TEST REPORT

REGULATION : **FCC Part 2, 90**
RSS-119 Issue 12

Applicant	Testing Laboratory
JVC KENWOOD Corporation 1-16-2, Hakusan, Midori-ku, Yokohama-shi Kanagawa, 226-8525 Japan Tel.: +81 45 939 6254 Fax.: +81 45 939 6261	Intertek Japan K.K. Kashima Laboratory URL: http://www.japan.intertek-etlsemko.com (Anechoic chamber) 298-6 Sada, Kashima, Ibaraki 314-0027 Japan Tel. +81 299 82 8464 (Open area test site) 3-2 Sunayama, Kamisu, Ibaraki 314-0255 Japan Tel. +81 479 40 1097 Intertek Japan K. K. Nagano Laboratory 3226 Yokokawa, Tatsuno-machi, Kamiina-gun, Nagano 399-0511 Japan Tel.: +81 266 47 5311

Equipment type	UHF DIGITAL BASE-REPEATER
Trademark	KENWOOD
FCC Model(s)	NXR-5800-K3
IC Model(s)	NXR-5800-K3
Serial No.	No.3
FCC ID	K44474601
IC CN and UPN	282F-474601
Test Result	Complied
Report Number	15060189JKA-001
Original Issue Date	September 28, 2015

Approved by

Hideaki Kosemura
[Technical Dept. Manager]

Tested by

Koichi Wagatsuma
[Engineer]

Naohei Murakami
[Engineer]

In Accordance with FCC Rules and Regulations, Volume II, Part 2 and 90

Sub-part 2.1033

Applicant and Manufacture Information		
APPLICANT		
Company	:	JVC KENWOOD Corporation
Address	:	1-16-2, Hakusan, Midori-ku, Yokohama-shi Kanagawa, 226-8525 Japan
Contact Person	:	Tamaki Shimamura Manager, Communications Systems Business Operation
MANUFACTURER		
Company	:	JVC KENWOOD Corporation
Address	:	1-16-2, Hakusan, Midori-ku, Yokohama-shi Kanagawa, 226-8525 Japan
(c)(2) FCC ID		
FCC ID	:	K44474601
Model number	:	NXR-5800-K3
Serial number	:	No.3
Instruction Manual(S)		
Instruction manual(s)	:	Please refer to attached Exhibits F
Type of Emission		
Emission Designation	:	16K0F3E(Wide) 16K0F3E is IC Only 11K0F3E(Narrow) 8K30F1E(Narrow) / 8K30F1D(Narrow) / 8K30F7W(Narrow) 4K00F1E(Very Narrow) / 4K00F1D(Very Narrow) / 4K00F7W(Very Narrow) 4K00F2D(Very Narrow)
Frequency range		
Frequency Range	:	FCC: 406.1 to 470 MHz IC: 406.1 to 430 MHz and 450 to 470 MHz
Power Rating		
Output Power	:	0.5 to 25 W
Type	:	Continuously Variable
Maximum Power Rating		
Output Power	:	25W
Voltages & currents in all elements in final RF stage, including final transistor or solid-state device		
Collector Current, A	:	9.0 A Maximum
Collector Voltage, Vdc	:	13.6 Vdc
Supply Voltage, Vdc	:	13.6 Vdc
Other Information		
Number of Channel	:	30 channels
Maximum Deviation	:	± 5 kHz (16K0F3E), ± 2.5 kHz (11K0F3E)
Frequency Stability	:	0.5 ppm
	:	0.1 ppm with OCXO unit
Antenna Impedance	:	50 Ω Norminal
Note		

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SECTION 1. GENERAL INFORMATION

TEST PERFORMED

Location	Kashima No.1 Test Site, No.12 Test Site and Nagano No.2 Test Site
EUT Received	August 21, 2015
Date of Test	August 26, 2015 to September 12, 2015
Standard Applied	FCC Part 2, 90 RSS-119 Issue 12
Measurement Method	ANSI/TIA-603-D-2010 / RSS-119 Issue 12(2015), RSS-Gen Issue 4(2014)
Deviation from Standard(s)	Not applicable

QUALIFICATIONS OF TESTING LABORATORY (Kashima Lab.)

ACCREDITATION	SCOPE	LAB. CODE	Remarks
VLAC	EMC Testing	VLAC-008-1	JAPAN
BSMI	EMC Testing	SL2-IN-E-6008	TAIWAN
FILING			
VCCI	EMC Testing	A-0126	JAPAN
FCC	EMC Testing	JP0008	USA
IC	EMC Testing	IC-2042K-3, IC-2042Q-12	CANADA
CB-Scheme	EMC Testing	TL222	IECEE

QUALIFICATIONS OF TESTING LABORATORY (Nagano Lab.)

ACCREDITATION	SCOPE	LAB. CODE	Remarks
VLAC	EMC Testing	VLAC-008-4	JAPAN
BSMI	EMC Testing	SL2-IN-E-6007	TAIWAN
FILING			
VCCI	EMC Testing	A-128	JAPAN
FCC	EMC Testing	JP0010	USA
IC	EMC Testing	IC-2042O-1	CANADA

ABBREVIATIONS

EUT	Equipment Under Test	DoC	Declaration of Conformity
AMN	Artificial Mains Network	ISN	Impedance Stabilization Network
LISN	Line Impedance Stabilization Network	Q-P	Quasi-peak
AMP	Amplifier	AVG	Average
ATT	Attenuator	PK	Peak
ANT	Antenna	Cal	Calibration
BBA	Broadband Antenna	N/A	Not applicable or Not available
DIP	Dipole Antenna	LCD	Liquid-Crystal Display
AE	Associated Equipment	4LEVEL FSK	4LEVEL Frequency Shift Key
GMSK	Gaussian Maximum Shift Key	CW ID	Continuously Repeating bit stream
FM	Frequency Modulation	C4FM	Constant envelope 4 Level FM
PTT	Push to Talk	AFC	Automatic frequency control

Revision Summary

Revised Date	Section	Description of Changes

SECTION 2. SUMMARY OF TEST RESULT

FCC Part2	Part90	IC RSS-119	TEST ITEM	RESULTS	Comments
2.1046 (a)	-	5.4	Carrier Output Power (Conducted)	**PASS**	
2.1051	90.210	5.8	Unwanted Emissions (Transmitter Conducted)	**PASS**	
2.1053 (a)	90.210	5.8	Field Strength of Spurious Radiation	**PASS**	
2.1049 (c) (1)	90.210	5.5	Emission Masks (Occupied Bandwidth)	**PASS**	
-	90.214	5.9	Transient Frequency Behavior	**PASS**	
2.1047 (a)	-	-	Audio Low Pass Filter (Voice Input)	**PASS**	
2.1047 (a)	-	-	Audio Frequency Response	**PASS**	
2.1047 (b)	-	-	Modulation Limiting	**PASS**	
2.1055 (a) (1)	90.213 (a)	5.3	Frequency Stability (Temperature Variation)	**PASS**	
2.1055 (d) (1)	90.213 (a)	5.3	Frequency Stability (Voltage Variation)	**PASS**	
-	-	RSS-Gen 7.1	Receiver Spurious Emissions	**PASS**	
-	90.203 (j)(3)	-	Certification required (FCC Part 90.203(j)(3))	**Complied**	
-	90.203 (j)(4)	-	Certification required (FCC Part 90.203(j)(4))	**Complied**	
-	90.203 (j)(5)	-	Certification required (FCC Part 90.203(j)(5))	**Complied**	
-	90.203 (e)	-	Certification required (FCC Part 90.203(e))	**Complied**	
-	-	5.5	99% Occupied Bandwidth	**PASS**	

Limitation on Results

The test result of this report is effective equipment under test itself and under the test configuration descried on the report. This test report dose not assure that whether the test result taken in other testing laboratory is compatible or reproducible to the test result on this report or not.

Note:

As for the FCC Part 15 Subport B-Unintentional Radiators, the EUT has been measured and declared as Verification by JVC Kenwood Corporation.

SECTION 3. TEST AND MEASUREMENT DATA

All test and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J and Industry Canada as the following individual parts

FCC Rule	Test Item	Tested
Part 21	Domestic Public Fixed radio Services	N.A.
Part 22	Non Cellular	N.A.
Part 22	Public Mobile Services	N.A.
Part 22	Subpart H - Cellular Radiotelephone Service	N.A.
Part 22	Alternative technologies and auxiliary service	N.A.
Part 23	International Fixed Public Radiocommunication service	N.A.
Part 24	Personal Communications Services	N.A.
Part 74	Experimental Radio Auxiliary , Special Broadcast and Other Program Distributional Services	N.A.
Part 80	Stations in the Maritime Services	N.A.
Part 80	Subpart E - general Technical Standards	N.A.
Part 80	Subpart F - Equipment Authorization for Compulsory Ships	N.A.
Part 80	Subpart K - Private Coast Stations and Marine Utility Stations	N.A.
Part 80	Subpart S - Compulsory radiotelephone Installations for Small Passenger Boats	N.A.
Part 80	Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes	N.A.
Part 80	Subpart U - Radiotelephone Installations Required by the Bridge-to- Bridge Act	N.A.
Part 80	Subpart V - Emergency Position Indicating Radiobeacons (EPIRB'S)	N.A.
Part 80	Subpart W - Global Maritime Distress and Safety System (GMDSS)	N.A.
Part 80	Subpart X - Voluntary Radio Installations	
Part 87	Aviation Services	N.A.
Part 90	**Private Land Mobile radio Services**	**YES**
Part 94	Private Operational - Fixed Microwave Service	N.A.
Part 95	Subpart A - General Mobile radio Service	N.A.
Part 95	Subpart C - Radio Control (R/C) radio Service	N.A.
Part 95	Subpart D - Citizens Band (CB) Radio Service	N.A.
Part 95	Subpart E -Family radio Service	N.A.
Part 95	Subpart F -Interactive Video and Data Service (IVDS)	N.A.
Part 97	Amateur Radio Service	N.A.
Part 101	Fixed Microwave Service	N.A.

IC Rule	Test Item	Tested
RSS-119	**Radio Ttansmitters and Receivers Operating in the Land Mobile and Fixed Services in the Frequency Range 27.4-960 MHz**	**YES**
RSS-134	900MHz Narrowband Personal Communication Service	N.A.
RSS-Gen	**General Requirements for Conpliance of Radio Apparatus**	**YES**

SECTION 4. INFORMATION ABOUT EUT AND SUPPORT EQUIPMENT(S)

4.1 List of System Configuration

Symbol	Item	Model No.	Serial No.	Manufacture	Remarks
A	UHF DIGITAL BASE-REPEATER	NXR-5800-K3	No.3	JVC KENWOOD Corporation	EUT
Power Ratings of EUT :		DC 10.8 to 15.6 V		9.0 A Maximum	
Power Supply :		DC 13.6 V			
Condition of Equipment		Proto type			
Type		Rack Mount type			
Suppression Devices		No Modifications by the laboratory were made to the device			

4.2 Port(s)/Connector(s)

Port Name	Connector Type	Connector Pin	Remarks
RX	BNC	2pin	
REF OUT	BNC	2pin	
REF IN	BNC	2pin	
DC 13.6 V	JST VLR-02V	2pin	
TX	BNC	2pin	
TEST/SPKR	MOLEX 1625-15p	15pin	
Control I/O	D-sub	25pin	
SYNC 1	RJ-11	4pin	
SYNC 2	RJ-11	4pin	
LAN	RJ-45	8pin	
MICROPHONE	RJ-45	8pin	
USB	Type B	4pin	use for maintenance

4.3 Highest Frequency Oscillator(s)/Crystal(s)

Operating Frequency	Board Name	Remarks
470 MHz	TXRX UNIT	

SECTION 5. SUPPORT EQUIPMENT

The EUT was supported by the following equipment during the test.

Symbol	Item	Model No.	Serial No.	Manufacture	FCC ID
B	Microphone	KMC-35	none	JVC KENWOOD Corporation	N/A
C	Hub	SD205	PSJ1341D2C	CISCO	DoC
D	Controller	none	none	JVC KENWOOD Corporation	N/A
E	External Speaker	KES-5	none	JVC KENWOOD Corporation	N/A
F	Terminator	CT-01	CE1012No1	TME	N/A
G	Terminator	CT-01	CE2012No2	TME	N/A
H	Terminator	3204-BNCM	No1	JVC KENWOOD Corporation	N/A
I	Terminator	3204-BNCM	No2	JVC KENWOOD Corporation	N/A
J	Terminator	CT-03BP	1071272	TME	N/A
K	Terminator	CT-03BP	1071273	TME	N/A
L	Base-Repeater (1)	NXR-JIG1	none	JVC KENWOOD Corporation	N/A
M	Base-Repeater (2)	NXR-JIG2	none	JVC KENWOOD Corporation	N/A
N	DC Power Supply (1)	PMC35-3A	LE000716	KIKUSUI	N/A
O	DC Power Supply (2)	AD-52M	F03999930	Daiwa	N/A
P	AC Adapter	EA0061WAA	09H114123	Bestec	Doc

Supplied Power:

N, O, P	AC 100V,60Hz

SECTION 6. USED CABLE(S)

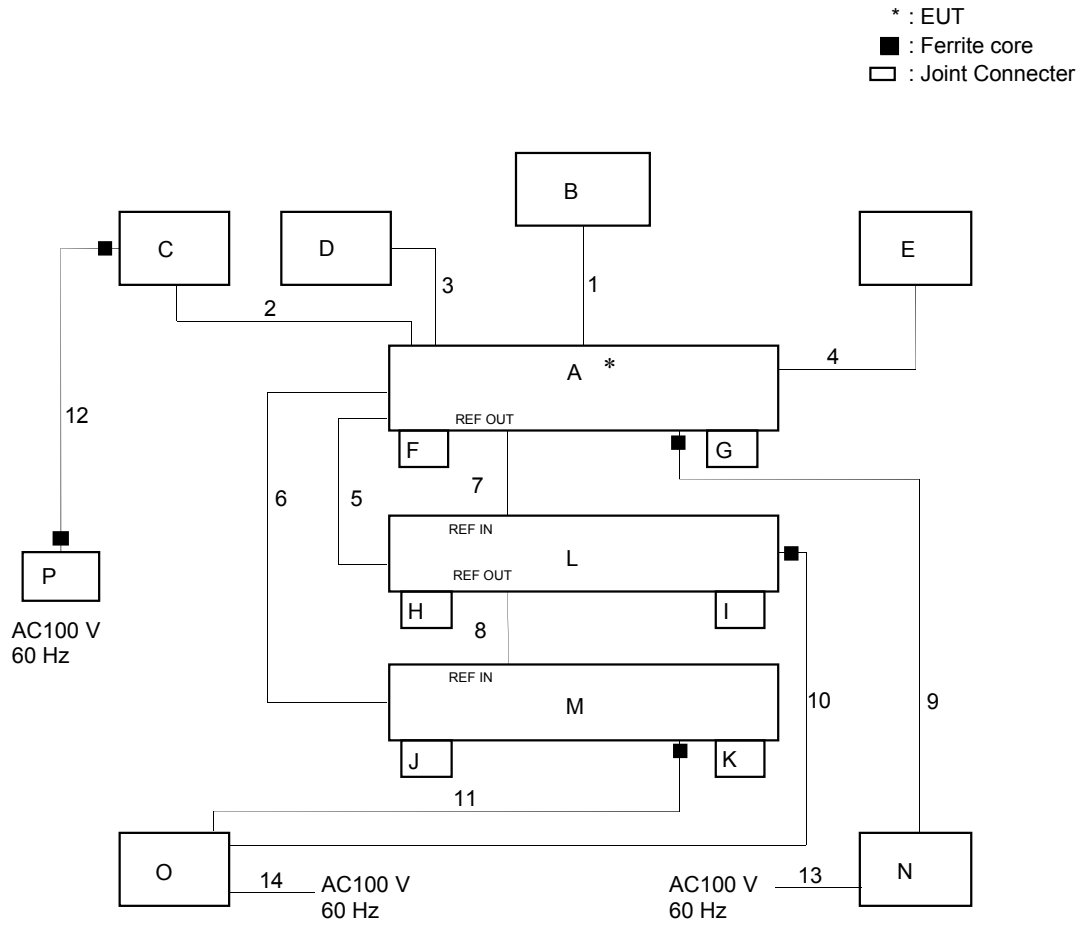
The following cable(s) was used for the test.

No.	Name	Length (m)	Shield	Connector	Ferrite core
1	Mic. cable	0.60	No	No	
2	LAN cable	1.00	Yes	Yes	
3	D-sub	1.40	Yes	No	
4	Speaker cable	2.80	No	No	
5	Modular cable	0.20	No	No	
6	Modular cable	0.20	No	No	
7	Coaxial cable	1.00	Yes	Yes	
8	Coaxial cable	1.00	Yes	Yes	
9	DC cable for EUT	4.00	No	No	Removable x 1
10	DC cable for Base-Repeater (1)	4.00	No	No	Removable x 1
11	DC cable for Base-Repeater (2)	4.00	No	No	Removable x 1
12	DC cable for Hub	2.00	No	No	Removable x 2
13	Power cable for DC Power Supply (1)	2.00	No	No	
14	Power cable for DC Power Supply (2)	1.30	No	No	

SECTION 7. TEST CONFIGURATION

Details of Configuration and Connection

Example: Case of Section 10.10Test



SECTION 8. OPERATING CONDITION

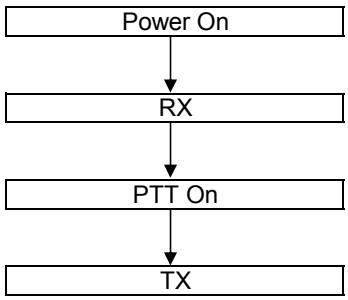
The EUT was operated under the following condition during the test.

8.1 Operating Condition

The test was carried out under Transmit mode.
(FCC:406.15MHz, 438.05MHz, 469.95MHz, RSS:406.15MHz, 429.95MHz, 469.95MHz)
(High Power : 25W, Low Power : 0.5 W)
The test was carried out under Receive mode.
(406.15MHz, 429.95MHz, 469.95MHz)
EUT was examined in the operating conditions that had maximum emissions.

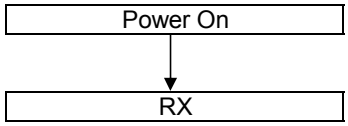
8.2 Operating Flow [Transmit mode]

Following operations were performed continuously.



8.3 Operating Flow [Receive mode]

Following operations were performed continuously.



