CERTIFICATE OF COMPLIANCE

Regulation : FCC Part 2, 22, 74, 90, 90.210
RSS-119 Issue 8(2006)

Applicant	Testing Laboratory
Kenwood Corporation 1-16-2, Hakusan, Midori-ku, Yokohama-shi Kanagawa, 226-8525 Japan Tel.: +81 45 939 6254 Fax.: +81 45 939 7093	ETL SEMKO Japan K. K. Kashima No.1 Test site FCC Registration Number : 934283 IC File Number : IC-2065-1 3-2, Sunayama, Kamisu-shi, Ibaraki-ken 314-0255 Japan Tel.: +81 479 40 1097 Fax.: +81 479 46 1788 URL: www.japan.intertek-etlsemko.com

Equipment type	UHF P25 TRANSCEIVER
Trademark	KENWOOD
Model(s)	TK-5810-K2
Serial No.	None
FCC ID	K4439923120
IC CN and UPN	282F-39923120
Measurement Method	ANSI/TIA-603-C-2004 / RSS-119 Issue 8(2006), RSS-Gen Issue 1(2005)
Deviation from standard(s)	No deviation
Test Result	Complied
Report Number	ESJ-106126
Report issue date	October 04, 2006

This equipment has been shown to be capable of compliance with the applicable standard(s) as indicated in the test report.
I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.
This test report shall not be reproduced partially, or in full, without the prior written approval of ETL SEMKO Japan K. K. The results and statements contained in this report pertain only to the equipment evaluated.

Approved by K. Gokita

Kazuo Gokita

[Assistant Manager]

Tested by N. Ikeda

Naoki Ikeda

TABLE OF CONTENTS

SECTION 1. GENERAL INFORMATION

DESCRIPTION OF TEST ITEM		
Kind of EUT	:	UHF P25 TRANSCEIVER
Condition of EUT	:	Prototype
Type	:	Mobile
Trademark	:	KENWOOD

TEST PERFORMED		
EUT Received	:	September 11, 2006
Test started	:	September 11, 2006
Test completed	:	September 26, 2006
Temperature	:	21 to 25 degree C
Humidity	:	46 to 70 %
Atmospheric	:	100.5 to 102.5 kPa
Voltage	:	DC 13.6 V +/- 15%
Current	:	14A Maximum
Frequency	:	None

TEST TRACABILITY

Tracability to national standards of test result is achieved by means of calibration tractability to national or international standards.

ABBREVIATIONS

EUT = Equipment Under Test
Cal Exp. = Calibration Expire
D.R.G. Antenna = Double Rigid Guide Antenna

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

Sub-part 2.1033

(c)(1) APPLICANT AND MANUFACTURER INFORMATION		
APPLICANT		
Company	:	Kenwood Corporation
Address	:	1-16-2, Hakusan, Midori-ku, Yokohama-shi Kanagawa, 226-8525 Japan
Contact Person	:	Tamaki Shimamura Manager, Communications Equipment Division
MANUFACTURER		
Company	:	Kenwood Corporation
Address	:	1-16-2, Hakusan, Midori-ku, Yokohama-shi, Kanagawa, 226-8525 Japan
(c)(2) FCC ID		
FCC ID	:	K4439923120
Model number	:	TK-5810-K2
Serial number	:	None
(c)(3) INTRUCTION MANUAL(S)		
Instruction manual(s)	:	Please refer to attached Exhibits F
(c)(4) TYPE OF EMISSION		
Emission Designation	:	16K0F3E(Wide) / 11K0F3E(Narrow) 20K0F7D(Wide) / 11K2F7D(Narrow) 14K4F1D(Wide) / 7K20F1D(Narrow) 8K10F1E(Narrow) / 8K10F1D(Narrow)
(c)(5) FREQUENCY RANGE		
Frequency Range	:	400 to 470 MHz
(c)(6) POWER RATING		
Output Power	:	5 to 45W
Type	:	Variable
(c)(7) MAXIMUM POWER RATING		
Output Power	:	45 W
OTHER INFORMATION		
Number of Channel	:	512
Channel Spacing	:	25 kHz / 12.5 kHz
Antenna Impedance	:	50 Ω Norminal

Note

SECTION 2. 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**	**YES**
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	**Subpart H - Low Power Auxiliary Stations**	**YES**
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	N.A.
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	**Land Mobile and Fixed Radio Transmitters and Receivers**	**YES**
RSS-Gen	**General Requirements and Information for the Certification of Radiocommunication Equipment**	**YES**

SECTION 3. MEASUREMENT RESULT

FCC Part2	Part22	Part74	Part90	RSS 119	TEST ITEM	RESULTS
2.1046 (a)	-	-	-	4.1	Carrier Output Power (Conducted)	PASS
2.1051	-	-	90.210	4.2	Unwanted Emissions (Transmitter Conducted)	PASS
2.1053 (a)	-	-	90.210	4.2	Field Strength of Spurious Radiation	PASS
2.1049 (c) (1)	22.359, 357 (a) (1)	74.124	90.210	4.2	Emission Masks (Occupied Bandwidth)	PASS
-	-	-	90.214	-	Transient Frequency Behavior	PASS
2.1047 (a)	-	-	90.242 (b) (8)	4.3	Audio Low Pass Filter (Voice Input)	PASS
2.1047 (a)	-	-	-	4.3	Audio Frequency Response	PASS
2.1047 (b)	-	-	-	4.3	Modulation Limiting	PASS
2.1055 (a) (1)	22.355	74.1261 (b)	90.213 (a)	-	Frequency Stability (Temperature Variation)	PASS
2.1055 (d) (1)	22.355	74.1261 (b)	90.213 (a)	-	Frequency Stability (Voltage Variation)	PASS
-	-	-	-	-	Receiver Spurious Emissions	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.

SECTION 4. TEST DATA

4.1 Carrier Output Power (Conducted)

REGULATIONS	: 47 CFR 2.1046 (a) / RSS-119 Section 5.4
TEST METHOD/GUIDE	: ANSI/TIA-603-C 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

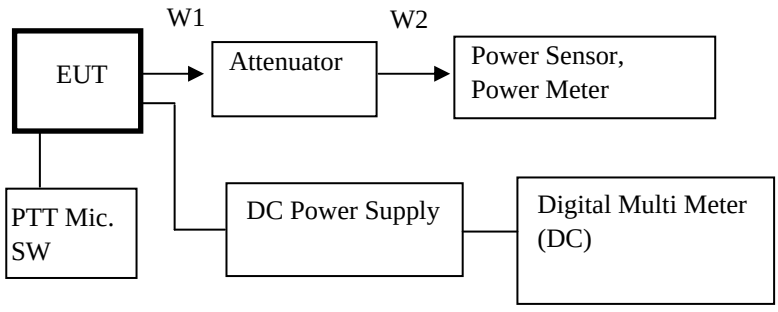
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Power Meter	Hewlett Packard	E4418B	GB38410265	Apr. 21, 06	Apr. 30, 07
2	Power Sensor	Hewlett Packard	8482A	2607A11551	Apr. 21, 06	Apr. 30, 07
3	Attenuator (20dB)	Weinschel	40-20-34	AA5761	Jun. 15, 06	Jun. 30, 07
4	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 15, 06	Jun. 30, 07
5	DC Power Supply	Daiwa	PS-3020	None	None	None
6	Digital Multi Meter	Sanwa	CD721	3215593	May 12, 06	May 31, 07

USED CABLES

No.	Cable	Manufacturer	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX102	KSR00046	Aug. 01, 06	Aug. 31, 07
W2	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C02	Aug. 01, 06	Aug. 31, 07

MEASUREMENT EQUIPMENT CONFIGURATION



UNCERTAINTY

Measurement uncertainty is +/- 0.5dB (k = 2)

TEST RESULTS

Measured for the worst case

No.	Frequency (MHz)		Setting	RF Power (W)
1	400.100	Low	High Power	45
2	435.100	Mid	High Power	45
3	469.900	High	High Power	45
4	400.100	Low	Low Power	5
5	435.100	Mid	Low Power	5
6	469.900	High	Low Power	5

4.2 Unwanted Emissions (Transmitter Conducted)

REGULATIONS	: 47 CFR 2.1051, 90.210 / RSS-119 Section 5.8
TEST METHOD/GUIDE	: ANSI/TIA-603-C Section 2.2.13.2 / RSS-119 Section 4.2, RSS-Gen Section 4.7

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 necessary to produce 50 % of rated system deviation.
3 Adjust the spectrum analyzer for the following setting:
a) Resolution Bandwidth : 10 kHz (< 1 GHz), 1 MHz (> 1 GHz).
b) Video Bandwidth : 30 kHz (< 1 GHz), 3 MHz (> 1 GHz).
c) Sweep Speed : 50 msec.
d) Detector mode : Average
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.

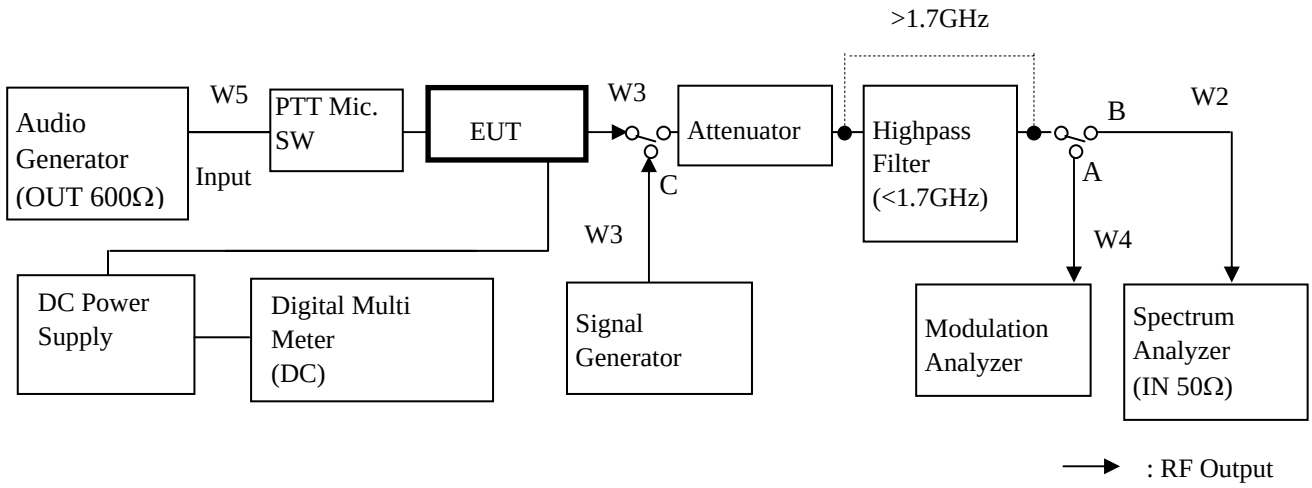
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Audio Generator	Anritsu	MG443B	M70150	Aug. 15, 06	Aug. 31, 07
2	Attenuator (20dB)	Weinschel	40-20-34	AA5701	Jun. 15, 06	Jun. 30, 07
3	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 15, 06	Jun. 30, 07
4	Modulation Analyzer	Hewlett Packard	8901B	2806A01669	Apr. 12, 06	Apr. 30, 07
5	Spectrum Analyzer	Agilent	E4407B	MY44212502	Nov. 16, 05	Nov. 30, 06
6	Signal Generator	Rohde&Schwarz	SMG	860289/011	Apr. 14, 06	Apr. 30, 07
7	Signal Generator	Rohde&Schwarz	SMR40	834128/0028	Mar. 17, 06	Mar. 31, 07
8	Highpass Filter	Anritsu	MP526D	6200220657	Aug. 01, 06	Aug. 31, 07
9	DC Power Supply	Daiwa	PS-3020	None	None	None
10	Digital Multi Meter	Sanwa	CD721	3215593	May. 12, 06	May. 31, 07

USED CABLES

No.	Cable	Manufacturer	Model No.	Serial No.	Cal Date	Cal Exp.
W2	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C02	Aug. 01, 06	Aug. 31, 07
W3	Coaxial Cable	Suhner	SUCOFLEX100	KSR00091	Oct. 01, 06	Oct. 31, 07
W4	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	Aug. 01, 06	Aug. 31, 07
W5	Balance Cable	Nicoon	3D-2V	KSR00092	Oct. 01, 06	Oct. 31, 07

MEASUREMENT EQUIPMENT CONFIGURATION



UNCERTAINTY

Measurement uncertainty is +/- 1.2 dB (k = 2)

TEST RESULTS

Measured for the worst case

State : High Power / 12.5 kHz channel bandwidth

No.	Frequency (MHz)		Correct Level (dBm)	Emission Level (dBc)	Limit (dBc)	Margin (dB)
1	-	Low	-	-	-66.5	-
2	1740.40	Mid	-26.50	-73.03	-66.5	6.5
3	1409.70	High	-26.00	-72.53	-66.5	6.0
There is the margin of 20dB over except for the above points.						

State : Low Power / 12.5 kHz channel bandwidth

No.	Frequency (MHz)		Correct Level (dBm)	Emission Level (dBc)	Limit (dBc)	Margin (dB)
1	800.20	Low	-32.00	-68.99	-57.0	12.0
2	-	Mid	-	-	-57.0	-
3	-	High	-	-	-57.0	-
There is the margin of 20dB over except for the above points.						

