F-866

IONOSPHERIC DATA IN JAPAN

FOR February 2021
VOL. 73 NO. 2

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

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

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

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

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

IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

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

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

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

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

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

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

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

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

K Presence of particle *E* layer.

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

Q Range spread present.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

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

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

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

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

FEB.2021

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	34	33	35	37	32	33	25	40	51	52	53	54	60	54	53	54	45	31	32	32	33	A	32	33
2	33	32	25	25	30	30	24	42	54	52	55	58	67	57	53	55	49	45	56	34	34	35	35	34
3	41	37	39	36	35	N 23	25	42	66	57	56	69	70	61	54	53	50	43	38	A	33	A	A	34
4	37	37	32	35	33	32	25	N 42	47	52	59	60	61	71	63	55	60	39	30	33	34	35	34	34
5	36	34	33	32	30	29	25	40	55	59	53	61	59	62	53	60	46	35	29	23	31	32	33	33
6	34	35	35	34	33	30	25	39	60	62	51	61	59	57	52	51	49	40	32	34	26	29	33	33
7	33	32	32	33	32	31	30	39	55	56	53	63	68	76	70	63	59	47	32	23	29	31	33	38
8	31	26	30	27	30	A	27	46	56	63	63	62	67	64	59	64	49	43	25	A	32	A	30	32
9	33	32	31	30	30	25	23	37	49	59	64	65	65	56	59	55	57	42	31	32	35	35	41	44
10	43	39	39	39	44	48	26	44	53	53	63	61	76	67	60	63	55	49	A	A	A	A	34	33
11	36	35	34	36	35	34	31	43	58	66	59	65	64	55	54	48	51	A	A	32	33	31	33	33
12	33	35	36	32	32	30	24	45	55	64	63	55	54	59	54	51	47	40	33	31	33	32	32	33
13	32	33	33	32	31	30	31	47	59	57	51	64	58	55	59	51	57	48	32	35	33	33	33	32
14	31	32	30	30	31	27	24	50	57	57	73	65	58	52	55	53	52	51	35	A	31	27	30	31
15	34	35	34	35	34	32	24	45	55	63	60	65	61	54	51	51	45	43	A	A	30	33	32	32
16	33	34	32	31	30	26	31	39	51	56	58	63	71	54	58	58	47	48	42	44	32	34	30	32
17	31	31	32	32	32	33	39	47	51	64	59	61	81	65	55	59	55	49	26	29	34	33	33	35
18	36	38	A	33	33	29	30	51	49	51	65	60	70	57	59	55	59	49	37	33	35	39	37	36
19	37	38	33	31	32	31	33	51	50	64	55	58	64	58	55	53	51	52	36	33	34	32	34	37
20	35	33	32	31	34	25	A	42	46	68	61	79	80	70	60	55	55	57	51	44	39	34	37	33
21	31	31	31	33	23	24	A	41	46	57	59	62	59	60	57	60	64	49	39	43	35	33	35	35
22	36	34	35	34	30	25	32	49	55	57	56	62	61	65	54	55	53	43	39	37	36	35	36	35
23	34	33	32	31	32	31	31	43	49	57	63	71	65	60	64	61	61	56	38	45	40	39	37	34
24	36	35	35	34	33	32	36	50	63	59	64	68	67	64	61	62	63	49	42	43	34	37	34	35
25	36	A	37	34	32	31	35	43	51	53	56	67	70	70	67	63	61	58	43	39	37	51	41	37
26	39	36	36	36	37	35	34	48	55	59	62	61	61	65	63	63	54	54	35	35	35	34	36	37
27	35	33	33	32	31	31	34	54	66	60	63	60	75	68	63	54	56	53	37	39	36	35	36	34
28	33	32	33	32	31	30	33	50	65	59	62	59	65	63	59	57	56	50	37	34	35	30	31	31
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	27	28	28	27	26	28	28	28	28	28	28	28	28	28	28	27	25	23	27	24	27	28
MED	34	34	33	32	32	30	30	44	55	58	59	62	65	60	58	55	54	48	36	34	34	34	34	34
U Q	36	35	35	34	33	32	33	48	57	62	63	65	70	65	60	60	58	51	39	39	35	35	36	35
L Q	33	32	32	31	30	27	25	41	50	56	55	60	60	56	54	53	49	43	32	32	32	32	32	33

HOURLY VALUES OF fEs AT Wakkanai

FEB.2021

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	G	G	11	G	48	46	50	G	49	G	G	G	G	G	G	32	36	29	34
2	28	G	G	G	G	G	G	26	48	48	48	31	32	36	35	30	40	G	11	27	33	32	G	26
3	G	G	G	G	11	G	G	G	58	45	35	35	36	36	34	32	28	28	60	71	33	38	38	31
4	25	G	G	G	G	G	G	G	28	32	35	35	36	35	34	31	G	40	G	G	G	G	31	24
5	G	G	G	G	G	G	G	140	34	34	35	36	41	36	33	32	32	35	G	G	G	G	G	G
6	G	G	G	G	G	G	G	31	50	34	35	35	36	36	34	32	G	41	G	G	G	26	G	G
7	G	G	30	G	G	G	G	G	49	32	34	35	36	35	33	33	28	24	G		G	G	G	G
8	G	G	G	G	G	35	G	G	38	34	53	35	33	32	72	29	28	26	30	56	34	59	27	G
9	G	G	G	G	G	G	G	G	28	32	58	56	36	35	41	32	29	G	G	G	11	G	G	29
10	154	93	G	26	24	48	G	30	41	49	40	52	36	34	36	G	G	32	41	41	32	35	32	33
11	31	G	G	G	G	33	G	G	32	42	48	83	37	35	35	32	36	105	58	G	G	G	G	G
12	G	G	G	G	G	G	G	24	32	91	36	37	43	36	34	32	29	40	G	G	G	G	G	G
13	G	G	G	G	G	G	G	25	32	37	55	36	37	36	35	32	G	11	G	G	G	G	G	G
14	G	G	G	G	G	G	110	27	31	34	40	47	50	36	112	31	34	26	23	46	26	G	G	G
15	G	25	33	34	34	G	G	40	50	34	65	37	36	37	46	34	146	38	60	59	29		G	G
16	G	G	G	G	G	G	G	29	38	35	41	38	36	36	35	36	40	32	36	34	G	27	26	25
17	26	38	32	28	G	G	G	48	34	40	37	35	37	36	48	31	26	28	G	G	G	G	G	G
18	26	30	26	G	G	G	G	26	32	34	37	44	39	36	40	32	31	G	11	G	G	G	28	G
19	G	G	26	G	G	G	G	40	G	36	38	48	36	52	28	G	G	G	11	25	G	G	G	G
20	G	G	G	G	G	24	29	29	33	33	35	48	36	33	36	32	29	G	41	11	G	G	G	G
21	G	G	G	G	G	24	43	37	39	35	55	36	50	36	150	70	G	G	G	G	G	G	G	G
22	G	G	G	G	G	G	G	28	32	27	42	42	G	29	34	48	G	G	G	G	G	G	G	G
23	G	G	G	G	G	G	G	44	34	34	52	53	31	37	36	32	32	G	G	25	G	G	G	G
24	G	G	G	G	G	G	G	40	38	41	38	41	32	30	G	36	24	G	G	31	G	G	32	29
25	24	48	33	G	G	G	G	29	36	52	46	38	40	53	37	35	29	G	34	G	G	G	G	G
26	G	G	G	G	G	G	G	28	32	35	37	38	30	G	28	33	G	G	G	G	G	G	G	G
27	G	G	G	G	G	G	G	G	48	48	37	39	38	35	G	33	G	G	G	G	G	G	G	G
28	G	G	G	G	G	G		38	34	35	38	84	37	37	37	34	G	G	G	G	G	G	G	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	27	28	27	28	28
MED	G	G	G	G	G	G	G	28	34	35	39	38	36	36	35	32	28	6	G	G	G	G	G	G
U Q	12	G	G	G	G	G	G	37	40	43	48	48	37	36	38	33	31	32	32	31	18	26	26	24
L Q	G	G	G	G	G	G	G	6	32	34	36	35	34	35	33	31	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

FEB.2021

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	15	14	15	14	16	16	14	16	15	15	16	27	16	16	16	15	14	15	14	14	14	15	16	16
2	15	15	15	14	14	15	15	16	14	15	17	16	14	16	15	15	14	14	16	15	15	16	16	16
3	16	16	16	16	15	15	16	16	15	14	16	15	13	15	14	16	16	15	15	16	16	16	15	16
4	16	16	16	15	15	15	14	15	15	16	16	16	16	16	16	15	18	14	15	16	15	14	15	16
5	15	16	15	15	14	16	15	15	14	16	15	16	14	16	15	15	15	15	15	15	15	15	15	15
6	15	15	14	14	15	14	14	16	15	15	16	15	12	16	16	15	16	16	14	14	15	16	14	15
7	15	14	16	14	14	14	14	14	15	14	14	16	16	13	14	16	14	17	16	16	15	15	15	14
8	15	15	15	15	16	15	14	15	15	14	14	15	14	14	13	13	15	15	16	15	15	16	16	15
9	14	14	14	14	15	15	15	16	15	16	14	14	16	15	14	15	15	14	14	14	14	14	14	16
10	15	16	16	16	16	15	14	16	14	14	14	15	14	15	14	15	15	15	17	16	15	16	16	16
11	15	16	16	15	15	16	14	15	15	14	16	16	17	15	16	16	14	16	17	14	14	16	15	16
12	15	14	15	15	15	14	15	17	16	13	15	16	14	17	14	17	15	14	15	14	14	15	15	15
13	15	17	15	14	43	15	14	15	15	14	16	17	16	14	13	15	14	16	14	14	15	15	15	15
14	14	15	15	14	14	14	15	15	14	13	14	14	13	13	13	14	15	17	16	15	16	16	16	14
15	15	16	16	17	16	16	16	15	14	13	16	16	16	14	16	15	16	14	15	15	16	120	15	14
16	14	14	15	14	14	14	14	15	14	16	14	15	14	15	14	14	14	14	15	15	15	15	16	16
17	15	14	15	15	15	15	15	14	14	15	14	15	17	14	12	15	13	15	16	16	14	14	15	14
18	15	16	16	15	15	15	14	14	16	16	15	15	16	17	16	14	15	15	14	14	14	14	15	16
19	16	16	15	16	16	16	15	15	15	15	17	17	15	15	16	17	16	15	16	16	17	16	16	14
20	14	14	14	14	14	16	15	15	15	15	16	15	15	14	13	15	15	15	15	15	14	14	14	14
21	16	16	15	14	14	16	15	15	15	16	16	13	15	14	16	13	15	15	14	15	15	16	16	15
22	14	14	14	14	14	14	15	15	14	16	16	17	16	15	16	14	15	15	14	15	15	15	16	14
23	14	14	14	14	14	14	14	15	15	16	17	17	17	15	15	17	15	17	14	16	15	14	14	14
24	14	15	15	14	14	14	14	15	16	14	15	16	15	16	14	16	15	20	14	16	15	15	16	16
25	16	16	16	16	15	14	14	15	14	14	15	15	17	15	15	16	15	15	15	16	15	15	14	15
26	16	14	14	15	14	14	17	15	15	16	15	15	16	17	17	16	15	16	14	14	14	14	14	15
27	14	14	14	14	15	14	14	15	15	17	16	15	15	17	16	16	15	18	15	14	14	14	14	14
28	15	16	16	15	14	14		16	16	14	14	15	15	15	15	15	15	17	15	15	15	15	14	14
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	15	15	15	14	15	15	14	15	15	15	16	15	15	15	15	15	15	15	15	15	15	15	15	15
U Q	15	16	16	15	15	15	15	16	15	16	16	16	16	16	16	16	15	16	16	16	15	16	16	16
L Q	14	14	14	14	14	14	14	15	14	14	14	15	14	14	14	15	14	15	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

FEB.2021

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

HOURLY VALUES OF fEs AT Kokubunji

FEB.2021

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	21	G		G	G	40	33	30	53	42	53	56	60	40	78	31	G	27	G	G
2	G	G	G	G	G		G	36	50	37	35	37	60	69	39	34	29	41	G	G	G	34	55	G
3	G	31	24	21		26	G	26	32	40	38	35	35	39	40	37	33	43	69	47	33	30	34	32
4	G	G	G	G	G		G	24	29	G	36	G	38	32	43	42	G	26	G	46	39	29	G	G
5	G	25	G	G	G	G	G	26	35	35	40	37	43	G	G	36	G	G	G		G	G	G	G
6	G	G	24	33	23	24	31	49	37	47	41	39	36	50	41	43	37	39	37	40	59	G	G	G
7	G	G	G	G	G	G	G	24	31	37	39	37	40	37	G	38	42	35	36	36	33	31	35	49
8	G	G	G	G	G	G		G	29	50	51	43	41	44	36	33	G	G	33	52	31	28	33	33
9	29	G	G	G	32	G		G	G	G	39	56	37	31	36	34	47	G	31	31	50	26	36	30
10	G	G	G	G	G	G	G	25	43	39	48	38	57	50	39	37	35	31	29	G	34	29	G	
11	G		G	G		G	G	G	31	106	G	54	96	38	G	33	32	40	28	G		37	33	37
12	29	27	G	G	G	G	G	25	37	48	45	G	36	34	G	G	26	G	G	G	G	28	G	G
13		G	G	G	G	G	G	26	49	34	35	38	36	35	31	34	G	G	G	G	G	G	G	G
14	G	G	G	G	G		G	G	31	G	36	37	38	33	59	34	40	41	69	38	G			51
15	55	G	32	26	G	24	G	G	32	144	37	39	56	36	G	G	G	33	G	G	26	57	32	G
16	G	G	G	G	G	G	G	24	37	34	34	N	36	31	G	31	36	G	29	25	48	G		G
17	G	27	G	G	G	G	G	26	47	34	36	N	39	G	G	34	G	G	25	26	G	G	G	G
18	G	G	G	G	G	G	27	26	31	34	40	31	40	35	38	G	G	G	G	G	G	G	G	G
19	26	G	G	G		G	G	G	G	G	39	31	40	N	37	36	28	G	G	32	G	26	G	G
20	G	G	G	G	G	G	G	G	46	50	46	67	40	45	61	59	29	37	31	25	27	G	G	G
21	27	G	G	G	G			32	57	84	54	G	36	37	G	29	G	G	43	G	G	G	G	G
22	G	G	G	G			G	G	G	33	36	G	G	56	G	G	G	G	11	G	G	G	G	G
23	G	G	G	G	G	G	G	G	G	G	G	47	37	34	31	G	47	G	G	G	G	G	33	G
24	G	G	G	G	G	G	G	47	G	31	G	43	59	40	41	34	32	G	50	G	G	G	G	G
25	G	G	G	G	G	G	G	G	33	32	85	48	40	39	52	42	G	G	11	G	G	G	G	G
26	G	29	G	G	G	G	G	G	G	G	39	37	G	40	34	35	31	G	G	G	G	G	G	G
27	G	G	G		G	G	G	G	G	38	38	38	33	41	32	N	G	G	11	G	G	31	G	G
28	G	G	G	G	G	G	G	23	G	53	45	38	34	42	37	42	32	G	11	11	G	G	G	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	28	27	24	23	24	28	28	28	28	26	28	27	28	27	28	28	28	27	27	27	26	27
MED	G	G	G	G	G	G	G	24	31	36	38	38	38	38	36	34	29	G	18	G	G	G	G	G
U Q	G	G	G	G	G	G	G	26	37	47	43	43	42	42	40	38	35	36	34	32	33	29	33	G
L Q	G	G	G	G	G	G	G	G	G	31	35	31	36	34	G	31	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

FEB.2021

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

HOURLY VALUES OF foF2 AT Yamagawa

FEB. 2021

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	B 31	33	33	33	33	B	B	31	45	54	52	61	57	51	59	52	48	51	40	A	33	34	N 35	31
2	32	31	32	31	B 28	B 24	B	33	56	59	58	62	55	58	65	63	56	53	41	42	34	31	31	B 32
3	35	35	35	A	A		B	31	55	69	80	81	74	60	58	65	55	48	43	44	43	B 35	A	A
4	33	33	33	B 31	32	31	B	36	68	51	48	62	70	74	72	69	55	51	44	A	A	37	36	36
5	32	33	33	B 32	32	B 26	B 25	34	50	55	58	68	60	66	62	57	51	50	46	36	B 32	A	A	35
6	27	33	B 31	B 32	31	B 31	31	32	52	52	55	62	A	63	62	55	53	51	43	A	A	36	33	30
7	A	A	A	A	B 33	31	N 26	37	51	58	56	63	74	78	87	67	61	60	47	39	33	38	35	A
8	39	A	A	32	31	31	A	37	65	56	63	70	85	89	A	A	58	A	A	A	33	A	A	A
9	A	31	32	31	32	B 31	N 27	34	50	58	63	61	61	56	64	67	58	55	A	A	A	35	A	A
10	32	A	32	32	30	31	31	35	51	56	57	73	80	84	91	75	64	55	51	A	A	A	B	B
11	B 31	33	31	32	34	B 26	B 23	32	50	59	59	61	69	65	83	69	55	54	46	32	34	38	34	31
12	32	32	32	31	33	B 32	B 24	37	48	63	64	67	81	72	62	64	56	52	45	35	33	33	32	B 31
13	33	34	33	33	33	31	B 30	40	58	60	57	66	60	61	63	70	56	54	51	36	38	41	37	34
14	35	33	36	33	34	33	32	37	61	58	59	74	67	57	63	53	64	59	54	34	A	B 31	B 25	33
15	31	32	B 28	32	32	33	B 31	37	51	50	59	68	79	69	61	55	55	54	45	35	34	B 31	31	A
16	35	32	32	32	35	32	B 23	35	52	54	61	66	78	98	125	117	111	83	71	53	50	A	A	B 31
17	33	33	33	35	35	33	29	45	52	55	57	67	79	85	65	65	63	62	51	42	B	31	27	27
18	32	26	30	31	B 27	31	N 25	37	57	60	55	58	69	67	66	74	66	59	46	36	37	35	B 28	B 32
19	B 33	B 35	33	31	31	B 27	B 24	38	54	54	62	67	84	73	84	69	66	50	44	40	42	38	36	B 33
20	35	35	34	37	32	32	B 27	39	59	53	72	75	98	97	105	89	69	61	53	33	34	33	26	31
21	31	32	33	33	33	B	B	35	58	64	60	64	69	76	81	73	60	60	60	B 35	A	A	39	27
22	31	35	33	32	B 23	B	B 24	38	58	76	74	75	65	79	82	C	C	C	56	42	A	41	33	32
23	33	36	37	33	32	26	25	39	59	61	C	C	C	C	C	C	C	C	C	48	50	43	30	25
24	29	32	35	33	35	34	N 25	43	60	54	C	C	C	C	C	C	C	C	52	43	52	46	34	32
25	34	34	33	37	34	33	33	49	55	61	79	92	79	90	88	81	85	77	81	43	31	34	37	33
26	A	34	35	35	33	33	33	48	53	66	79	91	95	97	88	69	65	59	64	49	40	39	33	26
27	30	30	32	31	34	32	31	52	B	55	72	B	B	B	B	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	25	25	26	23	21	27	26	27	25	24	23	24	23	22	23	22	23	20	18	21	20	20
MED	32	33	33	32	32	31	27	37	54	58	59	67	74	72	66	68	58	54	47	40	34	35	33	32
U Q	33	34	33	33	34	33	31	39	58	61	68	73	80	84	87	73	65	60	54	43	42	38	35	33
L Q	31	32	32	31	31	31	24	34	51	54	57	62	65	62	62	63	55	51	44	35	33	33	30	30

HOURLY VALUES OF fEs AT Yamagawa

FEB.2021

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	B	G	G	G	G	B	B	24	28	40	47	51	56	37	46	52	50	38	30	45	G	G	G	G
2	G	G	G	G	B	B	B	G	32	38	39	41	43	45	42	65	49	38	28	31	32	G	G	B
3	23	36	31	43	32	G	B	G	34	37	42	42	41	42	41	40	53	50	32	40	G	B	84	60
4	G	G	G	B	G	G	B	G	33	152	38	36	39	36	38	36	32	31	23	44	44	G	39	G
5	G	G	G	B	G	B	B	G	32	39	40	43	80	46	41	45	37	30	24	G	B	66	40	27
6	G	G	B	B	G	B	G	G	30	37	37	40	60	44	41	44	35	35	32	29	45	35	G	G
7	43	39	56	39	B	G	G	G	36	37	46	56	61	57	50	46	40	28	11	G	G	G	57	70
8	39	59	39	G	G	24	35	G	32	37	42	58	71	54	69	92	58	79	87	60	32	41	58	40
9	43	G	G	G	G	B	G	G	29	33	52	45	48	45	46	46	46	51	65	52	48	32	39	38
10	G	28	G	G	G	G	G	G	29	35	41	45	46	42	61	41	36	45	53	60	43	39	B	B
11	B	G	G	G	G	B	B	G	30	34	37	40	43	46	41	38	42	32	36	G	G	33	G	G
12	G	G	G	G	G	B	B	G	30	35	45	43	44	48	42	43	44	36	35	G	G	G	G	B
13	G	G	G	G	G	G	B	G	30	33	38	43	46	40	39	39	43	32	22	G	G	G	G	G
14	G	G	G	G	G	G	G	G	29	34	37	37	45	46	41	38	40	49	32	34	38	B	B	G
15	G	G	B	89	G	G	B	G	30	35	39	44	46	46	38	36	34	29	G	G	G	B	37	70
16	46	40	G	G	G	11	B	G	32	38	45	50	44	44	45	46	36	32	42	35	33	69	46	B
17	G	G	G	G	G	G	G	G	48	44	53	69	39	48	39	36	33	G	G	G	B	G	G	G
18	G	G	G	G	B	G	G	G	34	36	38	44	45	43	36	46	37	31	G	G	G	G	B	B
19	B	B	G	G	G	B	B	G	46	34	42	41	38	40	38	46	36	39	53	30	G	G	G	B
20	G	G	G	G	G	G	B	G	32	36	40	45	61	44	45	39	35	29	28	G	G	G	G	G
21	G	G	G	G	G	B	B	G	34	39	43	45	43	58	49	36	33	G	G	B	38	48	35	G
22	G	G	G	G	B	B	B	G	G	33	40	62	49	38	38	C	C	C	30	28	35	G	G	G
23	G	G	G	G	G	G	G	24	34	38	C	C	C	C	C	C	C	C	C	G	G	G	G	G
24	G	G	G	G	G	G	G	G	33	35	C	C	C	C	C	C	C	C	33	G	40	27	G	G
25	G	G	G	39	29	29	28	90	31	38	44	44	40	40	34	36	33	29	28	41	G	G	25	G
26	36	102	31	G	G	G	G	48	33	32	41	34	35	38	40	36	40	G	25	20	G	G	G	G
27	G	G	G	G	G	G	G	48	B	42	41	B	B	B	B	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	26	25	24	23	17	13	27	26	27	25	24	24	24	24	23	23	23	25	25	24	23	23	20
MED	G	G	G	G	G	G	G	G	32	37	41	44	45	44	41	41	37	32	30	28	G	G	G	G
U Q	12	G	G	G	G	G	G	G	34	38	44	47	52	46	45	46	44	39	35	40	38	35	39	32
L Q	G	G	G	G	G	G	G	G	30	34	38	41	42	40	38	36	35	29	22	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

FEB.2021

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	B	15	14	15	15	B	B 16	16	15	15	18	19	21	20	21	15	19	14	16	14	16	16	15	15
2	15	14	14	14	B	B	B	15	16	14	15	17	17	16	19	19	18	15	15	16	15	15	16	B 15
3	16	15	15	15	15	17	B 15	16	15	15	15	15	18	19	17	19	16	15	16	15	16	B 15	15	15
4	15	15	15	B 15	16	14	B	15	15	14	15	18	19	17	18	15	15	15	16	15	16	16	16	15
5	15	14	23	B	71	B	B	15	15	17	15	17	19	16	17	17	15	15	15	16	B	17	15	15
6	15	16	B	B	14	B	15	15	15	15	15	17	21	18	16	17	16	16	16	15	15	15	15	16
7	15	16	16	15	B 16	15	15	18	16	14	15	15	22	15	19	19	15	16	14	15	15	15	16	16
8	15	16	16	16	16	15	15	16	16	13	13	15	18	15	18	20	15	15	15	16	16	15	15	15
9	15	15	23	16	16	B 15	15	16	15	14	15	16	18	16	17	19	19	16	17	15	16	15	15	15
10	16	15	15	17	16	15	15	15	15	15	18	16	19	19	18	20	15	15	15	15	15	15	B 16	B 15
11	B 15	16	26	15	15	B	B	15	15	16	15	15	20	15	16	15	16	16	17	17	16	15	15	15
12	15	15	14	14	15	B	B	15	15	16	13	16	13	16	15	17	14	16	15	241	15	15	14	B
13	66	15	15	16	24	14	B	15	15	16	16	16	19	22	16	16	14	15	16	14	24	15	15	15
14	15	15	15	15	14	15	15	14	15	16	15	14	16	21	19	17	17	16	15	14	15	B 15	B	14
15	15	24	B 16	11	15	15	B 15	14	15	13	15	15	15	20	18	17	17	15	16	15	26	B	19	16
16	15	15	16	15	15	15	B	15	16	15	17	20	18	19	15	16	15	17	15	14	16	15	17	B 15
17	23	15	17	15	16	15	15	15	15	14	14	20	19	16	15	13	14	15	15	16	B	21	22	15
18	15	15	15	18	B	15	15	14	15	15	14	17	15	16	16	16	16	15	15	15	16	14	B	B
19	B	B 15	22	15	14	B	B	16	26	16	16	17	15	19	23	19	16	15	15	15	21	14	14	B
20	14	14	14	15	14	15	B	18	16	14	15	15	20	20	19	14	15	16	16	15	15	15	15	66
21	15	14	15	15	15	B	B	17	16	15	14	20	20	21	21	15	15	15	16	B 15	15	15	15	66
22	26	15	15	15	B	B	B	15	15	16	15	19	22	15	15	C	C	C	16	16	15	14	14	15
23	15	15	14	14	14	15	14	16	16	13	C	C	C	C	C	C	C	C	C	15	14	14	18	15
24	15	15	16	14	14	14	14	16	15	16	C	C	C	C	C	C	C	C	16	16	15	15	16	15
25	14	15	15	15	16	16	16	14	15	15	13	15	16	17	16	15	16	15	15	15	15	16	16	15
26	15	15	16	14	15	15	14	16	16	16	15	15	16	15	15	15	15	15	15	16	16	15	14	14
27	15	15	14	15	14	17	15	18	B	14	15	B	B	B	B	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	27	26	25	24	18	16	27	26	27	25	24	24	24	24	23	23	23	25	26	24	25	24	23
MED	15	15	15	15	15	15	15	15	15	15	15	16	18	17	17	17	15	15	15	15	16	15	15	15
U Q	15	15	16	15	16	15	15	16	16	16	15	17	20	19	19	19	16	16	16	16	16	15	16	15
L Q	15	15	15	14	14	15	15	15	15	14	14	15	16	16	16	15	15	15	15	15	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

FEB.2021

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

HOURLY VALUES OF fEs AT Okinawa

FEB.2021

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	26	G	G	G	31	B	B	56	30	40	44	50	56	49	47	41	38	34	44	24	40	30	58	G
2	G	G	G	G	G	G	G	G	30	40	42	44	46	48	45	46	40	36	38	34	36	33	35	26
3	G	G	G	11	B	24	38	G	32	50	46	47	44	58	43	47	52	51	58	57	57	56	48	29
4	59	31	G	G	G	G	G	24	33	47	42	50	46	38	36	38	36	36	59	72	69	39	53	33
5	46	29	38	44	29	29	G	G	29	32	41	60	45	52	46	50	50	41	44	46	34	G	G	G
6	33	33	24	G	G	B	B	G	28	38	42	46	45	48	96	53	44	38	36	38	34	36	35	29
7	44	G	G	28	G	56	B	25	35	40	44	47	47	54	72	48	59	36	36	G	25	G	G	G
8	59	58	50	71	56	52	57	58	28	36	48	43	40	40	41	41	41	43	28	54	102	94	36	33
9	37	32	G	G	G	G	G	26	28	38	35	38	46	76	88	78	56	46	35	60	71	103	57	30
10	G	G	G	31	24	23	40	34	32	33	40	47	51	59	61	50	51	71	46	55	40	35	28	26
11	24	G	G	G	G	G	26	G	30	37	41	43	46	46	42	41	41	32	33	29	48	35	G	G
12	G	G	G	G	G	G	G	G	30	37	44	47	48	45	40	43	46	41	36	25	B	G	G	G
13	G	G	G	G	G	B	G	G	49	37	39	45	47	47	53	44	50	35	36	26	G	G	26	24
14	G	G	G	G	G	G	G	G	29	34	36	44	46	46	46	45	39	31	29	27	G	32	G	G
15	G	G	G	G	26	30	29	G	29	33	40	46	45	40	47	38	35	31	31	34	32	G	G	G
16	55	32	32	G	28	40	G	11	48	32	C	C	C	C	C	C	C	B	38	47	54	27	31	26
17	G	56	31	G	G	G	G	G	28	49	C	C	C	C	C	C	C	C	35	27	26	B	G	G
18	G	G	G	G	G	B	B	G	30	36	C	C	C	C	C	34	34	31	40	57	G	24	G	G
19	B	G	G	G	G	B	B	G	29	31	36	37	C	C	C	C	37	29	24	G	G	G	G	G
20	G	28	G	G	34	G	G	G	29	31	39	44	46	47	71	66	34	48	33	26	G	G	B	G
21	G	G	G	G	G	B	B	G	46	38	42	40	42	44	89	53	48	33	24	86	55	24	49	49
22	B	G	11	G	B	B	B	G	G	31	34	44	47	48	43	34	42	32	32	27	28	30	G	G
23	26	G	G	G	G	B	B	G	32	38	39	35	45	40	44	36	35	G	29	G	11	G	G	G
24	G	G	G	G	G	G	G	G	G	53	42	44	45	G	48	60	47	59	49	G	G	G	G	G
25	G	G	G	G	G	G	32	23	24	39	N	35	38	48	37	34	34	33	G	48	G	G	G	G
26	G	G	G	G	B	G	G	134	G	43	35	36	37	38	46	38	29	30	28	26	40	G	G	G
27	B	G	G	G	G	G	G	37	48	45	36	64	47	47	46	38	39	31	48	40	11	G	26	B
28	G	G	G	G	G	11	G	59	29	48	37	38	40	47	50	G	35	32	G	56	31	B	G	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	28	28	28	25	20	20	28	28	28	24	25	24	24	24	25	26	26	28	28	27	26	27	27
MED	G	G	G	G	G	G	G	G	30	38	40	44	46	47	46	43	40	34	36	34	32	24	G	G
U Q	35	28	G	G	25	26	27	25	32	41	42	47	47	48	57	50	48	41	42	54	48	35	35	26
L Q	G	G	G	G	G	G	G	G	28	33	36	39	44	42	43	38	35	31	29	26	G	G	G	G

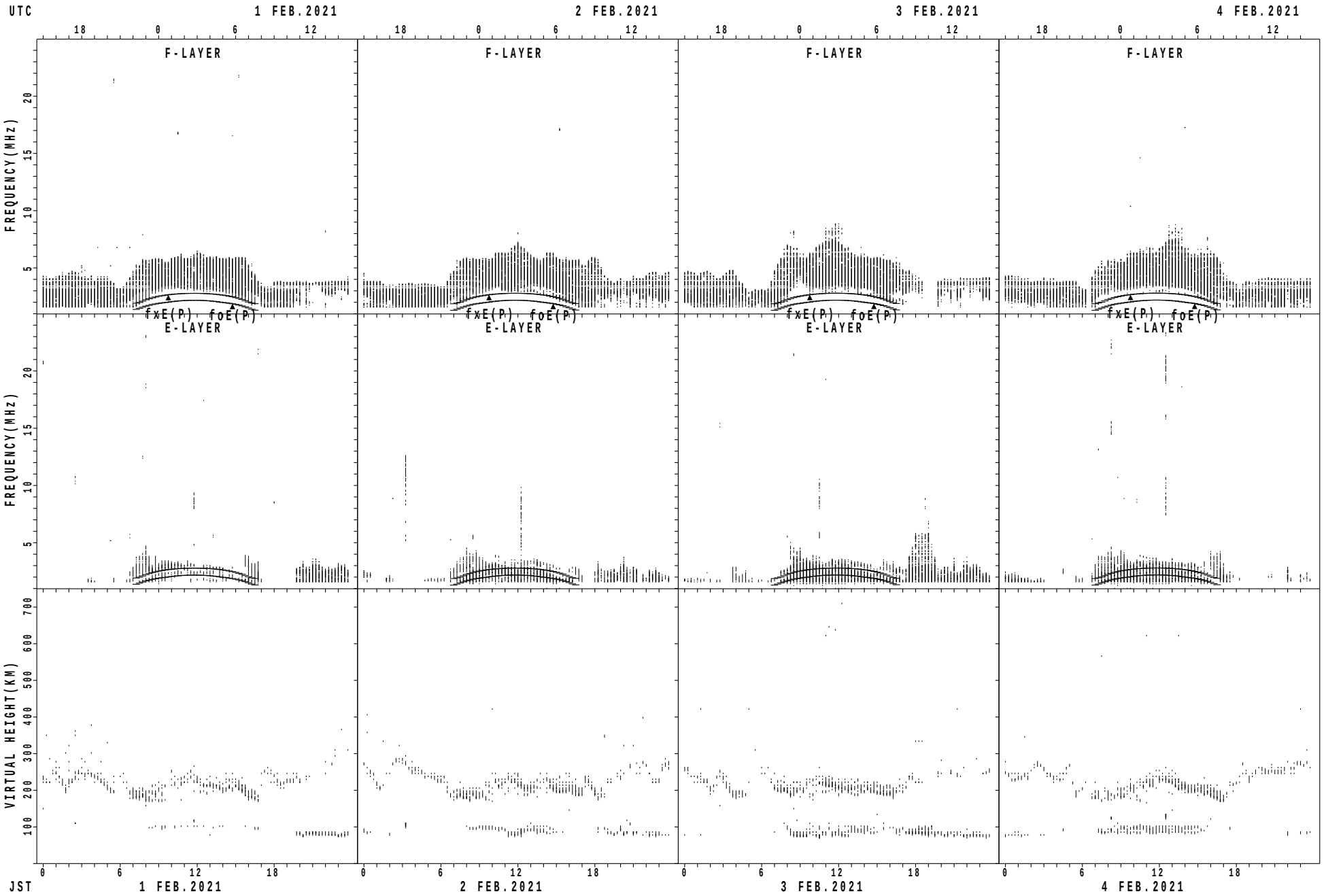
HOURLY VALUES OF fmin AT Okinawa

FEB.2021

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

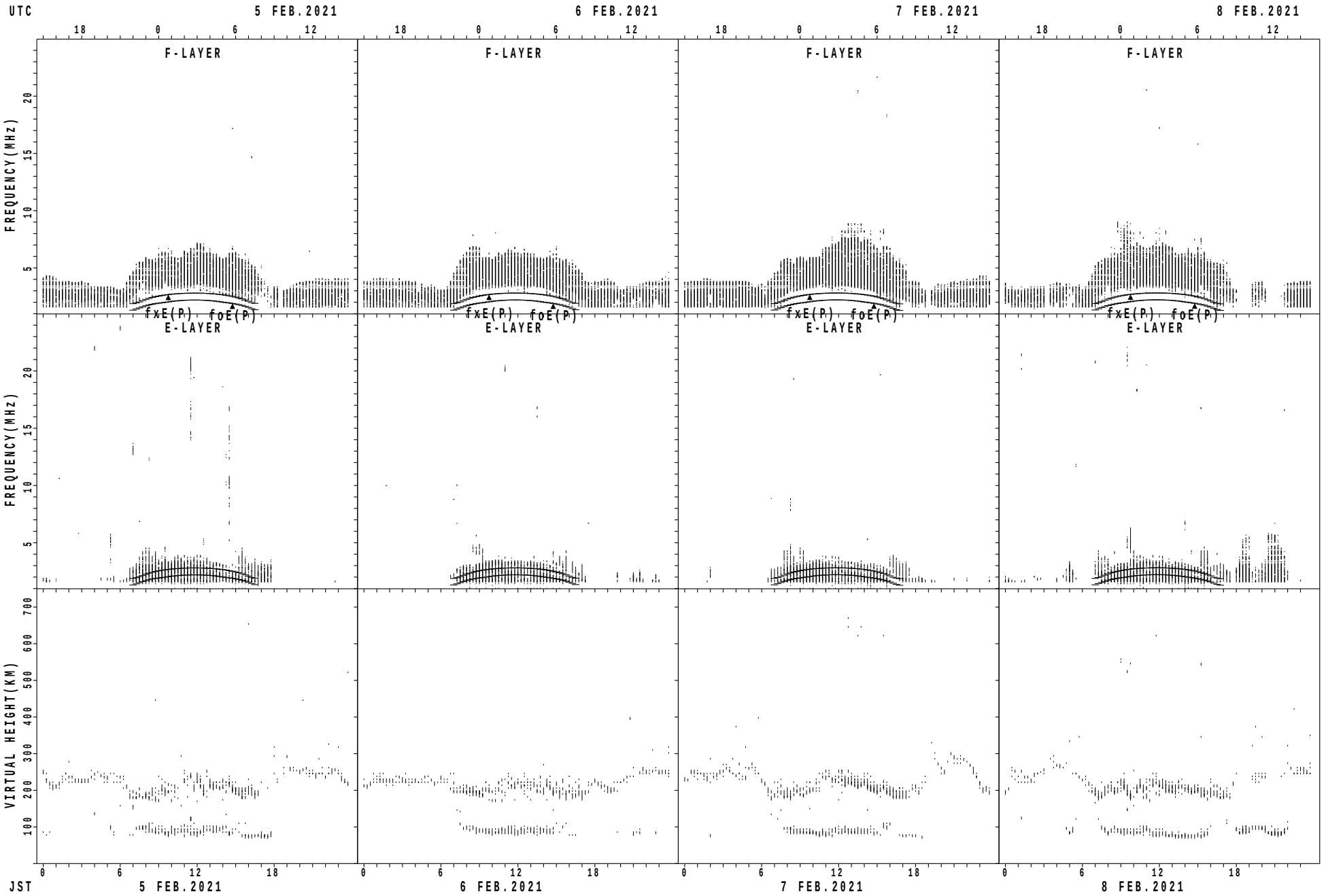
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	15	15	14	15	B	B	16	15	17	15	14	16	15	14	14	14	16	15	16	15	16	16	15
2	15	16	14	14	14	14	19	14	15	15	13	14	16	14	15	14	13	16	15	16	16	16	15	15
3	14	14	15	15	B	15	15	16	16	15	13	15	17	14	15	15	15	14	15	16	15	15	16	15
4	15	16	15	15	14	14	14	16	16	15	13	14	15	15	15	13	14	14	15	14	15	15	16	16
5	15	15	15	16	15	15	16	16	15	14	15	13	14	13	14	14	15	15	15	15	16	15	15	15
6	16	15	15	15	14	B	B	14	15	15	15	14	15	15	14	14	15	16	16	15	16	16	15	16
7	15	15	15	15	16	15	B 16	15	15	15	14	15	14	14	14	15	13	15	15	16	15	14	14	15
8	15	15	15	15	15	15	15	15	15	15	14	13	15	14	13	15	14	14	16	16	7	13	15	16
9	15	16	15	15	15	15	15	15	15	16	15	14	13	14	16	14	14	16	16	15	15	13	16	15
10	16	14	15	16	15	15	16	15	15	17	13	14	14	14	14	14	15	15	16	15	16	16	16	15
11	15	14	14	14	14	14	15	15	15	15	15	16	15	15	16	14	15	15	16	16	15	16	16	15
12	15	15	14	14	14	14	16	15	15	16	15	15	15	15	15	13	13	14	16	16	B 16	14	15	15
13	14	15	15	14	15	B	14	15	15	15	15	15	14	15	13	15	14	14	16	15	15	15	15	15
14	14	15	17	15	14	16	14	14	15	16	15	14	16	15	15	15	14	15	16	16	16	16	15	15
15	15	16	15	14	15	15	16	16	15	15	14	14	15	16	15	15	17	15	16	15	16	14	17	14
16	16	15	16	16	16	15	15	15	15	16	C	C	C	C	C	C	C	B	13	15	15	16	16	16
17	15	16	16	15	16	16	15	16	15	16	C	C	C	C	C	C	C	C	15	15	15	B 15	15	14
18	15	14	14	15	16	B	B 15	15	16	17	C	C	C	C	C	16	14	15	15	15	16	16	15	17
19	B	15	15	15	14	B	B	15	16	15	15	15	C	C	C	C	15	15	16	17	15	15	14	15
20	15	15	16	15	16	15	15	16	15	15	14	14	15	17	14	12	13	14	15	15	15	15	B	16
21	66	14	15	17	15	B	B	14	15	15	16	17	16	16	17	15	15	13	16	17	15	16	15	15
22	B 16	16	14	15	B	B	B	15	15	15	16	14	15	17	15	16	11	15	15	15	15	16	15	15
23	16	14	14	14	15	B	B	15	15	15	15	15	16	18	17	15	15	14	13	16	14	14	14	14
24	14	14	14	15	14	14	14	14	15	16	16	16	16	16	18	15	16	15	15	15	15	14	15	17
25	16	14	14	14	15	16	16	16	15	17	17	15	18	16	17	17	17	16	15	14	14	18	14	18
26	15	14	15	15	B	15	14	17	15	16	15	16	17	14	17	14	15	14	15	15	15	16	14	16
27	B 15	16	15	15	15	15	15	14	15	14	16	16	17	17	16	15	15	15	17	14	14	14	15	B
28	16	15	16	14	14	15	15	15	15	17	17	15	17	17	16	16	15	15	15	15	14	B	16	15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	28	28	25	20	22	28	28	28	25	25	24	24	24	25	26	26	28	28	28	27	27	27
MED	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
U Q	16	15	15	15	15	15	16	16	15	16	15	15	16	16	16	15	15	15	16	16	16	16	16	16
L Q	15	14	14	14	14	14	15	15	15	15	14	14	15	14	14	14	14	14	15	15	15	14	15	15

SUMMARY PLOTS AT Wakkanai



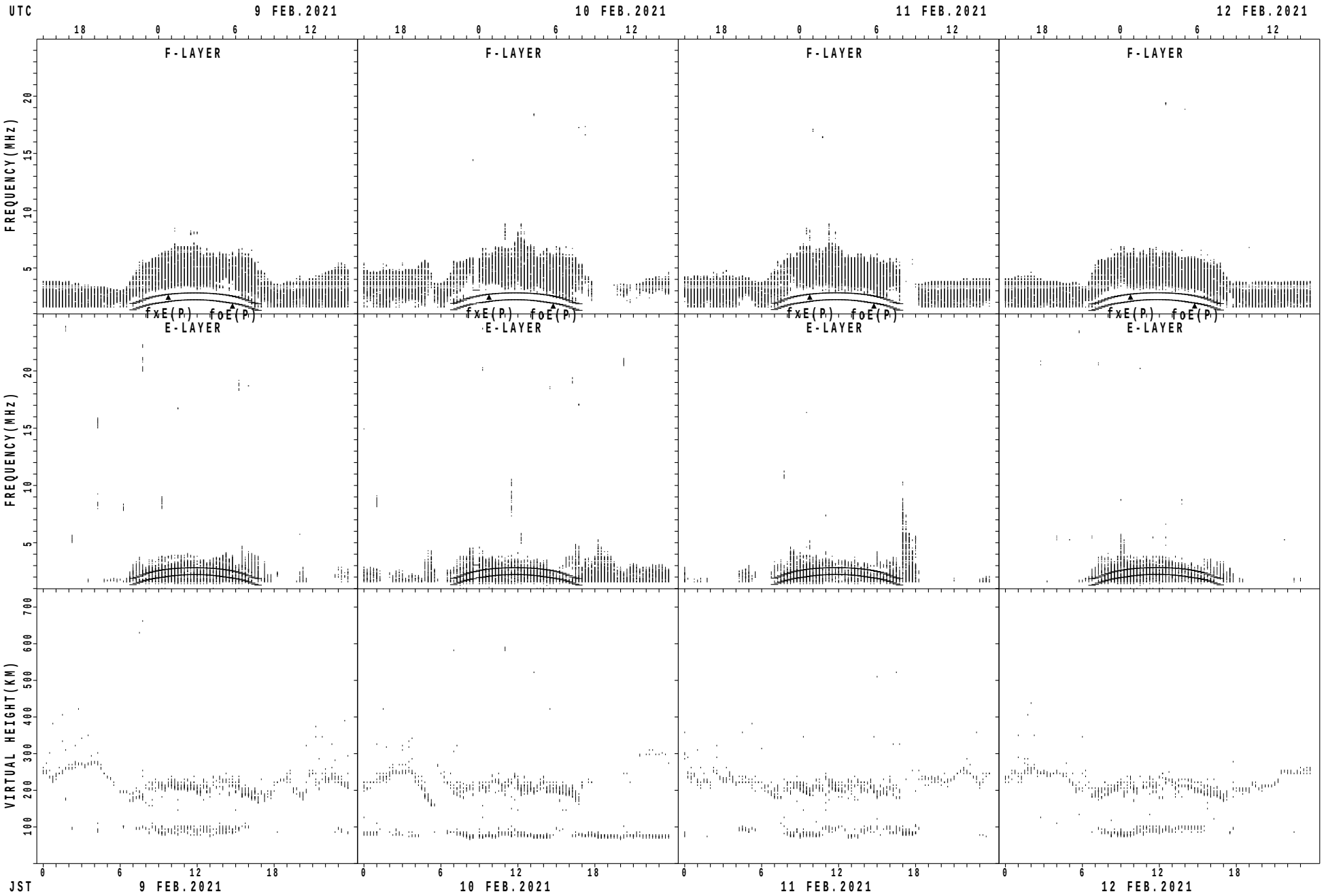
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



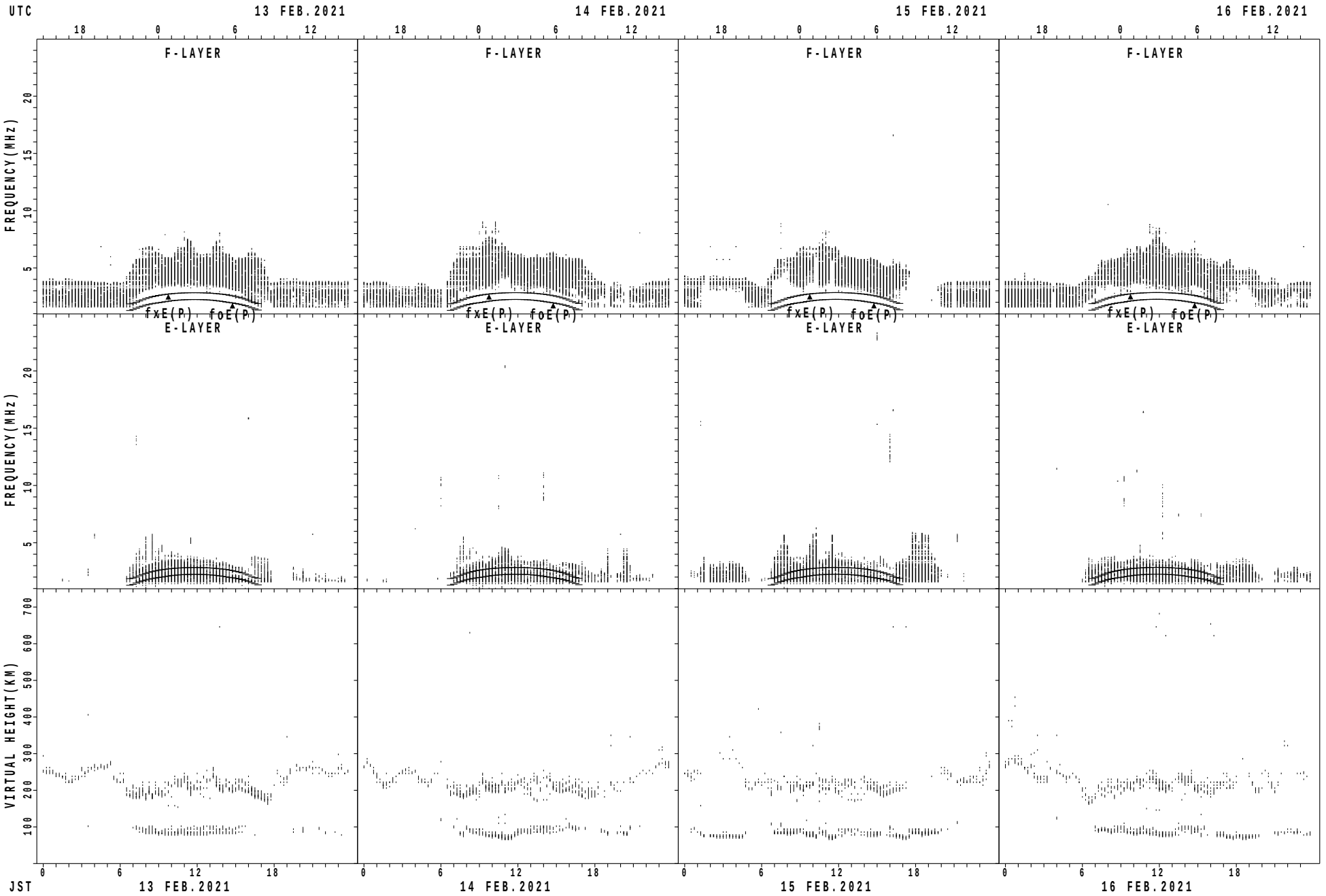
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



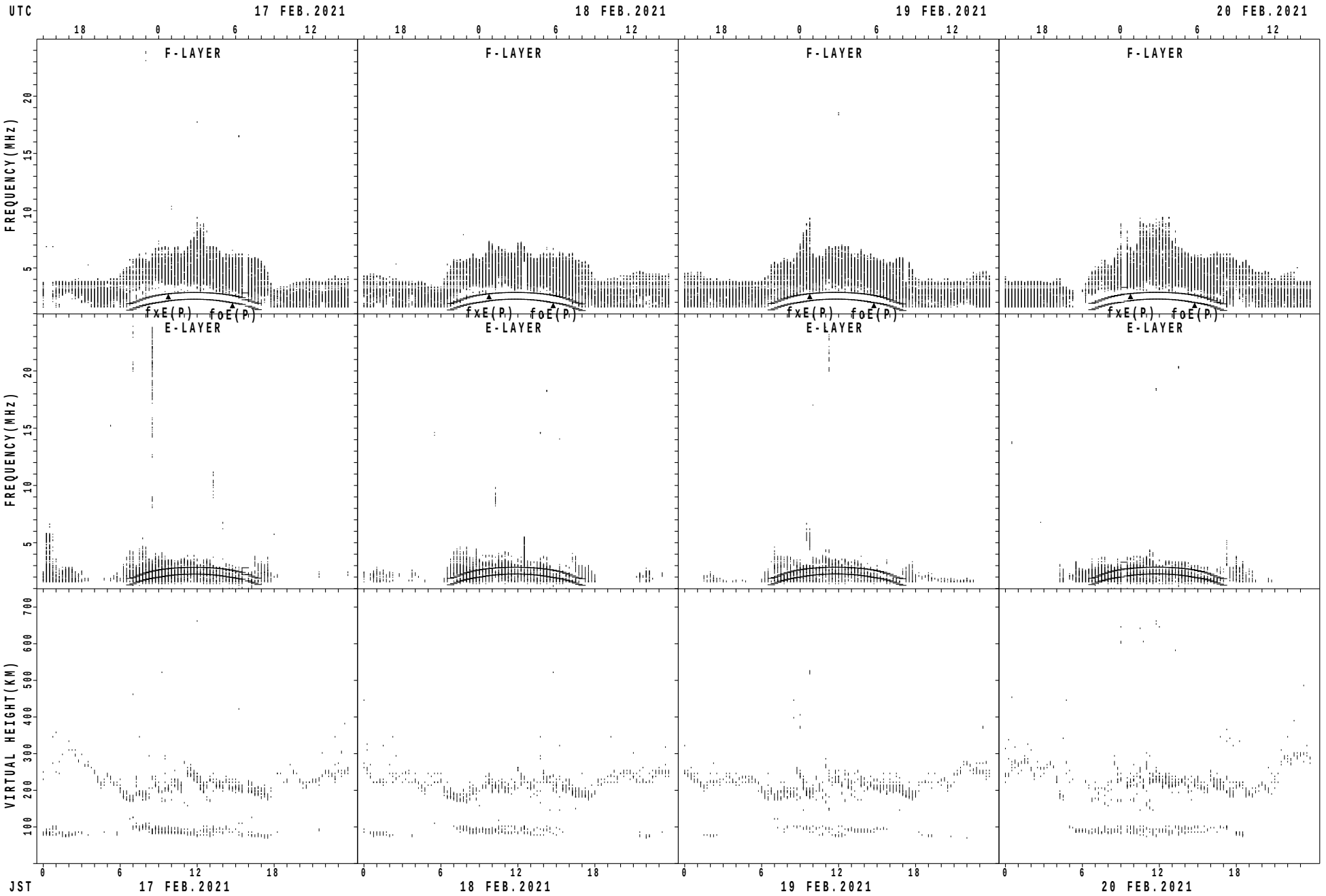
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



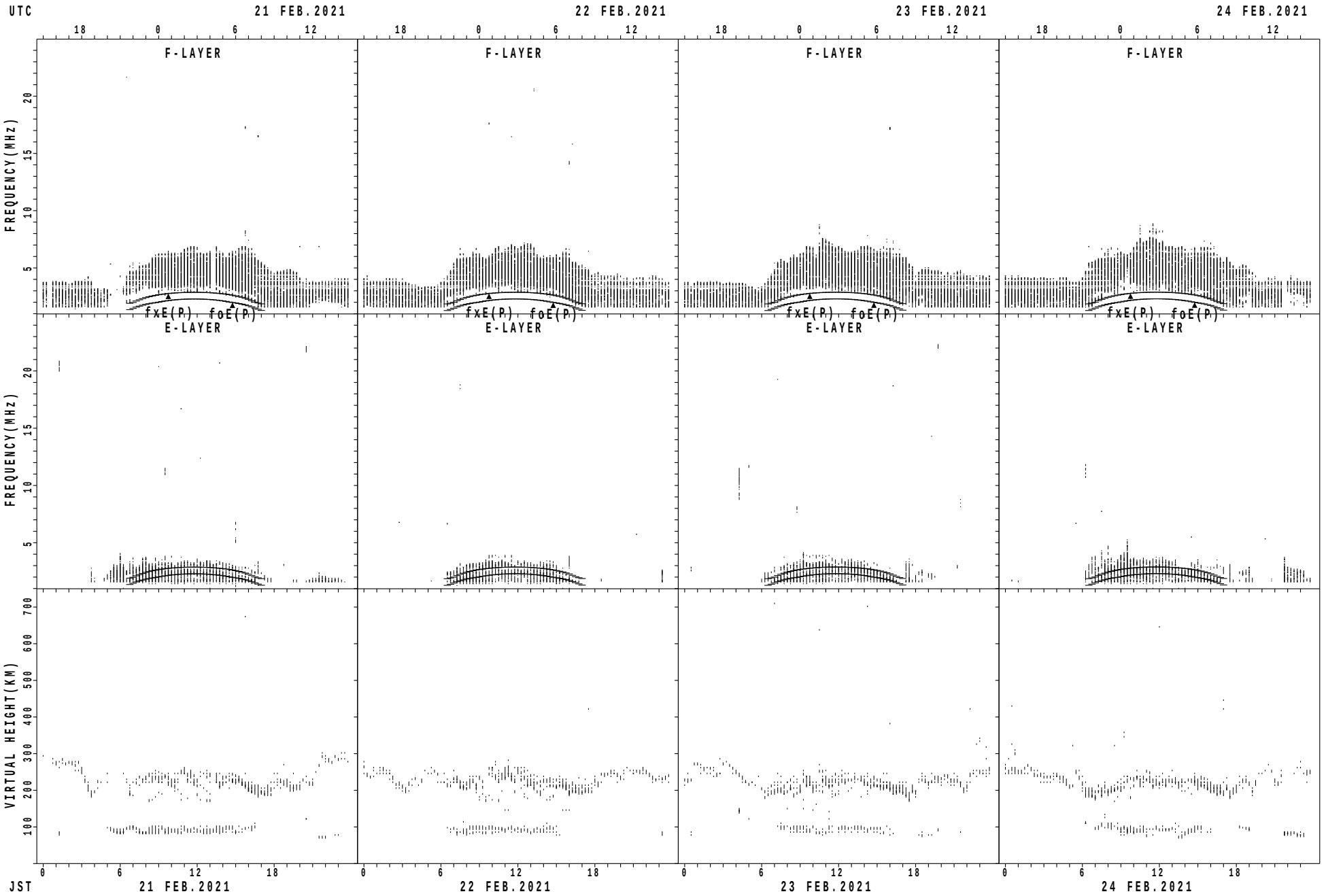
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



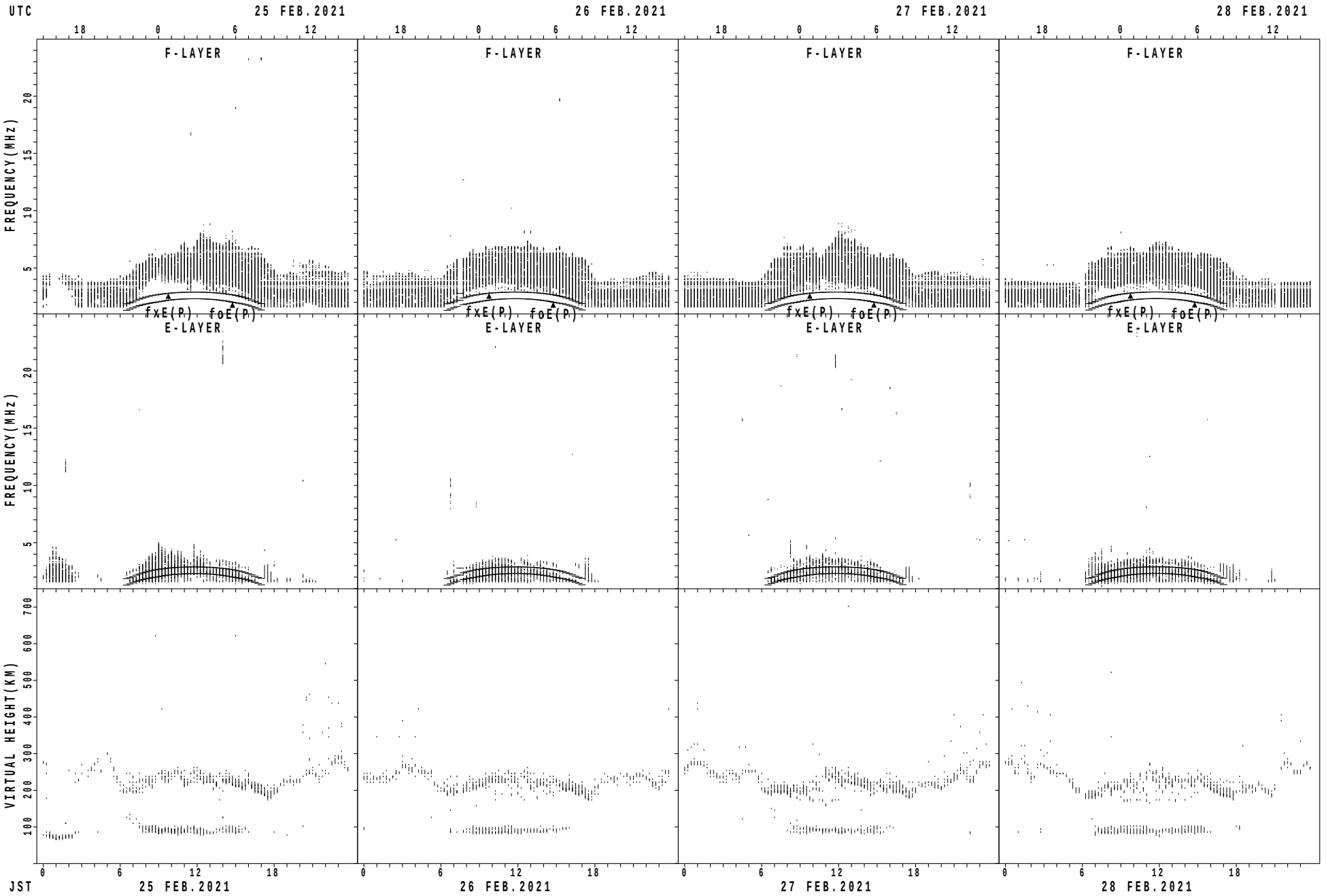
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



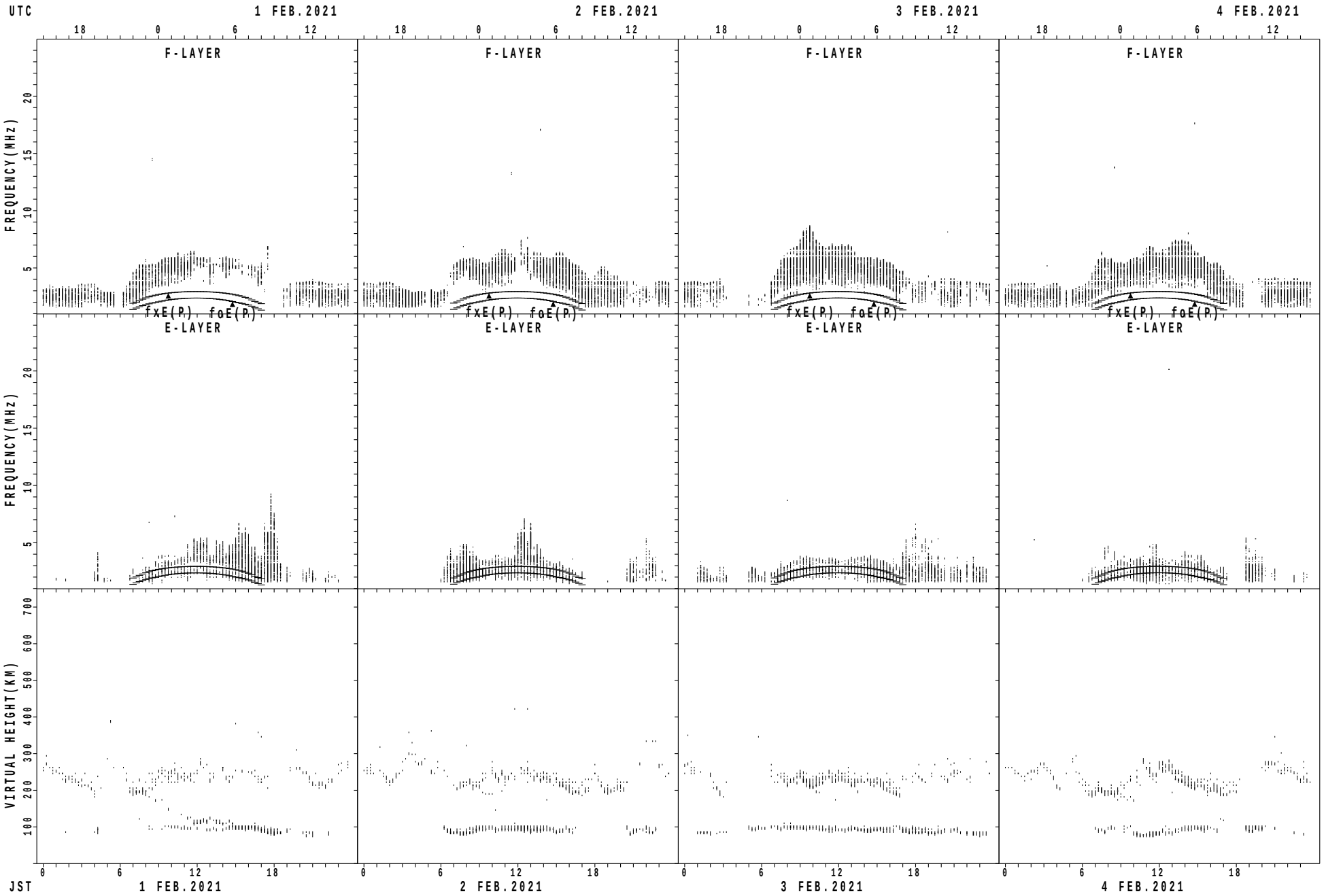
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



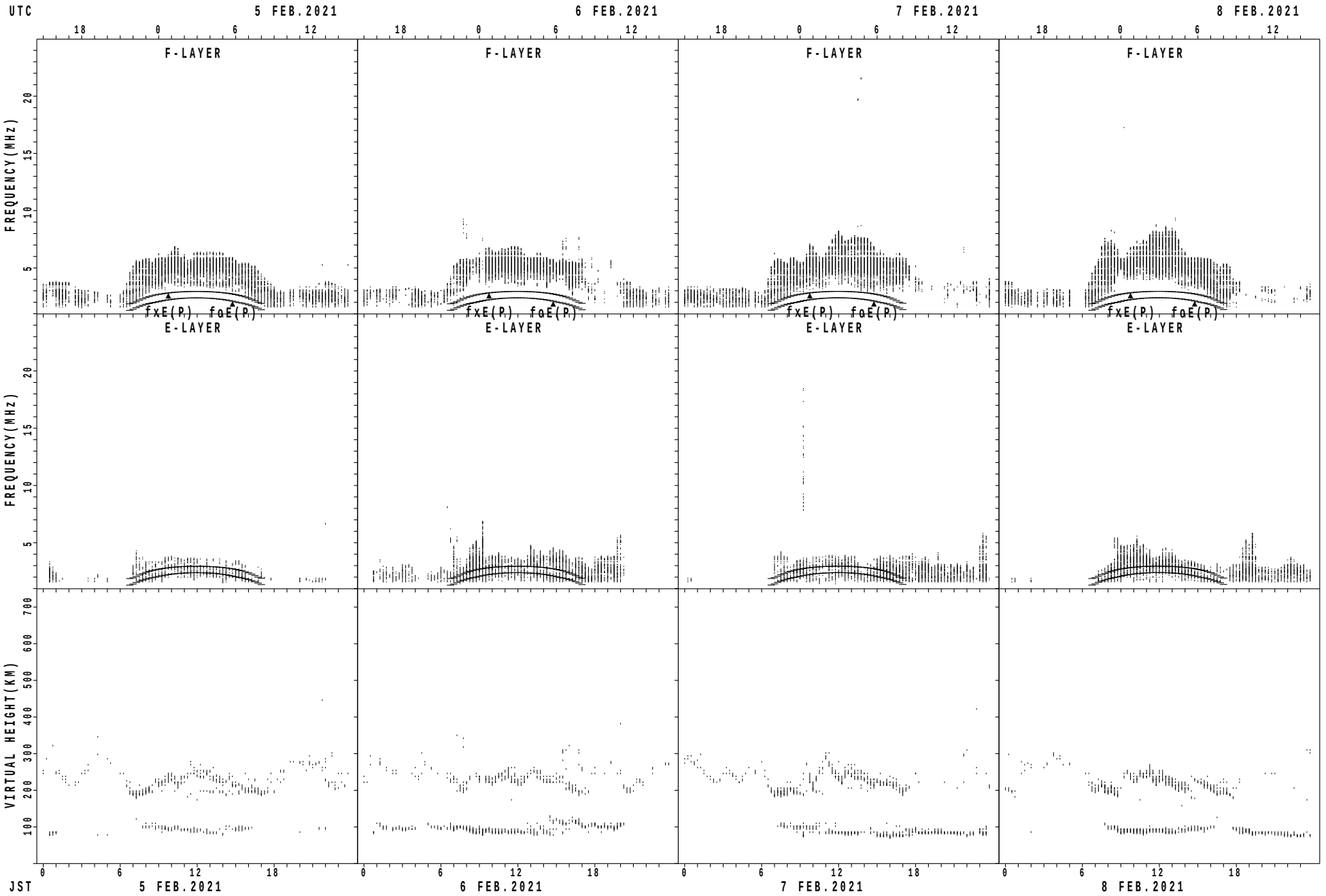
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



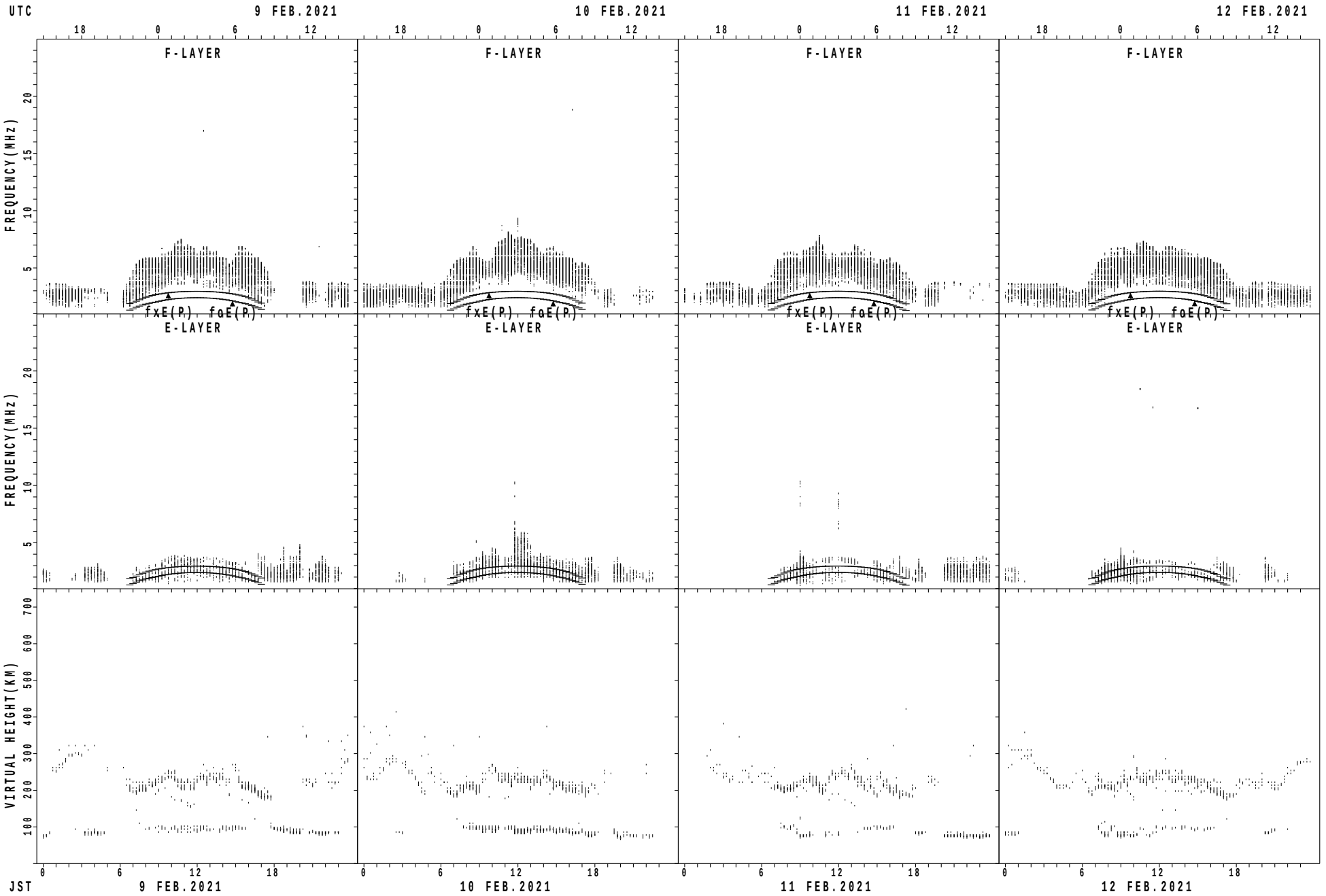
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



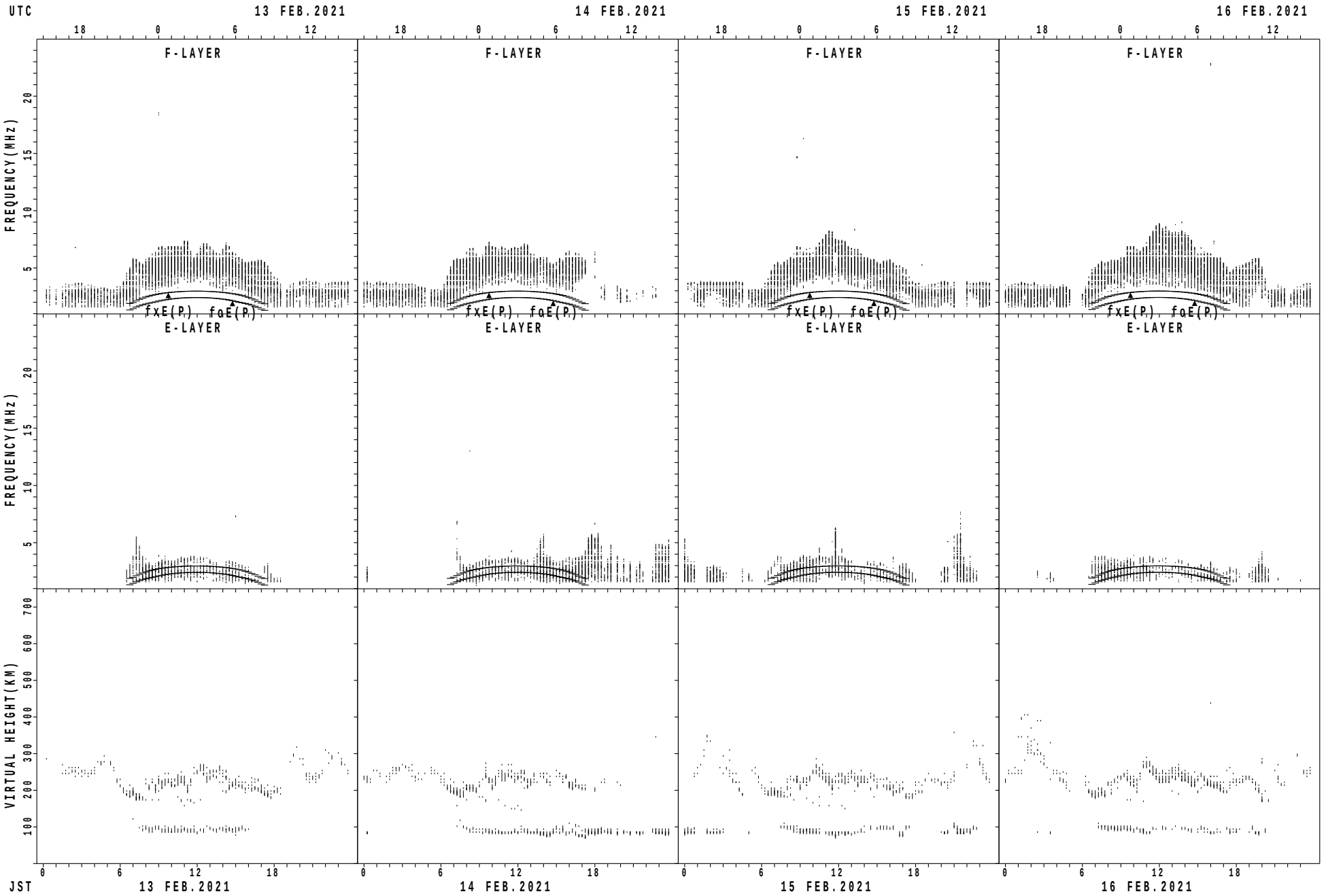
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



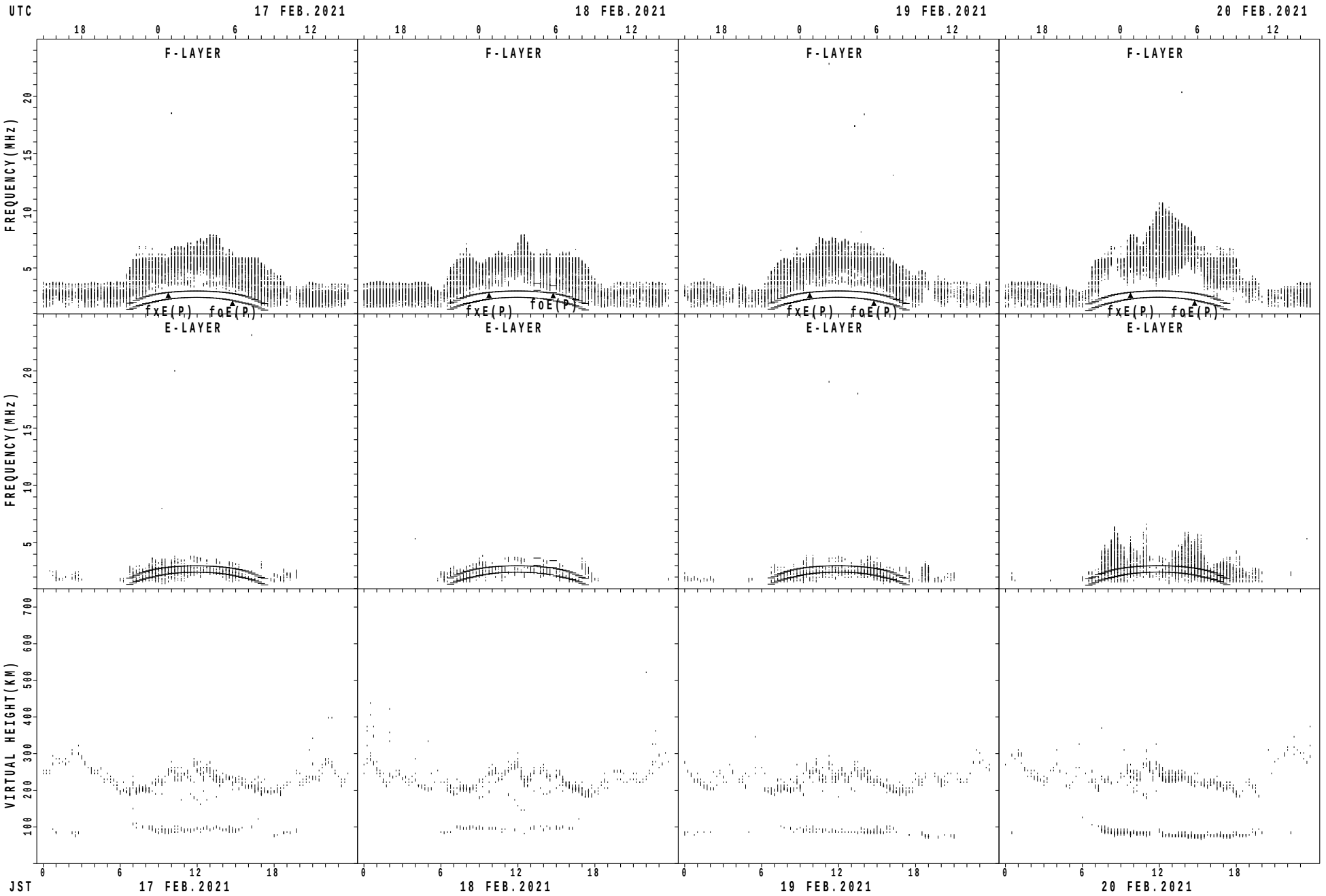
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



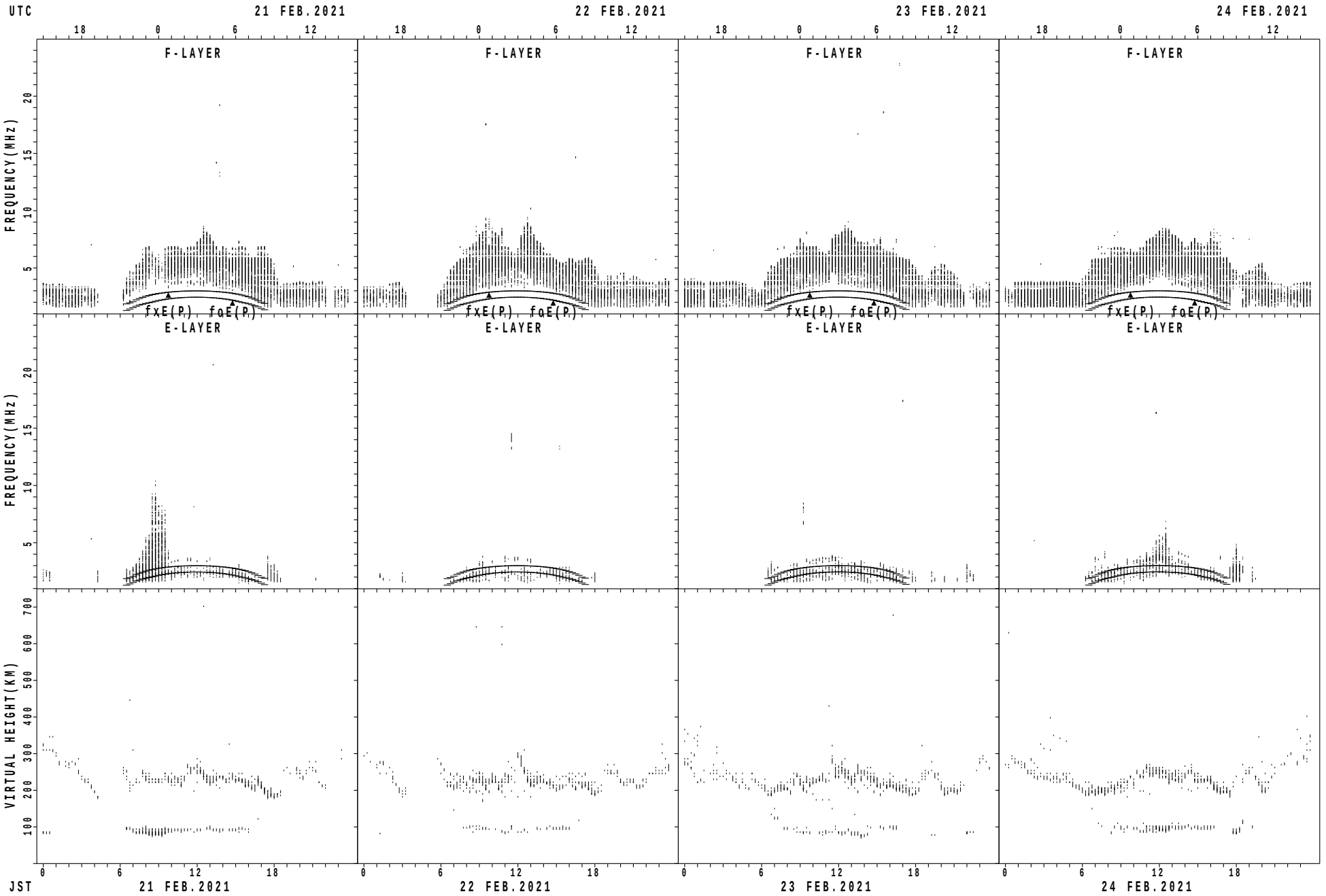
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



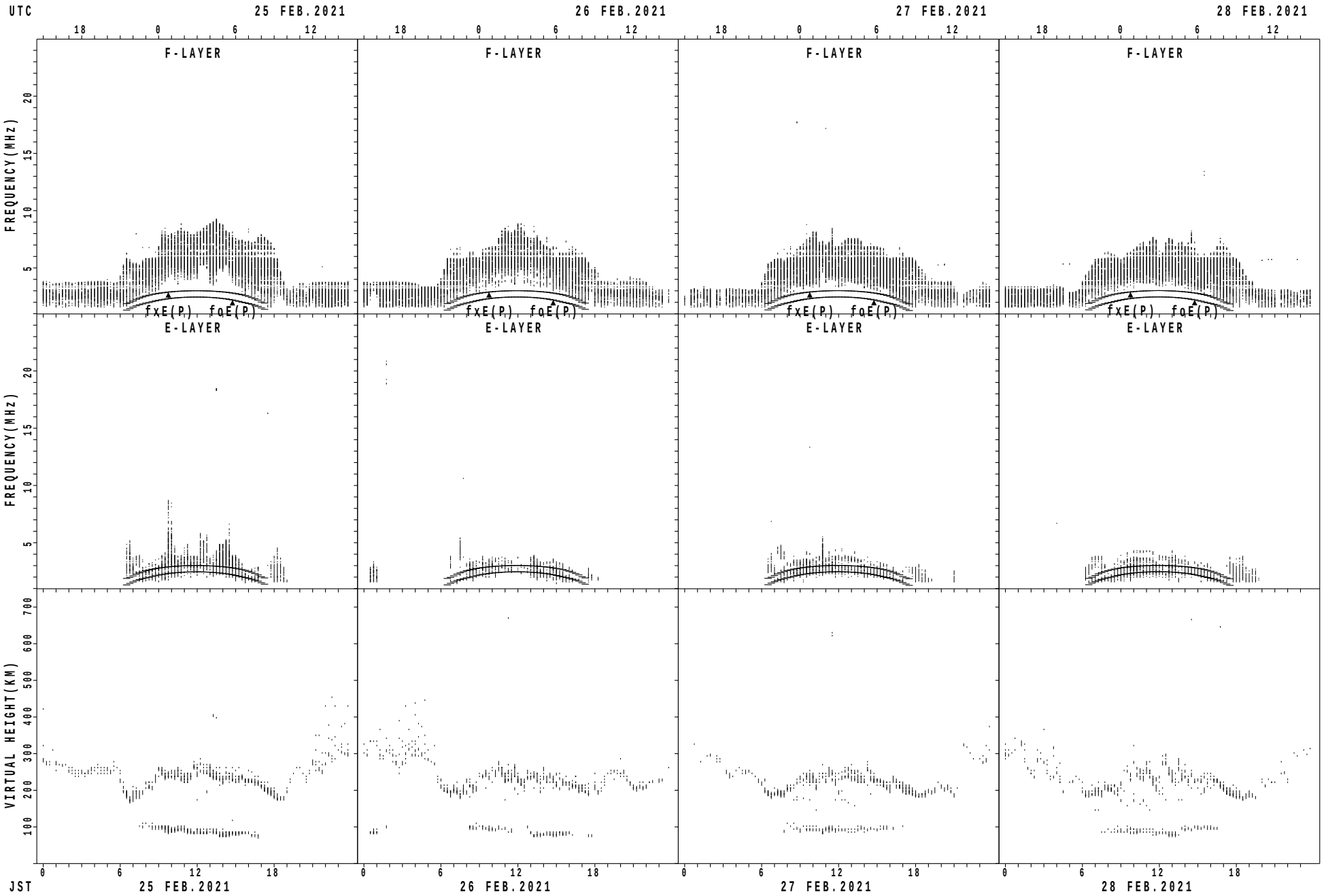
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



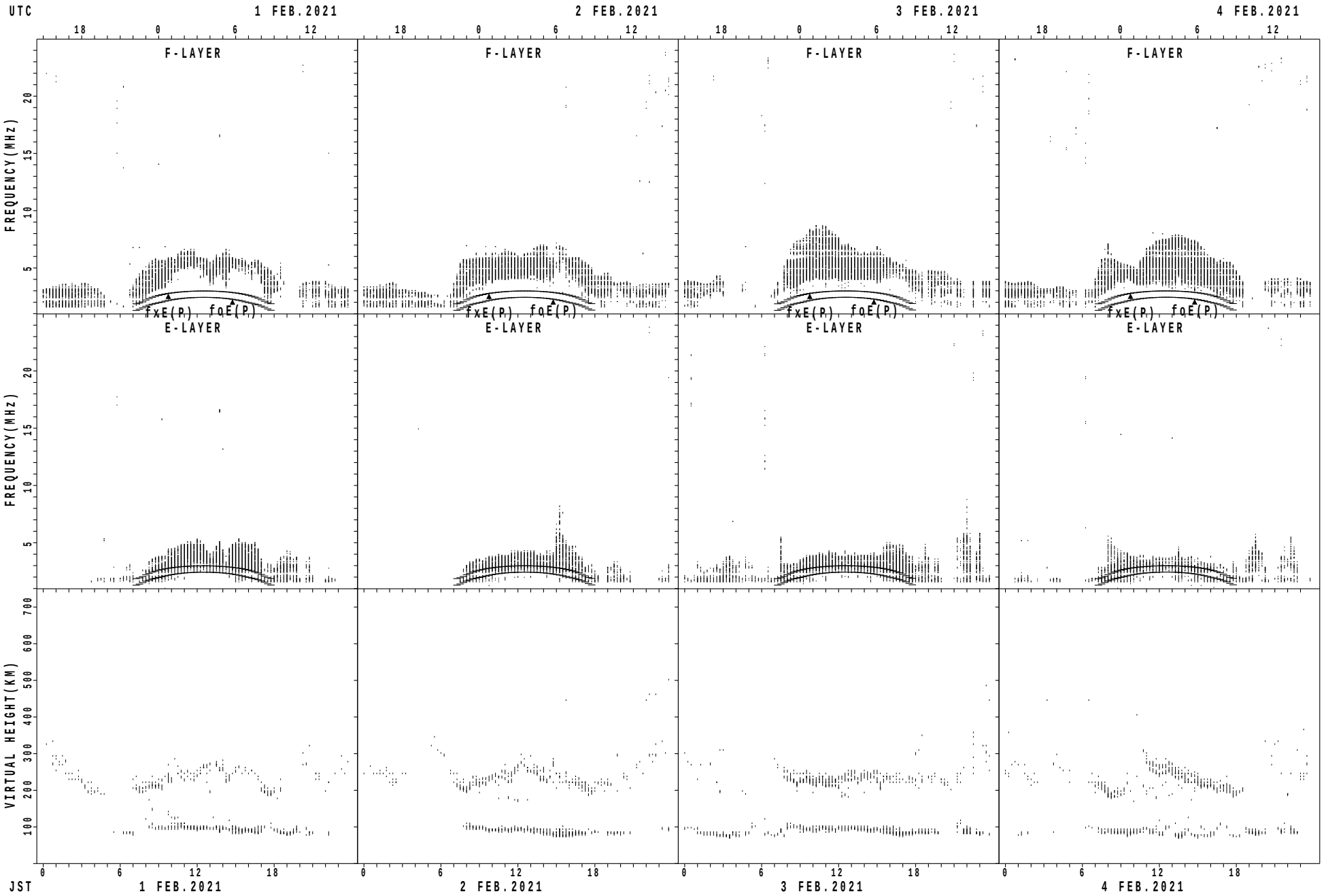
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



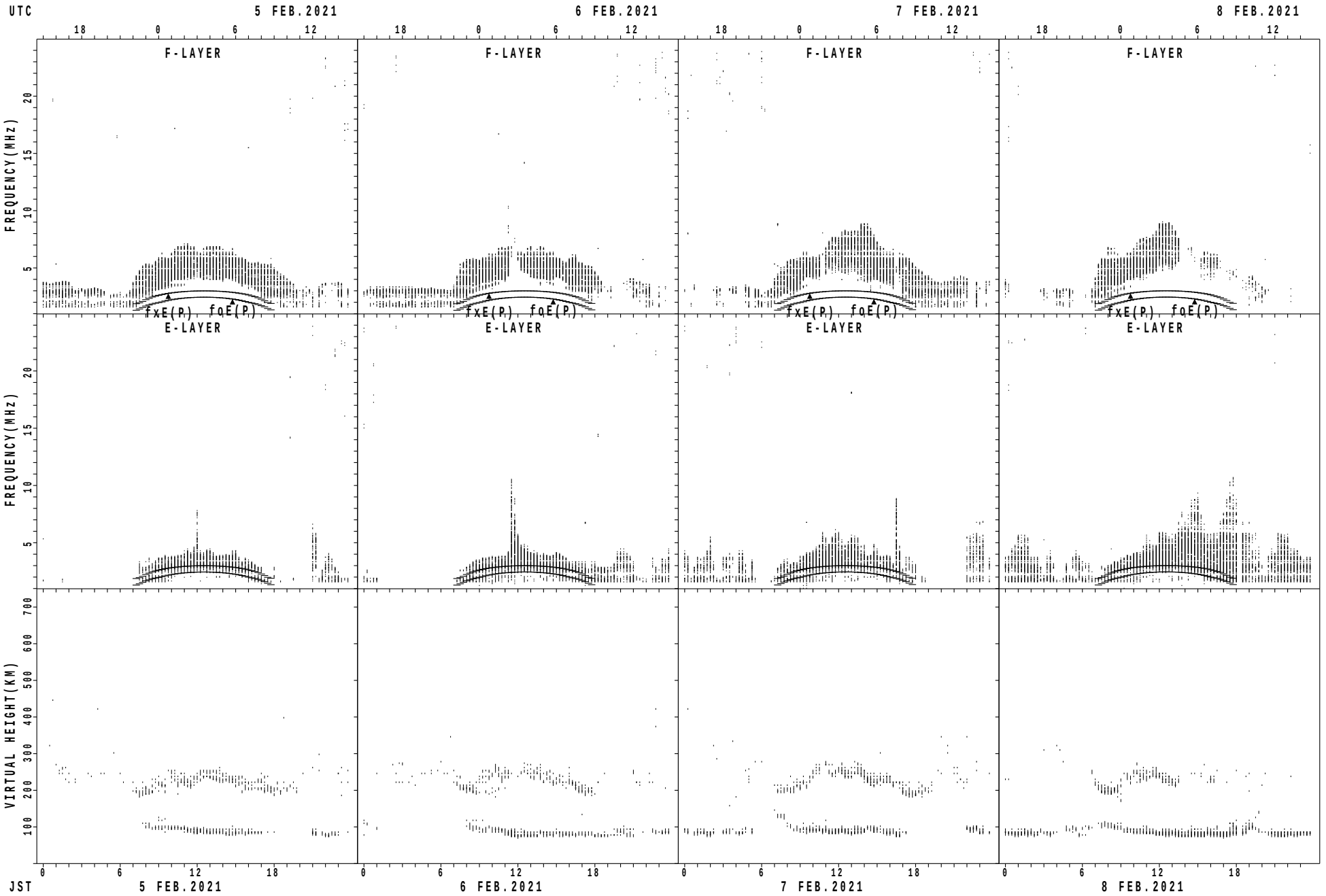
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