SECTION 9. MEASUREMENT UNCERTAINTY

Carrier Output Power (Conducted)	U_{lab}	Utia-603-d	
	+/- 0.29dB (k = 2)	+/- 0.59	dB
Unwanted Emissions (Transmitter Conducted)			
	+/- 2.19 dB (k = 2)	+/- 1.1	dB
Field Strength of Spurious Radiation			
	+/- 2.78dB (k = 2)	+/- 3.3	dB
Emission Masks (Occupied Bandwidth)			
	+/- 0.5dB (k = 2)	+/- 2.1	dB
Transient Frequency Behavior			
	+/- 1.10% (k = 2)	+/- 21.6	%
Audio Low Pass Filter (Voice Input)			
	+/- 0.1dB (k = 2)	+/- 1.2	dB
Audio Frequency Response			
	+/- 0.1dB (k = 2)	+/- 1.2	dB
Modulation Limiting			
	+/- 1% (k = 2)	+/- 1.0	%
Frequency Stability (Temperature Variation)			
	+/- 10.1Hz (k=2)	+/-34.2	Hz
Frequency Stability (Voltage Variation)			
	+/- 10.1Hz (k=2)	+/-34.2	Hz
Receiver Spurious Emissions	U_{lab}	Ucispr	
30-1000MHz	+/- 4.43dB (k = 2)	+/- 6.3	dB
abobe 1GHz	+/- 4.44dB (k = 2)		

SECTION 10. TEST DATA

10.1 Carrier Output Power (Conducted)

REGULATIONS	:	FCC Part 2 Section 1046 (a) / RSS-119 Section 5.4
TEST METHOD/GUIDE	:	ANSI/TIA-603-D Section 2.2.1.2 / RSS-119 Section 4.1

Test Procedure

1 The EUT and test equipment were set up as shown on the following page.
2 The EUT was conducted to a resistive coaxial attenuator of normal load impedance.
RF Power (dBm) = Power Meter reading (dBm) + Attenuator Loss (dB) + Cable Loss (dB)
RF Power (W) = 10^(RF Power (dBm)/10)/1000
3 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 as for the test of RSS)

Measuring Equipments

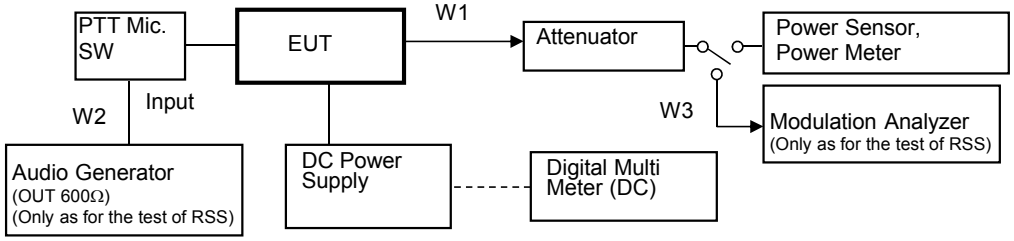
No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Power Meter	Hewlett Packard	E4418B	GB38410265	Jun. 09, 15	Jun. 30, 16
2	Power Sensor	Hewlett Packard	8482A	US37292237	Jun. 09, 15	Jun. 30, 16
3	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	Jun. 01, 15	Jun. 30, 16
4	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 01, 15	Jun. 30, 16
5	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	Nov. 14, 14	Nov. 30, 15
6	Audio Generator	Anritsu	MG443B	M70150	Jun. 18, 15	Jun. 30, 16
7	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
8	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 15	Jul. 31, 16
9	JIG	HP	EliteBook 2561p	CNU2262D0Q	None	None

Measuring Cables

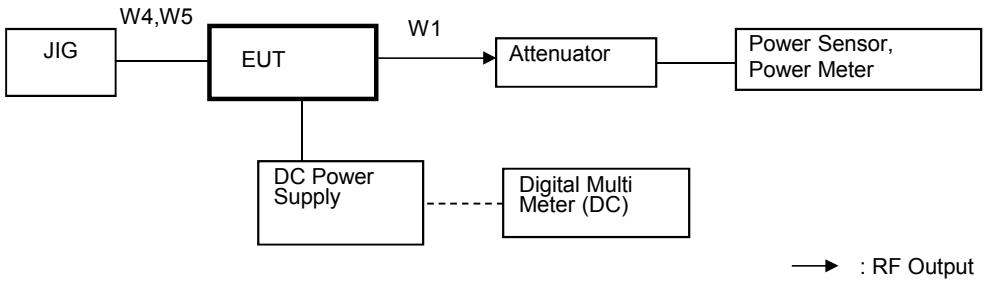
No.	Cable	Manufacturer	Model No.	Serial No.	Cal Date	Cal Exp.
W2	Balance Cable	Nicoon	3D-2V	KSR00092	Jan. 23, 15	Jan. 31, 16
W3	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C04	Jun. 09, 15	Jun. 30, 16
W1	Coaxial Cable	Suhner	SUCOFLEX104	F0000017	Jan. 23, 15	Jan. 31, 16
W4	USB Adapter	SANWA	USB-CVR59	FXLA00701	None	None
W5	PROGRAMMING INTERFACE Cable	SANWA	KR-MDI	None	None	None

Measuring Equipment Configuration

<Analog Modulation Case>



<Digital Modulation Case>



Test Results

Test date	Aug 26, 2015	
Location	Kashima No.1 Test Site	
temperature	23.3	[degree C]
Humidity Variation	60.0	[%]
Atmospheric Pressure	100.4	[kPa]
Test Engineer	Koichi Wagatsuma	

Test was carried out for all the Authorized Bandwidth.
State the worst case (below).

No.	Frequency (MHz)	Band		Setting	RF Power (W)
1	406.15 (RSS)	Low	16K0F3E	High Power	24.99
2	406.15 (FCC/RSS)	Low	11K0F3E	High Power	24.99
3	406.15 (FCC/RSS)	Low	8K30F1E/F1D/F7W	High Power	24.99
4	406.15 (FCC/RSS)	Low	4K00F1E/F1D/F7W	High Power	24.99
5	406.15 (FCC/RSS)	Low	4K00F2D	High Power	24.99
6	429.95 (RSS)	Middle	16K0F3E	High Power	24.97
7	429.95 (RSS)	Middle	11K0F3E	High Power	24.97
8	429.95 (RSS)	Middle	8K30F1E/F1D/F7W	High Power	24.97
9	429.95 (RSS)	Middle	4K00F1E/F1D/F7W	High Power	24.97
10	429.95 (RSS)	Middle	4K00F2D	High Power	24.97
11	438.05 (FCC)	Middle	11K0F3E	High Power	24.95
12	438.05 (FCC)	Middle	8K30F1E/F1D/F7W	High Power	24.95
13	438.05 (FCC)	Middle	4K00F1E/F1D/F7W	High Power	24.95
14	438.05 (FCC)	Middle	4K00F2D	High Power	24.95
15	469.95 (RSS)	High	16K0F3E	High Power	24.96
16	469.95 (FCC/RSS)	High	11K0F3E	High Power	24.96
17	469.95 (FCC/RSS)	High	8K30F1E/F1D/F7W	High Power	24.96
18	469.95 (FCC/RSS)	High	4K00F1E/F1D/F7W	High Power	24.96
19	469.95 (FCC/RSS)	High	4K00F2D	High Power	24.96
20	406.15 (RSS)	Low	16K0F3E	Low Power	0.50
21	406.15 (FCC/RSS)	Low	11K0F3E	Low Power	0.50
22	406.15 (FCC/RSS)	Low	8K30F1E/F1D/F7W	Low Power	0.50
23	406.15 (FCC/RSS)	Low	4K00F1E/F1D/F7W	Low Power	0.50
24	406.15 (FCC/RSS)	Low	4K00F2D	Low Power	0.50
25	429.95 (RSS)	Middle	16K0F3E	Low Power	0.50
26	429.95 (RSS)	Middle	11K0F3E	Low Power	0.50
27	429.95 (RSS)	Middle	8K30F1E/F1D/F7W	Low Power	0.50
28	429.95 (RSS)	Middle	4K00F1E/F1D/F7W	Low Power	0.50
29	429.95 (RSS)	Middle	4K00F2D	Low Power	0.50
30	438.05 (FCC)	Middle	11K0F3E	Low Power	0.50
31	438.05 (FCC)	Middle	8K30F1E/F1D/F7W	Low Power	0.50
32	438.05 (FCC)	Middle	4K00F1E/F1D/F7W	Low Power	0.50
33	438.05 (FCC)	Middle	4K00F2D	Low Power	0.50
34	469.95 (RSS)	High	16K0F3E	Low Power	0.50
35	469.95 (FCC/RSS)	High	11K0F3E	Low Power	0.50
36	469.95 (FCC/RSS)	High	8K30F1E/F1D/F7W	Low Power	0.50
37	469.95 (FCC/RSS)	High	4K00F1E/F1D/F7W	Low Power	0.50
38	469.95 (FCC/RSS)	High	4K00F2D	Low Power	0.50

RF Power: Peak reading

10.2 Unwanted Emissions (Transmitter Conducted)

REGULATIONS	:	FCC Part 2 Section 1051, Part 90 Section 210 / RSS-119 Section 5.8
TEST METHOD/GUIDE	:	RSS-119 Section 4.2, RSS-Gen Section 4.9

Test Procedure

1 The EUT and test equipment were set up as shown on the following page.
2 Modulate the transmitter with a 2.5 kHz sine wave at an input Level of 16 dB greater than that than that necessary to produce 50 % of rated system deviation.
3 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 : Average power (FM Modulation) , Positive peak with peak hold (Digital Modulation)
4 The emissions were measured for the worst case as follows:
a) : within a band of frequencies defined by the carrier frequency plus and minus one channel.
b) : from the lowest frequency generated in the EUT and to at least the 10th harmonic of the carrier frequency, or 40 GHz, whichever is lower.

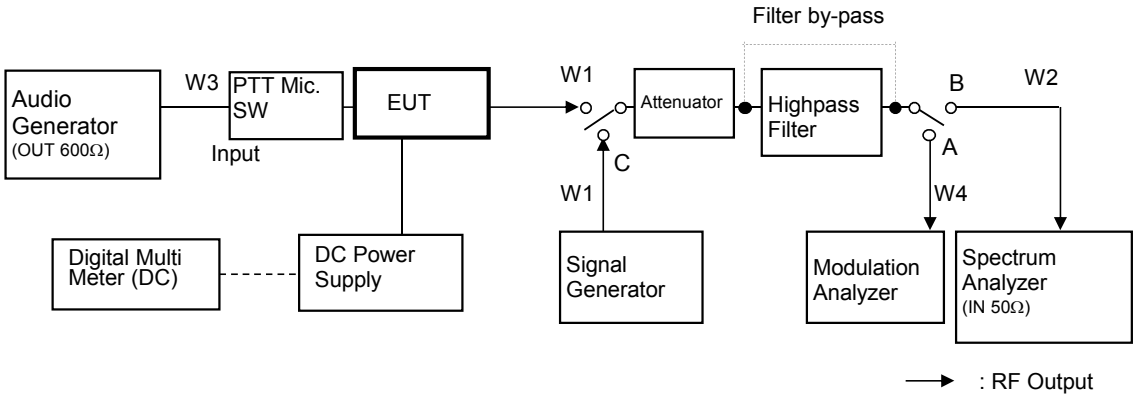
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	Jun. 01, 15	Jun. 30, 16
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 01, 15	Jun. 30, 16
3	Highpass Filter	Anritsu	MP526D	6200220657	Jan. 20, 15	Jan. 31, 16
4	Modulation Analyzer	Hewlett Packard	8901B	2806A01669	Oct. 13, 14	Oct. 31, 15
5	Signal Generator	Rohde&Schwarz	SMB 100A	105709	Mar. 18, 15	Mar. 31, 16
6	Audio Generator	Anritsu	MG443B	M70150	Jun. 18, 15	Jun. 30, 16
7	Spectrum Analyzer	Agilent	N9030A	US51350170	Mar. 12, 15	Mar. 31, 16
8	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
9	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 15	Jul. 31, 16

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W3	Balance Cable	Nicoon	3D-2V	KSR00092	Jan. 23, 15	Jan. 31, 16
W4	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C04	Jun. 09, 15	Jun. 30, 16
W1	Coaxial Cable	Suhner	SUCOFLEX104	F0000017	Jan. 23, 15	Jan. 31, 16
W2	Coaxial Cable	Suhner	SUCOFLEX104	F0000018	Jan. 23, 15	Jan. 31, 16

Measuring Equipment Configuration



Test Results

Test date	Aug 26, 2015
Location	Kashima No.1 Test Site
temperature	23 [degree C]
Humidity Variation	60 [%]
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 6 kHz

No.	Tuned Frequency (MHz)	Band	Spurious Frequency (MHz)	Correct Level (dBm)	Emission Level (dBc)	Mask E Limit (dBc)	Margin (dB)
1	406.15(FCC/RSS)	Low	812.30	-42.07	**-86.05**	-65.0	21.0
2	429.95(RSS)	Middle	859.90	-41.46	**-85.44**	-65.0	20.4
3	438.05(FCC)	Middle	876.10	-41.38	**-85.36**	-65.0	20.4
4	469.95(FCC/RSS)	High	939.90	-41.00	**-84.98**	-65.0	20.0
There is the margin of 20dB over except for the above points.							

Mask E Limit (dBc) = whichever is the lesser attenuation ; -(55+10Log(P)) or -65
Correct Level (dBm) = Substitute SG Level (dBm)
Emission Level (dBc) = Correct Level (dBm) - 10Log(P*1000)
P = Carrier Level (W)
" - " = Measurement Limit

State : Low Power / Authorized Bandwidth 6 kHz

No.	Tuned Frequency (MHz)	Band	Spurious Frequency (MHz)	Correct Level (dBm)	Emission Level (dBc)	Mask E Limit (dBc)	Margin (dB)
1	406.15(FCC/RSS)	Low	No Point detected	-	-	-52.0	-
2	429.95(RSS)	Middle	No Point detected	-	-	-52.0	-
3	438.05(FCC)	Middle	No Point detected	-	-	-52.0	-
4	469.95(FCC/RSS)	High	No Point detected	-	-	-62.0	-
There is the margin of 20dB over except for the above points.							

Mask E Limit (dBc) = whichever is the lesser attenuation ; -(55+10Log(P)) or -65
Correct Level (dBm) = Substitute SG Level (dBm)
Emission Level (dBc) = Correct Level (dBm) - 10Log(P*1000)
P = Carrier Level (W)
" - " = Measurement Limit

10.3 Field Strength of Spurious Radiation

REGULATIONS	:	FCC Part 2 Section 1053 (a), Part 90 Section 210 / RSS-119 Section 5.8
TEST METHOD/GUIDE	:	ANSI/TIA-603-D Section 2.2.12.2 / RSS-119 Section 4.2

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

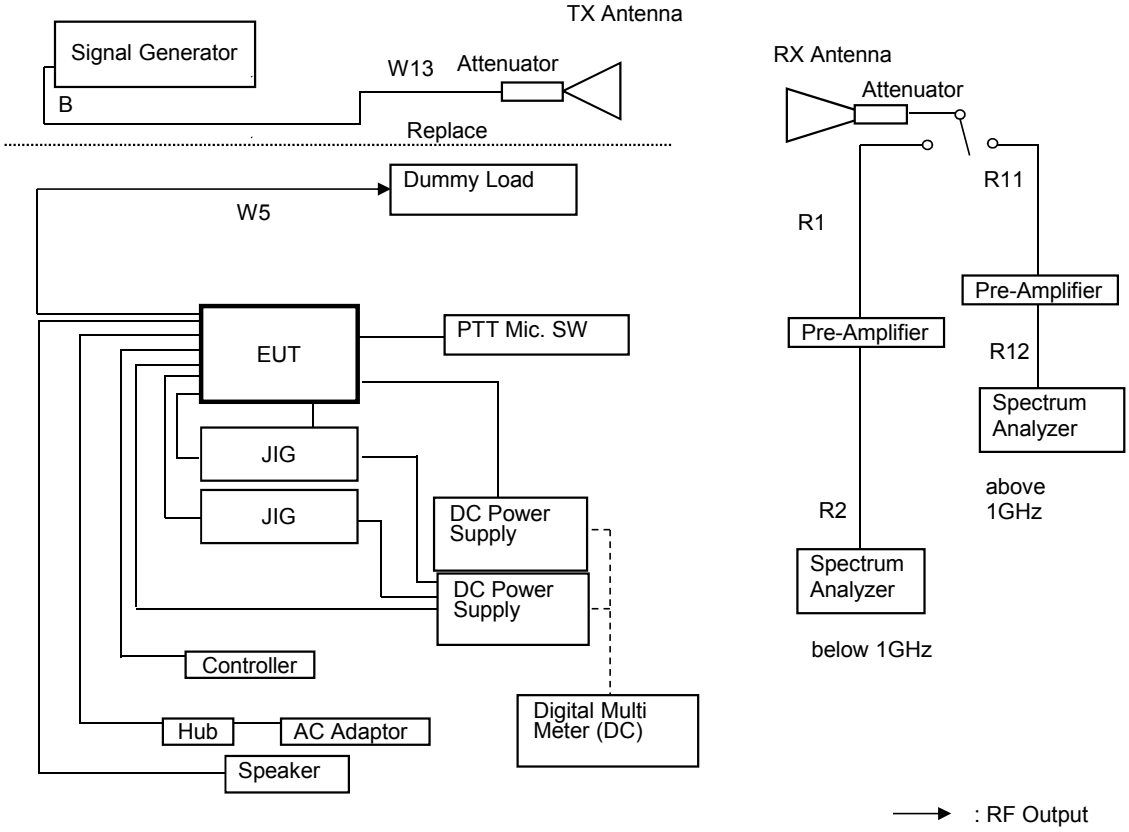
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Attenuator(6dB)	HUBER+SUHNER	6806.17B	4962	Jan. 23, 15	Jan. 31, 16
2	Attenuator(10dB)	HUBER+SUHNER	6810.17B	5061	Jun. 01, 15	Jun. 30, 16
3	Dummy Load	TME	CT-150NP	1138693	Jan. 20, 15	Jan. 31, 16
4	Signal Generator	Rohde&Schwarz	SMB 100A	105709	Mar. 18, 15	Mar. 31, 16
5	Spectrum Analyzer	Agilent	N9000A	MY51260520	Apr. 20, 15	Apr. 30, 16
6	D.R.G Antenna(RX)	Schwarzbeck	3115	5044	Jul. 31, 15	Jul. 31, 16
7	D.R.G Antenna(TX)	Schwarzbeck	3115	5045	Apr. 15, 15	Apr. 30, 16
8	Dipole Antenna(TX)	Schwarzbeck	UHA9105	AM0082002	Jul. 21, 15	Jul. 31, 16
9	Dipole Antenna(TX)	Schwarzbeck	VHA9103	C01082007	Jul. 21, 15	Jul. 31, 16
10	Tri-log Antenna(RX)	Schwarzbeck	VULB9168WP	126	Nov. 21, 14	Nov. 30, 15
11	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
12	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290932	None	None
13	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 15	Jul. 31, 16
14	Amplifier	Intertek Japan	ZFL-1200GH+L	2013075-2	Aug. 13, 15	Aug. 31, 16
15	Amplifier	TOYO	TPA0118-30	0402	Feb. 23, 15	Feb. 29, 16
16	Attenuator	HUBER + SUHNER	6803.17.B	5111	Feb. 23, 15	Feb. 29, 16

Measuring Cables

No.	Cable	Manufacturer	Model No.	Serial No.	Cal Date	Cal Exp.
R2	Coaxial Cable	Suhner	SUCOFLEX104	F0000017	Jan. 23, 15	Jan. 31, 16
W5	Coaxial Cable	Suhner	SUCOFLEX104	KSR00091	Jun. 09, 15	Jun. 30, 16
R12	Coaxial Cable	SUHNER	SUCOFLEX 104	229603	Feb. 23, 15	Feb. 29, 16
R11	Coaxial Cable	Candox	5B-048-98-98-5000	111130	Feb. 23, 15	Feb. 29, 16
R1	Coaxial Cable	FUJIKURA	5D-2W	KSR00312	Jun. 09, 15	Jun. 30, 16
W13	Coaxial Cable	Suhner	SUCOFLEX106	KSR00207	Jun. 09, 15	Jun. 30, 16

Measuring Equipment Configuration



Test Results

Test date	Aug 28, 2015	
Location	Kashima No.12 Test Site	
temperature	21 to 25	[degree C]
Humidity Variation	50 to 60	[%]
Atmospheric Pressure	101.0 to 102.3	[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 6 kHz / 438.05MHz(FCC)

No	Frequency (MHz)	Pol	Reading Level (dBm)	SG Out Level (dBm)	Antenna Gain (dBd)	Loss (dB)	Correct Level (dBm)	Emission Level (dBc)	MASK E Limit Level (dBc)	Margin (dB)
1	876.10	Hor.	-52.50	-32.95	0.00	12.33	-45.3	**-89.3**	-65.0	24.3
		Ver.	-50.15	-27.79	0.00	12.33	-40.1	**-84.1**	-65.0	19.1
2	1314.15	Hor.	-45.70	-34.29	5.40	12.83	-41.7	**-85.7**	-65.0	20.7
		Ver.	-38.67	-27.31	5.40	12.83	-34.7	**-78.7**	-65.0	13.7
3	1752.20	Hor.	-45.74	-33.56	6.33	13.29	-40.5	**-84.5**	-65.0	19.5
		Ver.	-44.17	-31.97	6.33	13.29	-38.9	**-82.9**	-65.0	17.9
4	2190.25	Hor.	-49.57	-36.97	6.78	13.72	-43.9	**-87.9**	-65.0	22.9
		Ver.	-48.14	-33.60	6.78	13.72	-40.5	**-84.5**	-65.0	19.5
5	2628.30	Hor.	-54.88	-40.78	7.49	14.11	-47.4	**-91.4**	-65.0	26.4
		Ver.	-51.69	-36.32	7.49	14.11	-42.9	**-86.9**	-65.0	21.9
6	3066.35	Hor.	-55.73	-39.13	7.66	14.48	-45.9	**-89.9**	-65.0	24.9
		Ver.	-55.89	-38.25	7.66	14.48	-45.1	**-89.0**	-65.0	24.0
7	3504.40	Hor.	-56.74	-40.37	7.85	14.79	-47.3	**-91.3**	-65.0	26.3
		Ver.	-58.29	-40.45	7.85	14.79	-47.4	**-91.4**	-65.0	26.4
8	3942.45	Hor.	-	-	7.50	15.10	-	**-**	-65.0	-
		Ver.	-	-	7.50	15.10	-	**-**	-65.0	-
9	4380.50	Hor.	-61.50	-43.09	8.61	15.40	-49.9	**-93.8**	-65.0	28.8
		Ver.	-60.10	-41.47	8.61	15.40	-48.3	**-92.2**	-65.0	27.2

