



Test Report

Product Name	Audio Entertainment Console
Model No.	4TV 5122 Console
FCC ID	R48SSC4TV51

Applicant	Meiloon Industrial Co., Ltd.
Address	NO. 77, LANE 1775, CHUEN-RYH ROAD, TAOYUAN CITY, TAIWAN

Date of Receipt	Sep. 11, 2012
Issued Date	Nov. 08, 2012
Report No.	129248R-RFUSP44V01
Report Version	V1.0



The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Issued Date: Nov. 08, 2012

Report No.: 129248R-RFUSP44V01



Product Name	Audio Entertainment Console
Applicant	Meiloon Industrial Co., Ltd.
Address	NO. 77, LANE 1775, CHUEN-RYH ROAD, TAOYUAN CITY, TAIWAN
Manufacturer	AudioXperts
Model No.	4TV 5122 Console
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/ 60Hz
Trade Name	audioxperts™
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2010 ANSI C63.4: 2003
Test Result	Complied

Test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By :

Handwritten signature of Jinn Chen in blue ink.

(Senior Adm. Specialist / Jinn Chen)

Tested By :

Handwritten signature of Alan Chen in blue ink.

(Assistant Engineer / Alan Chen)

Approved By :

Handwritten signature of Vincent Lin in blue ink.

(Manager / Vincent Lin)

TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION	4
1.1. EUT Description.....	4
1.2. Operational Description	6
1.3. Tested System Details.....	7
1.4. Configuration of Test System	7
1.5. EUT Exercise Software	8
1.6. Test Facility	9
2. Conducted Emission.....	10
2.1. Test Equipment.....	10
2.2. Test Setup	10
2.3. Limits	11
2.4. Test Procedure	11
2.5. Uncertainty	11
2.6. Test Result of Conducted Emission.....	12
3. Radiated Emission.....	14
3.1. Test Equipment.....	14
3.2. Test Setup	15
3.3. Limits	16
3.4. Test Procedure	17
3.5. Uncertainty	17
3.6. Test Result of Radiated Emission.....	18
4. Band Edge	27
4.1. Test Equipment.....	27
4.2. Test Setup	28
4.3. Limits	29
4.4. Test Procedure	29
4.5. Uncertainty	29
4.6. Test Result of Band Edge	30
5. Duty Cycle	38
5.1. Test Equipment.....	38
5.2. Test Setup	38
5.3. Uncertainty	38
5.4. Test Result of Duty Cycle.....	39
6. EMI Reduction Method During Compliance Testing	40

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Audio Entertainment Console
Trade Name	audioxperts™
Model No.	4TV 5122 Console
FCC ID	R48SSC4TV51
Frequency Range	5727.5~5847.5MHz
Channel Control	Auto
Channel Separation	2.5MHz
Antenna Type	Dipole Antenna
Channel Number	49
Type of Modulation	GFSK
Antenna Gain	Refer to the table "Antenna List"

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Andersern	188-ANDWLAN90-E	Dipole	1.38 dBi for 5.8 GHz

Note: The antenna of EUT is conform to FCC 15.203

Frequency of Each Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	5727.5 MHz	Channel 02:	5730 MHz	Channel 03:	5732.5 MHz	Channel 04:	5735 MHz
Channel 05:	5737.5 MHz	Channel 06:	5740 MHz	Channel 07:	5742.5 MHz	Channel 08:	5745 MHz
Channel 09:	5747.5 MHz	Channel 10:	5750 MHz	Channel 11:	5752.5 MHz	Channel 12:	5755 MHz
Channel 13:	5757.5 MHz	Channel 14:	5760 MHz	Channel 15:	5762.5 MHz	Channel 16:	5765 MHz
Channel 17:	5767.5 MHz	Channel 18:	5770 MHz	Channel 19:	5772.5 MHz	Channel 20:	5775 MHz
Channel 21:	5777.5 MHz	Channel 22:	5780 MHz	Channel 23:	5782.5 MHz	Channel 24:	5785 MHz
Channel 25:	5787.5 MHz	Channel 26:	5790 MHz	Channel 27:	5792.5 MHz	Channel 28:	5795 MHz
Channel 29:	5797.5 MHz	Channel 30:	5800 MHz	Channel 31:	5802.5 MHz	Channel 32:	5805 MHz
Channel 33:	5807.5 MHz	Channel 34:	5810 MHz	Channel 35:	5812.5 MHz	Channel 36:	5815 MHz
Channel 37:	5817.5 MHz	Channel 38:	5820 MHz	Channel 39:	5822.5 MHz	Channel 40:	5825 MHz
Channel 41:	5827.5 MHz	Channel 42:	5830 MHz	Channel 43:	5832.5 MHz	Channel 44:	5835 MHz
Channel 45:	5837.5 MHz	Channel 46:	5840 MHz	Channel 47:	5842.6 MHz	Channel 48:	5845 MHz
Channel 49:	5847.5 MHz						

Note:

1. The EUT is an Audio Entertainment Console with a built-in Bluetooth transceiver and 5.8GHz transmitter, this report for 5.8GHz transmitter.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249 for spread spectrum devices.

