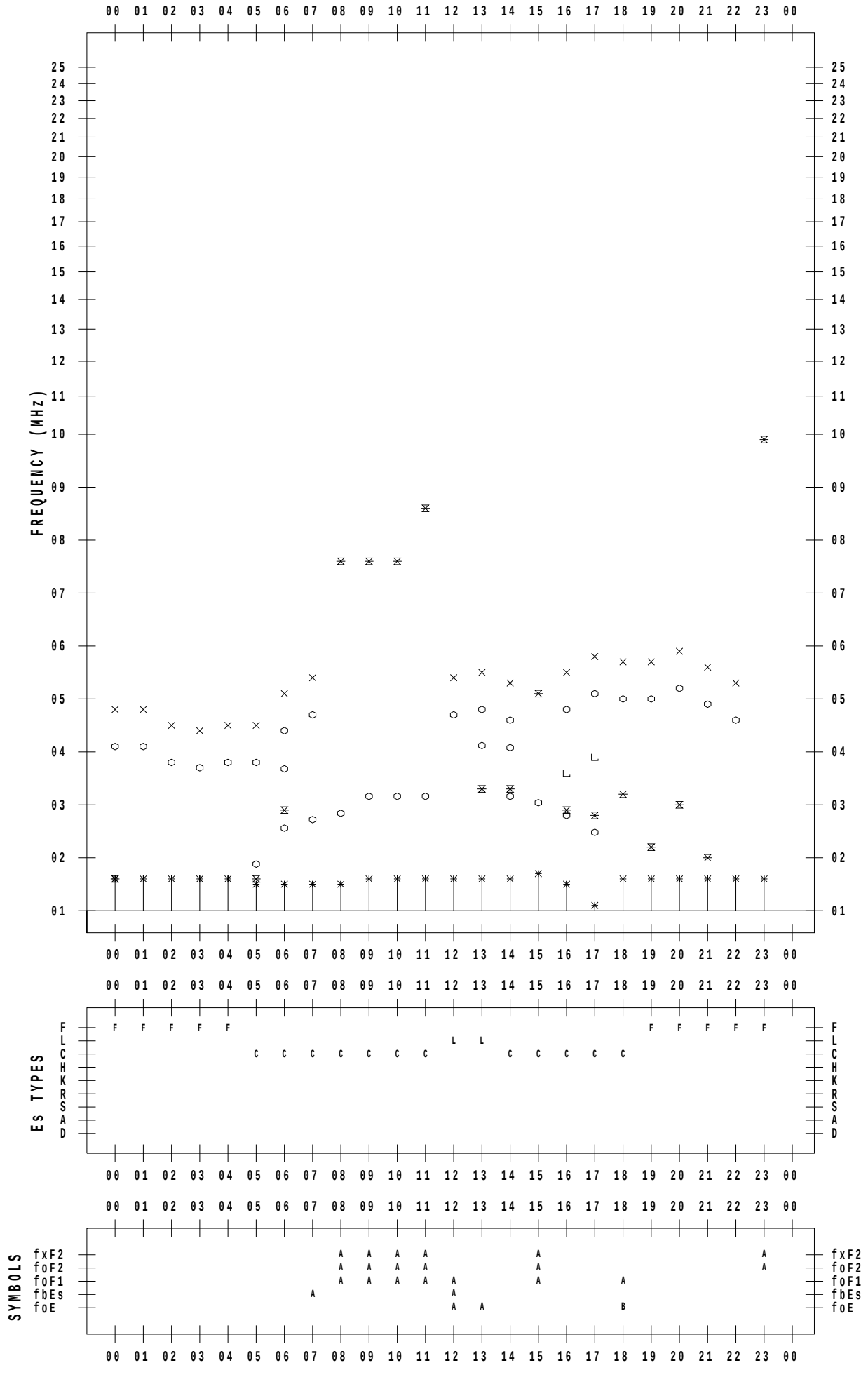
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/15

135 °E MEAN TIME



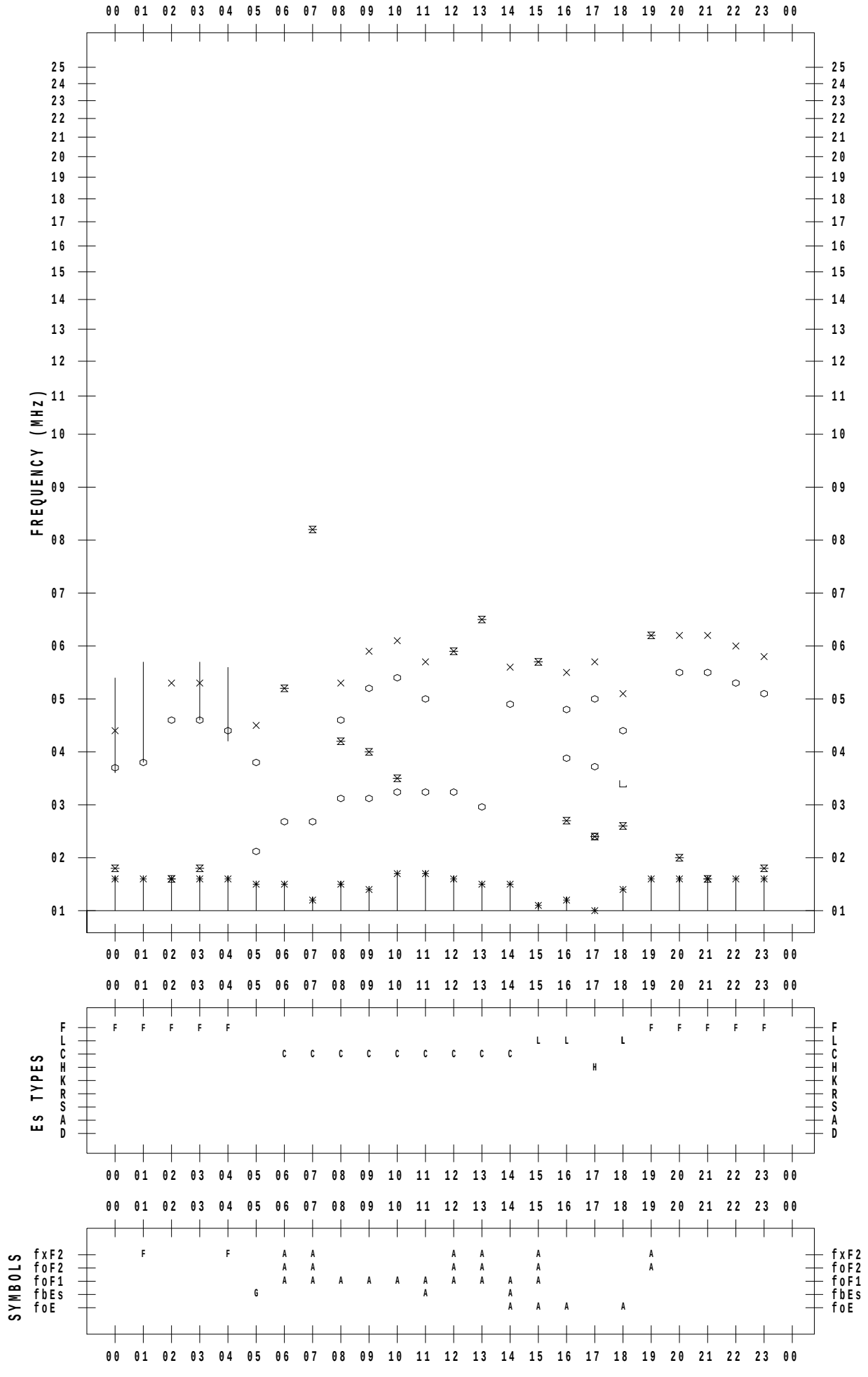
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/16

135 °E MEAN TIME



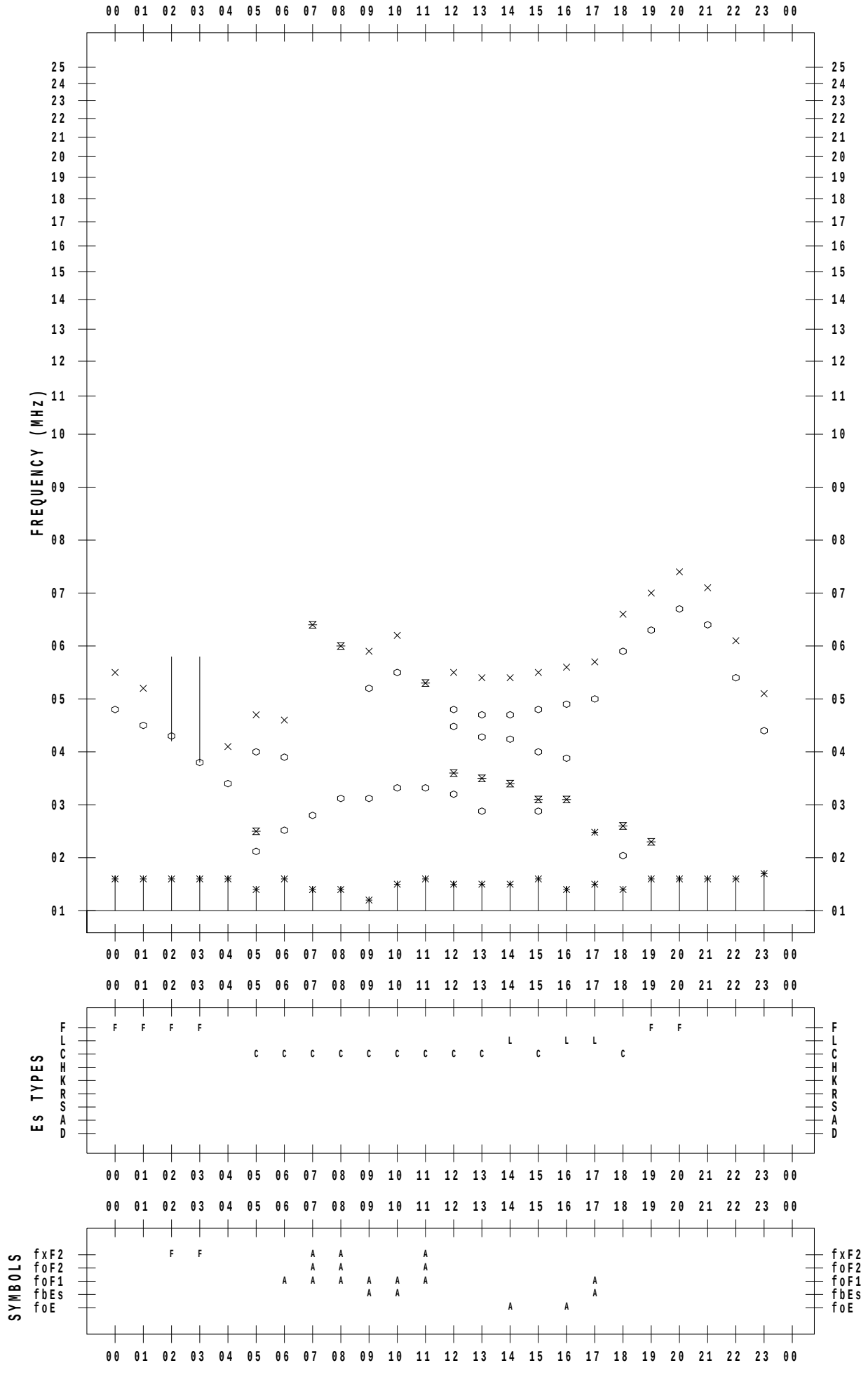
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/17

135 °E MEAN TIME



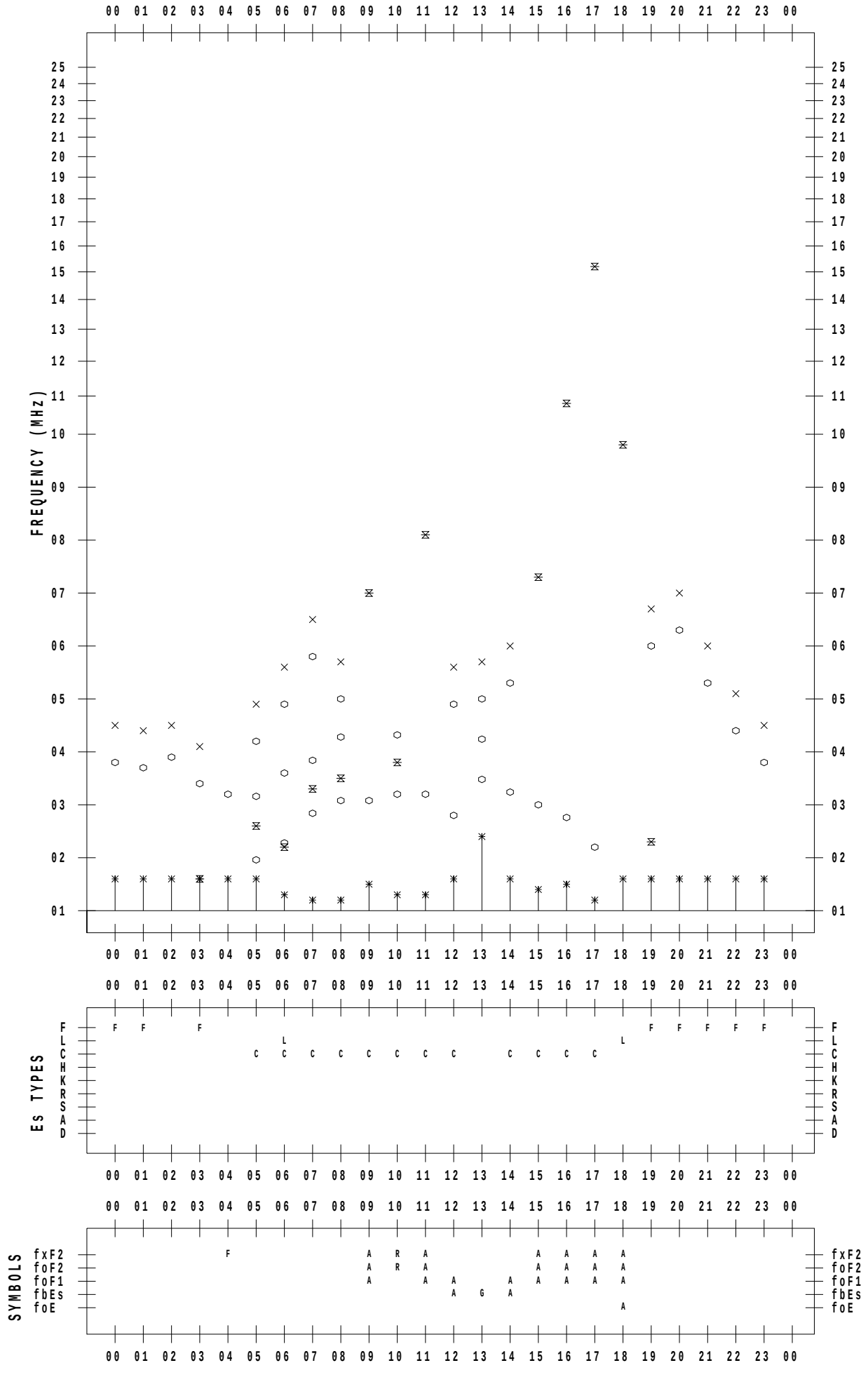
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/18

135 °E MEAN TIME



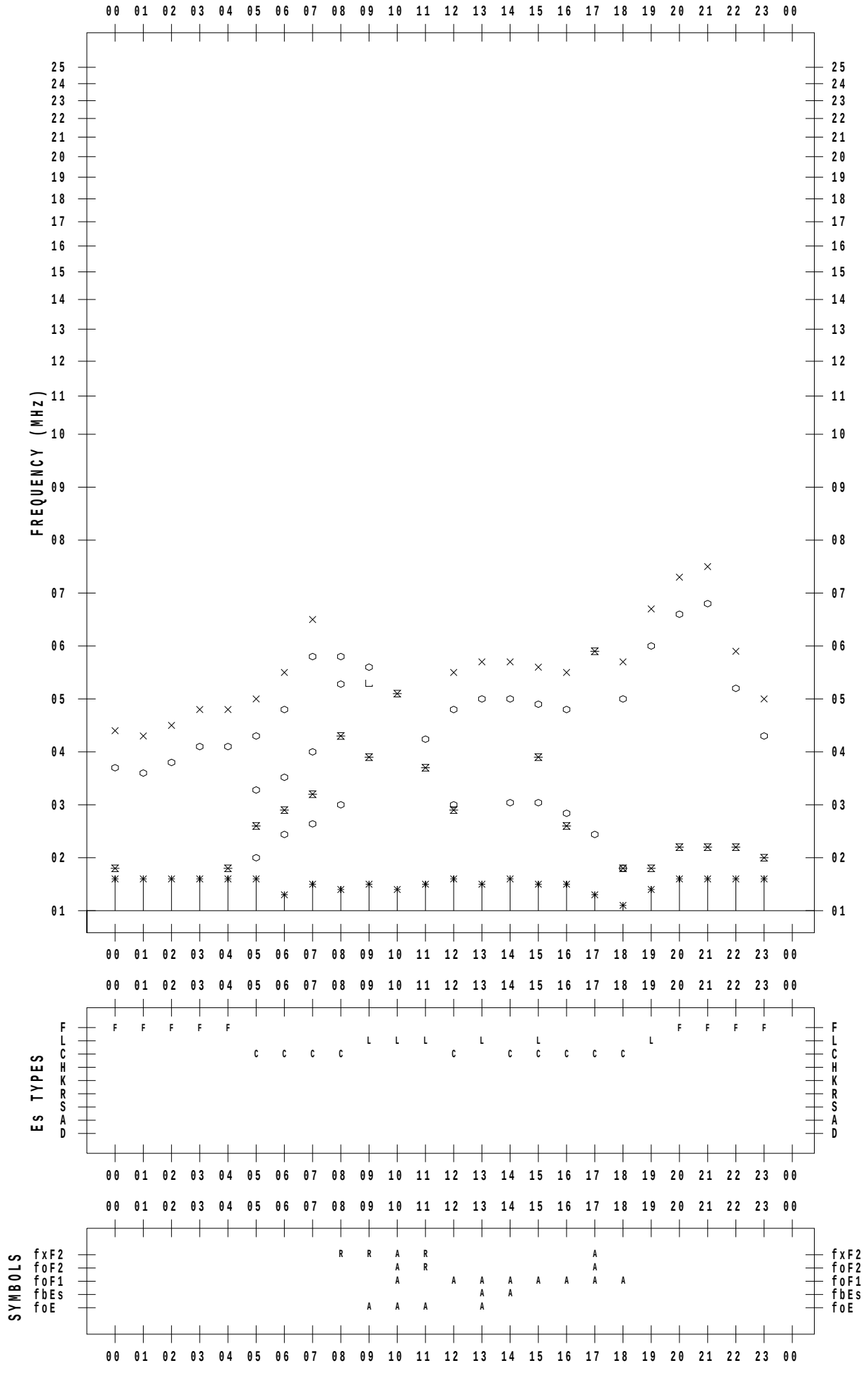
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/19

135 °E MEAN TIME



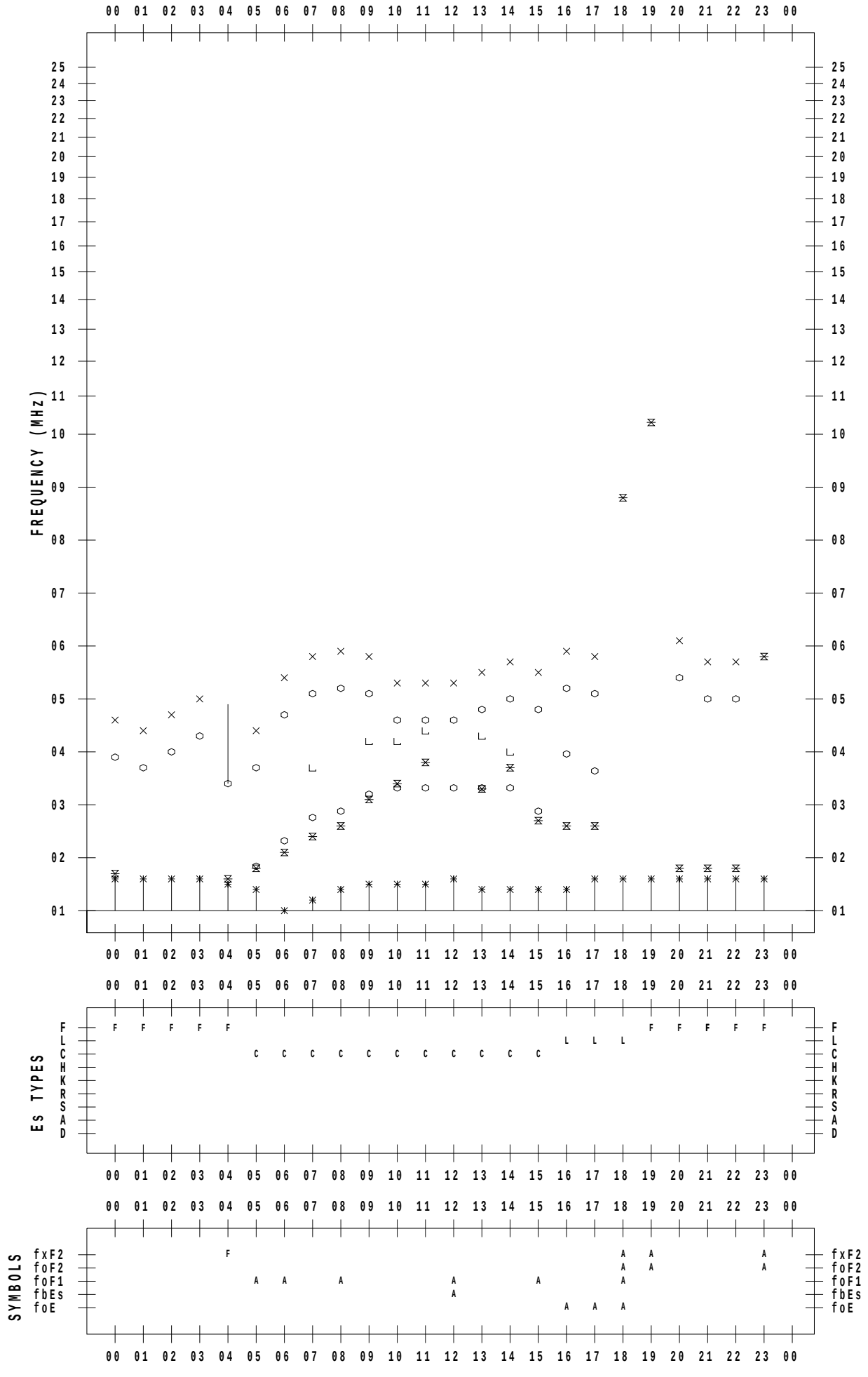
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/20

135 °E MEAN TIME



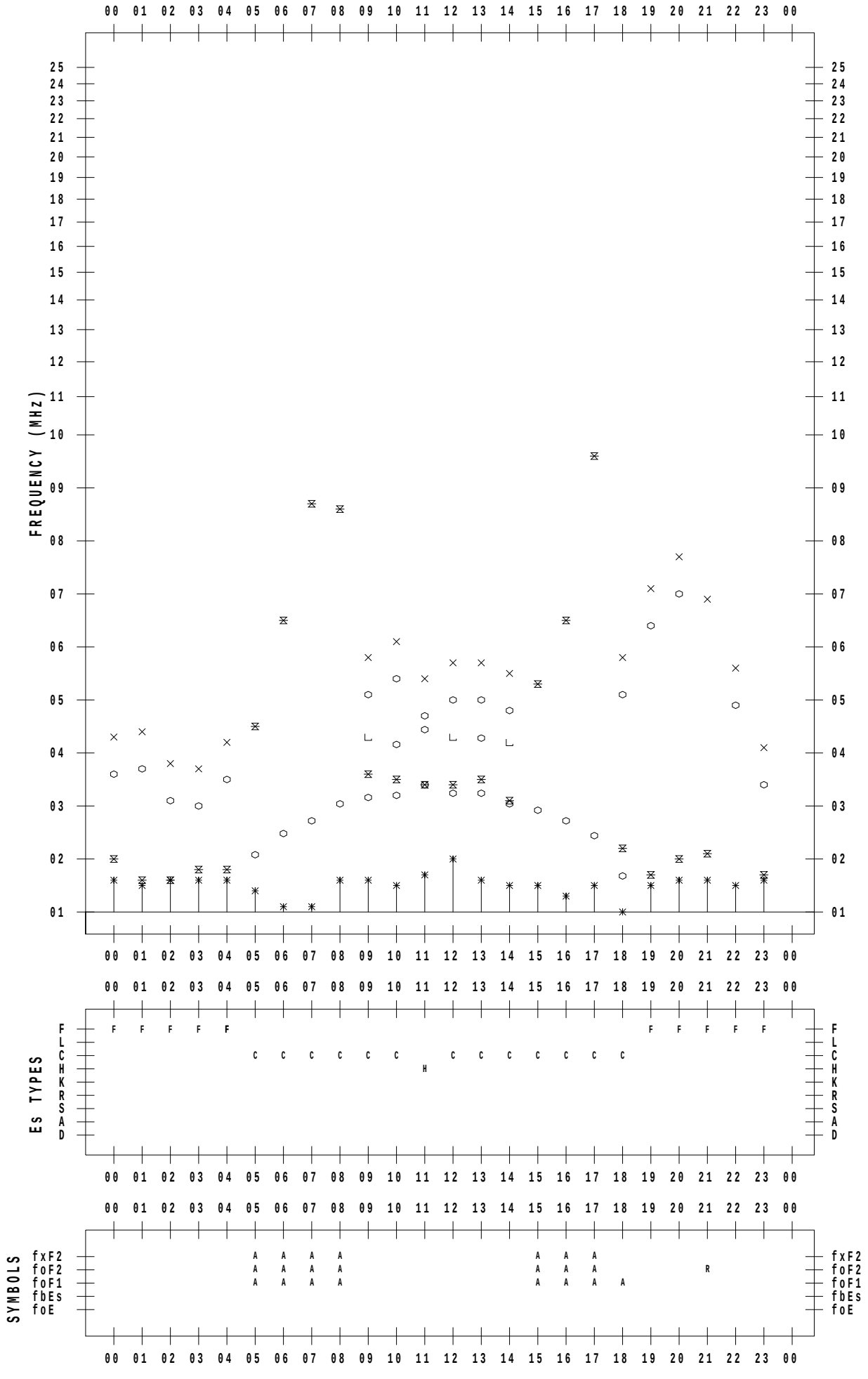
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/21

135 °E MEAN TIME



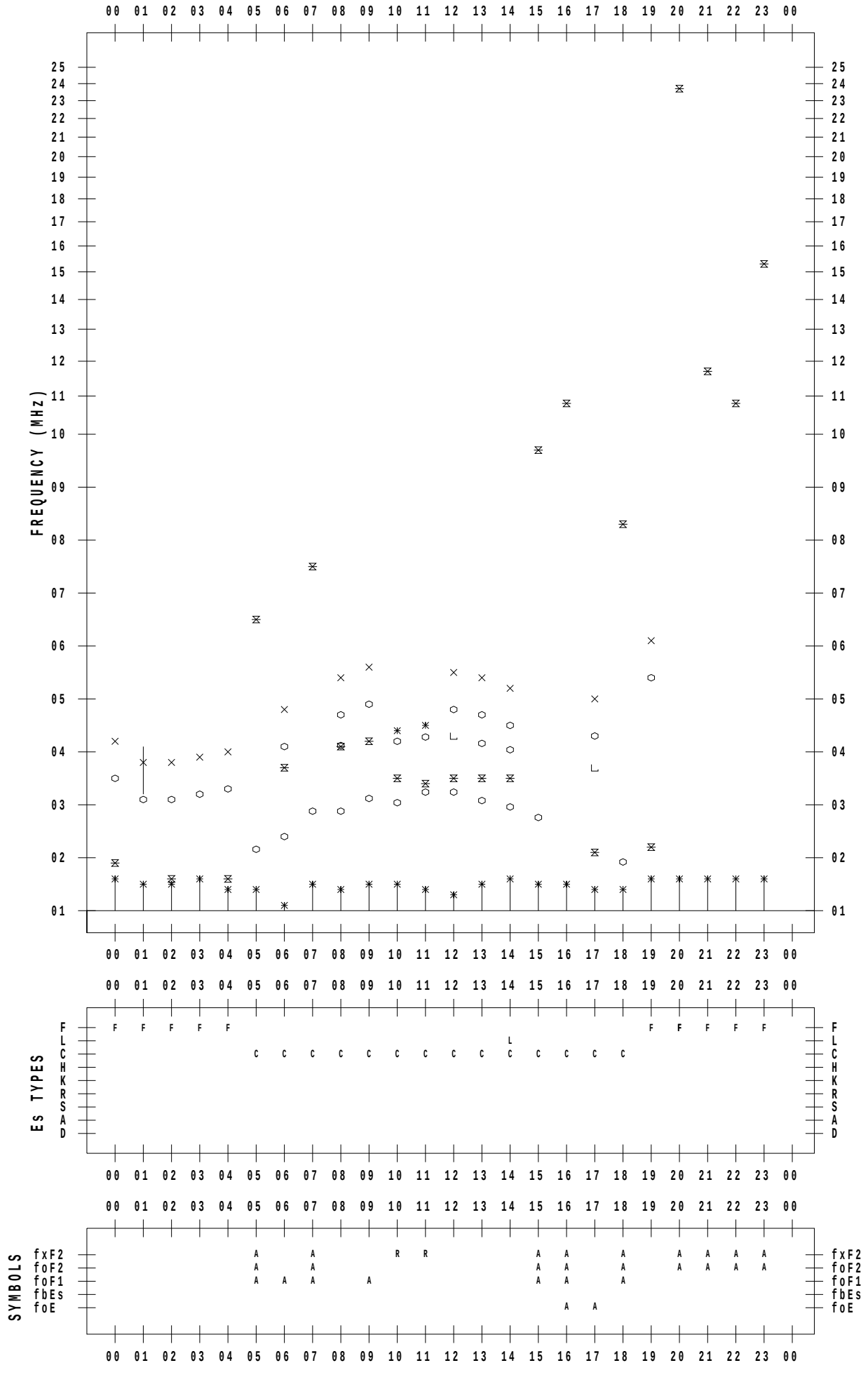
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/22

135 °E MEAN TIME



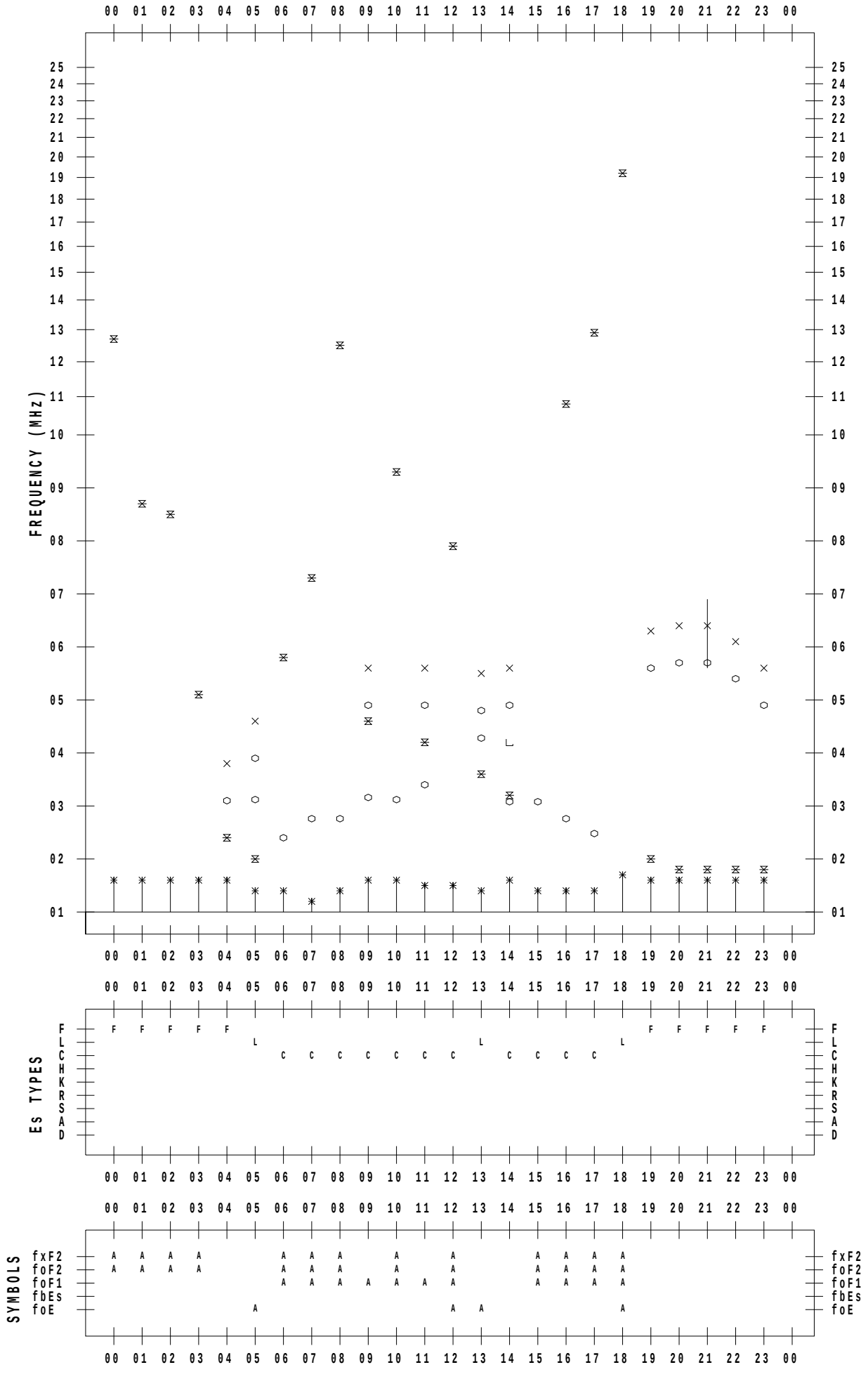
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/23

135 °E MEAN TIME



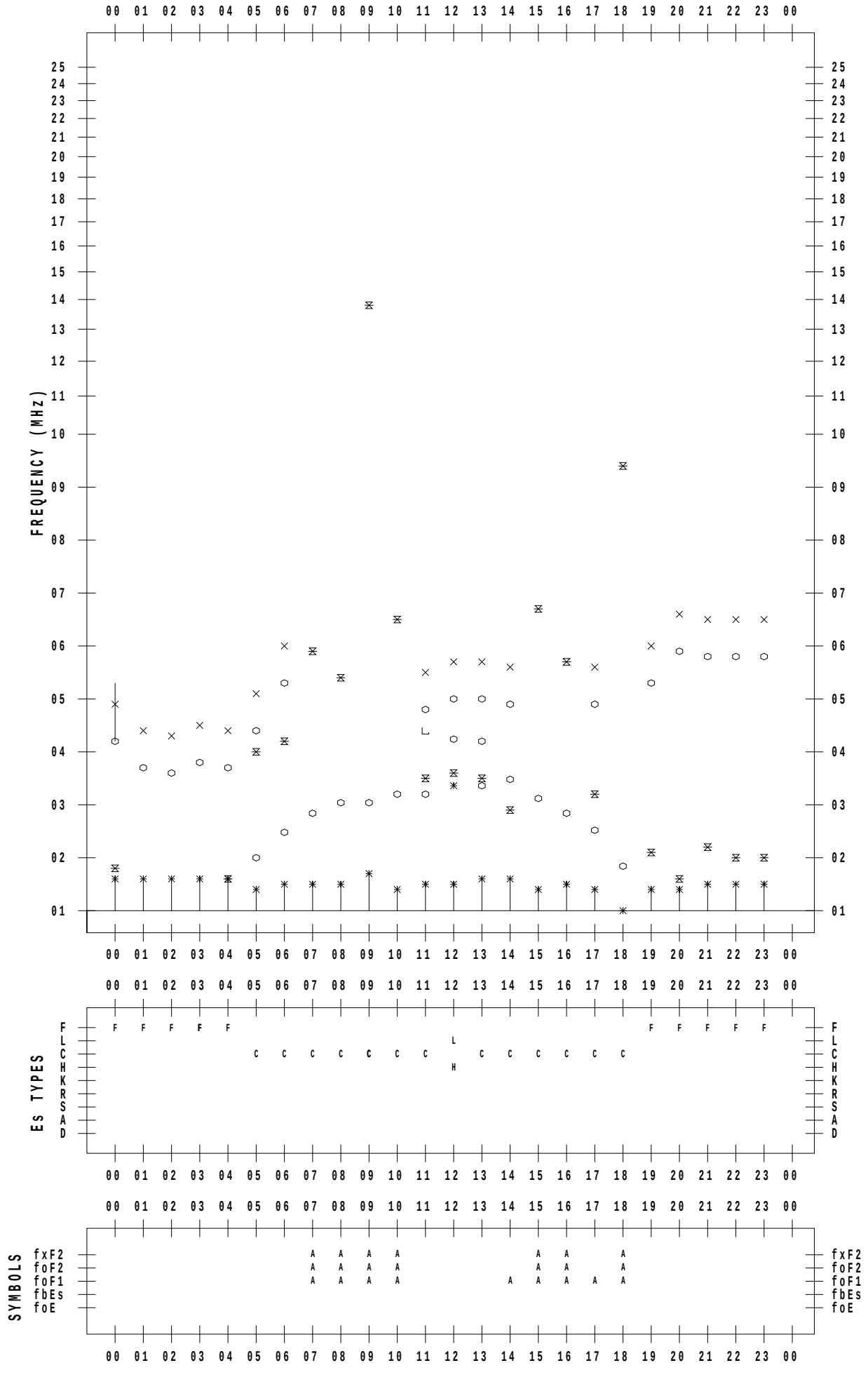
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/24

135 °E MEAN TIME



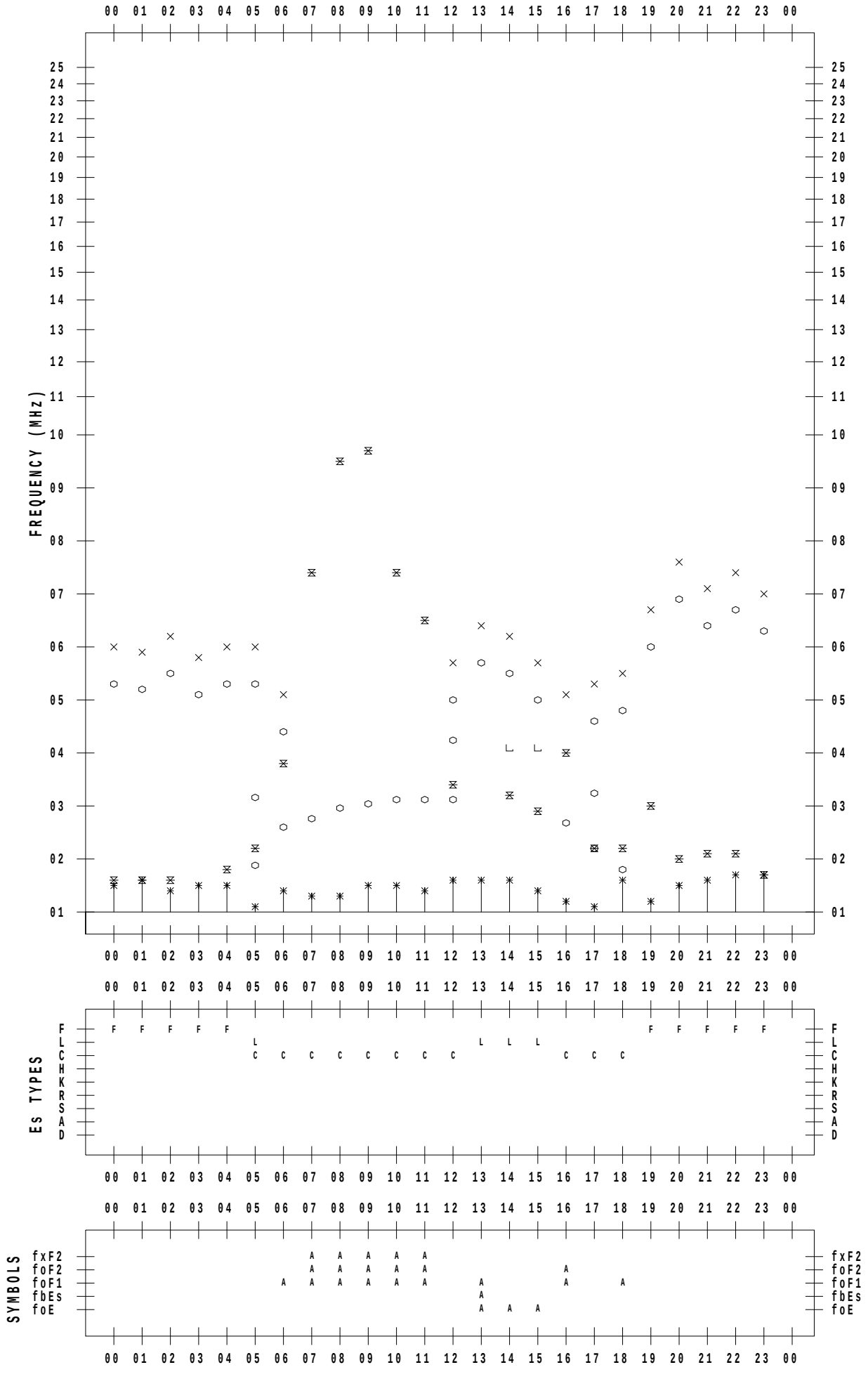
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/25

135 °E MEAN TIME



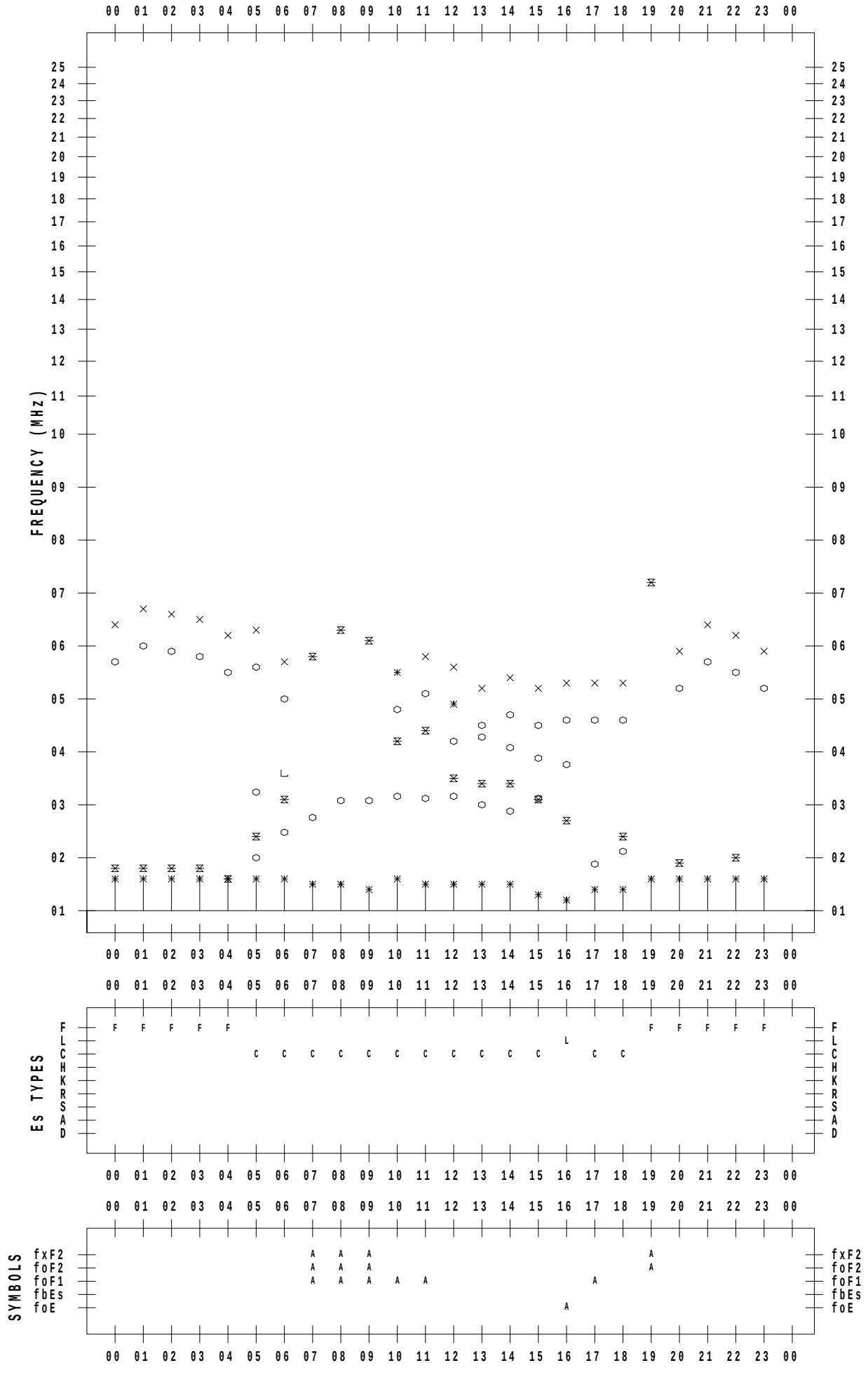
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/26

135 °E MEAN TIME



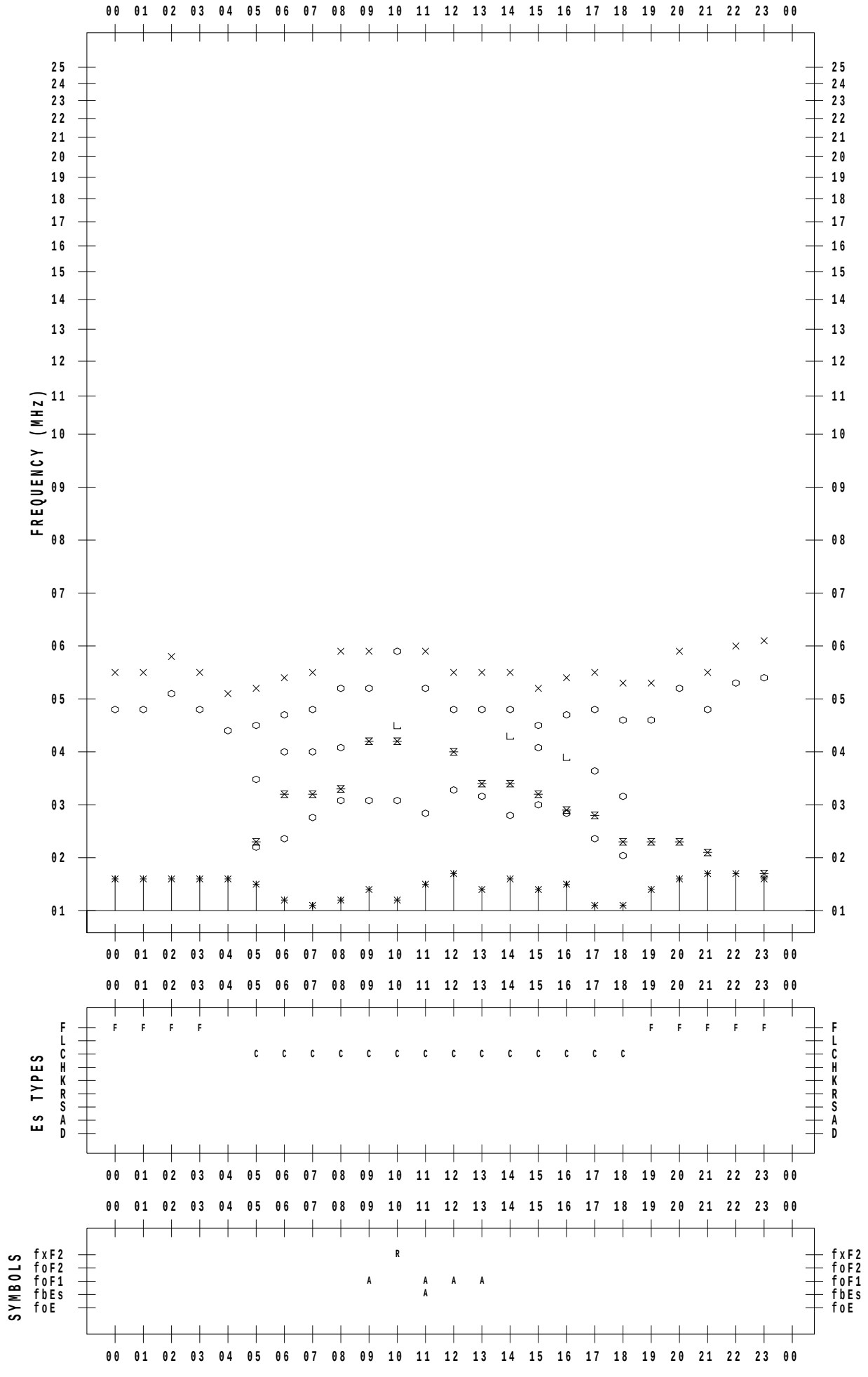
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/27

135 °E MEAN TIME



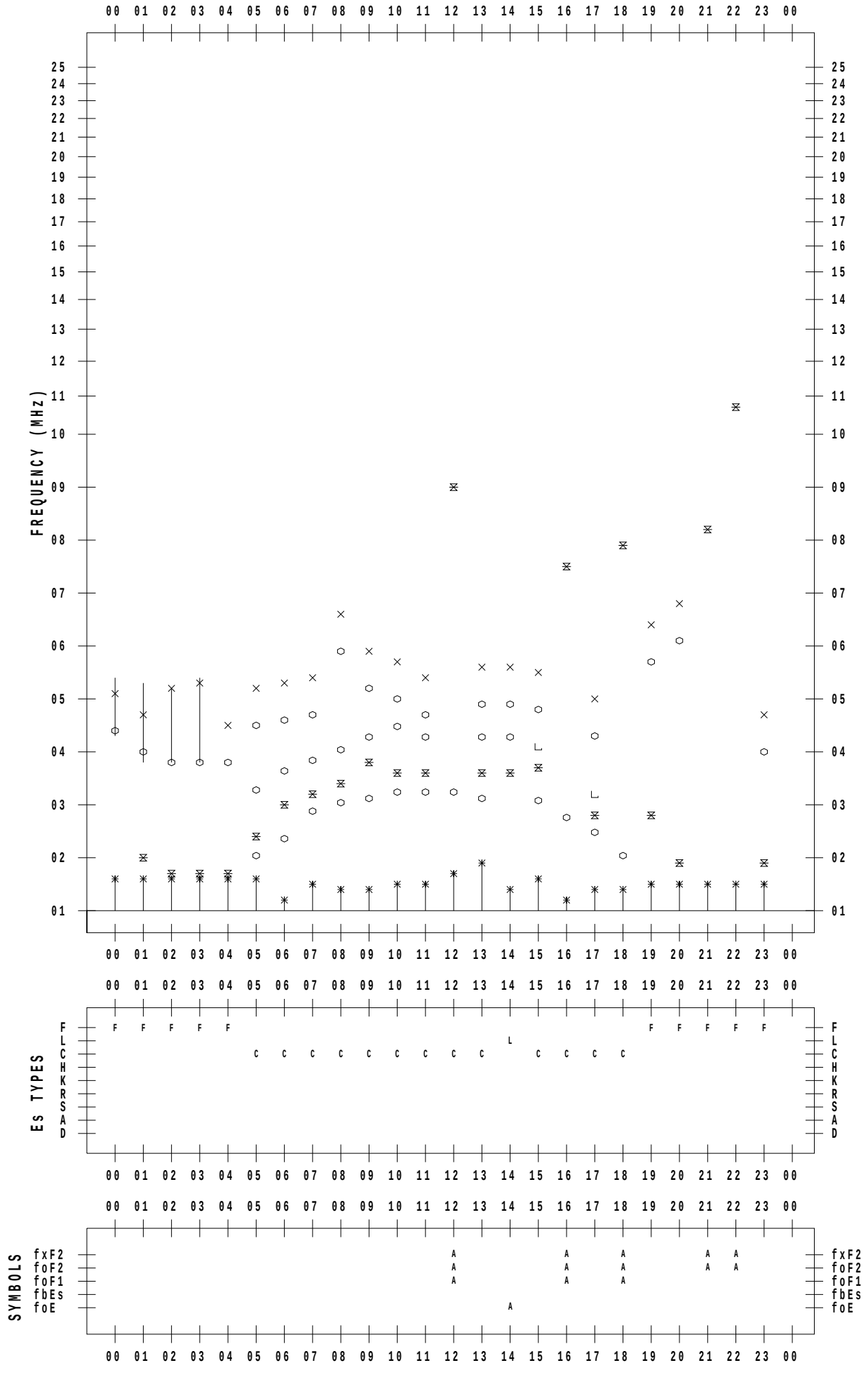
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/28