Mask D Limit (dBc) = -(50+10Log(P))
Correct Level (dBm) = Substitute SG Level (dBm)
Emission Level (dBc) = Correct Level (dBm) - 10Log(P*1000)
P = Carrier Level (W)
" - " = Measurement Limit

4.3 Field Strength of Spurious Radiation

REGULATIONS	: 47 CFR 2.1053 (a), 90.210 / RSS-119 Section 6.2
TEST METHOD/GUIDE	: ANSI/TIA-603-C Section 2.2.12.2 / RSS-119 Section 4.2, RSS-Gen Section 4.7

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) Resolution Bandwidth : 10 kHz (< 1 GHz), 1 MHz (> 1 GHz).
b) Video Bandwidth : 300 kHz (< 1 GHz), 3 MHz (> 1 GHz).
c) Sweep Speed : 50ms.
d) 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

8 Spurious attenuation Wide Band Modulaion limit in dB = 43 + 10 Log10 (power out in Watts)

9 Spurious attenuation Narrow Band Modulaion limit in dB = 50 + 10 Log10 (power out in Watts)

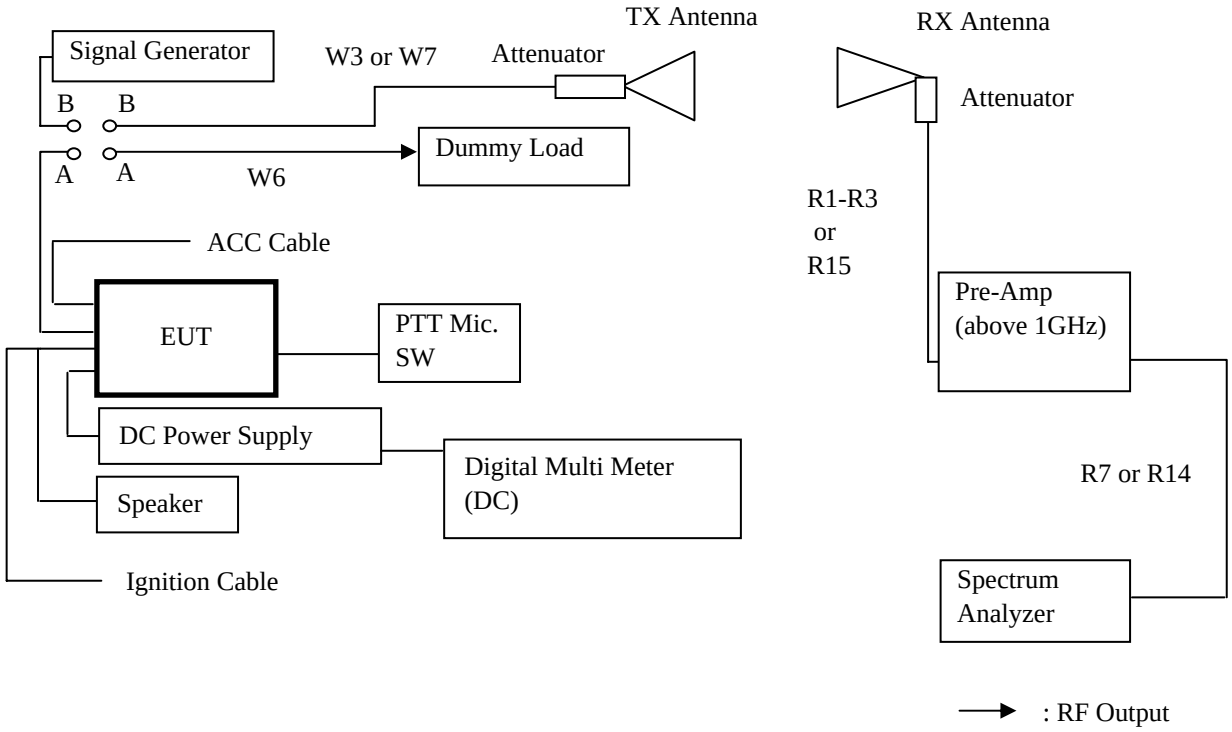
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Dipole Antenna(TX)	Schwarzbeck	UHA9105	None	Aug. 26, 06	Aug. 31, 07
2	D.R.G Antenna(TX)	Schwarzbeck	3115	5045	Jun. 08, 06	Jun. 30, 07
3	Tri-log Antenna(RX)	Schwarzbeck	VULB9168	106	Aug. 29, 06	Aug. 31, 07
4	D.R.G Antenna(RX)	Schwarzbeck	3115	5044	Jun. 08, 06	Jun. 30, 07
5	Pre-Amplifier	Hewlett Packard	83051A	3332A00329	Sep. 28, 05	Sep. 30, 06
6	Step Attenuator	Hewlett Packard	8494B	2726A14513	Nov. 01, 05	Nov. 30, 06
7	Attenuator(6dB)	Anritsu	MP721B	M57593	Nov. 01, 05	Nov. 30, 06
8	Attenuator(3dB)	Narda	4768-3	79	Sep. 28, 05	Sep. 30, 06
9	Attenuator(10dB)	HUBER+SUHNER	6810.17B	KSR0044	Aug. 01, 06	Aug. 31, 07
10	Spectrum Analyzer	Hewlett Packard	8564E	3643A00665	Aug. 17, 06	Aug. 31, 07
11	Signal Generator	Rohde&Schwarz	SMG	860289/011	Apr. 14, 06	Apr. 30, 07
12	Signal Generator	Rohde&Schwarz	SMR40	8341281028	Mar. 17, 06	Mar. 31, 07
13	Dummy Load	TME	CT-150NP	1138693	Aug. 01, 06	Aug. 31, 07
14	DC Power Supply	Daiwa	PS-3020	None	None	None
15	Digital Multi Meter	Sanwa	CD721	3215593	May 12, 06	May 31, 07

USED CABLES

No.	Cable	Manufacturer	Model No.	Serial No.	Cal Date	Cal Exp.
W3	Coaxial Cable	SUHNER	SUCOFLEX100	KSR00046	Aug. 01, 06	Aug. 31, 07
W6	Coaxial Cable	ETL SEMKO	5D-2W	KSR00098	Oct. 01, 06	Oct. 31, 07
W7	Coaxial Cable	Radiall	R286401332	KSR00048	Aug. 01, 06	Aug. 31, 07
R1	Coaxial Cable	ETL SEMKO	5D-2W	None	Nov. 01, 05	Nov. 30, 06
R2	Coaxial Cable	ETL SEMKO	10D-2W	None	Nov. 01, 05	Nov. 30, 06
R3	Coaxial Cable	ETL SEMKO	5D-2W	None	Nov. 01, 05	Nov. 30, 06
R7	Coaxial Cable	ETL SEMKO	5D-2W	None	Nov. 01, 05	Nov. 30, 06
R14	Coaxial Cable	Suhner	SUCOFLEX102	712/2	Sep. 28, 05	Sep. 30, 06
R15	Coaxial Cable	Insulated Wire	KSP-1501-1969-KPS	03292003	Sep. 28, 05	Sep. 30, 06

MEASUREMENT EQUIPMENT CONFIGURATION



UNCERTAINTY

Measurement uncertainty is +/- 4.2dB (k = 2)

TEST RESULTS

Measured for the worst case

State : High Power / 12.5 kHz channel bandwidth / 400.1 MHz

No	Frequency (MHz)	Pol	Reading Level (dBm)	SG Out Level (dBm)	Loss (dB)	Antenna Gain (dBi)	Correct Level (dBm)	Emission Level (dBc)	Limit Level (dBc)	Margin (dB)
1	800.20	Hor.	-73.60	-19.90	12.49	2.15	-30.2	-76.8	-66.5	10.2
		Ver.	-74.40	-20.90	12.49	2.15	-31.2	-77.8	-66.5	11.2
2	1200.30	Hor.	-37.00	-22.30	12.08	7.12	-27.3	-73.8	-66.5	7.3
		Ver.	-36.20	-22.70	12.08	7.12	-27.7	-74.2	-66.5	7.7
3	1600.40	Hor.	-53.93	-40.90	12.50	9.06	-44.3	-90.9	-66.5	24.3
		Ver.	-57.20	-46.70	12.50	9.06	-50.1	-96.7	-66.5	30.1
4	2000.50	Hor.	-54.67	-40.20	12.92	8.79	-44.3	-90.9	-66.5	24.3
		Ver.	-53.10	-33.50	12.92	8.79	-37.6	-84.2	-66.5	17.6
5	2400.60	Hor.	-50.67	-35.40	13.27	9.13	-39.5	-86.1	-66.5	19.5
		Ver.	-46.50	-30.10	13.27	9.13	-34.2	-80.8	-66.5	14.2
6	2800.70	Hor.	-	-	13.61	9.61	-	-	-	-
		Ver.	-	-	13.61	9.61	-	-	-	-
7	3200.80	Hor.	-	-	13.89	10.00	-	-	-	-
		Ver.	-59.70	-40.00	13.89	10.00	-43.9	-90.4	-66.5	23.9
8	3600.90	Hor.	-64.00	-46.30	14.11	10.10	-50.3	-96.8	-66.5	30.3
		Ver.	-	-	14.11	10.10	-	-	-	-
9	4001.00	Hor.	-60.10	-37.40	14.33	9.82	-41.9	-88.4	-66.5	21.9
		Ver.	-61.00	-36.80	14.33	9.82	-41.3	-87.8	-66.5	21.3
There is the margin of 20dB over except for the above points.										

Mask D Limit (dBc) = -(50+10Log(P))
Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBi) - Loss (Cable, Attenuator) (dB)
Emission Level (dBc) = Correct Level (dBm) - 10Log(P*1000)
P = Carrier Level (W)
" - " = Measurement Limit

State : Low Power / 12.5 kHz channel bandwidth / 400.1 MHz

No (MHz)	Frequency	Pol	Reading Level (dBm)	SG Out Level (dBm)	Loss (dB)	Antenna Gain (dBi)	Correct Level (dBm)	Emission Level (dBc)	Limit Level (dBc)	Margin (dB)
1	800.20	Hor.	-76.80	-24.90	12.49	2.15	-35.2	-72.2	-57.0	15.2
		Ver.	-76.40	-22.90	12.49	2.15	-33.2	-70.2	-57.0	13.2
2	1200.30	Hor.	-53.30	-39.30	12.08	7.12	-44.3	-81.2	-57.0	24.3
		Ver.	-47.50	-34.60	12.08	7.12	-39.6	-76.5	-57.0	19.6
3	1600.40	Hor.	-60.20	-49.20	12.50	9.06	-52.6	-89.6	-57.0	32.6
		Ver.	-58.00	-47.40	12.50	9.06	-50.8	-87.8	-57.0	30.8
4	2000.50	Hor.	-56.20	-42.20	12.92	8.79	-46.3	-83.3	-57.0	26.3
		Ver.	-52.92	-32.90	12.92	8.79	-37.0	-74.0	-57.0	17.0
5	2400.60	Hor.	-54.70	-39.80	13.27	9.13	-43.9	-80.9	-57.0	23.9
		Ver.	-49.50	-33.40	13.27	9.13	-37.5	-74.5	-57.0	17.5
6	2800.70	Hor.	-62.50	-46.80	13.61	9.61	-50.8	-87.8	-57.0	30.8
		Ver.	-58.50	-39.60	13.61	9.61	-43.6	-80.6	-57.0	23.6
7	3200.80	Hor.	-62.25	-45.10	13.89	10.00	-49.0	-86.0	-57.0	29.0
		Ver.	-58.00	-38.00	13.89	10.00	-41.9	-78.9	-57.0	21.9
8	3600.90	Hor.	-	-	14.11	10.10	-	-	-	-
		Ver.	-	-	14.11	10.10	-	-	-	-
9	4001.00	Hor.	-61.00	-38.90	14.33	9.82	-43.4	-80.4	-57.0	23.4
		Ver.	-59.00	-33.60	14.33	9.82	-38.1	-75.1	-57.0	18.1

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

Mask D Limit (dBc) = -(50+10Log(P))
Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBi) - Loss (Cable, Attenuator) (dB)
Emission Level (dBc) = Correct Level (dBm) - 10Log(P*1000)
P = Carrier Level (W)
" - " = Measurement Limit

4.4 Emission Masks (Occupied Bandwidth)

REGULATIONS	: 47 CFR 2.1049 (c) (1), 22.359, 357 (a) (1) , 74.1236 , 90.210 / RSS-119 Section 5.8
TEST METHOD/GUIDE	: ANSI/TIA-603-C Section 2.2.11.2 / RSS-119 Section 4.2.1, 4.2.2

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 or +/- 1.25 kHz deviation (or 50 % modulation).

3 With level constant, the signal level was increased 16 dB.
For EUT supporting digital modulation, the digital modulation mode was operated to its maximum extent.

4 Adjust the spectrum analyzer for the following setting:
a) Resolution Bandwidth : 30 kHz (Nonmodulation), 100 Hz (Narrow modulaton), 300 Hz (Wide modulation).
b) Video Bandwidth : 30 kHz (Nonmodulation), 100 Hz (Narrow band modulation), 3kHz (Wide band modulation).
c) Sweep Speed : 8 sec.
d) Sampling Time : 10 times

5 The occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.

TEST EQUIPMENTS

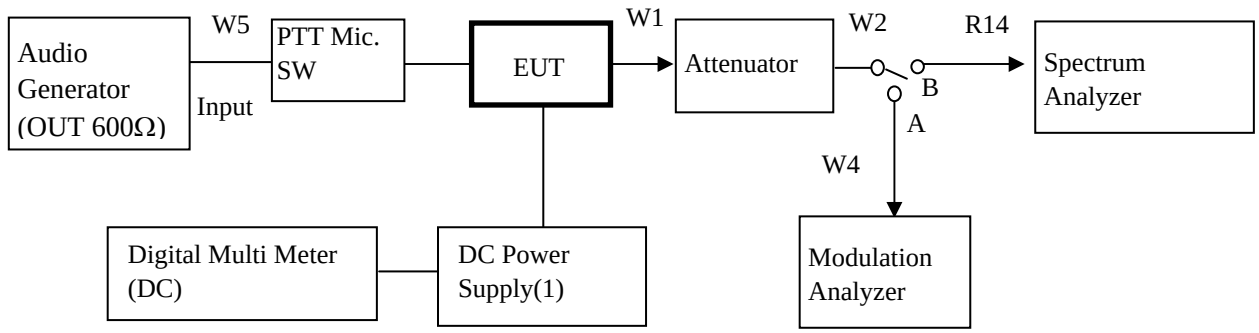
No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Audio Generator	Anritsu	MG443B	1004468	Aug. 15, 06	Aug. 31, 07
2	Attenuator (20dB)	Weinschel	40-20-34	AA5701	Jun. 15, 06	Jun. 30, 07
3	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 15, 06	Jun. 30, 07
4	Modulation Analyzer	HP	8901B	3403A04852	Apr. 12, 06	Apr. 30, 07
5	Spectrum Analyzer	HP	8564E	3643A00665	Aug. 17, 06	Aug. 31, 07
6	Modem Evalution Kit	Consumer Microcircuits	EV9000	None	None	None
7	DC Power Supply(1)	Daiwa	PS-3020	None	None	None
8	DC Power Supply(2)	Kenwood	PW18-1.8Q	None	None	None
9	Digital Multi Meter	Sanwa	CD721	3215593	May 12, 06	May 31, 07

USED CABLES

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX102	KSR00046	Aug. 01, 06	Aug. 31, 07
W2	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C02	Aug. 01, 06	Aug. 31, 07
W4	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	Aug. 01, 06	Aug. 31, 07
W5	Balance Cable	Nicoon	3D-2V	KSR00092	Oct. 01, 06	Oct. 31, 07
R14	Coaxial Cable	Suhner	SUCOFLEX102	712/2	Sep. 27, 05	Sep. 30, 06

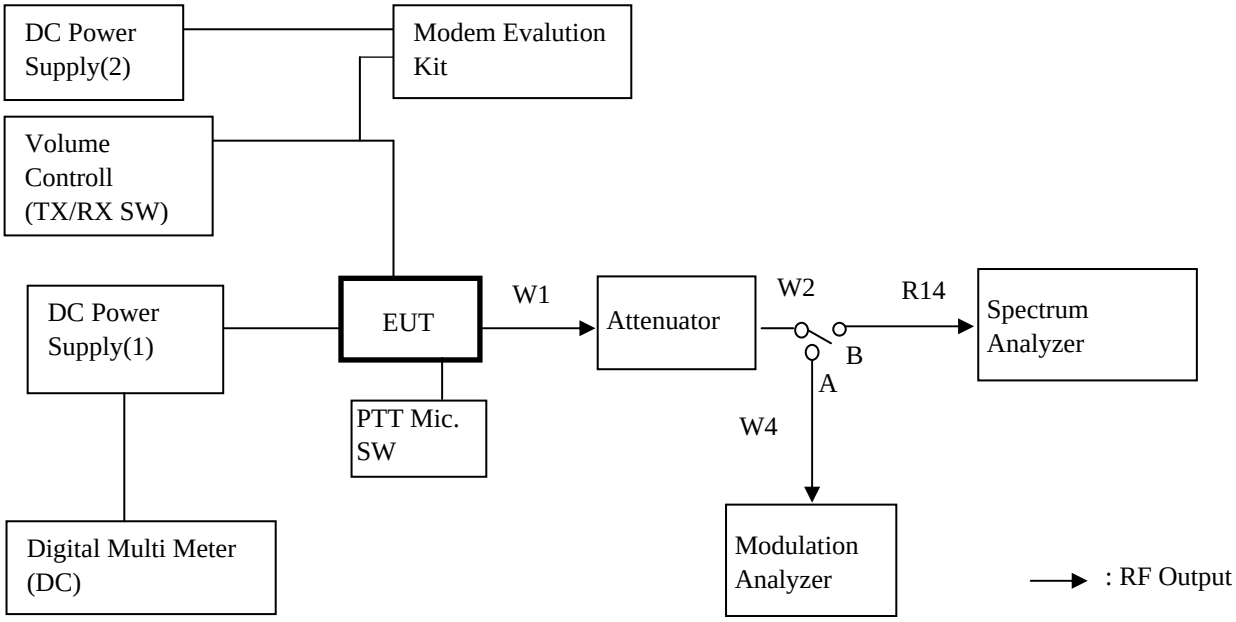
MEASUREMENT EQUIPMENT CONFIGURATION

<FM Modulation Case>



Note : Configration of C4FM Modulation test is composed without Audio Generator with the FM Modulation Case.