Test Mode	Mode 1: Transmit
-----------	------------------

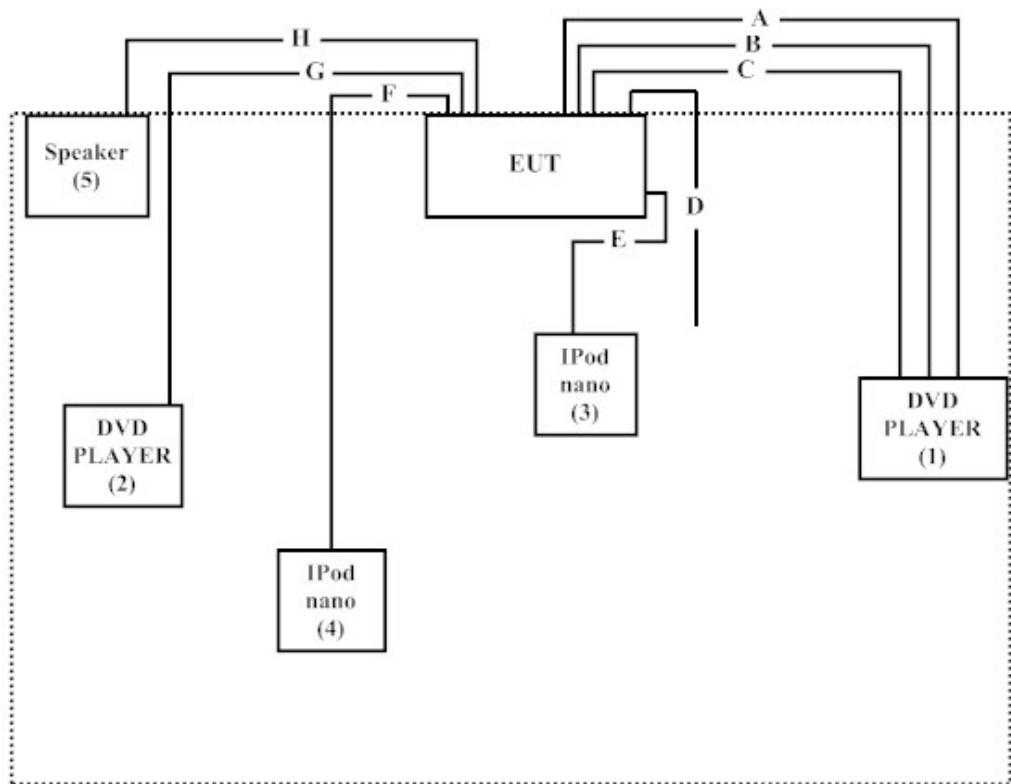
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	DVD PLAYER	Pioneer	DV-S969Avi	EAMP004399LW	Non-Shielded, 1.8m
2	DVD PLAYER	Pioneer	DV-S969Avi	EAMP004399LW	Non-Shielded, 1.8m
3	IPod nano	Apple	A1199	YM708A72VQ5	N/A
4	IPod nano	Apple	A1199	YM706LSCVQ5	N/A
5	Speaker	IAPING	8 OHM 300W	N/A	N/A

Signal Cable Type		Signal cable Description
A	RCA Cable	Shielded, 1.5m
B	RCA Cable	Non-Shielded, 1.5m
C	Audio Fiber Cable	Non-Shielded, 1m
D	USB Cable	Non-Shielded, 1.2m
E	Audio Cable	Non-Shielded, 1.5m
F	IPod Cable	Non-Shielded, 1.2m
G	Audio Fiber Cable	Non-Shielded, 1.5m
H	RCA Cable	Non-Shielded, 1.5m

1.4. Configuration of Test System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4.
- (2) Provide the AC Power Source.
- (3) Start the continuous Transmit.
- (4) Configure the test mode and the test channel.
- (5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : <http://www.quietek.com/tw/ctg/cts/accreditations.htm>
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation
Site Address: No.5-22, Ruishukeng, Linkou Dist.,
New Taipei City 24451,
Taiwan, R.O.C
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

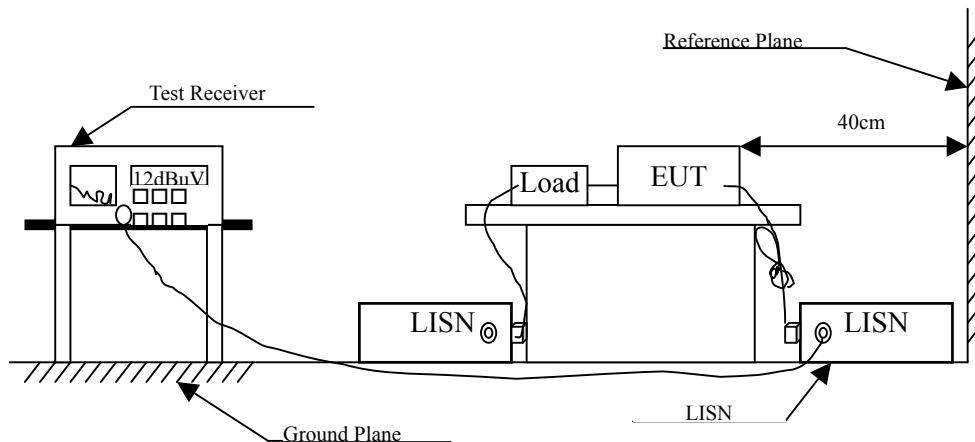
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2012	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2012	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2012	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2012	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2012	
	No.1 Shielded Room				

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : Audio Entertainment Console
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: Transmit (5790MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.185	9.830	36.450	46.280	-18.720	65.000
0.642	9.830	32.390	42.220	-13.780	56.000
1.009	9.830	25.960	35.790	-20.210	56.000
2.857	9.850	18.470	28.320	-27.680	56.000
14.982	10.094	25.530	35.625	-24.375	60.000
24.002	10.110	35.760	45.870	-14.130	60.000
Average					
0.185	9.830	27.790	37.620	-17.380	55.000
0.642	9.830	20.570	30.400	-15.600	46.000
1.009	9.830	15.060	24.890	-21.110	46.000
2.857	9.850	7.090	16.940	-29.060	46.000
14.982	10.094	18.130	28.225	-21.775	50.000
24.002	10.110	30.190	40.300	-9.700	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Audio Entertainment Console
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: Transmit (5790MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.185	9.832	37.810	47.642	-17.358	65.000
0.298	9.836	24.690	34.526	-27.245	61.771
0.646	9.840	32.630	42.470	-13.530	56.000
1.373	9.850	24.970	34.820	-21.180	56.000
2.607	9.860	20.150	30.010	-25.990	56.000
24.002	10.320	38.230	48.550	-11.450	60.000
Average					
0.185	9.832	18.240	28.072	-26.928	55.000
0.298	9.836	14.940	24.776	-26.995	51.771
0.646	9.840	18.240	28.080	-17.920	46.000
1.373	9.850	12.810	22.660	-23.340	46.000
2.607	9.860	7.850	17.710	-28.290	46.000
24.002	10.320	32.910	43.230	-6.770	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Radiated Emission