135 °E MEAN TIME



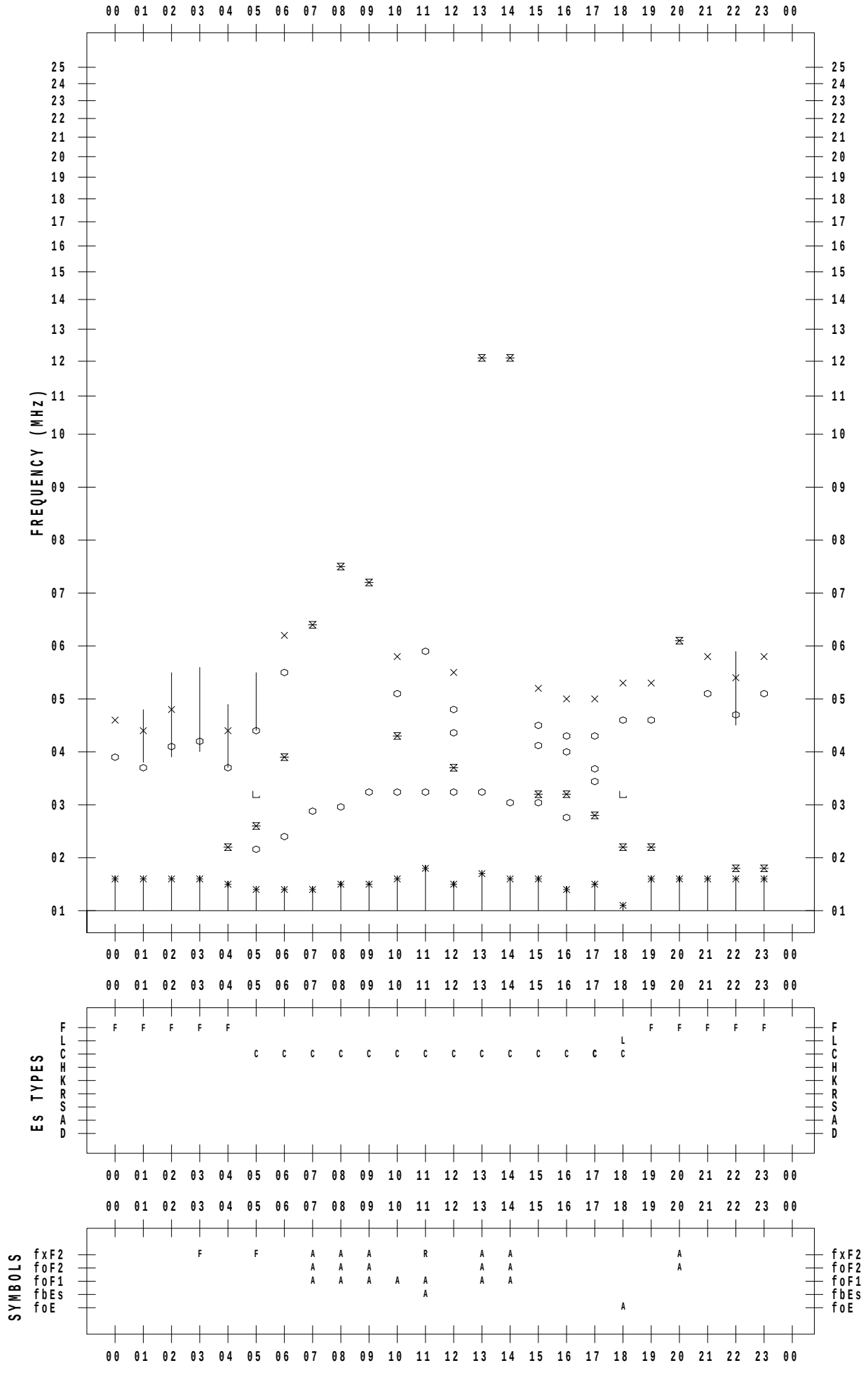
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/29

135 °E MEAN TIME



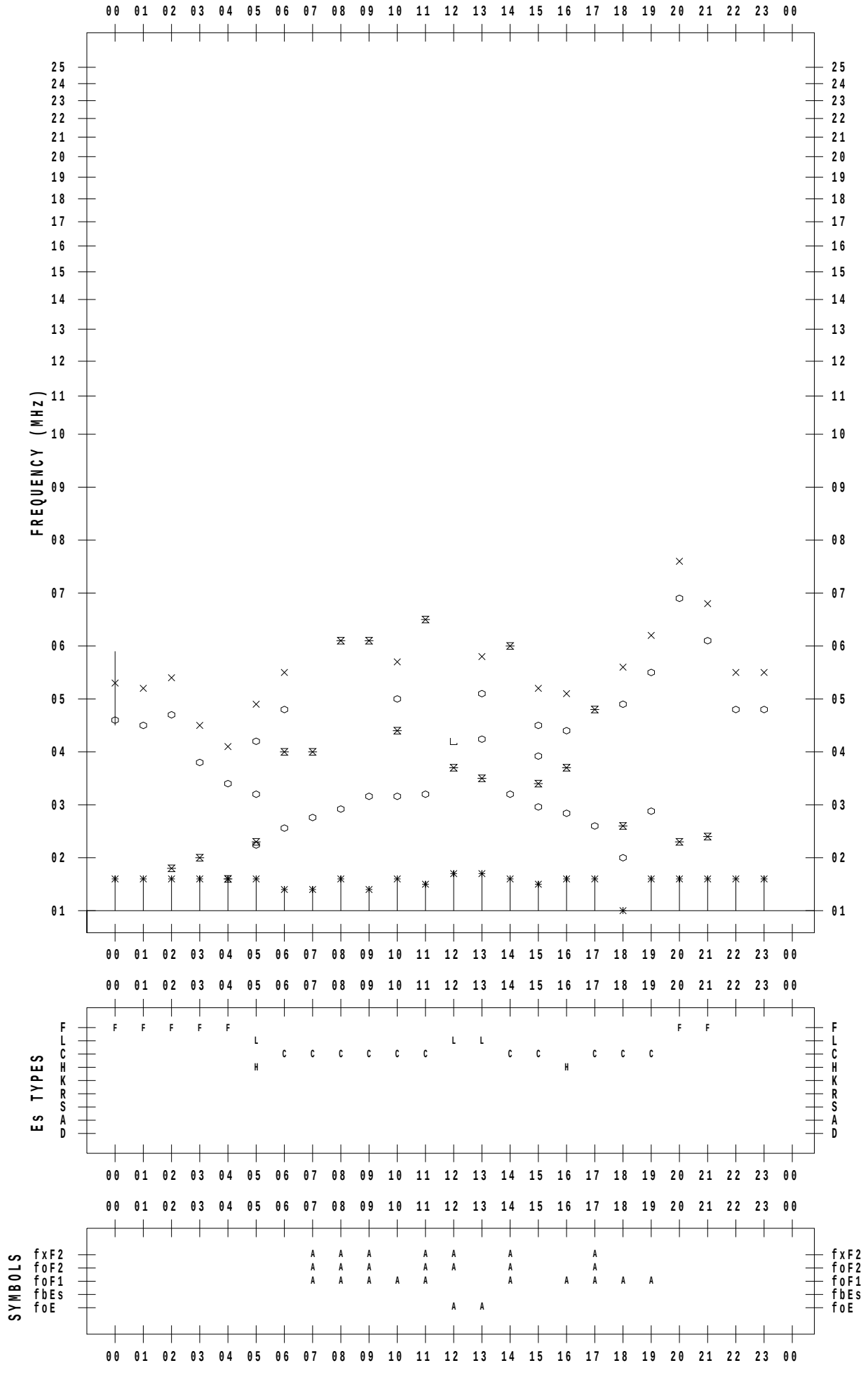
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/30

135 °E MEAN TIME



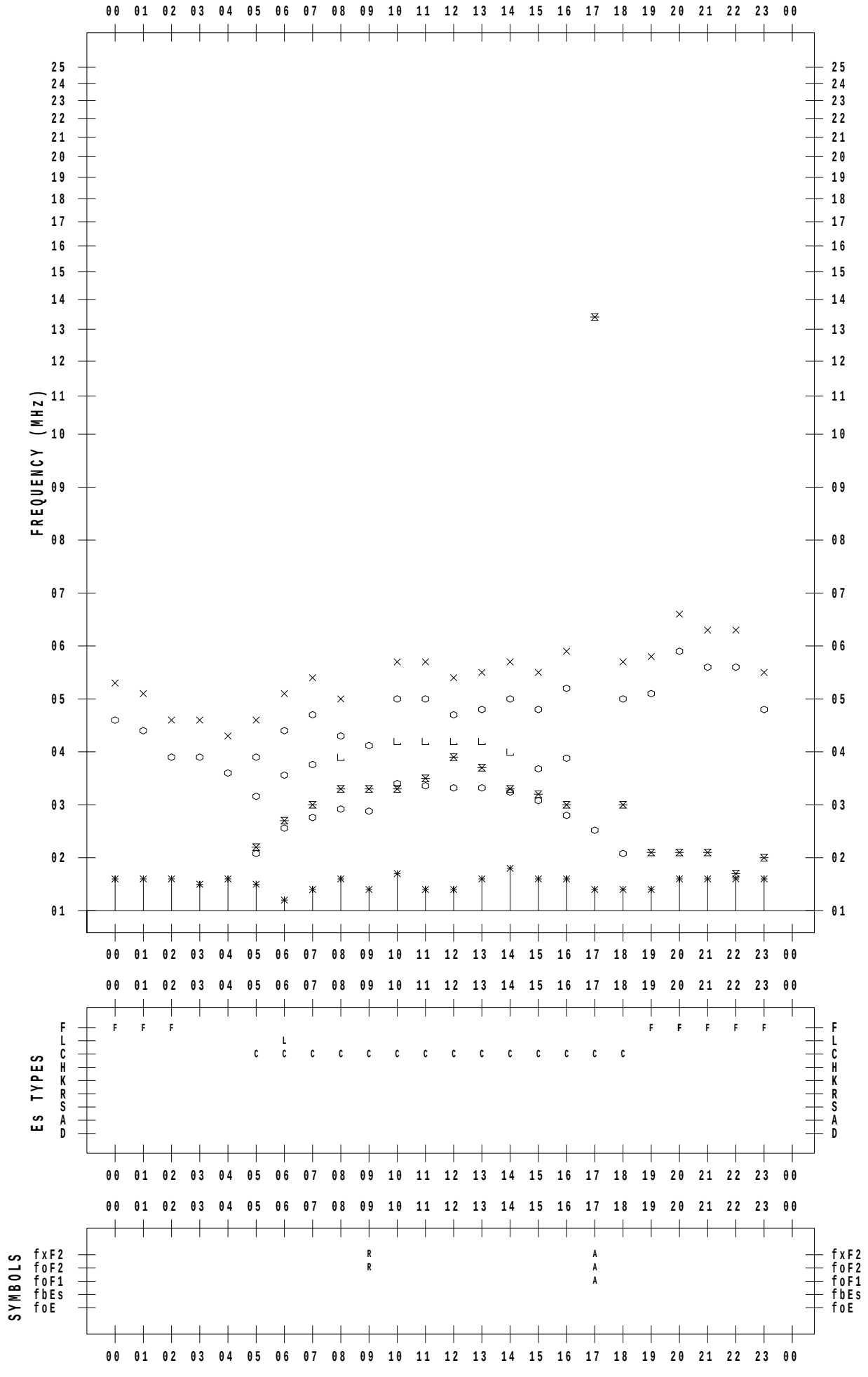
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/ 5/31

135 °E MEAN TIME



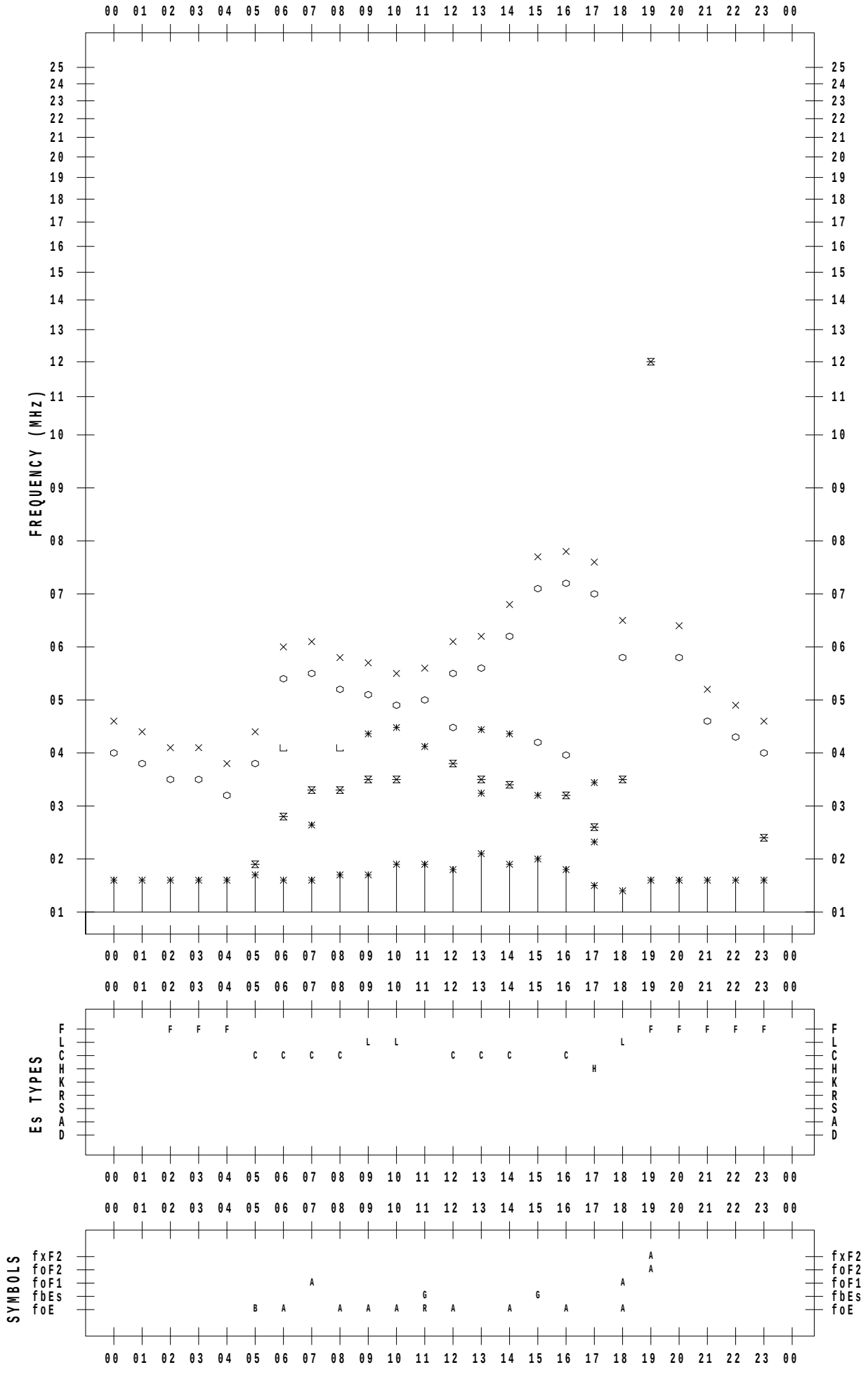
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/ 1

135 °E MEAN TIME



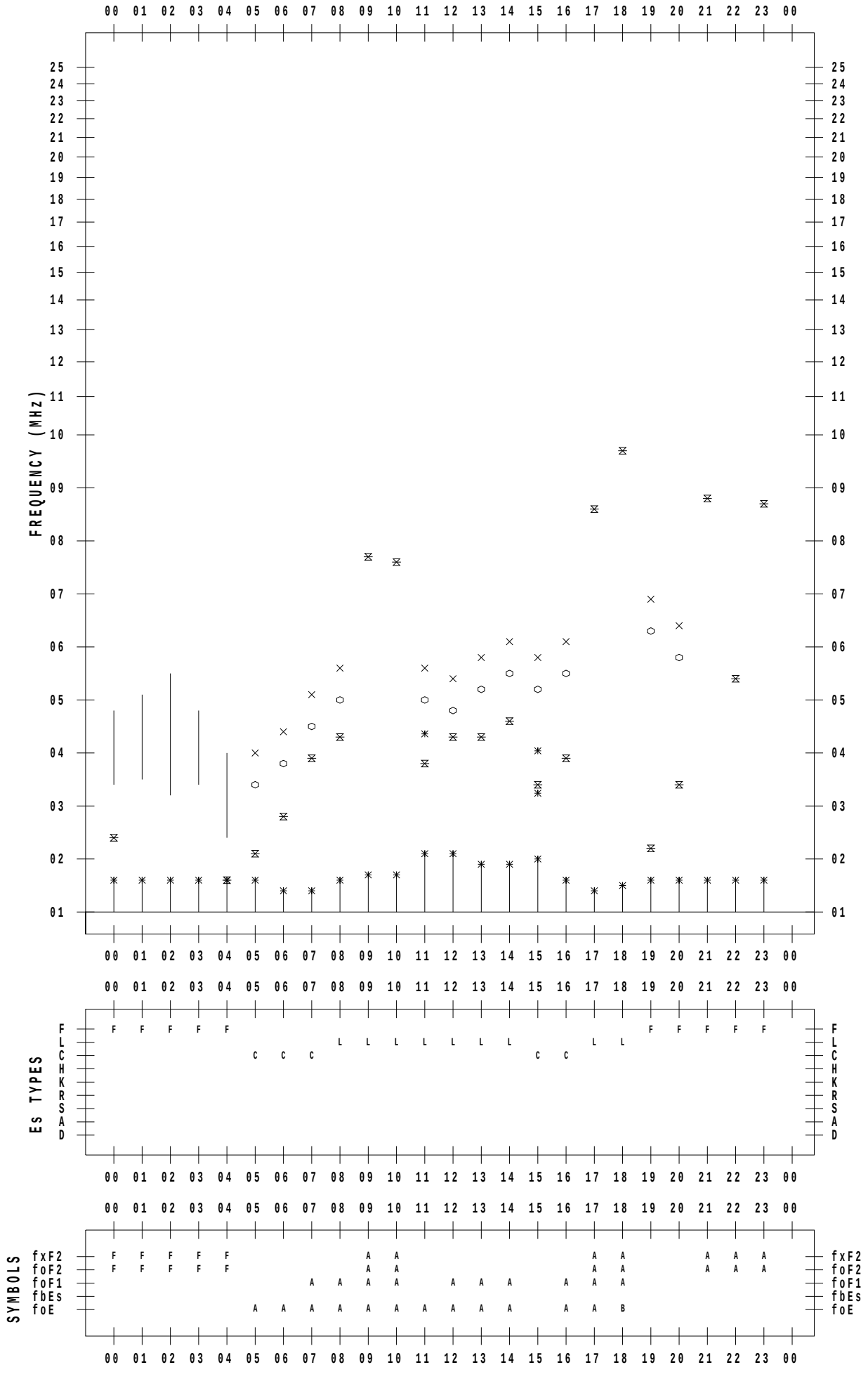
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/ 2

135 °E MEAN TIME



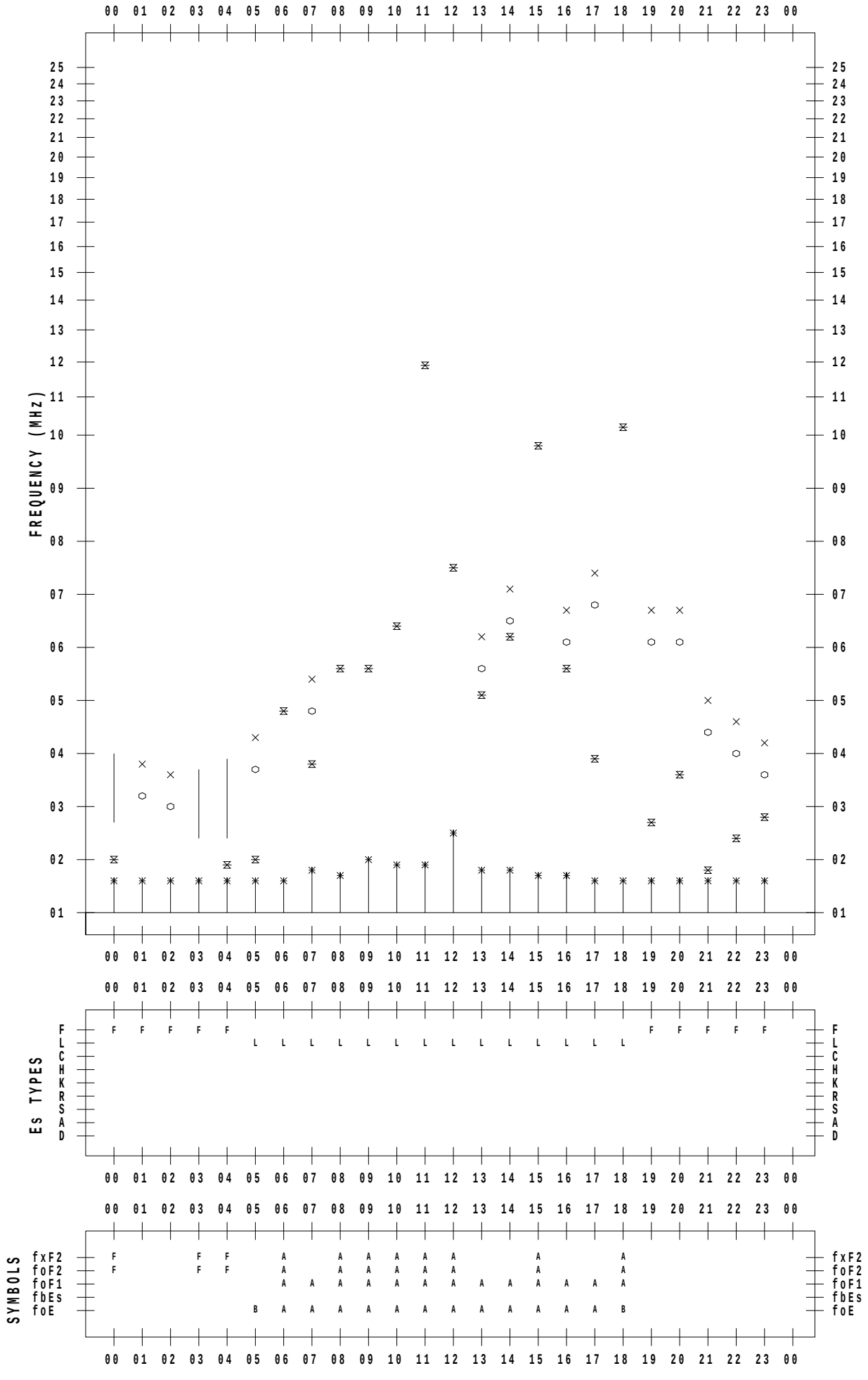
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/ 3

135 °E MEAN TIME



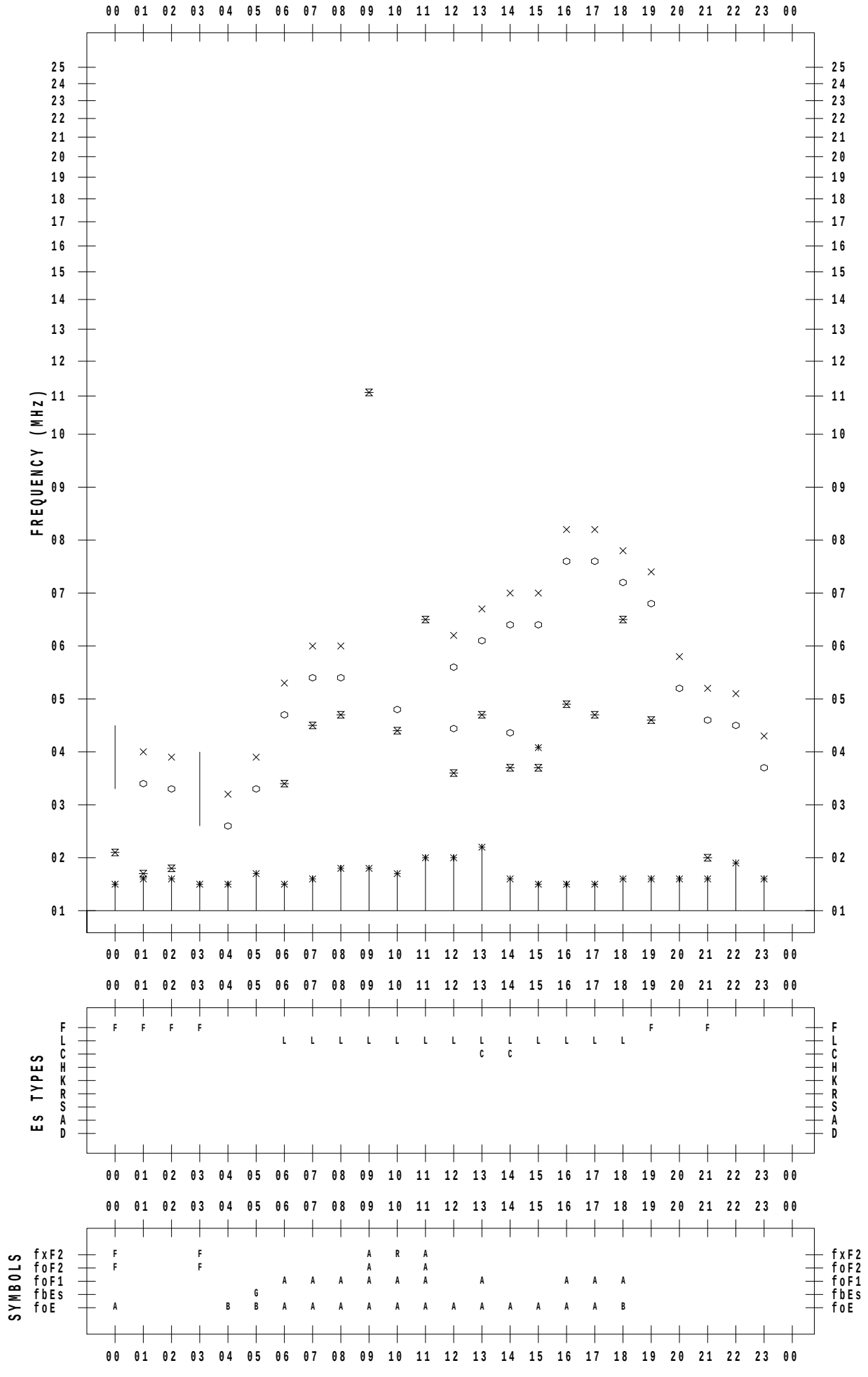
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/ 4

135 °E MEAN TIME



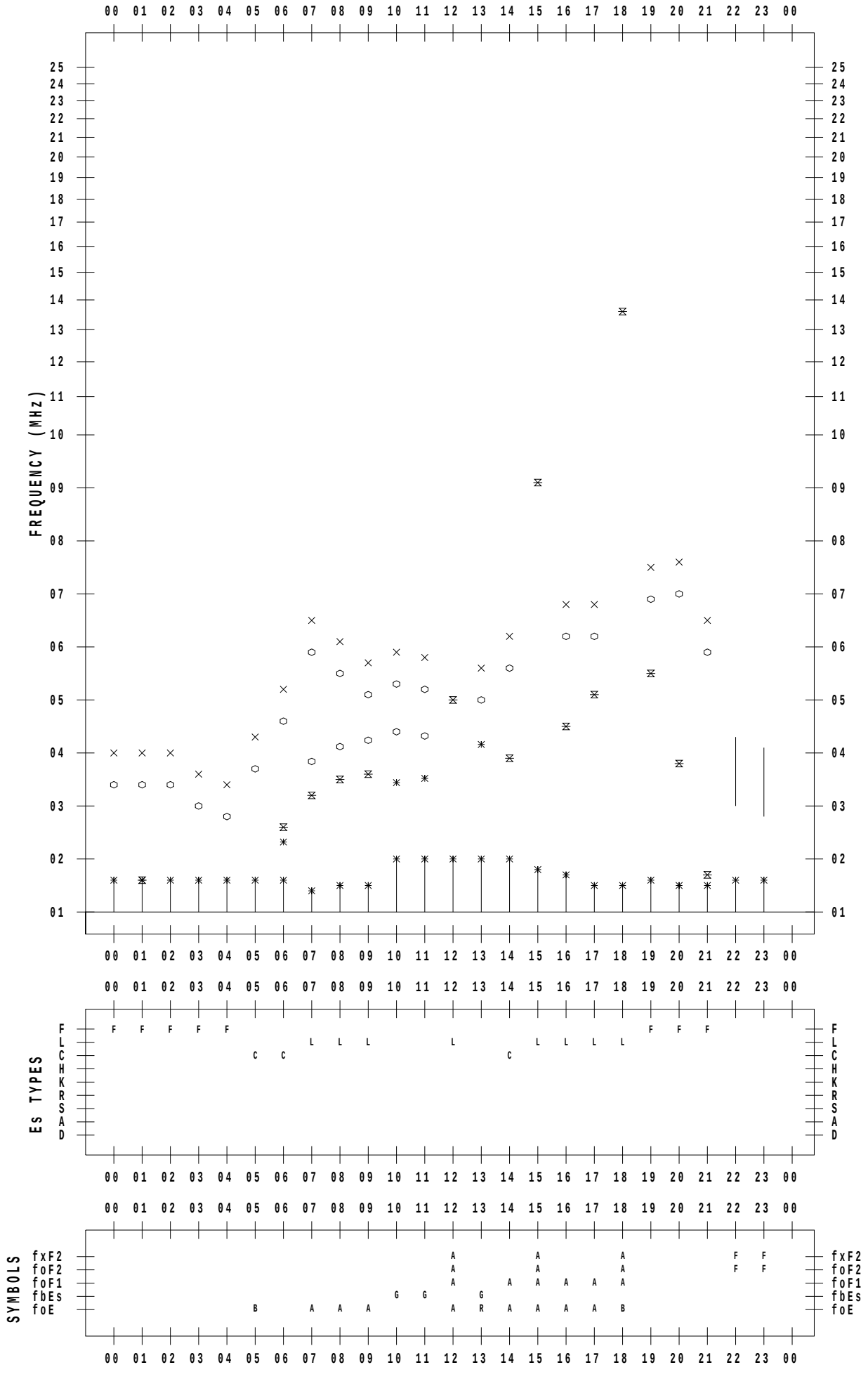
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/ 5

135 °E MEAN TIME



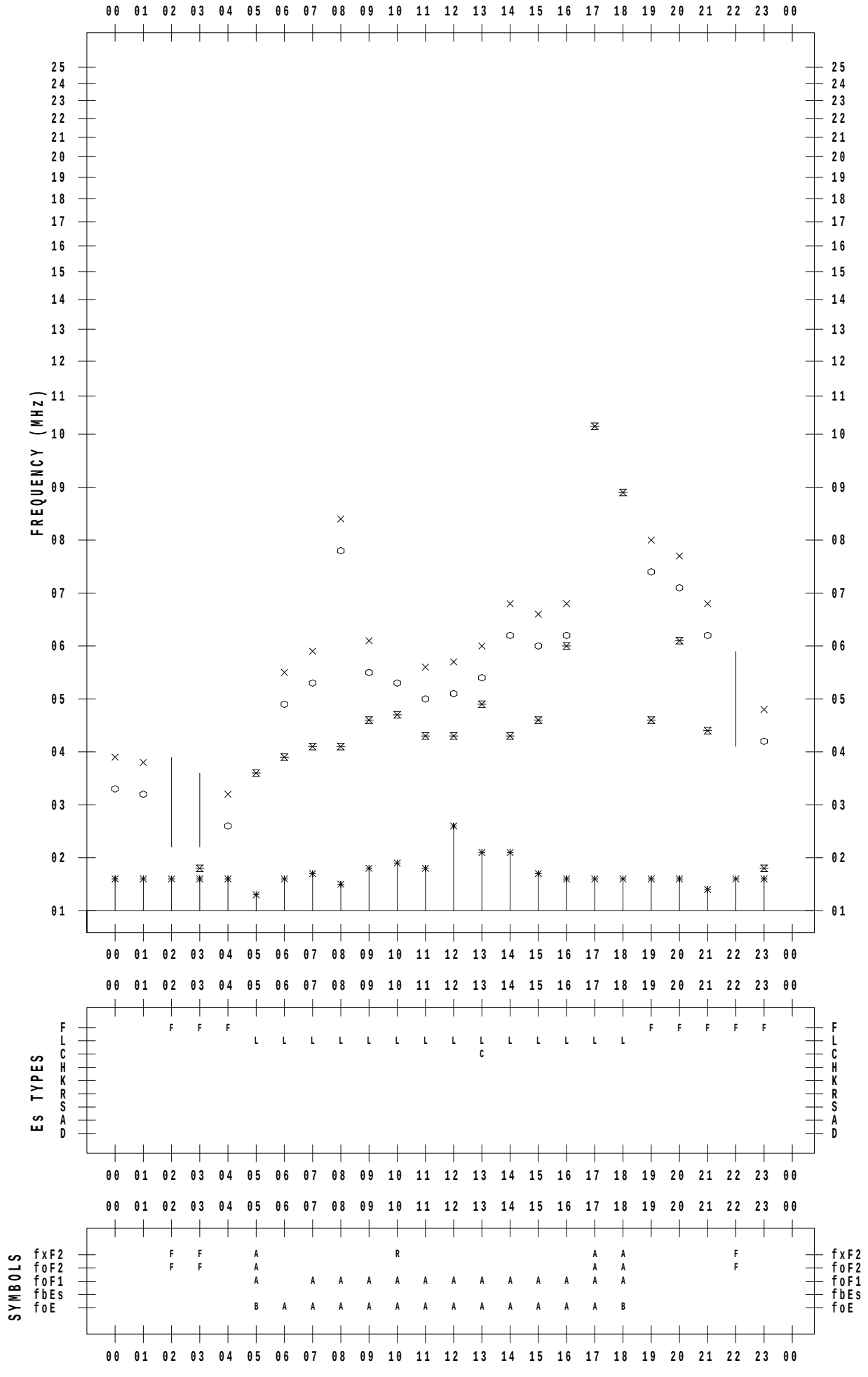
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/ 6

135 °E MEAN TIME



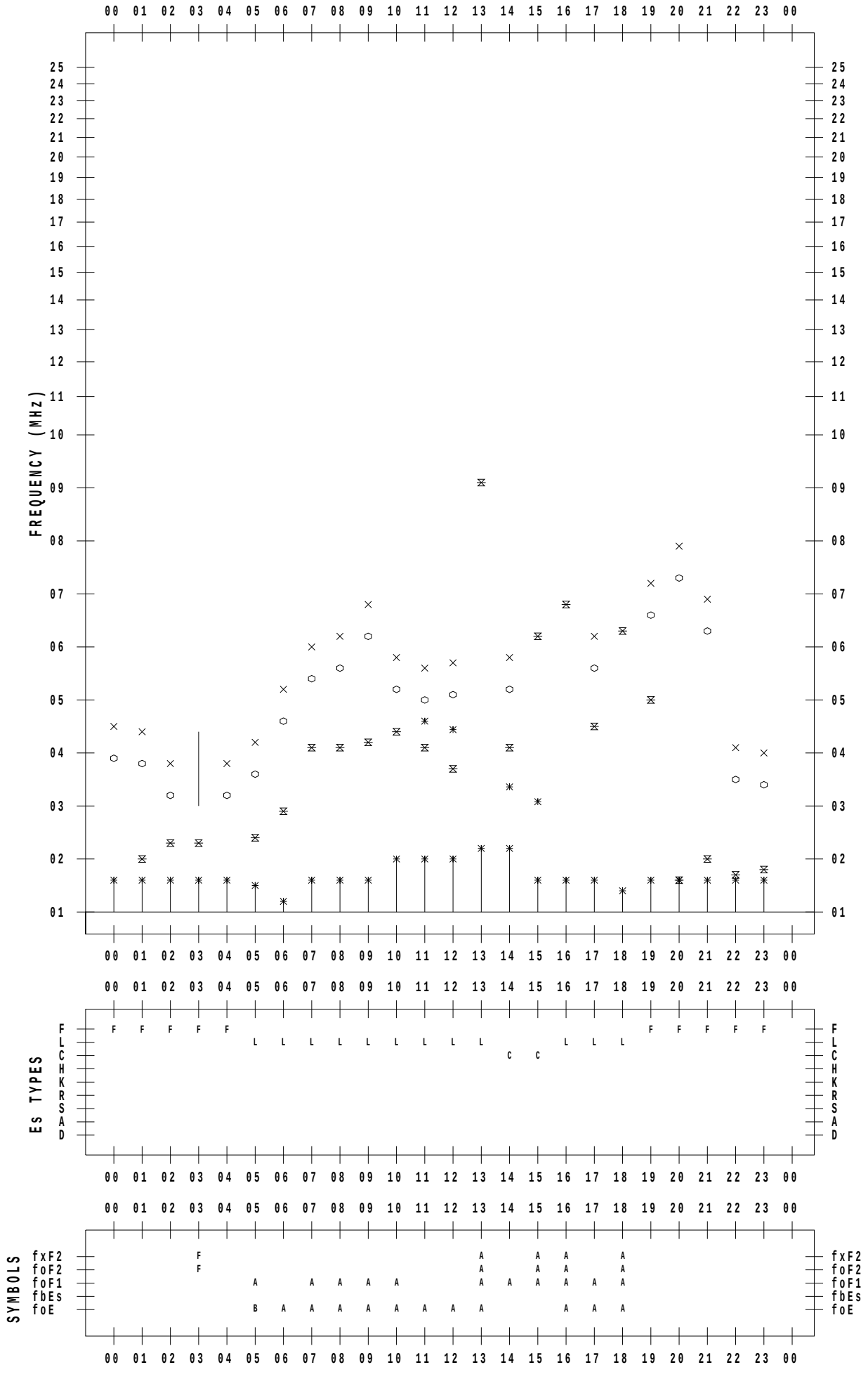
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/ 7

135 °E MEAN TIME



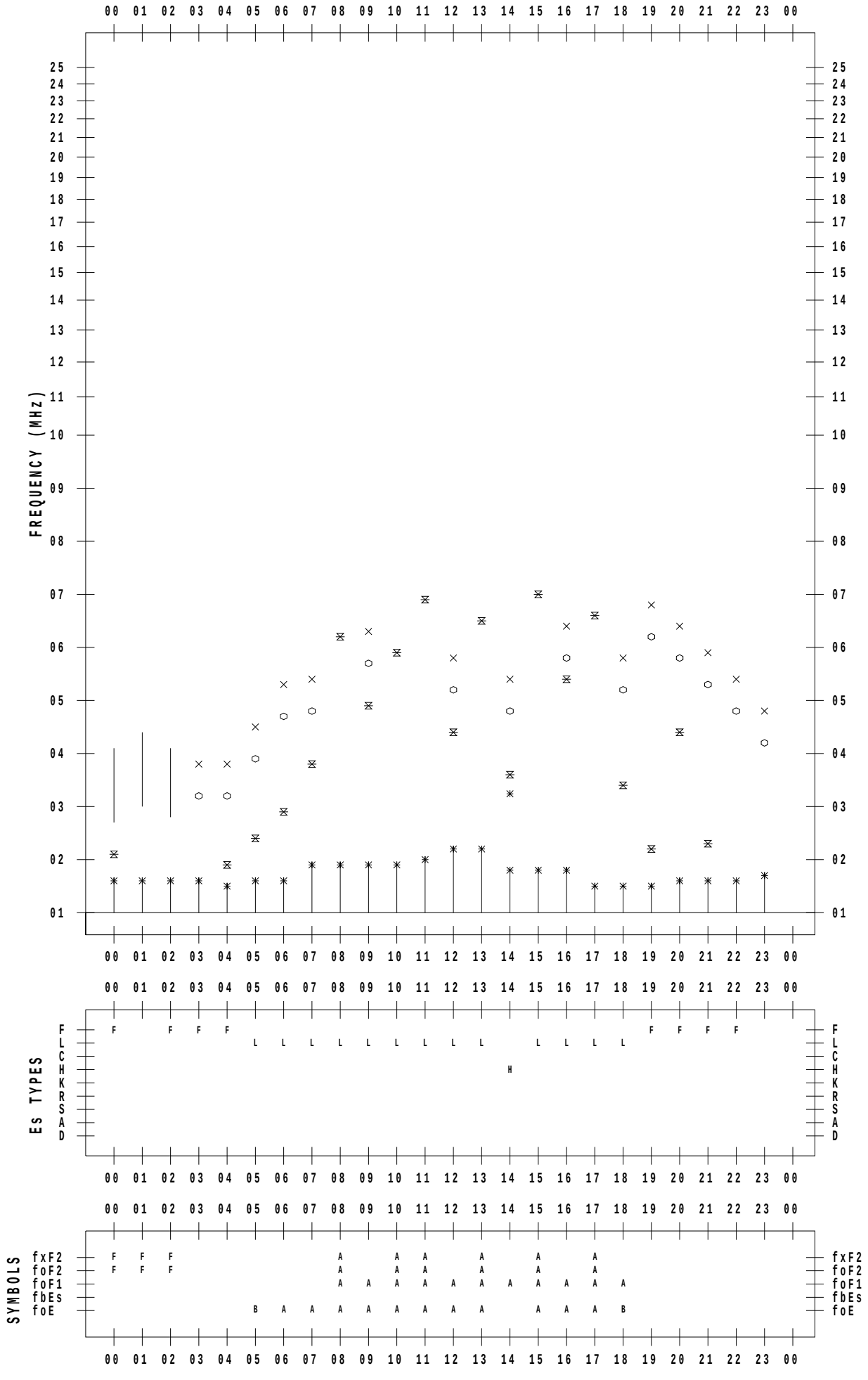
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/ 8

135 °E MEAN TIME



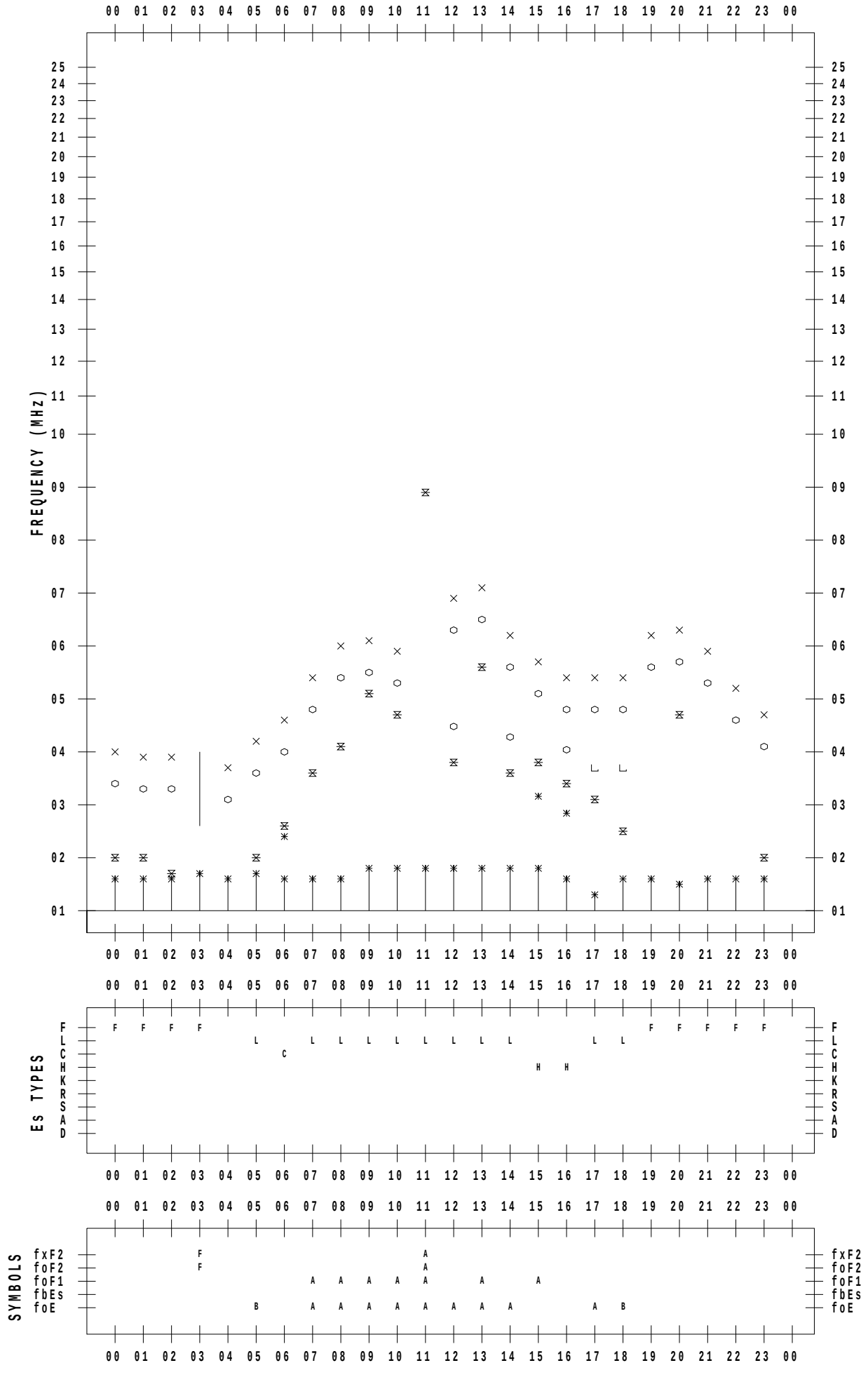
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/ 9

135 °E MEAN TIME



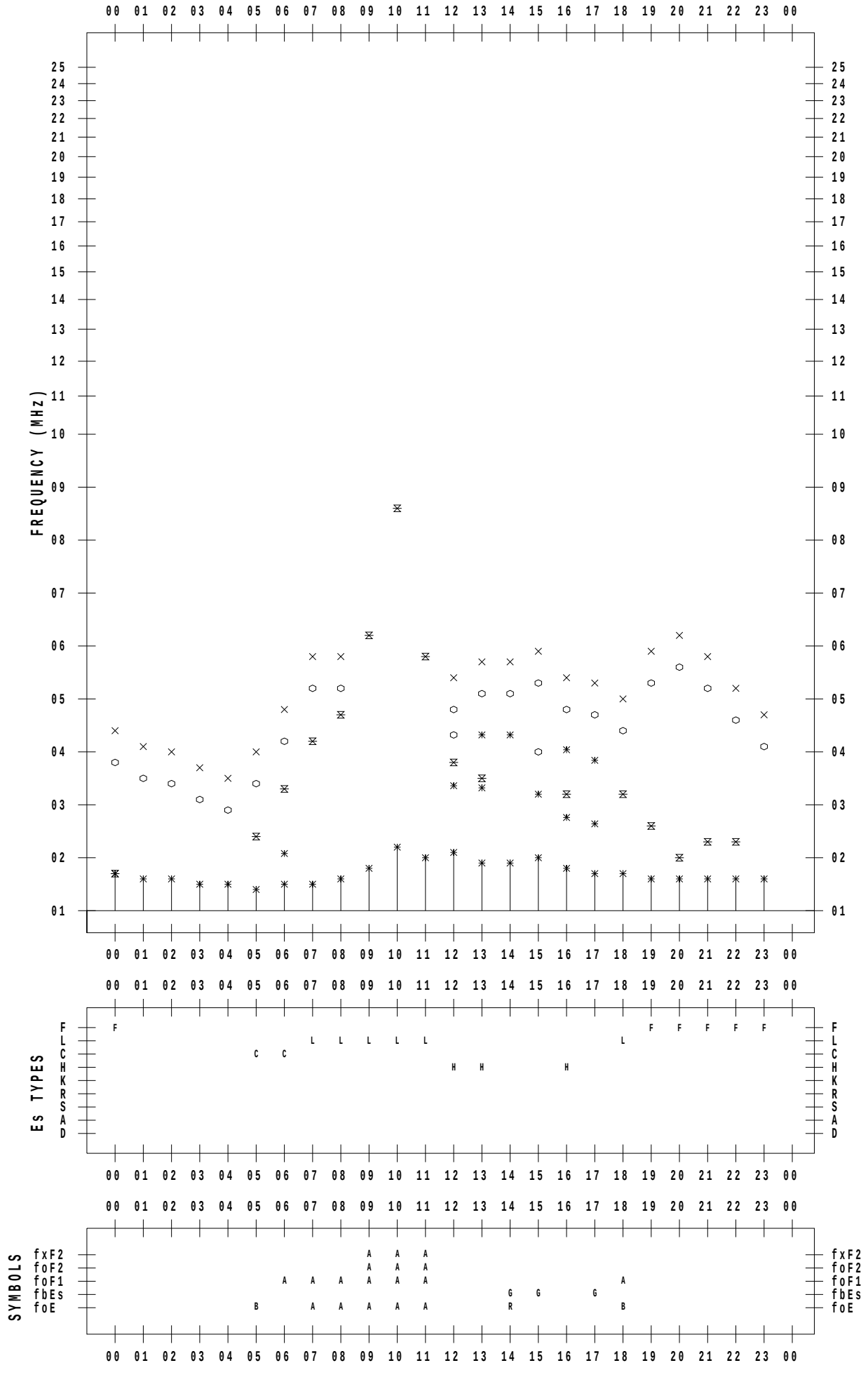
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/10

