

CERTIFICATE OF COMPLIANCE

FCC PART 15.247 Certification

Applicant Name:	Date of Testing
REBIRTH Co., Ltd	November 15 to December 16, 2010
	Test Site/Location
	BWS TECH Inc. #611-1 Maesan-Ri, Mohyeon-Myeon, Yongin-Si, Gyeonggi-Do 449-853, Korea
Address:	
BI Center NO.411, Chosun University, Seosok-dong, Dong-ku Gwangju, Korea,	Test Report No.: BWS-10-RF-0003
	BWS FRN: 00099636881
FCC ID: Y4DMP2010RE	
APPLICANT: REBIRTH Co., Ltd	

Model(s):	MP2010RE
EUT Type:	MULTI PRESENTER RECEIVER
Max. RF Output Power:	-15.71dBm(0.027mW)
Frequency Range:	2403-2475 MHz
Modulation Type	GFSK
FCC Classification:	DTS Part 15 Digital Transmission System
FCC Rule Part(s):	Part 15 subpart C Section 15.247

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated. And the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

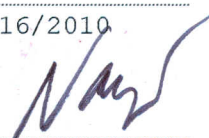
BWS TECH Inc. Certifies that no party to this application has been denied FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998, 21 U.S.C. 862

(Date) 12/16/2010



Tested by **KwanHeon, Lee**

(Date) 12/16/2010



Reviewed by **TaeHyun, Nam**

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FCC TEST REPORT

Scope – Measurement and determination of electromagnetic emission(EME) of radio frequency devices including intentional radiators and/or unintentional radiators for compliance with the technical rules and regulations of the U.S Federal Communications Commission(FCC)

1. General Information

Applicant

Company Name : REBIRTH Co.,Ltd.
Company Address : BI Center No.411, ChosunUniversity, Seosok-dong,Dong-ku Gwangju, Korea.
Phone/Fax : Phone : +82-62-233-8890 Fax : +82-62-233-8891

Manufacturer

Company Name : REBIRTH Co.,Ltd.
Company Address : BI Center No.411, ChosunUniversity, Seosok-dong,Dong-ku Gwangju, Korea
Phone/Fax : Phone : +82-62-233-8890 Fax : +82-62-233-8891

- **EUT Type** : MULTI PRESENTER RECEIVER
- **Model Name** : MP2010RE
- **FCC ID** : Y4DMP2010RE
- **S/N** : Prototype
- **Freq. Range** : MULTI PRESENTER RECEIVER(2400MHz ~ 2483.5MHz)
- **Number of Channels** : 72
- **Modulation Method** : GFSK
- **FCC Rule Part(s)** : Part 15 Subpart C Section 15.247
- **Test Procedure** : ANSI C63.4-2009
- **Dates of Tests** : November 15 to December 16, 2010
- **Place of Tests** : BWS TECH Inc.(FCC Registration Number : 553281)
#611-1 Maesan-Ri, Mohyeon-Myeon, Cheoin-Gu, Yongin-Si,
Gyeonggi-Do 449-853, Korea
TEL: +82 31 333 5997 FAX: +82 31 333 0017
- **Test Report No.** : BWS-10-RF-0003

2. Description of Test Facility

The measurement for radiated emission test were practiced at the open area test site of BWS TECH Inc. Measurement for conducted emission test were practiced at the semi EMC Anechoic Chamber test site of BWS TECH Inc. facility located at #611-1 Maesan-Ri, Mohyeon-Myeon, Cheoin-Gu, Yongin-Si, Gyeonggi-Do 449-853, Korea. The site is constructed in conformance with the requirements of the ANSI C63.4-2009 and CISPR Publication 16. The BWS TECH measurement facility has been filed to the Commission with the FCC for 3 and 10-meter site configurations. Detailed description of test facility was found to be in compliance with the requirements of Section 2.948 FCC Rules according to the ANSI C63.4-1992 and registered to the Federal Communications Commission (Registration Number : 553281).

The measurement procedure described in American National Standard for Method of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz (ANSI C.63.4-2009) was used in determining radiated emissions from the REBIRTH Co., Ltd. Model : MP2010RE..

3. Product Information

3.1 Equipment Description

The Equipment Under Test (EUT) is RF transmitter by the REBIRTH Co., Ltd.
Model : MP2010RE. (FCC ID :Y4DMP2010RE).

3.2 General Specification

The system specifications are subject to change without notice. For detailed system specifications, refer to the product catalog.

Interface	MULTI PRESENTER RECEIVER
Power Consumption	<45mA (supplied to USB port)
Weight	20g
Dimension(L x W x H)	50 x 15 x 7 mm

4. Description of Tests

4.1 Conducted Emission Measurement

Conducted emissions measurements were made in accordance with section 11, "Measurement of Information Technology Equipment" of ANSI C63.4-2009. The measurement were performed over the frequency range of 0.15MHz to 30MHz using a 50Ω/50uH LISN as the input transducer to a Spectrum Analyzer or a Field Intensity Meter. The measurements were made with the detector set for "Peak" amplitude within a bandwidth of 10KHz or for "quasi-peak" within a bandwidth of 9KHz.

The line-conducted emission test is conducted inside a shielded anechoic chamber room with 1m x 1.5m x 0.8m wooden table, which is placed 40cm away from the vertical wall, and 1.5m away from the sidewall of the chamber room. Two LISNs are bonded to the shielded room. The EUT is powered from the ESPI and the support equipment is powered from the LISN. Power to the LISNs is filtered by a noise cut power line filters. All electrical cables are shielded by braided tinned steel tubing with inner ϕ 1.2cm. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and these supply lines will be connected to the LISN. All interconnecting cables more than 1m were shortened by non-inductive bundling (serpentine fashion) to a 1m length. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the Spectrum Analyzer to determine the frequency producing the max. Emission from the EUT. The frequency producing the max. Level was reexamined using the detector function set to the CISPR Quasi-Peak mode by manual, after scanned by automatic Peak mode from 0.45 to 30MHz. The bandwidth of the Spectrum Analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was maximized by switching power lines, varying the mode of operation or resolution, clock or data exchange speed, if applicable, whichever determined the worst-case emission. Each emission reported was calibrated using self-calibrating mode.