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

Mask E Limit (dBc) = whichever is the lesser attenuation ; -(55+10Log(P)) or -65
Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBd) - Loss (Cable, Attenuator) (dB)
Emission Level (dBc) = Correct Level (dBm) - 10Log(P*1000)
P = Carrier Level (W)
" - " = Measurement Limit

State : Low Power / Authorized Bandwidth 6 kHz / 438.05MHz(FCC)

No	Frequency (MHz)	Pol	Reading Level (dBm)	SG Out Level (dBm)	Antenna Gain (dBd)	Loss (dB)	Correct Level (dBm)	Emission Level (dBc)	MASK E Limit Level (dBc)	Margin (dB)
1	876.10	Hor.	-64.47	-44.92	0.00	12.33	-57.2	**-84.2**	-52.0	32.2
		Ver.	-58.66	-36.30	0.00	12.33	-48.6	**-75.6**	-52.0	23.6
2	1314.15	Hor.	-51.59	-40.19	5.40	12.83	-47.6	**-74.6**	-52.0	22.6
		Ver.	-49.36	-38.00	5.40	12.83	-45.4	**-72.4**	-52.0	20.4
3	1752.20	Hor.	-44.02	-31.84	6.33	13.29	-38.8	**-65.8**	-52.0	13.8
		Ver.	-41.78	-29.59	6.33	13.29	-36.5	**-63.5**	-52.0	11.5
4	2190.25	Hor.	-49.25	-36.66	6.78	13.72	-43.6	**-70.6**	-52.0	18.6
		Ver.	-48.19	-33.65	6.78	13.72	-40.6	**-67.6**	-52.0	15.6
5	2628.30	Hor.	-55.44	-41.33	7.49	14.11	-47.9	**-74.9**	-52.0	22.9
		Ver.	-54.26	-38.89	7.49	14.11	-45.5	**-72.5**	-52.0	20.5
6	3066.35	Hor.	-63.46	-46.86	7.66	14.48	-53.7	**-80.7**	-52.0	28.7
		Ver.	-60.14	-42.50	7.66	14.48	-49.3	**-76.3**	-52.0	24.3
7	3504.40	Hor.	-61.65	-45.28	7.85	14.79	-52.2	**-79.2**	-52.0	27.2
		Ver.	-59.07	-41.22	7.85	14.79	-48.2	**-75.2**	-52.0	23.2
8	3942.45	Hor.	-	-	7.50	15.10	-	**-**	-52.0	-
		Ver.	-	-	7.50	15.10	-	**-**	-52.0	-
9	4380.50	Hor.	-61.13	-42.71	8.61	15.40	-49.5	**-76.5**	-52.0	24.5
		Ver.	-60.70	-42.07	8.61	15.40	-48.9	**-75.8**	-52.0	23.8

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

Mask E Limit (dBc) = whichever is the lesser attenuation ; -(55+10Log(P)) or -65
Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBd) - Loss (Cable, Attenuator) (dB)
Emission Level (dBc) = Correct Level (dBm) - 10Log(P*1000)
P = Carrier Level (W)
" - " = Measurement Limit

State : High Power / Authorized Bandwidth 6 kHz / 429.95MHz(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 Limit Level (dBc)	Margin (dB)
1	859.90	Hor.	-55.26	-35.68	0.00	12.31	-48.0	**-92.0**	-65.0	27.0
		Ver.	-50.13	-28.53	0.00	12.31	-40.8	**-84.8**	-65.0	19.8
2	1289.85	Hor.	-46.17	-34.20	5.28	12.80	-41.7	**-85.7**	-65.0	20.7
		Ver.	-37.35	-25.70	5.28	12.80	-33.2	**-77.2**	-65.0	12.2
3	1719.80	Hor.	-55.21	-42.78	6.32	13.26	-49.7	**-93.7**	-65.0	28.7
		Ver.	-49.20	-36.99	6.32	13.26	-43.9	**-87.9**	-65.0	22.9
4	2149.75	Hor.	-53.37	-40.17	6.69	13.69	-47.2	**-91.1**	-65.0	26.1
		Ver.	-52.21	-37.52	6.69	13.69	-44.5	**-88.5**	-65.0	23.5
5	2579.70	Hor.	-58.20	-44.10	7.46	14.06	-50.7	**-94.7**	-65.0	29.7
		Ver.	-53.96	-38.26	7.46	14.06	-44.9	**-88.8**	-65.0	23.8
6	3009.65	Hor.	-58.63	-41.83	7.62	14.44	-48.6	**-92.6**	-65.0	27.6
		Ver.	-60.51	-42.46	7.62	14.44	-49.3	**-93.3**	-65.0	28.3
7	3439.60	Hor.	-59.50	-42.64	7.83	14.75	-49.5	**-93.5**	-65.0	28.5
		Ver.	-56.73	-38.37	7.83	14.75	-45.3	**-89.3**	-65.0	24.3
8	3869.55	Hor.	-	-	7.56	15.05	-	**-**	-65.0	-
		Ver.	-	-	7.56	15.05	-	**-**	-65.0	-
9	4299.50	Hor.	-60.44	-41.60	8.37	15.34	-48.6	**-92.5**	-65.0	27.5
		Ver.	-60.76	-42.36	8.37	15.34	-49.3	**-93.3**	-65.0	28.3

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

Mask E Limit (dBc) = whichever is the lesser attenuation ; -(55+10Log(P)) or -65
Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBd) - Loss (Cable, Attenuator) (dB)
Emission Level (dBc) = Correct Level (dBm) - 10Log(P*1000)
P = Carrier Level (W)
" - " = Measurement Limit

State : Low Power / Authorized Bandwidth 6 kHz / 429.95MHz(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 Limit Level (dBc)	Margin (dB)
1	859.90	Hor.	-63.79	-44.21	0.00	12.31	-56.5	**-83.5**	-52.0	31.5
		Ver.	-60.21	-38.61	0.00	12.31	-50.9	**-77.9**	-52.0	25.9
2	1289.85	Hor.	-56.38	-44.42	5.28	12.80	-51.9	**-78.9**	-52.0	26.9
		Ver.	-52.72	-41.07	5.28	12.80	-48.6	**-75.6**	-52.0	23.6
3	1719.80	Hor.	-54.34	-41.91	6.32	13.26	-48.8	**-75.8**	-52.0	23.8
		Ver.	-48.85	-36.65	6.32	13.26	-43.6	**-70.6**	-52.0	18.6
4	2149.75	Hor.	-54.07	-40.88	6.69	13.69	-47.9	**-74.9**	-52.0	22.9
		Ver.	-54.41	-39.71	6.69	13.69	-46.7	**-73.7**	-52.0	21.7
5	2579.70	Hor.	-57.05	-42.95	7.46	14.06	-49.5	**-76.5**	-52.0	24.5
		Ver.	-52.70	-37.00	7.46	14.06	-43.6	**-70.6**	-52.0	18.6
6	3009.65	Hor.	-63.86	-47.06	7.62	14.44	-53.9	**-80.9**	-52.0	28.9
		Ver.	-63.17	-45.13	7.62	14.44	-51.9	**-78.9**	-52.0	26.9
7	3439.60	Hor.	-58.75	-41.88	7.83	14.75	-48.8	**-75.8**	-52.0	23.8
		Ver.	-58.64	-40.28	7.83	14.75	-47.2	**-74.2**	-52.0	22.2
8	3869.55	Hor.	-	-	7.56	15.05	-	**-**	-52.0	-
		Ver.	-	-	7.56	15.05	-	**-**	-52.0	-
9	4299.50	Hor.	-60.33	-41.49	8.37	15.34	-48.5	**-75.5**	-52.0	23.5
		Ver.	-60.22	-41.82	8.37	15.34	-48.8	**-75.8**	-52.0	23.8

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

Mask E Limit (dBc) = whichever is the lesser attenuation ; -(55+10Log(P)) or -65
Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBd) - Loss (Cable, Attenuator) (dB)
Emission Level (dBc) = Correct Level (dBm) - 10Log(P*1000)
P = Carrier Level (W)
" - " = Measurement Limit

10.4 Emission Masks (Occupied Bandwidth)

REGULATIONS	: FCC Part 2 Section 1049 (c) (1), Part 90 Section 210 / RSS-119 Section 5.5
TEST METHOD/GUIDE	: ANSI/TIA-603-D Section 2.2.11.2 / RSS-119 Section 5.5

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 11.25 kHz and Authorized Band 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.

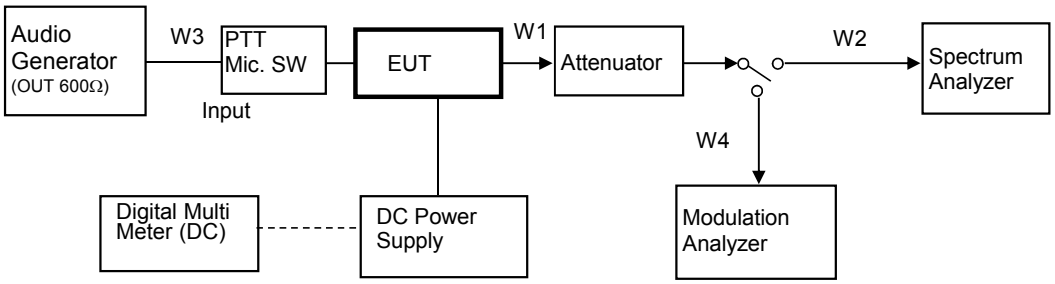
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	Jun. 01, 15	Jun. 30, 16
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 01, 15	Jun. 30, 16
3	Modulation Analyzer	Hewlett Packard	8901B	2806A01669	Oct. 13, 14	Oct. 31, 15
4	Audio Generator	Anritsu	MG443B	M70150	Jun. 18, 15	Jun. 30, 16
5	Spectrum Analyzer	Agilent	N9030A	US51350170	Mar. 12, 15	Mar. 31, 16
6	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
7	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 15	Jul. 31, 16
8	JIG	HP	EliteBook 2561p	CNU2262D0Q	None	None

Measuring Cables

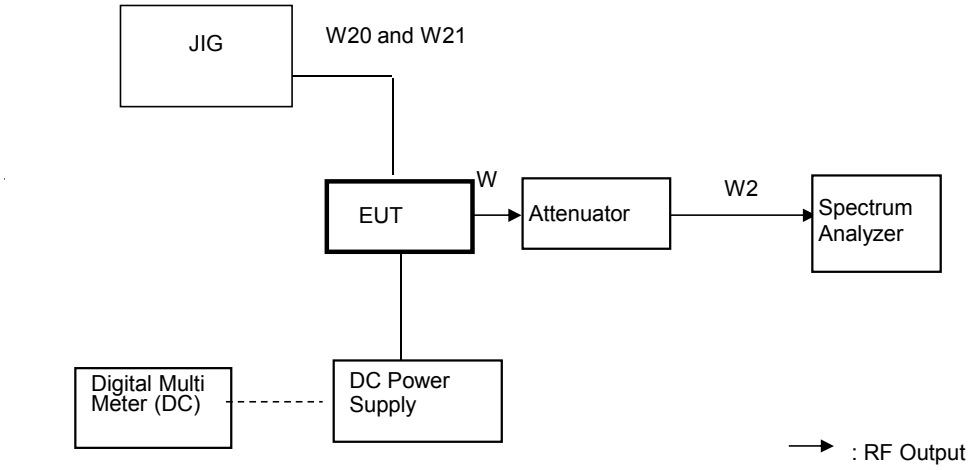
No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W3	Balance Cable	Nicoon	3D-2V	KSR00092	Jan. 23, 15	Jan. 31, 16
W4	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C04	Jun. 09, 15	Jun. 30, 16
W1	Coaxial Cable	Suhner	SUCOFLEX104	F0000017	Jan. 23, 15	Jan. 31, 16
W2	Coaxial Cable	Suhner	SUCOFLEX104	F0000018	Jan. 23, 15	Jan. 31, 16
W20	USB Adapter	SANWA	USB-CVR59	FXLA00701	None	None
W21	PROGRAMMING INTERFACE Cable	SANWA	KR-MDI	None	None	None

Measuring Equipment Configuration



Note: Configuration of other Modulation test is composed without the Audio Generator

<CW ID Modulation Case>

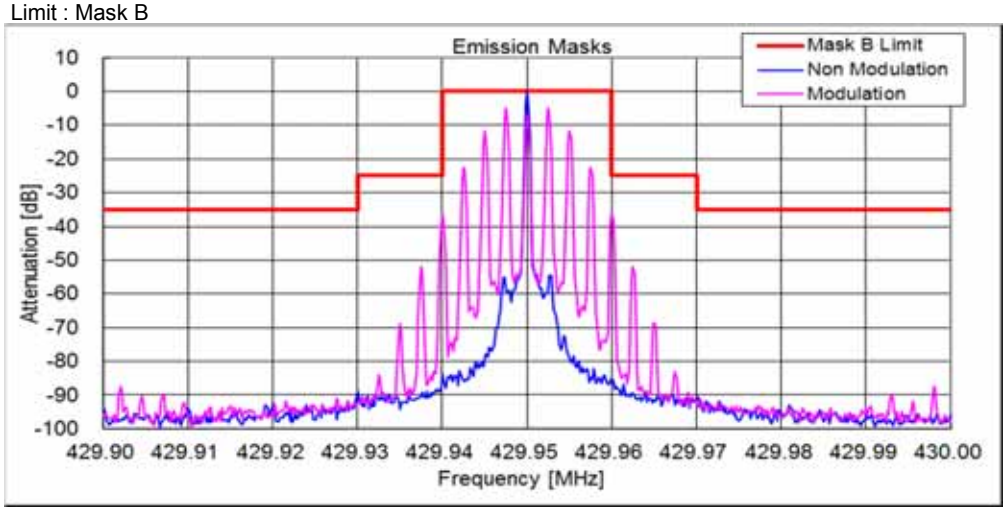


Test Results

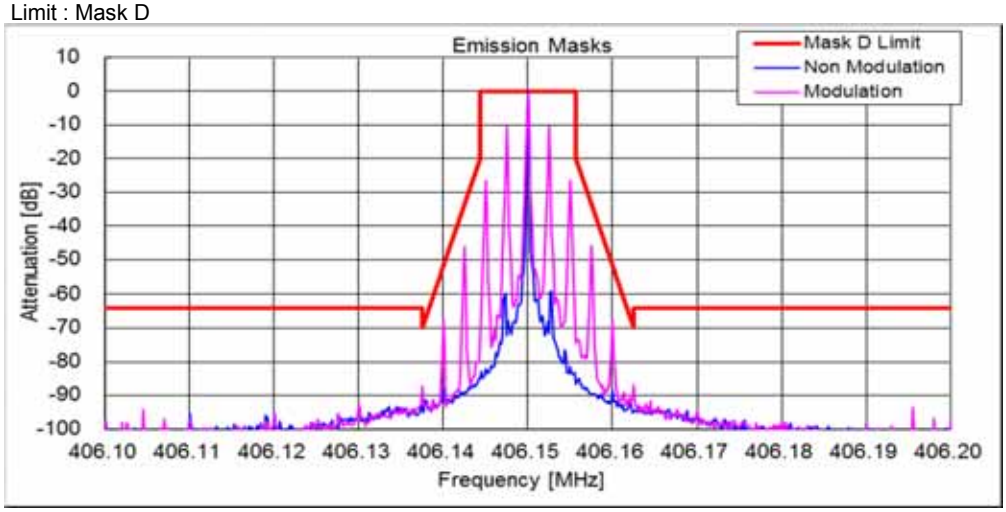
Test date	Aug 27, 2015	to	Aug. 28, 2015	
Location	Kashima No.1 Test Site			
temperature	23.6	to	24.1	[degree C]
Humidity Variation	58	to	60	[%]
Atmospheric Pressure	100.6	to	100.9	[kPa]
Test Engineer	Koichi Wagatsuma			

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

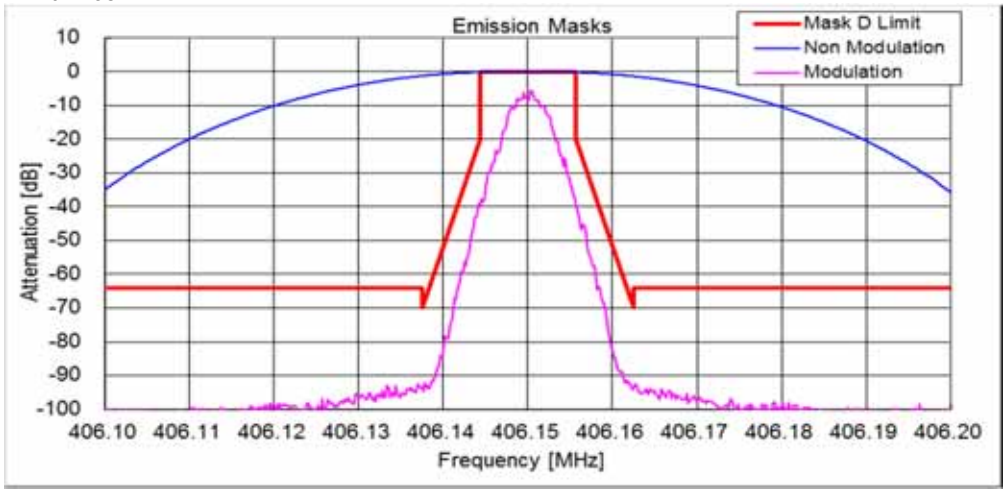
State : High Power / Authorized Bandwidth 20 kHz/ 16K0F3E / 429.95 MHz(RSS)
Limit : Mask B



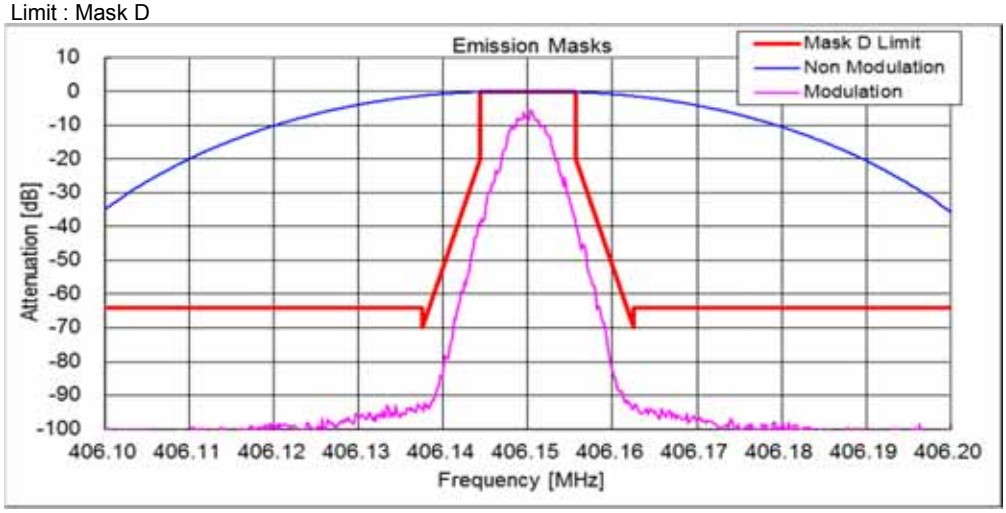
State : High Power / Authorized Bandwidth 11.25 kHz/ 11K0F3E / 406.15 MHz(FCC/RSS)
Limit : Mask D