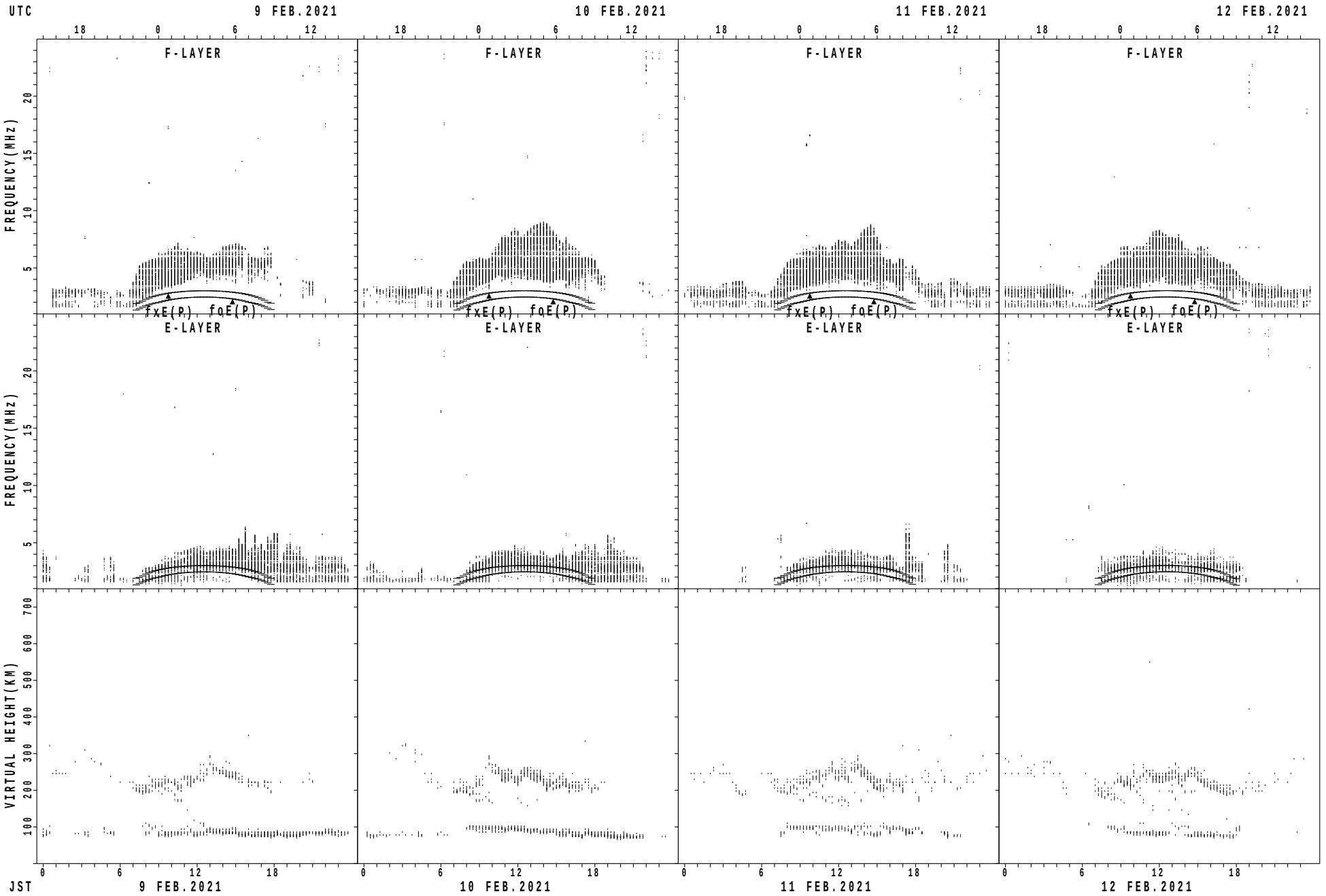
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



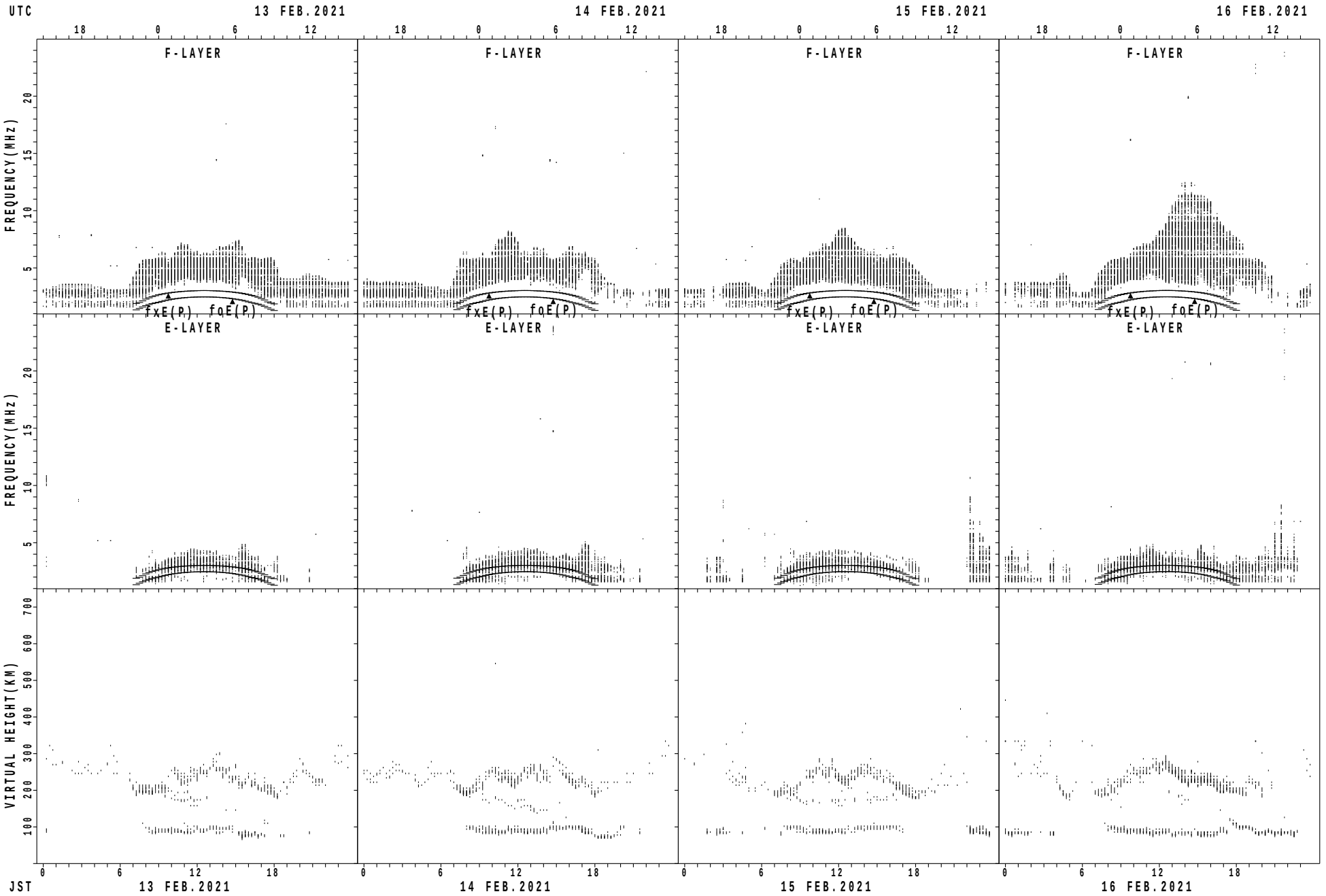
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



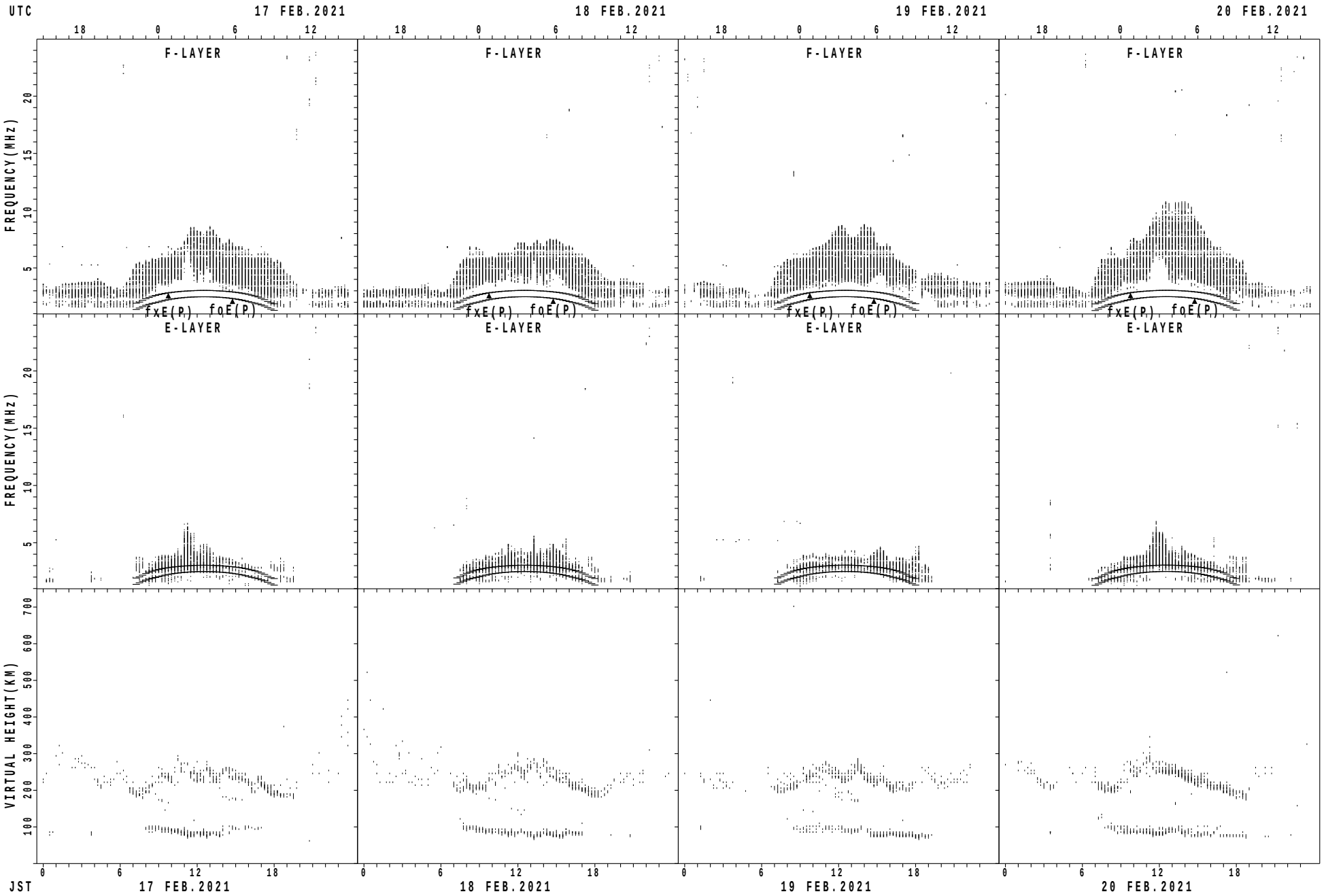
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



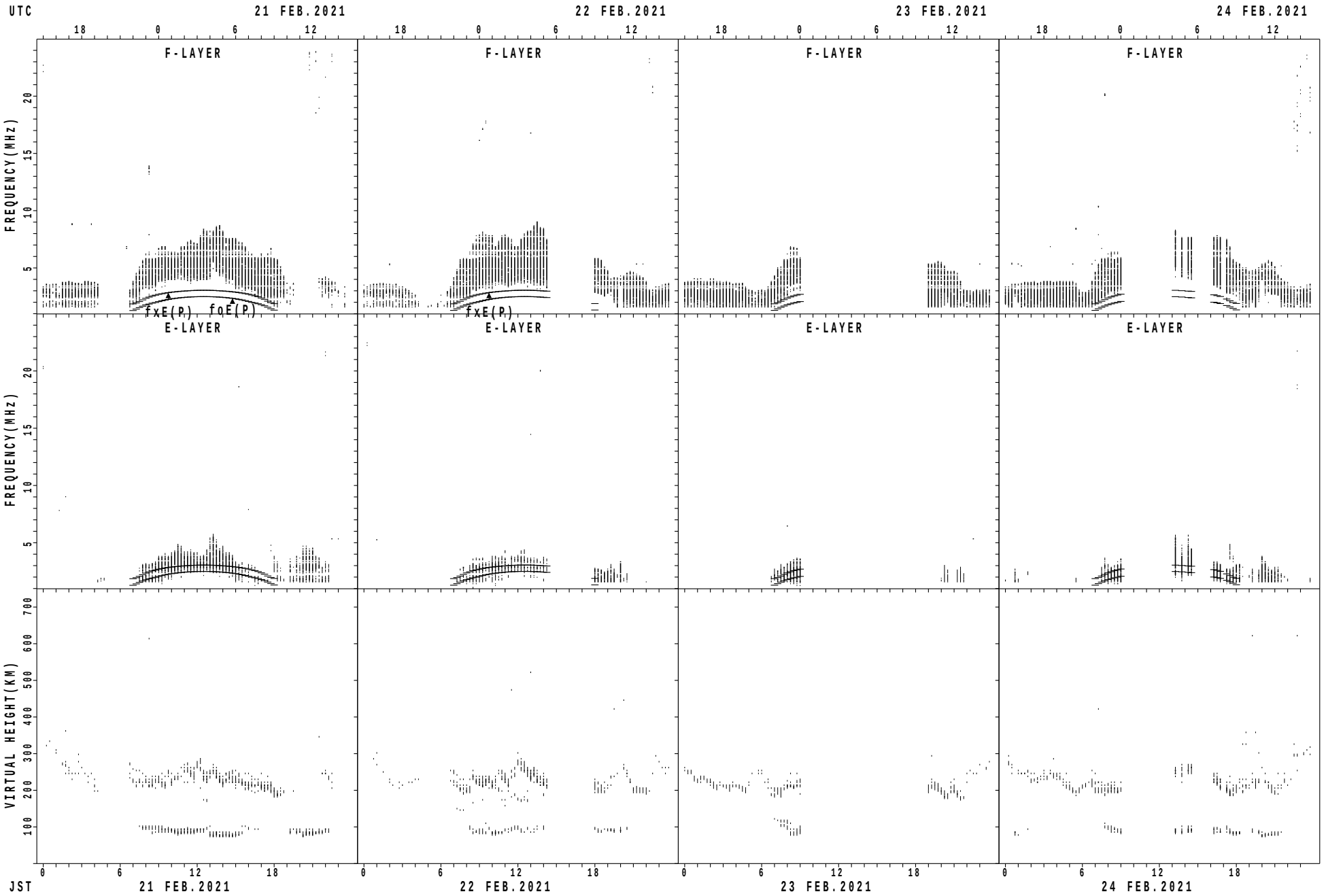
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



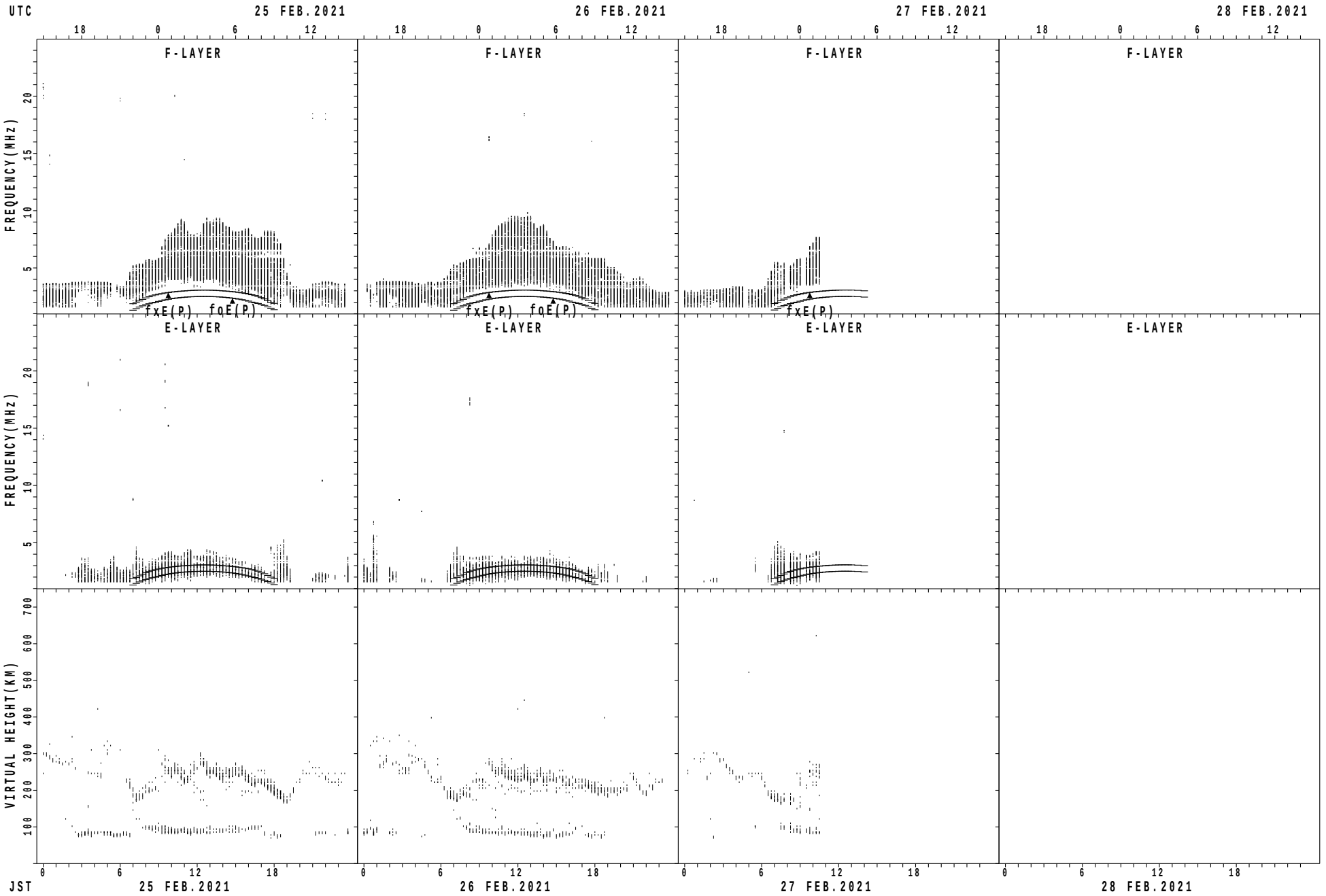
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



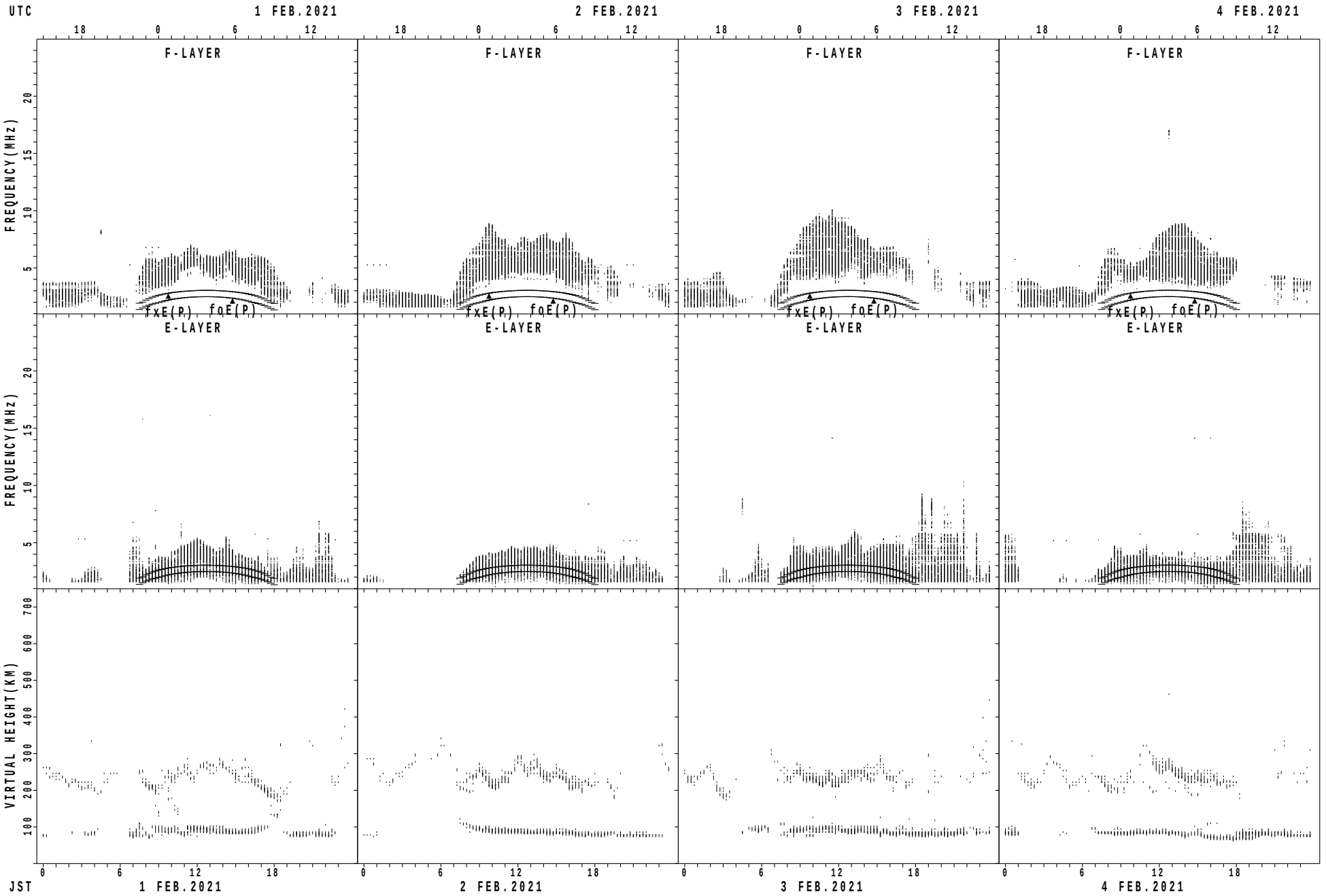
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



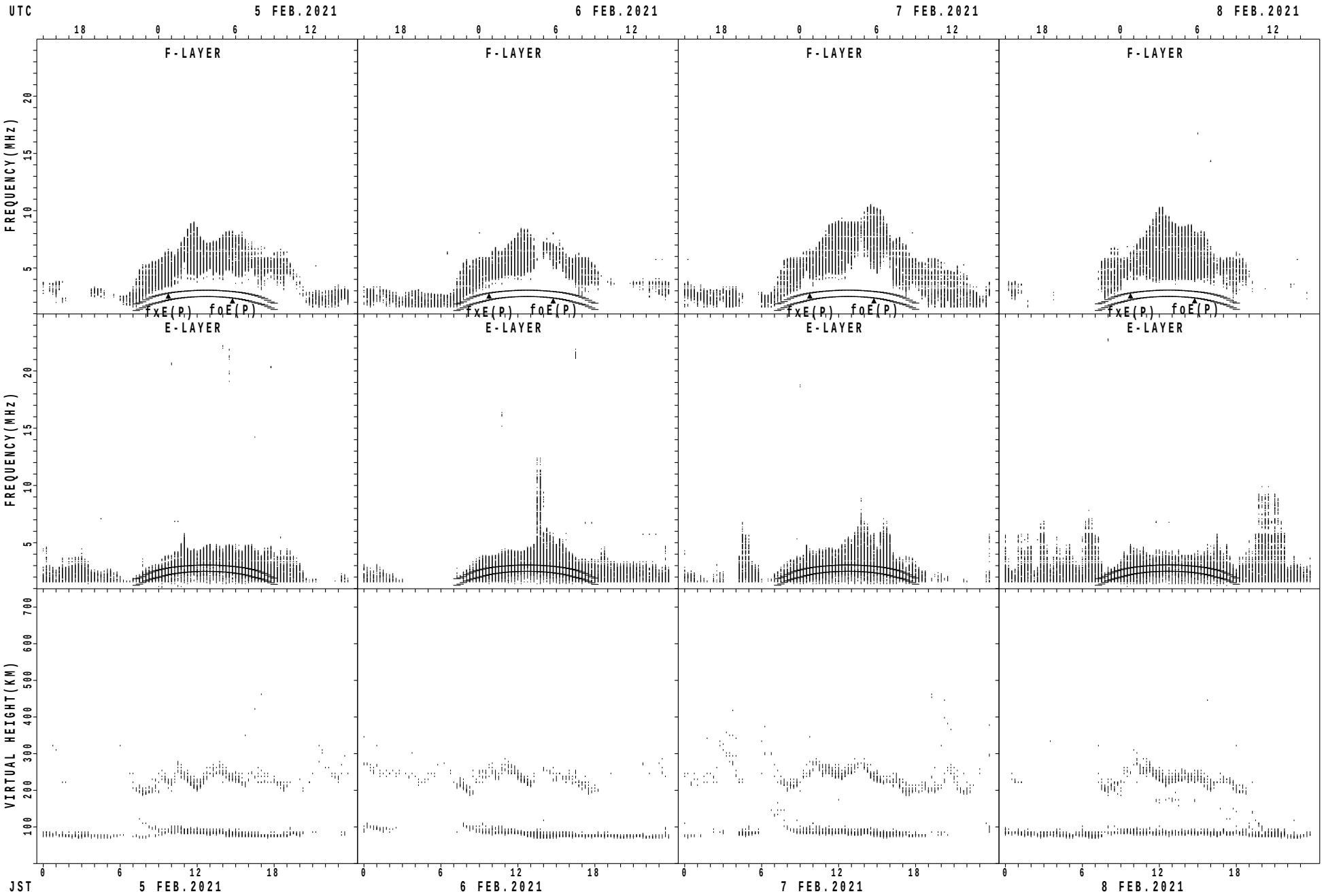
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



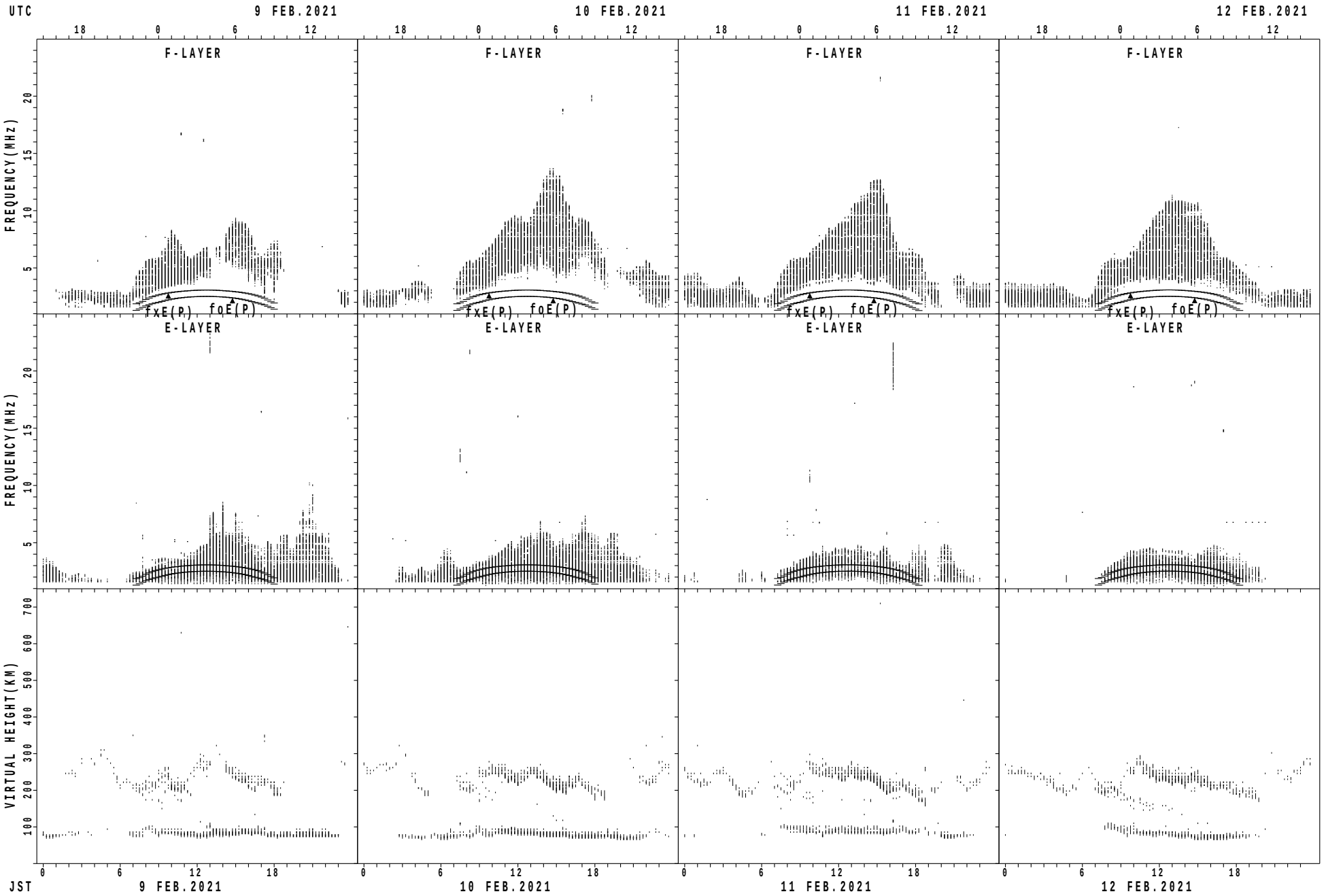
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



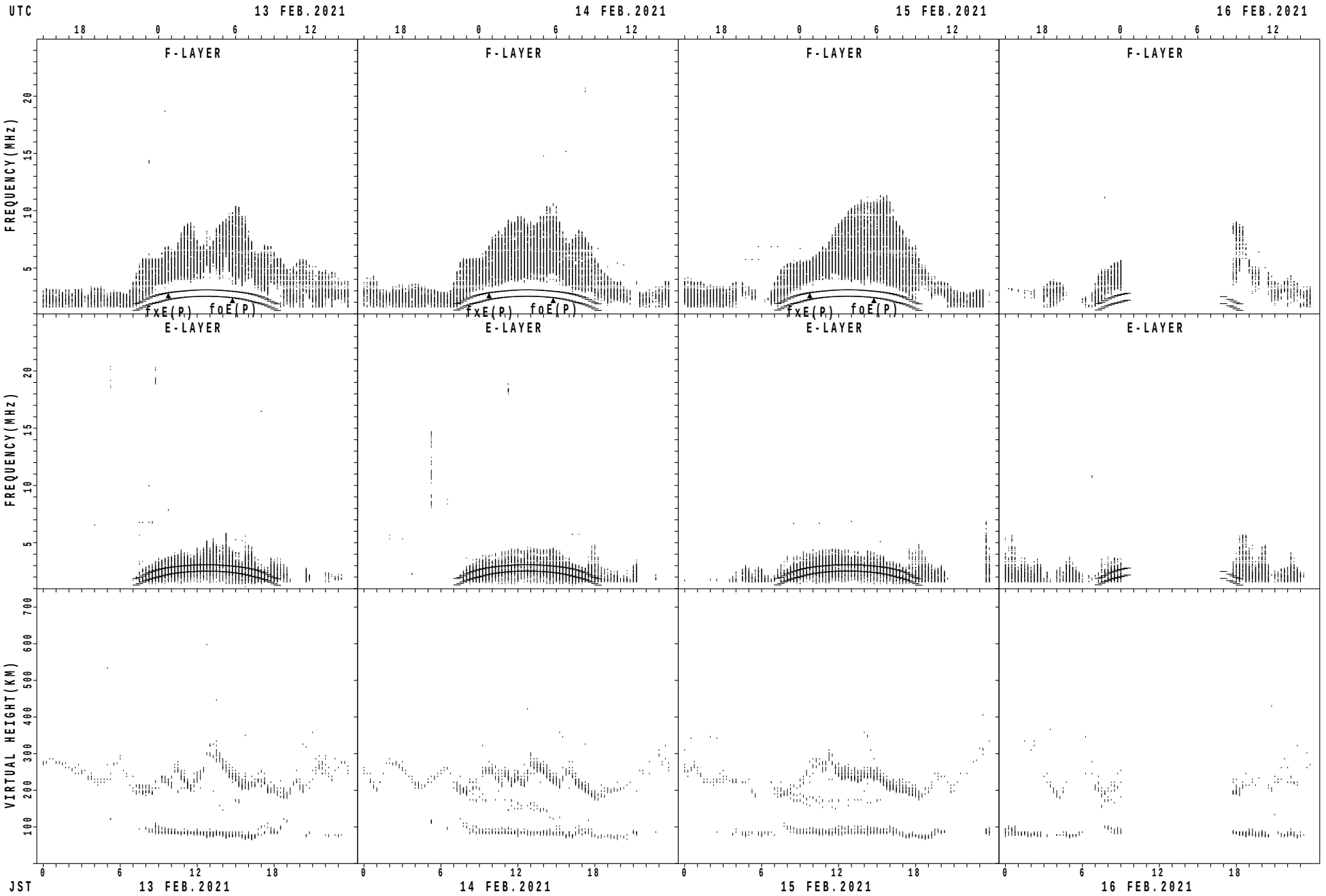
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



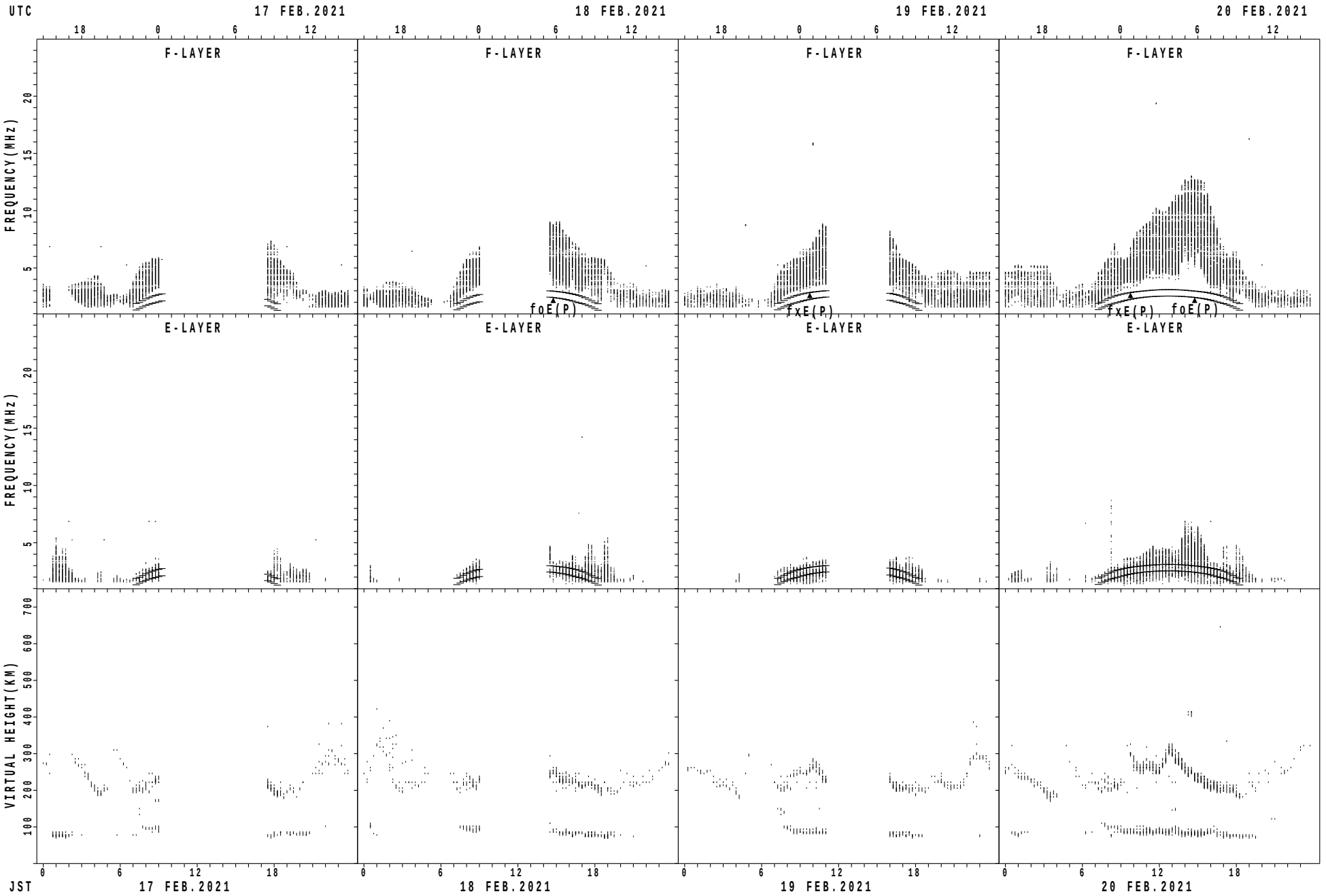
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



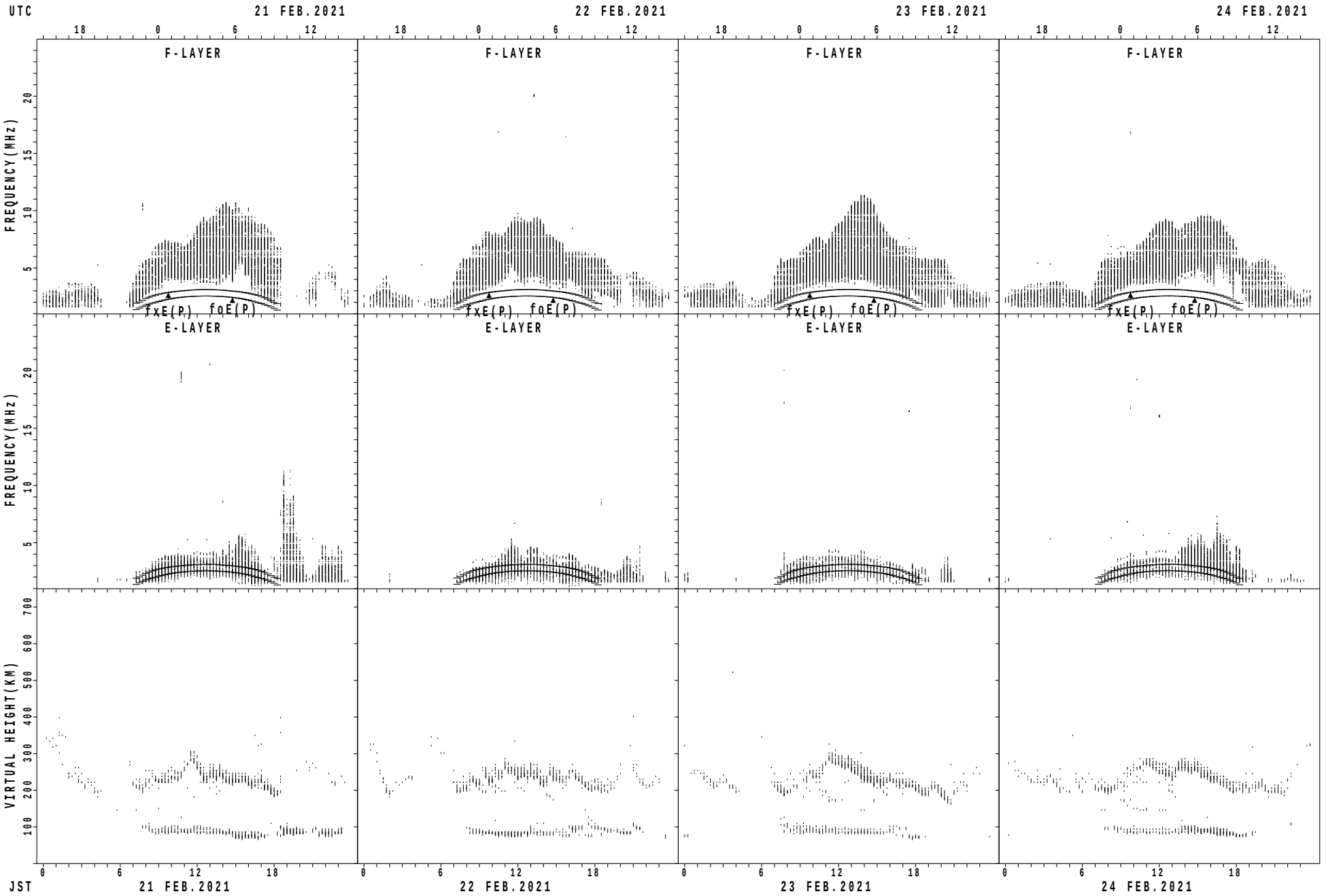
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



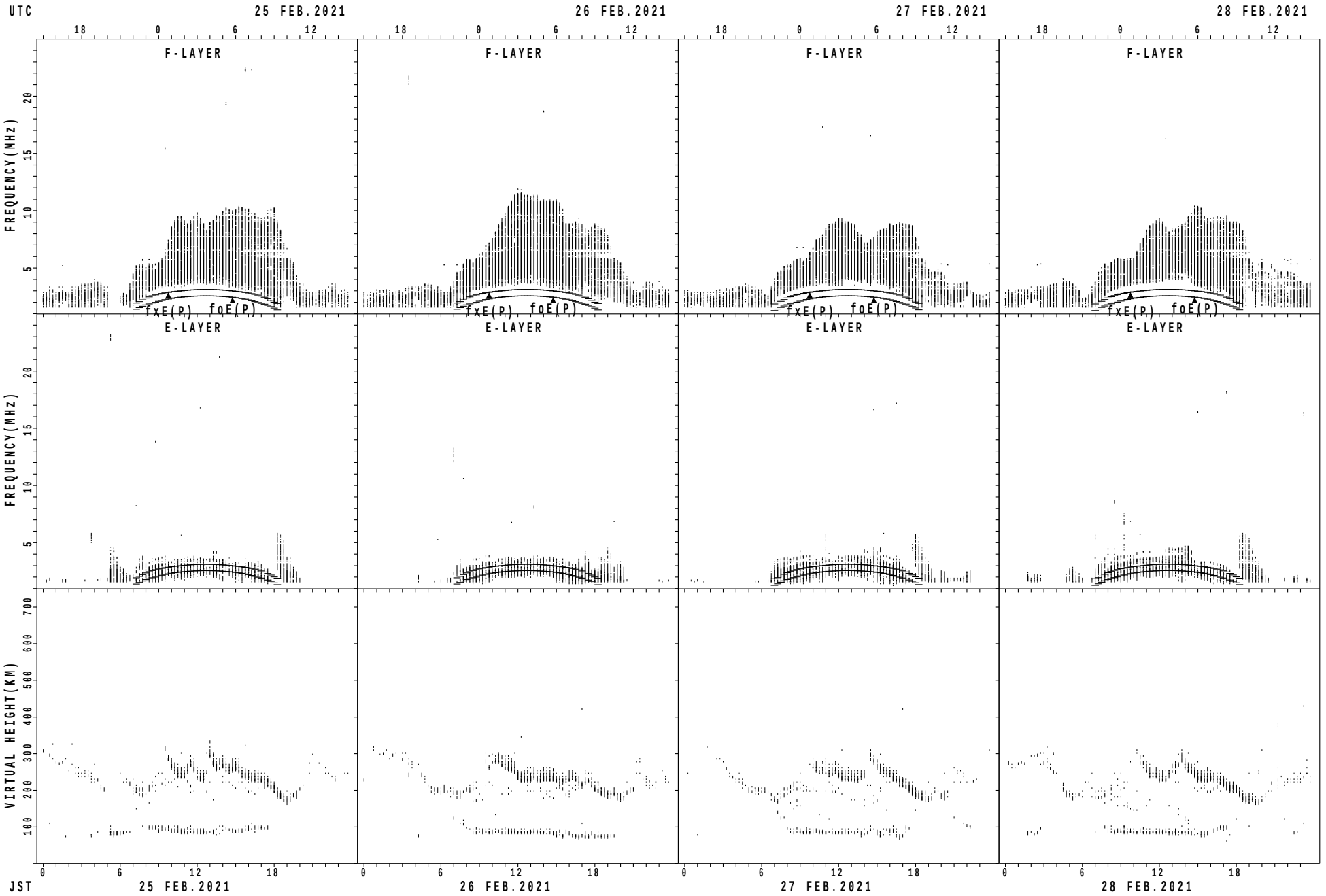
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h′F AND h′Es

FEB.2021 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									3	8	8	3	1	7	7	6	4							
MED									218	224	224	250	242	224	240	219	208							
U Q									230	243	238	256	121	232	250	232	216							
L Q									202	218	216	224	121	218	232	214	205							

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	16	19	19	14	15	15	14	25	28	28	28	28	28	28	28	28	26	16	18	18	19	20	18	17
MED	98	98	96	98	96	98	98	98	98	98	98	100	98	98	99	98	98	96	98	98	98	98	98	98
U Q	98	98	98	98	98	98	98	100	100	100	100	100	100	100	100	100	100	98	98	98	98	98	98	98
L Q	96	98	96	98	96	98	98	98	98	98	98	98	96	98	98	98	98	93	96	96	96	96	96	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									10	12	3				2	10	8	4						
MED									218	229	258				230	241	231	222						
U Q									242	245	288				238	252	239	247						
L Q									216	218	210				222	232	227	216						

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	11	12	10	8	9	5	14	28	28	28	28	27	28	28	28	28	14	19	15	15	18	15	12
MED	96	96	98	98	98	98	98	98	98	98	98	98	98	96	98	98	98	98	98	98	98	96	96	96
U Q	97	98	98	98	98	99	98	125	98	100	99	99	98	98	100	98	98	100	98	98	98	98	98	97
L Q	94	96	97	98	91	98	97	98	97	97	96	96	96	96	96	97	97	96	94	94	96	96	94	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									4	5	4					7	10	3	3					
MED									213	238	259					224	232	234	216					
U Q									217	255	266					244	244	258	220					
L Q									208	232	239					214	224	218	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	13	14	12	10	10	10	8	11	26	27	25	24	24	24	24	23	23	23	20	21	17	17	16	14
MED	96	96	96	96	97	98	97	98	98	100	98	98	98	98	98	98	98	98	96	96	96	96	96	96
U Q	98	98	98	96	98	98	98	98	100	100	100	100	100	98	98	98	98	98	98	98	98	98	98	98
L Q	94	96	96	94	96	98	96	96	98	98	98	98	96	96	97	96	96	94	94	95	96	93	94	94

MONTHLY MEDIANS OF h'F AND h'Es

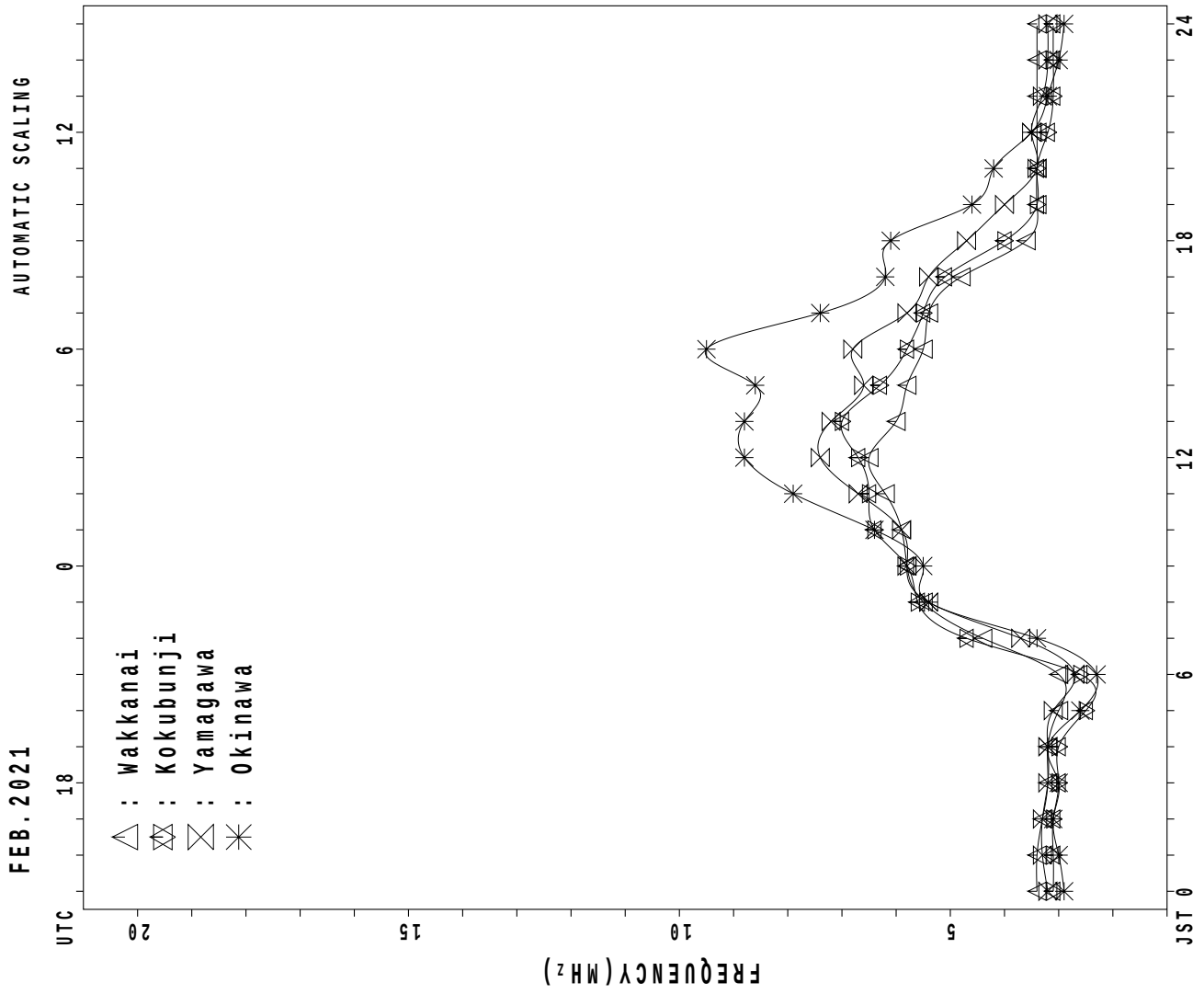
FEB.2021 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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										3	9						20	14	9	1				
MED										250	248						226	217	204	200				
U Q										282	275						232	236	211	100				
L Q										240	218						211	216	196	100				

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	17	13	11	9	11	11	14	15	28	28	25	25	24	24	24	25	26	26	27	27	24	18	16	17
MED	96	96	98	96	96	98	96	98	98	98	98	98	98	96	97	96	96	96	96	94	96	96	95	96
U Q	96	97	98	98	98	98	98	98	98	100	98	98	98	98	98	98	98	98	98	98	98	98	98	97
L Q	93	95	94	93	96	92	96	94	98	98	96	95	96	95	95	94	94	94	92	90	94	92	93	94


MONTHLY MEDIANS PLOT OF foF2
FEB.2021
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

FEB.2021 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	45	45	54	56	50	54													X 39	X 39	X 40	X 39	X 37	X 39
2	53	X 37	X 34	X 33	X 34	X 36													X 61	X 41	X 41	X 43	X 44	X 44
3	X 46	X 45	X 46	X 42	X 43	X 29													X 47	X 34	X 41	X 41	X 41	X 43
4	X 45	X 44	X 40	X 42	X 41	X 39													X 38	X 41	X 43	X 42	X 42	X 42
5	X 43	X 41	X 39	X 39	X 36	X 35													X 34	X 32	X 38	X 41	X 40	X 41
6	X 43	X 43	X 43	X 42	X 39	X 36													X 39	X 41	X 35	X 36	X 39	X 41
7	X 42	X 40	X 40	X 40	X 41	X 37													X 38	X 31	X 38	X 38	X 41	X 45
8	X 37	X 35	X 37	X 36	X 38	X 36													X 34	X 36	X 38	X 36	X 37	X 38
9	X 39	X 39	X 39	X 35	X 33	X 33													X 38	X 39	X 43	X 43	X 47	55
10	57	X 48	X 50	54	50	X 55													X 38	X 37	X 37	X 37	X 41	49
11	48		X 44	X 44	X 43	X 43													X 36	X 39	X 41	X 39	X 41	X 41
12	X 39	X 43	48	X 40	X 40	X 37														X 37	X 40	X 38	X 39	X 41
13	X 40	X 42	X 42	X 39	X 39	X 38														X 41	X 41	X 40	X 41	X 40
14	X 39	X 39	X 37	X 36	X 37	X 35														X 33	X 35	X 35	X 38	X 39
15	X 42	X 42	X 43	X 43	X 41	42														X 36	X 36	X 41	X 40	X 41
16	X 41	X 41	X 39	X 38	X 37	X 36														X 52	X 38	X 41	X 37	X 38
17	X 39	X 39	X 39	X 40	X 41	X 41														X 36	X 42	X 40	X 41	X 42
18	X 44	X 45	X 43	X 41	X 41	X 36														X 41	X 43	X 47	X 45	X 45
19	X 45	X 45	X 41	X 38	X 40	X 39														X 41	X 41	X 40	X 42	X 45
20	X 43	43	43	X 39	X 42	X 36														X 51	X 46	X 42	X 45	48
21	X 37	X 38	X 39	X 40	X 31	X 33														X 51	X 43	X 40	X 43	X 43
22	X 44	X 41	X 44	X 42	X 37	X 35														X 45	X 45	X 44	X 44	X 44
23	X 41	X 39	X 39	X 38	X 38	X 37														X 52	X 48	X 46	X 45	X 42
24	X 43	X 44	X 44	X 42	X 42	X 39														X 51	X 42	X 46	X 43	X 44
25	X 44	X 45	X 45	X 43	X 40	X 41														X 46	X 45	59	56	52
26	X 46	X 44	X 44	X 44	50	X 44														X 43	X 42	X 42	X 44	X 44
27	X 44	54	45	42	X 39	X 39														X 47	X 45	X 45	X 44	X 41
28	X 41	X 39	40	X 37	X 38	X 38														X 41	X 43	X 35	X 39	X 39
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	28	28	28	28													11	28	28	28	28	28
MED	X 43	X 42	X 42	X 40	X 40	X 37													X 38	X 41	X 41	X 41	X 41	X 42
U Q	45	X 45	X 44	X 42	X 42	X 40													X 39	X 46	X 43	X 43	X 44	44
L Q	X 40	X 39	X 39	X 38	X 38	X 36													X 36	X 36	X 38	X 38	X 40	X 41

FEB.2021 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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	F	F 32	F 37	F 37	F 32	F 28	27	40	51	53	53	54	59	54	52	54	47	30	32	32	33	32	30	32
2	F 34	30	27	26	27	29	26	40	54	52	53	58	66	56	53	54	50	46	54	34	34	36	37	37
3	39	38	39	36	36	22	25	42	64	57	57	69	69	59	54	54	52	44	40	27	34	34	34	36
4	38	37	33	35	34	32	27	42	47	52	58	60	61	70	61	56	60	40	31	34	36	35	35	35
5	36	34	32	32	29	28	26	41	55	58	56	60	67	61	52	58	47	36	27	25	31	34	33	34
6	36	36	36	35	32	29	26	39	60	60	52	58	59	54	50	53	47	40	32	34	28	29	32	34
7	35	33	33	33	34	30	30	38	54	56	53	62	68	74	70	61	58	47	31	24	31	31	34	38
8	30	28	30	29	31	29	28	46	56	62	63	62	65	62	58	63	50	44	27	29	31	29	30	31
9	32	32	32	28	26	26	24	39	49	57	62	64	64	V 57	57	54	56	42	31	32	36	36	40	43
10	F 43	41	43	F 42	F	48	30	46	52	52	58	60	76	64	59	61	56	47	31	30	30	30	34	F 34
11	F 31	F 35	37	37	36	36	31	43	58	65	58	63	63	55	55	50	51	43	29	32	34	32	34	34
12	32	36	F	33	33	30	27	45	55	64	60	56	55	58	54	52	48	41	34	30	33	31	32	34
13	33	35	35	32	32	31	30	46	60	58	55	62	58	55	59	51	58	48	32	34	34	33	34	33
14	32	33	30	29	30	28	25	50	58	V 59	71	63	56	52	55	55	54	51	36	26	28	28	31	32
15	35	35	36	36	34	F 29	26	45	56	62	60	65	60	54	52	51	46	44	31	29	29	34	33	34
16	34	34	32	31	30	29	31	40	51	56	58	62	71	55	58	56	48	49	43	45	31	34	30	31
17	32	32	32	33	34	34	39	48	51	60	V 58	60	77	64	55	56	55	49	29	29	35	33	34	35
18	37	38	36	34	34	29	30	51	50	V 52	65	59	68	57	57	55	58	48	37	34	36	40	38	38
19	38	38	34	31	33	32	34	52	51	68	56	63	64	56	55	54	50	53	36	34	34	33	35	38
20	36	F 32	F 32	32	35	29	25	42	V 46	68	60	81	81	68	59	55	55	56	50	44	39	35	38	F 32
21	30	31	32	33	24	26	A	40	47	58	58	62	60	60	56	60	61	50	41	44	36	33	36	36
22	37	34	37	35	30	28	32	48	55	56	58	62	62	65	55	56	52	44	39	38	38	37	37	37
23	34	32	32	31	31	30	30	44	50	57	62	70	64	58	64	60	61	57	41	45	41	39	38	35
24	36	37	37	35	35	32	36	51	59	58	64	67	67	64	60	62	61	50	44	44	35	39	36	37
25	37	38	38	36	33	34	36	43	51	52	56	65	70	71	65	64	62	58	42	39	38	F	F 41	37
26	39	37	37	37	37	37	35	48	55	58	61	61	60	65	62	62	56	55	36	36	35	35	37	37
27	37	F	F 34	F 32	32	32	34	53	64	63	62	61	74	68	63	56	56	52	38	40	38	38	37	34
28	34	32	F 30	30	31	31	34	49	61	59	61	56	65	62	58	58	56	51	38	34	36	28	32	32
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	27	28	27	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28
MED	35	34	34	33	32	30	30	44	54	58	58	62	64	60	57	56	55	48	36	34	34	34	34	34
U Q	37	37	37	36	34	32	34	48	58	61	62	64	68	64	60	60	58	51	40	38	36	36	37	37
L Q	32	32	32	31	30	28	26	40	51	56	56	60	60	56	54	54	50	44	31	30	31	31	32	34

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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	L	L	L									
2											276	L	392	280	L	L								
3									L		L	L	408	L	L	L	L							
4									L	L	L	L	L	L	L	L								
5										L	L	L	L	380	352	L								
6								L		L	L	L	392	364	L	L								
7										L	L	L	L	L	388	L								
8									L	L	L	L	L	L	L	L	L							
9									L	L	L	L	L	L	L	L								
10										L	392	L	L	L	L	L	L	L						
11										L	L	416	L	L	L									
12									L	L	L	404	404	404	L	L								
13									L	L	404	L	L	L	L									
14									L	L	L	L	L	L	L									
15										L	L	396	408	384	L									
16							L			L	392	L	L	L	L	L								
17										L	L	420	L	L	L	L								
18							L		L		L		436	292	L	L								
19										L	420	448	L	300	272									
20									L	L	L	L	420	396	L	296	292							
21							A		L	L	L	L	L	400	L	L	L							
22									332	380	L	L	412	L	L	L								
23										L	L	L	L	400	L	L	256							
24								L	L	L	L	412	L	412	L									
25									L		L	L	428	380	L	L	L	184						
26											L	L	L	L	L	L								
27									L	L	L	L	L	416	L		L							
28									L	388	L	L	L	L	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	2	5	6	9	13	3	1	2	1						
MED									332	384	392	414	408	384	352	296	274	184						
U Q											412	420	424	402	388									
L Q											334	404	398	332	272									

FEB.2021 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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	208	244	268	280	280	268	256	232	180	B						
2							B	A	208	252	280	280	292	292	272	220	200	B						
3							208	220	220	A	280	280	292	276	276	220	212	204						
4							B	224	184	252	268	268	272	292	260	224	196	B						
5							B	216	204	264	276	272	312	284	260	220	A	A						
6							B	B	216	260	268	268	280	280	252	232	216	A						
7							B	B	204	244	272	280	280	272	244	216	188	A						
8							192	224	A	248	272	272	280	288	A	236	204	216						
9							188	A	208	244	284	284	284	284	268	252	184	B						
10							196	188	A	236	A	276	296	264	A	236	180	A						
11							B	176	228	272	272	296	304	288	264	252	176	A						
12							B	248	232	252	276	288	288	288	280	248	180	B	B					
13							172	228	228	268	276	300	300	288	256	244	200	A	B					
14							184	184	248	264	A	A	284	284	272	236	200	A	B					
15							208	A	188	260	A	300	292	288	284	252	A	A	A					
16							B	184	256	268	284	300	288	288	276	244	216	A	A					
17							A	A	252	264	A	296	304	284	264	236	192	A	B					
18							B	180	224	268	284	284	284	296	268	248	192	B	B					
19							184	164	244	264	280	280	304	296	276	244	208	B	A					
20							B	A	216	256	272	272	284	284	268	240	208	A	A					
21							A	192	236	260	272	288	308	280	276	240	200	B	B					
22							B	188	244	268	284	284	304	292	276	236	200	B	B					
23							B	196	228	260	280	300	300	304	284	268	220	B	B					
24							B	216	248	260	260	308	324	300	284	264	228	168	B					
25							B	204	248	252	276	304	304	304	280	256	196	B	B					
26							A	A	216	264	280	292	284	296	280	248	224	B	B					
27							B	220	232	256	292	304	304	296	276	244	224	176	B					
28							B	204	236	272	296	312	312	312	296	272	240	B	204					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							8	20	26	27	24	27	28	28	26	28	26	4	1					
MED							190	200	228	260	276	284	292	288	274	242	200	190	204					
U Q							202	220	244	264	282	300	304	296	280	250	216	210						
L Q							184	186	208	252	272	280	284	284	264	234	192	172						

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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	28	29	E B 16	E B 16	J A 22	E B 16	E B 16	G	30	G 35	G	32	32	30	30	26	21	E B 16	E B 16	E B 16	32	34	J A 22	J A 27
2	J A 51	E B 16	20	E B 16	E B 16	21	20	J A 21	G	G	G	32	J A 55	G	G 34	G	G	E B 16	E B 16	25	J A 47	J A 23	24	J A 25
3	J A 25	J A 27	J A 27	J A 25	J A 22	J A 25	J A 24	J A 20	45	J A 41	36	J A 35	J A 29	J A 30	J A 28	J A 25	J A 29	21	J A 55	J A 85	J A 27	J A 36	J A 43	J A 26
4	J A 26	J A 26	30	31	J A 24	E B 16	E B 16	G	J A 24	27	29	32	32	30	J A 27	25	G	E B 16	E B 16	J A 25	25	E B 16	29	J A 25
5	J A 22	J A 19	20	23	20	22	20	28	J A 31	J A 28	30	33	J A 56	J A 29	28	25	J A 27	J A 30	J A 28	E B 16	21	21	E B 16	20
6	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	26	29	29	G 28	G 28	28	26	J A 30	J A 26	E B 16	E B 16	22	26	18	20
7	E B 16	E B 16	32	19	E B 16	E B 16	E B 16	E B 16	23	28	28	G 28	31	30	28	25	J A 21	J A 25	J A 21	J A 23	21	20	20	E B 16
8	J A 21	J A 23	J A 19	J A 19	J A 22	J A 28	J A 95	G	J A 30	J A 28	J A 30	J A 40	J A 32	G 28	J A 67	G 23	G 20	G 26	J A 27	J A 51	J A 30	J A 76	J A 47	20
9	E B 16	E B 16	24	E B 16	J A 45	19	G 20	J A 27	J A 38	J A 30	J A 59	34	32	J A 53	34	26	22	E B 16	E B 16	E B 16	E B 16	E B 16	22	J A 26
10	J A 29	J A 26	J A 23	J A 23	24	27	20	J A 25	J A 35	J A 45	J A 33	J A 30	37	32	J A 29	26	20	J A 26	J A 49	J A 45	J A 25	J A 29	J A 29	J A 33
11	J A 32	22	J A 25	E B 16	27	J A 27	E B 16	G	26	J A 40	33	33	G 41	J A 50	29	G	J A 29	J A 99	J A 53	E B 16	E B 16	E B 23	J A 23	J A 23
12	J A 24	E B 16	19	19	J A 83	E B 16	21	J A 28	25	J A 87	33	34	32	32	G 28	26	22	E B 16	E B 16	E B 16	E B 16	19	E B 16	23
13	E B 16	20	19	E B 15	71	E B 16	19	30	26	J A 31	J A 29	31	31	30	29	J A 35	J A 30	J A 27	J A E B 16	E B 16	24	22	24	J A 19
14	E B 16	19	22	E B 16	20	E B 16	J A 173	J A 22	G 24	28	J A 34	J A 40	J A 32	J A 36	G 30	26	26	26	24	J A 42	32	J A 23	24	24
15	E B 16	27	33	J A 27	34	22	G 22	J A 32	50	J A 29	J A 62	G 30	30	J A 53	31	J A 29	J A 24	J A 30	60	J A 53	J A 32	E B 16	E B 16	E B 16
16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	J A 22	J A 35	J A 27	J A 41	34	33	J A 56	G	27	G	32	J A 46	J A 31	J A 29	J A 19	J A 27	25
17	J A 48	J A 35	J A 31	J A 22	E B 16	28	21	J A 25	26	J A 34	J A 29	30	34	32	J A 71	26	J A 20	J A 21	25	J A 51	E B 16	E B 16	E B 16	E B 16
18	26	32	J A 23	J A 25	28	E B 15	E B 16	20	J A 25	29	34	38	32	G	33	J A 37	23	E B 16	E B 16	E B 16	E B 16	E B 16	J A 23	J A 23
19	J A 25	24	J A 25	J A 34	J A 22	J A 31	22	22	25	30	32	32	36	G	G	29	G	E B 16	24	J A 24	J A 45	J A 20	J A 20	E B 16
20	E B 16	18	27	E B 16	E B 16	24	J A 23	J A 23	24	28	32	32	J A 107	31	28	25	G 21	J A 51	J A 39	J A 20	E B 16	E B 16	J A 63	E B 16
21	24	24	E B 16	E B 16	E B 16	24	J A 41	J A 31	J A 31	J A 27	28	J A 28	31	33	29	29	J A 22	E B 17	E B 15	21	19	J A 21	32	J A 19
22	E B 16	E B 16	E B 16	E B 16	E B 16	20	20	J A 29	J A 30	G 27	29	34	G 29	G 29	G 28	27	J A 73	E B 16	E B 17	31	J A 18	20	J A 58	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 20	26	28	33	33	G	32	31	28	J A 29	E B 17	E B 16	25	22	E B 16	E B 16	E B 16
24	E B 16	18	J A 23	20	E B 16	31	E B 16	29	31	35	31	32	G 32	31	31	30	24	19	E B 16	J A 23	E B 16	25	34	J A 27
25	24	J A 41	J A 28	27	22	E B 16	E B 16	21	J A 31	J A 45	J A 41	J A 32	J A 37	31	J A 30	J A 29	23	E B 15	J A 31	J A 24	20	21	19	25
26	30	E B 16	E B 16	20	E B 16	E B 16	J A 29	J A 21	27	J A 27	J A 30	32	32	30	35	J A 26	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	J A 23	26	29	30	32	J A 33	30	30	29	J A 23	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
28	21	24	20	26	E B 15	E B 15	E B 16	J A 61	27	29	32	37	J A 32	42	J A 29	J A 29	G 24	E B 17	28	20	22	21	J A 20	E B 16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	22	20	21	19	20	18	20	J A 22	26	29	32	32	32	30	30	26	G	20	19	23	22	20	22	20
U Q	J A 26	J A 26	26	J A 24	24	24	J A 22	J A 28	J A 31	G	J A 34	34	36	J A 32	34	J A 29	J A 26	J A 26	J A 30	J A 31	J A 28	J A 23	J A 29	J A 25
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	25	28	29	32	32	G 30	28	25	22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	E B 16

FEB.2021 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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	E B 16	E B 16	G	G 20	G 22	G	30	31	28	28	24	20	E B 16	E B 16	E B 16	E B 16	16	E B 16	E B 16
2	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	30	G 29	G	G 26	G	G	E B 16	E B 16	18	E B 16	E B 16	E B 16	E B 16
3	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 22	22	G 26	28	G 28	G 26	G 25	23	G 20	G 18	20	16	16	16	16	E B 16
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	19	G 25	27	30	29	G 29	G 24	23	G	E B 16	E B 16	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	E B 16	E B 16	G 18	24	G 25	28	29	32	G 28	G 26	24	21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	G 24	G 26	27	G 28	G 28	26	24	G 21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
7	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	26	G 27	G 26	30	30	27	24	G 18	16	E B 16	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	16	E B 16	G	24	G 24	28	28	G 27	G 26	25	G 22	G 20	E B 16	16	E B 16	E B 16	17	E B 16	E B 16
9	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	G 24	G 28	32	30	29	31	G 24	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	26	29	G 27	35	29	26	25	19	21	20	20	E B 16	E B 16	E B 16	E B 16
11	E B 16	E B 16	E B 16	E B 16	16	E B 16	E B 16	G	24	28	28	G 30	G 29	G 27	28	G	22	34	16	E B 16	E B 16	E B 16	E B 16	E B 16
12	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 17	G 21	G 25	29	32	30	G 28	G 26	G 25	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
13	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16	E B 16	G 22	G 26	28	G 28	G 30	G 28	28	G 23	G 20	16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
14	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 18	G 23	G 25	28	31	29	G 27	G 28	26	24	E B 16	E B 16	16	E B 16	E B 16	E B 16	E B 16
15	E B 16	E B 16	17	20	18	E B 16	E B 16	20	22	G 26	30	G 29	30	G 27	G 28	27	22	25	21	E B 22	E B 16	E B 16	E B 16	E B 16
16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	G 26	G 26	G 28	32	32	G 29	G	26	G	18	18	18	E B 16	E B 16	E B 16	E B 16
17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	21	G 23	G 26	26	G 28	32	29	28	25	G 19	16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
18	E B 16	16	18	E B 16	E B 16	E B 15	E B 16	G 17	G 22	27	32	34	30	G	29	G 25	23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	21	G 24	29	30	30	34	G	G	27	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
20	E B 16	E B 16	E B 16	E B 16	E B 16	17	19	19	G 21	27	30	30	30	30	G 26	G 23	G 20	16	24	E B 16	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	A A 41	G 18	G 21	G 25	G 26	G 28	G 28	G 28	G 28	27	20	E B 17	E B 15	E B 16	E B 16	E B 16	16	E B 16
22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 18	G 23	G 26	G 27	32	G 29	G 29	G 26	25	G 19	E B 16	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 20	25	28	32	32	G	G 30	29	G 26	G 20	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 20	28	G 25	28	G 29	G 29	G 29	29	G 26	G 22	G 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
25	E B 16	21	19	E B 16	E B 16	E B 16	E B 16	G 18	G 24	34	30	G 30	G 30	G 29	29	G 26	20	E B 15	16	E B 16	E B 16	E B 16	E B 16	E B 16
26	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	G 26	30	31	30	G 29	G 28	25	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 22	26	28	G 28	G 30	G 30	30	28	26	G 22	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
28	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	G 20	27	28	30	33	G 30	G 30	G 28	G 26	G 21	E B 17	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 18	23	G 26	28	30	G	G 29	28	25	G 20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 20	24	27	30	32	30	G 30	28	G	G	17	16	16	E B 16	E B 16	E B 16	E B 16
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 22	G 25	G 28	28	G 29	G 28	G 26	24	G 20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

FEB.2021 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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	16	16	16	15	16	16	18	16	15	16	14	16	16	16	16	16	16	16
2	16	16	16	16	16	16	16	16	16	16	16	16	15	16	15	12	13	16	16	16	16	16	16	16
3	16	16	16	16	16	16	16	16	14	12	15	16	11	17	15	16	15	16	16	16	16	16	16	16
4	16	16	16	16	16	16	16	16	15	16	12	13	15	14	15	15	16	16	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	16	12	15	16	16	16	14	15	16	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	15	12	14	12	15	15	15	15	16	16	16	16	16	16	16
7	16	16	16	16	16	16	16	16	15	17	13	16	14	13	16	16	16	16	16	15	16	16	16	16
8	16	16	16	16	16	16	16	16	15	13	16	16	12	14	12	11	11	16	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	14	15	15	14	16	15	15	15	16	16	16	16	16	16	16
10	16	16	16	16	16	16	16	16	12	12	13	12	14	14	14	14	14	15	16	16	16	16	16	16
11	16	16	16	16	16	16	16	16	14	14	14	16	14	14	14	16	15	16	16	16	16	16	16	16
12	16	16	16	16	16	16	16	16	16	13	14	14	14	14	11	15	16	16	16	16	16	16	16	16
13	16	16	16	15	16	16	16	16	16	15	15	16	14	12	10	16	15	16	16	16	16	16	16	16
14	16	16	16	16	16	16	16	14	13	11	14	13	13	14	14	13	13	14	16	16	16	16	16	16
15	16	16	16	16	16	16	16	16	15	16	16	15	14	15	14	14	16	15	15	15	16	16	16	16
16	16	16	16	16	16	16	16	16	16	15	15	15	15	14	14	15	16	12	16	16	16	16	16	16
17	16	16	16	16	16	16	16	16	16	14	14	16	16	13	11	15	10	16	16	16	16	16	16	16
18	16	16	16	16	14	15	16	14	14	16	14	15	15	16	16	14	12	16	16	16	16	16	16	16
19	16	16	16	16	16	16	16	16	16	16	16	15	14	16	15	16	14	16	16	16	16	16	16	16
20	16	16	16	16	16	16	16	16	15	15	14	14	15	15	14	14	16	16	16	16	16	16	16	16
21	16	16	16	16	16	16	16	16	16	16	15	14	16	15	15	13	16	17	15	16	16	16	16	16
22	16	16	16	16	16	16	16	16	15	15	14	16	16	14	14	13	12	16	17	16	16	16	16	16
23	16	16	16	16	16	16	16	16	14	15	15	16	16	16	16	16	16	17	16	16	16	16	16	16
24	16	16	16	16	16	16	16	16	16	15	16	14	16	16	15	15	16	14	16	16	16	16	16	16
25	15	16	16	16	16	16	16	15	16	17	16	16	16	17	16	14	14	15	16	16	16	16	16	16
26	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	16	16	17	16	16	16	16	16	16
27	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	14	16	16	16	16	16	16
28	16	16	15	15	15	15	16	15	14	14	14	15	15	15	17	15	14	17	16	16	16	16	16	16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	16	16	16	16	16	16	16	16	16	15	15	15	15	15	15	15	15	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	14	14	14	14	14	14	14	14	14	16	16	16	16	16	16	16

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F 299	F 290	F 270	F 299	F	298	391	404	378	352	376	376	375	375	371	370	346	336	342	341	326	314	312
2	F 273	340	312	263	302	301	314	371	387	378	339	358	368	375	335	376	356	331	364	344	339	290	289	303
3	321	309	340	339	370	328	328	362	388	363	356	368	362	379	364	363	363	342	366	327	325	305	332	313
4	306	317	317	316	328	309	368	384	397	381	375	340	351	353	378	355	381	353	329	329	300	305	305	305
5	304	350	336	327	328	328	327	375	391	349	364	363	363	362	365	380	365	352	336	319	318	310	310	310
6	340	312	345	322	322	321	344	357	377	375	375	351	364	377	365	372	371	370	342	352	351	311	311	311
7	315	314	313	313	289	288	336	369	380	380	355	354	330	354	354	368	367	372	371	317	310	310	292	350
8	382	333	332	308	307	307	347	385	349	348	358	367	367	387	363	378	357	369	343	342	341	340	288	304
9	281	300	299	302	301	314	372	387	354	362	362	361	391	V 342	356	366	391	354	342	336	368	306	315	317
10	F 343	327	307	F 283	F	365	314	368	375	374	365	364	383	383	361	351	360	392	368	338	337	321	309	F 259
11	F 301	F 301	300	320	335	335	334	382	371	376	375	340	356	356	374	386	373	380	307	337	337	336	331	331
12	330	299	F	301	300	317	339	365	369	387	387	366	358	369	364	371	370	367	361	354	353	350	322	311
13	311	310	310	333	301	300	315	374	381	382	358	358	372	333	363	362	362	369	318	325	303	302	324	312
14	311	334	333	316	315	342	341	358	366	V 327	374	397	367	366	353	365	364	364	363	363	362	349	323	307
15	307	307	323	320	320	F 352	357	367	381	380	359	371	380	373	358	379	362	371	351	261	320	319	319	318
16	280	237	296	317	317	293	355	397	373	360	360	326	377	351	351	388	349	329	325	350	350	375	303	322
17	322	314	300	299	299	313	380	380	380	386	V 310	323	352	360	368	368	367	366	335	314	330	330	317	317
18	289	341	327	324	323	322	333	394	393	V 330	385	384	327	377	355	369	351	377	349	320	319	319	319	299
19	303	307	312	320	320	331	345	378	378	338	338	317	355	372	372	354	359	358	358	323	322	322	310	295
20	285	F 280	F 280	319	334	300	338	382	V 334	316	334	333	348	362	355	354	353	352	355	352	318	318	282	F 282
21	284	315	296	323	372	329	A	365	362	361	361	343	353	345	354	353	365	359	317	336	363	329	303	303
22	303	292	291	359	328	313	311	349	355	354	342	352	331	359	358	358	358	354	351	310	310	310	310	339
23	339	312	311	311	311	354	356	363	357	369	368	367	361	348	348	348	363	351	302	337	321	337	322	277
24	288	303	303	330	328	351	350	371	406	372	345	345	351	351	338	338	348	353	337	350	295	328	301	323
25	300	306	319	309	300	271	355	363	362	359	354	353	320	349	338	353	348	360	357	335	311	F	F 280	262
26	318	317	322	284	288	294	353	361	360	360	359	358	358	371	355	354	353	360	344	319	318	317	317	332
27	300	F	F 299	F 299	316	277	342	355	395	355	388	349	350	366	357	347	347	369	323	333	316	284	284	284
28	302	289	F 289	289	288	332	365	395	376	375	379	347	362	370	333	339	358	358	350	350	349	349	268	298
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	27	28	27	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28
MED	304	310	311	316	316	317	342	371	376	366	360	356	360	364	358	364	362	360	344	336	324	319	310	310
U Q	321	317	323	322	328	332	355	383	388	378	374	366	368	374	364	372	367	369	358	347	345	336	319	318
L Q	289	300	299	300	300	300	328	363	362	354	353	344	351	352	354	354	354	352	332	322	317	310	296	298

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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	L	L	L									
2											535	L	385	556	L	L								
3									L		L	L	390	L	L	L	L							
4									L	L	L	L	L	L	L	L								
5										L	L	L	L	383	393	L								
6								L		L	L	L	396	413	L	L								
7										L	L	L	L	L	386	L								
8									L	L	L	L	L	L	L	L	L							
9									L	L	L	L	L	L	L	L								
10										L	395	L	L	L	L	L	L	L						
11										L	L	406	L	L	L									
12									L	L	L	405	412	375	L	L								
13									L	L	398	L	L	L	L									
14									L	L	L	L	L	L	L									
15										L	L	413	392	409	L									
16							L			L	395	L	L	L	L	L								
17										L	L	394	L	L	L	L								
18							L		L		L		364	532	L	L								
19										L	395	371	L	530	555									
20									L	L	L	L	370	393	L	388	380							
21							A		L	L	L	L	L	374	L	L	L							
22									390	387	L	L	383	L	L	L								
23										L	L	L	L	384	L	L	384							
24								L	L	L	L	385	L	372	L									
25									L		L	L	383	387	L	L	L	381						
26											L	L	L	L	L	L								
27									L	L	L	L	L	377	L		L							
28									L	399	L	L	L	L	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	2	5	6	9	13	3	1	2	1						
MED									390	393	395	400	385	387	393	388	382	381						
U Q											466	406	394	472	555									
L Q											395	385	376	376	386									

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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										222	262	236	242	242	230									
2											230	246	246	224	248	220								
3									224		238	238	238	232	232	226	222							
4									202	216	230	250	254	244	234	238								
5										242	224	242	242	242	234	216								
6								222		216	220	254	254	230	226	242								
7										214	232	260	260	246	246	230								
8									208	234	222	230	236	224	232	224	216							
9									224	228	232	232	222	222	228	224								
10										224	252	240	234	234	244	232	226	226						
11										236	224	254	230	230	230									
12									218	218	226	238	246	246	244	236								
13									214	214	226	246	226	248	228									
14									228	228	228	226	250	240	262									
15										230	230	232	232	234	252									
16							226			230	230	264	224	240	244	226								
17										220	248	298	260	252	234	234								
18							240		210		224		274	232	264	234								
19										256	224	286	246	232	242									
20									218	254	254	288	264	240	246	246	254							
21							A		244	244	244	276	238	262	238	252	234							
22									234	260	264	260	270	242	234	236								
23										226	226	240	238	252	252	244	228							
24								220	220	234	266	260	248	248	246									
25									248		250	242	268	244	254	254	246	216						
26											248	248	234	234	244	244								
27									224	250	226	262	244	244	232		232							
28									234	234	222	254	236	236	254	248								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	2	15	23	28	27	28	28	28	20	8	2						
MED							233	221	224	230	230	248	243	240	243	235	230	221						
U Q									234	242	248	260	254	245	247	244	240							
L Q									214	220	225	238	235	232	232	226	224							

FEB.2021 h'F2 (KM)

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FEB.2021 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	242Q	252Q	236Q	266	246Q	212Q	218	196	196	184	178	200	202	202	202	228	196	198	234	228	244	236	266	266
2	278Q	220	262	292Q	264	248	244	206	206	208	188	198	198	198	194	194	232	222	206	220	230	272	272	234
3	262	240	212	236	216	216	264	228	204	208	192	202	202	202	202	208	198	222	210	248	262	262	242	254
4	254	242	260	260	242	268	212	204	198	198	186	212	198	198	198	200	210	198	224	240	270	262Q	274	280
5	264	220	244	228	240	240	240	206	206	188	188	178	194	204	196	214	214	208	250	266	250	250	244Q	244
6	220	226	236	232	232	242	234	202	220	196	184	196	196	182	184	196	218	204	230	216	226	256	256	248
7	226	252Q	240Q	262	240	268	230	200	206	200	190	194	204	204	204	200	208	206	214	234	266	298	280	222
8	198	234	228	262	270	270	238	206	190	194	178	192	192	198	198	188	196	202	226	240	230	238	266Q	254
9	254Q	244Q	272Q	272	280	236	200	194	194	182	194	202	202	194	194	206	210	216	200	248	196	250Q	242Q	226Q
10	204	242	252	264Q	240Q	202	242	218	202	194	194	202	176	190	182	204	200	200	194	236	226	234	274	274Q
11	268Q	238Q	214	234	226	210	242	210	224	224	186	194	194	182	202	202	230	210	236	236	236	248	258	228
12	240	244Q	270	248	256	236	212	210	196	202	202	190	190	190	196	208	208	198	220	202	214	224	256	256
13	256	240	226	262	262	276	222	204	194	182	180	190	190	192	204	226	220	202	216	242	264	270	256	270
14	266	240	224	256	256	216	260	212	194	182	200	200	190	200	188	232	232	208	206	212	212	226	250	274
15	250	266	248	280	274	212	226	218	212	186	186	186	188	190	178	226	224	222	234	A	260	240	234	228
16	270Q	278Q	266	244	258	240	200	208	216	194	186	200	228	188	188	208	210	240	240	240	228	212	282	254
17	248	262	282	292	256	258	220	200	200	206	192	188	218	194	208	208	232	210	222	232	232	232	248	250
18	278	214	252	252	236	216	206	190	174	208	202	224	204	192	186	212	230	206	196	248	252	250	228	256
19	248Q	240	238	242	228	240	206	196	198	198	196	186	202	188	188	232	230	222	202	232	232	240	278	254Q
20	244Q	270Q	264Q	262	238	280	226	206	180	190	220	184	220	198	198	198	254	224	214	212	226	236	290Q	304
21	288	278	276	260	198	234	A	210	192	196	190	196	196	196	206	226	214	218	234	234	216	216	282	286
22	276	276	252	214	228	248	248	238	186	198	182	218	196	190	186	186	206	218	250	250	236	256	254	252
23	232	270	260	268	252	218	206	212	220	198	196	196	202	196	196	198	198	218	204	226	240	240	210	254Q
24	270Q	256	256	246	246	220	234	198	200	204	188	188	188	196	202	240	232	212	218	218	266	236	270	268
25	288	274	252	260	278	302	230	218	206	244	204	200	200	200	204	218	200	206	218	240	232	254	254	298
26	242	234	240	278	264	250	230	212	226	214	192	202	202	202	202	202	226	212	212	254	250	236	240	218
27	256Q	270Q	254	238	242	258Q	228	218	198	190	190	182	188	194	212	224	198	220	206	224	204Q	254Q	242Q	274Q
28	274	250Q	228	272Q	246Q	230	212	204	200	196	196	192	192	202	190	190	226	210	212	212	222	210	278Q	246Q
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28
MED	255	244	252	260	246	240	228	206	200	197	190	196	197	196	197	208	214	210	217	234	232	240	256	254
U Q	270	268	261	267	260	258	240	212	206	205	196	201	202	200	202	225	230	219	232	242	251	255	274	272
L Q	242	239	236	243	237	217	212	201	194	190	186	189	191	190	188	199	203	205	206	220	226	235	243	245

FEB.2021 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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	88	102	106	106	98	98	98	98	116	B						
2							B	A	116	110	110	112	100	100	106	102	116	B						
3							98	98	116	A	106	106	102	108	108	108	102	102						
4							B	92	116	104	104	104	104	104	104	104	106	B						
5							B	106	106	106	104	104	104	104	104	104	A	A						
6							B	B	98	98	98	98	98	98	110	102	110	A						
7							B	B	112	104	104	104	104	104	104	94	110	A						
8							124	98	A	98	102	100	100	100	A	90	98	110						
9							114	98	110	104	104	104	104	104	104	104	106	B						
10							106	110	A	104	A	100	100	100	A	110	110	A						
11							B	B	98	98	114	114	98	98	102	102	92	A						
12							B	92	92	96	96	96	96	110	100	100	110	B	B					
13							B	110	110	110	108	96	96	100	108	106	106	A	B					
14							116	112	112	98	A	A	98	98	98	98	110	A	B					
15							96	A	104	104	A	104	104	98	98	98	A	A	A					
16							B	B	114	104	106	108	98	98	110	110	110	A	A					
17							A	A	108	108	A	108	110	110	102	102	102	A	B					
18							B	110	114	114	114	116	106	106	106	106	106	B	B					
19							98	102	102	110	104	104	104	112	112	114	114	B	A					
20							B	A	106	110	104	104	102	102	102	102	102	A	A					
21							A	116	116	104	104	106	106	106	108	108	110	B	B					
22							B	110	112	108	108	108	108	108	108	94	96	B	B					
23							B	116	98	102	102	102	100	100	106	116	96	B	B					
24							B	110	110	110	98	98	98	98	98	104	118	104	B					
25							B	114	104	104	104	104	104	90	108	108	108	B	B					
26							A	A	108	108	108	108	108	108	108	108	108	B	B					
27							B	142	98	98	102	112	102	102	102	102	106	134	B					
28							B	116	102	110	114	114	94	106	106	106	122	B	90					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							7	19	26	27	24	27	28	28	26	28	26	4	1					
MED							106	110	108	104	104	104	102	102	105	104	108	107	90					
U Q							116	114	112	110	108	108	104	106	108	108	110	122						
L Q							98	98	102	102	103	102	98	98	102	101	102	103						

FEB.2021 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 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	100	96	B	B	98	B	B	G	98	96	G	158	158	162	92	136	112	B	B	B	98	110	98	94
2	98	B	100	B	B	108	108	104	G	G	G	130	92	G	92	G	G	B	B	104	112	104	104	104
3	92	92	92	92	92	92	96	92	126	98	122	96	116	116	108	142	96	102	102	102	102	98	98	98
4	98	98	96	96	96	B	B	G	102	152	156	164	164	152	116	146	G	B	B	100	100	B	100	100
5	100	92	92	92	92	92	92	114	114	114	114	168	94	112	112	122	92	94	110	B	96	96	B	96
6	B	B	B	B	B	B	B	B	146	124	124	120	112	114	142	134	96	92	B	B	106	100	100	100
7	B	B	92	92	B	B	B	B	150	150	150	124	174	164	152	126	118	92	92	92	92	106	106	B
8	100	100	100	100	86	98	118	G	104	106	102	102	98	112	92	110	120	120	108	120	112	102	136	100
9	B	B	86	B	90	104	104	100	102	100	92	152	142	108	110	150	108	B	B	B	B	B	98	102
10	96	96	96	96	94	100	100	106	96	96	96	96	166	150	92	122	142	90	98	98	90	90	90	90
11	90	94	94	B	108	102	B	G	158	90	138	138	92	90	156	G	106	106	106	B	B	90	90	90
12	92	B	92	92	122	B	110	94	150	100	160	150	144	144	112	162	132	B	B	B	B	108	B	96
13	B	96	96	B	96	B	104	104	104	102	102	142	132	128	158	98	86	86	B	B	112	102	102	94
14	B	98	98	B	110	B	120	98	112	128	94	90	96	96	144	144	122	100	102	100	118	130	96	96
15	B	96	96	96	96	98	88	104	102	102	92	138	142	106	90	94	94	88	110	104	104	B	B	B
16	B	B	B	B	B	B	B	108	108	108	100	168	156	90	G	170	G	96	96	90	90	96	106	96
17	102	110	96	96	B	96	96	112	124	110	106	124	172	156	94	154	96	86	92	92	B	B	B	B
18	98	98	90	96	96	B	B	120	110	150	150	116	126	G	156	96	122	B	B	B	B	B	88	100
19	94	94	94	94	94	90	86	130	116	156	138	130	166	G	G	172	G	B	96	86	94	94	92	B
20	B	92	92	B	B	112	106	106	106	158	162	162	96	146	114	106	106	106	100	88	B	B	94	B
21	100	98	B	B	B	108	108	112	102	108	130	98	178	164	162	178	116	B	B	98	96	96	94	94
22	B	B	B	B	B	106	114	102	102	114	104	164	102	108	112	168	96	B	B	96	96	96	96	B
23	B	B	B	B	B	B	B	152	142	142	142	142	G	116	116	158	102	B	B	96	94	B	B	B
24	B	84	90	92	B	106	B	106	118	106	106	122	118	116	116	116	138	124	B	110	B	96	96	94
25	94	92	92	98	106	B	B	126	112	106	106	106	106	106	106	106	130	B	94	92	94	84	84	96
26	96	B	B	90	B	B	92	106	166	102	102	102	104	116	112	106	G	B	B	B	B	B	B	B
27	B	B	B	B	B	B	B	144	144	126	106	134	110	110	164	142	120	136	B	B	B	B	B	B
28	98	98	98	98	B	B	B	92	170	170	174	174	112	102	112	112	128	B	110	94	94	96	96	B
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	18	20	15	15	14	16	22	27	27	26	28	27	25	26	26	23	15	14	18	19	19	21	18
MED	98	96	94	96	96	101	104	106	112	108	110	132	118	116	112	135	112	96	101	97	96	96	96	96
U Q	100	98	96	96	106	106	109	114	144	142	142	155	158	148	144	154	122	106	108	102	106	104	101	100
L Q	94	92	92	92	92	96	94	102	102	102	102	111	102	107	106	110	96	90	96	92	94	96	93	94

