

10.3 Field Strength of Spurious Radiation

REGULATIONS	:	FCC Part 2 Section 1053 (a), Part 22 Section 359, Part 90 Section 210 RSS-119 Section 5.8
TEST METHOD/GUIDE	:	ANSI/TIA-603-E Section 2.2.12.2 / RSS-119 Section 4.2 ANSI C63.26 Section 5.5

Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 Adjust the spectrum analyzer for the following setting:
 - a) RBW : 100 kHz (< 1 GHz), 1 MHz (> 1 GHz).
 - b) VBW : 300 kHz (< 1 GHz), 3 MHz (> 1 GHz).
 - c) Detector mode : Positive Peak
- 3 The transmitter was placed on a wooden turntable, and it was transmitting into non-radiating load which was also placed on the turntable.
- 4 The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
- 5 The frequency range up to tenth harmonic of the fundamental frequency was investigated.
- 6 Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.
- 7 Spurious emissions in dB = 10 Log (TX power in Watts/0.001) – the absolute level

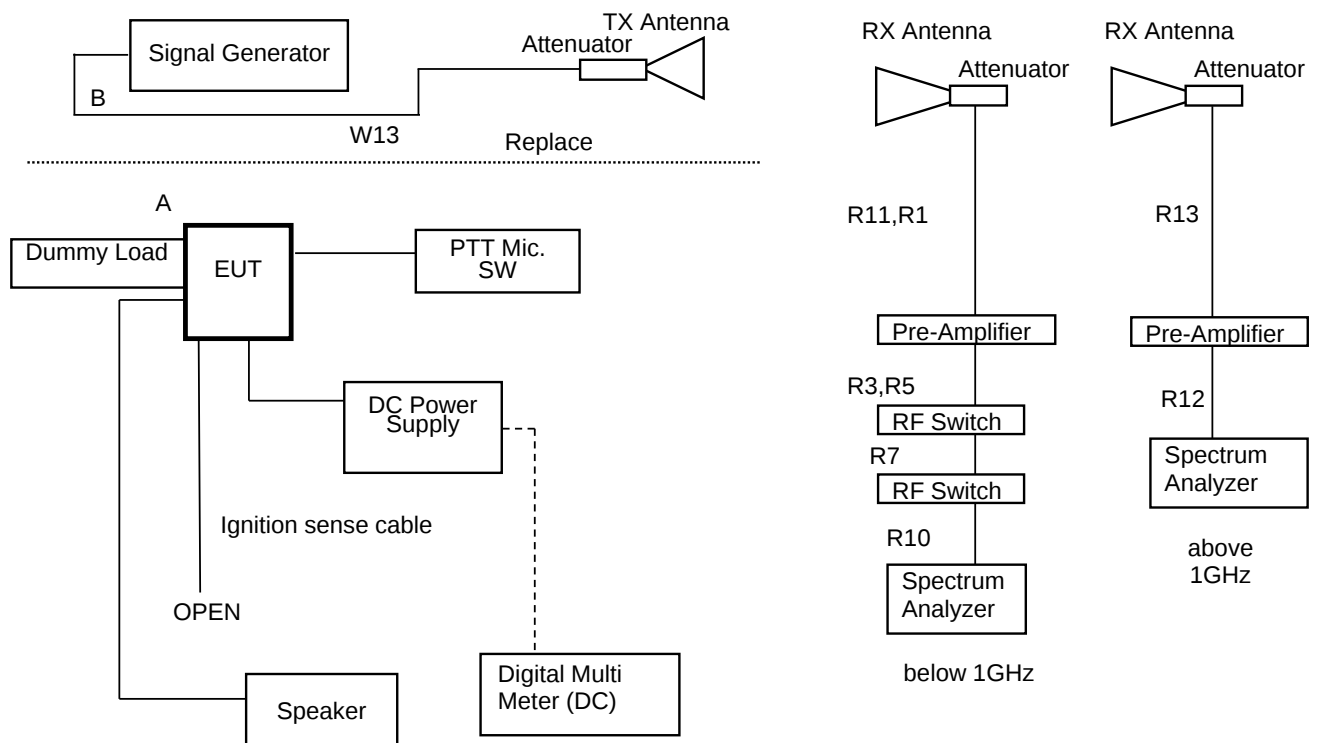
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
1	Attenuator(10dB)	HUBER+SUHNER	6810.17B	5061	1Y	Dec. 22, 23
2	Dummy Load	TME	CT-150NP	1138693	1Y	Dec. 25, 23
3	Signal Generator	Rohde&Schwarz	SMB 100A	105709	1Y	Jun. 05, 23
4	Spectrum Analyzer / Receiver	Agilent	N9038A	MY51210201	1Y	Nov. 07, 23
5	D.R.G Antenna(RX)	Schwarzbeck	3115	5044	1Y	Jun. 28, 23
6	D.R.G Antenna(TX)	Schwarzbeck	3115	5045	1Y	Apr. 04, 23
7	Dipole Antenna(TX)	Schwarzbeck	UHA9105	AM0082002	1Y	May. 17, 23
8	Dipole Antenna(TX)	Schwarzbeck	VHA9103	C01082007	1Y	May. 17, 23
9	Tri-log Antenna(RX)	Schwarzbeck	VULB9168WP	288	1Y	Sep. 13, 23
10	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
11	Digital Multi Meter	FLUKE	8846A	9642018	1Y	Jun. 30, 23
12	Amplifier	TOYO	TPA0118-30	0303	1Y	Sep. 19, 23
13	Attenuator	HUBER + SUHNER	6803.17.B	5111	1Y	Sep. 19, 23
14	Amplifier	Intertek Japan	ZX60-3018G	002	1Y	Feb. 17, 24
15	Attenuator	TAMAGAWA	CFA-01	A00040805	1Y	Feb. 17, 24
16	RF Switch	Intertek Japan	ACX-150-1	A12301501	1Y	Feb. 17, 24

Measuring Cables

No.	Cable	Manufacturer	Model No.	Serial No.	Cal. Interval	Effective period
R11	Coaxial Cable	FUJIKURA	5D-2W	R11	1Y	Feb. 17, 24
R1	Coaxial Cable	FUJIKURA	5D-2W	R1	1Y	Feb. 17, 24
R3	Coaxial Cable	FUJIKURA	10D-2W	R3	1Y	Feb. 17, 24
R5	Coaxial Cable	FUJIKURA	RG-5A/U	R5	1Y	Feb. 17, 24
R7	Coaxial Cable	MIYAZAKI	5D-2W	R7	1Y	Feb. 17, 24
R10	Coaxial Cable	FUJIKURA	5D-2W	R10	1Y	Feb. 17, 24
R13	Coaxial Cable	SUHNER	SUCOFLEX 104	229603	1Y	Sep. 19, 23
R12	Coaxial Cable	Candox	5B-048-98-98-5000	111130	1Y	Sep. 19, 23
W13	Coaxial Cable	Suhner	SUCOFLEX106	KSR00207	1Y	Jan. 18, 24

Measuring Equipment Configuration



Test Results

Test date	Mar 22, 2023	to	Mar 23, 2023
Location	Kashima No.12 Test Site		
temperature	20.2 to 21.1	[degree C]	
Humidity Variation	48 to 50	[%]	
Atmospheric Pressure	100.5 to 101.6	[kPa]	
Test Engineer	Koichi Wagatsuma		

Test was carried out for all the frequency band of section 10.1
State the worst case (below).

State : High Power / Authorized Bandwidth 11.25 kHz / 469.95MHz(FCC /RSS)

No	Frequency (MHz)	Pol	Reading Level (dBm)	SG Out Level (dBm)	Antenna Gain (dBd)	Loss (dB)	Correct Level (dBm)	Emission Level (dBc)	MASK D Limit Level (dBc)	Margin (dB)
1	939.90	Hor.	-67.85	-32.88	-1.40	12.48	-46.8	-92.8	-66.0	26.8
		Ver.	-62.26	-25.48	-1.40	12.48	-39.4	-85.4	-66.0	19.4
2	1409.85	Hor.	-45.34	-29.36	5.57	13.02	-36.8	-82.8	-66.0	16.8
		Ver.	-42.67	-27.59	5.57	13.02	-35.0	-81.1	-66.0	15.1
3	1879.80	Hor.	-47.82	-29.11	6.46	13.53	-36.2	-82.2	-66.0	16.2
		Ver.	-48.17	-29.21	6.46	13.53	-36.3	-82.3	-66.0	16.3
4	2349.75	Hor.	-63.66	-44.91	7.41	13.97	-51.5	-97.5	-66.0	31.5
		Ver.	-61.60	-43.06	7.41	13.97	-49.6	-95.6	-66.0	29.6
5	2819.70	Hor.	-63.10	-43.17	7.66	14.38	-49.9	-95.9	-66.0	29.9
		Ver.	-61.65	-42.03	7.66	14.38	-48.8	-94.8	-66.0	28.8
6	3289.65	Hor.	-64.09	-41.18	7.71	14.76	-48.2	-94.3	-66.0	28.3
		Ver.	-61.55	-38.74	7.71	14.76	-45.8	-91.8	-66.0	25.8
7	3759.60	Hor.	-	-	7.75	15.12	-	-	-66.0	-
		Ver.	-	-	7.75	15.12	-	-	-66.0	-
8	4229.55	Hor.	-62.17	-36.41	8.24	15.45	-43.6	-89.6	-66.0	23.6
		Ver.	-62.34	-36.92	8.24	15.45	-44.1	-90.2	-66.0	24.2
9	4699.50	Hor.	-65.00	-37.09	8.82	15.75	-44.0	-90.0	-66.0	24.0
		Ver.	-64.95	-37.49	8.82	15.75	-44.4	-90.4	-66.0	24.4

There is the margin of 20dB over except for the above points.

Mask D Limit (dBc) = whichever is the lesser attenuation ; $-(50+10\log(P))$ or -70
Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBd) - Loss (Cable, Attenuator) (dB)
Emission Level (dBc) = Correct Level (dBm) - $10\log(P*1000)$
P = Carrier Level (W)
" - " = Measurement Limit

State : Low Power / Authorized Bandwidth 6 kHz / 469.95MHz(FCC /RSS)

No	Frequency (MHz)	Pol	Reading Level (dBm)	SG Out Level (dBm)	Antenna Gain (dBd)	Loss (dB)	Correct Level (dBm)	Emission Level (dBc)	MASK E Level (dBc)	Margin (dB)
1	939.90	Hor.	-76.41	-41.44	-1.40	12.48	-55.3	-85.3	-55.0	30.3
		Ver.	-71.64	-34.86	-1.40	12.48	-48.7	-78.7	-55.0	23.7
2	1409.85	Hor.	-59.36	-43.38	5.57	13.02	-50.8	-80.8	-55.0	25.8
		Ver.	-58.01	-42.93	5.57	13.02	-50.4	-80.4	-55.0	25.4
3	1879.80	Hor.	-63.29	-44.58	6.46	13.53	-51.6	-81.6	-55.0	26.6
		Ver.	-63.39	-44.43	6.46	13.53	-51.5	-81.5	-55.0	26.5
4	2349.75	Hor.	-	-	7.41	13.97	-	-	-55.0	-
		Ver.	-	-	7.41	13.97	-	-	-55.0	-
5	2819.70	Hor.	-	-	7.66	14.38	-	-	-55.0	-
		Ver.	-	-	7.66	14.38	-	-	-55.0	-
6	3289.65	Hor.	-	-	7.71	14.76	-	-	-55.0	-
		Ver.	-	-	7.71	14.76	-	-	-55.0	-
7	3759.60	Hor.	-	-	7.75	15.12	-	-	-55.0	-
		Ver.	-	-	7.75	15.12	-	-	-55.0	-
8	4229.55	Hor.	-	-	8.24	15.45	-	-	-55.0	-
		Ver.	-	-	8.24	15.45	-	-	-55.0	-
9	4699.50	Hor.	-	-	8.82	15.75	-	-	-55.0	-
		Ver.	-	-	8.82	15.75	-	-	-55.0	-
There is the margin of 20dB over except for the above points.										

Mask E Limit (dBc) = whichever is the lesser attenuation ; $-(55+10\log(P))$ or -65

Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBd) - Loss (Cable, Attenuator) (dB)

Emission Level (dBc) = Correct Level (dBm) - $10\log(P*1000)$

P = Carrier Level (W)

" - " = Measurement Limit

10.4 Emission Masks (Occupied Bandwidth)

REGULATIONS	: FCC Part 2 Section 1049 (c) (1), Part 22 Section 359, Part 74 Section 462, Part 90 Section 210 RSS-119 Section 5.8
TEST METHOD/GUIDE	: ANSI/TIA-603-E Section 2.2.11.2 / RSS-119 Section 5.8

Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 For EUT supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for +/- 2.5 kHz deviation (or 50 % modulation). (FM modulation).
- 3 With level constant, the signal level was increased 16 dB.
- 4 For EUT supporting digital modulation, the digital modulation mode was operated to its maximum extent.
- 5 Adjust the spectrum analyzer for the following setting:
 - a) RBW : 100Hz (Non modulation and Authorized Band 6 kHz),
100Hz (Non modulation and Authorized Band 11.25 kHz),
300Hz (Non modulation and Authorized Band 20 kHz).
 - b) VBW : 10times the RBW (Non modulation , Authorized Band 6kHz, 11.25 kHz and 20 kHz).
 - c) RBW and VBW : 30 kHz (Non modulation(Digital Modulation)).
- 6 The occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.

The selection of Emission Mask

No.	Frequency (MHz)	Audio Filter	Channel Bandwidth (kHz)	Authorized Bandwidth (kHz)	Selection of Emission Mask	
					FCC	RSS
Emission Designation : 16K0F3E						
1	406.15 (FCC/RSS)	With	25	20	B	B
2	429.95 (FCC/RSS)	With	25	20	B	B
3	469.95 (FCC/RSS)	With	25	20	B	B
Emission Designation : 11K0F3E						
1	406.15 (FCC/RSS)	With	12.5	11.25	D	D
2	429.95 (FCC/RSS)	With	12.5	11.25	D	D
3	469.95 (FCC/RSS)	With	12.5	11.25	D	D
Emission Designation : 7K60FXD/FXE/F7E/F7D/F7W/FXW						
1	406.15 (FCC/RSS)	Without	12.5	11.25	D	D
2	429.95 (FCC/RSS)	Without	12.5	11.25	D	D
3	469.95 (FCC/RSS)	Without	12.5	11.25	D	D
Emission Designation : 8K30F1E/F1D/F7W						
1	406.15 (FCC/RSS)	Without	12.5	11.25	D	D
2	429.95 (FCC/RSS)	Without	12.5	11.25	D	D
3	469.95 (FCC/RSS)	Without	12.5	11.25	D	D
Emission Designation : 4K00F1E / F1D / F7W						
1	406.15 (FCC/RSS)	Without	6.25	6	E	E
2	429.95 (FCC/RSS)	Without	6.25	6	E	E
3	469.95 (FCC/RSS)	Without	6.25	6	E	E
Emission Designation : 4K00F2D						
1	406.15 (FCC/RSS)	Without	6.25	6	E	E
2	429.95 (FCC/RSS)	Without	6.25	6	E	E
3	469.95 (FCC/RSS)	Without	6.25	6	E	E

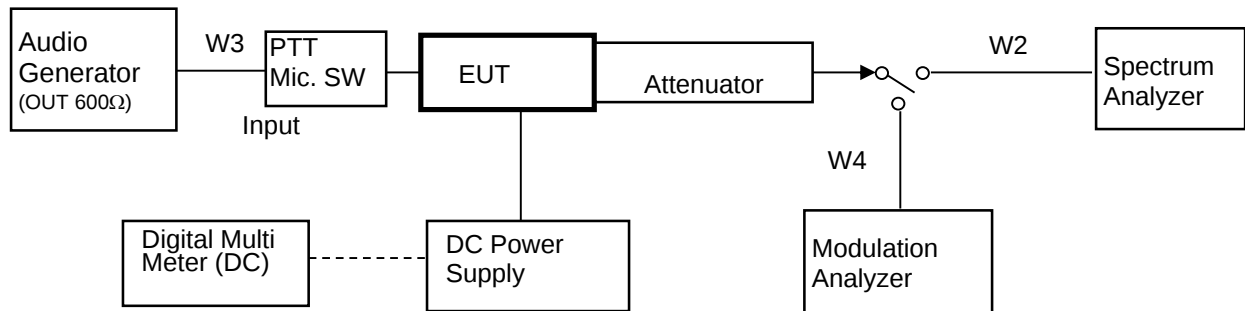
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	1Y	Sep. 25, 23
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	1Y	Sep. 25, 23
3	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	1Y	Jan. 02, 24
4	Audio Generator	Anritsu	MG443B	M70150	1Y	Jun. 12, 23
5	Spectrum Analyzer	Agilent	N9030A	US51350170	1Y	Jul. 10, 23
6	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
7	Digital Multi Meter	FLUKE	8846A	9642018	1Y	Jun. 30, 23
8	JIG	HP	ProBook 430 G3	PJPNYOKL0147	None	None

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
W3	Balance Cable	Nicoon	3D-2V	KSR00092	1Y	Sep. 21, 23
W4	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	1Y	Feb. 13, 24
W2	Coaxial Cable	Suhner	SUCOFLEX104	F0000018	1Y	Mar. 24, 23

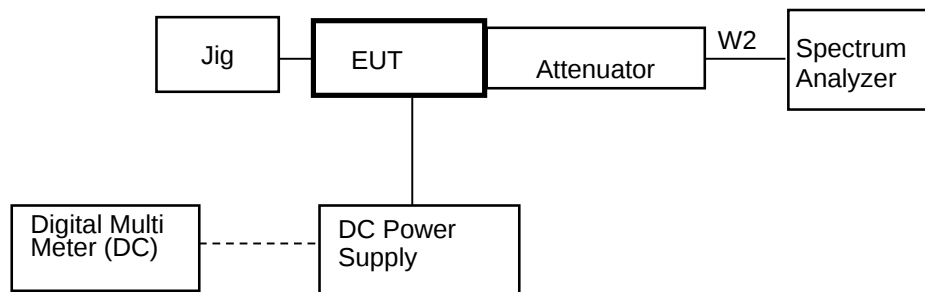
Measuring Equipment Configuration



FM Modulation test is with the the Audio Generator.