<GMSK and 4Level FSK Modulation Case>



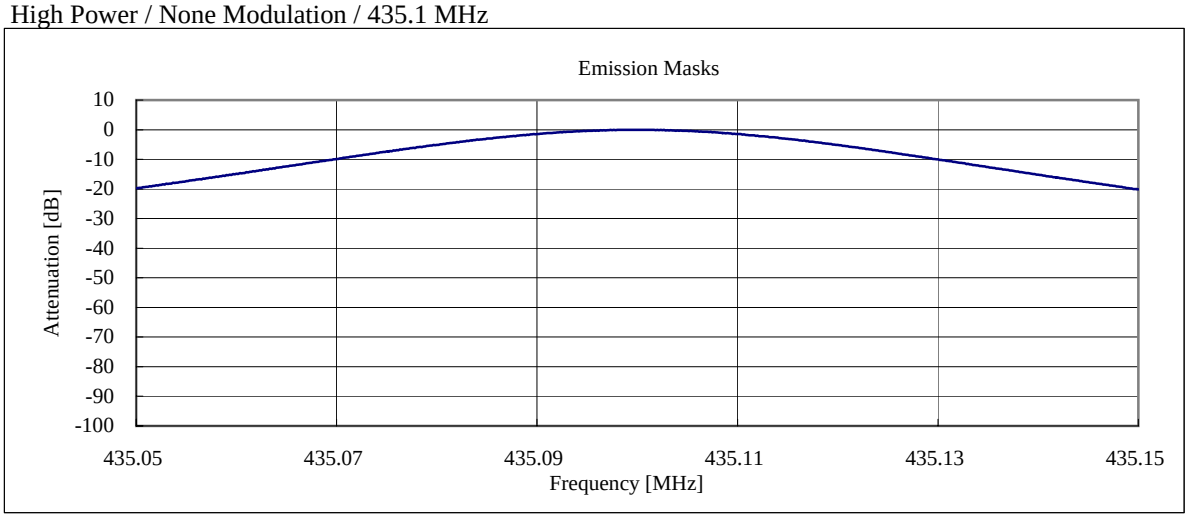
UNCERTAINTY

Measurement uncertainty is +/- 1.2dB (k = 2)

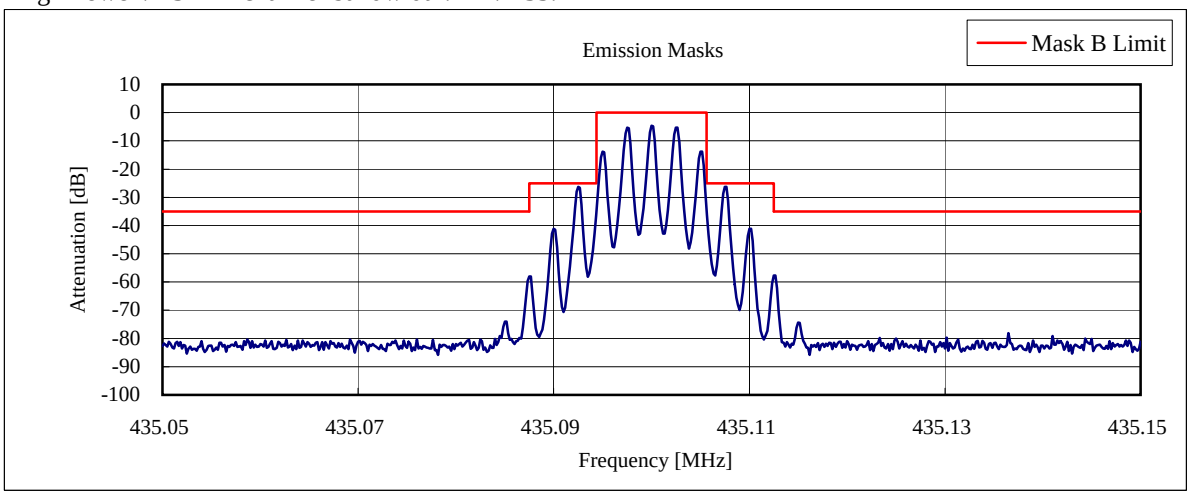
TEST RESULTS

Measured for the worst case

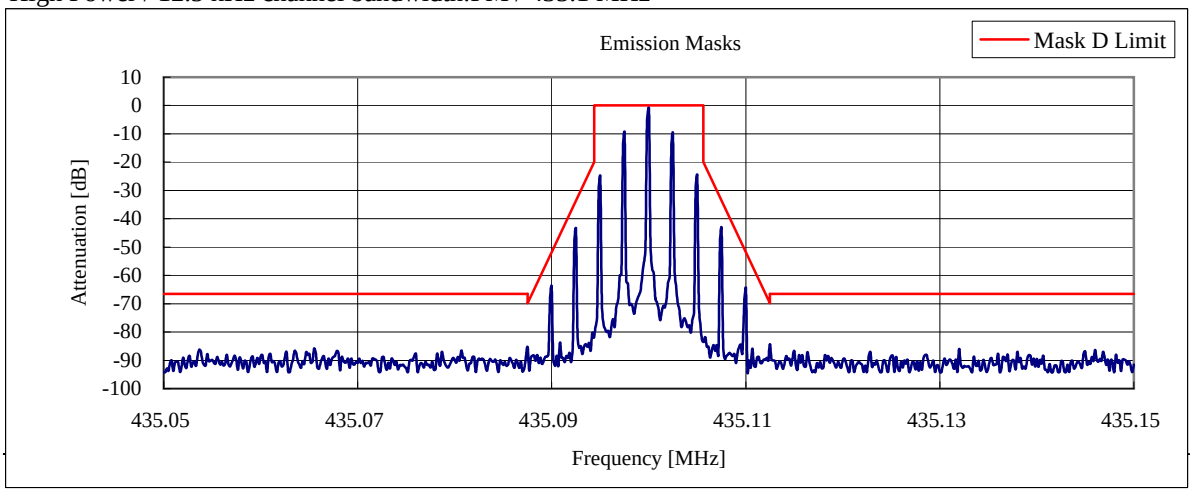
State : High Power / None Modulation / 435.1 MHz



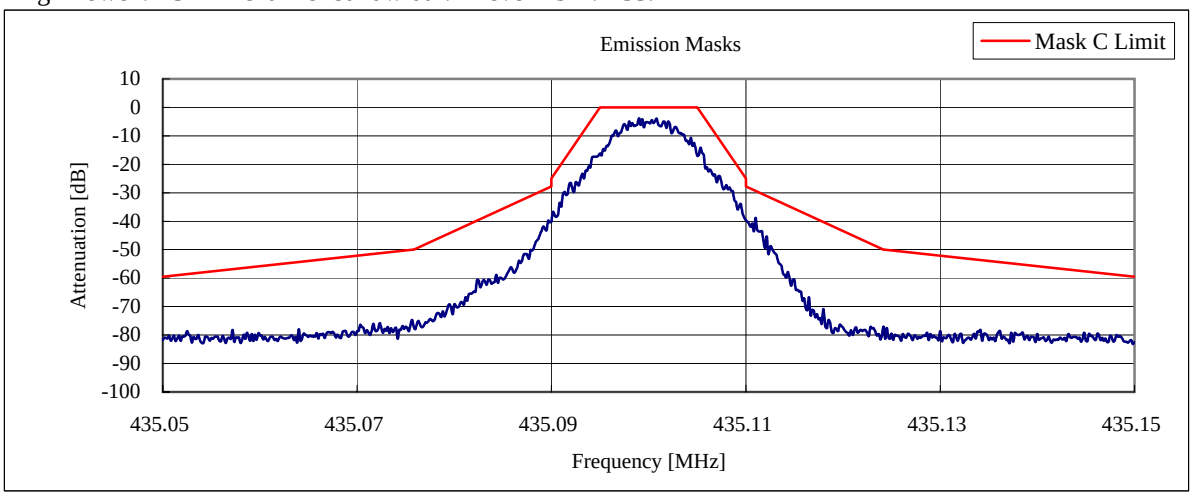
State : High Power / 25 kHz channel bandwidth:FM / 435.1 MHz



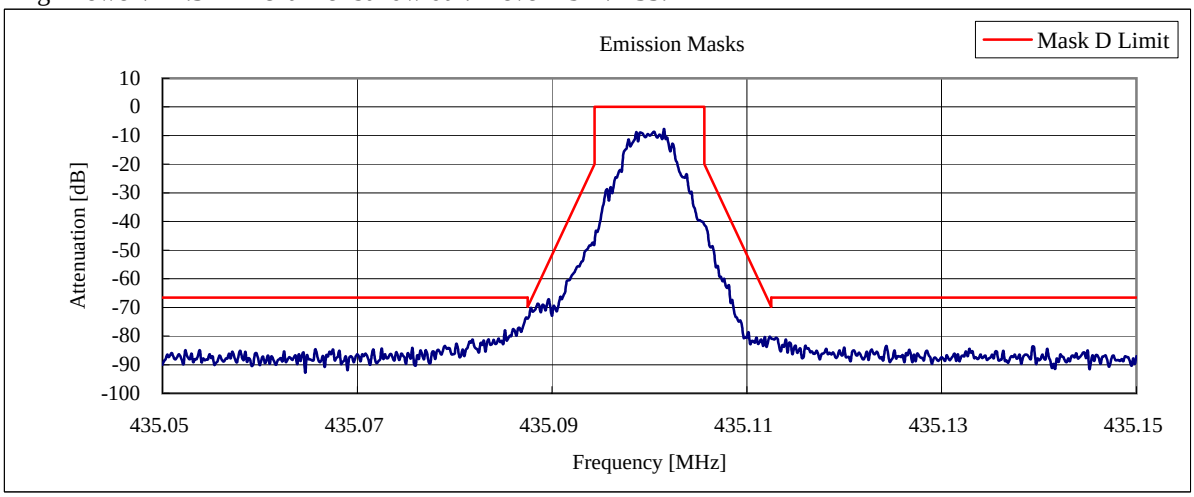
State : High Power / 12.5 kHz channel bandwidth:FM / 435.1 MHz



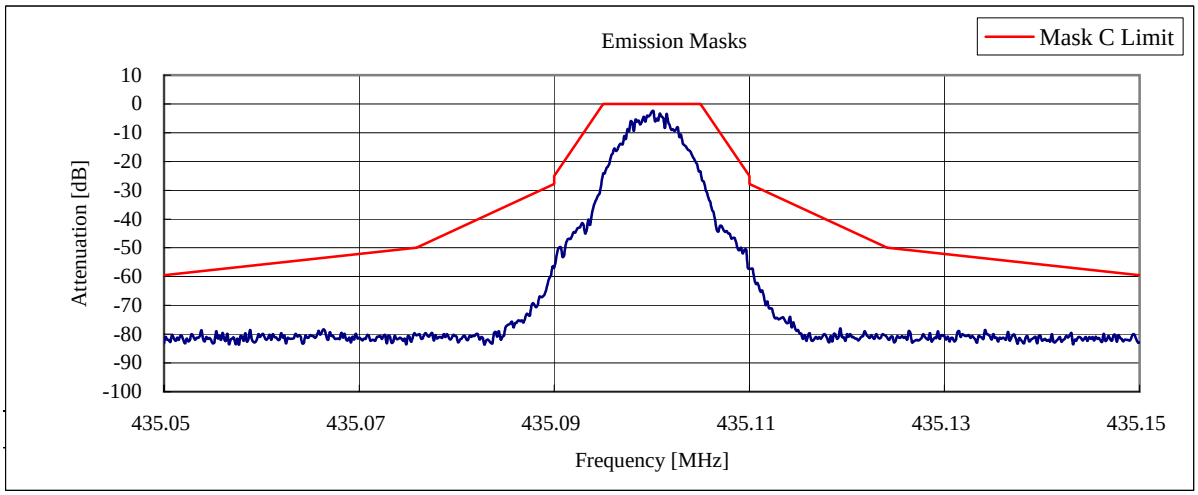
State : High Power / 25 kHz channel bandwidth:4 Level FSK / 435.1 MHz



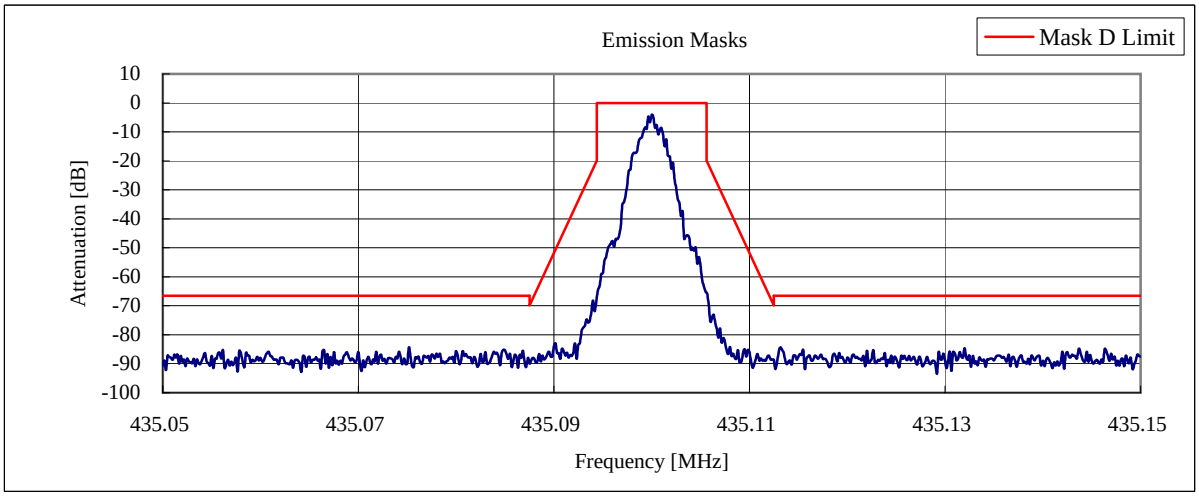
State : High Power / 12.5 kHz channel bandwidth:4Level FSK / 435.1 MHz