IONOSPHERIC DATA STATION Wakkanai

FEB.2021 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F1	F1			F1				L1	CL11		HL11	H1	HL11	LH11	HL11	C2				F3	F3	FF31	FQ21
2	F1		F1			F1	L1	L1				CL11	LC11		LC12					F3	F2	FQ21	FQ11	FF11
3	FF11	FF11	F1	F1	F1	F1	LC11	LC11	CL21	L3	CL21	LC11	CL21	C2	C2	C2	C3	C5	F4	F3	F3	F4	F4	FQ31
4	FQ31	FQ21	FQ11	F1	F1				L1	HL21	H2	H1	H2	H2	C2	H2				F2	F1		F3	F2
5	F1	F2	F1	F1	F1	F1	L1	CL21	C2	C2	C2	HL11	LH22	C1	C1	C2	L2	L2	F1		F1	F1		F1
6									H2	C2	C2	C2	C2	C2	H2	C2	LC11	L1			F1	F3	F1	F1
7			F2	F1					HL21	HL21	HL22	CL22	CL22	H2	HL21	CL21	C2	C1	F2	F1	F1	F1	F1	
8	FQ21	F1	F1	F1	F1	F2	LC11		L3	LC21	LC21	LC11	LC21	CL22	L3	CL21	C2	C1	F2	FF11	F2	F4	FF21	F1
9			F1		F1	F1	C1	L1	LC21	LC21	LC22	HL21	HL21	CL21	CL21	HL21	C3						F1	F1
10	F1	F2	F1	F1	F2	F1	L1	L3	L4	LH32	L2	LC11	HL21	HL11	L3	C2	C2	L4	F3	FQ31	F2	F3	FQ21	FQ21
11	F2	F1	F1		F1	F1			HL22	LC31	HL22	C1	CL11	LC11	C2		C3	L3	F3			F1	F1	F1
12	F1		F1	F1	F1		L1	C1	HL22	C2	HL21	HL21	HL21	H1	C1	H1	CL21					F1		F1
13		F1	F1		F1		C1	C1	C2	L3	C2	H2	C2	C2	H2	LC11	LC12	L1			F1	F1	F1	F2
14		F1	F1		F1		C1	LC11	CL21	CL21	L2	L3	LC11	LC11	H2	H2	C3	L1	L1	F3	FF11	FF11	F2	F1
15		F1	F3	F3	F3	F1	C1	L4	C5	C2	L4	CL22	H1	C2	LC11	LC11	L2	L3	L3	F5	F1			
16								C2	C3	L2	LC21	HL11	HL11	LC11		HL21		L2	LL21	F2	F1	F3	FQ11	F1
17	FQ11	FF11	F2	F2		F1	L1	L3	C2	C3	L2	C2	HL11	HL11	LH11	HL21	LC21	L2	L1	F1				
18	F2	F3	F2	F1	F2			CL21	C2	CL22	CL22	C2	C1		CL11	LC11	C2						F2	F1
19	F1	F1	F1	F1	F1	F1	C1	C2	C2	H1	H1	H1	HL11			HL11			L1	F2	F1	F2	F1	
20		F1	F1			F2	L4	L4	C2	H1	H2	H1	LH11	H2	C2	C2	C2	L1	L3	F1			F1	
21	F1	F1				F2	L6	C4	C3	C2	C1	CL11	HL11	H2	H2	H2	C2			F1	F1	F2	F2	F1
22						F1	L1	LC11	C2	C2	C1	H2	C1	C1	C1	H1	LC11			F1	F1	F1	F1	
23								H2	H2	H1	H2	H1		CL11	CL11	HL11	C2			F1	F1			
24		F1	F1	F1		F1		CL21	C3	C3	C2	C1	C2	C1	C2	C2	C2	C1		F1		F1	F3	F2
25	F1	F5	F3	F1	F1			C2	C2	C4	C3	C2	L2	CL21	C2	C2	C2		C2	FF11	F1	F2	F1	F1
26	F1			F1			L1	L1	HL11	LC11	LC11	L2	LC11	CL11	C1	C2								
27								H2	H1	C1	C2	H2	C1	C1	HL11	H1	C1	H2						
28	F2	F2	F1	F1				LL12	HL22	HL11	HL11	HL11	CL21	C2	C2	C2	C2		C1	F1	F1	F1	F1	
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB.2021 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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 36	X 36	X 36	X 36	X 36	X 30													A	X 37	X 40	X 40	X 39	X 37
2	X 37	X 37	X 40	X 34	X 31	X 31		X 54	X 60								X 59		X 47	X 49	X 43	X 36	X 36	X 40
3	X 38	X 39	X 40	X 36	X 29	X 28													X 44	X 45	X 44	42	38	X 38
4	X 38	X 39	X 38	X 36	X 38	X 33													X 40	X 41	X 41	X 43	X 40	X 42
5	X 37	X 39	X 38	X 32	X 31	X 30	X 29												X 37	X 32	X 38	X 37	X 44	X 36
6	X 36	X 33	X 33	X 33	X 34	X 32			X 60										X 35	A	X 44	X 36	X 34	X 35
7	X 36	X 35	X 36	X 34	X 34	X 33													X 44	A	X 37	X 39	X 41	X 44
8	X 41	X 32	X 33	X 34	X 33	X 33													X 44	X 37	X 35	X 36	A	X 34
9	X 35	X 37	X 36	X 35	X 33	X 33	X 28												X 37	X 37	X 39	X 40	X 38	X 37
10	38	39	39	39	X 35	X 33	39												X 40	X 34	X 34	X 35	X 36	X 36
11	X 34	X 34	X 36	X 37	X 37	X 32													X 38	X 38	X 40	X 39	X 36	X 38
12	X 38	X 37	X 37	X 37	X 37	X 32	X 32												X 36	X 38	X 40	X 40	X 38	X 37
13	X 36	X 36	X 38	X 38	X 37	X 35													X 44	X 37	X 41	X 43	X 39	X 40
14	X 43	X 39	X 39	X 38	X 38	X 35													A	X 37	X 34	X 31	X 34	A
15	X 38	X 38	X 37	X 38	X 40	X 32													X 40	X 38	X 40	39	39	40
16	X 36	X 37	39	38	X 35	34													X 53	X 58	X 53	X 36	X 34	X 36
17	X 39	X 39	X 38	X 38	X 40	X 40													X 48	X 37	X 37	39	37	X 37
18	39	40	38	X 36	41	40													X 43	X 37	X 41	X 40	X 40	X 39
19	X 39	X 42	X 40	X 36	X 36	X 34													X 47	X 46	X 45	X 42	X 39	X 39
20	X 40	X 40	X 41	X 40	X 37	X 35													X 64	X 44	X 32	X 34	X 36	X 38
21	X 38	X 37	X 36	X 36	X 33	O X 30													X 53	X 38	X 41	X 40	X 37	X 37
22	X 37	X 38	X 38	X 36	X 27	X 27													X 53	X 46	X 48	X 45	X 42	X 43
23	X 42	X 42	X 39	X 39	X 40	X 35													X 52	X 48	X 56	X 47	X 36	X 38
24	X 38	X 39	X 39	X 39	X 39	X 39													X 52	X 50	X 52	X 38	X 38	X 36
25	X 38	X 40	X 39	X 41	X 41	X 42													X 68	X 37	X 39	X 39	40	41
26	41	41	42	X 37	42	40													X 52	X 42	X 43	X 46	X 40	X 37
27	X 35	X 35	X 34	X 35	X 33	X 33													X 58	X 45	X 41	X 37	X 31	X 35
28	39	39	X 34	X 34	X 34	X 29	X 38												X 62	X 43	X 36	X 33	X 34	X 32
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	5	1	2								1		26	26	28	28	27	27
MED	X 38	X 38	X 38	X 36	X 36	X 33	X 32	X 54	X 60								X 59		X 46	X 38	X 40	X 39	X 38	X 37
U Q	X 39	X 39	X 39	X 38	X 38	X 35	38												X 53	X 45	X 44	X 41	X 40	X 40
L Q	X 36	X 36	X 36	X 35	X 33	X 32	X 28												X 40	X 37	X 38	X 36	X 36	X 36

FEB.2021 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	30	30	30	30	30	24	23	42	48	50	55	56	56	54	54	54	47	42	A	31	34	34	33	31
2	31	31	34	28	25	25	24	48	54	53	56	61	55	62	56	58	53	44	41	43	37	30	30	34
3	32	33	34	30	23	22	22	40	60	71	76	63	66	65	55	55	51	43	38	39	38	F	F	32
4	32	33	32	30	32	27	31	47	57	50	55	63	61	68	70	59	50	44	34	35	35	37	34	36
5	31	33	32	26	25	24	23	47	54	58	61	57	60	60	58	53	50	41	31	26	32	31	38	30
6	30	27	27	27	28	26	25	46	54	60	61	61	64	54	57	50	52	42	29	A	38	30	28	29
7	30	29	30	28	28	27	25	53	50	51	66	59	77	74	72	62	57	58	38	A	31	33	35	38
8	35	26	27	28	27	27	26	47	70	55	65	70	76	79	60	55	53	50	38	31	29	30	A	28
9	29	31	30	29	27	27	22	45	55	55	61	66	58	61	56	60	61	52	31	31	33	34	32	31
10	F	F	F	F	29	27	F	48	56	54	57	72	73	69	62	60	57	51	34	28	28	29	30	30
11	28	28	30	31	31	26	26	47	61	58	65	60	58	66	V 61	49	55	44	32	32	34	33	30	32
12	32	31	31	31	31	26	26	45	60	63	58	67	60	66	62	58	54	45	30	32	34	34	32	31
13	30	30	32	32	31	29	30	54	54	64	64	68	60	63	63	58	52	53	38	31	35	37	33	34
14	37	33	33	32	32	29	27	53	59	58	66	62	63	58	56	52	60	57	A	31	28	25	28	A
15	32	32	31	32	34	26	29	48	53	64	58	75	70	62	56	51	53	47	34	32	34	F	F	F
16	30	31	F	F	29	F	23	46	51	57	64	68	85	76	76	V 60	58	50	47	52	47	30	28	30
17	33	33	32	32	34	34	33	55	59	58	63	64	69	74	64	55	55	49	42	31	31	F	F	31
18	F	F	F	30	F	F	26	49	62	50	56	58	69	60	60	56	60	52	37	31	35	34	34	33
19	33	36	34	30	30	28	28	46	53	59	62	68	67	62	66	60	54	48	41	40	38	36	33	33
20	34	34	35	34	31	29	24	52	60	56	76	76	101	94	83	64	59	63	58	38	26	28	30	32
21	31	31	30	30	27	24	21	42	64	60	65	58	69	74	65	62	58	66	47	32	35	34	31	31
22	31	32	32	30	21	21	26	47	61	74	72	V 64	64	82	64	53	53	52	47	40	42	39	36	37
23	36	35	33	33	34	29	29	47	55	70	66	58	73	79	66	66	61	55	46	42	50	41	30	32
24	32	33	33	33	33	33	34	55	58	62	60	69	78	76	64	67	72	58	46	44	46	32	32	30
25	32	34	35	35	35	36	40	50	56	66	76	79	76	85	84	70	70	76	62	30	33	33	F	F
26	F	F	F	31	F	F	35	58	57	58	66	80	84	72	67	58	61	59	46	36	37	39	34	31
27	29	29	28	29	27	27	34	56	59	66	77	67	65	72	65	64	54	59	52	39	35	31	25	29
28	F	F	28	28	28	23	32	54	60	56	60	68	60	70	68	60	60	66	56	37	30	27	28	26
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	24	26	26	25	27	28	28	28	28	28	28	28	28	28	28	28	26	26	28	25	23	25
MED	32	32	32	30	30	27	26	48	57	58	64	65	66	68	64	58	55	52	40	32	34	33	32	31
U Q	32	33	33	32	32	29	31	53	60	64	66	68	74	75	66	61	60	58	47	39	38	35	34	33
L Q	30	30	30	29	27	24	24	46	54	55	59	60	60	62	58	54	53	44	34	31	32	30	30	30

IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	A	A	A	A	A	A							
2										L	428	408	A	A	L	L								
3										L	L	L	U L 424	L		L								
4											L	U L 460	420	408	L									
5										L	U L 424	L	L	420	L									
6										A	L	424	412	A	A	A	A							
7												U L 444	432	U L 432	L									
8											L	U L 416	U L 436	L	L	L								
9										L	412	416	U L 392	L	L	L								
10											U L 452	416	L	A	L	L								
11										L	412	L	L	420	L									
12								L		A	U L 444	420	416	428	L	L								
13									L	L	L	432	U L 432	U L 432	L									
14									L	L	L	U L 424	U L 424	L	L	L								
15									L	L	U L 444	428	U L 436	U L 424	L	L								
16										L	U L 412	436	436	L	404	L								
17										L	L	U L 444	420	428	L	L								
18										L	L	L	A	L	U L 428	L								
19											L	L	428	L	412	L								
20									A	A	U L 444	A	412	U L 424	A	A	L							
21									L	A	L	L	432	U L 424	L	L								
22									L	388	412	L	436	392	L		L							
23										L	L	U L 420	U L 440	L	L	L	A							
24										L	A	L	U L 460	L	L	L	L							
25										L	424	436	436	436	A	L								
26										L	L		A	L	L									
27									L			L	L	432	L	L	L							
28									L	U L 384	U L 456	440	L	440	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										2	12	16	19	14	3									
MED										386	U L 426	426	432	426	412									
U Q											U L 444	U L 438	U L 436	432	U L 428									
L Q											412	418	420	420	404									

FEB.2021 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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	U R 236	U R 260	U A 308	U A 320	A	A	U A 288	A	A	B						
2								B		U R 280	R	A	A	A	A	A		B						
3								B	A	A	U R 300	U R 324	U R 328	U R 320	A	A	A	A						
4								B	U R 236	U R 280	U R 296	U A 308	U R 312	U A 312	A	A	U R 220	B						
5								U R 184	A	276	A	U R 308	U R 324	U R 300	U R 296	A	U R 228	B						
6								B	B	A	A	A	316	A	A	A	U A 216	B						
7								B	B	U R 244	U R 288	A	A	A	A	U R 304	A	A	B					
8								B	B	U R 260	A	A	A	A	U R 288	U R 276	208	B						
9								U R 184	U R 236	U R 280	A	A	U R 320	U R 324	R	U R 324	U R 224	B						
10								B	U R 180	A	A	A	A	A	A	A	U R 232	B						
11								B	B	U R 248	A	U A 296	A	U R 324	R	R	U R 272	B						
12								U R 184	U R 260	A	U R 308	308	324	316	U A 300	U A 268	236	B						
13								B	U R 200	U R 256	U R 300	U R 308	U R 316	U R 324	U R 312	U R 300	U R 296	U R 240	B					
14								B	U R 184	U R 244	U R 280	U R 308	U R 320	320	U R 312	A	U R 292	U A 224	B					
15								B	U R 180	U R 256	A	A	A	A	U R 312	U R 304	U R 280	U R 244	B					
16								B	208	A	U R 296	U R 312	R	R	R	U R 304	U R 284	A	B					
17								B	180	U A 244	U R 296	U R 312	U R 328	328	U R 316	U R 296	U R 276	U R 240	B					
18								B	U R 192	U R 260	U R 280	U R 308	U A 308	U A 332	A	300	U R 280	U R 236	B					
19								B	U R 204	U R 256	U R 292	A	U R 312	U R 308	U A 312	U R 304	A	U R 236	B					
20								B	208	A	A	A	A	U R 328	A	A	A	U R 236	B					
21								B	B	A	A	U R 308	U R 312	U R 332	U R 344	U R 320	R	248	B					
22								B	B	U R 244	U R 284	U R 312	U R 328	R	320	R	U R 280	U R 236	U R 196					
23								B	U R 208	U R 272	U R 288	U R 312	U R 320	U A 340	U R 320	U R 316	U R 284	244	U R 208					
24								B	U R 208	U R 260	U R 292	U A 312	A	A	U R 328	A	U R 284	U R 252	U R 180					
25								B	U R 192	260	U R 308	A	A	A	A	A	U R 256	B						
26								B	B	U R 264	U R 284	A	U A 328	U A 348	U R 332	U R 320	U R 300	U R 240	B					
27								B	U R 192	U R 268	304	336	A	336	U R 320	U R 308	U R 284	U R 252	B					
28								U A 192	U R 272	U R 304	A	U R 324	U R 340	U R 340	U R 312	U A 288	U R 256	U R 188						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								17	20	19	15	15	18	17	16	16	23	4						
MED								U R 192	U R 256	U R 288	U R 308	U R 320	U R 326	U R 320	U R 304	U R 284	U R 236	U R 192						
U Q								U R 206	U R 260	U R 296	U R 312	U R 324	U 332	U R 326	U R 310	U R 290	U R 248	U R 202						
L Q								U R 184	U R 244	U R 280	U 308	U 308	U R 320	U R 312	U R 298	U R 280	U 228	U R 184						

FEB.2021 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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 17	20	19	E B 16	20	21	E B 17	E B 17	G	G	36	40	J A 48	42	J A 46	J A 51	J A 54	J A 42	J A 75	J A 33	22	J A 24	23	J A 23
2	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	J A 36	J A 51	G	G	36	J A 55	J A 63	J A 37	J A 28	J A 27	E B 16	20	E B 16	E B 16	J A 35	J A 62	J A 28
3	22	J A 32	25	J A 22	20	J A 21	22	J A 21	J A 28	J A 36	G	G	G	G	J A 35	J A 31	J A 28	J A 38	J A 66	J A 52	J A 28	J A 36	J A 35	J A 29
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	24	G	G	G	G	G	35	J A 40	J A 39	G	20	E B 16	J A 41	J A 36	J A 30	22	E B 16
5	20	J A 26	22	E B 16	22	21	E B 16	G	J A 35	32	J A 37	G	G	G	G	29	G	E B 16	21	E B 15	21	21	21	E B 16
6	E B 16	J A 32	J A 26	J A 27	J A 27	J A 30	J A 26	J A 44	J A 55	J A 44	J A 36	J A 36	J A 31	J A 44	37	38	31	J A 34	J A 34	J A 40	J A 52	E B 16	E B 16	E B 16
7	22	E B 16	E B 16	E B 16	E B 16	E B 17	E B 16	E B 17	G	G	J A 38	34	J A 36	J A 34	G	J A 34	J A 37	J A 34	J A 49	J A 32	J A 32	J A 30	J A 34	J A 48
8	E B 16	E B 17	19	E B 16	E B 16	E B 16	E B 16	E B 16	G	J A 43	J A 45	J A 47	J A 44	J A 40	G	G	23	E B 16	J A 35	J A 48	J A 26	J A 26	J A 31	J A 28
9	J A 28	20	21	J A 22	J A 28	22	19	G	G	G	32	J A 36	G	G	G	G	G	21	J A 26	J A 30	J A 46	J A 29	J A 36	J A 26
10	E B 16	E B 16	24	24	20	22	E B 16	G	28	J A 34	J A 42	36	J A 55	J A 48	J A 40	J A 33	J A 33	J A 35	J A 31	22	J A 35	J A 28	20	21
11	22	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	J A 40	34	34	G	G	G	G	G	E B 16	J A 22	22	22	J A 34	J A 33	J A 38
12	J A 28	J A 26	25	22	E B 16	E B 16	E B 16	G	G	J A 45	G	G	G	35	34	32	26	20	20	E B 16	E B 16	J A 26	25	E B 16
13	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	G	G	G	G	G	G	G	G	G	G	E B 17	20	E B 16	E B 16	E B 16	E B 16	J A 24
14	J A 26	E B 16	E B 16	E B 16	E B 16	E B 17	E B 16	G	G	G	G	G	G	G	J A 53	G	33	40	J A 68	J A 34	J A 30	J A 25	21	J A 48
15	J A 50	22	J A 29	24	22	24	E B 16	G	G	J A 36	J A 36	35	38	G	G	G	G	J A 28	E B 16	E B 16	J A 25	J A 53	J A 37	23
16	E B 17	E B 16	E B 16	E B 16	19	19	19	G 20	J A 33	G	G	G	G	G	G	G	J A 31	19	J A 26	24	J A 31	24	J A 28	19
17	E B 16	J A 26	23	J A 29	E B 16	E B 16	E B 16	24	28	G	G	G	G	G	G	G	G	E B 17	20	J A 24	E B 16	E B 16	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	J A 24	G	G	G	G	35	39	36	34	G	G	E B 18	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15
19	J A 26	22	25	20	E B 16	23	E B 16	G	G	G	J A 40	G	G	34	G	J A 35	G	G	23	J A 30	24	J A 25	E B 16	E B 16
20	E B 16	J A 22	23	20	E B 16	E B 16	22	G	J A 42	J A 47	J A 42	J A 62	G	J A 41	J A 63	J A 57	J A 26	J A 34	J A 34	J A 30	J A 23	22	E B 16	E B 16
21	J A 24	22	E B 16	E B 16	E B 16	E B 16	20	J A 30	J A 62	J A 80	G	G	G	G	G	G	G	E B 16	E B 14	E B 15	E B 16	E B 16	E B 16	E B 16
22	E B 15	23	22	20	E B 15	E B 15	21	21	G	G	G	G	G	G	G	G	G	G	E B 14	E B 16	E B 16	E B 16	E B 16	E B 16
23	E B 16	E B 17	E B 16	E B 16	E B 16	E B 15	E B 16	G	G	G	G	G	37	G	G	G	31	G	E B 16	E B 16	20	20	J A 27	22
24	E B 16	E B 16	E B 16	E B 16	E B	20	E B 16	G	G	G	37	38	J A 56	G	36	G	G	G	J A 51	E B 16	24	E B 16	E B 16	21
25	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	E B 15	G	30	G	J A 83	J A 50	J A 42	39	J A 48	J A 40	G	E B 16	E B 16	E B 16	E B 16	E B 17	E B 15	22
26	E B 16	J A 28	25	E B 16	E B 15	E B 15	E B 16	23	G	G	J A 42	39	43	G	G	G 27	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16	E B 16	G	G	35	38	36	G	G	G	31	G	21	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16
28	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	G	G	J A 36	G	G	J A 38	34	G	G	22	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 16	E B 17	18	E B 16	E B 16	E B 16	E B 16	G	G	G	35	34	G	G	G	G	G	G	20	19	22	23	20	20
U Q	J A 22	J A 22	24	21	20	21	20	22	J A 29	J A 36	J A 38	J A 36	J A 40	J A 38	J A 37	J A 34	J A 30	J A 31	J A 34	J A 31	J A 29	J A 28	J A 30	J A 25
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	G	G	G	G	G	G	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

FEB.2021 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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 17	E B 15	E B 16	E B 16	E B 16	E B 16	E B 17	E B 17	G	G	33	37	44	36	36	48	36	23	A A 75	E B 16	E B 16	E B 16	E B 16	17
2	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	29	39	G	G	34	47	54	32	26	23	E B 16	E B 16	E B 16	E B 16	18	E B 16	E B 16
3	E B 16	E B 16	E B 16	16	E B 16	E B 16	E B 16	18	24	30	G	G	G	G	30	25	24	26	23	27	E B 16	E B 17	E B 16	19
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	E B 17	G	G	G	G	G	32	33	33	G	17	E B 16	17	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	G	26	31	32	G	G	G	G	28	G	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	E B 16	18	17	18	33	36	33	33	G 26	37	36	36	30	30	22	A A 40	E B 16	E B 16	E B 16	E B 16
7	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	E B 16	E B 17	G	G	30	32	32	32	G	29	27	25	27	A A 32	24	24	E B 16	E B 16
8	E B 16	E B 17	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	G	40	35	33	33	33	G	G	22	E B 16	23	22	21	18	A A 31	19
9	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	30	31	G	G	G	G	G	18	23	18	21	18	E B 16	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	26	30	37	34	36	36	30	28	G 20	19	19	E B 15	18	22	18	E A 19
11	E B 16	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	33	33	31	G	G	G	G	G	E B 16	E B 16	E B 16	E B 16	18	18	22
12	19	19	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	34	G	G	G	33	32	30	26	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
13	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	G	G	G	G	G	G	G	G	G	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
14	E B 15	E B 16	E B 16	E B 16	E B 16	E B 17	E B 16	G	G	G	G	G	G	G	32	G	30	35	A A 68	26	E B 16	E B 16	E B 15	A A 48
15	19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	30	30	32	34	G	G	G	G	23	E B 16	E B 16	17	E B 16	E B 16	E B 16
16	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 19	27	G	G	G	G	G	G	G	26	18	E B 16	E B 16	E B 16	E B 16	E B 17	E B 16
17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	26	G	G	G	G	G	G	G	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	G	34	39	35	33	G	G	E B 18	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15
19	E B 16	E B 16	E B 17	E B 16	E B 16	E B 16	E B 16	G	G	G	33	G	G	33	G	29	G	G	E B 16	22	16	18	E B 16	E B 16
20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	36	42	34	42	G	36	45	45	G 19	22	19	E B 16	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	25	25	35	G	G	G	G	G	G	G	E B 16	E B 14	E B 15	E B 16	E B 16	E B 16	E B 16
22	E B 15	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	19	G	G	G	G	G	G	G	G	G	G	E B 14	E B 16	E B 16	E B 16	E B 16	E B 16
23	E B 16	E B 17	E B 16	E B 16	E B 16	E B 15	E B 16	G	G	G	G	G	36	G	G	G	27	G	E B 16	E B 16	18	E B 16	22	E B 16
24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	34	37	37	G	34	G	G	G	32	E B 16	E B 16	E B 16	E B 16	E B 16
25	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	E B 15	G	28	G	36	34	34	36	42	30	G	E B 16	E B 16	E B 16	E B 16	E B 17	E B 15	E B 15
26	E B 16	E B 15	E B 15	E B 16	E B 15	E B 15	E B 16	21	G	G	32	37	38	G	G	G 26	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16	E B 16	G	G	34	37	35	G	G	G	30	G	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16
28	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	G	G	31	G	G	G 28	32	G	G	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	30	31	G	G	G	G	G	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	26	32	33	34	35	34	32	30	25	21	22	18	16	18	16	16
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 18	G	G	G	G	G	G	G	G	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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	17	15	16	16	16	16	17	17	16	16	16	16	18	18	18	16	15	15	16	16	16	16	16	16
2	16	16	16	16	16	16	16	16	17	17	19	19	18	17	17	16	15	16	16	16	16	16	16	16
3	16	16	16	16	16	16	16	15	16	16	16	16	19	20	19	16	15	15	15	16	16	17	16	16
4	16	16	16	16	16	16	17	19	16	16	16	16	15	16	16	16	16	16	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	14	17	17	17	17	15	16	15	16	16	15	15	15	16	16
6	16	16	16	16	16	16	16	16	16	16	16	18	18	16	16	17	17	17	16	16	16	16	16	16
7	16	16	16	16	16	17	16	17	16	17	16	16	16	15	16	16	16	16	16	16	16	16	16	16
8	16	17	17	16	16	16	16	16	16	15	15	15	15	15	15	15	15	16	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	14	16	14	16	17	16	16	16	15	16	16	16	16	16	16
10	16	16	16	16	16	16	16	15	16	15	17	17	17	16	14	14	14	16	15	15	14	16	16	16
11	16	17	16	16	16	16	16	16	14	13	14	14	14	16	16	16	16	16	16	16	16	16	16	16
12	16	16	16	16	16	16	16	14	16	15	15	16	18	20	19	16	16	16	16	16	16	17	17	16
13	16	16	16	16	15	15	16	15	15	16	16	16	16	16	16	16	15	17	16	16	16	16	16	16
14	15	16	16	16	16	17	16	15	15	15	16	16	16	16	16	16	14	14	14	16	16	16	15	16
15	16	16	16	16	16	16	16	15	16	14	14	16	16	16	15	15	15	14	16	16	15	16	16	16
16	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	16	16	16	16	17	16
17	16	16	16	16	16	16	16	15	16	15	16	16	16	19	17	17	17	17	16	16	16	16	16	16
18	16	16	16	16	16	16	16	16	15	15	16	16	18	18	18	17	16	18	16	16	16	16	15	15
19	16	16	17	16	16	16	16	16	16	16	16	16	18	18	18	16	15	13	16	16	16	16	16	16
20	16	16	16	16	16	16	16	16	15	15	15	17	17	16	16	14	14	16	16	16	16	16	16	16
21	16	16	16	16	16	16	15	17	16	16	16	15	16	19	16	16	16	16	14	15	16	16	16	16
22	15	16	16	16	15	15	15	16	15	16	17	16	15	17	17	16	16	14	14	16	16	16	16	16
23	16	17	16	16	16	15	16	16	15	15	16	16	17	16	17	17	17	15	16	16	16	16	16	16
24	16	16	16	16	16	16	16	16	16	16	17	17	17	17	16	16	15	14	16	16	16	16	16	16
25	15	15	15	15	16	16	15	15	15	16	16	17	18	20	19	16	16	16	16	16	16	17	15	15
26	16	15	15	16	15	15	16	15	16	16	16	16	24	20	18	14	15	17	16	16	16	16	16	16
27	16	16	15	15	15	16	16	16	16	16	20	20	20	20	17	17	17	14	15	15	15	15	15	16
28	16	16	16	16	16	16	16	13	16	16	17	19	21	21	21	16	15	14	15	15	15	15	15	15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	16	16	16	16	16	16	16	16	16	16	16	16	17	17	16	16	15	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	16	16	17	18	19	18	16	16	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	15	15	15	16	16	16	16	16	16	15	14	16	16	16	16	16	16

IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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	320	320	325	339	398	313	330	396	393	373	375	379	372	371	371	376	392	389	A	305	309	344	352	324
2	325	325	352	322	310	329	340	384	391	385	369	391	347	377	364	368	386	362	316	368	361	340	307	304
3	328	339	334	402	349	362	299	358	349	344	363	363	369	378	376	379	385	367	330	350	332	F	F	308
4	309	317	339	324	351	327	370	393	414	392	346	341	350	347	370	375	375	377	349	310	311	303	318	343
5	319	324	359	335	327	318	346	387	389	372	366	378	359	368	380	384	372	378	366	311	310	318	315	360
6	330	335	335	335	329	334	339	372	372	377	371	372	385	367	367	376	370	389	345	A	339	352	317	323
7	310	319	338	335	335	325	316	400	376	384	401	320	354	342	351	365	370	377	364	A	289	330	311	330
8	356	301	331	327	304	324	330	366	373	396	363	360	353	372	383	356	370	372	361	353	340	335	A	309
9	320	324	307	307	313	319	331	383	379	372	348	365	352	364	376	324	382	391	383	328	336	370	338	328
10	F	F	F	F	347	321	F	383	376	373	345	356	359	389	335	361	367	382	389	334	334	336	323	323
11	306	306	331	322	373	351	337	353	393	367	375	373	351	307	V 368	367	387	369	371	347	316	330	334	317
12	315	319	323	323	364	368	345	365	376	364	321	370	359	368	379	393	381	394	358	344	329	367	321	302
13	300	309	324	334	328	313	359	399	373	376	387	384	343	366	353	368	360	365	373	297	309	336	300	301
14	338	331	335	317	329	329	358	374	394	353	379	370	363	364	374	360	383	384	A	364	369	346	319	A
15	304	318	293	333	351	340	360	404	371	390	344	363	363	354	380	382	376	386	360	337	347	F	F	F
16	339	330	F	F	318	F	330	400	384	371	392	335	356	333	366	V 346	359	378	338	325	412	317	306	318
17	312	313	304	304	322	331	378	373	403	368	346	352	347	349	373	367	342	384	374	357	353	F	F	336
18	F	F	F	329	F	F	351	377	386	379	358	351	330	370	346	362	375	382	364	332	321	330	331	314
19	315	350	372	342	346	327	330	381	385	383	352	366	359	331	363	368	398	386	346	343	351	342	339	306
20	309	309	324	340	294	364	359	366	373	347	342	326	337	364	335	365	366	370	389	350	346	305	289	282
21	289	299	311	329	391	388	341	382	354	379	366	347	357	372	360	363	368	368	372	317	324	316	352	295
22	295	320	326	405	325	326	319	362	361	374	371	V 351	322	366	373	375	368	354	358	315	334	343	316	305
23	299	359	323	328	329	326	330	379	374	379	373	362	350	355	347	368	379	364	360	318	346	371	321	309
24	323	299	299	304	314	314	350	373	364	381	374	337	350	352	365	376	365	372	355	322	346	296	281	278
25	287	311	333	334	314	327	339	387	348	345	349	369	335	342	336	350	353	369	378	349	325	325	F	F
26	F	F	F	320	F	F	353	387	357	351	345	368	364	353	360	382	367	380	367	328	327	369	357	329
27	325	306	301	323	322	335	362	346	390	352	362	372	334	353	348	362	369	379	376	363	358	378	297	324
28	F	F	334	306	330	359	373	380	395	343	342	337	347	362	354	353	353	382	363	382	342	325	345	317
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	24	26	26	25	27	28	28	28	28	28	28	28	28	28	28	28	26	26	28	25	23	25
MED	315	319	328	328	329	327	341	380	376	373	363	363	352	364	366	368	370	378	364	336	335	336	319	317
U Q	325	328	335	335	349	346	359	387	390	380	374	371	359	369	374	376	382	384	373	350	346	349	338	326
L Q	305	309	317	322	318	322	330	369	372	358	346	349	347	350	352	362	366	369	355	318	322	322	307	304

FEB.2021 M(3000)F2 (0.01)

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FEB.2021 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	A	A	A	A	A	A							
2										L	382	417	A	A	L	L								
3										L	L	L	U L 392	L		L								
4											L	U L 366	402	401	L									
5										L	U L 396	L	L	401	L									
6										A	L	398	409	A	A	A	A							
7												U L 382	381	U L 384	L									
8											L	U L 409	U L 391	L	L	L								
9										L	414	410	U L 451	L	L	L								
10											U L 368	416	L	A	L	L								
11										L	408	L	L	422	L									
12								L		A	U L 384	407	410	379	L	L								
13									L	L	L	409	U L 401	U L 396	L									
14									L	L	L	U L 416	U L 405	L	L	L								
15									L	L	U L 395	409	U L 412	U L 411	L	L								
16										L	U L 387	408	386	L	389	L								
17										L	L	U L 383	426	387	L	L								
18										L	L	L	A	L	U L 393	L								
19											L	L	404	L	403	L								
20									A	A	U L 374	A	439	U L 385	A	A	L							
21									L	A	L	L	378	U L 390	L	L								
22									L	414	399	L	412	455	L		L							
23										L	L	U L 428	U L 394	L	L	L	A							
24										L	A	L	U L 377	L	L	L	L							
25										L	410	398	403	385	A	L								
26										L	L		A	L	L									
27									L			L	L	412	L	L	L							
28									L	U L 436	U L 399	415	L	415	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										2	12	16	19	14	3									
MED										425	U L 396	409	403	398	393									
U Q											404	416	412	412	403									
L Q											U L 383	U L 398	391	385	389									

FEB.2021 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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										240	246	236	E A 238	238	256	E A 248	230							
2										232	258	240	E A 284	E A 252	252	252								
3										252	228	238	238	224		246								
4											250	260	266	262	242									
5										234	234	234	242	242	232									
6										232	232	240	218	242	234	234	218							
7												292	246	246	236									
8											238	244	242	226	212	236								
9										244	244	218	230	242	242	270								
10											270	242	242	216	258	232								
11										236	236	222	244	264	224									
12								234		224	282	224	230	230	230	220								
13									234	234	222	222	244	236	236									
14									216	230	218	234	234	234	238	258								
15									230	224	260	234	234	234	242	224								
16										238	218	268	228	242	234	244								
17										236	268	250	256	248	230	230								
18										230	244	244	262	244	256	254								
19											254	236	236	246	246	234								
20									230	240	240	264	254	242	238	228	228							
21									238	232	232	242	250	238	240	240								
22									240	240	240	244	292	214	228		248							
23										222	226	244	244	244	250	222	222							
24										232	232	260	256	246	240	238	238							
25										282	246	232	244	244	236	236								
26										248	262		232	244	244									
27									222			228	260	242	242	242	234							
28									234	234	276	262	246	246	246	246								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	8	22	26	27	28	28	27	21	7							
MED								234	232	234	242	240	244	242	240	237	230							
U Q									236	240	258	250	255	246	246	247	238							
L Q									226	232	232	234	235	235	234	231	222							

FEB.2021 h'F2 (KM)

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FEB.2021 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 242	E B 234	E B 220	E B 216	E B 188	E B 216	E B 224	200	200	182	202	A	A	A	A	A	A	202	A	E B 260	E B 260	E B 206	E B 206	E A 244
2	E B 248	E B 246	E B 216	E B 248	E B 268	E B 248	248	210	210	188	192	192	A	A	192	196	196	196	E B 244	190	E B 198	220	E B 272	E B 264
3	E B 248	E B 234	E B 226	180	E B 220	220	E B 290	220	212	212	204	204	190	196	212	200	200	200	E A 232	232	E B 232	E B 232	E B 228	E A 248
4	E B 248	E B 242	E B 234	E B 250	E B 212	E B 248	202	202	202	188	180	194	184	190	202	E A 218	200	200	E B 200	E A 256	E B 256	E B 260	E B 256	E B 232
5	E B 230	E B 242	E B 210	E B 224	E B 244	E B 262	E B 238	196	196	204	200	188	182	188	198	210	204	198	E B 200	E B 230	E B 248	E B 256	234	E B 218
6	E B 218	E B 234	E B 234	E B 234	E B 234	E A 254	E A 244	214	214	A	200	190	178	A	A	A	A	186	E A 232	A	224	202	E B 226	E B 238
7	E B 268	E B 264	E B 230	E B 228	E B 228	E B 248	E B 248	186	190	190	200	200	200	200	200	200	208	198	E A 244	A	E A 340	E A 266	E B 266	E B 238
8	E B 202	E B 186	E B 242	E B 252	E B 284	E B 254	E B 248	200	200	200	206	186	188	200	192	186	206	196	214	E A 224	E A 244	E A 244	A	E A 310
9	E A 260	E B 252	E B 280	E B 280	E B 276	E B 236	E B 236	198	198	198	192	188	170	194	194	204	210	196	208	E A 244	E A 244	208	E B 232	206
10	E B 240	E B 228	E B 262	E B 262	E B 226	E B 226	210	192	206	206	206	192	194	A	194	194	194	194	194	208	E A 248	E A 248	E A 248	E A 256
11	E B 288	E B 256	E B 256	E B 232	E B 210	E B 226	E B 226	196	204	204	200	192	192	190	196	196	200	192	E B 192	E B 218	E B 218	218	E A 264	E A 306
12	E A 258	E A 274	E B 274	E B 248	E B 214	E B 202	E B 224	186	204	A	184	164	174	196	196	196	196	196	196	E B 206	E B 206	206	E B 230	E B 270
13	E B 276	E B 264	E B 234	E B 234	E B 244	E B 270	214	190	180	180	180	180	180	176	192	194	202	198	E B 192	E B 218	E B 264	E B 220	E B 260	E B 268
14	E B 224	E B 232	E B 232	E B 254	E B 228	E B 252	218	196	174	180	180	176	176	198	196	194	210	210	A	E A 244	198	E B 208	E B 246	A
15	E A 258	E B 246	E B 284	E B 242	224	E B 224	206	194	184	194	184	184	182	182	190	188	202	202	E B 190	E B 204	204	E B 208	E B 240	E B 246
16	E B 212	E B 238	E B 278	E B 258	E B 244	E B 194	232	192	192	190	186	186	190	194	190	190	208	202	E B 210	E B 228	184	E B 222	E B 238	E B 238
17	E B 238	E B 266	E B 278	E B 278	E B 244	E B 226	198	206	202	198	190	188	174	184	184	190	198	196	E B 196	E B 196	E B 202	E B 214	E B 252	E B 218
18	E B 228	E B 242	E B 232	E B 224	E B 218	E B 198	210	202	202	186	186	186	A	198	190	190	208	202	192	E B 200	E B 220	E B 220	E B 220	E B 256
19	E B 244	E B 222	210	E B 214	E B 226	E B 220	220	198	198	206	206	204	200	200	190	194	196	196	E B 206	E A 220	E B 220	E A 228	E B 214	E B 258
20	E B 250	E B 276	E B 234	E B 214	E B 258	E B 194	202	214	A	A	178	A	178	208	A	A	206	206	194	E B 200	E B 200	E B 236	E B 296	E B 290
21	E B 290	E B 290	E B 260	E B 224	E B 190	190	E B 278	206	206	A	190	194	194	194	194	202	210	210	192	E B 212	E B 226	E B 244	206	E B 266
22	E B 280	E B 254	E B 244	188	E B 248	E B 270	E B 240	212	204	194	186	186	186	178	190	194	192	212	198	E B 238	E B 220	E B 212	E B 212	E B 240
23	E B 236	E B 212	E B 230	E B 230	E B 216	E B 206	206	198	202	196	196	182	196	196	194	194	A	194	E B 194	E B 232	208	200	E A 284	E B 256
24	E B 248	E B 258	E B 240	E B 228	E B 226	E B 224	194	194	194	192	A	192	192	192	192	192	192	192	E A 228	E B 244	206	E B 228	E B 254	E B 270
25	E B 266	E B 256	E B 246	E B 246	E B 252	E B 248	218	188	204	212	194	194	186	186	A	198	218	212	194	E B 190	E B 224	E B 244	E B 266	E B 286
26	E B 286	E B 276	E B 286	E B 250	E B 286	E B 286	210	196	196	188	194	220	A	194	202	208	208	204	E B 204	E B 216	E B 232	E B 212	E B 212	216
27	E B 250	E B 274	E B 282	E B 256	E B 234	E B 240	208	194	180	196	222	196	188	176	176	198	192	206	186	E B 194	E B 200	E B 188	E B 280	E B 274
28	E B 282	E B 282	E B 240	E B 268	E B 238	E B 216	E B 200	200	196	188	176	176	182	182	196	192	216	202	E B 188	E B 188	E B 206	E B 206	E B 206	E B 244
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	27	24	27	26	24	24	24	25	25	28	26	26	28	28	27	27
MED	E B 248	E B 249	E B 240	E B 238	E B 231	E B 226	210	198	200	194	192	189	186	194	194	194	202	199	E 197	E B 218	E B 220	E B 220	E B 240	E B 256
U Q	E B 267	E B 265	E B 268	E B 253	E B 246	E B 250	E B 239	204	204	202	200	194	192	197	196	200	208	203	E A 210	E 232	E 244	E B 240	E B 264	E B 270
L Q	E B 237	E B 234	E B 231	E B 224	E B 219	E B 216	207	194	194	188	184	186	179	185	190	192	196	196	E B 192	E B 200	E B 205	E B 208	E B 220	E B 238

FEB.2021 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB.2021 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	B	114	110	110	110	110	114	114	A	A	B						
2							B			114	114	114	A	A	A	A		B						
3							B	B	A	A	114	114	114	114	A	A	A	A						
4							B	B	114	114	108	108	108	108	A	A	108	B						
5								114	A	114	A	114	108	108	108	A	108	B						
6							B	B		A	A	A	108	A	A	110	110	B						
7							B	B	110	110	A	A	A	A	110	A	A	B						
8							B	B	108	A	A	A	A	A	108	108	108	B						
9								116	118	112	114	A	110	110	110	110	110	B						
10							B	116	114	A	A	114	A	A	A	A	114	B						
11							B	B	108	A	108	A	112	112	112	110	110	B						
12								112	112	A	108	108	108	108	108	108	108	B						
13							B	110	110	110	110	110	108	108	108	108	108	B						
14							B	108	108	108	108	112	112	112	A	112	108	B						
15							B	120	118	A	A	A	A	114	114	114	114	B						
16							B	114	A	114	114	114	114	114	114	114	A	B						
17							B	114	116	112	112	110	110	110	110	110	110	B						
18							B	110	110	110	110	110	110	110	110	110	110	B						
19							B	110	112	112	A	108	108	108	108	A	108	B						
20							B	124	A	A	A	A	112	A	A	A	108	B						
21							B	B	A	A	108	112	112	112	112	112	112	B						
22							B	B	112	112	112	112	112	112	112	112	112	112						
23							B	120	120	112	108	108	108	108	108	108	108	118						
24							B	122	122	112	112	112	A	112	A	112	112	112						
25							B	112	112	116	A	A	A	A	A	A	112	B						
26							B	B	112	112	A	112	114	110	110	110	110	B						
27							B	110	110	110	110	110	110	110	110	110	110	B						
28								110	112	112	A	110	110	110	110	110	110	110						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								17	21	19	17	20	21	21	19	18	23	4						
MED								114	112	112	110	111	110	110	110	110	110	112						
U Q								118	115	114	113	113	112	112	112	112	112	115						
L Q								110	110	110	108	110	108	108	108	110	108	111						

FEB.2021 h'E (KM)

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IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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	90	90	B	90	104	B	B	G	G	140	138	116	116	116	98	102	102	90	90	90	90	90	90
2	B	B	B	B	B	B	96	96	96	G	G	122	106	112	104	100	100	B	86	B	B	86	86	112
3	112	98	92	92	98	98	98	102	102	102	G	G	G	G	102	102	100	100	96	96	96	96	92	90
4	B	B	B	B	B	B	96	96	G	G	G	G	G	124	104	104	G	108	B	108	108	104	96	B
5	90	90	90	B	90	90	B	G	104	152	104	G	G	G	G	104	G	B	104	B	90	98	98	B
6	B	114	114	102	102	106	106	106	106	102	100	100	100	100	100	124	124	112	112	112	112	B	B	B
7	96	B	B	B	B	B	B	B	G	G	96	98	98	92	G	92	90	90	90	90	90	90	90	90
8	B	B	96	B	B	B	B	B	G	96	96	96	96	96	G	G	134	B	104	98	96	92	92	92
9	82	82	94	94	94	94	94	G	G	G	112	102	G	G	G	G	G	128	100	100	96	96	96	96
10	B	B	106	96	96	96	B	G	114	104	100	114	96	96	96	96	96	96	94	94	84	84	84	84
11	84	B	B	B	B	B	B	B	G	84	126	82	G	G	G	G	G	B	82	88	88	88	88	86
12	90	90	90	90	B	B	B	G	G	90	G	G	G	136	136	136	142	122	80	B	B	90	90	B
13	B	B	B	B	B	B	B	G	G	G	G	G	G	G	G	G	G	B	86	B	B	B	B	86
14	96	B	B	B	B	B	B	G	G	G	G	G	G	G	96	G	114	92	92	92	92	92	88	88
15	88	116	92	92	92	92	B	G	G	92	92	92	92	G	G	G	G	94	B	B	94	102	102	102
16	B	B	B	B	86	86	156	116	102	G	G	G	G	G	G	G	94	94	94	94	94	94	110	116
17	B	96	96	96	B	B	B	152	152	G	G	G	G	G	G	G	G	B	80	88	B	B	B	B
18	B	B	B	B	B	B	88	G	G	G	G	124	146	132	146	G	G	B	B	B	B	B	B	B
19	90	90	90	90	B	90	B	G	G	G	96	G	G	142	G	96	G	G	96	86	86	86	B	B
20	B	86	90	90	B	B	120	G	96	96	94	88	G	80	80	80	80	80	80	80	80	84	B	B
21	84	88	B	B	B	B	106	104	104	94	G	G	G	G	G	G	G	B	B	B	B	B	B	B
22	B	94	94	94	B	B	94	136	G	G	G	G	G	G	G	G	G	G	B	B	B	B	B	B
23	B	B	B	B	B	B	B	G	G	G	G	G	136	G	G	G	154	G	B	B	86	86	86	90
24	B	B	B	B	B	90	B	G	G	G	148	138	106	G	98	G	G	G	98	B	98	B	B	104
25	B	B	B	B	B	B	B	G	146	G	100	100	100	100	92	92	G	B	B	B	B	B	B	92
26	B	92	92	B	B	B	B	112	G	G	106	170	178	G	G	86	G	B	B	B	B	B	B	B
27	B	B	B	B	B	B	B	G	G	148	158	144	G	G	G	160	G	120	B	B	B	B	B	B
28	B	B	B	B	B	B	B	134	G	G	98	G	G	82	140	G	G	140	B	B	B	B	B	B
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10	13	14	10	8	10	10	10	10	11	16	15	12	13	13	14	12	14	18	14	17	17	15	15
MED	90	90	92	93	93	93	97	109	104	96	100	102	103	100	102	99	101	101	93	93	92	90	90	90
U Q	96	97	96	96	97	98	106	134	114	104	119	138	126	128	126	104	129	120	98	98	96	96	96	102
L Q	84	89	90	90	90	90	94	102	102	92	96	96	97	94	96	92	95	94	86	88	87	86	88	88

IONOSPHERIC DATA STATION Kokubunji

FEB.2021 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	F2					H1	H1	C1	C2	C2	L2	L4	L4	F5	F3	F1	F3	F2	F2
2							L2	L4	F8			C1	L2	L2	L2	L3	L3		F1			F4	F2	F2
3	F1	F3	F2	F1	F1	F3	F2	F3	F4	F2					F2	F3	F3	F4	F4	F4	F2	F2	F2	F4
4							L1	L1						C1	L3	L3		L2		F3	F3	F2	F2	
5	F1	F2	F1		F2	F2			L2	H1	L2					L2			F1		F2	F2	F2	
6		F1	F3	F3	F2	F2	L3	L2	L2	L3	L3	L2	L2	L2	L3	C3	C3	C5	F5	F6	F2			
7	F2										L1	L1	L1	L2		L2	L3	L2	F3	F7	F5	F4	F2	F3
8			F1							L3	L3	L3	L2	L2			H1		F4	F3	F2	F2	F8	F6
9	F2	F2	F2	F2	F2	F2	F1				C1	L1						C2	F5	F2	F4	F3	F3	F3
10			F1	F2	F1	F1			C2	L1	L2	C1	L2	L2	L3	L2	L2	L2	F2	F1	F3	F3	F2	F1
11	F1									L3	C1	L2							F2	F1	F2	F3	F4	F4
12	F1	F1	F1	F1						L3				H1	H1	H1	H1	C2	F1			F1	F1	
13																			L1					F2
14	F2														L2		C2	L5	F5	F4	F2	F2	F1	F4
15	F3	F1	F3	F3	F1	F3				L3	L2	L1	L2					L2			F1	F2	F2	F1
16					F1	F1	H1	C2	L2								L3	L2	F2	F2	F3	F1	F1	F1
17		F2	F2	F1				H2	H2										F1	F2				
18							L3					C1	H1	C1	H1									
19	F2	F1	F1	F1		F2					L2			H1		L2			F2	F3	F2	F2		
20		F1	F1	F1			C1		L3	L3	L2	L2		L2	L2	L2	L2	L4	F3	F1	F2	F1		
21	F1	F1					L2	L4	L2	L2														
22		F1	F2	F1			L1	H2																
23													H1				H2				F1	F1	F2	F1
24						F1					H1	H1	L2		L1				F4		F1			F2
25									H1		L2	L1	L2	L2	L3	L3								F1
26		F2	F2					C2			L1	H1	H1			L2								
27										H1	H1	H1				H1		C2						
28								H2			L2			L2	H1			H1						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB.2021 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 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 34	X 35	X 35	X 36	X 34	X 32													X 47	A	X 37	X 39	X 42	X 35
2	X 35	X 36	X 38	X 33	X 31	X 28		X 38											X 48	X 48	X 40	X 37	X 37	X 37
3	X 39	X 39	X 40	X 39	A	O X 27													X 50	X 50	X 50	X 42	40	42
4	41	X 38	X 38	X 33	X 35	X 33													X 50	X 37	A	X 41	X 42	44
5	41	X 38	X 38	X 34	X 32	X 30											X 57		X 53	X 43	X 33	X 36	X 37	X 40
6	X 34	X 35	X 35	X 35	X 33	37													X 48	X 36	X 37	X 42	X 36	X 35
7	40	X 36	X 36	X 36	X 36	X 34	33												X 54	X 45	X 41	X 44	X 40	41
8	X 41	A	X 32	X 34	X 32	X 32										X 64			X 53	X 46	X 36	A	X 38	X 35
9	X 36	X 35	X 35	X 35	X 34	X 34		X 39											X 56	A	X 42	X 40	X 34	A
10	X 34	X 35	X 36	38	35	35													X 59	X 43	A	X 39	X 37	X 42
11	X 37	X 38	X 36	X 37	X 39	X 30													X 52	X 39	X 40	X 43	X 39	X 36
12	X 36	X 36	X 36	X 36	X 36	X 31													X 48	X 39	X 38	X 38	X 34	X 34
13	X 35	X 36	X 38	X 38	X 37	X 34	X 33												X 59	X 42	X 44	X 46	X 43	X 39
14	X 42	X 40	X 40	X 40	X 40	X 36													X 61	X 40	X 34	X 30	X 32	X 33
15	X 33	X 33	X 35	X 35	X 37	X 37													X 52	X 40	X 35	X 33	X 30	40
16	40	40	X 36	X 36	46	40													X 79	X 61	X 58	X 37	X 35	X 32
17	X 37	X 36	X 38	X 38	X 39	X 37													X 59	X 47	X 36	X 33	X 33	X 34
18	40	36	X 32	38	X 32	40	34												X 52	X 42	X 42	X 40	X 38	X 35
19	X 36	X 38	X 38	X 36	X 34	X 31	X 29												X 50	X 46	X 47	X 44	X 42	X 38
20	X 40	X 40	X 42	X 42	X 36	X 36													X 60	X 40	X 38	X 35	X 35	X 35
21	X 35	X 38	X 38	X 38	X 38	X 29													X 66	X 39	X 39	X 38	X 45	X 36
22	X 37	X 39	X 37	X 36	X 28	X 27		X 44								C	C	C	X 62	X 50	X 45	X 50	X 40	X 37
23	X 40	X 42	X 44	X 40	X 38	X 34					C	C	C	C	C	C	C	C	C	X 56	X 57	X 50	X 32	X 34
24	X 35	X 38	X 40	X 40	X 40	X 40					C	C	C	C	C	C	C	C	X 56	X 50	X 54	X 52	X 38	X 36
25	X 37	X 37	X 38	X 40	X 39	X 37													X 83	X 48	X 35	X 38	X 40	X 38
26	X 37	X 38	42	X 41	42	X 38													X 68	X 54	X 46	X 43	X 38	X 32
27	X 32	X 33	X 32	X 34	X 36	X 34			C			C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	27	27	26	27	4	3								1	1		25	24	24	25	26	25
MED	X 37	X 38	X 38	X 36	X 36	X 34	33	X 39								X 64	X 57		X 54	X 44	X 40	X 40	X 38	X 36
U Q	X 40	X 38	X 38	X 39	X 39	X 37	34	X 44											X 60	X 49	X 46	X 44	X 40	40
L Q	X 35	X 36	X 35	X 35	X 34	X 31	31	X 38											X 50	X 40	X 36	X 37	X 35	X 34

FEB.2021 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	28	29	29	30	28	26	21	30	46	52	55	62	59	52	59	54	49	50	41	A	31	33	36	29
2	29	30	32	27	25	22	20	32	59	59	58	62	57	62	66	64	57	52	42	42	34	31	31	31
3	33	33	34	33	A	21	22	29	56	70	78	82	73	65	59	65	56	49	44	44	44	36	F	F
4	F	32	32	27	29	27	25	36	68	50	46	62	71	74	73	68	56	50	44	31	A	35	36	F
5	F	32	32	28	26	24	23	33	50	56	59	67	62	66	62	58	51	51	47	37	27	30	31	34
6	28	29	29	29	27	F	26	30	54	54	57	64	62	64	63	54	54	50	42	30	31	36	30	29
7	F	30	30	30	29	28	F	35	53	57	57	64	74	78	87	68	61	61	48	39	35	38	34	F
8	35	A	26	28	26	26	25	37	63	56	63	71	84	86	60	58	58	54	47	40	30	A	32	29
9	30	29	29	29	28	28	25	33	51	59	62	61	61	58	63	67	59	58	50	A	36	34	28	A
10	28	29	30	F	F	F	26	34	51	56	59	74	78	80	89	75	69	56	53	37	A	33	31	36
11	31	32	30	31	33	24	22	31	52	60	60	62	70	66	78	70	54	54	46	33	34	37	33	30
12	30	30	30	30	30	25	22	35	50	63	62	68	78	72	62	62	56	52	42	33	32	32	28	28
13	29	30	32	32	31	28	27	38	57	59	57	66	62	61	63	68	58	55	53	36	38	40	37	33
14	36	34	34	34	34	30	29	38	61	58	61	74	68	58	62	55	64	60	55	34	28	24	26	27
15	27	27	29	29	31	31	26	38	51	51	61	67	79	72	62	56	58	55	46	34	29	27	24	F
16	F	F	30	30	F	F	22	35	51	54	63	67	78	101	131	118	110	82	73	55	52	31	29	26
17	31	30	32	32	33	31	30	45	52	57	60	68	79	82	67	66	61	61	53	41	30	27	27	28
18	F	F	26	F	26	F	F	37	57	61	58	58	68	66	65	71	66	60	46	36	36	34	32	29
19	30	32	32	30	28	25	23	37	54	56	63	67	82	73	83	68	65	50	44	40	41	38	36	32
20	34	34	36	36	30	30	26	38	58	55	72	76	R	100	105	86	70	60	54	34	32	29	29	29
21	29	31	32	32	32	23	25	34	58	63	60	65	68	76	79	72	61	60	60	33	32	32	39	30
22	31	33	31	30	22	21	23	38	59	76	74	74	67	78	81	C	C	C	56	43	39	44	34	31
23	34	36	38	34	32	28	26	40	59	59	C	C	C	C	C	C	C	C	C	50	51	44	26	28
24	29	32	34	34	34	34	26	43	61	55	C	C	C	C	C	C	C	C	50	44	48	46	32	30
25	31	31	32	34	33	31	29	47	54	59	75	88	74	86	86	76	80	73	77	42	29	32	34	32
26	31	32	F	35	F	32	32	48	52	62	74	88	92	93	83	64	63	59	62	48	40	37	32	26
27	26	27	28	28	30	28	27	49	C	55	68	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	24	26	25	23	23	25	27	26	27	25	24	23	24	24	23	23	23	25	24	24	25	25	21
MED	30	31	32	30	30	28	25	37	54	57	61	67	71	72	66	67	59	55	48	38	34	34	32	29
U Q	31	32	32	34	32	30	26	38	59	60	66	74	78	81	83	71	65	60	54	42	40	38	34	32
L Q	29	30	29	29	27	24	22	33	51	55	58	63	62	64	62	58	56	51	44	34	30	31	28	28

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	A	A	A	U L 448	L	A	A	A						
2										L	L 416		428	428	U L 420	A								
3									L	L	L	U L 416	432	432	L	400	A	A						
4												428	432	432	412	A	L							
5										L	L	L	L	U L 428	L	L								
6										L	L 416		A	432	420	L	L							
7											L 424	428		L	428	L	A							
8										L	L	U L 436	436	416										
9										L	L	A	U L 436	448	432	A	A							
10										L	424	436	424	436	428	L	L							
11										L	L 428		428	428	428		L							
12										L	L	U L 480	436	U L 448	L	408	L							
13										L	L 424		428	U L 440	412	412	L							
14										L	L 424		432	A	432	U L 440	L							
15										L	424	432	436	L	440	400	L							
16										L	U L 432	416	436	448	424	U L 408	380							
17										L	L	U L 416	424	U L 440	428	L								
18										L	L 436		436	L	452	416	L							
19										L	L 436		432	448	444	A	L							
20											L	U L 452	A		U L 444	L	L							
21										L	L	U L 444	U L 456	L	U L 424	L	L							
22										L	L	U L 444	464	U L 444	U L 420	C	C	C						
23											C	C	C	C	C	C	C	C						
24											C	C	C	C	C	C	C	C						
25										L	L	L	L	432	L	L	L	L						
26										L	L 452		452	452	440	L	L	L						
27									C		L	C	C	C	C	C	C	C						
28							C	C	C	C	C	C	C	C	C	C	C	C						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											3	20	19	18	18	7	1							
MED											424	430	432	438	428	408	380							
U Q											U L 432	U L 440	436	448	440	416								
L Q											424	420	428	432	420	400								

FEB.2021 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 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	B	U R 224	256	U A 292	U A 312	A	A	A	U A 288	A	B						
2							B		A	A	U R 304	A	A	A	A	A	A	B						
3							B	B	A	A	A	A	U R 332	A	A	A	A	B						
4							B	B	A	A	U R 300	U R 320	U R 332	320	U R 312	292	A	B						
5							B	B	U R 236	U A 276	A	A	A	A	A	A		B						
6							B	B	U R 232	A	A	A	A	A	A	U A 284	A	B						
7							B	B	U A 232	A	A	A	A	A	A	A	A	B						
8							B	B	A	A	A	A	A	A	A		A	B						
9							B		U R 232	U R 268	U R 288	U A 312	U A 328	A	A	A	A	B						
10							B	B	U R 232	U R 272	A	A	A	A	U R 316	A	A	B						
11							B	B	U R 236	U R 276	300	U R 328	A	A	U R 324	U A 296	A	B						
12							B	B	U R 240	U A 280	U R 308	U A 312	328	320	U A 312	U R 292	A	U A 236						
13								B	U R 224	U R 268	U R 300	A	U R 328	U R 320	U R 324	284	A	B						
14							B	B	U R 232	U R 280	U A 300	A	A	U A 308	U A 300	U R 300	A	B						
15							B	B	U R 232	A	A	U R 316	U R 320	U R 336	U R 316	U R 304	U A 268	U R 232						
16							B	B	U R 248	U A 292	U A 300	U R 324	A	A	U R 312	A	A	B						
17							B	B	U R 220	A	A	A	U R 328	A	U R 328	U R 296	U R 276	B						
18							B	B	U R 256	U R 288	U R 308	A	U A 324	A	316	A	U R 280	U R 212						
19								B	A	U R 280	U A 300	U A 328	U R 344	U R 332	312	A	A	B						
20							B	B	U R 236	U R 272	A	A	A	U R 380	A	U R 316	U R 284	U R 236						
21							B	B	U R 252	U A 316	A	A	U R 340	U R 364	A	U R 300	U R 276	U R 216						
22							B		U R 220	U R 292	A	U R 316	U R 332	U R 316	U R 308	C	C	C						
23							B	B	U R 260	A	C	C	C	C	C	C	C	C						
24							B	B	224	268	C	C	C	C	C	C	C	C						
25							B	U R 176	U R 252	A	A	A	U R 348	U R 336	320	U R 304	U R 276	U R 232						
26							B	B	U R 252	U A 284	U A 312	U R 324	U R 328	U R 344	A	U R 308	U R 280	U R 232						
27							B	B	C	304	328	C	C	C	C	C	C	C						
28							C	C	C	C	C	C	C	C	C	C	C	C						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	21	17	13	10	13	11	13	13	7	7						
MED								U R 176	U R 232	U R 280	U 300	U R 318	U R 328	U R 332	U R 316	U R 296	U R 276	U R 232						
U Q									U R 250	U 290	U 308	U R 324	U R 336	U R 344	U R 322	U R 304	U R 280	U 236						
L Q									U R 228	U R 270	U 300	U A 312	U 328	U 320	U 312	290	U 276	U R 216						

FEB.2021 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	J A 23	G	34	39	J A 44	J A 55	36	J A 41	J A 47	J A 47	J A 35	J A 26	J A 45	J A 30	J A 27	24	21
2	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	J A 29	J A 33	G	J A 38	J A 39	J A 42	J A 40	J A 65	J A 44	J A 34	28	J A 28	J A 26	23	E B 16	21
3	J A 26	J A 34	J A 33	J A 39	J A 34	J A 32	J A 27	21	J A 31	J A 32	J A 36	J A 39	G	J A 40	J A 38	J A 39	J A 48	J A 45	J A 45	J A 38	J A 29	23	J A 86	J A 65
4	20	22	20	21	21	E B 16	E B 16	21	J A 30	J A 34	G	G	G	G	G	32	32	24	25	J A 42	J A 40	J A 32	J A 40	E B 16
5	21	E B 16	19	E B 16	E B 16	E B 16	E B 16	E B 16	G	32	35	J A 41	J A 76	J A 43	J A 39	J A 42	J A 31	J A 26	25	21	E B 16	J A 61	J A 38	23
6	23	J A 28	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	G	32	34	J A 37	J A 54	J A 39	36	J A 39	J A 33	29	J A 29	24	J A 47	J A 36	22	J A 31
7	J A 42	J A 41	J A 55	J A 36	J A 33	23	E B 16	J A 23	29	32	J A 44	J A 52	J A 55	J A 52	J A 49	J A 44	J A 38	24	E B 15	E B 15	E B 15	21	J A 51	J A 51
8	J A 37	J A 65	J A 42	26	22	22	J A 32	23	24	29	J A 39	J A 57	J A 71	J A 44	J A 64	J A 86	J A 55	J A 80	J A 88	J A 79	J A 37	J A 42	J A 55	J A 38
9	J A 48	J A 44	E B 15	23	E B 15	23	21	21	G	G	G	38	41	J A 41	J A 44	J A 46	J A 42	J A 44	J A 62	J A 50	J A 42	J A 36	J A 32	J A 37
10	J A 29	J A 26	21	J A 32	23	22	21	20	G	G	34	J A 40	J A 49	J A 42	G	J A 38	J A 34	J A 41	J A 52	J A 53	J A 48	J A 41	J A 35	J A 29
11	22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	G	G	33	G	J A 40	J A 41	G	34	J A 36	J A 46	J A 36	J A 40	J A 28	J A 31	20	E B 15
12	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	33	G	36	36	36	36	J A 53	J A 48	28	J A 36	20	E B 16	E B 16	E B 16	E B 16
13	E B 16	20	20	E B 15	E B 15	20	E B 15	E B 16	G	G	G	36	G	G	G	33	J A 42	J A 31	23	21	E B 15	21	E B 16	E B 16
14	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	E B 16	E B 16	G	G	35	35	J A 38	41	38	G	32	J A 46	J A 37	J A 38	J A 32	23	E B 16	E B 16
15	E B 16	E B 16	J A 38	J A 35	20	20	19	E B 15	G	J A 32	J A 36	G	G	G	G	G	32	G	E B 15	E B 16	E B 16	E B 16	J A 34	J A 71
16	J A 43	J A 37	J A 35	22	22	E B 16	E B 16	E B 16	G	33	36	J A 52	J A 41	J A 39	G	J A 44	J A 43	J A 28	J A 38	J A 34	J A 34	J A 64	J A 42	22
17	E B 16	J A 33	E B 16	E B 16	22	22	E B 16	E B 16	G	J A 33	J A 35	J A 68	G	J A 54	G	G	G	28	E B 15	E B 15	E B 17	E B 16	E B 16	21
18	E B 15	21	E B 15	E B 16	E B 16	E B 16	E B 15	E B 15	G	G	G	J A 42	39	J A 43	36	J A 42	G	G	E B 14	24	24	E B 15	E B 16	E B 16
19	E B 16	24	E B 16	E B 15	E B 16	E B 16	E B 15	22	30	G	35	37	G	G	37	J A 42	J A 31	J A 35	J A 48	J A 28	E B 15	E B 15	E B 15	E B 16
20	19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	G	G	34	J A 40	J A 57	G	J A 42	G	G	G	J A 28	24	24	22	22	E B 16
21	E B 16	E B 16	22	22	E B 15	E B 15	20	E B 17	G	G	J A 41	J A 41	G	G	J A 45	G	G	G	E B 16	21	J A 35	J A 47	J A 39	E B 16
22	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	J A 40	G	G	G	G	C	C	C	J A 24	J A 26	J A 31	E B 15	E B 15	E B 15
23	E B 15	23	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	G	33	C	C	C	C	C	C	C	C	C	E B 16	E B 15	E B 15	E B 15	E B 15
24	21	23	23	E B 16	E B 16	E B 16	E B 16	E B 16	28	30	C	C	C	C	C	C	C	C	J A 28	J A 30	J A 35	J A 24	21	E B 16
25	21	E B 16	23	J A 34	J A 29	J A 33	J A 29	G	G	J A 38	J A 41	J A 40	G	G	36	G	G	G	J A 32	20	E B 16	22	24	22
26	J A 35	J A 51	J A 26	E B 15	J A 26	23	E B 16	E B 17	G	32	35	G	G	G	39	G	G	G	J A 30	23	21	E B 16	E B 16	E B 16
27	E B 16	E B 16	J A 24	J A 25	E B 16	E B 16	20	J A 34	C	36	37	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	27	27	27	27	27	27	26	27	25	24	24	24	24	23	23	23	25	26	26	26	26	26
MED	19	21	19	E B 16	E B 16	E B 16	E B 16	E B 17	G	32	35	J A 38	38	39	36	J A 39	J A 33	J A 28	J A 28	25	J A 27	23	22	18
U Q	J A 26	J A 33	J A 24	J A 25	J A 22	22	20	21	24	J A 33	J A 38	J A 42	J A 52	J A 42	J A 40	J A 44	J A 43	J A 41	J A 38	J A 38	J A 35	J A 36	J A 38	J A 29
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	G 36	G	G	G	G	G	G	E B 24	E B 21	E B 16	E B 16	E B 16	E B 16

FEB.2021 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 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	16	E B 16	G	31	38	41	41	35	35	40	40	30	20	A A 45	E B 16	E B 16	E B 16	E B 16
2	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	28	G	31	32	32	32	40	32	24	24	24	23	E B 16	E B 16	E B 16
3	E B 16	E B 16	18	23	A A 34	E B 16	E B 16	E B 16	23	24	28	31	G	32	32	31	31	39	26	24	E B 16	E B 16	E B 16	26
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	23	G	G	G	G	G	32	28	22	20	25	A A 40	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	E B 16	G	30	32	33	33	33	32	29	26	24	22	E B 15	E B 16	16	E B 16	E B 16
6	20	E B 15	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	G	29	30	32	48	34	34	34	26	27	22	21	26	19	E B 16	E B 16
7	E B 16	21	23	E B 16	20	E B 16	E B 16	18	26	28	34	34	34	36	33	32	32	22	E B 15	E B 15	E B 15	E B 15	E B 15	24
8	24	A A 65	E B 16	E B 16	E B 16	E B 16	16	E B 16	22	28	33	33	35	35	36	31	28	33	23	E B 15	E B 15	A A 42	24	20
9	23	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	G	37	37	34	34	36	36	36	36	A A 50	27	26	19	A A 37
10	E B 15	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	34	34	34	33	G	32	28	33	33	29	A A 48	26	25	25
11	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	32	G	33	35	G	31	31	24	24	E B 16	E B 16	20	E B 15	E B 15
12	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	32	G	35	34	34	34	G 26	26	25	21	E B 15	E B 16	E B 16	E B 16	E B 16
13	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	G	G	G	32	G	G	G	31	28	23	22	E B 16	E B 15	E B 15	E B 16	E B 16
14	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	E B 16	E B 16	G	G	33	31	32	35	35	G	31	38	E B 16	19	21	18	E B 16	E B 16
15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	G	25	28	G	G	G	G	G	30	G	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16
16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	32	32	G 28	34	34	G	32	29	23	34	27	23	24	E B 16	E B 16
17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	26	26	32	G	32	G	G	G	23	E B 15	E B 15	E B 17	E B 16	E B 16	E B 16
18	E B 15	E B 15	E B 15	E B 16	E B 16	E B 16	E B 15	E B 15	G	G	G	34	36	32	34	32	G	G	E B 14	E B 15	E B 16	E B 15	E B 16	E B 16
19	E B 16	18	E B 16	E B 15	E B 16	E B 16	E B 15	E B 15	26	G	33	34	G	G	34	35	28	23	23	17	E B 15	E B 15	E B 15	E B 16
20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	30	34	40	G	34	G	G	G	18	E B 15	E B 15	E B 15	E B 15	E B 16
21	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	16	E B 17	G	G	30	32	G	G	32	G	G	G	E B 16	16	19	16	19	E B 16
22	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	30	G	G	G	G	C	C	C	19	19	19	E B 15	E B 15	E B 15
23	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	G	29	C	C	C	C	C	C	C	C	C	E B 16	E B 15	E B 15	E B 15	E B 15
24	E B 15	E B 15	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	25	30	C	C	C	C	C	C	C	C	18	E B 16	29	E B 16	E B 16	E B 16
25	E B 16	E B 16	E B 16	18	E B 16	E B 16	E B 16	G	G	28	32	32	G	G	34	G	G	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
26	18	E B 17	E B 17	E B 15	E B 16	E B 16	E B 16	E B 17	G	31	33	G	G	G	35	G	G	G	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	C	34	34	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	27	27	27	27	27	27	26	27	25	24	24	24	24	23	23	23	25	26	26	26	26	26
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	26	30	32	32	32	32	31	28	23	20	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	16	16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	30	33	34	34	34	34	32	31	30	24	24	23	18	16	16
L Q	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	E B 15	E B 16	G	G	G	G	G	G	G	G	G	G	E B 16	E B 15	E B 16	E B 15	E B 16	E B 16

FEB.2021 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

FEB.2021 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 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	323	308	340	342	387	322	297	361	361	377	363	374	382	345	355	360	381	400	378	A	302	316	363	349
2	328	335	349	343	320	296	308	328	372	380	366	368	353	348	362	353	378	374	359	357	343	334	335	306
3	305	318	311	392	A	416	307	316	348	353	368	368	364	366	350	371	368	370	355	330	335	336	F	F
4	F	319	336	321	321	340	329	355	398	390	374	335	345	348	354	379	372	381	375	325	A	300	322	F
5	F	326	336	331	345	317	340	353	396	368	362	369	367	356	362	385	373	365	372	369	324	322	313	335
6	342	333	325	325	345	F	339	346	356	356	361	362	355	359	371	376	355	384	384	350	346	333	362	334
7	F	330	307	325	330	335	F	367	369	378	348	350	335	340	346	360	370	370	384	353	285	321	362	F
8	362	A	319	310	317	317	329	355	364	375	338	355	358	384	348	337	366	377	373	378	362	A	360	310
9	317	335	335	319	324	317	353	376	383	374	357	352	353	342	353	353	379	346	399	A	348	369	348	A
10	344	337	323	F	F	F	359	354	383	371	353	365	358	342	361	366	348	371	388	393	A	348	339	328
11	331	332	323	348	374	368	370	355	363	364	364	367	347	328	344	382	368	397	396	353	331	361	342	327
12	326	334	334	334	343	339	341	367	383	377	369	345	357	344	353	372	383	367	397	375	354	330	351	324
13	322	316	316	326	335	317	327	372	389	379	348	379	378	328	357	364	359	348	367	340	302	336	335	311
14	319	343	336	319	330	332	327	355	397	363	347	352	379	362	383	328	362	371	386	369	328	376	321	310
15	310	313	334	334	337	373	359	375	379	380	366	353	367	342	355	366	354	375	392	371	356	360	321	F
16	F	F	334	326	F	F	340	380	386	389	358	347	326	322	333	341	344	343	358	350	377	351	332	311
17	354	317	314	325	341	343	331	371	381	349	362	345	356	351	329	348	374	364	368	381	348	347	354	339
18	F	F	356	F	366	F	F	356	375	368	369	361	349	336	336	358	372	372	383	362	347	337	334	338
19	330	334	352	353	349	341	318	371	372	343	362	351	353	345	355	359	380	395	363	343	351	332	330	310
20	329	307	305	366	337	332	340	352	360	354	343	312	R	326	344	368	375	392	384	347	342	334	308	296
21	293	301	349	328	372	396	250	360	369	364	371	349	326	343	370	365	372	361	393	346	316	317	336	346
22	285	306	336	355	347	315	327	347	364	362	374	374	332	345	371	C	C	C	359	365	302	344	362	313
23	316	325	338	349	359	345	318	375	358	358	C	C	C	C	C	C	C	C	C	330	362	377	321	308
24	325	325	338	338	334	361	372	362	371	376	C	C	C	C	C	C	C	C	379	329	311	367	344	292
25	300	304	307	315	332	298	323	378	373	327	342	362	314	342	334	345	357	344	381	385	315	314	341	346
26	293	295	F	316	F	322	333	394	364	347	340	354	345	361	369	358	369	345	365	361	359	335	381	347
27	318	311	335	315	352	344	359	396	C	353	339	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	24	26	25	23	23	25	27	26	27	25	24	23	24	24	23	23	23	25	24	24	25	25	21
MED	322	322	334	328	341	335	331	361	372	368	362	354	353	344	354	360	370	371	379	355	342	336	339	324
U Q	330	334	338	346	352	345	347	375	383	377	367	368	364	354	362	371	375	381	387	370	352	356	357	338
L Q	310	310	319	320	330	317	320	354	364	354	348	350	345	341	345	353	359	361	366	344	316	326	326	310

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	A	A	A	U L 402	L	A	A	A						
2										L	L 399		400	409	U L 390	A								
3									L	L	L	U L 417	402	402	L	384	A	A						
4												392	389	389	407	A	L							
5										L	L	L	L	U L 399	L	L								
6										L	L 411		A	401	410	L	L							
7											L 406	418		L	379	L	A							
8										L	L	U L 399	400	419										
9										L	L	A	U L 410	397	413	A	A							
10										L	410	385	412	401	408	L	L							
11										L	L 424		425	418	394		L							
12										L	L	U L 364	426	U L 405	L	403	L							
13										L	L 416		427	U L 409	406	406	L							
14										L	L 412		420	A	390	U L 388	L							
15										L	404	400	432	L	396	413	L							
16										L	U L 397	420	415	394	413	U L 401	384							
17										L	L	U L 432	425	U L 409	410	L								
18										L	L 403		403	L	381	380	L							
19										L	L 406		410	396	378	A	L							
20											L	U L 392	A		U L 384	L	L							
21										L	L	U L 399	U L 388	L	U L 402	L	L							
22										L	L	U L 383	386	U L 398	U L 409	C	C	C						
23											C	C	C	C	C	C	C	C						
24											C	C	C	C	C	C	C	C						
25										L	L	L	L	412	L	L	L	L						
26										L	L 374		385	386	396	L	L	L						
27									C		L	C	C	C	C	C	C	C						
28							C	C	C	C	C	C	C	C	C	C	C	C						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											3	20	19	18	18	7	1							
MED											404	402	410	402	399	401	384							
U Q											410	414	425	409	409	406								
L Q											U L 397	392	400	397	390	384								

FEB.2021 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Yamagawa

FEB.2021 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									236	236	226	234	226	270	262	250	EA 240	212						
2										222	236	236	258	258	234	242								
3									250	250	238	220	220	232	242	240	220	232						
4												274	258	250	236	228	228							
5										240	240	232	232	240	240	234								
6										238	246	246	EA 236	238	228	236	246							
7											252	262	262	250	238	238	238							
8										238	262	238	238	224										
9										224	230	232	246	274	260	248	212							
10										232	258	232	224	248	228	218	218							
11										236	236	244	244	264	248		242							
12										240	240	266	240	240	242	242	236							
13										236	256	232	242	262	248	240	250							
14										238	262	248	232	250	242	288	240							
15										226	242	242	234	234	244	244	244							
16										236	254	254	254	254	234	222	230							
17										250	230	272	232	250	250	250								
18										232	240	244	258	264	270	242	232							
19										242	246	256	244	244	244	224	220							
20											246	272	260		238	228	228							
21										242	242	260	268	254	234	242	234							
22										234	222	222	276	244	228	C	C	C						
23											C	C	C	C	C	C	C	C						
24											C	C	C	C	C	C	C	C						
25										314	250	232	274	254	254	254	238	252						
26										248	258	244	238	226	226	226	238	238						
27									C		256	C	C	C	C	C	C	C						
28							C	C	C	C	C	C	C	C	C	C	C	C						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									2	21	24	24	24	23	23	21	19	4						
MED									243	238	244	244	243	250	242	240	235	235						
U Q										242	255	258	258	258	248	246	240	245						
L Q										233	237	232	233	240	234	228	228	222						

FEB.2021 h'F2 (KM)

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FEB.2021 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 250	E B 250	E B 230	E B 218	198	E B 198	E B 276	210	192	194	A	A	A	178	214	A	A	A	196	A	E B 260	E B 238	188	E B 210
2	E B 248	E B 238	E B 230	E B 230	E B 278	E B 288	E B 288	E B 222	206	190	190	190	188	188	188	A	208	200	202	204	E A 242	E B 222	E B 238	E B 272
3	E B 262	E B 238	E A 246	196	A	194	E B 276	E B 238	206	204	196	184	184	184	192	192	A	A	202	218	E B 218	E B 210	E B 260	E A 278
4	E B 218	E B 242	E B 216	E B 248	E B 248	E B 224	E B 242	198	196	196	176	182	182	182	192	A	186	206	202	E A 278	A	E B 270	E B 244	E B 232
5	E B 244	E B 246	E B 212	E B 222	E B 232	E B 246	E B 238	204	200	200	200	196	192	186	186	186	190	206	E A 196	E B 196	E B 220	E B 234	E B 244	E B 228
6	E A 244	E B 234	E B 246	E B 220	E B 208	E B 230	E B 242	E B 222	212	186	190	190	A	190	190	200	196	196	184	E A 226	E A 304	E A 230	E B 214	E B 228
7	E B 264	E A 294	E A 310	E B 218	E A 246	E B 234	E B 264	208	208	208	204	204	196	196	186	196	A	196	196	E B 196	E B 242	E B 242	E B 214	E A 276
8	220	A	E B 256	E B 256	E B 282	E B 252	E B 278	226	208	194	194	194	180	180	210	210	210	210	190	194	202	A	E A 240	E A 276
9	E A 280	E B 240	E B 240	E B 252	E B 252	E B 252	E B 214	208	208	188	188	A	188	188	188	A	A	202	202	A	E A 244	E A 220	E A 220	A
10	E B 220	E A 238	E B 264	E B 276	E B 256	E B 216	E B 206	202	202	202	202	200	200	190	186	188	188	192	192	196	A	E A 266	E A 266	E A 284
11	E B 228	E B 222	E B 230	E B 238	208	E B 200	200	200	200	188	188	184	184	184	188	204	186	196	196	E B 204	E B 224	E A 222	E B 222	E B 240
12	E B 240	E B 240	E B 240	E B 240	E B 226	E B 202	E B 248	200	196	196	196	196	180	190	190	184	192	196	192	E B 192	E B 192	E B 208	E B 214	E B 250
13	E B 256	E B 258	E B 236	E B 236	E B 244	E B 256	E B 248	204	204	196	190	182	168	168	176	188	188	200	200	200	E B 252	E B 220	E B 220	E B 260
14	E B 248	E B 228	E B 234	E B 246	E B 226	E B 226	E B 242	E B 210	196	184	194	184	174	A	198	192	200	218	196	E B 196	E A 250	E A 226	E B 244	E B 248
15	E B 248	E B 262	E B 252	E B 246	E B 224	E B 198	210	196	190	174	174	174	174	180	180	180	192	192	184	E B 184	E B 192	E B 202	E B 208	E B 248
16	E B 258	E B 242	E B 242	E B 242	E B 220	184	E B 240	192	192	198	194	190	190	184	178	178	190	200	198	212	188	E A 230	210	E B 270
17	E B 218	E B 256	E B 256	E B 258	E B 226	E B 206	E B 236	196	196	174	198	180	180	180	180	180	206	216	194	E B 184	194	E B 200	E B 222	E B 228
18	E B 292	E B 240	E B 218	E B 238	E B 212	198	E B 250	214	208	180	174	180	194	212	196	210	198	202	196	E B 196	E B 212	E B 212	E B 212	E B 226
19	E B 236	E B 234	E B 210	E B 206	E B 210	E B 210	E B 258	204	204	178	214	198	190	190	190	A	188	202	202	E A 218	E B 218	E B 218	E B 218	E B 268
20	E B 264	E B 262	E B 238	E B 212	E B 210	E B 224	222	222	208	200	196	190	A	226	206	194	188	192	192	188	E B 210	E B 224	E B 252	E B 300
21	E B 300	E B 274	E B 230	E B 230	E B 204	E B 186	298	216	216	212	192	182	182	188	188	202	198	208	188	198	E A 258	E B 262	E A 224	E B 218
22	E B 294	E B 266	E B 212	E B 204	E B 216	E B 278	E B 262	216	204	190	194	186	186	182	182	C	C	C	204	204	E B 260	E B 204	E B 198	E B 246
23	E B 246	E B 216	E B 216	E B 212	E B 204	E B 206	E B 236	194	202	202	C	C	C	C	C	C	C	C	C	202	E B 194	E B 194	E B 208	E B 246
24	E B 254	E B 240	E B 222	E B 222	E B 228	204	204	204	204	200	C	C	C	C	C	C	C	C	194	E B 204	E A 240	188	E B 206	E B 278
25	E B 288	E B 278	E B 262	E A 262	E B 234	E B 256	E B 256	194	194	200	200	200	192	188	210	202	198	198	198	174	204	E B 230	E B 222	E B 220
26	E A 274	E B 264	E B 264	E B 246	E B 274	E B 236	E B 224	186	186	198	204	194	194	194	194	182	186	180	E B 196	E B 190	E B 190	E B 226	E B 192	208
27	E B 246	E B 266	E B 234	E B 264	E B 232	E B 238	E B 230	176	C	212	206	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	27	27	26	27	27	27	26	27	24	22	21	23	24	18	19	21	25	24	24	25	26	25
MED	E B 248	E B 242	E B 236	E B 238	E B 226	E B 224	E B 242	202	203	196	194	190	186	188	189	192	192	200	196	E 197	E B 219	E B 222	E B 220	E B 248
U Q	E B 264	E B 262	E B 252	E B 248	E B 246	E B 246	E B 262	216	208	200	200	196	192	190	195	202	198	206	201	204	E A 247	E B 232	E B 240	E A 274
L Q	E B 240	E B 238	E B 222	E B 218	E B 210	E B 200	224	196	196	188	190	182	180	182	186	184	188	196	192	E B 193	E B 198	E B 209	E B 210	E B 228

FEB.2021 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 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	B	114	114	114	114	A	114	114	114	A	B						
2							B		A	A	114	A	A	A	A	A	A	B						
3							B	B	A	A	A	A	114	A	A	A	A	B						
4							B	B	A	A	114	114	108	108	110	110	110	B						
5							B	B	110	110	110	A	A	A	A	A		B						
6							B	B	110	110	110	A	A	A	A	110	A	B						
7							B	B	110	110	A	A	A	A	A	A	A	B						
8							B	B	A	A	A	A	A	A	A		A	B						
9							B		110	110	110	110	110	A	A	A	A	B						
10							B	B	110	110	A	A	A	A	110	A	A	B						
11							B	B	110	110	110	108	A	A	108	108	A	B						
12							B	B	108	108	108	108	108	108	108	108	A	108						
13								B	108	110	110	110	110	110	110	110	A	B						
14							B	B	110	110	110	A	A	110	110	110	110	B						
15							B	B	110	A	A	110	110	110	110	110	110	110						
16							B	B	110	112	116	114	A	A	110	A	A	B						
17							B	B	110	A	A	A	110	A	110	110	110	B						
18							B	B	110	110	110	A	110	A	110	A	112	112						
19								B	114	114	114	110	110	110	110	A	A	B						
20							B	B	110	110	A	A	A	118	A	118	110	106						
21							B	B	120	116	A	A	114	114	A	108	108	108						
22							B		108	108	A	108	108	108	108	C	C	C						
23							B	B	110	A	C	C	C	C	C	C	C	C						
24							B	B	110	110	C	C	C	C	C	C	C	C						
25							B	118	108	A	A	A	108	108	108	108	108	108						
26							B	B	108	108	108	112	110	110	A	110	110	110						
27							B	B	C	110	110	C	C	C	C	C	C	C						
28							C	C	C	C	C	C	C	C	C	C	C	C						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	22	19	15	11	13	12	14	13	9	7						
MED								118	110	110	110	110	110	110	110	110	110	108						
U Q									110	110	114	114	110	112	110	110	110	110						
L Q									110	110	110	108	108	108	108	108	109	108						

FEB.2021 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 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	B	B	B	B	B	B	98	90	G	112	122	122	106	106	110	110	98	98	98	98	98	90	90	90
2	B	B	B	B	B	B	B	B	98	98	G	98	98	98	98	98	90	90	90	90	90	90	B	90
3	92	92	92	86	86	86	86	86	96	96	96	96	G	96	96	98	98	92	92	92	102	92	92	92
4	92	92	92	92	92	B	B	92	92	92	G	G	G	G	G	156	110	110	90	90	90	94	94	B
5	94	B	100	B	B	B	B	B	G	122	118	102	96	96	96	96	96	96	96	96	B	96	86	86
6	110	110	B	B	B	B	B	B	G	116	116	96	90	90	110	110	90	120	88	88	88	88	88	92
7	94	94	90	90	90	90	B	134	132	114	104	104	98	96	96	100	100	100	B	B	B	100	100	100
8	100	94	94	94	94	94	94	94	102	102	98	98	98	98	90	90	90	90	90	100	100	94	94	94
9	94	86	B	86	B	86	86	86	G	G	G	140	124	100	100	100	94	94	92	92	92	92	92	92
10	92	86	86	86	86	86	86	86	G	G	86	92	96	96	G	96	96	86	86	86	86	86	86	86
11	86	B	B	B	B	B	B	86	G	G	152	G	102	100	G	156	102	102	102	102	96	88	88	B
12	B	B	B	B	B	B	B	B	G	160	G	148	142	142	134	84	84	124	106	98	B	B	B	B
13	B	98	98	B	B	88	B	B	G	G	G	112	G	G	G	142	96	90	90	86	B	86	B	B
14	B	B	B	B	B	B	B	B	G	G	152	92	94	142	142	G	132	100	88	88	96	84	B	B
15	B	B	88	104	98	98	98	B	G	98	98	G	G	G	G	G	158	G	B	B	B	B	114	98
16	94	94	94	94	94	B	B	B	G	156	150	112	94	90	G	90	90	98	108	108	94	92	92	92
17	B	92	B	B	92	92	B	B	G	94	94	94	G	94	G	G	G	96	B	B	B	B	B	96
18	B	110	B	B	B	B	B	B	G	G	G	98	122	88	130	84	G	G	B	84	84	B	B	B
19	B	96	B	B	B	B	B	134	120	G	132	136	G	G	138	94	94	88	88	80	B	B	B	B
20	80	B	B	B	B	B	B	134	G	G	94	94	94	G	94	G	G	G	88	88	88	88	88	B
21	B	B	102	102	B	B	164	B	G	G	96	96	G	G	92	G	G	G	B	92	90	90	90	B
22	B	B	B	B	B	B	B	B	G	G	90	G	G	G	G	C	C	C	94	94	94	B	B	B
23	B	94	B	B	B	B	B	B	G	94	C	C	C	C	C	C	C	C	C	B	B	B	B	B
24	86	86	86	B	B	B	B	B	150	150	C	C	C	C	C	C	C	C	90	94	86	86	86	B
25	100	B	110	90	90	90	90	G	G	100	100	100	G	G	150	G	G	G	80	80	B	88	88	88
26	88	94	94	B	94	94	B	B	G	142	144	G	G	G	90	G	G	G	90	90	90	B	B	B
27	B	B	50	74	B	B	84	90	C	150	132	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	15	14	11	10	10	9	11	7	17	19	19	14	15	16	16	17	17	20	22	17	18	16	13
MED	93	94	93	90	92	90	90	90	102	112	104	98	98	96	99	98	96	96	90	91	90	90	90	92
U Q	94	96	98	94	94	94	98	134	132	146	132	112	106	100	132	110	101	101	95	96	96	92	93	95
L Q	88	92	88	86	90	86	86	86	96	97	96	96	94	94	95	92	90	90	88	88	88	88	88	89