Configuration of other Modulation test is composed without the Audio Generator.

<DMR, NXDN and CW ID Modulation Case>

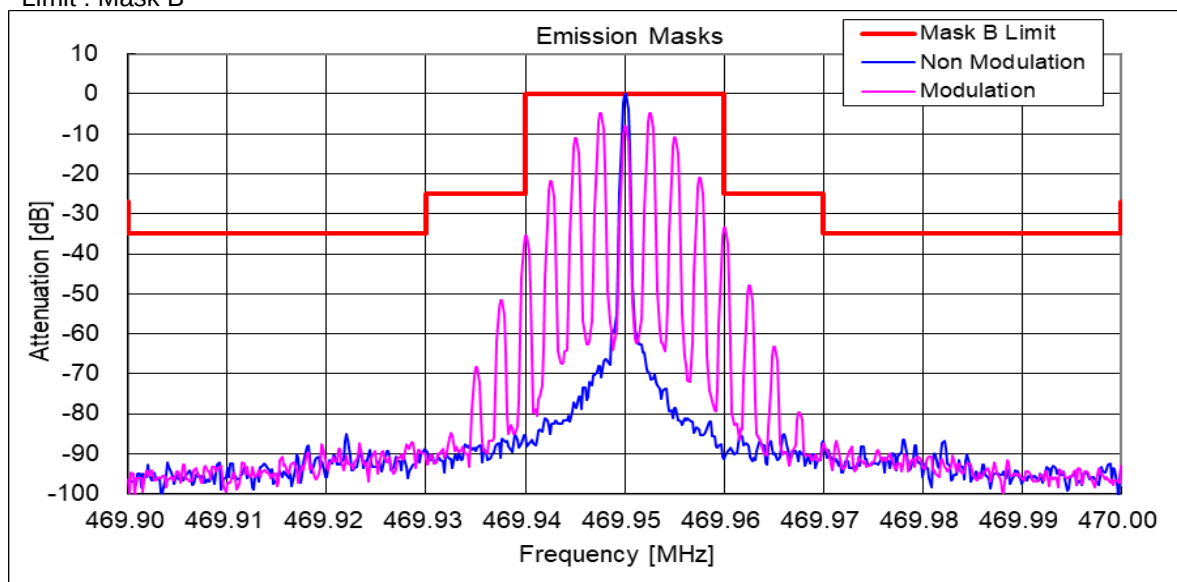


Test Results

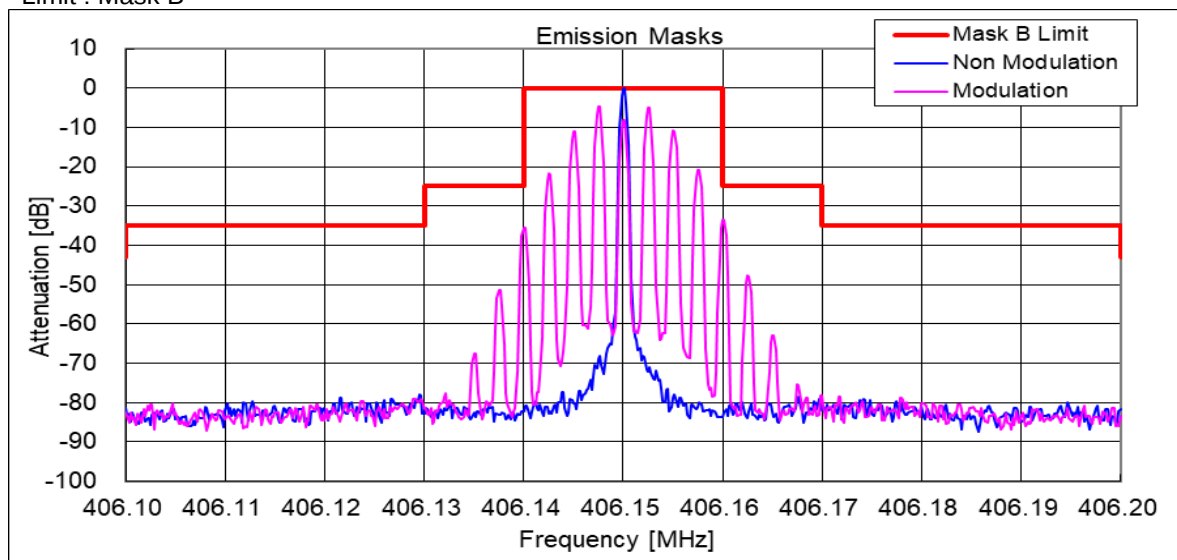
Test date	Mar. 16, 2023	to	Mar. 17, 2023
Location	Kashima No.12 Test Site		
temperature	24.6	to	25.7 [degree C]
Humidity Variation	40	to	45 [%]
Atmospheric Pressure	101.5	to	101.7 [kPa]
Test Engineer	Koichi Wagatsuma		

Test was carried out for all the frequency band of section 10.1
State the worst case (below).

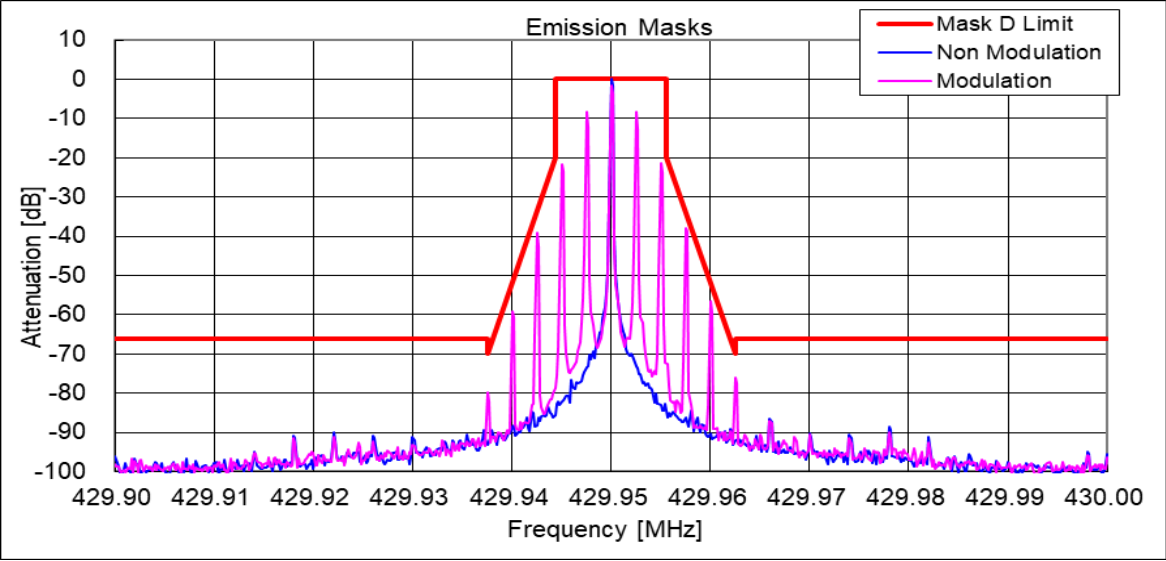
State : High Power / Authorized Bandwidth 20 kHz/ 16K0F3E / 469.95 MHz(FCC/RSS)
Limit : Mask B



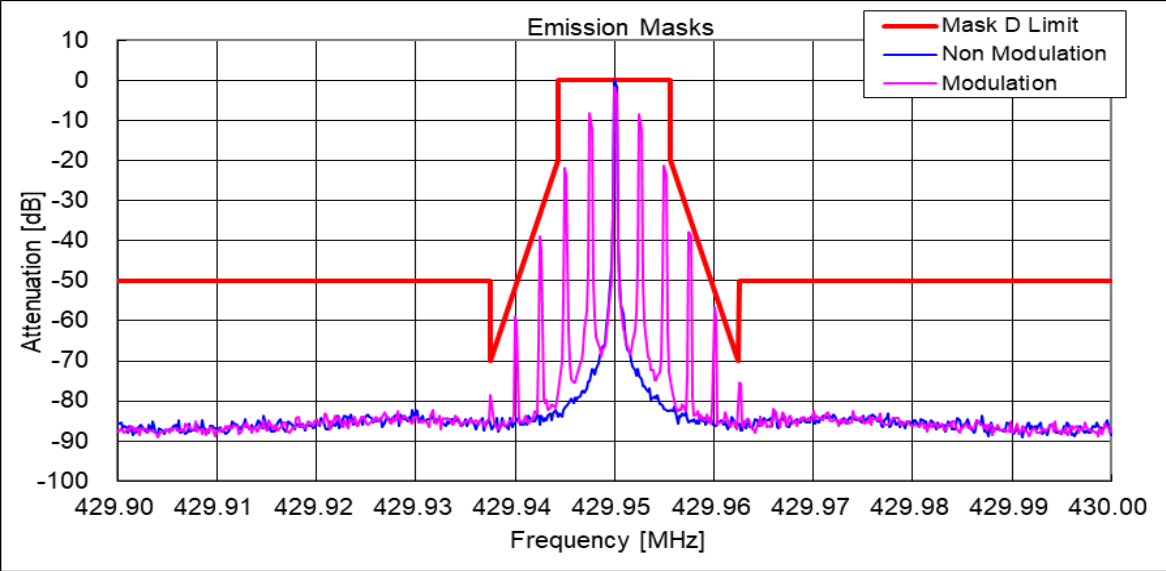
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Limit : Mask B



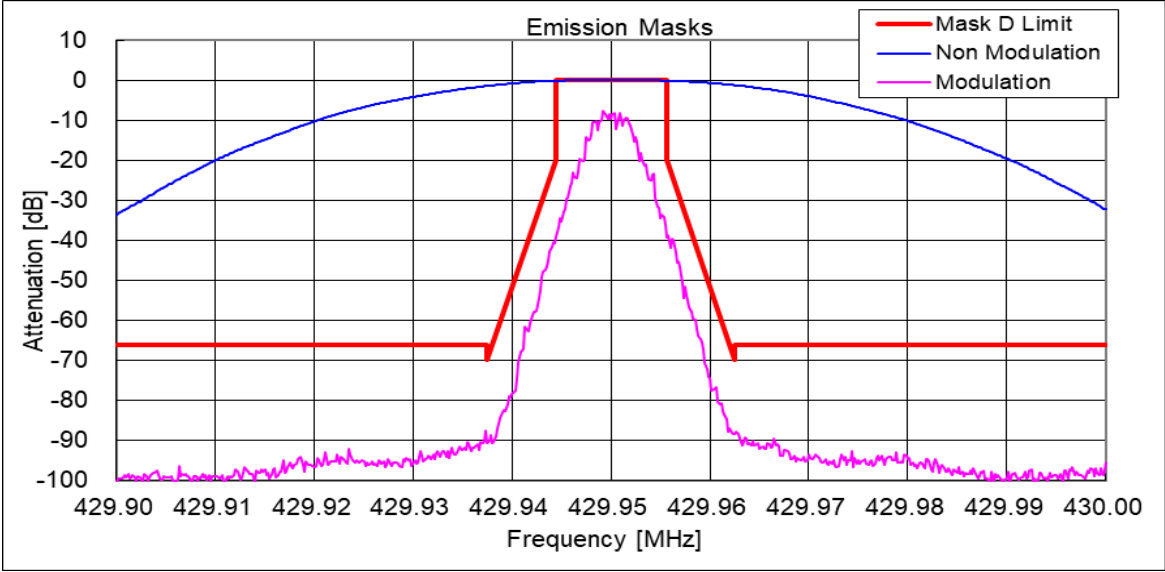
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Limit : Mask D



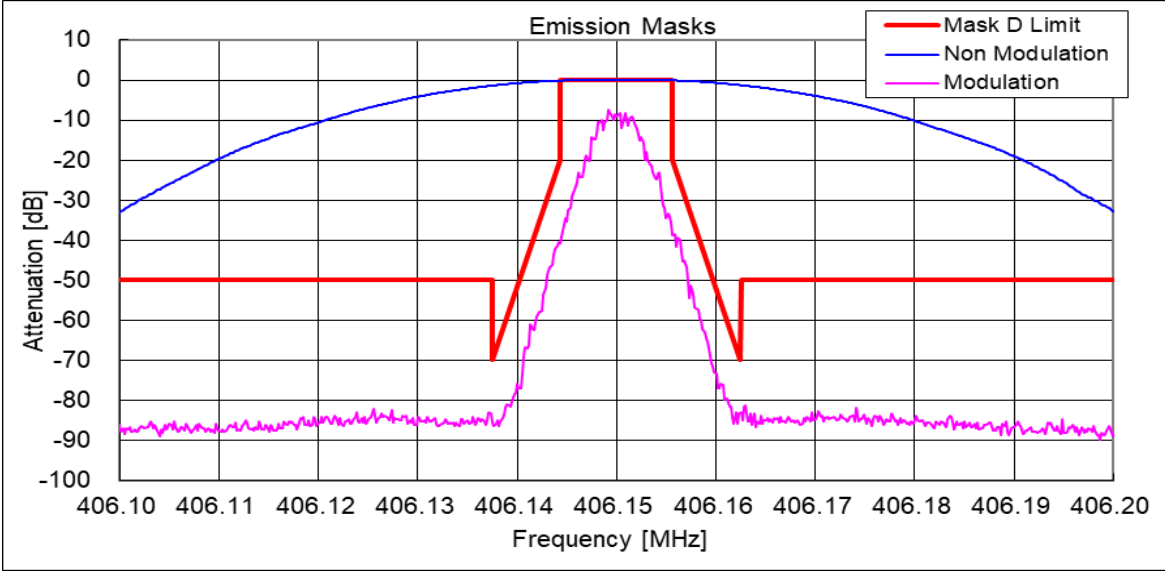
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Limit : Mask D



