

IONOSPHERIC DATA IN JAPAN

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« Real Time Ionograms on the Webhttp://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

fxl	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 replace 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 atmospheric.
- 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 associated 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
OCT. 2020
LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC 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	31	32	32	31	31	32	37	44	51	50	54	65	59	57	56	51	48	48	43	38	40	37	34	33	
2	A	34	32	31	27	A	35	41	45	47	55	56	60	59	55	50	49	49	A	41	39	36	33	A	
3	A	33	32	31	30	25	37	43	50	58	48	65	73	57	53	48	49	44	50	43	39	38	35	34	
4	32	31	33	A	32	27	39	41	43	56	60	62	55	56	51	51	50	49	38	A	A	37	A	36	
5	36	35	33	32	31	N	35	44	54	50	55	62	67	53	51	54	50	51	52	45	43	33	37	36	
6	36	A	36	33	33	24	34	41	49	55	66	53	58	61	60	56	55	48	44	48	50	50	50	46	
7	53	51	47	40	41	39	43	49	45	A	57	64	56	56	53	50	53	47	39	37	33	33	33	33	
8	32	33	31	30	31	25	35	N	43	50	51	64	62	61	57	53	47	52	43	42	42	41	39	36	37
9	33	34	31	33	33	34	41	43	47	50	59	65	67	58	57	52	47	41	40	42	48	45	43	39	
10	39	35	37	41	47	38	42	47	53	57	A	62	56	59	59	51	50	45	A	A	42	39	38		
11	37	39	39	37	36	33	43	57	53	54	50	63	58	62	53	48	52	55	44	A	43	43	43	44	
12	46	41	41	39	37	35	47	47	50	60	63	61	59	55	50	51	53	42	35	39	34	37	34	36	
13	38	39	37	33	32	31	39	47	52	59	C	C	C	C	C	C	56	55	37	A	37	37	41	40	
14	38	37	41	41	40	38	N	43	55	57	56	C	C	C	C	C	49	53	35	35	35	35	36	39	
15	41	41	42	39	35	39	39	48	55	51		C	C	C	C	56	57	49	39	38	44	44	45	47	
16	41	A	41	42	43	44	44	51	51	55	74	79	71	62	53	53	57	59	41	47	51	53	49	43	
17	43	43	43	44	43	48	48	63	54	66	66	68	65	65	55	61	57	53	56	59	64	64	62	67	
18	61	61	59	60	48	43	48	50	53	51	65	75	62	66	56	49	54	50	37	38	39	35	35	35	
19	36	36	34	35	32	31	42	49	54	55	56	67	69	59	54	53	64	49	A	A	34	35	33	35	
20	33	34	34	34	35	A	52	50	53	53	60	62	N	77	62	58	58	63	47	35	39	40	39	39	41
21	39	37	35	37	35	36	41	55	53	57	58	60	75	68	59	57	61	58	39	37	40	40	40	39	
22	41	41	38	35	33	32	34	46	46	66	58	67	68	56	61	56	60	48	39	A	38	38	36	35	
23	33	33	32	31	33	25	A	42	49	59	62	68	66	59	51	49	60	49	40	41	45	43	40	41	
24	40	37	36	36	33	31	33	49	52	75	68	72	64	54	63	59	63	49	39	50	52	58	57	52	
25	51	43	44	39	36	35	42	60	59	55	75	74	65	59	57	55	49	51	43	38	38	36	35	35	
26	33	34	33	32	29	29	33	43	A	51		69	63	65	62	62	63	51	43	35	36	31	A	A	
27	34	33	31	31	30	25	33	49	53	61	65	62	59	59	57	58	65	61	50	40	40	37	A	37	
28	31	34	35	34	35	34	35	49	55	51	68	64	55	59	55	58	61	43	36	37	37	35	36	33	
29	33	35	34	33	37	32	34	44	53	53	66	65	56	63	62	57	56	44	41	41	39	32	31	30	
30	33	33	33	33	31	31	36	49	48	60	54	71	66	A	49	55	52	36	33	35	35	35	36	36	
31	37	33	33	31	31	31	31	51	60	61	63	65	67	54	51	57	57	47	33	38	38	33	33	33	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	29	31	30	31	29	30	31	30	30	26	28	28	27	28	29	31	31	28	26	29	31	28	29	
MED	37	35	35	34	33	32	39	48	52	55	61	65	64	59	55	54	55	49	40	40	39	37	36	37	
U Q	41	40	41	39	37	37	43	50	54	59	66	68	67	62	58	57	60	51	43	43	43	43	42	41	
L Q	33	33	33	32	31	28	35	43	49	51	56	62	58	56	53	50	50	45	37	38	37	35	34	35	

HOURLY VALUES OF fEs AT Wakkanai
OCT. 2020
LAT. 45°10.0'N LON. 141°45.0'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	G	G	G	G	G	G	30		92	44	46	38	36	38	46	G	36	G	31	34	40	G	G	G	
2	39	33	G	G	28	107	40	115	37	39	44	40	37	G	43		G	60	61	52	29	26	30	49	
3	49	32	26	G	81	38	41	57	58	40	45	43	113	38	32	31	92	G	31	25	28	G	G	29	
4	26	26	G	38	29	25	171	36	45	36	90	37	48	44	46	32	49	G	28	61	69	G	36	28	
5	G	G	G	G	G	G	30	146	49	44	32	31	55	34	31	42	29	G	G		28	28	28	26	28
6	29	58	29	35	G		37	30	40	43	44	40	35	47	36	33	29	39	35	35	36	31	G	G	
7	G	G		28	26	38	G	46	49	40	70	56	G	49	38	33	38	36	30	G	G	G	G	G	
8	G	G	G	G	G	G	30	44	33	40	80	54	43	112	48	36	G	11	G	33	31	G	G	G	
9	G	G	G	G	G		28	45	32	58	36	39	38	33	108	38	46	32	G	G	G	G	G	G	
10	25	G	G	G	G		11	34	162	39	45	66	54	40	40	40	34	G	38	67	33	41	29	G	G
11	28	26	30	26	24	G	33	50	49	40		44	44	41	37	34	29	11	33	40	29	26	32	G	
12	G	G	G	G	G	126	48	31	33	35	36	34	38	37	37	32	G	11	G	G	G	G	G	G	
13	G		31	32	26	G	G	180	34	39	46	C	C	C	C	C	36	38	32	34	25	G	G	G	
14	29	G	34	G	G	32	32	44	34	46	C	C	C	C	C	C	G	11	G	G	G	24	G	G	
15	G	G	G		27	24	G	41	50	50	44	C	C	C	C		36	30	30	11	30	32	27	44	34
16	30	28	26	33	G	27	34	50	54	41	53	54	39	38	36	34	53	38	35	G	33	30	33	34	
17	G	G	G		26	G	11	20	31	39	60	48	43	96	35	38	36	34	40	40	G	G	11	35	38
18	48	37	37	24	31	20	45	50	48	47	42	40	40	37	47	31	28	31	57	27	G	25	G	G	
19	G	24	27	G	G		40	29	33	36	48	42	84	44	58	33	32	35	36	47	33	G	33	G	
20	G	G		G	50	43	33		41	44	46	47	66	52	35	35	29	35	28	26	G	G	G	G	
21	G	G		G	25	48	34	32	36	46	150	51	38	41	43	37	32	44	24	27	33	29	28	26	
22	G	G		G	G	94	G	148	95	61	40	56	37	39	39	44	32	30	32	69	29	23	G	G	
23	27	28	G	153	G	34	36	92	32	35	39	45	41	43	45	38	27	11	G	G	G	33	30	G	G
24	G	G	G	G	G	G	G		34	35	37	37	36	52	34	34	28	28	11	G	G	G	35	33	33
25	30	27	G	G	G	G		24	32	58	39	36	36	33	33	31	32	G	G	11	G	G	G	G	G
26	G	24	G	G	G	26	G	32	60	70		33	69	56	G	36	34	11	32	28	28	29	46	38	
27	G	G	G	G	G	28	31	G	36	45	45	49	43	34	76	50	46	38	29	32	G	33	43	33	
28	31	24	G	125	G	G	G	92	47	40	42	40	54	47	33	32	G	G	29	33	32	27	28	G	
29	G	G	G	G	G	G	G	G	88	38	G	52	32	56	34	35	G	11	24	G	40	G	G	G	
30	24	67	G	26	29	32	30	G	38	40	153	41	34	65	81	35	G	G	G	28	33	25	G	G	
31	G	G	G		G	G	G		35	49	28	52	40	37	38	29	N	48	31	G	G	31	25	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	30	30	31	29	31	29	31	31	26	28	28	28	28	27	31	31	31	30	31	31	31	31	
MED	G	G	G	G	G	20	33	36	41	41	45	40	40	40	38	35	29	28	28	28	29	25	G	G	
U Q	29	28	27	26	25	33	41	53	54	46	53	48	53	47	45	37	36	38	33	34	33	29	33	29	
L Q	G	G	G	G	G	G	24	31	36	38	39	37	37	37	33	32	G	11	G	G	G	G	G	G	

HOURLY VALUES OF fmin AT Wakkanai

OCT. 2020

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

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

HOURLY VALUES OF fof2 AT Kokubunji

OCT. 2020

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

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

HOURLY VALUES OF fEs AT Kokubunji

OCT. 2020

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	40	26	29	25	29	23	G	48	29	G	37	37	G	G	G	G	26	26	11	47	29	29	41	31
2	28	26	G	G	G	G	28	50	39	47	G	G	41	45	31	G	29	30	34	27	34	G	29	G
3	G	G	G	G	G	G	G	40	36	53	42	40	36	G	G	G	29	G	G	29	26	33	53	70
4	32	G	G	G	G	31	29	33	35	49	42	40	38	54	G	31	G	G	G	24	G	G	G	G
5		G	G	G	G	G	32	36	31	35	37	G	39	37	39	32	35	29	33	31	33	37	26	33
6	31	24	24	G	G		28	34	32	47	49	37	37	G	32	28	34	39	G	G	G	G	G	G
7	G	G	G	G	G	G	26	35	32	G	G	G	G	36	G	40	27	G	G	G	G	G	G	G
8	G	G	G	G	G	G	G	27	34	G	34	G	39	37	G	30	G	G	11	G	26	G	G	G
9	G	G	32	34	G	G	29	40	34	36	31	G	38	G	G	45	G	27	G	11	G	G	G	G
10	G	G	G	G	G	G	25	36	41	G	40	38	50	84	44	G	25	G	47	41	G	G	G	G
11	G	G	G	G	G	G	G	29	33	31	35	G	39	41	36	50	56	35	G	28	31	G	26	G
12	G	G	G	G	G	G	26	36	43	30	G	43	44	48	34	34	33	G	23	G	G	G	G	G
13	G	G	G	G	G	G	29	37	40	45	46	G	37	31	33	35	27	28	11	G	G	G	G	G
14	G	G	G	G	G	G	26	34	34	G		37	41	52	35	31	31	28	24	G	G	40	27	G
15	G					G	40	41	40	43	51	51	45	45	40	35	33	40	36	28	27	27	29	29
16	G	31	27	34	35	G	31	30	48	34	G	37	40	38	G	29	37	30	11	G	G	G	91	29
17	27	26	G	G	28	G	45	47	35	41	36	50	71	41	73	27	42	40	32	54	89	116	36	35
18	G	29	40	G	G	27	G	36	57	54	64	92	50	40	42	36	N	25	G	G	G	26	26	26
19	G	24	G	G	G	40	G	50	40	34	31	37	50	42	32	37	28	G	24	25	34	33	24	31
20	29	47	48	31	28	27	G	28	40	49	48	72	55	42	40	38	47	41	29	27	31	33	26	26
21	25	G	G	G	G	G	G	31	29	36	41	45	76	36	33	33	27	23	G	G	G	G	G	G
22	G	26	G	G	G	G	32	34	36	72	68	88	61	47	37	52	34	27	47	46	30	50	29	G
23	G	30	G	G	G	G	25	31	41	52	47	49	41	42	37	36	29	11	11	G	G	32	29	G
24	G	25	G	G	G		23	33	33	35	129	57	55	G	33	32	29	11	G	51	33	G	G	G
25	G	G	G	G	G	G	G	29	33	31	37	41	42	38	36	32	33	33	11	40	36	27	G	28
26	31	25	G	G	G	25	G	49	31	G	55	43	35	34	38	40	41	28	21	32	G	G	36	39
27	38	29	23	G	G		G	49	36	49	66	55	57	41	29	30	G	G	24	40	32	G	G	G
28	G	G	G	G	41	31	27	G	27	G	55	37	43	G	G	G	G	G	31	31	G	G	25	G
29	G	G	G	G	G		G	G	149	33	34	40	50	50	39	31	32	34	87	31	11	G	G	G
30	G		G	G	G	G	11	29	35	30	53	41	37	52	54	61	34	41	39	29	28	G	G	G
31	G	G		G	G	G	G	32	27	32	32	40	45	31	G	29	G	11	136	G	28	28		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	31	31	27	31	31	31	31	30	31	31	31	31	31	30	31	31	31	30	30	30	30
MED	G	G	G	G	G	G	25	34	35	35	40	40	41	40	33	32	29	27	23	27	26	G	24	G
U Q	27	26	G	G	G	23	29	40	40	47	51	49	50	45	39	37	34	33	34	32	31	29	29	29
L Q	G	G	G	G	G	G	G	30	32	30	34	37	38	31	G	29	26	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

OCT. 2020

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	16	15	16	16	16	14	15	15	15	15	23	17	15	16	15	16	15	14	15	16	15	15	16
2	15	15	14	14	14	17	15	14	14	15	16	42	34	18	16	17	15	15	14	15	16	16	15	15
3	16	15	15	17	14	13	18	16	14	16	19	17	16	15	16	15	15	16	14	15	15	15	15	15
4	16	15	15	14	15	16	20	17	17	17	20	17	43	15	21	15	15	18	17	16	15	17	15	15
5		13	15	14	14	14	16	15	23	19	15	15	15	15	15	17	15	15	14	16	16	15	15	16
6	16	16	15	14	18		14	16	15	17	16	17	17	16	17	15	16	15	15	14	14	13	14	17
7	15	16	15	16	14	14	16	15	15	16	17	16	40	17	15	17	15	18	15	16	14	15	18	15
8	13	13	13	14	13	14	18	17	15	16	17	16	15	17	15	15	15	18	15	14	15	13	15	15
9	13	15	16	16	14	14	13	14	17	17	16	16	17	16	15	15	15	15	15	15	15	14	15	14
10	14	14	14	15	15	14	15	17	15	16	17	17	15	17	15	14	15	15	15	13	14	15	18	17
11	14	14	14	15	15	17	18	15	13	16	17	15	40	16	17	15	15	15	16	15	15	16	15	15
12	14	14	14	15	14	14	18	16	16	16	16	18	16	19	17	16	15	15	16	15		13	15	17
13	15	16	15	14	14	18	16	15	16	17	15	17	17	16	15	16	15	15	14	13	15	17	13	15
14	21	14	17	13	15	14	15	16	16	17		22	15	17	15	15	15	15	15	16	14	15	14	15
15	16	15	15	15	15	16	15	15	16	17	19	22	20	18	16	15	15	15	16	15	15	15	15	16
16	15	15	14	15	14	15	16	15	17	16	17	15	17	15	15	14	17	13	14	16	16	16	15	15
17	15	15	14	15	15	15	18	15	15	15	15	19	21	17	15	16	16	14	15	14	15	7	14	15
18	16	16	15	15	15	16	16	17	17	15	15	15	15	18	16	15	16	16	15	15	15	15	16	15
19	15	15	15	16	15	15	17	15	15	15	16	16	15	18	17	14	16	16	15	16	15	15	16	15
20	15	15	15	15	15	15	14	14	17	17	16	19	21	17	17	15	14	15	15	15	16	15	15	15
21	15	16	14	15	14	14	14	15	16	16	19	17	17	17	15	15	15	15	14	16	16	15	17	14
22	15	16	15	14	13	15	15	16	17	15	14	19	18	21	13	15	16	15	14	15	15	15	16	15
23	15	16	14	15	14	14	15	15	14	14	15	17	19	15	14	15	15	14	14	14	15	14	16	16
24	15	15	14	14	15		15	15	16	17	16	17	17	16	16	16	15	14	15	15	16	15	15	13
25	14	15	13	15	21	14	14	15	17	17	14	17	15	15	13	16	14	15	13	15	15	15	15	15
26	16	16	15	15	14	16	15	14	15	15	17	15	15	14	15	14	15	15	16	15	15	15	15	16
27	15	16	15	16	17	16	18	15	14	14	15	17	18	15	15	17	15	15	16	15	16	15	15	21
28	16	15	16	16	16	16	15	15	15	15	22	16	20	14	16	15	15	15	16	16	15	17	15	16
29	15	15	15	15	14		14	14	16	17	16	15	16	17	17	15	16	15	14	16	13	16	17	17
30	17		13	17	14	13	14	15	14	16	15	16	16	13	14	15	15	15	15	16	15	15	15	15
31	15	15		18	21	15	17	18	15	16	16	15	17	16	15	15	15	15	15	16	16	16		15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	31	31	28	31	31	31	31	30	31	31	31	31	31	31	31	31	31	30	31	30	31
MED	15	15	15	15	15	15	15	15	15	16	16	17	17	16	15	15	15	15	15	15	15	15	15	15
U Q	16	16	15	16	15	16	17	16	17	17	17	18	20	17	16	16	16	15	15	16	16	16	16	16
L Q	15	15	14	14	14	14	14	15	15	15	15	16	15	15	15	15	15	15	14	15	15	15	15	15

HOURLY VALUES OF fof2 AT Yamagawa

OCT. 2020

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	33	A	33	34	33	B	32	50	59	A	A	A	83	82	64	72	67	76	83	53	N	A	31	32			
2	32	33	33	30	B	N	25	31	55	66	61	58	53	73	81	80	78	63	63	61	45	35	35	37	37		
3	35	35	A	33	37	30	33	49	55	64	56	58	80	100	73	61	55	53	59	57	N	31	35	35			
4	36	34	33	35	33	N	29	33	49	53	60	71	68	88	95	61	61	58	63	58	51	49	40	37	37		
5	35	35	32	30	30	N	25	33	50	53	66	79	70	63	67	69	58	73	80	63	55	32	A	A	33		
6	32	35	32	31	32	31	33	49	57	57	53	62	81	82	78	77	65	57	51	51	50	36	37	37			
7	35	39	36	33	B	N	26	32	49	53	70	82	75	63	65	73	64	A	60	65	68	51	34	35	B	A	
8	34	33	32	30	34	31	32	47	55	68	73	59	63	59	66	70		71	67	49	44	40	34	36			
9	33	34	34	32	31	N	24	32	48	54	55	58	63	60	61	62	57	53	54	61	56	35	33	B	B		
10	B	B	B	34	32	31	29	33	48	55	61	61	61	69	71	61	59	73	N	98	87	57	B	N	30	30	31
11	31	A	A	32	32	30	33	49	53	54	61	57	60	61	57	75	62	71	72	51	42	A	37	40			
12	B	34	34	33	32	B	30	33	48	56	62	59	58	77	69	54	61	57	60	74	80	45	43	39	B	36	
13	35	A	35	33	34	N	31	34	53	55	61	72	62	74	72	58	61	77	80	67	57	42	A	B	B	32	
14	32	34	35	34	35	33	34	54	54	58	67	63	64	56	65	73	79	75	67	N	56	41	B	B	32	33	
15	31	31	B	A	39	A	A	47	52	57	62	61	63	61	57	75	75	68	61	A	A	34	33	A			
16	A	A	36	36	36	36	A	34	48	53	54	59	63	93	71	63	71	63	61	69	A	B	A	B	29	31	
17	32	33	32	34	35	37	46	55	65	55	59	69	65	74	69	62	61	73	60	39	40	33	33				
18	33	37	34	34	35	33	34	51	55	69	63	67	A	A	67	61	A	73	64	49	A	44	41	B	37		
19	35	35	36	B	35	33	34	56	58	65	66	66	76	69	80	83	88	67	61	39	37	38	40	N	39		
20	38	39	38	34	33	34	34	53	57	60	65	66	79	65	75	81	88	81	75	A	A	A	A	30			
21	33	35	32	34	36	32	N	30	49	59	69	65	75	66	65	87	85	81	N	69	47	45	38	40	40	35	
22	37	37	39	36	37	35	37	50	61	71	71	73	66	65	74	73	70	57	55	53	49	50	50	52			
23	41	41	40	37	39	33	33	49	54	80	87	77	59	63	A	59	60	59	53	47	36	32	37	35			
24	B	A	A	34	35	N	B	50	55	83	109	69	57	73	78	81	68	64	51	34	37	A	43	A			
25	A	33	34	35	39	32	33	57	57	75	77	79	75	65	83	69	62	N	64	51	47	41	34	N	35	35	
26	B	37	38	A	33	35	32	34	57	56	74	79	65	77	72	78	77	81	61	63	41	A	35	B	B		
27	34	35	35	34	A	N	30	31	67	62	67	59	74	73	82	87	75	73	79	50	46	A	A	39	35		
28	37	36	34	35	34	31	B	24	55	57	57	70	81	90	75	79	67	59	61	50	52	39	37	37	35		
29	B	36	37	36	N	B	N	26	52	72	73	75	73	69	82	65	82	70	70	68	50	36	B	B	33	32	
30	B	35	34	33	33	32	N	32	55	67	61	71	75	82	87	78	62	61	57	55	45	B	B	B	N	35	
31	B	35	B	35	33	33	35	50	60	67	67	80	75	74	83	79	81	71	47	40	43	44	33	A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	27	26	27	30	30	29	29	31	31	30	30	30	30	30	30	31	29	31	31	28	26	22	29	26			
MED	34	35	34	34	34	31	33	50	55	64	66	66	73	70	73	71	67	65	61	51	39	36	36	35			
U Q	36	36	36	35	35	33	34	54	59	69	73	74	79	81	78	77	76	73	68	55	43	40	38	37			
L Q	32	34	33	33	32	29	32	49	54	60	59	61	63	65	63	61	60	61	53	45	35	34	33	33			

HOURLY VALUES OF fEs AT Yamagawa

OCT. 2020

LAT. 31°12.0'N LON. 130°37.0'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC 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	28	49	26	G	G	B	G	32	70	147	96	82	71	69	32	35	31	33	30	55	G	45	G	39	
2	G	G	26	G	B	G	G	30	170	34	147	45	48	37	38	31	34	39	40	41	G	26	30	28	
3	28	G	33	24	G	G	G	27	44	44	43	44	50	45	38	36	33	60	G	35	48	29	28	G	
4	G	G	G	G	G	G		31	35	44	40	39	48	32	48	41	41	35	34	31	53	25	G	G	
5	G	32	G	G	G	G	G	33	38	45	40	39	40	47	44	40	40	35	33	32	G	29	33	29	G
6	G	G	G	G	G	G	154	34	38	44	89	47	45	61	48	47	40	28	26	G	27	G	G	28	
7	24	G	G	G	B	G	G	32	39	34	34	39	48	44	40	33	39	40	G	27	G	G	B	28	
8	G	G	G	G	G	11	G	44	40	33	39	38	47	36	45	54	76	57	25	28	G	G	G	G	
9	G	G	G	G	G	G	G	44	38	41	43	44	46	36	N	35	40	34	27	24	27	G	B	B	
10	B	B	B	G	G	G	G	48	38	38	40	40	48	56	44	42	39	36	11	31	B	G	30	30	
11	30	32	52	G	G	G	G	27	32	44	45	50	48	47	41	42	48	31	G	26	G	32	G	28	
12	B	G	G	G	G	B	G	48	33	45	46	45	48	43	43	34	36	40	34	11	30	34	G	B	
13	39	33	G	26	G	G	G	34	38	41	44	45	49	50	46	48	39	39	32	30	26	36	G	B	
14	G	G	G	G	G	G	G	32	38	36	55	41	39	32	45	42	41	34	26	48	G	B	B	G	
15	G	G	B	30	37	27	28	46	41	46	48	58	51	44	47	41	41	37	28	54	34	26	G	38	
16	32	28	25	G	G	G	23	45	32	34	43	46	46	42	45	42	38	32	34	44	B	40	B	G	
17	32	33	28	32	G	11	31	32	39	42	47	48	49	69	51	40	34	G	11	38	28	30	27	G	
18	G	24	G	27	29	G	G	26	39	48	55	62	83	63	48	49	71	55	44	44	58	40	34	B	
19	G	G	25	B	24	33	109	174	33	34	49	45	56	59	55	36	50	49	22	39	G	G	G	G	
20	G	26	G	G	G	G	G	34	33	47	51	52	50	54	55	43	44	32	36	45	39	48	47	G	
21	G	G	G	24	G	G	G	27	36	40	35	47	47	43	45	34	42	69	23	27	32	G	G	G	
22	G	G	G	G	G	G	G	30	38	49	45	41	56	44	63	52	50	27	32	G	29	34	28	43	
23	28	37	30	G	G	G	G	26	36	39	G	37	48	41	60	43	34	31	32	G	G	G	G	G	
24	B	30	29	G	G	B	G	30	40	36	38	42	44	44	43	45	38	25	11	G	27	33	28	27	
25	38	66	G	G	G	G	G	26	34	39	40	47	43	45	39	38	32	G	25	29	G	G	G	G	
26	B	G	24	G	G	G	G	28	33	35	32	43	40	36	36	36	36	28	11	29	33	G	B	B	
27	G	G	G	G	G	G	G	32	45	43	39	40	49	46	48	39	32	50	41	43	49	40	33	32	
28	25	G	G	G	G	G	B	30	34	41	44	46	45	45	41	43	39	29	24	25	25	26	G	G	
29	B	G	G	G	G	B	90	26	40	42	43	48	40	42	38	35	36	35	43	29	G	B	B	G	
30	B	G	G	G	G	G	G	G	32	35	32	32	G	32	31	35	G	G	G	11	B	B	B	G	
31	B	G	B	G	G	G	G	29	36	40	45	46	42	58	41	40	34	48	30	27	28	29	G	28	
	00	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	30	28	30	29	28	28	31	31	31	31	31	31	31	30	31	31	31	31	31	28	28	24	26	
MED	G	G	G	G	G	G	G	32	38	41	43	45	48	44	44	40	39	35	27	29	27	28	G	G	
U Q	28	30	25	G	G	G	G	34	40	44	48	47	49	54	48	43	41	40	34	41	32	34	28	28	
L Q	G	G	G	G	G	G	G	27	34	36	39	40	44	41	40	35	34	29	11	25	G	G	G	G	

HOURLY VALUES OF fmin AT Yamagawa

OCT. 2020

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

$\begin{matrix} H \\ D \end{matrix}$	00	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	16	16	^B 15	14	16	14	12	15	18	17	16	16	16	16	15	16	16	15	15	15	15
2	16	15	15	16	^B 15	16	14	15	14	15	18	16	17	24	16	16	16	14	15	15	15	16	15	16
3	16	15	17	16	16	15	15	14	14	15	15	15	18	17	17	17	16	15	16	15	16	15	16	15
4	15	14	14	15	14	15	68	16	16	15	19	18	17	16	17	17	17	16	16	16	15	16	15	15
5	15	17	15	14	15	15	14	15	17	14	16	15	17	17	18	17	17	16	16	16	16	16	16	15
6	15	16	14	15	16	16	15	15	16	15	17	18	16	16	18	19	15	15	16	16	16	15	15	16
7	15	16	15	14	^B	14	14	15	15	17	15	15	17	16	17	17	17	16	14	16	17	15	^B	16
8	15	15	15	15	15	15	15	15	14	16	16	18	17	17	17	15	17	15	15	15	24	16	15	20
9	14	14	16	15	14	15	14	15	14	16	15	14	16	15	16	16	14	15	15	15	16	16	^B	^B
10	^B 15	^B	^B 15	14	15	14	14	14	14	15	15	19	17	17	16	15	15	15	15	16	^B 15	21	15	15
11	15	16	15	15	15	15	15	15	16	14	19	17	18	19	16	17	16	15	16	16	15	16	15	16
12	^B 15	16	18	16	14	^B	15	15	16	15	20	19	20	18	16	17	16	17	16	15	16	15	21	^B
13	15	15	15	15	16	15	16	16	17	15	16	20	21	17	17	18	14	15	16	16	16	15	16	^B
14	71	15	15	15	15	15	15	16	15	16	17	19	15	17	17	16	15	15	15	16	22	^B	^B 15	15
15	15	71	^B 15	15	15	16	16	16	14	15	15	15	18	17	19	15	16	15	17	15	15	16	15	16
16	16	16	16	14	15	15	15	16	16	17	17	17	14	15	15	15	16	15	15	28	^B	15	^B 15	16
17	16	16	15	16	14	15	16	16	15	14	15	17	17	15	15	15	16	15	15	15	15	15	15	15
18	66	15	15	15	16	15	16	15	15	17	14	20	16	16	17	15	18	15	15	15	15	15	16	^B 15
19	16	20	16	^B	16	15	14	14	13	14	18	14	17	17	18	15	15	17	16	16	15	15	15	22
20	15	16	16	15	14	15	14	16	15	14	15	19	18	21	17	16	13	16	16	17	15	16	15	66
21	23	15	15	15	14	15	15	15	16	13	16	18	18	19	17	16	15	15	16	15	16	15	15	16
22	14	15	15	16	15	15	15	15	16	14	15	18	17	19	18	16	13	16	16	15	15	16	15	15
23	16	16	16	16	16	15	14	15	16	15	17	17	17	20	18	15	17	15	15	15	14	15	17	17
24	^B 16	16	16	17	16	16	^B	16	15	16	17	16	17	18	16	16	14	15	14	16	15	16	15	16
25	15	15	15	14	14	66	17	15	17	14	16	17	18	18	15	15	15	18	15	16	21	16	20	15
26	^B	17	15	16	15	18	15	15	16	15	17	18	17	16	15	15	14	15	15	15	15	15	^B 15	^B 15
27	15	17	15	15	15	16	14	15	15	14	16	16	20	19	17	15	16	15	16	15	16	16	16	15
28	15	14	15	15	14	18	^B	15	17	14	17	15	17	18	15	14	15	15	16	16	16	15	15	18
29	^B	15	15	14	16	^B	17	15	14	15	18	17	20	18	17	16	16	16	16	16	15	^B	^B	15
30	^B	20	15	13	15	15	15	18	16	18	16	17	17	16	16	17	15	21	15	14	^B 15	^B	^B	15
31	^B	15	^B	15	14	15	15	16	15	15	15	17	19	21	18	15	15	16	16	16	15	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	30	30	30	30	29	29	31	31	31	31	31	31	31	31	31	31	31	31	31	30	28	27	28
MED	15	16	15	15	15	15	15	15	15	15	16	17	17	17	17	16	16	15	16	16	15	16	15	16
U Q	16	16	16	16	16	16	15	16	16	16	17	18	18	19	17	17	16	16	16	16	16	16	16	16
L Q	15	15	15	15	14	15	14	15	14	14	15	16	17	16	16	15	15	15	15	15	15	15	15	15

HOURLY VALUES OF fof2 AT Okinawa

OCT. 2020

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	B	B	B	B	B	B	B	B	B	B	82	80	102	114	121	115	123	118	105	53	31	30	29	29		
2	32	39	41	33	A	A	23	52	62	60	59	65	80	92	102	116	101	87	65	45	25	A	30	30		
3	31	31	31	31	35	N	N	23	46	52	59	74	65	82	113	B	B	73	59	59	55	43	31	33	35	
4	38	39	38	34	27	24	N	24	48	52	57	69	75	99	118	118	106	90	78	68	62	49	32	A	39	
5	37	40	40	32	30	N	25	27	47	54	54	80	84	85	110	118	119	117	102	85	61	42	31	36	39	
6	39	39	39	37	37	25	30	48	53	63	51	A	81	95	88	79	70	75	71	40	35	A	A	30		
7	31	32	32	31	B	B	N	24	50	53	67	83	94	75	85	97	94	77	67	80	53	A	A	32	31	
8	31	32	31	30	34	N	N	23	25	45	55	55	72	80	60	75	82	98	92	80	81	59	A	33	31	29
9	26	A	N	N	29	25	N	N	24	B	52	56	55	73	68	69	81	69	57	60	63	51	39	23	26	26
10	27	29	29	N	29	24	25	26	49	55	57	60	78	71	77	76	83	101	108	114	68	32	30	33	A	
11	A	A	28	A	31	26	23	43	51	53	58	56	60	59	65	67	73	85	88	62	35	31	33	33		
12	30	32	31	30	27	25	N	24	46	51	55	60	69	75	63	59	57	59	61	74	77	64	34	36	30	
13	27	N	30	32	26	25	N	24	48	54	59	62	72	77	59	63	66	87	93	84	78	A	A	A	A	
14	A	A	25	29	33	B	23	26	52	55	59	57	64	67	64	65	85	102	95	90	75	44	38	38	32	
15	35	42	37	45	55	31	A	45	48	61	60	69	62	64	75	76	83	87	81	N	59	33	A	A	30	
16	A	30	30	27	33	33	23	42	48	53	57	64	91	89	115	129	144	106	104	89	42	30	A	36		
17	36	41	44	46	55	35	31	43	55	53	60	62	73	75	96	104	112	113	95	81	50	41	47	37	A	
18	34	34	33	31	33	31	27	46	56	65	A	62	68	A	81	84	85	92	86	94	82	61	59	57	A	
19	A	31	33	29	33	31	B	24	49	55	54	64	77	80	75	118	145	148	127	107	95	52	55	54	57	
20	53	45	35	34	39	34	N	23	50	55	63	61	72	78	69	82	98	109	128	78	A	A	A	A	A	
21	31	31	30	33	31	N	N	22	23	48	62	69	74	74	79	71	95	120	116	93	48	44	39	40	44	33
22	31	35	32	34	34	29	31	51	57	73	65	90	62	67	79	96	86	63	50	53	50	48	55	51	N	26
23	46	43	A	38	43	30	28	45	53	68	99	93	59	63	76	75	69	67	43	44	33	24	25	25	N	26
24	B	29	29	30	31	34	A	49	55	70	110	85	58	63	89	97	72	58	57	41	35	35	37	35	35	
25	A	A	30	32	35	N	N	23	25	47	57	78	81	81	88	79	75	104	91	64	50	39	45	33	30	30
26	31	32	32	32	31	27	24	49	54	75	67	86	66	80	95	86	97	80	50	45	42	39	43	39	39	
27	35	33	31	33	N	23	24	N	25	55	62	62	71	81	82	89	114	111	92	68	60	44	42	35	35	34
28	A	34	31	31	37	35	N	23	54	61	59	62	91	94	121	147	123	94	65	57	53	51	55	51	49	
29	49	46	38	36	34	B	N	23	23	51	66	71	67	83	83	97	97	63	67	87	71	46	A	A	31	32
30	35	33	30	29	30	30	24	48	58	57	63	87	81	93	86	77	63	58	N	61	51	34	38	37	31	
31	29	31	31	29	32	31	31	49	55	64	64	80	88	101	114	121	107	99	63	A	A	43	39	39	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	24	26	29	29	29	28	28	29	30	30	30	30	31	30	30	30	31	31	31	29	25	24	25	26		
MED	32	33	31	31	33	25	24	48	55	60	64	78	78	78	88	96	91	85	71	53	42	34	36	32		
U Q	36	39	36	34	35	31	26	50	57	67	74	84	83	95	114	115	107	99	86	71	49	40	43	37		
L Q	30	31	30	29	28	24	23	46	53	56	60	69	67	67	76	77	73	65	59	45	34	31	31	30		

HOURLY VALUES OF fEs AT Okinawa

OCT. 2020

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	B	B	B	B	B	43	50	46	90	68	48	46	35	39	54	24	G	G	G
2	24	27	28	25	30	29	G	29	40	54	51	50	57	47	43	40	34	29	29	36	58	28	27	28
3	26	G	G	G	G	G	142	28	40	38	54	47	40	46	B	B	46	42	58	36	57	G	G	G
4	G	G	G	G	G	G	G	33	40	41	47	51	46	44	46	52	37	29	27	37	30	G	37	28
5	G	G	G	G	G	G	G	28	106	46	41	45	46	44	41	38	40	29	30	32	30	48	31	24
6	29	G	G	G	G	G	G	33	39	41	49	67	48	39	36	58	47	81	45	28	G	54	33	G
7	G	G	G	G	B	B	G	32	36	40	38	38	41	48	35	45	77	61	59	105	46	29	G	G
8	26	212	G	G	G	G	G	27	36	44	45	43	46	50	48	52	40	40	48	11	50	G	G	G
9	G	24	G	G	G	G	G	B	41	44	44	44	52	40	46	63	60	67	50	26	24	G	G	24
10	G	G	G	G	G	G	G	27	34	43	32	162	48	50	49	46	43	40	G	69	25	26	24	32
11	31	32	31	31	G	G	G	33	55	47	50	56	56	48	46	44	45	38	31	49	24	24	G	G
12	25	25	G	G	G	G	G	40	32	43	44	58	40	46	44	34	40	33	40	G	48	G	G	G
13	G	G	G	G	G	G	G	30	38	178	43	38	57	51	51	42	49	28	29	37	56	32	49	38
14	44	34	G	G	G	B	25	26	37	36	55	44	46	46	46	53	45	47	28	55	35	G	G	G
15	G	G	G	G	22	34	59	34	59	47	54	54	59	48	45	40	38	54	11	55	35	59	69	27
16	34	G	31	G	G	19	46	148	36	37	46	46	48	47	65	37	39	33	52	51	55	60	25	
17	25	G	G	G	G	30	26	37	46	42	44	48	47	40	40	37	29	24	23	24	24	G	29	
18	25	26	G	G	G	G	G	28	39	58	72	72	62	74	73	61	38	29	25	27	59	G	27	49
19	32	G	G	G	G	G	B	26	55	40	64	69	59	67	97	56	41	45	34	48	27	32	G	G
20	G	G	G	G	G	11	103	43	44	52	60	59	56	50	50	44	92	44	57	110	56	48	36	39
21	31	G	25	G	G	G	G	27	37	41	39	43	46	56	45	50	51	38	25	29	28	G	G	G
22	G	G	G	G	G	G	G	48	35	38	47	45	46	46	44	41	40	25	46	G	G	G	G	G
23	34	32	38	38	35	G	24	47	32	38	46	39	56	45	42	41	42	33	26	25	34	G	24	G
24	B	G	G	28	G	G	26	28	33	41	39	46	44	44	41	43	32	28	46	24	24	G	32	33
25	30	27	28	G	G	G	G	28	35	45	46	47	48	48	47	40	38	53	48	34	32	G	G	G
26	G	26	25	G	G	G	134	30	35	45	39	56	46	41	42	42	38	60	30	G	45	26	36	26
27	G	24	24	164	G	G	G	27	41	67	43	42	80	60	45	58	39	26	24	29	35	26	G	G
28	34	29	G	G	G	19	G	28	36	42	44	44	47	46	46	44	40	31	23	24	G	G	G	G
29	G	24	23	24	19	B	G	34	44	50	51	49	46	44	45	45	60	69	70	50	58	57	G	G
30	G	G	G	G	G	G	G	34	50	38	37	47	48	45	36	G	32	28	G	21	G	G	26	G
31	G	25	G	G	G	G	G	29	36	41	44	46	44	38	44	43	39	40	60	63	58	28	30	33
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	30	28	26	28	29	30	30	31	31	31	31	30	30	31	31	31	31	31	31	31	30
MED	24	G	G	G	G	G	G	29	38	43	44	47	47	47	45	44	40	38	30	36	34	G	24	G
U Q	30	26	24	G	G	G	24	34	44	47	51	56	56	50	47	52	46	47	48	52	51	32	32	28
L Q	G	G	G	G	G	G	G	27	36	40	41	44	46	44	42	41	38	29	25	25	24	G	G	G

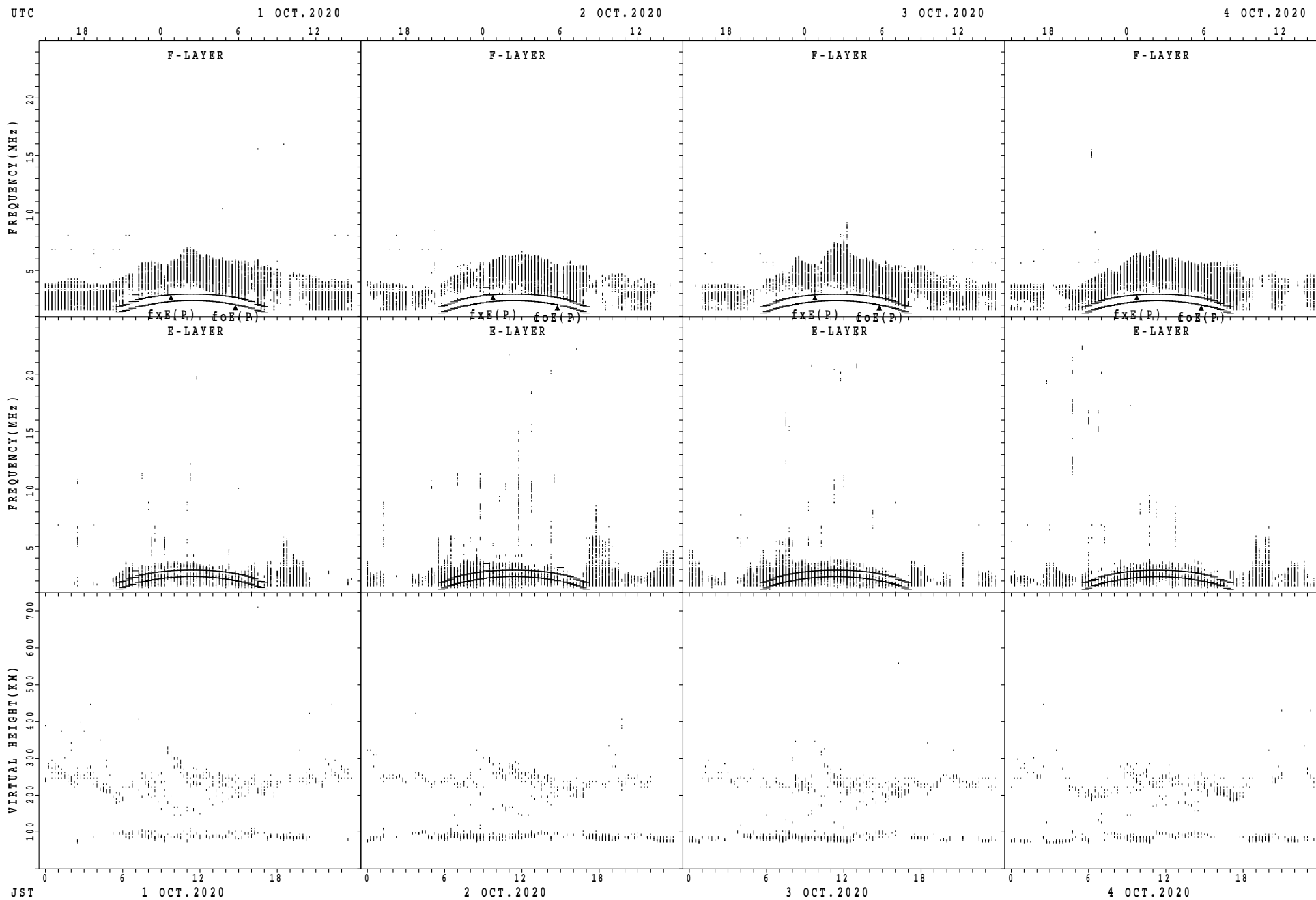
HOURLY VALUES OF fmin AT Okinawa

OCT. 2020

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

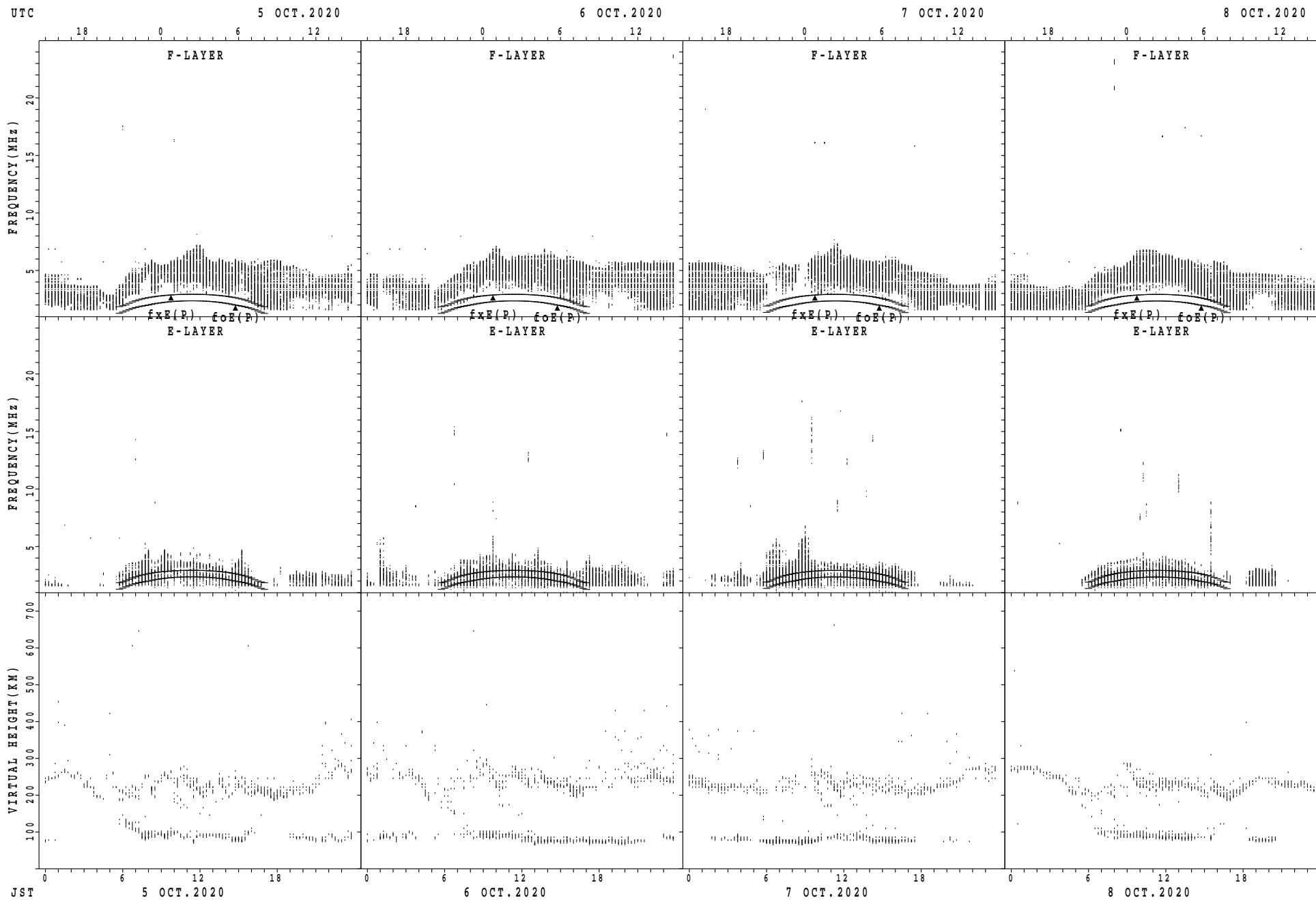
$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	B	B	B	B	B	16	17	16	11	15	15	14	15	15	16	15	15	14	15
2	16	16	16	16	16	15	16	14	14	13	17	16	19	16	16	16	15	15	14	15	15	16	16	16
3	16	16	16	15	16	16	45	15	13	14	15	17	18	16	B	B	15	13	14	16	15	15	15	15
4	14	15	14	14	14	14	14	16	14	14	16	15	14	17	14	13	14	15	15	15	15	15	15	16
5	15	15	14	14	15	15	14	14	15	14	14	17	19	16	16	16	15	14	15	15	15	16	16	15
6	16	15	15	15	14	15	14	15	13	14	15	15	17	17	15	14	15	10	14	15	14	15	16	15
7	15	15	15	14	B	B	14	15	14	14	15	14	17	18	19	15	14	13	14	14	15	15	15	14
8	15	17	15	14	14	15	16	15	14	13	15	15	16	15	16	15	14	14	14	15	15	15	15	14
9	14	15	15	14	14	14	15	B	14	14	14	16	14	16	15	17	15	15	15	15	16	15	15	15
10	15	14	16	14	15	15	14	15	15	17	15	16	17	15	17	17	16	16	15	15	15	15	15	15
11	15	16	15	15	15	15	16	14	14	14	13	14	17	18	15	15	14	16	15	14	16	16	15	15
12	15	15	15	14		14	14	15	15	15	14	15	16	15	15	15	14	15	14	14	15	17	14	15
13	15	15	14	14	14	14	14	15	14	13	16	16	17	15	14	13	15	15	15	16	15	16	15	14
14	16	16	15	16	16	B	16	15	16	14	13	15	15	15	15	15	12	15	15	15	15	15	15	15
15	15	14	15	15	15	16	15	16	13	14	13	16	14	14	13	13	13	15	14	15	16	15	16	16
16	15	15	16	15	15	15	15	15	16	14	15	16	15	15	13	13	13	13	16	15	15	18	15	15
17	16	15	15	15	15	15	14	15	16	13	16	15	15	15	14	15	14	15	15	15	15	16	15	15
18	16	16	15	14	15	15	15	15	15	13	15	16	13	15	13	15	14	14	15	15	15	15	15	15
19	16	15	15	17	14	14	B	15	15	15	14	15	15	16	14	14	13	14	14	16	15	15	15	15
20	14	15	15	15	15	15	58	15	15	14	14	14	13	13	14	15	14	14	15	16	15	15	15	15
21	16	15	15	15	15	14	16	16	16	15	15	15	15	16	14	15	14	14	15	15	16	15	16	16
22	15	14	14	15	15	14	14	15	16	15	16	16	15	14	15	13	13	15	15	16	16	15	14	14
23	16	16	15	16	16	15	16	15	16	14	14	16	17	17	17	16	14	15	15	15	14	15	15	15
24	B	15	15	15	16	16	17	15	15	16	14	14	14	16	17	14	14	15	14	16	16	16	15	16
25	16	16	16	14	14	16	15	15	15	14	14	16	15	15	14	15	15	16	15	16	16	16	14	15
26	113	16	15	15	14	15	15	15	14	15	15	15	17	16	15	14	14	14	15	16	15	16	15	15
27	15	15	15	14	15		14	15	15	14	15	15	17	15	14	14	15	14	15	15	16	15	14	17
28	16	16	15	15	9	15	15	15	15	15	15	14	15	16	14	14	14	15	16	15	15	15	16	16
29	16	15	16	16	14	B	15	16	15	15	14	14	13	15	17	16	15	14	15	15	15	15	14	15
30	14	14	14	15	14	14	15	16	15	13	15	15	15	16	17	17	15	15	16	14	14	15	15	16
31	15	15	14	15	15	15	17	16	14	14	15	15	19	16	15	15	13	14	15	14	15	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	28	26	30	29	30	30	31	31	31	31	30	30	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	15	15	14	15	15	16	15	15	15	14	15	15	15	15	15	15	15
U Q	16	16	15	15	15	15	16	15	15	14	15	16	17	16	16	15	15	15	15	16	16	16	16	16
L Q	15	15	15	14	14	14	14	15	14	14	14	15	15	15	14	14	14	14	15	15	15	15	15	15

SUMMARY PLOTS AT Wakkanai



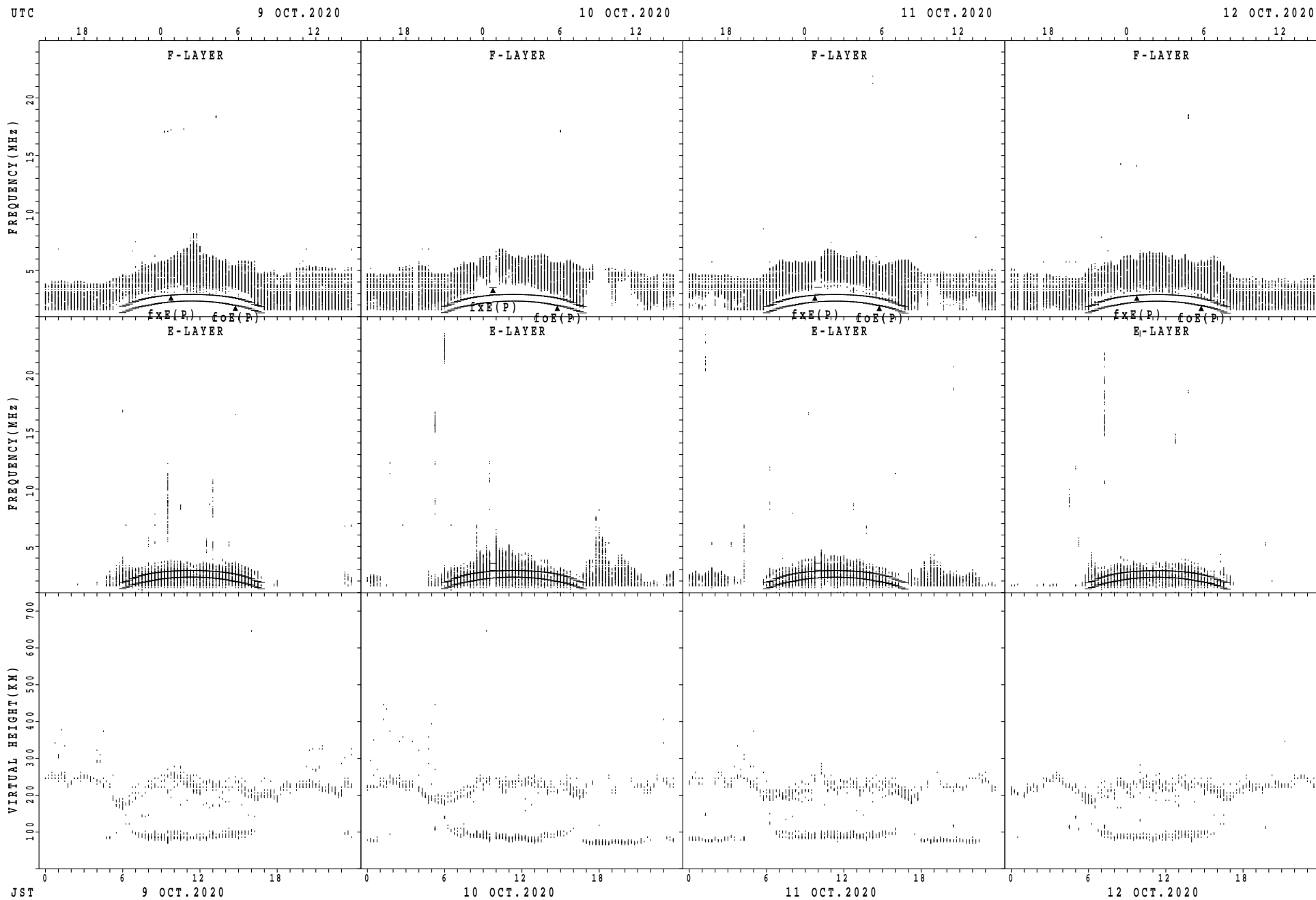
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



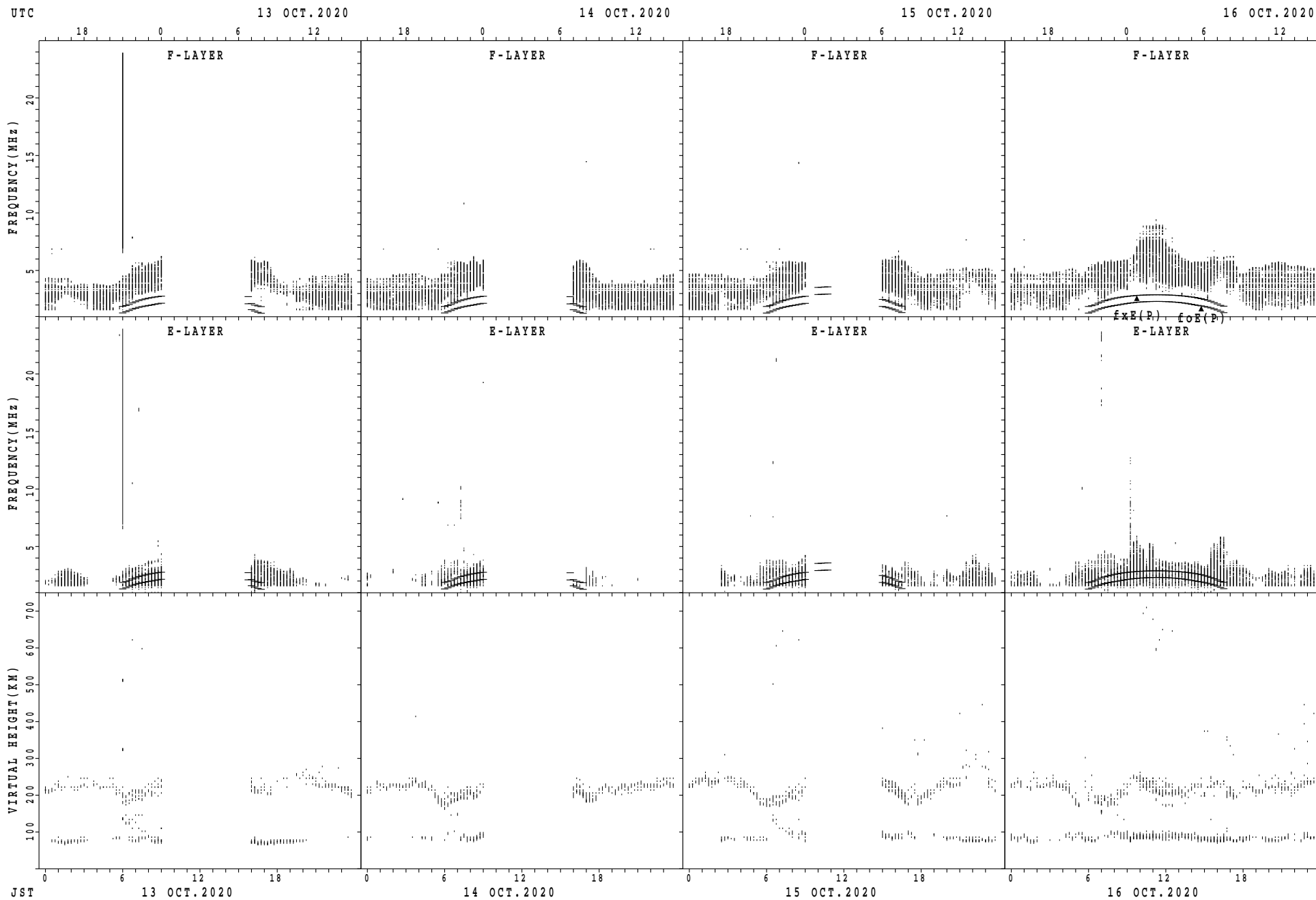
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Wakkanai



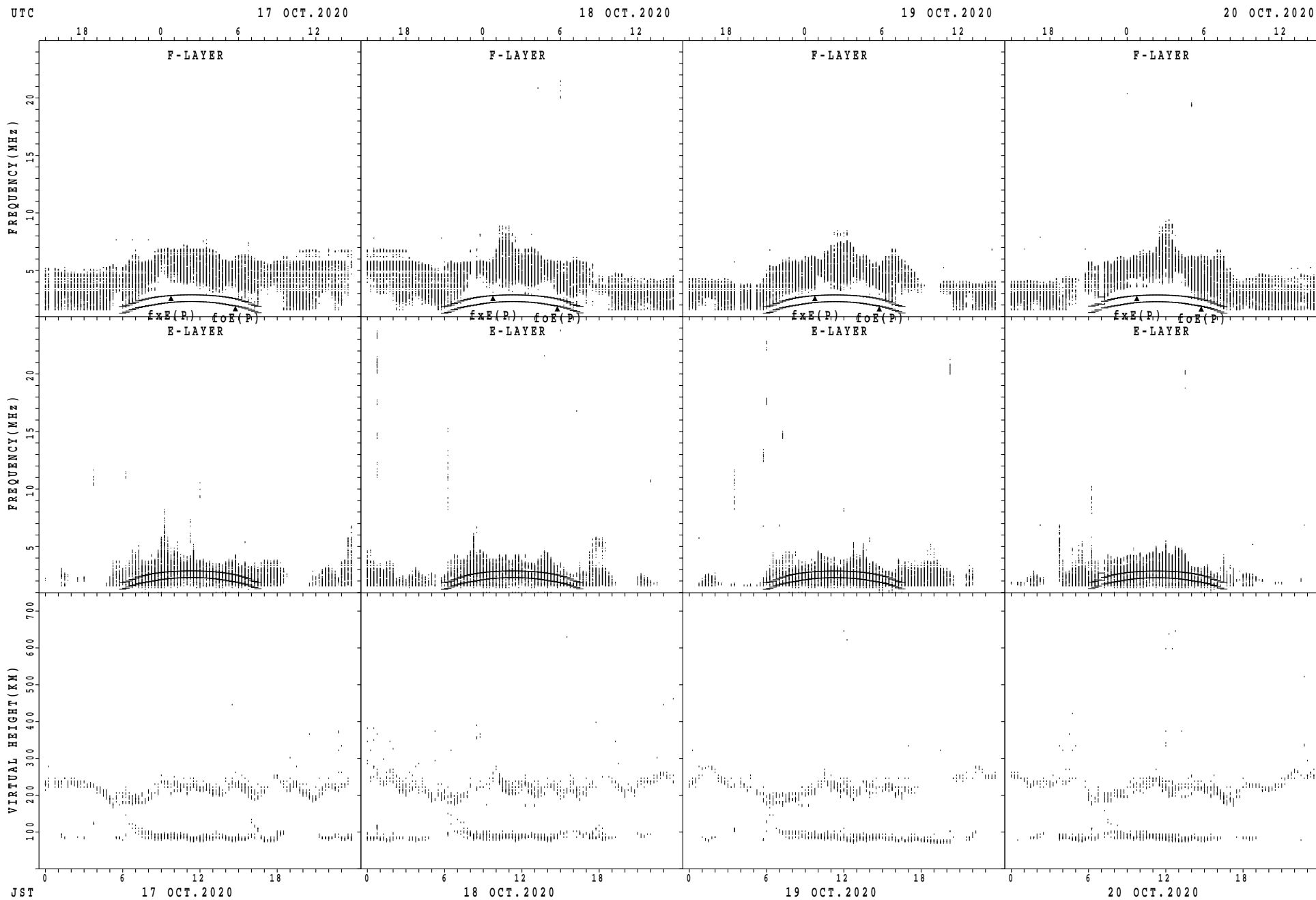
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



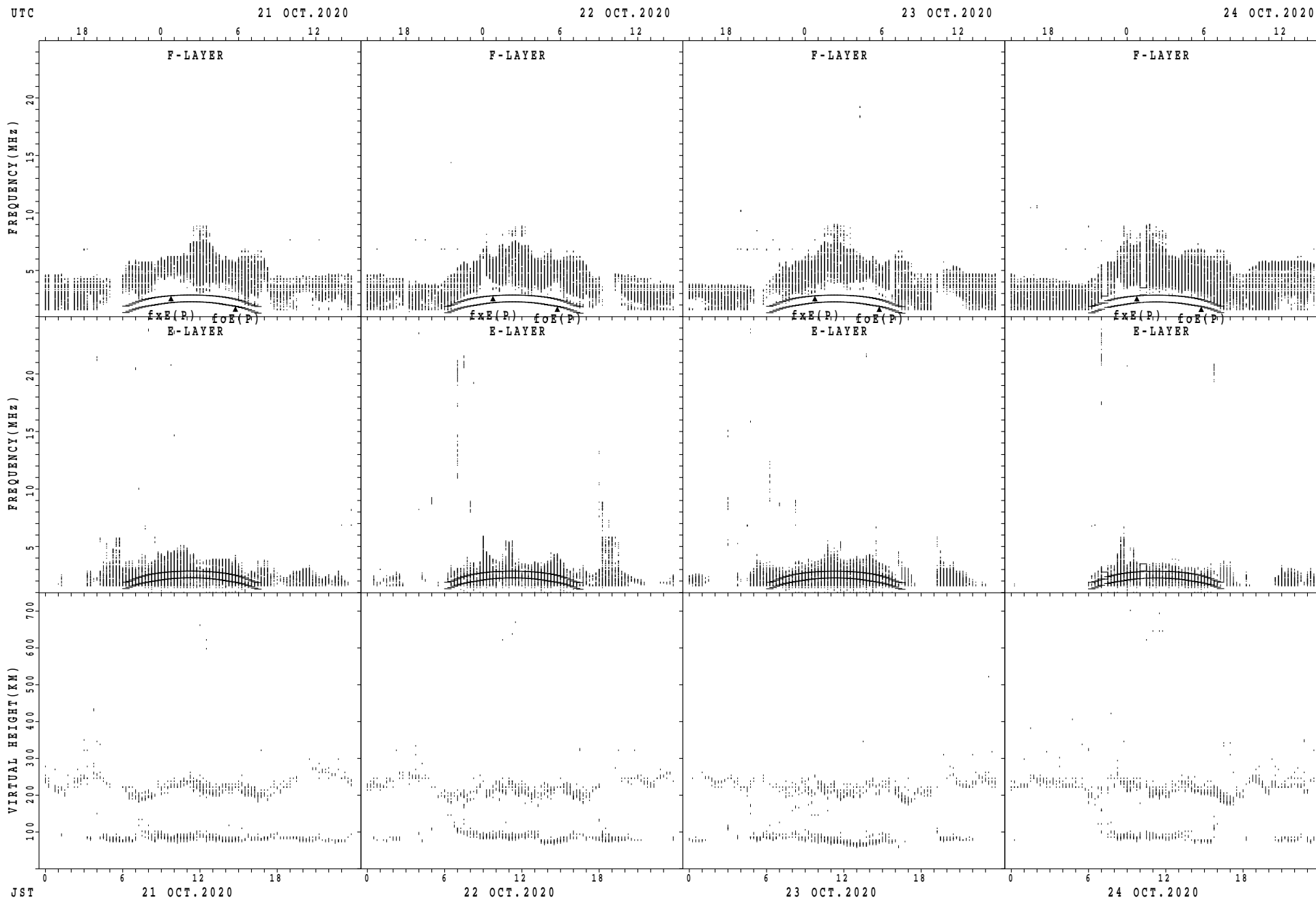
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Wakkanai



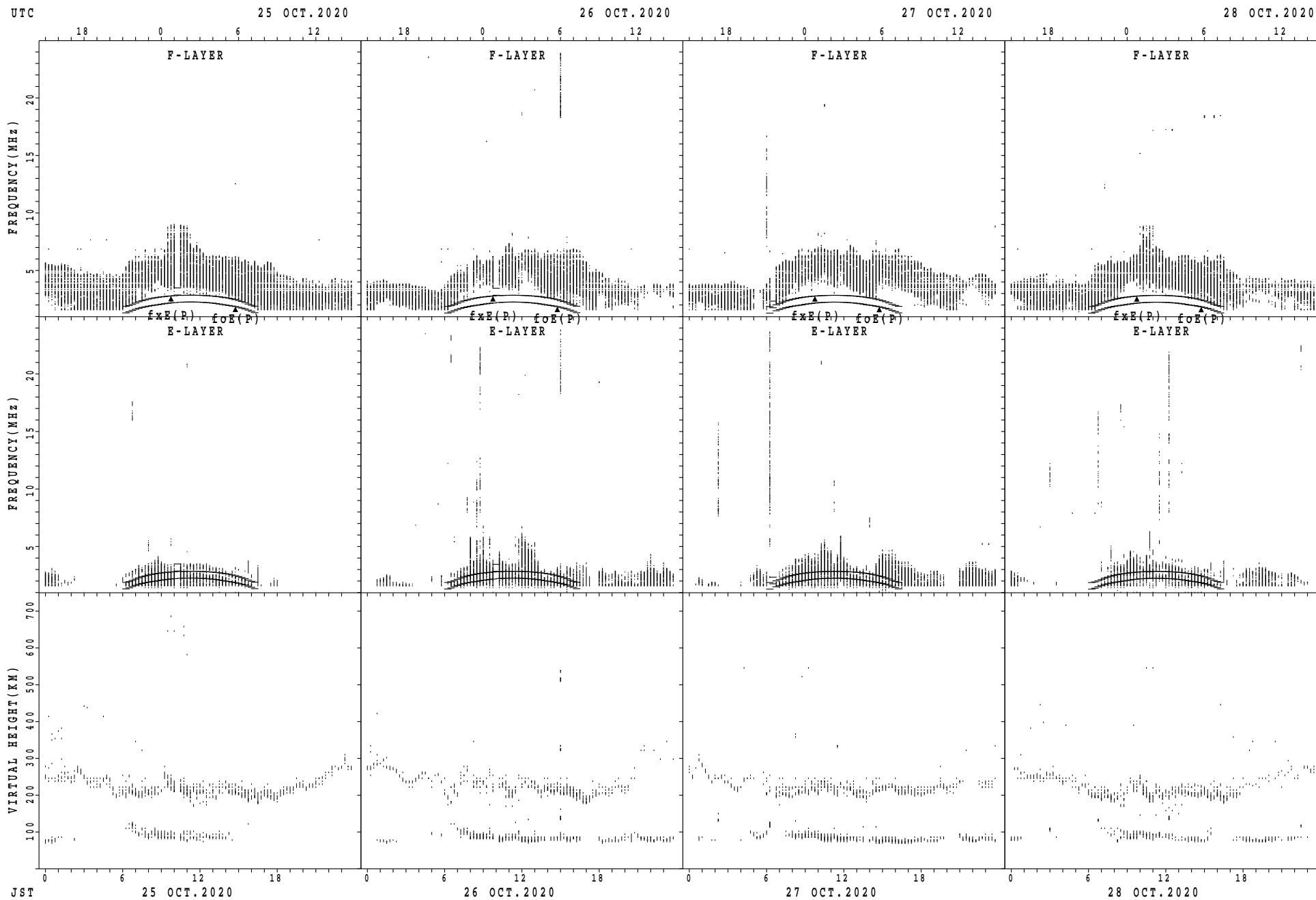
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



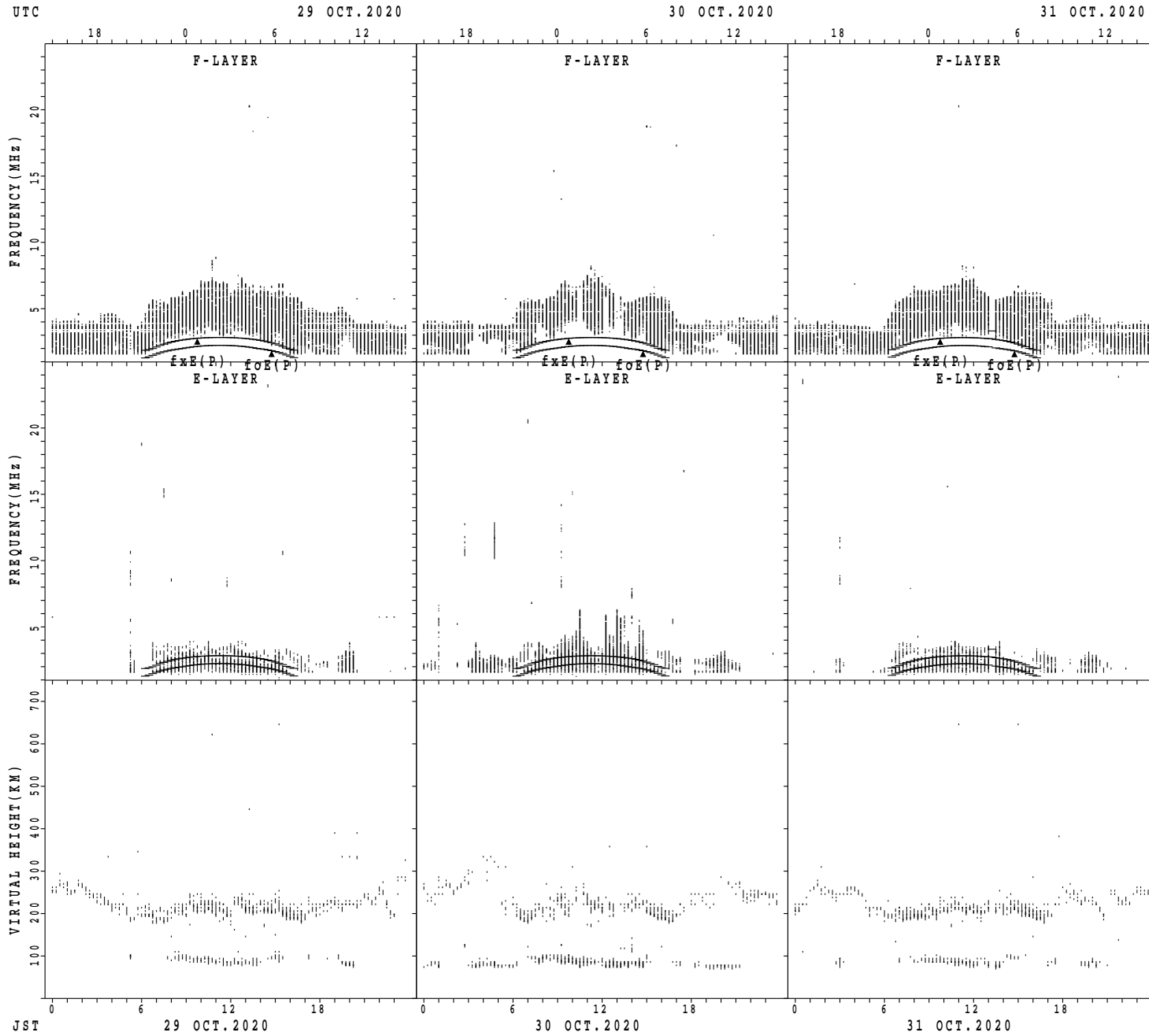
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



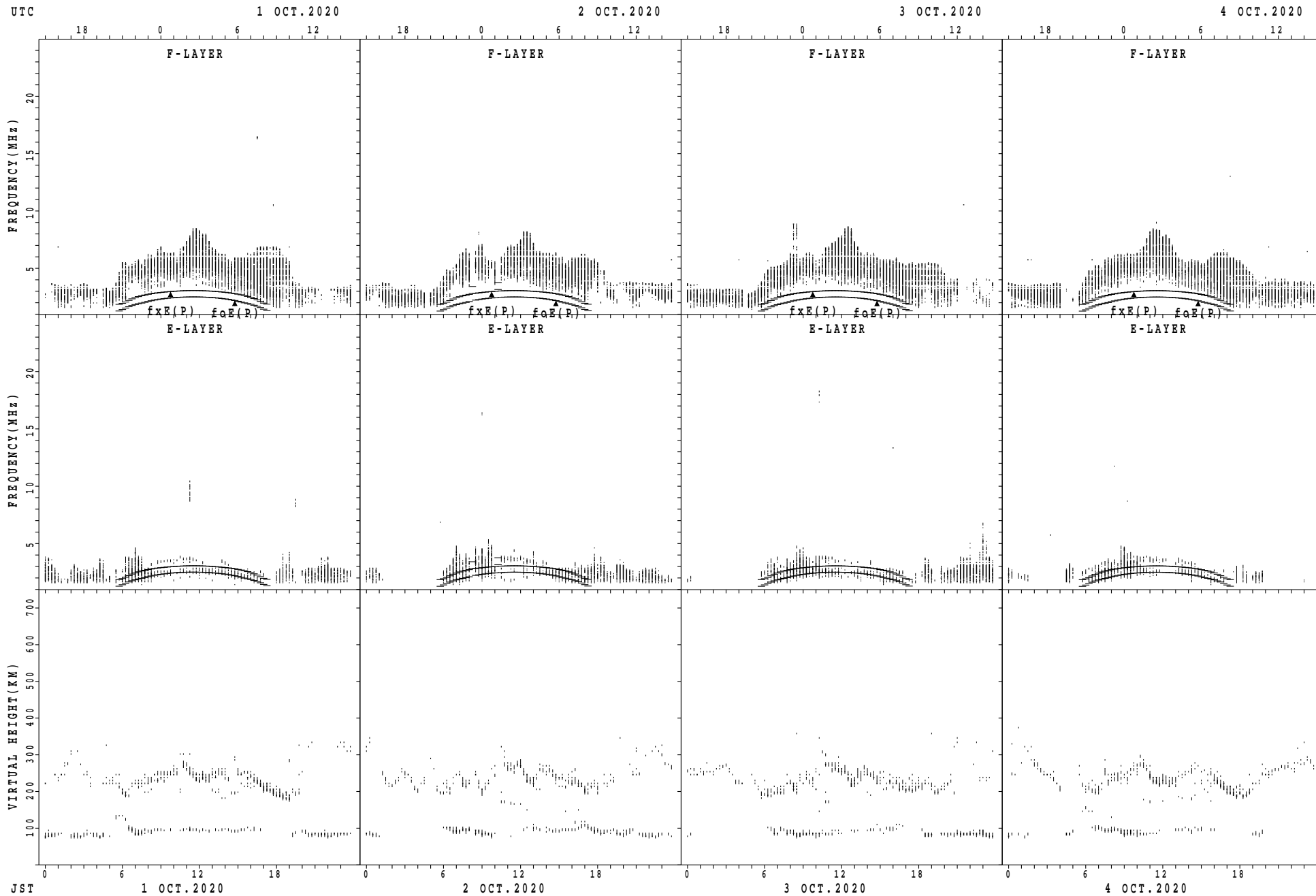
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



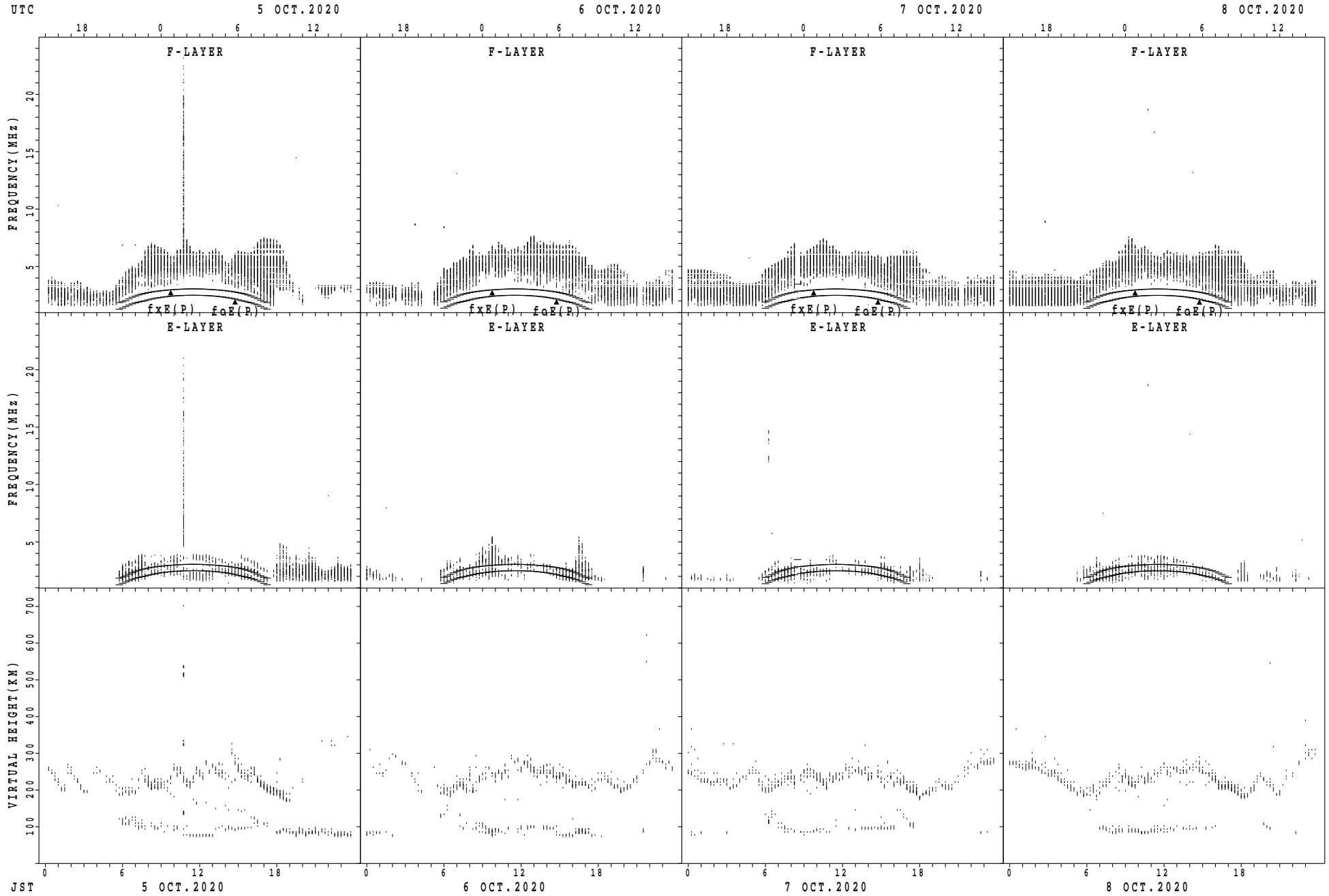
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



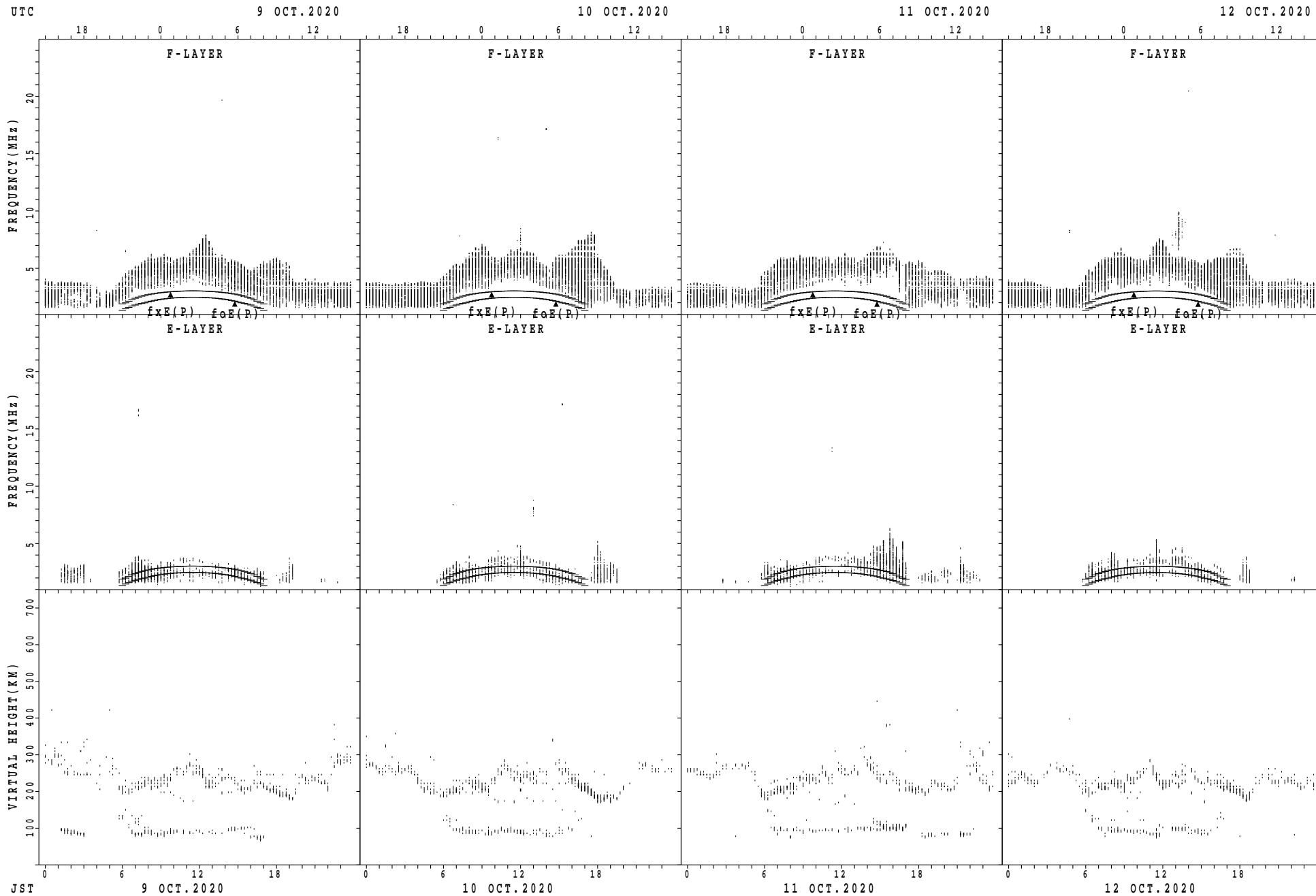
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Kokubunji



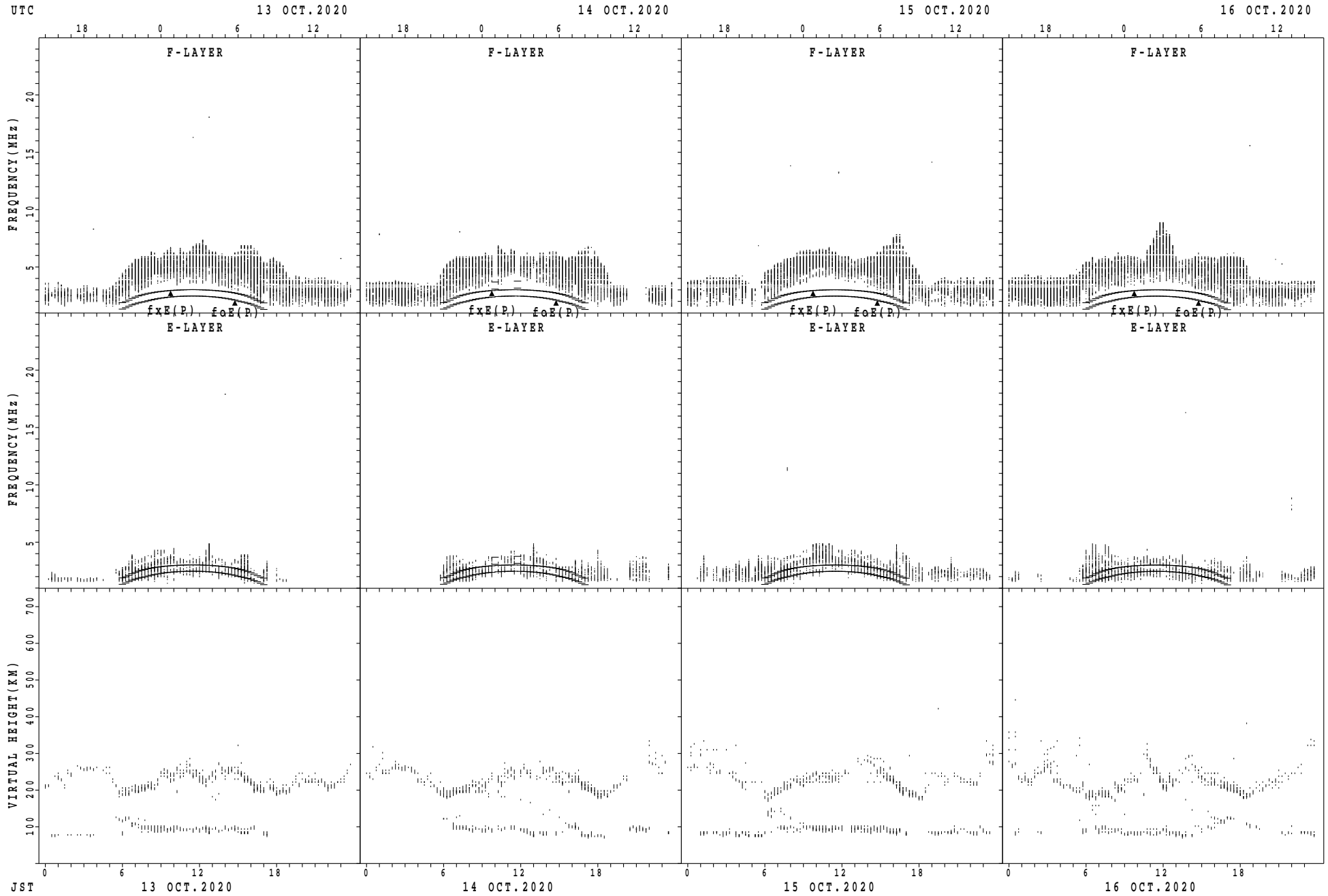
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Kokubunji



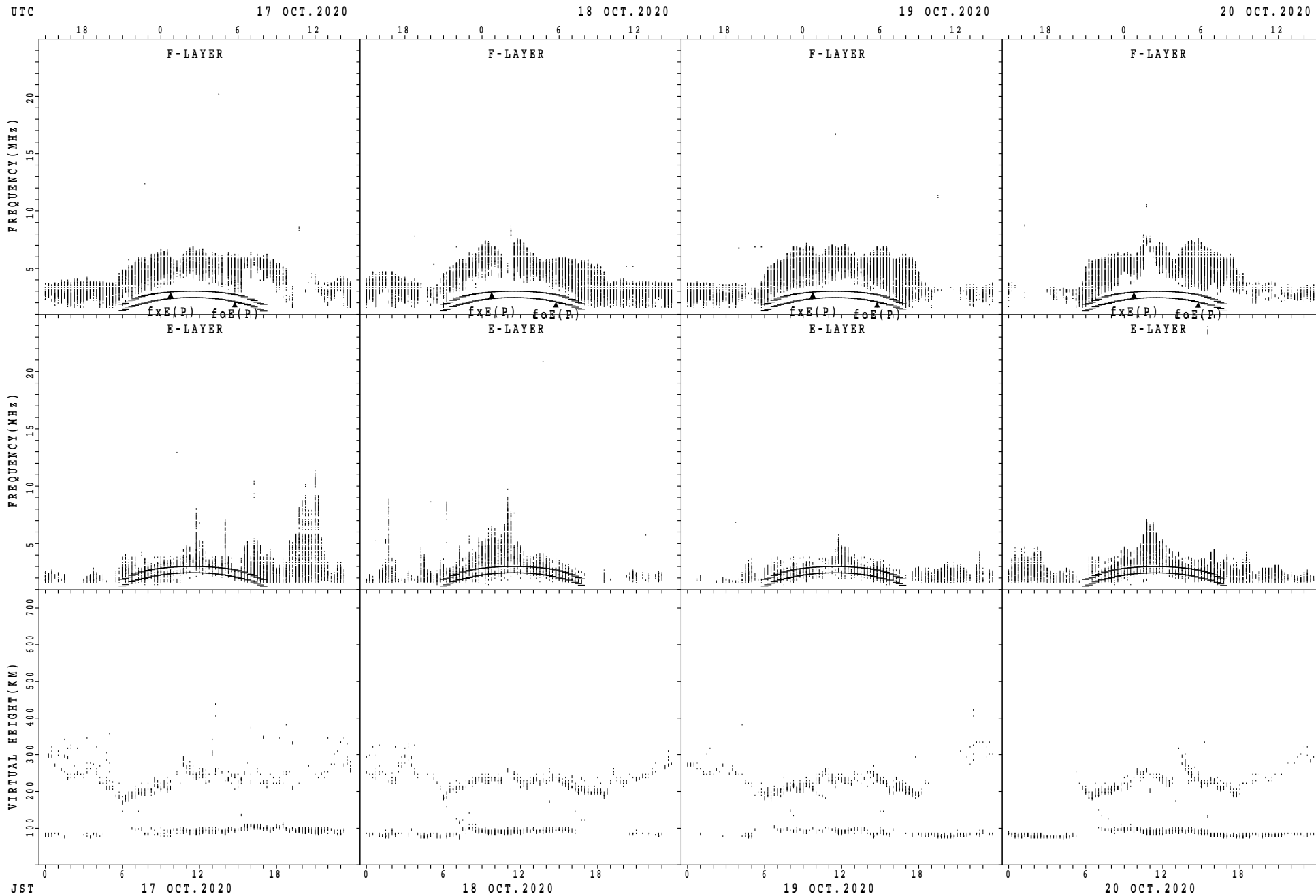
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



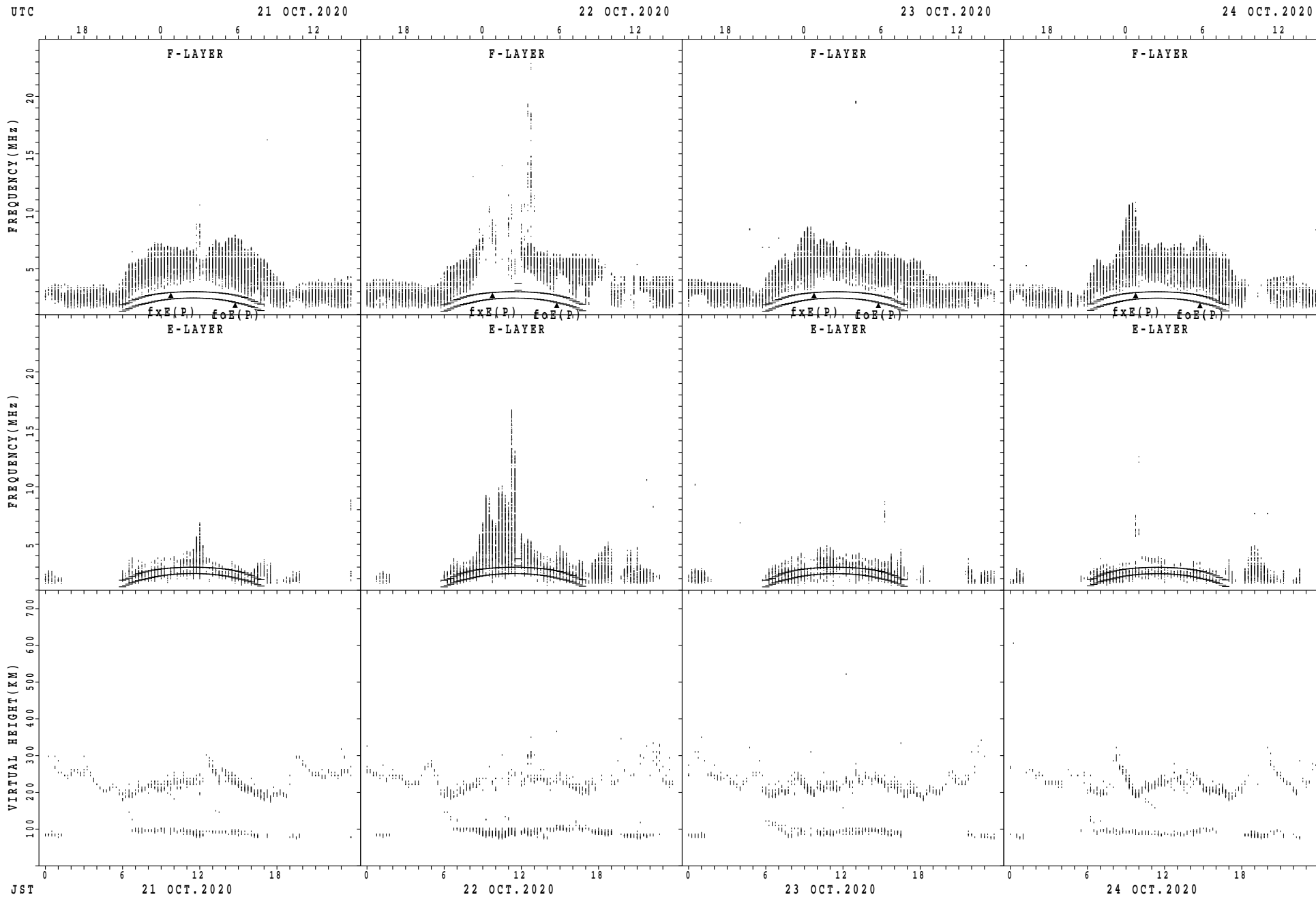
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Kokubunji