FEB.2021 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.2021 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							L3	L2		C2	C2	C3	L4	C2	L3	C4	L8	L2	F3	F7	F2	F4	F2	F1
2									L2	L2		L2	L2	L2	L4	L5	L5	L3	F9	F6	F7	F3		F2
3	F2	F3	F4	F7	F6	F4	L3	L2	L2	L1	L1	L2		L2	L2	L2	L3	L9	F6	F3	F2	F1	F2	F4
4	F2	F4	F1	F1	F3			L1	L3	L3						H1	C2	C1	F3	F7	F5	F2	F5	
5	F1		F1							C2	C2	L1	L2	L2	L3	L2	L3	L2	L3	L1		F3	F4	F4
6	F3	F3								C3	C2	L3	L7	L3	C L 2 2	C L 3 2	L3	C L 2 2	F5	F4	F3	F3	F1	F4
7	F2	F3	F7	F2	F2	F3		H2	C2	C2	L4	L4	L2	L3	L3	L3	L4	L2				F1	F2	F4
8	F5	F6	F3	F2	F2	F3	F2	L1	L2	L2	L3	L2	L2	L3	L6	L3	L3	L3	F2	F2	F2	F4	F4	F3
9	F4	F1		F2		F2	L2	L2				H2	C2	L2	L2	L3	L4	L4	F6	F5	F6	F3	F4	F3
10	F2	F4	F2	F2	F2	F2	L2	L1			L3	L3	L2	L2		L4	L2	L5	F9	F3	F6	F3	F3	F2
11	F1							L1			H2		L2	L3		H1	L3	L2	F2	F2	F3	F2	F1	
12										H2		H1	H1	H1	H2	L1	L2	C L 2 2	F3	F1				
13		F1	F1			F1						C1				H1	L2	L2	F2	F1		F1		
14											H1	L2	L2	H2	H L 2 2		C2	L6	F3	F3	F4	F2		
15			F2	F2	F1	F1	L1			L2	L2						H2						F2	F4
16	F2	F2	F2	F1	F2					H2	H1	L3	L2	L3		L3	L1	L2	F4	F3	F2	F3	F3	F1
17		F2			F2	F2				L2	L2	L3		L2				L2						F1
18		F1										L H 2 2	C L 1 2	L H 2 1	H L 1 2	L5				F1	F1			
19		F2						H1	C1		H2	H1			H2	L3	L2	L3	F5	F3				
20	F2							H1			L3	L3	L4		L2				F3	F1	F2	F2	F2	
21			F1	F2			H1				L2	L1			L3					F1	F3	F4	F4	
22											L2								F3	F2	F4			
23		F1								L2														
24	F2	F1	F1						H2	H2									F4	F3	F7	F5	F1	
25	F1		F1	F4	F2	F4	L2			L2	L3	L2			H1				F2	F1		F2	F2	F2
26	F3	F2	F2		F1	F1				H2	H2				L3				F1	F1	F1			
27			F2	F2			L2	L1		H2	H2													
28																								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB.2021 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.2021 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 39	X 39	X 40	X 40	X 39	X 28	X 26													X 36	X 33	X 39	53	X 34
2	X 32	X 34	X 33	X 30	X 29	X 28	X 26													X 52	X 40	X 39	X 37	X 37
3	X 43	X 42	X 43	X 44	X 26	X 27	X 28	X 32												X 52	X 48	X 50	X 40	X 38
4	39	X 38	X 39	X 32	X 34	X 35	X 31													A	X 42	X 44	X 44	X 42
5	X 40	X 38	X 36	X 34	X 33	X 30	X 27													X 64	X 45	X 31	X 34	X 37
6	X 32	X 35	X 32	X 30	X 32	X 30	X 30													X 42	X 38	X 40	X 43	X 41
7	X 38	X 34	X 32	37	X 34	A	31													X 61	X 54	X 49	X 45	X 34
8	X 38	X 39	X 30	A	X 32	A	X 28													X 48	A	A	X 36	X 33
9	X 34	X 34	X 34	X 32	X 32	X 31	X 30													X 45	A	X 39	A	X 32
10	X 32	X 32	X 33	X 33	X 40	X 36	X 27													X 50	X 55	X 51	X 56	X 47
11	X 47	X 46	X 35	X 35	X 41	X 32	X 27													X 45	X 38	X 44	X 38	X 38
12	X 39	X 37	X 38	X 38	X 36	X 30	X 26													X 43	X 32	X 33	X 34	X 32
13	X 34	X 34	X 34	X 34	X 36	X 32	X 30													X 53	X 63	X 54	X 52	X 44
14	X 42	X 41	X 36	X 38	X 38	X 34	X 31													X 45	X 40	X 33	X 32	X 36
15	X 41	X 37	X 36	X 35	X 38	X 36	X 24													X 48	X 41	X 33	X 30	X 32
16	35	X 33	X 34	X 35	X 42	A	X 25				C	C	C	C	C	C	C	C		X 61	X 53	X 42	X 42	X 34
17	X 35	A	X 36	X 39	X 44	X 29	X 30				C	C	C	C	C	C	C	C		X 51	X 35	X 31	X 32	X 24
18	37	35	41	41	X 30	X 24	X 22				C	C	C	C	C					X 54	X 39	X 38	X 33	X 32
19	X 33	X 35	X 36	X 36	X 35	X 26	X 25						C	C	C	C				X 44	X 49	X 49	X 43	X 45
20	X 51	X 52	X 53	X 53	X 35	X 33	X 37	X 40												X 44	X 36	X 33	X 34	X 34
21	X 34	X 34	X 38	X 37	X 36	X 27	X 20													X 66	X 47	X 47	X 52	X 41
22	X 34	X 36	X 37	X 29	X 23	X 24	X 25														X 45	X 49	X 44	X 37
23	X 36	X 38	X 39	X 36	X 36	X 26	X 25														X 66	X 43	X 38	X 32
24	X 34	X 36	X 38	X 37	X 41	X 33	X 30														X 59	X 56	X 39	X 32
25	X 35	X 37	X 37	X 38	X 41	X 36	X 34														X 39	X 33	X 36	X 36
26	X 31	X 33	X 35	X 35	X 36	X 38	X 34														X 58	X 41	X 40	X 36
27	X 34	X 32	X 32	X 33	X 37	X 37	X 32													X 52	X 50	X 40	X 39	X 31
28	X 32	X 34	X 35	X 35	X 38	X 40	X 28														X 56	X 53	X 47	X 39
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	28	27	28	25	28	2												21	26	27	27	28
MED	X 35	X 36	X 36	X 35	X 36	X 31	X 28	X 36												X 50	X 45	X 41	X 39	X 36
U Q	X 39	X 38	X 38	X 38	X 38	X 36	X 30													X 54	X 54	X 49	X 44	X 38
L Q	X 34	X 34	X 34	X 33	X 32	X 28	X 26													X 44	X 39	X 33	X 34	X 32

IONOSPHERIC DATA STATION Okinawa

FEB.2021 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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	33	33	34	34	33	22	20	A	54	51	58	59	60	56	58	60	55	56	46	30	27	33	F	28
2	26	28	27	24	23	22	20	27	54	68	83	70	69	68	75	68	70	52	50	46	34	33	31	31
3	37	36	37	38	20	21	22	26	56	75	88	87	86	80	70	61	63	55	44	45	42	44	34	32
4	F 32	32	33	26	28	29	25	30	62	52	49	54	76	83	83	70	60	56	54	A	36	38	38	36
5	34	32	30	28	27	24	21	30	48	52	60	73	81	68	74	75	67	H 66	59	58	39	25	28	31
6	26	29	26	24	26	24	24	29	52	54	60	62	76	76	68	66	56	55	48	36	32	34	37	35
7	32	28	26	F 26	28	A	F 22	30	53	56	60	76	87	86	94	98	74	67	55	55	48	43	39	28
8	32	33	24	A	26	A	22	A	57	56	61	78	98	87	H 82	77	64	53	61	42	A	A	30	27
9	28	28	28	26	26	25	24	30	52	58	78	61	58	60	70	88	80	56	70	38	A	33	A	26
10	26	26	27	27	34	30	21	29	50	56	66	85	89	90	123	128	100	90	74	44	49	45	50	41
11	41	40	29	29	35	26	21	29	48	55	62	74	85	99	112	122	89	61	59	39	32	38	31	32
12	33	31	32	32	30	24	20	30	52	52	60	78	94	104	102	R 103	72	55	50	37	26	27	28	26
13	28	28	28	28	30	26	24	33	57	54	64	82	70	66	87	100	76	62	63	47	57	48	46	38
14	36	35	30	32	32	28	25	33	54	54	70	82	91	J R 89	95	98	70	77	54	39	34	27	26	30
15	35	31	30	29	32	30	18	33	50	51	56	62	86	96	R 109	R 108	104	79	66	42	34	27	24	26
16	F 26	27	28	29	36	A	19	32	46	52	C	C	C	C	C	C	C	C	89	55	47	36	36	28
17	29	A	30	33	38	23	24	35	50	55	C	C	C	C	C	C	C	C	66	45	29	25	26	F 23
18	F 27	F 26	F	F 28	24	18	J B 16	31	54	64	C	C	C	C	C	87	73	59	56	48	33	32	27	26
19	27	29	30	30	29	20	19	32	50	60	68	82	C	C	C	C	77	53	48	38	43	43	37	39
20	45	46	47	47	30	27	31	34	57	55	72	85	96	105	123	126	101	63	59	37	30	27	28	28
21	28	28	32	31	30	U R 20	R	33	53	66	67	65	82	90	101	H 100	H 98	85	76	60	41	41	46	35
22	28	30	31	23	17	18	19	36	57	66	76	77	94	88	84	72	60	63	59	48	39	43	38	31
23	30	32	33	30	30	20	19	39	54	60	70	68	85	101	109	93	74	65	64	54	60	37	32	26
24	28	30	32	31	35	27	24	36	58	60	64	72	86	85	84	90	92	83	64	52	53	49	33	26
25	29	31	31	32	35	30	28	41	48	52	82	89	94	86	95	96	96	90	98	65	32	27	30	30
26	25	27	29	29	30	32	28	37	53	58	72	94	115	108	107	108	84	79	85	75	52	35	34	30
27	28	26	26	27	30	31	26	37	48	54	65	80	90	85	68	77	84	81	73	46	44	34	32	24
28	26	28	29	29	32	34	22	37	48	53	55	79	88	79	87	R 101	88	91	85	63	50	46	41	33
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	27	27	28	25	27	26	28	28	25	25	24	24	24	25	26	26	28	27	26	27	26	28
MED	28	30	30	29	30	25	22	32	53	55	65	77	86	86	87	93	75	63	60	46	39	35	32	30
U Q	33	32	32	32	32	30	24	36	55	60	72	82	92	93	104	102	89	79	72	55	48	43	38	32
L Q	27	28	28	27	26	22	20	30	50	52	60	66	78	78	74	74	67	56	54	39	32	27	28	26

IONOSPHERIC DATA STATION Okinawa

FEB.2021 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								A		L	L		A		L		U L	L						
											396	440		436	432	416	388							
2										L						L	L							
										424	416	432	440	440	428	424								
3												L		A	L	L	A							
										392	428	436	444		440	416								
4										L	A	U L				L		L	L					
										344		452	436	436	432	408								
5												A					U L							
											416		444	440	440	416	388							
6									L	L					A		U L							
									252		424	428	436	444		424	392							
7																	A	L						
											424	436	428	440	440	428		320						
8								A		L	U L	L					L							
											412	440	436	440	436	420								
9									L	L		L	U L		A		L	L						
									408			432	456	440		428	392							
10									U L								L							
									256	384	432	436	440	424	436	420	416							
11									L	L							L	L						
											424	436	436	444	432	428								
12									L	U L							L							
										380	432	420	428	436	436	424								
13														L		L	L							
											428	440	436	452	432	424								
14									L	L	L	L					L	L						
											424	456	436	452	440	424	400							
15									L	L	L													
											440	412	420	456	440	428	400	304						
16									L	U L	C	C	C	C	C	C	C	C						
									280	348														
17									L		C	C	C	C	C	C	C	C						
										356														
18										L	C	C	C	C	C		L	L						
																420	404							
19										L			C	C	C	C		L						
											432	436					404		204					
20										L	L	L	L	L	A	A	L	A						
											424	440	452	468			400							
21										L	L			L				L						
									252			444	428	452	440									
22									L	L	L		L		L	L	L	L						
												444	460	436	448	424								
23										L	L	L		L			L	U L						
											424	456	456	468	452	436	404	312						
24									L	L	L	L				L	L							
												460	456	456	452	440	420							
25											L			L		L	L	L						
									272		440	456	452	484	452	444	412							
26									L	L	U L	L					L	L						
											448	448	452	456	460	440	412							
27											L	L					L	L						
											448	460	460	460	432	448								
28										L								L						
								176	284			444	456	460	452	436	420							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	6	7	20	24	23	23	21	23	15	3	1					
MED								176	264	L 380	424	440	440	444	440	424	L 404	L 312	204					
U Q									280	392	L 432	L 450	456	456	450	436	L 412	L 320						
L Q									252	L 348	420	436	436	440	432	420	U L 392	304						

FEB.2021 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Okinawa

FEB.2021 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	204	260	292	316	324	320	320	A	A	220	A				
2								B	200	U A 268	U A 292	A	U A 324	A	A	A	A	A	A					
3									220	260	A	A	316	A	308	A	A	A	A					
4								B	A	A	A	A	A	320	300	296	256	A	A					
5								B	208	252	292	308	A	A	A	A	A	A	A					
6								B	204	272	U A 292	U A 308	A	A	A	A	A	A	A					
7								B	216	256	284	304	316	304	A	A	A	A	A					
8								A	196	252	A	U A 292	U A 312	292	U A 276	A	A	A	A					
9								B	208	260	284	A	A	A	A	A	A	A	A					
10								B	A	260	292	320	A	A	A	A	A	A	A					
11								B	224	272	300	320	324	324	A	A	A	A	A					
12								B	A	U A 272	284	312	A	A	A	A	A	A	A					
13								B	180	A	A	A	A	A	A	296	A	244	A					
14								B	220	U A 264	276	300	324	324	312	300	276	A	A					
15								B	212	240	280	292	A	328	320	296	280	232	A					
16								B	180	252	C	C	C	C	C	C	C	C	A					
17								B	224	264	C	C	C	C	C	C	C	C	A					
18								B	A	A	C	C	C	C	C	300	272	240	A					
19								B	212	260	292	316	C	C	C	C	A	A	B					
20									A	256	284	A	308	300	A	A	284	A	A					
21								B	200	252	300	312	328	312	A	A	A	A	A					
22								B	212	260	304	A	A	328	320	304	272	232	A	A				
23								B	U A 220	268	308	300	324	312	288	A	276	224	A	B				
24								B	224	268	300	320	332	332	304	A	A	A	A	B				
25								A	232	268	308	324	328	320	316	308	276	244	B	B				
26								B	232	268	308	320	324	300	324	308	280	240	A	B				
27								B	232	272	300	320	332	332	328	312	284	240	A					
28								B	212	268	300	312	332	324	A	308	288	248	A	B				
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									23	25	21	18	15	16	12	10	11	10						
MED									212	260	292	312	324	320	314	302	276	240						
U Q									224	268	300	320	328	326	320	308	284	244						
L Q									204	256	284	304	316	308	302	296	272	232						

FEB.2021 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.2021 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 20	E B 16	18	J A 15	J A 26	18	E B 16	J A 49	J A 26	33	35	42	J A 50	J A 42	40	34	32	28	21	J A 18	J A 33	J A 24	J A 42	J A 21
2	J A 20	J A 22	18	E B 16	E B 16	E B 16	E B 16	E B 16	25	34	36	37	39	J A 42	37	J A 43	J A 34	J A 29	J A 31	J A 28	J A 31	J A 26	J A 29	J A 20
3	E B 16	E B 16	E B 16	18	18	J A 18	J A 33	E B 16	J A 22	J A 44	J A 40	J A 41	38	J A 52	36	J A 43	J A 45	J A 52	J A 51	J A 64	J A 53	J A 50	J A 29	J A 22
4	J A 53	J A 26	E B 16	E B 16	J A 16	E B 16	17	J A 18	J A 27	J A 42	J A 35	J A 46	35	36	J A 29	32	J A 29	J A 29	J A 40	J A 72	J A 62	J A 40	J A 47	J A 26
5	J A 44	J A 25	J A 33	J A 52	J A 22	J A 22	J A 20	J A 14	24	28	35	J A 56	38	J A 47	J A 40	J A 44	J A 44	J A 35	J A 40	J A 40	J A 28	19	E B 16	J A 19
6	J A 26	J A 26	J A 22	21	E B 16	E B 16	E B 16	E B 16	G	31	J A 37	38	J A 38	J A 42	J A 58	J A 46	J A 38	J A 32	J A 30	J A 39	J A 27	J A 28	J A 29	J A 25
7	J A 21	J A 24	J A 17	J A 25	J A 44	J A 53	J A 20	18	29	32	37	40	39	J A 48	J A 73	J A 42	J A 53	J A 31	J A 33	J A 18	J A 19	E B 16	E B 16	E B 16
8	J A 63	J A 53	J A 50	J A 72	J A 50	J A 47	J A 32	J A 52	22	29	J A 42	36	34	34	35	J A 36	J A 38	J A 42	J A 26	J A 50	J A 122	J A 88	J A 39	J A 26
9	J A 32	J A 23	J A 16	J A 16	18	J A 17	18	J A 21	G	J A 22	G	36	40	J A 71	J A 81	J A 74	J A 51	J A 41	J A 31	J A 53	J A 65	J A 108	J A 52	J A 24
10	E B 16	E B 16	E B 16	J A 26	J A 19	J A 20	J A 38	J A 40	J A 27	G	34	36	J A 44	J A 56	J A 56	J A 47	J A 45	J A 65	J A 46	J A 52	J A 37	J A 32	J A 31	J A 24
11	J A 21	18	E B 16	E B 16	E B 16	E B 16	J A 20	E B 16	G	30	34	37	38	39	J A 38	J A 35	J A 37	J A 25	J A 26	J A 24	J A 41	J A 31	J A 16	J A 14
12	19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	30	38	J A 42	37	37	36	J A 36	J A 50	J A 41	J A 39	J A 26	J A 23	E B 16	E B 16	E B 16
13	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	J A 31	J A 33	J A 41	J A 42	J A 40	J A 53	36	J A 50	28	J A 30	J A 22	E B 16	21	J A 20	J A 20
14	E B 16	E B 16	J A 18	E B 16	E B 16	E B 16	E B 16	E B 16	G	29	30	G	G	40	39	40	J A 42	J A 24	J A 24	J A 26	J A 19	J A 28	19	J A 16
15	20	J A 20	20	E B 16	J A 25	J A 26	31	J A 14	G	27	38	35	J A 40	G	35	35	30	J A 24	J A 25	J A 32	J A 25	E B 16	E B 16	E B 16
16	J A 52	J A 38	J A 28	J A 18	J A 23	J A 40	J A 19	E B 16	22	G	C	C	C	C	C	C	C	C	J A 33	J A 46	J A 51	J A 18	J A 25	J A 20
17	20	J A 51	J A 26	J A 16	E B 16	19	20	20	G	31	C	C	C	C	C	C	C	C	J A 32	J A 22	J A 20	J A 17	J A 19	E B 16
18	E B 16	19	E B 16	E B 16	E B 16	E B 16	J A 21	E B 16	25	31	C	C	C	C	C	33	J A 33	G	28	J A 44	19	E B 16	E B 16	E B 16
19	E B 16	E B 16	E B 16	19	E B 16	E B 16	E B 16	E B 16	25	31	34	34	C	C	C	C	J A 30	24	J A 27	E B 16	E B 16	E B 16	E B 16	19
20	E B 16	J A 22	20	E B 16	E B 16	20	18	J A 16	24	30	32	38	J A 42	J A 45	J A 65	J A 59	G	J A 43	J A 32	J A 21	20	J A 16	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	20	J A 17	23	31	J A 37	35	40	36	39	J A 52	J A 43	27	23	J A 88	J A 53	J A 18	J A 44	J A 43
22	J A 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	30	34	34	J A 41	42	38	35	35	26	24	J A 21	J A 23	J A 38	E B 16	E B 16
23	J A 20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	32	G	G	G	38	37	34	G	28	J A 22	20	E B 16	E B 16	E B 16	E B 16
24	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	36	37	38	36	J A 42	J A 50	J A 43	J A 53	J A 42	J A 19	J A 16	E B 16	20	18
25	18	E B 16	E B 16	E B 16	E B 16	E B 16	J A 30	J A 18	G	32	33	G	G	G	36	33	30	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
26	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	31	34	G 28	36	34	J A 29	J A 31	G	G 23	J A 26	J A 24	18	E B 16	E B 16	19
27	19	J A 21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	28	33	35	36	36	36	34	G	32	G 20	18	E B 16	E B 16	B J 16	A J 16	A E 20	B 16
28	18	E B 16	20	18	E B 16	E B 16	E B 16	E B 16	24	33	36	G	36	40	42	G 26	G 22	G	18	J A 17	E B 16	E B 16	21	19
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	25	25	24	24	24	25	26	26	28	28	28	28	28	28
MED	20	17	E B 16	E B 16	E B 16	E B 16	18	E B 16	24	31	35	36	38	40	38	J A 36	J A 36	J A 28	J A 29	J A 25	J A 23	J A 18	20	19
U Q	J A 21	J A 24	J A 20	J A 18	J A 18	J A 20	J A 20	J A 18	25	32	J A 37	J A 40	J A 40	J A 44	J A 48	J A 45	J A 44	J A 41	J A 33	J A 45	J A 39	J A 30	J A 29	J A 22
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	29	34	G 34	36	36	36	34	G 30	G 24	24	20	E B 17	E B 16	E B 16	E B 16

FEB.2021 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.2021 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	E B 16	A A 49	G 17	32	35	40	47	39	37	32	30	27	20	E B 16	20	E B 16	E B 16	E B 16
2	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	31	34	35	38	38	35	34	31	25	27	20	29	26	25	E B 16
3	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	18	E B 16	E B 16	32	33	33	36	46	35	33	40	34	37	40	E B 16	24	E B 16	E B 16
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	27	33	34	34	35	G 27	32	G 21	27	34	A A 72	26	E B 16	18	22
5	18	E B 16	22	E B 16	E B 16	18	E B 16	E B 16	22	27	33	47	36	42	34	34	36	30	33	22	22	E B 16	E B 16	E B 16
6	E B 16	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	30	33	36	36	38	50	38	33	25	27	30	26	26	26	21
7	E B 16	E B 16	E B 16	E B 16	E B 16	A A 53	E B 16	E B 16	26	30	33	37	36	41	35	36	50	29	27	E B 16	E B 16	E B 16	E B 16	E B 16
8	E B 16	E B 16	E B A 72	A E 16	E B A 47	A E 16	E B A 52		22	27	34	34	33	33	34	33	30	27	17	E B 16	A A 122	A A 88	18	22
9	21	19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G 20	G	35	38	41	54	38	30	23	22	33	A A 65	E B 16	A A 52	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	17	E B 16	21	G	32	34	36	36	35	33	32	32	25	19	24	24	E B 16	E B 16
11	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	29	32	35	36	38	35	33	30	24	21	20	E B 16	22	E B 16	E B 16
12	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	29	38	G 23	37	37	35	32	29	24	17	E B 16	E B 16	E B 16	E B 16	E B 16
13	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	28	32	33	33	36	40	36	32	27	29	E B 16	E B 16	E B 16	E B 16	E B 16
14	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	29	30	G	G	40	38	36	G 19	23	20	E B 16	E B 16	18	E B 16	E B 16
15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	27	38	33	34	G	34	34	30	G 19	22	23	21	E B 16	E B 16	E B 16
16	E B 16	E B 16	E B 16	E B 16	E B 16	A A 40	E B 16	E B 16	21	G	C	C	C	C	C	C	C	C	28	26	30	18	E B 16	E B 16
17	E B 16	A A 51	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	31	C	C	C	C	C	C	C	C	18	E B 16	E B 16	E B 16	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	31	C	C	C	C	C	32	G 22	G	26	25	E B 16	E B 16	E B 16	E B 16
19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	31	34	34	C	C	C	C	29	24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	30	31	36	35	38	45	52	G	32	18	17	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	E B 17	E B 16	23	28	33	34	35	36	35	36	33	26	18	35	22	18	35	21
22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	30	33	34	34	40	36	33	34	26	23	18	18	19	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	30	G	G	G	37	36	34	G	28	20	E B 16	E B 16	E B 16	E B 16	E B 16
24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	36	36	38	35	35	32	32	30	40	E B 16	E B 16	E B 16	E B 16	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	32	33	G	G	G	36	33	29	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
26	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	31	34	G 25	35	34	G 26	G 26	G	G 20	20	E B 16	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	28	33	34	35	36	35	34	G	32	G 18	18	E B 16	E B 16	E B 16	E B 18	E B 16
28	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	33	36	G	35	39	42	G 24	G 20	G	18	E B 16	E B 16	E B 16	E B 16	E B 16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	25	25	24	24	24	25	26	26	28	28	28	28	28	28
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	30	33	34	36	38	35	33	30	26	22	16	E B 16	E B 16	E B 16	E B 16
U Q	E B 16	E B 16	E B 16	E B 16	E B 16	16	E B 16	E B 16	24	31	34	36	36	40	38	36	32	28	27	24	23	18	17	16
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	27	32	G	34	35	34	32	G	G 23	18	E B 16	E B 16	E B 16	E B 16	E B 16

FEB.2021 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

FEB.2021 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	16	16	15	16	18	17	16	14	15	16	16	16	16	16	16	16
2	16	16	16	16	16	16	16	16	16	16	14	15	17	16	16	15	14	15	16	16	16	16	16	16
3	16	16	16	16	16	16	16	16	16	16	16	15	19	17	18	16	15	15	16	16	16	16	16	16
4	16	16	16	16	16	16	16	16	16	16	14	15	16	16	14	14	14	14	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	16	15	16	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	16	16	16	18	16	16	14	16	16	16	16	16	16	16	16
7	16	16	16	16	16	16	16	16	16	16	16	15	16	16	16	16	15	16	16	16	16	16	16	16
8	16	16	16	16	16	16	16	16	16	16	14	14	15	15	14	15	15	14	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	16	14	14	14	15	15	14	14	16	16	16	16	16	16	16
10	16	16	16	16	16	16	16	16	16	16	13	15	16	16	14	14	15	16	16	16	16	16	16	16
11	16	16	16	16	16	16	16	16	16	16	15	16	17	18	18	16	16	16	16	16	16	16	16	16
12	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	14	13	16	16	16	16	16	16
13	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	14	15	16	16	16	16	16	16
14	16	16	16	16	16	16	16	16	16	16	16	14	16	15	15	16	14	14	16	16	16	16	16	16
15	16	16	16	16	16	16	16	16	16	15	14	15	16	17	16	16	16	15	16	16	16	16	16	16
16	16	16	16	16	16	16	16	16	16	16	C	C	C	C	C	C	C	C	16	16	16	16	16	16
17	16	16	16	16	16	16	16	16	16	16	C	C	C	C	C	C	C	C	16	16	16	16	16	16
18	16	16	16	16	16	16	16	16	16	17	C	C	C	C	C	17	15	14	16	16	16	16	16	16
19	16	16	16	16	16	16	16	16	16	15	15	16	C	C	C	C	16	14	16	16	16	16	16	16
20	16	16	16	16	16	16	16	16	16	16	16	16	18	17	16	14	13	15	14	16	16	16	16	16
21	16	16	16	16	16	17	17	16	16	16	16	20	18	18	18	16	15	13	16	16	16	16	16	16
22	16	16	16	16	16	16	16	16	16	16	16	16	17	19	16	17	12	16	16	16	16	16	16	16
23	16	16	16	16	16	16	16	16	16	15	15	15	18	20	18	16	16	14	15	16	16	16	16	16
24	16	16	16	16	16	16	16	16	16	17	17	17	18	18	18	18	18	15	16	16	16	16	16	16
25	16	16	16	16	16	16	16	16	16	16	17	16	21	22	17	16	16	16	16	16	16	16	16	16
26	16	16	16	16	16	16	16	16	16	16	17	19	19	17	17	16	14	14	16	16	16	16	16	16
27	16	16	16	16	16	16	16	16	16	16	17	17	17	22	20	16	14	15	16	16	16	16	16	16
28	16	16	16	16	16	16	16	16	16	16	18	19	22	20	18	19	16	15	15	16	16	16	16	16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	25	25	24	24	24	25	26	26	28	28	28	28	28	28
MED	16	16	16	16	16	16	16	16	16	16	16	16	17	17	16	16	15	15	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	16	16	16	18	18	18	16	16	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	16	14	15	16	16	16	14	14	14	16	16	16	16	16	16

IONOSPHERIC DATA STATION Okinawa

FEB.2021 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	326	335	355	374	399	348	312	A	383	372	379	352	379	359	338	368	360	372	393	383	314	290	F	329
2	323	330	359	323	300	301	300	332	362	340	373	367	310	337	357	346	373	373	363	336	379	352	313	286
3	320	318	299	374	369	303	324	305	355	352	356	354	359	337	348	343	361	376	356	335	343	350	340	305
4	F 318	340	354	330	311	364	337	335	377	380	346	299	338	336	353	350	347	361	379	A	328	319	322	359
5	309	312	325	315	334	360	314	353	387	368	376	362	384	344	339	346	321	H 282	352	360	311	327	325	340
6	337	333	338	337	349	338	322	344	389	358	355	337	357	366	351	354	359	367	386	336	323	318	350	327
7	346	335	339	F 325	356	A	F 311	333	374	358	344	328	344	335	327	334	360	372	379	312	323	320	369	309
8	329	377	323	A	325	A	318	A	368	366	328	327	353	354	H 328	338	387	364	373	368	A	A	347	328
9	333	320	327	317	322	317	370	373	382	354	386	389	343	337	324	344	380	358	389	390	A	314	A	296
10	320	316	322	306	359	399	330	355	372	357	342	355	367	337	327	348	361	364	365	359	294	329	312	301
11	315	318	342	330	378	384	314	352	369	367	354	347	350	307	325	360	346	356	381	320	314	300	364	317
12	319	326	327	337	372	368	348	362	383	382	352	343	347	336	326	R 301	377	381	372	390	361	309	338	324
13	312	313	324	335	358	338	327	358	393	350	360	359	368	314	310	334	368	335	350	335	317	298	308	289
14	309	352	315	319	356	346	325	349	393	347	348	331	351	J 271	R 311	315	329	349	404	355	352	342	312	299
15	323	307	349	331	368	369	311	379	394	380	348	337	341	338	R 289	R 305	333	332	357	348	355	364	333	284
16	F 307	312	306	337	387	A	348	358	395	358	C	C	C	C	C	C	C	C	374	383	343	344	326	314
17	308	A	308	324	379	383	323	366	376	371	C	C	C	C	C	C	C	C	390	375	398	324	307	F 342
18	F 353	F 295	F	F 367	375	374	B	354	365	361	C	C	C	C	C	343	359	367	373	380	325	350	335	340
19	323	324	335	357	390	329	321	350	362	355	343	354	C	C	C	C	362	384	363	324	327	355	313	303
20	312	329	347	382	404	321	366	362	359	372	330	321	329	312	335	338	359	388	402	341	337	312	327	295
21	284	285	341	364	379	U R 286	R	352	354	362	354	340	338	332	354	327	H 317	315	317	303	265	284	361	371
22	288	312	394	352	368	316	322	349	373	359	348	332	329	333	359	342	355	347	350	353	318	305	337	335
23	307	326	351	343	394	365	292	356	355	345	347	321	312	329	353	352	343	365	373	340	369	350	343	316
24	320	326	352	344	354	368	378	344	377	372	332	325	338	349	327	332	351	368	380	334	332	343	328	291
25	291	310	317	335	350	357	341	362	367	315	330	349	349	311	327	327	343	344	374	338	350	300	325	347
26	347	292	301	308	322	375	389	384	373	332	314	330	354	340	333	329	313	317	336	360	339	296	340	331
27	309	310	306	319	359	384	403	379	382	366	340	348	352	351	332	334	351	364	404	357	353	302	366	301
28	311	317	311	311	338	392	372	377	385	363	321	348	362	313	317	R 329	334	358	376	367	310	304	304	332
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	27	27	28	25	26	26	28	28	25	25	24	24	24	25	26	26	28	27	26	27	26	28
MED	318	318	327	335	359	360	324	354	375	360	348	343	350	336	330	338	357	364	374	353	330	319	330	316
U Q	324	330	349	352	378	374	348	362	384	370	356	354	358	342	350	347	361	372	384	368	352	344	343	334
L Q	309	312	315	319	344	325	314	349	366	353	336	329	338	322	326	329	343	347	360	335	317	302	313	300

IONOSPHERIC DATA STATION Okinawa

FEB.2021 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								A		L	L 435	379	A	414	L 404	380	U L 381	L						
2										L 369	389	385	412	383	391	L 378	L							
3										372	371	L 372	385	A	L 378	L 390	A							
4										L 417	A	U L 370	387	397	386	L 389	L	L						
5											397	A	389	A	380	380	A							
6									L 419	L	383	396	415	389	A	382	U L 391							
7											379	388	418	A	383	374	A	L 404						
8								A		L	U L 400	L 383	408	400	394	383	L							
9									L	L	391	L 405	U L 388	A 381	A	375	L 388	L						
10									420	U L 399	377	402	392	432	397	386	L 386							
11									L	L	406	396	411	393	403	372	L	L						
12									L	U L 421	373	433	416	387	392	392	L							
13											401	391	408	L 457	A	L 383	L							
14									L	L	L 392	L 383	423	377	375	390	L 382	L						
15									L	L	L 368	442	436	389	397	380	392	453						
16									L 456	U L 433	C	C	C	C	C	C	C	C						
17									L	413	C	C	C	C	C	C	C	C						
18										L	C	C	C	C	C	396	L 387	L						
19										L	376	381	C	C	C	C	385	L	433					
20										L	L 371	L 390	L 391	L 375	A	A	L 396	A						
21									440	L	L	378	L 396	L 376	387			L						
22									L	L	L	395	L 371	424	L 377	L 388	L	L						
23										L	L 392	L 380	391	L 375	370	378	L 383	U L 409						
24									L	L	L	L 366	369	382	375	L 371	L 369							
25									462		L 364	371	L 380	364	364	L 367	L 374	L						
26									L	L	U L 367	L 381	385	376	376	377	L 383	L						
27											L 367	L 375	384	392	417	382	L	L						
28								465	460	L		395	389	371	A	377	383	L						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	6	7	20	24	23	21	19	23	14	3	1					
MED								465	448	L 413	381	384	391	387	386	380	L 384	L 409	433					
U Q									460	U L 421	394	396	412	398	397	388	L 388	453						
L Q									420	372	L 371	L 378	385	376	376	377	L 382	L 404						

FEB.2021 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Okinawa

FEB.2021 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								A		234	240	266	242	266	278	248	258	220						
2										268	224	240	290	274	248	262	220							
3										258	238	236	226	250	254	256	238							
4										212	208	366	264	268	244	242	248	236						
5											234	246	218	260	262	244	240							
6									216	246	264	272	248	226	254	246	252							
7											272	266	252	260	278	240	230	212						
8								A		222	266	264	242	234	248	242	218							
9									224	248	220	222	278	278	294	250	222	226						
10									210	262	260	250	232	262	240	212	228							
11									210	240	266	258	248	262	246	232	212	230						
12									214	220	264	258	242	230	230	240	218							
13											228	240	244	312	280	242	220							
14									208	238	260	256	246	286	262	232	260	222						
15									204	226	282	276	256	244	254	248	216	210						
16									200	226	C	C	C	C	C	C	C	C						
17									222	236	C	C	C	C	C	C	C	C						
18										248	C	C	C	C	C	250	234	222						
19										264	278	238	C	C	C	C	236	216	204					
20										240	280	274	262	310	266	240	216	214						
21									224	244	248	268	274	250	248			240						
22									224	234	240	274	248	258	226	246	252	238						
23										226	250	288	286	268	244	234	240	236						
24									214	238	282	286	262	244	274	264	240							
25									198		276	250	250	310	278	272	248	238						
26									222	UL 256	290	274	248	240	244	238	244	232						
27											280	260	252	246	252	274	256	226						
28								192	200	220		266	240	268	278	246	244	228						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	15	23	24	25	24	24	24	24	25	17	1					
MED								192	214	238	262	264	248	261	254	245	238	226	204					
U Q									222	248	277	274	262	271	276	250	248	236						
L Q									204	226	239	248	242	245	245	240	220	218						

FEB.2021 h'F2 (KM)

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FEB.2021 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	236	232	218	206	200	232	300	A	226	206	192	E A 252	A	200	190	204	200	210	194	186	E A 316	278	206	222
2	248	244	216	250	298	298	322	240	216	206	200	192	190	E A 218	196	226	214	214	196	220	E A 226	E A 246	E A 304	304
3	246	236	256	188	206	306	288	254	218	234	208	204	196	A	198	202	A	224	E A 242	E A 298	204	236	214	258
4	270	250	216	246	272	210	242	218	216	186	A	204	178	190	210	198	210	214	206	A	E A 272	250	246	E A 234
5	260	262	E A 258	296	246	230	290	216	208	194	212	A	214	A	196	202	A	222	224	200	218	242	262	230
6	262	258	236	248	226	238	272	226	204	216	214	204	176	222	A	A	214	216	202	E A 264	E A 284	E A 296	E A 244	E A 242
7	220	216	244	268	222	A	246	246	216	210	214	218	186	A	180	228	A	206	204	200	206	238	202	250
8	256	206	274	A	262	A	286	A	202	200	206	186	178	178	194	186	210	218	212	192	A	A	232	E A 256
9	E A 278	E A 272	248	272	266	286	214	206	184	222	196	210	200	E A 250	A	E A 234	190	202	204	E A 212	A	248	A	296
10	260	268	256	282	224	186	E A 280	208	180	186	184	174	210	182	182	194	206	220	190	178	216	246	224	244
11	248	224	218	248	214	200	260	214	190	200	180	180	182	210	174	182	200	194	194	184	226	296	202	226
12	252	248	248	234	204	206	238	212	194	190	248	168	200	214	200	200	208	218	198	186	188	260	232	248
13	274	274	260	256	234	238	284	202	204	186	196	202	190	H 170	A	222	214	228	206	192	214	224	248	250
14	250	206	268	256	214	214	248	216	202	200	H 170	172	162	246	228	E A 222	204	210	190	198	198	246	262	284
15	258	254	220	228	220	206	356	200	194	188	E A 234	172	162	164	196	210	198	190	200	184	214	200	230	314
16	306	272	274	232	192	A	250	218	176	194	C	C	C	C	C	C	C	C	204	192	E A 230	196	222	216
17	258	A	290	256	208	198	274	206	210	208	C	C	C	C	C	C	C	C	202	192	194	248	274	288
18	240	322	258	202	214	256	B	224	206	226	C	C	C	C	C	204	206	206	216	202	194	216	218	238
19	254	258	232	214	194	274	334	226	222	224	222	212	C	C	C	C	190	208	178	204	230	212	246	292
20	254	240	228	204	186	268	214	226	216	220	184	224	184	216	A	A	204	A	198	204	216	254	248	304
21	322	320	240	216	198	B	G	230	188	216	200	200	194	202	190	240	232	214	196	E A 224	E A 258	264	E A 246	216
22	310	284	194	218	E B 284	E B 328	E B 306	226	212	216	222	194	202	E A 206	214	182	220	222	220	196	248	250	208	228
23	264	246	222	228	194	224	338	224	208	188	202	188	172	194	208	218	192	214	218	198	196	200	208	248
24	264	244	224	218	222	204	204	218	200	174	236	220	224	200	200	194	218	224	208	206	224	206	210	292
25	302	276	268	244	232	214	234	204	184	238	212	204	186	174	226	218	210	214	210	178	194	266	252	226
26	228	298	288	280	256	214	202	202	196	208	208	196	190	184	188	182	198	192	216	188	182	196	222	240
27	232	274	296	274	228	204	200	180	204	210	218	190	196	186	170	178	238	212	198	180	188	228	214	260
28	284	272	274	274	248	196	196	E B 172	174	198	202	170	178	232	A	208	204	214	206	180	178	204	218	232
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	28	27	28	24	26	26	28	28	24	24	23	21	19	23	23	25	28	27	26	27	27	28
MED	258	256	247	246	222	216	258	217	204	206	206	196	190	195	196	203	206	214	204	194	205	244	226	247
U Q	272	274	268	268	247	262	290	226	214	216	216	207	200	217	208	222	214	219	211	E A 204	E A 230	254	248	286
L Q	248	240	223	218	205	205	234	206	192	192	196	183	178	183	188	194	200	207	197	186	194	212	214	231

FEB.2021 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.2021 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								A	106	106	104	104	104	104	104	A	A	104	A					
2								B	112	108	102	A	102	A	A	A	A	A	A					
3									110	106	A	A	106	A	106	A	A	A	A					
4								B	A	A	A	A	A	102	104	102	102	A	A					
5								B	110	104	104	102	A	A	A	A	A	A	A					
6								B	110	108	106	104	A	A	A	A	A	A	A					
7								B	112	106	102	102	102	102	A	A	A	A	A					
8								A	106	100	A	100	100	100	100	A	A	A	A					
9								B	108	108	102	A	A	A	A	A	A	A	A					
10								B	A	102	102	102	A	A	A	A	A	A	A					
11								B	106	102	104	104	102	102	A	A	A	A	A					
12								B	A	102	102	102	A	A	A	A	A	A	A					
13								B	102	A	A	A	A	A	A	102	A	106	A					
14								B	106	104	102	102	100	102	102	102	102	A	A					
15								B	102	100	104	102	A	102	102	102	106	108	A					
16								B	102	102	C	C	C	C	C	C	C	C	A					
17								B	98	104	C	C	C	C	C	C	C	C	A					
18								B	A	A	C	C	C	C	C	104	112	102	A					
19								B	104	102	102	104	C	C	C	C	A	A	B					
20									A	102	102	A	102	102	A	A	100	A	A					
21								B	104	104	104	104	102	100	A	A	A	A	A					
22								B	100	100	104	A	A	104	104	102	102	104	A	A				
23								B	104	104	106	102	102	102	102	A	104	104	A	B				
24								B	106	104	102	102	102	102	102	A	A	A	A	B				
25								A	102	102	102	102	102	102	102	102	102	104	B	B				
26								B	104	104	104	104	104	104	110	104	102	108	A	B				
27								B	122	114	102	102	108	102	102	102	102	102	A					
28								B	102	102	102	102	102	102	A	106	106	106	A	B				
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									23	25	21	18	15	16	12	10	11	10						
MED									106	104	102	102	102	102	102	102	102	104						
U Q									110	106	104	104	104	102	104	104	106	106						
L Q									102	102	102	102	102	102	102	102	102	104						

IONOSPHERIC DATA STATION Okinawa

FEB.2021 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	88	B	96	96	96	100	B	92	92	142	158	124	112	112	112	100	104	116	142	96	90	94	94	118
2	88	88	94	B	B	B	B	B	134	110	104	104	104	100	100	102	98	96	94	94	94	90	92	90
3	B	B	B	114	114	108	108	B	90	110	112	116	108	106	108	114	100	110	96	96	98	96	96	96
4	96	94	B	B	98	B	94	104	102	100	98	98	156	130	92	128	86	86	82	98	98	94	92	92
5	90	94	90	90	88	86	90	88	148	140	132	106	102	100	100	98	96	92	92	92	96	98	B	100
6	102	102	102	108	B	B	B	B	G	188	116	108	98	92	92	92	94	92	90	90	88	88	88	88
7	88	108	86	94	108	96	100	142	142	138	118	108	110	100	102	98	94	94	94	108	92	B	B	B
8	102	96	94	94	94	92	92	92	174	120	106	104	108	104	102	98	98	102	100	112	104	96	94	88
9	90	90	94	98	94	98	94	92	G	90	G	174	132	114	98	98	98	100	96	94	96	94	94	92
10	B	B	B	88	88	92	88	92	92	G	112	108	104	100	98	94	94	92	90	90	86	84	84	92
11	82	82	B	B	B	B	92	B	G	116	110	112	108	104	112	108	102	108	100	96	94	86	86	90
12	90	B	B	B	B	B	B	B	112	108	170	92	160	152	144	88	88	88	88	88	88	B	B	B
13	B	B	B	B	B	B	B	B	140	108	106	100	96	94	94	168	90	160	102	126	B	94	88	84
14	B	B	88	B	B	B	B	B	G	118	120	G	G	176	148	124	94	102	92	84	82	102	96	96
15	84	84	92	B	98	96	94	94	G	120	190	106	106	G	174	174	166	94	90	86	102	B	B	B
16	100	98	90	90	86	90	90	B	114	G	C	C	C	C	C	C	C	C	96	96	94	94	90	90
17	94	90	94	90	B	90	90	90	G	172	C	C	C	C	C	C	C	C	90	92	94	94	110	B
18	B	90	B	B	B	B	102	B	172	158	C	C	C	C	C	138	96	G	90	88	104	B	B	B
19	B	B	B	88	B	B	B	B	160	190	190	164	C	C	C	C	96	94	108	B	B	B	B	84
20	B	92	100	B	B	94	98	128	180	190	110	106	106	102	98	96	G	86	92	84	84	124	B	B
21	B	B	B	B	B	B	144	144	138	120	116	112	106	106	98	94	90	90	88	108	98	102	100	100
22	88	B	B	B	B	B	B	B	162	162	158	144	94	110	118	120	110	154	112	104	100	116	B	B
23	88	B	B	B	B	B	B	B	112	116	G	G	G	152	142	168	G	196	86	86	B	B	B	B
24	88	B	B	B	B	B	B	B	G	G	170	146	152	130	114	106	104	100	94	94	92	B	122	116
25	120	B	B	B	B	94	94	102	G	168	164	G	G	G	158	154	146	G	B	B	B	B	B	B
26	B	B	B	B	B	B	B	B	G	182	170	98	116	110	94	92	G	88	88	88	90	B	B	86
27	86	86	B	B	B	B	B	B	170	172	152	130	136	124	130	G	162	90	136	B	B	134	116	B
28	114	B	94	104	B	B	B	B	126	174	152	G	124	150	126	92	92	G	132	110	B	B	96	94
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	14	13	12	10	12	15	12	19	25	23	21	21	22	24	24	23	23	27	25	22	18	17	18
MED	90	91	94	94	95	94	94	93	138	138	120	108	108	108	105	101	96	94	94	94	94	94	94	92
U Q	100	96	95	101	98	97	100	116	162	172	164	127	128	130	128	126	104	108	100	101	98	102	98	96
L Q	88	88	90	90	88	91	90	92	112	113	110	104	104	100	98	95	94	90	90	88	90	94	89	88

IONOSPHERIC DATA STATION Okinawa

FEB.2021 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	F3		F1	F2	F4	F1		L5	L1	H2	H1	C2	C4	C2	C2	C1	C2	C2	H1	F1	F4	F2	F3	F1
2	F1	F1	F1						H1	C3	C1	C2	C2	C2	C2	C2	L3	L2	L2	F4	F5	F9	F9	F3
3				F1	F1	F2	F5		L1	CQ41	C2	C2	C2	C3	C1	CQ21	C4	CQ41	L9	F7	F3	F5	F4	F2
4	F2	F3			F1		F1	C4	C3	C2	LH21	LH21	HC11	H1	L2	C2	L3	L6	L7	FF66	F5	F4	F4	F9
5	F2	F2	F3	F4	F4	F4	F2	L2	HL11	H1	H1	C3	C1	C3	C3	L3	L6	L6	L9	F6	F5	F1		F1
6	F2	F5	F3	F2						H1	C1	C2	L1	L2	L5	L3	L3	L3	L8	F8	F9	F5	F8	F4
7	F3	FF11	F1	F1	F1	F4	F1	H2	H3	H2	C1	C2	C2	C3	C2	L3	L4	L6	L4	F1	F1			
8	F3	F3	F4	FQ41	F3	F5	F4	L6	H1	C1	C2	C2	C1	C1	C1	L2	L2	CH22	L3	FF12	FQ31	FQ31	FQ41	F3
9	F1	F4	F1	F1	F1	F1	F1	L4		L1		HL11	HCL11	CL32	L4	LQ31	L2	L3	L3	FQ41	F6	F4	F3	F2
10				F4	F3	F1	F4	L2	LC22		C1	C1	C1	C2	L2	L4	LQ31	LQ51	L4	F3	F4	F5	F1	F1
11	F1	F1					F2			C1	C1	C1	C1	C2	C1	C1	C1	C2	C2	F2	F4	F3	F2	F1
12	F1								C2	C1	HC11	L1	HC11	HL11	HL12	L2	L2	L2	LQ11	F1	FF11			
13									HC11	C2	C1	C1	L1	L1	LH21	HL11	LH31	H2	L4	F2		F1	F2	F1
14			F1							C1	C1			H1	H1	C2	LH21	C2	L1	F2	F2	F4	F1	F1
15	F1	F1	F1		F1	F3	F3	L1		C1	HC11	C1	C1		H1	H1	H1	L2	L4	F3	F6			
16	F2	F2	F3	F2	F1	F3	F1		C1										L6	F4	F4	F2	F3	F2
17	F1	F4	F2	F1		F1	F1	L1		H1									L1	F1	F3	F1	F1	
18		F1					F1		HC11	HC11						H1	L1		L3	F4	F1			
19				F1					H1	H1	H1	H1					L1	L2	CL11					F1
20		F3	F1			F1	F1	C1	HC11	HC11	C1	C1	C2	CH21	L3	L3		L4	L2	F2	F1	F1		
21							F1	H1	H1	C1	C1	C1	C1	C1	L1	L3	L5	L3	LC11	F5	F3	F2	FF54	F3
22	F1								H1	H1	HL11	HL11	L1	C1	C1	C1	CL31	HC21	C5	C6	F4	F4		
23	F2								C1	C1				HC11	HC11	HC11		HL11	L3	L1				
24	F1										H1	H1	H1	H1	C1	C1	C2	C3	L5	L1	F1		F1	F1
25	F1					F1	F3	C1		HC11	H1				H1	H1	H1							
26										H1	H1	L1	CL11	C1	L1	L2		L2	L2	L1	F1			F1
27	F1	F1							HL11	HL11	H1	H1	HL11	C1	C1		H1	L1	H1			F1	F3	
28	F1		F1	F1					C1	H1	H1		CL11	HCL11	CL11	L1	L1		HL11	C1			F1	F1
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB.2021 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

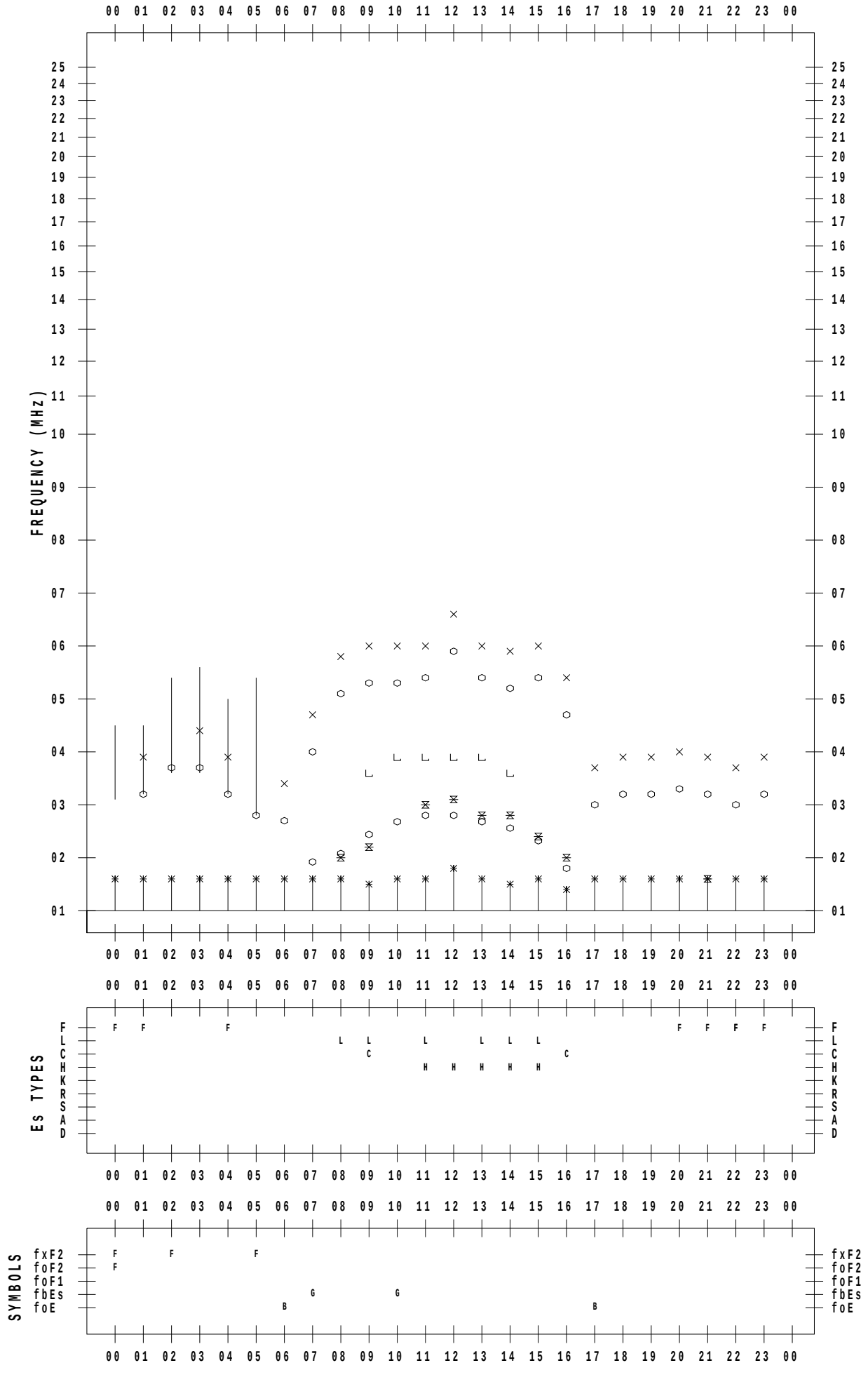
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/ 1

135 °E MEAN TIME



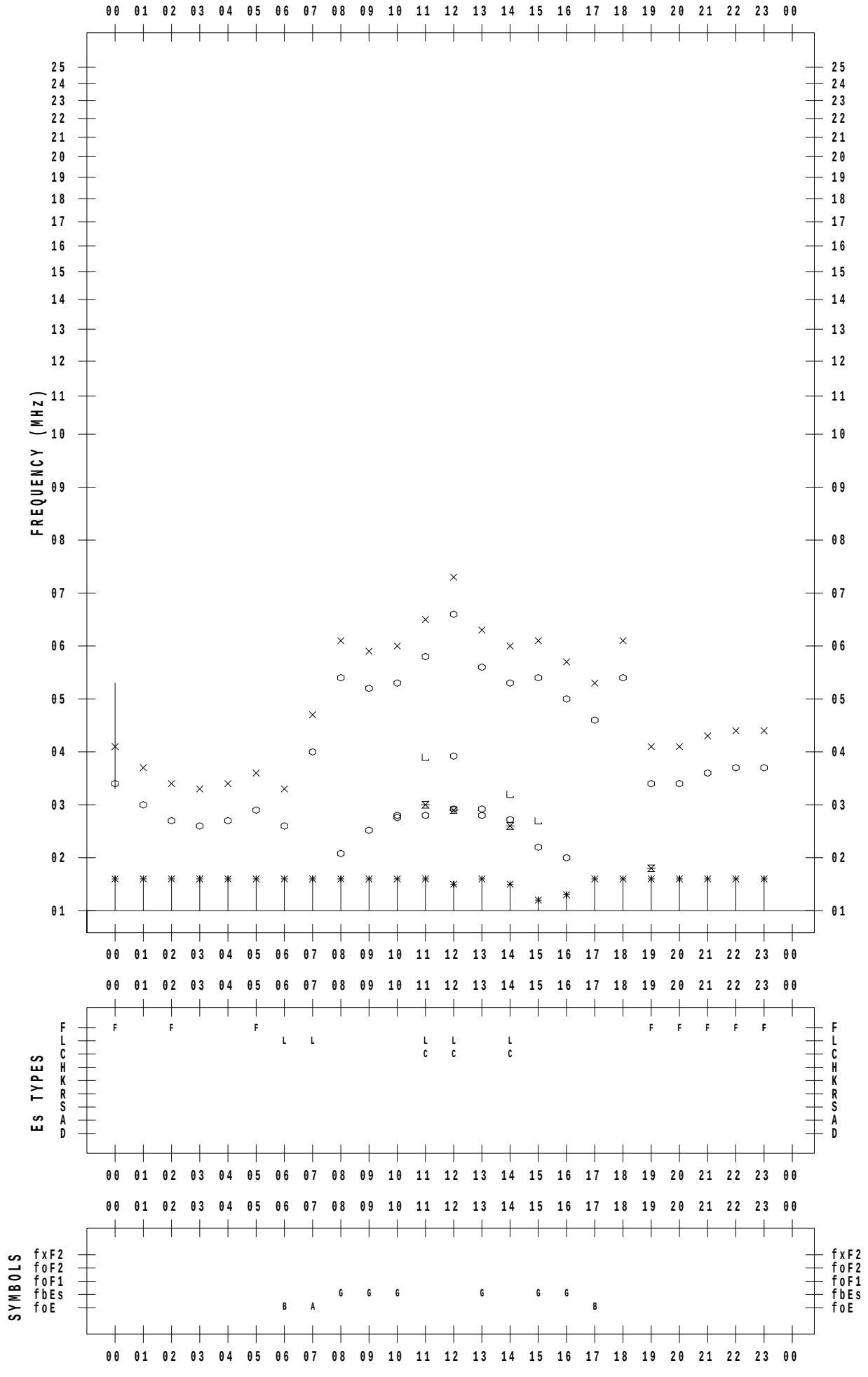
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/ 2

135 °E MEAN TIME



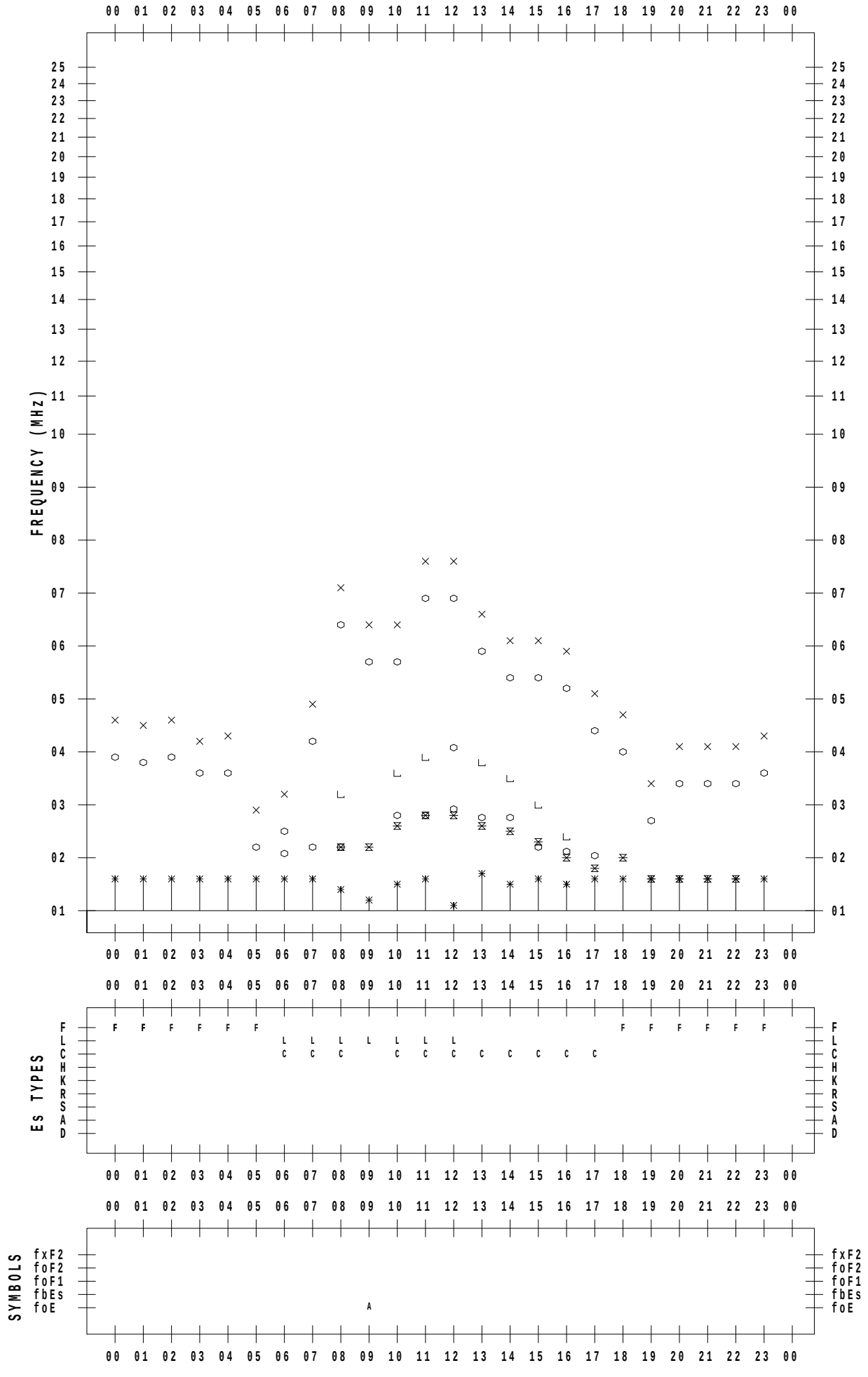
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/ 3

135 °E MEAN TIME



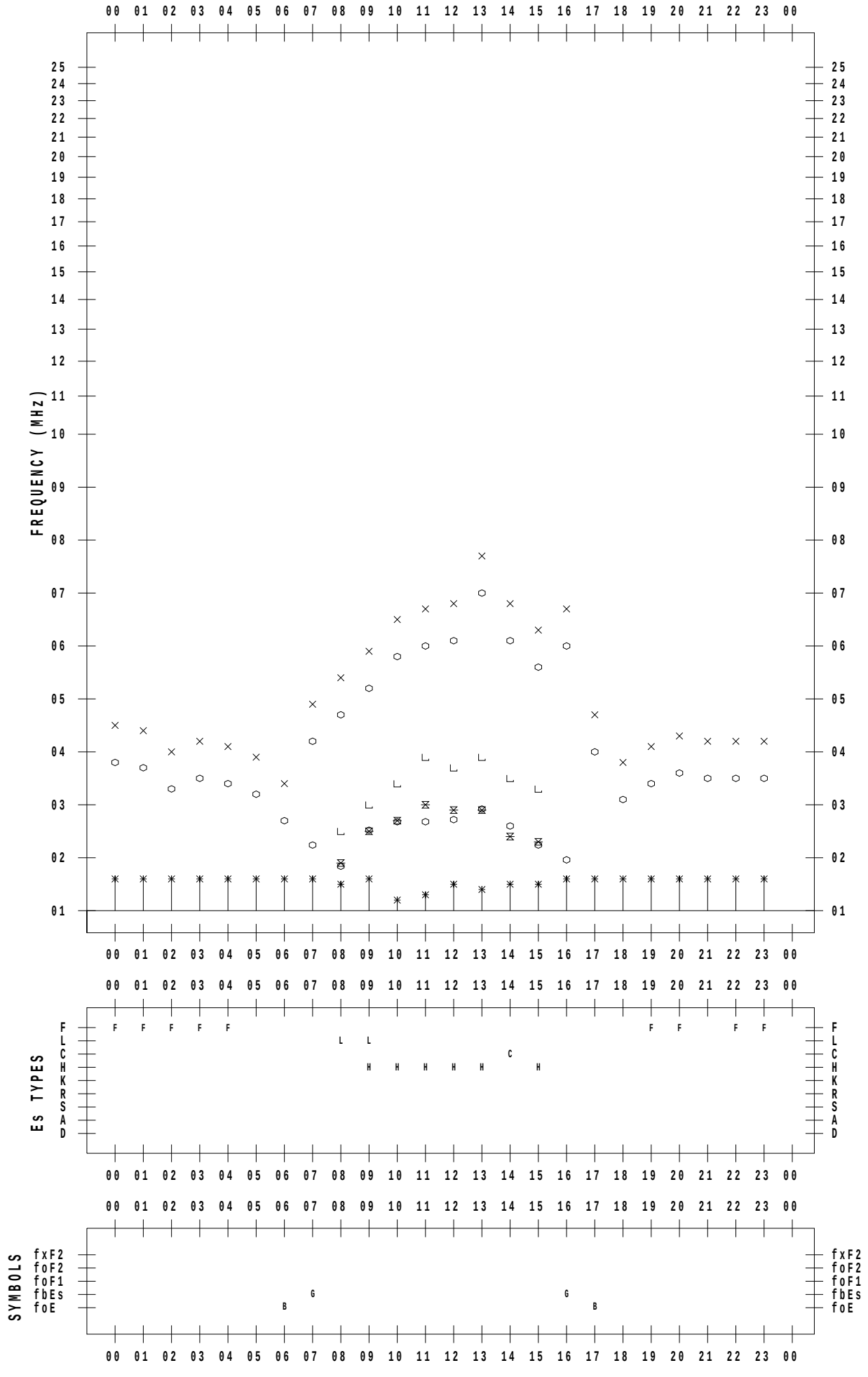
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/ 4

135 °E MEAN TIME



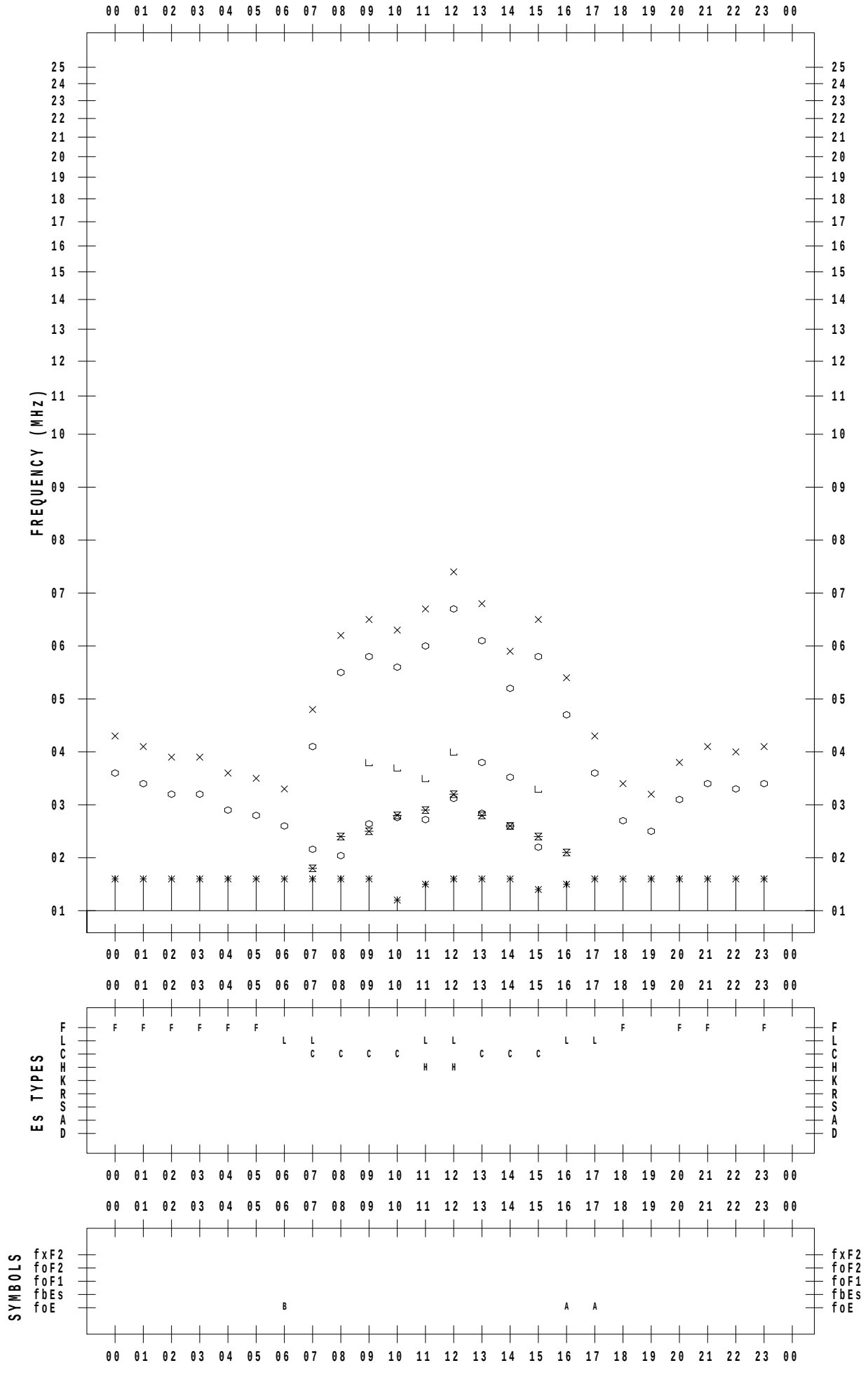
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/ 5

135 °E MEAN TIME



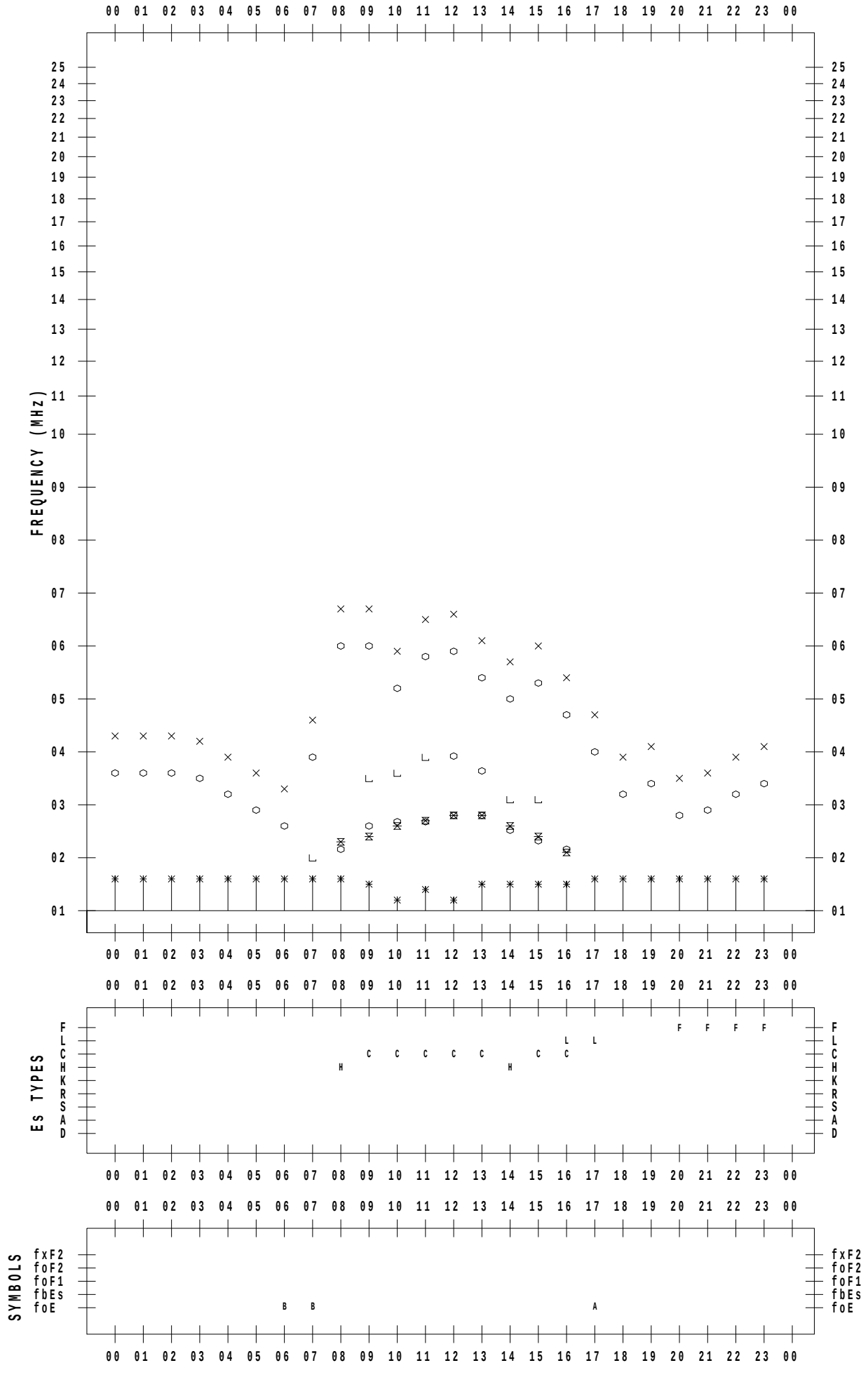
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/ 6

135 °E MEAN TIME



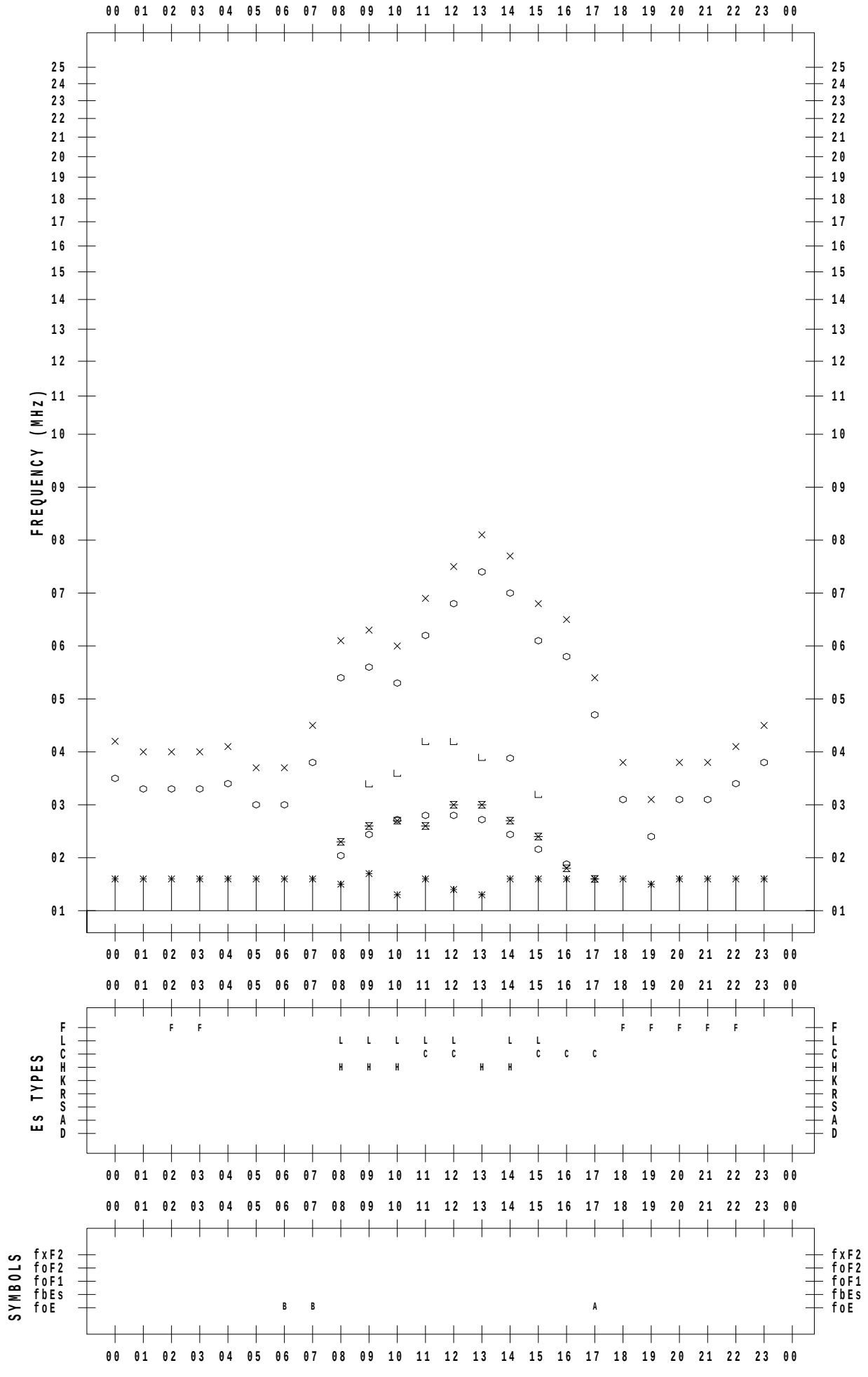
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/ 7

135 °E MEAN TIME



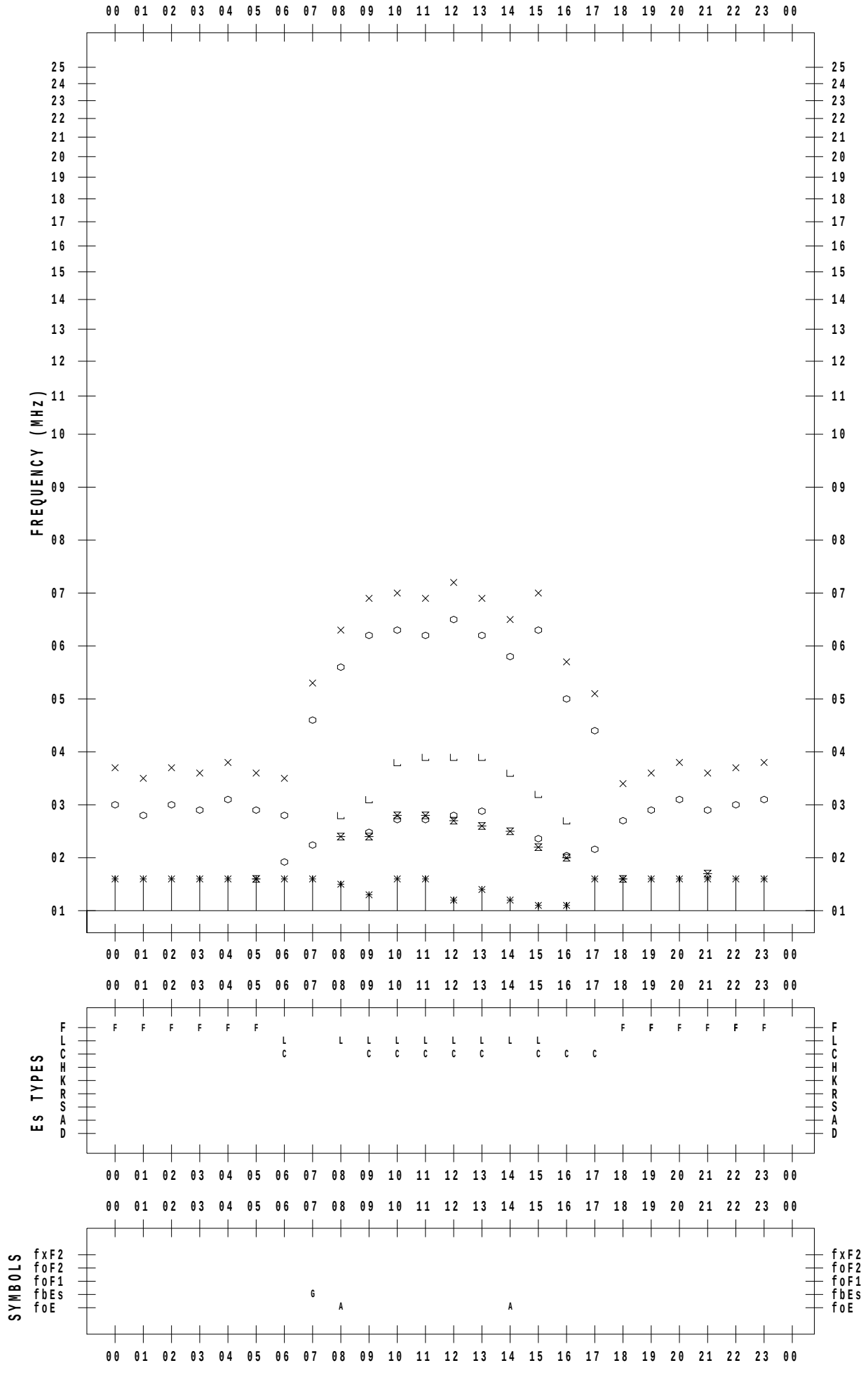
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/ 8

135 °E MEAN TIME



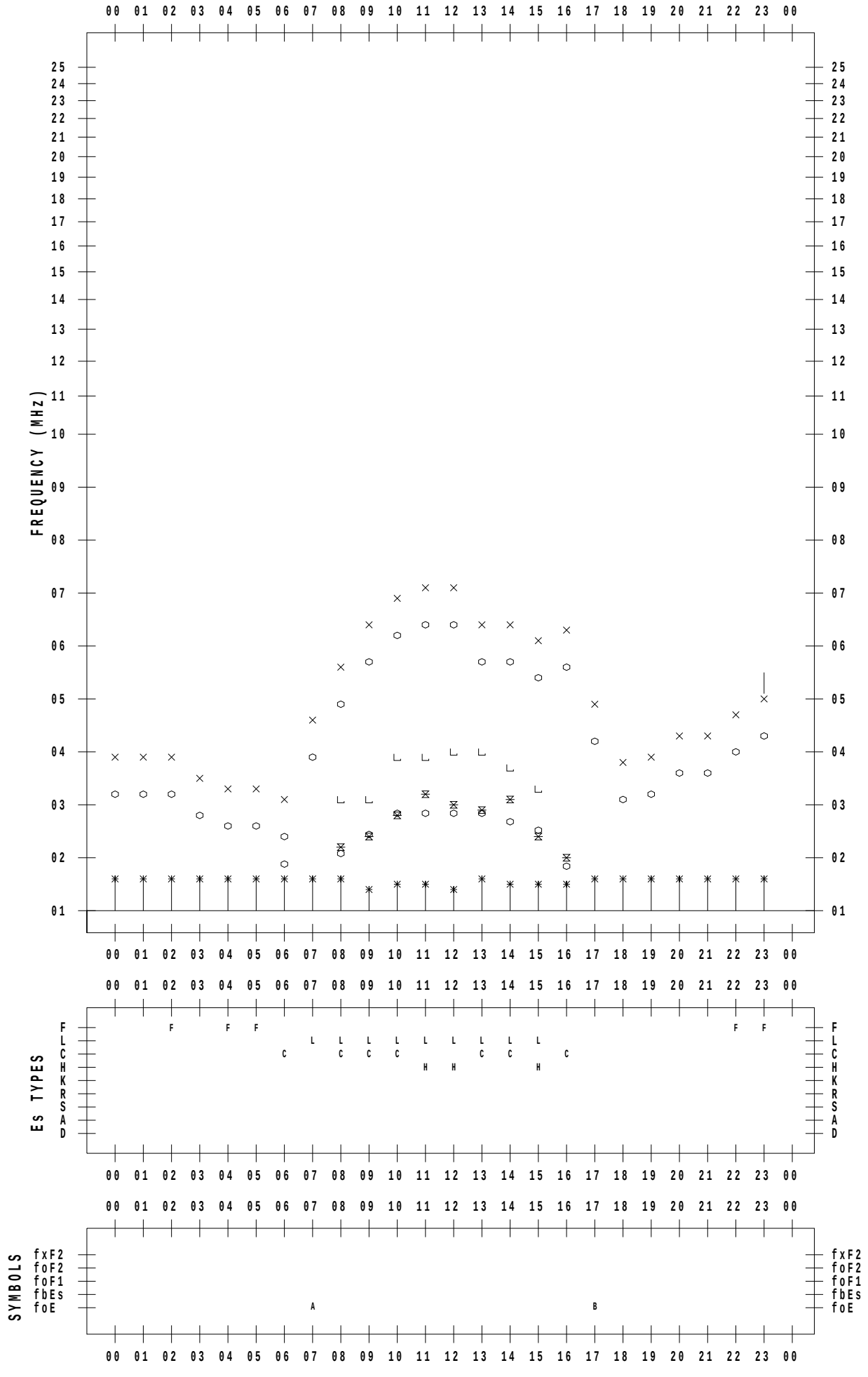
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/ 9

135 °E MEAN TIME



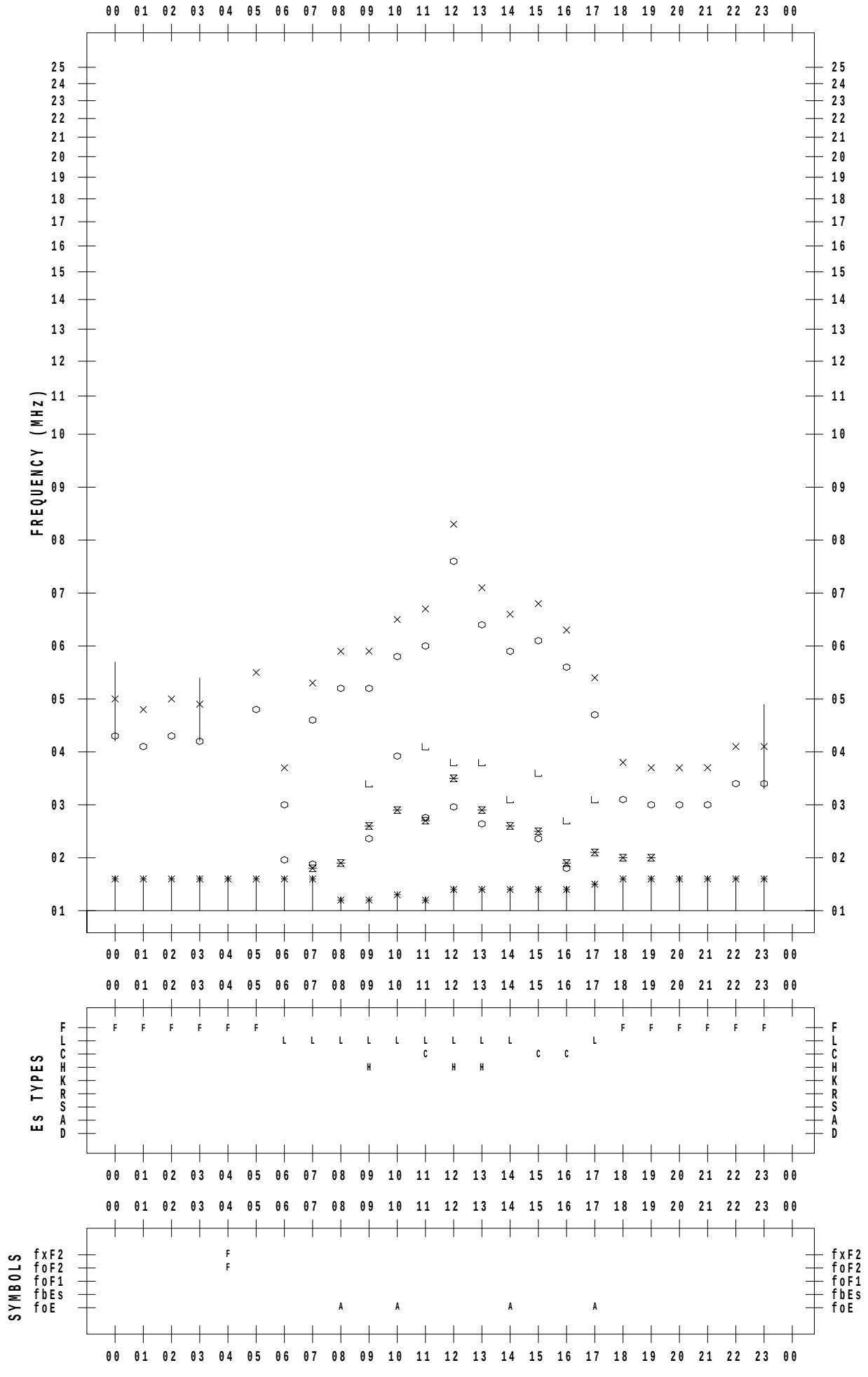
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/10

135 °E MEAN TIME



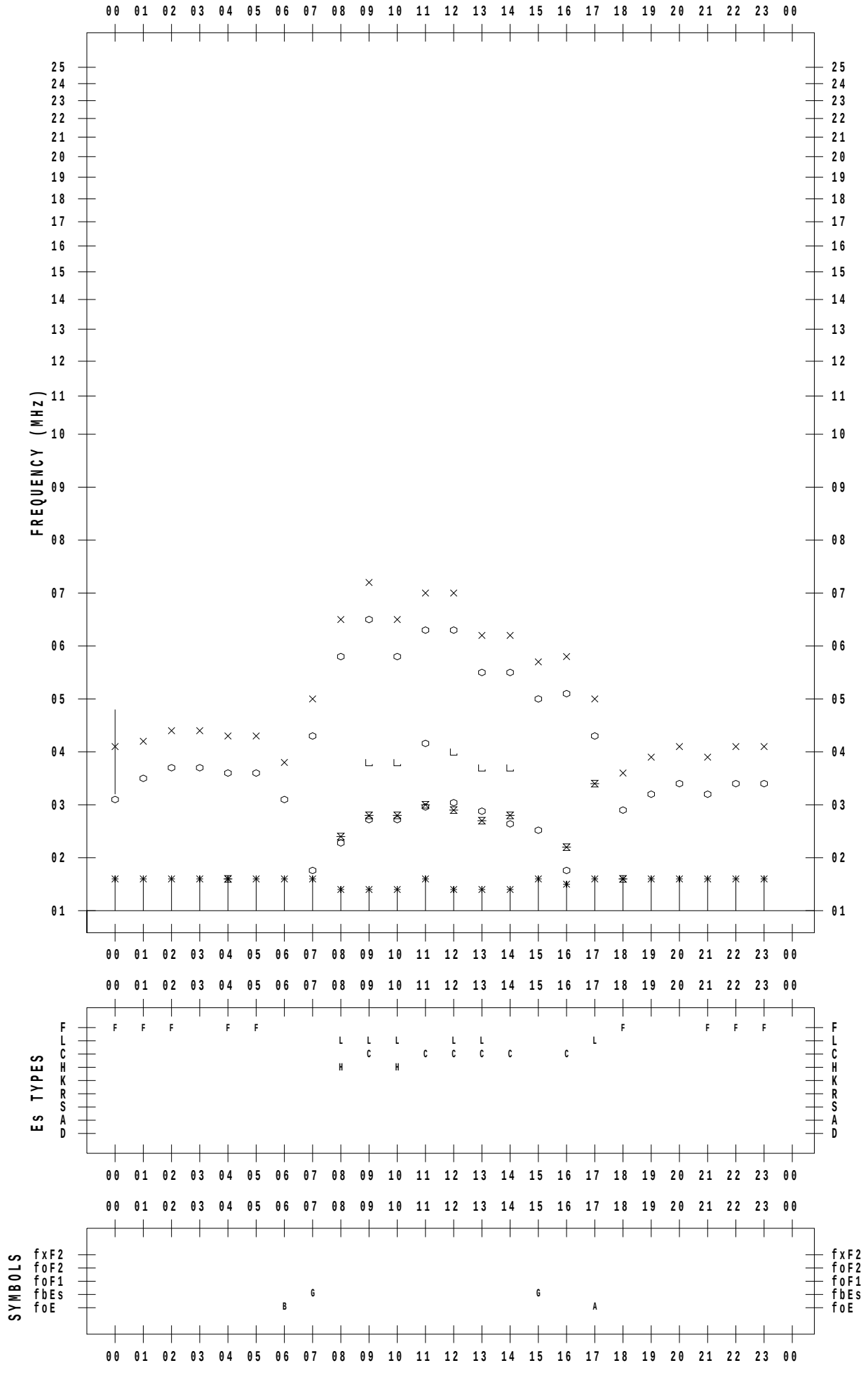
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/11

135 °E MEAN TIME



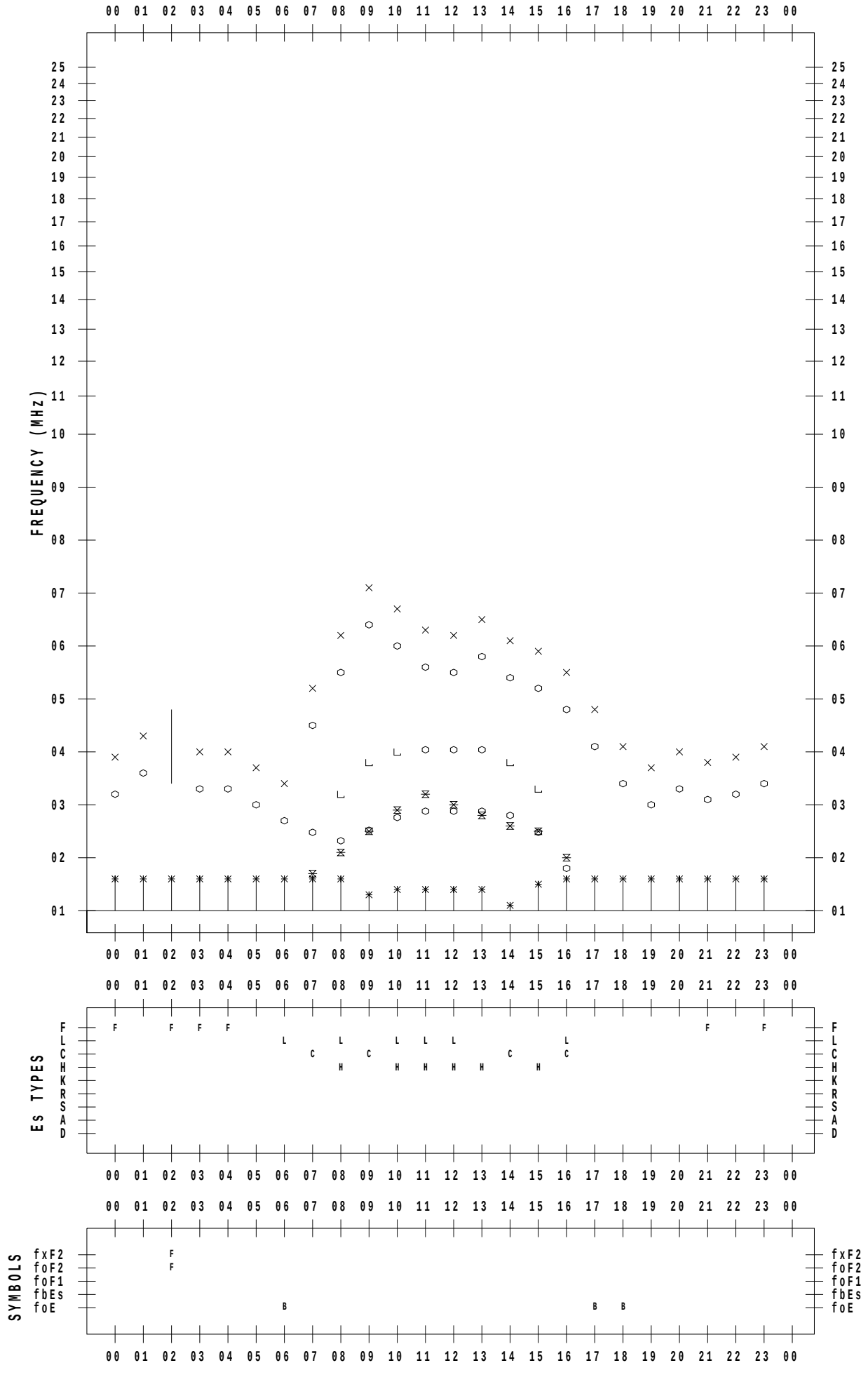
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/12