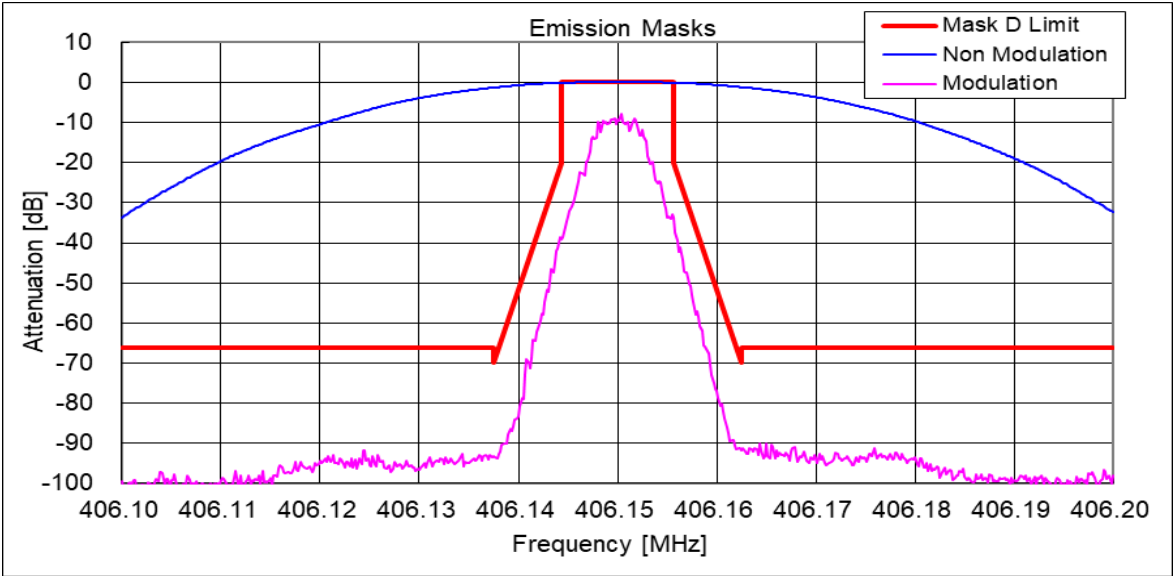
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Limit : Mask D



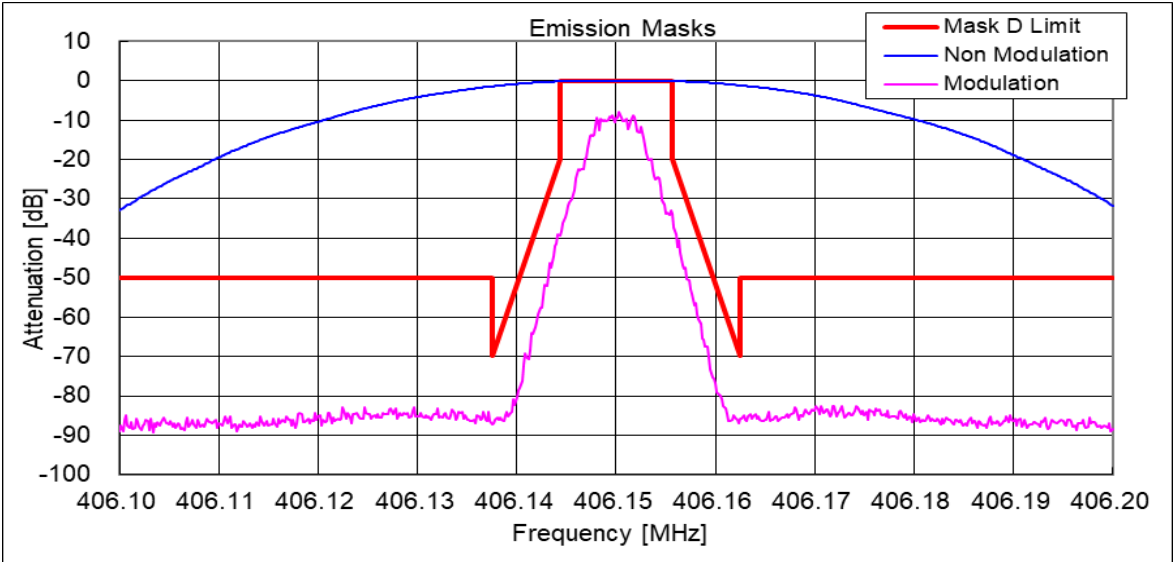
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Limit : Mask D



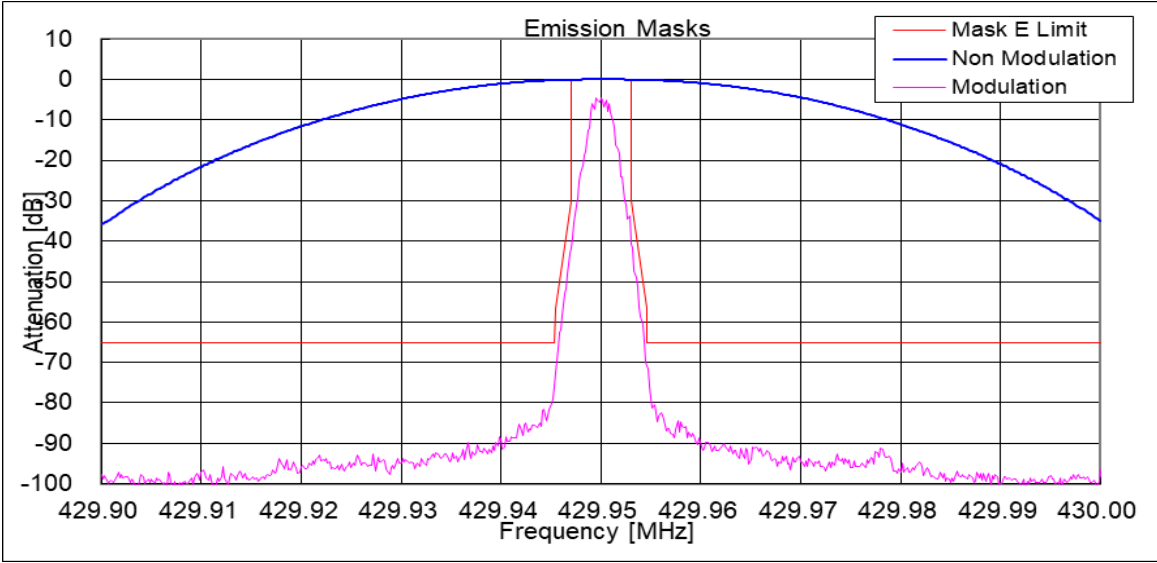
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Limit : Mask D



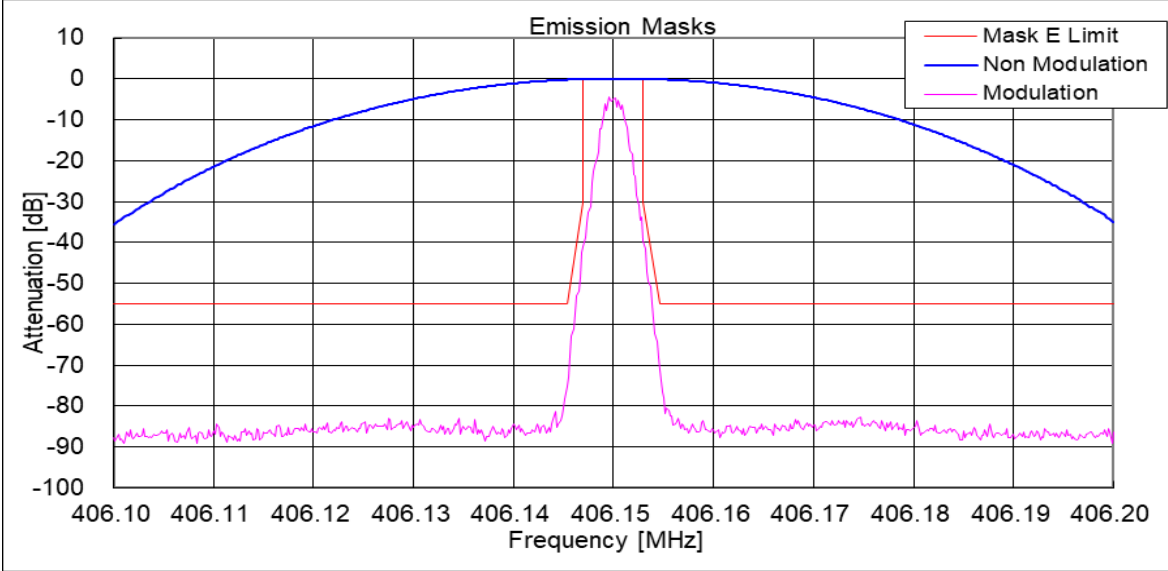
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Limit : Mask D



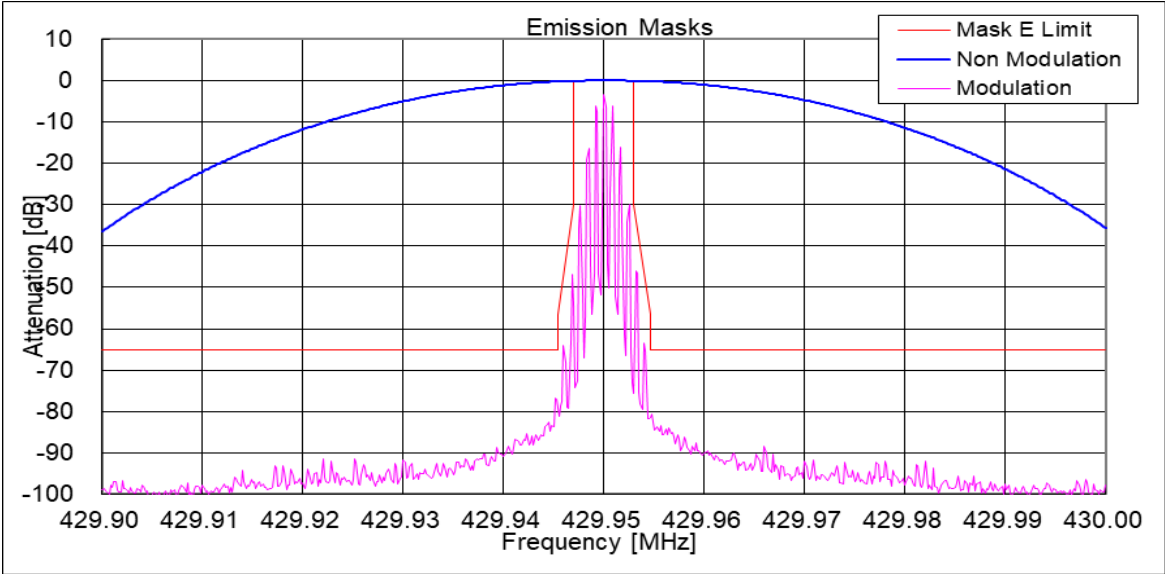
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Limit : Mask E



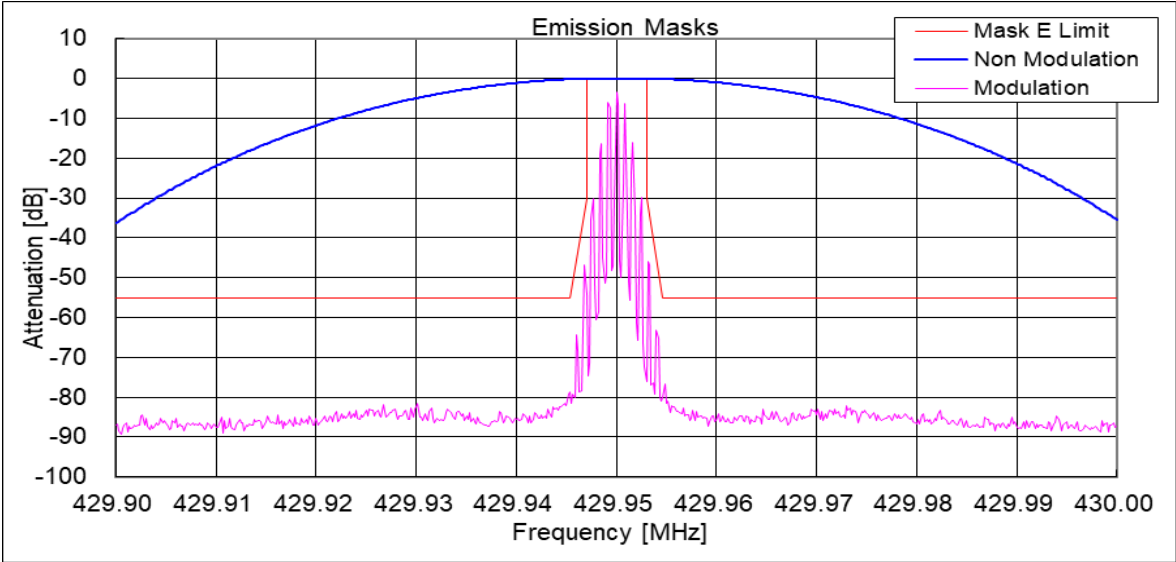
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Limit : Mask E



State : High Power / Authorized Bandwidth 6 kHz/ 4K00F2D / 429.95 MHz(FCC/RSS)
Limit : Mask E



State : Low Power / Authorized Bandwidth 6 kHz/ 4K00F2D / 429.95 MHz(FCC/RSS)
Limit : Mask E



10.5 Transient Frequency Behavior

REGULATIONS	: FCC Part 90 Section 214 / RSS-119 Section 5.9
TEST METHOD/GUIDE	: ANSI/TIA-603-E, Section 2.2.19.3

Test Procedure

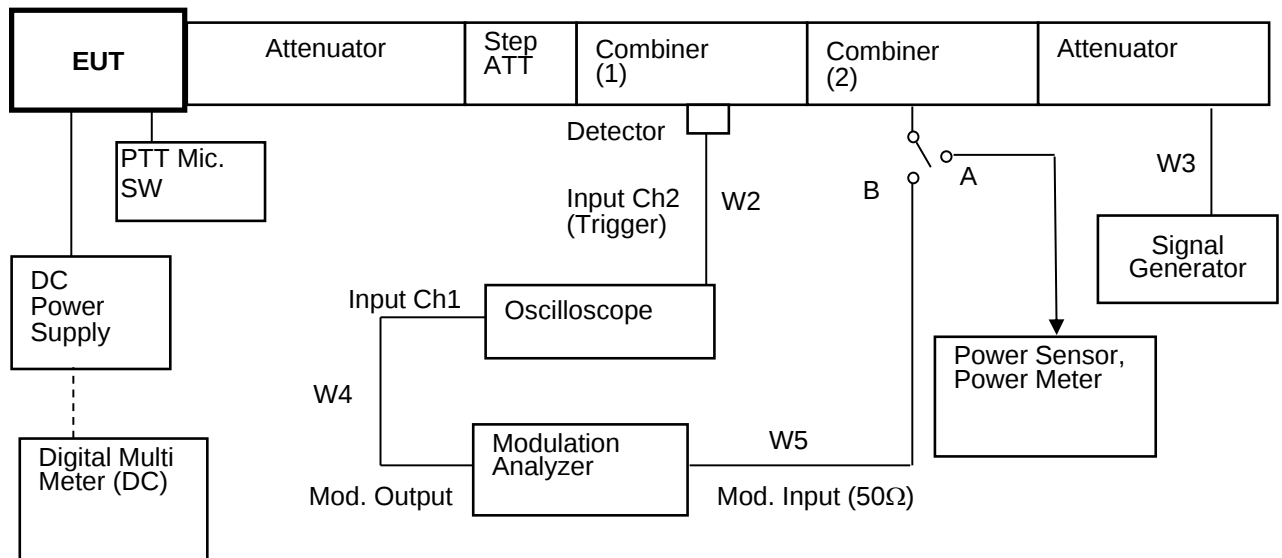
- 1 The EUT and test equipment were set up as shown on the following page.
- 2 The transmitter was turned on.
- 3 The transmitter carrier level was measured at the output of the combiner .
- 4 The transmitter was turned off.
- 5 An RF signal generator (1) modulated with a 1 kHz tone at either 25 kHz or 12.5 kHz or 6.25 kHz deviation, and set to the same frequency as the assigned transmitter frequency, (2) was adjusted to a level -30 dB below the level recorded in Procedure 3, as measured at the output of the combiner.
This level was then fixed for the remainder of the test and is recorded at step h.
- 6 The oscilloscope was setup using TIA-603 steps j and k as a guide, however 1000 Hz tone was adjusted at +- 2.5 /div vertically centered on the display.
- 7 The transmitter was turned on, and the level of the carrier at the output of the combiner was recorded as step l.
- 8 The carrier on-time as referenced in TIA-603 steps m, n, and o was captured and plotted.
- 9 The carrier off-time as referenced in TIA-603 steps p, q, r, and s was captured and plotted.