3.1. Test Equipment

The following test equipment are used during the radiated emission test:

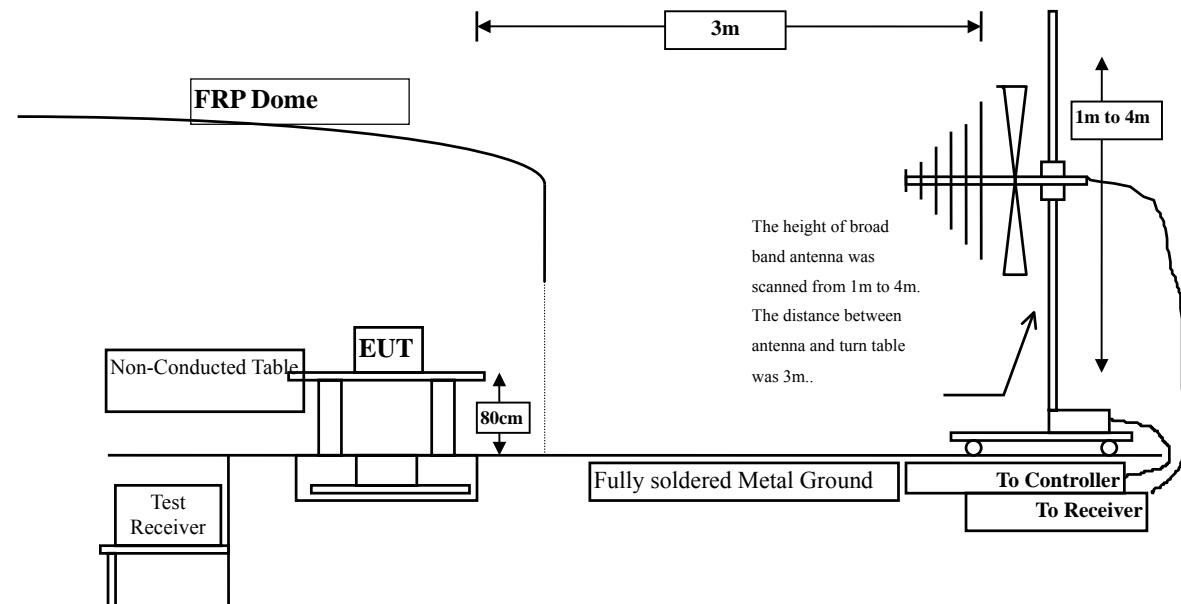
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2012
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2012
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2012
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2012
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2012
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/925975	Mar, 2012
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2012
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2012
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

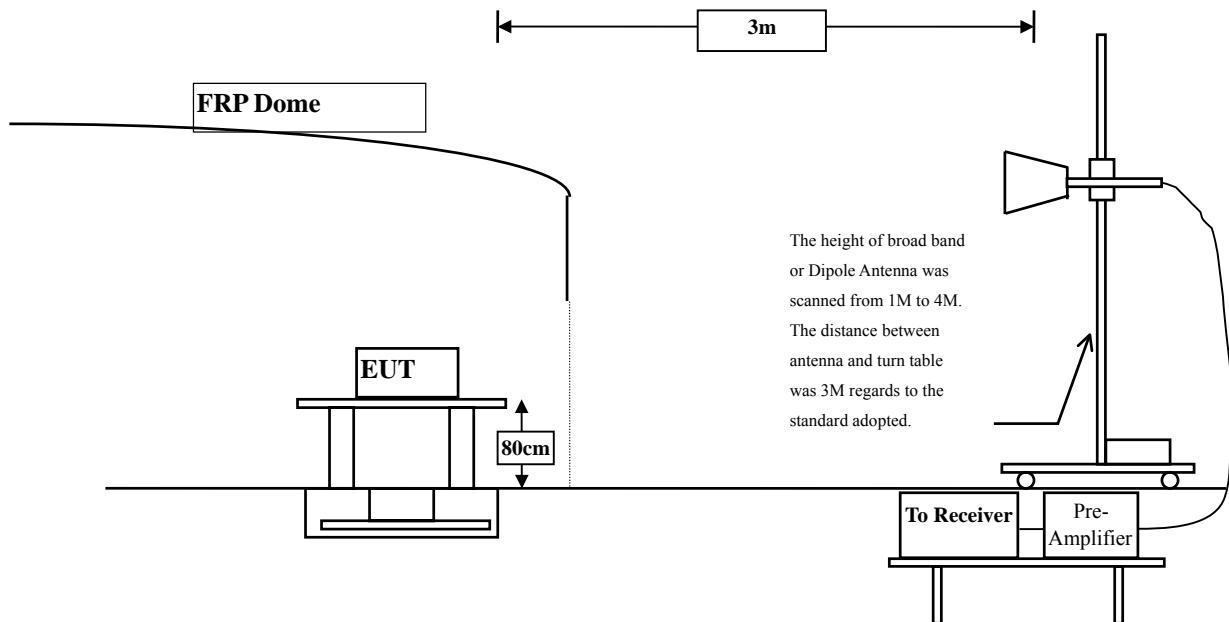
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.3. Limits

➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.249 Limits				
Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dBuV/m @3m)	(uV/m @3m)	(dBuV/m @3m)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54

Remarks : 1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested compliance to FCC 47CFR 15.249 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2003 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The measurement frequency range from 30MHz - 10th Harmonic of fundamental was investigated.