135 °E MEAN TIME



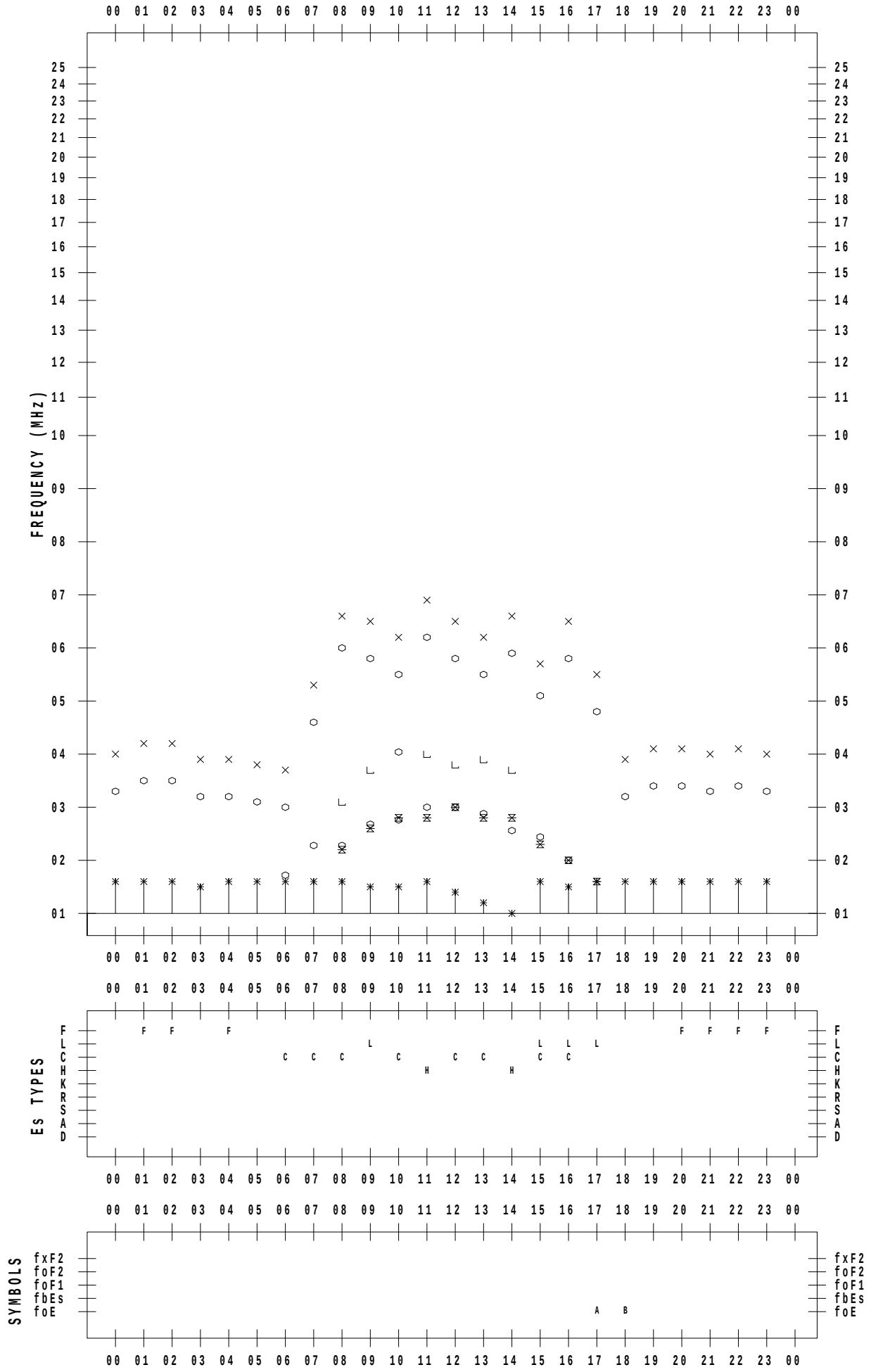
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/13

135 °E MEAN TIME



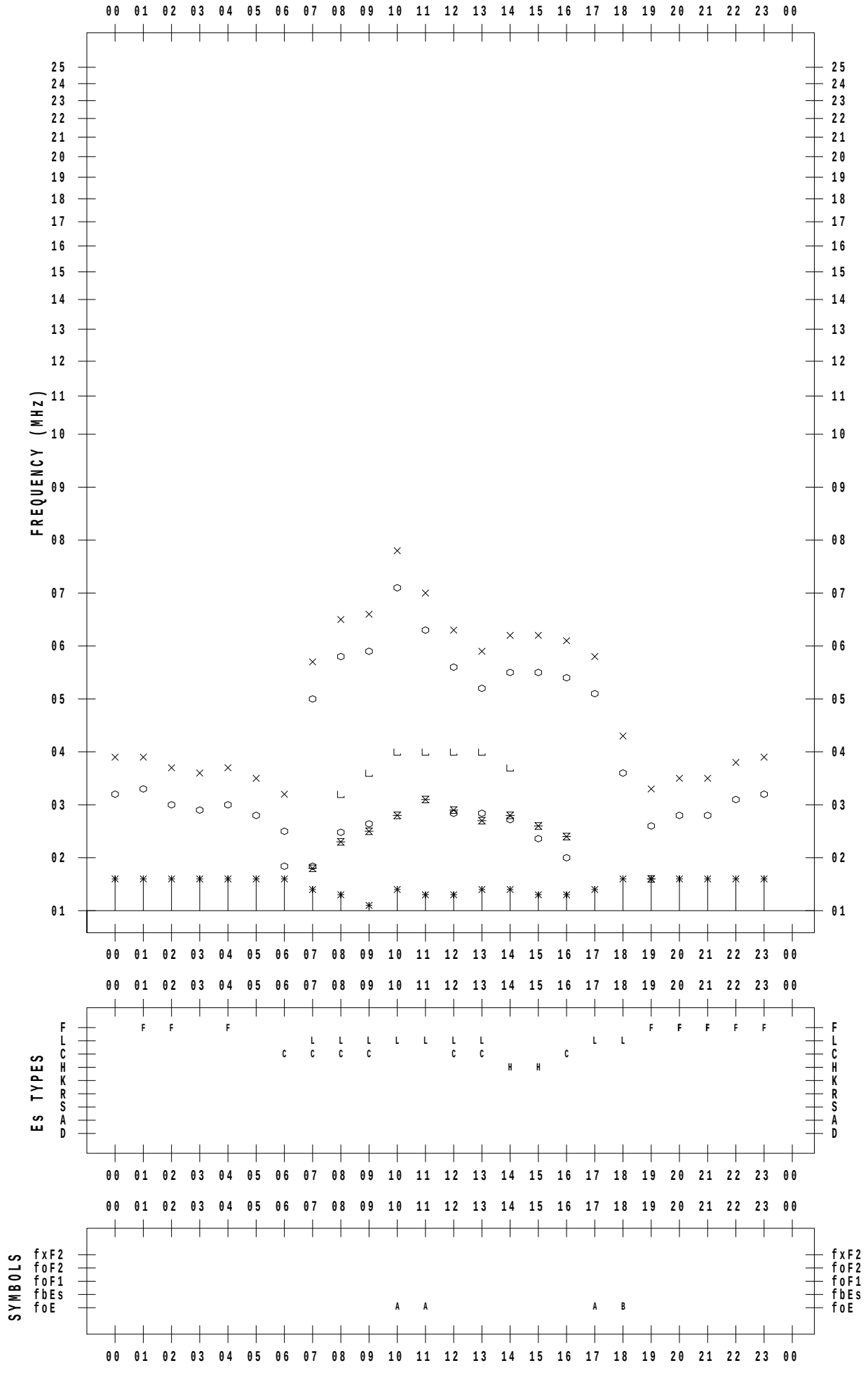
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/14

135 °E MEAN TIME



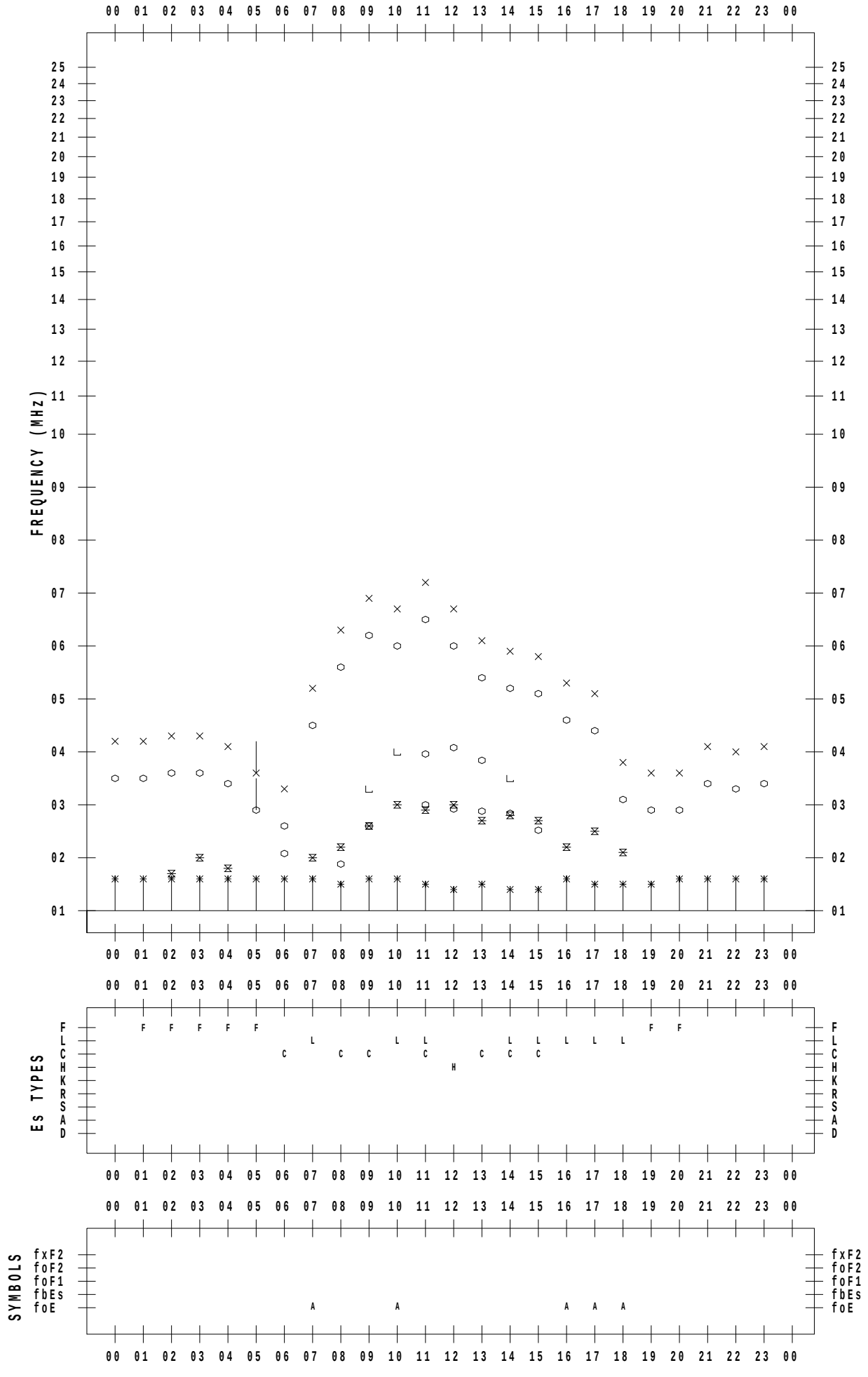
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/15

135 °E MEAN TIME



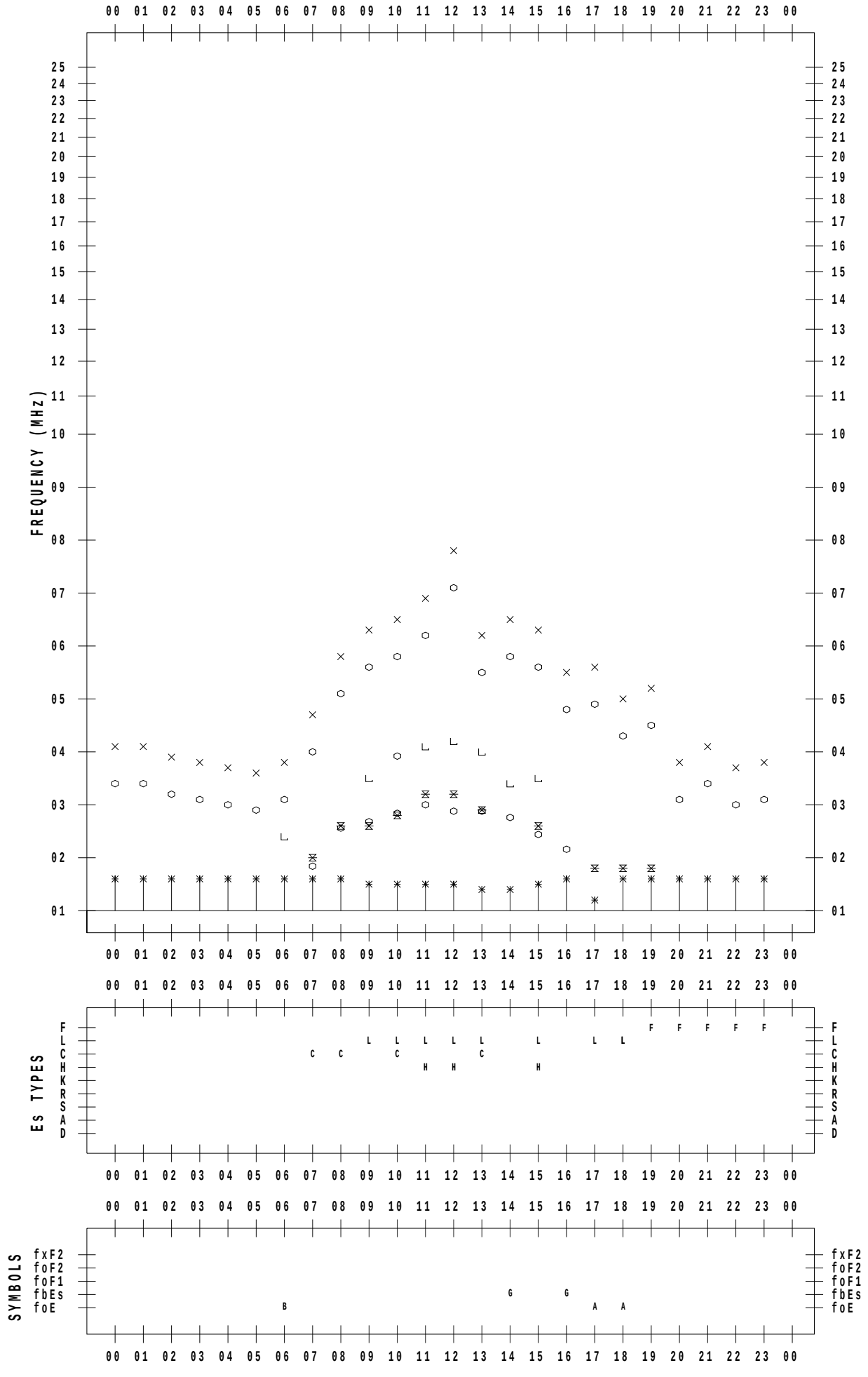
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/16

135 °E MEAN TIME



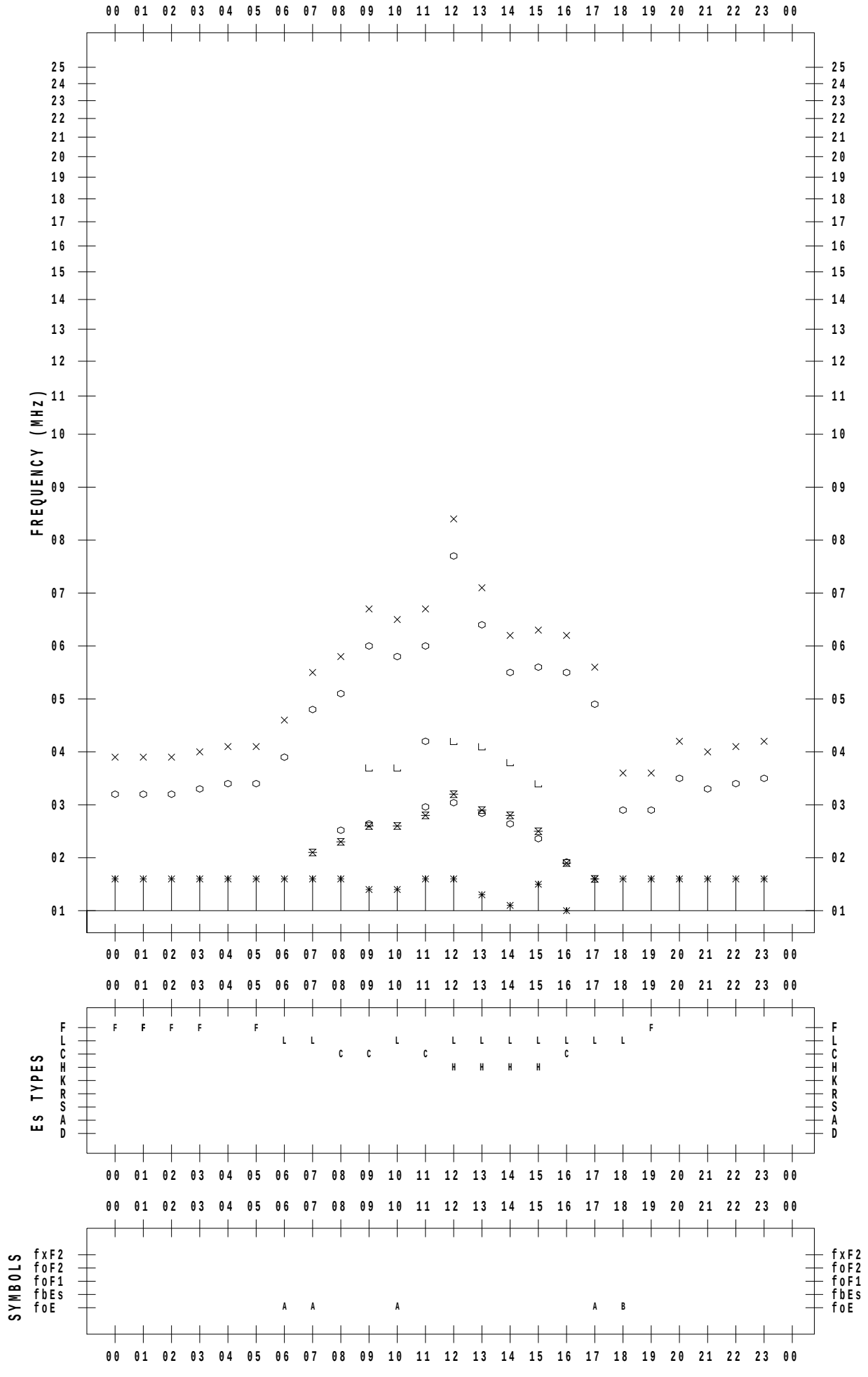
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/17

135 °E MEAN TIME



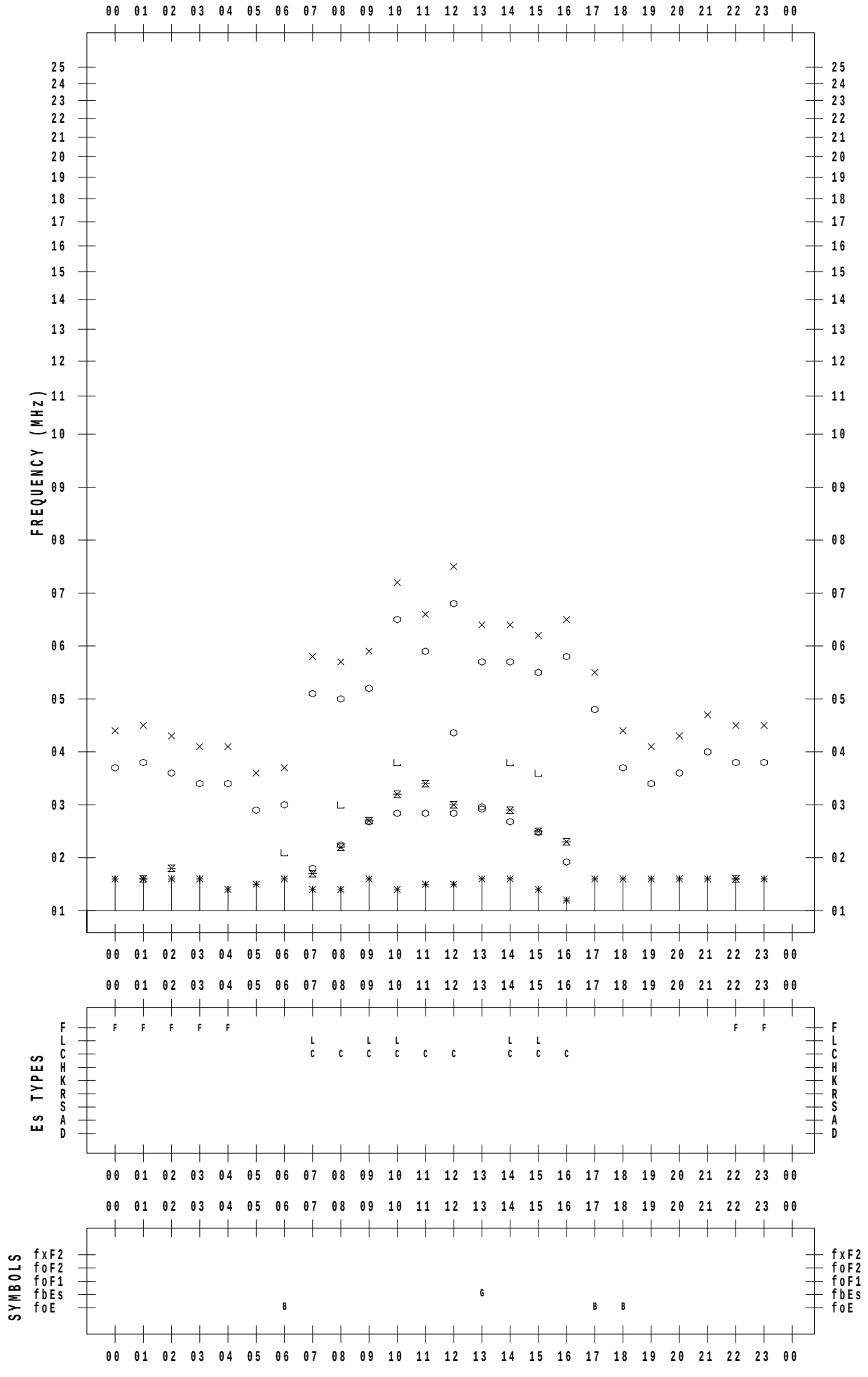
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/18

135 °E MEAN TIME



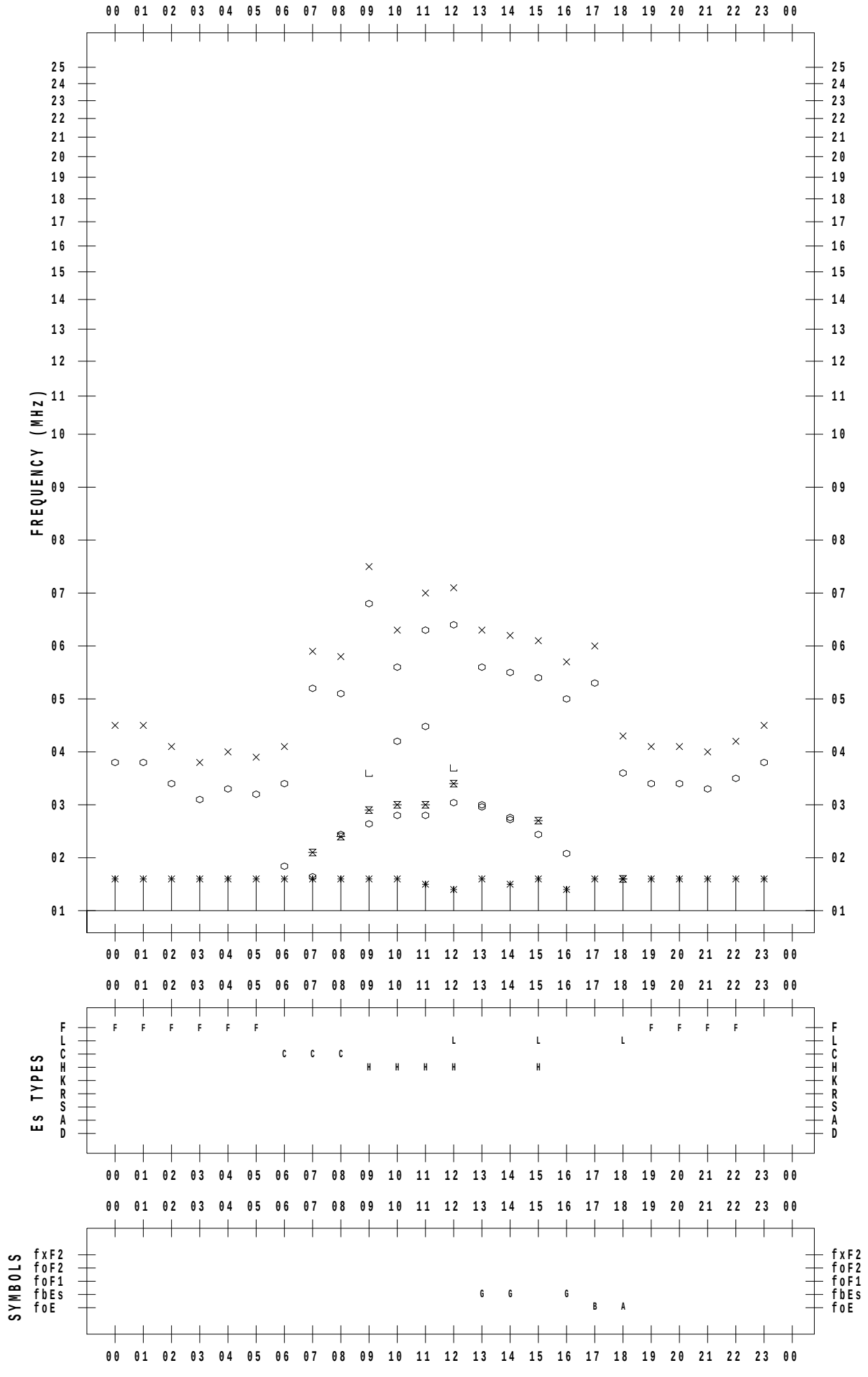
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/19

135 °E MEAN TIME



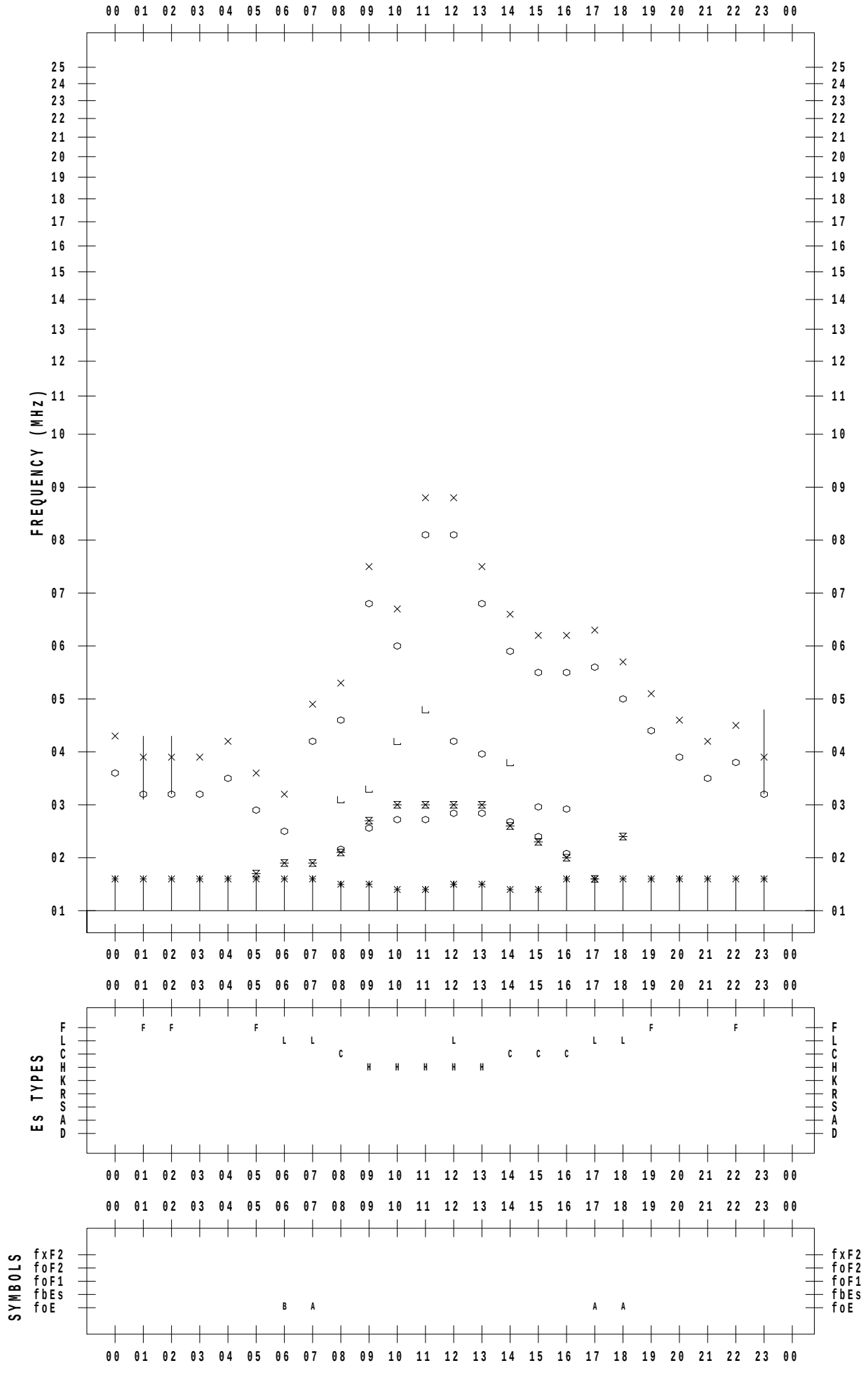
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/20

135 °E MEAN TIME



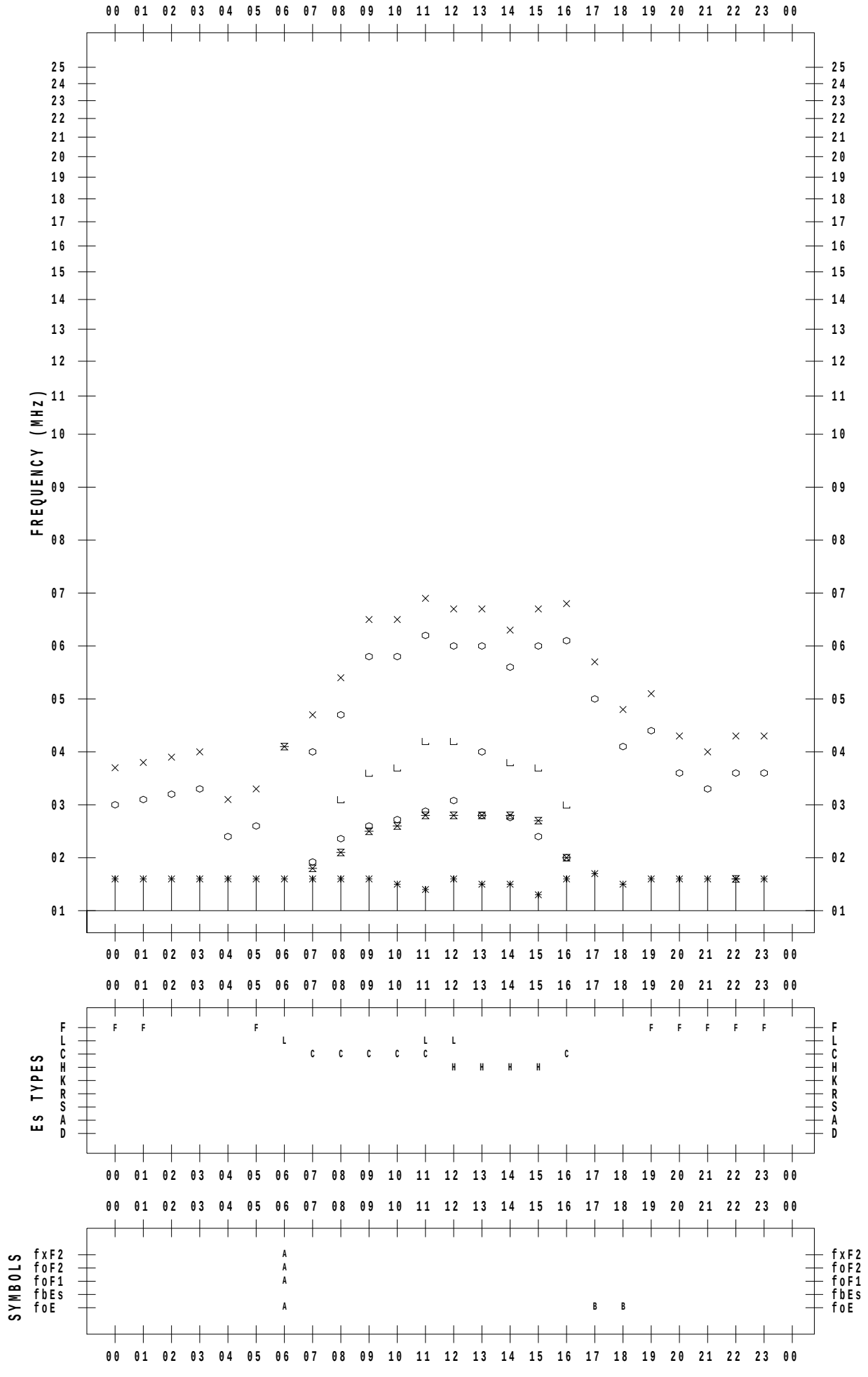
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/21

135 °E MEAN TIME



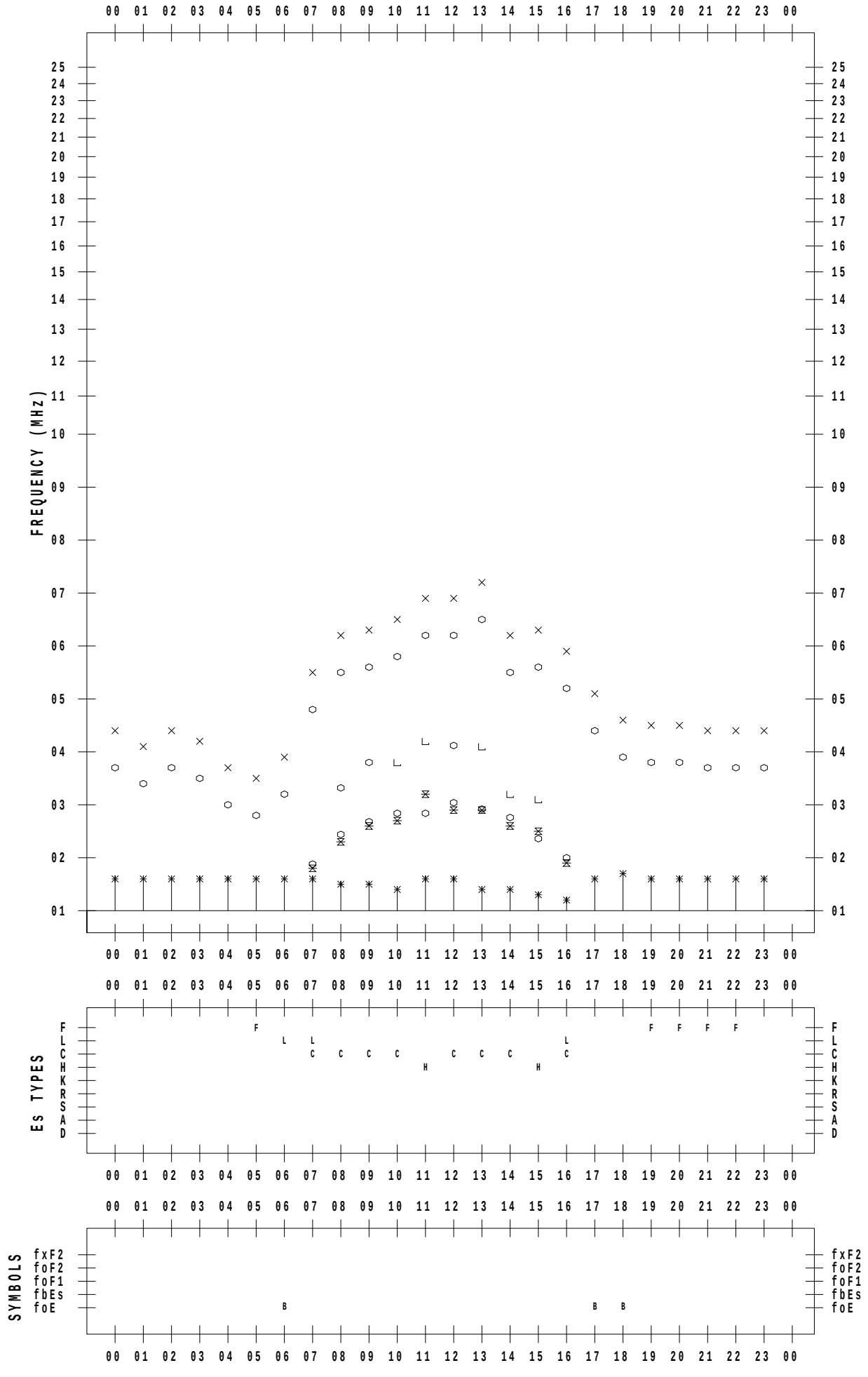
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/22

135 °E MEAN TIME



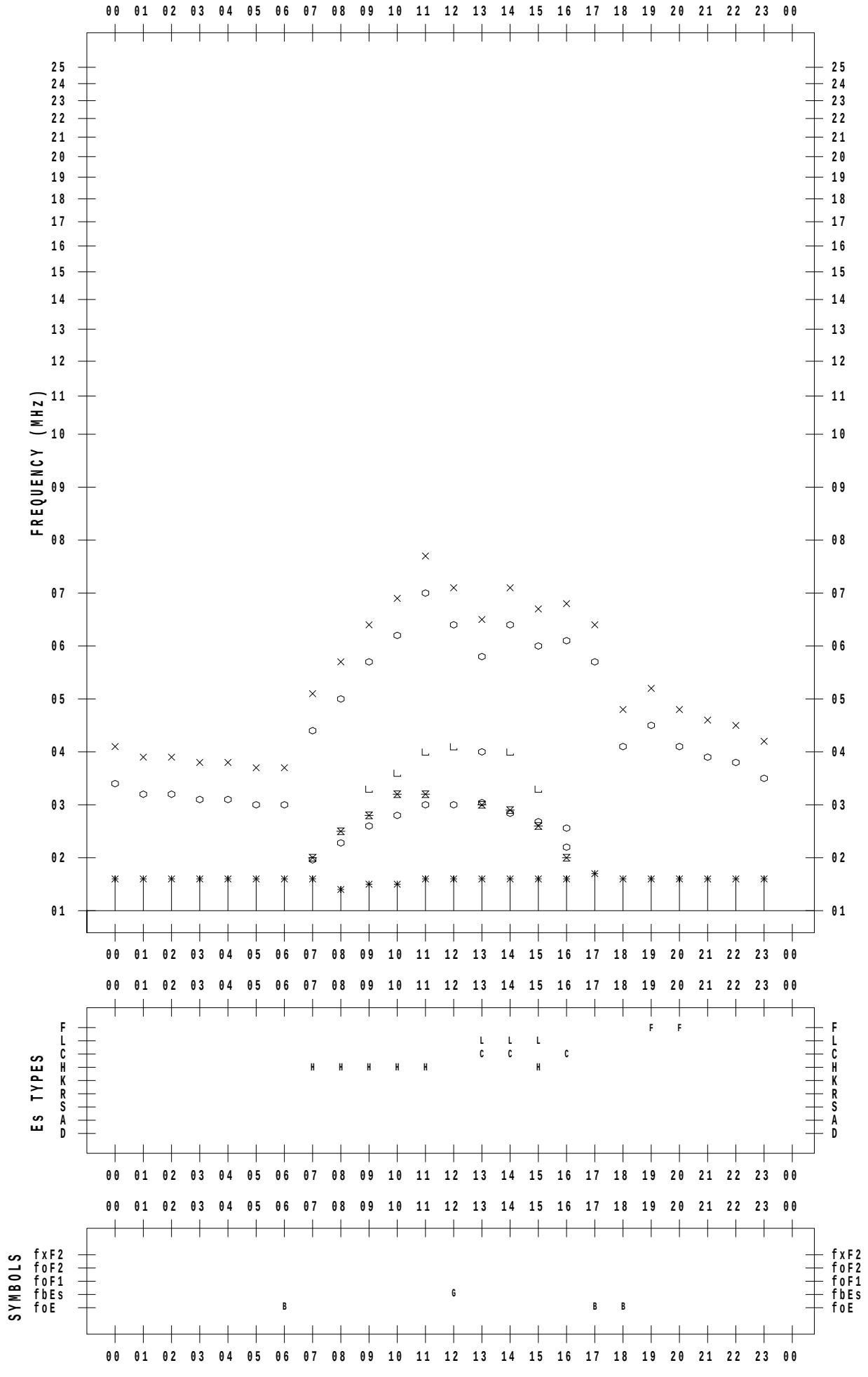
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/23

135 °E MEAN TIME



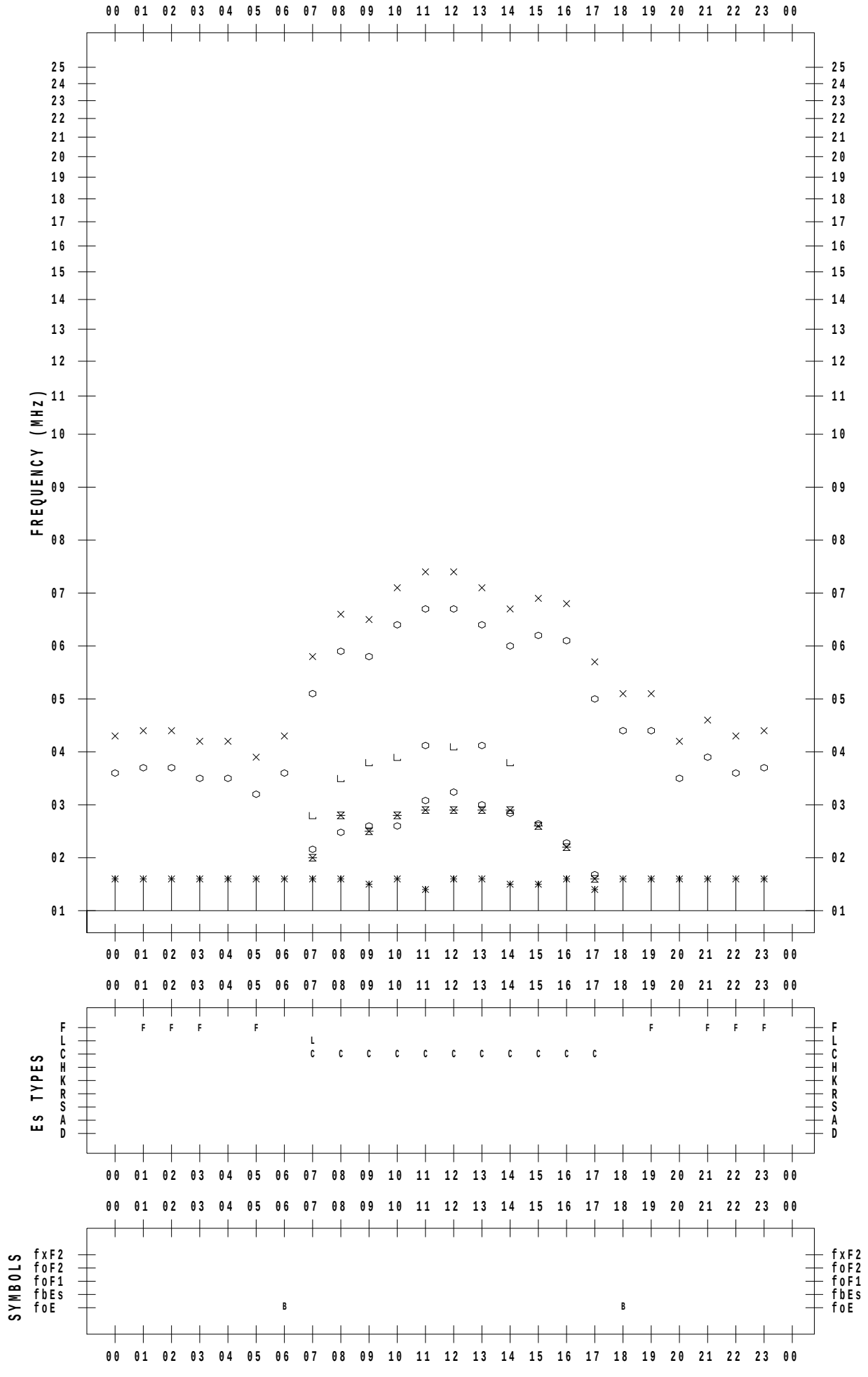
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/24

135 °E MEAN TIME



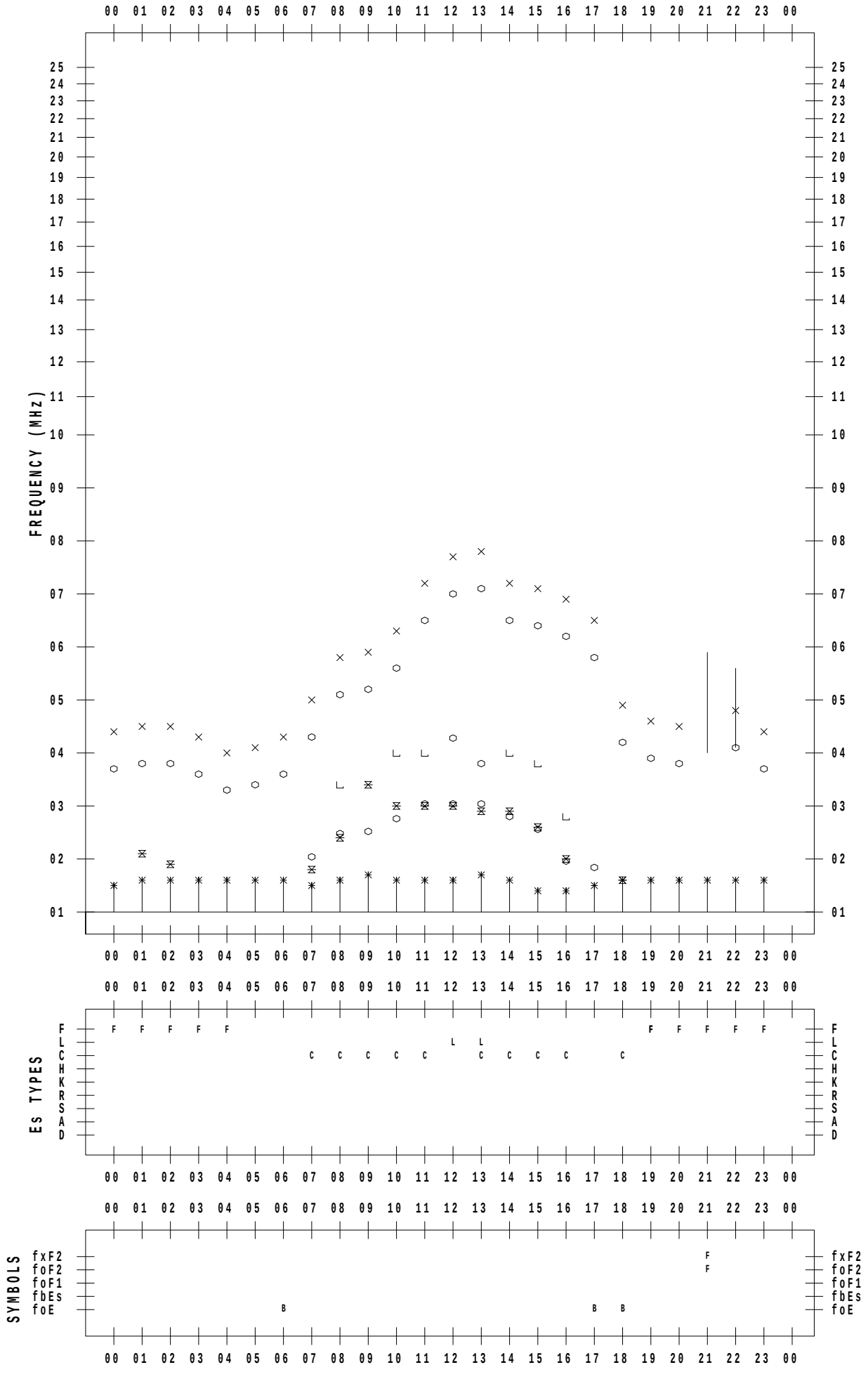
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/25

135 °E MEAN TIME



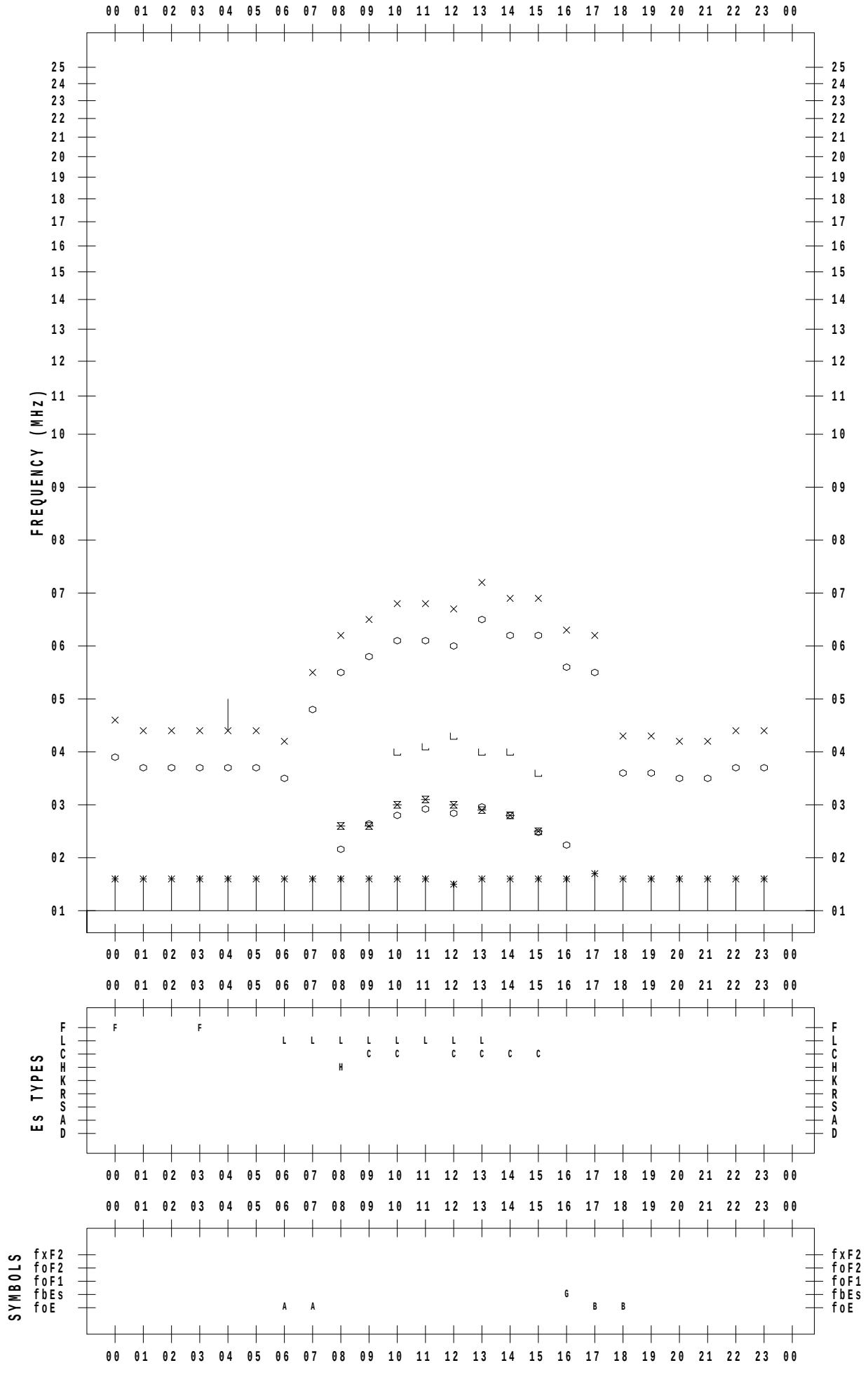
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/26

135 °E MEAN TIME



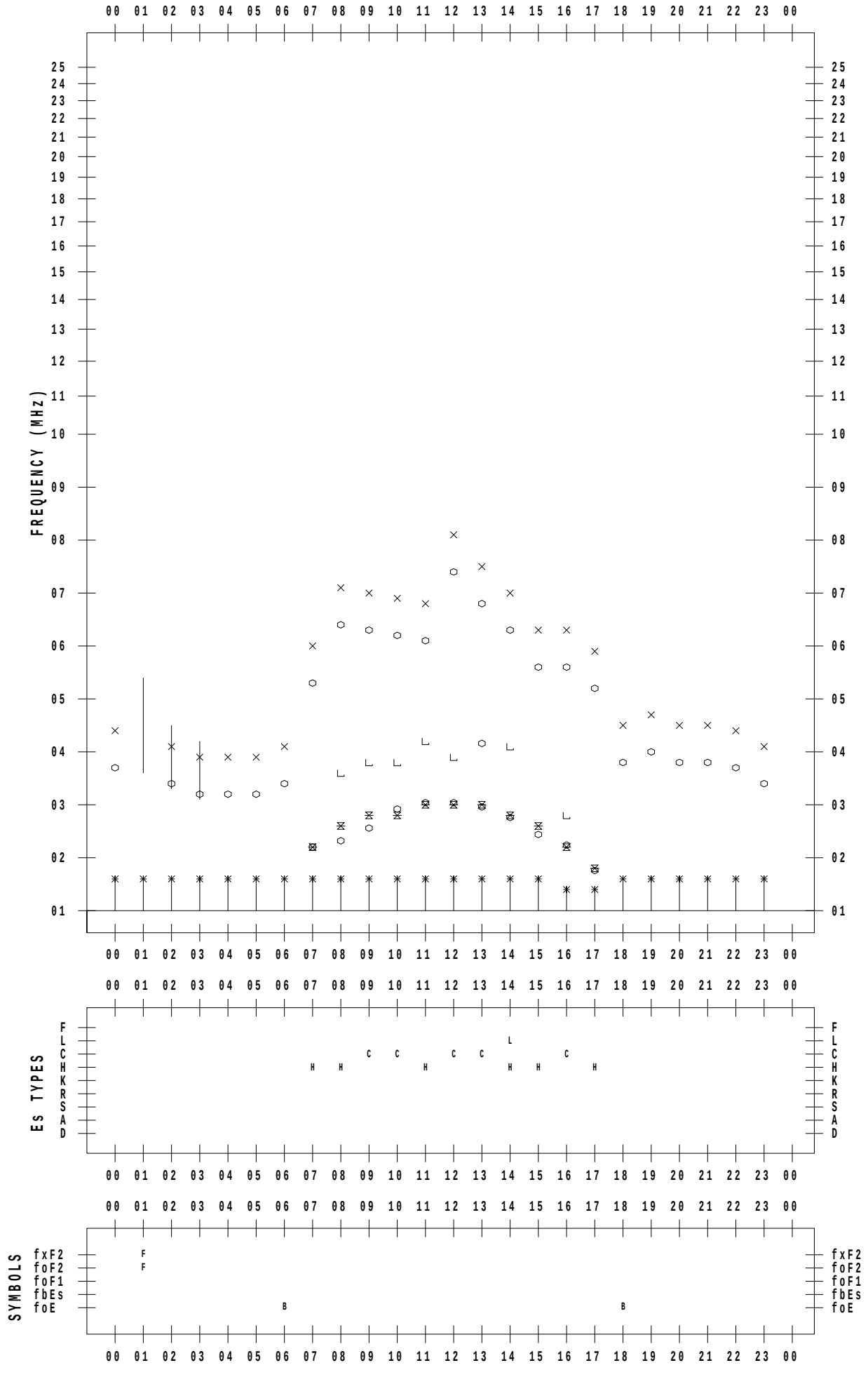
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/27

135 °E MEAN TIME



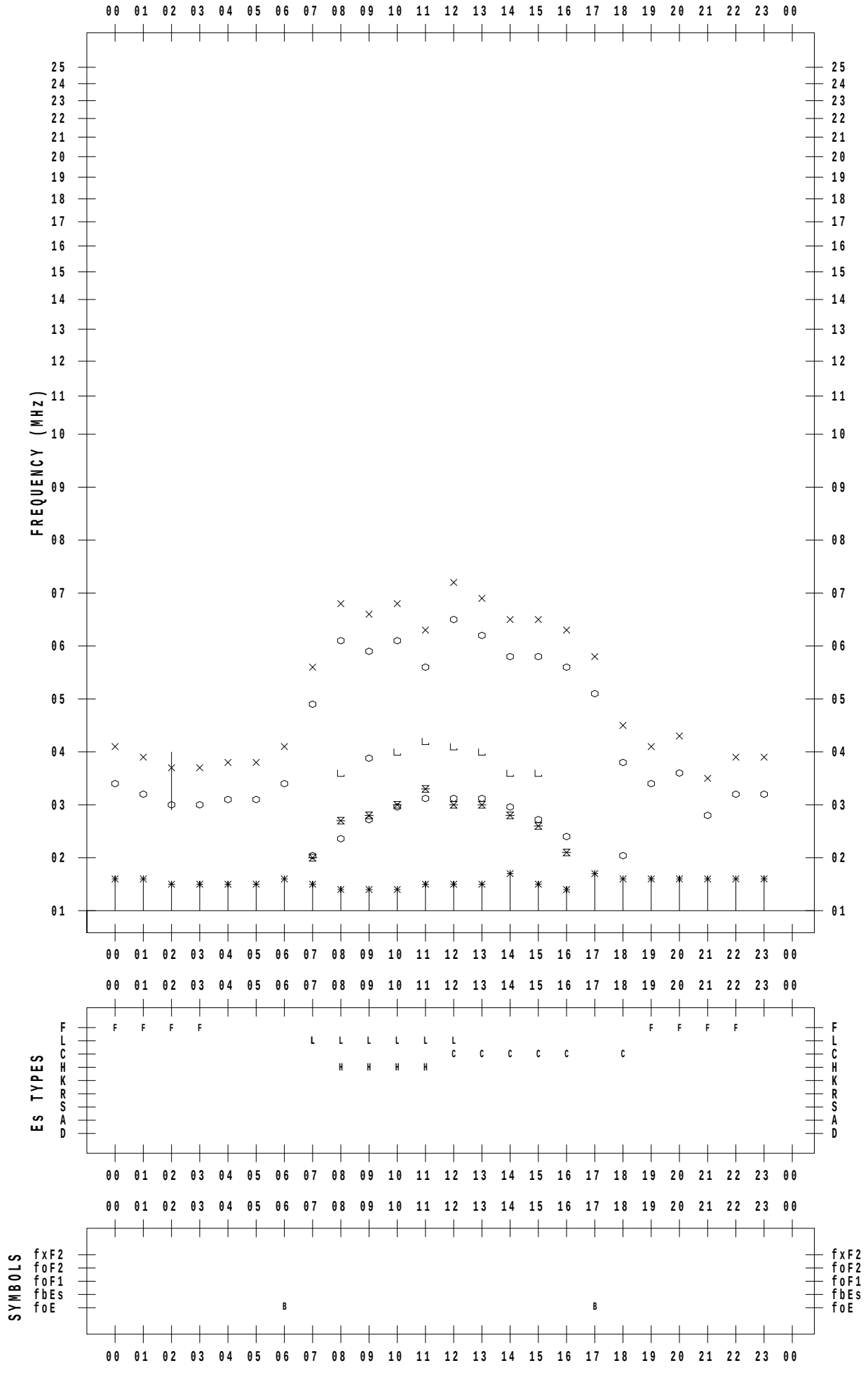
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2021/ 2/28

135 °E MEAN TIME



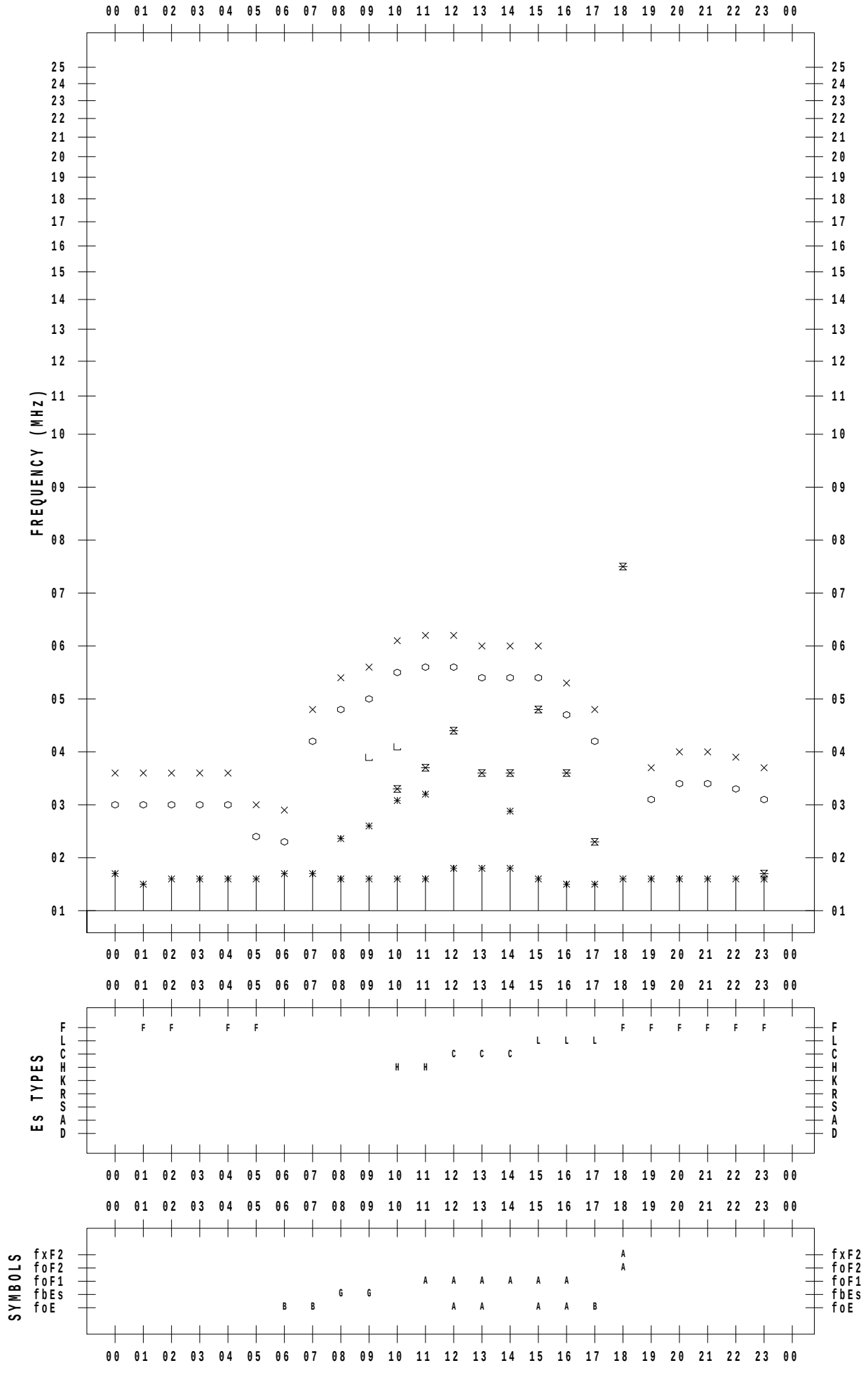
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/ 1

135 °E MEAN TIME



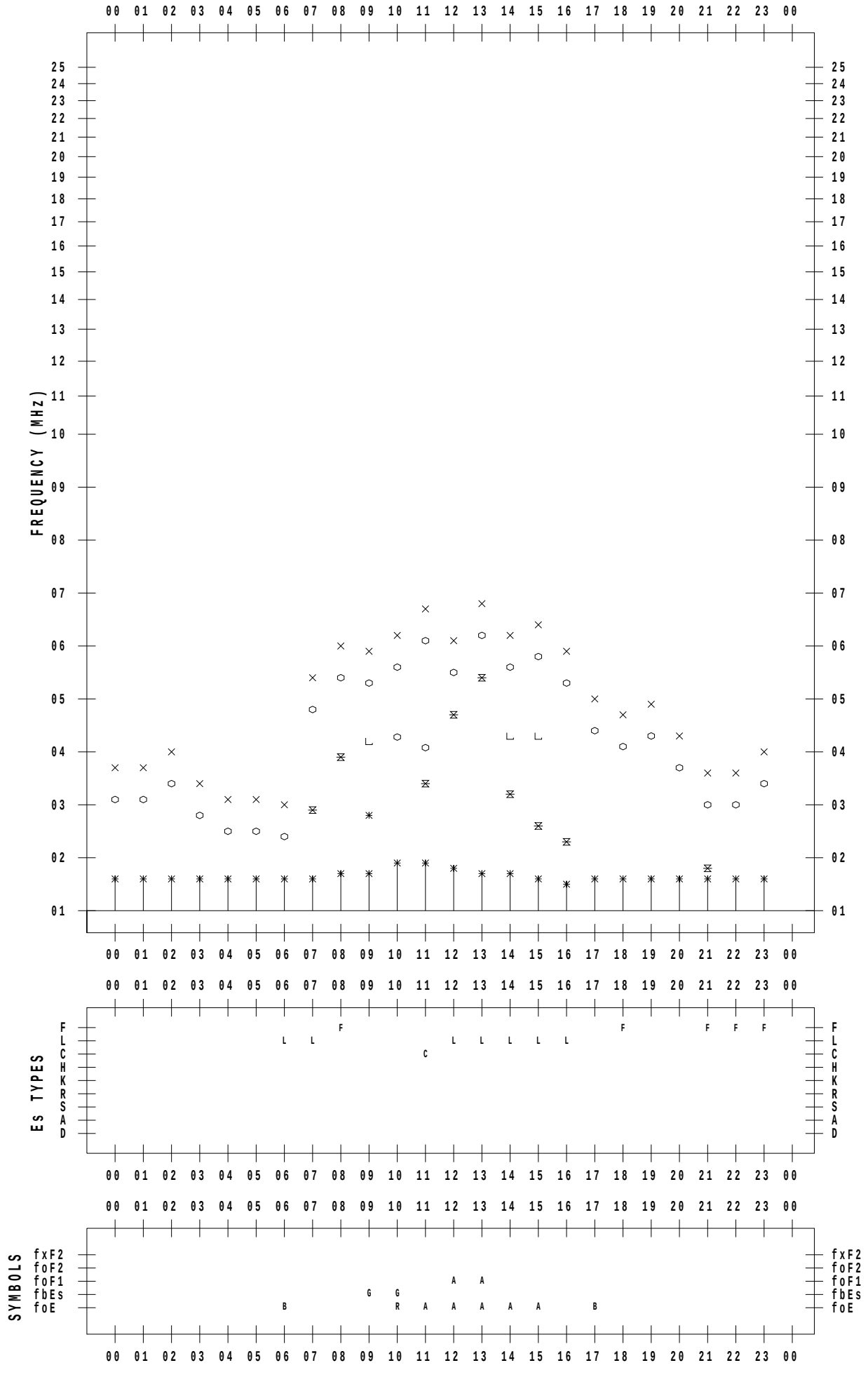
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/ 2

135 °E MEAN TIME



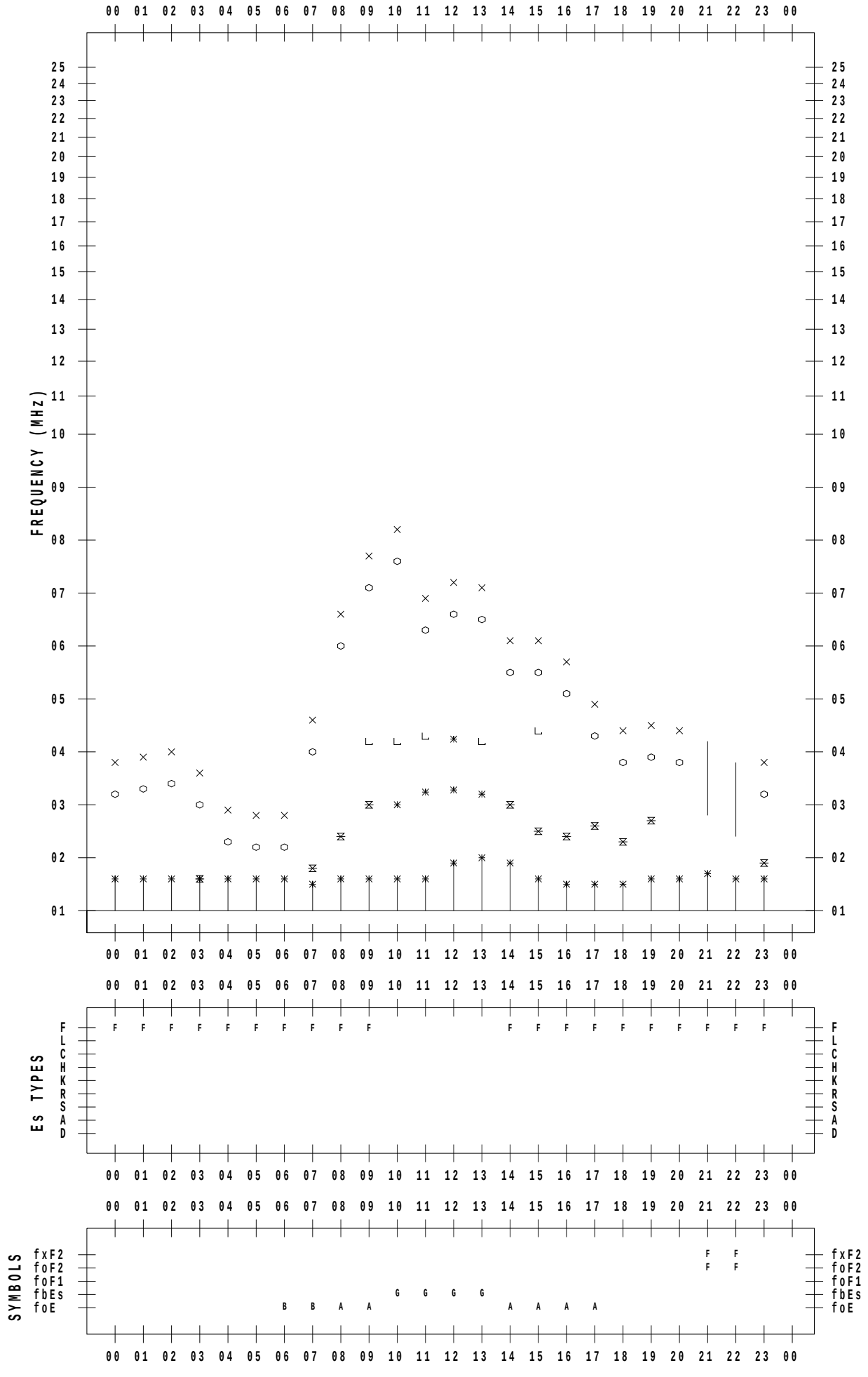
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/ 3

135 °E MEAN TIME



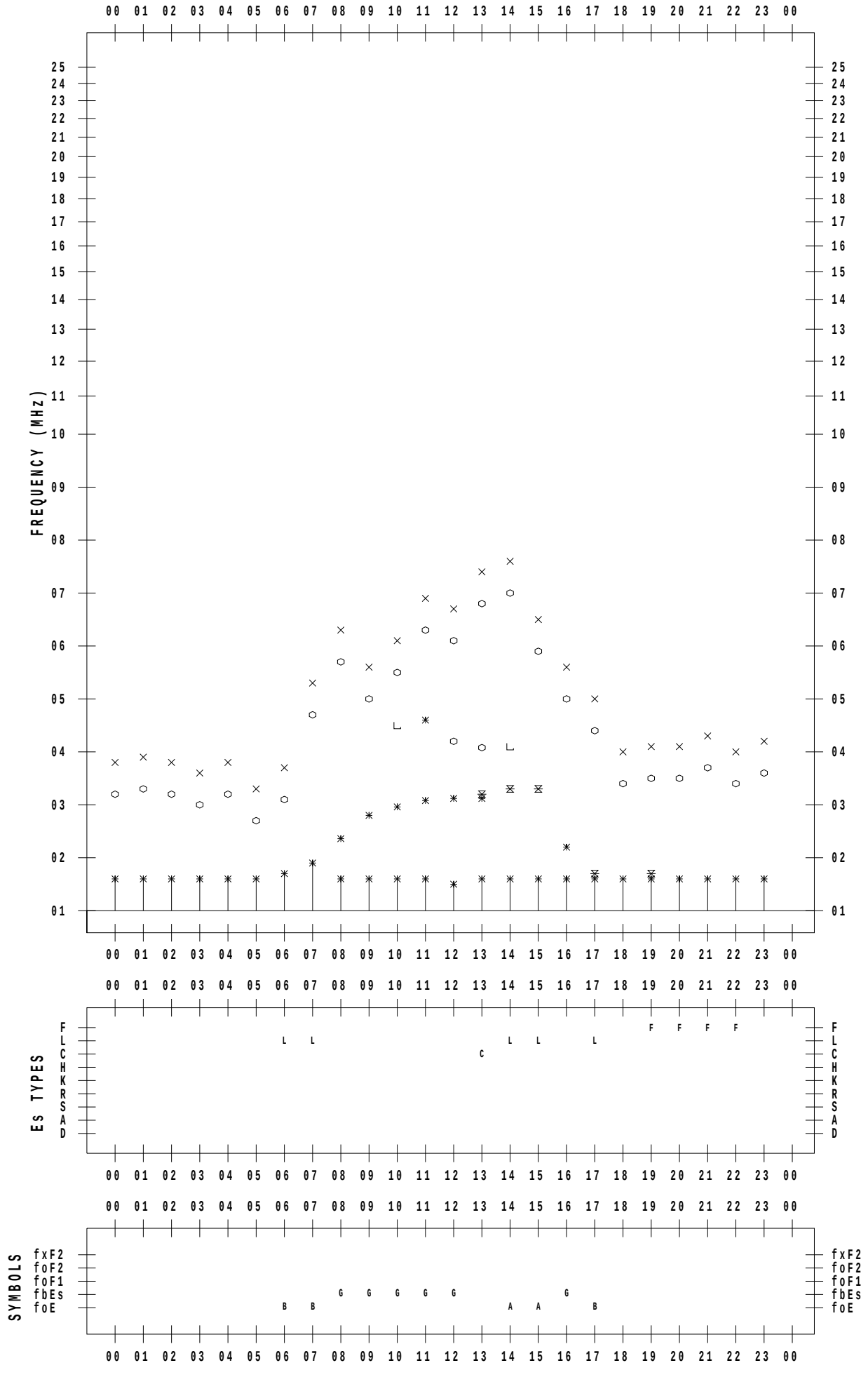
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/ 4

135 °E MEAN TIME



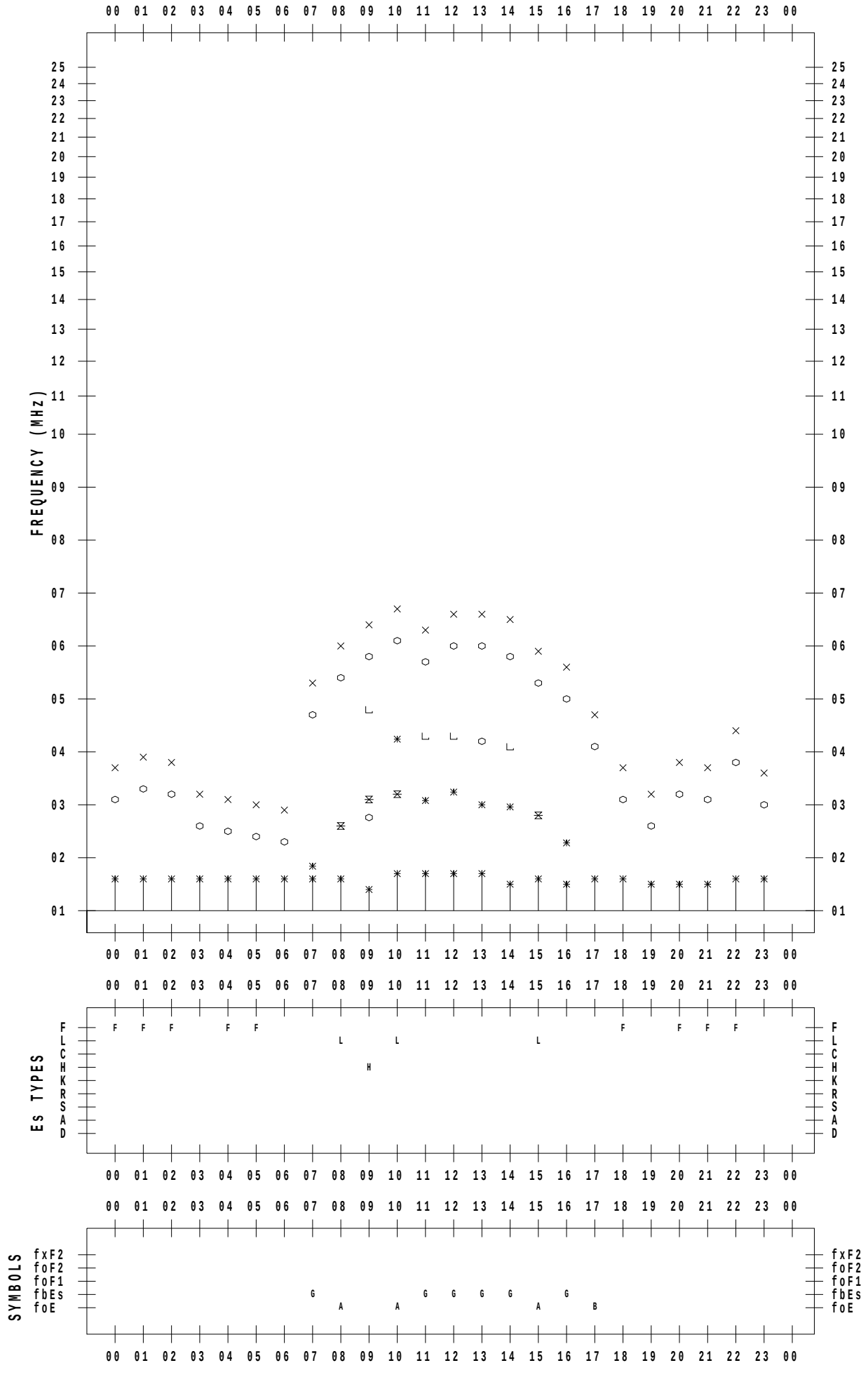
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/ 5

135 °E MEAN TIME



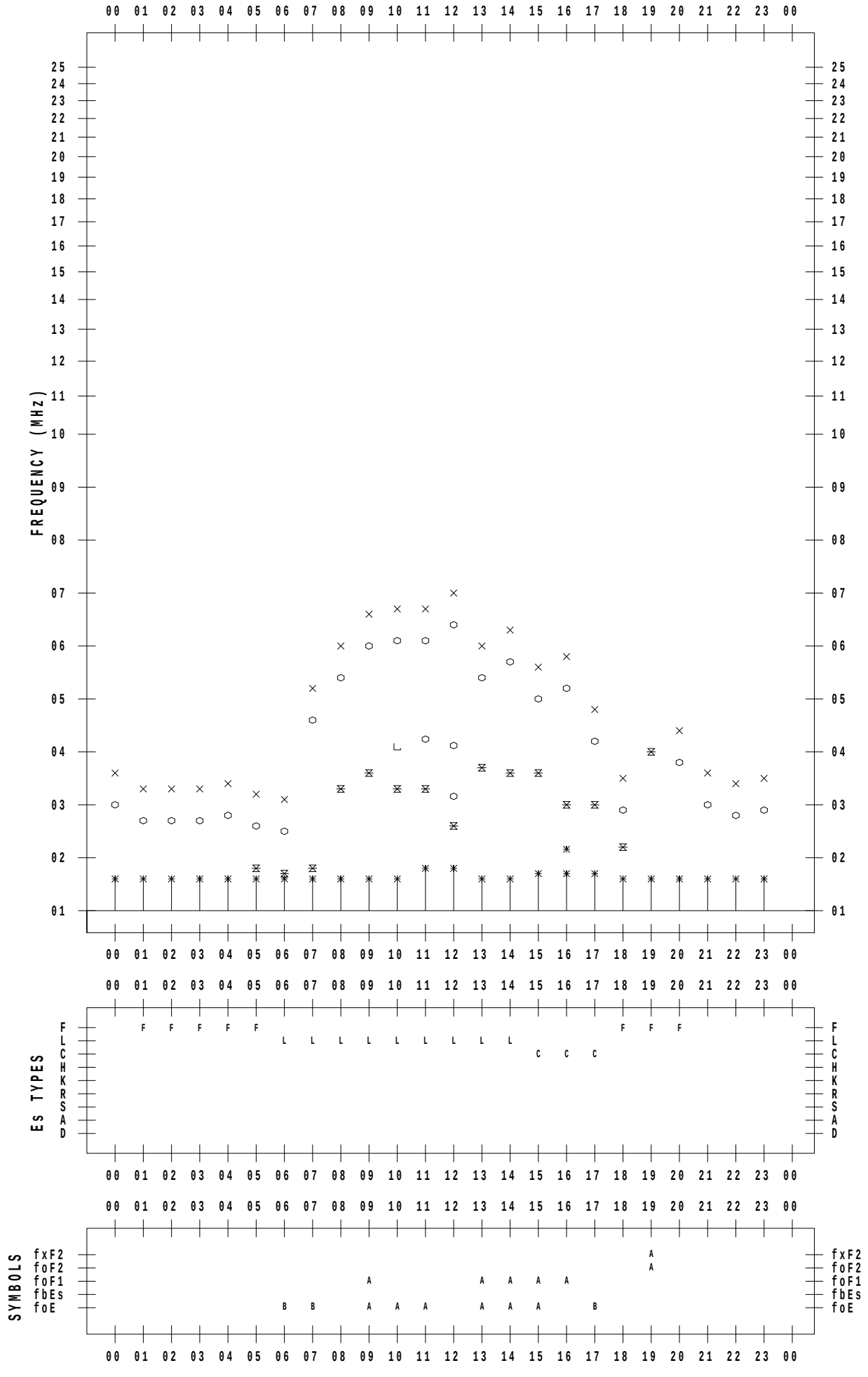
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/ 6

135 °E MEAN TIME



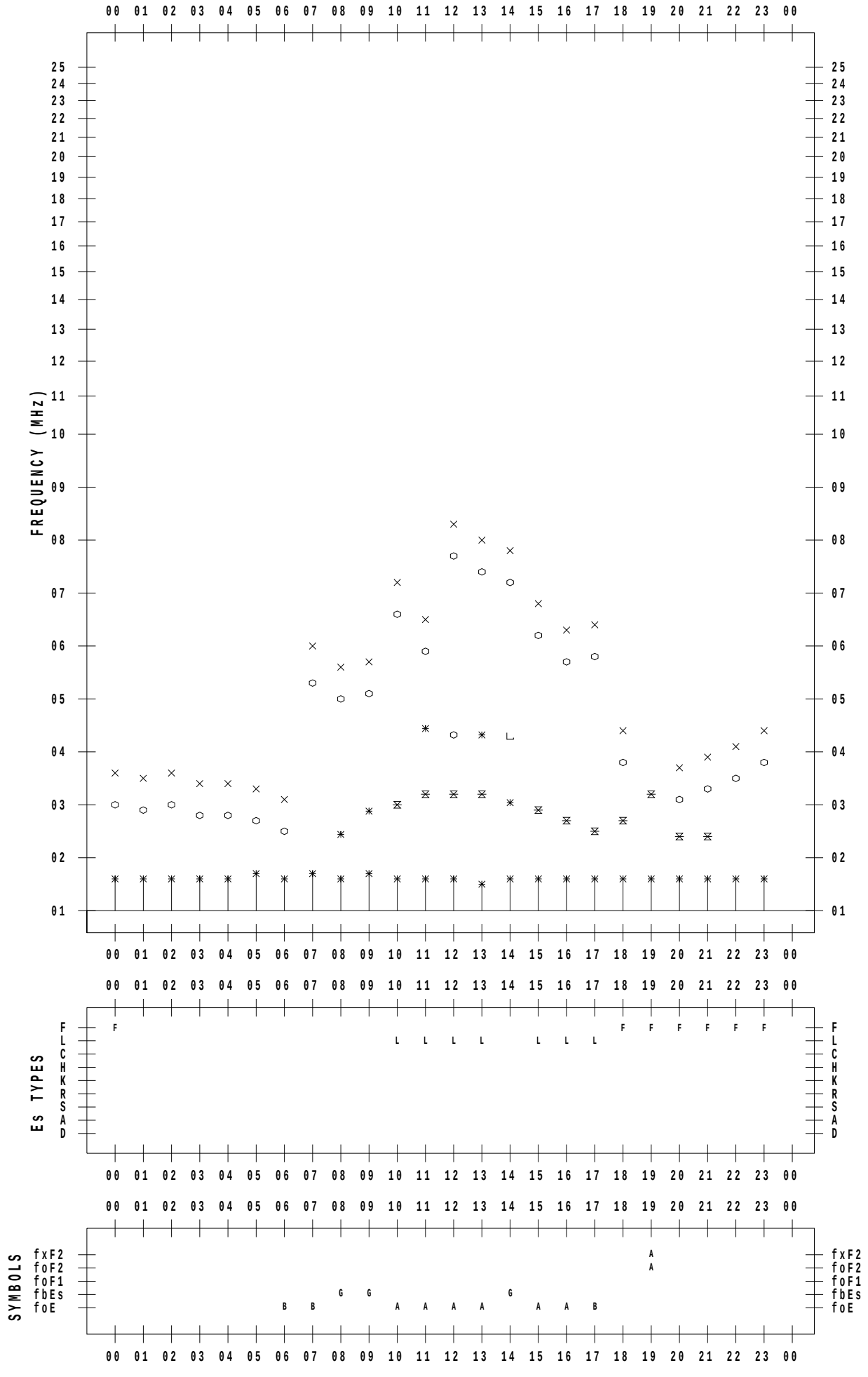
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/ 7

135 °E MEAN TIME



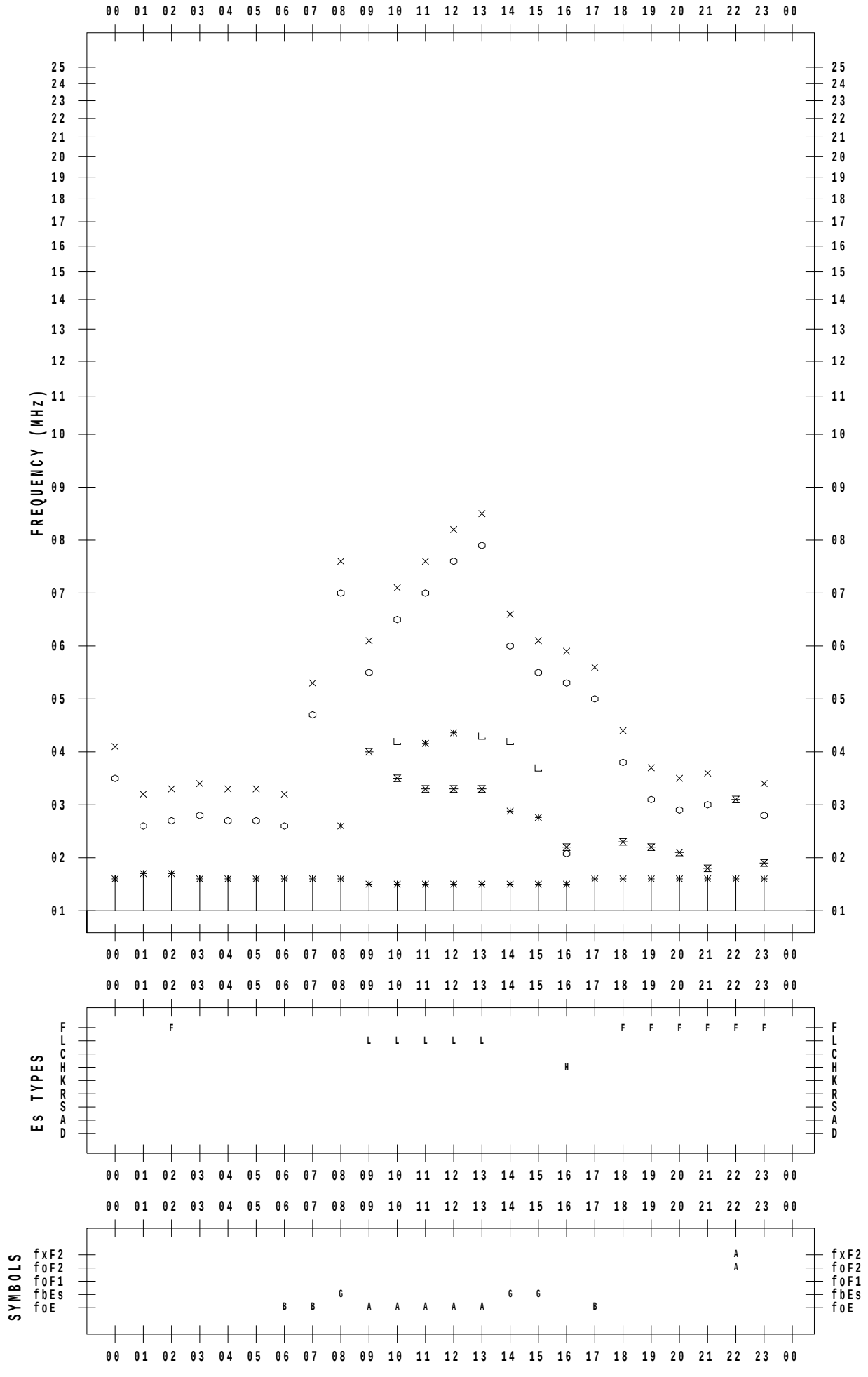
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/ 8

135 °E MEAN TIME



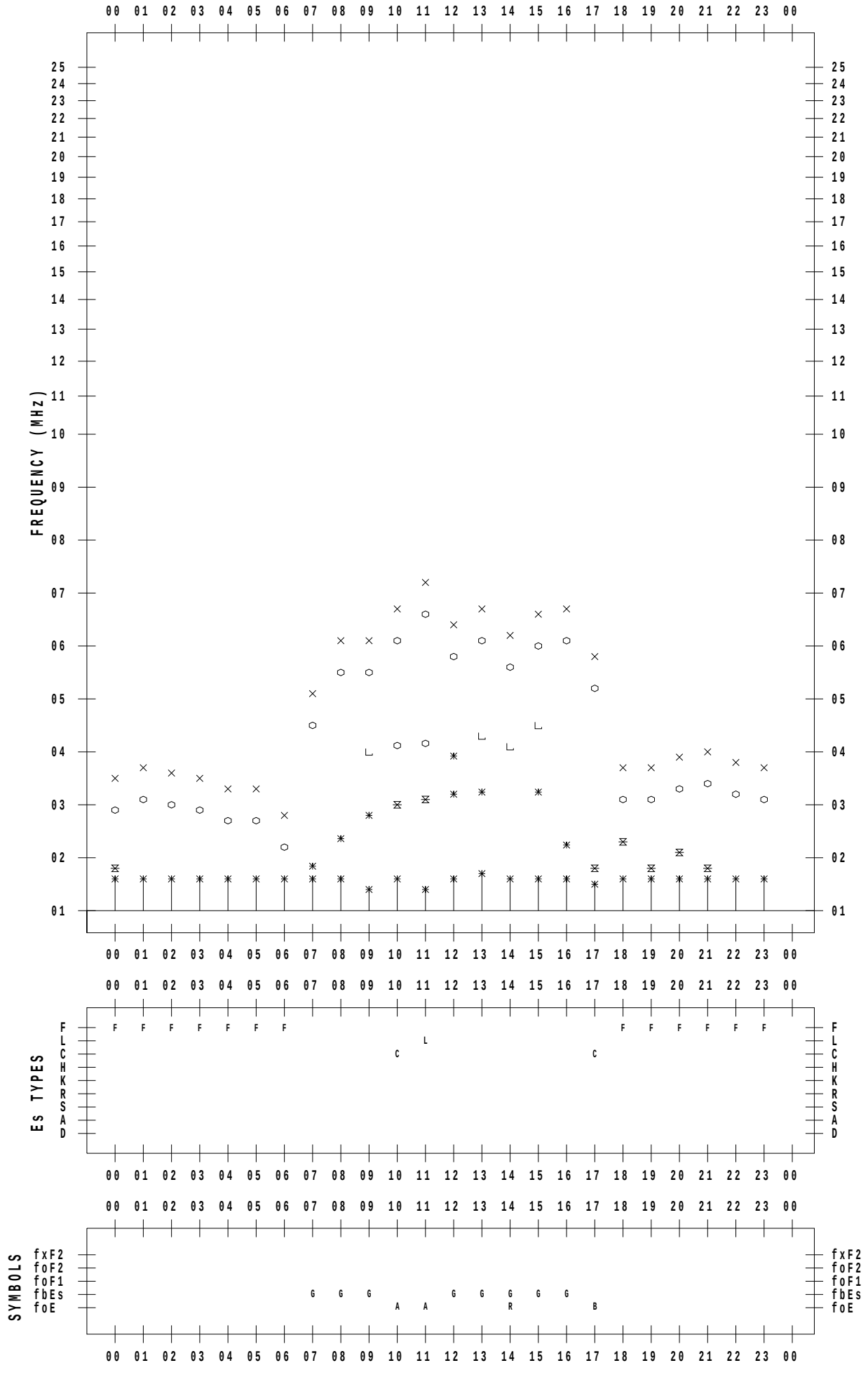
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/ 9