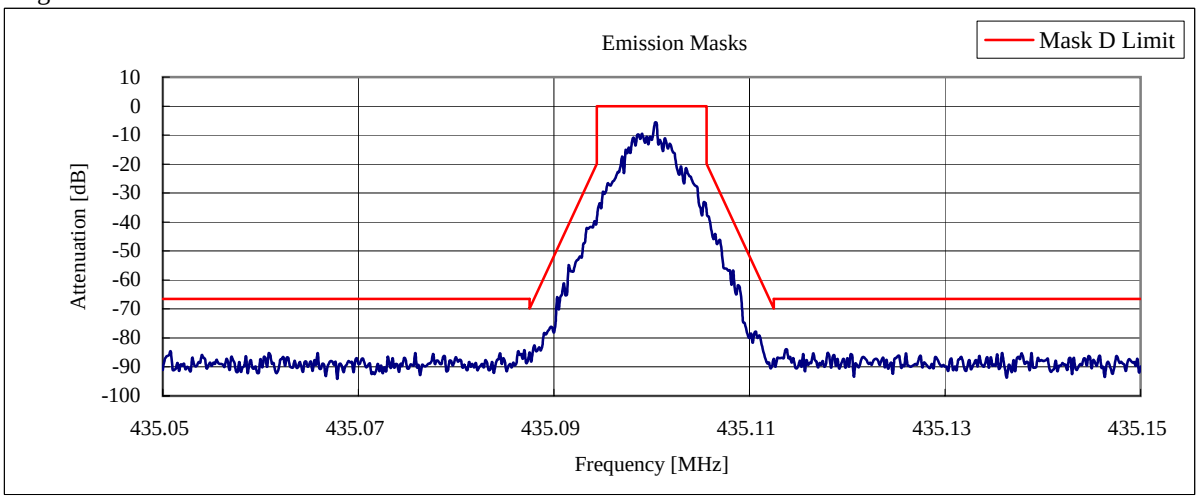
State : High Power / 25 kHz channel bandwidth:GMSK / 435.1 MHz



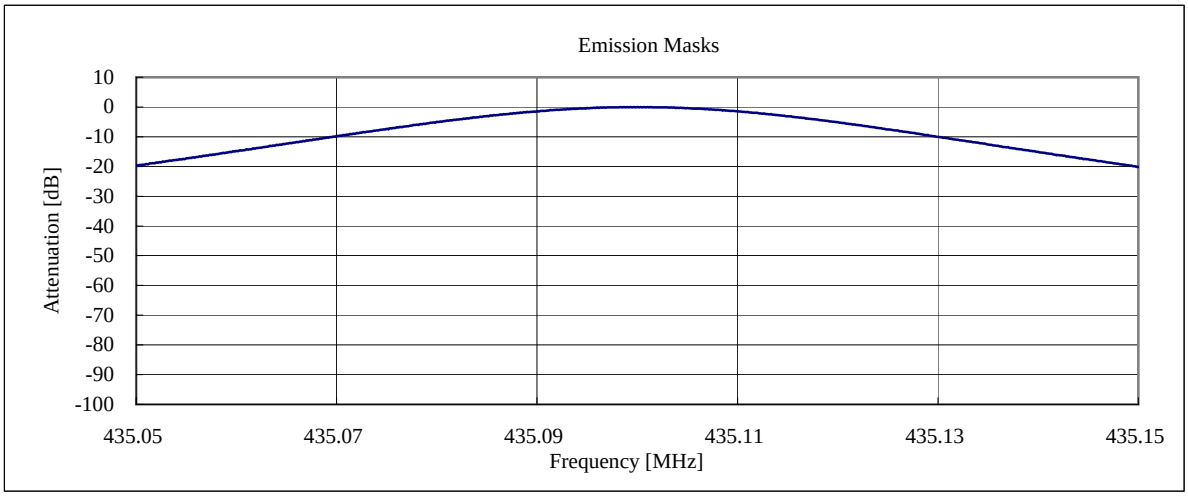
State : High Power / 12.5 kHz channel bandwidth:GMSK / 435.1 MHz



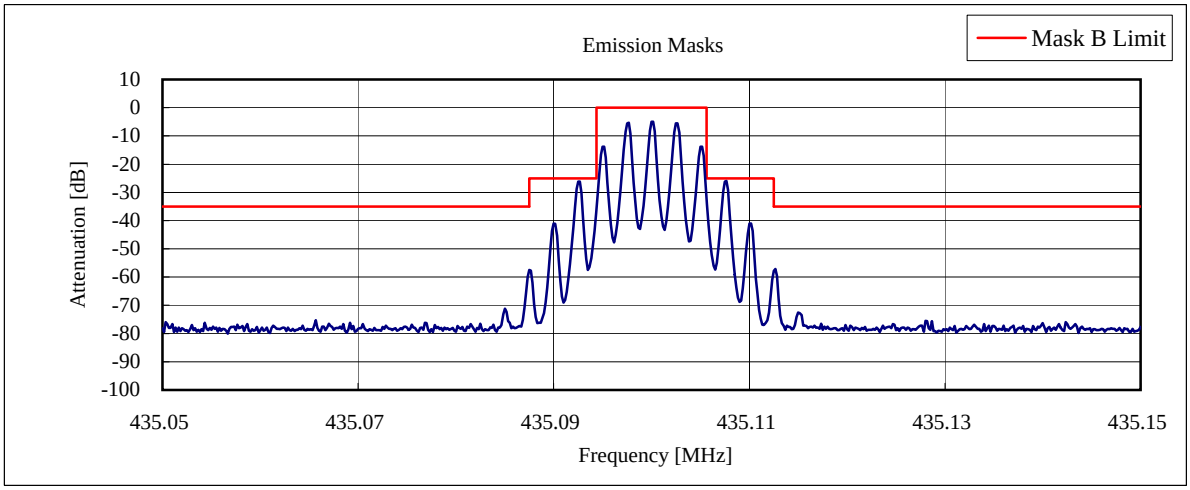
State : High Power / 12.5 kHz channel bandwidth:C4FM / 435.1 MHz



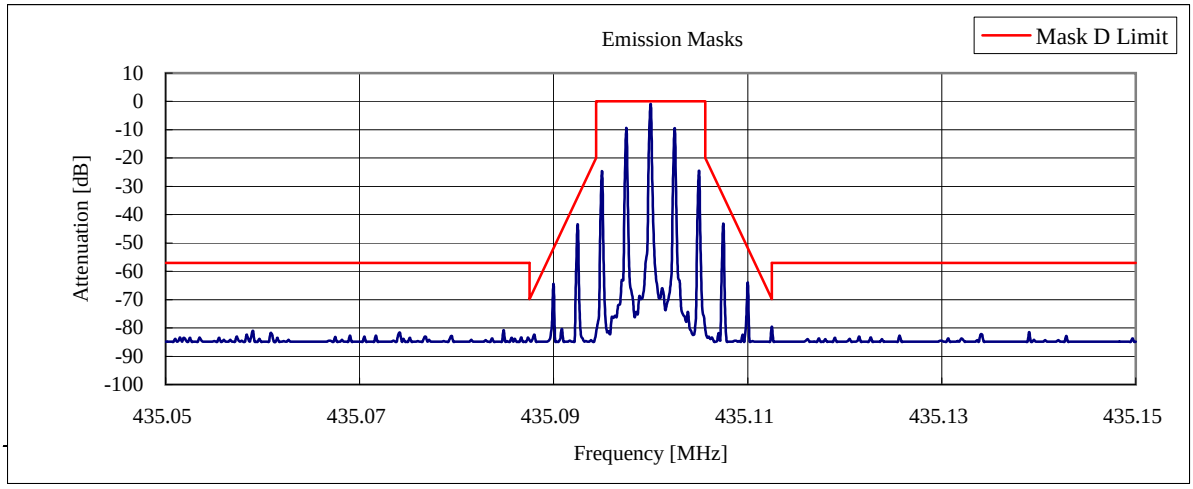
State : Low Power / None Modulation / 435.1 MHz



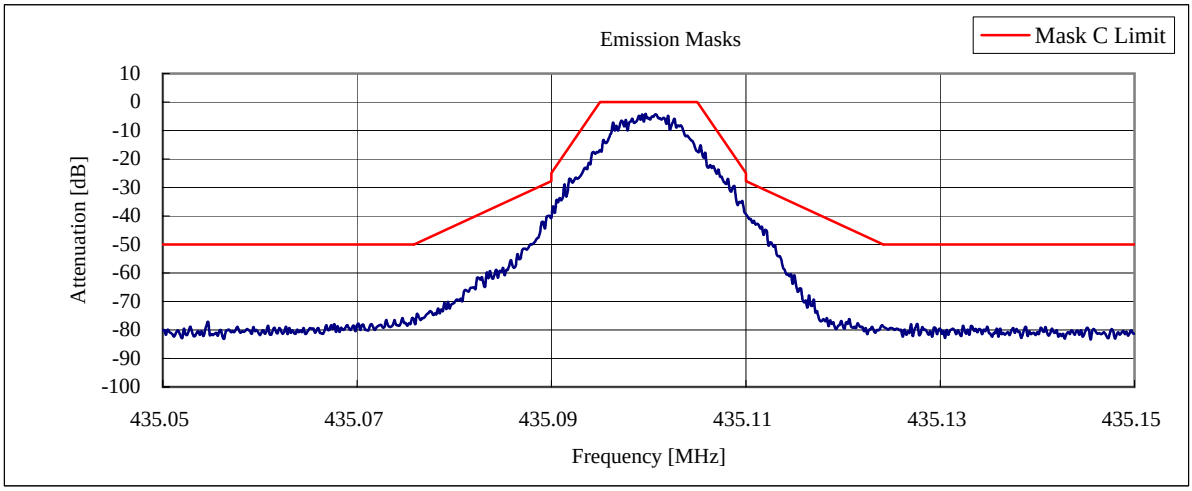
State : Low Power / 25 kHz channel bandwidth:FM / 435.1 MHz



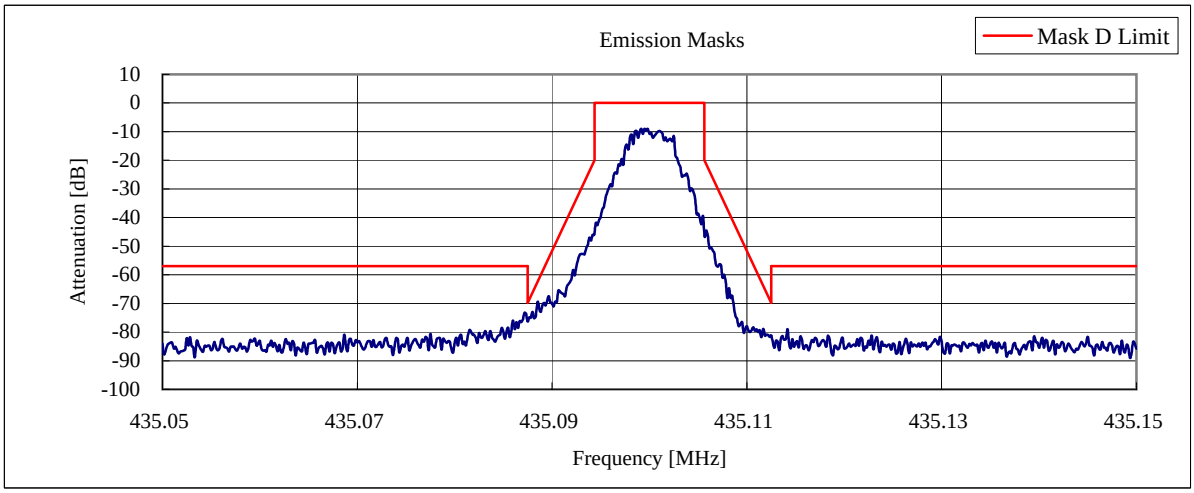
State : Low Power / 12.5 kHz channel bandwidth:FM / 435.1 MHz



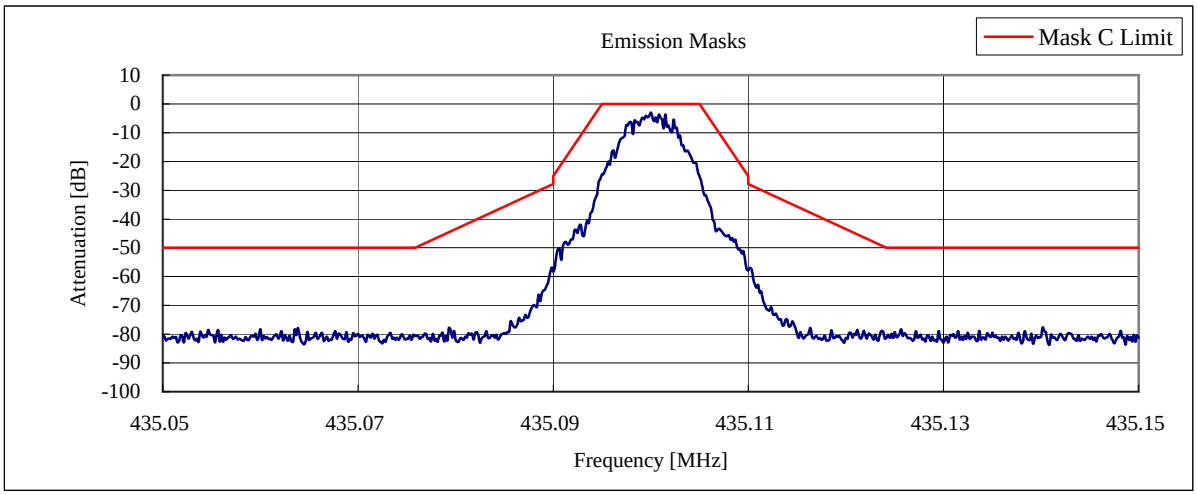
State : Low Power / 25 kHz channel bandwidth:4 Level FSK / 435.1 MHz



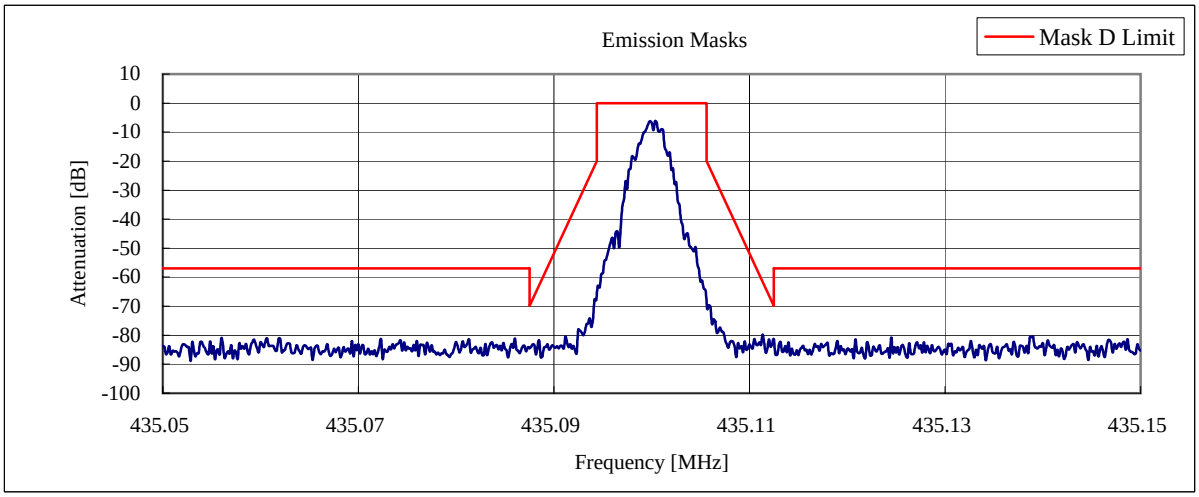
State : Low Power / 12.5 kHz channel bandwidth:4Level FSK / 435.1 MHz