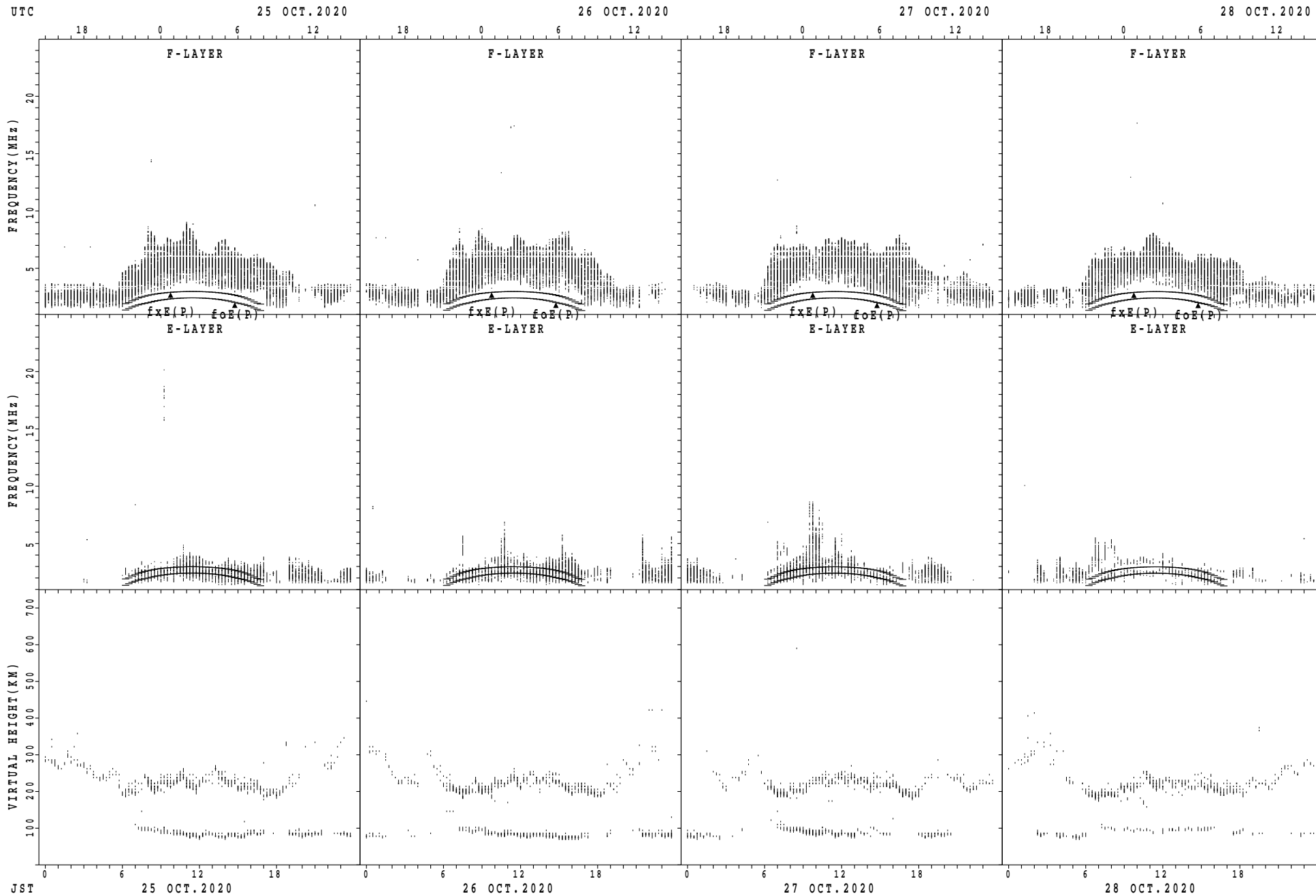
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



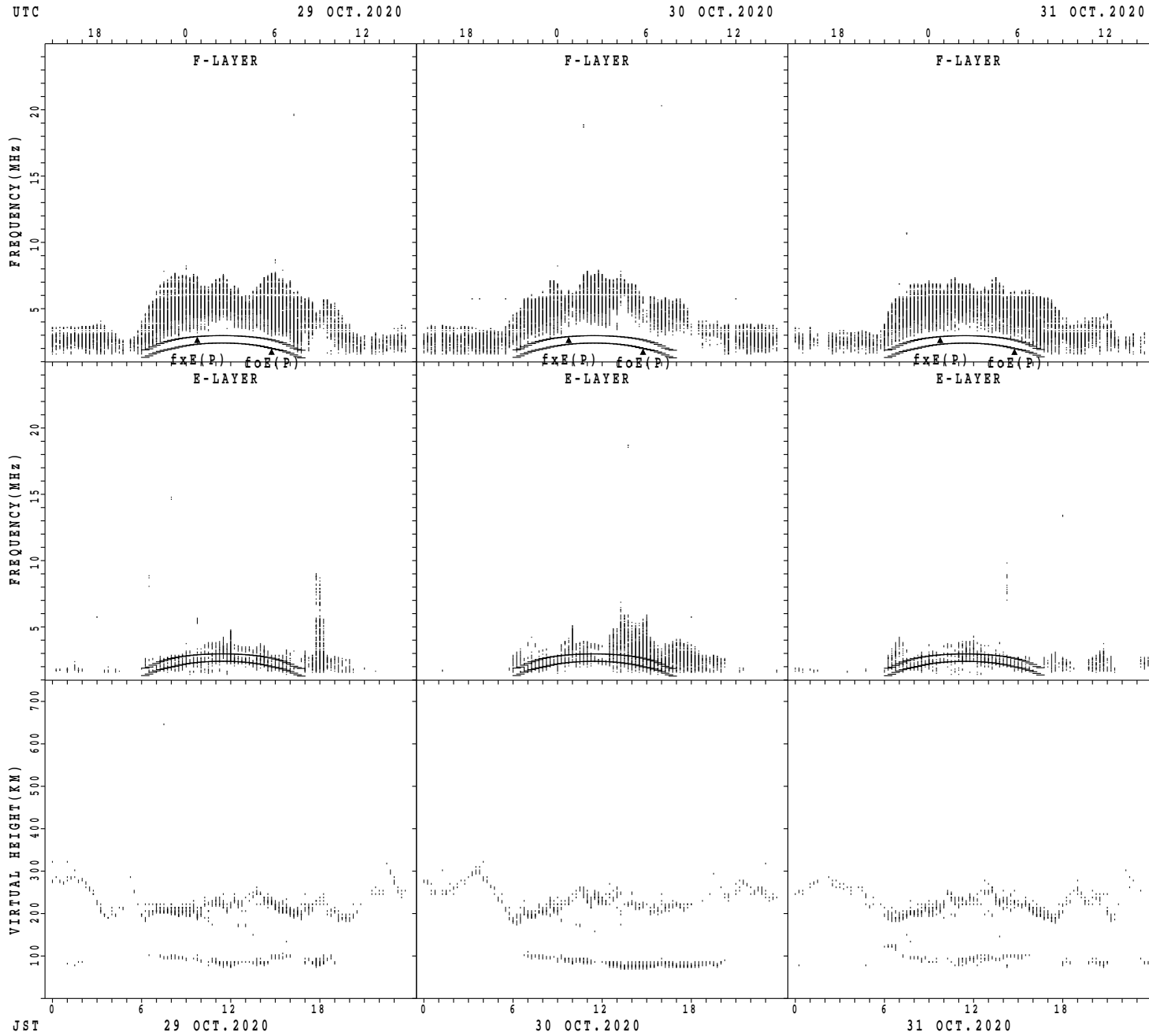
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



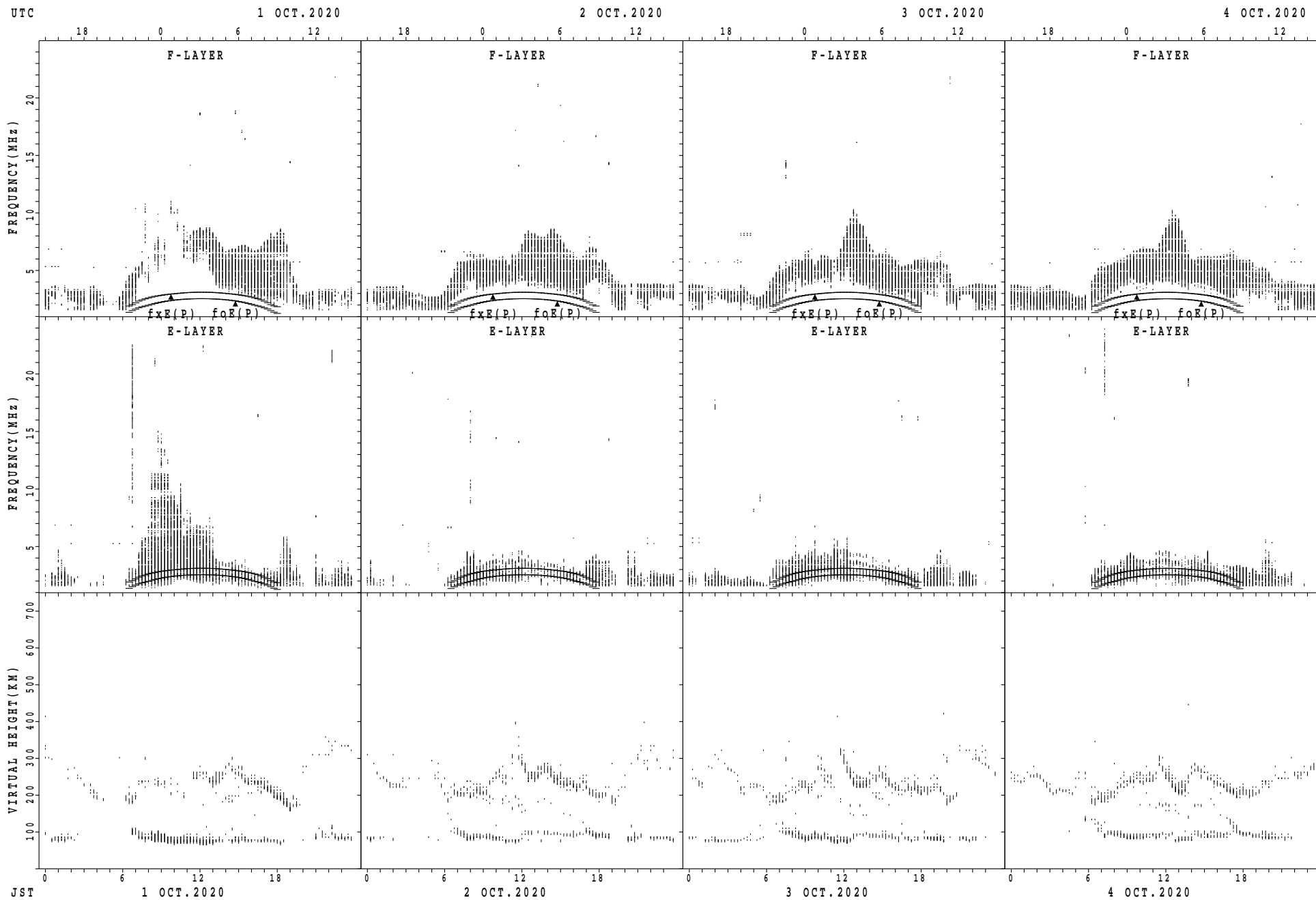
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



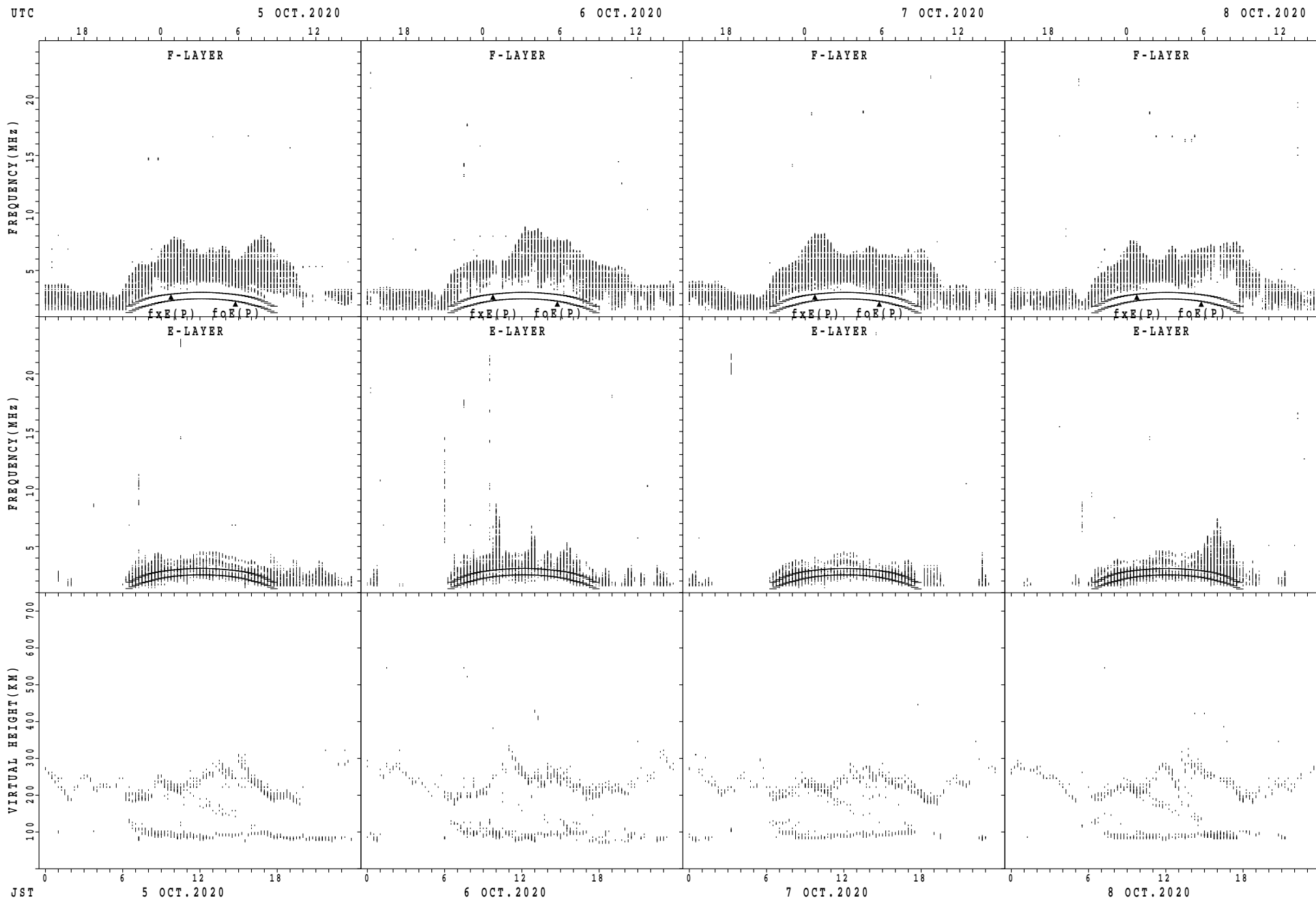
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



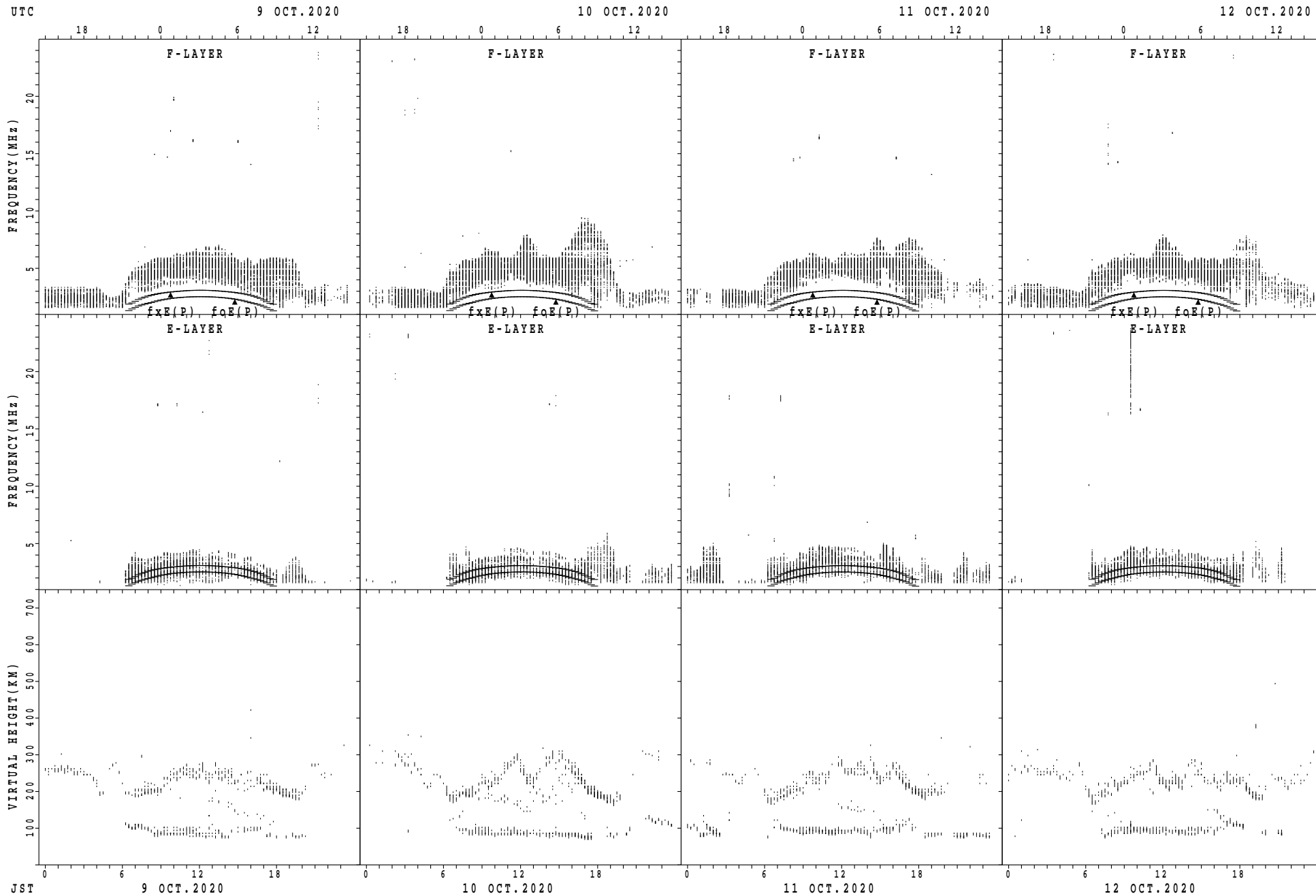
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



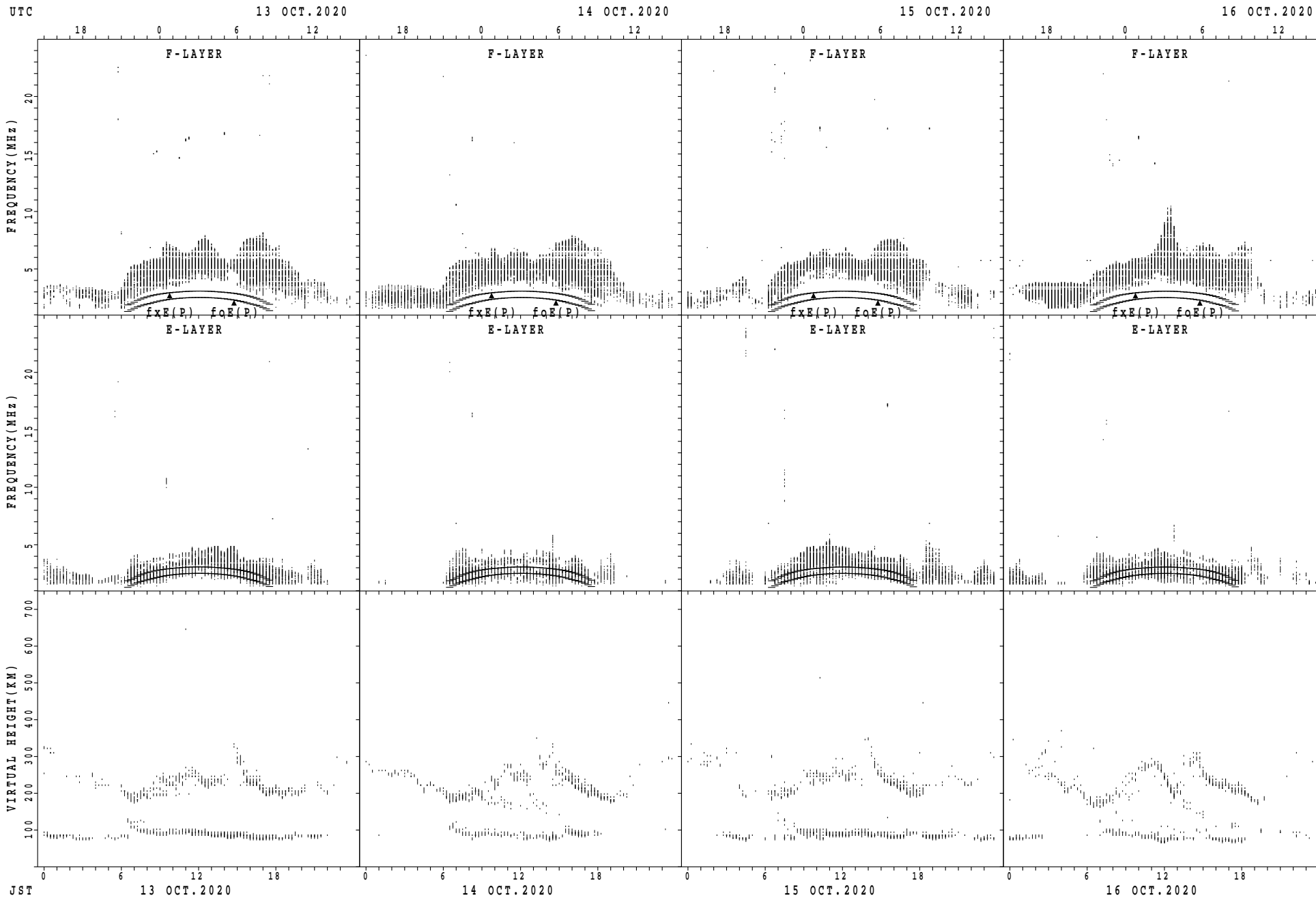
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



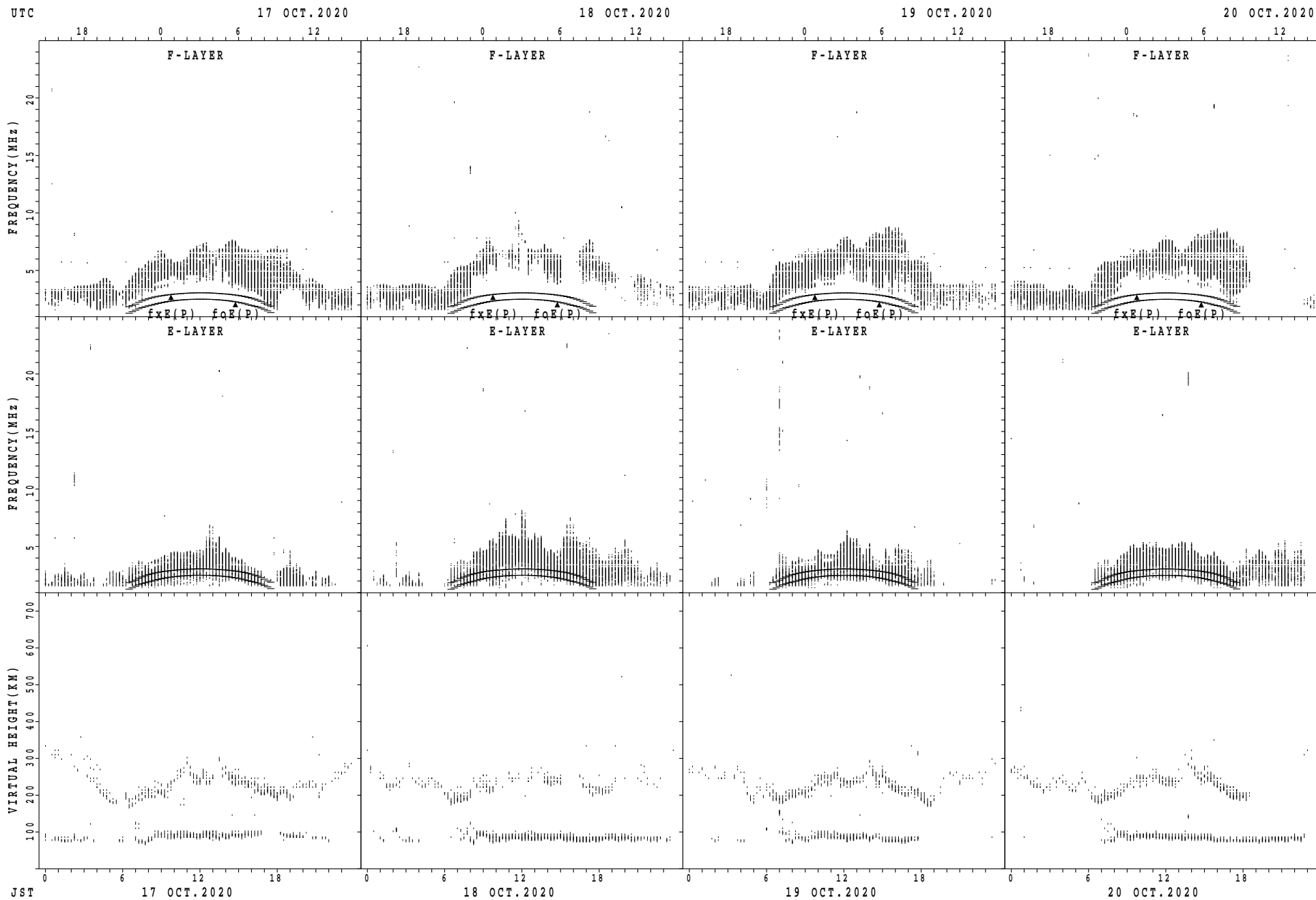
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



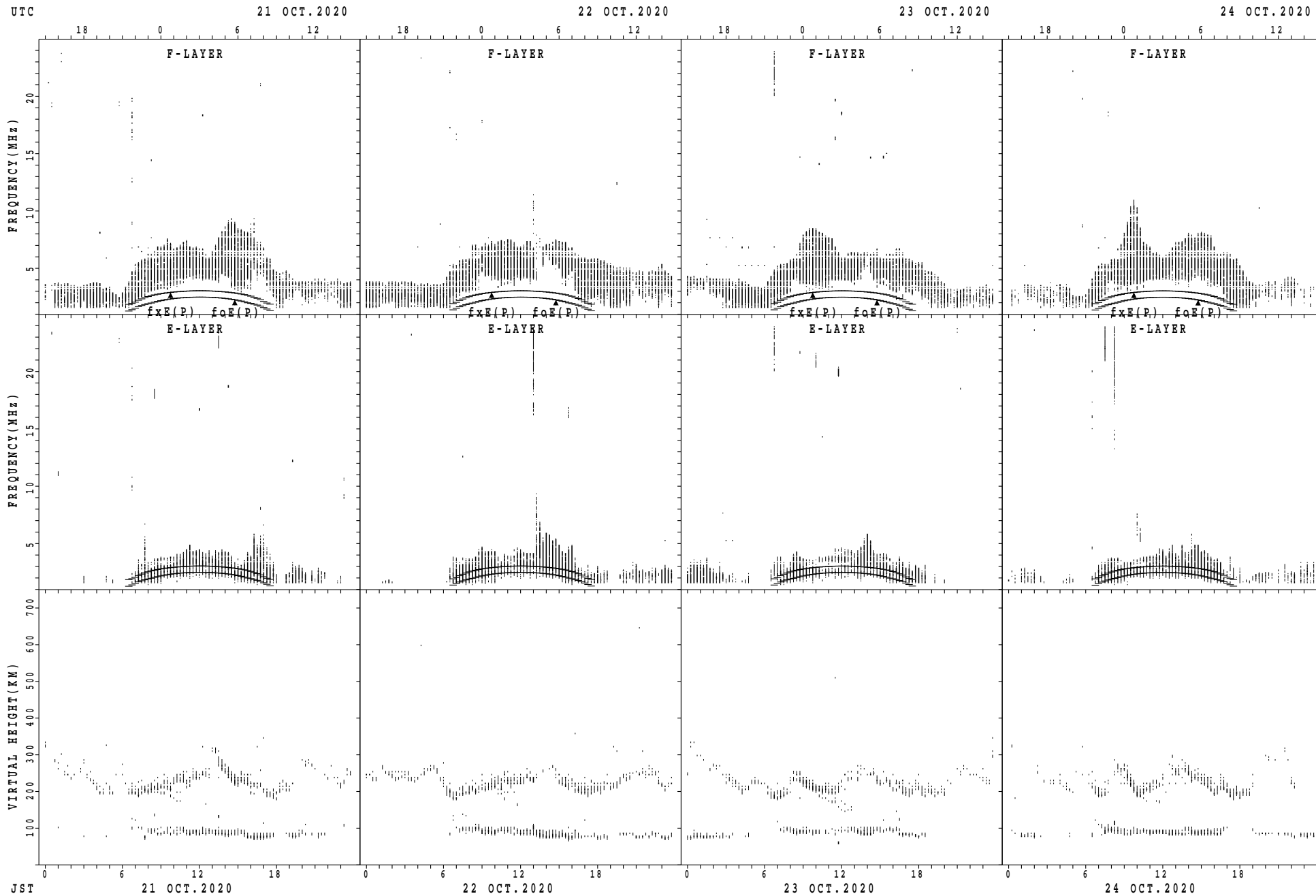
f_xE(P); PREDICTED VALUE FOR f_xE
 f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



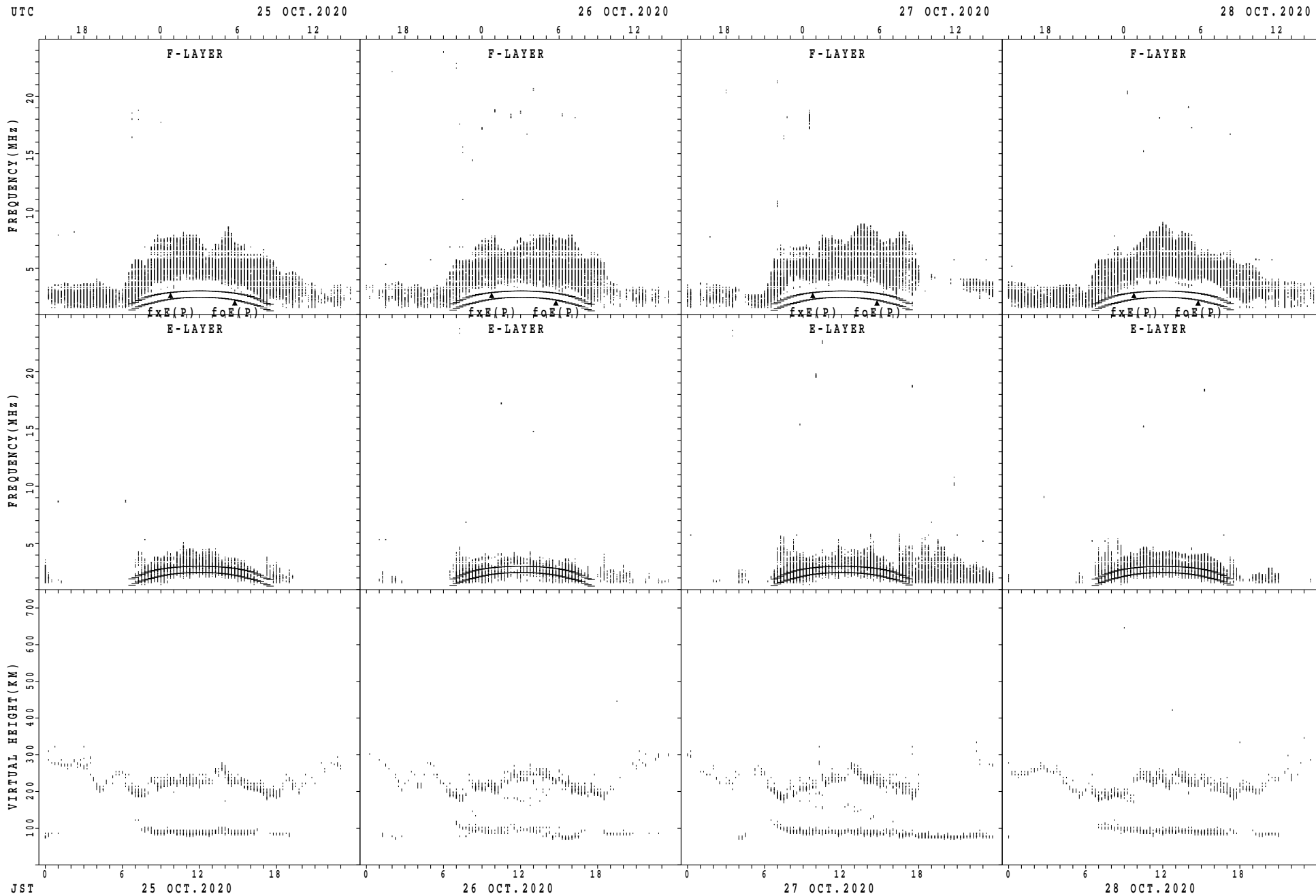
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



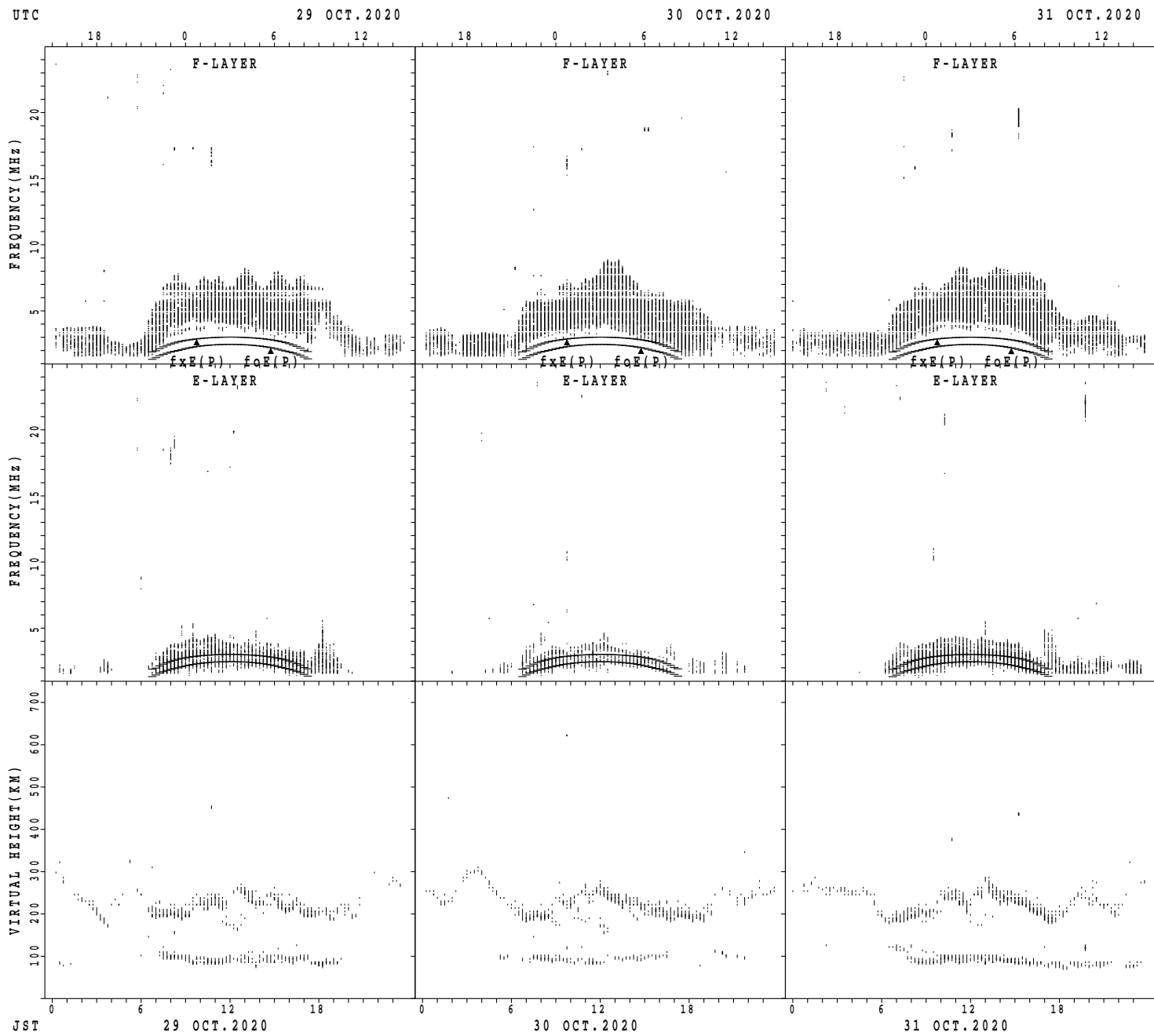
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



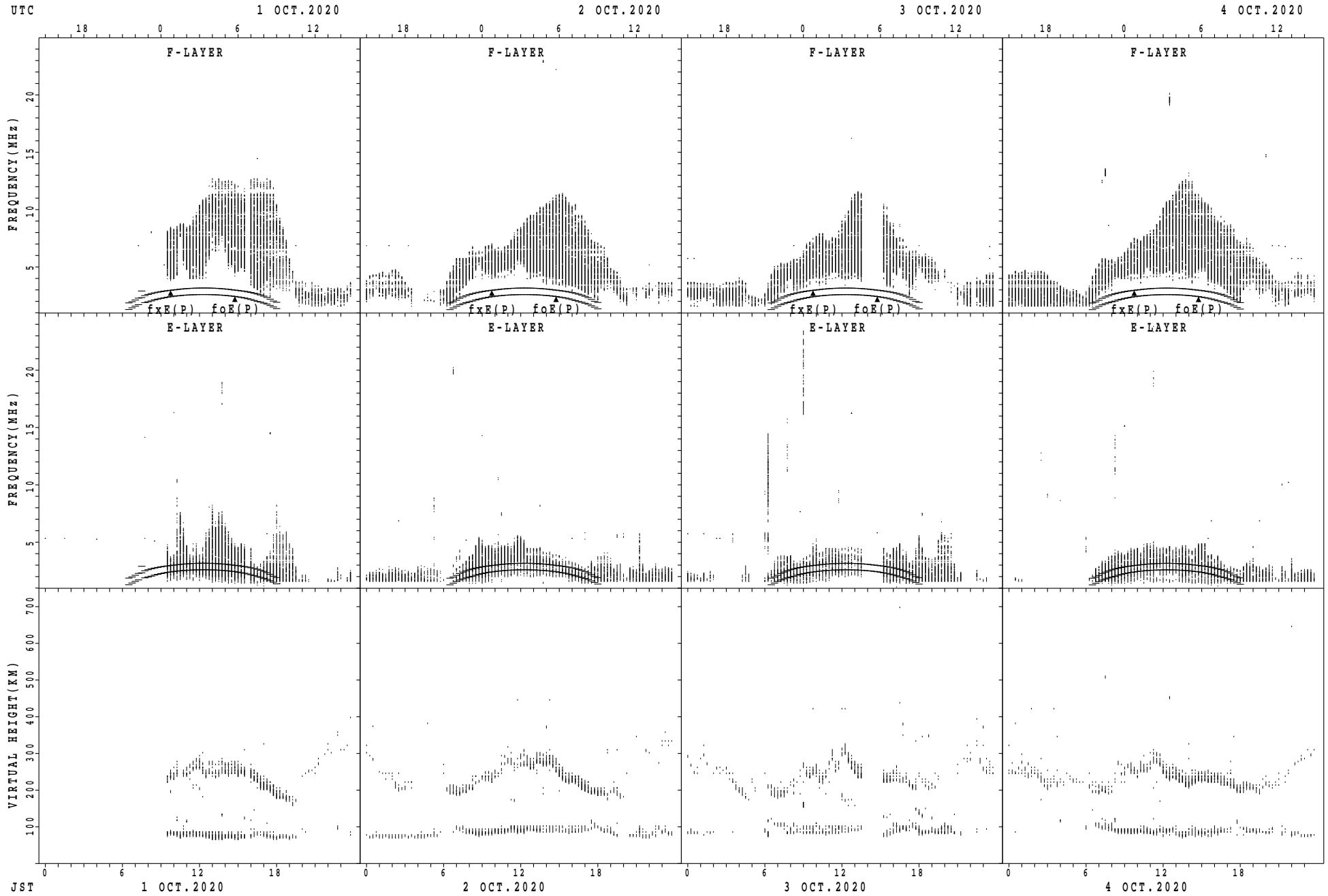
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



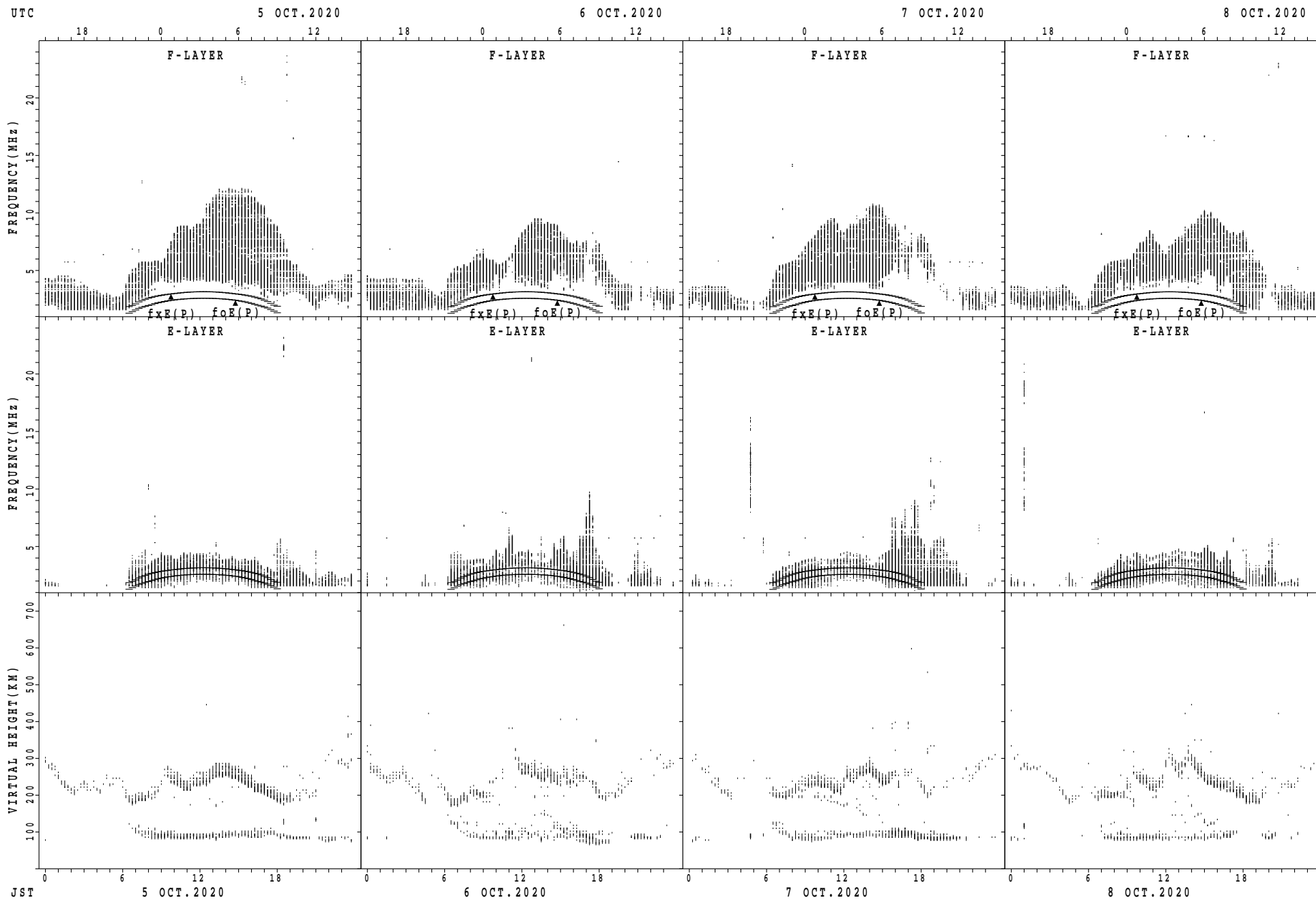
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



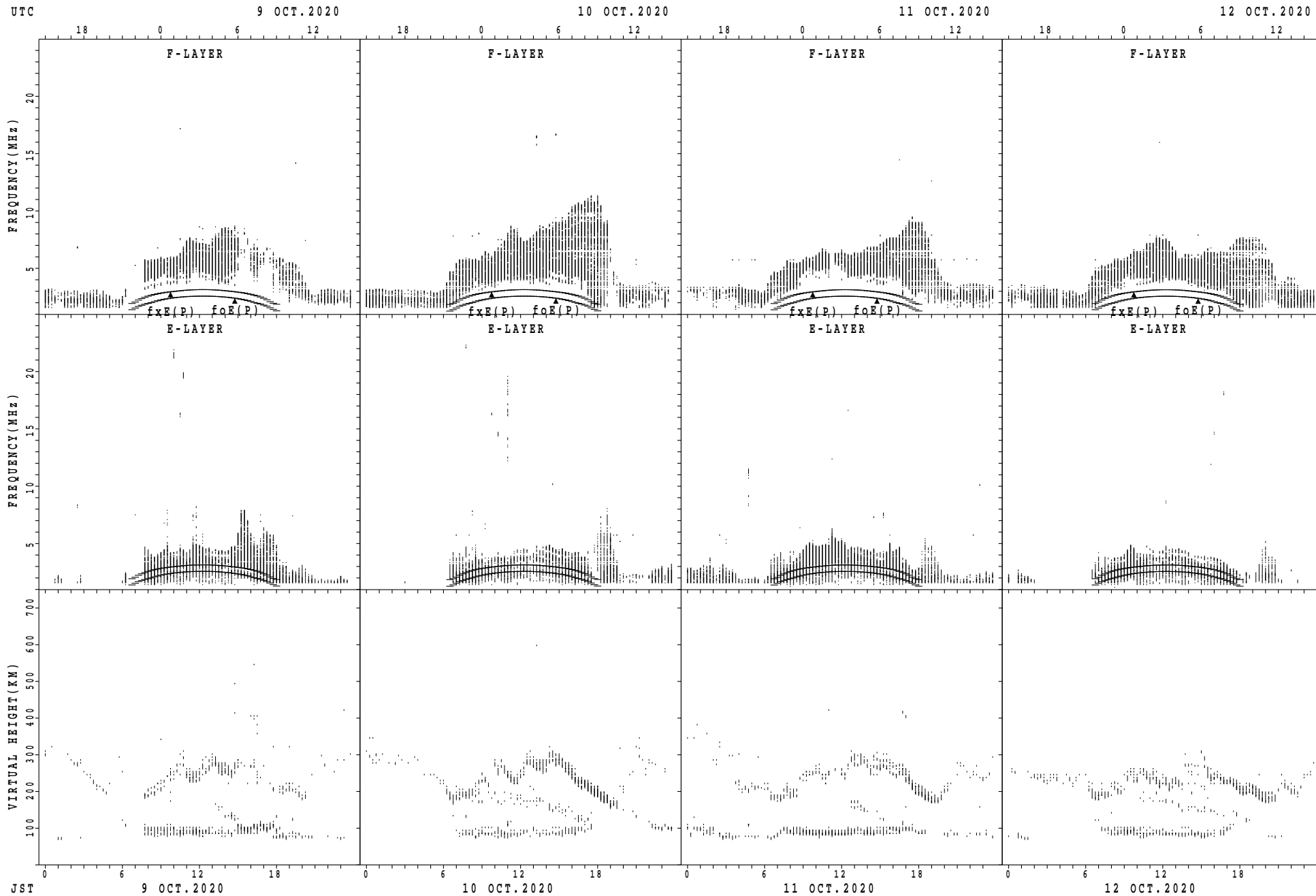
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



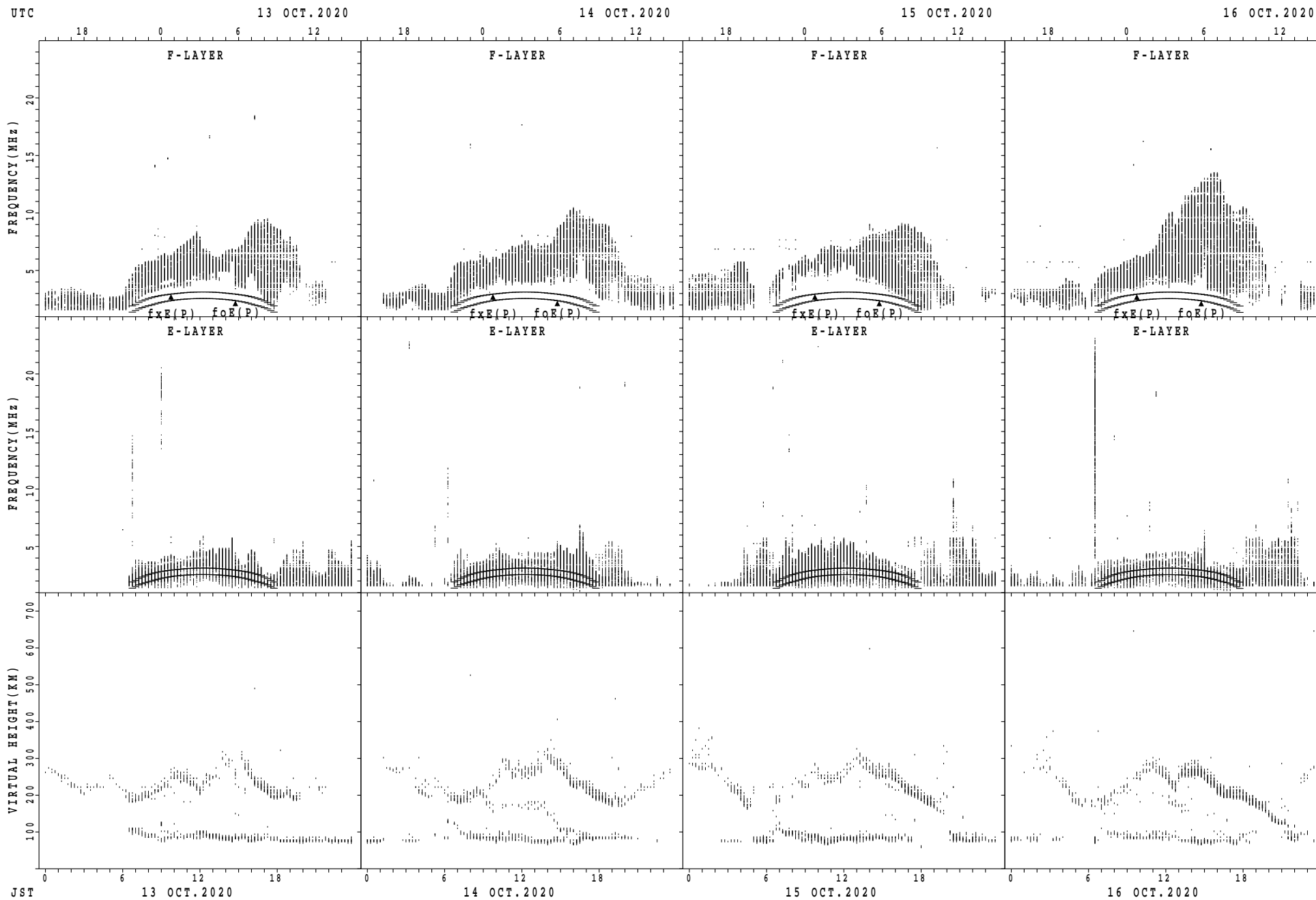
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



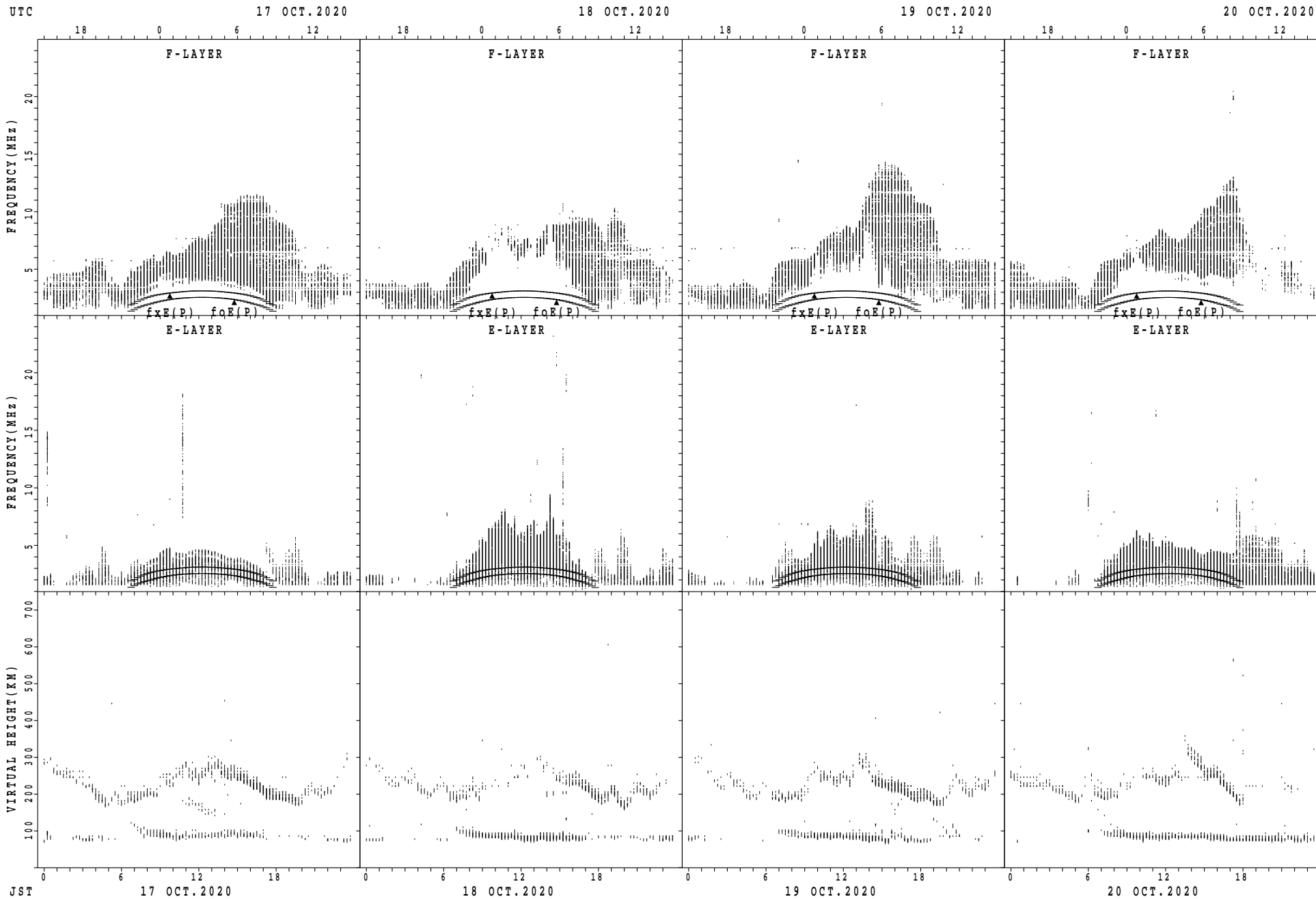
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



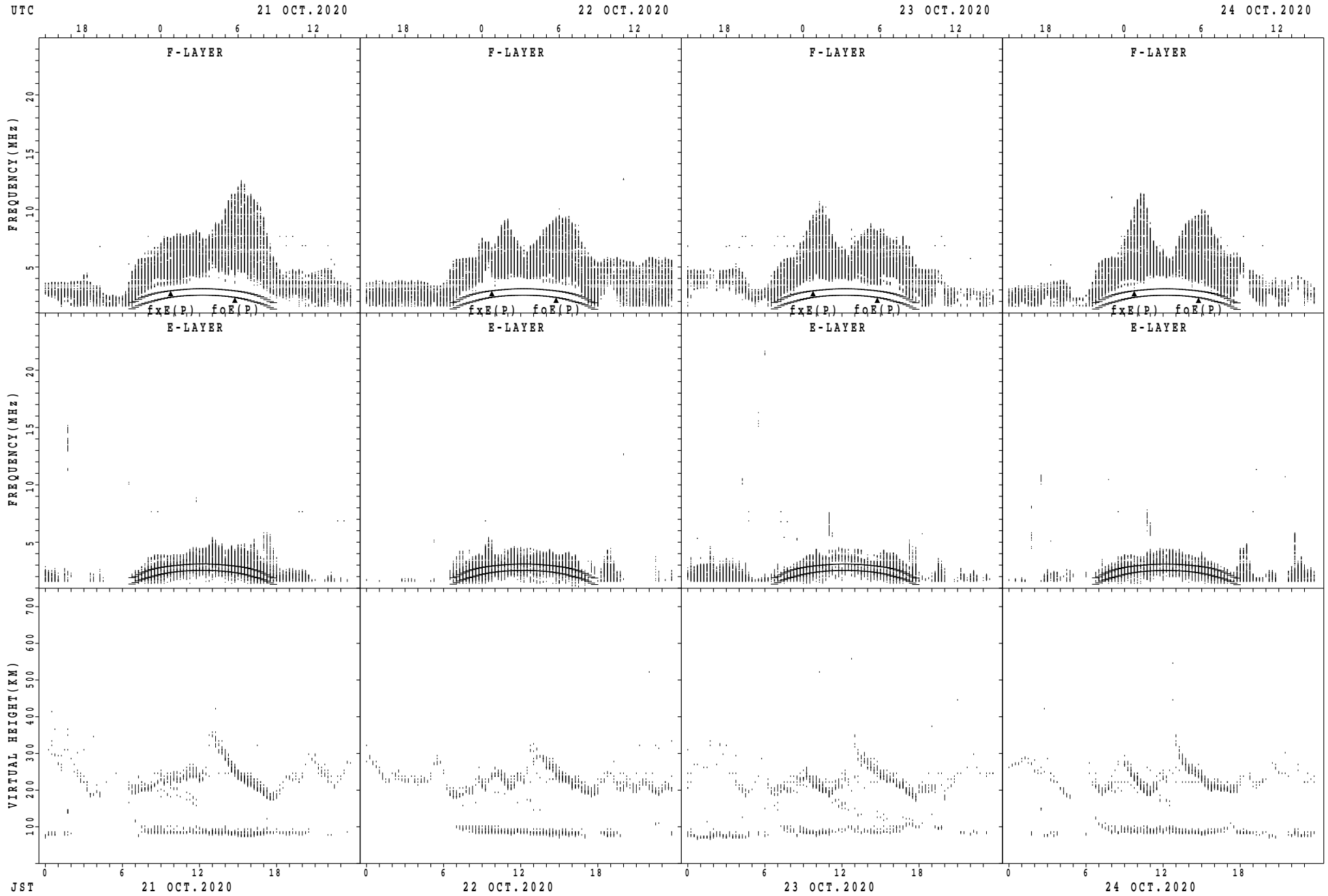
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



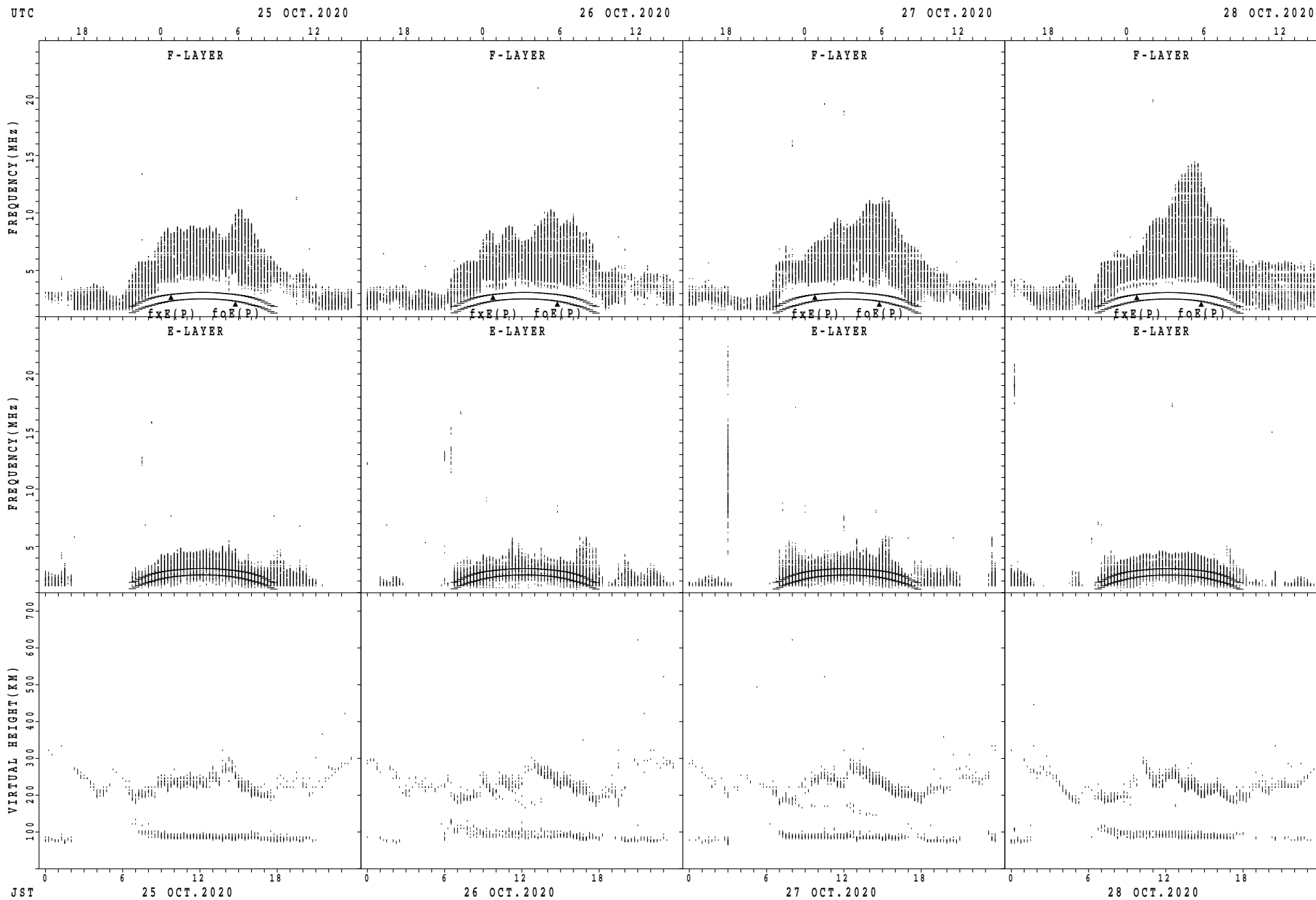
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



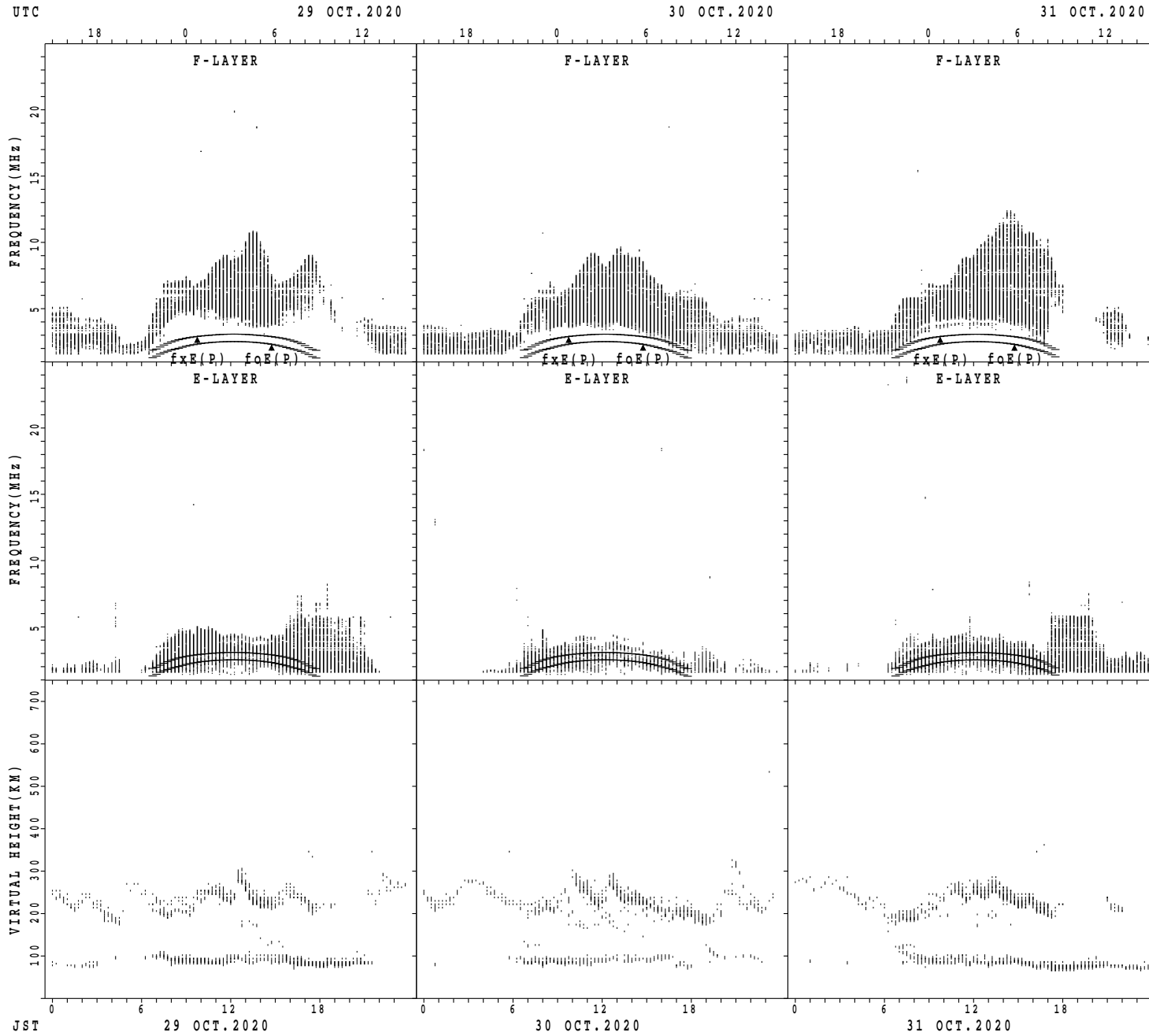
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



MONTHLY MEDIANS OF h'F AND h'Es
 OCT.2020 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2		1	7				2	4	2	6					1	1	
MED							266		212	226				221	238	224	224					234	252	
U Q							326		106	234				226	248	238	230					117	126	
L Q							206		106	224				216	232	210	220					117	126	

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	27	25	24	27	23	27	30	31	31	27	28	28	28	28	29	28	23	23	26	24	27	25	23
MED	96	96	98	98	98	98	98	98	98	100	98	98	98	98	98	98	98	96	98	96	97	98	96	96
U Q	98	98	98	98	98	98	143	100	100	100	100	100	100	100	98	99	100	98	98	98	98	98	98	98
L Q	96	96	96	96	96	96	96	98	98	98	96	96	96	95	94	96	96	92	96	94	95	96	95	96

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	11	7					4	11	9	4	1					
MED								211	224	218					237	242	228	224	208					
U Q								214	248	228					246	250	237	226	104					
L Q								208	220	210					227	224	220	221	104					

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	22	17	19	13	13	19	31	31	31	30	30	30	31	30	31	31	25	24	26	25	20	23	23
MED	98	98	96	98	98	98	100	98	98	98	98	98	98	96	96	98	98	98	98	98	96	98	98	98
U Q	98	98	98	98	98	98	137	98	100	100	98	99	100	100	98	98	98	98	98	98	98	98	98	98
L Q	95	96	96	96	95	95	98	98	98	96	96	96	96	96	96	96	98	96	96	96	96	96	96	96

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	3	11						11	14	12	5	1				
MED								200	250	234						238	234	218	208	216				
U Q								100	274	250						252	244	236	231	108				
L Q								100	230	226						230	218	213	202	108				

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	20	18	15	14	16	13	30	31	31	31	31	31	31	31	31	31	29	27	30	25	24	22	22
MED	96	96	96	96	98	96	98	98	100	98	98	98	98	98	98	98	98	98	96	98	96	96	97	96
U Q	98	98	98	98	98	98	98	98	102	100	100	98	100	100	98	100	100	98	98	98	98	98	98	98
L Q	96	94	96	96	96	96	97	98	98	98	98	98	96	94	94	96	94	95	94	96	96	94	96	96

MONTHLY MEDIANS OF h'F AND h'Es
 OCT.2020 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

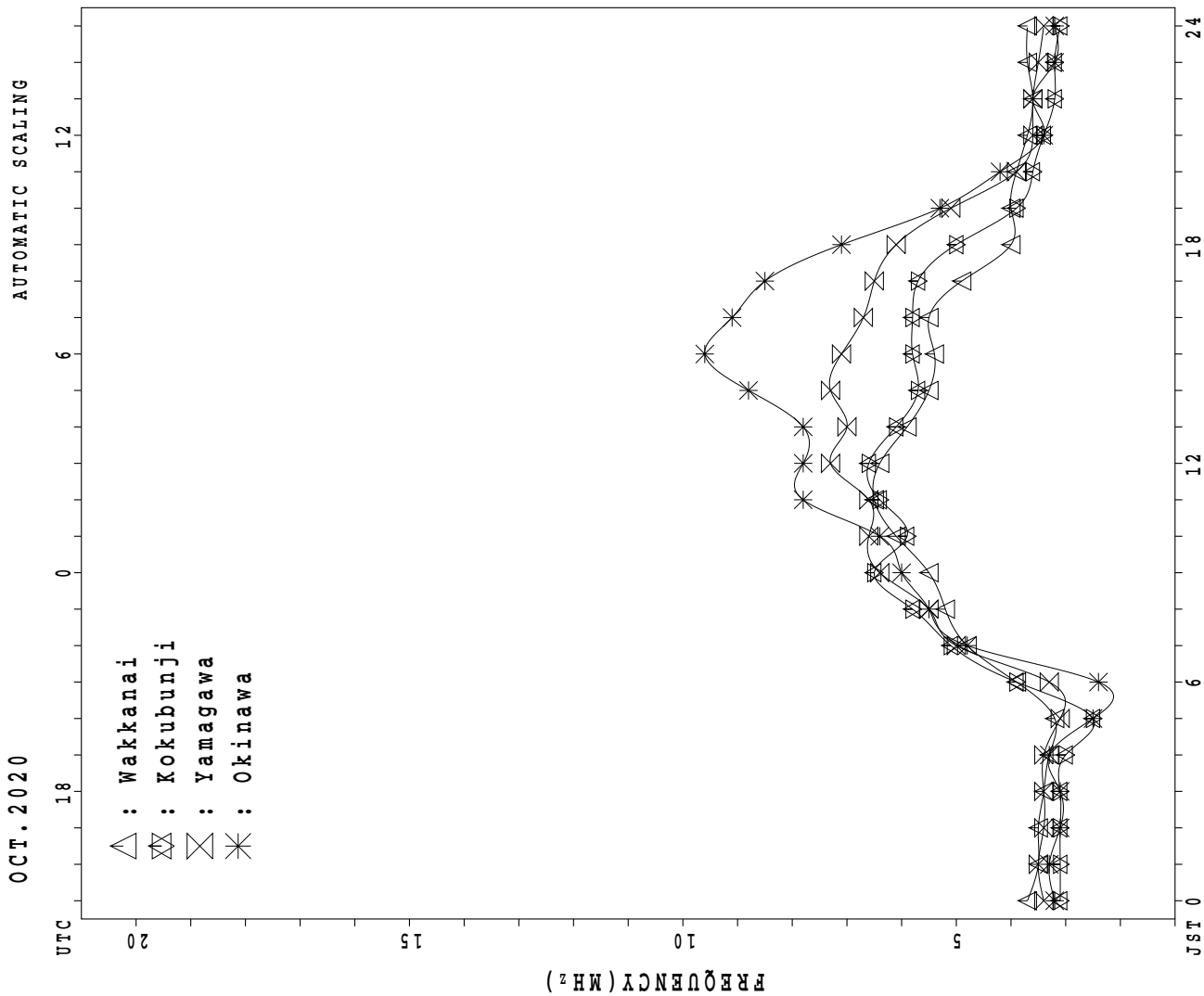
h'F STATION Okinawa LAT. 26°41.0'N LON. 128°09.0'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	15						8	28	22	15	8	2			
MED									208	236						224	226	208	208	211	204			
U Q									104	238						227	242	230	216	233	208			
L Q									104	220						217	218	206	202	202	200			

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	25	19	18	14	13	17	29	30	30	31	31	31	31	30	30	31	31	29	29	29	29	25	22
MED	96	98	98	96	98	98	96	98	98	98	98	98	98	98	98	98	98	96	98	98	98	98	96	96
U Q	98	98	98	96	98	98	98	100	100	98	98	98	98	98	98	100	98	98	99	99	98	98	98	98
L Q	96	96	96	96	96	95	94	98	98	98	96	96	96	96	96	94	96	94	94	95	96	94	94	96

MONTHLY MEDIANS PLOT OF fOF2



IONOSPHERIC DATA STATION Wakkanai

OCT.2020 f_{XI} (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

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

OCT.2020 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2020 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT. 2020 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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	L	L	404	L	L	L	L									
2								L	L	L	L	L	L	416	L	L	L								
3							L	L	L	L	L	L	L	400	356		224								
4								L	L	412	L	L	L	L	368	L	L								
5							L	A	L	L	L	L	A	L	L	A	L								
6							L	L	L	L	L	L	L	L	L	L	L								
7								L	L	L	L	L	L	L	L	L	L								
8								L	404	404	404	L	L	L	L	L									
9								L	L	412	412	L	412	400	L										
10								L	400	572	L	A	L	L	L	L									
11							L	L	L	L	L	L	L	380	L	L									
12							L		L	400	C	C	C	404	C	C									
13								L	396	C	C	C	C	C	C	C									
14							L	L	392	C	C	C	C	C	C	C									
15								L	L	C	C	C	C	C	C	L									
16									384	A	424	404	408	L	L	L	L								
17								344	L	L	396	L	L	L	L	L									
18									L	L	L	408	L	L	L	L									
19								L	L	A	L	404	L	L	L	L									
20							L		L	L	L	L	L	L	L	L									
21								L	L	L	584	L	408	L	L	L									
22									L	L	L	L	L	L	L	L									
23							256	L	376	L	L	404	L	L	L	L									
24								L	388	388	396	396	L	L	L	L									
25								L	L	L	L	404	L	L	L	L									
26								A	L	C	L	356	L	L	L	L									
27							L		L	L	L	L	L	L	244	L									
28								L	376	408	L	L	L	L	L	L									
29							248	L	L	L	L	L	L	368	L	L	L								
30								L	L	L	L	384	L	L	L	L									
31									L	392	392	L	L	L	L	L									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								2	1	10	8	9	9	8	3		1								
MED								252	344	394	406	396	404	402	356		224								
U Q									404	414	414	410	408	368											
L Q									384	396	394	400	390	244											

OCT.2020 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A 208	236	252	288	288	300	288	276	240	216		B						
2							B 164	188	224	260	296	304	304	292	276	252	220	A						
3							200	252	284	292	296	304	296	296	268	248	208	188						
4							188	208	252	284	292	280	292	288	276	240	188		B					
5							172	216	284	280	288	304	304	292	268	180	212		B					
6							180	208	240	236	276	268	240	A 244		A	A							
7							A 240	A 268	276	284	292	292	276	252	216									
8							248	256	280	280	292	292	A 300	236	212									
9							212	248	284	284	308	308	288	272	248	196								
10							244	256	268	288	288	A 272	A 252	192										
11							204	248	280	308	308	308	264	292		A	A							
12							224	240	284	300	292	316	292	260	236	180								
13							204	244	284		C	C	C	C	C	C	A							
14							200	256	280		C	C	C	C	C	C	184							
15							192	248	280		C	C	C	C	C	A	A							
16							208	240	268	292	292	292	240	208	248		A							
17							200	248	256	256	292	A 272	A 176	180										
18							196	244	280	280	256	260	236	184	244	200								
19							212	248	264	288	296	276	A 240	168	168									
20							196	248	276	288	296	284	244	248		A	A							
21							220	256	268	280	280	280	248	176	228		A							
22							216	240	264	280	248	264	284	192	168									
23							208	236	252	232	284	284	A 256	204	208									
24							188	232	252	280	300	276	280	252	220	188								
25							188	248	272	280	280	288	268	248	204	192								
26							208	220	256		C 288	A 288	A 252	220		A								
27							184	232	292	264		A 264	A 240	268		A								
28							188	236	236	252	264	268	268	260	236	164								
29							196	228	256	276	276	280	260	240	228	164								
30							180	240	248	280		A 288	A 244	224	176									
31							216	232	272	284		A 272	272	272	232	188								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	30	31	31	27	25	24	21	26	25	22	1						
MED							180	208	244	268	280	288	288	272	258	236	190	188						
U Q							194	216	248	280	288	298	298	290	272	248	208							
L Q							168	196	236	256	276	280	276	262	244	212	180							

OCT. 2020 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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

OCT. 2020 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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

OCT. 2020 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Wakkanai

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

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

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

OCT.2020 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

OCT. 2020 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	303 ^F	271 ^F	303	296	284	321 ^F	372	366	365	365	337	347	356	353	356	356	356	355	330	342	338	306	294	293	
2	300	299	332	331	331	362	366	342	361	324	351	336	348	348	353	345	352	352	339	325	331	317	316	315	
3	302	328	304	312 ^V	320	362	382	365	344	377	353	356	371	361	354	354	367	355	338	335	322	322	319	319 ^F	
4	318	307	327	310	315	357	376	378	350	333	356	369	352	362	345	353	351	362	357	338	308	307	307	287 ^F	
5	318 ^F	307 ^F	318	330	359	331 ^F	379	379	358	363	331	346	380	379	355	334	342	341	341	340	326	326	303	282 ^F	
6	306 ^F	296 ^F	285 ^F	315		371	345	357	325	355	325	341	341	340	349	364	339	313	310	289 ^F					
7					313	317	364	350	362	313	361	357	350	353	344	344	345	345	334		322	321	298	297	
8	296	296	295	295	327	322	390	387	362	337	356	355	354	364	376	359	358	354	334	328	325	325	312	321	
9	316	303	303	302	302	326 ^F	402	375	362	362	360	360	383	371	366	363	363	348	345	320	317		324	323	
10				317			400	383	383	362	266	379	352	352	363	359	366	354	244	338	335	330	329	326	
11	326	315	322	321	312	307 ^F	368	379	379	378	346	366	366	365	358	358	357	369	335	332	329	341	326	323	
12	337	335	331	324	323	323	376	376	347	368	365	364	364	352	352	352	352	358	333	338	324	323	322	322	
13	336	335	349	325	324	324	382	383	371	370							356	356	342	341	324	313	335	332	
14	339	321	318	328	325	325	378	380	379	353							352	363	335	336	335	335	334	314	
15	334	314	329	318	317	356	398	390	378	339							339	368	380	370	342	313	310	307	322
16	319	362	333	317	327	385	384	393	381	362	351	351	362	357	354	332	356	365	328	324	324	318	333	330	
17	311	324	321	318	323	350	354	390	374	363	362	362	361	371	350	350	349	349	322	322	337	344	344	321	
18	302			309	295	312	368	393	375	382	319	371	358	383	353	366	351	349	348	340	340	340	314	305	
19	346	306	301	314	313	315	368	367	367	377	377	371	374	358	358	320	377	363	362	298	306	327	317	316	
20	312	312	334	328	313	312	379	379	355	363	362	345	359	358	336	366	365	365	323	332	332	326	313	312	
21	312	337	280	313	283	344 ^F	367	375	390	373	373	268	362	373	359	347	360	360	352	336	327	315	315	326	
22	326	327	326	311	310	310	349	349	363	371	345	356	361	360	359	337	365	350	347	317	317	316	316	313	
23	313	313	313	312	351	351	351	384	351	372	372	320	360	360	353	352	352	351	337	334	323	319	309	308	
24	327	326	314	314	301	282 ^F	337	339	312	367	346	366	369	341	350	356	355	375	307	303	303	327	304	314	
25	311	277	295		326	308 ^F	335	365	364	347	363	378	378	354	354	372	335	334	347	343	332	320	298	298	
26	274	273	291	326	304	328	349	333	359	358		387	362	361	361	360	360	376	365	351	351	317	298	298	
27	297	297	313	313	346	306 ^F	341	356	356	371	370	361	351	368	327	346	351	350	349	336	335	334	319	353	
28	283	282	283	315 ^F	314	322 ^F	345	379	379	373	338	359	368	331	368	367	361	358	333	332	332	332	324	299	
29	298	297	285	313	340	347	347	375	349	363	371	371	370	367	356	356	356	350	347	332	356	299	299	298	
30	298	314	325	294	278	308	361	390	377	352	336	361	364	358	354	362	362	359	325	325	325	325	324	323	
31	325	325	316	316	315	354	353	373	380	380	371	334	367	367	366	356	343 ^V	362	307	322	342	327	326	310	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	29	28	29	29	29	31	31	31	31	27	28	28	28	28	29	31	31	31	30	31	29	30	30	
MED	312	312	315	315	315	324	368	376	363	363	356	360	362	360	354	354	356	355	337	333	326	323	316	314	
U Q	326	326	326	322	326	350	379	383	378	372	365	368	368	367	359	360	363	363	347	338	335	328	324	323	
L Q	301	296	298	312	307	312	351	365	356	352	345	346	355	353	351	346	351	350	328	324	322	316	307	299	

OCT. 2020 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

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

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

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	L	L	414	L	L	L	L								
2								L	L	L	L	L	L	359	L	L	L							
3							L	L	L	L	L	L	L	395	409	L	395							
4								L	L	359	L	L	L	L	410	L	L							
5							L	A	L	L	L	L	A	L	L	A	L							
6							L	L	L	L	L	L	L	L	L	L	L							
7								L	L	L	L	L	L	L	L	L	L							
8								L	L	364	381	395	L	L	L	L	L							
9								L	L	L	L	L	L	L	L	L	L							
10								L	L	393	350	A	L	L	L	L	L							
11							L	L	L	L	L	L	L	423	L	L								
12							L	L	L	402	L	L	L	398	L	L								
13								L	L	376	C	C	C	C	C	C								
14							L	L	L	394	C	C	C	C	C	C								
15								L	L	L	C	C	C	C	C	L								
16									L	416	A	390	409	387	L	L	L							
17								429	L	L	L	L	L	L	L	L								
18									L	L	A	L	L	391	L	L	L							
19								L	L	L	L	L	L	380	L	L	L							
20							L	L	L	L	L	L	L	L	L	L	L							
21								L	L	L	L	L	L	344	392	L	L							
22									L	L	L	L	L	L	L	L								
23							397	L	L	393	L	L	L	404	L	L	L							
24								L	L	375	388	395	402	L	L	L								
25								L	L	L	L	L	L	383	L	L								
26								A	L	C	L	L	L	413	L	L								
27							L	L	L	L	L	L	L	L	525	L								
28								L	L	412	408	382	L	L	L	L								
29								L	L	L	L	L	L	383	L	L	L							
30								L	L	L	L	L	L	L	L	L								
31									L	L	L	L	L	L	L	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	1	10	8	9	9	8	3	1								
MED							404	429	388	382	396	391	394	410		395								
U Q								394	393	418	406	398	525											
L Q									375	370	392	379	385	409										

OCT. 2020 M(3000)F1 (0.01)

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OCT. 2020 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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								238	244	262	300	256	256	250	250	250									
2								232	262	306	260	282	264	268	256	256	252								
3							228	236	288	242	258	268	244	248	248	230	230								
4								230	222	288	246	246	250	252	242	242	224								
5							212	214	246	254	254	254	224	228	246	234	252								
6							222	242	248	280	240	254	264	260	260	244	228								
7									244	308	254	254	248	256	256	238	238								
8									238	286	252	242	242	248	238	242									
9								232	260	260	260	252	228	242	248										
10									236	236	418	230	246	254	236	248									
11								234	228	234	252	240	240	242	242	242									
12								228		234	268	238	248	258	240										
13									240	254	C	C	C	C	C	C									
14								216	222	254	C	C	C	C	C	C									
15									220	252	C	C	C	C	C	260									
16										238	252	240	228	228	246	246	236								
17									222	240	240	232	232	232	244	244									
18										302	232	238	228	268	224										
19									224	228	232	236	236	224	228	238									
20								216			234	250	238		254		230								
21									214	230	240	436	236	230	230	252									
22											242	242	234	220	250										
23								220	244	234	238	238	236	226											
24									290	238	244	226	226	240	246	232									
25									232	252	234	226	234	234	240										
26									260	236	C	224	242	242	242										
27								222		234	234	234	234	226	232	236									
28								214	224	232	266	222	222												
29								220			244	222	222	230	238		218								
30								210		248	216	236	228		228										
31										238	238	238	230	230		230									
	00	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	16	22	27	27	28	28	25	25	19	9								
MED							222	225	239	242	246	239	236	240	244	242	230								
U Q							228	233	248	260	260	253	245	251	250	248	245								
L Q							212	216	224	234	238	232	229	228	238	234	226								

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OCT. 2020 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1		236 ^Q	262 ^Q	240	258	238	220 ^Q	200	200	212	184	184	178	208	180	190	198	222	228	228	238	238	250	294 ^Q	264 ^A	
2		264	274	248	238	238	206	204	198	188	200	180	194	210	194	188	200	200	220	220	268	232	232	256		
3		256	258	260	270	248	218	208	208	202	218	184	184	184	194	200	196	210	240	216	228	246	244	232	242	
4		228	272	246		256 ^A	220	208	196	180	208	204	184	200	200	192	212	212	210	208	240	256	256	256	262 ^Q	
5		240	258	246	234	202	240			202	202	196	190	176	198	208		194 ^A	230	204	232	224	230	278 ^Q	284 ^Q	
6		258	274	262	262	244	206	184	204	188	222	214	192	230	196	212	212	196	232	256	232	262	246	260 ^Q	252 ^Q	
7		244 ^Q	236 ^Q	232	226	232	232	220	212	196	194	206	188	200	204	198	198	210	220	220	220 ^Q	236	238	270 ^Q	270 ^Q	
8		270 ^Q	274	274	256	246	206	204	210	210	214	214	194	186	198	212	202	228	210	226	238	238	238	236 ^Q	232	
9		242	248 ^Q	248	262 ^Q	246	226 ^Q	178	192	204	210	212	202	202	192	192	236	212	220	200	228	246	232 ^Q	224	210	
10		234 ^Q	248	248	226	226	194 ^Q	200	214	200	218	244		178	178	218	196	224	224		234 ^A	206	234	224	244	
11		244	248 ^Q	248	238	258	238 ^Q	216	216	204	200	194	194	194	190	204	204	234	212	212	230	222	222	234	246	
12		222	204	228	242	242	228	200	194	224	216	200	196	196	192	204	234	214	214	232	226	226	238	248	248	
13		218	218	218	232	234	250	202	210	210	210								230	204	218	242	242	238	230	230
14		212	234	238	238	238	226	194	188	202	196								226	202	218	232	220	224	230	240
15		238	246	246	250	228	210	186	200	190	200							210	234	204	204	210	240	240	254	256
16		232	232	240	234	236	184	194	194	194	194		214 ^A	186	186	188	188	198	214	230	222	222	208 ^Q	216	210	
17		240 ^Q	240	240	224	200	200	204	184	212	200	194	200	198	192	202	214	214	228	228	212	206	214	230		
18		238	224 ^Q	236	212	210	200	210	198	220	220	190	222	196	188	198	204	232	214	228	246	214	230	236	264 ^Q	
19		230 ^Q	252 ^Q	274	236	236	214	194	204	184	184		200 ^A	200	192	200	194	216	216	216	250 ^A	264	258	258	264	
20		264	250	226	238	246	220	196	172	208	220	214	214	198	222	192	240	200	206	224	234	224	232	268	254	
21		240 ^Q	220	246 ^Q	254	260	222	222	212	200	200	210	232	208	202	198	198	228	202	222	238	278	260	262	240	
22		236	236	242	254	254	226	210	212	212	222	200	200	190	190	188	238	212	212	222		240	250	238	254	
23		262	254	236	244	232	206	230	178	196	196	186	198	190	190	222	216	220	204	220	228	244	228	246	246	
24		240	230	244	244	236	212 ^Q	208	228	216	200	196	196	190	184	184	170	222	200	210	248	220	232	232	220	
25		242	250	250	254	240	258	232	228	210	198	204	202	196	202	214	222	226	226	200	218	236	236	262	274	
26		282 ^Q	282 ^Q	282	236	250	238	222	234		198			180	206	206	226	214	200	200	218	218	266	300	290	
27		266	272	248	248	220	264	248	202	220	198	198	198	198	182	190	198	218	218	218	218	220	220	262	228	
28		246	264	264 ^Q	264	242	242	224	188	192	186	218	196	184	226	226	236	226	218	248	232	232	246	264	280	
29		246	268 ^Q	268	238	224	218	218	180	220	222	214	214	184	220	198	226	204	214	222	232	222	236	272	196	
30		260	260	250	294 ^Q	302	256	220	194	208	192	192	190	204	228	194	226	212	202	206	238	256	252	232	246	
31		214	252	262	256	262	208	208	208	212	200	190	196	196	182	222	204	210	210	256	244	224	206	234	238	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		31	31	31	30	31	31	30	30	30	31	25	26	28	28	28	28	31	31	30	30	31	31	31	30	
MED		240	250	246	243	238	220	208	203	203	200	200	196	196	194	198	204	214	214	220	232	232	236	248	246	
U Q		258	264	260	256	248	238	220	212	212	216	213	202	200	202	210	226	226	220	228	238	244	246	262	264	
L Q		234	236	240	236	232	206	200	194	194	196	191	192	186	189	192	198	210	204	210	228	222	230	232	232	

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OCT.2020 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A 106	106	106	106	106	100	100	100	100	112		B						
2							B 96	100	100	100	100	100	100	100	106	108	108	A						
3							106	110	110	98	110	98	110	108	108	108	108	108						
4							94	108	108	108	108	104	118	112	112	112	112	B						
5							112	102	110	108	108	102	104	104	90	90	90	B						
6							122	A 96	96	96	96	96	90	A 90		A 90	A 90							
7							A 92	A 92	102	102	102	102	102	102	102	102	102							
8							114	102	102	102	102	102	94	A 98	106	106								
9							106	106	106	106	106	106	106	A 106	A 106	106	106	108						
10							108	108	108	104	104		A 104	A 106	106	118								
11							110	96	98	102	102	102	102	102	102		A 102	A 102						
12							102	102	102	102	102	102	102	102	102	102	102							
13							102	102	102		C	C	C	C	C	C	C	A						
14							102	100	100		C	C	C	C	C	C	100							
15							102	102	102		C	C	C	C	C	A	A							
16							102	102	102	102	102	102	98	A 92	92	98	A 98							
17							104	104	104	94	104		104	A 104	104	104	104							
18							106	106	100	100	88	88	94	A 94	94	98	102							
19							110	104	106	100	100	100		A 100	100	100	100							
20							110	106	106	106	100	100	90	106			A 106	A 106						
21							106	98	98	96	96	96	96	96	96	102	A 102							
22							110	100	100	100	100	100	116			88	88							
23							104	104	104	92	92	104	96	96	96	96								
24							98	98	98	98	98	98	98	98	98	98	112							
25							112	112	106	106	106	102	A 96	A 104	94	94	A 94							
26							114	106	106	100	100	A 100	A 100		100	100	A 100							
27							120	108	108	108		A 94	A 106	106			A 106							
28							116	110	102	102	96	106	96	96	98	104								
29							104	104	104	104	104	A 104	A 104	A 104	104	108	108							
30							90	108	108	108		A 108		102	104	102	B 102							
31							94	86	102	112		A 96	100	100	100									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	30	31	31	28	25	24	22	26	25	21	1						
MED							109	106	104	102	102	102	102	100	101	102	104	108						
U Q							117	110	108	106	106	104	104	104	104	106	108							
L Q							100	102	100	100	100	98	99	96	96	98	100							

OCT.2020 h'E (KM)

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OCT.2020 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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	B	B	B	B	98	B	110	104	104	98	134	86	160	G	G	G	102	102	102	102	102	120	90	B
2	90	98	B	B	104	98	104	104	104	94	96	160	150	150	134	172	G	100	100	100	100	94	104	94
3	94	100	92	96	112	112	102	102	104	102	96	94	94	148	G	G	G	108	96	B	96	B	B	96
4	94	90	90	90	92	92	92	140	106	100	102	94	164	194	G	160	130	B	96	96	96	98	98	98
5	88	86	86	94	94	B	146	124	112	112	134	G	172	156	150	94	106	B	B	100	108	96	96	96
6	102	106	106	106	102	102	154	144	144	112	104	104	154	88	100	92	90	90	90	94	94	94	88	100
7	100	100	96	96	96	96	92	92	92	92	96	G	152	176	120	92	92	92	92	B	92	92	86	B
8	B	B	B	B	96	120	96	152	132	120	106	106	104	100	162	156	156	B	B	100	96	96	96	92
9	B	100	108	106	102	102	B	138	104	100	116	96	122	104	104	164	146	B	B	B	B	84	B	B
10	92	92	B	B	B	B	102	120	116	108	104	100	100	90	156	140	160	92	92	92	92	92	92	92
11	100	94	94	94	94	94	140	154	154	118	108	108	108	98	154	110	110	B	92	92	92	92	92	92
12	92	92	92	92	B	90	B	168	172	166	166	124	G	G	C	C	C	B	92	92	B	B	92	92
13	92	92	92	92	104	98	100	142	120	110	C	C	C	C	C	C	90	90	90	90	90	90	112	B
14	98	B	B	B	B	92	92	138	92	118	C	C	C	C	C	C	140	B	94	84	B	B	B	B
15	B	B	B	94	118	90	90	120	144	112	C	C	C	C	C	102	102	112	116	104	104	104	96	96
16	102	102	86	86	B	100	100	154	136	108	108	108	94	98	98	G	98	98	98	98	98	100	100	100
17	92	106	102	102	B	100	94	124	110	110	110	100	100	100	100	100	134	92	102	108	B	B	102	102
18	104	104	104	98	98	98	B	150	112	112	106	106	106	106	96	154	94	116	118	98	106	96	96	B
19	B	100	100	100	92	94	94	110	160	160	100	100	112	100	94	98	98	98	98	98	92	90	104	104
20	94	94	102	102	102	102	102	90	128	116	104	104	104	102	102	96	96	B	96	96	96	96	B	B
21	B	96	92	98	100	100	100	130	130	108	96	100	154	98	98	98	98	98	102	102	92	106	96	86
22	96	96	96	96	104	B	104	138	122	104	106	96	108	108	90	100	100	100	100	100	100	100	96	96
23	90	90	90	B	102	102	108	108	116	116	98	86	92	88	84	108	86	86	B	B	B	98	98	90
24	90	92	B	92	B	B	B	122	110	108	98	98	138	94	110	110	130	B	B	B	B	94	94	94
25	94	94	88	98	98	B	126	112	104	104	104	86	104	120	154	140	G	B	B	B	B	B	B	B
26	92	92	92	92	92	96	B	120	104	104	92	156	100	100	G	100	100	B	94	84	102	106	98	98
27	98	98	98	B	88	104	106	140	106	106	106	106	96	96	G	96	96	96	96	96	96	108	96	96
28	102	102	102	110	102	102	102	148	146	106	106	98	98	162	92	88	100	100	100	92	92	96	96	96
29	96	96	88	104	94	B	B	G	136	112	172	100	176	150	154	112	G	86	106	118	100	94	94	B
30	94	88	88	96	100	100	100	104	104	104	104	104	160	94	128	150	96	90	B	90	90	90	90	B
31	B	94	94	94	94	B	92	94	142	G	110	98	98	98	142	132	B	100	100	100	100	92	92	92
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	27	24	24	25	23	25	30	31	30	28	26	27	26	23	26	26	21	23	25	25	25	24	23
MED	94	96	93	96	98	100	102	124	116	108	105	100	108	100	104	109	100	98	98	98	96	96	96	96
U Q	99	100	101	101	102	102	107	142	136	112	109	106	154	148	150	148	130	100	102	100	100	99	98	98
L Q	92	92	90	93	94	94	94	108	104	104	99	96	100	98	96	98	96	91	94	92	92	92	92	92

OCT.2020 h'Es (KM)

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IONOSPHERIC DATA STATION Wakkanai