135 °E MEAN TIME



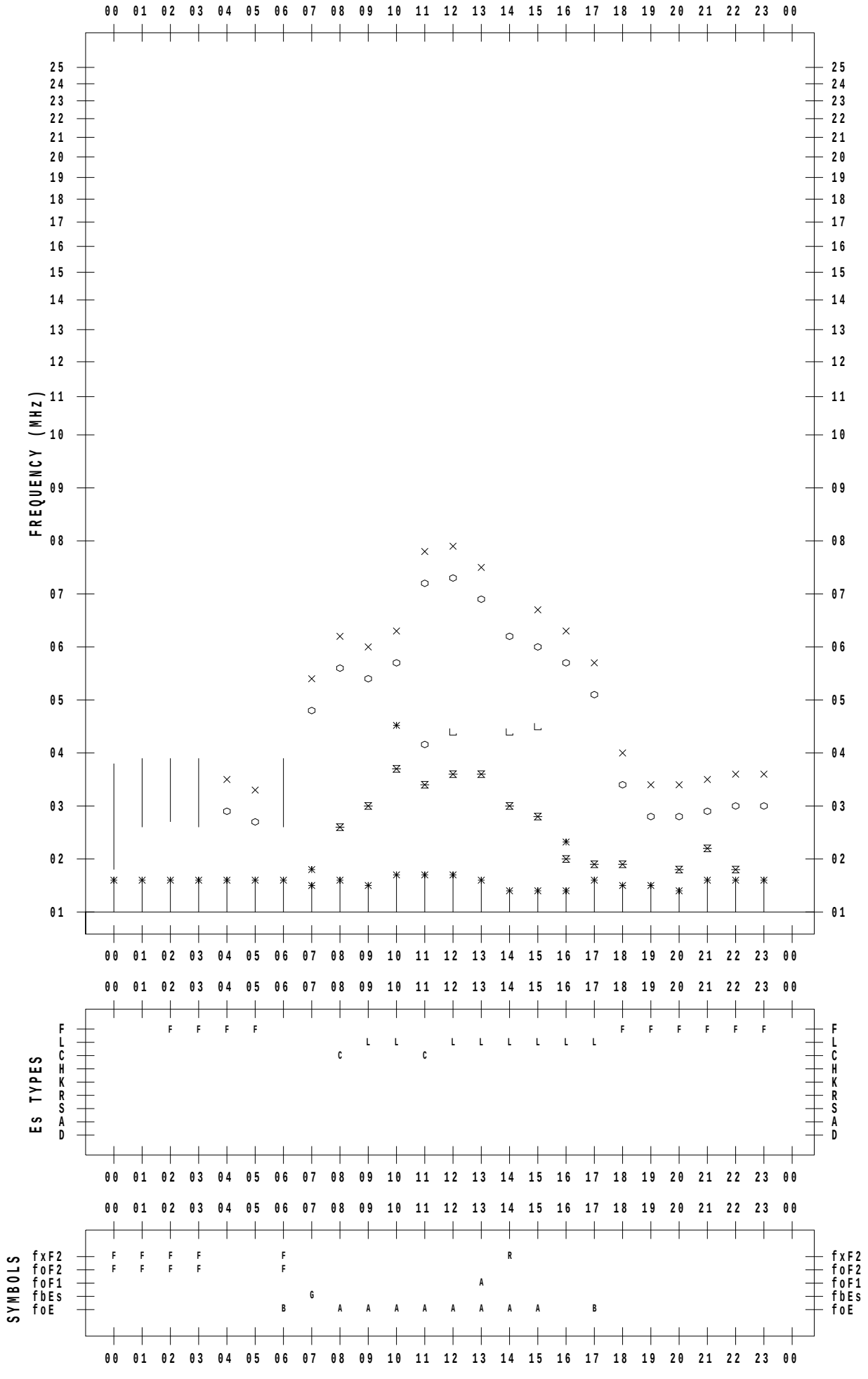
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/10

135 °E MEAN TIME



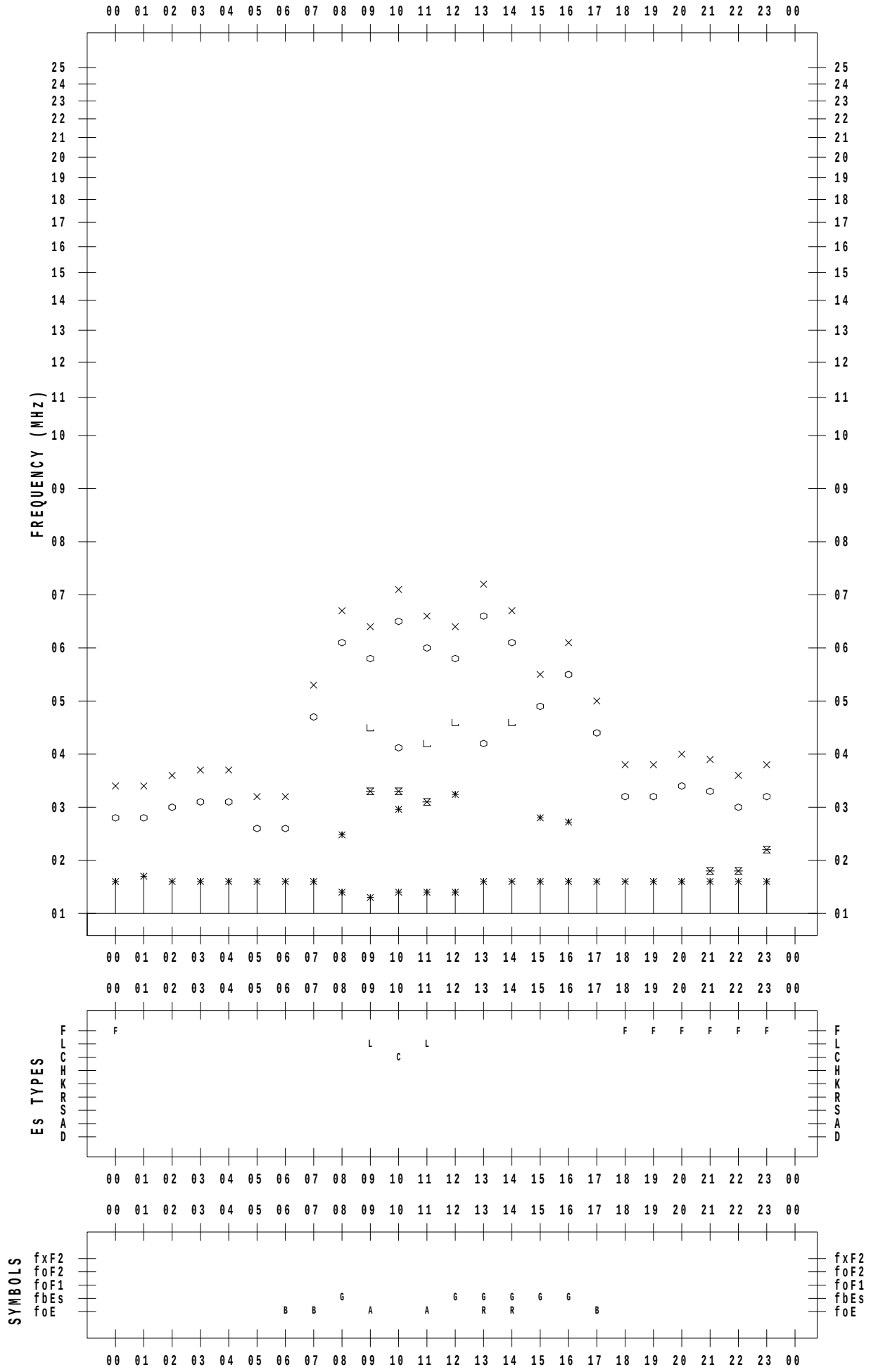
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/11

135 °E MEAN TIME



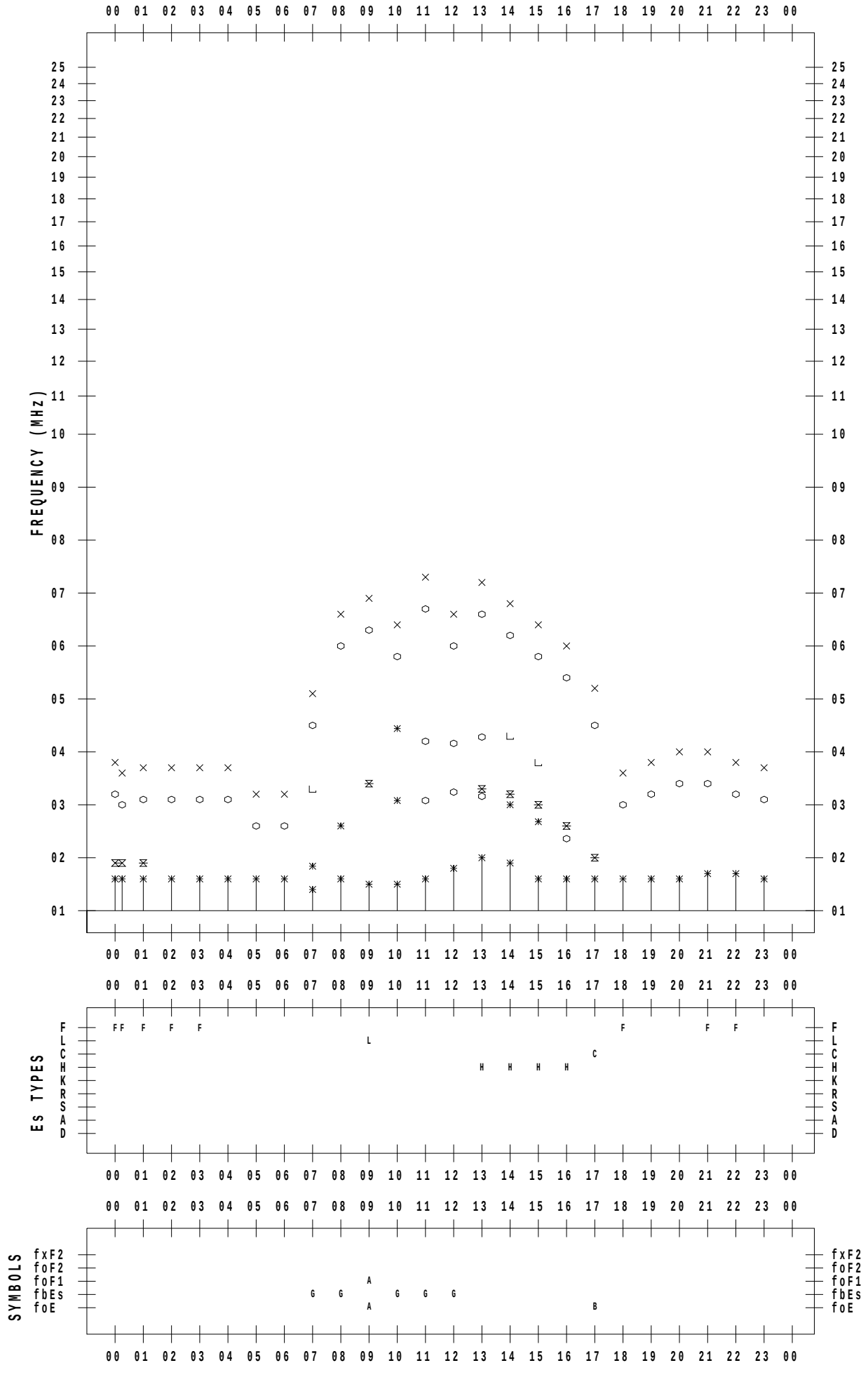
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/12

135 °E MEAN TIME



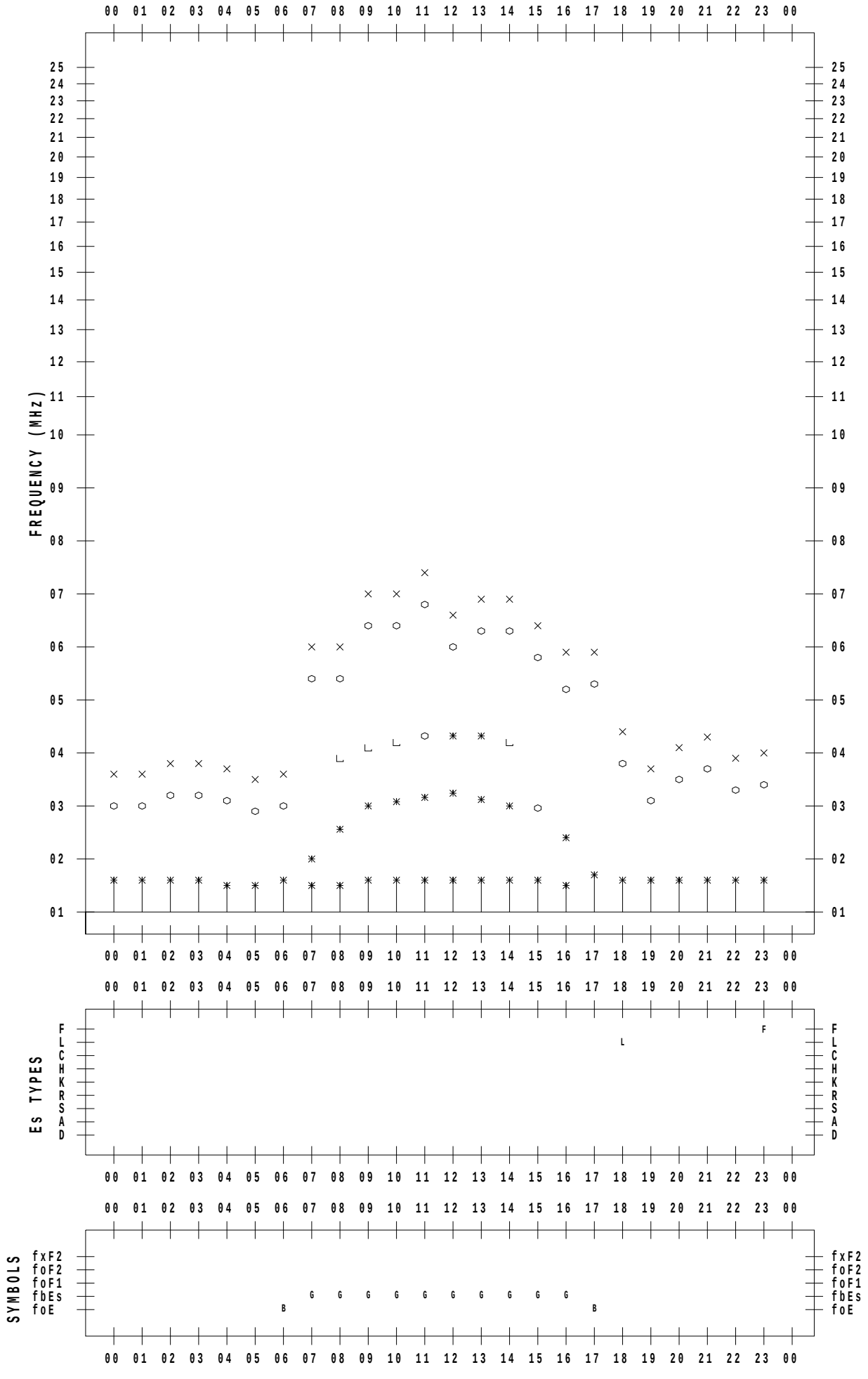
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/13

135 °E MEAN TIME



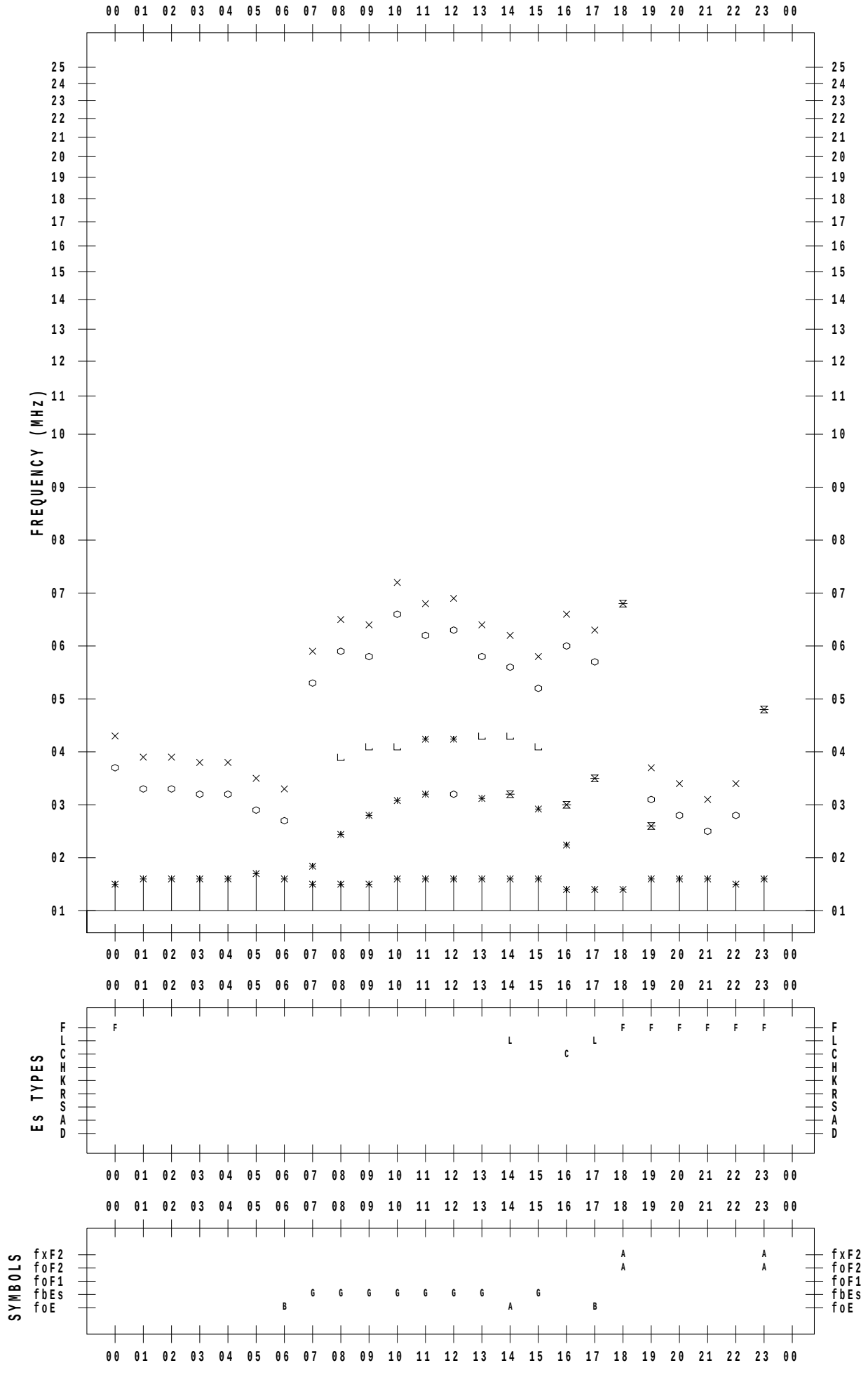
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/14

135 °E MEAN TIME



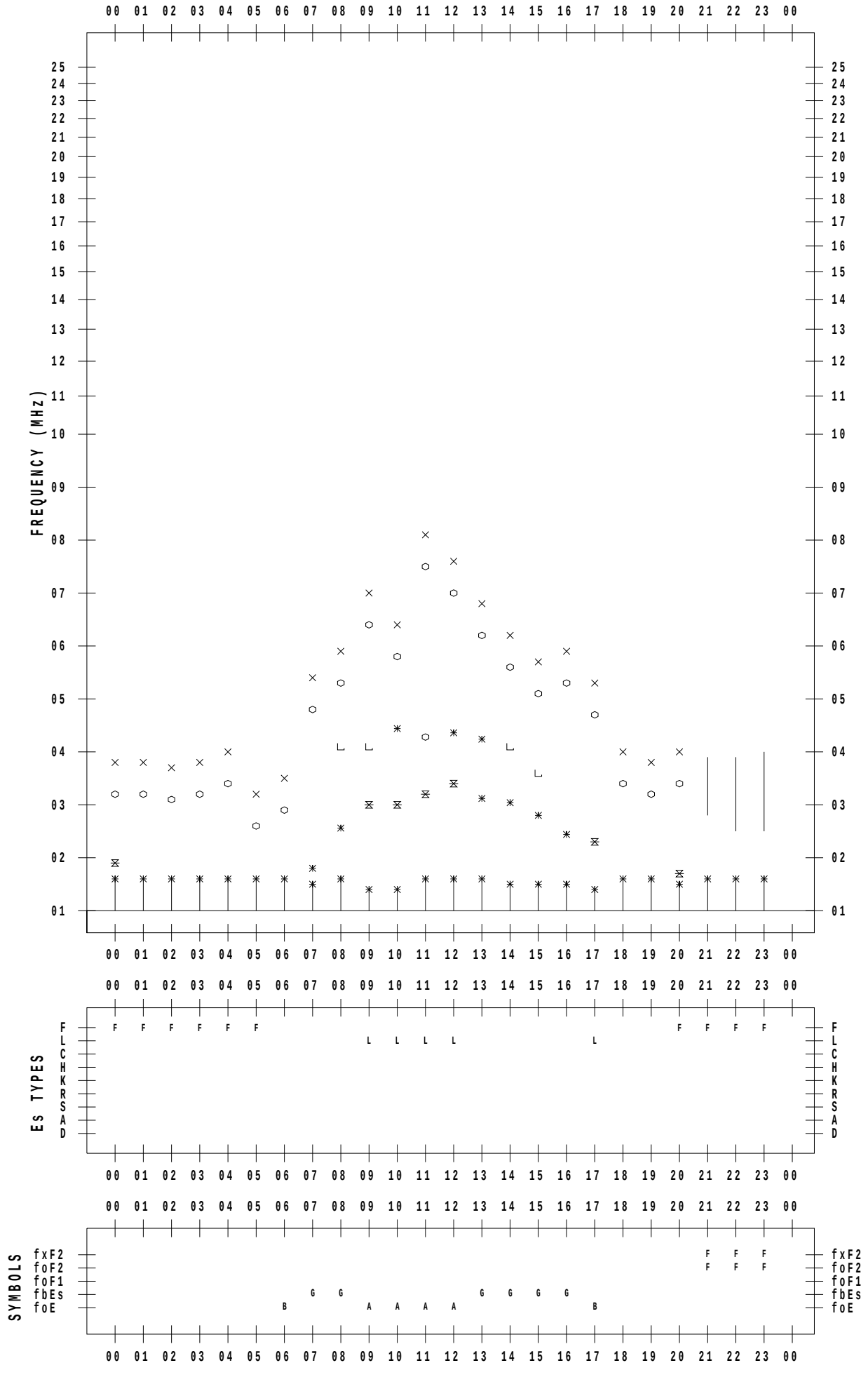
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/15

135 °E MEAN TIME



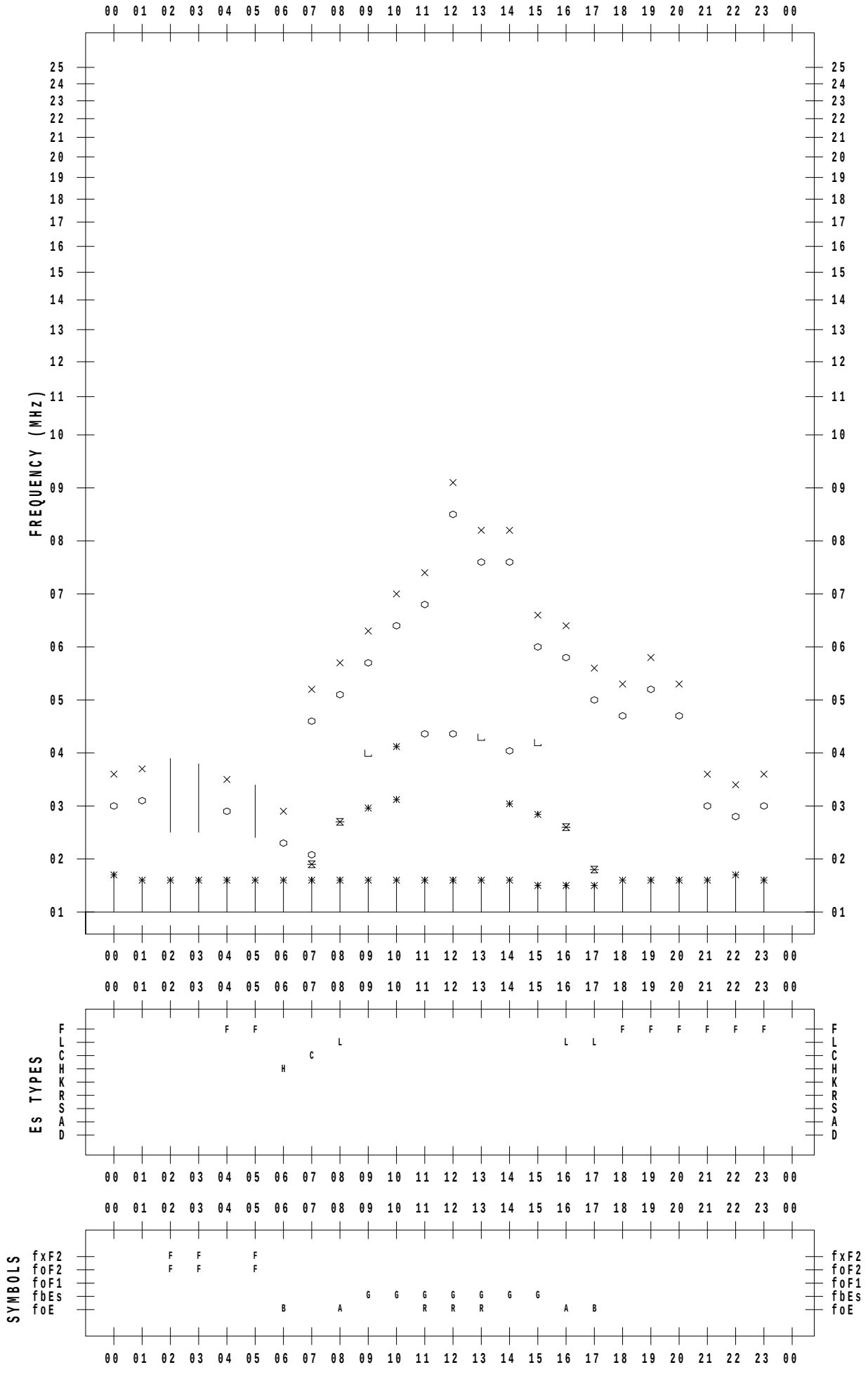
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/16

135 °E MEAN TIME



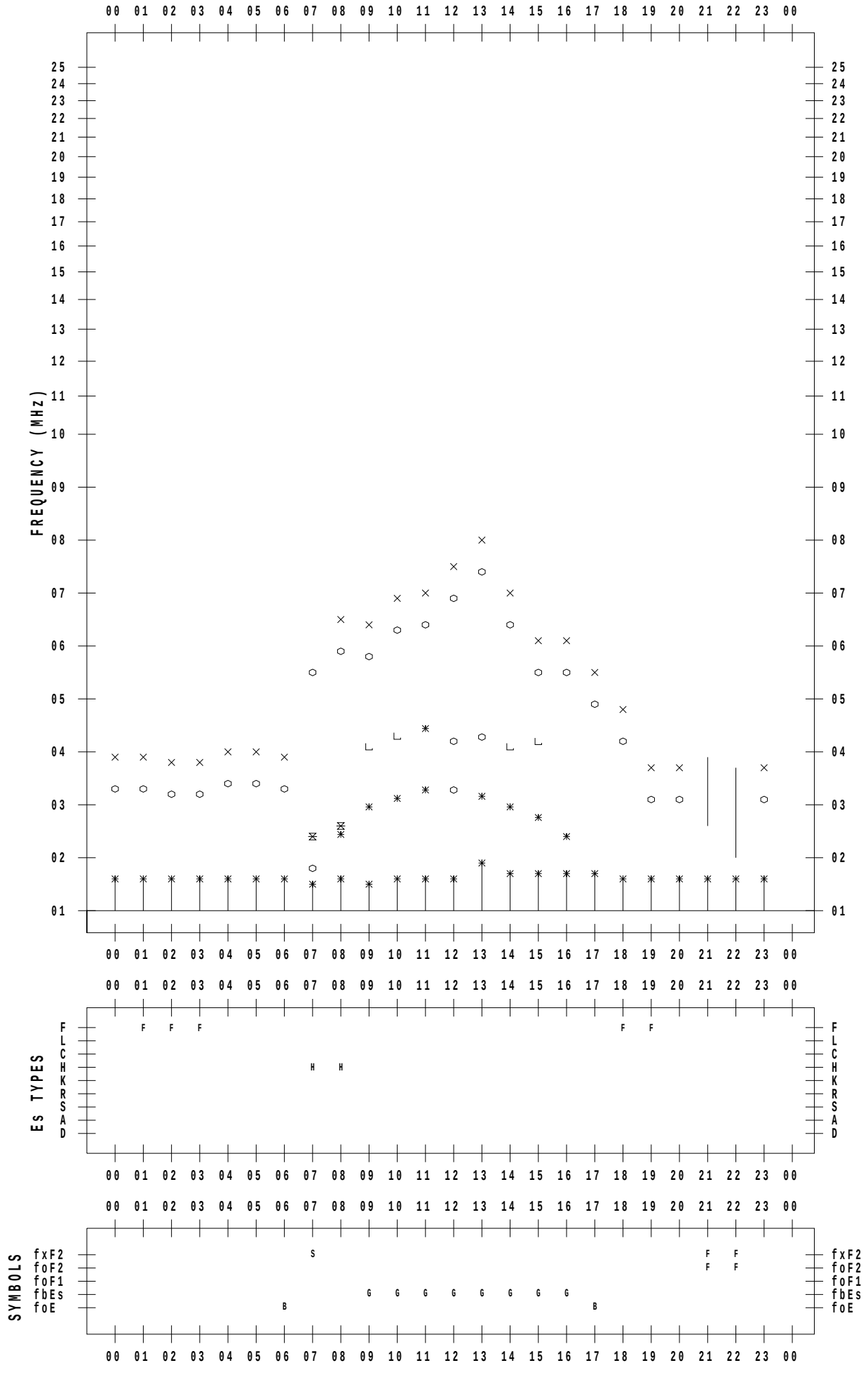
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/17

135 °E MEAN TIME



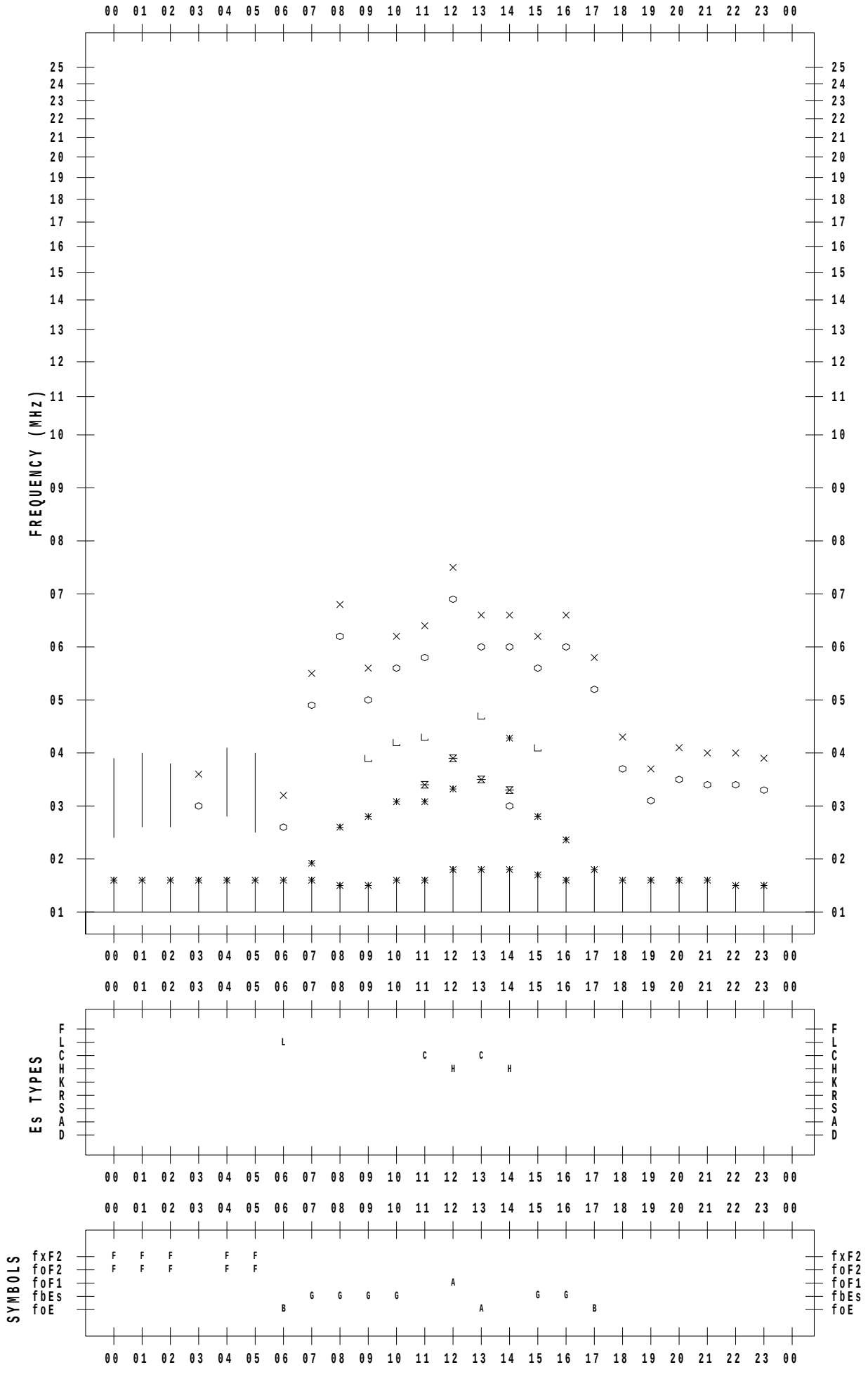
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/18

135 °E MEAN TIME



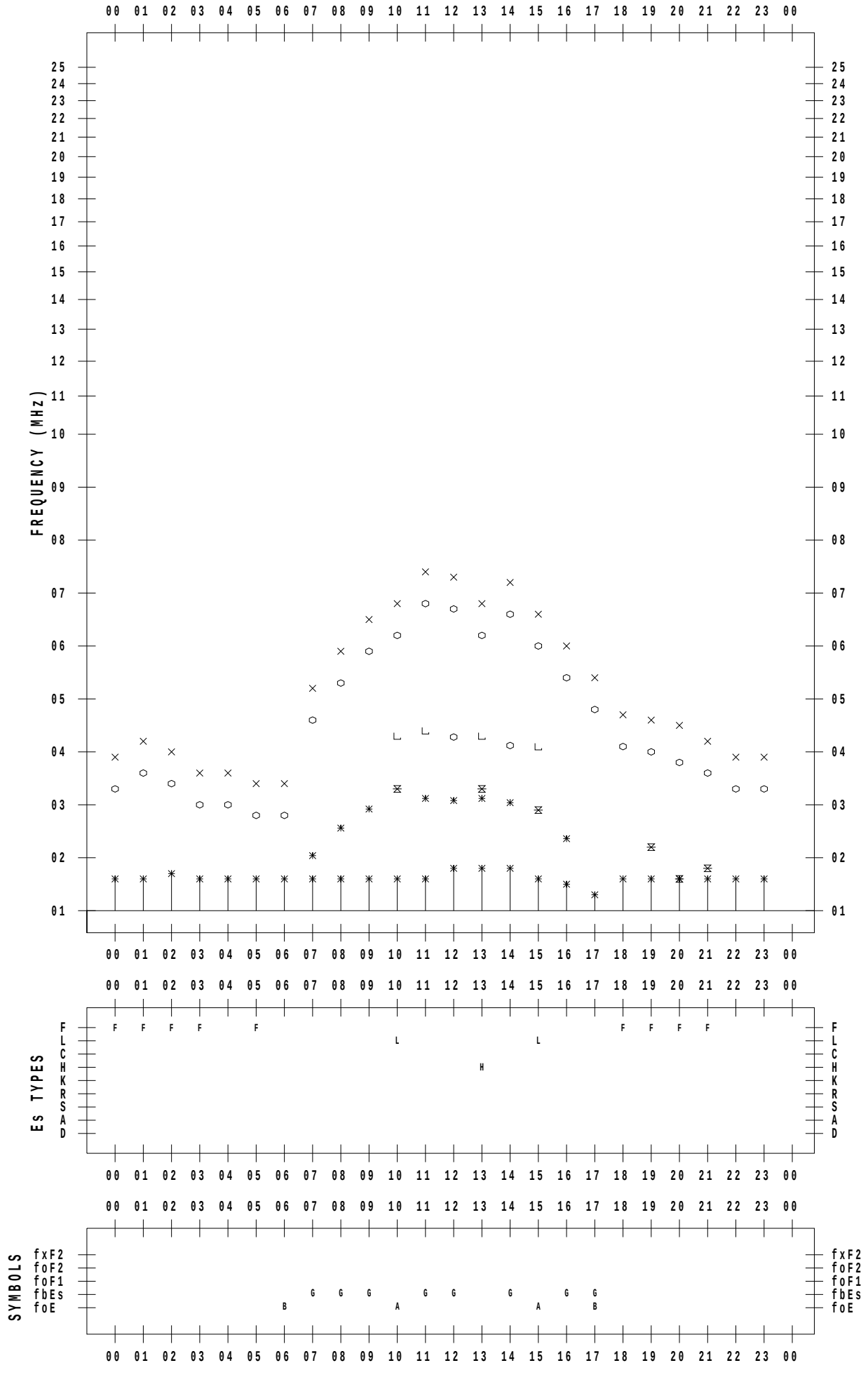
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/19

135 °E MEAN TIME



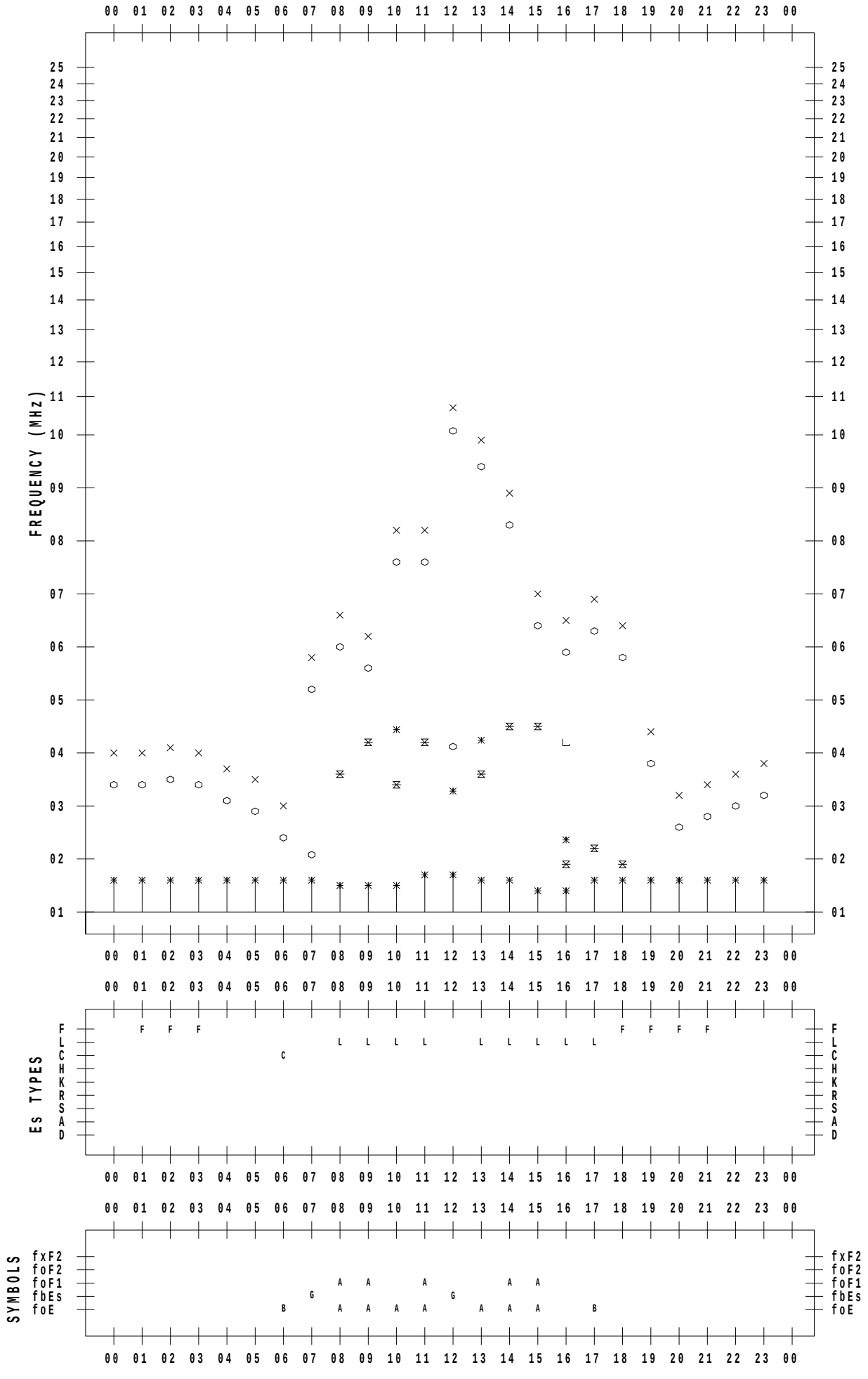
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/20

135 °E MEAN TIME



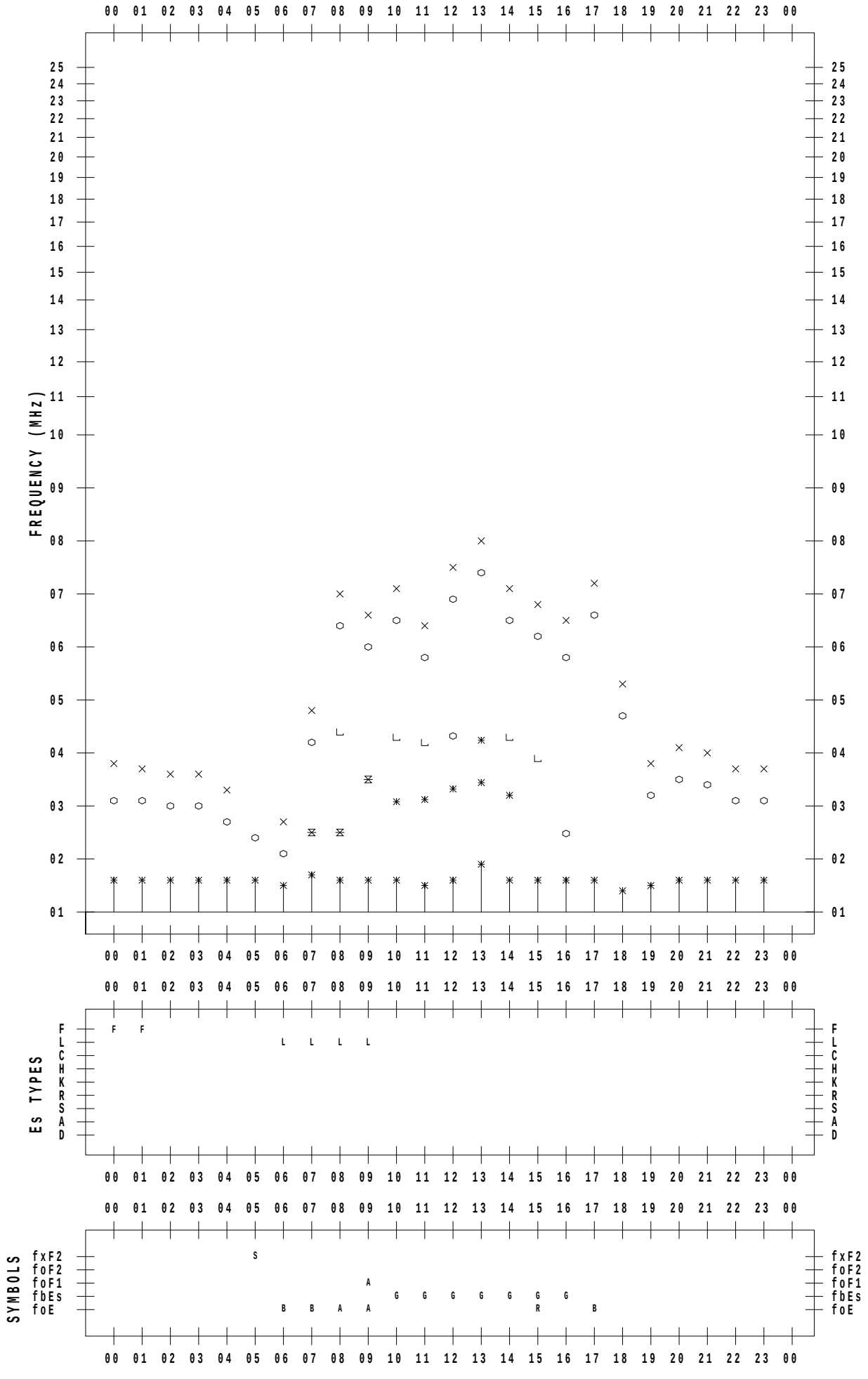
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/21

135 °E MEAN TIME



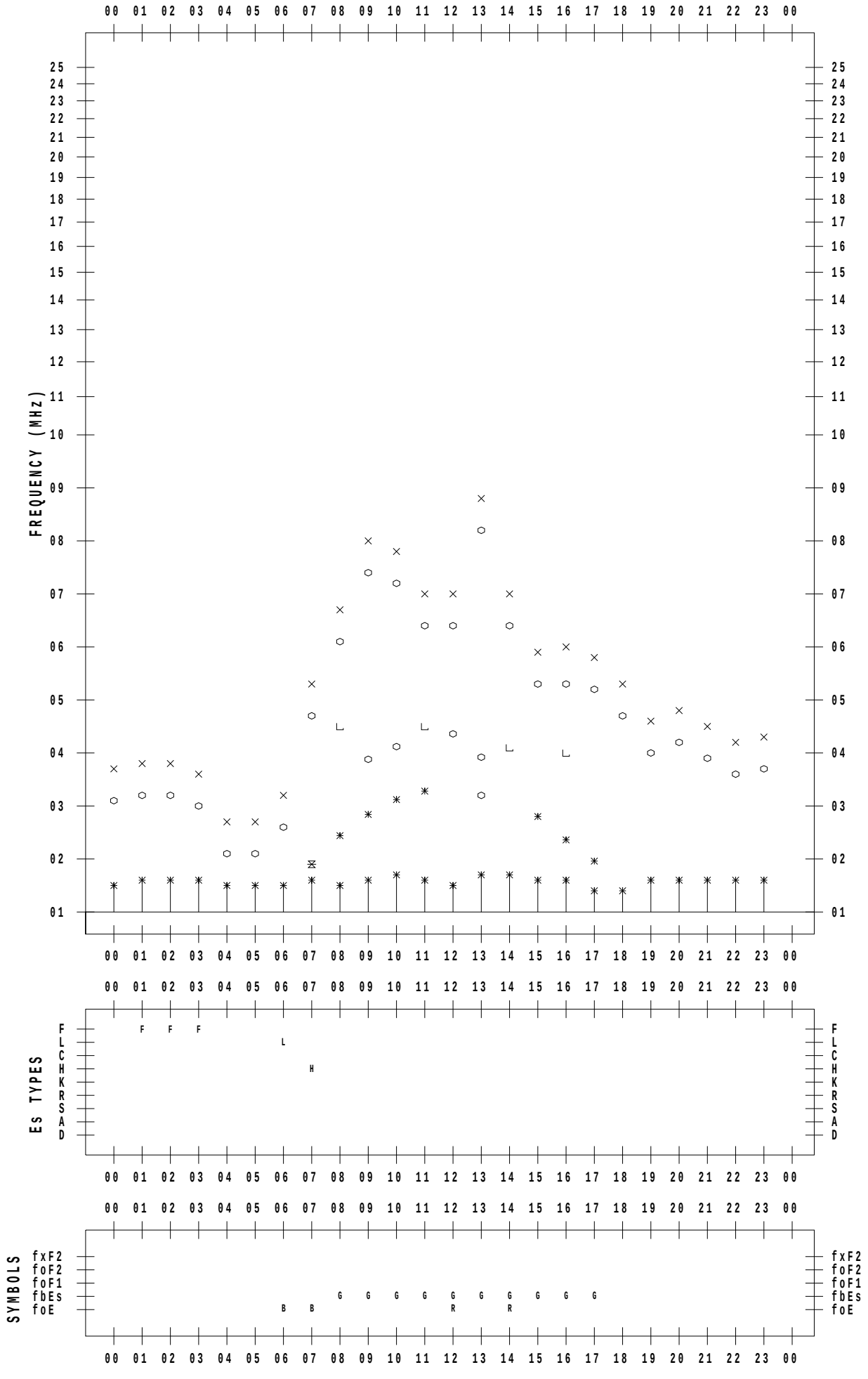
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/22

135 °E MEAN TIME



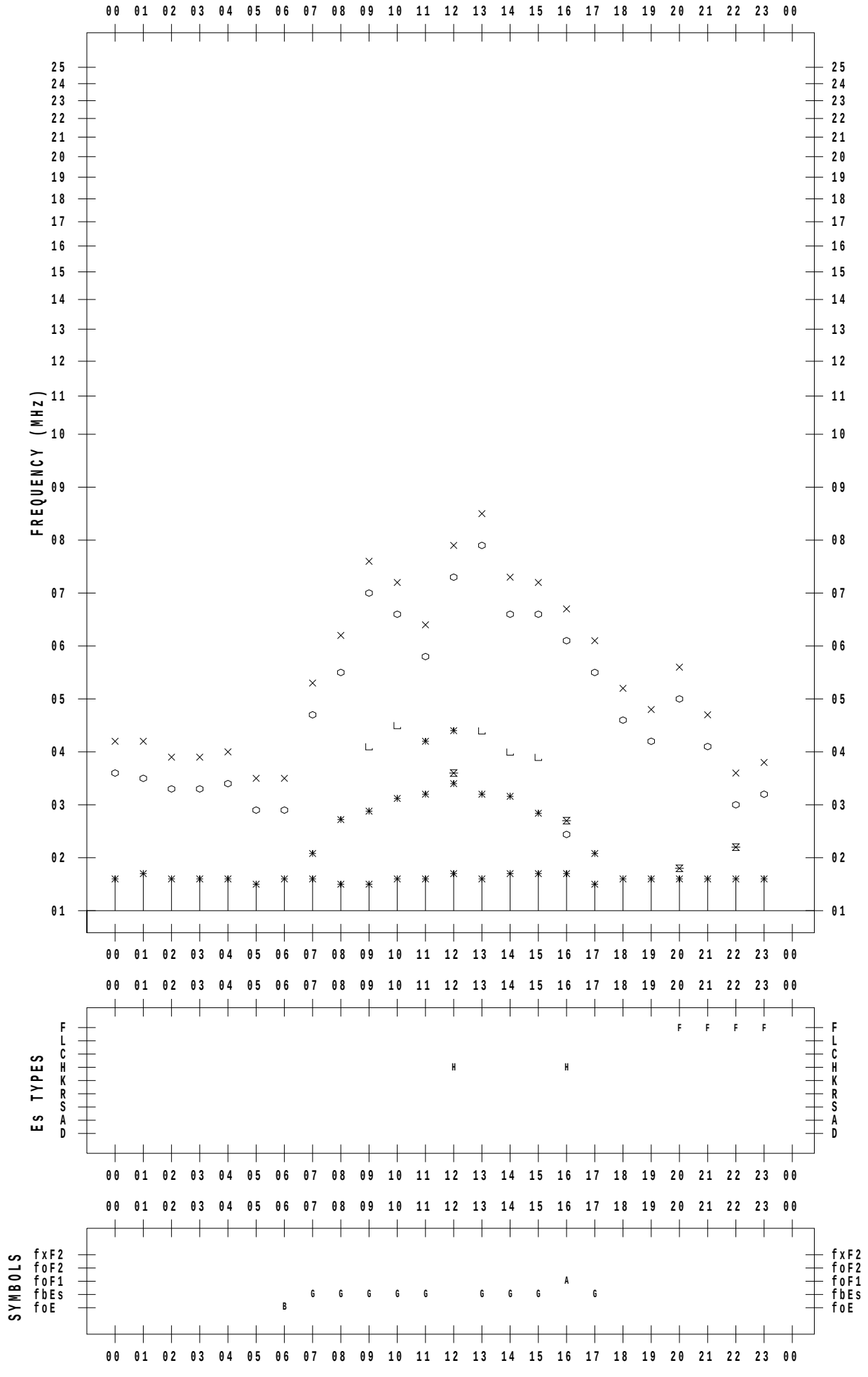
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/23

135 °E MEAN TIME



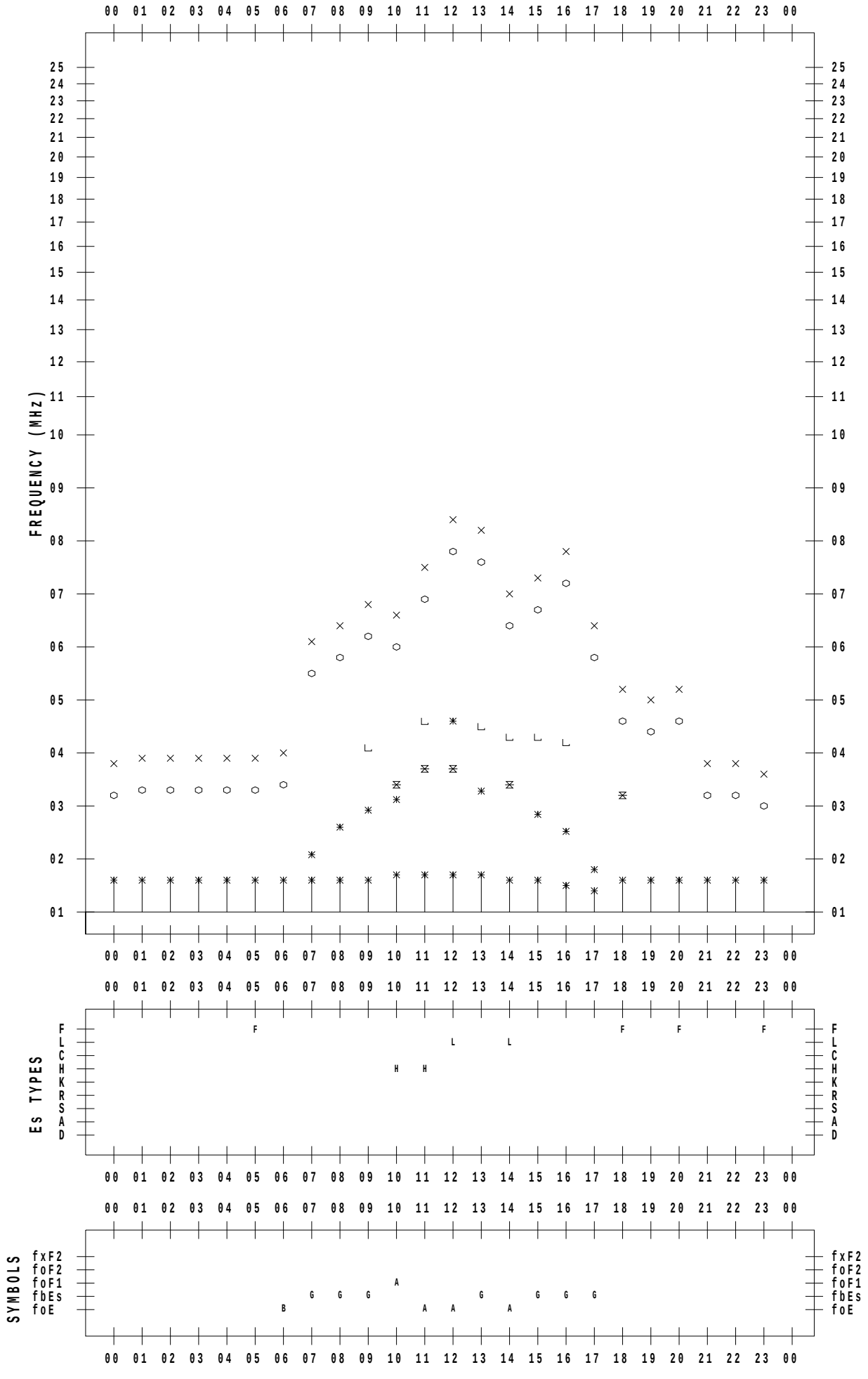
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/24

135 °E MEAN TIME



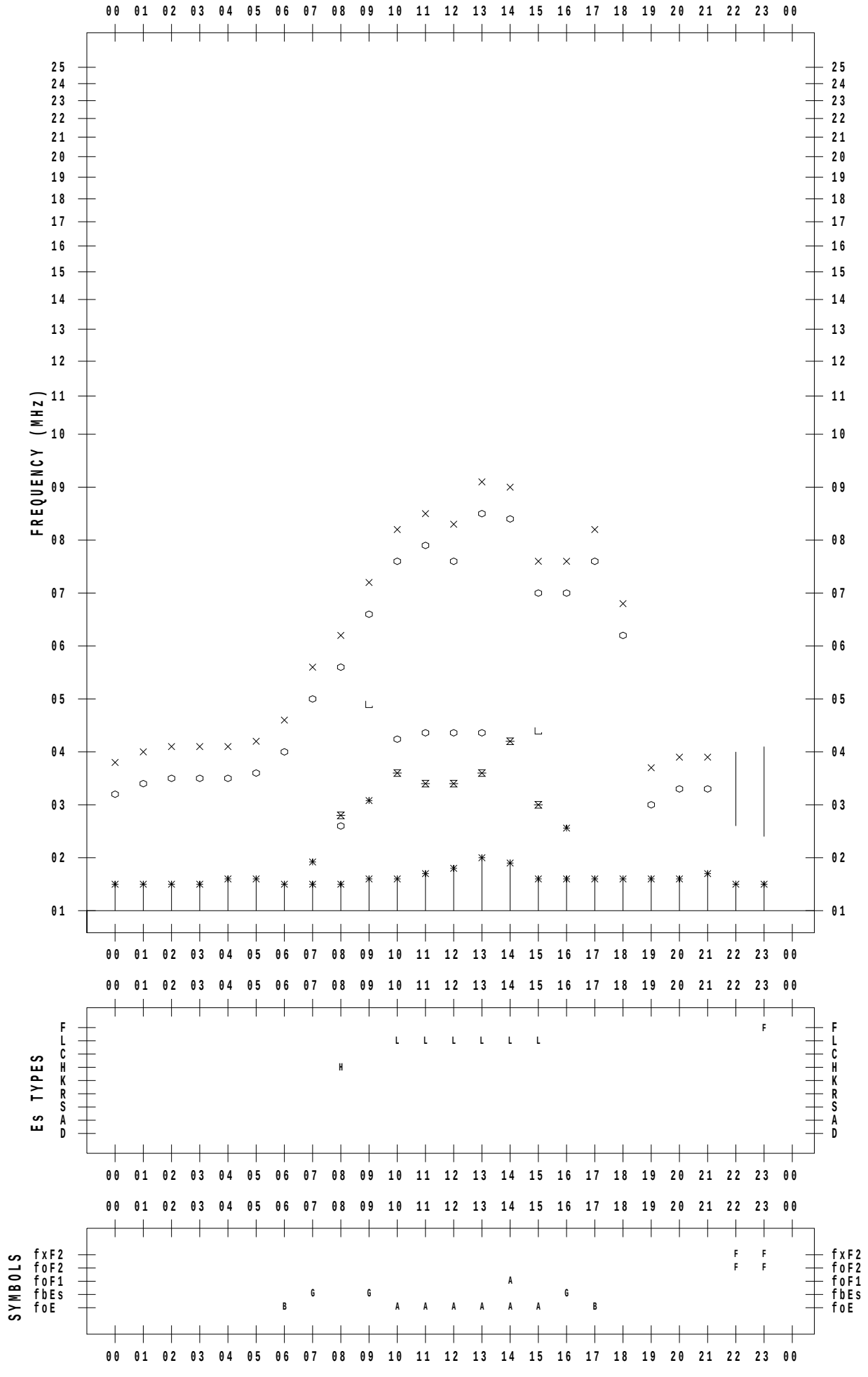
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/25

135 °E MEAN TIME



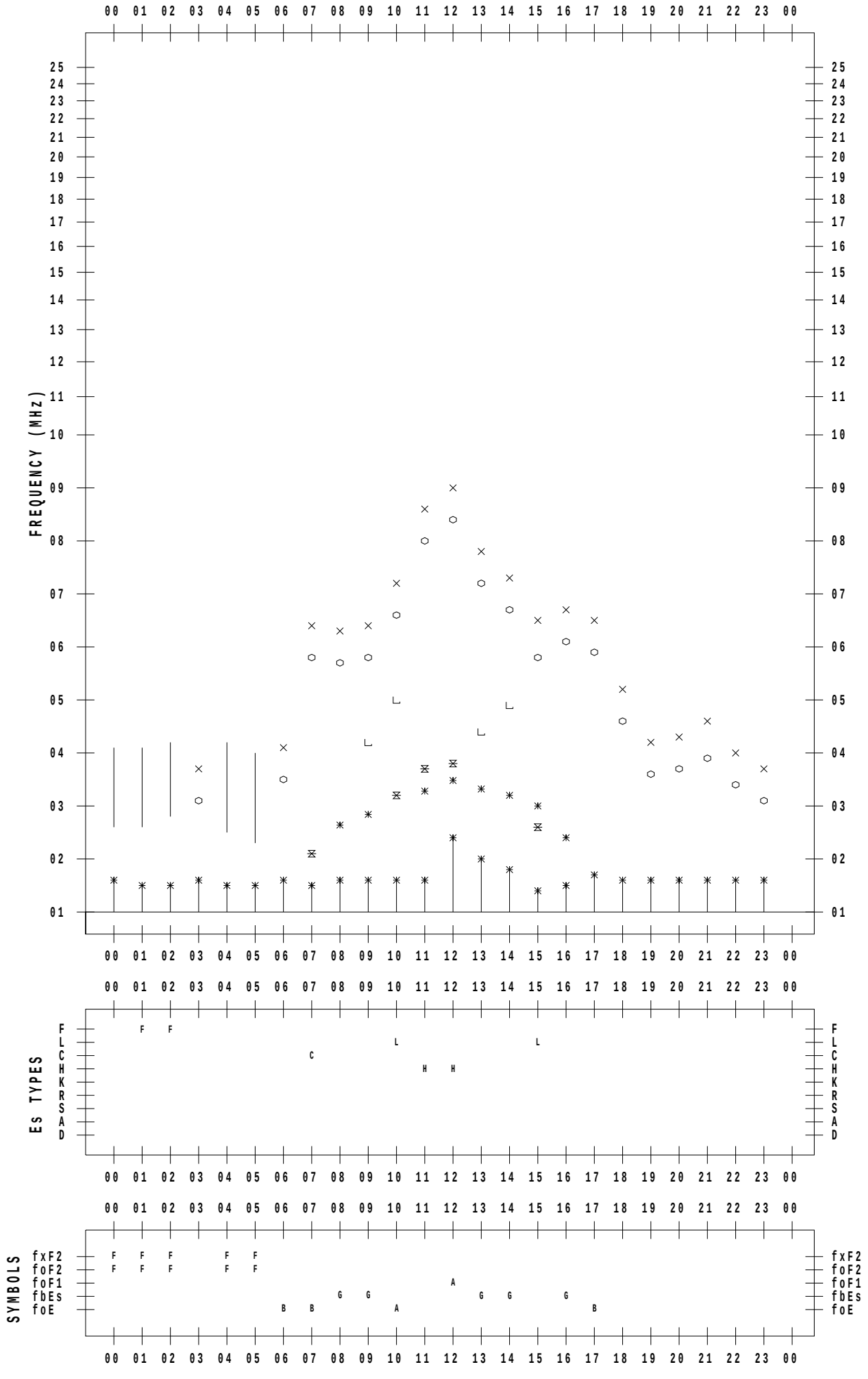
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/26

135 °E MEAN TIME



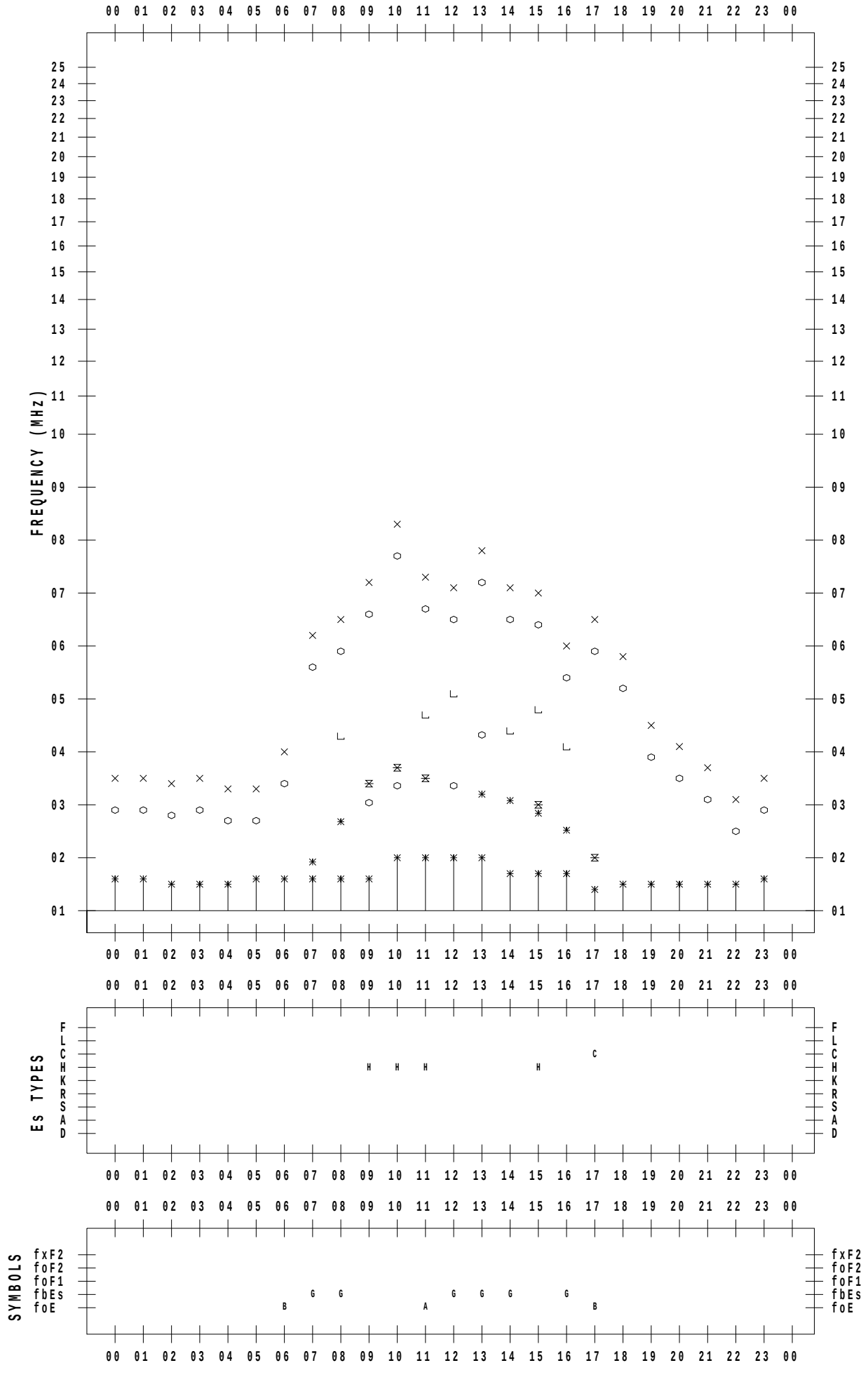
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/27

135 °E MEAN TIME



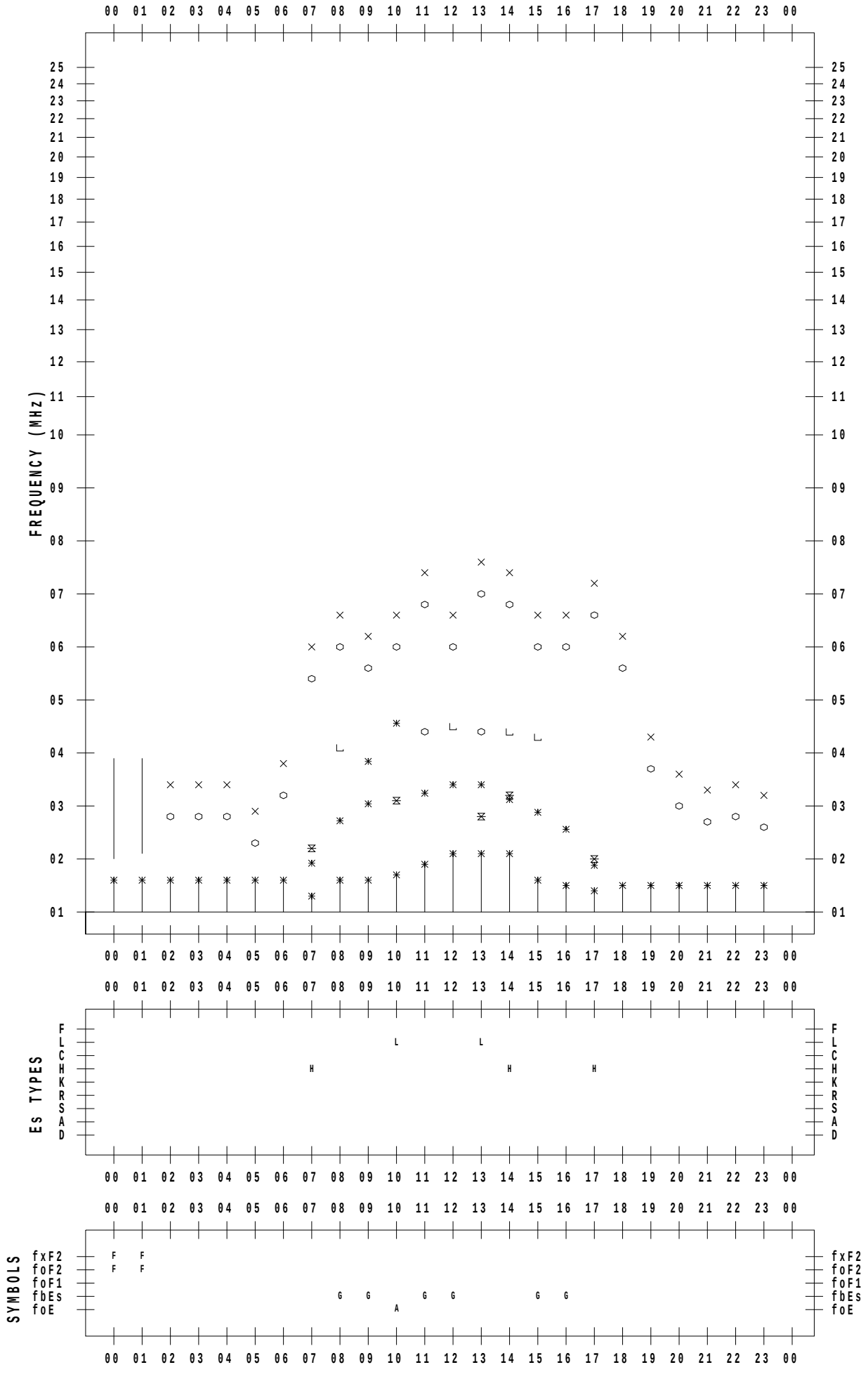
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2021/ 2/28

135 °E MEAN TIME



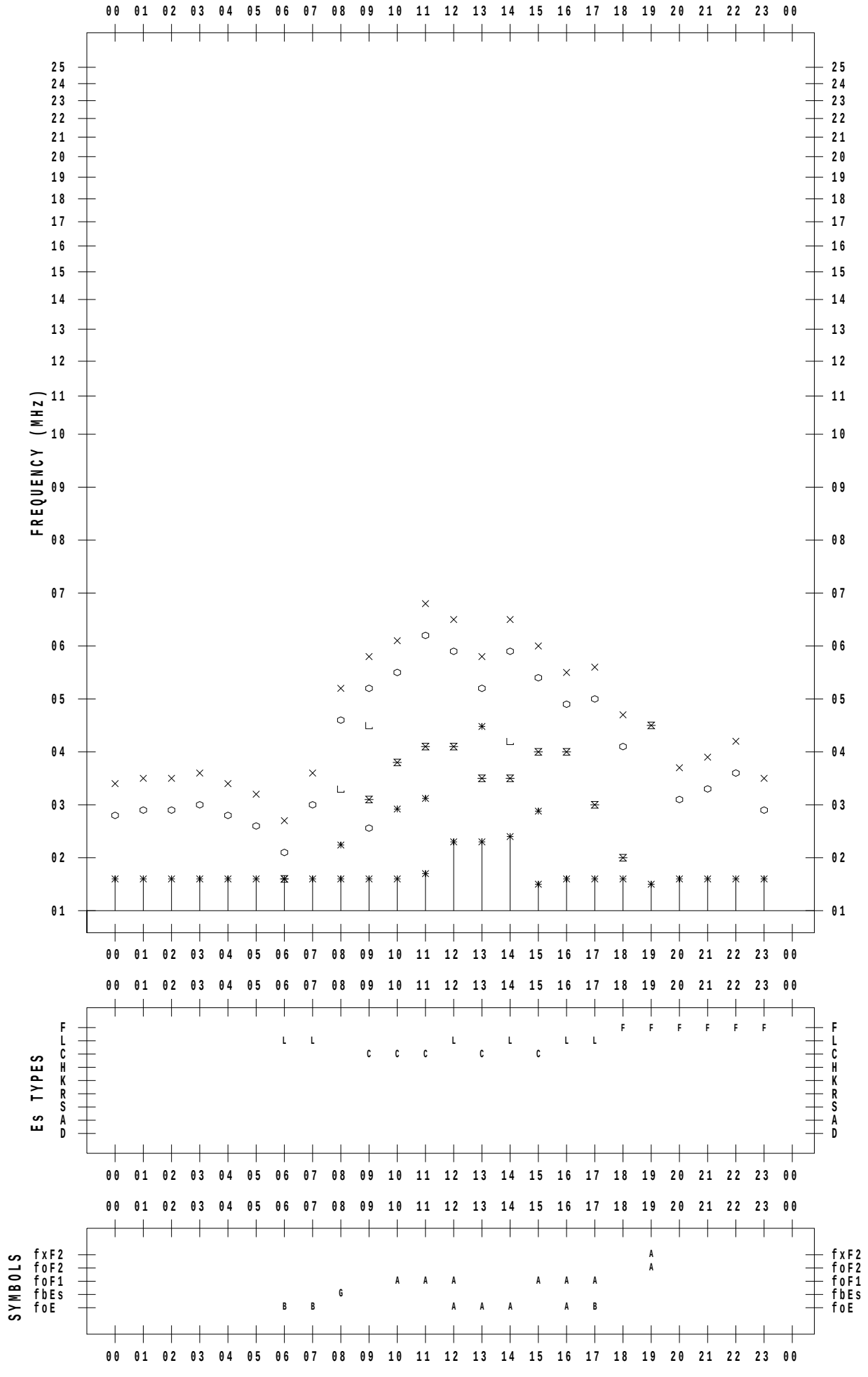
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/ 1

135 °E MEAN TIME



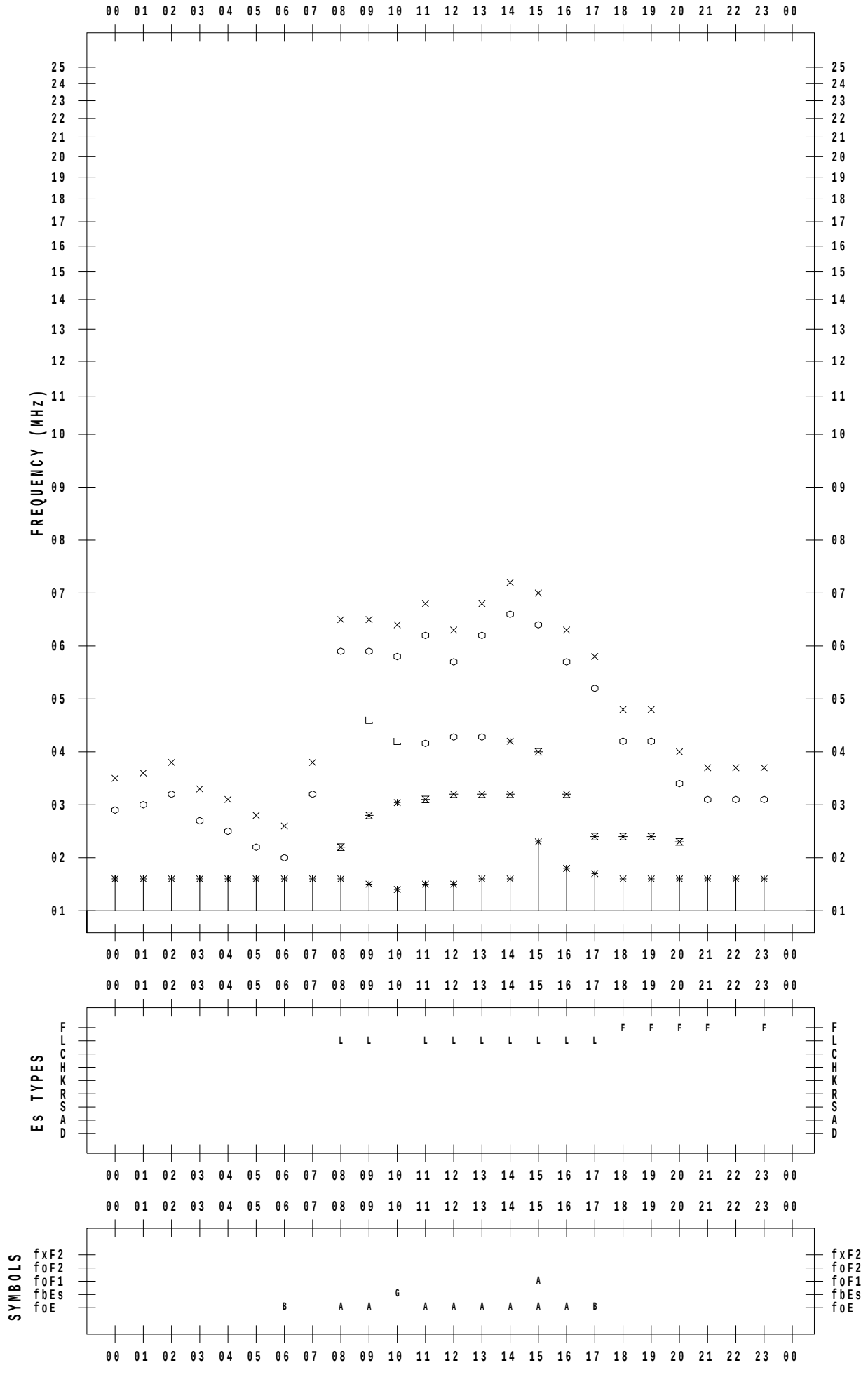
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/ 2

135 °E MEAN TIME



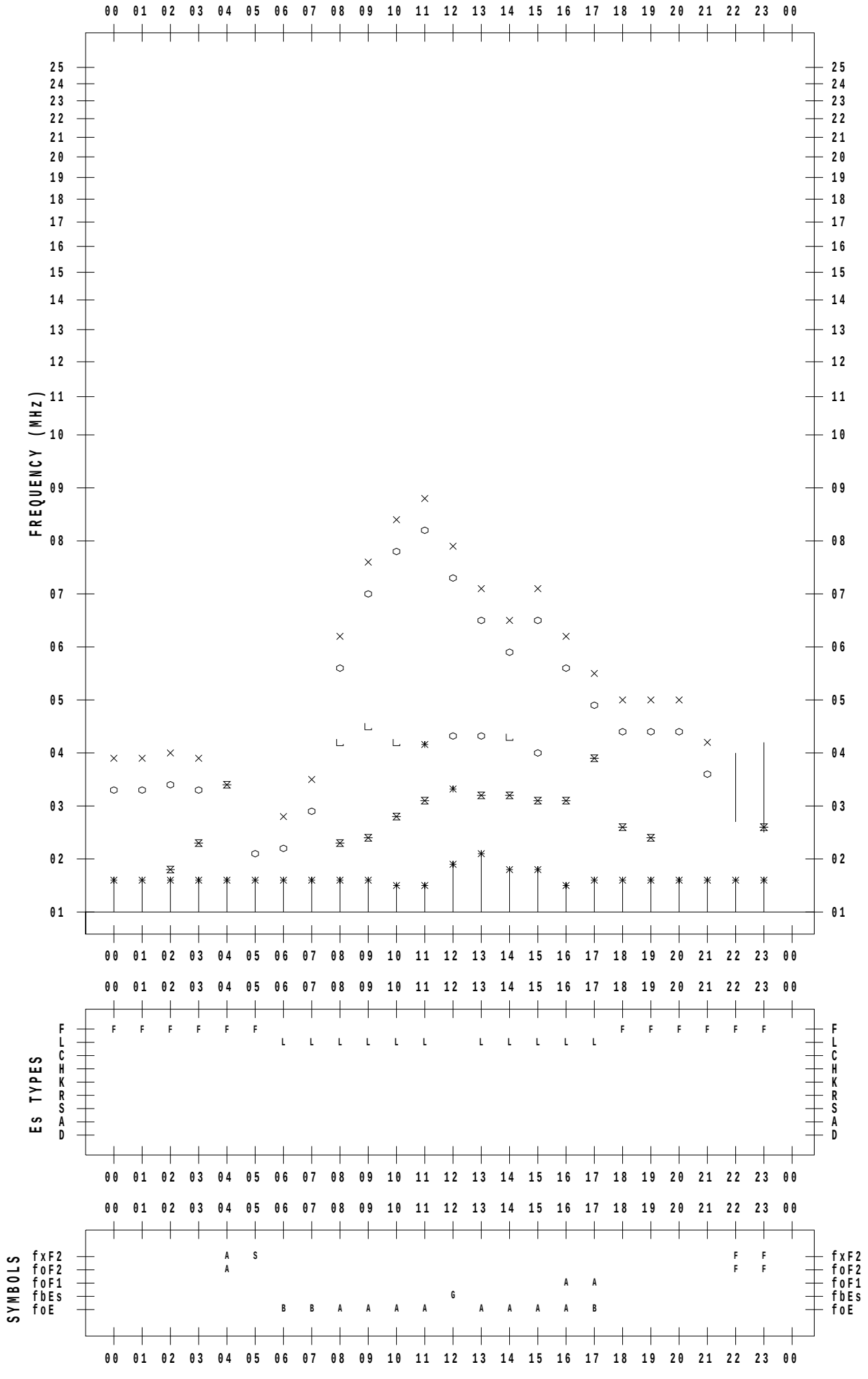
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/ 3

135 °E MEAN TIME



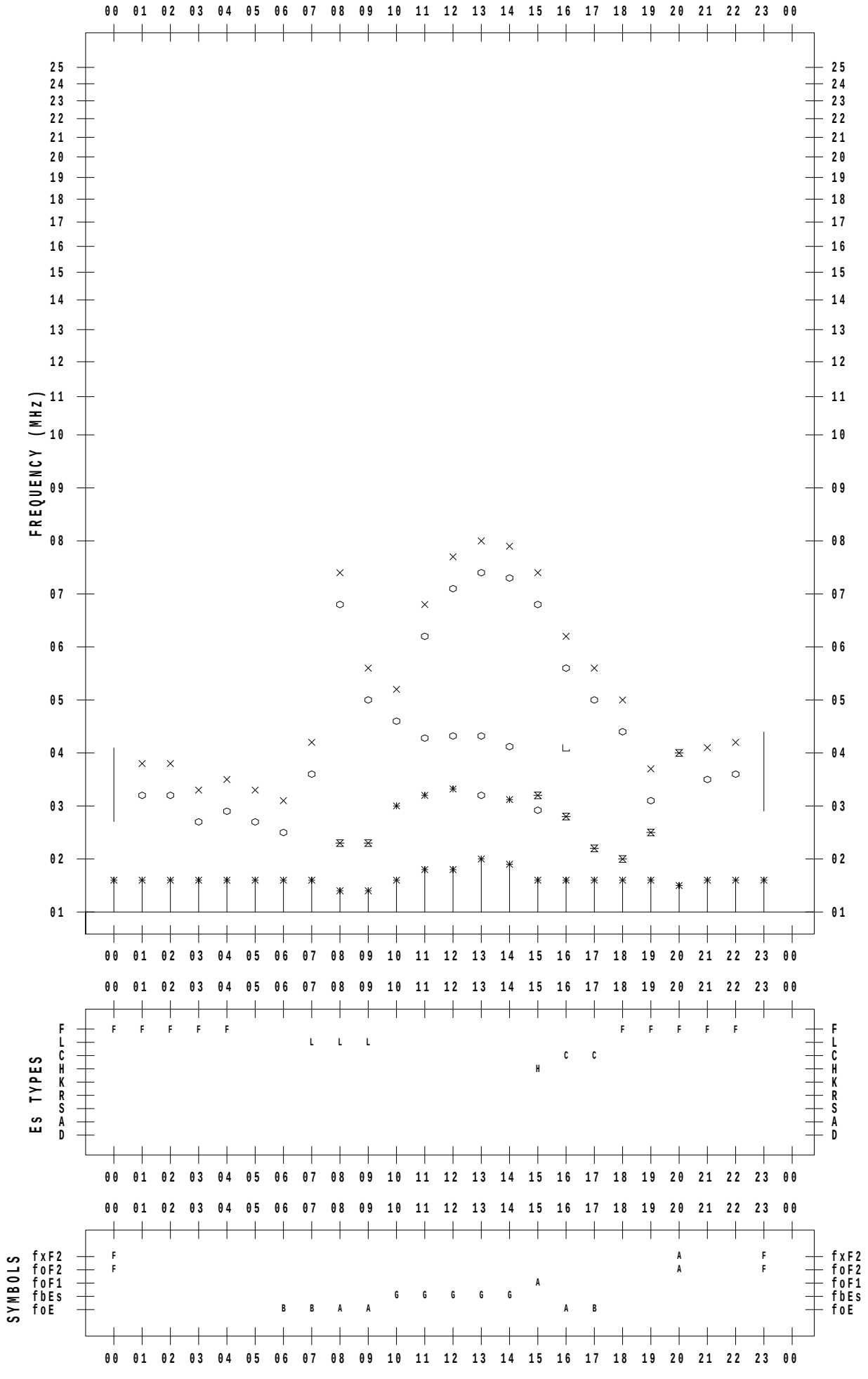
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/ 4

135 °E MEAN TIME



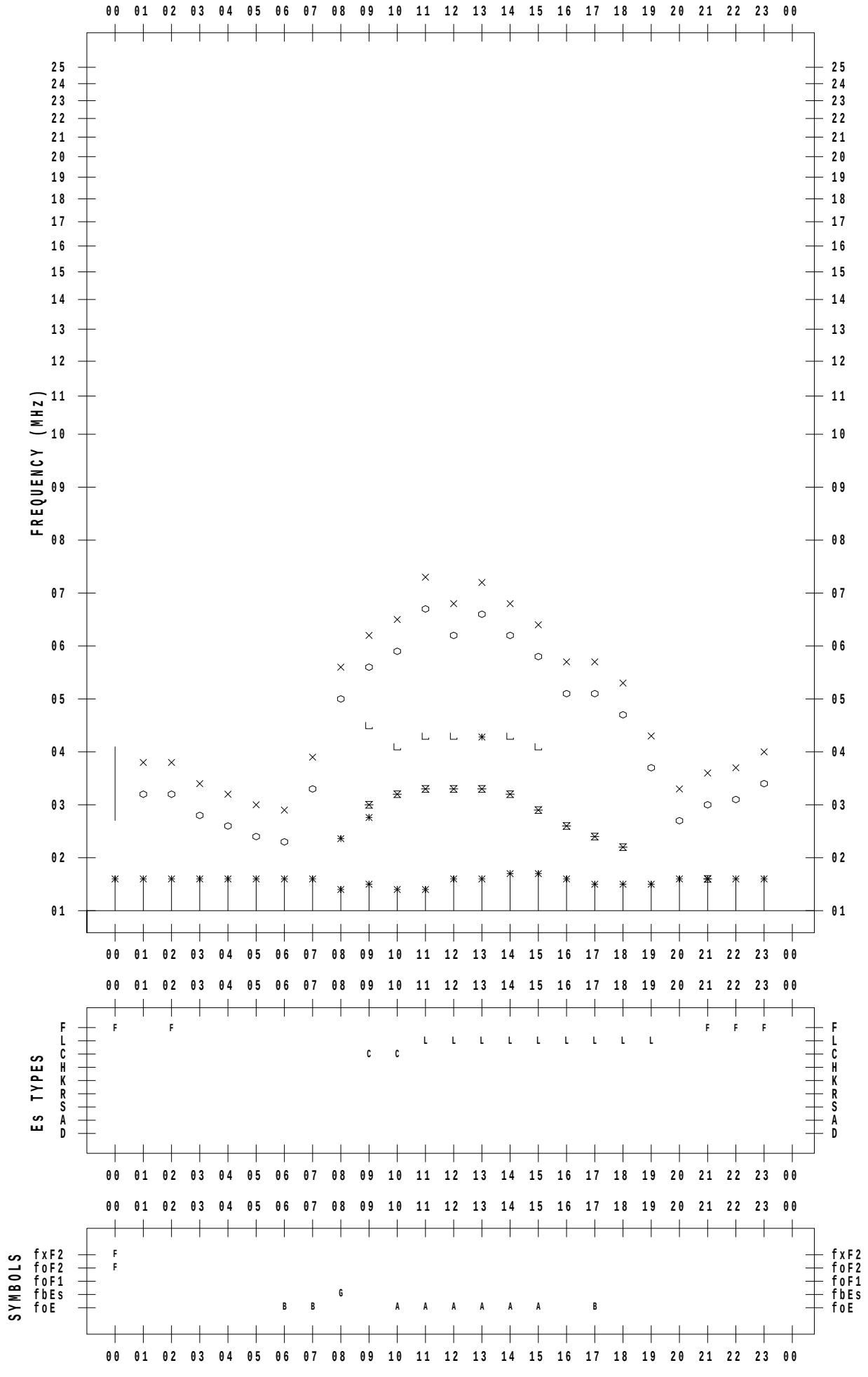
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/ 5

135 °E MEAN TIME



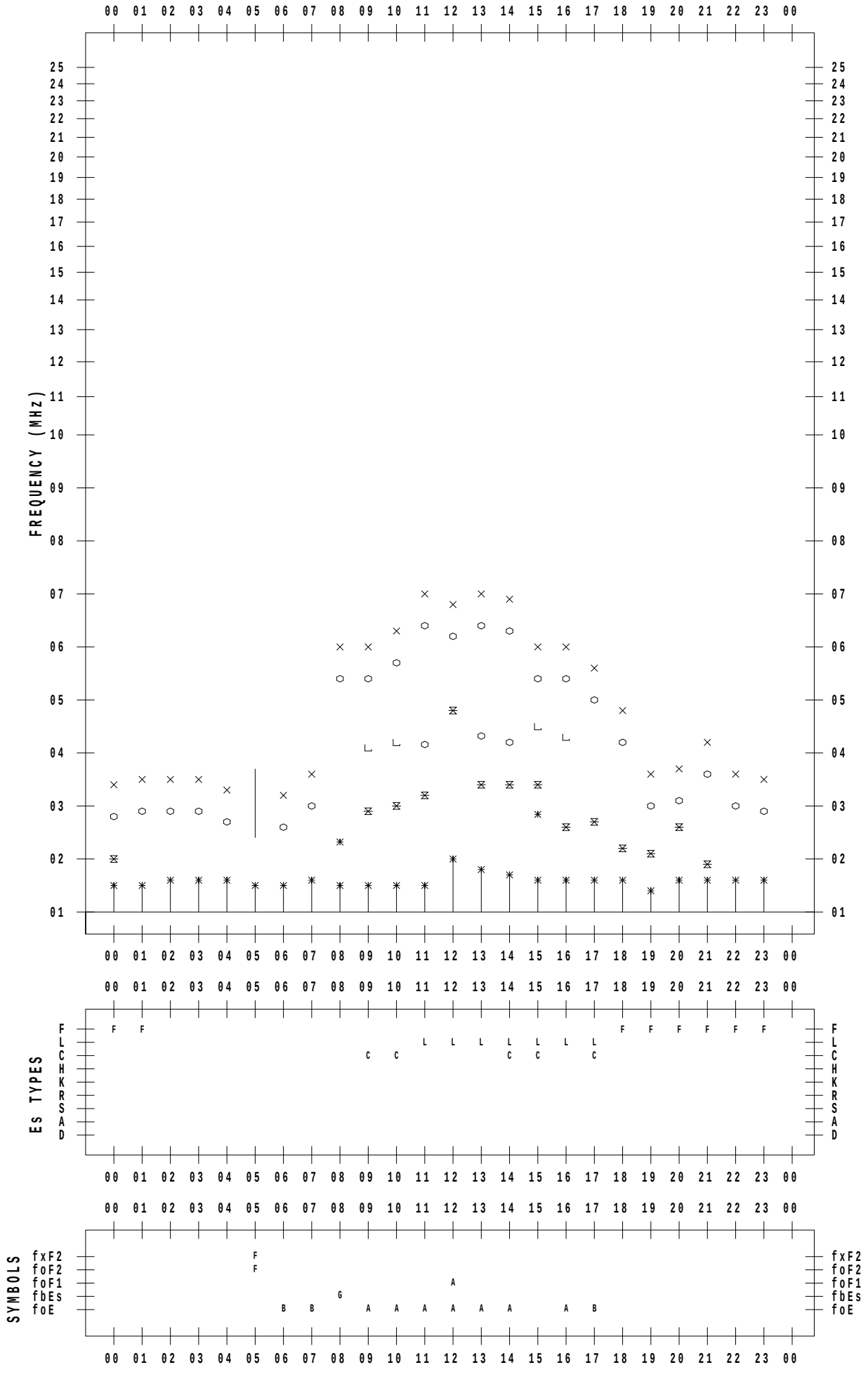
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/ 6