Photographs of the worst-case emission can be seen in photographs of conducted emission test setup.

4.2 Radiated Emission Measurement

Preliminary measurements were made at indoors 3-meter semi EMC Anechoic Chamber using broadband antennas, broadband amplifier, and spectrum analyzer to determine the emission frequencies producing the maximum EME.

Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configurations, mode of operation, turntable azimuth with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30 to 1000MHz using bi-log antenna and above 1000MHz, linearly polarized double ridge horn antennas were used. Above 1GHz, linearly polarized double ridge horn antennas were used. The measurements were performed with three frequencies, which were selected as bottom, middle, and top frequency in the operating band. Emission level from the EUT with various configurations was examined on the spectrum analyzer connected with the RF amplifier and plotted graphically.

Final measurements were made outdoors open site at 3-meter test range using biconical and log periodic, Horn antenna. The output from the antenna was connected, via a preselector or a preamplifier, to the input of the EMI Measuring Receiver and Spectrum analyzer (for above 25GHz). The detector function was set to the quasi-peak or peak mode as appropriate. The measurement bandwidth on the Field strength receiver was set to at least 120kHz (1MHz for measurement above 1GHz), with all post-detector filtering no less than 10 times the measurement bandwidth. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition.

Each frequency found during preliminary measurement was examined and investigated as the same set up and configuration which produced the maximum emission. The EUT, support equipment and interconnecting cables were configured to the set-up producing the maximum emission for the frequency and were placed on top of a 0.8-meter high non-metallic 1m x 1.5 meter table. The turntable containing the system was rotated and the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission.

Varying the mode of operating frequencies of the EUT maximized each emission. The system was tested in all the three orthogonal planes and changing the polarity of the antenna. The worst-case emissions are recorded in the data tables. If necessary, the radiated emission measurement could be performed at a closer distance to ensure higher accuracy and the results were extrapolated to the specified distance using an inverse linear distance extrapolation factor (20dB/decade) as per section 15.31(f).

5. Test Condition

5.1 Test Configuration

The device was configured for testing in a typical fashion (as a customer would normally use it). During the tests, the EUT and the supported equipments were installed to meet FCC requirement and operated in a manner, which tends to maximize its emission level in a typical application.

Radiated Emission Test

Preliminary radiated emission tests were conducted using the procedure in ANSI C63.4/2009 Clause 8.3.1.1 to determine the worst operating condition. Final radiated emission tests were measured at 3-meter open field test site. To complete the test configuration required by the FCC, the EUT was tested in all three orthogonal planes.

5.2 EUT operation

EUT was tested according to the operation modes provided by the specifications given by the manufacturer, and reported the worst emissions.

6. TEST RESULTS

Summary of Test Results

The measurement results were obtained with the EUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum emission of the EUT are reported.

APPLIED STANDARD : 47 CFR Part 15, Subpart C			
FCC Rule	Description of Test	Limit	Result
15.207	Conducted Emission	Various	Pass
15.247(a)(2)	6dB Bandwidth	More than 500 kHz	Pass
15.247(b)(3)	Maximum Peak Output Power	Less than 30dBm	Pass
15.247(d)	Conducted Emission & 100kHz Bandwidth of Frequency Band Edges	Less than 20dB	Pass
15.209	Radiated Emission	Various	Pass
15.247(e)	Power Spectral Density	Less than 8dBm	Pass
15.203	Antenna Requirement	Less than 6dBi	Pass

7. Test Procedure & Measurement Data

7.1 Conducted Emissions

EUT	:	MP2010RE
Test Standard	:	FCC Part 15 Subpart C Section 15.207
Test Date	:	December 07, 2010
Operating Condition	:	Normal Operation Mode
Environment Condition	:	Temperature : 25 °C, Humidity Level : 47 %RH
Result	:	Passed by -30.13 dB

The following table shows the highest levels of conducted emissions on both phase of Hot and Neutral line.

Tabulated Conducted Emission Test Data

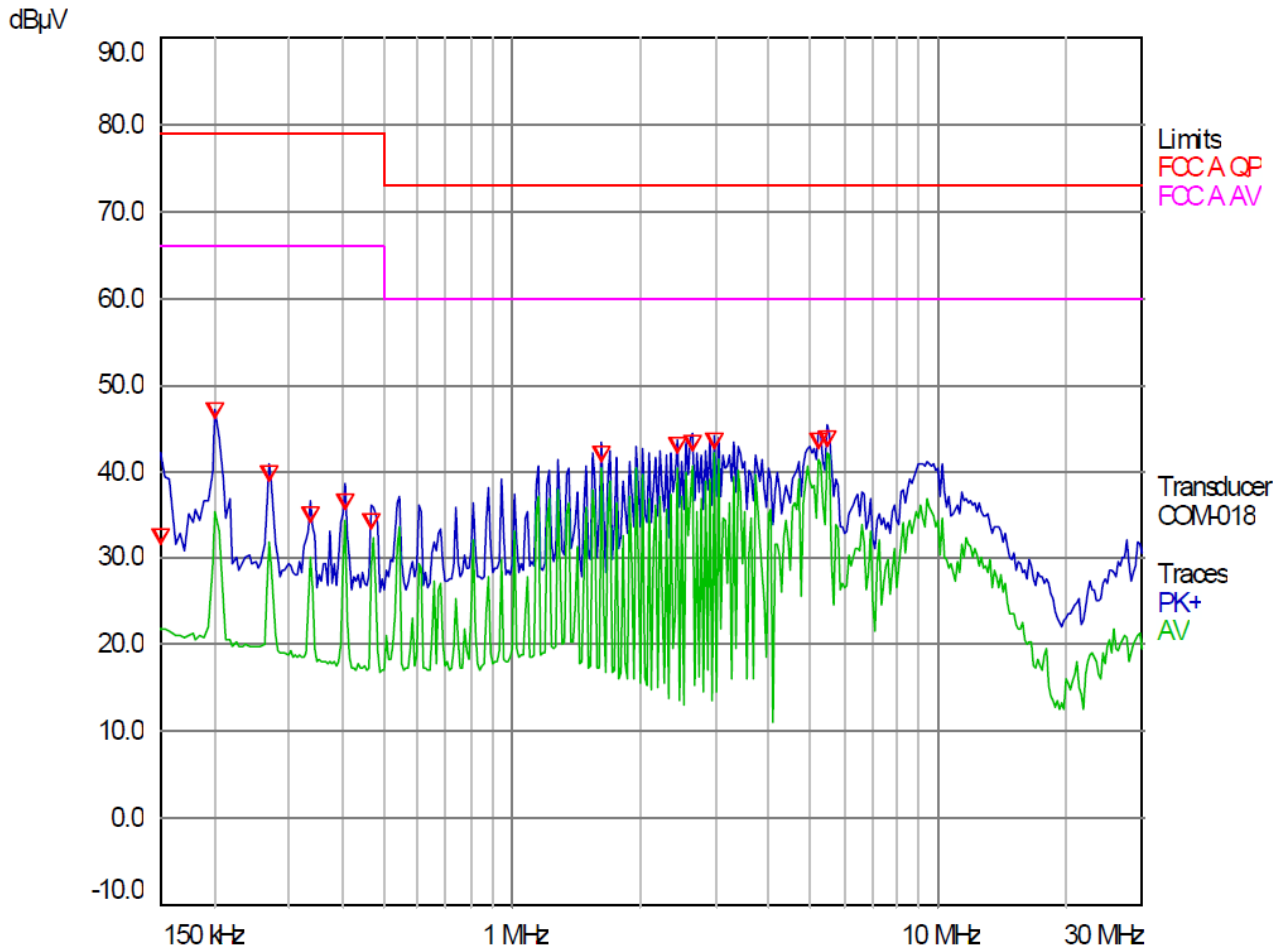
Detector Mode ; CISPR Quasi Peak mode / Average mode (6dB Bandwidth : 9kHz).