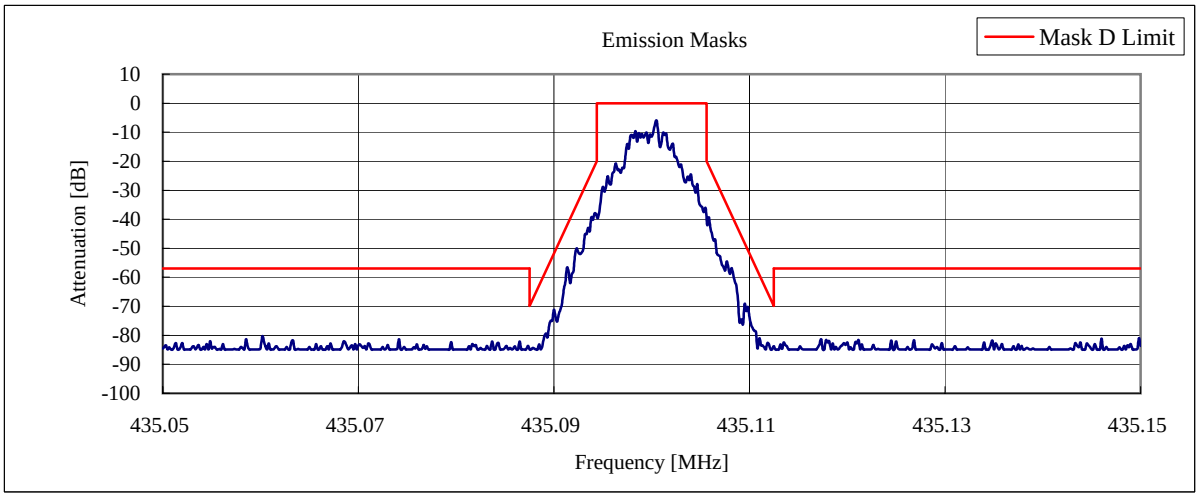
State : Low Power / 25 kHz channel bandwidth:GMSK / 435.1 MHz



State : Low Power / 12.5 kHz channel bandwidth:GMSK / 435.1 MHz



State : Low Power / 12.5 kHz channel bandwidth:C4FM / 435.1 MHz



4.5 Transient Frequency Behavior

REGULATIONS	: 47 CFR 90.214 / RSS-119 Section 5.9
TEST METHOD/GUIDE	: ANSI/TIA-603-C, 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 Sufficient attenuation was provided so that the transmitter carrier level measured at the output of the combiner was 40 dB below the maximum input level of the test receiver. This level was recorded as step f.
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 deviation, and set to the same frequency as the assigned transmitter frequency, (2) was adjusted to a level -20 dB below the level recorded for step f, 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-603C steps j and k as a guide, and to 10 msec./div.
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-C steps m, n, and o was captured and plotted.
9 The carrier off-time as referenced in TIA-603-C steps p, q, r, and s was captured and plotted.

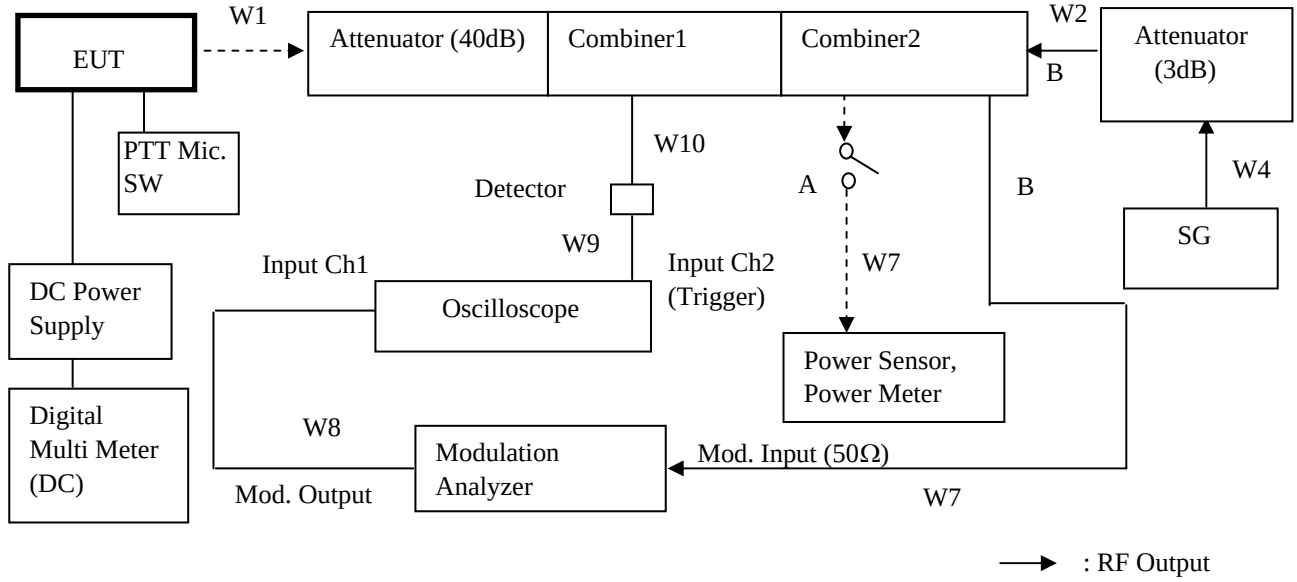
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Signal Generator	Rohde&Schwarz	SMG	860289/011	Apr. 14, 06	Apr. 30, 07
2	Oscilloscope	Tektronix	TDS 680B	B010292	Aug. 22, 06	Aug. 31, 07
3	Power Meter	Hewlett Packard	E4418B	GB38410265	Apr. 21, 06	Apr. 30, 07
4	Power Sensor	Hewlett Packard	8482A	2607A11551	Apr. 21, 06	Apr. 30, 07
5	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 15, 06	Jun. 30, 07
6	Attenuator (10dB)	TME	CFA-05NPJ-10	262856	Aug. 01, 06	Aug. 31, 07
7	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	Apr. 12, 06	Apr. 30, 07
8	Combiner(1)	Anritsu	Z-164A	M89549	Aug. 01, 06	Aug. 31, 07
9	Combiner(2)	Anritsu	Z-164A	M89249	Aug. 01, 06	Aug. 31, 07
10	Attenuator (3dB)	TME	CFA-20NPJ-3	679701	Aug. 01, 06	Aug. 31, 07
11	DC Power Supply	Daiwa	PS-3020	None	None	None
12	Digital Multi Meter	Sanwa	CD721	3040939	May 12, 06	May 31, 07

USED CABLES

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX102	KSR00046	Aug. 01, 06	Aug. 31, 07
W2	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C02	Aug. 01, 06	Aug. 31, 07
W4	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C03	Aug. 01, 06	Aug. 31, 07
W7	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C04	Aug. 01, 06	Aug. 31, 07
W8	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00094	Oct. 01, 06	Oct. 31, 07
W9	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00095	Oct. 01, 06	Oct. 31, 07
W10	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00096	Oct. 01, 06	Oct. 31, 07

MEASUREMENT EQUIPMENT CONFIGURATION



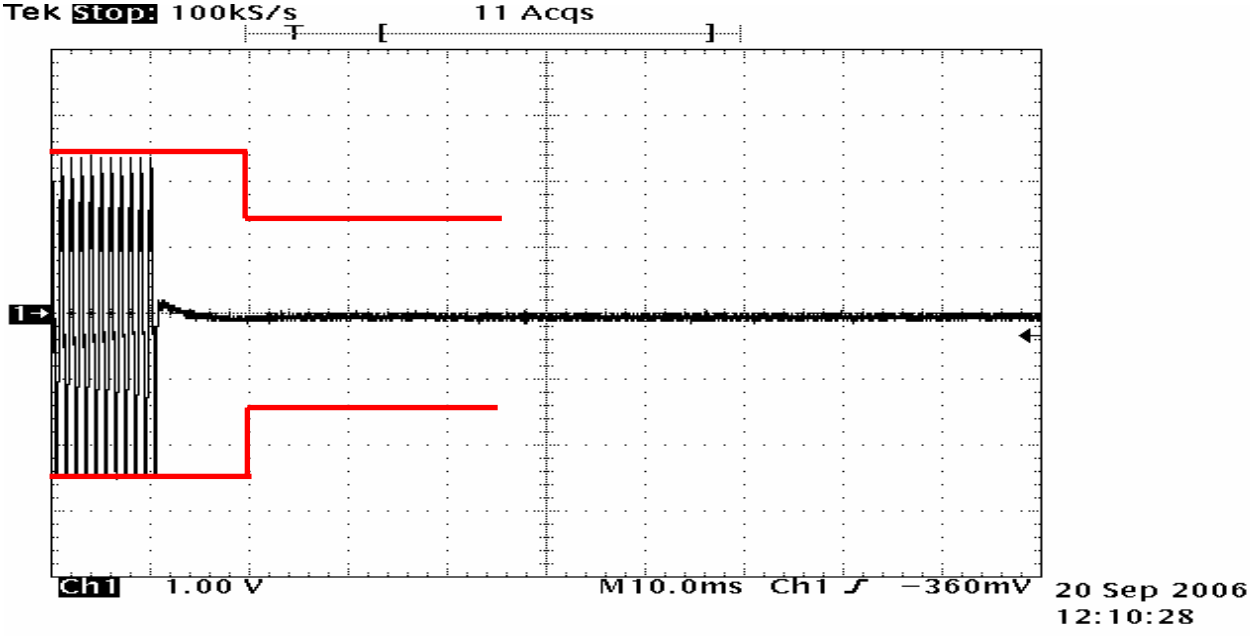
UNCERTAINTY

Measurement uncertainty is +/- 1.3dB (k = 2)

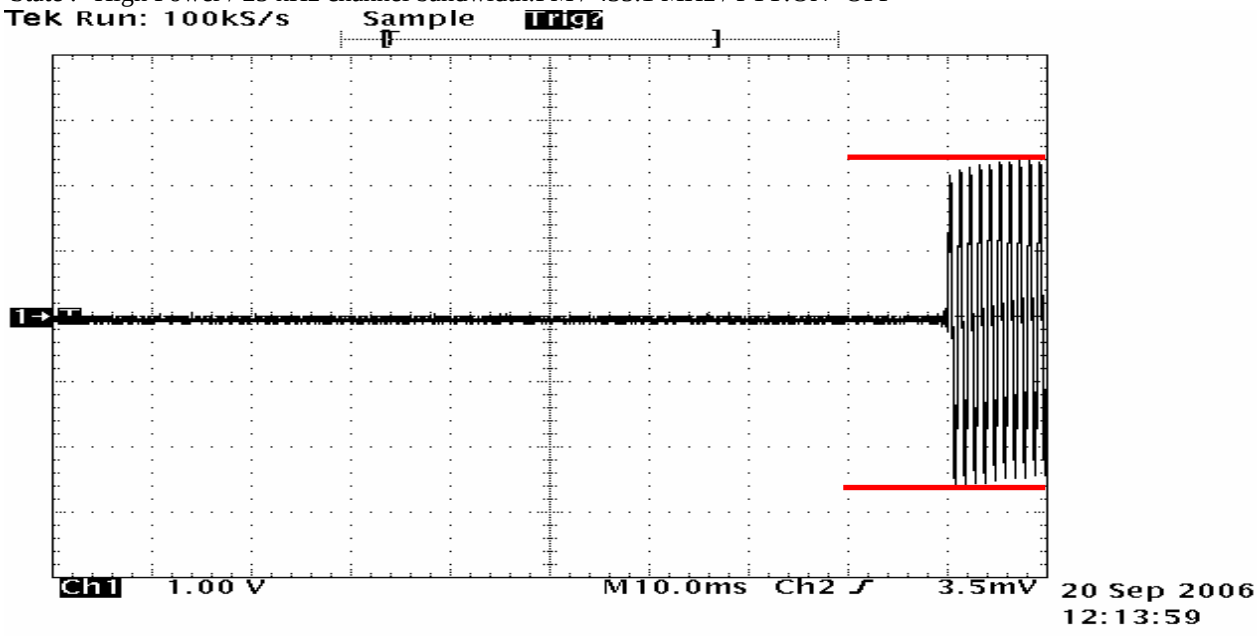
TEST RESULTS

Measured for the worst case

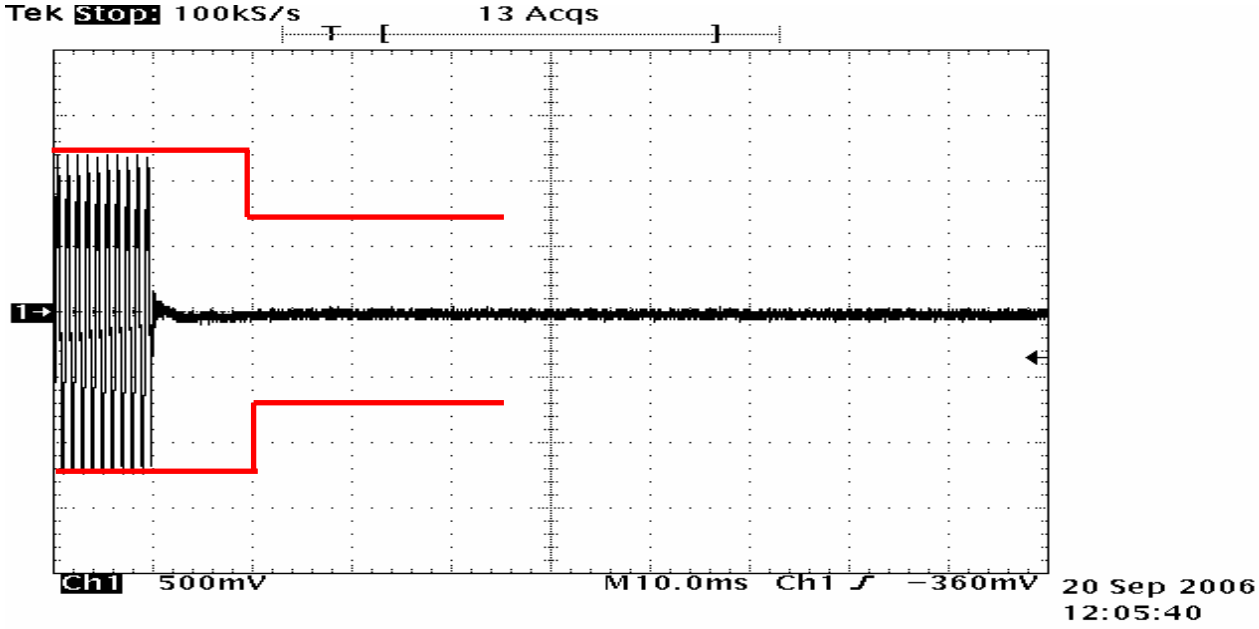
State : High Power / 25 kHz channel bandwidth:FM / 435.1 MHz / PTT:OFF -ON