135 °E MEAN TIME



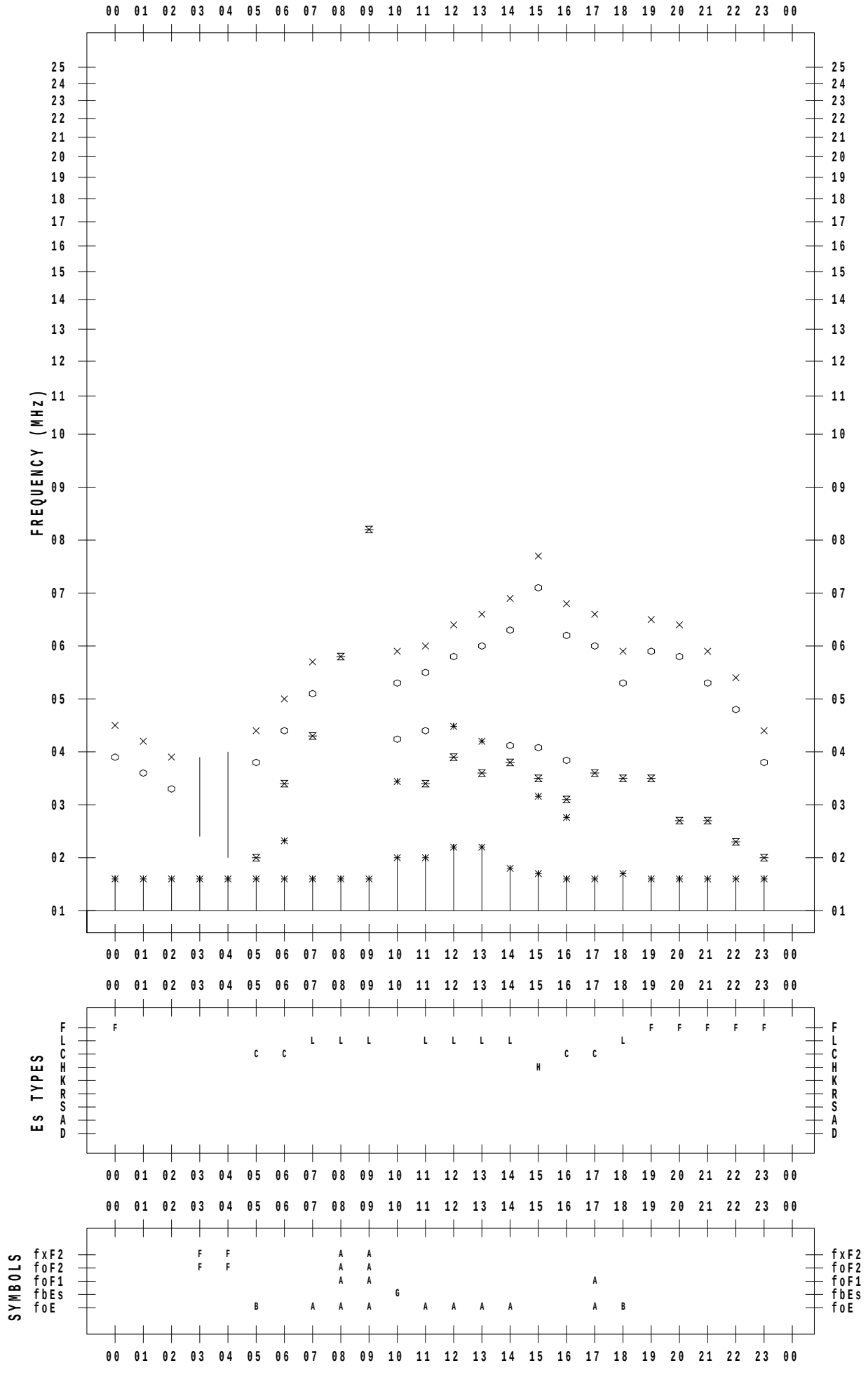
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/11

135 °E MEAN TIME



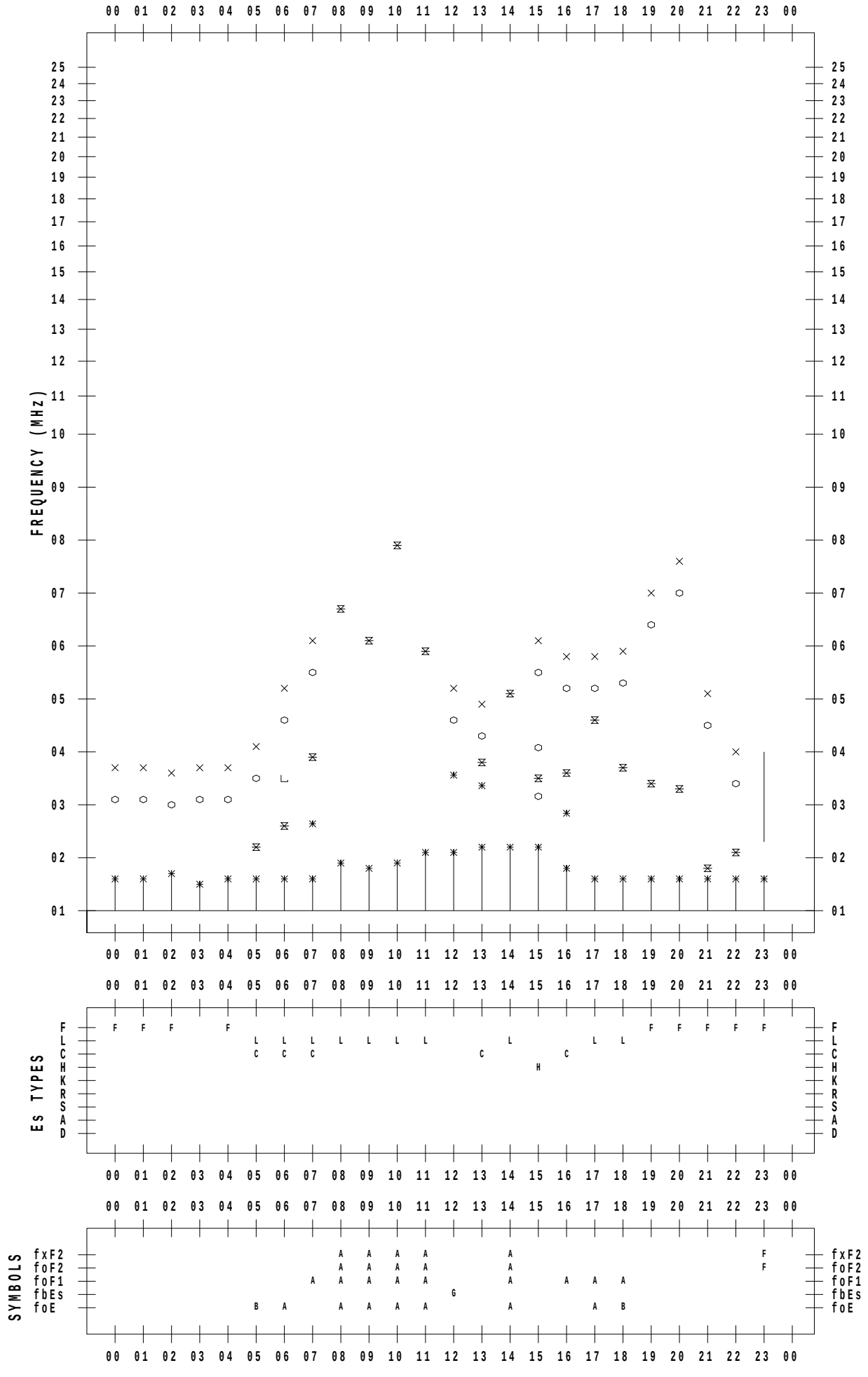
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/12

135 °E MEAN TIME



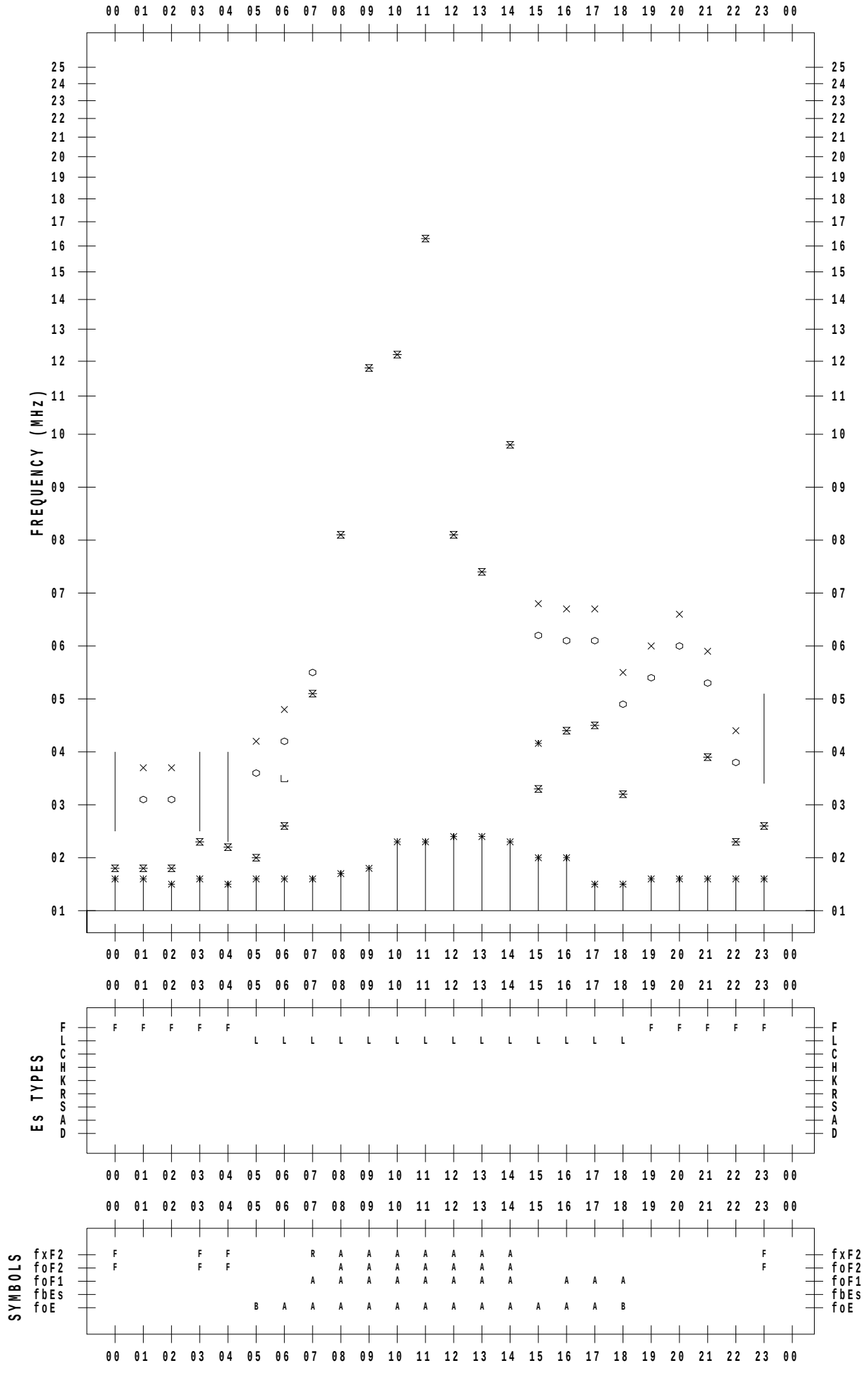
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/13

135 °E MEAN TIME



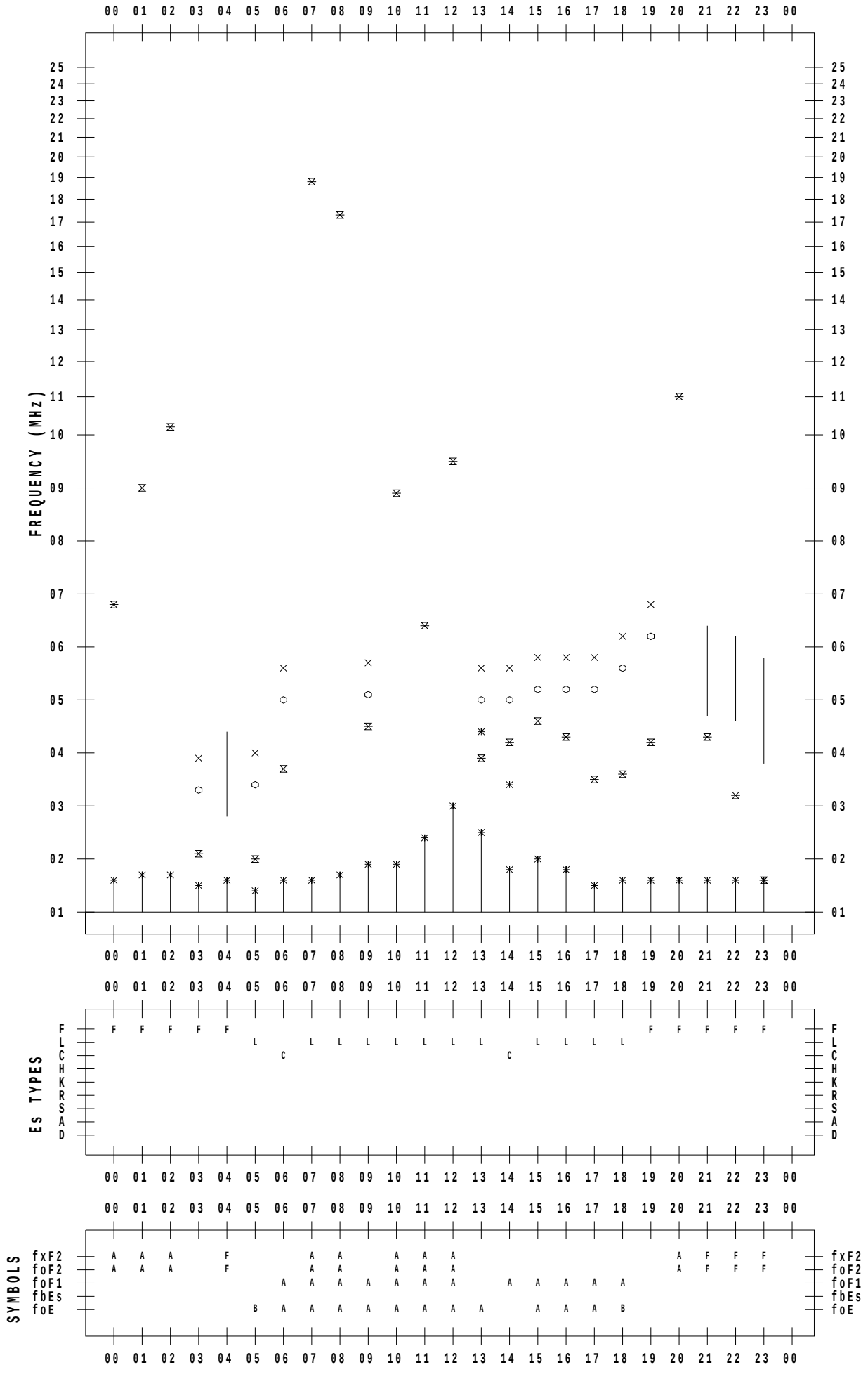
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/14

135 °E MEAN TIME



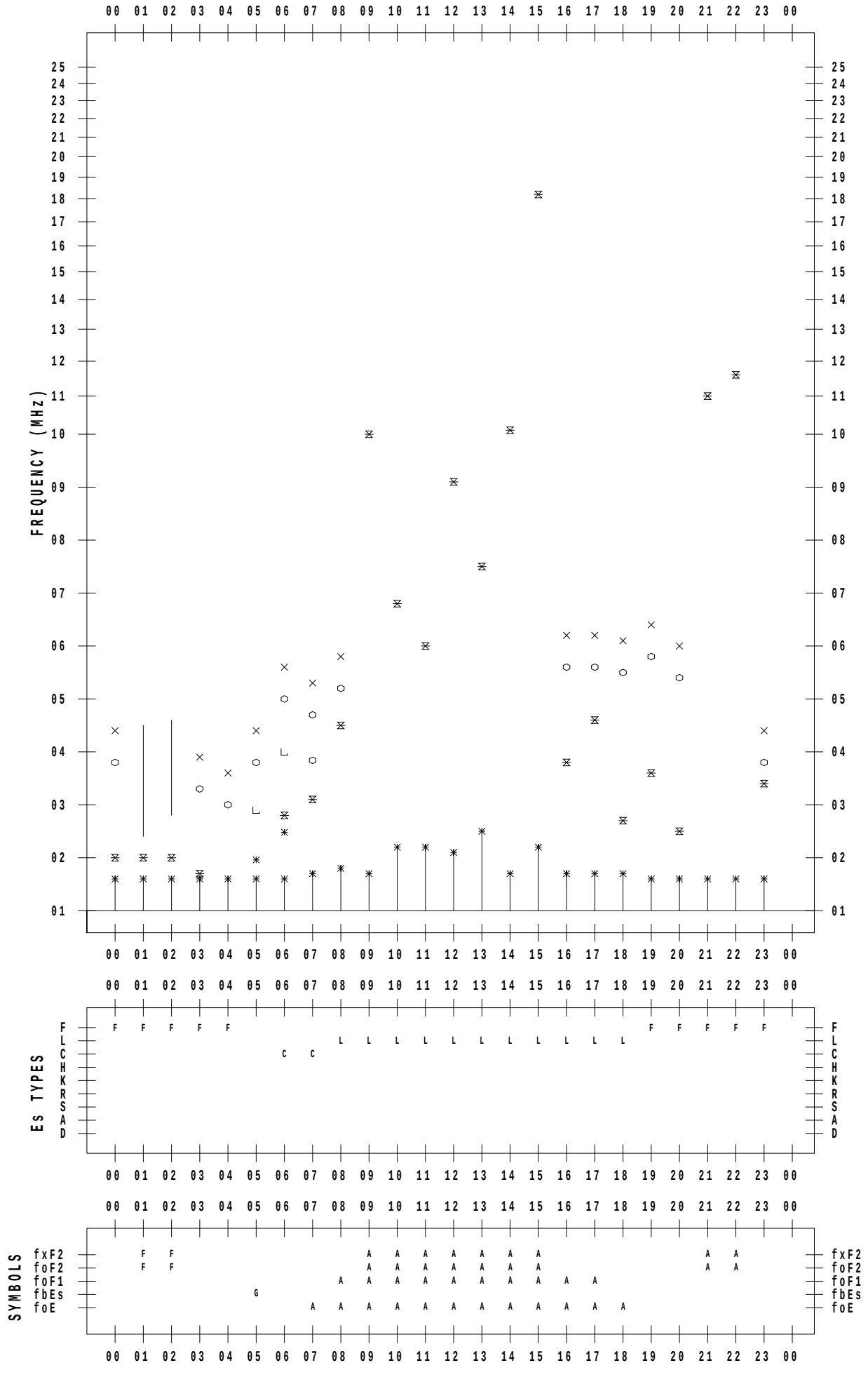
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/15

135 °E MEAN TIME



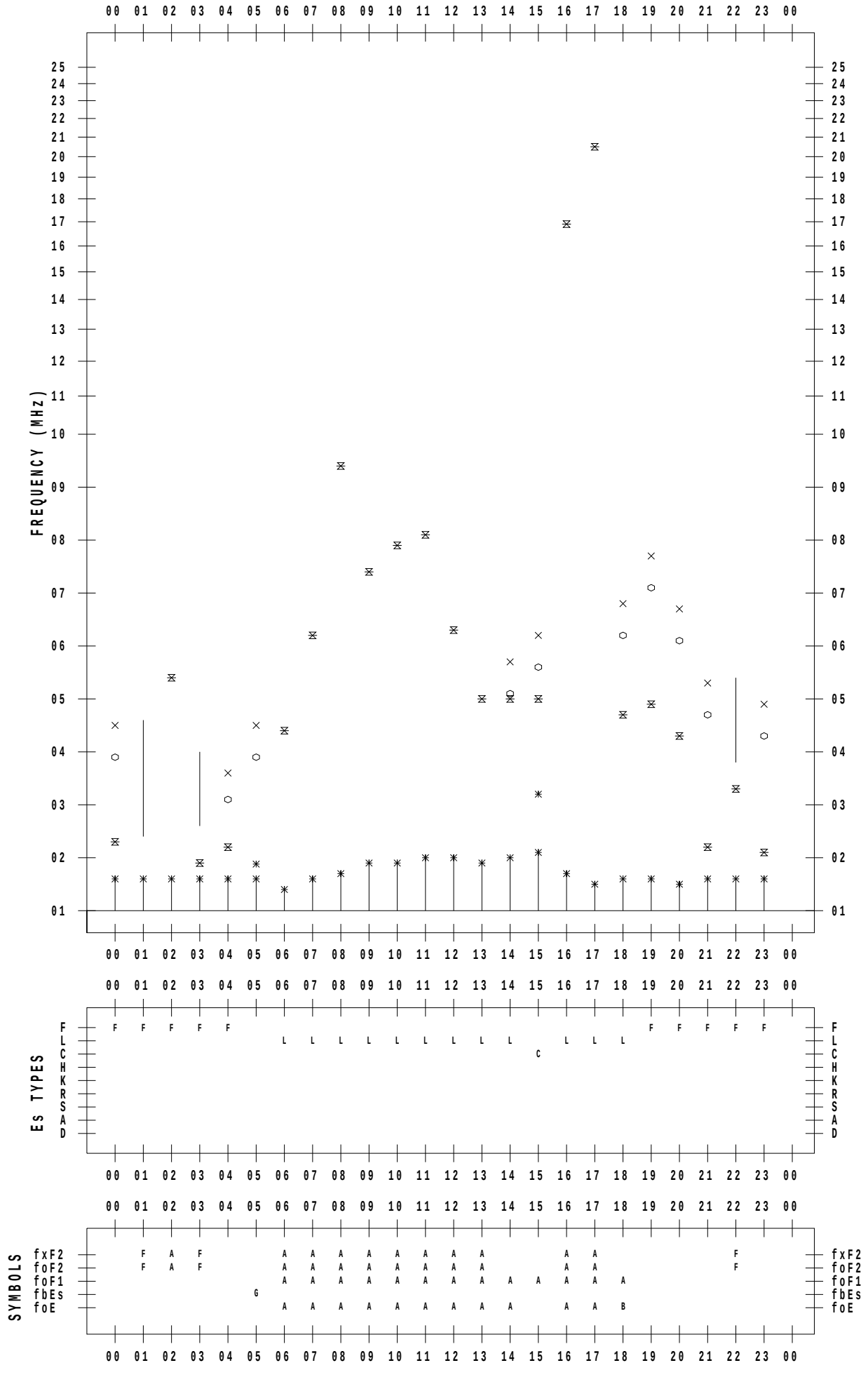
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/16

135 °E MEAN TIME



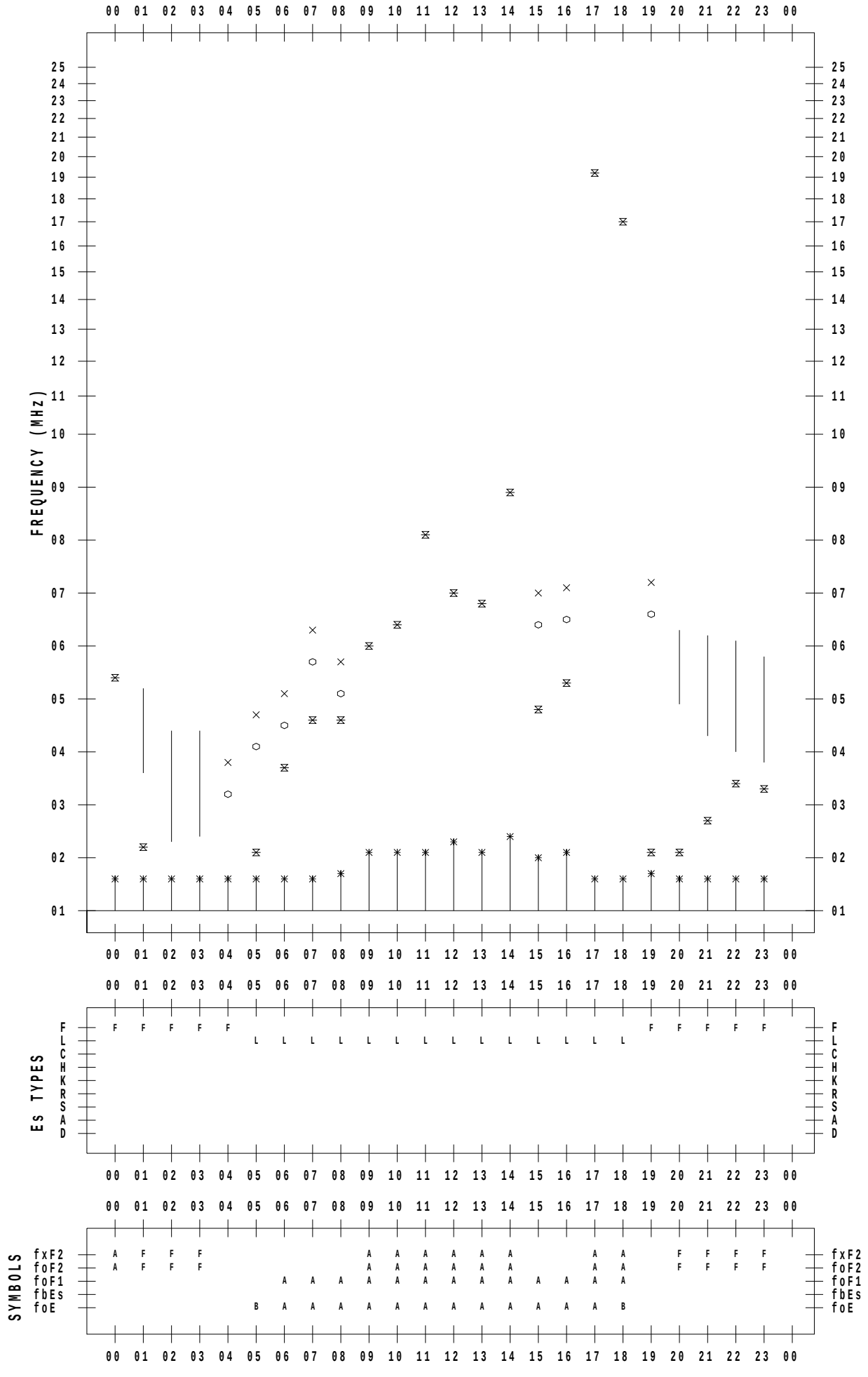
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/17

135 °E MEAN TIME



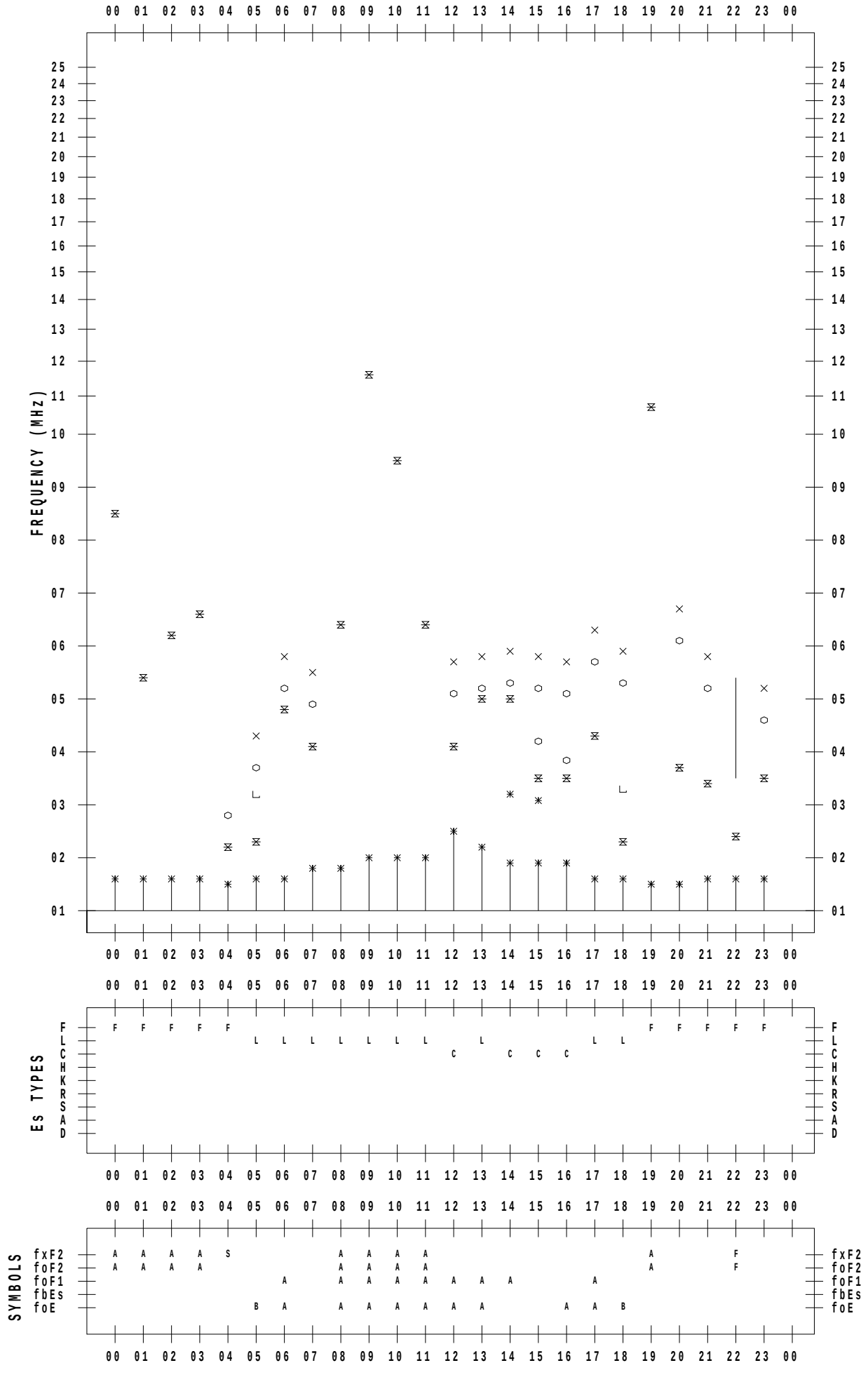
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/18

135 °E MEAN TIME



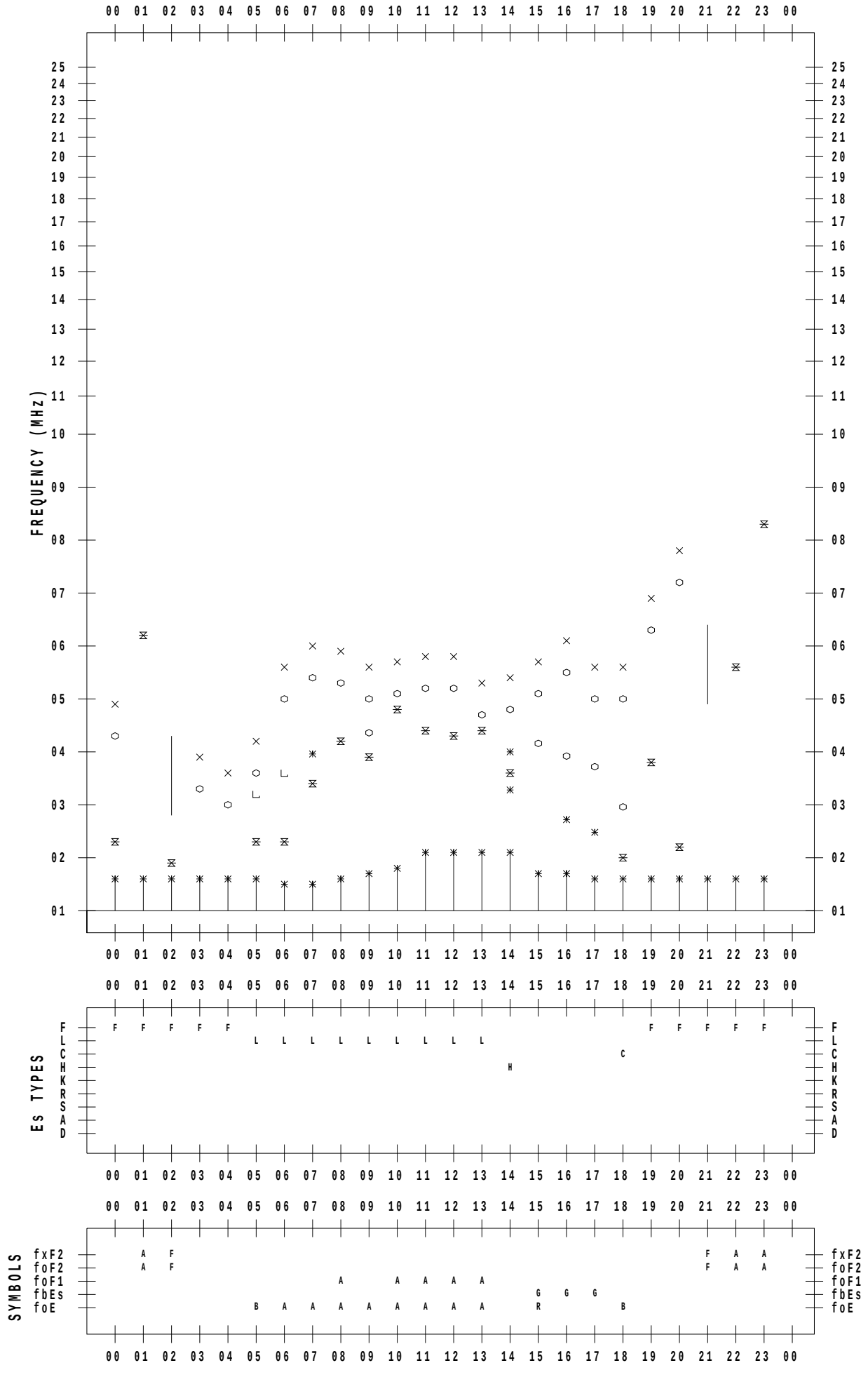
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/19

135 °E MEAN TIME



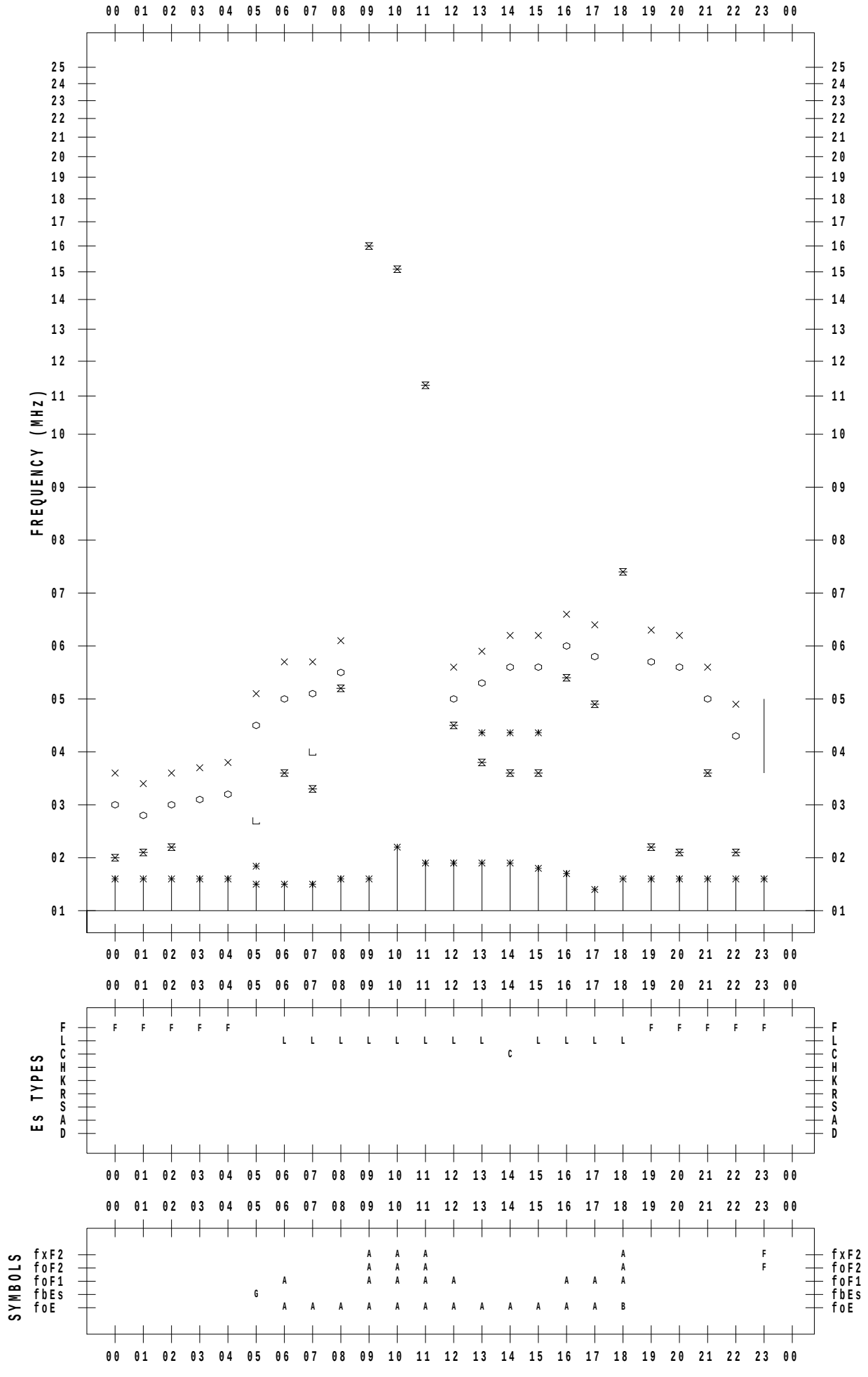
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/20

135 °E MEAN TIME



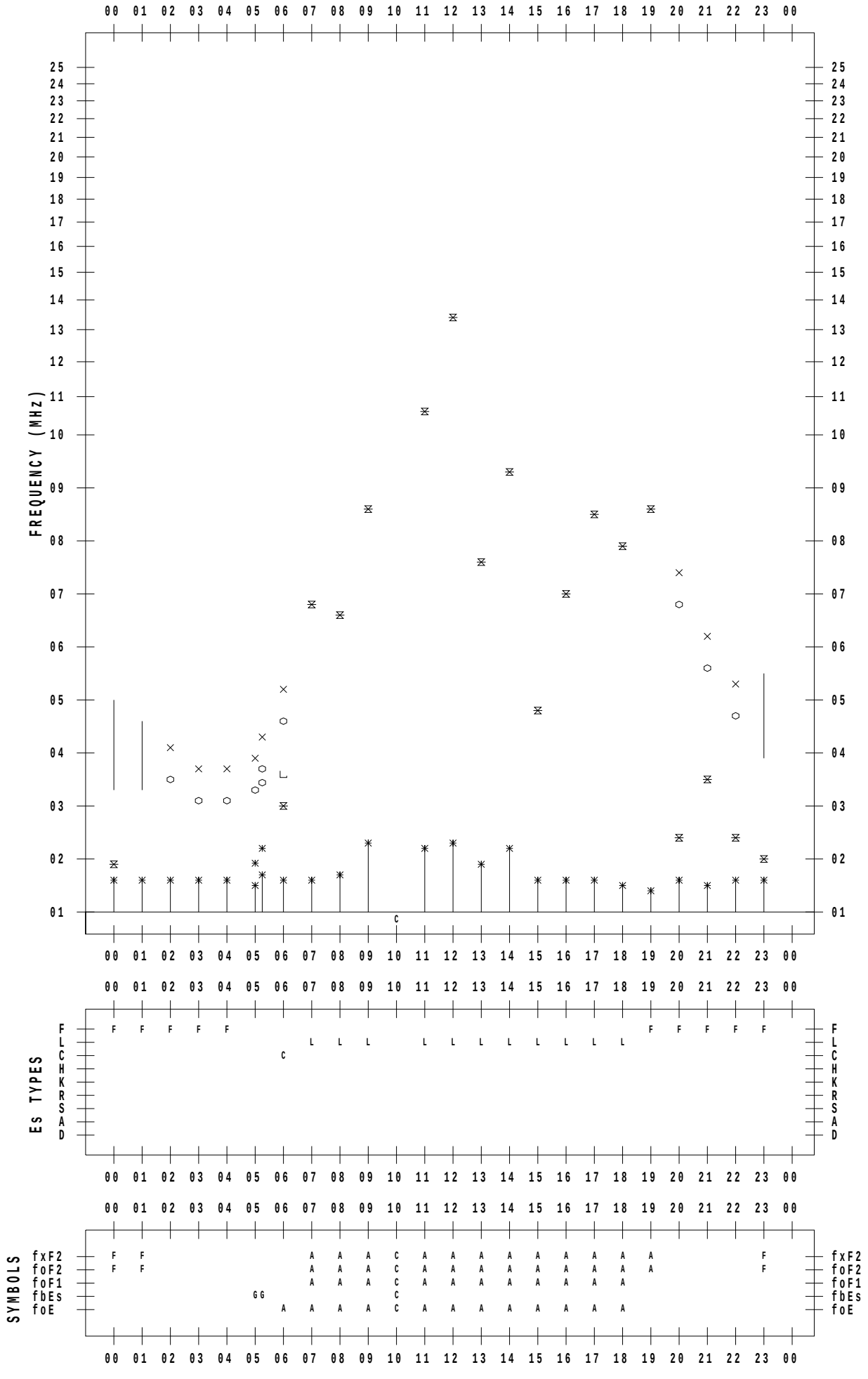
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/21

135 °E MEAN TIME



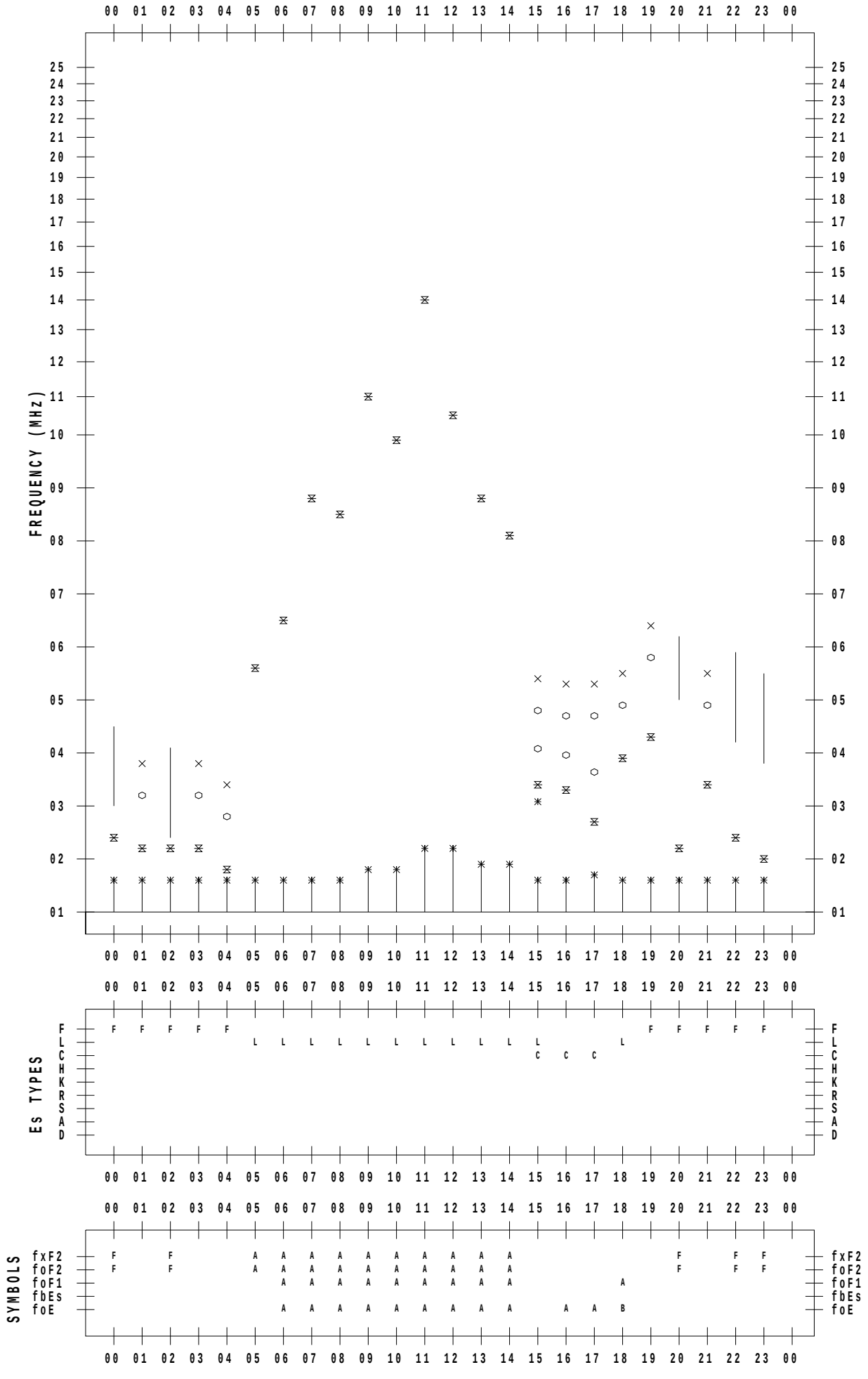
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/22

135 °E MEAN TIME



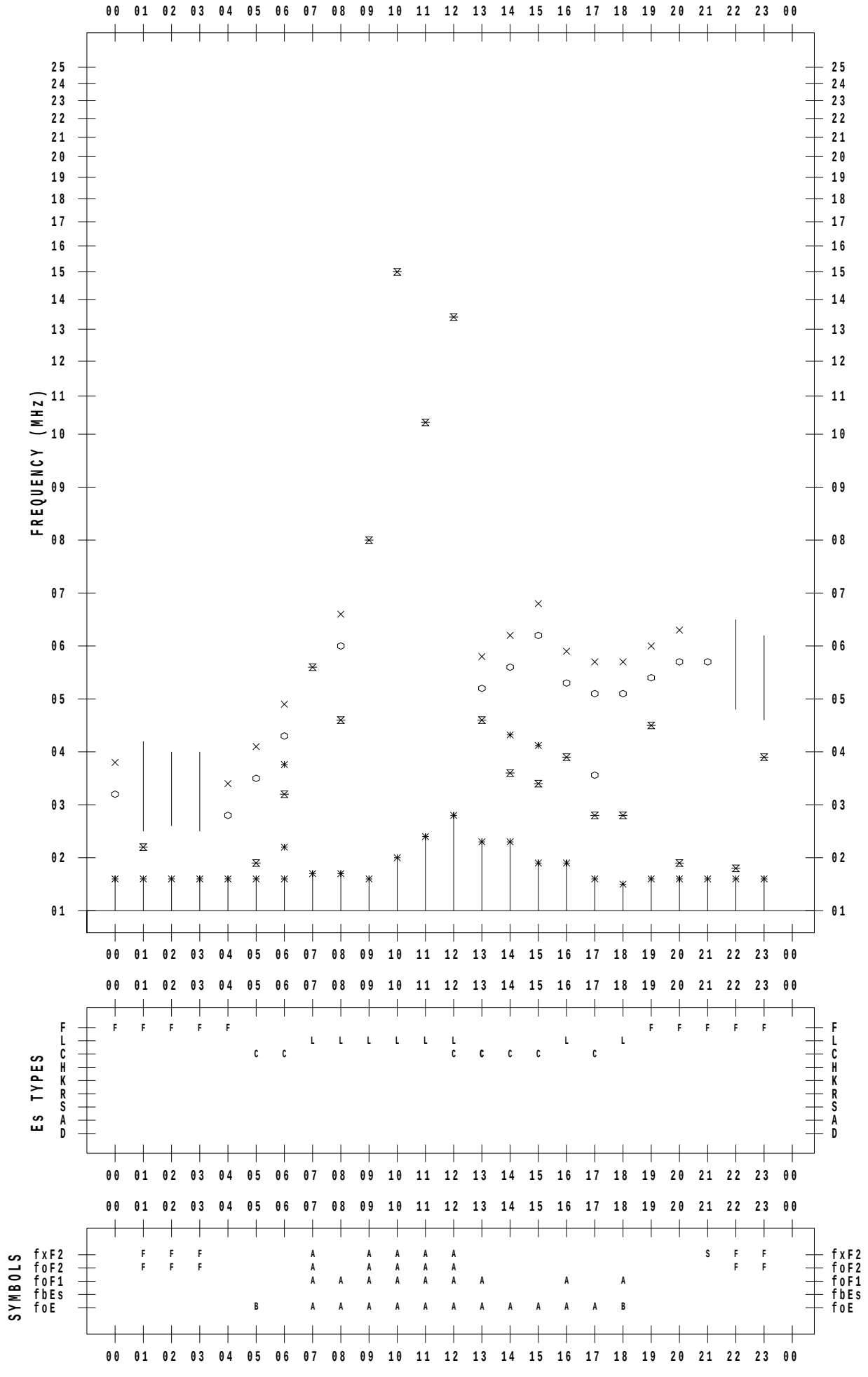
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/23

135 °E MEAN TIME



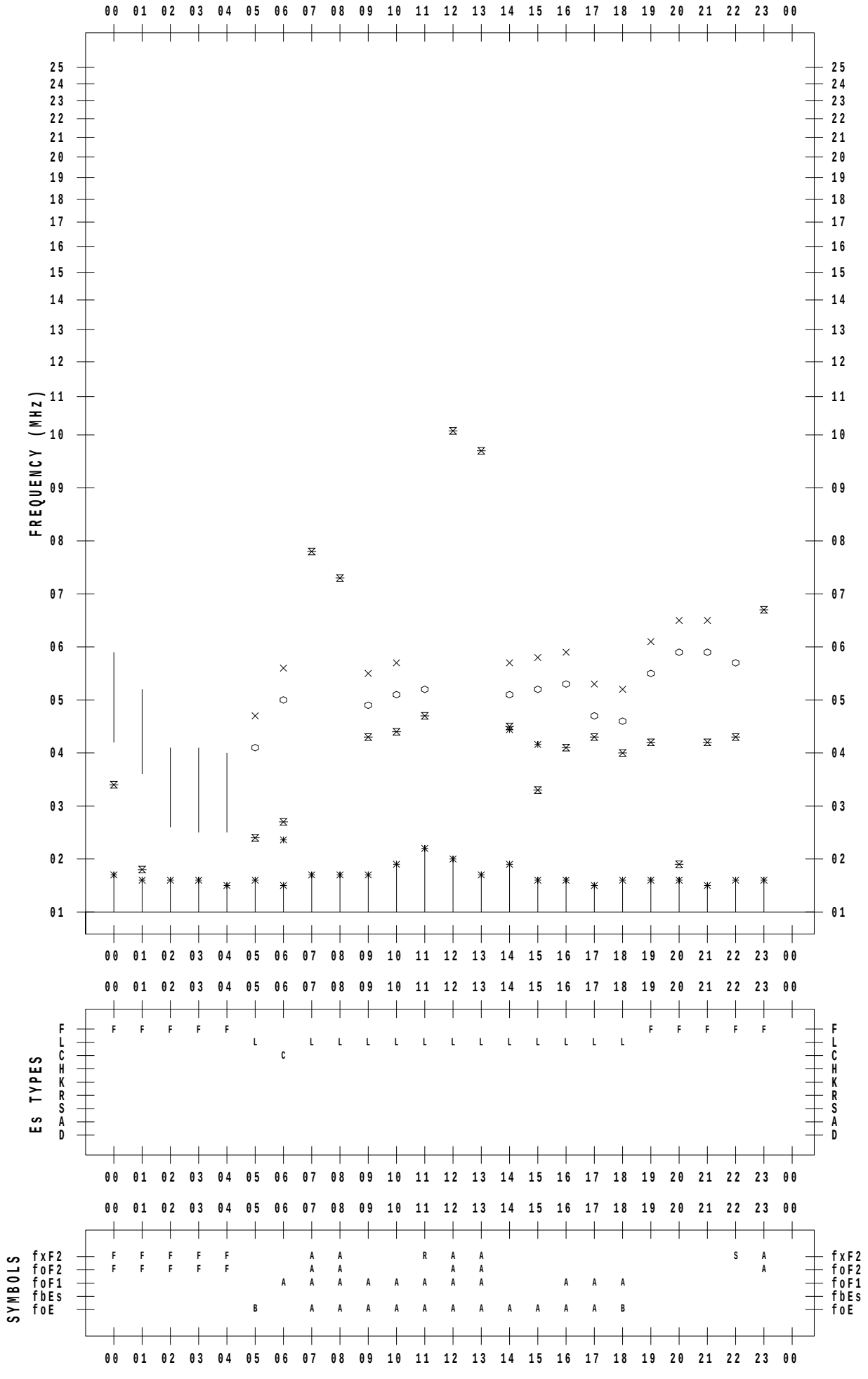
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/24