135 °E MEAN TIME



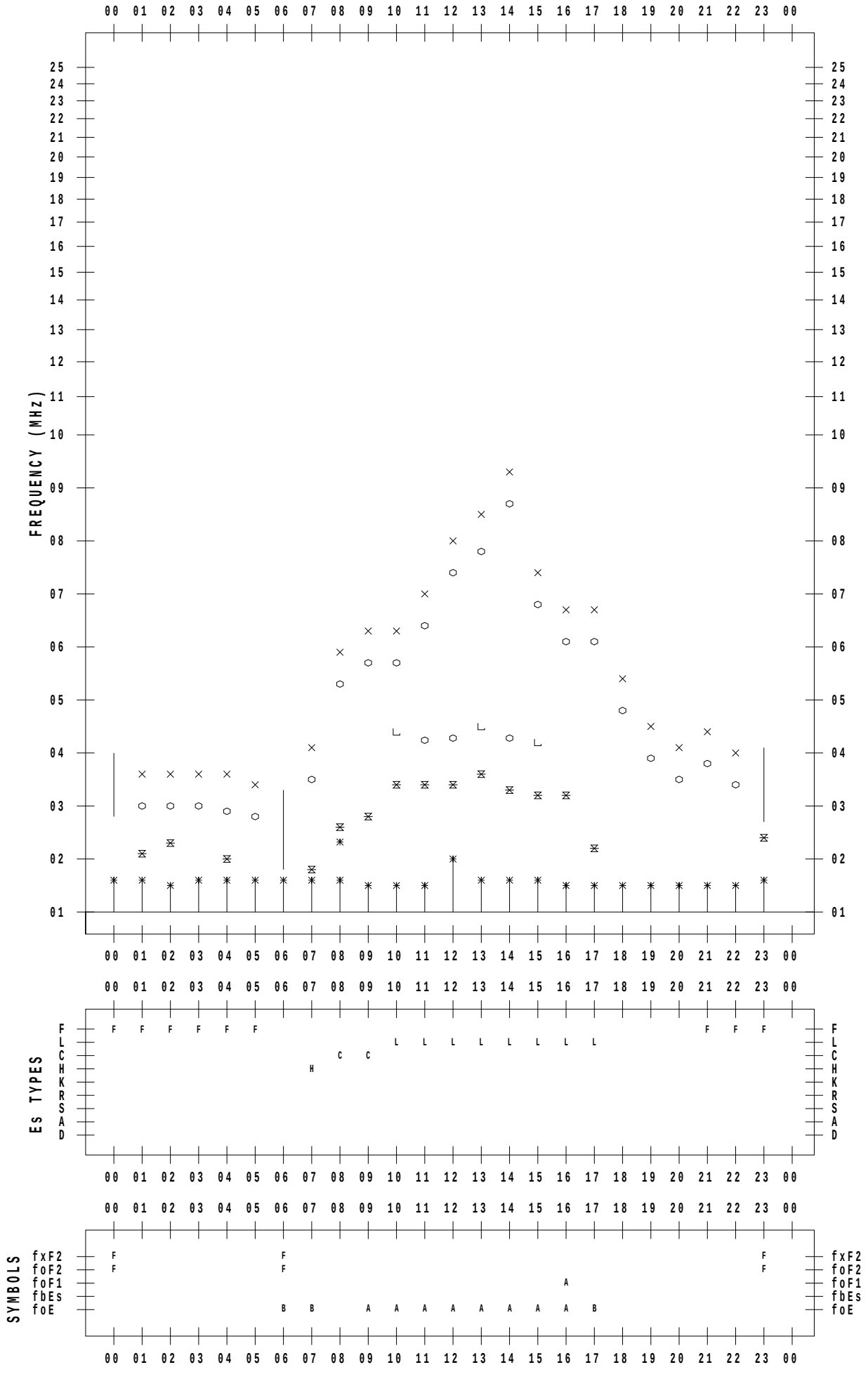
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/ 7

135 °E MEAN TIME



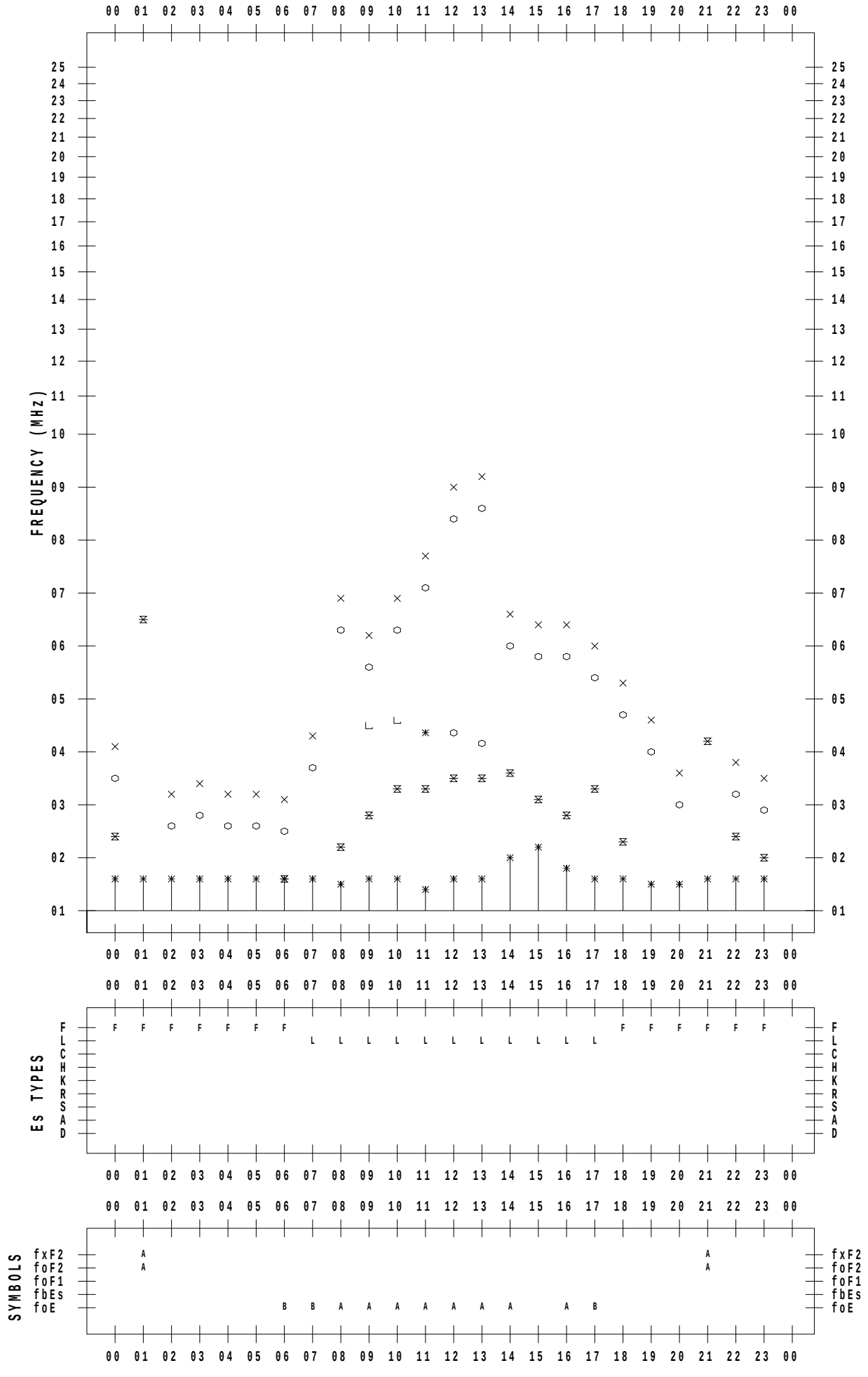
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/ 8

135 °E MEAN TIME



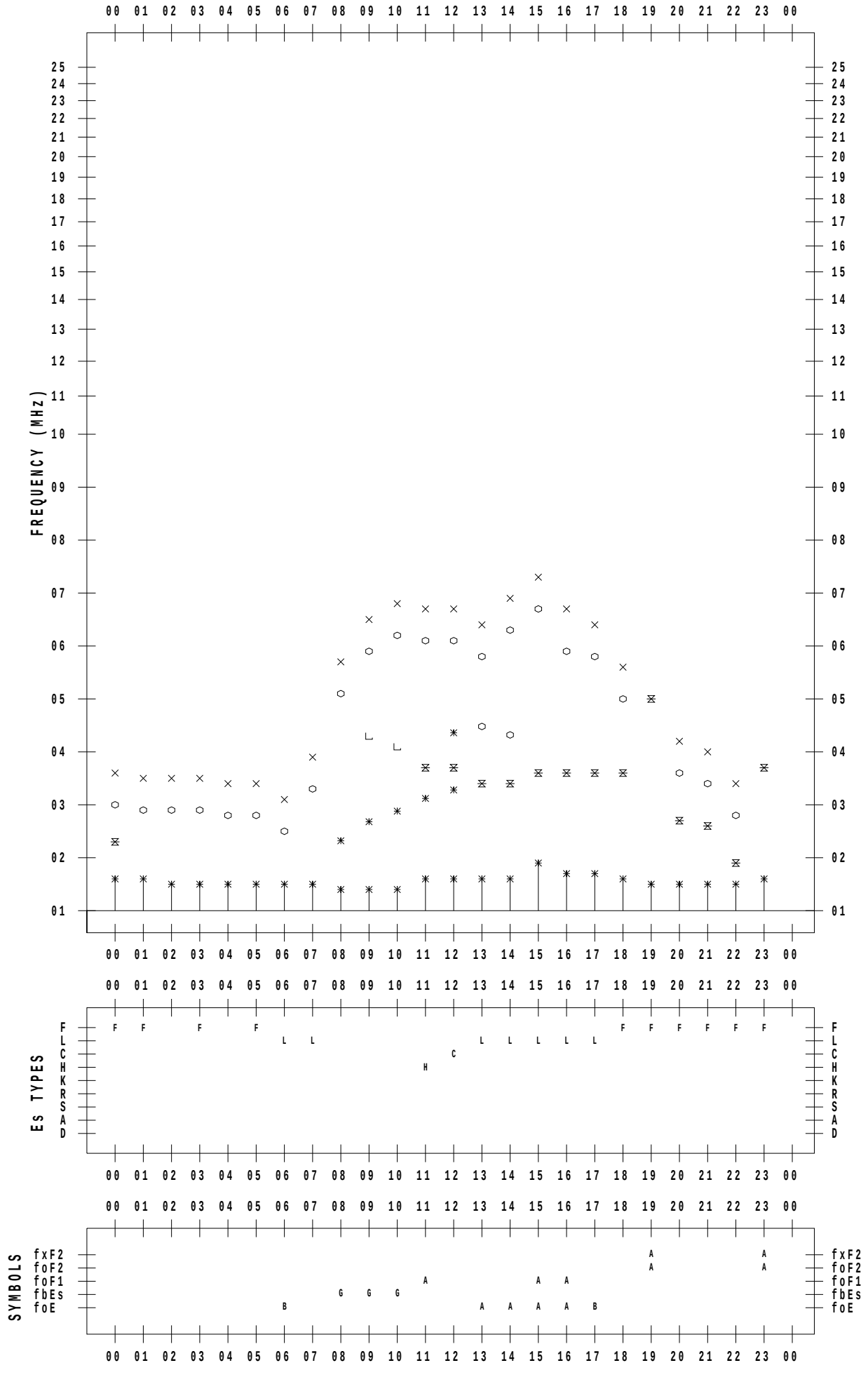
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/ 9

135 °E MEAN TIME



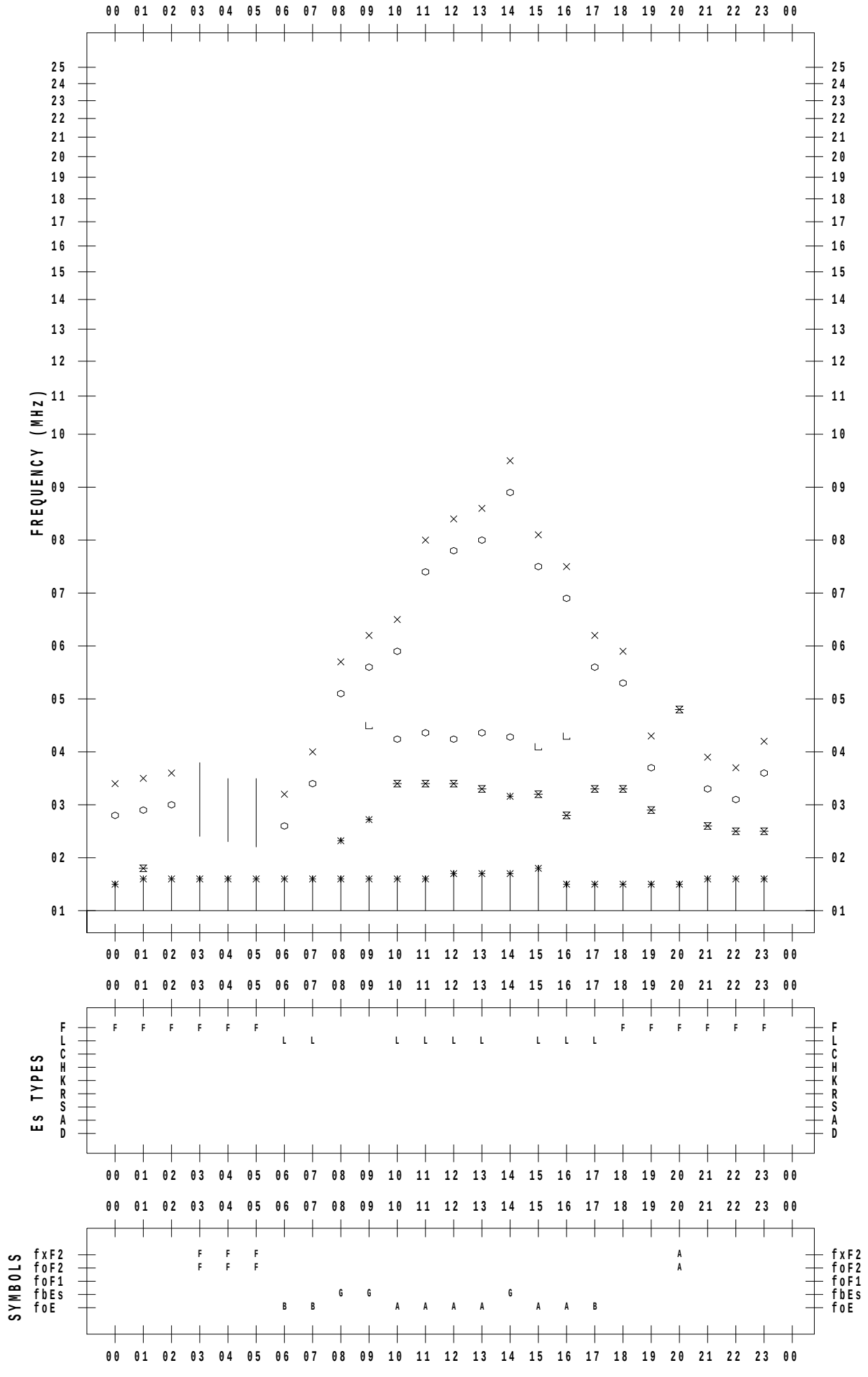
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/10

135 °E MEAN TIME



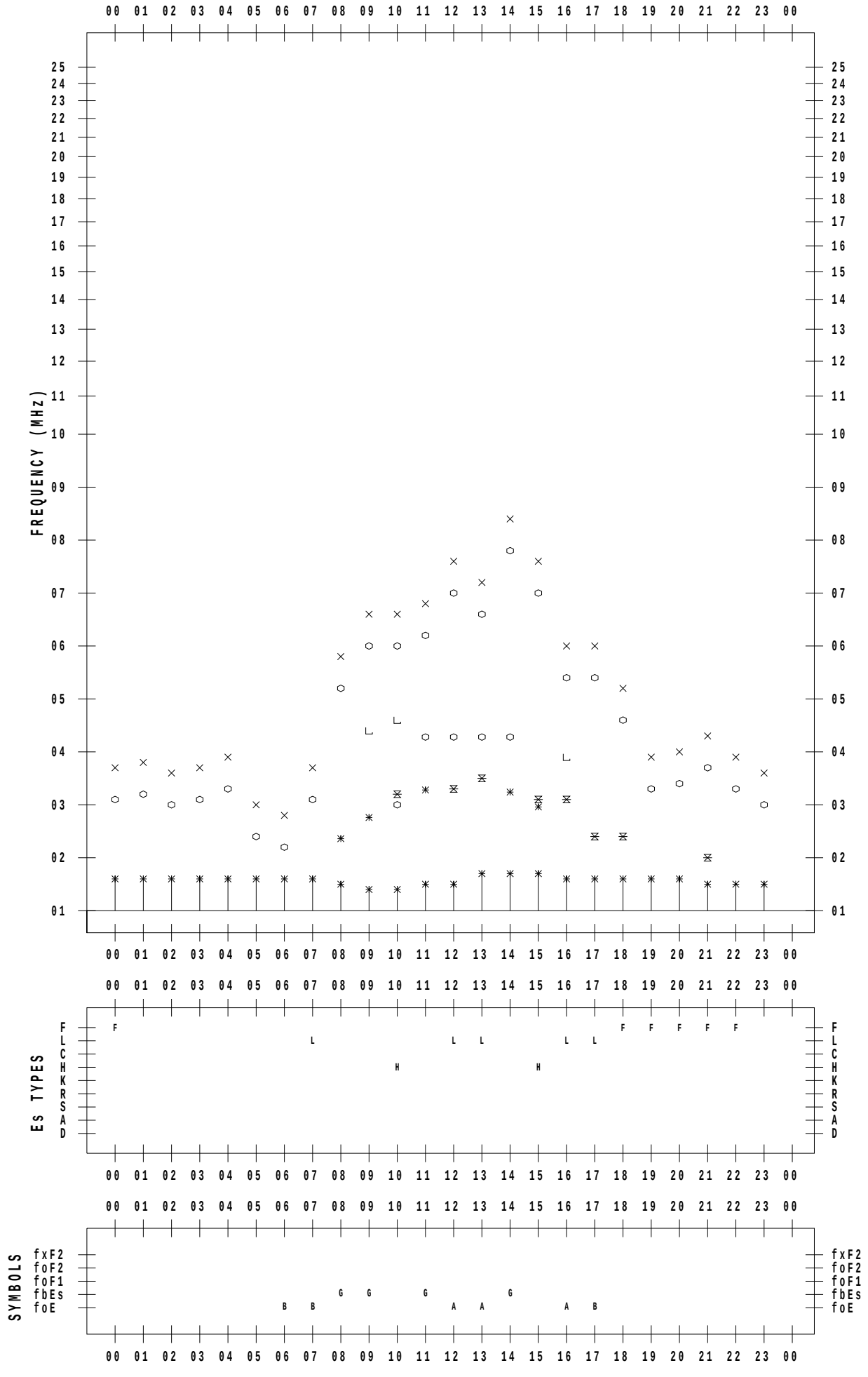
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/11

135 °E MEAN TIME



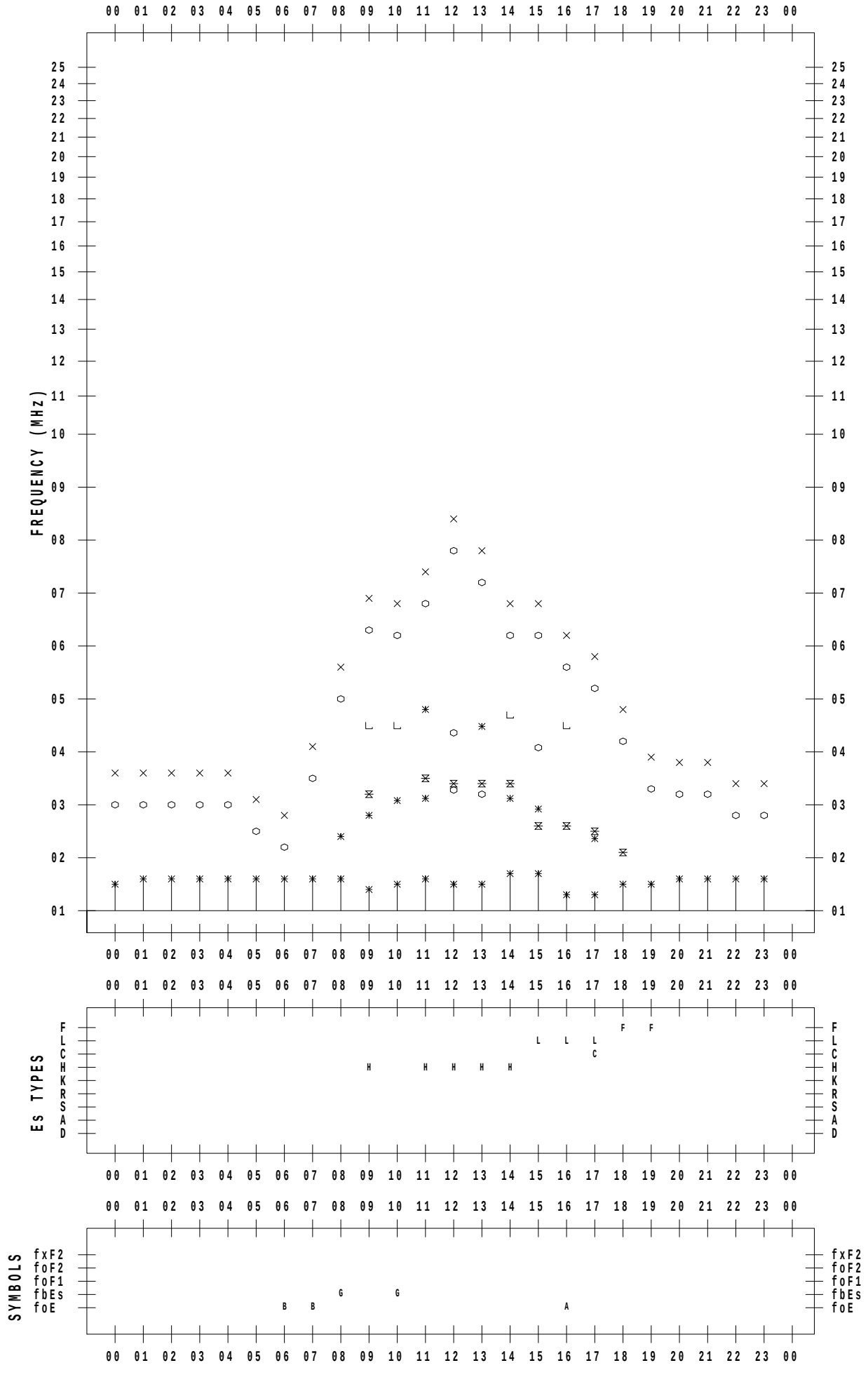
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/12

135 °E MEAN TIME



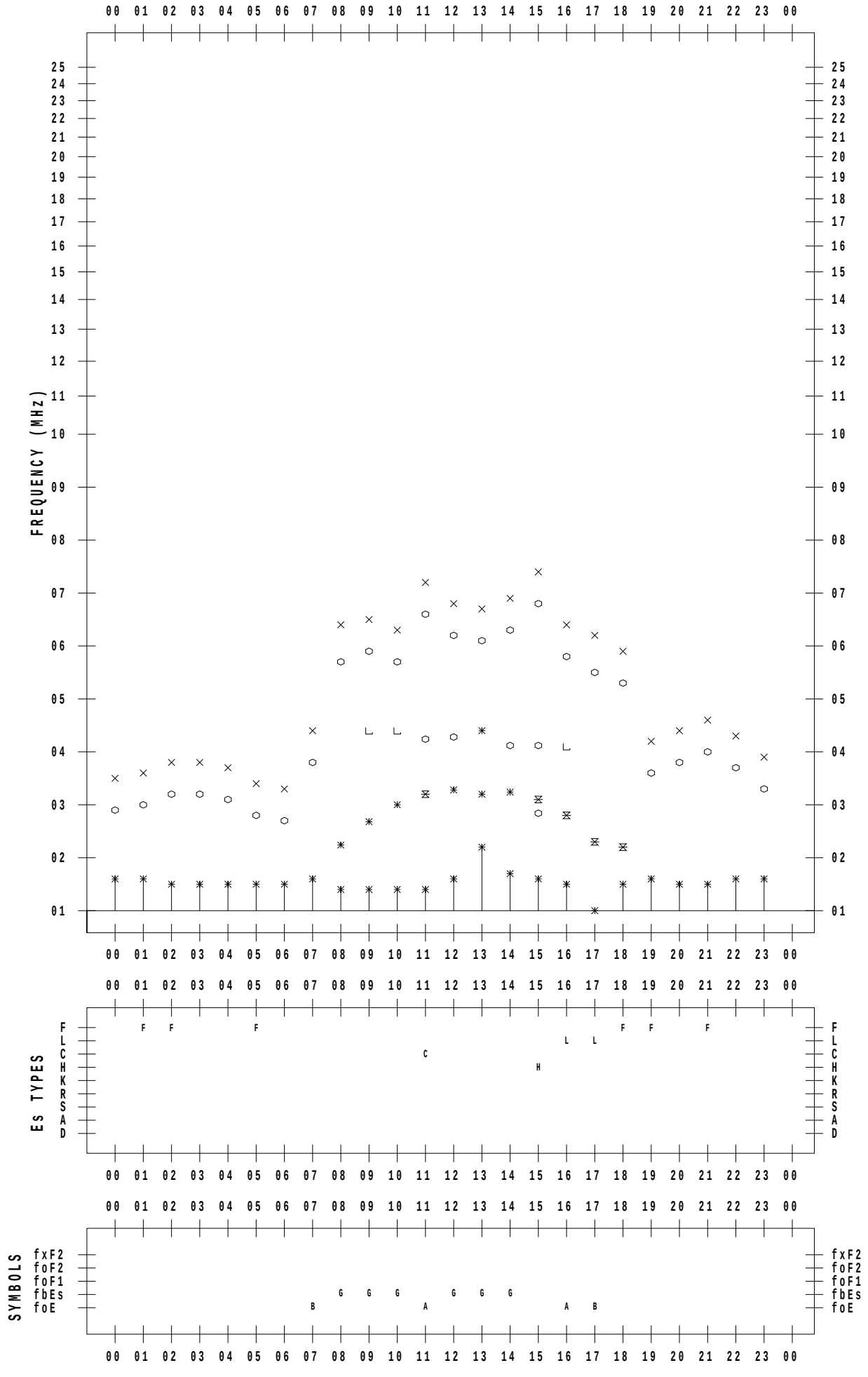
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/13

135 °E MEAN TIME



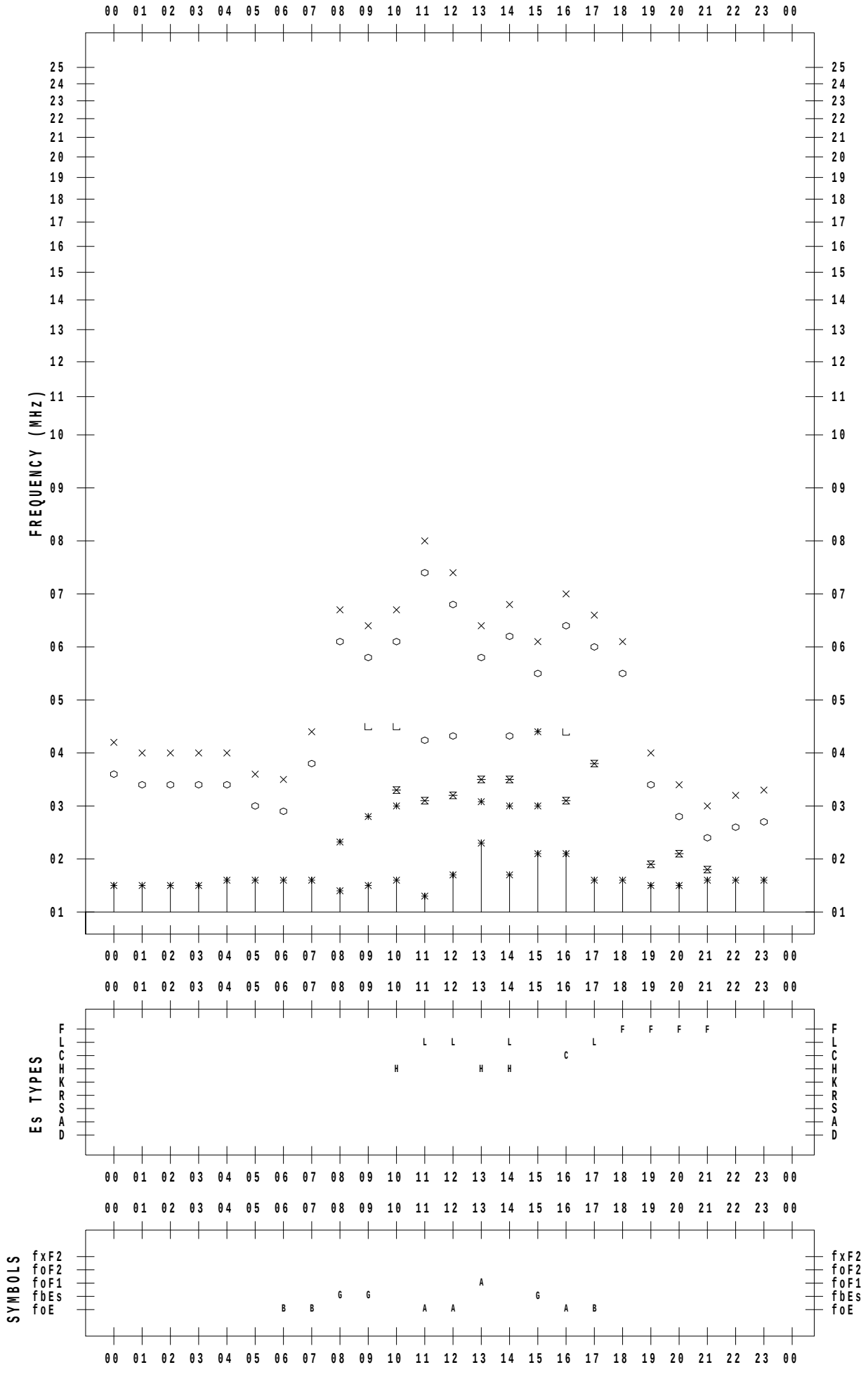
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/14

135 °E MEAN TIME



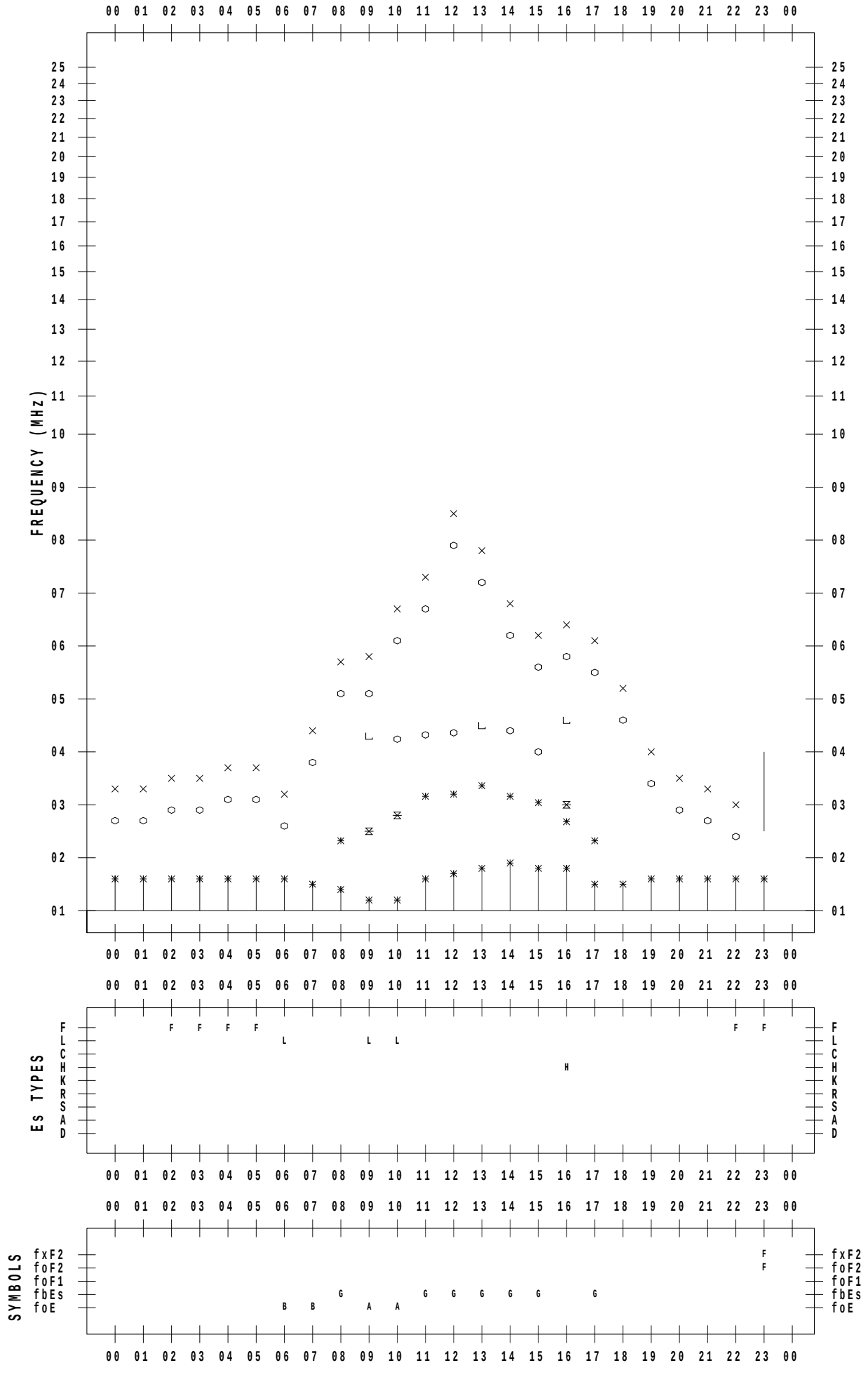
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/15

135 °E MEAN TIME



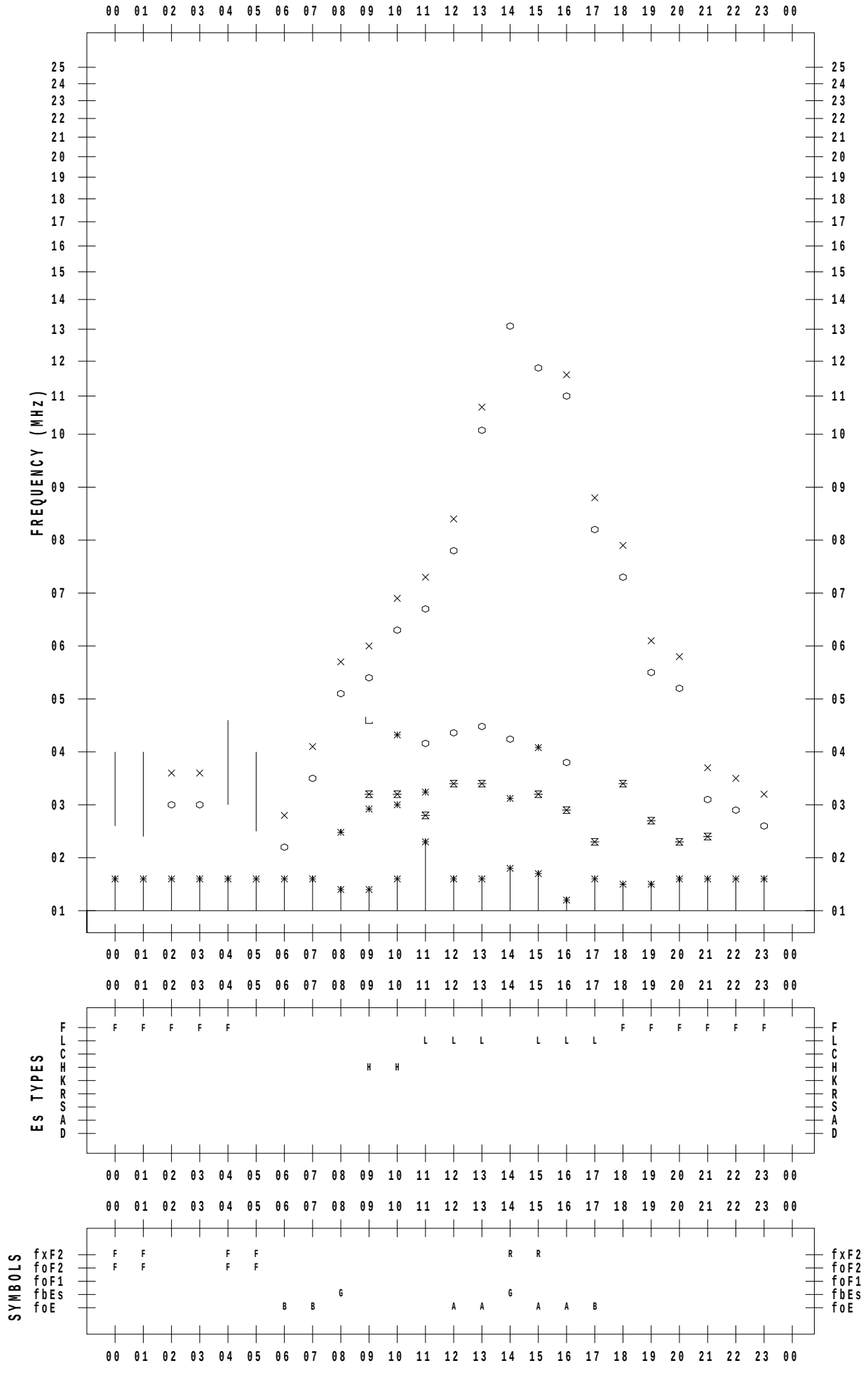
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/16

135 °E MEAN TIME



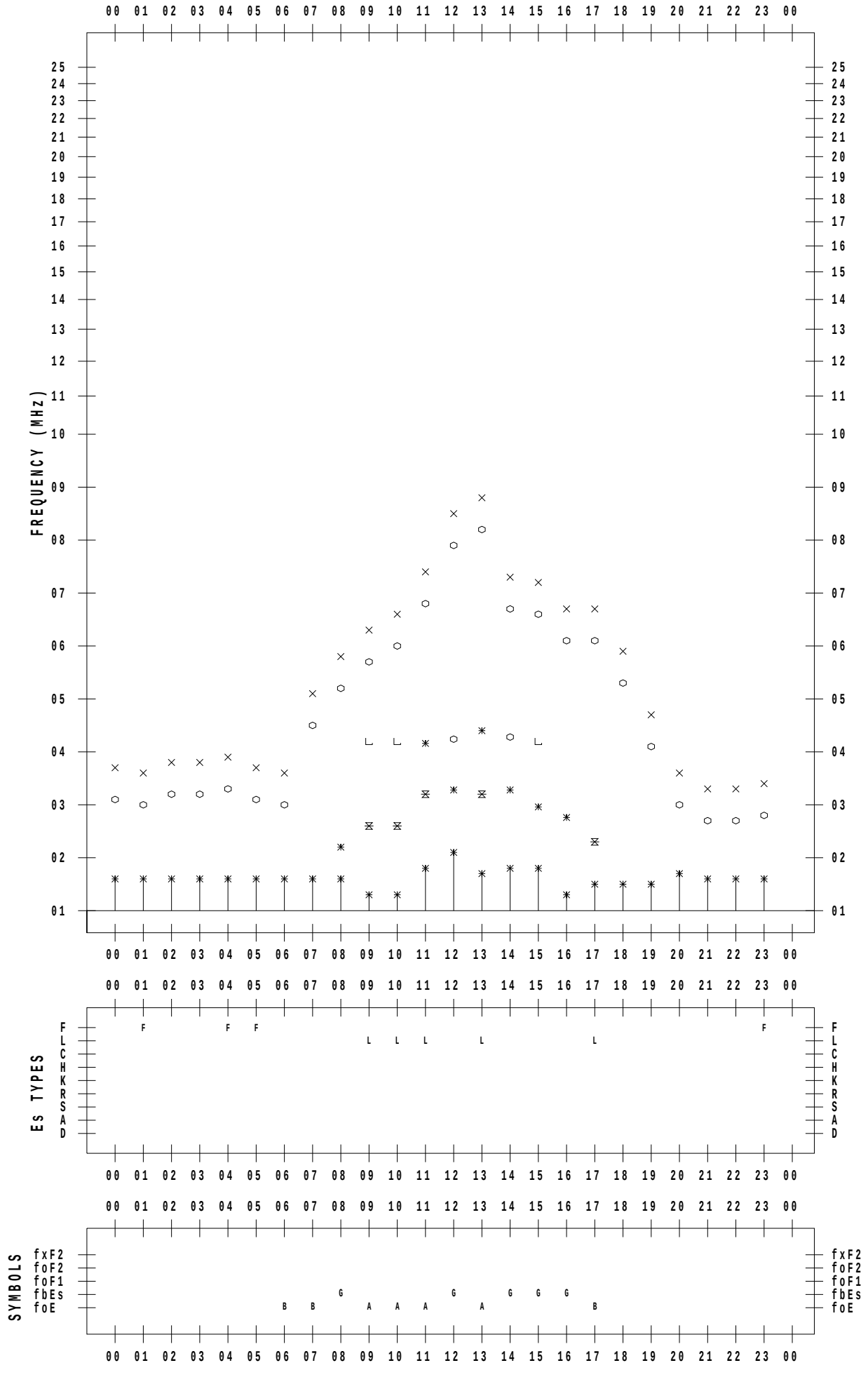
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/17

135 °E MEAN TIME



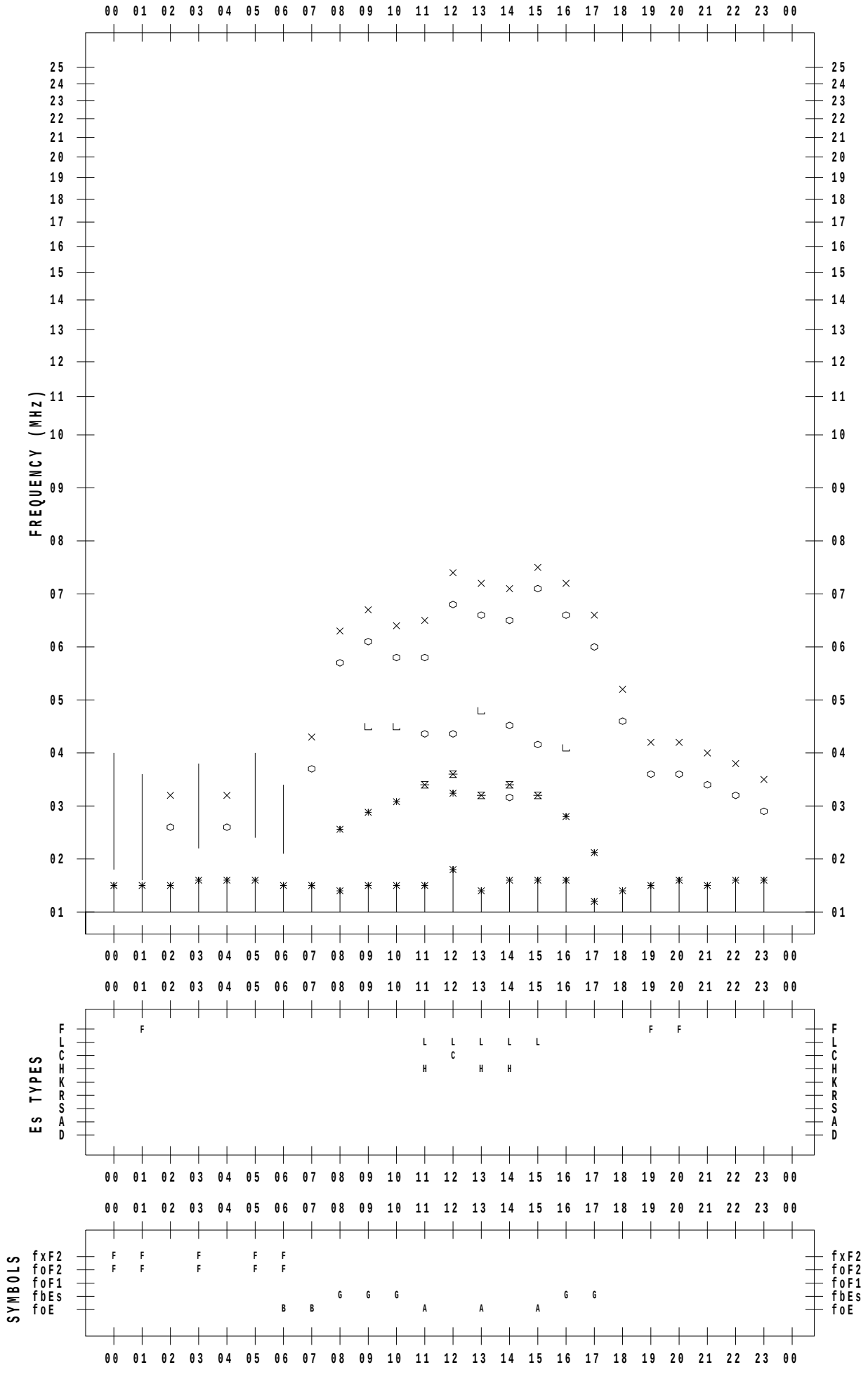
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/18

135 °E MEAN TIME



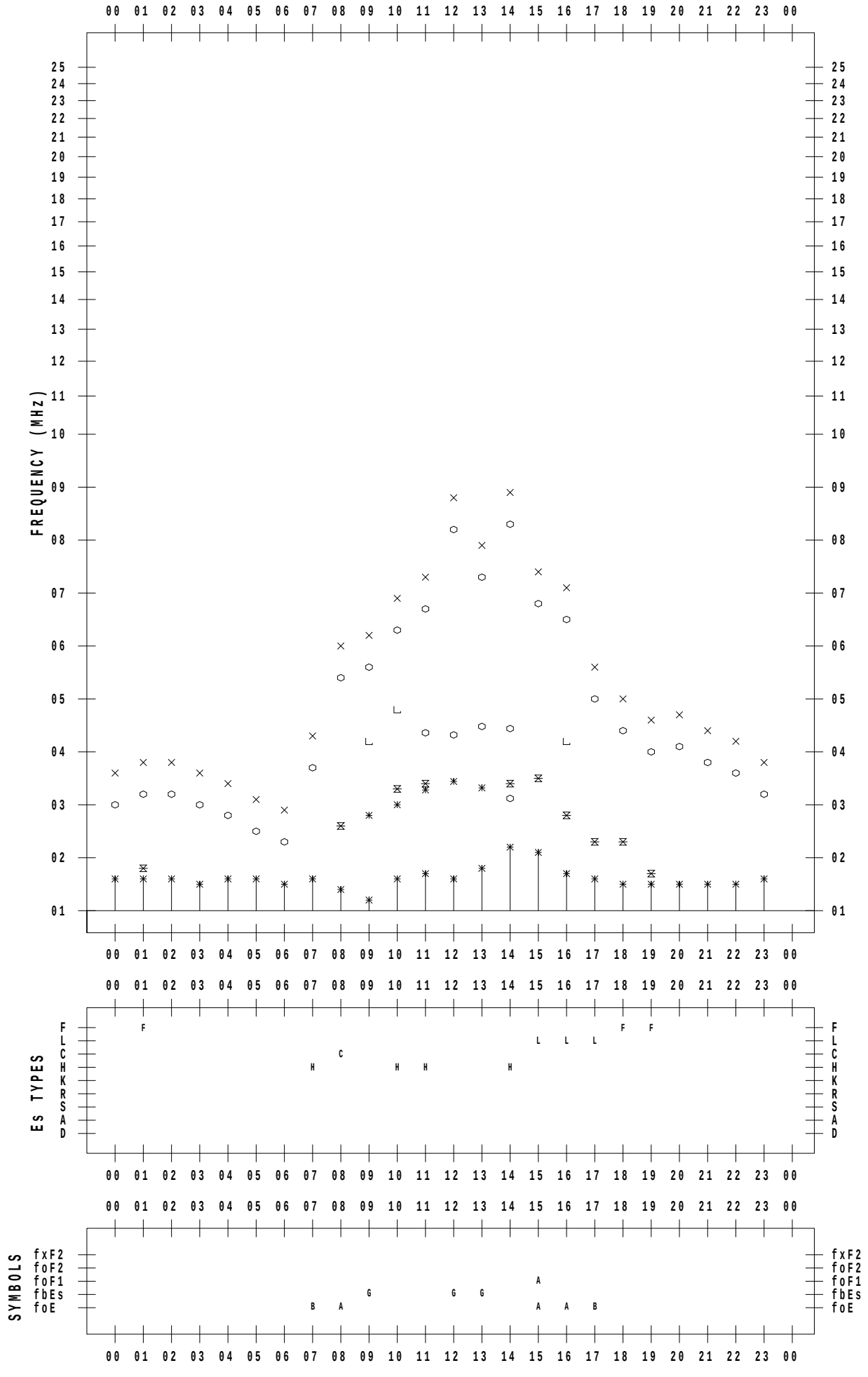
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/19

135 °E MEAN TIME



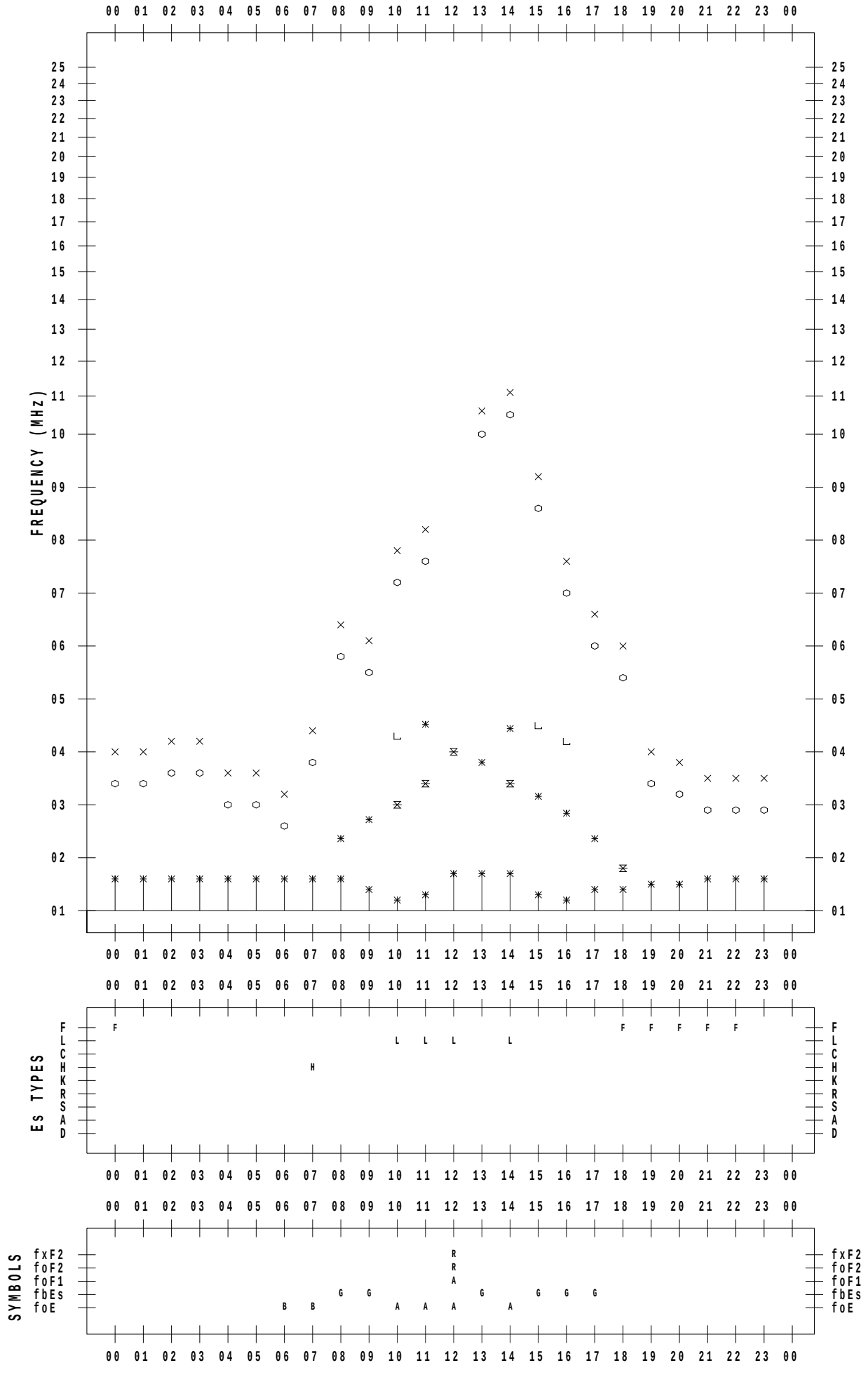
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/20

135 °E MEAN TIME



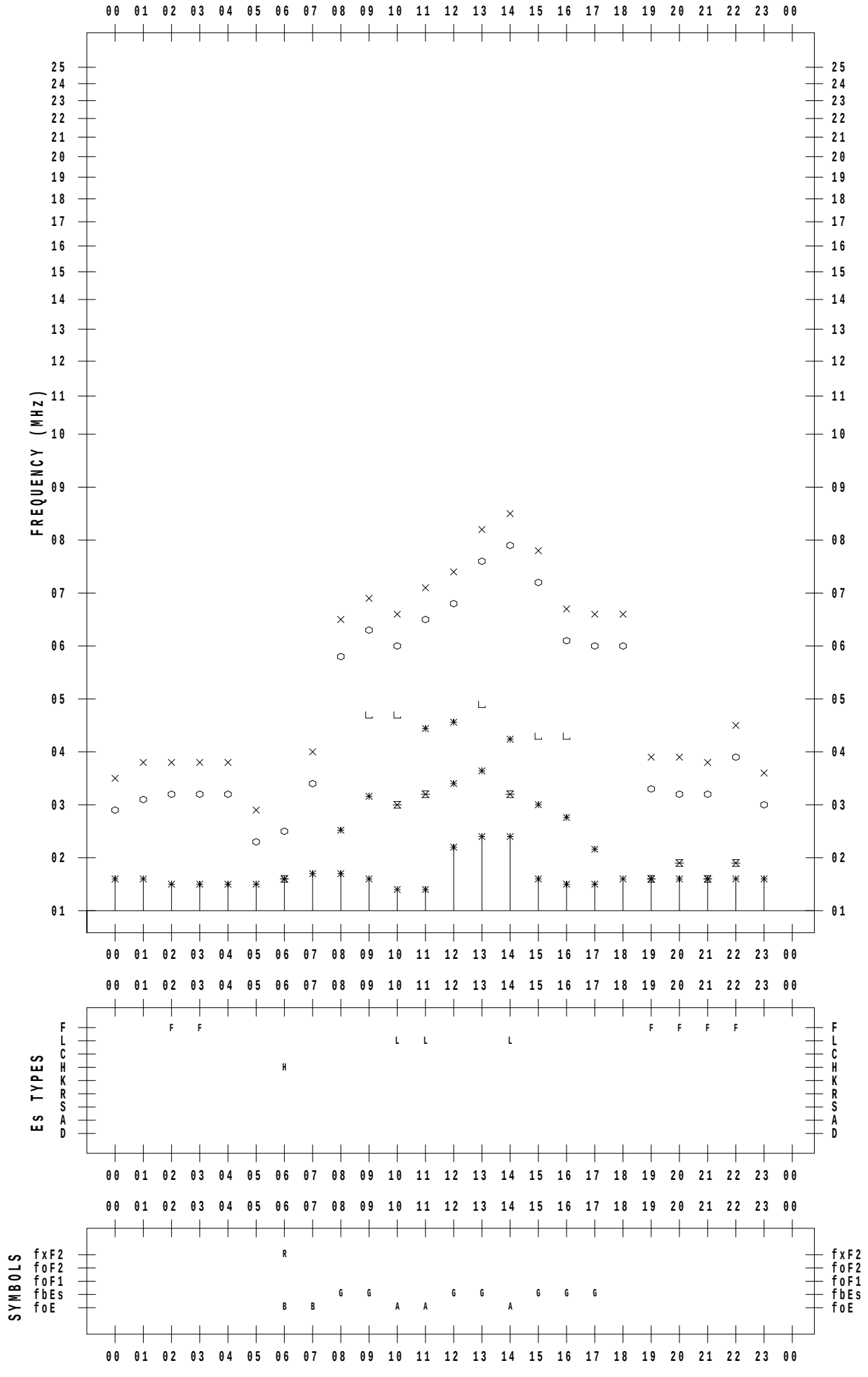
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/21

135 °E MEAN TIME



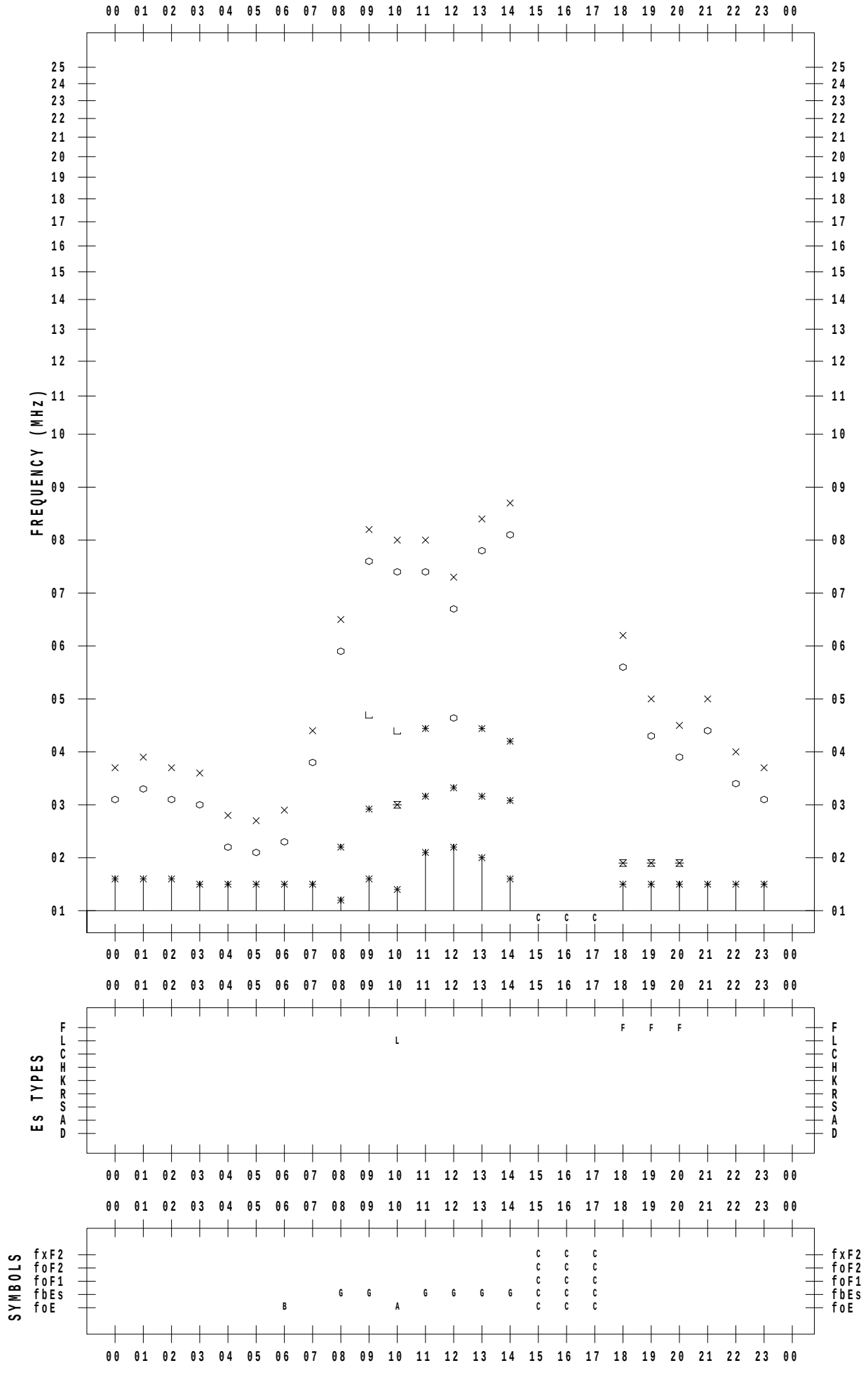
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/22

135 °E MEAN TIME



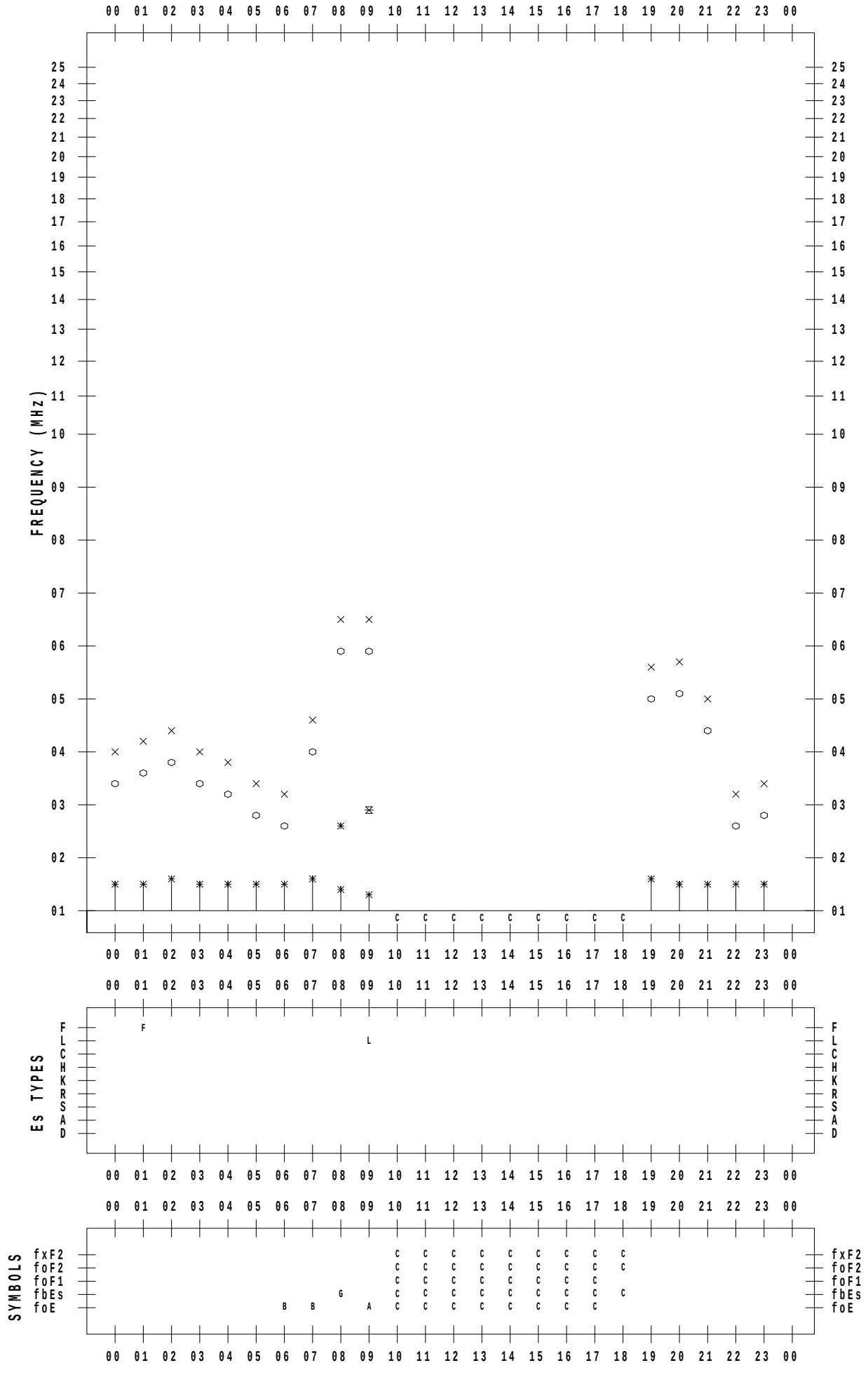
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/23

135 °E MEAN TIME



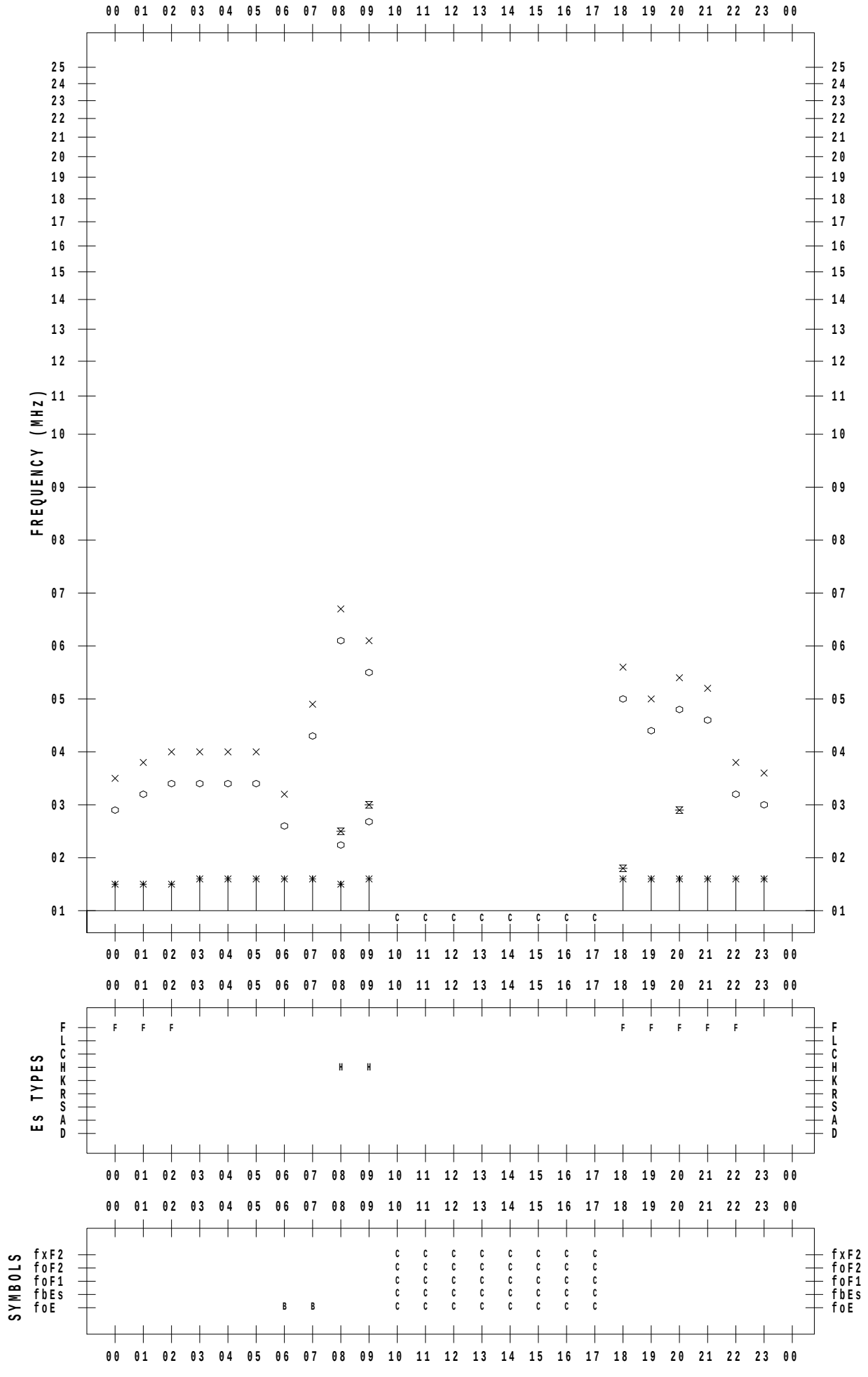
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/24

135 °E MEAN TIME



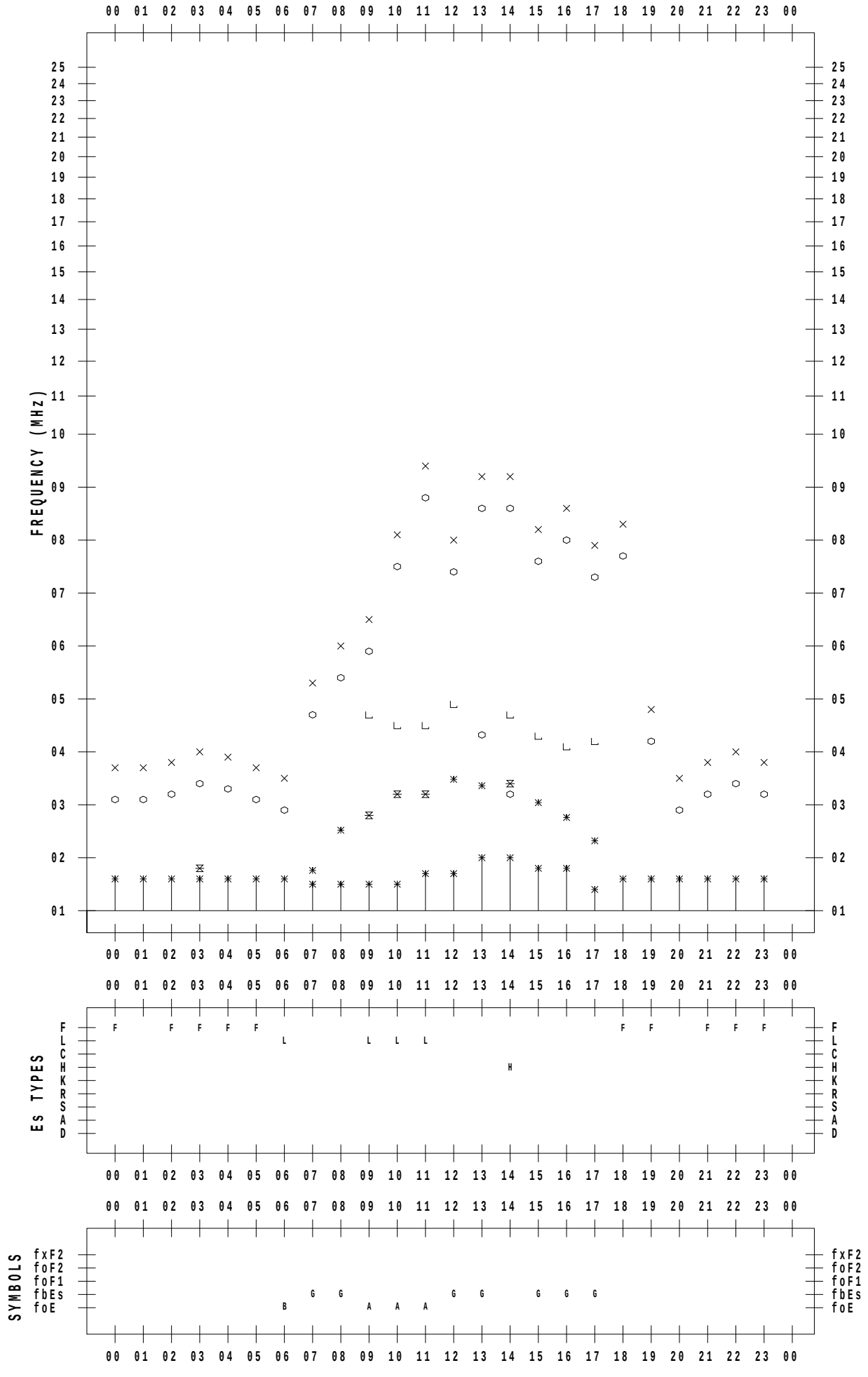
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/25

135 °E MEAN TIME



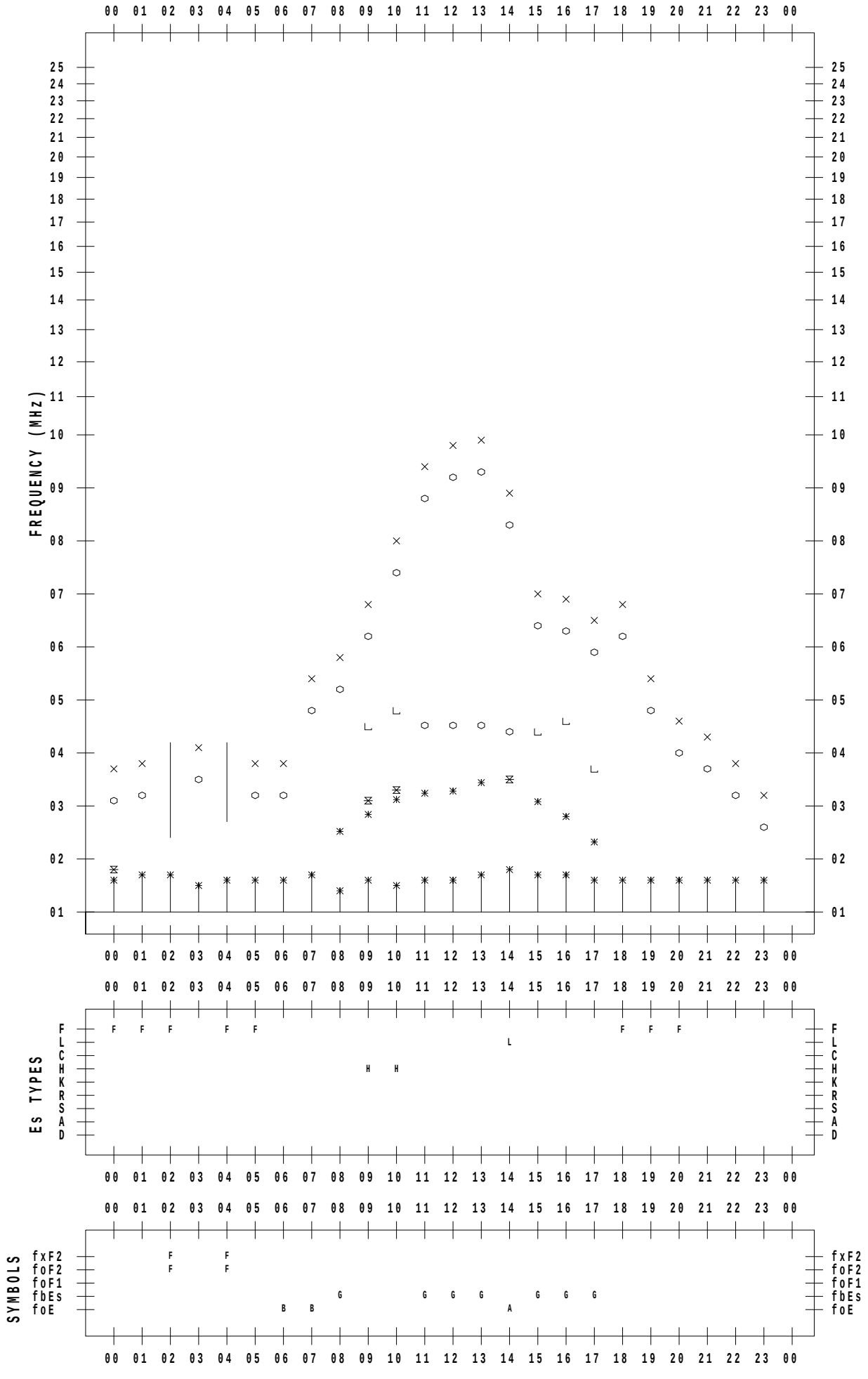
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/26

135 °E MEAN TIME



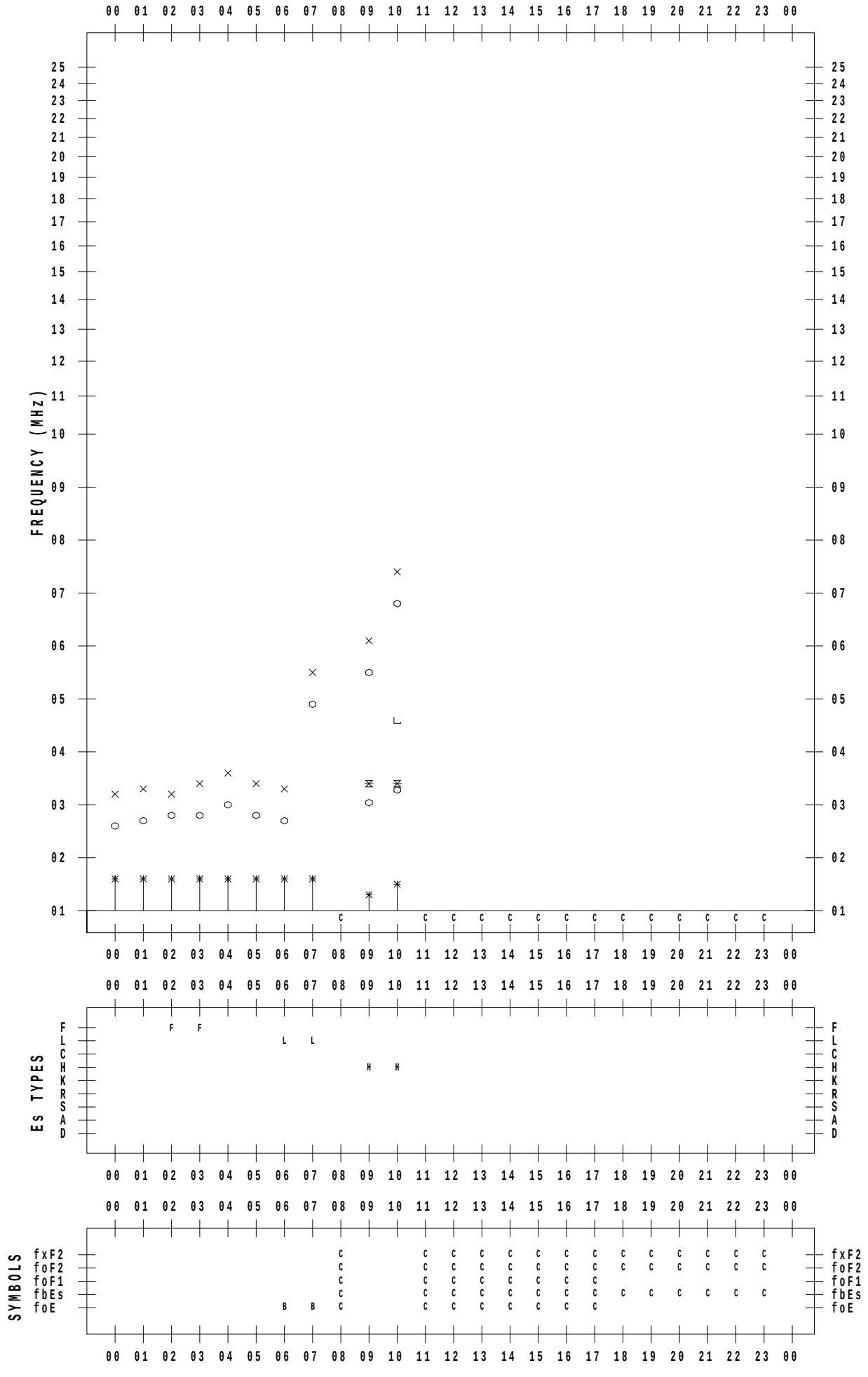
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/27

135 °E MEAN TIME



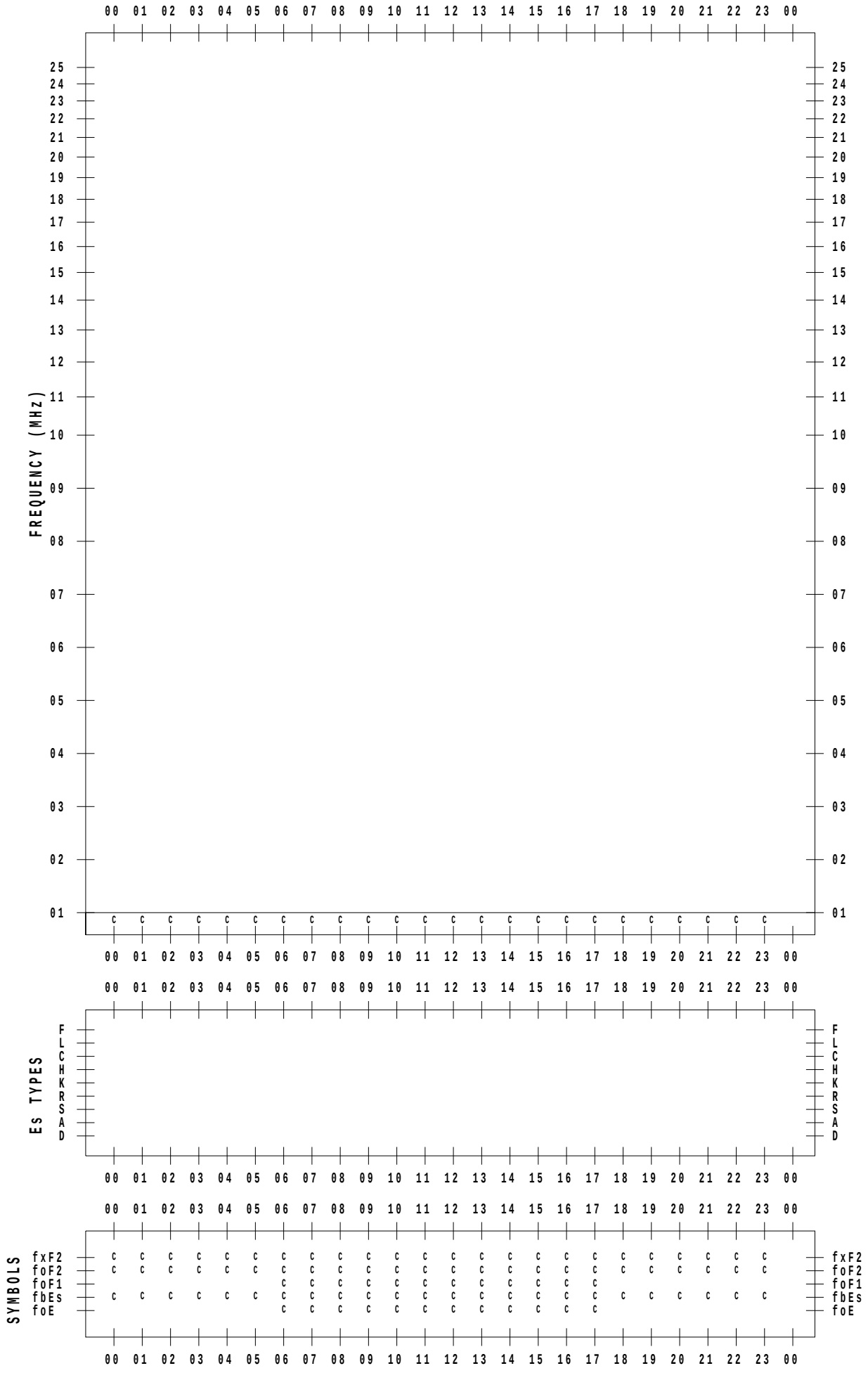
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2021/ 2/28

135 °E MEAN TIME



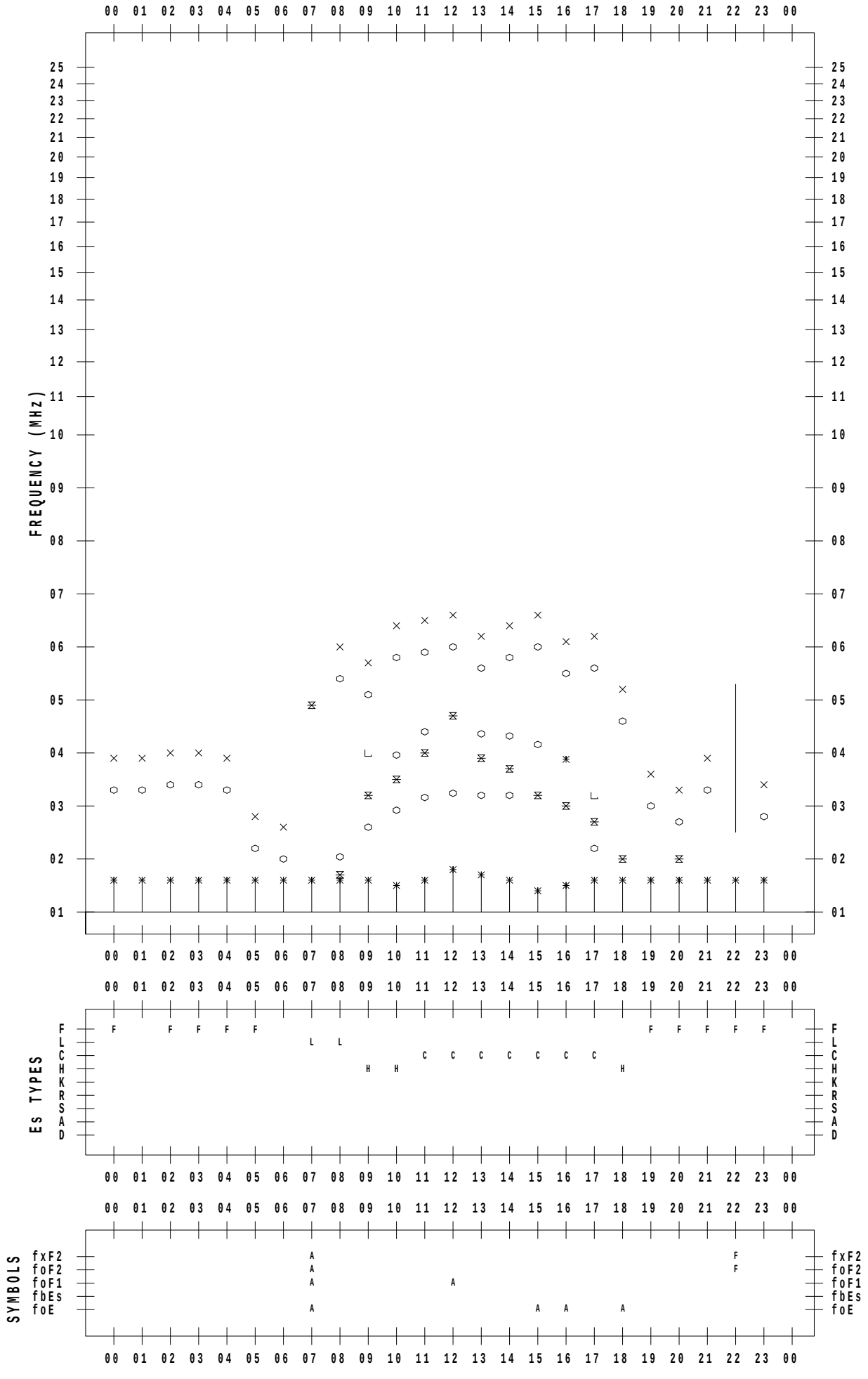
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/ 1

135 °E MEAN TIME



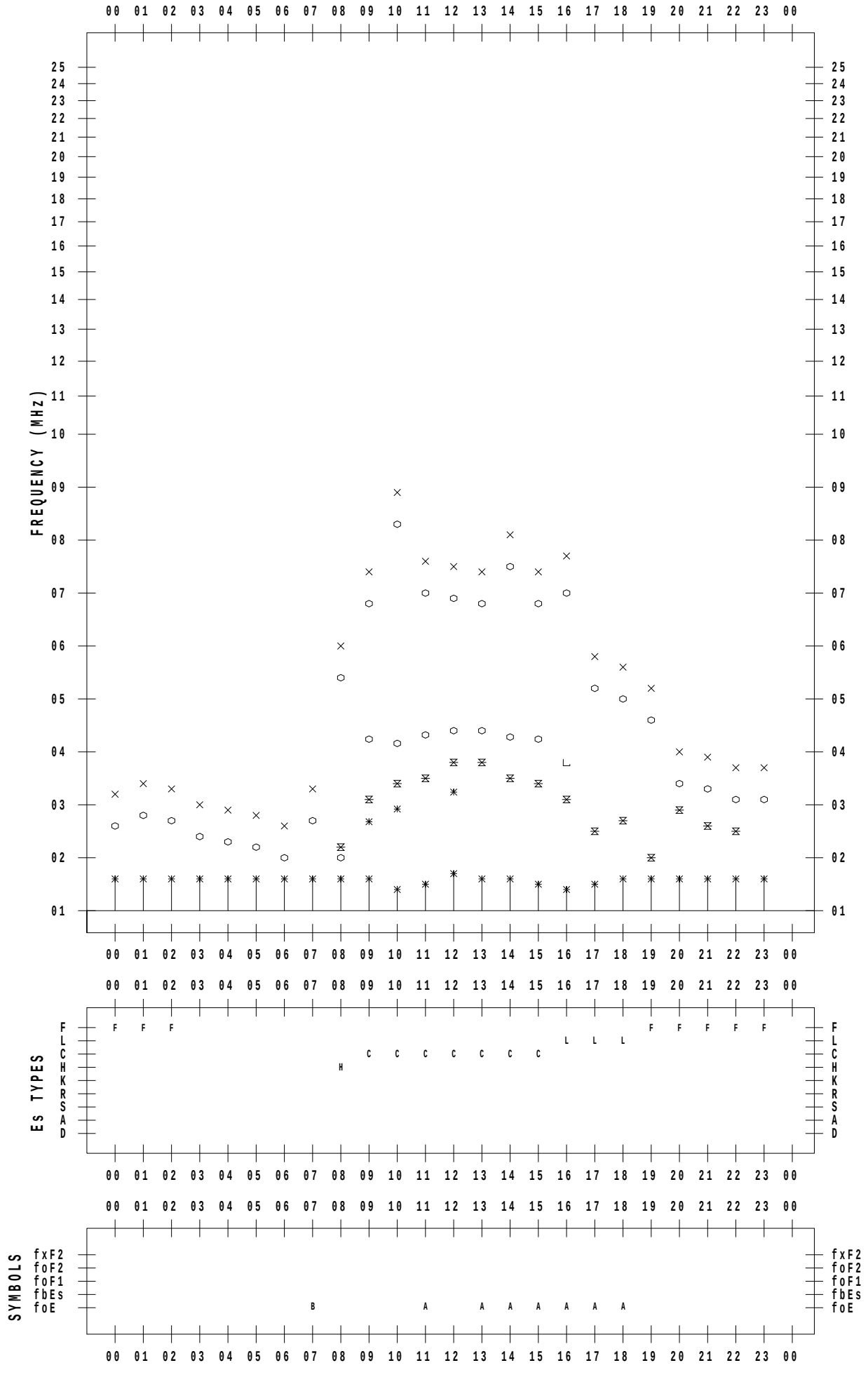
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/ 2