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

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

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				F1		L3	C3	C2	C1	C1	LC11	C1				C2	L1	F3	F5	F3	F1	F1			
2	F4	F2		F2	F2	L3	C3	C3	C3	LC21	C1	C1	C1	C2	CL21		L3	F4	F3	F2	F1	L1	F5		
3	F3	F2	F2	F1	F1	L5	LC31	C4	LC21	LC11	LC21	LC21	CL11				C3	C1		F1				F3	
4	F2	F3	F1	F6	F4	F1	C2	C1	C2	LC21	LC11	LC11	H1	H1	H1	CC21		FQ11	F3	F3	F2	F4	F2		
5	F1	FF11	F1	F1	F1	H2	C2	C4		H1		H1	H1	H1	C4	C1		F1	FF11	FF11	FF21	FF21	FQ11		
6	F3	F3	F1	FF21	F1	F2	H1	H2	HL11	C2	C2	HC11	L2	L2	L2	L2	F4	F4	F3	F2	FQ11	F1	F2		
7	F1	F1	F2	F2	F3	F2	L4	L3	LC41	LC31	LC11		HL11	HL11	CL22	LC21	LC21	F3	F1	F2	FQ11	F1			
8				F1	F1	F1	HL21	HL21	C3	C2	C2	C2	C2	C2	HL22	HL22	HL22		FQ21	FQ21	F1	FF11	F1		
9		F1	F1	F1	F1	F2		HL21	LC22	LC11	CL21	LC11	CL21	LC11	C1	CL21	CL21				F1				
10	F2	F1				F1	C3	C2	C2	C3	C3	L3	L3	H3	H2	H2	F3	F8	F4	F6	F3	F1	F1		
11	F3	F2	F3	F2	F1	F1	F1	H2	H2	C2	C2	C3	C3	C2	HL21	L2	L2	F3	F6	FQ21	FQ21	FQ31	F1		
12	F1	F1	F1	F1		F1	H2	HC22	CC22	C2	CL22				LC11	CL21	C2	F1	F1			F1	F1		
13	F2	F4	FQ21	FQ21	FQ11	F1	FF11	CL22	CL21								L5	FQ41	FQ31	F2	F1	F1		F1	
14	F2				F1	F1	C2	LC31	C2							H2		F1	F1						
15			F2	F2	F1	F1	C2	H2	C3						L2	L4	F2	F1	F1	F2	FF21	F4	F3		
16	F2	F2	F2	F1		F1	FQ12	H2	HL22	C2	C5	C3	C2	C3	C2	L4	F3	F2	F1	F3	F3	F1	F1		
17	F1	F1	F1	F2		F1	F1	C2	C2	C3	C2	C3	L3	LC21	C3	CL22	F3	FQ21	F1			F3	F3		
18	F6	FQ21	FQ21	FQ11	FQ21	F1	H2	C4	C2	C3	C2	C2	C2	C3	H2	LC11	F1	FQ21	F1	FQ11	FQ11	F1	F1		
19		FQ21	FQ11	F1	F1	F1	F1	CL31	C2	HL21	C3	C2	C2	L2	C2	LC31	FQ41	FQ31	FQ41	F2	F1	F1	F1		
20	F2	F1	FQ21	F1	F2	F2	FQ11	LC11	CL21	CL31	CL31	C3	C3	C3	C3	L2	L2	F2	F2	F1	F1				
21		F1	F1	F1	F2	F6	FQ31	CL22	CL21	C4	C3	C3	H1	C4	C3	L3	F4	FQ11	FQ11	FQ21	FQ21	FQ11	FQ21		
22	F1	F1	F1	F1	F1		F1	H2	C2	C3	C2	C3	C2	C2	L4	C3	C4	F5	F4	F5	F3	F2		F1	
23	FQ21	F2	F1		F1	FQ11	FQ21	LHQ11	C2	C2	C2	LC21	CL21	LC32	LC21	CL11	LC11	F1			FQ21	FQ21	FQ11	F1	
24	F1	F1		F1				C2	C2	C3	C2	C2	C2	LC11	C1	HL21	HL21					F5	F4	F3	
25	FQ21	FQ11	F1	F1	F1		F1	C2	LC12	C2	C2	LC21	C2	C2	HL11	HL21									
26	F1	F2	F2	F2	F1	F1		LC32	C4	C3	C1	H2	L2	L2		LC11	L2	F3	F2	F1	F1	F3	F3		
27	F1	F2	F2		F1	F2	F2	C2	C3	C2	C2	C3	L3	LC21		CQ21	LQ21	FQ21	F2	F2	F1	F1	FQ21	FQ21	
28	FQ21	FQ11	F1	F1	F1	F1	F1	H1	H2	C2	C3	C3	LC21	H1	L2	LC11	LC11	F1	F3	F3	FQ21	F1	F1	F1	
29	F1	F1	F1	F1	F2			C2	C2	HL11	HL11	CL21	HL11	HL11	CQ21		F1	F1	F1	F4		F1	F1		
30	FQ21	F1	F1	F2	FQ21	F4	F3	C2	C3	C3	C4	C2	LC21	L3	CL11	HL11	LC11	F1	F2	F2	F1	F1			
31		F1	F1	F2	F1	F1	LC11	C2		C2	L3	L3	C2	HL11	C2		F1	F1	F2	F2	F2	F2	F1		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
U Q																									
L Q																									

OCT. 2020 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT.2020 f_{XI} (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

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	X 38	X 37	X 33	X 37	X 36															X 58	X 39	X 33	X 34	X 36	
2	X 35	X 36	X 37	X 35	X 34															X 42	X 41	X 39	X 38	X 38	
3	X 38	X 37	X 36	X 33	X 34															X 57	X 47	X 42	X 42	X 42	
4	X 38	X 36	X 36	X 36	X 38															X 47	X 44	X 43	X 44	X 42	
5	X 42	X 42	X 39	X 37	X 30															X 45	X 33	X 33	X 34	X 34	
6	X 36	X 37	X 35	X 36	X 36															X 54	X 48	X 41	X 42	X 41	
7	54	51	48	46	44	38														X 44	X 44	X 40	X 40	X 45	
8	52	48	47	42	48	43														X 46	X 49	X 40	X 38	X 36	
9	43	42	40	40	34															X 53	X 42	X 41	X 44	X 42	
10	42	X 37	X 34	42	43	41													X 68	X 46	X 34	X 34	X 34	X 36	
11	X 38	X 38	X 38	X 36	X 34	X 33														X 57	X 48	X 49	X 42	X 43	X 43
12	46	40	39	35	34															X 44	X 43	X 42	X 43	X 39	
13	X 38	X 38	X 36	X 36	X 34															X 45	X 43	X 43	X 43	X 39	
14	X 39	X 39	X 38	X 38	X 38														X 63	X 39	X 37	A	X 33	X 35	
15	X 38	X 39	X 40	42	47															X 36	X 42	X 41	X 42	X 39	
16	43	45	42	42	42	47	56													X 43	X 38	X 42	X 39	X 40	
17	40	43	44	49	44	40														A	X 51	X 48	X 39	X 45	
18	47	50	50	51	37															X 41	X 42	X 40	X 39	X 38	
19	X 38	X 38	X 37	X 38	X 37															X 48	X 34	X 36	X 36	X 37	X 36
20	X 38	X 38	A	X 34	X 34															X 41	X 41	X 38	X 38	X 38	
21	X 38	X 38	X 36	X 36	X 36															X 37	X 40	X 42	X 43	X 43	
22	X 42	X 43	X 42	X 42	X 39															X 48	X 46	X 46	X 46	X 46	
23	X 43	X 42	X 41	X 38	X 36															X 47	X 39	X 42	X 40	X 38	
24	X 36	X 38	X 37	X 36	X 33															X 38	X 43	X 45	X 46	X 40	
25	X 37	X 37	X 37	X 37	X 42															X 49	X 36	X 37	X 38	X 38	
26	X 38	X 36	X 38	X 36	X 34														X 68	X 56	X 46	X 36	X 37	X 37	X 37
27	X 38	X 38	X 38	X 38	X 32															X 56	X 49	X 45	X 45	X 44	X 39
28	X 35	X 35	X 39	X 35	X 34															X 46	X 46	X 38	X 38	X 38	
29	X 37	X 37	X 38	X 40	X 35															X 56	X 41	X 33	X 34	X 39	
30	X 38	X 38	X 38	X 38	X 36															X 42	X 42	X 40	X 40	X 42	
31	X 38	X 38	X 38	X 37	X 35															X 42	X 45	X 47	X 32	X 34	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	30	31	31	6	1												1	6	30	31	30	31	31
MED	X 38	X 38	X 38	X 37	X 36	40	56												X 68	X 56	X 46	X 42	X 41	X 39	X 39
U Q	42	42	40	42	39	43													63	48	45	42	43	42	
L Q	X 38	X 37	X 37	X 36	X 34	38													X 56	X 42	X 39	X 38	X 37	X 37	

OCT.2020 f_{XI} (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

OCT.2020 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	32	31	27	31	30	25	51	51	58	63	60	70	79	64	57	56	58	64	65	52	33	27	28	30
2	29	30	31	29	28	24	40	50	58	66	51	64	70	68	58	55	54	59	51	36	35	33	32	32
3	32	31	30	27	28	24	40	48	58	56	51	65	74	69	62	54	52	49	50	51	41	F	F	37
4	32	30	30	30	32	21	38	48	54	58	60	77	73	60	53	51	58	60	52	41	38	37	38	36
5	36	36	33	31	24	24	38	46	64	62	56	68	61	61	50	59	58	70	68	39	27	27	28	28
6	30	31	29	30	30	24	44	48	61	56	61	60	62	70	65	65	64	53	42	48	42	35	36	35
7	F	F	F	F	F	F		42	50	63	56	65	64	55	60	60	54	55	61	49	38	38	34	34
8	F	F	F	36	F	F		38	45	50	65	61	58	58	60	54	58	65	60	56	40	43	34	32
9	F	F	F	F	28	24	38	47	55	56	54	57	68	64	54	52	44	52	55	47	36	35	38	F
10	F	31	28	F	F	F		40	49	58	67	54	58	62	60	48	58	62	70	62	40	28	28	28
11	32	32	32	30	28	27	43	54	56	55	56	56	58	56	58	64	60	50	51	42	43	36	37	F
12	F	34	33	29	28	27	39	51	56	58	54	58	70	55	52	49	53	60	61	38	37	36	37	33
13	32	32	30	30	28	29	41	52	56	55	58	60	67	62	57	61	65	50	53	39	37	37	37	33
14	33	33	32	32	32	30	45	55	54	58	57	58	55	54	56	56	55	62	57	33	31	A	27	29
15	32	33	34	F	F	25	40	49	53	60	59	62	56	53	55	61	71	59	40	30	36	35	36	33
16	F	F	36	F	36	F		52	52	54	52	66	84	56	51	55	54	58	58	37	32	F	33	F
17	F	F	F	F	F	F		45	53	55	62	52	60	62	60	A	58	59	59	52	A	45	42	33
18	F	F	F	F	31	28	40	51	59	65	64	61	70	59	53	56	53	53	49	35	36	34	33	32
19	32	32	31	32	31	31	41	53	61	62	59	66	66	60	57	63	54	58	42	28	30	30	31	30
20	32	32	A	28	28	27	48	54	59	59	60	68	68	56	70	68	60	58	41	35	35	32	32	32
21	32	32	30	30	30	26	38	50	62	66	63	63	58	69	69	71	64	54	40	31	34	37	37	37
22	36	37	36	36	33	31	42	51	58	72	66	56	70	65	60	58	59	59	52	42	40	40	F	F
23	37	36	35	32	30	26	38	53	53	77	68	68	64	63	58	60	59	51	52	41	33	36	34	32
24	32	32	31	30	27	25	34	53	54	91	80	62	64	64	61	71	60	54	38	32	37	39	40	34
25	31	31	31	31	32	28	43	49	76	66	68	83	62	60	70	61	55	56	45	43	30	31	32	32
26	32	30	32	30	28	26	37	68	54	74	61	62	74	66	64	71	66	62	50	40	30	31	31	31
27	32	32	32	32	26	25	38	66	63	64	66	72	69	69	67	60	66	68	50	43	39	39	38	33
28	29	29	F	F	28	26	40	55	62	65	56	74	68	V	60	52	58	57	53	48	40	40	32	32
29	31	31	32	34	29	23	37	58	70	70	62	67	64	57	66	71	67	54	51	50	35	27	28	33
30	32	32	32	32	30	30	41	57	59	66	58	73	72	68	64	57	53	54	40	36	36	34	34	36
31	32	32	32	31	29	28	37	55	63	68	60	66	61	61	61	57	59	54	40	36	39	41	26	28
	00	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	24	23	26	26	30	31	31	31	31	31	31	31	30	31	31	31	31	30	31	28	29	25
MED	32	32	32	31	29	26	40	51	58	63	60	64	66	60	58	58	59	58	51	40	36	34	33	32
U Q	32	32	32	32	31	28	42	54	62	66	63	68	70	65	64	63	64	60	55	42	39	37	37	34
L Q	32	31	30	30	28	24	38	49	54	58	56	60	61	59	54	56	54	53	42	36	33	32	31	30

OCT.2020 foF2 (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

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 424	L 436	L 436	U 404	L 384	L											
2								A	L		U 436	L 444	L 428		A	L	L									
3									L	L	L 416	U 404	L 420	U 416												
4									L	A	432	428	440		L		L									
5									A	L	444	428	428	440			A	L								
6									L	A	A 416	U 448	L 448	U 448		L 372										
7									L	L	424	420		L	A	L	A									
8										412	L	L	U 440	U 420	L 400		L	L								
9									L	L	U 424	U 436	L 432	U 432		L	L									
10									A 408	U 432	L 432			A 424	L	L	L									
11								L	L	L	428	428	416	U 420	L 416		A	A								
12									A	L	416	440	428		A	L 340	L									
13									L	A	L 436	416		L 388			L	L								
14											436	424		A 380	L											
15										A	A	A 428	U 444	L 444		L										
16											U 452	L	A	L	L											
17									L	L	L 428	U 428	L	L	A	L	A									
18										A	A	A		L 384	L	A										
19								L		L	L 432	A	L	L												
20										A	A	A	A 492	L	L											
21									L	A 424	U 424	L	A 428	U 424	L	L										
22										A	A	A	A	A	L	A										
23										U 420	L	A	A	L	L	L										
24									L	L		L	L	L	L											
25										L	L 428	U	L		L											
26										U 448	L	416		L												
27									L	L	A 416	U	L	A	L	L										
28										L	L 424	U	L	L	L		L									
29									L	L	L	L		L	L											
30											A 420	U 420	L	L	A											
31										L	L	L	L	L	L											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT										5	9	21	15	10	8	3										
MED										U 420	L 428	U 428	L 428	U 430	L 402	U 372										
U Q										U 436	L 434	U 436	L 436	U 444	L 416	U 384										
L Q										410	424	420	420	420	386	340										

OCT.2020 foF1 (0.01MHz)

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

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

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						B	B	A	U R	R	U R	R	U A	R	U R	R	A	B	B					
2						B	B	A	A	A	R	R	R	A	U R	U A	A	B						
3						B	U R	R	A	A	A	R	A	U R	U A	U R	U R	B						
4						B	U R	A	R	A	A	U R	R	R	U R	U A	U R	B						
5						B	B	A	A	A	A	U R	R	U R	U A	A	A	B	B					
6						B	B	U A	A	A	A	A	A	A	R	U A	A	B						
7						B	B	U A	A	R	U R	U R	U R	U R	U R	A	U R	B						
8						B	B	U A	R	A	A	U R	U R	U R	U A	A	A	B	B					
9						B	B	U A	A	A	A	A	U R	A	U R	U R	B	B						
10						B	B	A	A	U R	U R	A	A	U R	U R	U R	B							
11						B	U A	U A	A	A	R	A	A	A	U A	A	B							
12						B	B	U A	U R	R	U A	A	A	A	U R	A	B	B						
13						B	B	A	A	A	A	A	A	A	U R	A	B	B						
14						B	B	U R	U R	A	A	A	A	A	U R	U R	A							
15						B	B	U A	A	A	A	A	A	A	A	A	A	B						
16						B	U R	U A	A	A	A	A	A	A	U R	A	B	B						
17						B	B	U A	A	A	A	A	A	A	U R	A	B	B						
18						B	B	U R	A	A	A	A	A	A	A	A	B	B						
19						B	B	U A	A	R	A	A	A	A	A	A	B							
20						B	B	A	A	A	A	A	A	A	A	A	A	B						
21						B	B	U A	A	A	A	A	A	U A	U A	A	B	B						
22						B	B	A	A	A	A	A	A	A	A	A	B	A						
23						B	B	U A	A	A	A	A	A	A	A	A	B	B						
24						B	B	U R	A	U R	U R	R	A	R	U R	B	B	B						
25						B	B	U A	A	R	A	A	R	U R	R	A	B	B						
26						B	B	U A	A	A	A	A	U R	U A	A	A								
27						B	B	U R	A	A	A	A	A	U R	U R	U R	B							
28						B	B	U R	U R	R	A	R	R	U R	U A	B	B							
29						B	B	U A	A	A	A	A	U R	U A	A	B	B							
30						B	B	U R	A	A	A	A	R	A	A	A	B							
31						B	B	U A	A	A	A	A	A	U A	U A	U R	B	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	22	15	7	6	6	4	8	14	19	14	3						
MED							U R	U A	U R	U R	U R	U R	U R	U R	U R	U R	U R	U R						
U Q							228	280	316	340	336	342	330	300	276	236	188							
L Q							U A	U R	U R	U R	U R	U R	U R	U R	U R	U R	U R	U R						
							216	264	304	316	324	326	314	288	264	208	180							

OCT.2020 foE (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

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	J A	J A	J A	J A	J A	23	22	J A	G	G	G	G	36	G	G	G	26	19	E B	J A	J A	J A	J A	J A
2	J A	26	26	E B	E B	E B	J A	J A	J A	J A	G	G	G	41	G	31	27	24	J A	J A	J A	33	24	J A
3	22	20	20	E B	E B	E B	G	G	J A	J A	J A	G	37	G	34	32	G	G	E B	J A	J A	J A	30	J A
4	J A	33	23	23	E B	E B	J A	G	G	J A	J A	G	G	G	G	30	24	G	21	24	23	E B	16	23
5	22	E B	E B	E B	E B	E B	24	30	32	34	39	G	G	G	35	32	29	22	J A	J A	J A	J A	41	J A
6	J A	30	23	23	E B	E B	E B	23	27	32	J A	J A	37	35	34	G	G	J A	38	23	16	E B	E B	E B
7	20	24	22	23	22	E B	20	29	33	G	G	G	G	G	38	33	G	G	22	22	16	E B	16	22
8	E B	E B	E B	E B	E B	E B	15	27	31	G	35	G	39	G	32	32	28	E B	16	20	E B	24	E B	20
9	E B	J A	J A	J A	J A	E B	23	34	32	36	34	34	34	G	32	G	G	J A	J A	E B	22	16	20	20
10	E B	E B	E B	E B	E B	E B	19	30	35	G	G	J A	43	G	G	31	27	20	20	E B	E B	E B	E B	E B
11	E B	E B	E B	20	20	E B	15	25	33	35	35	G	36	36	35	46	51	40	22	26	27	23	25	23
12	23	E B	E B	J A	E B	E B	19	31	38	G	G	36	38	41	34	G	27	E B	J A	E B	E B	E B	E B	22
13	E B	17	23	22	20	22	21	23	30	33	J A	J A	38	36	34	G	30	25	J A	E B	E B	E B	E B	E B
14	E B	19	16	16	16	16	16	22	28	G	G	35	38	37	J A	50	30	G	J A	26	22	20	J A	J A
15	23	J A	J A	J A	J A	J A	33	26	20	27	33	38	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
16	22	22	21	21	E B	J A	G	30	34	38	38	J A	J A	J A	G	G	29	24	15	23	24	24	24	J A
17	J A	J A	26	21	22	J A	E B	16	27	31	35	36	J A	J A	J A	J A	G	J A	J A	J A	J A	J A	J A	J A
18	24	J A	J A	22	24	J A	24	32	45	49	62	95	44	39	37	32	25	20	20	22	22	J A	26	24
19	23	23	22	23	23	J A	E B	26	34	35	G	J A	46	37	32	32	25	23	23	J A	J A	J A	J A	J A
20	J A	J A	J A	J A	J A	J A	E B	26	34	46	45	73	51	38	35	35	42	40	30	24	25	27	21	25
21	24	24	E B	E B	E B	E B	E B	26	30	35	34	J A	J A	J A	J A	33	30	24	J A	J A	J A	E B	E B	E B
22	28	22	22	16	16	16	15	28	31	66	64	83	56	44	39	47	28	21	45	43	29	49	33	24
23	26	J A	E B	E B	E B	E B	E B	28	36	34	43	44	39	36	36	33	29	15	15	16	16	19	34	28
24	J A	J A	E B	E B	E B	E B	E B	27	G	G	G	G	G	34	G	G	22	15	24	48	31	22	21	E B
25	E B	E B	E B	E B	E B	E B	24	32	G	G	J A	J A	40	37	32	G	J A	J A	E B	J A	J A	J A	J A	J A
26	J A	28	24	21	21	J A	27	21	23	28	32	34	J A	55	36	G	G	J A	J A	J A	J A	33	16	24
27	J A	J A	25	23	21	21	22	16	25	G	J A	J A	J A	J A	J A	J A	40	45	24	22	J A	E B	E B	E B
28	J A	E B	J A	22	J A	J A	30	24	G	G	G	G	J A	40	G	G	25	J A	J A	J A	27	20	E B	J A
29	22	22	22	20	E B	E B	E B	22	28	33	36	J A	J A	J A	G	J A	35	30	25	J A	J A	J A	E B	E B
30	E B	16	20	18	18	E B	E B	15	G	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	24	23	21
31	20	22	22	E B	E B	J A	25	30	32	32	36	J A	J A	36	33	30	G	E B	J A	J A	J A	J A	E B	E B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	23	23	21	20	E B	E B	19	27	32	34	35	37	38	36	32	30	26	22	23	J A	25	24	23	23
U Q	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
L Q	E B	E B	E B	E B	E B	E B	E B	25	28	G	G	G	G	G	G	G	G	G	E B	E B	E B	E B	E B	E B

OCT.2020 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

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	25	E B	E B	E B	E B	E B		21	32		G	G	G	G	G	G	25	17	E B	E B	E B	E B	19	19	
2	E B	E B	E B	E B	E B	E B		19	39	32	37	G	G	G	G	30	26	20	20	E B	E B	E B	E B	E B	
3	E B	E B	E B	E B	E B	E B		G	G		27	32	33	G	G	35	33	30	G	E B	E B	E B	E B	E B	
4	18	E B	E B	E B	E B	E B		G	G		28	38	34	G	G	G	G	30	23	G	E B	E B	E B	E B	
5	E B	E B	E B	E B	E B	E B		24	29	30	34	34	G	G	G	33	32	28	20	19	E B	E B	E B	E B	
6	E B	E B	E B	E B	E B	E B		20	26	30	35	39	35	34	33	G	G	26	20	18	E B	E B	E B	E B	
7	E B	E B	E B	E B	E B	E B		18	28	32	G	G	G	G	G	G	32	G	G	E B	E B	E B	E B	E B	
8	E B	E B	E B	E B	E B	E B		15	26	30	34	G	G	G	G	31	30	25	E B	E B	E B	E B	E B		
9	E B	E B	E B	E B	E B	E B		20	30	30	34	33	33	33	G	30	G	G	20	E B	E B	E B	E B		
10	E B	E B	E B	E B	E B	E B		18	28	34	G	G	G	G	G	G	29	24	17	E B	E B	E B	E B		
11	E B	E B	E B	E B	E B	E B		15	24	31	34	34	G	G	G	34	34	32	38	35	20	E B	E B		
12	E B	E B	E B	E B	E B	E B		17	30	37	G	G	G	G	G	36	36	38	32	G	E B	E B	E B		
13	E B	E B	E B	E B	E B	E B		21	28	32	36	36	35	35	32	G	28	23	18	E B	E B	E B	E B		
14	E B	E B	E B	E B	E B	E B		17	27	G	G	33	36	34	38	G	30	G	21	E B	E B	E B	E B		
15	E B	E B	E B	E B	E B	E B		18	26	32	36	41	42	37	36	32	28	22	29	E B	E B	E B	E B		
16	E B	E B	E B	E B	E B	E B		G	28	33	37	36	42	31	G	G	27	20	15	E B	E B	E B	E B		
17	E B	E B	E B	E B	E B	E B		25	30	34	35	37	34	36	A A	69	G	32	30	20	A A	49	E B		
18	E B	E B	E B	E B	E B	E B		28	32	40	44	41	39	33	30	28	23	17	E B	E B	E B	E B	E B		
19	E B	E B	E B	E B	E B	E B		17	24	31	32	G	35	40	35	32	30	23	E B	E B	E B	E B	E B		
20	E B	A A	45	20	20	E B	E B	24	31	39	39	60	45	33	32	31	36	35	22	19	21	22	E B		
21	E B	E B	E B	E B	E B	E B		25	28	34	33	36	40	32	28	28	23	16	E B	E B	E B	E B	E B		
22	E B	E B	E B	E B	E B	E B		15	26	30	64	58	45	48	35	31	31	26	19	38	16	21	19	E B	
23	E B	E B	E B	E B	E B	E B		14	24	32	31	40	40	37	34	30	27	21	E B	E B	E B	E B	E B		
24	E B	E B	E B	E B	E B	E B		23	G	31	G	G	G	G	G	G	20	15	E B	E B	24	16	16	E B	
25	E B	E B	E B	E B	E B	E B		22	29	G	G	34	32	G	G	30	G	22	20	E B	19	26	18	E B	
26	E B	E B	E B	E B	E B	E B		23	28	31	33	33	35	G	G	29	25	21	20	E B	E B	16	20	E B	
27	20	E B	E B	E B	E B	E B		23	G	32	41	32	43	33	30	28	G	E B	E B	E B	E B	18	17	E B	
28	E B	E B	E B	E B	E B	E B		G	G	G	G	G	G	G	G	G	23	18	E B	16	22	E B	E B	E B	
29	E B	E B	E B	E B	E B	E B		21	27	33	33	33	41	G	30	28	23	18	26	20	16	16	15	E B	
30	E B	E B	E B	E B	E B	E B		G	26	31	42	33	G	33	34	34	24	29	23	18	E B	E B	E B	E B	
31	E B	E B	18	E B	E B	E B		17	24	28	31	32	34	34	32	31	28	G	E B	E B	E B	E B	E B	E B	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
MED	E B	E B	E B	E B	E B	E B		25	30	32	33	34	35	32	30	28	23	18	E B	E B	E B	E B	E B	E B	
U Q	E B	E B	E B	E B	E B	E B		18	28	32	35	39	36	39	35	32	30	26	20	19	19	16	16	16	E B
L Q	E B	E B	E B	E B	E B	E B		G	G	G	G	G	G	G	G	G	G	G	G	E B	E B	E B	E B	E B	E B

OCT.2020 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

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

OCT.2020 fmin (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

OCT. 2020 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	325	338	306	331	328	369	388	392	372	366	360	332	344	341	358	352	357	367	352	376	308	293	297	285
2	293	337	340	333	351	341	388	354	366	396	369	335	342	366	347	356	379	385	384	337	322	290	324	307
3	322	315	316	317	358	326	381	392	366	336	367	338	340	368	360	349	365	365	342	360	356	F	F	316
4	322	325	309	311	355	308	382	391	363	368	356	356	366	381	325	361	355	377	364	338	328	307	319	301
5	326	338	335	358	336	364	386	391	381	394	355	382	348	349	380	358	347	373	387	403	337	337	318	318
6	311	332	301	323	323	331	389	369	376	376	371	366	355	348	332	348	361	361	330	338	346	334	298	302
7	F	F	F	F	F	F	368	373	369	360	373	368	373	346	371	369	365	364	379	360	353	305	317	F
8	F	F	F	327	F	F	375	381	361	367	379	379	340	347	332	346	348	372	375	338	352	349	327	294
9	F	F	F	F	333	321	372	380	374	387	357	345	337	387	369	381	356	363	365	393	324	339	346	F
10	F	308	319	F	F	F	379	400	373	382	383	360	379	351	369	327	345	363	391	399	362	304	330	313
11	330	331	331	330	334	332	389	391	389	400	398	388	360	353	342	365	385	360	349	348	351	333	304	F
12	F	312	324	333	316	310	372	387	368	393	361	331	387	370	359	354	360	355	364	342	336	331	346	328
13	352	349	331	333	340	325	375	385	373	349	381	345	361	329	340	333	365	358	356	362	339	339	339	337
14	337	314	330	312	349	354	384	390	399	372	364	357	365	365	325	362	351	373	391	373	344	A	318	309
15	318	307	312	F	F	377	414	402	378	388	379	370	340	336	337	349	368	377	367	328	350	316	340	301
16	F	F	343	F	348	F	389	374	386	363	341	385	376	347	362	373	359	364	372	373	F	304	F	F
17	F	F	F	F	F	F	402	388	380	390	383	356	350	337	A	352	363	364	339	A	335	371	312	F
18	F	F	F	F	348	330	410	369	377	368	383	358	375	368	350	354	372	372	366	323	341	330	325	312
19	320	324	333	324	345	384	383	391	374	379	363	368	367	350	351	365	341	362	390	305	321	317	309	290
20	314	318	A	328	324	328	378	388	385	380	361	384	373	285	341	370	357	366	374	342	339	372	317	297
21	312	316	326	321	345	365	376	385	379	383	367	374	384	333	353	367	385	374	358	294	302	315	316	289
22	305	319	329	336	320	314	383	385	390	396	388	398	367	352	375	366	361	358	356	331	324	315	F	F
23	290	300	307	330	356	327	371	382	370	379	362	365	335	358	355	367	367	344	383	361	321	352	304	319
24	303	306	332	337	345	330	343	383	316	354	393	358	361	361	344	378	369	380	343	302	282	318	369	336
25	300	325	305	306	333	333	356	387	368	374	362	382	362	335	372	379	361	343	373	380	340	315	311	279
26	297	313	332	321	353	319	357	372	381	393	371	355	339	350	349	361	388	367	386	348	317	330	273	310
27	293	309	339	339	351	322	345	390	377	378	370	381	364	376	373	357	353	362	363	352	319	345	351	337
28	330	315	F	F	311	368	369	398	396	376	376	376	350	V	357	369	362	373	359	371	337	338	323	324
29	307	308	328	339	379	324	371	393	372	380	414	382	349	339	336	377	381	351	368	373	378	288	324	320
30	310	334	323	320	299	337	387	388	378	380	350	357	361	371	369	379	367	364	373	318	326	331	327	316
31	330	328	301	317	334	357	368	403	386	371	382	364	369	346	354	366	364	374	361	313	334	370	293	319
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	25	24	23	26	26	30	31	31	31	31	31	31	31	30	31	31	31	31	30	31	28	29	25
MED	314	318	327	328	342	330	378	388	374	379	370	364	361	351	352	362	364	364	366	345	337	330	318	312
U Q	326	332	332	333	351	357	387	391	381	388	382	379	369	368	369	367	372	373	379	372	350	339	328	320
L Q	303	310	310	320	328	324	371	382	369	368	362	355	344	341	341	352	356	359	356	331	322	315	306	299

OCT. 2020 M(3000)F2 (0.01)

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

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

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	L	L	L	L	L	L							
2									A	L		U	L	U	L	L								
3										L	L	L	L	U	L	U	L							
4										L	A							L						
5										A	L		U	L	U	L		A	L					
6										L	A	A	U	L	U	L		L	U	L				
7										L	L			L	A	L	A							
8											L		U	L	U	L	L	L						
9										L	L	L	U	L	U	L		L	L					
10										A	U	L	U	L										
11								L	L	L			U	L	U	L	A	A						
12									A	L		U	L		A	L	U	L						
13									L	A	L	U	L		L	L	L	L						
14												416	449		A	U	L							
15											A	A	A	U	L	U	L	L						
16												U	L	A	L	L								
17									L	L	L	U	L	U	L	L	A	L	A					
18										A	A	A	A		L	U	L	A						
19								L		L	L	U	L	A	L	L								
20										A	A	A	A	U	L	L								
21									L	A	U	L	L	A	U	L	U	L	L					
22										A	A	A	A	A	A	L	A							
23										U	L	A	A	L	L	L								
24									L	L			L	L	L	L								
25										L	L	U	L	L	L									
26										U	L	L	421		L									
27									L	L	A	U	L	A	L	L								
28										L	L	U	L	L	L		L							
29									L	L	L	L		L	L									
30											A	U	L	L	A									
31										L	L	L	L	L	L									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										5	9	21	15	10	8	3								
MED										U	L	U	L	U	L	U	L	U	L					
U Q										391	420	416	414	398	410	393								
L Q										U	L	U	L	U	L	U	L							
										384	400	407	405	385	404	389								

OCT.2020 M(3000)F1 (0.01)

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OCT.2020 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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									236	236	246	262	236	254	246	246	246								
2								E A 246	230		264	264	270	230	262	254									
3									254	300	262	270	258	236	248										
4									248	242	256	244	234	228			238								
5									224	224	256	228	242	268		268	268								
6									246	236	230	244	252	252	244	244									
7									238	242	240	242	238	252	238	230									
8										250	222	228	272	270	256	256	248								
9									242	226	250	258	258	230	244	244									
10									234	218	236	258	232	240	254	270	258								
11								214	222	222	220	220	250	262	272	242	230								
12									230	230	238	292	214	240	252	238									
13									238	238	238	258	236	246	256	256	240								
14												250	250	250	250										
15										218	224	230	258	296	296	256									
16												274	218	238	272										
17									228	228	238	254	254	296	A 250	230									
18										230	230	266	222	242	242	234									
19								210		224	242	242	230	254	264										
20											E A 236	254	234	234	394	258									
21									234	214	234	234	234	262	252	236									
22									E A 236	E A 224	216	218	226	242	220										
23										226	226	224	270	258	262										
24									300	248		234	234	236	250										
25										246	230	228	238	258											
26										218	230	240		252											
27										232	226	226	226	244	244	224									
28										222	222	222	222	234		246									
29										222	222	222	228		236	246									
30											E A 238	238	238	248	236										
31										232	232	232	246	260	242										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								3	17	27	28	31	29	31	25	17	8								
MED								212	234	229	234	240	238	250	250	246	243								
U Q								E A 246	244	238	244	258	253	260	260	256	253								
L Q								210	229	222	226	228	233	236	243	237	234								

OCT.2020 h'F2 (KM)

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OCT. 2020 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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	E A	E B	E B	E B	E A	212	198	212	200	192	178	190	190	198	198	198	204	204	194	188	E B	E B	E A	E A
2	E B	E B	E B	E B	E B	E B	202	E B	A	200	200	192	188	186	A	186	210	210	208	208	E B	E B	E B	E B
3	E B	E B	E B	E B	E B	216	222	198	198	204	196	190	190	190	202	210	210	206	214	212	E B	E B	E A	226
4	E A	E B	E B	E B	E B	E B	212	E B	A	204	202	188	186	180	E B	214	208	206	200	206	E B	E B	E B	E B
5	E B	E B	E B	E B	E B	E B	234	212	198	198	A	198	190	190	186	176	208	A	218	216	202	178	E B	E B
6	E B	E B	E B	E B	E B	E B	200	246	198	210	202	A	182	182	184	194	184	210	208	212	214	E B	E B	
7	E B	E B	E B	E B	E B	E B	200	206	210	200	200	188	190	A	194	A	212	210	190	204	204	220	244	262
8	E B	E B	E B	E B	E B	E B	224	194	192	192	202	202	188	186	178	178	178	200	198	206	194	206	E B	E B
9	E B	E B	E B	E B	E B	E B	226	234	208	208	204	198	194	186	184	184	184	206	212	206	188	224	230	212
10	E B	E B	E B	E B	E B	E B	228	196	194	200	A	200	192	184	A	184	184	214	218	210	188	E B	E B	E B
11	E B	E B	E B	E B	E B	E B	254	254	246	186	186	186	188	188	188	180	180	180	A	A	E B	208	208	240
12	E B	E B	E B	E B	E B	E B	254	254	198	212	A	194	194	194	194	188	188	210	210	202	194	E B	E B	210
13	E B	E B	E B	E B	E B	E B	240	228	200	200	200	204	202	194	192	172	202	196	194	194	200	206	214	202
14	E B	E B	E B	E B	E B	E B	224	206	188	196	196	196	196	192	192	A	192	214	214	212	190	194	E B	E B
15	E B	E B	E B	E B	E B	E B	216	204	194	194	204	A	A	A	176	182	200	206	222	204	188	E A	E B	E B
16	E B	E B	E B	E B	E B	E B	220	194	194	180	180	196	212	198	A	186	198	210	216	210	190	198	198	228
17	E B	E B	E B	E B	E B	E B	238	200	172	190	192	184	184	184	184	214	A	214	A	214	214	E A	E B	E B
18	E B	E B	E B	E B	E B	E B	226	224	190	200	218	A	A	A	A	190	184	A	202	202	202	214	214	220
19	E B	E B	E B	E B	E B	E B	240	240	202	182	174	200	192	192	192	A	192	202	222	206	206	192	E B	E B
20	E B	E A	E A	E A	E A	E A	272	282	236	206	200	200	A	A	A	192	208	216	216	216	200	218	238	234
21	E B	E B	E B	E B	E B	E B	220	204	188	202	202	A	194	194	A	178	224	212	208	192	192	210	E B	E B
22	E B	E B	E B	E B	E B	E B	220	256	196	196	212	A	A	A	A	204	A	218	206	230	220	248	256	240
23	E B	E B	E B	E B	E B	E B	208	236	202	202	204	196	A	A	196	196	196	220	220	202	202	208	208	218
24	E B	E B	E B	E B	E B	E B	214	222	204	200	200	200	200	172	172	182	192	206	206	194	202	290	270	238
25	E B	E B	E B	E B	E B	E B	224	198	198	218	204	192	192	190	184	218	214	214	190	190	210	E A	E A	E A
26	E B	E B	E B	E B	E B	E B	216	266	212	202	202	186	186	186	194	190	208	208	202	202	202	204	228	252
27	E A	E B	E B	E B	E B	E B	224	196	182	190	A	178	A	204	204	204	204	204	204	198	218	252	234	202
28	E B	E B	E B	E B	E B	E B	214	198	188	188	182	178	178	192	184	198	190	202	202	202	226	218	218	250
29	E B	E B	E B	E B	E B	E B	198	204	202	188	198	190	190	182	210	178	188	216	206	194	206	198	188	238
30	E B	E B	E B	E B	E B	E B	218	190	190	200	200	A	188	166	198	A	216	198	206	206	242	242	236	242
31	E B	E B	E B	E B	E B	E B	206	206	196	196	184	184	184	186	200	204	204	204	192	192	244	220	200	220
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	31	31	31	31	30	28	23	23	26	23	26	29	26	29	31	31	30	31	30	31	31
MED	E B	E B	E B	E B	E B	E B	211	198	198	200	196	192	188	186	185	195	210	208	206	201	209	E B	E B	E B
U Q	E B	E B	E B	E B	E B	E B	240	246	202	202	204	200	196	192	192	192	204	214	215	210	206	218	248	250
L Q	E B	E B	E B	E B	E B	E B	216	204	192	192	197	190	188	184	182	182	186	202	204	202	192	198	E B	E B

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OCT.2020 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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						B	B	A										B	B					
2						B	B	A	A	A										B				
3						B			A	A	A									B				
4						B				A	A									B				
5						B	B												B	B				
6						B	B			A	A	A	A	A					A	B				
7						B	B													B				
8						B	B				A								B	B				
9						B	B												B	B				
10						B	B												B					
11							B											A	B					
12						B	B												B	B				
13						B	B			A	A							A	B	B				
14							B												A					
15						B	B				A	A	A	A	A	A	A	A	A	B				
16							B												B	B				
17						B	B												B	B				
18						B	B			A	A	A	A	A	A	A	A		B	B				
19						B	B												B					
20						B	B			A	A	A	A	A	A	A	A	A	A	B				
21						B	B												B	B				
22						B	B												B	A				
23						B	B			A	A	A	A	A	A	A	A	A	B	B				
24						B	B												B	B	B			
25						B	B												B	B	B			
26						B	B																	
27						B	B												B					
28							B												B	B				
29						B	B												B	B				
30						B	B												A	B				
31						B	B												B	B				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	29	26	20	19	15	13	14	22	23	22	4						
MED							119	110	110	110	110	110	110	111	108	110	110	110						
U Q							112	112	112	112	112	112	112	112	112	112	112	114						
L Q							108	108	108	108	108	108	108	108	108	108	108	108						

OCT.2020 h'E (KM)

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OCT.2020 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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	86	86	86	86	86	92	120	98		G	G	G	G	150		G	G	112	108		B	96	96	96	86	86					
2	86	86		B	B	B		108	104	104	92		G	G		96	142	132	132	104	94	94	94	94	94						
3	94	94	94		B	B	B		G	G			G	G		122	128	132		G	G	B	94	94	94	94					
4	88	88	88		B	B		94		G	118	100	98		G	G	G	G		G		96	94	102		102	94				
5	88		B	B	B	B			114	116	116	116	116			G	G	G		148	148	122	112	96	88	88	92	92	92		
6	86	86	86		B	B	B		130	134	128	96	96	96	94	94		G	G	120	98	84		B	B	B	B	B			
7	92	92	92	92	92		B		128	120	120		G	G		G		G		G			B	B	B		92				
8		B	B	B	B	B	B		148	134		98		G		152	178	128	128		B	84		B	104		104	96			
9		B	96	96	88		B	B	120	120	120	120	114	114	114		G		G		82	82		B	88		88	88			
10		B	B	B	B		B		122	114	114		G	G		G	G		146	146	102	88		B	B	B	B	B			
11		B	B	B		B	B		132	136	136	116		G		112	112	112	120	104	106	92	90	90	90	90	90	90			
12	90		B	B		B	B		124	124	118		G	G		118	114	102	108		134		90		B	B	B	94	94		
13		B	88	88	88	88	90	122	118	118	102	102	102	102	102		G		G	102	102	96		B	B		88		B	B	B
14		B	B	B	B	B	B		118	118		G	G	114	102	102	88		G		118		84	84	84	84	84	96	96	98	
15	98	90	90	90	90	84	124	140		G	132	116	104	102	102	102	102	102	102	100	90	90	90	90	90	90	90	90	90		
16	94	94	94	94		B	90	94			140	132	156	112	98	88		G		G		118	126		110	102	98	92	92		
17	92	92	92	92	92	98		B	140	122	108	108	100	100	100	98		G		G		114	108	108	100	100	100	100	94		
18	94	94	94	94	94	96	96	126	106	102	98	98	98	98	98	98	98	140	126	94	98	98	98	98	98	98	98	98	98		
19	98	92	92	92	92	88		B	146	136	126		G		104	100	98	100	134	132	94	94	92	90	90	90	90	90			
20	90	90	90	86	86	94		B	152	118	104	104	98	98	98	98	94	94	94	94	94	86	86	86	86	86	86	86	86		
21	86	86		B	B	B		B	142	134	122	112	100	98	96	152	152	120	92	102	96	96		B	B	B	B	B	B		
22	104	104	96		B	B	B	B		B	116	116	98	98	98	98	98	98	108	114	110	104	96	94	88	88	88	98	98		
23	98	88		B	B	B	B	B		B	112	108	98	98	98	98	96	96	96	96	96		B	B	B	B	B	88	88	88	
24	88	88		B	B	B	B	B		B	124		G	G	G		G		G		110		110	88	88	88	88		B	B	
25		B	B	B		B	B	B		B	144	128		G	G		G		G		134		94	94		92	92	92	92	92	
26	92	92	92	92	92	94	94	136	126	116	108	98	148		G		G		G		84	84	84	84	92		B	92	90	90	
27	90	90	90	90	94	84		B	128		G	104	98	98	98	98	96	132	134		G		88	90	90		B	B	B	B	
28	82		B	86	86	86	88	88		B	88		G	G	G		G		G		100		124	106	98	86	90		B	90	90
29	90	90	90	90		B	B	B		B	114	114	114	114	96	90		G		G		90	144	132	94	94	90		B	90	90
30		B	122	122	112		B	B	B		G		96	96	96	96	96		G		90	88	84	84	84	84	90	90	90	90	90
31	90	90	90		B		84	118	130	124	114	114	132	96	96	134	134		G		B		96	90	90	90		B	90	90	90
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
CNT	23	23	20	19	13	14	16	27	25	23	22	21	25	20	19	22	25	22	25	24	24	20	23	24							
MED	90	90	91	90	90	91	119	124	120	108	104	100	100	98	108	126	118	97	94	92	90	91	90	92							
U Q	94	94	94	92	92	94	123	140	130	120	114	104	113	102	134	142	132	108	100	95	96	95	94	94							
L Q	88	88	89	88	87	88	102	116	114	98	98	98	98	96	98	102	101	92	86	90	89	90	88	90							

OCT.2020 h'Es (KM)

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

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

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	F7	F4	F4	F3	F2	L2	C2	L3					H1				C1	C1		F1	F2	F2	F3	F2
2	F2	F2					L2	L3	L2	L2				L2		H1	H2	C5	L2	F2	F2	F2	F3	F2
3	F2	F1	F1					L2	L3	L2			C1		C1	C1				F3	F3	F2	F3	F2
4	F3	F1	F1			L3		C1		L3	L3				H1	H1		L1	F2	F1		F2	F1	
5	F1						C4	C2	C1	C1	C1				H1	H1	C1	C2	L3	F1	F2	F2	F2	F2
6	F2	F2	F2				H2	H2	C2	L3	L2	L2	L1	L1			C2	L3	L2					
7	F1	F2	F2	F2	F1		CL21	CL21	CL21					H1		C1			L1	F1				F2
8								H2	H1		L1		H1		C1	C1	C1		L1		F1		F1	F1
9		F2	F2	F2			C2	CL22	C2	C1	C1	C1	C1		C1			L2	L1		F2		F1	F1
10					F1		C1	C2	C2			L2	L2			H1	H1	L2	L1					
11				F1	F1			C2	HL12	H1	C2		C1	C1	C1	C2	L2	L2	L1	F2	F2	F1	F2	F1
12	F1			F2			H1	H2	C1			C1	C1	L1	C1		C1		L1				F2	F1
13		F1	F3	F2	F2	L2	CL22	C2	C2	L2	L3	C2	L1	L1		L2	L2	L2			F1			
14							H2	C2				C1	L2	L1	L2		C1		L2	L1	F2	F1	F4	F2
15	F2	F2	F2	F2	F4	L3	HL21	HL21	H1	C1	L2	L2	L2	L2	L2	L2	L2	L2	L2	F2	F2	F2	F2	F2
16	F2	F1	F1	F1		L1	L1		H1	H1	H1	C2	L2	L1			C2	C2		F2	F1	F1	F2	F2
17	F2	F2	F1	F2	F2	L1		H1	CL12	C2	C1	L2	L2	L2	L3		C2	L5	L3	F6	F5	F4	F2	F2
18	F2	F4	F3	F2	F3	L3	L1	C3	L3	L2	L2	L2	L2	L1	L2	L2	H2	C1	L1	F1	F1	F2	F2	F2
19	F1	F2	F2	F4	F4	L3		H2	H2	C1		L1	L2	L1	L1	CL22	HL12	L2	L1	F2	F5	F2	F2	F2
20	F2	F4	F6	F5	F3	L3		H2	C1	L3	L2	L3	L2	L2	L2	L3	L4	L4	L5	F3	F4	F5	F2	F2
21	F2	F2		F1		L1		HL22	HL12	C1	C1	L1	L3	L2	HL11	HL12	CL11	L1	L1	F2	F1			
22	F2	F3	F2					C2	C2	L2	L3	L2	L2	L2	L1	L2	C2	C1	L6	F3	F5	F4	F2	F1
23	F1	F2						C2	C2	L2	L1	L2	L2	L2	L2	L2						F1	F2	F3
24	F2	F2						C2		C1					C1		C1		L1	F5	F2	F1	F2	
25				F1				H1	C1			L2	L2		H2		L3	L3		F3	F6	F3	F2	F2
26	F2	F2	F1	F1	F1	L2	L2	H1	C1	C1	C1	L1	L1			L3	L3	L2	L2	F2		F2	F3	F2
27	F4	F2	F2	F1	F1	L1		C2		L2	L3	L1	L2	L2	H1	H1			L1	F5	F2			
28	F1		F2	F2	F3	L3	L1										C1	L1	L3	F3	F2		F2	F2
29	F1	F2	F1	F1				C2	C2	C1	C1	L2	L2		L2	H1	C2	L1	L4	F1		F1		
30		F2	F1	F1					L2	L2	L3	L1			L2	L3	L1	L2	L3	F1	F2	F1	F1	F1
31	F1	F2	F2			L1	C2	C2	C1	C1	C1	C1	L1	L1	C1	C2			L1	F1	F1	F1		F1
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

OCT.2020 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT.2020 f_{XI} (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

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	X 35	X 36	X 36	X 36	X 36															X 61	X 35	X 35	X 35	X 36
2	X 36	X 36	X 36	X 33	X 32															X 48	X 41	X 40	X 37	X 40
3	X 38	X 38	X 37	X 36	X 39															X 63	X 58	X 37	X 39	X 38
4	X 40	X 38	X 36	X 41	X 34				60											X 55	X 51	X 44	X 42	X 41
5	X 40	X 40	X 35	X 33	X 32															X 60	X 34	X 35	X 35	X 36
6	X 36	X 37	X 36	X 35	X 33															X 54	X 54	X 38	X 39	X 40
7	X 40	X 42	X 42	X 35	X 31															X 54	X 39	X 39	X 35	X 38
8	X 37	X 37	X 36	X 34	X 37															X 54	X 47	X 45	X 38	X 37
9	X 36	X 36	X 36	X 35	X 35															X 61	X 38	X 36	X 37	X 37
10	X 36	X 36	X 36	X 34	X 33															X 63	X 30	X 31	X 33	X 33
11	X 33	X 35	X 35	X 34	X 32															X 55	X 44	X 40	X 39	X 42
12	X 37	X 38	X 38	X 36	X 34															X 83	X 48	X 47	X 42	X 39
13	X 37	X 37	X 37	X 35	X 35															X 58	X 46	X 42	X 37	X 32
14	X 35	X 38	X 38	X 36	X 38															X 59	X 41	X 31	X 33	X 34
15	X 33	X 33	X 35	X 33	X 41															X 48	X 38	X 38	X 36	X 34
16	X 36	X 38	X 38	X 40	X 40	40														X 66	X 31	X 33	X 33	X 34
17	X 35	X 35	X 36	X 38	X 39															X 65	X 45	X 45	X 37	X 36
18	X 38	X 40	X 38	X 38	X 38															X 54	X 44	X 46	X 44	X 39
19	X 38	X 38	X 37	X 37	X 37															X 43	X 40	X 42	X 44	X 42
20	X 42	X 41	X 41	X 35	X 36															X 46	X 44	X 41	X 36	X 39
21	X 40	X 36	X 36	X 36	X 37															X 47	X 42	X 43	X 44	X 41
22	X 41	X 41	X 42	X 41	X 40															X 56	X 53	X 53	X 51	X 52
23	X 45	X 44	X 43	X 43	X 43															X 50	X 39	X 36	X 38	X 40
24	X 39	X 37	X 37	X 36	X 37															X 40	X 42	X 41	X 47	X 37
25	X 36	X 38	X 37	X 37	X 42															X 50	X 44	X 38	X 38	X 38
26	X 37	X 40	X 39	X 36	X 38	35														X 42	X 34	X 36	X 37	X 38
27	X 37	X 40	X 38	X 37	X 35															X 47	A	X 40	X 42	X 42
28	X 40	X 38	X 38	X 36	X 37															X 55	X 43	X 42	X 43	X 39
29	X 39	X 40	X 40	X 40	X 30															X 54	X 41	X 33	X 34	X 36
30	X 38	X 38	X 36	X 36	X 34															X 51	X 43	X 43	X 40	X 40
31	X 38	X 38	X 38	X 37	X 35	X 36														X 44	X 47	X 46	X 35	X 33
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	3			1											31	30	31	31	31
MED	X 37	X 38	X 37	X 36	X 36	X 36			60											X 54	X 42	X 40	X 38	X 38
U Q	X 40	X 40	X 38	X 37	X 38	X 40														X 60	X 46	X 43	X 42	X 40
L Q	X 36	X 36	X 36	X 35	X 34	X 35														X 48	X 39	X 36	X 35	X 36

OCT.2020 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT.2020 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT.2020 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1										A	A	U L	A		L	L	L	L							
2											L	U L	U L	444	424	444	420	L							
3											L	U L	U L	A	U L	L	L								
4											L	U L	U L	U L	U L	L	L								
5											L	432	448	444	440	432	432	L	A						
6											U	U L	U L		A	A	A	A							
7										L	L	U L	U L		U L	L			A						
8										L	L	L		L	U L	A	A								
9											L	U L			L										
10											L	U L	U L	U L	U L	L	U L								
11									L		L	L		440	432	416	408	A	L						
12								L	L	L	L		428	428	440	456		L	L	A					
13										L	L		436	432	A		U L	L	A						
14											U	U L	U L	U L	U L	L	L	L							
15							A			A	A	A	A	A	U L			L							
16											L	U L	U L		L	U L	L								
17										L	L	U L	L	L	A	L	L								
18									A		A	A	A	A	A	L	A	A							
19											L	L	A			L	U L	A							
20											A	A	A	A	A	L	A								
21										L	L	U L	U L	U L	U L	L	L								
22										A	L	U L				A	A	A							
23											L	L	U L	U L	A	A									
24										L		L	U L	U L	U L	A									
25										L	L	L	U L	U L	U L	L									
26								L			L	U L	U L	U L	U L	L									
27										L		L	U L	A		L	L								
28											L	U L	U L	L	L	L									
29											L	L	L	L	L	L									
30											L	U L	U L	L	L	L	L								
31										L	L	L	L	L	L	L									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT											7	19	22	16	14	7	1								
MED											U	L	U L	U L	U L	U L	U L	U L							
U Q											436	460	444	440	444	432									
L Q											420	436	432	432	432	408									

OCT.2020 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

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						B	B	A	A	A	A	A	A	A	U	R	U	R	A	B				
2						B	B	B	A	U	R	A	U	R	A	R	U	R	U	A	A	B		
3						B	B	U	A	A	A	A	A	U	R	U	A	A	U	A	A	B		
4						B	B	A	R	A	A	U	R	U	R	A	A	U	A	A	B			
5						B	B	A	A	A	A	U	R	U	R	R	U	A	A	A	B			
6						B	B	U	A	A	A	A	A	A	U	A	U	A	A	U	R	B		
7						B	B	A	U	A	A	A	U	R	R	A	U	R	A	A	B			
8						B	B	A	U	A	A	A	U	R	U	R	U	A	A	A	B			
9						B	B	A	A	A	A	A	A	A	A	R	U	A	U	A	B			
10						B	B	U	A	A	U	R	A	A	R	U	R	U	A	A	B			
11						B	B	U	R	A	A	A	A	A	U	R	A	A	A	B				
12						B	B	U	A	A	A	A	A	A	A	U	R	A	A	B				
13						B	B	U	A	A	A	A	A	A	A	A	A	A	A	B				
14						B	B	A	A	A	U	R	U	R	U	R	A	U	A	A	B			
15						B	B	B	A	U	A	A	A	A	A	A	A	A	A	B				
16						B	B	U	R	A	A	A	A	A	A	U	R	A	U	A	B			
17						B	B	U	A	A	A	A	A	A	A	A	A	U	R	B				
18						B	B	U	R	A	A	A	A	A	A	A	A	A	A	B				
19						B	B	U	A	A	A	A	A	A	A	A	A	A	A	B				
20						B	B	B	U	A	A	A	A	A	A	A	A	A	A	B				
21						B	B	U	R	A	A	A	A	A	A	U	A	A	A	B				
22						B	B	U	R	A	A	A	A	A	A	A	A	A	U	R	B			
23						B	B	U	R	A	A	U	R	U	R	A	A	A	A	B				
24						B	B	A	A	U	R	U	R	A	A	A	A	U	R	B				
25						B	B	U	R	A	A	A	A	A	A	U	R	R	U	B				
26						B	B	U	R	A	A	U	R	A	A	U	R	R	A	B				
27						B	B	A	A	A	U	A	U	R	A	A	A	A	A	B				
28						B	B	U	R	A	A	A	A	A	A	A	A	A	B	B				
29						B	B	U	R	A	A	A	A	A	A	U	R	U	A	B				
30						B	B	U	R	A	U	R	U	R	U	R	U	R	U	B	B			
31						B	B	U	R	A	A	A	A	A	A	A	A	A	U	R	B			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								18	14	8	7	8	7	8	12	16	10	9						
MED								U	R	U	A	U	R	U	R	U	U	A	U	R				
U Q								208	260	304	324	342	344	336	320	304	264	218						
L Q								U	A	U	A	U	A	U	R	U	U	A	U	R				
								192	248	286	312	332	336	322	308	290	260	196						

OCT.2020 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

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	J A	J A	J A	J A		J A	E B	J A	J A	J A	J A	J A	J A	J A	G	G	G	J A	J A	J A	J A	J A	J A	J A
2	27	48	24	23	22	25	16	29	64	147	91	83	73	52				31	30	21	27	44	24	39
3	J A	J A	J A	J A		E B	E B	J A	J A	J A	J A	J A	J A	J A	G	G	G	J A	J A	J A	J A	J A	J A	J A
4	27	22	32	24	23	22	22	25	42	41	40	44	47		34	33	30	27	22	29	23	29	29	26
5	22	E B	E B	E B	E B	E B	E B	E B	J A	J A	J A	J A	J A	G	G	G	G	J A	J A	J A	J A	J A	J A	J A
6	15	28	15	14	15	15	15	29	32	40	39			G	G	G	G	J A	J A	J A	J A	J A	J A	J A
7	22	J A	E B	E B	E B	E B	E B	E B	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
8	J A	22	22	16	16	16	19	26	30	33	35	34		G	G	G	J A	E B	J A	E B	E B	E B	J A	
9	E B	17	22	16	16	16	16	20	24	32	33	36		G	G	J A	J A	J A	J A	J A	J A	J A	J A	J A
10	E B	16	16	16	16	15	21	45	32	35	36	38	40	37		G	J A	J A	J A	J A	J A	J A	J A	J A
11	21	E B	21	16	16	16	15	23	32		34	38		G	G	G	J A	E B	J A	E B	E B	J A	J A	J A
12	J A	J A	J A	J A		E B	E B		G	30	36	42	44	41		G	J A	J A	E B	J A	J A	J A	J A	J A
13	23	20	16	16	18	16	16	23	29	39	39	38		J A	J A	J A	J A	J A	E B	J A	J A	J A	J A	J A
14	J A	J A	J A	J A		J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
15	36	36	26	24	23	22	23	26	30	36	38	38	44	46	41	43	34	38	28	31	26	35	23	17
16	E B	16	20	16	16	16	20	27	32	32		G	G	G	G	J A	J A	J A	E B		E B	24	22	
17	E B	16	16	20	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
18	J A	J A	J A	J A		E B	E B		G	30	39	44	61	46	36	43	39	40	36	33	50	32	28	32
19	J A	J A	J A	J A		E B	E B		G	34	35	42	44	46	48	37		J A	J A	E B	E B	J A	J A	J A
20	J A	J A	J A	J A		J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
21	E B	16	22	21	26	25	20	20	32	44	52	58	80	60	46	48	70	52	46	43	63	36	38	24
22	E B	16	16	20	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
23	J A	J A	J A	J A		E B	E B		G	34	32	34	42	42	38	40	32	40	49	23	24	32	25	24
24	E B	16	16	20	16	22	16	16	31	44	40	39	41	41	58	48	45	39	34	22	26	31	25	23
25	J A	J A	J A	J A		J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
26	J A	J A	J A	J A		E B	E B		G	30	34	36	42	42	38	40	32	40	49	23	24	32	25	24
27	J A	J A	J A	J A		E B	E B		G	34	34	35	42	36	38		G	J A	J A	E B	E B	J A	J A	J A
28	J A	J A	J A	J A		E B	E B		G	32	36	34	42	40	44	36		J A	J A	E B	E B	J A	J A	J A
29	J A	J A	J A	J A		E B	E B		G	32	36	34	42	40	44	36		J A	J A	E B	E B	J A	J A	J A
30	J A	J A	J A	J A		E B	E B		G	32	36	34	42	40	44	36		J A	J A	E B	E B	J A	J A	J A
31	J A	J A	J A	J A		E B	E B		G	32	36	34	42	40	44	36		J A	J A	E B	E B	J A	J A	J A
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	22	22	20	E B	E B	E B	E B	23	31	35	36	J A	J A	38	38	35	33	J A	J A	J A	J A	J A	J A	J A
U Q	J A	J A	J A	J A		J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A	J A
L Q	E B	E B	E B	E B	E B	E B	E B	G	30	33	34	G	G	G	G	G	G	G	E B		E B	E B	E B	E B

OCT. 2020 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
D	E	B	E	B	E	B	E	B		E	B	A	A		G	G	G		E	B	E	B	E	B	E	B	E	B		
1	16	16	16	16	16	16	16	24	36	38	91	38	41	36				23	21	16	16	16	16	16	16					
2	E	B	E	B	E	B	E	B		E	B	G		G	G	G		29	24	21	E	B	E	B	E	B	E	B		
3	16	16	16	16	16	16	16	22	28	31	33	35	39		G	34	32	28	24	16	27	15	15	15	15					
4	E	B	E	B	E	B	E	B		E	B	G		G	G		33	31	28	25	25	19	19	19	15	15				
5	E	B	E	B	E	B	E	B		E	B	G		G	G		33	30	25	20	19	19	20	16	16					
6	E	B	E	B	E	B	E	B		E	B	G		G					G	E	B	E	B	E	B	E	B	E	B	
7	16	16	16	16	16	16	16	23	30	32	32	31		G	G				E	B	E	B	E	B	E	B	E	B		
8	E	B	E	B	E	B	E	B		E	B	G		G						E	B	E	B	E	B	E	B	E	B	
9	16	16	16	16	16	16	16	23	30	30	32	34	35	35	35		32	32	24	17	16	16	16	16	16					
10	E	B	E	B	E	B	E	B		E	B	G		G	G					E	B	E	B	E	B	E	B	E	B	
11	18	19	16	16	16	16	16		28	35	36	38	36		G	34	34	34	23	16	16	16	19	20	20					
12	E	B	E	B	E	B	E	B		E	B	G		G						E	B			E	B	E	B	E	B	
13	16	18	16	16	16	16	16	24	30	34	35	36	39	40	36	35	29	24	22	16	20	21	17	17						
14	E	B	E	B	E	B	E	B		E	B	G		G	G					E	B	E	B	E	B	E	B	E	B	
15	E	B	E	B	E	B	E	B		E	B	G		G						E	B	E	B	E	B	E	B	E	B	
16	19	19	16	16	16	16	16		32	34	37	37	33		G	33	29	21	21	17	16	16	19	E	B					
17	E	B	E	B	E	B	E	B		E	B	G		G						G	E	B		E	B	E	B	E	B	
18	16	16	16	18	16	16	16		29	38	38	50	80	53	39	29	32	40	23	23	20	20	23	23						
19	E	B	E	B	E	B	E	B		E	B	G		G						E	B	E	B	E	B	E	B	E	B	
20	16	16	16	16	16	16	16	19	28	36	41	42	41	45	44	34	34	22	25	35	29	24	22	16						
21	E	B	E	B	E	B	E	B		E	B	G		G						E	B	E	B	E	B	E	B	E	B	
22	16	16	16	16	16	16	16		29	38	34	34	36	34	51	41	40	19	19	16	18	23	16	20						
23	20	16	16	16	16	16	15	15		27	28				33	50	35	27	23	25	16	16	16	16	16					
24	17	23	20	15	18	16	15		29		G	32	34	34	34	34	27		G	E	B	E	B	E	B	E	B	E	B	
25	17	16	16	16	16	16	15		27	29	31	34	34	34	31					G	E	B	E	B	E	B	E	B	E	B
26	E	B	E	B	E	B	E	B		E	B	G		G						G	E	B	E	B	E	B	E	B	E	B
27	16	16	16	16	18	16	16	22	28	30	34		35	39	36	30	27	22	22	22	A	A	44	28	23	20				
28	E	B	E	B	E	B	E	B		E	B	G		G						E	B	E	B	E	B	E	B	E	B	
29	16	16	16	16	16	16	16		30	33	35	37	32	34		G				E	B	E	B	E	B	E	B	E	B	
30	E	B	E	B	E	B	E	B		E	B	G		G						G	E	B	E	B	E	B	E	B	E	B
31	16	17	16	16	16	16	16		26		G	G		G		36				G	E	B	E	B	E	B	E	B	E	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31						
MED	E	B	E	B	E	B	E	B		E	B	G		G						E	B	E	B	E	B	E	B	E	B	
UQ	16	16	16	16	16	16	16	23	30	34	36	37	38	36	36	34	32	25	21	19	19	20	17	16						
LQ	E	B	E	B	E	B	E	B		E	B	G		G		G				G	E	B	E	B	E	B	E	B	E	B
	16	16	16	16	16	16	15		27	30	32									16	16	16	16	16	16					

OCT.2020 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

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

OCT.2020 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2020 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	289	315	300	354	391	326	355	390	353	381	A	338	323	354	327	343	345	355	372	402	304	281	302	283	
2	306	320	332	358	326	326	365	380	399	384	353	297	320	338	335	355	365	367	381	370	310	282	304	322	
3	303	348	313	321	375	357	356	394	364	377	338	379	317	369	353	356	387	356	353	345	377	300	313	307	
4	304	324	328	367	355	314	356	395	F	360	369	355	351	368	346	352	359	368	355	359	375	311	312	309	
5	316	331	357	346	357	331	366	395	394	358	379	384	353	334	346	328	364	368	372	385	344	326	302	311	
6	311	316	298	313	336	384	352	400	376	381	356	321	330	341	345	355	362	357	353	355	360	312	324	288	
7	321	314	339	339	314	363	354	396	365	370	374	394	356	351	357	341	352	368	364	377	329	329	299	288	
8	323	316	318	332	337	402	349	380	373	364	380	360	338	357	345	354	356	355	363	353	342	339	347	317	
9	330	326	326	339	352	331	345	401	391	400	355	369	369	323	355	355	375	355	365	368	399	315	330	311	
10	295	305	322	292	311	347	339	395	392	357	376	371	352	374	345	329	R	334	370	389	386	364	321	313	329
11	324	308	308	332	370	347	376	379	390	363	382	369	348	341	303	364	332	341	358	367	359	321	310	364	
12	326	305	305	334	335	334	356	385	370	380	367	349	378	378	340	355	360	345	350	389	378	342	351	332	
13	310	311	317	339	353	347	361	400	383	355	378	370	356	369	349	330	345	358	363	369	377	358	374	327	
14	317	312	324	337	322	358	361	414	380	377	392	343	335	357	338	337	361	373	378	393	401	321	359	303	
15	308	313	307	345	376	408	336	386	397	365	360	386	354	344	305	350	355	376	357	381	344	344	321	304	
16	327	F	327	F	F	F	420	400	374	375	346	335	353	371	339	342	362	368	367	390	344	328	332	323	
17	314	290	303	292	312	393	356	397	384	396	377	336	349	323	345	354	334	350	366	406	340	350	327	319	
18	303	330	320	320	336	332	362	383	376	369	377	363	A	358	345	342	352	374	370	378	310	335	350	344	
19	321	322	322	323	323	391	363	367	368	388	372	356	355	359	314	339	347	371	348	374	320	325	320	317	
20	317	328	336	332	332	369	345	372	390	372	377	358	359	346	325	330	354	375	386	349	337	354	345	F	
21	F	328	329	311	369	383	335	389	382	386	374	379	361	320	343	353	368	387	356	362	302	327	343	346	
22	326	314	331	334	312	314	333	394	381	370	386	361	362	345	343	367	374	379	342	335	323	329	341	352	
23	336	312	318	325	352	338	351	390	354	361	392	397	364	350	350	372	362	373	355	357	352	300	322	326	
24	285	317	317	341	360	377	335	371	341	337	394	397	363	339	345	351	384	367	355	318	306	313	334	329	
25	307	298	305	319	364	366	328	372	343	383	367	367	371	323	352	359	368	379	378	340	345	327	299	314	
26	300	313	329	340	358	321	333	394	365	378	381	371	355	326	338	356	393	370	372	367	310	317	312	304	
27	301	329	321	333	374	324	345	390	367	371	366	357	362	346	364	358	353	382	374	337	A	335	322	325	
28	333	330	319	337	321	359	353	401	395	395	342	354	367	333	365	352	357	381	358	371	345	326	319	316	
29	300	317	337	356	352	341	333	365	387	401	385	374	332	345	344	355	363	352	374	379	356	308	315	310	
30	333	344	332	288	317	336	367	367	388	339	381	354	342	341	375	372	376	340	361	349	334	341	342	342	
31	313	321	332	322	325	319	383	396	382	384	344	353	363	329	347	343	359	394	362	320	328	350	370	321	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	31	30	30	30	31	31	30	31	30	31	30	31	31	31	31	31	31	31	30	31	31	30	
MED	314	316	322	334	344	347	354	390	380	375	375	361	354	345	345	353	360	368	363	368	344	326	322	318	
U Q	324	328	331	340	360	369	362	396	390	384	381	374	362	358	350	356	368	375	372	381	360	339	343	329	
L Q	303	312	313	321	323	331	339	380	367	363	360	353	342	334	338	342	352	355	355	349	323	313	312	309	

OCT. 2020 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

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

OCT.2020 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT. 2020 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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										236	A 266	232	232	274	266	266	250								
2										236	264	398	290	262	266	244	244								
3										236	284	244	290	226	238	254									
4										254	244	244	250	222	272	272	256								
5										256	226	226	244	258	258	302	250	230							
6											250	326	268	252	252	242	230								
7										230	230	210	248	248	256	256		224							
8										224	224	246	274	230	276	252	E A 272								
9										232	260	260	246	246	246										
10										246	232	254	254	226	280	284	264								
11									216		224	244	274	260	264	240	262	246							
12								228	244	236	246	260	234	234	294	272	246	240							
13									242	236	244	244	232	280	290	248	218								
14										218	282	254	264	282	266	234									
15							E A 234			234	246	234	250	264	332	252	234								
16										268	278	244	218	282	258	236									
17										232	242	292	238	268	268	238	248								
18										230	E A 248	A 258	E A 244	254	236	230									
19										250	250	232	234	284	254	212									
20										232	242	232	E A 234	278	260	238									
21										228	232	228	250	316	262	248	232								
22										226	226	226	238		264	234	228								
23										228	220	220	236	E A 256	254	234									
24										266		226	244	260	260	232									
25										232	232	232	232	274	248	234									
26								252				234	240	258	258	258									
27									228			234	250	258		240	240								
28										250	242	232	254	232	252										
29										238	238	248	248	234	238										
30										224	252	252	252	242	242	242									
31										220	254	250	240	260	242	242									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							1	1	3	21	26	31	30	30	30	30	21	7							
MED							E A 234	228	244	232	237	244	245	252	263	252	241	230							
U Q									252	239	250	260	252	260	278	260	253	246							
L Q									216	228	226	234	238	234	248	240	234	224							

OCT. 2020 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

OCT.2020 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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

OCT.2020 h'E (KM)

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OCT.2020 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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	96	84	84	84	84	88	B	102	98	92	82	82	82	82	G	G	G		98	88	84	84	92	92	92	
2	92	92	92	92	84	B	B	102	100	G	90	G	98	G	G	G	138	124	90	84	90	90	90	90	90	
3	90	90	90	90	90	90	92	132	104	104	100	94	90	G	158	132	156	142	122	90	90	90	90	90	90	
4	90	B	B	90	B	B	B	122	G	104	104	G	G	G	112	100	152	120	110	96	96	96	96	96	96	
5	B	102	B	B	B	B	B	118	118	102	92	G	G	G	G	140	120	118	96	90	90	90	90	90	90	
6	90	90	B	B	B	B	B	126	126	118	100	100	96	88	120	120	120	G	92	90	108	94	B	88	88	
7	94	94	94	B	B	B	132	126	122	122	122	100	G	G	130	G	138	124	B	94	B	B	B	94	94	
8	B	94	B	B	B	B	132	132	120	120	120	G	G	G	134	134	100	94	94	94	94	B	100	B	100	
9	B	B	B	B	B	B	114	102	122	108	108	102	102	112	G	140	128	128	88	88	88	88	B	B	B	
10	88	B	88	B	B	B	B	140	118	G	100	100	G	G	G	144	148	86	B	88	B	B	126	118	118	
11	118	96	96	96	96	86	86	G	112	112	112	96	96	G	96	110	110	116	B	94	94	94	94	94	92	92
12	92	118	B	B	84	B	B	144	142	116	102	106	102	102	102	G	132	122	116	B	90	90	B	B	B	
13	90	90	90	90	90	82	88	114	114	116	110	98	98	98	98	98	94	88	88	90	92	92	92	B	92	
14	B	92	B	B	B	B	116	116	116	116	G	G	G	G	138	132	98	98	98	B	92	B	116	116	116	
15	B	B	98	92	92	94	94	G	118	114	100	94	94	94	94	94	94	94	94	92	92	92	92	88	88	
16	88	88	88	B	88	B	94	G	G	116	116	100	84	84	G	132	132	80	80	B	B	94	94	94	94	
17	94	94	94	94	94	80	80	120	120	116	104	94	94	94	94	94	G	G	94	94	94	94	94	94	94	94
18	B	94	94	94	90	88	88	G	112	104	96	88	88	88	88	94	94	90	90	90	90	90	90	90	90	90
19	B	B	90	B	90	90	B	146	124	124	96	96	96	96	96	96	96	86	86	86	90	92	110	90	B	
20	90	90	B	B	B	B	B	114	114	98	98	98	98	98	90	90	90	90	90	86	86	86	86	86	86	86
21	B	86	B	86	B	90	B	G	114	114	110	96	96	96	96	136	86	86	86	86	86	86	86	86	86	86
22	B	B	86	B	90	B	B	G	116	98	98	100	96	96	86	86	86	86	86	90	90	90	90	86	86	86
23	92	92	92	92	92	86	B	G	108	104	G	G	G	G	100	96	108	128	92	92	B	B	B	B	B	
24	92	92	92	B	B	90	B	114	110	G	G	96	96	96	96	96	96	G	G	92	92	92	92	92	92	
25	82	82	B	B	B	B	B	G	116	100	100	100	100	100	100	G	G	G	100	82	B	B	B	B	88	
26	B	88	88	B	B	B	B	G	148	110	G	110	110	110	G	G	92	G	112	88	88	88	88	88	88	
27	B	B	88	B	86	96	122	108	98	98	144	G	92	150	100	116	116	92	90	86	86	86	86	86	86	86
28	86	B	B	86	B	B	B	G	108	108	108	98	98	98	98	98	98	98	98	86	86	86	86	86	B	86
29	B	86	B	B	B	B	B	G	116	108	108	98	98	98	G	G	124	106	86	86	94	B	B	B	B	
30	B	B	116	108	B	96	96	G	144	G	G	G	G	G	150	G	G	G	B	B	90	112	B	B	102	
31	B	B	B	B	B	B	B	G	124	G	120	114	106	104	104	104	104	102	G	102	94	94	94	94	88	
	00	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	18	13	14	13	13	19	28	27	26	23	23	23	22	23	27	24	26	27	25	24	23	23		
MED	90	92	91	92	90	90	94	120	116	110	103	98	96	98	98	104	110	96	92	90	90	91	92	90		
U Q	93	94	94	94	92	92	119	132	121	116	110	100	98	104	112	132	132	119	98	92	94	94	94	94		
L Q	89	88	88	88	86	86	88	114	111	104	98	96	94	94	96	96	94	89	88	86	88	89	90	88		

OCT.2020 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

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

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	F2	F3	F2	F1	F1	L1		L2	L5	L4	L7	L4	L3	L3			L2	L2	F1	F2	F2	F1	F2	
2	F1	F2	F2	F1	F1			L1	L7		L2		L1				C2	C4	L3	F1	F1	F1	F2	F2
3	F2	F2	F2	F2	F4	L2	L2	C2	L2	L3	L2	L2	L2		H1	C1	H1	H2	C1	F6	F1	F2	F2	F1
4	F1			F2				C2		L3	L2				C1	L2	H1	C2	C7	F8	F2	F3	F1	F1
5		F1						C2	C2	L2	L1					H1	C2	C3	L4	F6	F6	F7	F4	F2
6	F1	F2						C3	C3	C2	L3	L2	L1	L4	C1	C2	C2		L2	F1	F3	F1		F2
7	F2	F2	F1				C1	C4	C4	C1	C1	L2			C1		H2	C5		F1				F3
8		F2					C2	C2	C2	C1	C1			C1	H2	L3	L6	L7	L2	F3		F3	F1	
9							C1	L5	C3	C2	C2	L2	L1	C1		H2	C2	C2	L2	F1	F3	F1		
10	F2		F1					H2	C2		L1	L2				H1	H1	L4		F2			F3	F2
11	F3	F9	F3	F1	F2	L2	L1		C2	C2	C2	L2	L2		L1	C1	C3	C2		F3	F1	F4	F2	F2
12	F1	F2			F1			H2	H2	C2	L2	C2	L2	L1	L1		C2	C3	L4		F2	F2		
13	F3	F4	F2	F2	F3	L2	L1	L4	L3	C1	C3	L1	L2	L2	L2	L3	L4	L4	L6	F3	F3	F2	F1	
14		F2					C1	C2	C2	C2					H1	H2	L3	L2	L1		F1		F1	F1
15			F1	F2	F6	L1	L3		HL23	C3	L2	L2	L2	L1	L2	L3	L4	L2	L2	F6	F3	F2	F2	F4
16	F4	F4	F2		F1		L1			C1	C2	L2	L2	L2		H1	HL12	L2	L3			F3	F2	F2
17	F2	F2	F2	F3	F1	L2	L3	CL22	CL22	C2	L3	L2	L2	L2	L2	L2			L1	F6	F9	F6	F3	F1
18		F2	F1	F5	F3	L2	L1		CL32	L3	L2	L5	L4	L3	L2	L2	L3	L5	L5	F3	F3	F4	F3	F2
19			F2		F2	L1		H2	CL22	CL22	L2	L2	L3	L3	L2	L2	L4	L4	L1	F1	F2	F1	F1	
20	F1	F1						CL22	CL22	L2	L4	L3	L3	L3	L3	L2	L4	L3	L9	F3	F4	F3	F3	F2
21		F1		F2		L1			C2	C1	C1	L2	L2	L2	L2	H1	L6	L7	L1	F2	F2	F2	F1	F1
22			F1		F1				C2	L3	L1	L1	L2	L1	L4	L4	L5	L1	L2	F1	F2	F3	F2	F3
23	F3	F2	F2	F2	F1	L2			C2	L3				L1	L3	C2	C1	L3	L5					
24	F2	F3	F3			L1		C3	L3			L2	L2	L2	L2	L3	L4			F1	F2	F3	F6	F2
25	F4	F1							C1	L2	L2	L2	L2	L2					L1	F2				F1
26		F2	F2						H2	C2		C2	C1	C1			L2		C1	F2	F2	F1	F2	F1
27			F2		F3	L1	C1	L3	L2	L2	H1		L2	HL12	L2	C2	C2	L2	L2	F6	F6	F5	F4	F2
28	F2			F2					C2	C1	C1	L1	L2	L2	L2	L3	L3	L2	L1	F1	F2	F3	F1	
29		F2							C3	C2	C2	L2	L1	L1			C2	L3	L5	F1	F1			
30			F1	F1		L1	L1		H1					H1						F1	F2			F2
31								C2		C2	C2	L2	L1	L2	L1	L2	L2		L2	F2	F1	F2	F1	F2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

OCT.2020 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT.2020 f_{XI} (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

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

OCT.2020 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2020 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	C	C	C	C	C	C	C	C	C	C	78	80	100	115	122	117	J R	J R	J R	100	53	34	33	28	29	
2	35	40	43	32	22	22	26	52	60	60	62	64	81	91	102	110	100	81	66	46	29	29	32	31		
3	31	31	31	31	35	21	24	46	52	58	71	68	J R	90	110	C	C	J R	85	59	59	55	44	31	33	38
4	38	F	F	38	34	28	26	24	48	52	58	69	76	97	O R	R	92	85	69	62	48	32	34	41		
5	38	42	41	33	29	25	26	47	52	52	78	84	87	110	116	116	116	102	84	60	43	34	37	38		
6	39	39	38	38	38	26	29	48	53	61	53	57	79	91	88	80	70	74	70	43	37	32	32	31		
7	31	32	32	30	22	19	24	49	53	66	81	90	78	H	87	100	100	83	69	77	53	34	32	32	32	
8	32	31	30	30	34	23	22	45	54	55	69	78	61	75	86	96	91	78	80	58	38	33	30	29		
9	27	27	26	26	27	21	22	C	52	56	56	70	68	69	81	73	H	H	61	60	52	40	25	28	27	
10	28	27	27	27	26	26	27	50	54	57	60	76	72	76	79	H	R	99	104	109	66	28	28	35	32	
11	28	26	29	27	30	27	25	42	51	52	57	58	61	59	64	66	73	82	86	61	36	31	34	32		
12	30	31	31	30	28	26	25	46	49	55	60	68	74	61	58	57	59	60	73	74	64	34	38	28	A	
13	29	30	30	27	25	23	25	48	53	59	62	71	75	59	62	66	84	91	82	75	38	35	27	A		
14	A	26	28	28	32	25	26	51	55	59	56	64	68	65	68	84	99	91	87	74	47	40	40	32	A	
15	33	34	35	46	52	31	A	45	49	58	60	67	63	68	78	77	82	85	80	57	36	31	A	30		
16	29	29	30	27	31	34	25	42	48	54	58	64	90	90	118	126	131	102	101	84	38	32	36	37		
17	38	42	44	47	54	36	30	44	55	54	58	63	74	J R	81	102	109	108	109	94	82	53	46	48	41	
18	38	34	35	32	33	30	28	46	56	64	A	64	68	67	81	84	J R	96	90	85	95	79	65	61	48	
19	33	31	32	30	32	30	25	50	55	54	65	76	80	79	R	118	140	137	123	103	91	55	54	55	55	
20	54	50	38	36	40	34	24	50	56	62	61	72	77	69	83	99	H	108	126	96	54	43	49	44	32	
21	28	32	32	31	31	22	21	48	60	66	72	73	77	R	82	96	R	116	89	50	43	42	41	45	34	
22	32	34	33	34	34	30	31	52	56	71	66	87	63	66	80	91	85	62	52	54	51	48	53	53		
23	48	44	42	40	44	26	28	46	53	69	94	87	61	69	J R	83	77	69	65	45	44	34	26	28	28	
24	28	29	29	31	34	20	20	48	56	71	104	79	60	65	87	95	73	57	55	43	37	37	37	34		
25	28	29	29	30	34	26	25	49	57	76	79	81	83	79	76	98	86	62	50	42	46	32	31	30		
26	30	32	32	31	30	28	26	50	53	73	68	85	68	80	96	84	95	78	51	46	46	42	44	38		
27	36	33	31	32	22	24	24	56	60	62	71	81	82	90	106	107	89	70	59	47	43	36	36	34		
28	38	35	31	30	36	35	22	52	60	58	62	89	92	127	R	R	95	69	57	51	54	54	51	47		
29	48	47	38	39	34	20	22	50	65	70	66	80	83	96	96	64	69	83	70	46	34	39	33	33		
30	34	33	30	28	28	29	26	48	60	58	64	85	80	92	85	74	63	58	61	51	35	38	38	31		
31	29	30	30	30	32	30	30	48	55	64	63	79	88	100	114	114	104	99	63	44	37	45	38	28		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	29	30	30	30	30	30	29	29	30	30	30	31	31	31	30	30	31	31	31	31	31	31	30	30		
MED	32	32	32	31	32	26	25	48	54	59	64	76	77	80	88	96	91	82	70	54	40	34	36	32		
U Q	38	38	38	34	34	30	26	50	56	66	71	81	83	92	106	110	104	99	86	66	47	42	44	38		
L Q	29	30	30	30	28	23	24	46	52	56	60	67	68	68	80	77	73	65	59	46	36	32	32	30		

OCT. 2020 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

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							C	C	C	C	440	436	460	448	452	428	408	L						
2										L	444	444	A	456	476	424	L							
3										U L	420	444	U L	452	444	444	C	C			400	L		
4										U L	424	432	452	424	432	444	420	L	L					
5									L	L	424	448	452	452	448	424	400							
6									L	L	408	L	A	456	444	436	432	400	L	A				
7									L	L	416	440	444	448	472	452	424	L	A					
8										L	L	448	452		436		L	L	L					
9								C		L	408	424	436	452	444	468	A	A	A					
10									L	U L	372	464	440	448	444	440	436	412	L					
11										L	440	448	448	436	428		L	L						
12										L	432	436	432	436	452	452	L	L						
13										L	440	440	440	452	444	472	L	L	L					
14									L	L	436	452	448	448	424		388	L	A					
15							A			A	444	444	472	432	420	400	L	L	L					
16									L	L	432	448	436	428	452	420								
17									L	L	436	452	436	444	444	424	L	L	L					
18										A		A	A	A	A	A		L	L					
19										L	A	A	A	444	A	428								
20										A	A	A	A	460	464	432	412	L						
21									L	L	420	440	444	440	460	440	420	396	L					
22										U L	440	440	440	460	444	424	392	L						
23										L	424	436	440	456	476	440	L							
24										U L	408	L	440	456	464	444	420	L	L	L				
25									L	L	L	448	460	472	444		L	L	L					
26									L	L	L	444	440	484	448		L	L	L					
27										L	440	L	452	448		428	L	L	L					
28										L	L	452	448	444	448		L	L	L					
29										L	L	464	456	468	440		L	L	L					
30										L	U L	492	456	456	440		408	L	L					
31										L	U L	436	456	472	460	444	L	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										9	20	26	26	29	26	19	11							
MED										L	416	440	446	448	448	444	424	400						
U Q										U L	422	440	452	456	462	452	432	408						
L Q										L	408	434	440	440	444	440	420	392						

OCT.2020 foF1 (0.01MHz)

IONOSPHERIC DATA STATION Okinawa

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

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

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							C	C	C	C	A	A	A	A	A	A	280	220		A				
2							A	A	A	A	A	A	332	332	316	300	272	220		A				
3							B		U A				A		C	C		276	220					
4							B	188	240	276	304	324		328			U A	U A	A	A				
5							B	200		276			A	A	A	320	296	272						
6							B	200		272	300		A	A	A		308	268	240					
7							B	172	228	280	304	320	328	308	308	296	276	220		A				
8							B	184		276		U A	U A		A	308	300	268						
9							B	A	A		252	U A	U A		288	316	324	316	300	264	216			B
10							B	C		248	288	304	320	324	324	316	292	260	216					A
11							B	192	244	280	288	332	344	332	320	304	264	216						B
12							B	188	264	292	308	324	U A	A	U A									A
13							B	180	232	292	308	324	324	312	296	284	264	232						B
14							B	A		236	280	304	320	328	324	308								A
15							B	180	248	284		320	A		336	320	296	256						A
16							A	184	252	284	308		320	A		288		260	224					B
17							B	160	240	284	308	316	324	316	316	296	264	208						A
18							B	176	256	284	308	320	324	316	308	284		A	A	A				B
19							B	192	252	284	308	320	328	320	308									A
20							B	184		288	312	324		A	A	A	296	252						A
21							B	168	236	284	304	320	320	312	296		U A	A	A	A	A			A
22							B	A		236	288	304	316	316		A	A	A	A	A				B
23							B	A	A	A	A	A	A	A	A	A	A	A	A					A
24							B	184	244			A	A	320	324	304	284	248	208					A
25							B	A		260	280		A	A	A	A		256						A
26							B	172	248	284	U A	308	U A	U A	A	A		A	A	A				A
27							B	A		236	268	304	320	328	324	308	284		A	A	A			A
28							B	A	A	A	A	A	A		336	316			196					A
29							B	U A	U A								U A	A	A	B				
30							B	240	280	308	324	332	320	304	292									A
31							B	A	A		280	300	312	316	328	320	300							A
							B	A	A				A				A	A	A					A
										268	304	320		324	300									
CNT								17	19	25	20	21	20	21	23	19	19	14						
MED								184	244	280	304	320	324	324	308	296	264	220						
U Q								190	252	284	308	324	328	328	316	300	272	224						
L Q								174	236	276	304	316	320	316	304	288	256	216						

OCT.2020 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

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	C	C	C	C	C	C	C	C	C	C	J	A	J	A	J	A	J	A	J	A	J	A	J	A
2	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
3	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
4	18	20	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
5	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
6	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
7	18	20	18	18	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
8	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
9	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
10	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
11	32	26	24	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	
12	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
13	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
14	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
15	18	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	
16	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
17	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
18	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
19	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
20	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
21	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
22	19	18	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
23	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
24	19	20	18	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	
25	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
26	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
27	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
28	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
29	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
30	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
31	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	29	30	30	31	31	31	31	30	30	31	31	31	31	31	31	31	31
MED	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
UQ	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
LQ	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B

IONOSPHERIC DATA STATION Okinawa

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

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

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	C	C	C	C	C	C	C	C	C	C	32	34	34	34	35	33	G	G	18	20	20	E	B	E	B	E	B	E	B	E	B	
2	E	B	E	B	E	B	E	B	E	B	21	30	36	32	36	44	38	35	32	29	24	21	E	B	E	B	E	B	E	B	E	B
3	E	B	E	B	E	B	E	B	E	B	21	31	31	34	36	35	G	C	C	32	30	21	26	23	16	16	16	16	16	16	16	
4	E	B	E	B	E	B	E	B	E	B	24	28	32	35	36	37	36	37	40	30	24	18	29	E	B	E	B	E	B	E	B	
5	E	B	E	B	E	B	E	B	E	B	22	28	32	33	36	36	36	34	32	30	G	22	22	21	16	20	E	B	E	B	E	B
6	E	B	E	B	E	B	E	B	E	B	24	30	34	38	46	38	38	35	36	31	54	32	20	E	B	16	18	18	16	E	B	
7	E	B	E	B	E	B	E	B	E	B	23	28	32	33	34	34	34	35	36	39	32	39	37	19	16	16	16	16	E	B	E	B
8	E	B	E	B	E	B	E	B	E	B	21	28	32	34	36	40	42	40	42	32	32	E	B	E	B	E	B	E	B	E	B	
9	E	B	E	B	E	B	E	B	E	B	C	32	34	35	36	40	37	37	41	41	31	20	16	16	16	16	16	16	16	16	16	
10	E	B	E	B	E	B	E	B	E	B	G	16	28	31	33	36	G	G	41	38	35	33	G	E	B	16	18	18	16	E	B	
11	E	B	E	B	E	B	E	B	E	B	16	29	38	41	41	40	35	38	36	36	29	20	16	16	16	16	16	16	16	16	16	
12	E	B	E	B	E	B	E	B	E	B	21	28	34	34	37	35	34	32	33	32	26	E	B	E	B	E	B	E	B	E	B	
13	E	B	E	B	E	B	E	B	E	B	22	30	33	35	35	39	41	42	34	37	22	16	18	24	16	16	16	16	E	B	E	B
14	A	A	20	E	B	E	B	E	B	E	B	20	29	31	34	36	34	22	24	44	37	36	19	16	16	16	16	16	16	16	16	
15	E	B	E	B	E	B	E	B	E	B	G	25	16	33	44	40	48	40	35	32	30	24	E	B	E	B	E	B	E	B	E	B
16	E	B	E	B	E	B	E	B	E	B	18	27	34	34	37	38	G	G	20	36	30	18	24	16	20	16	24	E	B	E	B	
17	E	B	E	B	E	B	E	B	E	B	21	29	36	35	36	35	40	36	31	30	23	E	B	E	B	E	B	E	B	E	B	
18	E	B	E	B	E	B	E	B	E	B	G	30	40	66	60	52	63	62	42	30	24	E	B	E	B	E	B	E	B	E	B	
19	E	B	E	B	E	B	E	B	E	B	G	29	32	54	52	48	37	45	34	34	26	20	E	B	E	B	E	B	E	B	E	B
20	E	B	E	B	E	B	E	B	E	B	20	32	39	50	45	45	41	41	36	37	35	41	42	26	18	20	22	E	B	E	B	
21	E	B	E	B	E	B	E	B	E	B	20	29	32	33	35	36	40	36	32	30	20	E	B	E	B	E	B	E	B	E	B	
22	E	B	E	B	E	B	E	B	E	B	19	28	32	33	35	33	38	35	32	29	20	16	16	16	16	16	16	16	16	16	16	
23	E	B	14	23	21	18	E	B	E	B	21	G	30	36	33	G	40	34	34	30	24	20	18	E	B	E	B	E	B	E	B	
24	E	B	E	B	E	B	E	B	E	B	20	E	B	33	32	34	35	36	33	30	G	20	35	16	16	16	21	E	B	E	B	
25	E	B	E	B	E	B	E	B	E	B	20	27	36	37	37	39	40	32	31	25	21	22	21	16	16	16	16	16	16	16	16	
26	E	B	E	B	E	B	E	B	E	B	22	26	33	33	36	34	34	34	32	30	22	20	E	B	16	18	E	B	E	B	E	B
27	E	B	E	B	E	B	E	B	E	B	18	28	30	32	33	34	20	37	35	28	21	19	20	24	16	16	16	16	16	16	16	
28	20	18	E	B	E	B	E	B	E	B	20	28	34	35	36	39	38	36	34	30	22	E	B	E	B	E	B	E	B	E	B	
29	E	B	E	B	E	B	E	B	E	B	23	31	32	42	40	37	35	37	35	39	39	51	29	21	16	16	16	16	16	16	16	
30	E	B	E	B	E	B	E	B	E	B	21	30	29	30	37	G	34	35	G	G	22	16	16	16	16	16	16	16	16	16	16	
31	E	B	E	B	E	B	E	B	E	B	20	28	32	36	38	36	36	34	32	29	22	43	33	24	16	20	E	B	E	B	E	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
CNT	30	30	30	30	30	30	30	29	30	30	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
MED	E	B	E	B	E	B	E	B	E	B	21	28	32	34	36	36	36	35	34	30	24	20	16	16	16	16	16	16	16	16	16	
UQ	E	B	E	B	E	B	E	B	E	B	22	30	34	37	38	40	40	37	36	35	31	22	21	21	16	18	16	16	16	16	16	
LQ	E	B	E	B	E	B	E	B	E	B	20	28	32	33	35	34	34	34	32	29	21	E	B	E	B	E	B	E	B	E	B	

OCT.2020 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

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

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

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

OCT.2020 fmin (0.1MHz)