Freq [MHz]	Correcton		Phase [H/N]	Quasi-Peak Mode				Average Mode			
	AMN	C.L		Limit	Reading	Emission Level	Margin	Limit	Reading	Emission Level	Margin
				[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]
0.150	0.06	0.03	H	79.00	31.39	31.48	-47.52	66.00			
0.202	0.07	0.10	N		46.74	46.91	-32.09				
0.270	0.07	0.16	N		39.38	39.61	-39.39				
0.338	0.08	0.22	N		34.09	34.39	-44.61				
0.406	0.08	0.26	H		35.16	35.50	-43.50				
0.474	0.07	0.28	N		35.07	35.42	-43.58				
1.622	0.03	0.49	H	73.00	40.70	41.22	-31.78	60.00			
2.434	0.03	0.57	N		41.47	42.07	-30.93				
2.638	0.03	0.58	H		41.71	42.32	-30.68				
2.974	0.04	0.60	H		41.87	42.51	-30.49				
5.204	0.05	0.88	H		41.80	42.73	-30.27				
5.476	0.05	0.88	H		41.94	42.87	-30.13				

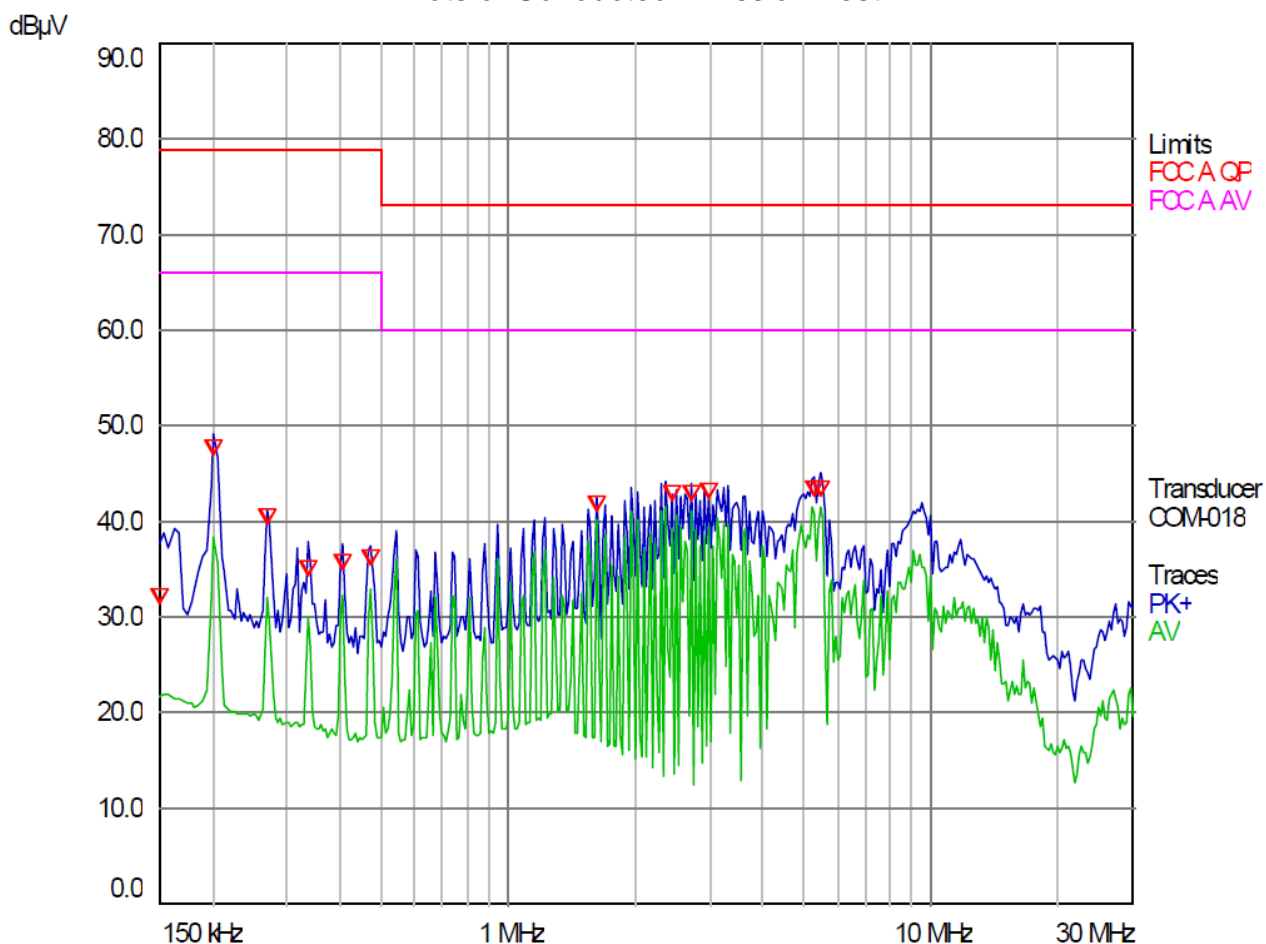
NOTES :

1. H : Hot Line , N :Neutral Line
2. Emission Level = Reading + Correction Factor
3. Measurements were performed at the AC Power Inlet of the host PC with the EUT plugged in the frequency band of 150kHz ~30MHz
4. Margin = Limit - Emission Level
5. Measurement uncertainty estimated at ± 3.736 dB.
The measurement uncertainty is given with a confidence of 95.00 % with the coverage factor, k=2.