No.	Equipment	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
1	Power Meter	Hewlett Packard	E4418B	GB38410265	1Y	Sep. 15, 23
2	Power Sensor	Hewlett Packard	8482A	US37292237	1Y	Sep. 15, 23
3	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	1Y	Sep. 25, 23
4	Attenuator (3dB)	TME	CFA-20NPJ-3	679701	1Y	Dec. 22, 23
5	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	1Y	Sep. 25, 23
6	Step Attenuator	Hewlett Packard	8494B	272614515	1Y	Sep. 25, 23
7	Combiner(1)	Anritsu	Z-164A	M89249	1Y	Mar. 28, 23
8	Combiner(2)	Anritsu	Z-164A	M89549	1Y	Mar. 28, 23
9	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	1Y	Jan. 02, 24
10	Signal Generator	Rohde&Schwarz	SMB 100A	105709	1Y	Jun. 05, 23
11	Oscilloscope	Tektronix	TDS5104	B040901	1Y	Aug. 01, 23
12	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
13	Digital Multi Meter	FLUKE	8846A	9642018	1Y	Jun. 30, 23

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
W2	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00094	1Y	Feb. 13, 24
W4	Coaxial Cable	Daiyu Densen	3D-2V	KSR00101	1Y	Feb. 13, 24
W3	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00041	1Y	Jul. 19, 23
W5	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	1Y	Feb. 13, 24

Measuring Equipment Configuration

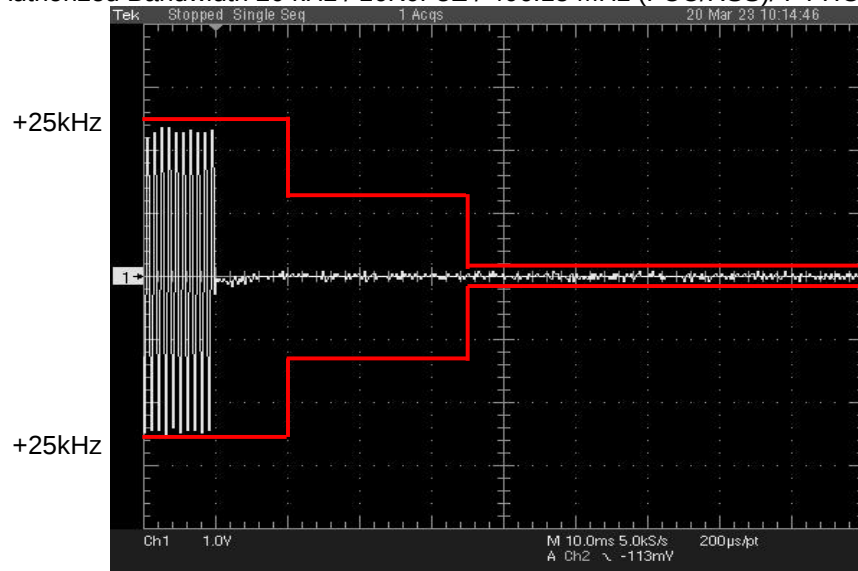


Test Results

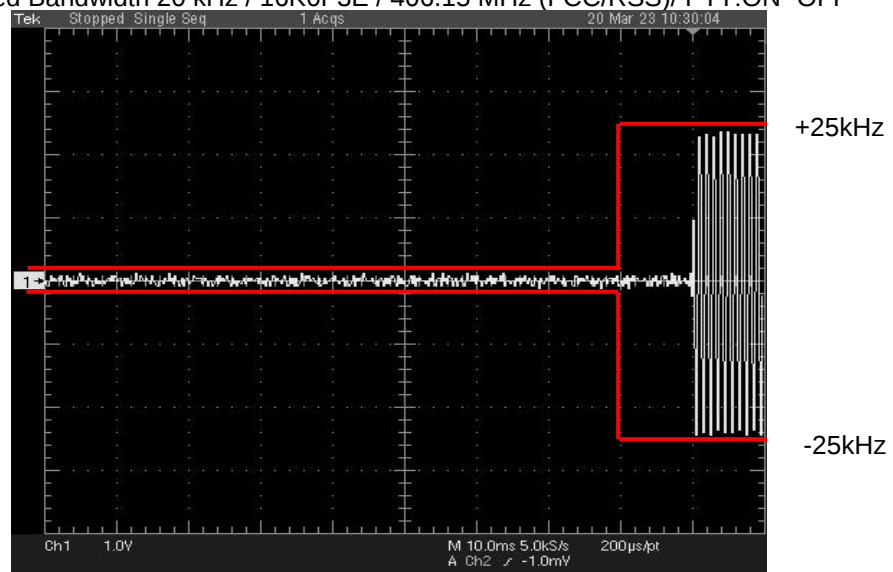
Test date	Mar 20, 2023	
Location	Kashima No.12 Test Site	
temperature	22.8	[degree C]
Humidity Variation	32	[%]
Atmospheric Pressure	101.6	[kPa]
Test Engineer	Koichi Wagatsuma	

Test was carried out for all the frequency band of section 10.1
State the worst case (below).

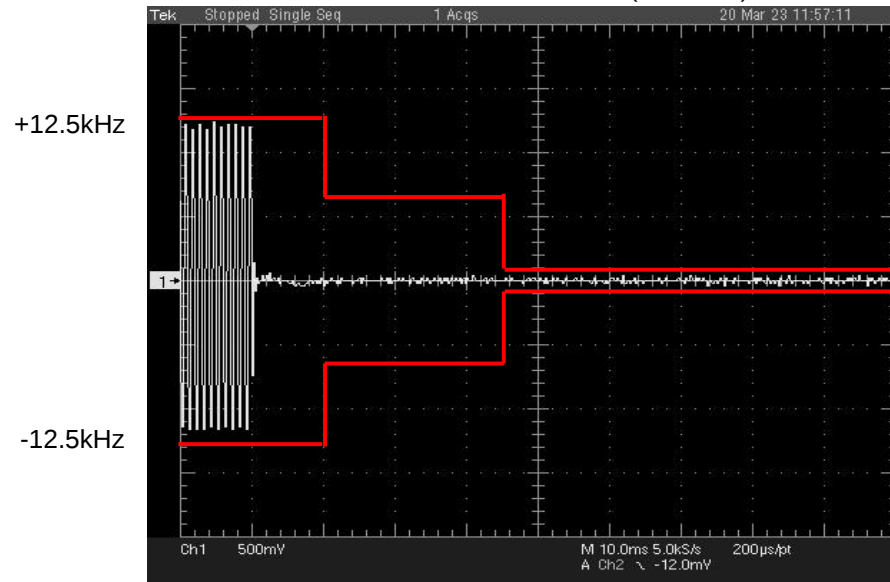
State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 406.15 MHz (FCC/RSS)/ PTT:OFF -ON



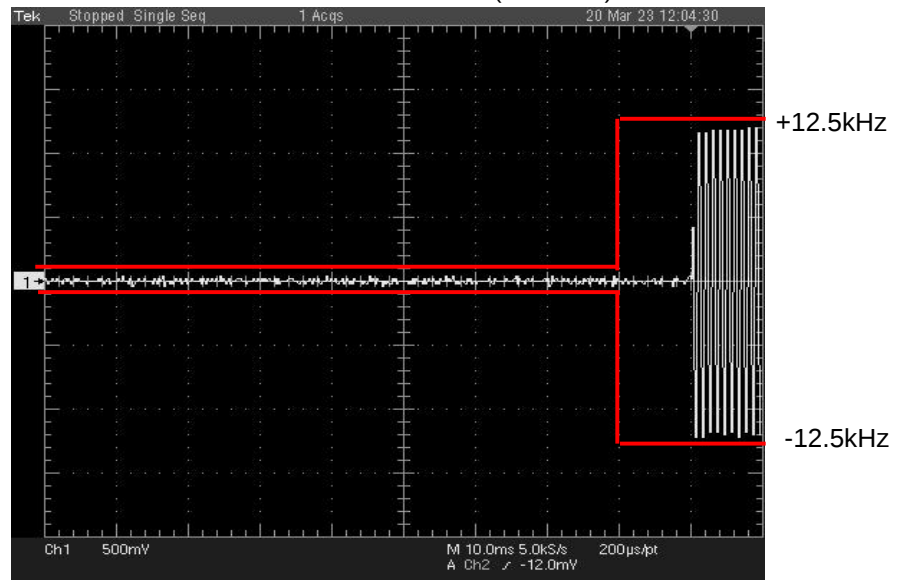
State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 406.15 MHz (FCC/RSS)/ PTT:ON -OFF



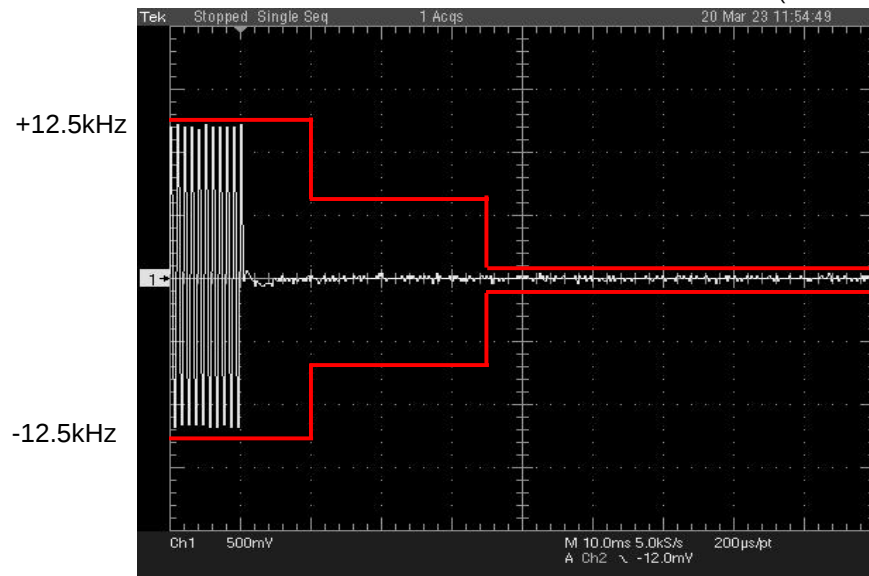
State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 429.95 MHz (FCC/RSS)/ PTT:OFF -ON



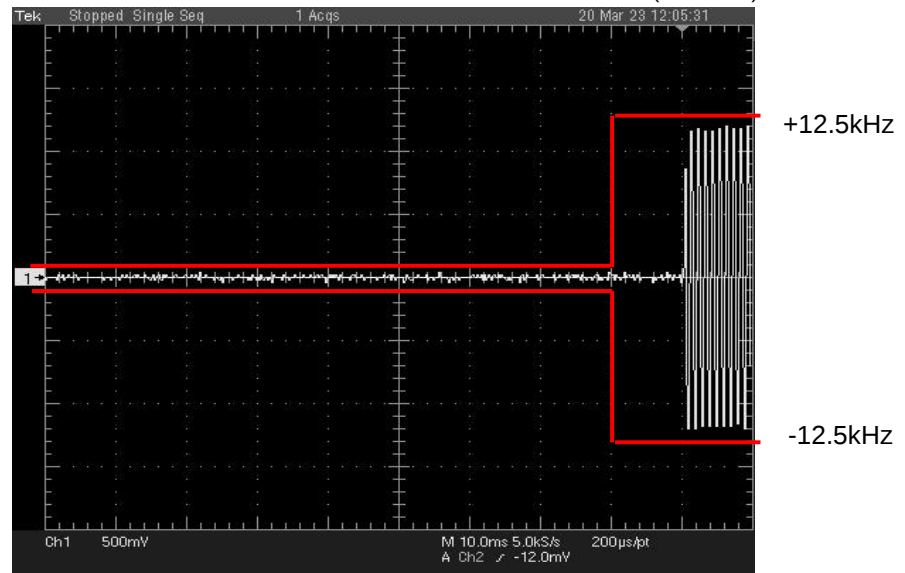
State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 429.95 MHz (FCC/RSS)/ PTT:ON-OFF



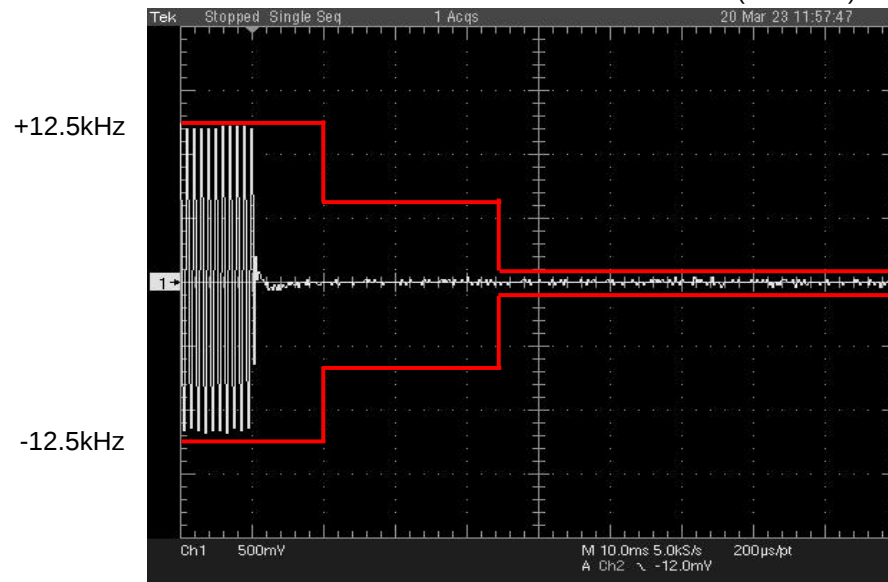
State : High Power / Authorized Bandwidth 11.25 kHz / 7K60FXD/FXE/F7E/F7D/F7W/FXW / 406.15 MHz (FCC/RSS)/ PTT:OFF -ON



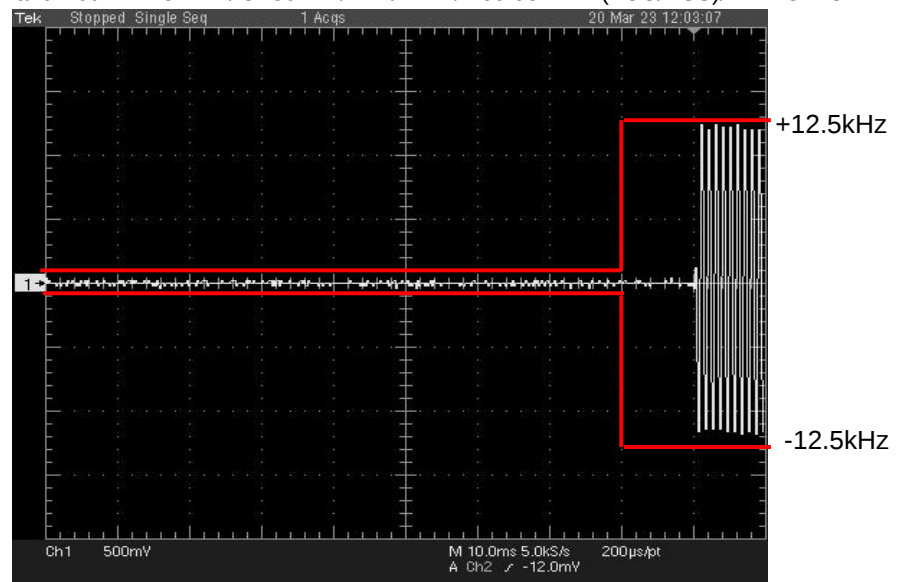
State : High Power / Authorized Bandwidth 11.25 kHz / 7K60FXD/FXE/F7E/F7D/F7W/FXW / 406.15 MHz (FCC/RSS)/ PTT:ON -OFF