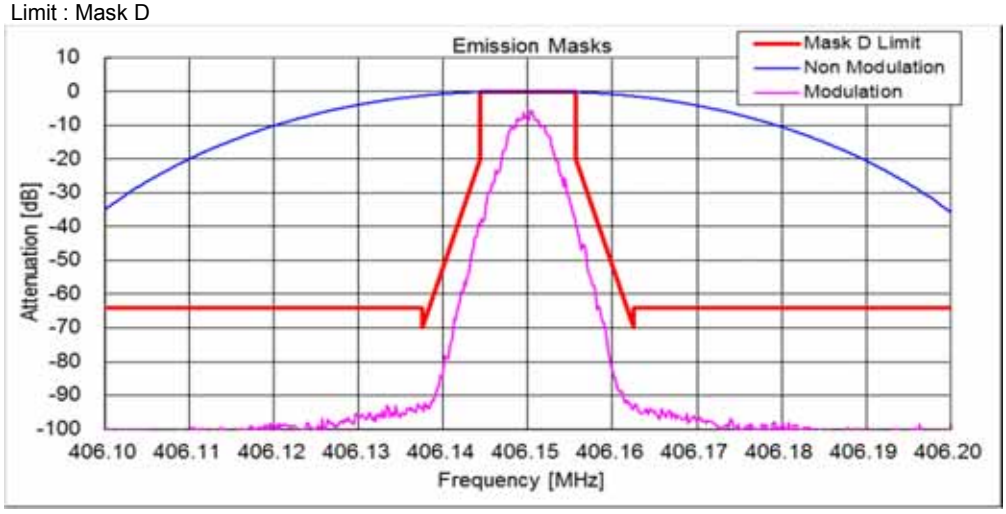
State : High Power / Authorized Bandwidth 11.25 kHz/ 8K30F1E / 406.15 MHz(FCC/RSS)
Limit : Mask D



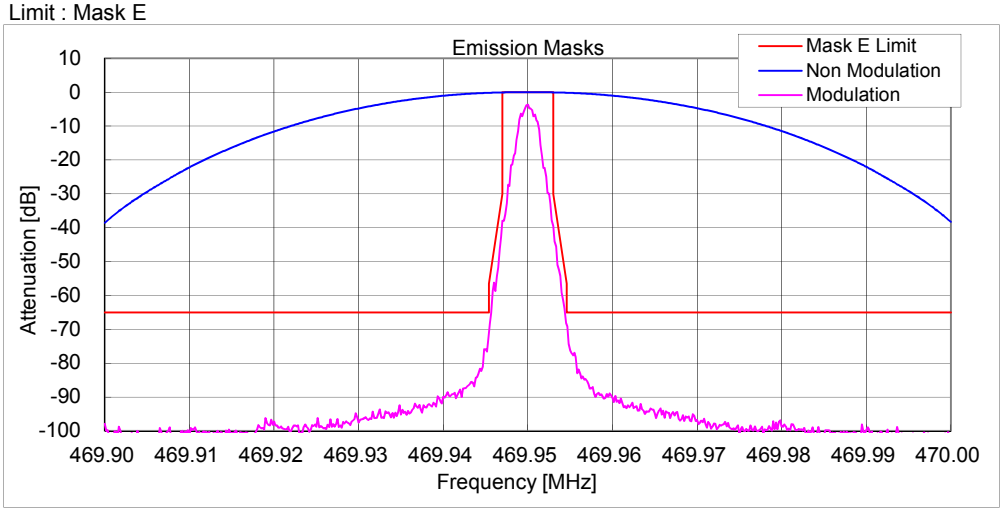
State : High Power / Authorized Bandwidth 11.25 kHz/ 8K30F1D / 406.15 MHz(FCC/RSS)
Limit : Mask D



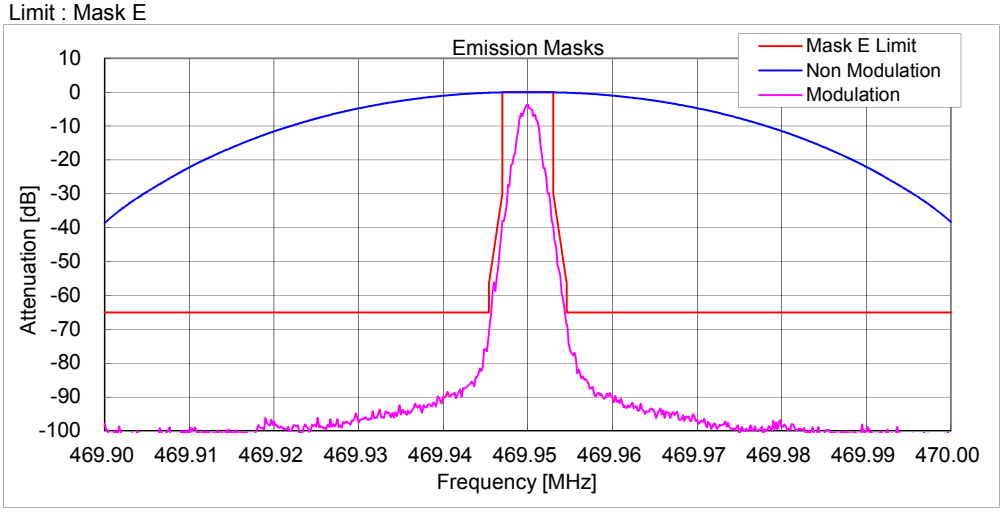
State : High Power / Authorized Bandwidth 11.25 kHz/ 8K30F7W / 406.15 MHz(FCC/RSS)
Limit : Mask D



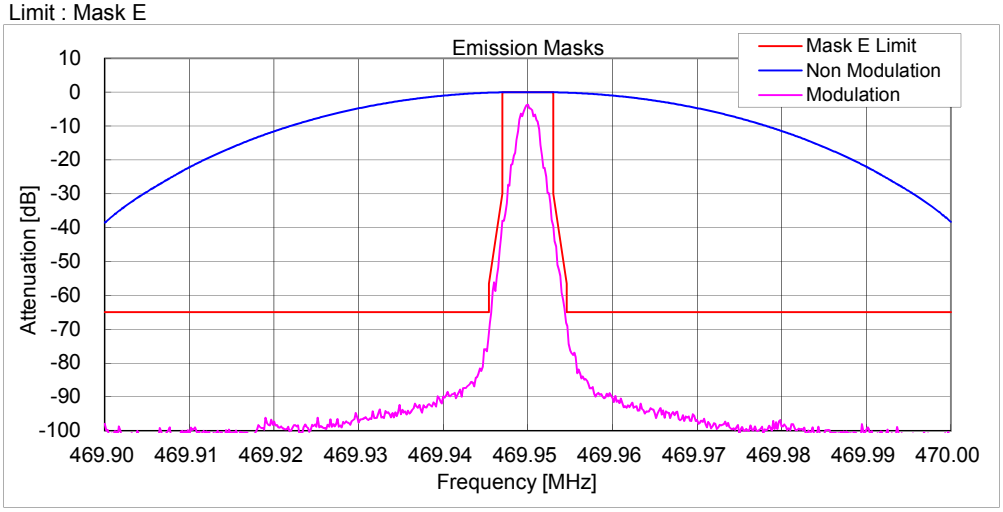
State : High Power / Authorized Bandwidth 6 kHz/ 4K00F1E / 469.95 MHz(FCC/RSS)
Limit : Mask E



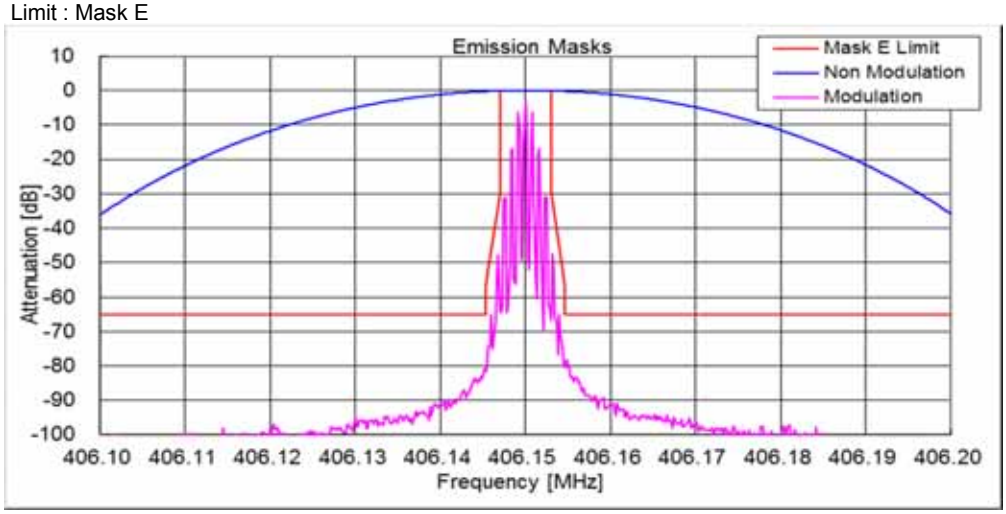
State : High Power / Authorized Bandwidth 6 kHz/ 4K00F1D / 469.95 MHz(FCC/RSS)
Limit : Mask E



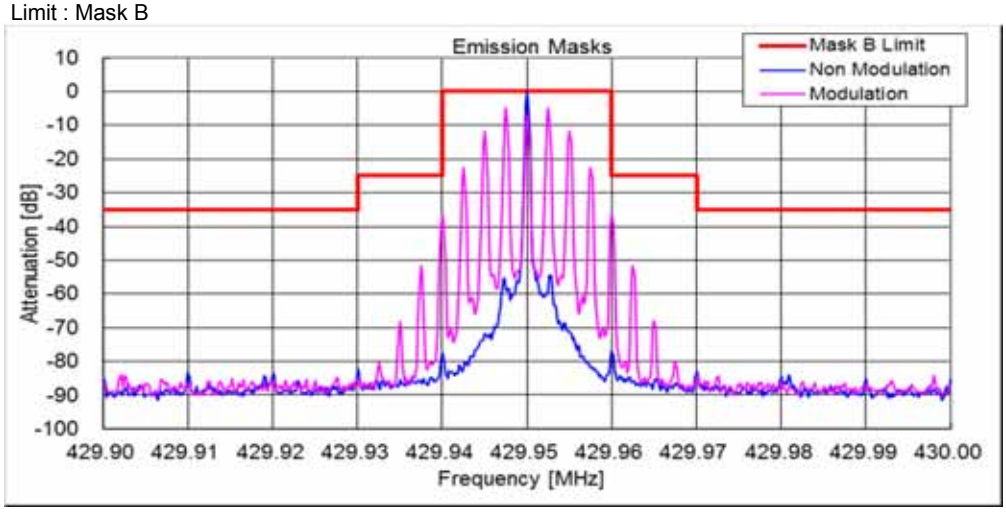
State : High Power / Authorized Bandwidth 6 kHz/ 4K00F7W / 469.95 MHz(FCC/RSS)
Limit : Mask E



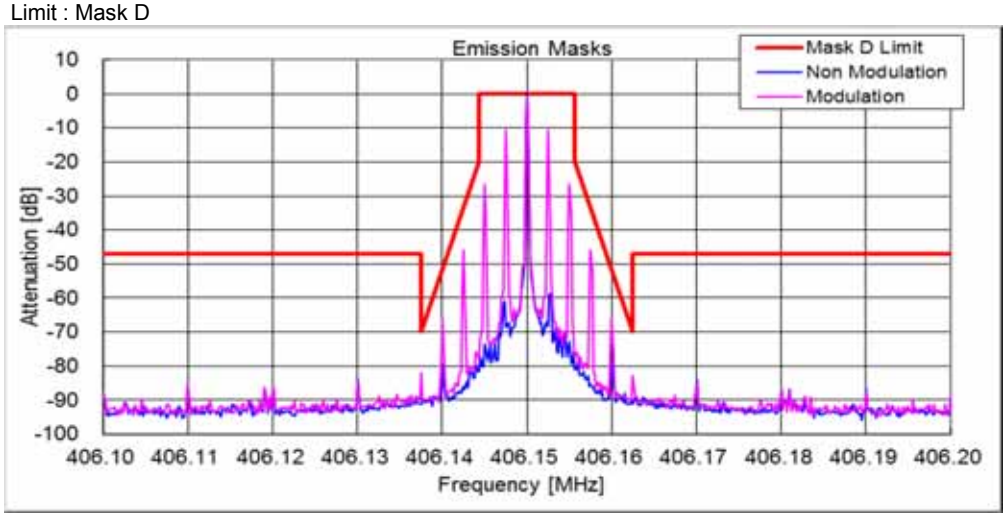
State : High Power / Authorized Bandwidth 6 kHz/ 4K00F2D / 406.15 MHz(FCC/RSS)
Limit : Mask E



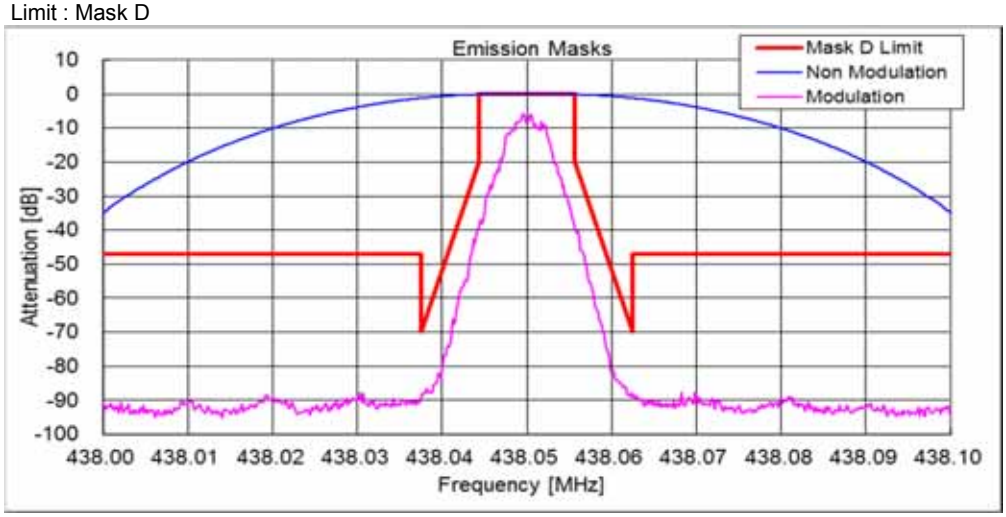
State : Low Power / Authorized Bandwidth 20 kHz/ 16K0F3E / 429.95 MHz(RSS)
Limit : Mask B



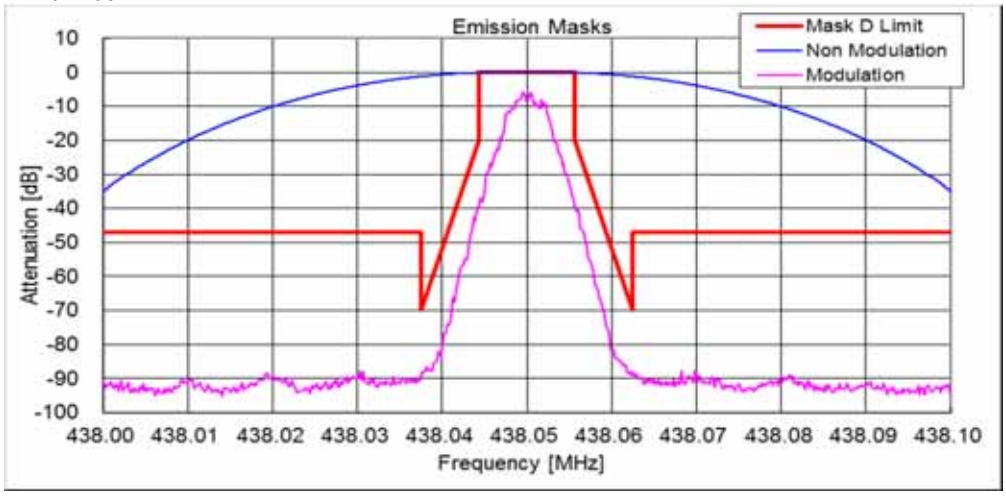
State : Low Power / Authorized Bandwidth 11.25 kHz/ 11K0F3E / 406.15 MHz(FCC/RSS)
Limit : Mask D



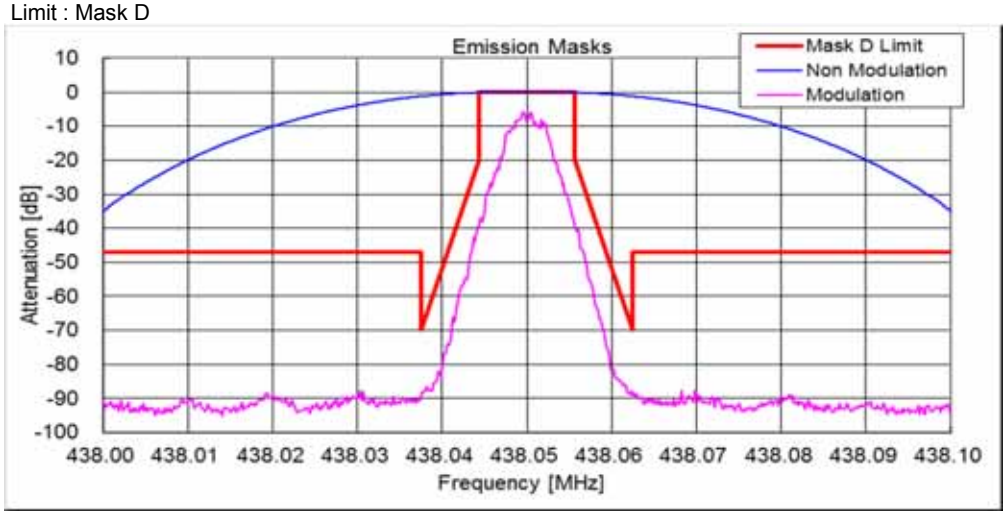
State : Low Power / Authorized Bandwidth 11.25 kHz/ 8K30F1E / 438.05 MHz(FCC)
Limit : Mask D



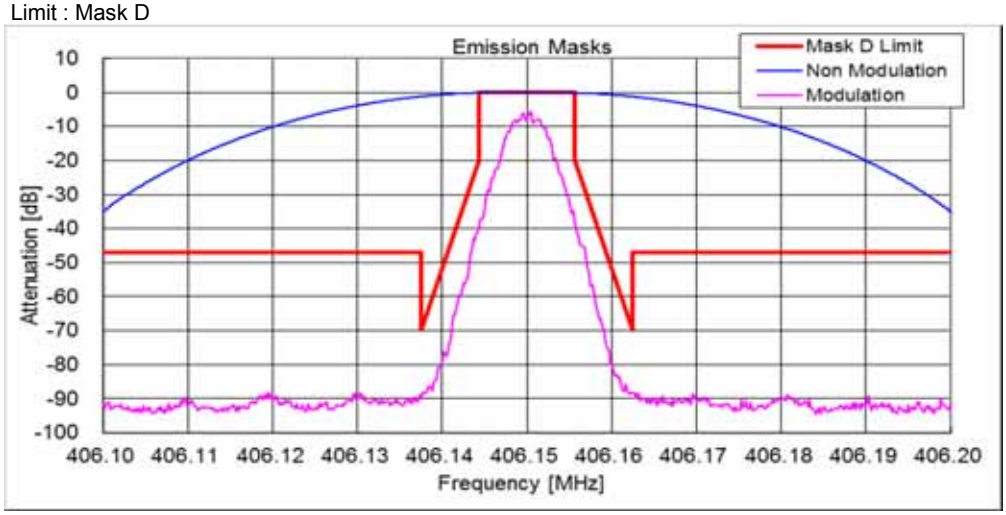
State : Low Power / Authorized Bandwidth 11.25 kHz/ 8K30F1D / 438.05 MHz(FCC)
Limit : Mask D