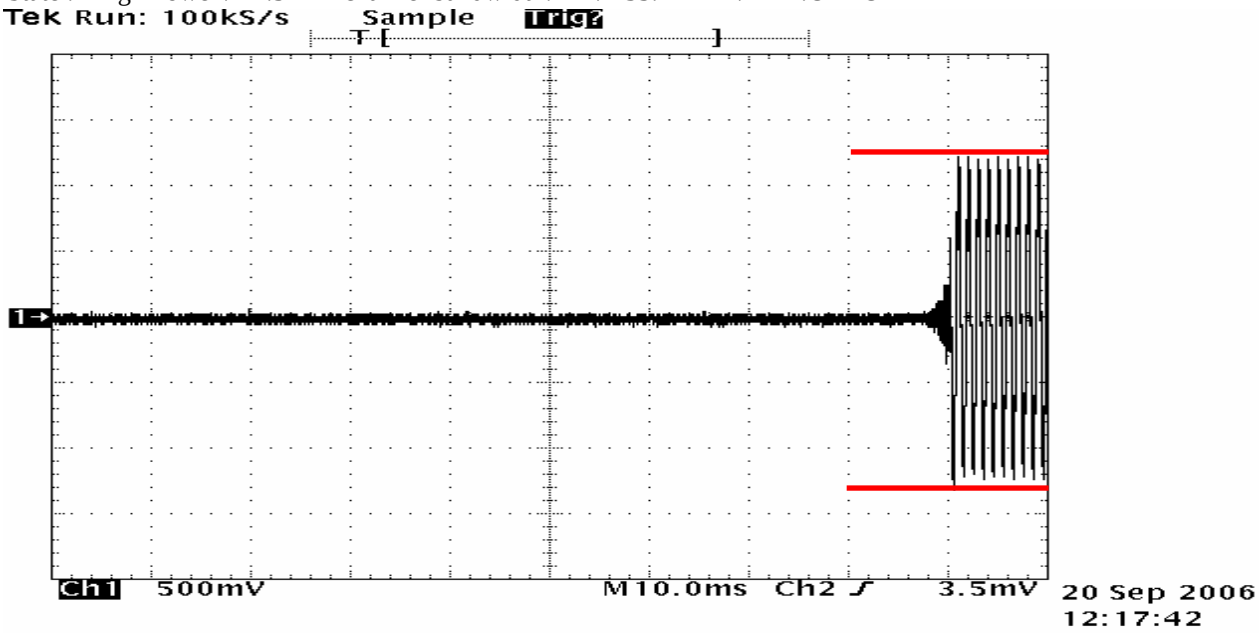
State : High Power / 25 kHz channel bandwidth:FM / 435.1 MHz / PTT:ON -OFF



State : High Power / 12.5 kHz channel bandwidth:FM / 435.1 MHz / PTT:OFF -ON



State : High Power / 12.5 kHz channel bandwidth:FM / 435.1 MHz / PTT:ON -OFF



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

REGULATIONS	: 47 CFR 2.1047 (a) / RSS-119 Section 5.10
TEST METHOD/GUIDE	: ANSI/TIA-603-C Section 2.2.6.2.2, 3.2.6.2 / RSS-119 Section 4.3

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 300 Hz to 5 kHz.

5 The response in dB relative to 1 kHz was then measured, using the Modulation Analyzer.

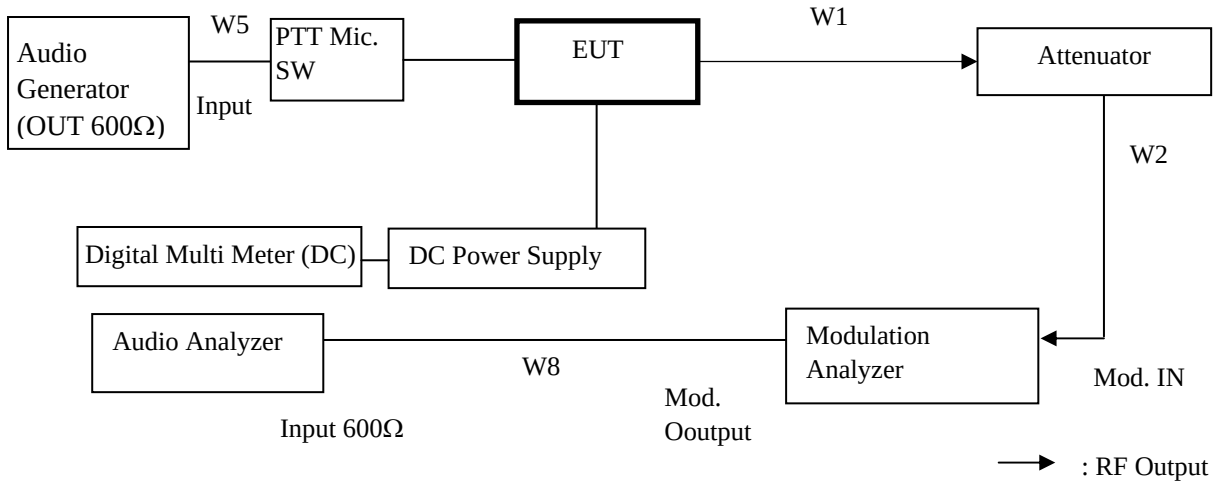
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Audio Generator	Anritsu	MG443B	1004468	Aug. 15, 06	Aug. 31, 07
2	Attenuator (20dB)	Weinschel	40-20-34	AA5701	Jun. 15, 06	Jun. 30, 07
3	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 15, 06	Jun. 30, 07
4	Modulation Analyzer	HP	8901B	3403A04852	Apr. 12, 06	Apr. 30, 07
5	Audio Analyzer	HP	8903B	2948A07326	Apr. 18, 06	Apr. 30, 07
6	DC Power Supply	Daiwa	PS-3020	None	None	None
7	Digital Multi Meter	Sanwa	CD721	3215593	May 12, 06	May 31, 07

USED CABLES

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX102	KSR00046	Aug. 01, 06	Aug. 31, 07
W2	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C02	Aug. 01, 06	Aug. 31, 07
W5	Balance Cable	Nicoon	3D-2V	KSR00092	Oct. 01, 06	Oct. 31, 07
W8	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00094	Oct. 01, 06	Oct. 31, 07

MEASUREMENT EQUIPMENT CONFIGURATION



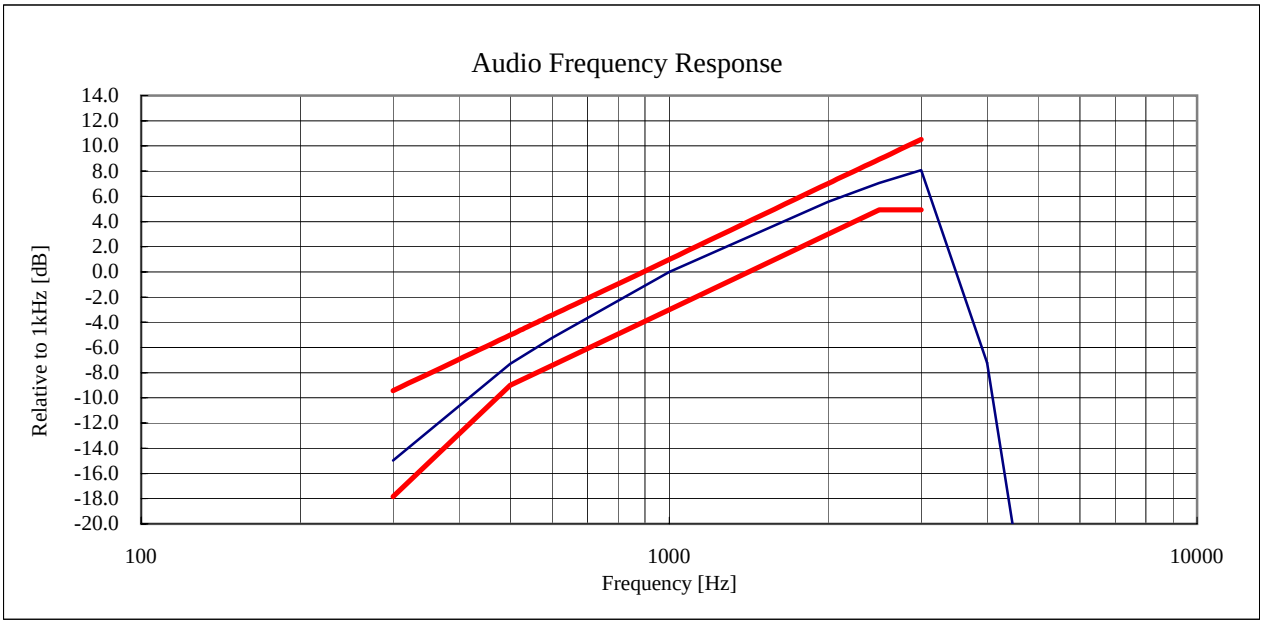
UNCERTAINTY

Measurement uncertainty is +/- 1.2dB (k = 2)

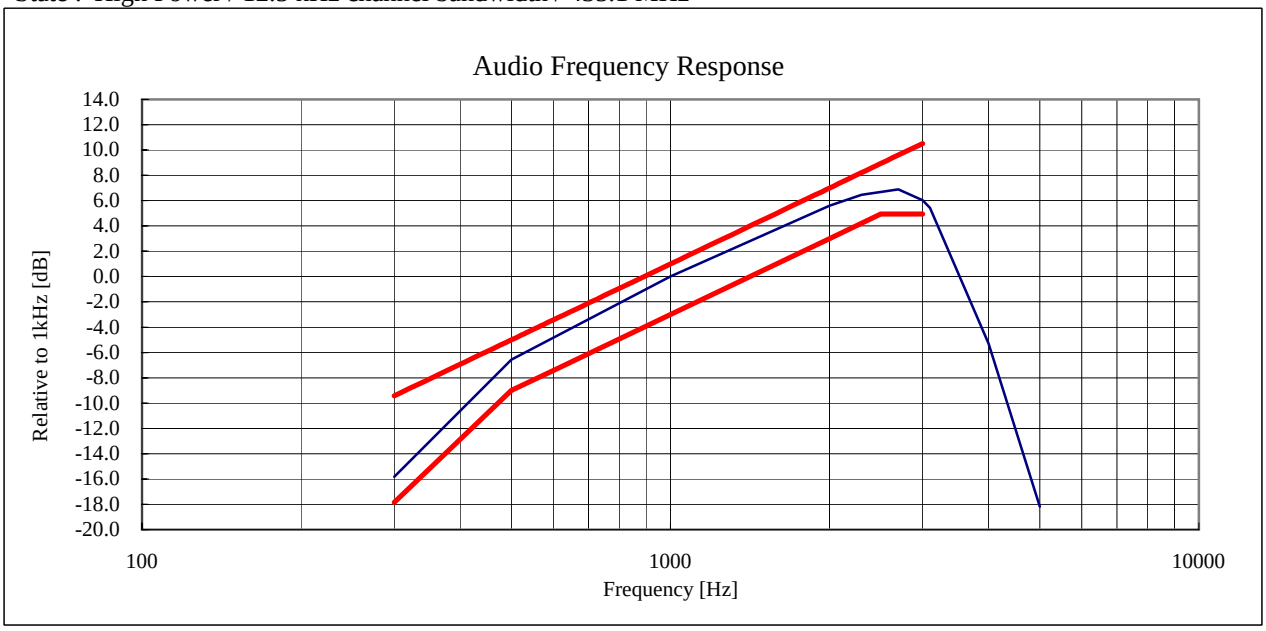
TEST RESULTS

Measured for the worst case

State : High Power / 25 kHz channel bandwidth / 435.1 MHz



State : High Power / 12.5 kHz channel bandwidth / 435.1 MHz



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

4.7 Modulation Limiting

REGULATIONS	: 47 CFR 2.1047 (b) / RSS-119 Section 5.10
TEST METHOD/GUIDE	: ANSI/TIA-603-C Section 2.2.3.2, 1.3.4.4 / RSS-119 Section 4.3

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 : off
b) Low-pass filter : 15 kHz
c) Detector : positive peak
d) Function : FM
3 Apply a 1kHz moduralating 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 the Detector of the Modulation Analyzer Negative Peak.
7 Repeat test procedure 4 and 5.

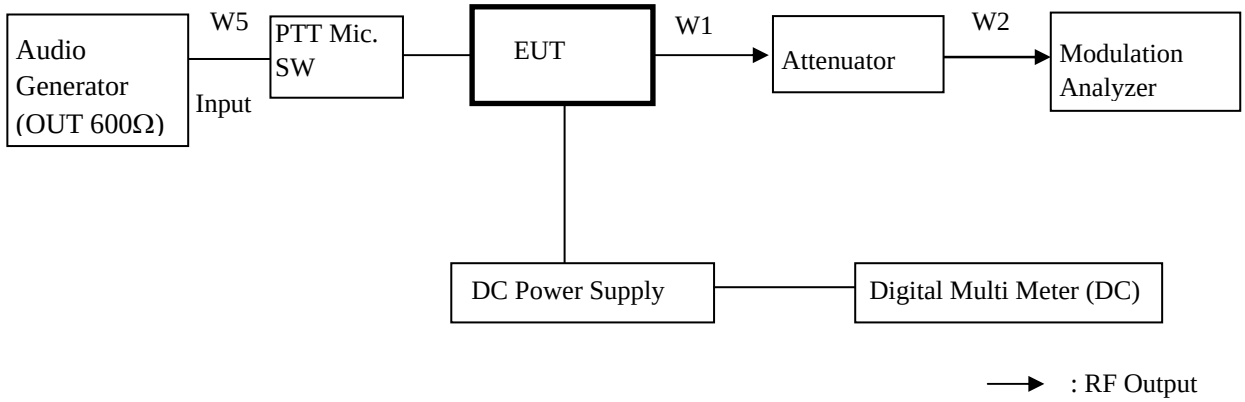
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Audio Generator	Anritsu	MG443B	1004468	Aug. 15, 06	Aug. 31, 07
2	Attenuator (20dB)	Weinschel	40-20-34	AA5701	Jun. 15, 06	Jun. 30, 07
3	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 15, 06	Jun. 30, 07
4	Modulation Analyzer	HP	8901B	3403A04852	Apr. 12, 06	Apr. 30, 07
5	DC Power Supply	Daiwa	PS-3020	None	None	None
6	Digital Multi Meter	Sanwa	CD721	3215593	May 12, 06	May 31, 07

USED CABLES

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX102	KSR00046	Aug. 01, 06	Aug. 31, 07
W2	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C02	Aug. 01, 06	Aug. 31, 07
W5	Balance Cable	Nicoon	3D-2V	KSR00092	Oct. 01, 06	Oct. 31, 07