3.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

3.6. Test Result of Radiated Emission

Product : Audio Entertainment Console
 Test Item : Fundamental Radiated Emission
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmit

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
5727.500	3.117	97.350	100.466	-13.534	114.000
5790.000	3.343	99.200	102.542	-11.458	114.000
5847.500	3.694	99.820	103.514	-10.486	114.000
 Vertical					
Peak Detector:					
5727.500	2.224	101.660	103.884	-10.116	114.000
5790.000	2.377	105.450	107.827	-6.173	114.000
5847.500	2.207	105.260	107.466	-6.534	114.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Average Detector:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Correct Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Average Detector:					
5727.500	100.466	-26.947	73.519	-20.481	94.000
5790.000	102.542	-26.947	75.595	-18.405	94.000
5847.500	103.514	-26.947	76.567	-17.433	94.000

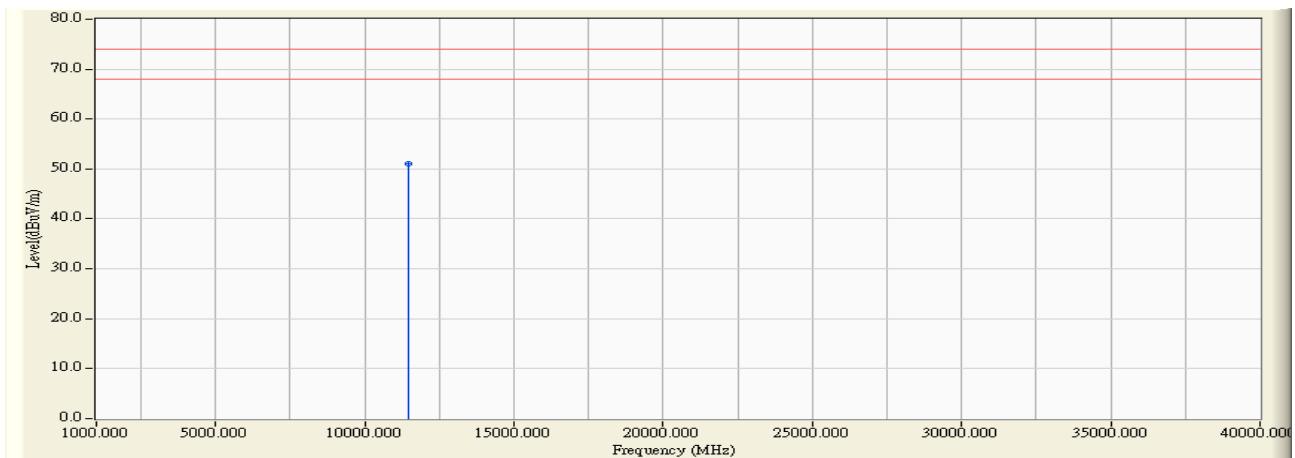
Vertical
Average Detector:

5727.500	103.884	-26.947	76.937	-17.063	94.000
5790.000	107.827	-26.947	80.880	-13.120	94.000
5847.500	107.466	-26.947	80.519	-13.481	94.000

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : Audio Entertainment Console
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (5727.5MHz)

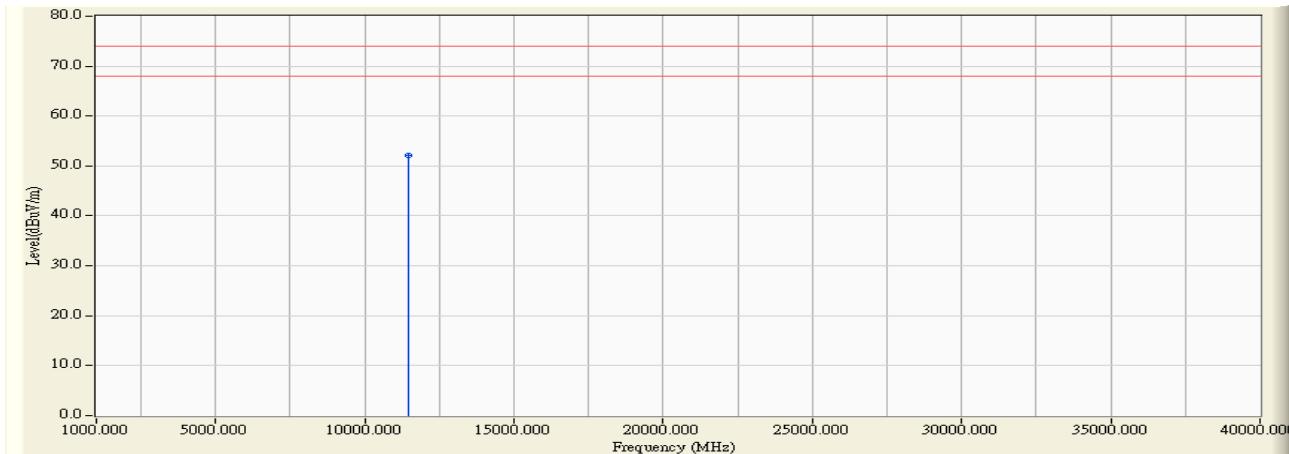


Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11455.000	12.874	38.276	51.150	-22.850	74.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Audio Entertainment Console
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (5727.5MHz)



Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level	dB	dBuV/m
	dB	dBuV	dBuV/m		

Vertical

Peak Detector:

11455.000	14.401	37.749	52.150	-21.850	74.000
-----------	--------	--------	--------	---------	--------

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Audio Entertainment Console
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (5790 MHz)



Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
------------------	-------------------------	--------------------------	--------------------------------	--------------	-----------------

Horizontal

Peak Detector:

11580.000	13.286	36.873	50.160	-23.840	74.000
-----------	--------	--------	--------	---------	--------

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Audio Entertainment Console
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (5790MHz)



Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
------------------	-------------------------	--------------------------	--------------------------------	--------------	-----------------

Vertical

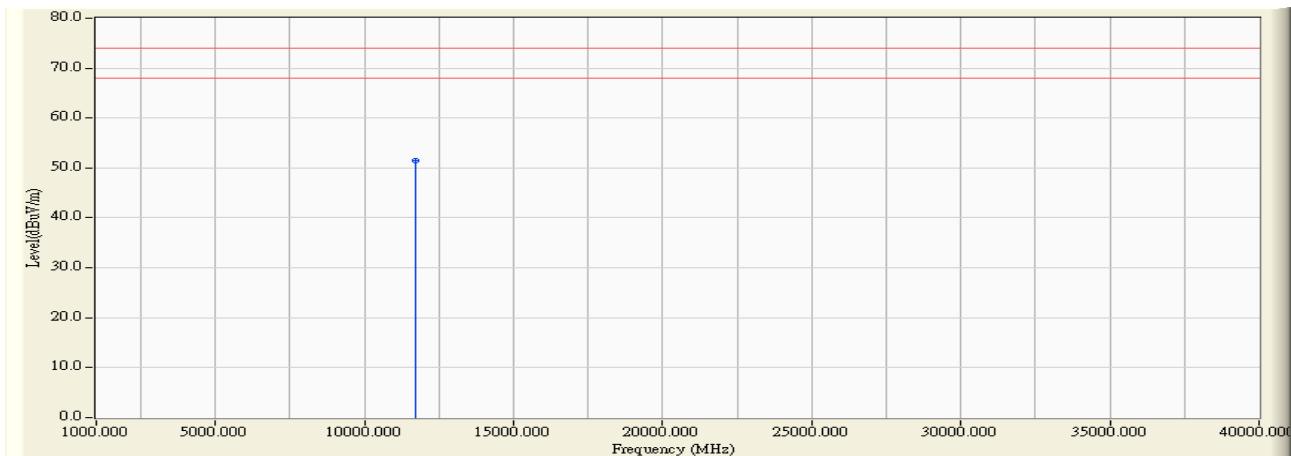
Peak Detector:

11580.000	14.631	36.929	51.560	-22.440	74.000
-----------	--------	--------	--------	---------	--------

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Audio Entertainment Console
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (5847.5 MHz)



Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level	dB	dBuV/m
		dB	dBuV		

Horizontal

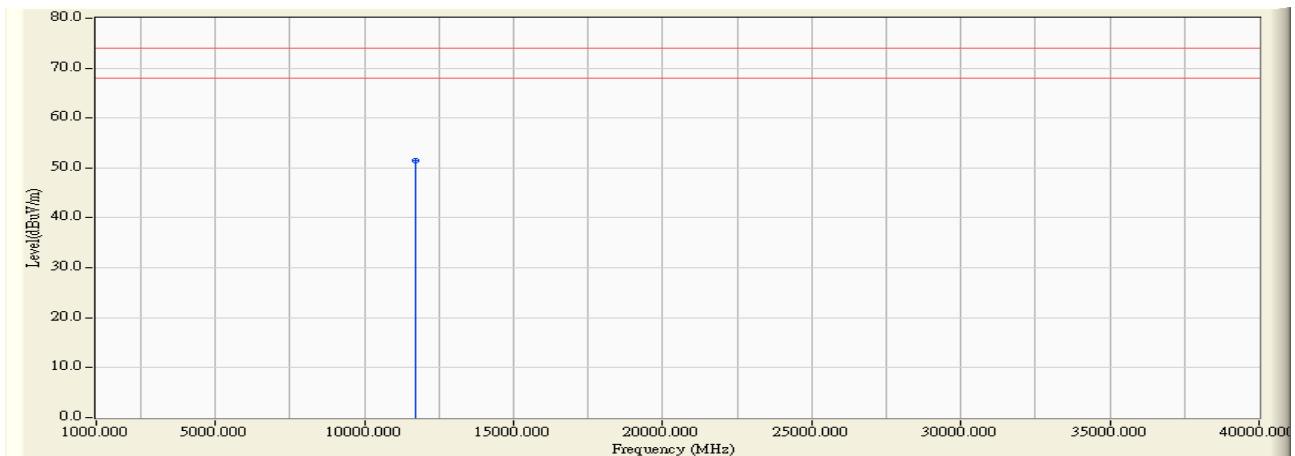
Peak Detector:

11695.000	10.405	41.155	51.560	-22.440	74.000
-----------	--------	--------	--------	---------	--------

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Audio Entertainment Console
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (5847.5MHz)



Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level	dB	dBuV/m
		dB	dBuV		

Vertical

Peak Detector:

11695.000	11.992	39.489	51.480	-22.520	74.000
-----------	--------	--------	--------	---------	--------

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Audio Entertainment Console
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (5790 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
163.860	-9.989	43.949	33.960	-9.540	43.500
350.100	-1.298	39.143	37.845	-8.155	46.000
464.560	2.914	32.359	35.273	-10.727	46.000
610.060	3.657	37.139	40.796	-5.204	46.000
823.460	7.241	29.964	37.205	-8.795	46.000
970.900	7.347	27.717	35.064	-18.936	54.000
Vertical					
123.120	-3.630	35.689	32.059	-11.441	43.500
293.840	-4.990	38.841	33.851	-12.149	46.000
489.780	-2.262	39.595	37.333	-8.667	46.000
683.780	2.011	32.760	34.771	-11.229	46.000
823.460	3.081	30.525	33.606	-12.394	46.000
970.900	2.967	27.717	30.684	-23.316	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

4. Band Edge

4.1. Test Equipment

RF Conducted Measurement

The following test equipments are used during the band edge tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

The following test equipments are used during the band edge tests:

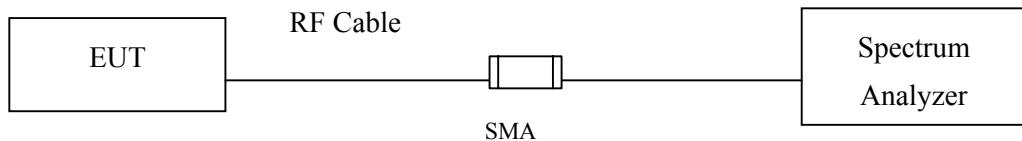
Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2012
	X Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2012
	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2012
	X Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2012
	X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2012
	X Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2012
	X Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note:

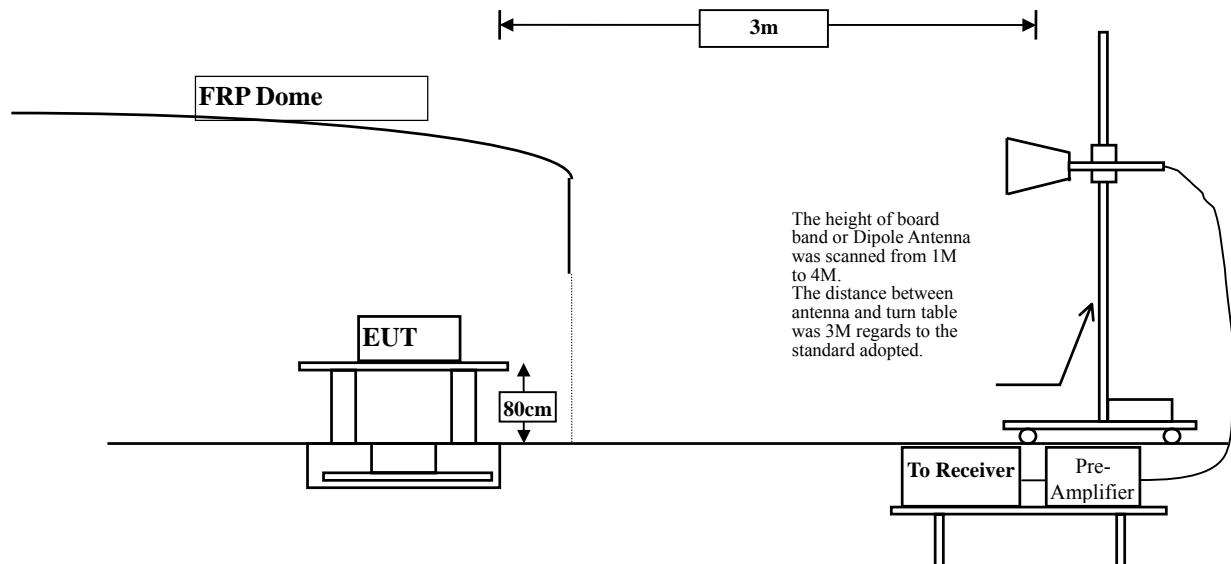
1. All equipments are calibrated every one year.
2. The test equipments marked by “X” are used to measure the final test results.

4.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



4.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 50 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

4.5. Uncertainty

Conducted is \pm 1.27 dB

Radiated is \pm 3.9 dB

4.6. Test Result of Band Edge

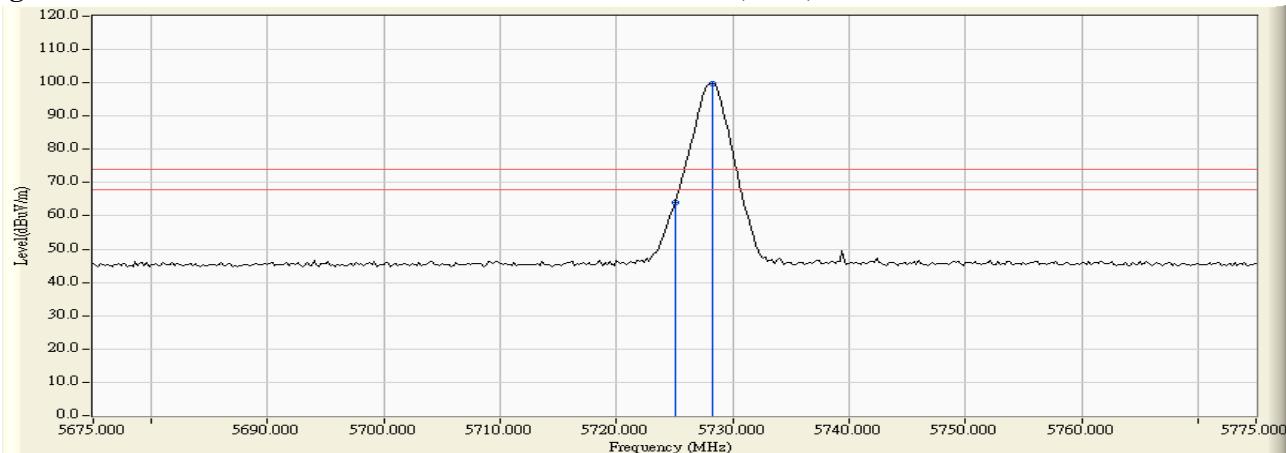
Product : Audio Entertainment Console
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (5727.5 MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	5725.000	3.104	60.918	64.021	74.00	54.00	Pass
01 (Peak)	5728.200	3.117	96.648	99.765	--	--	Pass

Figure Channel 01:

Horizontal (Peak)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “*”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Average Detector:

Frequency	Peak Measurement	Duty Cycle Factor	Measurement Level	Margin	Limit	Result
MHz	dB μ V/m	dB	dB μ V/m	dB	dB μ V/m	Pass

Horizontal**Average Detector:**

5725	64.021	-26.947	37.074	-16.926	54.000	Pass
------	--------	---------	--------	---------	--------	------