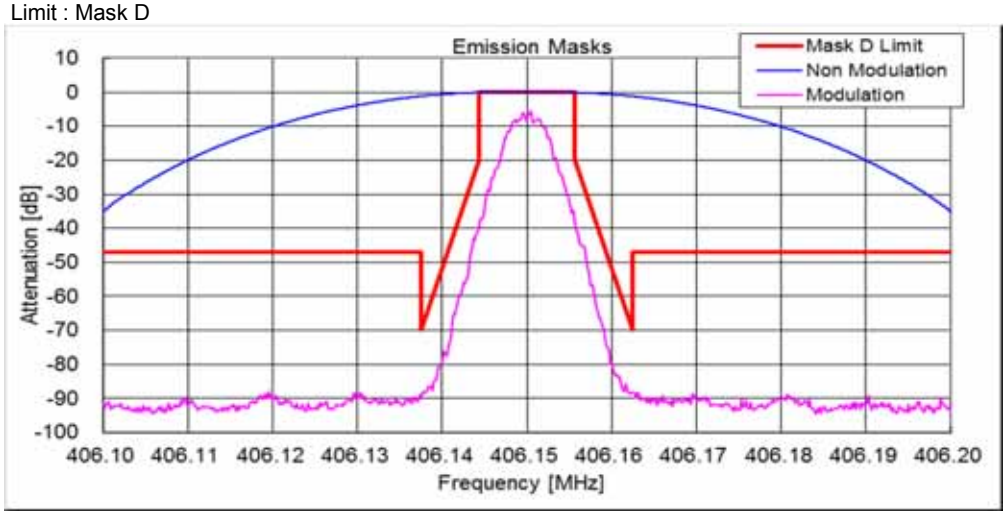
State : Low Power / Authorized Bandwidth 11.25 kHz/ 8K30F7W / 438.05 MHz(FCC)
Limit : Mask D



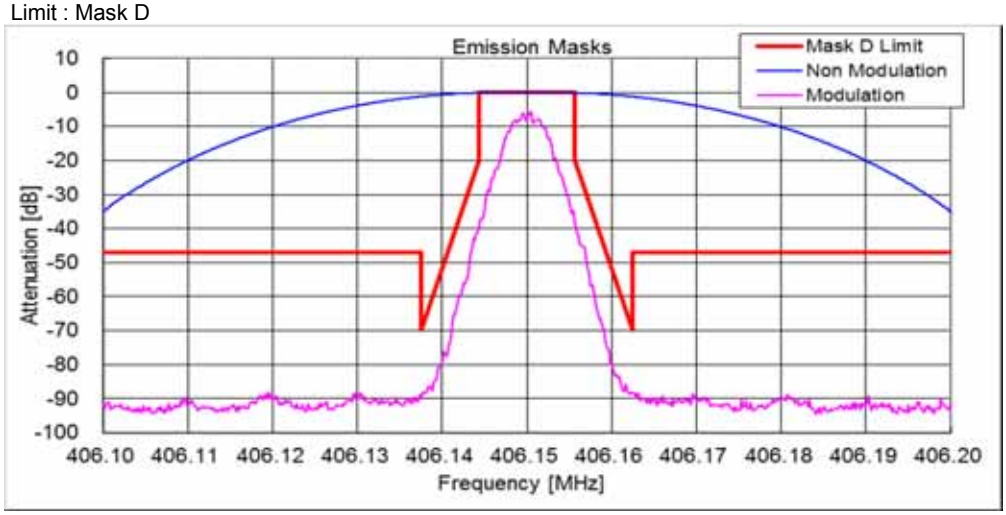
State : Low Power / Authorized Bandwidth 11.25 kHz/ 8K30F1E / 406.15 MHz(RSS)
Limit : Mask D



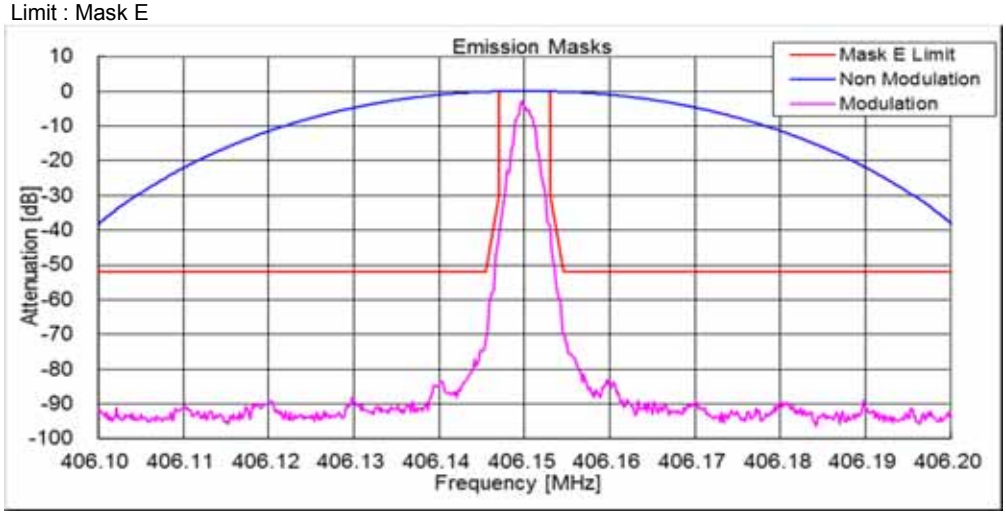
State : Low Power / Authorized Bandwidth 11.25 kHz/ 8K30F1D / 406.15 MHz(RSS)
Limit : Mask D



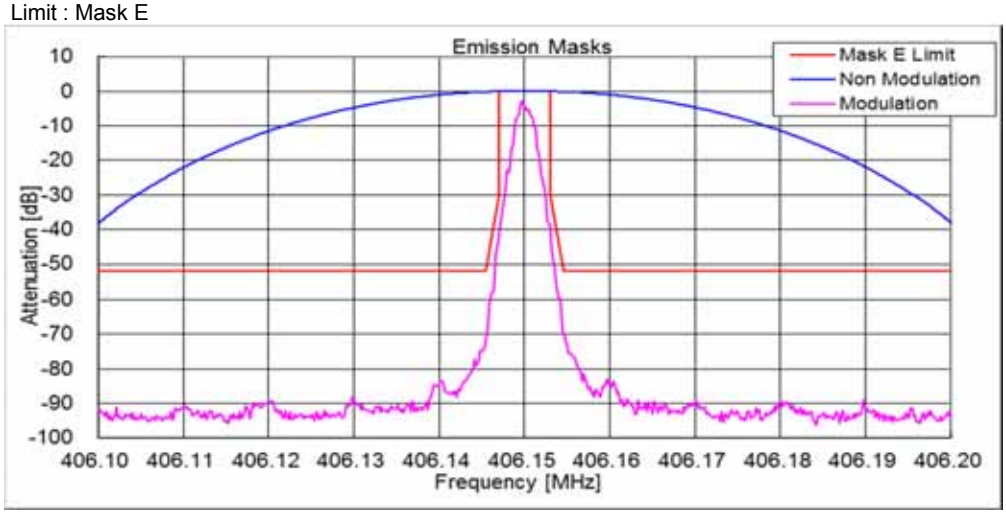
State : Low Power / Authorized Bandwidth 11.25 kHz/ 8K30F7W / 406.15 MHz(RSS)
Limit : Mask D



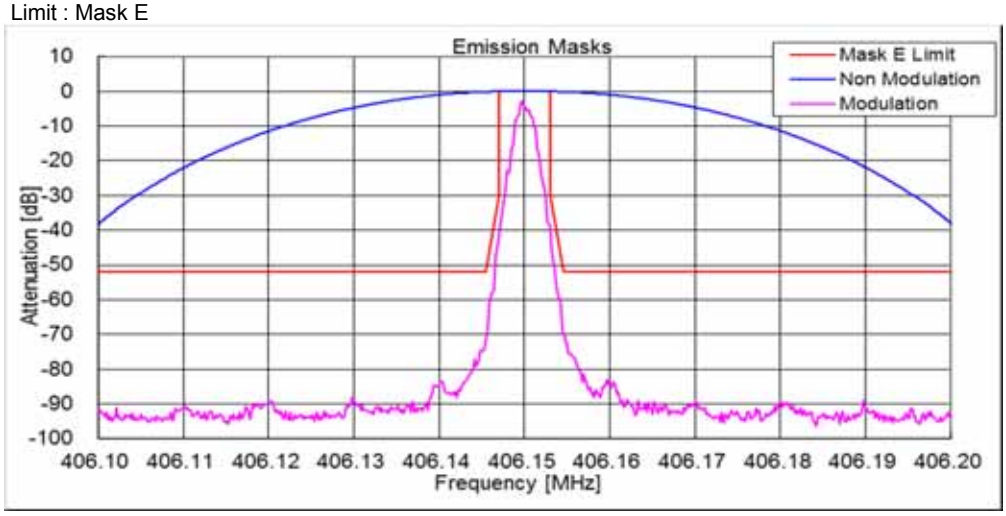
State : Low Power / Authorized Bandwidth 6 kHz/ 4K00F1E / 406.15 MHz(FCC/RSS)
Limit : Mask E



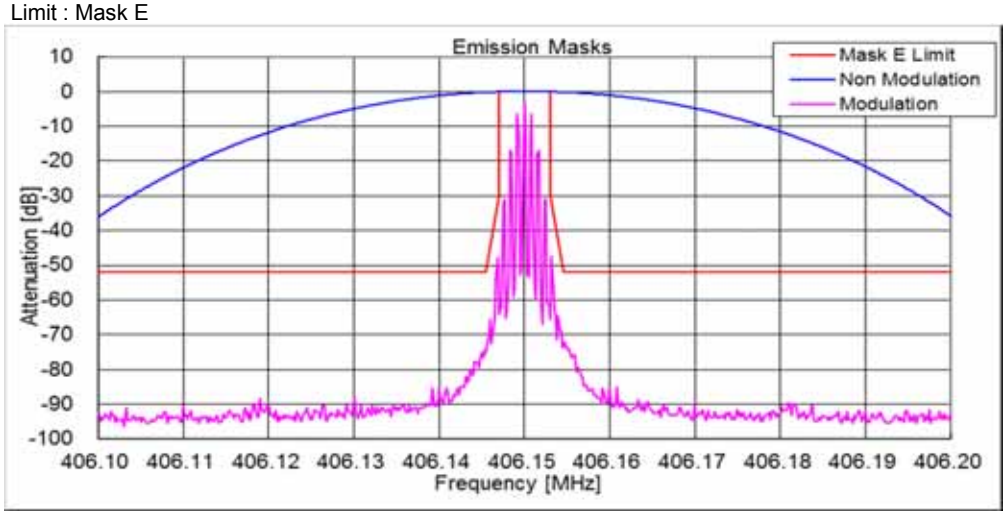
State : Low Power / Authorized Bandwidth 6 kHz/ 4K00F1D / 406.15 MHz(FCC/RSS)
Limit : Mask E



State : Low Power / Authorized Bandwidth 6 kHz/ 4K00F7W / 406.15 MHz(FCC/RSS)
Limit : Mask E



State : High Power / Authorized Bandwidth 6 kHz/ 4K00F2D / 406.15 MHz(FCC/RSS)
Limit : Mask E



10.5 Transient Frequency Behavior

REGULATIONS	: FCC Part 90 Section 214
TEST METHOD/GUIDE	: ANSI/TIA-603-D, Section 2.2.19.3

Test Procedure

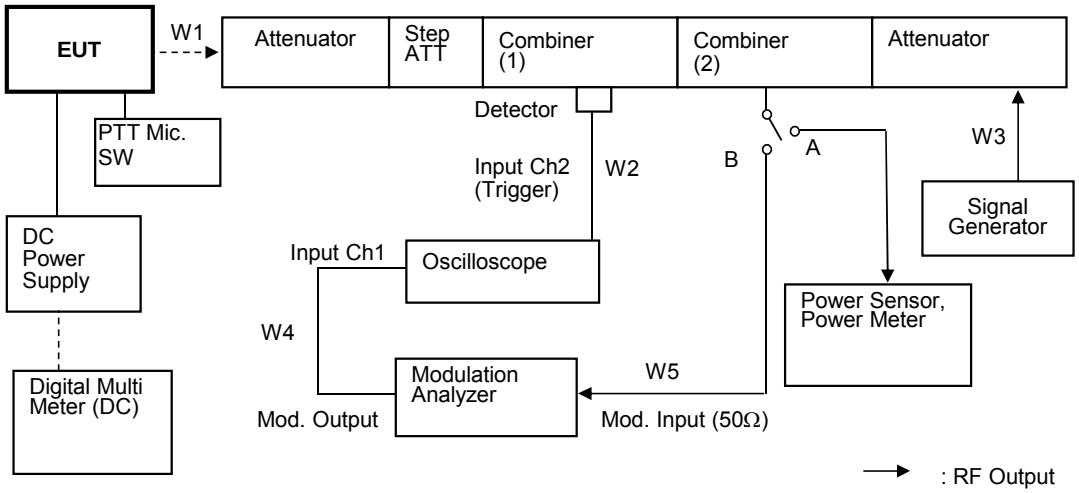
1 The EUT and test equipment were set up as shown on the following page.
2 The transmitter was turned on.
3 The transmitter carrier level was measured at the output of the combiner .
4 The transmitter was turned off.
5 An RF signal generator (1) modulated with a 1 kHz tone at either 25 kHz or 12.5 kHz 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 Date	Cal Exp.
1	Power Meter	Hewlett Packard	E4418B	GB38410265	Jun. 09, 15	Jun. 30, 16
2	Power Sensor	Hewlett Packard	8482A	US37292237	Jun. 09, 15	Jun. 30, 16
3	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	Jun. 01, 15	Jun. 30, 16
4	Attenuator (3dB)	TME	CFA-20NPJ-3	679701	Jun. 01, 15	Jun. 30, 16
5	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 01, 15	Jun. 30, 16
6	Step Attenuator	Hewlett Packard	8494B	272614515	Jan. 23, 15	Jan. 31, 16
7	Combiner(1)	Anritsu	Z-164A	M89249	Jan. 20, 15	Jan. 31, 16
8	Combiner(2)	Anritsu	Z-164A	M89549	Jan. 20, 15	Jan. 31, 16
9	Modulation Analyzer	Hewlett Packard	8901B	2806A01669	Oct. 13, 14	Oct. 31, 15
10	Signal Generator	Rohde&Schwarz	SMB 100A	105709	Mar. 18, 15	Mar. 31, 16
11	Oscilloscope	Tektronix	TDS 680B	B010292	Jan. 30, 15	Jan. 31, 16
12	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
13	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 15	Jul. 31, 16

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W2	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00094	Jan. 23, 15	Jan. 31, 16
W4	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00096	Jan. 23, 15	Jan. 31, 16
W5	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C04	Jun. 09, 15	Jun. 30, 16
W3	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00041	Jun. 09, 15	Jun. 30, 16
W1	Coaxial Cable	Suhner	SUCOFLEX104	F0000017	Jan. 23, 15	Jan. 31, 16

Measuring Equipment Configuration

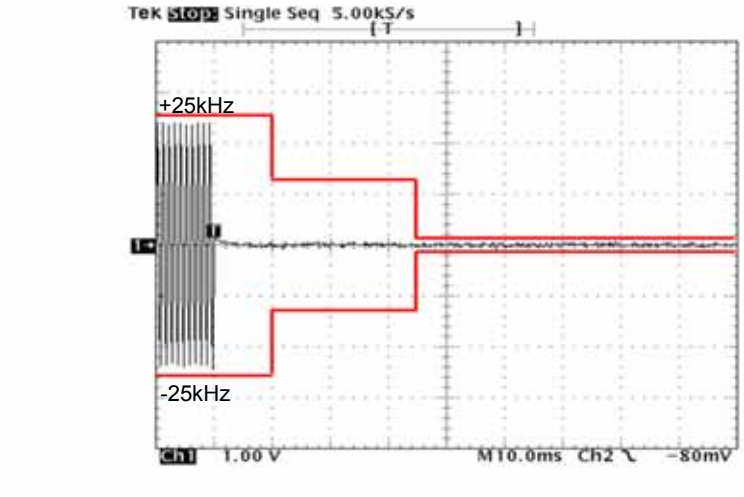


Test Results

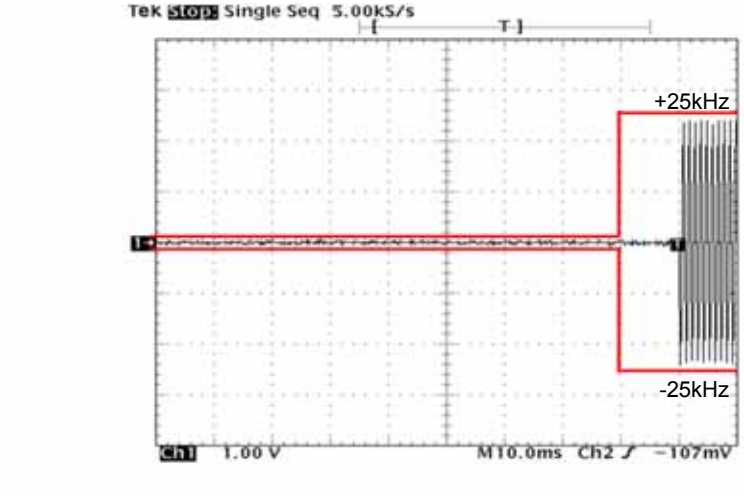
Test date	Aug 26, 2015	
Location	Kashima No.1 Test Site	
temperature	23.3	[degree C]
Humidity Variation	60	[%]
Atmospheric Pressure	100.4	[kPa]
Test Engineer	Koichi Wagatsuma	

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

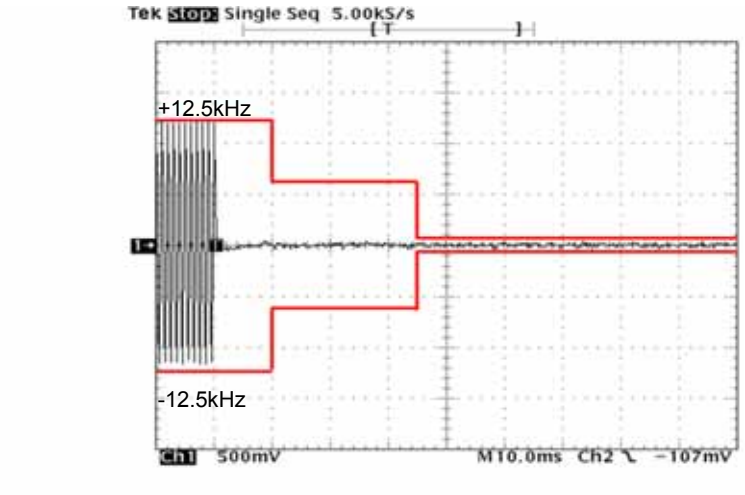
State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 429.95 MHz (RSS)/ PTT:OFF -ON



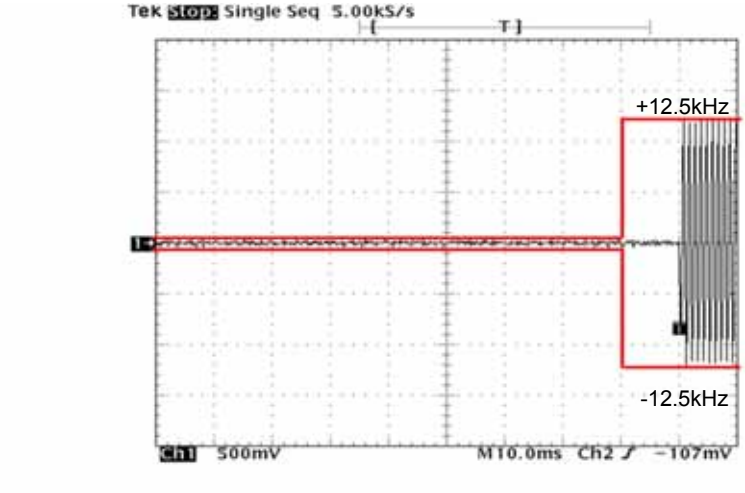
State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 429.95 MHz (RSS)/ PTT:ON -OFF