135 °E MEAN TIME



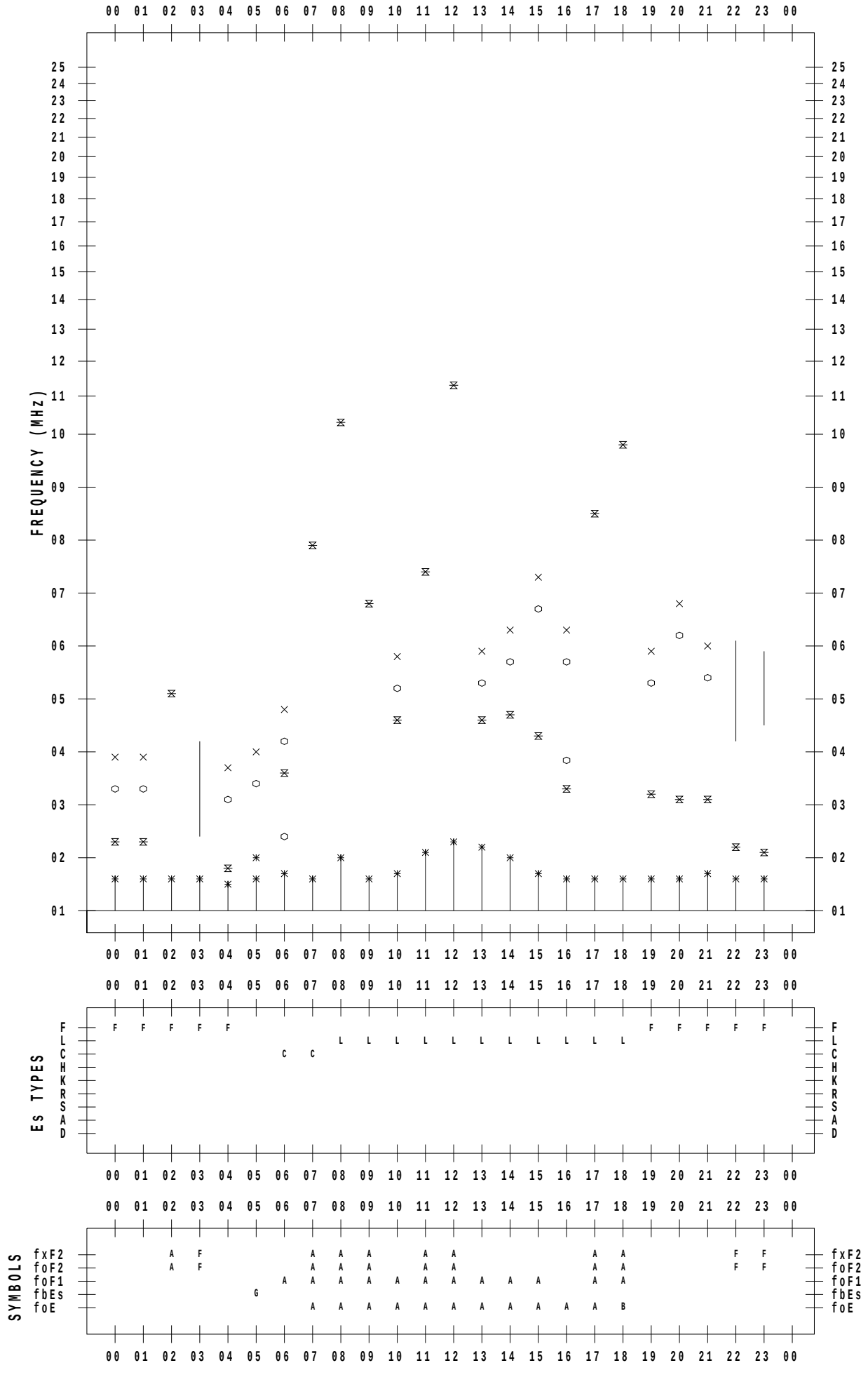
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/25

135 °E MEAN TIME



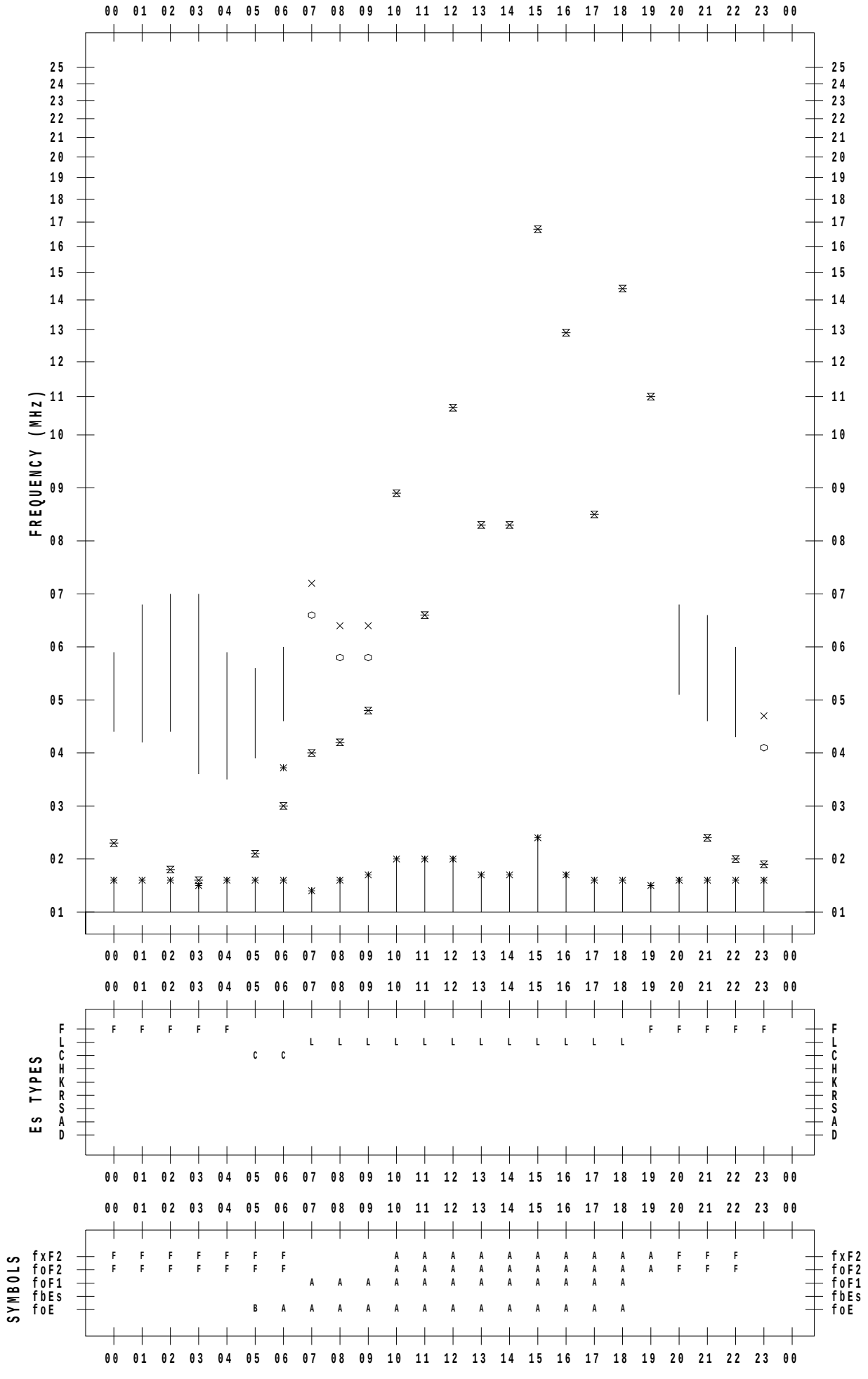
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/26

135 °E MEAN TIME



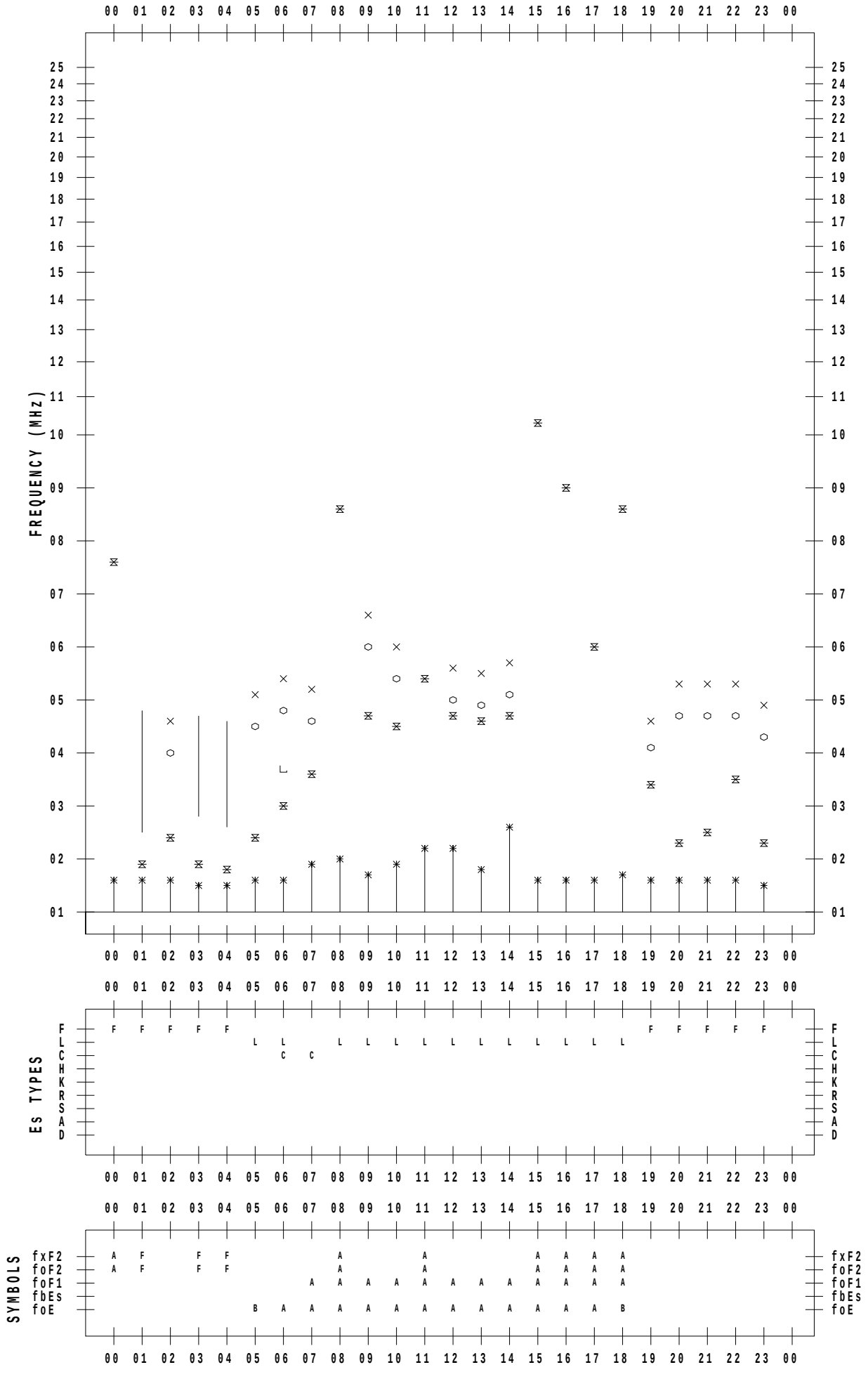
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/27

135 °E MEAN TIME



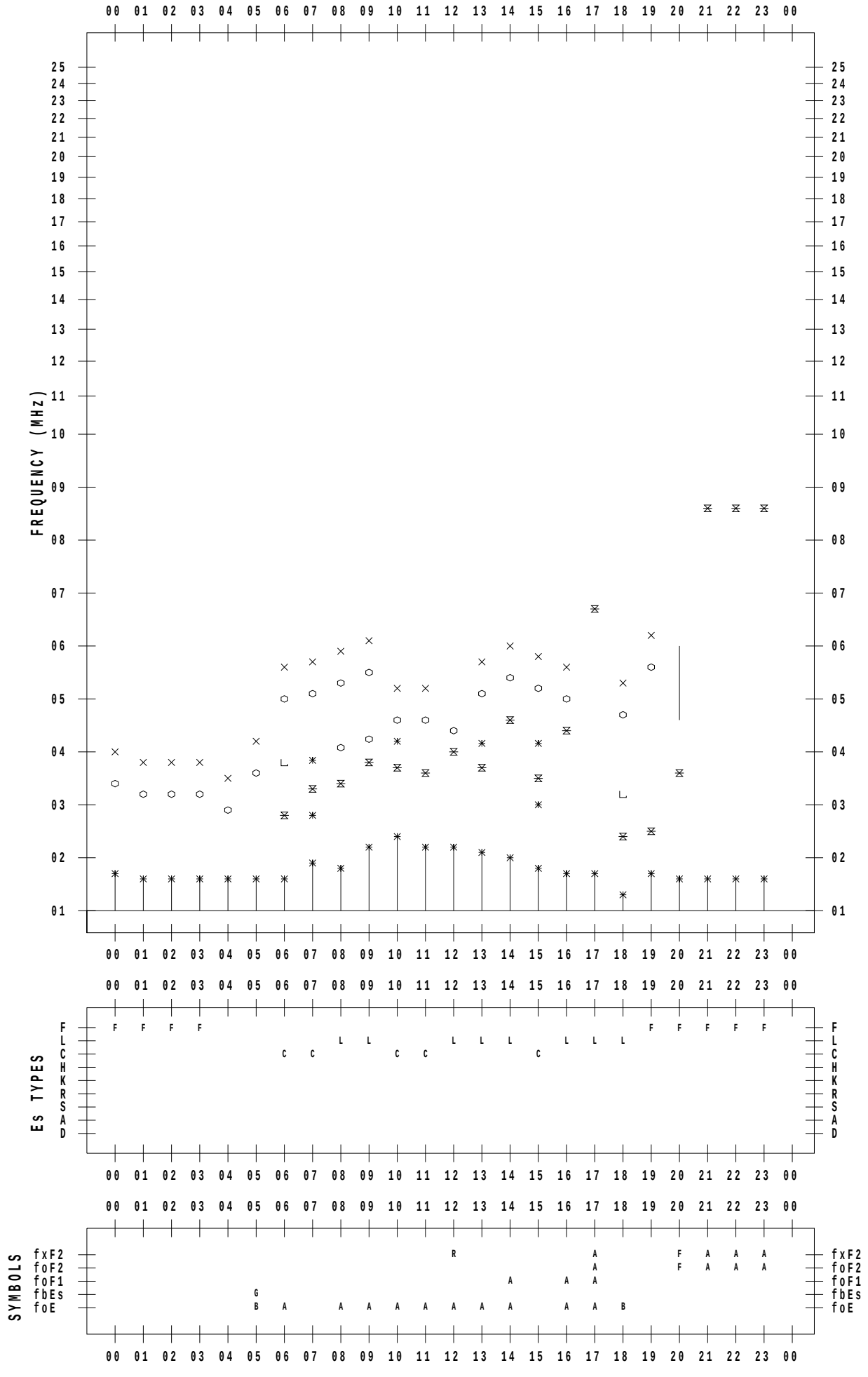
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/28

135 °E MEAN TIME



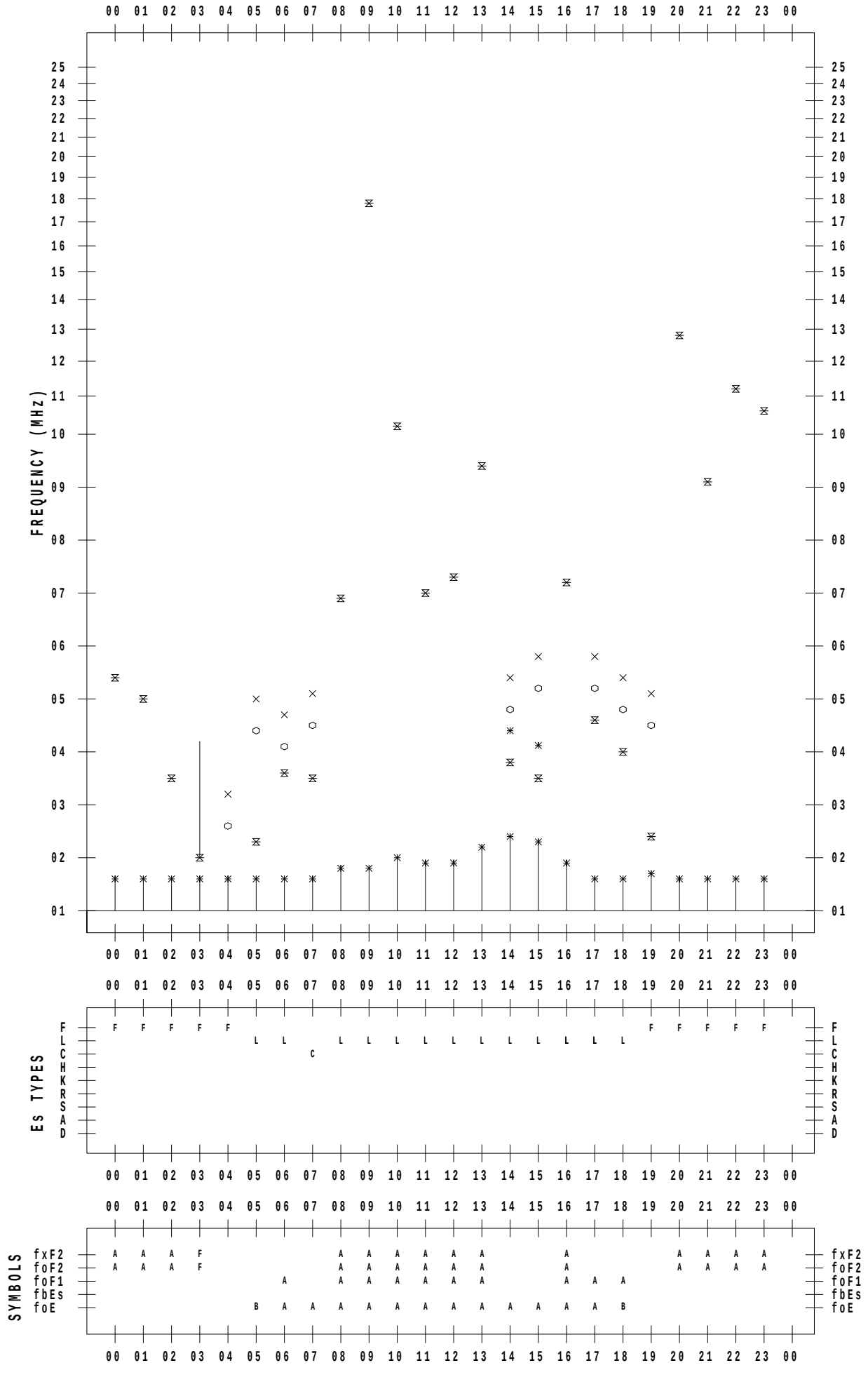
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/29

135 °E MEAN TIME



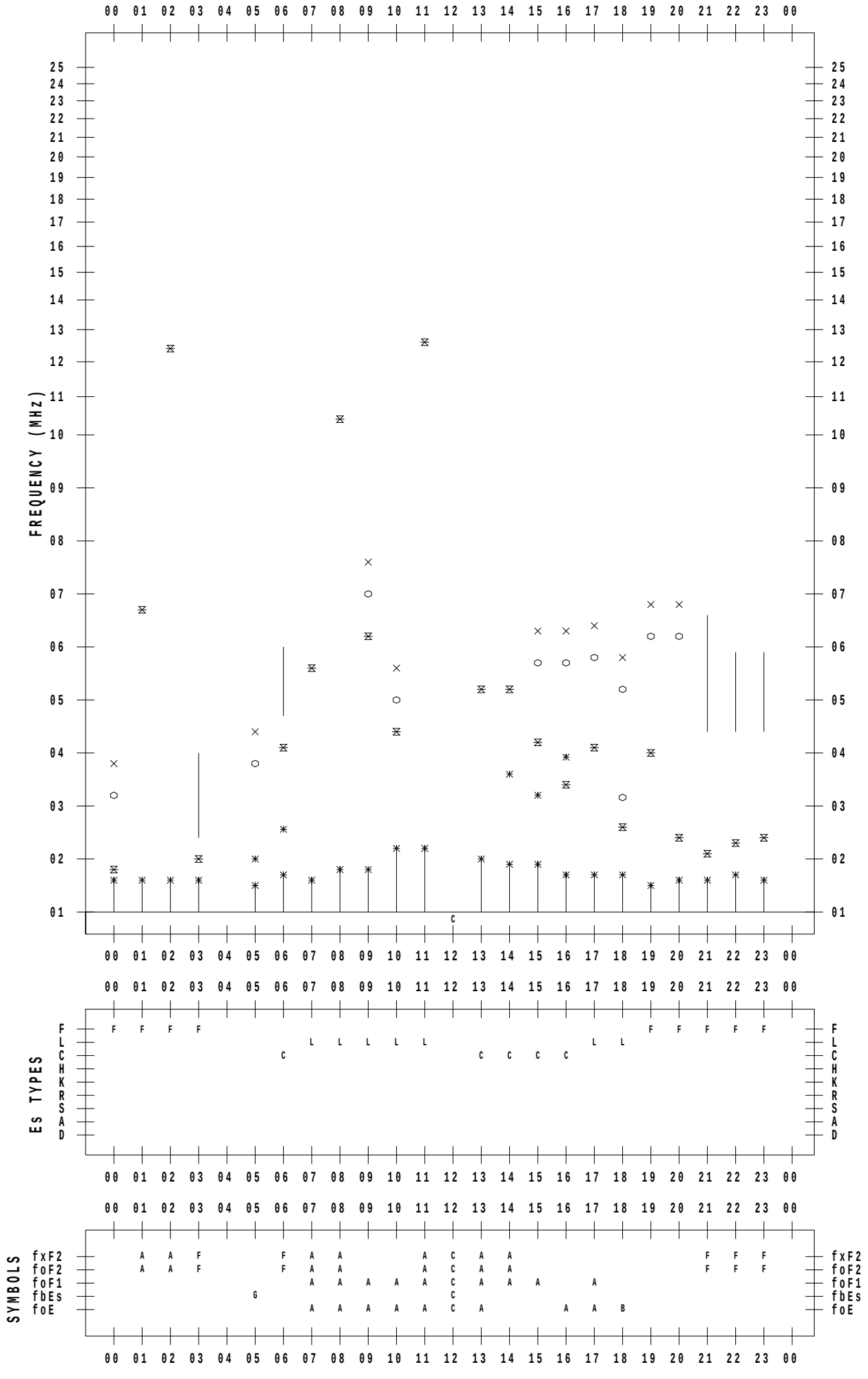
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/30

135 °E MEAN TIME



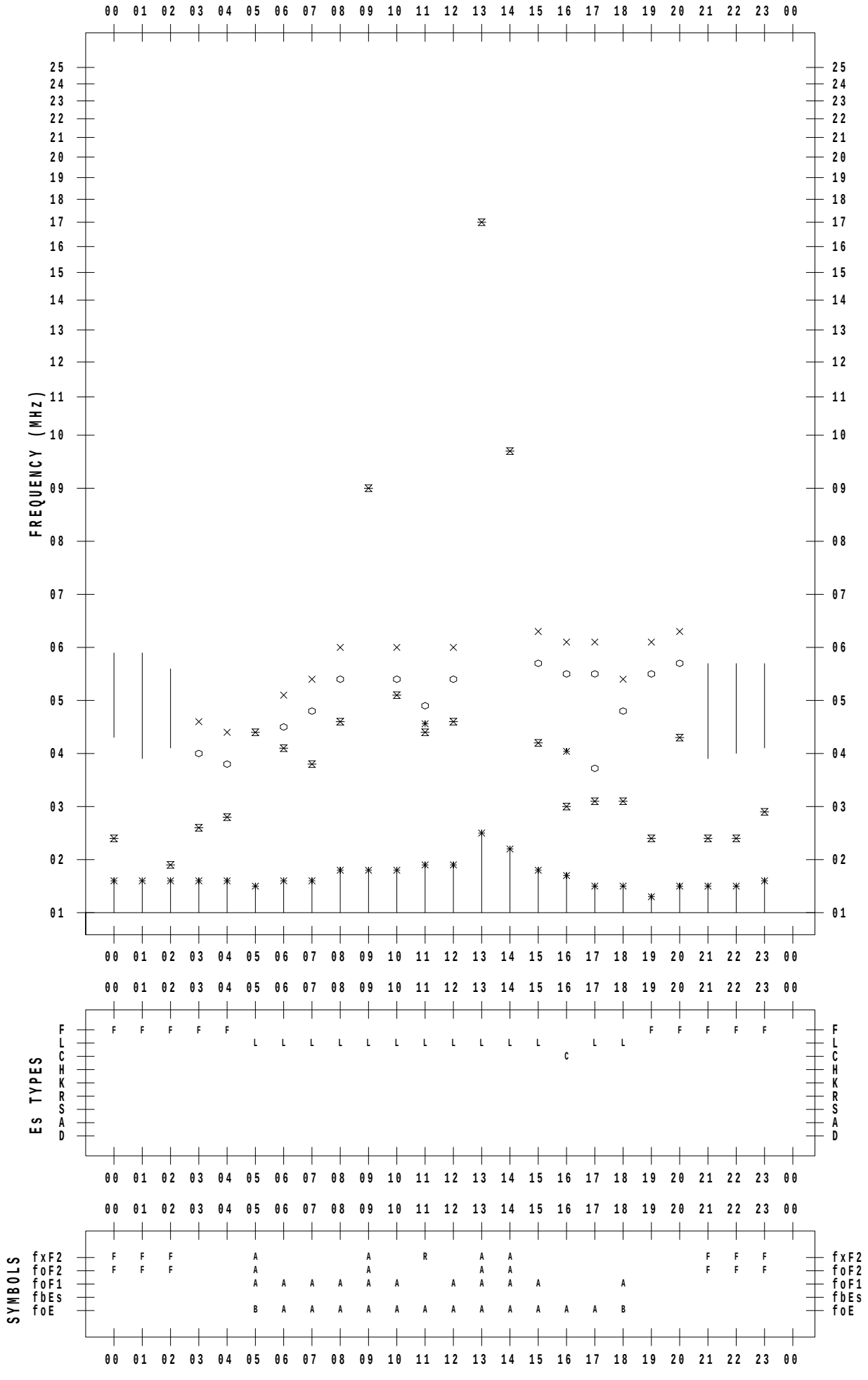
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/ 5/31

135 °E MEAN TIME



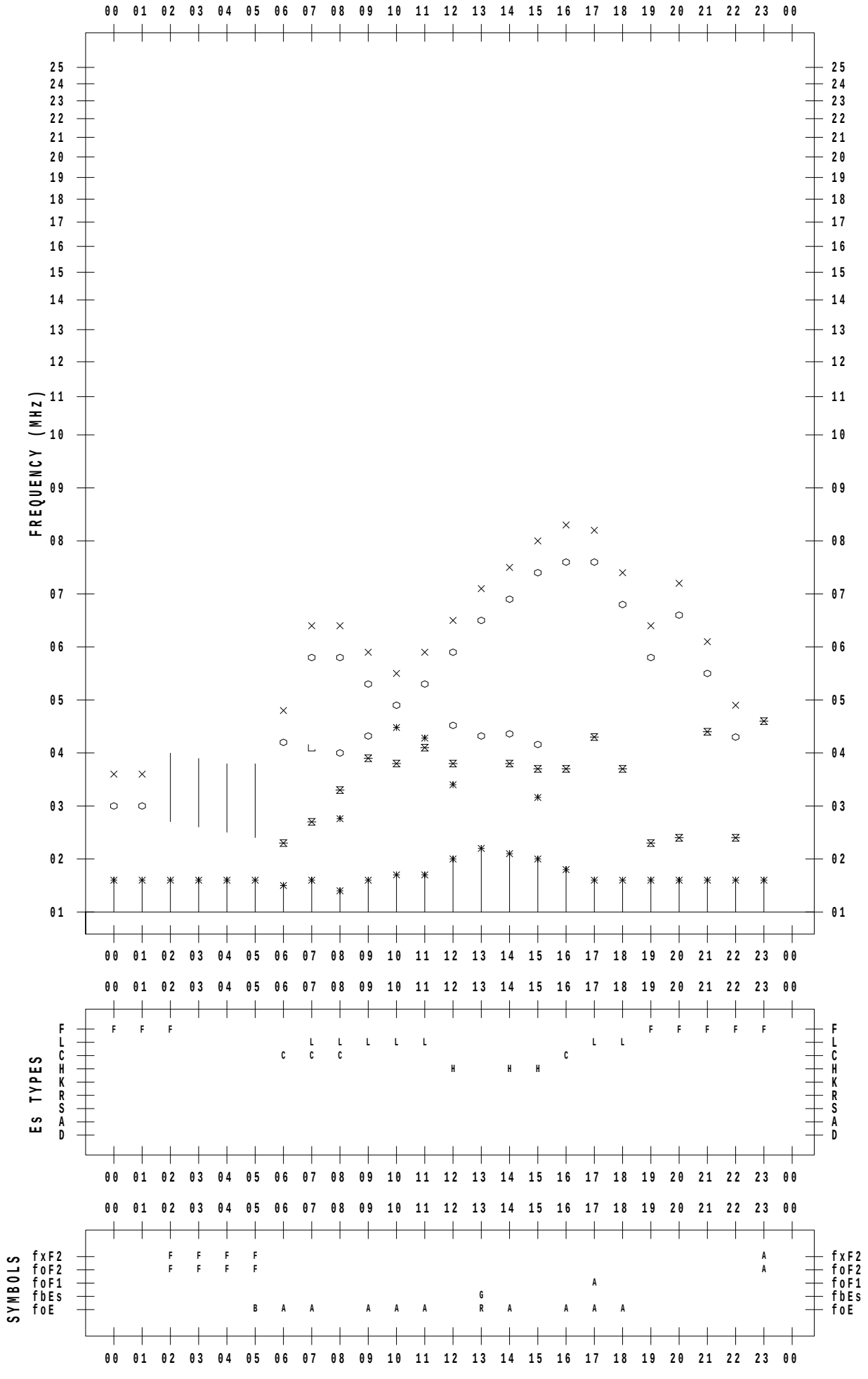
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/ 1

135 °E MEAN TIME



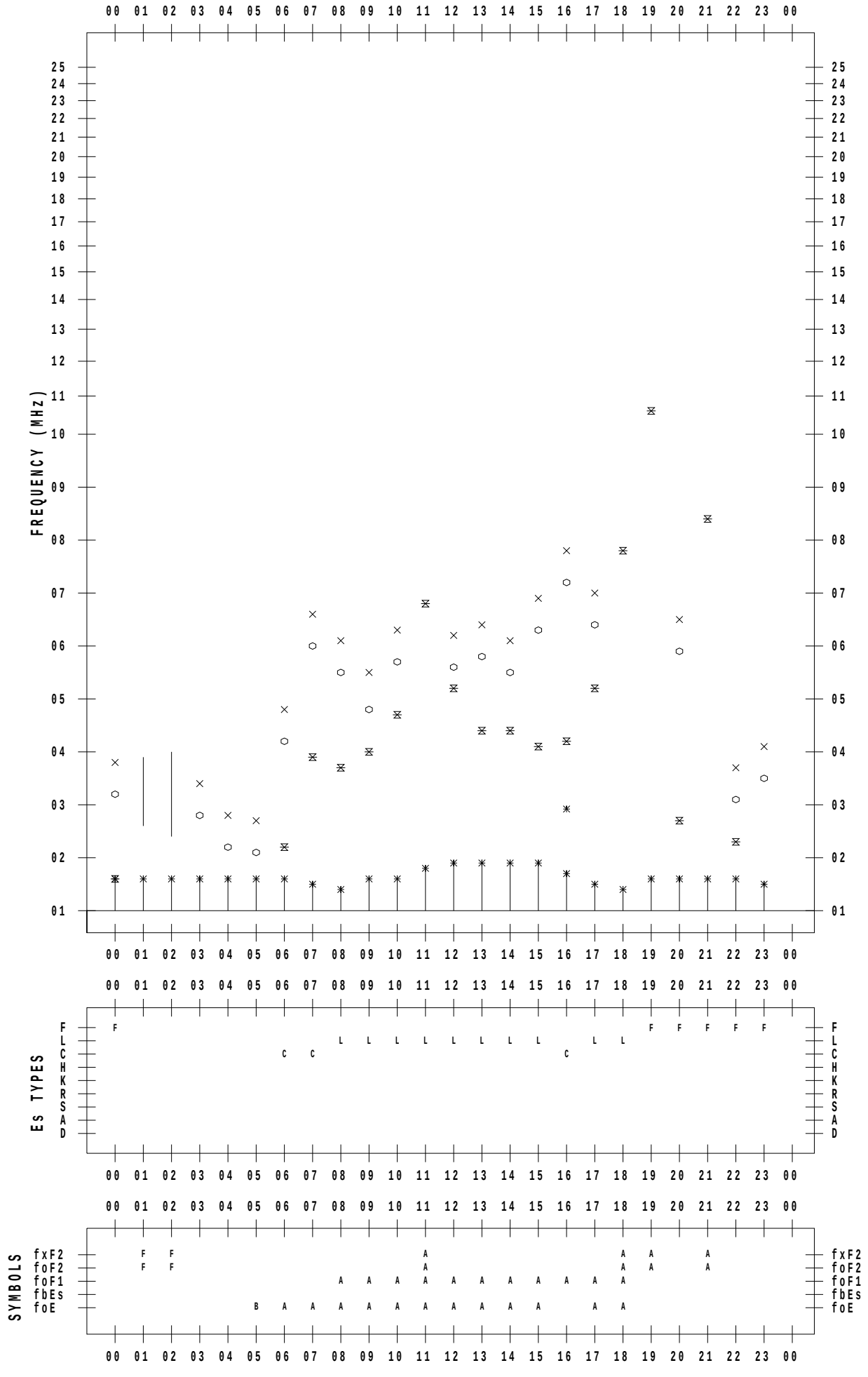
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/ 2

135 °E MEAN TIME



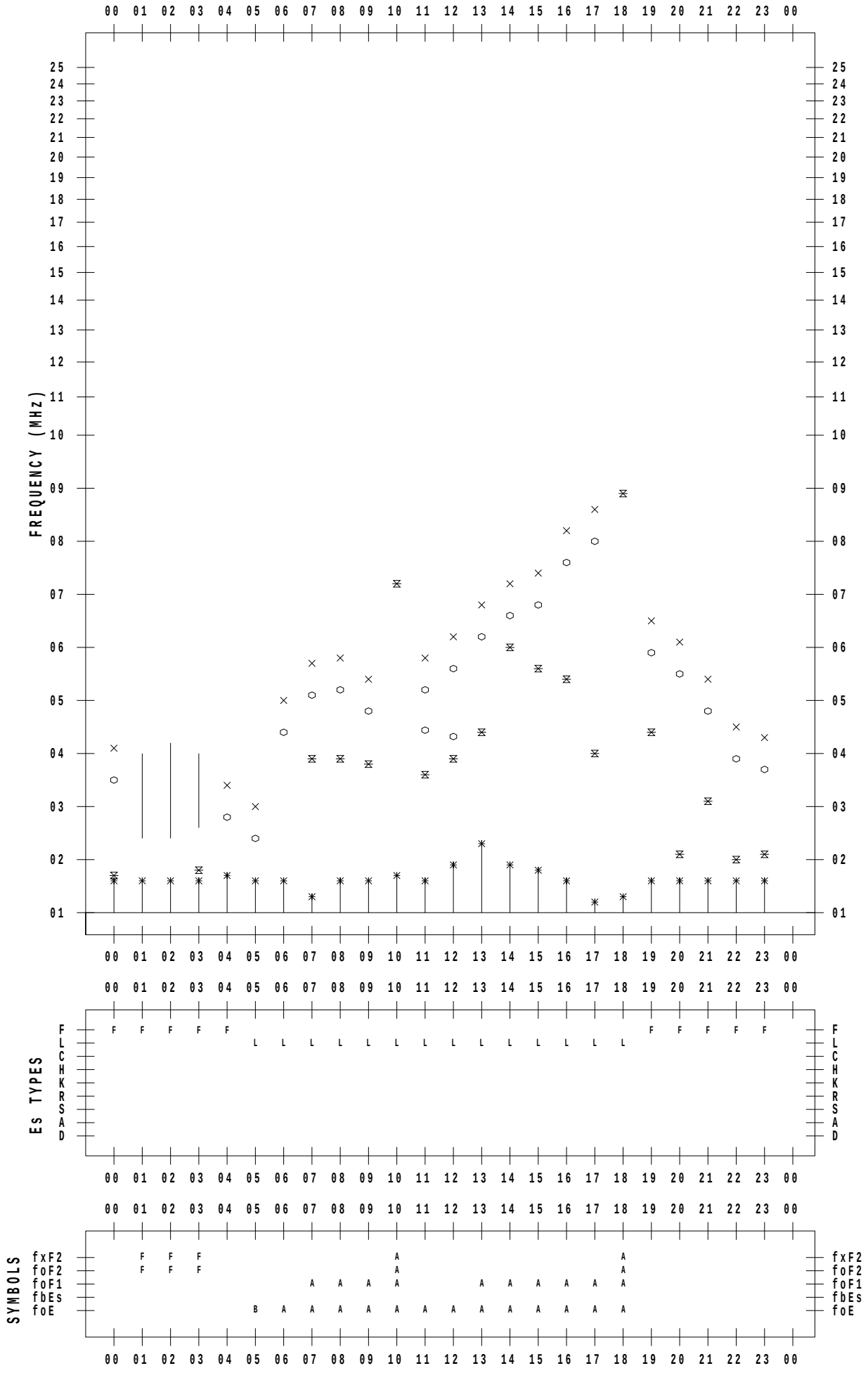
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/ 3

135 °E MEAN TIME



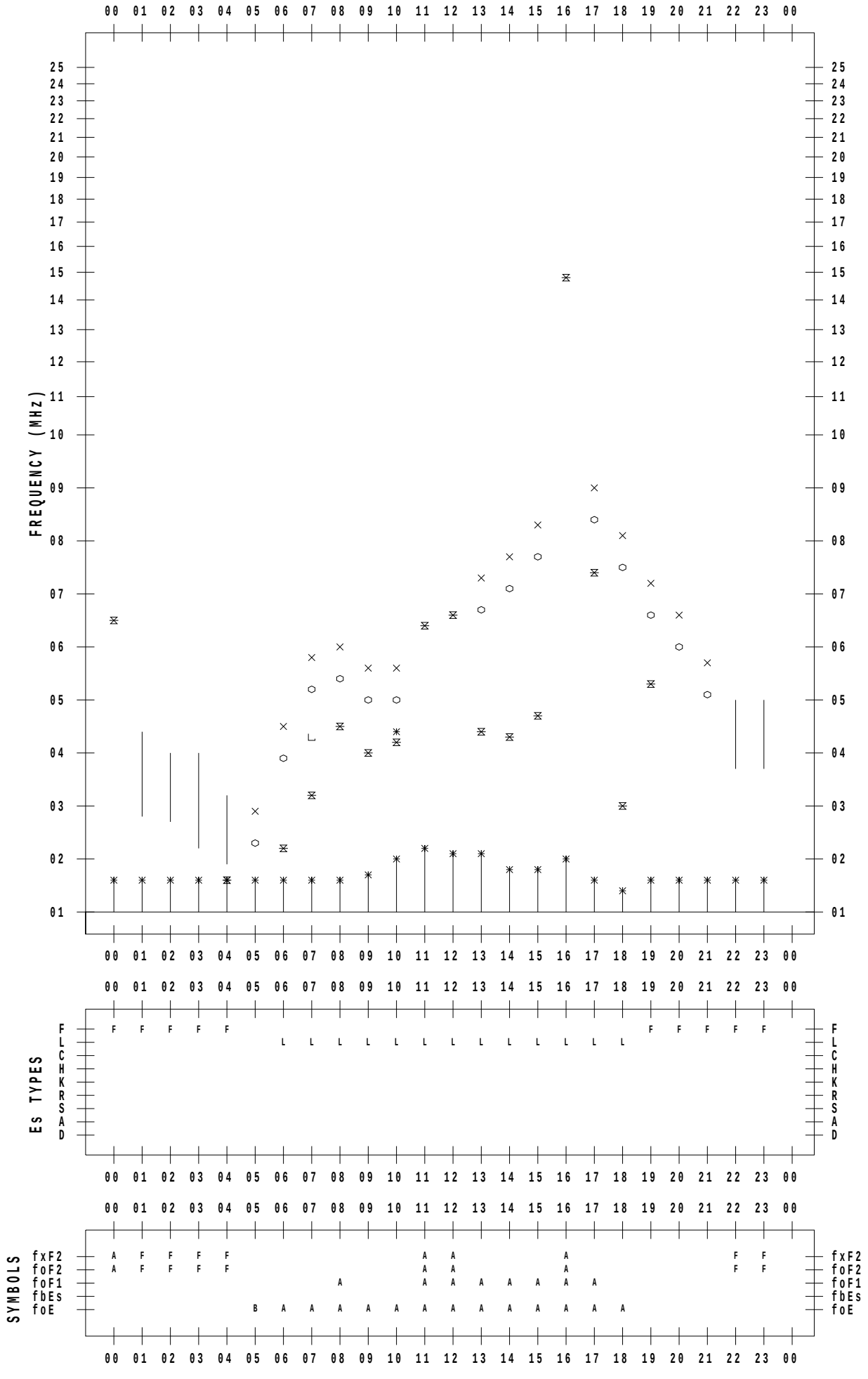
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/ 4

135 °E MEAN TIME



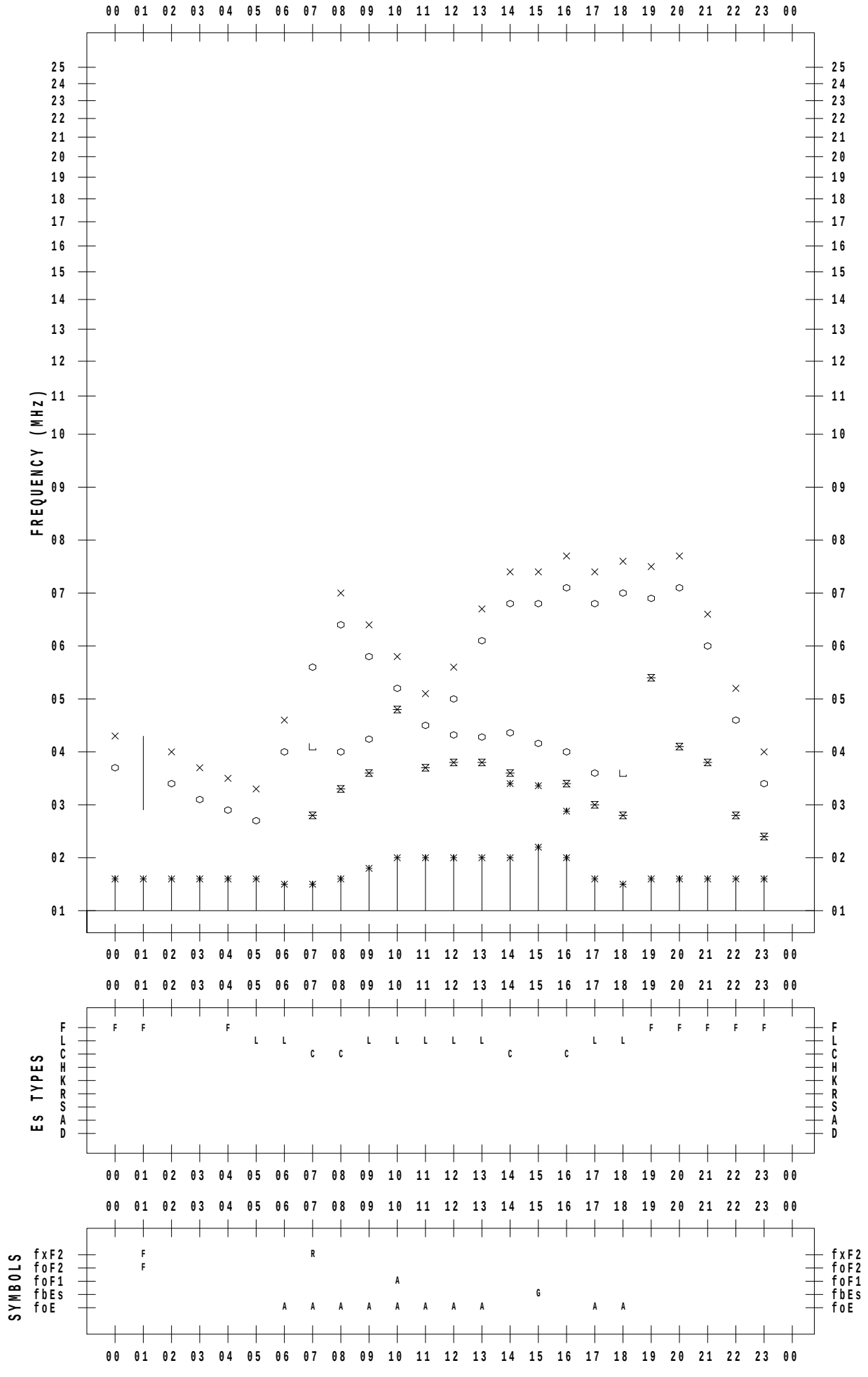
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/ 5

135 °E MEAN TIME



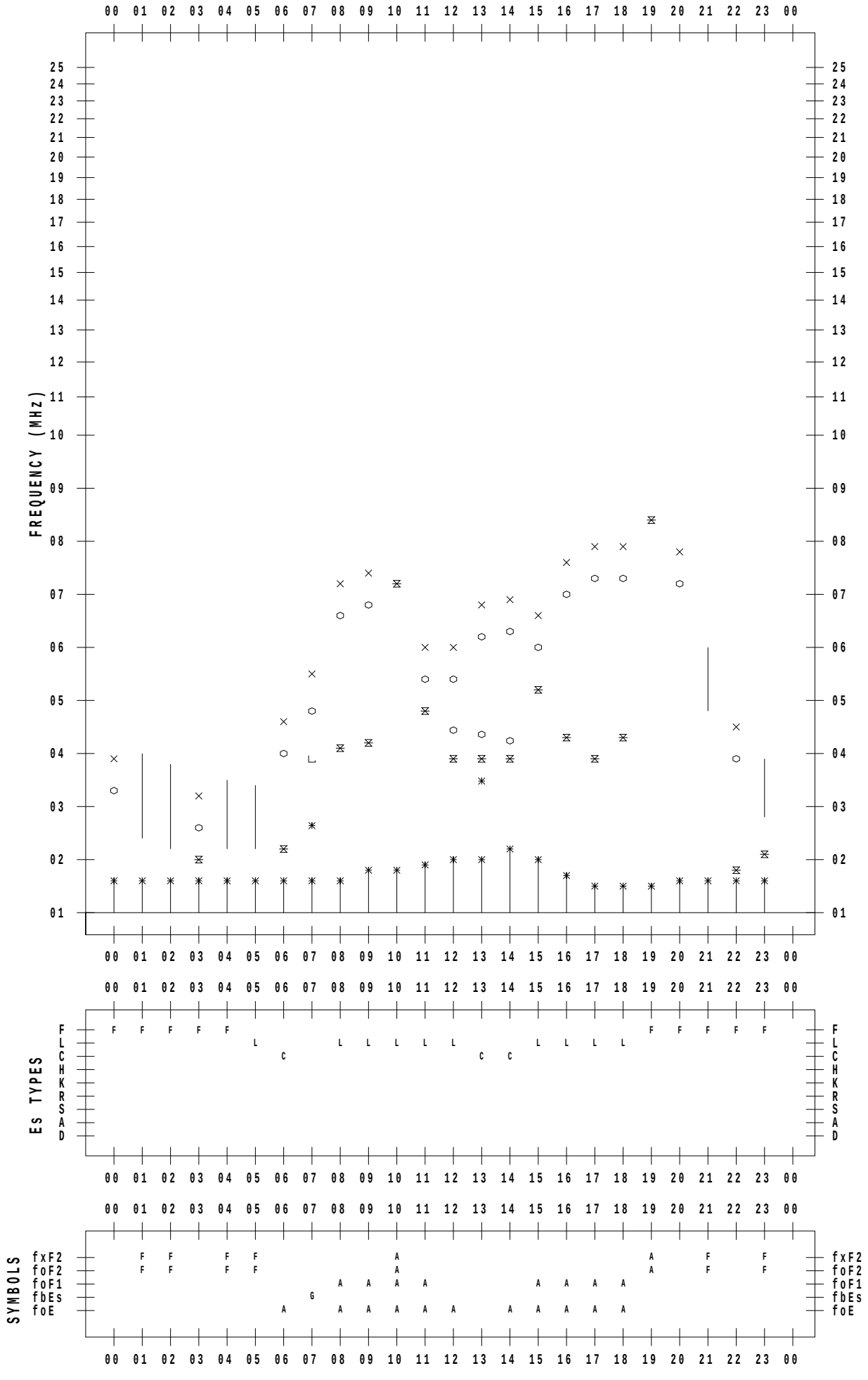
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/ 6

135 °E MEAN TIME



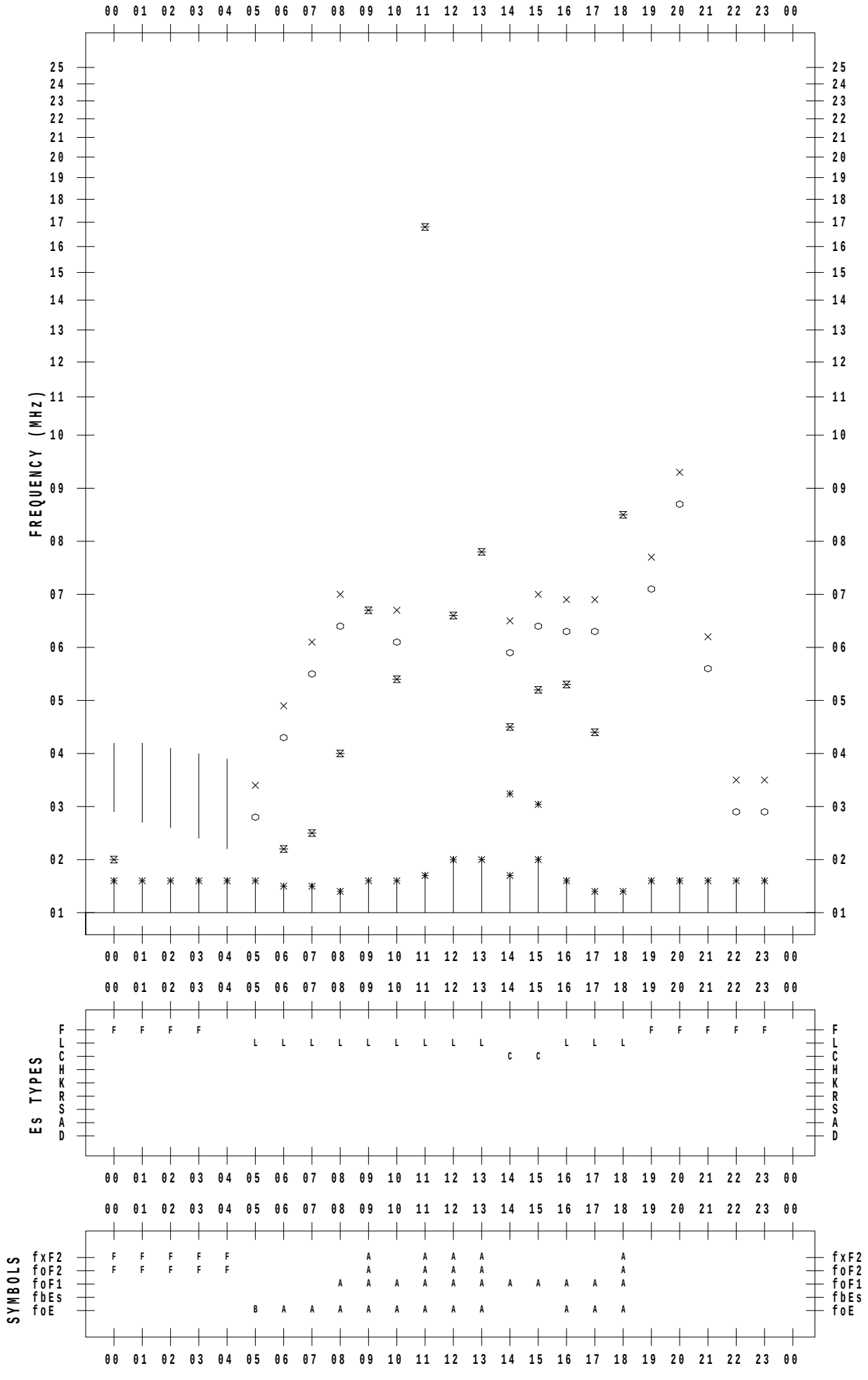
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/ 7