Plots of Conducted Emission Test



Plots of Conducted Emission Test



7.2 6 dB Bandwidth

EUT : MP2010RE
Test Standard : FCC Part15 Subpart C Section 15.247(a)(2)
Test Date : December 9, 2010
MULTI PRESENTER RECEIVER
Operating Condition : The EUT was operated at transmitting condition continuously during the test.
Environment Condition : 24 °C/ 43 %
Result : Passed

6 dB Bandwidth Test Data

Frequency (MHz)	6 dB Bandwidth (KHz)	Limit
2403	660.10	More than 500 kHz
2440	653.10	
2475	659.10	

NOTES:

1. Measure conducted 6 dB bandwidth of relevant channel using Spectrum Analyzer.
2. RBW 100kHz, VBW 100kHz.
3. 6 dB less than both bandwidth than maximum peak power.

Plots of 6 dB Bandwidth

Frequency	6 dB Bandwidth measured conducted
2403 MHz 660.1 KHz	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Value 20.00 dBm</p> <p>Center Freq: 2.403000000 GHz</p> <p>Trig: Free Run</p> <p>#IF Gain: Low</p> <p>#Atten: 10 dB</p> <p>Ext Gain: -0.60 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>10 dB/div Ref 20 dBm</p> <p>Center 2.403 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 100 kHz</p> <p>Span 20 MHz</p> <p>Sweep 3.133 ms</p> <p>Occupied Bandwidth 1.7694 MHz</p> <p>Total Power -9.94 dBm</p> <p>Transmit Freq Error 1.226 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 660.1 kHz</p> <p>x dB -6.00 dB</p>
2440 MHz 653.1 KHz	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.440000000 GHz</p> <p>Center Freq: 2.440000000 GHz</p> <p>Trig: Free Run</p> <p>#IF Gain: Low</p> <p>#Atten: 10 dB</p> <p>Ext Gain: -0.60 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>10 dB/div Ref 20 dBm</p> <p>Center 2.44 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 100 kHz</p> <p>Span 20 MHz</p> <p>Sweep 3.133 ms</p> <p>Occupied Bandwidth 1.7642 MHz</p> <p>Total Power -11.53 dBm</p> <p>Transmit Freq Error -5982 Hz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 653.1 kHz</p> <p>x dB -6.00 dB</p>
2475 MHz 659.1 KHz	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.475000000 GHz</p> <p>Center Freq: 2.475000000 GHz</p> <p>Trig: Free Run</p> <p>#IF Gain: Low</p> <p>#Atten: 10 dB</p> <p>Ext Gain: -0.60 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>10 dB/div Ref 20 dBm</p> <p>Center 2.475 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 100 kHz</p> <p>Span 20 MHz</p> <p>Sweep 3.133 ms</p> <p>Occupied Bandwidth 1.7815 MHz</p> <p>Total Power -13.14 dBm</p> <p>Transmit Freq Error 2.709 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 659.1 kHz</p> <p>x dB -6.00 dB</p>

7.2.2 Maximum Peak Output Power

EUT : MP2010RE
Test Standard : FCC Part15 Subpart C Section 15.247(b)(3)
Test Date : December 9, 2010
Operating Condition : MULTI PRESENTER RECEIVER
The EUT was operated at transmitting condition continuously during the test.
Environment Condition : 24 °C/ 43 %
Result : Passed

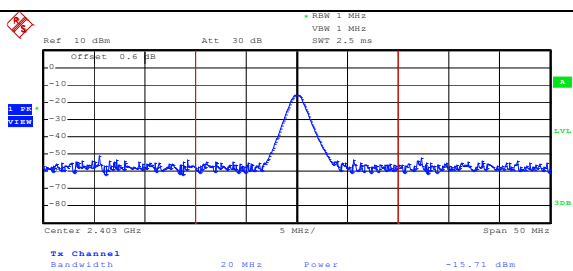
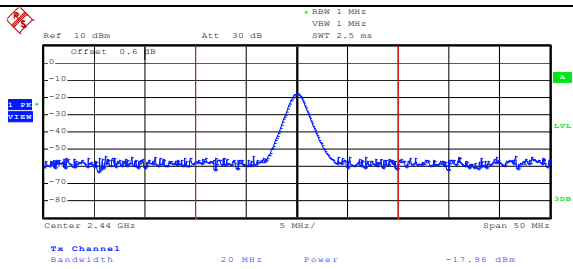
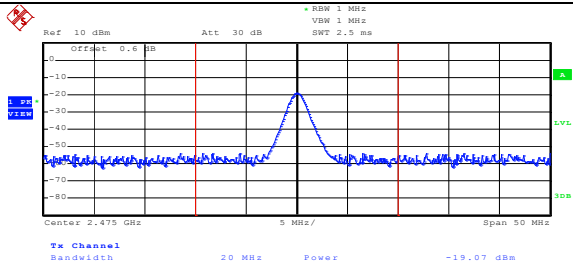
Maximum Peak Output Power Test Data

Frequency (MHz)	Maximum Peak Output Power (dBm)	Limit
2403	-15.71	30dBm
2440	-17.96	
2475	-19.07	

NOTES:

1. Measure conducted Maximum Peak Output of relevant channel using Spectrum analyzer.
2. RBW 1MHz, VBW 1MHz, Channel Power.