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OCT. 2020 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	C	C	C	C	C	C	C	C	C	C	360	331	316	327	307	305	J R	J R	J R	391	405	304	294	297	292	
2	297	309	339	374	282	340	330	399	374	365	351	333	305	311	300	331	329	377	373	381	368	300	307	305		
3	313	311	313	321	385	376	333	397	362	343	362	302	J R	250	335	C	C	J R	294	349	366	369	361	308	303	305
4	323	307	F	F	348	361	346	330	381	370	347	352	315	338	350	O R	R	325	292	351	370	360	345	305	291	
5	287	318	315	319	362	358	344	398	399	370	356	369	327	302	321	335	340	343	372	377	350	302	304	308		
6	307	323	326	329	345	351	361	405	381	405	357	301	329	335	325	347	345	367	384	365	327	308	313	302		
7	298	309	333	374	351	329	339	385	373	362	362	369	331	H	311	303	314	315	334	367	383	339	317	312	296	
8	296	309	309	325	352	390	326	387	399	382	363	369	316	325	281	336	355	355	372	369	362	324	332	312		
9	301	290	316	320	359	384	348	C	406	390	366	361	347	319	326	327	H	H	329	360	382	349	386	304	321	318
10	306	314	315	317	321	339	350	387	401	359	343	351	345	327	301	282	H	R	331	365	384	417	350	301	299	302
11	311	310	321	318	354	353	364	396	399	379	358	348	364	337	338	328	331	347	370	389	350	310	323	351		
12	324	321	336	354	351	350	323	404	372	362	377	365	360	378	343	322	349	356	355	363	382	315	352	322	A	
13	318	324	348	362	355	343	348	399	392	376	351	354	391	350	325	292	336	360	364	388	378	332	380		A	
14	A	317	325	327	379	351	368	409	395	389	369	340	345	338	293	305	348	363	371	372	339	299	299	319	A	
15	310	312	301	311	382	372	A	401	389	381	351	362	335	284	312	325	333	361	367	411	376	309		330		
16	315	328	318	321	334	381	357	402	387	369	362	329	338	304	300	330	359	364	373	395	378	303	316	313		
17	302	313	321	340	376	388	369	394	391	357	380	324	343	J R	296	292	302	331	348	327	350	348	317	348	306	
18	280	328	328	334	362	379	337	390	372	393	A	355	334	323	328	331	J R	J R	284	345	364	305	357	327	367	289
19	333	314	347	326	344	383	351	396	400	372	351	350	344	288	R	319	329	341	356	346	379	333	340	335	339	
20	293	294	324	331	361	406	313	382	396	382	340	343	360	341	288	321	R	R	330	361	292	371	318	336	373	306
21	296	304	321	340	366	319	333	374	382	365	362	353	359	248	R	312	352	337	391	359	333	315	305	327	311	
22	305	325	330	335	354	320	329	392	400	383	349	383	360	322	J R	328	353	371	359	342	341	320	348	348	340	
23	329	320	322	312	357	367	337	373	360	360	380	411	371	275	J R	287	339	363	385	364	360	377	337	313	350	
24	308	303	316	321	361	413	309	386	357	316	368	405	371	304	329	349	361	371	368	346	314	315	340	357		
25	308	303	324	322	381	323	331	372	374	363	353	354	340	328	324	363	384	386	363	333	345	325	301	300		
26	293	319	327	374	340	357	335	375	383	361	371	368	355	312	322	353	355	384	364	344	311	293	304	291		
27	298	326	330	383	353	361	377	384	395	347	360	325	339	313	351	356	359	376	377	333	361	319	314	323		
28	312	316	317	323	356	397	359	383	389	382	333	352	327	318	R	R	332	342	328	352	365	341	330	327	316	314
29	318	330	331	326	373	344	340	361	387	382	368	341	339	331	343	340	338	358	382	379	305	306	298	311		
30	321	349	338	316	323	340	352	387	384	375	326	344	333	340	341	374	374	357	371	383	344	307	347	348		
31	316	315	324	319	326	344	383	386	390	370	350	336	327	311	339	341	346	355	357	381	313	337	357	287		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	29	30	30	30	30	30	29	29	30	30	30	31	31	31	30	30	31	31	31	31	31	31	30	30		
MED	308	314	324	326	356	355	340	387	388	370	359	351	339	322	322	331	338	359	367	370	348	315	316	311		
U Q	317	323	330	340	362	381	358	398	396	382	366	365	359	335	329	347	355	367	373	383	362	327	347	323		
L Q	298	309	317	320	345	343	330	382	374	361	351	333	329	304	301	321	329	349	359	346	320	304	304	302		

OCT. 2020 M(3000)F2 (0.01)

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

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

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							C	C	C	C	387	412	391	403	374	368	361		L						
2										L	392	414	A	380	364	373	L								
3										U L	381	382	U L	U L	C	C			L						
4										U L	377	386	383	438	431	375	A	L	L						
5									L	L	415	402	401	405	380	370	367								
6									L	L	414	L	A	409	411	386	387	382	L	A					
7										L	384	375	387	404	388	372	372	L	A						
8										L	L	L	388	391		364	A	L	L						
9								C		L	408	405	398	407	427	380	A	A	A						
10									L	U L	459	369	415	411	421	A	A	363	364						
11										U A	393	401	446	441	372			L	L						
12										L	394	418	425	425	402	365	L	L							
13										L	389	400	409	402	U L	A	U L	L	L						
14									L	L	402	388	398	406	441	A	A	A							
15							A			A	399		A	U L	374	418	401	371	L	L					
16									L	L	396	396	411	430	387	355									
17									L	L	386	400	439	377	371	378	L	L	L						
18										A	A	A	A	A	A	A			L						
19										L	A	A	A	413	A	372									
20										A	A	A	A	L	L	L	L	L							
21									L	L	391	385	399	416	387	351	356	382	L	L					
22										U L	390	390	412	355	370	368	386								
23										L	382	380	405	405	368	383	L								
24										U L	387	L	386	400	370	366	378	L	L						
25										L	L	L	L	U L	U L	L	L	L							
26									L	L	L	380	419	367	372	L	L	L							
27										L	L	385	L	402	374	L	371	L							
28										L	L	L	383	413	382	371	L	L							
29										L	L	L	377	388	379	382	L								
30										L	U L	361	372	390	415	L	385	L							
31										L	U L	395	386	379	376	372	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT										9	20	26	26	29	24	18	10								
MED										L	387	388	394	408	388	373	370	376							
U Q										L	411	394	401	413	414	384	378	382							
L Q										U L	382	384	386	398	374	370	363	367							

OCT.2020 M(3000)F1 (0.01)

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OCT.2020 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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							C	C	C	C	244	256	276	258	258	256	254	222						
2										240	252	292	286	272	286	254	234							
3										280	254	274	310	262	C	C	242	236						
4										260	256	278	262	252	226	244	236	234						
5									220	230	248	230	244	262	274	258	236							
6									222	212	244	314	274	270	266	244	250	234						
7										242	242	232	232	262	278	246	252							
8										234	252	228	290		306	258	236	230						
9								C		224	248	256	248	290	266	266	248	240						
10									210	242	284	256	250	282	274	290	254							
11										268	252	258	290	282		256	246							
12										226	242	238	234	234	282	308	254	240						
13										236	264	256	220	264	300	326	260	232						
14									218	216	252	286	262	274	320	284	238	226						
15							A			266	252	262	314	280	268	256	226							
16									212	242	258	294	260	256	272	262								
17									214	228	242	292	246	272	268	254	236	222						
18											A E A	288	270	E A	334	272	250	246	232					
19										224	270	256	260	256	270	236								
20										282	264	240	262	316	268	264								
21									222	244	240	244	240	334	296	246	230							
22										258	220	242	296	276	244	220								
23										244	224	202	226	336	276	250								
24										284	232	206	248	342	260	242	226							
25									226	242	250	244	250	266	280	238	216							
26									208	248	226	234	242	292	264	234								
27										234	248	262	236	274	256	242								
28										212	254	242	256	252	234	212	234							
29										222	246	260	242	272	234									
30										226	302	258	242	256	244	230	222							
31										240	252	262	268	260	248	234	234							
	00	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	25	30	31	31	30	30	28	25	13						
MED									218	236	252	256	250	270	273	250	238	232						
U Q									222	243	258	274	262	290	282	264	254	238						
L Q									211	225	244	238	242	260	260	242	234	226						

OCT.2020 h'F2 (KM)

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OCT. 2020 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

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	C	C	C	C	C	C	C	C	C	C	198	172	188	186	192	212	208	214	194	184	224	250	294	302				
2	292	240	224	200	282	250	238	206	212	212	204	200	A	206	196	H	202	226	216	204	190	186	268	280	272			
3	270	268	256	248	204	216	236	196	208	202	194	200	184	166	C	C	222	E	A	218	202	210	242	286	270			
4	244	248	248	212	216	224	242	210	206	204	204	196	174	174	224	A	206	218	212	206	206	212	252	266				
5	278	244	212	226	214	218	230	198	206	200	190	190	180	188	190	206	212	222	202	190	200	202	276	270				
6	274	252	248	250	212	232	210	188	200	196	218	A	184	190	208	208	220	A	204	206	216	250	264	276				
7	276	264	234	206	240	272	244	210	210	208	202	192	184	174	200	234	A	250	212	212	208	242	244	286				
8	298	272	272	252	208	194	258	206	214	198	182	198	214	270	264	A	228	A	210	192	E	A	222	218	262			
9	300	292	280	256	214	216	242	C	204	202	192	184	194	156	212	A	A	A	220	202	182	240	258	268				
10	284	284	282	274	260	230	222	194	194	184	192	188	178	192	A	E	A	E	A	246	240	232	204	172	206	272	254	292
11	298	290	258	288	208	218	198	188	202	236	248	234	182	172	252	278	A	240	206	182	192	258	236	236				
12	256	248	234	220	220	222	242	190	192	192	198	178	180	168	158	216	226	226	214	206	184	200	206	242	A			
13	260	256	230	208	220	242	206	200	210	208	200	194	206	214	A	218	A	222	208	206	200	222	210	A				
14	A	E	A	310	264	252	208	196	206	196	198	198	180	196	180	178	162	A	A	204	182	178	210	224	254			
15	280	270	266	228	196	184	A	200	208	234	A	A	A	226	180	164	230	222	204	180	194	242	A	248				
16	270	256	262	262	228	186	196	182	178	220	192	206	198	172	168	246	222	214	204	182	170	266	266	248				
17	270	256	252	232	204	176	180	194	208	210	192	182	172	248	220	180	228	212	206	188	184	212	204	230				
18	260	256	230	234	218	198	224	200	210	216	A	A	A	A	A	A	194	224	198	220	174	206	196	226				
19	232	262	236	236	226	192	210	200	206	194	A	A	A	176	218	226	212	196	188	192	232	208	222					
20	254	228	220	224	210	190	280	206	212	224	A	A	A	E	A	E	A	E	A	A	232	216	208	288				
21	284	264	268	228	196	246	254	206	214	196	198	188	174	220	222	232	210	204	194	220	230	274	234	230				
22	276	252	238	226	218	236	240	198	212	226	192	184	172	244	202	208	208	210	206	222	208	204	218	200				
23	198	252	262	246	206	202	238	202	208	204	216	178	162	254	196	238	238	208	204	210	186	230	262	236				
24	264	270	258	244	206	188	302	210	212	210	200	198	174	212	210	202	214	214	216	212	232	240	240	222				
25	262	284	272	246	200	232	242	194	206	220	220	204	204	214	168	226	212	210	198	200	220	206	258	280				
26	290	264	242	208	226	220	226	192	188	220	202	206	186	184	182	220	224	214	186	204	216	262	258	274				
27	274	260	222	196	234	228	218	190	198	180	186	180	186	242	252	226	214	212	198	200	216	232	242	246				
28	266	266	250	258	218	188	216	204	202	190	190	190	188	218	218	206	214	198	200	226	212	226	226	250				
29	242	228	224	212	192	258	238	214	210	210	A	E	A	226	196	176	230	226	246	232	206	202	E	A	264	232	242	266
30	250	216	230	274	262	242	210	202	212	190	196	214	206	172	222	206	204	214	204	190	202	230	218	210				
31	260	270	264	264	234	228	202	198	198	200	190	208	182	202	212	224	228	212	220	206	264	228	204	E	A	382		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	29	30	30	30	30	30	29	29	30	30	26	27	26	30	26	25	26	27	31	31	31	31	30	30				
MED	270	260	249	235	215	219	230	200	207	204	196	194	184	190	207	218	220	214	204	202	204	232	241	253				
U Q	282	270	264	252	226	232	242	206	210	216	202	206	194	220	222	233	228	222	210	210	220	250	258	274				
L Q	258	252	230	220	206	194	210	194	200	196	192	184	178	174	190	206	212	212	198	188	186	212	218	236				

OCT. 2020 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT.2020 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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							C	C	C	C	A	A	A	A	A	A	96	96	A						
2							A	A	A	A	A	A	104	104	104	104	104	104	A						
3							B	116	106	104	104	104	A	104	C	C	104	104							
4							B	112	A	106	A	A	A	A	106	104	104	A	A						
5							B	112	A	106	104	A	A	A	A	104	104	108	A						
6							B	120	102	102	102	102	102	102	102	102	108	108	A						
7							B	114	A	110	A	100	A	A	104	104	108	A	A						
8							B	A	A	102	A	106	106	106	106	102	102	106	B						
9							B	C	110	104	102	98	98	102	102	106	106	108	A						
10							B	124	102	102	102	104	104	104	104	104	104	104	B						
11							B	110	108	106	106	106	104	A	104	104	106	110	A						
12							B	110	102	104	104	104	104	102	102	108	112	112	B						
13							B	A	104	104	104	104	104	102	102	A	A	A	B						
14							B	110	106	104	A	104	A	104	104	104	104	A	A						
15							A	120	108	108	104	A	104	A	104	A	112	A	B						
16							B	112	108	108	104	106	106	104	104	106	106	106	A						
17							B	112	106	104	102	104	104	104	104	102	A	A	B						
18							B	112	106	100	102	102	102	106	104	A	A	A	B						
19							B	106	A	106	106	102	A	A	A	114	102	A	A						
20							B	108	102	106	104	104	100	100	100	A	A	A	A						
21							B	A	104	110	104	104	102	A	A	A	A	A	B						
22							B	A	A	A	A	A	A	A	A	A	A	A	B						
23							B	136	102	A	A	A	102	102	102	102	102	112	A						
24							B	A	102	102	A	A	A	A	A	A	100	A	A						
25							B	116	102	102	100	100	100	100	A	A	A	A	A						
26							B	A	104	108	108	108	104	104	102	102	A	A	A						
27							B	A	A	A	A	A	A	102	102	A	A	A	A						
28							B	A	100	104	104	106	106	104	102	102	A	A	B						
29							B	A	A	104	104	100	102	102	102	104	A	A	A						
30							B	A	A	A	A	A	104	104	104	104	104	A	B						
31							B	A	A	102	104	104	A	104	104	A	A	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								17	19	25	20	21	20	21	23	19	19	13							
MED								112	104	104	104	104	104	104	104	104	104	106							
U Q								118	106	106	104	105	104	104	104	104	106	109							
L Q								110	102	102	102	102	102	102	102	102	102	104							

OCT.2020 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

OCT. 2020 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

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	C	C	C	C	C	C	C	C	C	C	96	122	96	94	92	90	G	92	88	86	96	B	84	112	
2	90	90	88	88	88	88	88	106	104	98	102	104	104	110	114	108	176	144	112	104	104	94	88	102	
3	102	96	96	B	92	92	94	148	106	114	118	108	112	G	C	C	122	110	106	102	114	98	B	100	
4	98	92	B	B	B	B	B	136	116	112	104	102	102	104	108	102	104	172	114	104	100	92	92	90	
5	90	90	B	B	B	92	B	150	118	110	106	100	100	102	156	164	130	G	108	102	100	142	92	96	
6	94	B	94	86	B	B	B	126	122	118	112	112	112	150	148	124	122	104	112	102	B	100	96	B	
7	90	96	88	90	B	B	B	134	128	128	136	102	104	104	160	138	112	112	100	100	96	98	B	B	
8	94	94	B	B	B	94	B	152	130	108	106	104	116	172	176	142	136	104	B	B	98	98	98	B	
9	B	84	80	90	B	B	B	C	112	112	110	110	110	110	142	124	118	118	108	94	94	90	86	86	
10	B	B	B	80	B	B	B	94	140	116	114	150	G	G	172	158	142	126	G	122	88	142	126	112	
11	112	108	108	90	90	88	98	88	162	108	104	102	102	104	150	134	116	110	104	B	96	92	92	94	
12	94	94	104	B	B	B	B	136	138	112	112	112	112	112	116	150	154	144	144	B	98	92	B	B	
13	B	B	B	B	B	B	B	116	116	114	132	124	110	106	100	98	96	138	96	90	92	92	92	90	
14	92	92	92	90	90	B	90	132	120	124	94	108	106	88	86	124	114	102	100	102	98	98	96	94	
15	94	B	90	90	86	90	90	126	100	112	106	88	100	102	102	100	144	130	B	B	94	94	94	94	
16	94	94	90	92	96	90	90	124	144	134	136	110	106	G	90	88	140	88	108	108	158	132	122	100	
17	88	94	90	90	90	88	B	136	118	108	116	112	112	154	152	106	152	136	100	98	98	88	92	90	
18	90	90	118	B	88	90	88	G	114	106	102	102	102	100	100	98	98	96	92	92	96	96	96	92	
19	92	92	92	B	B	B	92	G	110	128	104	104	100	100	96	178	162	90	88	94	104	102	B	88	
20	B	88	B	B	B	B	B	146	116	106	102	102	102	102	100	100	98	96	96	92	92	94	90	94	
21	90	94	94	82	82	B	B	118	120	112	110	110	106	100	162	98	106	98	100	100	100	100	92	92	
22	92	92	B	92	92	92	B	134	172	134	104	100	106	152	100	96	98	84	84	94	88	82	B	B	
23	92	86	92	88	88	88	88	160	G	102	96	98	G	186	142	134	118	122	114	138	B	100	92	92	
24	102	98	108	94	94	B	92	126	94	108	110	104	104	168	98	96	G	112	100	100	94	94	92	92	
25	92	88	88	B	B	102	112	138	124	106	102	104	102	100	100	104	102	96	94	94	94	92	B	B	
26	B	96	90	90	B	B	B	86	118	138	112	118	120	122	106	110	104	104	98	94	96	92	92	90	96
27	90	86	90	90	92	B	B	108	102	108	106	112	104	92	148	98	96	130	98	92	90	90	B	B	
28	88	90	90	90	B	82	B	122	116	112	112	110	106	108	104	104	100	100	98	98	98	98	94	94	
29	92	92	90	92	120	B	B	110	110	110	106	104	106	114	152	138	102	100	96	94	98	110	102	B	
30	B	B	B	B	110	106	106	98	98	98	102	172	G	144	162	G	G	88	86	134	114	110	104	102	
31	98	98	80	96	98	B	B	124	124	114	110	110	110	110	104	104	94	88	88	88	90	94	88	88	
	00	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	25	22	19	16	14	13	27	29	30	31	31	28	28	30	29	28	30	28	27	29	30	24	23	
MED	92	92	90	90	91	90	90	126	118	112	106	108	106	106	112	104	115	104	100	98	96	95	92	94	
U Q	94	95	94	92	95	92	96	136	129	114	112	112	110	129	152	136	138	126	108	102	100	100	96	100	
L Q	90	90	90	88	88	88	88	116	110	108	102	102	102	101	100	98	101	96	94	94	93	92	91	90	

OCT. 2020 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

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

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

f-PLOTS OF IONOSPHERIC DATA

KEY OF f-PLOT	
	SPREAD
◊	f _o F ₂ , f _o F ₁ , f _o E
×	f _x F ₂
*	DOUBTFUL f _o F ₂ , f _o F ₁ , f _o E
⊗	f _b E _s
└	ESTIMATED f _o F ₁
†, ‡	f _{min}
^	GREATER THAN
∨	LESS THAN

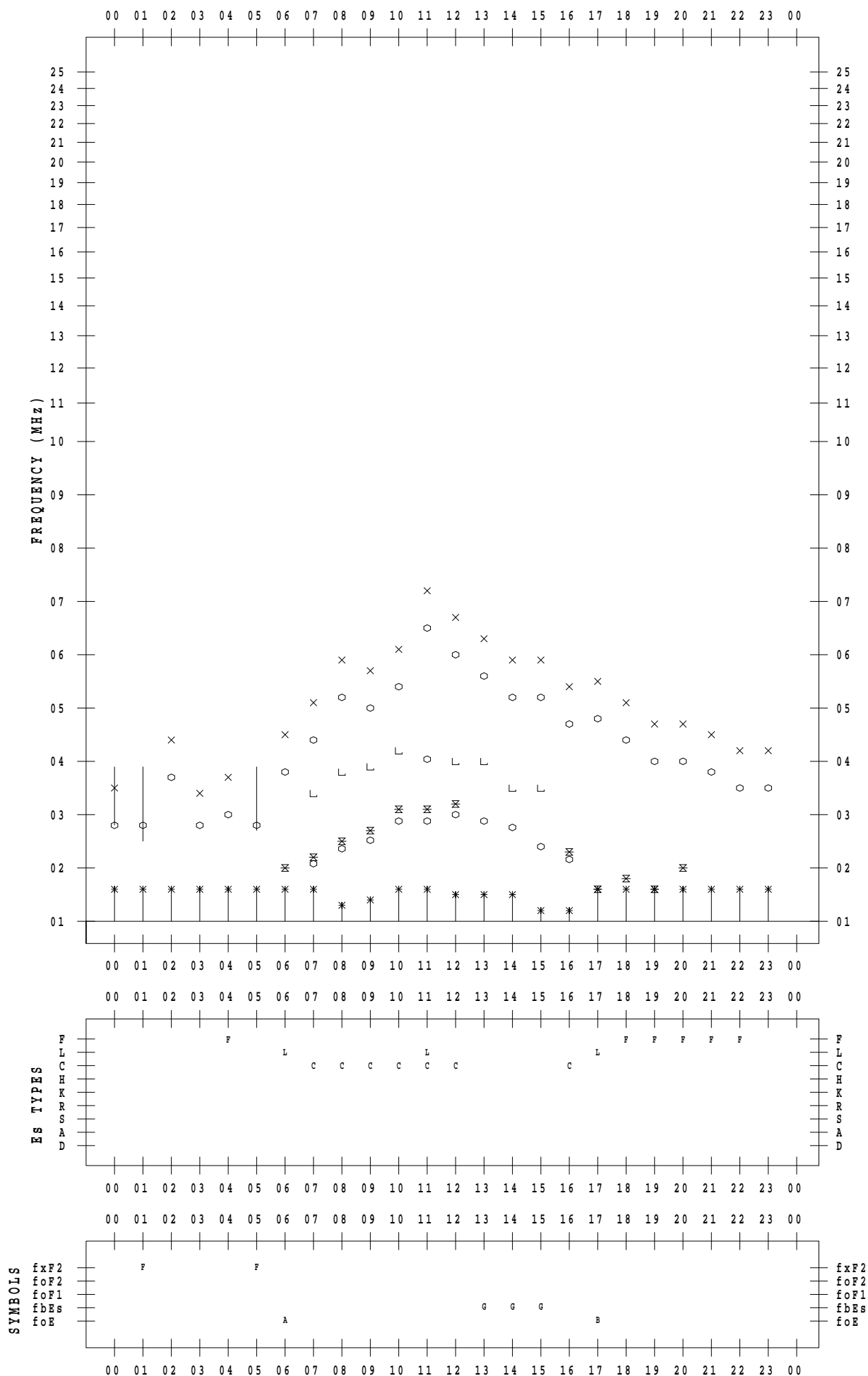
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/ 1

135 ° E MEAN TIME



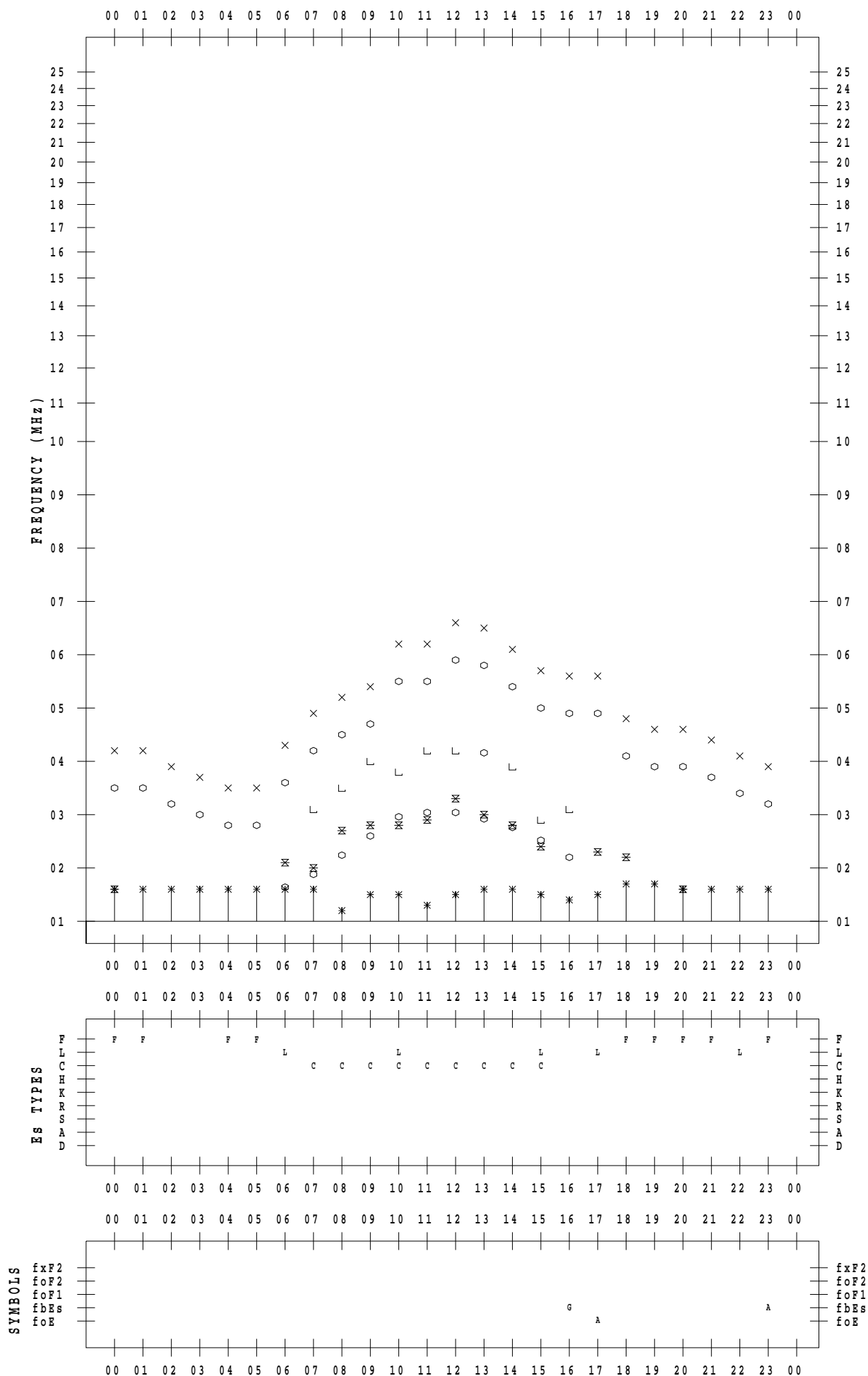
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/ 2

135 ° E MEAN TIME



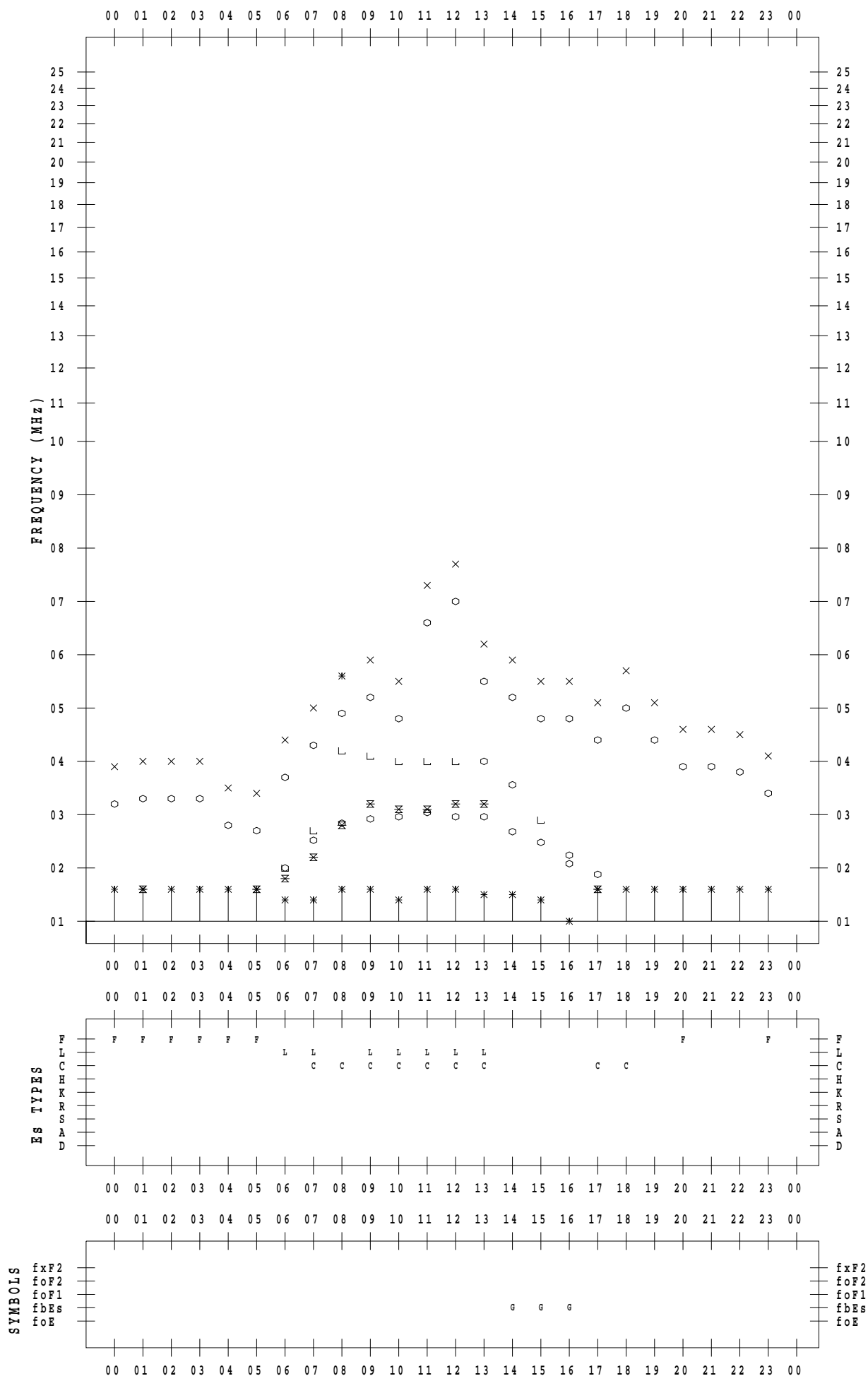
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/3

135 ° E MEAN TIME



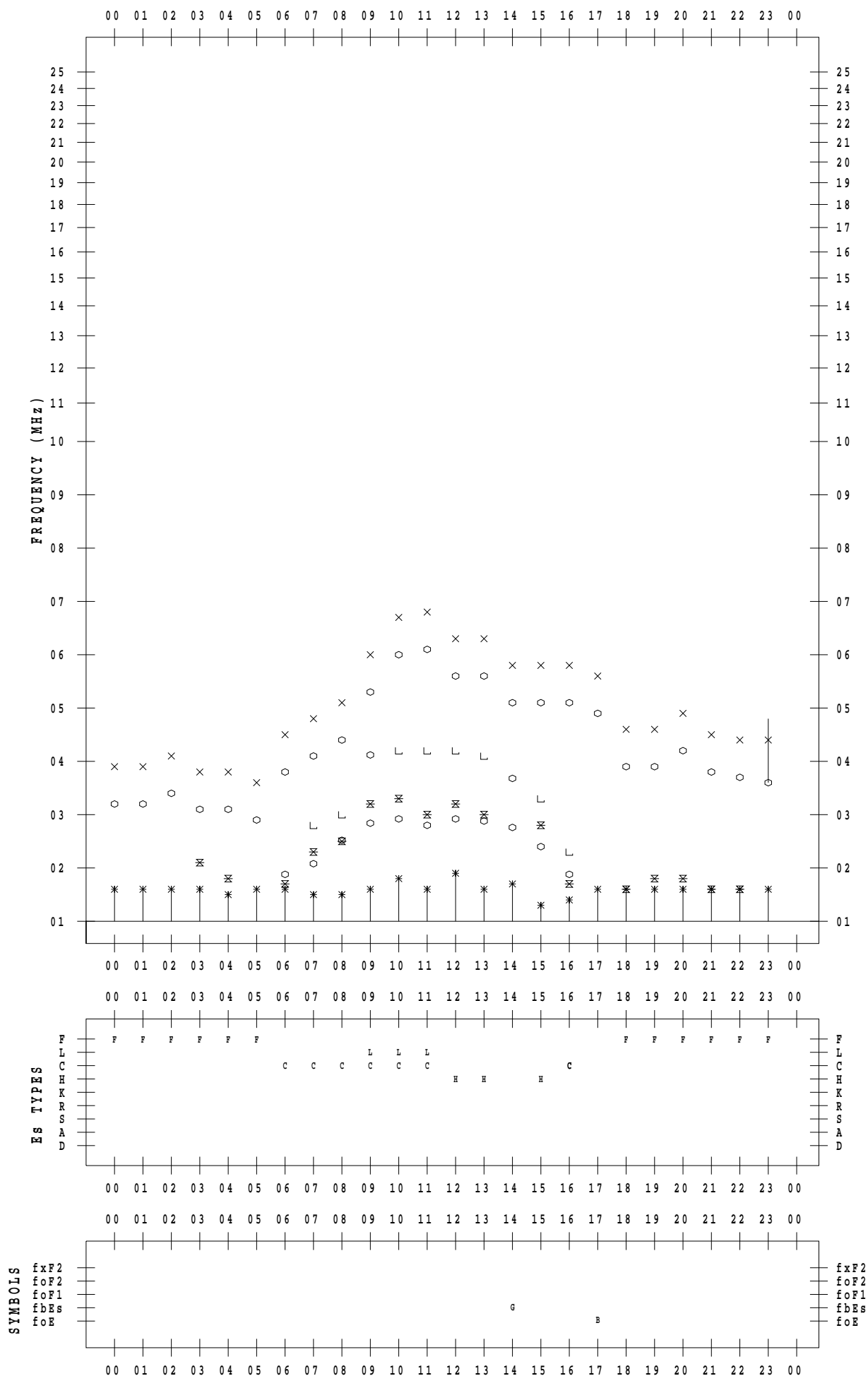
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/ 4

135 ° E MEAN TIME



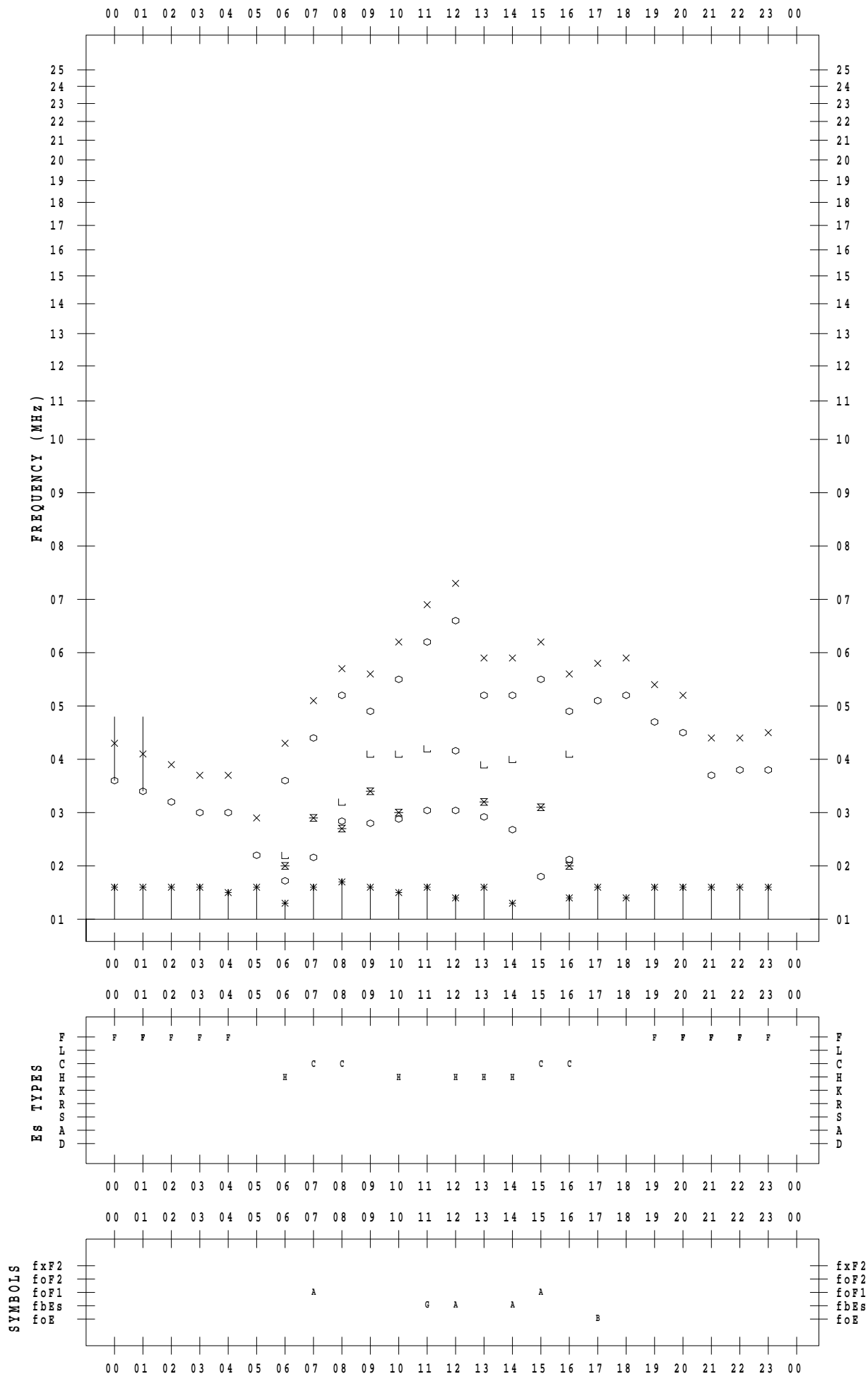
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/ 5

135 ° E MEAN TIME



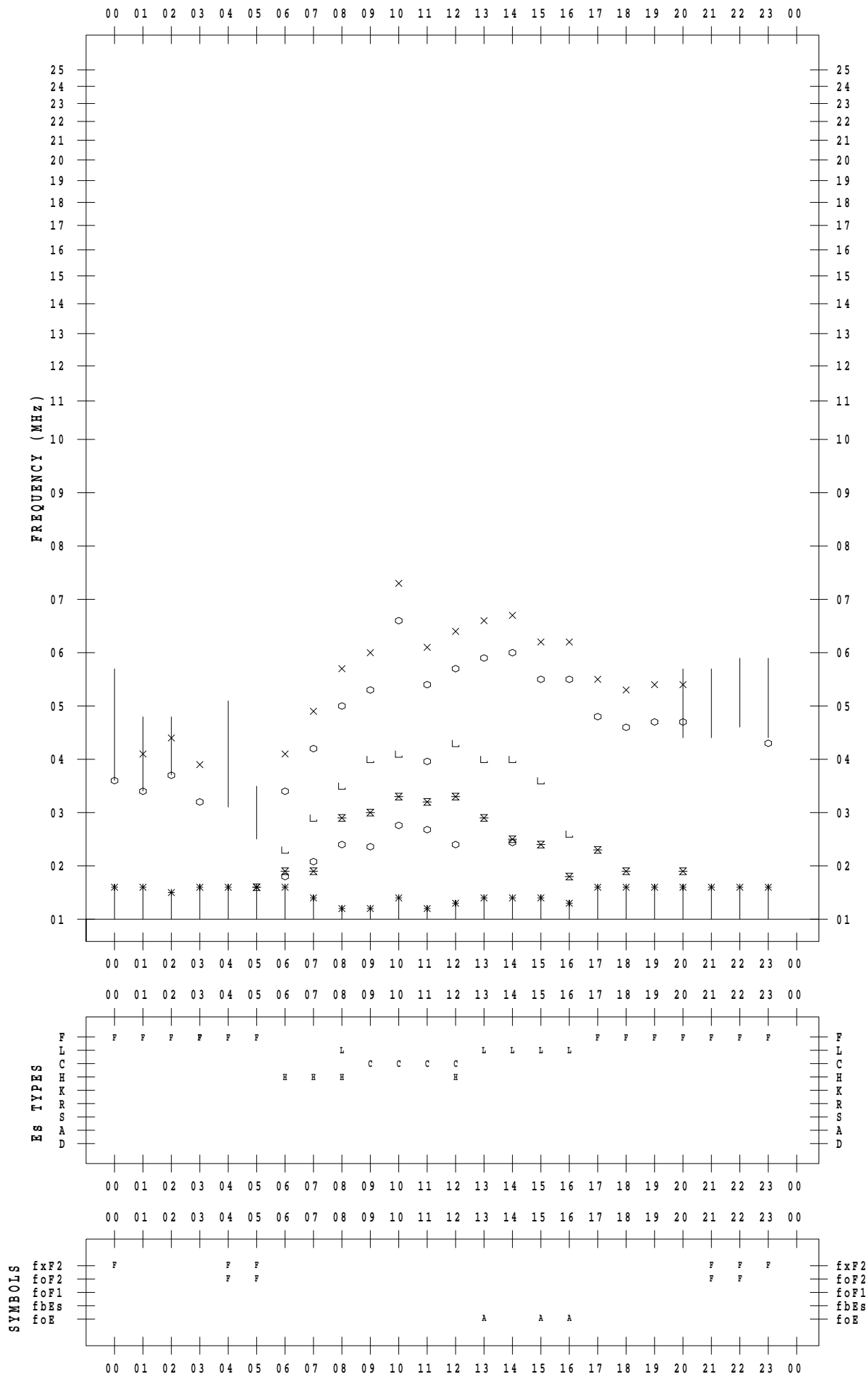
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/6

135 ° E MEAN TIME



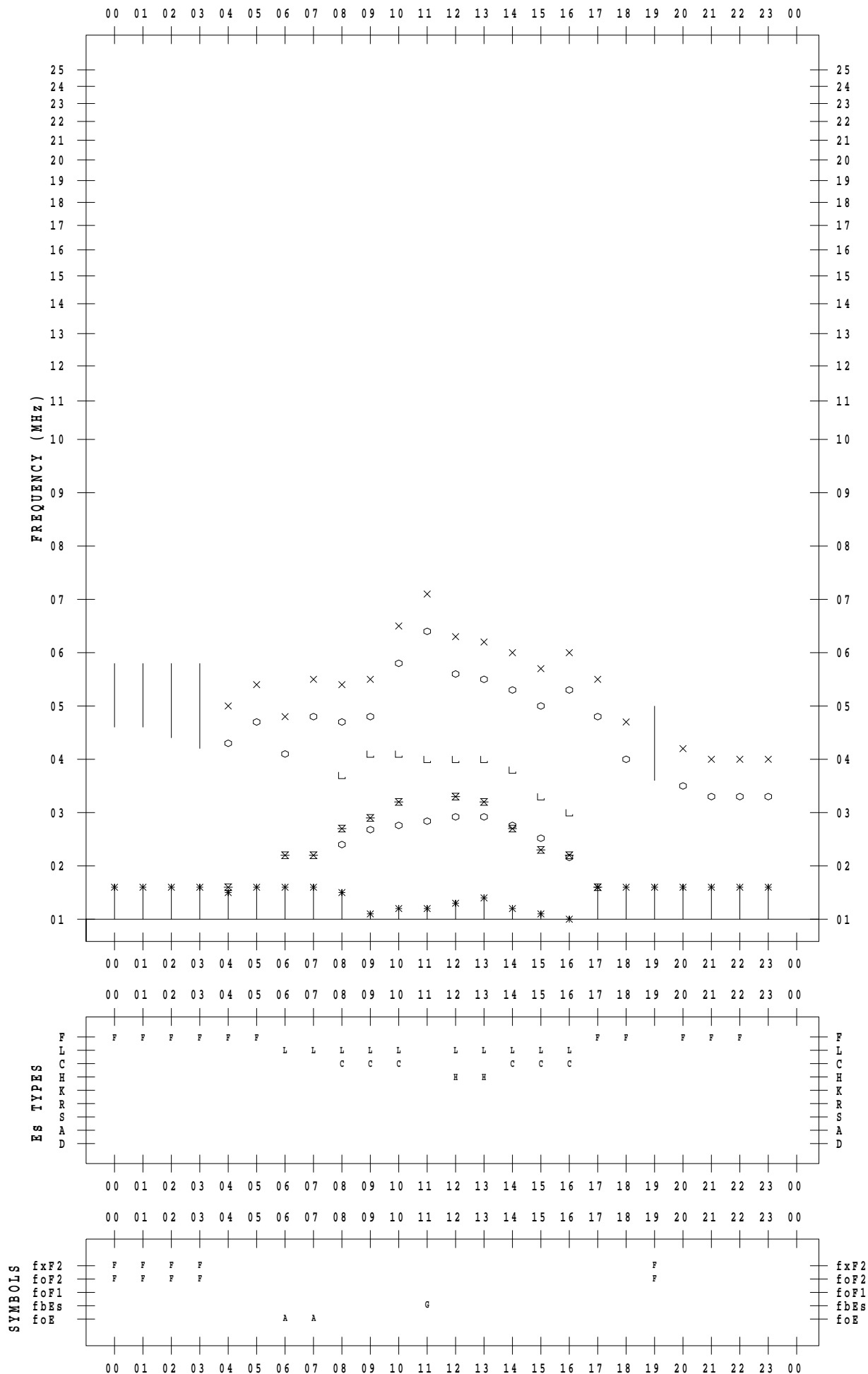
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/7

135 ° E MEAN TIME



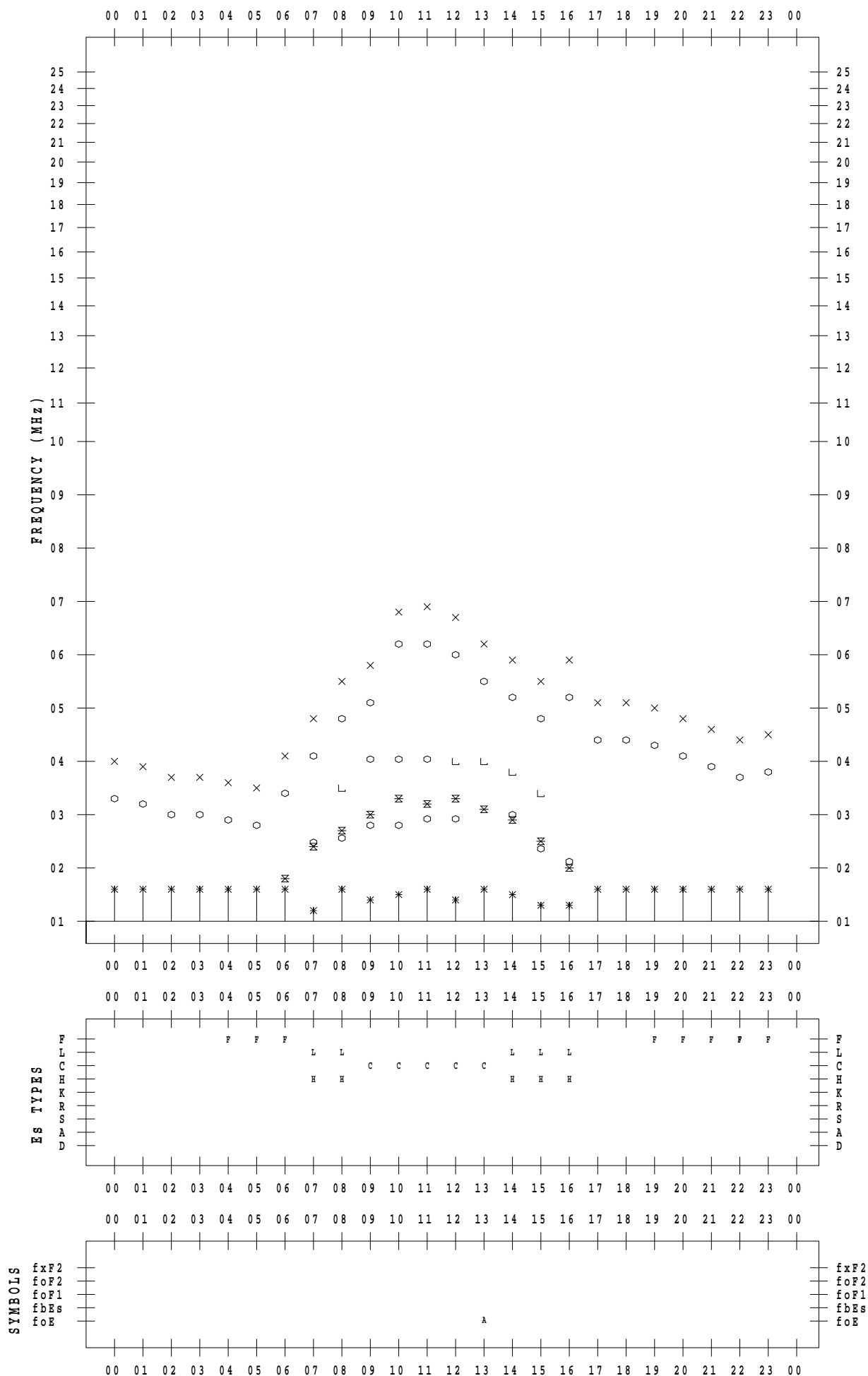
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/ 8

135 ° E MEAN TIME



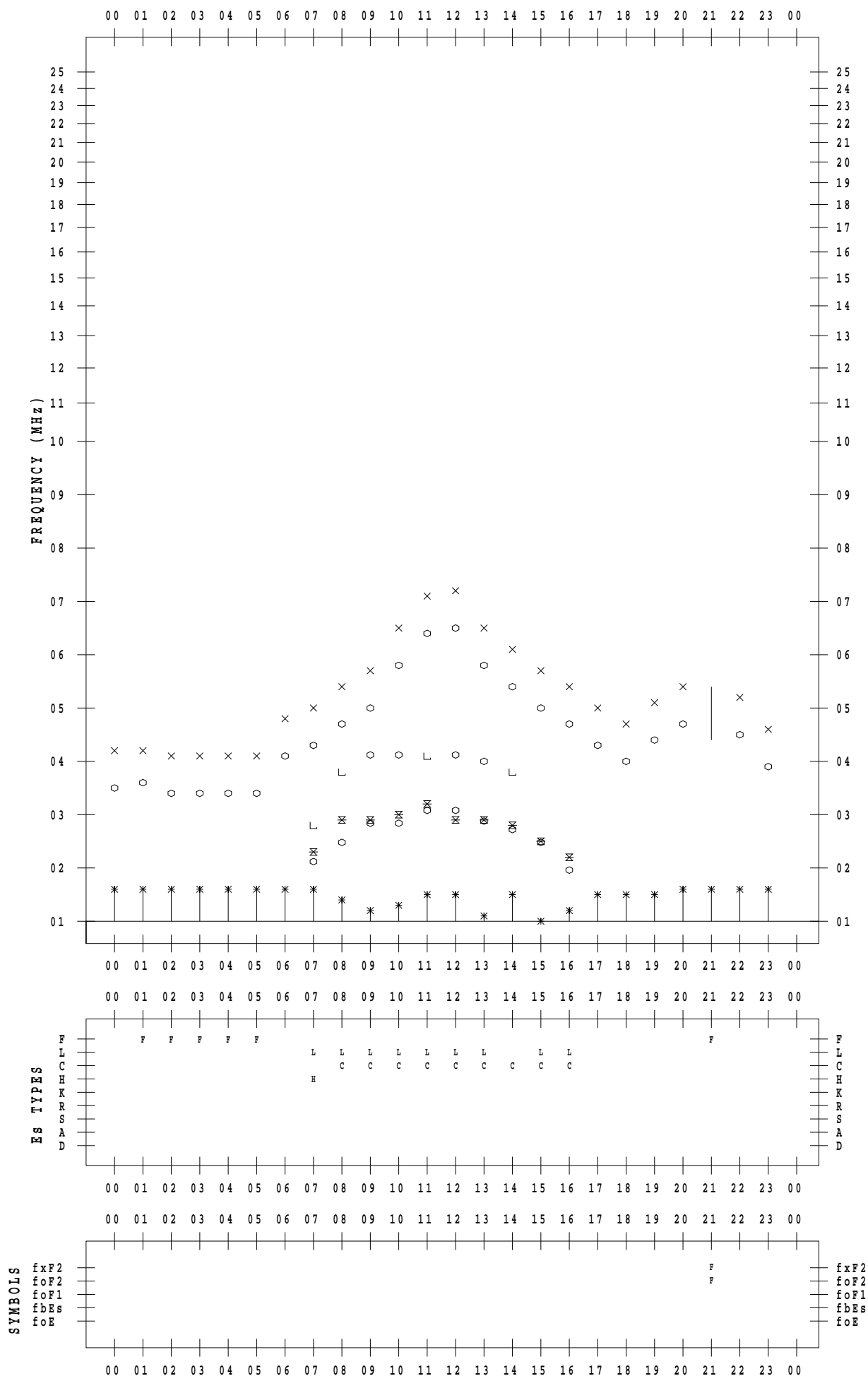
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/9

135 ° E MEAN TIME



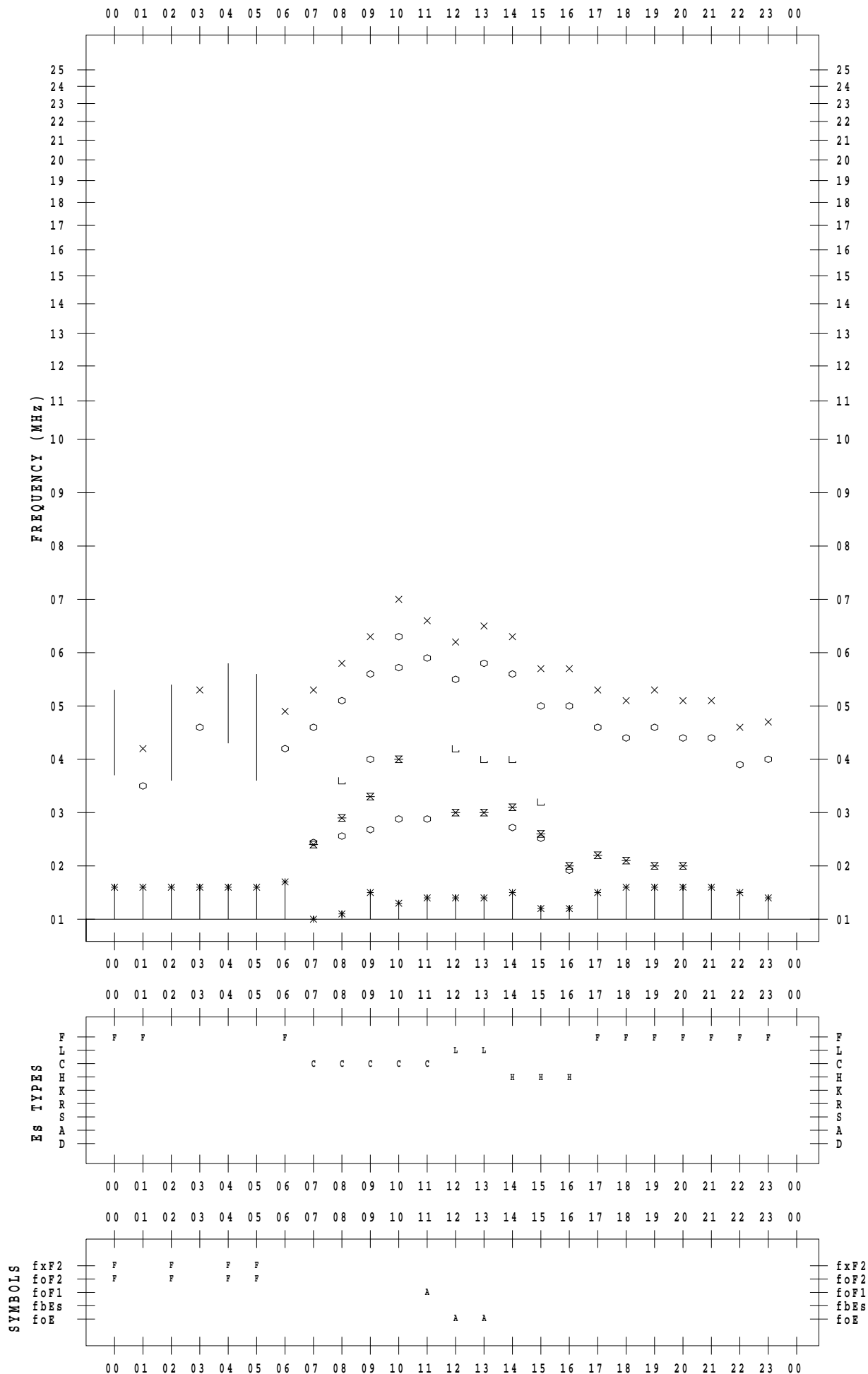
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/10

135 ° E MEAN TIME



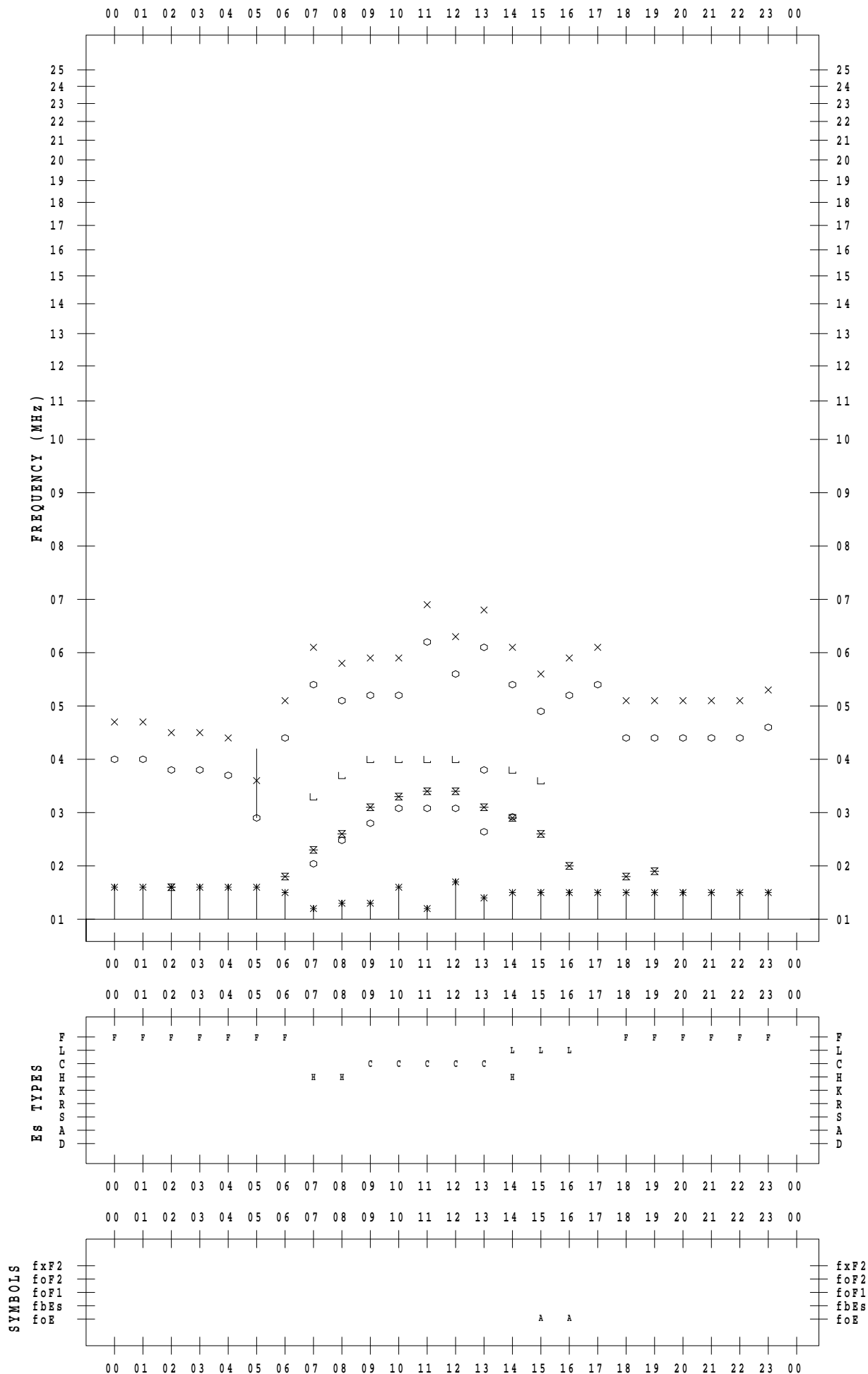
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/11

135 ° E MEAN TIME



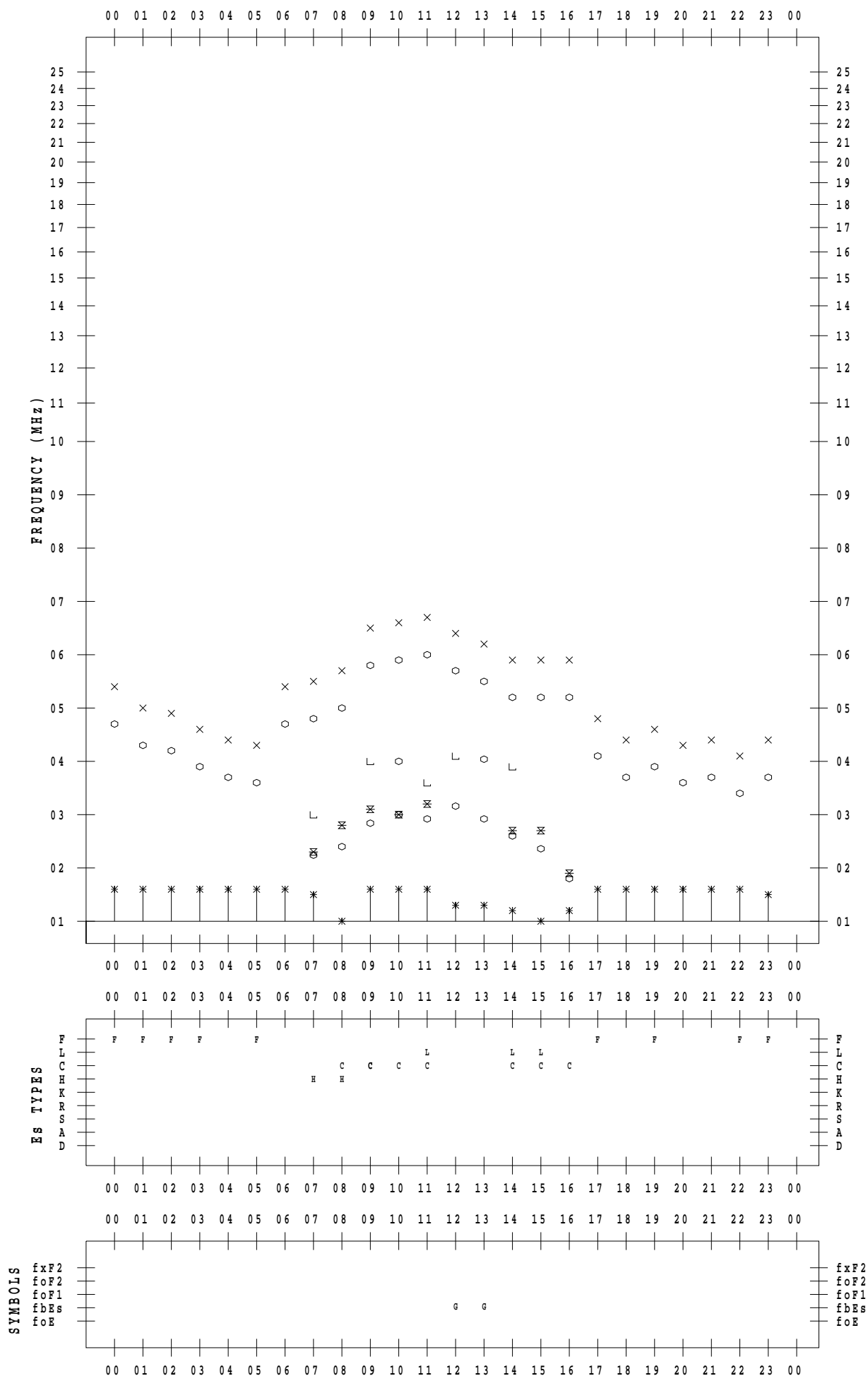
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/12

135 ° E MEAN TIME



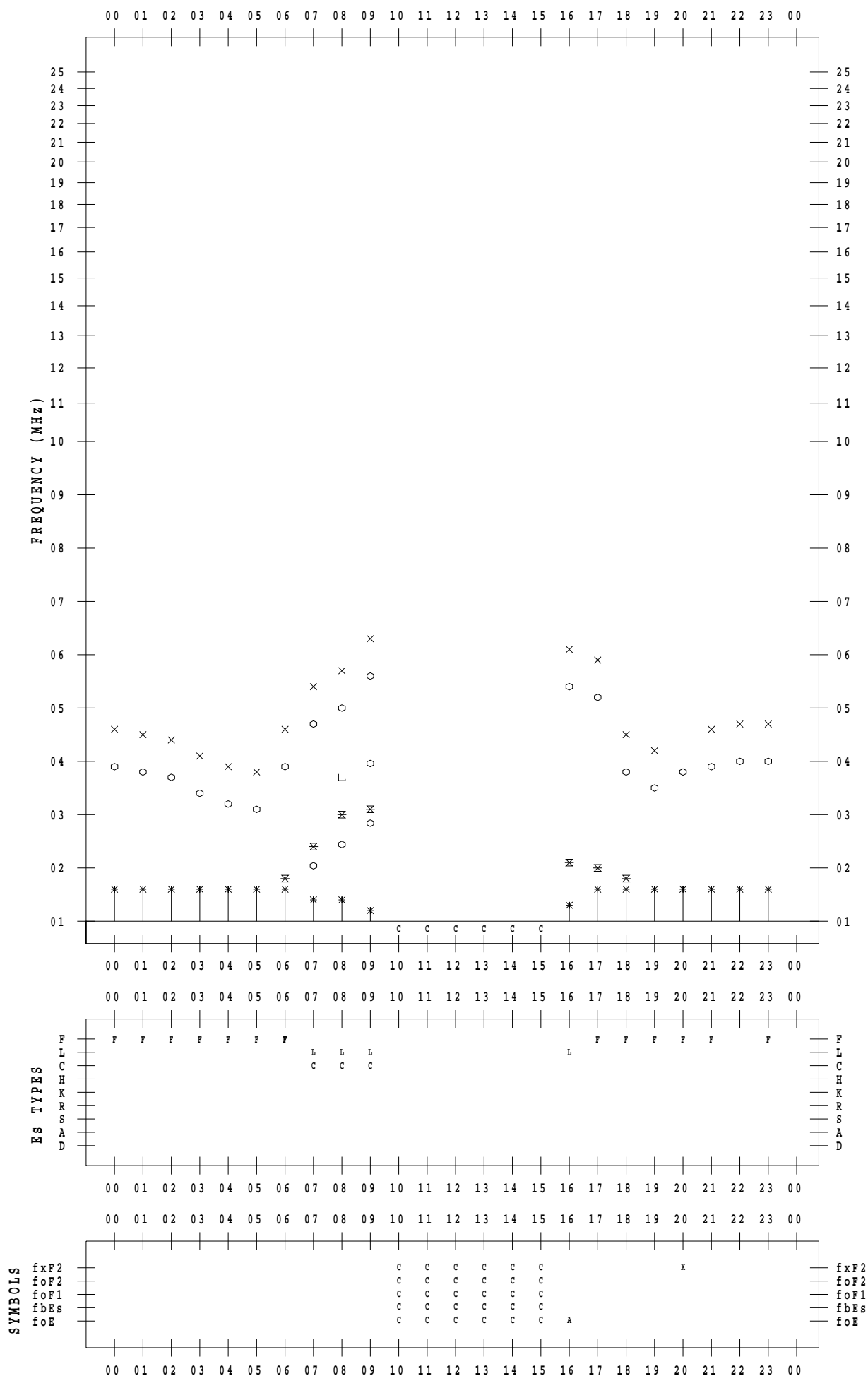
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/13

135 ° E MEAN TIME



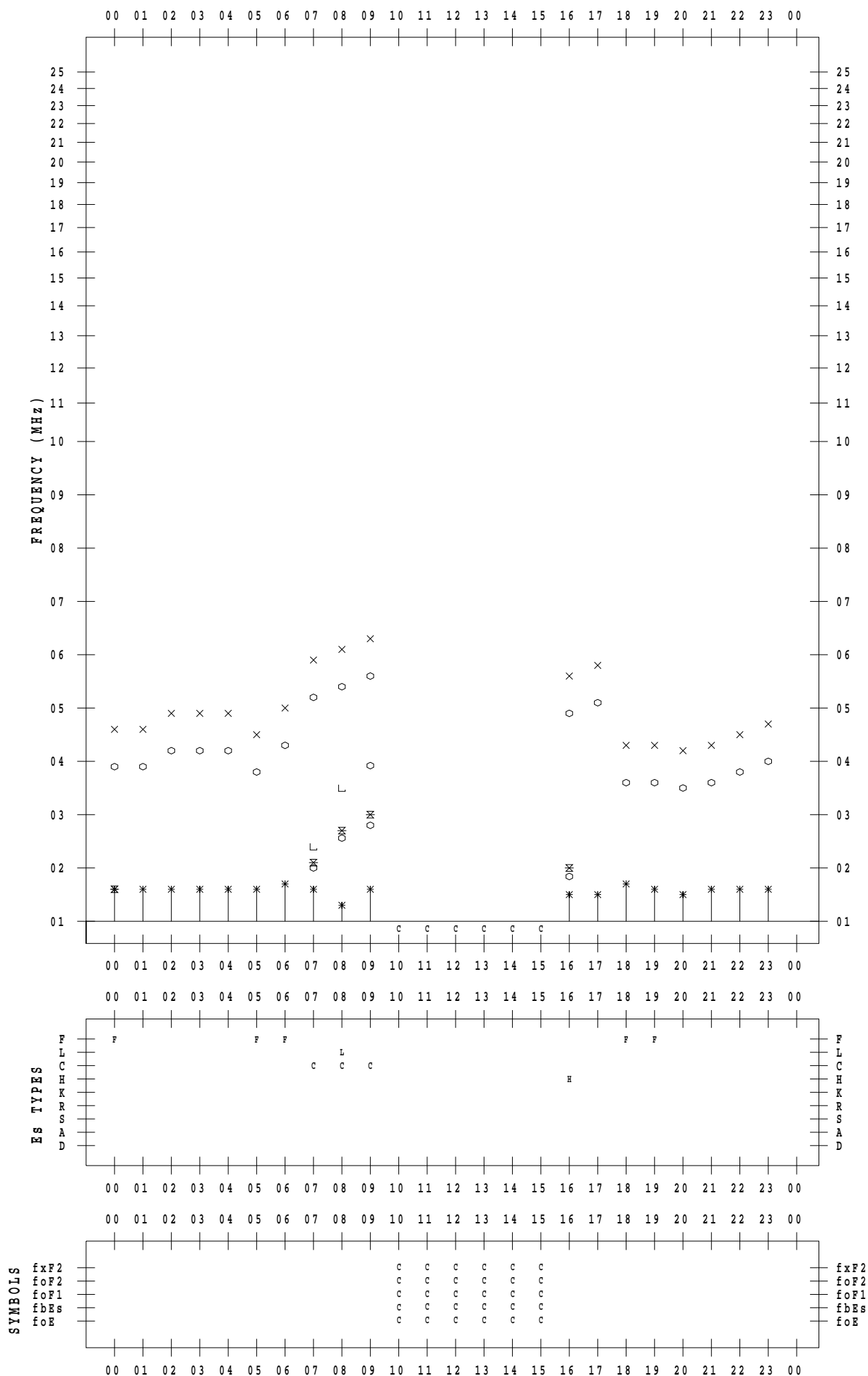
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/14

135 ° E MEAN TIME



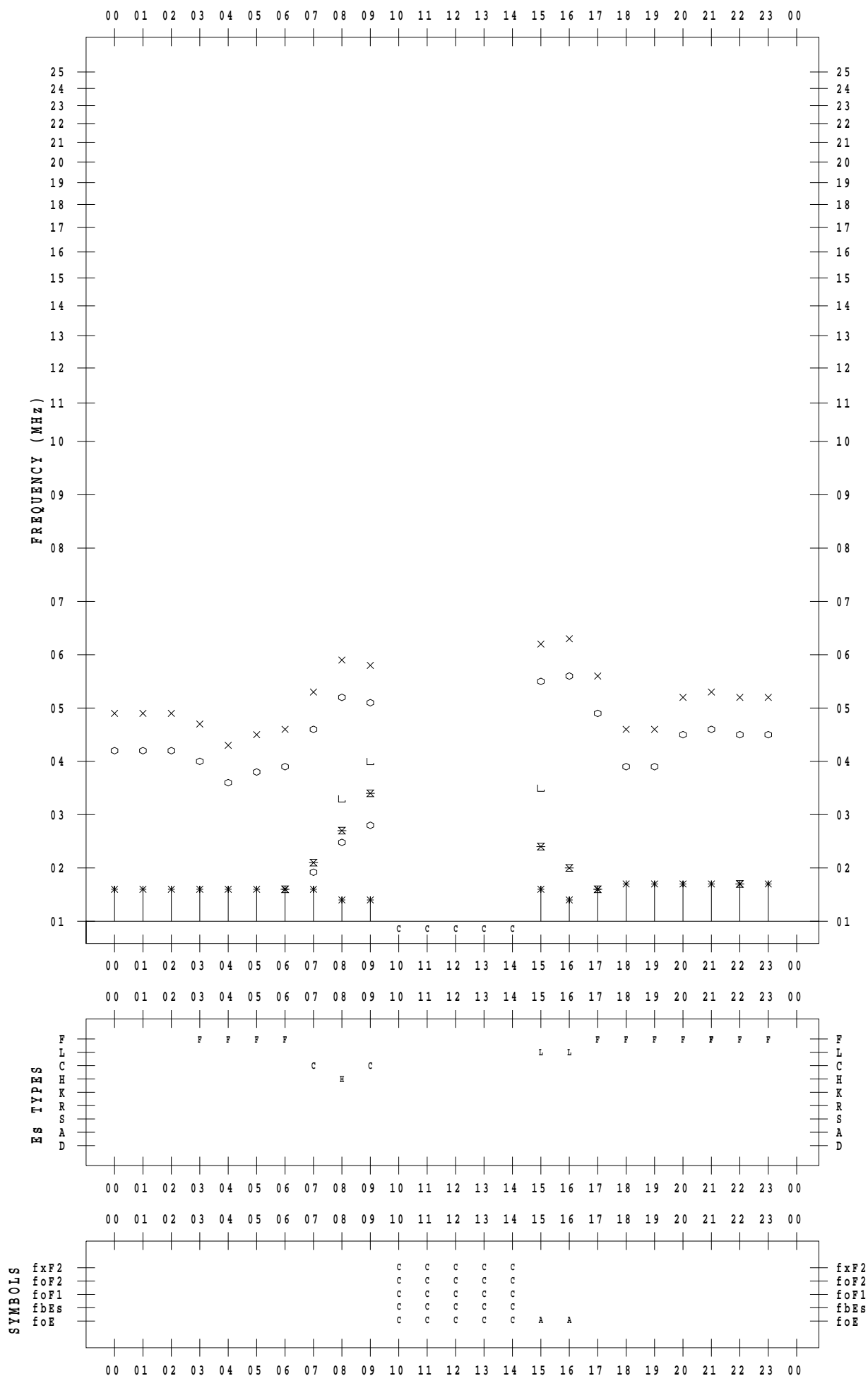
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/15

135 ° E MEAN TIME



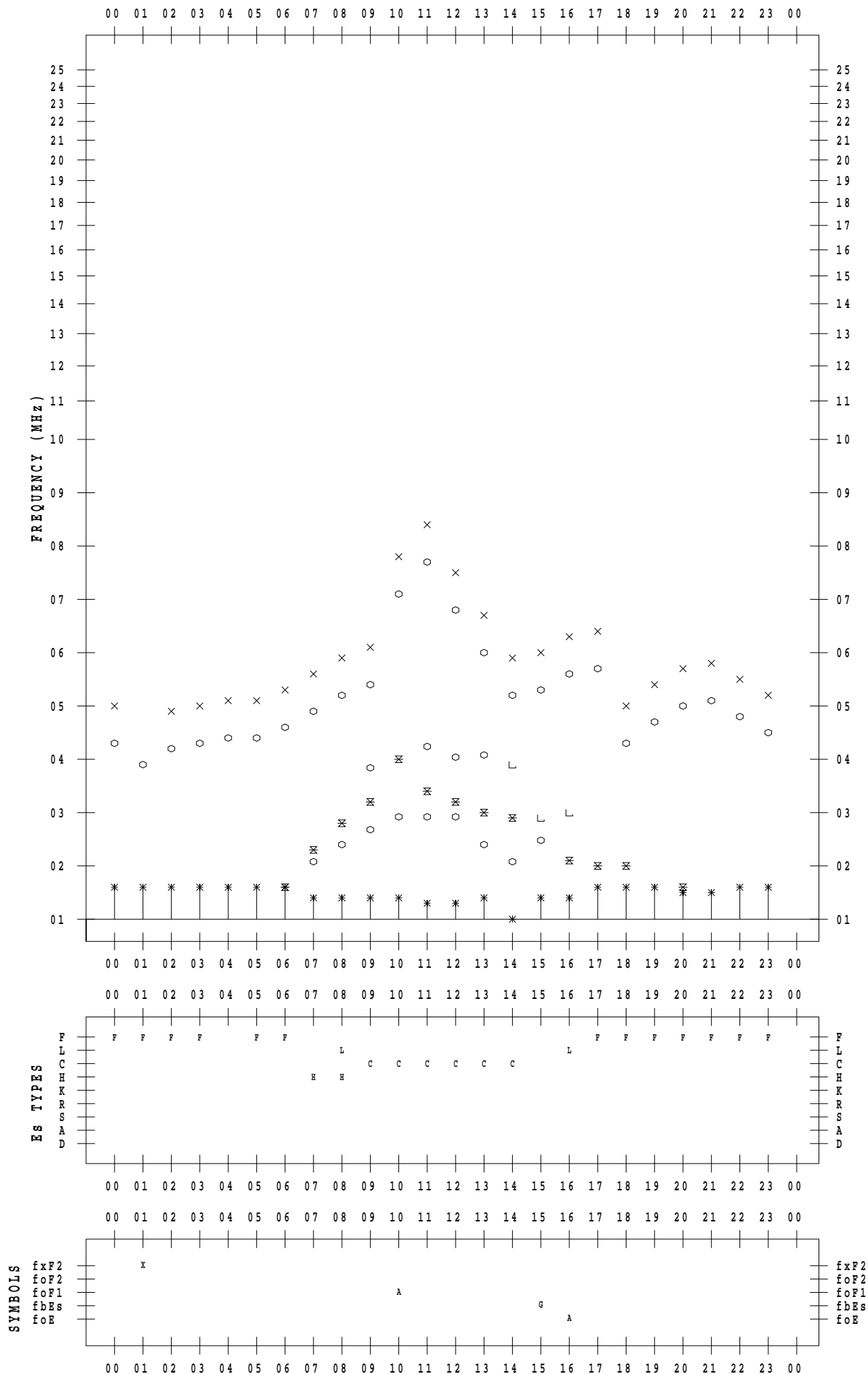
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/16

135 ° E MEAN TIME



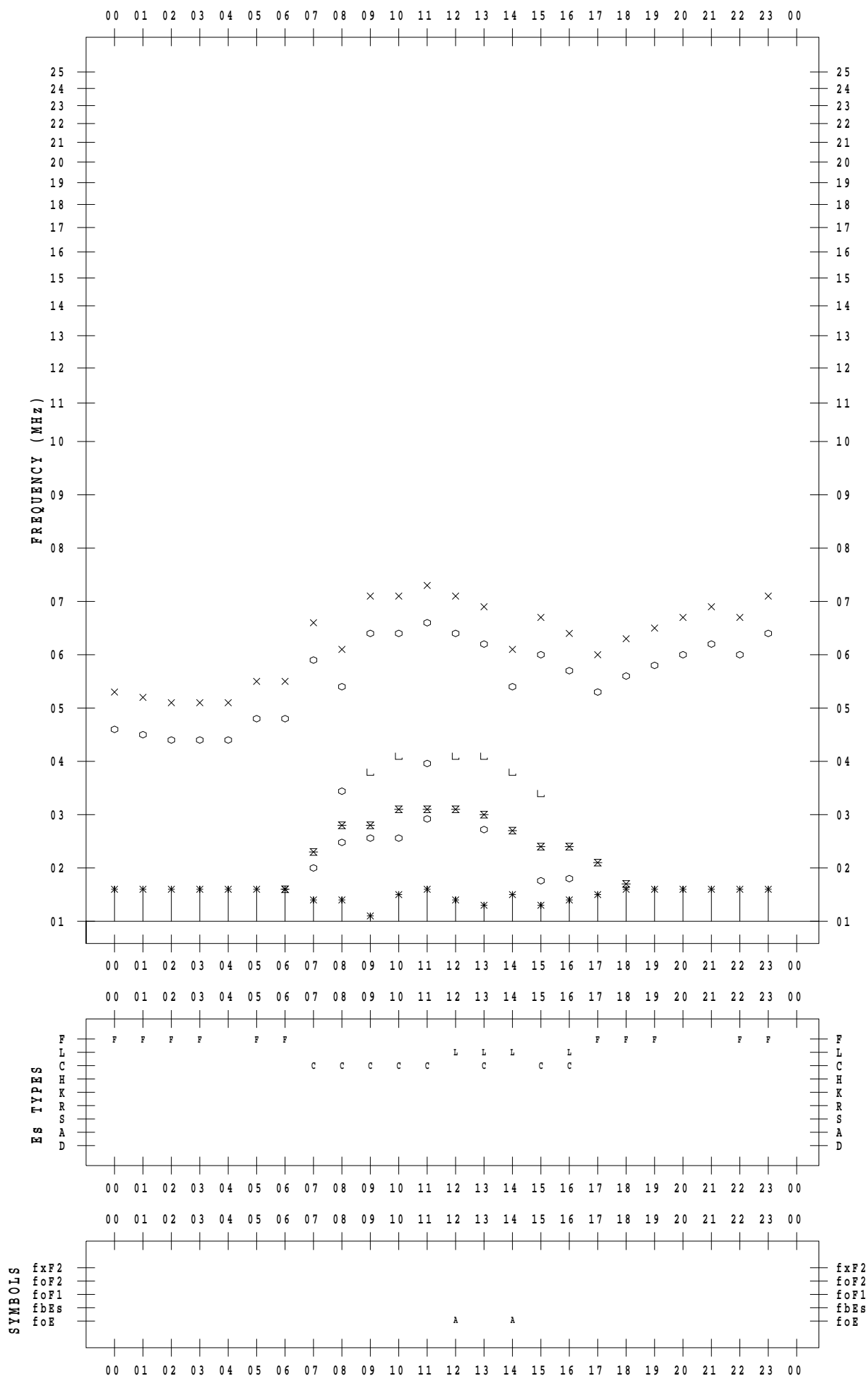
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/17

135 ° E MEAN TIME



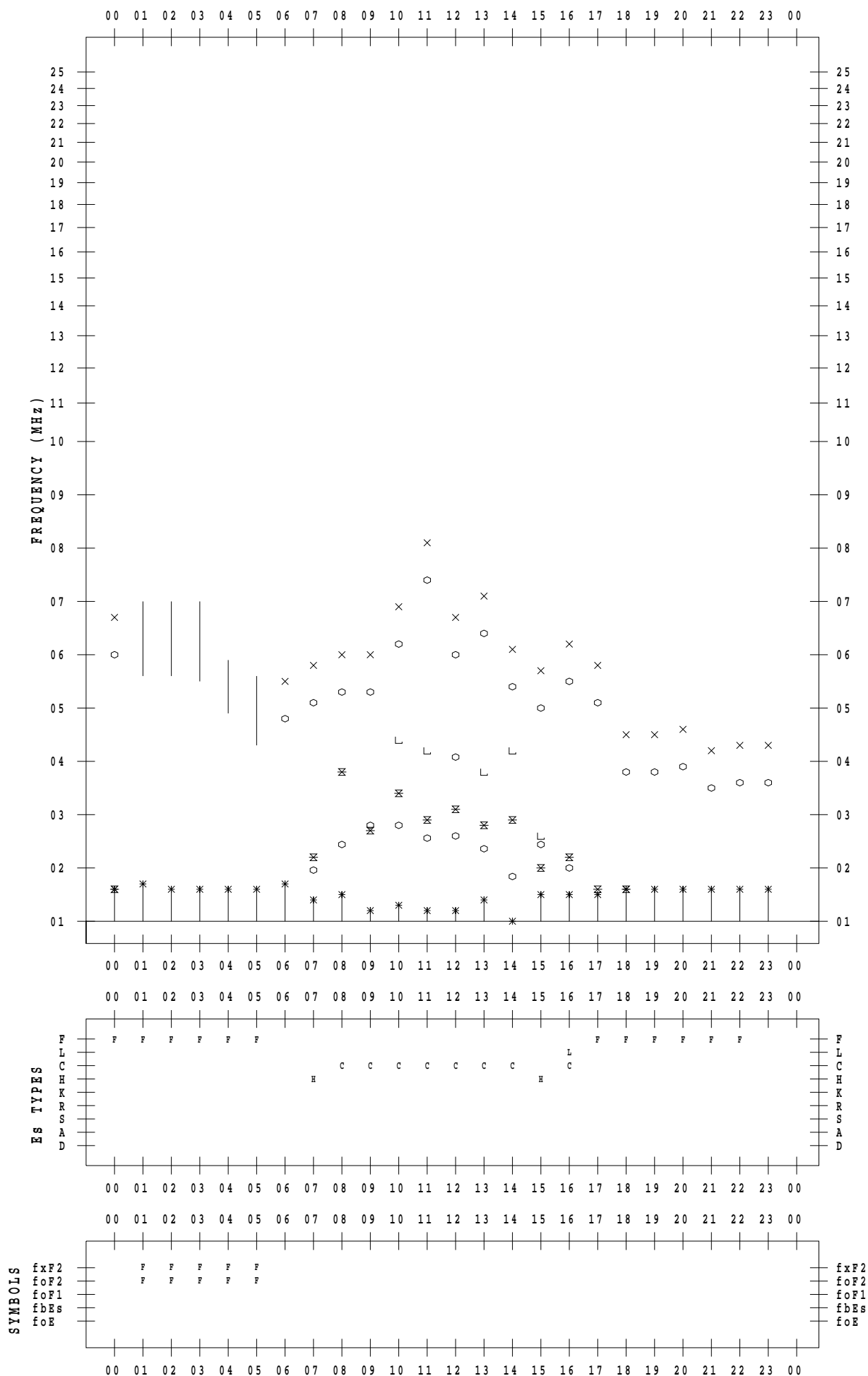
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/18

135 ° E MEAN TIME



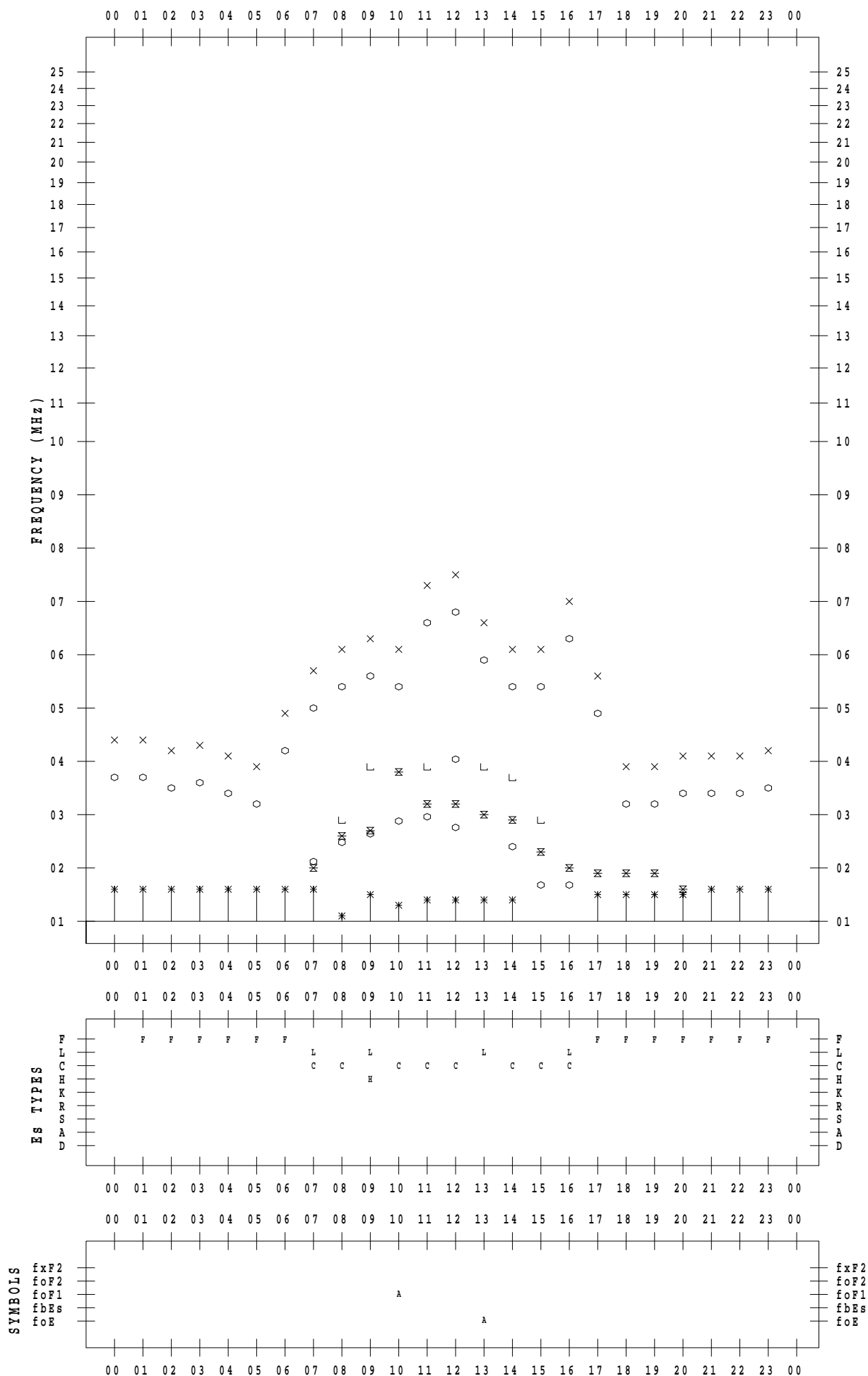
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/19

135 ° E MEAN TIME



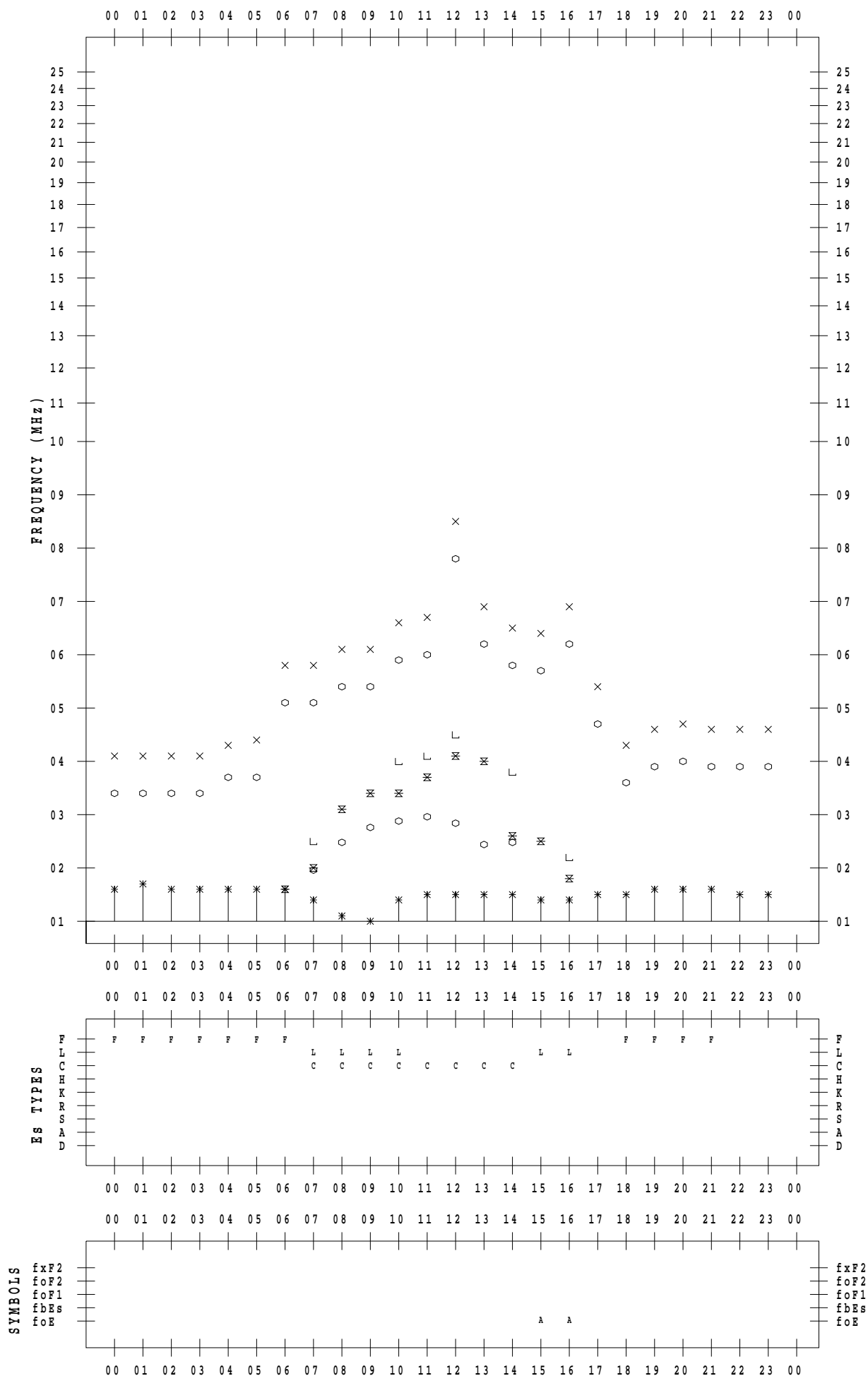
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/20

135 ° E MEAN TIME



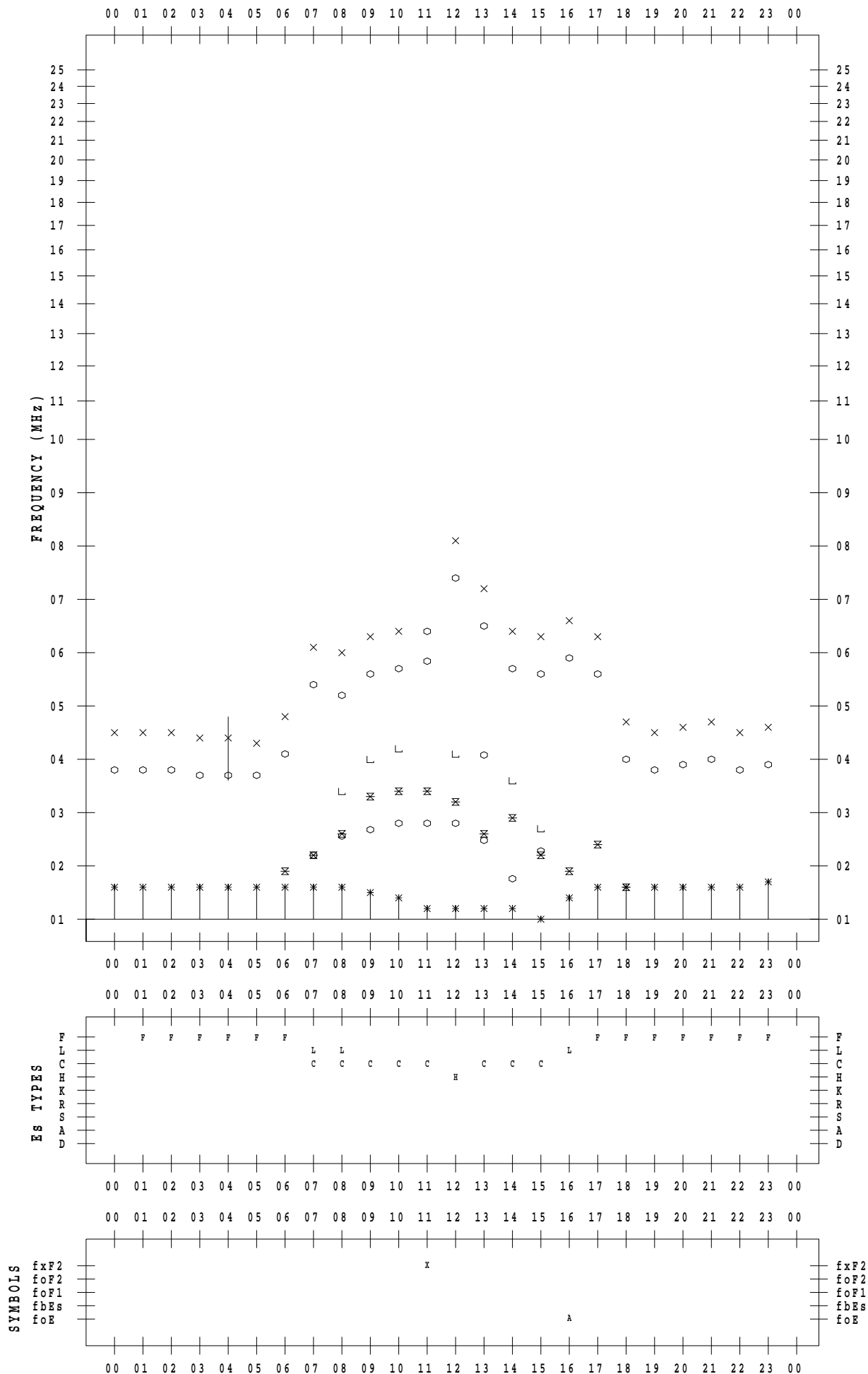
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/21