135 °E MEAN TIME



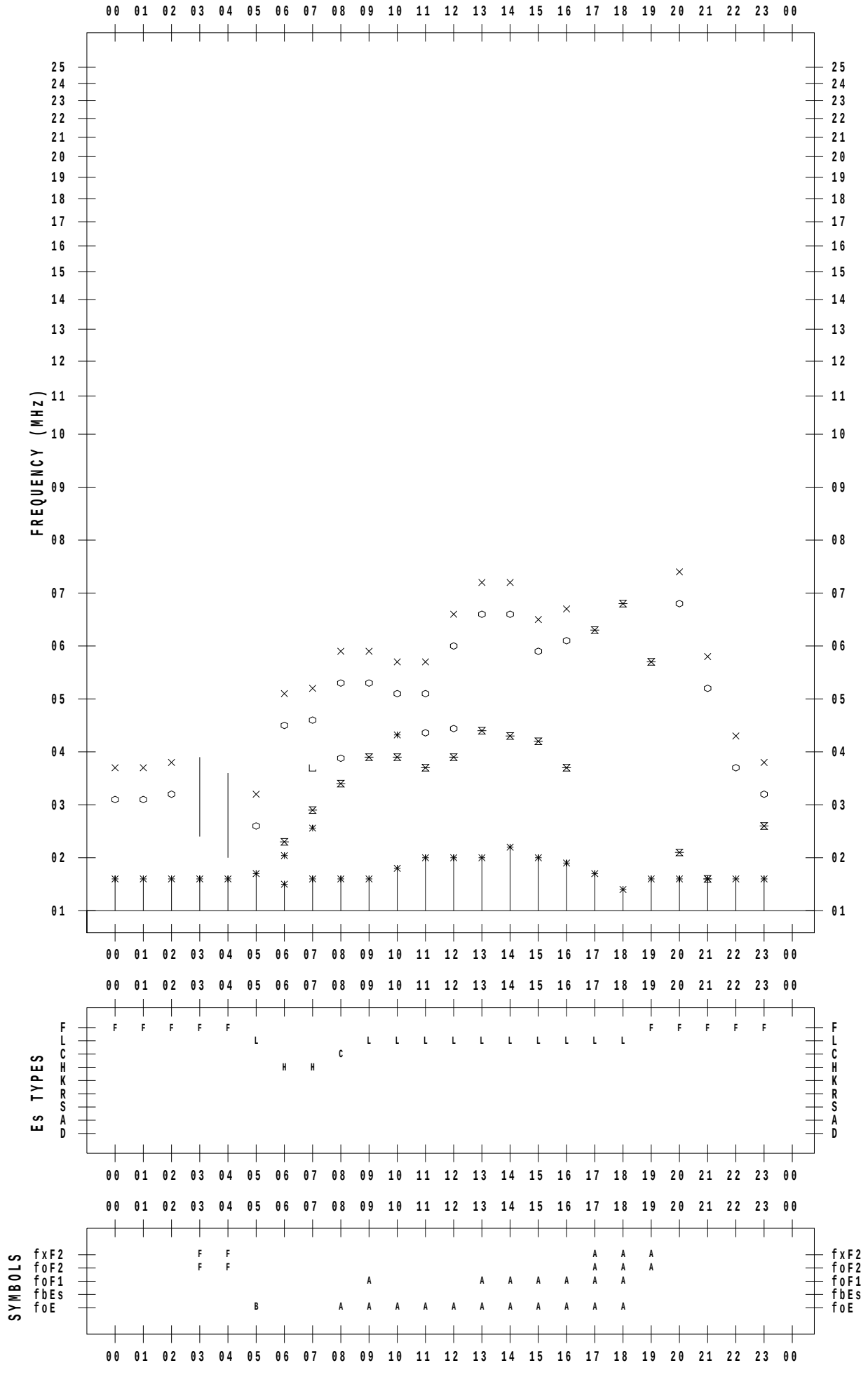
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/ 8

135 °E MEAN TIME



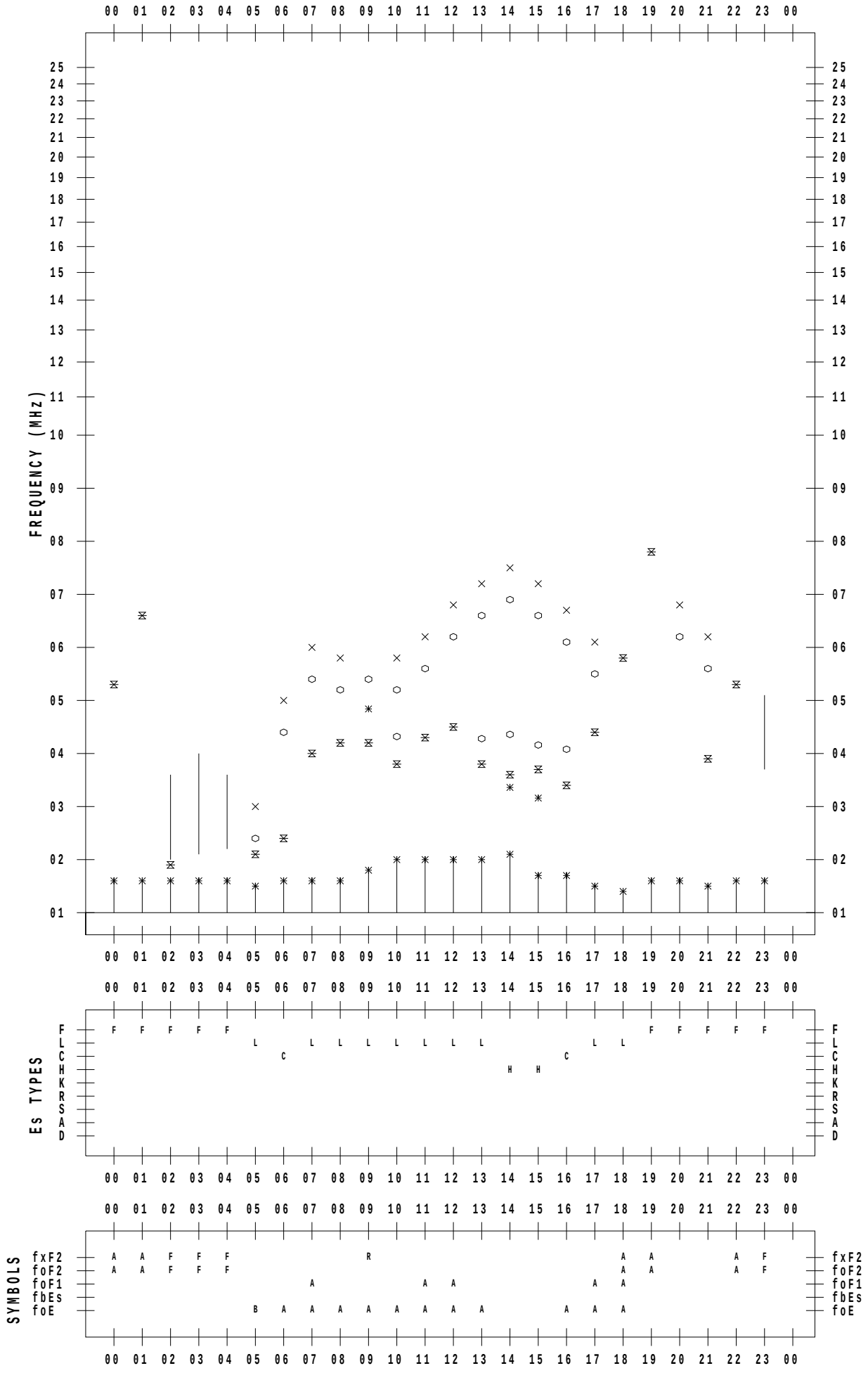
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/ 9

135 °E MEAN TIME



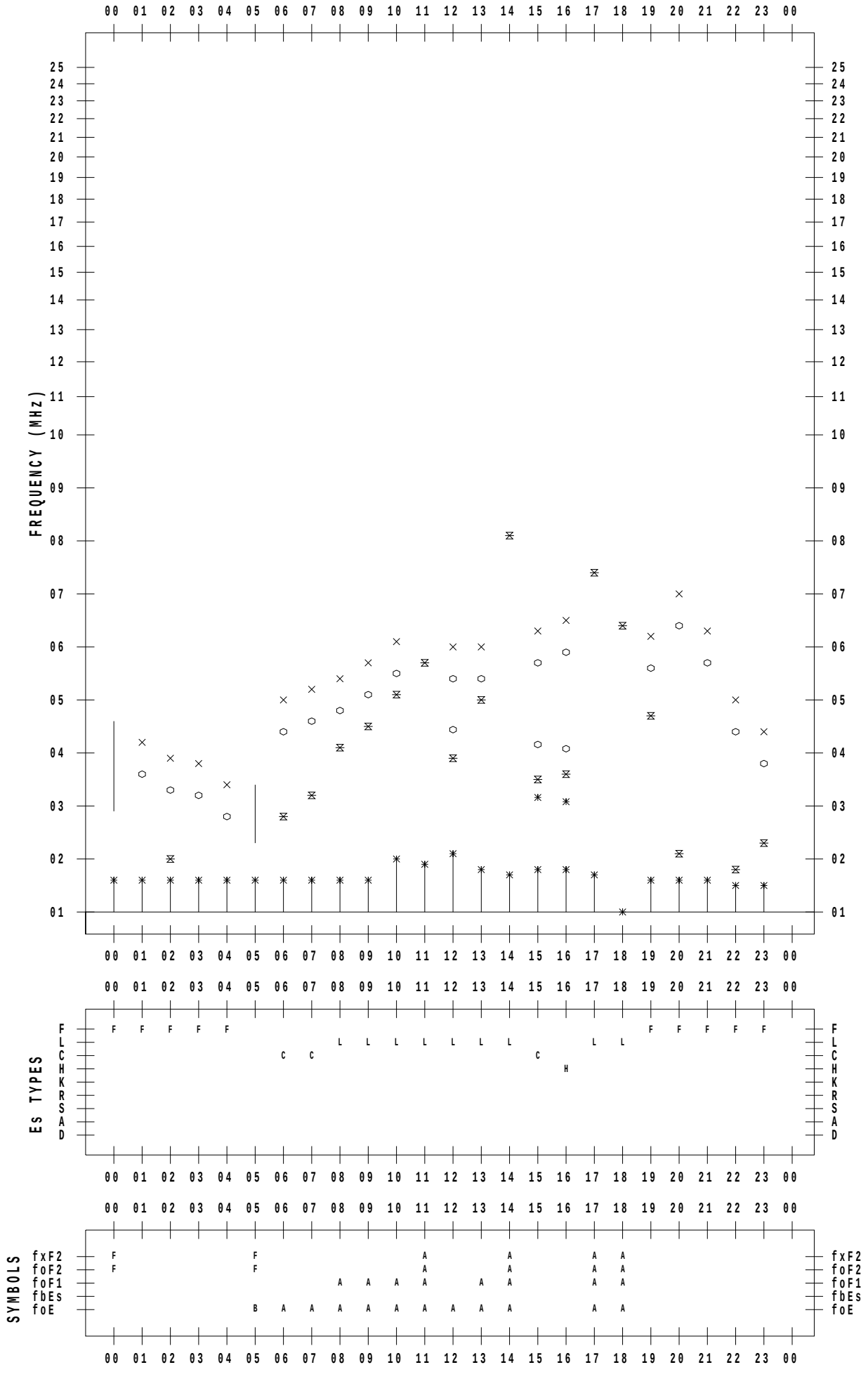
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/10

135 °E MEAN TIME



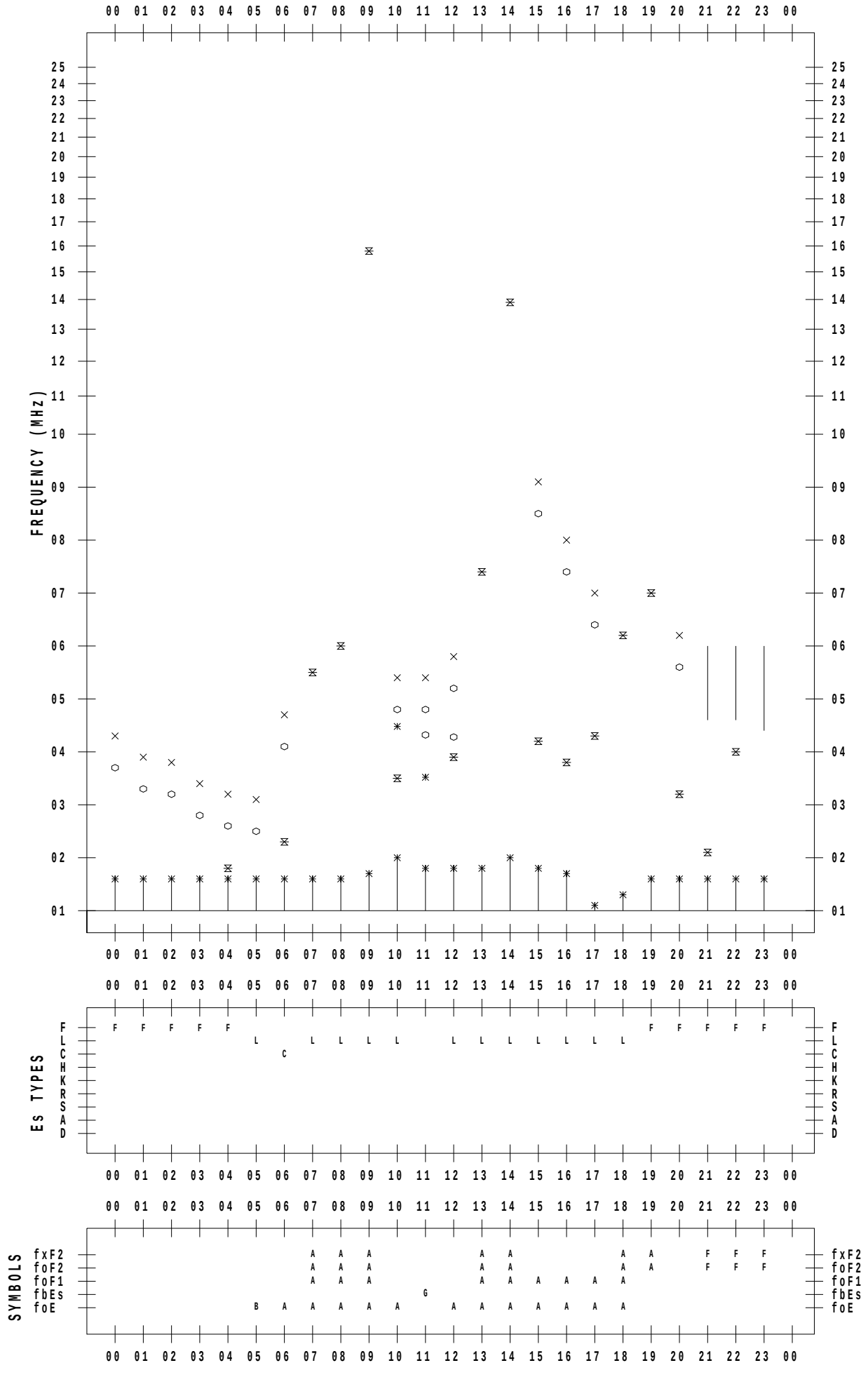
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/11

135 °E MEAN TIME



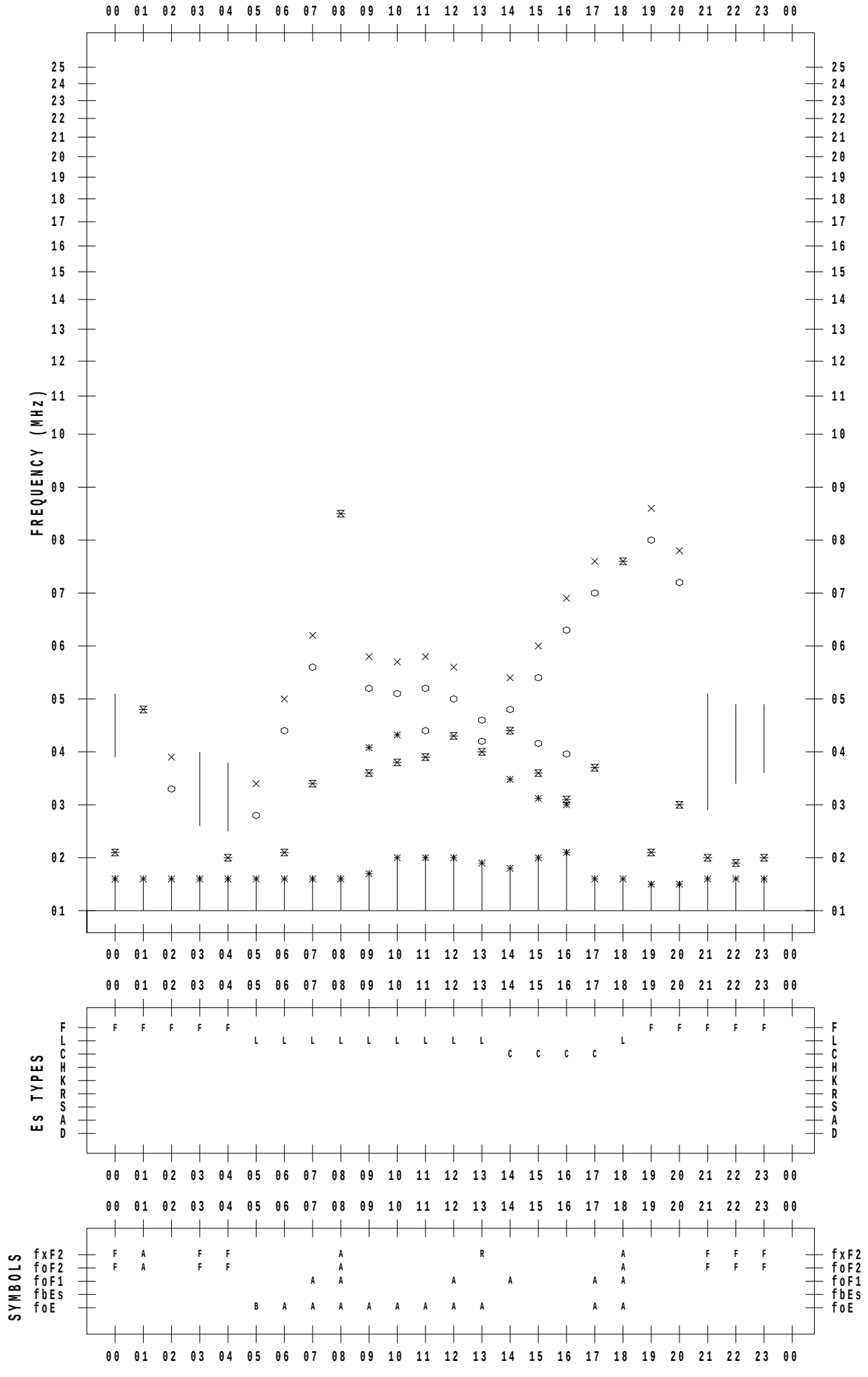
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/12

135 °E MEAN TIME



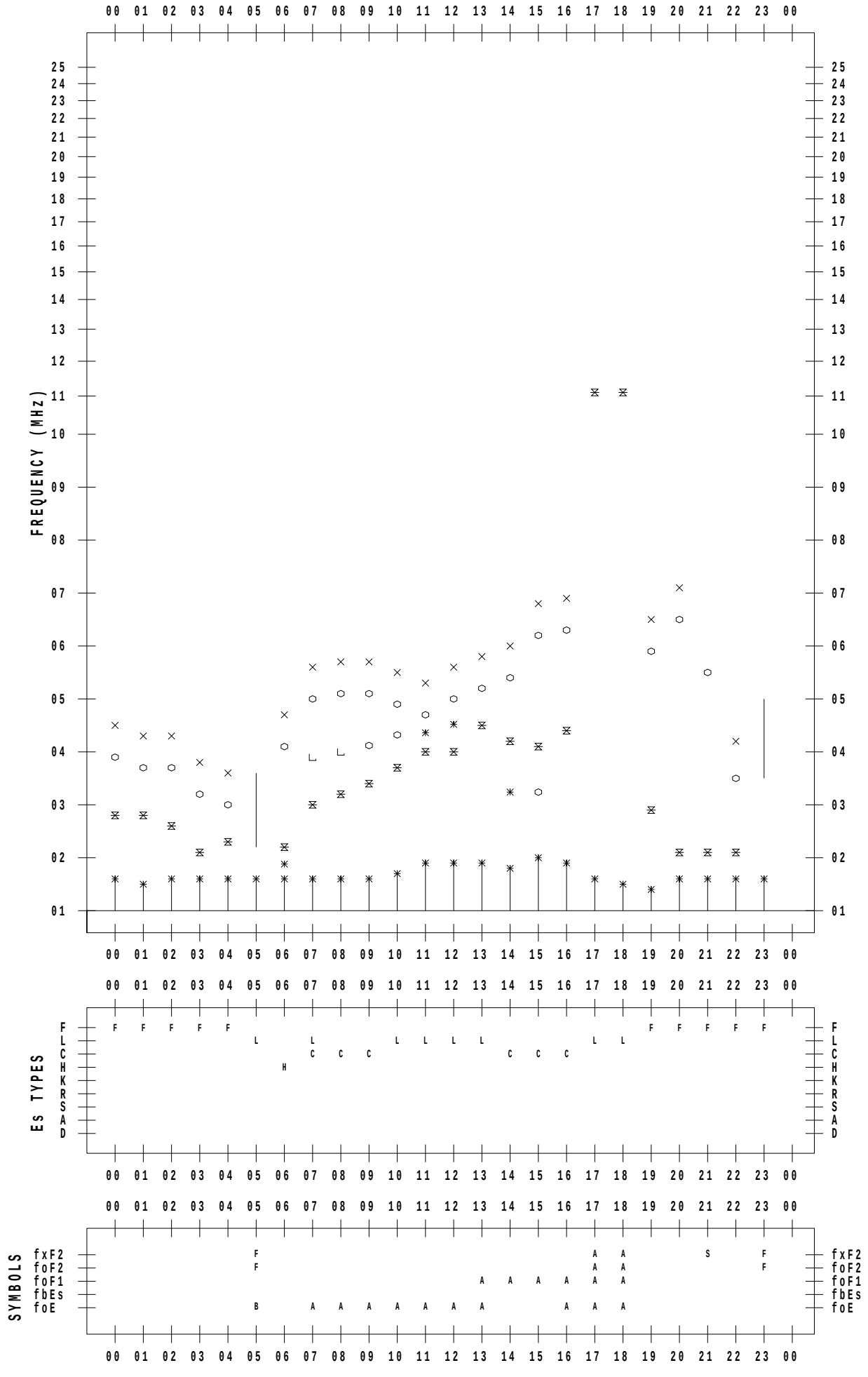
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/13

135 °E MEAN TIME



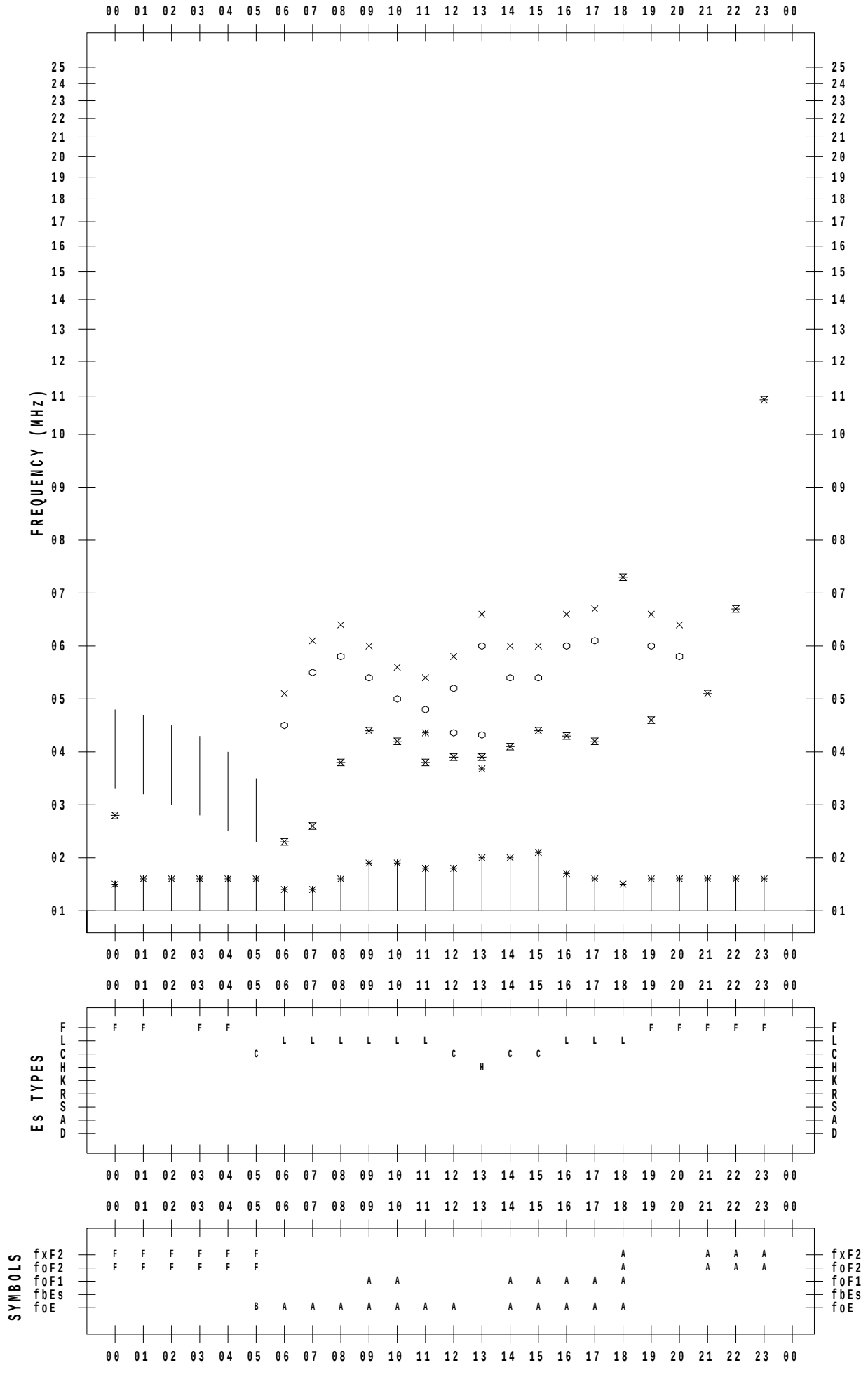
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/14

135 °E MEAN TIME



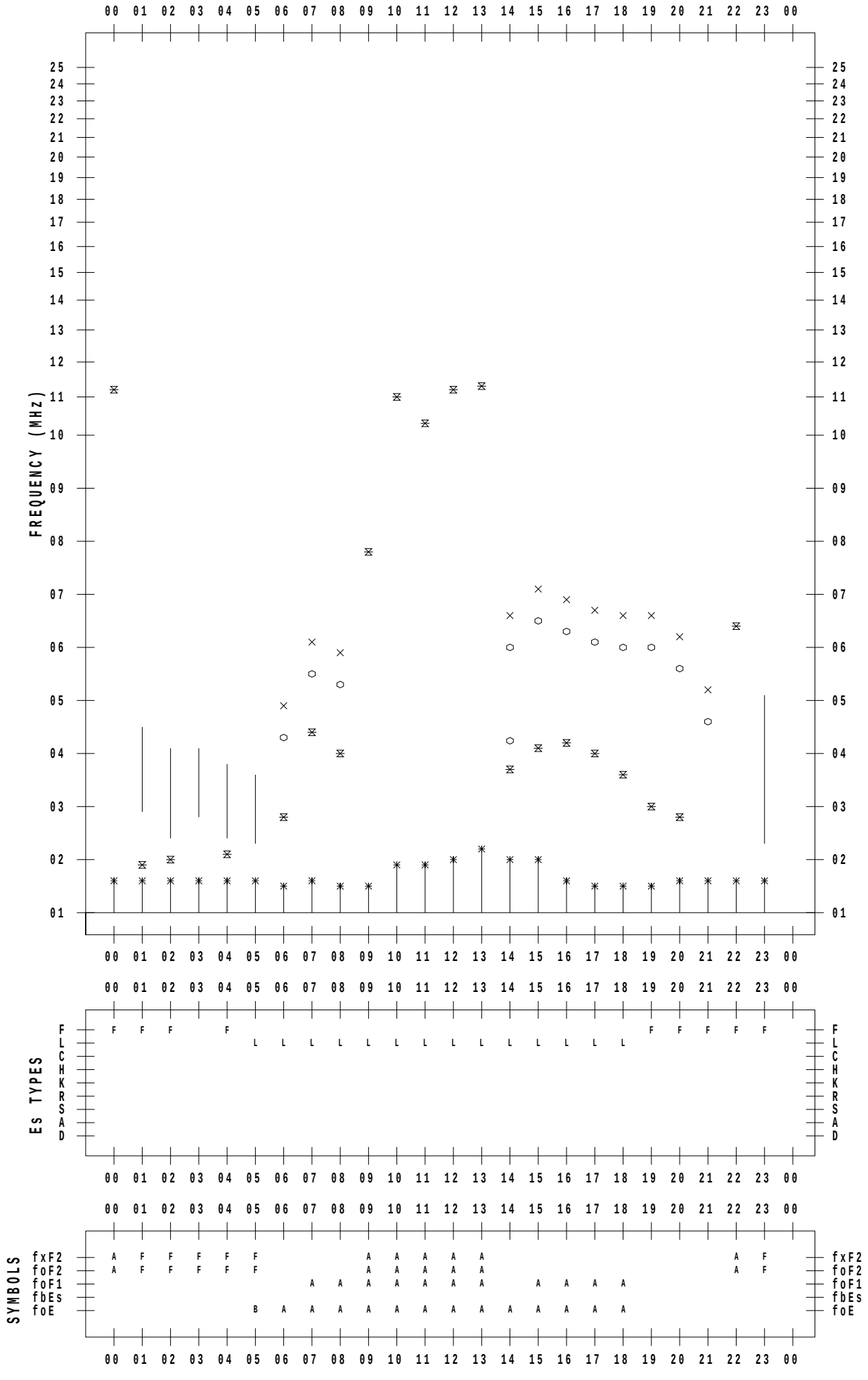
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/15

135 °E MEAN TIME



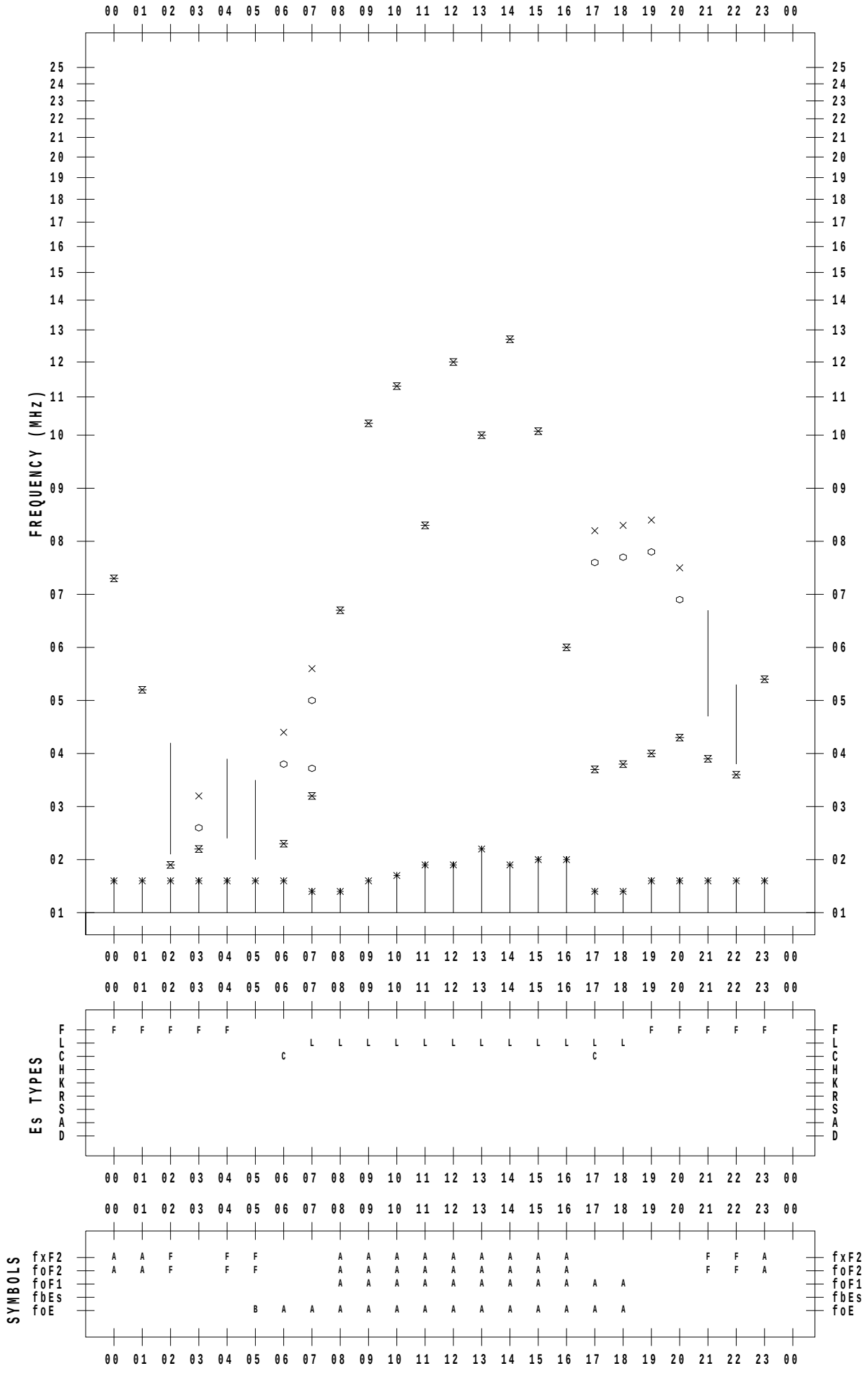
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/16

135 °E MEAN TIME



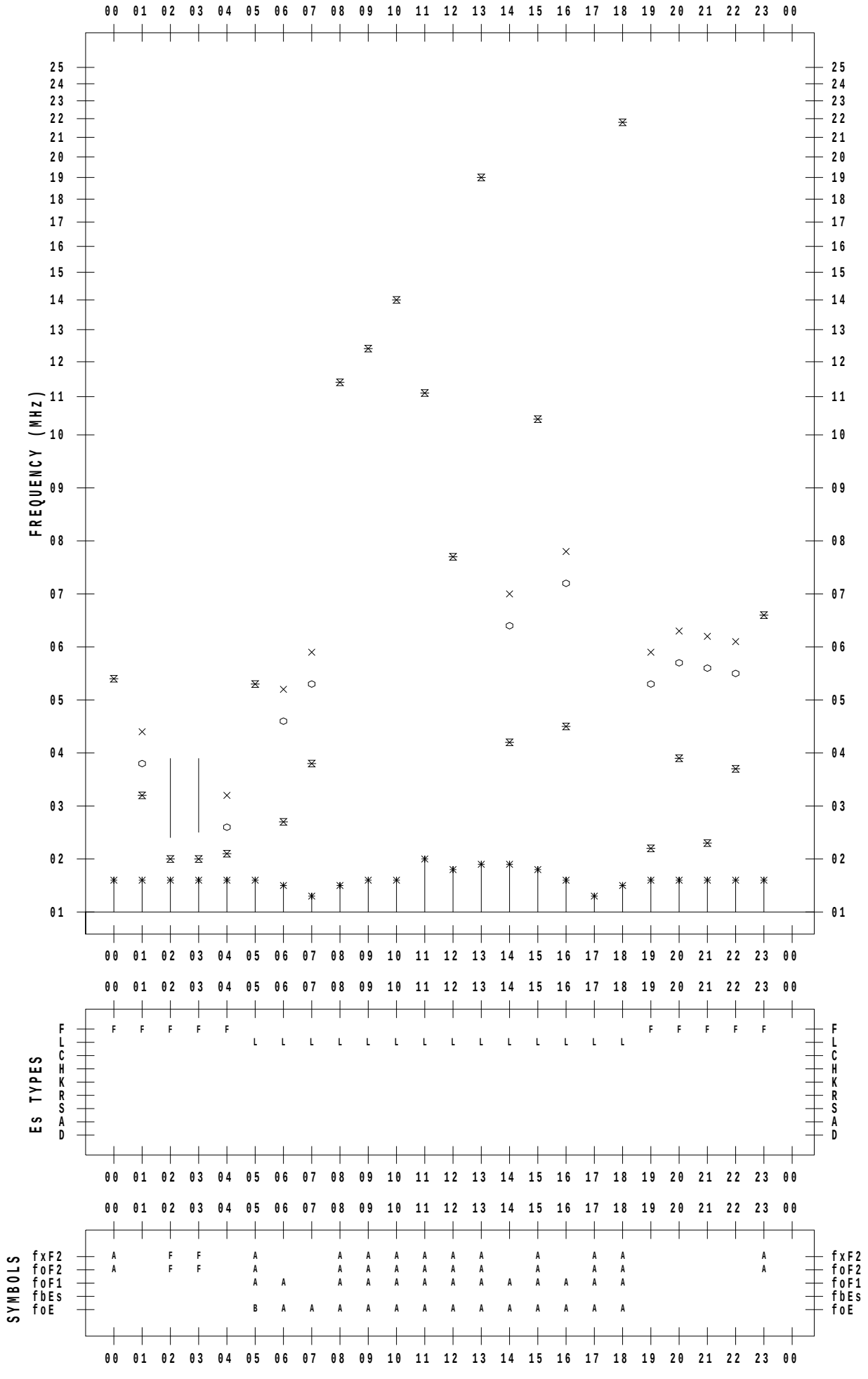
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/17

135 °E MEAN TIME



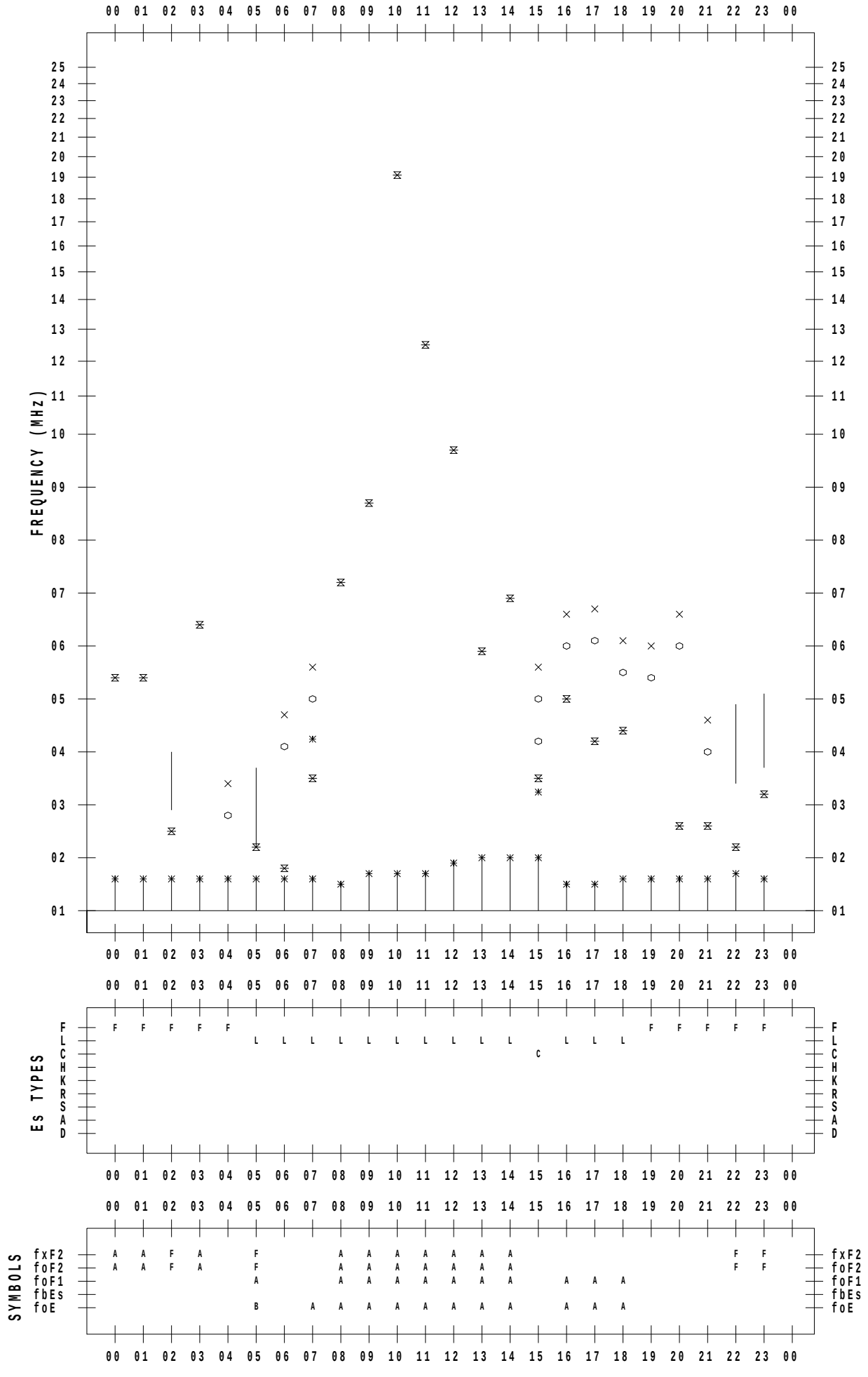
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/18

135 °E MEAN TIME



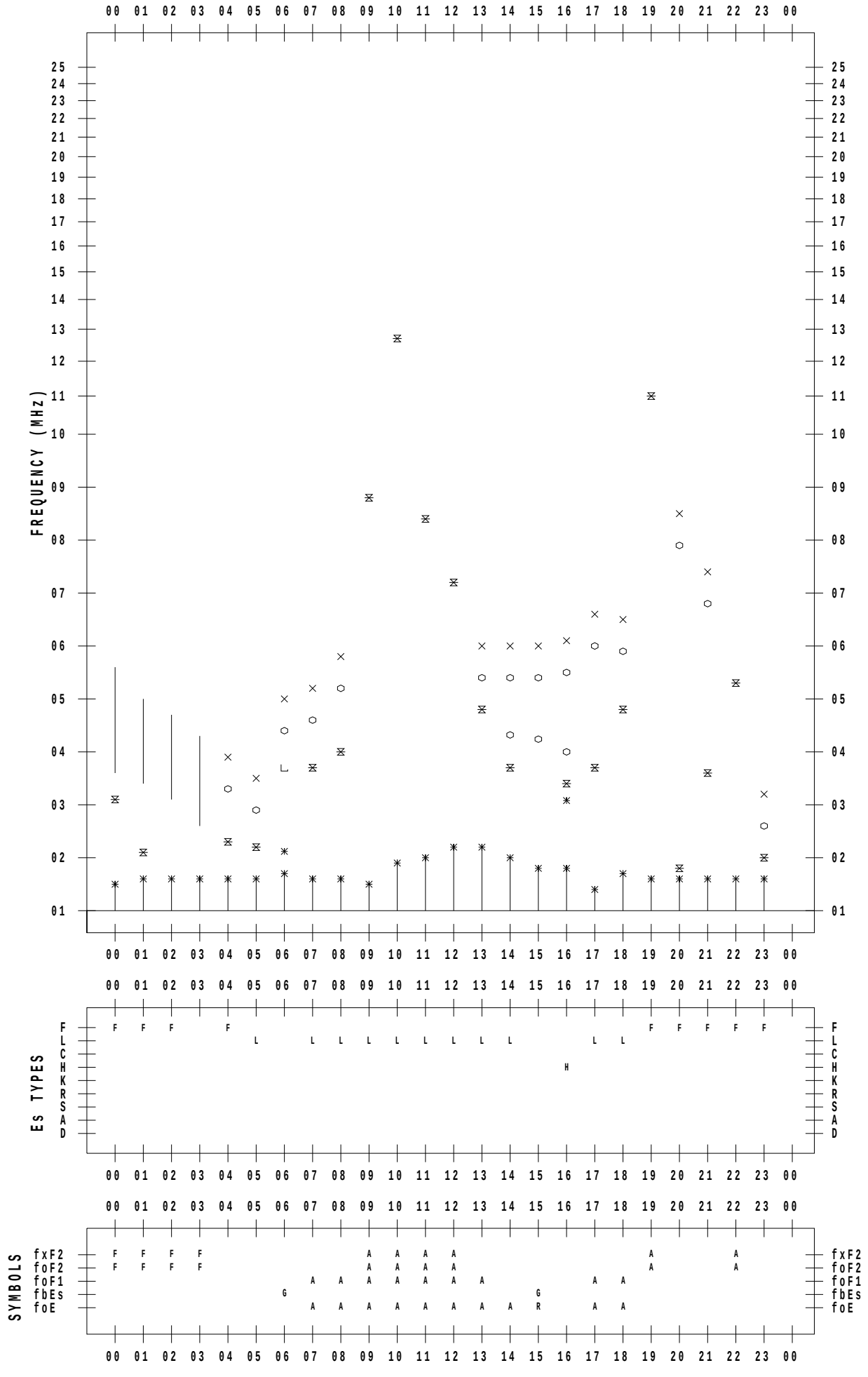
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/19

135 °E MEAN TIME



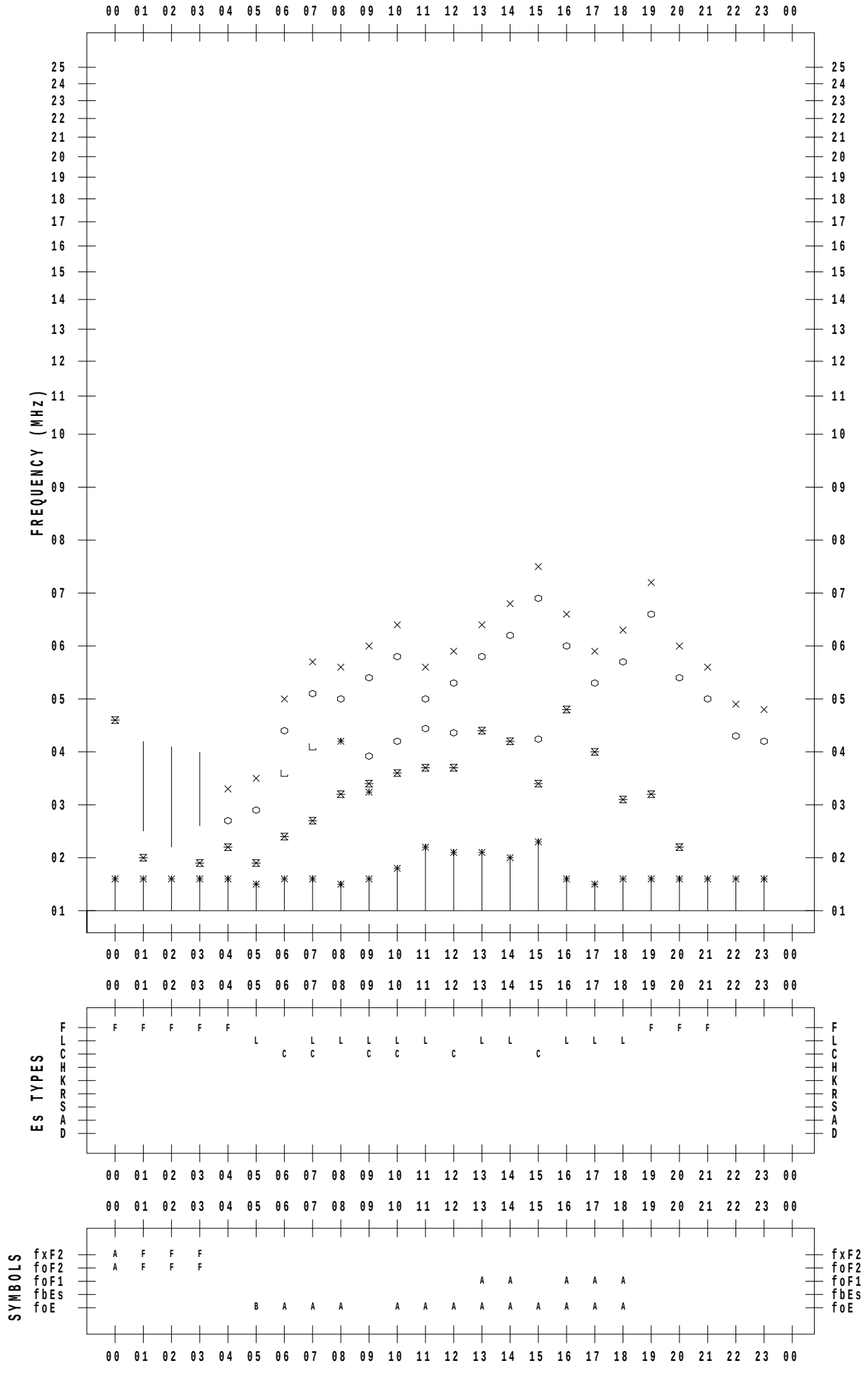
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/20