Plots of Maximum Peak Output Power

Frequency	Maximum Peak Output Power measured conducted
2403 MHz -15.71 dBm	 <p>Ref: 10 dBm Att: 30 dB Offset: 0.6 dB RBW: 1 MHz VBW: 1 MHz SWT: 2.5 ms</p> <p>Center: 2.403 GHz Span: 50 MHz</p> <p>Tx Channel Bandwidth: 20 MHz Power: -15.71 dBm</p> <p>Date: 8.DEC.2010 00:54:09</p>
2440 MHz -17.96 dBm	 <p>Ref: 10 dBm Att: 30 dB Offset: 0.6 dB RBW: 1 MHz VBW: 1 MHz SWT: 2.5 ms</p> <p>Center: 2.44 GHz Span: 50 MHz</p> <p>Tx Channel Bandwidth: 20 MHz Power: -17.96 dBm</p> <p>Date: 8.DEC.2010 00:54:35</p>
2475 MHz -19.07 dBm	 <p>Ref: 10 dBm Att: 30 dB Offset: 0.6 dB RBW: 1 MHz VBW: 1 MHz SWT: 2.5 ms</p> <p>Center: 2.475 GHz Span: 50 MHz</p> <p>Tx Channel Bandwidth: 20 MHz Power: -19.07 dBm</p> <p>Date: 8.DEC.2010 16:31:35</p>

7.2.3 Conducted Emission & 100 kHz Bandwidth of Frequency Band Edges

EUT	:	MP2010RE
Test Standard	:	FCC Part15 Subpart C Section 15.247(d)
Test Date	:	December 9, 2010
Operating Condition	:	MULTI PRESENTER RECEIVER The EUT was operated at transmitting condition continuously during the test.
Environment Condition	:	24 °C/ 43 %
Result	:	Passed

7.2.3.1 Conducted Emission Test

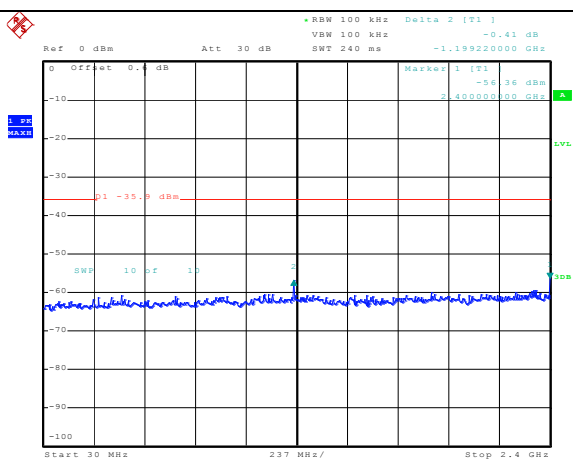
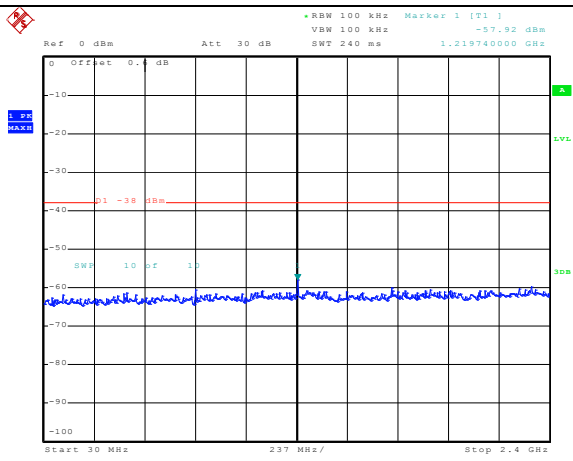
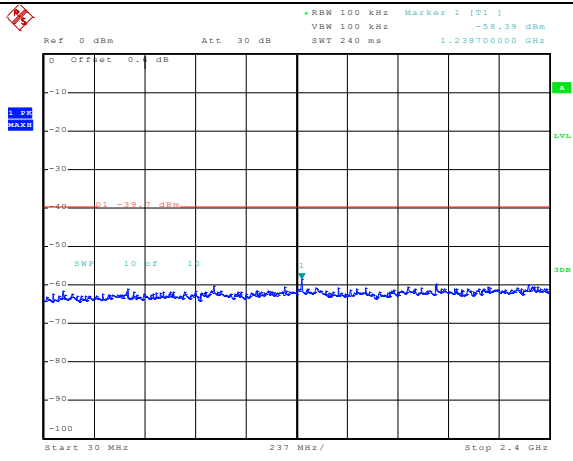
Result : Please refer to the attached Plots for details :

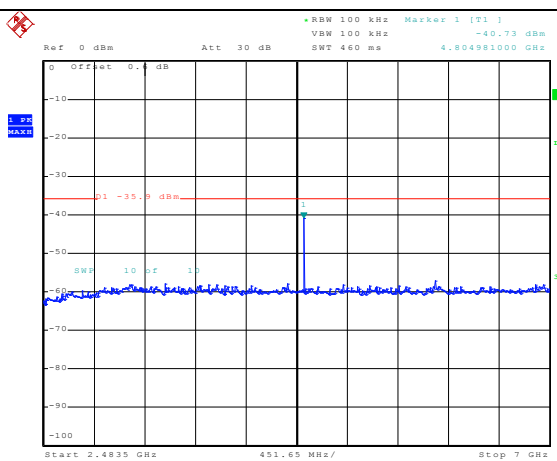
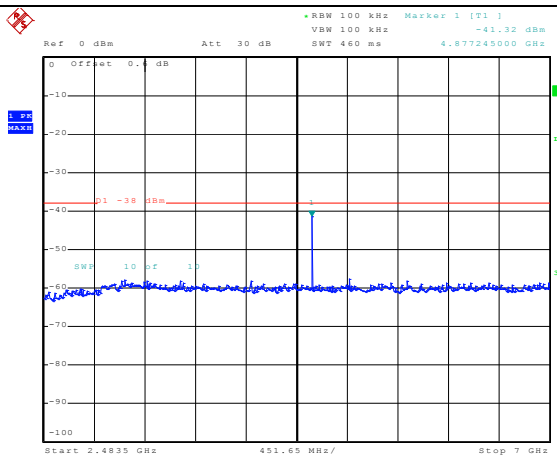
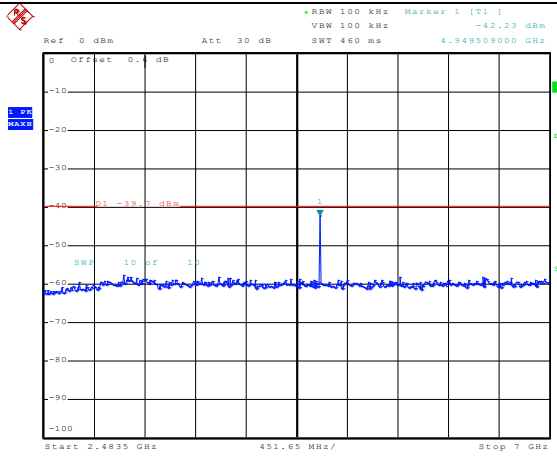
7.2.3.2 100 kHz Bandwidth of Frequency Band Edges