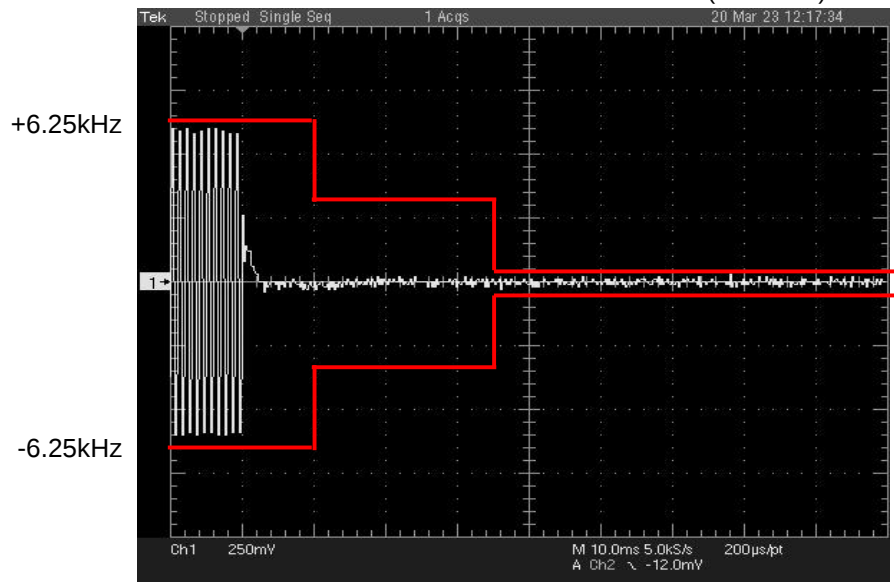
State : High Power / Authorized Bandwidth 11.25 kHz / 8K30F1E/F1D/F7W / 469.95 MHz (FCC/RSS)/ PTT:OFF -ON



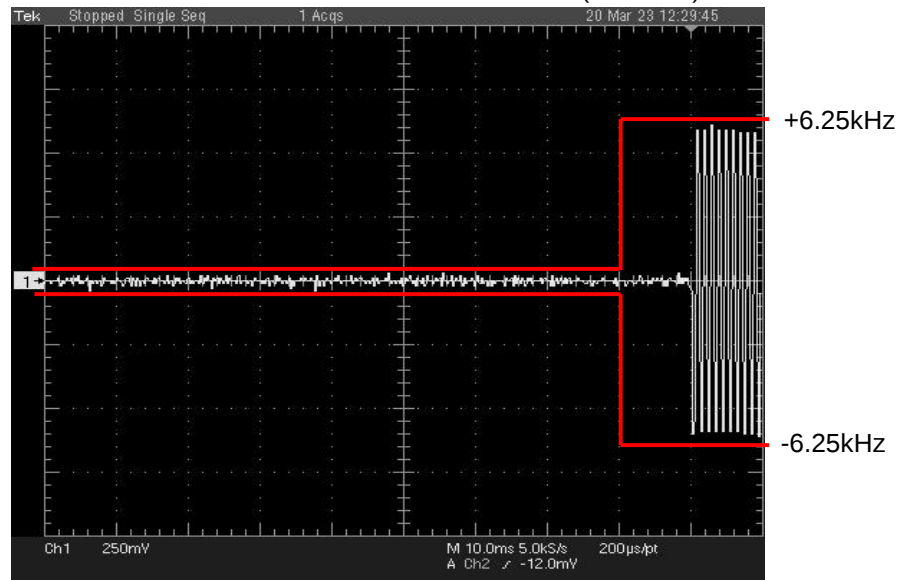
State : High Power / Authorized Bandwidth 11.25 kHz / 8K30F1E/F1D/F7W / 469.95 MHz (FCC/RSS)/ PTT:ON-OFF



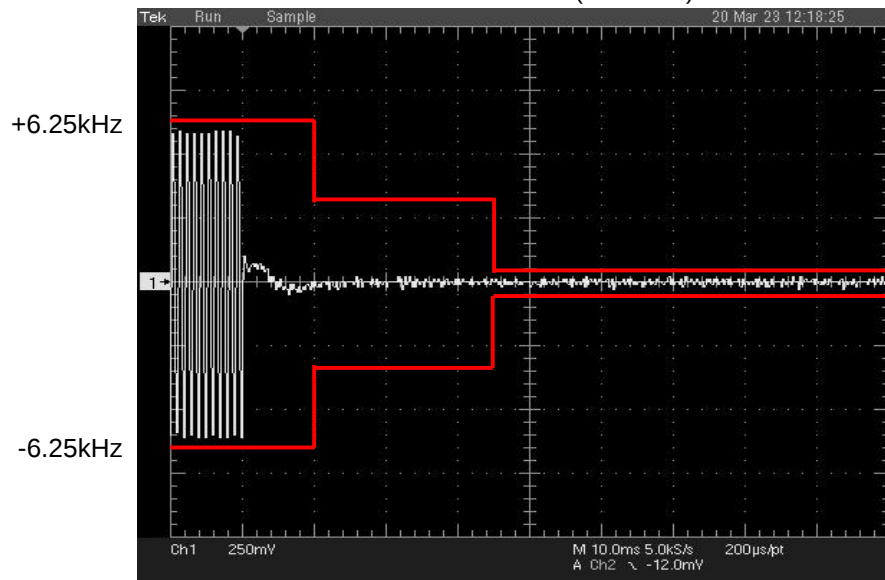
State : High Power / Authorized Bandwidth 6 kHz / 4K00F1E / F1D / F7W / 406.15 MHz (FCC/RSS)/ PTT:OFF -ON



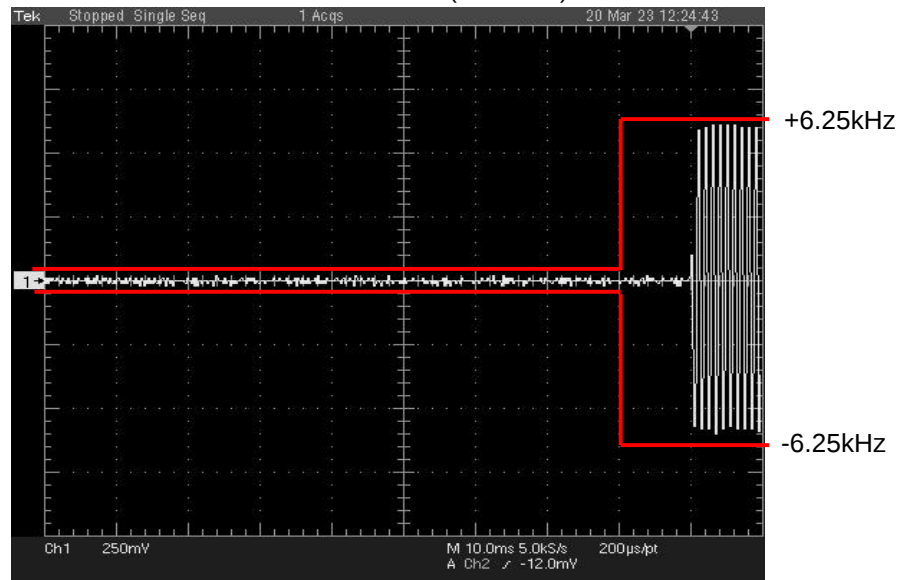
State : High Power / Authorized Bandwidth 6 kHz / 4K00F1E / F1D / F7W / 406.15 MHz (FCC/RSS)/ PTT:ON-OFF



State : High Power / Authorized Bandwidth 6 kHz / 4K00F2D / 429.95 MHz (FCC/RSS)/ PTT:OFF -ON



State : High Power / Authorized Bandwidth 6 kHz / 4K00F2D / 429.95 MHz (FCC/RSS)/ PTT:ON-OFF



10.6 Audio Frequency Response / Audio Low Pass Filter (Voice Input)

REGULATIONS	: FCC Part 2 Section 1047 (a)
TEST METHOD/GUIDE	: ANSI/TIA-603-E Section 2.2.6.2.2, 3.2.6.2 ANSI C63.26 Section 5.3.3

Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 Adjust the Modulation Analyzer for the following setting:
 - a) High-pass filter : 50 Hz
 - b) Low-pass filter : 15 kHz
 - c) Detector : positive peak
 - d) Function : FM
- 3 The audio signal input was adjusted to obtain 20 % modulation at 1 kHz, and this point was taken as the 0 dB reference level.
- 4 With input levels held constant and below limiting at all frequencies, the audio signal generator was varied from 100 Hz to 5 kHz.
- 5 The response in dB relative to 1 kHz was then measured, using the Modulation Analyzer.

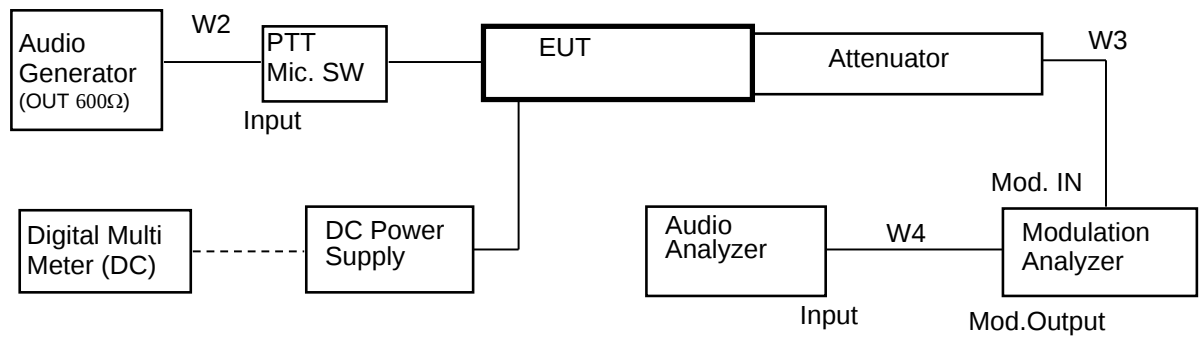
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	1Y	Sep. 25, 23
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	1Y	Sep. 25, 23
3	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	1Y	Jan. 02, 24
4	Audio Generator	Anritsu	MG443B	M70150	1Y	Jun. 12, 23
5	Audio Analyzer	Hewlett Packard	8903B	2948A07326	1Y	Oct. 03, 23
6	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
7	Digital Multi Meter	FLUKE	8846A	9642018	1Y	Jun. 30, 23

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
W2	Balance Cable	Nicoon	3D-2V	KSR00092	1Y	Sep. 21, 23
W4	Coaxial Cable	Daiyu Densen	3D-2V	KSR00101	1Y	Feb. 13, 24
W3	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	1Y	Feb. 13, 24

Measuring Equipment Configuration



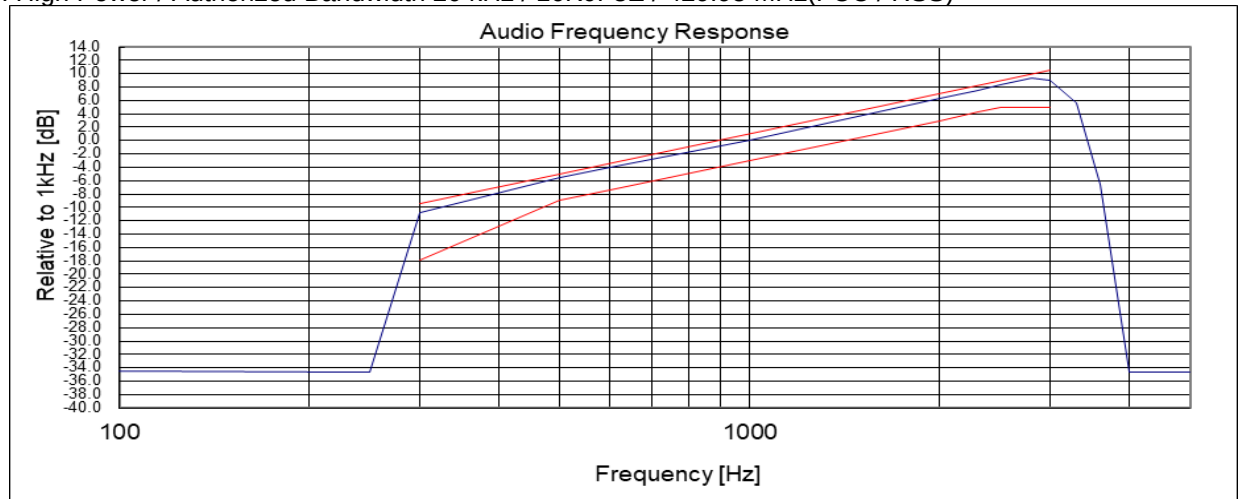
Test Results

Test date	Mar 16, 2023	
Location	Kashima No.12 Test Site	
temperature	22	[degree C]
Humidity Variation	45	[%]
Atmospheric Pressure	101.4	[kPa]
Test Engineer	Koichi Wagatsuma	

Test was carried out for all the frequency band of section 10.1

State the worst case (below).

State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 429.95 MHz(FCC / RSS)



Note:

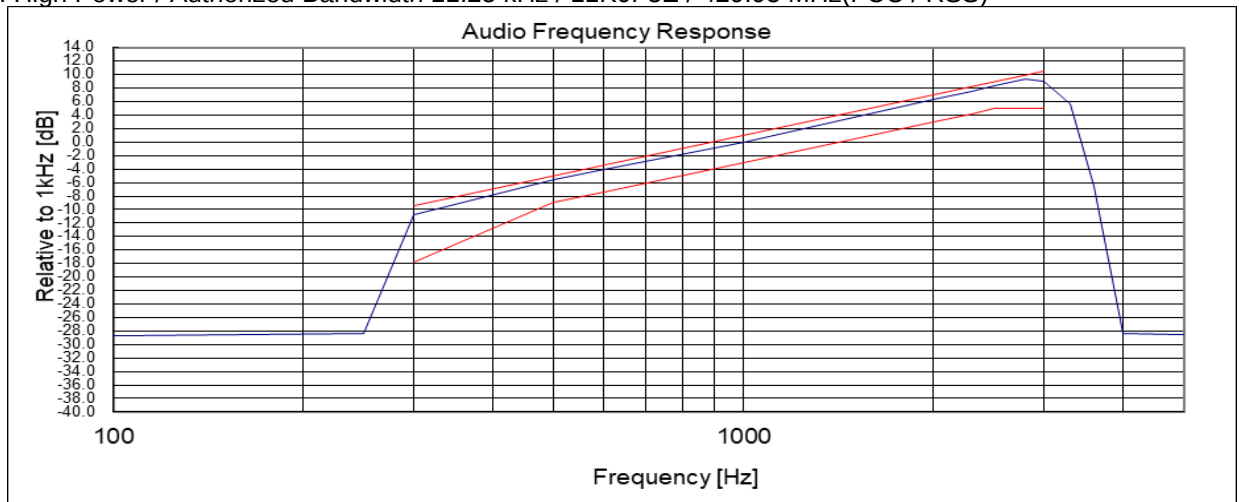
Audio Filter of the above result is substituted with the same structure as Audio Frequency Response.

On the transmission condition below 3kHz,

Transceiver shows pre-emphasis condition of transmission function.

On the transmission condition above 3kHz, Transceiver shows Audio Low Pass Filter.

State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 429.95 MHz(FCC / RSS)



Note:

Audio Filter of the above result is substituted with the same structure as Audio Frequency Response.

On the transmission condition below 3kHz,

Transceiver shows pre-emphasis condition of transmission function.

On the transmission condition above 3kHz, Transceiver shows Audio Low Pass Filter.

10.7 Modulation Limiting

REGULATIONS	: FCC Part 2 Section 1047 (b)
TEST METHOD/GUIDE	: ANSI/TIA-603-E Section 2.2.3.2, 1.3.4.4 ANSI C63.26 Section 5.3.2

Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 Adjust the Modulation Analyzer for the following setting:
 - a) High-pass filter : off
 - b) Low-pass filter : 15 kHz
 - c) Detector : positive peak
 - d) Function : FM
- 3 Apply a 1kHz modulation signal to the transmitter from the audio generator, and adjust the level to obtain 60% of full rated system deviation.
- 4 Measure the modulation frequency that was showed on the Modulation Analyzer when the output levels of the Audio Generator were changed from -20 dB to +20 dB by 5 dB.
- 5 Set the output frequencies of the Audio Generator 300 Hz, 1kHz, 2.5 kHz and 3 kHz, and repeat test procedure 4.
- 6 Set the Detector of the Modulation Analyzer Negative Peak.
- 7 Repeat test procedure 4 and 5.