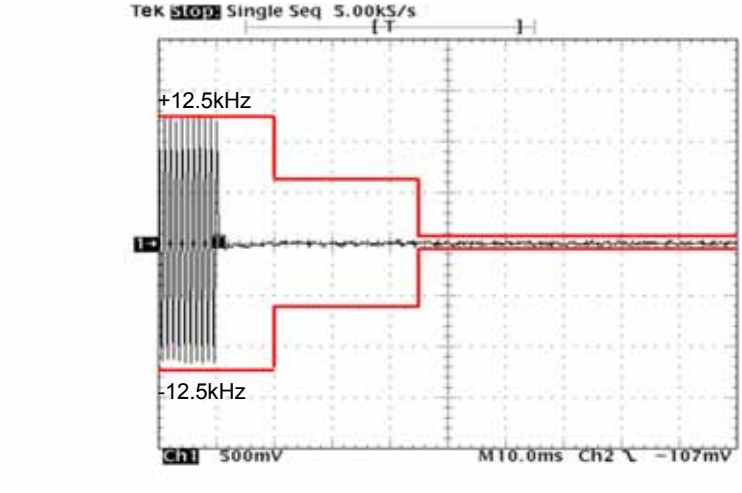
State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 438.05 MHz (FCC)/ PTT:OFF -ON



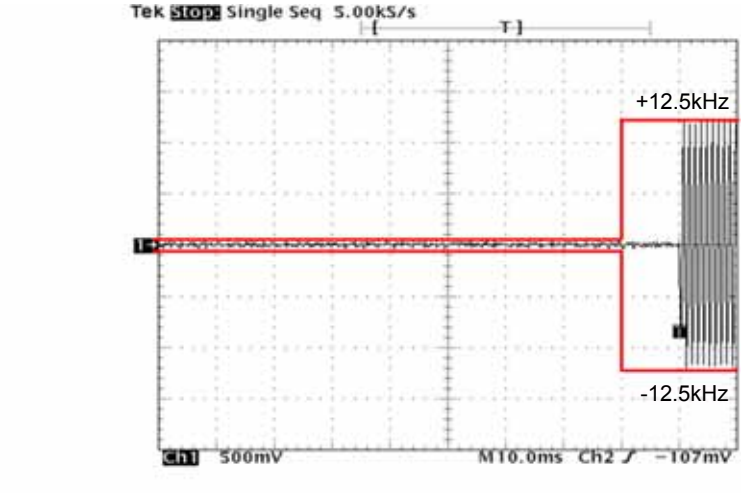
State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 438.05 MHz (FCC)/ PTT:ON-OFF



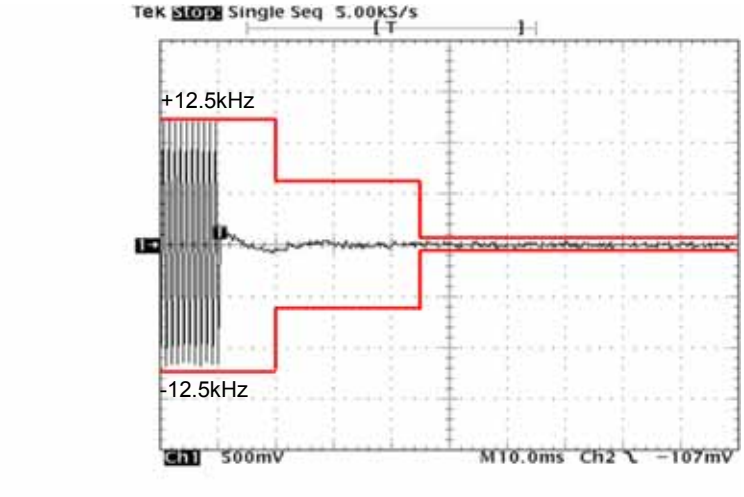
State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 429.95 MHz (RSS)/ PTT:OFF -ON



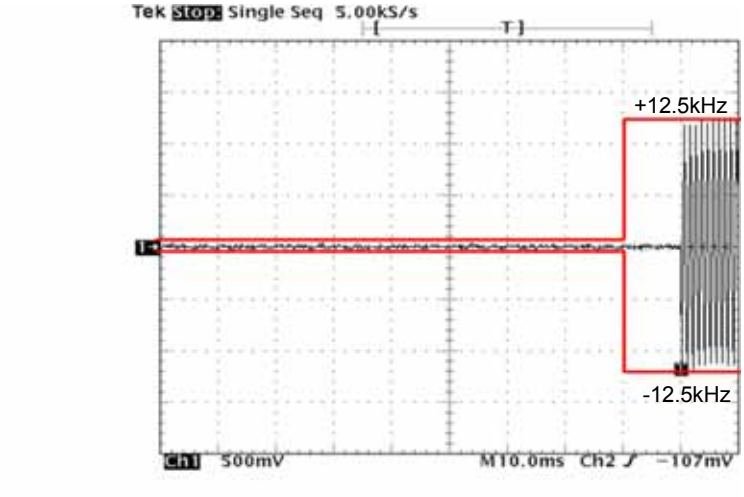
State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 429.95 MHz (RSS)/ PTT:ON-OFF



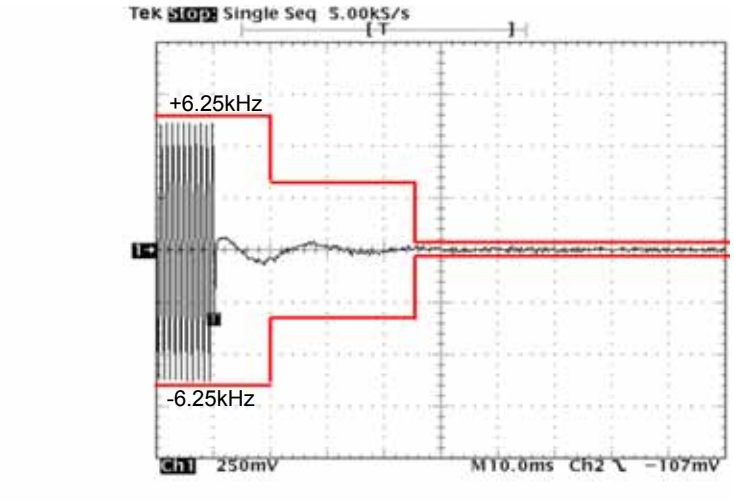
State : High Power / Authorized Bandwidth 11.25 kHz / 8K30F1E/F1D/F7W / 469.95 MHz (FCC/RSS)/ PTT:OFF -ON



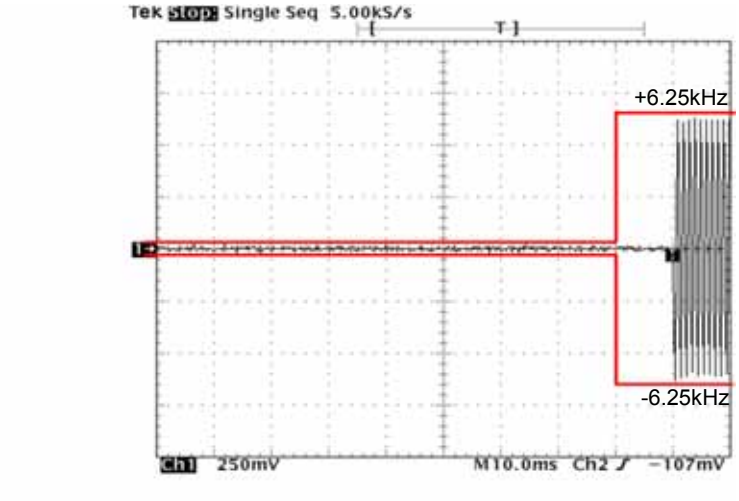
State : High Power / Authorized Bandwidth 11.25 kHz / 8K30F1E/F1D/F7W / 469.95 MHz (FCC/RSS)/ PTT:ON-OFF



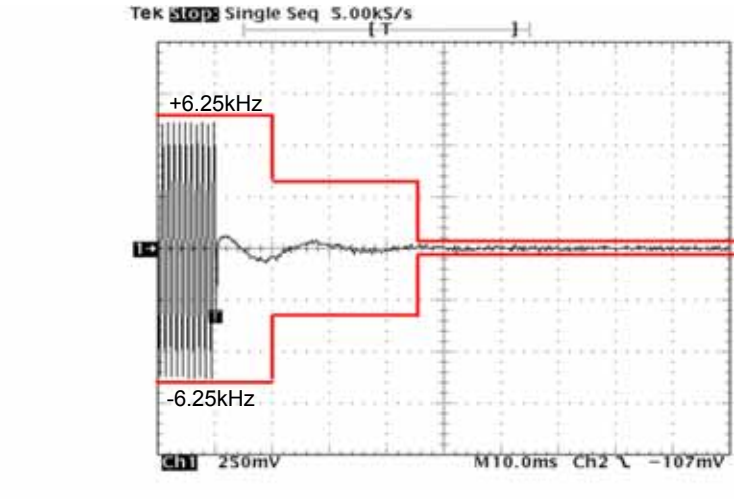
State : High Power / Authorized Bandwidth 6 kHz / 4K00F1E / F1D / F7W / 406.15 MHz (FCC/RSS)/ PTT:OFF -ON



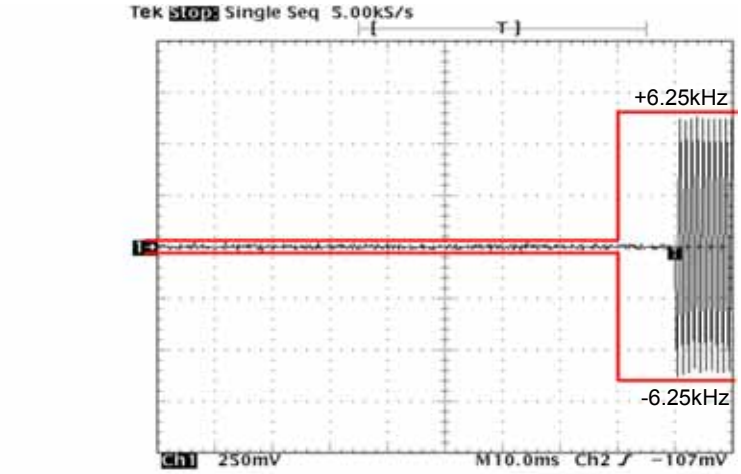
State : High Power / Authorized Bandwidth 6 kHz / 4K00F1E / F1D / F7W / 406.15 MHz (FCC/RSS)/ PTT:ON-OFF



State : High Power / Authorized Bandwidth 6 kHz / 4K00F2D / 406.15 MHz (FCC/RSS)/ PTT:OFF -ON



State : High Power / Authorized Bandwidth 6 kHz / 4K00F2D / 406.15 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-D Section 2.2.6.2.2, 3.2.6.2

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 : 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.

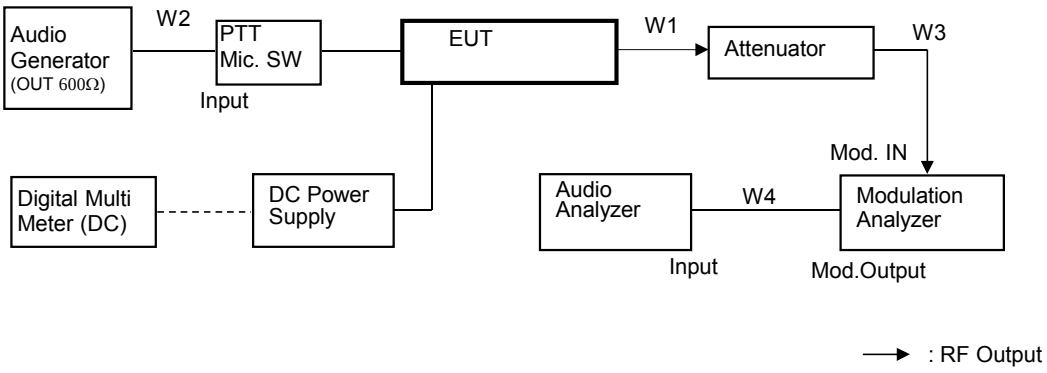
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	Jun. 01, 15	Jun. 30, 16
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 01, 15	Jun. 30, 16
3	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	Nov. 14, 14	Nov. 30, 15
4	Audio Generator	Anritsu	MG443B	M70150	Jun. 18, 15	Jun. 30, 16
5	Audio Analyzer	Hewlett Packard	8903B	2948A07326	Aug. 10, 15	Aug. 31, 16
6	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
7	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 15	Jul. 31, 16

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W2	Balance Cable	Nicoon	3D-2V	KSR00092	Jan. 23, 15	Jan. 31, 16
W4	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00096	Jan. 23, 15	Jan. 31, 16
W3	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C04	Jun. 09, 15	Jun. 30, 16
W1	Coaxial Cable	Suhner	SUCOFLEX104	F0000017	Jan. 23, 15	Jan. 31, 16

Measuring Equipment Configuration

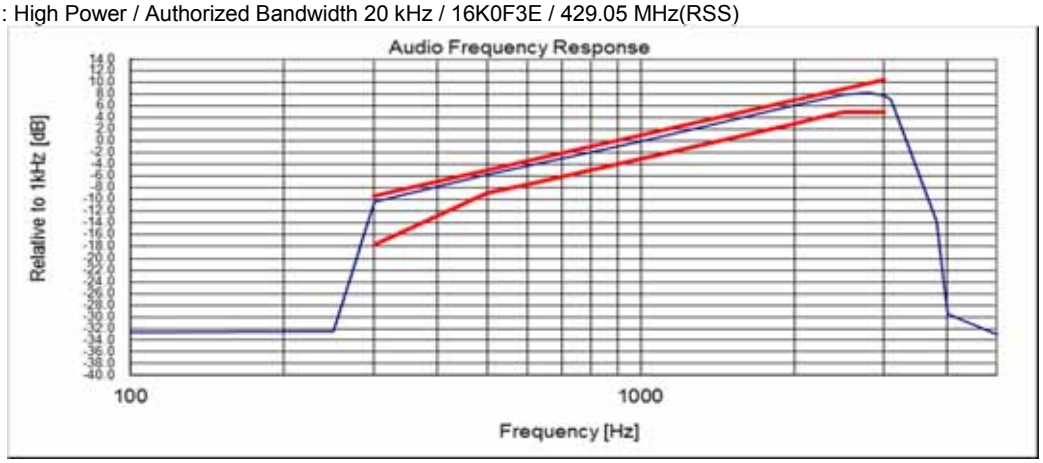


Test Results

Test date	Aug 26, 2015	
Location	Kashima No.1 Test Site	
temperature	23.6	[degree C]
Humidity Variation	60	[%]
Atmospheric Pressure	100.4	[kPa]
Test Engineer	Koichi Wagatsuma	

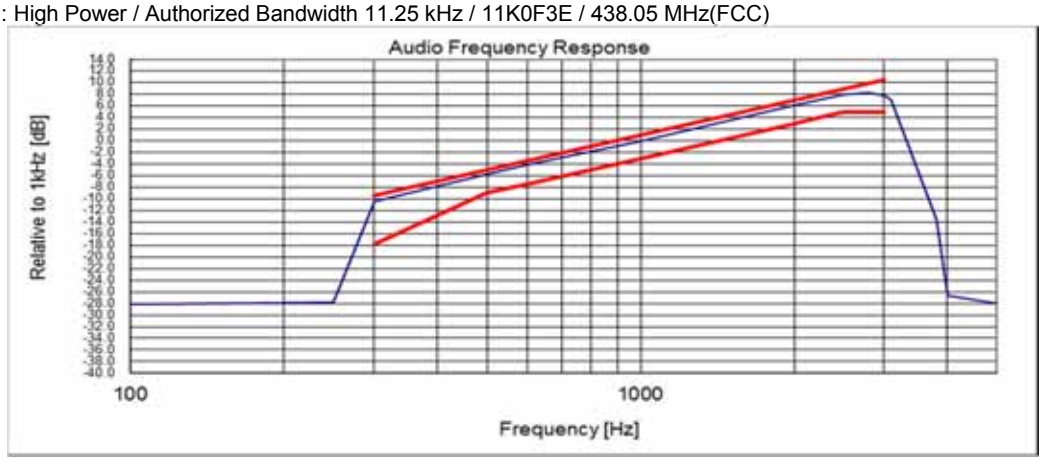
Test was carried out for all the frequency band of section 10.1
State the worst case (below).

State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 429.05 MHz(RSS)



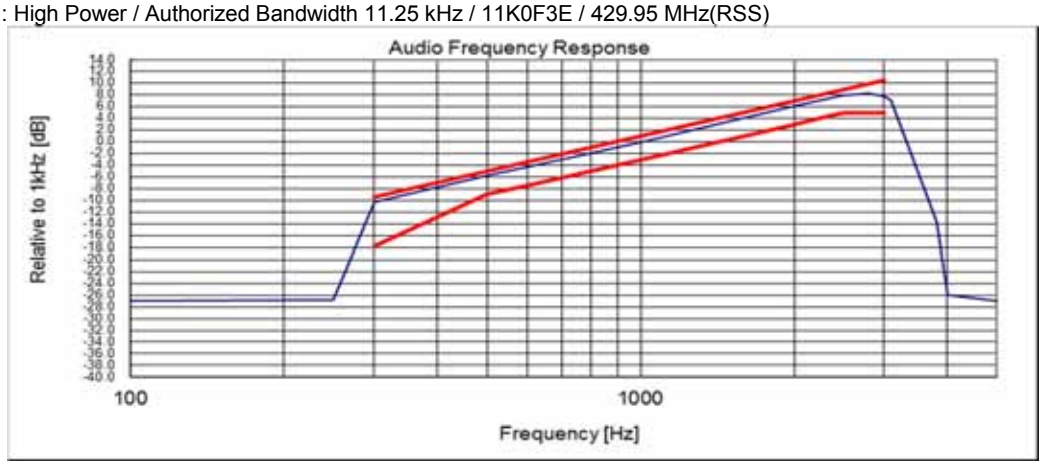
Note:
Audio Filter of the above result is substituted with the same structure as Audio Frequency Response.
On the transmission condition below 3kHz,
Transceiver shows pre-emphasis condition of transmission function.
On the transmission condition above 3kHz, Transceiver shows Audio Low Pass Filter.

State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 438.05 MHz(FCC)



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(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-D Section 2.2.3.2, 1.3.4.4

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 +50 dB by 10 dB.
5 Set the output frequencies of the Audio Generator 300 Hz 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.