The test was performed to make a direct field strength measurement at the bandedge frequencies. Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209. There is a restricted band starting at 2483.5 MHz and another restricted band from 2310 - 2390 MHz.

All emissions below noise floor of 7 dBuV/m.

Plots of Conducted Emission

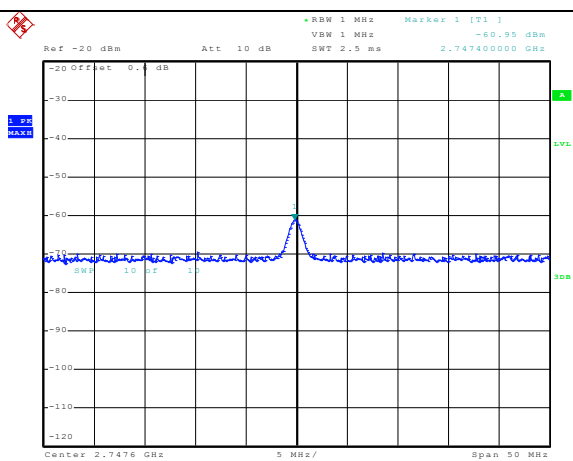
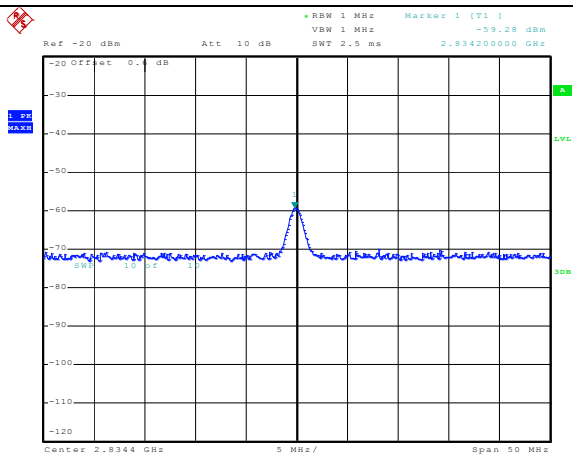
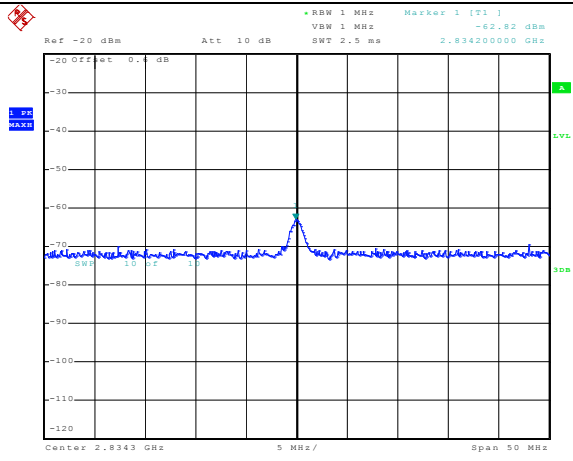
Frequency	30 MHz ~ 2400 MHz
2403 MHz « 20dBc	 <p>Date: 13.DEC.2010 21:07:13</p>
2440 MHz « 20dBc	 <p>Date: 13.DEC.2010 21:08:38</p>
2475 MHz « 20dBc	 <p>Date: 13.DEC.2010 21:09:43</p>

Frequency	2483.5 MHz ~ 7 GHz
<p>2403 MHz</p> <p>« 20dBc</p>	 <p>Date: 13.DEC.2010 21:11:19</p>
<p>2440 MHz</p> <p>« 20dBc</p>	 <p>Date: 13.DEC.2010 21:11:48</p>
<p>2475 MHz</p> <p>« 20dBc</p>	 <p>Date: 13.DEC.2010 21:12:18</p>