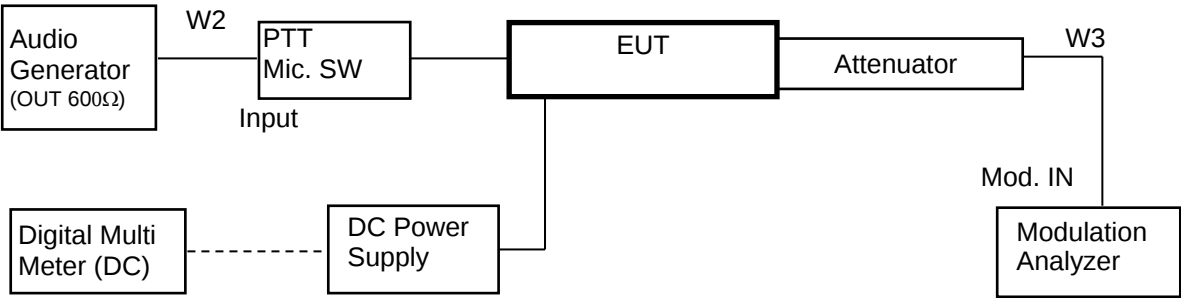
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	1Y	Sep. 25, 23
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	1Y	Sep. 25, 23
3	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	1Y	Jan. 02, 24
4	Audio Generator	Anritsu	MG443B	M70150	1Y	Jun. 12, 23
5	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
4	Digital Multi Meter	FLUKE	8846A	9642018	1Y	Jun. 30, 23

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
W2	Balance Cable	Nicoon	3D-2V	KSR00092	1Y	Sep. 21, 23
W3	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	1Y	Feb. 13, 24

Measuring Equipment Configuration

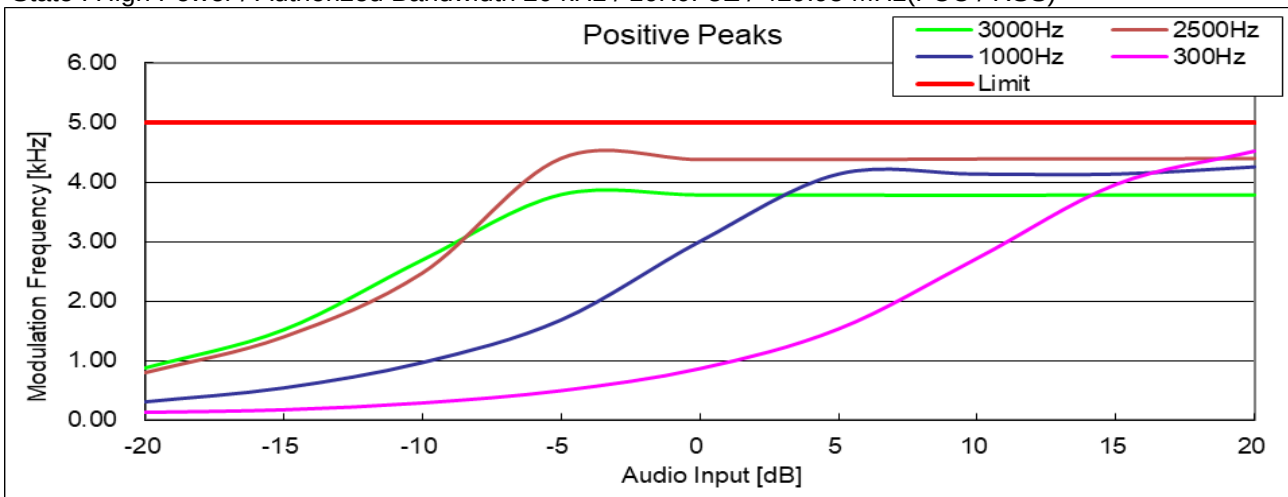


Test Results

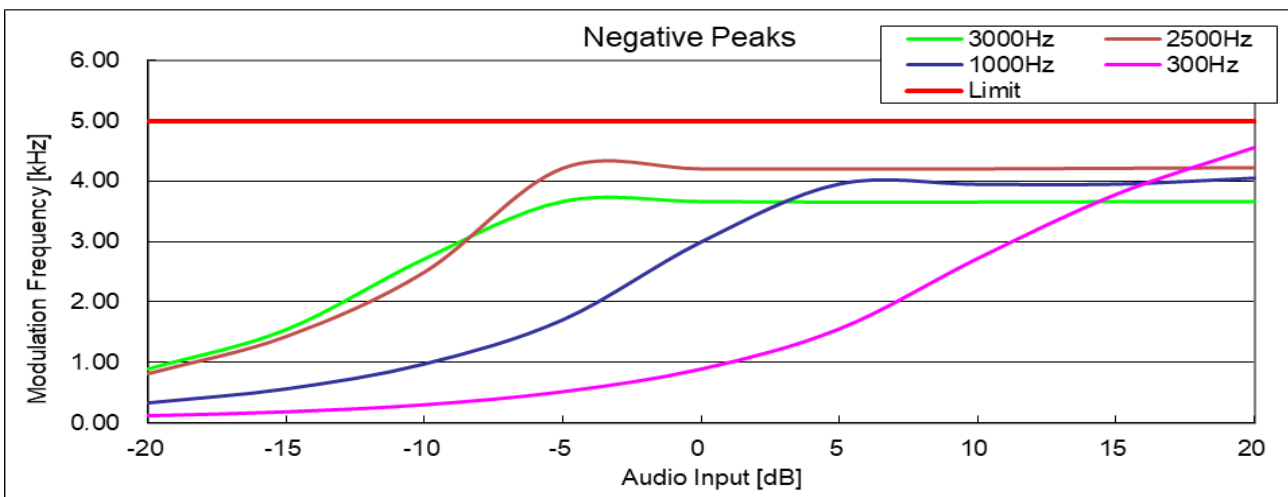
Test date	Mar. 16, 2023	
Location	Kashima No.12 Test Site	
temperature	25.7	[degree C]
Humidity Variation	46	[%]
Atmospheric Pressure	101.6	[kPa]
Test Engineer	Koichi Wagatsuma	

Test was carried out for all the frequency band of section 10.1
State the worst case (below).

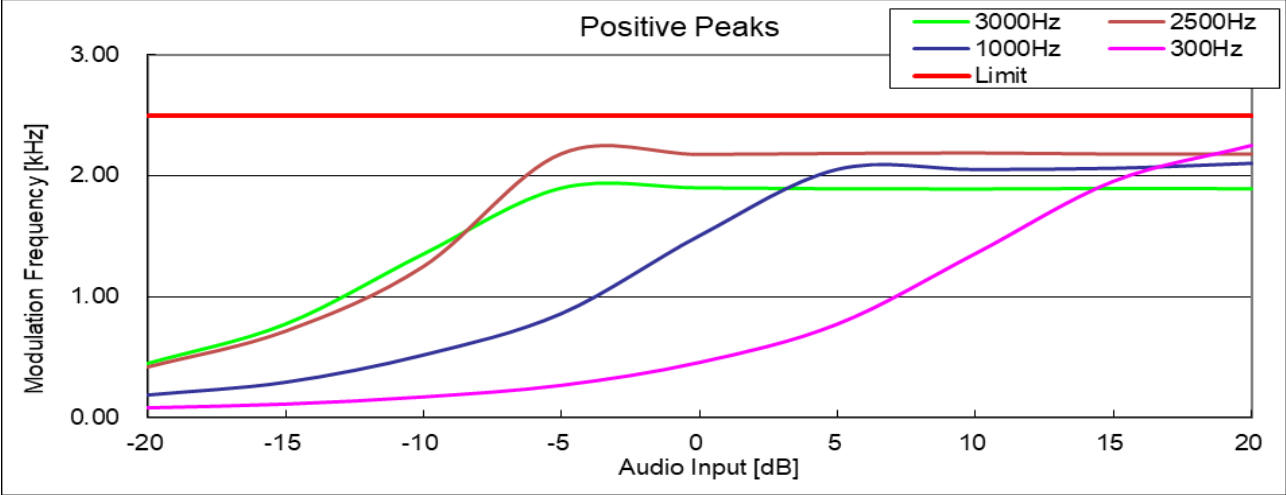
State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 429.95 MHz(FCC / RSS)



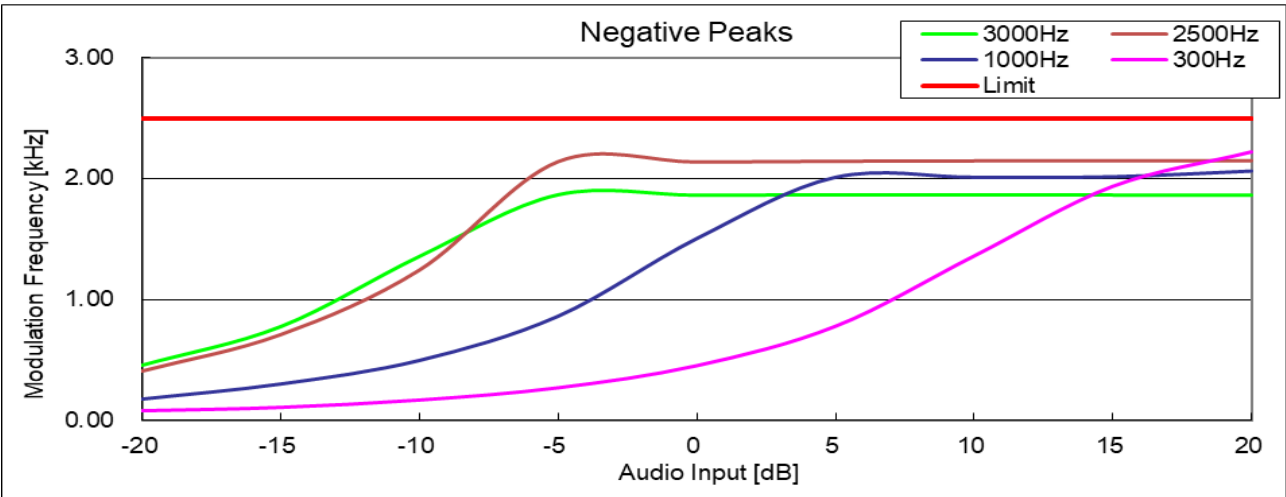
State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 429.95 MHz(FCC / RSS)



State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 469.95 MHz(FCC / RSS)



State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 469.95 MHz(FCC / RSS)



10.8 Frequency Stability (Temperature Variation)

REGULATIONS	: FCC Part 2 Section 1055 (a) (1), Part 22 Section 355 , Part 74Section 464 , Part 90 Section 213(a)
TEST METHOD/GUIDE	: ANSI/TIA-603-E Section 2.2.2.2 ANSI C63.26 Section 5.6

Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 Set the temperature -30 degrees C.
- 3 Leave the EUT for 1 hour after it became the temperature that was set up.
- 4 Make the EUT the transmitting state.
measure the output frequency.
- 5 Make the EUT the receiving state.
- 6 Set the temperature 50 degrees C by 10 degrees C.
And repeat test procedure 4 to 6.

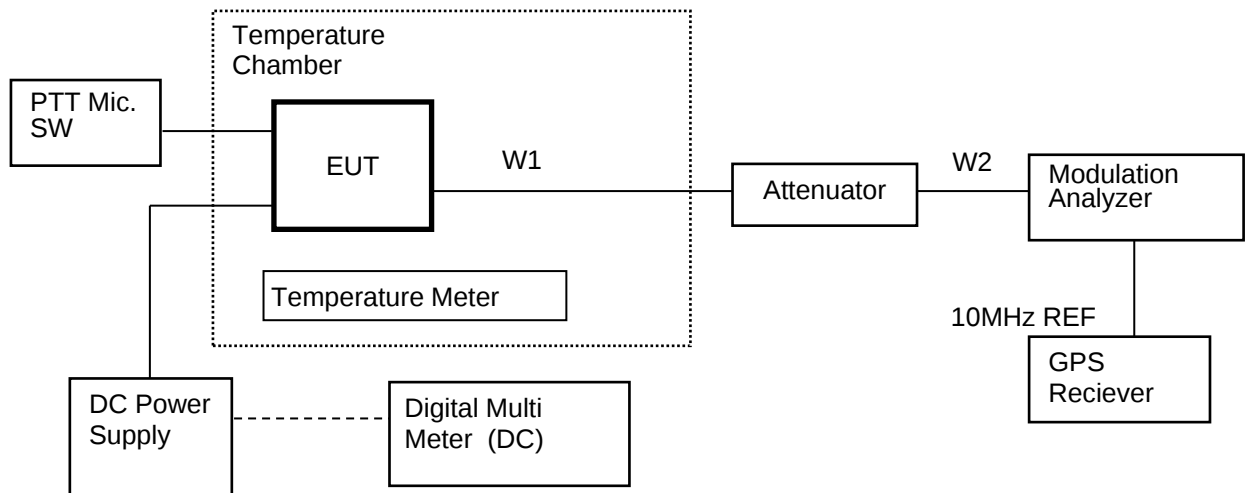
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	1Y	Sep. 25, 23
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	1Y	Sep. 25, 23
3	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	1Y	Jan. 02, 24
4	DC Power Supply	Takasago	GP035-20R	1014199060	None	None
5	Digital Multi Meter	FLUKE	8846A	9642018	1Y	Jun. 30, 23
6	Temperature Chamber	Tabai	PL-3F	5103661	None	None
7	Temperature Meter	T&D	TR-71nw	52160B67	1Y	Dec. 15, 23
8	GPS Receiver	Hewlett Packard	HP Z3801A	3542A02414	1Y	Mar. 05, 24

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
W2	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00041	1Y	Jul. 19, 23
W1	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	1Y	Feb. 13, 24

Measuring Equipment Configuration



Test Results

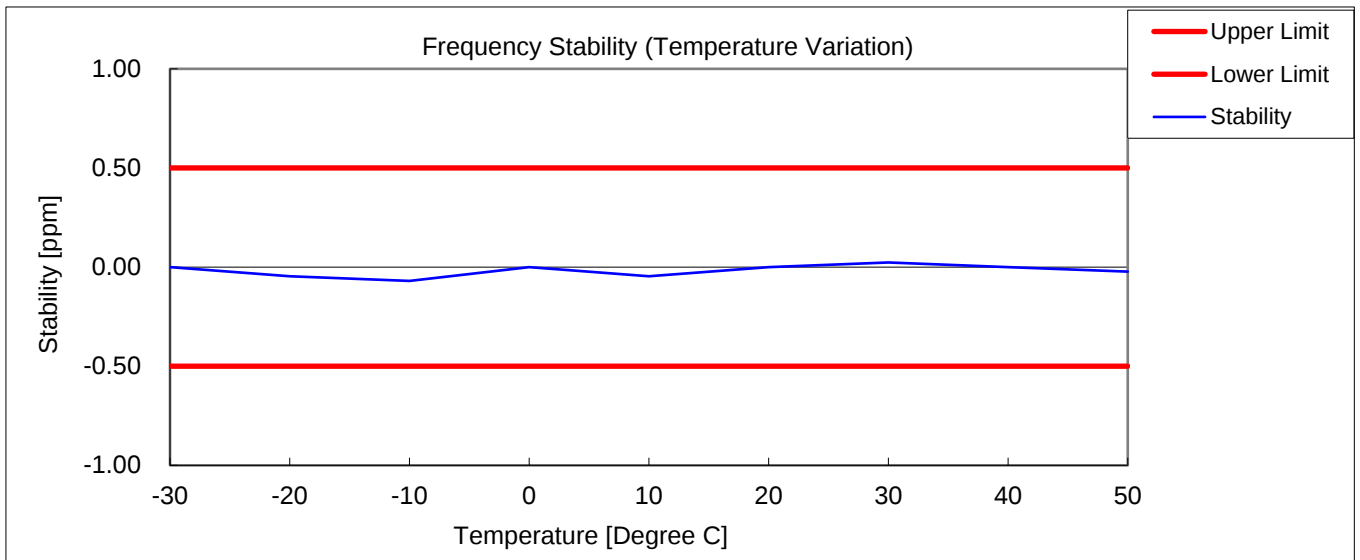
Test date	Mar. 28, 2023
Location	Kashima No.12 Test Site
Test Engineer	Koichi Wagatsuma

Test was carried out for all the frequency band of section 10.1
State the worst case (below).