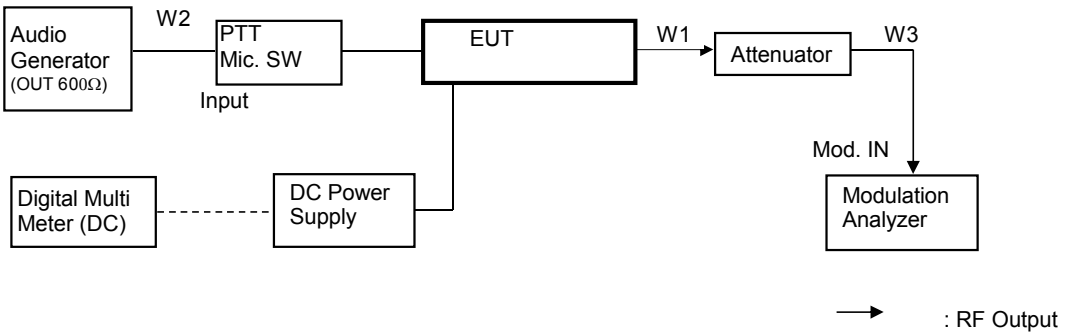
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	Jun. 01, 15	Jun. 30, 16
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 01, 15	Jun. 30, 16
3	Modulation Analyzer	Hewlett Packard	8901B	2806A01669	Oct. 13, 14	Oct. 31, 15
4	Audio Generator	Anritsu	MG443B	M70150	Jun. 18, 15	Jun. 30, 16
5	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
4	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 15	Jul. 31, 16

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W2	Balance Cable	Nicoon	3D-2V	KSR00092	Jan. 23, 15	Jan. 31, 16
W3	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C04	Jun. 09, 15	Jun. 30, 16
W1	Coaxial Cable	Suhner	SUCOFLEX104	F0000017	Jan. 23, 15	Jan. 31, 16

Measuring Equipment Configuration

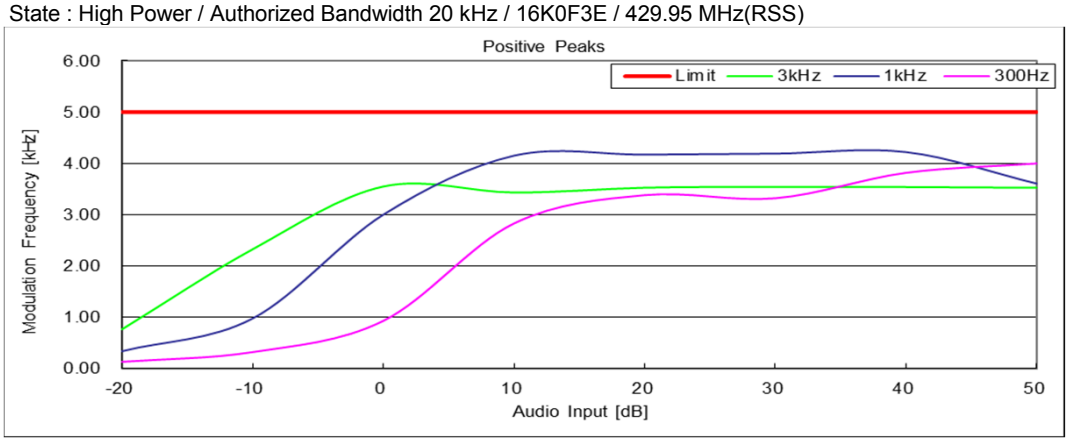


Test Results

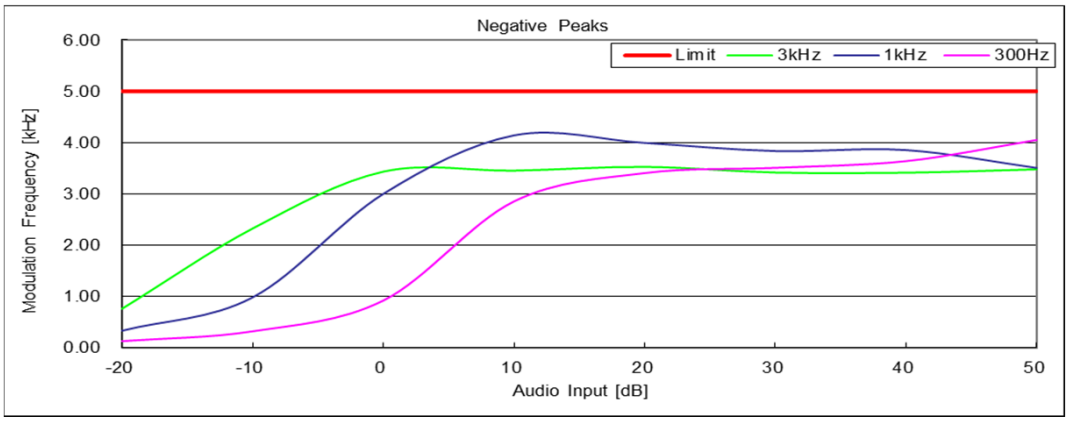
Test date	Aug 26, 2015	
Location	Kashima No.1 Test Site	
temperature	23.6	[degree C]
Humidity Variation	60	[%]
Atmospheric Pressure	100.4	[kPa]
Test Engineer	Koichi Wagatsuma	

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

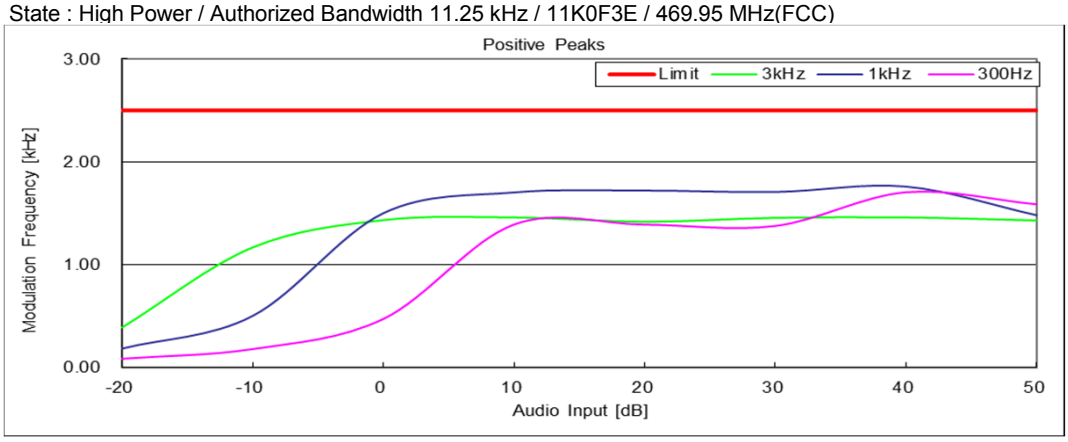
State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 429.95 MHz(RSS)



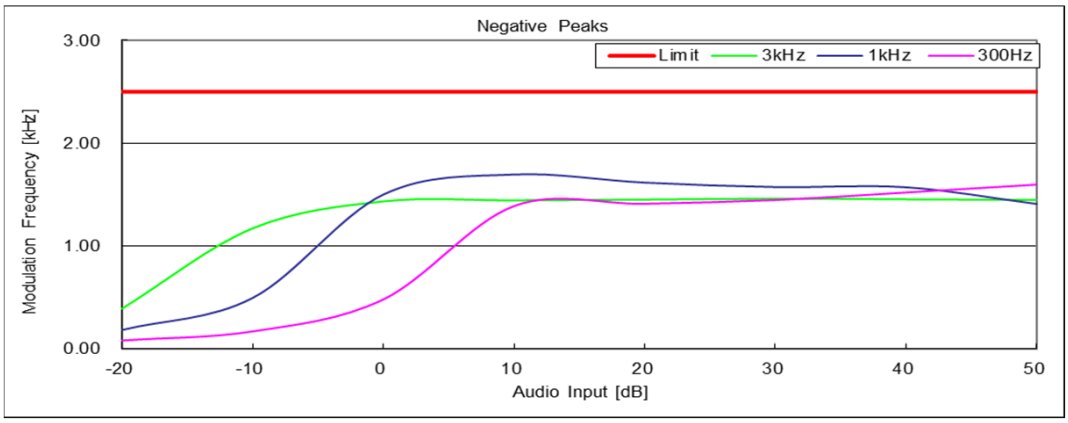
State : High Power / Authorized Bandwidth 20 kHz / 16K0F3E / 429.95 MHz(RSS)



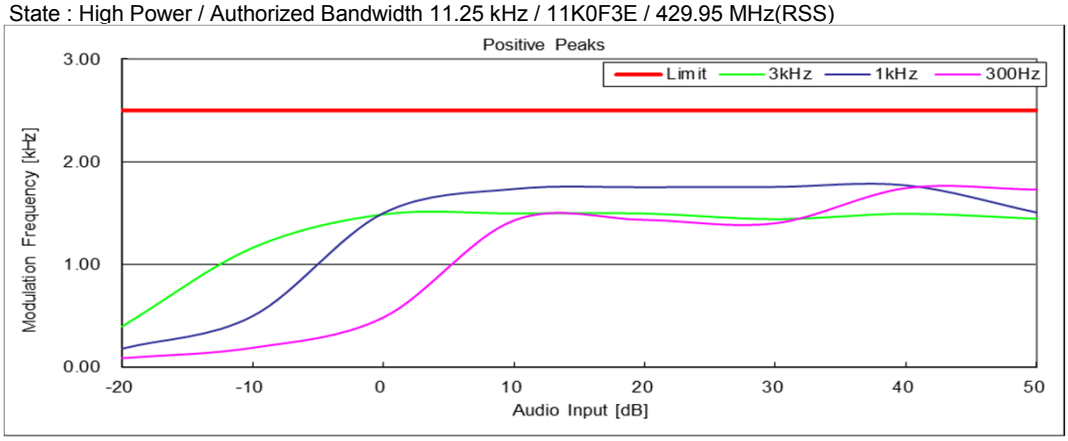
State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 469.95 MHz(FCC)



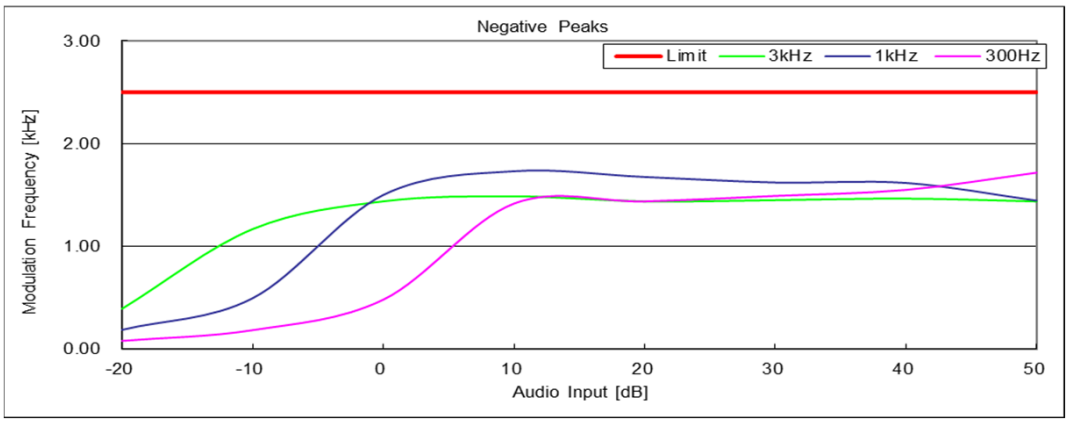
State : High Power / Authorized Bandwidth 11.25 kHz / 11K0F3E / 469.95 MHz(FCC)



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



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



10.8 Frequency Stability (Temperature Variation)

REGULATIONS	: FCC Part 2 Section 1055 (a) (1), Part 90 Section 213(a)
TEST METHOD/GUIDE	: ANSI/TIA-603-D Section 2.2.2.2

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 5.

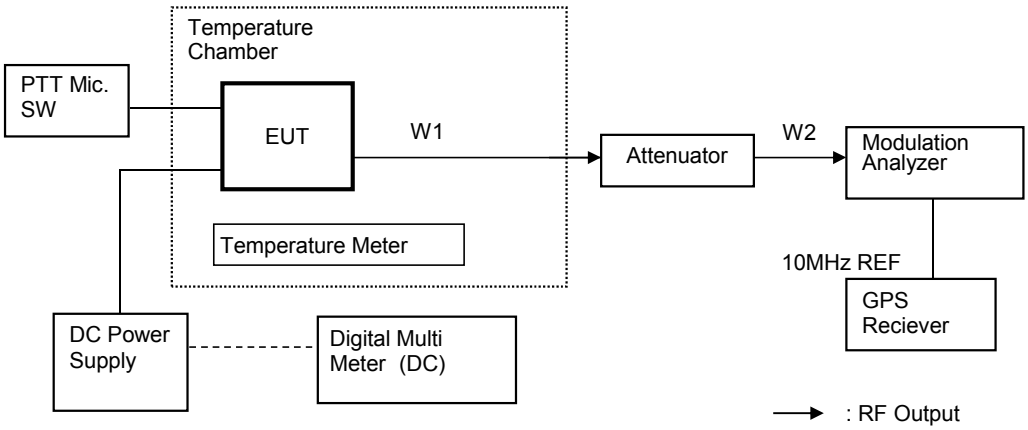
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Attenuator (10dB)	Aeroflex/Wenshel	66-10-34	BY2887	Jun. 01, 15	Jun. 30, 16
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 01, 15	Jun. 30, 16
3	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	Nov. 14, 14	Nov. 30, 15
4	DC Power Supply	Takasago	GP035-20R	1014199060	None	None
5	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 15	Jul. 31, 16
6	Temperature Chamber	Tabai	PL-3F	5103661	None	None
7	Temperature Meter	Sato	PC-5000TRH-II	A11999972	Jun. 23, 15	Jun. 30, 16
8	GPS Receiver	Hewlett Packard	HP Z3801A	3542A02414	None	None

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX104	KSR00042	Jun. 09, 15	Jun. 30, 16
W2	Coaxial Cable	Suhner	SUCOFLEX104	KSR00091	Jun. 09, 15	Jun. 30, 16

Measuring Equipment Configuration



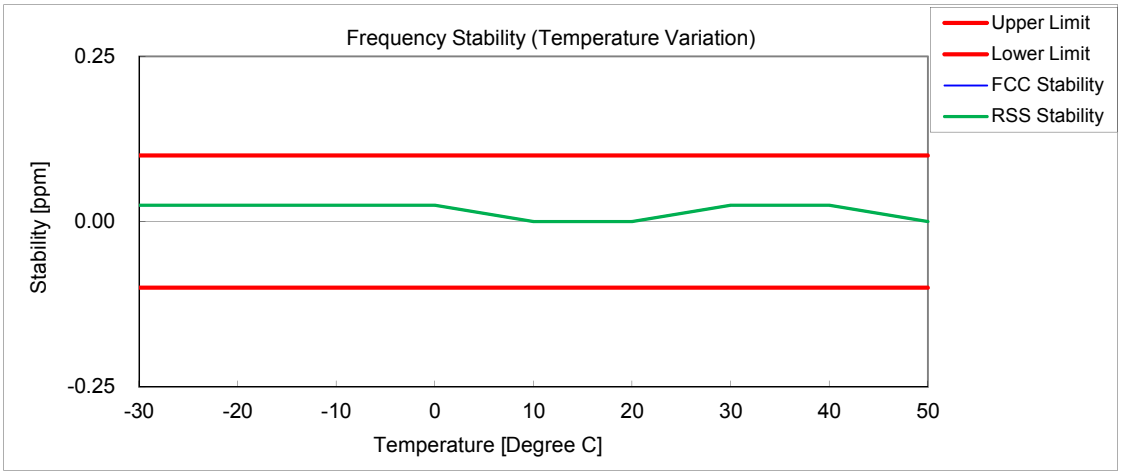
Test Results

Test date	Sep 01, 2015	to	Sep 02, 2015
Location	Kashima No.1 Test Site		
Test Engineer	Koichi Wagatsuma		

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

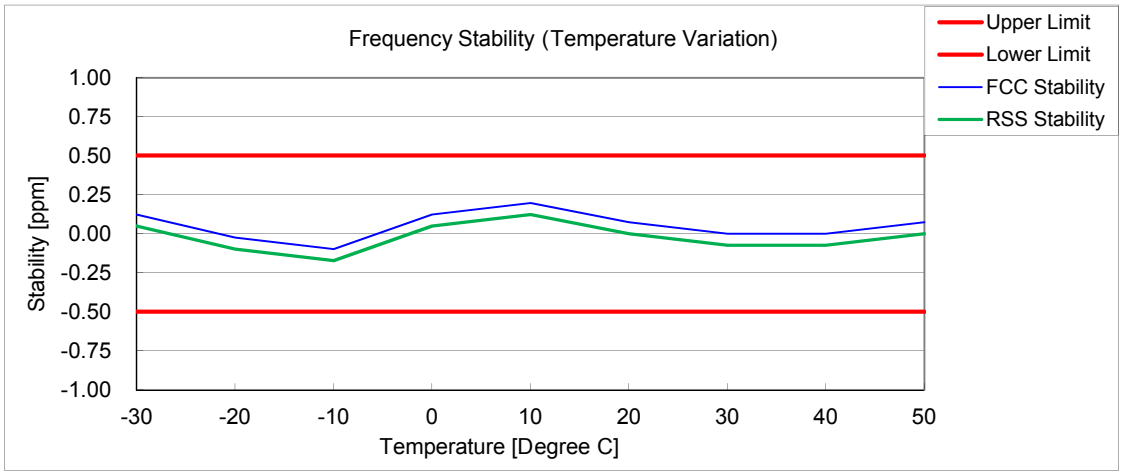
State : High Power / Authorized Bandwidth 11.25 kHz / 406.15 MHz (FCC/RSS)(with OCXO)
Reference Frequency: 406.150000 MHz(FCC Stability)
406.150000 MHz(RSS Stability)

No.	Temperature (Degree C)	Frequency (MHz)	FCC Stability (ppm)	RSS Stability (ppm)	Limit (+/- ppm)	Min. Margin (ppm)
1	-30	406.150010	0.02	0.02	0.1	0.08
2	-20	406.150010	0.02	0.02	0.1	0.08
3	-10	406.150010	0.02	0.02	0.1	0.08
4	0	406.150010	0.02	0.02	0.1	0.08
5	10	406.150000	0.00	0.00	0.1	0.10
6	20	406.150000	0.00	0.00	0.1	0.10
7	30	406.150010	0.02	0.02	0.1	0.08
8	40	406.150010	0.02	0.02	0.1	0.08
9	50	406.150000	0.00	0.00	0.1	0.10



State : High Power / Authorized Bandwidth 11.25 kHz / 406.15 MHz (FCC/RSS)(Without OCXO)
Reference Frequency: 406.150000 MHz(FCC Stability)
406.150030 MHz(RSS Stability)

No.	Temperature (Degree C)	Frequency (MHz)	FCC Stability (ppm)	RSS Stability (ppm)	Limit (+/- ppm)	Min. Margin (ppm)
1	-30	406.150050	0.12	0.05	0.5	0.38
2	-20	406.149990	-0.02	-0.10	0.5	0.40
3	-10	406.149960	-0.10	-0.17	0.5	0.33
4	0	406.150050	0.12	0.05	0.5	0.38
5	10	406.150080	0.20	0.12	0.5	0.30
6	20	406.150030	0.07	0.00	0.5	0.43
7	30	406.150000	0.00	-0.07	0.5	0.43
8	40	406.150000	0.00	-0.07	0.5	0.43
9	50	406.150030	0.07	0.00	0.5	0.43



10.9 Frequency Stability (Voltage Variation)

REGULATIONS	: FCC Part 2 Section 1055 (d) (1), Part 90 Section 213(a)
TEST METHOD/GUIDE	: ANSI/TIA-603-D Section 2.2.2.2

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.

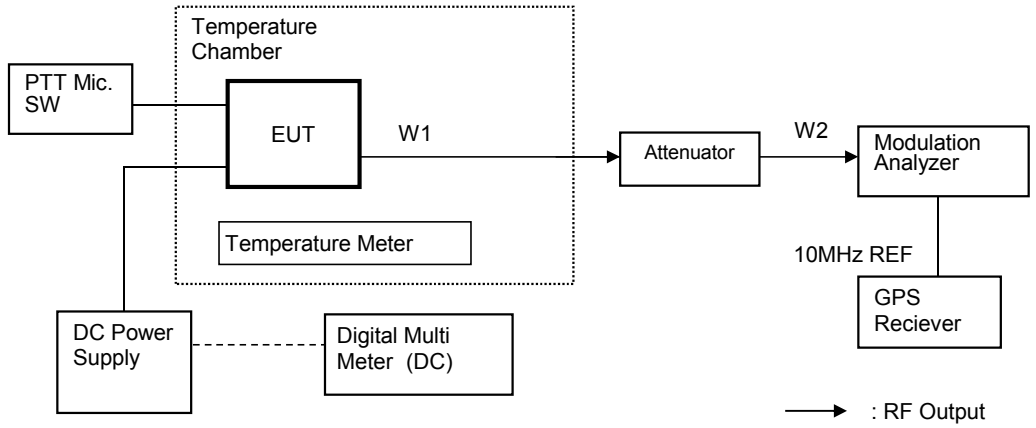
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Attenuator (10dB)	Aeroflex/Wenshel	66-10-34	BY2887	Jun. 01, 15	Jun. 30, 16
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 01, 15	Jun. 30, 16
3	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	Nov. 14, 14	Nov. 30, 15
4	DC Power Supply	Takasago	GP035-20R	1014199060	None	None
5	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 15	Jul. 31, 16
6	Temperature Chamber	Tabai	PL-3F	5103661	None	None
7	Temperature Meter	Sato	PC-5000TRH-II	A11999972	Jun. 23, 15	Jun. 30, 16
8	GPS Receiver	Hewlett Packard	HP Z3801A	3542A02414	None	None

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX104	KSR00042	Jun. 09, 15	Jun. 30, 16
W2	Coaxial Cable	Suhner	SUCOFLEX104	KSR00091	Jun. 09, 15	Jun. 30, 16

Measuring Equipment Configuration



Test Results

Test date	Sep 01, 2015	to	Sep 02, 2015
Location	Kashima No.1 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 11.25 kHz / 406.15 MHz (With OCXO)(FCC/RSS)
Reference Frequency: 406.150000 MHz

No.	Temperature (Degree C)	Diviation (%)	Voltage (V)	Frequency (MHz)	Stability (ppm)	Limit +/- (ppm)	Margin (ppm)
1	20+/-5	85	11.56	406.150000	0.00	0.1	0.10
2	20+/-5	100	13.60	406.150000	0.00	0.1	0.10
3	20+/-5	115	15.64	406.150010	0.02	0.1	0.08

State : High Power / Authorized Bandwidth 11.25 kHz / 406.15 MHz (Without OCXO)(FCC/RSS)
Reference Frequency: 406.150030 MHz

No.	Temperature (Degree C)	Diviation (%)	Voltage (V)	Frequency (MHz)	Stability (ppm)	Limit +/- (ppm)	Margin (ppm)
1	20+/-5	85	11.56	406.150020	-0.02	0.5	0.48
2	20+/-5	100	13.60	406.150030	0.00	0.5	0.50
3	20+/-5	115	15.64	406.150020	-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 30 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 Bicnicali/Logperiodic antennas are 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.