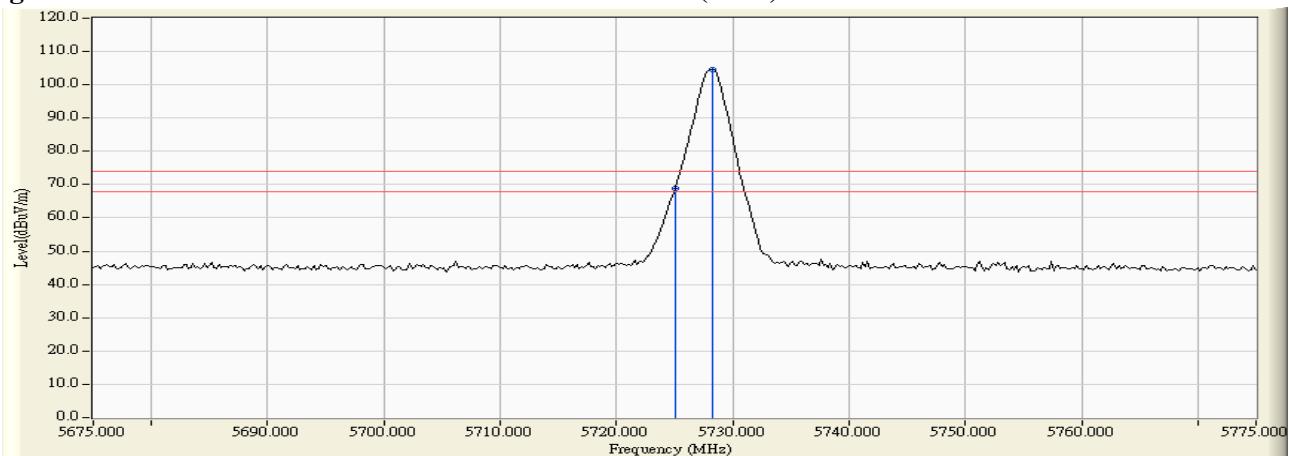
Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : Audio Entertainment Console
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (5727.5 MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	5725.000	2.215	66.524	68.739	74.00	54.00	Pass
01 (Peak)	5728.200	2.224	102.453	104.677	--	--	Pass

Figure Channel 01:**Vertical (Peak)**

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “*”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Average Detector:

Frequency	Peak Measurement	Duty Cycle Factor	Measurement Level	Margin	Limit	Result
MHz	dB μ V/m	dB	dB μ V/m	dB	dB μ V/m	Pass

Vertical**Average Detector:**

5725	68.739	-26.947	41.792	-12.208	54.000	Pass
------	--------	---------	--------	---------	--------	------

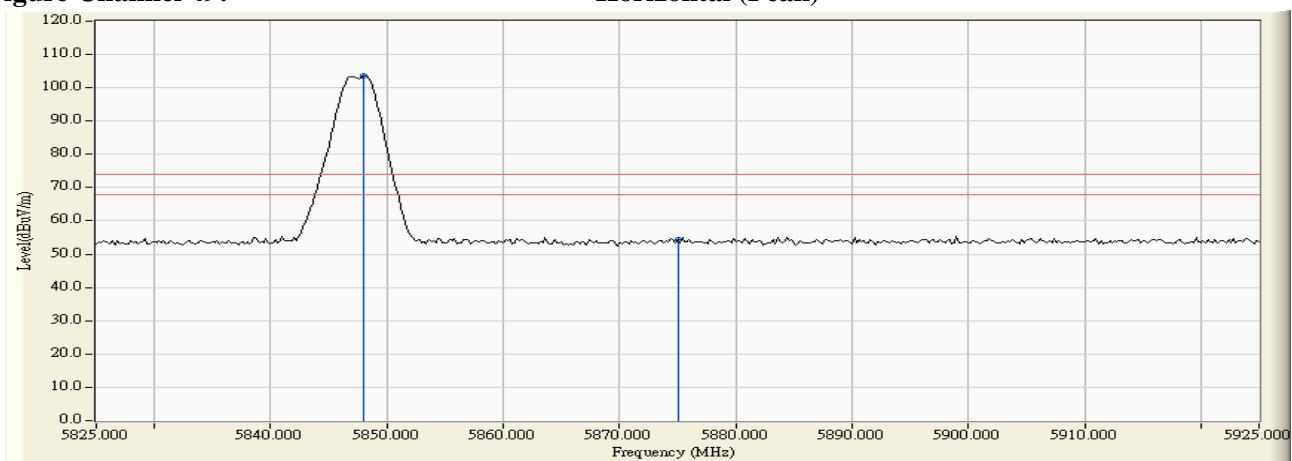
Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : Audio Entertainment Console
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (5847.5 MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
49 (Peak)	5848.000	3.699	99.741	103.439	--	--	Pass
49 (Peak)	5875.000	3.931	50.289	54.220	74.00	54.00	Pass

Figure Channel 49:**Horizontal (Peak)**

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “*”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Average Detector:

Frequency	Peak Measurement	Duty Cycle Factor	Measurement Level	Margin	Limit	Result
MHz	dB μ V/m	dB	dB μ V/m	dB	dB μ V/m	Pass

Horizontal**Average Detector:**

5875	54.22	-26.947	27.273	-26.727	54.000	Pass
------	-------	---------	--------	---------	--------	------