MEASUREMENT EQUIPMENT CONFIGURATION



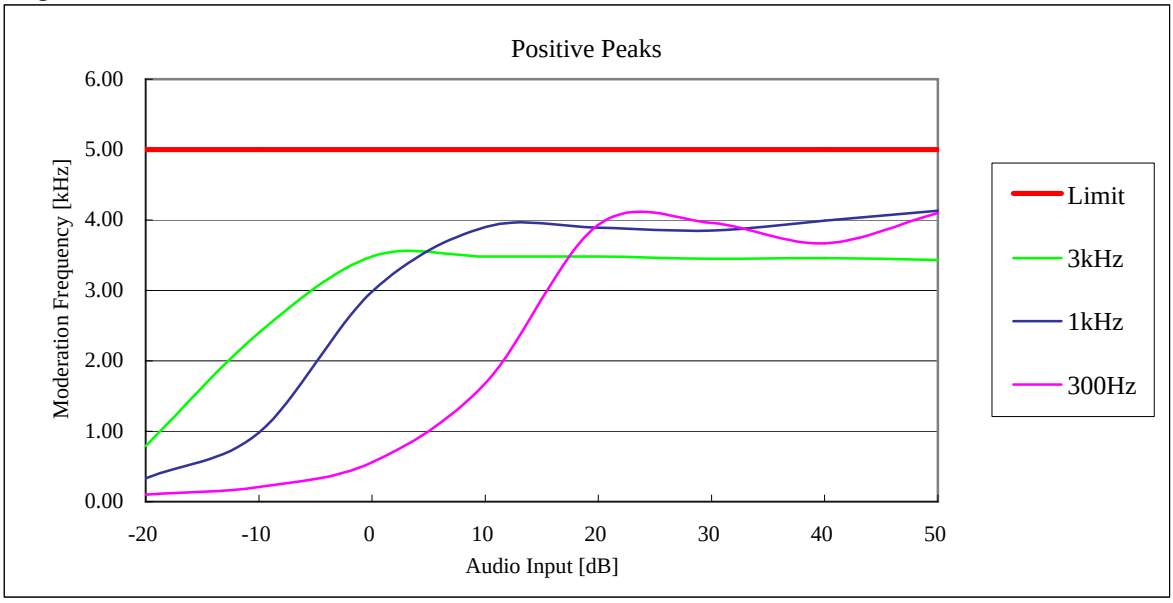
UNCERTAINTY

Measurement uncertainty is +/- 0.8dB (k = 2)

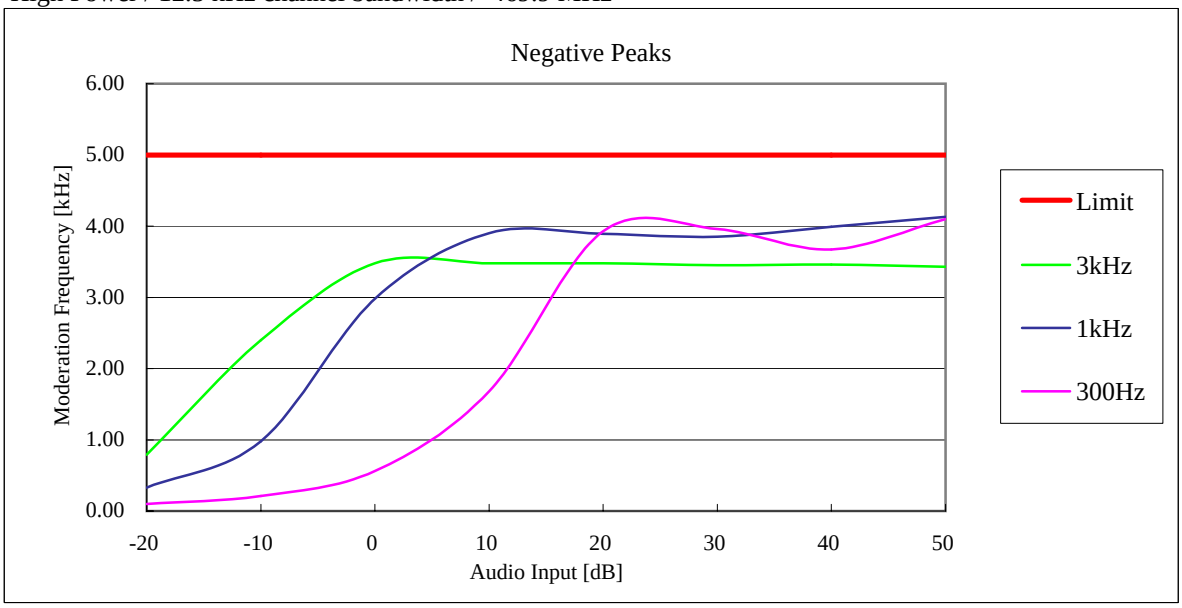
TEST RESULTS

Measured for the worst case

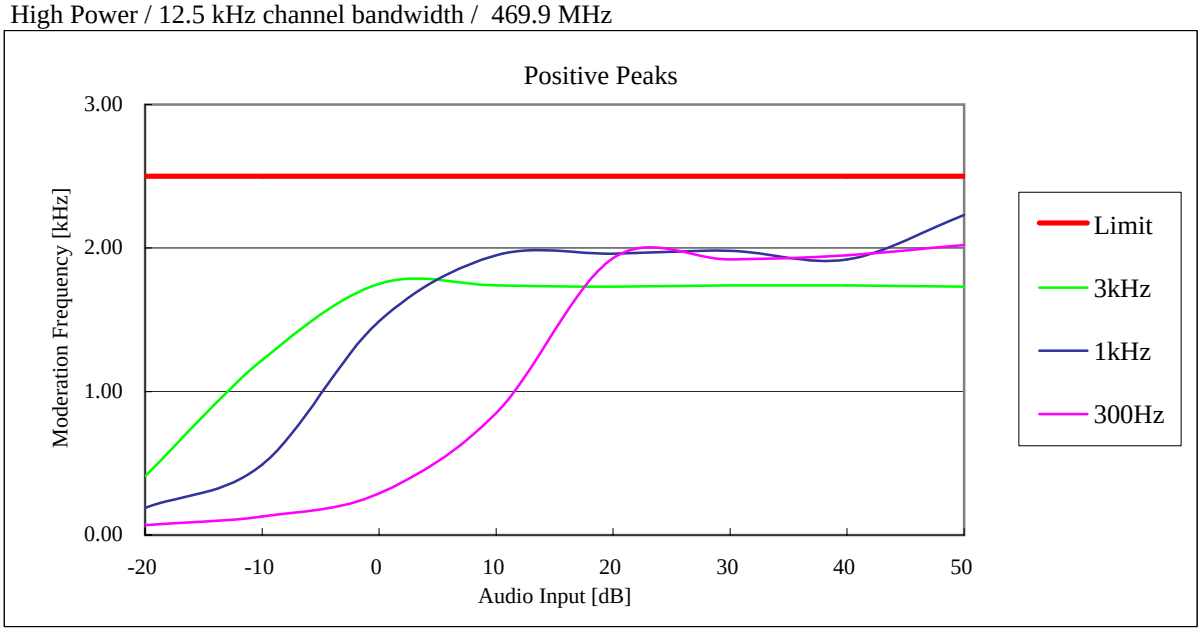
State : High Power / 25 kHz channel bandwidth / 469.9 MHz



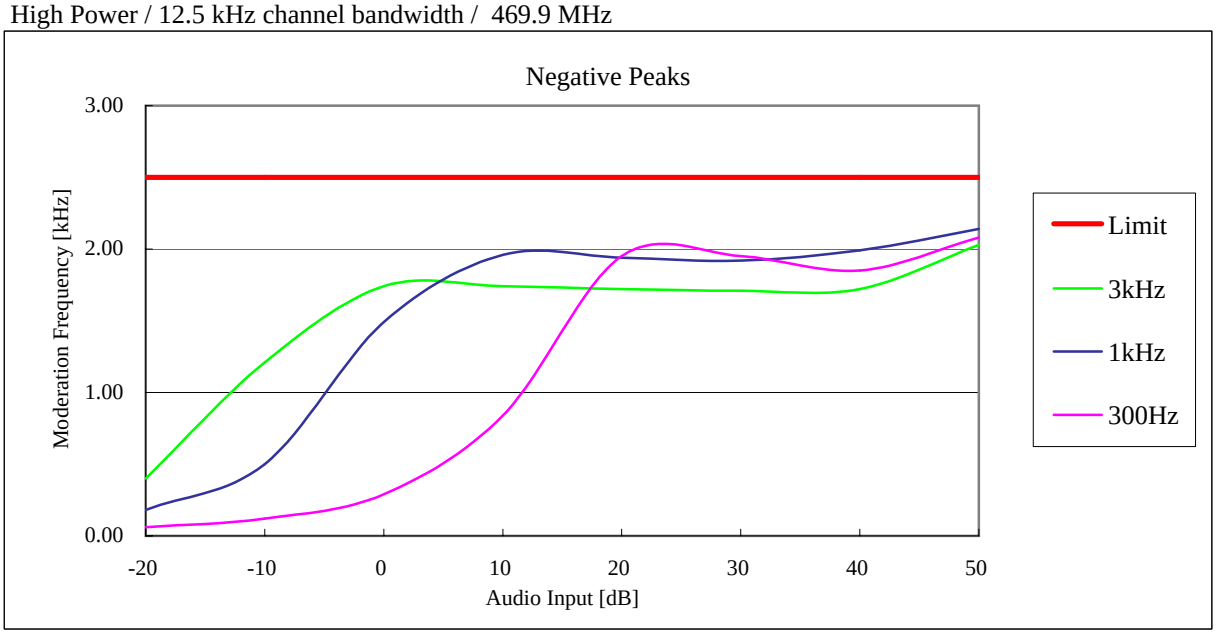
State : High Power / 12.5 kHz channel bandwidth / 469.9 MHz



State : High Power / 12.5 kHz channel bandwidth / 469.9 MHz



State : High Power / 12.5 kHz channel bandwidth / 469.9 MHz



4.8 Frequency Stability (Temperature Variation)

REGULATIONS	: 47 CFR 2.1055 (a) (1), 22.355 , 74.1261 (b) , 90.213(a) / RSS-119 Section 5.3
TEST METHOD/GUIDE	: ANSI/TIA-603-C Section 2.2.2.2 / RSS-Gen Section 4.5(a)

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.
Two minutes later, 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 3 to 5.

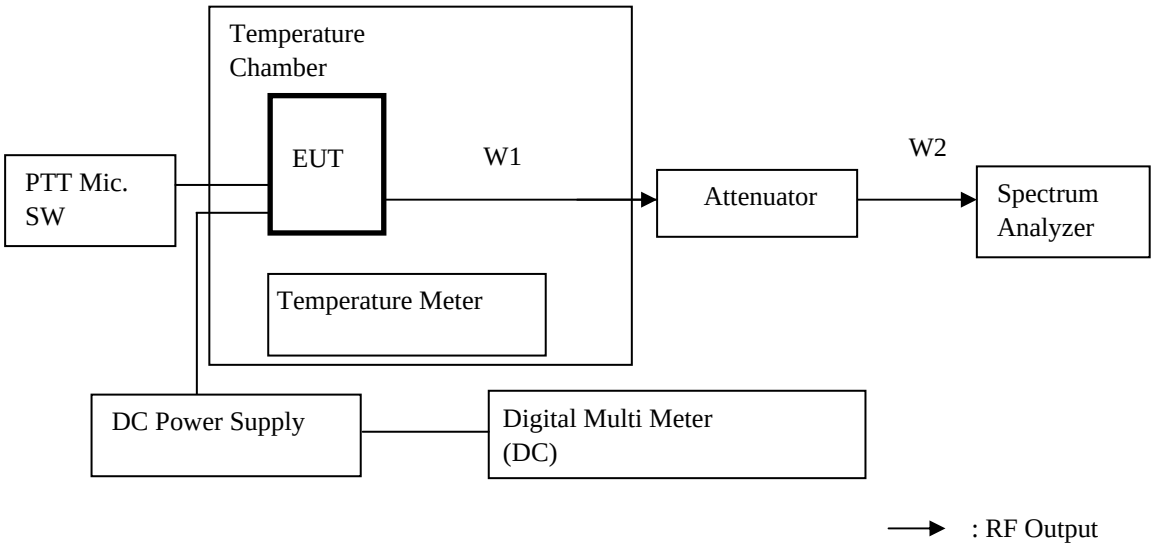
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Spectrum Analyzer	Agilent	E4407B	MY44212502	Nov. 16, 05	Nov. 30, 06
2	Attenuator (20dB)	Weinschel	40-20-34	AA5701	Jun. 15, 06	Jun. 30, 07
3	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 15, 06	Jun. 30, 07
4	DC Power Supply	Daiwa	PS-3020	None	None	None
5	Digital Multimater	Sanwa	CD721	3215593	May 12, 06	May 31, 07
6	Temperature Chamber	Tabai	PL-3F	5103661	None	None
7	Temperature Meter	Sato	PC-5000TRH-II	A14999972	Mar. 15, 06	Mar. 31, 07

USED CABLES

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX102	KSR00046	Aug. 01, 06	Aug. 31, 07
W2	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C02	Aug. 01, 06	Aug. 31, 07

MEASUREMENT EQUIPMENT CONFIGURATION



UNCERTAINTY

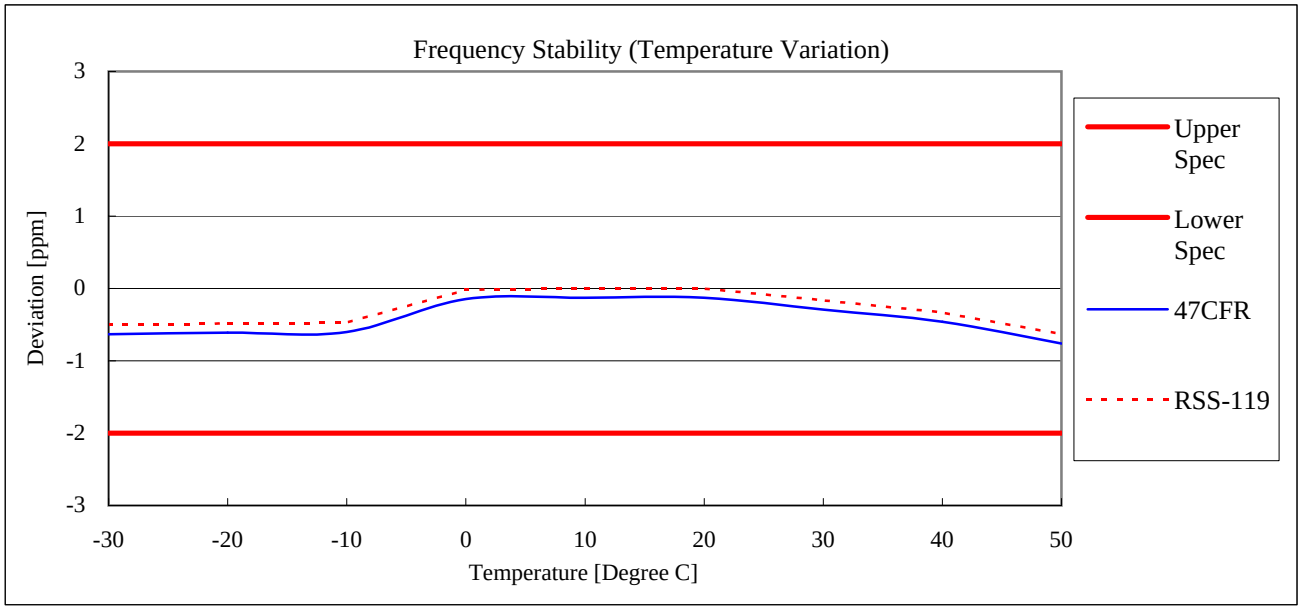
Measurement uncertainty is +/- 3.6%

TEST RESULTS

Measured for the worst case

State : High Power / 12.5 kHz channel bandwidth / 435.1 MHz

No.	Temperature (Degree C)	Frequency (MHz)	47 CFR Deviation	RSS Deviation	Spec (ppm)
1	-30	435.099724	-0.63	-0.51	2.0
2	-20	435.099735	-0.61	-0.48	2.0
3	-10	435.099738	-0.60	-0.47	2.0
4	0	435.099937	-0.14	-0.02	2.0
5	10	435.099944	-0.13	0.00	2.0
6	20	435.099944	-0.13	0.00	2.0
7	30	435.099872	-0.29	-0.17	2.0
8	40	435.099800	-0.46	-0.33	2.0
9	50	435.099669	-0.76	-0.63	2.0



4.9 Frequency Stability (Voltage Variation)

REGULATIONS	: 47 CFR 2.1055 (d) (1), 22.355 , 74.1261 (b) , 90.213(a) / RSS-119 Section 5.3
TEST METHOD/GUIDE	: ANSI/TIA-603-C Section 2.2.2.2 / RSS-Gen Section 4.5(b)

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.