135 ° E MEAN TIME



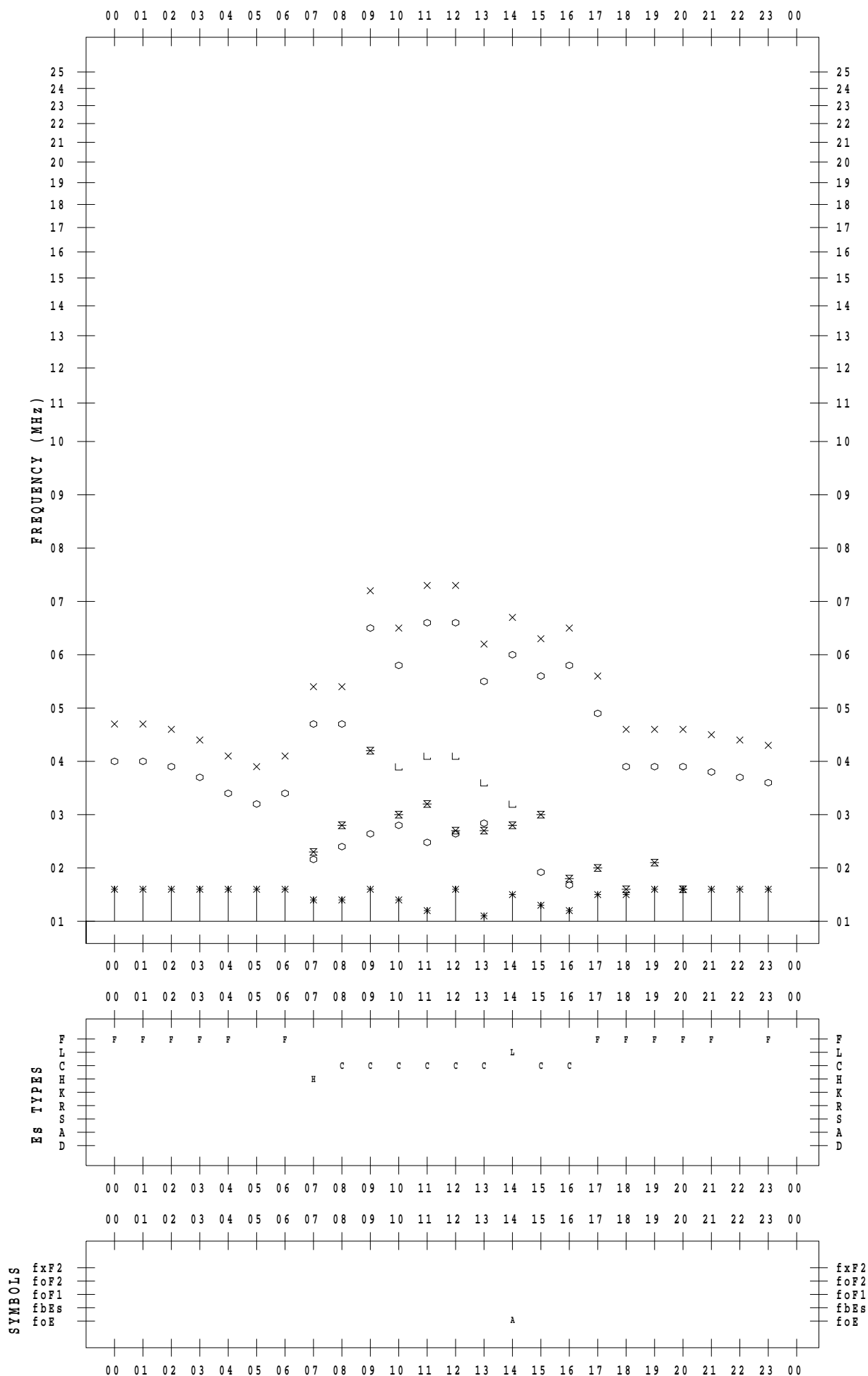
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/22

135 ° E MEAN TIME



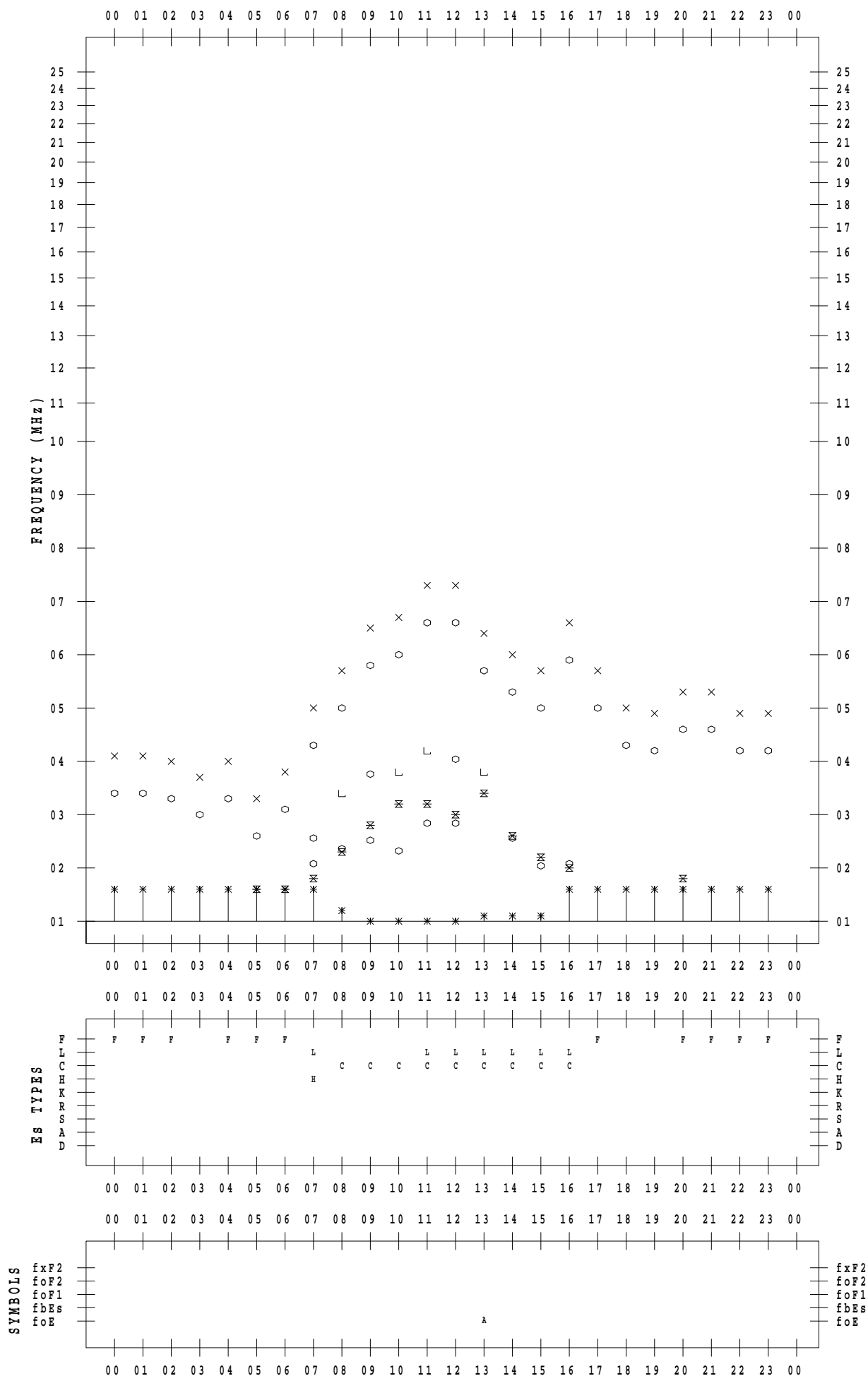
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/23

135 ° E MEAN TIME



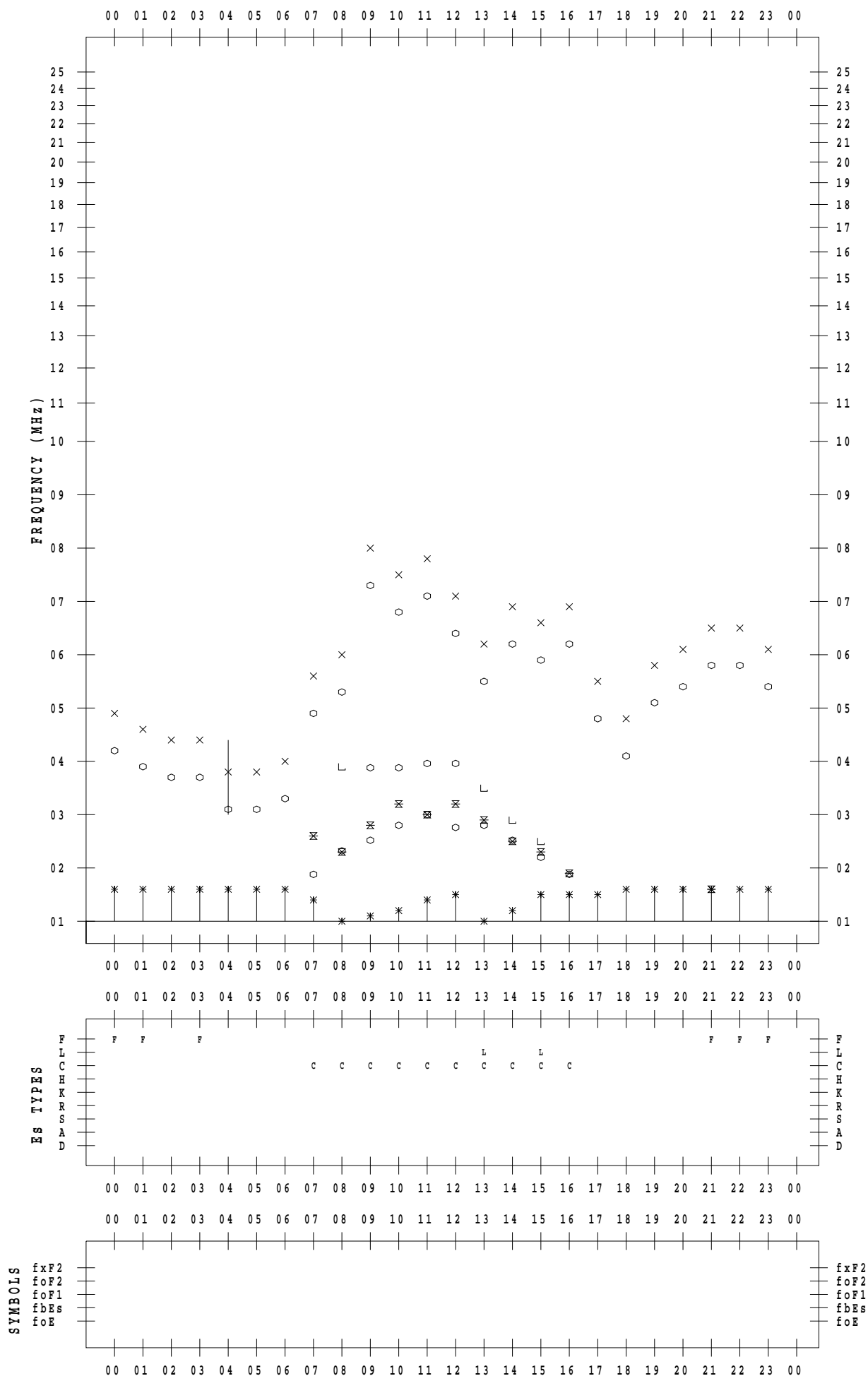
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/24

135 ° E MEAN TIME



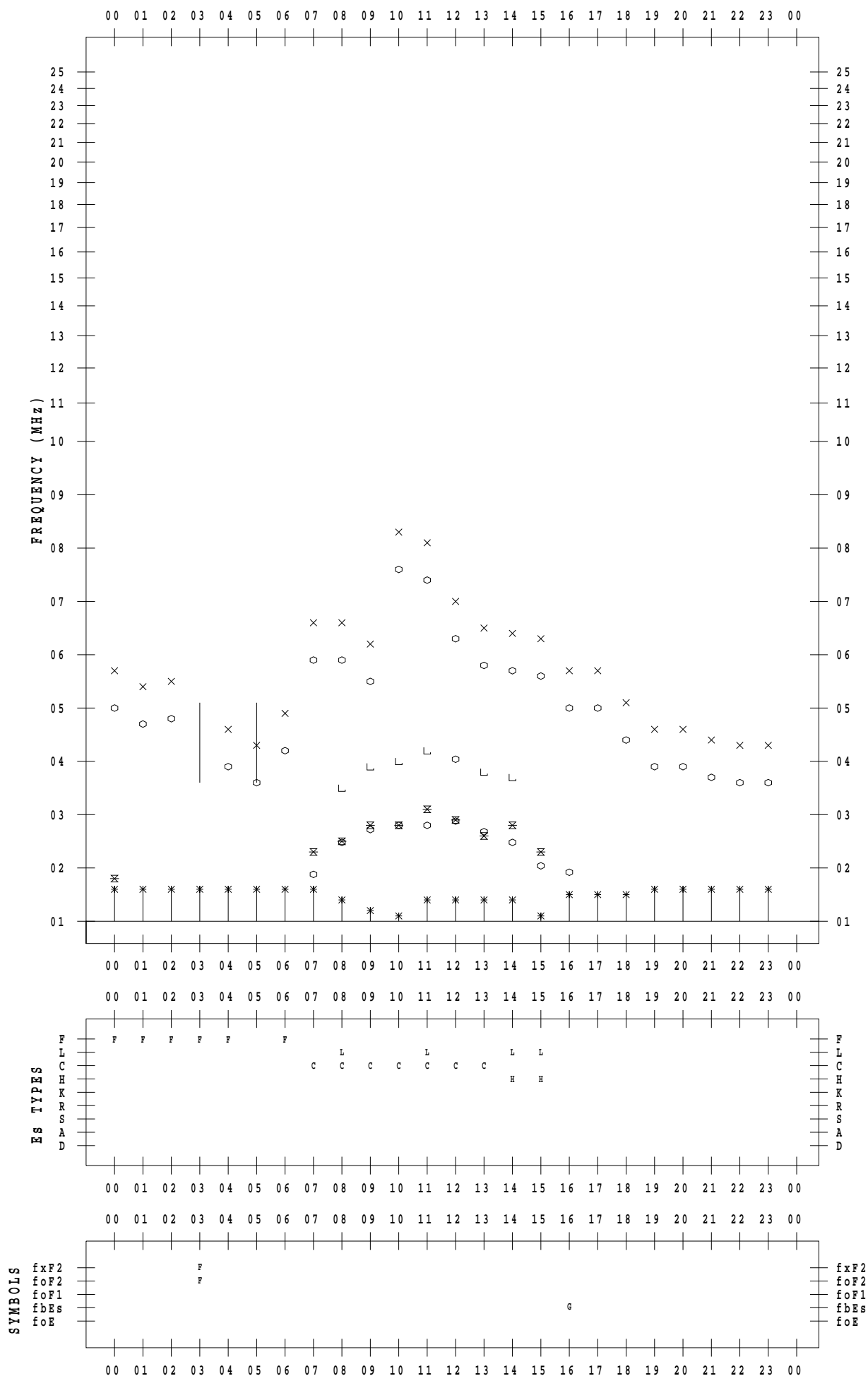
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/25

135 ° E MEAN TIME



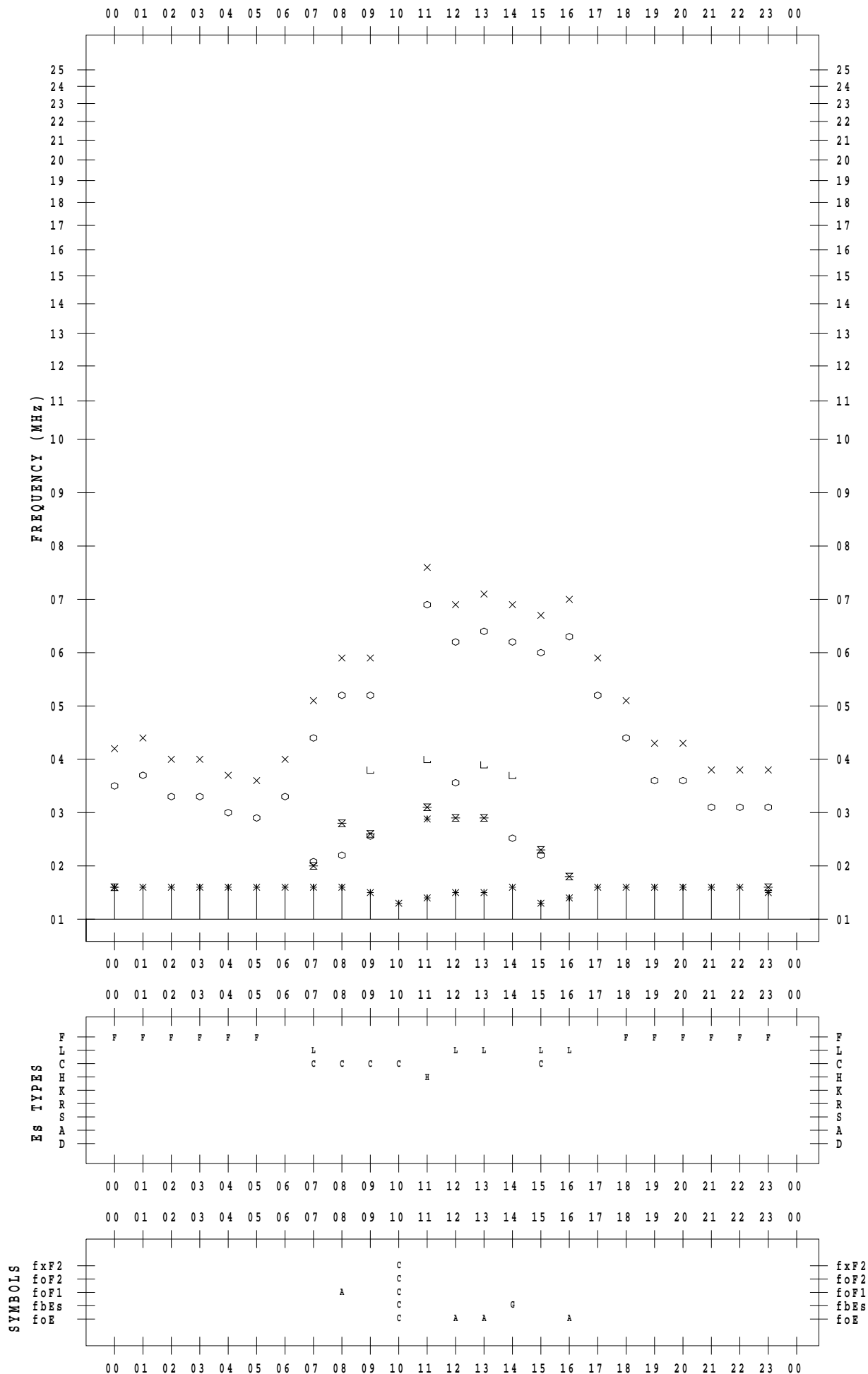
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/26

135 ° E MEAN TIME



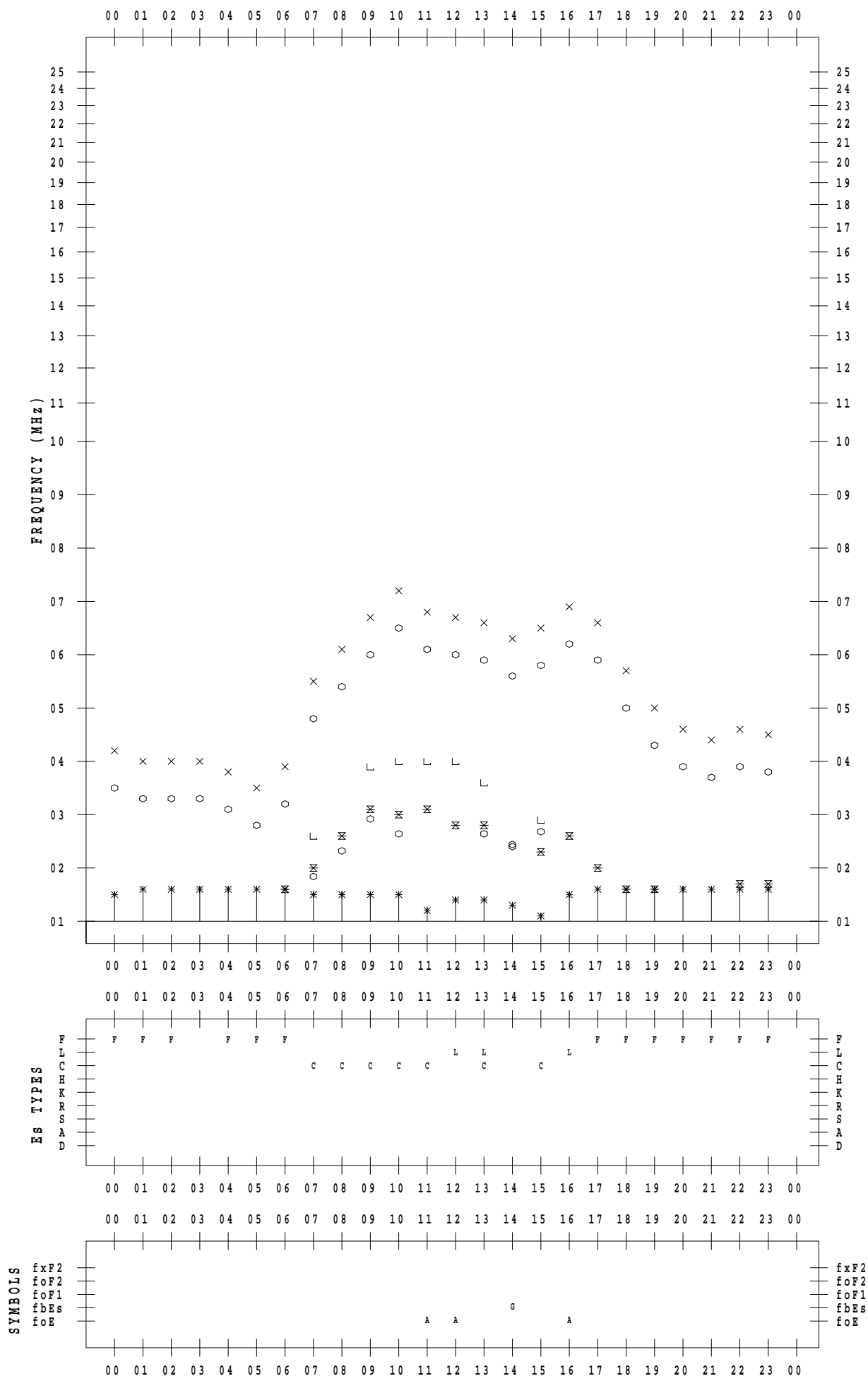
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/27

135 ° E MEAN TIME



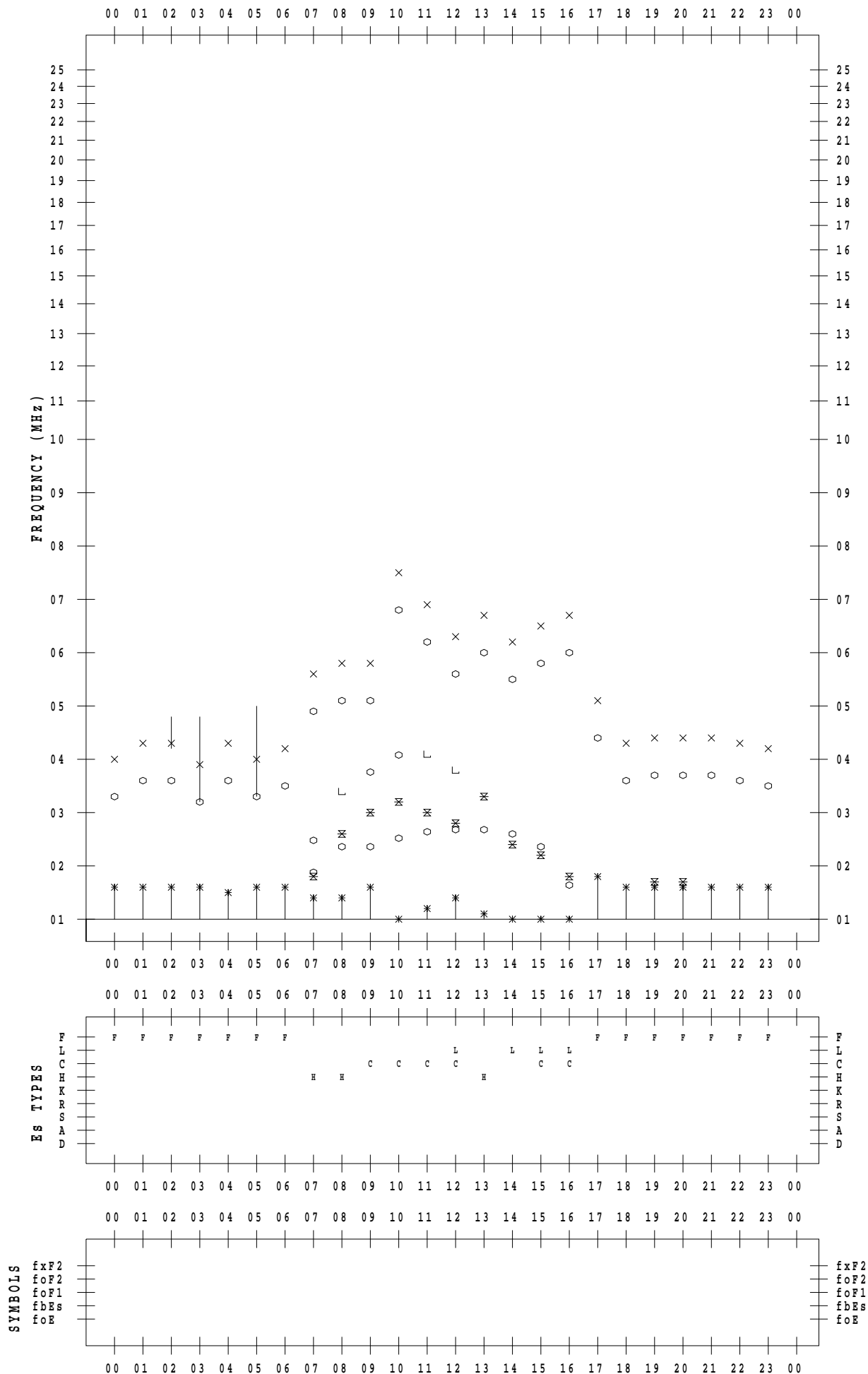
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/28

135 ° E MEAN TIME



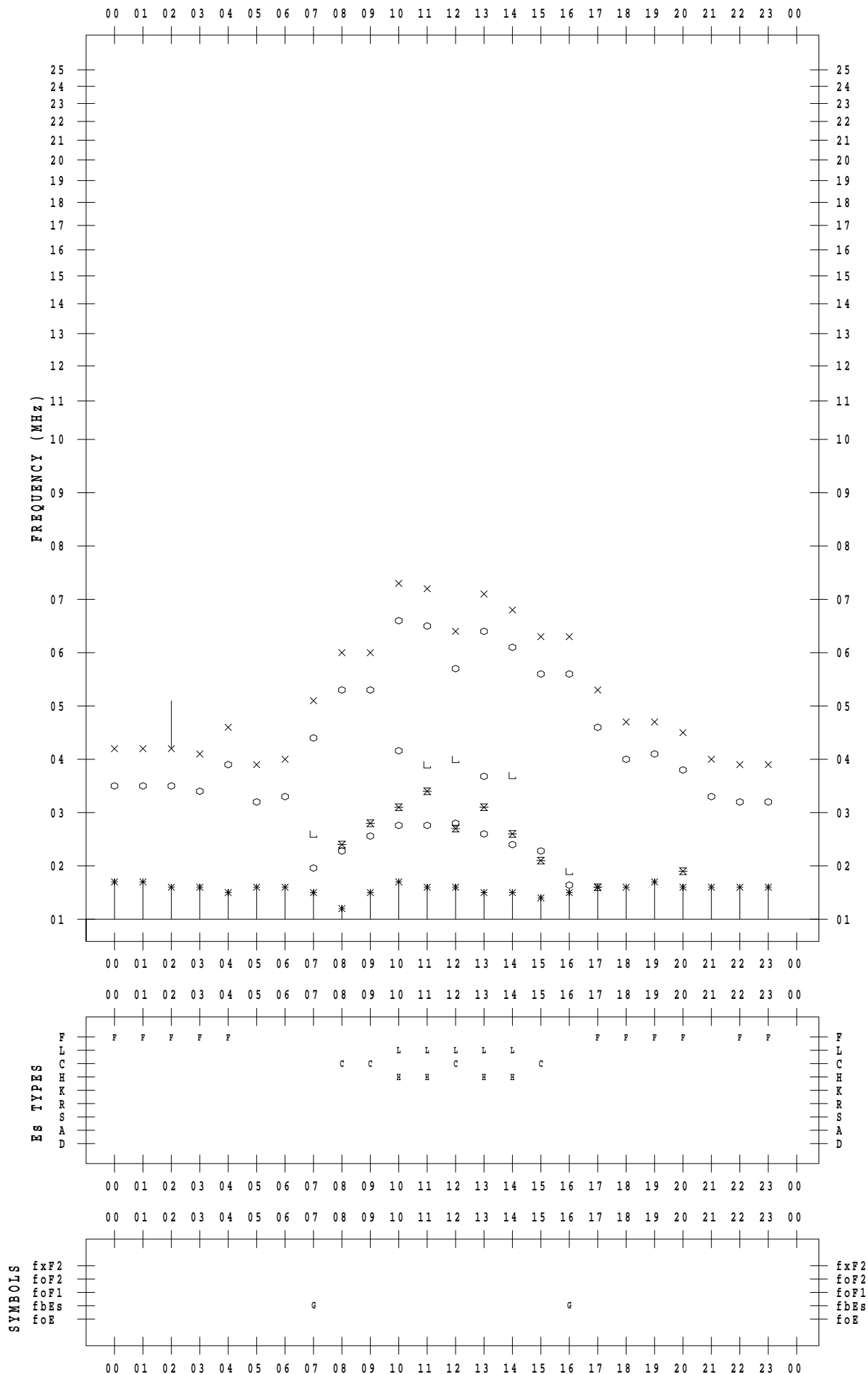
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/29

135 ° E MEAN TIME



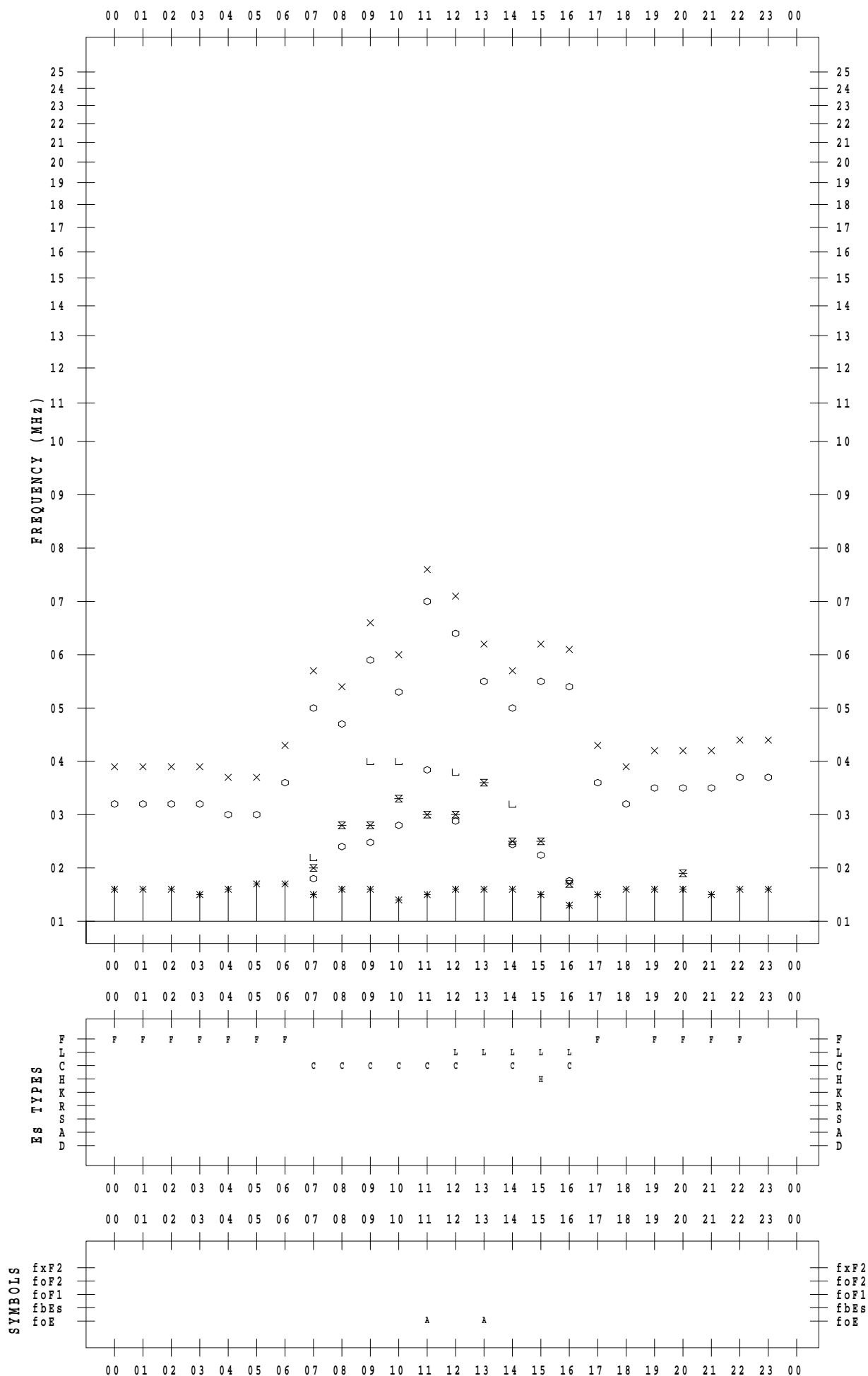
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/30

135 ° E MEAN TIME



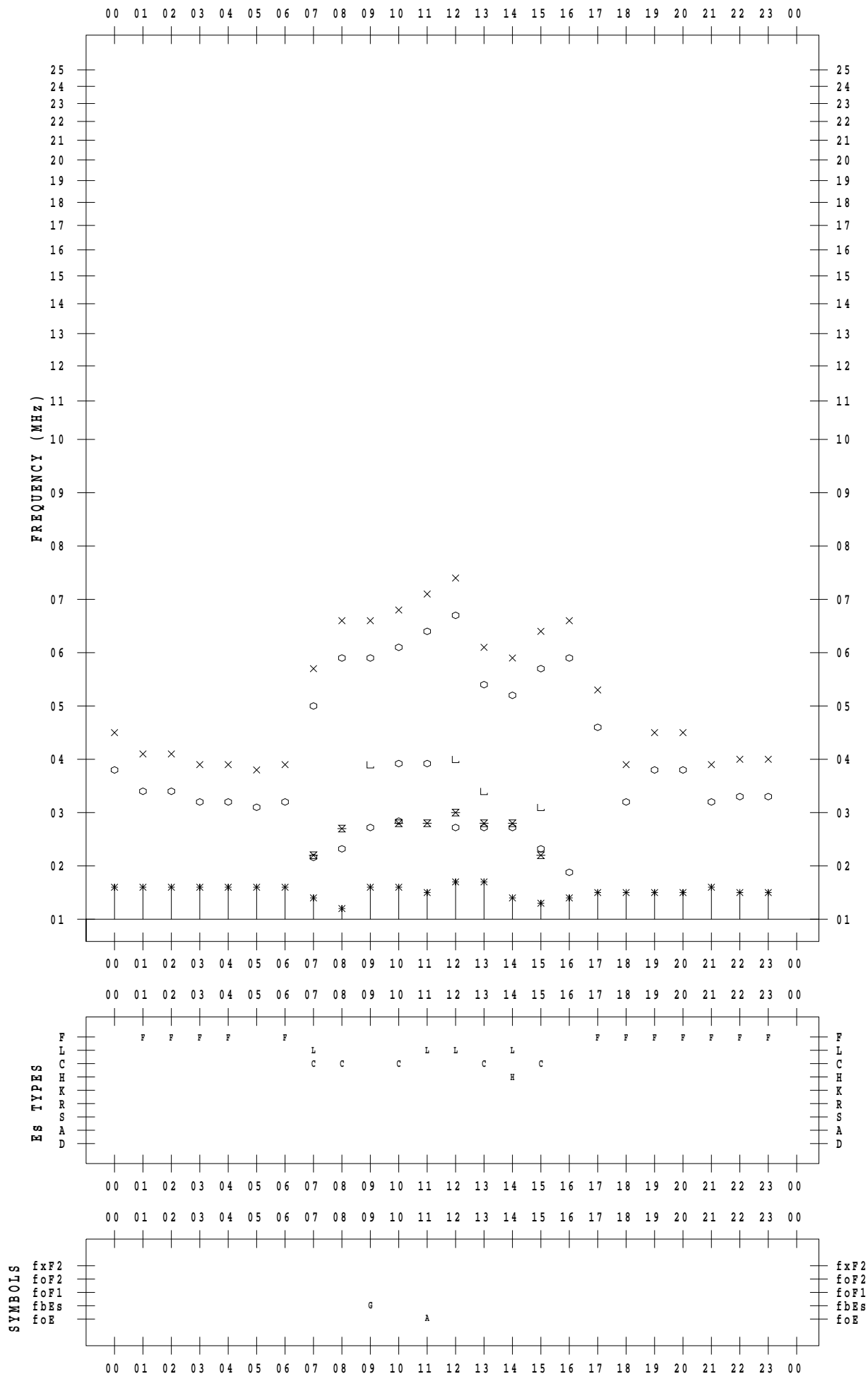
f - PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2020/10/31

135 ° E MEAN TIME



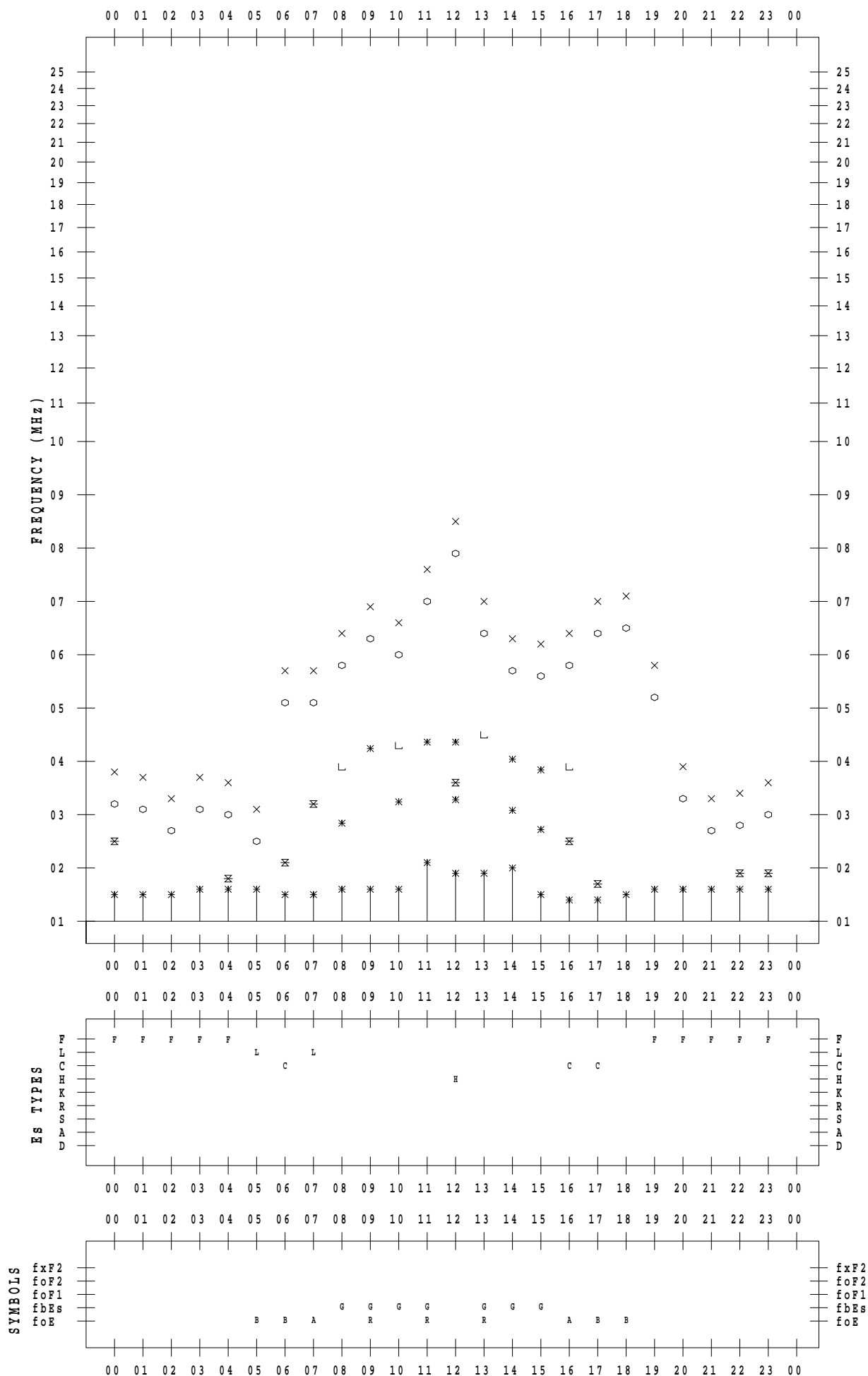
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/ 1

135 ° E MEAN TIME



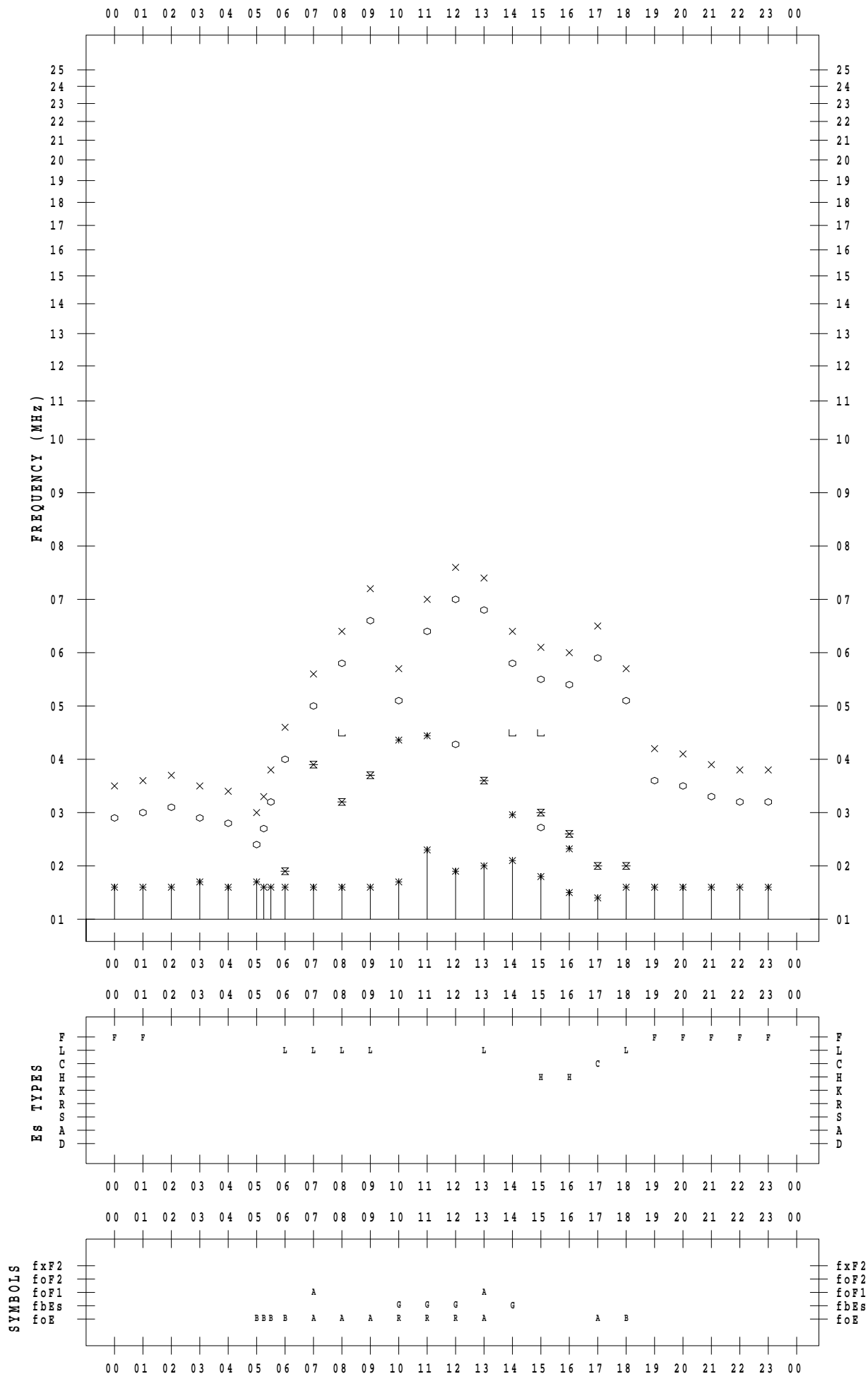
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/ 2

135 ° E MEAN TIME



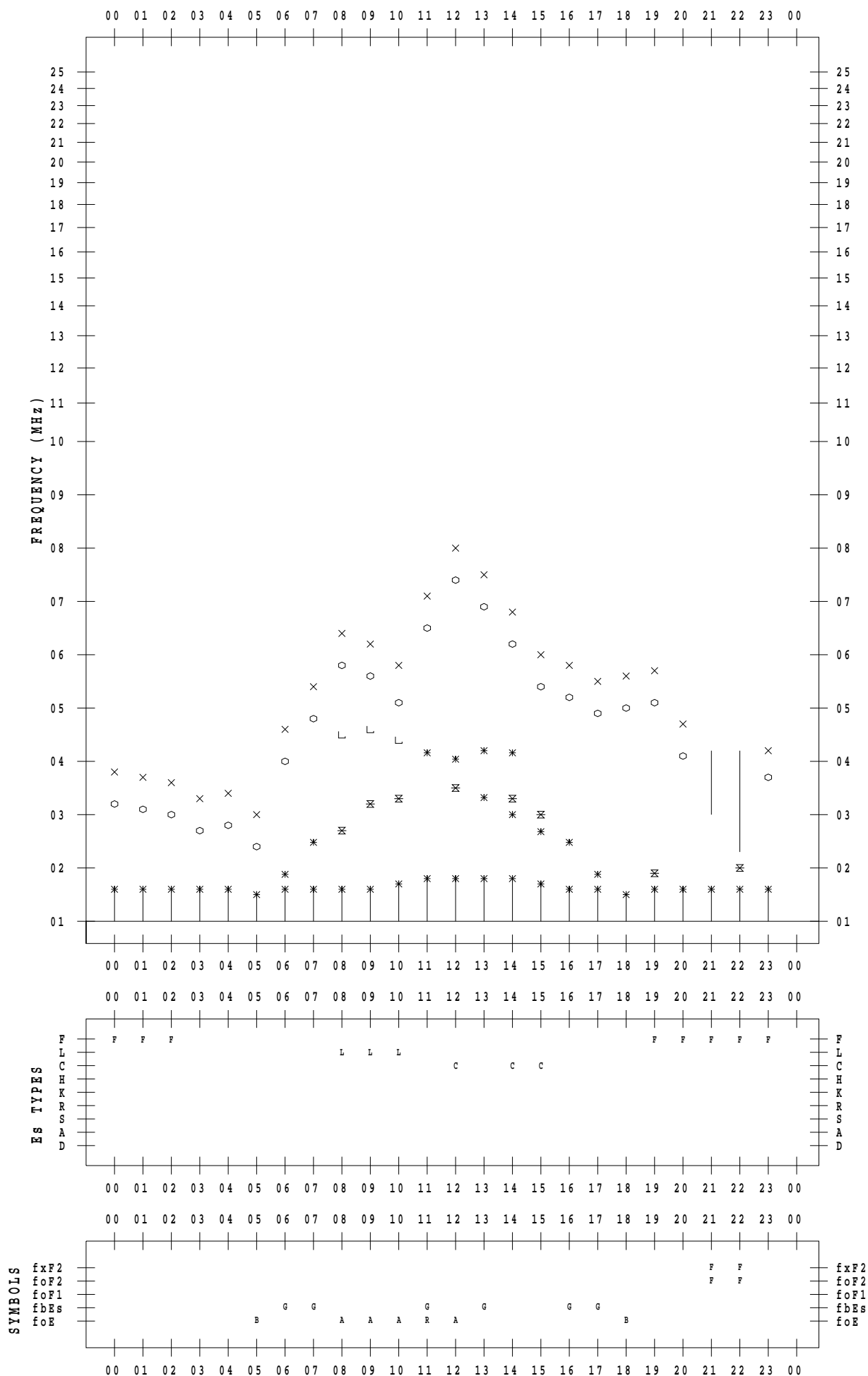
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/ 3

135 °E MEAN TIME



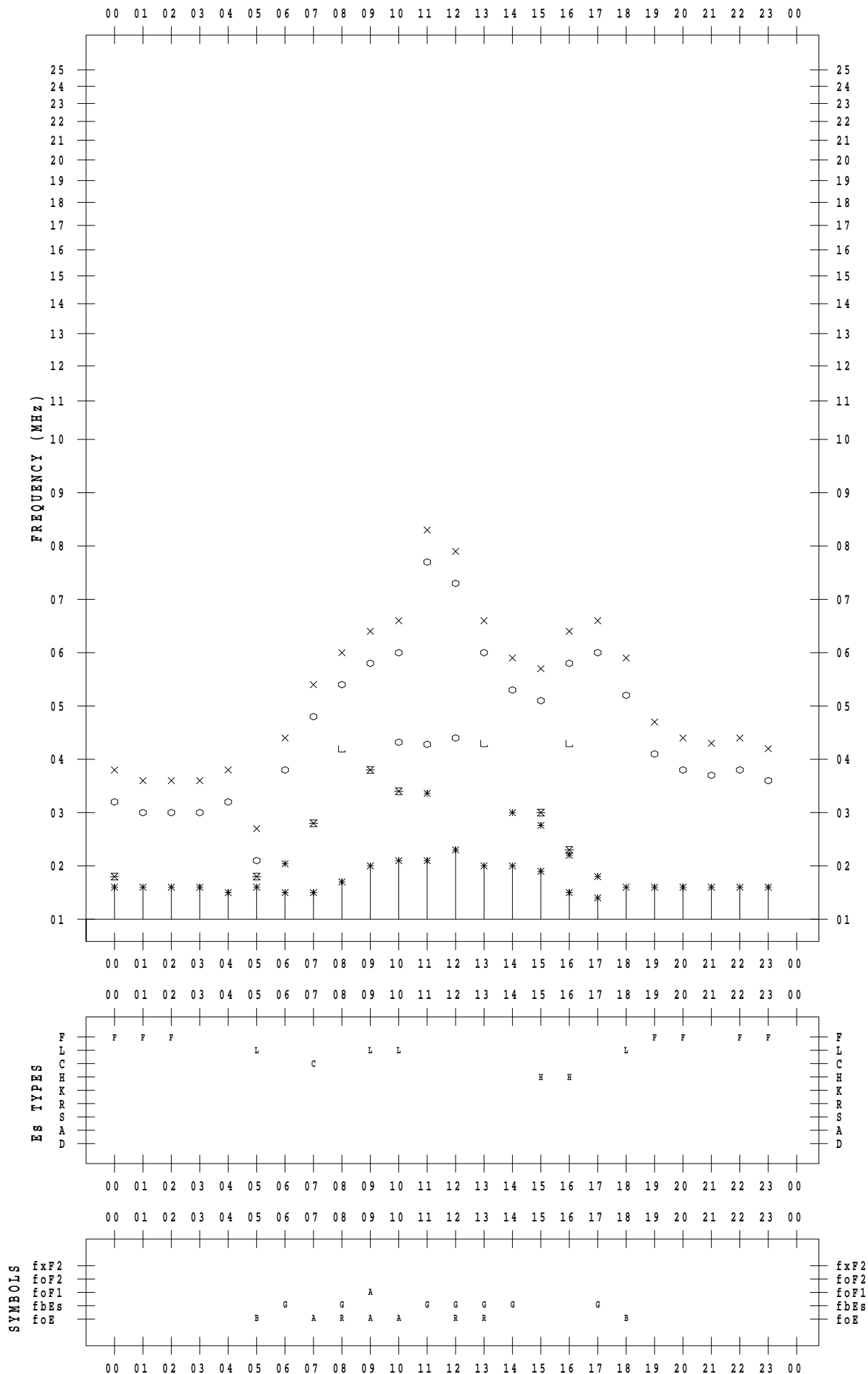
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/ 4

135 ° E MEAN TIME



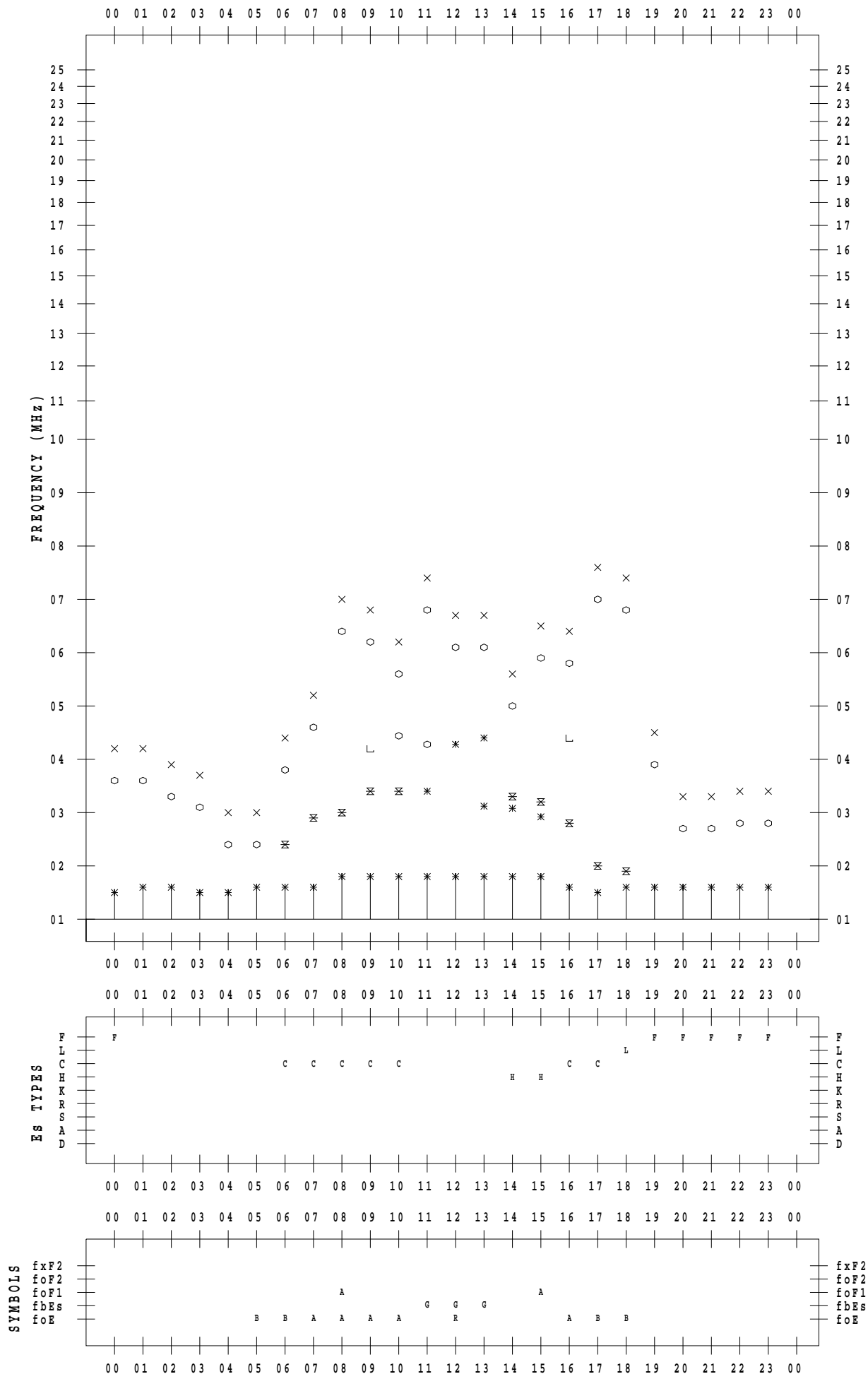
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/ 5

135 °E MEAN TIME



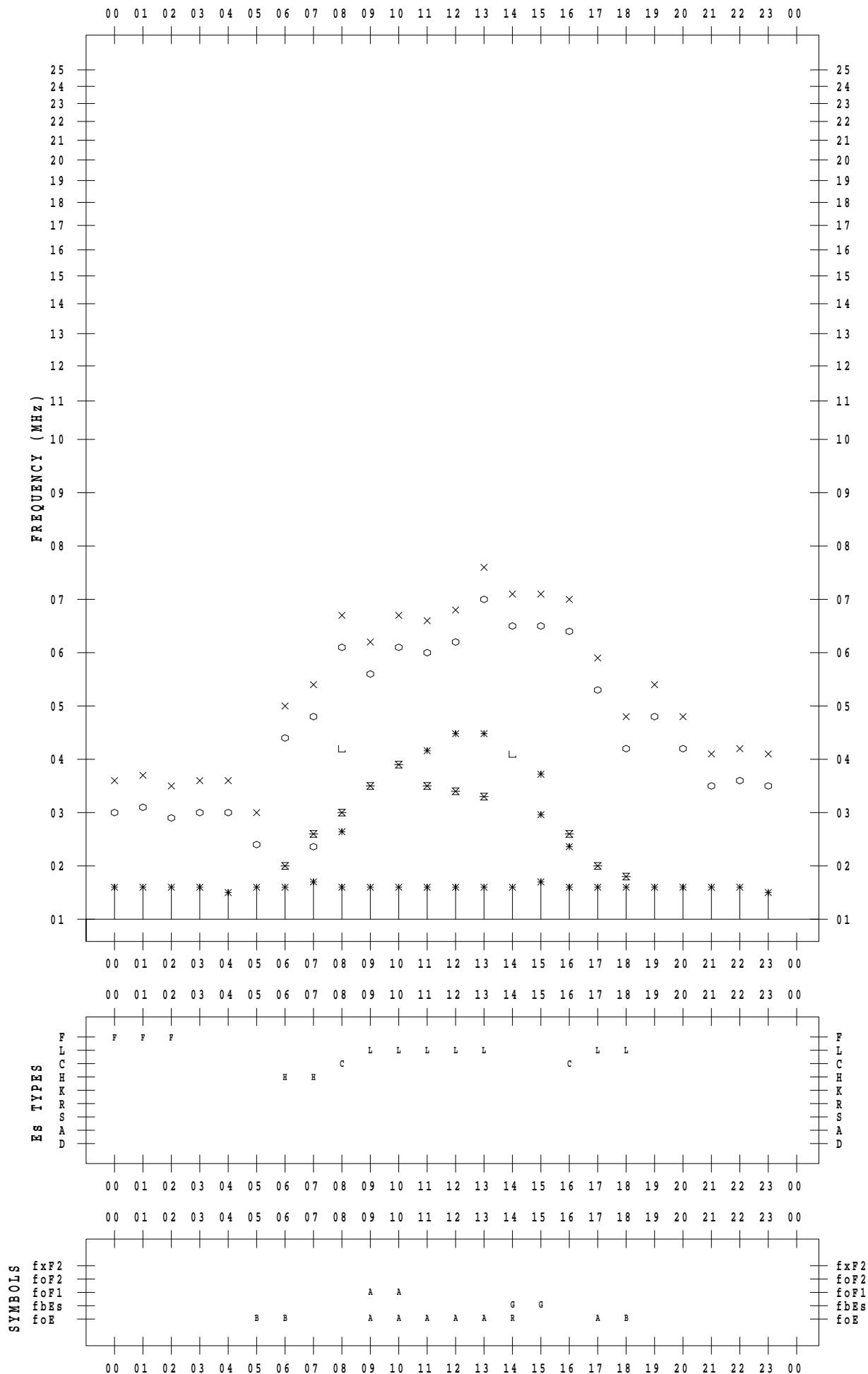
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/ 6

135 ° E MEAN TIME



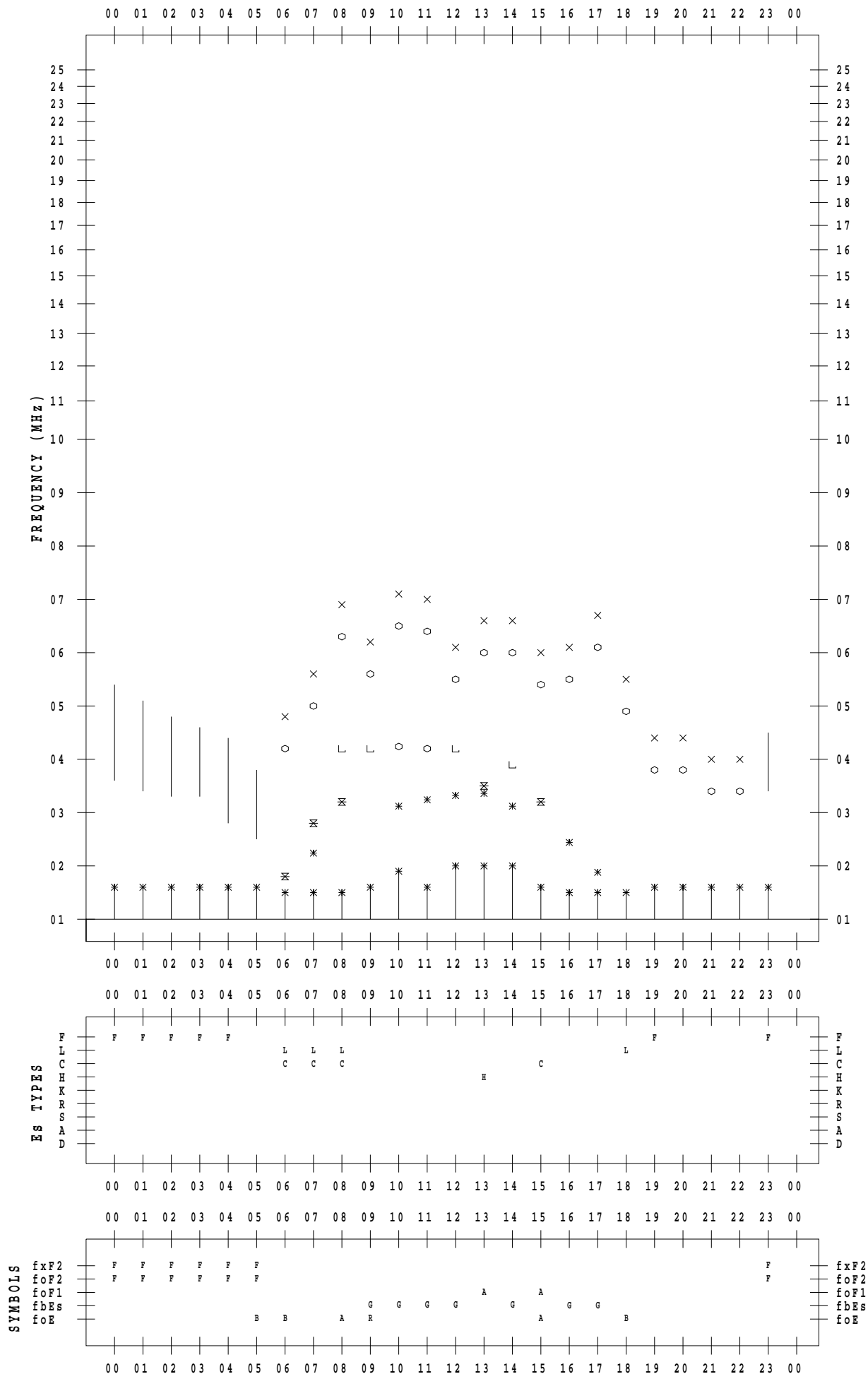
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/7

135 ° E MEAN TIME



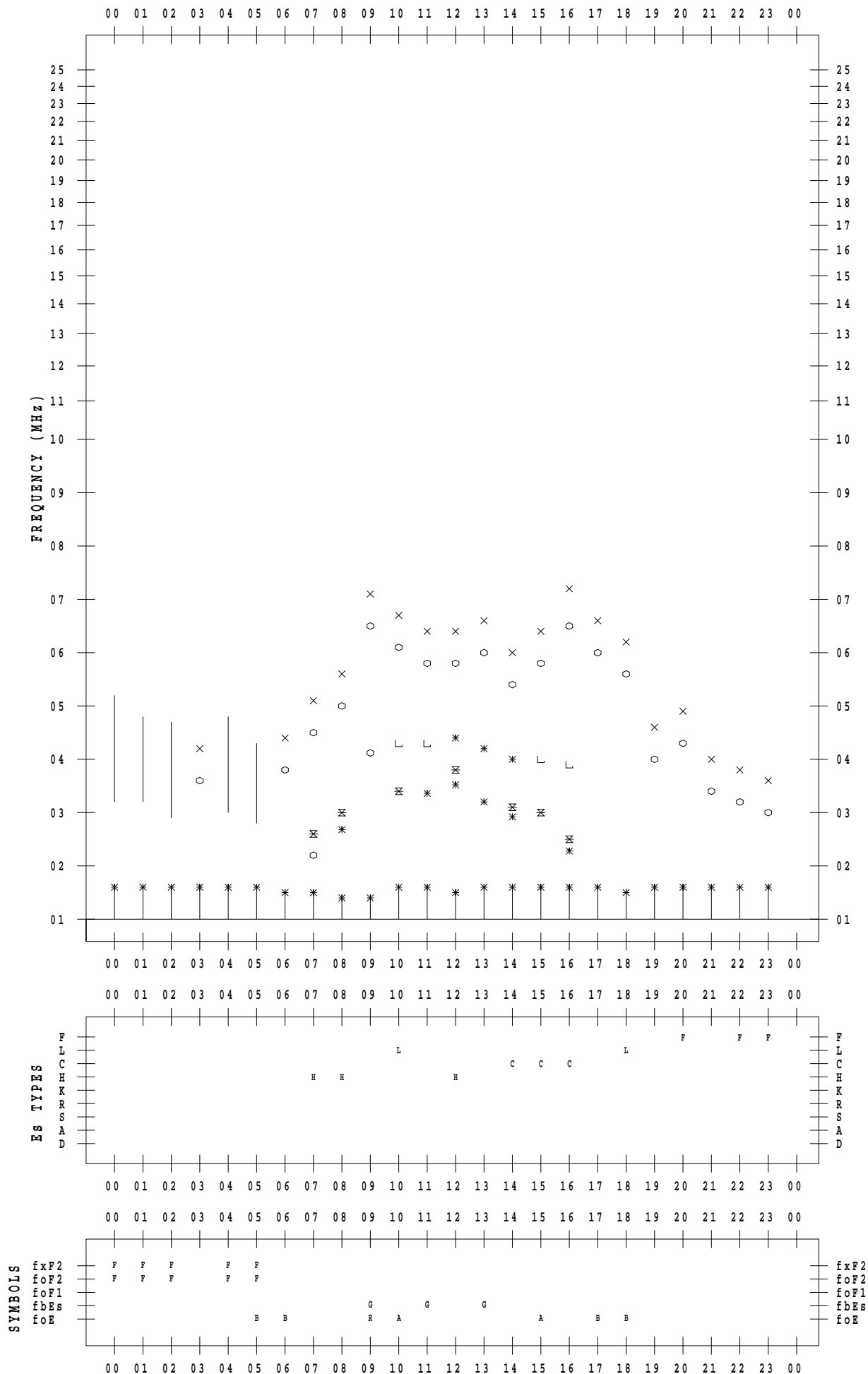
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/ 8

135 ° E MEAN TIME



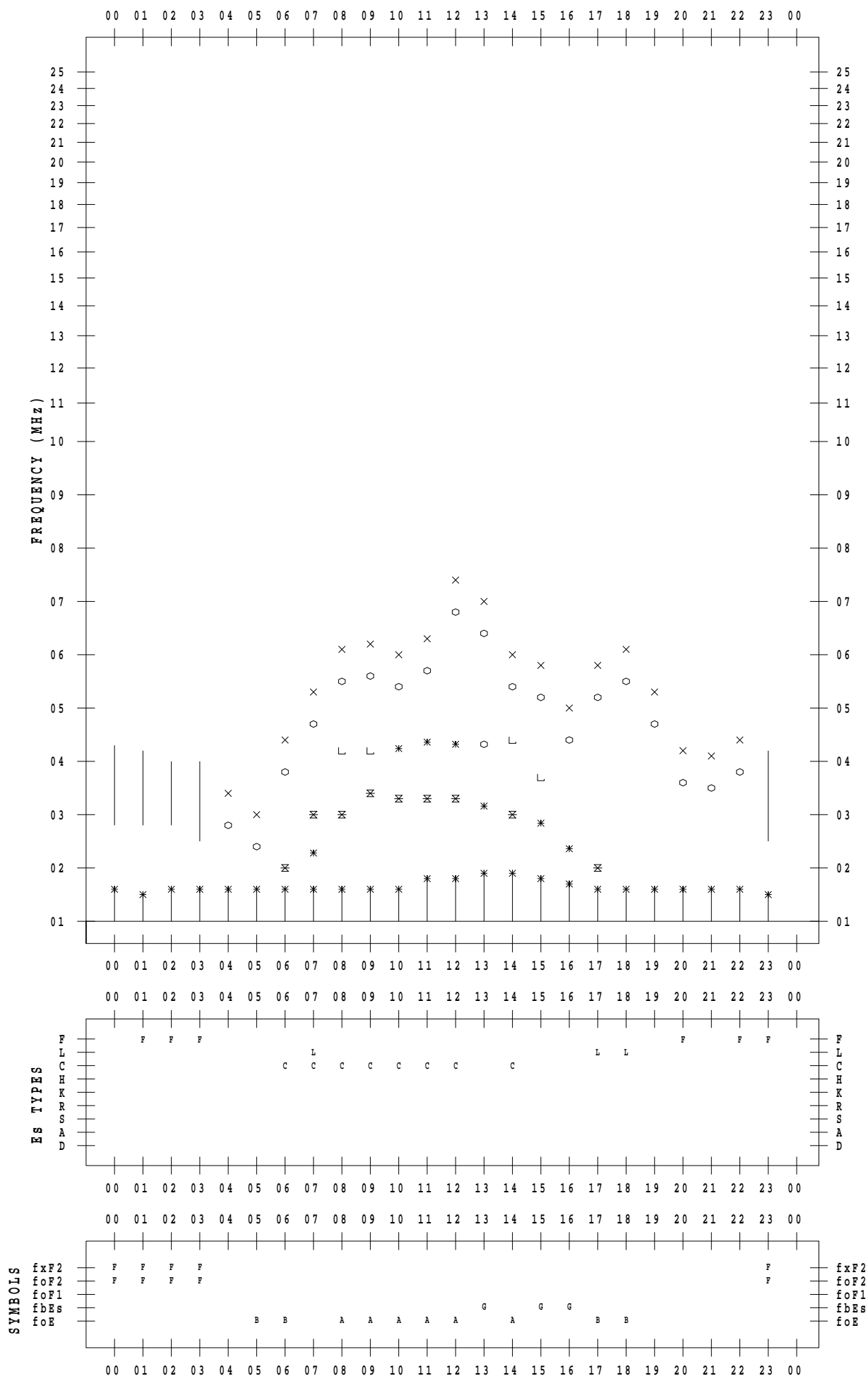
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/9

135 ° E MEAN TIME



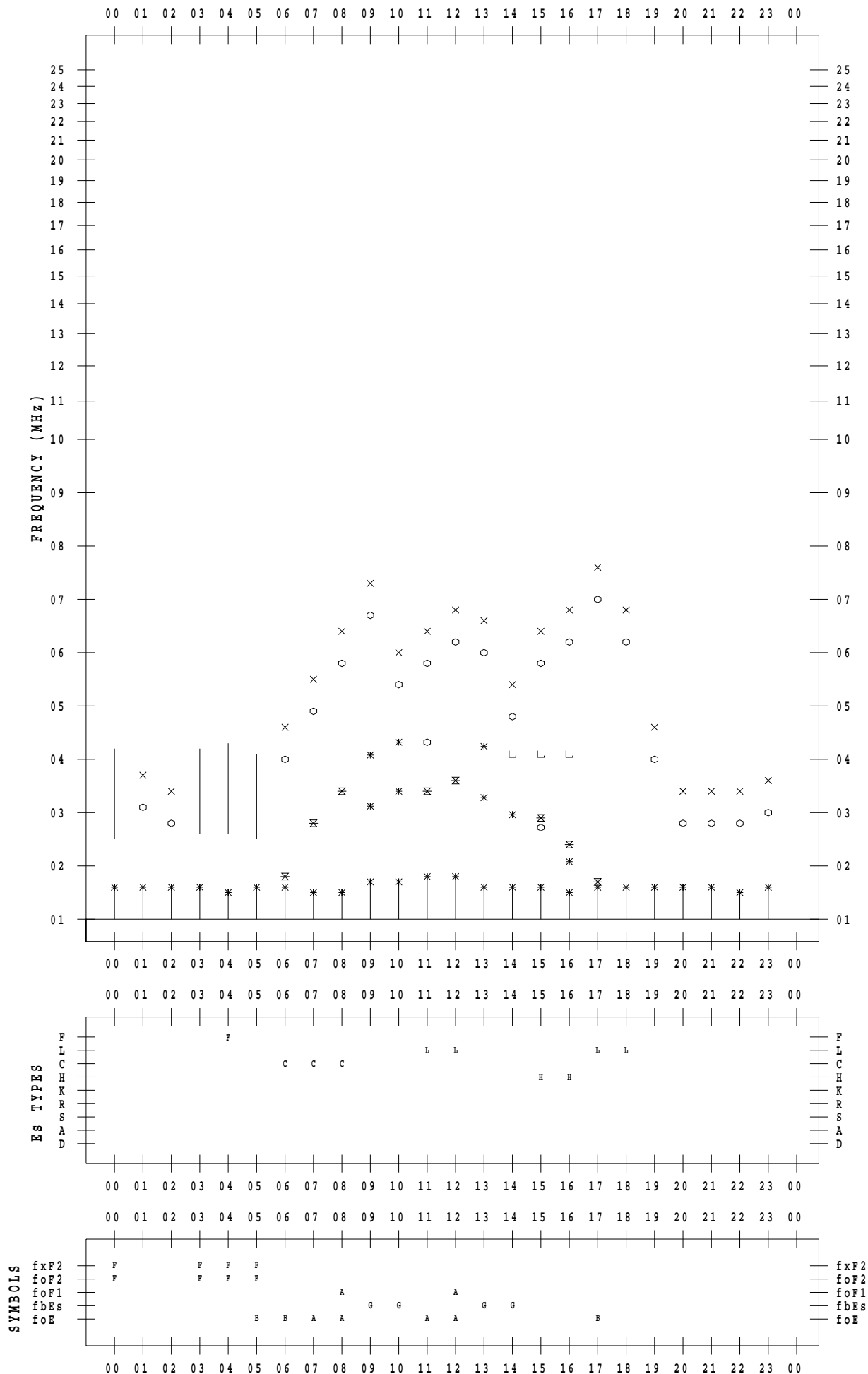
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/10

135 ° E MEAN TIME



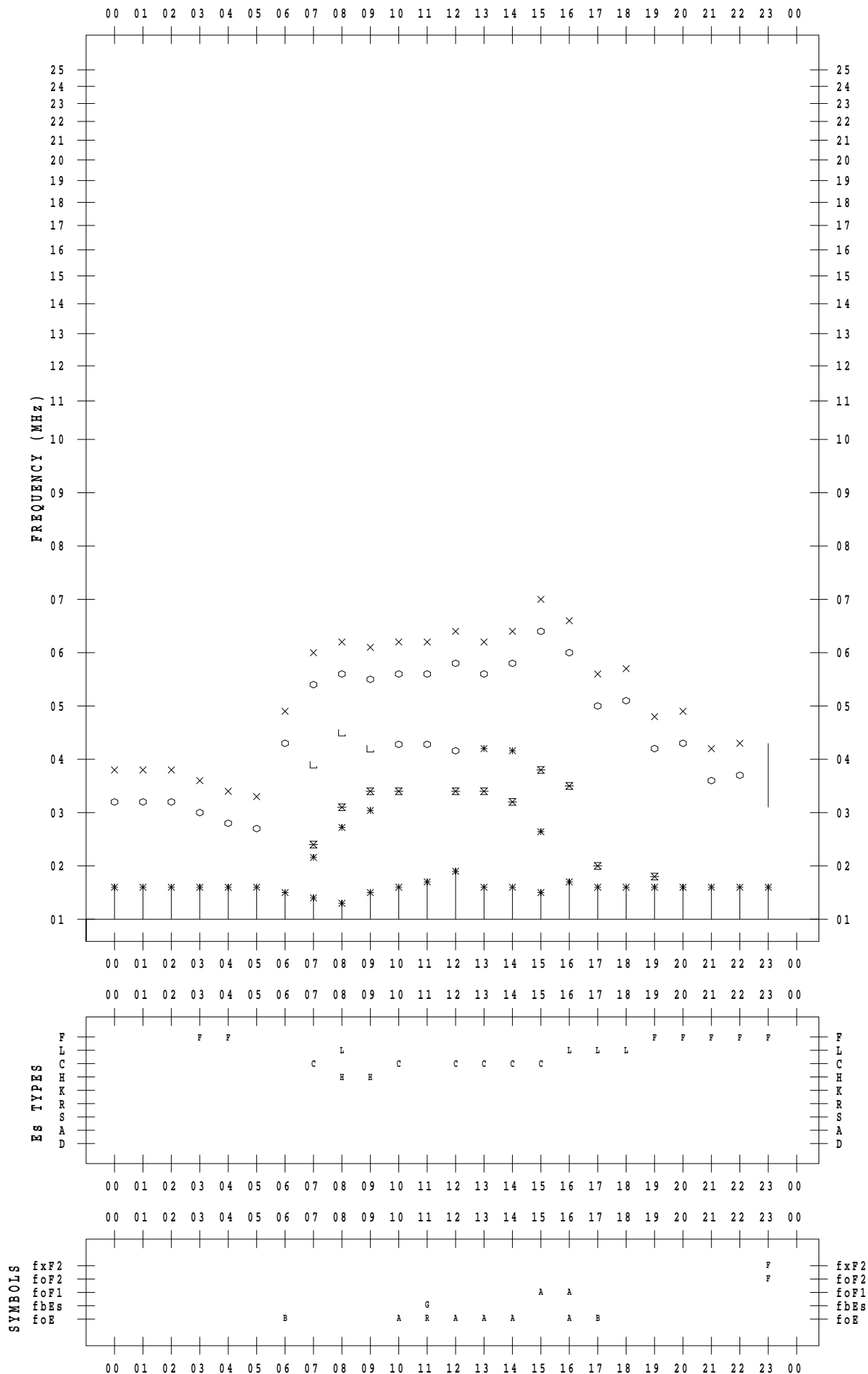
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/11

135 ° E MEAN TIME



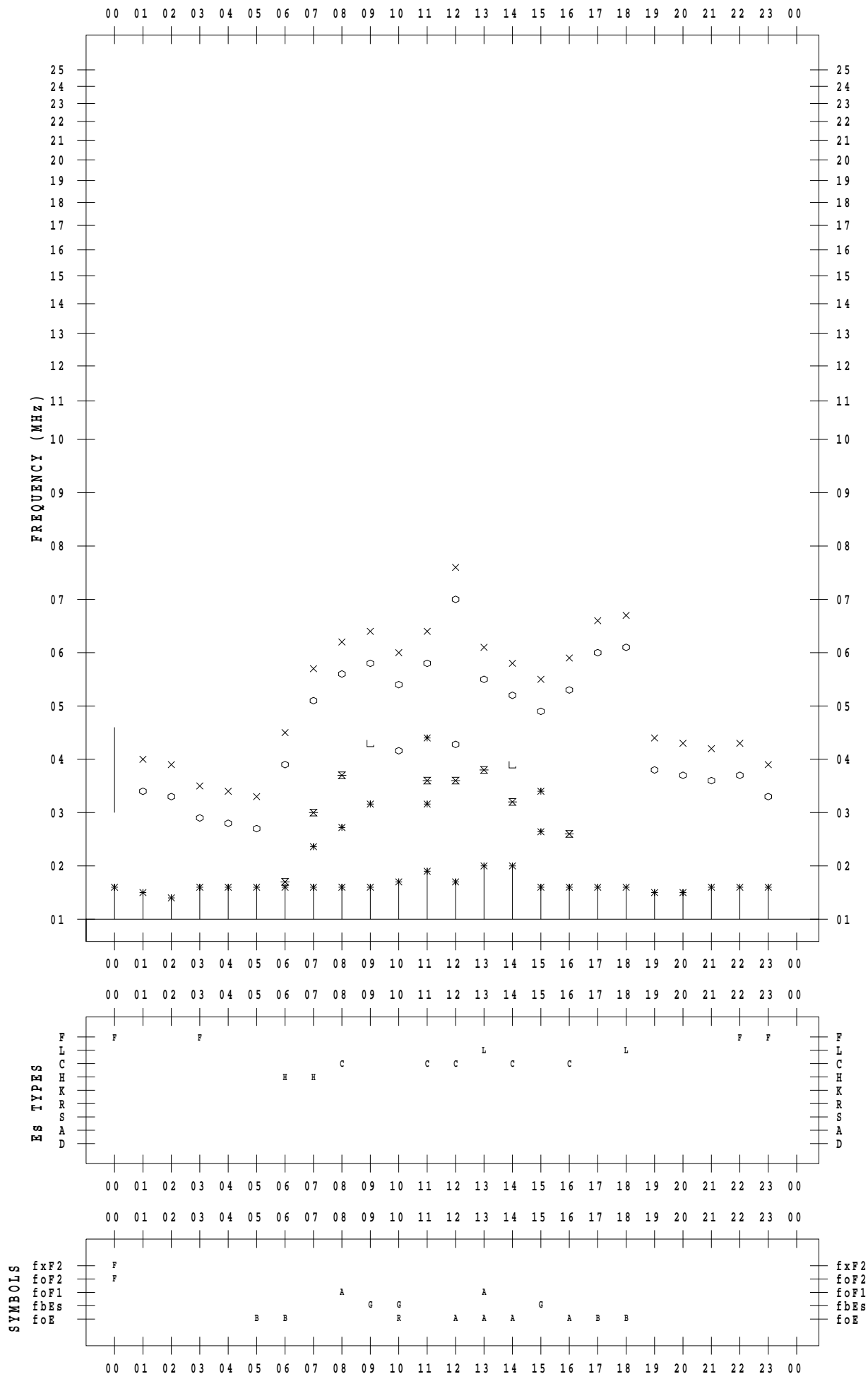
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/12

135 ° E MEAN TIME



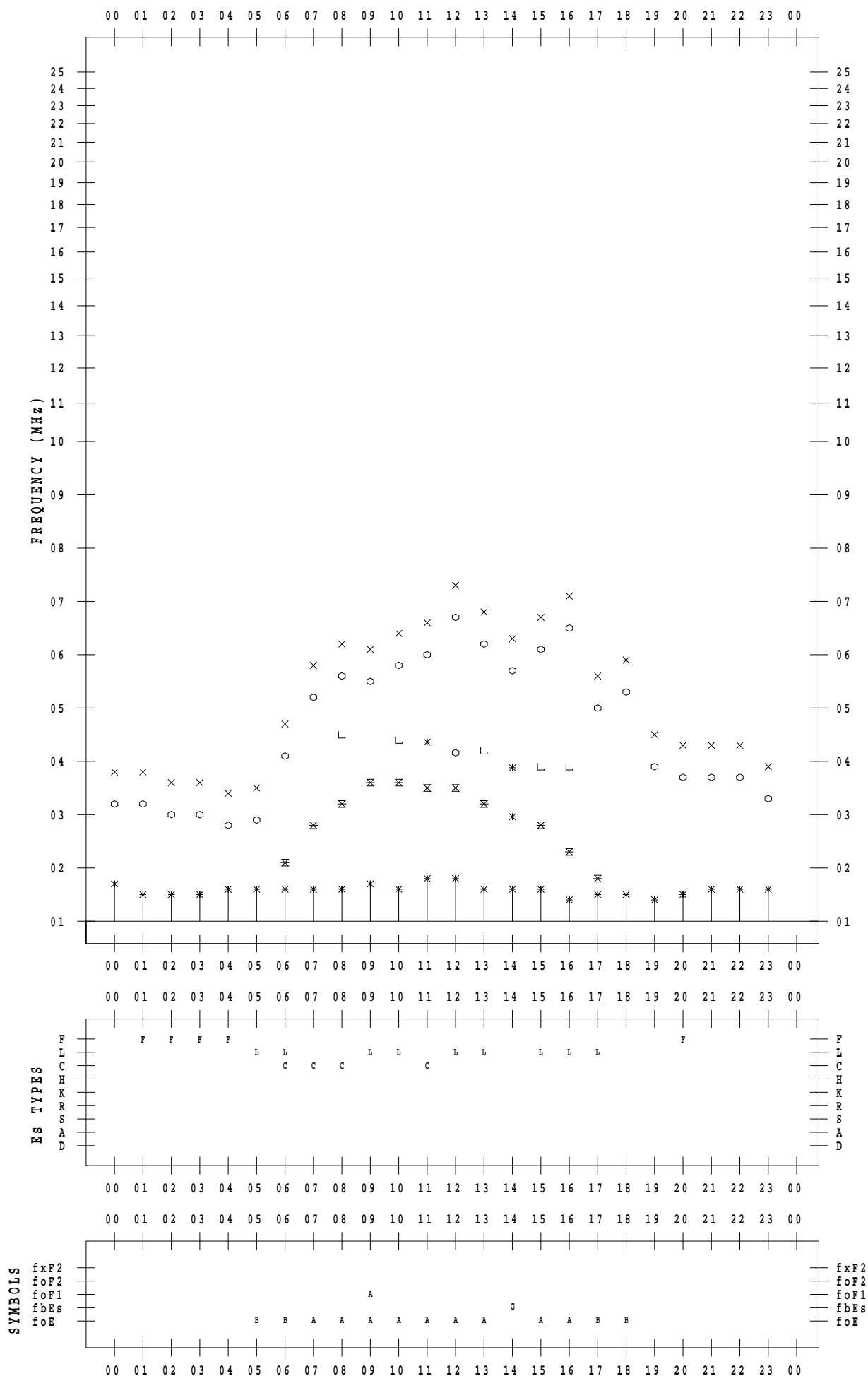
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/13

135 ° E MEAN TIME



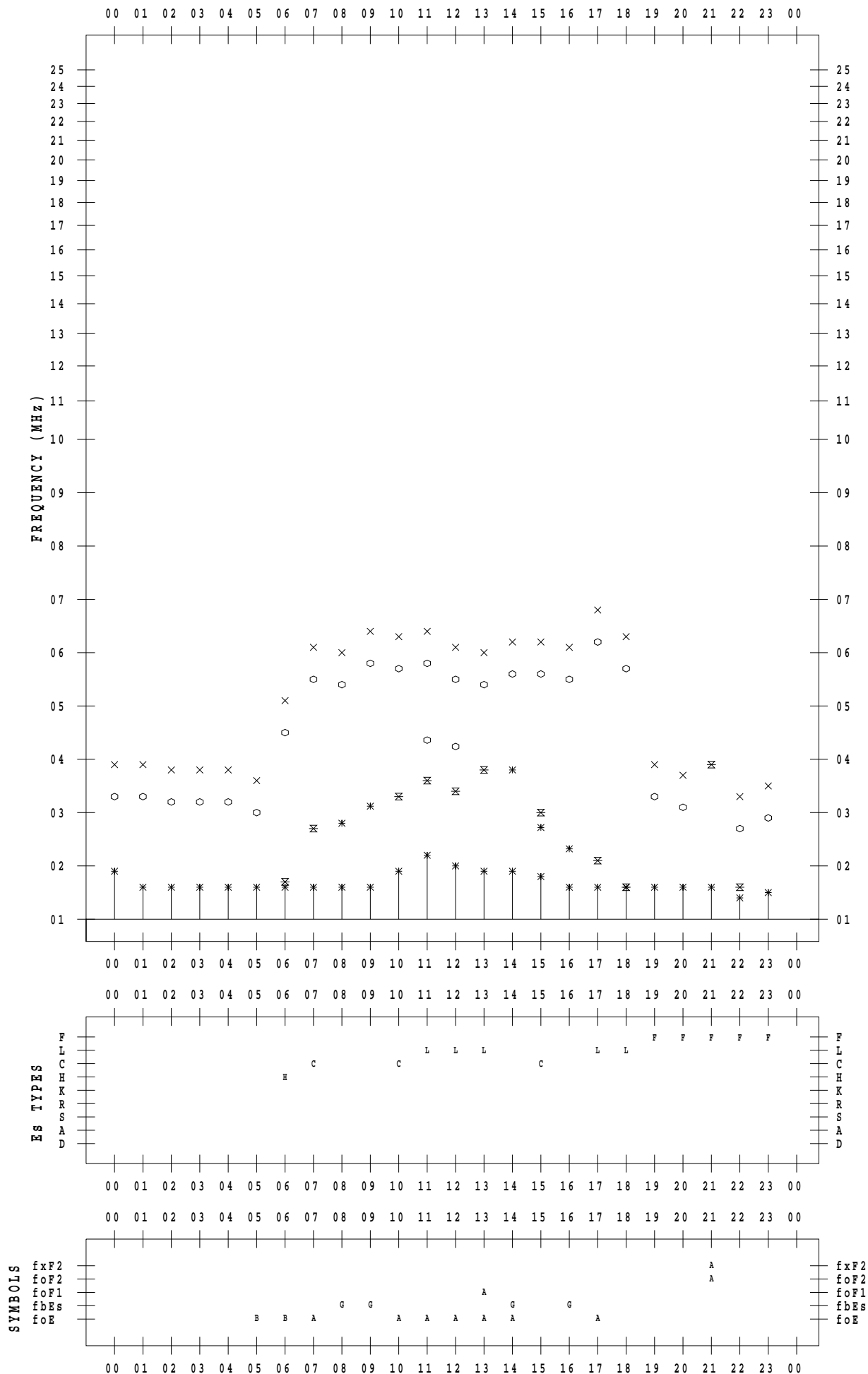
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/14

135 ° E MEAN TIME



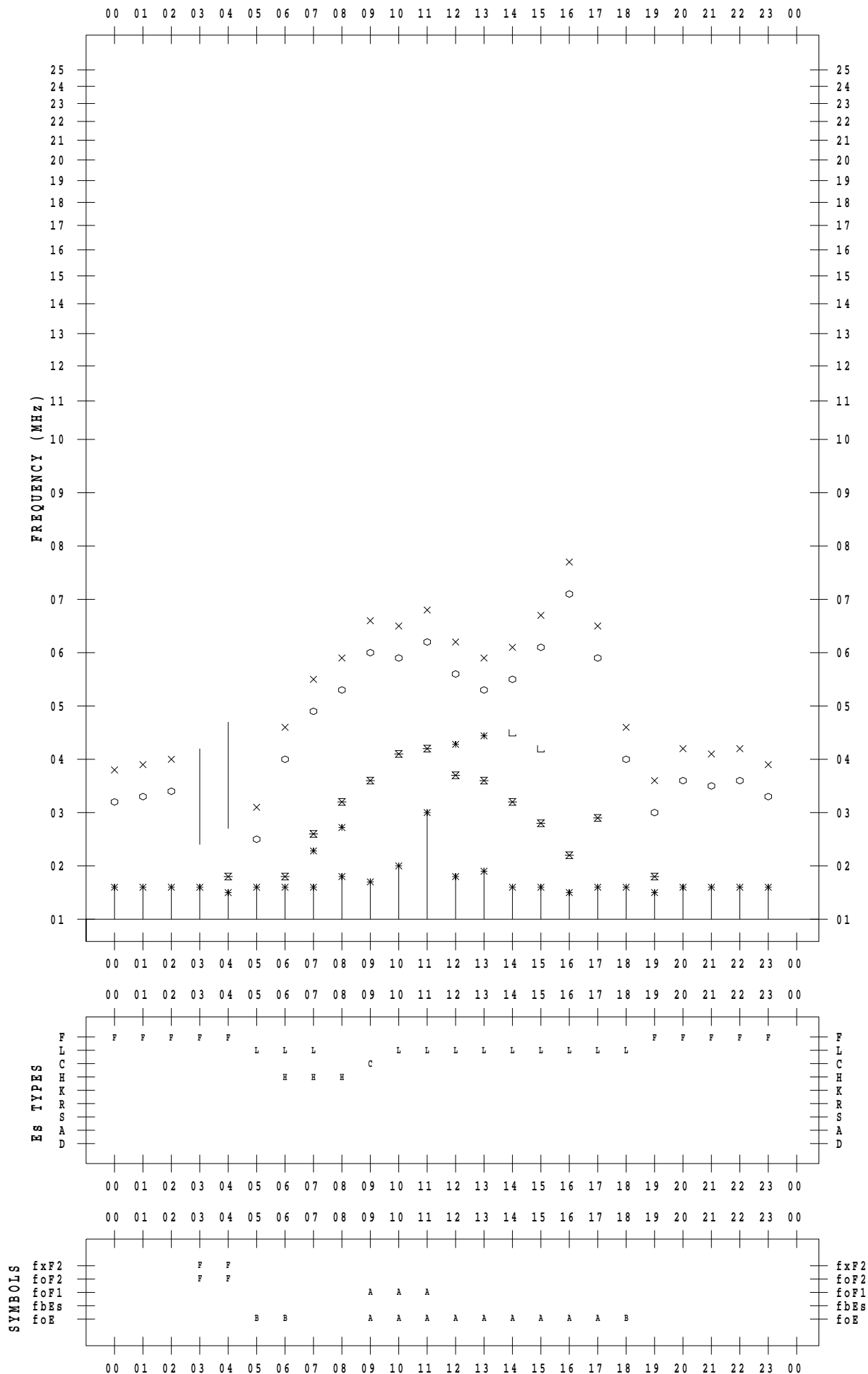
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/15