135 °E MEAN TIME



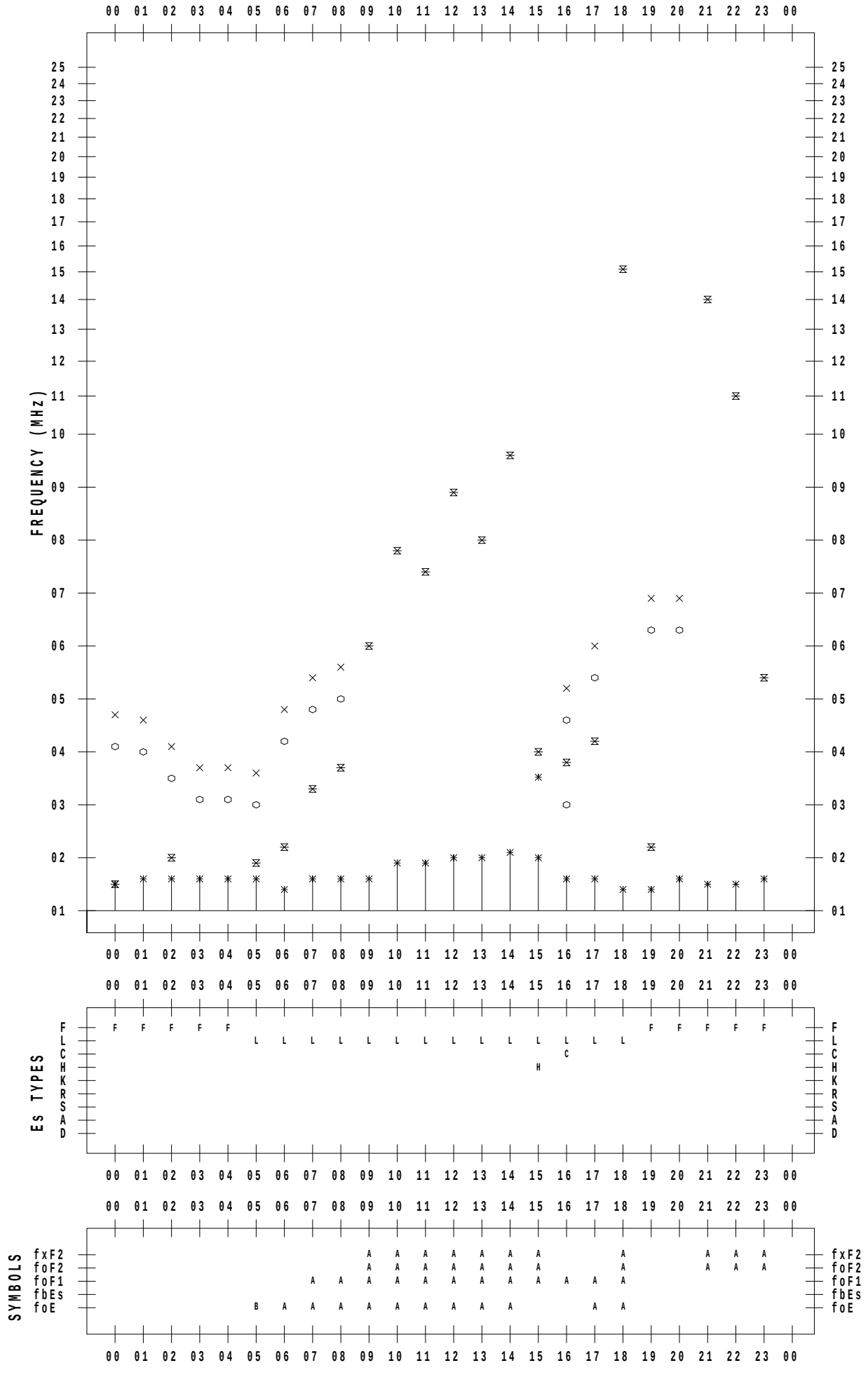
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/21

135 °E MEAN TIME



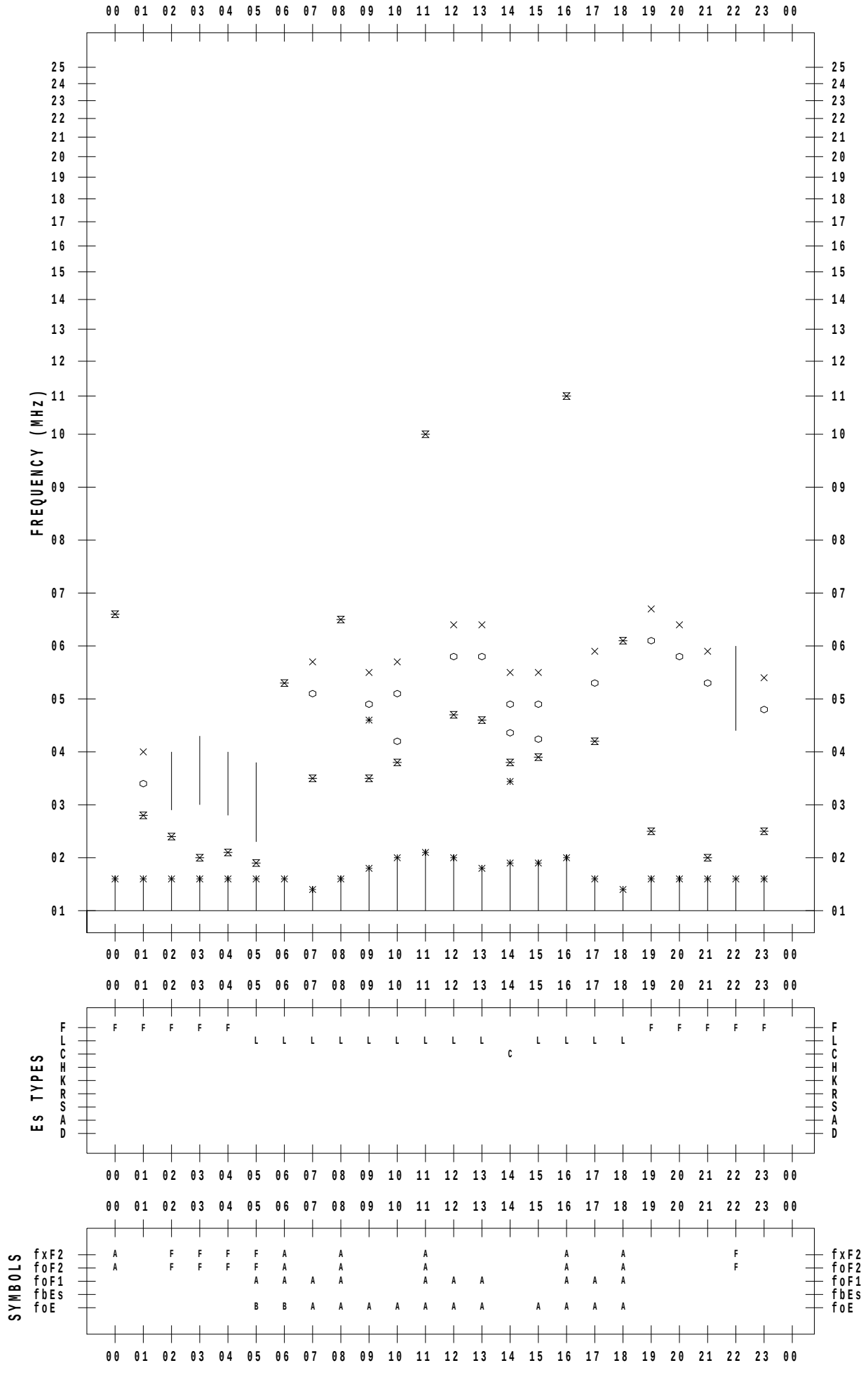
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/22

135 °E MEAN TIME



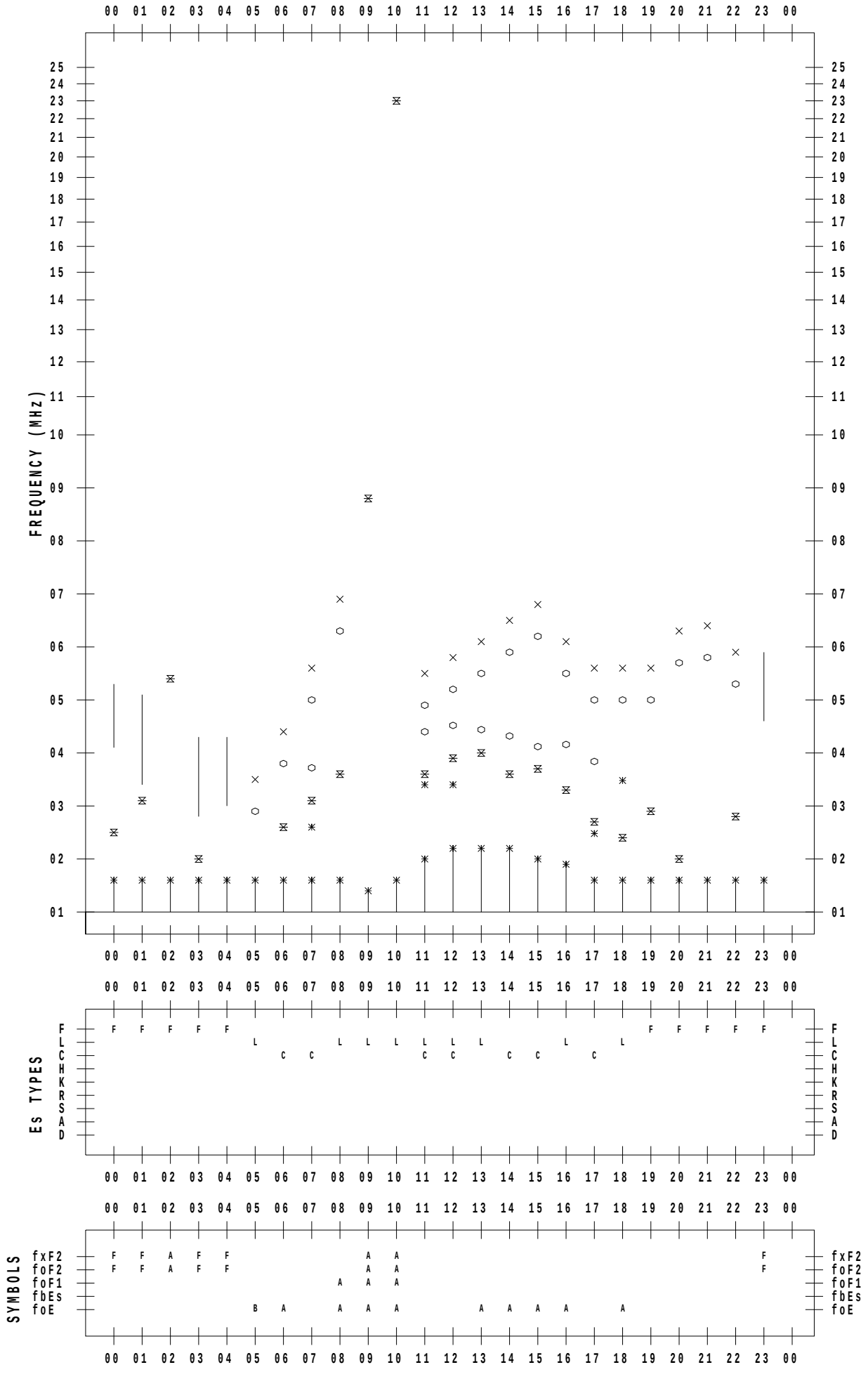
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/23

135 °E MEAN TIME



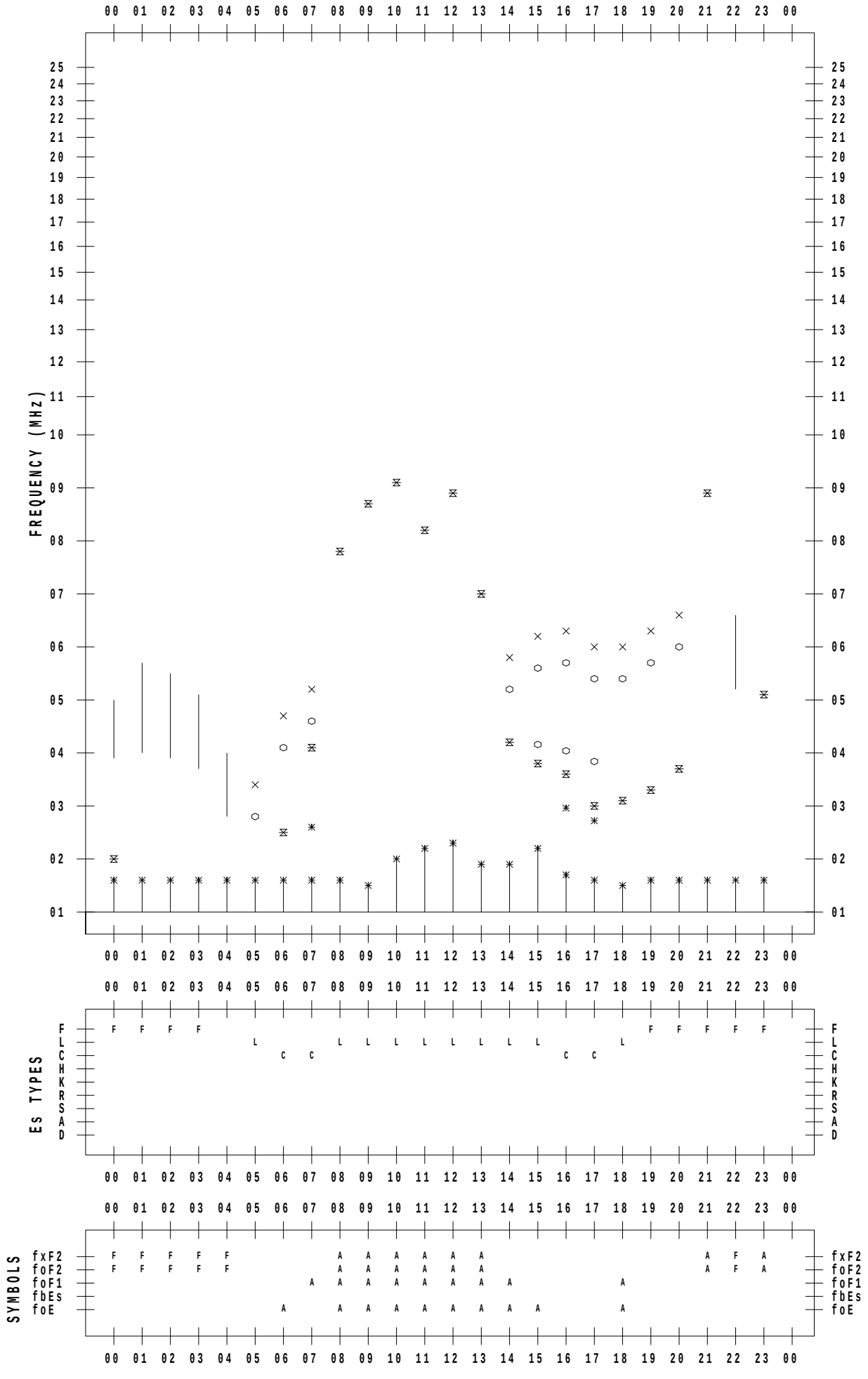
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/24

135 °E MEAN TIME



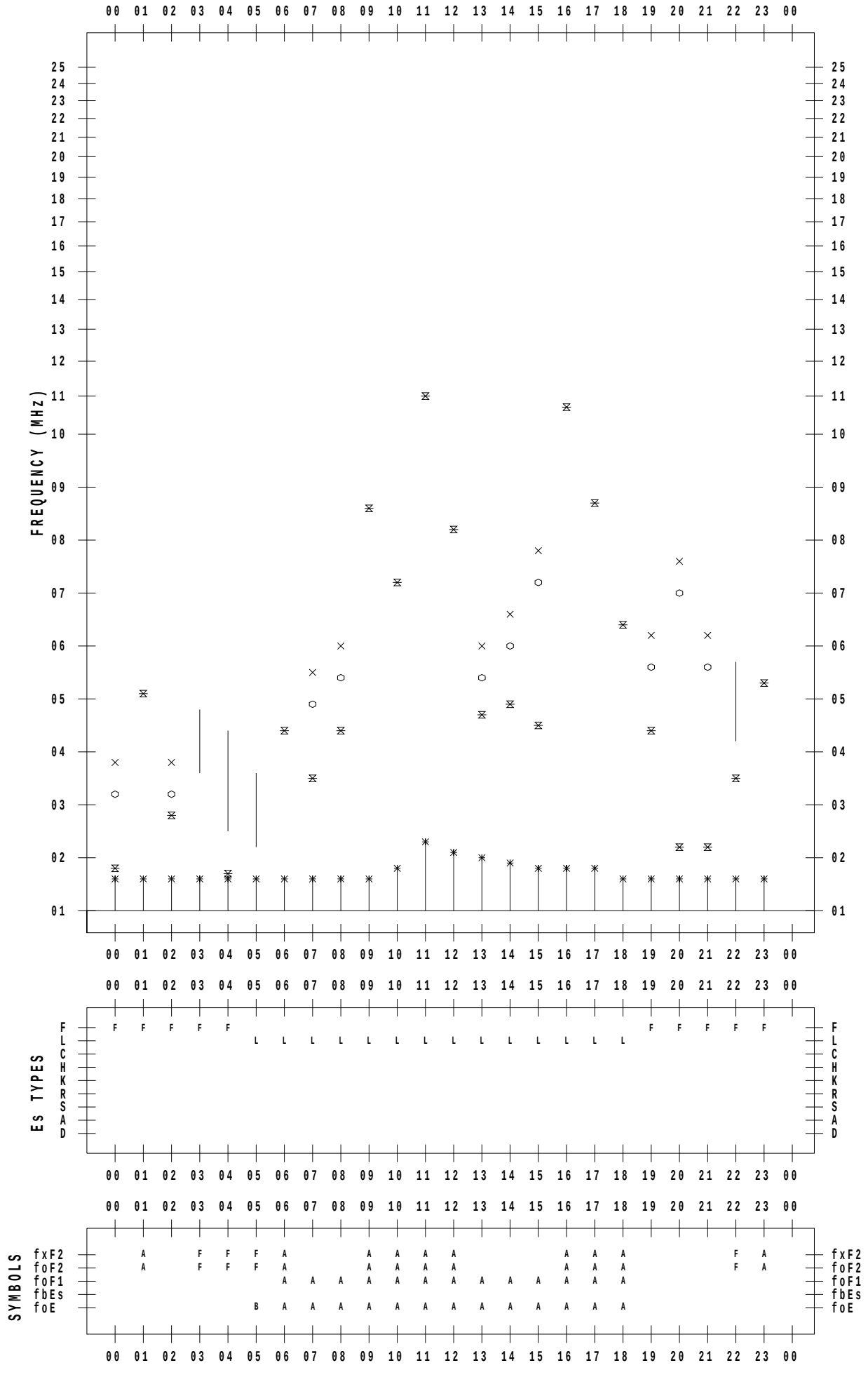
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/25

135 °E MEAN TIME



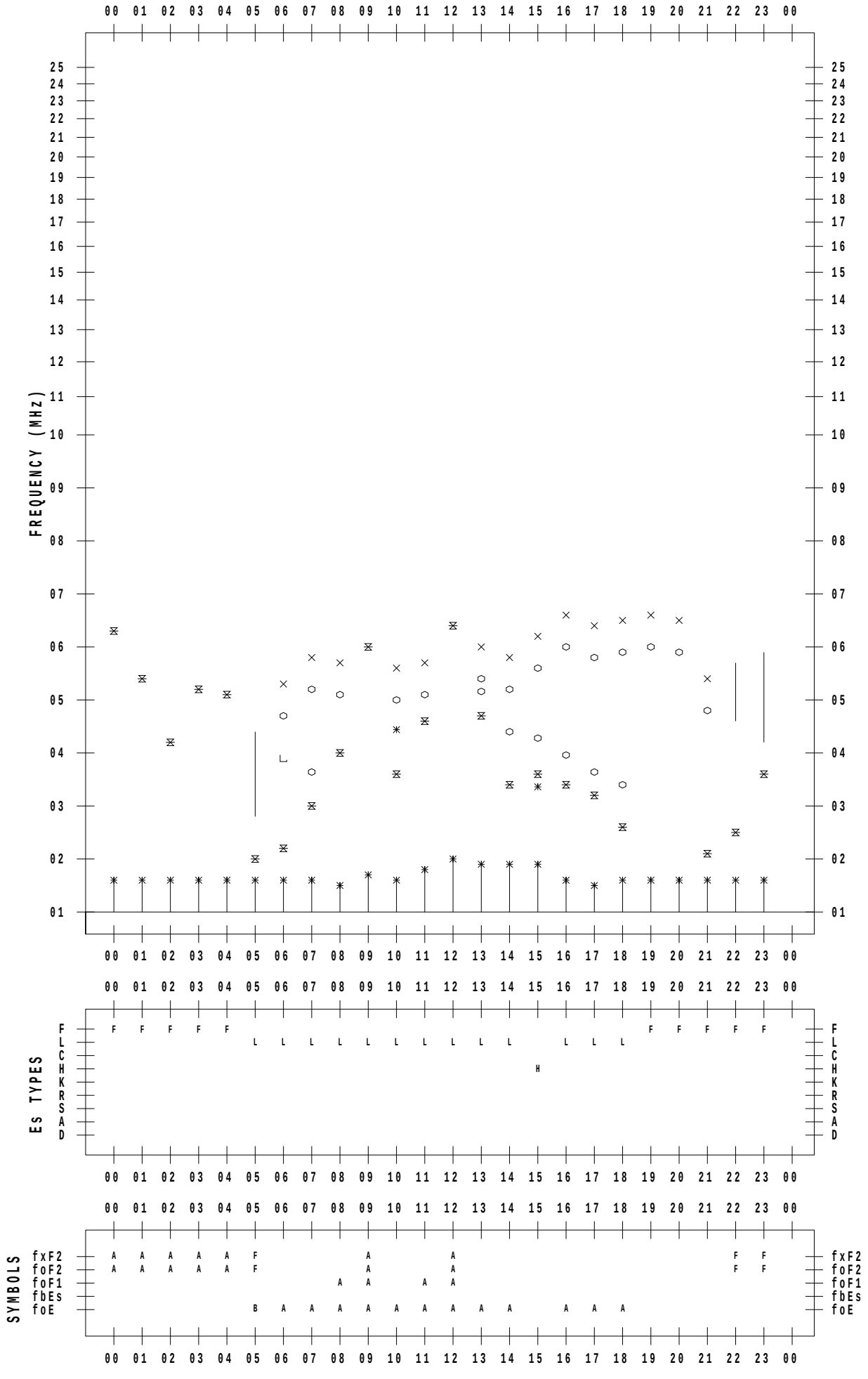
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/26

135 °E MEAN TIME



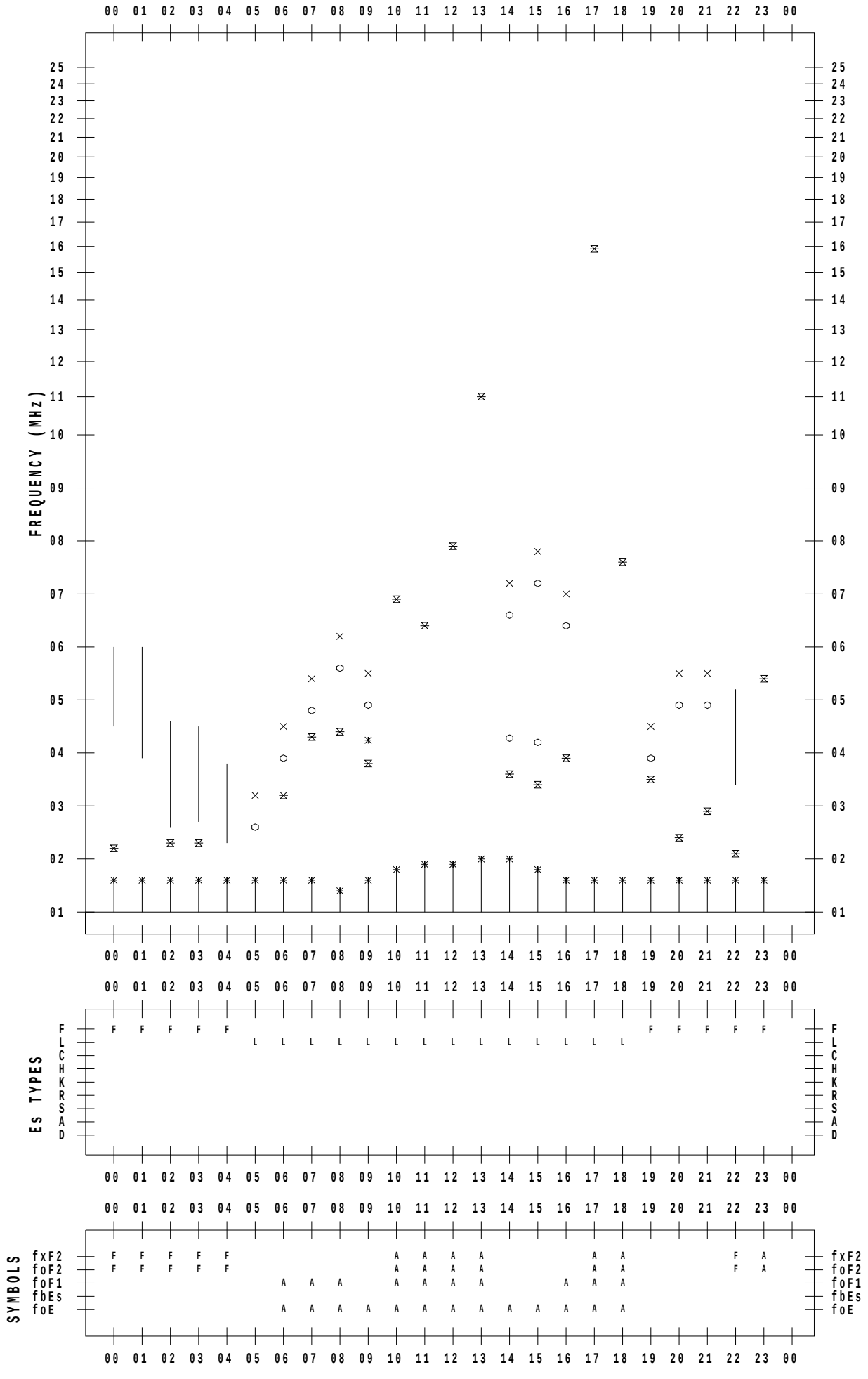
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/27

135 °E MEAN TIME



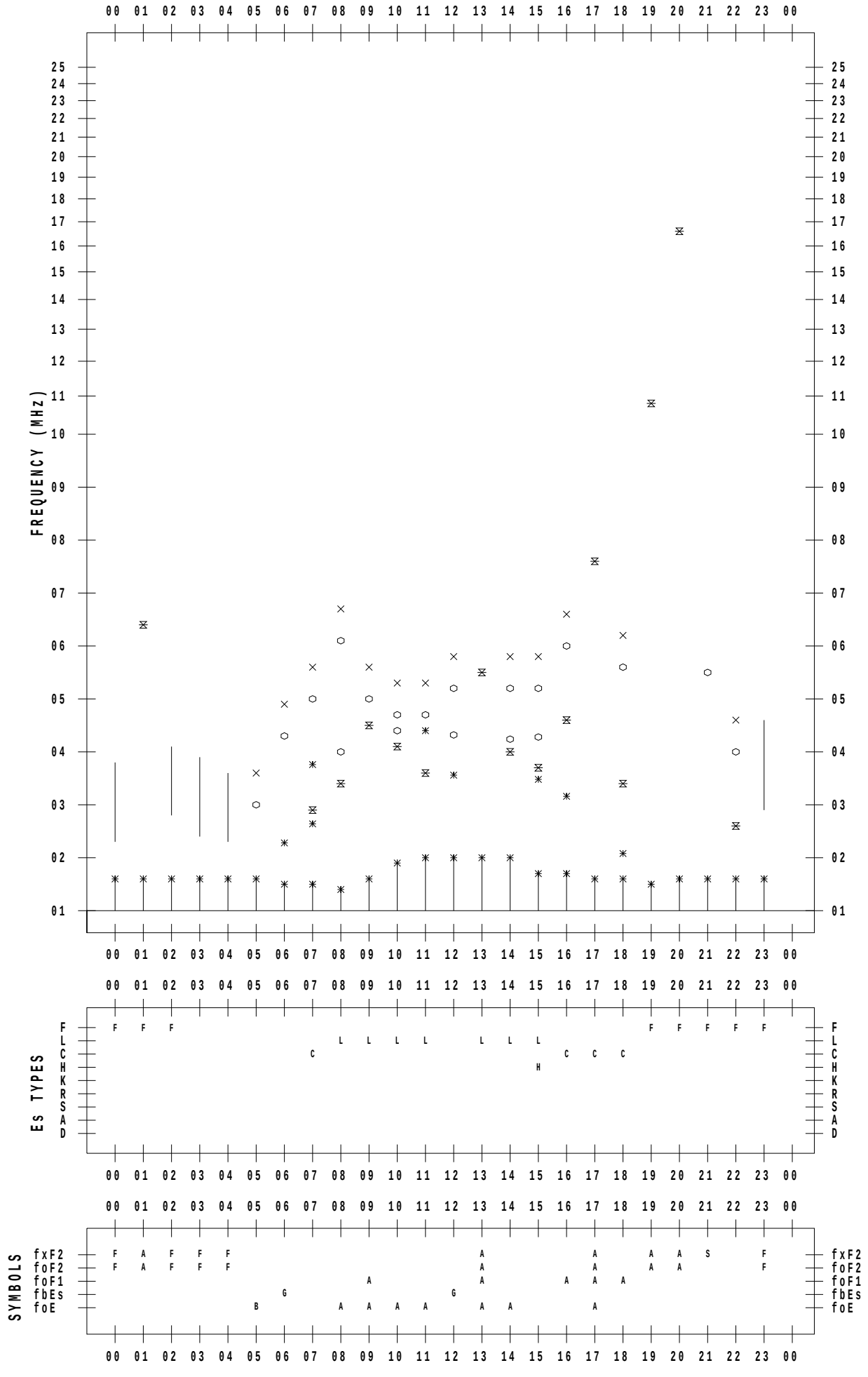
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/28

135 °E MEAN TIME



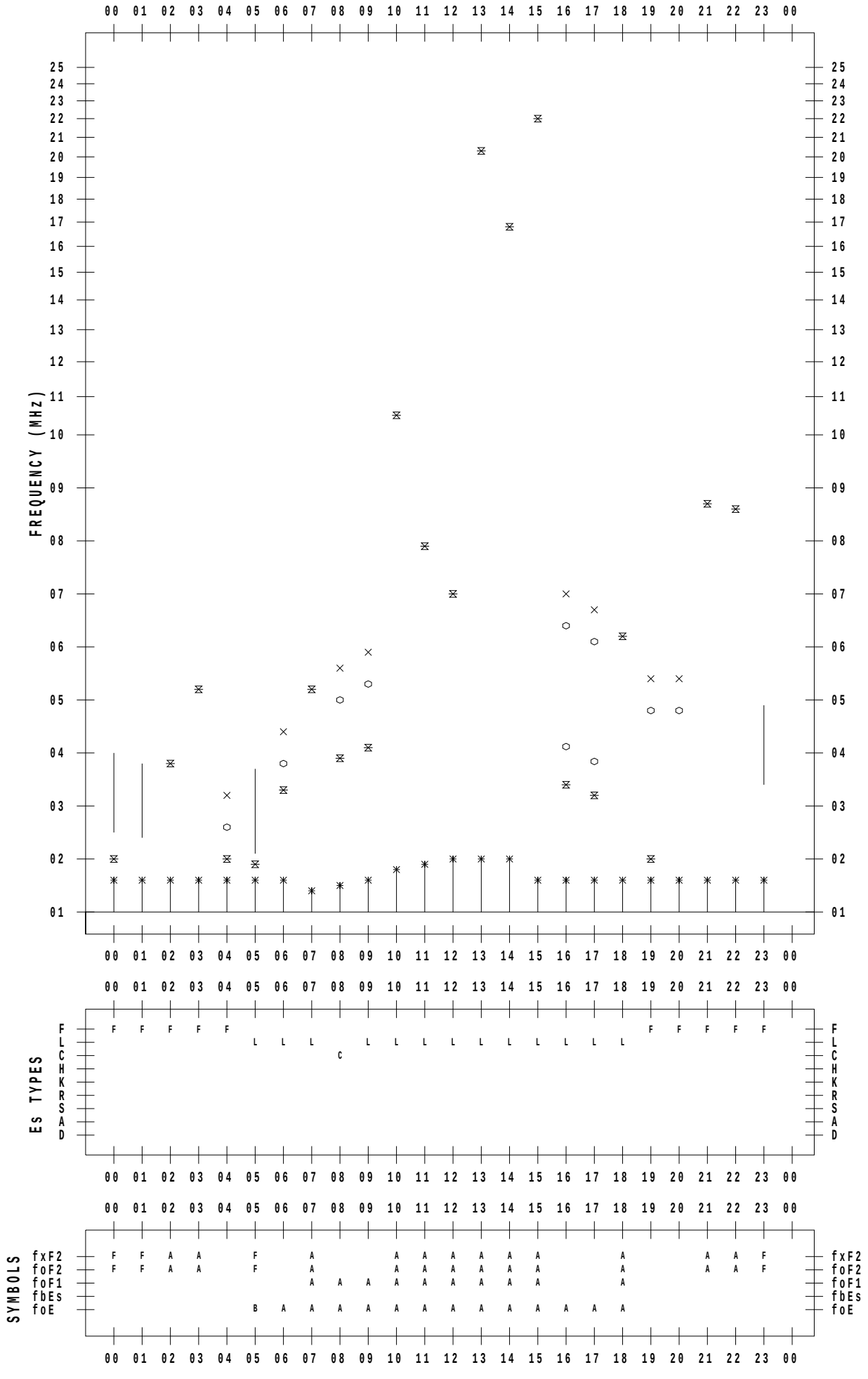
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/29

135 °E MEAN TIME



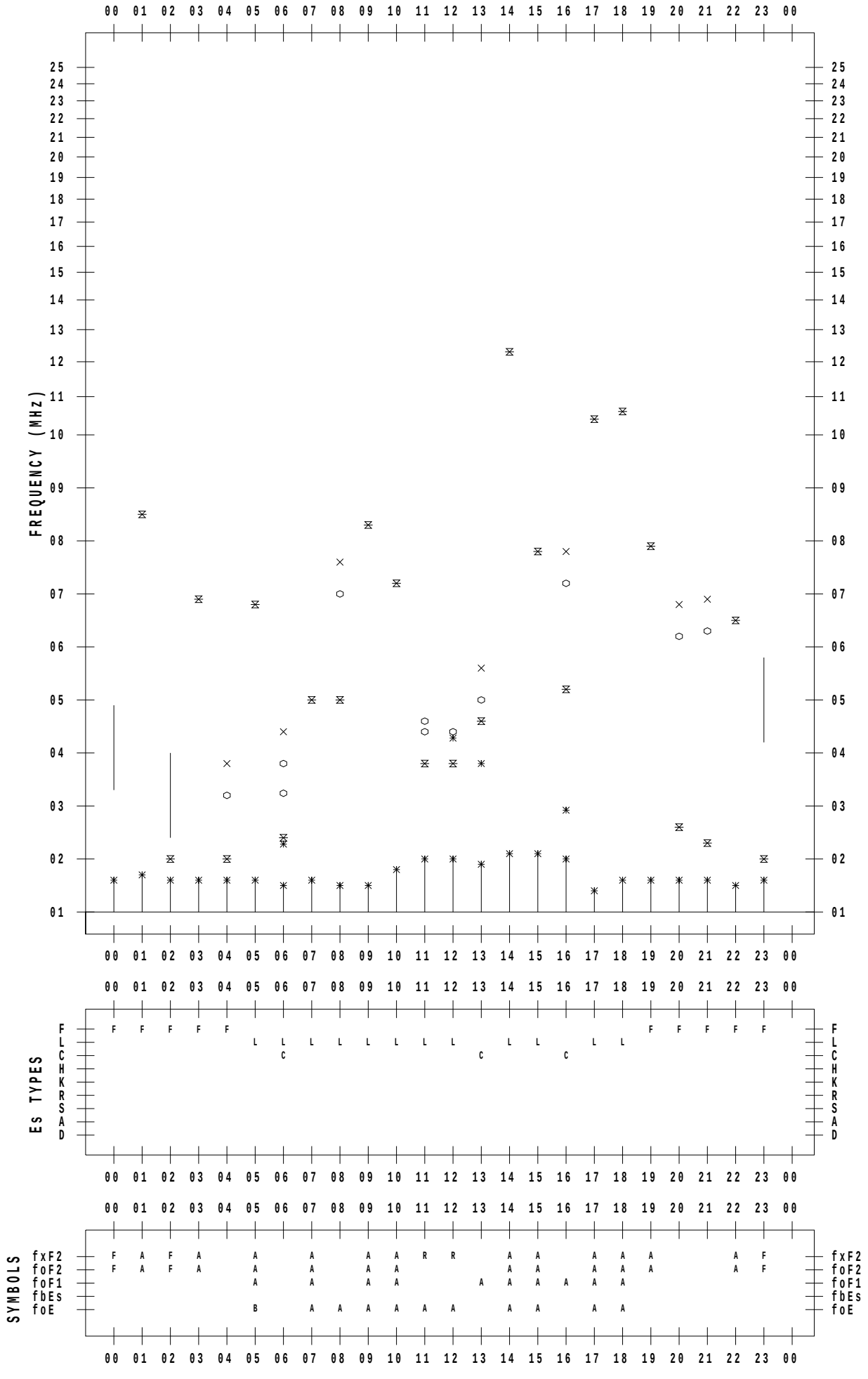
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/30

135 °E MEAN TIME



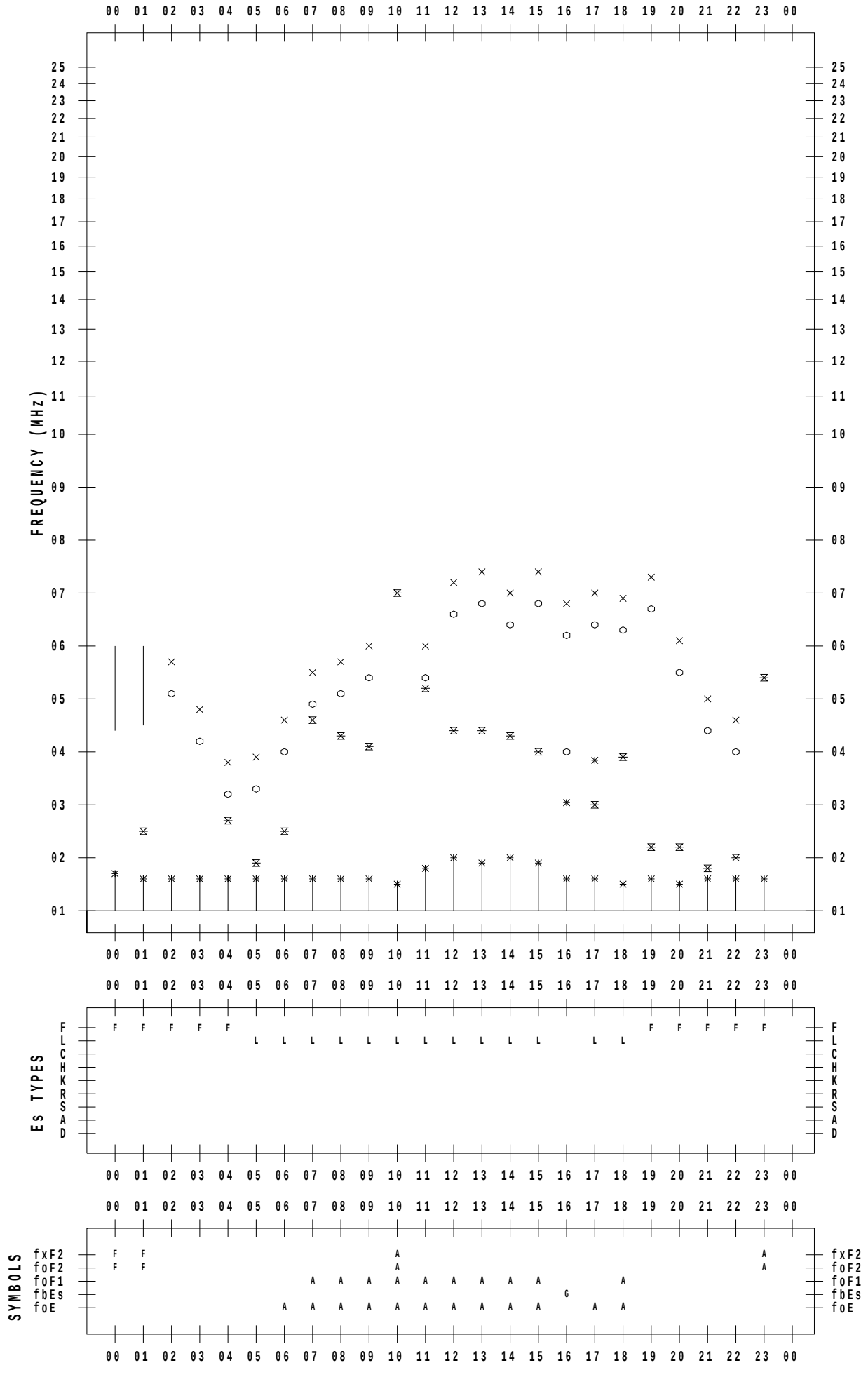
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/ 5/31

135 °E MEAN TIME



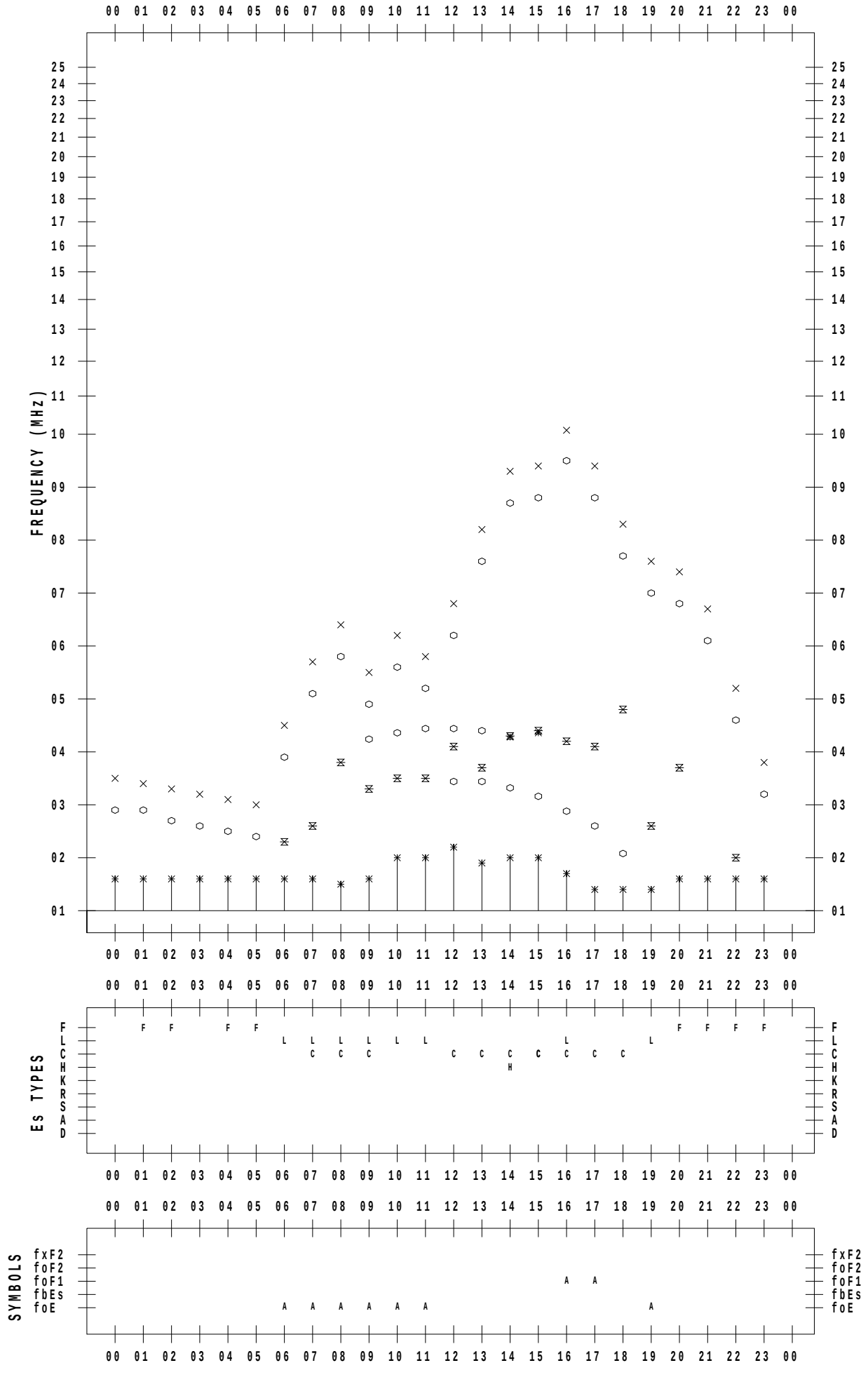
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/ 1

135 °E MEAN TIME



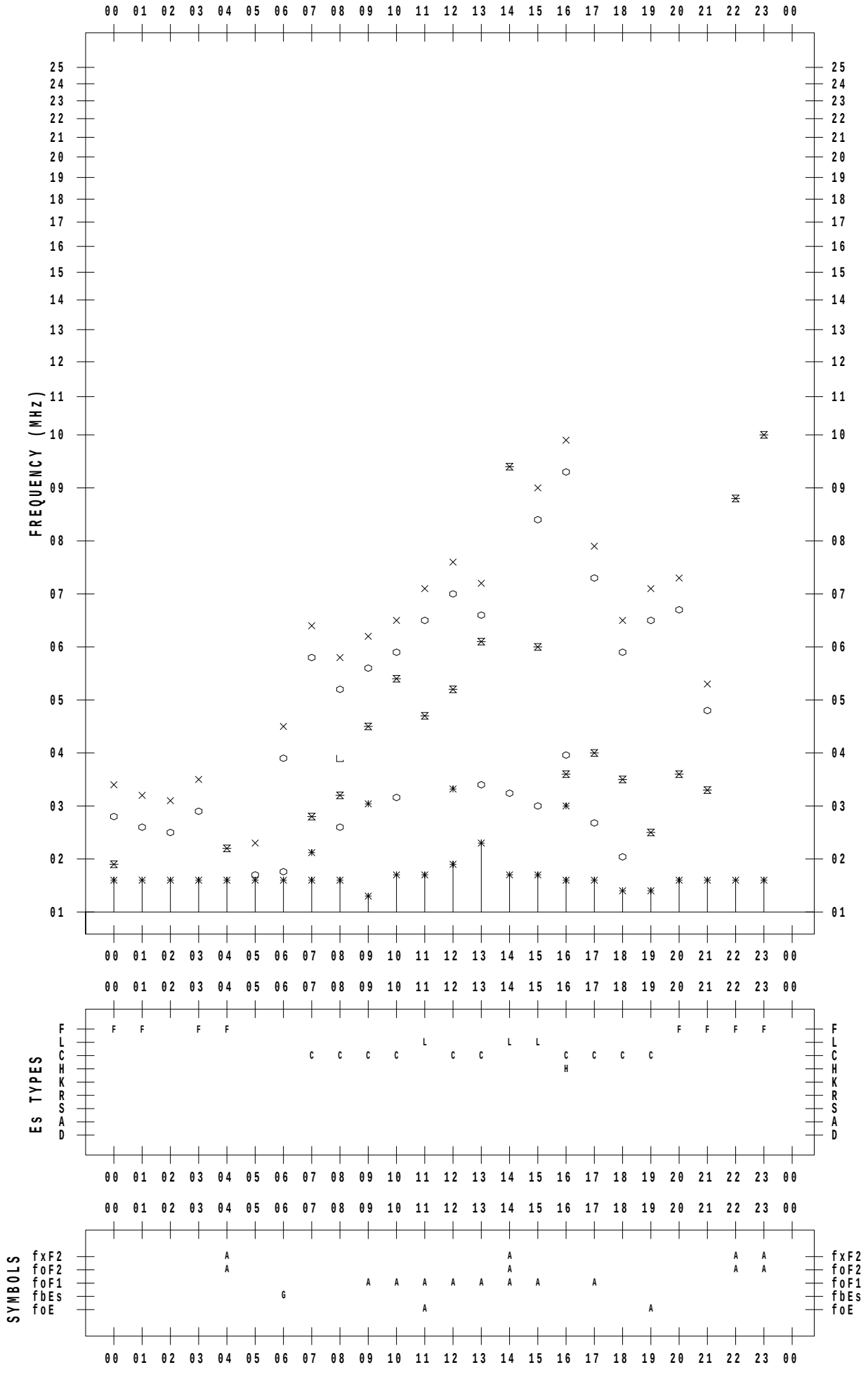
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/ 2

135 °E MEAN TIME



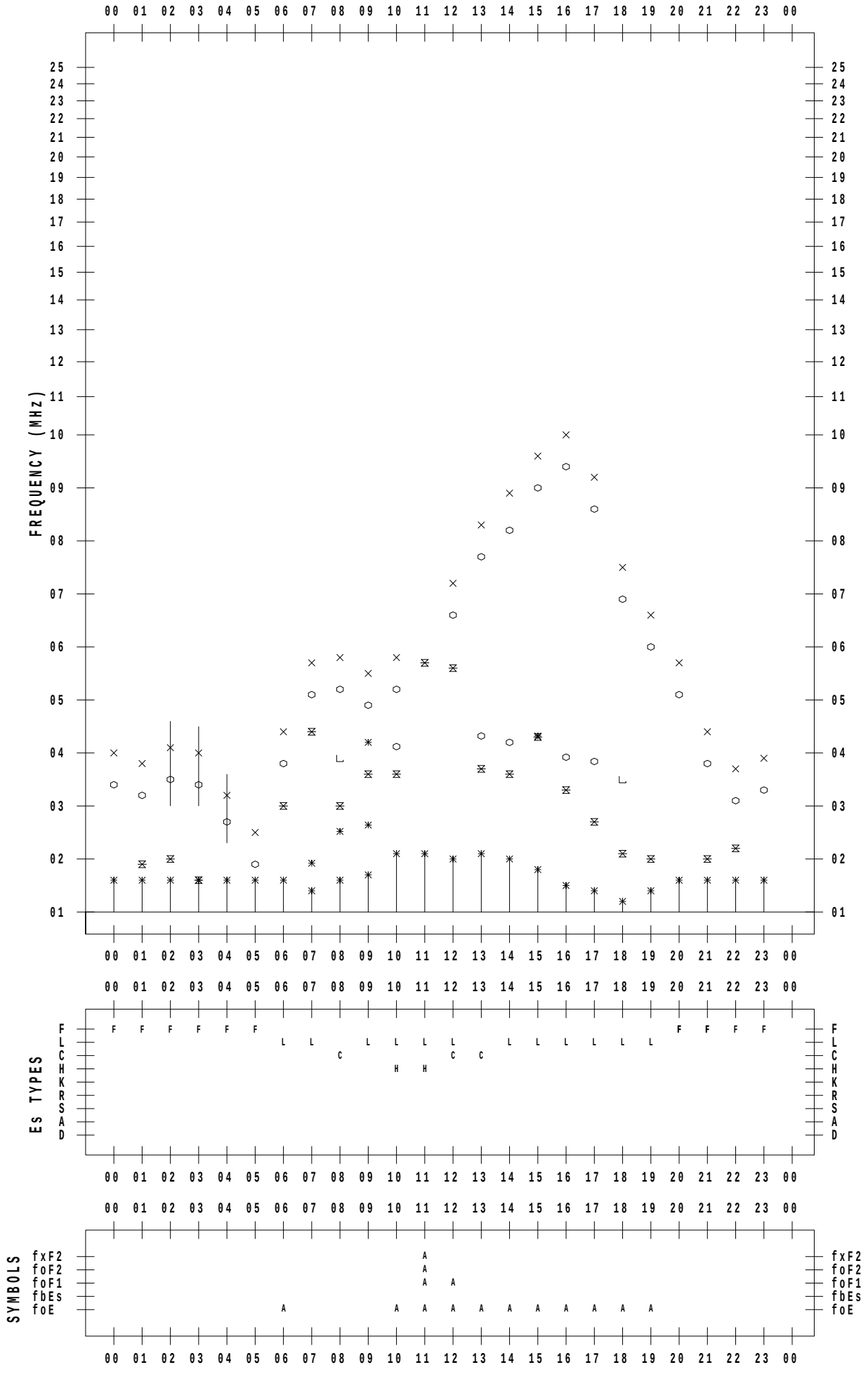
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/ 3