Frequency	7 GHz ~ 12.75 GHz																																																																																																																					
2403 MHz « 20dBc	<div><div><div>Agilent Spectrum Analyzer - Swept SA</div><div><div>Marker 2 9.610500000000 GHz</div><div>Input: RF PNO: Fast IFGain: Low Trg: Free Run Atten: 10 dB Avg Type: Log-Pwr AvgHold: 39/100 Ext Gain: -0.60 dB</div></div><div><div>10 dB/div Ref 0.00 dBm</div><div>Log</div><div><div>Mkr2 9.610 50 GHz -69.771 dBm</div><div>Start 7.000 GHz Stop 12.750 GHz #Res BW 100 kHz #VBW 100 kHz Sweep 693 ms (1001 pts)</div></div><div><table><tr><th>Mkr</th><th>Mode</th><th>Trg</th><th>Scl</th><th>X</th><th>Y</th><th>Function</th><th>Function Width</th><th>Function Value</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>7.207 00 GHz</td><td>-59.119 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>9.610 50 GHz</td><td>-69.771 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>12</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></div><div>MSGSTATUS</div></div><div><div>Marker</div><div>Select Marker 2</div><div>Normal</div><div>Delta</div><div>Fixed</div><div>Off</div><div>Properties</div><div>More 1 of 2</div></div></div></div>	Mkr	Mode	Trg	Scl	X	Y	Function	Function Width	Function Value	1	N	1	f	7.207 00 GHz	-59.119 dBm				2	N	1	f	9.610 50 GHz	-69.771 dBm				3									4									5									6									7									8									9									10									11									12								
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Frequency	12.75 GHz ~ 26.5 GHz
2403 MHz « 20dBc	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 26.348750000000 GHz</p> <p>Input: RF PNO: Fast IFGain: Low Trig: Free Run Atten: 10 dB Avg Type: Log-Pwr AvgHold: >100/100 Ext Gain: -0.60 dB</p> <p>Mkr1 26.349 GHz -58.030 dBm</p> <p>Ref 0.00 dBm</p> <p>10 dB/div Log</p> <p>Start 12.750 GHz #Res BW 1.0 MHz #VBW 1.0 MHz Stop 26.500 GHz Sweep 34.4 ms (1001 pts)</p> <p>MSG STATUS</p> <p>Peak Search</p> <p>Next Peak</p> <p>Next Right</p> <p>Next Left</p> <p>Marker Delta</p> <p>Mkr→CF</p> <p>Mkr→Ref Lvl</p> <p>More 1 of 2</p>
2440 MHz « 20dBc	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 24.877500000000 GHz</p> <p>Input: RF PNO: Fast IFGain: Low Trig: Free Run Atten: 10 dB Avg Type: Log-Pwr AvgHold: >100/100 Ext Gain: -0.60 dB</p> <p>Mkr1 24.878 GHz -58.360 dBm</p> <p>Ref 0.00 dBm</p> <p>10 dB/div Log</p> <p>Start 12.750 GHz #Res BW 1.0 MHz #VBW 1.0 MHz Stop 26.500 GHz Sweep 34.4 ms (1001 pts)</p> <p>MSG STATUS</p> <p>Peak Search</p> <p>Next Peak</p> <p>Next Right</p> <p>Next Left</p> <p>Marker Delta</p> <p>Mkr→CF</p> <p>Mkr→Ref Lvl</p> <p>More 1 of 2</p>
2475 MHz « 20dBc	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 26.252500000000 GHz</p> <p>Input: RF PNO: Fast IFGain: Low Trig: Free Run Atten: 10 dB Avg Type: Log-Pwr AvgHold: >100/100 Ext Gain: -0.60 dB</p> <p>Mkr1 26.253 GHz -57.650 dBm</p> <p>Ref 0.00 dBm</p> <p>10 dB/div Log</p> <p>Start 12.750 GHz #Res BW 1.0 MHz #VBW 1.0 MHz Stop 26.500 GHz Sweep 34.4 ms (1001 pts)</p> <p>MSG STATUS</p> <p>Peak Search</p> <p>Next Peak</p> <p>Next Right</p> <p>Next Left</p> <p>Marker Delta</p> <p>Mkr→CF</p> <p>Mkr→Ref Lvl</p> <p>More 1 of 2</p>

Plots of Conducted Emission

Frequency	Receive Mode
2403 MHz -60.95 dBm	 <p>Date: 13.DEC.2010 21:22:49</p>
2440 MHz -59.28 dBm	 <p>Date: 13.DEC.2010 21:24:33</p>
2475 MHz -62.82 dBm	 <p>Date: 8.DEC.2010 22:20:03</p>

Plots of 100 kHz Bandwidth of Frequency Band Edges

Frequency	
<p>2403 MHz</p> <p>« 20dBc</p>	<p>Ref 10 dBm Att 40 dB SWT 2.5 ms Delta 2 [T1] -33.79 dB VSW 100 kHz -15.93 dBm Marker 1 [T1] -15.93 dBm 2 -40.00000000 GHz</p> <p>Center 2.3989 GHz 1 MHz/ Span 10 MHz</p> <p>Date: 13.DEC.2010 21:01:45</p>
<p>2440 MHz</p> <p>N/A</p>	<p>Ref 10 dBm Att 40 dB SWT 2.5 ms Delta 2 [T1] -17.98 dBm VSW 100 kHz -17.98 dBm Marker 1 [T1] -17.98 dBm 2 -44.00000000 GHz</p> <p>Center 2.44 GHz 1 MHz/ Span 10 MHz</p> <p>Date: 13.DEC.2010 21:03:07</p>
<p>2475 MHz</p> <p>« 20dBc</p>	<p>Ref 10 dBm Att 40 dB SWT 2.5 ms Delta 2 [T1] -31.70 dBm VSW 100 kHz -19.72 dBm Marker 1 [T1] -19.72 dBm 2 -47.00000000 GHz</p> <p>Center 2.479 GHz 1 MHz/ Span 10 MHz</p> <p>Date: 13.DEC.2010 21:04:46</p>

7.2.4 Radiated Emission

EUT : MP2010RE
Test Standard : FCC Part15 Subpart C Section 15.247(c), 15.209
Test Date : December 07, 2010
Operating Condition : MULTI PRESENTER RECEIVER
The EUT was operated at transmitting condition continuously during the test.
Environment Condition : 2 °C/ 47 %
Result : Passed

Radiated Emission Test Data(below 1 GHz)

Frequency [MHz]	Reading [dB μ V]	Polarization [*H/**V]	Ant.Factor [dB]	Cable Loss [dB]	Limit [dB μ V/m]	Emission Level [dB μ V/m]	Margin [dB]
82.07	11.94	V	8.48	1.98	39.10	22.40	-16.70
86.50	13.85	V	8.71	2.04	43.50	24.60	-18.90
179.39	9.65	H	12.07	2.97	43.50	24.70	-18.80
199.99	13.33	H	10.12	3.15	43.50	26.60	-16.90
239.15	11.65	H	11.22	3.43	46.40	26.30	-20.10
299.32	7.14	H	13.39	3.88	46.40	24.40	-22.00
357.93	17.50	H	14.79	4.21	46.40	36.50	-9.90
417.64	15.68	V	16.19	4.63	46.40	36.50	-9.90
477.17	11.52	V	17.33	4.94	46.40	33.80	-12.60

Radiated Emission Test Data (above 1 GHz)

Frequency [GHz]	Reading [dB μ V]	Pre-Amp Gain [dB]	Ant.Factor [dB/m]	Cable Loss [dB]	Limit [dB μ V/m]	Emission Level [dB μ V/m]	Margin [dB]
Low Channel (2403 MHz)							
2.41	38.00	30.00	27.60	11.14	53.98	46.74	-7.24
Middle Channel (2440 MHz)							
2.45	37.85	30.00	27.60	11.13	53.98	46.58	-7.40
High Channel (2475 MHz)							
2.48	42.31	30.00	27.60	11.14	53.98	51.05	-2.93