135 ° E MEAN TIME



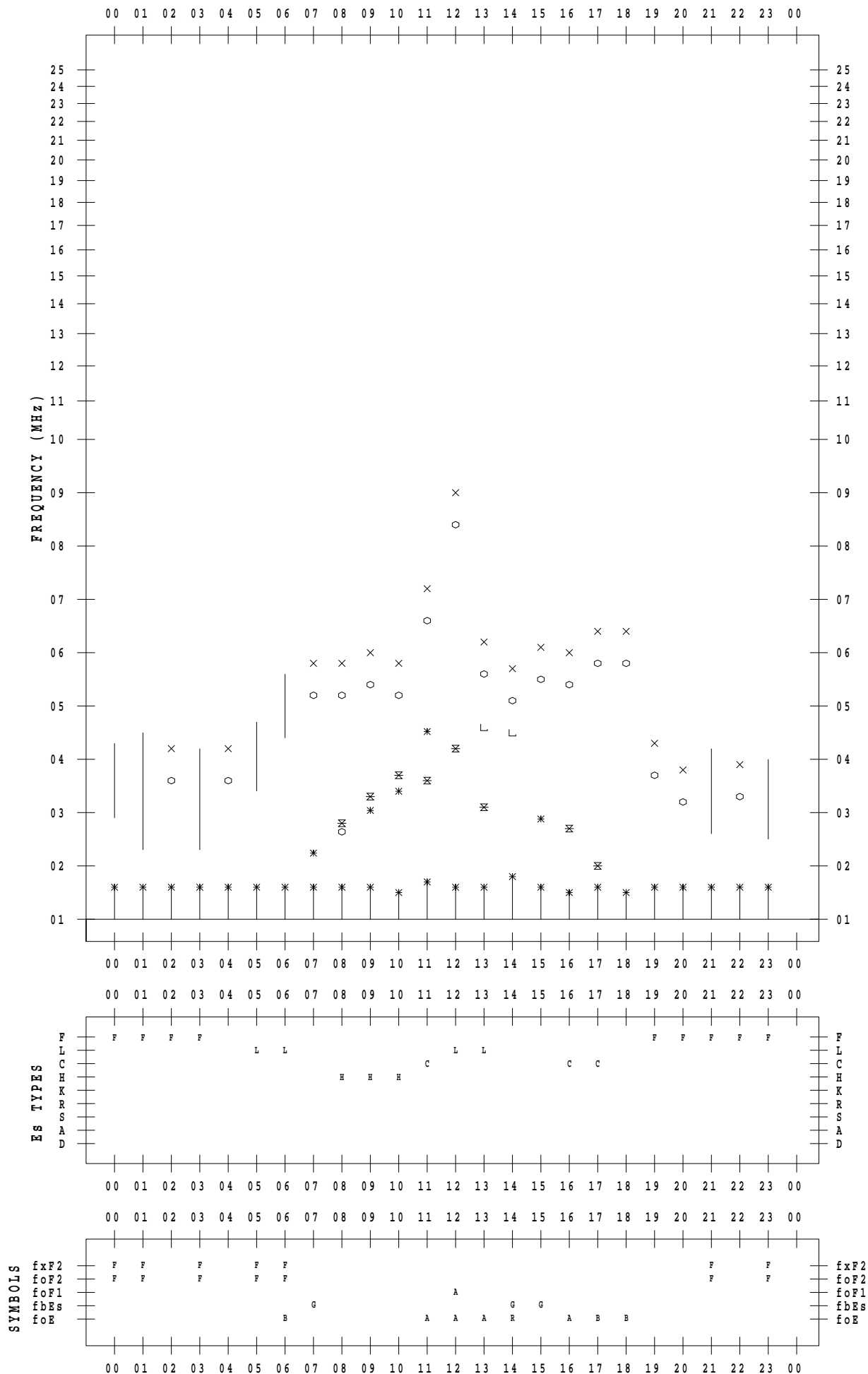
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/16

135 ° E MEAN TIME



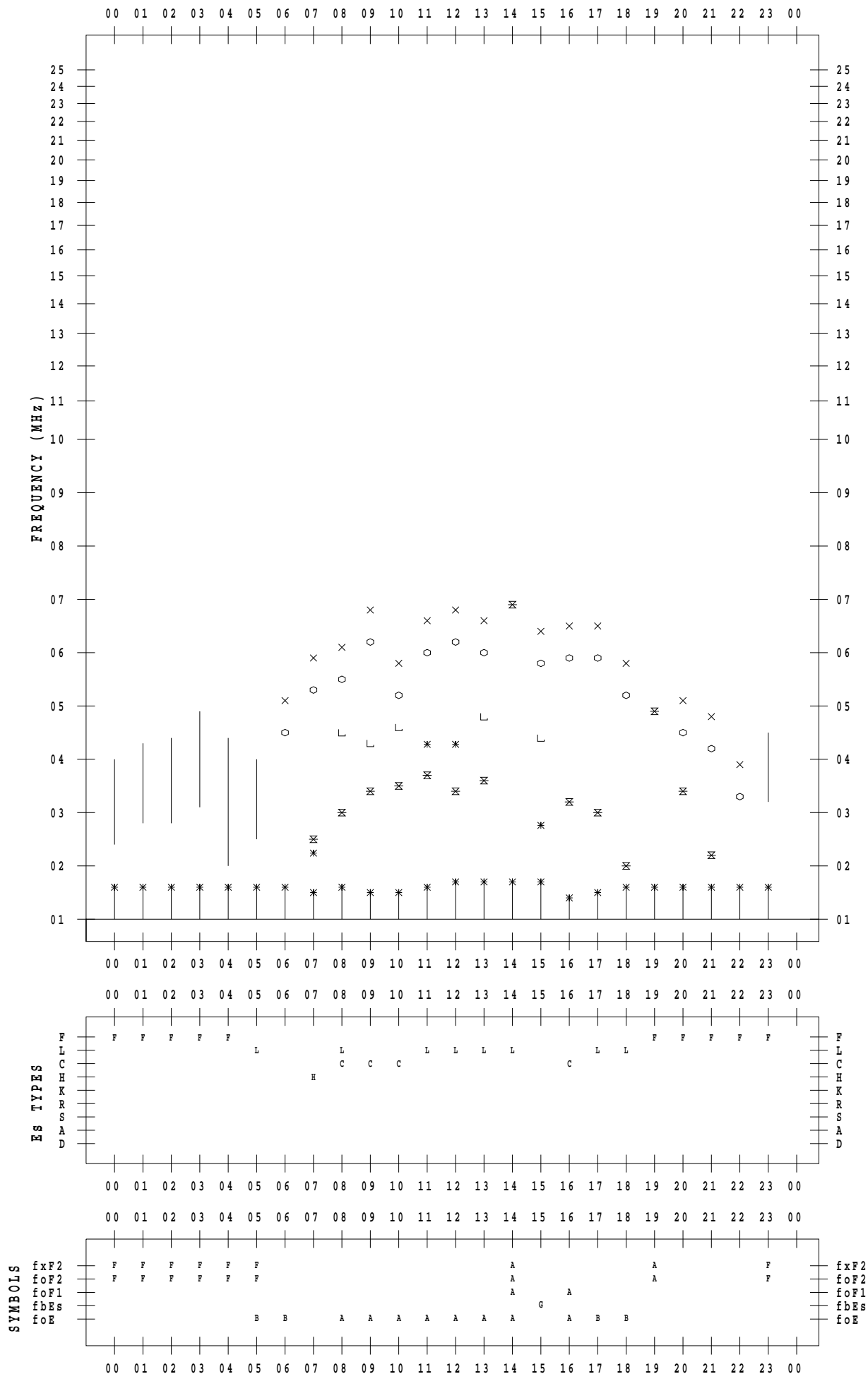
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/17

135 ° E MEAN TIME



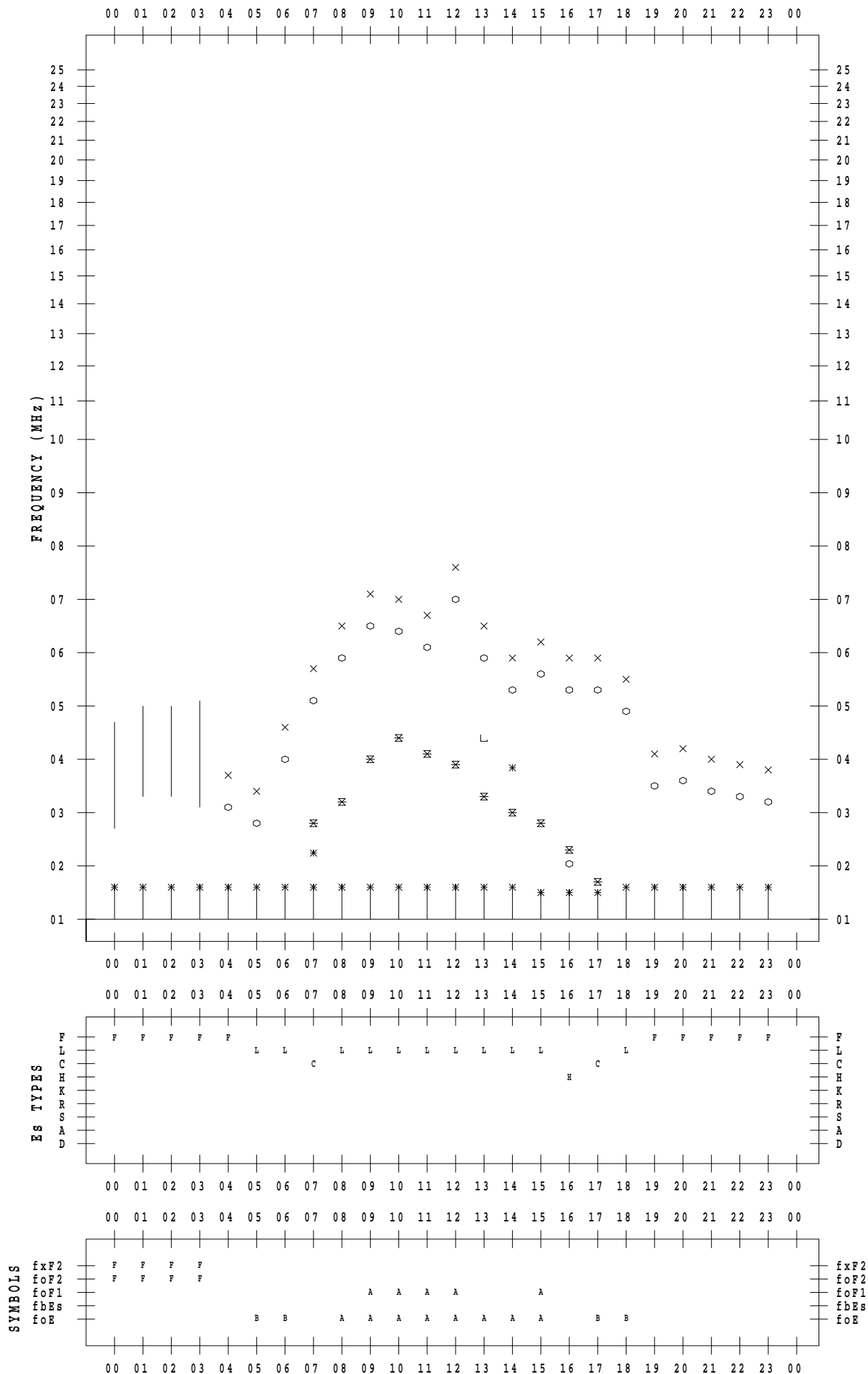
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/18

135 ° E MEAN TIME



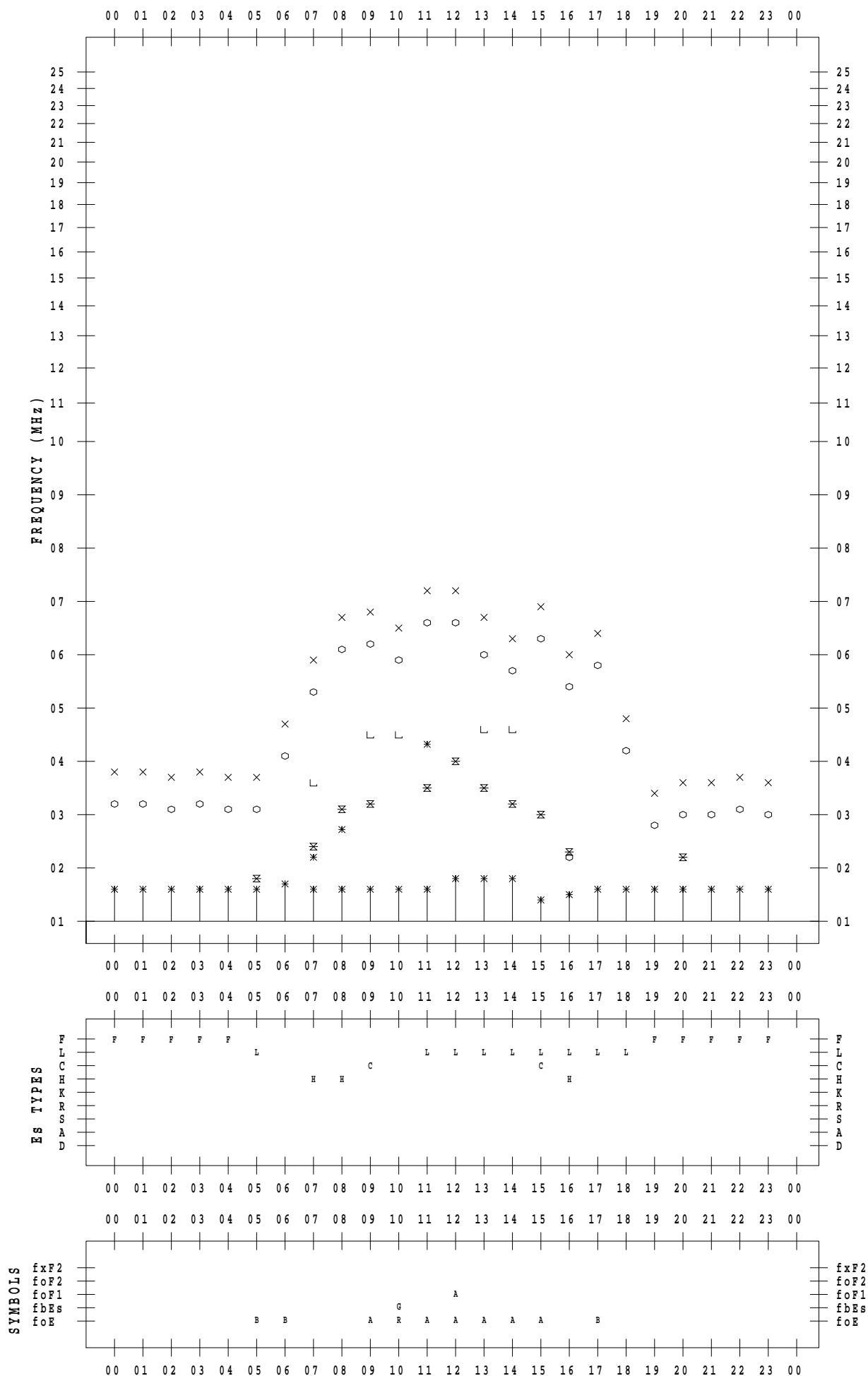
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/19

135 ° E MEAN TIME



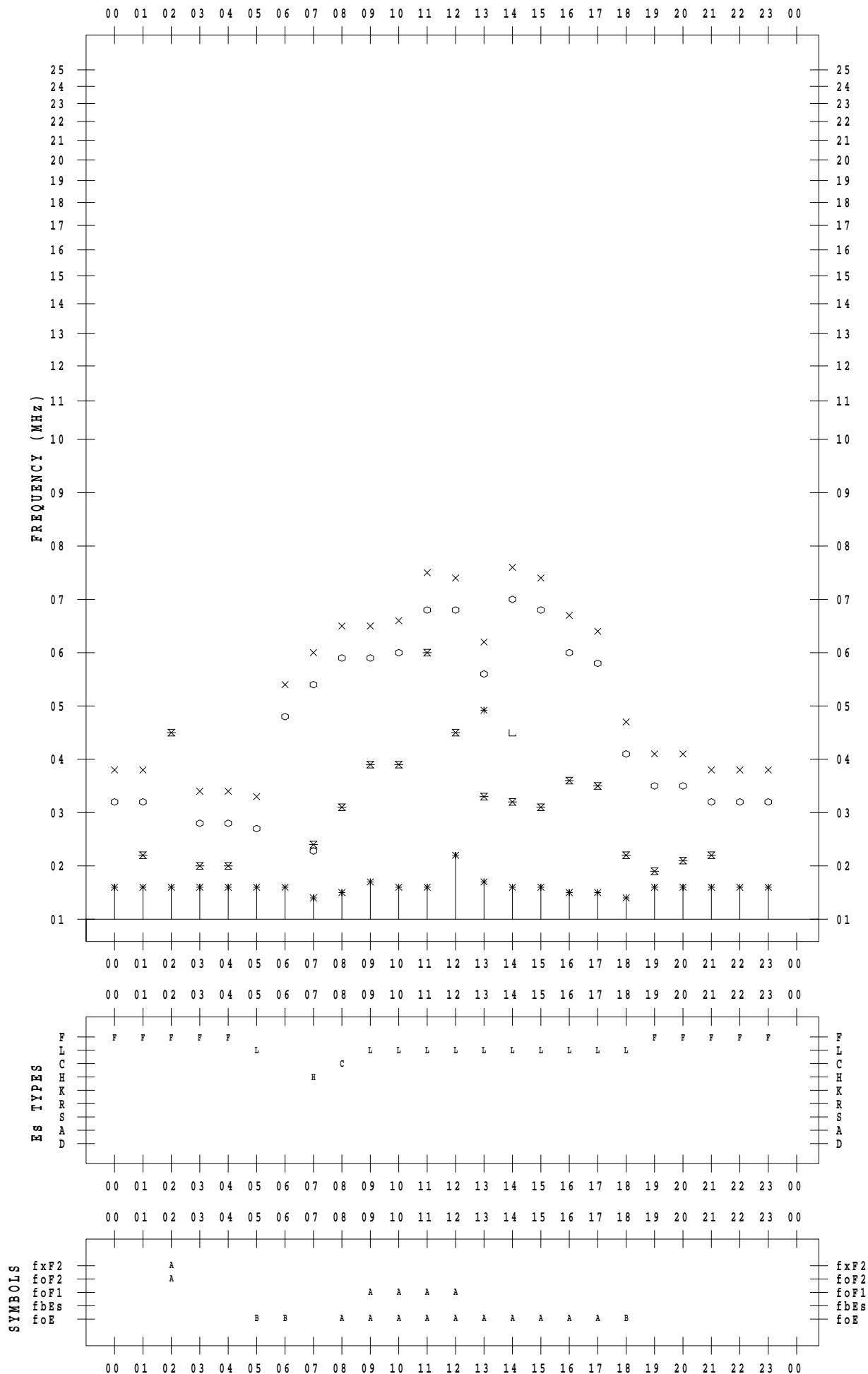
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/20

135 ° E MEAN TIME



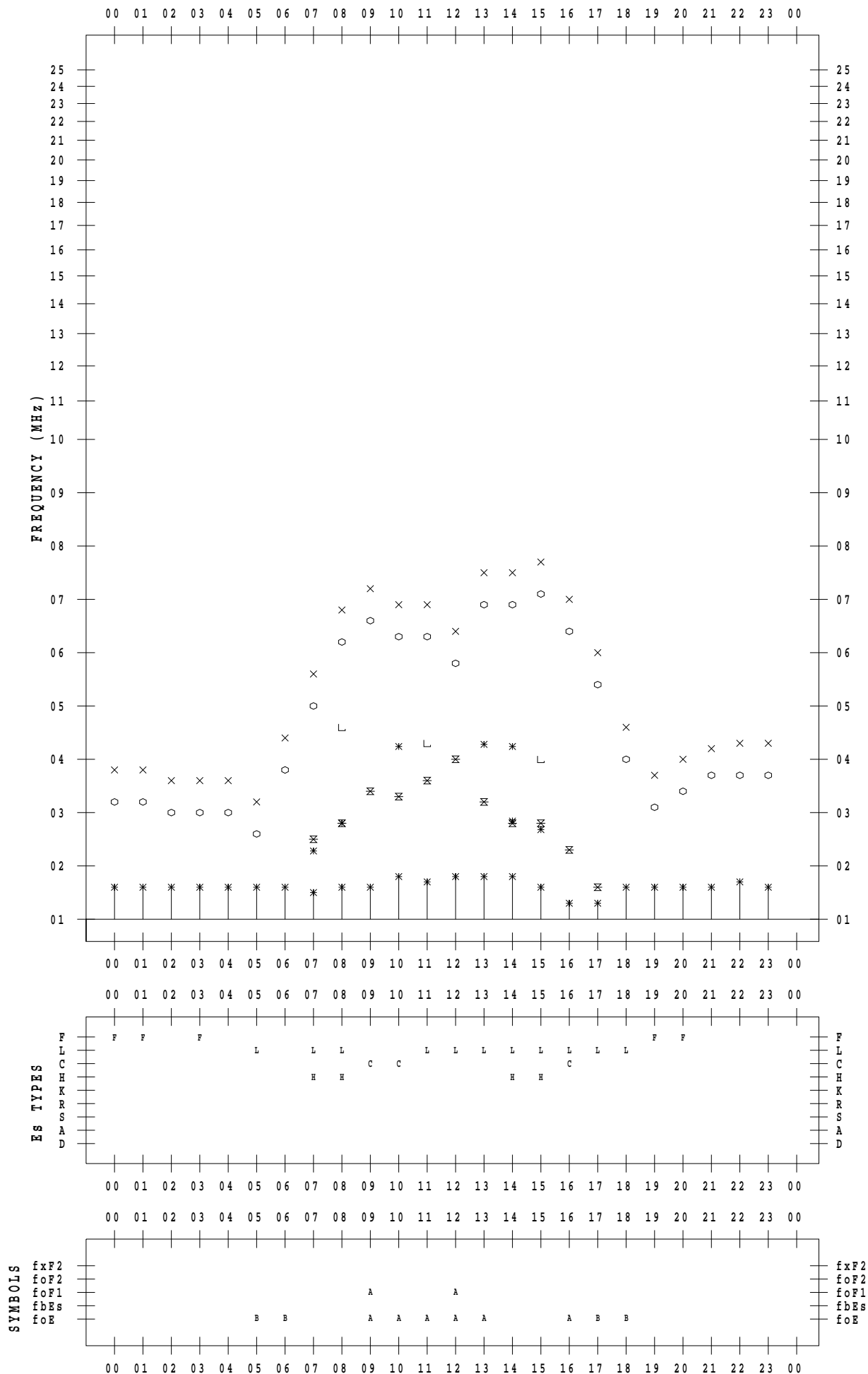
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/21

135 ° E MEAN TIME



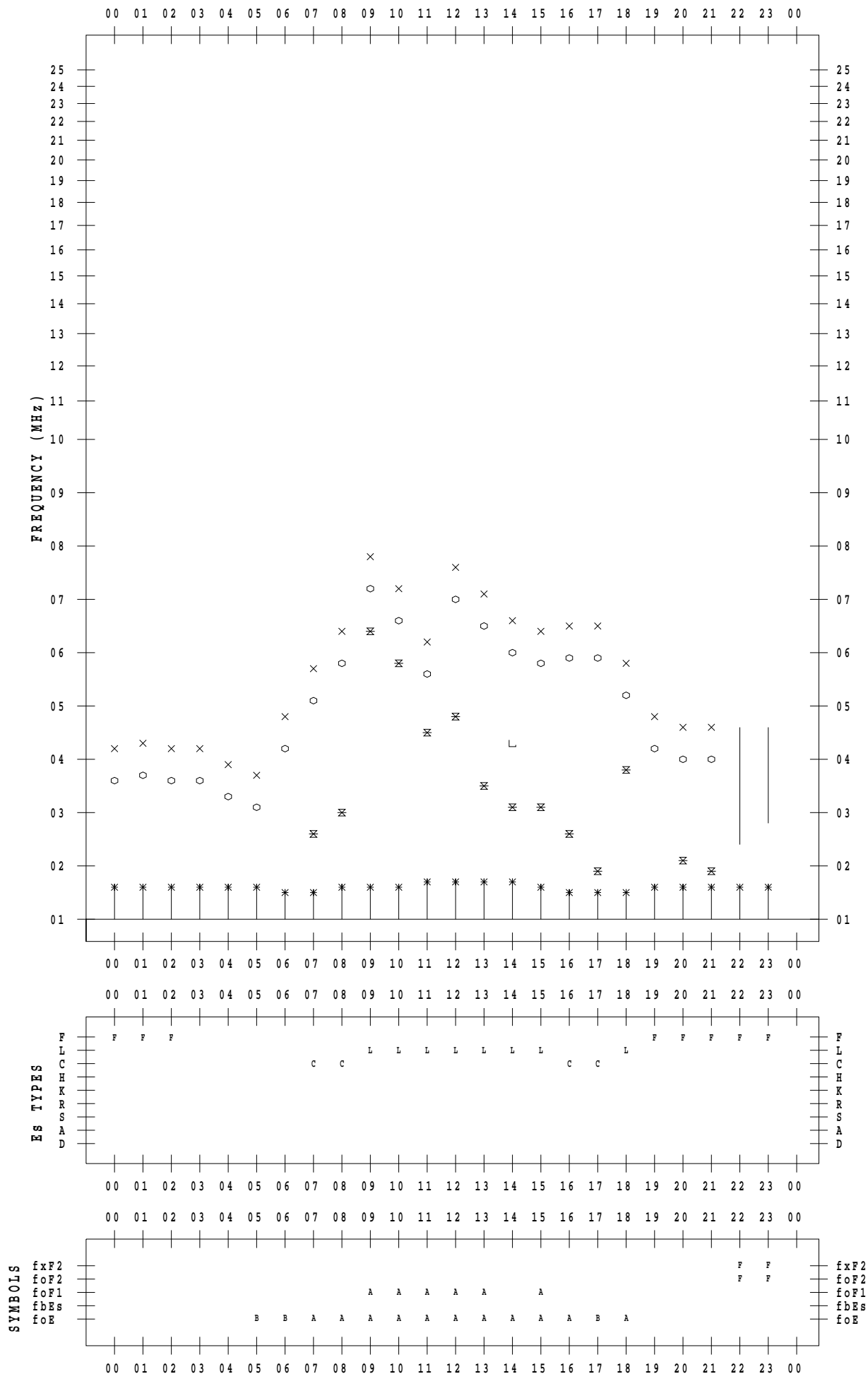
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/22

135 ° E MEAN TIME



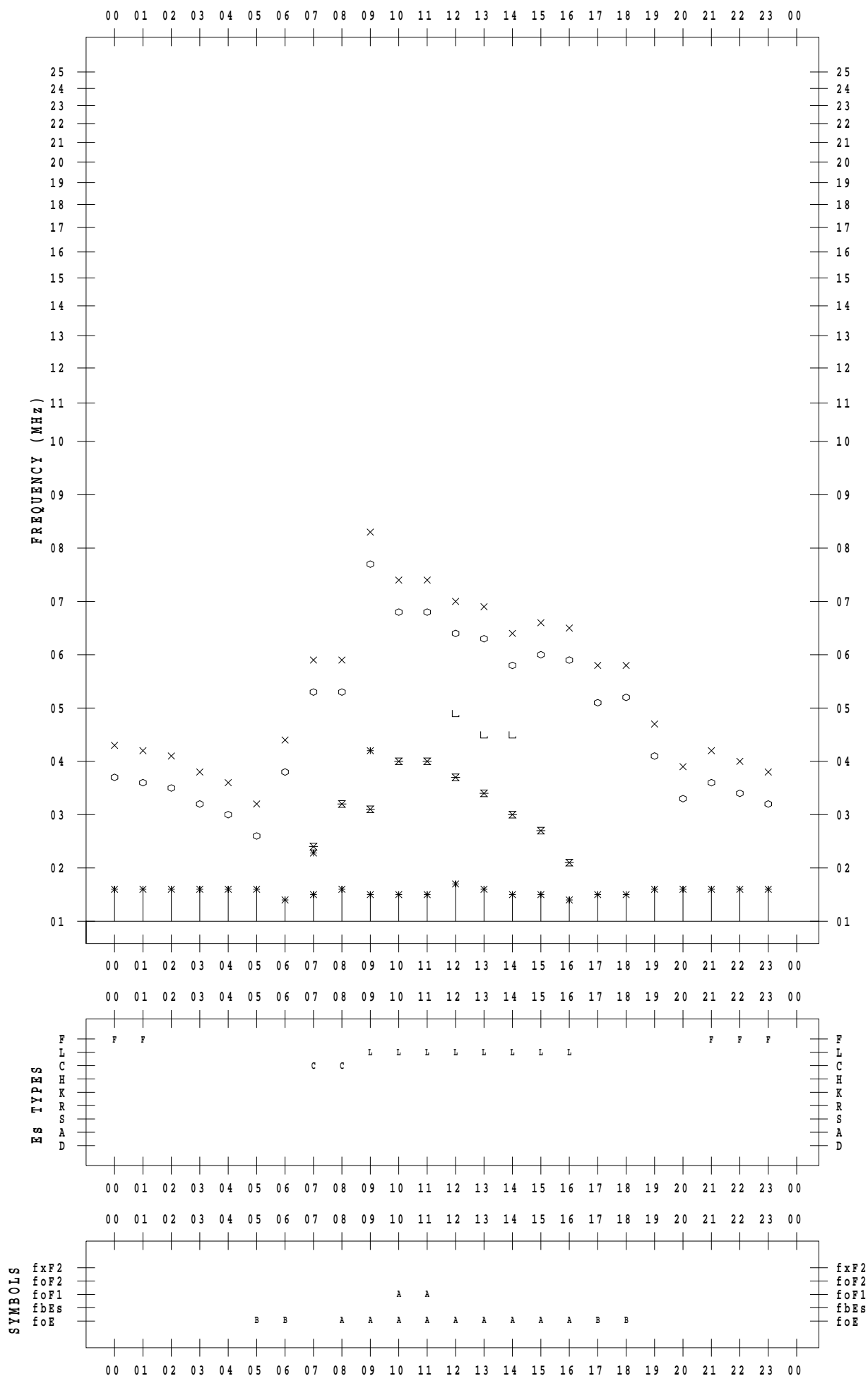
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/23

135 ° E MEAN TIME



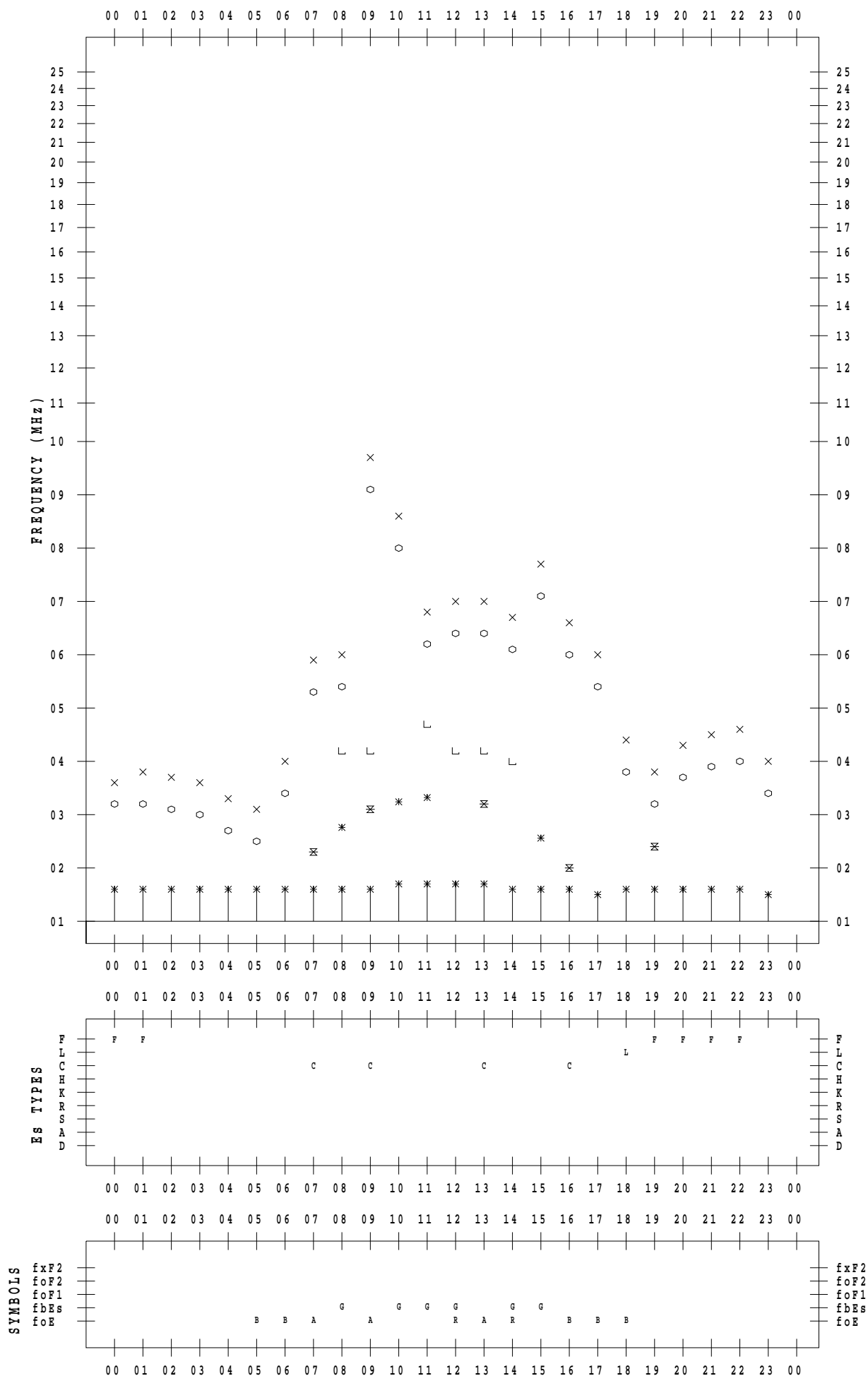
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/24

135 ° E MEAN TIME



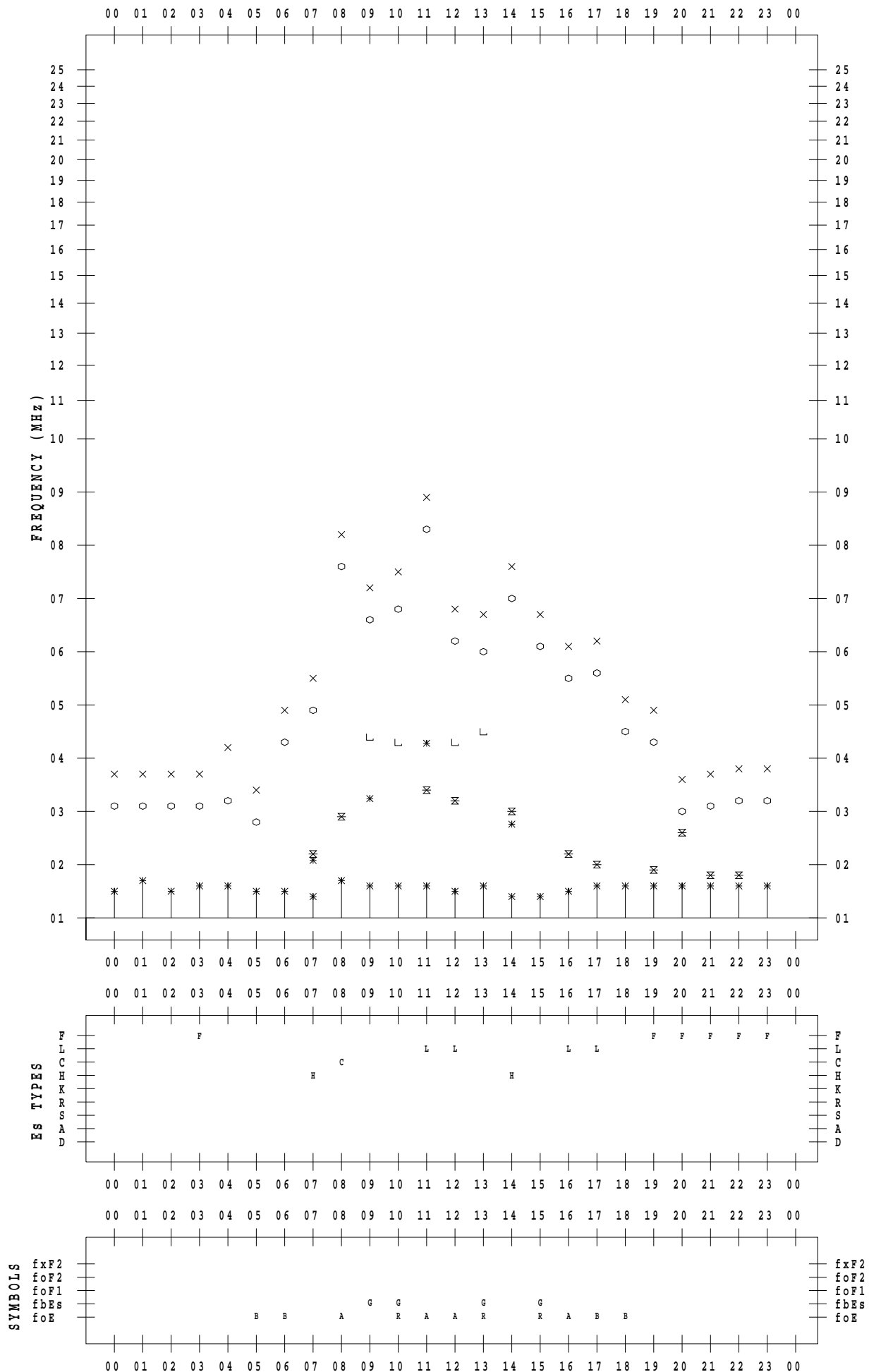
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/25

135 ° E MEAN TIME



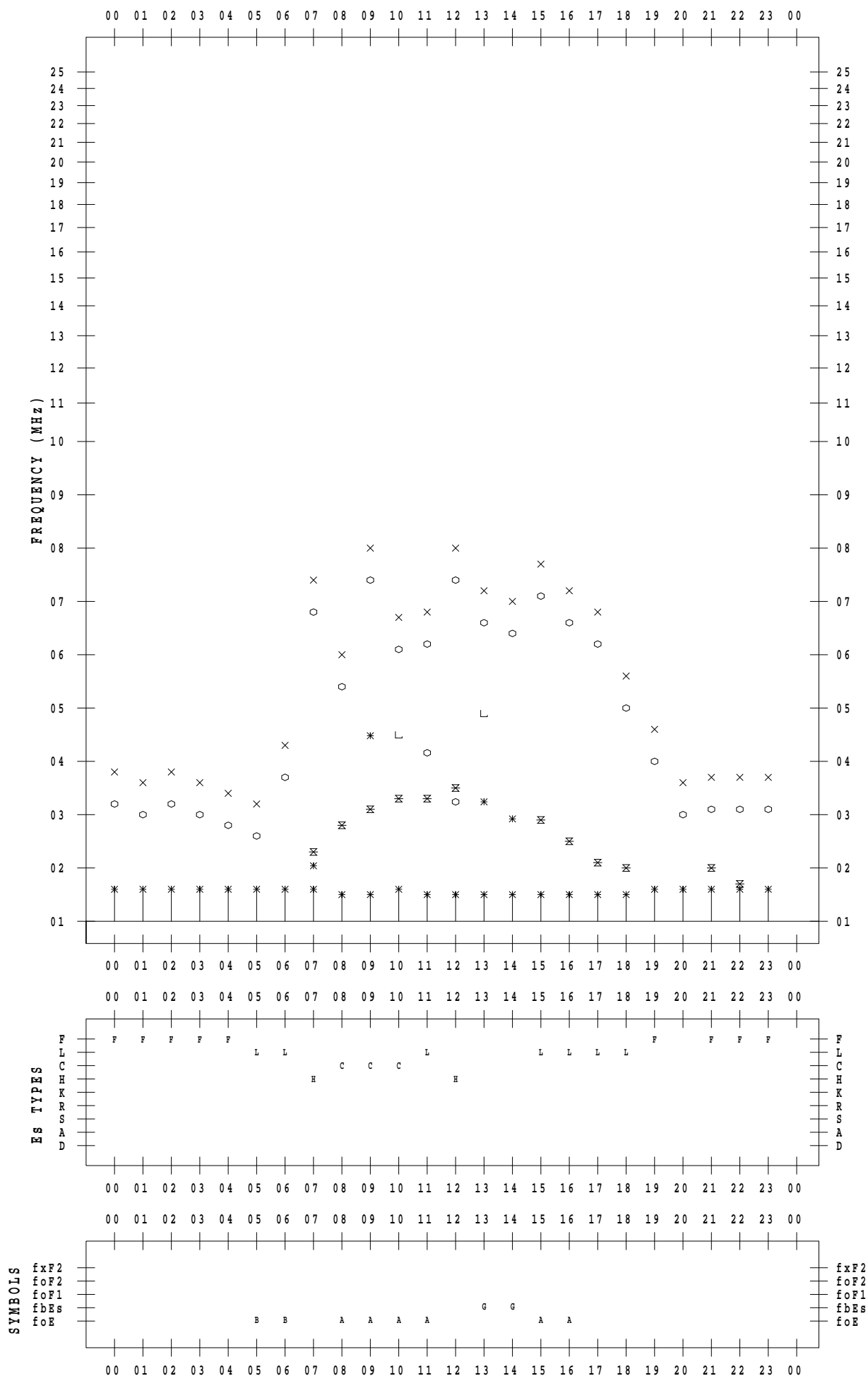
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/26

135 ° E MEAN TIME



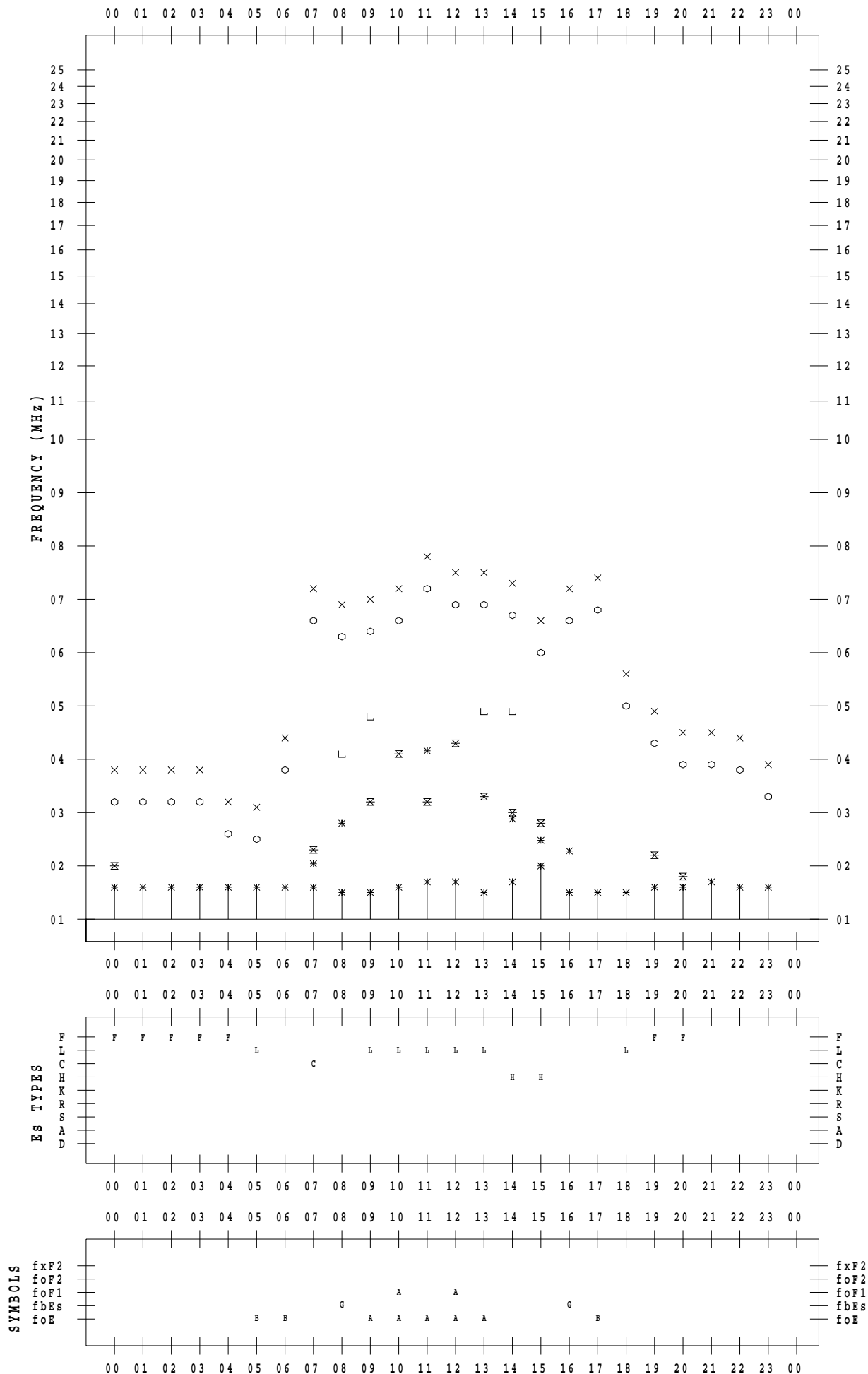
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/27

135 ° E MEAN TIME



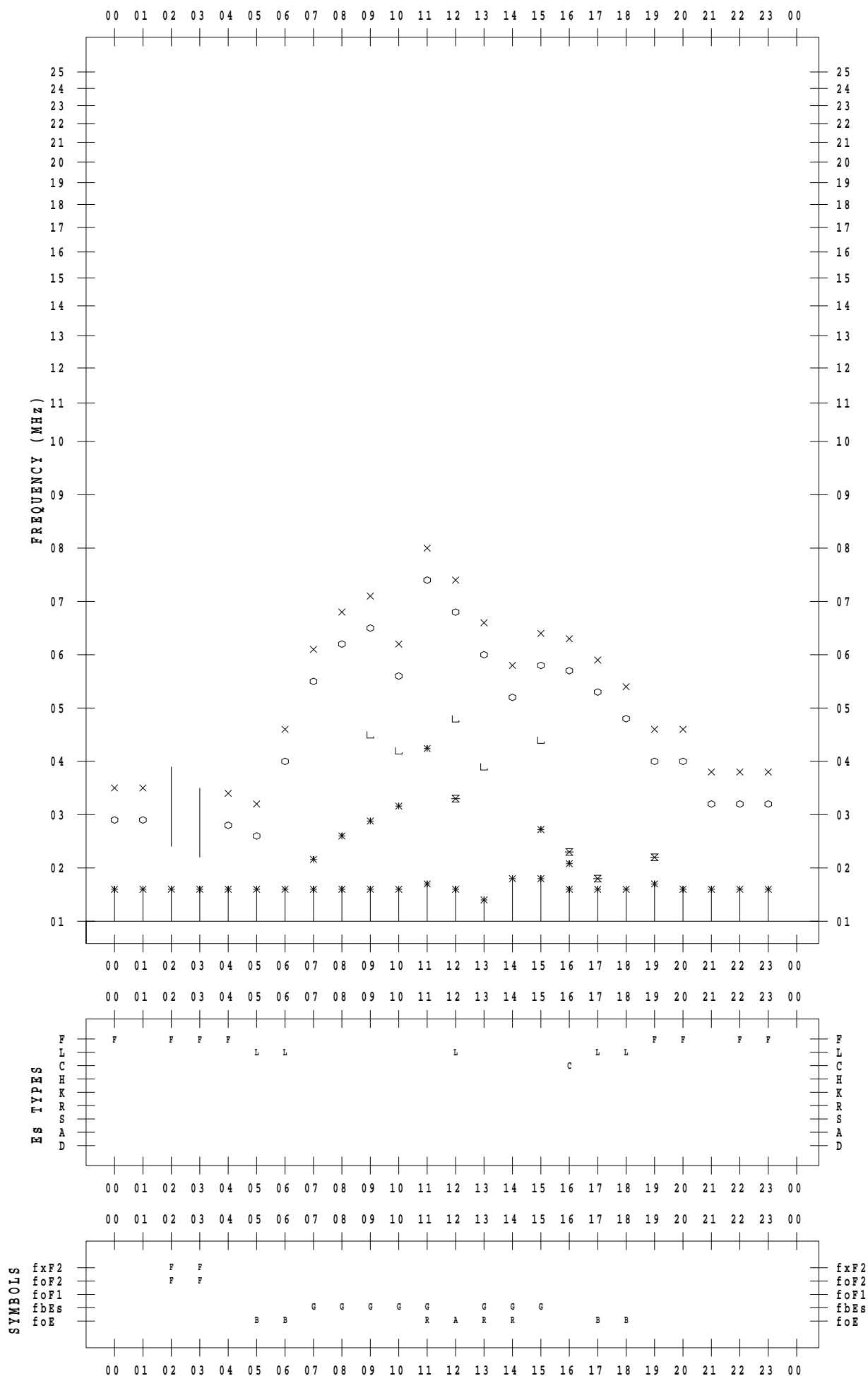
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/28

135 ° E MEAN TIME



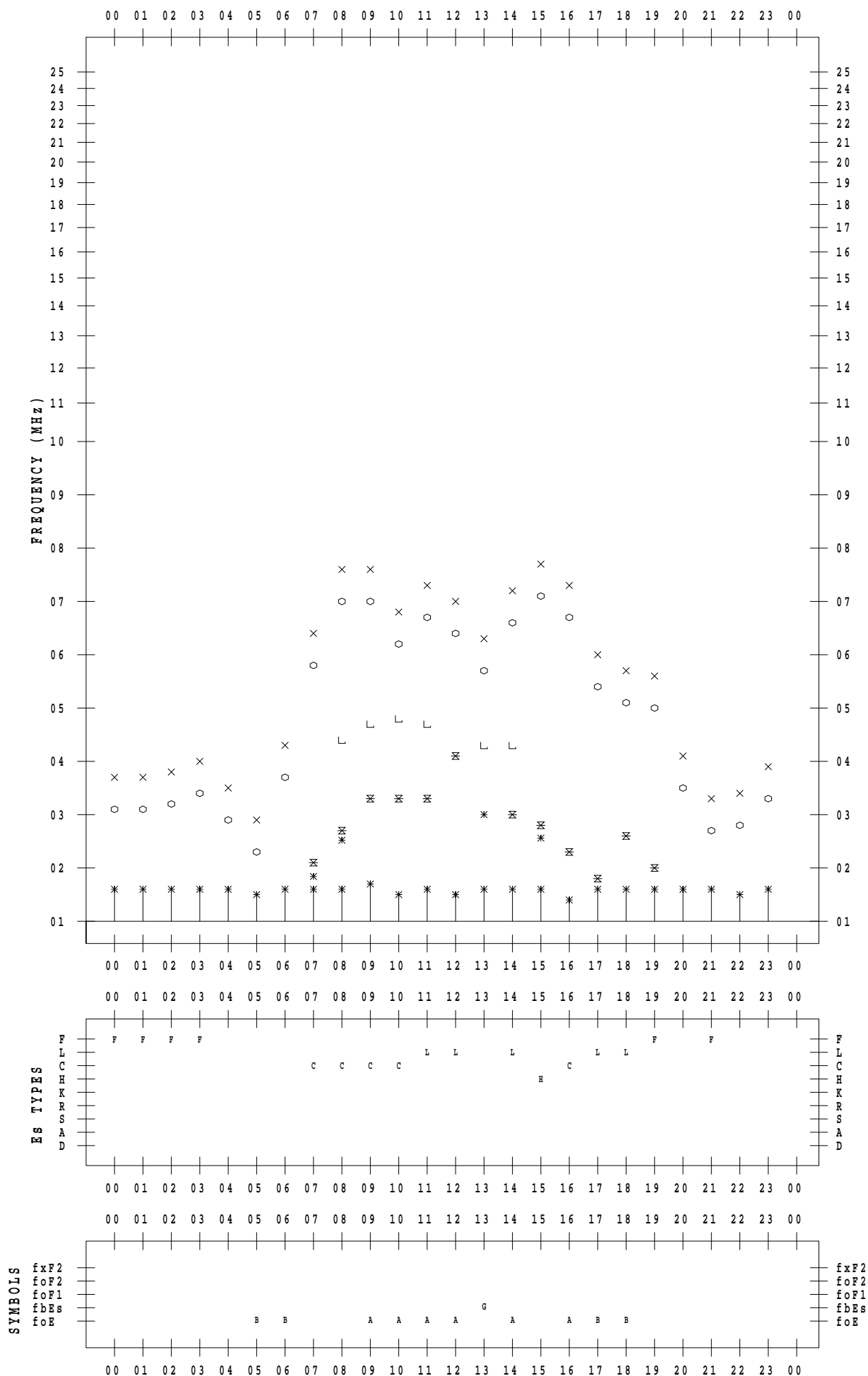
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/29

135 ° E MEAN TIME



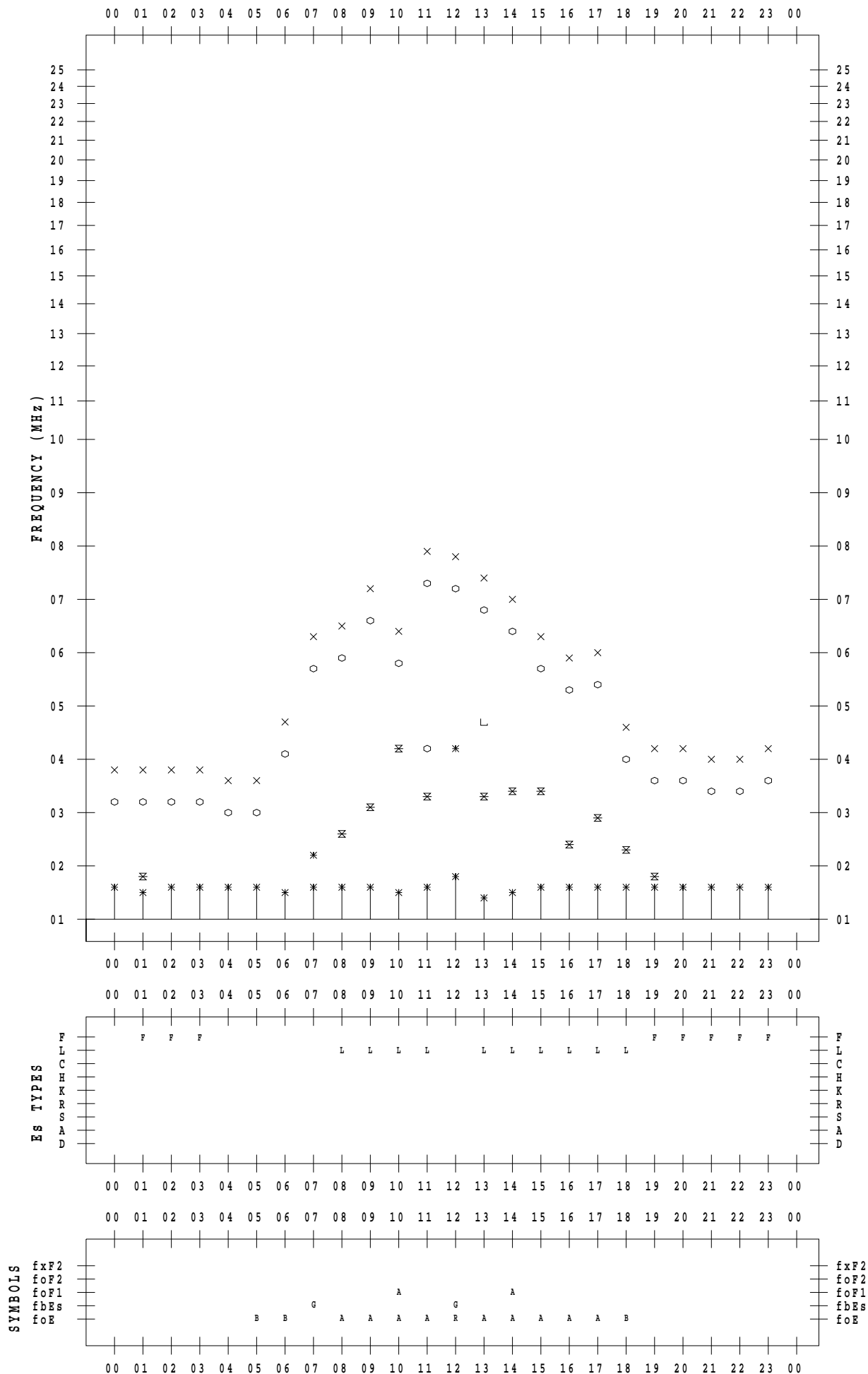
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/30

135 ° E MEAN TIME



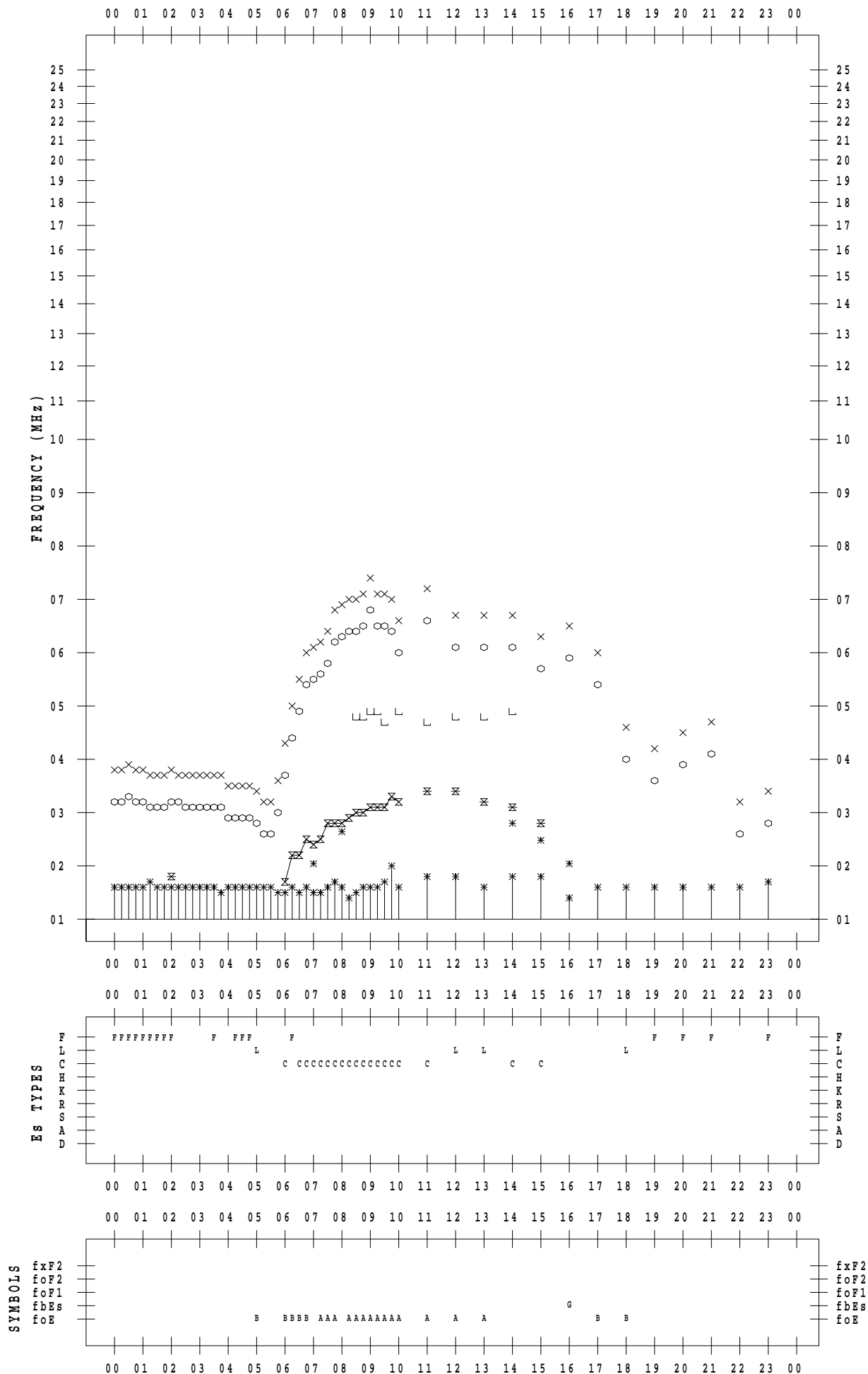
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2020/10/31

135 ° E MEAN TIME



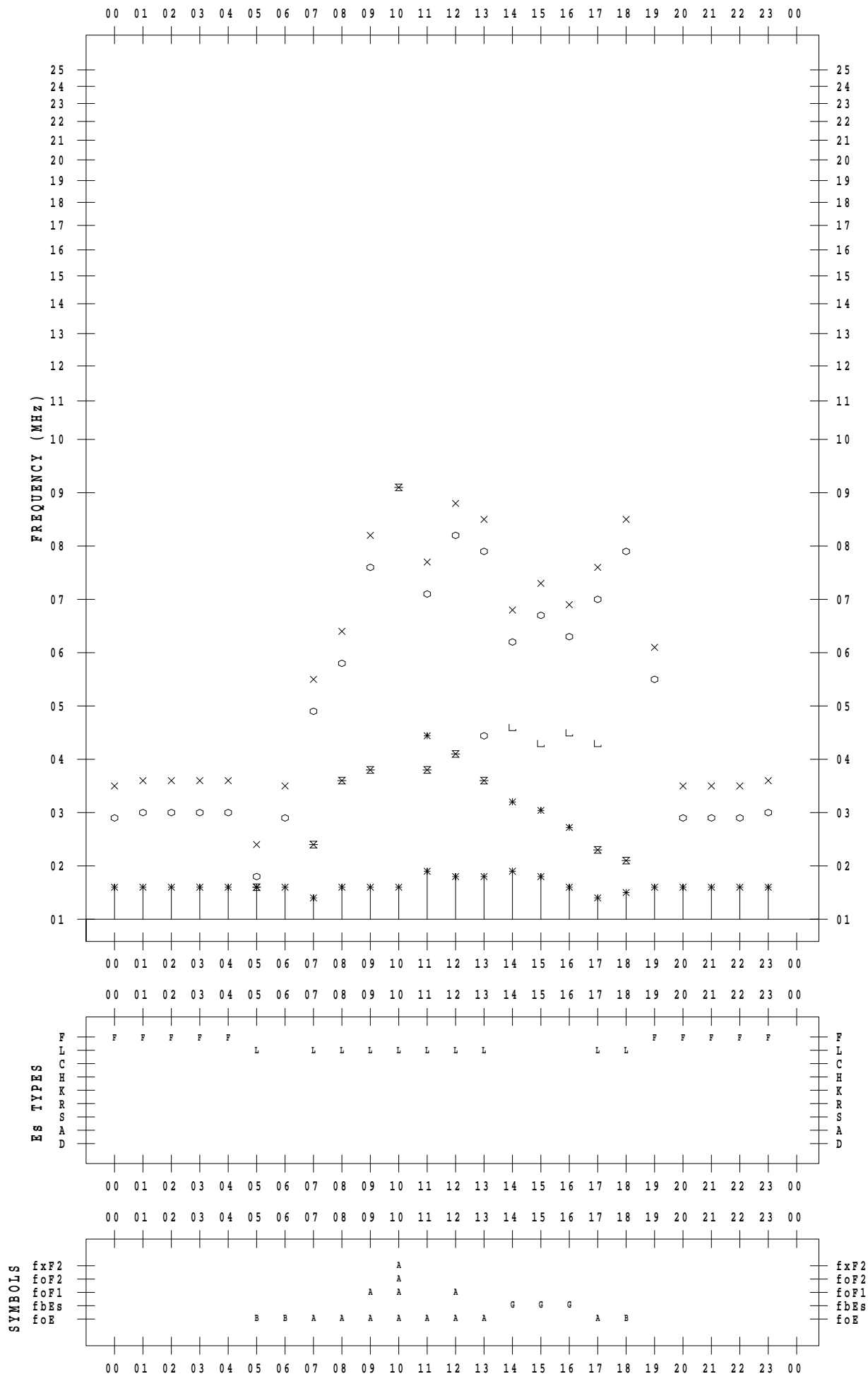
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/ 1

135 ° E MEAN TIME



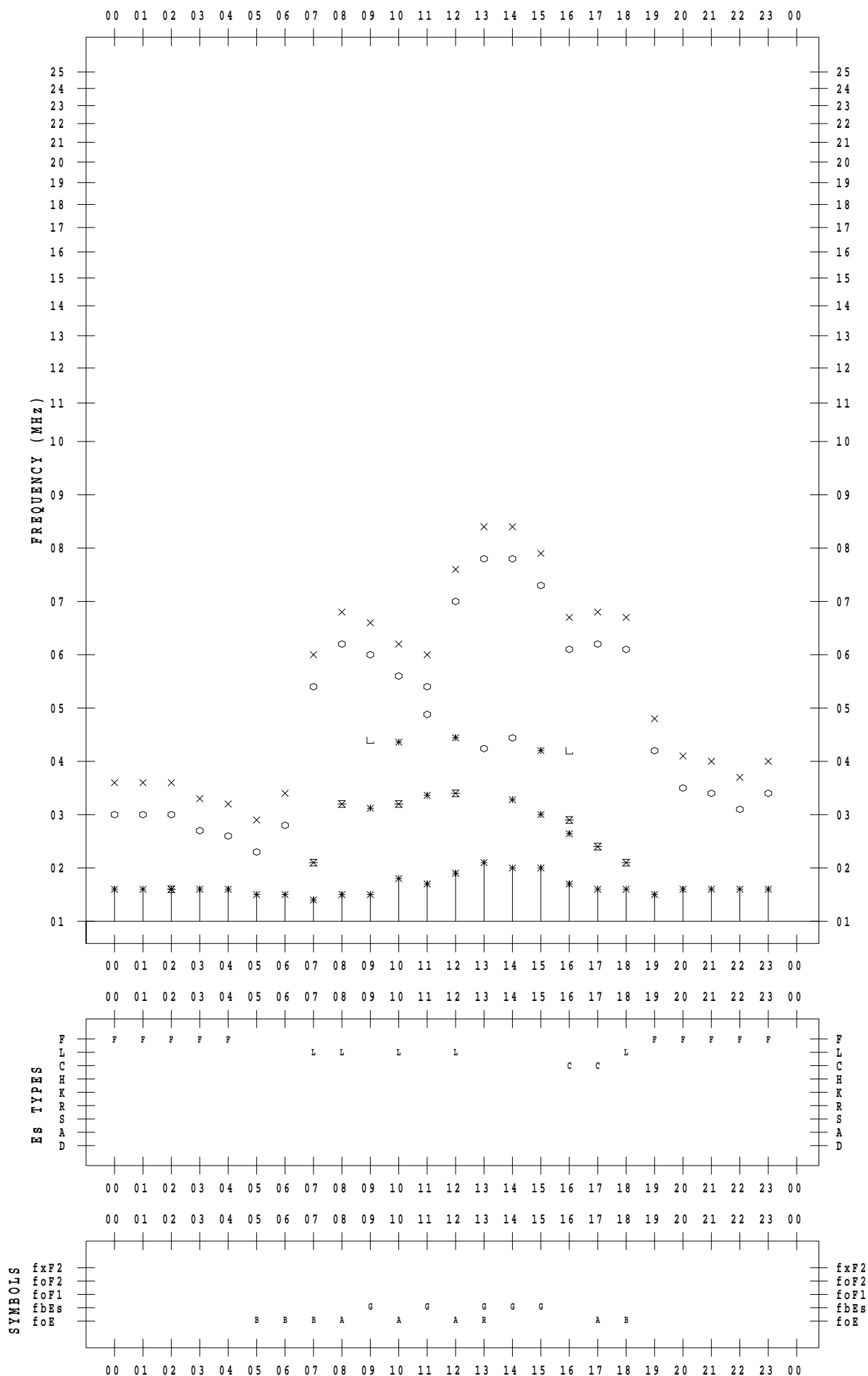
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/ 2

135 ° E MEAN TIME



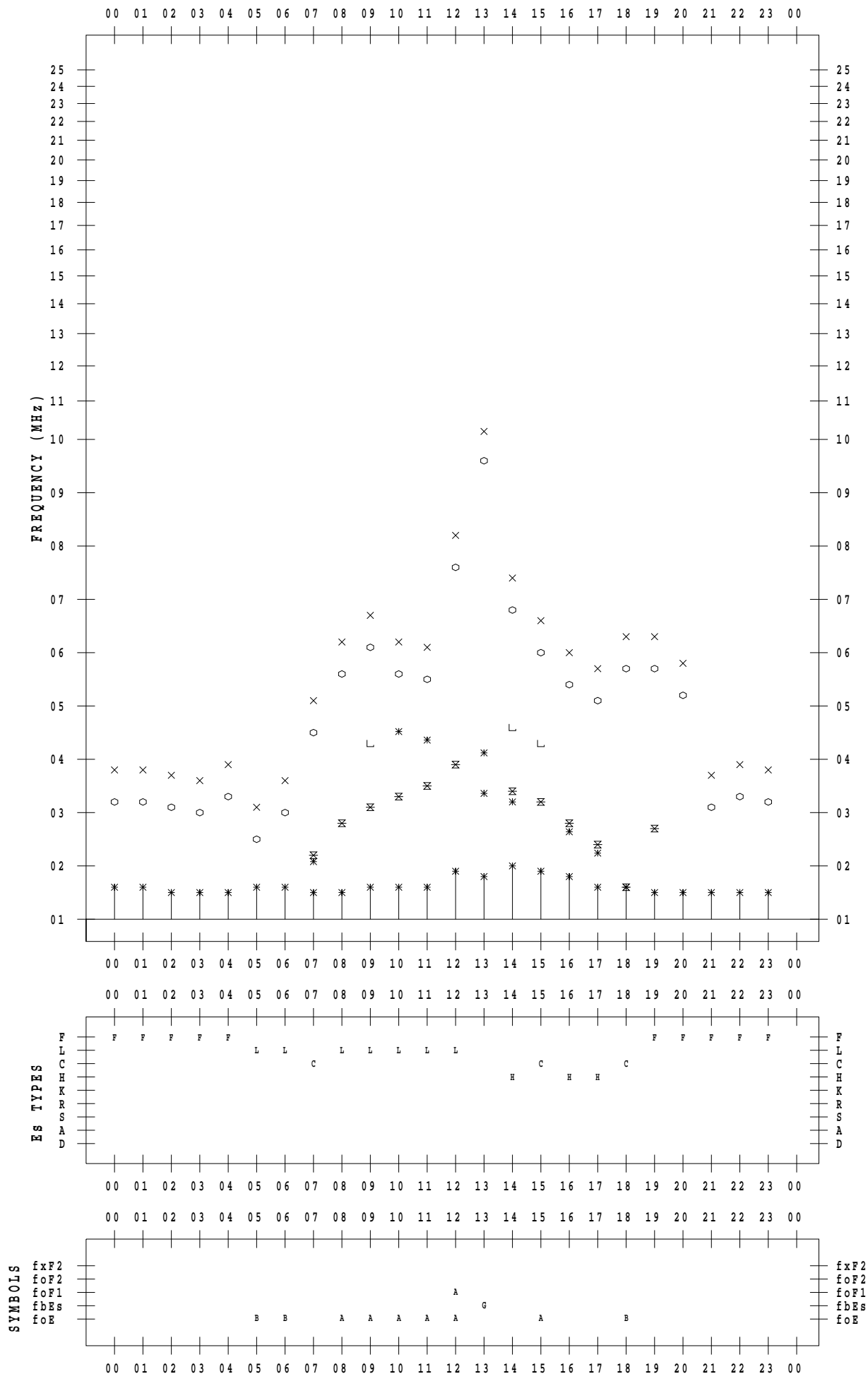
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/3

135 ° E MEAN TIME



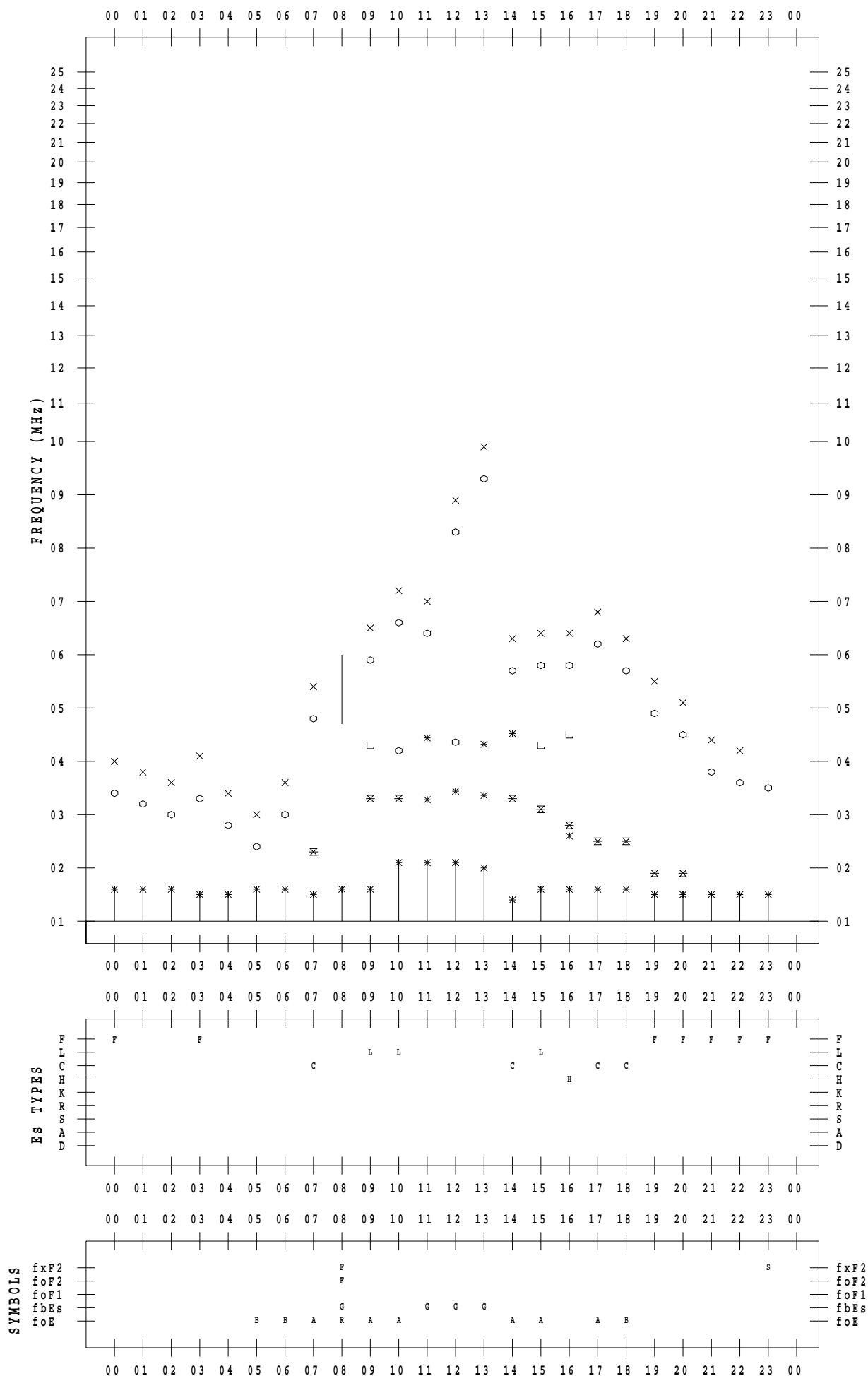
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/4

135 ° E MEAN TIME



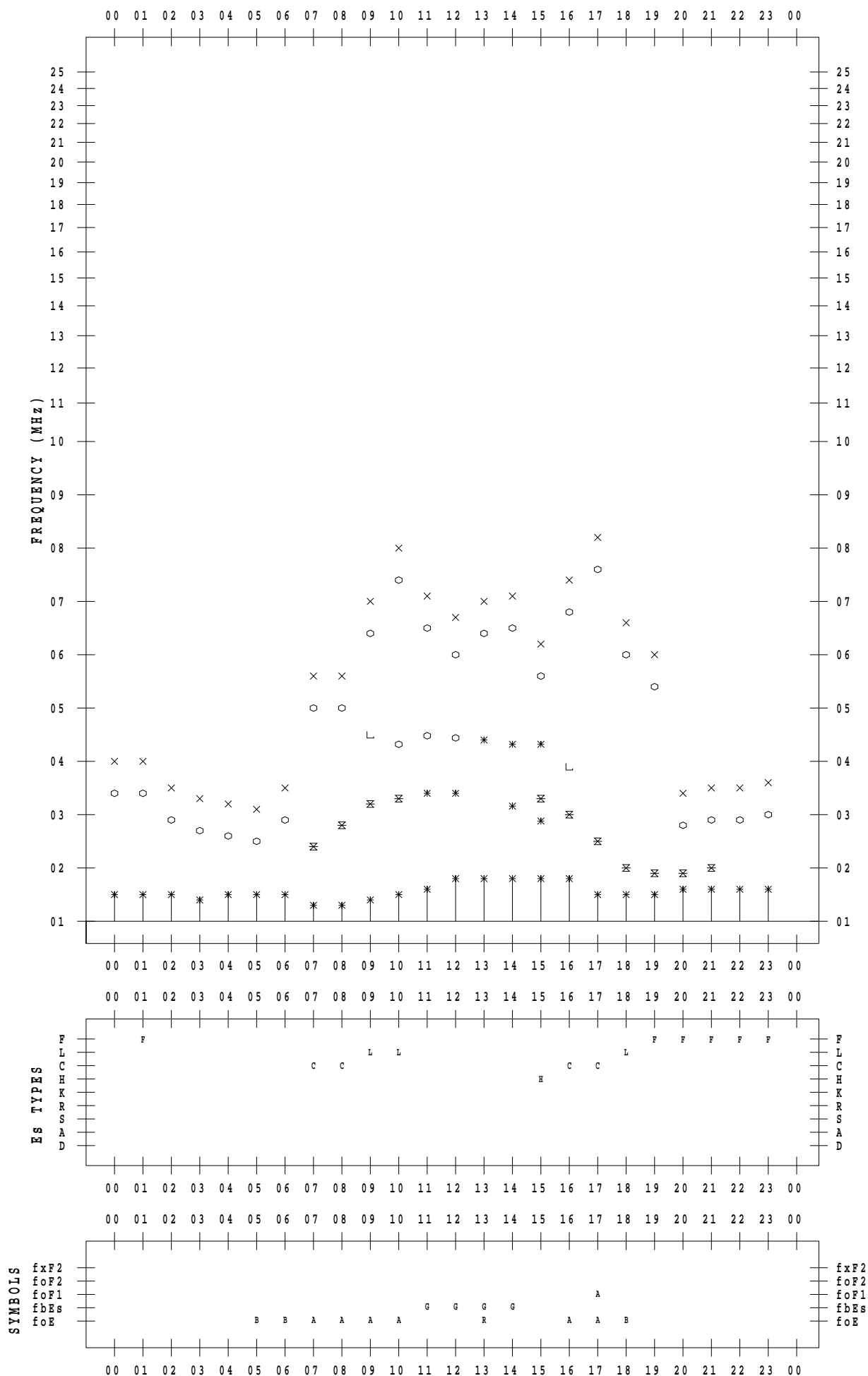
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/ 5

135 ° E MEAN TIME



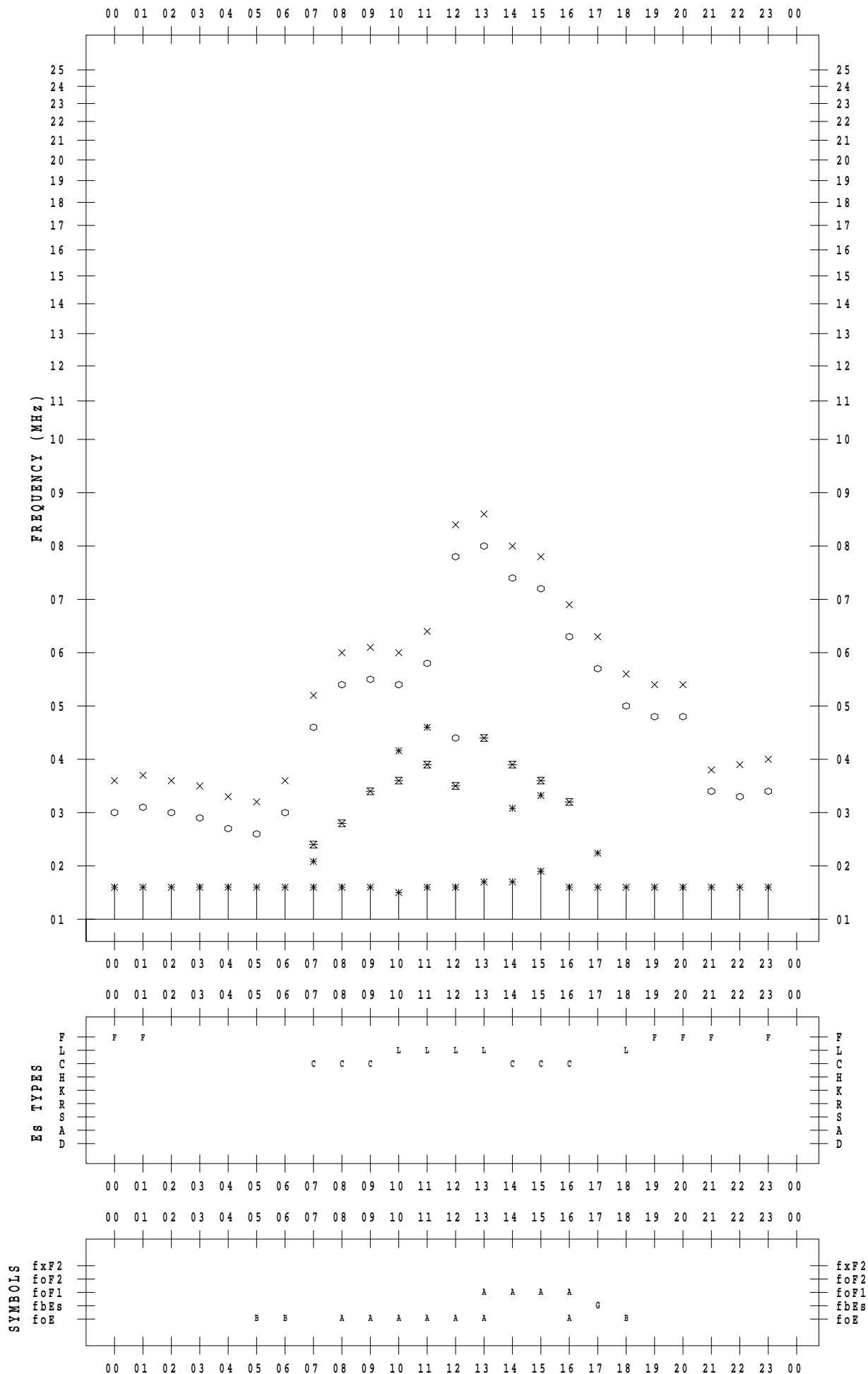
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/ 6

135 ° E MEAN TIME



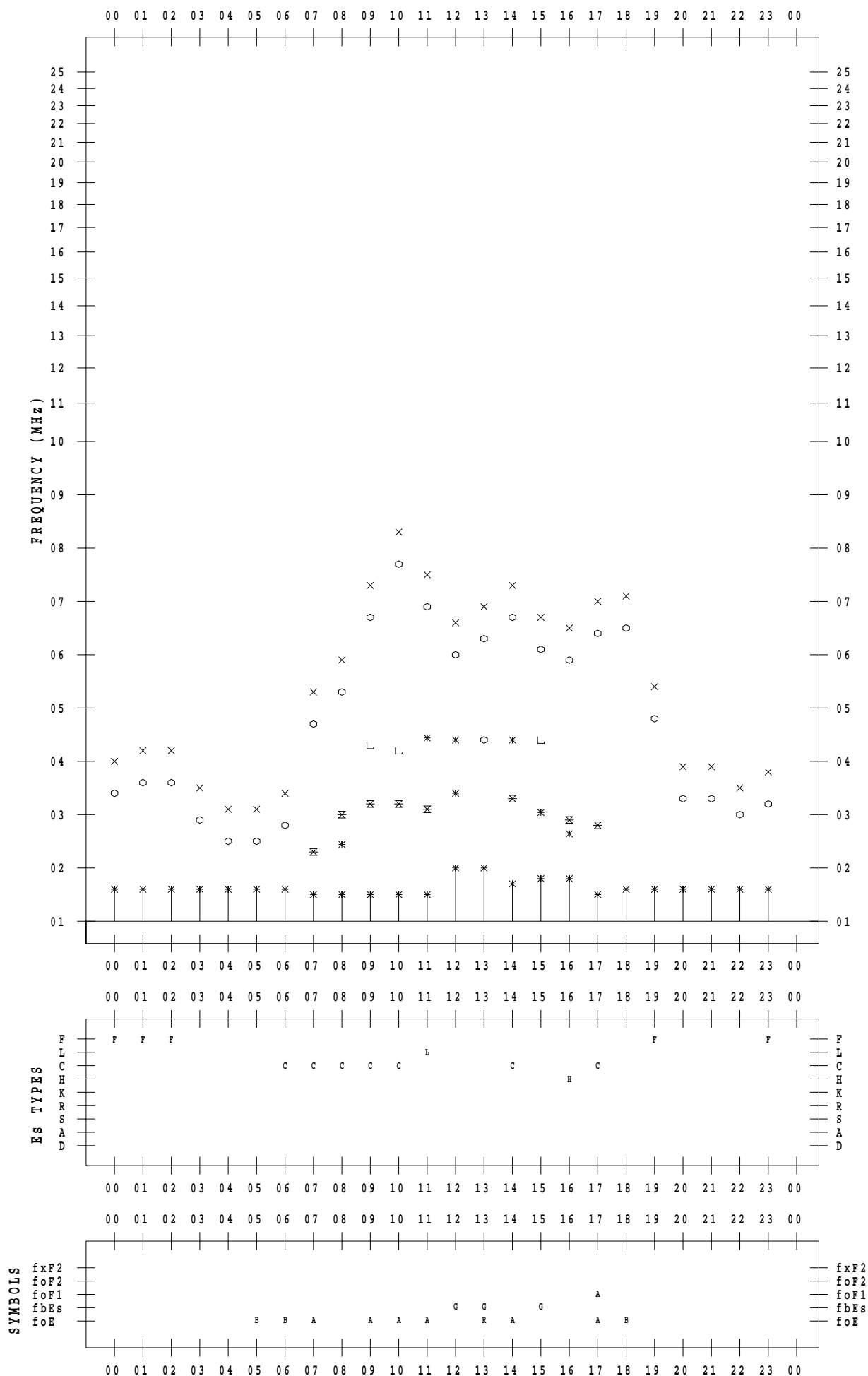
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/7

135 ° E MEAN TIME



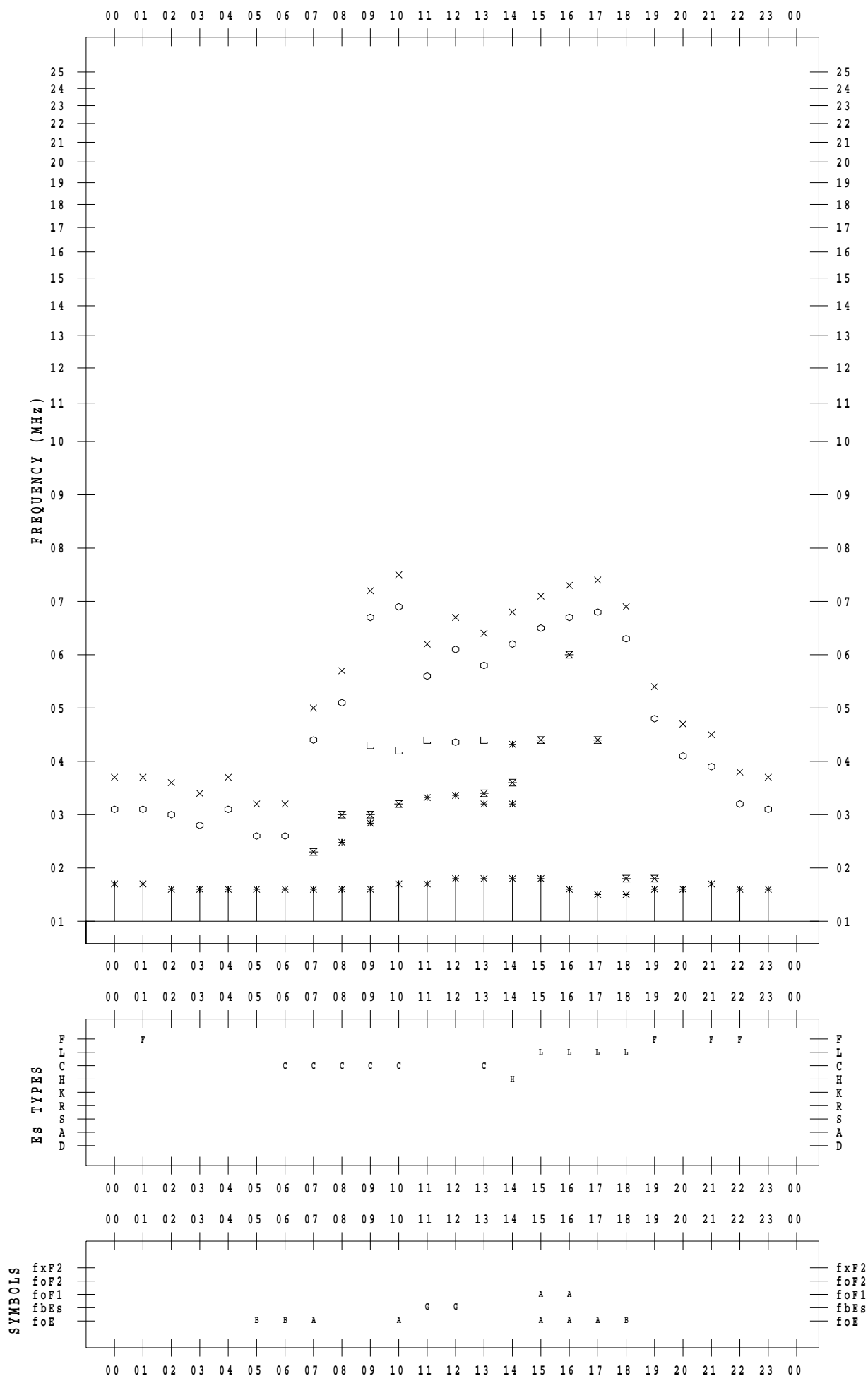
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/ 8

135 ° E MEAN TIME



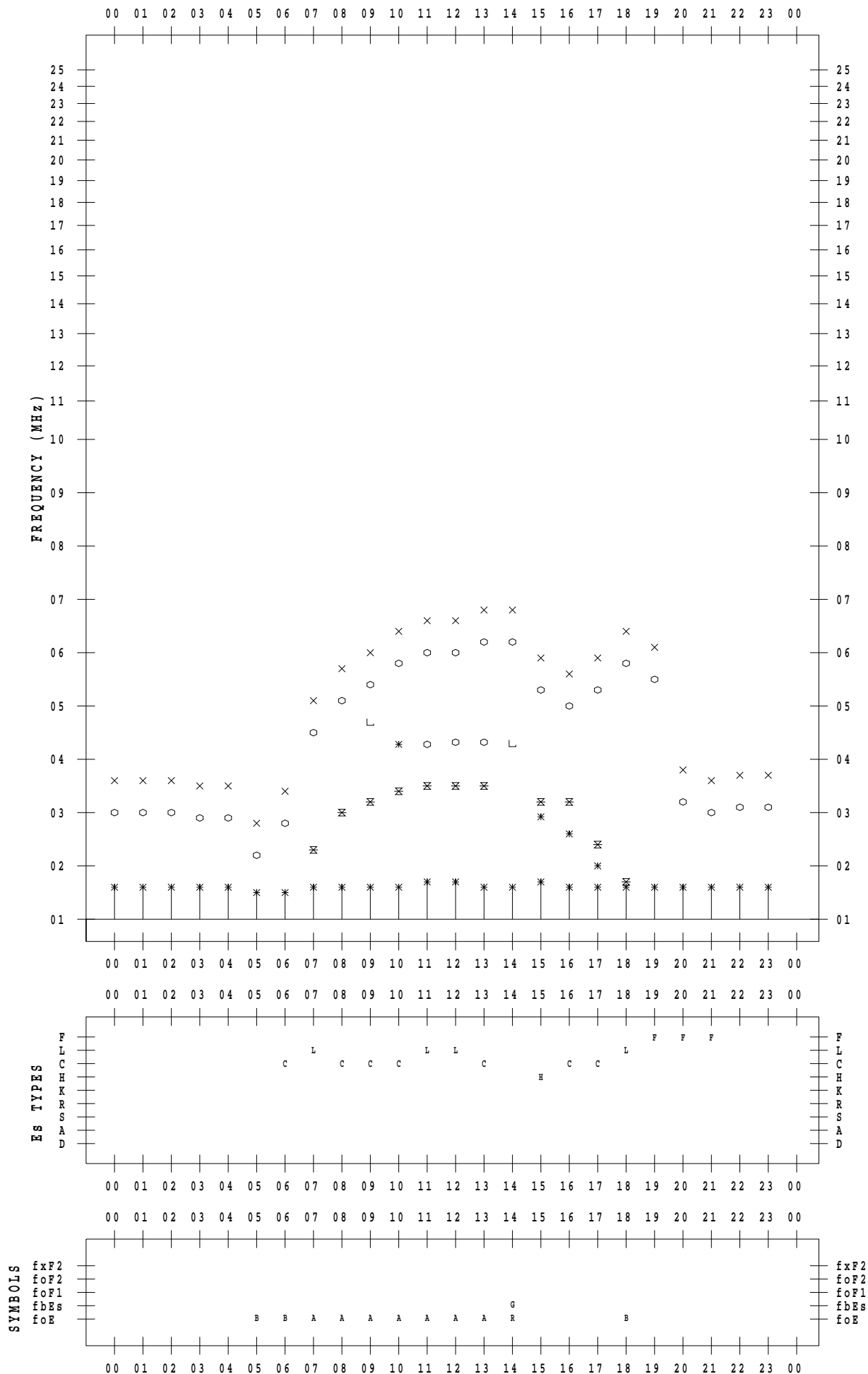
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/9

135 ° E MEAN TIME



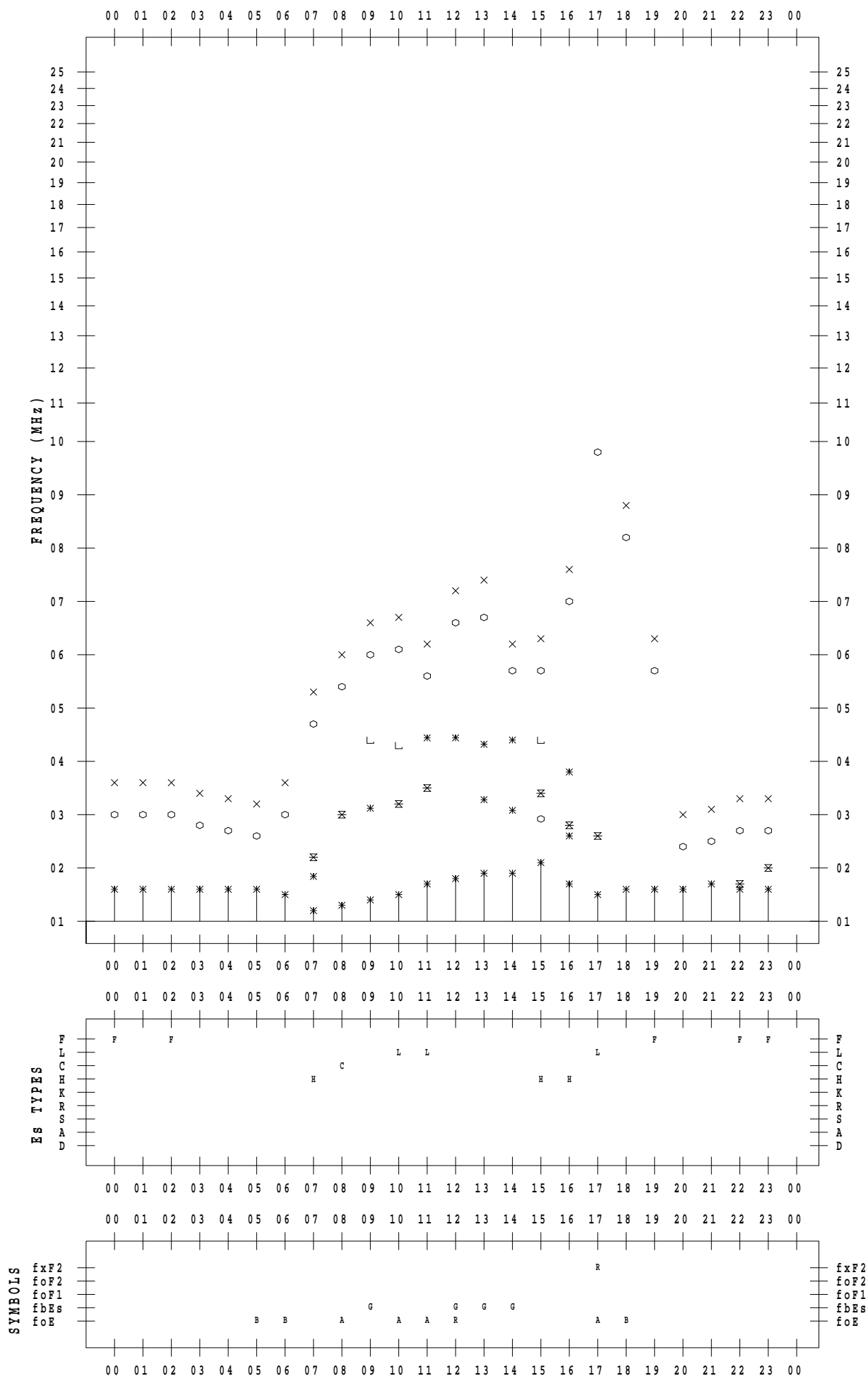
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/10