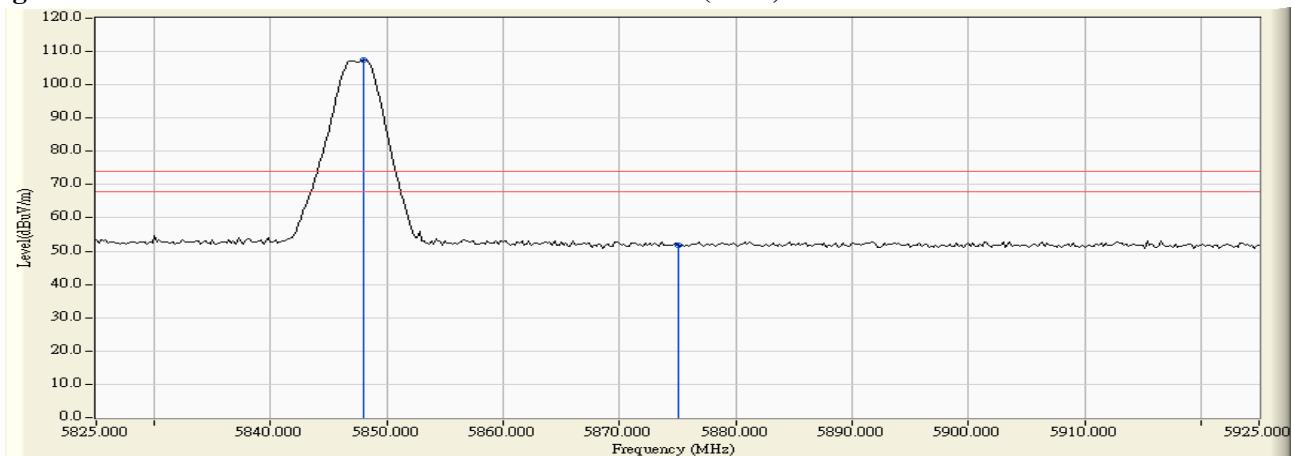
Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : Audio Entertainment Console
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (5847.5 MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
49 (Peak)	5848.000	2.200	105.137	107.337	--	--	Pass
49 (Peak)	5875.000	2.137	49.726	51.863	74.00	54.00	Pass

Figure Channel 49:**Vertical (Peak)**

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “*”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Average Detector:

Frequency	Peak Measurement	Duty Cycle Factor	Measurement Level	Margin	Limit	Result
MHz	dB μ V/m	dB	dB μ V/m	dB	dB μ V/m	Pass

Vertical**Average Detector:**

5875	51.863	-26.947	24.916	-29.084	54.000	Pass
------	--------	---------	--------	---------	--------	------

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

5. Duty Cycle

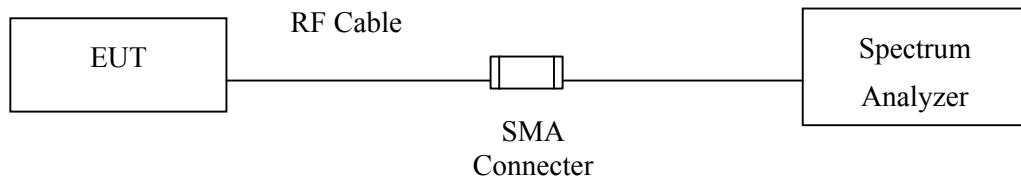
5.1. Test Equipment

The following test equipments are used during the band edge tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Agilent	N9010A / MY48030495	Apr., 2012

Note: 1. All equipments are calibrated every one year.
2. The test equipments marked by "X" are used to measure the final test results.

5.2. Test Setup

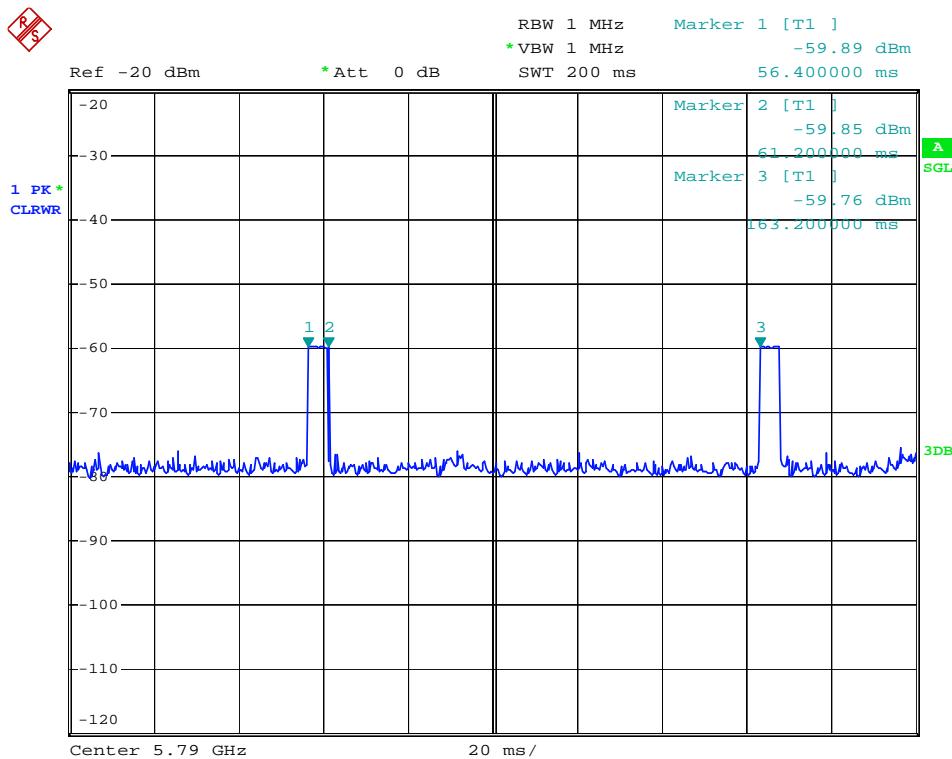


5.3. Uncertainty

± 150Hz

5.4. Test Result of Duty Cycle

Product : Audio Entertainment Console
 Test Item : Duty Cycle Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit



Date: 23.OCT.2012 18:21:49

Time on = 4.8ms; Time off = 102ms

Duty Cycle = Time on / Time on+Time off = 0.0449

Duty Cycle correction factor = 20 LOG 0.0449 = -26.947 dB

Duty Cycle correction factor	-26.947	dB
-------------------------------------	----------------	-----------

6. EMI Reduction Method During Compliance Testing

No modification was made during testing.