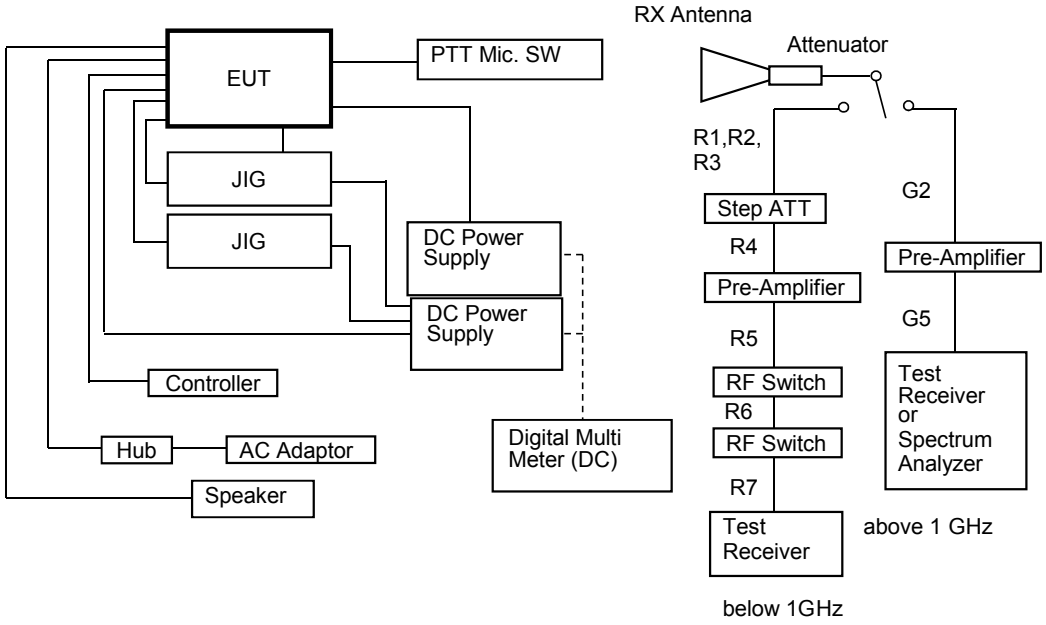
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Biconical Antenna	Schwarzbeck	BBA9106	CEC008	Jun. 17, 15	Jun. 30, 16
2	Log-Periodic Antenna	Schwarzbeck	UHALP9108-A	146	Jun. 17, 15	Jun. 30, 16
3	6 dB Attenuator	Hewlett Packard	8491A	36306	Dec. 08, 14	Dec. 31, 15
4	Step Attenuator	Hewlett Packard	8494B	2812A15596	Dec. 08, 14	Dec. 31, 15
5	Amplifier	Hewlett Packard	8447D	2727A05731	Dec. 08, 14	Dec. 31, 15
6	RF Switch	Intertek	ACX-150-1	CE3010	Dec. 08, 14	Dec. 31, 15
7	Test receiver	ROHDE & SCHWARZ	ESS	845637/001	May 08, 15	May 31, 16
8	Double Ridged antenna	Schwarzbeck	BBHA9120D	278	May 01, 15	May 31, 16
9	6 dB Attenuator	TAMAGAWA	SFA-01A 6 dB	CEC039	May 08, 15	May 31, 16
10	Amplifier	ELENA	EAU-3018GXA	10315	May 07, 15	May 31, 16
11	Spectrum analyzer	Agilent	E7403A	MY42000068	May 08, 15	May 31, 16
12	Site Attenuation	Intertek			Apr. 27, 15	Apr. 30, 16
13	SVSWR	Intertek			Apr. 24, 15	Apr. 30, 16

USED CABLES

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
R1	Coaxial cable	Intertek	5D-SFA	N3R-1	Dec. 08, 14	Dec. 31, 15
R2	Coaxial cable	Intertek	12D-SFA	N3R-2	Dec. 08, 14	Dec. 31, 15
R3	Coaxial cable	Intertek	5D-2W	N3R-3	Dec. 08, 14	Dec. 31, 15
R4	Coaxial cable	Intertek	5D-2W	N3R-4	Dec. 08, 14	Dec. 31, 15
R5	Coaxial cable	Intertek	5D-2W	N3R-5	Dec. 08, 14	Dec. 31, 15
R6	Coaxial cable	Intertek	5D-2W	N3R-6	Dec. 08, 14	Dec. 31, 15
R7	Coaxial cable	Intertek	5D-2W	N3R-7	Dec. 08, 14	Dec. 31, 15
G2	Coaxial cable	SUHNER	SUCOFLEX 100	1513/2EA	May 08, 15	May 31, 16
G5	Coaxial cable	SUHNER	S04272B	11SMA	Jul 10, 15	Jul. 31, 16

MEASUREMENT EQUIPMENT CONFIGURATION



TEST RESULTS

Test date	Sep. 11, 2015 and Sep. 12, 2015
Location	Nagana No.2 Test Site
temperature	23.2 to 25.5 [degree C]
Humidity Variation	52 to 65 [%]
Atmospheric Pressure	100.0 to 102 [kPa]
Test Engineer	Naohei Murakami

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

State : 429.95 MHz Receiver Condition (OCXO Built-in)

No.	Frequency (MHz)	Pol	Mode	Reading Level (dBuv)	Factor* (dB)	Emission Level (dBuV/m)	Limit Level (dBuV/m)	Margin (dB)
1	250.00	Hor.		30.1	-3.7	26.4	46.0	19.6
		Ver.		-	-3.7	-	46.0	-
2	309.66	Hor.		33.6	-6.0	27.6	46.0	18.4
		Ver.		-	-6.0	-	46.0	-
3	450.00	Hor.		-	-3.0	-	46.0	-
		Ver.		29.5	-3.0	26.5	46.0	19.5
4	500.00	Hor.		28.1	-1.5	26.6	46.0	19.4
		Ver.		31.5	-1.5	30.0	46.0	16.0
5	743.80	Hor.		22.7	4.4	27.1	46.0	18.9
		Ver.		-	4.4	-	46.0	-
6	810.00	Hor.		29.9	5.3	35.2	46.0	10.8
		Ver.		31.2	5.3	36.5	46.0	9.5
7	850.00	Hor.		31.2	5.9	37.1	46.0	8.9
		Ver.		30.6	5.9	36.5	46.0	9.5
8	1020.00	Hor.	AVG	28.6	-0.4	28.2	54.0	25.8
		Ver.	AVG	28.9	-0.4	28.5	54.0	25.5
9	1115.70	Hor.	AVG	28.4	0.0	28.4	54.0	25.6
		Ver.	AVG	28.9	0.0	28.9	54.0	25.1
10	1375.00	Hor.	AVG	28.6	1.3	29.9	54.0	24.1
		Ver.	AVG	32.9	1.3	34.2	54.0	19.8

There is the margin of 20dB over except for the above points.
* Factor = Antenna,Antenna Pad,Cable,Preamp
Emission Level = Reading Level + Factor

Note:
1 Measurement distance is 3 metres. (Above 1GHz is 3.85 meteres)
2 Scanned frequency are 30 to 2000 MHz.
3 Highest oscillator frequency is 470 MHz.

10.11 Necessary Bandwidth and Emission Bandwidth

REGULATIONS	: FCC Part 2 Section 202 (g) & Federal Register/ Vol.68, No236 TRC 43

Calculation Results

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

Bn = (2xM)+(2xDxK)

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

Bn = (2xM)+(2xDxK)

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

$Bn = (R/\log_2 S)+2xDxK$

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

$Bn = (R/\log_2 S)+2xDxK$

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

Bn = (2xM)+(2xDxK)

10.12 99% Occupied Bandwidth

REGULATIONS	:	RSS-119 Section 5.5
TEST METHOD/GUIDE	:	RSS-Gen Section 6.6

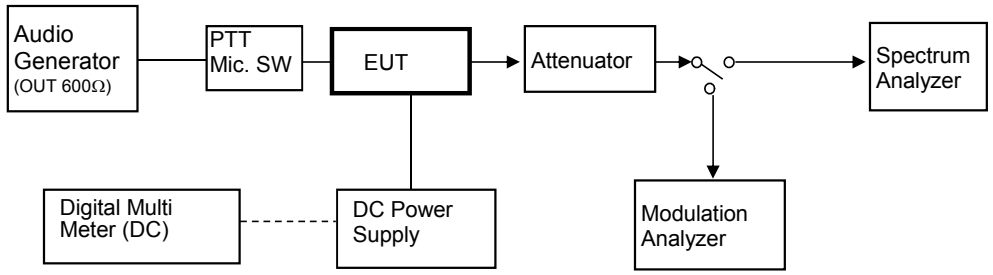
Test Procedure

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, 11K0F3E)

Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	Jun. 01, 2015	Jun. 30, 2016
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 01, 2015	Jun. 30, 2016
3	Modulation Analyzer	Hewlett Packard	8901B	2806A01669	Oct. 13, 2014	Oct. 31, 2015
4	Audio Generator	Anritsu	MG443B	M70150	Jun. 18, 2015	Jun. 30, 2016
5	Spectrum Analyzer	Agilent	N9030A	US51350170	Mar. 12, 2015	Mar. 31, 2016
6	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None
7	Digital Multi Meter	FLUKE	8846A	9642018	Jul. 10, 2015	Jul. 31, 2016
8	Balance Cable	Nicoon	3D-2V	KSR00092	Jan. 23, 2015	Jan. 31, 2016
9	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C04	Jun. 09, 2015	Jun. 30, 2016
10	Coaxial Cable	Suhner	SUCOFLEX104	F0000017	Jan. 23, 2015	Jan. 31, 2016
11	Coaxial Cable	Suhner	SUCOFLEX104	F0000018	Jan. 23, 2015	Jan. 31, 2016

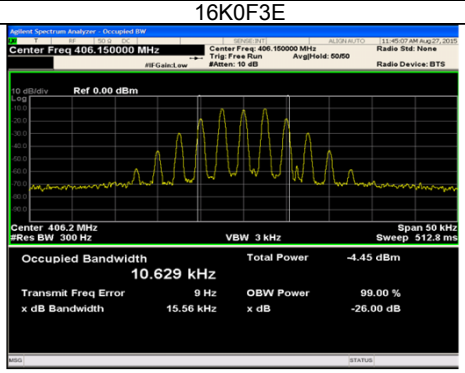
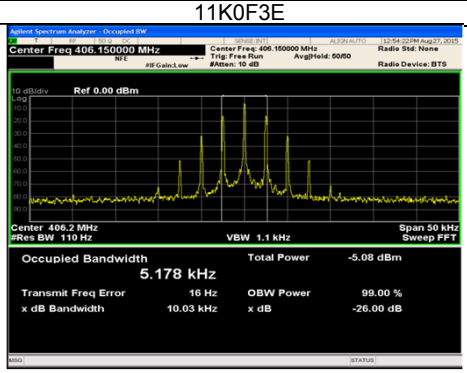
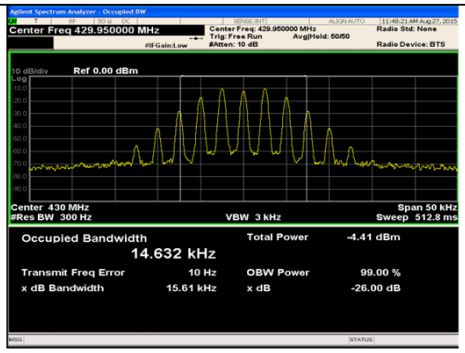
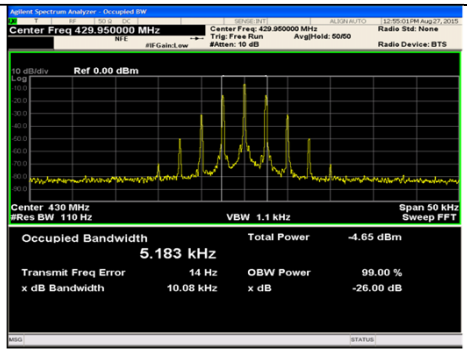
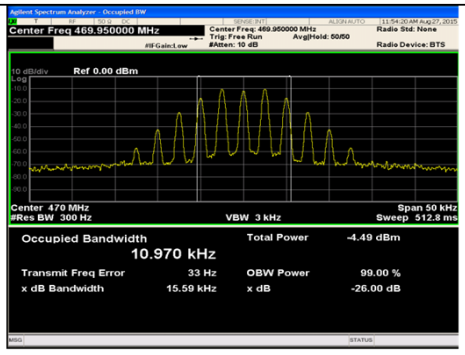
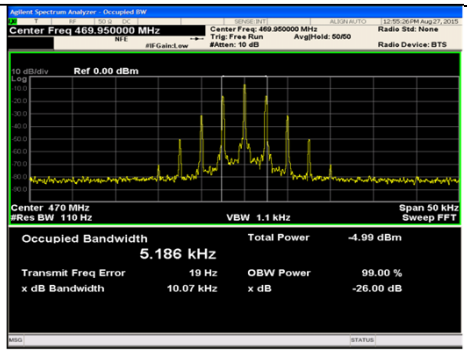
Measuring Equipment Configuration

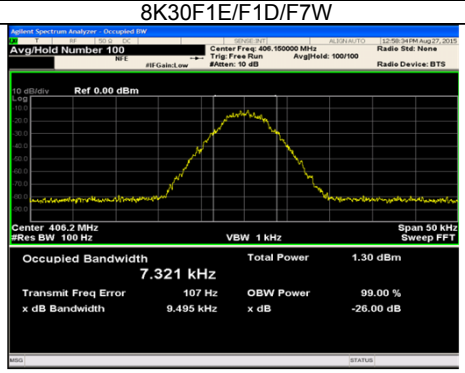
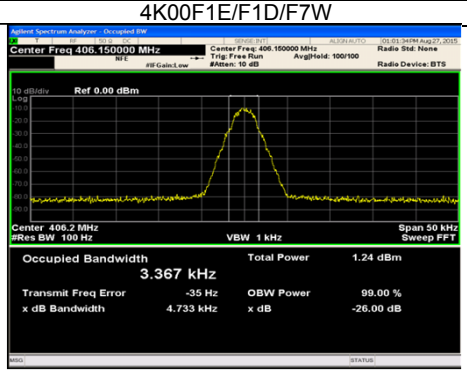
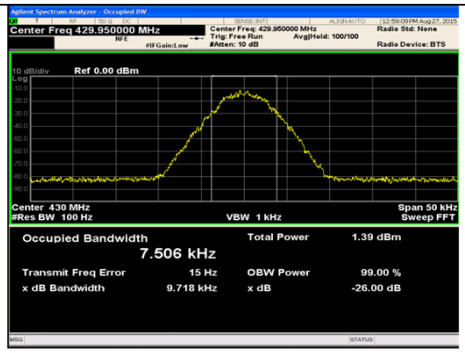
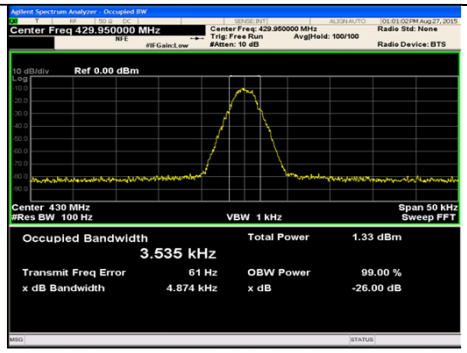
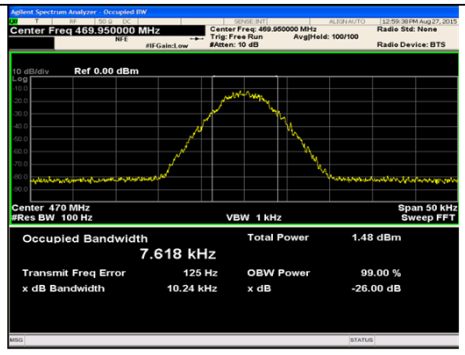
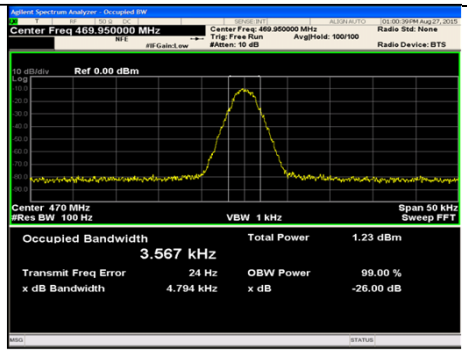


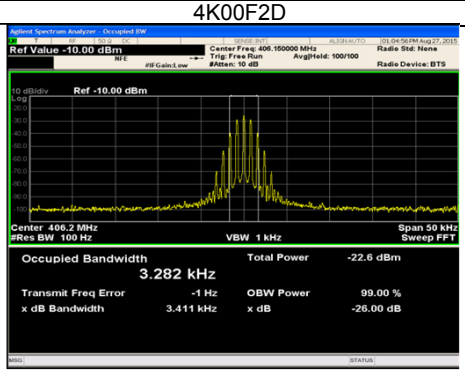
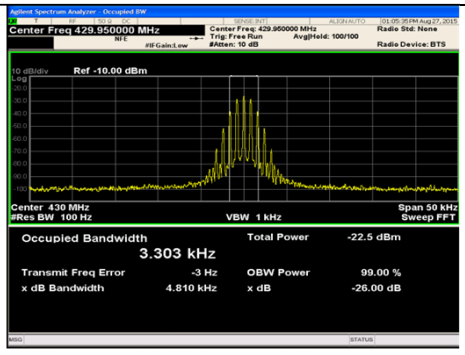
Test Results

Test date	Aug 28, 2015
Location	Kashima No.1 Test Site
temperature	24.1 [degree C]
Humidity Variation	60 [%]
Atmospheric Pressure	100.9 [kPa]
Test Engineer	Koichi Wagatsuma

Emission Designation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	Authorized bandwidth (kHz)
16K0F3E	406.15	10.629	20
	429.95	14.632	
	469.95	10.970	
11K0F3E	406.15	5.178	11.25
	429.95	5.183	
	469.95	5.186	
8K30F1E/F1D/F7W	406.15	7.321	11.25
	429.95	7.506	
	469.95	7.618	
4K00F1E/F1D/F7W	406.15	3.367	6
	429.95	3.535	
	469.95	3.567	
4K00F2D	406.15	3.282	6
	429.95	3.303	
	469.95	3.297	

Ferquency (MHz)	Emission Designation	
	16K0F3E	11K0F3E
406.15		
429.95		
469.95		

Ferquency (MHz)	Emission Designation	
	8K30F1E/F1D/F7W	4K00F1E/F1D/F7W
406.15		
429.95		
469.95		

Ferquency (MHz)	Emission Designation	
	4K00F2D	
406.15		
429.95		
469.95