135 ° E MEAN TIME



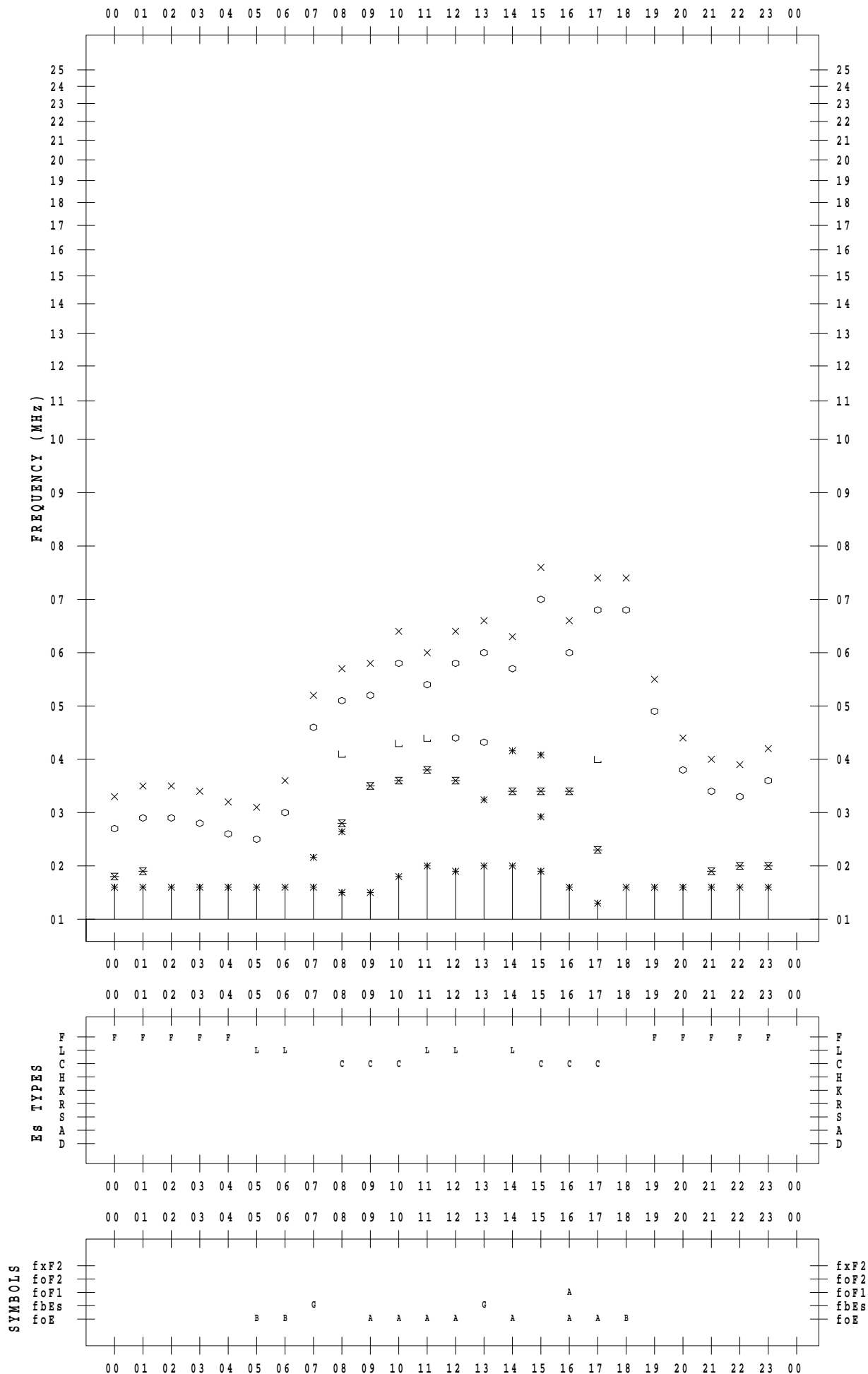
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/11

135 ° E MEAN TIME



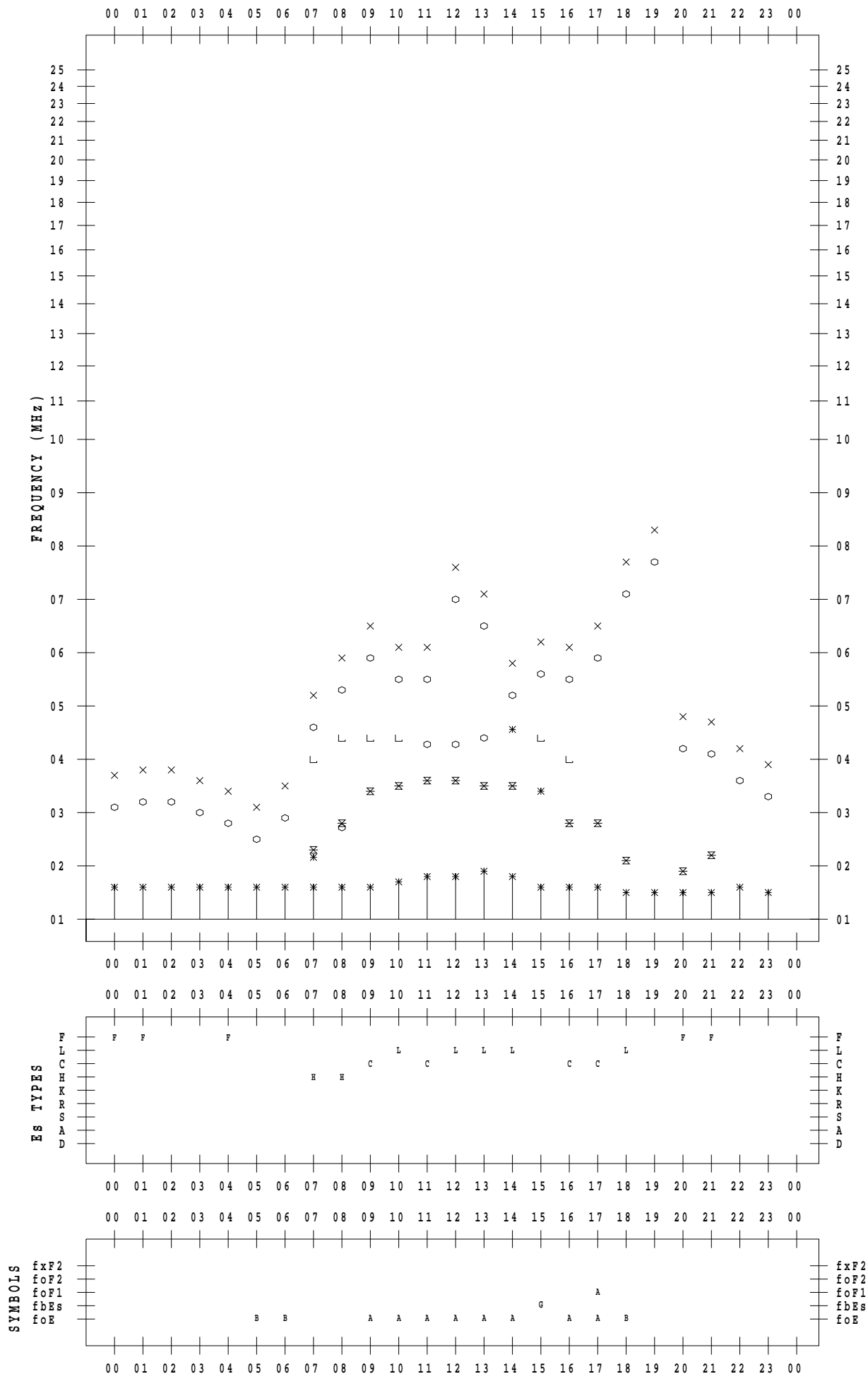
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/12

135 ° E MEAN TIME



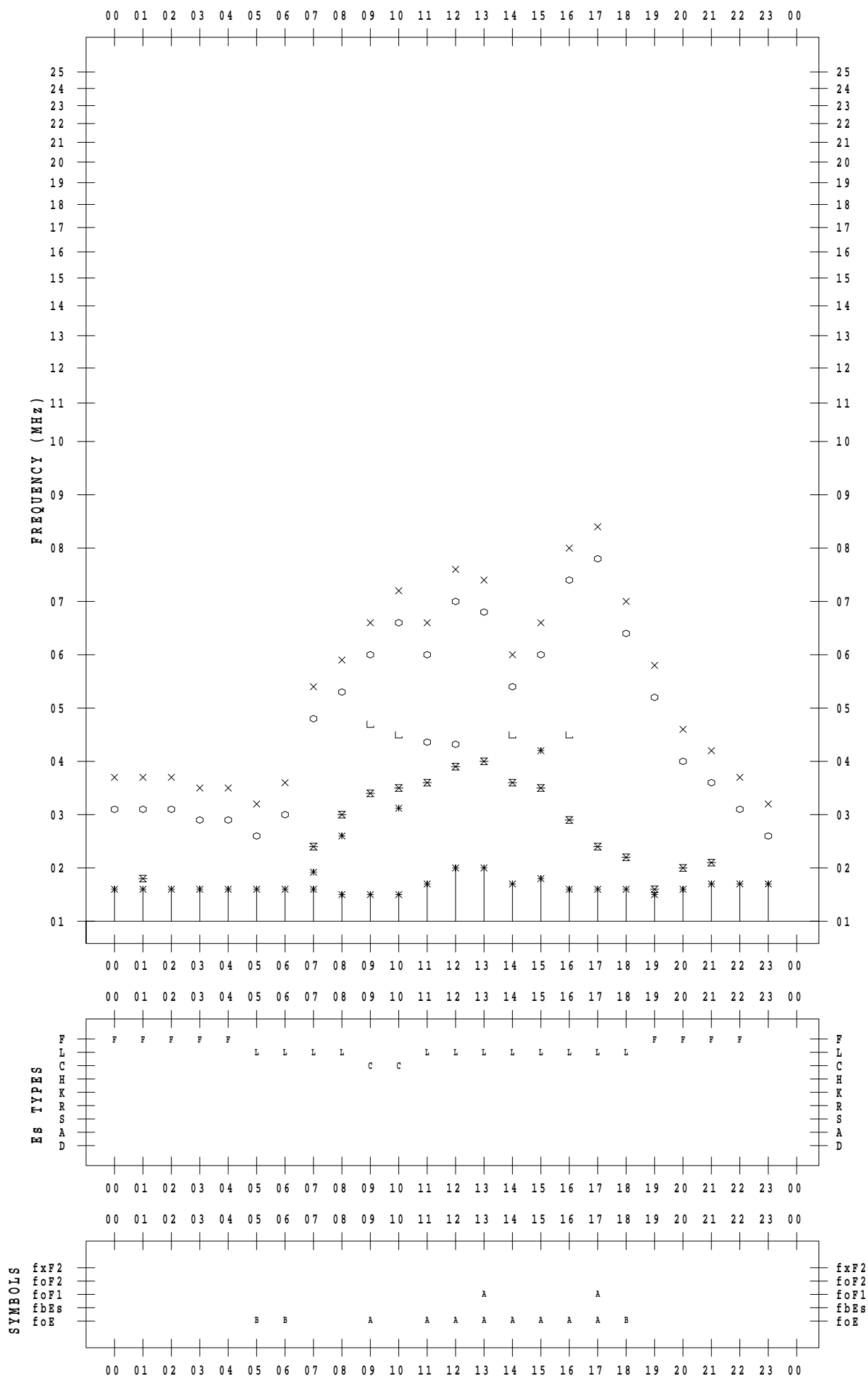
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/13

135 ° E MEAN TIME



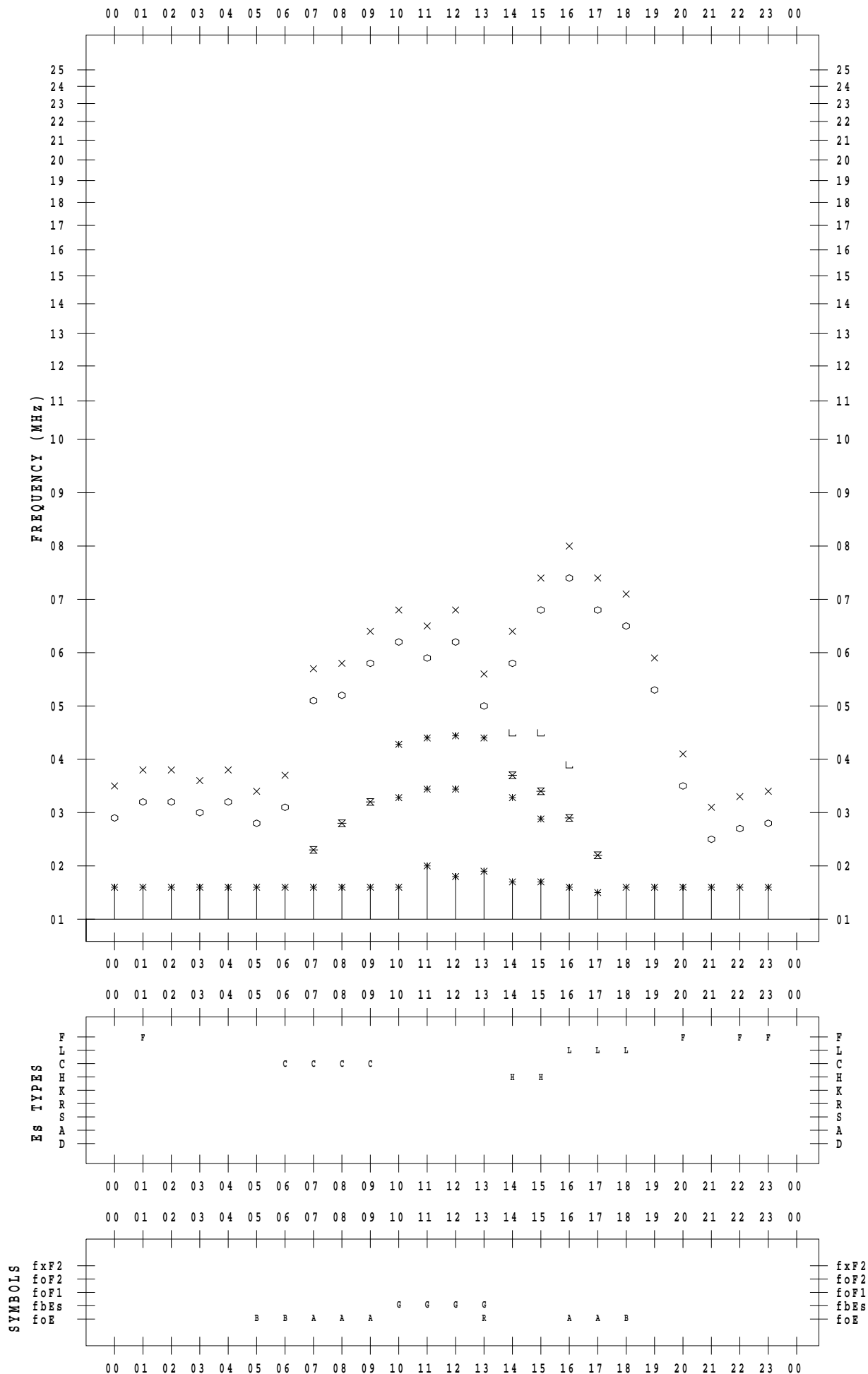
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/14

135 ° E MEAN TIME



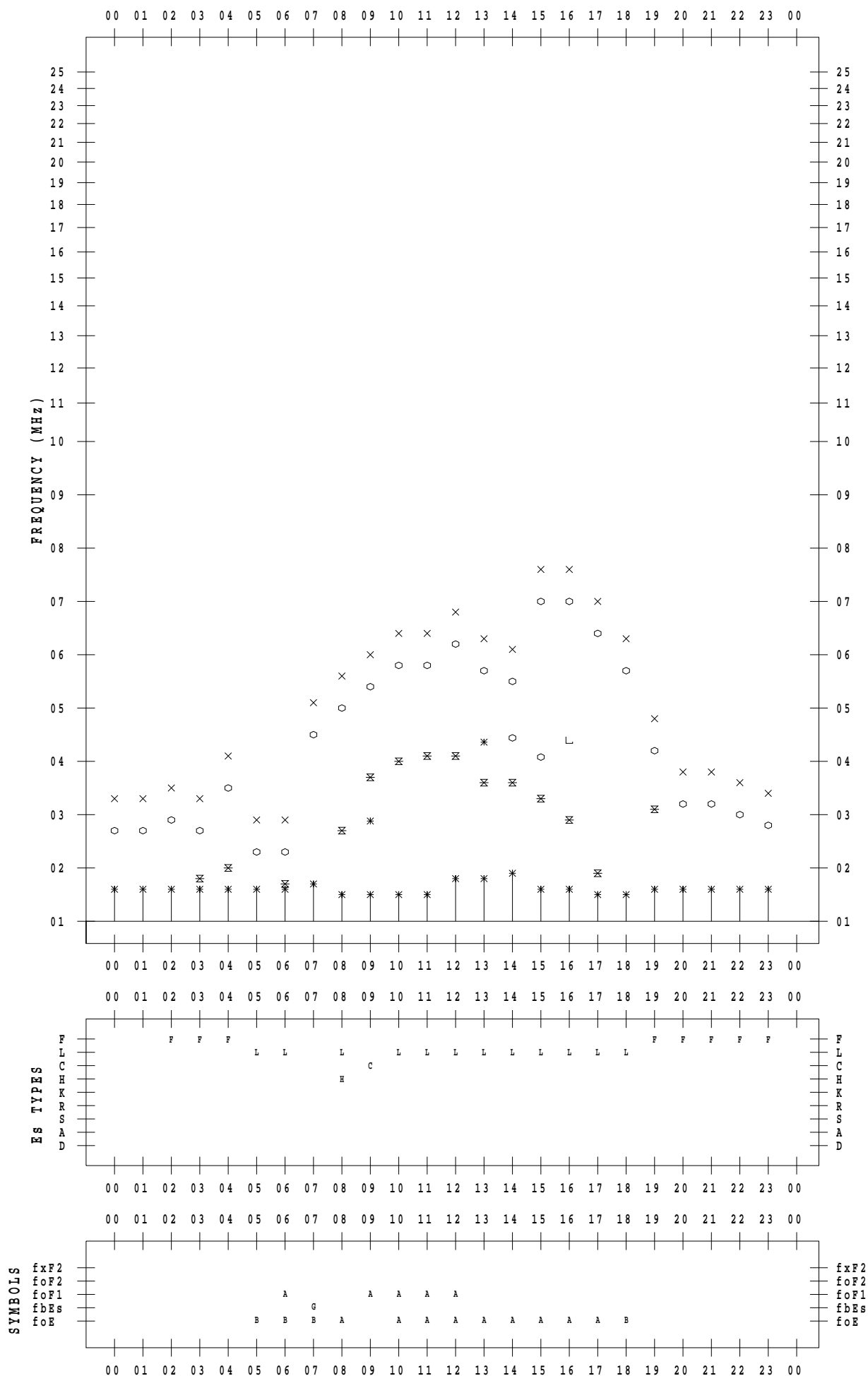
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/15

135 ° E MEAN TIME



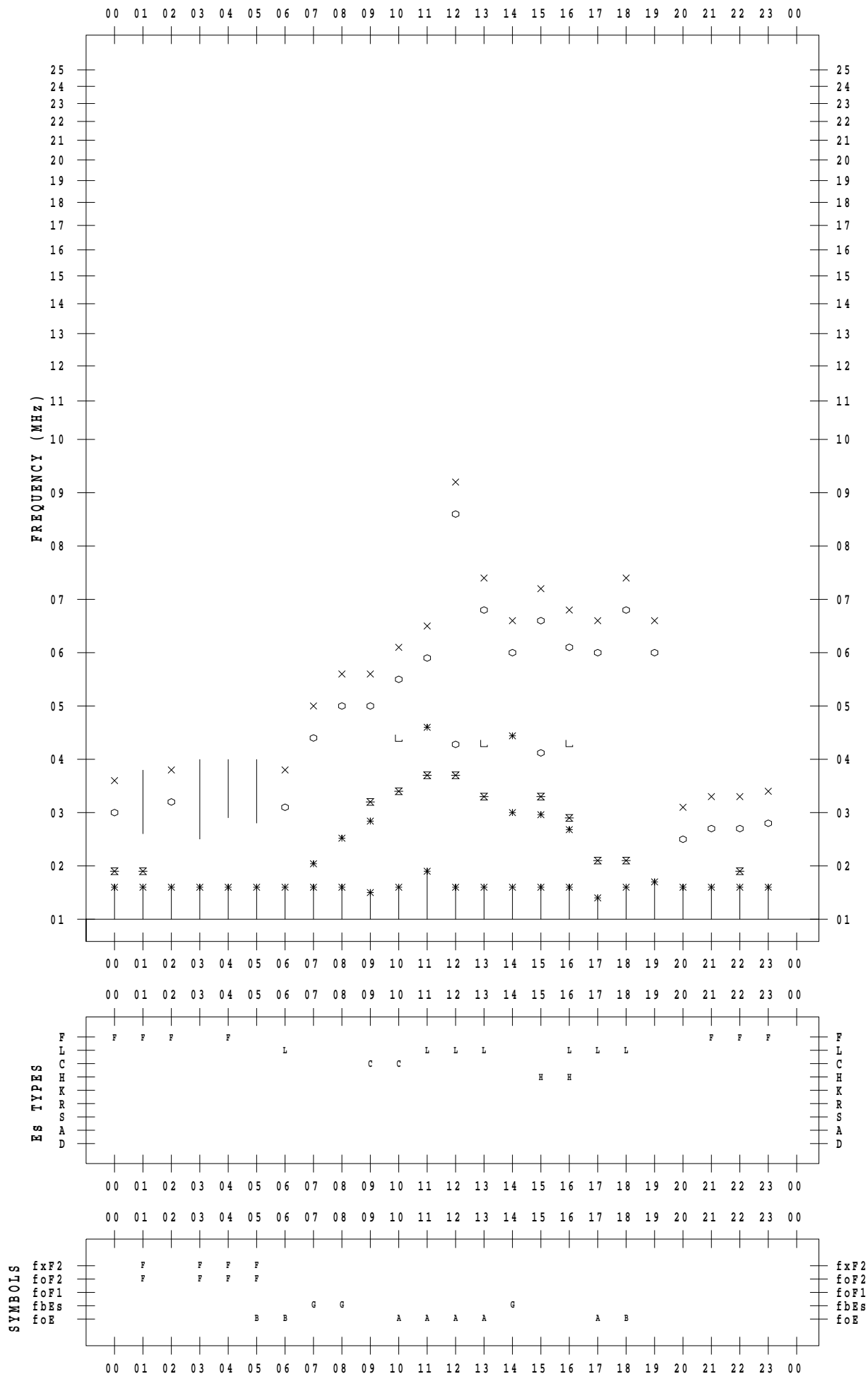
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/16

135 ° E MEAN TIME



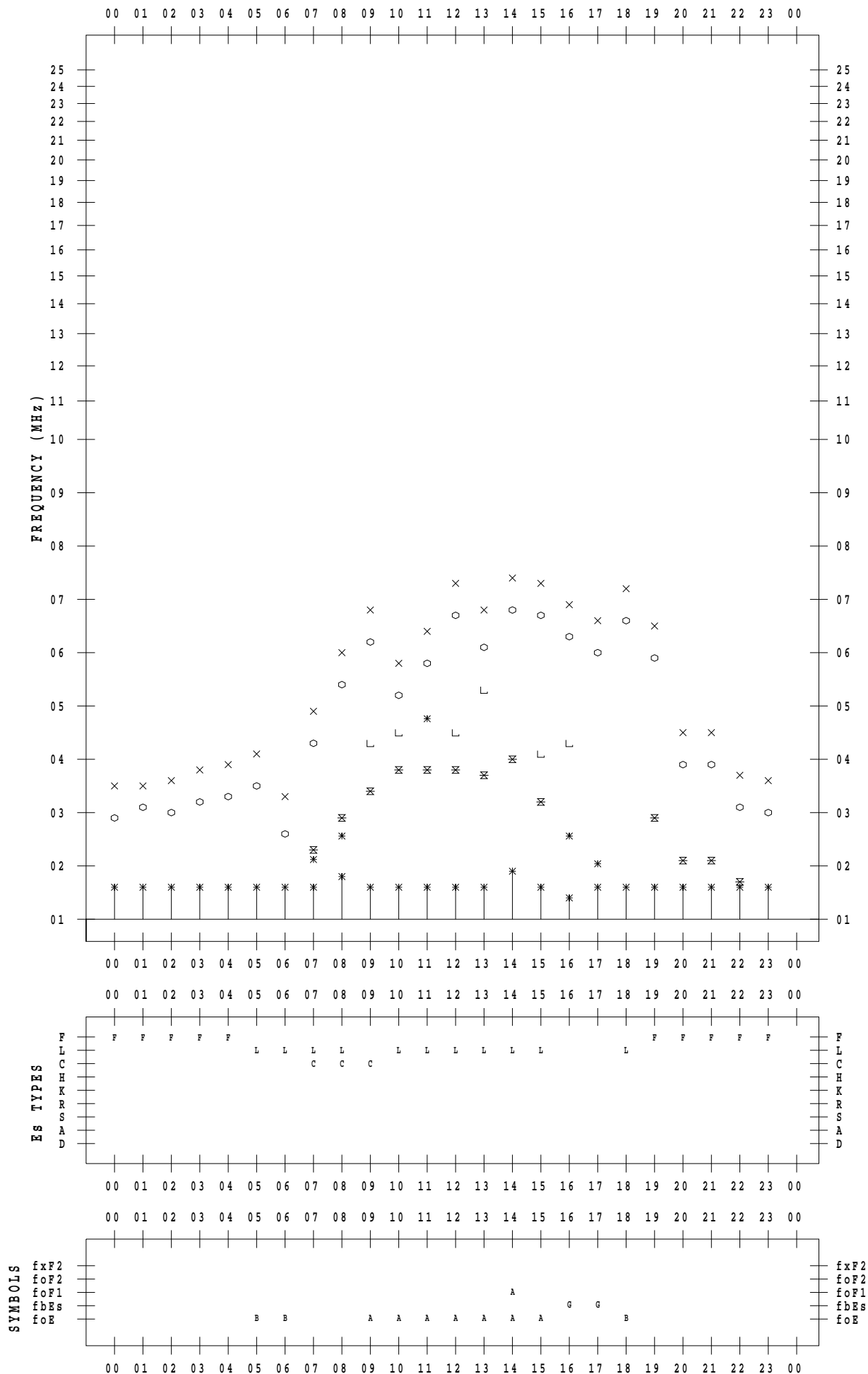
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/17

135 ° E MEAN TIME



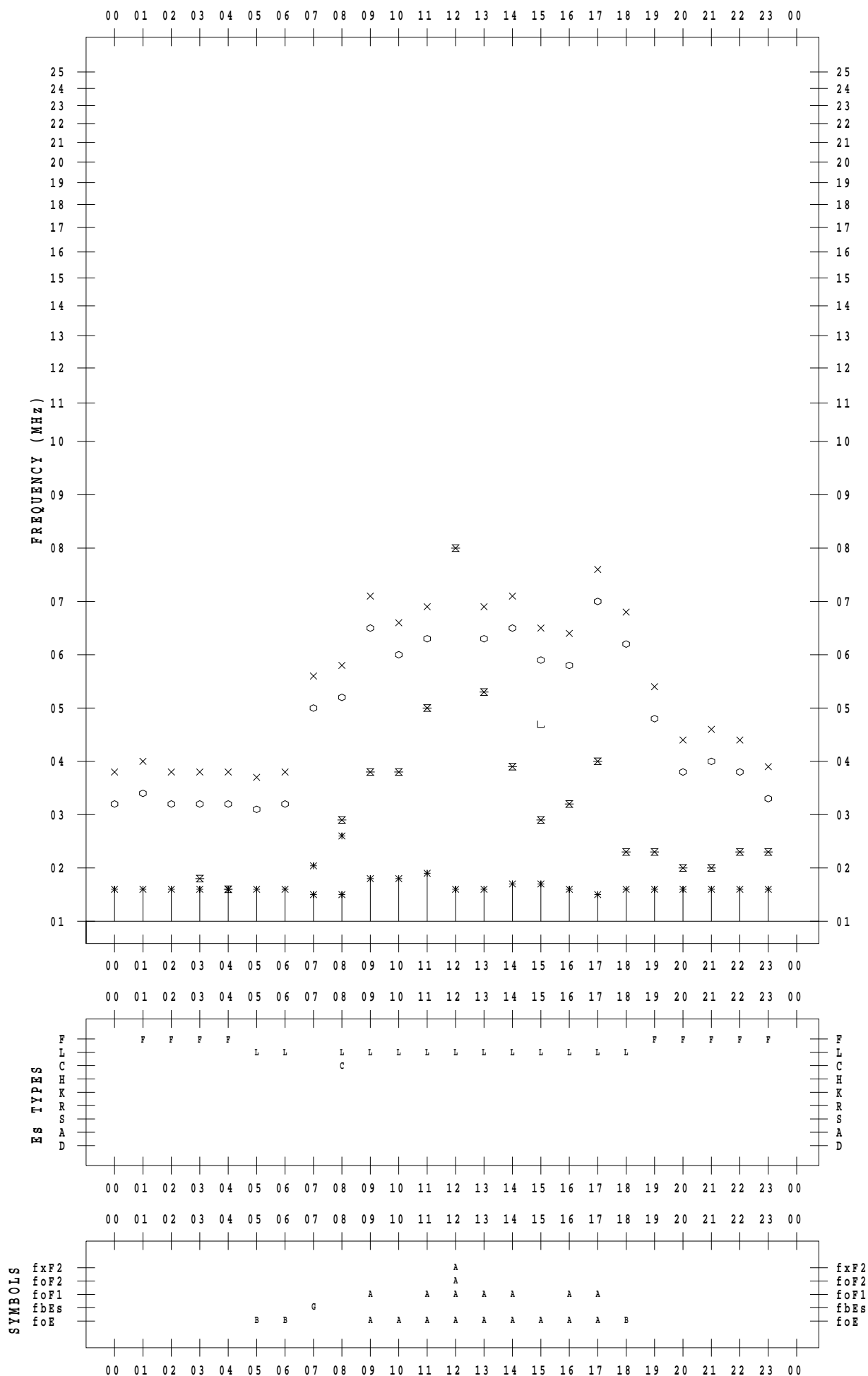
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/18

135 ° E MEAN TIME



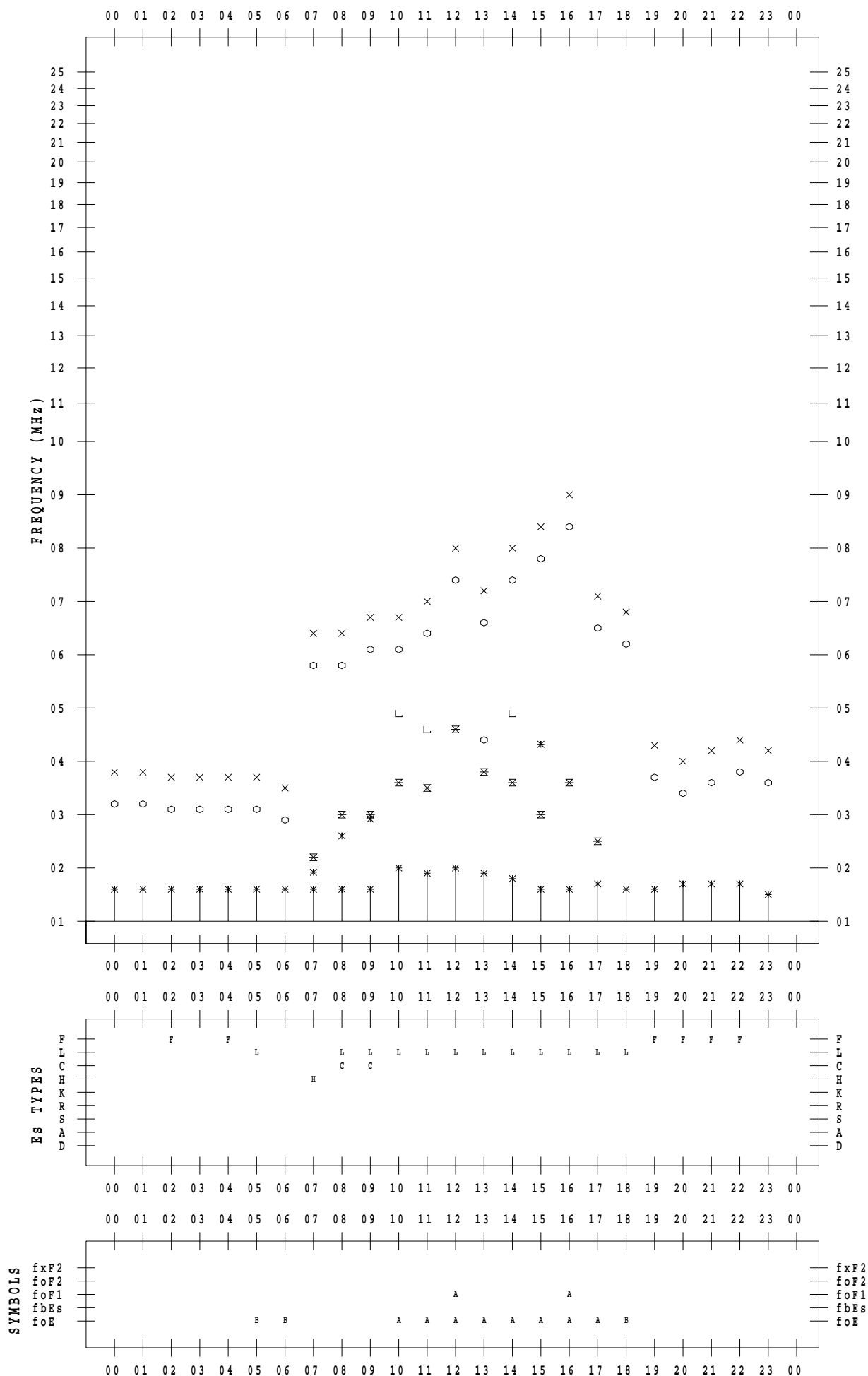
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/19

135 ° E MEAN TIME



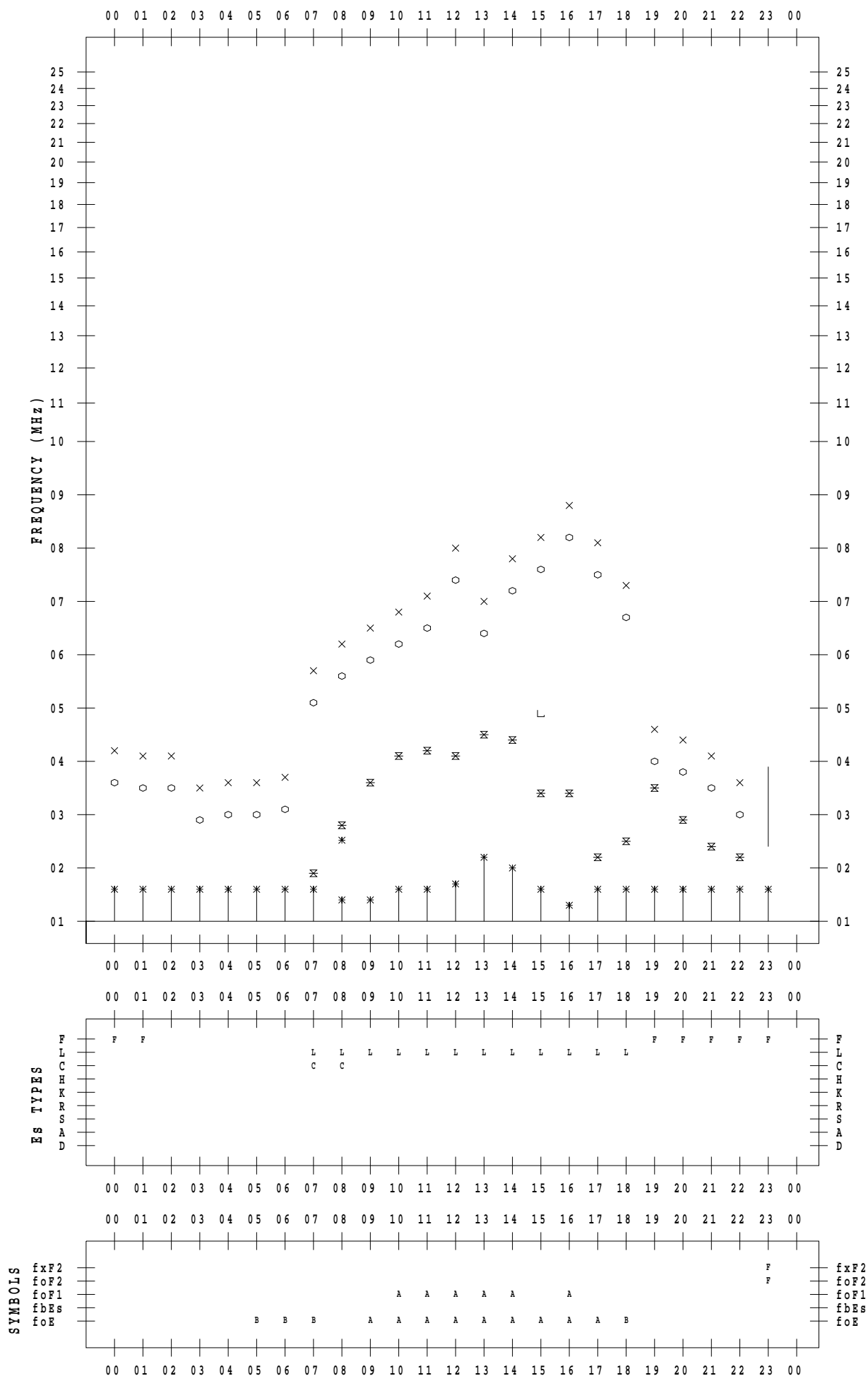
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/20

135 ° E MEAN TIME



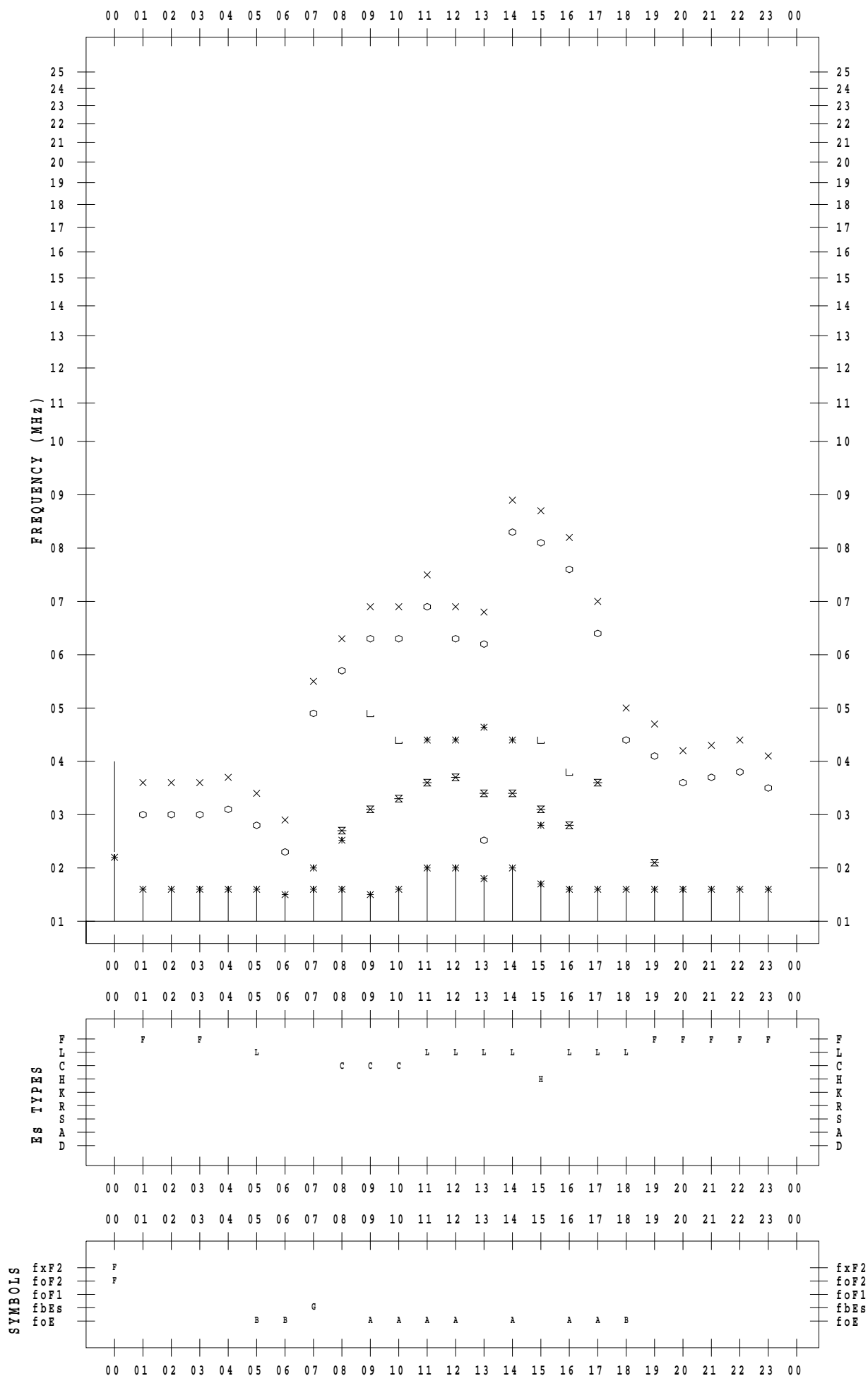
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/21

135 ° E MEAN TIME



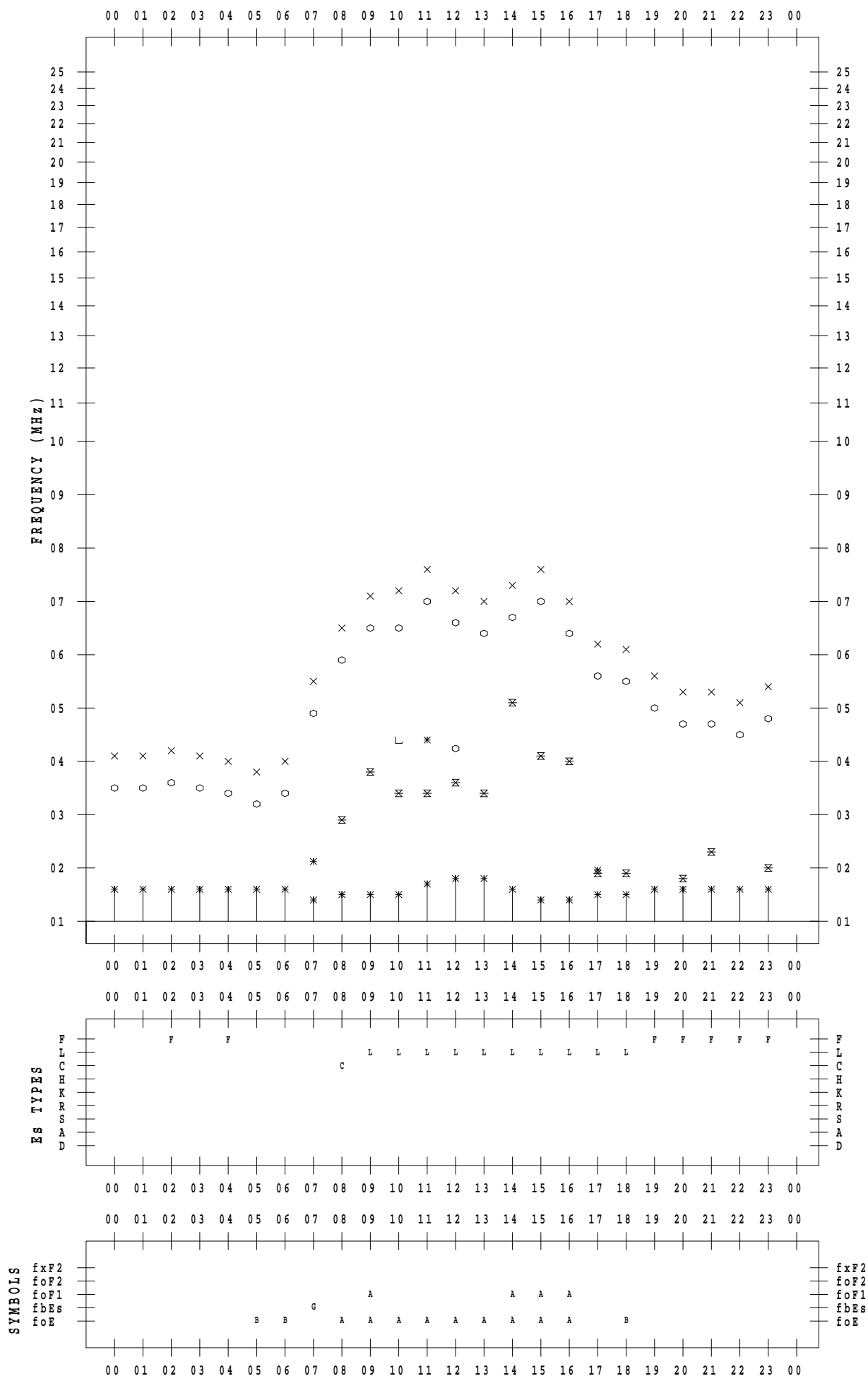
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/22

135 ° E MEAN TIME



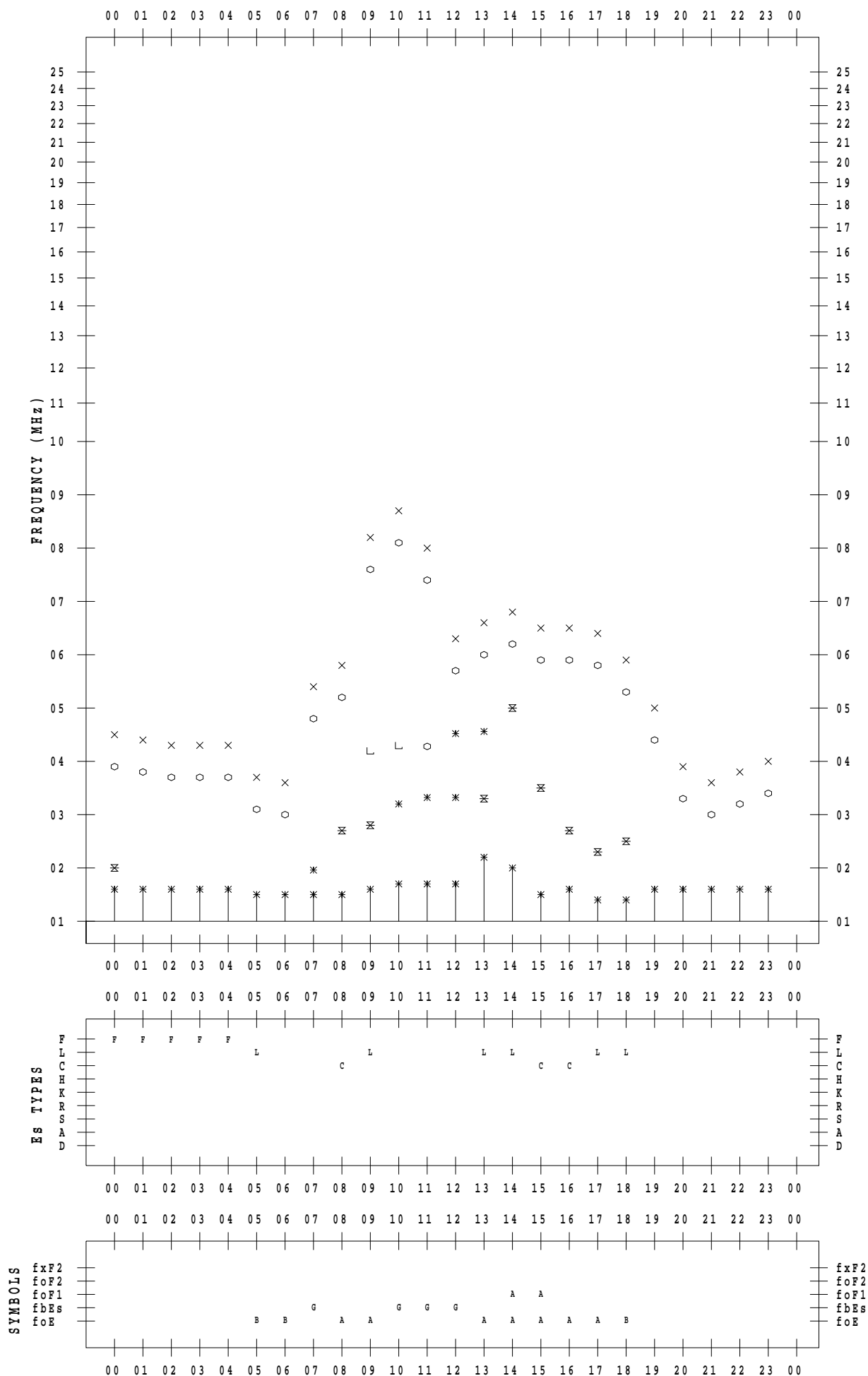
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/23

135 ° E MEAN TIME



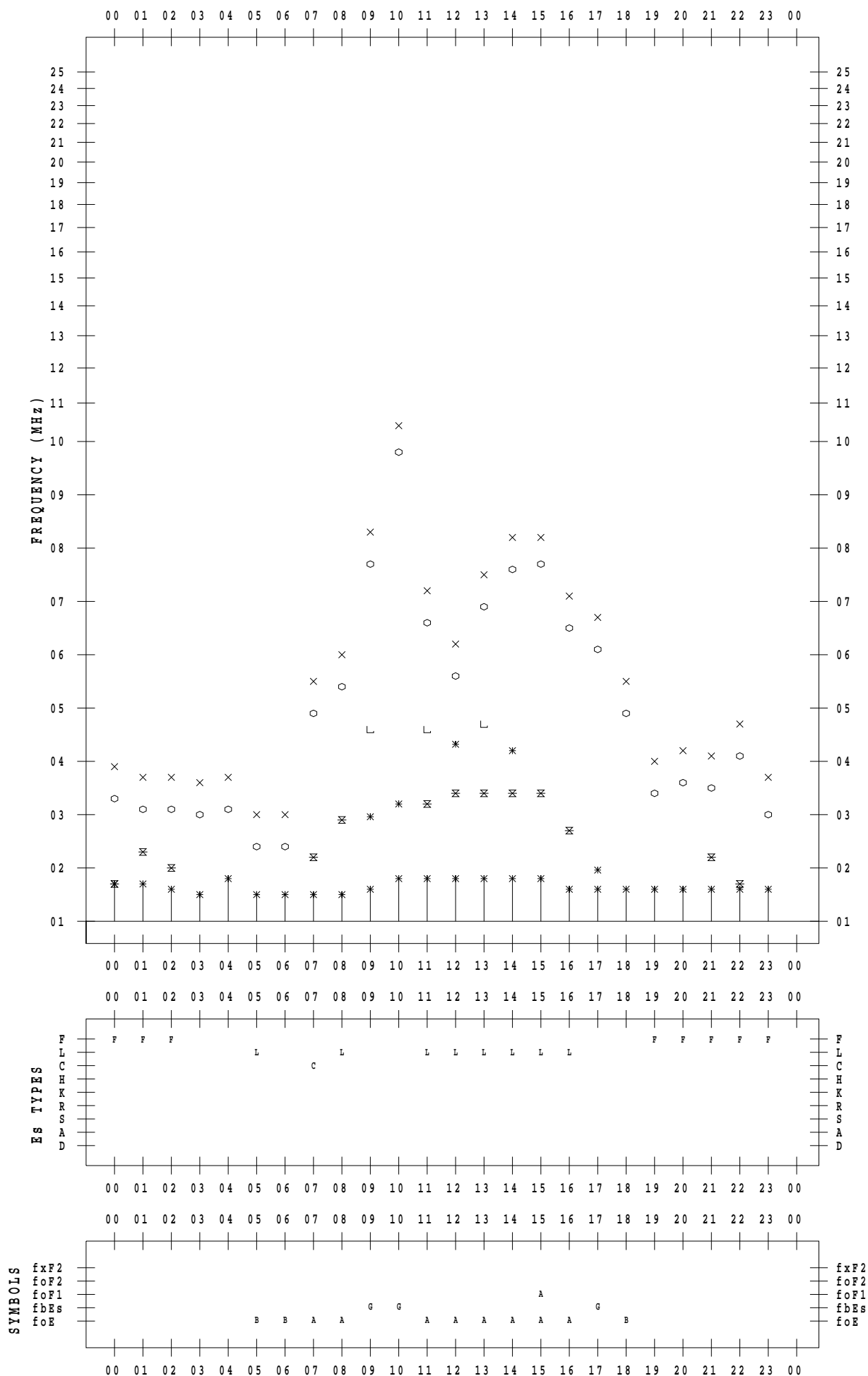
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/24

135 ° E MEAN TIME



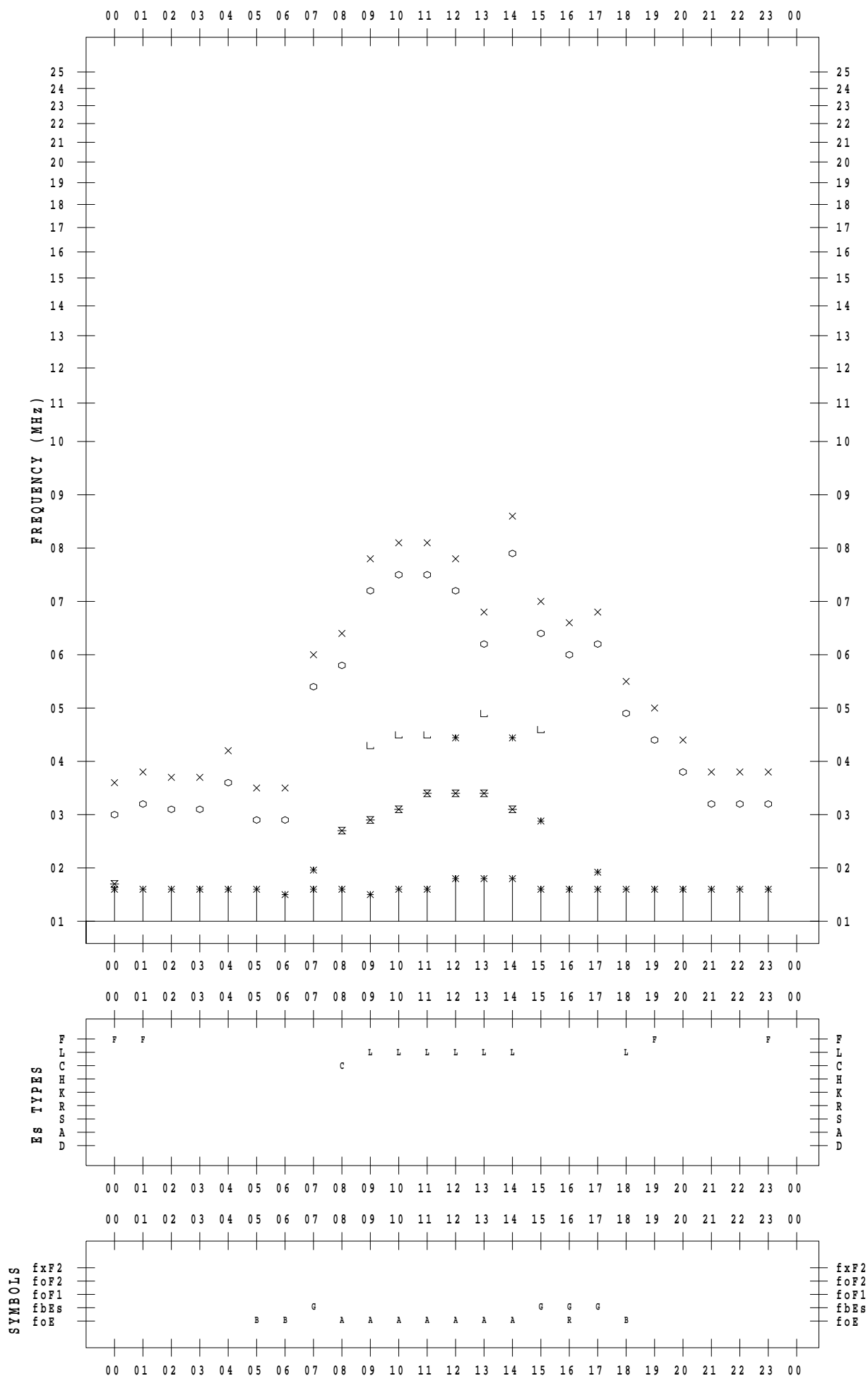
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/25

135 ° E MEAN TIME



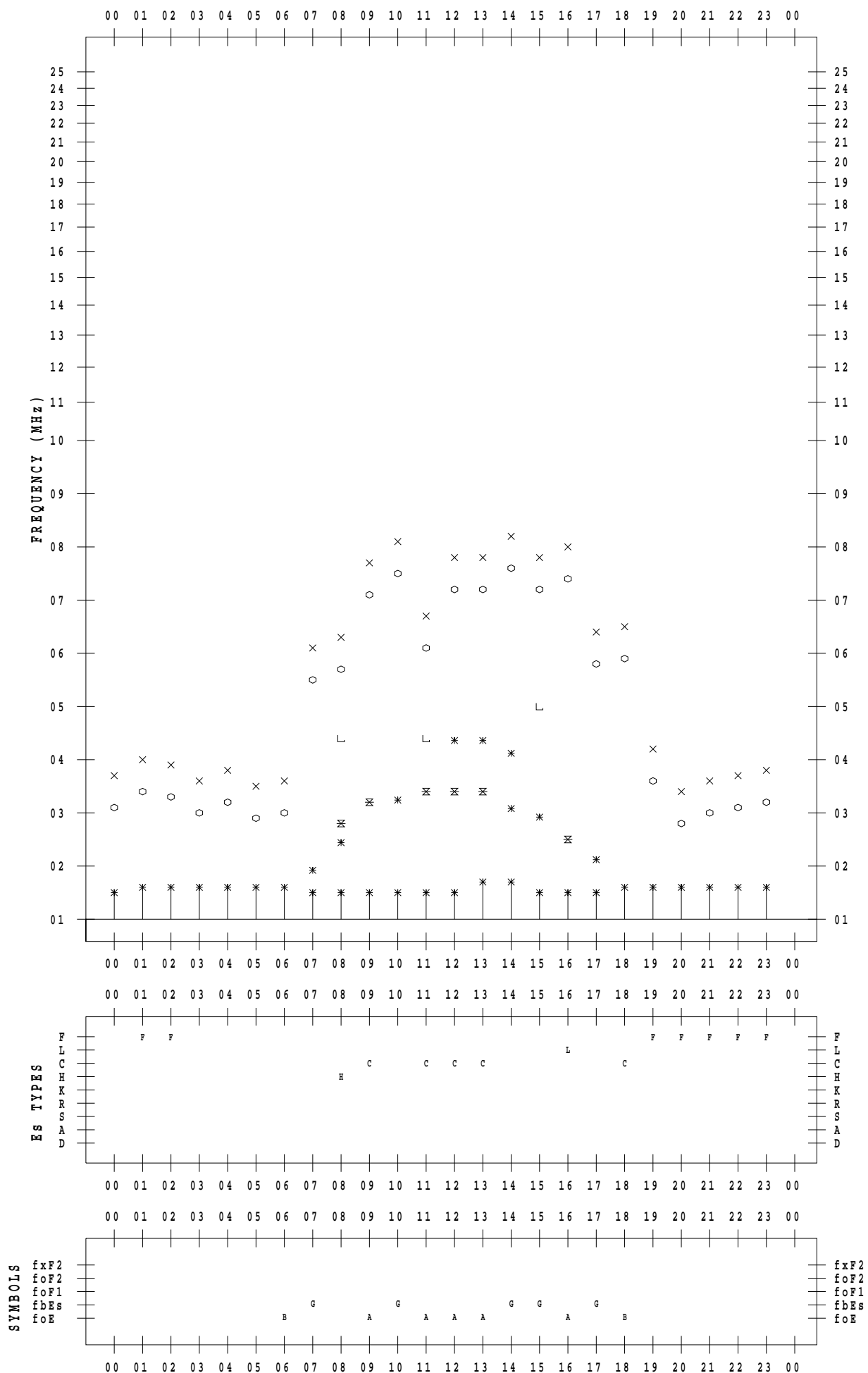
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/26

135 ° E MEAN TIME



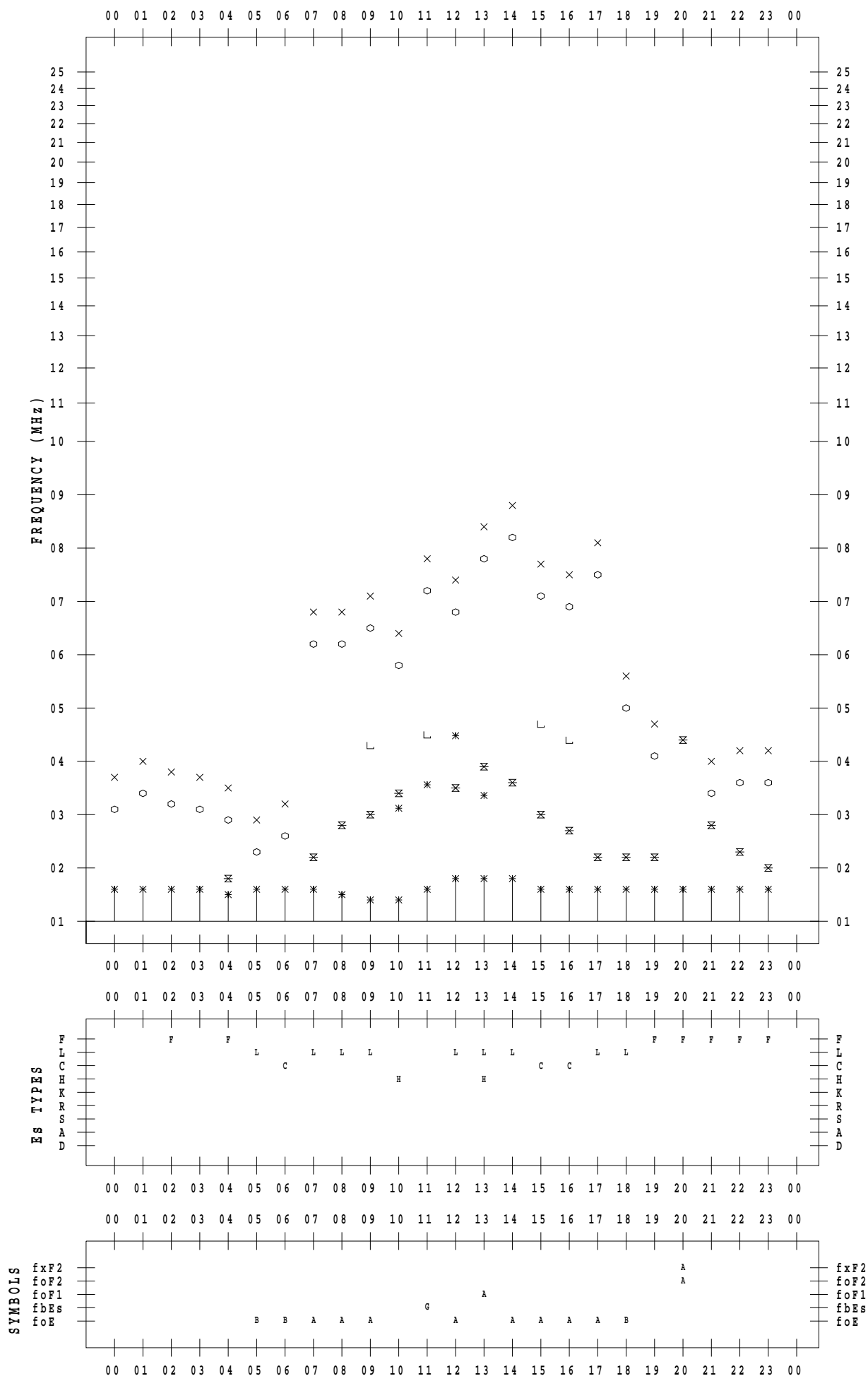
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/27

135 ° E MEAN TIME



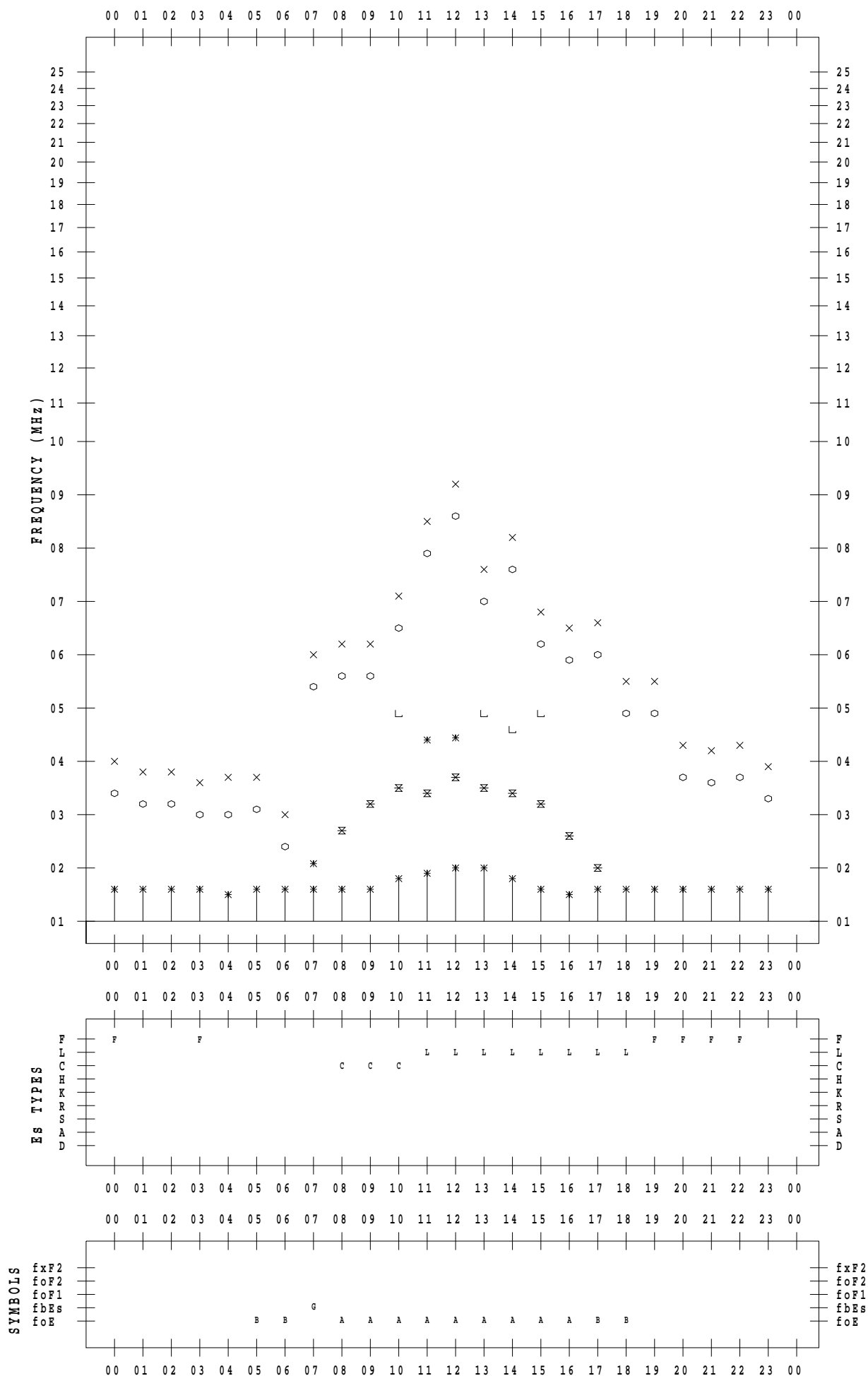
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/28

135 ° E MEAN TIME



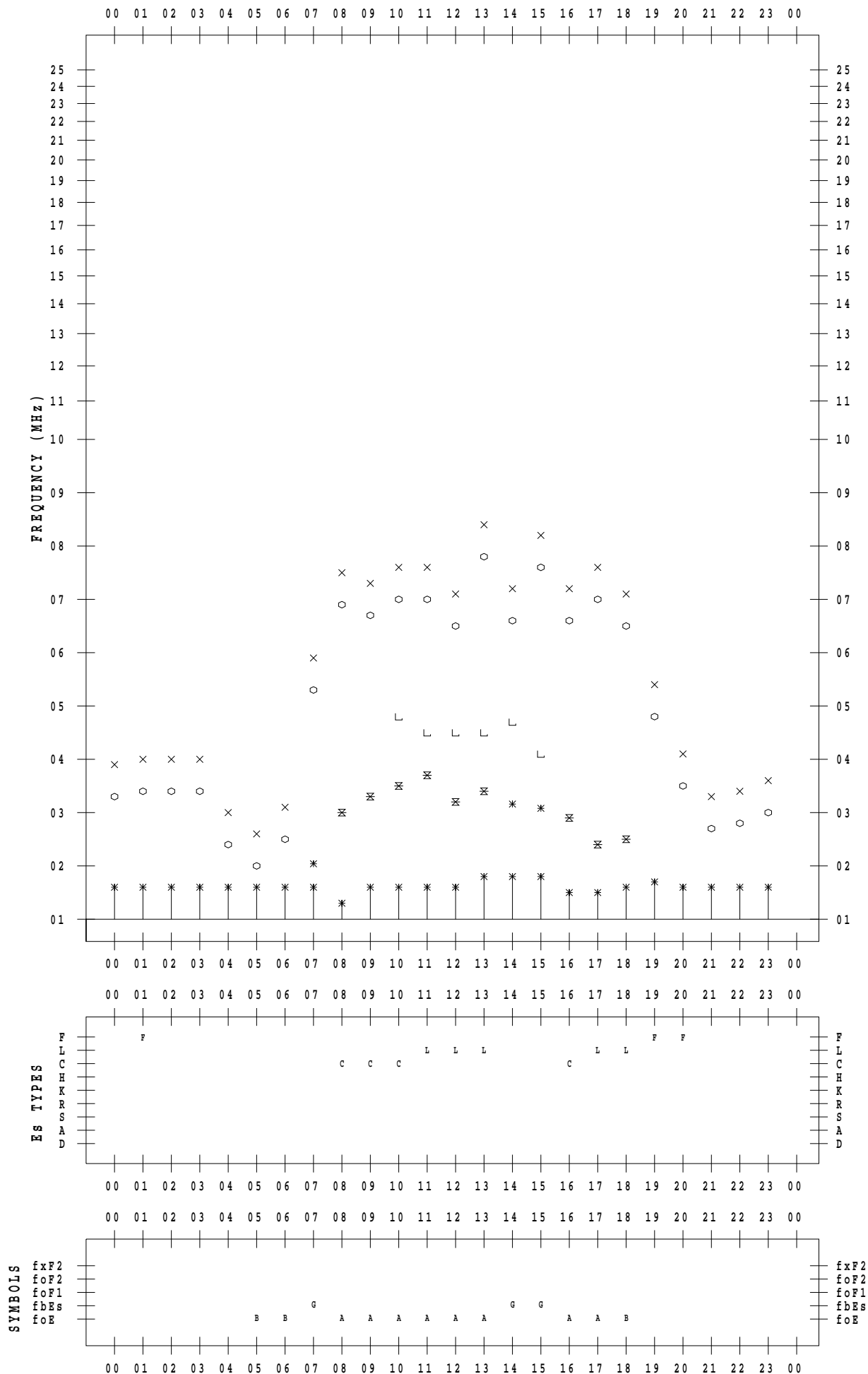
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/29

135 ° E MEAN TIME



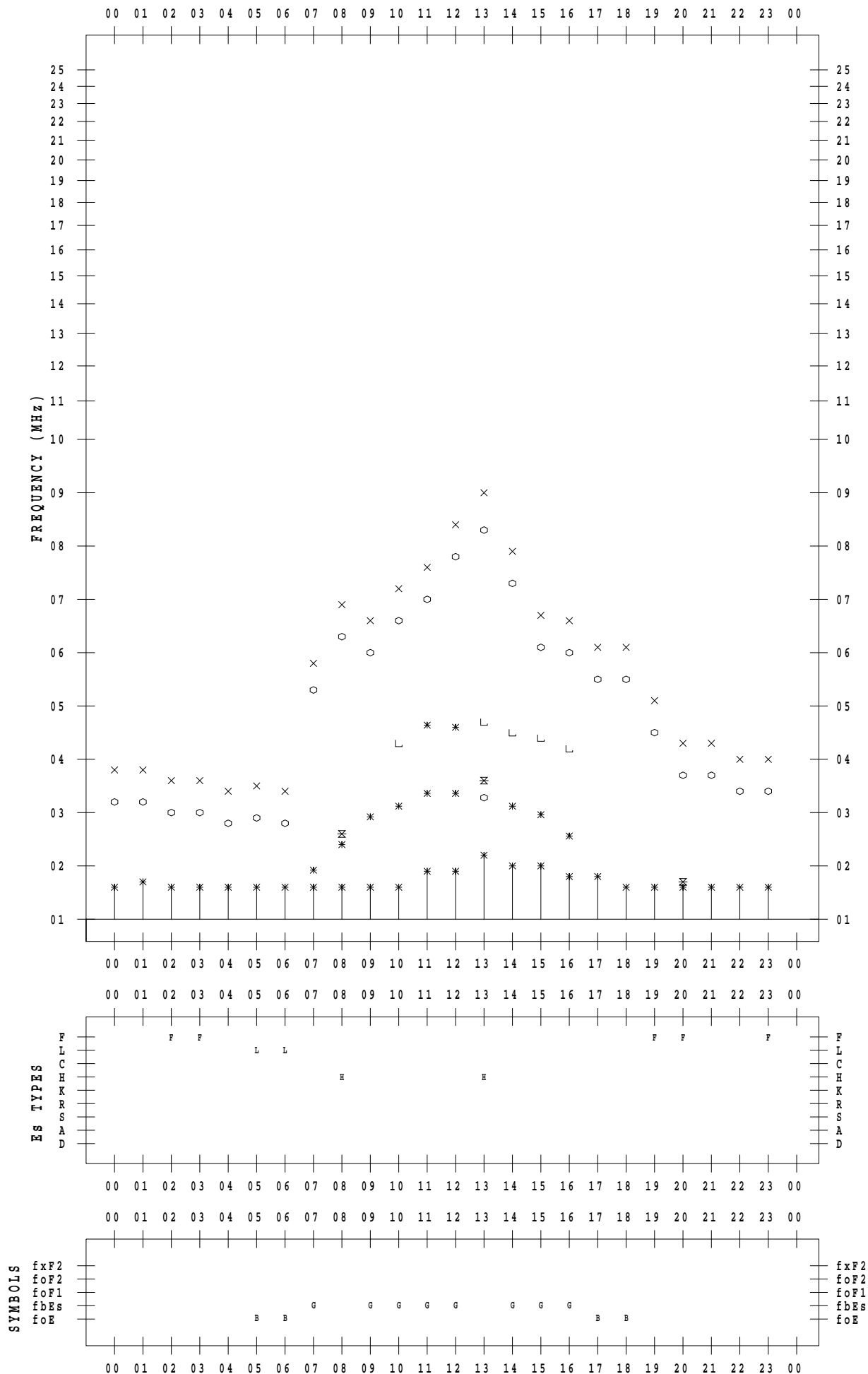
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/30

135 ° E MEAN TIME



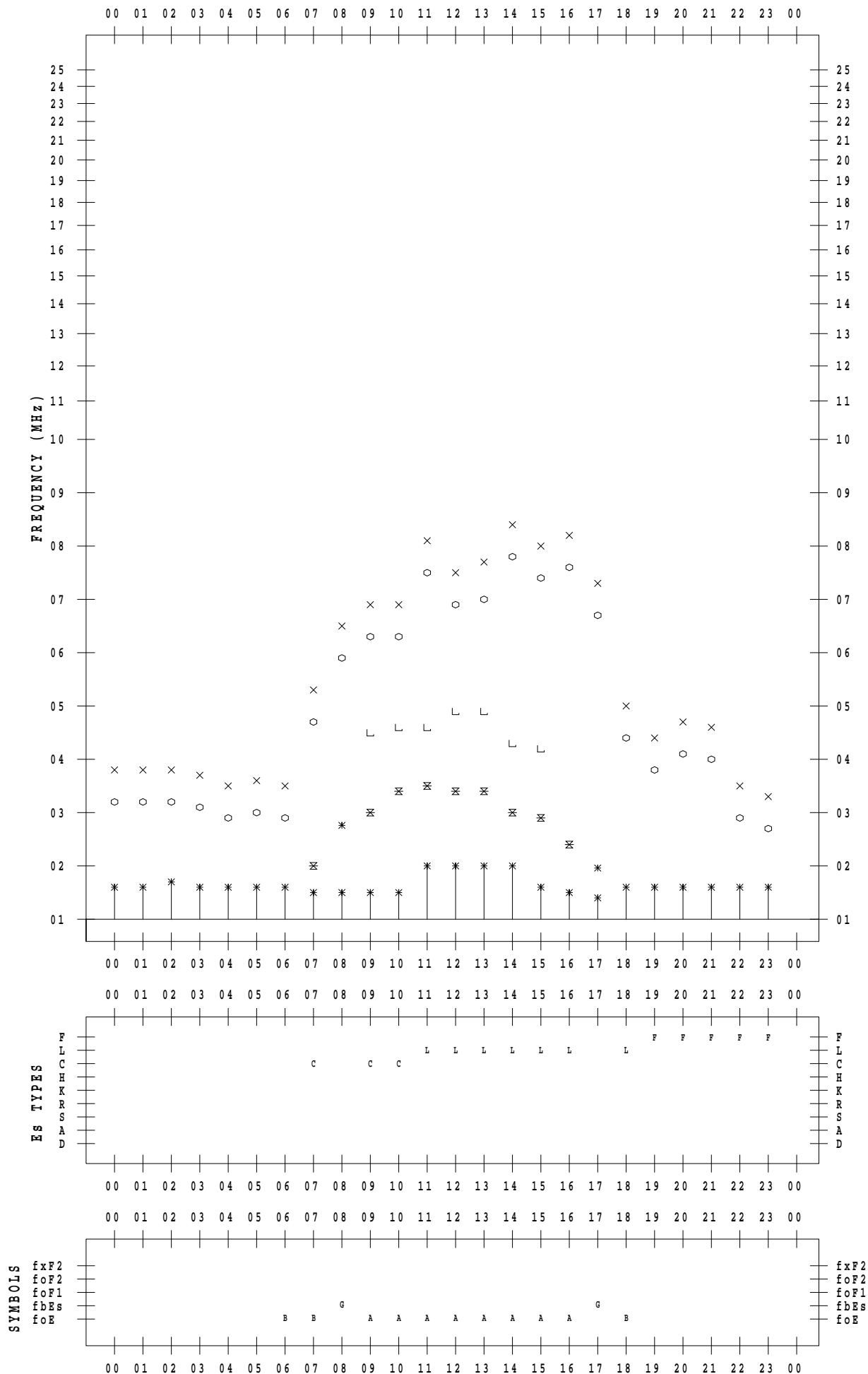
f - PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2020/10/31

135 ° E MEAN TIME



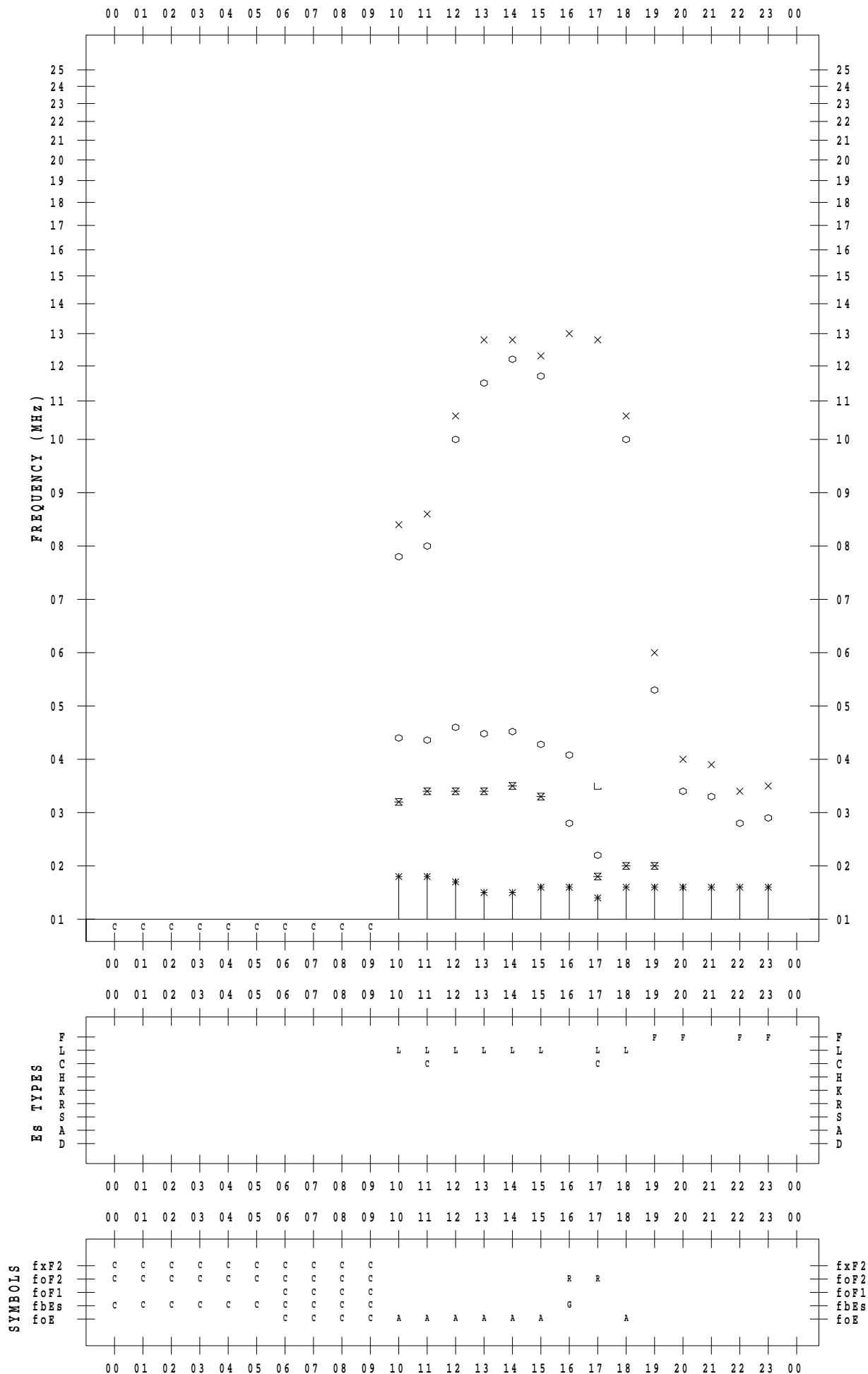
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/ 1

135 ° E MEAN TIME



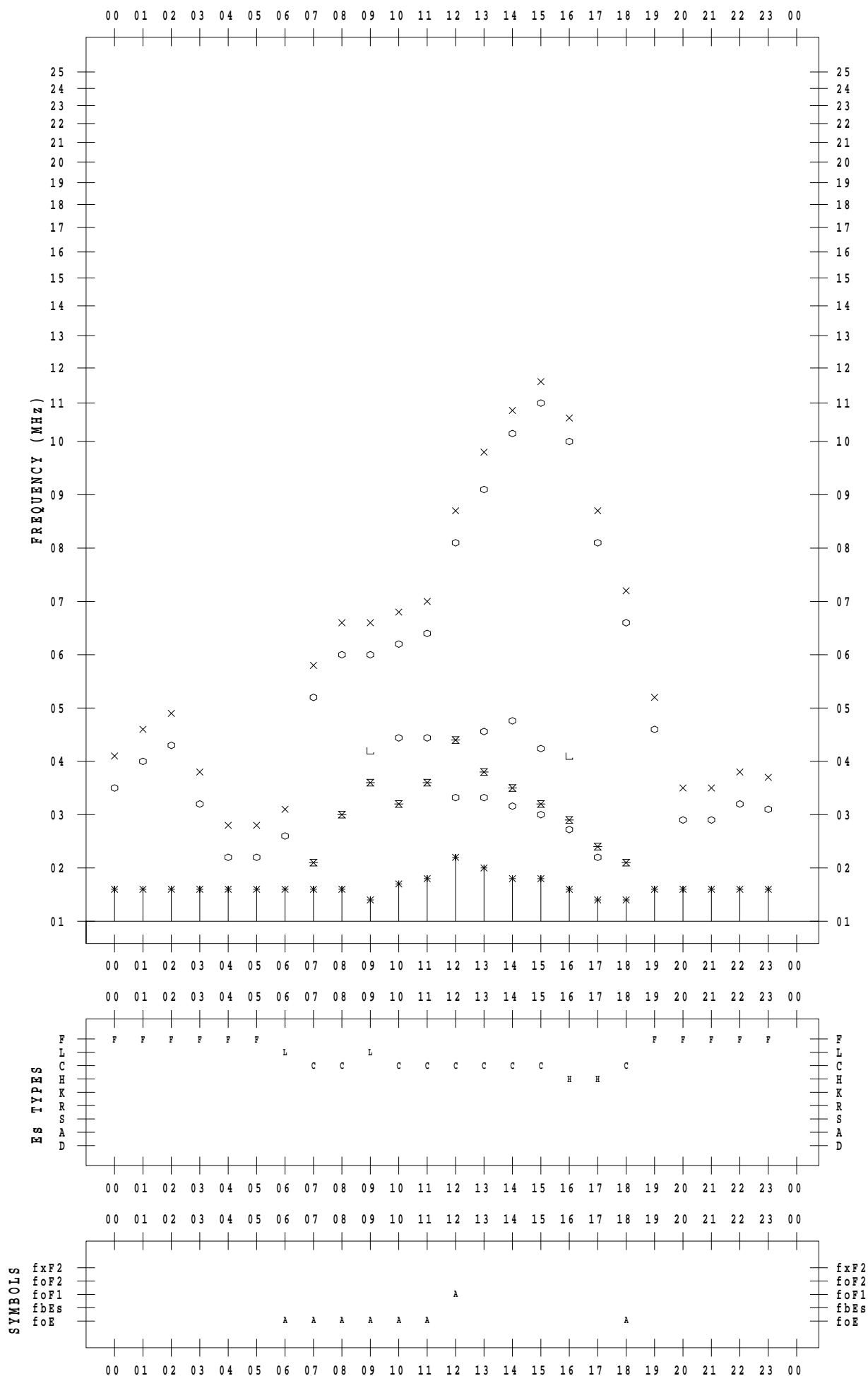
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/ 2

135 ° E MEAN TIME



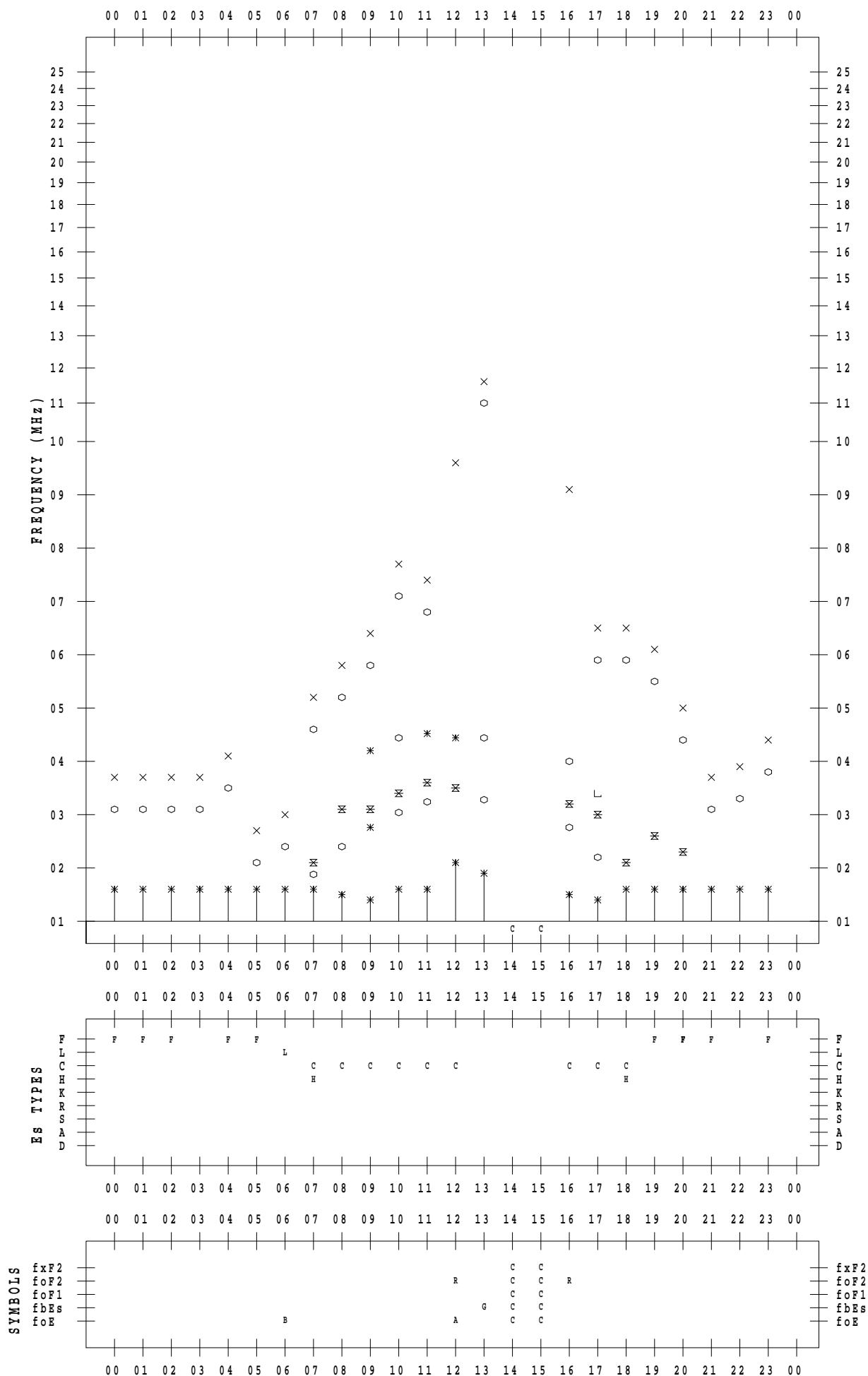
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/ 3

135 ° E MEAN TIME



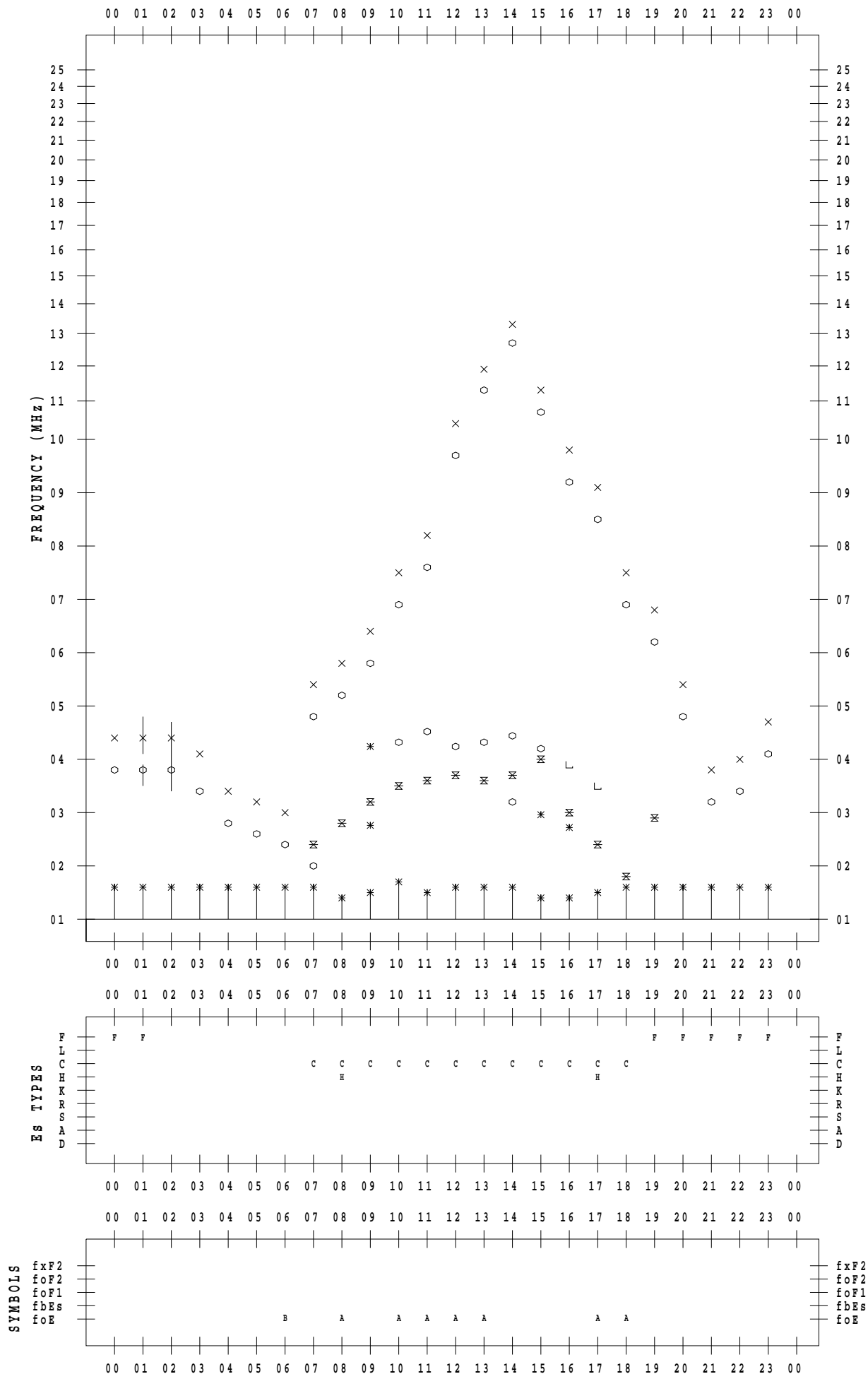
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/ 4