State : High Power / Authorized Bandwidth 20 kHz / 429.95 MHz (FCC / RSS)

Reference Frequency: 429.950030 MHz

No.	Temperature (Degree C)	Frequency (MHz)	Stability (ppm)	Limit (+/- ppm)	Margin (ppm)
1	-30	429.950030	0.00	0.5	0.50
2	-20	429.950010	-0.05	0.5	0.45
3	-10	429.950000	-0.07	0.5	0.43
4	0	429.950030	0.00	0.5	0.50
5	10	429.950010	-0.05	0.5	0.45
6	20	429.950030	0.00	0.5	0.50
7	30	429.950040	0.02	0.5	0.48
8	40	429.950030	0.00	0.5	0.50
9	50	429.950020	-0.02	0.5	0.48



10.9 Frequency Stability (Voltage Variation)

REGULATIONS	: FCC Part 2 Section 1055 (a) (1), Part 22 Section 355 , Part 74Section 464 , Part 90 Section 213(a)
TEST METHOD/GUIDE	: ANSI/TIA-603-E Section 2.2.2.2 ANSI C63.26 Section 5.6

Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 The power supply voltage to the EUT was varied from 85 % to 115 % of the nominal value measured at the input to the EUT.

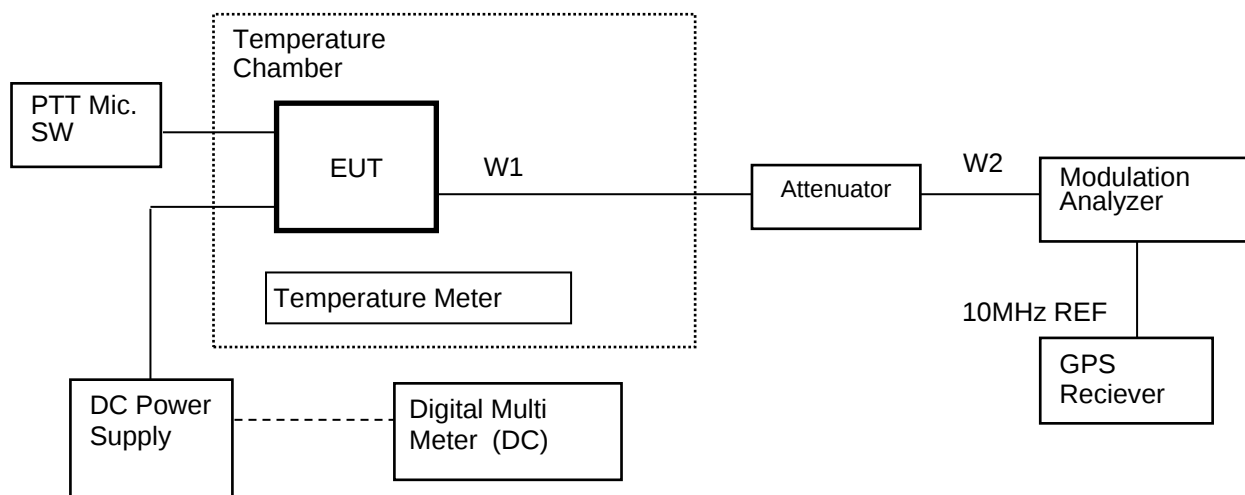
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	1Y	Sep. 25, 23
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	1Y	Sep. 25, 23
3	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	1Y	Jan. 02, 24
4	DC Power Supply	Takasago	GP035-20R	1014199060	None	None
5	Digital Multi Meter	FLUKE	8846A	9642018	1Y	Jun. 30, 23
6	Temperature Chamber	Tabai	PL-3F	5103661	None	None
7	Temperature Meter	T&D	TR-71nw	52160B67	1Y	Dec. 15, 23

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
W2	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00041	1Y	Jul. 19, 23
W1	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	1Y	Feb. 13, 24

Measuring Equipment Configuration



Test Results

Test date	Mar 28, 2023
Location	Kashima No.12 Test Site
Test Engineer	Koichi Wagatsuma

Test was carried out for all the frequency band of section 10.1
State the worst case (below).

State : High Power / Authorized Bandwidth 20 kHz / 406.15 MHz (FCC / RSS)

Reference Frequency: 406.150020 MHz

No.	Temperature (Degree C)	Diviation (%)	Voltage (V)	Frequency (MHz)	Stability (ppm)	Limit +/- (ppm)	Margin (ppm)
1	20+/-5	85	11.22	406.150020	0.00	0.5	0.50
2	20+/-5	100	13.20	406.150020	0.00	0.5	0.50
3	20+/-5	115	15.18	406.150010	-0.02	0.5	0.48

10.10 Receiver Spurious Emissions(Radiated)

REGULATIONS	:	RSS-Gen Section 7
TEST METHOD/GUIDE	:	RSS-Gen Section 7

TEST PROCEDURE

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 Tabletop Equipment
EUT is placed on the wooden table, the top of which is 0.8meter above the metal ground plane(turntable).
- 3 Interconnecting Cables
Excess part of the interconnecting cables longer than 1 meter are bundled in the center.
Cables that hang closer than 40 cm to the ground plane is folded back and forth forming bundle to 40 cm long, hanging approx, in the middle between ground plane and table.
- 4 Measuring Instruments
Measuring instruments list and their calibration schedule are shown on Measurement Equipment Configuration.
The brief description are as follows;
- 5 Antennas
The broadband Bi-cog antenna or Biconical and Log periodic antenna is used for measurement on the frequency range 30 – 1000 MHz.
The Double ridged guide antenna is used for frequency higher than 1000 MHz.
- 6 Pre-amplifier
The broadband pre-amplifier is used for radiated emission measurement.
The signal to noise ratio is improved by using pre-amplifier.
- 7 Spectrum Analyzer
The spectrum analyzer is used for preliminary measurement of frequency range 30 – 1000 MHz, and also used for final measurement of higher than 1000 MHz (RBW : 1 MHz).
- 8 EMI Test Receiver
The Quasi-peak detector (IF bandwidth : 120 kHz) built in test receiver is used for final measurement of the frequency 30 – 1000 MHz.
The test receiver is complied with the specification of the CISPR publication 16.
- 9 Turntable
The turntable is capable for EUT weight and rotatable 0 to 360 degree horizontally by remote control in the test room.
- 10 Antenna Mast
The antenna mast is attachable to all antennas described on antenna height is adjustable 1 to 4 meters continuously by remote control at the test room, and antenna polarization is also changed by the remote control.
- 11 Preliminary Measurement
EUT is tested on all operating conditions.
The spectrum analyzer is set max-hold mode and swept during turntable was rotated 0 to 360 degree. Then spectrum chart are plotted out to find the worst emission conditions in configuration, operating mode, or ambient noise notation.

12 Final Measurement

The EUT operated in the condition where maximum emission is found in the preliminary test.

The turntable azimuth(EUT direction) and antenna height are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured.

The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.

When the uncertain result was obtained, the measurement is retried by using the half wave dipole antenna instead of the broadband antenna.

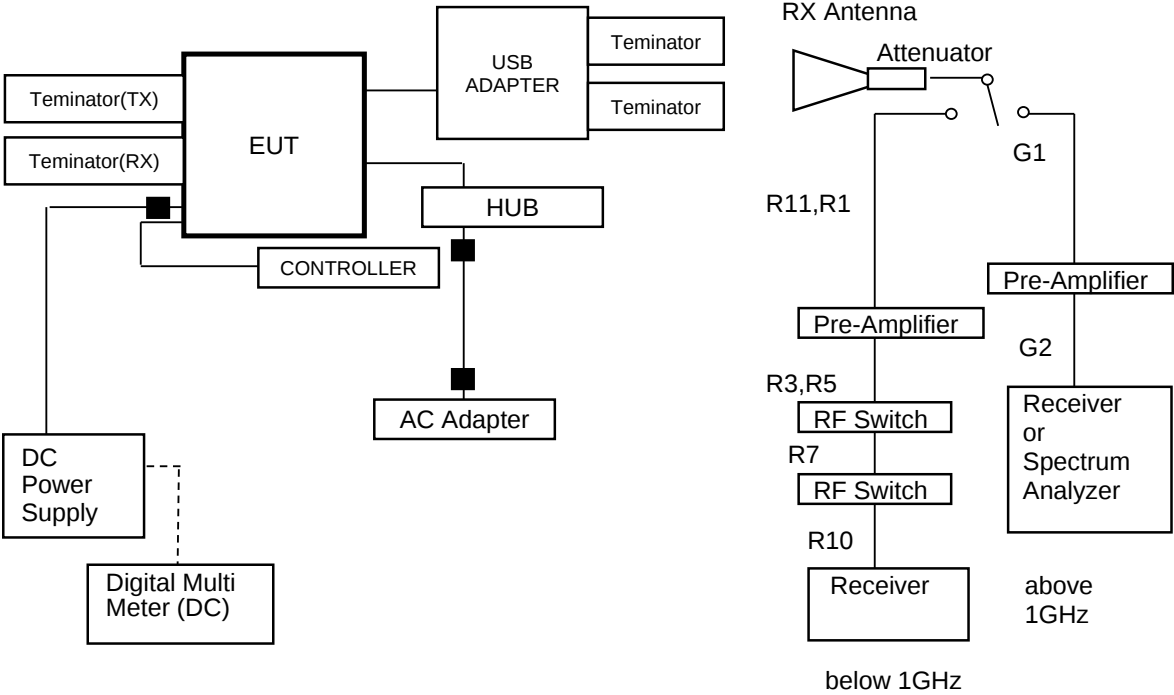
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
1	Spectrum Analyzer / Rec	Agilent	N9038A	MY51210201	1Y	Nov. 30, 23
2	D.R.G Antenna(RX)	Schwarzbeck	3115	5044	1Y	Jun. 30, 23
3	Tri-log Antenna(RX)	Schwarzbeck	VULB9168WP	288	1Y	Sep. 30, 23
4	DC Power Supply	Kikusui	PMC35-3A	LE000716	None	None
5	Amplifier	TOYO	TPA0118-30	0303	1Y	Sep. 30, 23
6	Attenuator	HUBER + SUHNER	6803.17.B		1Y	Sep. 30, 23
7	Amplifier	Intertek Japan	ZX60-3018G	002	1Y	Feb. 29, 24
8	Attenuator	TAMAGAWA	CFA-01	A00040805	1Y	Feb. 29, 24
9	RF Switch	Intertek Japan	ACX-150-1	A12301501	1Y	Feb. 29, 24
10	Site Attenuation	-	-	-	1Y	Jan. 31, 24
11	SVSWR	-	-	-	1Y	Jan. 31, 24

USED CABLES

No.	Cable	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
R11	Coaxial Cable	FUJIKURA	5D-2W	R11	1Y	Feb. 29, 24
R1	Coaxial Cable	FUJIKURA	5D-2W	R1	1Y	Feb. 29, 24
R3	Coaxial Cable	FUJIKURA	10D-2W	R3	1Y	Feb. 29, 24
R5	Coaxial Cable	FUJIKURA	RG-5A/U	R5	1Y	Feb. 29, 24
R7	Coaxial Cable	MIYAZAKI	5D-2W	R7	1Y	Feb. 29, 24
R10	Coaxial Cable	FUJIKURA	5D-2W	R10	1Y	Feb. 29, 24
G1	Coaxial Cable	SUHNER	SUCOFLEX 104	229603	1Y	Sep. 30, 23
G2	Coaxial Cable	Candox	5B-048-98-98-5000	111130	1Y	Sep. 30, 23

MEASUREMENT EQUIPMENT CONFIGURATION



TEST RESULTS

Test date	Mar. 22, 2023 to Mar. 23, 2023
Location	Kashima No.12 Test Site
temperature	20 to 21.8 [degree C]
Humidity Variation	58 to 60 [%]
Atmospheric Pressure	100.5 to 101.6 [kPa]
Test Engineer	Koichi Wagatsuma

Test was carried out for the frequency band of section 10.1
State the worst case (below).

State : 429.95 MHz Receiver Condition

No.	Frequency (MHz)	Pol	Mode	Reading Level (dBuv)	Factor* (dB)	Emission Level (dBuV/m)	Limit Level (dBuV/m)	Margin (dB)
1	77.22	Hor.	QP	-	-4.6	-	40.0	-
		Ver.	QP	34.5	-4.6	29.9	40.0	10.1
2	143.28	Hor.	QP	-	-1.3	-	43.5	-
		Ver.	QP	26.5	-1.3	25.2	43.5	18.3
3	167.94	Hor.	QP	-	-0.8	-	43.5	-
		Ver.	QP	32.3	-0.8	31.5	43.5	12.0
4	250.02	Hor.	QP	34.7	-1.0	33.7	46.0	12.3
		Ver.	QP	32.3	-1.0	31.3	46.0	14.7
5	500.03	Hor.	QP	20.0	7.9	27.9	46.0	18.1
		Ver.	QP	-	7.9	-	46.0	-
6	800.04	Hor.	QP	19.2	14.5	33.7	46.0	12.3
		Ver.	QP	-	14.5	-	46.0	-
7	1000.00	Hor.	QP	21.7	17.6	39.3	54.0	14.7
		Ver.	QP	18.1	17.6	35.7	54.0	18.3
8	1000.05	Hor.	AVG	40.6	-3.3	37.3	54.0	16.7
		Ver.	AVG	37.7	-3.3	34.4	54.0	19.6
9	1200.05	Hor.	AVG	34.5	-2.2	32.3	54.0	21.7
		Ver.	AVG	31.3	-2.2	29.1	54.0	24.9
10	1400.04	Hor.	AVG	31.1	-2.2	28.9	54.0	25.1
		Ver.	AVG	33.0	-2.2	30.8	54.0	23.2
11	3330.80	Hor.	AVG	26.3	5.0	31.3	54.0	22.7
		Ver.	AVG	29.4	5.0	34.4	54.0	19.6

There is the margin of 20dB over except for the above points.

* Factor = Antenna, Antenna Pad, Cable, Preamp, (Dist. Conversion)

Emission Level = Reading Level + Factor

Note:

- 1 Measurement distance is 3 metres. (Above 1GHz is 3.9 metres)
- 2 Scanned frequency are 30 to 7000 MHz.
- 3 Highest oscillator frequency is 1400 MHz.
(TXRX UNIT : 470.00MHz)

10.11 Necessary Bandwidth and Emission Bandwidth

REGULATIONS : FCC Part 2 Section 202 (g) & Federal Register/ Vol.68, No236

Calculation Results

This information was provided by the Applicant or customer.