135 °E MEAN TIME



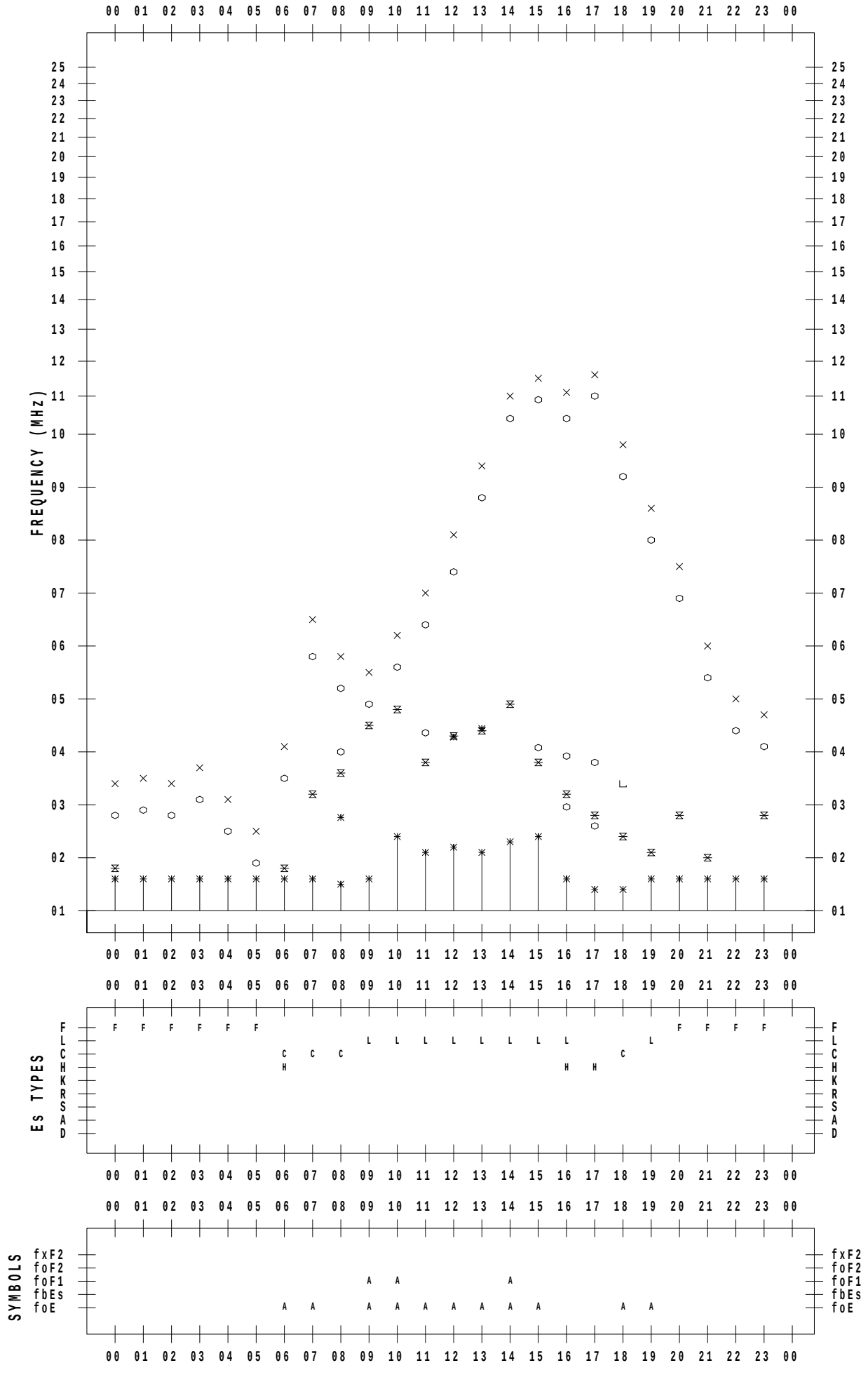
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/ 4

135 °E MEAN TIME



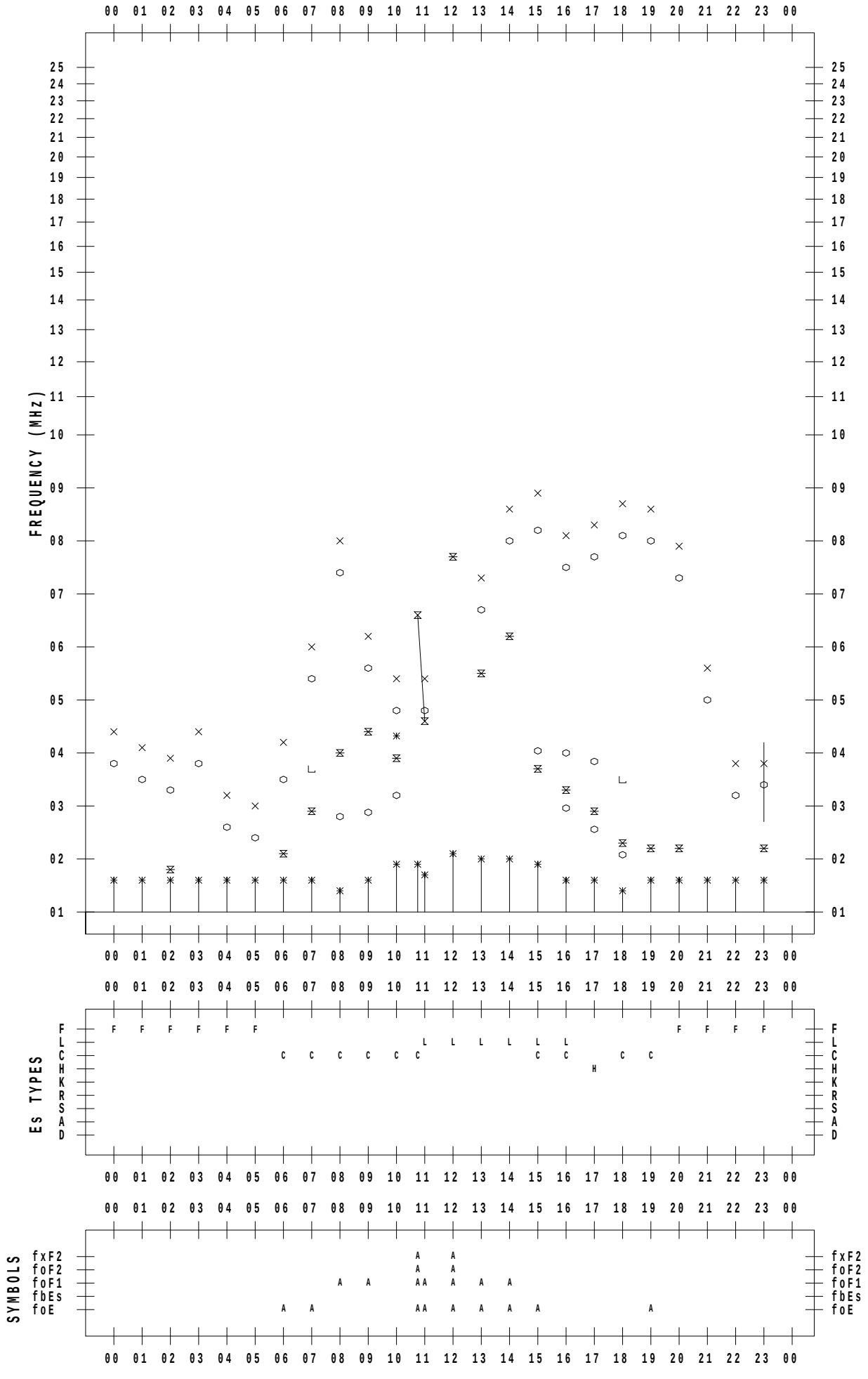
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/ 5

135 °E MEAN TIME



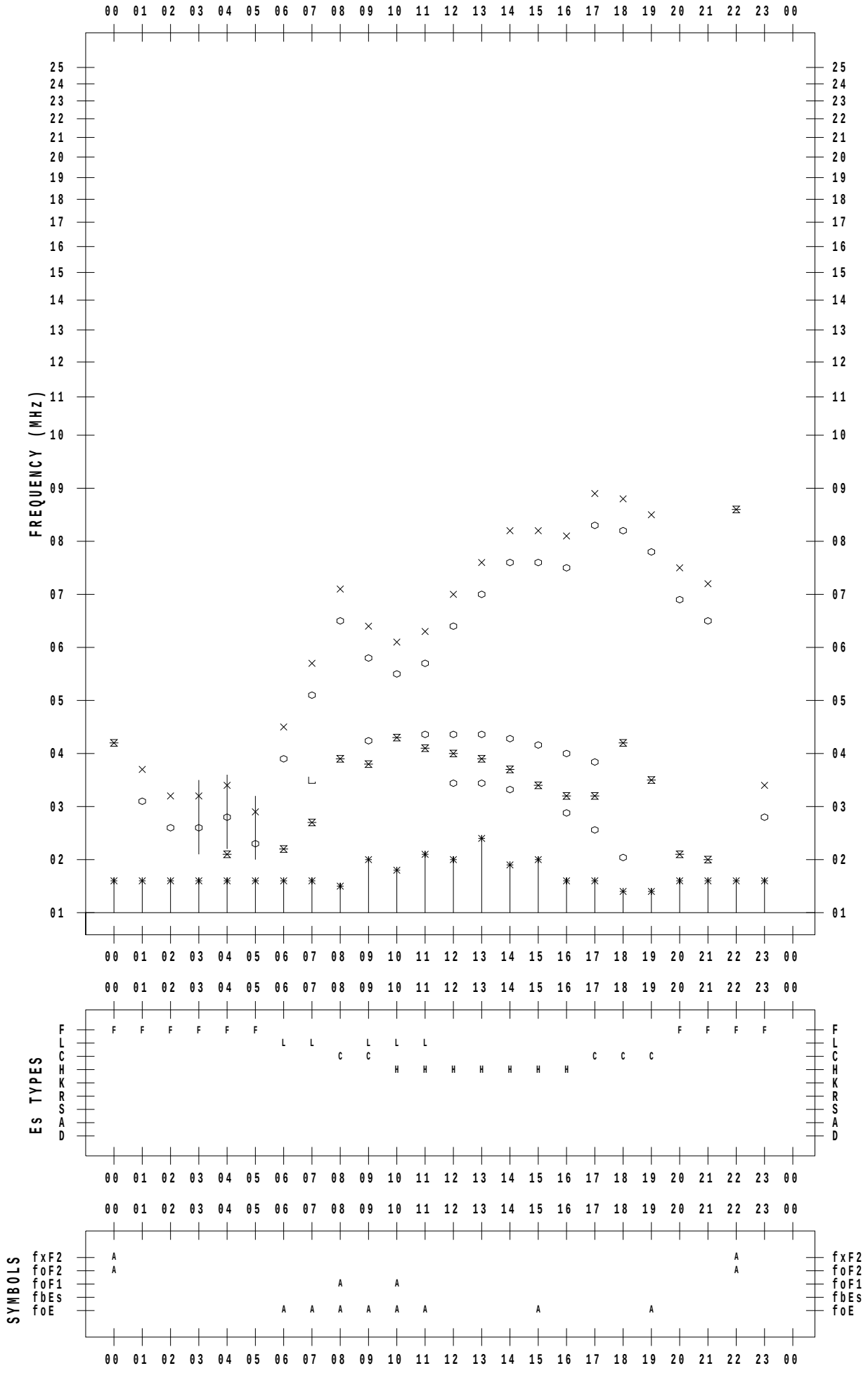
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/ 6

135 °E MEAN TIME



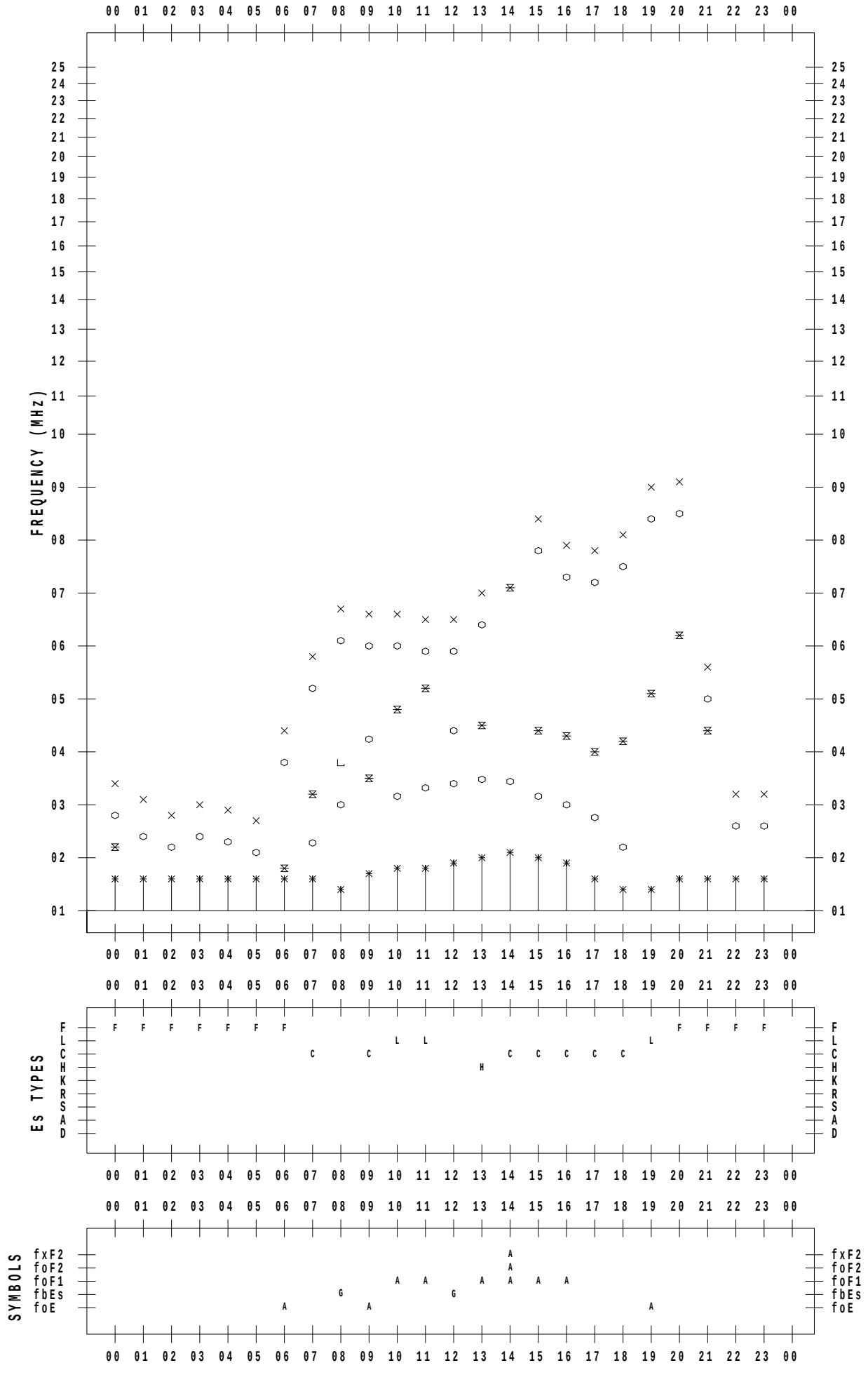
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/ 7

135 °E MEAN TIME



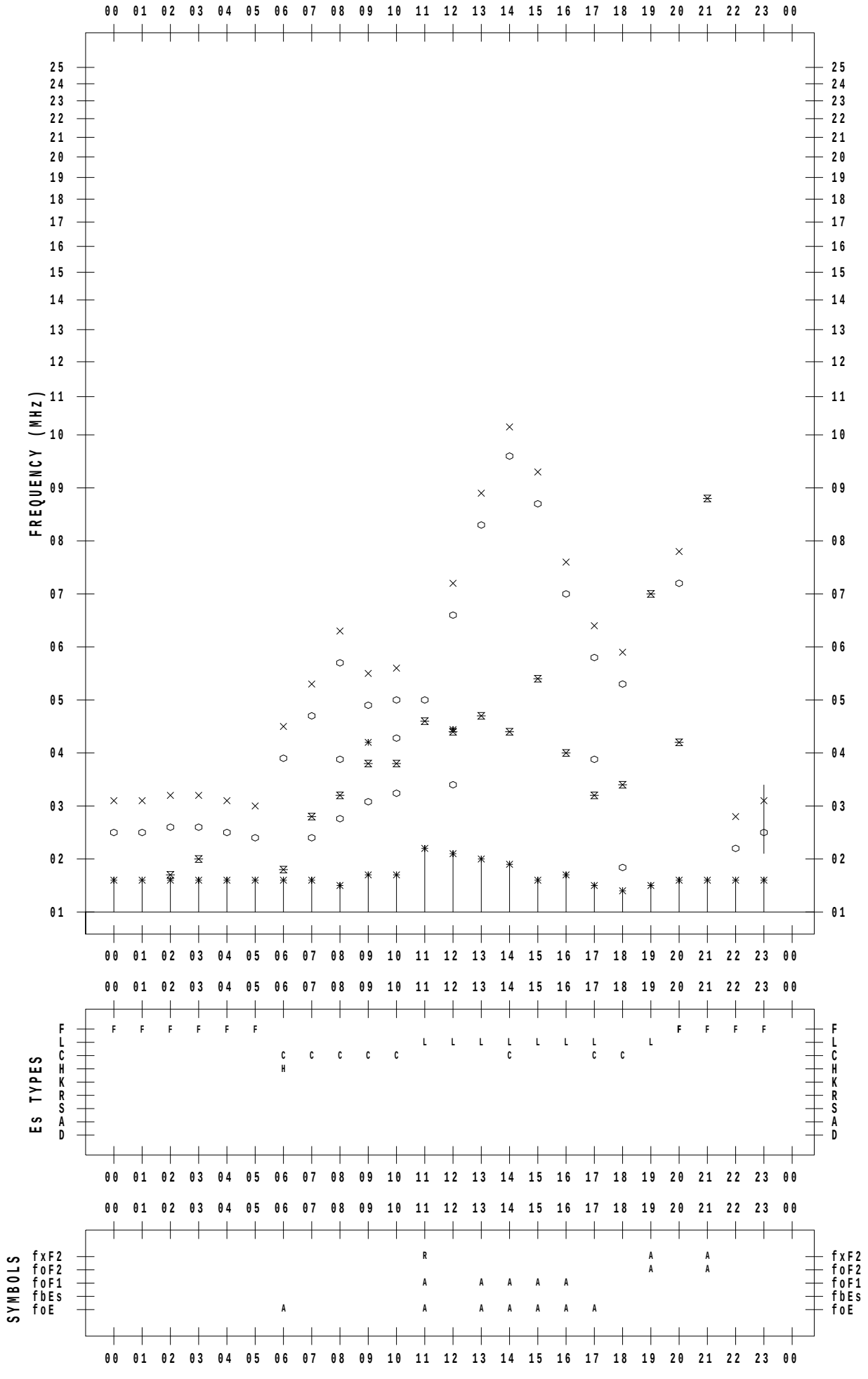
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/ 8

135 °E MEAN TIME



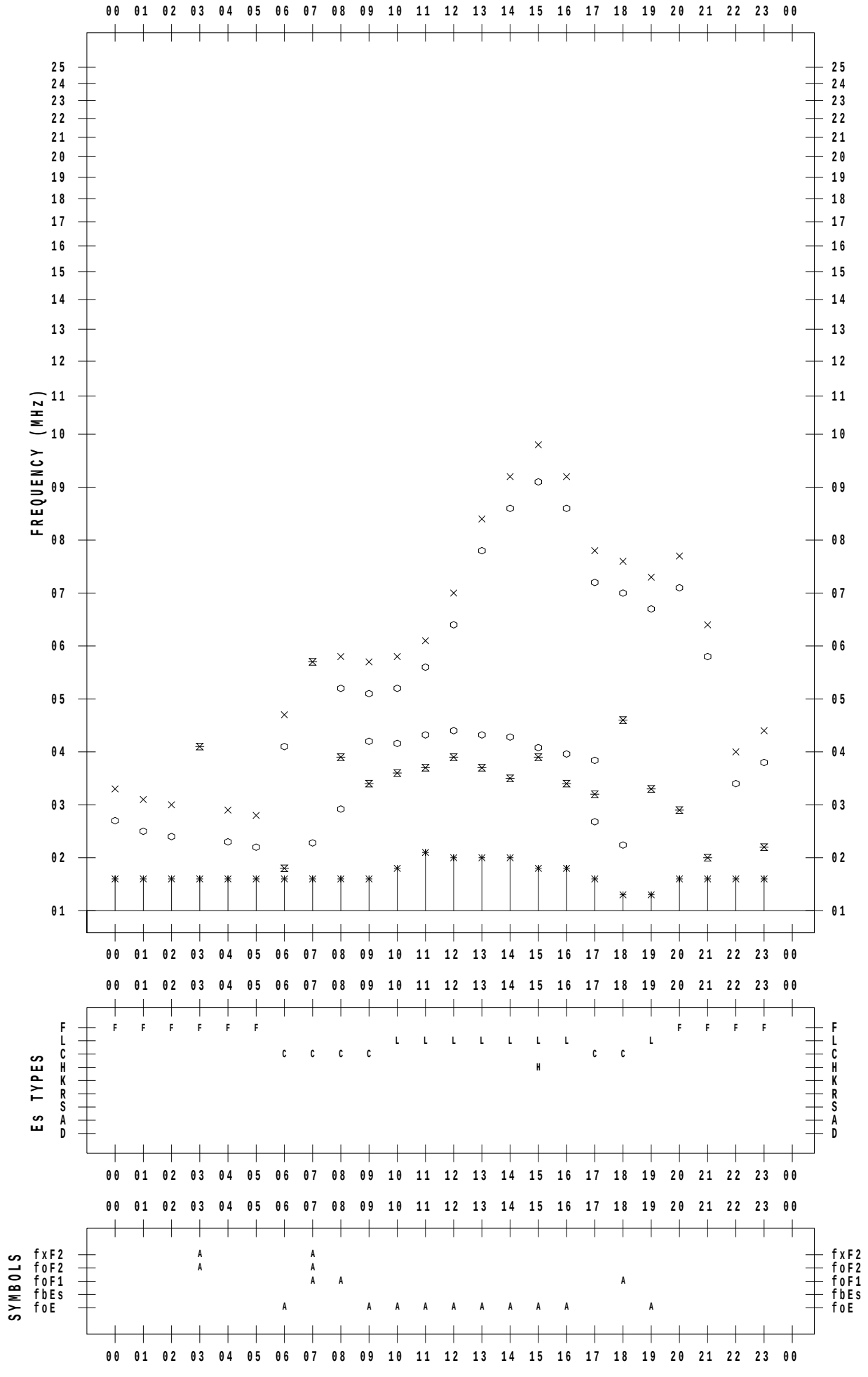
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/ 9

135 °E MEAN TIME



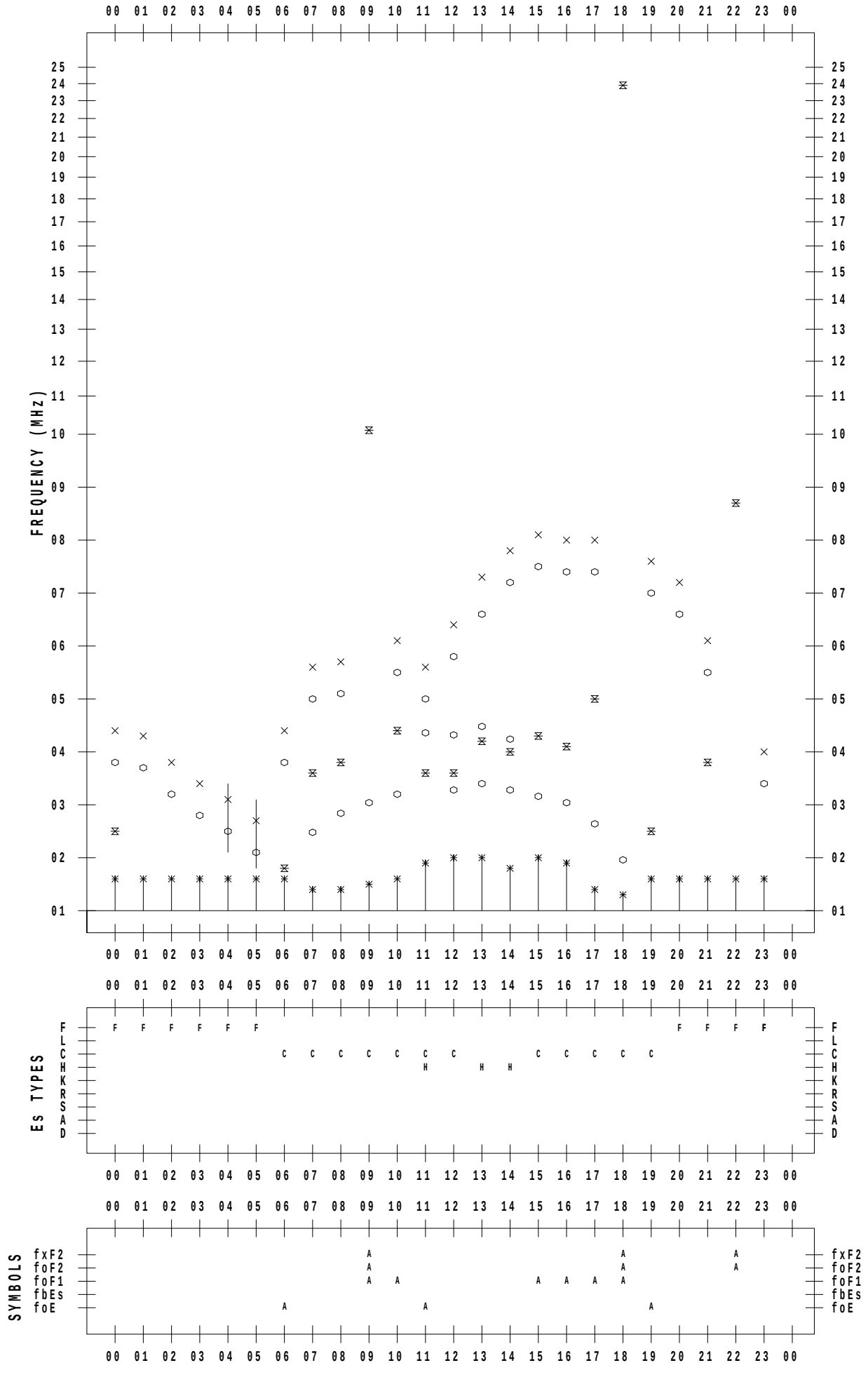
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/10

135 °E MEAN TIME



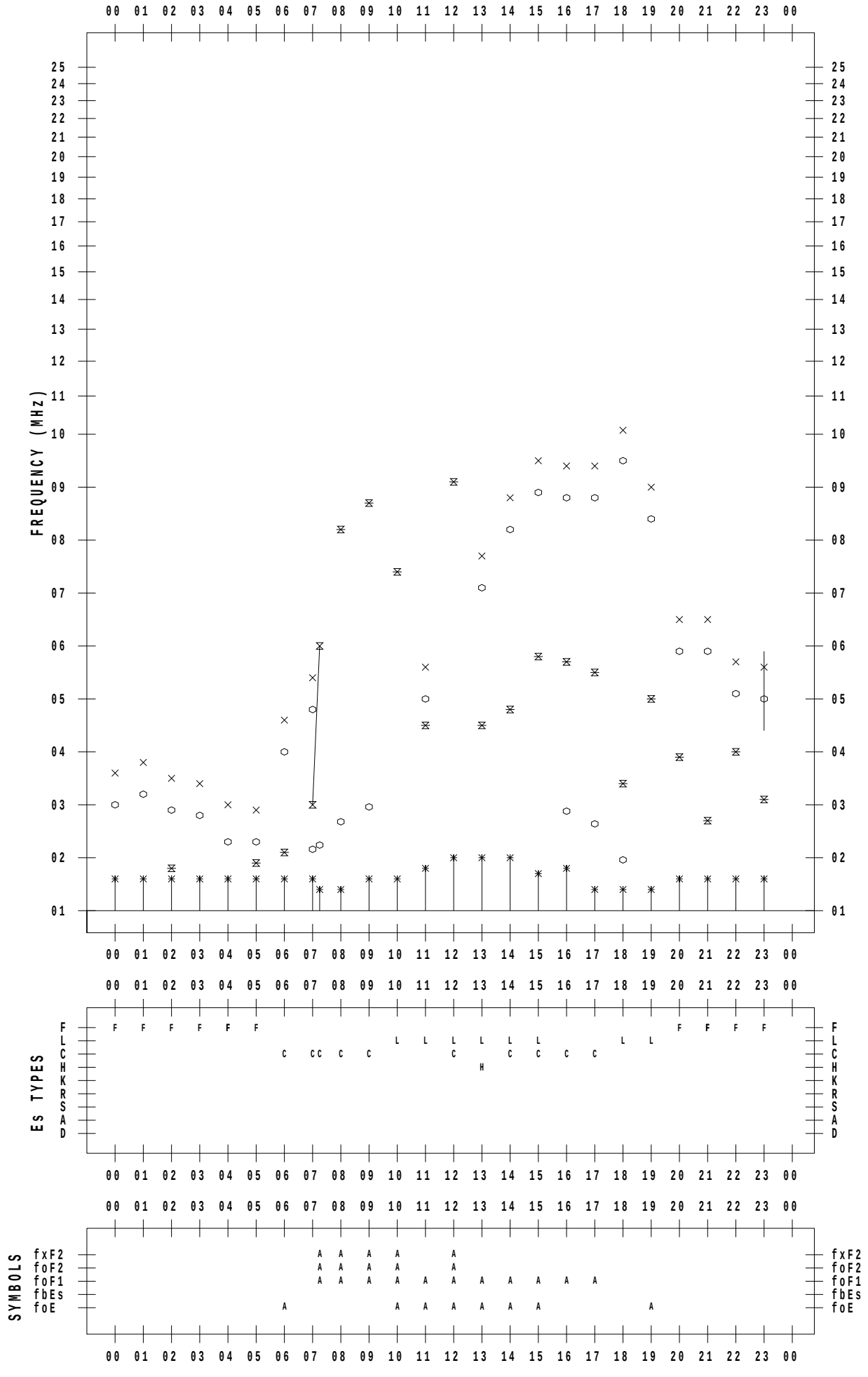
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/11

135 °E MEAN TIME



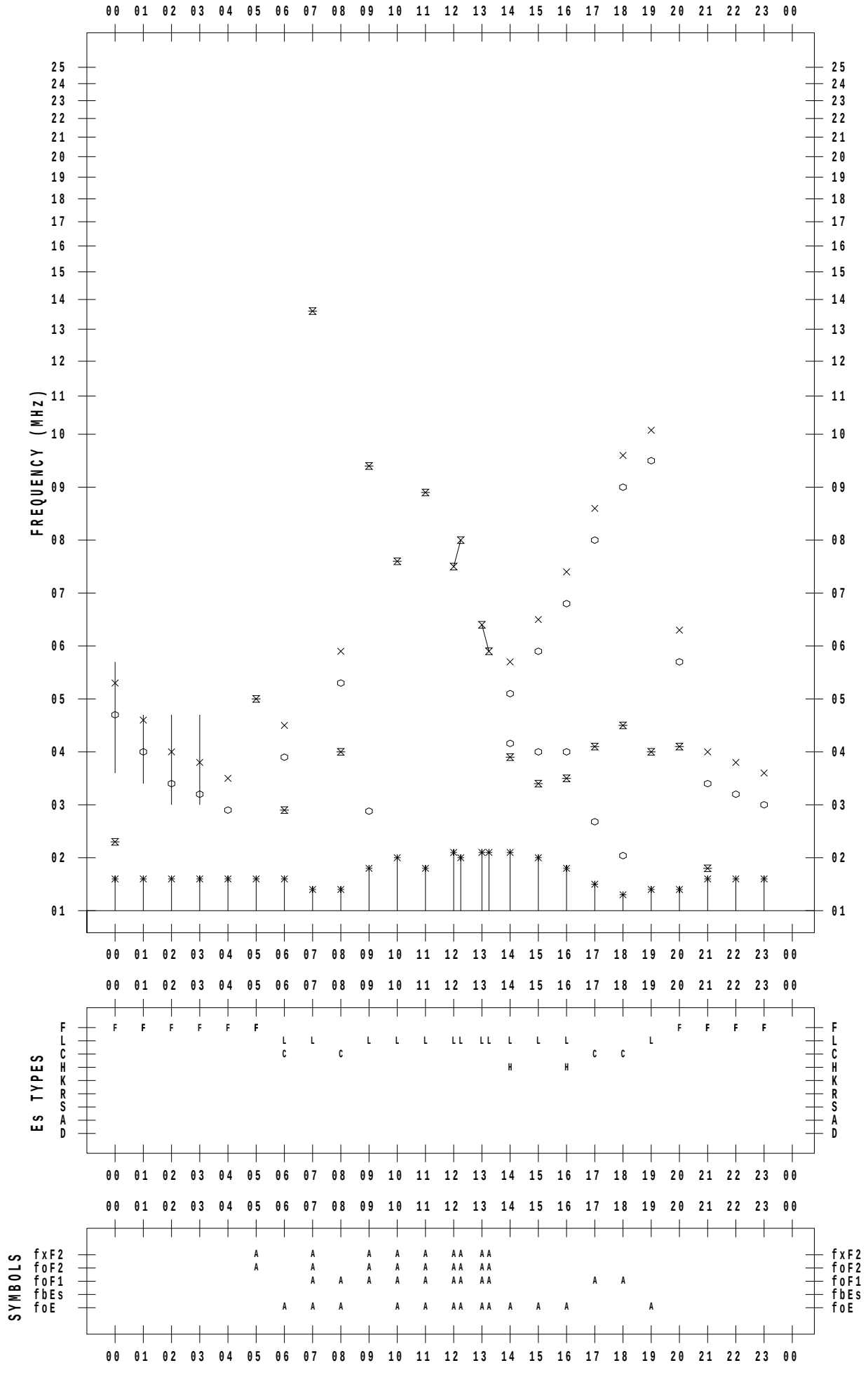
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/12

135 °E MEAN TIME



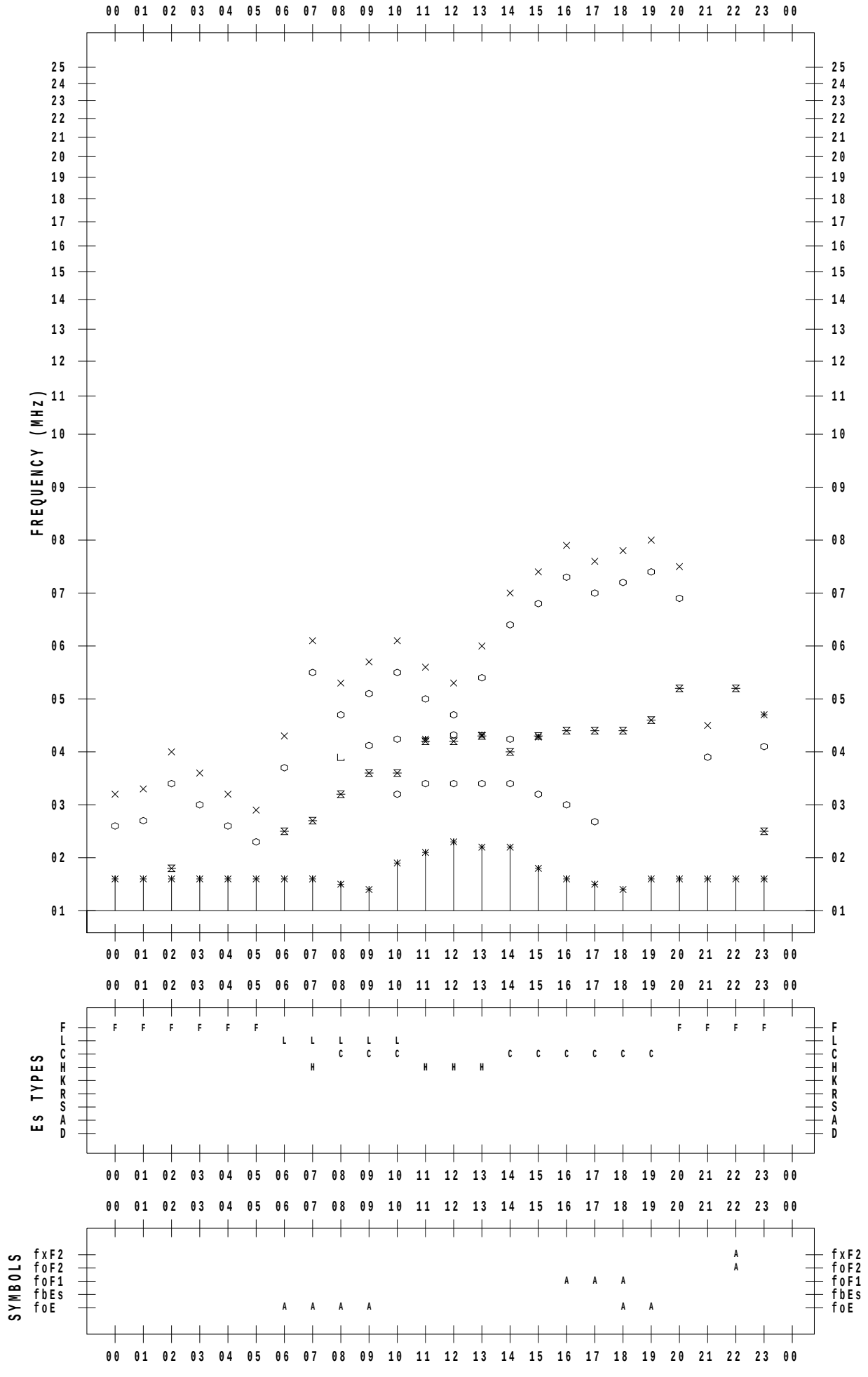
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/13

135 °E MEAN TIME



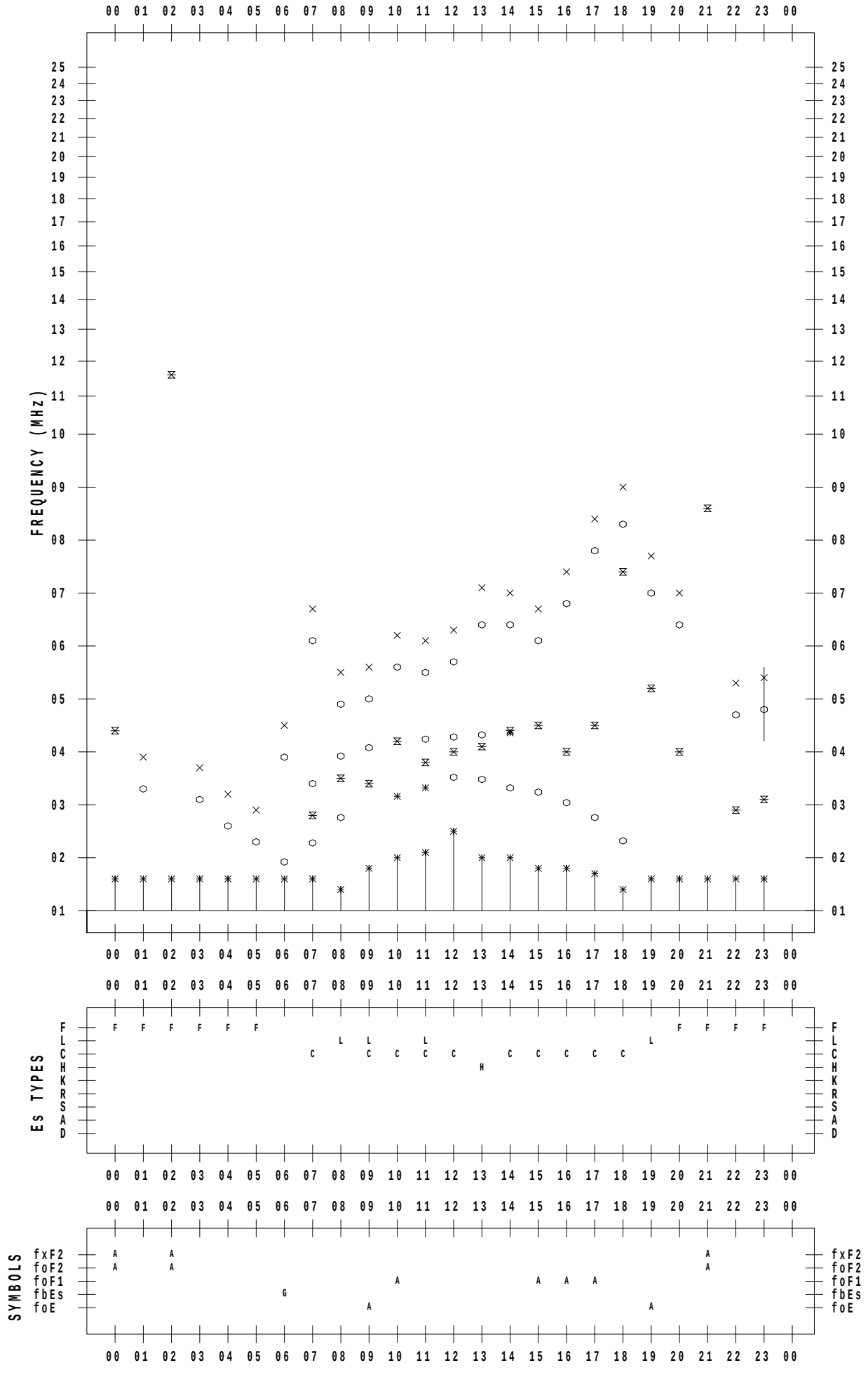
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/14

135 °E MEAN TIME



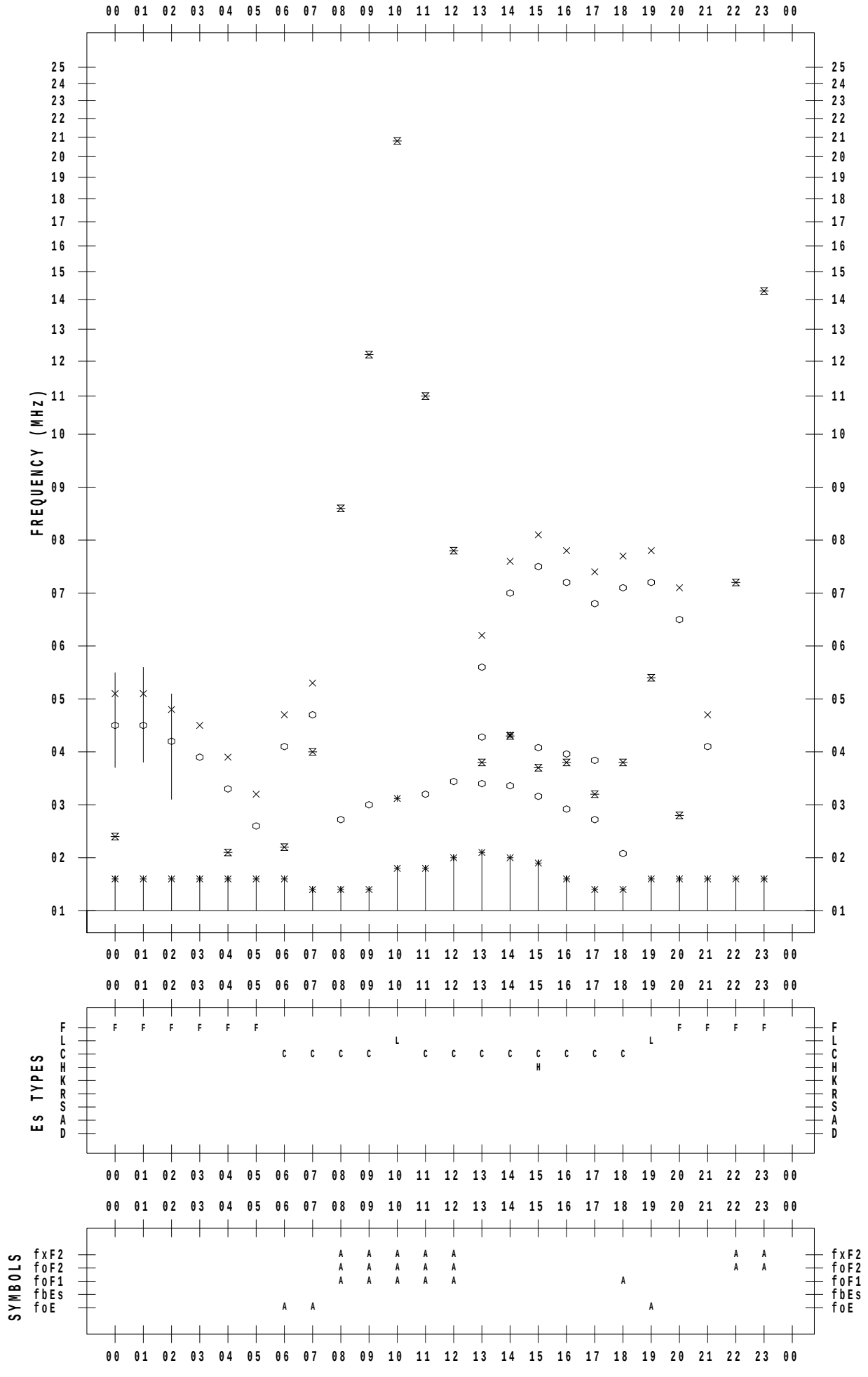
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/15

135 °E MEAN TIME



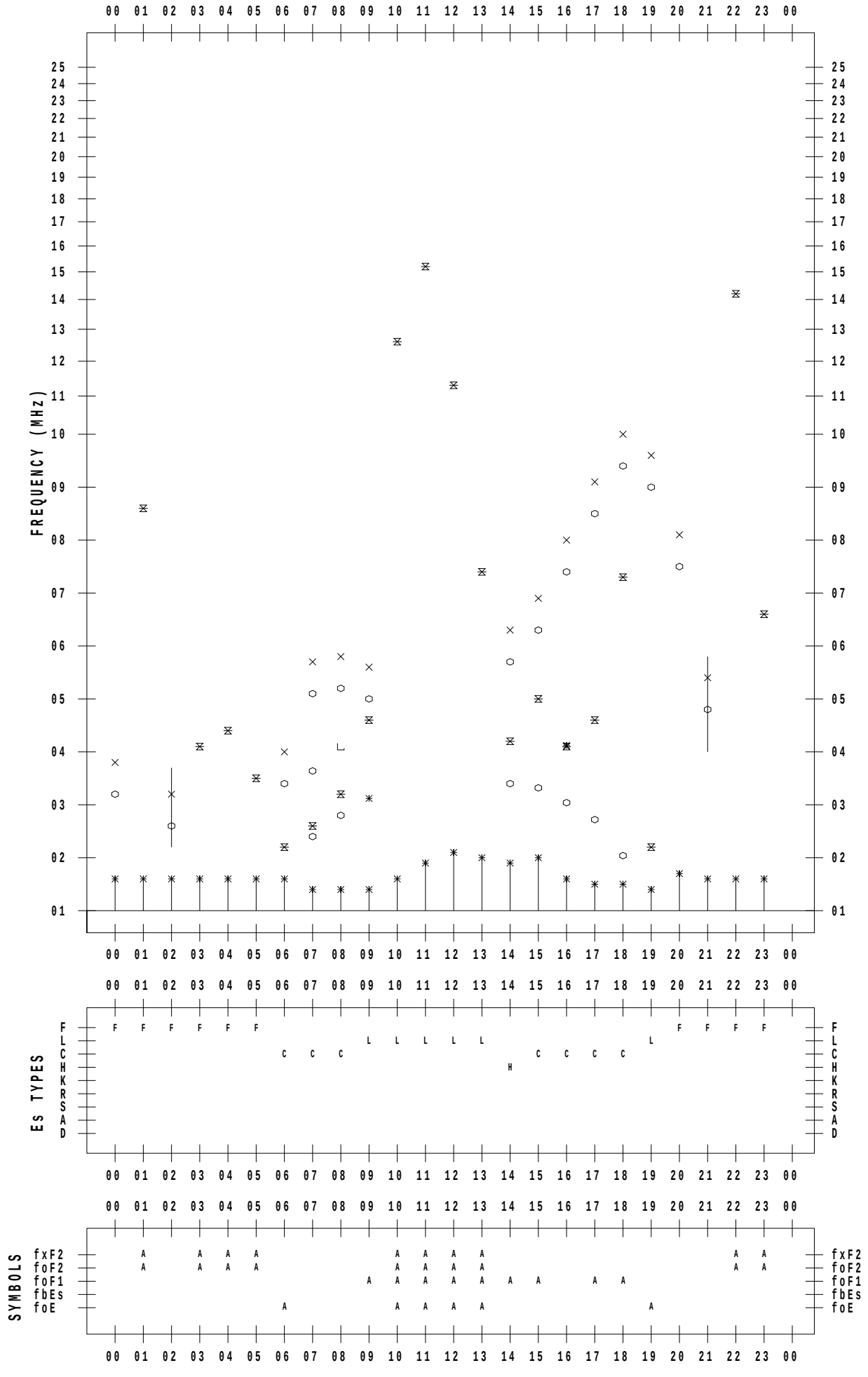
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/16