135 ° E MEAN TIME



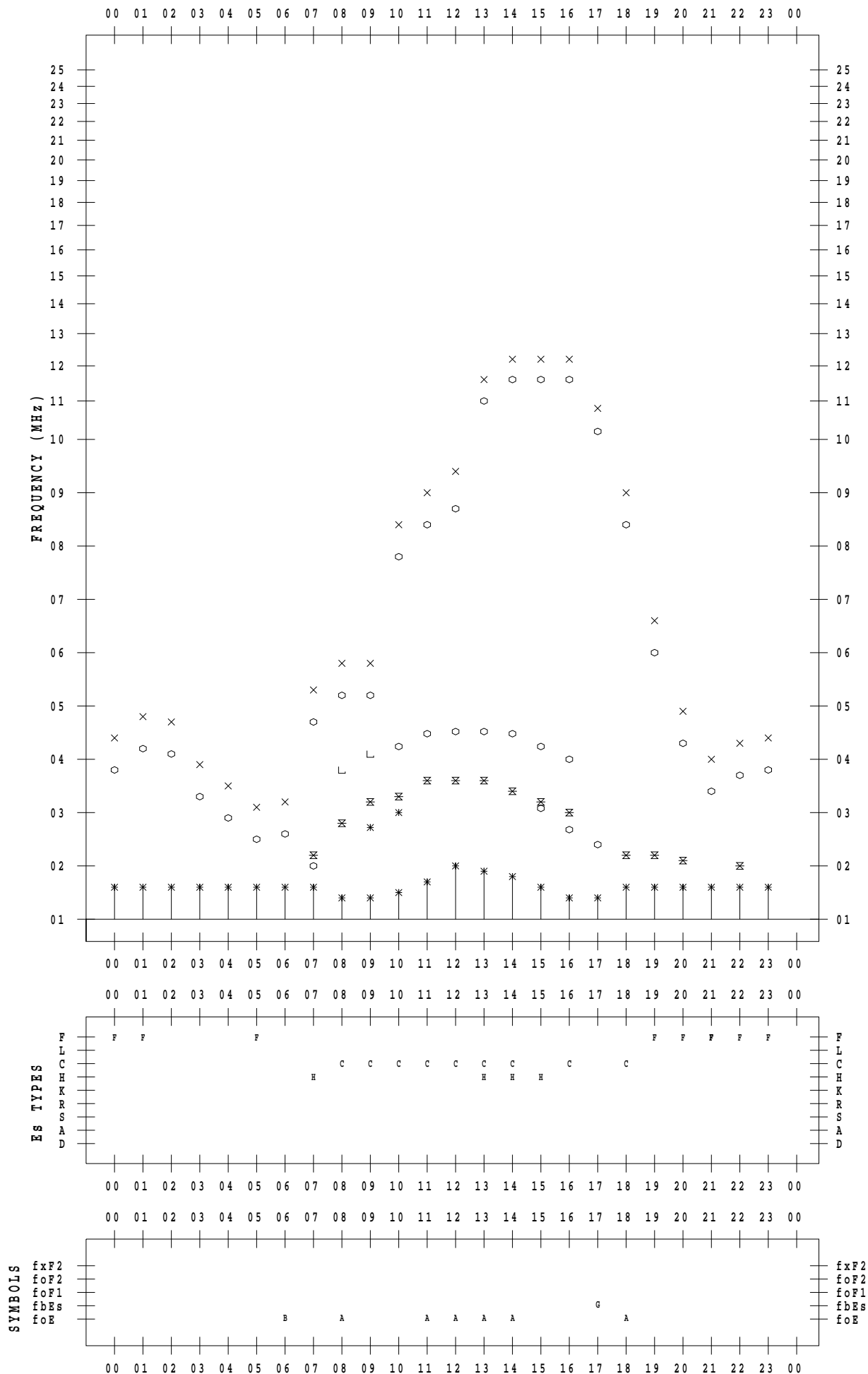
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/ 5

135 ° E MEAN TIME



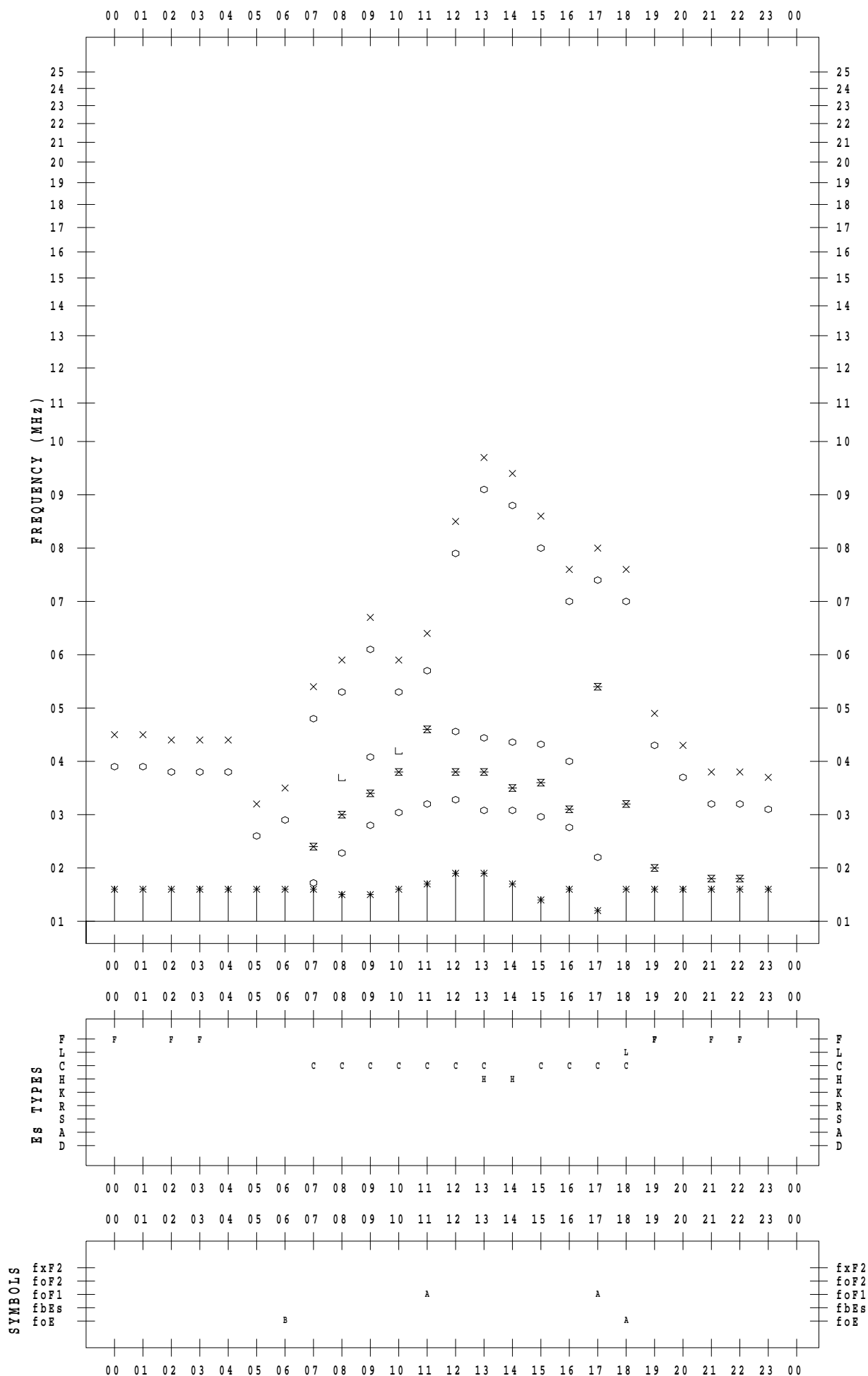
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/ 6

135 ° E MEAN TIME



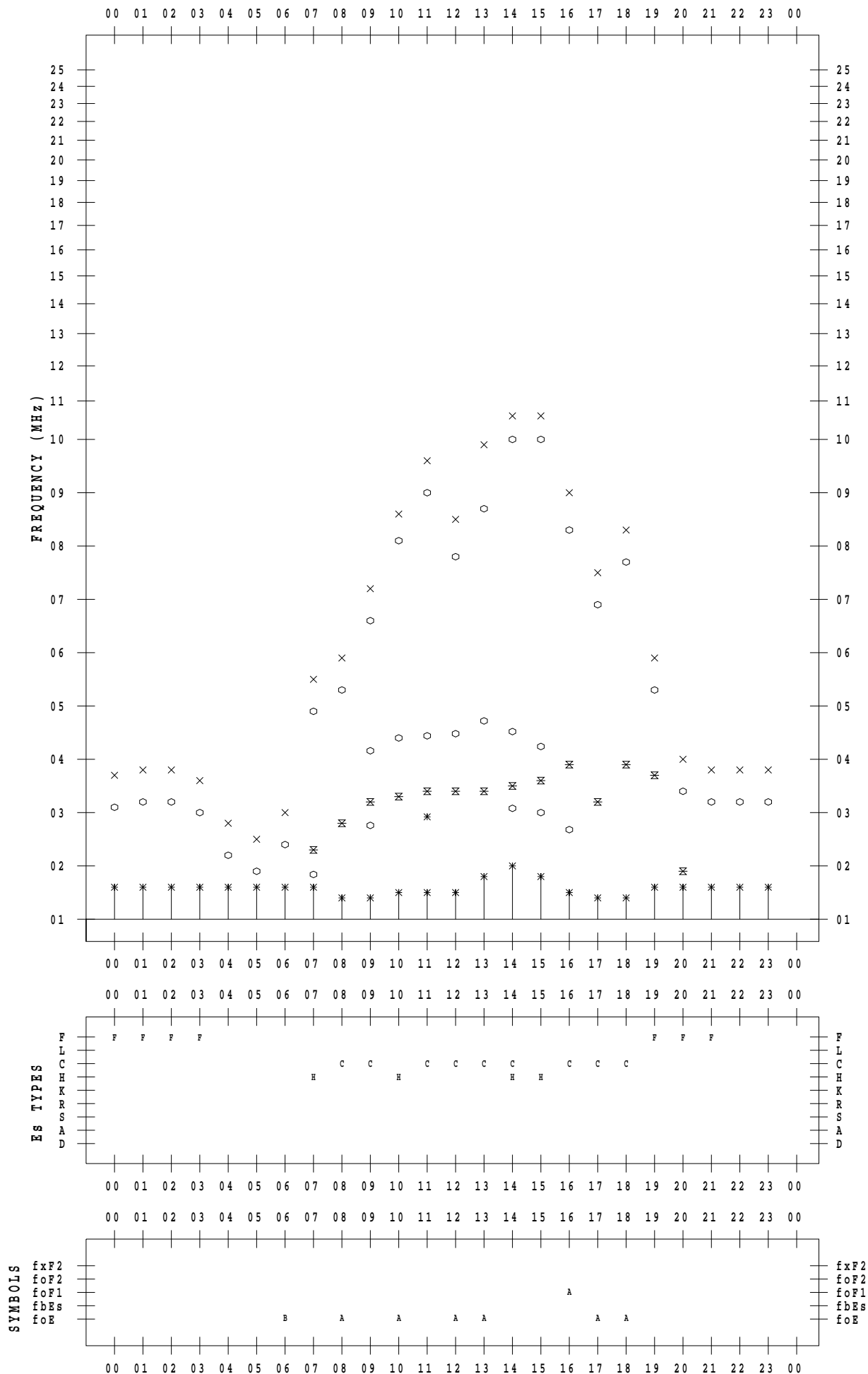
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/ 7

135 ° E MEAN TIME



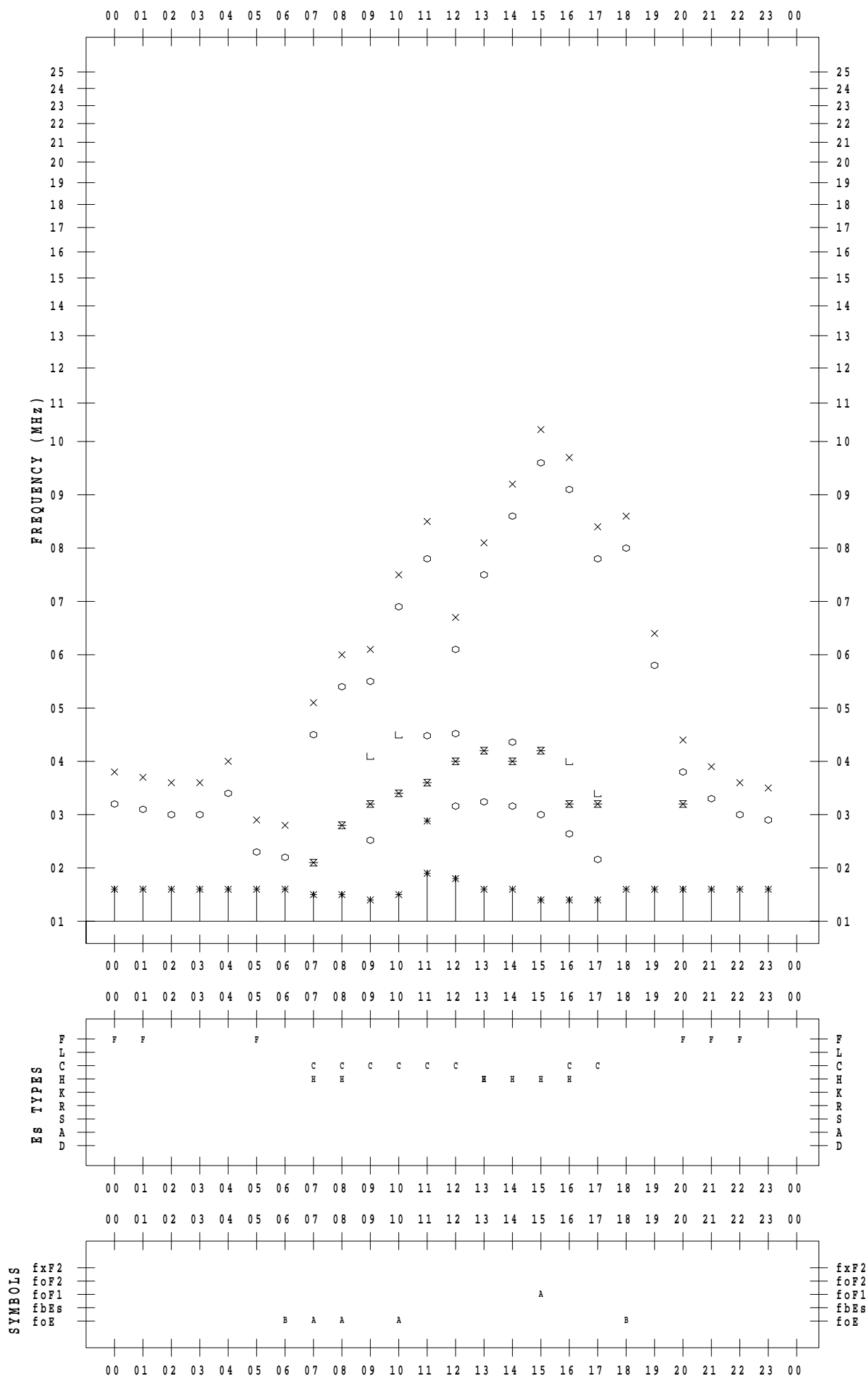
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/ 8

135 ° E MEAN TIME



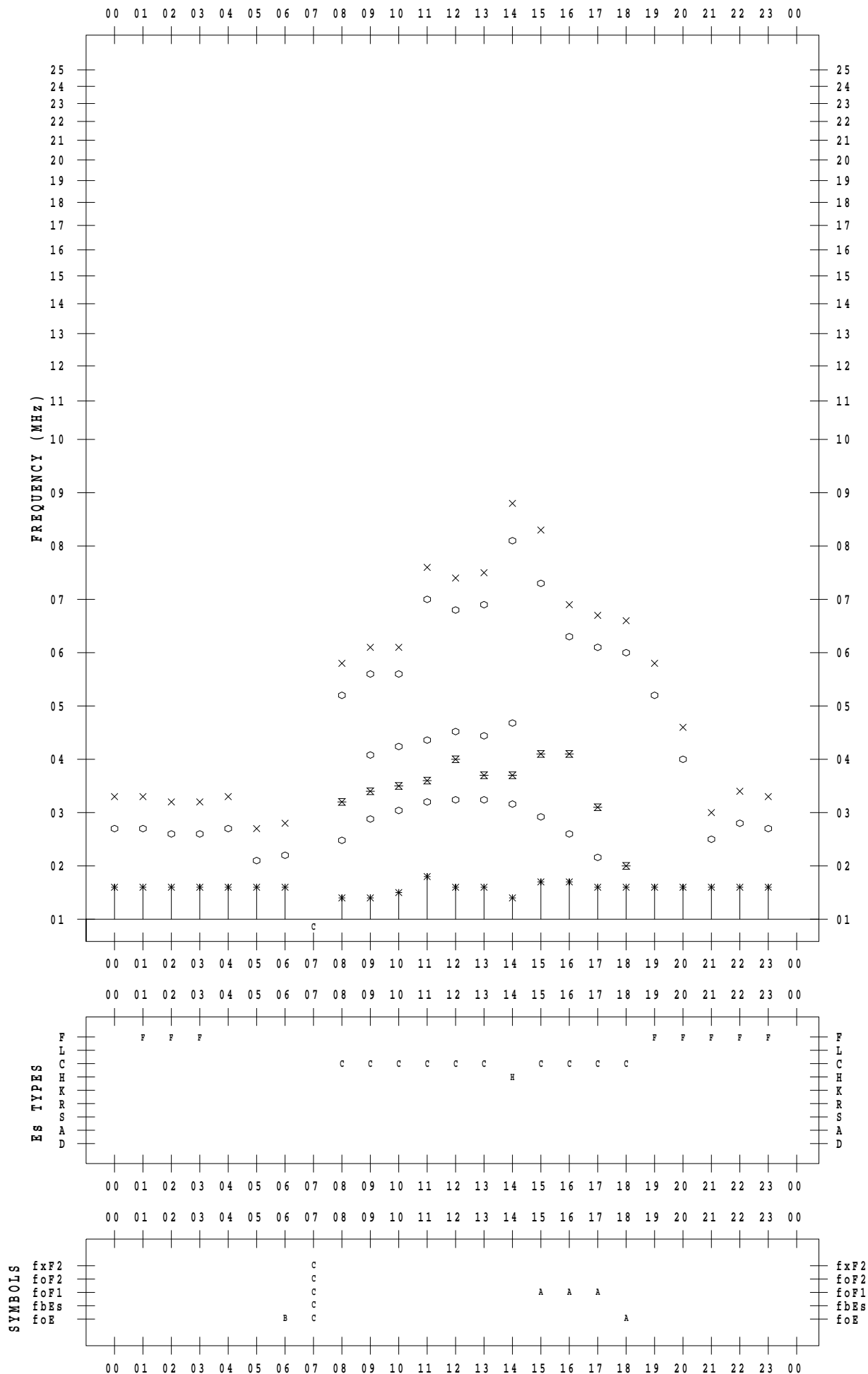
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/ 9

135 ° E MEAN TIME



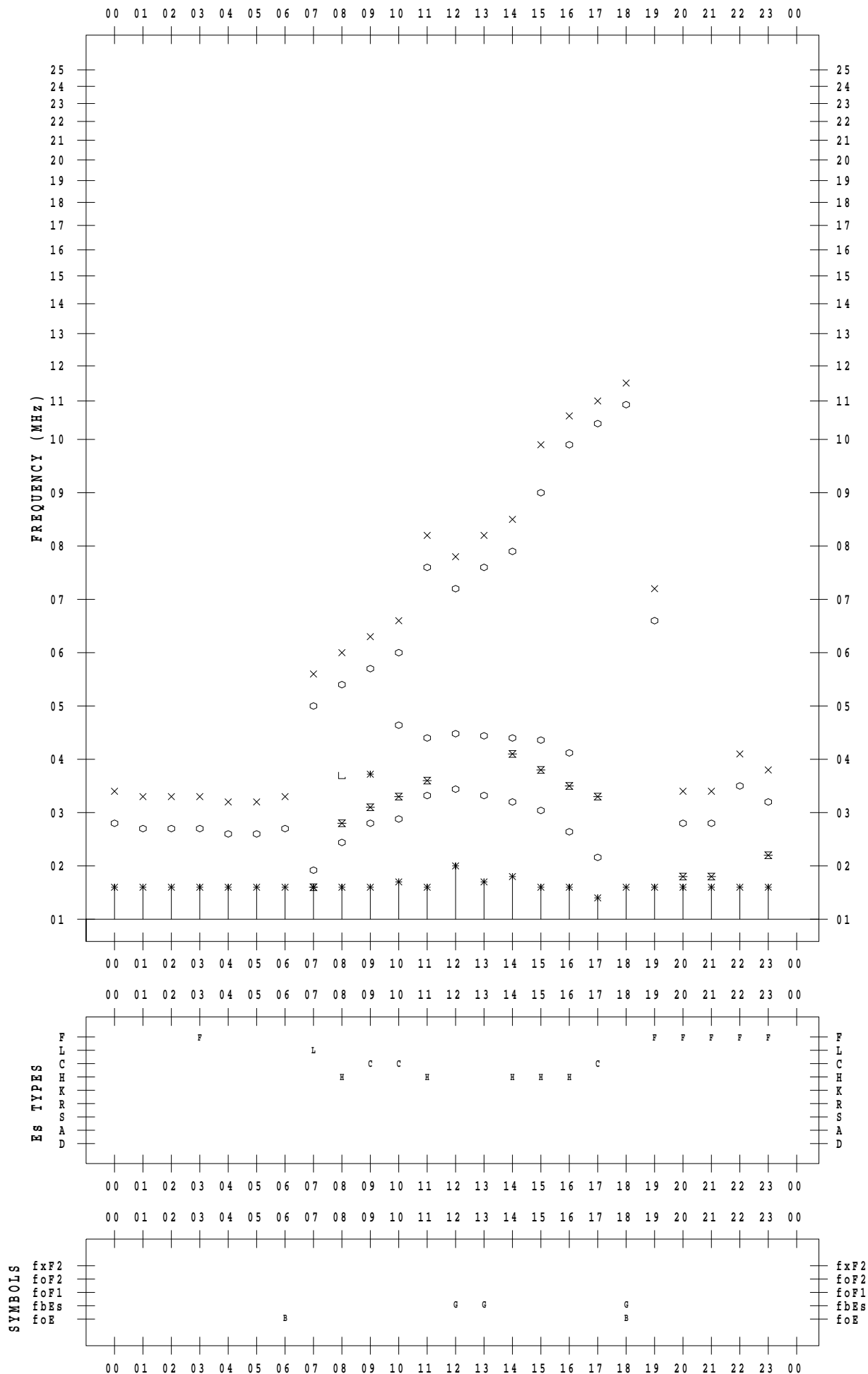
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/10

135 ° E MEAN TIME



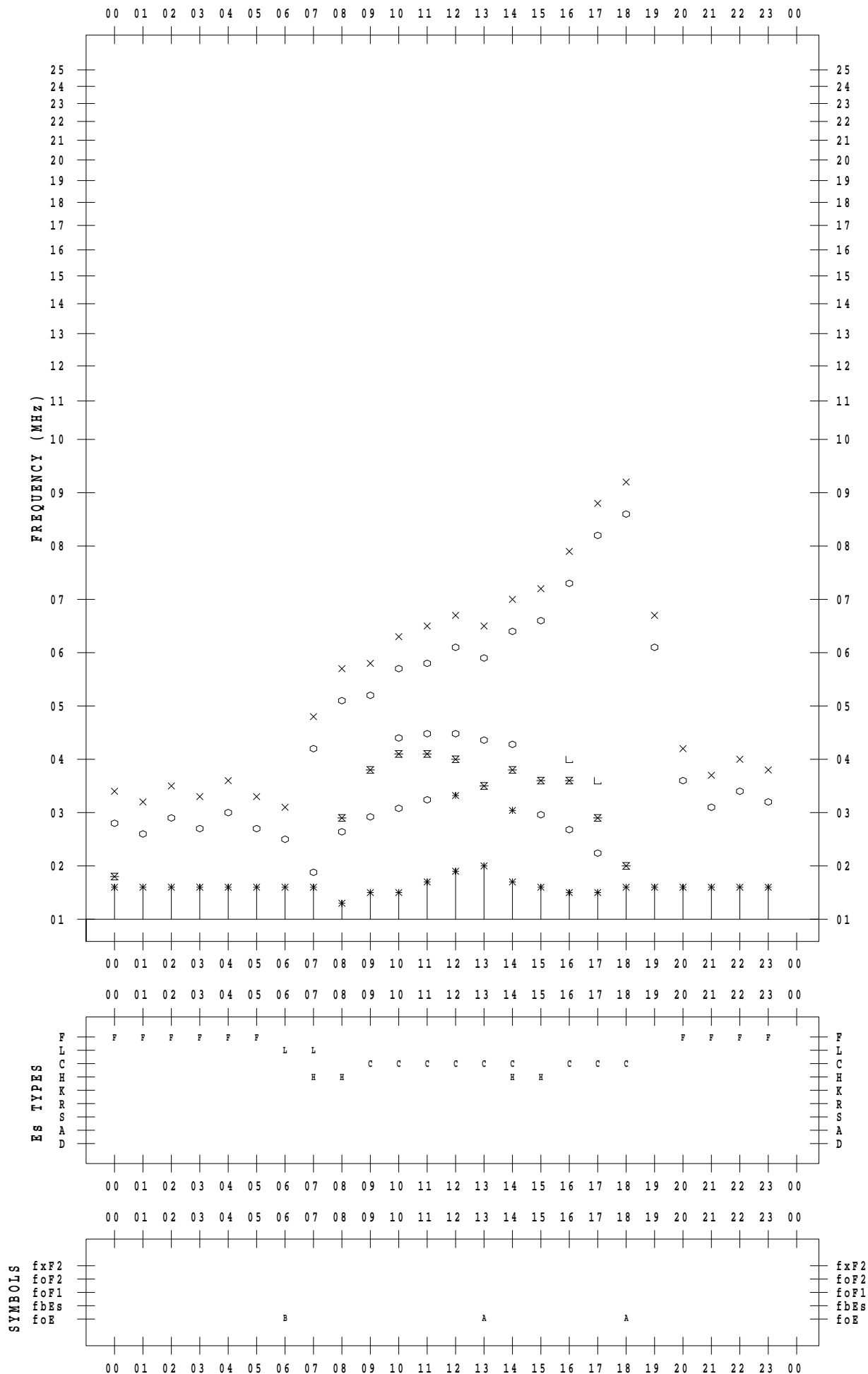
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/11

135 ° E MEAN TIME



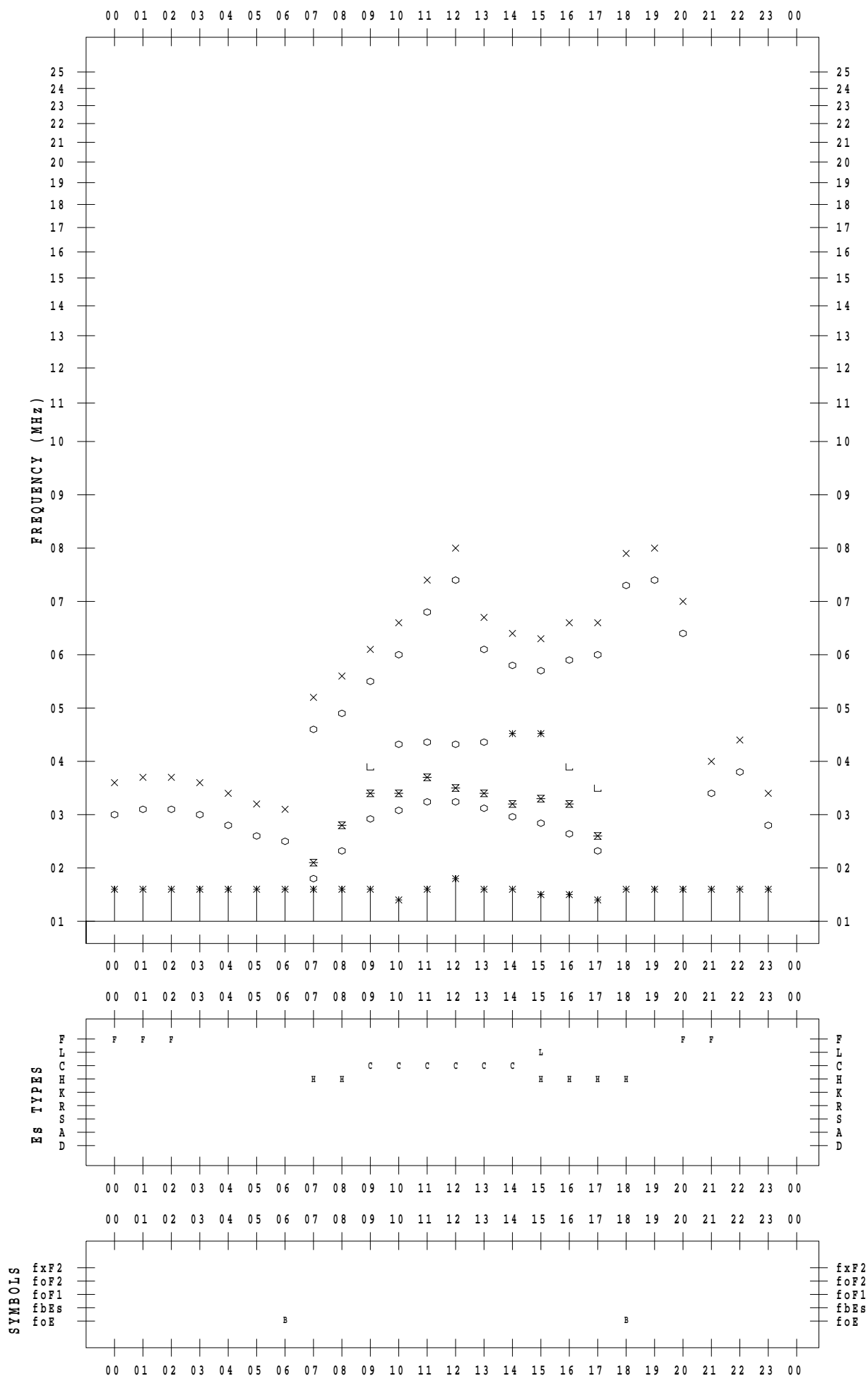
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/12

135 ° E MEAN TIME



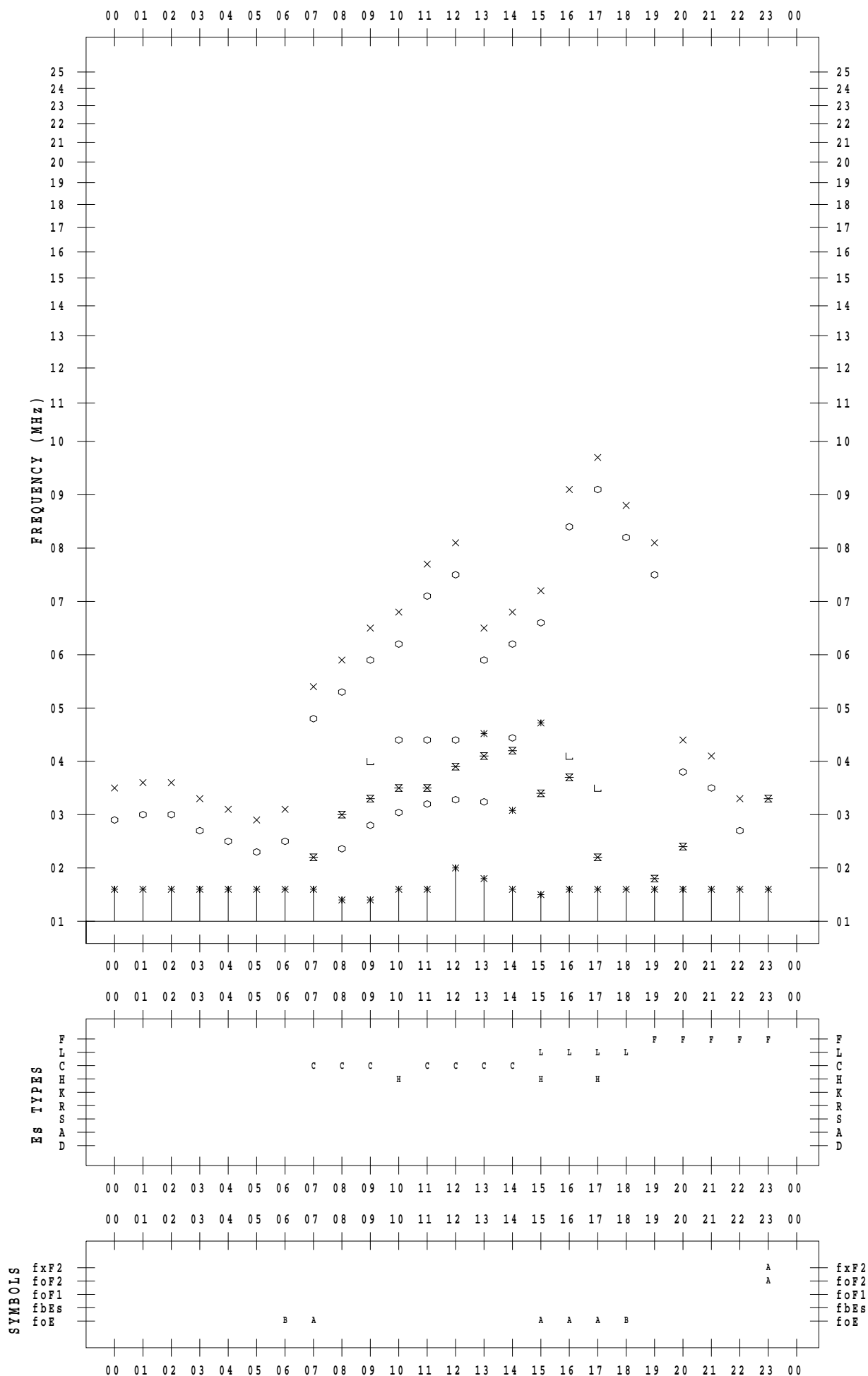
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/13

135 ° E MEAN TIME



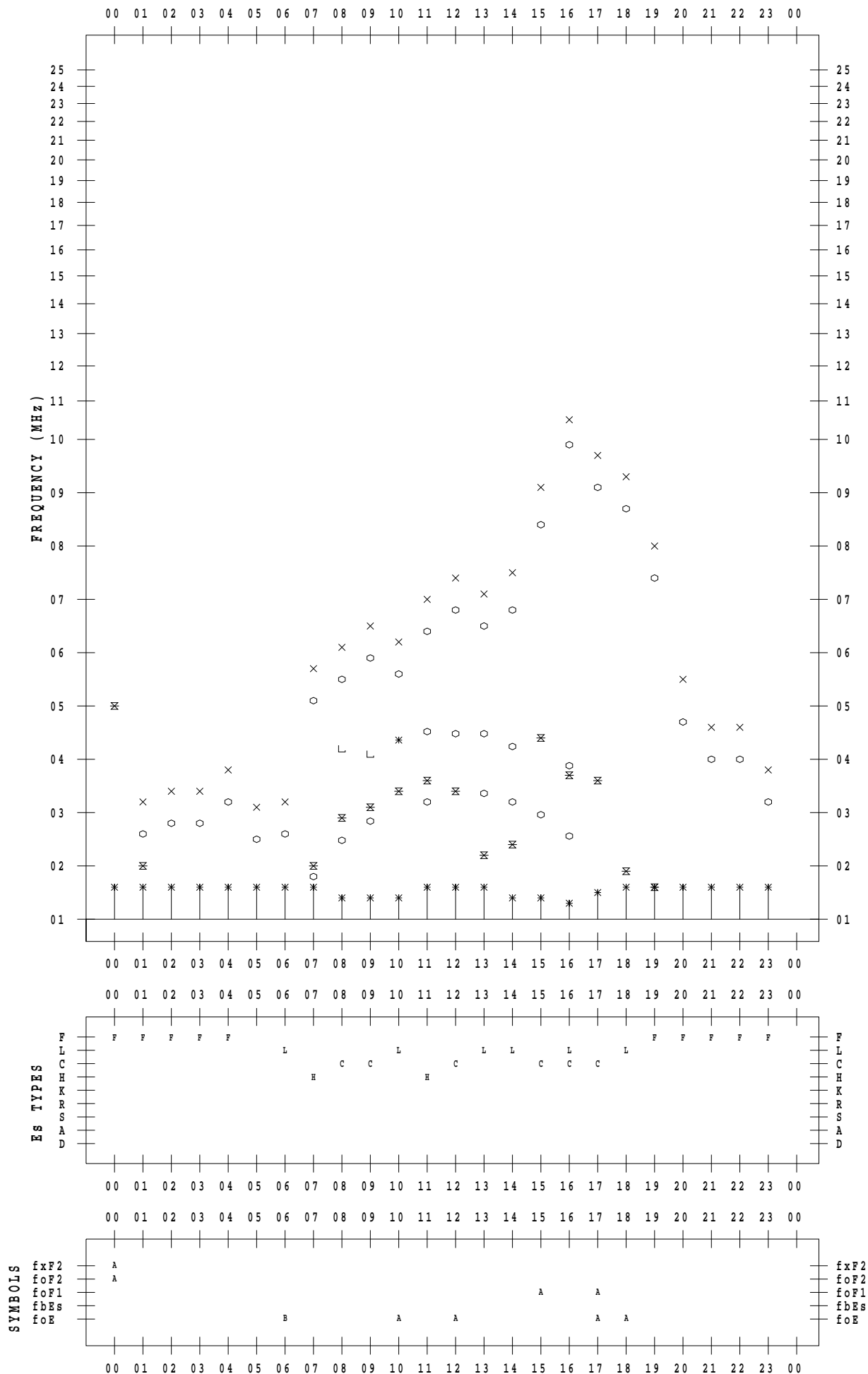
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/14

135 ° E MEAN TIME



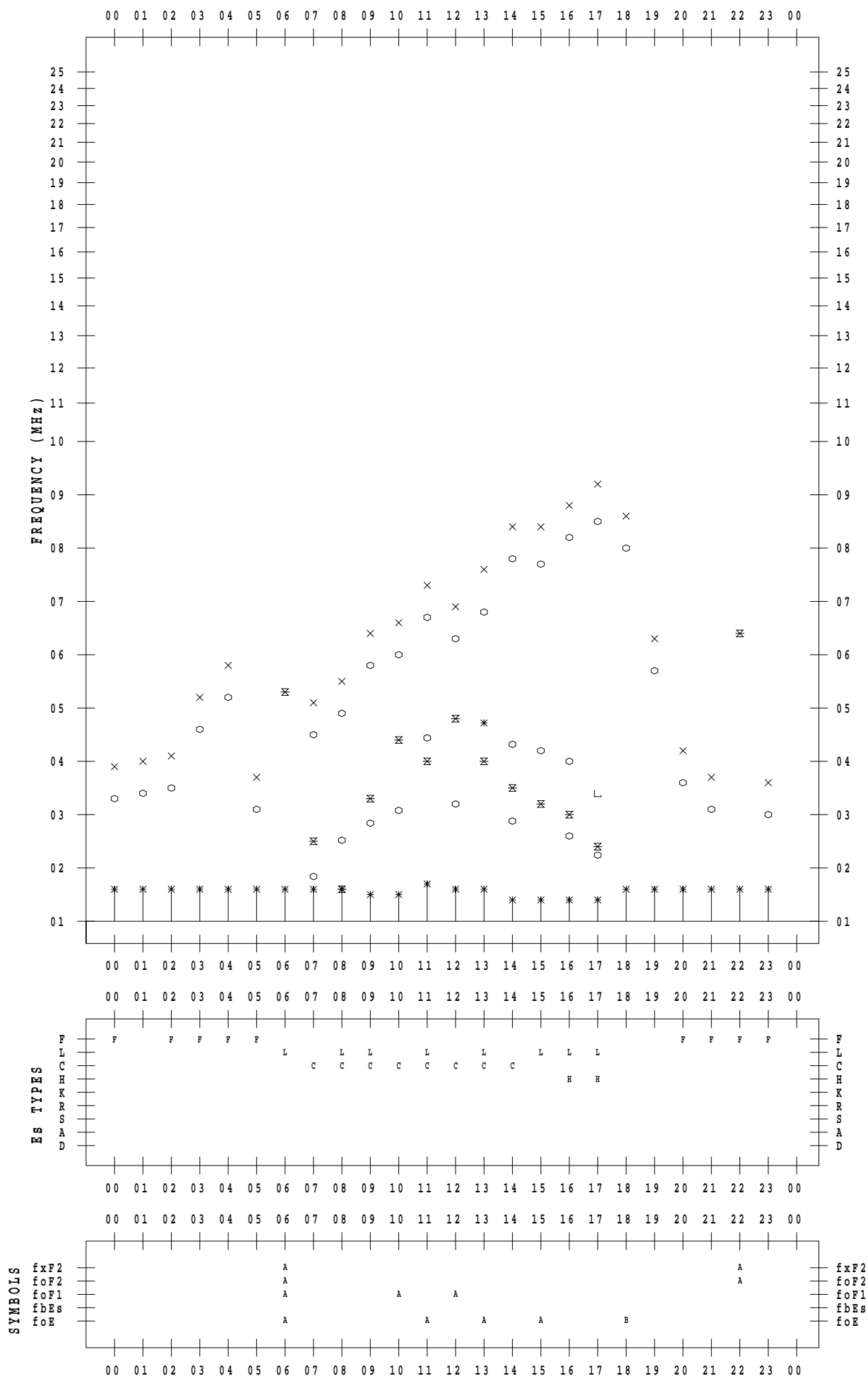
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/15

135 ° E MEAN TIME



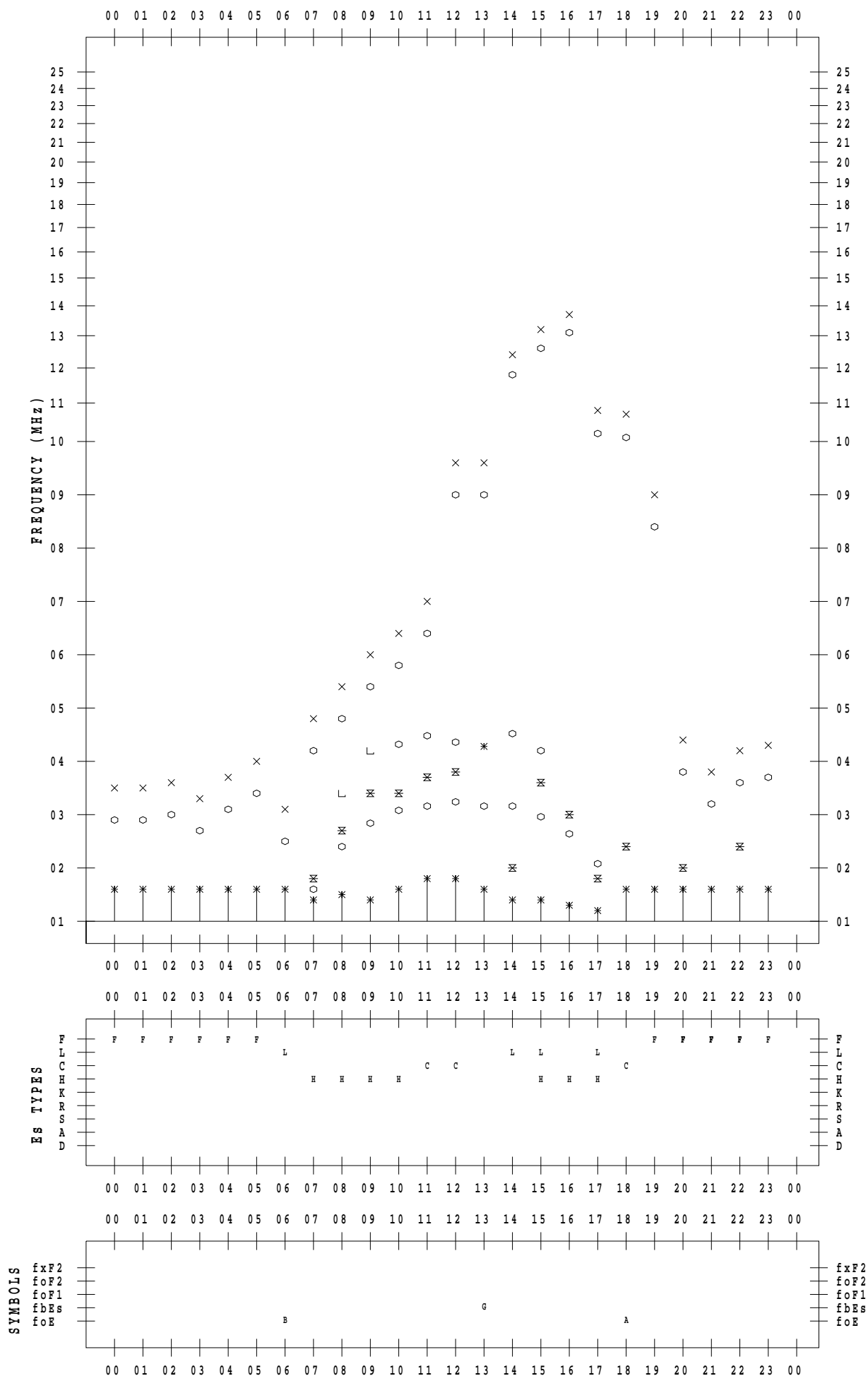
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/16

135 ° E MEAN TIME



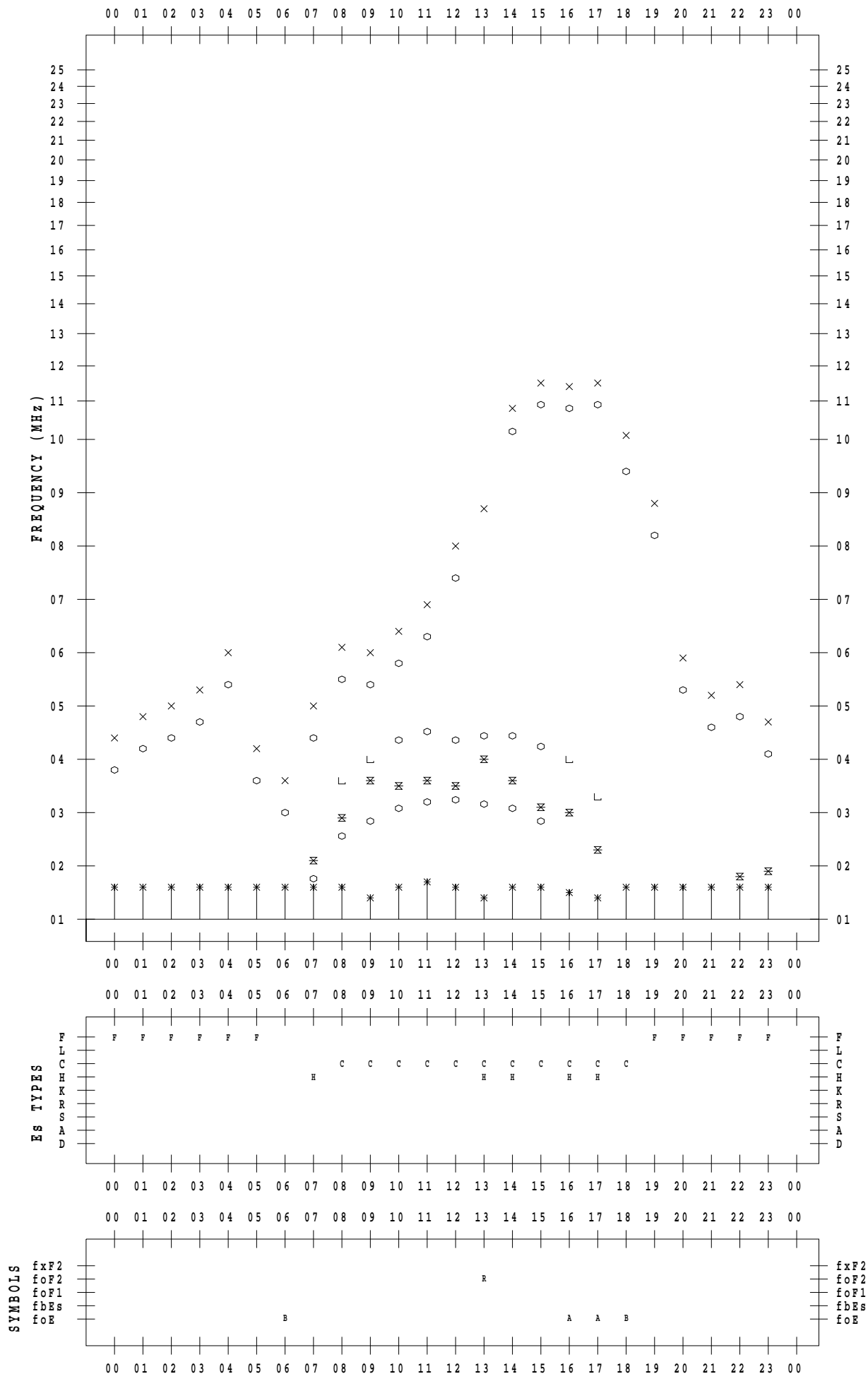
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/17

135 ° E MEAN TIME



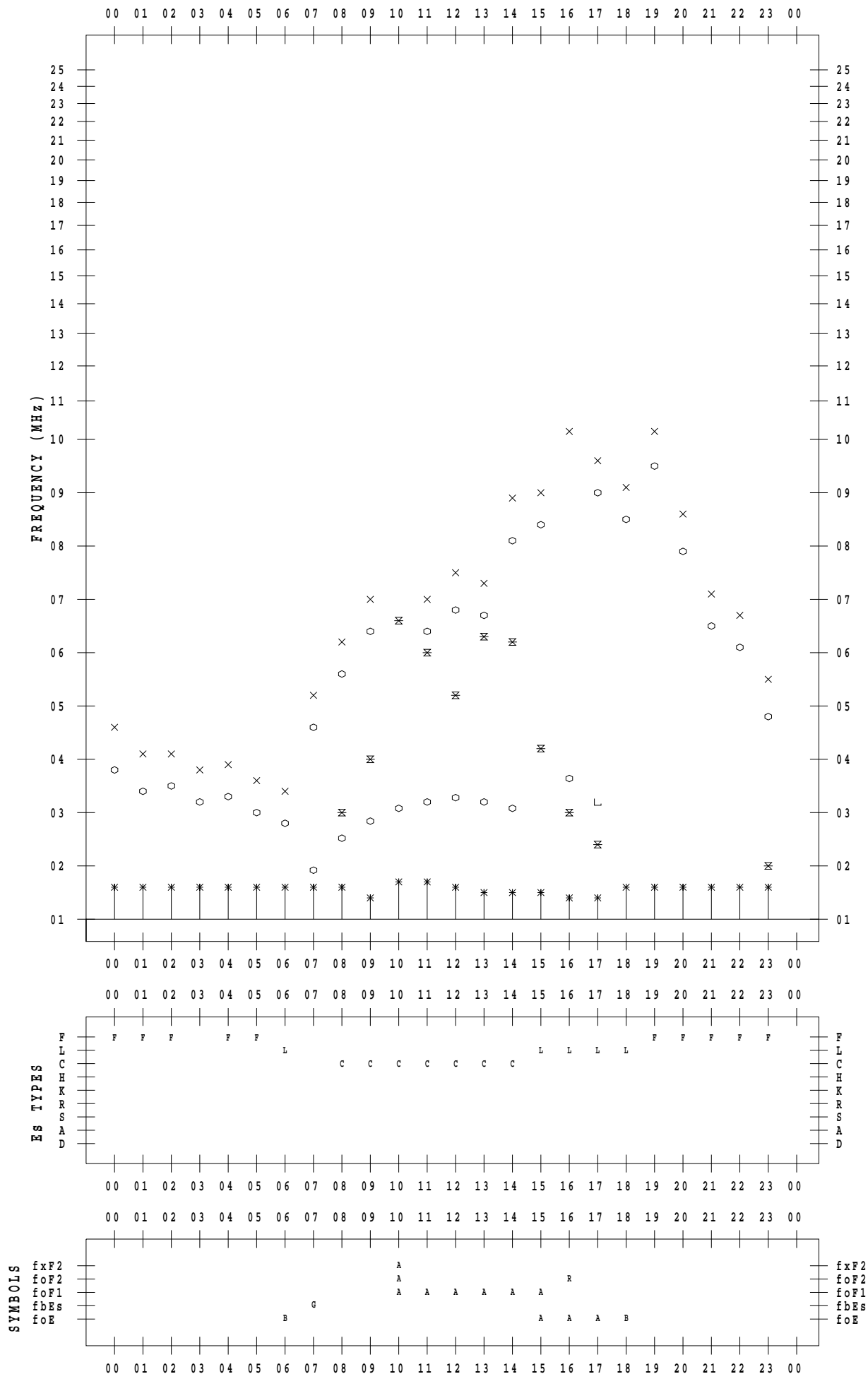
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/18

135 ° E MEAN TIME



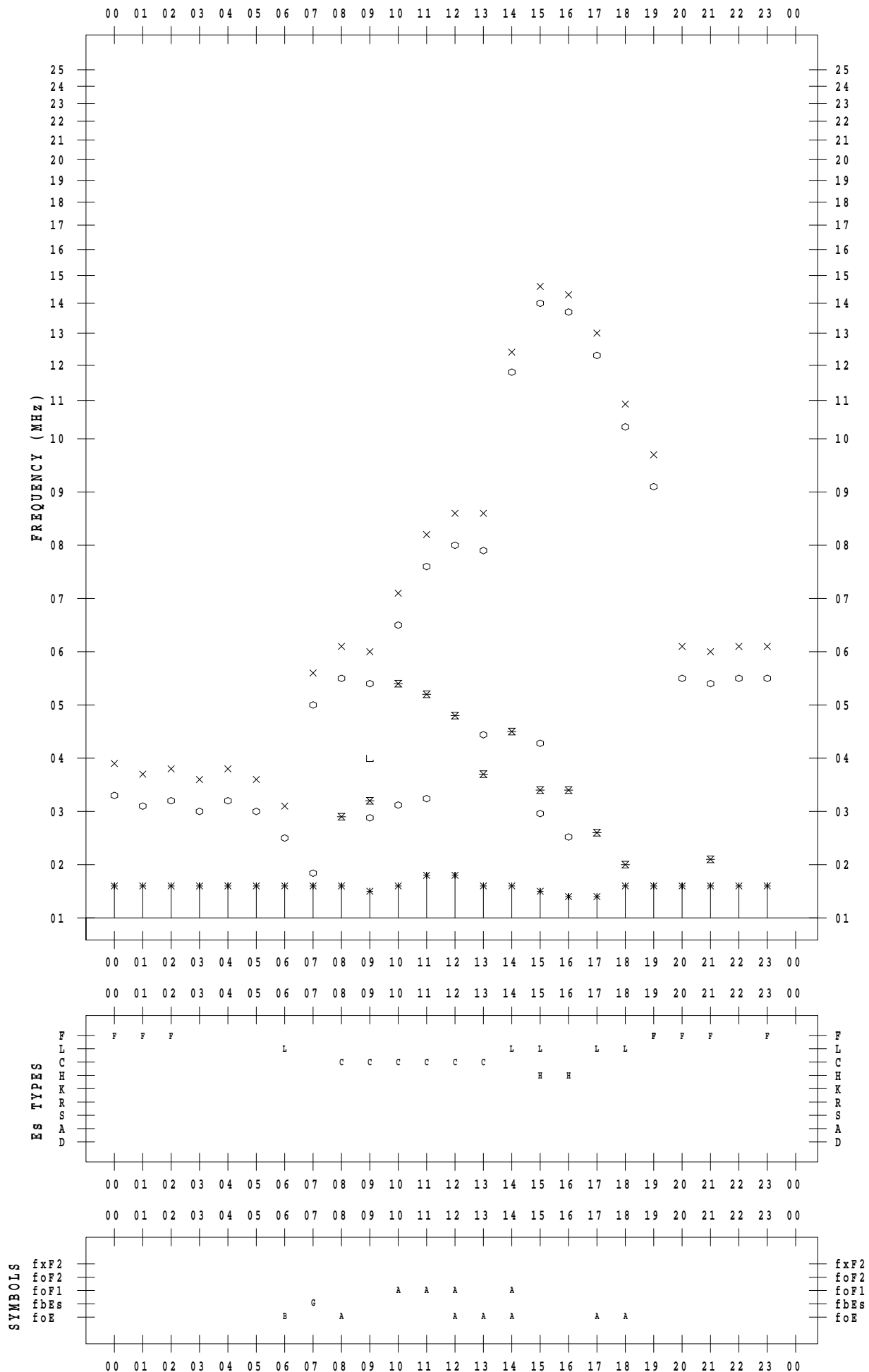
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/19

135 ° E MEAN TIME



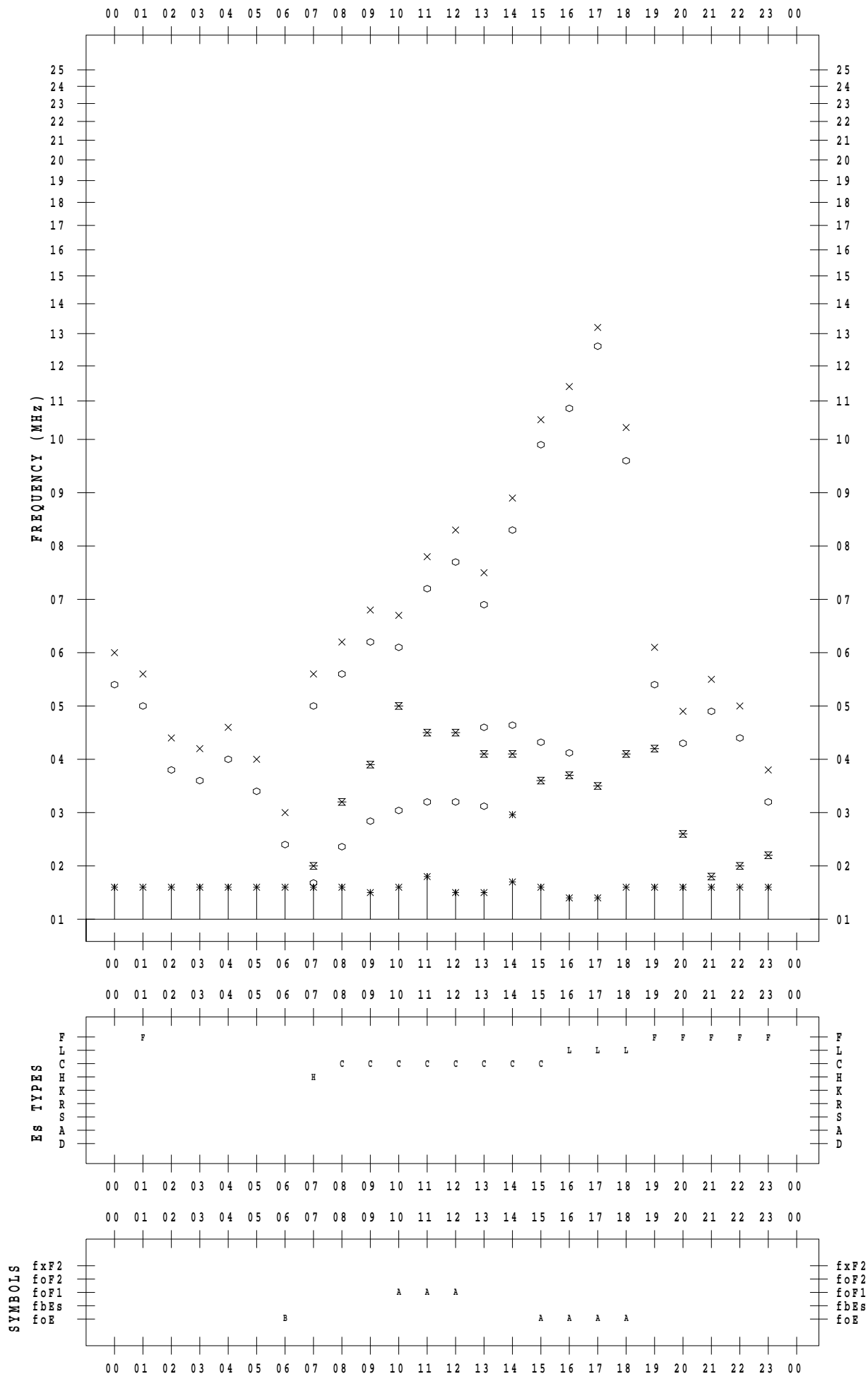
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/20

135 ° E MEAN TIME



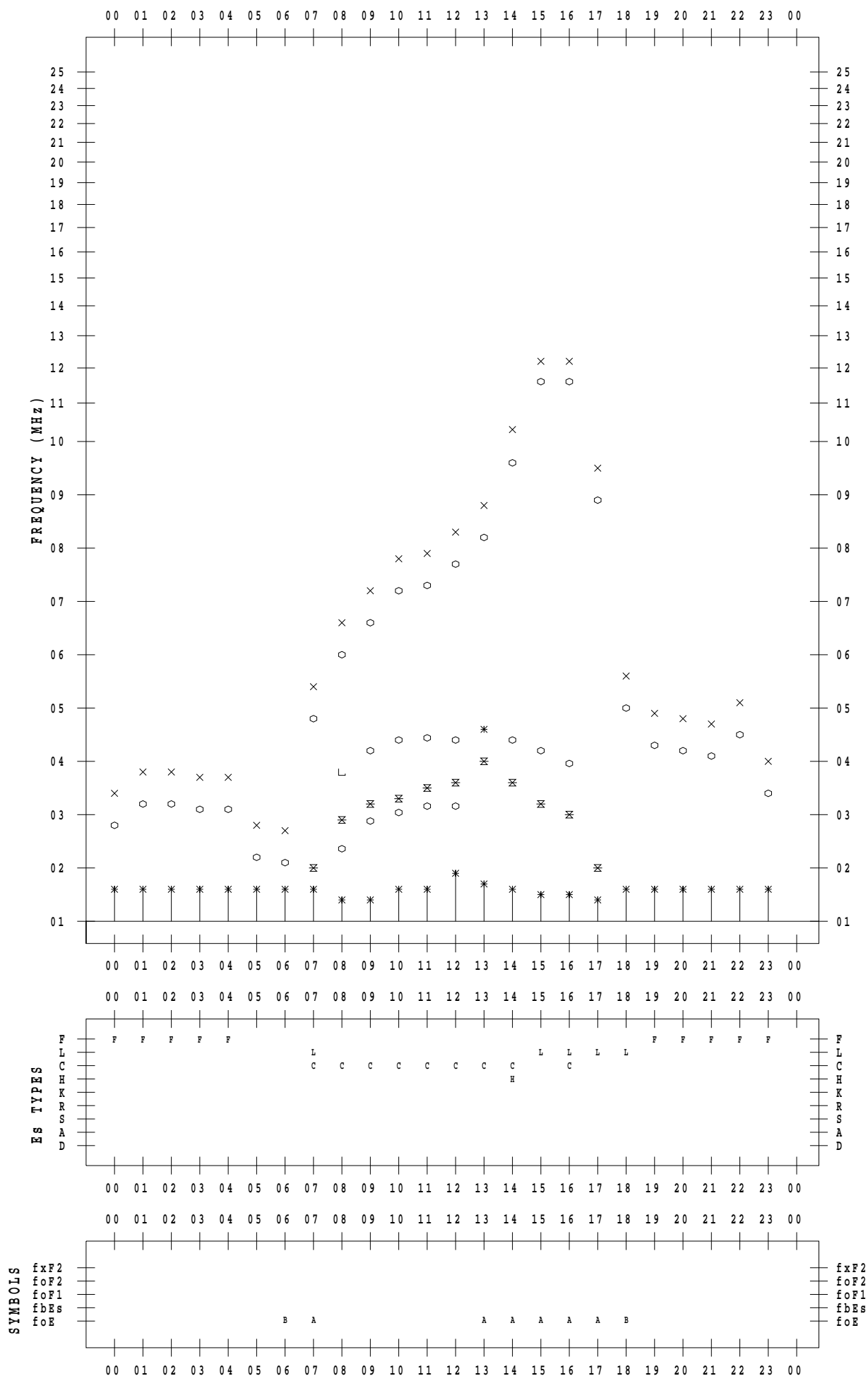
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/21

135 ° E MEAN TIME



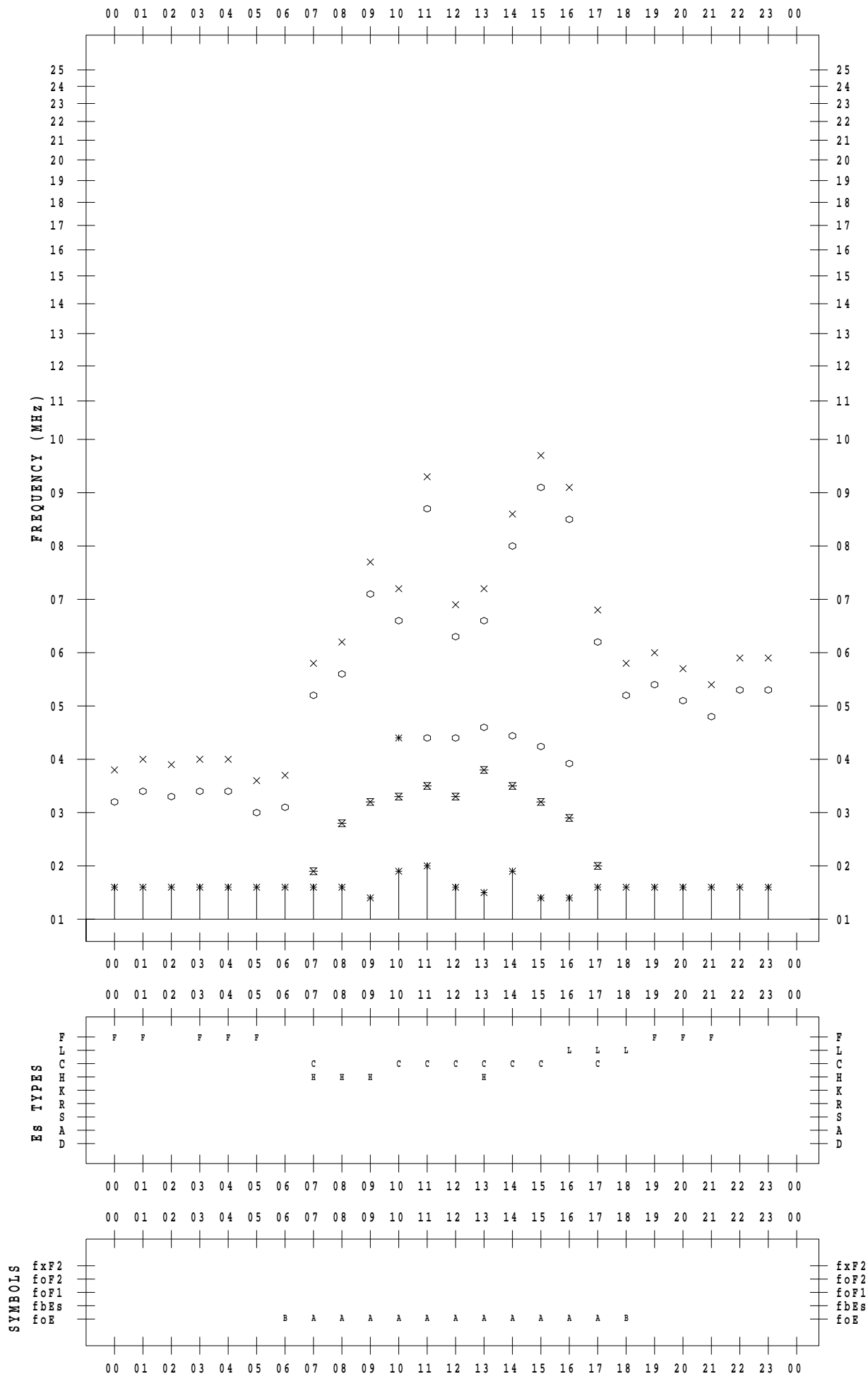
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/22

135 ° E MEAN TIME



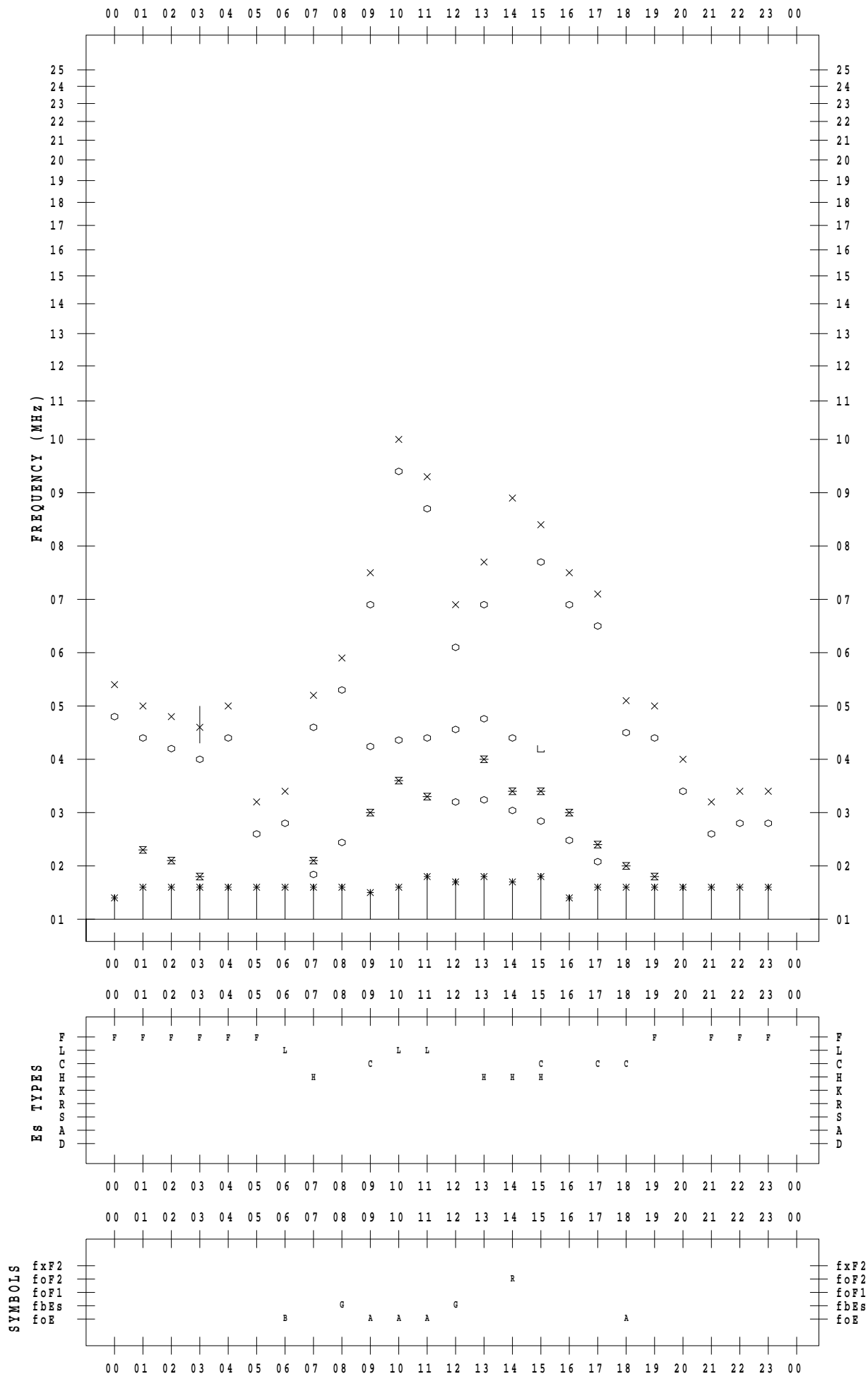
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/23

135 ° E MEAN TIME



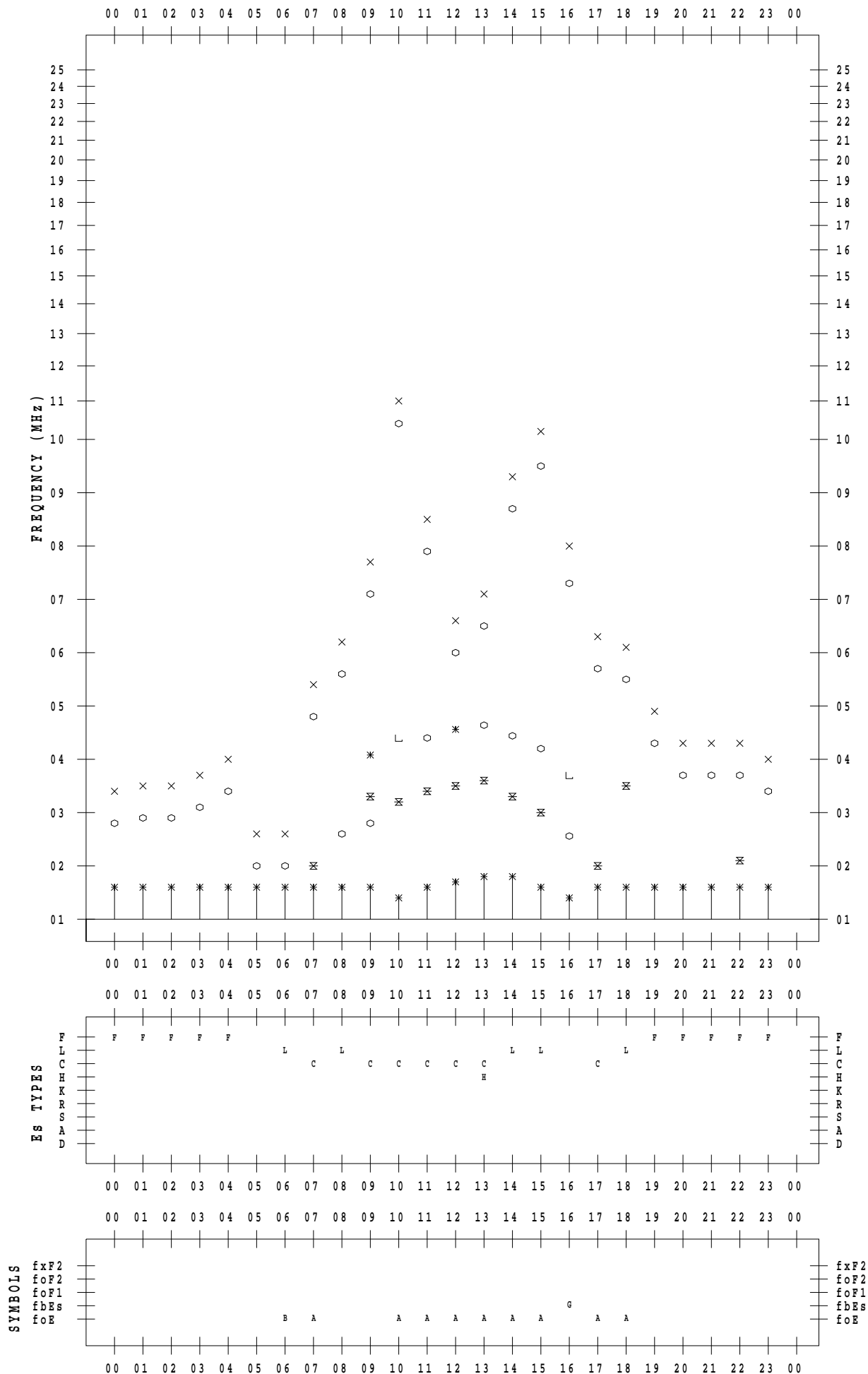
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SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/24

135 ° E MEAN TIME



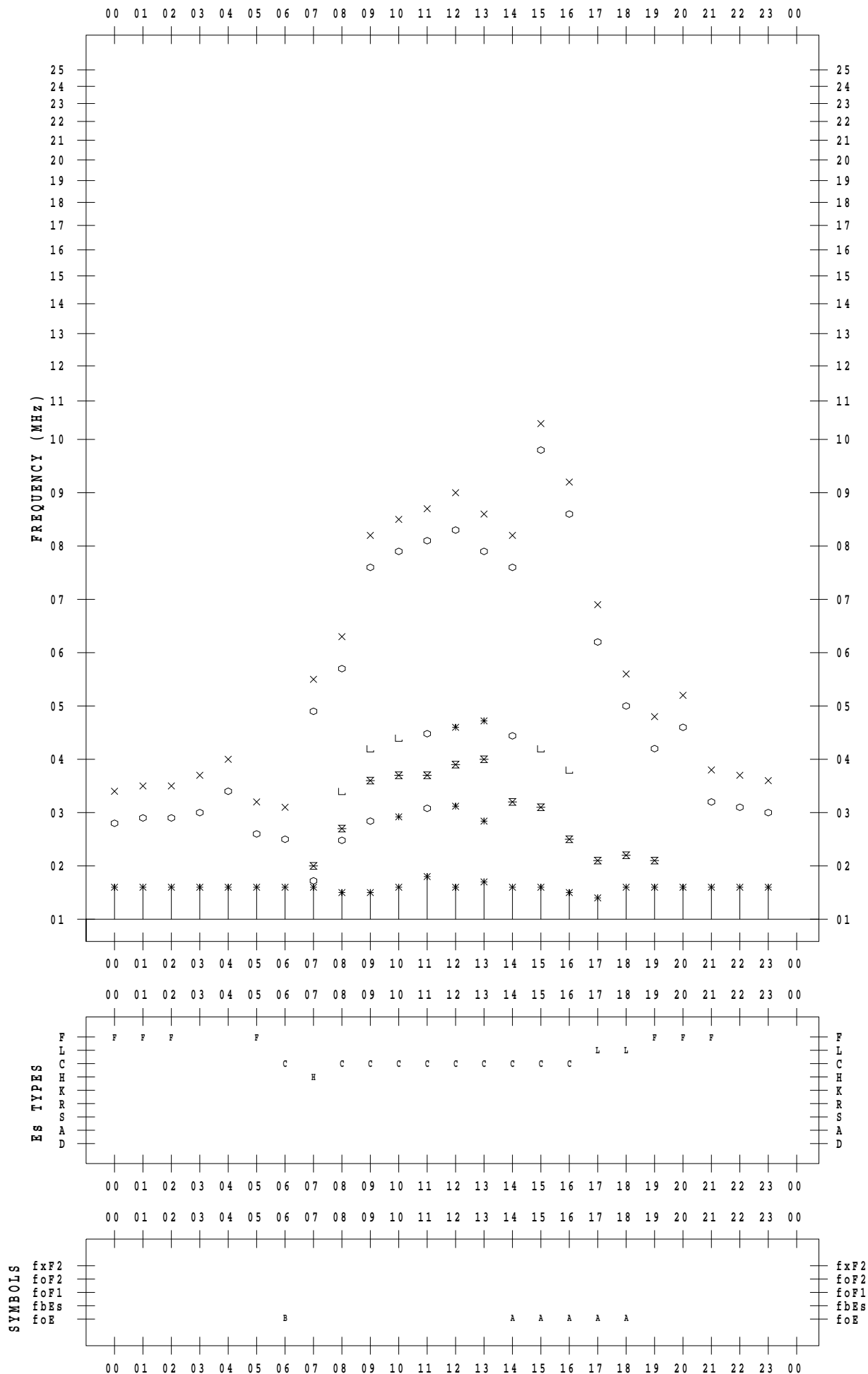
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/25

135 ° E MEAN TIME



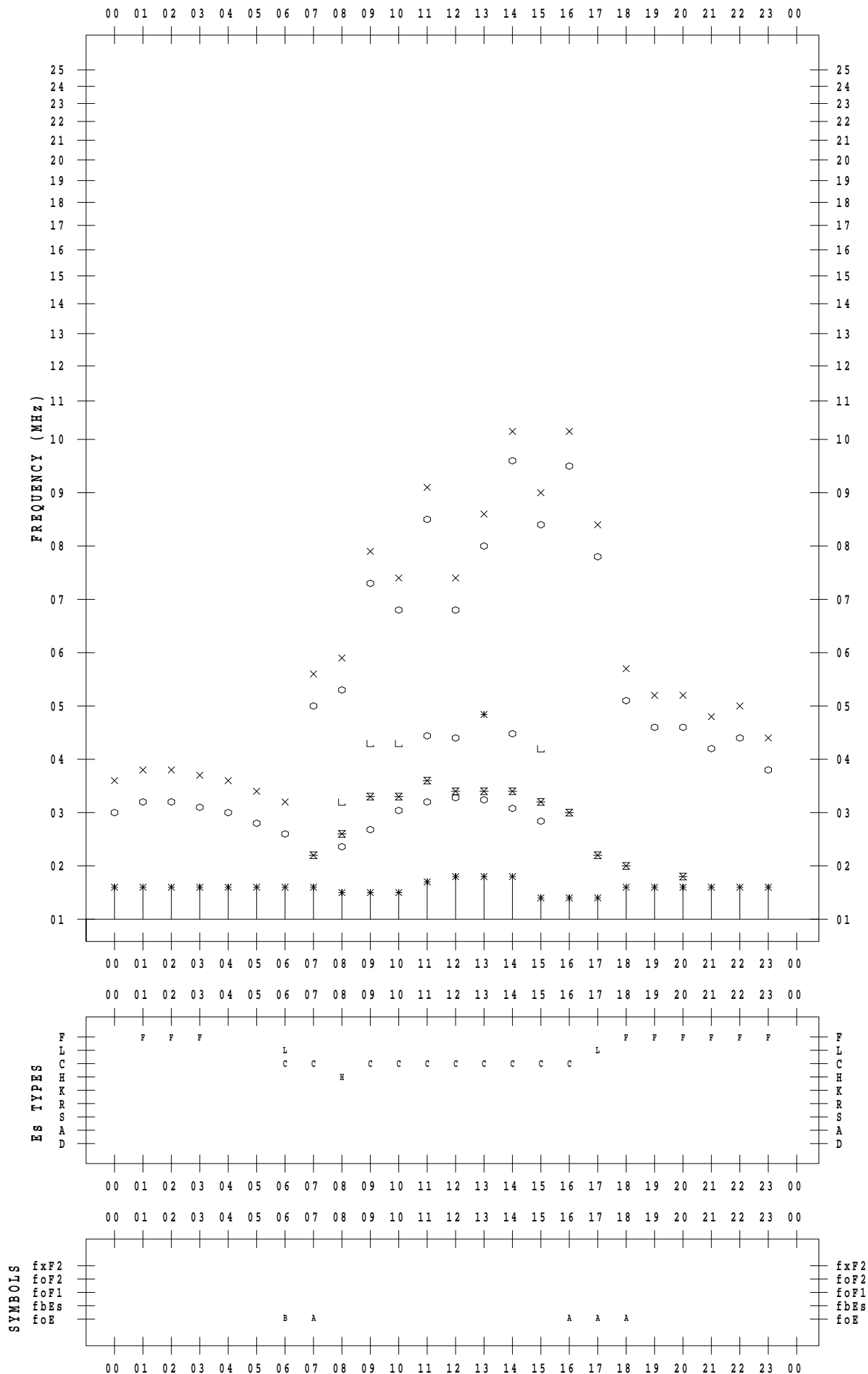
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/26

135 ° E MEAN TIME



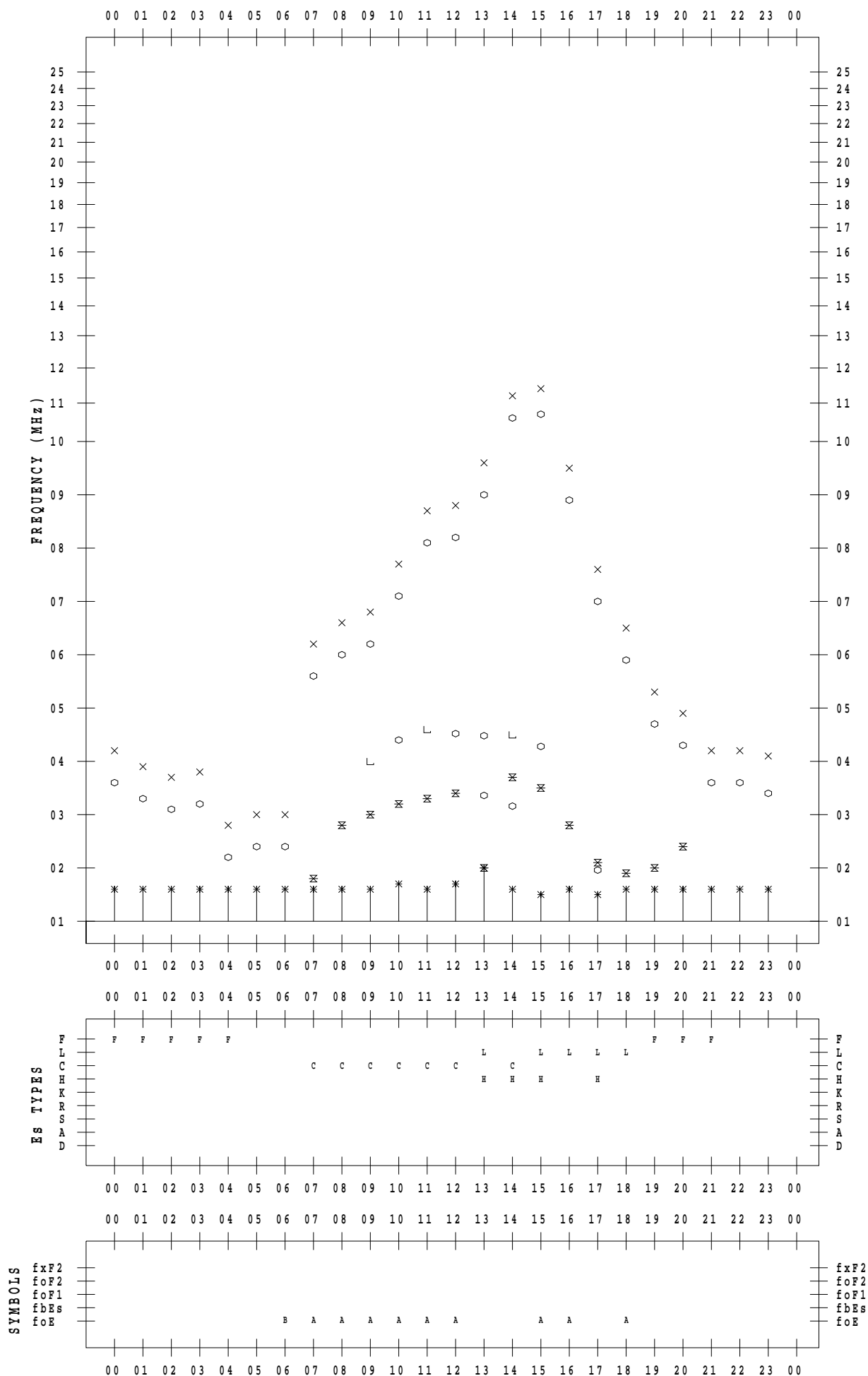
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/27

135 ° E MEAN TIME



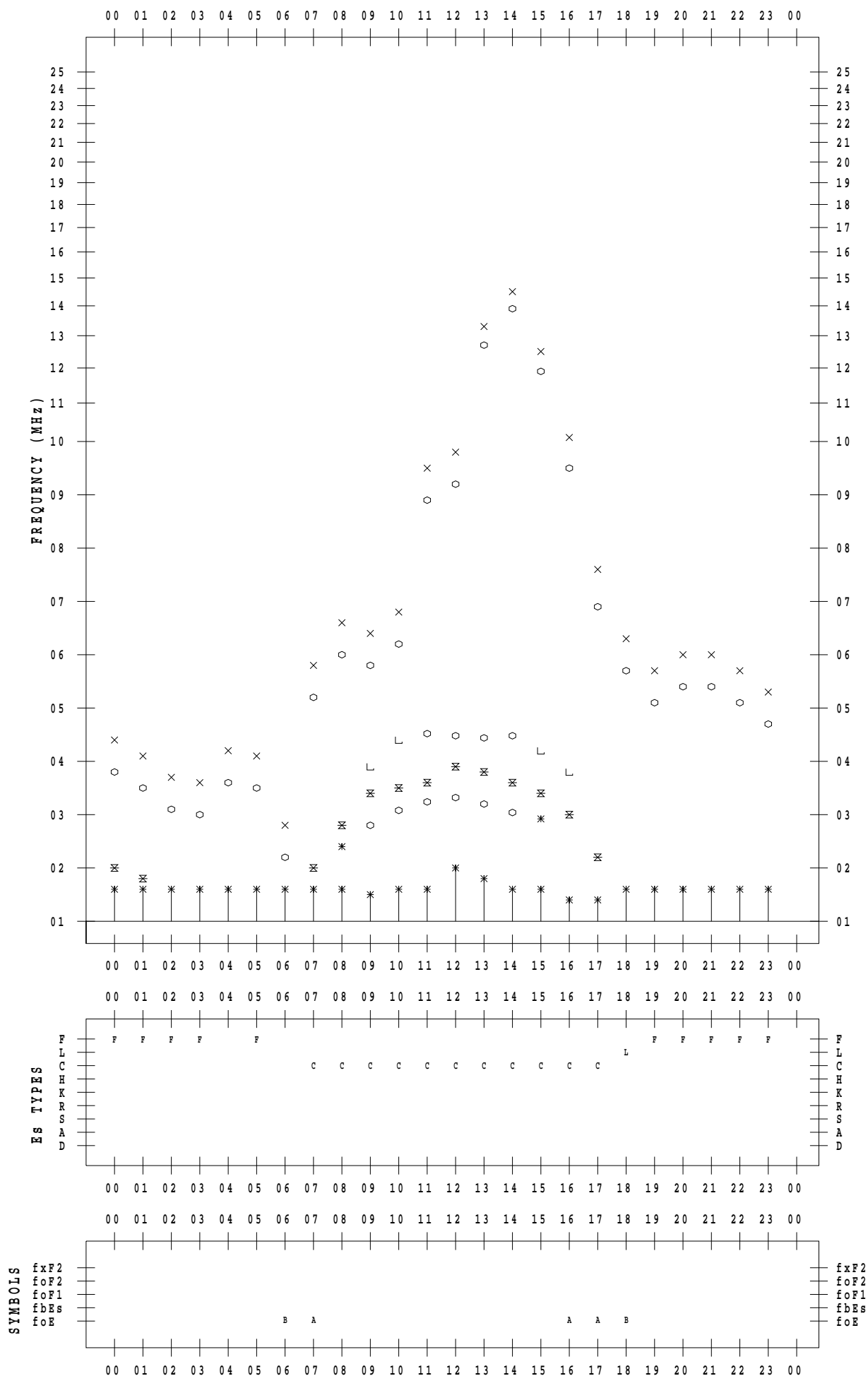
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/28

135 ° E MEAN TIME



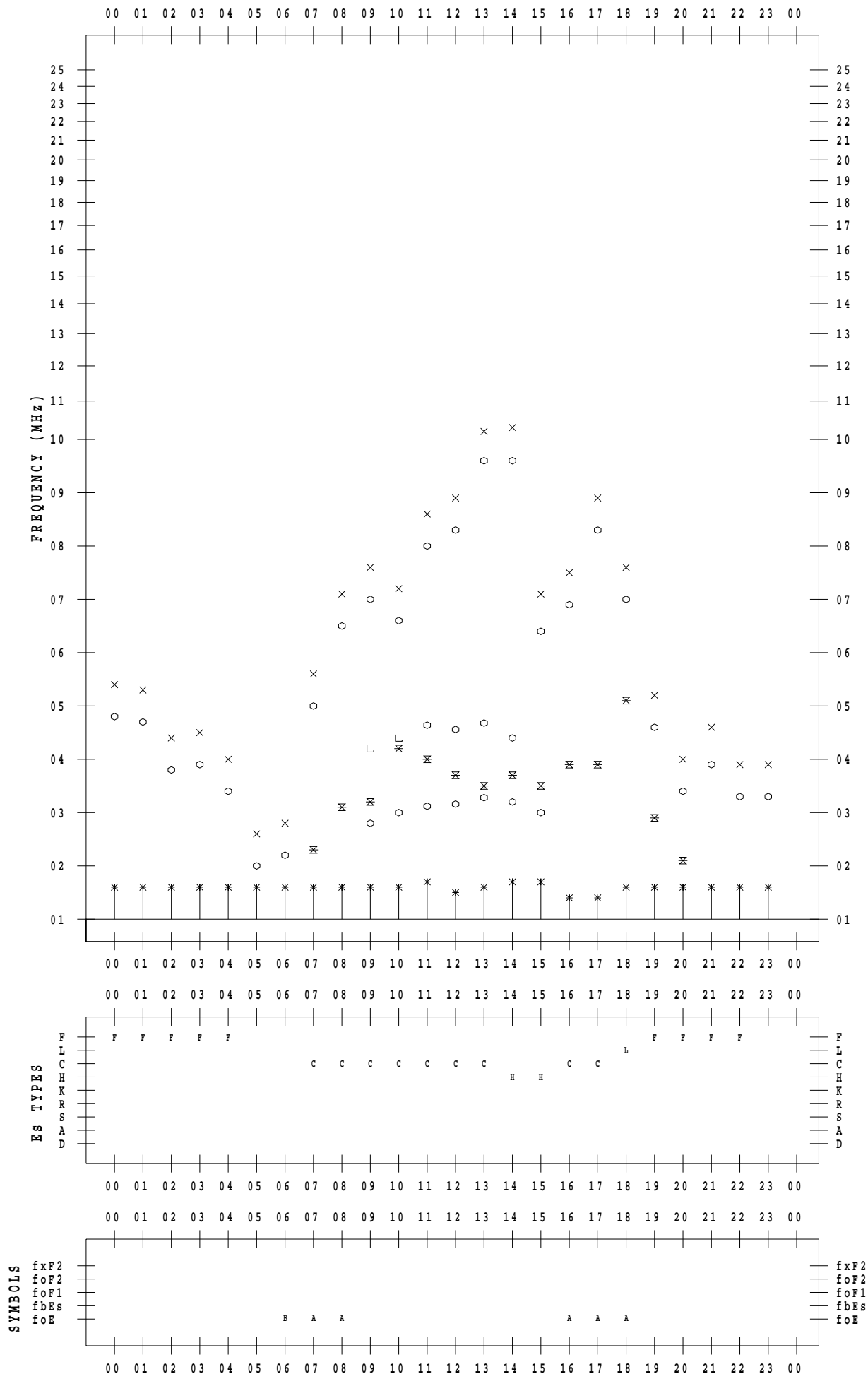
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/29

135 ° E MEAN TIME



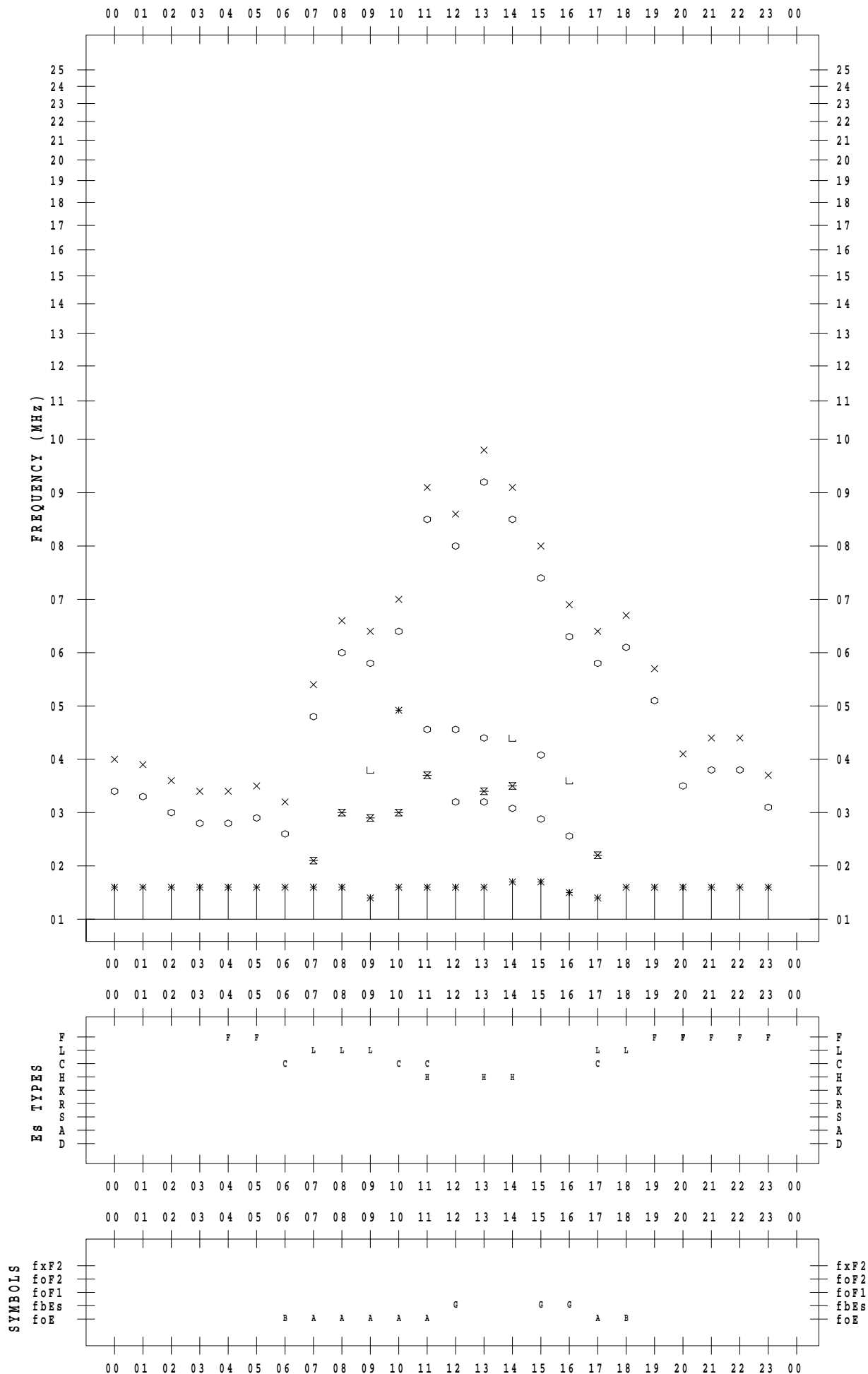
f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/30

135 ° E MEAN TIME



f - PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2020/10/31

135 ° E MEAN TIME