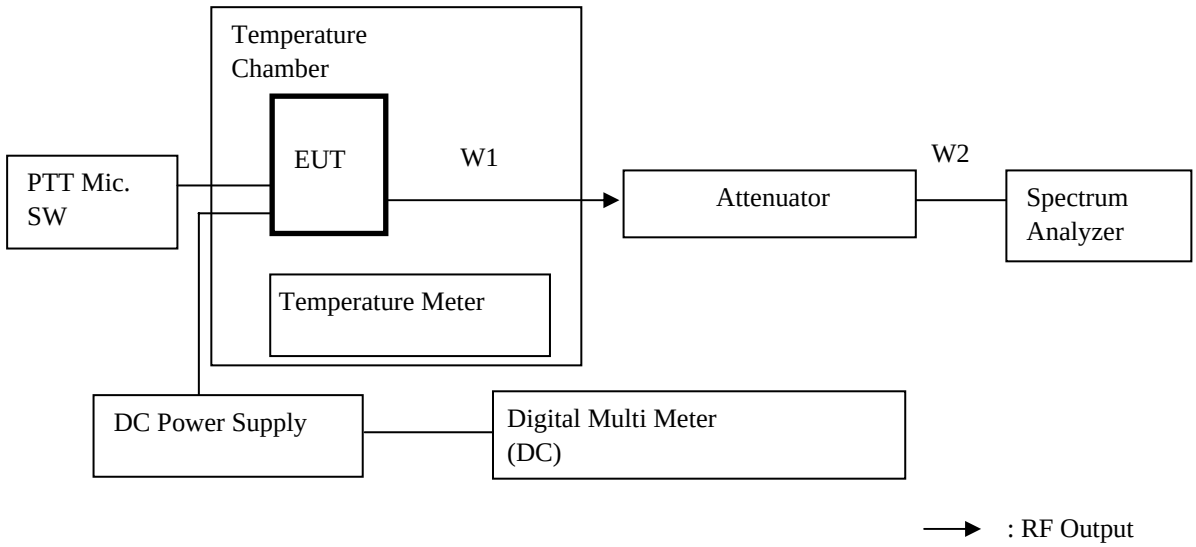
TEST EQUIPMENTS

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Spectrum Analyzer	Agilent	E4407B	MY44212502	Nov. 16, 05	Nov. 30, 06
2	Attenuator (20dB)	Weinschel	40-20-34	AA5701	Jun. 15, 06	Jun. 30, 07
3	Attenuator (30dB)	Weinschel	WA-29-30-34	8923	Jun. 15, 06	Jun. 30, 07
4	DC Power Supply	Daiwa	PS-3020	None	None	None
5	Digital Multimater	Sanwa	CD721	3215593	May 12, 06	May 31, 07
6	Temperature Chamber	Tabai	PL-3F	5103661	None	None
7	Temperature Meter	Sato	PC-5000TRH-II	A14999972	Mar. 15, 06	Mar. 31, 07

USED CABLES

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX102	KSR00046	Aug. 01, 06	Aug. 31, 07
W2	Coaxial Cable	Pacific custom	RG-58 C/U	AM90C02	Aug. 01, 06	Aug. 31, 07

MEASUREMENT EQUIPMENT CONFIGURATION



UNCERTAINTY

Measurement uncertainty is +/- 3.6%

TEST RESULTS

Measured for the worst case

State : High Power / 12.5 kHz channel bandwidth / 435.1 MHz

No.	Diviation (%)	Voltage (V)	Frequency (MHz)	Deviation (ppm)	Spec (ppm)
1	85	11.6	435.099942	-0.13	2.0
2	100	13.6	435.099944	-0.13	2.0
3	115	15.6	435.099942	-0.13	2.0

4.10 Receiver Spurious Emissions(Radiated)

REGULATIONS	: RSS-Gen Section 6
TEST METHOD/GUIDE	: RSS-Gen Section 4.8

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,

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 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 (Resolution bandwidth : 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.
Preliminary Measurement

11 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

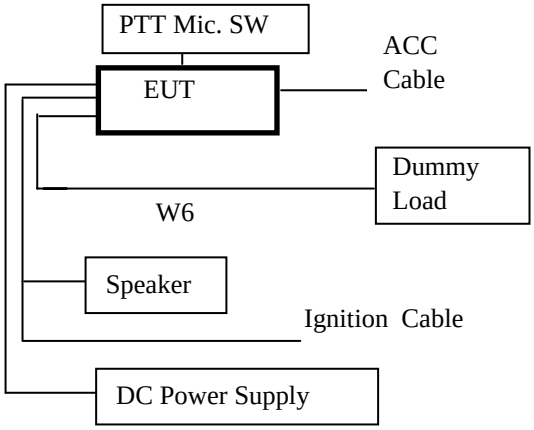
TEST EQUIPMENTS

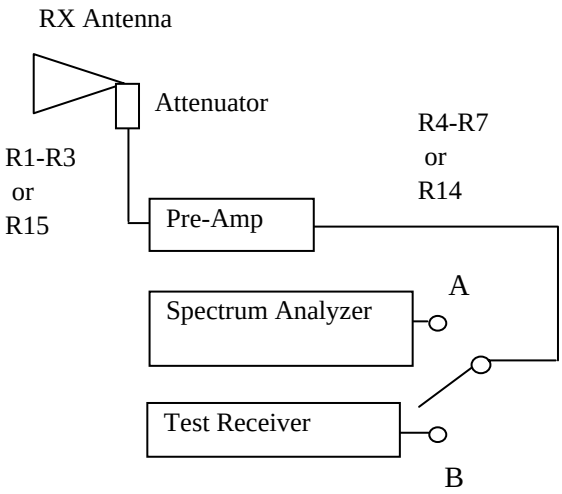
No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Tri-log Antenna	Schwarzbeck	VULB9168	106	Aug. 29, 06	Aug. 31, 07
2	D.R.G Antenna	EMCO	3115	9612-5044	Jun. 08, 06	Jun. 30, 07
3	Step Attenuator	HP	8464B	M57593	Nov. 01, 05	Nov. 30, 06
4	Pre-Amplifier	HP	8447D	1937A03130	Nov. 01, 05	Nov. 30, 06
5	Pre-Amplifier	HP	83051A	3332A00329	Sep. 28, 05	Sep. 30, 06
6	Attenuator (6dB)	Anritsu	MP721B	M57593	Nov. 01, 05	Nov. 30, 06
7	Attenuator (3dB)	Narda	4768-3	79	Sep. 28, 06	Sep. 30, 07
8	Spectrum Analyzer	HP	8564E	3643A00665	Aug. 17, 06	Aug. 31, 07
9	Test Receiver	Rohde & Schwarz	ESS	844861/004	Mar. 10, 06	Mar. 31, 07
10	Dummy Load	TME	CT-150NP	1138693	Aug. 01, 06	Aug. 31, 07
11	DC Power Supply	Daiwa	PS-3020	None	None	None

USED CABLES

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W6	Coaxial Cable	ETL SEMKO	5D-2W	KSR00098	Oct. 01, 06	Oct. 31, 07
R1	Coaxial Cable	ETL SEMKO	5D-2W	None	Nov. 01, 05	Nov. 30, 06
R2	Coaxial Cable	ETL SEMKO	10D2W	None	Nov. 01, 05	Nov. 30, 06
R3	Coaxial Cable	ETL SEMKO	5D-2W	None	Nov. 01, 05	Nov. 30, 06
R4	Coaxial Cable	ETL SEMKO	5D-2W	None	Nov. 01, 05	Nov. 30, 06
R5	Coaxial Cable	ETL SEMKO	5D-2W	None	Nov. 01, 05	Nov. 30, 06
R6	Coaxial Cable	ETL SEMKO	5D-2W	None	Nov. 01, 05	Nov. 30, 06
R7	Coaxial Cable	ETL SEMKO	5D-2W	None	Nov. 01, 05	Nov. 30, 06
R14	Coaxial Cable	Suhner	SUCOFLEX102	712/2	Sep. 28, 05	Sep. 30, 06
R15	Coaxial Cable	Insulated Wire	KSP-1501-1969-KPS	03292003	Sep. 28, 05	Sep. 30, 06

MEASUREMENT EQUIPMENT CONFIGURATION





UNCERTAINTY

Measurement uncertainty is +/- 3.6dB (k = 2)

TEST RESULTS

Measured for the worst case

State : 469.95MHz Receiver Condition

No.	Frequency (MHz)	Pol	Reading Level (dBuv)	Factor* (dB)	Emission Level (dBuV/m)	Limit Level (dBuV/m)	Margin (dB)
1	370.05	Hor.	-	-2.50	-	46.0	-
		Ver.	20.40	-2.50	17.90	46.0	28.1
2	420.00	Hor.	32.50	-1.00	31.50	46.0	14.5
		Ver.	34.00	-1.00	33.00	46.0	13.0
3	519.90	Hor.	-	1.80	-	-	-
		Ver.	20.50	1.80	22.30	46.0	23.7
4	569.85	Hor.	-	3.10	-	-	-
		Ver.	20.30	3.10	23.40	46.0	22.6
5	669.75	Hor.	-	4.50	-	46.0	-
		Ver.	20.50	4.50	25.00	46.0	21.0
5	719.70	Hor.	-	5.50	-	46.0	-
		Ver.	19.30	5.50	24.80	46.0	21.2
6	889.95	Hor.	-	9.70	-	-	-
		Ver.	18.60	9.70	28.30	46.0	17.7

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.

2 Scanned frequency are 30 to 2000 MHz.

3 Maximum local oscillator frequency is 49.95MHz.

4 The EUT which was connected to an ACC cable was measured because the equipment which is connected to an ACC port for the digital forwarding did not exist.

4.11 Necessary Bandwidth and Emission Bandwidth

REGULATIONS	: 47 CFR 2.202 (g) & Federal Register/ Vol.68, No236 / TRC-43

CALCULATION RESULTS

State : 16K0F3E(25kHz channel bandwidth)

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

Bn = (2xM)+(2xDxK)

State : 11K0F3E(12.5kHz channel bandwidth)

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

Bn = (2xM)+(2xDxK)

State : 20K0F7D(4Level FSK/19200bps, 25kHz channel bandwidth)

Item	Mark	
Digital information rate	(R)	19200bps
Peak frequency deviation	(D)	5.2kHz
Signaling states	(S)	4
Numerical factor	(K)	1
Necessary Bandwidth	(Bn)	20kHz

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

State : 11K2F7D(4Level FSK/9600bps, 12.5kHz channel bandwidth)

Item	Mark	
Digital information rate	(R)	9600bps
Peak frequency deviation	(D)	3.2kHz
Signaling states	(S)	4
Numerical factor	(K)	1
Necessary Bandwidth	(Bn)	11.2kHz

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

State : 14K4F1D(GMSK/9600bps, 25kHz channel bandwidth)

Item	Mark		
Digital information rate	(R)	9600bps	
Peak frequency deviation	(D)	2.4kHz	
Signaling states	(S)	2	
Constant Factor	(K)	1	
Necessary Bandwidth	(Bn)	14.4kHz	

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

State : 7K20F1D(GMSK/4800bps, 12.5kHz channel bandwidth)

Item	Mark		
Digital information rate	(R)	4800bps	
Peak frequency deviation	(D)	1.2kHz	
Signaling states	(S)	2	
Constant Factor	(K)	1	
Necessary Bandwidth	(Bn)	7.2kHz	

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

State : 8K10F1D/8K10F1E(C4FM/9600bps, 12.5kHz channel bandwidth)

Item	Mark		
Digital information rate	(R)	9600bps	
Peak frequency deviation	(D)	4.5kHz	
Signaling states	(S)	4	
Numerical factor	(K)	1	
Necessary Bandwidth	(Bn)	8.1kHz	Measurements were done*

*Measurements per Rule 47CFR Part 2.202(c)(4) were done because Part 2.202(g) Table III-A.1.
formulation produces an excessive result using the value of K recommended in the Table. Therefore the
99% energy rule(title 47CFR 2.202(a)) was used for digital mode and is more accurate than Carson's rule.
It basically states that 99% of the modulation energy fails within X kHz, in this case, 8.10kHz
Measurements were performed in accordance with TIA/EIA 102.CAAA-A Section 2.2.5.2.
The emission mask was obtained from 47CFR 90.210(d).

5. VALIDITY OF TEST REPORT

The test result of this report is effective for equipment under test itself and under the test configuration described on the report.

This test report does 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.

6. DESCRIPTION OF TEST LABORATORY

ACCREDITATION			SCOPE	LAB. CODE
NVLAP LAB CODE 100290-0	NVLAP	USA	EMC Testing	100290-0
	NVLAP	USA	Calibration	100290-0
	NVLAP	USA	Telecommunication	100290-0
VLAC Lab Accreditation	VLAC	JAPAN	EMC Testing	VLAC-008-1
BSMI	BSMI	TAIWAN	EMC Testing	SL2-IN-E-6008
	NATA	AUSTRALIA	Calibration	13491
	NATA	AUSTRALIA	Telecommunication	100290-0

FILING			SCOPE	LAB. CODE
VCCI	VCCI	JAPAN	EMC Testing	
Federal Communications Commission	FCC	USA	EMC Testing	934283
Industry Canada	IC	CANADA	EMC Testing	IC-2065
	IC	CANADA	Telecommunication	IC-2065
	SASO	SAUDI ARABIA	EMC Testing	

Note 1 : NVLAP accreditation does not constitute any product endorsement by NVLAP or any agent of the U.S. Government.