135 °E MEAN TIME



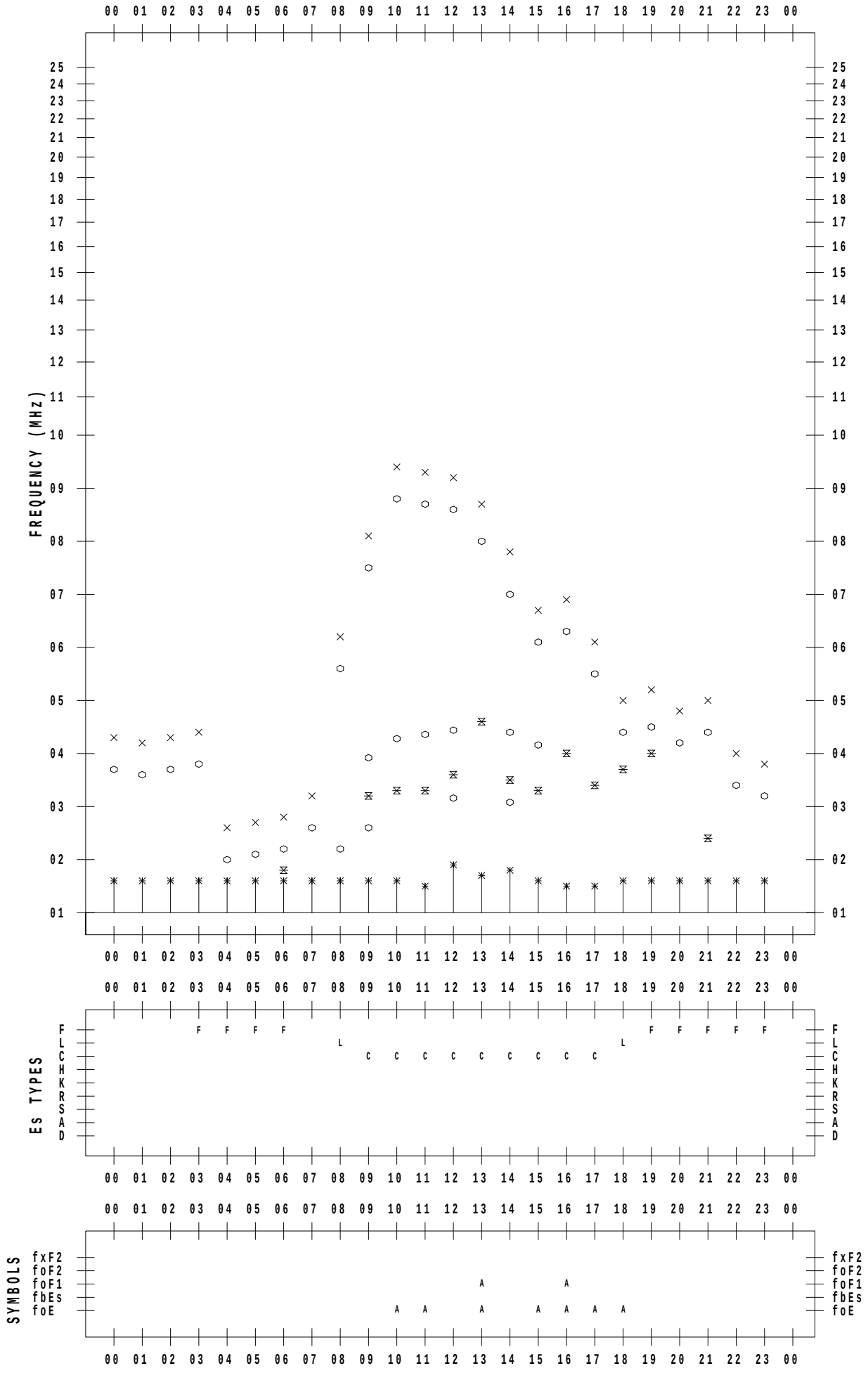
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/ 3

135 °E MEAN TIME



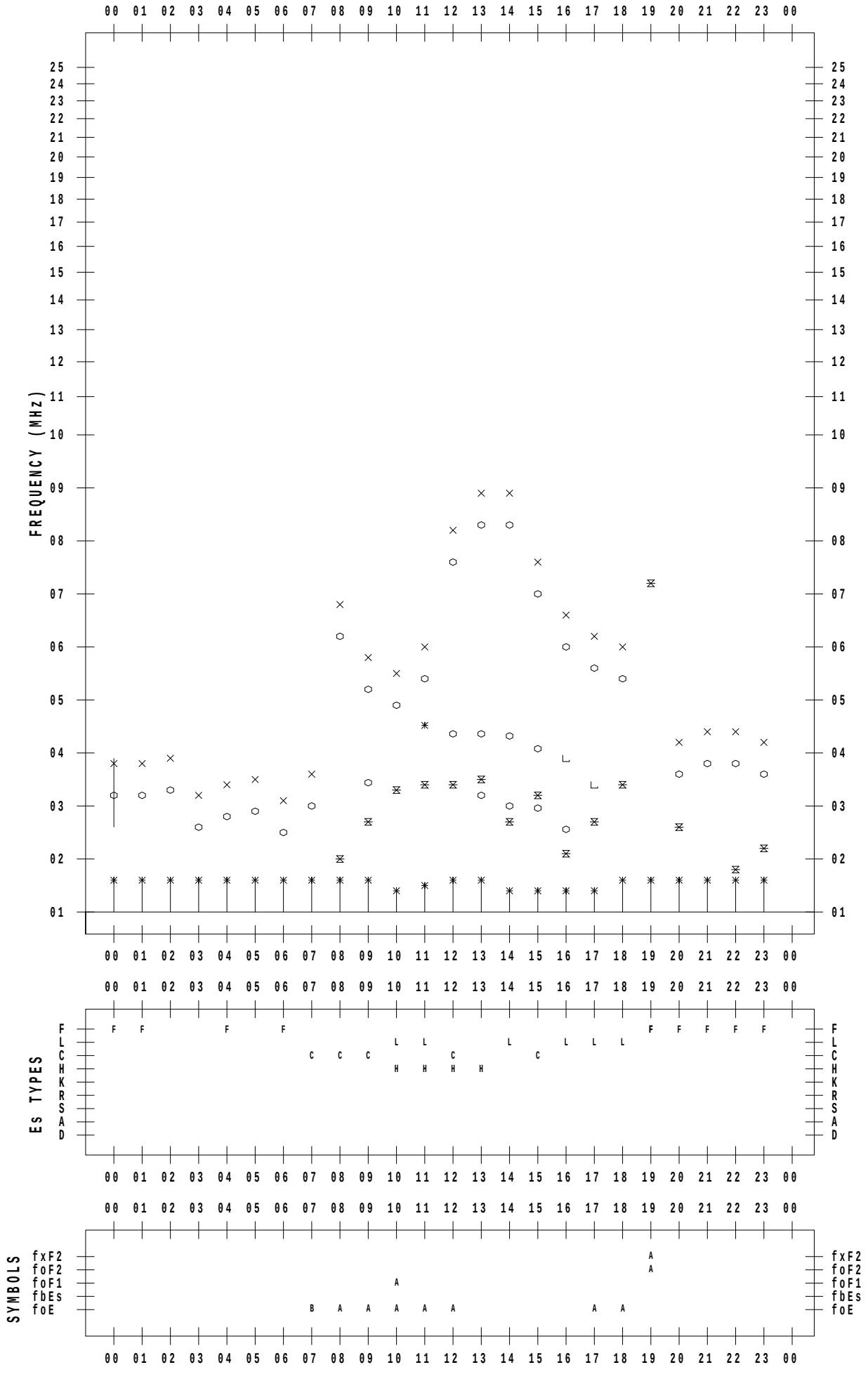
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/ 4

135 °E MEAN TIME



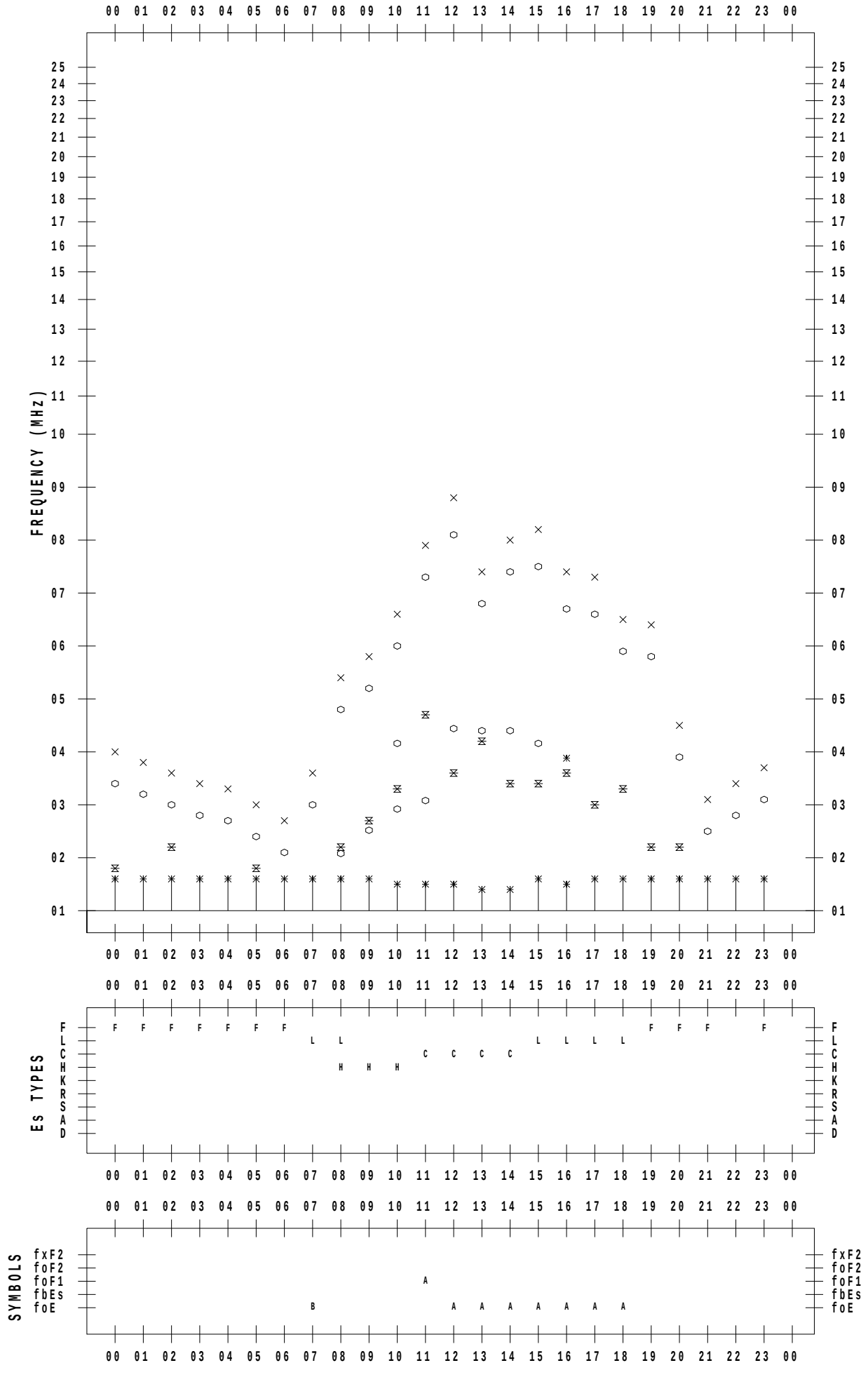
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/ 5

135 °E MEAN TIME



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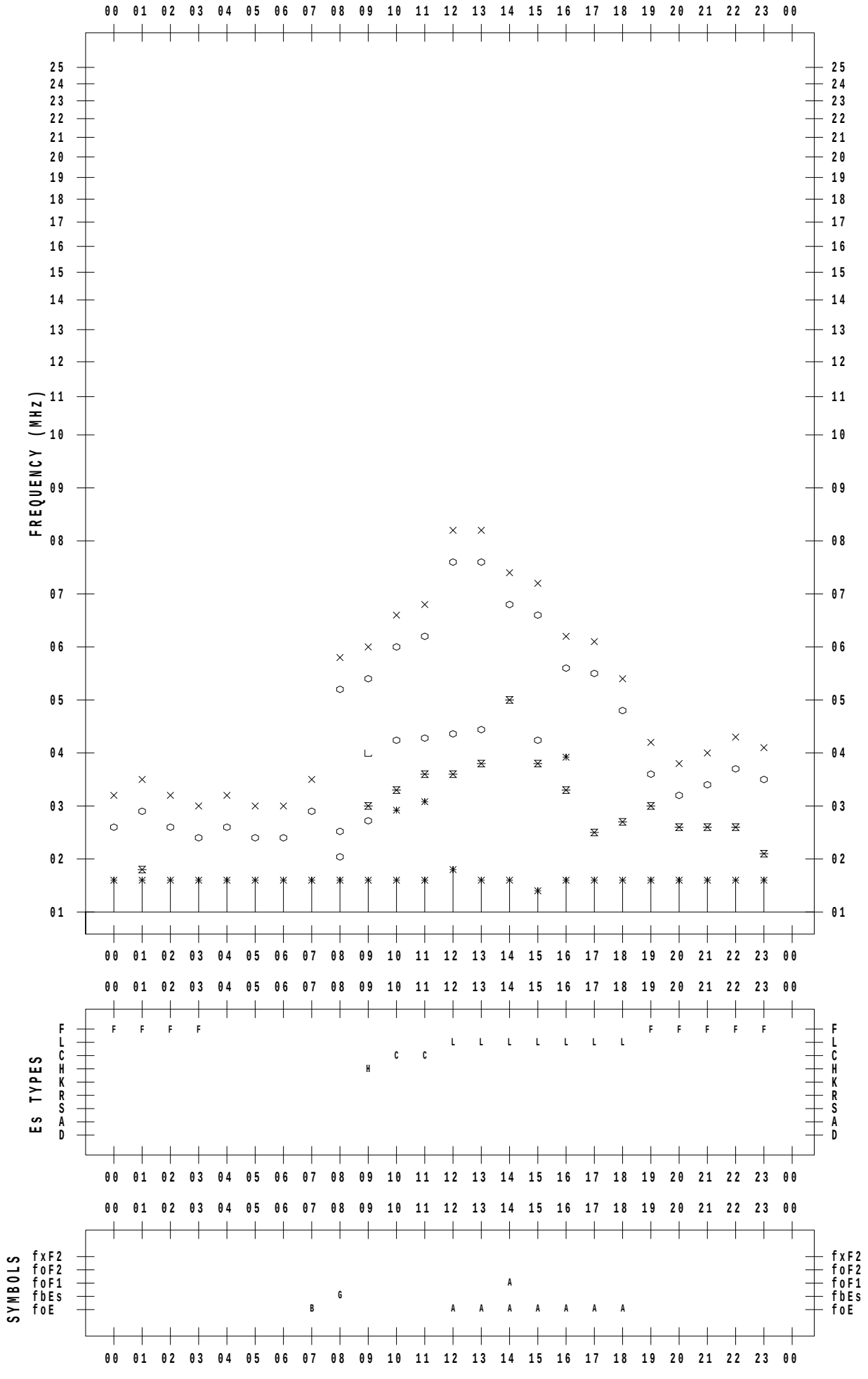
SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/ 6

135 °E MEAN TIME



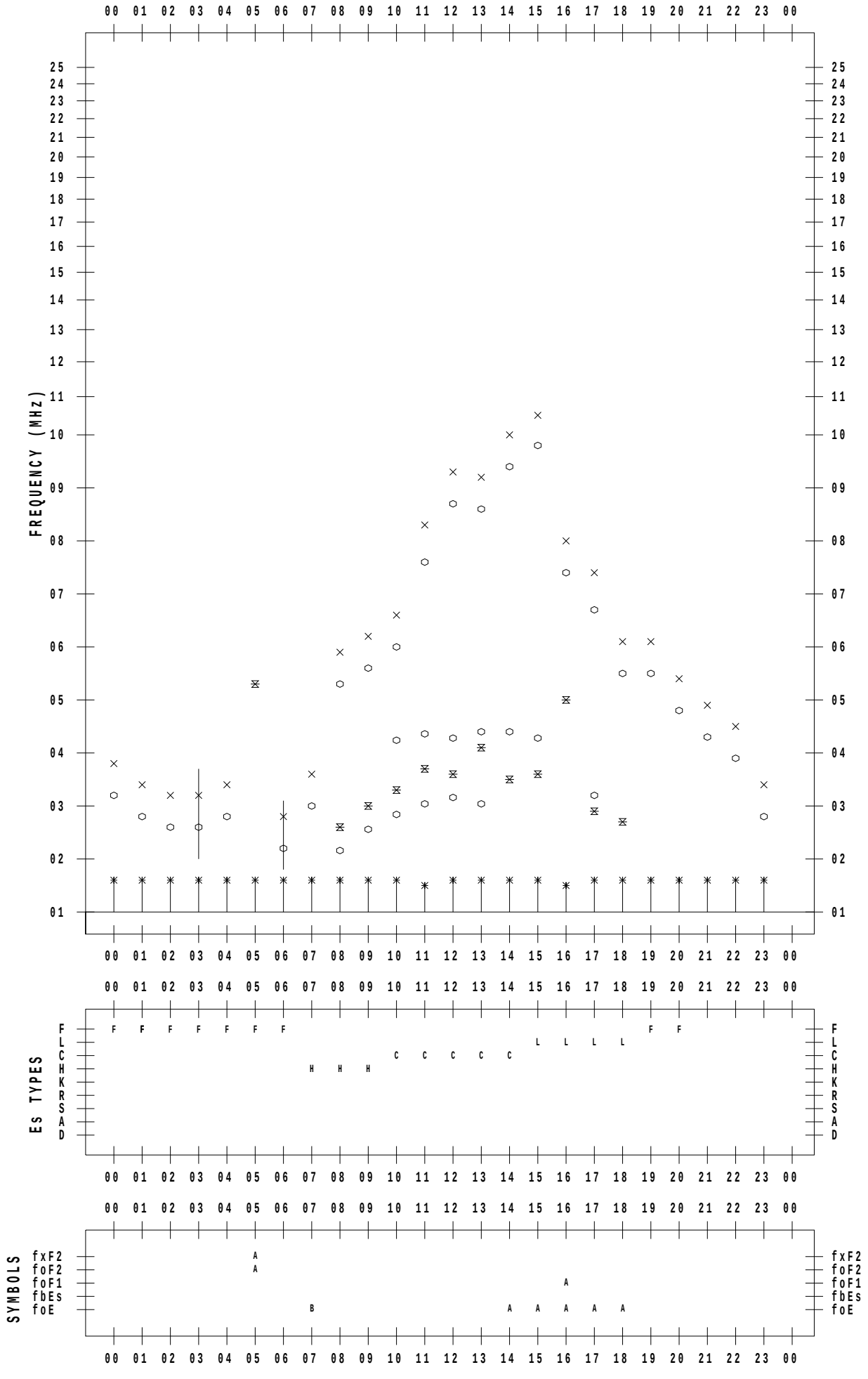
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/ 7

135 °E MEAN TIME



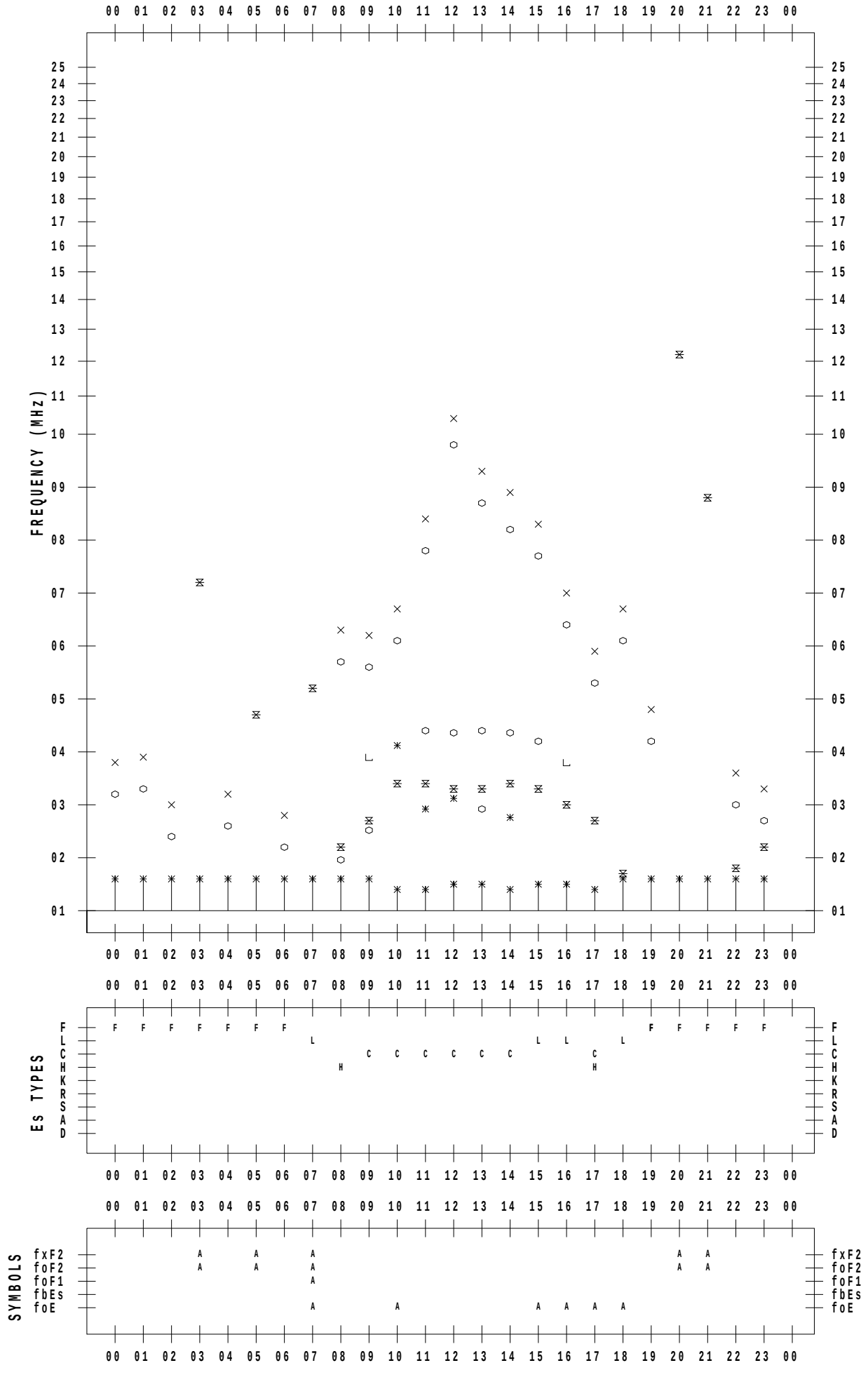
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/ 8

135 °E MEAN TIME



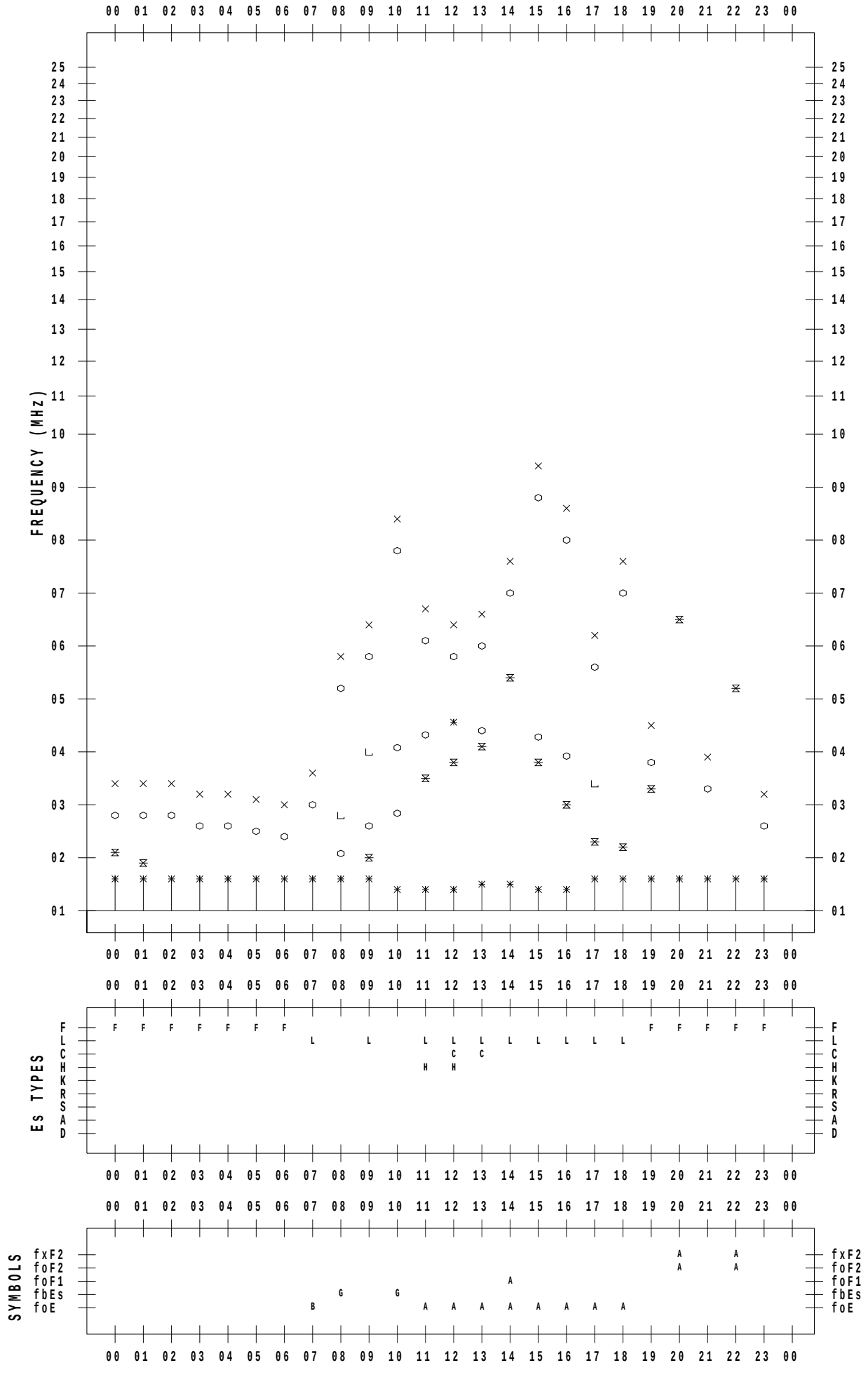
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/ 9

135 °E MEAN TIME



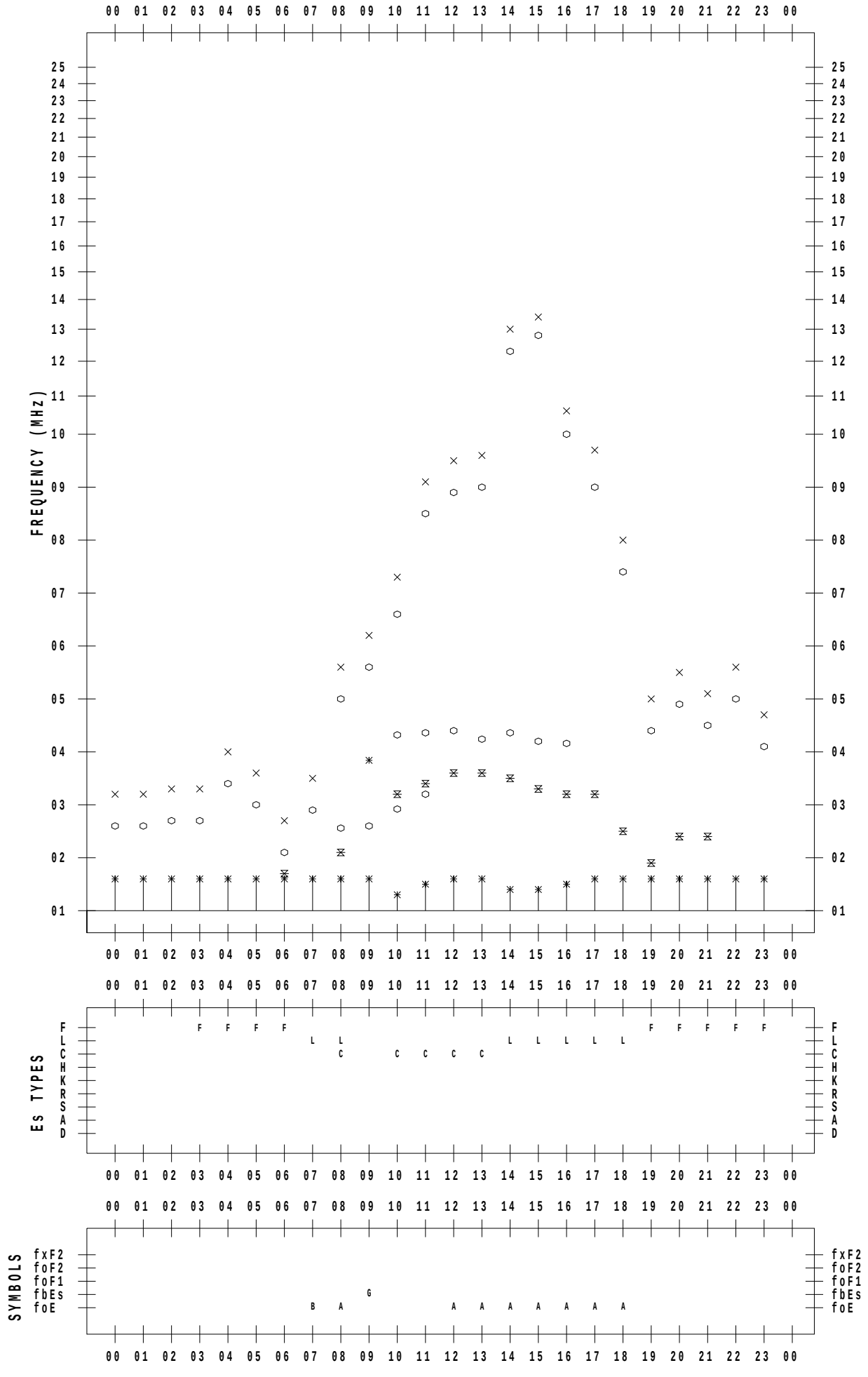
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/10

135 °E MEAN TIME



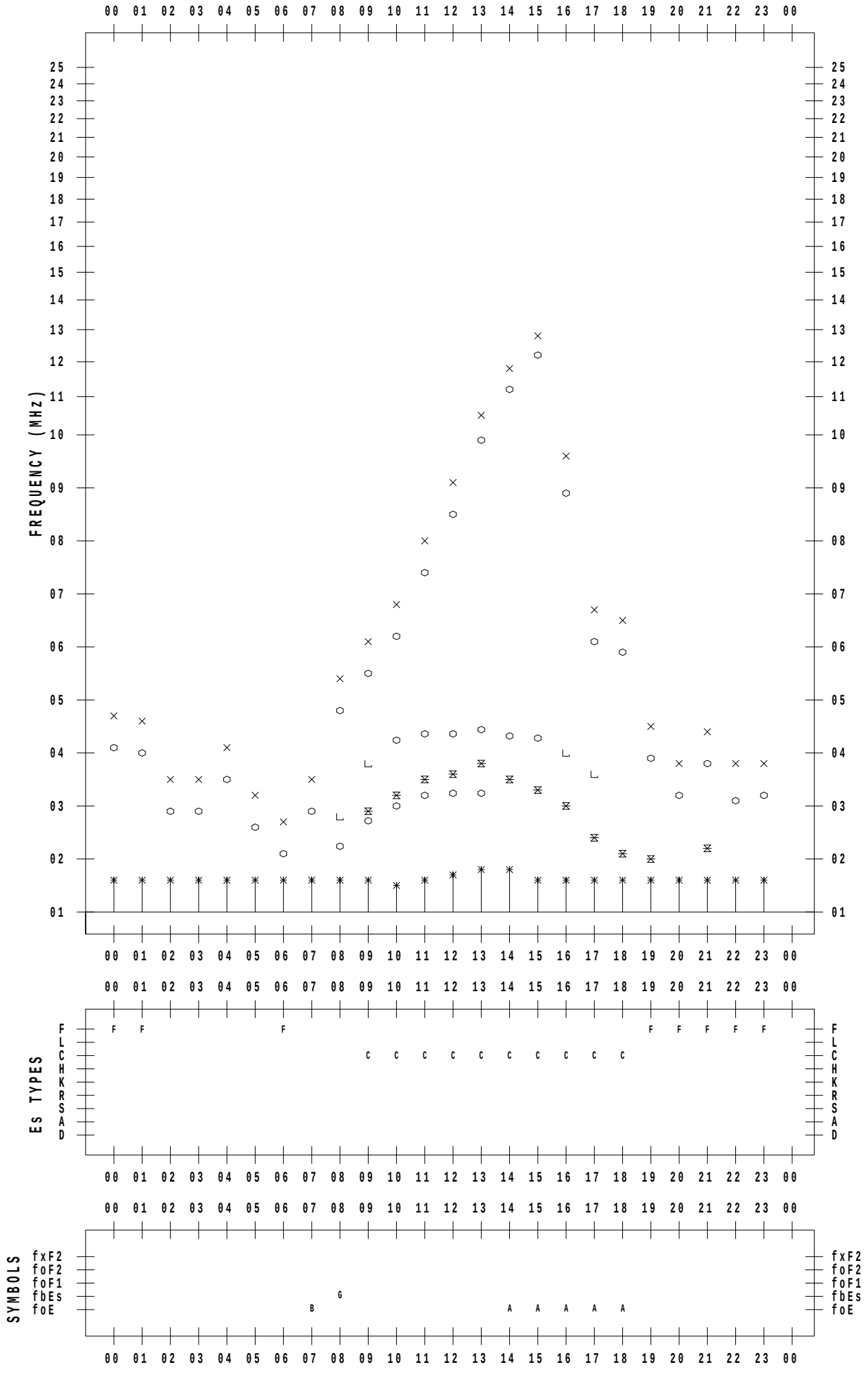
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/11

135 °E MEAN TIME



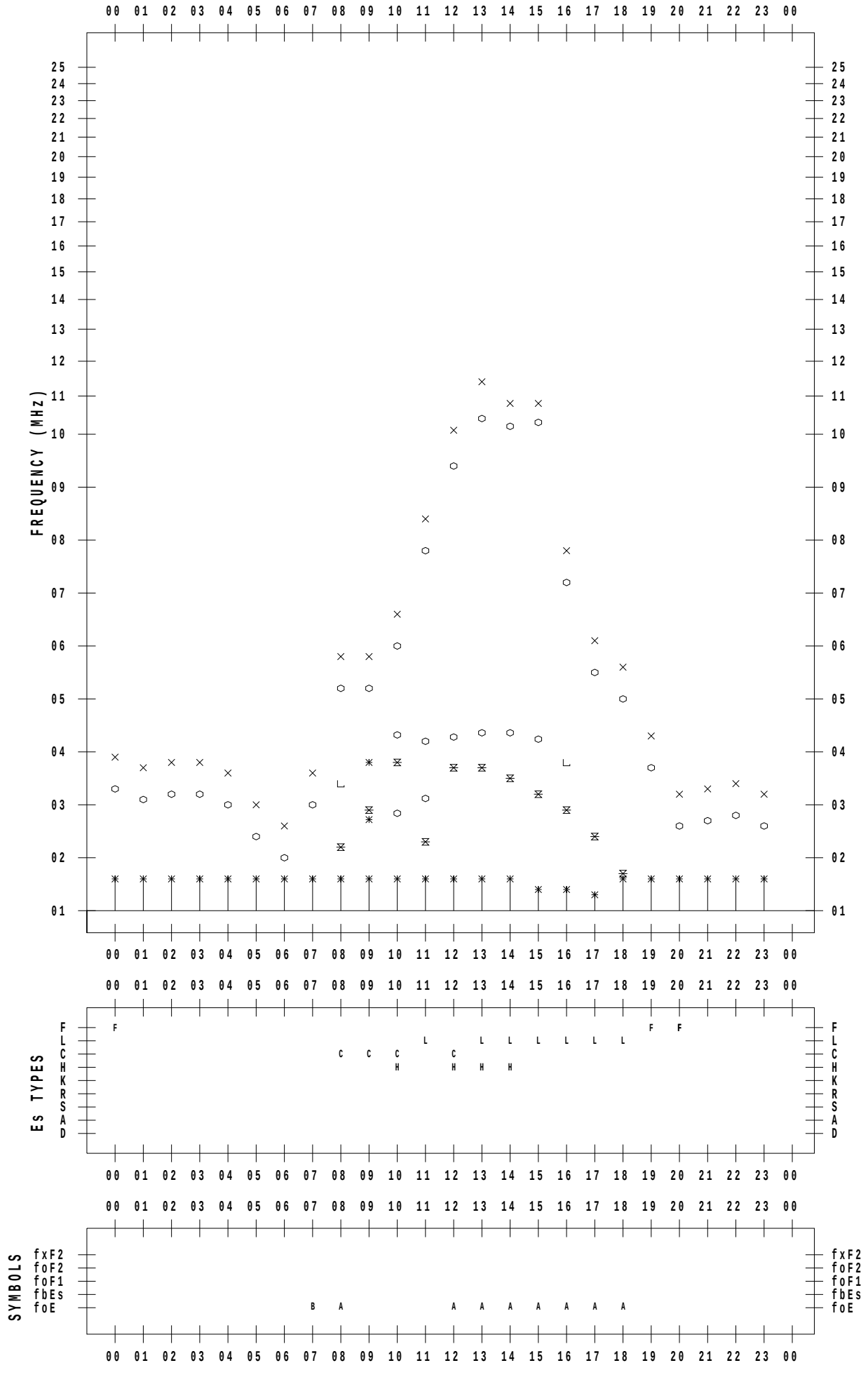
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/12

135 °E MEAN TIME



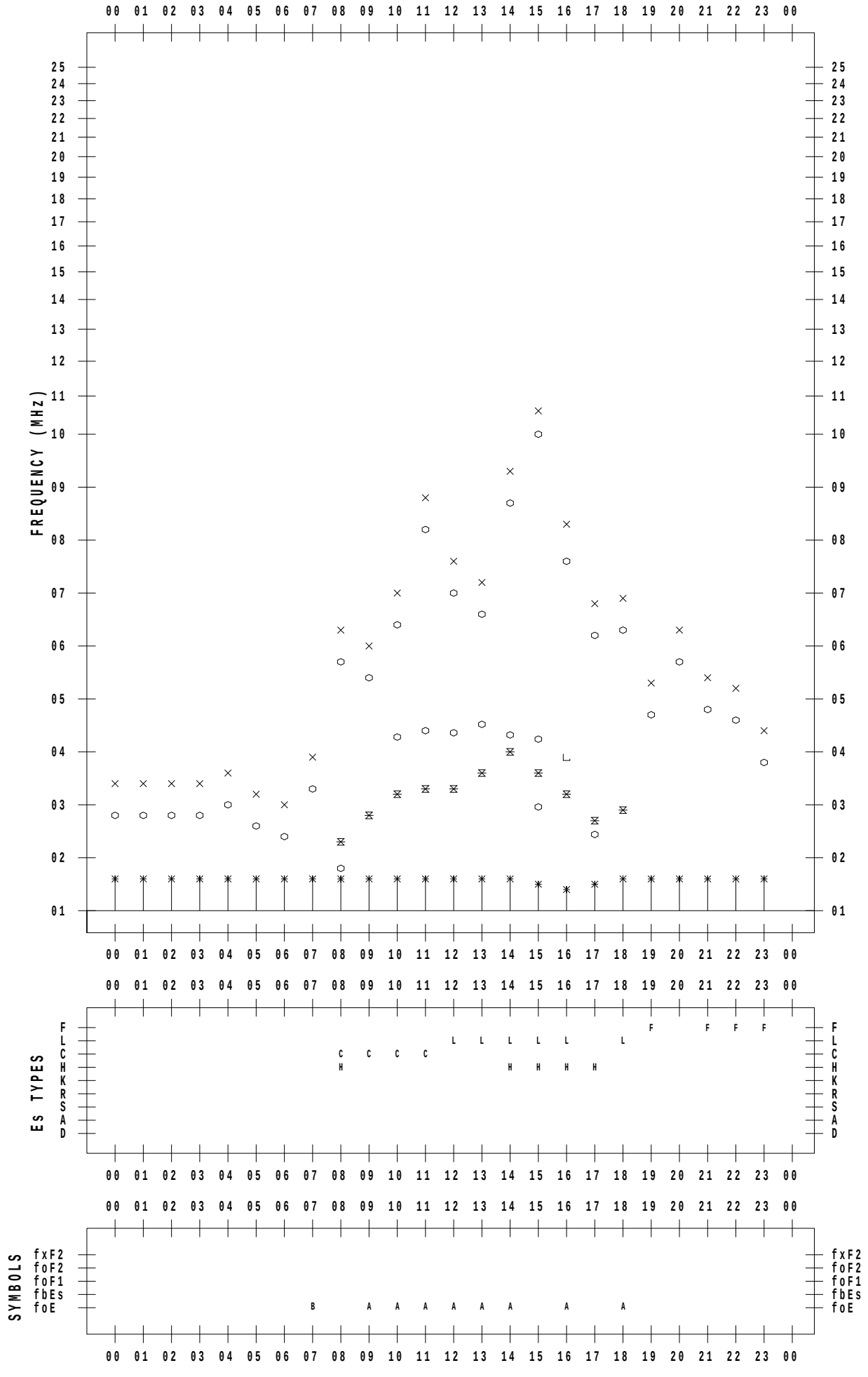
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/13

135 °E MEAN TIME



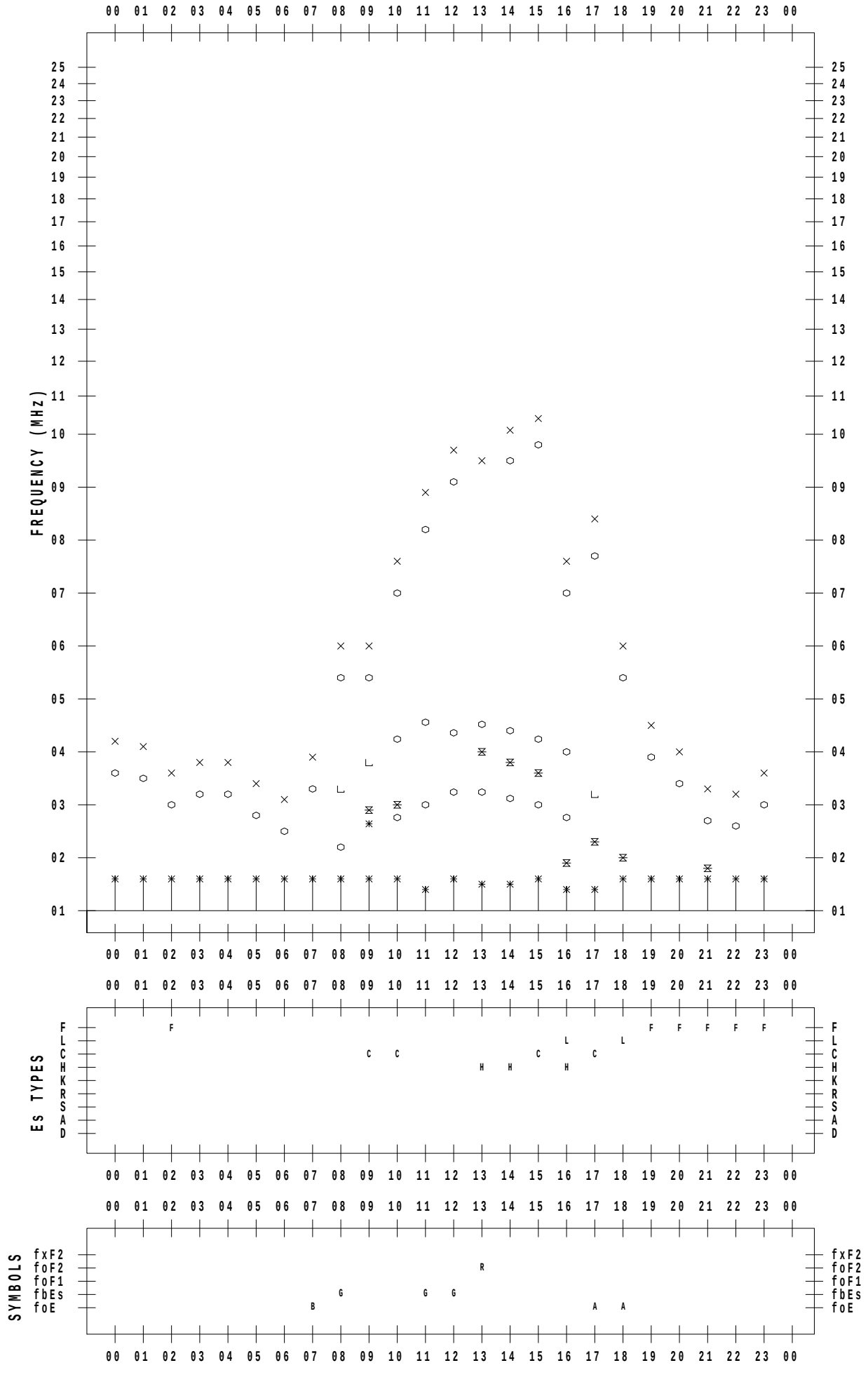
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/14

135 °E MEAN TIME



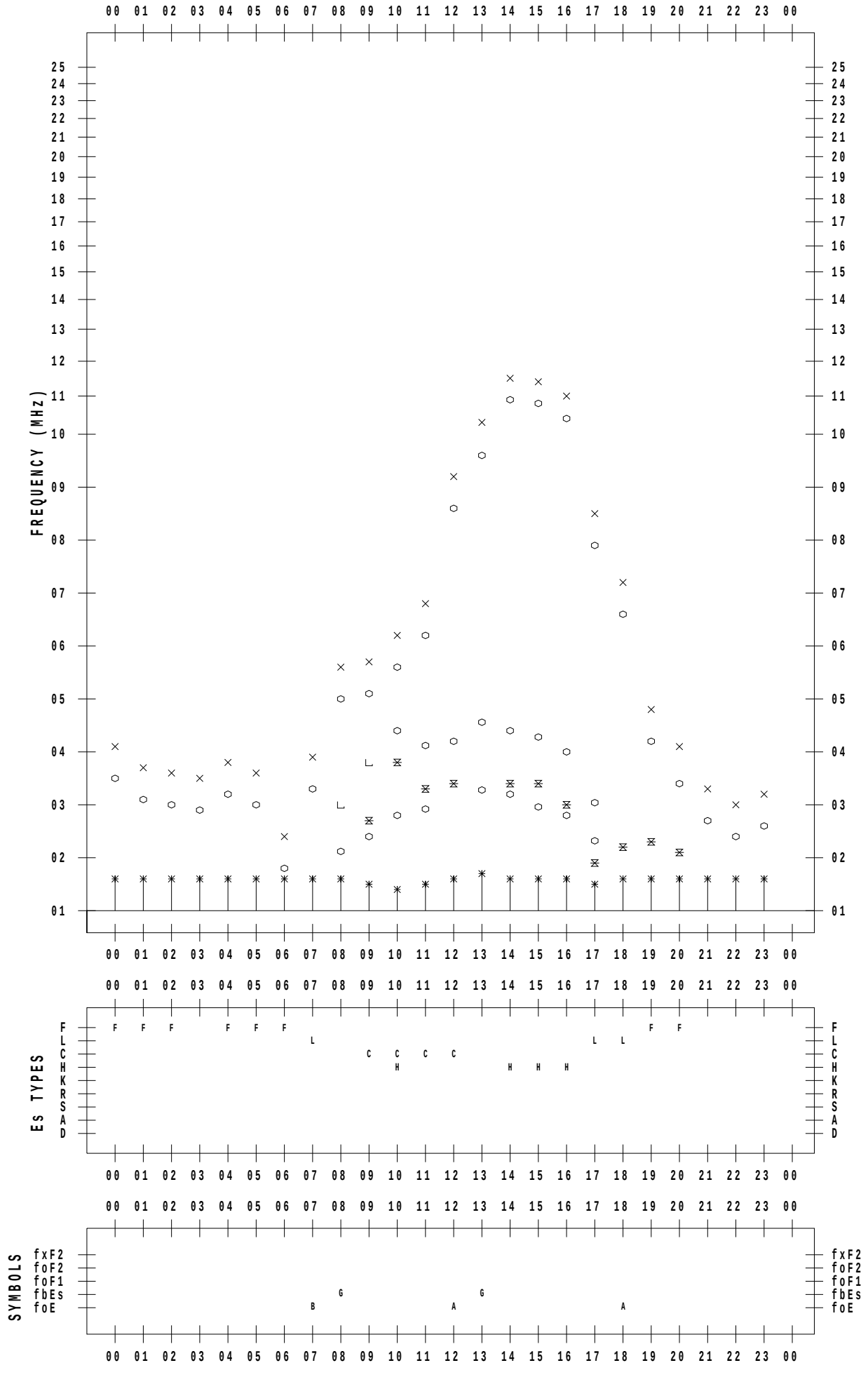
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/15

135 °E MEAN TIME



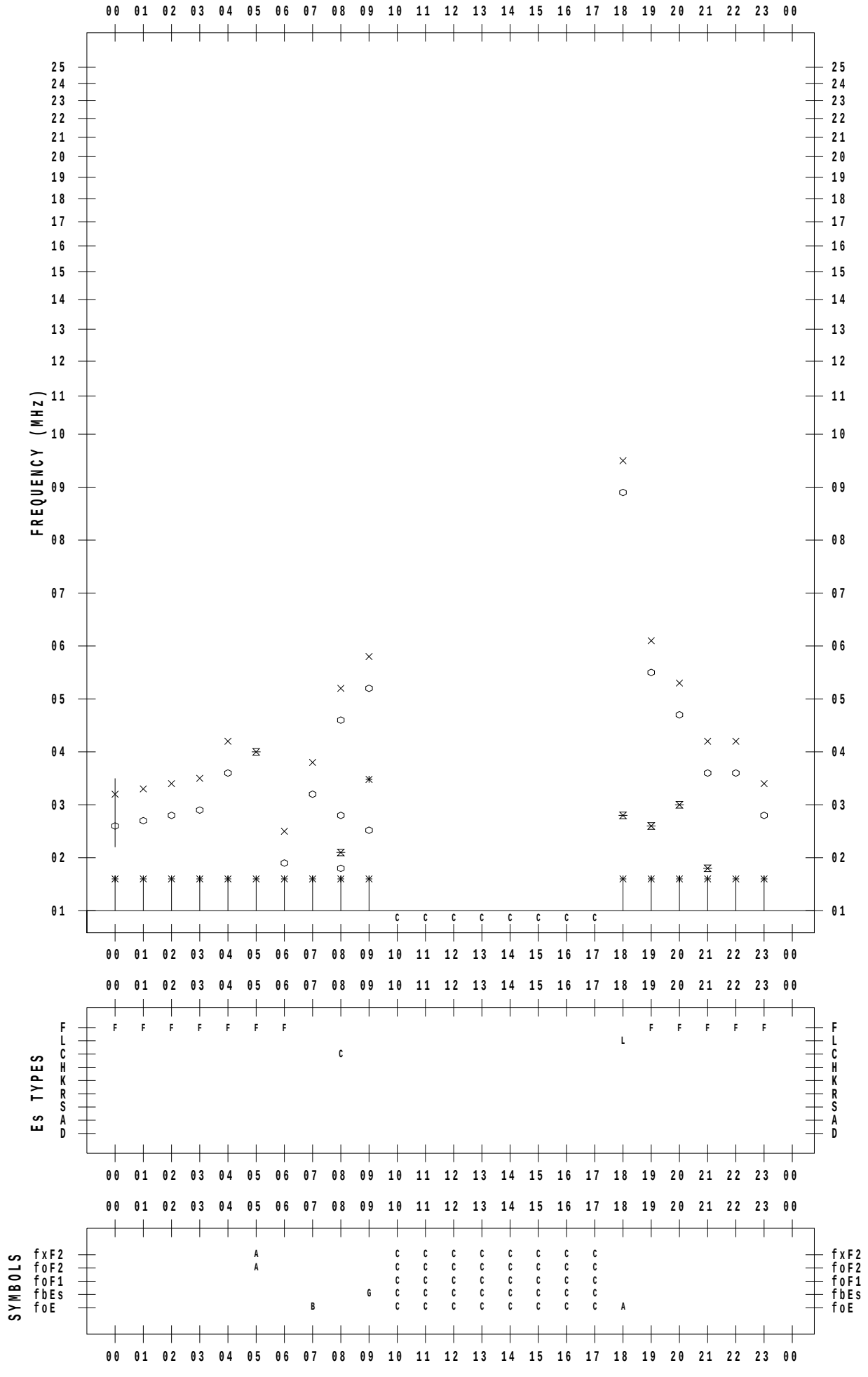
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/16

135 °E MEAN TIME



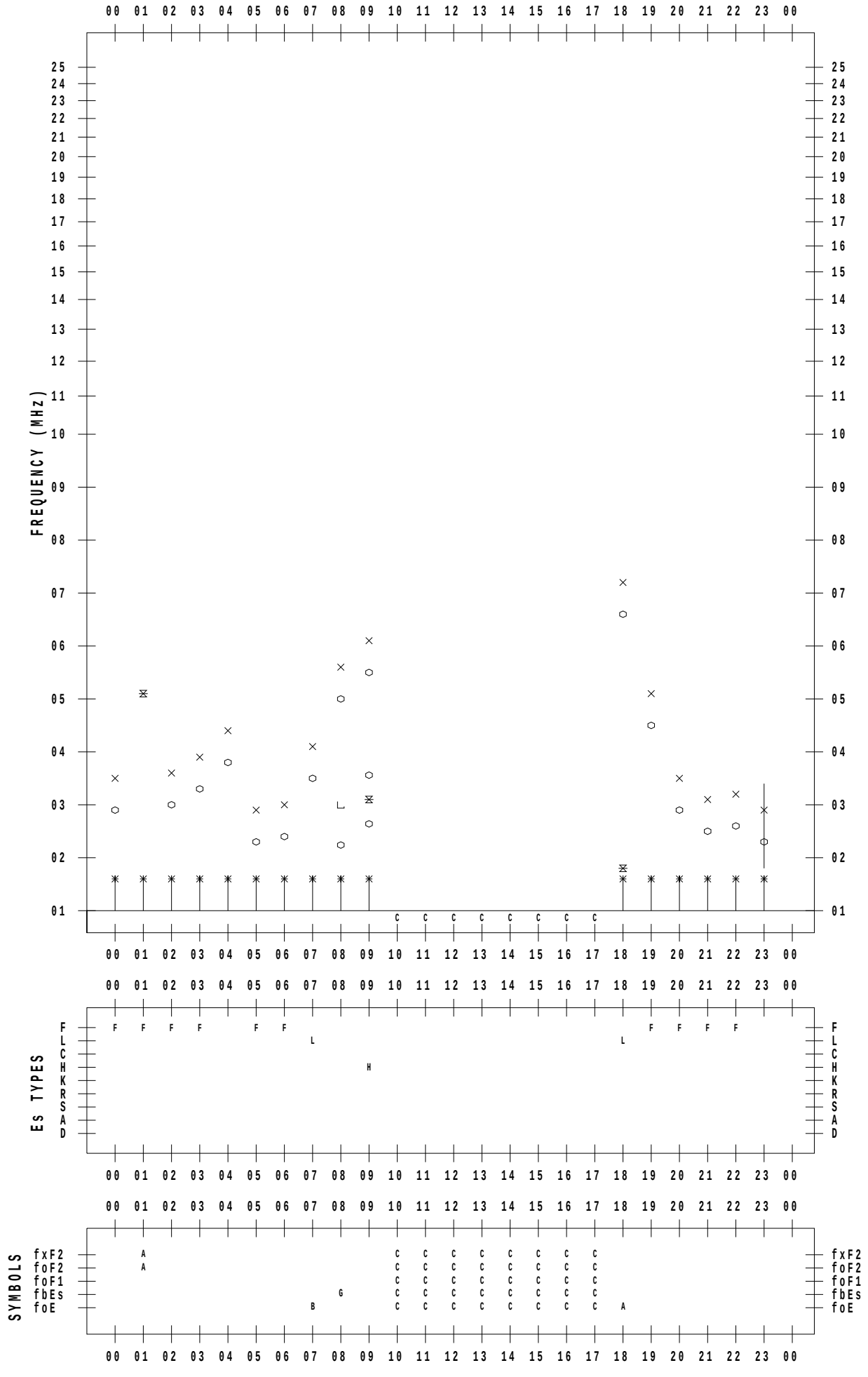
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/17

135 °E MEAN TIME



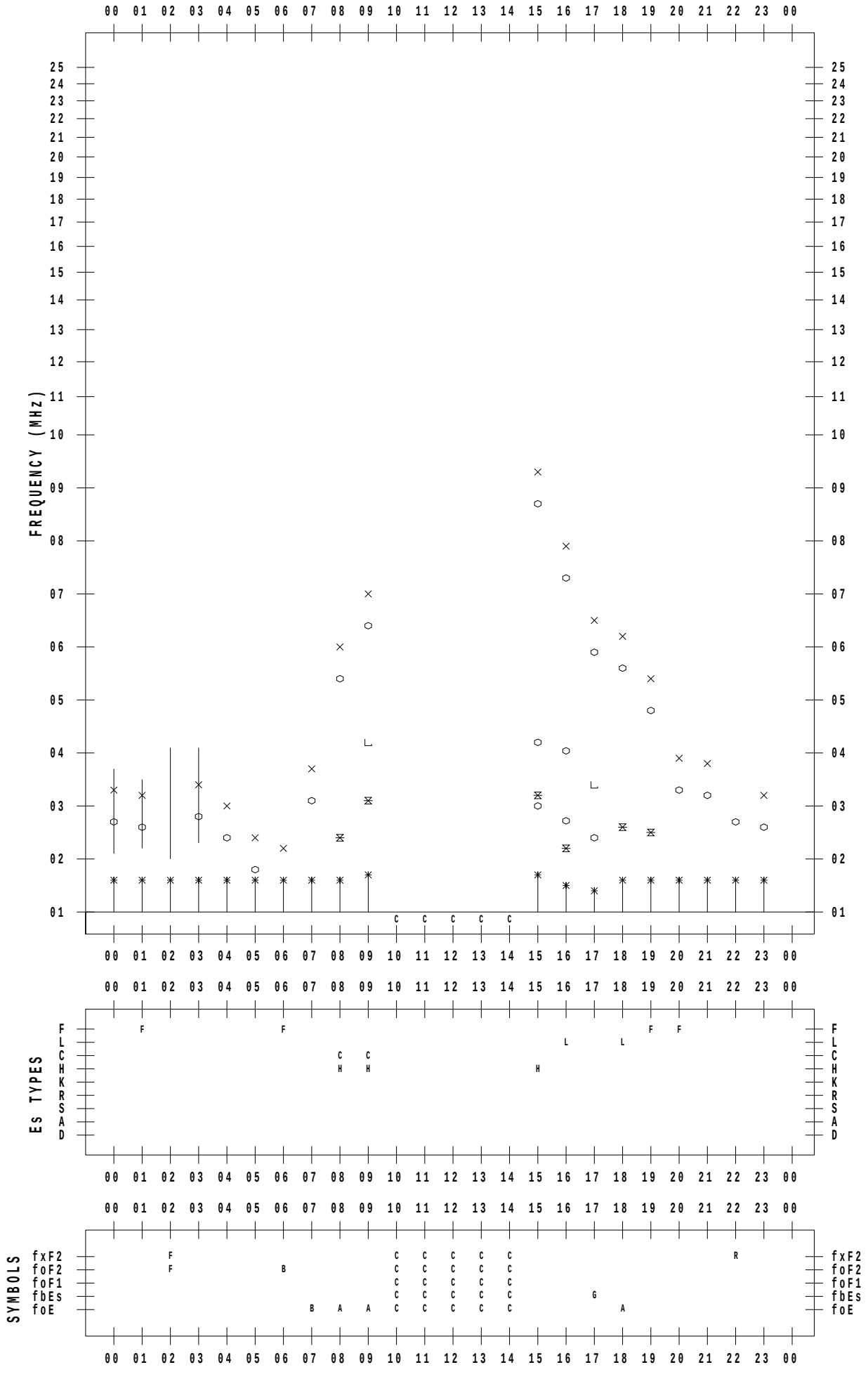
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/18

135 °E MEAN TIME



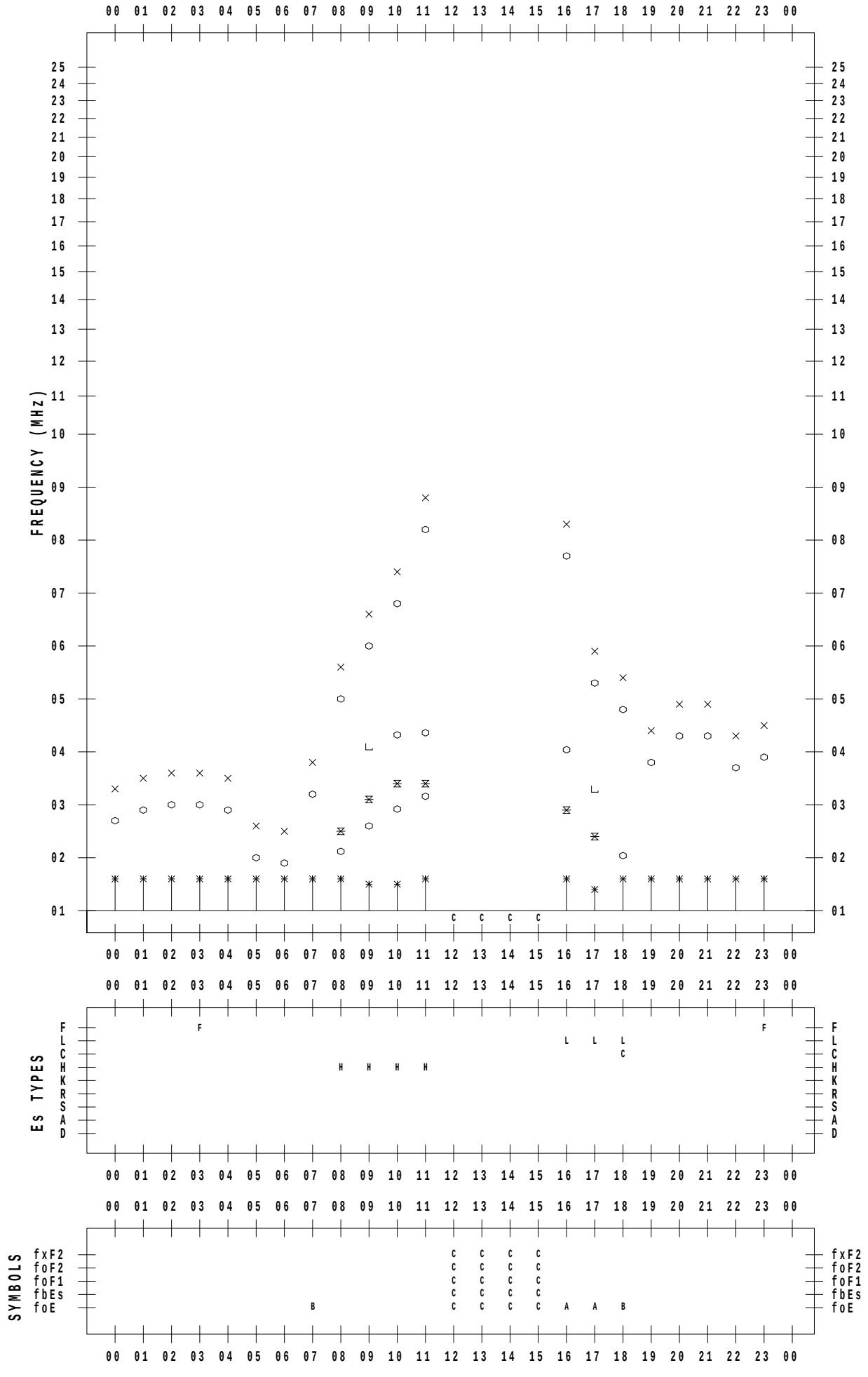
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/19

135 °E MEAN TIME



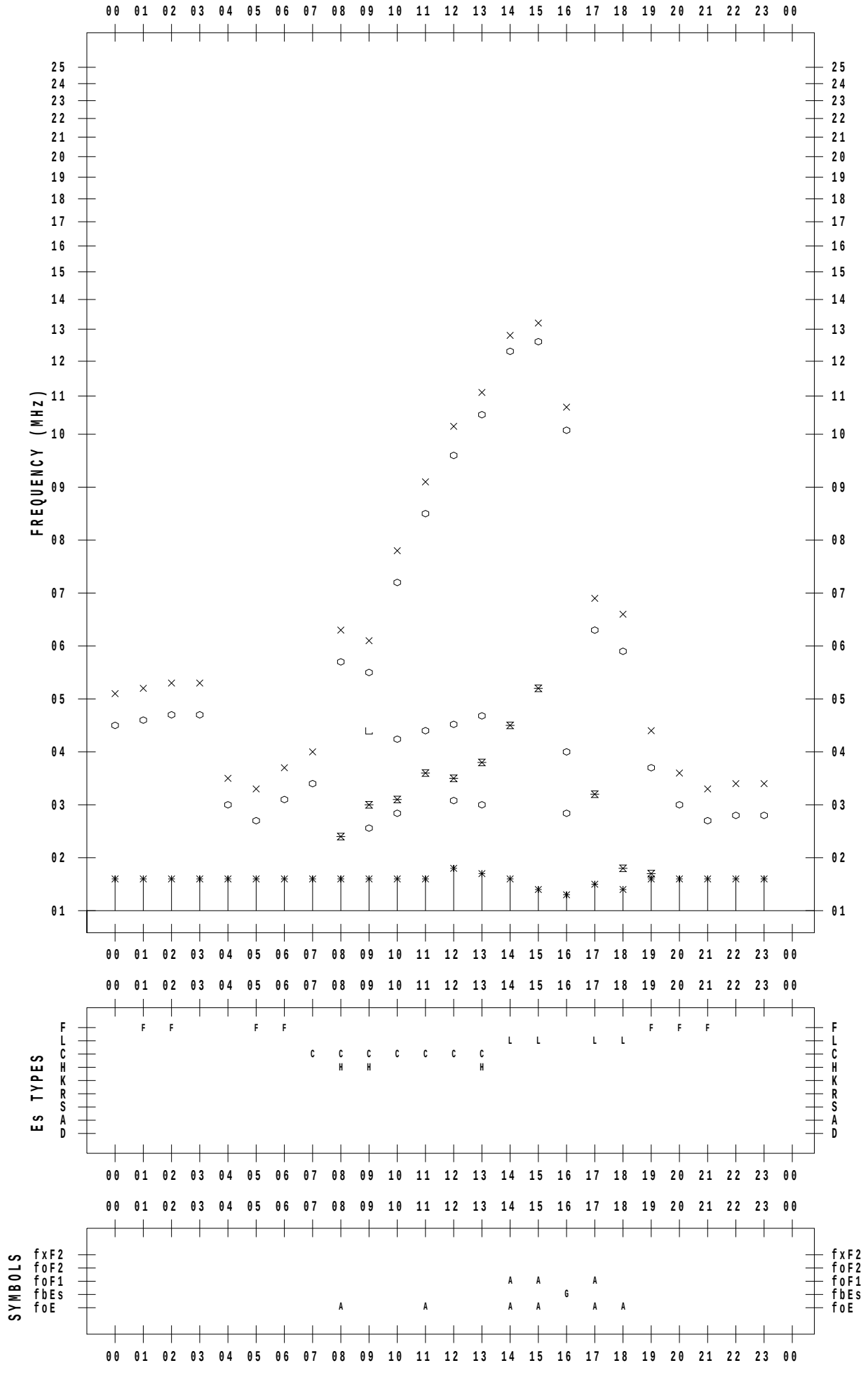
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/20

135 °E MEAN TIME



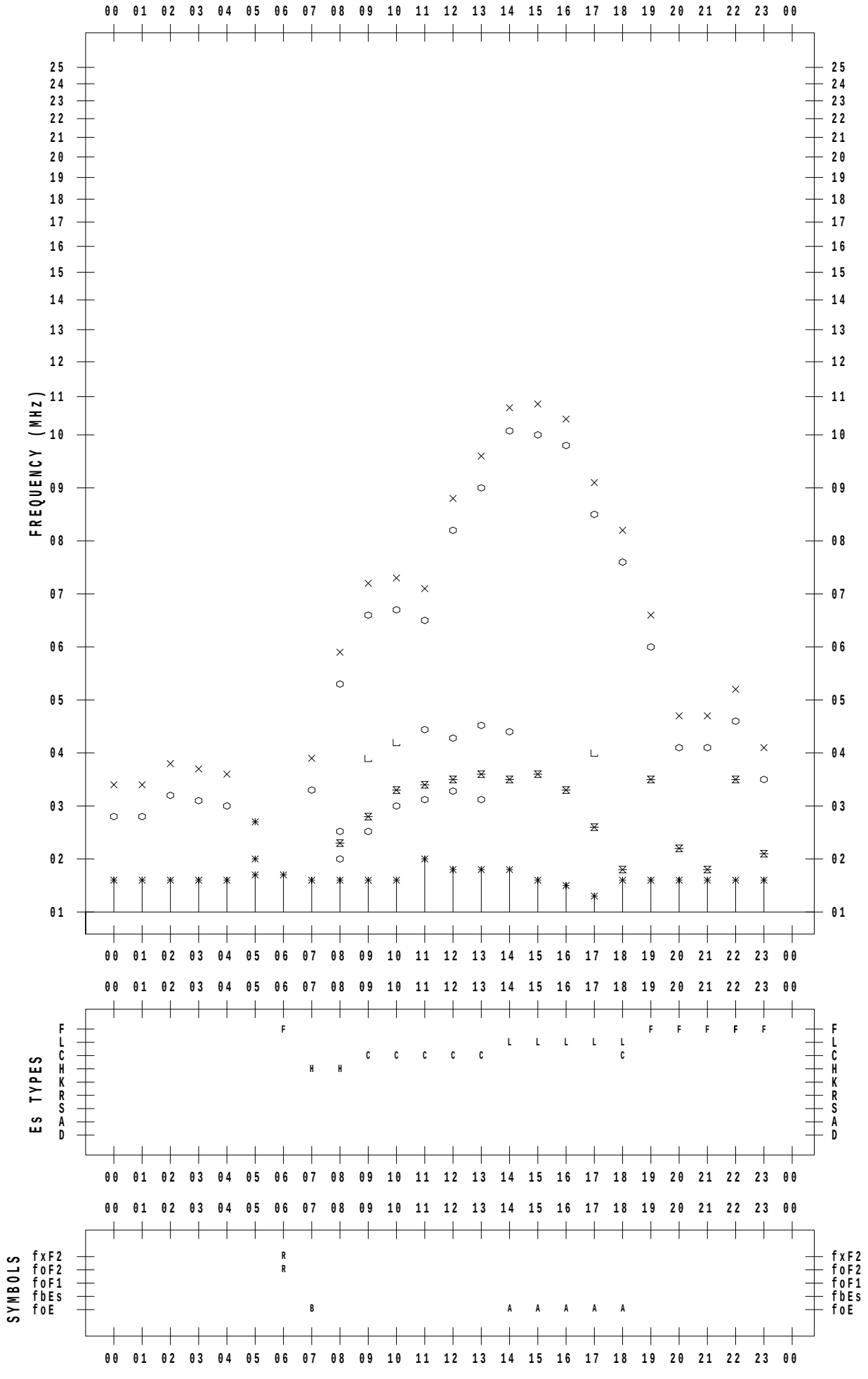
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/21

135 °E MEAN TIME



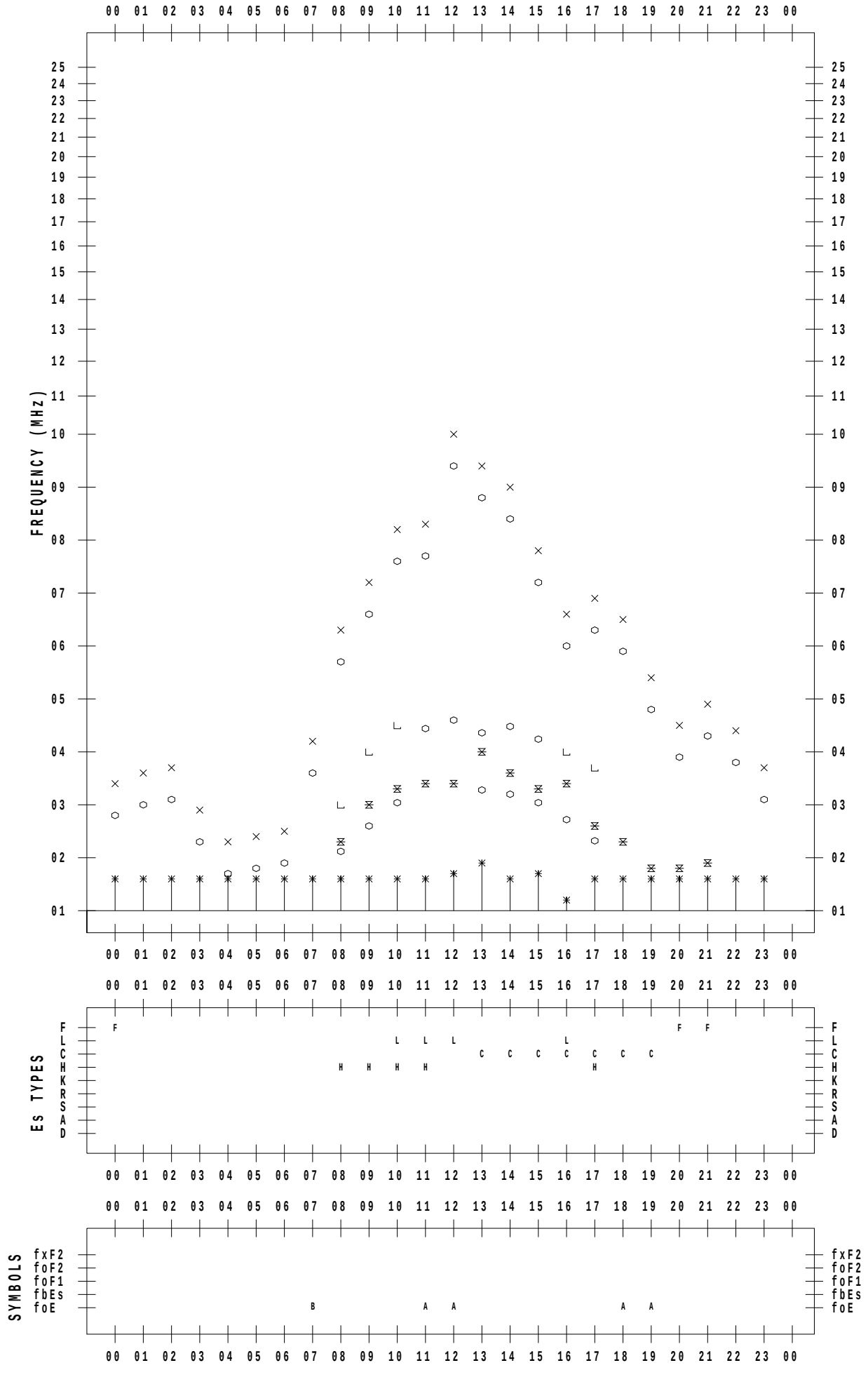
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/22

135 °E MEAN TIME



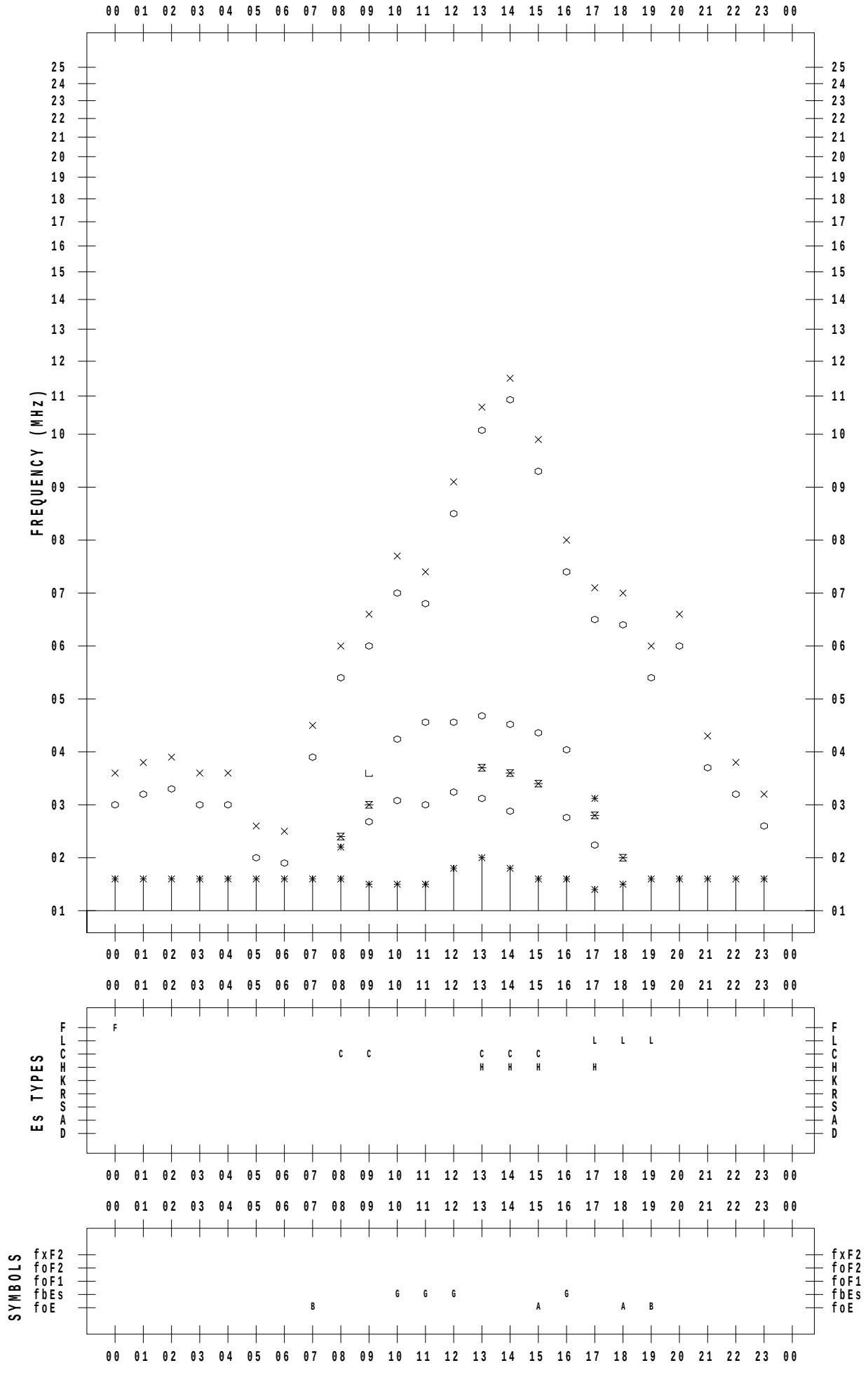
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/23

135 °E MEAN TIME



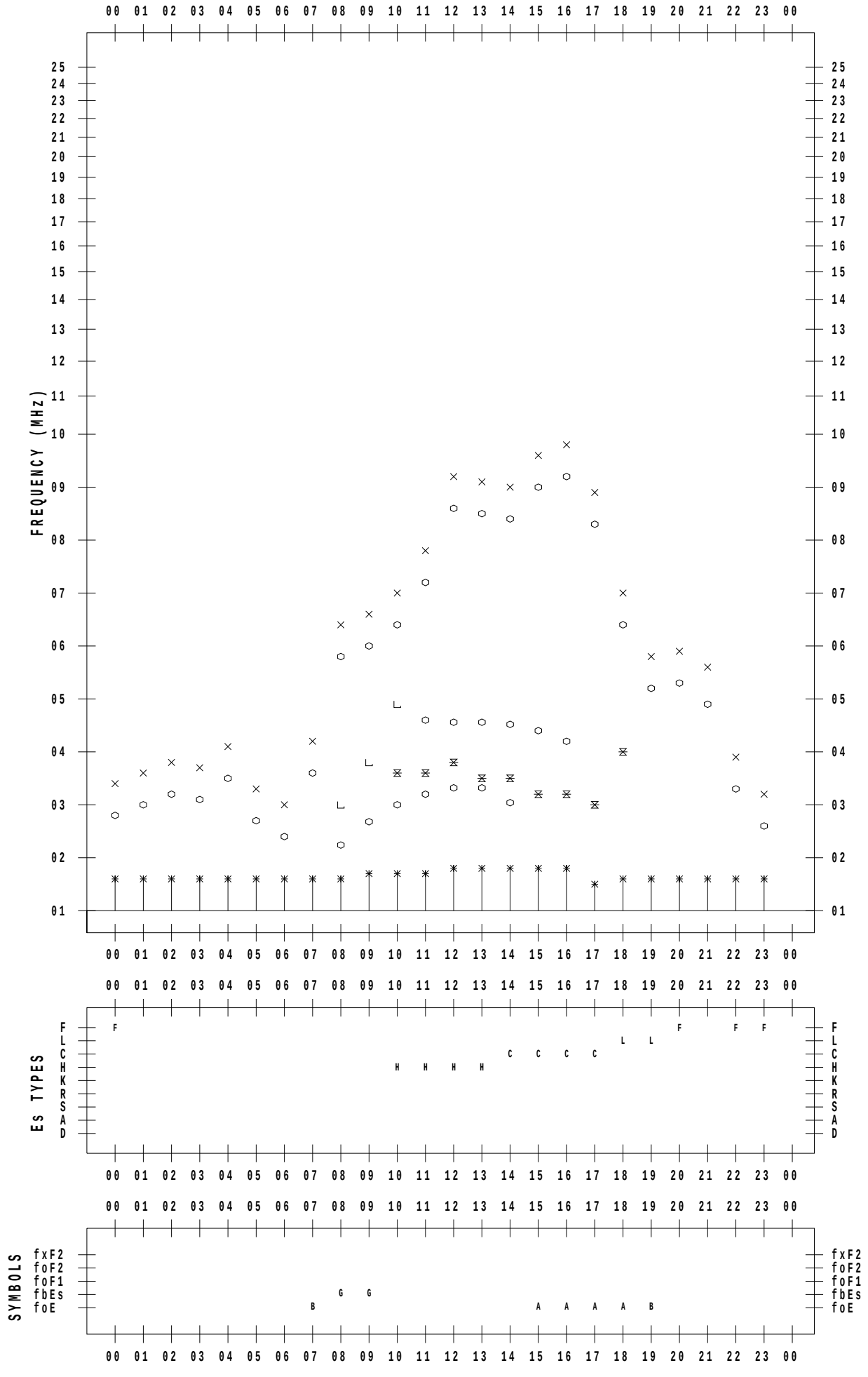
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/24

135 °E MEAN TIME



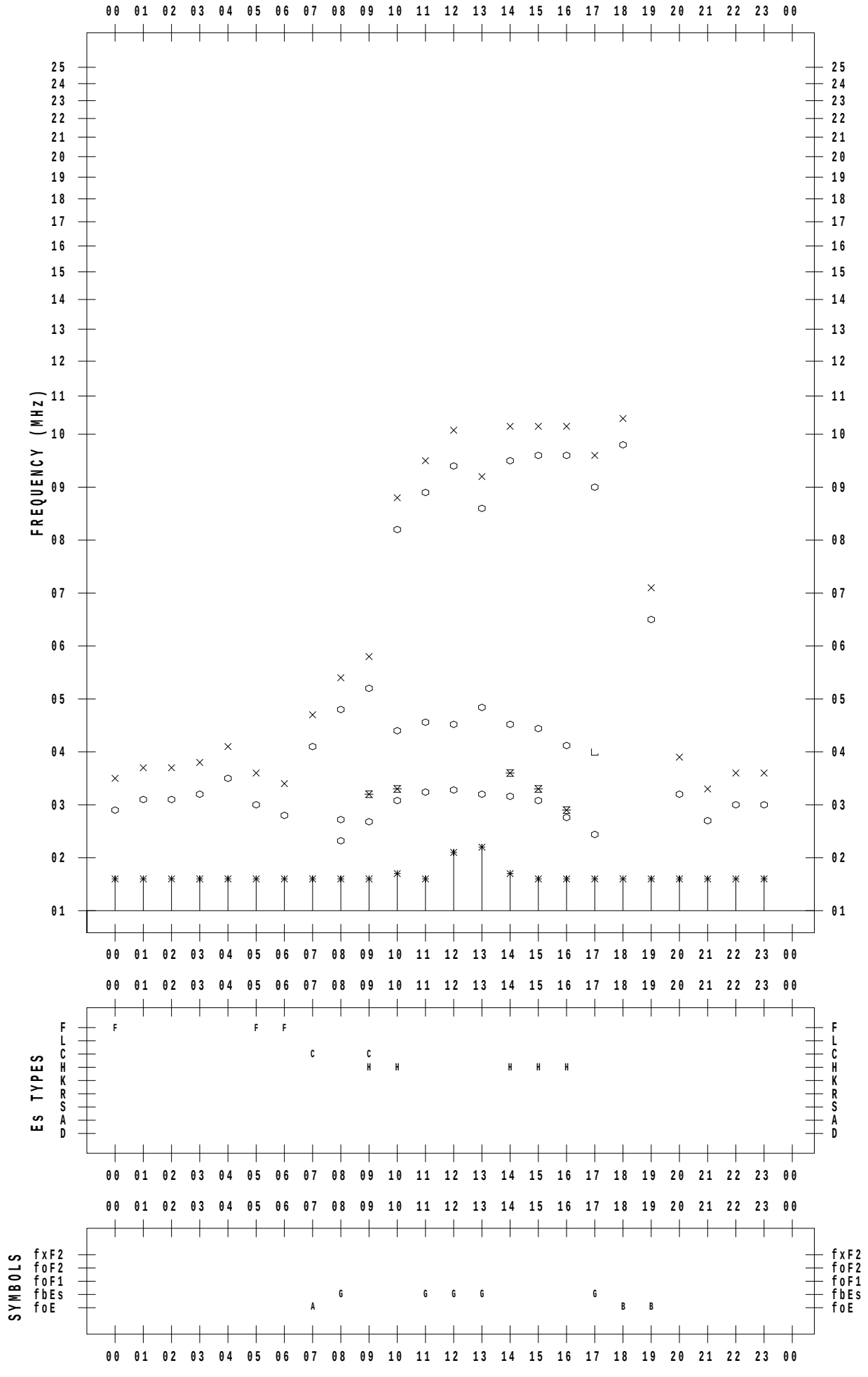
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/25

135 °E MEAN TIME



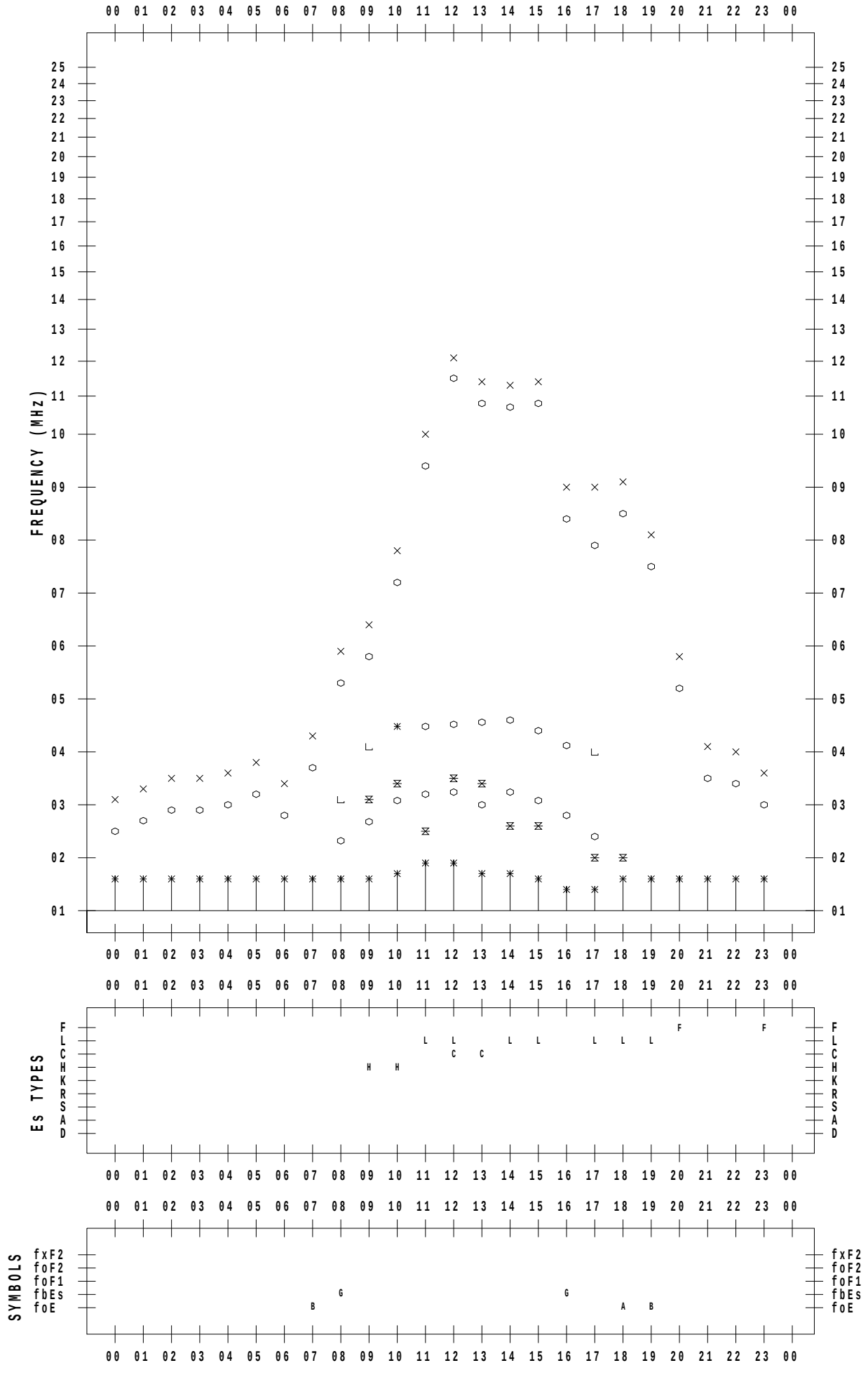
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/26

135 °E MEAN TIME



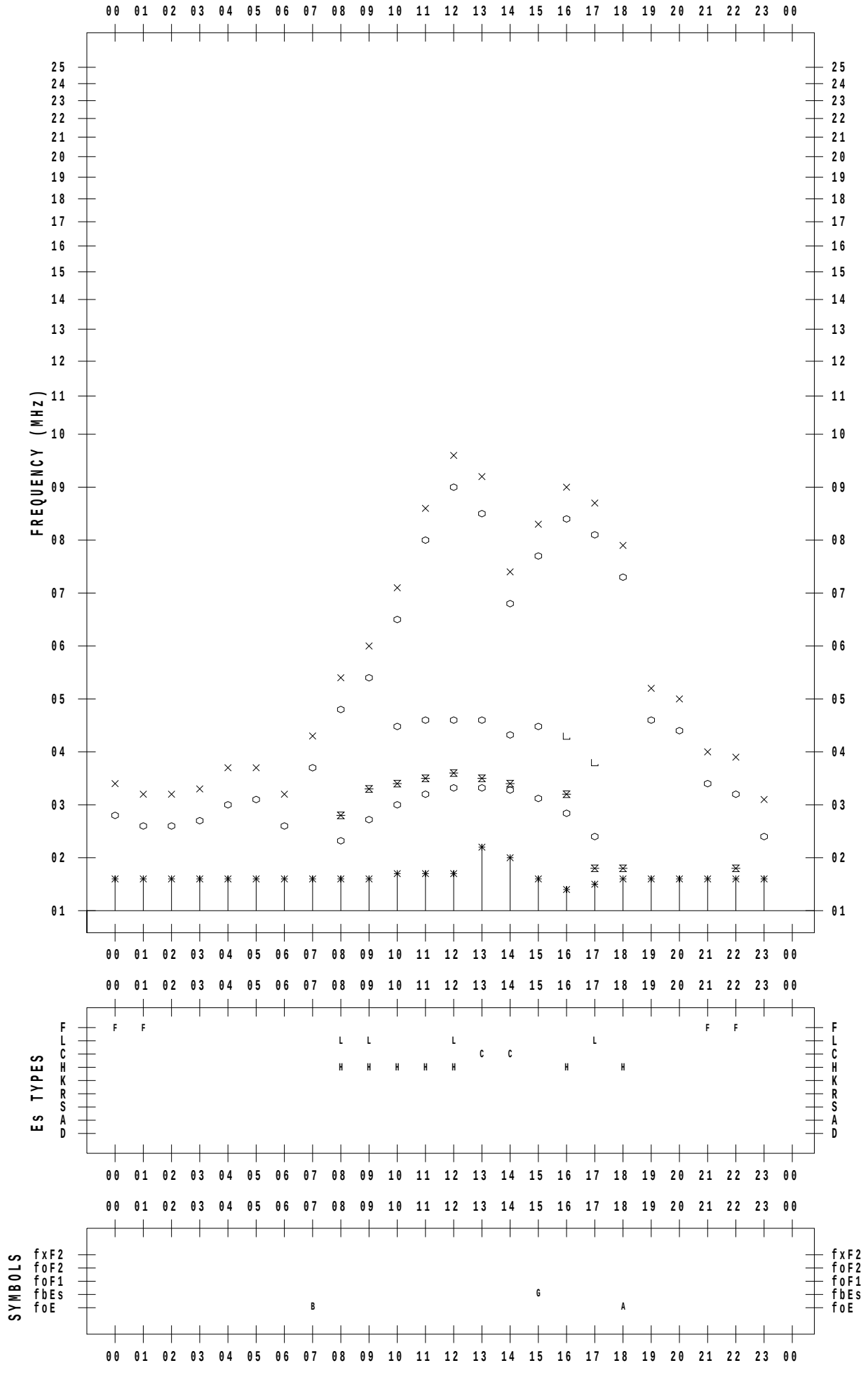
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/27

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2021/ 2/28

135 °E MEAN TIME