State : 16K0F3E (Authorized Bandwidth 20 kHz)

Item	Mark		
Maximum Modulation	(M)	3	kHz
Maximum Deviation	(D)	5	kHz
Constant Factor	(K)	1	
Necessary Bandwidth	(Bn)	16	kHz

$$B_n = (2 \times M) + (2 \times D \times K)$$

- 1.types of modulation of the main carrier : F= Frequency modulation
2.nature of signal(s) modulating the main carrier: 3= A single channel containing analog information
3.type of information to be transmitted: E= Telephony (including sound broadcasting)

State : 11K0F3E (Authorized Bandwidth 11.25 kHz)

Item	Mark		
Maximum Modulation	(M)	3	kHz
Maximum Deviation	(D)	2.5	kHz
Constant Factor	(K)	1	
Necessary Bandwidth	(Bn)	11	kHz

$$B_n = (2 \times M) + (2 \times D \times K)$$

- 1.types of modulation of the main carrier : F= Frequency modulation
2.nature of signal(s) modulating the main carrier: 3= A single channel containing analog information
3.type of information to be transmitted: E= Telephony (including sound broadcasting)

State : 7K60FXE / 7K60FXD / 7K60F7E / 7K60F7D / 7K60F7W / 7K60FXW (9600bps, Authorized Bandwidth 11.25 kHz)

Item	Mark		
Digital information rate	(R)	9600	bps
Peak frequency deviation	(D)	3.024	kHz
Signaling states	(S)	4	
Numerical factor	(K)	0.463	
Necessary Bandwidth	(Bn)	7.6	kHz

$$B_n = (R / \log_2 S) + 2 \times D \times K$$

- 1.types of modulation of the main carrier : F= Frequency modulation
2.nature of signal(s) modulating the main carrier: X= Cases not otherwise covered
7= Two or more channels containing quantized or digital
3.type of information to be transmitted: E= Telephony (including sound broadcasting)
D= Data transmission, telemetry, telecommand
W= Combination of the above

State : 8K30F1E / 8K30F1D / 8K30F7W (4Level FSK / 9600bps, Authorized Bandwidth 11.25 kHz)

Item	Mark		
Digital information rate	(R)	9600	bps
Peak frequency deviation	(D)	3.391	kHz
Signaling states	(S)	4	
Numerical factor	(K)	0.516	
Necessary Bandwidth	(Bn)	8.3	kHz

$$B_n = (R/\log_2 S) + 2 \times D \times K$$

- 1.types of modulation of the main carrier : F= Frequency modulation
2.nature of signal(s) modulating the main carrier: 1= A single channel containing quantized or digital
7= Two or more channels containing quantized or digital
3.type of information to be transmitted: E= Telephony (including sound broadcasting)
D= Data transmission, telemetry, telecommand
W= Combination of the above

State : 4K00F1E / 4K00F1D / 4K00F7W (4Level FSK / 4800bps, Authorized Bandwidth 6 kHz)

Item	Mark		
Digital information rate	(R)	4800	bps
Peak frequency deviation	(D)	1.55	kHz
Signaling states	(S)	4	
Numerical factor	(K)	0.516	
Necessary Bandwidth	(Bn)	4	kHz

$$B_n = (R/\log_2 S) + 2 \times D \times K$$

- 1.types of modulation of the main carrier : F= Frequency modulation
2.nature of signal(s) modulating the main carrier: 1= A single channel containing quantized or digital
7= Two or more channels containing quantized or digital
3.type of information to be transmitted: E= Telephony (including sound broadcasting)
D= Data transmission, telemetry, telecommand
W= Combination of the above

State : 4K00F2D (CWID, Authorized Bandwidth 6 kHz)

Item	Mark		
Maximum Modulation	(M)	0.8	kHz
Maximum Deviation	(D)	1.2	kHz
Numerical factor	(K)	1	
Necessary Bandwidth	(Bn)	4	kHz

$$B_n = (2 \times M) + (2 \times D \times K)$$

- 1.types of modulation of the main carrier : F= Frequency modulation
2.nature of signal(s) modulating the main carrier: 2= A single channel containing quantized or digital
3.type of information to be transmitted: D= Data transmission, telemetry, telecommand

10.12 99% Occupied Bandwidth

REGULATIONS	: RSS-119 Section 5.5
TEST METHOD/GUIDE	: RSS-Gen Section 6.7

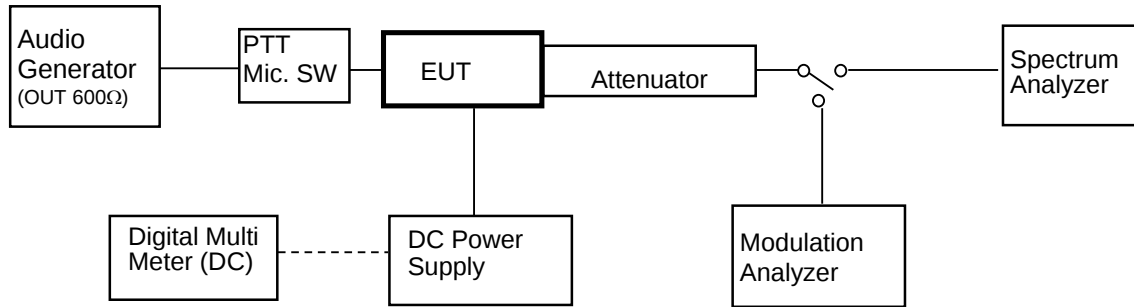
Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 Adjust the test instrument for the following setting:
 - RBW : 1 % to 5 % of the Necessary bandwidth
 - VBW : at least 3 times the RBW
 - Detector : Peak
 - Sweep Time : Auto
 - Trace mode : Max Hold
- 3 Allow trace to fully stabilize.
- 4 Use "Occupied Bandwidth Measurement" function to measure the 99% Occupied Bandwidth.
- 5 Modulate the transmitter with a 2.5 kHz sine wave at an input Level of 16 dB greater than that necessary to produce 50 % of rated system deviation.(Only 16K0F3E, 14K0F3E, 11K0F3E)

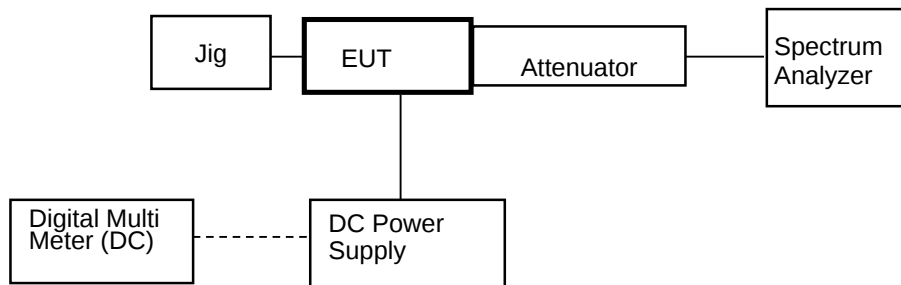
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal. Interval	Effective period
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	1Y	Sep. 25, 23
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	1Y	Sep. 25, 23
3	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	1Y	Jan. 02, 24
4	Audio Generator	Anritsu	MG443B	M70150	1Y	Jun. 12, 23
5	Spectrum Analyzer	Agilent	N9030A	US51350170	1Y	Jul. 10, 23
6	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
7	Digital Multi Meter	FLUKE	8846A	9642018	1Y	Jun. 30, 23
8	JIG	HP	ProBook 430 G3	PJPNYOKL0147	None	None
9	Balance Cable	Nicoon	3D-2V	KSR00092	1Y	Sep. 21, 23
10	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	1Y	Feb. 13, 24
11	Coaxial Cable	Suhner	SUCOFLEX104	F0000018	1Y	Mar. 24, 23

Measuring Equipment Configuration



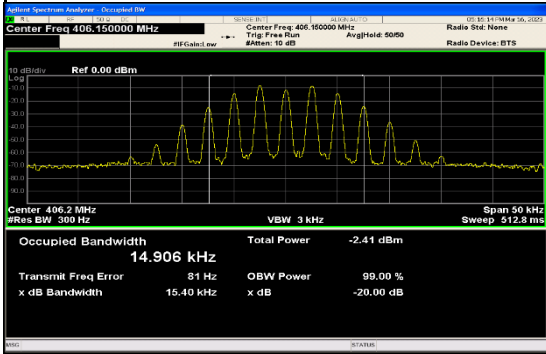
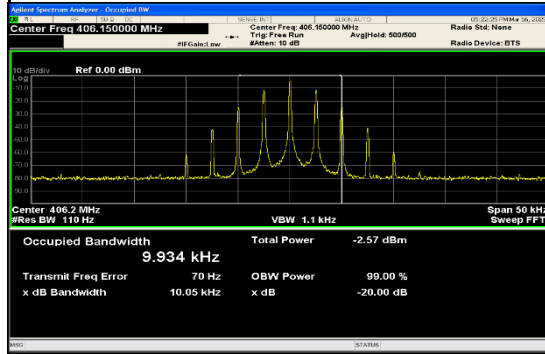
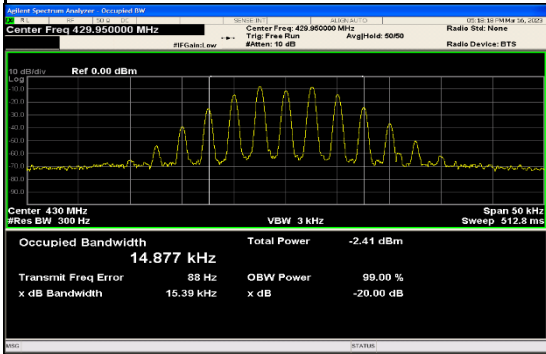
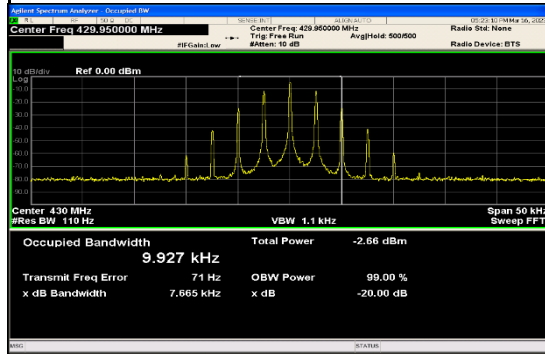
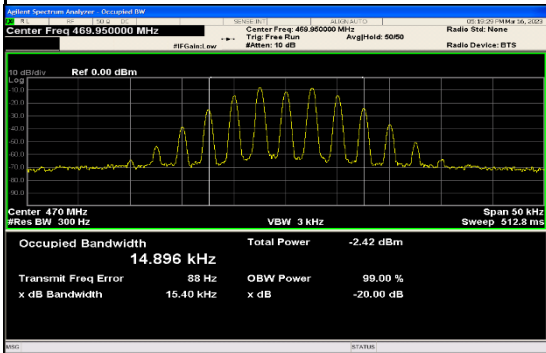
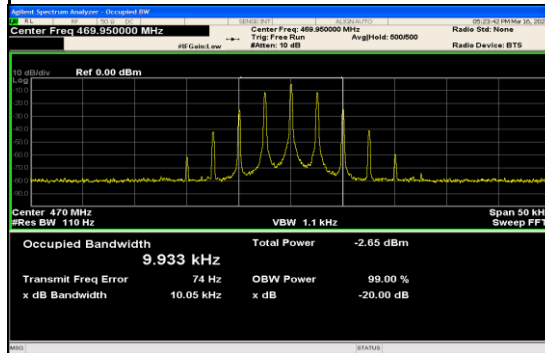
<DMR, NXDN and CW ID Modulation Case>



Test Results

Test date	Mar 16, 2023	to	Mar 17, 2023
Location	Kashima No.12 Test Site		
temperature	24.6	to	25.7 [degree C]
Humidity Variation	40.0	to	45.0 [%]
Atmospheric Pressure	101.5	to	101.7 [kPa]
Test Engineer	Koichi Wagatsuma		

Emission Designation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	Authorized bandwidth (kHz)
16K0F3E	406.15 429.95 469.95	14.906 14.877 14.896	20
11K0F3E	406.15 429.95 469.95	9.934 9.927 9.933	11.25
7K60FXD/FXE/F7E/F7D/F7W/FXW	406.15 429.95 469.95	7.601 7.579 7.623	11.25
8K30F1E/F1D/F7W	406.15 429.95 469.95	7.712 7.689 7.722	11.25
4K00F1E/F1D/F7W	406.15 429.95 469.95	3.517 3.513 3.531	6
4K00F2D	406.15 429.95 469.95	3.293 3.292 3.295	6

Frequency (MHz)	Emission Designation	
	16K0F3E	11K0F3E
406.15	 Agilent Spectrum Analyzer - Occupied BW Center Freq 406.150000 MHz Ref 0.00 dBm Center 406.2 MHz Res BW 300 Hz VBW 3 kHz Span 50 kHz Sweep 512.8 ms Occupied Bandwidth 14.906 kHz Total Power -2.41 dBm Transmit Freq Error 81 Hz OBW Power 99.00 % x dB Bandwidth 15.40 kHz x dB -20.00 dB	 Agilent Spectrum Analyzer - Occupied BW Center Freq 406.150000 MHz Ref 0.00 dBm Center 406.2 MHz Res BW 110 Hz VBW 1.1 kHz Span 50 kHz Sweep FFT Occupied Bandwidth 9.934 kHz Total Power -2.57 dBm Transmit Freq Error 70 Hz OBW Power 99.00 % x dB Bandwidth 10.05 kHz x dB -20.00 dB
429.95	 Agilent Spectrum Analyzer - Occupied BW Center Freq 429.950000 MHz Ref 0.00 dBm Center 430 MHz Res BW 300 Hz VBW 3 kHz Span 50 kHz Sweep 512.8 ms Occupied Bandwidth 14.877 kHz Total Power -2.41 dBm Transmit Freq Error 88 Hz OBW Power 99.00 % x dB Bandwidth 15.39 kHz x dB -20.00 dB	 Agilent Spectrum Analyzer - Occupied BW Center Freq 429.950000 MHz Ref 0.00 dBm Center 430 MHz Res BW 110 Hz VBW 1.1 kHz Span 50 kHz Sweep FFT Occupied Bandwidth 9.927 kHz Total Power -2.66 dBm Transmit Freq Error 71 Hz OBW Power 99.00 % x dB Bandwidth 7.665 kHz x dB -20.00 dB
469.95	 Agilent Spectrum Analyzer - Occupied BW Center Freq 469.950000 MHz Ref 0.00 dBm Center 470 MHz Res BW 300 Hz VBW 3 kHz Span 50 kHz Sweep 512.8 ms Occupied Bandwidth 14.896 kHz Total Power -2.42 dBm Transmit Freq Error 88 Hz OBW Power 99.00 % x dB Bandwidth 15.40 kHz x dB -20.00 dB	 Agilent Spectrum Analyzer - Occupied BW Center Freq 469.950000 MHz Ref 0.00 dBm Center 470 MHz Res BW 110 Hz VBW 1.1 kHz Span 50 kHz Sweep FFT Occupied Bandwidth 9.933 kHz Total Power -2.65 dBm Transmit Freq Error 74 Hz OBW Power 99.00 % x dB Bandwidth 10.05 kHz x dB -20.00 dB

Ferquency (MHz)	Emission Designation	
	7K60FXD/FXE/F7E/F7D/F7W/FXW	8K30F1E/F1D/F7W
406.15	Agilent Spectrum Analyzer - Occupied BW Center Freq 406.150000 MHz Ref 0.00 dBm Center 406.2 MHz Res BW 100 Hz VBW 1 kHz Span 50 kHz Occupied Bandwidth 7.601 kHz Total Power 2.64 dBm Transmit Freq Error 69 Hz OBW Power 99.00 % x dB Bandwidth 8.458 kHz x dB -20.00 dB	Agilent Spectrum Analyzer - Occupied BW Center Freq 406.150000 MHz Ref 0.00 dBm Center 406.2 MHz Res BW 100 Hz VBW 1 kHz Span 50 kHz Occupied Bandwidth 7.712 kHz Total Power 2.73 dBm Transmit Freq Error 79 Hz OBW Power 99.00 % x dB Bandwidth 8.686 kHz x dB -20.00 dB
429.95	Agilent Spectrum Analyzer - Occupied BW Center Freq 429.950000 MHz Ref 0.00 dBm Center 430 MHz Res BW 100 Hz VBW 1 kHz Span 50 kHz Occupied Bandwidth 7.579 kHz Total Power 2.63 dBm Transmit Freq Error 74 Hz OBW Power 99.00 % x dB Bandwidth 8.457 kHz x dB -20.00 dB	Agilent Spectrum Analyzer - Occupied BW Center Freq 429.950000 MHz Ref 0.00 dBm Center 430 MHz Res BW 100 Hz VBW 1 kHz Span 50 kHz Occupied Bandwidth 7.689 kHz Total Power 2.74 dBm Transmit Freq Error 79 Hz OBW Power 99.00 % x dB Bandwidth 8.677 kHz x dB -20.00 dB
469.95	Agilent Spectrum Analyzer - Occupied BW Center Freq 469.950000 MHz Ref 0.00 dBm Center 470 MHz Res BW 100 Hz VBW 1 kHz Span 50 kHz Occupied Bandwidth 7.623 kHz Total Power 2.59 dBm Transmit Freq Error 73 Hz OBW Power 99.00 % x dB Bandwidth 8.455 kHz x dB -20.00 dB	Agilent Spectrum Analyzer - Occupied BW Center Freq 469.950000 MHz Ref 0.00 dBm Center 470 MHz Res BW 100 Hz VBW 1 kHz Span 50 kHz Occupied Bandwidth 7.722 kHz Total Power 2.74 dBm Transmit Freq Error 87 Hz OBW Power 99.00 % x dB Bandwidth 8.686 kHz x dB -20.00 dB

Frequency (MHz)	Emission Designation	
	4K00F1E/F1D/F7W	4K00F2D
406.15		
429.95		
469.95		