135 °E MEAN TIME



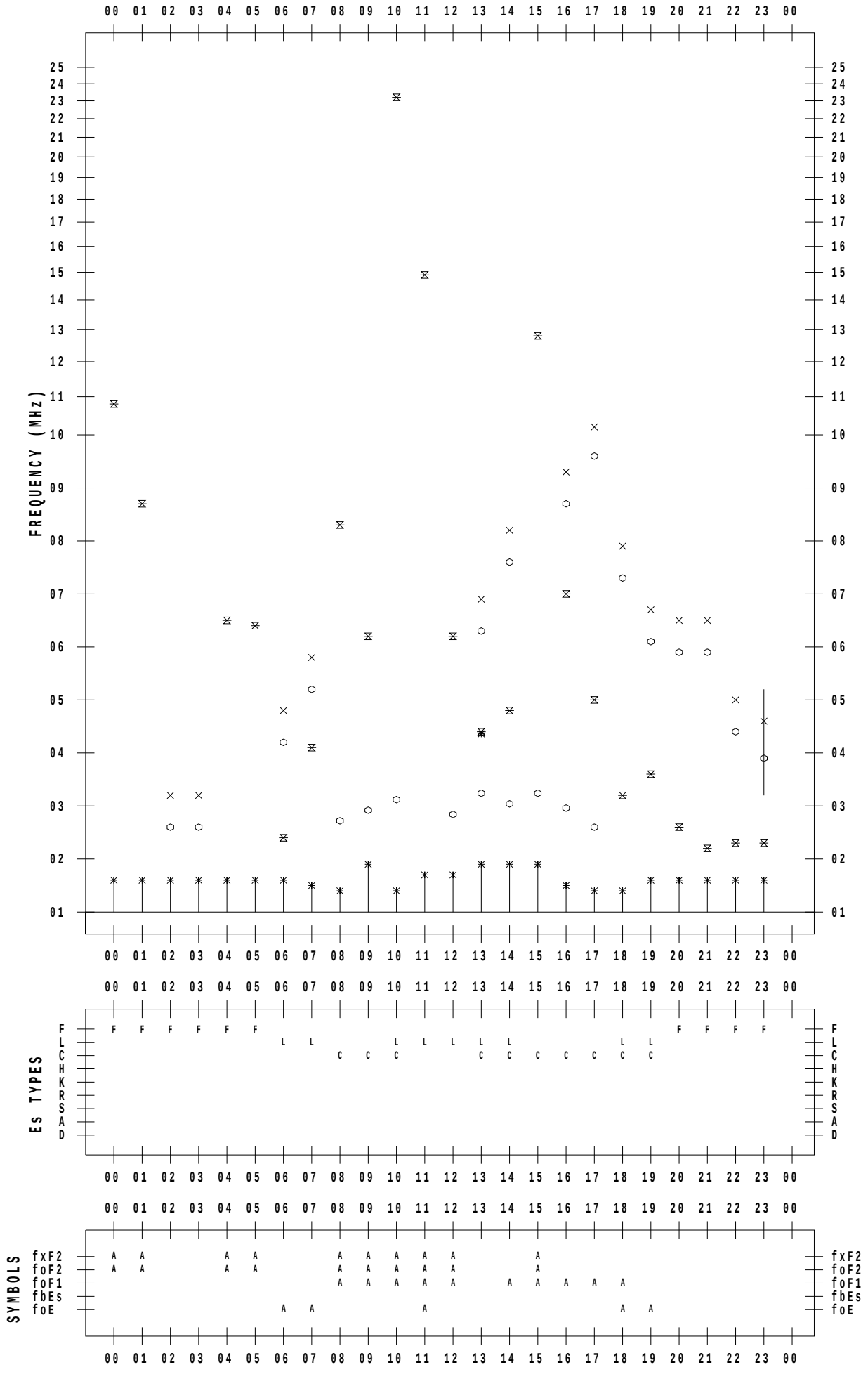
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/17

135 °E MEAN TIME



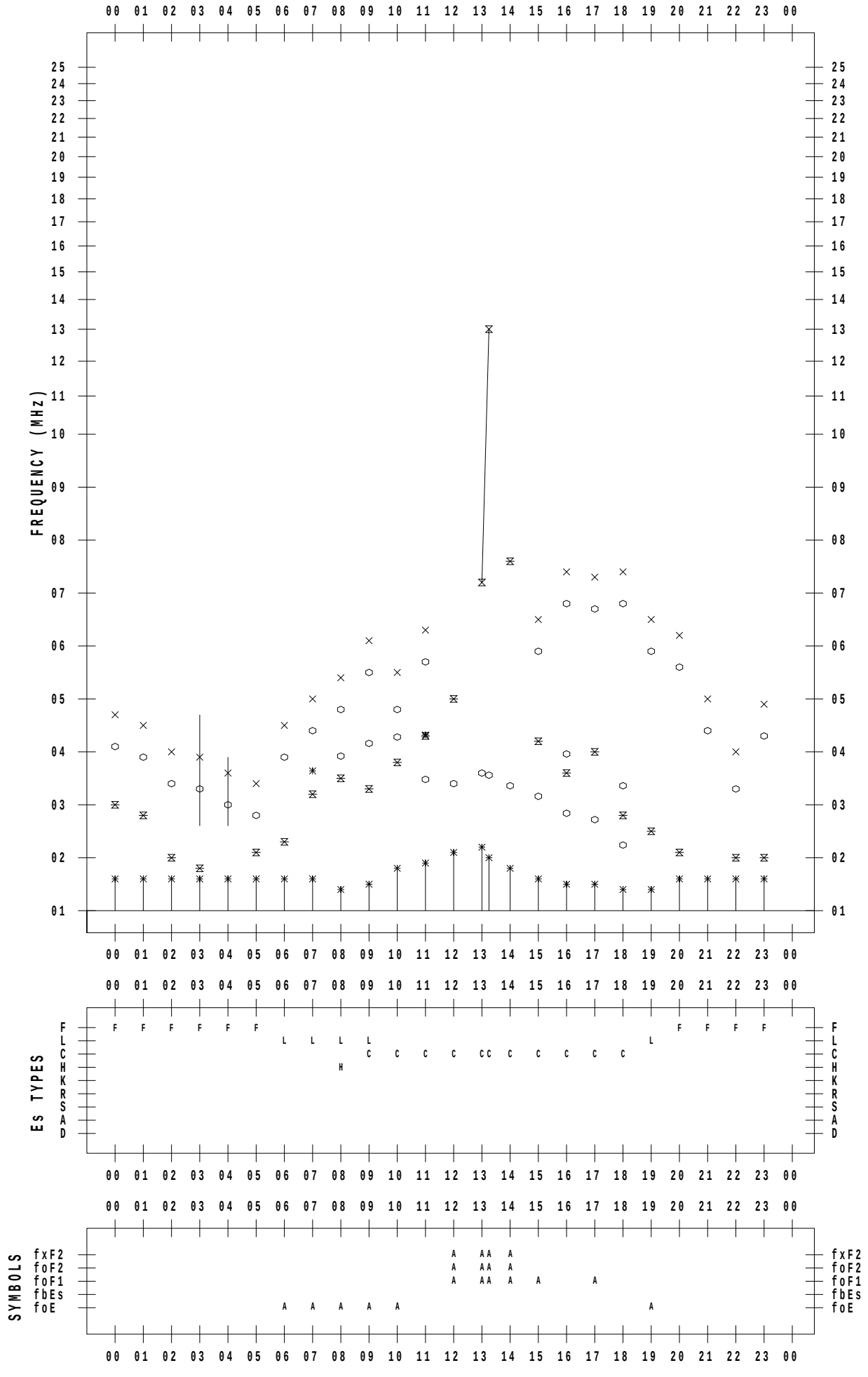
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/18

135 °E MEAN TIME



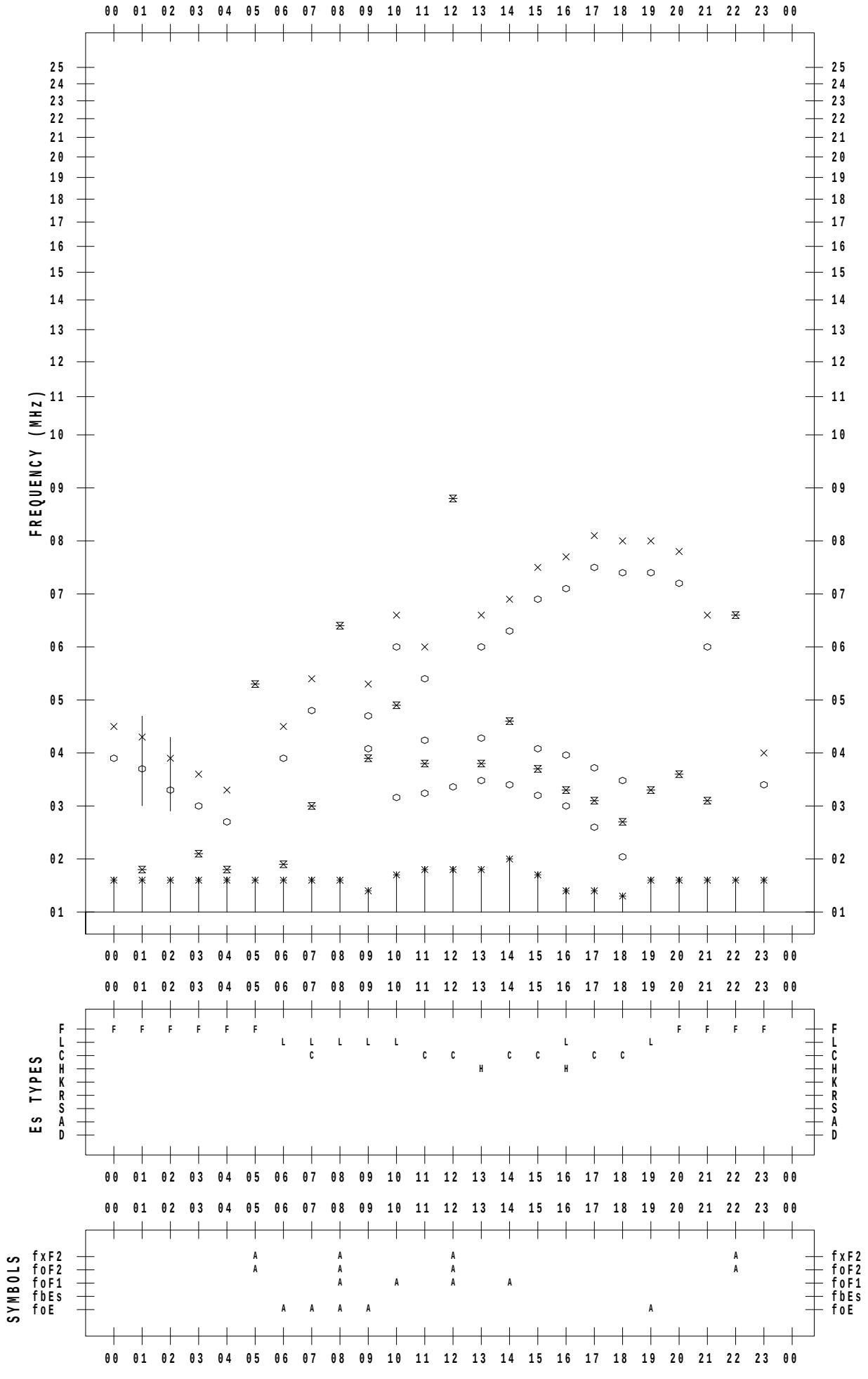
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/19

135 °E MEAN TIME



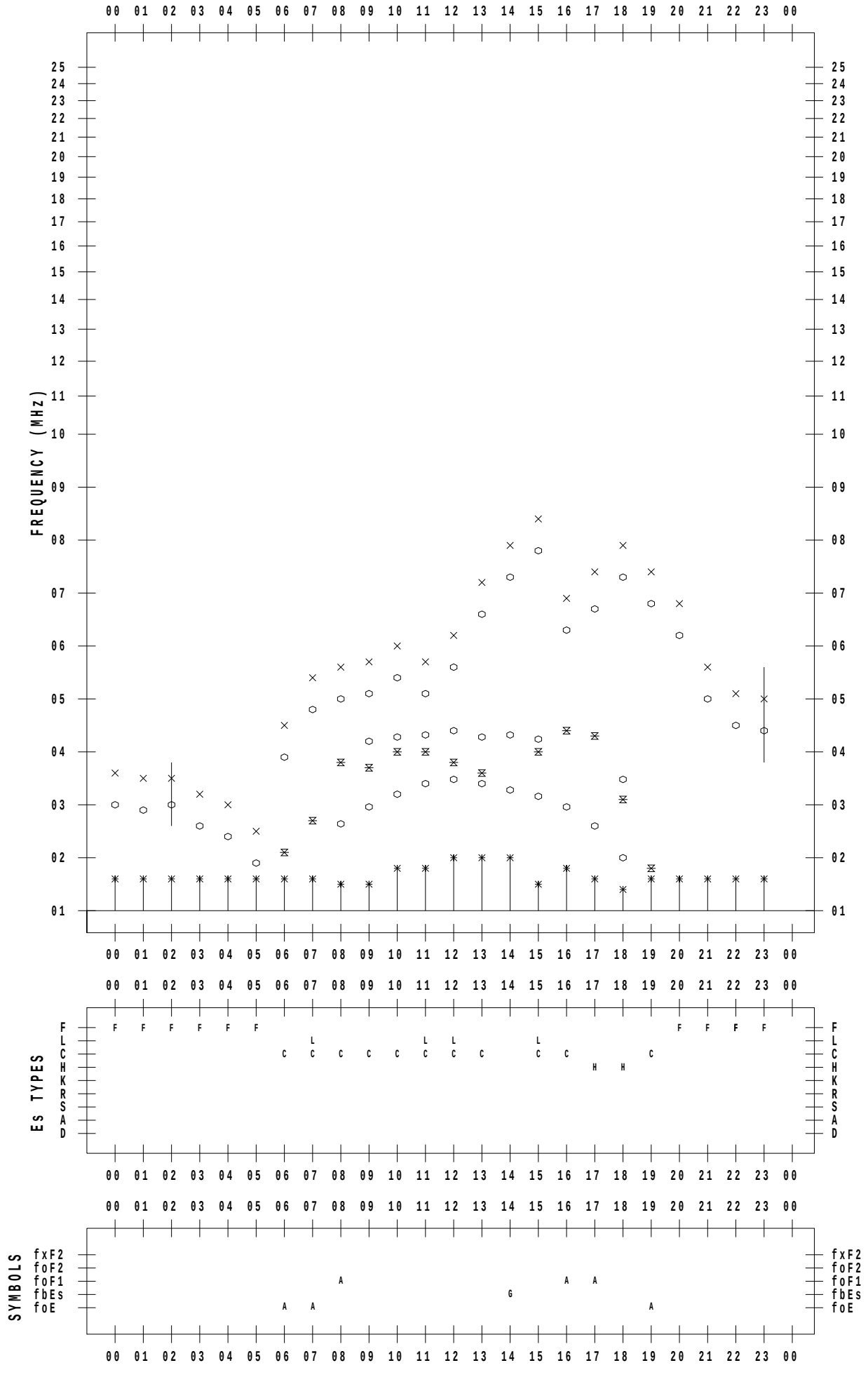
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/20

135 °E MEAN TIME



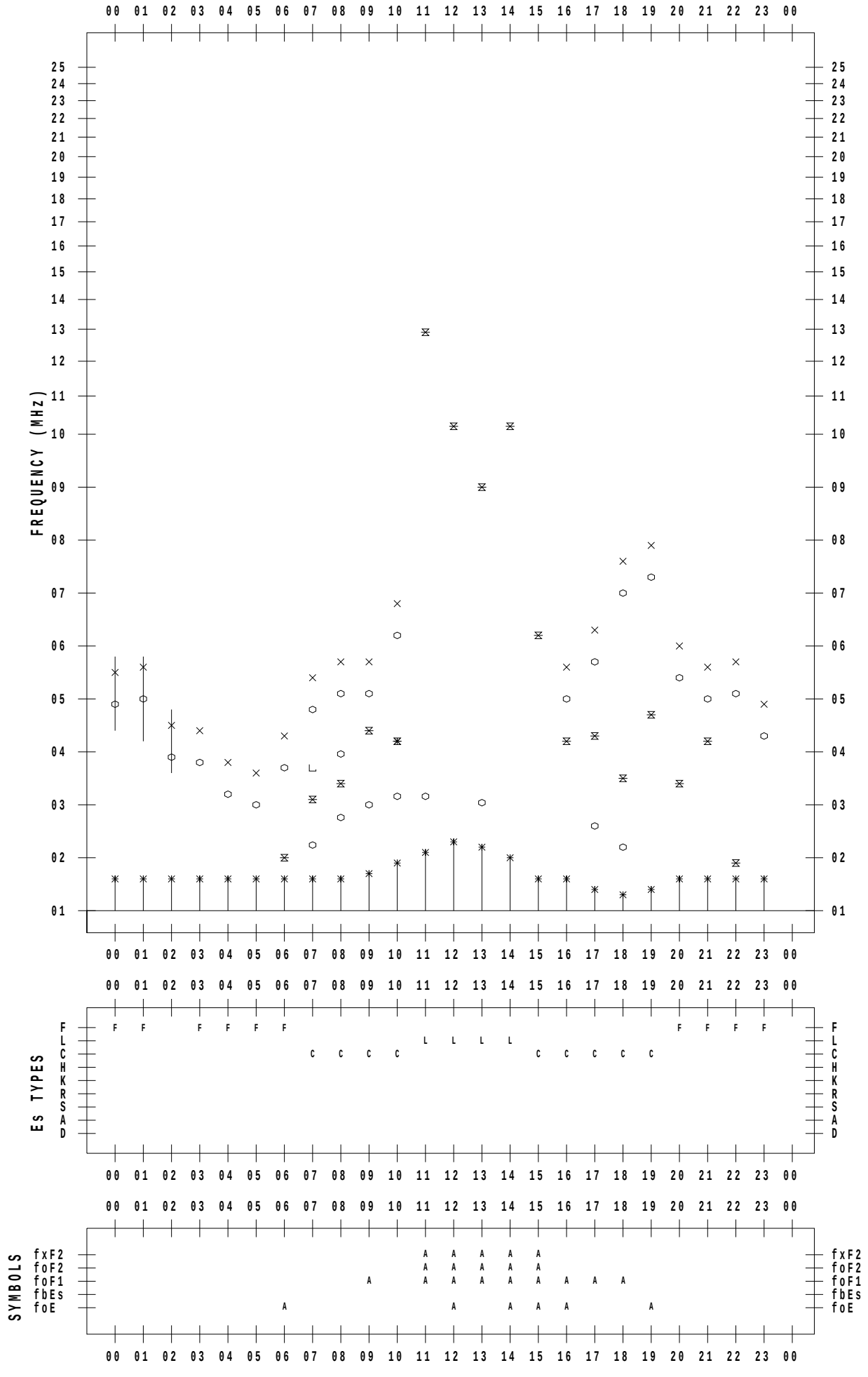
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/21

135 °E MEAN TIME



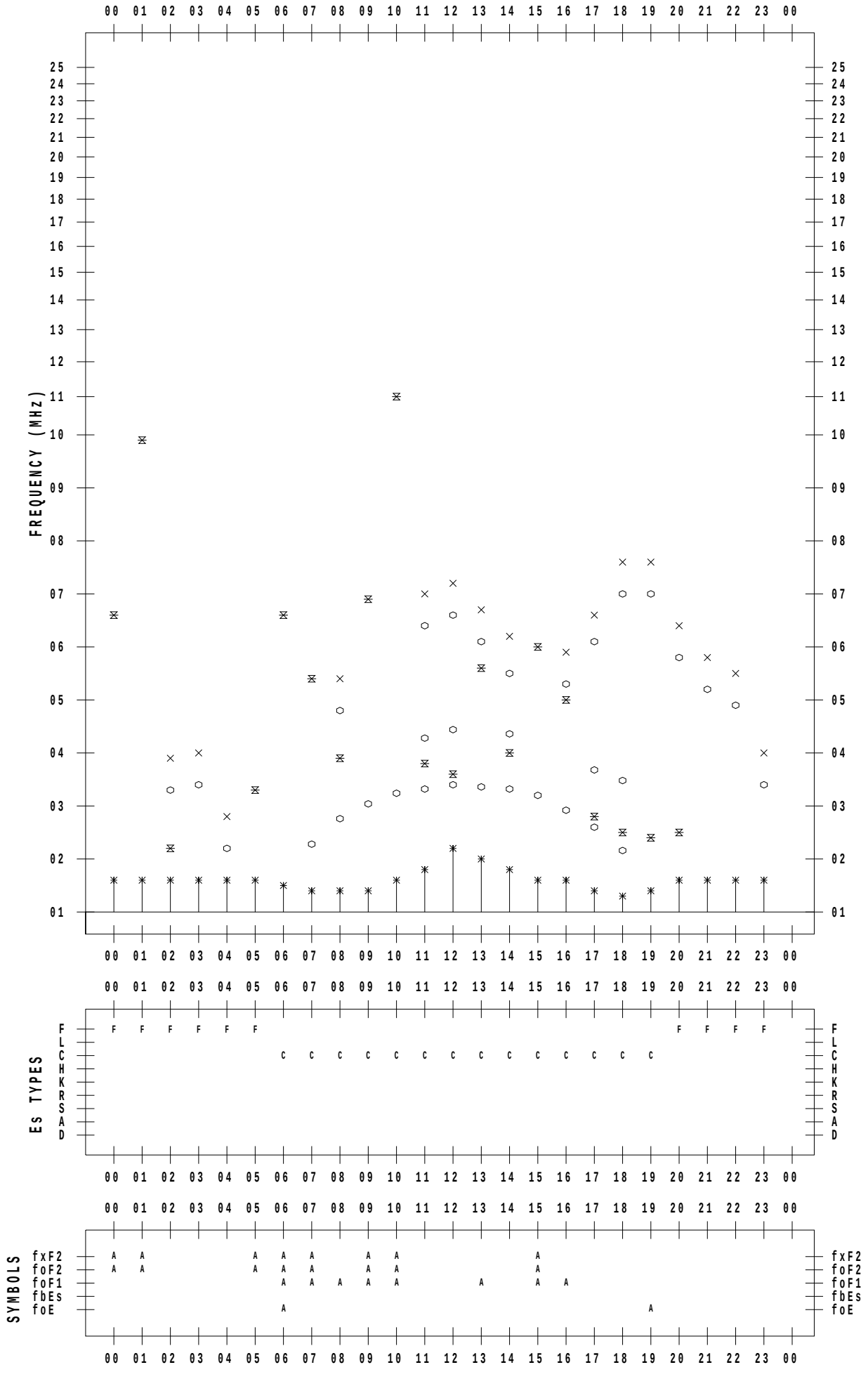
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/22

135 °E MEAN TIME



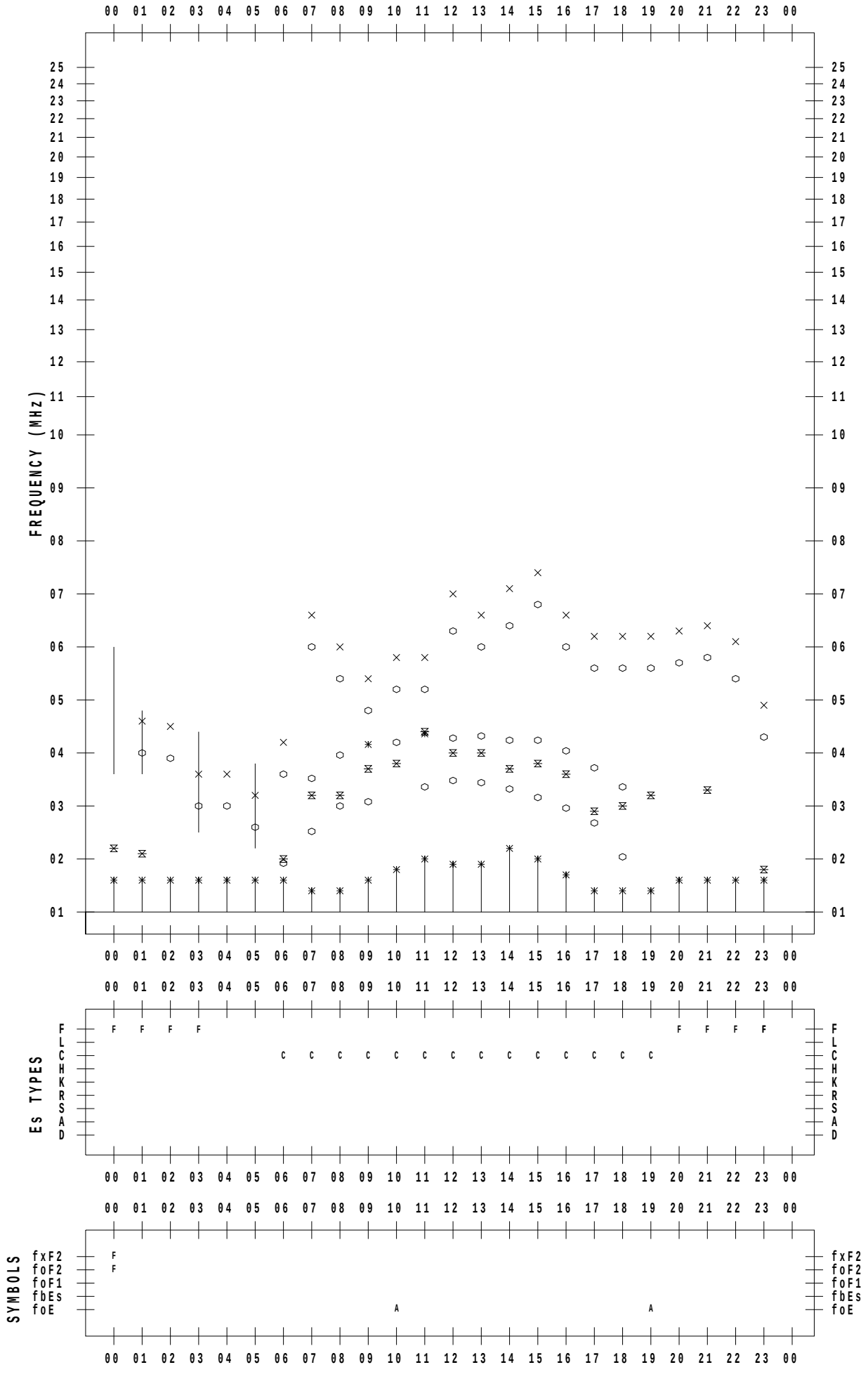
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/23

135 °E MEAN TIME



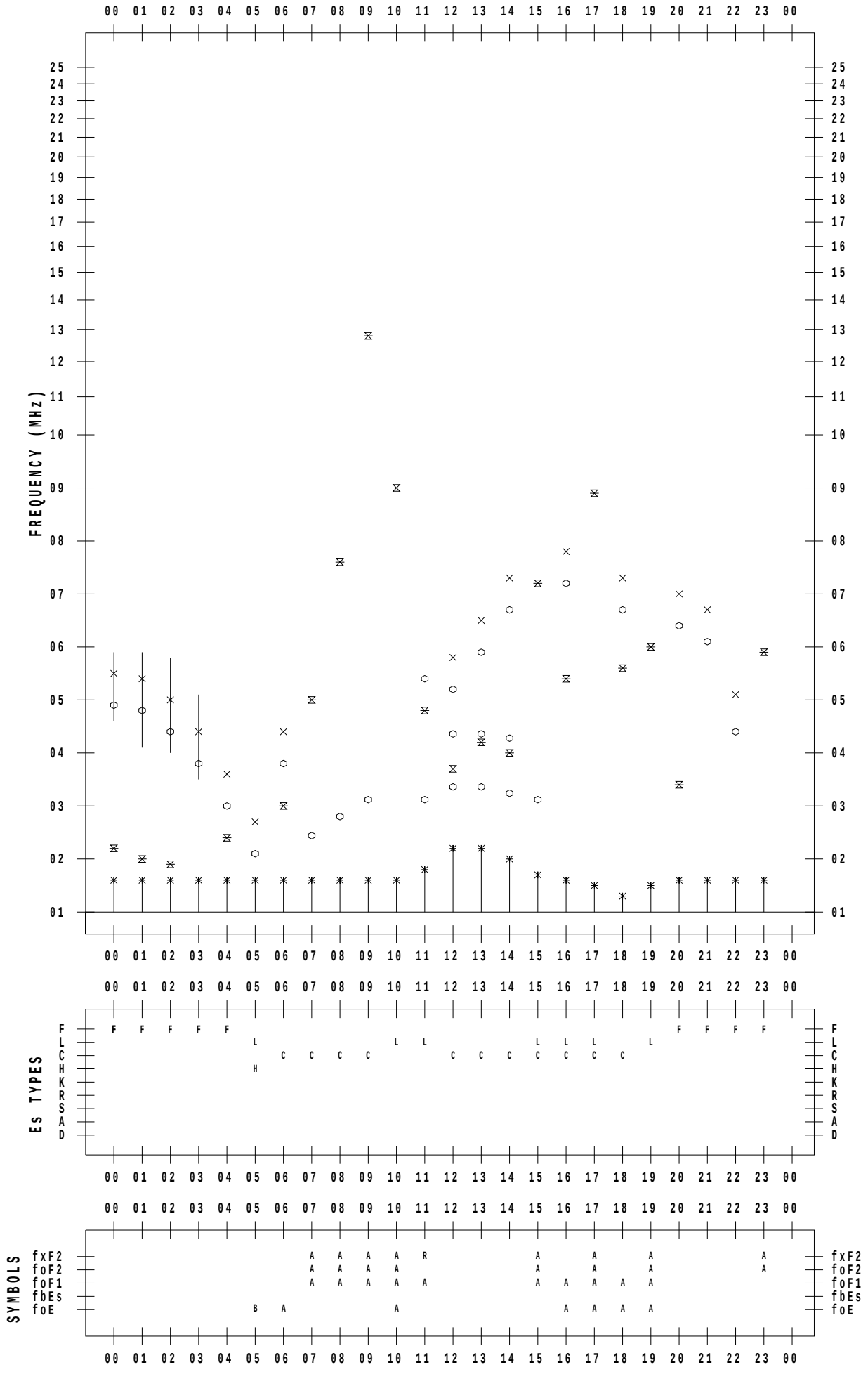
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/24

135 °E MEAN TIME



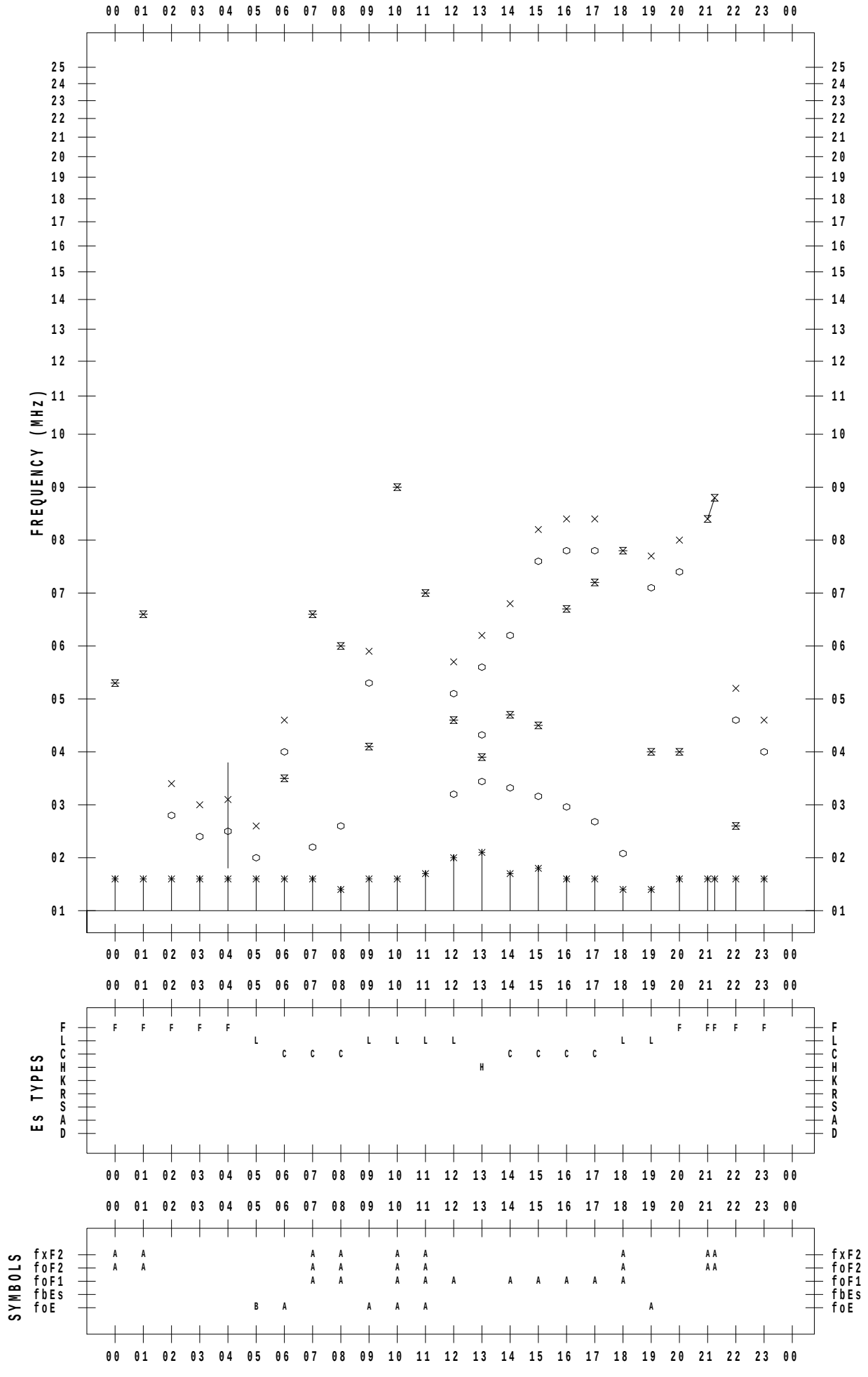
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/25

135 °E MEAN TIME



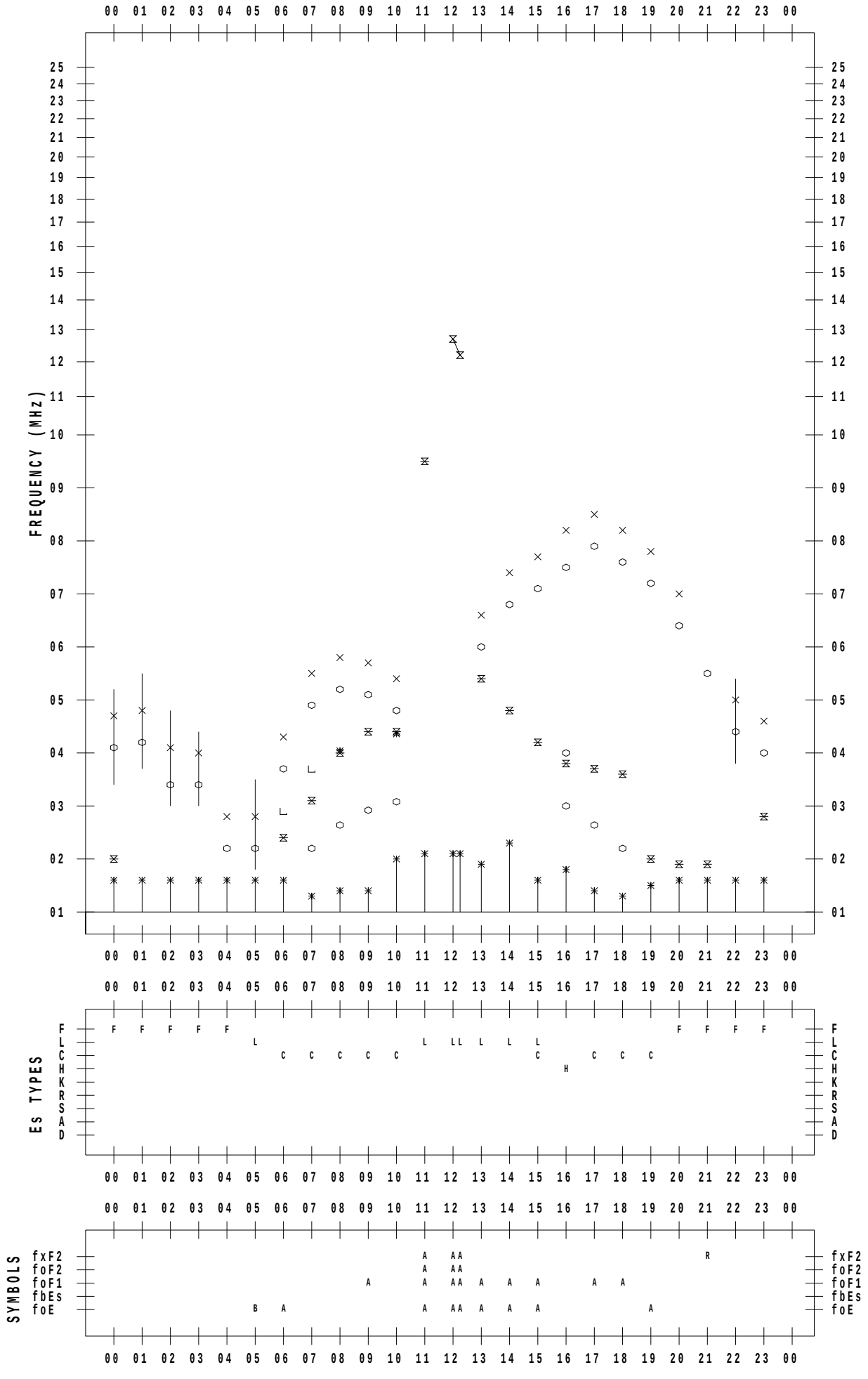
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/26

135 °E MEAN TIME



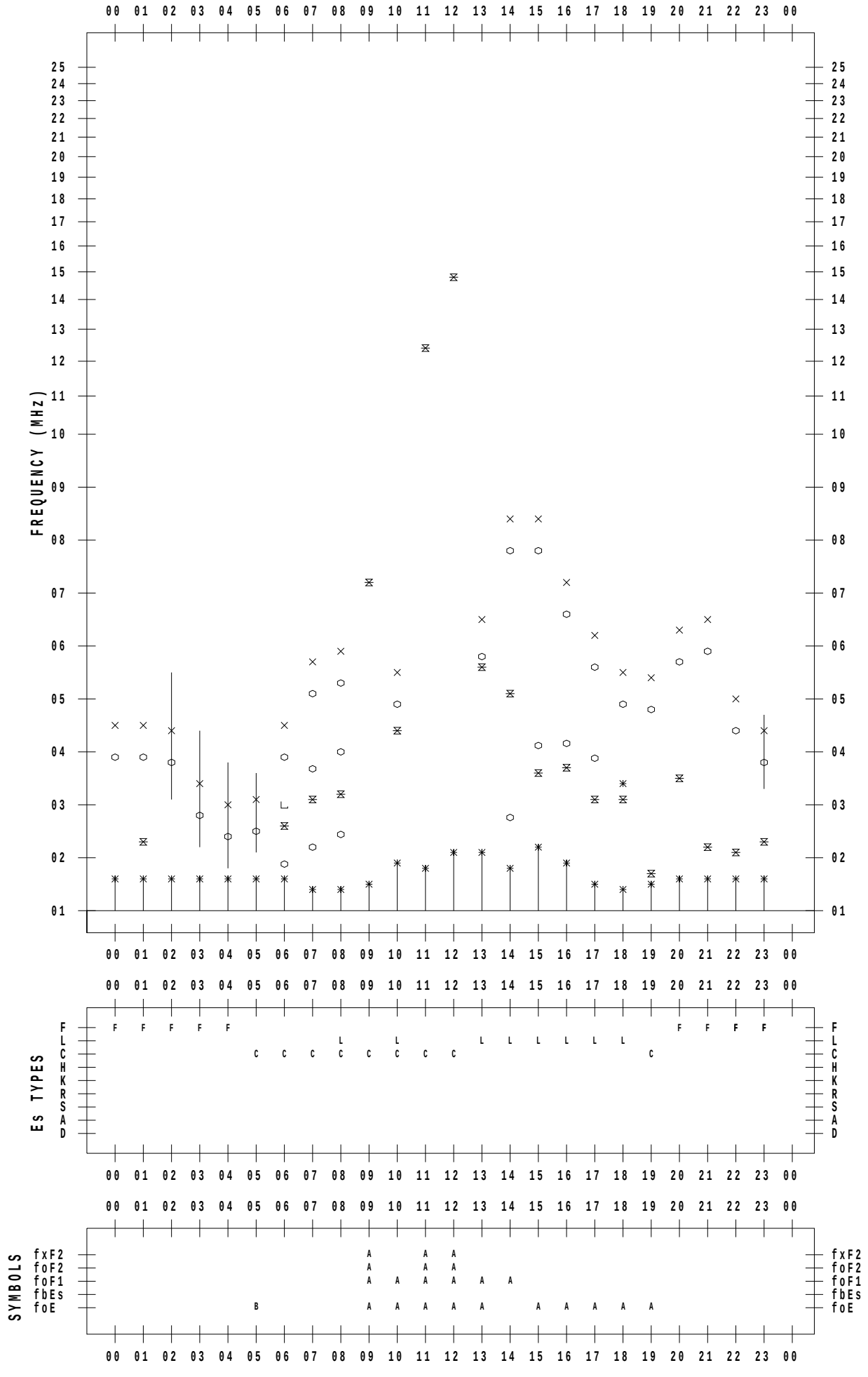
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/27

135 °E MEAN TIME



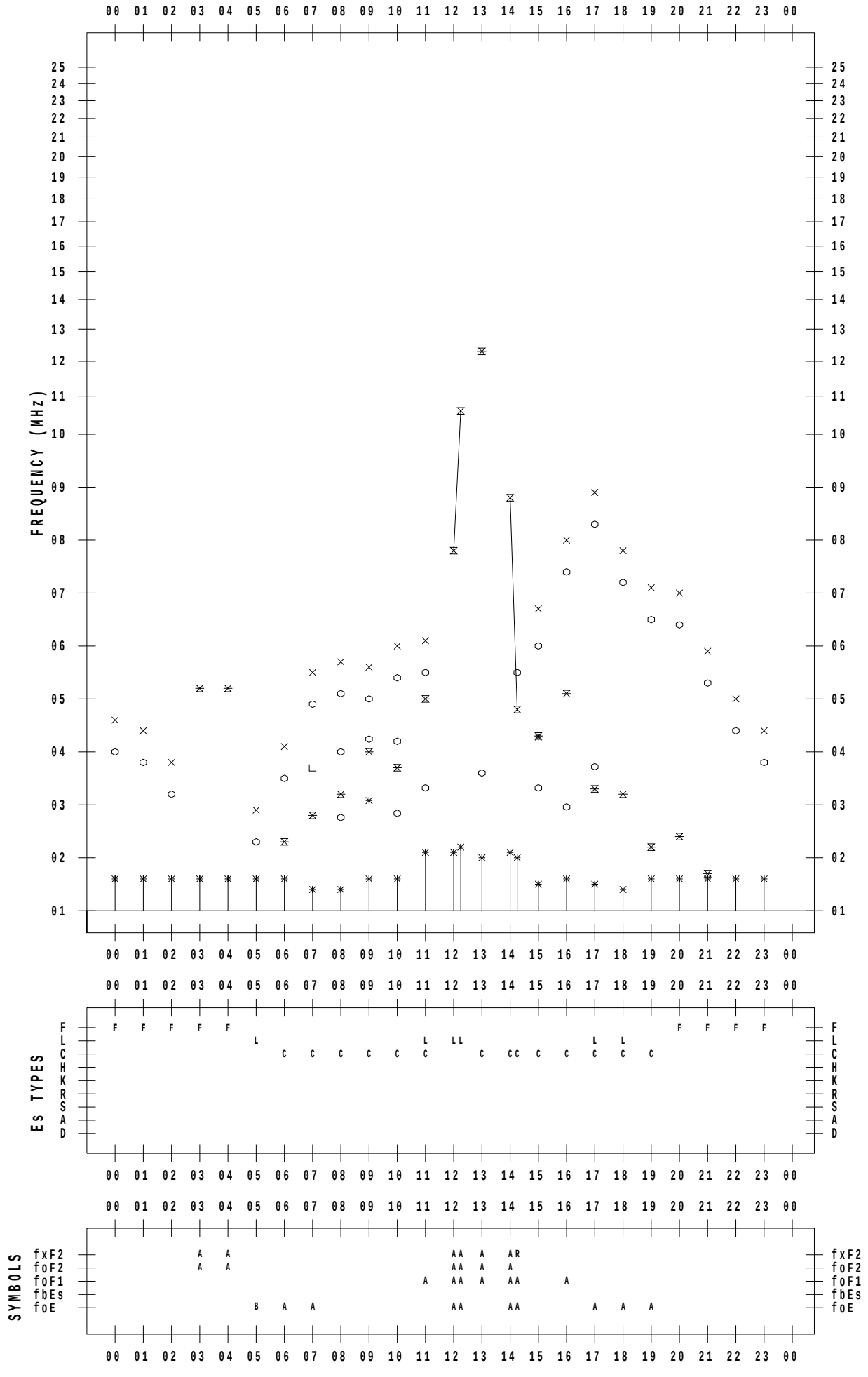
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/28

135 °E MEAN TIME



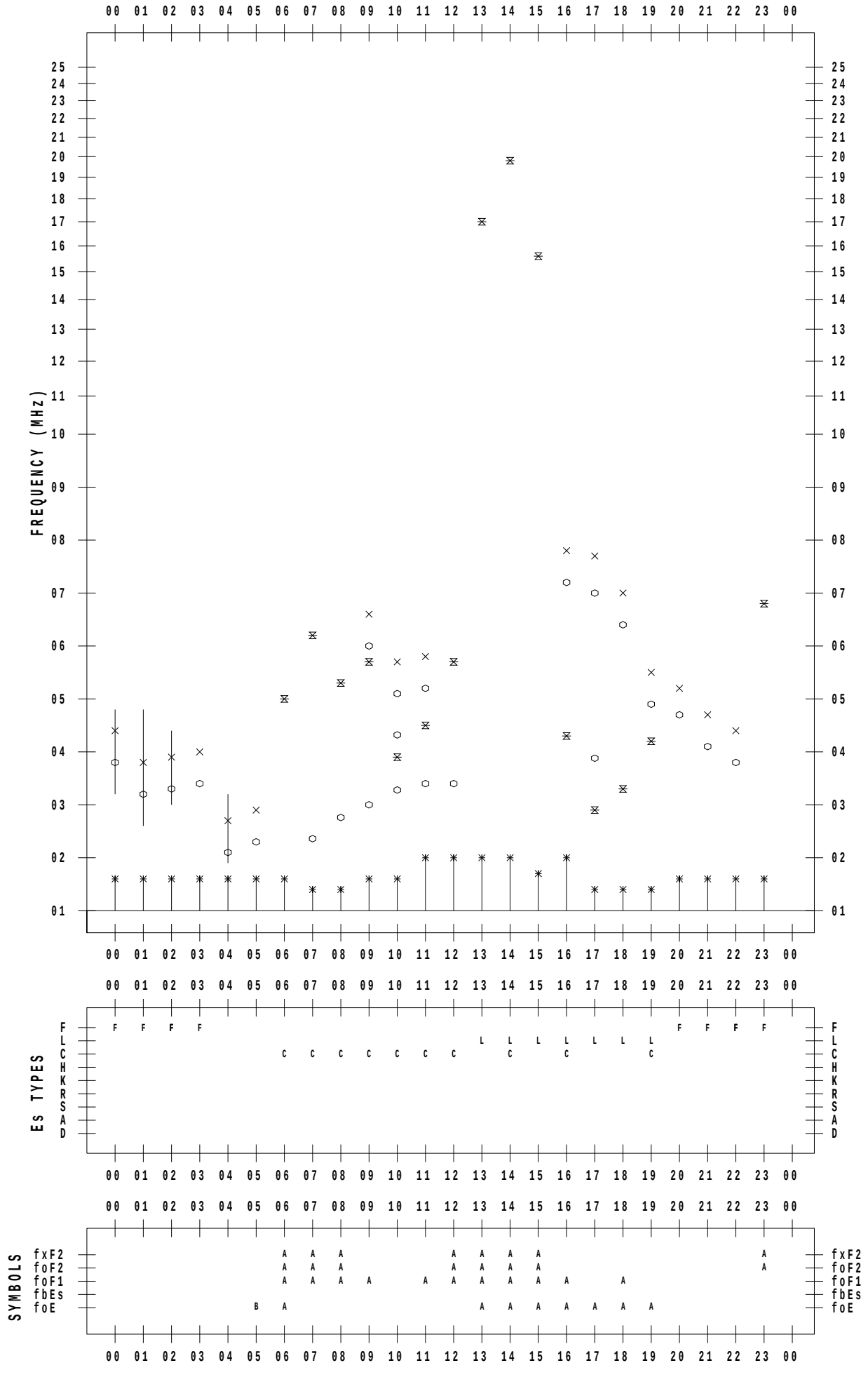
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/29

135 °E MEAN TIME



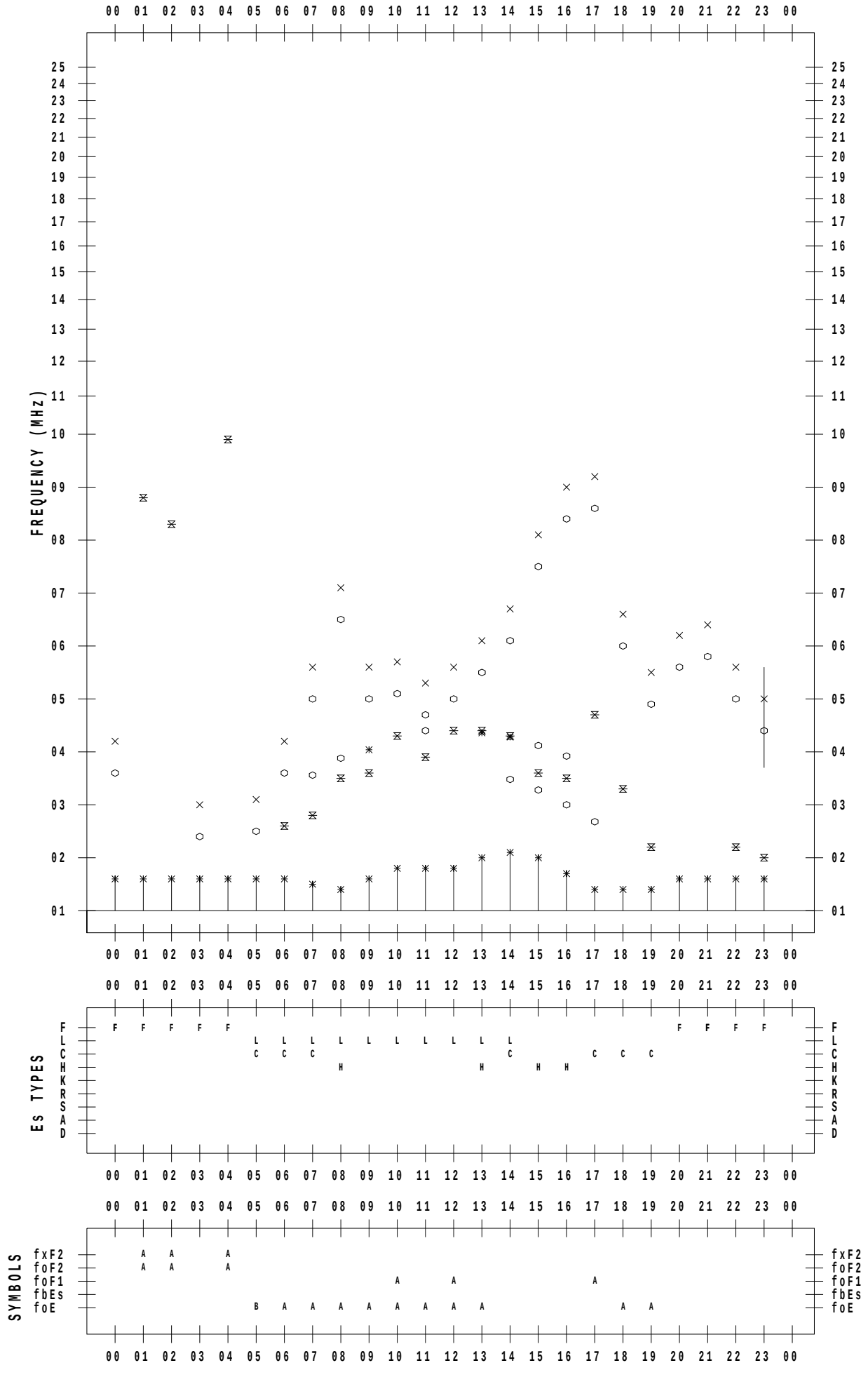
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/ 5/31

135 °E MEAN TIME