Radiated Restricted Band Edge Test Data

Frequency [GHz]	Reading [dBuV]	Pre-Amp Gain[dB]	Ant Factor [dB/m]	Cable Loss [dB]	Limit [dBuV/m]	Emission Level [dBuV/m]	Margin [dB]	Detect
Low Channel(2403MHz)								
2317	34.97	30.00	27.6	11.10	74	43.67	-30.33	PK
2317	23.68	30.00	27.6	11.10	54	32.38	-21.62	AV
High Channel(2475MHz)								
2499	34.71	30.00	27.6	11.14	74	43.45	-30.55	PK
2499	24.03	30.00	27.6	11.14	54	32.77	-21.23	AV

NOTES:

1. All modes of operation were investigated and the worst-case emissions are reported.
2. This test being a result which used RF amplifier.
3. AF = Antenna Factor CL = Cable Loss F/S = Field Strength
4. POL H = Horizontal POL V = Vertical

7.2.5 Power Spectral Density

EUT : MP2010RE
Test Standard : FCC Part15 Subpart C Section 15.247(e)
Test Date : December 10, 2010
Operating Condition : MULTI PRESENTER RECEIVER
The EUT was operated at transmitting condition continuously during the test.
Environment Condition : 25 °C/ 41 %
Result : Passed

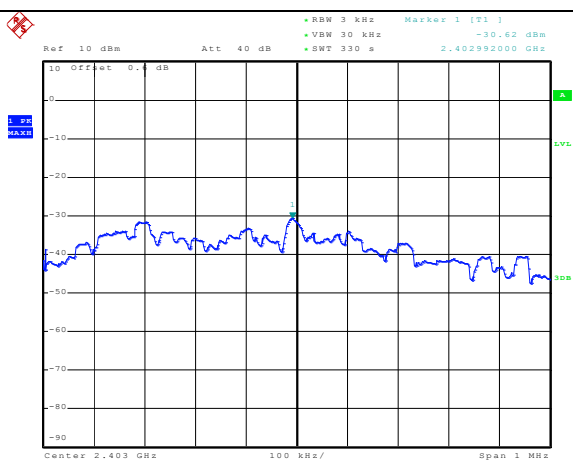
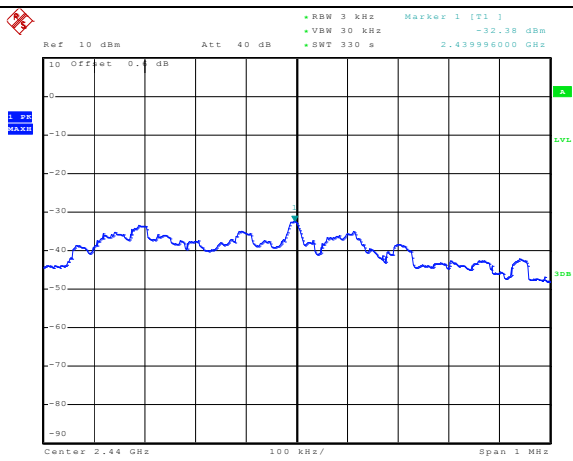
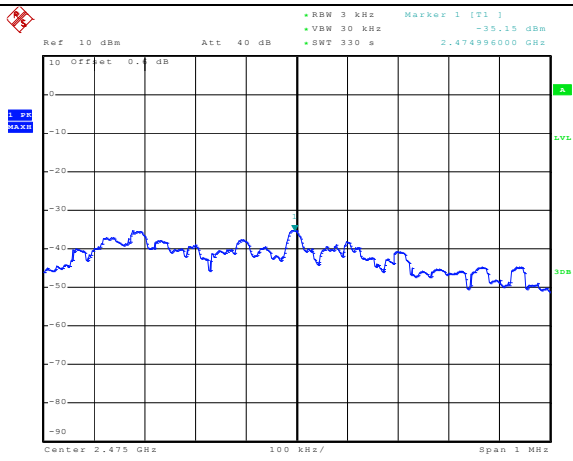
Power Spectral Density Test Data

Frequency (MHz)	Power Spectral Density (dBm)	Limit
2403	-30.29	8 dBm
2440	-32.70	
2475	-34.64	

NOTES:

1. Measure conducted Maximum Peak Output of relevant channel using Spectrum analyzer.
2. RBW 3kHz, VBW 3kHz

Plots of Power Spectral Density

Frequency	Power Spectral Density measured conducted
2403 MHz -30.62 dBm	 <p>Date: 21.DEC.2010 17:43:34</p>
2440 MHz -32.38 dBm	 <p>Date: 21.DEC.2010 17:50:05</p>
2475 MHz -35.15 dBm	 <p>Date: 21.DEC.2010 17:56:34</p>

7.2.6 Antenna Requirement

Products	PCB Antenna
Manufacturer	REBIRTH
Model	PCB patten
Frequency Range [MHz]	2400~2500
Polarization	Linear
Max Gain	-1.04 dBi

8. TEST EQUIPMENTS LIST

The listing below denotes the test equipments utilized for the test(s).

	EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date
1	Receiver	ESVN30	Rohde & Schwarz	832854/010	11/01/28
2	Spectrum analyzer	FSP13SE	Rohde & Schwarz	100278	11/07/01
3	Spectrum analyzer	N9020A	Agilent	US46220101	11/09/25
4	Frequency Counter	R5372	Advantest	41855204	11/10/14
5	Shield Room (7m x 4m x 3m)	N/A	SJEMC	0004	N/A
6	Turn Table	OSC-30	N/A	BWS-01	N/A
7	Antenna Mast	JAC-3	Dail EMC	N/A	N/A
8	Temperature & Humidity chanber	EN-GLMP-54	Enex	N/A	11/10/04
9	Bilog Antenna	CBL6140A	CHASE	1144	11/04/22
10	Horn Antenna	BBHA 9120 D	Schwarzbeck	BBHA 9120 D 234	12/10/04
11	Power Meter	E4418A	Agilent	GB38272621	11/10/14
12	Power Sensor	E9301B	Agilent	US40010238	11/10/14